RESOLUTION NO. 16-8337

A RESOLUTION OF THE CITY OF SANTA CLARA, CALIFORNIA, APPROVING AND CERTIFYING A FINAL ENVIRONMENTAL IMPACT REPORT, ADOPTING CEQA FINDINGS WITH RESPECT THERETO, AND ADOPTING A STATEMENT OF OVERRIDING CONSIDERATIONS AND A MITIGATION MONITORING AND REPORTING PROGRAM FOR THE CITYPLACE SANTA CLARA PROJECT LOCATED AT 5155 STARS AND STRIPES DRIVE, ET AL, SANTA CLARA

SCH#2014072078
CEQ2014-01180 (EIR)
PLN2014-10554 (General Plan Amendment, Rezoning and Development Agreement)

BE IT RESOLVED BY THE CITY OF SANTA CLARA AS FOLLOWS:

WHEREAS, on May 23, 2014, Santa Clara Centennial Gateway, LLC (predecessor in interest to Montana Property Group), filed a preliminary application for the development of a mixed-use project on approximately 9.48 acres of real property (together, the "Tasman Parcels") located at 5120 Stars and Stripes Drive (APNs 104-03-038 and -039);

WHEREAS, on June 9, 2014, Related Santa Clara LLC (the "Applicant") filed a preliminary application for the development of a mixed-use project on approximately 230 acres of real property (together, the "City Landfill Parcels") located at 5155 Stars and Stripes Drive (APNs 104-03-036, 104-03-037, 104-01-102, 097-01-039, 097-01-073), generally located to the north and northeast of the Tasman Parcels;

WHEREAS, the Tasman Parcels and the City Landfill Parcels (together, the "Project Site") encompass approximately two hundred forty (240) acres of land generally located north of Tasman Drive, east of Great America Parkway and San Tomas Aquino Creek, west of the Guadalupe River, and south of Great America Way and State Route (SR) 237, most of which was formerly occupied by a landfill and is now occupied by currently occupied by the Santa

Clara Golf & Tennis Club, a restaurant and banquet facility, a maintenance building, Fire Station 10, a Bicycle-Motocross (BMX) track, the Ameresco Methane Plant, the Eastside Retention Basin, a City vehicle washing station, and vacant lots used for parking;

WHEREAS, on August 5, 2014, an application was filed by Related Santa Clara, LLC (the "Applicant"), to combine the two development proposals into a single project (the "Original Project") that would encompass up to 9.16 million gross square feet (gsf) of office buildings, retail and entertainment facilities, residential units, and hotel rooms, consistent with the elements of the "CityPlace Project" discussed in the Master Community Plan;

WHEREAS, on February 5, 2015, Montana Property Group and the Applicant formed a joint venture to develop the "City Center" portion of the Project Site (as described in the Master Community Plan), with the remainder of the Project Site to be developed by the Applicant;

WHEREAS, the Applicant proposes a General Plan Amendment to change the land use designation from Parks/Open Space and Regional Commercial to Urban Center/Entertainment, to revise Figure 2.3-1 Areas of Potential Development and Table 8.6-2 Proposed Development (Approved, Not Constructed and Pending Projects), to add transportation demand goals to Appendix 8.13 (Climate Action Plan), and to make related minor text amendments; Rezone of the Project Site from Public, Quasi-Public, Park or Recreation (B) and Commercial Park (CP) to Planned Development-Master Planned Community (PD-MC) Zoning District, with a corresponding Master Community Plan, Infrastructure Master Plan, and Conditions of Approval, attached hereto; a Development Agreement; a Disposition and Development Agreement; an Ordinance to allow leases in excess of 55 years at the Project Site; and an Override of the Airport Land Use Commission Comprehensive Land Use Plan;

WHEREAS, the Project approvals will include this Resolution No. 16-8337 (the "CEQA Resolution"); Resolution No. 16-8338 (the "General Plan Amendment Resolution"); Resolution

No. 16-8339 (the "Rezoning Resolution"); Ordinance No. 1956 ("Development Agreement Ordinance"); Resolution No. 16-8340 (the "Disposition and Development Agreement Resolution"); Ordinance No. 1957 (the "Lease Term Authorization"); and Resolution No. 16-8341 (the "ALUC Override") (collectively, the "Approvals");

WHEREAS, the Project will also require separate applications and submittals of Development Area Plans and Tentative and/or Vesting Tentative Subdivision Maps for the implementation of Project development for City review and approval;

WHEREAS, on July 30, 2014, the City of Santa Clara ("City") distributed a Notice of Preparation of a Draft Environmental Impact Report ("DEIR") and on July 30, 2014 posted the Notice at the Santa Clara County Clerk's office, soliciting guidance on the scope and content of the environmental information to be included in the DEIR;

WHEREAS, the DEIR was prepared in accordance with CEQA and the City circulated copies of the DEIR and Notice of Availability to the public agencies which have jurisdiction by law with respect to the Project, as well as to other interested persons, organizations and agencies, and the City sought the comments of such persons, organizations and agencies on October 9, 2015 for a 45-day review period and extended the review period an additional 15 days upon agency request ending on December 15, 2015 ("Comment Period") ;

WHEREAS, the City prepared written responses to the comments received during the Comment Period and included those responses in a Final Environmental Impact Report ("FEIR"). The FEIR consists of a list of agencies and organizations to whom the DEIR was sent, a list of the comment letters received on the DEIR, revisions to the text of the DEIR, responses to comments received on the DEIR, and copies of comment letters. The FEIR was circulated for a 10-day review period beginning on April 19, 2016 and was extended and additional 10 days upon agency request thereby concluding on May 9, 2016;

WHEREAS, the City received additional comments from agencies, organizations and individuals following the close of the FEIR review period and prepared responses to comments that do not change the conclusions of the FEIR and are provided as Exhibit B to the FEIR, which was prepared after the initial publication of the FEIR;

WHEREAS, after the publication of the FEIR, the Applicant proposed an additional land use scheme, referred to as the Enhanced Open Space Variant ("EOS Variant"), under which a portion of one of the parcels (APN 104-01-102) (designated as Parcel 3 in the Master Community Plan), would be retained by the City and reserved for parks and open space uses, and the 720,000 square feet of office that had been planned for Parcel 3 would be reallocated to the other parcels in the development, all as described more particularly in the Master Community Plan Supplement;

WHEREAS, on June 3, 2016, the City distributed an "Impact Analysis for CityPlace Enhanced Open Space Variant," which concluded that the EOS Variant would not result in any changes to the previously identified environmental impacts, or result in any additional environmental impacts, and which is provided as Exhibit A to the FEIR, which was prepared after the initial publication of the FEIR;

WHEREAS, the DEIR, FEIR and FEIR Exhibits constitute the EIR for the Project;

WHEREAS, upon further review of the EIR, the City has identified certain minor revisions to the EIR that do not change the conclusions of the EIR, and which are set forth in the body of this Resolution;

WHEREAS, the EIR identified certain significant and potentially significant adverse effects on the environment that would be caused by the Project as proposed;

WHEREAS, the EIR outlined various mitigation measures that would substantially lessen or avoid the Project's significant effects on the environment, as well as alternatives to the Project as proposed that would provide some environmental advantages;

WHEREAS, the City is required, pursuant to the California Environmental Quality Act ("CEQA") (Public Resources Code § 21000 et seq.), to adopt all feasible mitigation measures or feasible project alternatives that can substantially lessen or avoid any significant environmental effects of the Project;

WHEREAS, the EIR identifies an Increased Housing Alternative to improve the jobs-to-housing ratio which would result in fewer impacts associated with transportation/traffic, air quality, and greenhouse gas emissions through a replacement of 320,000 square feet of office space planned under the Original Project with 320 additional housing units to provide a total of 1,680 residential units on the Project Site;

WHEREAS, significant and unavoidable land use, transportation, air quality, greenhouse gas emissions, noise, biological resources, population and housing, and public services impacts would remain with the Increased Housing Alternative, as it includes the same amount of total building area (9.16 million gross square feet) and types of uses contemplated by the Original Project, but the severity of the impacts would be reduced for some transportation, greenhouse gas, and noise impacts;

WHEREAS, Public Resources Code § 21081, subdivision (a) requires a lead agency, before approving a project for which an EIR has been prepared and certified, to adopt findings specifying whether mitigation measures and, in some instances, alternatives discussed in the EIR, have been adopted or rejected as infeasible;

WHEREAS, the "CEQA Findings" attached to this Resolution is a set of Findings of Fact and a Statement of Overriding Considerations prepared in order to satisfy the requirements of Public Resources Code § 21081, subdivision (a);

WHEREAS, as the CEQA Findings explain, the City Council, reflecting the advice of City staff and input from various State and local agencies, has expressed its intention to adopt the EOS Variant, together with the Increased Housing Alternative presented in the EIR, as the project for development on the Project Site (the "Project");

WHEREAS, the City Council has determined that none of the alternatives addressed in the EIR, other than the Increased Housing Alternative, would be both feasible and environmentally superior to the Project as proposed. Both of the "No Project" alternatives and the "Reduced Intensity" alternative would not sufficiently satisfy the Project Objectives, and the "Reduced Intensity Alternative" would be infeasible. The details supporting these determinations are set forth in the CEQA Findings;

WHEREAS, in taking this course, the City Council has acted consistent with the CEQA mandate to look to project mitigations and/or alternatives as a means of substantially lessening or avoiding the environmental effects of projects as proposed;

WHEREAS, many of the significant and potentially significant environmental effects associated with the Project can either be substantially lessened or avoided through the inclusion of mitigation measures proposed in the EIR;

WHEREAS, the City Council, in reviewing the Project, intends to adopt all mitigation measures set forth in the EIR;

WHEREAS, the significant effects that cannot be avoided or substantially lessened by the adoption of feasible mitigation measures will necessarily remain significant and unavoidable;

WHEREAS, as detailed in the CEQA Findings, the City Council has determined that, despite the occurrence of significant unavoidable environmental effects associated with the Project, as mitigated and adopted, there exist certain overriding economic, social and other considerations for approving the Project which justify the occurrence of those impacts and render them acceptable; and

WHEREAS, the City Council has reviewed the EIR and Mitigation Monitoring and Reporting Program, attached as the "MMRP", the CEQA Findings, the City Staff reports pertaining to the EIR, and all evidence received at a duly noticed public hearing on June 28, 2016. All of these documents and evidence are incorporated herein by reference into this Resolution.

NOW THEREFORE, BE IT FURTHER RESOLVED BY THE CITY OF SANTA CLARA AS FOLLOWS:

1. That the City Council hereby finds that the above Recitals are true and correct and by this reference makes them a part hereof.

2. That the City Council hereby incorporates the following changes into the EIR:

   a. The response to the comment regarding Intersection #28 on page B-2.24 of Exhibit B to the FEIR is revised as follows (struck through text indicates deletions and bolded, underlined text indicates insertions):

~~There is no Cumulative impact at this intersection as shown correctly in the FEIR. Therefore, the Project has no obligation to contribute to improvements at this location.~~

This improvement at this intersection is the full responsibility of the City of San José pursuant to the North San José settlement agreement between the City of San José and Santa Clara County. Therefore, the City of Santa Clara (and thus the Project) have no funding obligation.

b. In light of the fact that Yahoo! is already responsible for the construction and/or funding of the entirety of the improvements to Intersections 64, 65, and 66 and that the City of San José is already responsible for the construction and/or funding of the entirety of the improvements to Intersection Nos. 27 and 28 pursuant to the North San José settlement agreement between the City of San José and Santa Clara County, the Project Responsibility for each of these intersections in the following tables (as applicable) is revised to be zero percent (0%): Tables 3.3-20, 3.3-26 and 3.3-50.

3. That the City Council hereby finds that the EIR has been completed in compliance with CEQA.

4. That the City Council hereby finds the EIR has been presented to the City Council, which reviewed and considered the information and analysis contained therein.

5. That the City Council finds, pursuant to Public Resources Code Section 21081 and California Code of Regulations, Title 14, Section 15091, that many of the proposed mitigation measures described in the EIR are feasible, and therefore will become binding upon the City and affected landowners and their assigns or successors in interest when the Project is approved.

6. That the City Council finds that none of the Project Alternatives set forth in the EIR, other than the Increased Housing Alternative, can feasibly substantially lessen or avoid those significant adverse environmental effects not otherwise lessened or avoided by the adoption of all feasible mitigation measures.

7. That, in order to comply with Public Resources Code Section 21081.6, the City Council hereby adopts the Mitigation Monitoring or Reporting Program as set forth in the attached "MMRP". The Program is designed to ensure that, during project implementation, the City,

affected landowners, their assigns and successors in interest and any other responsible parties comply with the feasible mitigation measures identified. The MMRP identifies, for each mitigation measure, the action to be taken and the party responsible for implementation. Exhibit "1" to the MMRP shall be amended to reflect that the Montague/Zanker intersection lies within the City of San Jose's jurisdiction rather than the County of Santa Clara's jurisdiction, with the corresponding fair share funds being reallocated to the City of San Jose, thus increasing the City of San Jose share and decreasing the County of Santa Clara share of the fair share fee.

8. That the City Council finds that the EIR set forth project-level and cumulative environmental impacts that are significant and unavoidable that cannot be mitigated or avoided through the adoption of feasible mitigation measures or feasible alternatives. As to these impacts, the City Council finds that there exist certain overriding economic, social and other considerations for approving the Project that the City Council believes justify the occurrence of those impacts, as detailed in the "CEQA Findings" exhibit attached hereto.

9. Pursuant to 14 Cal. Code of Regs. Section 15091(e), the City Council hereby designates the Director of Planning and Inspection as the Custodian of Records for the Project, and the Planning and Inspection Division at City Hall, 1500 Warburton Avenue, Santa Clara, California, is the location of the documents and other material that constitute the record of proceedings upon which this decision is based.

10. Based on the findings set forth in this Resolution, the evidence in the City Staff Report, and the attached CEQA Findings, the City Council approves and certifies the EIR, makes findings concerning mitigation measures, adopts a MMRP, makes findings concerning alternatives and makes findings that there exist certain overriding economic, social and other considerations for approving the Project that justify the occurrence of those associated impacts

and adopts the CEQA Findings and Statement of Overriding Considerations, all in accordance with CEQA for the Project.

11. Constitutionality, severability. If any section, subsection, sentence, clause, phrase, or word of this resolution is for any reason held by a court of competent jurisdiction to be unconstitutional or invalid for any reason, such decision shall not affect the validity of the remaining portions of the resolution. The City of Santa Clara, California, hereby declares that it would have passed this resolution and each section, subsection, sentence, clause, phrase, and word thereof, irrespective of the fact that any one or more section(s), subsection(s), sentence(s), clause(s), phrase(s), or word(s) be declared invalid.

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12. Effective date. This resolution shall become effective immediately.

I HEREBY CERTIFY THE FOREGOING TO BE A TRUE COPY OF A RESOLUTION PASSED AND ADOPTED BY THE CITY OF SANTA CLARA, CALIFORNIA, AT A REGULAR MEETING THEREOF HELD ON THE 28TH DAY OF JUNE, 2016, BY THE FOLLOWING VOTE:

AYES:	COUNCILORS:	Caserta, Davis, Kolstad, O'Neill and Watanabe and Mayor Gillmor
NOES:	COUNCILORS:	None
ABSENT:	COUNCILORS:	Marsalli
ABSTAINED:	COUNCILORS:	None

ATTEST: _____
ROD DIRIDON, JR.
CITY CLERK
CITY OF SANTA CLARA

Attachments Incorporated by Reference:
1. "MMRP" (Mitigation Monitoring and Reporting Program)
2. "CEQA Findings" (CEQA Findings of Fact and Statement of Overriding Considerations)
3. "Development Plans" (Master Community Plan and Infrastructure Master Plan)
4. Exhibit "Project Conditions of Approval"

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MITIGATION MONITORING & REPORTING PROGRAM
City Place Santa Clara Project
Planning/CEQA File # PLN2014-10554/CEQ2014-01180
State Clearinghouse # 2014072078

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
LAND USE				
LU-1.1: Increase Residential Density in the City's General Plan. During the next General Plan Update cycle, the City shall explore permitting higher residential densities in the City as well as allowing residential land uses in existing non-residential areas. Where feasible, the City shall target strategic areas of the City, specifically those closest to major employment and transit hubs, for new residential land uses and/or increased residential density. In order to maintain projected 2035 jobs/housing ratios, the City shall explore permitting up to 11,000 units.	City to explore permitting higher residential densities in the City.	Director of Planning and Inspection	Director of Planning and Inspection	During the next General Plan Update cycle
AESTHETICS				
AES-1.1: Imported Material Storage. Soils from other parcels that are imported to Parcel 2 shall be stored in areas that are not within view of the Guadalupe River Trail. Alternatively, imported soils within view of the Guadalupe River Trail shall be distributed across Parcel 2 at a depth of 2 feet or less.	Project Developer to provide applicable provisions of construction contracts to the City incorporating requirement.	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to issuance of grading and building permits
AES-1.2: Early Implementation of Master Community Plan Landscaping Plan for Parcels 1 and 2. The existing golf course trees along the eastern edge of Parcel 2 shall be retained (leaving the view from the Guadalupe River trail unchanged) until such time as development on the eastern portion of Parcel 2 would necessitate their removal. The Project Developer shall implement the Landscaping Plan, as presented in the Master Community Plan, at the earliest feasible period, given the constraints and pacing of the development. Prior to planting and installation, the Landscaping Plan shall be submitted to the Planning Director for approval.	Project Developer to submit a landscape plan to replace removed trees to the City for review and approval.	Project Developer/ Project Contractor	City Director of Planning & Inspection	Prior to issuance of grading and building permits for Parcel 2
AES-2.1: Installation of Low-Profile Lighting. The Project Developer shall install low-profile, low-intensity lighting directed downward to minimize light and glare.	Project Developer to submit catalog cuts of the fixtures proposed to the City demonstrating compliance.	Project Developer	City Planning & Inspection Division	Concurrent with Architectural Review submittal,

[1] Where the timing of an action is specified as taking place before a permit is issued, that action must be taken with respect to the action underlying the permit, except where otherwise specifically noted.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
				which may be included within Development Area Plans
AES-2.2: Installation of Shielded Fixtures. The Project Developer shall use shielded fixtures for street lighting and park lighting to minimize spill onto the public right-of-way and glare produced by the lighting on the Project site.	Project Developer to submit catalog cuts of the fixtures proposed to the City demonstrating compliance.	Project Developer	City Planning & Inspection Division	Concurrent with Architectural Review submittal, which may be included within Development Area Plans
AES-2.3: Treat Reflective Surfaces. The Project Developer shall ensure application of low-emissivity glass at exterior surfaces of the proposed structures for the purpose of reducing reflection of visible light that strikes the glass exterior and reduction in the amount of interior light being emitted through the glass.	Project Developer to provide evidence that low-emissivity glass at exterior surfaces will be used.	Project Developer	City Planning & Inspection Division	Concurrent with Architectural Review submittal, which may be included within Development Area Plans
AES-2.4: Provide Obstruction for Glare from Vehicle Headlights in the Proposed Garages. The Project Developer shall ensure that through the architectural design of the parking garages and through or in combination with landscaping or physical screening at the parking structures glare from vehicle headlights shall be screened from off-site viewers.	Project Developer to provide garage sections to City showing how vehicle headlights in the proposed garages will be obstructed.	Project Developer	City Planning & Inspection Division	Concurrent with Architectural Review submittal, which may be included within Development Area Plans
TRANSPORTATION				
TRA-1.1: Vehicle Trip Reduction with Transportation Demand Management (TDM). The Project Developer shall prepare and implement a TDM Plan approved by the Santa Clara Director of Planning and Inspection. The TDM Plan shall include trip reduction measures necessary to achieve an overall target of reducing Project office-	Project Developer to submit a TDM Plan to the City for each Development Area Plan	Project Developer / TMA	Department of Public Works Director of Planning and	Prior to the issuance of a certificate of occupancy for

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
generated daily traffic by a minimum of 4 percent and peak-hour traffic by a minimum of 10 percent, with an overall target of reducing Project residential-generated daily traffic by a minimum of 2 percent and peak-hour traffic by a minimum of 4 percent, compared to the traffic estimates used in this EIR. The TDM Plan shall also include and implement TDM Best Management Practices (BMPs) for the retail uses. The TDM Plan shall include measures to reduce the amount of vehicle traffic generated by City Place by shifting employees, customers, and residents from driving alone to using transit, carpooling, cycling, and walking modes through TDM measures, strategies, incentives, and policies. The TDM obligation in this measure is to apply for the lifetime of the Project. The TDM Plan may specify a phased implementation approach that provides initially for implementation of the TDM measures that are appropriate for multi-tenant offices (e.g., measures aimed at increased transit use and carpooling), which are expected to be developed during the first three phases of development, and then provide for TDM measures that are appropriate for large corporate office tenants in the remaining phases (such as shuttles). The Santa Clara Director of Planning and Inspection shall have the authority and discretion to permit modification of the measures provided that the modifications continue to achieve the overall trip reduction objective and/or the Santa Clara Director of Planning and Inspection is satisfied that all feasible TDM measures are being implemented if the overall trip reduction objective is not being met. Specific requirements as to the TDM Plan, its contents, target reductions, monitoring and remedial action are as follows: A. *Vehicle Trip Thresholds.* Vehicle trip reductions will be measured through counts of vehicles that enter and exit the site and by comparison of the results to established trip thresholds**.** As part of the annual TDM Plan monitoring process, as described below, vehicle trip generation estimates, based on the land uses and their sizes, will be prepared by a transportation professional funded by the Transportation Management Association described below, and working under the direction of the City, who will use the trip generation rates and internalization and public transit ridership reductions used in the EIR transportation analysis. The TDM reduction targets will be applied to create the thresholds. The estimates and thresholds will be reviewed and approved by the City's Traffic Engineer. While no thresholds are established for retail uses because it is difficult to enforce trip reductions for retail customers, this measure requires implementation of TDM BMPs for retail portions of the Project, as described below. B. *Transportation Management Association* Some TDM measures and strategies shall be incorporated into the design of the site and the buildings. A Transportation	and prior to each subsequent Development Area Plan, submit a TDM Plan reviewed by the third party. Submit an annual report documenting compliance with the TDM Plan.		Inspection	first building under each DAP for TDM Plan (or expansion of TDM Plan) associated with development under the DAP; obtain approval prior to certificate of occupancy; undertakes annual reporting, surveys and revisions to TDM Plan in accordance with mitigation measure.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
Management Association (TMA) is a non-profit, organization that provides transportation services in a particular area, such as a commercial district, medical center or office park, controlled by members that are building owners or tenants in that area. A TMA shall be formed to oversee and coordinate implementation of the TDM measures to be implemented for the Project, including coordinating activities of the various employers and tenants. The TDM Plan shall identify the vehicle trip-reducing measures and strategies to be provided and implemented directly by the Project Developer, those to be implemented directly by the TMA and those to be implemented directly by individual tenants/employers, and any to be implemented directly by the City. The TDM Plan shall describe the roles and responsibilities of the TMA and its members, which shall be codified in a binding agreement with the City of Santa Clara, approved by the Director of Planning and Inspection, and recorded with the County of Santa Clara Clerk Recorder. C. *Office TDM Measures.* TDM measures that target office employees shall be described in detail in the TDM Plan, including information regarding the direct implementing party (e.g., Project Developer, TMA, City, and tenants and employers.), The following TDM measures shall be considered for inclusion in the TDM Plan for some or all portions of the office development, to the extent feasible and appropriate, either as part of an initial TDM Plan or as options for enhanced or remedial measures if trip reduction targets are not being met: • On-site Support Facilities: shuttle bus stops with shelters, bicycle paths and lanes, pedestrian paths linking buildings and transit stations, priority parking for carpools and vanpools • In-building Support Facilities: showers and changing rooms, bicycle storage rooms and bicycle racks, and bicycle repair stands, cafes, and fitness centers • Private shuttles for both long distance commute and last-mile service from nearby public transit • Ridesharing options for long distance commuters such as carpool and vanpool matching services • Guaranteed ride home services for commuters who carpool, take transit, or bicycle to work • Financial incentives such as pre-tax benefits for transit and bicycle expenses (e.g., Commuter Check) or subsidized transit passes (e.g., Commuter Checks, Clipper Cards or VTA EcoPass) for all employees • Additional support services for employees who use transit or rideshare, such as flexible work hours • A website and marketing program to disseminate information on commute				

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]

options; access to TMA management services

- A TDM information packet to be provided to all new City Place employees upon commencement of work at City Place and, the benefits of alternative commute methods stressed during new employee orientation programs
- Incentives for employees to live in locations well served by transit or shuttles
- Bike share pods to enable trips on-site and to nearby destinations to be made by bicycle
- Car share services with cars on-site for use by employees (or others) who use alternative modes to travel to the site but need a car to run an errand, travel to a meeting, etc.
- Multi-passenger demand responsive ride services for local employees that are competitive with drive alone including transportation network/ride-sharing services such as Uber Pool, Lyft Line and Chariot on-demand and crowd-sourced bus services
- Yet-to-be developed new services, programs, strategies and emerging technologies
- Congestion cordon (boundary) pricing scheme[2]
- Parking management strategies such as paid parking and unbundled parking to restrict the parking supply[3]

D. *Residential TDM Measures*. TDM measures that target residents shall be described in the TDM Plan, including information regarding the direct implementing party (e.g., Project Developer, TMA, City, tenants and employers). The following TDM measures shall be considered for inclusion in the TDM Plan for some or all portions of the residential development, to the extent feasible and appropriate, either as part of an initial TDM Plan or as options for enhanced or remedial measures if trip reduction targets are not being met:

- Bicycle infrastructure improvements
- Bicycle parking room or lockers
- Bicycle riders guide
- On-site bicycle repair facilities

[2] Cordon pricing would entail charging vehicles a fee as they enter an area. The fees would be higher during congested periods. This type of strategy is most effective with limited access points and requires a high quality transit system to accommodate travel by a non-automobile mode.

[3] These parking management strategies can be paired with a residential permit parking program (RPPP) to ensure that Project residents seeking parking do not park in nearby neighborhoods.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]

- Financial subsidies for residents who commute by carpool, transit, walking or bicycle, such as VTA EcoPasses
- A website and marketing program to disseminate information on commute options; access to TMA management services
- Rideshare matching services
- On-site shuttle services, shuttle bus stops with shelters, pedestrians path linking buildings and transit stations
- Bus stops located near buildings
- Pedestrian-oriented site design
- Congestion cordon (boundary) pricing scheme
- Parking management strategies such as paid parking and unbundled parking to restrict the parking supply.

E. *Retail Site Design BMPs.* BMPs that target retail employees and customers shall be described in the TDM Plan, including information regarding the direct implementing party (e.g., Project Developer, TMA, City, tenants and employers). The following BMPs shall be considered for inclusion in the TDM Plan for some or all portions of the retail development, to the extent feasible and appropriate:

- Bicycle infrastructure improvements
- Bicycle rider encouragement program
- Bicycle parking, showers and lockers
- Bicycle riders guide
- On-site bicycle repair facilities
- Pre-tax commuter incentives
- Rideshare matching services
- On-site shuttle services, shuttle bus stops with shelters, pedestrians path linking buildings and transit stations
- A website and marketing program to disseminate information on commute options; access to TMA management services
- Bus stop locations near building entrances
- Pedestrian-oriented site design
- Congestion cordon (boundary) pricing scheme

F. *Monitoring and Reporting.* The TDM Plan shall be monitored annually to gauge its effectiveness in meeting the thresholds; while general guidelines are provided here, the monitoring and reporting process shall be explained in detail in the

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
TDM Plan. A transportation professional working at the City's direction and pursuant to a scope of work approved by the City's Traffic Engineer shall conduct traffic counts annually using mechanical counters or other devices approved by the City of Santa Clara to measure the daily and peak-hour entering and exiting vehicle volumes for a 72-hour period, Tuesday through Thursday. The counts shall include traffic counts at all City Place driveways, traffic counts at the driveways to office parking locations, and traffic counts at the driveways to residential parking locations. The counts shall be conducted when schools are in session and during non-holiday weeks with fair weather. The individual driveway volumes will be summed to provide the total site traffic volumes. The volumes at the driveways to the office and residential parking locations will be summed to provide the office- and residential-generated traffic volumes. The volumes will be compared to the trip thresholds to determine whether the reduction in vehicle trips is being met. The TMA will assist with the monitoring activities that will be conducted. In addition to monitoring driveway volumes, a survey will be developed by the transportation professional and administered in coordination with the TMA and individual office employers to determine actual mode splits for employees. The survey will also gather information on usage of individual TDM Plan components as well as gauge employee perception of the overall TDM Plan After an initial survey is conducted, subsequent surveys shall be conducted in years where the previous year's annual report has concluded that trip thresholds and trip reduction targets are not being met. The results of the annual vehicle counts and survey (if one is conducted that year) will be reported in writing by the transportation professional to the Santa Clara Director of Planning and Inspection. The report will include descriptions of the TDM measures in place, highlighting new or modified measures, summarize the results of the counts, summarize the results of the employee survey (if one is conducted that year), and conclude whether the trip thresholds and trip reduction targets are being met. The report (as well as any remedial action taken as a result) will be summarized in an annual informational report to the Planning Commission on the progress of TDM efforts throughout the City of Santa Clara. G. *Remedial Action*. If TDM Plan monitoring results show that the trip reduction targets are not being met, the TDM Plan shall be updated to identify replacement and/or additional feasible TDM measures to be implemented. The updated TDM Plan shall be submitted to the City and approved by the Santa Clara Director of Planning and Inspection. The updated TDM Plan shall also identify other TDM measures that were considered but determined to be infeasible or ineffective.				

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
The TMA shall oversee and coordinate the implementation of the feasible additional TDM measures and continue to explore methods of making other potential TDM measures feasible.				
TRA-1.2: Intersection Improvements. The intersection improvements and off-setting mitigation measures summarized in Table 3.3-20 shall be implemented, and Project Developer shall pay the fair-share contributions for the mitigation measures summarized in Table 3.3-20. The intent of the table is to identify, based on a preliminary feasibility determination, physically feasible intersection mitigation measures (e.g., lane additions) that increase the intersection's vehicle carrying capacity and reduce vehicle delay while fully mitigating the impacts. As described below, feasible mitigation measures that fully mitigate the impacts were identified at some locations. However, at other locations, measures that provide only partial mitigation were identified because of physical constraints. Although these mitigation measures do not fully address the impact, they do help reduce the severity of the impact. For intersections where there are no feasible physical improvements, off-setting mitigation measures were investigated. These measures would provide improvements to other modes of travel, thereby increasing the capacity of the transportation system. At some intersections no feasible improvement or off-setting mitigation measures were identified. The four potential entries are: • Full Mitigation: At the affected intersection, a physical modification to the intersection that would fully mitigate the impact was identified. This could be accomplished by adding vehicle lanes or upgrading an intersection to an interchange or "fly-over." These improvements would reduce vehicle delays and fully mitigate Project impacts at several intersections by allowing the intersections to operate at acceptable levels, with delays that would be lower than they would be under no-project conditions, or with less than a 4-second increase in critical delay at intersections that operate at unacceptable levels. • Partial Mitigation: At the affected intersection, a physical modification to the intersection that would partially mitigate the impact was identified. The proposed measure mitigates the impact during one peak hour but not the other or reduces the delay but not enough to mitigate the impact. • Off-setting Mitigation: In the North San José Deficiency Plan area, off-setting local street network, transit, bicycle, or pedestrian improvements were identified to accommodate future travel growth but not directly mitigate the intersection with the identified impact. • No Feasible Mitigation: No physical improvements or off-setting mitigation	Implement intersection improvements included in Table 3.3-20 of the Draft EIR and pay fair share contribution in accordance with Exhibit MMRP-1.	Project Developer (as noted in Table 3.3-20 of Draft EIR)	Department of Public Works	In accordance with Exhibit MMRP-1

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]

measures were identified, typically because of physical limitations, costs, and/or right-of-way constraints.

Some of the intersection improvements would require right-of-way (ROW) acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, and no off-setting mitigation measure is identified, that intersection shall be considered to have "no feasible mitigation."

The Project Developer's responsibility is included in Table 3-3.20, which indicates if the Project Developer would be wholly or partially responsible for the mitigation measure.

- As seen in the table, "100 percent" indicates that the cost and construction of the proposed mitigation measure is the full responsibility of the Project Developer. These are discrete mitigation measures that either fully or partially mitigate significant Project impacts.
- "Percent of total traffic" indicates that the Project Developer shall pay a fair-share contribution to the proposed mitigation measure, which is typically a larger transportation improvement, such as an expressway interchange, that has been identified in an adopted plan. Twelve of the intersections are on the County expressway system and are identified in the County's Expressway Plan to be upgraded to an interchange or "fly-over." The Project Developer shall pay its fair share toward these interchange upgrades per agreements between Santa Clara County and the City of Santa Clara.
- "Pay the North San José fee or fair-share contribution of alternative or off-setting mitigation" is identified for affected intersections in the North San José area. There are two options for these locations. The Project Developer can pay the North San José fee or a fair-share contribution for the mitigation measure or off-setting mitigation measure based on the Project's percent contribution of added traffic at the intersection.
- Where there is no feasible mitigation measure, no fair share is identified (0 percent).

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
The City-preferred mitigation measure is identified where there is more than one mitigation option.				
TRA-1.3: Prepare and Implement a Multimodal Improvement Plan. The Project Developer shall fund the preparation of (including CEQA review for) a Multimodal Improvement Plan (MIP) addressing at least the Congestion Management Program (CMP) intersections within the City of Santa Clara that are forecasted to operate at Level of Service F with the Project, either on a project level or cumulative basis. City shall reimburse the Project Developer for any cost of preparation of the MIP that exceeds the Project Developer's fair share of such cost. Such MIP shall be prepared in accordance with the guidelines and regulations of the Valley Transportation Authority (VTA) and shall be adopted by the City Council for submission to the VTA for consideration and approval no later than one year after approval of the Project. Once the MIP is adopted by the VTA, it shall be implemented in accordance with its terms and commensurate with the phasing of the development that its measures are intended to offset.	Provide requisite funding for City preparation of the MIP as City Costs under Development Agreement. City to prepare and approve MIP for submission to VTA, and implement MIP once it is approved.	Project Developer/ City	Department of Public Works and Division of Planning and Inspection	City to submit approved MIP to VTA within 1 year of project approval, and implement MIP according with its terms.
TRA-2.1: Traffic Signal Installation. Install a traffic signal at Intersection 109, Liberty Street/Taylor Street once the traffic volumes meet the warrant requirements. The intersection of Liberty Street/Taylor Street is located in San José; the installation of a traffic signal would need to be approved by the City of San José.	Project Developer shall provide funding for traffic signal installation at Liberty Street/Taylor Street in the City of San José and submit evidence of compliance to City.	Project Developer	Department of Public Works	Prior to issuance of building permits for the building that triggers improvement in accordance with Exhibit MMRP-1.
TRA-2.2: Traffic Signal Installation. Install a traffic signal at Intersection 114, Calle Del Sol/Calle De Luna, once the traffic volumes meet the warrant requirements.	Project Developer to install a traffic signal at Intersection 114, Calle Del Sol/Calle De Luna.	Project Developer	Department of Public Works	Prior to issuance of certificate of occupancy for the building that triggers improvement in accordance with Exhibit MMRP-1.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
TRA-3.1: Freeway Segment Improvements. The Project Developer will make a voluntary contribution toward the VTP's 2040 Express Lane Projects (VTP 2040 project numbers H2, H3, H4, H5, H6, H7, and H15) and Countywide Freeway Traffic Operation System and Ramp Metering Improvements (VTP 2040 project number S83). These VTP 2040 projects (H2, H3, H4, H5, H6, H7, H15, and S83), once fully funded and constructed, will enhance travel choices for Project travelers and make more efficient use of the transportation network.	Project Developer shall pay per trip fee to the City in accordance with Exhibit MMRP-1.	Project Developer	Department of Public Works	Prior to issuance of certificate of occupancy for a new or expanded structure.
TRA-1a.1: Intersection Improvements for Existing with Project Phases 1, 2, and 3. The intersection improvements and off-setting mitigation measures summarized in Table 3.3-26 shall be implemented, and Project Developer shall pay the fair-share contributions for the mitigation measures summarized in Table 3.3-26. (This table also includes impacts and mitigation measures for the full Project for comparison purposes.) These improvements will reduce vehicle delays and fully mitigate Project impacts at several intersections by allowing the intersections to operate at acceptable levels, with delays that would be lower than they would be under no-project conditions, or with less than a 4-second increase in critical delay at intersections that operate at unacceptable levels. Table 3.3-26 also contains physical improvements for select intersections that will reduce the delay, but not to a level that mitigates the impact. Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, and no off-setting mitigation measure is identified, that intersection shall be considered to have "no feasible mitigation."	See TRA-1.2	Project Developer	Department of Public Works	In accordance with Exhibit MMRP-1
TRA-5.1: Transportation Design Review. The site plans for Parcels 1 and 2 will undergo a design review by the City to ensure that City design standards are adhered to prior to construction. This review shall include an on-site intersection analysis prior to development plan approval. The on-site analysis shall include an intersection operations analysis to develop intersection traffic controls and lane geometries that	Project Developer to prepare site plans for Parcels 1 and 2 to be submitted to the City to ensure that City street	Project Developer	Department of Public Works	Concurrent with Development Area Plan submittal for

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
meet City of Santa Clara traffic standards. These parcels shall also be reviewed for: • Inbound queuing at parking facilities to ensure that queues do not block public streets and local streets • Emergency vehicle access and circulation • Vehicular circulation • Parking layout and circulation within the site • Bicycle access and circulation • Pedestrian access and circulation • Pedestrian access to and from transit stops • Truck circulation and loading dock access for commercial parcels	design and traffic standards are accommodated in each Development Area Plan.			each phase to the extent that data is available and with Architectural Review to the extent minor details are not known at DAP
TRA-6.1: Intersection Improvements With Access Variant Scheme. The intersection improvements summarized in Table 3.3-35 shall be implemented. These improvements will reduce vehicle delays and fully mitigate Project impacts at several intersections by allowing them to operate at acceptable levels, with delays that would be lower than they would be under no-project conditions, or with less than a 4-second increase in critical delay for intersections that operate at unacceptable levels. Table 3.3-35 also contains physical improvements for select intersections that will reduce the delay, but not to a level that fully mitigates the impact. Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."	Implement intersection improvements summarized in Table 3.3-35 of the Draft EIR and pay fair share contribution in accordance with Exhibit MMRP-1.	Project Developer	Department of Public Works	In accordance with Exhibit MMRP-1
TRA-6.2: Intersection Improvements for Phases 1, 2 and 3. The intersection improvements summarized in Table 3.3-36 shall be implemented. These improvements will reduce vehicle delays and fully mitigate Project impacts at several intersections by allowing the intersections to operate at acceptable levels, with delays that would be lower than they would be under no-project conditions, or with less than a 4-second increase in critical delay for intersections that operate at	Implement the intersection improvements for Phases 1, 2, and 3, as summarized in Table 3.3-36 of the Draft EIR	Project Developer	Department of Public Works	In accordance with Exhibit MMRP-1

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
unacceptable levels. Table 3.3-36 also contains physical improvements for select intersections that will reduce the delay, but not to a level that mitigates the impact. Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."	and pay fair share contribution in accordance with Exhibit MMRP-1.			
TRA-7.1: Sidewalk Gap Closure on Tasman Drive on the Lafayette Street overcrossing extending east to Calle Del Sol. The Project Developer shall construct a sidewalk on the north side of Tasman Drive on the Lafayette Street overcrossing and extending east to Calle Del Sol. The Project Developer shall fully fund the construction of this sidewalk segment between the Project frontage on Tasman Drive and Calle Del Sol.	Project Developer to construct a sidewalk on the north side of Tasman Drive on the Lafayette Street overcrossing, extending east to Calle Del Sol.	Project Developer	Department of Public Works	Prior to the issuance of certificate of occupancy for first building within Phase 1
TRA-14.1: Signalized Intersection Improvements. The intersection improvements and off-setting mitigation measures summarized in Table 3.3-20 shall be implemented and Project Developer shall pay the fair-share contributions for the mitigation measures summarized in Table 3.3-20, The Project Developer shall also pay the fair-share contribution for the additional intersections or off-setting mitigation measure identified in Table 3.3-50. The improvements will reduce vehicle delays and fully mitigate cumulative impacts at several intersections by allowing the intersections to operate at acceptable levels, with delays that would be less than they would be under no-project conditions, or with less than a 4-second increase in critical delay for intersections that operate at unacceptable levels. Table 3.3-50 also contains physical improvements for select intersections that will reduce the delay, but not to less than no-project conditions such that the Project's effects would remain cumulatively considerable. Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified	Project Developer to implement intersection improvements mitigation measures summarized in Table 3.3-20 of the Draft EIR and pay the fair-share contributions for the mitigation measures in accordance with Exhibit MMRP-1.	Project Developer	Department of Public Works	In accordance with Exhibit MMRP-1

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement or mitigation is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."				
TRA-16.1: Intersection Improvements for Cumulative with-Project Access Variants. The intersection improvements summarized in Table 3.3-54 shall be implemented. Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement or mitigation is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."	Project Developer to implement the intersection improvements summarized in Table 3.3-54 of the Draft EIR and pay the fair-share contributions for the mitigation measures in accordance with Exhibit MMRP-1.	Project Developer	Department of Public Works	In accordance with Exhibit MMRP-1
TRA-18.1: Construction Management. Prior to the issuance of each building permit, the Project Developer and construction contractor shall meet with the Public Works Department to determine traffic management strategies to reduce, to the maximum extent feasible, traffic congestion during construction of the Project and develop acceptable detour routes for emergency vehicles and for shuttles to the Great America ACE/Capitol Corridor station. The City will coordinate with appropriate transit agencies. The Project Developer shall prepare a Construction Management Plan for review and approval by the Public Works Department, which shall share the plan with interested the Capitol Corridor Joint Power Authority, the VTA, and ACE for review and comment. The plan, which shall be implemented during construction, shall include at least the following items and requirements: • A set of comprehensive traffic control measures, including detour signs if required, lane closure procedures, sidewalk closure procedures, signs, cones for drivers, and designated construction access routes. • Notification procedures for adjacent property owners, the public, transit operators,	Project Developer to prepare and submit a Construction Management Plan for the purpose of managing traffic and reducing traffic congestion during construction. City to review and approve Plan.	Project Developer/ Project Contractor	Department of Public Works	Prior to issuance of each building permit

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
and public safety personnel regarding when detours and lane closures will occur. • Location of construction staging areas for materials, equipment, and vehicles (must be located on the Project site). • Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular, pedestrian, and transit vehicle traffic, circulation and safety; and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected. Construction vehicles shall be required to use designated truck/haul routes. • Provisions for removal of trash generated by Project construction activity. • A process for responding to and tracking complaints pertaining to construction activity. • Construction vehicles and construction workers shall not be allowed to park in adjacent residential neighborhoods. Construction vehicles will be required to park either in the construction zone or in the temporary parking lots.				
TRA-19.1: Modified City's Traffic Management and Operations Plan (TMOP) and Prepare a Project-Specific Traffic and Parking Management Plan. Modify the City's TMOP to include plans to direct stadium traffic to the new parking locations on the site. (Some of the office parking areas will be used during special events.) A separate traffic and parking management plan shall be developed for the Project by the Project Developer and approved by the Director of Planning and Inspection and/or the Director of Public works. This plan would address: • Parking areas to be used by office employees (versus stadium parking); • Project customer/employee parking (versus stadium parking); • Access and egress routes for vehicles to the site, taking into consideration the lane and roadway segment closures used to direct stadium traffic; • A communications plan to inform customers and employees of game-day operations; and • Operational improvements such as signal timing and coordination to maximize efficiency of the streets during peak periods. Performance goals that reflect a successful traffic and parking management plan would be contained in the plan and may include items such as: • Maintaining vehicular access to the Project with acceptable increases in travel times compared to non-game day conditions; • Limited vehicle queuing within the Project site such that no internal circulation roadways are blocked; and	Project Developer to modify the City's TMOP to include plans to direct stadium traffic to the new parking locations on the site, and a site traffic and parking management plan for review and approval by City.	Project Developer	Director of Planning and Inspection and/or Director of Public Works	Prior to the issuance of first certificate of occupancy within each DAP area

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
• Limited vehicle queuing extending from parking facilities within the Project onto external public roadways. Even with mitigation, the local streets near the Project site would operate at an unacceptable LOS due to vehicle demand exceeding capacity. Widening roadways or intersections to increase capacity was considered as mitigation but rejected due to utility and secondary impacts. Street widening would provide capacity that would be needed only on game days and not at other times. The City of Santa Clara General Plan has policies to discourage the widening of existing roadways without first considering operational improvements such as the items included in the existing TMOP and items that will be included in the TDM Plan.				
AIR QUALITY				
AQ-2.1: Utilize Clean Diesel-Powered Equipment during Construction to Control Construction-Related Reactive Organic Gas (ROG) and Oxides of Nitrogen (NO_X) Emissions. The Project Developer shall ensure that all off-road diesel-powered equipment used during construction between 2017 and 2022 is equipped with the U.S. Environmental Protection Agency (EPA) Tier 3 or cleaner engines, except for specialized construction equipment for which an EPA Tier 3 engine is not available. Consistent with advancements of the statewide fleet average, the Project Developer shall ensure that all off-road diesel-powered equipment used during construction between 2023 and 2030 is equipped with EPA Tier 4 engines, except for specialized construction equipment for which an EPA Tier 4 engine is not available. This requirement will ensure construction equipment remains cleaner than the fleet-wide average.[4]	Project Developer to provide to City applicable provisions of construction contracts requiring that all off-road diesel-powered equipment used for construction between 2017 and 2022 is equipped with the U.S. EPA Tier 3 or cleaner engines and that all off-road diesel-powered equipment used for construction between 2023 and 2030 is equipped with EPA Tier 4 engines.	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to grading or building permit issuance
AQ-2.2: Use Modern Fleet for On-Road Material Delivery and Haul Trucks during Construction. The Project Developer shall ensure that all on-road heavy-duty diesel trucks with a gross vehicle weight rating of 19,500 pounds or greater used at	Project Developer to provide to City applicable provisions of	Project Developer/ Project	City Planning & Inspection Division	Prior to grading or building permit issuance

[4] As explained in MM AQ-6.1, below, as necessary to reduce cancer risk to on-site sensitive receptors related to construction diesel particulate matter emissions to a level below the BAAQMD, the Project Developer may need to use Tier 4 equipment after occupancy of on-site residences or daycare centers, or may use other appropriate measures (see AQ-6.1). If Tier 4 equipment is used earlier than 2023, this may reduce the amount of mitigation required in MM AQ-2.4.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
the Project site comply with EPA 2007 on-road emissions standards for PM10 and NO_X (0.01 grams per brake horsepower-hour [g/bhp-hr] and 0.20 g/bhp-hr, respectively).	construction contracts requiring the use of modern fleet for on-road material delivery and that haul trucks comply with EPA 2007 on-road emissions standards for PM10 and NOX.	Contractor		
AQ-2.3: Implement Bay Area Air Quality Management District (BAAQMD) Additional Construction Mitigation Measures to Reduce Construction-Related Dust and Exhaust Emissions. The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce fugitive dust and equipment exhaust emissions. Emission reduction measures shall include, at a minimum, the following measures. Alternative measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City of Santa Clara for approval. • All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. If water infiltration into landfill refuse layers is a concern, non-toxic soil stabilizers may be used instead. • All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 miles per hour (mph) for a period of 2 hours or more. • Windbreaks (e.g., fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Windbreaks shall have at maximum 50 percent air porosity. • Exposed ground areas that are to be reworked more than 1 month after initial grading should be sown with fast-germinating native grass seed and watered appropriately until vegetation is established. If grass seeding is not feasible, then non-toxic soil stabilizers may be used. • All construction trucks and equipment, including tires, involved in ground disturbance or transit through loose soil areas shall be washed off prior to leaving the site. • Site accesses to a distance of 25 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel. Alternatively, a rumble plate may be used in place of chips, mulch, or gravel.	Project Developer to provide to City applicable provisions of construction contracts requiring the use of BAAQMD additional construction mitigation measures to reduce construction-related dust and exhaust emissions.	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to grading and building permit issuance

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
• Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent. • Idling time of diesel powered construction equipment shall be limited to 2 minutes. • All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of PM and NOX. • All contractors shall use equipment that meets the California Air Resources Board's (ARB's) most recent certification standard for off-road heavy-duty diesel engines.				
AQ-2.4: Offset NO_X Emissions Generated during Construction that Are above BAAQMD NOX Average Daily Emission Threshold. The Project Developer shall track construction activity, estimate emissions, and enter into a construction mitigation contract with BAAQMD to offset NO_X emissions that exceed BAAQMD NOX average daily threshold of 54 pounds per day. The average daily emissions shall be calculated on an annual basis by determining total construction-related NO_X emissions in each calendar year and dividing by the number of actual workdays in that calendar year. BAAQMD will use the mitigation fees provided by the Project Developer to implement emissions reduction efforts that offset Project NO_X emissions that exceed BAAQMD threshold. Implementation of this mitigation measure shall apply only to Phase 1 through Phase 4 construction on Parcels 4 and 5 because only construction on Parcels 4 and 5 has the potential to exceed the BAAQMD average daily NO_X threshold on an annual basis, depending on construction sequencing and overlapping activity. This mitigation includes the following specific requirements: • The Project Developer shall require construction contractors to provide annual construction activity monitoring data for Phases 1 through 4 to estimate actual construction emissions, including the effect of equipment emissions reduction measures. The Project Developer shall submit the annual construction activity monitoring data and an estimate of actual annual construction emissions to the City and BAAQMD for review by February 1 of each year for the prior construction year. The City shall examine the construction activity monitoring to ensure it is representative, and BAAQMD shall examine the emissions estimate to ensure it is calculated properly. • After acceptance of the emissions estimates by BAAQMD for the prior year, the Project Developer shall submit mitigation fees to BAAQMD to fund offsets for the portion of annual emissions that exceed the average daily NOX threshold. The mitigation fees shall be based on the mitigation contract with BAAQMD (see discussion below) but shall not exceed the emissions-reduction project cost-effectiveness limit set for the Carl Moyer Memorial Air Quality Standards	City construction mitigation contracts with BAAQMD. Project Developer to provide to City annual construction activity monitoring data for City verification that the data is representative.	Project Developer/ Project Contractor	City Planning & Inspection Division	Approval of agreement prior to grading and building permit issuance, annual submittal of evidence documenting compliance and of construction activity monitoring data during construction of Phases 1 through 4 on Parcels 4 and 5..

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
Attainment Program (Carl Moyer Program) for the year in which mitigation fees are paid. The current Carl Moyer Program cost-effectiveness limit is $18,030 per weighted ton of criteria pollutants (NOX + ROG + [20*PM]). An administrative fee of 5 percent shall be paid by the Project Developer to BAAQMD to implement the program. • The mitigation fees shall be used by BAAQMD to fund projects that are eligible for funding under the Carl Moyer Program guidelines or other BAAQMD emissions-reduction incentive programs that meet the Carl Moyer Program cost-effectiveness threshold and are real, surplus, quantifiable, and enforceable. • The Project Developer shall enter into a mitigation contract with BAAQMD for the emissions-reduction incentive program. The mitigation contract shall include the following: ○ Identification of appropriate off-site mitigation fees required for the Project. ○ Timing for submission of mitigation fees. ○ Processing of mitigation fees paid by the Project Developer. ○ Verification of emissions estimates submitted by the Project Developer. ○ Verification that off-site fees are applied to appropriate mitigation programs within the SFBAAB. The mitigation fees shall be submitted within 4 weeks after BAAQMD accepts an emissions estimate provided by the Project Developer showing that the average daily NOX threshold was exceeded (when measured on an annual basis).				
AQ-6.1: Assess Construction Diesel Particulate Matter (DPM) Emissions Potential Prior to Construction, Utilize Clean Diesel-Powered Equipment, Filtration Systems, and/or other Measures as Necessary to Reduce Cancer Risks Associated with DPM during Construction. The Project Developer shall implement the following measures, as necessary, to reduce cancer risks associated with DPM during construction to a level less than BAAQMD incremental cancer risk threshold of 10 in 1 million: • Revised Health Risk Assessment (HRA): The Project Developer may choose to assess the potential construction DPM emissions later in the design phase, but prior to construction, and to prepare a revised HRA using updated construction equipment activity data and submit to the City for review. If the revised HRA demonstrates, to the satisfaction of the City, that the cancer risk for construction of the entire Project at all potentially exposed on-site and off-site sensitive receptors will be less than BAAQMD threshold cited, then no additional mitigation is necessary. If the revised HRA demonstrates, to the satisfaction of the City, that the cancer risk for construction of the entire Project at some of the on-site or off-site	Project Developer to provide revised HRA (optional) or provide updated modeling and applicable provisions of construction contracts and/or building plans including measures to reduce cancer risks. City to review and approve revised HRA (optional to project Developer) or approve applicable provisions of construction contracts and building plans if no	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to construction that is planned to occur after the first occupancy of on-site residences or daycare centers and/or prior to residential or day care building permit issuance if Project Developer

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
sensitive receptors will be less than presented in the EIR but still over the BAAQMD threshold, then some of the mitigation below may not be necessary. • As necessary to reduce cancer risks below the BAAQMD threshold in light of projected DPM emissions and exposure and other mitigation (MM AQ-2.1 through MM AQ-2.3 and MM GHG-1.1), one or more of the following measures shall be implemented and the Project Developer will provide updated modeling to the City demonstrating that all on-site risks are reduced to below the BAAQMD threshold level: ○ Tier 4 Construction Equipment. If on-site and residences and daycare centers are occupied, the Project Developer shall ensure that all off-road diesel-powered equipment used during construction after occupancy of on-site residences or on-site daycare centers is equipped with EPA Tier 4 or cleaner engines, except for specialized construction equipment for which an EPA Tier 4 engine is not available. This requirement would be in addition to the clean diesel requirements in Mitigation Measure AQ-2.1. ○ Install Filtration Systems on Ventilation and Recirculation Systems. Filtration systems shall be installed on ventilation and recirculation systems within on-site residences and for the heating, cooling, or ventilation systems serving daycare centers. All filters must be rated MERV-13 or higher. The Project Developer shall submit a plan for installation and maintenance of all filters in accordance with the manufacturer's recommendations to the City prior to approval of the first building permits. ○ If on-site and residences and daycare centers are occupied, the Project Developer shall employ other reduction measures, such as High Performance Renewable (HPR) Diesel Fuel, that would reduce DPM. Proposals for alternative reduction measures shall be submitted to the City for review and approval, including evidence of the particulate reduction and/or risk reduction effectiveness of the proposed alternative measures.	HRA is prepared or if revised HRA shows that cancer risks would not be below regulatory thresholds.			desires to incorporate measures into structure
GREENHOUSE GAS EMISSIONS				
GHG-1.1: Utilize Alternative Fuels during Construction. Require construction contractors to use alternative fuels in at least 30 percent of the construction equipment that uses diesel fuel. Alternative fuels may include electricity, compressed natural gas (CNG), biodiesel (B-20), or renewable diesel, such as diesel high-performance renewable (HPR).	Developer to provide to City applicable provisions of construction contracts requiring adequate use of alternative fuels.	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to grading and building permits.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
GHG-1.2: Operational GHG Emissions Reduction Measures. The Project Developer shall implement the operational GHG emissions reduction strategies described below: 1. Energy Efficiency: The Project's energy efficiency shall be 15 percent better than the base case energy model developed pursuant to the 2013 Title 24 requirements or shall meet the Title 24 requirements that are applicable at the time of issuance of the building permits for individual phases, whichever is more stringent (Climate Action Plan [CAP] Measure 2.1).[5] 2. On-site Solar Energy: The Project already includes on-site photovoltaics (PV) solar to meet 10 percent of electricity demand. The Project shall obtain renewable energy electricity corresponding to 50 percent[6] of on-site electricity demand by 2030 through a combination of on-site solar, purchase of renewable energy or other measures (CAP Measure 2.4). This requirement may be phased in as follows: 2020 – 15%; 2025 – 29%; 2030 – 50%. If the Project Developer can demonstrate, to the City's satisfaction, that through Project design, adopted State or federal regulations, or other assured actions that the Project's emissions overall will meet the 2030 metric identified in this document without the implementation of this particular measure of its full implementation, then this measure (or its full implementation) may be waived by the City. 3. Food Waste: All retail restaurants shall be required to participate 100 percent in any extant City food waste and composting programs and any that may be developed in the future (CAP Measure 4.1). 4. Electrical Landscaping Equipment: The Project shall include installation of electrical outlets near all maintained landscaping areas to allow for the use of electrical landscaping equipment (CAP Measure 5.1). In the landscaped City Center, only electrical landscape equipment shall be used. Use of electrical landscaping equipment shall not be required for the extensive natural landscaping contemplated at the edges of the City Center and at Parcels 1, 2, and 3. 5. Electrical Vehicle Charging/Preferential Parking (CAP Measure 6.3). The Project shall provide preferential parking in all parking lots for electric vehicles and shall also provide charging equipment, as follows:	#1, 4, 5, 6, 7, 11, 12: Building and landscape plans. #2: Annual reporting unless Project Developer demonstrates at building permit issuance that goal will be met. #10, 13: Ground leases to require implementation of measures and incorporation of operational measures into subleases.	Project Developer	City Planning & Inspection Division	#1, 4, 5 6, 7, 11, 12: Prior to building permit issuance #2: Prior to building permit issuance unless the developer wishes to demonstrate that emissions will meet the 2030 metric. #3, 8, 9, 10: Prior to execution of ground leases; provisions must be included in each applicable ground lease.

[5] The CEC intends for residential buildings in 2020 and later to be zero net energy (ZNE) and commercial buildings in 2030 or later to be ZNE, but because pending regulations are not yet adopted, this cannot be assumed in this analysis.

[6] CAP measure 1.1 requires the City's utility (SVP) to replace coal power within its portfolio with natural gas by 2020 and includes a stretch goal to replace the coal power with a combination of 50% natural gas and 50% renewable energy by 2035. Thus the CAP stretch goal is to increase renewable energy within its portfolio from 2020 to 2035. The 29 percent value for the mitigation above was calculated as the difference between the CAP Measure 1.1 reduction amount for the stretch goal for 2035 (71%) and the CAP Measure 1.1 reduction amount for 2020 (42%). As discussed in text, the Project has less than significant impact in comparison to the BAAQMD service population efficiency threshold based on the AB 32 target for 2020. Since the EIR finds that the project's emissions are significant for the period after 2020, the use of the difference in the CAP Measure 1.1 between 2020 and 2035 is appropriate to the impact identified for the Project.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
a. Residential Use: A total of 10 percent of the required parking spaces shall be provided with a listed cabinet, box, or enclosure and connected to a conduit that links the parking spaces to the electrical service in a manner approved by the building and safety official. Of the listed cabinets, boxes, or enclosures provided, 50 percent shall have the necessary electric vehicle supply equipment installed to provide active charging stations that are ready for use by residents. The remainder shall be installed at such time as they are needed for use by residents. Electrical vehicle batteries and charging technology may change substantially over the next 15 years. As such, the City shall have the discretion to modify the specific requirements for this measure over time, provided that 10 percent of the spaces have electrical service and 5 percent have active charging, depending on what the technology at the time requires. b. Commercial Use: New commercial uses shall provide the electrical service capacity necessary as well as all conduits and related equipment necessary to serve 2 percent of the parking spaces with charging stations in a manner approved by the City's Building Official. Of these parking spaces, 50 percent shall initially be provided with the equipment necessary to function as online charging stations upon completion of the Project. The remainder shall be installed at such time as they are needed for use by customers, employees, or other users. Electrical vehicle batteries and charging technology may change substantially over the next 15 years. As such, the City shall have the discretion to modify the specific requirements for this measure over time, provided that two percent of the spaces have electrical service and one percent have active charging, depending on what the technology at the time requires. 6. Shade Trees: Where surface parking lots are not covered by PV solar, shade trees shall be planted to reduce urban heat island effects on adjacent buildings (CAP Measure 7.1). 7. Urban Cooling: Any uncovered parking lots or spaces shall use light-colored pavement (CAP Measure 7.2). 8. Leases for businesses that base a diesel truck fleet within the Project site: Ensure those fleets meet the highest CARB engine-tier standard in place at the time of issuance of the building permits for the building that such businesses occupy, or the execution of a lease, whichever comes first. 9. Electrical hook-ups at loading docks for businesses that will receive deliveries from refrigerated diesel trucks: Stipulate in the lease agreement for such businesses a requirement to use the hook-ups if the trucks will be idling for more than two minutes.				

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
10. Leases for business receiving deliveries: Prohibit all diesel-powered trucks from idling for more than 2 minutes. 11. Solar hot water heating systems: Incorporate for appropriate applications, including any swimming pools and buildings with swimming pools. 12. Electric heat pumps, or other energy-efficiency techniques, including radiant systems: Include for space heating and cooling, under appropriate circumstances.				
NOISE				
NOI-1.1: Prepare and Implement a Construction Noise Control Plan to Reduce Construction Noise at Adjacent Land Uses. The Project Developer shall develop a noise control plan that requires that the Project construction activities comply with the City Code noise limits. The requirements and limitations specified in the plan shall be determined by phase and/or parcel and/or subsections of a parcel or phase. The construction noise control plan shall require the following: • The Project Developer shall appoint a Project noise coordinator who will serve as the point of contact for noise-related complaints during Project construction. The Project noise coordinator shall transmit all construction noise-related complaints to the construction contractor, and the construction contractor shall enhance or refine the noise best management practices discussed herein to address the received noise complaints to the extent feasible. The contact information for the Project noise coordinator shall be sent to residents in the greater vicinity of the Project site that could be affected by Project noise and municipalities affected by Project construction noise. • Construction activities that have the potential to generate noise that is detectable at adjacent residential land uses or within 300 feet of a residentially zoned property shall occur only during the times listed below. Activities that would result in no detectable noise at adjacent land uses, such as interior painting, would not be limited by the hours below. ○ Between 7:00 a.m. and 6:00 p.m. Monday through Friday. ○ Between 9:00 a.m. and 6:00 p.m. on Saturdays. ○ No duration in time on holidays or Sundays. • Construction contractors shall specify noise-reducing construction practices that will be employed to reduce construction noise for construction activities that would occur outside of the prohibited hours specified in the City Code and that would have the potential to exceed the receiving zone noise limits specified in the City Code. The measures determined by the Project Developer shall be reviewed and approved by the City prior to the issuance of building permits. Measures that can be used to limit noise include, but are not limited to, those listed below.	Project Developer to provide noise control plan for City review and approval.	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to issuance of the first building permit within each Development Area Plan area

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
○ Locating construction equipment as far as feasible from noise-sensitive uses. ○ Requiring that all construction equipment powered by gasoline or diesel engines have sound-control devices that are at least as effective as those originally provided by the manufacturer and that all equipment be operated and maintained to minimize noise generation. ○ Not idling inactive construction equipment for prolonged periods (i.e., more than 2 minutes). ○ Prohibiting gasoline or diesel engines from having unmuffled exhaust systems. ○ Using noise-reducing enclosures around noise-generating equipment that has the potential to disturb nearby off-site land uses, or where otherwise necessary, to comply with the City Code noise limits for receiving zones.				
NOI-1.2: Implement Off-Site Traffic Noise Reduction Measures. The Project Developer shall implement off-site traffic noise reduction measures along the east side of Lafayette Drive between Tasman Drive and Hogan Drive such that the Project-related increase in traffic noise for noise receptors is less than 3 dBA. The Project Developer shall construct a solid barrier between the roadway and adjacent residential uses along Lafayette Drive between Tasman Drive and Hogan Drive unless deemed infeasible for any reason including unavailability of sufficient right of way or inability to secure design review/architectural approval. The Project Developer shall implement off-site traffic noise reduction measures along the south side of Tasman Drive between Lafayette and Calle del Sol such that cumulative with project-related increase in traffic noise for noise receptors is less than 3 dBA or the project contribution to traffic noise is less than 1 dBA. The Project Developer shall construct a solid barrier between the roadway and adjacent residential uses along Tasman Drive between Lafayette and Calle del Sol unless deemed infeasible for any reason including unavailability of sufficient right of way or inability to secure design review/architectural approval. The barriers shall be designed to provide shielding between areas of frequent human use (i.e., residence backyards) and the roadway. This would result in approximately 1,000 feet of noise barriers along this the Lafayette segment (between Tasman Drive and Hogan Drive) and up to 800 feet along the Tasman segment (between Lafayette and Calle del Sol). One effective approach would be to replace the existing privacy fences at single family residences with a solid barrier that is at least 6 feet high. The Project Developer shall prepare an off-site noise control plan that identifies the location, design, and effectiveness of the specific treatments to be implemented. This plan shall be submitted to the City for review and approval prior to the issuance of building permits. The off-site noise improvements shall be completed before Project	Qualified professional to determine which Phase of the Project triggers the need for the reduction measures. Project Developer to provide noise control plan for City review, determination of feasibility and approval.	Project Developer	City Planning & Inspection Division	Qualified professional to determine which phase triggers noise barrier during Phase 1 of DAP approval. City to determine feasibility of noise barriers, and approve design if feasible, as part of DAP approval. If feasible, barriers to be constructed as part of construction for the Phase triggering the need for the barrier.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
operations commence.				
NOI-2.1: Restrict Pile Driving. Pile driving occurring 175 feet or less from new residential or commercial buildings shall be conducted prior to those buildings being occupied by future occupants.	City will not approve building permits that include pile driving within 175 feet of occupied residential.	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to issuance of building permits if driven pile foundations are planned and prior to occupancy of proximate residential or commercial buildings
NOI-5.1: Prepare and Implement a Noise Control Plan to Reduce Interior Noise at Sensitive Land Uses. The Project Developer shall conduct a design-level acoustic study that identifies exterior noise levels for residential and commercial uses on the Project site. This study shall take into account existing airport noise, Project, and reasonably foreseeable future noise sources (such as proposed increases in passenger rail service along the Lafayette Street corridor). Where this study finds that the exterior noise level would exceed the residential compatibility standard of 55 dBA Ldn or the commercial incompatibility standard of 65 dBA Ldn, the Project Developer shall prepare a design-level operational noise control plan to provide acceptable interior noise levels. This plan shall identify all Project features and treatments that will be implemented to ensure that the Project is in compliance with the interior noise standards listed in the City's General Plan and City Code as well as the standards specified for new construction within the CLUP for SJC. The study and plan shall be developed by an acoustical design professional. Design features and treatments will be identified to ensure that interior noise levels at new proposed uses are in compliance with the noise standards. The report shall be submitted to the City for review and approval prior to the issuance of building permits for the Project. Depending on the noise exposure for a particular site, such treatments may include, but are not limited to, those listed below, as recommended by the acoustical design professional. • Construction of enclosures around noise-generating mechanical equipment at commercial uses. • Use of setbacks from noise sources to maximum attenuation of noise over distance.	Project Developer to provide design-level acoustic study for City review and approval and to incorporate necessary measures into building design when exterior noise levels exceed residential and commercial incompatibility standards.	Project Developer/ Acoustical Design Professional	City Planning & Inspection Division	Prior to issuance of building permits for residential and commercial buildings

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
• Installation of noise-reducing treatments in new buildings, including: ○ High-performance, sound-rated double-glazed windows, ○ Sound-rated doors, ○ Sound-rated exterior wall construction, ○ Special acoustical details for vents, ○ Acoustical caulking at all exterior façade penetrations, ○ Sound-rated roof and ceiling constructions, and ○ Adequate mechanical ventilation so that windows and doors may be kept closed at the discretion of the building occupants to control environmental noise intrusion.				
CULTURAL RESOURCES				
CR-1.1: Conduct Extended Phase I (XPI) Archaeological Investigations within the Project Site near Recorded Resources and within an Area of Archaeological Sensitivity. Prior to construction, if it is determined that Project-related ground-disturbing activities may extend into native soil within 100 feet of a previously recorded archaeological site, the Project Developer shall retain the services of a qualified archaeologist to conduct XPI investigations within the Project site. The XPI investigations shall consist of subsurface trench excavations to determine the presence or absence of buried features associated with the known archaeological site. If feasible, at least two trenches shall be placed in recorded location P-43-000025/CA-SCL-5, which is recorded as partially in the Project site, to ensure adequate investigations in this area. If the XPI investigations reveal resources, additional trenches or testing may be necessary. Mitigation Measure CR-1.3, described below, shall be followed.	Project Developer to submit XPI Archaeological Investigation(s) to City.	Project Developer/ Qualified Archaeologist	City Planning & Inspection Division	Prior to issuance of grading permits that would disturb native soils within 100 feet of a previously recorded archaeological site
CR-1.2: Provide Archaeological Monitoring of the Project Site When in Native Soil. Prior to construction, if it is determined that Project-related ground-disturbing activities may extend into native soil, within 100 feet of a previously recorded archaeological site, the Project Developer shall retain the services of a qualified archaeologist to monitor earthmoving activities within the Project site. Monitoring shall consist of coordinating subsurface work to allow for the careful examination of vertical and horizontal soil relationships for the purpose of seeking positive archaeological finds (prehistoric and/or historic). The monitor shall maintain a field log of their presence and observations, carefully noting soil conditions. The archaeological monitor shall be pre-approved by the Director of Planning and Inspection. After written approval, the Planning Division shall be notified at least 48 hours prior to any grading or other subsurface work on the site, and the Project	City to approve monitor, ensure monitor is in place, and approve monitoring protocol, which shall include requirements of CR-1.3.	Project Developer/ Qualified Archaeologist	City Planning & Inspection Division	Monitoring protocol prior to the issuance of grading and building permits that would disturb native soils within 100 feet of a previously recorded archaeological

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
Developer shall provide a written protocol for the City's review and approval that stipulates the manner in which the Project Developer shall comply with the monitoring requirements. In the event that cultural resources are encountered, Mitigation Measure CR-1.3, described below, shall be followed.				site; monitoring shall occur during earthmoving activities
CR-1.3: Stop Work if Cultural Resources Are Encountered during Ground-Disturbing Activities. In the event that cultural resources are encountered during ground disturbing activities, all work within proximity of the find shall temporarily halt so that the archaeological monitor can examine the find and document its provenience and nature (drawings, photographs, written description). The archaeological monitor shall then direct the work to either proceed if the find is deemed to be insignificant, or instruct the work to continue elsewhere or cease until adequate mitigation measures are adopted. If the find is determined to be potentially significant, the archaeologist, in consultation with the Planning Division, shall develop a Treatment Plan that could include site avoidance, capping, or data recovery. If data recovery is determined to be appropriate, excavation shall target recovery of an appropriate amount of information from archaeological deposits to determine the potential of the resource to address specific research questions. If it occurs, data recovery shall emphasize the understanding of the archaeological deposit's structure, including features and stratification, horizontal and vertical extent, and content, including the nature and quantity of artifacts.	Archaeological monitor (retained by the Project Developer), as necessary, and in consultation with the City, develop a Treatment Plan. See also CR-1.2.	Project Developer/ Qualified Archaeologist	City Planning & Inspection Division	During construction if cultural resources are encountered
CR-2.1: Paleontological Resource Mitigation Plan. Prior to any deep excavations below an elevation of -30 feet (North American Vertical Datum of 1988 [NAVD] 88) at the Project site on areas not underlain by landfill refuse, the Planning Division shall be notified at least 48 hours prior to the excavation, and a qualified professional paleontologist shall prepare a Paleontological Resource Mitigation Plan (PRMP) in consultation with the Planning Division. The PRMP shall describe the tasks necessary to monitor, assess, and recover (if present) significant paleontological resources during Project excavation activities. The PRMP shall be implemented by the qualified paleontologist during the deep Project excavations below an elevation of -30 feet (NAVD 88).	Project Developer to submit to City PRMP prepared by paleontologist (retained by the Project Developer).	Project Developer/ Qualified Professional Paleontologist	City Planning & Inspection Division	Prior to issuance of grading permits for excavations below an elevation of -30 feet at Parcel 5 and areas of Parcel 4 not underlain by landfill.
CR-2.2: Paleontological Resource Monitoring. In accordance with the PRMP, a qualified paleontologist shall monitor for fossils in Pleistocene deposits during Project excavations below an elevation of -30 feet (NAVD 88) on areas not underlain	Project Developer to provide to City contract with paleontologist for	Project Developer/ Qualified	City Planning & Inspection Division	Prior to issuance of grading

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
by landfill refuse or below other elevations confirmed in the field by the qualified paleontologist. The qualified paleontologist shall be present initially for 100 percent of the excavation activities within the Pleistocene deposits. After 50 percent of the excavation is completed within the rock unit and if no fossils of any kind have been discovered, then the level of monitoring can be reduced or suspended entirely at the Project paleontologist's discretion. If the paleontologist discovers potential paleontological resources, all ground disturbance within 50 feet of the find shall stop immediately until the qualified professional paleontologist can assess the nature and importance of the find and recommend appropriate salvage, treatment, and future monitoring and mitigation actions.	implementing PRMP, which shall include requirements of CR-2.3.	Professional Paleontologist		permits for excavation below an elevation of -30 feet at Parcel 5 And areas of Parcel 4 not underlain by landfill
CR-2.3: Paleontological Resource Reporting. If significant paleontological resources are identified, the Project qualified paleontologist shall prepare a report summarizing the field and laboratory methods, site geology and stratigraphy, faunal/floral list(s), and a brief statement of the significance and relationship of the fossils discovered to similar fossils found elsewhere. The final report should emphasize the discovery of any new or rare taxa, or paleoecological or taphonomic significance. A complete set of field notes, geologic maps, stratigraphic sections, and a list of identified specimens must be included in or accompany the final report. This report should be finalized only after all aspects of the PRMP are completed, including preparation, identification, cataloging, and curatorial inventory. Full copies of the final report shall be deposited with both the Lead Agency and the repository institution with the request that all locality data remain confidential and not made available to the general public.	Paleontologist to prepare final report for submission to City. See also CR-2.2.	Project Developer/ Qualified Professional Paleontologist	City Planning & Inspection Division	After a significant paleontological resource is identified during construction
CR-3.1: Stop work if human remains are encountered during ground-disturbing activities. When human remains are discovered (in either an archaeological or construction context), all work within proximity of the remains shall stop so that the archaeological monitor can examine the remains. The County Coroner shall be notified, who shall make a determination as to whether the remains are of Native American origin. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission (NAHC) immediately. The NAHC shall notify those persons it believes are most likely descended from the deceased Native American. Once the NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial, which will be implemented in accordance with Section 15064.5(e) of the State CEQA Guidelines.	Project Developer to submit to City applicable provisions of construction contracts including applicable requirements.	Project Developer/ Project Contractor	County Coroner/ NAHC	Prior to issuance of grading and building permits

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
BIOLOGICAL RESOURCES				
BIO-1.1: Protect Nesting Birds. The Project Developer and its contractors shall avoid conducting vegetation removal during the migratory bird nesting season (February 1–August 31). If Project-related activities must commence during the migratory bird nesting season, the Project Developer shall retain a qualified wildlife biologist to conduct a survey for nests of migratory birds. Surveys for nesting migratory birds shall occur within 3 days prior to the commencement of ground disturbance and vegetation removal in areas that will be affected by Project construction activities. Multiple nest surveys shall be required if construction is phased or when construction work stops for more than 2 weeks at a portion of the site where suitable nesting habitat remains. If construction is ongoing for multiple years, these surveys shall be conducted each year prior to construction in areas that have not yet been disturbed and are scheduled to be disturbed during the nesting season. In addition to nesting-season surveys, surveys shall be conducted during the non-nesting season (September 1–January 31) for overwintering burrowing owls in areas scheduled for initial disturbance during the upcoming season. The surveys shall also be conducted as described above, with a goal of identifying overwintering owls so they can be appropriately avoided during construction. If an active nest is discovered, a no-disturbance buffer zone around the nest tree or shrub (or, for ground-nesting species, the nest itself) shall be established. The no-disturbance zone shall be marked with flagging or fencing that is easily identified by the construction crew and shall not affect the nesting bird or attract predators to the nest location. In general, the minimum buffer zone widths shall be as follows: 50 feet (radius) for non-raptor ground-nesting species, 50 feet (radius) for non-raptor shrub- and tree-nesting species, and 300 feet (radius) for raptor species. Buffer widths may be modified based on discussion with DFW. Buffers shall remain in place as long as the nest is active or young remain in the area and are dependent on the nest. If a burrowing owl nest is identified during pre-construction surveys, no-activity buffers will adhere to the recommendations in the 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation.[7] Most Project activities would result in a high level of disturbance, constituting a 1,640-foot (500-meter) required buffer around occupied nests during any time of year.[8]	Project Developer to provide to City applicable provisions of construction contracts including pertinent requirements. If construction will occurs in the nesting season, Project Developer to submit to City agreement with qualified wildlife biologist requiring surveys and protective measures under BIO-1.1 and requirement that wildlife biologist report to City if conditions triggering BIO-2.2 exist.	Project Developer/ Project Contractor/ Qualified wildlife biologist	City Planning & Inspection Division	Prior to the issuance of grading and building permits for construction contracts; prior to commencement of grading for biologist agreements; and prior to ground disturbance for surveys

[7] California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency. March 7. Available: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html#Mammals.

[8] Scobie, D., and C. Faminow. 2000. Development of Standardized Guidelines for Petroleum Industry Activities that Affect COSEWIC Prairie and Northern Region Vertebrate Species at Risk. Environment Canada, Prairie and Northern Region, Edmonton, Alberta, Canada.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
BIO-1.2: Implement Bird-Safe Design Standards into Project Buildings and Lighting Design. Each Development Area Plan (DAP) approved by the City shall include a set of specific standards for minimizing hazards to birds, to be implemented by the Project Developer. The development of the specific bird safety standards for each Development Area Plan shall be tailored to the specific potential hazards to birds in that development area, taking into account the specific locations, types and heights of buildings, lighting, and landscaping. In addition, the DAP shall require enhanced protective measures for buildings within 300 feet of the retention pond, the Guadalupe River, and San Tomas Aquino Creek, such as siting buildings in relation to existing landscape features to reduce conflicts with existing features that may serve as attractive bird habitat; minimizing the reflection of existing vegetation on building facades; or using soil berms, furniture, landscaping, or architectural features to prevent reflection of water in glazed building facades. The specific bird safety standards in each DAP shall be based on the following bird-friendly building principles, to the extent applicable to the particular development area: • Reduce mirrors and large areas of reflective glass. • Avoid transparent glass skyways, walkways, or entryways, free-standing glass walls, and minimize transparent building corners, or utilize glazing treatments to mitigate the hazard. • Minimize funneling of open space toward a building façade. • Strategically place landscaping to reduce reflection and views of foliage inside or through glass. • Reduce potential light and glare by implementing Mitigation Measures AES-2.1 (requiring low-profile, low-intensity lighting directed downward), AES-2.2 (requiring shielded fixtures for outdoor lighting), and AES-2.3 (requiring low-emissivity reflective coating on exterior glass surfaces). • To the extent consistent with the normal and expected operations of the uses planned for the particular development area, take appropriate measures to avoid use of unnecessary lighting at night, especially during bird migration season (February-May and August-November) through the installation of motion sensor lighting, automatic lighting shut-off mechanisms, or other effective measures to the extent feasible. The specific bird safety standards shall also provide for a monitoring program, and placing signs around the buildings with phone numbers for authorized bird conservation organizations.	City review and approve each Development Area Plan to ensure adequate measures are included.	Project Developer	City Planning & Inspection Division	Approval of each Development Area Plan

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
BIO-2.1: Detection of Burrowing Owls. The Project Developer shall allow access to the Project site or off-site areas for biologists who participate in the annual burrowing owl nest survey coordinated by the Santa Clara Valley HCP/NCCP. Burrowing owl surveys are conducted between March and August of each year. As many as four surveys may be conducted each year, in accordance with the Staff Report on Burrowing Owl Mitigation[9] to determine whether burrowing owls are nesting and whether nests are successful. Access to the site for burrowing owl surveys shall be granted until the Project site or off-site area is completely built out. The Project Developer shall not, however, be required to postpone planned development activities to provide such access, except to the extent such postponement is necessary to meet regulatory requirements.	The ground lessee shall allow such access until certificate of completion for the phase.	Project Developer/City	City Planning & Inspection Division	Concurrent with execution of each phase ground lease
BIO-2.2: Mitigation for Loss of Burrowing Owl Habitat during Construction. Should burrowing owls begin nesting on developable portions of the Project site or off-site areas that remain undeveloped as phases of the Project are constructed, or suitable habitat within 600 meters of an active nest is removed from the Project site, then lost burrowing owl habitat shall be replaced at a ratio of at least 1:1 prior to ground-disturbing activities in the area of the Project site or off-site area with an active nest. Affected habitat shall be defined as suitable habitat (based on the habitat mapping completed for this EIR) within a 600 meter radius of an active burrowing owl nest. Suitable land cover types include annual grassland, ruderal, or barren areas. Mitigation sites shall have documented nesting occurrences from at least 1 year within the previous 3 years. If burrowing owls move onto undeveloped portions of the Project Site or off-site area, including the Retention Basin, once the site is fully constructed, there shall be no requirement to provide replacement habitat, unless that undeveloped habitat is developed in the future.	If required, Project Developer to submit certification to the City that habitat has been replaced at the specified ratio. City to review and approve certification.	Project Developer	City Planning & Inspection Division	Prior to ground-disturbing activities until the Project site or off-site areas are completely built-out in the event that wildlife biologist detects circumstance triggering BIO-2.2
BIO-3.1: Protect Western Pond Turtles. Prior to the start of construction activities in or within 50 feet of aquatic habitats, the Project Developer shall retain a qualified biologist to conduct preconstruction surveys for western pond turtles in all suitable habitats (aquatic and upland) in the vicinity of the work site. Surveys shall take place no more than 72 hours prior to the onset of site preparation and construction activities with the potential to disturb turtles or their habitat. If preconstruction surveys identify active nests on the Project site, the biologist shall establish no-disturbance buffer zones around each nest using temporary orange construction fencing. The demarcation shall be permeable to allow young turtles to move away	Project Developer to submit to City agreement with qualified biologist and applicable provisions of construction contracts, including requirement that biologist submit to City certification that	Project Developer/ Qualified Biologist	City Planning & Inspection Division	Prior to the issuance of grading or building permits for biologist and construction agreements; and 72 hours

[9] CDFW 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
from the nest following hatching. The radius of the buffer zone and the duration of exclusion shall be determined in consultation with DFW. The buffer zones and fencing shall remain in place until the young have left the nest, as determined by the qualified biologist. If western pond turtles are found on the Project site, the Project Developer shall still retain a qualified biologist to monitor construction activities in the vicinity of suitable habitat and implement appropriate measures to protect the western pond turtle. Such measures may include removal and relocation of western pond turtles in proposed construction areas to suitable habitats outside the Project limits, consistent with DFW protocols and permits. Relocation sites shall be subject to DFW approval.	preconstruction surveys have been conducted and protective measures taken.			prior to site construction activities in or within 50 feet of aquatic habitats
BIO-4.1: Protect Central California Coast Steelhead, Critical Habitat, and Chinook Salmon. Construction, operations, and maintenance on the riverbank, as well as areas within 200 feet of the Guadalupe River, that could result in disturbed sediment depositing within the banks of the channel shall be limited to the summer low-precipitation period (June 1 to October 15), unless otherwise approved by appropriate resource agencies. Limiting riverbank disturbance during these months would reduce the likelihood of adverse effects on adult and juvenile salmonid migration.	Project Developer to provide to City applicable provisions of construction contract ensuring work on the riverbank as well as within 200 feet of the Guadalupe River that could result in disturbed sediment depositing within the banks of the channel is limited to summer low precipitation periods.	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to issuance of grading and building permits
BIO-5.1: Protect Retention Pond and Eastside Retention Drainage Swale, and San Tomas Aquino Creek and the Guadalupe River Aquatic Habitat during Construction. For construction activities within 50 feet of the aquatic habitat associated with the retention pond and drainage swale, San Tomas Aquino Creek, and Guadalupe River, protective measures shall be put in place to ensure that impacts on those aquatic features shall be avoided and minimized. The following measures shall be deployed during construction: • A qualified biologist shall determine the locations where orange construction barrier fencing shall be installed around aquatic resources (USACE and the Regional Water Board jurisdictional wetlands/waters and DFW jurisdictional lakes and streams) that are to be avoided prior to initiation of construction activities. • Designate the protected area an Environmentally Sensitive Area and clearly identify the area in the construction specifications. • Maintain jurisdictional wetlands/water protection fencing throughout the grading	Project Developer to provide to City applicable provisions of construction contract and agreement with qualified biologist that include the specified protective measures.	Project Developer/ Qualified Biologist	City Planning & Inspection Division	Prior to issuance of grading and building permits for construction activities within 50 feet of the pertinent aquatic habitat

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
and construction period. • Prohibit grading, construction activity, traffic, equipment, or materials in fenced wetland areas.				
BIO-5.2: Compensate for Loss of Waters of the U.S. and State (including Wetlands). If impacts to jurisdictional waters of the U.S. or State cannot be avoided, the Project Developer shall obtain permits or approvals to develop from the USACE, the Regional Water Board, and DFW, as appropriate and required. Both the Guadalupe River and San Tomas Aquino Creek are subject to both State and federal jurisdiction because of their connection to the Bay. To ensure that the Project results in no net loss of wetland habitat functions and values, the Project Developer shall compensate for the loss of jurisdictional wetlands/waters through one of the following options. • Purchase of agency-approved mitigation credits from a suitably located mitigation bank prior to construction (ground disturbance that impacts wetlands/waters); • On-site wetland/waters restoration (re-establishment or rehabilitation) establishment (creation) prior to or concurrent with construction impacts; • Off-site wetland/waters restoration (re-establishment or rehabilitation)/establishment (creation) prior to or concurrent with construction; or • A combination of two or more of the above. The amount of agency approved mitigation credits required from a suitably located mitigation bank and/or size and location(s) of the area(s) to be restored (re-established)/established (created) shall be based on appropriate mitigation ratios, as derived in consultation with DFW, USACE, and the Regional Water Board. The Project Developer shall prepare and implement a mitigation and management plan (MMP) as part of the permitting process in conformance with the USEPA/USACE 2008 Mitigation Rule. The mitigation ratios shown in the initial draft MMP submitted to the permitting agencies during Project permitting shall be a minimum of 2:1, as determined through the CEQA process. The MMP, if other than sole purchase of mitigation bank credits, shall include the requirements listed below: • Mitigation implementation plan; • Performance (success) standards or criteria to be met in order to determine that the mitigation has successfully replaced the impacted wetlands/waters in terms of "no net loss" of the impacted functions and values; • 5-year monitoring plan for determining that performance criteria have been successfully met through the collection of wetlands/waters vegetation survival and cover field data; hydrology flooding, ponding, and/or soil saturation field data; and	Project Developer to provide to City wetland delineation, copies of permits obtained as and if required from USACE, the Regional Water Board and DFW, and the MMP, all satisfying the requirements of BIO-5.2 Project Developer to provide to City annual monitoring reports.	Project Developer/ Qualified Wetland Biologist	DFW, USACE, Regional Water Board, City Planning & Inspection Division	Prepare wetland delineation prior to first grading or building permit for the Project. Obtain requisite agency permits and prepare MMP prior to issuance of grading or building permits for construction activities that will impact jurisdictional wetlands. Monitor plan for a minimum of 5 years.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
habitat area data; • Adaptive management plan to be implemented if mitigation performance is found through annual monitoring not to be progressing towards success within the 5-year monitoring period; • Conservation plan to ensure in-perpetuity land use protection of the mitigation site; • Long-term (in-perpetuity) conservation management plan; and • Funding plan for mitigation implementation, 5-year mitigation performance monitoring and maintenance, and an endowment (non-wasting fund) for long-term conservation management. The final MMP shall be determined in consultation with DFW, USACE, and the Regional Water Board. The mitigation plan shall include measure to avoid and minimize the effects of construction on surrounding native habitats. The required performance standard is no net loss of wetland and waters habitat function and values. Monitoring shall occur for a minimum of 5 years, at which time, if the success criteria are met, wetland compensation shall be deemed complete.				
BIO-C.1: Make a Fair-Share Nitrogen Deposition Fee Contribution to the Santa Clara Habitat Agency's Voluntary Fee Payment Program. Consistent with its voluntary commitment to contribute a nitrogen deposition fee through the fee program of the Santa Clara Habitat Agency, the Project Developer shall make a pro-rated per-vehicle-trip nitrogen deposition fee contribution, which will be based on the amount charged by the Santa Clara Valley Habitat Agency under its Voluntary Fee Payments Policy (http://scv-habitatagency.org/DocumentCenter/View/345). Specifically, the per-vehicle trip fee shall be adjusted as set forth below to take into account the different dispersion characteristics of the Project vs. the average dispersion characteristics for development in the HCP/NCCP area. The Project is located farther from serpentine grassland habitat than average development within the Santa Clara Valley HCP/NCCP area. Thus, the required fair-share contribution shall be figured as 38 percent (based on the ICF analysis) of the established fee of the habitat agency for the year in which the building permits are issued for the Project. The fee may be paid up front or in installments in proportion to mitigated vehicle trip generation for the phase of the Project for which the building permits are issued. For fiscal year 2015–2016, the adopted HCP/NCCP nitrogen deposition fee was $4.20 per new vehicle trip. Using Scheme B's estimated trip generation (140,730 trips/day), taking into account the trip reduction effect of Mitigation Measure TRA-1.1 (reduction to 137,910 trips/day), and the 38 percent adjustment factor, if all fees were paid in 2015, the estimated total would be $220,104.	Project Developer to provide to City proof of payment.	Project Developer	City Planning and Inspection Division	Prior to issuance of building permits: to be paid up front or in installments in proportion to mitigated vehicle trip generation for the phase of Project for which the building permits are issued.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
GEOLOGY AND SOILS				
GEO-1.1: Detailed Grading and Erosion Control Plan. A detailed grading and erosion control plan shall be prepared and submitted to the City Building Department. The plan shall cover all Project parcels (not just the landfill portions) and off-site areas and include all information required to demonstrate that earthwork activities will be in compliance with CCR 21190 et seq. and incorporate by reference the Project's Storm Water Pollution Prevention Plan, as required by the Construction General Permit.	Project Developer to provide detailed grading and erosion control plan for review and approval by City.	Project Developer	City Planning and Inspection Division	Prior to the issuance of demolition and grading, permits
GEO-2.1: Design-Level Geotechnical Investigation. Prior to the issuance of demolition, grading, or construction permits at the Project site, a design-level geotechnical investigation shall be conducted by a qualified professional (the qualified professional shall be retained by the Project Developer). The investigation shall include further field exploration (e.g., borings, cone penetration tests, test pits and/or geophysical surveys) to develop design-level recommendations to address erosion and other geotechnical concerns for the Project. The design-level geotechnical investigation shall include: • Evaluation of anticipated settlement. Additional soil borings shall be installed to determine the depth to the refuse layer for aid in preparing grading plans. Additional samples shall be analyzed to determine potential settlement and determine the likely final post-settlement surface elevation. The potential magnitude of differential settlements between improvements supported by a combination of structural slab and deep foundations and those that are supported by other foundation systems shall be fully analyzed and detailed in the design-level geotechnical report. • Evaluation of liquefaction potential. Additional borings shall be drilled at the Project site and off-site areas to fully characterize the liquefaction hazard associated with the Project. • Evaluation of slope instability. A detailed slope stability analysis for all existing slopes that would remain under the Project, including the perimeter landfill slopes, and all proposed new slopes shall be prepared. • Evaluation of expansive soils. Additional borings shall be drilled at the Project site and off-site areas to fully characterize the expansive soil hazard associated with the Project. • Evaluation of corrosive soils. Project site and off-site soils and, in those areas where foundation components would come into contact with landfill materials, refuse shall be evaluated for corrosion potential.	Project Developer to provide design-level geotechnical investigation for review and approval by City. City and Developer to submit such investigation to regulatory agencies per GEO-2.6 with respect to areas underlain by landfill and secure approval as required. Project Developer to incorporate resulting measures into project plans.	Project Developer/ City	City Planning and Inspection Division	Prior to the issuance of demolition, grading, and building permits

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
The design-level geotechnical investigation work plan shall be submitted for review and approval in accordance with Mitigation Measure GEO-2.6.				
GEO-2.2: Final Geotechnical Report Review. A final geotechnical report shall be prepared by a qualified professional based on the findings of the design-level geotechnical investigation (the qualified professional shall be retained by the Project Developer). The final report shall be submitted for review and approval in accordance with Mitigation Measure GEO-2.6. The final geotechnical report shall include: Measures to address anticipated settlement: • Specifications of methods to address differential settlement between improvements supported by a combination of structural slab foundations and those that are supported by other deep foundation systems or unsupported areas. • Exterior slabs and ramps attached to buildings shall be hinged to allow the end of the slab or ramp not attached to the building to move downward as settlement occurs. The design shall not allow building entrance slabs to exceed a 5 percent grade, in compliance with ADA access requirements, and vehicular entrances shall not be allowed to exceed an 11 percent grade to prevent vehicles from scraping during entry or exit. • Settlement vaults and flexible connections shall be required at locations where utilities transfer from a pile-supported building to a non-supported area for all phases of construction. • Roadway and other paving at the Project site not located above an area-wide structural slab shall be constructed with flexible materials, such as asphalt or interlocking pavers. The use of concrete and other non-flexible materials shall be minimized. Where non-flexible material is used, expansion and spacing joints that allow rigid materials to shift without breaking shall be used to allow for anticipated settlement. Measures to address liquefaction: • In those areas not supported by the structural slab foundation (which would effectively mitigate the liquefaction hazard), other measures shall be developed to mitigate the hazard, such as shallow footings constructed over ground improvement. Foundations for structures shall be designed to completely mitigate settlement hazards associated with liquefaction (i.e., no liquefaction-induced settlement damage shall be accepted for the final design). Measures to address slope instability: • Measures (e.g., reducing slope steepness, providing structural support, or ground improvement) to ensure that an appropriate factor of safety (both static and	Project Developer to provide final geotechnical report for review and approval by City. City and Developer to submit such report to regulatory agencies per GEO-2.6 and secure approval as required. Project Developer to incorporate resulting measures into project plans.	Project Developer/ City	City Planning and Inspection Division	Prior to the issuance of grading and building permits

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
seismic) is achieved for each slope. Measures to address expansive soils: • In those areas not supported by the structural slab foundation (which would effectively mitigate the hazard), other measures shall be developed to mitigate the hazard, such as removal of the problematic soils, treatment of the soils, or specification of appropriate foundation design. If any soils characterized as highly or moderately expansive (linear extensibility of 3.0 percent or more) are to remain at the surface or be used as fill in the upper 5.0 feet, these soils shall be treated (using calcium-based treatment or similar approach) such that the soils are reduced to a low expansion potential (linear extensibility of less than 3.0 percent). Measures to address corrosive soils: • A corrosion consultant shall be retained to provide specific recommendations regarding the long-term corrosion protection of pile elements and other subsurface materials. The recommendations of the corrosion consultant, which may include use of specific corrosion-resistant materials and/or treatment of corrosive soils, shall be implemented during construction.				
GEO-2.3: Construction Quality Assurance Plan. A Construction Quality Assurance (CQA) Plan that covers both the Project site and off-site areas shall be prepared by the Project Developer for review and approval by the Director of Public Works. The CQA Plan shall establish procedures for testing final cover materials, detail the responsibilities of construction monitoring personnel, and provide procedures for addressing unexpected geologic conditions during grading activities.	Project Developer to provide a CQA Plan that covers both the Project site and off-site areas for review and approval by City. City and Developer to submit CQA to regulatory agencies per GEO-2.6 with respect to areas underlain by landfill and secure approval as required. Project Developer to submit to City applicable provisions of construction contracts incorporating requirements of CQA.	Project Developer	Director of Public Works	Prior to the issuance of grading, and building construction permits
GEO-2.4: Final Project Design Review. Final Project design plans that cover both Project site and off-site areas shall be prepared by the Project Developer and submitted for review and approval in accordance with Mitigation Measure GEO-2.6.	Project Developer to provide final Project design plans meeting	Project Developer/ City	City Planning and Inspection Division	Prior to issuance of grading and

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
Project site structures shall be designed to accommodate predicted ground settlement, as determined in the design-level geotechnical investigation for the Project improvements (see Mitigation Measure GEO-1.1). For the portion of the Project overlying the Landfill, the Post-Closure Land Use Plan shall demonstrate that Project design will be protective of public health and safety and the environment, as required by 27 CCR 21190. Because of the potential for encountering buried obstructions, contingencies for relocating Auger Cast-in Place Piles and Drilled Displacement Columns during construction shall be included in the foundation design. The Project design plans shall be subject to review and approval by the City Building Department prior to initiation of field activities.	criteria of GEO-2.4 for review and approval by City. City and Developer to submit such Project design plans to regulatory agencies per GEO-2.6 with respect to areas underlain by landfill and secure approvals as required.			building permits
GEO-2.5: Site Operation, Monitoring, and Maintenance Plan. A Site Operation, Monitoring, and Maintenance Plan that covers both the Project site and off-site areas shall be prepared by the Project Developer and submitted for review and approval in accordance with Mitigation Measure GEO-2.6. The Site Operation, Monitoring, and Maintenance Plan shall establish procedures for inspecting structures and improvements as well as evaluating the effects of settlement. It will also establish a mechanism for funding and implementing the Plan's activities throughout the life of the Project. Inspections that focus on documenting settlement, particularly at locations where different support systems meet, shall take place at least quarterly during the first 2 years following the completion of each phase of Project construction. Documentation of each inspection shall be submitted to for review and approval in accordance with Mitigation Measure GEO-2.6 within 30 days of inspection completion. After 2 years, the frequency of inspections may be adjusted with written consent from each agency that approved the Site Operation, Monitoring, and Maintenance Plan Site Operation, Monitoring, and Maintenance Plan. The Site Operation, Monitoring, and Maintenance Plan shall detail the qualifications and responsibilities of monitoring personnel, including immediate notification of the City Building Department of any settlement that could affect the structural integrity of a building and/or structure or settlement that could create a hazard for the public (e.g., separations that create trip hazards for pedestrians). If the types of settlements are observed that could compromise structural integrity or cause hazards for the public, based on the judgment of the qualified inspector, remedial action shall be promptly completed. The Plan shall designate financial responsibility for remedial actions should the effects of settlement be identified and provide timetables for any required remedial action. All remedial action shall be overseen by the qualified geotechnical consultant designated by the Plan and approved by each agency that approved the Site Operation, Monitoring, and	Project Developer to provide Site Operation, Monitoring, and Maintenance Plan for review and approval by City. City and Developer to submit Site Operation, Monitoring, and Maintenance Plan to regulatory agencies per GEO-2.6 for areas underlain by landfill and secure approvals as required. Project Developer to submit inspections to City for review and approval, and to regulatory agencies as specified in GEO02.6 for areas underlain by landfill, within 30 days or inspections.	Project Developer/ City	City Planning & Inspection Division	Plan approval prior to issuance of grading and building permits. Inspections at least quarterly during the first 2 years following the completion of each phase of construction. Documentation of each inspection shall be submitted within 30 days of inspection.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
Maintenance Plan. Quarterly reports detailing inspection and remedial activities shall be submitted to each agency that approved the Site Operation, Monitoring, and Maintenance Plan following each inspection for review and approval.				
GEO-2.6: Review and Approval by Relevant Regulatory Agencies. To the extent reports and plans required by Mitigation Measures GEO-2.1, -2.2, -2.3, -2.4 or -2.5 address the portion of the Project site overlying the Landfill, they shall be submitted jointly by the City (as owner and operator of the landfill) and the Project Developer for review and approval to the following: (i) the Local Enforcement Agency as principal landfill regulator; (ii) the Regional Water Board for approval of the issues related to the low permeability layer of the final landfill cover pursuant to 27 CCR 21990 (d) and pilings installed in or through the bottom liner of the landfill liner pursuant to 27 CCR 21990 (e)(6), and for review but not approval of other aspects of the plans and reports; (iii) to Cal Recycle for review, but not approval; and (iv) any other agency which is specifically required by applicable law to approve a particular report, plan or component thereof. To the extent reports and plans required by this mitigation measure relate to other portions of the site not overlying the Landfill, they shall be submitted by the Developer to the City, and to any agency which is specifically required by applicable law to approve a particular report, plan or component thereof, for review and approval.	Refer to GEO-2.1 through GEO-2.5	Refer to GEO-2.1 through GEO-2.5	Refer to GEO-2.1 through GEO-2.5	Refer to GEO-2.1 through GEO-2.5
HYDROLOGY AND WATER QUALITY				
WQ-1.1: Design and Implement Stormwater Control Measures. In compliance with Provision C.3 of the San Francisco Bay MS4 Permit and the Santa Clara Valley Water District's 100-year peak flood requirements, post-construction stormwater controls shall be implemented to reduce total runoff rates and associated pollutant discharges. According to the Santa Clara Valley Urban Runoff Pollution Prevention Program's C.3. Stormwater Handbook, the three methods for hydraulically sizing flow-based stormwater treatment control measures are (1) volume-based, (2) flow-based, or (3) a combination of volume-/flow-based hydraulic sizing criteria. The simplified method for sizing bioretention areas and flow-through planters, known as the "4 percent method," is based on a runoff inflow of 0.2 inch per hour, with an infiltration rate through biotreatment soil of 5 inches per hour. The 4 percent method requires the treatment measure to be 4 percent of the impervious area that drains to it. The design of the stormwater treatment measures is currently at the conceptual level and further details will be addressed as part of the planning, construction, and operation of the development. The treatment measures shall be designed to remove	Project Developer to provide to City Stormwater Management Report.	Project Developer	Department of Public Works	Prior to issuance of building permits

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]

pollutants from stormwater using filtration, infiltration, and sedimentation. Because infiltration is not feasible due to the landfill, the treatment measures must be built into the structure of the development above the landfill itself. The stormwater treatment measures that provide infiltration shall be lined with an impermeable liner on the bottom and sides. Just above the liner there must be a layer of clean gravel and a network of perforated piping (underdrains). These underdrains must connect to solid drain piping at the exit of the treatment area and ultimately be connected to the storm drainage infrastructure. All of these components shall exist above the podium structure. The impermeable liner would prevent any leaks or ruptures into the landfill and structures. There shall also be perforated underdrain piping connected to solid piping at the exit of the treatment measure/planter solid piping that will connect to the storm drain infrastructure at manholes where leak monitoring can be performed. More information on the potential hazards of a leak or rupture of the stormwater treatment measures causing flooding of the landfill gas venting lines is provided in Section 3.11, *Hazards and Hazardous Materials*. The following stormwater treatment (or Low Impact Development [LID]) measures are examples that will be considered and carefully selected as part of the final design process for the different sections of the proposed development:

- Bioretention Areas (impermeable liner with underdrain—no infiltration into landfill)
- Flow-through Planters
- Tree Well and Media Filters
- Infiltration Trenches (impermeable liner with underdrain—no infiltration into landfill)
- Rainwater Harvesting and Reuse
- Green Roofs
- Green Streets (with bioretention, impermeable liner, and underdrain)
- Pervious Pavements (impermeable liner with underdrain—no infiltration into landfill)

As noted above, a minimum of 4 percent of the site area shall be used for the stormwater treatment measures. As part of final design, these treatment measures for the Project site shall be incorporated into the aesthetics of the landscape. Some attenuation of the peak flows can be recognized, depending on the measures selected. The measures shall include an overflow to safely convey the more intense, less frequent rainfall events.

The stormwater treatment measures shall capture sufficient flows so that 100-year peak flood elevations or existing design flows within San Tomas Aquino Creek and the

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
Guadalupe River will not increase as part of the Project. The exact reduction in 100-year peak runoff volumes and flows that the stormwater management measures will need to accommodate will be determined during the design process for the stormwater management measures and will be provided in the detailed Project Stormwater Management Plan. Due to construction phasing, construction of interim treatment measures may be required once the 40-acre concrete pad has been constructed and before the surface of the pad is developed with new structures with their own associated post-construction stormwater treatment features. These interim measures will be reported to the San Francisco Bay Water Board. The stormwater management measures for each parcel shall be modeled during final design for buildings, parking garages, site landscaping, etc. Dynamic hydraulic modeling shall be used. Dynamic hydraulic modeling tracks the quantity and quality of runoff generated within each subcatchment as well as the flow rate, flow depth, and quality of water in each pipe and channel during a simulation period with multiple time steps. The results of the modeling shall be used to compare the proposed "permanent" stormwater peak flows and volumes for the Project with the existing peak flows and show compliance with the jurisdictional regulations. The dynamic hydraulic modeling shall consider the potential runoff volumes and rates coming from the top of the landfill. The resulting design of stormwater management measures shall be required to be sufficient to protect water quality and habitat resources along receiving waterways. A Stormwater Management Report, including detailed hydrologic and hydraulic calculations, analysis, and conclusions, shall be prepared to document the final design of the stormwater management and storm drain system and obtain the requisite approvals.				
WQ-3.1: Design New Bridge and Outfall Structures to Avoid Increase in 100-year Flow and Channel Erosion. In compliance with the Santa Clara Valley Water District's (SCVWD's) 100-year peak flood requirements, any new bridge and new outfalls in San Tomas Aquino Creek shall be designed to avoid increases in the 100-year flow and to avoid creek bed/channel erosion. The design shall also consider erosive action or redirection of flow during more frequent flood events in compliance with the City of Santa Clara's storm drainage design criteria[10] and consistent with SCVWD's	Project Developer to provide design for any new bridge or outfalls in San Tomas Aquino Creek or the eastside drainage channel for review and approval by City and	Project Developer	Department of Public Works	Prior to the issuance of the building permit for the development that triggers the need for the

[10] City of Santa Clara. 2015. Design Criteria for Improvements in Public Right-of-Ways and City Easements. Public Works Department. April. Available: http://santaclaraca.gov/home/showdocument?id=14345. Accessed: 12/29/15.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
guidance.[11] The outfalls will be set at elevations high enough to ensure the location of outfalls are above sediment levels within the bottom of the creek.[12] The design shall be provided to the City of Santa Clara and the SCVWD for review and approval for the Project. Construction would be done in phases. For example, the new bridge over the San Tomas Creek would not be needed until Phase 2 and outfalls to the eastside drainage ditch would not be needed until later phases. The design review approval of outfalls shall occur prior to the issuance of the building permit for the development that triggers the need for the outfall or associated construction activity, and on a schedule similar to the phases of construction.	submit to City evidence of approval from SCVWD.			outfall or associated construction activity
WQ-3.2: Vegetation Removal from the Retention Basin Drainage Swale. In accordance with the Retention Basin Drainage Swale Vegetation Clearing Project, and prior to the placement of new impervious surfaces on Parcels 1 or 2, overgrown tule and cattails shall be removed from the entire length of the drainage swale to restore the swale's flood protection capacity and protect residents and businesses. Vegetation in the drainage swale shall be mowed by hand using rotary mowers, and tule and cattails shall be cut down to 3 to 4 inches above the ground surface. The clippings shall be loaded by hand and hauled from the drainage swale to the Retention Basin where the vegetation will dry out. Once dry, the vegetation shall be transported to the Newby Island Landfill. It is estimated that initial removal of overgrown vegetation will generate approximately 300 cubic yards of debris. Prior to performance of this work, all necessary permits shall be obtained from environmental regulatory agencies for this vegetation removal, including any required compensation for loss of wetland/riparian vegetation.	City and Project Developer to execute an agreement to reimburse City for the one-time costs of removing vegetation from the swale (including compliance with any permit conditions requiring onsite actions to do so) as needed to restore flood protection capacity suitable to support the Project. City to be responsible for obtaining any necessary permits and for any maintenance of the swale thereafter.	Project Developer	Department of Public Works	Agreement executed prior to issuance of grading and building permits on Parcels 1 or 2. Vegetation removal complete prior to issuance of a certificate of occupancy for the first building on Parcels 1 or 2.
HAZARDS AND HAZARDOUS MATERIALS				
HAZ-2.1: Finalize Waste Management Plan for Construction. Prior to Project construction, a final Waste Management Plan shall be prepared and implemented. This plan shall be submitted to the LEA, CalRecycle, Regional Water Board, and	Project Developer to provide to City final, approved Waste	Project Developer	Department of Public Works	Plan approved by pertinent agencies must

[11] Santa Clara Valley Water District. 2006. *User Manual: Guidelines & Standards for Land Use Near Streams*. A Manual of Tools, Standards, and Procedures to Protect Streams and Streamside Resources in Santa Clara County. Prepared by the Santa Clara Valley Water Resources Protection Collaborative. Originally adopted in August 2005. Revised: July 2006.

[12] Outfalls and work within the SCVWD right-of-way are subject to approval and issuance of permits by the SCVWD.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
BAAQMD for review and approval. Specifically, the final Waste Management Plan shall contain, at a minimum, the following requirements, which are included in the draft Waste Management Plan: • Waste excavation shall be performed in accordance with a Health and Safety Plan (HASP) designed to minimize impacts from dust, odor, and other nuisances, and assure waste is handled in a safe and environmentally responsible manner. • During waste excavation and relocation, the worksite shall be monitored for dust, odor, or other nuisances in accordance with general landfill construction practices and the HASP. • At the end of the working day, any exposed waste shall be covered with soil or an alternative material, such as a geosynthetic blanket, (i.e., interim cover). • Odors, should they occur, shall be controlled by application of a deodorant, masking agent, neutralizing agent, or lime, and an interim landfill cover at the end of each working day. • A "Project Contact" shall be designated who will be responsible for responding to any local complaints about dust, odors, or other nuisances associated with the waste excavation and regrading operations. • During excavation activities, excavation areas shall be monitored using a hand-held instrument calibrated to measure combustible gases (including methane), hydrogen sulfide, oxygen, and VOCs. • No hot work (e.g., welding) shall be allowed in the vicinity of excavation activities unless methane concentrations are sufficiently below the lower explosive limit of 8 percent. If methane concentrations approach 5 percent, excavation activities shall be stopped until the landfill gas collection system can be modified to reduce the methane concentrations in the excavation area. If methane levels are persistent in areas where earthwork and/or hot work activities are necessary, inert gases (e.g., nitrogen) can be introduced into affected subsurface materials to lower oxygen and methane concentrations. By introducing an inert gas into the affected area, methane and oxygen can be displaced to create insufficient oxygen concentrations to support combustion.	Management Plan. City to verify that final Waste Management Plan includes all required components and all necessary approvals.			be submitted to City prior to issuance of demolition, grading, and building permits
HAZ-4.1: Landfill Closure, Monitoring, and Maintenance Plans.[13] Prior to issuance of building permits for structures within the area of the Landfill (Parcels 1, 2, 3, and 4), a revised Closure Plan and Post-Closure Maintenance Plan (PCMP) shall be prepared in accordance with the regulatory requirements described in 27 CCR	Project Developer to provide to City for its review and approval revised Closure Plan,	Project Developer/City	Department of Public Works	Prior to issuance of grading or building

[13] To the extent the implementation of this mitigation measure at Parcel 3 is made necessary by, or altered by, the City's park development activities, the City shall be responsible for implementation.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
21790–21840 and submitted to the LEA, CalRecycle, and Regional Water Board (as required) for review and approval. In addition, a PCLUP shall be prepared in accordance with the regulatory requirements described in 27 CCR 21190 and submitted to the LEA and Regional Water Board (as required) for review and approval. Collectively, these plans shall incorporate the requirements of Mitigation Measures HAZ-4.2 through 4.6, below. In addition, the Project Developer shall continue to work with the regulatory agencies (Regional Water Board, LEA, or CalRecycle) and ensure the implementation of all elements and measures necessary to mitigate Project-related health risks to residents and commercial workers to a level below the Regional Water Board's cumulative incremental cancer risk threshold of 1E-06 and hazard index (HI) (i.e., adverse non-cancer risk) of 1.0 established for the Project are implemented.	Post-Closure Maintenance Plan and Post Closure Land Use Plan that include evidence that health risks can be mitigated to identified levels and contain all elements of HAZ 4.2 through 4.6. City to submit these Plans to the Regional Water Board, LEA, and CalRecycle for their approval. City and Project Developer/Master Owner Association to implement the actions required by these Plans in accordance with the allocation of responsibilities set forth in the Landfill O&M Agreement attached to the DDA.			permits within the area of the Landfill (Parcels 1, 2, 3, and 4)
HAZ-4.2: Landfill Gas Collection and Removal System.[14] During Project construction, the existing landfill gas collection and removal system (i.e., wells and conveyance lines) shall be systematically abandoned and replaced in conjunction with the phased Project site development while complying with applicable regulatory requirements that govern the performance of these systems. The new system shall be designed to effectively draw landfill gases (e.g., methane, hydrogen sulfide, and volatile COPCs) away from building sub-slab areas. The system design shall be submitted to the City for review and approval, taking into account an evaluation of the following criteria: effective vacuum influence (based on	Project Developer to submit to City system design for review and approval . City to submit system design to the Regional Water Board, LEA, and/or CalRecycle for their approval, as required by the relevant	Project Developer/City	Department of Public Works	Prior to the issuance of grading or building permits within the area of the Landfill (Parcels 1, 2, 3, and 4)

[14] To the extent the implementation of this mitigation measure at Parcel 3 is made necessary by, or altered by, the City's park development activities, the City shall be responsible for implementation.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
pilot testing and pneumatic modeling), vacuum distribution control, oxygen management (for subsurface fire prevention), ease of maintenance, well location, effect of landfill settlement, mitigation of vapor intrusion risk, and the proposed development on the Project site. The system design shall incorporate temperature- and corrosion-resistant materials. The landfill gas collection and removal system shall be designed, operated, and maintained to control excessive gas concentrations as specified in 27 CCR 20939. The monitoring of landfill gases is described under Mitigation Measures HAZ-4.4, below.	regulations and approved plans. City to operate and maintain the system in accordance with the allocation of responsibilities set forth in the Landfill O&M Agreement attached to the DDA.			
HAZ-4.3: Landfill Gas Protection Systems.[15] During Project construction, landfill gas protection systems shall be constructed beneath the sub-slabs of structures located on Parcels 1, 2, 3, and 4 to remove landfill gases (e.g., methane, hydrogen sulfide, and volatile COPCs) that could otherwise accumulate and/or migrate through the sub-slab. The systems may include active gas collection or passive ventilation mechanisms and shall meet the minimum design requirements described in 27 CCR 21190. The landfill gas protection systems shall be designed, operated, and maintained to control excessive gas concentrations as specified in 27 CCR 20939. The monitoring of landfill gases is described under Mitigation Measures HAZ-4.4, below.	Project Developer to provide plans to City for review and approval and "as built" drawings to City once work is complete. System will be operated by Project Developer until a Master Owners Association is formed, after with system will be operated by Master Owners Association..	Project Developer/Master Owner Association	Department of Public Works	Prior to issuance of building permits for Parcels 1, 2, 3, and 4, with "as built" drawings submitted prior to any certificates of occupancy on such sites
HAZ-4.4: Landfill Gas Monitoring and Control System Maintenance.[16] During Project construction and operation on Parcels 1-4, a landfill gas monitoring and control program shall be implemented in accordance with 27 CCR 20921-20939. The gas monitoring network shall be designed by a registered civil engineer or a certified engineering geologist and shall ensure detection of the presence of landfill gas migrating beyond the disposal site permitted facility boundary and also into on-site structures. The monitoring network design shall include provisions for monitoring all structures on the Project site, including but not limited to, buildings, large subsurface vaults, or any other areas where potential landfill gas buildup may cause adverse	Project Developer to provide landfill gas monitoring network plans and Operations and Maintenance Plan to City for review and approval. City to submit these Plans to the Regional Water Board,	Project Developer/ Master Owners Association / City	Department of Public Works	Prior to issuance of grading and building permits for Parcels 1, 2, 3, and 4

[15] To the extent the implementation of this mitigation measure at Parcel 3 is made necessary by, or altered by, the City's park development activities, the City shall be responsible for implementation.

[16] To the extent the implementation of this mitigation measure at Parcel 3 is made necessary by, or altered by, the City's park development activities, the City shall be responsible for implementation.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
impacts on the public health or safety or the environment. Methods for monitoring on-site structures may include, but are not limited to: periodic monitoring, utilizing either permanently installed monitoring probes or gas surveys, and continuous monitoring systems. A methane monitoring system shall be installed inside all buildings on the Project site. If methane gas concentrations exceed a threshold of 1.25 percent by volume in air, as described under 27 CCR 20921, the methane monitoring system shall automatically alert the Santa Clara Fire Department, who shall assess the methane conditions and, if necessary, trigger an audible fire alarm to initiate a building evacuation. In the event of an evacuation, the building shall not be reoccupied until the Santa Clara Fire Department has confirmed and approved by that: (1) concentrations of methane meet the applicable compliance requirements and (2) the landfill gas monitoring and control system is operating in a manner that ensures adequate control of methane/vapor intrusion. The landfill gas control system shall be operated and maintained to control excessive gas concentrations as specified in 27 CCR 20939. This includes operating the landfill gas control system in such a manner as to satisfy the following requirements specified in 27 CCR 20921(a): • The concentration of methane gas must not exceed 1.25 percent by volume in air within any portion of any on-site structures; • The concentration of methane gas migrating from the disposal site must not exceed 5 percent by volume in air at the disposal site permitted facility boundary or an alternative boundary approved in accordance with Section 20925; and • Trace gases shall be controlled to prevent adverse acute and chronic exposure to toxic and/or carcinogenic compounds that could result in a health risk exceedance of the Regional Water Board's cumulative incremental cancer risk threshold of 1E-06 and HI (i.e., adverse non-cancer risk) of 1.0 established for the Project. In the event of an earthquake or other event that could cause a rupture or leak from overlying stormwater treatment measures (i.e., planters, vegetated areas), the landfill gas venting pipes shall be inspected at access ports within 24 hours of the event for leaks, ruptures, or any other conditions. Access ports shall be installed at select locations, to provide full coverage of the system based on system design and access constraints, within the venting layer to monitor for the presence of, and removal of, water that might flood the system in the event that water leaks from collection systems above the landfill gas mitigation system. This system would help prevent the water from further migrating into the underlying landfill gas mitigation system. The access ports will allow for use of portable moisture sensing devises to periodically monitor for moisture in the event that a leak is suspected. The access ports shall also be designed to allow for pumping of water from the interstitial space in the event that	LEA, and/or CalRecycle for their approval, as required by relevant regulations and approved plans. City and Project Developer/ Master Owners Association to implement the actions required by these Plans in accordance with the allocation of responsibilities set forth in the Landfill O&M Agreement attached to the DDA.			

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
water is detected. In addition to the monitoring and control of excessive gas concentrations to protect public health and safety and the environment, as specified in 27 CCR 20939, the landfill gas monitoring and control program shall incorporate the monitoring and control requirements for preventing subsurface fires that are described under Mitigation Measure HAZ-9.1, below.				
HAZ-4.5: Building Restrictions. The Project shall prohibit the construction of enclosed basements located over refuse on Parcels 1, 2, 3, and 4 to minimize the risk of landfill gas accumulation. Over the landfill area, the Project shall also limit residential construction to only Parcel 4 areas located over open-air podium level garages or over at least one level of enclosed commercial space to mitigate vapor intrusion effects by increasing the free flow and exchange of air beneath the residences.	Project Developer to submit final detailed design plans for review and approval by City.	Project Developer	Department of Public Works	Concurrent with building permit application
HAZ-4.6: Landfill Hazards Disclosure. Information about the existing subsurface hazardous materials conditions and the ongoing mitigation and monitoring requirements described in the PCLUP shall be included in all ground leases and space leases for space located over the Landfill. The text to be inserted shall be subject to review and approval by City.	Project Developer and City to include language in ground and tenant leases for space located over the landfill.	Project Developer/City	Department of Public Works	Prior to execution of ground or tenant leases
HAZ-5.1: Phase II Site Investigation. Prior to Project construction, a Phase II Site Investigation shall be performed on Parcel 5 and the tennis courts located in the southwest portion of Parcel 4 to (1) delineate the extent of soil, soil gas, and potential groundwater contamination on the site and (2) assess potential health risks posed to construction workers and future site users. The Phase II Site Investigation shall be conducted and evaluated by a licensed professional prior to construction and earthwork activities. The findings of the Phase II Site Investigation shall be submitted to the appropriate regulatory agency to the extent required by applicable law. The Project Developer shall conduct any additional investigation and/or risk assessment and/or implement any remedial or risk mitigation measures required by the regulatory agency.	If additional remedial or risk mitigation measures are needed, Project Developer to submit plans to City for review and approval.	Project Developer	Department of Public Works	Prior to issuance of grading and building permits for Parcel 5 and the portion of Parcel 4 beneath the existing tennis courts.
HAZ-5.2: Soil and Groundwater Management Plan. Construction on Parcel 5 and the tennis courts located in the southwest portion of Parcel 4 shall be conducted under a site-specific Soil and Groundwater Management Plan (SGMP) to protect construction workers, the general public, and the environment from hazardous materials identified in the Phase II Site Investigation (see Mitigation Measure HAZ-5.1) and potential undocumented sources of such materials. The SGMP shall delineate specific soil and groundwater management and disposal procedures,	City to review and approve a Soil and Groundwater Management Plan pertaining to Parcel 5 and the portion of Parcel 4 beneath the existing	Project Developer	Department of Public Works	Prior to issuance of grading and building permits for Parcel 5 and the portion of

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
construction worker health and safety requirements, and contingency measures in case unknown contamination is encountered during construction. The SGMP shall incorporate the soil and groundwater analytical data from the Phase II Site Investigation to ensure that soil and groundwater are stored, managed, and disposed of in a manner protective of human health and the environment, and in accordance with applicable laws and regulations. The SGMP shall specifically include the following: • Procedures for evaluating, handling, storing, testing, and disposing of known soil and groundwater contamination identified during the Phase II Site Investigation during Project excavation and dewatering activities, respectively; • Procedures for identifying, testing, and managing soil and groundwater suspected of containing hazardous materials (if any) that have not previously been identified at the site; • Descriptions of required worker health and safety provisions for all workers potentially exposed to hazardous materials in accordance with State and federal worker safety regulations; and • Identification of personnel responsible for implementation of the SGMP.	tennis courts.			Parcel 4 beneath the existing tennis courts
HAZ-5.3: Implement Measures Included in CCR Title 27, Section 21190(g). Consistent with the Project Developer's voluntary commitment, in order to mitigate gas migration into structures located within 1,000 feet of landfill, the City (as owner and operator of the landfill) and the Project Developer shall implement the following measures identified in Title 27, Section 21190(g), with respect to development on Parcel 5 and the southwest portion of Parcel 4: (1) a geomembrane or equivalent system with low permeability to landfill gas shall be installed between the concrete floor slab of the building and subgrade; (2) a permeable layer of open graded material of clean aggregate with a minimum thickness of 12 inches shall be installed between the geomembrane and the subgrade or slab; (3) a geotextile filter shall be utilized to prevent the introduction of fines into the permeable layer; (4) perforated venting pipes shall be installed within the permeable layer, and shall be designed to operate without clogging; (5) the venting pipe shall be constructed with the ability to be connected to an induced draft exhaust system; (6) automatic methane gas sensors shall be installed within the permeable gas layer, and inside the building to trigger an audible alarm when methane gas	City to review and approve detailed construction plans including these measures for Parcel 5 and the areas of Parcel 4 beneath the existing tennis courts. Project Developer shall submit quarterly reports that report methane gas levels for review by City.	Project Developer	Department of Public Works	Prior to issuance of building permits for Parcel 5 and the areas of Parcel 4 beneath the existing tennis courts; quarterly monitoring

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
concentrations are detected; and (7) periodic methane gas monitoring shall be conducted inside all buildings and underground utilities in accordance with Article 6, of Subchapter 4 of this chapter (section 20920 et seq.). At a minimum, quarterly monitoring is required, but more frequent monitoring may be required by LEA (Subchapter 4, section 20933(a)).				
HAZ-6.1: Finalize Draft Technical Memorandum: Leachate Collection and Removal System.[17] Prior to Project construction, a final Technical Memorandum: Leachate Collection and Removal System shall be prepared and implemented as part of the PCLUP. The technical memorandum shall be submitted to the LEA for review and approval and to CalRecycle and the Regional Water Board for review and comment. Specifically, the final technical memorandum shall contain, at a minimum, the following requirements: • During the construction phase of Parcel 3, the existing leachate collection and removal system (LCRS) risers LR-1 and LR-4 shall be protected and preserved during construction by flagging the well head locations, extending the risers, and installing a bollard around each riser. • If LR-1 or LR-4 are damaged during construction, repairs and modifications shall be completed promptly. • LR-1 and LR-4 shall be supported and anchored to prevent potential settlement over time and finished to grade at the end of excavation and/or completion of construction. • Ongoing operation and maintenance of the leachate recovery system shall continue during and after Project construction. The LCRS monitoring shall continue in accordance with the Regional Water Board's WDR Order No. R2-2002-0008 for the site, which shall be revised to consider the proposed development and modifications to the landfill systems.	Project Developer to submit to City for its review and approval a Leachate Collection and Removal System Technical Memorandum. City to submit to LEA for review and approval and to CalRecycle and the Regional Water Board for review and comment. As part of the PCLUPCity to operate and maintain the leachate recovery system in accordance with the allocation of responsibilities set forth in the Landfill O&M Agreement attached to the DDA.	Project Developer/City	Department of Public Works	Submittal of Memo: Prior to issuance of grading or construction permits for Parcels 1 and 3.
HAZ-9.1: Subsurface Fire Prevention, Detection, and Response Plan.[18] Prior to construction, a Subsurface Fire Prevention, Detection, and Response Plan shall be prepared that describes how subsurface heating conditions above the landfill will be monitored, prevented, and suppressed. The plan, which may be included as part of a	Project Developer to submit to City a Subsurface Fire Prevention, Detection,	Project Developer	Department of Public Works	Submittal of Plan prior to issuance of grading or

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Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
larger planning document, shall identify responsible parties and schedules for implementing the measures described in the plan. The Project Developer shall submit the plan to the LEA, CalRecycle, and the Santa Clara Fire Department (SCFD) for review and comment. Responses to comments shall be incorporated into a final Subsurface Fire Prevention, Detection, and Response Plan from the regulatory agencies. The plan shall also incorporate the prevention, detection, and response actions described under Mitigations HAZ-9.2 and HAZ-9.3, below, unless alternative actions are approved by LEA, CalRecycle, and SCFD. The final plan shall be implemented during Project construction and operation.	and Response Plan that has been reviewed and commented on by relevant agencies. The Plan shall be implemented consistent with the Landfill Operations and Maintenance Agreement.			construction permits for Parcels 1, 2, 3, and 4. Implementation during Project construction and operation
HAZ-9.2: Subsurface Fire Prevention and Detection Measures.[19] The following measures may be included in whole, or in part, in the Subsurface Fire Prevention, Detection, and Response Plan, as required by the LEA, CalRecycle, and SCFD. In addition, these agencies may require additional measures. The landfill gas collection system shall be monitored and maintained to minimize the intrusion of oxygen (i.e., air) into the landfill and prevent the overheating of waste due to aerobic decomposition. In accordance with BAAQMD monitoring requirements (Regulation 8-34), the gauge pressure, nitrogen or oxygen concentration, and temperature of landfill gas within each extraction wellhead shall be monitored once a month and evaluated to ensure the system is not overdrawing air into the landfill. The nitrogen and oxygen concentrations may be measured using a calibrated portable instrument. The landfill gas measured at each extraction well head must meet the following monitoring threshold requirements: • Nitrogen concentrations less than 20 percent or oxygen levels less than 5 percent; and • Maximum temperature of 140 degrees Fahrenheit. The nitrogen and oxygen thresholds shall be used to indicate if the gas collection system is overdrawing and causing excessive ambient air infiltration into the landfill through its surface and sides. An exceedance of the maximum temperature threshold shall indicate that a subsurface fire may exist. Other evidence of a potential subsurface fire shall include the following: • Observations of rapid settlement over a short period of time; • Smoke or smoldering odor emanating from the gas extraction system or landfill; or • Combustion residue in extraction wells and/or headers.	Project Developer to integrate these measures into the Subsurface Fire Prevention, Detection, and Response Plan as requested by relevant agencies.	Project Developer	Department of Public Works	Submittal of Plan: Prior to issuance of grading or construction permits for Parcels 1, 2, 3, and 4. Implementation during Project construction and operation

[19] To the extent the implementation of this mitigation measure at Parcel 3 is made necessary by, or altered by, the City's park development activities, the City shall be responsible for implementation.

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
The landfill gas collection system shall be adjusted to reduce well extraction rates (if necessary) to ensure the monitoring thresholds for nitrogen/oxygen and temperature are not exceeded, while continuing to ensure the control of other excessive gas concentrations in the landfill (e.g., methane and trace gases) as specified in 27 CCR 20939. In the event that one or both of the monitoring thresholds are exceeded or other evidence of a potential subsurface fire is observed, then gas samples shall be collected from the extraction wells in the affected area and submitted to a certified laboratory for analysis of nitrogen, oxygen, and carbon monoxide. Analytical results for nitrogen and oxygen that exceed the monitoring thresholds shall be used as confirmation that an aerobic environment is present. Analytical results for carbon monoxide that exceed 1,000 parts per million shall be used as confirmation that a subsurface fire exists.				
HAZ-9.3: Subsurface Fire Suppression. If a subsurface fire condition has been confirmed (i.e., carbon monoxide level exceed 1,000 parts per million), the LEA, CalRecycle, and SCFD shall be notified immediately. The extraction wells surrounding the subsurface fire shall be shut down temporarily to reduce oxygen levels. The extraction wells shall then be returned to active use in stages in conjunction with monitoring to determine if the subsurface fire has been suppressed. If shutting down the extraction wells does not suppress the fire and/or results in the excess accumulation of methane and other trace gases beneath structures, then the LEA, CalRecycle, and SCFD shall consider injecting a Class A foam or wetting agent or liquid carbon dioxide (which also has the added benefit of rapidly cooling the refuse/fill) into the affected area. Large amounts of water shall not be used, because water can exacerbate the fire potential, generate contaminated runoff, increase leachate, and cause slope failure.	City to ensure that SCFD is aware of and trained on protocols. Project Developer and/or City to notify agencies if a subsurface fire condition is confirmed and to implement subsurface fire suppression measures.	Project Developer / City	City Planning & Inspection; SCFD	Prior to operation of Project over landfill areas for SCFD protocols. After confirmation of a subsurface fire condition as to agency notification
UTILITIES AND SERVICE SYSTEMS				
UT-3.1: Make a Fair-Share Contribution to Upgrading the Rabello and Northside Pump Station System's Capacity. The City will conduct detailed engineering study and analysis to determine the precise size and timing needed for the required pump station capacity upgrades to address overcapacity due to projected cumulative development. The City will implement the required capacity upgrades and the Developer will fund its fair share of such upgrades. The City shall determine the fair-share cost contribution for the Project based on the Project's percent of wastewater flow cumulative capacity needs above the current pump capacity (based on conceptual planning to date, that fair share is estimated as 27 percent of 2035 cumulative overcapacity amount). The City may require the Developer to fund the design and construction of the conveyance capacity upgrades to the Rabello and	Conduct a detailed engineering study and analysis to determine the precise size and timing needed for the required pump station capacity upgrades to address overcapacity due to projected cumulative development. Project	Department of Public Works	City Planning & Inspection	Conduct study prior to construction of Phase 2 of the Project, fund prior to issuance of first building permit for Phase 2 of the Project or later as

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing [1]
Northside Sanitary Sewer Pump Stations concurrent with construction of Phase 2 of the Project; the pump station upgrades would be designed to address overcapacity due to projected cumulative development. If the Developer is required to fund pump station upgrade costs, with the exception of costs attributable to the Project's fair share contribution to the upgrade, the City would reimburse the Developer for the design and construction costs through first (a) refunding the Project's Sanitary Sewer Conveyance Fees already paid by Developer or crediting those fees when due and (b) providing to Developer Sanitary Sewer Conveyance Fees collected from developers of projects that would use the Rabello and Northside Sanitary Sewer Pump Stations.	Developer to contribute fair-share, and potentially front costs of full upgrade.			otherwise determined necessary by City; if Developer to fund full pump station upgrade costs, Developer and City enter funding and reimbursement agreement prior to upgrade

MITIGATION MONITORING & REPORTING PROGRAM
City Place Santa Clara Project – Secondary Impacts for Intersection Improvements
Planning/CEQA File # PLN2014-10554/CEQ2014-01180
State Clearinghouse # 2014072078

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
TRANSPORTATION				
IM-TRA-1: Prepare and Implement a Construction Traffic Control Plan. Prior to issuance of grading permits, the construction contractor will develop the traffic control plan in accordance with the appropriate jurisdiction's policies and submit for approval. The plan will be implemented throughout the course of construction and may include, but will not be limited to, the following elements. • Limit truck access to the intersection during peak commute times (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 pm.). • Require that written notification be provided to contractors regarding appropriate routes to and from the intersection, and the weight and speed limits on local roads used to access the intersection. • Provide access for emergency vehicles at all times. • Provide adequate parking for construction employees, site visitors, and inspectors as feasible. • Maintain bicycle and pedestrian access and circulation during Project construction where safe to do so. If construction encroaches on a bike lane, warning signs will be posted that indicate bicycles and vehicles are sharing the roadway. If construction encroaches on a sidewalk, a safe detour will be provided for pedestrians at the nearest crosswalk. • Require traffic controls in the vicinity of the intersection, including flagpersons with bright orange or red vests and using a "Stop/Slow" paddle to control oncoming traffic. • Post standard construction warning signs in advance of the construction area and at any intersection that provides access to the construction area. • Repair or restore the road right-of-way to its original condition or better upon completion of the work.	Project Developer to prepare and submit a Construction Traffic Control Plan for the purpose of managing traffic and reducing traffic congestion during construction. City to review and approve Plan.	Project Developer/ Project Contractor	Department of Public Works	Prior to issuance of grading and building permits
AIR QUALITY				
IM-AQ-1: Implement Measures to Reduce Construction-Related Dust Emissions. The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce fugitive dust. Emissions reduction measures shall include, at a minimum, the measures below. Alternative	Project Developer to provide to City applicable provisions of construction contracts	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to issuance of grading and building

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City for approval. • All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. If water infiltration into landfill refuse layers is a concern, non-toxic soil stabilizers may be used instead. • All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph for a period of 2 hours or more. • Windbreaks (e.g., fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Windbreaks shall have at maximum 50 percent air porosity. • Exposed ground areas that are to be reworked more than 1 month after initial grading should be sown with fast-germinating native grass seed and watered appropriately until vegetation is established. If grass seeding is not feasible, then non-toxic soil stabilizers may be used. • All construction trucks and equipment, including tires, involved in ground disturbance or transit through loose soil areas shall be washed off prior to leaving the site. • Site accesses to a distance of 25 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel. Alternatively, a rumble plate may be used in place of chips, mulch, or gravel. • Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.	specifying construction mitigation measures to reduce construction-related dust emissions.			permits
IM-AQ-2: Implement Measures to Reduce Construction-Related Exhaust Emissions. The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce equipment exhaust emissions. Emission reduction measures shall include, at a minimum, the measures below. Alternative measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City for approval. • Idling time of diesel powered construction equipment shall be limited to 2 minutes. • Ensure that all off-road diesel-powered equipment used during construction between 2017 and 2022 is equipped with U.S. Environmental Protection Agency (EPA) Tier 3 or cleaner engines, except for specialized construction equipment for which an EPA Tier 3 engine is not available. Consistent with advancements of the statewide fleet average, the Project Developer shall ensure that all off-road diesel-	Project Developer to provide to City applicable provisions of construction contracts construction mitigation measures to reduce construction-related exhaust emissions.	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to issuance of grading and building permits

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
powered equipment used during construction between 2023 and 2030 is equipped with EPA Tier 4 engines. This requirement will ensure construction equipment remains cleaner than the fleet-wide average. • Ensure that all on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used at the Project site comply with EPA 2007 on-road emissions standards for particulate matter of 10 micrometers or less (PM10) and nitrogen oxides (NO_X) (0.01 grams per brake horsepower-hour [g/bhp-hr] and 0.20 g/bhp-hr, respectively). • Notwithstanding the above requirements, all construction equipment, diesel trucks, and generators shall meet the California Air Resources Board's most recent certification standard for off-road heavy-duty diesel engines and shall employ Best Available Control Technology for reductions in NO_X and particulate matter (PM) emissions if more stringent than the requirements above.				
GREENHOUSE GAS EMISSIONS				
IM-GHG-1: Utilize Alternative Fuels during Construction. Require construction contractors to use alternative fuels in at least 30 percent of the construction equipment that uses diesel fuel. Alternative fuels may include electricity, compressed natural gas (CNG), biodiesel (B-20), or renewable diesel, such as diesel high-performance renewable (HPR).	Project Developer to provide to City applicable provisions of construction contracts requiring adequate use of alternative fuels.	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to issuance of grading and building permits
CULTURAL RESOURCES				
IM-CR-1: Conduct Cultural Resource Investigations and Protect and Recover Significant Resources. The Lead Agency shall conduct a cultural resource investigation that includes a background records search (including a search of records from Sonoma State and historical societies, contact with Native American representatives identified by the Native American Heritage Commission (NAHC), and site pedestrian surveys) for the areas of ground disturbance from each roadway improvement. If significant known or suspected sites are discovered within the Project footprint and would be disturbed by the Project, then a cultural resource treatment plan shall be prepared, defining Project monitoring and resource recovery and curation requirements concerning any encountered cultural resources.	Lead Agency to conduct a cultural resource investigation that includes a background records search during ground disturbance. If necessary, Lead Agency to prepare and execute cultural resource treatment plan.	City Planning & Inspection Division	City Planning & Inspection Division	Prior to issuance of grading and building permits
IM-CR-2: Stop Work if Cultural Resources Are Encountered during Ground-Disturbing Activities. In the event that cultural resources are encountered during ground-disturbing activities, all work within proximity of the find shall temporarily halt so that the archaeological monitor can examine the find and document its provenience and nature (e.g., with drawings, photographs, written descriptions). The	Archaeological monitor (retained by the Project Developer), as necessary, and in consultation with the	Project Developer/ Qualified Archaeologist	City Planning & Inspection Division	During construction if cultural resources are

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
archaeological monitor shall then direct that the work proceed if the find is deemed to be insignificant, continue elsewhere, or cease until adequate mitigation measures are adopted. If the find is determined to be potentially significant, the archaeologist, in consultation with the appropriate jurisdiction, shall develop a treatment plan, which could include site avoidance, capping, or data recovery. If data recovery is determined to be appropriate, excavation shall target recovery of an appropriate amount of information from archaeological deposits to determine the potential of the resource to address specific research questions. If it occurs, data recovery shall emphasize the understanding of the archaeological deposit's structure, including features and stratification, horizontal and vertical extent, and content, including the nature and quantity of artifacts.	City, develop a Treatment Plan.			encountered
IM-CR-3: Stop Work if Human Remains Are Encountered during Ground-Disturbing Activities. If human remains are discovered (in either an archaeological or construction context), all work within proximity of the remains shall stop so that the archaeological monitor can examine the remains. The County Coroner shall be notified to make a determination as to whether the remains are of Native American origin. If the remains are determined to be Native American, the coroner shall notify the NAHC immediately. The NAHC shall notify those persons it believes are most likely descended from the deceased Native American. Once the NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial, which will be implemented in accordance with Section 15064.5(e) of the State CEQA Guidelines.	Project Developer to submit to City applicable provisions of construction contracts including applicable requirements.	Project Developer/ Project Contractor	County Coroner/ NAHC	Prior to issuance of grading and building permits.
BIOLOGICAL RESOURCES				
IM-BIO-1: Replace Removed Trees. The Project Developer shall replace all trees removed as part of the intersection improvements in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed.	Project Developer to provide to City report documenting plans to replace all trees removed as part of the intersection improvements.	Project Developer	City Planning & Inspection Division	Prior to issuance of grading and building permits
IM-BIO-2: Preconstruction Surveys. For all intersections that have trees within the intersection footprint or that will remove trees, the Project Developer and its contractors shall avoid conducting vegetation removal during the migratory bird nesting season (February 1–August 31), if feasible. If construction activities must commence during the migratory bird nesting season, the Project Developer shall retain a qualified wildlife biologist to conduct a survey for nests of migratory birds.	Project Developer to provide to City provisions of construction contracts including pertinent requirements. If	Project Developer/ Project Contractor/ Qualified wildlife	City Planning & Inspection Division	Prior to issuance of grading and building permits for biologist and

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
Surveys for nesting migratory birds shall occur within 3 days prior to the commencement of ground disturbance and vegetation removal. If an active nest is discovered, a no-disturbance buffer zone around the nest tree or shrub (or, for ground-nesting species, the nest itself) shall be established. The no-disturbance zone shall be marked with flagging or fencing that is easily identified by the construction crew and shall not affect the nesting bird or attract predators to the nest location. In general, the minimum buffer zone widths shall be as follows: 50 feet (radius) for non-raptor ground-nesting species, 50 feet (radius) for non-raptor shrub- and tree-nesting species, and 300 feet (radius) for raptor species. Buffer widths may be modified based on discussion with the California Department of Fish and Wildlife (CDFW). Buffers shall remain in place as long as the nest is active or young remain in the area and are dependent on the nest. If a burrowing owl nest is identified during preconstruction surveys, no-activity buffers will adhere to the recommendations in the 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation.	construction occurs in the nesting season, Project Developer to submit to City agreement with qualified wildlife biologist requiring surveys and protective measures.	biologist		construction contracts; prior to commencement of grading for biologist agreements; and prior to ground disturbance for surveys
IM-BIO-3: Site-Specific Surveys and Species/Habitat Avoidance, Minimization, and Compensation Measures. For intersections with the potential to have sensitive habitats, the Project Developer, in consultation with a qualified biologist, shall conduct site-specific surveys for special-status species, sensitive habitats, wetlands and waters of the United States, and nesting birds. If found, the Project Developer and its contractor shall implement avoidance and minimization measures, where feasible. Where avoidance is not possible, the Project Developer shall compensate for lost habitat at a minimum 1:1 basis. Compensation for lost habitat will be determined in consultation with CDFW/U.S. Fish and Wildlife Service (USFWS), as appropriate. The Project Developer shall obtain all required permits from the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board, and CDFW, and USFWS, as appropriate. The Project Developer shall provide buffer fencing and species relocation, as necessary, if permitted by CDFW/USFWS. Additionally, if special-status species or habitats are identified during the site-specific surveys, a Worker Environmental Awareness Training Program for construction personnel will be conducted by a qualified biologist retained by the Project Developer. The program will provide workers with information on their responsibilities with regard to the special-status species. The training will provide a physical description of the special-status species that have potential to occur and be affected by construction activities to each construction crew prior to the initiation of the crew's construction activities. The worker awareness training will also detail each species' habitat and legal protections, a photo of relevant species, and contact information for the primary biologist.	Project Developer to conduct site-specific surveys for special-status species, sensitive habitats, wetlands and waters of the United States, and nesting birds and provide to City for review and approval. If special status species are found, Project Developer to submit documentation to City detailing protective measures for review and approval.	Project Developer/ Qualified biologist	City Planning & Inspection Division	Prior to issuance of grading and building permits

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
GEOLOGY AND SOILS				
IM-GEO-1: Prepare a Geotechnical Investigation. Prior to construction of any intersection improvement that requires retaining walls (or disturbance of existing retaining wall), disturbance or placement of fill, substantial excavation below grade, establishment of new slopes, and/or placement of new structures above or below grade, the Project Developer shall prepare a geotechnical investigation to evaluate the potential for geologic, seismic, and soil risks. The geotechnical investigation shall include recommendations to abate any potential risks. If risks are identified, the Project Developer shall implement the recommendations included in the geotechnical investigation.	Project Developer to provide to City geotechnical investigation for review and approval. City and Developer to submit such report to regulatory agencies and secure approval as required. Project Developer to incorporate resulting measures into project plans.	Project Developer/City	City Planning and Inspection Division	Prior to issuance of grading and building permits
HYDROLOGY AND WATER QUALITY				
IM-WQ-1: Prepare a Hydrology and Water Quality Technical Report. Prior to construction of any intersection improvement, the Project Developer shall prepare a hydrology and water quality technical report to evaluate the existing drainage and stormwater conditions at the subject intersections. The technical report shall include recommendations for drainage and stormwater controls to minimize impacts related to changes in drainage patterns that would result from the intersection improvements. The Project Developer shall be required to implement the report's recommendations.	Project Developer to provide to City a hydrology and water quality technical report to evaluate the existing drainage and stormwater conditions at the subject intersections for review and approval.	Project Developer	City Planning & Inspection Division	Prior to issuance of grading and building permits

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
HAZARDS AND HAZARDOUS MATERIALS				
IM-HAZ-1: Prepare a Phase I Environmental Site Assessment. Prior to construction of any intersection improvement involving ground disturbance of acquired property, the Project Developer shall conduct a Phase I Environmental Site Assessment. Where the potential to encounter hazardous materials or waste is identified, the Project Developer shall prepare and implement a soil/groundwater handing plan that identifies measures to properly dispose of contaminated materials. Measures could include worker education and training, as appropriate, and site-specific controls to avoid risks to workers and adjacent residents or others.	Project Developer to submit Phase I Environmental Site Assessment to City for review and approval. Project Developer to implement soil/ groundwater handling plan to City for review and approval.	Project Developer	Department of Public Works	Prior to issuance of grading and building permits

MITIGATION MONITORING & REPORTING PROGRAM
City Place Santa Clara Project – Secondary Impacts for Soundwalls
Planning/CEQA File # PLN2014-10554/CEQ2014-01180
State Clearinghouse # 2014072078

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
TRANSPORTATION				
SW-TRA-1: Prepare and Implement a Construction Traffic Control Plan. Prior to issuance of grading permits, the construction contractor will develop the traffic control plan in accordance with the City's policies and submit for approval. The plan will be implemented throughout the course of construction and may include, but will not be limited to, the following elements: • Limit truck access to the soundwall site during peak commute times (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.). • Require that written notification be provided to contractors regarding appropriate routes to and from the soundwall and the weight and speed limits on local roads that would be used to access the soundwall site. • Provide access for emergency vehicles at all times. • Provide adequate parking for construction workers, site visitors, and inspectors as feasible. • Maintain bicycle and pedestrian access and circulation during Project construction where safe to do so. If construction encroaches on a bike lane, warning signs will be posted that indicate that bicycles and vehicles are sharing the roadway. If construction encroaches on a sidewalk, a safe detour will be provided for pedestrians at the nearest crosswalk. • Require traffic controls in the vicinity of the soundwall, including flagpersons with bright orange or red vests and using a "Stop/Slow" paddle to control oncoming traffic. • Post standard construction warning signs in advance of the construction area and at any soundwall that provides access to the construction area. • Repair or restore the road right-of-way to its original condition or better upon completion of the work.	Project Developer to prepare and submit a Construction Traffic Control Plan for the purpose of managing traffic and reducing traffic congestion during construction. City to review and approve Plan.	Project Developer/ Project Contractor	Department of Public Works	Prior to grading and building permit issuance.
AIR QUALITY				
SW-AQ-1: Implement Measures to Reduce Construction-Related Dust Emissions. The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce fugitive dust. Emission reduction measures shall include, at a minimum, the measures below. Alternative	Project Developer to City applicable provisions of construction contracts specifying construction	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to issuance of grading and building

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City for approval. • All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. If water infiltration into landfill refuse layers is a concern, non-toxic soil stabilizers may be used instead. • All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph for a period of 2 hours or more. • Windbreaks (e.g., fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Windbreaks shall have at maximum 50 percent air porosity. • Exposed ground areas that are to be reworked more than 1 month after initial grading should be sown with fast-germinating native grass seed and watered appropriately until vegetation is established. If grass seeding is not feasible, then non-toxic soil stabilizers may be used. • All construction trucks and equipment, including tires, involved in ground disturbance or transit through loose soil areas shall be washed off prior to leaving the site. • Site accesses to a distance of 25 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel. Alternatively, a rumble plate may be used in place of chips, mulch, or gravel. • Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.	mitigation measures to reduce construction-related dust emissions.			permits
SW-AQ-2: Implement Measures to Reduce Construction-Related Exhaust Emissions. The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce equipment exhaust emissions. Emission reduction measures shall include, at a minimum, the measures below. Alternative measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City for approval. • Idling time of diesel powered construction equipment shall be limited to 2 minutes. • The Project Developer shall ensure that all off-road diesel-powered equipment used during construction between 2017 and 2022 is equipped with U.S. Environmental Protection Agency (EPA) Tier 3 or cleaner engines, except for specialized construction equipment for which an EPA Tier 3 engine is not available. Consistent with advancements of the statewide fleet average, the Project Developer	Project Developer to provide to City applicant provisions of construction contracts specifying construction mitigation measures to reduce construction-relate exhaust emissions.	Project Developer/ Project Contractor	City Planning & Inspection Division	Prior to issuance of grading and building permits

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
shall ensure that all off-road diesel-powered equipment used during construction between 2023 and 2030 is equipped with EPA Tier 4 engines. This requirement will ensure that construction equipment remains cleaner than the fleet-wide average. • The Project Developer shall ensure that all on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used at the Project site comply with EPA 2007 on-road emissions standards for particulate matter of 10 micrometers or less (PM10) and nitrogen oxides (NO_X) (0.01 grams per brake horsepower-hour [g/bhp-hr] and 0.20 g/bhp-hr, respectively). • Notwithstanding the above requirements, all construction equipment, diesel trucks, and generators shall meet the California Air Resources Board's most recent certification standard for off-road heavy-duty diesel engines and shall employ Best Available Control Technology for emission reductions of NO_X and particulate matter (PM) if more stringent than the requirements above.				
CULTURAL RESOURCES				
SW-CR-1: Conduct Cultural Resource Investigations and Protect and Recover Significant Resources. The improvement Lead Agency shall conduct a cultural resource investigation of the areas of ground disturbance associated with the soundwall that includes a background records search (including a search of records from Sonoma State and historical societies, contact with Native American representatives identified by the Native American Heritage Commission [NAHC], and site pedestrian surveys) for the areas of ground disturbance from each roadway improvement. If significant known or suspected sites are discovered within the Project footprint and would be disturbed by the Project, then a cultural resource treatment plan shall be prepared, defining Project monitoring and resource recovery and curation requirements concerning any encountered cultural resources.	City to conduct a cultural resource investigation that includes a background records search during ground disturbance. If necessary, City to prepare and execute cultural resource treatment plan.	City Planning & Inspection Division	City Planning & Inspection Division	Prior to issuance of grading and building permits
SW-CR-2: Stop Work if Cultural Resources Are Encountered during Ground-Disturbing Activities. In the event that cultural resources are encountered during ground-disturbing activities, all work within proximity of the find shall temporarily halt so that the archaeological monitor can examine the find and document its provenience and nature (e.g., withdrawings, photographs, written descriptions). The archaeological monitor shall then direct that the work proceed if the find is deemed to be insignificant, continue elsewhere, or cease until adequate mitigation measures are adopted. If the find is determined to be potentially significant, the archaeologist, in consultation with the appropriate jurisdiction, shall develop a treatment plan, which could include site avoidance, capping, or data recovery. If data recovery is determined to be appropriate, excavation shall target recovery of an appropriate amount of information from archaeological deposits to determine the potential of the resource	Archaeological monitor (retained by the Project Developer), as necessary, and in consultation with the City, develop a Treatment Plan.	Project Developer/ Qualified Archaeologist	City Planning & Inspection Division	During construction if cultural resources are encountered

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
to address specific research questions. If it occurs, data recovery shall emphasize the understanding of the archaeological deposit's structure, including features and stratification, horizontal and vertical extent, and content, including the nature and quantity of artifacts.				
SW-CR-3: Stop Work if Human Remains Are Encountered during Ground-Disturbing Activities. If human remains are discovered (in either an archaeological or construction context), all work within proximity of the remains shall stop so that the archaeological monitor can examine the remains. The County Coroner shall be notified to make a determination as to whether the remains are of Native American origin. If the remains are determined to be Native American, the coroner shall notify the NAHC immediately. The NAHC shall notify those persons it believes are most likely descended from the deceased Native American. Once the NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial, which will be implemented in accordance with Section 15064.5(e) of the State CEQA Guidelines.	Project Developer to submit to City applicable provisions of construction contracts including applicable requirements.	Project Developer/ Project Contractor	County Coroner/ NAHC	Prior to issuance of grading and building permits
BIOLOGICAL RESOURCES				
SW-BIO-1: Replace Removed Trees on a 2:1 Basis. The Project Developer shall replace all trees removed as part of soundwall construction at a minimum of 2:1, or more, as required by the local tree ordinance.	Project Developer to provide to City report documenting plans to replace all trees removed at a 2:1 ratio for review and approval.	Project Developer	City Planning & Inspection Division	Prior to issuance of grading and building permits
SW-BIO-2: Preconstruction Surveys. The Project Developer and its contractors shall avoid conducting vegetation removal during the migratory bird nesting season (February 1–August 31) if feasible. If construction activities must commence during the migratory bird nesting season, the Project Developer shall retain a qualified wildlife biologist to conduct a survey for nests of migratory birds. Surveys for nesting migratory birds shall occur within 3 days prior to the commencement of ground disturbance and vegetation removal. If an active nest is discovered, a no-disturbance buffer zone around the nest tree or shrub (or, for ground-nesting species, the nest itself) shall be established. The no-disturbance zone shall be marked with flagging or fencing that is easily identified by the construction crew and shall not affect the nesting bird or attract predators to the nest location. In general, the minimum buffer zone widths shall be as follows: 50 feet (radius) for non-raptor ground-nesting species, 50 feet (radius) for non-raptor shrub- and tree-nesting species, and 300 feet (radius) for raptor species. Buffer widths may	Project Developer to provide to City provisions of construction contracts including pertinent requirements. If construction occurs in the nesting season, Project Developer to submit to City agreement with qualified wildlife biologist requiring surveys and protective	Project Developer/ Project Contractor/ Qualified wildlife biologist	City Planning & Inspection Division	Prior to issuance of grading and building permits for biologist and construction contracts; prior to commence-ment of grading for biologist agreements;

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
be modified based on discussion with the California Department of Fish and Wildlife (CDFW). Buffers shall remain in place as long as the nest is active or young remain in the area and are dependent on the nest. If a burrowing owl nest is identified during pre-construction surveys, no-activity buffers will adhere to the recommendations in the 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation.	measures.			and prior to ground disturbance for surveys
SW-BIO-3: Site-Specific Surveys and Species/Habitat Avoidance, Minimization, and Compensation Measures. The Project Developer, in consultation with a qualified biologist, shall conduct a site-specific surveys for special-status species, sensitive habitats, wetlands and waters of the United States, and nesting birds. If found, the Project Developer and its contractor shall implement avoidance and minimization measures, where feasible. Where avoidance is not possible, the Project Developer shall compensate for lost habitat on a minimum 1:1 basis. Compensation for lost habitat will be determined in consultation with CDFW/U.S. Fish and Wildlife Service (USFWS), as appropriate. The Project Developer shall obtain all required permits from the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board, and CDFW and USFWS as appropriate. The Project Developer shall provide buffer fencing and species relocation, as necessary, if permitted by CDFW/USFWS. Additionally, if special-status species or habitats are identified during the site-specific surveys, a Worker Environmental Awareness Training Program for construction personnel will be conducted by a qualified biologist retained by the Project Developer. The program will provide workers with information on their responsibilities with regard to the special-status species. The training will provide a physical description of the special-status species that have potential to occur and be affected by construction activities to each construction crew prior to the initiation of the crew's construction activities. The worker awareness training will also provide details regarding each species' habitat and legal protections, a photo of relevant species, and contact information for the primary biologist.	Project Developer to conduct site-specific surveys for special-status species, sensitive habitats, wetlands and waters of the United States, and nesting birds and provide to City for review and approval. If special status species are found, Project Developer to submit documentation to City detailing protective measures for review and approval.	Project Developer/ Qualified biologist	City Planning & Inspection Division	Prior to issuance of grading and building permits
GEOLOGY AND SOILS				
SW-GEO-1: Prepare a Geotechnical Investigation. Prior to construction of the soundwall, the Project Developer shall prepare a geotechnical investigation to evaluate the potential for geologic, seismic, and soil risks. The geotechnical investigation shall include recommendations to abate any potential risks. If risks are identified, the Project Developer shall implement the recommendations included in the geotechnical investigation.	Project Developer to provide to City geotechnical investigation for review and approval. City and Developer to submit such report to regulatory agencies and	Project Developer/City	City Planning and Inspection Division	Prior to issuance of grading and building permits

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
	secure approval as required. Project Developer to incorporate resulting measures into project plans.			
HYDROLOGY AND WATER QUALITY				
SW-WQ-1: Prepare a Hydrology and Water Quality Technical Report. Prior to construction of the soundwall, the Project Developer shall prepare a hydrology and water quality technical report to evaluate the existing drainage and stormwater conditions at the soundwall site. The technical report shall include recommendations for drainage and stormwater controls to minimize impacts related to changes in drainage patterns that would result from the soundwall. The Project Developer shall be required to implement the report's recommendations.	Project Developer to provide to City a hydrology and water quality technical report to evaluate the existing drainage and stormwater conditions at the soundwall site for review and approval.	Project Developer	City Planning & Inspection Division	Prior to issuance of grading and building permits
HAZARDS AND HAZARDOUS MATERIALS				
SW-HAZ-1: Prepare a Phase I Environmental Site Assessment. Prior to construction of the soundwall, the Project Developer shall conduct a Phase I Environmental Site Assessment. Where the potential to encounter hazardous materials or waste is identified, the Project Developer shall prepare and implement a soil/groundwater handing plan that identifies measures to properly dispose of contaminated materials. Measures could include worker education and training, as appropriate, and site-specific controls to avoid risks to workers and adjacent residents or others.	Project Developer to submit Phase I Environmental Site Assessment to City. Project Developer to implement soil/groundwater handling plan to City for review and approval.	Project Developer	Department of Public Works	Prior to issuance of grading and building permits

Mitigation and Avoidance Measures	Action	Implementing Party	Monitoring Party	Timing
UTILITIES AND SERVICE SYSTEMS				
SW-UT-1: Identify Underground and Overhead Utilities and Provide Coordination with Utility Providers. Prior to construction of the soundwall, the Project Developer shall identify all underground and overhead utilities within the footprint of the soundwall. If utilities are present, the Project Developer shall coordinate with the appropriate utility owners regarding utility shutoff during construction and relocation, as necessary.	Project Developer to identify all underground and overhead utilities within the footprint of the soundwall and provide documentation to City of coordination with the appropriate utility owners regarding utility shutoff during construction and relocation for review and approval.	City Planning & Inspection	City Planning & Inspection	Prior to issuance of grading and building permits

EXHIBIT MMRP-1
City Place Santa Clara Project – Intersection Mitigation Implementation
Planning/CEQA File # PLN2014-10554/CEQ2014-01180
State Clearinghouse # 2014072078

With Each Development Area Plan

Each DAP application must include: (1) a calculation of the number of vehicle trips projected to result from development proposed in the DAP using the methods and trip generation rates in the Final EIR (adjusted as appropriate for the success of TDM measures), that accounts for the site design, density and diversity of proposed land uses of the current DAP application and previous DAP applications, (2) the vehicle trips allocated by building and summarized by land use, and (3) a site access analysis (including a simulation, if needed, as determined by the Director of Planning and Inspection or at the applicant's discretion) to determine which site access improvements should be constructed to serve the development proposed in the DAP.

The City (with assistance of consultants as desired) will peer review the data in the application and will determine at DAP approval for the development proposed in the DAP (1) the number of trips projected to result and the allocation of such trips by building and/or uses, and (2) the site access improvements required and the trip thresholds or development stages at which those improvements must be constructed.

As Development Occurs

The Project Trip thresholds set forth in the table below, *Intersection Mitigation Sensitivity Analysis Results: Full Funding Responsibility*, establish the number of Project Trips at which each of the required intersection mitigation measures that are wholly the Project's responsibility to implement must be in place. The Project Phase column of the table is informational and not controlling.

Prior to the issuance of each building permit for a new building, using the calculated number of vehicle trips from the DAP application, Developer will calculate and submit to City the cumulative number of Project trips that will result from all prior development within the Project for which building permits have been issued plus the proposed new building. If the cumulative number of Project Trips meet or exceed any of the intersection Project Trip thresholds, the mitigation measures identified for each of those intersections shall be completed prior to issuance of the certificate of occupancy for the building for which the new permit is being sought, except that, for Intersections 48, 55, 57, 82, 84, 109 and 123, Developer will instead fund the mitigation measures at the costs specified in the table below, *Costs for Certain Full Funding Responsibility Improvements*, prior to the issuance of the pertinent building permit. Any building permits for renovations, remodeling or changes in use to previously permitted and occupied buildings prior to the completion of all Full Funding Responsibility intersection mitigations that result in net new vehicle trips will be subject to the same process.

Prior to the issuance of a building permit for each new building, the Developer shall pay to City a transportation fair share fee of $2,474.18 per PM peak hour trip based on the calculated number of vehicle trips for each new building. The per trip fair share fee was determined by summing the Project's fair share of the estimated costs of mitigation measures for impacts to intersections located in the Cities of Santa Clara, San Jose, Sunnyvale, and those under the jurisdiction of the County of Santa Clara, totaling $14,292,901 plus the Project's voluntary contribution to the Santa Clara Valley Transportation Authority (VTA) for impacts to freeway segments in Santa Clara and San Mateo Counties in the amount of $16,164,220, divided by the 12,310 PM peak hour trips projected to be generated by the Project. The fee will be allocated among pertinent jurisdictions as follows: VTA 53.07%; County of Santa Clara 32.97%; City of San Jose 13.25%; City of Sunnyvale 0.11%; and City of Santa Clara 0.60%. Any building permits for renovations, remodeling or changes in use to previously permitted and occupied buildings that result in net new vehicle trips will be subject to the fee on the basis of net new PM peak hour vehicle trips until the full amount of the combined fair share fee and voluntary contribution of $30,457,121 has been paid, after which no additional fee shall be paid.

Site access improvements will be built as required by DAP conditions of approval.

EXHIBIT MMRP-1

City Place Santa Clara Project – Intersection Mitigation Sensitivity Analysis Results: Full Funding Responsibility

Planning/CEQA File # PLN2014-10554/CEQ2014-01180

State Clearinghouse # 2014072078

ID	Intersection	Jurisdiction/ CMP[20]	Mitigation Measure[21]	Impact Peak Hour	Project Trips	Project Phase
22	Agnew Road-De La Cruz Boulevard/ Montague Expressway	Santa Clara County (CMP)	Partial Mitigation: Add a second northbound left-turn lane.	AM	450	Phase 1
54	Lawrence Expressway/Benton Street	Santa Clara County	Partial Mitigation: Add a second southbound left-turn lane and a second eastbound left-turn lane.	AM	2,240	Phase 2
55	Lawrence Expressway/ Homestead Road	Santa Clara County (CMP)	Add a third eastbound through lane and a third westbound through lane (Yahoo! Santa Clara Campus TIA, August 2009; City of Sunnyvale Citywide Deficiency Plan, September 2005; and City of Santa Clara Traffic Mitigation Program, June 2011).	AM	2,240	Phase 2
76	San Tomas Expressway/Walsh Avenue	Santa Clara County	Partial Mitigation: Add a second eastbound left-turn lane.	AM	2,240	Phase 2
82	San Tomas Expressway/ Pruneridge Avenue	Santa Clara County	Partial Mitigation: Add a second northbound left-turn lane.	AM	2,240	Phase 2
8	Great America Parkway/Tasman Drive*	Santa Clara (CMP)	Partial Mitigation: Add a southbound right-turn lane and add a third westbound left-turn lane.	PM	2,610	Phase 2
48	Lawrence Expressway/US 101 SB Ramps	Santa Clara County	Convert eastbound left-turn lane to a shared left-/right-turn lane.	PM	2,610	Phase 2
59	Great America Parkway/Yerba Buena (Great America) Way	Santa Clara	Partial Mitigation: Add a second westbound right-turn lane with an overlap phase and a second southbound left-turn lane.	PM	3,650	Phase 2
60	Great America Parkway/Old Mountain View-Alviso Road	Santa Clara	Partial Mitigation: Add a second eastbound left-turn lane.	PM	3,650	Phase 2

[20] CMP = Congestion Management Program intersection (VTA).

[21] Partial Mitigation: The proposed mitigation measure mitigates the impact at one but not the other peak hour or reduces the delay but not enough to mitigate the impact.

ID	Intersection	Jurisdiction/ CMP[20]	Mitigation Measure[21]	Impact Peak Hour	Project Trips	Project Phase
71	Bowers Avenue/ Central Expressway	Santa Clara County (CMP)	Partial Mitigation: Add third southbound left-turn lane and third eastbound left-turn lane.**	PM	3,650	Phase 2
57	Great America Parkway/SR 237 WB Ramps	San José (CMP)[22]	Add third westbound left-turn lane and associated receiving lane under underpass. Add a second westbound right-turn lane. Include safe and convenient bicycle and pedestrian facilities along Great America Parkway. Intersections #58 and #123 would also need to be modified to accommodate these intersection improvements.[23]	AM	2,690	Phase 3
58	Great America Parkway/SR 237 EB Ramps	Santa Clara (CMP)	Add third southbound through lane and a second eastbound right-turn lane.[24]	AM	2,690	Phase 3
123	Great America Parkway/Gold Street Connector	San José	Add a second northbound right-turn lane.[25]	AM	2,690	Phase 3
79	San Tomas Expressway/Benton Street*	Santa Clara County	Add a second eastbound left-turn lane.	AM	3,140	Phase 3
120	De La Cruz Boulevard/ Laurelwood Road	Santa Clara	Reconfigure the northbound and southbound approaches to include one left-turn lane, one through, and one shared through/right-turn lane; change the phasing from split to protected in the northbound and southbound directions; and increase cycle length.	AM	3,140	Phase 3
14	Lick Mill Boulevard/ Tasman Drive	Santa Clara	Partial Mitigation: Reconfigure northbound and southbound approach to two left-turn lanes, one through lane, and one right-turn lane. Change the northbound/southbound signal phasing from split to protective. Add a second westbound left-turn lane.	PM	4,690	Phase 3
23	Lick Mill Boulevard/ Montague Expressway	Santa Clara County	Add a third southbound left-turn lane.	PM	5,730	Phase 4

[22] An LOS D threshold is used for study intersections within San José, including CMP designated intersections. Santa Clara County intersections in San José use an LOS E threshold.

[23] Intersection #58 (Great America Parkway/SR 237 EB Ramps) and #123 (Great America Parkway/Gold Street Connector) are not impacted intersections, but would need to be modified to accommodate the improvements at Intersection #57 (Great America Parkway/SR 237 WB Ramps).

[24] Intersection #58 (Great America Parkway/SR 237 EB Ramps) and #123 (Great America Parkway/Gold Street Connector) are not impacted intersections, but would need to be modified to accommodate the improvements at Intersection #57 (Great America Parkway/SR 237 WB Ramps).

[25] Intersection #58 (Great America Parkway/SR 237 EB Ramps) and #123 (Great America Parkway/Gold Street Connector) are not impacted intersections, but would need to be modified to accommodate the improvements at Intersection #57 (Great America Parkway/SR 237 WB Ramps).

ID	Intersection	Jurisdiction/ CMP[20]	Mitigation Measure[21]	Impact Peak Hour	Project Trips	Project Phase
96	Lafayette Street/ Montague Expressway WB Ramps	Santa Clara	Add second westbound right-turn lane with an overlap phase and a second southbound left-turn lane.	AM	6,730	Phase 7
84	Gold Street/Gold Street Connector	San José[26]	Convert northbound through lane to a shared left-turn/through lane, add a second northbound left-turn lane and second eastbound right-turn lane. (move pedestrian crossing to north leg of intersection).	AM	7,180	Phase 7
114	Calle Del Sol/Calle Del Luna	Santa Clara	Signalize.	PM	8,340	Phase 7
90	Lafayette Street/Calle De Luna	Santa Clara	Reconstruct the westbound approach to include two left-turn lanes and one right-turn lane.	AM	8,970	Phase 8
13	Calle Del Sol/Tasman Drive*	Santa Clara	Add a westbound right-turn lane. Reconfigure southbound approaches to include two left-turn lanes and one right-turn lane with overlap phase.	PM	9,380	Phase 8
73	Bowers Avenue/ Monroe Street	Santa Clara	Add a northbound and a southbound left-run lane. Change the northbound and southbound from split to protected left-turn phasing.	PM	10.420	Phase 8
94	Lafayette Street/ Agnew Road	Santa Clara	Add a second eastbound left-turn lane and a second southbound left-turn lane.	PM	10,420	Phase 8
109	Liberty Street/Taylor Street	San José[27]	Signalize. Off-setting Mitigation: Construct traffic control devices to divert traffic from entering the Alviso neighborhood.**	PM	10,420	Phase 8

Notes:

Based on information concerning funding sources and status of planning for and construction of transportation improvements identified in the EIR as being 100% the responsibility of the Project Developer, the City Engineer has made relatively minor changes to the responsibilities for implementing such measures; those adjustments are reflected in this table.

* Intersection improvement identified at this intersection under existing or background no-project conditions. See Appendix 3.3-D of the *City Place Santa Clara Project Draft Environmental Impact Report* (October 2015).

** City-preferred mitigation option.

Source: Fehr & Peers, 2016.

[26] An LOS D threshold is used for study intersections within San José, including CMP designated intersections. Santa Clara County intersections in San José use an LOS E threshold.

[27] An LOS D threshold is used for study intersections within San José, including CMP designated intersections. Santa Clara County intersections in San José use an LOS E threshold.

EXHIBIT MMRP-1

City Place Santa Clara Project – Costs for Certain Full Funding Responsibility Improvements

Planning/CEQA File # PLN2014-10554/CEQ2014-01180

State Clearinghouse # 2014072078

ID	Intersection	Mitigation	Total Cost	Basis of Cost
48	Lawrence Expressway/ US 101 SB Ramps	Convert eastbound left turn lane to a shared left/right turn lane.	**$13,500**	The cost estimate was prepared by BKF Engineers and accepted by the City. The cost estimate assumes that the work is limited to striping.
55	Lawrence Expwy/ Homestead Rd	Add a third eastbound through lane and a third westbound through lane (Yahoo! Santa Clara Campus TIA, August 2009; City of Sunnyvale Citywide Deficiency Plan, September 2005; and City of Santa Clara Traffic Mitigation Program, June 2011).	**$2,841,800**	The cost estimate was prepared by BKF Engineers and accepted by the City. The cost estimate assumes that 10' turn lanes and 11' through lanes will be implemented. While the Project has 100% responsibility for this mitigation, the project's responsibility for the cost is reduced by previous contributions made by Yahoo ($96,060) and the County of Santa Clara ($400,000). Right of way for this mitigation has been previously dedicated by Kaiser negating the need for the Project to acquire any right of way for mitigation. The Project will make a monetary contribution equal to its cost responsibility in lieu of constructing the mitigation.
57	Great America Pkwy/SR 237 WB Ramps	Add third westbound left-turn lane and associated receiving lane under underpass. Add a second westbound right-turn lane.	**$2,351,652**	The Total Cost includes both local road work and freeway ramp work. The cost estimate was prepared by BKF Engineers and accepted by the City. The cost of the local road work is estimated at $963,508 and the freeway ramp work at $1,388,144. Since the freeway ramp work will be performed concurrently with the intersection mitigation, the estimated cost of the freeway ramp work is deducted from the Freeway Fair Share voluntary contribution amount.
82	San Tomas Expwy/ Pruneridge Ave	Partial Mitigation: Add a second northbound left-turn lane.	**$271,900**	The cost estimate was prepared by BKF Engineers and accepted by the City after concurrence with the cost by the County. The estimate assumes that the second northbound left turn lane will be implemented by the County as part of the San Tomas widening project.

ID	Intersection	Mitigation	Total Cost	Basis of Cost
84	Gold Street/Gold Street connector	Convert northbound through lane to a shared left-turn/through lane, add second northbound left-turn lane and a second eastbound right-turn lane (move pedestrian crossing to north leg of intersection).	**$735,100**	In order to avoid modifications to existing electrical transmission line towers, the City waived the mitigation requirement to add a second northbound left turn lane. The City also agreed to include a surveillance camera at the intersection as requested by the City of San Jose. The cost estimate was prepared by BKF Engineers and accepted by the City. The estimated cost includes $685,100 for the intersection mitigation and an additional $50,000 for the surveillance camera requested by the City of San Jose. The estimated cost assumes that 11' lanes will be implemented and the work associated with the addition of the surveillance camera does not require a new signal controller or installation of equipment to the control station.
109	Liberty St/Lewis St	Signalize.	**$300,000**	The City of San Jose requested that the intersection not be signalized per the mitigation. The City of Santa Clara will provide the City of San Jose with the monetary equivalent of the cost of installing a signal. BKF Engineers estimated and the City of Santa Clara concurred with a cost for signalization of $300,000.
123	Great America Pkwy/ Gold Street connector	Add a second northbound right-turn lane (from Int. 57 dual westbound right-turn lanes).	**$ ––**	The cost of this work is included in the cost estimate for intersection #57.

Attachment 2 to Resolution No. 16-8337 Certifying EIR

CEQA Findings and Statement of Overriding Considerations for Approval of General Plan Amendments, Zoning Changes, Master Community Plan, Development Agreement, Disposition and Development Agreement, Lease Term Ordinance, and ALUC Override for the CityPlace Santa Clara Project.

Pursuant to Sections 15096(h) of the State CEQA Guidelines (California Code of Regulations, Title 14) and Section 21081 of the California Environmental Quality Act (Public Resources Code, Division 13)

I. INTRODUCTION

These findings are made pursuant to the California Environmental Quality Act (Public Resources Code sections 21000 *et seq.*; "CEQA") and CEQA Guidelines (California Code of Regulations, Title 14, sections 15000 *et seq.*) by the City Council of the City of Santa Clara in connection with the Environmental Impact Report ("EIR")[1] prepared for CityPlace Santa Clara (the "Project"), EIR SCH #2014072078, Planning/CEQA File # PLN2014-10554/CEQA2014-01180. The City of Santa Clara (the "City") is the lead agency under CEQA for the Project.

These findings are attached and incorporated by reference into Resolution No. 16-83. These findings are based on substantial evidence in the entire administrative record and references to specific reports and specific pages of documents are not intended to identify those sources as the exclusive basis for the findings. These findings reflect the City's independent judgment and analysis.

A. Purpose of CEQA Findings; Terminology

CEQA findings play an important role in the consideration of projects for which an EIR is prepared. Under Public Resources Code section 21081 and CEQA Guidelines section 15091, where a Final EIR identifies one or more significant environmental effects, a project may not be approved until the public agency makes written findings supported by substantial evidence in the administrative record regarding each of the significant effects. In turn, the three possible findings specified in CEQA Guidelines section 15091(a) are:

1. Changes or alterations have been required in, or incorporated into, the project, which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

2. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

[1] Unless referring to a specific document, "EIR" shall mean the Final EIR, including the Draft EIR and all appendices and attachments to either document, including Exhibit A and Exhibit B to the FEIR, which were prepared after the initial publication of the FEIR.

3. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the Mitigation Measures or project alternatives identified in the Final EIR.

CEQA Guidelines section 15092(b) provides that no agency shall approve a project for which an EIR was prepared unless either:

1. The project approved will not have a significant effect on the environment; or

2. The agency has:

   a. Eliminated or substantially lessened all significant effects where feasible as shown in the findings under section 15091; and

   b. Determined that any remaining significant effects on the environment found to be unavoidable under section 15091 are acceptable due to overriding concerns as described in section 15093.

II. PROJECT DESCRIPTION

A. Physical Description

The City has entered into an exclusive negotiating agreement and non-binding term sheet with Related Santa Clara, LLC (the "Project Developer" or "Project Sponsor"), to develop upon approximately 240 acres of City-owned property a new multi-phased, mixed-use development called CityPlace Santa Clara (the "Project"). The Project would establish a new mixed-use City neighborhood with a defined center to serve as a focal point for a pedestrian-oriented "live, work, and play" environment.

The Project site is located on seven City-owned parcels (assessor's parcel numbers [APNs] 104-03-036, 104-03-037, 104-01-102, 097 01 039, 097-01-073, 104-03-038, and 104-03-039) that total approximately 240 acres. For purposes of development, the Project site would be divided into five development parcels: Parcel 1 (36.8 acres), Parcel 2 (60.9 acres), Parcel 3 (34.9 acres), Parcel 4 (86.6 acres), and Parcel 5 (8 acres). The Project site also includes the Eastside Retention Basin (12.8 acres). The Project site is currently designated in the City 2010-2035 General Plan (General Plan) as Parks/Open Space (Parcels 1–4 and the Retention Basin) and Regional Commercial (Parcel 5). The City's Zoning Code designates the Project site as Public, Quasi-Public, Public Park or Recreation (B) (Parcel 1–4, a portion of Parcel 5, and the Retention Basin), and Commercial Park (CP) (the remainder of Parcel 5). To accommodate high-intensity urban-oriented development such as the Project, a new General Plan land use designation (Urban Center/Entertainment District) is proposed within the category of Mixed-Use Designations. In addition, an amendment to the Climate Action Plan element of the City's General Plan is proposed to reflect the new land use designation, and an amendment is proposed to General Plan Figure 2.3-1 (regarding "Approved/Not Constructed and Pending Projects") is proposed .

The Project would include up to approximately 9.16 million gross square feet ("gsf") of office buildings, retail and entertainment facilities, residential units, and hotel rooms; it would also include surface and structured parking facilities that could be used as event parking for non-

NFL events at nearby Levi's Stadium. In addition, the Project would include: large, shared open spaces throughout the Project site (including public sports facilities, multi-use trails, and children's play areas); new pedestrian and vehicular entrances and roadway networks; new roads; new, upgraded, and expanded infrastructure; and new utilities, with improvements to off-site connections. In addition, the Project could include construction of a fire station to replace the existing Santa Clara Fire Station 10 ("Fire Station 10"), which may be demolished to accommodate the Project.

Because the majority of the Project would be located over the former Santa Clara All-Purpose Landfill ("Landfill"), the following additional activities would be required: constructing foundation systems to minimize disturbance to and preserve the integrity of Landfill components; relocating, upgrading, and/or replacing, as necessary, the existing groundwater monitoring network, leachate collection system, and landfill gas collection and removal systems; and conducting associated environmental remediation activities.

The Draft EIR for the Project (the "DEIR") analyzes two different land use schemes (Scheme A and Scheme B) for the Project site to capture the range of possible land uses that could be developed. Both schemes would include a building area[2] of up to approximately 9.16 million gsf. Under Scheme A, the proposed uses on Parcels 1, 2, and 3 would include primarily office uses, and Parcels 4 and 5 are proposed for mixed-use development, consisting of commercial uses, including retail, food and beverage, and entertainment uses, along with offices, a hotel, and multi-family residential uses (up to 1,360 units). Scheme B would have the same development scheme and building area at Parcels 1 and 3 as Scheme A. On Parcel 2, a retail center with offices would be constructed rather than only the office use proposed under Scheme A[3]. At Parcel 4, no residential uses would be constructed; instead, office development equal in area to the residential development in Scheme A would be included. However, the same amount of space that would be required for the proposed hotel, retail uses, entertainment venues, and open space areas would be developed. Development on Parcel 5 would include the same amount of residential, hotel, retail, and office uses under both schemes. The DEIR also analyzed an "Increased Housing Alternative" which would increase the maximum number of housing units under Scheme A from 1,360 units to 1,680 units (see DEIR pages 5-8 and 5-9).

The DEIR also analyzed a "Variant Access Scheme" for the Project. The Variant Access Scheme would have the following features:

- Two signalized access points on Great America Parkway, both located north of the San Tomas Road/Great America Parkway intersection. The second access point would be located just north of the creek.
- Instead of an urban interchange on Lafayette Street, two "jug handle" intersections would provide access over the railroad tracks to Lafayette Street.
- Besides the three proposed access points on Tasman Drive in the Base Access Scheme, one additional intersection would be added on Tasman Drive, east of Centennial Boulevard. With the proximity of the additional intersection and the

[2] Building areas do not include the proposed parking structures.

[3] A variant to both schemes would include only retail at Parcel 2. With the variant, development would total approximately 7.52 million gsf throughout the Project site, with an average floor area ratio (FAR) of 0.76.

intersection of Tasman Drive and Avenue B, Avenue B would be a side-street stop-controlled intersection.

This Variant Access Scheme is shown in Figure 3.3-23 of the DEIR. The internal roadway network and the locations of the on-site intersections are also shown in Figure 3.3-23 of the DEIR.

After the publication of the Final EIR for the Project (the "FEIR"), the Project Developer proposed an additional land use scheme, referred to as Enhanced Open Space Variant ("EOS Variant"). Because this variant could apply to either Scheme A or Scheme B, in this impact analysis, the revised EOS schemes are referred to in Exhibit A to the FEIR as "EOS Scheme A" and "EOS Scheme B". Under the EOS Variant, Parcel 3 would be retained by the City and reserved for park uses, instead of being developed by the Project Developer for up to 720,000 square feet of office building uses and associated parking.[4] The 720,0000 square feet of office that had been planned for Parcel 3 would be reallocated to other parcels. The EOS Variant, with EOS Scheme A and EOS Scheme B, is described, and its impacts are analyzed, in Exhibit A to the FEIR, which was prepared after the initial publication of the FEIR.

Except where the term "Original Project" is used, the term "Project" as used in these Findings shall mean the EOS Variant, incorporating the Increased Housing Alternative. The Project could be developed as EOS Scheme A or EOS Scheme B.

In total, development of the Project site would occur over approximately 15 years with seven construction phases. Phases 1, 2, and 3 of the Project encompass the City Center development, and are anticipated to begin construction by the beginning of 2018, the beginning of 2019, and the beginning of 2020, respectively, and open in late 2020, late 2021, and late 2022, respectively. Under the EOS Variant, the Parcel 3 Park is Phase 2A; it is expected to be made available to the City for Park purposes by the beginning of 2021. Construction of Phases 4 through 7 is expected to commence between 2021 and 2029 and be completed between 2023 and 2031.

B. Project Objectives

The City and Project Developer have identified the following Project objectives that are relevant to the physical impacts considered in the EIR.

- Convert the existing uses at the former Santa Clara All-Purpose Landfill (Landfill) to more productive uses.
- Establish a new and vibrant mixed-use City neighborhood with a well-defined center to serve as a focal point for a pedestrian-friendly "live, work, and play" environment.
- Promote transit-oriented infill development by placing job-creating commercial buildings; residential units; and entertainment, dining, and shopping options in

[4] The southern 4-acre portion of Parcel 3 would continue to be retained and developed by the Project Developer as North Park as part of the DAP for Phase 3.

close proximity to each other and to existing transit and other multimodal transportation facilities.

- Enhance entertainment, dining, and shopping opportunities for local and regional residents and workers.
- Provide additional opportunities for major employers to locate to the City through the creation of attractive office park complexes in proximity to new residential units and entertainment, dining, and shopping options.
- Provide additional visitor-serving facilities such as hotels, restaurants, and shops for people using the new football stadium, as well as the nearby convention center and theme park.
- Provide opportunities for supplemental parking for stadium events (including parking on football game days), while making adequate provision to maintain the vitality of the retail uses within the Project.
- Provide enhanced hotel availability to an underserved travel market.
- Allow flexibility to respond to changing market demands to ensure that the Project remains economically feasible throughout a multi-year development process.
- Provide new public open spaces and other community benefits.
- Modernize the Landfill protection systems operated by the City to ensure continued protection of human health and the environment.
- Facilitate creation of both permanent jobs and construction-related jobs.
- Create a significant new tax base and increase City revenues.

C. Project Approvals

1. Approvals by the City

The following discretionary approvals by the City are required prior to development as the Project site, and are informed by the EIR.

General Plan Amendments. Three General Plan Amendments are contemplated as part of the project approvals: a new General Plan land use classification of Urban Center/Entertainment District; an amendment to the Climate Action Plan setting forth vehicle trip reduction targets for the new classification, and an amendment revising the timing requirements for certain development projects within the City.

Rezoning. The City Code currently applies the Public or Quasi-Public (B) zoning district to the Project site, with the exception of a small portion of Parcel 5, which is zoned Commercial Park (CP). The Project involves a rezoning of the entire Project site to the Planned Development Master Community (PD-MC) Zoning District. The PD-MC zoning district is intended to create regulations for large-scale, integrated development that is compatible with the existing community. Any application for the rezoning to a PD-MC zoning district must include a Master Community Plan that, if approved by City Council, would become a part of the Zoning Map of the City; therefore, a Master Community Plan has been prepared for the Original Project that conforms to the City's General Plan and includes the following information, per Section 18.56.070 of the City's

Municipal Code: a general description of the proposed development; definitions of the land use designations; a table describing the minimum and maximum development by use; a description of the proposed uses; and design guidelines and development standards for site planning, architectural character, landscaping, signage, and lighting. The Master Community Plan attaches as an appendix an Infrastructure Master Plan that addresses the proposed roadway and utility infrastructure and governs the design and construction of infrastructure to support the development of the Project. A Supplement to the Master Community Plan has been prepared that reflects the substantive elements of the EOS Variant. If the rezoning is approved, then the Applicant will be directed to prepare a revised Master Community Plan that reflects the elements of the EOS Variant, as set forth in the Supplement.

Development Agreement. The Development Agreement between the Project Developer and the City would create vested rights in Project approvals during the lengthy construction period; addresses implementation of the proposed design and infrastructure improvements in the Project area; and specifies benefits to the City.

Disposition and Development Agreement. The Disposition and Development Agreement between the Project Developer and City would govern the manner and timing for ground leases for the Project site to go into effect, and set forth the City's requirements pertaining to development and operation of the Project.

ALUC Override. The Project requires an override of the Airport Land Use Commission of Santa Clara County's (the "ALUC's") June 2015 determination that the proposed General Plan Amendment and PD-MC rezoning for the Project are inconsistent with the ALUC's Comprehensive Land Use Plan (the "CLUP").

Ground Lease. As described above, the City currently owns the entirety of the Project site. The Project Developer will ground lease the Project site from the City in phases. Forms of ground lease for each phase of the Project are attached to the Disposition and Development Agreement. These ground leases would be entered into between the City and the Project Developer (or its assignee, if permitted) as each phase is developed.

Lease Term Ordinance. Section 37380 of the Government Code requires charter cities to establish a procedure to permit the lease of their property for a term of between 55 and 99 years. Therefore, an ordinance would be enacted as part of the Project that would establish a procedure to permit ground leases with terms of up to 99 years that are entered into for City land in connection with the Project and are consistent with the City Place Santa Clara Master Community Plan, Development Agreement, and Disposition and Development Agreement.

Development Area Plans. Subsequent to the initial package of Project approvals, the Project developer would submit applications for approval of one or more Development Area Plans. These would typically be associated with each of the Project phases or other increments of development, as appropriate, and would conform to the Master Community Plan and other Project approvals.

Tentative Subdivision Maps. In conjunction with the Development Area Plan approval process, one or more tentative subdivision maps must be approved pursuant to the California Subdivision Map Act.

2. Approvals by Other Responsible Agencies

Various aspects of the Project would require approvals from the below agencies:

Bay Area Air Quality Management District (BAAQMD)

San Francisco Bay Regional Water Quality Control Board (RWQCB) (including approval of a NPDES permit for stormwater discharges, revisions to Corrective Action Plans, and revisions to applicable Waste Discharge Requirements)

Santa Clara County Department of Environmental Health (Local Enforcement Agency)

Cal Recycle (including Approval of the Post-Closure Land Use Plan, amending the Closure Plan, and amending the Post-Closure Maintenance Plan)

California Department of Public Health

California Department of Fish and Wildlife

California Department of Transportation (Caltrans)—review of traffic circulation effects and consultation on potential traffic improvements affecting State highway facilities, ramps, and intersections.

Santa Clara Valley Transportation Authority - approval of a new crossing of the VTA light rail tracks proposed with New Tasman Drive Intersection Variants 1 and 2.

California Public Utilities Commission - approval of a new crossing of the VTA light rail tracks proposed with New Tasman Drive Intersection Variants 1 and 2.

Santa Clara Valley Water District - approval of the vehicular overcrossing of the San Tomas Aquino Creek.

III. ENVIRONMENTAL REVIEW OF THE PROJECT

Pursuant to CEQA and the CEQA Guidelines, the City determined that an EIR would be required for the Project. On July 30, 2014, the City issued a Notice of Preparation ("NOP") for the EIR. The NOP was circulated to responsible agencies and interested groups and individuals and posted publicly for review and comment.

Based upon comments the City received in response to the NOP, it was determined that the Draft EIR should analyze project related environmental impacts relative to the following 16 substantive potential impacts:

- Aesthetics
- Cultural Resources
- Land Use and Planning
- Noise
- Transportation and Traffic
- Air Quality
- Hazards and Hazardous Materials
- Greenhouse Gas Emissions/Climate Change
- Hydrology and Water Quality
- Geology and Soils
- Biological Resources
- Population and Housing
- Public Services and Recreation
- Utilities and Service Systems
- Cumulative Impacts
- Energy

Additionally, the Draft EIR included other CEQA substantive sections including an Executive Summary, Introduction, Project Description (Proposed Project and Alternatives), Cumulative Impacts Summary, Alternatives, and Other CEQA Required Considerations.

The City prepared a Draft EIR pursuant to CEQA to disclose the potential environmental effects of CityPlace Santa Clara. The Draft EIR, issued for public review on October 9, 2015, for a 45-day review period, included a description of the Project, an assessment of its potential effects, a description of mitigation measures to reduce the identified significant effects, and a discussion of alternatives that could address potential impacts. The City extended the public comment period that was scheduled to end on November 23, 2015, until December 7, 2015. During this review period, the document was reviewed by various State, regional, and local agencies, as well as by interested organizations and individuals. Comment letters on the Draft EIR were received from 22 agencies, 9 organizations, and 8 individuals. Comment letters and responses to comments are included in the FEIR, which was issued in April 2016. Comment letters on the FEIR were received from 8 agencies, 5 organizations, and 2 individuals. Subsequent to the publication of the FEIR, Exhibit A and Exhibit B to the FEIR were prepared.

IV. THE ADMINISTRATIVE RECORD

The record, upon which all findings and determinations related to the approval of the Project are based, includes the following:

The EIR and all documents referenced in or relied upon by the EIR.

All information (including written evidence and testimony) presented to the City, City staff, the Project sponsors, consultants, and others.

All information (including written evidence and testimony) provided by City staff to the City Planning Commission relating to the EIR, the approvals, and the Project.

All information (including written evidence and testimony) presented to the City Planning Commission by the Project sponsors, consultants, and others.

All final applications, letters, testimony, exhibits, and presentations presented by the Project sponsors, consultants, and others to the City in connection with the Project.

All information (including written evidence and testimony) presented at any City public hearing or public meeting or City workshop related to the Project and the EIR.

For documentary and information purposes, all City-adopted land use plans and ordinances, including without limitation general plans, specific plans and ordinances, together with environmental review documents, findings, mitigation monitoring programs and other documentation relevant to planned growth in the area.

The Mitigation Monitoring and Reporting Program for the Project.

Matters of common general knowledge to the City which it may consider, including applicable state or local laws, ordinances and policies, the General Plan and all applicable planning programs and policies of the City.

All other documents composing the record pursuant to Public Resources Code section 21167.6(e).

The custodian of the documents and other materials that constitute the record of the proceedings upon which the City's decisions are based is the Director of the Department of Planning and Inspection, or his or her designee. Such documents and other materials are located at the Department of Planning and Inspection 1500 Warburton Avenue, Santa Clara, California, 95050.

V. REVIEW AND CONSIDERATION OF THE EIR

In accordance with CEQA, the City certifies that it has been provided copies of the EIR and has reviewed and considered the environmental effects of the Project as shown in the EIR and supporting documents in the record.

VI. MITIGATION MEASURES, CONDITIONS OF APPROVAL, AND MITIGATION MONITORING AND REPORTING PROGRAM

Public Resources Code section 21081.6 and CEQA Guidelines section 15097 require the City to adopt a monitoring or reporting program to ensure that the mitigation measures and revisions to the Project identified in the EIR are implemented. The Mitigation Monitoring and Reporting Program ("MMRP") is attached to and incorporated by reference into the EIR Certification Resolution. The MMRP satisfies the requirements of CEQA.

The mitigation measures set forth in the MMRP are specific and enforceable and are capable of being fully implemented by the efforts of the City, other identified responsible public agencies, or the Project Developer. As appropriate, some mitigation measures define performance standards to ensure no significant environmental impacts will result. The MMRP

adequately describes implementation procedures, monitoring responsibility, reporting actions, compliance schedule, non-compliance sanctions, and verification of compliance in order to ensure that the Project complies with the adopted mitigation measures.

The MMRP contains measures to substantially lessen or eliminate all significant environmental effects, where feasible. The City has thus committed to enforcing the mitigation measures contained in the MMRP and has adopted the MMRP as enforceable conditions of approval for the Project. The Project Developer must comply with the MMRP regarding the Project. The City will also ensure that the plans submitted for discretionary approvals, the subsequent construction and the on-going operation of the Project all conform to the mitigation measures as set forth in the MMRP.

The mitigation measures incorporated into and imposed as part of the MMRP will not have new significant environmental impacts that were not analyzed in the EIR.

VII. FINDINGS REGARDING IMPACTS

A. CEQA Findings

In accordance with Public Resources Code section 21081 and CEQA Guidelines sections 15091 and 15092, the City adopts the findings and conclusions regarding impacts and mitigation measures that are set forth in the EIR and summarized in the MMRP. These findings do not repeat the full discussions of environmental impacts contained in the EIR. The City ratifies, adopts, and incorporates the analysis, explanation, findings, responses to comments and conclusions of the EIR.

The City recognizes that the environmental analysis of the Project raises controversial environmental issues, and that a range of technical and scientific opinion exists with respect to those issues. The City acknowledges that there are differing and potentially conflicting expert and other opinions regarding the Project. The City has, through review of the evidence and analysis presented in the record, acquired a comprehensive understanding of the breadth of this technical and scientific opinion and of the full scope of the environmental issues presented. This understanding has enabled the City to make fully informed, thoroughly considered decisions after taking account of the various viewpoints on these important issues and reviewing the record. These findings are based on a full appraisal of all viewpoints expressed in the EIR, as well as other relevant information in the record of the proceedings for the Project, including the administrative record.

To be conservative, the EIR's analysis of most of the Original Project impacts focuses on the impacts of Scheme B, because an increase in the amount of retail and office uses would generate more traffic and create more transportation, air quality, greenhouse gas, noise, and jobs/housing balance impacts than the comparable increase in the amount of residential uses envisioned in Scheme A. Other impacts are equivalent among the two schemes, except for public services impacts and hazards impacts, which could be greater with increased numbers of residents; therefore, the analysis of those impacts conservatively focuses on Scheme A. Furthermore, as discussed in Exhibit A of the FEIR (and Section VII.H of these Findings below), most of the impacts of the Original Project would be similar with the EOS Variant, some impacts

would be lessened to some degree, and a few impacts would be slightly greater, but there would not be a substantial increase in the severity of any impact when all adopted mitigation measures are taken into account. As discussed in the Alternatives Analysis in Chapter 5 of the DEIR (and Section VIII.B.2.b of these Findings below), implementation of the Increased Housing Alternative would lessen some impacts of the Original Project, maintain some impacts at the same level as the Original Project, and increase noise impacts as compared to the Original Project; however, in all cases but the significance overall of impacts would not change with the implementation of the Increased Housing Alternative.

Except where otherwise noted, the discussion of the Project's impacts in Sections VII.C, D, E, F and G of these Findings below conservatively reflects Scheme B of the Original Project, except in the noted instances where it is more conservative to reflect Scheme A of the Original Project of the Original Project (e.g., public services impacts and hazards impacts). Certain specified numeric analyses cited in the discussion below reflect the Original Project (meaning, unless otherwise noted, Scheme B of the Original Project), without incorporating the effects of the EOS Variant or the Increased Housing Alternative. In all instances, however, the significance findings for each impact category set forth below (e.g., less than significant impact, less than significant impact with mitigation, significant and unavoidable impact, or significant and unavoidable with mitigation) reflect the impacts of the Project, incorporating the EOS Variant and the Increased Housing Alternative. The specific findings related to the impacts of the EOS Variant are included in Section VII.H below, and the specific findings related to the Increased Housing Alternative are included in Section VIII.B.2.b below.

B. The California Supreme Court's *CBIA v. BAAQMD* Decision

In December 2015, the California Supreme Court ruled in *California Building Industry Association v. Bay Area Air Quality Management District* (*CBIA v. BAAQMD*, 62 Cal.4th 369) that the general rule under CEQA is that the impacts of the environment on a project are not CEQA impacts because they are not impacts of the project on the environment. The *CBIA v. BAAQMD* ruling provided for several exceptions to the general rule: (1) if the project would exacerbate existing environmental hazards (such as exposing hazardous waste that is currently buried) then that can be considered an impact of the project on the environment; (2) if the project qualifies for certain specified exemptions (certain housing projects and transportation priority projects per California Public Resources Code sections 21159.21(f), (h); 21159.22(a), (b)(3); 21159.23(a)(2)(A); 21159.24(a)(1), (3); or 21155.1(a)(4), (6)), then the CEQA analysis may require analysis of certain impacts of the environment on the project specified in the exemptions; (3) potential noise and safety impacts on projects due to proximity to an airport must be analyzed (per California Public Resources Code section 21096); and (4) school projects require specific assessment of certain environmental hazards (per California Public Resources Code section 21151.8).

This ruling occurred after the release of the DEIR, but before release of the FEIR. Consequently, impacts examined in the DEIR that were solely related to the impact of existing environmental conditions on new receptors are no longer considered to be significant impacts per CEQA. The DEIR has been revised to provide an analysis of these impacts for informational purposes and includes potential conditions of approval that the City Council may consider to address these non-CEQA effects. While the City is not required to address these impacts as a

function of CEQA, the City nevertheless adopts certain Conditions of Approval per *CBIA v. BAAQMD* as specified, below.

C. Less-Than-Significant Impacts That Do Not Require Mitigation

1. Land Use

Impact LU-3: Consistency with Adopted City Land Use Plans and Policies Other than Jobs/Housing Balance and Airport Noise. The Project would be, excepted as noted in Section VII.E.1 below, generally consistent with applicable land use plans, policies, or regulations of an agency with jurisdiction over the Project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Finding LU-3. The Project site is currently designated for Parks/Open Space (Parcels 1–4) and Regional Commercial (Parcel 5) land uses, and the existing General Plan would maintain these designations for the Project site through Phase III (2025–2035) of the General Plan. The Project would include office buildings, retail and entertainment facilities, residential units, hotel rooms, new roadways and access points, and surface and structured parking facilities, and would thus not be consistent with the existing land use designation. In order to accommodate high intensity, urban-oriented development, a new General Plan land use classification (Urban Center/Entertainment District) is proposed within the Mixed-Use Designations category. This classification accommodates a wide variety and mix of commercial activities serving residents, businesses and visitors from the local community and surrounding region. Medium to very high density residential use (ranging from 37 to 90 dwelling units per acre) is also suitable under this classification. Development under the new land use classification supports alternative modes of travel, incorporating accommodations for transit users, bicyclists, and pedestrians, as well as utilizing and incentivizing transportation demand management. Open spaces and landscape features that enhance the public realm and meet the active and passive recreational needs of multiple users will be incorporated throughout the Project. The proposed General Plan Amendment would meet the intent of the City's land use policies as described in EIR Table 3.1-7. Because of the general consistency with land use policies, any potential conflicts with the General Plan related to the new land use classification would be *less-than-significant*. No mitigation is required.

2. Transportation

Impact TRA-4: On-site Intersections on Parcels 4 and 5. The Project would provide an on-site street network on Parcels 4 and 5 with connections to the surrounding local streets and adequate lane configurations and traffic control devices.

Findings TRA-4. The traffic analysis used the Project-generated traffic volumes in EIR Table 3.3-16, which estimated that the Original Project would generate approximately 140,730 daily vehicle trips, 10,020 AM Peak-Hour vehicle trips (8,010 inbound and 2,010 outbound), and 12,310 PM Peak-Hour vehicle trips (4,140 inbound and 8,170 outbound). The on-site Project traffic assignment was based on the regional land use origins and destinations, ease and convenience of access on the surrounding local streets, and the parking locations and driveway

configurations at the Project site. The traffic volumes, lane configurations, and traffic control devices for the on-site intersections are presented in the on-site analysis report in EIR Appendix 3.3-I (the "CityPlace Internal Intersection Analysis"). The CityPlace Internal Intersection Analysis applied a Level of Service analysis to the major stop and signal-controlled intersections planned within the site, under two potential internal interchange networks (the "base scheme" and "variant scheme"). The CityPlace Internal Intersection Analysis conservatively based its estimates on the Project iteration that resulted in the highest trip generation for the Project.

Based on the above analyses, the on-site intersections on Parcels 4 and 5 are projected to operate at acceptable levels, as shown in EIR Table 3.3-27. Thus, there would be a *less-than-significant impact* to on-site intersections on Parcels 4 and 5. No mitigation is required.

Impact TRA-8: Bicycle Facilities. The Project would provide a complete on-site on-street bicycle network and connections to the Bay Trail, San Tomas Aquino Creek Trail, Guadalupe River Trail, and other existing and planned bicycle facilities.

Findings TRA-8. The City has plans to support bicycle use in the Project area by constructing bike lanes on Lafayette Street, Tasman Drive, and Great America Parkway north of Great America Way. The Project will provide bicycle facilities with bike paths, bike lanes, and bike routes as shown in EIR Figure 3.3-28. The Project will generate bicycle travel primarily by employees as a commute mode and as an access mode to transit.

The Project will add bike lanes to internal streets including City Place Parkway, 2nd Street, Avenue A, Avenue D, and Lick Mill Boulevard to provide a complete on-site, on-street bicycle network. Bicycle lanes would also be added to Lafayette Street as part of the Project. The site is adjacent to the Guadalupe River, which has a paved bike path along the east bank and an unpaved path on the west bank adjacent to the site. The Project will include paving the bike path on the west bank of the Guadalupe River between Tasman Drive and SR 237. This path connects to the Bay Trail to the north of the site. It can also be used by bicycle commuters to the site traveling to and from locations to the south. The Project provides adequate bicycle access to the Bay Trail and points south along the Guadalupe River Trail. Overall, this would result in a *less-than-significant impact* to bicycle facilities. No mitigation is required.

Impact TRA-9: Transit Vehicle Capacity. The Project would generate public transit ridership that could use available transit capacity.

Findings TRA-9. The bus and rail lines serving the Project site would have sufficient capacity to accommodate the added public transit ridership generated by the Project. The amount of public transit ridership generated by the Project was estimated by using the transit walk trips from the mixed-use trip generation estimates and assuming a 5 percent reduction in vehicle trips in the southern portion of the Project site within 0.5 mile (walking distance) of the Great America VTA light-rail station and the multimodal Great America station served by ACE commuter rail, Capitol Corridor commuter rail, and eight connecting ACE shuttle routes.

The analysis in the EIR concluded that, with the TDM mitigation measure (TRA-1.1, described in VII.D.2), the Original Project would generate additional transit riders, with approximately 590 during the AM Peak Hour and 870 during the PM Peak Hour. A public

transit capacity analysis for commuter rail, light rail, and buses was conducted during the PM Peak Hour when the Project's estimated public transit ridership is highest. A more detailed analysis was conducted for VTA light-rail Route 902 because it is the closest transit route to the Project site, operating along Tasman Drive. The transit analysis for Route 902 was conducted for both weekday AM and PM Peak Hours, by direction (northbound to Mountain View/southbound to Winchester Station) at both the Great America and Lick Mill Stations, the two closest stations to the Project Site.

These analyses in the EIR showed that all bus and rail transit routes meet the standards established by their respective operating agencies. Thus, the Project would have *less-than-significant impacts* on the transit vehicle capacity of the routes that serve the Project area. No mitigation is required.

Impact TRA-10: Great America Station Platform Passenger Capacity. The Project would generate additional Altamont Corridor Express ("ACE") and Capitol Corridor rail riders, which could be accommodated within the passenger waiting area at Great America Station.

Findings TRA-10. There is approximately 12,200 gsf of passenger waiting area on the platform at Great America Station. This equates to a capacity of 2,440 passengers assuming a crush capacity of 5 gsf per person. Under existing conditions, there are of 375 to 400 passengers (maximum) waiting for the ACE and Capitol Corridor trains during the evening peak hour. The platform waiting area is approximately sixteen percent full with the current passenger load. The EIR analysis concluded that the Original Project would generate 132 additional Capitol Corridor passengers and 74 additional ACE passengers during the evening peak hour. This would increase the number of waiting passengers to approximately 606. The TDM mitigation measure would generate an additional 11 riders. The existing platform waiting area with a capacity of 2,440 waiting passengers can accommodate projected PM Peak Hour ridership of 617 passengers under existing with-Project conditions with TDM. This impact is considered *less-than-significant*. No mitigation is required.

Impact TRA-12: Emergency Access. The Project may relocate an existing fire station to one of two location options on Great America Parkway. Either location would reduce emergency vehicle response times to locations north, west, and south of the site. Response times to locations to the east would increase 1.1 to 1.2 minutes, depending on the option. These increases are below the threshold of significance.

Findings TRA-12. A fire station is currently located at the intersection of Stars and Stripes Drive and the proposed Avenue B. The fire station may be relocated with development of Phase 2 on Parcel 4, with two possible relocation options: (1) east side of Great America Parkway just north of City Place Parkway (Base Access Scheme alignment) or (2) east side of Great America Parkway just north of the future driveway (north of Bunker Hill Lane). The EIR analyzed the potential impacts of the fire station relocation on emergency response times.

The EIR found that both relocation options would reduce emergency vehicle response times to destinations to the north, west, and south of the Project site. These reductions would be between 0.4 and 1.9 minutes. Both options would increase emergency vehicle response times to the destination to the east by 1.1 to 1.2 minutes. Under both options, however, emergency

response times are less than the average response time of 3.2 minutes for an engine company.[5] Therefore, the impact is *less-than-significant*. No mitigation is required.

Impact TRA-13: Parking. The Project would provide a sufficient amount of vehicle and bicycle parking on-site.

Findings TRA-13. Parking at CityPlace will include both on-street and off-street parking facilities. For Parcels 1, 2 and 3, parking would be provided in off-street parking facilities. For Parcels 4 and 5, on-street parking would be provided along Avenue A, Avenue B, Avenue C, 1st Street, 2nd Street, 3rd Street, and Stars and Stripes Drive. The on-street parking would be provided for short-term parking. Off-street parking facilities would be distributed across the parcels based on demand to ensure that the parking supply is provided close to the demand locations. Parking facilities would be designed to city standards and have sufficient access to limit the amount of on-street circulation required to access parking.

The EIR includes a parcel-by-parcel assessment of the parking supply and demand to ensure that sufficient parking is provided. This analysis was conducted to estimate the overall peak parking demand for CityPlace, adjusting for both the temporal (time-of-day) and non-captive demands. Parking demand rates were based on ITE Parking Generation, fourth edition. For temporal adjustments, Urban Land Institute (ULI) weekday adjustments were applied to the various land uses (ULI Shared Parking, second edition). The EIR determined that the Original Project's overall peak parking demand of 23,771 vehicles can be accommodated with the proposed parking supply of 27,867 spaces, although this conclusion assumes that all of the parking spaces would be available for all land uses and that residential parking would not be gated or controlled.

The number of bicycle parking spaces for each use is based on VTA Bicycle Technical Guidelines, December 2012. According to the CityPlace Internal Intersection Analysis, sufficient bicycle parking (1,055 Class I Bike Lockers and 736 Class II Bike Racks for the Original Project) will be provided at the main entrances to the City Center and in highly visible and accessible locations. The parking impacts would therefore be *less-than-significant.* No mitigation is required.

3. Air Quality

Impact AQ-5: Exposure of Sensitive Receptors to Carbon Monoxide Hot Spots. The Project would not result in a significant exposure of sensitive receptors to potential carbon monoxide hot spots.

Findings AQ-5. CO hot spots are typically observed at heavily-congested intersections where a substantial number of gasoline-powered vehicles idle for prolonged durations throughout the day. The EIR analyzed peak-hour traffic volumes under the worse-case Scheme B at intersections in the transportation study area. The analysis indicates that in the context of the Original Project, the highest traffic volumes would occur during the PM Peak Hour under Existing with Project conditions at Great America Parkway and Tasman Drive (10,500 vehicles per hour), during the AM Peak Hour under 2020 with Project conditions at

[5] https://firechief.iso.com/FCWWeb/mitigation/ppc/3000/ppc3015.jsp

Mission College Boulevard and Montague Expressway (11,590 vehicles per hour), and during the AM Peak Hour under Cumulative 2040 with Project conditions at Mission College Boulevard and Montague Expressway (14,350 vehicles per hour).

These levels, under each Project and cumulative condition, would be far below the congested traffic volume modeled by BAAQMD (44,000 vehicles per hour) that would be needed to contribute to a localized CO hot spot and below the congested traffic volume modeled by BAAQMD (24,000 vehicles per hour) that would be needed to contribute to a localized CO hot spot at an intersection where vertical and/or horizontal mixing is substantially limited. Accordingly, CO concentrations would not exceed the CAAQS according to BAAQMD's screening criteria. This impact would be *less-than-significant*. No mitigation is required.

Impact AQ-7a: Exposure of Existing or New Sensitive Receptors to Operational Toxic Air Contaminant Emissions from the Project. Project emissions would result in the exposure of existing or new sensitive receptors to TAC emissions during operation.

Findings AQ-7a: BAAQMD guidance recommends analysis of project impacts to examine whether any individual project source would result in impacts to sensitive receptors in excess of project-level significance thresholds. The guidance also recommends analysis of whether new project receptors would be exposed to any individual source in excess of project significance thresholds.

Project operational traffic would generate vehicle-related TACs (including DPM and other TACs), resulting in the exposure of nearby existing sensitive receptors (e.g., residences, schools, and parks) as well as new onsite receptors to increased TAC concentrations. The EIR analyzed the impact of DPM and other vehicle-related TACs for the on-site parcels and the roadways surrounding the Project site, including Lafayette Street, Tasman Drive, Great America Parkway, and SR 237 between 1st Street in San José and Great America Parkway. This analysis evaluated BAAQMD thresholds for chronic non-cancer risk, increased cancer risk, and for PM2.5 exposure. The EIR determined that the Project would not result in TAC impacts to any sensitive receptors that exceed the BAAQMD thresholds, and this impact would be *less-than-significant*. No mitigation is required.

On-site and off-site sensitive receptors would also be exposed to DPM from periodic emergency generator operation and due to truck idling/access at commercial loading areas resulting in the exposure to increased TAC concentrations. Based on the BAAQMD thresholds described above, the EIR determined that Project emissions would not result in exposure of any sensitive receptors to impacts exceeding the project-level thresholds, such that this impact would be *less-than-significant*. No mitigation is required.

Impact AQ-8: Exposure of Sensitive Receptors to Asbestos During Construction. The Project would not result in significant exposure of sensitive receptors to asbestos during demolition activities.

Findings AQ-8. Asbestos is a set of naturally occurring minerals that was previously used in building construction due to its heat resistance and strong insulating properties. Exposure to asbestos, however, has been shown to cause a number of disabling and fatal

diseases. Depending on their age, demolition of the three buildings to be removed along the proposed Lick Mill Boulevard extension, and other Project features may expose workers to asbestos if the material was used during construction of the existing buildings.

The Project would comply with BAAQMD Regulation 11, Rule 2, which would control emissions of asbestos to the atmosphere during demolition activities. BAAQMD Regulation 11, Rule 2 requires a person responsible for demolishing buildings that contain regulated asbestos containing material ("RACM") to remove and dispose of the RACM using specific safety measures. Regulation 11, Rule 2 also has detailed monitoring, inspection, and record-keeping requirements. Accordingly, this impact is *less-than-significant*. No mitigation is required.

4. Greenhouse Gas Emissions

Impact GHG-3: Climate Change Effects on the Project Other than Sea Level Rise. As discussed above, under *CBIA v. BAAQMD,* CEQA no longer considers the impact of the environment on a project (such as the impact of climate-change effects on the Project) to be an impact requiring consideration under CEQA. The following analysis is neither a CEQA impact nor a finding.

Analysis of GHG-3. Regardless of the uncertainty in precise predictions, it is widely understood that substantial climate change is expected to occur in the future. Potential climate change impacts in the Bay Area include, but are not limited to, sea level rise, extreme heat events, increased water and energy consumption, and changes in species distribution and range. In the long run, certain low-lying parts of the Project site and parts of adjacent roadways providing access to the Project site may be susceptible to flooding influenced by climate-change induced sea level rise. Additional potential climate change impacts may affect the Project, including increased temperatures and heat stress days.

Separate from GHG emissions, the Project would not exacerbate these issues; rather, energy efficiency strategies associated with the Project could reduce potential heat-related climate change impacts on area residents. Likewise, although regional water supplies are subject to potential future climate change effects that could impact water supplies, the Project includes water-efficiency measures that would help alleviate demand for scarce statewide water resources.

5. Noise

Impact NOI-2a: Construction Vibration Impacts on Off-Site Receptors.

Findings NOI-2a: Project construction would require impact devices that are associated with substantial vibrational impacts (e.g., pile drivers, impact hammers/hoe rams, and jackhammers). Project construction would not result in impacts on surrounding buildings. Ground-borne vibration rarely causes damage to normal buildings, and there are no extremely fragile historic buildings located within 100 feet of where pile driving would occur (the distance at which pile drivers could potentially cause damage).

The nearest existing off-site land uses that could be considered sensitive to ground vibration are located approximately 300 feet from the Project site. At this distance, ground vibration from pile driving, jackhammering, and non-impact construction activities (e.g.,

bulldozers, loader trucks) would be less than CALTRANS's limits for "distinctly perceptible" and not considered excessive.

There are several off-site office and industrial land uses along the southern border of Parcel 2 as well as west of Parcel 4. Some office and industrial uses may contain equipment that is sensitive to vibration. However, because vibration generated by non-impact equipment would be well below the damage threshold for extremely fragile historic buildings and below the "distinctly perceptible" annoyance threshold at 50 feet, it is anticipated that construction vibration impacts would not substantially affect the office and industrial uses in Parcel 2 and Parcel 4. Thus, construction vibration impacts on off-site receptors would be *less-than-significant*. No mitigation is required.

Impact NOI-2c: Existing Light Rail Vibration Impacts on On-Site Receptors. As discussed above, under *CBIA v. BAAQMD,* CEQA no longer considers the impact of the environment on a project (such as the impact of the existing noise environment on new Project receptors) to be an impact requiring consideration under CEQA. The following analysis is neither a CEQA impact nor a finding.

Analysis of NOI-2c: The Valley Transportation Authority's (VTA's) Mountain View to Winchester light-rail track is located immediately south of the Project site in the center of Tasman Drive. The current design for the Project indicates that residential development would be located approximately 140 feet from the centerline of this rail line. Light-rail train passages on the track have the potential to affect proposed residential uses along Tasman Drive. There are currently up to 110 light-rail train passages per day on the track.

Vibration impacts for a similar light-rail line were assessed in the 2014 (Final) Vasona Light Rail Extension Project Supplemental EIR ("SEIR")/Environmental Assessment ("EA"). The vibration analysis in the SEIR/EA for the Vasona Light Rail Extension Project analyzed impacts from up to approximately 125 light-rail train passages per day, and concluded that the light rail could generate vibration levels of 66 to 68 VdB at a distance of 100 feet. Because the proposed residences under the Project's Scheme A and Scheme B would be located approximately 100 feet (or more) north of this existing rail line, vibration levels at the proposed residences are expected to be no greater than 68 VdB, which is below the FTA criterion for frequent vibration exposure at Category 2 land uses (including residences) of 72 VdB

6. Biology

Impact BIO-6: Consistency with Local Policies or Ordinances Protecting Biological Resources. The Project would not result in conflicts with the City's Heritage Tree Ordinance.

Findings BIO-6. Construction activities associated with the Project would remove 951 protected trees in the Project area and approximately 153 protected trees at the Tasman East industrial/office development for the Lick Mill Boulevard extension. In addition, 79 protected trees could be removed at the Santa Clara Convention Center for construction of the roadway from Great America Parkway over San Tomas Aquino Creek. However, no heritage trees, as defined by the City's Heritage Tree List, are present that would be impacted by Project construction.

The Project would adhere to the City of Santa Clara General Plan, Policy 5.3.1-P10, which requires developments to replace trees at a ratio of 2:1 (replaced/lost). Therefore, assuming all trees are removed during construction, the Project Developer would be required to plant at least 2,810 new trees on the Project site. Additionally, if all trees are removed at the Tasman East industrial/office development and the Santa Clara Convention Center off-site locations as a result of the Project, up to 676 additional trees could be planted in their place. It is unknown how many trees could be affected by the Tasman Drive slip-ramp, but tree removal in that area would also be subject to a 2:1 replacement ratio. The replacement trees would be located throughout the Project site and would not be implemented on a parcel by parcel basis. Thus, the impact would be *less-than-significant*. No mitigation is required.

7. Geology and Soils

Impact GEO-3: Strong Seismic Ground Shaking. The Project site could be subject to fault rupture and/or strong ground shaking from a seismic event during its design life, which has the potential to present a significant risk to structures and human lives. As discussed above, under *CBIA v. BAAQMD*, CEQA no longer considers the impact of the environment on a project (such as the impact of existing seismic hazards on new Project receptors) to be an impact requiring consideration under CEQA. The following analysis is neither a CEQA impact nor finding.

Analysis of GEO-3. The EIR determined that no faults cross the Project site and the site is not within an Alquist-Priolo Earthquake Fault Zone. Since faults with known surface rupture have been mapped in California, and none are known to occur at the Project site, fault rupture at the Project site would be considered very unlikely.

Regardless, the Project site is located in a seismically active region. The likelihood of a magnitude 6.0 (or greater) earthquake occurring on a San Francisco Bay Area fault (or combination of faults) is 98 percent in the next 30 years (starting in 2014). The likelihood of a magnitude 7.0 (or greater) is 51 percent. Ground shaking at the Project site may be violent and potentially to a greater degree on top of the Landfill. Ground shaking could result in significant damage, though not collapse, even to properly designed structures.

To protect against earthquake risk, the Project site buildings and improvements shall be constructed in accordance with the current CBC (as amended). The Preliminary Geotechnical Investigation (Parcels 1–4) has established design parameters as appropriate to protect Project structures in accordance with the seismic requirements in the CBC. These site-specific design parameters are based on the ground shaking produced by the Maximum Considered Earthquake, as predicted in USGS models and are intended to ensure that buildings retain structural integrity during the most severe ground shaking that would be expected at the site. Project site structures must meet these seismic design parameters of the CBC, which represents the best available guidance for design and construction to limit seismic risk.

Impact C-GEO-1: Cumulative Soil Erosion, Soil Hazards, and Seismic Hazards Impacts. The Project, in combination with other foreseeable development in the vicinity, would not substantially increase soil erosion potential, soil hazards, or the risk of exposure of people or structures to seismic hazards. Therefore, this cumulative impact would be less-than-significant.

Findings C-GEO-1. Because the geotechnical aspects of erosion are generally site-specific, the impacts would not be compounded by additional development. There would be no significant cumulative impact with respect to soil erosion because project-specific impacts would be addressed through compliance with City and State stormwater regulations and Project mitigation measures. Thus, the cumulative impact regarding soil erosion would be *less-than-significant.* No mitigation is required.

Likewise, the geographic context for the analysis of impacts related to unstable soil conditions, including compressible soils, settlement, or other conditions that could cause structural problems, is site specific; it would not be compounded by additional development. Other projects are required to undergo an analysis of geological and soil conditions, as required by the CBC and most current geotechnical guidelines. These projects will be required to include all necessary design features required by those regulations. With adherence to the City Code and related plans, regulations, and design and engineering guidelines and practices, the cumulative impact with respect to soil hazards would be *less-than-significant*. No mitigation is required.

Future population growth in the Bay Area, including the population associated with the Project and other development, will increase the number of people and structures that would be exposed to seismic hazards. The risks from seismic events are reduced to the maximum extent possible by each local jurisdiction's adherence to the CBC and related geotechnical and seismic guidelines and recommendations. With adherence to the building requirements in City Code and related plans, regulations, and design and engineering guidelines and practices, the cumulative impact would be *less-than-significant*. No mitigation is required.

8. Water Quality

Impact WQ-2: Effects on Groundwater Supplies and Recharge. The Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level.

Findings WQ-2. Most of the Project site is currently covered with soil over a low-permeability cover intended to prevent precipitation and stormwater runoff from infiltrating into and through the underlying waste. While Parcel 5 is not underlain by waste, most of it is covered with pavement and a vegetated landscape. Therefore, limited infiltration and groundwater recharge occurs on the Project site. The off-site areas, including the Lick Mill Boulevard extension, the bridge over San Tomas Aquino Creek, the Santa Clara Gateway vehicular access variant, the Tasman Drive slip-ramp, and potentially the offsite fire station (Option 2), are also covered mostly with impervious surfaces (e.g., parking lots, buildings) and have underlying compacted soils that limit infiltration. Therefore, Project construction, operation, and maintenance activities (and the potential compaction or covering of the surface soils) in these areas would have essentially no impact on net deep infiltration and groundwater recharge. Any construction dewatering that may be required is expected to be minimal. Thus, construction, operation, and maintenance would result in a *less-than-significant* impact on groundwater supplies. No mitigation is required.

While the Project would result in additional water demand from both surface and groundwater resources, the projected water supply is adequate to provide water until 2035 under normal-year, single-dry-year, and multiple-dry-year scenarios. In addition, as described in the Project Water Supply Assessment (WSA) (EIR Appendix 3.14), there is approximately 85,000 acre-feet per year of unutilized groundwater supply in the groundwater basin below the Santa Clara Valley Groundwater Basin's safe yield. Therefore, the potential impact related to Project depletion of groundwater supplies, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level, would be *less-than-significant*. No mitigation is required.

Impact WQ-8: Exposure of People or Structures to Flooding due to Levee or Dam Failure. The Project would not expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam. As discussed above, under *CBIA v. BAAQMD*, CEQA no longer considers the impact of the environment on a project (such as the impact of existing dam and levee risk conditions on new Project receptors) to be an impact requiring consideration under CEQA. The following analysis is neither a CEQA impact nor finding.

Analysis of Impact WQ-8. The Project site is 26 miles downstream of the Anderson Dam and Reservoir and 14 to 15 miles downstream of the Lenihan Dam/Lexington Reservoir but within the potential dam failure inundation area for both dams. If either dam breached, there would be potential maximum flood elevations of up to +19.94 feet.

While the dam inundation elevations are most likely lower than the majority of grades at the Project site, the following lower lying Project facilities could be subject to inundation during dam failure: (i) southern part of Parcel 5 near Tasman Drive; (ii) fire station (option 2); (iii) the following roads: Lick Mill Boulevard extension; northern part of Lafayette Street near SR 237; Great America Parkway south of San Tomas Aquino Creek; Tasman Drive (from Guadalupe River to Great American Parkway and beyond); and Santa Clara Gateway vehicular access variant.

Levees can fail because of earthquakes or storm events, if not properly maintained or reinforced to withstand potential stresses. The SCVWD maintains the banks and levees along San Tomas Aquino Creek, and the SCVWD and USACE maintain the levees along the Guadalupe River. As described in Mitigation Measures WQ-3.1 and 3.2, the Project would be designed to result in no increase in peak flows from the Project compared to pre-development conditions in order to satisfy the SCVWD 100-year peak flood elevation criteria. This would reduce the potential for the Project to cause overtopping or levee failure as a result of increased flows, and therefore minimize the exposure of people and structures to flood risks. All residential and commercial structures would be placed at least 21 to 65 feet above msl, which place them outside of the area of inundation due to levee failure. The surrounding at-grade areas consist of roads and a proposed fire station (Option 2). The area for the proposed fire station (Option 2) is currently protected by levees along San Tomas Aquino Creek, but with no increase in discharge from the Project and SCVWD maintenance of the levees and other flood control facilities along the creek, the levees are not expected to fail.

Several additional factors reduce the risk of inundation attributable to dam failure. Currently, a storage restriction of about 45 feet below the crest of Anderson Dam has been put in

place to protect the public from inundation due to dam failure, resulting in a reduced storage capacity. The Anderson Dam Seismic Retrofit Project is also addressing several dam deficiencies through new construction to reduce the risks arising from seismic activity. According to the SCVWD, the Lenihan Dam should remain intact during a major earthquake, and the potential for significant crack formation is low. No residential or commercial structures would be placed within an area vulnerable to inundation due to levee failure. The proposed fire station (Option 2) is the only structure that may be placed within an area at risk of inundation in the event of levee failure along San Tomas Aquino Creek, but with no increase in discharge from the Project and SCVMD maintenance, the potential for levee failure is substantially minimized. . In the event of a levee failure, emergency response conditions would be implemented at the fire station. These conditions will be included in the City's flood warning and emergency response plan, as described in Condition of Approval WQ 6.1.

Therefore, because the risk of failure of the dam is considered remote, and because the City's flood warning and emergency response plan would be implemented in the unlikely event that a failure did occur, the Project has a low risk of loss, injury, or death to people or structures involving flooding, including flooding as a result of the failure of a levee or dam. The Project would accordingly have a *less-than-significant impact* on water flows and exposure of people to flood conditions. No mitigation is required.

9. Hazards and Hazardous Materials

Impact HAZ-1: Routine Hazardous Materials Use. The Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Findings HAZ-1. Project construction activities would include the routine transport, use, or disposal of hazardous materials, such as motor fuels, oils, solvents, and lubricants, at the Project Site and at off-site areas. The use of hazardous materials at the Project site during construction would be subject to existing hazardous materials laws and regulations, and adherence to these standards would reduce the potential occurrence of an accidental spill or release. In addition, a Stormwater Pollution Prevention Plan ("SWPPP") will be prepared that requires implementation of best management practices ("BMPs") for hazardous materials storage and soil stockpiles, inspections, maintenance, training of employees, and containment of releases to prevent runoff into existing stormwater collection systems or waterways. Because compliance with existing regulations is mandatory, the routine transport, use, or disposal of hazardous materials during Project construction would have a *less-than-significant* impact on the public or the environment. No mitigation is required.

The Project includes residential, commercial, office, hotel, and entertainment land uses where small quantities of commercially available hazardous materials, such as household cleaning and landscaping supplies, as well as diesel fuel for backup generators, would routinely be handled and used. The relocated Fire Station 10 would use similar types and quantities of hazardous materials as the existing fire station. The relatively low toxicity and small quantities of these kinds of hazardous materials do not generally pose a threat to human health or the environment. Although some office uses (e.g., research and development facilities) may also use larger quantities of hazardous materials, the SCFD's Unified Program ensures that facilities

properly manage and disclose hazardous materials to minimize the risk of a hazardous materials release and improve emergency response actions in the event of a release. Because compliance with existing regulations would be mandatory, the routine transport, use, or disposal of hazardous materials during Project operation would have a *less-than-significant* impact on the public or the environment. No mitigation is required.

Impact HAZ-3: Proximity to Sensitive Receptors at Schools. The Project would not create a potentially significant hazard to nearby schools from the emissions and handling of hazardous or acutely hazardous materials.

Findings HAZ-3. The handling or emission of hazardous or acutely hazardous materials near schools must consider potential health effects to children, who are considered sensitive receptors. The Kathryn Hughes Elementary School is located about 0.2 miles to the southeast of the Project site. The only plausible exposure pathway of concern is the inhalation of air contaminants, such as particulate matter.

Sources of hazardous emissions during Project construction and operation would include diesel particulate matter from vehicle exhaust, operation of emergency generators, and landfill gas emissions from the LGTE plant. As discussed in the EIR's analysis of Air Quality, Mitigation Measures AQ-6.1 and AQ-7.1 will protect sensitive receptors by requiring diesel equipment to meet certain operational and fuel standards and by requiring filtration on ventilation systems that serve on-site sensitive receptors. The Project developer will comply with BAAQMD regulations regarding asbestos that could become airborne during demolition activities. These emission sources would thus have *a less-than-significant* impact on the school. No mitigation is required.

As discussed under Impact HAZ-1, above, hazardous materials used during construction and operation would be managed in accordance with applicable laws and regulations. Therefore, emissions and handling of hazardous or acutely hazardous materials during Project construction and operation would have a *less-than-significant impact* on nearby schools. No mitigation is required.

Impact HAZ-7: Aviation Hazard. The Project would not create a potentially significant aviation hazard to nearby public-use airports.

Findings HAZ-7. Development near airports can pose a potential hazard to people and property on the ground, as well as create obstructions and other hazards to flight. The Norman Y. Mineta San José International Airport is located about 2.8 miles southeast of the Project site. The proposed buildings for the Project could be constructed up to a maximum height of 17 stories, or about 190 feet above the finished grade of the on-site streets. The maximum potential elevation of proposed construction would be about 219 feet above mean sea level (msl). Where building height would exceed the height criteria for FAA notification requirements defined under FAR Part 77 (estimated to be in the range of 175 to 215 feet above msl on the Project site, depending on location), the FAA must be notified of the proposed construction. The FAA may conduct an aeronautical study to determine if proposed structures and construction equipment would create an airspace hazard. The FAA commonly requires proposed structures and construction equipment that affect navigable airspace to be marked and/or lighted for increased

visibility. Because the FAA does not have authority to approve or disapprove a proposed off-airport land use, the City coordinates with City of San José to ensure that proposed developments near Norman Y. Mineta San José International Airport comply with the FAR Part 77 notification requirements and the FAA's aeronautical determinations. Because compliance with the FAA notification requirements and subsequent aeronautical determinations is mandatory, the Project would have a *less-than-significant* impact related to aviation hazards at public-use airports. No mitigation is required.

Impact HAZ-8: Impairment of Emergency Access or Emergency Plans. The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Findings HAZ-8. The City of Santa Clara has adopted a Local Hazard Mitigation Plan. As described in the adopted plan, the SCFD is responsible for coordinating emergency response and evacuation procedures in the event of a major disaster within the City of Santa Clara. Emergency access and evacuation routes to and from the Project site would be available along the adjacent State Route 237, Great America Parkway, and Tasman Drive. While the Project would increase the amount of traffic in the Project vicinity, it would not be expected to interfere with emergency response and evacuation procedures described in the adopted plan. Therefore, the Project would have a *less-than-significant* impact on emergency response or evacuation plans. No mitigation is required.

10. Population and Housing

Impact POP-1: Population Growth. Construction of the Project would not induce substantial population growth greater than planned within the City and the region. The findings as to construction of the Project are set forth below. However, operation of the Project would induce substantial population growth greater than planned within the City and the region, resulting in potentially significant secondary environmental impacts. An analysis of Project operations is set forth in VII.E.7, below.

Findings POP-1. Construction of the Project, including the site preparation and building demolition phases, would temporarily increase construction employment in the City. The number of construction workers per day would vary depending on the construction phase. Phase 2 (Parcel 4) would have the largest amount, with an average of approximately 900 workers per day. Phases 7 and 8 (Parcel 2) would require an average of approximately 400 workers per day. Although construction would occur over an extended period of time, the demand for construction employment would likely be met within the existing and future labor market in the City and the County. The size of the construction workforce would vary during the different stages of construction, but a substantial quantity of workers from outside the City or County would not be expected to relocate permanently. Therefore, population within the City or County as a result of construction workers is not anticipated to increase substantially during Project construction, resulting in a *less-than-significant impact*. No mitigation is required.

Impact POP-2: Displacement of People. The Project would not result in the displacement of a substantial number of people, necessitating the construction of replacement housing elsewhere.

Findings POP-2. The Project would not displace residents because the Project site does not currently contain housing units. However, the Project site does currently employ approximately 35 people on-site at the Santa Clara Golf & Tennis Club, BMX track, and Fire Station 10. Additionally, approximately 475 people are employed off-site in the Tasman East industrial/office development. All of these properties would be demolished during Project construction, which would displace the 510 existing workers.

The number of employees that would be displaced due to the demolition of the Santa Clara Golf & Tennis Club and BMX track would not be significant enough to trigger the construction of replacement housing elsewhere. To the extent that three fire personnel are displaced due to the potential demolition of Fire Station 10, those fire personnel would be accommodated in the replacement fire station that would be constructed as part of this Project. In addition, the approximately 475 off-site workers at the Tasman East industrial/office development could be accommodated within the proposed office uses on the Project site or within other similar office, industrial, or warehousing sites within commuting distance. Because the majority of the employees currently working on the Project site could be accommodated by the Project or within commuting distance, the Project would not displace a substantial number of people and would not necessitate the construction of replacement housing. Therefore, the impact would be *less-than-significant*. No mitigation is required.

Impact C-POP-1: Cumulative Population and Housing Impacts. The Project, in combination with other foreseeable development in the vicinity, would not displace substantial numbers of people.

Findings C-POP-1. As shown in EIR Table 3.0-1, most of the other projects in the area involve currently vacant, industrial, and commercial uses, which would be replaced with office/R&D, hotel, and residential uses. These are primarily redevelopment projects, with an expansion of uses that would be similar to existing uses. It is likely that the other projects would be able to accommodate any displaced employees (if any). Thus, the cumulative effect of displacing substantial numbers of people in the region is *less-than-significant*. No mitigation is required.

11. Public Services

By incorporating into the Increased Housing Alternative into the Project, there would be 760 more residents under Scheme A than in the Original Project. As noted, the quantitative portions of impact analysis that are cited in the below findings reflect the impacts of the Original Project. However, Chapter 5 of the DEIR concludes that, despite some increased impacts to fire services and facilities, police services and facilities, library facilities, and parks and recreation facilities, the impact on these public services would remain less-than-significant under the Increased Housing Alternative. In addition, incorporation of the EOS Variant into the Project would provide more opportunities for recreation and more park space than the Original Project.

Impact PS-1: Impacts on Fire Services and Facilities. The Project would not result in the need for new or physically altered fire service facilities beyond what is analyzed in the EIR.

Findings PS-1. Operation of the Project would require additional SCFD fire services for the on-site residents, employees, and visitors to the Project site. The Project could retain the existing Fire Station 10 at its current location or require the relocation of the existing station on-site or off-site. However, expansion in terms of personnel and possibly equipment would be necessary to maintain satisfactory service levels, given the size of the Project.

Under Scheme A, the Project would generate new residents and employees at the Project site. With the Project's additional residents and office uses, implementation of the Original Project (Scheme A) would increase the typical daytime population within the SCFD service area to approximately 232,882 people (not including game days at Levi's Stadium). With 154 budgeted Suppression Division positions, the Original Project would degrade the residential population ratio from 1.29 firefighters per 1,000 residents to 1.26 firefighters per 1,000 residents. With 154 budgeted Suppression Division positions, Scheme A would also degrade the daytime population ratio from 0.75 firefighter per 1,000 persons to 0.66 firefighter per 1,000 persons.

Under Scheme B, the Original Project would not generate new residents but would result in a net increase of approximately 28,720 employees. Therefore, under Scheme B of the Original Project of the Original Project, proposed employees would increase the typical daytime population within the SCFD service area to approximately 233,572 people (not including game days at Levi's Stadium). With 154 budgeted Suppression Division positions, Scheme B of the Original Project of the Original Project would similarly degrade the daytime population ratio from 0.75 firefighter per 1,000 persons to 0.66 firefighter per 1,000 persons.

To maintain appropriate service and response times, in light of the increased demand in the area served by Fire Station 10, additional firefighters and vehicles would need to be assigned to Fire Station 10. The replacement fire station may need to be larger than the existing Fire Station 10 to accommodate such additional resources. The expansion of replacement Fire Station 10 to a size greater than what is analyzed in the EIR would be minimal in relation to the construction of the overall Project and would not be expected to generate significant or new construction-related impacts beyond those analyzed throughout the EIR.

The Project would place new structures and occupants on top of the Landfill, which is also currently monitored by the SCFD. The primary concern for Landfill-related emergencies is related to the management of methane gas. However, the new buildings on the Project site would be equipped with methane gas monitoring equipment. While aerobic decomposition or chemical oxidation of waste materials in the Landfill could result in a subsurface fire, the EIR includes Mitigation Measures HAZ-8.1 through HAZ-8.3 to reduce impacts related to subsurface fires. It is not expected that the construction of the proposed uses on top of a Landfill would require the need for additional SCFD personnel or equipment.

Because the Project includes the potential relocation of the existing fire station (and the environmental impacts of this relocation/expansion are addressed in this EIR), the Project would not result in substantial adverse physical environmental impacts associated with the provision of other new or physically altered fire and emergency service facilities in order to maintain acceptable service ratios, response times, or other performance objectives. As such, the Project would result in a *less-than-significant* impact to fire services. No mitigation is required.

Impact PS-2: Impacts on Police Services and Facilities. The Project would not result in the need for new or physically altered police service facilities.

Findings PS-2. The Project could affect the SCPD by intensifying site activity; adding new residents, employees, and visitors; increasing square footage; and increasing traffic incidents. Adding to the service population would lead to an overall increase in service calls to the SCPD.

Based on the residential figures for Scheme A of the Original Project of the Original Project discussed above, with 145 existing sworn officers, the Original Project would degrade the residential population ratio from 1.22 officers per 1,000 residents to 1.19 officers per 1,000 residents. The Original Project would also degrade the daytime population ratio from 0.71 officer per 1,000 persons to 0.62 officer per 1,000 persons. Scheme B of the Original Project of the Original Project would similarly degrade the daytime population ratio to 0.62 officers per 1,000 persons.

The SCPD would experience an increased call volume for emergency responses generated by the Project and the SCPD would need additional police officers and support staff to maintain its current level of service. This would require four additional personnel to maintain the existing officer-to-resident ratio. The SCPD recently received approval to hire two officers and the SCPD plans to hire three additional officers as soon as the budget for those positions is available. This is more officers than what would be needed to maintain the existing officer-to-resident service levels following full build-out of the Project site. Although additional SCPD staff may be required, the SCPD has no plans to add equipment and the Project would not trigger the need for the construction of a new police facility or the expansion of the existing one.

It is also expected that the proposed office uses and retail buildings would include private security, which would help reduce calls for service from the SCPD. Furthermore, according to a communication from Police Chief Sellers, the Project would not result in any impacts to the SCPD's response time objectives. Therefore, the Project would not result in substantial adverse physical environmental impacts associated with the provision of new or physically altered police protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives. As such, the Project would result in a *less-than-significant* impact to police protection. No mitigation is required.

Impact PS-3: Impacts on School Facilities. The Project would not result in the need for new or physically altered school facilities.

Findings PS-3. Based on generation rates provided by SCUSD, the residential component of the Original Project (under Scheme A) would generate approximately 141 elementary school students, 53 middle school students, and 65 high school students. While the Project-area schools are currently over capacity, the SCUSD has informed the City that it currently has four closed school sites located in the City and is planning a new high school that could be used to serve new development throughout the City and help to improve capacity. While new and reopened schools are unlikely to serve the students generated by the Project, they would likely result in a redistribution of students in SCUSD facilities and potentially alleviate over-capacity issues at schools that would serve the Project. Capacity also could be addressed by

modifying school attendance boundaries, with modular classrooms, and with new school facilities being planned in north San Jose.

The Project would also be subject to SB 50 School Impact Fees, which under state law are deemed to constitute full and complete mitigation for school impacts from development. For the reasons noted above, the Project would not trigger the need for expansion or construction of new schools, resulting in a *less-than-significant* impact. No mitigation is required.

Impact PS-4: Impacts on Parks and Recreation Facilities. The Project would not result in the need for new or physically altered parks and recreation facilities.

Findings PS-4. Implementation of the Project could result in three types of impacts on parks and recreational facilities: (1) impacts associated with eliminating existing on-site active recreational facilities; (2) impacts associated with recreational demand from new residents and employees on existing off-site park and recreational facilities; and (3) the combined impacts associated with eliminating existing on-site active recreational facilities and impacts associated with recreational demand from new residents and employees.

Elimination of Existing On-Site Active Recreational Facilities. The Project would reduce the recreational facilities within the City and region by converting a public golf course, seven lighted tennis courts, and a BMX track into a new mixed-use development. Approximately 75,000 to 81,000 rounds are completed by golfers annually, approximately 180 people are members of the Sylvano Tennis Academy, and hundreds of people use the BMX track. Therefore, the Project would displace these recreational users who would most likely use other nearby facilities. However, the public would retain access to similar alternative resources within Santa Clara, San José, Sunnyvale, and Milpitas. The current on-site facilities are slightly underutilized and if the users are distributed evenly, the large number of other existing venues in the area, including golf courses, would have capacity to accommodate these users. Although the Project would increase the use of other existing recreational facilities due to the closure of the on-site golf course, tennis courts, and BMX track, this is not expected to have a substantial physical deterioration of the facilities, resulting in a *less-than-significant* impact. No mitigation is required.

Increased Use of Off-site Parks and Recreational Facilities Due to New Residents/Employees. Implementation of the Project would also contribute to an increased demand for parkland because the EIR concluded that the Original Project would result in approximately 3,270 new permanent residents living on the Project site and over 24,700 new on-site employees. The Project would provide on-site amenities such as entertainment facilities and large, shared open spaces throughout the Project site, which would reduce the likelihood of residents and employees utilizing or overburdening existing City facilities because outdoor areas would be available to employees and residents. In addition to the park and open space dedicated to the City, approximately 5 acres in private open space would be provided within the residential occupied podiums. In addition, according to the City's General Plan, a neighborhood park is planned near the Project site that could serve Project residents and employees near the intersection of Tasman Drive/Lafayette Street with future development of Tasman East.

To the extent that the Project Developer is not able to fully satisfy the Mitigation Fee Act park requirement using land dedication or on-site private open space credits, the Project Developer would pay park in-lieu fees to satisfy the City's parkland dedication requirement. The City has determined that payment of in-lieu fees represents full and complete mitigation for parkland impacts due to new development. Any new facilities would be subject to subsequent project-level CEQA review by the proposing public agency. Therefore, the new permanent residents and employees generated by the Project would result in a *less-than-significant* impact related to parks. No mitigation is required.

Total Project Impact to Parks and Recreational Facilities. Implementation of the Project would result in the combined impacts of eliminating existing on-site active recreational facilities plus the recreational demand from new residents and employees. As discussed above, the Project would reduce the recreational facilities within the City and region. Implementation of the Project would also contribute to an increased demand for parkland. New residents and employees would most likely use other nearby facilities as well as access similar alternative resources within Santa Clara, San José, Sunnyvale, and Milpitas. However, this is not expected to result in a substantial physical deterioration of the facilities or result in the need to construct new recreational facilities. Recreational space would be included within the Project site, plus any fees paid by the Project Developer would be used by the City to acquire and/or develop new parkland and/or amenities or facilities and mitigate any environmental impacts from the development of those facilities. Therefore, the combination of the conversion of the on-site recreational facilities into a new mixed-use development, and the addition of new permanent residents and employees generated by the Project, would result in a *less-than-significant* impact related to parks. No mitigation is required.

Impact PS-5: Impacts on Library Facilities. The Project would not result in the need for new or physically altered library facilities.

Findings PS-5. The EIR determined that the Original Project would result in up to approximately 3,270 new permanent residents living on the Project site (under Scheme A), which would add to the existing SCCL service population. The residents generated by the Original Project would slightly degrade the library-space-per-resident ratio from 0.88 sf of library space per resident to 0.86 sf of library space per resident. In addition, the Original Project would slightly degrade the librarian-FTE-per-resident ratio from one librarian FTE per 2,345 residents to one librarian FTE per 2,410 residents. Furthermore, the Original Project would also degrade the existing book-volumes-per-capita ratio from 3.28 book volumes per capita to 3.19 book volumes per capita as well as the library-items-per-capita ratio from 3.74 items per capita to 3.65 items per capita. With the exception of the book-volume-per-capita ration, the Project would further degrade the State averages for the library-space-per-resident ratio and librarian-FTE-per-resident ratio.

As discussed in the EIR, approximately 10,900 more volumes and 12,700 more library items would be needed to maintain the existing book-volumes-per-capita ratio of 3.28 book volumes per capita and the library-items-per-capita ratio of 3.74 items per capita due to the Original Project. Because new City library facilities would be located on existing urban parcels, the additional volumes and library items would not necessitate the construction of a new library facility. Therefore, the Project would not result in substantial adverse physical environmental

impacts associated with the provision of new or physically altered library facilities in order to maintain acceptable service ratios or other performance objectives. As such, the Project would result in a *less-than-significant* impact to libraries. No mitigation is required.

Impact C-PS-1: Cumulative Public Service Impacts. The Project, in combination with other foreseeable development in the City, would not result in the need for new or physically altered public service facilities.

Findings C-PS-1. Development in the City, which is the service area for the SCFD, would result in increased demand for fire and emergency services. As discussed above, the Project could retain the existing Fire Station 10 at its current location or require relocation of the station on-site or off-site. Expansion in terms of personnel, and possibly equipment, would be necessary to maintain satisfactory service levels as a result of the Project, potentially requiring a larger fire station. Because the Project includes the potential relocation of an existing fire station (the environmental impacts of this relocation/expansion are addressed in this EIR), the Project would not contribute to cumulative impacts, resulting in a *less than cumulatively considerable contribution* to this cumulative impact. No mitigation is required.

Development in the City, which is the service area for the SCPD, would result in increased demand for police services. As discussed above, the Project would require four additional officers to maintain the existing officer-to-resident ratio. The SCPD recently received approval to hire two officers, and the SCPD plans to hire three additional officers as soon as the budget for those positions is available. The SCPD has no existing or near-future plans to add equipment or expand its current facility that serves the Project. Therefore, although additional SCPD staff members may be required, the Project plus cumulative development would not trigger the need for the construction of a new police facility, the construction of which would cause significant environmental impacts. Therefore, the Project would have *a less than cumulatively considerable* contribution to this cumulative impact. No mitigation is required.

Future housing projects in this area would generate additional students that would need to be accommodated within the school district. SB 50 school impact fees are deemed to constitute full and complete mitigation for school impacts. The SCUSD has enacted development fees and levies these fees on development projects within its service area. Other projects would be required to pay school impact fees, which are based on the amount of proposed residential and commercial space. This process and fee payment would ensure that citywide growth would be reasonably accommodated within the cumulative context. Therefore, cumulative impacts are considered *less-than-significant*. No mitigation is required.

Other current development, including the Project, would comply with Santa Clara City Code Chapter 17.35, which requires new residential development to provide adequate park and recreational land and/or pay a fee in-lieu of dedication to mitigate the impacts of new growth. Therefore, other current development is not expected to result in a significant cumulative impact related to parks and recreation. Therefore, with the provision of adequate park and recreational land within the Project site and/or payment of a fee in lieu of dedication, the cumulative impacts would be considered *less-than-significant*. No mitigation is required.

Development in this service area would place additional demand on library services and reduce the ratios for library space per resident, librarian FTE per resident, existing book volumes per capita, and library items per capita. The Project, incorporating the Increased Housing Alternative, would result in the construction of up to 1,680 residential units on the Project site, and cumulative development within the City of Santa Clara would result in approximately 7,783 units in the Tasman East Project and the Lawrence Station Area Project. To the extent new library resources are needed to improve the above-mentioned ratios, such library resources can be located on existing urban parcels. The Project plus cumulative development would not substantially contribute to the amount of increased library resources necessitating a new library facility, the construction of which would cause significant environmental impacts. Therefore, the Project would have a *less than cumulatively considerable* contribution to this cumulative impact. No mitigation is required.

12. Utilities

Impact UT-1: Water Demand. The Project would have sufficient water supplies available to serve the Project from existing entitlements and resources, and no new or expanded entitlements would be needed. In addition, the Project's contribution to cumulative impacts is less than considerable.

Findings UT-1. Existing water demand to serve uses on the Project site is 319 afy. Depending on the Scheme, the EIR determined that the Original Project would result in a total water demand of between 1,602 afy and 1,911 afy. As shown in EIR Table 3.14-7, when taking into account other approved development and Project water demand along with existing demand, there is adequate projected water supply to provide water out to 2035 under normal year, single dry year, and multiple dry year scenarios. Because the Project demand estimates do not take into account the expected on-site water reduction strategies, the EIR demand estimates overstate the likely demand. Implementation of the Project would have a *less-than-significant* impact on water supplies in SCVWD's service area, and expansion of existing entitlement would not be necessary to accommodate the Project. No mitigation is required.

Evidence in the EIR and Water Supply Assessment shows that there is sufficient supply for existing, previously approved projects, and Project water demands out to 2035 under multiple water year types. As described in the WSA, under normal year demands there is ample opportunity to expand recycled water service both at the Project site and in other areas in Santa Clara through existing infrastructure. In addition, as described in the WSA, there is approximately 85,000 afy of unutilized groundwater supply in the groundwater basin below the basin's safe yield, taking into account cumulative demands of Santa Clara and other nearby cities that utilize the same groundwater basin. Under single and multiple dry year scenarios, the City can implement several specific mandatory water use prohibitions and enforcement mechanisms that can readily reduce temporary water demand by at least 20 percent. Under reasonably foreseeable conditions, cumulative water demands, including the Project, would not exceed available water supplies, and thus no significant cumulative effect on water supply is identified and the Project's contribution would be less than considerable and, thus, *cumulative impacts are also less-than-significant*. No mitigation is required.

Impact UT-5: Landfill Capacity. The Project would be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs.

Findings UT-5. The majority of total demolition material from the entire Project site would be recycled at the Zanker Material Processing Facility. However, only approximately 40 percent of demolition material from the existing buildings at Parcel 4 would be recycled, with the rest of the building demolition debris sent to the Newby Island Landfill. On a tons-per-day basis, the Newby Island Landfill has spare daily capacity of 860 tons and the Zanker Material Processing Facility has spare daily capacity of 2,400 tons. The demolition waste generated by the Project during Phase 2 (when the most demolition waste would be generated per day) would constitute 38 percent of Newby Island Landfill's remaining daily permitted capacity and 5 percent the Zanker Material Processing Facility's remaining daily permitted capacity.

Operation of the Original Project would result in a total solid waste generation of approximately 17,944 tons per year (without any diversion). The Project would comply with the mandatory requirements of the City and Santa Clara Commercial and Residential Recycling Programs to help the City meet its waste diversion goal of 50 percent and reduce the use of single-use carryout bags and expanded polystyrene foam food service ware. Assuming a 50 percent diversion rate, implementation of the Original Project would result in a total solid waste generation of approximately 8,972 tons per year. This would constitute approximately 3 percent of the remaining daily permitted capacity at the Newby Island Landfill. The City currently has a contract with owners of Newby Island Landfill to provide disposal capacity through 2024. If the Newby Island Landfill is not available to accept waste after that date, the City will prepare a contract with another landfill with capacity, such as Guadalupe Mines in San José, which is anticipated to close in 2048. Because the Project can be served by a landfill with capacity, the Project's impact related to solid waste and landfill capacity would be *less-than-significant*. No mitigation is required.

D. Less-Than-Significant Impacts That Require Mitigation

Having reviewed and considered the information contained in the EIR, and in the administrative record before it, the City finds pursuant to Public Resources Code § 21081(a)(1) and CEQA Guidelines §15091(a)(1) and 15092(b) that changes or alterations have been required in, or incorporated into, the Project which would mitigate, avoid, or substantially lessen to below a level of significance the following potential significant environmental effects identified in the EIR. The City further finds that all of the mitigation measures adopted in the MMRP are feasible. The following potentially significant impacts will be reduced to a less than significant level through the implementation of Project mitigation measures:[6]

1. Aesthetics

Impact AES-1: Degradation of Visual Character or Quality. The EIR found that construction of the Project could change the recreational views along the Guadalupe River Trail. However, operation of the Project would not substantially degrade existing visual character or quality with implementation of the Master Community Plan Design Guidelines.

[6] As noted in the Draft EIR, the Project would not result in significant environmental impacts on agricultural, forestry, or mineral resources because none of these resources exist at or surrounding the Project site.

Mitigation Measures AES-1.1 and AES-1.2. Implementation of Mitigation Measures AES-1.1 and AES-1.2 would reduce visual impacts during construction to a *less-than-significant level.*

AES-1.1: Imported Material Storage. Soils from other parcels that are imported to Parcel 2 shall be stored in areas that are not within view of the Guadalupe River Trail. Alternatively, imported soils within view of the Guadalupe River Trail shall be distributed across Parcel 2 at a depth of 2 feet or less.

AES-1.2: Early Implementation of Master Community Plan Landscaping Plan for Parcels 1 and 2. The existing golf course trees along the eastern edge of Parcel 2 shall be retained (leaving the view from the Guadalupe River trail unchanged) until such time as development on the eastern portion of Parcel 2 would necessitate their removal. The Project Developer shall implement the Landscaping Plan, as presented in the Master Community Plan, at the earliest feasible period, given the constraints and pacing of the development. Prior to planting and installation, the Landscaping Plan shall be submitted to the Planning Director for approval.

Findings AES-1. The visual impacts associated with the Project were evaluated on a qualitative basis. This evaluation was based on professional judgment, analysis of the General Plan goals and policies related to visual resources and the significance criteria established by CEQA. The EIR analyzed the degree of contrast between the proposed features and the existing features that represent the area's valued aesthetic image and the degree to which the development would contribute to the area's aesthetic value. Primary considerations included principal viewer groups, the duration of construction, proximity to and sensitivity of the closest residential neighborhoods, and visibility of on-site construction storage.

The Guadalupe River Trail runs along both sides of the river on the top of the existing levees. Although the Guadalupe River Trail is not considered a scenic vista, corridor, or resource per Santa Clara's or San José's General Plan, the user group is considered sensitive due to its recreational nature and the fact that view duration for this group is typically longer since users are on foot or bicycle. The portion of the Guadalupe River Trail along the eastern perimeter of the Project site, on both sides of the river, currently maintains an open space visual character created by the river and the undeveloped, non-built up nature of the adjacent area to the west, including the Golf Course. Contributing to the undeveloped visual character of the Guadalupe River Trail are the views from this location of the Diablo Range to the east, and the Santa Cruz Mountains to the west, as discussed in more detail below. However, development currently exists to the east on the San José side and to the west at the Tasman East industrial/office development.

Mitigation Measures AES-1.1 and AES-1.2 include site-specific means of reducing visual impacts based on these qualitative assessments. Furthermore, the visual effects of construction activities would not be permanent (i.e., they would only last for the duration of the construction activities) and the Project site would appear similar to other construction sites, which is not unusual in urban areas. The above-listed mitigation measures would help preserve the character of existing views from the Guadalupe River Trail thereby reducing the project impact to *less than significant levels.*

Impact AES-2: New Sources of Light and Glare. The EIR found that the Project could create a new source of substantial light or glare that could adversely affect daytime or nighttime views in the area.

Mitigation Measures AES-2.1, AES-2.2, AES-2.3, AES-2.4. Implementation of Mitigation Measures AES-2.1 through AES-2.4 would reduce potential light, glare, and vehicle headlight impacts of the Project to a *less-than-significant level*.

AES-2.1: Installation of Low-Profile Lighting. The Project Developer shall install low-profile, low-intensity lighting directed downward to minimize light and glare.

AES-2.2: Installation of Shielded Fixtures. The Project Developer shall use shielded fixtures for street lighting and park lighting to minimize spill onto the public right-of-way and glare produced by the lighting on the Project site.

AES-2.3: Treat Reflective Surfaces. The Project Developer shall ensure application of low-emissivity glass at exterior surfaces of the proposed structures for the purpose of reducing reflection of visible light that strikes the glass exterior and reduction in the amount of interior light being emitted through the glass.

AES-2.4: Provide Obstruction for Glare from Vehicle Headlights in the Proposed Garages. The Project Developer shall ensure that through the architectural design of the parking garages and through or in combination with landscaping or physical screening at the parking structures glare from vehicle headlights shall be screened from off-site viewers.

Findings AES-2.2. The impacts of additional exterior lighting, glare from newly constructed buildings, and increased vehicle headlights from surface parking lots and parking garages associated with the Project were evaluated on a qualitative basis. This evaluation was based on professional judgment, analysis of the General Plan goals and policies related to visual resources and the significance criteria established by CEQA. The EIR assessed the visibility of additional lighting from nearby roadways and residential areas. Mitigation Measures AES-2.1 through AES-2.4 include site-specific means of reducing potential light, glare and vehicle headlight impacts so as to reduce spill to neighboring receptors. The Project Developer is required to treat reflective surfaces to reduce glare and light impacts and the parking garage will use design features, landscaping and screens to shield off-site viewers from on-site vehicle light impacts. *Thus, the impact would be mitigated to a less-than-significant level.*

2. Transportation and Traffic

Impact TRA-5: On-site Intersections on Parcels 1, 2, and 3. The EIR found that the on-site roadway system for Parcels 1, 2, and 3 has not yet been designed but could result in inadequate connections to the surrounding local streets and inadequate intersection lane configurations and traffic control devices, resulting in a roadway system that does not meet City of Santa Clara standards.

Mitigation Measure TRA-5.1: Transportation Design Review.

The site plans for Parcels 1, 2, and 3 will undergo a design review by the City to ensure that City design standards are adhered to prior to construction. This review shall include an on-site intersection analysis prior to development plan approval. The on-site analysis shall include an intersection operations analysis to develop intersection traffic controls and lane geometries that meet City of Santa Clara traffic standards. These parcels shall also be reviewed for:

- Inbound queuing at parking facilities to ensure that queues do not block public streets and local streets
- Emergency vehicle access and circulation
- Vehicular circulation
- Parking layout and circulation within the site
- Bicycle access and circulation
- Pedestrian access and circulation
- Pedestrian access to and from transit stops
- Truck circulation and loading dock access for commercial parcels

Findings TRA-5.1. The impacts associated with on-site interactions on Parcels 1, 2, and 3 were evaluated using the standards, methods, and significance criteria of the City and VTA, including City traffic standards. An analysis was conducted to evaluate the operations of the on-site intersections and queuing into the parking facilities and local streets for the AM and PM Peak Hours. The analysis was conducted for intersections on Parcels 4 and 5 because of greater knowledge and the stability of the design of the site plan for these parcels. Based on this analysis, there is potential for inadequate connections between the on-site roadway system for Parcels 1, 2, and 3 and the surrounding local streets, and inadequate intersection land configurations and traffic control devices, resulting in a roadway system that does not meet City standards. Although the Project Developers have not yet designed the on-site roadway system for Parcels 1, 2, and 3, Mitigation Measure TRA-5.1 requires these roadways to be designed in accordance with City standards and incorporate an intersections analysis and review parking access and circulation, emergency access, vehicle circulation, bike and pedestrian access, and commercial truck circulation and access. This would result in a *less-than-significant impact* on the on-site intersections for Parcels 1, 2, and 3.

Impact TRA-7: Pedestrian Facilities. The Project would generate substantial numbers of pedestrians traveling to transit stops along routes where sidewalk gaps exist, thus creating a hazardous condition for pedestrians.

Mitigation Measure TRA-7.1: Sidewalk Gap Closure on Tasman Drive on the Lafayette Street overcrossing extending east to Calle Del Sol. The Project Developer shall construct a sidewalk on the north side of Tasman Drive on the Lafayette Street overcrossing and extending east to Calle Del Sol. The Project Developer shall fully fund the construction of this sidewalk segment between the Project frontage on Tasman Drive and Calle Del Sol.

Findings TRA-7. Potential impacts on pedestrian facilities were evaluated using the standards, methods, and significance criteria of the City and VTA. The EIR assessed existing and planned pedestrian facilities near the site, and facilities for pedestrian circulation identified in the CityPlace site plan and Master Community Plan. Mitigation Measure TRA-7.1 would require the Project Developer to fund and construct the missing sidewalk on the north side of Tasman Drive between the west side of the Lafayette Street overcrossing and Calle Del Sol to ensure adequate pedestrian access between the Project site and the Lick Mill Light-Rail Station. This sidewalk gap impact would be *less-than-significant with mitigation.*

Impact TRA-15: Unsignalized (Off-Site) Intersections in Cumulative with-Project Conditions. The EIR found that the Project would add a considerable amount of traffic to unsignalized intersections that operate at LOS F and that meet the peak hour traffic signal under cumulative with-Project conditions.

Mitigation Measures TRA-1.1 and TRA-2.2. Implementation of Mitigation Measures TRA-1.1 and TRA-2.2 would reduce this impact to a *less-than-significant level.*

TRA-1.1: Vehicle Trip Reduction with Transportation Demand Management (TDM). The Project Developer shall prepare and implement a TDM Plan approved by the Santa Clara Director of Planning and Inspection. The TDM Plan shall include trip reduction measures necessary to achieve an overall target of reducing Project office-generated daily traffic by a minimum of 4 percent and peak-hour traffic by a minimum of 10 percent, with an overall target of reducing Project residential-generated daily traffic by a minimum of 2 percent and peak-hour traffic by a minimum of 4 percent, compared to the traffic estimates used in this EIR. The TDM Plan shall also include and implement TDM Best Management Practices (BMPs) for the retail uses. The TDM Plan shall include measures to reduce the amount of vehicle traffic generated by CityPlace by shifting employees, customers, and residents from driving alone to using transit, carpooling, cycling, and walking modes through TDM measures, strategies, incentives, and policies. The TDM obligation in this measure is to apply for the lifetime of the Project. The TDM Plan may specify a phased implementation approach that provides initially for implementation of the TDM measures that are appropriate for multi-tenant offices (e.g., measures aimed at increased transit use and carpooling), which are expected to be developed during the first three phases of development, and then provide for TDM measures that are appropriate for large corporate office tenants in the remaining phases (such as shuttles). The Santa Clara Director of Planning and Inspection shall have the authority and discretion to permit modification of the measures provided that the modifications continue to achieve the overall trip reduction objective and/or the Santa Clara Director of Planning and Inspection is satisfied that all feasible TDM measures are being implemented if the overall trip reduction objective is not being met. Specific requirements as to the TDM Plan, its contents, target reductions, monitoring and remedial action are as follows:

a. Vehicle Trip Thresholds. Vehicle trip reductions will be measured through counts of vehicles that enter and exit the site and by comparison of the results to established trip thresholds. As part of the annual TDM Plan monitoring process, as described below, vehicle trip generation estimates, based on the land uses and their sizes, will be prepared

by a transportation professional funded by the Transportation Management Association described below, and working under the direction of the City, who will use the trip generation rates and internalization and public transit ridership reductions used in the EIR transportation analysis. The TDM reduction targets will be applied to create the thresholds. The estimates and thresholds will be reviewed and approved by the City's Traffic Engineer. While no thresholds are established for retail uses because it is difficult to enforce trip reductions for retail customers, this measure requires implementation of TDM BMPs for retail portions of the Project, as described below.

b. Transportation Management Association Some TDM measures and strategies shall be incorporated into the design of the site and the buildings. A Transportation Management Association (TMA) is a non-profit, organization that provides transportation services in a particular area, such as a commercial district, medical center or office park, controlled by members that are building owners or tenants in that area. A TMA shall be formed to oversee and coordinate implementation of the TDM measures to be implemented for the Project, including coordinating activities of the various employers and tenants. The TDM Plan shall identify the vehicle trip-reducing measures and strategies to be provided and implemented directly by the Project Developer, those to be implemented directly by the TMA and those to be implemented directly by individual tenants/employers, and any to be implemented directly by the City. The TDM Plan shall describe the roles and responsibilities of the TMA and its members, which shall be codified in a binding agreement with the City of Santa Clara, approved by the Director of Planning and Inspection, and recorded with the County of Santa Clara Clerk Recorder.

c. Office TDM Measures. TDM measures that target office employees shall be described in detail in the TDM Plan, including information regarding the direct implementing party (e.g., Project Developer, TMA, City, and tenants and employers.), The following TDM measures shall be considered for inclusion in the TDM Plan for some or all portions of the office development, to the extent feasible and appropriate, either as part of an initial TDM Plan or as options for enhanced or remedial measures if trip reduction targets are not being met:

- On-site Support Facilities: shuttle bus stops with shelters, bicycle paths and lanes, pedestrian paths linking buildings and transit stations, priority parking for carpools and vanpools
- In-building Support Facilities: showers and changing rooms, bicycle storage rooms and bicycle racks, and bicycle repair stands, cafes, and fitness centers
- Private shuttles for both long distance commute and last-mile service from nearby public transit
- Ridesharing options for long distance commuters such as carpool and vanpool matching services
- Guaranteed ride home services for commuters who carpool, take transit, or bicycle to work

- Financial incentives such as pre-tax benefits for transit and bicycle expenses (e.g., Commuter Check) or subsidized transit passes (e.g., Commuter Checks, Clipper Cards or VTA EcoPass) for all employees
- Additional support services for employees who use transit or rideshare, such as flexible work hours
- A website and marketing program to disseminate information on commute options; access to TMA management services
- A TDM information packet to be provided to all new CityPlace employees upon commencement of work at CityPlace and, the benefits of alternative commute methods stressed during new employee orientation programs
- Incentives for employees to live in locations well served by transit or shuttles
- Bike share pods to enable trips on-site and to nearby destinations to be made by bicycle
- Car share services with cars on-site for use by employees (or others) who use alternative modes to travel to the site but need a car to run an errand, travel to a meeting, etc.
- Multi-passenger demand responsive ride services for local employees that are competitive with drive alone including transportation network/ride-sharing services such as Uber Pool, Lyft Line and Chariot on-demand and crowd-sourced bus services
- Yet-to-be developed new services, programs, strategies and emerging technologies
- Congestion cordon (boundary) pricing scheme[13]
- Parking management strategies such as paid parking and unbundled parking to restrict the parking supply.[14]

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[13] Cordon pricing would entail charging vehicles a fee as they enter an area. The fees would be higher during congested periods. This type of strategy is most effective with limited access points and requires a high quality transit system to accommodate travel by a non-automobile mode.

[14] These parking management strategies can be paired with a residential permit parking program (RPPP) to ensure that Project residents seeking parking do not park in nearby neighborhoods.

d. Residential TDM Measures. TDM measures that target residents shall be described in the TDM Plan, including information regarding the direct implementing party (e.g., Project Developer, TMA, City, tenants and employers). The following TDM measures shall be considered for inclusion in the TDM Plan for some or all portions of the residential development, to the extent feasible and appropriate, either as part of an initial TDM Plan or as options for enhanced or remedial measures if trip reduction targets are not being met:

- Bicycle infrastructure improvements
- Bicycle parking room or lockers
- Bicycle riders guide
- On-site bicycle repair facilities
- Financial subsidies for residents who commute by carpool, transit, walking or bicycle, such as VTA EcoPasses
- A website and marketing program to disseminate information on commute options; access to TMA management services
- Rideshare matching services
- On-site shuttle services, shuttle bus stops with shelters, pedestrians path linking buildings and transit stations
- Bus stops located near buildings
- Pedestrian-oriented site design
- Congestion cordon (boundary) pricing scheme
- Parking management strategies such as paid parking and unbundled parking to restrict the parking supply.

e. Retail Site Design BMPs. BMPs that target retail employees and customers shall be described in the TDM Plan, including information regarding the direct implementing party (e.g., Project Developer, TMA, City, tenants and employers). The following BMPs shall be considered for inclusion in the TDM Plan for some or all portions of the retail development, to the extent feasible and appropriate:

- Bicycle infrastructure improvements
- Bicycle rider encouragement program
- Bicycle parking, showers and lockers
- Bicycle riders guide
- On-site bicycle repair facilities
- Pre-tax commuter incentives
- Rideshare matching services
- On-site shuttle services, shuttle bus stops with shelters, pedestrians path linking buildings and transit stations
- A website and marketing program to disseminate information on commute options; access to TMA management services
- Bus stop locations near building entrances
- Pedestrian-oriented site design
- Congestion cordon (boundary) pricing scheme

f. Monitoring and Reporting. The TDM Plan shall be monitored annually to gauge its effectiveness in meeting the thresholds; while general guidelines are provided here, the monitoring and reporting process shall be explained in detail in the TDM Plan. A transportation professional working at the City's direction and pursuant to a scope of work approved by the City's Traffic Engineer shall conduct traffic counts annually

using mechanical counters or other devices approved by the City of Santa Clara to measure the daily and peak-hour entering and exiting vehicle volumes for a 72-hour period, Tuesday through Thursday. The counts shall include traffic counts at all CityPlace driveways, traffic counts at the driveways to office parking locations, and traffic counts at the driveways to residential parking locations. The counts shall be conducted when schools are in session and during non-holiday weeks with fair weather. The individual driveway volumes will be summed to provide the total site traffic volumes. The volumes at the driveways to the office and residential parking locations will be summed to provide the office- and residential-generated traffic volumes. The volumes will be compared to the trip thresholds to determine whether the reduction in vehicle trips is being met. The TMA will assist with the monitoring activities that will be conducted.

In addition to monitoring driveway volumes, a survey will be developed by the transportation professional and administered in coordination with the TMA and individual office employers to determine actual mode splits for employees. The survey will also gather information on usage of individual TDM Plan components as well as gauge employee perception of the overall TDM Plan After an initial survey is conducted, subsequent surveys shall be conducted in years where the previous year's annual report has concluded that trip thresholds and trip reduction targets are not being met.

The results of the annual vehicle counts and survey (if one is conducted that year) will be reported in writing by the transportation professional to the Santa Clara Director of Planning and Inspection. The report will include descriptions of the TDM measures in place, highlighting new or modified measures, summarize the results of the counts, summarize the results of the employee survey (if one is conducted that year), and conclude whether the trip thresholds and trip reduction targets are being met. The report (as well as any remedial action taken as a result) will be summarized in an annual informational report to the Planning Commission on the progress of TDM efforts throughout the City of Santa Clara.

g. Remedial Action. If TDM Plan monitoring results show that the trip reduction targets are not being met, the TDM Plan shall be updated to identify replacement and/or additional feasible TDM measures to be implemented. The updated TDM Plan shall be submitted to the City and approved by the Santa Clara Director of Planning and Inspection. The updated TDM Plan shall also identify other TDM measures that were considered but determined to be infeasible or ineffective. The TMA shall oversee and coordinate the implementation of the feasible additional TDM measures and continue to explore methods of making other potential TDM measures feasible.

TRA-1.2: Intersection Improvements. The intersection improvements and off-setting mitigation measures summarized in Table 3.3 20 in the EIR shall be implemented, and Project Developer shall pay the fair-share contributions for the mitigation measures summarized in Table

3.3-20. The intent of the table is to identify, based on a preliminary feasibility determination, physically feasible intersection mitigation measures (e.g., lane additions) that increase the intersection's vehicle carrying capacity and reduce vehicle delay while fully mitigating the impacts. As described below, feasible mitigation measures that fully mitigate the impacts were identified at some locations. However, at other locations, measures that provide only partial mitigation were identified because of physical constraints. Although these mitigation measures do not fully address the impact, they do help reduce the severity of the impact. For intersections where there are no feasible physical improvements, off-setting mitigation measures were investigated. These measures would provide improvements to other modes of travel, thereby increasing the capacity of the transportation system. At some intersections no feasible improvement or off-setting mitigation measures were identified.

The four potential entries in Table 3.3-20 are:

Full Mitigation: At the affected intersection, a physical modification to the intersection that would fully mitigate the impact that was identified. This could be accomplished by adding vehicle lanes or upgrading an intersection to an interchange or "fly-over." These improvements would reduce vehicle delays and fully mitigate Project impacts at several intersections by allowing the intersections to operate at acceptable levels, with delays that would be lower than they would be under no-project conditions, or with less than a 4-second increase in critical delay at intersections that operate at unacceptable levels.

Partial Mitigation: At the affected intersection, a physical modification to the intersection that would partially mitigate the impact was identified. The proposed measure mitigates the impact during one peak hour but not the other or reduces the delay but not enough to mitigate the impact.

Off-setting Mitigation: In the North San José Deficiency Plan area, off-setting local street network, transit, bicycle, or pedestrian improvements were identified to accommodate future travel growth but not directly mitigate the intersection with the identified impact.

No Feasible Mitigation: No physical improvements or off-setting mitigation measures were identified, typically because of physical limitations, costs, and/or right-of-way constraints.

Some of the intersection improvements would require right-of-way ("ROW") acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination subsequent to certification of the EIR that a portion or all of an improvement is not feasible

because the ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, and no off-setting mitigation measure is identified, that intersection shall be considered to have "no feasible mitigation."

The Project Developer's responsibility is included in Table 3-3.20, which indicates if the Project Developer would be wholly or partially responsible for the mitigation measure.

As seen in the table, "100 percent" indicates that the cost and construction of the proposed mitigation measure is the full responsibility of the Project Developer. These are discrete mitigation measures that either fully or partially mitigate significant Project impacts.

"Percent of total traffic" indicates that the Project Developer shall pay a fair-share contribution to the proposed mitigation measure, which is typically a larger transportation improvement, such as an expressway interchange, that has been identified in an adopted plan. Twelve of the intersections are on the County expressway system and are identified in the County's Expressway Plan to be upgraded to an interchange or "fly-over." The Project Developer shall pay its fair share toward these interchange upgrades per agreements between Santa Clara County and the City of Santa Clara.

"Pay the North San José fee or fair-share contribution of alternative or off-setting mitigation" is identified for affected intersections in the North San José area. There are two options for these locations. The Project Developer can pay the North San José fee or a fair-share contribution for the mitigation measure or off-setting mitigation measure based on the Project's percent contribution of added traffic at the intersection.

Where there is no feasible mitigation measure, no fair share is identified (0 percent).

Findings TRA-15. The Project would have a significant impact on one unsignalized intersection (#114 Calle Del Sol/Calle De Luna) under cumulative with-Project conditions. The Project Developer's TDM Plan will target peak-hour traffic and help reduce traffic generated by Project-related transportation activities, and will apply over the lifetime of the project. The Project Developer will also be required to implement several intersection improvements (like signalizing the Calle Del Sol/Calle Del Luna intersection), some of which will fully mitigate increased traffic impacts. For these reasons, there would be a *less-than-significant impact* on Unsignalized (Off-Site) Intersections in Cumulative with-Project Conditions.

3. Air Quality

Impact AQ-2: Construction Criteria Air Pollutant Emissions. Construction activities at the Project site would result in the generation of regional criteria pollutant emissions during construction in excess of Bay Area Air Quality Management District (BAAQMD) thresholds.

Mitigation Measure AQ-2.1: Utilize Clean Diesel-Powered Equipment during Construction to Control Construction-Related Reactive Organic Gas (ROG) and Oxides of Nitrogen (NOX) Emissions. The Project Developer shall ensure that all off-road diesel-powered equipment used during construction between 2017 and 2022 is equipped with the U.S. Environmental Protection Agency (EPA) Tier 3 or cleaner engines, except for specialized construction equipment for which an EPA Tier 3 engine is not available. Consistent with advancements of the statewide fleet average, the Project Developer shall ensure that all off-road diesel-powered equipment used during construction between 2023 and 2030 is equipped with EPA Tier 4 engines, except for specialized construction equipment for which an EPA Tier 4 engine is not available. This requirement will ensure construction equipment remains cleaner than the fleet-wide average.[7]

Mitigation Measure AQ-2.2: Use Modern Fleet for On-Road Material Delivery and Haul Trucks during Construction. The Project Developer shall ensure that all on-road heavy-duty diesel trucks with a gross vehicle weight rating of 19,500 pounds or greater used at the Project site comply with EPA 2007 on-road emissions standards for PM10 and NOX (0.01 grams per brake horsepower-hour [g/bhp-hr] and 0.20 g/bhp-hr, respectively).

Mitigation Measure AQ-2.3: Implement Bay Area Air Quality Management District (BAAQMD) Additional Construction Mitigation Measures to Reduce Construction-Related Dust and Exhaust Emissions. The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce fugitive dust and equipment exhaust emissions. Emission reduction measures shall include, at a minimum, the following measures. Alternative measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City of Santa Clara for approval.

All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. If water infiltration into landfill refuse layers is a concern, non-toxic soil stabilizers may be used instead.

All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 miles per hour (mph) for a period of 2 hours or more.

Windbreaks (e.g., fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Windbreaks shall have at maximum 50 percent air porosity.

Exposed ground areas that are to be reworked more than 1 month after initial grading should be sown with fast-germinating native grass seed and watered appropriately until

[7] As explained in MM AQ-6.1, below, as necessary to reduce cancer risk to on-site sensitive receptors related to construction diesel particulate matter emissions to a level below the BAAQMD, the Project Developer may need to use Tier 4 equipment after occupancy of on-site residences or daycare centers, or may use other appropriate measures (see AQ-6.1). If Tier 4 equipment is used earlier than 2023, this may reduce the amount of mitigation required in MM AQ-2.4.

vegetation is established. If grass seeding is not feasible, then non-toxic soil stabilizers may be used.

All construction trucks and equipment, including tires, involved in ground disturbance or transit through loose soil areas shall be washed off prior to leaving the site.

Site accesses to a distance of 25 feet from the paved road shall be treated with a 6- to 12 inch compacted layer of wood chips, mulch, or gravel. Alternatively, a rumble plate may be used in place of chips, mulch, or gravel.

Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.

Idling time of diesel powered construction equipment shall be limited to 2 minutes.

All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of PM and NOX.

All contractors shall use equipment that meets the California Air Resources Board's (ARB's) most recent certification standard for off-road heavy-duty diesel engines.

Mitigation Measure AQ-2.4: Offset NOX Emissions Generated during Construction that Are above BAAQMD NOX Average Daily Emission Threshold. The Project Developer shall track construction activity, estimate emissions, and enter into a construction mitigation contract with BAAQMD to offset NO_X emissions that exceed the BAAQMD NO_X average daily threshold of 54 pounds per day.

The average daily emissions shall be calculated on an annual basis by determining total construction-related NO_X emissions in each calendar year and dividing by the number of actual workdays in that calendar year. BAAQMD will use the mitigation fees provided by the Project Developer to implement emissions reduction efforts that offset Project NO_X emissions that exceed the BAAQMD threshold.

Implementation of this mitigation measure shall apply only to Phase 1 through Phase 4 construction on Parcels 4 and 5 because only construction on Parcels 4 and 5 has the potential to exceed the BAAMQD average daily NO_X threshold on an annual basis, depending on construction sequencing and overlapping activity.

This mitigation includes the following specific requirements:

The Project Developer shall require construction contractors to provide annual construction activity monitoring data for Phases 1 through 4 to estimate actual construction emissions, including the effect of equipment emissions reduction measures. The Project Developer shall submit the annual construction activity monitoring data and an estimate of actual annual construction emissions to the City and BAAQMD for review by February 1 of each year for the prior construction year. The City shall examine the construction activity monitoring to ensure it is representative, and BAAMQD shall examine the emissions estimate to ensure it is calculated properly.

After acceptance of the emissions estimates by BAAQMD for the prior year, the Project Developer shall submit mitigation fees to BAAQMD to fund offsets for the portion of annual emissions that exceed the average daily NO_X threshold. The mitigation fees shall be based on the mitigation contract with BAAQMD (see discussion below) but shall not exceed the emissions-reduction project cost-effectiveness limit set for the Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) for the year in which mitigation fees are paid. The current Carl Moyer Program cost-effectiveness limit is $18,030 per weighted ton of criteria pollutants (NO_X + ROG + [20*PM]). An administrative fee of five percent shall be paid by the Project Developer to BAAQMD to implement the program.

The mitigation fees shall be used by BAAQMD to fund projects that are eligible for funding under the Carl Moyer Program guidelines or other BAAMQD emissions-reduction incentive programs that meet the Carl Moyer Program cost-effectiveness threshold and are real, surplus, quantifiable, and enforceable.

The Project Developer shall enter into a mitigation contract with BAAQMD for the emissions-reduction incentive program. The mitigation contract shall include the following:

Identification of appropriate off-site mitigation fees required for the Project.

Timing for submission of mitigation fees.

Processing of mitigation fees paid by the Project Developer.

Verification of emissions estimates submitted by the Project Developer.

Verification that off-site fees are applied to appropriate mitigation programs within the SFBAAB.

The mitigation fees shall be submitted within 4 weeks after BAAQMD accepts an emissions estimate provided by the Project Developer showing that the average daily NO_X threshold was exceeded (when measured on an annual basis).

Findings AQ-2. The EIR evaluated construction criteria air pollutant emissions against BAAQMD thresholds and BMPs. Emissions associated with Project construction were examined assuming a 14-year, phased construction period beginning in 2017. Because activities during several phases would occur concurrently, the EIR assumed that during these periods of overlap, all equipment would operate at the same time. Daily average emissions estimates for individual phases occurring in each construction phase were added to obtain the average daily emissions on a yearly basis. Overall, construction activities at the Project site would result in the generation of regional criteria pollutant emissions during construction in excess of BAAQMD thresholds for NOX. Mitigation would be required to reduce NO_X emissions generated by the Project. Similarly, because BAAQMD considers fugitive dust emissions to be significant without BMPs, mitigation would also be required to control fugitive dust. Mitigation Measure AQ-2.1 requires that heavy-duty equipment comply with Tier 3 and Tier 4 emissions standards, and Mitigation Measure AQ-2.2 requires that construction haul trucks utilize model year 2010

engines or newer. Implementation of these measures will reduce ROG and NOX emissions from off-road heavy-equipment and on-road vehicles. BAAQMD recommended BMPs for fugitive dust and equipment exhaust are outlined in Mitigation Measure AQ-2.3. Mitigation Measure GHG-1.1 would require the use of 30 percent alternative fuel for construction diesel equipment. The effects of this measure would lower particulate emissions without increasing NOx emissions. As shown in EIR Table 3.4-7, NO_X emissions in 2017 would still exceed BAAQMD's 54 pounds per day threshold for NOX after implementation of Mitigation Measures AQ-2.1 through AQ-2.3. Accordingly, additional mitigation is required to reduce NO_X impacts to a less-than-significant level. Pursuant to Mitigation Measure AQ-2.4, the Project Developer will pay an off-site mitigation fee for NOX emissions in excess of BAAQMD thresholds. With the implementation of Mitigation Measure AQ-2.4, NO_X emissions would be reduced to *a less-than-significant level.*

Impact AQ-6: Exposure of Sensitive Receptors to Toxic Air Contaminant Emissions during Construction. Project construction emissions would result in the exposure of sensitive receptors to localized TAC.

Mitigation Measures. Mitigation Measures AQ-2.1, AQ-2.2, AQ-2.3 (described above), plus:

Mitigation Measure AQ-6.1: Assess Construction Diesel Particulate Matter (DPM) Emissions Potential Prior to Construction, Utilize Clean Diesel-Powered Equipment, Filtration Systems, and/or other Measures as Necessary to Reduce Cancer Risks Associated with DPM during Construction. The Project Developer shall implement the following measures, as necessary, to reduce cancer risks associated with DPM during construction to a level less than BAAMQD incremental cancer risk threshold of 10 in 1 million:

- Revised Health Risk Assessment (HRA): The Project Developer may choose to assess the potential construction DPM emissions later in the design phase, but prior to construction, and to prepare a revised HRA using updated construction equipment activity data and submit to the City for review. If the revised HRA demonstrates, to the satisfaction of the City, that the cancer risk for construction of the entire Project at all potentially exposed on-site and off-site sensitive receptors will be less than BAAMQD threshold cited, then no additional mitigation is necessary. If the revised HRA demonstrates, to the satisfaction of the City, that the cancer risk for construction of the entire Project at some of the on-site or off-site sensitive receptors will be less than presented in the EIR but still over the BAAMQD threshold, then some of the mitigation below may not be necessary.
- As necessary to reduce cancer risks below the BAAQMD threshold in light of projected DPM emissions and exposure and other mitigation (MM AQ-2.1 through MM AQ-2.3 and MM GHG-1.1), one or more of the following measures shall be implemented and the Project Developer will provide updated modeling to the City demonstrating that all on-site risks are reduced to below the BAAMQD threshold level:
    - Tier 4 Construction Equipment. If on-site residences and daycare centers are occupied, the Project Developer shall ensure that all off-

road diesel-powered equipment used during construction after occupancy of on-site residences or on-site daycare centers is equipped with EPA Tier 4 or cleaner engines, except for specialized construction equipment for which an EPA Tier 4 engine is not available. This requirement would be in addition to the clean diesel requirements in Mitigation Measure AQ-2.1.

- Install Filtration Systems on Ventilation and Recirculation Systems. Filtration systems shall be installed on ventilation and recirculation systems within on-site residences and for the heating, cooling, or ventilation systems serving daycare centers. All filters must be rated MERV-13 or higher. The Project Developer shall submit a plan for installation and maintenance of all filters in accordance with the manufacturer's recommendations to the City prior to approval of the first building permits.
- If on-site residences and daycare centers are occupied, the Project Developer shall employ other reduction measures, such as High Performance Renewable (HPR) Diesel Fuel, that would reduce DPM. Proposals for alternative reduction measures shall be submitted to the City for review and approval, including evidence of the particulate reduction and/or risk reduction effectiveness of the proposed alternative measures.

Findings AQ-6. The EIR evaluated exposure of sensitive receptors to TAC emissions during construction against BAAQMD thresholds. Emissions of $PM_{2.5}$ during construction were compared to BAAQMD's Project-level $PM_{2.5}$ threshold. Exposure to construction DPM emissions were assessed by predicting the health risks in terms of excess cancer and non-cancer risks at both on- and off-site receptor locations. Exposure to carcinogens is expressed in terms of the number of people in 1 million who would contract cancer over a lifetime of exposure. The BAAQMD project threshold is an increased risk of contracting cancer of 10 in 1 million (which means that out of 1 million exposed people, 10 would contract cancer). Chronic exposure to non-carcinogens is expressed with use of a hazard index (HI), which is the ratio of expected exposure level to an acceptable reference exposure level. A HI greater than 1.0 is considered significant. As shown in EIR Table 3.4-11, construction of the Project would result in an increase in cancer risk in excess of BAAQMD thresholds at residential and daycare receptors within Parcel 5, which would be constructed during Phase 1. This would be a significant impact. With implementation of Mitigation Measures AQ-2.1, AQ-2.2, AQ-2.3 and AQ-6.1, cancer risks related to DPM exposure during construction would be reduced below the BAAQMD threshold. Specifically, mitigation measures will include mandated use of EPA Tier 3 or cleaner engines (from 2017 through 2022) and EPA Tier 4 engines (from 2023 through 2030) in off-road diesel-powered equipment used in construction, compliance with EPA 2007 on-road emissions standards for PM10 and NOX for all on-road heavy-duty diesel trucks with a gross vehicle weight rating of 19,500 pounds or greater, implementation of emission reduction measures to reduce fugitive dust and equipment exhaust emissions, and implementation of measures to reduce cancer risks associated with DPM during construction that occurs after the first occupancy of on-site residences or daycare centers. Accordingly, this impact would be *less than significant with mitigation.*

Impact AQ-7b: Exposure of New Sensitive Receptors to Existing Toxic Air Contaminant Emissions. In addition to exposure due to Project sources, new on-site sensitive receptors would also be exposed to individual TAC emissions associated with existing traffic, train, and stationary sources within 1,000 feet of the Project site resulting in exposure to TAC concentrations. As discussed above, under *CBIA v. BAAQMD*, CEQA no longer considers the impact of the environment on a project (such as the impacts of existing emissions on new project receptors) to be an impact requiring consideration under CEQA. The following analysis is neither a CEQA impact nor finding.

Condition of Approval AQ-7.1: Provide Filtration Systems for On-site Residences and Daycare Centers as Necessary to Reduce Operational Cancer Risks and Exposure to Particulate Matter 2.5 Microns in Diameter or Less (PM2.5). This measure only applies to on-site residences and daycare centers. The Project Developer shall implement the following measures, as necessary, to reduce cancer risks to a level less than BAAQMD project-level thresholds:

Revised HRA: The Project Developer may choose to reassess the potential on-site cancer risk and $PM_{2.5}$ concentrations to be experienced by on-site residential receptors and on-site daycare centers later in the design phase, but prior to occupancy, and to prepare a revised HRA using updated receptor location information and more detailed assessment of risks associated with existing and Project operational sources and submit to the City for review. If the revised HRA demonstrates, to the satisfaction of the City, that the cancer risk and exposure to $PM_{2.5}$ for all potentially exposed on-site receptors will be less than BAAMQD project-level thresholds, then no additional measures are necessary. If the revised HRA demonstrates, to the satisfaction of the City, that the cancer risk or exposure to $PM_{2.5}$ for on-site sensitive receptors will be less than presented in the EIR but still over BAAMQD threshold, then the control effort may be less.

Install Filtration Systems on Ventilation and Recirculation Systems. Filtration systems shall be installed on ventilation and recirculation systems within on-site residences and the heating, cooling, and ventilation systems that serve daycare centers that are exposed to risks above BAAQMD thresholds due to individual existing sources. All filters must be rated MERV 13 or higher. The Project Developer shall submit a plan for installation and maintenance of all filters in accordance with the manufacturer's recommendations to the City prior to approval of the first building permits.

Findings AQ-7b. The impacts of new sensitive receptors to existing TAC emissions were evaluated against BAAQMD thresholds. Google Earth map files and distance multipliers provided by the BAAQMD were used to estimate excess impacts for existing stationary and rail sources. The EIR modeled impacts associated with existing roadway sources. New residential and daycare receptors would be exposed to certain significant cancer risks associated with an existing on-site emergency generator (at Santa Clara Fire Station 10) and existing train service along Lafayette Street that would exceed the BAAQMD threshold values. Impacts would be less than the BAAQMD thresholds related to exposure to other stationary sources and to adjacent roadways. Cancer risk impacts above the BAAQMD thresholds related to on-site exposure to train TAC emissions are limited to the areas within approximately 400 feet of the rail line along Lafayette Street.

Dispersion modeling was conducted at the southern end of Parcel 2 related to $PM_{2.5}$ impacts from an off-site printed circuit board manufacturing facility. The modeling revealed that all existing source exposures would be below BAAQMD thresholds for Parcel 2 receptors. As shown in EIR Table 3.4-15, with implementation of Condition of Approval AQ-7.1—including preparation of a revised HRA for on-site residential receptors and on-site daycare centers and installation of filtration systems within on-site residences and the heating cooling, and ventilation systems that serve daycare centers exposed to risks above BAAQMD thresholds—cancer risks and PM2.5 exposure for on-site new receptors associated with emissions from existing train service, an on-site emergency generator, and an off-site stationary source would be reduced below the BAAQMD project-level thresholds.

Impact AQ-9: Objectionable Odors. The Project could create objectionable odors affecting a substantial number of people.

Mitigation Measure HAZ-2.1. See Mitigation Measure HAZ-2.1, described in VII.D.10.

Findings AQ-9. Objectionable odor impacts associated with the Project were evaluated based on BAAQMD's CEQA Guidelines and ARB's *Air Quality and Land Use Handbook.* Beyond identifying land uses associated with odor complaints, BAAQMD provides recommended screening distances for citing new receptors near existing odor sources. As the Project would be located on the site of the previous City of Santa Clara All Purpose Sanitary Landfill and landfill materials may be disturbed during Project construction, odor impact analysis also considered potential construction-period odor generation from disturbed landfill material. For the purpose of the EIR analysis, an odor-producing facility, as defined by BAAQMD, creates an "objectionable odor" if it receives five complaints per year averaged over 3 years. Potential odors from disturbance of landfill soil would be controlled through Mitigation Measure HAZ-2.1, which includes on-site odor monitoring during excavation. If odors are detected, they will be controlled though application of a deodorant, masking agent, neutralizing agent, lime, or an interim landfill cover. Accordingly, with mitigation, construction activities would not be likely to result in nuisance odors that would violate BAAQMD Regulation 7 (Odorous Substances). This construction-period impact would be *less than significant with mitigation.*

4. Greenhouse Gas Emissions

Impact GHG-2: Conflicts with Applicable Plans and Policies. The Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, specifically, the Santa Clara Climate Action Plan.

Mitigation Measures. See TRA-1.1, described in VII.D.2 above, and GHG-1.2, discussed below.

Findings GHG-2. The EIR analyzed the extent to which the Project GHG impacts impeded implementation of the AB 32 Scoping Plan, implemented the City's CAP, and was consistent with the GHG reduction targets set forth in EO S-03-05 and B-3015. The AB 32 Scoping Plan outlines a series of technologically feasible and cost-effective measures to reduce

statewide GHG emissions, including (1) expanding energy efficiency programs, (2) increasing electricity production from renewable resources to at least 33 percent of the statewide electricity mix, (3) increasing automobile efficiency, (4) implementing the Low Carbon Fuel Standard, and (5) developing the Cap-and-Trade Program. The Project does not impede implementation of any of the elements of the AB 32 Scoping Plan. Moreover, the Project's emissions do not exceed the BAAQMD thresholds, which are based on consistency with the AB 32 emissions reduction target.

As shown in EIR Table 3.5-7, with mitigation, the Project would implement all applicable measures in the City's CAP. As shown in EIR Table 3.5-8, because the existing CAP includes more reductions than are necessary to meet the CAP target of 15 percent below 2008 levels, the addition of CityPlace emissions would not result in the City exceeding the CAP goal. Thus, the Project is considered consistent with the CAP with respect to GHG emissions reduction goals. With Mitigation Measures GHG-1.2 and TRA-1.1, the Project would be consistent with the City's CAP measures and would not impede achievement of the City's CAP's GHG reduction target. Thus, impacts related to CAP consistency would be *less than significant with mitigation.*

5. Noise

Impact NOI-1: Exposure to Excessive Noise Levels. The Project would expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies. Specific impacts and mitigation measures are discussed below.

Impact NOI-1a: Construction Noise Impacts on Off-Site Land Uses. The Project would require certain equipment would expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies. The noise levels resulting from construction of the Project would temporarily exceed the City Code noise limits at sensitive land uses during non-exempt hours. Commercial, office, and industrial uses near the Project site would also experience noise that would exceed the applicable City Code noise limits for these land uses. Thus, construction noise impacts on off-site land uses would be significant.

Mitigation Measure NOI-1.1: Prepare and Implement a Construction Noise Control Plan to Reduce Construction Noise at Adjacent Land Uses. The Project Developer shall develop a noise control plan that requires that the Project construction activities comply with the City Code noise limits. The requirements and limitations specified in the plan shall be determined by phase and/or parcel and/or subsections of a parcel or phase. The construction noise control plan shall require the following:

The Project Developer shall appoint a Project noise coordinator who will serve as the point of contact for noise-related complaints during Project construction. The Project noise coordinator shall transmit all construction noise-related complaints to the construction contractor, and the construction contractor shall enhance or refine the noise best management practices discussed herein to address the received noise complaints to the extent feasible. The contact information for the Project noise coordinator shall be sent to

residents in the greater vicinity of the Project site that could be affected by Project noise and municipalities affected by Project construction noise.

Construction activities that have the potential to generate noise that is detectable at adjacent residential land uses or within 300 feet of a residentially zoned property shall occur only during the times listed below. Activities that would result in no detectable noise at adjacent land uses, such as interior painting, would not be limited by the hours below.

Between 7:00 a.m. and 6:00 p.m. Monday through Friday.

Between 9:00 a.m. and 6:00 p.m. on Saturdays.

No duration in time on holidays or Sundays.

Construction contractors shall specify noise-reducing construction practices that will be employed to reduce construction noise for construction activities that would occur outside of the prohibited hours specified in the City Code and that would have the potential to exceed the receiving zone noise limits specified in the City Code. The measures determined by the Project Developer shall be reviewed and approved by the City prior to the issuance of building permits. Measures that can be used to limit noise include, but are not limited to, those listed below.

Locating construction equipment as far as feasible from noise-sensitive uses.

Requiring that all construction equipment powered by gasoline or diesel engines have sound-control devices that are at least as effective as those originally provided by the manufacturer and that all equipment be operated and maintained to minimize noise generation.

Not idling inactive construction equipment for prolonged periods (i.e., more than 2 minutes).

Prohibiting gasoline or diesel engines from having unmuffled exhaust systems.

Using noise-reducing enclosures around noise-generating equipment that has the potential to disturb nearby off-site land uses, or where otherwise necessary, to comply with the City Code noise limits for receiving zones.

Findings NOI-1a. The construction noise impacts on off-site land uses associated with the Project were evaluated against the California Noise Insulation Standards, the General Plan goals and policies related to the effects of noise on land uses and acceptable levels of exterior noise, the City noise ordinance set out in the City Code, and the noise polices of the Comprehensive Land Use Plan for San Jose International Airport. Noise levels associated with Project-related construction activities were evaluated by summing the noise levels of the three loudest pieces of equipment that would operate simultaneously on the Project site (a "worst-case scenario"). The three loudest equipment pieces would be the grader, scraper, and auger drill rig, according to the noise reference levels in FHWA's Road Construction Noise Model User's Guide. The sum of the equipment noise is then compared to the applicable noise standards.

Vibration from construction equipment was assessed by using the source levels and criteria in Tables 3.6-3, 3.6-4, and 3.6-5.

Based on this evaluation, the EIR determined that the noise levels resulting from construction of the Project would temporarily exceed the City Code noise limits at sensitive land uses during non-exempt hours. Commercial, office, and industrial uses near the Project site would also experience noise that would exceed the applicable City Code noise limits for these land uses. Implementing Mitigation Measure NOI-1.1 would result in the development of a construction noise control plan that would ensure that construction activities would comply with the City Code. The construction noise control plan would allow construction that could affect new and existing residential land uses or be located within 300 feet of residential areas to occur only during the hours specified in the City Code. The construction noise control plan would also require the construction contractor to implement best management practices to reduce construction-generated noise at surrounding land uses in the Project vicinity and within the Project site where necessary to comply with the City Code noise limits. Construction-related noise impacts on off-site receptors would be *less than significant with mitigation.*

Impact NOI-1b: Construction Noise Impacts on On-Site Land Uses. Construction noise would affect new land uses that are associated with the Project because new residential and commercial land uses would be occupied while construction is still occurring on other parts of the Project site. It is not currently possible to determine the overlap between where and when construction will occur and where and when land uses will be occupied. As a result, it is conservatively assumed that new residential and commercial land uses could be exposed to the noise levels shown in EIR Table 3.6-13, which would result in construction noise that would temporarily exceed the City Code noise limits during non-exempt hours. Thus, construction noise impacts on on-site land uses would be potentially significant.

Mitigation Measure NOI-1.1. See Mitigation Measure NOI-1.1, described above.

Findings NOI-1b. The construction noise impacts on on-site land uses associated with the Project were evaluated against the California Noise Insulation Standards, the General Plan goals and policies related to the effects of noise on land uses and acceptable levels of exterior noise, the City noise ordinance set out in the City Code, and the noise polices of the Comprehensive Land Use Plan for San Jose International Airport. Noise levels associated with Project-related construction activities were evaluated by summing the noise levels of the three loudest pieces of equipment that would operate simultaneously on the Project site (a "worst-case scenario"). The three loudest equipment pieces would be the grader, scraper, and auger drill rig, according to the noise reference levels in FHWA's Road Construction Noise Model User's Guide. The sum of the equipment noise is then compared to the applicable noise standards. Vibration from construction equipment was assessed by using the source levels and criteria in Tables 3.6-3, 3.6-4, and 3.6-5.

Although it is not currently possible to determine the overlap between where and when construction will occur and where and when land uses will be occupied, the EIR conservatively assumed that new residential and commercial land uses could be exposed to the noise levels shown in Table 3.6-13, which would result in construction noise that would temporarily exceed the City Code noise limits during non-exempt hours. Implementing Mitigation Measure NOI-1.1

would result in the development of a construction noise control plan that would ensure that construction activities comply with the City Code by allowing construction that could affect residential land uses or be located within 300 feet of residential areas to occur only during the hours specified in the City Code. The construction noise control plan would also require the construction contractor to implement best management practices to reduce construction-generated noise at surrounding land uses within the Project site where necessary to comply with the City Code noise limits. Construction-related noise impacts on on-site receptors would *be less than significant with mitigation.*

Impact NOI-2: Exposure to Ground-borne Vibration and Noise Levels. The Project could expose persons to or generate excessive ground-borne vibration or ground-borne noise levels. Specific impacts and mitigation measures are discussed below.

Impact NOI-2b: Construction Vibration Impacts on On-Site Receptors. New residences constructed as part of the Project could be inhabited while construction is still occurring. Likewise, new office uses constructed as part of the Project could be occupied while construction is still occurring at the Project site.

Mitigation Measure NOI-2.1: Restrict Pile Driving. Pile driving occurring 175 feet or less from new residential or commercial buildings shall be conducted prior to those buildings being occupied by future occupants.

Findings NOI-2b. Project impacts associated with new vibration impacts were evaluated against the California Noise Insulation Standards, the General Plan goals and policies related to the effects of noise on land uses and acceptable levels of exterior noise, the City noise ordinance set out in the City Code, and the noise polices of the Comprehensive Land Use Plan for San Jose International Airport. Vibration from construction equipment was assessed by using the source levels and criteria in Tables 3.6-3, 3.6-4, and 3.6-5. While it is unlikely that there would be residents living on the Project site or office uses occupied while construction equipment would be operating in the immediate vicinity, the EIR determined that pile driving associated with construction of new residences or commercial uses, could disturb future occupants.

Implementation of Mitigation Measure NOI-2.1 would mitigate vibration impacts on new residential and commercial uses by requiring pile driving that would occur 175 feet or less from residential or commercial buildings to be conducted prior to those buildings being occupied. Mitigation Measure NOI-2.1 would reduce this impact to *less than significant with mitigation.*

Impact NOI-2d: Existing Train Vibration Impacts on On-Site Receptors The EIR found that there are up to 24 passenger train passages and up to six freight train passages per day on the Union Pacific Railroad (UPRR) track that bisects the Project site. Vibrations from the train could impact on-site receptors. As discussed above, under *CBIA v. BAAQMD*, CEQA no longer considers the impact of the environment on a project (such as the impacts of existing train vibrations on Project receptors) to be an impact requiring consideration under CEQA. The following analysis is neither a CEQA impact nor finding.

Condition of Approval NOI-2.2: Prepare and Implement a Vibration Control Plan to Reduce Vibration from UPRR Operations for Sensitive Land Uses. The Project

Developer shall prepare a design-level operational vibration control plan that identifies all Project features and treatments that would be implemented to ensure that the Project is in compliance with the vibration standards recommended by the Federal Transit Administration (FTA) relative to railway operational vibration associated with UPRR operations. The plan shall be prepared when new uses would be located within the following screening distances, as recommended by FTA (FTA 2006):

Category 1: Buildings where vibration would interfere with interior operations (600 feet).

Category 2: Residences and buildings where people normally sleep (200 feet).

Category 3: Institutional land uses with primarily daytime use (120 feet).

The plan shall take into account current and future expected passenger and freight rail service levels adjacent to the Project site. The plan shall be developed by an acoustical design professional and shall include a detailed investigation of ground-borne train vibration that considers site-specific train vibration source and propagation conditions and the actual building designs. The design features and treatments shall be identified to ensure that vibration levels at new proposed uses are in compliance with FTA standards. The report shall be submitted to the City for review and approval prior to the issuance of building permits for the Project. Depending on the vibration exposure for a particular site, such treatments may include, but are not limited to, those listed below, as recommended by the acoustical design professional.

Increased setbacks of noise-sensitive uses from the train track.

Foundation isolation systems to reduce the transmission of vibration into buildings with noise-sensitive uses that are near the tracks.

Findings NOI-2d. The impacts of existing train vibrations were evaluated against the California Noise Insulation Standards, the General Plan goals and policies related to the effects of noise on land uses and acceptable levels of exterior noise, the City noise ordinance set out in the City Code, and the noise polices of the Comprehensive Land Use Plan for San Jose International Airport. Current train passages at the Project site were assessed under the FTA's 2006 Transit Noise and Vibration Impact Assessment. Although predicted vibration levels were below the impact thresholds, existing train vibration impacts were conservatively considered to potentially impact residential land uses proposed in the eastern portion of Parcel 5. Implementation of Condition of Approval NOI-2.2 would require an operational vibrational control plan that complies with federal standards, accounts for specific property uses, and takes into account future rail traffic. The plan will identify design features and treatments that can further reduce vibration impacts and must be reviewed and approved by the City before building permits are issued. Condition of Approval NOI-2.2 reduces these effects of railroad vibration on sensitive land uses.

Impact NOI-4: Temporary or Periodic Increases in Ambient Noise Level. The Project could result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project.

Mitigation Measures and Findings NOI-4. This impact is addressed through the impact analysis under Impact NOI-1 and was determined to be *less than significant with mitigation.*

6. Cultural Resources

Impact CR-1. Archaeological Resources. Project grading and excavation could result in disturbance to identified or previously undiscovered archaeological resources and cause substantial adverse change in the significance of a unique archaeological resource.

Mitigation Measure CR-1.1: Conduct Extended Phase I (XPI) Archaeological Investigations within the Project Site near Recorded Resources and within an Area of Archaeological Sensitivity. Prior to construction, if it is determined that Project-related ground-disturbing activities may extend into native soil within 100 feet of a previously recorded archaeological site, the Project Developer shall retain the services of a qualified archaeologist to conduct XPI investigations within the Project site. The XPI investigations shall consist of subsurface trench excavations to determine the presence or absence of buried features associated with the known archaeological site. If feasible, at least two trenches shall be placed in recorded location P-43-000025/CA-SCL-5, which is recorded as partially in the Project site, to ensure adequate investigations in this area.

If the XPI investigations reveal resources, additional trenches or testing may be necessary. Mitigation Measure CR-1.3, described below, shall be followed.

Mitigation Measure CR-1.2: Provide Archaeological Monitoring of the Project Site when in Native Soil. Prior to construction, if it is determined that Project-related ground-disturbing activities may extend into native soil, within 100 feet of a previously recorded archaeological site, the Project Developer shall retain the services of a qualified archaeologist to monitor earthmoving activities within the Project site. Monitoring shall consist of coordinating subsurface work to allow for the careful examination of vertical and horizontal soil relationships for the purpose of seeking positive archaeological finds (prehistoric and/or historic). The monitor shall maintain a field log of their presence and observations, carefully noting soil conditions. The archaeological monitor shall be pre-approved by the Director of Planning and Inspection. After written approval, the Planning Division shall be notified at least 48 hours prior to any grading or other subsurface work on the site, and the Project Developer shall provide a written protocol for the City's review and approval that stipulates the manner in which the Project Developer shall comply with the monitoring requirements. In the event that cultural resources are encountered, Mitigation Measure CR-1.3, described below, shall be followed.

Mitigation Measure CR-1.3: Stop Work if Cultural Resources Are Encountered during Ground-Disturbing Activities. In the event that cultural resources are encountered during ground disturbing activities, all work within proximity of the find shall temporarily halt so that the archaeological monitor can examine the find and document its provenience and nature (drawings, photographs, written description). The archaeological monitor shall then direct the work to either proceed if the find is deemed to be insignificant, or instruct the work to continue elsewhere or cease until adequate mitigation measures are adopted. If the find is determined to be potentially significant, the archaeologist, in consultation with the Planning Division, shall

develop a Treatment Plan that could include site avoidance, capping, or data recovery. If data recovery is determined to be appropriate, excavation shall target recovery of an appropriate amount of information from archaeological deposits to determine the potential of the resource to address specific research questions. If it occurs, data recovery shall emphasize the understanding of the archaeological deposit's structure, including features and stratification, horizontal and vertical extent, and content, including the nature and quantity of artifacts.

Findings CR-1. The archeological resources impacts associated with the Project were evaluated based on consistency with the National Historic Preservation Act, the Paleontological Resources Preservation Act, relevant portions of the California Public Resources Code, historical resources criteria and significance criteria under CEQA, General Plan goals and policies and criteria for local significance, and relevant portions of the Santa Clara City Code. Bibliographic references, previous survey reports, historic maps, and archaeological site records pertinent to the study area were compiled through a records search of the California Historical Resources Information System in order to identify prior archaeological studies and known cultural resources within a 0.5-mile area surrounding, or adjacent to, the Project site. The City also contacted the Native American Heritage Commission to request searches of the Sacred Lands file, and contacted interested Native American representatives.

Based on this evaluation, the EIR determined that in those areas of the Project site where excavation would occur below the refuse layer and into the native soils, it is possible that previously unrecorded archaeological resources could be discovered. Pursuant to Mitigation Measure CR-1.1 through CR-1.3, if the Project-related ground-disturbing activities extend into native soil within 100 feet of a previously recorded archaeological site, the Project Developer shall retain the services of a qualified archaeologist to conduct XPI investigations and monitor earthmoving activities within the Project site. In the event that cultural resources are encountered during ground disturbing activities, all work within the proximity of the find shall temporarily halt so the monitor can examine the find and follow a protocol to protect significant resources. Implementation of Mitigation Measures CR-1.1 through CR-1.3 would reduce impacts on archaeological resources to a *less-than-significant level.*

Impact CR-2. Paleontological Resources. Should the Project result in deeper excavations than currently proposed in areas not underlain by refuse, the Project could result in significant impact to paleontological resources.

Mitigation Measure CR-2.1: Paleontological Resource Mitigation Plan. Prior to any deep excavations below an elevation of -30 feet (North American Vertical Datum of 1988 [NAVD] 88) at the Project site on areas not underlain by landfill refuse, the Planning Division shall be notified at least 48 hours prior to the excavation, and a qualified professional paleontologist shall prepare a Paleontological Resource Mitigation Plan (PRMP) in consultation with the Planning Division. The PRMP shall describe the tasks necessary to monitor, assess, and recover (if present) significant paleontological resources during Project excavation activities. The PRMP shall be implemented by the qualified paleontologist during the deep Project excavations below an elevation of -30 feet (NAVD 88).

Mitigation Measure CR-2.2: Paleontological Resource Monitoring. In accordance with the PRMP, a qualified paleontologist shall monitor for fossils in Pleistocene deposits during

Project excavations below an elevation of -30 feet (NAVD 88) on areas not underlain by landfill refuse or below other elevations confirmed in the field by the qualified paleontologist. The qualified paleontologist shall be present initially for 100 percent of the excavation activities within the Pleistocene deposits. After 50 percent of the excavation is completed within the rock unit and if no fossils of any kind have been discovered, then the level of monitoring can be reduced or suspended entirely at the Project paleontologist's discretion. If the paleontologist discovers potential paleontological resources, all ground disturbance within 50 feet of the find shall stop immediately until the qualified professional paleontologist can assess the nature and importance of the find and recommend appropriate salvage, treatment, and future monitoring and mitigation actions.

Mitigation Measure CR-2.3: Paleontological Resource Reporting. If significant paleontological resources are identified, the Project qualified paleontologist shall prepare a report summarizing the field and laboratory methods, site geology and stratigraphy, faunal/floral list(s), and a brief statement of the significance and relationship of the fossils discovered to similar fossils found elsewhere. The final report should emphasize the discovery of any new or rare taxa, or paleoecological or taphonomic significance. A complete set of field notes, geologic maps, stratigraphic sections, and a list of identified specimens must be included in or accompany the final report. This report should be finalized only after all aspects of the PRMP are completed, including preparation, identification, cataloging, and curatorial inventory. Full copies of the final report shall be deposited with both the Lead Agency and the repository institution with the request that all locality data remain confidential and not made available to the general public.

Findings CR-2. The paleontological resources impacts associated with the Project were evaluated based on consistency with the National Historic Preservation Act, the Paleontological Resources Preservation Act, relevant portions of the California Public Resources Code, historical resources criteria and significance criteria under CEQA, General Plan goals and policies and criteria for local significance, relevant portions of the Santa Clara City Code, and the Society of Vertebrate Paleontology's *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. Bibliographic references, previous survey reports, historic maps, and archaeological site records pertinent to the study area were compiled through a records search of the California Historical Resources Information System in order to identify prior archaeological studies and known cultural resources within a 0.5-mile area surrounding, or adjacent to, the Project site. The City also contacted the Native American Heritage Commission to request searches of the Sacred Lands file, and contacted interested Native American representatives.

Based on this evaluation, the EIR determined that during construction, the drilling of deeper pilings have the potential to disturb significant paleontological resources located within the Pleistocene deposits. Under Mitigation Measures CR-2.1 through CR-2.3, a Paleontological Resource Mitigation Plan will be prepared to monitor, assess and recover (if present) significant paleontological resources and a qualified paleontologist will monitor for fossils during excavation and report accordingly. Implementation of Mitigation Measures CR-2.1 through CR-2.3, which are consistent with the Society of Vertebrate Paleontology's standard guidelines, would reduce significant impacts on unique paleontological resources during excavation to a

less-than-significant level if deep excavation (greater than 35 feet below the existing ground surface) were to be proposed in areas not underlain by refuse.

Impact CR-3. Future Discovery of Human Remains. Project grading and excavation could result in disturbance to previously undiscovered human remains.

Mitigation Measure CR-3.1: Stop work if human remains are encountered during ground-disturbing activities. When human remains are discovered (in either an archaeological or construction context), all work within proximity of the remains shall stop so that the archaeological monitor can examine the remains. The County Coroner shall be notified, who shall make a determination as to whether the remains are of Native American origin. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission (NAHC) immediately. The NAHC shall notify those persons it believes are most likely descended from the deceased Native American. Once the NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial, which will be implemented in accordance with Section 15064.5(e) of the State CEQA Guidelines.

Findings CR-3. Potential impacts associated with discovery of human remains were evaluated based on consistency with the National Historic Preservation Act, the Paleontological Resources Preservation Act, relevant portions of the California Public Resources Code, historical resources criteria and significance criteria under CEQA, General Plan goals and policies and criteria for local significance, relevant portions of the Santa Clara City Code, and the Society of Vertebrate Paleontology's *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. Bibliographic references, previous survey reports, historic maps, and archaeological site records pertinent to the study area were compiled through a records search of the California Historical Resources Information System in order to identify prior archaeological studies and known cultural resources within a 0.5-mile area surrounding, or adjacent to, the Project site. The City also contacted the Native American Heritage Commission to request searches of the Sacred Lands file, and contacted interested Native American representatives.

Based on this evaluation, the EIR determined that, although the potential for encountering subsurface human remains in the project area is low, there is still a possibility that human remains could be present beneath the ground surface. Such remains could be exposed during project construction. If human remains are discovered, all work within the proximity of the remains will stop so that an archeological monitor can examine the remains. Native American remains will be handled in coordination with the NAHC and state law. Implementation of Mitigation Measure CR-3.1 would therefore reduce impacts on human remains to a *less-than-significant* level.

7. Biology

Impact BIO-2: Impacts on Special-Status Species—Burrowing Owls. The Project could result in the loss of burrowing owl habitat.

Mitigation Measure BIO-2.1: Detection of Burrowing Owls. The Project Developer shall allow access to the Project site or off-site areas for biologists who participate in the annual burrowing owl nest survey coordinated by the Santa Clara Valley HCP/NCCP. Burrowing owl surveys are conducted between March and August of each year. As many as four surveys may be conducted each year, in accordance with the Staff Report on Burrowing Owl Mitigation[8] to determine whether burrowing owls are nesting and whether nests are successful. Access to the site for burrowing owl surveys shall be granted until the Project site or off-site area is completely built out. The Project Developer shall not, however, be required to postpone planned development activities to provide such access, except to the extent such postponement is necessary to meet regulatory requirements.

Mitigation Measure BIO-2.2: Mitigation for Loss of Burrowing Owl Habitat during Construction. Should burrowing owls begin nesting on developable portions of the Project site or off-site areas that remain undeveloped as phases of the Project are constructed, or suitable habitat within 600 meters of an active nest is removed from the Project site, then lost burrowing owl habitat shall be replaced at a ratio of at least 1:1 prior to ground-disturbing activities in the area of the Project site or off-site area with an active nest. Affected habitat shall be defined as suitable habitat (based on the habitat mapping completed for this EIR) within a 600 meter radius of an active burrowing owl nest. Suitable land cover types include annual grassland, ruderal, or barren areas. Mitigation sites shall have documented nesting occurrences from at least 1 year within the previous 3 years.

If burrowing owls move onto undeveloped portions of the Project Site or off-site area, including the Retention Basin, once the site is fully constructed, there shall be no requirement to provide replacement habitat, unless that undeveloped habitat is developed in the future.

Findings BIO-2. The Project impacts on burrowing owl habitat were evaluated based on burrowing owl surveys performed during the breeding season on June 20, 23, 24, 25, and 26, 2014 (Parcels 1-4) in accordance with the California Department of Fish & Wildlife ("CDFW") March 7, 2012 Staff Report on Burrowing Owl Mitigation ("2012 Staff Report"). Because of changes in Project schedule and design, burrowing owl surveys were repeated in 2015 on March 20 (Parcel 5) and April 21, May 12, and June , 25 and 26 (Parcels 1-5) in accordance with the 2012 Staff Report. The results of these surveys were considered in the EIR, along with existing data and information regarding the Project site and surrounding environments. The EIR also examined impacts for consistency with Migratory Bird Treaty Act, Endangered Species Act, California Endangered Species Act, Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan, the General Plan goals and policies related to biological resources, and past attempts at burrowing owl conservation in the vicinity of the Project area.

Burrowing owls were last observed nesting on the Project site in 2006, during surveys conducted between March and June of that year. No nesting burrowing owls were located on the Project site during 2014 nesting surveys. However, in 2014, nesting burrowing owls were documented approximately 0.4 mile south of the Project site and approximately 1 mile northeast of the Project site at the Water Pollution Control Plant (which has designated burrowing owl habitat on its site). Thus, it is plausible that burrowing owls could use the Project site for

[8] CDFW 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency.

foraging, though in both cases the nesting owls would have to navigate significant infrastructure (Levi's Stadium to the south and State Route 237 to the north) to forage on the golf course.

In addition to presence on or use of the site by burrowing owls, another basis for impacts considered in the EIR was whether the Project site the site had been designated for conservation as part of the City's effort to create 103 acres of burrowing owl habitat within or around the City. In 2000, the City Council adopted a directive instructing the City Managers "seek the development and maintenance of 44.5 acres of burrowing owl habitat in some combination on ... three sites," including the closed Lafayette landfill. This effort would have voluntarily supplemented the City's separate obligation to provide 58.5 acres of land as mitigation for the loss of burrowing owl habitat related to other developments within the City. The language of the directive was not mandatory, and the City had (and has) alternative habitat sites that it could use to meet its objectives, should it decide to pursue this program in the future. Contrary to public comments, the Project site has not been designated by the City or otherwise encumbered as a conservation area for burrowing owl.

Because no burrowing owls have been observed foraging on the Project site during recent surveys, loss of potential habitat on the Project site in the immediate future would not result in the loss of burrowing owls due to provisions in Mitigation Measure BIO-2.1 and BIO-2.2. Pursuant to Mitigation Measure BIO-2.1, until the Project is built out, access to the Project site or off-site areas will be provided for biologists who participate in the annual burrowing owl nest survey coordinated by the Santa Clara Valley HCP/NCCP. Under Mitigation Measure BIO-2.2, impacted owl habitat will be replaced at a ratio of at least 1:1 prior to ground-disturbing activities in the area of the Project site or off-site area with an active nest. Implementation of Mitigation Measures BIO-2.1 and BIO-2.2 would reduce potential nesting burrowing owl impacts from the Project to a *less-than-significant* level.

Impact BIO-3: Impacts on Special-Status Species—Western Pond Turtle. The Project could result in impacts on western pond turtle.

Mitigation Measure BIO-3.1: Protect Western Pond Turtles. Prior to the start of construction activities in or within 50 feet of aquatic habitats, the Project Developer shall retain a qualified biologist to conduct preconstruction surveys for western pond turtles in all suitable habitats (aquatic and upland) in the vicinity of the work site. Surveys shall take place no more than 72 hours prior to the onset of site preparation and construction activities with the potential to disturb turtles or their habitat. If preconstruction surveys identify active nests on the Project site, the biologist shall establish no-disturbance buffer zones around each nest using temporary orange construction fencing. The demarcation shall be permeable to allow young turtles to move away from the nest following hatching. The radius of the buffer zone and the duration of exclusion shall be determined in consultation with CDFW. The buffer zones and fencing shall remain in place until the young have left the nest, as determined by the qualified biologist. If western pond turtles are found on the Project site, the Project Developer shall still retain a qualified biologist to monitor construction activities in the vicinity of suitable habitat and implement appropriate measures to protect the western pond turtle. Such measures may include removal and relocation of western pond turtles in proposed construction areas to suitable habitats outside the Project limits, consistent with DFW protocols and permits. Relocation sites shall be subject to DFW approval.

Findings BIO-3. Project impacts on western pond turtles were evaluated based on consistency with the Endangered Species Act, California Endangered Species Act, Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan, the General Plan goals and policies related to biological resources. The EIR found that the western pond turtle, a special-status wildlife species, were identified in the Project region from the CNDDB and FWS databased within the Milpitas USGS 7.5-minute quadrangle or have the potential to occur in the Project region based on life history.

Although the western pond turtle has not been observed on the Project site, the retention pond and drainage swale on the northern part of the site, the ponds within the golf course, San Tomas Aquino Creek, and the Guadalupe River all provide suitable habitat for western pond turtles. If western pond turtles occur within the footprint of construction activities in aquatic habitats, they could be injured or killed inadvertently by construction equipment. Under Mitigation Measure BIO-3.1, preconstruction surveys will be conducted to look for western pond turtles in all suitable habitats in the vicinity of the work site. If preconstruction surveys identify active nests on the Project site, the biologist shall establish no-disturbance buffer zones around each nest. The radius of the buffer zone and the duration of exclusion shall be determined in consultation with DFW. If western pond turtles are found on the Project site, the Project Developer shall still retain a qualified biologist to monitor construction activities in the vicinity of suitable habitat and implement appropriate measures to protect the western pond turtle, including relocation. Such efforts will be consistent with DFW protocols and permits. Implementation of Mitigation Measure BIO-3.1 would reduce impacts on western pond turtles to a *less-than-significant level.*

Impact BIO-4: Impacts on Special-Status Species and Critical Habitat—Central California Coast Steelhead, Including Critical Habitat and Central Valley Fall-Run Chinook Salmon. The Project could result in indirect effects on San Tomas Aquino Creek and the Guadalupe River, including native fish species.

Mitigation Measure BIO-4.1: Protect Central California Coast Steelhead, Critical Habitat, and Chinook Salmon. Construction, operations, and maintenance on the riverbank, as well as areas within 200 feet of the Guadalupe River, that could result in disturbed sediment depositing within the banks of the channel shall be limited to the summer low-precipitation period (June 1 to October 15), unless otherwise approved by appropriate resource agencies. Limiting riverbank disturbance during these months would reduce the likelihood of adverse effects on adult and juvenile salmonid migration.

Findings BIO-4. Project impacts on central California coast steelhead and Chinook Salmon were evaluated based on consistency with the Magnuson-Stevens Fisher Conservation and Management Act, Endangered Species Act, California Endangered Species Act, Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan, the General Plan goals and policies related to biological resources.

The EIR found that Central California coast steelhead use the Guadalupe River in the Project area as a migratory pathway to Guadalupe Creek, Alamitos Creek, and upper Los Gatos Creek where they could spawn. There is a small residual steelhead run in the Alamitos and

Guadalupe Creeks. Critical habitat has also been designated in the Guadalupe River in the Project reach (70 FR 52570, September 2, 2005).

Central Valley fall-run Chinook salmon also occur in the Project area, entering and spawning in the Guadalupe River in the early fall (September or earlier). The Project reach is used as a migratory pathway to the upper areas where spawning could occur.

Noise, vibrations, artificial light, and other physical disturbances adjacent to the Guadalupe River could harass fish, disrupt, or delay normal activities, and cause injury or mortality. While most effects on steelhead and Chinook Salmon would be limited, survival may be altered if disturbance causes fish to leave protective habitat or is of sufficient duration and magnitude to affect growth and spawning success. Runoff from proposed construction activities could temporarily degrade water quality in San Tomas Aquino Creek and the Guadalupe River, thus adversely affected steelhead and Chinook Salmon. The Project could result in increased stormwater runoff during Project operation from an increase in the amount of impervious surfaces, which may contain contaminants that could affect water quality in San Tomas Aquino Creek and the Guadalupe River as well as steelhead, Chinook salmon, and other native fish species with potential to be present in either channel. Mitigation Measure BIO-4.1 provides site-specific measures to limit impacts to special-status fish. As prescribed by Mitigation Measure BIO-4.1, limiting construction, operations, and maintenance on the riverbank of the Guadalupe River, as well as areas within 200 feet of the river, that could result in disturbed sediment depositing within the banks of the channel to the summer low-precipitation period (June 1 to October 15),will reduce the likelihood of salmon impacts. Implementation of Mitigation Measure BIO-4.1 would reduce impacts on steelhead and fall-run Chinook salmon resulting from construction activities adjacent to the Guadalupe River to a *less-than-significant level.*

Impact BIO-5: Substantial Effect on Wetlands and Other Waters. The Project could result in the loss of or damage to wetlands and other waters.

Mitigation Measure BIO-5.1: Protect Retention Pond and Eastside Retention Drainage Swale, and San Tomas Aquino Creek and the Guadalupe River Aquatic Habitat during Construction. For construction activities within 50 feet of the aquatic habitat associated with the retention pond and drainage swale, protective measures shall be put in place to ensure that impacts on those aquatic features shall be avoided and minimized. The following measures shall be deployed during construction:

A qualified biologist shall determine the locations where orange construction barrier fencing shall be installed around aquatic resources (U.S. Army Corps of Engineers ("USACE") and State Water Resources Control Board jurisdictional wetlands/waters and DFW jurisdictional lakes and streams) that are to be avoided prior to initiation of construction activities.

Designate the protected area an Environmentally Sensitive Area and clearly identify the area in the construction specifications.

Maintain jurisdictional wetlands/waters protection fencing throughout the grading and construction period.

Prohibit grading, construction activity, traffic, equipment, or materials in fenced wetland areas.

Mitigation Measure BIO-5.2: Compensate for Loss of Waters of the U.S. and State (including Wetlands). If impacts to jurisdictional waters of the U.S. or State cannot be avoided, the Project Developer shall obtain permits or approvals to develop from the USACE, the RWQCB, and DFW, as appropriate and required. Both the Guadalupe River and San Tomas Aquino Creek are subject to both State and federal jurisdiction because of their connection to the Bay. To ensure that the Project results in no net loss of wetland habitat functions and values, the Project Developer shall compensate for the loss of jurisdictional wetlands/waters through one of the following options:

- Purchase of agency-approved mitigation credits from a suitably located mitigation bank prior to construction (ground disturbance that impacts wetlands/waters);
- On-site wetland/waters restoration (re-establishment or rehabilitation) establishment (creation) prior to or concurrent with construction impacts;
- Off-site wetland/waters restoration (re-establishment or rehabilitation)/establishment (creation) prior to or concurrent with construction; or
- A combination of two or more of the above.

The amount of agency approved mitigation credits required from a suitably located mitigation bank and/or size (area) and location(s) of the area(s) to be restored (re-established)/established (created) shall be based on appropriate mitigation ratios, as derived in consultation with DFW, USACE, and the RWQCB. The Project Developer shall prepare and implement a mitigation and management plan (MMP) as part of the permitting process in conformance with the US Environmental Protection Agency/USACE 2008 Mitigation Rule. The mitigation ratios shown in the initial draft MMP submitted to the permitting agencies during Project permitting shall be a minimum of 2:1, as determined through the CEQA process. The MMP, if other than sole purchase of mitigation bank credits, shall include the requirements listed below:

- Mitigation implementation plan;
- Performance (success) standards or criteria to be met in order to determine that the mitigation has successfully replaced the impacted wetlands/waters in terms of "no net loss" of the impacted functions and values;
- 5-year monitoring plan for determining that performance criteria have been successfully met through the collection of wetlands/waters vegetation survival and cover field data;
- Hydrology flooding, ponding, and/or soil saturation field data, and habitat area data;
- 5-year maintenance plan for insuring mitigation success;
- Adaptive management plan to be implemented if mitigation performance is found through annual monitoring not to be progressing towards success within the 5-year monitoring period;
- Conservation plan to ensure in-perpetuity land use protection of the mitigation site;
- Long-term (in-perpetuity) conservation management plan; and
- Funding plan for mitigation implementation, 5-year mitigation performance monitoring and maintenance, and an endowment (non-wasting fund) for long-term conservation management.

The final MMP shall be determined in consultation with DFW, USACE, and the Regional Water Board. The mitigation plan shall include measure to avoid and minimize the effects of construction on surrounding native habitats. The required performance standard is no net loss of wetland and waters habitat function and values. Monitoring shall occur for a minimum of 5 years, at which time, if the success criteria are met, wetland compensation shall be deemed complete.

Findings BIO-5. The impacts on wetlands and other waters associated with the Project were evaluated based on consistency with the Clean Water Act, River and Harbors Act, Magnuson-Stevens Fisher Conservation and Management Act, Endangered Species Act, California Fish and Game Code Section 1600, California Endangered Species Act, Porter-Cologne Water Quality Control Act, Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan, the General Plan goals and policies related to biological resources.

Based on this evaluation, the EIR found that some aquatic land cover types would be lost as a result of the Project. The retention pond could be affected during construction activities, drainage ditches internal to the Project site could be removed and the internal golf course and driving range ponds and vegetated depressions would be removed. In addition, there would be impacts in San Tomas Aquino Creek from instream work associated with the new bridge footings in the creek. Final impacts on ditches creeks, ponds, and vegetated depressions would be calculated once final design of Project features is complete.

Additionally, waters of the United States, including those in California, could be indirectly affected by erosion and stormwater runoff from construction activities. Erosion from land-disturbing construction activities and exposed stockpiles could result in a temporary increase in sediment loads in receiving waters, thereby degrading water quality. Construction of the new bridge over San Tomas Aquino Creek could also temporarily cause erosion and the discharge of construction-related pollutants, which could contaminate any flows that are present.

Mitigation Measure BIO-5.1 will use protective measures to avoid and minimize impacts on aquatic features for construction activities within 50 feet of the aquatic habitat associated with the retention pond and drainage swale. Under Mitigation Measure BIO-5.2, the Project Developer will mitigate any impacts to jurisdictional ponds, wetlands, or drainage ditches, San Tomas Aquino Creek, or the Guadalupe River by at least a 2:1 ratio, and will implement a mitigation and monitoring plan to ensure successful mitigation. Implementation of Mitigation Measures BIO-5.1 and BIO-5.2 would reduce impacts on wetlands and other waters to a *less-than-significant level.*

8. Geology and Soils

Impact GEO-1: Soil Erosion. Construction of the Project would expose soil and buried refuse, potentially resulting in substantial soil erosion.

Mitigation Measure GEO-1.1: Detailed Grading and Erosion Control Plan. A detailed grading and erosion control plan shall be prepared and submitted to the City Building Department. The plan shall cover all Project parcels (not just the landfill portions) and off-site

areas and include all information required to demonstrate that earthwork activities will be in compliance with CCR 21190 et seq. and incorporate by reference the Project's Storm Water Pollution Prevention Plan, as required by the Construction General Permit

Findings GEO-1. The soil erosion impacts associated with the Project were evaluated based on the preliminary geotechnical investigations (one for Parcels 1-4 and one for Parcel 5). Reports documenting these investigations were prepared by Langan (Parcels 1–4) and Cornerstone Earth Group (Parcel 5). Additional information was obtained from other geotechnical reports and memoranda and government agency documents and websites. The preliminary geotechnical investigations also relied on previously completed geotechnical investigations at the Project site. Based on these data, the preliminary geotechnical investigations performed engineering analyses to develop preliminary conclusions and recommendations regarding appropriate foundation types, design parameters, and seismic coefficients for Project development. The EIR also assessed Project impacts in light of the National Earthquake Hazards Reduction Program, the Alquist-Priolo Earthquake Fault Zoning Act, California Building Code, Seismic Hazards Mapping Act, California requirements related to landfill closure, monitoring and maintenance, the City Code, and General Plan goals and policies related to structural design and geologic conditions.

Due to uneven topography at the Project site, created by the underlying refuse layers, large areas of soil may be exposed during grading activities. This may allow erosion from wind and stormwater runoff to occur. Other excavation and grading activities conducted in proximity to receiving water bodies could, if not managed properly, result in discharges of sediment-laden runoff to these waters. Mitigation Measure GEO-1.1 requires preparation of a City-approved grading and erosion control plan that demonstrates that earthwork activities will be in compliance with CCR 21190 *et seq.* and incorporate by reference the Project's SWPPP, as required by the Construction General Permit. Additional measures to prevent the entrainment of soils and refuse in stormwater runoff during construction will be required as part of compliance with the National Pollutant Discharge Elimination System ("NPDES") General Permit for Construction Activities (Construction General Permit), as described in more detail in EIR Section 3.10, Hydrology and Water Quality. Compliance with these requirements and implementation of Mitigation Measure GEO 1.1 would reduce potential erosion impacts at the Project site and off-site areas during construction activities to a *less-than-significant* level.

Impact GEO-2: Unstable Soils. Unstable soils, perimeter sideslopes susceptible to landslides, and areas subject to liquefaction at the Project site and off-site areas may result in damage to, or settlement of, buildings and other improvements and/or ground failure. This has the potential to create significant risks to structures and human lives.

Mitigation Measure GEO-2.1: Design-Level Geotechnical Investigation. Prior to the issuance of demolition, grading, or construction permits at the Project site, a design-level geotechnical investigation shall be conducted by a qualified professional (the qualified professional shall be retained by the Project Developer). The investigation shall include further field exploration (e.g., borings, cone penetration tests, test pits and/or geophysical surveys) to develop design-level recommendations to address erosion and other geotechnical concerns for the Project. The design-level geotechnical investigation shall include:

Evaluation of anticipated settlement. Additional soil borings shall be installed to determine the depth to the refuse layer for aid in preparing grading plans. Additional samples shall be analyzed to determine potential settlement and determine the likely final post-settlement surface elevation. The potential magnitude of differential settlements between improvements supported by a combination of structural slab and deep foundations and those that are supported by other foundation systems shall be fully analyzed and detailed in the design-level geotechnical report.

Evaluation of liquefaction potential. Additional borings shall be drilled at the Project site and off-site areas to fully characterize the liquefaction hazard associated with the Project.

Evaluation of slope instability. A detailed slope stability analysis for all existing slopes that would remain under the Project, including the perimeter landfill slopes, and all proposed new slopes shall be prepared.

Evaluation of expansive soils. Additional borings shall be drilled at the Project site and off-site areas to fully characterize the expansive soil hazard associated with the Project.

Evaluation of corrosive soils. Project site and off-site soils and, in those areas where foundation components would come into contact with landfill materials, refuse shall be evaluated for corrosion potential.

The design-level geotechnical investigation work plan shall be submitted for review and approval in accordance with Mitigation Measure GEO-2.6.

Mitigation Measure GEO-2.2: Final Geotechnical Report Review. Final Geotechnical Report Review. A final geotechnical report shall be prepared by a qualified professional based on the findings of the design-level geotechnical investigation (the qualified professional shall be retained by the Project Developer). The final report shall be submitted for review and approval in accordance with Mitigation Measure GEO-2.6. The final geotechnical report shall include:

Measures to address anticipated settlement:

Specifications of methods to address differential settlement between improvements supported by a combination of structural slab foundations and those that are supported by other deep foundation systems or unsupported areas.

Exterior slabs and ramps attached to buildings shall be hinged to allow the end of the slab or ramp not attached to the building to move downward as settlement occurs. The design shall not allow building entrance slabs to exceed a 5 percent grade, in compliance with ADA access requirements, and vehicular entrances shall not be allowed to exceed an 11 percent grade to prevent vehicles from scraping during entry or exit.

Settlement vaults and flexible connections shall be required at locations where utilities transfer from a pile-supported building to a non-supported area for all phases of construction.

Roadway and other paving at the Project site not located above an area-wide structural slab shall be constructed with flexible materials, such as asphalt or interlocking pavers. The use of concrete and other non-flexible materials shall be minimized. Where non-flexible material is used, expansion and spacing joints that allow rigid materials to shift without breaking shall be used to allow for anticipated settlement.

Measures to address liquefaction:

In those areas not supported by the structural slab foundation (which would effectively mitigate the liquefaction hazard), other measures shall be developed to mitigate the hazard, such as shallow footings constructed over ground improvement. Foundations for structures shall be designed to completely mitigate settlement hazards associated with liquefaction (i.e., no liquefaction-induced settlement damage shall be accepted for the final design).

Measures to address slope instability:

Measures (e.g., reducing slope steepness, providing structural support, or ground improvement) to ensure that an appropriate factor of safety (both static and seismic) is achieved for each slope.

Measures to address expansive soils:

In those areas not supported by the structural slab foundation (which would effectively mitigate the hazard), other measures shall be developed to mitigate the hazard, such as removal of the problematic soils, treatment of the soils, or specification of appropriate foundation design. If any soils characterized as highly or moderately expansive (linear extensibility of 3.0 percent or more) are to remain at the surface or be used as fill in the upper 5.0 feet, these soils shall be treated (using calcium-based treatment or similar approach) such that the soils are reduced to a low expansion potential (linear extensibility of less than 3.0 percent).

Measures to address corrosive soils:

A corrosion consultant shall be retained to provide specific recommendations regarding the long-term corrosion protection of pile elements and other subsurface materials. The recommendations of the corrosion consultant, which may include use of specific corrosion-resistant materials and/or treatment of corrosive soils, shall be implemented during construction.

Mitigation Measure GEO-2.3: Construction Quality Assurance Plan. A Construction Quality Assurance (CQA) Plan that covers both the Project site and off-site areas shall be prepared by the Project Developer for review and approval by the Director of Public Works. The CQA Plan shall establish procedures for testing final cover materials, detail the responsibilities of construction monitoring personnel, and provide procedures for addressing unexpected geologic conditions during grading activities.

Mitigation Measure GEO-2.4: Final Project Design Review. Final Project design plans that cover both Project site and off-site areas shall be prepared by the Project Developer and submitted for review and approval in accordance with Mitigation Measure GEO-2.6. Project site structures shall be designed to accommodate predicted ground settlement, as determined in the design-level geotechnical investigation for the Project improvements (see Mitigation Measure GEO-1.1).

For the portion of the Project overlying the Landfill, the Post-Closure Land Use Plan shall demonstrate that Project design will be protective of public health and safety and the environment, as required by 27 CCR 21190. Because of the potential for encountering buried obstructions, contingencies for relocating Auger Cast-in Place Piles and Drilled Displacement Columns during construction shall be included in the foundation design. The Project design plans shall be subject to review and approval by the City Building Department prior to initiation of field activities.

Mitigation Measure GEO-2.5: Site Operation, Monitoring, and Maintenance Plan. A Site Operation, Monitoring, and Maintenance Plan that covers both the Project site and off-site areas shall be prepared by the Project Developer and submitted for review and approval in accordance with Mitigation Measure GEO-2.6. The Site Operation, Monitoring, and Maintenance Plan shall establish procedures for inspecting structures and improvements as well as evaluating the effects of settlement. It will also establish a mechanism for funding and implementing the Plan's activities throughout the life of the Project.

Inspections that focus on documenting settlement, particularly at locations where different support systems meet, shall take place at least quarterly during the first 2 years following the completion of each phase of Project construction. Documentation of each inspection shall be submitted to for review and approval in accordance with Mitigation Measure GEO-2.6 within 30 days of inspection completion. After 2 years, the frequency of inspections may be adjusted with written consent from each agency that approved the Site Operation, Monitoring, and Maintenance Plan Site Operation, Monitoring, and Maintenance Plan. The Site Operation, Monitoring, and Maintenance Plan shall detail the qualifications and responsibilities of monitoring personnel, including immediate notification of the City Building Department of any settlement that could affect the structural integrity of a building and/or structure or settlement that could create a hazard for the public (e.g., separations that create trip hazards for pedestrians). If the types of settlements are observed that could compromise structural integrity or cause hazards for the public, based on the judgment of the qualified inspector, remedial action shall be promptly completed. The Plan shall designate financial responsibility for remedial actions should the effects of settlement be identified and provide timetables for any required remedial action. All remedial action shall be overseen by the qualified geotechnical consultant designated by the Plan and approved by each agency that approved the Site Operation, Monitoring, and Maintenance Plan. Quarterly reports detailing inspection and remedial activities shall be submitted to each agency that approved the Site Operation, Monitoring, and Maintenance Plan following each inspection for review and approval.

Mitigation Measure GEO-2.6: Review and Approval by Relevant Regulatory Agencies. To the extent reports and plans required by Mitigation Measures GEO-2.1, -2.2, -2.3, -2.4 or -2.5 address the portion of the Project site overlying the Landfill, they shall be submitted

jointly by the City (as owner and operator of the landfill) and the Project Developer for review and approval to the following: (i) the Local Enforcement Agency as principal landfill regulator; (ii) the Regional Water Board for approval of the issues related to the low permeability layer of the final landfill cover pursuant to 27 CCR 21990 (d) and pilings installed in or through the bottom liner of the landfill liner pursuant to 27 CCR 21990 (e)(6), and for review but not approval of other aspects of the plans and reports; (iii) to Cal Recycle for review, but not approval; and (iv) any other agency which is specifically required by applicable law to approve a particular report, plan or component thereof. To the extent reports and plans required by this mitigation measure relate to other portions of the site not overlying the Landfill, they shall be submitted by the Developer to the City, and to any agency which is specifically required by applicable law to approve a particular report, plan or component thereof, for review and approval.

Findings GEO-2. Unstable soils impacts associated with the Project were evaluated based on the preliminary geotechnical investigations (one for Parcels 1-4 and one for Parcel 5). Reports documenting these investigations were prepared by Langan, (Parcels 1–4), and Cornerstone Earth Group, (Parcel 5). Additional information was obtained from other geotechnical reports and memoranda and government agency documents and websites. The preliminary geotechnical investigations also relied on previously completed geotechnical investigations at the Project site. Based on these data, the preliminary geotechnical investigations performed engineering analyses to develop preliminary conclusions and recommendations regarding appropriate foundation types, design parameters, and seismic coefficients for Project development. The EIR also assessed Project impacts in light of the National Earthquake Hazards Reduction Program, the Alquist-Priolo Earthquake Fault Zoning Act, California Building Code, Seismic Hazards Mapping Act, California requirements related to landfill closure, monitoring and maintenance, the City Code, and General Plan goals and policies related to structural design and geologic conditions.

Over the life of the Project, the refuse layer is expected to continue to compact, resulting in uneven settlement which could threaten the structural integrity of buildings, utilities and other improvements. The Preliminary Geotechnical Investigation (Parcels 1–4) and Preliminary Building Pile/Foundation Evaluation Technical Memo provided recommendations to address the potential for settlement including different foundation options, use of roadway materials, building access point design, and underground utility design. The presence of saturated layers of loose to medium dense sand suggests that these layers cold liquefy and result in seismically induced settlement. Steep slopes at the Project site could cause landslides and adversely affect existing roadways and/or off-site properties. Lateral spreading, expansive soils, and corrosive soils could also impact construction materials.

Mitigation Measures GEO-2.1 through GEO-2.6 would reduce potential impacts due to unstable soils to a *less-than-significant level* by: (1) requiring a design-level geotechnical investigation prior to commencement of grading, or construction, including additional characterization of settlement potential, liquefaction potential, analysis of slope stability, distribution of expansive soils, and testing of soil and subsurface corrosion potential; (2) developing specific design measures to address each of the identified geologic hazards (e.g., specification of use of corrosion-resistant concrete in areas of moderate to high soil corrosion potential); (3) implementing the specified design measures during construction;

(4) implementing a Site Operation, Monitoring, and Maintenance Plan that includes regular inspections, including a funding mechanism to address any issues that may arise during the operation period; and (5) assignment of responsible parties for implementation.

9. Hydrology and Water Quality

Impact WQ-1: Violation of Water Quality Standards or WDRs. The Project could result in a violation of water quality standards or WDRs.

Mitigation Measure WQ-1.1: Design and Implement Stormwater Control Measures. In compliance with Provision C.3 of the San Francisco Bay MS4 Permit and the Santa Clara Valley Water District's 100-year peak flood requirements, post-construction stormwater controls shall be implemented to reduce total runoff rates and associated pollutant discharges.

According to the Santa Clara Valley Urban Runoff Pollution Prevention Program's C.3. Stormwater Handbook, the three methods for hydraulically sizing flow-based stormwater treatment control measures are (1) volume-based, (2) flow-based, or (3) a combination of volume-/flow-based hydraulic sizing criteria. The simplified method for sizing bioretention areas and flow-through planters, known as the "4 percent method," is based on a runoff inflow of 0.2 inch per hour, with an infiltration rate through biotreatment soil of 5 inches per hour. The 4 percent method requires the treatment measure to be 4 percent of the impervious area that drains to it.

The design of the stormwater treatment measures is currently at the conceptual level and further details will be addressed as part of the planning, construction, and operation of the development. The treatment measures shall be designed to remove pollutants from stormwater using filtration, infiltration, and sedimentation. Because infiltration is not feasible due to the landfill, the treatment measures must be built into the structure of the development above the landfill itself. The stormwater treatment measures that provide infiltration shall be lined with an impermeable liner on the bottom and sides. Just above the liner there must be a layer of clean gravel and a network of perforated piping (underdrains). These underdrains must connect to solid drain piping at the exit of the treatment area and ultimately be connected to the storm drainage infrastructure. All of these components shall exist above the podium structure. The impermeable liner would prevent any leaks or ruptures into the landfill and structures. There shall also be perforated underdrain piping connected to solid piping at the exit of the treatment measure/planter solid piping that will connect to the storm drain infrastructure at manholes where leak monitoring can be performed. More information on the potential hazards of a leak or rupture of the stormwater treatment measures causing flooding of the landfill gas venting lines is provided in EIR Section 3.11, Hazards and Hazardous Materials. The following stormwater treatment (or Low Impact Development) measures are examples that will be considered and carefully selected as part of the final design process for the different sections of the proposed development:

Bioretention Areas (impermeable liner with underdrain—no infiltration into landfill)

Flow-through Planters

Tree Well and Media Filters

Infiltration Trenches (impermeable liner with underdrain—no infiltration into landfill)

Rainwater Harvesting and Reuse

Green Roofs

Green Streets (with bioretention, impermeable liner, and underdrain)

Pervious Pavements (impermeable liner with underdrain—no infiltration into landfill)

As noted above, a minimum of 4 percent of the site area shall be used for the stormwater treatment measures. As part of final design, these treatment measures for the Project site shall be incorporated into the aesthetics of the landscape. Some attenuation of the peak flows can be recognized, depending on the measures selected. The measures shall include an overflow to safely convey the more intense, less frequent rainfall events.

The stormwater treatment measures shall capture sufficient flows so that 100-year peak flood elevations or existing design flows within San Tomas Aquino Creek and the Guadalupe River will not increase as part of the Project. The exact reduction in 100-year peak runoff volumes and flows that the stormwater management measures will need to accommodate will be determined during the design process for the stormwater management measures and will be provided in the detailed Project Stormwater Management Plan.

Due to construction phasing, construction of interim treatment measures may be required once the 40-acre concrete pad has been constructed and before the surface of the pad is developed with new structures with their own associated post-construction stormwater treatment features. These interim measures will be reported to the San Francisco Bay Water Board. The stormwater management measures for each parcel shall be modeled during final design for buildings, parking garages, site landscaping, etc. Dynamic hydraulic modeling shall be used. Dynamic hydraulic monitoring tracks the quantity and quality of runoff generated within each subcatchment as well as the flow rate, flow depth, and quality of water in each pipe and channel during a simulation period with multiple time steps. The results of the modeling shall be used to compare the proposed "permanent" stormwater peak flows and volumes for the Project with the existing peak flows and show compliance with the jurisdictional regulations. The dynamic hydraulic modeling shall consider the potential runoff volumes and rates coming from the top of the landfill. The resulting design of stormwater management measures shall be required to be sufficient to protect water quality and habitat resources along receiving waterways.

A Stormwater Management Report, including detailed hydrologic and hydraulic calculations, analysis, and conclusions, shall be prepared to document the final design of the stormwater management and storm drain system and obtain the requisite approvals.

Findings WQ-1. Potential Project impacts associated with water quality standards or WDRs were assessed based on consistency with the Clean Water Act, National Flood Insurance Program, Porter-Cologne Water Quality Control Act, relevant portions of the California Water Code, California Department of Fish and Game Code 1602 Lake and Streambed Alteration

Agreement requirements, the MS4 Phase I San Francisco Bay Region Municipal Regional Stormwater NPDES Permit No. CAS029718 (Order No. R2-2009-0074-DWQ, Revised November 28, 2011; NPDES Permit No. CAS612008) (San Francisco Bay MS4 Permit), WDRs for the City of Santa Clara All-Purpose Landfill, analysis of the General Plan goals and policies related to hydrology and water quality, SCVWD requirements, and the Santa Clara Valley Urban Runoff Pollution Prevention Program.

The surface water hydrology impact analysis considered changes in water bodies, impervious surfaces, and drainage patterns. Information on the change in impervious surface, runoff quantities, and drainage patterns was provided by Langan Treadwell Rollo. The analysis of changes of on-site water bodies involved a comparison of existing on-site hydrological conditions and new/modified conditions proposed as part of the Project, which were provided in the Hydrology/Water Quality Report for CityPlace Santa Clara (June 30, 2015), prepared by Langan Treadwell Rollo, and other sources.

Potential impacts on groundwater supply and groundwater quality were analyzed using information from the publically available publications and site-specific technical reports, including the Preliminary Geotechnical Investigation (August 22, 2014), prepared by Langan Treadwell Rollo, and groundwater monitoring reports associated with the former landfill at the site. The potential for Project actions, including penetrations of the landfill cover, to mobilize contaminants and degrade groundwater quality (and potentially affect groundwater supplies away from the site) was evaluated. The Stormwater Technical Memorandum for CityPlace Santa Clara (June 30, 2015), prepared by Langan Treadwell Rollo, was also relied upon.[9]

Impacts of the Project on surface water and groundwater quality were analyzed using information on potential existing sources of pollution generated by activities, such as vehicle use and parking, golf course and building maintenance, pesticide use, trash, and material storage. These impacts were then compared to potential Project-related sources of pollution during Project construction, such as sediments and other construction materials, and during Project operation, such as vehicle use, building maintenance, pesticide use, trash, and storage of hazardous materials.

Based on this evaluation, the EIR determined that land-disturbing activities and placement of stockpiled during within proximity to storm drain inlets during construction could result in a temporary increase in sediment loads to receiving waters. Construction of new roadways in off-site areas could result in discharge of sediment into nearby storm drains. Delivery, handling, and storage of construction materials and wastes (e.g., concrete debris), as well as the use of heavy construction equipment, could result in stormwater contamination and thereby affect water quality.

Groundwater could also be affected during construction. Grading and other excavation activities during Project construction would have the potential to temporarily modify the existing low-permeability landfill cover, which could allow precipitation and runoff to infiltrate into the underlying waste.

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[9] This memorandum has been updated and appended into the Infrastructure Master Plan that is part of the Master Community Plan for the Project. The findings in this updated memorandum are consistent with the findings in these CEQA findings with respect to Impact WQ-1.

During the operation and maintenance phase, new roadways may increase traffic and, therefore, contribute pollutants associated with roadways. At full development, impervious area would increase, potentially resulting in increased stormwater volumes and rates during a rain event.

Implementation of Mitigation Measure WQ-1.1 would ensure water quality and consistency with WDRs. The Project would be designed to comply with San Francisco Bay MS4 Permit Provision C.3. With regulatory compliance and implementation of Mitigation Measure WQ-1.1, the Project would not result in any increase in 100-year peak flood elevations within San Tomas Aquino Creek and the Guadalupe River, in compliance with Santa Clara Valley Water District ("SCVWD") requirements. Therefore, such measures would reduce potential flooding and water quality impacts during Project operation to a *less-than-significant level.*

Impact WQ-3: Changes to the Existing Drainage Patterns. The Project could substantially alter the existing drainage pattern of the site and could result in substantial erosion, siltation, or flooding on-site or off-site.

Mitigation Measure WQ-1.1: See Mitigation Measure WQ-1.1, described above.

Mitigation Measure WQ-3.1: Design New Bridge and Outfall Structures to Avoid Increase in 100-year Flow or Existing Design Flow and Channel Erosion. In compliance with the SCVWD's 100-year peak flood requirements, any new bridge and new outfalls in San Tomas Aquino Creek shall be designed to avoid increases in the 100-year flow and to avoid creek bed/channel erosion. The design shall also consider erosive action or redirection of flow during more frequent flood events in compliance with the City of Santa Clara's storm drainage design criteria[10] and consistent with SCVWD's guidance.[11] The outfalls will be set at elevations high enough to ensure the locations of outfalls are above sediment levels within the bottom of the creek.[12] The design shall be provided to the City of Santa Clara and the SCVWD for review and approval for the Project. Construction would be done in phases. For example, the new bridge over the San Tomas Creek would not be needed until Phase 4 and outfalls to the eastside drainage ditch would not be needed until later phases. The design review approval of outfalls shall occur prior to the issuance of the building permit for the development that triggers the need for the outfall or associated construction activity, and on a schedule similar to the phases of construction.

Mitigation Measure WQ-3.2: Vegetation Removal from the Retention Basin Drainage Swale. In accordance with the Retention Basin Drainage Swale Vegetation Clearing Project, and prior to the placement of new impervious surfaces on Parcels 1 or 2, overgrown tule

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[10] City of Santa Clara. 2015. Design Criteria for Improvements in Public Right-of-Ways and City Easements. Public Works Department. April. Available: http://santaclaraca.gov/home/showdocument?id=14345. Accessed: 12/29/15.
[11] Santa Clara Valley Water District. 2006. User Manual: Guidelines & Standards for Land Use Near Streams. A Manual of Tools, Standards, and Procedures to Protect Streams and Streamside Resources in Santa Clara County. Prepared by the Santa Clara Valley Water Resources Protection Collaborative. Originally adopted in August 2005. Revised: July 2006.
[12] Outfalls and work within the SCVWD right-of-way are subject to approval and issuance of permits by the SCVWD.

and cattails shall be removed from the entire length of the drainage swale to restore the swale's flood protection capacity and protect residents and businesses. Vegetation in the drainage swale shall be mowed by hand using rotary mowers, and tule and cattails shall be cut down to 3 to 4 inches above the ground surface. The clippings shall be loaded by hand and hauled from the drainage swale to the Retention Basin where the vegetation will dry out. Once dry, the vegetation shall be transported to the Newby Island Landfill. It is estimated that initial removal of overgrown vegetation will generate approximately 300 cubic yards of debris. Prior to performance of this work, all necessary permits shall be obtained from environmental regulatory agencies for this vegetation removal, including any required compensation for loss of wetland/riparian vegetation.

Findings WQ-3. Potential Project impacts associated with drainage patterns were assessed based on consistency with the Clean Water Act, National Flood Insurance Program, Porter-Cologne Water Quality Control Act, relevant portions of the California Water Code, the MS4 Phase I San Francisco Bay Region Municipal Regional Stormwater NPDES Permit No. CAS029718 (Order No. R2-2009-0074-DWQ, Revised November 28, 2011; NPDES Permit No. CAS612008) (San Francisco Bay MS4 Permit), WDRs for the City of Santa Clara All-Purpose Landfill, the General Plan goals and policies related to hydrology and water quality, SCVWD requirements, and the Santa Clara Valley Urban Runoff Pollution Prevention Program. The surface water hydrology impact analysis considered changes in water bodies, impervious surfaces, and drainage patterns. Information on the change in impervious surface, runoff quantities, and drainage patterns was provided by Langan Treadwell Rollo. The analysis of changes of on-site water bodies involved a comparison of existing on-site hydrological conditions and new/modified conditions proposed as part of the Project, which were provided in the Hydrology/Water Quality Report for CityPlace Santa Clara (June 30, 2015), prepared by Langan Treadwell Rollo, and other sources. The Stormwater Technical Memorandum for CityPlace Santa Clara (June 30, 2015), prepared by Langan Treadwell Rollo, was also analyzed.[13]

Based on this analysis, the EIR found that project construction activities would alter existing drainage patterns and could result in local (on-site) and temporary erosion and siltation during construction. Sediment transport to local drainage facilities such as drainage inlets, culverts, and storm drains could also result in reduced storm flow capacity, resulting in localized ponding or flooding during storm events.

During operation, the Project would alter on-site drainage patterns with development of buildings, roadways, and open space areas, which would modify elevations on the Project site and thereby alter the stormwater runoff pattern. The Rational Method, as prescribed in the Santa Clara County Drainage Manual, was used to estimate the preliminary peak discharges for the combined on-site and off-site areas that are tributary to San Tomas Aquino Creek and the Guadalupe River for the 10-year and 100-year events. The peak flows for the four sub-watersheds were evaluated for the existing (pre-development) and proposed (post-development) conditions, assuming no on-site stormwater attenuation (Table 3.10-5). As shown in EIR Table

[13] This memorandum has been updated and appended into the Infrastructure Master Plan that is part of the Master Community Plan for the Project. The findings in this updated memorandum are consistent with the findings in these CEQA findings with respect to Impact WQ-3.

3.10-5, proposed 10-year and 100-year peak flows would increase in the Eastside Channel and the Basin Direct subwatersheds, both of which flow into the Guadalupe River. For final design, under SCVWD criteria, the public underground piped storm drain conveyance system would need to be capable of conveying the 10-year peak runoff as well as safely convey the 100-year event peak flows near storm drain pump systems. However, because of a reduction in capacity resulting from vegetation growth, the Retention Basin drainage swale cannot safely convey 100-year peak flows under existing conditions.

Public streets would need to be designed such that the 100-year event flow remains within the roadway limits and not extend into private property. The bridge constructed above San Tomas Aquino Creek has not yet been designed but may also affect 100-year flood flows. In addition, the new outfalls within San Tomas Aquino Creek have not yet been designed but could also affect 100-year flood flows and cause changes to the existing channel morphology. Implementation of Mitigation Measure WQ-3 will minimize these impacts.

Under Mitigation Measure WQ-3.1, any new bridge and new outfalls in the San Tomas Aquino Creek will be designed and approved by the City and SCVWD to avoid increases in the 100-year flow and to avoid creek bed/channel erosion. Under Mitigation Measure 3.2, vegetation would be removed from the retention basin drainage swale to ensure conveyance of peak flows to the appropriate drains. The Project would be designed to comply with San Francisco Bay MS4 Permit, SCVWD requirements, Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), and City requirements. With regulatory compliance and implementation of Mitigation Measure WQ-1.1 and Mitigation Measures WQ-3.1 and WQ-3.2, impacts from Project related to operational flooding or associated erosion *would be less than significant.*

Impact WQ-4: Changes to Stormwater Runoff. The Project could create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Mitigation Measure. See WQ-1.1, described above.

Findings WQ-4. Potential Project impacts associated with stormwater runoff were assessed based on consistency with the Clean Water Act, National Flood Insurance Program, Porter-Cologne Water Quality Control Act, relevant portions of the California Water Code, the MS4 Phase I San Francisco Bay Region Municipal Regional Stormwater NPDES Permit No. CAS029718 (Order No. R2-2009-0074-DWQ, Revised November 28, 2011; NPDES Permit No. CAS612008) (San Francisco Bay MS4 Permit), WDRs for the City of Santa Clara All-Purpose Landfill, analysis of the General Plan goals and policies related to hydrology and water quality, SCVWD requirements, and the Santa Clara Valley Urban Runoff Pollution Prevention Program. The surface water hydrology impact analysis considered changes in water bodies, impervious surfaces, and drainage patterns. Information on the change in impervious surface, runoff quantities, and drainage patterns was provided by Langan Treadwell Rollo. The analysis of changes of on-site water bodies involved a comparison of existing on-site hydrological conditions and new/modified conditions proposed as part of the Project, which were provided in the Hydrology/Water Quality Report for CityPlace Santa Clara (June 30, 2015), prepared by Langan Treadwell Rollo, and other sources. The Stormwater Technical Memorandum for

CityPlace Santa Clara (June 30, 2015), prepared by Langan Treadwell Rollo, was also analyzed.[14]

As stated in Impact WQ-3, a preliminary evaluation of the drainage infrastructure for the Project indicated sufficient capacity to convey 100-year peak or appropriate design flows for floods control. However, the Project would most likely ultimately abandon the existing Golf Course Pump Station system and possibly upgrade the Eastside Storm Drain Pump Station. The Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS) was used to model the entire watershed tributary to the Retention Basin and estimate a peak runoff rate for 10-year and 100-year storm events. The Hydrologic Engineering Center's River Analysis System (HEC-RAS) was used to evaluate water surface impacts on San Tomas Aquino Creek, the Guadalupe River and the Eastside Drainage Channel. The modeling will help design the storm system upgrades so that the 100-year storm elevations within the waterways are unchanged as a result of elimination of the pump station system.

Mitigation Measure WQ-1.1 will ensure that all stormwater runoff is handled appropriately. The final design for the stormwater management and storm drainage system would be required to meet several criteria (e.g., the Santa Clara County Drainage Manual watershed criteria, SCVURPPP Provision, C.3 post-construction stormwater criteria, SCVWD levee recertification, and 100-year flood criteria) to ensure sufficient storm drain capacity for the Project. Therefore, the Project would not create or contribute runoff water that would exceed the capacity of the existing stormwater drainage systems.

There are numerous non-standard design elements to address the landfill aspects of the Project, including settlement vaults, flexible connections, structural slabs, and utility corridors in refuse. Any potential additional sources of runoff created by the Project would be treated with the stormwater management measures described in Mitigation Measure WQ-1.1. With implementation of Mitigation Measure WQ-1.1, the Project would not provide substantial additional sources of polluted runoff. Therefore, this impact *would be less than significant.*

Impact WQ-5: Degradation of Water Quality. The Project would not otherwise substantially degrade water quality.

Mitigation Measure. See Mitigation Measure WQ-1.1, described above, and Mitigation Measures BIO-5.1 and BIO-5.2, described in VII.D.7.

Findings WQ-5. Potential water quality impacts resulting from wetland dredge and fill were assessed based on consistency with the Clean Water Act, National Flood Insurance Program, Porter-Cologne Water Quality Control Act, relevant portions of the California Water Code, California Department of Fish and Game Code 1602 Lake and Streambed Alteration Agreement requirements, the MS4 Phase I San Francisco Bay Region Municipal Regional Stormwater NPDES Permit No. CAS029718 (Order No. R2-2009-0074-DWQ, Revised November 28, 2011; NPDES Permit No. CAS612008) (San Francisco Bay MS4 Permit), WDRs for the City of Santa Clara All-Purpose Landfill, analysis of the General Plan goals and policies

[14] This memorandum has been updated and appended into the Infrastructure Master Plan that is part of the Master Community Plan for the Project. The findings in this updated memorandum are consistent with the findings in these CEQA findings with respect to Impact WQ-4.

related to hydrology and water quality, and the Santa Clara Valley Urban Runoff Pollution Prevention Program. The surface water hydrology impact analysis considered changes in water bodies, impervious surfaces, and drainage patterns. Information on the change in impervious surface, runoff quantities, and drainage patterns was provided by Langan Treadwell Rollo. The analysis of changes of on-site water bodies involved a comparison of existing on-site hydrological conditions and new/modified conditions proposed as part of the Project, which were provided in the Hydrology/Water Quality Report for CityPlace Santa Clara (June 30, 2015), prepared by Langan Treadwell Rollo, and other sources. The Stormwater Technical Memorandum for CityPlace Santa Clara (June 30, 2015), prepared by Langan Treadwell Rollo, was also analyzed.

The EIR determined that construction within waters or wetlands subject to local, state, and federal jurisdiction requires permits from the relevant agency or agencies and compensation for loss of federal and state waters (including wetlands). Water/wetland loss and/or removal without avoidance, minimization, or compensation would be a significant impact. EIR Section 3.8, Biological Resources, addresses this impact and identifies associated mitigation measures, including BIO-5.1 and BIO-5.2, to minimize associated impacts. In addition, for sites that require CWA Section 401 Water Quality Certification from the Water Board for features such as the proposed new stormwater outfalls, pile driving in San Tomas Aquino Creek for a new bridge, or impacts to other waters of the State at the Project site, the Water Board has authority to approve post-construction stormwater management plans that provide stormwater runoff treatment that is consistent with the treatment requirements described in the San Francisco Bay MS4 Permit, as described in Mitigation Measure WQ-1.1. Therefore, compliance with relevant regulations and implementation of Mitigation Measures WQ-1.1, BIO-5.1, and BIO-5.2 would reduce this impact to *less than significant*.

Impact WQ-6: Place Housing or Structures within 100-Year Flood Hazard Area. The Project would place housing or structures within a 100-year flood hazard area during large storm events, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. As discussed above, under *CBIA v. BAAQMD*, CEQA no longer considers the impact of the environment on a project (such as the impact of existing hydrological conditions on new Project receptors) to be an impact requiring consideration under CEQA. The following analysis is neither a CEQA impact nor finding.

Condition of Approval WQ-6.1: Incorporate Flood Warnings for the Lick Mill Boulevard Extension and Other Access Roads for Areas Vulnerable to Flooding. The Project Developer and the City shall coordinate to provide flood warnings for new and existing roadways that provide access to the site and are vulnerable to 100-year flood levels. The Project Developer shall review the City's flood warning and emergency response plan and submit a brief plan for the Project that is consistent with the City's plan. The plan shall be submitted to the City's Emergency Services Coordinator in the City's Fire Department for review and approval. The specific frequency of expected flooding on site access roads shall be determined by the Project Developer and reviewed by the City. Flood warnings may be temporary or permanent, depending on the frequency of expected flooding, as determined by the City. Information about alternative access/egress routes, based on flooding potential and other factors, shall also be provided by the Project Developer to the City's Emergency Services Coordinator in the City's Fire Department for review and approval. If other flood improvements are implemented that

remove the flooding risk at the Lick Mill Boulevard extension or other site access roads, then this condition of approval shall no longer be required.

Findings WQ-6. Project impacts associated with the placement of housing or structures within an 100-year flood hazard area were assessed based on consistency with the Clean Water Act, National Flood Insurance Program, Porter-Cologne Water Quality Control Act, relevant portions of the California Water Code, California Department of Fish and Game Code 1602 Lake and Streambed Alteration Agreement requirements, the MS4 Phase I San Francisco Bay Region Municipal Regional Stormwater NPDES Permit No. CAS029718 (Order No. R2-2009-0074-DWQ, Revised November 28, 2011; NPDES Permit No. CAS612008) (San Francisco Bay MS4 Permit), WDRs for the City of Santa Clara All-Purpose Landfill, analysis of the General Plan goals and policies related to hydrology and water quality, applicable SCVWD requirements, and the Santa Clara Valley Urban Runoff Pollution Prevention Program. The impact analysis for flood risk was conducted using FEMA mapping to determine the existing flood zone and information from the Langan Treadwell Rollo report regarding changes in the drainage system and layout that may affect flood risk.

Based on this evaluation, the EIR concluded that most of the Project site is within Zone X, "Other Flood Areas," identified as areas with a 0.2 percent chance of flooding; areas with a 1 percent annual chance of flooding, with average depths of less than 1 foot; drainage areas of less than 1 square mile; and areas that are protected by levees from a 1-percent-annual-chance of flood. Therefore, residential and commercial structures placed within the Project site (Parcels 1 through 5) would be outside of the FEMA-designated 100-year flood zone's base flood elevations. Options for a relocated fire station would also be outside of the FEMA-designated 100-year flood zone. While certain roadways are located within 100-year Flood Zone HD, roadways are relatively resilient to infrequent flooding and readily repairable if damaged during such large events. Effects would be limited to the period of a large storm event and immediately afterward. Accordingly, Condition of Approval WQ-6.1 would require warnings for areas vulnerable to flooding. Flood warnings may be temporary or permanent, depending on the frequency of expected flooding, as determined by the City.

Impact WQ-7: Structural Impedance of Flood Flows. The Project would include new structures within a 100-year Flood Hazard Area that could impede or redirect flood flows.

Mitigation Measure. See Mitigation Measure WQ-6.1, described above.

Findings WQ-7. Project impacts associated with structural impedance of flood flows were assessed based on consistency with the Clean Water Act, National Flood Insurance Program, Porter-Cologne Water Quality Control Act, relevant portions of the California Water Code, California Department of Fish and Game Code 1602 Lake and Streambed Alteration Agreement requirements, the MS4 Phase I San Francisco Bay Region Municipal Regional Stormwater NPDES Permit No. CAS029718 (Order No. R2-2009-0074-DWQ, Revised November 28, 2011; NPDES Permit No. CAS612008) (San Francisco Bay MS4 Permit), WDRs for the City of Santa Clara All-Purpose Landfill, analysis of the General Plan goals and policies related to hydrology and water quality, applicable SCVWD requirements, and the Santa Clara Valley Urban Runoff Pollution Prevention Program. The impact analysis for flood risk was conducted using FEMA mapping to determine the existing flood zone and information from the

Langan Treadwell Rollo report regarding changes in the drainage system and layout that may affect flood risk.

As described in Impact WQ-6, Project roadways may be exposed to flooding during a 100-year flood event. However, the roadways are flat and without structures that could impede or redirect flows. The new bridge and the outfalls placed in the San Tomas Aquino Creek could impede flood flows, depending on design. Mitigation Measure WQ-6.1 requires new bridge and outfall structures to be designed to facilitate passage of the 100-year flow without causing an increase in 100-year flood levels. With implementation of Mitigation Measure WQ-6.1, this impact is considered to be *less than significant.*

10. Hazards and Hazardous Materials

Impact HAZ-2: Accidental Release of Hazardous Materials. The Project could create a significant hazard to construction workers, the public, and/or the environment through the release of hazardous materials into the environment during demolition and excavation.

Mitigation Measure HAZ-2.1: Finalize Waste Management Plan for Construction. Prior to Project construction, a final Waste Management Plan shall be prepared and implemented. This plan shall be submitted to the LEA, CalRecycle, RWQCB, and BAAQMD for review and approval. Specifically, the final *Waste Management Plan* shall contain, at a minimum, the following requirements, which are included in the draft *Waste Management Plan*:

Waste excavation shall be performed in accordance with a Health and Safety Plan (HASP) designed to minimize impacts from dust, odor, and other nuisances, and assure waste is handled in a safe and environmentally responsible manner.

During waste excavation and relocation, the worksite shall be monitored for dust, odor, or other nuisances in accordance with general landfill construction practices and the HASP.

At the end of the working day, any exposed waste shall be covered with soil or an alternative material, such as a geosynthetic blanket, (i.e., interim cover).

Odors, should they occur, shall be controlled by application of a deodorant, masking agent, neutralizing agent, or lime, and an interim landfill cover at the end of each working day.

A "Project Contact" shall be designated who will be responsible for responding to any local complaints about dust, odors, or other nuisances associated with the waste excavation and re-grading operations.

During excavation activities, excavation areas shall be monitored using a hand-held instrument calibrated to measure combustible gases (including methane), hydrogen sulfide, oxygen, and VOCs.

No hot work (e.g., welding) shall be allowed in the vicinity of excavation activities unless methane concentrations are sufficiently below the lower explosive limit of 8 percent. If methane concentrations approach 5 percent, excavation activities shall be stopped until the landfill gas collection system can be modified to reduce the methane concentrations

in the excavation area. If methane levels are persistent in areas where earthwork and/or hot work activities are necessary, inert gases (e.g., nitrogen) can be introduced into affected subsurface materials to lower oxygen and methane concentrations. By introducing an inert gas into the affected area, methane and oxygen can be displaced to create insufficient oxygen concentrations to support combustion.

Findings HAZ-2. Demolition of buildings containing hazardous building materials on the Project site and in Tasman East could potentially release hazardous materials into the environment. The removal of hazardous building materials prior to demolition is governed by federal and state regulations. Based on the age of the buildings, asbestos-containing materials are not expected to be encountered during demolition. Loose and peeling lead-based paint may be present and must be disposed of as a State and/or federal hazardous waste if the concentration of lead equals or exceeds applicable waste thresholds. Because compliance with existing regulations would be mandatory, the Project would have a less-than-significant impact on the public or the environment during building demolition activities.

Certain areas of the Project site are underlain by refuse. The surface grades vary between 3 and 25 feet above the refuse. Project activities would be expected to penetrate into the waste units (i.e., encounter landfill waste) in three ways: (1) constructing the utility trenches, (2) general excavation and grading and leveling activities, and (3) pile placement (both auger cast in place piles and drilled displacement columns would penetrate into the waste units). These penetrations into the waste units could expose construction workers to landfill waste (e.g., trash and debris), contaminated soil, airborne dust, and landfill gas. Based on the Site Investigation and Environmental Risk Assessment, potential receptors who could be exposed to soil contamination on the Project site were identified as construction workers (and groundskeepers, which are discussed below under Impact HAZ-4).

The final Site Investigation and Environmental Risk Assessment dated May 6, 2016 ("Final Risk Assessment") found that no unacceptable cancer and non-cancer risks would be posed to construction workers at the Project site, and that construction workers would not be exposed to COPCs in soil at the Project site above applicable health risk thresholds. The RWQCB staff issued a letter on May 26, 2016 concurring with these findings ("RWQCB Concurrence Letter"). Nevertheless, the Project would place construction workers in proximity to known contaminants during excavation activities, and it is possible that localized areas of soil at the Project site contain higher levels of COPCs than indicated by the existing data. The potential exposure of construction workers to COPCs in soil is a significant impact. Mitigation Measure HAZ-2.1 requires that the additional safety measures outlined in the Draft Waste Management Plan be implemented during excavation activities to further protect construction workers. The Project would have a *less-than-significant impact with mitigation* on construction workers during excavation activities.

Impact HAZ-4: Landfill Hazards – Hazardous Materials. The Project is located on a landfill where subsurface hazardous materials could pose a significant hazard to human health.

Mitigation Measure HAZ-4.1: Landfill Closure, Monitoring, and Maintenance Plans. Prior to issuance of building permits for structures within the area of the Landfill (Parcels 1, 2, 3, and 4), a revised Closure Plan and Post-Closure Maintenance Plan (PCMP) shall be

prepared in accordance with the regulatory requirements described in 27 CCR 21790–21840 and submitted to the LEA, CalRecycle, and RWQCB (as required) for review and approval. In addition, a PCLUP shall be prepared in accordance with the regulatory requirements described in 27 CCR 21190 and submitted to the LEA and Regional Water Board (as required) for review and approval. Collectively, these plans shall incorporate the requirements of Mitigation Measures HAZ-4.2 through HAZ-4.6, below. In addition, the Project Developer shall continue to work with the regulatory agencies (RWQCB, LEA, or CalRecycle) and ensure the implementation of all elements and measures necessary to mitigate Project-related health risks to residents and commercial workers to a level below the Regional Water Board's cumulative incremental cancer risk threshold of 1E-06 and hazard index (HI) (i.e., adverse non-cancer risk) of 1.0 established for the Project are implemented.

Mitigation Measure HAZ-4.2: Landfill Gas Collection and Removal System. During Project construction, the existing landfill gas collection and removal system (i.e., wells and conveyance lines) shall be systematically abandoned and replaced in conjunction with the phased Project site development while complying with applicable regulatory requirements that govern the performance of these systems. The new system shall be designed to effectively draw landfill gases (e.g., methane, hydrogen sulfide, and volatile constituent of potential concern (COPCs)) away from building sub-slab areas.

The system design shall be submitted to the City for review and approval, taking into account an evaluation of the following criteria: effective vacuum influence (based on pilot testing and pneumatic modeling), vacuum distribution control, oxygen management (for subsurface fire prevention), ease of maintenance, well location, effect of landfill settlement, mitigation of vapor intrusion risk, and the proposed development on the Project site. The system design shall incorporate temperature- and corrosion-resistant materials. The landfill gas collection and removal system shall be designed, operated, and maintained to control excessive gas concentrations as specified in 27 CCR 20939. The monitoring of landfill gases is described under Mitigation Measures HAZ-4.4, below.

Mitigation Measure HAZ-4.3: Landfill Gas Protection Systems. During Project construction, landfill gas protection systems shall be constructed beneath the sub-slabs of structures located on Parcels 1, 2, 3, and 4 to remove landfill gases (e.g., methane, hydrogen sulfide, and volatile COPCs) that could otherwise accumulate and/or migrate through the sub-slab. The systems may include active gas collection or passive ventilation mechanisms and shall meet the minimum design requirements described in 27 CCR 21190. The landfill gas protection systems shall be designed, operated, and maintained to control excessive gas concentrations as specified in 27 CCR 20939. The monitoring of landfill gases is described under Mitigation Measures HAZ-4.4, below.

Mitigation Measure HAZ-4.4: Landfill Gas Monitoring and Control System Maintenance. During Project construction and operation on Parcels 1-4, a landfill gas monitoring and control program shall be implemented in accordance with 27 CCR 20921-20939. The gas monitoring network shall be designed by a registered civil engineer or a certified engineering geologist and shall ensure detection of the presence of landfill gas migrating beyond the disposal site permitted facility boundary and also into on site structures. The monitoring network design shall include provisions for monitoring all structures on the Project site,

including but not limited to, buildings, large subsurface vaults, or any other areas where potential landfill gas buildup may cause adverse impacts on the public health or safety or the environment. Methods for monitoring on-site structures may include, but are not limited to: periodic monitoring, utilizing either permanently installed monitoring probes or gas surveys, and continuous monitoring systems. A methane monitoring system shall be installed inside all buildings on the Project site. If methane gas concentrations exceed a threshold of 1.25 percent by volume in air, as described under 27 CCR 20921, the methane monitoring system shall automatically alert the Santa Clara Fire Department, who shall assess the methane conditions and, if necessary, trigger an audible fire alarm to initiate a building evacuation. In the event of an evacuation, the building shall not be reoccupied until the Santa Clara Fire Department has confirmed and approved by that: (1) concentrations of methane meet the applicable compliance requirements and (2) the landfill gas monitoring and control system is operating in a manner that ensures adequate control of methane/vapor intrusion.

The landfill gas control system shall be operated and maintained to control excessive gas concentrations as specified in 27 CCR 20939. This includes operating the landfill gas control system in such a manner as to satisfy the following requirements specified in 27 CCR 20921(a):

The concentration of methane gas must not exceed 1.25 percent by volume in air within any portion of any on-site structures;

The concentration of methane gas migrating from the disposal site must not exceed 5 percent by volume in air at the disposal site permitted facility boundary or an alternative boundary approved in accordance with Section 20925; and

Trace gases shall be controlled to prevent adverse acute and chronic exposure to toxic and/or carcinogenic compounds that could result in a health risk exceedance of the Regional Water Board's cumulative incremental cancer risk threshold of 1E-06 and HI (i.e., adverse non-cancer risk) of 1.0 established for the Project.

In the event of an earthquake or other event that could cause a rupture or leak from overlying stormwater treatment measures (i.e., planters, vegetated areas), the landfill gas venting pipes shall be inspected at access ports within 24 hours of the event for leaks, ruptures, or any other conditions. Access ports shall be installed at select locations, to provide full coverage of the system based on system design and access constraints, within the venting layer to monitor for the presence of, and removal of, water that might flood the system in the event that water leaks from collection systems above the landfill gas mitigation system. This system would help prevent the water from further migrating into the underlying landfill gas mitigation system. The access ports will allow for use of portable moisture sensing devises to periodically monitor for moisture in the event that a leak is suspected. The access ports shall also be designed to allow for pumping of water from the interstitial space in the event that water is detected.

In addition to the monitoring and control of excessive gas concentrations to protect public health and safety and the environment, as specified in 27 CCR 20939, the landfill gas monitoring and control program shall incorporate the monitoring and control requirements for preventing subsurface fires that are described under Mitigation Measure HAZ-9.1, below.

Mitigation Measure HAZ-4.5: Building Restrictions. The Project shall prohibit the construction of enclosed basements located over refuse on Parcels 1, 2, 3, and 4 to minimize the risk of landfill gas accumulation. Over the landfill area, the Project shall also limit residential construction to only Parcel 4 areas located over open-air podium level garages or over at least one level of enclosed commercial space to mitigate vapor intrusion effects by increasing the free flow and exchange of air beneath the residences.

Mitigation Measure HAZ-4.6: Landfill Hazards Disclosure. Information about the existing subsurface hazardous materials conditions and the ongoing mitigation and monitoring requirements described in the PCLUP shall be included in all ground leases and space leases for space located over the Landfill. The text to be inserted shall be subject to review and approval by City.

Findings HAZ-4. The Final Risk Assessment identified benzene, ethylbenzene, trichloroethene (TCE) and vinyl chloride as COPCs in landfill gas because the maximum concentrations were reported above the Regional Water Board's residential and/or commercial/industrial ESLs for soil gas.

The human health risk assessment (HRA) evaluated chronic risks and hazards from exposure risks to chemicals of potential concern in relevant site media (soil, vapor, and groundwater) to four categories of potential receptors (construction workers; groundskeepers; indoor commercial workers; and apartment residents future workers and residents). In addition, TCE was evaluated for potential short-term inhalation exposure hazard in indoor air to future workers and/or residents.

The Final Risk Assessment found that no unacceptable cancer or non-cancer risks would be posed to construction workers or groundskeepers at the Project site, and that neither construction workers nor groundskeepers workers would be exposed to COPCs in soil at the Project site above applicable health risk thresholds. For the commercial indoor worker, the cumulative cancer risk is below the risk management range, and the cumulative non-cancer hazard index is below the threshold of 1.0. The predicted indoor air concentration is well below the short-term response action limit for TCE of 8 μg/m3 (USEPA 2014), which indicates there is no short-term hazard posed by exposure to TCE.

For the apartment residents, the predicted indoor air concentration is well below the short-term response action limit for TCE 2 μg/m3; USEPA 2014), which indicates there is no short-term hazard posed by exposure to TCE. The cumulative non-cancer hazard index is below the threshold of 1.0. Cumulative chronic cancer risk for apartment residents is considered a significant impact because it slightly exceeds the RWQCB's default 1 X 10-6 risk threshold. However, in this instance, the RWQCB concluded that, with implementation of the mitigation measures set forth above, this chronic cancer risk for future residents in the lower end of the risk management range is considered acceptable. The RWQCB concurrence letter noted that the risk assessment model used to evaluate the human health risks posed by the COPCs was conservative because the model does not consider the following key protective measures from Table 1: 1) groundwater concentrations of volatile organic compounds are expected to decline over time from natural attenuation; 2) landfill gas extraction will continue; and 3) the passive venting component of the landfill gas mitigation system will be operational. The RWQCB also noted

that the model overestimates the risk posed by the COPCs that was determined to pose the most risk (vinyl chloride).

The RWQCB concurrence letter noted that because of landfill regulatory requirements, there is an existing array of protective measures in place to mitigate hazards posed by methane in landfill gas or hazards caused by landfill settlement. These measures also serve to mitigate or remediate the VOCs in groundwater or in the refuse/landfill gas that could pose a vapor intrusion risk in future buildings. During redevelopment, these measures will be improved (e.g., enhanced landfill gas and VOC extraction system, landfill clay cap repair, removal of preferential pathways) and additional components will be added that will also serve to mitigate methane hazards or VOC risks. The redevelopment plan also integrates protective design components (e.g., residential apartments above podium parking garage or above first floor commercial space). Lastly, institutional controls will be implemented that will ensure the continued protectiveness of these measures as well as provide financial assurance necessary for long-term stewardship. These many measures serve to provide multiple, redundant levels of protectiveness for the planned redevelopment provided they are adequately constructed and maintained.

In 2014, the methane concentration in landfill gas reported at the LGTE plant was 46.1 percent by volume in air (%v). During the site investigations, methane was detected in all 46 samples at concentrations ranging from 1.98%v to 51.4%v. The lower explosive limit (i.e., the lowest concentration needed for ignition and an explosion to occur) for methane is 5%v at 20 degrees Celsius (68 degrees Fahrenheit). Without implementation of measures to prevent the accumulation of methane gases below or inside buildings there is a risk of explosion, which would pose a significant impact on residents, workers, and/or patrons on the Project site.

The Project Developer will prepare the plans identified above in accordance with state requirements, and will work with regulatory agencies to ensure that Project-related health risks are mitigated below Regional Water Board thresholds. The City will also review and approve a redesigned landfill gas collection and removal system. Landfill gas protection systems will be constructed beneath the sub-slabs of structures located on Parcels 1, 2, 3, and 4 to remove landfill gases that could otherwise accumulate and/or migrate through the sub-slab. During Project construction and operation, a landfill gas monitoring and control program shall be implemented in accordance with 27 CCR 20921-20939, and must operate pursuant to specified parameters. Inspections are required after earthquakes or other events that could cause ruptures to the stormwater treatment measures. The construction of enclosed basements over refuse on Parcels 1, 2, 3, and 4 will be prohibited, and residential construction will be limited to areas of Parcel 4 located over open-air podium level garages or over at least one level of enclosed commercial space to mitigate vapor intrusion effects. Information about the existing subsurface hazardous materials conditions and the ongoing mitigation and monitoring requirements will be included in all ground leases and space leases for space located over the Landfill. In sum, the City (as owner and operator of the landfill) and the Project Developer's implementation of HAZ-4.1, HAZ-4.2, HAZ-4.3, HAZ-4.4, HAZ-4.5 and HAZ-4.6 will reduce significant impacts related to contaminants in the subsurface to a *less-than-significant level.*

Impact HAZ-5: Non-Landfill Hazards – Hazardous Materials. Portions of the Project not underlain by refuse contain subsurface hazardous materials that would pose a significant hazard to human health.

Mitigation Measure HAZ-5.1: Phase II Site Investigation. Prior to Project construction, a Phase II Site Investigation shall be performed on Parcel 5 and the tennis courts located in the southwest portion of Parcel 4 to (1) delineate the extent of soil, soil gas, and potential groundwater contamination on the site and (2) assess potential health risks posed to construction workers and future site users. The Phase II Site Investigation shall be conducted and evaluated by a licensed professional prior to construction and earthwork activities. The findings of the Phase II Site Investigation shall be submitted to the appropriate regulatory agency to the extent required by applicable law. The Project Developer shall conduct any additional investigation and/or risk assessment and/or implement any remedial or risk mitigation measures required by the regulatory agency.

Mitigation Measure HAZ-5.2: Soil and Groundwater Management Plan. Construction on Parcel 5 and the tennis courts located in the southwest portion of Parcel 4 shall be conducted under a site-specific Soil and Groundwater Management Plan (SGMP) to protect construction workers, the general public, and the environment from hazardous materials identified in the Phase II Site Investigation (see Mitigation Measure HAZ-5.1) and potential undocumented sources of such materials. The SGMP shall delineate specific soil and groundwater management and disposal procedures, construction worker health and safety requirements, and contingency measures in case unknown contamination is encountered during construction. The SGMP shall incorporate the soil and groundwater analytical data from the Phase II Site Investigation to ensure that soil and groundwater are stored, managed, and disposed of in a manner protective of human health and the environment, and in accordance with applicable laws and regulations. The SGMP shall specifically include the following:

Procedures for evaluating, handling, storing, testing, and disposing of known soil and groundwater contamination identified during the Phase II Site Investigation during Project excavation and dewatering activities, respectively;

Procedures for identifying, testing, and managing soil and groundwater suspected of containing hazardous materials (if any) that have not previously been identified at the site;

Descriptions of required worker health and safety provisions for all workers potentially exposed to hazardous materials in accordance with State and federal worker safety regulations; and

Identification of personnel responsible for implementation of the SGMP.

Mitigation Measure HAZ-5.3: Implement Measures Included in CCR Title 27, Section 21190(g). Consistent with the Project Developer's voluntary commitment, in order to mitigate gas migration into structures located within 1,000 feet of landfill, the City (as owner and operator of the landfill) and the Project Developer shall implement the following measures identified in Title 27, Section 21190(g), with respect to development on Parcel 5 and the southwest portion of Parcel 4:

(1) a geomembrane or equivalent system with low permeability to landfill gas shall be installed between the concrete floor slab of the building and subgrade;

(2) a permeable layer of open graded material of clean aggregate with a minimum thickness of 12 inches shall be installed between the geomembrane and the subgrade or slab;

(3) a geotextile filter shall be utilized to prevent the introduction of fines into the permeable layer;

(4) perforated venting pipes shall be installed within the permeable layer, and shall be designed to operate without clogging;

(5) the venting pipe shall be constructed with the ability to be connected to an induced draft exhaust system;

(6) automatic methane gas sensors shall be installed within the permeable gas layer, and inside the building to trigger an audible alarm when methane gas concentrations are detected; and

(7) periodic methane gas monitoring shall be conducted inside all buildings and underground utilities in accordance with Article 6, of Subchapter 4 of this chapter (section 20920 et seq.). At a minimum, quarterly monitoring is required, but more frequent monitoring may be required by LEA (Subchapter 4, section 20933(a)).

Findings HAZ-5. Soil and soil gases beneath Parcel 5 and the tennis courts located in the southwest portion of Parcel 4 have concentrations of benzo[a]pyrene, PCBs, TPHd, and TPHmo were reported in soil samples at levels exceeding the Regional Water Board's residential and/or commercial/industrial ESLs. Benzene was reported in soil gas samples at concentrations above the residential ESLs, but below the commercial/industrial ESLs. Potential impacts to groundwater have not been investigated at these locations on the Project site. Based on a review of regulatory databases, hazardous material releases have not be reported on other portions of the Project site that are not underlain by refuse (e.g., the Eastside Retention Basin) or off-site areas.

Project construction activities, such as excavation and dewatering, could disturb contaminated soil and/or groundwater beneath the site and pose a potential threat to human health and the environment. Future site users (e.g., residents, commercial workers, maintenance workers) could potentially be exposed to hazardous materials by direct exposure to soils or soil gases that migrate into buildings. If subsurface hazardous materials are not properly managed on Parcel 5 and the southwest portion of Parcel 4 (which are non-landfill areas), development of the Project could have a significant impact on human health and the environment.

Before construction, Phase II Site Investigations (and potentially additional investigations) will be performed to delineate the extent of site contamination and assess potential health risks to construction and future site users. Construction on Parcel 5 and the tennis courts located in the southwest portion of Parcel 4 will be conducted under the SGMP, which will ensure that soil and groundwater are stored, managed, and disposed of in a manner protective of human health and the environment, and in accordance with applicable laws and regulations. In sum, the City and the Project Developer will implement Mitigation Measures HAZ-5.1 and HAZ-5.2 to reduce significant impacts related to contaminants in the subsurface

on Parcel 5 and the southwest portion of Parcel 4 not underlain by refuse to a *less-than-significant level.*

Impact HAZ-6: Leachate Collection and Removal Systems. Project construction and operation that would disturb the existing leachate collection and removal systems could create a significant impact on groundwater quality.

Mitigation Measure HAZ-6.1: Finalize Draft Technical Memorandum: Leachate Collection and Removal System. Prior to Project construction, a final Technical Memorandum: Leachate Collection and Removal System shall be prepared and implemented as part of the PCLUP. The technical memorandum shall be submitted to the LEA for review and approval and to CalRecycle and the Regional Water Board for review and comment. Specifically, the final technical memorandum shall contain, at a minimum, the following requirements:

During the construction phase of Parcel 3, the existing leachate collection and removal system (LCRS) risers LR-1 and LR-4 shall be protected and preserved during construction by flagging the well head locations, extending the risers, and installing a bollard around each riser.

If LR-1 or LR-4 are damaged during construction, repairs and modifications shall be completed promptly.

LR-1 and LR-4 shall be supported and anchored to prevent potential settlement over time and finished to grade at the end of excavation and/or completion of construction.

Ongoing operation and maintenance of the leachate recovery system shall continue during and after Project construction. The LCRS monitoring shall continue in accordance with the Regional Water Board's WDR Order No. R2-2002-0008 for the site, which shall be revised to consider the proposed development and modifications to the landfill systems.

Findings HAZ-6. Mounding of leachate in the refuse, which can occur due to excessive leachate production and limited recovery, has not been previously observed at the Landfill. The Draft Technical Memorandum: Leachate Collection and Removal System prepared by Langan evaluated the potential impacts that Project development could have on the generation of leachate in the landfill and related impacts on groundwater to determine if significant repairs or modifications to the existing LCRSs would be necessary. The Project will implement the recommendations from the Langan Draft Technical Memorandum.

Operation of the Project would substantially reduce leachate production due to the proposed increase in aboveground impervious surfaces (i.e., structural building pads, asphalt roadways, buildings, etc.) and the construction of a stormwater collection system, which would limit infiltration of water into the refuse. By implementing the required PCLUP and increasing the impervious surface area over the landfill, the Project would improve operation of the existing LCRS and reduce leachate production. However, these improvements would occur only if the modified LCRS is properly designed and operated. The Project's proposal to modify the LCRS could result in a significant impact on groundwater quality.

Compliance with existing regulations and implementation of Mitigation Measure HAZ-6.1 (which requires the implementation of specific LCRS proposed design elements in the Draft Technical Memorandum: Leachate Collection and Removal System) would result in the Project having a *less-than-significant impact with mitigation* on groundwater quality.

Impact HAZ-9: Landfill Hazards – Subsurface Fires. The Project is located on a landfill where a subsurface fire resulting from the heating of waste materials could pose a significant risk of loss, injury, or death.

Mitigation Measure HAZ-9.1: Subsurface Fire Prevention, Detection, and Response Plan. Prior to construction, a Subsurface Fire Prevention, Detection, and Response Plan shall be prepared that describes how subsurface heating conditions above the landfill will be monitored, prevented, and suppressed. The plan, which may be included as part of a larger planning document, shall identify responsible parties and schedules for implementing the measures described in the plan. The Project Developer shall submit the plan to the LEA, CalRecycle, and SCFD for review and comment. Responses to comments shall be incorporated into a final Subsurface Fire Prevention, Detection, and Response Plan from the regulatory agencies. The plan shall also incorporate the prevention, detection, and response actions described under Mitigations HAZ-9.2 and HAZ-9.3, below, unless alternative actions are approved by LEA, CalRecycle, and SCFD. The final plan shall be implemented during Project construction and operation.

Mitigation Measure HAZ-9.2: Subsurface Fire Prevention and Detection Measures. The following measures may be included in whole, or in part, in the Subsurface Fire Prevention, Detection, and Response Plan, as required by the LEA, CalRecycle, and SCFD. In addition, these agencies may require additional measures.

The landfill gas collection system shall be monitored and maintained to minimize the intrusion of oxygen (i.e., air) into the landfill and prevent the overheating of waste due to aerobic decomposition. In accordance with BAAQMD monitoring requirements (Regulation 8-34), the gauge pressure, nitrogen or oxygen concentration, and temperature of landfill gas within each extraction wellhead shall be monitored once a month and evaluated to ensure the system is not overdrawing air into the landfill. The nitrogen and oxygen concentrations may be measured using a calibrated portable instrument. The landfill gas measured at each extraction well head must meet the following monitoring threshold requirements:

Nitrogen concentrations less than 20 percent or oxygen levels less than 5 percent; and

Maximum temperature of 140 degrees Fahrenheit.

The nitrogen and oxygen thresholds shall be used to indicate if the gas collection system is overdrawing and causing excessive ambient air infiltration into the landfill through its surface and sides. An exceedance of the maximum temperature threshold shall indicate that a subsurface fire may exist. Other evidence of a potential subsurface fire shall include the following:

Observations of rapid settlement over a short period of time;

Smoke or smoldering odor emanating from the gas extraction system or landfill; or

Combustion residue in extraction wells and/or headers.

The landfill gas collection system shall be adjusted to reduce well extraction rates (if necessary) to ensure the monitoring thresholds for nitrogen/oxygen and temperature are not exceeded, while continuing to ensure the control of other excessive gas concentrations in the landfill (e.g., methane and trace gases) as specified in 27 CCR 20939. In the event that one or both of the monitoring thresholds are exceeded or other evidence of a potential subsurface fire is observed, then gas samples shall be collected from the extraction wells in the affected area and submitted to a certified laboratory for analysis of nitrogen, oxygen, and carbon monoxide. Analytical results for nitrogen and oxygen that exceed the monitoring thresholds shall be used as confirmation that an aerobic environment is present. Analytical results for carbon monoxide that exceed 1,000 parts per million shall be used as confirmation that a subsurface fire exists.

Mitigation Measure HAZ-9.3: Subsurface Fire Suppression. If a subsurface fire condition has been confirmed (i.e., carbon monoxide level exceed 1,000 parts per million), the LEA, CalRecycle, and SCFD shall be notified immediately. The extraction wells surrounding the subsurface fire shall be shut down temporarily to reduce oxygen levels. The extraction wells shall then be returned to active use in stages in conjunction with monitoring to determine if the subsurface fire has been suppressed. If shutting down the extraction wells does not suppress the fire and/or results in the excess accumulation of methane and other trace gases beneath structures, then the LEA, CalRecycle, and SCFD shall consider injecting a Class A foam or wetting agent or liquid carbon dioxide (which also has the added benefit of rapidly cooling the refuse/fill) into the affected area. Large amounts of water shall not be used, because water can exacerbate the fire potential, generate contaminated runoff, increase leachate, and cause slope failure.

Findings HAZ-9. Parcels 1, 2, 3, and 4 are located on a closed landfill where aerobic decomposition or chemical oxidation of waste materials could result in a subsurface fire that could pose a potentially significant impact to human health and property. The degree and types of risks associated with subsurface fire depends in part on the contents buried in the landfill, the geography of the landfill, and the nature of the fire.

Under BAAQMD Regulation 8, Rule 34, wellheads for the landfill gas collection and removal system at the Project site must be sampled monthly for vacuum pressure, temperature, and either oxygen or nitrogen. These parameters can be useful for indicating potential subsurface fire events. While neither the BAAQMD nor other regulatory agencies specifically require monitoring and prevention of subsurface fire events at closed landfills, there are regulator guidance documents that describe best management practices for preventing, detecting and suppressing subsurface fires

Current fire prevention measures at Parcels 1, 2, 3, and 4, which include the flaring of landfill gas when the electrical conversion micro-turbines are offline and the removal of accessible surface vegetation, would not completely protect future Project site workers, residents, and shoppers from potential landfill fires. Therefore, the Project could have a significant impact related to surface fires and would require mitigation.

The Project will incorporate a plan to monitor, prevent and suppress subsurface heating conditions above the landfill that will be reviewed and approved by regulatory agencies. The technical requirements of Mitigation Measure HAZ-9.2 will mitigate the risk or impact of a subsurface fire. If a subsurface fire is confirmed, the appropriate regulatory agencies will be notified, the extraction wells shut-down, and (if necessary) a foam or wetting agent will be injected into the affected area to suppress the fire. In sum, implementation of Mitigation Measures HAZ-9.1 through HAZ-9.3 would reduce impacts related to subsurface fires to a *less-than-significant* level.

11. Utilities

Impact UT-2: Water Delivery System. The Project would require the expansion of existing facilities, the construction of which could cause significant environmental effects.

Mitigation Measures. All relevant mitigation measures included for construction in other EIR sections would apply to water line and recycled water line construction on- and off-site.

Findings UT-2. Each of the Project's development parcels would include a combined domestic and fire water system looped network with multiple points of connection to the existing system. Connections to the public system would be to existing lines but requiring a master meter and backflow preventer. As currently designed, the on-site system would likely require some off-site improvements to the existing off-site system for increased demand and because parts of the existing system are antiquated. Recycled water distribution would continue to the Project site. Although new points of connection to the existing recycled water will be necessary, additional flow would be minimal. The City will need to obtain a waiver before improvements both the off-site and on-site systems as State Water Board regulations restrict construction of public water mains over landfills without a waiver.

Therefore, implementation of the Project would require the expansion of the City's water delivery system, including both on-site and some off-site locations, but would not require expansion of the recycled water system off-site. Construction impacts of the Project (including the water delivery system) are discussed throughout the EIR and would, in some circumstances, result in significant impacts prior to mitigation. All relevant mitigation measures included for construction in other EIR sections would apply to water line and recycled water line construction on- and off-site. As such, implementation of the Project would result in impacts on the City's water and recycled water delivery system that would be *less than significant with mitigation.*

Impact UT-3: Wastewater Generation. The Project would not exceed wastewater treatment requirements of the RWQCB, require or result in the construction of new wastewater treatment facilities or the expansion of existing treatment facilities, or result in a determination by the Santa Clara Regional Wastewater Treatment Facility (WWTF) that it has inadequate capacity to serve the Project's expected demand and existing entitlements. However, the existing sanitary sewer system serving the Project site would not have sufficient pumping capacity to accommodate the Project.

Mitigation Measure UT-3.1: Make a Fair-Share Contribution to Upgrading the Rabello and Northside Pump Station System's Capacity. The City will conduct detailed engineering study and analysis to determine the precise size and timing needed for the required pump station capacity upgrades to address overcapacity due to projected cumulative development. The City will implement the required capacity upgrades and the Developer will fund its fair share of such upgrades. The City shall determine the fair-share cost contribution for the Project based on the Project's percent of wastewater flow cumulative capacity needs above the current pump capacity (based on conceptual planning to date, that fair share is estimated as 27 percent of 2035 cumulative overcapacity amount). The City may require the Developer to fund the design and construction of the conveyance capacity upgrades to the Rabello and Northside Sanitary Sewer Pump Stations concurrent with construction of Phase 2 of the Project; the pump station upgrades would be designed to address overcapacity due to projected cumulative development. If the Developer is required to fund pump station upgrade costs, with the exception of costs attributable to the Project's fair share contribution to the upgrade, the City would reimburse the Developer for the design and construction costs through first (a) refunding the Project's Sanitary Sewer Conveyance Fees already paid by Developer or crediting those fees when due and (b) providing to Developer Sanitary Sewer Conveyance Fees collected from developers of projects that would use the Rabello and Northside Sanitary Sewer Pump Stations.

Findings UT-3. The WWTF treats an average of 110 mgd of wastewater and has the capacity to treat up to 167 mgd. The City's current Average Dry Weather Flow (ADWF) is 12.8 mgd, based on 2009 data with an allocation of treatment capacity is 23.103 mgd. The Project's ADWF of 1.75 mgd would increase the City's current ADWF to 14.55, which is well within the City's remaining allocation of treatment capacity. As such, implementation of the Project would have a *less-than-significant* impact related to wastewater treatment. The Project involves operation and maintenance of residential, commercial, office, hotel, and entertainment uses. No industrial wastewater would be generated by the Project. A new wastewater system would be installed on-site to accommodate the flows generated by the Project, flows typical of a mixed-use development. As a result, no specific changes to the WWTF would be required to treat these flows. Therefore, the Project would not exceed wastewater treatment requirements of the RWQCB resulting in *no impact.*

The City's 2015-2035 General Plan hydraulic model for total effluent flow is 43.0 mgd which includes all flows from planned major developments and redevelopments except for the effluent flow from the Project. With the Project, the total 2035 effluent flow to the existing downstream trunk sewer system at the Rabello and Northside Pump Stations ("pump stations") would be 44.8 mgd. The flow would exceed the pump stations' capacity of 38.2 mgd by 6.6 mgd. The City anticipated that the Project would contribute 1.8 mgd (or 27 percent of 6.6 mgd). A possible scenario is that the Project would be responsible for approximately 27 percent of the improvement costs. The City would need to determine the threshold for when pump station improvements with an estimate of the timing improvements needing to be completed soon after the Project's entitlements. Based on the analysis above, implementation of the Project would have a *significant impact* related to the need for additional off-site wastewater delivery systems due to future insufficient pumping capacity. Although the Project would have a *less-than-significant* impact related to wastewater treatment facilities and on-site wastewater delivery systems, the Project would contribute considerably to the need for additional off-site wastewater

delivery systems due to future insufficient pumping capacity, which is considered a considerable contribution to a *significant cumulative* impact.

Implementation of Mitigation Measure UT-3.1 would address the Project's contribution to a cumulative wastewater pumping capacity deficit by requiring a detailed study analyzing capacity upgrades and by requiring Developer to fund its fair share of any upgrades. It would reduce potential wastewater infrastructure impacts during Project operation to *less than significant with mitigation.*

Impact UT-4: Stormwater Generation. The Project would require the construction of new stormwater drainage facilities or the expansion of existing facilities, but the construction of such facilities would not cause significant environmental effects.

Mitigation Measures. All relevant mitigation measures included for construction in other EIR sections would apply to the construction of all Project stormwater drainage facilities on- and off-site. *See* EIR Section 3.9 Geology and Soils Mitigation Measure GEO 1.1 which incorporates by reference the Project's Storm Water Pollution Prevention Plan as required by the NPDES Construction General Permit; Section 3.10, Hydrology and Water Quality Mitigation Measure WQ-1.1.

Findings UT-4. A preliminary evaluation of the drainage infrastructure for the Project indicated sufficient storage and pumping capacity in the current system (assuming existing conditions) to convey 100-year peak flows safely. The proposed stormwater drainage system for the Project would include below-grade gravity network of pipes, catch basin, manholes, water quality treatment measures, and other appurtenances. The building drainage would be via internal systems piped directly to the storm drains. Any potential additional sources of runoff created by the Project would be treated with the stormwater control management measures in compliance with San Francisco Bay MS4 Permit.

As such, implementation of the Project would have a *less-than-significant impact with mitigation* related to secondary environmental effects of new or modified stormwater drainage facilities.

Impact UT-6: Energy Demand. The Project would not result in wasteful, inefficient, or unnecessary energy use with mitigation, and the construction impacts of necessary energy infrastructure would be less than significant with mitigation.

Mitigation Measures. All relevant mitigation measures included for construction in other EIR sections would apply to the construction of all Project energy infrastructure improvements both on- and off-site, including AQ-2.1, AQ-2.2, AQ-2.4, GHG-1.1, and GHG 1.2.

Findings UT-6. The Project would use energy for both construction and operation. The Project would consume 121 million kWh of electricity per year with implementation of the on-site solar photovoltaic systems, 183 to 206 million kBTU of natural gas per year and up to 1,000 billion BTU of transportation fuel per year during normal operations. This represents a significant increase in energy use from current uses. The Project Developer will pursue Leadership in Energy and Environmental Design (LEED) certification for the proposed City

Center, LEED Gold for proposed commercial, and LEED Silver for proposed residential. This LEED program includes strategies that optimize the energy performance and energy reduction strategies. While the exact building energy efficiency resulting from LEED certification was not calculated as the specific measures will be determined during design, it is expected that building energy would provide an estimated 15 percent reduction in electricity and natural gas demand and exceeding the 2013 California Title 24 standards. Project design would reduce demand for grid electricity by 10 percent due to the use of onsite solar and an estimated 11 percent savings in operational transportation energy compared to a similarly sized project that did not have the mixed use characteristics, transit location. Construction energy usage would be reduced through energy efficient construction equipment and trucks and the use of alternative fuels. Other measures would result in further reductions of operational energy consumption. Based on this information, the Project, with mitigation, would result in lower energy consumption compared to a similarly size project that did not incorporate the Project's design features and mitigation. Therefore, the Project would not result in inefficient, wasteful, or unnecessary consumption of energy. As noted above, the Project's secondary environmental effects related to increase energy demand can also be addressed such that these effects would be *less than significant with mitigation.*

E. Significant and Unavoidable Impacts

Under Public Resources Code sections 21081(a)(3) and 2108l(b), and CEQA Guidelines sections 15091, 15092, and 15093, and to the extent reflected in the EIR and the MMRP, the City finds that the following impacts of the Project will remain significant and unavoidable, notwithstanding the imposition of all feasible mitigation measures, as set forth below.

1. Land Use

Impact LU-1: Conflicts with Adopted City Land Use Plans and Policies with Regard to the Jobs/Housing Balance. The EIR found that the Project would be inconsistent with the City's General Plan policies aimed at improving the City's jobs/housing balance and in contributing to this imbalance, the Project would result in secondary significant unavoidable impacts on traffic, air quality, and GHG emissions.

Mitigation Measure LU-1.1: Increase Residential Density in the City's General Plan. During the next General Plan Update cycle, the City shall explore permitting higher residential densities in the City as well as allowing residential land uses in existing non-residential areas. Where feasible, the City shall target strategic areas of the City, specifically those closest to major employment and transit hubs, for new residential land uses and/or increased residential density. In order to maintain projected 2035 jobs/housing ratios, the City shall explore permitting up to 11,000 units.

Findings LU-1. As an initial matter, the ultimate finding of General Plan consistency for the purpose of project approval does not require that a project be entirely consistent with each individual General Plan policy. Although Table 3.1-7 of the Draft EIR identified isolated instances where the project might be inconsistent with goals and policies (e.g., General Plan Policy 5.3.1-P18, which calls for metering new industrial and commercial space, General Policy Plan Policy 5.10.2-P2, which promotes development that minimizes air pollution and commutes,

and Housing Element Policy B-5, which calls for mitigating the effects of developments that create substantial numbers of jobs on the jobs/housing ratio), the project is not inconsistent with the majority of more than 150 applicable provisions. In addition to the goals and policies identified in Table 3.1-7, the project is also consistent with the following General Plan goals and policies: (1) maximize opportunities for the use and development of publicly-owned land to achieve the City's economic development objectives and to provide public services and amenities. (Policy 5.3.1-P19); (2) provide a mix of retail and commercial uses to meet the needs of local customers and draw patrons from the greater region. (Policy 5.3.3-P1); (3) A City that continues to be a major employment center in Silicon Valley. (Goal 5.3.5-G1); and (4) Higher-intensity employment centers located near major transit services and major transportation corridors to reduce vehicle miles traveled. (Goal 5.3.5-G2). The project is furthermore consistent with all seven "Major Strategies" in the General Plan, as it would (1) create a mixed-use, transit-oriented development pattern that would contribute to the City both economically and socially; (2) preserve and cultivate neighborhoods by promoting the creation and cultivation of a new, mixed-use urban neighborhood; (3) promote sustainability by furthering the City's goals of achieving new and improved methods to minimize water and energy consumption and protect water quality; (4) enhance city identity by reinforcing the unique entertainment and mixed-use qualities already inherent in that geographical area of the City; (5) support focus areas and community vitality by providing a mixed-use destination that would contribute socially and economically to the local and regional attractions in the area; (6) maintain the City's fiscal health and quality services by strengthening and diversifying the City's tax base, thereby promoting its fiscal health and its capability to provide quality public services to its residents; and (7) maximize health and safety benefits by implementing state of the art landfill protection systems and promoting a multi-modal environment for workers, residents, and those seeking recreation.

Both the City of Santa Clara's General Plan and the Association of Bay Area Governments' forecasts include projected future ratios of jobs to housing. During the first three phases of the Project, the Original Project (Scheme B with 200 residential units in Parcel 5 and no residential units over the landfill) would increase the jobs/housing ratio from the levels projected in the General Plan from 2.56 to 2.72 in 2035, compared to a ratio of 2.42 in 2008. This represents an increase of 6 percent over 2035 projections without the Project. Upon full build-out of the Original Project (Scheme B), the jobs/housing ratio would increase from 2.56 (without Project) to 3.02 (with Original Project Scheme B) in 2035. This represents an increase of 25 percent between 2008 (without project) and 2035 (with Original Project Scheme B). Compared to the Scheme B of the Original Project, if the Project were developed as Scheme A incorporating the Increased Housing Alternative, as permitted under the Master Community Plan, it would result in 3,550 more residents and approximately 1,150 fewer employees, thereby having a much smaller, but still significant, impact on the jobs/housing balance.

To maintain the projected jobs/housing ratio under the 2035 with-Original Project Scheme B condition for Phases 1, 2, and 3, an additional 3,700 units beyond those contemplated under the General Plan would need to be constructed within the City; if the Project were developed as Scheme A incorporating the Increased Housing Alternative, as permitted under the Master Community Plan, that number would reduce to 2,220 units. For full build-out, to maintain the projected jobs/housing ratio under the 2035 (with Original Project Scheme B) condition, an additional 11,000 units beyond those contemplated under the General Plan would need to be constructed within the City; if the Project were developed as Scheme A incorporating

the Increased Housing Alternative, as permitted under the Master Community Plan, that number would reduce to 9,520 units. The EIR identified an additional 9,576 units proposed for development as part of nine separate "pending" or "conceptual" projects that were not taken into account by the General Plan. Although the Project cannot presume that all of the aforementioned 9,576 units will be constructed, these units could alleviate most of the Project's impacts on the City's jobs/housing balance and as observed in the final EIR (and all of the impacts on City's jobs/housing balance if the Project were developed as Scheme A incorporating the Increased Housing Alternative, as permitted under the Master Community Plan). Furthermore, it is not reasonable to expect that any single project would maintain the overall job/housing balance for the entire City. (See discussion in the FEIR at 3-2.)

Implementation of Mitigation Measure LU-1.1 would also help increase the housing stock within the City. This would improve the jobs/housing ratio within the City and would help to minimize the Project's physical environmental impacts associated with increased commuting times and associated emissions. However, as with pending projects, because this mitigation measure relies on an iterative General Plan process ultimately requiring approval from City Council, it cannot be stated with certainty whether and when the mitigation measure can be implemented. In addition, adding new housing to the City's General Plan would only potentially reduce some of the impacts within the more immediate Project vicinity, but would not fully mitigate the Project's effect on induced growth in the region and beyond. Despite mitigation measures designed to reduce environmental effects associated with an increase in vehicle miles travelled, the Project's inconsistency with City policies that govern the jobs/housing balance would still result in significant secondary impacts on transportation, air quality, and greenhouse gas emissions. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Thus, this impact would remain *significant and unavoidable.*

Impact LU-2: Conflicts with Airport Land Use Plan and City Policies Related to Airport Noise. The Project would be inconsistent with the Comprehensive Land Use Plan for the San José International Airport in relation to noise policies and the City's General Plan related to Airport Noise.

Mitigation Measure. Implementation of Condition of Approval NOI-1.3, as described in Section VII.E.5.

Findings LU-2. Because the Project site is located northeast of the sideline safety zone for SJC, none of the airport safety policies in the CLUP would apply to the Project. In addition, because the Project's proposed buildings would not exceed the airport vicinity height limitations, the Project would comply with applicable FAA regulations, although the Administration would be required to issue a No Hazard Determination.

However, the Project would be inconsistent with certain General Plan and CLUP provisions related to noise from SJC. Specifically, the Project would be inconsistent with General Plan Policy 5.10.6-P8 concerning uses in airport noise restriction areas, General Plan Policy 5.10.6-P9 concerning exposure to airport noise, Comprehensive Land Use Plan Policy G-4 related to policy compatibility, and Comprehensive Land Use Plan Policy N-4 aimed at

residential uses with 65 dB Community Noise Equivalent Level. Portions of two parcels would fall within the 65 dB CNEL, so some outdoor activities would experience temporary disruptions such as noise from jets taking off. However, the City Council can approve an aviation easement to provide notice to future owners and occupants are aware of the aircraft activity.

Condition of Approval NOI-1.3, as described in Section VII.E.5, would reduce the impacts of airport noise by requiring noise treatments to provide interior residential noise levels of 45 dBA CNEL, but no feasible mitigation exists to reduce outdoor noise levels to below 65 dBA CNEL. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, the land use policy conflict would result in a *significant and unavoidable impact.*

2. Transportation

Impact TRA-1. Signalized (Off-Site) Intersections. The EIR found that the Project would add traffic to certain signalized intersections, causing them to operate at unacceptable levels of service or worsen unacceptable levels of service under existing with-Project or background with-Project conditions.

Mitigation Measures: See Mitigation Measures TRA-1.1 and TRA-1.2, described in Section VII.D.2.

Mitigation Measure TRA-1.3: Prepare and Implement a Multimodal Improvement Plan. The Project Developer shall fund the preparation of (including CEQA review for) a Multimodal Improvement Plan ("MIP") addressing at least the Congestion Management Program ("CMP") intersections within the City of Santa Clara that are forecasted to operate at Level of Service ("LOS") F with the Project, either on a project level or a cumulative basis. The City shall reimburse the Project Developer for any cost of preparation of the MIP that exceeds the Project Developer's fair share of such cost. The MIP shall be prepared in accordance with the guidelines and regulations of the Valley Transportation Authority ("VTA") and shall be adopted by the City Council for submission to the VTA for consideration and approval no later than one year after approval of the Project. Once the MIP is adopted by the VTA, it shall be implemented in accord with its terms and commensurate with the phasing of the development that its measures are intended to offset.

Findings TRA-1. Under existing with-Project conditions, the Project would significantly impact 35 signalized intersections. Under background with-Project conditions, the Project would have a significant impact on 50 signalized intersections. Consolidating existing with-Project conditions and background with-Project conditions, the Project would have a significant impact on 51 signalized intersections before mitigation. These intersections would operate at unacceptable levels of service, marked by excessive delays for vehicles entering intersections. A Transportation Demand Management Plan would minimize these impacts both within the Project site and on surrounding uses.

The Project incorporates numerous features that support alternatives to single-passenger vehicle travel. The Project site is adjacent to high-quality transit services, including passenger

rail service like the Capitol Corridor and ACE, as well as VTA light-rail transit. Off-road bicycle paths along San Tomas Aquino Creek and the Guadalupe River serve the site. The proposed density of the Project would support multiple modes of transit, including intra-campus transit by transit, shuttles, bicycling, and walking, as well as off-campus transit by public transit and carpools. Further, because of the Project will support nearly 30,000 employees, there will likely be a critical mass of users to support services like shuttles. However, even with all of these advantages, impacts on some signalized intersections are likely to remain unavoidable.

Mitigation Measure TRA-1.1 would reduce the severity of traffic impacts. Mitigation Measure TRA-1.2 would fully mitigate some intersections. Mitigation Measure TRA-1.3 would address the Project's wide-ranging significant and unavoidable impacts, including impacts to Congestion Management Program ("CMP") facilities. However, even with Mitigation Measures TRA-1.1, TRA-1.2, and TRA-1.3, some intersections would still have significant Project impacts. These affected intersections include eleven within the City of Santa Clara's jurisdiction. Thirty-four additional intersections lie outside the City of Santa Clara's jurisdiction; therefore, the implementation of mitigation measures for these intersections cannot be guaranteed. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Thus, the Project impact on certain signalized intersection LOS would be *significant and unavoidable*.

Impact TRA-2: Unsignalized (Off-Site) Intersections. The Project would add a considerable amount of traffic to certain unsignalized intersections that would operate unacceptably under background with-Project conditions.

Mitigation Measure: See Mitigation Measure TRA-1.1, described in VII.D.2.

Mitigation Measure TRA-2.1: Traffic Signal Installation. Install a traffic signal at Intersection 109, Liberty Street/Taylor Street once the traffic volumes meet the warrant requirements. The intersection of Liberty Street/Taylor Street is located in San José; the installation of a traffic signal would need to be approved by the City of San José.

Mitigation Measure TRA-2.2: Traffic Signal Installation. Install a traffic signal at Intersection 114, Calle Del Sol/Calle De Luna, once the traffic volumes meet the warrant requirements. This improvement would reduce the impact to less than significant.

Findings TRA-2. The EIR evaluated unsignalized intersections under existing with-Project conditions using LOS calculations. In addition, the respective jurisdiction's peak-hour traffic signal standards were applied to those intersections that would operate at LOS F, whether under current conditions or existing with-Project conditions. Under existing with-Project conditions, there would be no significant impacts on unsignalized intersections. By contrast, under background with-Project conditions, the Project would have significant impacts on two unsignalized intersections.

With Mitigation Measures TRA-1.1, TRA-2.1, and TRA-2.2 (including EIR Table 3.3-20), these impacts would be reduced, but one intersection (Liberty Street/Taylor Street in San José) may still experience significant Project impacts. No other feasible mitigation measures are

available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, the Project impact on this intersection's unsignalized intersection LOS would be *significant and unavoidable*.

Impact TRA-3: Freeway Segments. The Project would add traffic to certain freeway segments, causing them to operate at unacceptable levels of service or worsen existing unacceptable levels of service.

Mitigation Measure: See Mitigation Measure TRA-1.1, described in VII.D.2.

Mitigation Measure TRA-3.1: Freeway Segment Improvements. The Project Developer will make a voluntary contribution toward the VTP's 2040 Express Lane Projects (VTP 2040 project numbers H2, H3, H4, H5, H6, H7, and H15) and Countywide Freeway Traffic Operation System and Ramp Metering Improvements (VTP 2040 project number S83).

These VTP 2040 projects (H2, H3, H4, H5, H6, H7, H15, and S83), once fully funded and constructed, will enhance travel choices for Project travelers and make more efficient use of the transportation network.

Findings TRA-3. The EIR considered freeway segments under the jurisdiction of Santa Clara County, San Mateo County, and Alameda County, including portions of US 101, I-680, I-880, SR 87, and SR 237. Santa Clara County considers traffic impacts significant when Project traffic would induce freeway segment operations to degrade from LOS E or better to LOS F or when traffic would increase by more than 1 percent on a segment already operating at LOS F. San Mateo County considers impacts on freeway segments significant when additional traffic would cause a LOS that violates the LOS standard in the county's congestion management plan; alternatively, an impact is significant when a cumulative impact analysis shows that future traffic demand will cause the freeway segment to violate the applicable LOS and when the project will cause an increase of 1 percent or more in the traffic demand or the vehicle/capacity ratio of the segment. Alameda County's significance threshold for freeway segments is triggered when a project either causes a segment to decline from LOS E or better to LOS F or causes the vehicle/capacity ratio to increase by 0.03 or more for an LOS F segment. The EIR identified a total of 246 freeway segments that would face significant impacts before mitigation under existing with-Project conditions.

The complete mitigation of freeway impacts is beyond the scope of the City's powers, or any other individual development, because it is unable to execute tasks like freeway widening or major freeway improvements. These mitigation measures require approvals by regional and state agencies and funding mechanisms that would require regional or state support.

With Mitigation Measures TRA-1.1 and TRA-3.1, the severity of the impacts would be reduced, but most segments would still have significant Project impacts. The Project would have a significant impact on 246 freeway segments. These freeway segments include those that would exceed Level-of-Service standards because of the Project and those that already exceed applicable Level-of-Service standards. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the

project alternatives identified in the final EIR that would avoid the impacts. Thus, the Project impact on freeway segment LOS would be *significant and unavoidable.*

Impact TRA-1a: Signalized (Off-Site) Intersections with Phases 1, 2 and 3. Phases 1, 2, and 3 of the Project would add traffic to certain signalized intersections, causing them to operate at unacceptable levels of service or worsen unacceptable levels of service under existing conditions.

Mitigation Measures: See Mitigation Measure TRA-1.1, described in VII.D.2, and TRA-1.3, described above.

Mitigation Measure TRA-1a.1: Intersection Improvements for Existing with Project Phases 1, 2, and 3. The intersection improvements and off-setting mitigation measures summarized in EIR Table 3.3-26 shall be implemented, and Project Developer shall pay the fair-share contributions for the mitigation measures summarized in EIR Table 3.3-26. (This table also includes impacts and mitigation measures for the full Project for comparison purposes.) These improvements will reduce vehicle delays and fully mitigate Project impacts at several intersections by allowing the intersections to operate at acceptable levels, with delays that would be lower than they would be under no-project conditions, or with less than a 4-second increase in critical delay at intersections that operate at unacceptable levels. EIR Table 3.3-26 also contains physical improvements for select intersections that will reduce the delay, but not to a level that mitigates the impact.

Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, and no off-setting mitigation measure is identified, that intersection shall be considered to have "no feasible mitigation."

Finding TRA-1a. Phases 1, 2, and 3 would generate roughly 40 to 50 percent of the Project's traffic at full build-out. During these phases, twenty signalized intersections would have significant impacts, but no unsignalized intersections would have significant impacts.

Specifically, the impacts on two intersections in the City of Santa Clara would be reduced to less-than-significant levels. However, while the impacts on two other intersections located in the City of Santa Clara would be partially mitigated, the impacts would remain significant and unavoidable. One additional intersection in the City of Santa Clara has no feasible mitigation measures, so the impacts on this intersection would remain significant and unavoidable. Because mitigation measures cannot be guaranteed for the fifteen intersections lying outside the jurisdiction of the City of Santa Clara, impacts on these intersections remain significant and unavoidable. Of these fifteen intersections, five could be fully mitigated by identified measures,

three could be partially mitigated by identified measures, and one intersection has no feasible mitigation measure. Additionally, four intersections would require a fair-share payment for a planned interchange, although it is not possible to guarantee full funding for construction. One other intersection could be partially mitigated by an identified measure or a fair-share payment would be necessary.

With Mitigation Measures TRA-1.1, TRA-1.3, and TRA-1a.1, these impacts would be reduced but certain intersections would still have significant Project impacts. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, the Project impact on signalized intersection LOS during Phases 1, 2, and 3 would be *significant and unavoidable*.

Impact TRA-3a. Phases 1, 2, and 3 of the Project on Parcels 4 and 5 would add traffic to certain freeway segments, causing them to operate at unacceptable levels of service or worsen existing unacceptable levels of service.

Mitigation Measures: See Mitigation Measure TRA-1.1, described in VII.D.2, and Mitigation Measures TRA-1.3 and TRA-3.1, described above.

Finding TRA-3a. The EIR considered freeway segments under the jurisdiction of Santa Clara County, San Mateo County, and Alameda County, including portions of US 101, I-680, I-880, SR 87, and SR 237. Santa Clara County considers traffic impacts when Project traffic would induce freeway segment operations to degrade from LOS E or better to LOS F. or when traffic would increase by more than 1 percent on a segment already operating at LOS F. San Mateo County considers impacts on freeway segments significant when additional traffic would cause a LOS that violates the LOS standard in the county's congestion management plan; alternatively, an impact is significant when a cumulative impact analysis shows that future traffic demand will cause the freeway segment to violate the applicable LOS and when the project will cause an increase of 1 percent or more in the traffic demand or the vehicle/capacity ratio of the segment. Alameda County's significance threshold for freeway segments is triggered when a project either causes a segment to decline from LOS E or better to LOS F or causes the vehicle/capacity ratio to increase by 0.03 or more for an LOS F segment. The EIR identified a total of 246 freeway segments that would face significant impacts before mitigation under existing with-Project conditions.

With Mitigation Measures TRA-1.1, TRA-1.3, and TRA-3.1, the severity of the impacts would be reduced, but most segments would still have significant Project impacts. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Thus, the Project impact on freeway segment LOS during Phases 1, 2, and 3 would be *significant and unavoidable*.

Impact TRA-6: Intersections with Variant Access Scheme. With the access variant, the Project would add traffic to certain nearby intersections, causing them to operate at unacceptable levels of service or worsen existing unacceptable levels of service.

Mitigation Measures: See Mitigation Measure TRA-1.1, described in VII.D.2, and Mitigation Measure TRA-1.3, described above.

Mitigation Measure TRA-6.1: Intersection Improvements with Variant Access Scheme. The intersection improvements summarized in EIR Table 3.3-35 shall be implemented. These improvements will reduce vehicle delays and fully mitigate Project impacts at several intersections by allowing them to operate at acceptable levels, with delays that would be lower than they would be under no-project conditions, or with less than a 4 second increase in critical delay for intersections that operate at unacceptable levels.

Table 3.3-35 also contains physical improvements for select intersections that will reduce the delay, but not to a level that fully mitigates the impact.

Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."

Mitigation Measure TRA-6.2: Intersection Improvements for Phases 1, 2 and 3. The intersection improvements summarized in Table 3.3-36 shall be implemented. These improvements will reduce vehicle delays and fully mitigate Project impacts at several intersections by allowing the intersections to operate at acceptable levels, with delays that would be lower than they would be under no-project conditions, or with less than a 4-second increase in critical delay for intersections that operate at unacceptable levels.

Table 3.3-36 also contains physical improvements for select intersections that will reduce the delay, but not to a level that mitigates the impact.

Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."

Findings TRA-6. The redistribution of traffic under the Variant Access Scheme would alter how traffic would approach and depart the Project site, influencing the operation of the on-

site intersections and 23 off-site intersections. LOS analyses using the Variant Access Scheme were conducted on the 23 off-site intersections under three scenarios: existing with-Project conditions; existing conditions with-Project Phases 1, 2, and 3; and background with-Project conditions. The Project would have significant impacts on eight of the off-site, signalized intersections under existing with-Project conditions. Three of these intersections would be significantly impacted during Phases 1, 2, and 3 under existing with-Project conditions. In background with-Project conditions, the Variant Access Scheme would result in significant impacts on 10 off-site signalized intersections and two off-site unsignalized intersections. Combining existing with-Project and background with-Project conditions and with the Variant Access Scheme, a total of 11 signalized intersections would face significant impacts.

Specifically, implementing the mitigation measures above would result in four intersections in the City of Santa Clara facing less-than-significant impacts. Four other intersections in the City of Santa Clara can be partially mitigated with migration measures, but impacts will remain significant and unavoidable. Further, two intersections within the City of Santa Clara have no feasible mitigation measures and the significant impacts therefore would be significant and unavoidable. The implementation of mitigation measures at one intersection outside the City of Santa Clara, so the significant impacts there are significant and unavoidable. In addition, implementing Mitigation Measure TRA-6.2 will result in one additional intersection where impacts would be reduced to less-than-significant. Mitigation Measure TRA-6.2 also will partially mitigate impacts at two additional intersections, but impacts there will remain significant and unavoidable.

With Mitigation Measures TRA-1.1, TRA-1.3, TRA-6.1, and TRA-6.2, impacts would be reduced, but certain intersections would still have significant Project impacts. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, the Project impact on signalized intersection LOS under the Variant Access Scheme would be *significant and unavoidable*.

Impact TRA-11: Transit Operations. The Project would generate considerable amounts of traffic congestion at intersections on bus and light-rail routes in the study area, thereby increasing the travel times of buses and light-rail vehicles.

Mitigation Measures. No feasible mitigation measures are available.

Finding TRA-11. Project-related traffic would cause unacceptable levels of service at intersections in the Project study area, causing excessive delays to public transit vehicles. The Project would therefore cause significant delays to existing transit services, particularly buses and shuttles servicing ACE and Capitol Corridor passengers at the Great America Station. Project-related traffic could diminish the efficacy of signalized intersections that give priority to light-rail transit vehicles, causing delays for this service.

Potential mitigation measures would be ineffective. For example, adding signal priority for transit at all intersections would not address delays at those intersections. The additional right-of-way necessary to construct additional bus-only lines is not available.

No feasible mitigation measures are available, and the Project's impact on existing transit operations would be *significant and unavoidable*.

Impact TRA-14: Signalized (Off-Site) Intersections in Cumulative with-Project Conditions. Increases in traffic associated with the Project under cumulative with-Project conditions would result in considerable contributions at signalized intersections operating at unacceptable levels of service during both peak hours.

Mitigation Measures: See Mitigation Measure TRA-1.1, described in VII.D.2, and Mitigation Measure TRA-1.3, described above.

Mitigation Measure TRA-14.1: Signalized Intersection Improvements. The intersection improvements and off-setting mitigation measures summarized in EIR Table 3.3-20 shall be implemented, and the Project Developer shall pay fair-share contributions for the mitigation measures summarized in EIR Table 3.3-20. The Project Developer shall also pay fair-share contributions for the additional intersections or off-setting mitigation measures identified in EIR Table 3.3-50. The improvements will reduce vehicle delays and fully mitigate cumulative impacts at several intersections by allowing the intersections to operate at acceptable levels, with delays that would be less than they would be under no-project conditions, or with less than a 4-second increase in critical delay for intersections that operate at unacceptable levels.

EIR Table 3.3-50 also contains physical improvements for select intersections that will reduce the delay, but not to less than no-project conditions such that the Project's effects would remain cumulatively considerable.

Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement or mitigation is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."

Finding TRA-14. The EIR evaluated calculations of LOS for signalized intersections in both a cumulative no-Project scenario and a cumulative with-Project scenario. The most notable differences between these scenarios are increases in the critical delay and critical vehicle/capacity ratios in the cumulative with-Project scenario as compared to the cumulative no-Project scenario. In the cumulative with-Project scenario, there will be impacts on 71 signalized intersections, and the Project will contribute to delays at most of these intersections.

Eight intersections located within the City of Santa Clara's jurisdiction would have impacts reduced to less-than-significant levels with the implementation of mitigation measures in EIR Table 3.3-50. Ten additional intersections located within the City of Santa Clara's jurisdiction would face impacts that could be partially mitigated by the use of the same measures. Five other intersections in the City of Santa Clara's jurisdiction have no feasible mitigation

measures. Forty-eight further intersections lie outside the jurisdiction of the City of Santa Clara, so the implementation of mitigation measures cannot be guaranteed.

With Mitigation Measures TRA-1.1, TRA-1.3, and TRA-14.1, the impacts would be reduced, but as many as 63 intersections would still have significant cumulative impacts. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, the Project's cumulative impact on signalized intersection LOS would be *significant and unavoidable*.

Impact TRA-16: Cumulative with-Project Variant Access Scheme Intersections. Increases in traffic associated with the Project under cumulative with-Project conditions would result in considerable contributions at intersections operating at unacceptable levels of service during both peak hours with the Project Variant Access Scheme.

Mitigation Measures: See Mitigation Measure TRA-1.1, described in Section VII.D.2, and Mitigation Measure TRA-1.3, described above.

Mitigation Measure TRA-16.1: Intersection Improvements for Cumulative with-Project Access Variants. The intersection improvements summarized in EIR Table 3.3-54 shall be implemented. Some of the intersection improvements would require ROW acquisition. A preliminary review of ROW constraints was done by viewing aerial photography as a part of the mitigation measure feasibility assessment. An intersection was identified as having ROW constraints if the mitigation measure would include widening the roadway or relocating aboveground utilities. (Use of the center median and "pork-chop" islands was not considered as roadway widening.) If the removal of bicycle facilities was required, the ROW required was defined as "possible." If the City makes a final determination that a portion or all of an improvement or mitigation is not feasible because ROW cannot be acquired or for other reasons, the improvement, or infeasible portion, shall not be implemented and, if none of the improvement is feasible, that intersection shall be considered to have "no feasible mitigation."

Finding TRA-16. Cumulative with-Project Impacts with the Variant Access Scheme would affect 23 off-site intersections differently than the baseline access scheme. Employing the Variant Access Scheme, the Project would contribute significantly to impacts at 10 signalized intersections and 2 unsignalized intersections.

Specifically, with the mitigation measures listed above, two intersections in the City of Santa Clara would have impacts reduced to less-than-significant levels. Four other intersections in the City of Santa Clara would have impacts partially mitigated, but these impacts would remain significant and unavoidable. Two additional intersections in the City of Santa Clara lack any feasible mitigation measures, and impacts would therefore be significant and unavoidable. Two intersections fall outside the jurisdiction of the City of Santa Clara, and because the adoption of mitigation measures cannot be guaranteed, impacts on this intersection would remain significant and unavoidable.

With Mitigation Measures TRA-1.1, TRA-1.3, and TRA-16.1, these impacts would be reduced, but Project impacts at certain intersections would still be cumulatively considerable.

No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, the Project's cumulative impact on signalized intersection LOS would be *significant and unavoidable*.

Impact TRA-17: Impacts on Freeway Segments under Cumulative with-Project Conditions. Increases in traffic associated with the Project under the cumulative with-Project conditions would result in considerable contributions to numerous freeway segments with cumulative impacts.

Mitigation Measures. See Mitigation Measure TRA-1.1, described in VII.D.2; Mitigation Measure TRA-1.3, described above; and Mitigation Measure TRA-14.1, described above.

Findings TRA-17. LOS calculations comparing cumulative no-Project conditions and cumulative with-Project conditions show that 236 freeway segments will face cumulative impacts, and the Project's contribution will be significant in all of these examples.

With Mitigation Measures TRA-1.1, TRA-1.3, and TRA-14.1, these cumulative impacts would be reduced, but certain segments would still have significant cumulative impacts. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Thus the Project's contribution to cumulative freeway impacts would remain *significant and unavoidable*.

Impact TRA-18: Construction Traffic. Construction traffic would result in short-term increases in traffic volumes that would cause significant impacts on intersection and freeway segment levels of service and temporary road closures requiring detours for vehicles accessing the Great America ACE/Capitol Corridor Station.

Mitigation Measure TRA-18.1: Construction Management. Prior to the issuance of each building permit, the Project Developer and construction contractor shall meet with the Public Works Department to determine traffic management strategies to reduce, to the maximum extent feasible, traffic congestion during construction of the Project and develop acceptable detour routes for emergency vehicles and for shuttles to the Great America ACE/Capitol Corridor station. The City will coordinate with appropriate transit agencies. The Project Developer shall prepare a Construction Management Plan for review and approval by the Public Works Department, which shall share the plan with the Capitol Corridor Joint Power Authority, the VTA, and ACE for review and comment. The plan, which shall be implemented during construction, shall include at least the following items and requirements:

A set of comprehensive traffic control measures, including detour signs if required, lane closure procedures, sidewalk closure procedures, signs, cones for drivers, and designated construction access routes.

Notification procedures for adjacent property owners, the public, transit operators, and public safety personnel regarding when detours and lane closures will occur.

Location of construction staging areas for materials, equipment, and vehicles (must be located on the Project site).

Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular, pedestrian, and transit vehicle traffic, circulation and safety; and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected. Construction vehicles shall be required to use designated truck/haul routes.

Provisions for removal of trash generated by Project construction activity.

A process for responding to and tracking complaints pertaining to construction activity.

Construction vehicles and construction workers shall not be allowed to park in adjacent residential neighborhoods. Construction vehicles will be required to park either in the construction zone or in the temporary parking lots.

Finding TRA-18. Construction phases include site preparation and building construction, each of which is comprised of several activities. In the site preparation phase, various heavy machines would be necessary for tasks including clearing and grading the site, building temporary roads, and laying necessary infrastructure. In the building phase, construction will proceed in phases, beginning in 2016 and concluding in 2031. Construction is expected to peak between November 2018 and March 2019, when some 100 trucks, and 2,700 workers are expected to be traveling to the site daily. Although the number of trips generated by the Project during construction would be much lower than the number of trips generated by the Project when complete, some mitigation measures may not yet be in place to accommodate increased construction-related traffic.

Peak construction periods are anticipated to generate between 2,100 and 4,000 vehicle trips per day. Construction-related traffic would cause significant short-term impacts on intersections and freeway segments before the Project has deployed the transportation mitigation measures discussed above. Certain freeway segments that already operate at unacceptable LOS will experience an increase in traffic of greater than 1 percent, and certain intersections that already at unacceptable LOS will see additional delays of more than 4 seconds.

A Construction Management Plan would minimize disruptions to transportation facilities and services, including emergency vehicle response times, caused by Project construction activities. However, the amount of traffic associated with the construction of the Project would cause significant impacts on freeway segment and intersections with no identified mitigation measures. In addition, temporary road closures would require shuttles to be re-routed. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, the transportation impact of construction activities would remain *significant and unavoidable*.

Impact TRA-19: Intersections with Special Event Traffic. Project traffic would exacerbate unacceptable levels of service at intersections near the site and Levi's Stadium during special events.

Mitigation Measure TRA-19.1: Modify City's Traffic Management and Operations Plan (TMOP) and Prepare a Project-Specific Traffic and Parking Management Plan. Modify the City's TMOP to include plans to direct stadium traffic to the new parking locations on the site. (Some of the office parking areas will be used during special events.) A separate traffic and parking management plan shall be developed for the Project by the Project Developer and approved by the Director of Planning and Inspection and/or the Director of Public works. This plan would address:

Parking areas to be used by office employees (versus stadium parking);

Project customer/employee parking (versus stadium parking);

Access and egress routes for vehicles to the site, taking into consideration the lane and roadway segment closures used to direct stadium traffic;

A communications plan to inform customers and employees of game-day operations; and

Operational improvements such as signal timing and coordination to maximize efficiency of the streets during peak periods.

Performance goals that reflect a successful traffic and parking management plan would be contained in the plan and may include items such as:

Maintaining vehicular access to the Project with acceptable increases in travel times compared to non-game day conditions;

Limited vehicle queuing within the Project site such that no internal circulation roadways are blocked; and

Limited vehicle queuing extending from parking facilities within the Project onto external public roadways.

Even with mitigation, the local streets near the Project site would operate at an unacceptable LOS due to vehicle demand exceeding capacity. Widening roadways or intersections to increase capacity was considered as mitigation but rejected due to utility and secondary impacts. Street widening would provide capacity that would be needed only on game days and not at other times. The City of Santa Clara General Plan has policies to discourage the widening of existing roadways without first considering operational improvements such as the items included in the existing TMOP and items that will be included in the TDM Plan.

Finding TRA-19. CityPlace Santa Clara is located near the 68,500 seat Levi's Stadium, which hosts NFL games and other special events. Approximately 25 events are held at Levi's each year.

The City of Santa Clara has adopted a TMOP to accommodate attendees, who travel to Levi's Stadium by various modes, including train, light-rail, bus, private coach, private vehicle, and bicycle. The TMOP prescribes various street and lane closures and other restrictions aimed at reducing congestion, and it includes tailored plans for pre-game and post-game traffic. Before

major events, vehicles accessing parking lots serving Levi's Stadium exceed the capacity of several intersections, degrading their capacity. Road closures on Tasman Drive facilitate pedestrian access to the stadium from light-rail and shuttle services. After events, nearby intersections and freeway segments are again congested, but the congestion usually clears within 1.5 to 2 hours following events. Pedestrians typically wait less than an hour for transit services, although some platforms are congested.

The Project would generate significant vehicle trips even when there are not games or events at Levi's Stadium. Approximately 81,500 vehicle trips would occur as a result of the Project on a typical Sunday. Detours and road closures on event days would further exacerbate delays at intersections and on freeway segments that already operate at unacceptable levels of service.

Even by modifying the TMOP to include plans to direct stadium traffic to the new parking locations on the site and preparing a Traffic and Parking Management Plan to accommodate traffic going to and from the site on a game day, intersections near the site would still operate at unacceptable levels. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, the Project's impact on game-day conditions would remain *significant and unavoidable*.

3. Air Quality

Impact AQ-1: Conflict with Air Quality Plan. The Project would conflict with or obstruct implementation of the applicable air quality plan.

Mitigation Measures. No feasible mitigation measures are available.

Finding AQ-1. Santa Clara County is currently a nonattainment zone for federal ozone and PM2.5 standards, and it is designated a maintenance area under the federal CO standard. Santa Clara County also is not in attainment for state ozone, PM10, and PM2.5 standards.

Projects can be either consistent or inconsistent with applicable air quality plans depending whether they would lead to population and/or employment growth in excess of planned thresholds. Projects that propose development above expected growth projections conflict with BAAQMD air quality plans and may significantly impact air quality due to increased emissions.

Under both Scheme A and Scheme B, the Project would generate net increases in dwelling units and jobs, as well as indirect increases in housing demand and population. Increased housing demand would represent 2.6–3.0 percent of the regional growth in 2040.

The Project incorporates several strategies consistent with BAAQMD's 2010 Clean Air Plan strategies, including local land use and focused growth measures. The Project supports density and mixed uses and encourages alternative forms of transportation, such as biking, walking, and transit. Energy conservation measures include a 10 percent cut relative to the 2013 California Energy Code, TDM measures, and a LEED certified neighborhood development plan.

Despite these project features, the Project would contribute to unplanned regional growth. Moreover, long-term operational emissions generated by the Project would far exceed BAAQMD's thresholds of significance even with mitigation (see Impact AQ-3). Accordingly, the Project would conflict with implementation of the applicable air quality plan. No feasible mitigation measures are available, and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, this impact would be *significant and unavoidable*.

Impact AQ-3: Operational Criteria Air Pollutant Emissions. The Project would result in the generation of regional criteria pollutant emissions during operation in excess of BAAQMD thresholds.

Mitigation Measures. See Mitigation Measure GHG-1.2, described in Section VII.D.4, and Mitigation Measure TRA-1.1, described in Section VII.D.2.

Findings AQ-3. Operating the Project may result in emissions from mobile, area, and energy sources that cause air quality impacts. Mobile sources include resident and visitor vehicles, employee vehicles, and waste management trucks. Area sources encompass landscaping equipment, off-gassing from architectural coatings, and consumer products used on site. Natural gas combustion for space and water heating is an energy source with emissions.

The Project includes several features to minimize air emissions. The Project's close proximity to public transit services will lead to lower mobile-source emissions than a less optimally located development of a similar size. The Project will prohibit wood-fired hearths. Many of the features required by the LEED certifications the Project will seek also will promote attainment of the BAAQMD standards. The design of all buildings at the Project will exceed the California Green Building Code.

BAAQMD emissions thresholds would be exceeded for ROG, NO_x, PM10, and PM2.5 under both Scheme A and Scheme B. The sources of these emissions would differ. ROG emissions would be generated primarily from the use of consumer products, such as aerosols. Driving trips by residents, visitors, and employees would generate the majority of NO_x emissions. Road dust would cause most PM emissions.

Mitigation Measure GHG-1.2 requires the Project's energy efficiency to exceed the 2013 Title 24 requirements by at least 15 percent or meet the Title 24 requirements that are applicable at the time of issuance of building permits for an individual phase (whichever has more stringent requirements for energy efficiency). This action will improve energy efficiency and reduce natural gas consumption. In addition, Mitigation Measure TRA-1.1 requires implementation of TDM measures to reduce mobile-source emissions. EIR Table 3.4-9 summarizes operational emissions with implementation of Mitigation Measures GHG-2.1 and TRA-1.1.

Although Project design features, LEED certification, and operational mitigation would reduce criteria pollutant reductions, ROG, NOX, PM10, and PM2.5 emissions would still exceed BAAQMD's mass emissions thresholds of 54 pounds per day for ROG and NOX and 82 pounds per day for PM10 and PM2.5. These emissions would be primarily the result of personal consumer products at private residences and mobile-source emissions associated with vehicle

use; as such, there is no feasible on-site mitigation to reduce emissions below BAAQMD's thresholds.

Requirement of operational offsets (such as those included in Mitigation Measure AQ-2.4) was not among the feasible mitigation measures recommended by BAAQMD in its comments on the EIR. Such a measure would require the procurement of annual offsets until Project decommissioning. Assuming a 30-year Project lifespan, implementing Mitigation Measure AQ-2.4 to also cover operational ROG and NOX emissions over the BAAQMD thresholds would result in approximately $76 million in fees (Scheme B). Requiring a mitigation measure of this magnitude and duration that was not recommended by BAAQMD would place an undue financial burden on the Project that is not considered economically feasible No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Consequently, the impact of ROG, NOX, and PM emissions on air quality during Project operation would be *significant and unavoidable*.

Impact AQ-4: Generation of Regional Criteria Pollutant Emissions During Combined Project Construction and Operation. The Project would generate regional criteria pollutant emissions during combined Project construction and operation in excess of BAAQMD thresholds.

Mitigation Measures: See Mitigation Measures AQ-2.1 through AQ-2.4, described in VII.D.3.

Finding AQ-4. Emissions would commence immediately upon the start of construction work and would continue as the Project shifts from construction to occupancy. Various measures are available to mitigate these emissions, but impacts nonetheless will remain significant.

During construction, the Project will implement several measures to mitigate emissions. First, Mitigation Measure AQ-2.1 will require the Project to utilize clean diesel-powered equipment during construction. This Mitigation Measure will control construction-related ROG and NO_x emissions. All off-road, diesel-powered equipment used during construction between 2017 and 2022 will use Tier 3 cleaner engines, if available. Similarly, off-road, diesel-powered vehicles used during construction between 2023 and 2030 will have to use Tier 4 engines, if available.

Second, Mitigation Measure AQ-2.2 will require that on-road, heavy-duty trucks comply with EPA's 2007 emissions standards for PM10 and NO_x.

Third, Mitigation Measure AQ-2.3 will require a number of steps to reduce construction-related dust and exhaust emissions. All construction contractors will be required to implement various measures to minimize fugitive dust and equipment exhaust emissions. Contractors may propose alternative measures, subject to approval by the City of Santa Clara. Required measures include: maintaining minimum soil moisture; suspending certain activities when high winds are sustained; installing windbreaks on the windward side of construction areas; sowing certain exposed ground areas with fast-germinating grass; washing construction vehicles prior to leaving

the site; treating certain site access points with wood chips, mulch, or gravel; installing sand bags or other erosion control to prevent silt runoff in certain areas; limiting the idling time of vehicles; equipping diesel-powered equipment and vehicles with Best Available Control Technology for PM and NO_x; and, using equipment that meets ARB's certification standard for off-road heavy-duty diesel engines.

Fourth, Mitigation Measure AQ-2.4 will require monitoring and tracking of NO_x emissions during construction. Average daily emissions will be calculated, and the Project Developer will pay offset fees to BAAQMD on the basis of a construction mitigation contract to offset NO_x emissions in excess of the average daily threshold of 54 pounds per day.

Mitigation Measures AQ-2.1 through AQ-2.4 would therefore ensure that construction emissions would not exceed BAAQMD's mass emissions thresholds on their own. However, based on the magnitude of operational emissions (see EIR Table 3.4-8), combined construction and operational emissions would result in exceedances of the BAAQMD's ROG, NOx, PM10, and PM2.5 thresholds.

Operational emissions would be primarily the result of personal consumer products at private residences and mobile-source emissions associated with vehicle use; as such, there is no feasible on-site mitigation to reduce combined construction and operational emissions below BAAQMD's thresholds. Expanding Mitigation Measure AQ-2.4 to include operational offsets during the 14-year overlap period as described above, is considered economically infeasible. No other feasible mitigation measures are available, and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the FEIR that would avoid the impacts. Consequently, the impact of ROG, NO_X, and PM emissions on air quality during Project operation would be *significant and unavoidable*.

4. Greenhouse Gas Emissions

Impact GHG-1: Greenhouse Gas Emissions. The Project would generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment.

Mitigation Measure: See Mitigation Measure TRA-1.1, described in VII.D.2.

Mitigation Measure GHG-1.1: Utilize Alternative Fuels during Construction. Require construction contractors to use alternative fuels in at least 30 percent of the construction equipment that uses diesel fuel. Alternative fuels may include electricity, compressed natural gas (CNG), biodiesel (B-20), or renewable diesel, such as diesel high-performance renewable (HPR).

Mitigation Measure GHG-1.2: Operational GHG Emissions Reduction Measures. The Project Developer shall implement the operational GHG emissions reduction strategies described below:

1. Energy Efficiency: The Project's energy efficiency shall be 15 percent better than the base case energy model developed pursuant to the 2013 Title 24 requirements or shall meet the Title 24 requirements that are applicable at the time of issuance of the building

permits for individual phases, whichever is more stringent (Climate Action Plan [CAP] Measure 2.1).[15]

2. On-site Solar Energy: The Project already includes on-site photovoltaics (PV) solar to meet 10 percent of electricity demand. The Project shall obtain renewable energy electricity corresponding to 50 percent of on-site electricity demand by 2030 through a combination of on-site solar, purchase of renewable energy or other measures. (CAP Measure 2.4). This requirement may be phased in as follows: 2020 – 15%; 2025 – 29%; 2030 – 50%). If the Project Developer can demonstrate, to the City's satisfaction, that through Project design, adopted State or federal regulations, or other assured actions that the Project's emissions overall will meet the 2030 metric identified in this document without the implementation of this particular measure of its full implementation, then this measure (or its full implementation) may be waived by the City.

3. Food Waste: All retail restaurants shall be required to participate 100 percent in any extant City food waste and composting programs and any that may be developed in the future (CAP Measure 4.1).

4. Electrical Landscaping Equipment: The Project shall include installation of electrical outlets near all maintained landscaping areas to allow for the use of electrical landscaping equipment (CAP Measure 5.1). In the landscaped City Center, only electrical landscape equipment shall be used. Use of electrical landscaping equipment shall not be required for the extensive natural landscaping contemplated at the edges of the City Center and at Parcels 1, 2, and 3.

5. Electrical Vehicle Charging/Preferential Parking (CAP Measure 6.3). The Project shall provide preferential parking in all parking lots for electric vehicles and shall also provide charging equipment, as follows:

a. Residential Use: A total of 10 percent of the required parking spaces shall be provided with a listed cabinet, box, or enclosure and connected to a conduit that links the parking spaces to the electrical service in a manner approved by the building and safety official. Of the listed cabinets, boxes, or enclosures provided, 50 percent shall have the necessary electric vehicle supply equipment installed to provide active charging stations that are ready for use by residents. The remainder shall be installed at such time as they are needed for use by residents. Electrical vehicle batteries and charging technology may change substantially over the next 15 years. As such, the City shall have the discretion to modify the specific requirements for this measure over time, provided that 10 percent of the spaces have electrical service and 5 percent have active charging, depending on what the technology at the time requires.

b. Commercial Use: New commercial uses shall provide the electrical service capacity necessary as well as all conduits and related equipment

[15] The CEC intends for residential buildings in 2020 and later to be zero net energy (ZNE) and commercial buildings in 2030 or later to be ZNE, but because pending regulations are not yet adopted, this cannot be assumed in this analysis.

necessary to serve 2 percent of the parking spaces with charging stations in a manner approved by the City's Building Official. Of these parking spaces, 50 percent shall initially be provided with the equipment necessary to function as online charging stations upon completion of the Project. The remainder shall be installed at such time as they are needed for use by customers, employees, or other users. Electrical vehicle batteries and charging technology may change substantially over the next 15 years. As such, the City shall have the discretion to modify the specific requirements for this measure over time, provided that two percent of the spaces have electrical service and one percent have active charging, depending on what the technology at the time requires.

6. Shade Trees: Where surface parking lots are not covered by PV solar, shade trees shall be planted to reduce urban heat island effects on adjacent buildings (CAP Measure 7.1).

7. Urban Cooling: Any uncovered parking lots or spaces shall use light-colored pavement (CAP Measure 7.2).

8. Leases for businesses that base a diesel truck fleet within the Project site: Ensure those fleets meet the highest CARB engine-tier standard in place at the time of issuance of the building permits for the building that such businesses occupy, or the execution of a lease, whichever comes first.

9. Electrical hook-ups at loading docks for businesses that will receive deliveries from refrigerated diesel trucks: Stipulate in the lease agreement for such businesses a requirement to use the hook-ups if the trucks will be idling for more than two minutes.

10. Leases for business receiving deliveries: Prohibit all diesel-powered trucks from idling for more than 2 minutes.

11. Solar hot water heating systems: Incorporate for appropriate applications including any swimming pools and buildings with swimming pools.

12. Electric heat pumps, or other energy-efficiency techniques, including radiant systems: Include for space heating and cooling, under appropriate circumstances.

Findings GHG-1. Constructing the Project would generate some GHG emissions, including direct emissions of CO_2, CH_4, and N_2O, and indirect emissions from fugitive dust control operations. In addition, grading activities will cause the release of CH_4 by disturbing landfill underlain by refuse. Over the projected fifteen year construction period, over 26,500 metric tons of CO_2 equivalent will be emitted, or the equivalent of the emissions from 5,600 passenger vehicles over the course of a year.

Operating the Project would likewise generate direct and indirect GHG emissions. Vehicle trips, natural gas combustion, and landscaping will generate direct emissions, while electricity consumption, waste generation, and water use will cause indirect emissions.

Because the State of California is yet to adopt a plan to achieve 2030 and 2050 emissions reductions targets, it is difficult to determine adequate significance assessments for the Project's GHG emissions. Operational emissions would be less than significant were AB 32 the only reduction target, but this is not the case. Despite the uncertainty associated with unset State goals, the Project's GHG emissions, it is appropriate to assume that the Project will result in significant emissions compared to background conditions.

Mitigation Measure GHG-1.1 would require the use of alternative fuels for 30 percent of the construction equipment that uses diesel fuel, consistent with BAAQMD's recommended BMPs for construction GHGs. Mitigation Measure GHG-1.2 would reduce operational GHG emissions. The measure includes strategies derived directly from the City's CAP. In addition, Mitigation Measure TRA-1.1 would require the number of Project office and residential trips to be reduced, which would reduce mobile-source emissions.

The Project does not propose to use carbon offsets to mitigate its GHG emissions. Considering that the Project will primarily generate emissions from mobile sources and energy sources that will already be covered by the Statewide cap and trade program, using GHG offsets as additional mitigation is not contemplated.

Nevertheless, even with implementation of these mitigation measures, Project operational emissions would exceed the 2030 substantial progress efficiency metric. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. It is possible that future State regulations, not yet adopted, may make it possible for Project emissions to be less than the 2030 efficiency metric, but it would be speculative to make such a conclusion now and in advance of the adoption of such regulations. Therefore, the impacts would remain *significant and unavoidable*.

Impact GHG-2: Conflicts with Applicable Plans and Policies. The Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, specifically, EO S-03-05 and B-30-15.

Mitigation Measures: See Mitigation Measure TRA-1.1, discussed in VII.D.2, and Mitigation Measure GHG-1.2, described above.

Findings GHG-2. The Project may conflict with the AB 32 Scoping Plan, the City of Santa Clara CAP, and Executive Orders S-03-05 and B-30-15.

The AB 32 Scoping Plan is the state's framework for achieving the GHG reduction objectives of AB 32 in a technologically and cost-effective manner. The Scoping Plan calls for expanded energy efficiency programs, producing at least one-third of the state's electricity from renewable resources, improving automobile efficiency, implementing the Low Carbon Fuel Standard, and deploying a cap-and-trade program. Collectively, these measures aim to satisfy the state's targets under AB 32. The Project will not undermine any of these goals, and to the contrary, the Project's GHG emissions will be considerably lower because of the operation of these measures on the Project. Furthermore, BAAQMD has set thresholds based on the AB 32 reduction target, and the Project's emissions would not exceed these targets.

The City of Santa Clara adopted a CAP in 2013 to reduce its GHG emissions. Including mitigation measures, the Project will comply with all applicable provisions of the CAP. As discussed elsewhere, the Project will require an amendment to the City's General Plan to add a new land use designation, which will include a provision requiring a 10 percent VMT reduction. The CAP also will need to be amended to take account of the new land use designation. Although the Project will result in greater employment and population figures than the CAP assumes, the addition of the Project's emissions will not cause the City to exceed its CAP targets.

Executive Order B-30-15 set a target of reducing GHG emissions by 40 percent below 1990 levels by 2030, and Executive Order S-3-05 set a target of reducing emissions by 80 percent below 1990 levels by 2050. These targets are ambitious. Numerous and systemic changes in electricity production, transportation fuels, and industrial processes will be necessary to achieve these targets. Although the Project alone lacks control over the measures necessary to achieve these targets, developments of the Project's size will need to take steps like maximizing energy efficiency if these targets are to be achieved.

As discussed under Impact GHG-1, the feasible mitigation is not adequate on its own to reduce Project GHG emissions to a level below the 2030 efficiency metric. Because there will need to be large reductions achieved through State (and likely federal) action, the Project's actual emissions in 2030 may be less than those described in this document but, the specific value of heretofore unknown state (or federal) action cannot be presumed at this time and conclusions must be made with estimates of emissions presented in this document. Although it is possible that future state and federal actions may reduce project emissions below a level consistent with the 2030 and 2050 reduction targets in the executive orders, this cannot be known at this time and, thus out of an abundance of caution, it is conservatively assumed that the Project's emissions would be inconsistent with the goals in EO S-3-05 and EO B-30-15. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, this impact is considered *significant and unavoidable*.

5. Noise

Impact NOI-1: Exposure to Excessive Noise Levels. The Project would expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies. Specific impacts and mitigation measures are discussed below.

Impact NOI-1c: Operational Noise Impacts to Off-Site Land Uses. The Project would lead to an increase in traffic noise in the vicinity of the Project site.

Mitigation Measure NOI-1.2: Implement Off-Site Traffic Noise Reduction Measures.

The Project Developer shall implement off-site noise reduction measures along the east side of Lafayette Drive between Tasman Drive and Hogan Drive such that the Project-related increase in traffic noise for noise receptors is less than 3 dBA. The Project Developer shall construct a solid barrier between the roadway and adjacent residential uses along Lafayette Drive

between Tasman Drive and Hogan Drive unless deemed infeasible for any reason including unavailability of sufficient right of way or inability to secure design review/architectural approval.

The Project Developer shall implement off-site traffic noise reduction measures along the south side of Tasman Drive between Lafayette and Calle del Sol such that cumulative with project-related increase in traffic noise for noise receptors is less than 3 dBA or the project contribution to traffic noise is less than 1 dBA. The Project Developer shall construct a solid barrier between the roadway and adjacent residential uses along Tasman Drive between Lafayette and Calle del Sol unless deemed infeasible for any reason including unavailability of sufficient right of way or inability to secure design review/architectural approval.

The barriers shall be designed to provide shielding between areas of frequent human use (i.e., residence backyards) and the roadway. This would result in approximately 1,000 feet of noise barriers along the Lafayette segment (between Tasman Drive and Hogan Drive) and up to 800 feet along the Tasman segment (between Lafayette and Calle del Sol). One effective approach would be to replace the existing privacy fences at single family residences with a solid barrier that is at least 6 feet high. The Project Developer shall prepare an off-site noise control plan that identifies the location, design, and effectiveness of the specific treatments to be implemented. This plan shall be submitted to the City for review and approval prior to the issuance of building permits. The off-site noise improvements shall be completed before Project operations commence.

Findings NOI-1c. The Project would cause increased traffic near the site. Scheme B would result in an overall higher number of vehicle trips, so the peak-hour volumes in Scheme B are the worst case scenarios for the Project as a whole. The FHWA Traffic Noise Model supplied the parameters to assess noise impacts associated with increased traffic from the Project. Noise impacts related to traffic noise are considered significant if the noise exceeds applicable land use compatibility standards for neighboring land uses. Incremental noise increases resulting from the Project are lessened when existing noise sources, such as proximate freeways and railways, are considered.

Eight road segments were identified as potentially significantly impacted by traffic noise. Further refined analysis was conducted on these segments, taking into account existing noise sources and the precise distance between traffic noise sources and receivers. Significant noise impacts due to Project-related traffic were found for two road segments, Lafayette Street between Tasman Drive and Hogan Drive, and the south side of Tasman Drive between Lafayette Street and Calle del Sol.

Implementation of Mitigation Measure NOI-1.2 could reduce this impact on offsite receptors along the east side of Lafayette Street between Tasman Drive and Hogan Drive, and along the south side of Tasman Drive between Lafayette Street and Calle del Sol to a less-than-significant level. Soundwalls at these locations have been preliminarily determined to be feasible by the City. However, future obstacles related to design of the wall could present themselves which might make implementation infeasible. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. As

such, because it is not completely certain that the soundwalls could be constructed, this impact is disclosed as *potentially significant and unavoidable*. No other feasible mitigation measures are available.

Impact NOI-1d: Operational Noise Impacts on On-Site Land Uses. Noise impacts from existing traffic, heavy–rail and light-rail operations on the proposed on-site land uses would exceed City noise standards for residential and commercial uses. Noise from non-transportation Project sources (e.g., HVAC equipment and minor building-related sources) could result in noise levels that would exceed the City Code exterior noise limits. However, as discussed above, under *CBIA v. BAAQMD*, CEQA no longer considers the impact of the environment on a project (such as the impact of the noise environment on new Project receptors) to be an impact requiring consideration under CEQA. Therefore, for the purpose of Impact NO-1d, the following analysis is neither a CEQA impact nor a finding.

Mitigation Measure and Condition of Approval NOI-1.3: Prepare and Implement a Noise Control Plan to Reduce Interior Noise at Sensitive Land Uses. The impacts of existing traffic and other non-airport sources of existing operation noise on new on-site uses are not considered an impact under CEQA. Therefore, the measure below is classified as a potential condition of approval for the Project with respect to just these topics. Because airport noise is still required to be evaluated under *CBIA v. BAAQMD*, the measure below is classified as a mitigation measure for Impact NOI-5, as discussed further below.

The Project Developer shall conduct a design-level acoustic study that identifies exterior noise levels for residential and commercial uses on the Project site. This study shall take into account existing airport noise, Project, and reasonably foreseeable future noise sources (such as proposed increases in passenger rail service along the Lafayette Street corridor). Where this study finds that the exterior noise level would exceed the residential compatibility standard of 55 dBA Ldn or the commercial incompatibility standard of 65 dBA Ldn, the Project Developer shall prepare a design-level operational noise control plan to provide acceptable interior noise levels. This plan shall identify all Project features and treatments that will be implemented to ensure that the Project is in compliance with the interior noise standards listed in the City's General Plan and City Code as well as the standards specified for new construction within the Comprehensive Land Use Plan (CLUP) for San José International Airport (SJC).

The study and plan shall be developed by an acoustical design professional. Design features and treatments will be identified to ensure that interior noise levels at new proposed uses are in compliance with the noise standards. The report shall be submitted to the City for review and approval prior to the issuance of building permits for the Project. Depending on the noise exposure for a particular site, such treatments may include, but are not limited to, those listed below, as recommended by the acoustical design professional.

Construction of enclosures around noise-generating mechanical equipment at commercial uses.

Use of setbacks from noise sources to maximum attenuation of noise over distance.

Installation of noise-reducing treatments in new buildings, including:

High-performance, sound-rated double-glazed windows,

Sound-rated doors,

Sound-rated exterior wall construction,

Special acoustical details for vents,

Acoustical caulking at all exterior façade penetrations,

Sound-rated roof and ceiling constructions, and

Adequate mechanical ventilation so that windows and doors may be kept closed at the discretion of the building occupants to control environmental noise intrusion.

Findings NOI-1d. The effects of existing traffic and non-transportation commercial sources on new on-site uses are not considered impacts under CEQA. While not required to reduce impacts from the existing noise environment on new receptors, implementation of Condition of Approval NOI-1.3 would reduce interior noise impacts from roadway, heavy-rail, and light-rail noise for on-site residences, hotels, and office and commercial land uses through the installation of sound-rated windows, sound-rated exterior walls, and other potential treatments where feasible. Condition of Approval NOI-1.3 would also ensure that potential interior noise impacts due to Project noise generation would be addressed through design and would reduce these effects.

Impact NOI-3. Permanent Increase in Ambient Noise Level. The Project would result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project.

Findings NOI-3. This impact is addressed through the impact analysis and mitigation measures under Impact NOI-1. Construction Noise Impacts on Off-Site Uses and On-Site Uses can be mitigated to less-than-significant levels. Operational Noise Impacts on Off-Site and On-Site Uses are significant and cannot be fully mitigated. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, this impact is determined to be *significant and unavoidable with mitigation.*

Impact NOI-5: Exposure of People to Noise from Airports. The Project would be located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and would expose people residing or working in the Project area to excessive noise levels.

Mitigation Measure: Implement Mitigation Measure NOI-1.3, described in VII.E.5.

Findings NOI-5. The Project is within the 65 dB CNEL contour boundary established by the CLUP for SJC. Residential construction is not permitted within such 65 dB CNEL contours, unless it can be shown that indoor noise levels would not exceed 45 dB CNEL.

Implementation of Mitigation Measure NOI-1.3 would reduce interior noise levels for residential uses to 45 dB CNEL or less. However, because the Project would include outdoor residential areas located within the airport's 65 dB CNEL contour, it would result in a land use that is not compatible with the CLUP. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Consequently, this impact would be *significant and unavoidable*.

6. Biology

Impact BIO-1: Interference with Movement of Native Migratory Wildlife Species. The Project could result in harm to or mortality of migratory birds or their active nests.

Mitigation Measure BIO-1.1: Protect Nesting Birds. The Project Developer and its contractors shall avoid conducting vegetation removal during the migratory bird nesting season (February 1–August 31). If Project-related activities must commence during the migratory bird nesting season, the Project Developer shall retain a qualified wildlife biologist to conduct a survey for nests of migratory birds. Surveys for nesting migratory birds shall occur within 3 days prior to the commencement of ground disturbance and vegetation removal in areas that will be affected by Project construction activities. Multiple nest surveys shall be required if construction is phased or when construction work stops for more than 2 weeks at a portion of the site where suitable nesting habitat remains. If construction is ongoing for multiple years, these surveys shall be conducted each year prior to construction in areas that have not yet been disturbed and are scheduled to be disturbed during the nesting season. In addition to nesting-season surveys, surveys shall be conducted during the non-nesting season (September 1–January 31) for overwintering burrowing owls in areas scheduled for initial disturbance during the upcoming season. The surveys shall also be conducted as described above, with a goal of identifying overwintering owls so they can be appropriately avoided during construction.

If an active nest is discovered, a no-disturbance buffer zone around the nest tree or shrub (or, for ground-nesting species, the nest itself) shall be established. The no-disturbance zone shall be marked with flagging or fencing that is easily identified by the construction crew and shall not affect the nesting bird or attract predators to the nest location. In general, the minimum buffer zone widths shall be as follows: 50 feet (radius) for non-raptor ground-nesting species, 50 feet (radius) for non-raptor shrub- and tree-nesting species, and 300 feet (radius) for raptor species. Buffer widths may be modified based on discussion with DFW. Buffers shall remain in place as long as the nest is active or young remain in the area and are dependent on the nest. If a burrowing owl nest is identified during pre-construction surveys, no-activity buffers will adhere to the recommendations in the 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation.[16] Most Project activities would result in a high level of disturbance,

[16] California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency. March 7. Available: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html#Mammals.

constituting a 1,640-foot (500-meter) required buffer around occupied nests during any time of year.[17]

Mitigation Measure BIO-1.2: Implement Bird-Safe Design Standards into Project Buildings and Lighting Design. Each Development Area Plan (DAP) approved by the City shall include a set of specific standards for minimizing hazards to birds, to be implemented by the Project Developer. The development of the specific bird safety standards for each DAP shall be tailored to the specific potential hazards to birds in that development area, taking into account the specific locations, types and heights of buildings, lighting, and landscaping. In addition, the DAP shall require enhanced protective measures for buildings within 300 feet of the retention pond, the Guadalupe River, and San Tomas Aquino Creek, such as siting buildings in relation to existing landscape features to reduce conflicts with existing features that may serve as attractive bird habitat; minimizing the reflection of existing vegetation on building facades; or using soil berms, furniture, landscaping, or architectural features to prevent reflection of water in glazed building facades.

The specific bird safety standards in each DAP shall be based on the following bird-friendly building principles to the extent applicable to the particular development area:

- Reduce mirrors and large areas of reflective glass.
- Avoid transparent glass skyways, walkways, or entryways, free-standing glass walls, and minimize transparent building corners, or utilize glazing treatments to mitigate the hazard.
- Minimize funneling of open space toward a building façade.
- Strategically place landscaping to reduce reflection and views of foliage inside or through glass.
- Reduce potential light and glare by implementing Mitigation Measures AES 2.1 (requiring low-profile, low-intensity lighting directed downward), AES-2.2 (requiring shielded fixtures for outdoor lighting), and AES-2.3 (requiring low-emissivity glass at exterior surfaces).
- To the extent consistent with the normal and expected operations of the uses planned for the particular development area, take appropriate measures to avoid use of unnecessary lighting at night, especially during bird migration season (February–May and August–November) through the installation of motion-sensor lighting, automatic light shut-off mechanisms, or other effective measures to the extent feasible.

The specific bird safety standards shall also provide for a monitoring program, and placing signs around the buildings with phone numbers for authorized bird conservation organizations.

Findings BIO-1. The Project site currently has some 951 protected trees and 454 non-protected trees, all of which would be removed by the Project. An additional 338 trees, of which

[17] Scobie, D., and C. Faminow. 2000. Development of Standardized Guidelines for Petroleum Industry Activities that Affect COSEWIC Prairie and Northern Region Vertebrate Species at Risk. Environment Canada, Prairie and Northern Region, Edmonton, Alberta, Canada.

232 are protected, could be removed due to roadway extensions related to the Project. None of these are heritage trees.

The removal of these trees could lead to the loss of nesting sites in trees or shrubs, as well as burrowing substrate for burrowing owls. Birds may also be affected indirectly by noise and increased human activity. These indirect impacts could degrade nesting habitat, leading to nest abandonment.

The Project includes buildings of up to approximately 17 stories. Birds may die or be injured by colliding with transparent or reflective glass or as a result of improper lighting at the Project site. The Project's proximity to areas where birds are present could exacerbate these impacts.

Implementation of Mitigation Measure BIO-1.1 would reduce potential nesting migratory bird impacts from the Project to a less than significant level. However, it is unknown whether Mitigation Measure BIO-1.2 would be enough to mitigate impacts related to bird collisions. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. As such, this impact is considered *significant and unavoidable*.

7. Population and Housing

Impact POP-1: Population Growth. Implementation of the Project would induce substantial population growth greater than planned within the City and the region, resulting in potentially significant secondary environmental impacts.

Mitigation Measure: See Mitigation Measure LU-1.1, described in VII.E.1.

Findings POP-1. Significance conclusions and findings for this impact are provided in VII.E.1 for Impact LU-1.

F. Cumulative Impacts

1. Cumulative Land Use Impacts

Impact C-LU-1. Cumulative Land Use Impacts. The Project, in combination with other foreseeable development in the nine-county ABAG region, would be inconsistent with some applicable land use plans, policies, and regulations, including those policies aimed at improving the City's jobs/housing balance.

Mitigation Measure: See Mitigation Measure LU-1.1, described in VII.E.1.

Findings C-LU-1. The Project is generally consistent with applicable goals, policies, and actions outlined in the City's General Plan. However, the Project would be inconsistent with goals and policies in the City's General Plan that promote a jobs/housing balance. As discussed in Impact LU-1, the Project would exacerbate the city's job/housing imbalance significantly. Even with implementation of Mitigation Measure LU-1.1, which supports City consideration of

higher residential densities in the city and residential land uses in non-residential areas to address the City's job/housing imbalance and mitigate the Project's contribution to this imbalance, there is uncertainty regarding implementation of the mitigation measure because it relies on approval from the City Council. The Project would thus result in a significant and unavoidable impact related to the City's jobs/housing balance.

Growth that would result from the Project is not accounted for in City's General Plan, nor is it anticipated in regional planning efforts. In addition to the Project, Tasman East contains 1,820 dwelling units that are not accounted for in the growth projections for the City's General Plan. Thus, cumulative land use impacts related to policy consistency are considered significant because unplanned growth from the Project and Tasman East combined could result in significant impacts on the environment.

The Project would result in a cumulatively considerable contribution to Land Use impacts because it would exacerbate the City's job/housing imbalance significantly, which would manifest in other significant secondary physical environmental impacts. Mitigation Measure LU-1.1 would not mitigate the Project's contribution to this imbalance with certainty because implementation of this measure, which relies on future approval from the City Council, cannot be assured. Because no feasible mitigation measures are available to reduce this impact to a less-than-significant level, this is considered a *significant and unavoidable cumulative impact.*

2. Cumulative Aesthetic Impacts

Impact C-AES-1: Cumulative Degradation of Aesthetics. The Project, in combination with other foreseeable development in the surrounding area, would not have a significant cumulative impact on visual character or quality and would not cumulatively contribute to new sources of light and glare. This cumulative impact is less-than-significant.

Findings C-AES-1. Only foreseeable projects that are in the immediate vicinity of the Project site could contribute to degradation of the visual character or quality of the existing neighborhood. The only projects that could be visible from a single view corridor with the Project site are 3Com/Cognac Great America, Tasman East, and Yahoo!, all of which are located in the City of Santa Clara. The 3Com/Cognac Great America site is located approximately 0.1 mile west of the Project site on Great America Parkway, the Tasman East site is located immediately south of the Project site at the intersection of Tasman Drive and Calle Del Sol, and the Yahoo! site is located 0.4 mile southwest of the Project site on Old Ironsides Drive. All three projects are located in proximity to the Project site, are surrounded by similar types of development, and are considered redevelopment of an urban site with office and industrial development.

Most projects in the City and adjacent jurisdictions (such as the City of San José to the east of the Guadalupe River, which could also contribute to the visual setting of the Project area) are required to undergo architectural review, pursuant to the governing municipality's city code. However, review by the City's Architectural Committee is not required for Planned Development Master Community Zoning District projects; the Project is instead subject to the design guidelines and development standards outlined in the respective Master Community Plans. In the City of San José, as well as the City of Santa Clara, any proposal for a new

structure an addition to an existing structure, or a change to the exterior of a structure that requires a building permit (with the exception of single-family dwellings, duplexes, and accessory buildings) requires the Planning Commission to conduct an architectural control review to ensure that the general appearance of the structures will be in keeping with the character of the neighborhood. The San Jose and Santa Clara General Plans each require the design and character of new development to be compatible with existing development and different types of land uses.

Given the local regulations, other current projects would be expected to adhere to the architectural and design guidelines and would not substantially degrade the visual character or quality of their surroundings. The cumulative effects of the identified developments on visual quality are not considered significant, and the Project's contribution to a cumulative visual quality impact would be *less than cumulatively considerable.*

Regarding light and glare, other development could include direct illumination of project structures, features, and/or walkways and could increase ambient nighttime lighting levels in the area. The 3Com/Cognac Great America, Tasman East, and Yahoo! projects, all of which are located within 0.5 mile of the Project site, would include direct illumination of project structures, features, and/or walkways and result in increased light and glare from vehicles. However, because the other projects would all involve redevelopment of an urban site that already generates light and glare and the land uses proposed are not anticipated to be particularly light intensive, development of the other projects is not anticipated to increase nighttime lighting and glare conditions in the area dramatically.

Further, proposed rail projects would not introduce substantial new permanent sources of light or glare; only minor lighting associated with a potential new grade-separated crossing for pedestrians. While the number of nighttime trains would increase, this would not be considered a change because there is existing train service. Because the rail corridor is adjacent to a roadway that is lined with streetlights and there is the existing presence of vehicle lights at night, this is not expected to result in a significant change with respect to light and glare. Thus, cumulative impacts from nighttime lighting and glare would be *less-than-significant*, and the Project's contribution would *not be significant.*

3. Cumulative Air Quality Impacts

Impact C-AQ-1: Cumulative Criteria Pollutants. The Project would result in a cumulatively considerable net increase in criteria pollutants for which the Project region is a nonattainment area for an applicable federal or State ambient air quality standard.

Mitigation Measures. See Mitigation Measures AQ-2.1 through AQ-2.4, described in VII.D.3.

Findings C-AQ-1. BAAQMD's emissions thresholds (Table 3.4-5) represent the average daily emissions that a project may generate before contributing to a cumulative impact on regional air quality. Therefore, exceedances of the BAAQMD project-level thresholds would be cumulatively considerable for project activities in the SFBAAB.

Construction emissions would exceed BAAQMD's project-level thresholds without mitigation. Similarly, as analyzed in Impact AQ-3, long-term operation of the Project would result in ROG, NOX, PM10, and PM2.5 emissions in excess of BAAQMD's numeric thresholds. Because the Project without mitigation would exceed BAAQMD's mass emissions thresholds, its incremental effect on regional air quality would be cumulatively considerable.

Mitigation Measures AQ-2.1 through AQ-2.4 would reduce construction-related emissions below BAAQMD's mass emissions thresholds (see EIR Table 3.4-8). Accordingly, construction of the Project would result in a less than cumulatively considerable impact on air quality with mitigation for construction emissions only. However, as described in Impact AQ-3, although there are certain feasible mitigation measures that would lower operational emissions, there is insufficient feasible mitigation that would reduce long-term operational emissions below BAAQMD's mass emissions thresholds. Accordingly, this impact would be cumulatively considerable (i.e., *significant and unavoidable*).

Impact C-AQ-2: Cumulative Health Risks. The Project's TAC emissions could contribute to cumulative exposure health risks of sensitive receptors. The Project would also locate new receptors where they would be exposed to cumulative health risks due to cumulative TAC emissions.

Mitigation Measures. See Mitigation Measures AQ-2.1 through AQ-2.3, described in VII.D.3.

Findings C-AQ-2. The on-site cumulative impacts are *less than significant* as shown in EIR Table 3.4-16 and no mitigation is required for on-site cumulative impacts. Mitigation Measures AQ-2.1, AQ-2.2, and AQ-2.3 would substantially reduce DPM and PM2.5 during construction.

While these mitigation measures can reduce the Project construction emission contributions, as shown in EIR Table 3.4-17, below, they would not reduce the off-site PM2.5 levels at certain residential and park receptors to a less-than-significant cumulative levels. Additional mitigation for this impact is not considered feasible for the following reasons:

- The primary source of the off-site PM2.5 impact is cumulative traffic. Cumulative traffic (including the Project) is responsible for approximately 67 percent of the off-site residential impact and 85 percent of the off-site park impact. While the Project will be required to reduce Project trip generation with Mitigation Measure TRA-1.1, the Project Developer cannot control other potential means for mitigation, including vehicle technology or fuels, which are regulated by the State and federal government.
- The second-largest source of the off-site residential PM2.5 impact is existing stationary sources. The Coatek manufacturing facility, which is located in the business park southeast of the Project site, is not controlled by or the responsibility of the Project Developer. This facility is responsible for approximately 21 percent of the off-site residential impact. Other existing stationary sources contribute an additional 8 percent of the off-site residential PM2.5 impact.

- The remaining sources of the off-site residential PM2.5 impact consist of Project construction (3 percent) and train emissions (1 percent). Construction mitigation measures would reduce construction emissions but would not completely eliminate them. The Project Developer does not control train service, train technology, or fuels, which are the responsibility of the train operators and regulated by the federal government.
- The remaining sources of the off-site park PM2.5 impact consist of Project construction (3 percent), train emissions (1 percent), and Project operations (< 0.2 percent). Construction mitigation measures (see discussed above) would reduce construction emissions but would not completely eliminate them. The Project Developer does not control train service, train technology, or fuels, which are the responsibility of the train operators and regulated by the federal government. The Project's operational emissions contribute only a very small portion of this off-site impact.

With mitigation, the Project would contribute approximately 16 percent of the off-site residential PM2.5 impact and 19 percent of the off-site park PM2.5 impact, consisting primary of PM2.5 emissions related to Project traffic along adjacent roadways (13 percent of off-site residential impact and 10 percent of the off-site park impact), with the remainder primarily due to construction impacts. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. This cumulative contribution is considerable and thus is considered *significant and unavoidable*.

4. Cumulative Noise Impacts

Impact C-NOI-1: Cumulative Exposure to Excessive Noise. The Project would expose persons to or generate noise levels, in combination with cumulative development, in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies.

Mitigation Measures. See Mitigation Measures NOI-1.1, NOI-1.2, and implement Condition of Approval NOI-1.3, as described in VII.E.5.

Findings C-NOI-1: Implementation of Mitigation Measure NOI-1.2 would require the Project Developer to construct soundwalls to reduce noise levels along two roadway segments (Lafayette Street from Tasman Drive to Hogan Drive, and the south side of Tasman Drive between Lafayette and Calle del Sol) with direct (Project-related) traffic noise impacts. This measure would potentially eliminate the cumulatively considerable contribution to the significant cumulative impacts along these segment but, for reasons discussed above, the impact at these roadway segments is considered significant and unavoidable.

The City has determined that development of soundwalls along the other three roadway segments noted above would be infeasible due to inconsistency with General Plan policies and the limitation of soundwalls to reduce noise levels for occupants of buildings above the ground floor. EIR Appendix 3.6 contains information regarding the City's determination of infeasibility. Therefore, the Project's contribution to the cumulative traffic noise impact would remain

considerable at the three locations where soundwalls were determined to be infeasible. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. This cumulative contribution is considerable and thus is considered *significant and unavoidable.*

Potential Impact C-NOI-2: Cumulative Exposure to Ground-borne Vibration and Noise Levels. The Project could expose persons to or generate excessive ground-borne vibration or ground-borne noise levels, in combination with cumulative development.

Mitigation Measure. See Mitigation Measure NOI-2.1, described in VII.D.5.

Findings C-NOI-2: Cumulative impacts related to construction vibration would not occur because the worst-case estimated ground vibration levels would be between the Caltrans annoyance-potential characterizations of "barely perceptible" and "distinctly perceptible" at a distance of 50 feet. Because the nearest off-site existing land uses that could be considered sensitive to ground vibration are located 300 feet from the Project site, and the nearest cumulative projects are more than 800 feet away from the Project, cumulative impacts on off-site receptors related to construction vibration would be less than significant.

As discussed under Impact NOI-2, there could be construction impacts on on-site residential receptors under certain circumstances. However, the possibility of vibration-generating effects from construction of the ACE/Capitol Corridor rail project and pile-driving activity on Parcel 5 for this Project affecting the residences at the same time is remote. Furthermore, Mitigation Measure NOI-2 requires any Project pile driving to be conducted before residential occupation if the pile driving is closer than 175 feet to the residence. Thus, with mitigation, the Project would not contribute considerably to any cumulative vibration effects on on-site residences, and this impact is less than significant.

Ground-borne vibration generated by traffic traveling on roadways is usually below the threshold of perception at adjacent land uses. Therefore, cumulative vibration generated by Project operational traffic would not result in a cumulative impact, and the Project's increase in traffic would not contribute considerably to a cumulative impact. This cumulative impact is less than significant.

For on-site commercial and residential receptors along Lafayette Street, the number of train vibration events would be higher than existing plus-Project conditions if the proposed passenger rail service increases were to be realized. Increased service would not increase the level of vibration exposure (vibration is not cumulative like noise), but it would increase the number of vibration events. Thus, the cumulative increase in passenger train service could ultimately result in a significant increase in the number of vibration events. Although the Project would not contribute to a cumulatively significant vibration impact on off-site receptors, the Project would contribute considerably to the cumulative impact by bringing new receptors into proximity with the UPRR railway alignment, which would make possible a significant cumulative vibration impact.

As noted in Mitigation Measure NOI-2.1, the design-level vibration plan would need to take into account the expected increase in cumulative train vibration events when evaluating the need for vibration controls. It is considered feasible to design vibration treatments to address cumulative vibration levels and frequency. Thus, with the implementation of Mitigation Measure NOI-2.1, the Project would not contribute to a cumulatively significant vibration impact relative to on-site receptors, and this cumulative impact is *less than significant with mitigation.*

5. Cumulative Cultural Resources Impacts

Potential Impact C-CR-1: Cumulative Impacts on Archaeological, Paleontological Resources, and Human Remains. Construction activities on the Project site and other development could result in impacts on unknown archaeological resources, paleontological resources, and human remains.

Mitigation Measures. See Mitigation Measures CR-1.1, CR-1.2, CR-1.3, CR 2.1, CR-2.2, CR-2.3, and CR-3.1, described in Section VII.D.6.

Findings C-CR-1. Urban development that has occurred over the past several decades in the Bay Area has resulted in the demolition or alteration of archeological and paleontological resources. It is reasonable to assume that present and future development will continue to result in impacts on these resources by disturbing native soils in potentially archeologically sensitive areas. Federal, State, and local laws protect archeological and paleontological resources in most instances. Even so, it is not always feasible to protect archeological and paleontological resources, particularly when preservation in place could prevent implementation of certain projects. For this reason, the cumulative effects of development in the region on archeological and paleontological resources are considered significant.

Mitigation Measures CR-1.1 and CR-1.2 require archeological investigations to determine the presence or absence of buried features as well as monitoring during earthmoving activities of the locations on the Project site. Further, Mitigation Measures CR-1.3, CR-2.1, CR-2.2, CR-2.3, and CR-3.1 prescribe discovery procedures for archeological resources, paleontological resources, or human remains that may be encountered during Project construction. Compliance with these mitigation measures would reduce the Project's contribution to a cumulative impact to less than cumulatively considerable with mitigation. This cumulative impact is *less than significant with mitigation.*

6. Cumulative Biology Impacts

Impact C-BIO-1: Cumulative Biological Resources Impacts. The Project, in combination with other foreseeable development in the vicinity, would have a significant cumulative impact without mitigation on migratory birds, special-status species and their habitats, and wetlands and other waters and/or conflict with local policies or ordinances to protect biological resources.

Mitigation Measures. Mitigation Measures BIO-1.1, BIO-1.2, BIO-2.1, BIO-2.2 (discussed above), plus

Mitigation Measure BIO-C.1. Make a Fair-Share Nitrogen Deposition Fee Contribution to the Santa Clara Habitat Agency's Voluntary Fee Payment Program. Consistent with its voluntary commitment to contribute a nitrogen deposition fee through the fee program of the Santa Clara Habitat Agency, the Project Developer shall make a pro-rated per-vehicle-trip nitrogen deposition fee contribution, which will be based on the amount charged by the Santa Clara Valley Habitat Agency under its Voluntary Fee Payments Policy (http://scv-habitatagency.org/DocumentCenter/View/345). Specifically, the per-vehicle trip fee shall be adjusted as set forth below to take into account the different dispersion characteristics of the Project versus the average dispersion characteristics for development in the HCP/NCCP area.

The Project is located farther from serpentine grassland habitat than the average development within the Santa Clara Valley HCP/NCCP area. Thus, the required fair-share contribution shall be figured as 38 percent (based on the ICF analysis) of the established fee of the habitat agency for the year in which the building permits are issued for the Project. The fee may be paid up front or in installments in proportion to mitigated vehicle trip generation for the phase of the Project for which the building permits are issued. For fiscal year 2015–2016, the adopted HCP/NCCP nitrogen deposition fee was $4.20 per new vehicle trip. Using Scheme B's estimated trip generation (140,730 trips/day), taking into account the trip reduction effect of Mitigation Measure TRA-1.1 (reduction to 137,910 trips/day), and the 38 percent adjustment factor, if all fees were paid in fiscal year 2015–2016, the estimated total would be $220,104.

Findings C-BIO-1. The removal of nest trees, shrubs, or other nesting substrates from the Project area and larger region could adversely affect migratory birds, either by causing a loss of young birds or the abandonment of an active nest. The increase in human activity and noise levels near nesting habitats could reduce the quality of such habitat, ultimately also resulting in nest abandonment. With future development in the Bay Area, it is reasonable to expect that there would be a loss of trees, shrubs, or other types of vegetation that provide nesting habitat and an increase in the presence of structures that contribute to bird hazards. It is assumed that future development would comply with federal and state laws that protect native migratory bird species. Regardless, disturbances to migratory birds and their habitats from the cumulative effects of all development could result in a significant cumulative impact.

The Project's cumulative contribution, prior to the application of mitigation measures, could be considerable, with the removal of 1,743 trees at the Project site and at off-site areas. However, Mitigation Measure BIO-1.1 requires pre-construction surveys for nests of migratory birds prior to the removal of vegetation during the migratory bird nesting season and the establishment of a no-disturbance buffer zone around the nest tree or shrub if an active nest is discovered. The Project's proposed structures could result in an increase in the number of injuries or deaths from birds colliding with Project buildings. Mitigation Measure BIO-1.2 prescribes the implementation of bird-safe design standards in Project buildings and Project site lighting to minimize bird hazards. In addition, the City normally requires a 2:1 replacement ratio for trees, which would compensate for the potential loss of nesting trees due to Project development. Compliance with these mitigation measures would reduce the Project's contribution to a cumulative impact to less than cumulatively considerable with mitigation because it would reduce impacts on migratory birds from Project construction and operation.

Although compliance with federal and State laws that protect special-status species would help reduce impacts from the cumulative effects of all development, it cannot be guaranteed that compliance with applicable regulations would necessarily reduce the cumulative impact on special status species to a less-than-significant level. The Project would result in the removal of approximately 100 acres of annual grassland and ruderal land cover types on the Project site that potentially provide suitable habitat for burrowing owls. However, burrowing owls have not been documented on-site since 2006 and have not been identified on-site from surveys in 2014 and 2015. If burrowing owls occupy the site in the future, the removal of suitable habitat on-site could result in the loss of individual burrowing owls or occupied nesting habitat, and the Project's cumulative contribution to impacts prior to the application of mitigation measures would be considerable. However, implementation of Mitigation Measures BIO-1.1 (preconstruction surveys and buffers), BIO-2.1, and BIO-2.2 (burrowing surveys and replacement habitat requirements) would reduce the Project's contribution to this impact to less than cumulatively considerable. Thus, the Project's contribution to any cumulative impact related to burrowing owl would be less than cumulatively considerable with mitigation.

Disturbances to western pond turtle habitat, in combination with the assumed loss of similar habitat in the Bay Area due to future development, would result in a significant cumulative impact. The Retention Basin and drainage swale on the northern part of the Project site, the ponds within the golf course, San Tomas Aquino Creek, and the Guadalupe River all provide suitable habitat for western pond turtle. Although no western pond turtles have been observed on the Project site, surveys have not been conducted. If turtles are present in affected aquatic habitats, Project construction could inadvertently injure or kill turtles. Therefore, the Project's contribution to a cumulative impact, prior to the application of mitigation measures, could be considerable. However, Mitigation Measure BIO-3.1 would reduce the Project's contribution to this significant cumulative impact to less than cumulatively considerable because it would require pre-construction surveys for western pond turtles prior to construction in suitable aquatic and upland habitats and the establishment of a no-disturbance buffer zone around each nest if an active nest is discovered. Thus, the Project's contribution to any cumulative impact related to western pond turtle would be less than cumulatively considerable with mitigation.

Nitrogen emissions from stationary, area and mobile sources results in nutrient enrichment in the serpentine grasslands south and east of San José (and other areas). This favors nonnative vegetation to the detriment of common native and rare plant species, including the host plant for the threatened Bay checkerspot butterfly. Serpentine grassland provides habitat for several listed and rare plants. The Project's emissions are only a portion of the regional nitrogen emissions and thus on their own would not result in nitrogen deposition above the threshold value. However, the Project's nitrogen emissions, combined with existing and future emissions, would result in cumulative nitrogen deposition levels that would be well above the threshold value. Cumulative development in upwind areas outside the Santa Clara Valley HCP/NCCP will also result in nitrogen emissions and deposition that will also affect downwind habitat areas. Analysis indicated that mobile and non-mobile emissions in the area containing the CityPlace project would result in 34 percent and 75 percent, respectively, of the nitrogen deposition per unit of emissions compared to the average nitrogen deposition per unit of mobile and non-mobile emissions in the HCP/NCCP area. While nitrogen emissions from the Project would contribute

to cumulative nitrogen deposition, on a per-unit of emissions basis, Project emissions would have a lesser effect on nitrogen deposition than average development in the HCP/NCCP area.

The City of Santa Clara is not part of the Santa Clara Valley HCP/NCCP and thus the Project is not required, per the HCP/NCCP requirements, to pay a nitrogen deposition fee. Because of cumulative nitrogen emissions from upwind areas outside the HCP/NCCP, there will be cumulative nitrogen deposition that will have unmitigated effects on serpentine grassland and associated rare and common species. The Project is one of the larger land use projects in Santa Clara County to be proposed in recent times and thus its contribution to cumulative nitrogen deposition, even taking into the account the different depositional characteristics described above would be cumulatively considerable.

The Project Developer has proposed to voluntarily make a contribution to the voluntary nitrogen deposition fee program of the Santa Clara Habitat Agency. The Santa Clara Habitat Agency uses such voluntary fees to help manage serpentine grasslands and address adverse nitrogen deposition effects. Mitigation Measure BIO-C.1 would require the Project Developer to fulfill its voluntary commitment. Implementation of Mitigation Measure BIO-C.1 would reduce the Project's contribution to cumulative nitrogen deposition impacts on serpentine grassland and supported special status species to a *less-than-considerable* (i.e., less-than-significant) level.

7. Cumulative Hydrology and Water Quality Impacts

Potential Impact C-WQ-1: Cumulative Hydrology and Water Quality Impacts. The Project, in combination with other foreseeable development in the vicinity, would have a significant cumulative impact on water quality, groundwater recharge and supplies, storm drain capacity, or current flooding.

Mitigation Measures. See Mitigation Measures WQ-1.1 and WQ-6.1, described in VII.D.9.

Findings C-WQ-1. Development of the Project, combined with other past and future development within the potentially affected geographic area, could degrade stormwater quality through an increase in impervious surface area and an increase in contaminated runoff, which could ultimately violate water quality standards, affect beneficial uses, and/or further impair 303(d)-listed waters within the Santa Clara subwatershed and the Santa Clara groundwater subbasin. To prevent short-term (construction) impacts on water quality, Project construction would comply with the requirements of the Construction NPDES General Permit and the City's stormwater requirements (e.g., the Santa Clara County Grading Ordinance). If dewatering of natural groundwater is required to be discharged into surface waters or nearby storm drains, the Project would be required to be in compliance with dewatering requirements of the SFRWQCB. In addition, Project operations would be subject to the requirements of the SCVURPPP and the associated Municipal NPDES Permit. The Project would be exempt from SCVURPPP Provision C.3.f.i (Hydromodification Control Requirements) because Project site surface flows would discharge to sections of the Guadalupe River and San Tomas Aquino Creek, which are identified as having hardened channels or being in tidal areas, according to the HMP Applicability Map (Figure 3.10-1). The applicable regulations, which have been developed to protect water quality, require implementation of stormwater BMPs. The Project would be required to develop a

stormwater drainage system to meet these requirements (Mitigation Measure WQ-1.1). Through compliance with these regulations, cumulative impacts on water quality are *less than significant.*

Other development could increase the rate and volume of stormwater runoff because of the overall increase in impervious surfaces. Increases in the rate or volume of stormwater runoff can cause localized flooding if storm drain capacity is exceeded or if flows exceed channel capacities and are conveyed to overbank areas where flood storage may not be available. The Project would be required to design a stormwater drainage system in compliance with San Francisco Bay MS4 Permit Provision C.3, associated SCVURPPP requirements, and SCVMD's 100-year peak flood requirements, per Mitigation Measure WQ-1.1. Thus, cumulative impacts on storm drainage capacity would be *less than significant.*

Parts of the Project area, including the access roads, are subject to flooding. All development, including the Project, could increase impervious areas and result in greater floodflows, create impediments to flow that would raise flood levels, and/or place additional people or structures within flood-prone areas. The Project would be required to address 100-year flood events by designing an on-site drainage system that would avoid any increase in 100-year flood levels in San Tomas Aquino Creek and the Guadalupe River, per existing regulations at the time of development of each Project phase and Mitigation Measure WQ-1.1, and avoid any increases in flood flows due to the proposed new bridge over San Tomas Aquino Creek and the new outfalls, per Mitigation Measure WQ-6.1. Because the Project would not contribute to increased flood levels (with implementation of Mitigation Measures WQ-1.1 and WQ-6.1), the Project's contribution is *less than cumulatively considerable.*

8. Cumulative Hazards and Hazardous Substances Impacts

Potential Impact C-HAZ-1. Cumulative Hazards and Hazardous Materials Impacts. The Project, in combination with other foreseeable development in the vicinity, would not have a significant cumulative impact from hazardous materials use, soil and groundwater contamination, hazardous materials in building components, landfill siting hazards, aviation hazards, or impairment of emergency access or emergency plans.

Mitigation Measures. See Mitigation Measures HAZ-2.1, HAZ-4.1 through 4.6, and HAZ-6.1, described in VII.D.10.

Findings C-HAZ-1. For projects in the City and Santa Clara Basin watershed that involve development or redevelopment of an existing site where soil or groundwater contamination may have occurred, the potential exists for a release of hazardous materials during construction and/or remediation of those sites. For the Project, the primary concern regarding hazardous materials is in regard to construction over the existing landfill. As described above under Impacts HAZ-2 and HAZ-4, Mitigation Measure HAZ-2.1 is required to manage construction-period exposure risks, and Mitigation Measures HAZ-4.1 through 4.6 are required to manage operational exposure risks. Mitigation Measure HAZ-6.1 is also required to manage the leachate recovery system. No other projects would result in impacts related to the landfill or risks to future on-site residential and commercial receptors. Therefore, this is a Project impact only (which would be reduced to a less-than-significant level by the mitigation noted above), and

is not a cumulative impact. Therefore, the cumulative impact with regard to soil and groundwater contamination would be *less than significant*.

Hazardous materials incidents associated with demolition activities where asbestos, LBP, PCBs, or other hazardous materials could be released are site specific. As a result, associated health and safety risks would be limited to those individuals who use the materials or to persons in the immediate vicinity of the materials. Further, the likelihood of multiple incidents occurring concurrently and resulting in a cumulative impact would be minimal. Therefore, the cumulative impact with regard to hazardous building materials would be *less than significant*.

Because of the siting of the Project on a closed landfill, unique hazards are present that are not typical of development or redevelopment in an infill setting. There would be no significant cumulative impact with respect to landfill siting hazards because the Project's site-specific impacts would be addressed through compliance with City and State regulations and Project mitigation measures. Thus, the cumulative impact regarding landfill siting hazards would be *less than significant*.

Most of the proposed development shown in Figure 3.0-1 is located within-about 20,000 feet of SJC. Development near airports can pose a potential hazard to people and property on the ground and create obstructions and other hazards to flight. Development within 20,000 feet of the airport is subject to height restrictions established by 49 C.F.R. part 77 (standards and notification requirements for objects affecting navigable airspace). These height restrictions are designed to protect navigable airspace around an airport. All development within 20,000 feet of the airport would be required to comply with FAA notification requirements and subsequent aeronautical determinations. Therefore, the cumulative impact regarding aviation hazards would be *less than significant.*

Emergency providers' response times could be significantly affected because of congestion at intersections, particularly for those projects that are farther away from fire and police stations. Because details regarding the site plans for the majority of the other current projects are unknown, it is possible that emergency access to these sites could be affected. The Project would remain in proximity to existing Fire Station 10. Existing traffic preemption devices would ensure that response times would not be affected significantly. Adequate emergency access would be provided at all proposed access points and driveways. With traffic preemption devices located throughout the City and in the surrounding region and adequate emergency access to the Project site maintained, implementation of the Project would not impede emergency access routes, and existing City thoroughfares would continue to be maintained. The Project would not result in permanent road closures that would physically interfere with the City's Local Hazard Mitigation Plan. The Project would result in a less than cumulatively considerable contribution to this impact and impacts are *less than significant*.

9. Cumulative Population and Housing Impacts

Impact C-POP-1: Cumulative Population and Housing Impacts. The Project, in combination with other foreseeable development in the vicinity, would induce substantial population growth and housing demand greater than planned within the City and region.

However, the Project, in combination with cumulative development, would not displace substantial numbers of people.

Mitigation Measure. See Mitigation Measure LU-1.1, described in VII.E.1.

Findings C-POP-1. Significance conclusions associated with cumulative population and housing growth are provided in Impact C-LU-1.

10. Cumulative Utilities Impacts

Impact C-UT-2: Cumulative Utilities Impacts. The Project, in combination with other foreseeable development in the vicinity, would not require or result in the construction of new wastewater or stormwater treatment facilities or the expansion of existing treatment facilities; result in a determination of inadequate capacity to serve the expected demand and existing entitlements; or result in wasteful, inefficient, or unnecessary energy use. However, the Project would be served by a landfill with insufficient permitted capacity to accommodate solid waste disposal needs. The Project would also contribute to cumulative energy demands that may result in significant and unavoidable secondary environmental impacts related to long-term energy generation and transmission.

Mitigation Measure. See Mitigation Measure UT-3.1, described in VII.D.11.

Findings C-UT-2. The City has an arrangement with the owners of the Newby Island Landfill, as well as other landfills located outside of the County, to provide disposal capacity for the City through 2024. The Newby Island Landfill has a remaining disposal capacity of 21.2 million cy. Given the lack of long-term assurances regarding landfill capacity, the City's General Plan EIR determined that cumulative impacts to solid waste disposal are significant. The cumulative context for this analysis also includes the Project and the Tasman East project, both of which were not anticipated in the General Plan and growth projections. Thus, cumulative impacts to solid waste are similarly considered significant.

The City has no specific plan for disposing of solid waste beyond 2024, but it would initiate a process to identify a solution prior to 2024. If the Newby Island Landfill is not available to accept waste, the City could potentially contract other landfills with adequate capacity, such as Guadalupe Mines in San José, which has capacity until 2048. However, given the uncertainties concerning the location of solid waste disposal beyond 2024, the Project's contribution to this cumulative impact is cumulatively considerable. Because there are no feasible mitigation measures to address solid waste issues, this cumulative impact is considered *significant and unavoidable*.

Existing and planned gas and electric service would be provided to meet the needs of other current projects, as required by the California Public Utilities Commission (CPUC), which obligates PG&E to provide service to its existing and potential customers. Development across the PG&E service area could require the construction of new electricity generation facilities and transmission lines. In addition, there is an increasing demand for new renewable energy facilities (such as solar and wind), which can have secondary environmental impacts. Increased demand for transportation fuels (whether gasoline/diesel or alternatives to gasoline/diesel, such as ethanol or biodiesel) can also result in additional facilities to produce, process, and transport such fuels.

Thus, although other current projects would be required through existing regulations to be efficient with respect to energy use, there is still the potential for secondary environmental impacts from meeting cumulative energy demands. Both the electricity and gas needed by other projects may in fact be generated out of State. It is therefore not reasonable to predict where the new supply sources would be located or evaluate environmental consequences from construction and operation of such facilities. Furthermore, if the new power generation facilities were to be located in California, they would be subject to environmental review and required to avoid or minimize their environmental impacts. However, it cannot be concluded that all secondary environmental impacts would be reduced to a less-than-significant level, and thus, cumulative secondary environmental impacts are considered significant. The Project, although efficient in its energy use, is of such a large scale that it would have a considerable contribution to cumulative energy demands. No other feasible mitigation measures are available and specific economic, legal, social, technological, or other considerations make infeasible the project alternatives identified in the final EIR that would avoid the impacts. Therefore, this impact would be *significant and unavoidable*.

G. Secondary Impacts

As directed by the CEQA Guidelines, in addition to direct physical changes in the environment that may be caused by a project, decisionmakers must also consider "reasonably foreseeable indirect physical changes in the environment which may be caused by the project." CEQA Guidelines § 15064(d).

> An indirect physical change in the environment is a physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment. For example, the construction of a new sewage treatment plant may facilitate population growth in the service area due to the increase in sewage treatment capacity and may lead to an increase in air pollution.

Id. § 15064(d)(2). The City has considered the following potential indirect, or secondary, impacts and determined that while some will be less than significant with mitigation, others depend on variable circumstances that cannot be predicted with certainty at this time.

1. Secondary Impact Analysis From the Construction of New Intersections

a. Land Use

Land Use Impacts from Improvements in Existing Road ROWs. Intersection improvements in existing road ROWs would support local and regional goals and policies and would result in a *less-than-significant* impact related to land use.

Findings Regarding Secondary Land Use Impacts from Improvements in Existing Road ROWs. None of the intersection improvements to be implemented by the Project Developer would be located within the boundaries of a habitat conservation plan ("HCP") or

natural community conservation plan ("NCCP"). All of these intersection improvements would occur within the existing ROW and would not physically divide an established community because the improvements would be additions to the existing roadways and would not introduce new features to the intersections that would change access for adjacent communities. Furthermore, because the improvements would be within the existing ROW and would not require major changes to existing land use, the improvements are not anticipated to conflict with any applicable land use plans, policies, or regulations. In general, these intersection improvements would support local and regional goals and policies. Therefore, the intersection improvements would result in a *less-than-significant* impact related to land use.

Land Use Impacts from At-Grade Improvements Requiring Additional ROW. Intersection at-grade improvements requiring additional ROWs would support local and regional goals and policies and would result in a *less-than-significant* impact related to land use.

Findings Regarding Secondary Land Use Impacts from At-Grade Improvements Requiring Additional ROW. None of the intersection improvements to be implemented by the Project Developer would be located within the boundaries of an HCP or NCCP. All of these intersection improvements would occur within or immediately adjacent to the existing ROW and would not physically divide an established community because the improvements would be additions to the existing roadways and would not introduce new features to the intersections that would change access for adjacent communities. Furthermore, because the improvements would be within or immediately adjacent to the existing ROW and would not require major changes to existing land use, the improvements are not anticipated to conflict with any applicable land use plans, policies, or regulations. In general, these intersection improvements would support local and regional goals and policies. Therefore, these intersection improvements would result in a *less-than-significant* impact related to land use.

Land Use Impacts from Freeway Ramps. Freeway ramp improvements would support local and regional goals and policies and would result in a *less-than-significant* impact related to land use.

Findings Regarding Secondary Land Use Impacts from Freeway Ramps. Neither of the improvements to be implemented by the Project Developer would occur within the boundaries of an HCP or NCCP. Both of these intersection improvements would occur within or immediately adjacent to the existing ROW and would not physically divide an established community because the improvements would be additions to the existing roadways and would not be likely to introduce new features to the intersections that would change access for adjacent communities. Furthermore, because the improvements would be within or immediately adjacent to the existing ROW and would not require major changes to the existing land use, the improvements are not anticipated to conflict with any applicable land use plans, policies, or regulations. In general, these intersection improvements would support local and regional goals and policies. These intersection improvements would result in a *less-than-significant* impact related to land use.

Land Use Impacts from Interchanges. Several of the interchange improvements could require substantial ROW acquisition, which could require major changes to the existing land use, resulting in a potential conflict with applicable land use plans, policies, or regulations.

Mitigation Measures. All interchange improvements would undergo separate CEQA review by their respective Lead Agency.

Findings Regarding Secondary Land Use Impacts from Interchanges. Several of the improvements (e.g., at Intersections 27, 28, 52, and 98) could require substantial ROW acquisition, including residential property for Intersection 52. This could result in a *potentially significant and unavoidable impact* related to land use because some of the improvements could require major changes to an existing land use, resulting in a potential conflict with applicable land use plans, policies, or regulations. No other feasible mitigation measures are available.

b. Aesthetics

Aesthetics Impacts from Improvements in Existing Road ROWs. Intersection improvements in existing road ROWs would be visually consistent with existing roadway elements and would not introduce new substantial sources of light or glare. However, trees could be removed for improvements at certain intersections, resulting in a potentially significant impact.

Mitigation Measure IM-BIO-1: Replace Removed Trees. The Project Developer shall replace all trees removed as part of the intersection improvements in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed.

Findings Regarding Secondary Aesthetics Impacts from Improvements in Existing Road ROWs. Implementation of Mitigation Measure IM-BIO-1 would require tree replacement in accordance with the tree preservation policies or ordinances policies of the jurisdiction in which the improvements are constructed. This would reduce the potential aesthetic impacts of tree removal to *less than significant with mitigation.*

Aesthetics Impacts from At-Grade Improvements Requiring Additional ROW. Intersection at-grade improvements requiring additional ROWs would be visually consistent with existing roadway elements and would not introduce new substantial sources of light or glare. However, trees could be removed for improvements at certain intersections, resulting in a potentially significant impact.

Mitigation Measure IM-BIO-1. See IM-BIO-1, described above.

Findings Regarding Secondary Aesthetics Impacts from At-Grade Improvements Requiring Additional ROW. Implementation of Mitigation Measure IM-BIO-1 would require tree replacement in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed. This would reduce potential aesthetic impacts of tree removal to *less than significant with mitigation.*

Aesthetics Impacts from Freeway Ramps. Freeway ramp improvements would be visually consistent with existing roadway elements and features would be designed in accordance with the applicable Congestion Management Program (CMP) guidelines. However, trees could be removed for improvements at certain intersections, resulting in a potentially significant impact.

Mitigation Measure IM-BIO-1. See IM-BIO-1, described above.

Findings Regarding Secondary Aesthetics Impacts from Freeway Ramps. Implementation of Mitigation Measure IM-BIO-1 (see discussion under the discussion of biological resource impacts below) would require tree replacement in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed. This would reduce potential aesthetic impacts of tree removal to *less than significant with mitigation.*

Aesthetics Impacts from Interchanges. The majority of interchange improvements would be visually consistent with existing roadway elements. However, a new interchange at Intersection 52 may result in substantial visual changes with respect to views from the residential areas, given the visual intensity of large grade-separated roadways.

Mitigation Measures. See IM-BIO-1, described above. Interchange improvements will undergo separate CEQA review.

Findings Regarding Secondary Aesthetics Impacts from Interchanges. A new interchange at Intersection 52 would occur in an area with both commercial and residential uses. Depending on the design of this interchange, it may result in substantial visual changes with respect to views from the residential areas, given the visual intensity of large grade-separated roadways. The impact on visual character due to the proposed interchange at Intersection 52 may be *significant and unavoidable*. Although certain aesthetic treatments may be possible, such as new landscaping, walls, or new tree planting, often the aesthetic changes with grade-separated interchanges would be significant. No other feasible mitigation measures are available.

Trees would be removed for improvements at several of the intersections. This is considered a *potentially significant* aesthetic impact. However, mitigation similar to Mitigation Measure BIO-1 could mitigate this impact by providing for tree replacement. Interchange improvements will undergo separate CEQA review.

c. Transportation

Potential Transportation Impacts from Improvements in Existing Road ROWs. Intersection improvements in existing road ROWs have been identified as measures that would improve the vehicle carrying capacity of intersections and/or reduce vehicle delay at the affected intersections, resulting in less-than-significant impacts to traffic. However, temporary impacts on public transit, bicycle or pedestrian facilities, and emergency access could also occur if construction of the intersection improvements were to significantly change access for these users, resulting in a *potentially significant impact.*

Mitigation Measure IM-TRA-1: Prepare and Implement a Construction Traffic Control Plan. Prior to issuance of grading permits, the construction contractor will develop the traffic control plan in accordance with the appropriate jurisdiction's policies and submit for approval. The plan will be implemented throughout the course of construction and may include, but will not be limited to, the following elements.

Limit truck access to the intersection during peak commute times (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 pm.).

Require that written notification be provided to contractors regarding appropriate routes to and from the intersection, and the weight and speed limits on local roads used to access the intersection.

Provide access for emergency vehicles at all times.

Provide adequate parking for construction employees, site visitors, and inspectors as feasible.

Maintain bicycle and pedestrian access and circulation during Project construction where safe to do so. If construction encroaches on a bike lane, warning signs will be posted that indicate bicycles and vehicles are sharing the roadway. If construction encroaches on a sidewalk, a safe detour will be provided for pedestrians at the nearest crosswalk.

Require traffic controls in the vicinity of the intersection, including flagpersons with bright orange or red vests and using a "Stop/Slow" paddle to control oncoming traffic.

Post standard construction warning signs in advance of the construction area and at any intersection that provides access to the construction area.

Repair or restore the road right-of-way to its original condition or better upon completion of the work.

Findings Regarding Secondary Transportation Impacts from Improvements in Existing Road ROWs. Implementation of Mitigation Measure IM-TRA-1 would require the preparation and implementation of a Construction Traffic Control Plan. Therefore, this measure would reduce potential traffic impacts during intersection improvement construction to *less than significant with mitigation.*

Transportation Impacts from At-Grade Improvements Requiring Additional ROW. Intersection at-grade improvements requiring additional ROWs have been identified as measures that would improve the vehicle carrying capacity of intersections and/or reduce vehicle delay at the affected intersections, resulting in less-than-significant impacts to traffic. However, temporary impacts on public transit, bicycle or pedestrian facilities, and emergency access could also occur if construction of the intersection improvements were to significantly change access for these users, resulting in a *potentially significant impact.*

Mitigation Measure. See IM-TRA-1, described above.

Findings Regarding Secondary Transportation Impacts from At-Grade Improvements Requiring Additional ROW. Implementation of Mitigation Measure IM-TRA-1 would require the preparation and implementation of a Construction Traffic Control Plan. Therefore, this measure would reduce potential traffic impacts during intersection improvement construction to *less than significant with mitigation.*

Transportation Impacts from Freeway Ramps. Freeway ramp improvements have been identified as measures that would improve the vehicle carrying capacity of intersections and/or reduce vehicle delay at the affected intersections, resulting in less-than-significant impacts to traffic. However, temporary impacts on public transit, bicycle or pedestrian facilities, and emergency access could also occur if construction of the intersection improvements were to significantly change access for these users, resulting in a *potentially significant impact.*

Mitigation Measure. See IM-TRA-1, described above.

Findings Regarding Secondary Transportation Impacts from Freeway Ramps. Implementation of Mitigation Measure IM-TRA-1 would require the preparation and implementation of a Construction Traffic Control Plan. However, because of the intensity of construction activities and the volume of traffic at the improvement location, impacts on traffic during construction could be *potentially significant and unavoidable.*

Transportation Impacts from Interchanges. Interchange improvements have been identified as measures that would improve the vehicle carrying capacity of intersections and/or reduce vehicle delay at the affected intersections, resulting in less-than-significant impacts to traffic. However, temporary impacts on public transit, bicycle or pedestrian facilities, and emergency access could also occur if construction of the intersection improvements were to significantly change access for these users, resulting in a potentially significant impact.

Mitigation Measures. See IM-TRA-1, described above. Interchange improvements will undergo separate CEQA review.

Findings Regarding Secondary Transportation Impacts from Interchanges. Construction of the grade-separated interchanges could require lane or street closures, resulting in impacts on traffic. However, these impacts would be temporary, and in the long term, the improvements would be anticipated to improve traffic in the area. Temporary impacts on public transit, bicycle or pedestrian facilities, and emergency access could also occur if construction of the intersection improvements were to significantly change access for these users. Because of the intensity of construction activities required for the grade-separated interchanges and the large volume of existing traffic, impacts on traffic during construction would be *potentially significant.*

Implementation of mitigation similar to Mitigation Measure IM-TRA-1 would require preparation and implementation of a Construction Traffic Control Plan. However, because of the intensity of construction activities required for the grade-separated interchanges and existing traffic volumes, impacts on traffic during construction would be *potentially significant and unavoidable.* No other feasible mitigation measures exist.

As described above, interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

d. Air Quality

Air Quality Impacts from Improvements in Existing Road ROWs. Construction and operation of intersection improvements in existing road ROWs would not generate significant air pollutant emissions.

Findings Regarding Secondary Air Quality Impacts from Improvements in Existing Road ROWs. All of these intersection improvements would be additions to existing roadway facilities; they would not result in the creation of new structures or sources that would emit long-term operational air pollutant emissions or conflict with applicable air quality plans. Air pollutant emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related air pollutant emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Given the limited scope of the intersection improvements (e.g., limited grading or excavation), it is anticipated that the construction of roadway improvements would not generate significant air pollutant emissions. The use of diesel-powered vehicles and equipment during construction could create localized odors, but these odors would be temporary and would dissipate in the outdoor construction environment. Therefore, potential air quality impacts would be *less-than-significant*.

Air Quality Impacts from At-Grade Improvements Requiring Additional ROW. Construction of intersection at-grade improvements requiring additional ROWs could generate significant air pollutant emissions. Two of these intersection improvements would require construction adjacent to residential development (Intersections 77 and 83), which might affect sensitive residential receptors.

Mitigation Measure IM-AQ-1: Implement Measures to Reduce Construction-Related Dust Emissions. The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce fugitive dust. Emissions reduction measures shall include, at a minimum, the measures below. Alternative measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City for approval.

All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. If water infiltration into landfill refuse layers is a concern, non-toxic soil stabilizers may be used instead.

All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph for a period of 2 hours or more.

Windbreaks (e.g., fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Windbreaks shall have at maximum 50 percent air porosity.

Exposed ground areas that are to be reworked more than 1 month after initial grading should be sown with fast-germinating native grass seed and watered appropriately until vegetation is established. If grass seeding is not feasible, then non-toxic soil stabilizers may be used.

All construction trucks and equipment, including tires, involved in ground disturbance or transit through loose soil areas shall be washed off prior to leaving the site.

Site accesses to a distance of 25 feet from the paved road shall be treated with a 6- to 12 inch compacted layer of wood chips, mulch, or gravel. Alternatively, a rumble plate may be used in place of chips, mulch, or gravel.

Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.

Mitigation Measure IM-AQ-2: Implement Measures to Reduce Construction-Related Exhaust Emissions. The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce equipment exhaust emissions. Emission reduction measures shall include, at a minimum, the measures below. Alternative measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City for approval.

Idling time of diesel powered construction equipment shall be limited to 2 minutes.

Ensure that all off-road diesel-powered equipment used during construction between 2017 and 2022 is equipped with U.S. Environmental Protection Agency (EPA) Tier 3 or cleaner engines, except for specialized construction equipment for which an EPA Tier 3 engine is not available. Consistent with advancements of the statewide fleet average, the Project Developer shall ensure that all off-road diesel-powered equipment used during construction between 2023 and 2030 is equipped with EPA Tier 4 engines. This requirement will ensure construction equipment remains cleaner than the fleet-wide average.

Ensure that all on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used at the Project site comply with EPA 2007 on-road emissions standards for particulate matter of 10 micrometers or less (PM10) and nitrogen oxides (NOX) (0.01 grams per brake horsepower-hour [g/bhp-hr] and 0.20 g/bhp-hr, respectively).

Notwithstanding the above requirements, all construction equipment, diesel trucks, and generators shall meet the California Air Resources Board's most recent certification standard for off-road heavy-duty diesel engines and shall employ Best Available Control Technology for reductions in NOX and particulate matter (PM) emissions if more stringent than the requirements above.

Findings Regarding Secondary Air Quality Impacts from At Grade Improvements Requiring Additional ROW. Implementation of Mitigation Measure IM-AQ-1 would require Bay Area Air Quality Management District (BAAQMD) best management practices (BMPs) for fugitive dust. Mitigation Measure IM-AQ-2 would require BAAQMD BMPs for diesel exhaust emissions, which would reduce criteria pollutant air emissions to a less-than-significant level. Given the limited scope of the improvements at the two locations with adjacent residential receptors, implementation of Mitigation Measures IM-AQ-1 and IM-AQ-2 should reduce potential exposure to toxic air contaminants (TACs) during construction to a less-than-significant

level. Therefore, these measures would reduce potential air quality impacts during intersection improvement construction to a *less-than-significant level with mitigation.*

Air Quality Impacts from Freeway Ramps. Construction of freeway ramp improvements could generate significant air pollutant emissions.

Mitigation Measures. See IM-AQ-1 and IM-AQ-2, described above.

Findings Regarding Secondary Air Quality Impacts from Freeway Ramps. Implementation of Mitigation Measure IM-AQ-1 would require BAAQMD BMPs for fugitive dust. Mitigation Measure IM-AQ-2 would require BAAQMD BMPs for diesel exhaust emissions. These measures would reduce potential air quality impacts during intersection improvement construction to a *less-than-significant level with mitigation.*

Air Quality Impacts from Interchanges. Construction of the interchange improvements could expose sensitive receptors to substantial pollutant concentrations during construction, depending on the presence of sensitive receptors in proximity to intersection improvement locations. Some intersections (e.g., Intersection 52) are adjacent to residential development.

Mitigation Measures. See IM-AQ-1 and IM-AQ-2, described above. These interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

Findings Regarding Secondary Air Quality Impacts from Interchanges. Given the intensity of the construction required for these types of improvements, it is anticipated that construction would generate significant air pollutant emissions. The use of diesel-powered vehicles and equipment during construction could create localized odors, but these odors would be temporary and would dissipate in the outdoor construction environment. Furthermore, there is the potential for construction to expose sensitive receptors to substantial pollutant concentrations during construction, depending on the presence of sensitive receptors in proximity to intersection improvement locations. Some intersections identified in EIR Table 3.3-60 (e.g., Intersection 52) are adjacent to residential development. Because of the intensity of the construction required for these improvements and the proximity to sensitive receptors at some locations, impacts related to air quality would be *potentially significant.*

Implementation of mitigation similar to Mitigation Measure IM-AQ-1 would require BAAQMD BMPs for fugitive dust. Implementation of mitigation similar to Mitigation Measure IM-AQ-2 would require BAAQMD BMPs for diesel exhaust emissions. If these measures are insufficient to lower emissions below the BAAQMD thresholds, then construction-period criteria air pollutant offsets would be an additional mitigation option, if necessary.

Where potential TAC emissions during construction would affect sensitive receptors, the Lead Agency for interchange improvements will most likely need to prepare a Health Risk Assessment (HRA) for construction. If the HRA demonstrates that the health risk from construction of the intersection improvements at all potentially exposed sensitive receptor locations will be less than the BAAQMD thresholds, then no additional action will be necessary. If the HRA demonstrates that the health risk from construction of the intersection improvements

at sensitive receptor locations will be over the BAAQMD threshold, then equipment emissions controls and other measures to reduce TAC impacts to less than the BAAQMD thresholds will be necessary.

The measures described above could reduce potential air quality impacts during intersection improvement construction; however, because of the intensity of the construction required for these improvements and the proximity to sensitive receptors, impacts related to air quality for these improvements are *considered potentially significant and unavoidable*. No other feasible mitigation measures are available.

As noted above, these interchange improvements will undergo separate CEQA review.

e. Greenhouse Gas Emissions

Greenhouse Gas Impacts from Improvements in Existing Road ROWs. Operation and construction of the intersection improvements in existing road ROWs would not result in the creation of structures or sources that would emit long-term, operational greenhouse gases ("GHGs").

Findings Regarding Secondary Greenhouse Gas Impacts from Improvements in Existing Road ROWs. These intersection improvements would not result in the creation of structures or sources that would emit long-term, operational GHGs. These improvements would enable traffic to move through the intersections more efficiently, effectively providing a benefit to GHG emissions by reducing idling. GHG emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related GHG emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Given the limited scope of the intersection improvements, it is anticipated that the construction of roadway improvements would not generate significant GHGs and would not conflict with applicable plans or policies adopted for the purpose of reducing GHG emissions. The intersection improvements would result in *less-than-significant* impacts related to GHG emissions.

Greenhouse Gas Impacts from At-Grade Improvements Requiring Additional ROW. Operation and construction of intersection at-grade improvements requiring additional ROWs would not result in the creation of structures or sources that would emit long-term operational GHGs.

Findings Regarding Secondary Greenhouse Gas Impacts from At-Grade Improvements Requiring Additional ROW. These intersection improvements would not result in the creation of structures or sources that would emit long-term operational GHGs. These improvements would enable traffic to move through the intersections more efficiently, effectively providing a benefit to GHG emissions by reducing idling. GHG emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related GHG emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Given the limited scope of the intersection improvements, it is anticipated that the construction of roadway improvements would not generate significant GHGs and would not conflict with

applicable plans or policies adopted for the purpose of reducing GHG emissions. The intersection improvements would result in *less-than-significant* impacts related to GHG emissions.

Greenhouse Gas Impacts from Freeway Ramps. Construction of freeway ramp improvements could generate significant GHGs.

Mitigation Measures. See Mitigation Measure IM-AQ-2, described in VII.G.1.d, and:

Mitigation Measure IM-GHG-1: Utilize Alternative Fuels during Construction. Require construction contractors to use alternative fuels in at least 30 percent of the construction equipment that uses diesel fuel. Alternative fuels may include electricity, compressed natural gas (CNG), biodiesel (B-20), or renewable diesel, such as diesel high-performance renewable (HPR).

Findings Regarding Secondary Greenhouse Gas Impacts from Freeway Ramps. Implementation of Mitigation Measure IM-AQ-2 would require BAAQMD BMPs for diesel exhaust emissions because it would require more efficient construction equipment and trucks, which would reduce GHG emissions. Mitigation Measure IM-GHG-1 would require the use of alternative fuels for 30 percent of the construction equipment that uses diesel fuel, consistent with BAAQMD's recommended BMPs for construction GHGs. Therefore, these measures would most likely reduce construction-related GHG emissions to *less than significant with mitigation.*

Greenhouse Gas Impacts from Interchanges. Construction of interchange improvements could generate significant GHGs.

Mitigation Measures. See Mitigation Measure IM-AQ-2, described in VII.G.1.d, and Mitigation Measure IM-GHG-1, described above. These interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

Findings Regarding Secondary Greenhouse Gas Impacts from Interchanges. These intersection improvements would not result in the creation of structures or sources that would emit long-term operational GHGs and would not conflict with applicable plans or policies adopted for the purpose of reducing GHG emissions. These improvements would enable traffic to move through the intersections more efficiently, effectively providing a benefit to GHG emissions by reducing idling. GHG emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related GHG emissions associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. Given the scope of these improvements, it is anticipated that construction GHGs could result in *potentially significant impacts*. Implementation of mitigation similar to Mitigation Measures IM-AQ-2 and IM-GHG-1 would most likely reduce construction-related GHG emissions impacts to *less than significant with mitigation.*

As noted above, these interchange improvements will undergo separate CEQA review.

f. Noise

Noise Impacts from Improvements in Existing Road ROWs. Intersection improvements in existing road ROWs would not result in changes in operational intersection noise or perceptible changes in noise levels at nearby sensitive receptors. Construction-related noise impacts would be temporary and limited to the duration of the construction period.

Findings Regarding Secondary Noise Impacts from Improvements in Existing Road ROWs. All intersection improvements would be additions to existing roadway facilities, and it is anticipated that these additional features would not substantially increase traffic noise generated on these roadways. The intersection improvements would not expose people to excessive noise levels due to the proximity to a public or private airport. There would be no changes in operational intersection noise and no perceptible changes in noise levels at nearby sensitive receptors. Construction-related noise impacts would be temporary and limited to the duration of the construction period. Noise from construction of the intersection improvements may surpass the normally acceptable noise levels. Construction-related noise impacts associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. All construction activities would be required to comply with local noise ordinances for construction hours and equipment. Therefore, potential noise impacts would be *less-than-significant*.

Noise Impacts from At-Grade Improvements Requiring Additional ROW. Intersection at-grade improvements requiring additional ROWs could shift operational intersection noise closer to sensitive receptors (i.e., residents, office workers, recreationists, etc.) in adjacent buildings; however, this would not result in a noticeable difference compared to existing conditions, because vehicular noise already exists in the areas. Construction-related noise impacts would be temporary and limited to the duration of the construction period.

Findings Regarding Secondary Noise Impacts from At-Grade Improvements Requiring Additional ROW. All intersection improvements would be additions to existing roadway facilities. It is anticipated that these additional features would not substantially increase traffic noise generated on these roadways. The intersection improvements would not expose people to excessive noise levels due to proximity to a public or private airport. The ROW expansion could shift operational intersection noise closer to sensitive receptors (i.e., residents, office workers, recreationists, etc.) in adjacent buildings; however, this would not result in a noticeable difference compared to existing conditions, because vehicular noise already exists in the areas. Construction-related noise impacts would be temporary and limited to the duration of the construction period. Noise from construction of the intersection improvements may surpass the normally acceptable noise levels. Construction-related noise impacts associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. All construction activities would be required to comply with local noise ordinances for construction hours and equipment. Therefore, potential noise impacts would be *less-than-significant*.

Noise Impacts from Freeway Ramps. Freeway ramp improvements would not result in changes in operational intersection noise or perceptible changes in noise levels at nearby

sensitive receptors. Construction-related noise impacts would be temporary and limited to the duration of the construction period.

Findings Regarding Secondary Noise Impacts from Freeway Ramps. Ramp improvements would be additions to existing roadway facilities. It is anticipated that these additional features would not substantially increase traffic noise generated on these roadways. The intersection improvements would not expose people to excessive noise levels due to proximity to a public or private airport. There are no residential receptors adjacent to the ramp improvement locations, and the nearby commercial areas are already affected by SR 237 traffic noise. Construction-related noise impacts would be temporary and limited to the duration of the construction period. Noise from construction of the intersection improvements may surpass the normally acceptable noise levels. Construction-related noise impacts associated with the intersection improvements would depend on the type of construction equipment used and the duration of construction activities. All construction activities would be required to comply with local noise ordinances for construction hours and equipment. Therefore, potential impacts would be *less-than-significant*.

Noise Impacts from Interchanges. Interchange improvements could result in traffic noise from the elevated roadway that could affect adjacent receptors differently compared with current conditions. In addition, noise associated with night work or pile driving may not always be mitigable to a less-than-significant level. However, only one of the interchange locations (Intersection 52) has adjacent residential receptors, resulting in significant impacts.

Mitigation Measures. Interchange improvements will undergo separate CEQA review.

Findings Regarding Secondary Noise Impacts from Interchanges. The interchange improvements would be additions to existing roadway facilities. If a design is adopted that raises one roadway over the other, then the traffic noise from the elevated roadway could affect adjacent receptors differently compared with current conditions. This is considered a *potentially significant impact*; soundwall mitigation may or may not able to address potential noise impacts. However, only one of the interchange locations (Intersection 52) has adjacent residential receptors. Therefore, significant impacts would most likely be limited to that location only.

Construction noise associated with night work or pile driving may not always be mitigable to a less-than-significant level, even with mitigation, such as noise barriers, building insulation, use of vibratory pile driving, or other measures. However, only one of the interchange locations (Intersection 52) has adjacent residential receptors. Therefore, significant impacts would most likely be limited to that location only. Potential impacts could be *significant and unavoidable*, even with mitigation at this one location, depending on the effectiveness of sound control measures. No other feasible mitigation measures are available at this time.

As noted above, interchange improvements will undergo separate CEQA review.

g. Cultural Resources

Cultural Resource Impacts from Improvements in Existing Road ROWs. All the intersection improvement sites have most likely already been disturbed during construction of

the existing roadway facilities; therefore, the improvements in the existing road ROWs would have less-than-significant impacts on cultural resources.

Findings Regarding Secondary Cultural Resource Impacts from Improvements in Existing Road ROWs. None of these intersection improvements would involve the demolition of any existing structures, and all work would be within the current ROWs. Therefore, no architectural historic resources would be affected. Ground-disturbing activities for the intersection improvements would be minimal and limited to areas within the ROW. All the intersection improvement sites have most likely already been disturbed during construction of the existing roadway facilities. Furthermore, these intersection improvements would involve minimal activity such as restriping. Therefore, it is unlikely that these intersection improvements would damage or destroy unknown or unrecorded archaeological resources or human remains. Impacts from these improvements related to cultural resources would be *less-than-significant.*

Cultural Resource Impacts from At-Grade Improvements Requiring Additional ROW. Although all the intersection improvement sites have most likely already been disturbed during construction of the existing roadway facilities, ground-disturbing activities outside of the ROW may uncover, damage, or destroy unknown or unrecorded archaeological resources, paleontological resources, or human remains.

Mitigation Measure IM-CR-1: Conduct Cultural Resource Investigations and Protect and Recover Significant Resources. The Lead Agency shall conduct a cultural resource investigation that includes a background records search (including a search of records from Sonoma State and historical societies, contact with Native American representatives identified by the Native American Heritage Commission (NAHC), and site pedestrian surveys) for the areas of ground disturbance from each roadway improvement. If significant known or suspected sites are discovered within the Project footprint and would be disturbed by the Project, then a cultural resource treatment plan shall be prepared, defining Project monitoring and resource recovery and curation requirements concerning any encountered cultural resources.

Mitigation Measure IM-CR-2: Stop Work if Cultural Resources Are Encountered during Ground-Disturbing Activities. In the event that cultural resources are encountered during ground-disturbing activities, all work within proximity of the find shall temporarily halt so that the archaeological monitor can examine the find and document its provenience and nature (e.g., with drawings, photographs, written descriptions). The archaeological monitor shall then direct that the work proceed if the find is deemed to be insignificant, continue elsewhere, or cease until adequate mitigation measures are adopted. If the find is determined to be potentially significant, the archaeologist, in consultation with the appropriate jurisdiction, shall develop a treatment plan, which could include site avoidance, capping, or data recovery. If data recovery is determined to be appropriate, excavation shall target recovery of an appropriate amount of information from archaeological deposits to determine the potential of the resource to address specific research questions. If it occurs, data recovery shall emphasize the understanding of the archaeological deposit's structure, including features and stratification, horizontal and vertical extent, and content, including the nature and quantity of artifacts.

Mitigation Measure IM-CR-3: Stop Work if Human Remains Are Encountered during Ground-Disturbing Activities. If human remains are discovered (in either an

archaeological or construction context), all work within proximity of the remains shall stop so that the archaeological monitor can examine the remains. The County Coroner shall be notified to make a determination as to whether the remains are of Native American origin. If the remains are determined to be Native American, the coroner shall notify the NAHC immediately. The NAHC shall notify those persons it believes are most likely descended from the deceased Native American. Once the NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial, which will be implemented in accordance with Section 15064.5(e) of the State CEQA Guidelines.

Findings Regarding Secondary Cultural Resource Impacts from At-Grade Improvements Requiring Additional ROW. Implementation of Mitigation Measure IM-CR-1 would require the Lead Agency to conduct cultural resource investigations and prepare and implement a cultural resource treatment plan, if necessary. Mitigation Measure IM-CR-2 would require the contractor to stop work if cultural resources are encountered during ground-disturbing activities. Implementation of Mitigation Measure IM-CR-3 would require the contractor to stop work if human remains are encountered during ground disturbing activities. Therefore, these measures would reduce potential cultural resources impacts during intersection improvement construction to *less than significant with mitigation.*

Cultural Resource Impacts from Freeway Ramps. Although all of the freeway ramp improvement sites have most likely already been disturbed the construction of the existing roadway facilities, ground-disturbing activities may uncover, damage, or destroy unknown or unrecorded archaeological resources, paleontological resources, or human remains.

Mitigation Measures. See IM-CR-1, IM-CR-2, and IM-CR-3, described above.

Findings Regarding Secondary Cultural Resource Impacts from Freeway Ramps. Implementation of Mitigation Measure IM-CR-1 would require the Lead Agency to conduct cultural resource investigations and prepare and implement a cultural resource treatment plan, if necessary. Mitigation Measure IM-CR-2 would require the contractor to stop work if cultural resources are encountered during ground-disturbing activities. Implementation of Mitigation Measure IM-CR-3 would require the contractor to stop work if human remains are encountered during ground disturbing activities. Therefore, these measures would reduce potential cultural resource impacts during intersection improvement construction to *less than significant with mitigation.*

Cultural Resource Impacts from Interchanges. The additional ROW required for some of the interchange improvements could involve demolition of existing structures, which could potentially be historic resources. In addition, although all of the interchange improvement sites have most likely already been disturbed during construction of the existing roadway facilities, ground-disturbing activities may uncover, damage, or destroy unknown or unrecorded archaeological resources or human remains.

Mitigation Measures. See IM-CR-1, IM-CR-2, and IM-CR-3, described above. These interchange improvements will undergo separate CEQA review.

Findings Regarding Secondary Cultural Resource Impacts from Interchanges. The additional ROW required for some of the interchange improvements could involve demolition of existing structures. Because a comprehensive inventory and evaluation of potentially affected buildings has not yet been conducted. There is some potential for architectural historic resources to be affected. If an intersection improvement would require demolition of an existing structure, then an assessment of the historic significance of the structure will be required as part of the separate CEQA review. If impacts cannot be avoided or minimized (e.g., when a historic building must be removed), then impacts on historic structures could be *significant and unavoidable*. No other feasible mitigation measures are available.

h. Biological Resources

Biological Resource Impacts from Improvements in Existing Road ROWs. The existing urbanized setting of the intersection improvement locations makes it unlikely that the improvements would substantially affect any special-status species, special-status plants, associated habitat or other sensitive natural communities, including wetlands, or wildlife corridors. However, trees could be removed for improvements at certain intersections, resulting in a potentially significant impact.

Mitigation Measure. See Mitigation Measure IM-BIO-1, described in VII.G.1.b.

Mitigation Measure IM-BIO-2: Preconstruction Surveys. For all intersections that have trees within the intersection footprint or that will remove trees, the Project Developer and its contractors shall avoid conducting vegetation removal during the migratory bird nesting season (February 1–August 31), if feasible. If construction activities must commence during the migratory bird nesting season, the Project Developer shall retain a qualified wildlife biologist to conduct a survey for nests of migratory birds. Surveys for nesting migratory birds shall occur within 3 days prior to the commencement of ground disturbance and vegetation removal.

If an active nest is discovered, a no-disturbance buffer zone around the nest tree or shrub (or, for ground-nesting species, the nest itself) shall be established. The no-disturbance zone shall be marked with flagging or fencing that is easily identified by the construction crew and shall not affect the nesting bird or attract predators to the nest location. In general, the minimum buffer zone widths shall be as follows: 50 feet (radius) for non-raptor ground-nesting species, 50 feet (radius) for non-raptor shrub- and tree-nesting species, and 300 feet (radius) for raptor species. Buffer widths may be modified based on discussion with the California Department of Fish and Wildlife (CDFW). Buffers shall remain in place as long as the nest is active or young remain in the area and are dependent on the nest. If a burrowing owl nest is identified during preconstruction surveys, no-activity buffers will adhere to the recommendations in the 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation.

Findings Regarding Secondary Biological Resource Impacts from Improvements in Existing Road ROWs. Implementation of Mitigation Measure IM-BIO-1 would require tree replacement in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed. Implementation of Mitigation Measure IM-BIO-2 would require preconstruction nesting surveys prior to any tree removal. Therefore, these

measures would reduce potential biological resource impacts during intersection improvement construction to *less than significant with mitigation.*

Biological Resource Impacts from At-Grade Improvements Requiring Additional ROW. The existing urbanized setting of the intersection improvement locations makes it unlikely that the improvements would substantially affect any special-status species, special-status plants. However, there would be improvements to some intersections (Intersections 84, 96, and 123) that have or are adjacent to sensitive habitats such as wetlands or grasslands. In addition, trees could be removed for improvements at certain intersections, resulting in a potentially significant impact.

Mitigation Measures. See Mitigation Measure IM-BIO-1, described in VII.G.1.b; Mitigation Measure IM-BIO-2, described above.

Mitigation Measure IM-BIO-3: Site-Specific Surveys and Species/Habitat Avoidance, Minimization, and Compensation Measures. For intersections with the potential to have sensitive habitats, the Project Developer, in consultation with a qualified biologist, shall conduct site-specific surveys for special-status species, sensitive habitats, wetlands and waters of the United States, and nesting birds. If found, the Project Developer and its contractor shall implement avoidance and minimization measures, where feasible. Where avoidance is not possible, the Project Developer shall compensate for lost habitat at a minimum 1:1 basis. Compensation for lost habitat will be determined in consultation with CDFW/U.S. Fish and Wildlife Service (USFWS), as appropriate. The Project Developer shall obtain all required permits from the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board, and CDFW, and USFWS, as appropriate. The Project Developer shall provide buffer fencing and species relocation, as necessary, if permitted by CDFW/USFWS. Additionally, if special-status species or habitats are identified during the site-specific surveys, a Worker Environmental Awareness Training Program for construction personnel will be conducted by a qualified biologist retained by the Project Developer. The program will provide workers with information on their responsibilities with regard to the special-status species. The training will provide a physical description of the special-status species that have potential to occur and be affected by construction activities to each construction crew prior to the initiation of the crew's construction activities. The worker awareness training will also detail each species' habitat and legal protections, a photo of relevant species, and contact information for the primary biologist.

Findings Regarding Secondary Biological Resource Impacts from At-Grade Improvements Requiring Additional ROW. Implementation of Mitigation Measure IM-BIO-1 would require tree replacement in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed. Implementation of Mitigation Measure IM-BIO-2 would require preconstruction nesting surveys prior to any tree removal. Implementation of Mitigation Measure IM-BIO-3 would require site-specific surveys for special-status species, sensitive habitats, wetlands/waters, and nesting birds and implementation of avoidance, minimization, and compensation measures where sensitive biological resources are encountered. Therefore, these measures would reduce potential biological resource impacts during intersection improvement construction to *less than significant with mitigation.*

Biological Resource Impacts from Freeway Ramps. The additional required ROW for the freeway ramp intersection improvements include remnant grassland areas, which, though disturbed, may provide habitat for special-status species such as the burrowing owl. There are also adjacent wetland areas north of SR 237. Tree removal may also be necessary, which could affect native bird species that could be nesting in the trees if construction occurs during the nesting/breeding season.

Mitigation Measures. See Mitigation Measure IM-BIO-1, described in VII.G.1.b, and Mitigation Measures IM-BIO-2 and IM-BIO-3, described above.

Findings Regarding Secondary Biological Resource Impacts from Freeway Ramps. Implementation of Mitigation Measure IM-BIO-1 would require tree replacement in accordance with the tree preservation polices or ordinances of the jurisdiction in which the improvements are constructed. Implementation of Mitigation Measure IM-BIO-2 would require preconstruction nesting surveys prior to any tree removal. Implementation of Mitigation Measure IM-BIO-3 would require site-specific surveys for special-status species, sensitive habitats, wetlands/waters, and nesting birds and implementation of avoidance, minimization, and compensation measures as appropriate. Therefore, these measures would reduce potential biological resource impacts during intersection improvement construction to *less than significant with mitigation.*

Biological Resource Impacts from Interchanges. Although the interchange improvements could occur within a highly disturbed urban context, it is possible that there may be waters or wetlands (in the form of urban ditches) at some of the interchange locations and tree removal would be required.

Mitigation Measures. See Mitigation Measure IM-BIO-1, described in VII.G.1.b, and Mitigation Measures IM-BIO-2 and IM-BIO-3, described above. These interchange improvements will undergo separate CEQA review.

Findings Regarding Secondary Biological Resource Impacts from Interchanges. The interchange improvements would occur within or immediately adjacent to an existing ROW in established urbanized settings. The additional required ROW for some of the intersection improvements would not include any native habitat areas. The existing urbanized setting of the intersection improvement locations makes it unlikely that the improvements would substantially affect any special-status species, special-status plants, associated habitat or other sensitive natural communities, or wildlife corridors.

Although ROW acquisition is anticipated for Intersections 27 and 28, which are located within the boundaries of the Santa Clara County HCP area, the areas of effect are highly disturbed already. Although the interchange improvements could occur within a highly disturbed urban context, some impact on biological resources (like impacts to nesting birds during tree removal) is possible and thus is considered *potentially significant.*

Implementation of mitigation similar to Mitigation Measure IM-BIO-1 would require tree replacement in accordance with the tree preservation policies or ordinances of the jurisdiction in which the improvements are constructed. Implementation of mitigation similar to Mitigation Measure IM-BIO-2 would require preconstruction nesting surveys prior to any tree removal.

Implementation of Mitigation Measure IM-BIO-3 would require site-specific surveys for wetlands/waters and implementation of avoidance, minimization, and compensation measures as appropriate. Therefore, similar measures would most likely reduce potential biological resource impacts during intersection improvement construction *to less than significant with mitigation.*

As noted above, these interchange improvements will undergo separate CEQA review.

i. Geology and Soils

Geology and Soils Impacts from Improvements in Existing Road ROWs. Intersection improvements in existing road ROWs would not expose structures or populations to new risks involving fault ruptures, seismic ground shaking, seismically related ground failures, or unstable geological units or soils.

Findings Regarding Secondary Geology and Soils Impacts from Improvements in Existing Road ROWs. Because these intersection improvements would be additions to existing roadways and not new roadway facilities and would be at grade, they would not expose structures or populations to new risks involving fault ruptures, seismic ground shaking, seismically related ground failures, or unstable geological units or soils. These intersection improvements would also not include the use of septic tanks or alternative wastewater disposal systems. Construction of the intersection improvements may require limited soil disturbance, but this is not expected to result in significant erosion if soil is exposed to wind or rainfall. Therefore, potential geologic, seismic, and soil impacts would be *less-than-significant.*

Geology and Soils Impacts from At-Grade Improvements Requiring Additional ROW. Intersection at-grade improvements requiring additional ROWs would not expose structures or populations to new risks involving fault ruptures, seismic ground shaking, seismically related ground failures, or unstable geological units or soils. However, some of the intersection improvements (Intersections 14, 45, and 84) could require construction or modification of retaining walls, which could disturb fill slopes/soils and may make them unstable.

Mitigation Measure IM-GEO-1: Prepare a Geotechnical Investigation. Prior to construction of any intersection improvement that requires retaining walls (or disturbance of existing retaining wall), disturbance or placement of fill, substantial excavation below grade, establishment of new slopes, and/or placement of new structures above or below grade, the Project Developer shall prepare a geotechnical investigation to evaluate the potential for geologic, seismic, and soil risks. The geotechnical investigation shall include recommendations to abate any potential risks. If risks are identified, the Project Developer shall implement the recommendations included in the geotechnical investigation.

Findings Regarding Secondary Geology and Soils Impacts from At-Grade Improvements Requiring Additional ROW. Implementation of Mitigation Measure IM-GEO-1 would require preparation of a geotechnical investigation that would evaluate potential risks related to geology and soils from construction of the retaining walls and disturbance of fills. Therefore, it would reduce potential geology and soil impacts during intersection improvement construction to *less than significant with mitigation.*

Geology and Soils Impacts from Freeway Ramps. Construction of freeway ramp improvements would include ground-disturbing activities, but would adhere to the requirements of the State Water Resources Control Board. In addition, these intersection improvements could require the construction of retaining walls and substantial grading, which could disturb fill slopes/soils and may make them unstable.

Mitigation Measure. See IM-GEO-1, described above.

Findings Regarding Secondary Geology and Soils Impacts from Freeway Ramps. Implementation of Mitigation Measure IM-GEO-1 would require preparation of a geotechnical investigation. Therefore, it would reduce potential geologic and soil impacts during intersection improvement construction to *less than significant with mitigation.*

Geology and Soils Impacts from Interchanges. Construction of interchange improvements would include ground-disturbing activities, but would adhere to the requirements of the State Water Resources Control Board. These intersection improvements would require substantial grading, the creation of new slopes, excavation below grade, and construction of potential above-grade and below-grade structures.

Mitigation Measures. The interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

Findings Regarding Secondary Geology and Soils Impacts from Interchanges. Construction of these intersection improvements would include ground disturbing activities that may subject disturbed soils to erosion if exposed to wind or rainfall. The Project would be required to implement strategies to reduce potential impacts, such as preparing and complying with a SWPPP, as required by the State Water Resources Control Board's Construction General Permit.

Implementation of mitigation similar to Mitigation Measure IM-GEO-1 would require the preparation of a geotechnical investigation that would evaluate potential risks related to geology, seismicity, and soils during grading, construction and excavation of the intersection improvements. Therefore, it would most likely reduce potential geologic and soil impacts during intersection improvement construction to *less than significant with mitigation.*

As noted above, the interchange improvements will undergo separate CEQA review.

j. Hydrology and Water Quality

Hydrology and Water Quality Impacts from At-Grade Improvements Requiring Additional ROW. Intersection at-grade improvements requiring additional ROWs would not create a substantial amount of stormwater runoff that could exceed the existing capacity of the stormwater drainage system or have substantial water quality impacts. However, improvements at Intersection 84 in San José could also result in significant impacts on nearby wetlands northeast of the intersection

Mitigation Measure. See Mitigation Measure IM-BIO-3, described in VII.G.1.h.

Findings Regarding Secondary Hydrology and Water Quality Impacts from At-Grade Improvements Requiring Additional ROW. Mitigation Measure IM-BIO-3 would ensure that wetlands are avoided or the wetland habitat is compensated for at a 1:1 ratio. Implementation of this mitigation would reduce water resource impacts due to wetland disturbance to *less than significant with mitigation.*

Hydrology and Water Quality Impacts from Freeway Ramps. The freeway ramp improvements could alter the existing drainage patterns on-site and create new impervious surfaces, which could create a substantial amount of stormwater runoff that would exceed the existing capacity of the stormwater drainage system and have water quality impacts.

Mitigation Measure IM-WQ-1: Prepare a Hydrology and Water Quality Technical Report. Prior to construction of any intersection improvement, the Project Developer shall prepare a hydrology and water quality technical report to evaluate the existing drainage and stormwater conditions at the subject intersections. The technical report shall include recommendations for drainage and stormwater controls to minimize impacts related to changes in drainage patterns that would result from the intersection improvements. The Project Developer shall be required to implement the report's recommendations.

Findings Regarding Secondary Hydrology and Water Quality Impacts from Freeway Ramps. Mitigation Measure IM-WQ-1 would require the preparation of a hydrology and water quality technical report that would evaluate drainage and stormwater conditions at the intersections and provide recommendations for drainage and stormwater controls to ensure that the intersection improvements would not substantially alter the existing drainage patterns of the affected area, deplete groundwater supplies, interfere with groundwater recharge, or degrade water quality. Therefore, it would reduce potential hydrology and water quality impacts during intersection improvement construction and operation to *less than significant with mitigation.*

Hydrology and Water Quality Impacts from Interchanges. Interchange improvements could alter the existing drainage patterns on-site and create new impervious surfaces, which could create a substantial amount of stormwater runoff that would exceed the existing capacity of the stormwater drainage system and have water quality impacts.

Mitigation Measures. See IM-WQ-1, described above. These interchange improvements will undergo separate CEQA review.

Findings Regarding Secondary Hydrology and Water Quality Impacts from Interchanges. Construction of the intersection improvements could result in impacts on water quality through ground-disturbing activities that have the potential to affect water quality through soil erosion and stormwater discharge of pollutants and sedimentation. Groundwater could be encountered during excavation below grade as well. Interchange improvements would be required to implement strategies to reduce potential impacts, such as preparing and complying with a SWPPP, as required by the State Water Resources Control Board's Construction General Permit, ensuring that construction impacts would most likely be *less than significant with mitigation.*

Portions of the interchange locations would be on predominantly impervious surfaces that are currently covered by a paved roadway or sidewalk. These improvements could substantially change the amount of impervious surfaces in or adjacent to the improvement area. Given the grade changes, these improvements could also alter the existing drainage patterns of the affected area, deplete groundwater supplies, or interfere with groundwater recharge.

It is anticipated that the existing stormwater drainage facilities that serve the roadways would continue to be used. Because these intersection improvements could alter the existing drainage patterns on-site and create new impervious surfaces, the intersection improvements could create a substantial amount of stormwater runoff that could exceed the existing capacity of the stormwater drainage system. Thus, interchange improvements are considered to have *potentially significant impacts* related to runoff, water quality, and groundwater interference.

Implementation of mitigation similar to Mitigation Measure IM-WQ-1 would require preparation of drainage and stormwater evaluations. Therefore, it would most likely reduce potential hydrology and water quality impacts during intersection improvement construction and operation to *less than significant with mitigation.*

As noted above, these interchange improvements will undergo separate CEQA review.

k. Hazards and Hazardous Materials

Hazards and Hazardous Materials Impacts from Improvements in Existing Road ROWs. These intersection improvements would not expose people to hazards caused by proximity to a public or private airport, would not expose people to wildland fire hazards, and would not result in the creation of structures or sources that would result in the long-term operational use or emissions of hazardous materials. However, construction of the intersection improvements in existing road ROWs could result in lane or street closures and could temporarily interfere with an adopted emergency response plan or emergency evacuation plan.

Mitigation Measure. See Mitigation Measure IM-TRA-1, described in VII.G.1.c.

Findings Regarding Secondary Hazards and Hazardous Materials Impacts from Improvements in Existing Road ROWs. With implementation of Mitigation Measure IM-TRA-1), which requires preparation of a construction traffic control plan, potential impacts on emergency access would be *less than significant with mitigation.*

Hazards and Hazardous Materials Impacts from At-Grade Improvements Requiring Additional ROW. Construction of the intersection at-grade improvements requiring additional ROWs could result in lane or street closures and could temporarily interfere with an adopted emergency response plan or emergency evacuation plan. In addition, since it is unknown if intersection improvement sites are included on a list of hazardous materials site, it is assumed that if hazardous materials are disturbed during construction, this could create a hazard to the environment.

Mitigation Measure. See Mitigation Measure IM-TRA-1, described in VII.G.1.c.

Mitigation Measure IM-HAZ-1: Prepare a Phase I Environmental Site Assessment. Prior to construction of any intersection improvement involving ground disturbance of acquired property, the Project Developer shall conduct a Phase I Environmental Site Assessment. Where the potential to encounter hazardous materials or waste is identified, the Project Developer shall prepare and implement a soil/groundwater handing plan that identifies measures to properly dispose of contaminated materials. Measures could include worker education and training, as appropriate, and site-specific controls to avoid risks to workers and adjacent residents or others.

Findings Regarding Secondary Hazards and Hazardous Materials Impacts from At-Grade Improvements Requiring Additional ROW. With implementation of Mitigation Measure IM-TRA-1, which requires preparation of a construction traffic control plan, potential impacts on emergency access would be less than significant with mitigation. Implementation of Mitigation Measure IM-HAZ-1 would require the preparation of a Phase I Environmental Site Assessment of all disturbed and acquired property. Where the potential to encounter hazardous materials or waste is identified, a soil/groundwater handling plan that identifies proper disposal methods will be prepared and implemented. Therefore, it would reduce potential hazards or hazardous waste impacts during intersection improvement construction to *less than significant with mitigation.*

Hazards and Hazardous Materials Impacts from Freeway Ramps. Construction of the freeway ramp improvements could result in lane or street closures and could temporarily interfere with an adopted emergency response plan or emergency evacuation plan. In addition, since it is unknown if intersection improvement sites are included on a list of hazardous materials site, it is assumed that if hazardous materials are disturbed during construction, this could create a hazard to the environment.

Mitigation Measures. See Mitigation Measure IM-TRA-1, described in VII.G.1.c, and Mitigation Measure IM-HAZ-1, described above.

Findings Regarding Secondary Hazards and Hazardous Materials Impacts from Freeway Ramps. With implementation of Mitigation Measure IM-TRA-1, which requires preparation of a construction traffic control plan, potential impacts on emergency access would be less than significant with mitigation. Implementation of Mitigation Measure IM-HAZ-1 would require preparation of a Phase I Environmental Site Assessment and would require a soil/groundwater handling plan, when necessary. Therefore, it would reduce potential hazards or hazardous waste impacts during intersection improvement construction to *less than significant with mitigation.*

Hazards and Hazardous Materials Impacts from Interchanges. Construction of the interchange improvements could result in lane or street closures and could temporarily interfere with an adopted emergency response plan or emergency evacuation plan. In addition, since it is unknown if intersection improvement sites are included on a list of hazardous materials site, it is assumed that if hazardous materials are disturbed during construction, this could create a hazard to the environment.

Mitigation Measures. See Mitigation Measure IM-TRA-1, described in VII.G.1.c, and Mitigation Measure IM-HAZ-1, described above. These interchange improvements will undergo separate CEQA review.

Findings Regarding Secondary Hazards and Hazardous Materials Impacts from Interchanges. Construction of the intersection improvements could result in lane or street closures and interfere with an adopted emergency response plan or emergency evacuation plan, which is considered a *potentially significant impact*. With implementation of mitigation similar to Mitigation Measure IM-TRA-1, which requires preparation of a construction traffic control plan, potential impacts on emergency access would most likely be *less than significant with mitigation*.

Construction of these intersection improvements would also most likely involve the use of potentially hazardous materials such as fuel, diesel/gasoline, motor oils, and hydraulic oils. Whether the intersection improvement sites are included on a list of hazardous materials sites is unknown at this time. Hazardous materials could be disturbed, creating a hazard to the public, the environment, or schools within 0.25 mile of the sites. Implementation of mitigation similar to Mitigation Measure IM-HAZ-1 would require the preparation of a Phase I Environmental Site Assessment of all disturbed and acquired property. Where the potential to encounter hazardous materials or waste is identified, a soil/groundwater plan that identifies proper disposal methods will be prepared and implemented. Implementation of this mitigation would most likely reduce impacts to *less than significant with mitigation*.

As noted above, these interchange improvements will undergo separate CEQA review.

I. Population and Housing

Population and Housing Impacts from Improvements in Existing Road ROWs. None of these potential intersection improvements in existing road ROWs would induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads into undeveloped areas). These intersection improvements would not result in the demolition of existing structures that would displace housing or people.

Findings Regarding Secondary Population and Housing Impacts from Improvements in Existing Road ROWs. None of these potential intersection improvements would induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads into undeveloped areas), because these improvements would occur where roadways already exist. These intersection improvements would not result in the demolition of existing structures that would displace housing or people. Therefore, the intersection improvements would result in *no impact* related to population and housing.

Population and Housing Impacts from At-Grade Improvements Requiring Additional ROW. None of these potential intersection improvements requiring additional ROWs would induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads into undeveloped areas). The

additional ROW required for these intersection improvements would not result in the demolition of existing structures that would displace housing or people.

Findings Regarding Secondary Population and Housing Impacts from At-Grade Improvements Requiring Additional ROW. None of these potential intersection improvements would induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads into undeveloped areas), because these improvements would occur where roadways already exist. The additional ROW required for these intersection improvements would not result in the demolition of existing structures that would displace housing or people. Therefore, these intersection improvements would result in *no impact* related to population and housing.

Population and Housing Impacts from Freeway Ramps. None of these potential freeway ramp improvements would induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads into undeveloped areas). The freeway ramps would not result in the demolition of existing structures that would displace housing or people.

Findings Regarding Secondary Population and Housing Impacts from Freeway Ramps. None of these potential intersection improvements would induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads into undeveloped areas), because these improvements would occur where roadways already exist. The additional ROW required for some of these freeway improvements would not result in the demolition of existing structures that would displace housing or people. Therefore, these intersection improvements would result in *no impact* related to population and housing.

Population and Housing Impacts from Interchanges. None of these potential intersection improvements would induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads into undeveloped areas), because these improvements would occur where roadways already exist. However, the additional ROW required for one of the interchange improvements (e.g., Intersection 52) could result in the demolition of existing structures, which could displace housing or people.

Mitigation Measure. These interchange improvements will undergo separate CEQA review.

Findings Regarding Secondary Population and Housing Impacts from Interchanges. The additional ROW required for one of the interchange improvements (e.g., Intersection 52) could result in the demolition of existing structures, which could displace housing or people. Because the detailed designs for these intersection improvements have not been developed and are, therefore, conceptual, the exact displacement is unknown at this time. Therefore, at Intersection 52, impacts related to displacement would be *potentially significant and unavoidable.* No other feasible mitigation measures are available at this time.

As described above, these interchange improvements will undergo separate CEQA review. The final impacts and mitigation measures will be disclosed by the Lead Agency.

m. Public Services

Public Services Impacts from Improvements in Existing Road ROWs. These proposed intersection improvements in the existing road ROWs would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. However, this would not trigger the need for new or expanded public facilities.

Findings Regarding Secondary Public Services Impacts from Improvements in Existing Road ROWs. These proposed intersection improvements would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. Any such temporarily delayed response times would not trigger the need for new or expanded public facilities, resulting in a *less-than-significant* impact.

Public Services Impacts from At-Grade Improvements Requiring Additional ROW. These proposed intersection improvements requiring additional ROW would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. However, this would not trigger the need for new or expanded public facilities.

Findings Regarding Secondary Public Services Impacts from At-Grade Improvements Requiring Additional ROW. These proposed intersection improvements would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. Any such temporarily delayed response times would not trigger the need for new or expanded public facilities, resulting in a *less-than-significant* impact.

Public Services Impacts from Freeway Ramps. These proposed freeway ramp improvements would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. However, this would not trigger the need for new or expanded public facilities.

Findings Regarding Secondary Public Services Impacts from Freeway Ramps. These proposed intersection improvements would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police

protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. Any such temporarily delayed response times would not trigger the need for new or expanded public facilities, resulting in a *less-than-significant* impact.

Public Services Impacts from Interchanges. These proposed interchange improvements would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. However, this would not trigger the need for new or expanded public facilities.

Findings Regarding Secondary Public Services Impacts from Interchanges. The proposed interchange improvements would not develop any permanent structures that would generate a new population that would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Temporary impacts on fire protection and police protection could occur if construction of the intersection improvements results in changed roadway access, causing significantly delayed response times. Any such temporarily delayed response times would not trigger the need for new or expanded public facilities, resulting in a *less-than-significant* impact. These interchange improvements will undergo separate CEQA review.

n. Utilities and Service Systems

Utilities and Service System Impacts from Improvements in Existing Road ROWs. Improvements in existing Road ROWs would not generate a new population that would require domestic water, wastewater disposal and treatment, or solid waste collection services, and would not trigger the need for the expansion of facilities.

Findings Regarding Secondary Utilities and Service System Impacts from Improvements in Existing Road ROWs. The proposed intersection improvements within the existing ROW would not develop any permanent structures that would generate a new population that would require domestic water, wastewater disposal and treatment, or solid waste collection services and result in the expansion of facilities for such services. Debris generated during the construction of intersection improvements would be limited to the excess soil from ground-disturbing activities and existing roadway features that would be removed. Soil debris and demolition waste would be taken to an approved waste disposal location, would comply with applicable construction and demolition waste diversion requirements, and would not exceed the sufficient permitted capacity of a landfill.

Construction activities related to these intersection improvements could result in the relocation or temporary disruption of existing underground or overhead utilities. However, existing state law requires that all underground and overhead utilities be relocated prior to construction and that construction contractors coordinate with the appropriate utility owners regarding utility shutoff during construction and relocation, as necessary. These existing

requirements would reduce potential utility impacts during construction to a *less-than-significant* level.

Utilities and Service System Impacts from At-Grade Improvements Requiring Additional ROWs. Intersection at-grade improvements requiring additional ROWs would not generate a new population that would require domestic water, wastewater disposal and treatment, or solid waste collection services, and would not trigger the need for the expansion of facilities.

Findings Regarding Secondary Utilities and Service System Impacts from At-Grade Improvements Requiring Additional ROWs. These proposed intersection improvements would be within or adjacent to the existing ROW. They would not result in development of any permanent structures that would generate a new population that would require domestic water, wastewater disposal and treatment, or solid waste collection services and result in the expansion of facilities for such services. Debris generated during the construction of intersection improvements would be limited to the excess soil from ground-disturbing activities and existing roadway features that would be removed. Soil debris and demolition waste would be taken to an approved waste disposal location, would comply with applicable construction and demolition waste diversion requirements, and would not exceed the permitted capacity of a landfill.

Construction activities related to these improvements could result in the relocation or temporary disruption of existing underground or overhead utilities. However, existing state law requires that all underground and overhead utilities be relocated prior to construction and that construction contractors coordinate with the appropriate utility owners regarding utility shutoff during construction and relocation, as necessary. These existing requirements would reduce potential utility impacts during construction to a *less-than-significant* level.

Utilities and Service System Impacts from Freeway Ramps. Freeway ramp improvements would not generate a new population that would require domestic water, wastewater disposal and treatment, or solid waste collection services, and would not trigger the need for the expansion of facilities.

Findings Regarding Secondary Utilities and Service System Impacts from Freeway Ramps. These proposed ramp improvements would be within or adjacent to the existing ROW. They would not result in development of any permanent structures that would generate a new population that would require domestic water, wastewater disposal and treatment, or solid waste collection services and result in the expansion of facilities for such services. Debris generated during the construction of these intersection improvements would be limited to the excess soil from ground-disturbing activities and existing roadway features that would be removed. Soil debris and demolition waste would be taken to an approved waste disposal location, would comply with applicable construction and demolition waste diversion requirements, and would not exceed the permitted capacity of a landfill.

Construction activities related to these improvements could result in the relocation or temporary disruption of existing underground or overhead utilities. However, existing state law requires that all underground and overhead utilities be relocated prior to construction and that construction contractors coordinate with the appropriate utility owners regarding utility shutoff

during construction and relocation, as necessary. These existing requirements would reduce potential utility impacts during construction to a *less-than-significant* level.

Utilities and Service System Impacts from Interchanges. Interchange improvements would not generate a new population that would require domestic water, wastewater disposal and treatment, or solid waste collection services, and would not trigger the need for the expansion of facilities.

Findings Regarding Secondary Utilities and Service System Impacts from Interchanges. These proposed interchange improvements would be within or adjacent to the existing ROW. They would not result in development of any permanent structures that would generate a new population that would require domestic water, wastewater disposal and treatment, or solid waste collection services and result in the expansion of facilities for such services. Debris generated during the construction of these intersection improvements would be limited to the excess soil from ground-disturbing activities and existing roadway features that would be removed. Soil debris and demolition waste would be taken to an approved waste disposal location, would comply with applicable construction and demolition waste diversion requirements, and would not exceed the permitted capacity of a landfill.

Construction activities related to these interchanges could result in the relocation or temporary disruption of existing underground or overhead utilities. However, existing state law requires that all underground and overhead utilities be relocated prior to construction and that construction contractors coordinate with the appropriate utility owners regarding utility shutoff during construction and relocation, as necessary. These existing requirements would reduce potential utility impacts during construction to a *less-than-significant* level. These interchange improvements will undergo separate CEQA review.

2. Secondary Impact Analysis From Soundwall Construction

a. Land Use

Land Use Impacts from Installation of Soundwalls. The proposed soundwalls would not conflict with any applicable land use plans, policies, or regulations and would not divide an established community.

Findings Regarding Secondary Land Use Impacts from Installation of Soundwalls. The proposed soundwalls are not located within the boundaries of a HCP or NCCP. The soundwalls would be within or immediately adjacent to existing ROW, and would not physically divide an established community, because the soundwalls would replace existing privacy fencing and would not introduce new features that would change access for adjacent residences. Furthermore, because the soundwalls would be within or immediately adjacent to existing ROW, the soundwalls would not conflict with any applicable land use plans, policies, or regulations. The proposed soundwalls would result in a *less-than-significant* impact related to land use.

b. Aesthetics

Potential Aesthetic Impacts from Installation of Soundwalls. The soundwalls' impact on the existing visual character of the surrounding area would be less than significant. However,

some trees would be removed to accommodate the proposed soundwalls, resulting in a potentially significant aesthetic impact.

Mitigation Measure. See Mitigation Measure SW-BIO-1, described in VII.G.2.h.

Findings Regarding Secondary Aesthetic Impacts from Installation of Soundwalls. Implementation of Mitigation Measure SW-BIO-1 would require tree replacement at a minimum of 2:1. This would reduce potential aesthetic impacts related to tree removal to *less than significant with mitigation.*

c. Transportation

Transportation Impacts from Installation of Soundwalls. The proposed soundwalls would not result in the creation of any traffic-generating uses or any changes to existing traffic configurations or operations. However, construction of the proposed soundwalls could necessitate temporary lane or street closures, resulting in impacts on traffic.

Mitigation Measure SW-TRA-1: Prepare and Implement a Construction Traffic Control Plan. Prior to issuance of grading permits, the construction contractor will develop the traffic control plan in accordance with the City's policies and submit for approval. The plan will be implemented throughout the course of construction and may include, but will not be limited to, the following elements:

Limit truck access to the soundwall sites during peak commute times (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.).

Require that written notification be provided to contractors regarding appropriate routes to and from the soundwalls and the weight and speed limits on local roads that would be used to access the soundwall sites.

Provide access for emergency vehicles at all times.

Provide adequate parking for construction workers, site visitors, and inspectors as feasible.

Maintain bicycle and pedestrian access and circulation during Project construction where safe to do so. If construction encroaches on a bike lane, warning signs will be posted that indicate that bicycles and vehicles are sharing the roadway. If construction encroaches on a sidewalk, a safe detour will be provided for pedestrians at the nearest crosswalk.

Require traffic controls in the vicinity of the soundwalls, including flagpersons with bright orange or red vests and using a "Stop/Slow" paddle to control oncoming traffic.

Post standard construction warning signs in advance of the construction area and at any soundwall that provides access to the construction area.

Repair or restore the road right-of-way to its original condition or better upon completion of the work.

Findings Regarding Secondary Transportation Impacts from Installation of Soundwalls. Implementation of Mitigation Measure SW-TRA-1 would require the preparation and implementation of a Construction Traffic Control Plan. Therefore, this measure would reduce potential traffic impacts during soundwall construction to *less than significant with mitigation.*

d. Air Quality

Air Quality Impacts from Installation of Soundwalls. The proposed soundwall would not result in the creation of a structure or source that would emit long-term, operational air pollutant emissions and would not conflict with applicable air quality plans. However, air pollutant emissions from construction activities might affect sensitive receptors.

Mitigation Measure SW-AQ-1: Implement Measures to Reduce Construction-Related Dust Emissions. The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce fugitive dust. Emission reduction measures shall include, at a minimum, the measures below. Alternative measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City for approval.

All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. If water infiltration into landfill refuse layers is a concern, non-toxic soil stabilizers may be used instead.

All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph for a period of 2 hours or more.

Windbreaks (e.g., fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Windbreaks shall have at maximum 50 percent air porosity.

Exposed ground areas that are to be reworked more than 1 month after initial grading should be sown with fast-germinating native grass seed and watered appropriately until vegetation is established. If grass seeding is not feasible, then non-toxic soil stabilizers may be used.

All construction trucks and equipment, including tires, involved in ground disturbance or transit through loose soil areas shall be washed off prior to leaving the site.

Site accesses to a distance of 25 feet from the paved road shall be treated with a 6- to 12 inch compacted layer of wood chips, mulch, or gravel. Alternatively, a rumble plate may be used in place of chips, mulch, or gravel.

Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.

Mitigation Measure SW-AQ-2: Implement Measures to Reduce Construction-Related Exhaust Emissions. The Project Developer shall require all construction contractors to implement the specific construction mitigation measures below to reduce equipment exhaust emissions. Emission reduction measures shall include, at a minimum, the measures below. Alternative measures may be identified by the Project Developer or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the City for approval.

Idling time of diesel powered construction equipment shall be limited to 2 minutes.

The Project Developer shall ensure that all off-road diesel-powered equipment used during construction between 2017 and 2022 is equipped with U.S. Environmental Protection Agency (EPA) Tier 3 or cleaner engines, except for specialized construction equipment for which an EPA Tier 3 engine is not available. Consistent with advancements of the statewide fleet average, the Project Developer shall ensure that all off-road diesel-powered equipment used during construction between 2023 and 2030 is equipped with EPA Tier 4 engines. This requirement will ensure that construction equipment remains cleaner than the fleet-wide average.

The Project Developer shall ensure that all on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used at the Project site comply with EPA 2007 on-road emissions standards for particulate matter of 10 micrometers or less (PM10) and nitrogen oxides (NOX) (0.01 grams per brake horsepower-hour [g/bhp-hr] and 0.20 g/bhp-hr, respectively).

Notwithstanding the above requirements, all construction equipment, diesel trucks, and generators shall meet the California Air Resources Board's most recent certification standard for off-road heavy-duty diesel engines and shall employ Best Available Control Technology for emission reductions of NOX and particulate matter (PM) if more stringent than the requirements above.

Findings Regarding Secondary Air Quality Impacts from Installation of Soundwalls. Implementation of Mitigation Measure SW-AQ-1 would require Bay Area Air Quality Management District (BAAQMD) best management practices (BMPs) for fugitive dust. Mitigation Measure SW-AQ-2 would require BAAQMD BMPs for diesel exhaust emissions, which would reduce criteria pollutant air emissions to a less-than-significant level. Given the limited scope of the construction activities associated with the soundwalls, implementation of Mitigation Measures SW-AQ-1 and SW-AQ-2 should reduce potential exposure of sensitive receptors to toxic air contaminants during construction to a less-than-significant level. Therefore, these measures would reduce potential air quality impacts during soundwall construction to a *less-than-significant level with mitigation.*

e. Greenhouse Gas Emissions

Greenhouse Gas Emission Impacts from Installation of Soundwalls. The proposed soundwalls would not result in the creation of a structure or source that would emit long-term, operational greenhouse gas (GHG) emissions.

Findings Regarding Secondary Greenhouse Gas Emission Impacts from Installation of a Soundwall. The proposed soundwalls would not result in the creation of a structure or source that would emit longterm, operational GHG emissions. GHG emissions would be limited to the duration of the construction period and would be temporary in nature. Construction-related GHG emissions associated with the soundwalls would depend on the type of construction equipment used and the duration of construction activities. Given the limited scope of the soundwalls (approximately 0.4 mile long), it is anticipated that construction of the soundwall would not generate significant GHG emissions or conflict with applicable plans or policies adopted for the purpose of reducing GHG emissions. The proposed soundwalls would result in *less-than-significant* impacts related to GHG emissions.

f. Noise

Noise Impacts from Installation of Soundwalls. The soundwalls would not generate any noise or vibration that would affect nearby sensitive receptors. Noise impacts from the construction of the soundwall would be temporary and limited to the duration of the construction period.

Findings Regarding Secondary Noise Impacts from Installation of Soundwalls. The soundwalls have been identified as a mitigation measure to reduce traffic noise impacts on nearby sensitive receptors. The soundwalls themselves would not generate any noise or vibration that would affect nearby sensitive receptors. The soundwalls would not expose people to excessive noise levels due to the proximity to a public or private airport. Noise impacts from the construction of the soundwalls would be temporary and limited to the duration of the construction period. Noise from construction of the soundwalls may surpass the normally acceptable noise levels, especially for the residents to the east of the proposed soundwalls. Construction noise would occur due to the use of construction equipment and ground-disturbing activities may generate minor ground-borne vibration. Construction-related noise impacts associated with the proposed soundwalls would depend on the type of construction equipment used and the duration of construction activities. All construction activities would be required to comply with Chapter 9.10 of the City Code, which regulates construction hours and equipment. Therefore, potential noise impacts would be *less-than-significant*.

g. Cultural Resources

Cultural Resource Impacts from Installation of Soundwalls. Although the site of the proposed soundwalls have already been disturbed during the construction of the existing residences and sidewalks, ground-disturbing activities may uncover, damage, or destroy unknown or unrecorded archaeological resources, paleontological resources, or human remains.

Mitigation Measure SW-CR-1: Conduct Cultural Resource Investigations and Protect and Recover Significant Resources. The improvement Lead Agency shall conduct a cultural resource investigation of the areas of ground disturbance associated with the soundwalls that include a background records search (including a search of records from Sonoma State and historical societies, contact with Native American representatives identified by the Native American Heritage Commission [NAHC], and site pedestrian surveys) for the areas of ground disturbance from each roadway improvement. If significant known or suspected sites are

discovered within the Project footprint and would be disturbed by the Project, then a cultural resource treatment plan shall be prepared, defining Project monitoring and resource recovery and curation requirements concerning any encountered cultural resources.

Mitigation Measure SW-CR-2: Stop Work if Cultural Resources Are Encountered during Ground-Disturbing Activities. In the event that cultural resources are encountered during ground-disturbing activities, all work within proximity of the find shall temporarily halt so that the archaeological monitor can examine the find and document its provenience and nature (e.g., withdrawings, photographs, written descriptions). The archaeological monitor shall then direct that the work proceed if the find is deemed to be insignificant, continue elsewhere, or cease until adequate mitigation measures are adopted. If the find is determined to be potentially significant, the archaeologist, in consultation with the appropriate jurisdiction, shall develop a treatment plan, which could include site avoidance, capping, or data recovery. If data recovery is determined to be appropriate, excavation shall target recovery of an appropriate amount of information from archaeological deposits to determine the potential of the resource to address specific research questions. If it occurs, data recovery shall emphasize the understanding of the archaeological deposit's structure, including features and stratification, horizontal and vertical extent, and content, including the nature and quantity of artifacts.

Mitigation Measure SW-CR-3: Stop Work if Human Remains Are Encountered during Ground-Disturbing Activities. If human remains are discovered (in either an archaeological or construction context), all work within proximity of the remains shall stop so that the archaeological monitor can examine the remains. The County Coroner shall be notified to make a determination as to whether the remains are of Native American origin. If the remains are determined to be Native American, the coroner shall notify the NAHC immediately. The NAHC shall notify those persons it believes are most likely descended from the deceased Native American. Once the NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial, which will be implemented in accordance with Section 15064.5(e) of the State CEQA Guidelines.

Findings Regarding Secondary Cultural Resource Impacts from Installation of Soundwalls. Implementation of Mitigation Measure SW-CR-1 would require the Lead Agency to conduct cultural resource investigations and prepare and implement a cultural resource treatment plan, if necessary. Mitigation Measure SW-CR-2 would require the contractor to stop work if cultural resources are encountered during ground-disturbing activities. Implementation of Mitigation Measure SW-CR-3 would require the contractor to stop work if human remains are encountered during ground-disturbing activities. Therefore, these measures would reduce potential cultural resource impacts during soundwall construction to *less than significant with mitigation.*

h. Biological Resources

Biological Resource Impacts from Installation of Soundwalls. The proposed soundwalls would be within or immediately adjacent to existing ROW in an established urbanized setting. However, the soundwalls would require tree and shrub removal, which could affect native bird species that could be nesting in the trees and shrubs if construction occurs during the nesting/breeding season.

Mitigation Measure SW-BIO-1: Replace Removed Trees on a 2:1 Basis. The Project Developer shall replace all trees removed as part of soundwall construction at a minimum of 2:1, or more, as required by the local tree ordinance.

Mitigation Measure SW-BIO-2: Preconstruction Surveys. The Project Developer and its contractors shall avoid conducting vegetation removal during the migratory bird nesting season (February 1–August 31) if feasible. If construction activities must commence during the migratory bird nesting season, the Project Developer shall retain a qualified wildlife biologist to conduct a survey for nests of migratory birds. Surveys for nesting migratory birds shall occur within 3 days prior to the commencement of ground disturbance and vegetation removal.

If an active nest is discovered, a no-disturbance buffer zone around the nest tree or shrub (or, for ground-nesting species, the nest itself) shall be established. The no-disturbance zone shall be marked with flagging or fencing that is easily identified by the construction crew and shall not affect the nesting bird or attract predators to the nest location. In general, the minimum buffer zone widths shall be as follows: 50 feet (radius) for non-raptor ground-nesting species, 50 feet (radius) for non-raptor shrub- and tree-nesting species, and 300 feet (radius) for raptor species. Buffer widths may be modified based on discussion with the California Department of Fish and Wildlife (CDFW). Buffers shall remain in place as long as the nest is active or young remain in the area and are dependent on the nest. If a burrowing owl nest is identified during pre-construction surveys, no-activity buffers will adhere to the recommendations in the 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation.

Mitigation Measure SW-BIO-3: Site-Specific Surveys and Species/Habitat Avoidance, Minimization, and Compensation Measures. The Project Developer, in consultation with a qualified biologist, shall conduct a site-specific surveys for special-status species, sensitive habitats, wetlands and waters of the United States, and nesting birds. If found, the Project Developer and its contractor shall implement avoidance and minimization measures, where feasible. Where avoidance is not possible, the Project Developer shall compensate for lost habitat on a minimum 1:1 basis. Compensation for lost habitat will be determined in consultation with CDFW/U.S. Fish and Wildlife Service (USFWS), as appropriate. The Project Developer shall obtain all required permits from the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board, and CDFW and USFWS as appropriate. The Project Developer shall provide buffer fencing and species relocation, as necessary, if permitted by CDFW/USFWS. Additionally, if special-status species or habitats are identified during the site-specific surveys, a Worker Environmental Awareness Training Program for construction personnel will be conducted by a qualified biologist retained by the Project Developer. The program will provide workers with information on their responsibilities with regard to the special-status species. The training will provide a physical description of the special-status species that have potential to occur and be affected by construction activities to each construction crew prior to the initiation of the crew's construction activities. The worker awareness training will also provide details regarding each species' habitat and legal protections, a photo of relevant species, and contact information for the primary biologist.

Findings Regarding Secondary Biological Resource Impacts from Installation of a Soundwall. Implementation of Mitigation Measure SW-BIO-1 would require tree replacement at a minimum of 2:1. Implementation of Mitigation Measure SW-BIO-2 would require

preconstruction nesting surveys prior to any tree removal. Implementation of Mitigation Measure SW-BIO-3 would require site-specific surveys for special-status species, sensitive habitats, wetlands/waters, and nesting birds and implementation on avoidance, minimization, and compensation measures where sensitive biological resources are encountered. Therefore, these measures would reduce potential biological resource impacts during soundwall construction to *less than significant with mitigation.*

i. Geology and Soils

Geology and Soil Impacts from Installation of Soundwalls. The proposed soundwalls would not expose structures or populations to new risks involving earthquake fault ruptures, seismic ground shaking, seismically related ground failures, or unstable geological units or soils. However, construction of the soundwalls could disturb fill slopes/soils and make them unstable.

Mitigation Measure SW-GEO-1: Prepare a Geotechnical Investigation. Prior to construction of the soundwalls, the Project Developer shall prepare a geotechnical investigation to evaluate the potential for geologic, seismic, and soil risks. The geotechnical investigation shall include recommendations to abate any potential risks. If risks are identified, the Project Developer shall implement the recommendations included in the geotechnical investigation.

Findings Regarding Secondary Geology and Soil Impacts from Installation of Soundwalls. Implementation of Mitigation Measure SW-GEO-1 would require preparation of a geotechnical investigation that would evaluate potential risks related to geology and soils from construction of the soundwall. Therefore, it would reduce potential geologic and soil impacts during soundwall construction *to less than significant with mitigation.*

j. Hydrology and Water Quality

Hydrology and Water Quality Impacts from Installation of Soundwalls. The soundwall could alter the existing drainage patterns on-site and create new impervious surfaces; therefore, the soundwalls could create a substantial amount of stormwater runoff that could exceed the existing capacity of the stormwater drainage system and have water quality impacts.

Mitigation Measure SW-WQ-1: Prepare a Hydrology and Water Quality Technical Report. Prior to construction of the soundwalls, the Project Developer shall prepare a hydrology and water quality technical report to evaluate the existing drainage and stormwater conditions at the soundwall sites. The technical report shall include recommendations for drainage and stormwater controls to minimize impacts related to changes in drainage patterns that would result from the soundwall. The Project Developer shall be required to implement the report's recommendations.

Findings Regarding Secondary Hydrology and Water Quality Impacts from Installation of Soundwalls. Mitigation Measure SW-WQ-1 would require the preparation of a hydrology and water quality technical report that would evaluate drainage and stormwater conditions at the soundwall sites and provide recommendations for drainage and stormwater controls to ensure that the soundwalls would not substantially alter the existing drainage patterns of the affected area, deplete groundwater supplies, interfere with groundwater recharge, or degrade water quality. Therefore, it would reduce potential hydrology and water quality impacts

during soundwall construction and operation to *less than significant with mitigation.* Mitigation Measure SW-BIO-3 would ensure that wetlands would be avoided or wetland habitat would be compensated for at a 1:1 ratio. Implementation of this mitigation would reduce water resource impacts due to wetland disturbance to *less than significant with mitigation.*

k. Hazards and Hazardous Materials

Hazards and Hazardous Material Impacts from Installation of Soundwalls. Construction of the soundwalls could result in temporary lane or street closures and temporarily interfere with an adopted emergency response plan or emergency evacuation plan. In addition, it is unknown if the sites of the soundwalls are included on a list of hazardous materials sites; therefore, construction could disturb hazardous materials, creating a hazard to the public, the environment, or schools within 0.25 mile.

Mitigation Measures. See Mitigation Measure SW-TRA-1, described in VII.G.2.c, and:

Mitigation Measure SW-HAZ-1: Prepare a Phase I Environmental Site Assessment. Prior to construction of the soundwalls, the Project Developer shall conduct a Phase I Environmental Site Assessment. Where the potential to encounter hazardous materials or waste is identified, the Project Developer shall prepare and implement a soil/groundwater handing plan that identifies measures to properly dispose of contaminated materials. Measures could include worker education and training, as appropriate, and site-specific controls to avoid risks to workers and adjacent residents or others.

Findings Regarding Secondary Hazards and Hazardous Material Impacts from Installation of Soundwalls. With implementation of Mitigation Measure SW-TRA-1, which requires preparation of a construction traffic control plan, potential impacts on emergency access would be less than significant with mitigation. Implementation of Mitigation Measure SW-HAZ-1 would require the preparation of a Phase I Environmental Site Assessment of all disturbed and acquired property. Where the potential to encounter hazardous materials or waste is identified, a soil/groundwater handling plan that identifies proper disposal methods will be prepared and implemented. Therefore, it would reduce potential hazards or hazardous waste impacts during soundwall construction to *less than significant with mitigation.*

l. Population and Housing

Population and Housing Impacts from Installation of Soundwalls. The proposed soundwalls would not induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads) and would not result in the demolition of existing structures that would displace housing or people.

Findings Regarding Secondary Population and Housing Impacts from Installation of a Soundwall. The proposed soundwalls would not induce substantial population growth in the area either directly (by generating a population) or indirectly (through the extension of new roads). The construction of the proposed soundwalls could result in the demolition of existing privacy fencing, but would not result in the demolition of existing structures that would displace housing or people. Therefore, the proposed soundwalls would result in *no impact* on population and housing.

m. Potential Utilities and Service Systems

Utilities Impacts from Installation of Soundwalls. The proposed soundwalls would not develop any permanent structures that would generate a new population requiring domestic water, wastewater disposal and treatment, or solid waste collection services that would result in the expansion of these facilities. However, Construction activities related to the soundwalls could result in the relocation or temporary disruption of existing underground or overhead utilities.

Mitigation Measures SW-UT-1: Identify Underground and Overhead Utilities and Provide Coordination with Utility Providers. Prior to construction of the soundwalls, the Project Developer shall identify all underground and overhead utilities within the footprint of the soundwalls. If utilities are present, the Project Developer shall coordinate with the appropriate utility owners regarding utility shutoff during construction and relocation, as necessary.

Findings Regarding Secondary Utilities Impacts from Installation of Soundwalls. Implementation of Mitigation Measure SW-UT-1 would minimize utility disruptions by ensuring coordination with the appropriate utility providers. Therefore, it would reduce potential utility impacts during soundwall construction to *less than significant with mitigation.*

n. Public Services

Public Service Impacts from Installation of Soundwalls. Installation of soundwalls would not generate a new population, which would increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Construction activities could require the temporary lane closure, but this would not result in significantly delayed response times and would not trigger the need for new or expanded public facilities.

Findings Regarding Secondary Public Service Impacts from Installation of Soundwalls. The proposed soundwalls would not develop any permanent structures that would generate a new population and increase the demand for fire protection, police protection, schools, parks, or recreational facilities. Construction activities could require temporary lane closure, but this would not result in significantly delayed response times. Any such temporarily delayed response times would not trigger the need for new or expanded public facilities, resulting in *less-than-significant* impacts.

H. Findings Regarding Impacts of EOS Variant

The significance findings for each impact category set forth in Sections C, D, E, F and G above (e.g., *less than significant impact*, *less than significant impact with mitigation*, or *significant and unavoidable impact*) reflect the impacts of the Project, incorporating the EOS Variant and the Increased Housing Alternative. This Section VII.H compares the impacts of the EOS Variant to those of the Original Project, and sets forth the basis for the City's findings that incorporating the EOS Variant into the Project does not change the significance findings that would have been made for the Original Project.[18]

[18] Section VIII.B.2.b below sets forth the basis for the City's findings that incorporating the Increased Housing

With respect to the EOS Variant analyzed in Exhibit A to the FEIR, the City finds the following with respect to each type of land use impact:

Land Use: Like the Original Project, the EOS Variant would result in a *significant and unavoidable impact* because the jobs/housing balance would be the same the Original Project. The shift of up to 720,000 gsf from Parcel 3 to Parcels 1, 2 and 5 would not create any additional land use planning or policy conflicts. Parcel 3 is currently designated for park/open space use and thus use for a park and open space would be consistent with current land use planning.

Aesthetics: Like the Original Project, the impact of both construction and operation of the EOS Variant would be *less than significant with mitigation.* Using Parcel 3 for open space and park uses would introduce far fewer sources of light and glare with much more limited recreational facilities. With the increase in office space on Parcels 1, 2 and 5, the general character of new development would not substantially change from the original proposed Scheme A and B uses on Parcels 1, 2 and 5 and thus the appearance of the development from adjacent viewpoints would be similar as well.

Transportation: Like the Original Project, the impact of construction of the EOS Variant would have a *less than significant impact* on pedestrian, bicycle and transit facilities, and like the Original Project, construction of the EOS Variant would result in a *significant and unavoidable impact* on motor vehicle traffic. Like the Original Project, the operational impacts of the EOS variant would be *significant and unavoidable with mitigation.* The EOS Variant would increase project traffic volumes along Tasman Drive, as well as Lick Mill north of Tasman, and some intersections would get slightly worse (and some would improve). Overall, the reallocation of proposed development in the EOS Variant would not create project or cumulative impacts at any additional intersections, and mitigation measures would also be unchanged with the EOS program.

Air Quality: Like the Original Project, construction air quality impacts with the EOS Variant would be *less than significant with mitigation* because the passive park/open space uses would require far less construction activity on Parcel 3 that would result in far less construction emissions than 720,000 sf of office space on that parcel in isolation, and overall construction activity with the shifting of 720,000 sf of office space to Parcels 1, 2 and 5 would be roughly the same as the Original Project.

Like the Original Project, operation of the EOS Variant would result is a *less than significant impact* from toxic air contaminant emissions. Like the Original Project, operation of the EOS Variant would be *significant and unavoidable with mitigation* from criteria pollutants from traffic and on-site stationary sources, although it would not increase such emissions. Also like the Original Project, the EOS Variant would have a significant and unavoidable impact on particulate (PM 2.5) emissions. The EOS Variant would result in a small (2 %) increase in such emissions as compared to the Original Project because it would increase traffic volumes along Tasman Drive, as well as Lick Mill north of Tasman.

Alternative into the Project does not change the significance findings that would have been made for the Original Project.

Greenhouse Gas Emissions: Like the Original Project, the EOS Variant would be *significant and unavoidable with mitigation* for greenhouse gas emissions. With the change in use at Parcel 3, there would be less disturbance to the landfill on Parcel 3, but potentially more disturbance on Parcels 1 and 2, and thus fugitive emissions of methane during construction are expected overall to be similar because they are likely related more to the duration of construction (which should be roughly similar with the project change) than to location in the landfill. The intensification of office use would not change the overall project GHG emissions because traffic generation and building-related emissions would be highly similar to the Original Project. The same mitigation measures would apply.

Noise: Like the Original Project, noise impacts during construction of the EOS Variant would be *less than significant with mitigation.* Also like the Original Project, noise impacts from operation of the EOS Variant would be *significant and unavoidable with mitigation.* The areal extent of cumulative operational noise impacts would be somewhat expanded; therefore, the mitigation measure to build soundwalls, if feasible, would apply to one additional segment of roadway (the south side of Tasman Drive between Lafayette Street and Calle del Sol). The identification of one additional location where noise would cross the threshold is not considered to be a substantial increase in the severity of the already identified significant cumulative traffic noise impact that previously identified four segments warranting mitigation. The analysis of the secondary impacts of adding the Tasman Drive soundwall concluded that it would not result in any new significant impacts or require new additional measures beyond those identified for the soundwall mitigation measure in the Original Project.

Cultural Resources: Like the Original Project, the impacts to cultural resources of the EOS Variant would be *less than significant with mitigation.* The EOS Variant would result in similar construction impacts to the Original Project to cultural and paleontological resources because construction excavation would occur in the same areas of undisturbed soil/ground as the Original Project. There would be a reduction of excavation on Parcel 3, but Parcel 3 is fully underlain by the former landfill and has less potential to have intact cultural or paleontological resources. The same mitigation identified for the Original Project would reduce impacts from the EOS Variant to cultural resources, paleontological resources, and human remains.

Biological Resources: Like the Original Project, the construction impacts to special status species, nesting birds and waters and wetlands of the EOS Variant would be *less than significant with mitigation.* Construction associated with the passive park/open space uses on Parcel 3 would likely have less surficial disturbance and would have less subsurface disturbance than construction of office uses on Parcel 3. There is non-native grassland surrounding the golf course holes on Parcel 3 and ruderal habitat between the golf course holes. Depending on the nature of passive recreation uses, some or perhaps all of this non-native grassland and ruderal habitat may be converted to recreational use. Thus, the EOS could have impacts similar to the Original Project on nesting birds (including burrowing owls should they be present at the time of construction) on Parcel 3. There is a swale along the east side of Parcel 3 and small wetland in the southeast corner. With passive park/open space uses, impacts to these water/wetland features may be similar (or possibly less) than the original Proposed Project during construction. Construction associated with the additional office space on Parcels 1, 2 and 5 is unlikely to increase the impacts of the original Proposed Project because all of these parcels would be developed under the Original Project and the EOS Variant would not include any additional

impact areas to biological resources habitat that would not already be affected. The same mitigation measures for construction impacts as the Original Project would apply.

Like the Original Project, the impacts to nesting birds, special status species (including burrowing owl) and waters and wetlands of operating the EOS Variant would be *less than significant with mitigation*. For the same reasons cited for construction impacts, operational impacts of the passive park/open space uses on Parcel 3 with the EOS Variant may have similar impacts on biological resources as office uses on Parcel 3. Likewise, on Parcels 1, 2 and 5, the impacts on biological resources would likely be the same as the Original Project because all of these parcels would be developed under the Original Project, and the EOS Variant would not include any additional impact areas to biological resources habitat that would not already be affected. The overall amount of traffic generation and thus nitrogen emissions would be roughly the same as the Original Project. The overall amount of impervious spaces for the project as a whole (all parcels) would not increase with the project change and could actually decrease with densification of office space where the additional office space on Parcels 1, 2 or 5 could be accommodated through additional building height instead of additional building footprint. The same mitigation measures for operational impacts as the Original Project would apply.

Geology and Soils: Like the Original Project, overall impacts with the EOS Variant related to geology and soils would be *less than significant with mitigation*. Construction of passive park improvements on Parcel 3 with the EOS Variant would likely result in less soil disturbance than construction of office uses on Parcel 3. There would be more construction on Parcels 1, 2, and 5 with the increase in office space that could result in more soil disturbance on those parcels, but the overall project disturbance would be about the same as the original Proposed Project. With the construction mitigation measures identified for the Original Project, these impacts would be less than significant. Operationally, the passive park structures would be far more limited in extent than the original proposed office buildings on Parcel 3, but depending on occupancy characteristics, some or all of the mitigation measures for geotechnical design, review, operations, monitoring, and maintenance could be required. While there would be an up to 20 percent increase in structures on Parcels 1, 2 and 5, the overall level of geological or soils risk would be similar to the original Proposed Project and the same operational mitigation would reduce geological and soils risks to a less than significant level.

Hydrology and Water Quality: Like the Original Project, construction impacts with the EOS Variant related to hydrology and water quality would be *less than significant with mitigation.* Construction of passive park improvements on Parcel 3 with the EOS Variant would likely result in less soil disturbance than construction of office uses on Parcel 3 and thus less water quality effects on that parcel. There would be more construction on Parcels 1, 2, and 5 with the increase in office space that could result in more soil disturbance on those parcels and localized water quality effects, but the overall project disturbance and associated water quality effects would be about the same as the Original Project. With the construction mitigation measures identified for the Original Project, these impacts would be reduced to a less than significant level.

Like the Original Project, overall operational impacts with the EOS Variant related to hydrology and water quality would be *less than significant with mitigation*. The passive park development would be far more limited in extent than the original proposed office

buildings on Parcel 3 and thus would likely have far less stormwater runoff, but the mitigation relative to stormwater and wetlands would still be required for any new buildings on Parcel 3. The increased office density on Parcels 1, 2 and 5 may increase impervious space on these parcels, but the net increase over the Original Project would depend on whether the additional square footage is achieved through adding office footprint, adding additional elevation to office buildings, or some combination of the two. The overall project impervious space total would not increase substantially over the original Proposed Project given no increase overall in floor space, but the subwatersheds on Parcels 1, 2, and 5 could see higher stormwater runoff levels than with the original Proposed Project. The project site stormwater system will need to be designed to handle the potentially larger stormwater runoff if the additional office space results in a net gain of impervious space. The requirements of the current MS4 permit would apply to all new development as well as the operational mitigation described above, which combined would require control and treatment of stormwater flows and thus impacts related to stormwater runoff would be less than significant. Overall site impervious space would not substantially change, and thus groundwater recharge impacts would not change.

Hazards and Hazardous Materials: Like the Original Project, construction impacts of the EOS Variant related to hazards and hazardous materials would be *less than significant with mitigation.* Construction of passive park improvements on Parcel 3 with the EOS Variant would likely result in less soil disturbance than construction of office uses on Parcel 3 but is not currently envisioned to require disturbance of the refuse in the landfill. There would be more construction on parcels 1, 2, and 5 with the increase in office space that might result in more soil disturbance and refuse exposure on those parcels, but the overall project disturbance would be about the same as the original Proposed Project. The construction mitigation would be the same as identified for the Original Project.

Like the Original Project, operational impacts of the EOS Variant related to hazards and hazardous materials would be *less than significant with mitigation.* The passive park development would be far more limited in extent than the original proposed office buildings on Parcel 3 and the park structures are not expected to disturb the landfill refuse, with less or no disturbance then the level of mitigation relative to controlling risks from the landfill would be less than the Original Project on Parcel 3. However, depending on the park buildings and proposed use, some of the landfill related mitigation may still apply such as Mitigation Measures HAZ-4.5 (Building Restrictions), and HAZ-4.6 (Landfill Hazards Disclosure). While there would be an increase in office space on Parcels 1 and 2, operational impacts related to landfill risks would be similar to the original Proposed Project and the same operational mitigation would reduce landfill hazard risks to a less than significant level. Non-landfill risks due to an increase in structures on Parcel 5 would be controlled by the same mitigation as the Original Project for non-landfill hazards.

Population and Housing: The population and housing impacts of the EOS Variant would be similar to those of the Original Project, resulting in *significant* secondary environmental impacts (as described above under Land Use). Like the Original Project, the EOS Variant would also result in no displacement to people or housing due to construction. Construction employment would be similar to the Original Project given the similar level of overall proposed development. The EOS Variant would result in a similar level of employment

and housing as the Original Project and thus would also induce substantial population growth greater than planned within the City and the region.

Public Services: Like the Original Project, the EOS Variant would result in a *less than significant* impact to public services. It would not result in the need for new or physically altered fire service facilities beyond what the Original Project would require, nor would it result in the need for new of physically altered police service, school, parks and recreation, or library facilities. The EOS Variant also would not would not substantially change the demand for fire services, police services, schools or libraries because it would have a similar amount of residents, employees, and visitors overall. The EOS Variant would provide more opportunities for recreation and more parks than the Original Project.

Utilities and Service Systems: Like the Original Project, the impact to public utilities of the EOS Variant would be *less than significant with mitigation.* Under the EOS Variant, while the passive park use at Parcel 3 may include some facilities requiring utilities connections, with the intensification of office space on Parcels 1, 2 and 5; however, the amount of on-site utility infrastructure may be less than the Original Project because of the avoidance of duplicate utility lines on Parcel 3. The impact related to wastewater pumping capacity would be the same as the Original Project because the same overall level of wastewater demand would occur. The energy efficiency of the development under the EOS Variant is expected to be similar given the same level of overall buildout.

Water demand under the EOS Variant would be different than under the original Proposed Project. The turf areas associated with the two golf course holes on Parcel 3 would be eliminated along with the associated irrigation water demand. The irrigation water demand for the passive park/open space will depend on exactly what kind of recreational uses are accommodated. As a worst-case scenario, if the passive park/open space uses would have the same irrigation water demand as the existing golf course on Parcel 3, then the water demand could increase by an estimated 35 acre-feet compared to the Original Project, which would likely be met by recycled water, not potable water. Even with this small increase, the EOS Variant would not result in a shortfall in water supply under project conditions out to 2035. Like the Original Project, the EOS Variant could have shortfalls in 2030 and 2035 under certain scenarios, but those shortfalls are not expected to actually occur because the project demand is conservatively estimated minor increases in demand can be met through likely available groundwater supply, and there are existing specific mandatory water conservation requirements that can be used to address future water supply limitations. Thus, the additional potential for irrigation needs with the EOS Variant is not expected to result in an exceedance of available water supplies.

VIII. FINDINGS REGARDING ALTERNATIVES

A. Summary

CEQA and the State CEQA Guidelines require that an EIR "describe a range of reasonable alternatives to the project [including a No Project alternative] which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."

CEQA Guidelines § 15126.6(a). The EIR analyzed two No Project Alternatives and two additional alternatives (Reduced Intensity Alternative and Increased Housing Alternative) to the Project, including the impacts of each. The alternatives are summarized below and described in more detail in Chapter 5, *Alternatives*, of the EIR.

No Project Alternatives

- **No Project Alternative 1**. Under No Project Alternative 1, conditions at the Site would not change. Parcels 1–4 are currently occupied by the Santa Clara Golf & Tennis Club, Fire Station 10, a Bicycle-Motocross (BMX) track, the Ameresco Methane Plant, the Retention Basin, and a City vehicle washing station. The on-site features and buildings associated with the existing uses on Parcels 1–4 would remain. In addition, the existing surface parking lot at Parcel 5 would continue to operate as under existing conditions. The three existing off-site office buildings in Tasman East also would remain and not be demolished to accommodate the Lick Mill Boulevard extension proposed under the Project.
- **No Project Alternative 2**. No Project Alternative 2 is based on what would be reasonably expected to occur in the foreseeable future if the Project were not approved and development continued to occur in accordance with the City's General Plan and consistent with available infrastructure and community services. No construction or demolition would occur on Parcels 1–4 or off site. Although Parcel 5 is currently vacant and used for surface parking, Parcel 5 is designated for Regional Commercial land uses for Phase I (2010–2015), Phase II (2015–2025), and Phase III (2025–2035) of development under the City's General Plan. City Council review and approval would be required to rezone Parcel 5 with the appropriate zoning classifications consistent with the General Plan designation. After rezoning and a General Plan Amendment for increased floor area ratio (FAR), Parcel 5 could be developed with approximately 825,000 gsf of Regional Commercial uses that would serve both City residents and the surrounding region.

Reduced Intensity Alternative. The Reduced Intensity Alternative would include a 30 percent reduction in the amount of floor area compared with the Project. This reduction would involve substantially reducing the amount of office uses at all parcels, except for the City Center Zone. The Reduced Intensity Alternative would result in approximately 3.02 million gsf of office area, compared with 5.72 million gsf under the Project (Scheme A). All other land uses would have the same amount of area as proposed under Scheme A.

Increased Housing Alternative. Under the Increased Housing Alternative, the 320,000 gsf of office space planned under the Project (Scheme A) for the Parcel 4 portion of the City Center would be replaced with 320,000 gsf of residential space. This alternative would result in 320 additional residential units, for a total of approximately 1,680 residential units at the Project site. The Increased Housing Alternative would include the same amount of retail, hotel, and entertainment uses as the Project (Scheme A).

On the basis of comparing the extent to which the alternatives reduce or avoid the significant impacts of the Project, No Project Alternative 1 or 2 would be the environmentally

superior alternative under CEQA, but neither would meet the Project objectives. If one of the No Project Alternatives is the environmentally superior alternative, however, CEQA Guidelines section 15126.6(e)(2) requires the EIR to specify which of the other build alternatives (including the Project) would be environmentally superior.

The significant and unmitigatable impacts of the Project identified in the FEIR include impacts on traffic, air quality, noise, housing, birds, and GHG emissions. To be selected as an environmentally superior alternative, another alternative would need to reduce one or more of these significant, unmitigatable impacts to a level of insignificance. Because the Reduced Intensity Alternative will have less construction and operational impacts than the other action alternatives, the EIR identified the Reduced Intensity Alternative as the environmentally superior alternative. The Reduced Intensity Alternative is not, however, without significant impacts. Specifically, this alternative will have, in comparison with the Project, (i) a much smaller, but still significant and unavoidable, impact on the jobs-housing ratio, with concomitant significant and unavoidable impacts related to transportation, air quality, and GHG emissions; (ii) similar significant and unavoidable exterior noise levels associated with nearby airport uses; (iii) moderately reduced, but still significant and unavoidable, traffic impacts (due to changes in intersection level of service and freeway segment capacity); (iv) significant conflicts with regional air quality plans; (v) substantially less, but still significant criteria-pollutant emissions; (vi) less, but still considerable, contributions to significant cumulative regional air pollutant levels; (vii) fewer, but still significant, direct and indirect GHG emissions; and (viii) assumed lesser, though still significant and unavoidable, presumed impacts related to bird collisions. The Reduced Intensity Alternative would only reduce one of the Project's significant impacts to a level of insignificance: traffic noise impacts on off-site receptors (more specifically, those receptors along two roadway segments – Lafayette Street between Tasman Drive and Hogan Drive, and along the south side of Tasman Drive between Lafayette and Calle del Sol).

The City certifies that it has considered the information on alternatives provided in the EIR and in the record, and finds that, as described in the EIR and for the reasons identified in the following sections, specific economic, social, environmental, technological, legal or other considerations make the Reduced Intensity Alternative infeasible. Specifically, each individual reason presented below constitutes a separate and independent basis to reject the Reduced Intensity Alternative as being infeasible. The City finds that the Increased Housing Alternative is feasible, and consequently has been incorporated into the Project by increasing the allowable number of residential units under Scheme A to 1680.

B. Analysis of Each Alternative

1. No Project Alternatives

a. No Project Alternative 1

(i) No Project Alternative 1 Impact Assessment

No Project Alternative 1 would result in no impacts on land uses, aesthetics, transportation, air quality, GHG emissions, noise, cultural resources, biological resources, geology and soils, hazards and hazardous materials, population and housing, utilities and

services systems. Compared to the Project, No Project Alternative 1 would result in less environmental impacts.

(ii) No Project Alternative 1 Would Not Meet Project Objectives

No Project Alternative 1 would not meet the primary objectives of converting the existing uses at the former Santa Clara Landfill to more productive uses or modernizing the existing Landfill protection systems. Instead, Parcels 1–4 would still be occupied by the Santa Clara Golf & Tennis Club, a restaurant and banquet facility, Fire Station 10, a BMX track, the Ameresco Methane Plant, the Retention Basin, and a City vehicle washing station. In addition, Parcel 5 would remain as a surface parking lot. Because none of the proposed buildings would be constructed, No Project Alternative 1 would not achieve economies of scale and would not be able to meet the Project's basic objective of creating a vibrant mixed-use "live, work, play environment." The Project objective of providing commercial, residential, and entertainment uses for local and regional residents and promoting transit-oriented infill development would not be met. There would be no new public open spaces or other community benefits created under No Project Alternative 1; however, existing open spaces and community uses at the Project site would be maintained. Additionally, the primary objectives of providing additional visitor-serving facilities, augmenting hotel availability, and providing additional opportunities for major employers would not be met. Because no development would occur, No Project Alternative 1 would not create permanent or construction-related jobs compared to the Project. While this no project alternative would be environmentally superior to the Project, for all of the above reasons, No Project Alternative 1 would not meet the basic Project objectives.

b. No Project Alternative 2

(i) No Project Alternative 2 Impact Assessment

For No Project Alternative 2, the redevelopment of Parcels 1 through 4 would not occur and all existing buildings and uses would remain. There would be no environmental impacts associated with No Project Alternative 2 for Parcels 1 through 4.

Parcel 5, however, would be developed with Regional Commercial uses in accordance with the City's General Plan. In general, the environmental impacts of developing Parcel 5 would be similar to the Project, albeit on a smaller scale.

There would be no land use impacts associated with No Project Alternative 2. Similar to the Project, No Project Alternative 2 could create a new source of light and glare that could adversely affect daytime or nighttime views in the area. Therefore, the impact on visual quality due to increased light and glare from No Project Alternative 2 at Parcel 5 would be significant (though the magnitude of the impact would be less than the Project).

Like the Project, No Project Alternative 2 would increase daily vehicle trips and would result in significant and unavoidable traffic and transportation impacts. These impacts would be smaller, given the smaller development footprint, but significant nonetheless.

Like the Project, No Project Alternative 2 would conflict with the Air Quality Plan and result in significant and unavoidable impacts. No Project Alternative 2 would also require mitigation to mitigate to a less-than-significant level the impacts resulting from construction criteria air pollutants, the exposure of sensitive receptors to TAC emissions during construction and operation, and to reduce the effects of objectionable odors. Unlike the Project, however, No Project Alternative 2 would not result in significant and unavoidable impacts to operational criteria air pollutant emissions and emissions during combined Project construction and operation. Cumulative Air Quality Impacts would, like the Project, be significant and unavoidable.

Impacts from Greenhouse Gas Emissions would be reduced to a less than significant level under No Project Alternative 2. However, lack of residential uses in No Project Alternative 2 would result in fewer opportunities for reductions in vehicle miles traveled since there would not be a wide mix of uses on the Project site. Impacts relative to plan and policy consistency would be relatively greater than the Project, but still mitigable to a less-than-significant level.

Like the Project, both operational noise impacts from stationary sources and impacts on on-site receptors from the SJC airport would be significant and unavoidable under No Project Alternative 2. Construction noise impacts and roadway and rail noise/vibration impacts to on-site receptors would require mitigation to a less-than-significant level. Because No Project Alternative 2 would generate less traffic, however, traffic noise impacts on off-site receptors would be less-than-significant. Cumulative noise impacts would also be less than significant.

Impacts to cultural resources would be similar under No Project Alternative 2 as they would be with the Project (less than significant, with mitigation); although, under No Project Alternative 2 the magnitude of such impacts would be less. For biological resources, there would remain a significant and unavoidable impact to migratory birds under the No Project Alternative 2 due to bird collisions with the new buildings on Parcel 5. While, like the Project, impacts to burrowing owls and cumulative biological impacts would require mitigation to a less-than-significant level, No Project Alternative 2 would have no impacts on the western pond turtle, on special-status fish species and critical habitat, and on wetlands and other waters.

Similar to the Project, No Project Alternative 2 would have a significant impact on soil erosion and unstable soils and require mitigation to reduce those impacts to a less-than-significant level. Parcel 5 is not underlain with landfill, however, and, unlike the Project, would not be subject to landfill-related settlement and lateral spreading. Geology and soils impacts from No Project Alternative 2 would generally be less than the Project.

Regarding hydrology and water quality, similar to the Project, No Project Alternative 2 would have (with mitigation) less-than-significant impacts on water quality standards or waste discharge requirements, stormwater runoff, degradation of water quality, and cumulative hydrology and water quality impacts. Because Parcels 1 through 4 would not be developed, some impacts would be avoided entirely. Compared to the Project, the smaller footprint of No Project Alternative 2 would result in less-than-significant impacts arising from changes to existing drainage patterns and impacts from flooding in a flood hazard area.

Like the Project, No Project Alternative 2 would require mitigation to mitigate to less-than-significant levels the impacts from hazardous materials, accidental releases, and cumulative hazards and hazardous materials impacts. Because No Project Alternative 2 would not entail development on the former Landfill property, there would be a less-than-significant impact relating to landfill hazards. Unlike the Project, there would be no issues with subsurface landfill fires and no impacts to the leachate collection and removal system.

While the Project would have a significant and unavoidable impact on population growth, No Project Alternative 2 would not include any residential units, which would reduce this impact to less-than-significant. Like the Project, all public services impacts associated with No Project Alternative 2 would be less than significant, although the magnitude of any impacts would be smaller. Like the Project, the most impacts to utilities and service systems would be less-than-significant with mitigation under No Project Alternative 2.

(ii) No Project Alternative 2 Would Not Meet Project Objectives

No Project Alternative 2 would not meet one of the primary Project objectives, which is to convert the existing uses at the former Landfill to more productive uses and modernizing the existing Landfill protection systems. Instead, Parcels 1–4 would continue under current conditions with no mixed-use development, and Parcel 5 may be developed with Regional Commercial uses in the future, which would involve discretionary City approval with CEQA review.

Since the proposed development on Parcels 1 to 4 would not be constructed, No Project Alternative 2 would not achieve economies of scale and would not be able to meet the Project's basic objective of creating a vibrant, mixed-use "live, work, play environment." Although Parcel 5 could be developed under No Project Alternative 2, it would not be of the magnitude needed to meet the Project's objectives. Under No Project Alternative 2, development of the Project site with commercial, residential, and entertainment uses to the magnitude envisioned under the Project would not occur. The Project objective of enhancing these opportunities for local and regional residents or promoting transit-oriented infill development would not be met to the extent envisioned by the Project. There would be no new public open spaces and other community benefits created under No Project Alternative 2; however, existing open spaces and community uses at the Project site would be maintained. Thus, the primary objectives of providing additional visitor-serving facilities, augmenting hotel availability, and providing additional opportunities for major employers to locate to the City would not fully be met.

No Project Alternative 2 would also limit the flexibility of Parcel 5's development to respond to changing market demands and ensuring that the development remains economically feasible throughout a multiyear process. No Project Alternative 2 would create approximately 2,230 jobs, instead of approximately 24,760 (Scheme A) or 28,720 (Scheme B) net new jobs under the Project. This is 91 percent fewer jobs than the Project would provide under Scheme A and 92 percent fewer jobs than the Project would provide under Scheme B. The tax revenues for the City would incrementally increase over existing conditions rather than increase with implementation of the Project. While this alternative would be environmentally superior to the

Project No Project Alternative 2, for all of the above reasons it would not meet the basic Project objectives.

2. Project Build Alternatives

a. Reduced Intensity Alternative

(i) Reduced Intensity Alternative Impact Assessment

The Reduced Intensity Alternative would have similar significant and unavoidable land use impacts to the Project, although the jobs/housing imbalance would be affected to a lesser extent due to fewer office jobs being created.

Construction of the Reduced Intensity Alternative would result in similar changes to the existing visual character and quality of the Project site during construction as with the Project, although for a shorter construction period compared to the Project since the Reduced Intensity Alternative would result in less building square footage. Like the Project, the Reduced Intensity Alternative would require mitigation to mitigate light and glare impacts and to reduce the degradation to visual character, although the Reduced Intensity Alternative's smaller buildings would have smaller glare and visual impacts than the Project.

The Reduced Intensity Alternative would reduce the building square footage by 30 percent compared to the Project, and the resulting trip generation would be approximately 33 percent less than proposed under the Project. The Reduced Intensity Alternative would moderately reduce impacts or reduce the severity of impacts by 20 to 50 percent for intersection level of service and freeway segment capacity. To reduce trip generation, this alternative would most likely require implementation of similar mitigation measures to the Project. Regardless, the Reduced Intensity Alternative would still result in significant and unavoidable impacts to certain intersections. The significant and unavoidable pedestrian impact due to the sidewalk gap on Tasman Drive between Lafayette Street and Calle Del Sol would remain under the Reduced Intensity Alternative.

Air Quality impacts under the Reduced Intensity Alternative would be similar to the Project. Similar to the Project, the Reduced Intensity Alternative would conflict with regional air quality plans, resulting in a significant and unavoidable impact. While there would be a shorter overall construction period, daily average construction emissions generated by the Reduced Intensity Alternative would most likely be similar to those of the Project and likely exceed the BAAQMD's significance thresholds during construction, requiring similar mitigation. Although the Reduced Intensity Alternative's operational criteria-pollutant emissions would be substantially less than those of the Project (standing alone, or combined with construction emissions), they would still exceed BAAQMD thresholds and result in a significant and unavoidable impact. Similar to the Project, implementation of feasible mitigation would reduce construction and operation TAC emissions and objectionable odors to a level below significance, and the magnitude of these impacts would be less given the reduced construction and shorter exposure duration. Cumulative impacts would be less, but remain significant and unavoidable.

While annual direct and indirect GHG emissions would be reduced relative to the Project, the Reduced Intensity Alternative would still generate an increase in direct and indirect GHG

emissions over existing conditions and exceed the substantial progress efficiency metric established for 2030. Impacts from GHG emissions would thus be significant and unavoidable. Like the Project, the Reduced Intensity Alternative would implement GHG mitigation measures that would facilitate accomplishment of long-term State goals. Relative to plan and policy consistency, the alternative's impact would be less than significant with mitigation.

Construction noise impacts from the Reduced Intensity Alternative would be very similar to the Project, requiring a construction noise control plan and pile driving restrictions to reduce the impacts to a less-than-significant level. Notably, under the Reduced Intensity Alternative the traffic noise impacts on off-site receptors would have a less-than-significant impact, due to less vehicle trips generating lower amounts of roadway noise that would not exceed the applicable standard. Remaining noise impacts would be very similar to the Project, although the Reduced Intensity Alternative would result in less cumulative noise impacts.

Due to construction methods, impacts to cultural resources under the Reduced Intensity Alternative would be similar to the Project, and would require the same types of mitigation measures to reduce impacts to a less-than-significant level. Likewise, the Reduced Intensity Alternative's impact on biological resources would be very similar. Like the Project, tree removal and new building construction could result in significant and unavoidable impacts to nesting and migratory bird. Mitigation measures would be required to reduce impacts to burrowing owl, the western pond turtle, special-status fish species and critical habitat, and wetlands and other waters to a less-than-significant level.

The Reduced Intensity Alternative would have geology and soils impacts very similar to the Project, as it is conservatively assumed that the Reduced Intensity Alternative would also result in the same amount of earthwork and amounts of material that would be exposed as with the Project. The same types of mitigation measures would be required to mitigate significant impacts from soil erosion and unstable soils to a less than significant impact.

As with the Project, construction activities associated with the Reduced Intensity Alternative would include site clearing and grubbing, demolition and removal of existing structures and pavement, cut and fill activities, grading and excavation, paving, building construction, tree removal, and landscaping. Using the same sorts of mitigation measures, all impacts related to hydrology and water quality are expected to be mitigated to a level less-than-significant. While it is possible that the Reduced Intensity Alternative would result in less impervious surface, the EIR conservatively assumed that the alternative would create the same amount of impervious surfaces as the Project. The Reduced Intensity Alternative would result in the same (or slightly less) hydrology and water quality impacts compared to the Project. Cumulative impacts under the Project, including water quality impacts, groundwater recharge and supplies, storm drain capacity, and flooding would result in less than cumulatively considerable impacts with mitigation.

The Reduced Intensity Alternative's impacts related to hazards and hazardous materials would be similar to the Project impacts. Like the Project, excavation activities associated with the Reduced Intensity Alternative would be expected to penetrate into the waste units (i.e., encounter landfill waste) and require a Waste Management Plan to reduce associated impacts to a less-than-significant level. Similar mitigation measures to the Project would be required to

reduce the risks to workers and residents posed from subsurface hazardous materials and contaminated soil. Like the Project, the Reduced Intensity Alternative would include a leachate collection and removal system and require mitigation to reduce the risks of subsurface fire to a less-than-significant level. The cumulative setting for the Reduced Intensity Alternative for hazards and hazardous materials is the same as for the Project, and any significant impacts can be mitigated to a level less-than-significant.

Population and housing impacts are expected to be similar to the Project. The Reduced Intensity Alternative would result in a residential population of approximately 3,270 new residents, the same amount of new residents compared to Scheme A and 2,790 more residents compared to Scheme B. Because this growth is not anticipated in the City's General Plan or accounted for in regional planning efforts, the Reduced Intensity Alternative would result in significant and unavoidable secondary environmental impacts from the increase in population and would worse the jobs-housing ratio.

Like the Project, all public services impacts from the Reduced Intensity Alternative would be less than significant, although the Reduced Intensity Alternative would have a comparatively less impact on fire, police, and recreational resources. Similarly, the Reduced Intensity Alternative will be able to mitigate all utilities and service system impacts to a less-than-significant level. Due to the smaller project size, impacts to water delivery systems, wastewater, and solid waste are expected to be less, as are cumulative impacts.

In sum, the Reduced Intensity Alternative would result in a smaller overall gross square footage of development compared to the Increased Housing Alternative and the Project, which would lower the construction impacts on traffic, air quality, GHG emissions, noise, and lower operational demands for public services and utilities. While the gross square footage would be smaller, construction period disturbance impacts associated with erosion, water quality, and aesthetics would most likely be similar to the Increased Housing Alternative and the Project. The Reduced Intensity Alternative would result in fewer daily trips (94,240) compared to the Increased Housing Alternative (120,690) and the Project (140,730) and thus lower overall operational traffic, air quality, GHG, and traffic noise impacts than the Increased Housing Alternative and the Project. There are no resource areas for which the Reduced Intensity Alternative would have greater impacts than the Increased Housing Alternative or the Project. Thus, because it will notably have less construction and operational impacts than the other action alternatives, the Reduced Intensity Alternative is the environmentally superior alternative.

(ii) The Reduced Intensity Alternative is Not Feasible

The reduced intensity alternative was identified for analysis in the EIR because the City made a determination that it was *potentially* feasible, subject to more detailed review as the CEQA process proceeded. Under CEQA, "the decision makers may reject as infeasible alternatives that were identified in the EIR as potentially feasible." (*San Diego Citizenry Group v. County of San Diego* (2013) 219 Cal.App.4th 1, 18.) The City has now determined that the Reduced Intensity Alternative is not in fact feasible.

Although the Reduced Intensity Alternative would achieve a number of the Project Objectives, it would achieve them to a much lesser extent than the Project. This alternative

would achieve the Project objectives of modernizing the Landfill for more productive uses, but those uses would be less productive than under the Project. Compared to the Project, the Reduced Intensity Alternative would not sufficiently achieve the following important Project objectives: stimulating economic development and job creation in the City; promoting transit oriented infill development; providing additional opportunities for major employers to locate to the City through the creation of attractive office campuses; and increasing City revenues. Compared to the Project, the Reduced Intensity Alternative would result in fewer potential weekday customers within walking distance of the retail and entertainment opportunities in the City Center, fewer job opportunities within walking distance of the residential units in the City Center, and fewer jobs overall to support the City's overall economic and job creation objectives.

Furthermore, the Reduced Intensity Alternative is not economically feasible. The Project site lacks basic infrastructure and any construction proposal involves premium costs associated with building on a former landfill. These infrastructure and premium site development costs can be thought of as "horizontal site development costs," as opposed to the "vertical development" costs associated with building structures. These horizontal site development costs would most likely not be meaningfully reduced under the Reduced Intensity Alternative because such costs are generally incurred regardless of how much vertical development is placed on top of horizontal site improvements. The per-square-foot costs of development would significantly increase under the Reduced Intensity Alternative because there would be 30 percent less square footage of vertical development to which the horizontal site development costs could be proportionately allocated.

The Reduced Intensity Alternative was originally proposed because it represents the amount of office development that the parcels surrounding the City Center could accommodate without the expense of constructing parking structures on those parcels. However, the Project Developer has now determined that the reduction in Project revenues associated with developing less office space under this alternative is greater than the savings gained by not building the additional space and structured parking.

b. Increased Housing Alternative

(i) Increased Housing Alternative Impact Analysis

The site plan for the Increased Housing Alternative would be generally similar to the Project, and it is assumed that the building footprint of the Increased Housing Alternative would be identical to the Project. Buildings under the Increased Housing Alternative would also be the same height as proposed under the Project. The length of the construction period associated with the Increased Housing Alternative would be similar to the Project's construction period.

The Increased Housing Alternative would have significant and unavoidable land use impacts, although the jobs/housing imbalance would be affected to a lesser extent due to additional residential units being created. Compared to the Scheme B of the Original Project, if the Project were developed as Scheme A incorporating the Increased Housing Alternative, as permitted under the Master Community Plan, it would result in 3,550 more residents and approximately 1,150 fewer employees, thereby having a much smaller, but still significant,

impact on the jobs/housing balance. The Increased Housing Alternative also improves the jobs/housing balance as compared to Scheme A of the Original Project, but to a lesser extent because the increase in residents is 760 rather than 3,550.

The Increased Housing Alternative would place an additional 320 housing units on Parcel 4 compared to Scheme A of the Original Project, and 1,460 additional housing units in Parcel 4, compared to Scheme B of the Original Project. The additional residential units would be within the 65 CNEL noise contour of the nearby airport, thereby increasing the significant and unavoidable noise impacts compared to those of the Original Project.

The Increased Housing Alternative would require mitigation to reduce light and glare impacts and to reduce the degradation to visual character of the surrounding area.

Although the Increased Housing Alternative would increase the amount of residential uses, the office uses would decrease to result in the same amount of total square footage at the Project site. Since residential uses generate less traffic than office uses, this alternative would result in approximately 14.2 percent less traffic as compared to the Original Project (Scheme B). The Increased Housing Alternative would slightly reduce the severity of impacts by 5 to 20 percent on intersection level of service and freeway segment capacity. Impacts to the transit system, pedestrian facilities, and bicycle facilities would be similar to the impacts from the Project. Nevertheless, even with similar mitigation measures, traffic and transportation impacts under the Increased Housing Alternative would remain significant and unavoidable.

The Air Quality impacts of the Increased Housing Alternative would be similar to that of the Project. The Increased Housing Alternative would conflict with regional air quality plans due to an inconsistency related to socioeconomic forecasts. These Air Quality impacts are considered significant and unavoidable. While the Increased Housing Alternative would generate fewer daily trips, its criteria-pollutant emissions would still result in significant and unavoidable impacts by exceeding applicable BAAQMD thresholds for criterial air pollutants. Due to the increased residential components, however, exposure of sensitive receptors to objectionable odors and TAC emissions during construction and operation, and to asbestos during construction, would be relatively greater than the Project (although mitigation measures would reduce any such impacts to a less-than-significant level). Cumulative Air Quality impacts would remain significant and unavoidable under the Increased Housing Alternative.

While annual direct and indirect GHG emissions would be reduced relative to the Project (because residents generate less vehicle trips than employees), the Increased Housing Alternative would still generate an increase in direct and indirect GHG emissions over existing conditions and exceed the substantial progress efficiency metric established for 2030. Impacts from GHG emissions would thus be significant and unavoidable. Like the Project, the Increased Housing Alternative would implement GHG mitigation measures that would facilitate the pursuit of long-term State goals. Relative to plan and policy consistency, the alternative's impact would be less than significant with mitigation.

Construction noise impacts from the Increased Housing Alternative would be very similar to the Project and would require a construction noise control plan and pile driving restrictions to reduce the impacts to a less-than-significant level. Notably, under the Increased

Housing Alternative the traffic noise impacts on off-site receptors would have a less-than-significant impact, due to less vehicle trips generating lower amounts of roadway noise that would not exceed the applicable standard. Remaining noise impacts would be very similar to the Project, although the Increased Housing Alternative would result in less cumulative noise impacts.

Due to similar construction methods, impacts to cultural resources under the Increased Housing Alternative would be similar to the Project and would require the same types of mitigation measures to reduce impacts to a less-than-significant level. Likewise, the Increased Housing Alternative's impact on biological resources would be very similar. Like the Project, tree removal and new building construction could result in significant and unavoidable impacts to nesting and migratory birds. Mitigation measures would be required to reduce impacts to the burrowing owl, the western pond turtle, special-status fish species and critical habitat, and wetlands and other waters to a less-than-significant level.

The Increased Housing Alternative would have geology and soils impacts very similar to the Project, as the Increased Housing Alternative would have the same project footprint and result in the same amount of earthwork and amounts of material that would be exposed as with the Project. The same types of mitigation measures would be required to mitigate significant impacts from soil erosion and unstable soils to a less than significant impact.

Like the Project, construction activities associated with the Increased Housing Alternative would include site clearing and grubbing, demolition and removal of existing structures and pavement, cut and fill activities, grading and excavation, paving, building construction, tree removal, and landscaping. Using the same sorts of mitigation measures, all impacts related to hydrology and water quality are expected to be mitigated to a less-than-significant level. The Increased Housing Alternative would result in the same amount of impervious surfaces and have the same stormwater volumes during rain events. The Increased Housing Alternative would result in the same (or slightly less) hydrology and water quality impacts compared to the Project. Cumulative impacts under the Project, including water quality impacts, groundwater recharge and supplies, storm drain capacity, and flooding would result in less than cumulatively considerable impacts with mitigation.

The Increased Housing Alternative's impacts related to hazards and hazardous materials would be similar to the Project impacts. Like the Project, excavation activities associated with the Reduced Intensity Alternative would be expected to penetrate into the waste units (i.e., encounter landfill waste) and require a Waste Management Plan to reduce associated impacts to a less-than-significant level. Similar mitigation measures to the Project would be required to reduce the risks to workers and residents posed from subsurface hazardous materials and contaminated soil to a less-than-significant level. The RWQCB has concurred in findings that an increased number of residential units on level 2 and above of buildings constructed at Parcel 4 would not change the risk characterization results, and that buildings with planned residential units can be constructed at any location on Parcel 4 and not increase the risk characterization results. Like the Project, the Increased Housing Alternative would include a leachate collection and removal system and require mitigation to reduce the risks of subsurface fire to a less-than-significant level. The cumulative setting for the Increased Housing Alternative for hazards and

hazardous materials is the same as for the Project, and any significant impacts can be mitigated to a level less-than-significant.

Population and housing impacts are expected to be less than the Project, but still significant and unavoidable. The Increased Housing Alternative would result in a residential population of approximately 4,030 new residents, which is 760 more residents compared to Scheme A and 3,550 more residents compared to Scheme B. Because this growth is not anticipated in the City's General Plan or accounted for in regional planning efforts, the Increased Housing Alternative would result in significant and unavoidable secondary environmental impacts from the increase in population. Although this Alternative would have less of an effect on the jobs-housing balance than the Project, it would still worsen the jobs-housing ratio compared with existing conditions as well as conditions that would result from the City's General Plan.

Like the Project, all public services impacts from the Increased Housing Alternative would be less than significant, although the Increased Housing Alternative would have a comparatively greater impact on fire, police, recreational, and library resources due to the increased residential population. Similarly, the Increased Housing Alternative will be able to mitigate all utilities and service system impacts to a less-than-significant level. Due to the larger residential component (with fewer office uses), impacts to water demand, wastewater generation, and solid waste generation are expected to be less, as are cumulative impacts. As with the Project, the Increased Housing Alternative, with mitigation, would result in lower energy consumption compared to a similar size project that did not incorporate the same design features and mitigation.

(ii) The Increased Housing Alternative Would Meet Project Objectives

This alternative would meet the Project objectives of modernizing the Landfill for more productive uses, creating a vibrant, mixed-use, "live, work, play environment" in the City Center, and stimulating economic development and job creation in the City. This alternative (because it still proposes a high-intensity mixed-use development with residential, retail, office, hotel, and entertainments uses) would still meet the Project objectives such as promoting transit-oriented infill development; enhancing entertainment, dining, and shopping opportunities for local and regional residents and workers; providing additional opportunities for major employers to locate to the City through the creation of attractive office parks; providing additional visitor-serving facilities for people visiting Levi's Stadium, the Convention Center, and theme park; providing new public open spaces; and creating a significant new tax base and increasing City revenues.

Compared to the Project, the Increased Housing Alternative would result in fewer potential weekday customers working in offices in proximity to the retail, hotel, food and beverage, and entertainment opportunities in the City Center and fewer job opportunities in offices in proximity to the residential units in the City Center. However, the addition of more housing in the City Center could provide an increase in a permanent on-site customer base for the retail, food, and beverage and entertainment uses in the City Center. Further, visitors of the residents on-site would also contribute to the walk-in customer base for retail, food, and

beverage and entertainment uses in the City Center. Collectively, the on-site residents and their guests could partially offset the decrease in walk-in customers working in offices.

C. Alternatives Considered but Rejected

1. Alternative Site Locations

State CEQA Guidelines Section 15126.6(f)(2) states that an EIR must consider off-site alternatives if such alternatives are deemed feasible. Other than the Project site, there are no comparable large areas of land within the City where the Project could be relocated so as to meet the Project's objectives. Because of the unique and advantageous location of the Project site, even if there were a site of comparable size at another location within the City that was available for development (which there is not), that site would not have the defining characteristic of being adjacent to Levi's Stadium, which helps to anchor the Project and which in turn is anticipated to be beneficial to Levi's Stadium.

Relocating the Project outside of the City would essentially be a different project rather than a Project alternative. Furthermore, it is unlikely that relocating the Project to a different site would avoid or substantially lessen any of the significant environmental impacts because the impacts associated with increased vehicle trips (e.g., traffic, air quality and GHG) are likely to be similar anywhere in the Bay Area, and most undeveloped areas of this size are likely to have greater natural habitat values than a former landfill. An off-site alternative would be infeasible because it would not attain most of the basic Project objectives and would not sufficiently reduce the Project impacts.

2. Alternative Development Scenarios Considered in the Draft EIR, but Not Analyzed in Detail.

a. Greater Reductions in Intensity

For the same reasons the City has now determined the Reduced Intensity Alternative is not feasible, as a general matter alternatives involving further reductions intensity (such as developing only Phases 1 and 2) were considered infeasible and not analyzed in detail. Specific intensity reduction alternatives suggested by commenters on the DEIR are discussed below.

b. Further Increased Housing

Four additional increased housing alternatives were considered but determined to be infeasible. First, construction of housing on Parcels 1, 2, 3 and the northwest portion of Parcel 4 is not feasible because it would be cost-prohibitive to expand the elevated podium structure planned for the Parcel 4 portion of the City Center. Second, increasing the height of the residential structures planned for Parcels 4 and 5 in the City Center enough to accommodate significant additional residential units would also not be feasible because the alternative would create significant design, cost, and marketing issues that would adversely affect the ability of the Project to create a vibrant live, work, and play environment consistent with the Project objectives. Third, replacing the office space planned under the Project for the Parcel 5 portion of the City Center would not be feasible because it would eliminate any office space in City Center (because the Increased Housing Alternative already eliminates the office space in the Parcel 4

portion of City Center), thereby not meeting the basic Project objective of creating a vibrant, mixed-use "live, work, play environment." This alternative would also impede the Project objective of providing shared parking opportunities for events at Levi's Stadium. Finally, replacing or redistributing any other uses (e.g., retail, food and beverage, hotel, or entertainment) in the City Center with residential uses would not be feasible because it would eliminate the entertainment, dining, and shopping options, thereby not meeting the basic Project objective of creating a vibrant, mixed-use "live, work, play environment" by conglomerating the uses at the City Center.

c. Relocation of Housing Outside of ALUC Noise Contour Area

Under this alternative, the residential units planned under the Project in the southwest portion of Parcel 4 that are within the Airport Land Use Commission's (ALUC's) 65 dBA CNEL contour would instead be located outside the 65 dBA CNEL contour. Relocating the residential structures to Parcels 1, 2, 3, or to the northwest portion of Parcel 4 outside the City Center would be infeasible because it is cost prohibitive to construct an elevated podium structure on those parcels. Relocating the residential structures to Parcel 5 is infeasible because it would impede the Project objective of providing shared parking opportunities for all events held at Levi's Stadium. Switching the locations of the residential structures with either the hotel or the office space planned for the Parcel 4 portion of City Center would place those uses in a sub-optimal location for commercial development that would jeopardize their financial viability. Accordingly, this alternative was deemed infeasible and dismissed from further consideration.

d. "Clean Closure" of Former Landfill

An alternative involving removal of all waste in the former Landfill prior to development of the site (also known as a "clean closure") was considered. This alternative was rejected for further analysis because it would substantially increase environmental impacts, and make the project economically infeasible. Clean closure would involve approximately 440,000 truck trips for the waste removal and soil importation over a 20-month period. This would be four times more than (and be in addition to) the 108,000 truckloads estimated for the 14-year construction period for the entire Project; the 75 to 100 mile new truck trips would be 10 to 50 times longer than the short trips associated with the construction, which would range from 2 to 7.3 miles. Therefore, this alternative would result in substantially greater construction-traffic-related air emissions, GHG emissions, noise, and traffic.

The estimate of the costs associated with waste removal and associated transportation, off-site disposal, and site restoration has been updated since initial publication of the FEIR, to correct an arithmetic error in the calculation of the contingency and to reflect cost escalation in the same manner escalation has been reflected in the Project transactional documents between the City and the Project Developer. The updated costs of removal are $998 million. The estimated cost premium to build the project above the existing landfill condition is approximately $420 million. The $578 million of additional cost to remove the waste would make the project economically infeasible. In order to achieve minimally acceptable return-on-cost levels, the Developer would need to set asking rents for retail, office and residential, as well as hotel rates, that would be far in excess of current market rates or what the market could reasonably support in the future. It would require substantial public financing in order to close

the gap in obtaining private financing of this magnitude to fund waste removal with no resulting economic return. Furthermore, the additional time needed to remediate the site would result in protracted period of construction for each phase and land parcel which would have a critical impact on required project timing and a substantially negative impact on project returns.

Limiting the waste removal to parcel 4, where residents would be housed over the landfill, is likewise infeasible. Parcel 4 is a little less than 40 percent of the acreage of the Landfill, although the refuse layer is a little shallower than it is on other parcels, so it is likely that about 30 percent of the waste to be removed would be from Parcel 3. This would still result in substantially greater construction-traffic-related air emissions, GHG emissions, noise, and traffic. It would also still result in substantial costs – the removal would cost over $200 million. Furthermore, this alternative would not improve the project's impacts on jobs/housing balance; for the reasons stated above, it is not feasible to build housing on Parcels 1, 2 and 3, and with incorporation of the Increased Housing Alternative, Parcels 4 and 5 cannot accommodate any additional housing. This alternative is also not necessary to address impacts related to potential land-fill related exposures, because no significant and unavoidable impacts associated with the construction of housing on top of a landfill were identified in the Draft EIR. Mitigation Measures HAZ-4.1 through HAZ-4.6 would reduce impacts on residents to less than significant.

3. Alternatives Suggested in Comments on the Draft EIR, and Considered, but not Analyzed in Detail, in the FEIR.

a. Reduced Housing/No Housing Alternative. Commenters suggested that an alternative with reduced housing or no housing should have been analyzed because of concerns about placing housing on top of a landfill. Because no significant and unavoidable impacts associated with the construction of housing on top of a landfill were identified in the Draft EIR an alternative with reduced or no housing would not serve to avoid any significant environmental impacts. Under CEQA, an alternative to placing housing on top of a landfill is not required. Furthermore, Scheme B, which is authorized under the Project, was developed as a Project scenario in which no housing would be constructed on top of the Landfill. Housing would be developed only at Parcel 5, which is not located on top of the Landfill. Scheme B is analyzed throughout the EIR.

A reduced housing alternative, beyond what is proposed under Scheme B, or a no housing alternative would not meet the basic Project objectives. As explained on page 2-6 of the Project description, a key Project objective is to promote a transit-oriented infill development by placing job-creating commercial buildings, residential units, and retail in proximity to each other and existing transit centers. A reduced or no housing alternative would not meet this Project objective.

b. Reduced Retail Alternative. A commenter suggested that an alternative with reduced retail should have been analyzed in the EIR. The alternatives were developed to reduce the significant and unavoidable impacts associated with transportation, air quality, GHG emissions, and noise. Because office uses are the main driver behind these impacts, office development was decreased in the analysis of the alternatives. The Project would also result in significant and unavoidable impacts on land use, biological resources, and utilities. Reducing only the amount of retail would not lessen the impacts associated with these topics.

Therefore, because a Reduced Retail Alternative would not serve to eliminate or substantially lessen any environmental impacts, an analysis of this alternative is not required under CEQA. In addition, a Reduced Retail Alternative would not sufficiently achieve the Project Objectives related to retail include enhancing entertainment, dining, and shopping opportunities for residents and workers; providing additional visitor-serving facilities, such as restaurants and shops; creating a significant new tax base for the City; and establishing a new and vibrant mixed-use City neighborhood. Reducing retail uses, beyond what is proposed under Scheme A (which includes fewer retail and entertainment uses than Scheme B) would not be viable for the Project because it would not result in a site with a focal point for a pedestrian-friendly "live, work, and play" environment. A Reduced Retail Alternative would not meet the basic Project objectives.

c. **Nature-Oriented Alternative.** A commenter suggested that an alternative should be considered that leaves the majority of the land in natural habitats, with restoration and/or the development of new parkland where possible. The Project site is not located on land that is part of a natural habitat. The majority of the Project site was formerly the Landfill, a 210-acre site with a waste footprint of approximately 183 acres. The Landfill received final landfill closure certification in September 1994. Therefore, Parcels 1–4 are located on top of soil embankments that were constructed around landfill waste units and refuse. The Project site is currently occupied by the Santa Clara Golf & Tennis Club, a restaurant and banquet facility, Santa Clara Fire Station 10, a BMX track, the Ameresco Methane Plant, a City vehicle washing station, two City-owned parking lots, and the Eastside Storm Retention Basin. As described on page 3.8-6 of the Draft EIR, in Section 3.8, *Biological Resources*, the biological communities on the Project site consist of annual grassland, ruderal developed/turf areas, vegetated depressions, pond/creek drainages, and expansive pavement. The existing communities at the Project site reflect the highly disturbed and developed nature of the Project site. Although habitats and species are present at the Project site, the Landfill is a human-made feature and could not be feasibly and cost-effectively restored to a natural state.

As summarized above, No Project Alternatives 1 and 2 include what would be reasonably expected to occur in the foreseeable future if the Project were not approved and development continued to occur in accordance with existing plans and consistent with available infrastructure and community services. Therefore, No Project Alternative 1 analyzes no development at the Project site, while No Project Alternative 2 analyzes only development at Parcel 5, which is currently a City-owned surface parking lot. Under both No Project Alternatives, Parcels 1–4 would continue to operate as the Santa Clara Golf & Tennis Club, a restaurant and banquet facility, Fire Station 10, a BMX track, the Ameresco Methane Plant, a City vehicle washing station, and the Eastside Storm Retention Basin. The portions of the Project site that could provide natural habitats would be maintained, and the Santa Clara Golf & Tennis Club would continue to operate as a public facility for the City. Therefore, No Project Alternatives 1 and 2 include options for the closest nature-oriented Project site that is feasible. However, No Project Alternatives 1 and 2 would not meet the primary objectives of converting the existing uses at the former Landfill to more productive uses or modernizing the existing Landfill protection systems. Because none, or only very few, of the proposed buildings would be constructed, the alternatives would not achieve economies of scale and would not be able to meet the Project's basic objective of creating a vibrant, mixed-use "live, work, and play" environment. The Project objective of providing commercial, residential, and entertainment uses for local and regional residents and promoting transit-oriented infill development would not be met. Additionally, the primary

objectives of providing additional visitor-serving facilities, augmenting hotel availability, and providing additional opportunities for major employers would not be met. This alternative would not provide development that would respond to changing market demands and, therefore, would not meet the Project objective of ensuring that development remains economically feasible throughout a multi-year process. Because no or limited development would occur, No Project Alternatives 1 and 2, each of which could also be considered a Nature-Oriented Alternative, would not meet the basic Project objectives.

Furthermore, the EOS Variant incorporated into the Project may result in Parcel 3 being used in a "nature-oriented" manner, depending upon the results of the future park planning process.

d. Phases 1 and 2 Only Alternative. A commenter requested analysis of the development of Phases 1 and 2 only, with the rest of the Project site developed into usable parks and open space. As shown in Table 2-11 on page 2-31 of the Draft EIR, Phase 1 would include the development of Parcel 5 (approximately 825,000 gsf) and a portion of Parcel 4 (approximately 2.41 million gsf). In total, this would result in approximately 3.24 million gsf of office, retail, hotel, and residential uses. This alternative is similar to No Project Alternative 2, as described on pages 5-5 and 5-6 of the Draft EIR. Under No Project Alternative 2, Parcels 1–4 would remain as is because the existing conditions are projected to continue under all phases of the City's General Plan. Parcels 1–4 are currently occupied by the Santa Clara Golf & Tennis Club, a restaurant and banquet facility, Fire Station 10, a BMX track, the Ameresco Methane Plant, the Eastside Storm Retention Basin, and a City vehicle washing station. The on-site features and buildings associated with the existing uses on Parcels 1–4 would remain. Parcel 5 could be developed with regional commercial uses that serve both City residents and the surrounding region. As with the Project and a previously proposed project at Parcel 5, it is assumed that No Project Alternative 2 at Parcel 5 could be developed with up to 825,000 gsf of commercial uses.

Compared with No Project Alternative 2, an alternative that analyzes Phases 1 and 2 only would add approximately 2.41 million gsf of development on Parcel 4 and would include residential uses. However, similar to No Project Alternative 2, this alternative would not meet the basic Project objectives, as discussed above. In particular, developing only part of Parcel 4 would not allow for the creation of the City Center Zone, which is meant to provide a focal point for a "live, work, and play" environment. The City Center Zone is proposed in Phases 2 and 3 of development and would not be completed if only Phases 1 and 2 are developed. An alternative with Phases 1 and 2 only would not reduce any of the significant and unavoidable impacts identified for the Project that are not already reduced by the other alternatives considered in Chapter 5. Therefore, because a range of reasonable alternatives were analyzed in the EIR, as required by State CEQA Guidelines Section 15126.6(a), this alternative was not analyzed.

IX. STATEMENT OF OVERRIDING CONSIDERATIONS

Where a proposed project may result in significant impacts on the environment, and it is infeasible to reduce impacts to less than significant through project alternatives or mitigation measures, CEQA allows a public agency to approve the project only if the benefits of the project outweigh the unavoidable adverse environmental effects.

Section 15093 of the CEQA Guidelines provides the following:

> CEQA requires the decision making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable."

As discussed in more detail in the EIR and as summarized in Section VII above, the Project will result in significant unavoidable impacts related to traffic, air quality, noise, housing, birds, and GHG emissions. Specifically, the Project will have significant and unavoidable impacts on the following:

- Jobs-housing imbalance, with concomitant significant and unavoidable impacts related to transportation, air quality, and greenhouse gas emissions;
- Exposure to exterior noise levels associated with nearby airport uses;
- Traffic-generated noise impacts on off-site residents along two roadway segments
- Traffic impacts on multiple intersections and freeway segments;
- Conflicts with regional air quality plans;
- Criteria-pollutant air emissions;
- Cumulatively considerable contributions to regional air pollutant levels;
- Direct and indirect greenhouse gas emissions; and
- Impacts related to bird hazards.

The City identified a potentially feasible alternative (the Reduced Intensity Alternative) that can avoid one of these significant unavoidable impacts (traffic-generated noise impacts on off-site residents), but it has not identified any potentially feasible alternatives that would avoid any of the other significant and unavoidable impacts. Furthermore, although the Reduced Intensity Alternative was initially determined to be *potentially* feasible (subject to further review as the CEQA process proceeded), the City has now determined that the Reduced Intensity is not feasible, for the specific economic, social, environmental, technological, legal or other considerations set forth in section VIII.B.2.a.(ii) above. Under CEQA, "the decision makers may reject as infeasible alternatives that were identified in the EIR as potentially feasible." (*San Diego Citizenry Group v. County of San Diego* (2013) 219 Cal.App.4th 1, 18.)

The City certifies that it has considered the information on alternatives provided in the EIR and in the record, and finds that, as described in the EIR and for the reasons identified in Section VIII above, there are no feasible alternatives that would avoid any of the above-listed significant and unavoidable impacts.

Overriding Considerations

The City finds that notwithstanding the disclosure of the above significant unavoidable impacts, there are specific overriding economic, social, technological, and other reasons for approving the proposed Project. Those reasons are as follows:

- The City finds that each of the specific economic, legal, social, technological, environmental, and other considerations and the benefits of the Project separately and independently outweigh the significant, adverse impacts and is an overriding consideration independently warranting approval. The remaining significant adverse impacts identified above are acceptable in light of each of the benefits of the Project.

- The Project will revitalize a currently underutilized City-owned property adjacent to Levi's Stadium and the Convention Center by creating a dynamic, "live-work and play" City Center, incorporating retail, food, beverage and entertainment, residential, and office uses that support the Convention Center, hotels, restaurants, and Levi's Stadium and encourage new services to support the daily business activity in the area.

- The Project will allow the City to develop an approximately 31-acre community park, and a new network of pedestrian and bicycle trails to connect local residents and visitors to multiple kinds of recreation and area-wide activity.

- The Project will produce in excess of $114 million in annual revenues for local jurisdictions at project completion from property taxes, retail sales taxes, hotel taxes, and ground rent. These revenues include annual revenues to the City of Santa Clara associated of more than $20 million (net of costs) at completion of Phase 2, and $41 million at project completion. Annual revenues to the County of Santa Clara from the Project will be $17 million upon project completion.

- The Project will produce an average of approximately 1,400 new construction jobs during the peak three years of construction, and average more than 700 new construction jobs per year for 15 years. This will result in total payments of $1.8 billion of wages and benefits to construction workers.

- The Project will promote environmental sustainability, transportation efficiency, greenhouse gas reduction, and stormwater management using green technology.

- The Project will provide new development in an already urbanized area where public services are available, including utilities, a well-developed network of roadways and where public transit is immediately adjacent to the site. New practices and standards of sustainability, relying on both current and future technologies, are applied to the project and will enable the most efficient use of resources.

On balance, the City finds that there are specific considerations associated with the Project that serve to override and outweigh the Project's significant unavoidable environmental impacts. Therefore, the significant unavoidable environmental impacts associated with the Project are considered acceptable.

As the CEQA Lead Agency for the proposed action, the City has reviewed the Project description and the EIR and fully understands the Project proposed by the applicant. Based on the entire record before the City, and having considered the unavoidable adverse impacts of the Project, the City hereby determines that all feasible mitigation has been adopted to reduce the potentially significant impacts identified in the EIR, and that no additional feasible mitigation is available to further reduce significant impacts. The City finds that economic, social, technological, and other considerations of the Project outweigh the unavoidable adverse impacts described above. Further, the City finds that each of the separate benefits of the Project is hereby determined to be, in itself and independent of the other Project benefits, a basis for overriding all unavoidable environmental impacts identified in the EIR and in these Findings. In making this finding, the City has balanced the benefits of the Project against its unavoidable environmental impacts and has indicated its willingness to accept those risks.

Attachment 21

Development Plans

City Place Santa Clara Master Community Plan - Volume 1
City Place Santa Clara Master Community Plan Supplement
City Place Santa Clara Infrastructure Master Plan & Technical Memorandums - Volume 2
Preliminary Infrastructure Master Plan Figures
Grading and Site Access Technical Memorandum Figures
Stormwater Technical Memorandum Figures
Water Technical Memorandum Figures
Sanitary Sewar Technical Memorandum Figures

http://www.santaclaraca.gov/government/departments/planning-inspection/planning-division/ceqa-documents



CITYPLACE

SANTA CLARA

VOLUME 1

MASTER COMMUNITY PLAN | JUNE 1, 2016

CITYPLACE

SANTA CLARA

MASTER COMMUNITY PLAN

PREPARED FOR:

RELATED COMPANIES
MASTER DEVELOPER

PREPARED BY:

RTKL ASSOCIATES, INC.
MASTER COMMUNITY PLANNING

IN COLLABORATION WITH:

ELKUS MANFREDI ARCHITECTS
MIXED-USE PLANNING

FEHR & PEERS
TRANSPORTATION ENGINEERING

LANGAN TREADWELL ROLLO
CIVIL ENGINEERING

TABLE OF CONTENTS

1 INTRODUCTION

1.1 PROJECT SUMMARY 2
- PROJECT DESCRIPTION 2

1.2 PROJECT LOCATION 3
- SITE SETTING 3
- SITE BOUNDARIES 3
- SITE DESCRIPTION 3

1.3 COMMUNITY CONTEXT 7
- LAND USE CONTEXT 7
- TRANSPORTATION CONTEXT 7
- ENVIRONMENTAL CONTEXT 9

1.4 PLAN SUMMARY 13
- PURPOSE 13
- LEGAL AUTHORITY 13
- APPLICABILITY 13

1.5 PLAN ORGANIZATION 16
- SECTION 1. INTRODUCTION: 16
- SECTION 2. IMPLEMENTATION: 16
- SECTION 3. MASTER PLAN OVERVIEW: 16
- SECTION 4. PARCEL DEVELOPMENT PLANS & REGULATIONS: 16
- SECTION 5. DESIGN GUIDELINES 16
- SECTION 6. LANDSCAPE MASTER PLAN 16
- SECTION 7. SIGNAGE & LIGHTING MASTER PLAN: 16
- SECTION 8. INFRASTRUCTURE OVERVIEW 16
- SECTION 9. SUSTAINABILITY MASTER PLAN 16
- APPENDICES: 16

2 IMPLEMENTATION

2.1 GENERAL PLAN CONSISTENCY & CEQA COMPLIANCE 18
- GENERAL PLAN CONSISTENCY 18
- FULL LIST OF APPROVALS 20

2.2 MASTER COMMUNITY PLAN APPROVALS & ADMINISTRATION 21
- APPROVALS & ADMINISTRATION 21

2.3 DEVELOPMENT PHASING 22
- PHASING CONCEPT 22
- CONCEPTUAL PHASING STRATEGY 22

2.4 DEVELOPMENT FINANCING / IMPLEMENTATION RESPONSIBILITIES 26
- FINANCING 26

3 MASTER PLAN OVERVIEW

3.1 MASTER PLAN SUMMARY 28
- DEVELOPMENT CHARACTER 28
- DEVELOPMENT OBJECTIVES 29
- DEVELOPMENT FRAMEWORK 31
- DEVELOPMENT TYPOLOGIES 31

3.2 LAND USE CONCEPT 33
- CONCEPT SUMMARY 33
- LAND USE AREAS 35
- LAND USE DISTRIBUTION & INTENSITY
- DEVELOPMENT TRANSFER 35
- DEVELOPMENT PROGRAM
- PERMITTED, CONDITIONALLY PERMITTED AND PROHIBITED USES 36
- MINIMUM AND MAXIMUM REQUIREMENTS 38
- CITYPLACE PARKING SUPPLY RATIOS 46

3.3 MOBILITY CONCEPT 47
- CONCEPT SUMMARY 47
- VEHICULAR CIRCULATION 47
- PARKING STRATEGY 57
- ALTERNATIVE MODES 59

3.4 OPEN SPACE CONCEPT 67
- CONCEPT SUMMARY 67
- RESIDENTIAL INDUCED REQUIREMENT FOR DEDICATED PARK AND RECREATIONAL LAND 69
- STREETSCAPES 69
- SHARED OUTDOOR SPACES 72
- PRIVATE OPEN SPACE 73
- LANDSCAPE ZONES 73

3.5 URBAN DESIGN CONCEPT 77
- CONCEPT SUMMARY 77
- URBAN STRUCTURE 79
- MASSING / SPATIAL DEFINITION 79
- BUILDING TYPOLOGIES 81

4 PARCEL DEVELOPMENT PLANS, STANDARDS & REQUIREMENTS

4.1 INTRODUCTION 84
- INTRODUCTION 84
- PLANS & DESIGN OBJECTIVES 85
- DESIGN STANDARD ORGANIZATION 85

4.2 PARCEL 1: OFFICE CAMPUS NE 87
- PARCEL CHARACTER 87
- PARCEL DEVELOPMENT DESIGN GUIDELINES 87

4.3 PARCEL 2 (SCHEME A): OFFICE CAMPUS SE 89
- PARCEL CHARACTER 89

PARCEL DEVELOPMENT DESIGN GUIDELINES 89
4.4 PARCEL 2 (SCHEME A VARIANT): RETAIL CENTER 91
PARCEL CHARACTER 91
PARCEL DEVELOPMENT DESIGN GUIDELINES 91
4.5 PARCEL 2 (SCHEME B): OFFICE CAMPUS SE 93
PARCEL CHARACTER 93
PARCEL DEVELOPMENT DESIGN GUIDELINES 93
4.6 PARCEL 3: OFFICE CAMPUS NW 95
PARCEL CHARACTER 95
PARCEL DEVELOPMENT DESIGN GUIDELINES 95
4.7 BLOCK 4A: CITY CENTER NW OFFICE ZONE 97
BLOCK CHARACTER 97
BLOCK DEVELOPMENT DESIGN GUIDELINES 97
4.8 BLOCK 4B: CITY CENTER WEST 99
BLOCK CHARACTER 99
BLOCK DEVELOPMENT DESIGN GUIDELINES 99
4.9 BLOCK 4C: DESIGN DISTRICT 101
BLOCK CHARACTER 101
BLOCK DEVELOPMENT DESIGN GUIDELINES 101
4.10 BLOCK 4D: HOTEL & LIVE/WORK DISTRICTS 103
BLOCK CHARACTER 103
BLOCK DEVELOPMENT DESIGN GUIDELINES 103
4.11 BLOCK 4E: BOULEVARD 105
BLOCK CHARACTER 105
BLOCK DEVELOPMENT DESIGN GUIDELINES 105
4.12 BLOCK 4F: CITY CENTER STATION DISTRICT 107
BLOCK CHARACTER 107
BLOCK DEVELOPMENT DESIGN GUIDELINES 107
4.13 BLOCK 4G: CITY CENTER EAST 109
BLOCK CHARACTER 109
BLOCK DEVELOPMENT DESIGN GUIDELINES 109
4.14 BLOCK 4H: CITY CENTER SOUTHEAST 111
BLOCK CHARACTER 111
BLOCK DEVELOPMENT DESIGN GUIDELINES 111
STATION AREA DESIGN GUIDELINES 112
4.15 BLOCK 5A: GATEWAY OFFICE 113
BLOCK CHARACTER 113
BLOCK DEVELOPMENT DESIGN GUIDELINES 113
4.16 BLOCK 5B: GATEWAY HOTEL 115
BLOCK CHARACTER 115
BLOCK DEVELOPMENT DESIGN GUIDELINES 115
4.17 BLOCK 5C: GATEWAY RESIDENTIAL 117

BLOCK CHARACTER 117
BLOCK DEVELOPMENT DESIGN GUIDELINES 117

5 DESIGN GUIDELINES

5.1 DESIGN PRINCIPLES 120
SITE PLANNING 120
ARCHITECTURAL DESIGN 120
SIGNAGE & LIGHTING DESIGN 120

5.2 CITY CENTER MIXED-USE DESIGN GUIDELINES 121
SITE PLANNING 121
ARCHITECTURAL DESIGN 122
SIGNAGE & LIGHTING DESIGN 124

5.3 CITY CENTER N-W OFFICE DESIGN GUIDELINES 125
SITE PLANNING 125
ARCHITECTURAL DESIGN 126
SIGNAGE & LIGHTING DESIGN 128

5.4 OFFICE CAMPUS DESIGN GUIDELINES 129
SITE PLANNING 129
ARCHITECTURAL DESIGN 130
SIGNAGE & LIGHTING DESIGN 132

5.5 RETAIL CENTER DESIGN GUIDELINES 133
SITE PLANNING 133
ARCHITECTURAL DESIGN 134
SIGNAGE & LIGHTING DESIGN 136

6 LANDSCAPE MASTER PLAN

6.1 LANDSCAPE DESIGN CONCEPT 138
CONCEPT OVERVIEW 138
LANDSCAPE DESIGN PRINCIPLES 138

6.2 SUSTAINABLE LANDSCAPE MEASURES 141
HIGH PERFORMANCE OUTDOOR SPACES 141
ECOLOGICAL HABITAT 141
NATIVE & ADAPTED PLANT SPECIES 141
EFFICIENT IRRIGATION 143
BIO-RETENTION / BIO-SWALES 143
GREEN STREETS 145
GREEN ROOFS & GREEN WALLS 145
HIKE AND BIKE / NATURE TRAILS 145
REGULATED MICRO-CLIMATES 145
RENEWABLES INFRASTRUCTURE 147
WATER BUDGET 147

6.3 STREETSCAPE 149
STREETSCAPE DESIGN INTENT 149
STREETSCAPE GENERAL DESIGN STANDARDS / GUIDELINES 149
STREETSCAPE RECOMMENDATIONS 151
STREETSCAPE DESIGN 152

6.4 SHARED OUTDOOR SPACE 163
SHARED OUTDOOR SPACE DESIGN INTENT 163
SHARED OUTDOOR SPACE GENERAL DESIGN STANDARDS / GUIDELINES 163
SHARED OUTDOOR SPACE CHARACTERISTICS 164

6.5 LANDSCAPE ZONES 169
LANDSCAPE ZONES DESIGN INTENT 169
LANDSCAPE ZONES GENERAL DESIGN STANDARDS / GUIDELINES 169
LANDSCAPE ZONES CHARACTERISTICS 170

6.6 PRIVATE OUTDOOR SPACE 173
PRIVATE OUTDOOR SPACE DESIGN INTENT 173
PRIVATE OUTDOOR SPACE GENERAL DESIGN STANDARDS / GUIDELINES 173
PRIVATE OUTDOOR SPACE CHARACTERISTICS 174

6.7 GATEWAYS & ENHANCED INTERSECTION DESIGN 175
GATEWAYS & ENHANCED INTERSECTIONS DESIGN INTENT 175
GATEWAYS & ENHANCED INTERSECTIONS DESIGN STANDARDS / GUIDELINES 175
GATEWAYS & ENHANCED INTERSECTION CHARACTERISTICS 176

6.8 BIRD SAFETY 178
BIRD SAFETY 178

7 SIGNAGE & LIGHTING GUIDELINES

7.1 SIGNAGE CONCEPT PLAN 180
COMPREHENSIVE SIGN PROGRAMS 180
CONCEPT OVERVIEW 180
SIGNAGE ILLUMINATION 180
SIGNAGE DESIGN PRINCIPLES 181

7.2 PROJECT SIGNAGE 182
PROJECT SIGNAGE DESIGN INTENT 182
PROJECT SIGNAGE DESIGN STANDARDS 182
PROJECT SIGNAGE DESIGN GUIDELINES

7.3 TENANT SIGNAGE 189
TENANT SIGNAGE DESIGN INTENT 189
TENANT SIGNAGE DESIGN STANDARDS / GUIDELINES 189
TENANT SIGNAGE CHARACTERISTICS 190

7.4 SPONSORSHIP & ADVERTISING 191
SPONSORSHIP & ADVERTISING SIGNAGE DESIGN INTENT 191

SPONSORSHIP & ADVERTISING SIGNAGE DESIGN STANDARDS / GUIDELINES 191
SPONSORSHIP & ADVERTISING SIGNAGE CHARACTERISTICS 192

7.5 PUBLIC ART 193
COMMUNITY PUBLIC ART DESIGN INTENT 193
COMMUNITY PUBLIC ART DESIGN STANDARDS / GUIDELINES 193
COMMUNITY PUBLIC ART DESIGN RECOMMENDATIONS 193

7.6 OUTDOOR LIGHTING 195
WHAT IS LIGHT POLLUTION? 195
MODEL LIGHTING ORDINANCE 195
OUTDOOR LIGHTING DESIGN INTENT 195
PRACTICAL CONSIDERATIONS 196
OUTDOOR LIGHTING CHARACTER ZONES 196

8 INFRASTRUCTURE OVERVIEW

8.1 INTRODUCTION 200
OVERVIEW 200
PROPERTY ACQUISITION, DEDICATION & EASEMENTS CONCEPT 200
INFRASTRUCTURE MASTER PLAN AND TECHNICAL MEMORANDA 200
CONFORMANCE WITH EIR AND ENTITLEMENTS 200
INFRASTRUCTURE PHASING 200

8.2 SITE CONSTRAINTS 201
OVERVIEW 201
EXISTING INFRASTRUCTURE 201

8.3 GEOTECHNICAL AND ENVIRONMENTAL CONSIDERATIONS 202
OVERVIEW 202
LANDFILL SUMMARY DESCRIPTION 202

8.4 SITE GRADING & STORMWATER MANAGEMENT 203
SITE GRADING 203
STORMWATER MANAGEMENT 203

8.5 PROJECT ACCESS 205
OVERVIEW 205
SITE ACCESS 205
STREETS & INTERSECTIONS 206

8.6 STORMWATER DRAINAGE 208
OVERVIEW 208
EXISTING SYSTEMS 208
PROPOSED INFRASTRUCTURE 209

8.7 POTABLE WATER 211
EXISTING SYSTEM 211
PROPOSED INFRASTRUCTURE 211

8.8 RECYCLED WATER 214

EXISTING DISTRIBUTION 214
PROPOSED INFRASTRUCTURE 214

8.9 WASTEWATER 216
EXISTING SYSTEM 216
PROPOSED INFRASTRUCTURE 217

8.10 FIRE STATION 219
OVERVIEW 219

8.11 ELECTRIC, GAS AND TELECOMMUNICATIONS 220
ELECTRICAL DISTRIBUTION SYSTEM 220
NATURAL GAS DISTRIBUTION SYSTEM 221
TELECOMMUNICATION SERVICE 222

8.12 ADDITIONAL FACTORS 223
LANDFILL INFRASTRUCTURE 223
NON-STANDARD DESIGN ELEMENTS 223

9 SUSTAINABILITY

9.1 INTRODUCTION 232
INTRODUCTION 232

9.2 WATER 233
PROJECT GOALS 233
WATER REDUCTION STRATEGIES MAY INCLUDE: 233
ADDITIONAL CONCEPTS FOR FURTHER WATER REDUCTIONS THAT MAY BE CONSIDERED INCLUDE: 233

9.3 ENERGY 234
PROJECT GOALS 234

9.4 WASTE 235
PROJECT GOALS 235
OPERATIONAL WASTE REDUCTION STRATEGIES MAY INCLUDE 235
ADDITIONAL CONCEPTS FOR FURTHER WASTE REDUCTIONS THAT MAY BE CONSIDERED INCLUDE: 235

APPENDICES

A. LEGAL SITE DESCRIPTION 238

B. DEFINITIONS OF USES 239

C. DEVELOPMENT AREA PLANS - SUBMITTAL & APPROVAL PROCEDURES 241

LIST OF EXHIBITS + TABLES

1 INTRODUCTION

EXHIBIT 1–1: REGIONAL VICINITY MAP 2
EXHIBIT 1–2: 'VALLEY HUB' MAP 3
EXHIBIT 1–3: A HUB CONNECTING SILICON VALLEY AND THE BAY AREA 4
EXHIBIT 1–4: SITE BOUNDARIES & TOPOGRAPHY* 6
EXHIBIT 1–5: AREA LAND USE + KEY DESTINATIONS (2015 EXISTING CONDITIONS 8
EXHIBIT 1–6: AREA TRANSPORTATION 10
EXHIBIT 1–7: AREA ENVIRONMENTAL FEATURES 12
TABLE 1–1: MASTER COMMUNITY PLAN REQUIRED CONTENT 14

2 IMPLEMENTATION

EXHIBIT 2–1: SCHEME A - DEVELOPMENT PHASING CONCEPT 23
EXHIBIT 2–2: SCHEME A VARIANT- DEVELOPMENT PHASING CONCEPT 24
EXHIBIT 2–3: CITYPLACE - VIEW LOOKING SOUTH 26

3 MASTER PLAN OVERVIEW

EXHIBIT 3–1: ILLUSTRATIVE SITE CONCEPT 32
TABLE 3–1: LAND USE PLAN CONSISTENCY W/ KEY GENERAL PLAN SUSTAINABILITY POLICIES 33
EXHIBIT 3–2: SCHEME A - LAND USE AREAS 34
EXHIBIT 3–3: SCHEME A - CONCEPTUAL LAND USE PLAN GROUND FLOOR 39
EXHIBIT 3–4: SCHEME A - CONCEPTUAL LAND USE PLAN PRIMARY USE/UPPER FLOORS 40
TABLE 3–2: SUMMARY DEVELOPMENT YIELDS 41
EXHIBIT 3–5: SCHEME A - VARIANT - CONCEPTUAL LAND USE PLAN GROUND FLOOR 42
EXHIBIT 3–6: SCHEME A - VARIANT - CONCEPTUAL LAND USE PLAN PRIMARY USE/UPPER FLOORS 43
EXHIBIT 3–7: SCHEME B - CONCEPTUAL LAND USE PLAN GROUND FLOOR 44
EXHIBIT 3–8: SCHEME B - CONCEPTUAL LAND USE PLAN PRIMARY USE/UPPER FLOORS 45
TABLE 3–3: CITYPLACE PARKING SUPPLY REQUIREMENTS 46
TABLE 3–4: MOBILITY PLAN CONSISTENCY W/ KEY GENERAL PLAN SUSTAINABILITY POLICIES 47
EXHIBIT 3–9: STREET NETWORK 48
EXHIBIT 3–10: STREET TYPOLOGIES 50
EXHIBIT 3–11: PUBLIC AND PRIVATE STREETS 51
EXHIBIT 3–12: ACCESS CIRCULATION IMPROVEMENTS 52
EXHIBIT 3–13: ACCESS VARIANTS 53
EXHIBIT 3–14: ACCESS VARIANTS 2 54
EXHIBIT 3–15: POTENTIAL BUS CIRCULATION 56
EXHIBIT 3–16: FIRE STATION RELOCATION 58
EXHIBIT 3–17: ACCESS & PARKING 60
EXHIBIT 3–18: POTENTIAL ACTIVE TRANSPORTATION DIAGRAM 61
EXHIBIT 3–19: BICYCLE NETWORK 64
EXHIBIT 3–20: PEDESTRIAN NETWORK 65
TABLE 3–5: OPEN SPACE PLAN CONSISTENCY W/ KEY GENERAL PLAN SUSTAINABILITY POLICIES 67
EXHIBIT 3–21: OPEN SPACE NETWORK 68
EXHIBIT 3–22: STREETSCAPE TYPOLOGIES 70
EXHIBIT 3–23: SHARED OUTDOOR SPACE TYPOLOGIES 74
EXHIBIT 3–24: LANDSCAPE ZONE TYPOLOGIES 76
TABLE 3–6: URBAN DESIGN CONSISTENCY W/ KEY GENERAL PLAN SUSTAINABILITY POLICIES 77
EXHIBIT 3–25: URBAN DESIGN CONCEPT 78
EXHIBIT 3–26: CITYPLACE - VIEW LOOKING NORTH 80

4 PARCEL DEVELOPMENT PLANS, STANDARDS & REQUIREMENTS

EXHIBIT 4–1: PARCEL & BLOCK KEY PLAN 86
TABLE 4–1: PARCEL 1 PROGRAM 87
EXHIBIT 4–2: PARCEL 1 GROUND FLOOR PLAN 88
EXHIBIT 4–3: PARCEL 1 EXPLODED AXONOMETRIC VIEW 88
TABLE 4–2: PARCEL 2 PROGRAM 89
EXHIBIT 4–4: PARCEL 2 GROUND FLOOR PLAN 90
EXHIBIT 4–5: PARCEL 2 EXPLODED AXONOMETRIC VIEW 90
TABLE 4–3: PARCEL 2 (VARIANT) PROGRAM 91
EXHIBIT 4–6: PARCEL 2 (SCHEME A VARIANT) GROUND FLOOR PLAN 92
EXHIBIT 4–7: PARCEL 2 (SCHEME A VARIANT) EXPLODED AXONOMETRIC VIEW 92
TABLE 4–4: PARCEL 2 (SCHEME B) PROGRAM 93
EXHIBIT 4–8: PARCEL 2(SCHEME B) GROUND FLOOR PLAN 94
EXHIBIT 4–9: PARCEL 2(SCHEME B) EXPLODED AXONOMETRIC VIEW 94
TABLE 4–5: PARCEL 3 PROGRAM 95
EXHIBIT 4–10: PARCEL 3 GROUND FLOOR PLAN 96
EXHIBIT 4–11: PARCEL 3 EXPLODED AXONOMETRIC VIEW 96
TABLE 4–6: BLOCK 4A PROGRAM 97
EXHIBIT 4–12: BLOCK 4A GROUND FLOOR PLAN 98
EXHIBIT 4–13: BLOCK 4A EXPLODED AXONOMETRIC VIEW 98
TABLE 4–7: BLOCK 4B PROGRAM 99
EXHIBIT 4–14: BLOCK 4B GROUND FLOOR PLAN 100
EXHIBIT 4–15: BLOCK 4B EXPLODED AXONOMETRIC VIEW 100
TABLE 4–8: BLOCK 4C PROGRAM 101
EXHIBIT 4–16: BLOCK 4C GROUND FLOOR PLAN 102
EXHIBIT 4–17: BLOCK 4C EXPLODED AXONOMETRIC VIEW 102
TABLE 4–9: BLOCK 4D PROGRAM 103
EXHIBIT 4–18: BLOCK 4D GROUND FLOOR PLAN 104
EXHIBIT 4–19: BLOCK 4D EXPLODED AXONOMETRIC VIEW 104
TABLE 4–10: BLOCK 4E PROGRAM 105
EXHIBIT 4–20: BLOCK 4E GROUND FLOOR PLAN 106
EXHIBIT 4–21: BLOCK 4E EXPLODED AXONOMETRIC VIEW 106
TABLE 4–11: BLOCK 4F PROGRAM 107
EXHIBIT 4–22: BLOCK 4F GROUND FLOOR PLAN 108
EXHIBIT 4–23: BLOCK 4F EXPLODED AXONOMETRIC VIEW 108
TABLE 4–12: BLOCK 4G PROGRAM 109
EXHIBIT 4–24: BLOCK 4G GROUND FLOOR PLAN 110
EXHIBIT 4–25: BLOCK 4G EXPLODED AXONOMETRIC VIEW 110
TABLE 4–13: BLOCK 4H PROGRAM 111
EXHIBIT 4–26: BLOCK 4H GROUND FLOOR PLAN 112
EXHIBIT 4–27: BLOCK 4H EXPLODED AXONOMETRIC VIEW 112
TABLE 4–14: BLOCK 5A PROGRAM 113
EXHIBIT 4–28: BLOCK 5A GROUND FLOOR PLAN 114
EXHIBIT 4–29: BLOCK 5A EXPLODED AXONOMETRIC VIEW 114
TABLE 4–15: BLOCK 5B PROGRAM 115
EXHIBIT 4–30: BLOCK 5B GROUND FLOOR PLAN 116
EXHIBIT 4–31: BLOCK 5B EXPLODED AXONOMETRIC VIEW 116

TABLE 4-16: BLOCK 5C PROGRAM 117
EXHIBIT 4-32: BLOCK 5C GROUND FLOOR PLAN 118
EXHIBIT 4-33: BLOCK 5C EXPLODED AXONOMETRIC VIEW 118

5 DESIGN GUIDELINES

6 LANDSCAPE MASTER PLAN

EXHIBIT 6-1: LANDSCAPE FUNCTION 142
EXHIBIT 6-2: LANDSCAPE INFRASTRUCTURE 144
EXHIBIT 6-3: LANDSCAPE ZONES 146
EXHIBIT 6-4: EXAMPLES OF SUSTAINABLE LANDSCAPE 148
EXHIBIT 6-5: STREETSCAPE TYPOLOGIES 150
TABLE 6-1: STREET TYPOLOGY MATRIX 151

7 SIGNAGE & LIGHTING GUIDELINES

EXHIBIT 7-1: VEHICULAR & PEDESTRIAN DIRECTIONALS - PARCELS 4 & 5 186
EXHIBIT 7-2: WAYFINDING DIRECTORIES & INFORMATION KIOSKS - PARCELS 4 & 5 188
EXHIBIT 7-3: OUTDOOR LIGHTING CHARACTER ZONES 198

8 INFRASTRUCTURE OVERVIEW

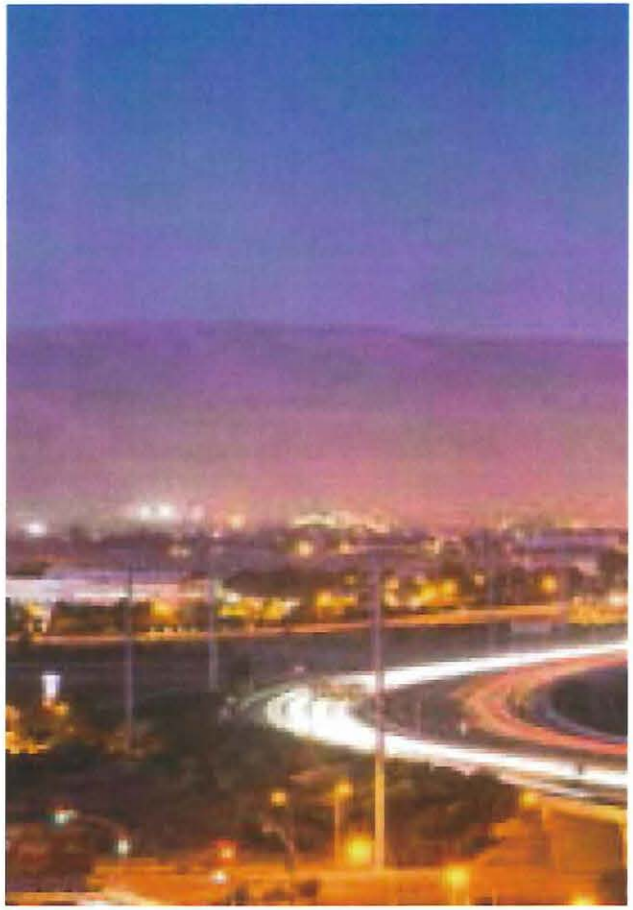
TABLE 8-1: EARTHWORK ESTIMATES 204
TABLE 8-2: ACCESS SUMMARY 206
EXHIBIT 8-1: STORM DRAIN 210
EXHIBIT 8-2: POTABLE WATER 212
TABLE 8-3: ESTIMATED WATER DEMAND 213
EXHIBIT 8-3: RECYCLED WATER 215
TABLE 8-4: ESTIMATED SEWAGE GENERATION 217
EXHIBIT 8-4: SANITARY SEWER 218
EXHIBIT 8-5: FOUNDATION SYSTEMS 224
EXHIBIT 8-6: LANDFILL BOUNDARY 225
EXHIBIT 8-7: CONCEPTUAL FOUNDATION CONDITIONS - STREET SECTION 226
EXHIBIT 8-8: CONCEPTUAL FOUNDATION CONDITIONS - BUILDING SECTION 227
EXHIBIT 8-9: CONCEPTUAL FOUNDATION CONDITIONS - PLAZA SECTION 228
EXHIBIT 8-10: FOUNDATION CONDITIONS - BUILDING EDGE WITH WALL 229
EXHIBIT 8-11: FOUNDATION CONDITIONS - BUILDING EDGE WITH LIGHT WEIGHT CONCRETE WALL 230

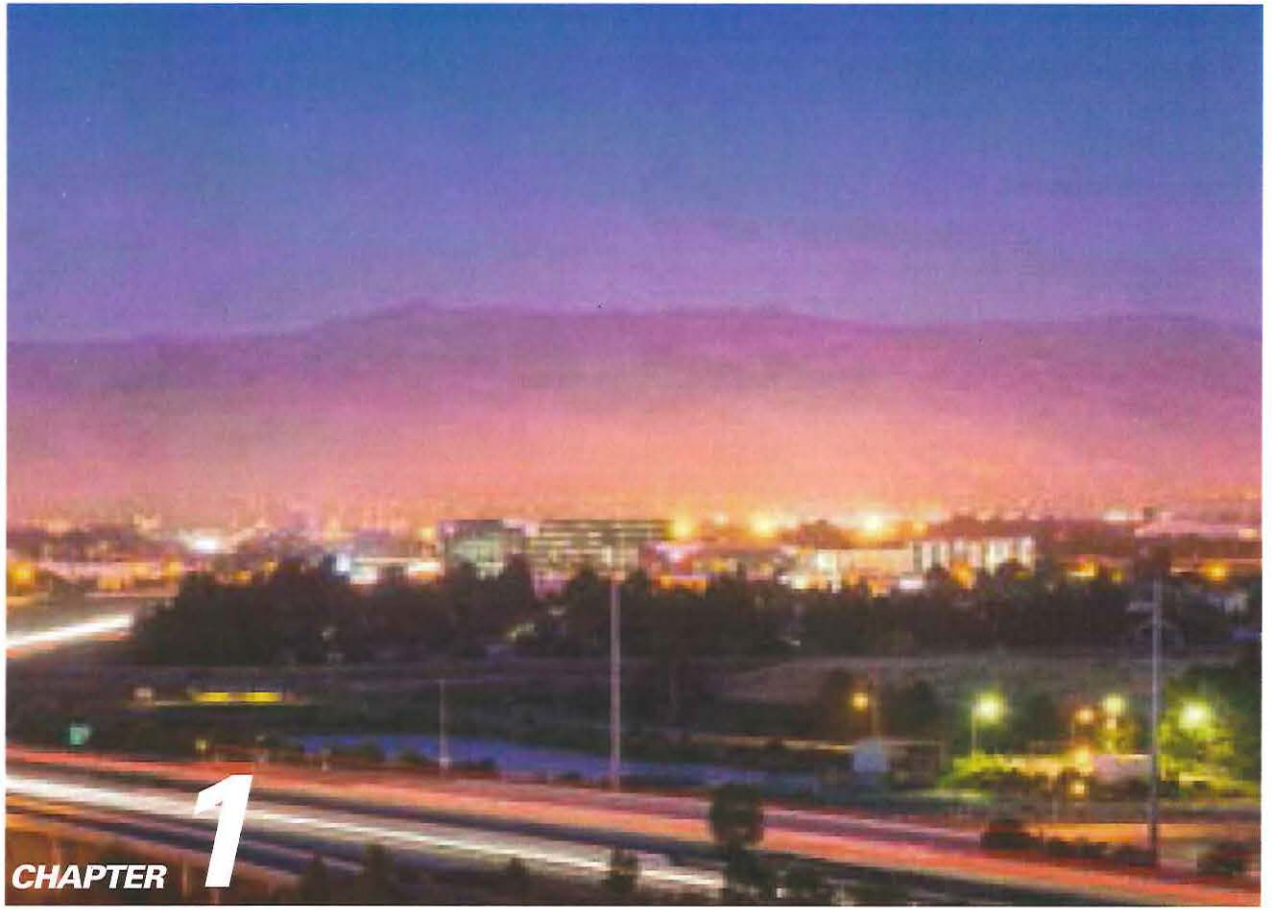
9 SUSTAINABILITY

EXHIBIT 9-1: CITYPLACE - VIEW LOOKING SOUTHEAST 236

REFERENCED DOCUMENTS

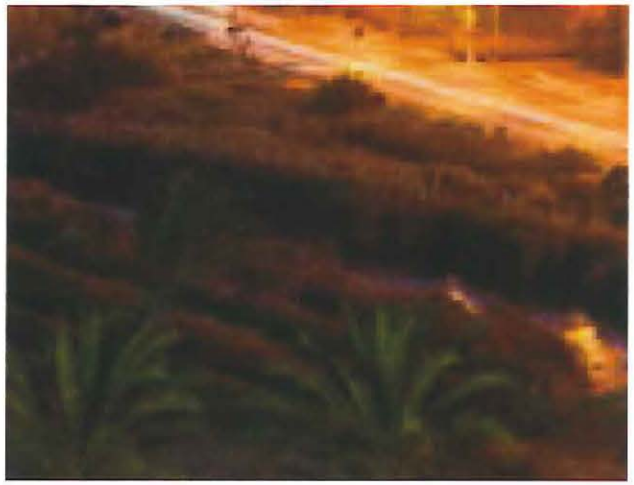
1. ENVIRONMENTAL IMPACT REPORT
2. TRANSACTIONAL DOCUMENTS:
    - DEVELOPMENT AGREEMENT
    - FORM OF GROUND LEASE
    - DISPOSITION & DEVELOPMENT AGREEMENT
3. INFRASTRUCTURE MASTER PLAN AND TECHNICAL MEMOS





CHAPTER 1

INTRODUCTION



1.1 PROJECT SUMMARY

CityPlace Santa Clara will create a new center of activity for the community of Santa Clara and the Silicon Valley region, providing significant mixed-use, retail offerings, office buildings, hotel rooms, and rental residential dwellings at an urban scale, as well as accessible outdoor spaces and vital infrastructure to support the development.

PROJECT DESCRIPTION

CityPlace Santa Clara is envisioned to be an approximately 240-acre urban city development located in the heart of the Silicon Valley, in the northern part of the City of Santa Clara (see *Exhibit 1-1*). Significantly, it will convert property owned by the City of Santa Clara that was formerly used primarily as a landfill and is currently primarily utilized as a golf course, to a more productive use in the form of a new and vibrant mixed-use, urban community. The planned development proposes three alternative land use schemes on five large development parcels and is anticipated to be developed in eight phases.

- *Scheme A* will accommodate 9,164,400 gross square feet (GSF) of development and a total floor area ratio (FAR) of 0.93; with a conceptual land use program as follows: 5,404,400 square feet (sf) commercial office, 1,312,000 sf commercial retail (including food and beverage), 190,000 sf commercial entertainment uses, 700 hotel rooms, and 1,680 residential dwelling units, approximately 74.1 acres of open space, and over 25,000 parking stalls within structured, podium, and surface parking facilities.

- *Scheme A Variant* will accommodate 7,523,400 GSF of development, and a FAR of 0.76; with a conceptual land use program as follows: 3,244,400 sf commercial office, 1,831,000 sf commercial retail (including food and beverage), 190,000 sf commercial entertainment uses, 700 hotel rooms, and 1,680 residential dwelling units, approximately 65 acres of open space, and over 20,000 parking stalls within structured, podium, and surface parking facilities. The Scheme A Variant primarily differs from Scheme A in that one of the parcels would be developed as a retail center rather than an office complex.

- *Scheme B* will accommodate 9,164,400 GSF of development and a total FAR of 0.93, with a conceptual land use program as follows: 6,684,400 sf commercial office, 1,512,000 sf commercial retail, 190,000 sf commercial entertainment uses, 700 hotel rooms, and 200 residential dwelling units, approximately 74.1 acres of open space, and over 25,000 parking stalls within structured, podium, and surface parking facilities. The Scheme B plan primarily differs from Scheme A in that parcel 4 would have no residential use but commercial office use would be built as a replacement.

Other features of the planned development will include an integrated network of open spaces, including a number of outdoor gathering spaces to encompass public plazas, shared courtyards, as well as walkable streetscapes. The project will also involve the construction and reconstruction of substantial infrastructure to support the proposed land uses and intensity of development, including landfill protection systems, environmental remediation as determined necessary, construction of a road network to serve the project site, and construction of necessary wet and dry utilities improvements. Ultimately the entire site will be 8'-12' above the landfill cap. The city center portion of Parcel 4 will accommodate infrastructure by incorporation of an interstitial zone between the landfill cap and the surface.

Site access will utilize existing points of contact with Tasman Drive, Great America Parkway and Lafayette Street, and additional new connections will be made along those roadways as phases are developed to facilitate multi-modal access to all parts of the project.



Exhibit 1–1: Regional Vicinity Map

1.2 PROJECT LOCATION

CityPlace Santa Clara will be a master planned, mixed-use development project located in the City of Santa Clara. Centrally located in the Silicon Valley, the project will transform a closed landfill and surrounding properties that are currently underutilized into a local and regional destination.

SITE SETTING

The City of Santa Clara is located within Santa Clara County about 45 miles southeast of San Francisco. Bordered by the cities of San Jose, Sunnyvale, and Cupertino, it sits at the center of the "Silicon Valley" (see *Exhibit 1-2*). With a population in excess of 120,000, Santa Clara is home to the headquarters of several high-tech companies, including Oracle, Applied Materials, and Intel, as well as a number of important regional destinations (see *Exhibit 1-3*). Most notable are: Santa Clara University, the oldest institution of higher learning in the State of California; Levi's Stadium, the new home of the National Football League's San Francisco 49ers; and Great America Amusement Park. Immediately adjacent to the site is the Santa Clara Convention Center.



Exhibit 1–2: 'Valley HUB' Map

SITE BOUNDARIES

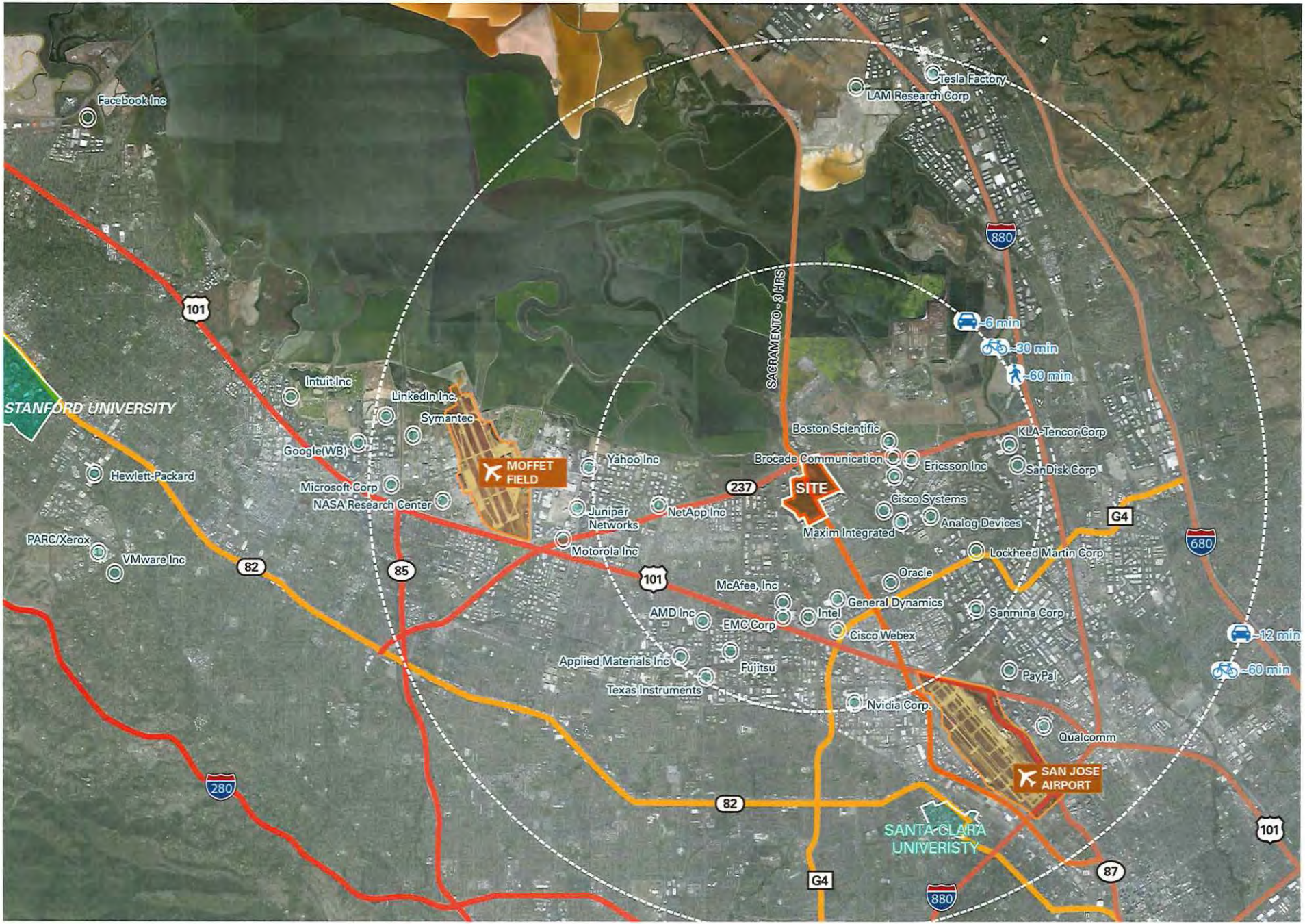
The approximately 240-acre project site is located at the northern edge of the City of Santa Clara. It is generally bounded by: the Southbay Freeway (California State Route 237) and Great America Way to the north; Great America Parkway and the San Tomas Aquino Creek to the west; the Guadalupe River to the east; and Tasman Drive to the south. Lafayette Street roughly divides the site into two halves. The project boundaries are shown in *Exhibit 1-4: Site Boundaries & Topography*, while a full legal description is provided in Appendix A of this document.

SITE DESCRIPTION

The project site is comprised of seven City-owned legal parcels referenced hereinafter for the purpose of this Master Community Plan as five development parcels as illustrated in *Exhibit 1-4: Site Boundaries & Topography* as of 2016. The parcels are primarily used by the Santa Clara Golf & Tennis Club, although portions of the site are used for a bicycle-motocross (BMX) track and a fire station. The Santa Clara Golf & Tennis Club was developed in 1987 by the City's Sports & Open Space Authority as part of the Santa Clara Trade and Convention Center Complex, and includes an 18-hole golf course, clubhouse and restaurant, seven lighted tennis courts, and a surface parking lot (between Stars & Stripes Drive and Tasman Drive).

Lafayette Street, a major arterial, divides the site into two halves; Parcels 1 and 2 are situated east of Lafayette Street and immediately west of the Guadalupe River, while Parcels 3, 4 and 5 are located west of Lafayette Street. Much of the site was formerly utilized by the Santa Clara All-Purpose Landfill, a 210-acre site with a waste footprint of approximately 183 acres, which closed in 1994. The topography of the site indicates that soil embankments were constructed on each of the landfill parcels (1,2,3&4) and that refuse was placed to create large mounds that rise above current street elevations. Consequently, the site topography varies considerably, with low elevations near sea level and high elevations above 65 feet; the highest mounds are on the northernmost Parcels 1 and 3.

EXHIBIT 1–3: A HUB CONNECTING SILICON VALLEY AND THE BAY AREA





The Santa Clara Golf & Tennis Club



The nearby Baylands Pond



The open-dirt BMX grounds in "Parcel 1"

- *Parcel 1:* This parcel measures approximately 49.6 acres. Landfill operations took place on this parcel from 1982 through 1986, and 1991 through 1993.
- *Parcel 2:* Directly south of and contiguous with Parcel 1, this parcel measures approximately 60.9 acres. Landfill operations took place on this parcel from 1977 through 1984.
- *Parcel 3:* This parcel measures approximately 34.9 acres. Landfill operations took place on this parcel from 1986 through 1991.
- *Parcel 4:* Directly south of and contiguous with Parcel 3, this parcel measures approximately 86.6 acres. Landfill operations took place on this parcel between the 1960s and 1970s.
- *Parcel 5:* Directly south and contiguous with Parcel 4, this parcel measures approximately 8 acres. The landfill did not include this parcel.

EXHIBIT 1–4: SITE BOUNDARIES & TOPOGRAPHY*



LEGEND

Contours

- 5'
- 10'
- 15'
- 20'
- 25'
- 30'
- 35'
- 40'
- 45'
- 50'
- 55'
- 60'
- 65'
- 70'
- 75'
- 80'

Boundaries

- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

** More detailed (1 foot contour) topographic information can be found in the Infrastructure Master Plan (Fig. 2 through 14).*
The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.

1.3 COMMUNITY CONTEXT

CityPlace Santa Clara will be well positioned for development as a city center, and will serve both the local community and the region. Nearby regional attractions, high-tech employment, diverse housing stock, an accessible highway, and commuter rail and light rail networks support an urban, transit-oriented development pattern.



Santa Clara Convention Center



Levi's Stadium and Great America Park

LAND USE CONTEXT

The project site is central to a high level of existing commercial and employment activity (see *Exhibit 1-5*). In addition to the Santa Clara Convention Center, unique regional attractions such as an NFL stadium and a major amusement park bring high volumes of visitors to the vicinity. Office and light industrial buildings as well as campuses characteristic of high tech employment in the region support a considerable day-time population. Meanwhile, surrounding single family neighborhoods and multi-family residential complexes accommodate a diverse housing stock and add a resident population to the area's mix.

- *Regional Attractions:* A number of major attractions are found in close proximity to the project site. These include the recently completed Levi's Stadium that seats up to 68,500 persons and hosts the NFL's San Francisco 49ers and various special events, and California's Great America Amusement Park. Both attractions are situated just to the south of the site across Tasman Drive. The Santa Clara Convention Center, one of the Silicon Valley's largest event and meeting venues, is located immediately west of the project site along Tasman Drive and Great America Parkway.

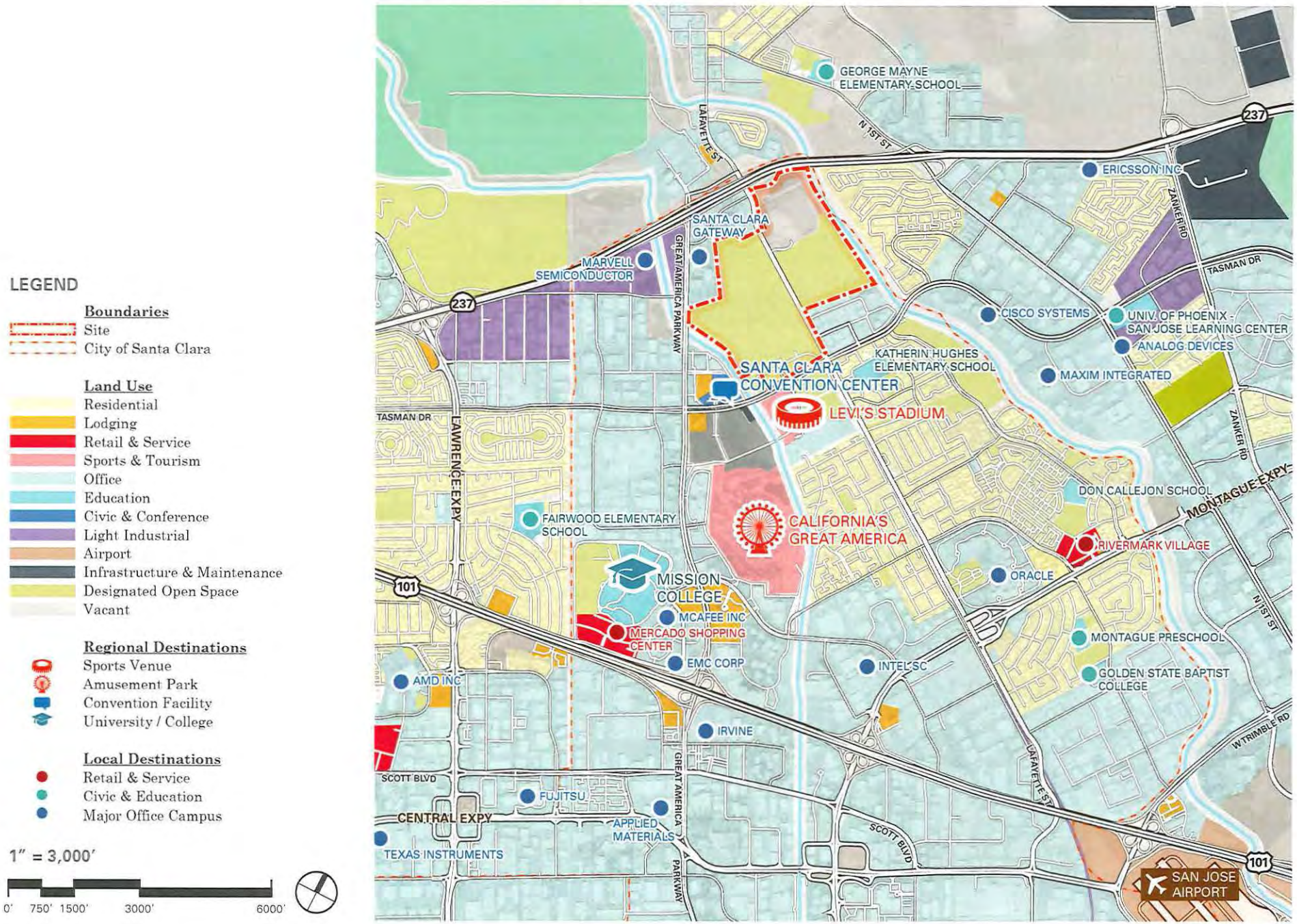
- *Office and Residential Mix:* In addition to the stadium, its ancillary facilities, and the amusement park, uses located south of the project site generally encompass a mix of low to moderate density residential neighborhoods. An exception to this would be the properties located directly south of Parcel 2 and north of Tasman Drive which are occupied by the Lafayette Industrial Park (which currently is primarily comprised of a number of low-rise office and light industrial buildings, but per the City General Plan is identified for future high-density residential development). West of the project site is an area that is characterized by low- and high-intensity office buildings, including The Irvine Company's Santa Clara Gateway office campus and Marvell Semiconductor office campus, and is designated in the General Plan for office/R&D uses at intensities of up to 2.0 FAR. East of the project site (across the Guadalupe River in North San Jose) is a mix of multi-family housing complexes and single family residential neighborhoods, with office and light industrial campuses (including Cisco Systems) located farther to the east and southeast.

- *Open Space:* North of the project site, in the City of San Jose, the land is largely undeveloped parklands, tidal wetlands, and former industrial salt ponds, that together comprise a part of the Don Edwards San Francisco Bay National Wildlife Refuge. Scattered residential and commercial developments are found in the nearby community of Alviso (City of San Jose), further north. Southeast of the site along the western bank of the Guadalupe River is the City of Santa Clara 40-acre Ulistac Natural Area featuring natural habitat areas and trails.

TRANSPORTATION CONTEXT

Santa Clara is generally well served by the regional transportation system, including nearby highway access, and convenient commuter rail and light rail connections, providing access to cities throughout the South Bay, as well as the San Francisco Peninsula and the East Bay. The community's close proximity

EXHIBIT 1–5: AREA LAND USE + KEY DESTINATIONS (2015 EXISTING CONDITIONS)*



** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*



The VTA's Lick Mill light-rail station



Great America station



Trail facilities along San Tomas Aquino Creek

to the Mineta San Jose International Airport (SJC) offers an additional asset in terms of convenience and transportation.

- *Highway Access:* The project site is readily accessed by the Southbay Freeway (SR-237), a six-lane divided highway that runs from Milpitas to Mountain View, connecting the east and west sides of the Silicon Valley. SR-237 passes to the north of the site, accessed from Great America Parkway or Lafayette Street via the Gold Street Connector. The interchange between SR-237 and the Nimitz Freeway (I-880 connecting Oakland and San Jose) is approximately 3.5 miles east of Great America Parkway. Additionally, the Bayshore Freeway (US-101) passes south of the site, and is accessed by Great America Parkway or Lafayette Street via the Montague Expressway. This eight-lane freeway connects San Francisco and San Jose.

- *Street Access:* Local access to the project site is provided by three arterial streets. Great America Parkway is a north-south six lane divided arterial to the west that provides primary access to US-101 and SR-237; Parcel 4 has approximately 350 feet of frontage along this street. Tasman Drive is an east-west six lane divided arterial to the south that includes a center-running VTA-owned and operated light rail line. Lafayette Street is a north-south four lane arterial that provides convenient access to both US-101 via Montague Expressway and SR-237 via the Gold Street Connector. This roadway divides the project site's east and west parcels; because the Union Pacific Railroad (UPRR) corridor runs along the roadway's west side there is limited access at street level to Parcels 3, 4, and 5. There is an unpaved driveway access to Parcels 1 and 2 from Lafayette Street. The intersection at Lafayette Street and Tasman Drive is grade separated with no direct connection to the site.

- *Transit System:* The Santa Clara Valley Transit Authority (VTA) operates a light rail and bus system that serves Santa Clara County. VTA's Mountain View-Winchester light rail corridor runs along Tasman Drive with the Lick Mill and Great America Stations serving the project site and surroundings. This route includes stops in downtown Mountain View, Sunnyvale, and downtown San Jose. It is worth noting that the City's General Plan identifies Great America Parkway / Bowers Avenue and Lafayette Street as "north-south transit opportunities" that are suitable for frequent transit service.

- *Commuter Rail:* Santa Clara is home to two major train stations. Situated below the Tasman Drive overpass, the Santa Clara-Great America Station directly serves both the project site and Levi's Stadium. This station hosts Amtrak's "Capitol Corridor" train linking San Jose and Sacramento and the Altamont Corridor Express (ACE) connecting Stockton and San Jose. The Santa Clara Transit Station, located roughly five miles to the south, hosts the Caltrain commuter rail line to San Francisco and Gilroy, Capitol Corridor and ACE, VTA county-wide bus service, and is also the planned terminus station for the Silicon Valley BART extension.

- *Airport Proximity:* The SJC is located along Santa Clara's eastern boundary, its passenger terminal a distance of approximately 6.5 miles from the intersection of Lafayette Street and Tasman Drive via Great America Parkway and US-101. Although the smallest of the Bay Area's three international airports in terms of passenger boarding, the recently modernized SJC provides a valuable air service choice for Silicon Valley residents and businesses. San Francisco International Airport is approximately 31.5 miles distant via northbound US-101 and Oakland International Airport is approximately 33.5 miles distant via northbound I-880.

- *Bicycle & Trail Networks*: The site is well served by a network of existing and proposed north-south bicycle paths and lanes, including the trails along San Tomas Aquino Creek and the Guadalupe River. On-street bicycle lanes are also provided along Great America Parkway, while the bicycle lanes along Lafayette Street extend to Calle de Luna just south of the project site, with a future extension to Great America Way proposed in the General Plan. In the east-west direction, the General Plan envisions future bicycle lanes along Tasman Drive, turning south at Lick Mill Boulevard.

ENVIRONMENTAL CONTEXT

Development needs to sensitively address local environmental factors and constraints, recognizing that

EXHIBIT 1–6: AREA TRANSPORTATION*



LEGEND

Boundaries
- Site
- City of Santa Clara
- 1 Parcel Number
- 1/4, 1/2, &1mi Radii

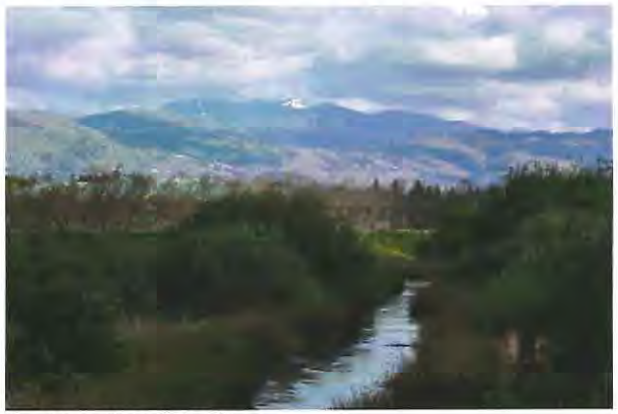
Roads
- Limited Access Freeway
- Arterial (3 lanes each way)

Transit/ Commuter Rail
- Capitol Corridor
- Altamont Corridor Express
- Light Rail: Alum Rock-Santa Teresa
- Light Rail: Mountain View-Winchester
- Express Bus
- Limited Stop Bus
- Local/Community Bus

1" = 3,000'

0' 750' 1500' 3000' 6000'

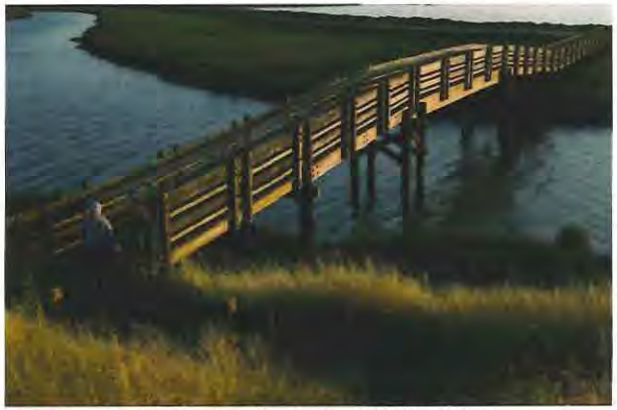
** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*



Guadalupe River, Santa Clara



San Tomas Aquino Creek Trail near Great America



Don Edwards San Francisco Bay National Wildlife Refuge

much of the site is a former landfill and that the site is situated near waterways and restored wetlands that interact with the San Francisco Bay. In particular, site grading and drainage are complicated by the underlying refuse, requiring that construction maintain the integrity of the landfill, and integrate control systems to protect the environment and maintain public health and safety.

- *Landfill Condition:* Separate landfill cells were established on each of the four proposed development parcels north of Stars & Stripes Drive (Prcels 1 through 4), with landfill operations concluding in the 1990s. The topography indicates that soil embankments were constructed and that refuse was placed creating large mounds. On the basis of available subsurface information, refuse in the northern landfills (Parcels 1 and 3) ranges in thickness from 40 to 80 feet; while refuse in the southern landfills (Parcels 2 and 4) ranges from 20 to 40 feet thick. A clay cap overlies the refuse which is in turn covered by imported earth fill. Additional earth fill was used to create varied topography utilized by the golf course (with a significant stockpile of earth on Parcel 3). This condition will require grading that protects the integrity of the existing landfill cap, and levels the site to create the proposed building pads. Additionally, infiltration of stormwater runoff is not feasible where it overlays the landfill, requiring new systems for collection, conveyance and treatment of stormwater.

- *Adjacent Waterways:* Santa Clara is drained by Saratoga Creek, Calabazas Creek, San TomasAquino Creek, and the Guadalupe River, all of which flow into the Guadalupe Slough through a series of flood control channels that empty into the southern portion of San Francisco Bay. One of these, San Tomas Aquino Creek, establishes the western boundary of Parcel 4. The Guadalupe River marks the eastern boundary of Parcels 1 and 2, also separating Santa Clara from San Jose along its northern reaches. This river flows into the Alviso Slough (it was rerouted from the Guadalupe Slough in the 1870s to aid navigation) before emptying into the San Francisco Bay.

- *Flood Control:* The Santa Clara Valley Water District (SCVWD) is responsible for managing water flows and providing flood control throughout Santa Clara County. While channelization and other flood control measures have reduced the potential hazard, flooding can occur in localized areas due to overflow of the local creeks and rivers during periods of heavy rain. Characterized by landfill mounds, the project site is generally not subject to flood hazard. However, Lafayette Industrial Park located directly south of Parcel 2 is situated within a designated flood zone; Lafayette Street is also susceptible to flooding.

- *Nearby Wetlands:* Salt ponds and wetlands found north of SR-237 are part of the Don Edwards San Francisco Bay National Wildlife Refuge, administered by the U.S. Fish and Wildlife Service, and are included in the 15,100-acre South Bay Salt Pond Restoration Project that is returning former industrial salt ponds to tidal wetlands along the Bay. The first phase of the restoration project transformed significant acreage of the Alviso Ponds into managed wetlands and increased the flood flow capacity of the Alviso Slough.

EXHIBIT 1–7: AREA ENVIRONMENTAL FEATURES*



** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

1.4 PLAN SUMMARY

This Master Community Plan will serve as the zoning map and zoning regulations that apply in the Planned Development - Master Community (PD-MC) zone designation for the project site.

PURPOSE

This Plan provides a comprehensive program to govern the use of land and will provide for orderly development of CityPlace Santa Clara. As such, it incorporates a conceptual development framework, and other development regulations in the form of standards and guidelines; it also identifies and coordinates necessary infrastructure improvements, addresses public and private financing for infrastructure improvements and describes development phasing. These contents are intended to ensure: a) that development within the planning area will be consistent with the General Plan; and b) that development of CityPlace's private and public realms will be in accord with the Plan's vision and design intent.

LEGAL AUTHORITY

This Plan was prepared in accordance with Chapter 18.56 (Planned Development - Master Community Zoning Districts) of the Santa Clara Zoning Ordinance.. These provisions allow for the designation of a Planned Development - Master Community (PD-MC) zoning district on project sites measuring at least 25 contiguous acres, thereby accommodating large-scale integrated development where a mixture of residential with commercial, office, research and development and/or public uses will be proposed. CityPlace Santa Clara will comprise approximately 240 acres, thus qualifying for this zoning designation.

Rezoning to PD-MC must be accompanied by the adoption of a Master Community Plan that includes narrative and graphic descriptions of the allowed development and its various components, such as land use, circulation, and open space. The plan must also indicate the density / intensity of residential and nonresidential development, and include development standards and design guidelines. A preliminary public infrastructure plan and a program for financing on- and off-site infrastructure improvements are also required. *Table 1-1: Master Community Plan Required Content* lists the required elements of a Master Community Plan and identifies where those elements are included in this Plan.

APPLICABILITY

In accordance with the proceedures set forth in Appendix C. Submitted Development Area Plans must conform to the contents of this document.

TABLE 1–1: MASTER COMMUNITY PLAN REQUIRED CONTENT

REQUIRED CONTENT PER SANTA CLARA CITY ZONING CODE - SECTION 18.56.070	APPLICABLE DOCUMENT CHAPTER OR SECTION
The master community plan shall include the following information, subject to the satisfaction of the Director of Planning and Inspection:	
(a) A master community summary providing, in narrative form:	
1. A general description of the proposed development; including a legal description of the property in the district;	1.1 PROJECT SUMMARY 1.2 PROJECT LOCATION APPENDIX A: LEGAL SITE DESCRIPTION
2. Definitions of the land use designations (including density ranges and, in the case of residential designation, product types) shown on the master community graphics (as required by subsection (b) of this section);	3.2 LAND USE CONCEPT
3. A table setting forth the minimum and maximum total dwelling units, the minimum and maximum nonresidential square footage, and the minimum acreage for open space, public uses and any other uses for the district at buildout;	3.2 LAND USE CONCEPT
4. A description of:	
A. Residential neighborhoods;	3.2 LAND USE CONCEPT
B. Mixed-use neighborhoods;	3.2 LAND USE CONCEPT
C. Commercial, office and/or research and development uses;	3.2 LAND USE CONCEPT
D. Open space and parks;	3.4 OPEN SPACE CONCEPT
E. "Public Buildings"; and	3.3 MOBILITY CONCEPT
F. Any other proposed uses; and	
5. Financing, if any, for on- and off-site infrastructure improvements.	2.4 DEVELOPMENT FINANCING / IMPLEMENTATION RESPONSIBILITIES
(b) Master community graphics showing generally:	
1. Land use designations for each distinct use in the master community district (each such designated area is hereinafter referred to as a "land use area") and in adjacent areas outside the district;	3.2 LAND USE CONCEPT (EXHIBIT 3-2)
2. A public circulation system (including street classifications and cross sections, pedestrian paths and bikeways);	3.3 MOBILITY CONCEPT (EXHIBITS 3-9, 3-10, 3-11, 3-18, 3-19 & 3-20)
3. "Public Buildings";	3.3 MOBILITY CONCEPT (EXHIBIT 3-16)

TABLE 1-1: MASTER COMMUNITY PLAN REQUIRED CONTENT CONT.

REQUIRED CONTENT PER SANTA CLARA CITY ZONING CODE - SECTION 18.56.070	APPLICABLE DOCUMENT CHAPTER OR SECTION
4. Open space and parks; and	3.4 OPEN SPACE PLAN (EXHIBIT 3-21)
5. A preliminary public infrastructure plan (including drainage, sewerage, water, power and telecommunication utilities).	CHAPTER 8: INFRASTRUCTURE OVERVIEW
(c) A map showing the existing topography of the district at one-foot contour intervals, if required by the Zoning Administrator of the City of Santa Clara.	1.2 PROJECT LOCATION (EXHIBIT 1-4) *
(d) Design guidelines and development standards for:	
1. Site Planning.	CHAPTER 4: PARCEL DEVELOPMENT PLANS, STANDARDS & REQUIREMENTS
A. Site coverage;	TABLES 4.1 - 4.16
B. Setbacks;	EXHIBITS 4.2 - 4.33
C. Building heights;	EXHIBITS 4.2 - 4.33
D. Private outdoor areas, including open space and yards; and	6.6 PRIVATE OUTDOOR SPACE
E. Parking;	4.2 - 4.17
2. Architectural Character.	
A. Style;	CHAPTER 5: DESIGN GUIDELINES
B. Scale; and	CHAPTER 5: DESIGN GUIDELINES
C. Building materials;	CHAPTER 5: DESIGN GUIDELINES
3. Landscaping;	CHAPTER 6: LANDSCAPE MASTER PLAN
4. Signage; and	CHAPTER 7: SIGNAGE & LIGHTING GUIDELINES
5. Lighting. (Ord. 1746 § 2, 2-15-00).	CHAPTER 7: SIGNAGE & LIGHTING GUIDELINES

** More detailed (1 foot contour) topographic information can be found in the Infrastructure Master Plan (Fig. 2 through 14).*

1.5 PLAN ORGANIZATION

This Plan is structured to assist all interested parties, including prospective developers and local decision-makers, in accessing the information they will need to implement the desired vision and ensure a high level of development and design quality for CityPlace. The document organization is as follows:

SECTION 1. INTRODUCTION:
This section briefly summarizes the project, its setting, and outlines the purpose of the Plan and its contents. This section offers existing topographic information.

SECTION 2. IMPLEMENTATION:
This section describes the programs and procedures that will be utilized to implement the Plan; it outlines the development approval process and the roles of the City and Master Developer in development of the project.

SECTION 3. MASTER PLAN OVERVIEW:
This section sets forth the overall vision, policies, and physical framework for development of the project site, covering land use, mobility, open space, and urban design.

SECTION 4. PARCEL DEVELOPMENT PLANS & REGULATIONS:
This section describes a program framework and the desired character of development for delineated parcels, as well as the associated site development regulations.

SECTION 5. DESIGN GUIDELINES:
The section presents general design guidelines with the intent of ensuring high quality development, addressing site planning of building and open space, architectural design and parking requirements for key development typologies.

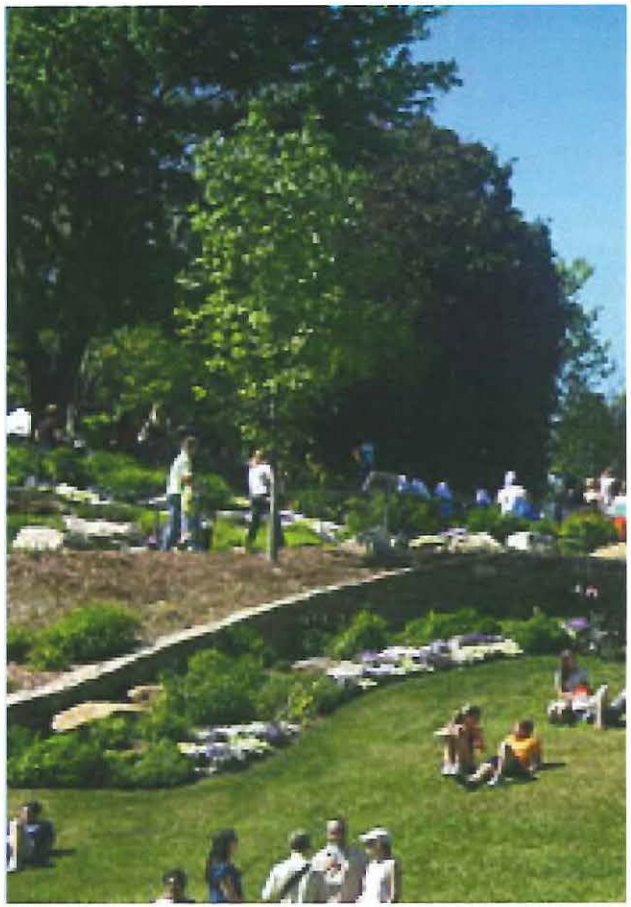
SECTION 6. LANDSCAPE MASTER PLAN:
This section presents plans, programs, and guidelines that establish the overall aesthetic of the site's landscape, especially focusing on the design of streetscapes and of public and private open space and plazas.

SECTION 7. SIGNAGE & LIGHTING MASTER PLAN:
This section presents plans, programs and guidelines that establish the overall aesthetic for on-site signage and lighting, in particular presenting guidelines for tenant signage and wayfinding signage.

SECTION 8. INFRASTRUCTURE OVERVIEW:
This section provides plans, programs, and guidelines for the improvement of key components of the infrastructure serving the project site, including vehicular circulation, drainage and stormwater control, water, sewers, gas, electric, and telecommunications.

SECTION 9. SUSTAINABILITY MASTER PLAN:
This section details plans, programs, and guidelines that will meet a locally accepted level of sustainable development practice, addressing such issues as green infrastructure and buildings, and sustainable materials and resources.

APPENDICES:
The appendices include a full legal description of the project site, a list of definitions of the land uses referenced in Section 3.2 and procedures for the review and approval of the Development Area Plans.





CHAPTER 2

IMPLEMENTATION



2.1 GENERAL PLAN CONSISTENCY & CEQA COMPLIANCE

This Master Community Plan is consistent with the City General Plan, including the project site's designation as Urban Center Entertainment District.

GENERAL PLAN CONSISTENCY

The project supports the General Plan's Major Strategies:

- *Policy Support:* The General Plan presents seven Major Strategies that are the "foundation for civic priorities and a framework for decisions that shape the future growth and development of the City of Santa Clara." CityPlace and its development objectives are consistent with and support each of the Major Strategies.

  Major Strategy 1: Enhance the City's High Quality of Life. CityPlace will expand employment opportunities while offering a broad range of amenities, integrating significant office development with an array of retail, dining, and entertainment options. Moreover, its mixed-use, transit-oriented development pattern will support a pedestrian friendly live, work and play environment complemented by active open spaces. In summary, the project will contribute both economically and socially to the community.

  Major Strategy 2: Preserve and Cultivate Neighborhoods. CityPlace will establish a new mixed-use urban neighborhood that will extend and diversify Santa Clara's housing stock while fostering a sense of community. In particular, the proposed construction of up to 1,680 residential dwelling units at urban densities will create a distinctive residential living experience.

  Major Strategy 3: Promote Sustainability. CityPlace will be developed primarily upon a former landfill, achieving more efficient use of the land; and will intensify land use in the form of a mixed-use, city center development in close proximity to local and regional destinations and major transit facilities and connections. Additionally, the project will integrate on- and off-site infrastructure improvements necessary to support the development, and will incorporate measures to reduce water and energy consumption and protect water quality.

  Major Strategy 4: Enhance City Identity. CityPlace will rely on a robust mixture of uses, a high-quality public realm, and compelling architectural design to establish a vibrant and attractive destination for residents, workers and visitors alike. Emphasis will be placed on delivering inviting streetscapes and hospitable outdoor spaces suitable for public use and community gatherings. Given its proximity to Levi's Stadium, Great America Amusement Park and the Santa Clara Convention Center, it will become not only a local destination but a regional one as well.

  Major Strategy 5: Support Focus Areas and Community Vitality. CityPlace will capitalize on the presence of important local and regional attractions, including the nearby stadium, convention center, and amusement park to create a well-defined center of activity for Santa Clara and the Silicon Valley. As an important focus of employment and commercial endeavors, the development is expected to attract considerable investment to the community. To ensure long-term viability, the plan will provide a flexible accommodation of growth and change over time.

  Major Strategy 6: Maintain the City's Fiscal Health and Quality Services. CityPlace will feature a broad mix of uses with the capacity to strengthen and diversify Santa Clara's tax base and maintain the community's fiscal health. Between 3.56 and 6.68 million square feet of office development is projected to attract major employers and expand the employment base. In addition, between 1.5 and 2 million square feet of commercial development, consisting of retail, dining, entertainment and hotel uses, is expected to significantly increase taxable sales. The enhanced fiscal stability created by the Project will allow the City sufficient funds to maintain quality municipal services.

  Major Strategy 7: Maximize Health and Safety Benefits. Creating a successful and attractive live, work, play environment while encouraging walking and recreation over emphasis on automobiles, with a park once strategy, will offer health and safety benefits to CityPlace (i.e. walkable streets, bike paths, etc). A priority for the development will be to modernize landfill protection systems to ensure the continued protection of human health and the environment.

- *Land Use Classification:* In order to accommodate high intensity urban-oriented development, including the proposed CityPlace development, a new General Plan land use classification category of Mixed-Use Designations, has been added as a classification of "Urban Center / Entertainment District". The text of this classification is as follows:

  This classification is intended for local- and regional-scale destinations that feature a mixture of some or all of the following: pedestrian-oriented commercial retail and services; urban residential, hotel and employment-generating uses within a defined planning area. It accommodates an intensity of development intended to create a lively place of focus for community and commerce. Master planned projects are encouraged, which may proceed through multiple phases and may entail several individual parcels or development areas. The intensity of

development within individual parcels or sub-areas may vary, thereby allowing a more dense urban form in key locations (for example, concentrated employment, retail services, and/or housing by nearby transit facilities). The planning area may be designated as one of the following:

- Low Intensity Urban Center that allows an overall project that shall not exceed a gross FAR of 1.0 for all combined office, commercial, retail, and hotel uses; or
- High Intensity Urban Center that allows an overall project that shall not exceed a gross FAR of 2.0 for all combined office, commercial, retail, and hotel uses.

This classification accommodates a wide variety and mix of commercial activities serving residents, businesses and visitors from the local community and surrounding region. Some combination of the following uses are allowed in vertical or horizontal mixed-use arrangements: 1) retail sales and services; 2) restaurants and other food and beverage uses; 3) entertainment venues such as cinemas, performance venues, other interactive experiences, and active open space and plaza amenities; 4) hotels; 5) corporate and general office; 6) commercial services; and 7) compatible uses of a similar commercial character (to the extent permitted by the applicable zoning designation). Auto-oriented uses such as drive-through restaurants and auto service facilities are not permitted. This is not intended to exclude product showcase venues, including auto showrooms, which shall require a use permit.

Medium to very high-density residential uses are also suitable to this classification; however the building heights could be restricted by FAA or other applicable height restrictions/regulations. The integration of urban scale housing is intended to contribute to a balanced community, reduce reliance on the automobile, and promote the desired pedestrian oriented character. Horizontal and vertical mixing of compatible uses is permissible, bringing residents and workers in close proximity to basic services and desirable conveniences. Mixed-use developments that afford active lower floors(s) retail or commercial space along street frontages with residential units arranged on upper floors are especially fitting as part of an urban core.

Development should support alternative modes of travel, incorporating accommodations for transit users, bicyclists, and pedestrians, as well as utilizing and incentivizing transportation demand management. Parking should be provided in a manner that does not disrupt the desired pedestrian orientation, and instead is arranged and scaled to help activate street spaces. Shared parking among compatible uses is encouraged. Both structured and surface parking are permissible, as appropriate to location and uses.

Open spaces and landscape features that enhance the public realm and meet the active and passive recreational needs of multiple users shall be incorporated throughout a project. In particular, open spaces should encompass some or all of the following: at-grade plazas, greens, and similar shared outdoor spaces suitable for formal and informal gatherings, as well as pedestrian-friendly streetscapes that feature wide sidewalks, canopy trees, street furniture, and other amenities. Upper / podium level courtyards and terraces, as well as public and private rooftop gardens, are also encouraged."

With a maximum development area of 9,164,400 gross square feet (GSF), CityPlace's FAR falls below 1.0; therefore, the project is categorized as a Low Intensity Urban Center. City Place is consistent with this new General Plan designation because it is a regional-scale destination that features a mixture of pedestrian-oriented commercial retail and services; urban residential, hotel and employment-generating uses, and is intended to create a lively place of focus for community and commerce.

In addition to the General Plan Amendment, the project approvals include a zoning change to Planned Development – Master Community (PD-MC) from Public, Quasi-Public, Public Park or Recreation (Parcels 1 to 4, the retention basin, a portion of Parcel 5) and Commercial Park (CP) (the remainder of Parcel 5).

The PD-MC district is intended to create regulations for large-scale integrated development that is compatible with the existing community and that: 1) Integrates uses that are not permitted to be combined in other zoning districts, and/or utilizes planning and design concepts that would be restricted in other zoning districts; 2) subdivides land or air space in a manner that results in units not having the required frontage on a dedicated public street; and 3) will be developed in phases.

FULL LIST OF APPROVALS

City Discreationary Approvals

- General Plan Amendment
- Rezoning from B and CP zoning districts to Planned Development - Master Community (PD-MC)
- Master Community Plan
- Tentative Subdivision Map and/or Vesting Tentative Subdivision Map
- Development Agreement
- Disposition and Development Agreement and Ground Leases
- Infrastructure Master Plan
- Development Area Plans
- Conditional use permits for specified uses as set forth in Section 3.2

Landfill Related Approvals

Responsible Agencies:

- Bay Area Air Quality Management District (BAAQMD)
- San Francisco Bay Regional Water Quality Control Board (Water Board)
- Santa Clara County Department of Environmental Health (Local Enforcement Agency)
- Cal Recycle
- California Department of Public Health

Approvals Required:

- Approval of the Post-Closure Land Use Plan, amended Closure Plan, and amended Post Closure Maintenance Plan
- Revisions to Corrective Action Plans
- Revised Waste Discharge Requirements
- Post Closure Land Use Plan

Additional Approvals that may be Required

- California Department of Transportation (Caltrans)- review of traffic circulation effects
- Water Board - approval of NPDES permit and review of potential impacts to wetlands
- California Department of Fish and Wildlife - streambead alteration agreement and review of potential impacts to wetlands
- United States Army Corps of Engineers - review of potential impacts to wetlands

2.2 MASTER COMMUNITY PLAN APPROVALS & ADMINISTRATION

The proposed CityPlace development requires City Council approval of a Master Community Plan to accompany a zoning change to Planned Development – Master Community (PD-MC). Site development will progress based on approval of separate Development Area Plans tied to project phasing, affording the City an opportunity to review detailed site and architectural plans for compliance with the provisions of this Master Community Plan.

APPROVALS & ADMINISTRATION

Site development will require application and approval of one or more Development Area Plans and later architectural review to the extent not addressed in the Development Area Plan application. One or more Development Area Plan applications will be approved for each of the proposed project phases and shall conform to the Master Community Plan. The submittal and approval procedures for Development Area Plan applications and architectural review shall be governed by the "Development Area Plans – Submittal and Approval Procedures" in Appendix C, which supersedes Sections 18.56.080 through 18.56.110 of the Zoning Ordinance in their entirety with respect to the new PD-MC zoning district.

- Site development will require application and approval of one or more Development Area Plans and later architectural review to the extent not addressed in the Development Area Plan approval. One or more Development Area Plans will be approved for each of the proposed project phases and shall conform to the Master Community Plan. The submittal and approval procedures for Development Area Plan applications and architectural review shall be governed by the "Development Area Plans – Submittal and Approval Procedures" in Appendix C, which supersedes Sections 18.56.080 through 18.56.110 of the Zoning Ordinance in their entirety with respect to the new PD-MC zoning district.

2.3 DEVELOPMENT PHASING

CityPlace will be developed in multiple phases, timing the delivery of commercial retail, office, hotel and residential space to projected market demand and other factors. Construction will begin with the City Center, creating an essential focal point for the community while providing the critical mass needed to generate both activity and revenue. Office campus development will follow with estimated project completion by 2031.

PHASING CONCEPT

One of the advantages of PD-MC zoning is that it readily accommodates the project phasing associated with a large-scale development project. In this case, the proposed development is expected to achieve build-out of all five development parcels through multiple phases, with project completion estimated by 2031. This conceptual phasing takes into account such factors as projected market absorption, infrastructure costs, revenue generation, community benefits, and development flexibility, and incorporates the following three concepts:

- *Create Mixed-Use Destination:* Development will commence with Parcels 4 and 5, delivering approximately 5 million square feet of commercial retail, office, hotel and residential space to create a vital city center by approximately 2023. The intent will be to leverage both parcels' proximity to local and regional attractions, especially the recently-constructed Levi's Stadium, to create in the near term a mixed-use destination for the community. Synergies with stadium events will add value, creating an opportunity for full day experiences, which could result in additional revenue and a broader customer base. Anticipated benefits include housing and employment, access to goods and services, entertainment choices, the ability to park once for full complement of needs, transit-oriented design resulting in trip reductions, raising the profile of the community, generating project revenue, and expanding the City's tax base, thereby stimulating further high quality development.

- *Expand Employment Base:* Development is expected to next progress to the office campuses proposed for Parcels 1 and 3, potentially delivering nearly 2 million square feet of additional office space by approximately 2027. The intent is to provide a setting that will attract major employers, adding 25,000 jobs; in particular, offering the amenities that appeal to high-tech businesses and knowledge based enterprises. These amenities include appealing campus environments, proximity to an active city center, and strong transit connections to reduce vehicle trips.

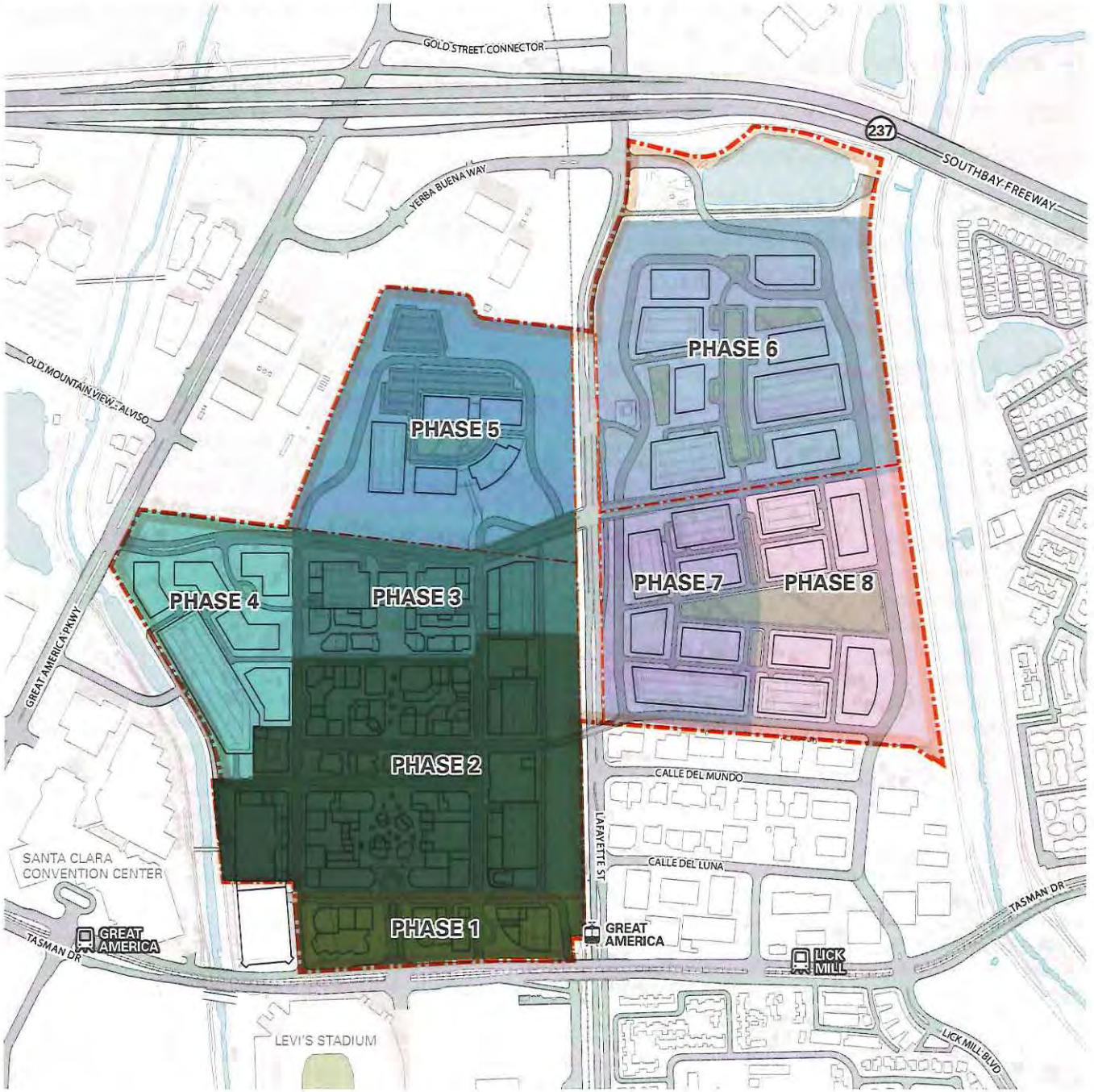
- *Address Future Market Conditions:* Market absorption capacity will inform project phasing decisions, and development on parcels beyond the City Center will be governed by market demand forces for the primary office uses. Market needs may require the flexibility to substitute uses. Parcel 2 will reserve the most flexibility to pursue alternative land use schemes based on future market conditions. The eventual land use mix will depend in large measure on the character of local and regional growth, including potential redevelopment of the adjacent Tasman East Industrial Park as a residential neighborhood as contemplated under the General Plan.

CONCEPTUAL PHASING STRATEGY

It is projected that the project will be constructed in eight phases for Scheme A and Scheme B, and seven phases for the Scheme A Variant; however, this phasing strategy is conceptual, and (with in the limitations

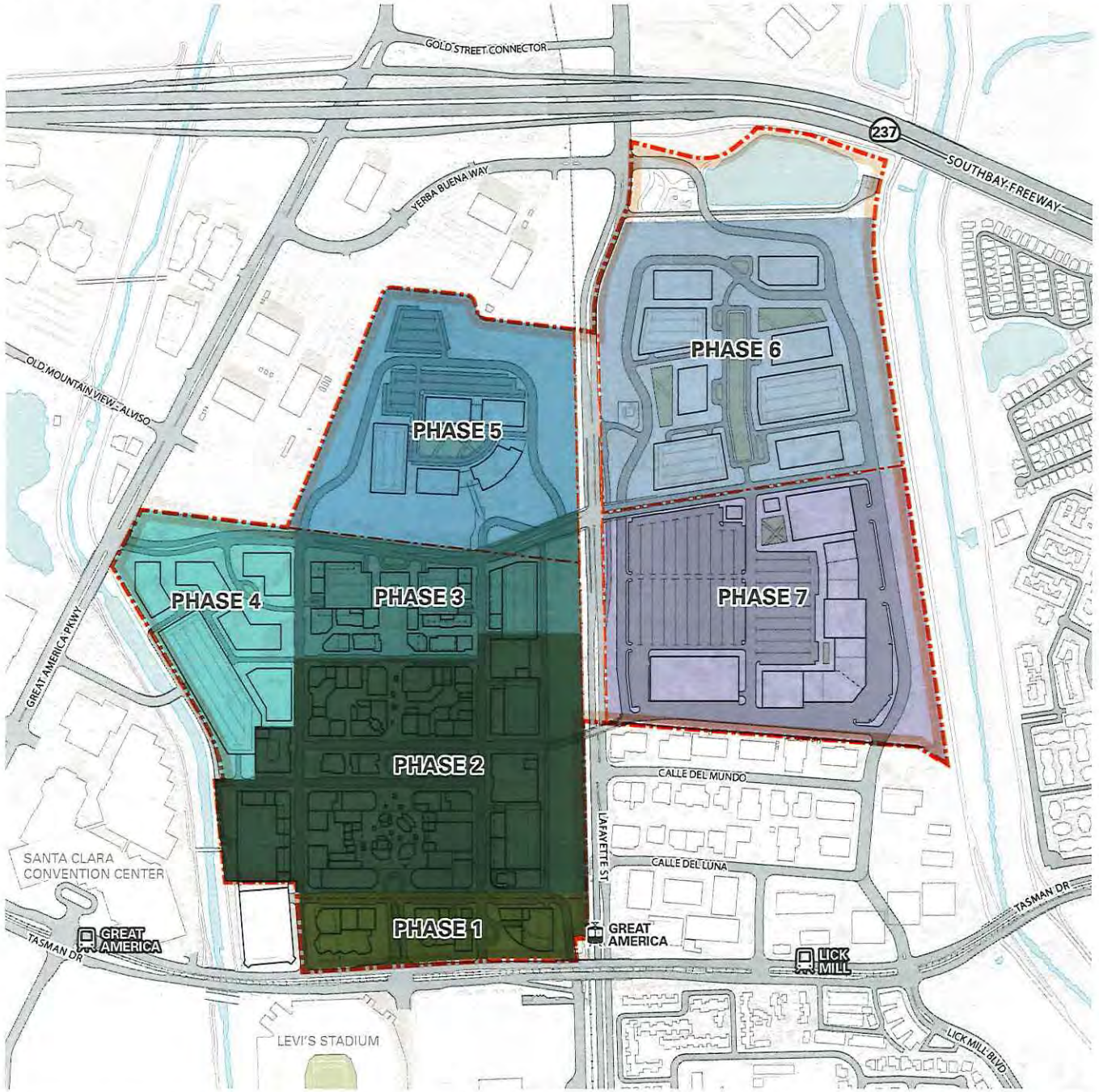
EXHIBIT 2–1: SCHEME A - DEVELOPMENT PHASING CONCEPT*

Implementation of all necessary infrastructure improvements will be accomplished concurrent with the project phase where the demands are created.



** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

EXHIBIT 2–2: SCHEME A VARIANT- DEVELOPMENT PHASING CONCEPT*



LEGEND

Phases
- Phase 1
- Phase 2
- Phase 3
- Phase 4
- Phase 5
- Phase 6
- Phase 7

Boundaries
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

set forth in the Development and Disposition Agreement) phases may be consolidated, implemented out of numerical sequence, or otherwise modified to address changing conditions. A brief description of each proposed phase of development follows, with the phasing conceptually portrayed in *Exhibit 2-1: Scheme A - Development Phasing Concept* and *Exhibit 2-2: Scheme A Variant - Development Phasing Concept*. Scheme B phasing will the same as Scheme A, with office replacing residential on Parcel 4 and Retail replacing a portion of ground floor office space on parcel 2.

- *Phase 1:* The initial phase is expected to develop approximately 825,000 square feet of commercial retail, residential, hotel and office space on an estimated 8 acres, establishing the gateway into the City Center Mixed-Use zone on Parcel 5. The estimated time frame for development is 2016-2019.

- *Phase 2:* This phase is anticipated to develop approximately 2.4 million square feet of commercial retail, entertainment, residential, hotel and office space on an estimated 52 acres, establishing the essential core of the City Center Mixed-Use zone on Parcel 4. The estimated time frame for development is 2017-2020.

- *Phase 3:* This phase is anticipated to provide additional mixed-use to the zone, and will develop approximately 18 additional acres on Parcel 4 to complete the City Center Mixed-Use zone. Approximately 750,000 square feet of retail, office, and residential space is contemplated. The estimated time frame for development is 2018-2021.

- *Phase 4:* This phase is anticipated to generally correspond to the City Center Northwest Office Zone, completing development of Parcel 4. Nearly 1.1 million square feet of office space on 16 acres is envisioned. The estimated time frame for development is 2020-2023.

- *Phase 5:* This phase is anticipated to comprise the office campus on Parcel 3, thereby finishing development on the west side of Lafayette Street. Approximately 720,000 square feet of office space will be proposed for 34.9 acres. Development is expected to proceed in 2022-2025.

- *Phase 6:* This phase is anticipated to initiate office campus development on the east side of Lafayette Street. Development of approximately 1.2 million square feet of office space is anticipated to be built on 36.8 acres on Parcel 1 and is expected to proceed in 2024-2027. New access points to the parcels on the east side of Lafayette Street will be constructed with or not later than commencement of this Phase.

- *Phase 7:* Under Scheme A, this phase is anticipated to involve 26 acres of development of approximately 1 million square feet of office space on the west half of Parcel 2. Under Scheme B, this phase will develop just under 1 million square feet of office space and approximately 100,000 square feet of commercial retail on the west half of Parcel 2. The estimated time frame for development is 2026-2029. Under the Scheme A Variant, construction of the 520,000 square foot retail center is expected to proceed as a single phase.

- *Phase 8:* Under Scheme A, this phase is planned to involve 35 acres of development of approximately 1 million square feet of office space on the east half of Parcel 2 to complete the office campus. Under Scheme B, this phase is expected to develop just under 1 million square feet of office space and approximately 100,000 square feet of commercial retail on the east half of Parcel 2 to complete the office campus. The estimated time frame for development is 2028-2031. The Scheme A Variant does not utilize a Phase 8.

- *Development Agreement Requirements:* Development Agreement must describe the proposed phasing of both on-site construction and any public improvements required through that agreement, and it must identify specified times for the commencement and completion of each phase of the project.

- *Development Area Plan Requirements:* It is anticipated that each development phase will be approved through a separate Development Area Plan. Construction in accordance with an approved Development Area Plan must begin within two years of approval by the City Council; the Planning Commission may grant an extension of up to two years, provided the developer can demonstrate "good cause."

- *Infrastructure Sequencing:* The provision of on- and off-site infrastructure will coincide with the phasing of site development, thereby ensuring that infrastructure timing and sequencing satisfy the demands of each development phase. Phasing of infrastructure improvements is mentioned in Chapter 8 (Infrastructure Overview) and will be confirmed by Infrastructure Plans approved as part of the DAP submissions.

2.4 DEVELOPMENT FINANCING / IMPLEMENTATION RESPONSIBILITIES

The method of development financing and the assignment of responsibilities for implementing the CityPlace project, including both on- and off-site improvements, will be set forth in financing plans submitted by the Master Developer and approved by the City of Santa Clara.

FINANCING

Due to the size of development and mitigation measures required by the project EIR, CityPlace Santa Clara will implement construction of new public and private infrastructure (both on the 240 acre project site and beyond). Improvements include utility upgrades in the vicinity of the project and street/intersection modifications in numerous locations throughout the City of Santa Clara and also neighboring cities. The developer will be responsible for costs of relocation or modification of any public facility necessary to accomodate development of the CityPlace project. The Development and Disposition Agreement specifies that, prior to taking possession of land within the project site and before beginning construction of any phase, the Developer will submit initial and detailed financing plans, respectively indicating the sources of funding for all project infrastructure and improvements, as well as maintenance of public and private improvements so as to mimize use of City or general funds or proceeds from the project.

Some of these improvements will be implemented through the payment of specific project development fees These funds derived from project development fees will assist the various governmental agencies in carrying out broader infrastructure and facility improvements. To assist with the implementation of the public improvements, the Developer may use public financing vehicles, including but not limited to Community Financing Districts (CFDs), Enhanced Infrastructure Financing Districts (EIFDs), State and Federal grants, and other public facility revenue bonds. Such financing vehicles would require cooperation between the Developer and the City.

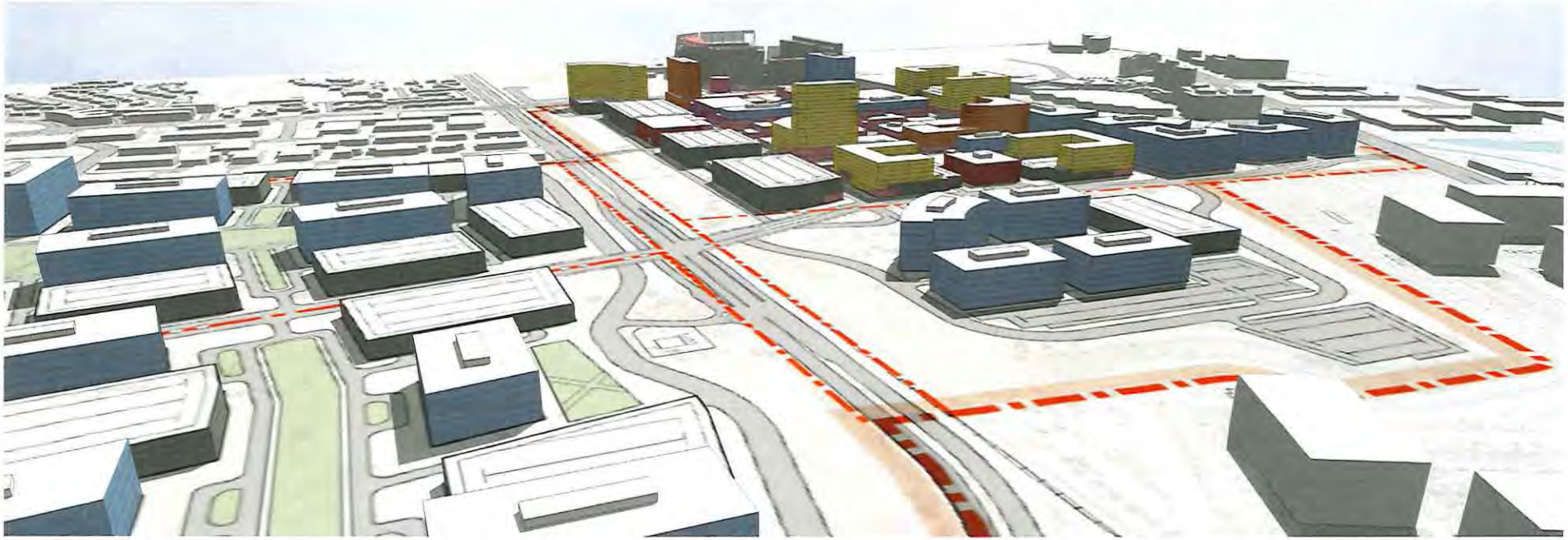


EXHIBIT 2–3: CITYPLACE - VIEW LOOKING SOUTH





CHAPTER 3

MASTER PLAN OVERVIEW



3.1 MASTER PLAN SUMMARY

Vision: CityPlace Santa Clara will sit at the heart of Silicon Valley, a region that is globally recognized for its leadership in community resilience, integrated technology and quality of life. In keeping with this high standard, the project's walkable City Center and adjacent office campuses will create an exceptional live, work, play environment that delivers on the finest tenets of placemaking and community building. Offering an unparalleled opportunity for cutting-edge businesses, and featuring uses such as one or more hotels and a collection of both unique and popular retail brands and entertainment venues, this development will become a premier destination in the Silicon Valley.

DEVELOPMENT CHARACTER

Consistent with the project's vision, the characteristics that will formulate CityPlace "raise the bar" for development and promise a unique social and economic asset for the community and the region.

- *Master Planned Development:* CityPlace will deliver an integrated, phased development, comprised of complementary uses and activities that expand the employment, shopping and entertainment, and residential choices available to the community and the region. The project will provide Santa Clara with jobs and housing, and access to goods, services and entertainment choices. Flexibility in the plan will accommodate changing conditions and will ensure long-term viability.

- *Transit Orientation:* CityPlace will capitalize on public investment in transit by intensifying land use development on a former landfill that is favorably located in proximity to key transit facilities, including regional commuter and light rail stops. The location, density and mix of employment, commercial and residential activities is intended to support transit usage with a commensurate reduction in reliance on the automobile, augmented by a bicycle and pedestrian network. City Place will also include Traffic Demand Management (TDM) Plan targets for reducing office and residential generated traffic, and best management TDM practices for retail uses.

- *Mixed-Use Destination:* CityPlace will provide a prime destination and center of community and commerce for Santa Clara, highlighted by a distinctive, high intensity mixed-use core. A full complement of uses and amenities is planned, encompassing urban residential, creative office, lifestyle hotel, large format retail, "main street" shops, multiple food and beverage tenants, and various entertainment venues, all brought together in an active street environment. By leveraging popular nearby attractions, especially Levi's Stadium and Great America Amusement Park, the synergy of activity in this "City Center" is anticipated to draw both a local and regional market.

- *Employment Generating Uses:* CityPlace will establish a premier employment center for the Silicon Valley, emphasizing corporate offices within an attractive campus setting that features adjacency to the vibrant, mixed-use core. The intent is to expand, diversify and intensify the employment base of the Santa Clara community by attracting major employers, including those businesses (such as high-tech, creative and knowledge-based endeavors) that seek a superior level of amenity, and service and hospitality sector employment.

- *Engaging Public Realm:* CityPlace will exemplify outstanding placemaking. As a leading destination for the region, the mixed-use core will receive special attention: a robust intermingling of street oriented uses, appealing storefronts, expanded sidewalks, street furniture, public art, wayfinding signage, kiosks, pedestrian lighting, and inviting public plazas are expected to attract plentiful activity and generate intense pedestrian traffic. Nonetheless, the entire project will emphasize a high quality public realm, employing compelling architecture, enhanced streetscapes, shared outdoor space, and distinctive wayfinding signage to promote identity, vitality, connectivity and livability.

- *Sustainable Infrastructure:* CityPlace will promote leadership in sustainable development. While the proposed land use mix, intensity, and transit orientation will support alternative modes of transportation with the attendant benefits of sustainability, the project will also be designed to achieve resource efficiency and will incorporate an extensive green infrastructure. Advanced landfill protection systems, green roofs, recycled water, and water conserving landscapes are among the array of measures that are expected to be employed to reduce water and energy consumption, and protect water quality. Green building design is also to be employed to meet standards for the use of sustainable materials and renewable resources.

DEVELOPMENT OBJECTIVES

The following are key objectives for the development of CityPlace. They are intended to balance local and regional needs, minimize impacts of development on the environment, City services and finances, while accomplishing the business plan of the Master Developer and the City for a successful, engaging, live, work, play experience:

MORE PRODUCTIVE USE



Objective No. 1 - Convert property formerly utilized as a landfill and designated as open space and regional commercial use to more productive uses that will meet the growing demand for commercial, retail, and office development and housing while providing active and passive open space for use by occupants and visitors.

VIBRANT MIXED-USE /URBAN CORE



Objective No. 2 - Establish a vibrant mixed-use, urban core, creating a pedestrian friendly "live, work, and play" environment that will function as a well-defined center for the Santa Clara community.

TRANSIT-ORIENTED INFILL DEVELOPMENT



Objective No. 3 - Promote transit-oriented infill development by placing job-creating commercial uses, residential units, shopping, entertainment, and dining options near existing transit and multi-modal transportation facilities, with shared parking and "park-once" strategies for efficient land use.

FLEXIBILITY



Objective No. 7 - Allow flexibility to respond to changing market demands, ensuring that the project will remain economically feasible throughout a multi-year development process within the construct of the PD-MC zoning and Development Area Plans.

COMMUNITY BENEFITS



Objective No. 8 - Provide community benefits, highlighted by compelling outdoor spaces suitable for public use and community gatherings, as well as other amenities such as varied recreation facilities.

MODERNIZE THE LANDFILL PROTECTION SYSTEMS



Objective No. 9 - Modernize the landfill protection systems operated by the City of Santa Clara to ensure continued protection of human health and the environment.

SHOPPING, ENTERTAINMENT & DINING



Objective No. 4 - Expand shopping, entertainment and dining opportunities for local and area-wide residents and workers.

CORPORATE AND LARGE TECHNOLOGY EMPLOYERS



Objective No. 5 - Provide additional opportunity for corporate and major employers to locate in Santa Clara by creating attractive office complexes, located near new residences, retail options, transit and other desirable amenities.

ADDITIONAL VISITOR SERVICES



Objective No. 6 - Provide additional visitor serving facilities such as hotels, restaurants and shops for convenient use by patrons of Levi's Stadium, as well as the convention center and theme park. Provide opportunities for supplemental parking for stadium events (including parking on football game days), while making adequate provision to maintain the vitality of the retail uses within the project. Offer enhanced hotel availability to an underserved travel market.

JOB CREATION



Objective No. 10 - Facilitate creation of both permanent and construction related jobs.

NEW TAX BASE



Objective No. 11 - Create a significant new tax base, thereby increasing revenues to the City.

ENVIRONMENTAL STEWARDSHIP



Objective No. 12 - Minimize, mitigate and monitor environmental impacts, promote energy conservation, and require LEED/Build it Green.



Enhanced pedestrian streetscape



Green roof



Recycled water irrigation systems

DEVELOPMENT FRAMEWORK

The physical framework for development of the site in accordance with the more intensive Scheme A is depicted in Exhibit 3-1: Illustrative Site Concept, supplemented by a series of plan diagrams that follow throughout this chapter, addressing: 1) land use; 2) mobility; 3) open space: and 4) urban design. Alternative plan layouts associated with Scheme A Variant are presented in Chapter 4 (Parcel Development Plans, Standards & Guidelines).

The illustrative and plan diagrams are consistent with the level of development analyzed in the EIR based on project goals and polices; however, they are conceptual and serve an illustrative purpose. Nonetheless, future development of the site shall satisfy all applicable development regulations as set forth in Chapter 4 (Parcel Development Plans, Standards & Guidelines) of this document and the DAP and undergo the review and approval process set forth in the "Development Area Plans – Submittal and Approval Procedures" in Appendix C.

DEVELOPMENT TYPOLOGIES

This chapter also identifies a number of development typologies that are appropriate to the character of CityPlace. These typologies further elucidate desired qualities and describe essential components of the development framework to encompass: 1) land use designations; 2) street typologies; 3) open space typologies: and 4) building typologies.

EXHIBIT 3–1: ILLUSTRATIVE SITE CONCEPT*



1" = 800'

0' 200' 400' 800' 1600'

** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

3.2 LAND USE CONCEPT

The land use concept reinforces CityPlace's essential vision of a mixed-use, transit-oriented development, offering a vibrant live, work, play environment. Accordingly, a dynamic "City Center" featuring a broad array of uses and activities will be complemented by adjoining office campuses suitable for corporate and high-tech occupants.

CONCEPT SUMMARY

Each of the five development parcels is assigned a land use function suitable to its surrounding context and absence or presence of underlying landfill condition, while achieving a complementary array of uses and activities that support the plan's vision. Located closest to transit and the stadium, the City Center will incorporate mixed-use development within a pedestrian-oriented setting. Adjacent to this core, attractive office campus environments will accommodate major employers, further activated with support commercial activities such as retail and hospitality uses.

- *Urban Mixed-Use:* The expansive planning area will support a broad mixture of complementary land uses, suitable to a burgeoning urban center and employment hub situated within an evolving suburban community. Thus, a range of commercial activities and interests is encouraged, especially general and corporate office, retail and entertainment, and hospitality uses in compatible formats that will serve the needs of residents, business and visitors alike. The addition of strategically located medium-to-high-density housing and open space will complete the live, work, play environment. Collectively, these land use functions and their proposed intensities will achieve a critical mass of activity sufficient to establish a local and regional destination. Consistent with this urban mixed-use character, uses that are incompatible with a pedestrian-oriented environment will be discouraged.

- *Complementary Development Parcels:* Five separate development parcels have been delineated, in part as a result of the mounding and embankments created by prior landfill operations, and existing roadway network and heavy rail corridor. The suitability of various land uses for each parcel will be based on such factors as transit proximity, land use adjacencies, site accessibility, and market demand and phasing. The high mounding with steep soil embankments reduces the developable site area and ease of accessibility of Parcels 1 and 3, which therefore will best accommodate office campus development. On the other hand, Parcel 4 favors development as the intended mixed-use core; it features the shallowest embankments, the largest developable site area, as well as the proximity to transit and popular regional attractions, most notably the stadium, convention center, and amusement park. Parcel 2 may be developed in accordance with two variant scenarios, as office campus or retail center.

- *Phased Build-Out:* Construction is anticipated to proceed through a series of phases, it will commence with Parcels 4 and 5 as the mixed-use City Center, followed by the office campuses. Total maximum building area (excluding parking facilities) for all parcels under Scheme A and Scheme B is 9,164,400 GSF; total maximum building area (excluding parking facilities) for all parcels under Scheme A Variant is 7,523,400 GSF. The base entitlement assigned to each parcel is described below, while the phasing strategy is elaborated upon in Chapter 2 (Implementation). Some phases are expected to involve development of the entirety of a parcel (e.g., Phase 1 is expected to include all of, and only, Parcel 5), while others are expected to involve development of a portion of a parcel (e.g., the portions of City Center in Parcel 4 are expected to be developed in at least two phases.) Project phases four through eight, may be developed in any order, subject to the obligation to develop the City Center within the time frames established by the DDA.

TABLE 3–1: LAND USE PLAN CONSISTENCY W/ KEY GENERAL PLAN SUSTAINABILITY POLICIES

5.3.1-P5:
Implement a range of development densities and intensities within General Plan land use classification requirements to provide diversity, use land efficiently and meet population and employment growth.

5.3.2-P2:
Encourage higher-density residential development in transit and mixed-use areas and in other locations throughout the City where appropriate.

5.3.4-P2:
Encourage mixed-use development in proximity to employment centers and residential neighborhoods throughout the City.

5.3.1-P12:
Encourage convenient pedestrian connections within new and existing developments.

Section 5.9:
"parks & recreation ... are integral to maintaining a high quality of life and livability in the City, a Major Strategy of this General Plan. As such, the Goals and Policies in this section promote the provision of adequate parkland..."

Section 5.9.1:
"Parks, open space and recreation facilities are critical in satisfying the diverse outdoor needs of Santa Clara residents and visitors, improving the physical health of the community and providing opportunities for social interaction. Open spaces should offer options for all types of activities, from passive rest areas and trails for walking or jogging, to fields and recreational facilities for organized sports. Overall, parks are an essential contributor to quality of life. As residential and employment populations increase and available land in the City becomes more limited, it will be essential for the City to actively seek additional park and open space."

EXHIBIT 3–2: SCHEME A - LAND USE AREAS*



LEGEND

Land Use
- Office Campus
- City Center Mixed-Use
- City Center Northwest Office
- City Utility Facility

Boundaries
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*
*** For Scheme A Variant this parcel is designated as a retail center.*

PROGRAM SUMMARY:



- *Land Use Flexibility:* To provide market flexibility for development of the site, the project may be developed under one of three alternative land use schemes. Under Scheme A, Parcel 2 would feature an office campus. Under Scheme B, Parcel 4 would include additional office space replacing all residential uses on that parcel, and Parcel 2 would feature an office campus including anchor retail buildings and smaller standalone food and beverage buildings. Under Scheme A Variant, Parcel 2 would support a retail center. Additional flexibility is achieved through a limited program of development transfer across parcels.

LAND USE AREAS

CityPlace Santa Clara is designed around several types of land use areas. The land use areas are depicted in Exhibits 3.2, and are described conceptually in this subsection. The specific uses permitted, conditionally permitted or prohibited on each parcel are set forth further below in the subsection "Permitted, Conditionally Permitted and Prohibited Uses."

For illustrative purposes, Exhibit 3-2 depicts the land use areas for Scheme A and B, with Scheme A Variant covered by the footnote for Parcel 2.

- *Office Campus:* This land use area is primarily intended for office use, allowing for limited commercial services such as retail, food and beverage, and hotel uses. Office parcels are suited to various office typologies, but all can be situated in a campus-like environment that incorporates ample open space, including shared courtyards or greens. The Office Campus designation applies to Parcels 1 and 3, as well as Parcel 2 Scheme A and Scheme B.

- *Retail Center:* This land use area is primarily intended for commercial retail use, designed as a community retail center that will include anchor tenants and in-line shopping. A mix of retail and food & beverage uses will be encouraged; office will be permitted as a secondary use. The Retail Center designation applies only to Parcel 2 Scheme A Variant.

- *City Center Mixed-Use:* This land use area is intended for a wide variety and mix of commercial uses, including: retail sales and services; restaurants and other food and beverage tenants; cinemas, theaters, and other entertainment venues; hotels; and offices. Medium to very high density, multi-family residential is also a permitted use. A pedestrian-oriented, urban character is encouraged, including horizontal and vertical mixture of uses as appropriate. The City Center Mixed-Use designation applies to Parcels 4 and 5, excluding the northwest office portion of Parcel 4.

- *Parcel 4 City Center Northwest Office Zone:* This land use area is intended for multiple office buildings situated in a manner that conforms to a walkable, city center environment. Limited commercial services are permitted, including retail, food and beverage, and hotel uses. The City Center Northwest Office designation applies to the northwest portion of the Parcel 4.

- *City Utility Facility:* This land use area includes the 12.8-acre parcel used for a retention basin and storm drain pump station, sewer pump station, and various other public facilities located in the northern portion of Parcel 1.

LAND USE DISTRIBUTION & INTENSITY

A "base entitlement" defines the total permissible development on each of the five parcels (gross building area excluding parking), subject to the development transfer provisions described at the end of this subsection. The entitlement and conceptual land use program applicable to each parcel are summarized below.

- *Parcel 1 (49.6 acres):* The base entitlement for this parcel totals 1,200,000 GSF . Designated as Office Campus, various office typologies can be incorporated. Limited office serving retail including food and beverage, and hotel (150 room maximum) will also be permissible uses. The 12.8 acre retention pond area is reserved for City use and excluded from FAR calculations for this parcel.

- *Parcel 2 Scheme A (60.9 acres):* Under Scheme A, the base entitlement for this parcel totals 2,160,000 GSF. Designated as Office Campus, the conceptual land use program emphasizes corporate office buildings. Limited office-serving retail including food and beverage, and hotel (150 room maximum) are also permissible uses;

* *Accessory uses are not included but may be a part of future development.*

however, the combined area of commercial retail and food and beverage is limited to 200,000 square feet.

- *Parcel 2 Scheme A Variant (60.9 acres):* Under Scheme A Variant, the base entitlement for this parcel is 519,000 GSF. Designated as a Retail Center, the conceptual land use program will support an array of commercial retail types, including anchor stores, in-line shops, entertainment establishments, food & beverage. Office or a hotel (150 room maximum) is permissible as an accessory use.

- *Parcel 2 Scheme B (60.9 acres):* Under Scheme B, Parcel 2 consists of approximately 1,960,000 GSF of predominantly office uses. In addition, this parcel includes anchor retail buildings and smaller standalone food/beverage buildings, totaling approximately 200,000 GSF. The retail buildings may connect several of the anchor retail buildings and be one or two stories. The total base entitlement at Parcel 2 is approximately 2,160,000 GSF. Surface parking is available, with potential for structured parking. A hotel (150 room maximum) is permissible as an accessory use.

- *Parcel 3 (34.9 acres):* The base entitlement for this parcel totals 720,000 GSF. Designated as Office Campus, the conceptual land use program will emphasize corporate office buildings. Support retail including food and beverage, and hotel (150 room maximum) will also be permissible uses.

- *Parcel 4 (86.6 acres):* This parcel accommodates mixed-use development within two distinct zones: 1) the City Center Mixed-Use and 2) the Parcel 4 City Center Northwest Office Zone. The base entitlement for the City Center Mixed-Use zone totals 2,873,000 GSF, and will support a broad mixture of commercial and urban residential use. The base entitlement for the Parcel 4 Northwest Office zone is 1,066,400 GSF, of office use Limited support retail including food and beverage, and hotel (150 room maximum) are also permissible uses within the Northwest Office zone.

- *Parcel 5 (8 acres):* The base entitlement for this parcel totals 825,000 GSF. Designated as City Center Mixed-Use, the conceptual land use program includes office, residential and hotel uses. Street level frontages should support signature commercial uses. Flagship retail, exhibition and showroom format "iconic buildings," as well as food and beverage are also permissible uses.

DEVELOPMENT TRANSFER

Notwithstanding SCCC Section 18.56.080(e), to provide flexibility to respond to changing market demands and ensure on-going feasibility through a multi-phase development process, density transfers of floor area are allowed among Parcels 1, 2 ,3 and the Northwest Office portion of Parcel 4, and between City Center Parcels 4 and 5. The developer may elect to transfer up to 20 percent of the maximum allowed density of each of the individual development parcels to one or more of the other development parcels.. As a result, the total amount of development in these parcels could increase or decrease proportionately while not exceeding the maximum build-out for the entire project in each development scheme.

DEVELOPMENT PROGRAM

A conceptual land use plan and corresponding summary development program is presented in the Conceptual Land Use Plans: Exhibits 3-3 through 3-8 with the corresponding land development program yield shown in Table 3-2: Summary Development Yields

* *All areas identified on pages 35 - 36 are gross parcel acreages.*

PERMITTED, CONDITIONALLY PERMITTED AND PROHIBITED USES

Notwithstanding SCCC Section 18.56.040 the following uses are permitted, conditionally permitted, or prohibited (as set forth below) for this PD-MC plan, and are identified here geographically by project parcel number. Definitions of these uses are included in Appendix B to this MCP. The City Council may, through the Development Area Plan process, amend the allowable uses identified herein, so long as the uses are consistent with the intent of the Master Community Plan and applicable environmental clearance."

- ***Permitted Uses** (identified by parcel):* The following uses are permitted within this PD-MC plan

CITY CENTER PARCELS 4 & 5 MIXED-USE URBAN DEVELOPMENT

1) Retail, including product showcase venues;

2) Multi-family residential;

3) Restaurants, including bona fide public eating places with incidental alcoholic beverage service;

4) Hotels;

5) Professional office;

6) General office;

7) Personal services;

8) Entertainment, except for live music or dancing that is not incidental live music or dancing;

9) Parking structures;

10) Public facilities, including a transit facility and a fire station;

11) Incidental and accessory buildings and uses supporting any permitted use, not to exceed 10% of the maximum floor area for each parcel.

OFFICE PARCELS - PARCELS 1, 2 & 3 OFFICE CAMPUS DEVELOPMENT

1) Professional office;

2) General office;

3) Incidental light manufacturing/research and development.

4) Incidental restaurants;

5) Incidental retail;

6) Parking structures;

7) Hotel & Services;

8) Public facilities, including transit facilities and a fire station;

9) Incidental and accessory buildings and uses supporting any permitted use, not to exceed 10% of the maximum floor area for each parcel.

OFFICE PARCELS - PARCEL 2

RETAIL DEVELOPMENT*

1) Retail, including appliances and bulk item sales;

2) Product showcase venues;

3) Professional office;

4) General office;

5) Hotels;

6) Personal services;

7) Entertainment, except for live music or dancing that is not incidental live music or dancing;

8) Parking structures;

9) Public facilities, such as transit facilities and a fire station;

10) Incidental and accessory buildings and uses supporting any permitted use, not to exceed 10% of the maximum floor area for each parcel.

*Under Scheme A Variant, this will apply to the entire parcel. Under the other schemes, this would apply to a discrete portion of Parcel 2, not to exceed 200,000 square feet.

- ***Conditionally Permitted Uses:*** The following uses are permitted on the condition that they apply for, are granted, and maintain; a use permit pursuant to the Zoning Ordinance.

CONDITIONED USES

1) In the City Center (Parcels 4 and 5) or in Parcel 2 under the Scheme A variant: alcoholic beverage service that is not incidental alcoholic beverage service.

2) In the City Center (Parcels 4 and 5) or in Parcel 2 under the Scheme A variant: Live entertainment and dancing, that is not incidental live music or dancing. In the City Center (Parcels 4 and 5): incidental light manufacturing/research and development.

3) In the City Center (Parcels 4 and 5): incidental light manufacturing/research and development.

4) In Parcels 1, 2 (except under the Parcel A variant) and 3: light manufacturing/research and development that is not incidental light manufacturing/research and development.

5) In all parcels: other uses that, in the opinion of the Planning Commission, are compatible with the character and nature of the uses allowed under this Master Community Plan.

- ***Prohibited Uses:*** The following uses are incompatible with the character and nature of the uses provided and approved in this Master Community Plan, and are prohibited on any Parcel (except as specifically noted).

PROHIBITED USES

1) Drive-through restaurants and services;

2) Auto repair and auto sales (except for product showcase venues in Parcel 5) and service stations;

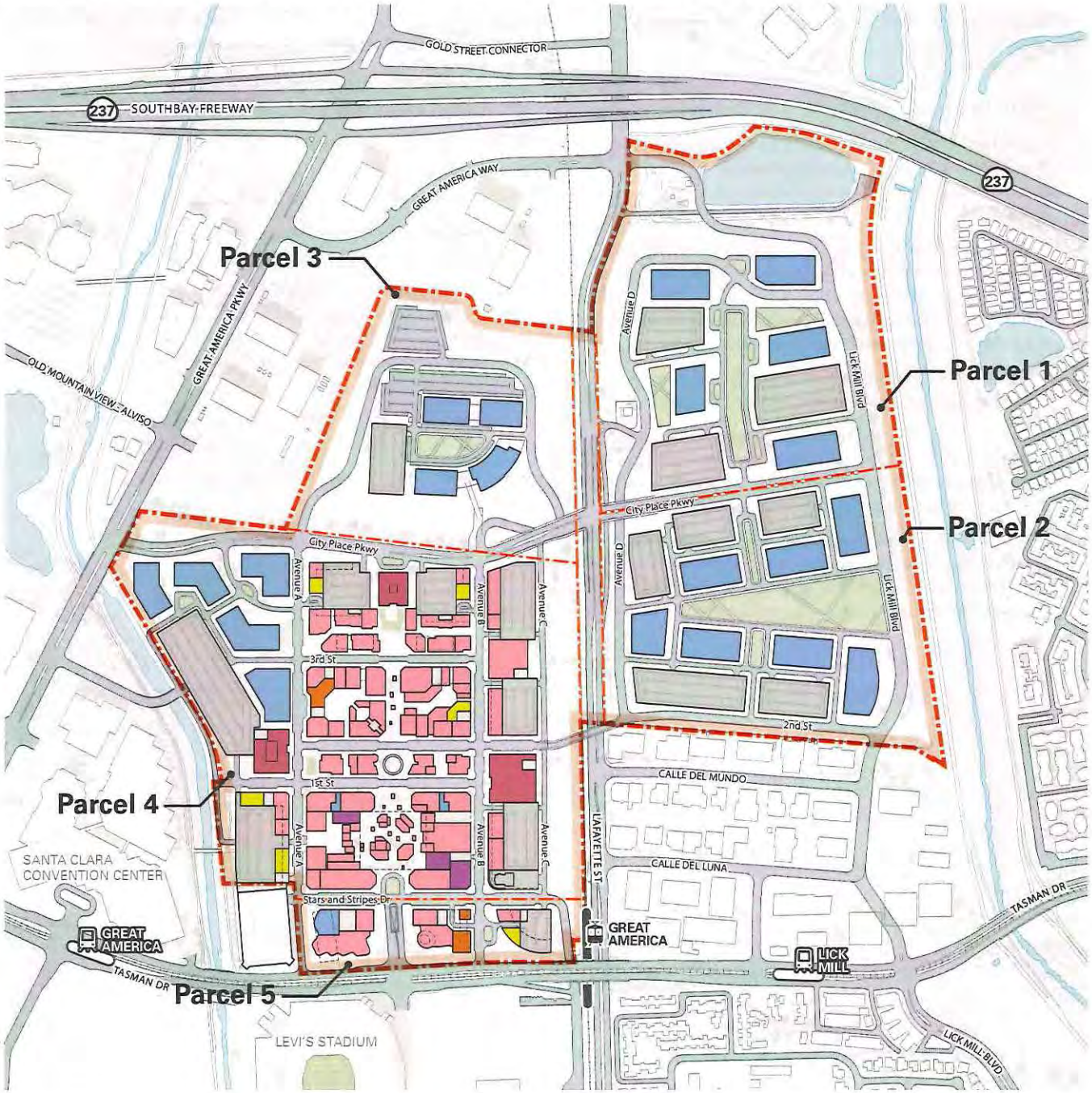
3) Appliances and bulk item sales (except for Parcel 2 under Scheme A Variant);

4) Industrial uses except Light Manufacturing/ Research and Development (to the extent allowed above) and uses involving quantities of hazardous materials that may have potentially significant health consequences;

5) Wholesaling, warehousing and storage (indoor and outdoor) operations;

6) Contractor's yards and other similar uses;

EXHIBIT 3–3: SCHEME A - CONCEPTUAL LAND USE PLAN GROUND FLOOR*



LEGEND

Land Uses
- Residential
- Retail Anchor
- Retail and F & B
- Hotel
- Entertainment
- Office

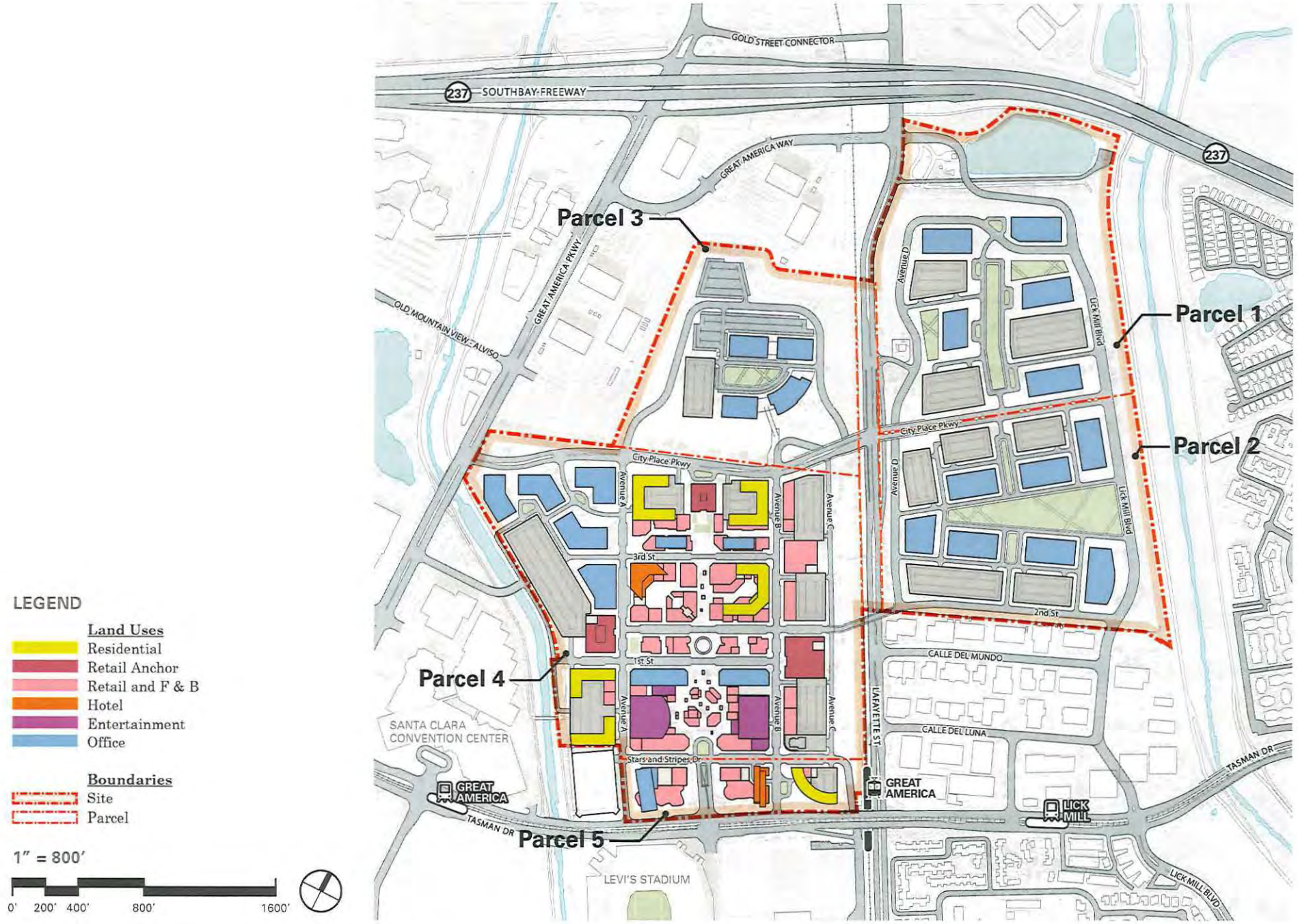
Boundaries
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

* *Open space is documented on page 68. Accessory uses are not depicted but may be a part of future development on Parcels 1, 2, and 3. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

EXHIBIT 3–4: SCHEME A - CONCEPTUAL LAND USE PLAN PRIMARY USE/UPPER FLOORS*



** Open space is documented on page 68. Accessory uses are not depicted but may be a part of future development on Parcels 1, 2, and 3. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

TABLE 3–2: SUMMARY DEVELOPMENT YIELDS

PARCEL 1 - SCHEME A			
Building Type		*Floors*	*Gross Area*
Office			
Office	(5 Buildings, 30k-45k footprint) *	5~6	1,200,000
TOTAL of PARCEL 1			1,200,000
SITE AREA:	49.6 Acres (including 11.4 acre City use area)	FAR:	0.75 **

PARCEL 2 - SCHEME A			
Building Type		*Floors*	*Gross Area*
Office			
Office	(7 Buildings, 30k-50k footprint) *	5~6	2,160,000
TOTAL of PARCEL 2			2,160,000
SITE AREA:	60.9 Acres	FAR:	0.81

PARCEL 3 - SCHEME A			
Building Type		*Floors*	*Gross Area*
Office			
Office	(4 Buildings, 30k footprint) *	6	720,000
TOTAL of PARCEL 3			720,000
SITE AREA:	34.9 Acres	FAR:	0.47

PARCEL 4 - SCHEME A			
Building Type		*Floors*	*Gross Area*
Residential			
Residential	(5 buildings, 20-30K footprint) *	3~17	1,480,000
Hotel			
Hotel	(825sf / key) *	8~17	298,000
Retail			
Anchors	(4 buildings, 20-60K footprint) *	1~3	330,000
F&B	*	1	225,000
Retail	*	1~2	670,000
Entertainment			
Entertainment	(3 buildings, 40-60K footprint) *	1~2	190,000
Office			
Office	(6-9 buildings, 25-40K footprint) *	3~17	1,066,400 ***
TOTAL of PARCEL 4			4,259,400
SITE AREA:	86.6 Acres	FAR:	1.13

PARCEL 5 - SCHEME A			
Building Type		*Floors*	*Gross Area*
Residential			
Residential	(1 building, 18-20K footprint) *	10~17	200,000
Hotel			
Hotel	(750 sf / key) *	7~17	280,000
Retail			
F&B	*	1	25,000
Retail	*	1~2	62,000
Office			
Office	(1 buildings, 20-25K footprint) *	11	258,000
TOTAL of PARCEL 5			825,000
SITE AREA:	8 Acres	FAR:	2.37

* Information provided for illustrative purposes and is not intended to limit possible configurations.
** Excluding 11.4 acre City use area at retention pond. *** Office area can increase if residential area is reduced (at a 1 for 1 ratio) up to an additional 320,000 SF.

*PARCEL 2 - SCHEME A VARIANT			
Building Type		*Floors*	*Gross Area*
Retail			
Anchors	(2 buildings, 75-100K footprint) *	1~2	260,000
Retail	*	1~2	259,000
TOTAL of PARCEL 2			519,000
SITE AREA:	60.9 Acres	FAR:	0.20

*PARCEL 2 - SCHEME B			
Building Type		*Floors*	*Gross Area*
Office			
Office	(7 Buildings, 30k-50k footprint) *	5~6	1,960,000
Retail			
Retail	*	1~2	200,000
TOTAL of PARCEL 2			2,160,000
SITE AREA:	60.9 Acres	FAR:	0.81

*PARCEL 4 - SCHEME B			
Building Type		*Floors*	*Gross Area*
Hotel			
Hotel	(825sf / key) *	8~17	298,000
Retail			
Anchors	(4 buildings, 20-60K footprint) *	1~3	330,000
F&B	*	1	225,000
Retail	*	1~2	670,000
Entertainment			
Entertainment	(3 buildings, 40-60K footprint) *	1~2	190,000
Office			
Office	(6-9 buildings, 25-40K footprint) *	3~17	2,546,400
TOTAL of PARCEL 4			4,259,400
SITE AREA:	86.6 Acres	FAR:	1.13

MINIMUM AND MAXIMUM REQUIREMENTS

Minimum Requirements

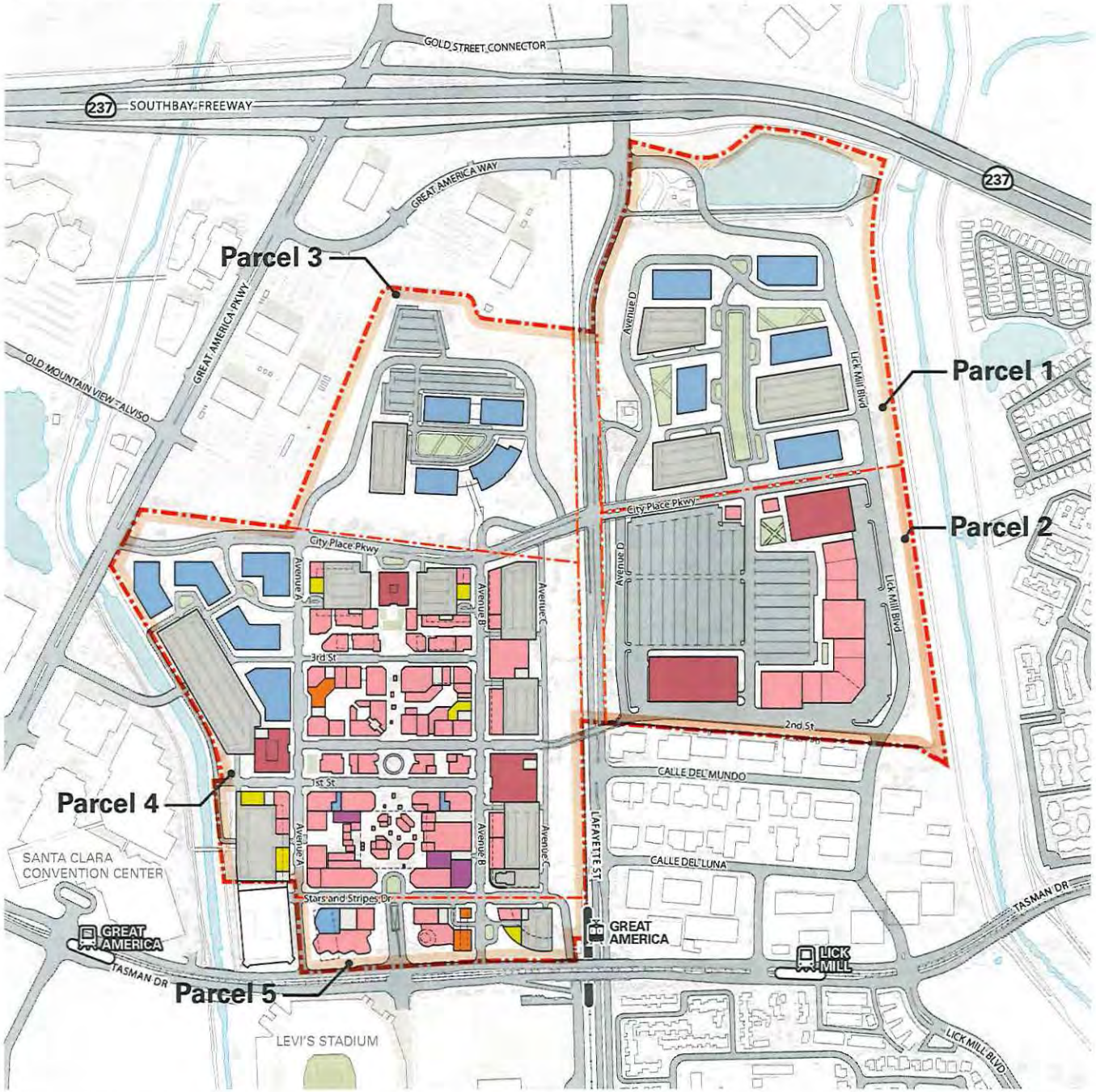
CityPlace will include a minimum of 200 residential units. The 200 units may be placed anywhere in the City Center (Parcels 4 and 5), excluding the Parcel 4 NW Office area. The Development and Disposition Agreement specifies additional minimum development requirements.

Maximum Requirements

Total Development: The maximum total amount of gross area of development allowed in City Place is 9,164,000 gross square feet. The maximum areas specified for each use and parcel below shall not be construed to allow more than a total of 9,164,000 gross square feet in City Place as a whole.

Residential Development: The maximum number of residential units allowed in City Place is 1680 units (with a total area of no greater than 1, 680,000 gross square feet).

EXHIBIT 3–5: SCHEME A - VARIANT - CONCEPTUAL LAND USE PLAN GROUND FLOOR*



LEGEND

Land Uses
- Residential
- Retail Anchor
- Retail and F & B
- Hotel
- Entertainment
- Office

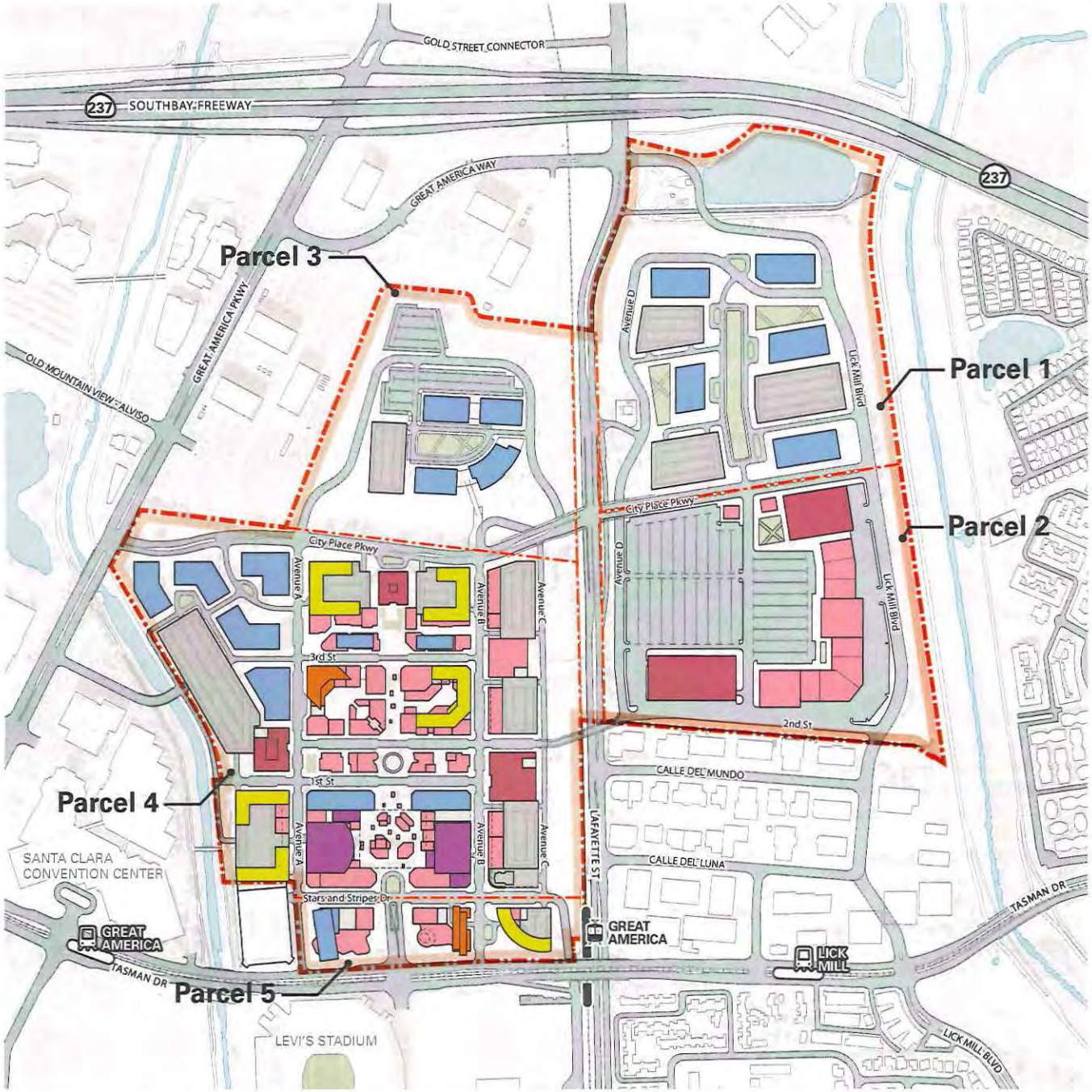
Boundaries
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

** Open space is documented on page 68. Accessory uses are not depicted but may be a part of future development on Parcels 1, 2, and 3. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

EXHIBIT 3–6: SCHEME A - VARIANT - CONCEPTUAL LAND USE PLAN PRIMARY USE/UPPER FLOORS*



LEGEND

Land Uses
- Residential
- Retail Anchor
- Retail and F & B
- Hotel
- Entertainment
- Office

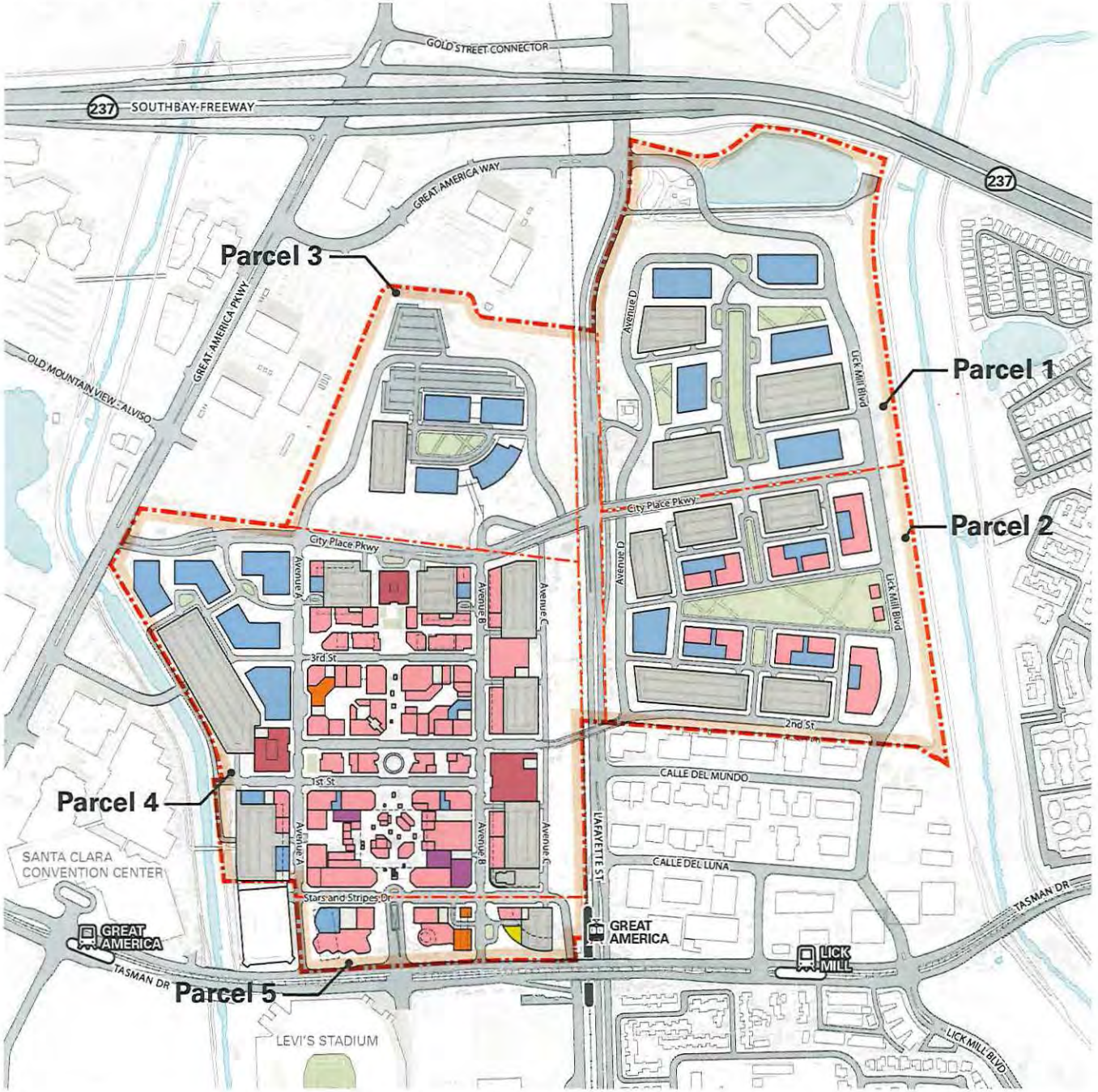
Boundaries
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

** Open space is documented on page 68. Accessory uses are not depicted but may be a part of future development on Parcels 1, 2, and 3. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

EXHIBIT 3–7: SCHEME B - CONCEPTUAL LAND USE PLAN GROUND FLOOR*



LEGEND

Land Uses
- Residential
- Retail Anchor
- Retail and F & B
- Hotel
- Entertainment
- Office

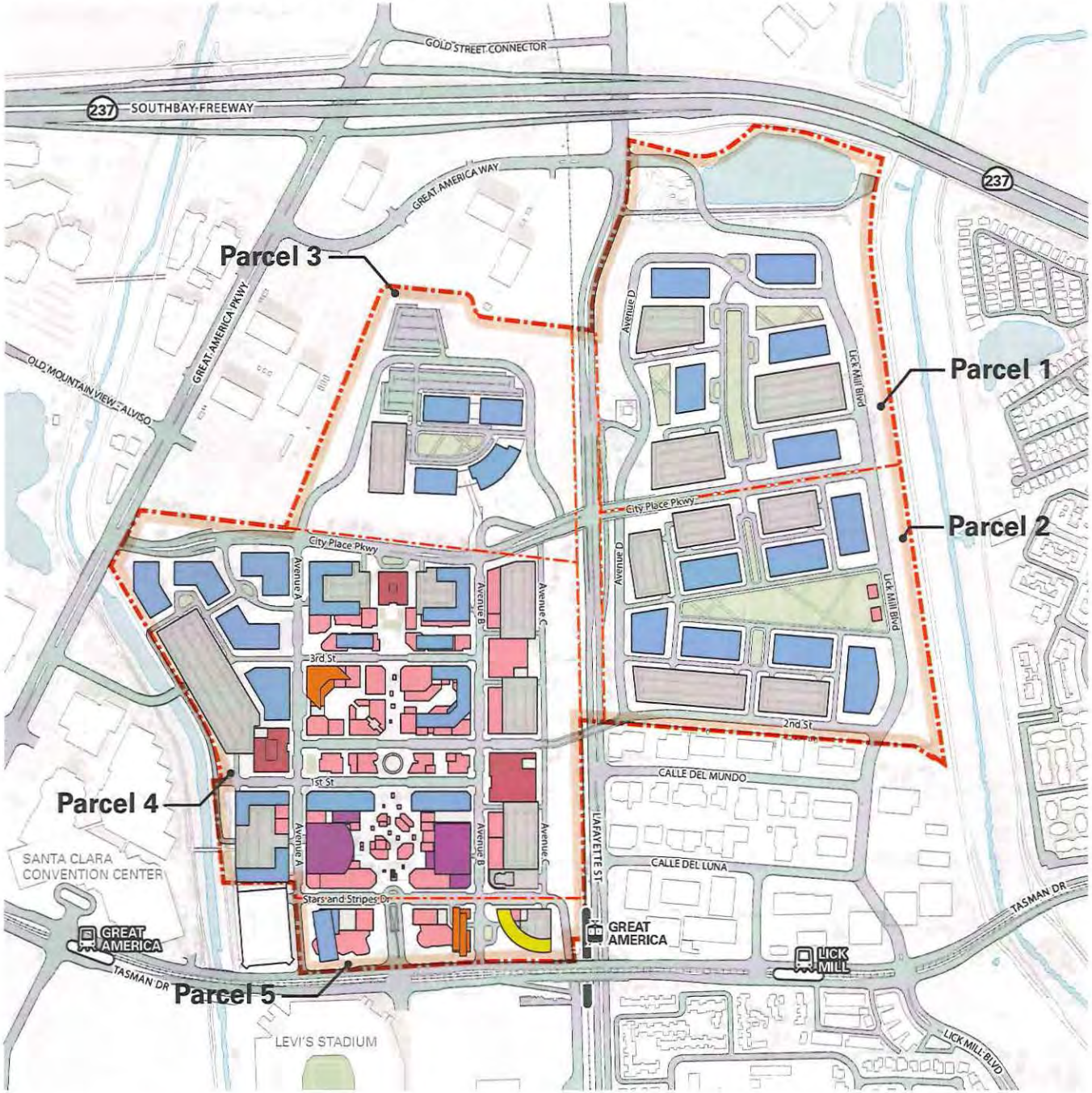
Boundaries
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

* *Open space is documented on page 68. Accessory uses are not depicted but may be a part of future development on Parcels 1, 2, and 3. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

EXHIBIT 3–8: SCHEME B - CONCEPTUAL LAND USE PLAN PRIMARY USE/UPPER FLOORS*



LEGEND

Land Uses
- Residential
- Retail Anchor
- Retail and F & B
- Hotel
- Entertainment
- Office

Boundaries
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

** Open space is documented in Exhibit 3-23. Accessory uses are not depicted but may be a part of future development on Parcels 1, 2, and 3. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

of which up to 200 units (with a total area of no greater than 200, 000 gross square feet) may be placed in Parcel 5.

Office: The maximum amount of office development allowed in CityPlace is 6,684,400 gross square feet. The maximum areas specified for each parcel below shall not be construed to allow more than a total of 6,684,000 gross square feet in City Place as a whole. Subject to adjustment in accordance with the development transfer provisions described above, the maximum amount of office (incidental light manufacturing) allowed in each parcel is as follows:

(1) The maximum amount of office (incidental light manufacturing) in Parcel 1 is 1,200,000 gross square feet;

(2) The maximum amount of office (including incidental light manufacturing) in Parcel 2 is 2,160,000 gross square feet;

(3) The maximum amount of office in Parcel 3 (including incidental light manufacturing) is 720,000 gross square feet;

(4) The maximum amount of office in Parcel 4 is 2,546,400 gross square feet;

(5) The maximum amount of office in Parcel 5 is 258,000 gross square feet.

Hotel: The maximum total amount of hotel development allowed in CityPlace is 1,028,000 gross square feet.

CITYPLACE PARKING SUPPLY RATIOS

This section is a summary of the findings provided in the EIR Transportation Impact Analysis. Parking supply totals are not provided within this document, only ratios to be applied by use and development area with each DAP. Parking supply rates are expressed in parking ratios tied to specific land uses, which are intended to be utilized by the DAP process to determine parking supply for each development phase. The parking ratios expressed in this MCP reflect parking utilization rates prevalent at the time of this documents creation in 2016. To accommodate future patterns of parking utilization, parking supply in future DAP submittals beyond the initial phase can be provided at lesser intensity if approved by the City Council as part of a DAP application, at a rate up to 25 percent below the supply ratios specified in this document. In the event that the City Council approves such a reduction, the PAP shall not be eligible for a zoning administator modification with respect to parking.

Parking at CityPlace will include both on-street and off-street parking facilities. An assessment of the parking supply and demand has been completed to ensure that sufficient parking is provided.

A set of parking supply rates have been developed and are summarized in *Table 3-3* below. These parking supply rates are informed by the City Code parking requirements for off-street parking, with adjustments for the shared use nature of a mixed-use development like CityPlace.

For all of Parcels 1, 2 and 3, parking would be provided in off-street parking facilities. For Parcels 4 and 5, on-street parking will also complement off street parking and be provided along Avenues A, B, and C, First, Second and Third streets, and Stars & Stripes Drive. The on-street parking will be for short term purposes only. Off-street parking facilities will be distributed across the parcels to ensure that parking supply is provided with close proximity to high demand locations, emphasizing convenience and accessibility. Off-street parking facilities must be designed to City standards and have sufficient on-street access to limit queuing. Off-street parking facilities shall implement a Parking Management/Wayfinding Program that may include message reader boards, intelligent parking management systems, etc. to improve parking utilization rates.

TABLE 3–3: CITYPLACE PARKING SUPPLY REQUIREMENTS

Land Use	City Place Parking Supply Rate
Residential	1.5 per unit
Retail	4.5 per 1,000 sq.ft.*
Office	3.0 per 1,000 sq.ft.
Restaurants	1.5 per 1,000 sq.ft.*
Entertainment	2.5 per 1,000 sq.ft.*
Hotel	1.0 per room

*Additional parking spaces would be shared with adjacent land uses.

* *Reference Appendix 3.3 F Travel Demand Model Validation of the EIR for full parking analysis.*

3.3 MOBILITY CONCEPT

The mobility concept will support CityPlace's proposed land use distribution and intensity, and will reinforce the mixed-use, transit-oriented concepts that are fundamental to the land use plan. It will ensure suitable on-site circulation and identify necessary access improvements. Multi-modal connections will be emphasized to promote a high quality of life and advance sustainability goals.

CONCEPT SUMMARY

The mobility concept will work in concert with the land use concept to establish off-site connections, provide suitable on-site access and circulation, and support alternative modes of transportation. Ties to local and regional circulation networks that address multiple travel modes will be vital to the project's success. In particular, roadway improvements will be required to properly serve the proposed land uses.

- *Multi-Modal Connections:* Incorporate a well-connected system of internal routes and external links, including construction of major vehicular entrances and new full service roadways (i.e., Complete Streets) throughout the project site. Special attention will be given to ensure convenient pedestrian and bicycle connections to existing transit facilities and the provision of designated paths and trails.

- *Street Network:* The proposed on-site roadway network and associated off-site improvements reinforces the hierarchical framework for design and operation of the City's streets as defined by the General Plan. Major arterials will provide vehicular access to the site, while proposed on-site roadways will be classified as minor arterials, collector streets, or local streets. Additionally, to achieve a balanced circulation network, roadway improvements will incorporate opportunities for travel by alternative modes, implementing Santa Clara's policy in support of full service streets. *Exhibit 3-9: Street Network* illustrates the street hierarchy for the site and surroundings, including the conceptual depiction of on-site roadway alignments.

- *Full Service Streets:* The General Plan encourages full service design for all public streets. Consistent with this policy, on-site roadways will be designed to accommodate bicycles and pedestrians within their rights-of way, in particular, to ensure safe and comfortable routes within and between the active mixed-use core and the adjoining office campuses, as well as to secure safe links to nearby transit.

- *Trip Reduction:* One of the main site constraints is congestion on surrounding highways and major arterials during commute hours. However, there is limited opportunity for roadway expansion that boosts capacity. The project primarily addresses traffic congestion by promoting alternative modes of travel and integration of transportation demand management (TDM) measures. In addition to identified land use strategies, key design approaches will include full service streets, a "park once" strategy, and continuous bicycle and pedestrian routes.

- *Street Names:* The street names that are assigned are working names for the purpose of this document; actual street names are yet to be determined.

VEHICULAR CIRCULATION

The project will rely on strategic improvements to access roadways and intersections outside of the project boundaries to facilitate vehicular access to the site. On the other hand, on-site access to proposed land use functions and parking facilities will be dependent on construction of a new street network within the project boundaries. Roadways will be designed to handle anticipated levels of vehicular traffic generation while

TABLE 3–4: MOBILITY PLAN CONSISTENCY W/ KEY GENERAL PLAN SUSTAINABILITY POLICIES

5.3.4-P13:
Encourage pedestrian linkages in mixed-use areas through measures such as enhanced lighting, curb bulb-outs, mid-block pedestrian crossings, pedestrian "refuge" areas in planted medians and pedestrian-oriented building frontages.

5.3.4-P14:
Provide a network of streets and pedestrian connections in large mixed-use developments.

5.3.4-P15:
Maximize opportunities to connect streets, bicycle facilities and pedestrian pathways to improve accessibility between mixed-use development and surrounding neighborhoods, parks, open spaces, transit and public amenities. Provide clear signage, high visibility, adequate lighting and special paving to enhance pedestrian and bicycle facilities.

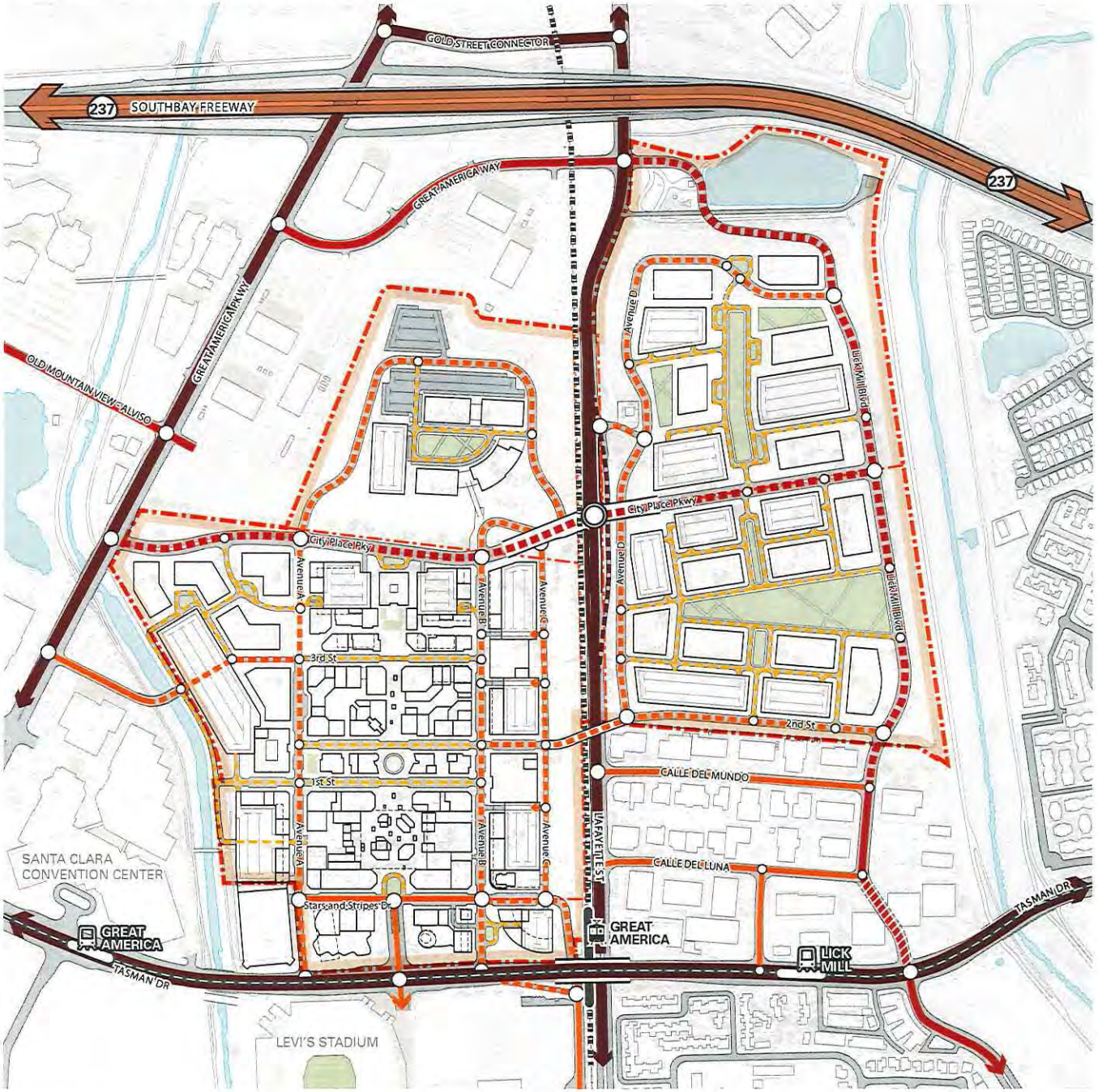
5.8.1-P1:
Create accessible transportation networks system to meet the needs of all segments of the population, including youth, seniors, persons with disabilities and low-income households.

5.8.1-P2:
Link all City transportation networks, including pedestrian and bicycle circulation, to existing and planned regional networks.

5.8.2-P1:
Require that new and retrofitted roadways implement "Full-Service Streets" standards, including minimal vehicular travel lane widths, pedestrian amenities, adequate sidewalks, street trees, bicycle facilities, transit facilities, lighting and signage where feasible.

5.8.4-P2:
Provide a system of pedestrian and bicycle friendly facilities that supports the use of alternative travel modes and connects to activity centers as well as residential, office and mixed-use developments.

EXHIBIT 3–9: STREET NETWORK*



LEGEND

Vehicular Circulation
- Major Arterial
- Minor Arterial (Existing)
- Minor Arterial (Proposed)
- Collector Street (Existing)
- Collector Street (Proposed)
- Local Street (Proposed)
- Potential Connection
- Urban Interchange
- Full Intersection
- Right in Right out Intersection

Transit
- VTA Light Rail
- Capitol Corridor/ Altamont Commuter Express

Boundaries
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*



Minor Arterial



Collector Street



Local Street

accommodating multiple users. *Exhibit 3-10: Street Typologies* provides street cross-sections depicting typical configurations for each typology. However, these sections are conceptual, and will necessarily be refined as detailed design and engineering plans are prepared; it is necessary that the circulation system meet all applicable engineering criteria and public safety standards.

- *Minor Arterial Spine:* A minor arterial roadway will serve as the backbone for on-site vehicular circulation, linking the marquee entrance at Great America Parkway with the raised urban interchange along Lafayette Street. This roadway will directly feed the collector streets serving Parcels 3 and 4, and will tie into Parcel 2 after crossing the urban interchange. The projected right-of-way measures approximately 102 feet, with a curb-to curb measurement of approximately 70 feet. These widths will accommodate four vehicular travel lanes with a landscaped median that will integrate left turn lanes as appropriate. There will also be sufficient room for bicycle lanes and sidewalks that will feature large street trees.

- *Collector Streets:* These streets typically will serve the periphery of each development parcel, channeling traffic from surrounding arterials to on-site parking facilities and local streets. Commensurate with anticipated levels of vehicular traffic, these roadways will provide two to four lanes. The projected right-of way will measure 75 - 90 feet, with a curb-to-curb measurement of 45 - 55 feet, depending on the number of travel lanes and the provision of on-street parallel parking, dedicated turn lanes, passenger drop-offs, bicycle lanes, and/or planted medians. For example, it may be preferred in some locations to have fewer vehicular travel lanes in favor of bicycle lanes, on-street parking, and wider sidewalks that will achieve full service streets are especially appropriate for the City Center.

- *Local Streets:* These will typically serve the interior of development parcels, and are therefore designed to calm traffic and give pedestrians priority in terms of scale and amenity. For example, local streets will normally provide two travel lanes, on-street parallel parking, and sidewalks. The projected right-of-way measures 60 - 96 feet, with a curb-to-curb measurement of 36 - 56 feet, while the use of curb extensions (i.e., bulb-outs) at intersections and mid-block crossings will be encouraged; additional width may be contemplated for on-street angled parking. Local roadways will be comprised of both public and private streets. Private streets will be recommended where controlled access is desired.

- *Public and Private Streets Infrastructure:* Throughout each phase of the project, the Developer will construct all on-site improvements. At the completion of each phase, some of the streets, public parks and infrastructure will revert to City control and become the City's responsibility for continued maintenance (see *Exhibit 3-11: Conceptual Public and Private Streets* and *Exhibit 3-21: Open Space Network* for a conceptual illustration). All other areas will be private facilities; responsibilities for maintenance and operations will be the Developer's.

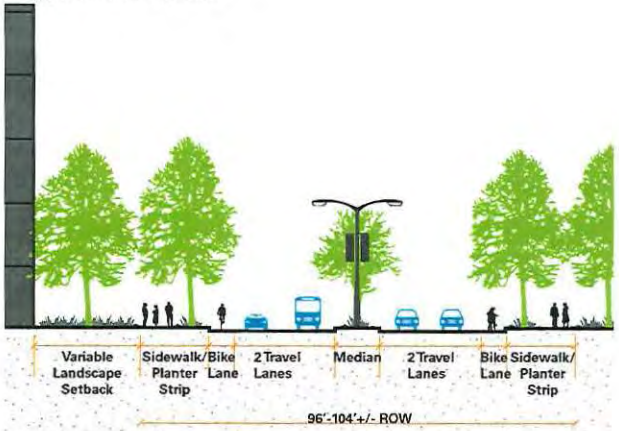
  Preliminary designations for public and private streets have been incorporated into exhibit 3-11. Note that the existing city streets, Centennial Blvd. and Stars & Stripes Drive, will be re-built at a higher elevation and Stars & Stripes Drive will be repositioned northward from its current location. The final designation of the public and private streets will be incorporated into the Development Area Plans (DAPs).

  Throughout the project, and particularly within the City Center, a cohesive network of streets and urban experience shall be maintained, whether the streets are classified as public or private.

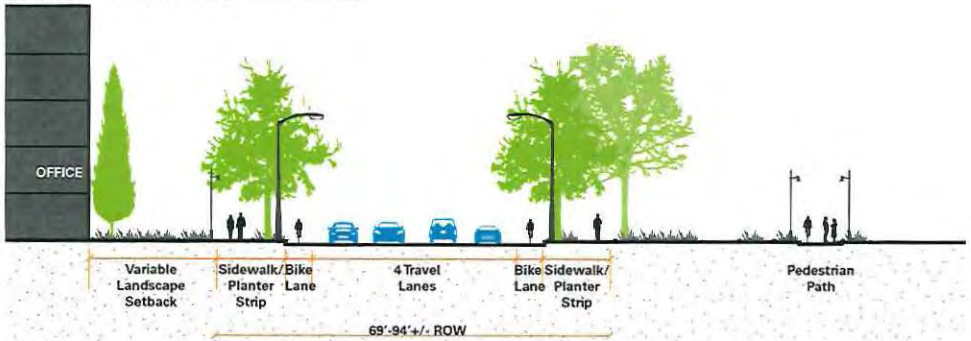
  Much of the development will be served by private streets and the developer. The protocols for private space utilization can be addressed in the project's CC&Rs and may differ from standards prevalent within City street rights-of-way. Traffic related standards should retain consistency, but private streets may utilize street signage and accommodate loading and truck maneuverings differently. Private streets may also be subject to occasional street closures for festivals, farmers markets, and host other elements without the City approval of a Special Permit that would be required if proposed for a typical city street's right-of-way.

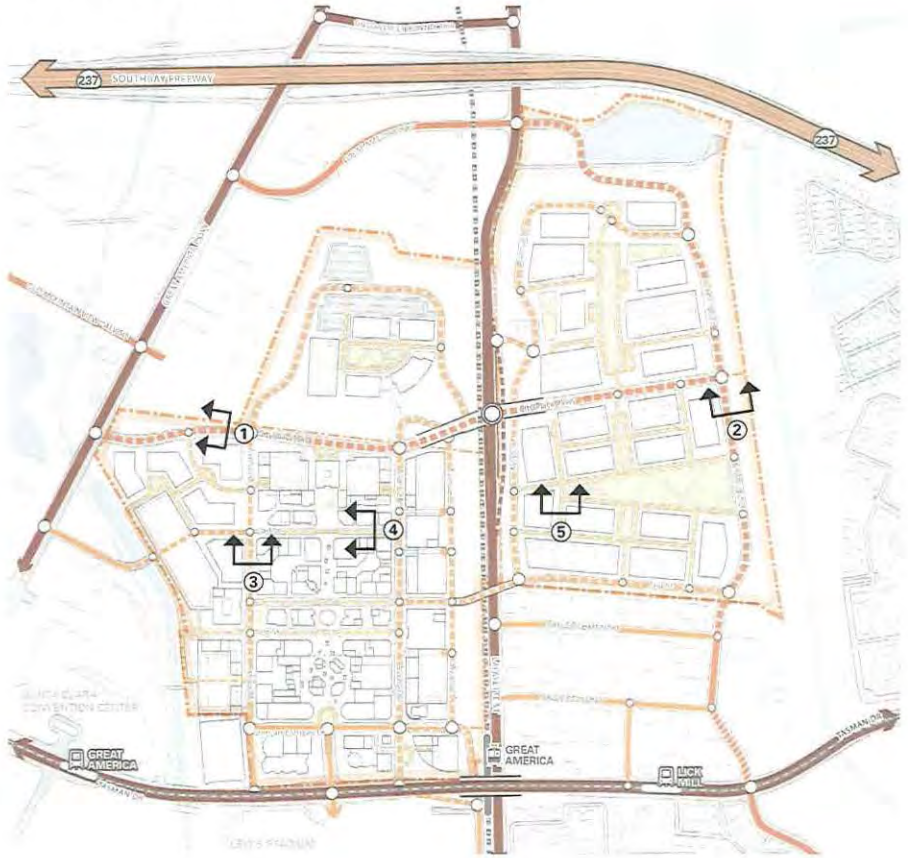
EXHIBIT 3–10: STREET TYPOLOGIES

① *Typical Minor Arterial*



② *Typical Collector Street Office Campus*

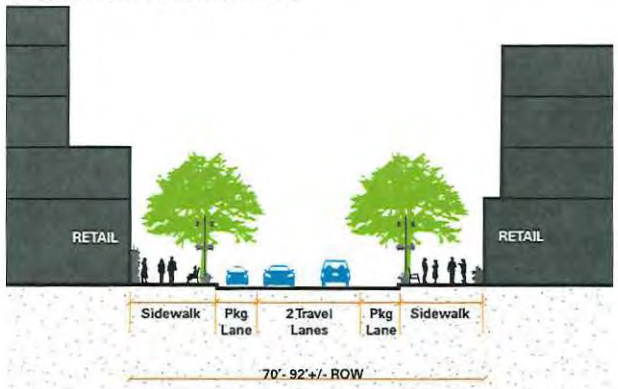




③ *Typical Collector Street City Center*



④ *Typical Local Street City Center*



⑤ *Typical Local Street Office Campus*

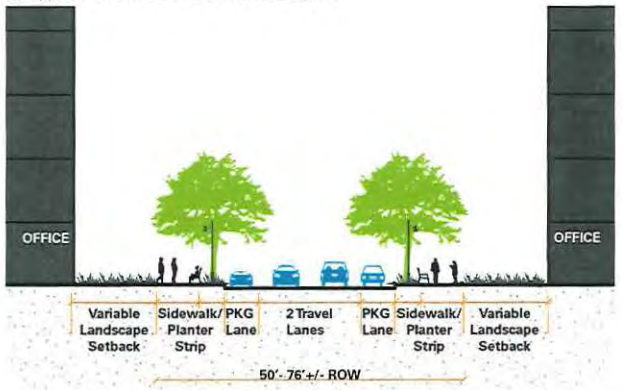
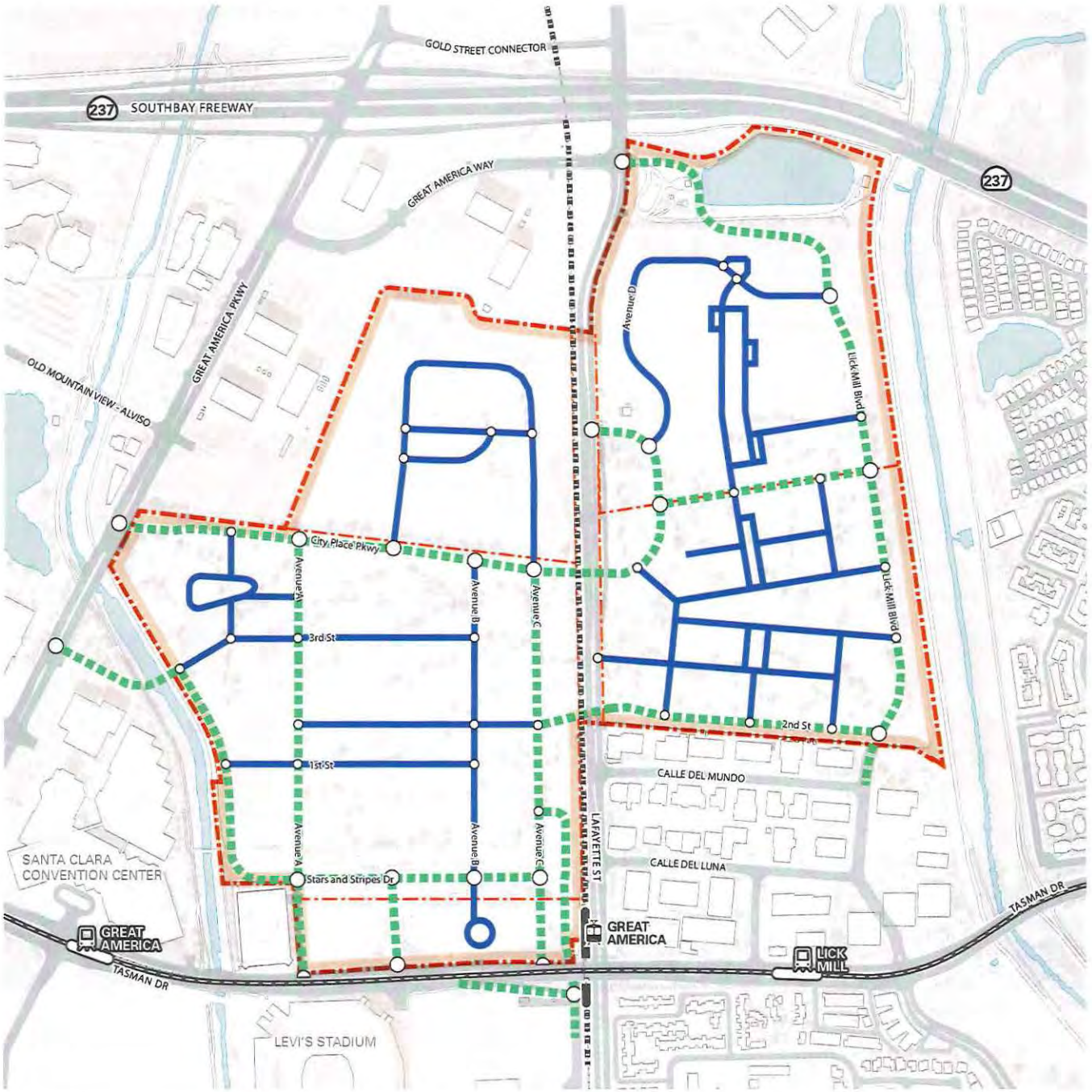


EXHIBIT 3–11: PUBLIC AND PRIVATE STREETS*



LEGEND

Streets
- Public Street
- Private Street

Transit
- VTA Light Rail
- Capitol Corridor/ Altamont Commuter Express

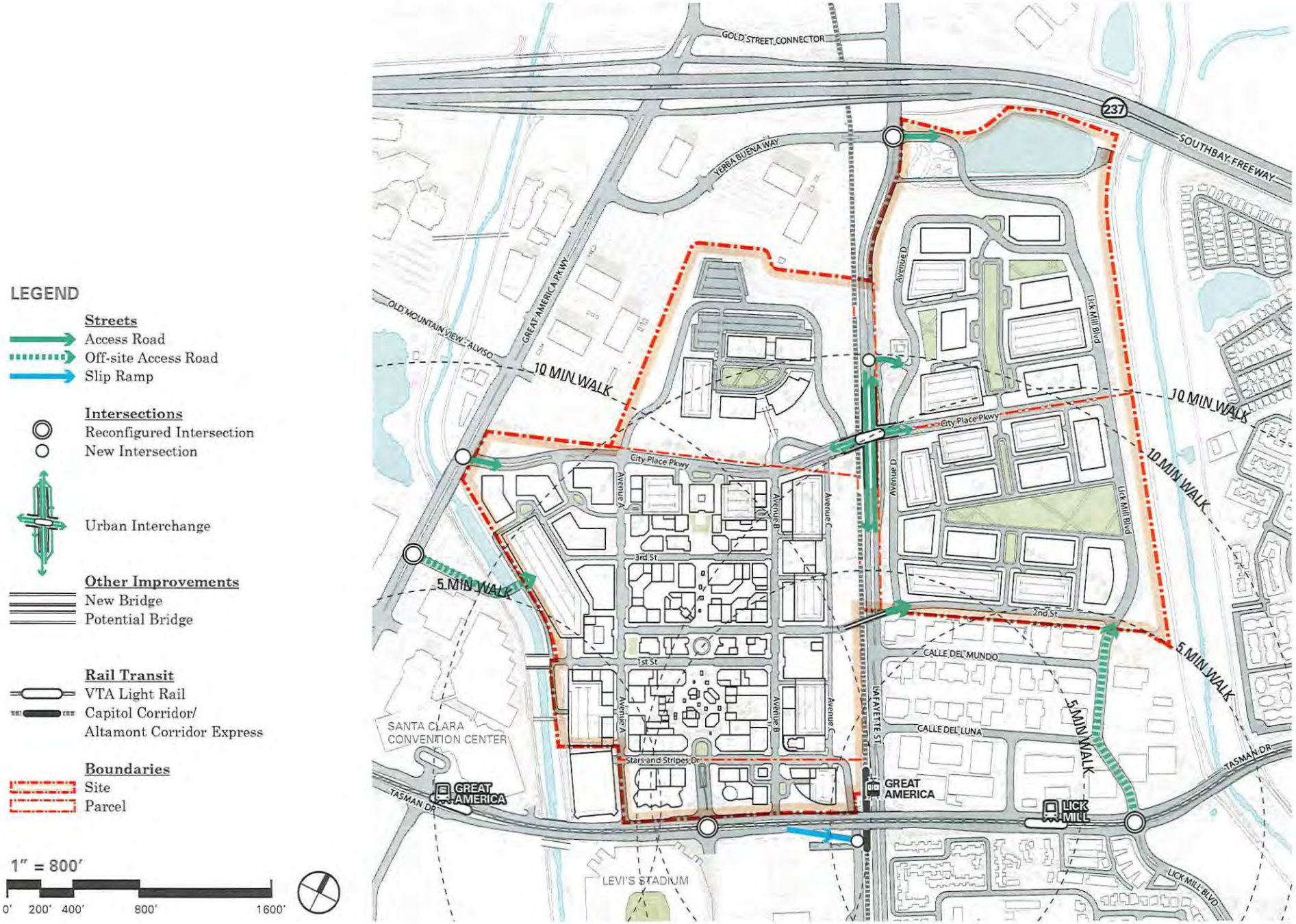
Boundaries
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

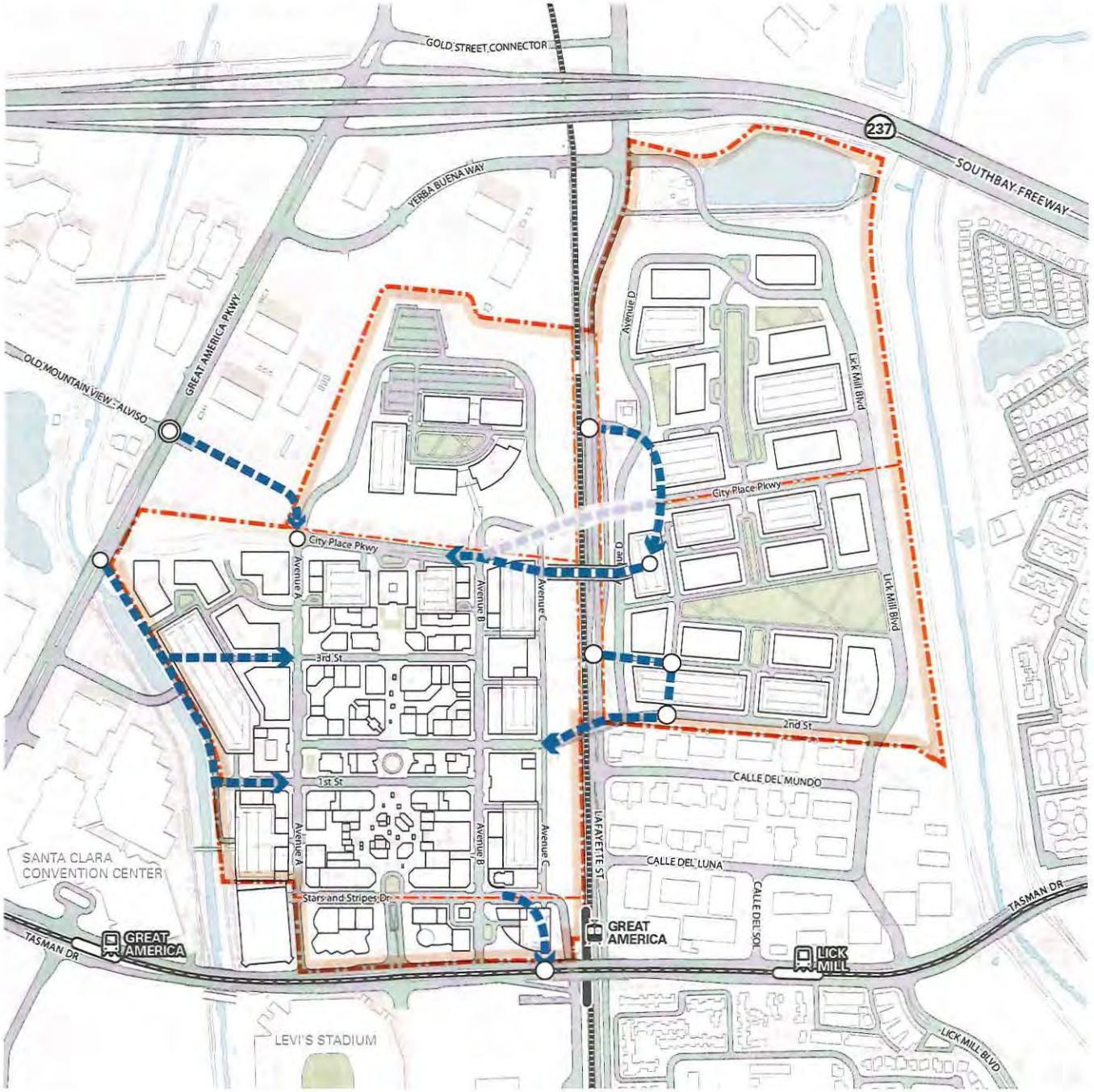
** Plan is conceptual and subject to change. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations. This depiction of the public and private streets utilizes some of the access variants as shown in Exhibit 3-13 and reflects the classification of streets at the time of this MCP publication (2016).*

EXHIBIT 3–12: ACCESS CIRCULATION IMPROVEMENTS*



** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

EXHIBIT 3–13: ACCESS VARIANTS*



LEGEND

Streets
Access Variants

Intersections
Reconfigured Intersection
New Intersection

Other Improvements
Potential Bridge

Rail Transit
VTA Light Rail
Capitol Corridor/
Altamont Corridor Express

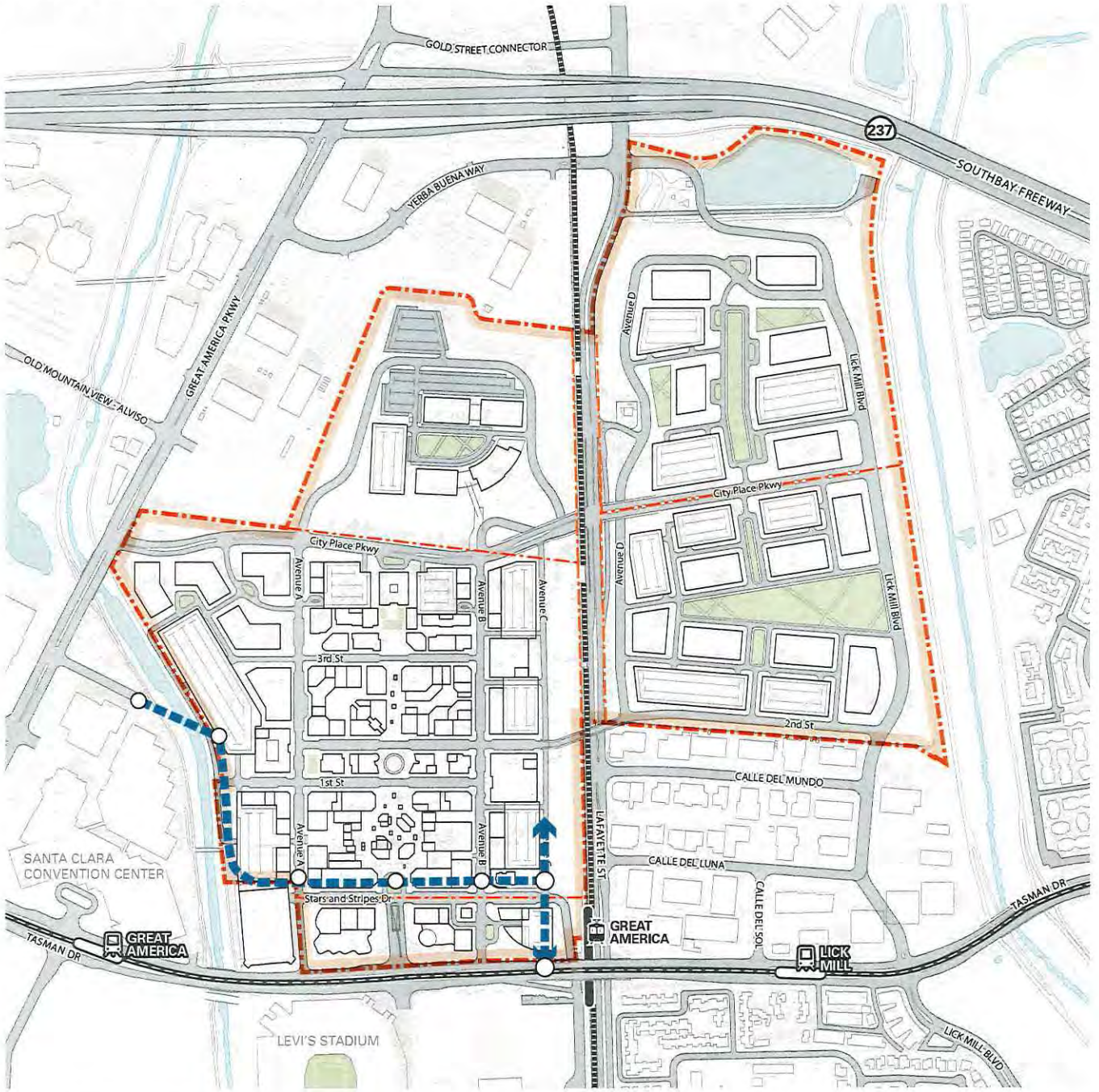
Boundaries
Site
Parcel

1" = 800'

0' 200' 400' 800' 1600'

** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

EXHIBIT 3–14: ACCESS VARIANTS 2*



LEGEND

Streets
Access Variants

Intersections
Reconfigured Intersection
New Intersection

Other Improvements
Potential Bridge

Rail Transit
VTA Light Rail
Capitol Corridor/
Altamont Corridor Express

Boundaries
Site
Parcel

1" = 800'

0' 200' 400' 800' 1600'

** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

The protocols for private space utilization can be addressed in the project's CC&R's and may differ from standards prevalent within City street R.O.W.s. Traffic related standards should retain consistency, but private streets may accomodate loading and truck maneuverings differently.

Temporary events and similar temporary outdoor uses in the City Center (Parcels 4 & 5) shall not trigger the requirement for a Special Permit under Chapter 18.60 of the Zoning Ordinance, as amended, unless private or public streets are proposed to be closed in a manner that is not approved in a DAP. Such events and temporary outdoor uses must comply with all applicable Building and Fire Code requirements, and they must obtain any applicable Police Permits. Other areas (Parcels 1, 2, and 3) shall adhere to the Special Permit process requirements under Chapter 18.60 of the Zoning Ordinance, as amended, unless such event plans are spelled out in an approved DAP. All applicable Building/Fire Code and Police Permit requirements will apply.

- *Access Improvements:* The project site is constrained by limited frontage along major arterial streets, which is compounded by the differential in elevation between developable land area, the arterial roadways, and the UPRR R.O.W. A series of improvements will provide the requisite access from surrounding arterials to the five development parcels, the extent of which are depicted in *Exhibit 3-12: Access Circulation Improvements*. Most significant are: 1) a vehicular access point at Great America Parkway that will serve as the marquee entrance to the development; 2) connections to Lafayette Street that will require bridging over the Union Pacific rail line; and 3) connections that will access the east bound lanes of Tasman Drive. Variant access points are also being studied as illustrated in *Exhibit 3-13: Access Variants* and *Exhibit 3-14: Access Variants 2*. The scope of off-site roadway and intersection improvements is addressed in greater detail within Chapter 8 (Infrastructure Overview).

- *Fire Access:* The current fire station location is at the intersection of Stars & Stripes Drive and the proposed Avenue B and may be retained in its current position during initial development phases or permanently. Two possible relocation options are proposed, both situating the fire station along Great America Parkway. Details regarding Fire Department access and coordination with the Fire Chief on emergency service requirements shall be provided with each DAP submittal or other documentation acceptable to the City associated with each project phase. The following standard Fire Department provisions are provided here outlining typical Santa Clara Fire Department accommodations. Any alternate accommodation will need to be approved through coordination with the Fire Chief:

  1) Fire apparatus access roadways throughout the development shall be designed in accordance with the requirements noted below, unless alternate measures are approved by the Fire Prevention and Hazardous Materials Division:

  2) Unobstructed width of emergency apparatus access roadways shall be 26 feet.

  3) Parking on one side of the emergency apparatus access roadways is acceptable if the roadway is a minimum of 32 feet or more in width.

  4) Parking on two sides is permitted for roadways 38 feet or more in width.

  5) The minimum inside turning radius for emergency apparatus access roadways is 36 feet.

  6) No portion of an exterior wall of a building and/or structure shall be located more than 150 feet from emergency apparatus access roadways as measured by an approved route around the exterior of the building and/or structure.

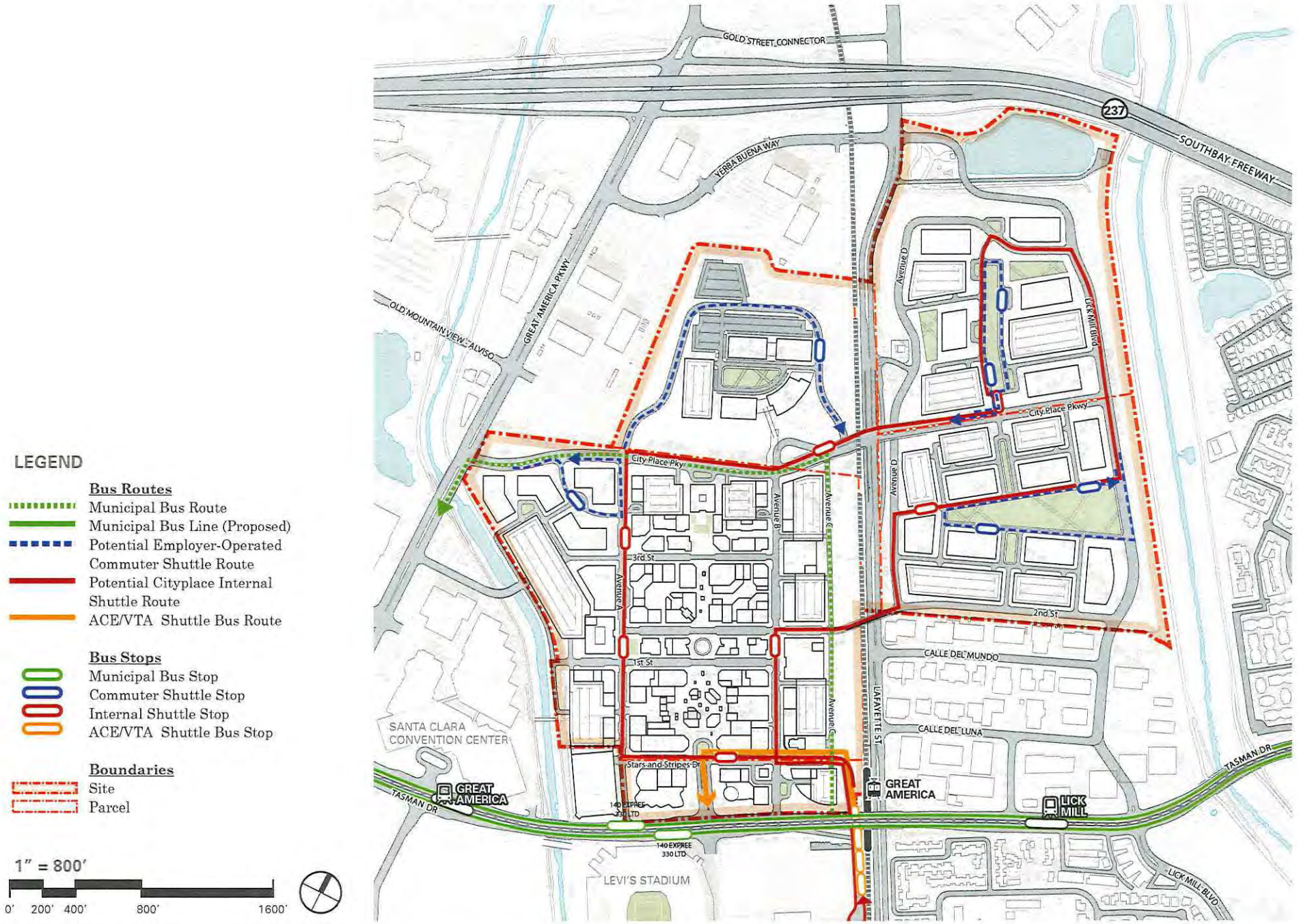
  7) The minimum unobstructed vertical clearance shall not be less than 13 feet 6 inches from the surface of the traffic lanes.

  8) Aerial apparatus access roads may require additional vertical clearance.

  9) The grade for emergency apparatus access roadways shall not exceed 10 percent to facilitate fire-ground operations.

  10) Traffic calming devices on both public and private roadways shall not be installed, unless approved by the Fire Prevention and Hazardous Materials Division.

EXHIBIT 3–15: POTENTIAL BUS CIRCULATION*



** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

PARKING STRATEGY

The proposed scale and intensity of development will depend on a managed approach to parking. In particular, each development parcel shall provide parking sufficient to meet current and future generated demands and to serve its various land use functions. Reduced standards based on shared parking arrangements, TDM measures, and other applicable parking strategies shall be implemented where appropriate. Parking and access generally shall be governed by the DAPs and the Master CC&Rs.

Important considerations informing parking accommodation strategies to be incorporated into the DAP's:

- *"Park Once" Strategy:* Park once is a strategy that allows visitors, employees, and residents to leave their automobiles at a single location and then conveniently access multiple on-site destinations. This concept is essential to reducing vehicle trips and will be supported by convenient and comfortable pedestrian movement throughout the project: clear pedestrian links connecting parking facilities to the residential, commercial and office uses; and the ability to readily walk throughout the development. This approach will also favor strategically located parking structures, rather than sprawling surface lots.

- *Shared Parking:* The mixture of uses within a development parcel may suggest non-conflicting and reduced parking demand that may be accommodated through sharing of parking resources with a commensurate decrease in parking requirements. This is most applicable to the City Center with its combination of office, retail and residential space that are in easy walking distance of one another. Parking facilities will be configured to facilitate utilization of shared parking to the extent possible.

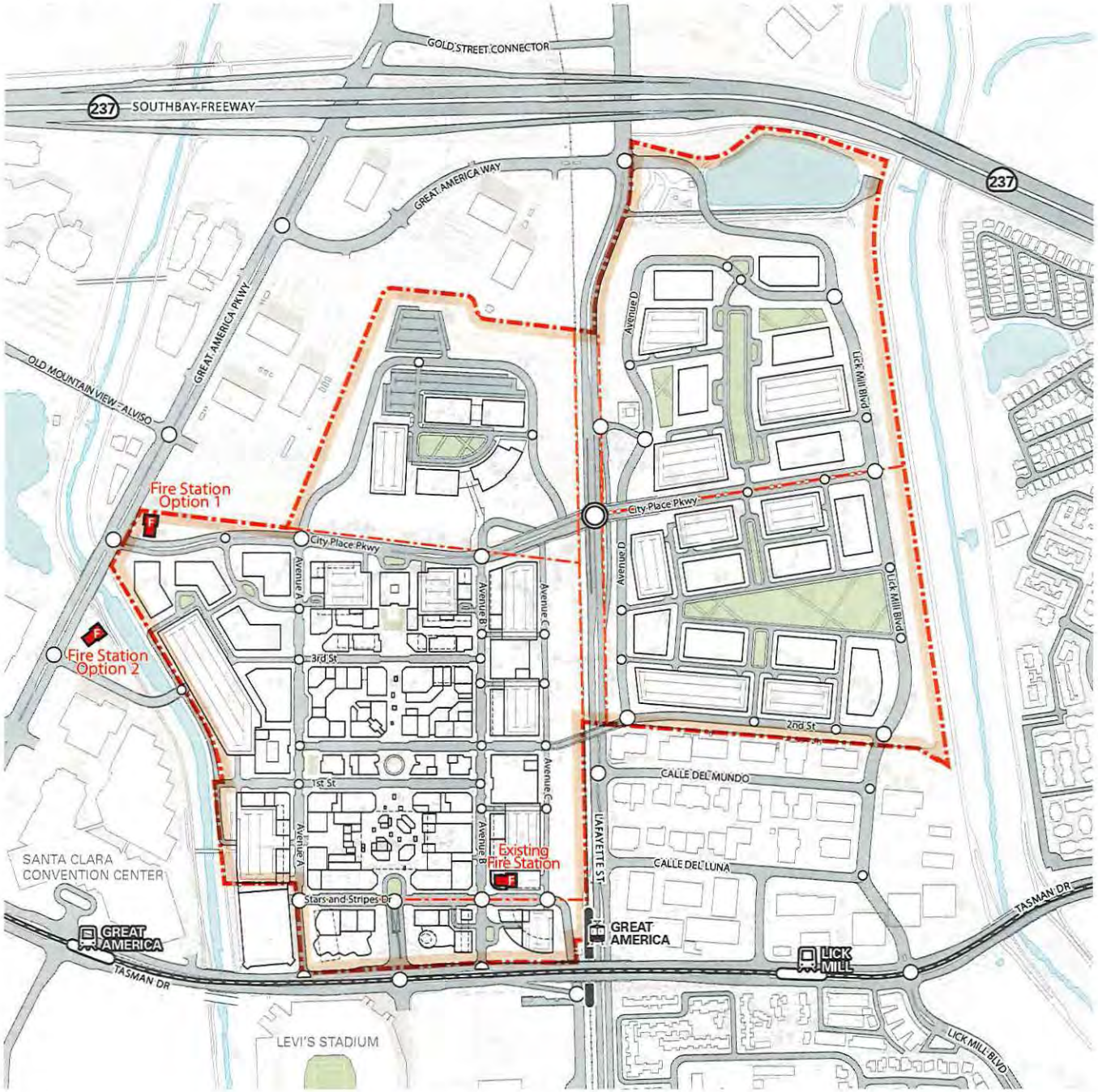
- *Parking Facilities:* To promote shared parking and reinforce the park once strategy, structured parking will be provided commensurate with development; surface parking will be allowed for designated office campus and retail center land uses and in conjunction with early phases of development. Surface parking may be utilized temporally during initial phases in anticipation of land use intensification at a later stage. Parking facilities will typically be distributed around the periphery of each development parcel, primarily accessed via the perimeter collector roadways to ensure that interior local streets remain pedestrian-oriented. Parcel 5 will utilize below podium parking (making use of the existing topography and its positioning outside of the landfill refuse area). The development may make use of below podium parking for a portion of its parking, in a non-basement configuration at areas above landfill. On-street parking will also be available along some local streets, especially within the mixed-use core, where it will help meet short-term parking needs and serve ground level retail; however, on-street parking shall not count toward meeting parking requirements. *Exhibit 3-17: Access & Parking* depicts a conceptual plan for the location of parking facilities.

- *Parking Management/Wayfinding Program: A parking management/wayfinding program* for publicly accessible parking spaces will be implemented where feasible to provide real-time information on parking availability and location.

- *NFL Event Days Parking:* The developer will provide a total of 3,000 parking spaces to the 49ers, limited to NFL football games only, at Levi's Stadium, estimated to occur 10-12 days per year. The 3,000 spaces will be provided in two formats: (i) 789 spaces located within the southern end of the City Center mixed-use core; and (ii) 2,211 spaces located throughout Parcel 4 and future Office Parcels 1, 2 & 3, with at least 50 percent located in locations within the City Center project identified by the Developer.

- *Non-NFL Event* Days Parking: The developer and the City will cooperate and manage the project site so that approximately three thousand (3,000) parking spaces will be available to serve non-NFL events at the 49ers Stadium. Concurrently with the first DAP application, to be updated concurrently with each subsequent DAP application, the developer and City will work cooperatively on preparing a Parking Management Plan that will show how Non-Event Parking may be accommodated on all City-owned property within the Project that has not been ground leased by the developer ("City-Retained Property"), and, if all of the Non-Event Parking Spaces cannot be accommodated on such City-Retained Property (e.g., as future phases

EXHIBIT 3–16: FIRE STATION RELOCATION*



LEGEND

Vehicular Circulation
- Fire Station
- Urban Interchange
- Full Intersection
- Right in Right out Intersection

Transit
- VTA Light Rail
- Capitol Corridor/ Altamont Commuter Express

Boundaries
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

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are ground leased by the developer and the availability of City-owned property is reduced), within the non-reserved retail or other parking developed for any Phases. The Parking Management Plan will incorporate the following underlying principles: (1) Non-Event Parking Spaces will be prioritized on City-Retained Property; (2) the City will take reasonable measures at its sole cost and expense to locate Non-Event Parking Spaces on City-Retained property; and (3) Non-Event Parking Spaces that are proposed on development parcels that are subject to a ground lease will be available on a first-come, first-serve basis within non-reserved parking developed for the applicable phase and for the period of time that permits attendance at a stadium event.

ALTERNATIVE MODES

The project will take an integrated approach to mobility planning that will encourage alternatives to solo driving, which will be spelled out in a TDM plan. Consistent with the General Plan's policy that all new projects include amenities that support alternative travel modes, the intent will be to also make the project transit, bicycle and pedestrian friendly. This will be achieved through a network of on-site pedestrian and bicycle paths with convenient off-site connections. There will be a unique opportunity for CityPlace to knit together existing/proposed regional bike paths for strengthening connections and improving the regional bicycle network.

A partial list of relevant Traffic Demand Management strategies follows:

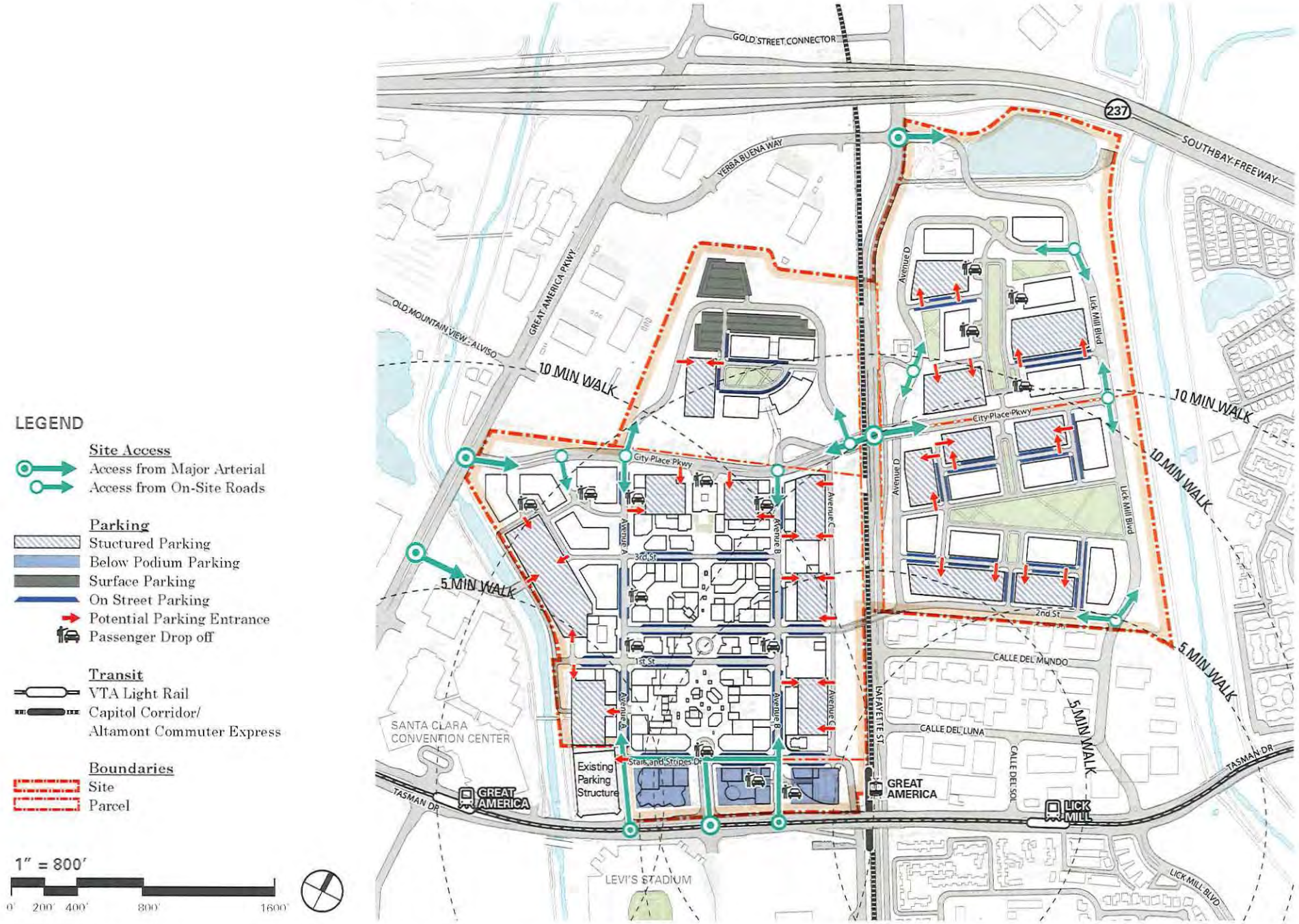
- *Transit Service:* Recognizing that much of the project site is located within a ten-minute walking radius of one or more of the nearby transit stops, planned land use intensities will maximize accessibility to existing transit facilities. In particular, the mixed-use core will place many complementary activities within convenient walking distance of transit stops (i.e. existing bus and rail lines along Tasman Drive, internal shuttle etc.). Support for transit will be further augmented by delivering multi-modal links to transit stops, encompassing both bicycle and pedestrian networks. The project's TDM program may also incorporate long-range private commuter buses, van pools and/or shuttle service to supplement public transit.

- *Bicycle Circulation:* The existing bicycle circulation system will be extended onto the project site, with ties to the bicycle trails along San Tomas Aquino Creek and the Guadalupe River, as well as to existing and planned on-street bicycle lanes along Great America Parkway, Lafayette Street and Tasman Drive. On-site facilities will include shared use trails (i.e., "hike and bike") along the landscape perimeter of development parcels, as well as designated bicycle lanes or marked routes along roadways. Lighting will be incorporated with new pedestrian/bicycle trails and grade separated street crossings will be implemented where feasible. *Exhibit 3-19: Bicycle Network* depicts a conceptual plan for the routing of bicycle facilities, including connections to the existing and proposed City network. Additionally, requirements for the provision of bicycle parking (i.e., storage lockers and racks) are specified in Chapter 4 (Parcel Development Plans, Standards & Requirements); in general, these amenities shall be placed at highly visible and accessible locations.

- *Pedestrian Circulation:* A continuous network of pathways will facilitate pedestrian movement throughout the site, securing safe and convenient connections between transit stops, parking facilities, building entrances, and shared open spaces. *Exhibit 3-20 Pedestrian Network* depicts sidewalks that will be incorporated along both sides of on-site roadways (both public and private), while off-street routes will include both shared perimeter trails and internal paths and paseos. Recognizing the importance of streetscape design to a high quality public realm that encourages walking, streets throughout the development will offer ample sidewalks, enhanced crosswalks, and a superior level of pedestrian amenity, such as street furniture, most generously within the mixed-use core.

- *Transportation Demand Management:* The developer will prepare and implement a TDM Plan with an overall target of reducing project office-generated daily traffic by a minimum of 4 percent and peak-hour traffic by a minimum of 10 percent, with an overall target of reducing project residential-generated daily traffic by a minimum of 2 percent and peak-hour traffic by a

EXHIBIT 3–17: ACCESS & PARKING*



** Further detail on service/refuse vehicle access will be included with DAP submission. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

EXHIBIT 3–18: POTENTIAL ACTIVE TRANSPORTATION DIAGRAM






1. Bike Rental / Bike Storage / E-Bikes





2. Bicycle/Pedestrian Creek Trail





3. VTA LRT, Shuttle Services, Improved Muni Bus Service





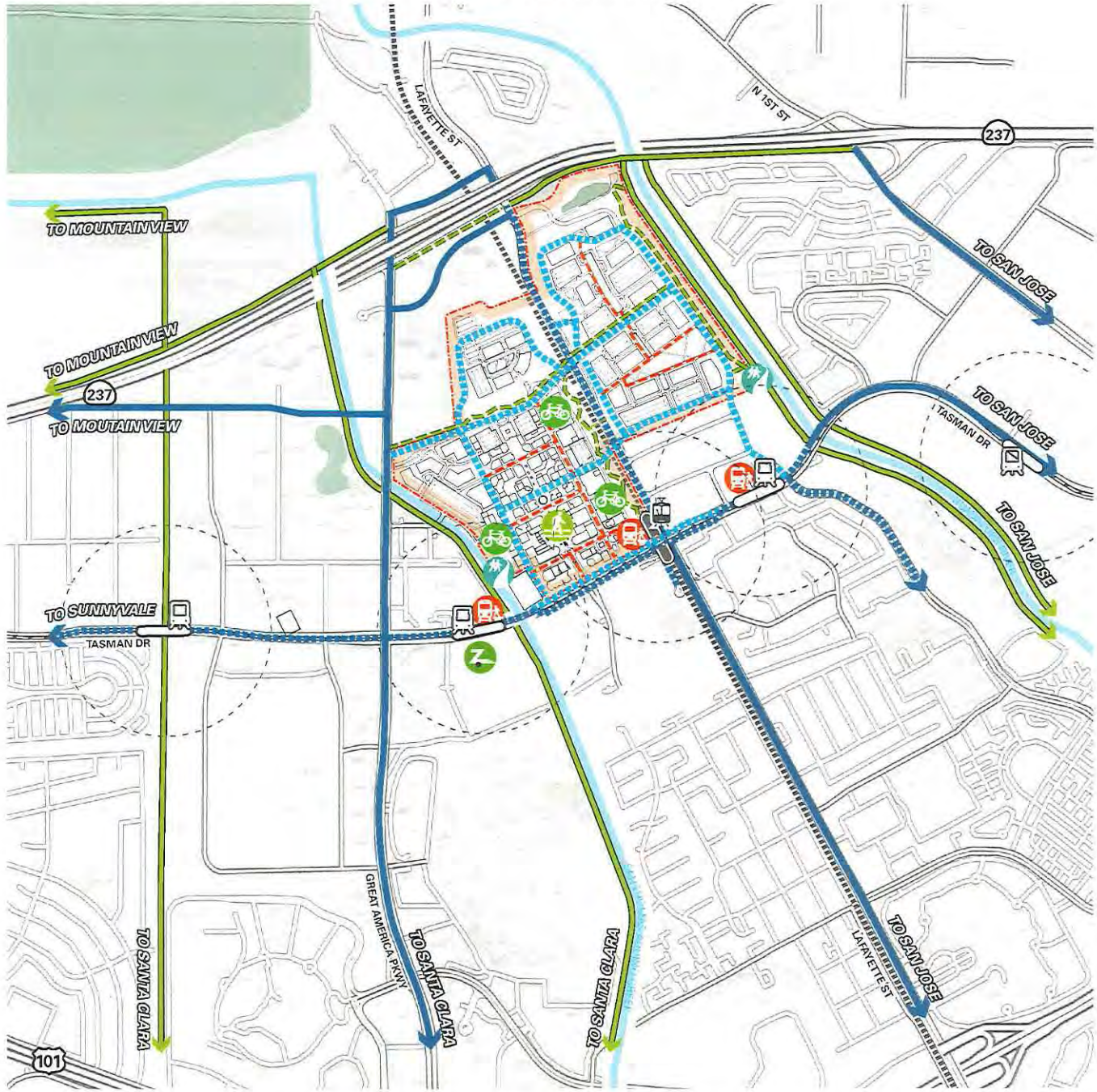

4. ZIPCAR and/or Electric Charging Stations





5. Pedestrian Paths / Wide Sidewalks

EXHIBIT 3-18: POTENTIAL ACTIVE TRANSPORTATION DIAGRAM CONT.*



LEGEND

Existing Facilities
- Existing Path
- Existing Lane
- Existing Route

Proposed Facilities
- Proposed Path (Shared)
- Proposed Lane (Off Site)
- Proposed Lane (On Site)
- Proposed Route

Transit
- VTA Light Rail
- Capitol Corridor/ Altamont Commuter Express

Boundaries
- Site
- Parcel

1" = 800'

0' 200' 400' 800' 1600'

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minimum of 4 percent. The TDM Plan shall also include and implement TDM Best Management Practices (BMPs) for the retail uses. The TDM Plan will be designed to reduce the amount of vehicle traffic generated by CityPlace by shifting employees, customers, and residents from driving alone to using transit, carpooling, cycling, and walking modes through TDM measures, strategies, incentives, and policies. The TDM Plan may specify a phased implementation approach that provides initially for implementation of the TDM measures that are appropriate for multi-tenant offices (e.g., measures aimed at increased transit use), which are expected to be developed during the first three phases of development, and then provides for more expansive TDM measures that are appropriate for large corporate office tenants in the remaining phases (such as shuttles). The following TDM measures will be considered for inclusion in the TDM Plan for some or all portions of the development, to the extent feasible and appropriate, either as part of an initial TDM Plan or as options for enhanced or remedial measures if trip reduction targets are not being met:

1) *On-site Support Facilities:* shuttle bus stops with shelters, bicycle paths and lanes, pedestrian paths linking buildings and transit stations, priority parking for carpools and vanpools;

2) *In-building Support Facilities:* showers and changing rooms, bicycle storage rooms and bicycle racks, and bicycle repair stands, cafes, and fitness centers;

3) Private shuttles for both long distance commute and last-mile service from nearby public transit;

4) Ridesharing options for long distance commuters such as carpool and vanpool matching services;

5) Guaranteed ride home services for commuters who carpool, take transit, or bicycle to work;

6) Financial incentives such as pre-tax benefits for transit and bicycle expenses (e.g., Commuter Check) or subsidized transit passes (e.g., Commuter Checks or VTA EcoPass) for all employees;

7) Additional support services for employees who use transit or rideshare, such as flexible work hours;

8) A website and marketing program to disseminate information on commute options;

9) A TDM information packet to be provided to all new CityPlace employees upon commencement of work at CityPlace and, the benefits of alternative commute methods stressed during new employee orientation programs;

10) Incentives for employees to live in locations well served by transit or shuttles;

11) Bike share pods to enable trips on-site and to nearby destinations to be made by bicycle;

12) Car share services with cars on-site for use by employees (or others) who use alternative modes to travel to the site but need a car to run an errand, travel to a meeting, etc.;

13) Multi-passenger demand responsive ride services for local employees that are competitive with drive alone including transportation network/ride-sharing services such as Uber Pool, Lyft Line and Chariot on-demand and crowd-sourced bus services, and

14) Yet-to-be developed new services, programs, strategies and emerging technologies.

EXHIBIT 3–19: BICYCLE NETWORK*

Existing Facilities: For current proposed land use, provide the following minimum bicycle facilities at the main entrance or high visible areas:

Scheme A:

- Residential (540,000 SF):180 lockers & 36 bike spaces
- Commercial (1,255,000 SF): 60 lockers & 209 bike spaces
- Office (6,064,400 SF): 758 lockers & 253 bike spaces
- Hotel (300,000 SF): 32 lockers
- Entertainment (180,000 SF): 10 lockers & 48 bike spaces

Scheme B:

- Residential (408,000 SF): 130 lockers & 26 bike spaces
- Commercial (1,799,000 SF): 67 lockers & 300 bike spaces
- Office (3,584,400 SF): 448 lockers & 149 bike spaces
- Hotel (300,000 SF): 32 lockers
- Entertainment (180,000 SF): 10 lockers & 48 bike spaces

**Note: Lockers are Class I Bicycle Lockers, bike spaces are Class II Bicycle Rack Spaces*



** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

EXHIBIT 3–20: PEDESTRIAN NETWORK*





1. Major Pedestrian Linkage





2. Pedestrian Paseo





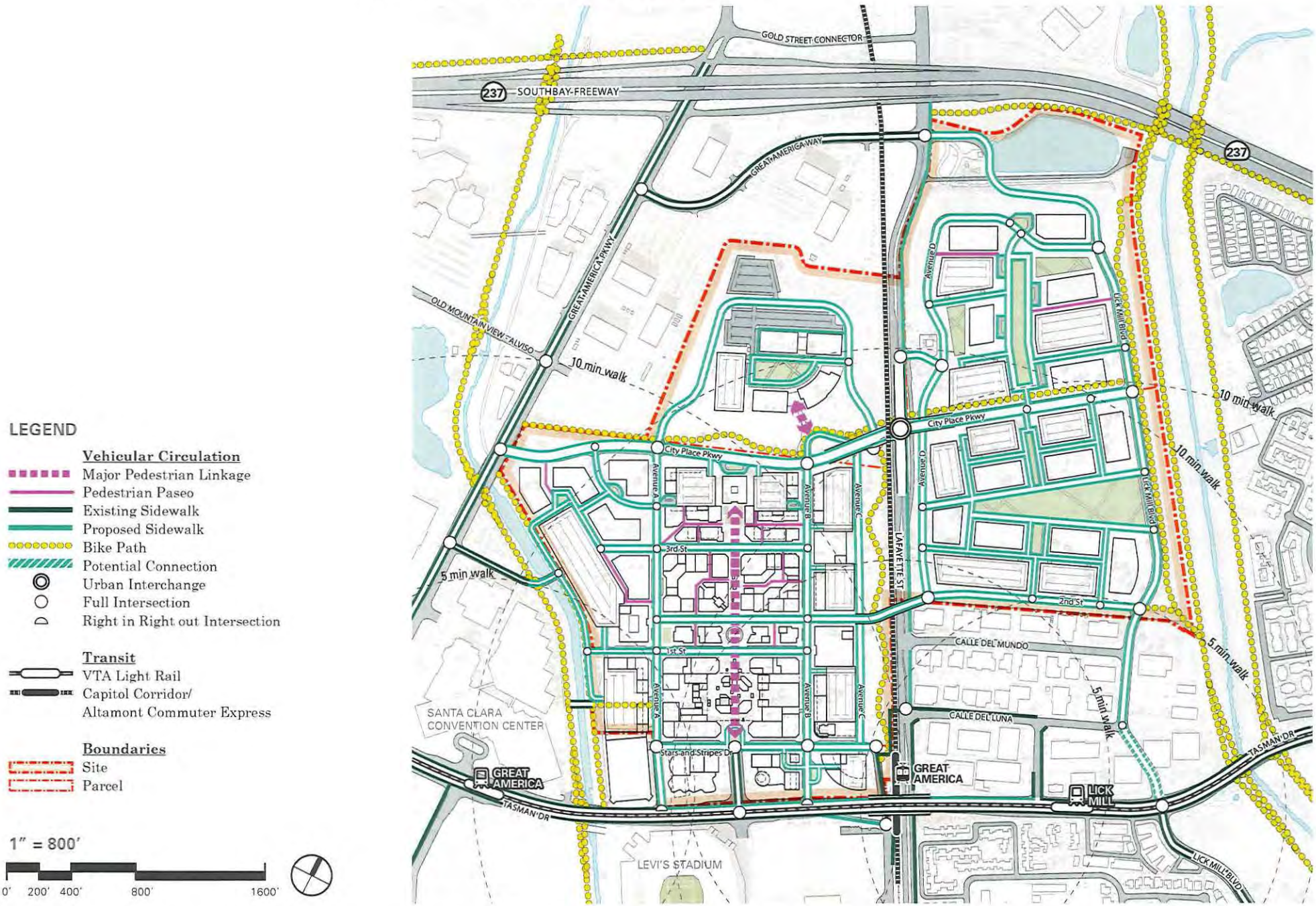
3. Wide Sidewalks





4. Bike Path

EXHIBIT 3-20: PEDESTRIAN NETWORK CONT.*



** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

TABLE 3-5: OPEN SPACE PLAN CONSISTENCY W/ KEY GENERAL PLAN SUSTAINABILITY POLICIES

5.3.4-P12:
Prioritize pedestrian-oriented streetscape and building design in mixed-use development, including features such as wider sidewalks, street furniture, specialty planters, signage, public art, street trees, special paving materials, decorative awnings, enhanced entrances, colors, variety of materials and textures and distinctive building massing and articulation

5.5.2-P9:
Improve pedestrian amenities, including sidewalks and bicycle paths, to promote neighborhood compatibility.

5.9.1-P1:
Develop additional parkland in the City so that it is integrated into neighborhoods and meets the standards for size, amenities and location to serve residents and employees.

5.9.1-P2:
Develop new parks to serve the needs of the surrounding community based on the criteria defined on Table 5.9.1. (defines a neighborhood & a community park)

5.9.1-P5:
Encourage public visibility for all parks, trails and open spaces.

5.9.1-P17:
Foster site design for new development so that building height and massing do not overshadow new parks and plazas.

5.9.1-P18:
Promote recreation facilities in large-scale developments in order to meet a portion of the demand for parks generated by new development.

5.9.1-P20:
Promote the continuation of a parks per population ratio of 2.4 per 1,000 residents and explore the potential to increase the ratio to 3.0, based on the Parks and Recreation Needs Assessment (Parks Master Plan), referenced in Plan Prerequisite 5.1.1-P24.

5.9.1-P21:
Explore options for incorporating an outdoor theater within one of the City's neighborhood parks.

3.4 OPEN SPACE CONCEPT

The open space concept describes an integrated network of shared outdoor spaces and sustainable landscapes, highlighted by active plazas, recreational areas, and campus like greens linked through attractive and coherent streetscapes. Collectively, these elements will be essential to creating an engaging public realm and will contribute to CityPlace's identity, functionality, sociability, and visual appeal.

CONCEPT SUMMARY

Distinctive, sustainable open spaces featuring a diversity of inviting and interesting outdoor environments will distinguish the development. This network of open spaces will enhance the visual and experiential quality of place and reinforce the project's identity as a center of mixed-use pedestrian activity. It will also serve a functional role, accommodating the recreational needs and leisure activities of a multiplicity of users, while integrating green infrastructure to achieve sustainable site development. Chapter 6 (Landscape Master Plan) will build on this open space framework, and will elaborate on the landscape design and character of the project.

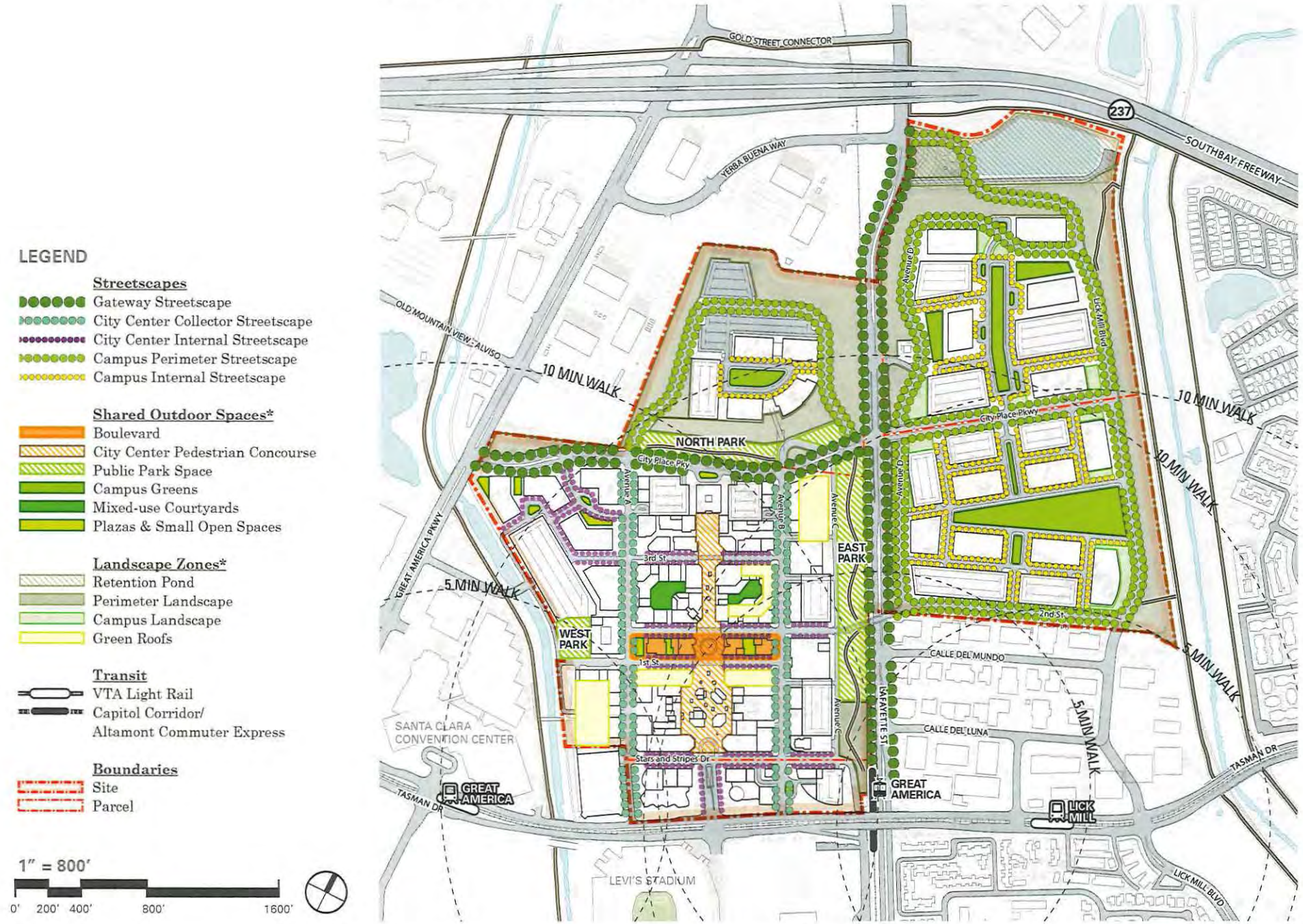
- *Open Space Network*: The development will incorporate a network of specialized open spaces that will encompass: 1) streetscapes; 2) shared outdoor spaces; and 3) landscape zones. These open spaces will ensure continuity and connection between development parcels and adjacent land uses, offering a continuous sequence of inviting pedestrian spaces, including shaded sidewalks and paths, active and flexible plazas, improved open spaces and restful campus greens. Accordingly, shared outdoor spaces properly scaled to formal and informal gatherings will be integrated into each development parcel. Identified landscape zones will differ in generally covering larger expanses of land, often at the edges of the site, suitable for varied forms of recreation and broad swaths of naturalistic planting. *Exhibit 3-21: Open Space Network* conceptually illustrates the distribution and hierarchy of open spaces across the site.

- *Active Recreation Space:* The project will include organized play areas, including, but not limited to, softball, baseball, and soccer fields, tennis, volleyball and basketball courts, fitness stations, jogging trails, bike paths, picnic areas and various forms of children's play equipment.

- *Distinctive Landscape Setting:* The open space concept will recognize the aesthetic value of the physical setting and its contribution to effective place-making. The objective will is form a lasting favorable impression of the development by creating an appealing outdoor setting, ranging in disposition from highly visible, naturalized landscape edges to heavily-peopled open-air spaces. Of necessity, a more structured urban physical setting will characterize the lively sidewalks and plazas of the mixed-use core, in contrast to a "looser" design for the contemplative environment that typifies the office campuses. Nonetheless, appropriate transitions in character and common design elements will achieve an overall harmony; in particular, the physical setting will communicate the sustainable character of the project, highlighted by a preference for native and adapted plant species.

- *Eco-Sensitive Landscape Design:* Sustainability will be central to the design and function of the open space network, in particular, through dependence on eco-sensitive physical settings that will be fully compatible with the site's landfill protection systems. In particular, the overall physical setting concept will encourage best practices for water conservation, water quality, and Low-Impact Development stormwater drainage and management. Such practices will include reliance on plant species adapted to the local climate, the use of

EXHIBIT 3–21: OPEN SPACE NETWORK*



** Depictions of outdoor spaces and landscape zones are illustrative, particularly in parcels 1 through 3. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

TABLE 3-5 CONT'D: OPEN SPACE PLAN CONSISTENCY W/KEY GENERAL PLAN SUSTAINABILITY POLICIES

5.10.1-P11:
Require use of native plants and wildlife-compatible non-native plants, when feasible, for landscaping on City property.

5.10.4-P1:
Promote water conservation through development standards, building requirements, landscape design guidelines, education, compliance with the State Water Conservation Ordinance, and other applicable City-wide policies and programs.

5.10.4-P3:
Promote water conservation, recycled water use and sufficient water importation to ensure an adequate water supply.

5.9.1-G1:
Ample facilities for physical activities that promote community health.

5.9.1-G2:
Parks, trails, and open space located within a 10-minute walk to residential neighborhoods and employment centers.

5.9.1-G3:
New parks, open space, and recreation provided with new development so that existing facilities are not overburdened.

5.9.1-G4:
Park, trail and open space facilities that are accessible and provide connections to destination points and activity centers within the City.

reclaimed water for irrigation, and the establishment of irrigation regimes that distinguish intensive lawns and gardens from extensive, low maintenance landscape zones. Bio-retention measures such as swales and green roofs shall be integrated to collect, clean, and discharge rainwater where feasible. The landscape's capacity to reduce energy usage should also be exploited, utilizing street trees and potentially green roofs to minimize the heat island effect and reduce heat loads on individual buildings. Chapter 9 (Sustainability Master Plan) goes into greater detail about sustainable practices that are incorporated into the development.

- *People-Oriented Places:* The development's outdoor spaces will be designed to help meet social and recreational demands in a configuration with a mix of commercial and pedestrian activity, placing user safety, comfort and accessibility at a premium. Altogether, the open space network will provide plentiful room and suitable facilities for active and passive recreation and leisure, formal congregation, and informal social interaction. Thus, a balance will be attained between active places and passive spaces. The most dynamic, people-oriented places will comfortably integrate site amenities and furnishings, while accommodating temporary activities and events, foremost of which are the City Center's plazas and use of public and private right-of-way. Moreover, shared outdoor spaces will stress spatial enclosure and close interaction with adjoining buildings and uses.

RESIDENTIAL INDUCED REQUIREMENT FOR DEDICATED PARK AND RECREATIONAL LAND

The Developer will meet the conditions of Santa Clara City Code Chapter 17.35 through the implementation of the following:

1) The Developer will construct and dedicate the park and open space land areas as required by Chapter 17.35 of the City Code at the applicable ratio pursuant to the City's standards. Any deficiency, consistent with Chapter 17.35, will be addressed by fees due in lieu of parkland;

2) The public neighborhood parks shall be operated and maintained by the Developer;

3) CityPlace will also include Mini Parks (less than 1 acre) and the Developer shall operate and maintain responsibility for these parks. Mini Parks will not be credited toward the eligible land devoted to parkland pursuant to SCCC Chapter 17.35;

4) The Developer shall maintain the sloped open space areas and these areas shall not count toward the City's parkland dedication requirement consistent with SCCC Chapter 17.35;

5) The Developer shall construct, own and maintain the private parks and private open spaces. Pursuant to SCCC Chapter 17.35, the Developer may receive a maximum credit of fifty (50) percent of the value of the eligible land devoted to private parks and private open space that is eligible for credit. The calculation of qualified private open space shall not include features required by this MCP, i.e., yards, setbacks and decorative landscape areas, and

6) Per Chapter 17.35, at the time of project approval, the City shall make a final determination as to the land to be dedicated and/or fees to be paid by the Developer. Any in lieu fees imposed under Chapter 17.35 shall be due and payable to the City prior to issuance of a building permit for each dwelling unit. In the event the Developer does not use a building permit for construction of a dwelling unit, the City will refund the fee collected for that dwelling unit at the time of expiration of the building permit.

STREETSCAPES

Streets will be an integral part of the physical and visual landscape, and enhanced streetscapes with distinctive native and drought tolerant landscape treatment minimizing water use and maintenance will be an important feature of the project. Landscaped streetscapes will help establish the project's identity, communicate the roadway hierarchy as illustrated in

EXHIBIT 3–22: STREETSCAPE TYPOLOGIES



① *Gateway Streetscape*



② *City Center Collector Streetscape*



③ *City Center Internal Streetscape*



④ *Campus Perimeter Streetscape*



⑤ *Campus Internal Streetscape*



Exhibit 3-10: Street Typologies, and offer a congenial environment for walking and informal socializing. Design strategies will be intended to support these functions, with emphasis on the provision of wide sidewalks, canopy street trees and other sidewalk amenities such as street furniture. Street trees are perhaps the most recognizable streetscape element: at maturity, they will contribute to the visual coherence and spatial definition of the street, serve as a traffic calming measure to reduce travel speeds, and provide a comfortable sense of enclosure, shade, and element of safety. *Exhibit 3-22: Streetscape Typologies* suggests the visual character of the project's streetscapes.

- *Streetscape Amenities:* Good street design prioritizes the physical safety, comfort and convenience of persons on foot. In doing so, it also heightens the social vitality of the place and conveys the public character of its streets. Wide sidewalks will support pedestrian flows with streetscape amenities normally located along the edge of the curb as a physical and perceptual barrier between pedestrians and vehicular traffic. Street trees, planting strips, and sidewalk furniture will be integrated throughout the project; amenities such as pedestrian-scaled light fixtures, benches, planter boxes, and specialty paving will be most abundant where especially intense pedestrian activity is anticipated.

- *Corridor Streetscape:* Arterial streets will exhibit a processional character that will enhance arrival to the project. This will be particularly applicable to the project entrances from Great America Parkway and Tasman Drive; similar treatment is to be applied along Lafayette Street to the extent allowed by the presence of the Union Pacific rail line and other existing conditions. As entrance corridors, these roadways will incorporate planted medians, a broad planter strip adjacent to each curb, and relatively deep landscape setbacks. Recommended design elements will include special gateway landscape treatment and large shade trees that will provide spatial enclosure and establish a rhythmic procession. Bike lanes and wide sidewalks will be provided to support multi-modal movement. See *Table 6-1: Street Typology Matrix* for all recommended street dimensions.

- *City Center Collector Streetscape*: Although important to vehicular circulation and parking access, the City Center location will require that these streets also serve pedestrians and bicyclists. Wide sidewalks with shady canopy trees will facilitate walkable connections throughout the City Center, while bicycle lanes and on-street parking and planted medians will be incorporated to ensure a balance between travel modes around the periphery of the development parcel.

- *City Center Internal Streetscape:* Characterized by the highest level of amenities, the City Center's internal roadways will place emphasis on the pedestrian experience to create vibrant shopping streets. Wide sidewalks, consistent planting of leafy canopy trees, and street furniture placed at frequent intervals, as well as specialty sidewalk and crosswalk paving, will be among the critical design features. With the introduction of on-street parking, curb bulb-outs, and mid-block crossings, traffic calming will be another important facet of their design. These and other amenities will be coupled with active storefronts to fashion an especially amenable setting for strolling, lingering, meeting, and conversing, as well as outdoor dining. Additionally, street closures for special events may be permitted on private streets without City approval of a Special Permit per SCCC 18.60.030.

- *Campus Perimeter Streetscape:* Although primarily geared toward vehicular access and circulation, the design character of these roadways nonetheless will reinforce the campus feel and support multiple modes of travel. In particular, they will incorporate wide planter strips, expanded sidewalks, planted medians and generous landscape setbacks; plantings that mediate between a campus setting and the proposed naturalistic planting along landscape perimeters and embankments and will be provided.

- *Campus Internal Streetscape:* These streets will receive pedestrian priority and will include a high level of streetscape treatment with shade street trees, planter strips and landscape setbacks reinforcing the campus experience. On-street parking, enhanced crosswalks, and other measures such as curb bulb-outs may be incorporated to slow vehicular traffic.

- *Temporary Street Closures:* The City Center Mixed-Use district will contain three private streets: identified in this document as 1st Street, 2nd Street, and 3rd Street. These streets all can have a dual function as open space during special events through the use of temporary street closures and Special Permit approval.

SHARED OUTDOOR SPACES

Key to successful urban place-making, these shared outdoor spaces will serve as a counterpart to the streetscape environment, further enriching the public realm by offering various places to congregate. Comprised of plazas, greens, courtyards, and similar spaces, they will be dimensioned to human occupation and amenable to active or passive use, and therefore, normally conceived as outdoor rooms. *Exhibit 3-23: Shared Outdoor Space Typologies* portrays the visual character of the project's shared outdoor spaces.

- *Boulevard:* Located at the heart of the mixed-use core, the Boulevard will function as CityPlace's primary outdoor gathering space, a focus of commercial activity and a stage for the civic life of the community that will support the retail, dining and entertainment role of the mixed-use core. This will be a multi-functional space suitable for informal socializing, as well as community gatherings, special events, and programmed activities. Therefore, a mostly paved surface that supports flexible use is recommended. Surrounding uses are expected to consist of ground floor retail, dining and entertainment that will activate and further enliven the Boulevard.

- *City Center Pedestrian Concourse:* A highly public place and branch of intense activity, the pedestrian concourse will pass through the core of the City Center and will feed the Boulevard. As such, it will be characterized by a high level of design and amenity, essential to a thriving open air shopping environment. Design elements would include specialty paving, shade features, and outdoor furniture, with accommodations for outdoor dining.

- *Public Park Space:* CityPlace's development program will include the following parks and open space program elements within the City Center area (Phases 1-4) as illustrated in *Exhibit 3-21: Open Space Network:*

  1) City Center East Neighborhood Park A public park along the east side of Parcel 4 that will include:

  • A north-south multi-use trail (biking, jogging, and walking) that incorporates side buffers and amenities that could include landscaping, seating, fitness areas, sports courts, gardens and/or an extended transit station platform (should the train station platform expand northward from its current location). The trail will connect the transit station to the proposed east-west multi-use trail that connects the Guadalupe River and San Tomas Creek trail systems. The width of multi-use trail and the adjacent buffer areas shall be a an average of 30 feet wide.

  • A level or terraced park area that could be programed with sports courts, fitness and/or play area such as a par course, and/or other active recreational uses.

  • The minimum area for this park shall be 1 acre, but the design goal is approximately 3 acres, excluding sloped areas that are not usable, (i.e. not usable for the proposed active recreational purposes).

  2) City Center North Neighborhood Park A public park along the north side of Parcel 4 (physically located on the south part of Parcel 3) that will include:

  •An east-west multi-use trial (biking, jogging, and walking) that includes side buffers and amenities that could include landscaping, seating, fitness areas, sports courts, and gardens. This trail comprises a segment of the proposed east-west multi-use trail that connects the Guadalupe River and San Tomas trail systems The width of the multi-use trail and the adjacent buffer shall average a minimum of 30 feet.

  • A turfed fitness and/or play area such as a par course, fitness steps, and/or other active recreational uses.

  • The minimum area for this park shall be 1 acre, but the design goal is approximately 2 acres, excluding sloped areas that are not usable, (i.e. not usable for the proposed active recreational purposes)

  3) **City Center West Neighborhood Park** A public park along the west side of Parcel 4 that will include:

  • A children's play area including a physical play structure(s) (type and design age specified at the time of the DAP application).

  • A family picnic area.

  • An option for an outdoor gathering or performance area.

- The minimum area for this park shall be one (1) acre.

- *Campus Greens:* One or more centrally located greens will be associated with each development parcel that has been designated as Office Campus. Framed by office buildings, campus greens will provide a convenient place for workers to congregate or relax and may or may not be accessible for public use. Typically, these spaces will possess an intensive landscape character that favors plantings over hardscape, and while a more refined and cultivated appearance will be appropriate, design concepts that maximize drought tolerant landscaping and minimize the lawn's extent shall be considered. Outdoor eating/socializing areas and employee recreation areas should be incorporated.

- *Mixed-Use Courtyards:* A series of well-defined, courtyards scaled to function as outdoor rooms will occupy the urban core. The degree of "publicness" will vary in accordance with the location and accessibility of each space, largely depending on the nature of surrounding buildings and uses, and whether the courtyard is located at-grade or at podium level.

- *Plazas and Small Open Spaces:* Comprised of an assortment of open spaces distributed throughout the development, these spaces will be secondary in function, less formal in purpose and more intimate in scale. Even so, they will maintain a public character, normally offering seating and shade; while they will tend to support passive use, in some instances, programmed activities such as outdoor performances, may still be accommodated.

PRIVATE OPEN SPACE

Private open space can be provided with both residential and commercial developments (and may include rooftops), specific details are to be provided with the DAP submissions.

- *Residential:* A limited amount of open space will be dedicated to private spaces associated with the residential uses. Semi-private, communal space will be useful in addressing the social and recreational needs of urban residents, and may include such amenities as a swimming pool, Jacuzzi, barbecue area, children's tot lots / play areas, and other social, recreational fitness, and leisure facilities. Courtyards and rooftop terraces will be the most likely configurations. Private open spaces devoted to active recreational uses will include a minimum of four of the following uses (actual program elements will be included in the DAP applications): (1) landscaped and furnished, park-like quiet areas; (2) recreational community gardens; (3) family picnic areas; (4) game, fitness or sport court areas; (5) accessible swimming pool (minimum size 42' x 75') with adjacent deck; (6) recreation center buildings and grounds.

- *Office:* Depending on the office development typology, some office developments may require the security of a closed campus, which would require that access to interior courtyards would be restricted to authorized employees and guests. In all cases public roads and public bicycle/pedestrian connections between parcels will be preserved.

LANDSCAPE ZONES

The large project site will afford opportunity for the establishment of expansive, character defining landscape zones. Given the overall coverage of these zones, they will be called upon to address a multitude of open space objectives by contributing to a distinctive landscape setting, accommodating various active and passive recreational activities, extending the site's green infrastructure, and communicating a commitment to sustainability. Moreover, attention to water conservation in these zones will be imperative: this will be most noticeably and effectively accomplished through a heavy reliance on native, naturalized and drought resistant plant species. *Exhibit 3-24: Landscape Zone Typologies* is suggestive of the visual character of each of the project's landscape zones.

- *Retention Basin:* The land use concept will set aside as Public Facility / Open Space the approximately 13-acre site located between SR-237 and elevated portion of Parcel 1; the intent is for the City to maintain its use as a retention basin and pump station.

- *Perimeter Landscape:* The soil embankments present a unique design challenge, occupying undevelopable property at the visible perimeters of development parcels. Landscape treatments will emphasize an attractive, naturalized edge that will minimize water

EXHIBIT 3–23: SHARED OUTDOOR SPACE TYPOLOGIES



① *Boulevard*



② *Pedestrian Concourse*





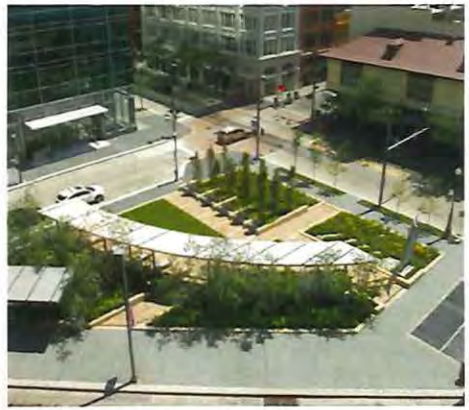
③ *Public Park Space*



④ *Mixed-use Courtyards*



⑤ *Campus Greens*



⑥ *Plazas / Small Open Spaces*

use and will transition to the surrounding environment. Landfill side slopes will remain landscaped to minimize erosion and promote stability. Plantings that draw inspiration from native plant communities will be especially encouraged, for example, establishing zones of riparian, coastal prairie, coastal shrubland, and coastal woodland species, depending on aspect, elevation and context of the slope. Specifically, the introduction of riparian plantings along the site's eastern boundary should interact with and enrich the Guadalupe River habitat as well as the site's western boundary and relationship with San Tomas Creek. These perimeters will also function as a recreational amenity, incorporating "hike and bike" paths and trails that will link into the broader trail network.

- *Campus Landscape:* Because project build-out largely proposes parking structures rather than sizable surface lots, considerable land area is expected to be freed up in the long-term for landscape areas that augment campus greens and further enhance the campus environment. The focus of these spaces will be on providing active and passive recreational use that primarily serves office workers, for example, accommodating sports courts and sports fields, as well as various ornamental gardens. Therefore, a more cultivated appearance will be typical, although utilizing native and adapted species as appropriate to harmonize with the perimeter landscape.

- *Green Roofs:* The introduction of green roofs on project buildings not only will provide a unique opportunity to extend the open space network, but also will promote site sustainability as an integral component of the project's green infrastructure. Roofs of commercial/residential buildings and parking structures may support a variety of open space functions, balancing ecological, aesthetic and recreational benefits. Key opportunities will include small-scale urban agriculture, community gardens, and aesthetically pleasing horticultural gardens. Incorporation of renewable energy photovoltaic systems may limit the extent of roofs available for landscaping. Space necessary for mechanical systems and access requirements will also be limiting factors. Among the ecological advantages of green roofs will be a reduction in stormwater runoff through rainwater harvesting, less heat absorption and reduced cooling loads, and the filtering of pollutants.

EXHIBIT 3–24: LANDSCAPE ZONE TYPOLOGIES





① *Perimeter Landscape*



② *Campus Landscape*



③ *Green Roof with Photovoltaics*

3.5 URBAN DESIGN CONCEPT

The urban design concept will emphasize community building and placemaking with the intent of achieving a high design standard throughout CityPlace. Community linkages, urban character, livability and sustainability will be key concepts that support the project's urban design and reinforce the overall vision of creating a new center of activity for Santa Clara and the region. With this in mind, a successful project will be dependent on realizing high quality site planning, architectural and landscape design.

CONCEPT SUMMARY

Working together with the land use, mobility and open space concepts, the urban design concept will establish a clear organizational structure that will bind CityPlace to its surroundings, unify its disparate parts, create an urban core, and provide nodes of activity. In doing so, the project looks to create an identifiable character derived from the active, urban character of its mixed-use core, as well as its function as a sustainable, pedestrian and transit-oriented development.

- *Community Linkages:* Project roadways, pathways, and trails will build visual and physical linkages both externally and internally. The desired external connectivity will be achieved through various off-site circulation improvements and reinforced by the proposed active transportation network that supports multi-modal movement. Internal connectivity will largely be achieved through a gridded network of pedestrian-friendly streets and a centrally located pedestrian concourse within the City Center core. Similarly, a network of local streets that readily accommodate pedestrian travel will be located internal to the office campuses, while various pedestrian access routes will link parcels.
- *Urban Character & Livability:* The proposed mix of uses and walkability will be key aspects in establishing an urban character and livability that will be most prominent in the City Center. More specifically, the density, human-scale and street orientation of buildings in the core will be major contributing factors to CityPlace's urban appeal, activating its sidewalks and comfortably framing its public spaces. Beyond the core, high quality outdoor spaces in the form of campus greens will create an attractive setting while also serving as important nodes of activity for the surrounding offices.
- *Project Identity:* A key component of successful placemaking will be to establish a clear project identity. For CityPlace, this will be accomplished through a variety of interrelated means, encompassing gateways that mark major entrances to the project; a coordinated family of wayfinding signage and environmental graphics; a unified palette of streetscape amenities; and a compelling landscape character. Additional features may include landmark buildings and civic art at strategic locations. These measures will be especially applicable to the City Center core as a major destination, whereas the office campuses will have leeway to create individual characters within the context of the overall project identity.
- *Site Sustainability:* CityPlace will incorporate sustainable design as both an integral and emblematic part of the project. This will be achieved through sustainable site planning, landscape and building design that aims to maximize resource efficiency, promoting economic vitality, and increasing the quality of life for the project's visitors and occupants. Among the more visible sustainable design measures will be the project's transit and pedestrian-oriented site layout; green building practices such as natural ventilation, shading and daylighting; and eco-sensitive landscapes that will stress the use of native and adapted species.

TABLE 3-6: URBAN DESIGN CONCEPT CONSISTENCY W/ KEY GENERAL PLAN SUSTAINABILITY POLICIES

5.3.3-P4:
Promote community events, such as farmers' markets and street festivals within the public right-of-way and on City-owned land, in order to support economic development, business retention, and healthy food options within the City.

5.3.4-P11:
Foster active, pedestrian-oriented uses at ground level, such as retail shops, offices, restaurants with outdoor seating, public plazas or residential units with front stoops, in mixed-use development.

5.8.4-P1:
Provide a comprehensive, integrated bicycle and pedestrian network that is accessible for all community members.

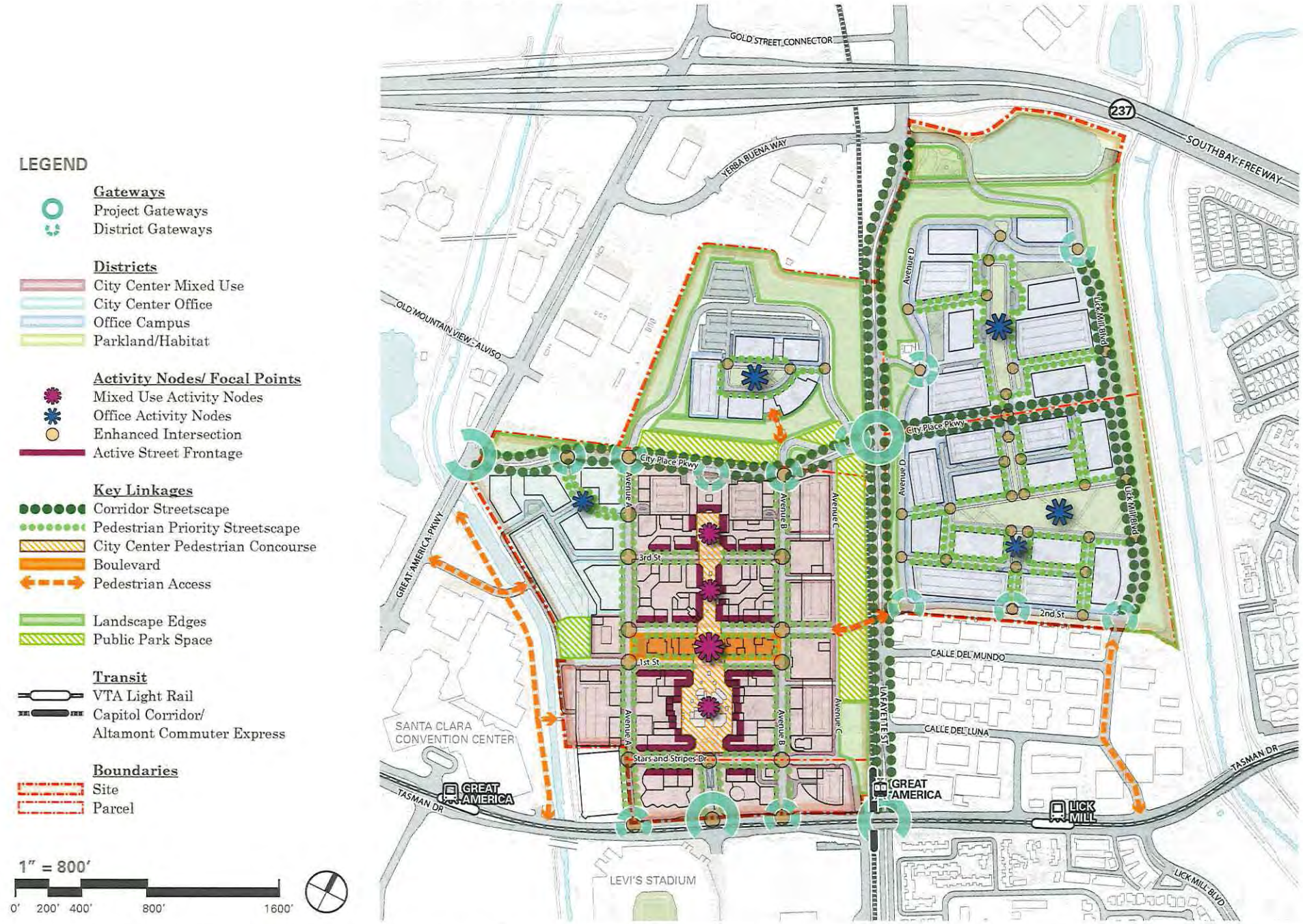
5.8.4-P5:
Design streets to include detached sidewalks with planting strips or wider, attached sidewalks with tree-wells to encourage pedestrian use and safety, as well as to remove barriers and increase accessibility.

5.8.4-P7:
Require new development to provide sidewalks, street trees and lighting on both sides of all streets in accordance with City standards, including new developments in employment areas.

5.9.1-P4:
Provide connections between private and public open space through publicly accessible trails and pathways and by orienting open spaces to public streets.

5.10.3-P2:
Encourage new development to incorporate sustainable building design, site planning and construction, including solar opportunities.

EXHIBIT 3–25: URBAN DESIGN CONCEPT*



** Plan is illustrative and subject to change. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*



Station looking north



Boulevard retail

URBAN STRUCTURE

The urban structure of CityPlace may be described according to the following components: 1) Gateways; 2) Linkages; 3) Districts; 4) Activity Nodes and Focal Points; and 5) Edges. Collectively, these elements will organize the project to create a strong visual image, focusing activity on the desired urban core; linking the various parcels physically and visually to create a unified whole; responding to the adjacent land use context and built infrastructure; and working with the existing landforms.

- *Gateways:* Entrance into the project and its various districts will be marked through a series of gateways; these may be expressed through a combination of signage and art, special landscape and lighting treatment, and/or the orientation and massing of buildings. The main project gateways will be located 1) off Great America Parkway at CityPlace Parkway; 2) off Tasman Drive at Centennial Boulevard; and 3) at the crossing of CityPlace Parkway and Lafayette Street. District-scale gateways will be recommended at district entrances via collector streets.

- *Linkages:* These will include important vehicular and pedestrian routes that will connect gateways, activity nodes and focal points, including parks. The proposed CityPlace Parkway and Lick Mill Boulevard are major vehicular corridors that will be part of the arrival sequence linking the various districts into a unified whole; this will be communicated through streetscape treatment that will include suitably scaled street trees. Pedestrian priority streets will be identified internal to each district, receiving an appropriate level of streetscape amenity, including canopy shade trees, lighting and outdoor furniture; within the City Center core, these streets will form a tight gridded network. Meanwhile, a major pedestrian spine will become the central feature of the core, supporting the highest level of activity and pedestrian flows.

- *Districts:* These will be defined by areas of like character, generally corresponding to parcel delineations and associated land use designations. The City Center Mixed-Use District will have the most urban character and support the most activity, incorporating a mix of uses that encompasses residential, retail, office and hospitality, and are knit together through a network of walkable streets. The City Center Northwest Office District will feature a more urban character than the Office Campus districts located outside of the core. The character of buildings, streetscapes, landscapes and signage will reinforce the character and identity of each district, mindful that each will contribute to the overall project identity.

- *Activity Nodes and Focal Points:* Each district will incorporate one or more activity nodes that will function as primary people gathering places and also will help to orient visitors. For the City Center Mixed-Use District, this will be comprised of a series of focal points along the pedestrian concourse, with the most important node to be located midway along the pedestrian concourse at the heart of the district; here, the adjacent streets may be temporarily closed to support major festivals and events. Within each office campus, a central campus green may serve the function of an activity node. Additionally, certain intersections may also receive special treatment that reflects their relative importance, for example with enhanced pedestrian crossings.

- *Edges:* The landscape edges resulting from the landfill embankments are highly visible and will be important in communicating both the design quality and sustainability of the project. These will primarily rely on native and adapted vegetation to create a visually attractive boundary that requires a minimum of resource inputs, with suitable design transitions to adjacent perimeter roadways and gateways.

MASSING / SPATIAL DEFINITION

CityPlace's buildings will be oriented and massed to reinforce the desired urban character and to establish a positive relationship between buildings and outdoor spaces; this will be key to activating the project's outdoor gathering spaces and to making walkable streets. Particularly in the City Center core, building orientation and massing will establish a consistent street wall along pedestrian priority streets and will define the pedestrian concourse. Additionally, active uses such as retail and food and beverage will be placed along sidewalks and will line the edges of the pedestrian concourse. Within each office campus, buildings will be encouraged to frame and orient to the internal campus greens, thereby creating a collegial atmosphere; other considerations in the placement of office buildings will include solar orientation, and views to and from the buildings.

Multi-story parking structures will be utilized extensively thought the project. For the City Center portions of the project, parking structures should be predominately located at the edges of the pedestrian district with access from perimeter roads, so to divert auto traffic away from pedestrian zones. Where parking structures face pedestrian zones they should incorporate active edges, which may include Commercial Storefronts and/or Public Amenities that enliven pedestrian experience.

EXHIBIT 3–26: CITYPLACE - VIEW LOOKING NORTH



BUILDING TYPOLOGIES

The following imagery is suggestive of an appropriate visual character for the various building types that will comprise CityPlace, including: 1) Office Typologies; 2) Retail / Entertainment Typologies; 3) Hospitality Typologies 4) Residential Typologies; and 5) Parking Typologies. The guidelines associated with each of these typologies are presented in Chapter 5 (Design Guidelines).

OFFICE TYPOLOGIES

office campus



class-A office



office tower



creative office / office loft



RETAIL / ENTERTAINMENT TYPOLOGIES

anchor retail



in-line retail



pad retail



entertainment (cinema/theater)



HOSPITALITY TYPOLOGIES

full service hotel



boutique hotel



RESIDENTIAL TYPOLOGIES

multi-family podium



mid-rise multi-family



high-rise multi-family (12 stories +/-)



service apartments



PARKING TYPOLOGIES

stand-alone magazine



stand-alone magazine (ground floor retail)



wrapped podium







CHAPTER 4



PARCEL DEVELOPMENT PLANS, STANDARDS & REQUIREMENTS

4.1 INTRODUCTION

Design standards are graphic and written principles which are to be incorporated into the design of each development block in the project area. With appropriate flexibility, they will aid in achieving a high level of design excellence.

INTRODUCTION

CityPlace will be conceived as an Urban District. As such, its development should best mimic the tendencies associated with urban growth, promoting both a diversity of building uses and expressions that are characteristic of great urban environments, while retaining unifying urban design characteristics that hold the district together. To accomplish this, emphasis will be placed on promoting the diverse and specific needs of tenants and working to craft sub-districts of synergistic uses, while working to retain the essence of the overall urban design structure. In both the diversity of creating sub districts of unique character and unity of common urban design, the overall image of CityPlace will be supported.

For the City Center, the Block Development Guidelines detailed in this chapter are intended to be used as a tool for City staff to review DAPs. The Guidelines identify planning concepts "in spirit" for the proposed block. Elements such as key frontages and entries, setbacks, general street patterns, and servicing are identified and will guide many valid approaches to development of the block. Other more specific block characteristics such as massing, general disposition of land uses, etc. will evolve as the project design is implemented, and may deviate from the illustrated block characteristics shown. Overall program, density and urban character will be maintained within the development of each parcel: however, specific program elements may move from one block to another to accommodate a variety of anticipated influencing factors, including:

- Changes in use and density, and shifts in program between blocks;
- Regulatory requirements due to landfill conditions;
- Building typology flexibility;
- Key tenant leasing accommodations;
- Districting, retail mix and locational synergies;
- Shifting anchor tenant locations; and
- Redistributing upper floor residential uses or accommodating variety in office typologies.

In such case, guidelines associated with the relocation of uses can be applied to the new locations as appropriate; however they shall be consistent with the MCP. The Guidelines are not intended to inflexibly define specific form and character requirements of the City Center blocks through the life of the project.

Outside of City Center (for the Office Parcels 1, 2, 3, and 4 Northwest) the Block Development Guidelines in this chapter are an example of a typical campus office layout found in many office developments in the vicinity (typically a multi-tenant speculative development approach). Elements such as key frontages, servicing, and parking locations are identified and valid to consider in any proposed block development scheme. However, increasingly important to the current marketplace is the ability to flexibly accommodate new working environment prototypes in response to tenant and market needs. Other approaches might be proposed in the DAP submissions, including new building typologies and campus organizations that can better accommodate a Build-to-Suit situation.

PLANS & DESIGN OBJECTIVES

The goal of the standards is to promote a visually cohesive, pedestrian-oriented, and economically viable urban community. The standards promote a clear and consistent process for parcel development. They do not mandate specific architectural styles or building materials. They do recognize the following:

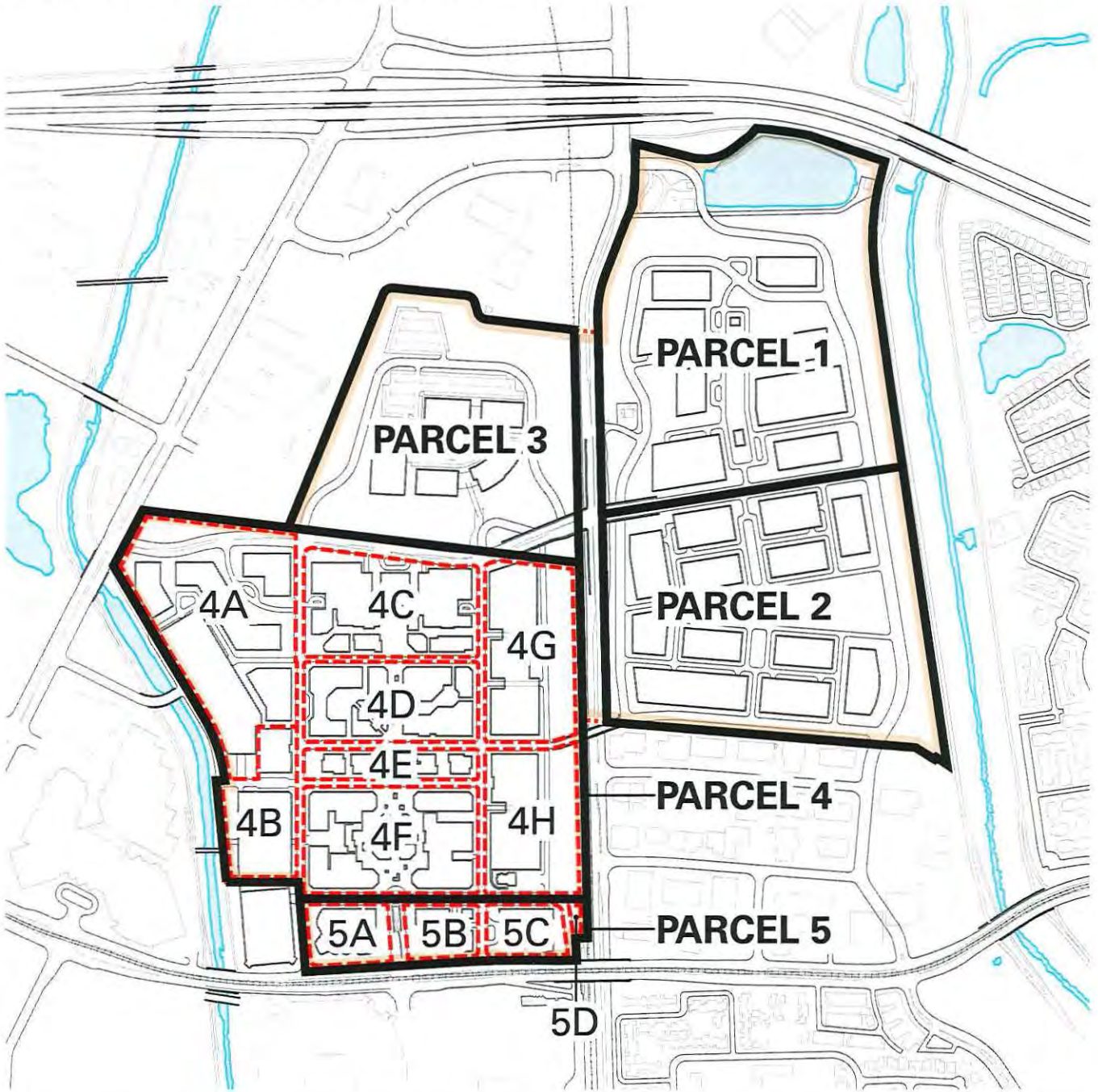
- Provide high quality development;
- Promoting a cohesive development pattern, while allowing variety in design and construction;
- Assist designers, City Staff, City Council, and developers in making consistent design choices that reinforce the project vision over time;
- Provide clarity to the design review and approval process; and
- Emphasize pedestrian connectivity through pathways, quiet spaces, and vistas.

Each development will be reviewed for compliance with the design standards, according to the Development Area Plan process outlined in Chapter 2 of this document.

DESIGN STANDARD ORGANIZATION

The sequence of future DAP submittals will depend on various factors. Therefore, the area addressed by a DAP may correspond to multiple blocks or only a portion of a block as depicted in this chapter. Each block is identified on a key plan so the designer has a logical starting point for design. The standards by block identify allowable buildings, setbacks, active frontages, parking access and other standards. In addition, the objective of the development of the block, its target program, and design objectives are provided in text form. Required design objectives are accompanied by the term "shall", while design objectives that are recommended are termed as "should" or "are encouraged". Minimum standards use the term "acceptable" or "allowable" to describe minimum required development performance. The Standards associated with each development parcel outlined in this chapter should be considered as Requirements when applied to public streets and understood as Recommendations when applied to private streets, except private streets must comply with standards related to fire, public safety and sanitation. Public and Private Street Designations are depicted in Exhibit 3-11.

EXHIBIT 4–1: PARCEL & BLOCK KEY PLAN*



** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

4.2 PARCEL 1: OFFICE CAMPUS NE

TABLE 4–1: PARCEL 1 PROGRAM*

PARCEL 1	
Primary Land Use	*Gross Area*
Office	
Office	1,200,000
TOTAL	1,200,000
AREA: 49.6 Acres	FAR: 0.75

Potential Land Use Categories Include:

Retail/F&B — *This use may be considered in the form of either standalone kiosk structures and/or as an accessory use.*

Hotel — *A potential business-oriented hotel may be considered.*

Site Coverage:

- *35 percent maximum allowable coverage (includes parking structures)*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

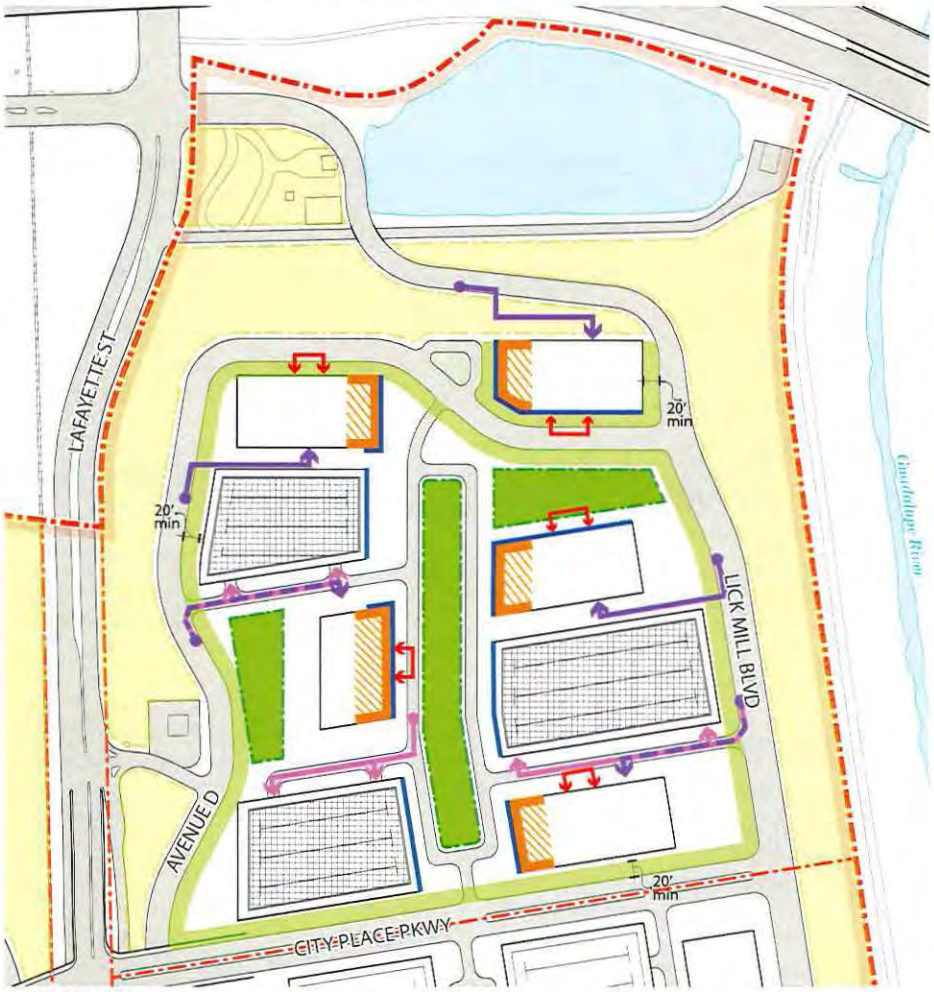
PARCEL CHARACTER

Parcel 1 will have high visibility from Highway 237 to the north, and has the potential to be a signature office campus. It will have the important function of anchoring the northeast portion of the project, and may be developed as either an open tenant office campus, a secure office campus, or as a combination of office campus types. An internal green space is envisioned within the parcel, as well as green buffers and trails surrounding the parcel.

PARCEL DEVELOPMENT DESIGN GUIDELINES

- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required around the perimeter loop road. A shared bike route is suggested within the primary road running through the parcel.
- *Active Frontages:* These are suggested within land uses other than parking structures along the interior roads. Potential retail and food and beverage uses should front the interior spine road.
- *Parking Access:* Entries to parking shall only be located off of interior streets and not primary roads. Parking can be either structured or in surface lots.
- *Open Space & Amenities:* A vehicular accessible passive recreation area is suggested in the center of the site, which should focus all the buildings around it within the parcel. A kiosk structure or structures might be provided within the central passive recreation area. An ornamental garden could be located north of the primary road. Active recreation spaces are also located within the parcel and should create connections to the central passive space. Outside of the loop road, land is significantly sloped and can provide picturesque landscape that includes trails, native habitat, etc.
- Setbacks along the perimeter loop road shall be 20' minimum from the curbline.
- *View Corridors:* View corridors should be kept open at both ends of the primary road. In the case of separate buildings, clear views should be maintained through the lobby at ground level.
- *Concealed & Exposed Parking:* Parking structures and / or lots shall be made visually attractive, either by landscaping, visual buffering, siting, artwork, or appropriate screening.
- *Building Heights:* Buildings should be moderate height (roughly three to seven stories), however, to accommodate a range of unique design solutions a maximum building height of 219' above mean sea level (msl) is established consistent with Airport Land Use Commission (ALUC) regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* These shall be located off secondary streets running perpendicular to the perimeter loop road.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

EXHIBIT 4–2: PARCEL 1 GROUND FLOOR PLAN*



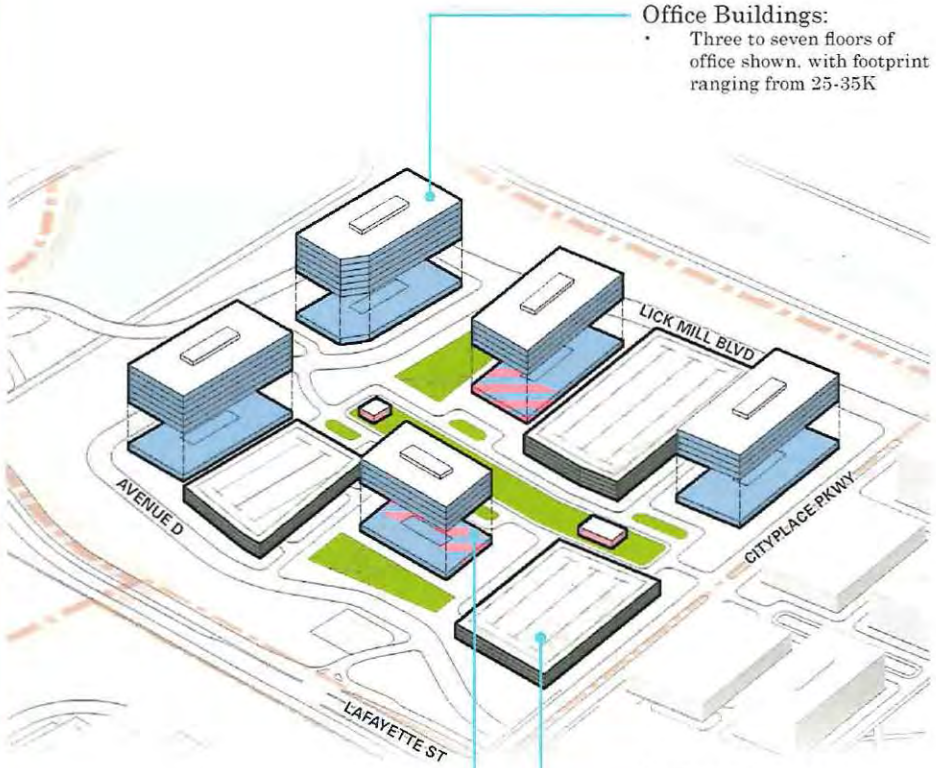
LEGEND

- Active Frontage
- Build-to-Line
- Setback From Curb
- Landscaped Open Space
- Buffer Landscape
- Parking Access
- Service Access
- Building Entrance
- Photovoltaics
- Site
- Parcel

1" = 400'

0' 100' 200' 400'

EXHIBIT 4–3: PARCEL 1 EXPLODED AXONOMETRIC VIEW*



Office Buildings:

- Three to seven floors of office shown, with footprint ranging from 25-35K

Parking Structures:

- Parcel 1 will be self-parked in a combination of structured and/or surface parking

Ground Floor:

- Campus may be oriented along a central green space
- Potential retail/food & beverage accessory uses oriented along central green space
- Active frontages, main building entrances facing inwards towards green space

LEGEND

Land Uses
- Office
- Retail or F&B
- Structured Parking
- Potential Retail/F&B
- Hotel (Potential Use)

Open Space
- Landscaped Space

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.3 PARCEL 2 (SCHEME A): OFFICE CAMPUS SE

TABLE 4–2: PARCEL 2 PROGRAM*

PARCEL 2	
Primary Land Use	*Gross Area*
Office	
Office	2,160,000
TOTAL	2,160,000
AREA: 60.9 Acres	FAR: 0.81

Potential Land Use Categories Include:

Retail/F&B — *This use may be considered in the form of either standalone kiosk structures and/or as an accessory use.*

Hotel — *A potential business-oriented hotel may be considered.*

Site Coverage:

- *35 percent maximum allowable coverage (includes parking structures)*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

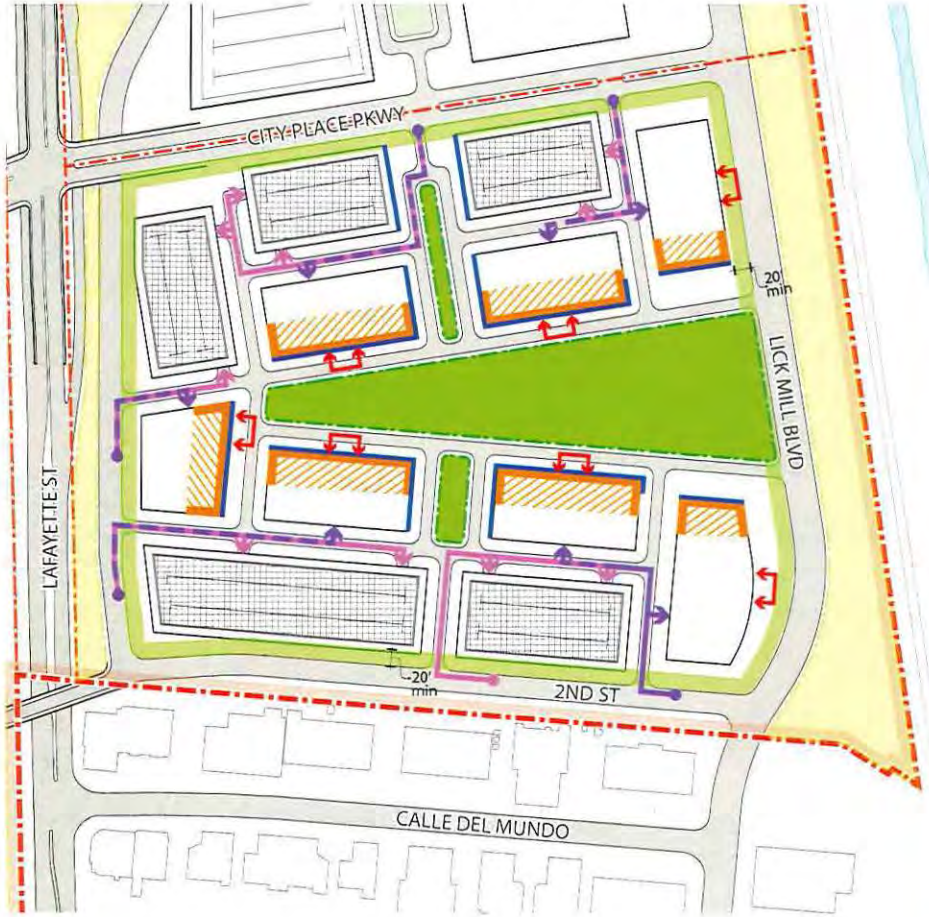
PARCEL CHARACTER

Anchoring the southeastern corner of the site, the Scheme A version of Parcel 2 is envisioned as either a signature open tenant office campus, a secure office campus, or as a combination of office campus types. There will be a green space within the parcel. Office buildings will front the green space, with major entries facing the green. Access is provided from Lick Mill Boulevard, CityPlace Parkway, 2nd Street, Lafayette Street or via transit connections further south.

PARCEL DEVELOPMENT DESIGN GUIDELINES

- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required around the perimeter loop road. A shared bike route is suggested along interior roads within the parcel.
- *Active Frontages:* These are suggested within land uses other than parking structures that front the interior open space. Potential retail and food & beverage uses should also front the open space.
- *Parking Access:* Entries to parking are located off secondary streets running perpendicular to the campus loop road. Parking may be either structured or located in surface lots.
- *Open Space & Amenities:* A multifunction recreation area is identified in the center of the site, and will have the potential to focus all the buildings around it within the parcel. A kiosk or similar structure or structures should be provided within the central recreation area, supporting recreation or accommodating retail/food & beverage as an accessory use. Outside of the loop road, land is significantly sloped and can provide a picturesque landscape that includes trails, native habitat, etc.
- Setbacks along the perimeter loop road shall be 20' minimum from the curbline.
- *View Corridors:* View corridors should be kept open at both ends of the primary open space. In the case of separate buildings, clear views should be maintained through the lobby at ground level.
- *Concealed & Exposed Parking:* Parking structures and / or lots shall be made visually attractive, either by landscaping, visual buffering, siting, artwork, or appropriate screening.
- *Building Heights:* Buildings are expected to be moderate height (roughly three to seven stories), and "read" as a campus, however, to accommodate a range of unique design solutions a maximum building height of 219' above msl is established consistent with ALUC regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* These shall be located off secondary streets running perpendicular to the campus loop road.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

EXHIBIT 4–4: PARCEL 2 GROUND FLOOR PLAN*



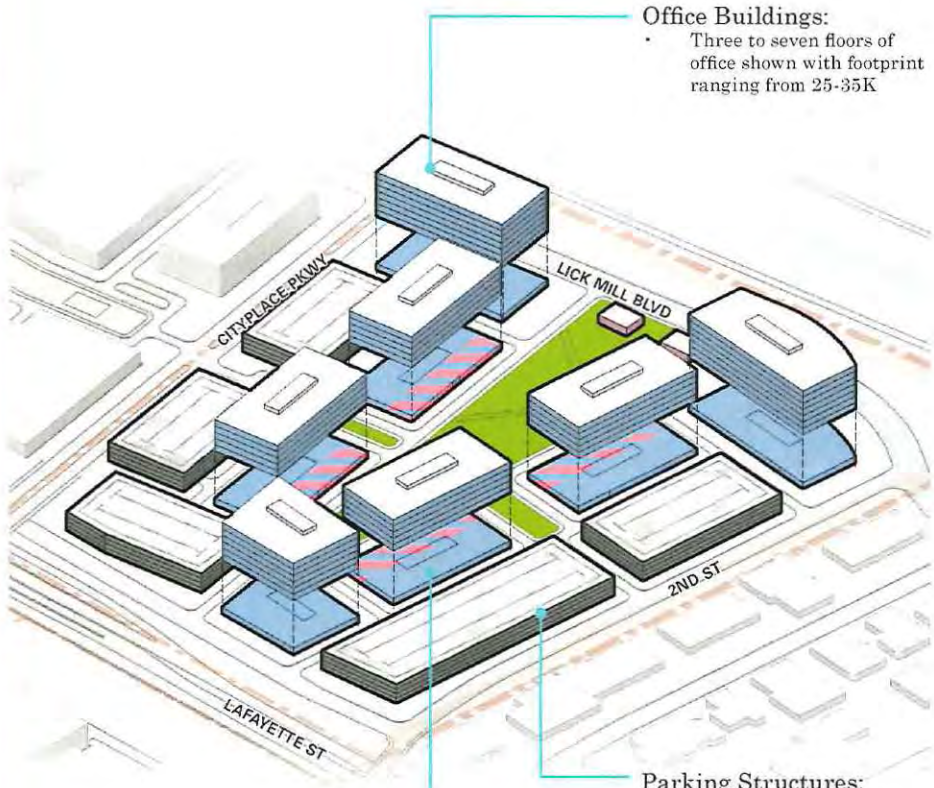
LEGEND

- Active Frontage
- Build-to-Line
- Setback From Curb
- Landscaped Open Space
- Buffer Landscape
- Parking Access
- Service Access
- Building Entrance
- Photovoltaics
- Site
- Parcel

1" = 400'

0' 100' 200' 400'

EXHIBIT 4–5: PARCEL 2 EXPLODED AXONOMETRIC VIEW*



Office Buildings:

- Three to seven floors of office shown with footprint ranging from 25-35K

Parking Structures:

- Parcel 2 will be self-parked in a combination of structured and/or surface parking

Ground Floor:

- Campus may be oriented along a central green space
- Potential retail/food & beverage accessory uses oriented along green space

LEGEND

Land Uses

- Office
- Retail or F&B
- Structured Parking
- Potential Retail/F&B
- Hotel (Potential Use)

Open Space

- Landscaped Space

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.4 PARCEL 2 (SCHEME A VARIANT): RETAIL CENTER

TABLE 4–3: PARCEL 2 (VARIANT) PROGRAM*

*PARCEL 2 - SCHEME A VARIANT	
Primary Land Use	*Gross Area*
Retail	
Anchors	260,000
Retail	259,000
TOTAL	519,000
AREA: 60.9 Acres	FAR: 0.20

Potential Land Use Categories Include:

Hotel — *A potential business-oriented hotel may be considered.*

Entertainment — *Entertainment uses, such as a cinema multiplex, may be considered.*

Site Coverage:

- *35 percent maximum allowable coverage*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

PARCEL CHARACTER

The Scheme A Variant will be a retail-oriented alternative to the office campus, and is intended to serve as a surface parked retail center with two large anchors and in-line retail, food and beverage, and entertainment. Access will remain similar to the office version of the parcel.

PARCEL DEVELOPMENT DESIGN GUIDELINES

- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required around the perimeter loop road. A shared bike route is suggested along interior roads within the parcel.
- *Active Frontages:* These are suggested along primary anchor and in-line retail entries, and along open spaces and retail/food & beverage kiosks.
- *Parking Access:* Entries to parking are required to be located off secondary streets running perpendicular to the loop road. Parking may be either structured or located in surface lots.
- *Open Space & Amenities:* Within the retail center, provision should be made for small landscaped spaces adjacent to active frontages. Outside of the loop road, land is significantly sloped and can provide picturesque landscape that includes trails, native habitat, etc.
- *Build-To Lines & Setbacks:* Build-to lines are suggested along buildings that front open spaces. Setbacks from secondary streets within the retail center shall be 15' minimum from the curbline. Setbacks along the campus loop road shall be 20' minimum from the curbline.
- *View Corridors:* Views should be kept open along the western edge of the parcel, facing the City Center. In the case of separate buildings, clear views should be maintained through the lobby at ground level.
- *Concealed & Exposed Parking:* Parking structures and / or lots shall be made visually attractive, either by landscaping, visual buffering, siting, artwork, or appropriate screening.
- *Building Heights:* Buildings are to be at the low heights expected for a retail center. In the case of an office component, office buildings should be moderate height (roughly three to seven stories), however, to accommodate a range of unique design solutions a maximum building height of 219' above msl is established consistent with ALUC regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* These shall be located off of driveways running perpendicular to the campus loop road. Servicing should take place at the back of the retail center, as identified in the plan diagram.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

EXHIBIT 4–6: PARCEL 2 (SCHEME A VARIANT) GROUND FLOOR PLAN*



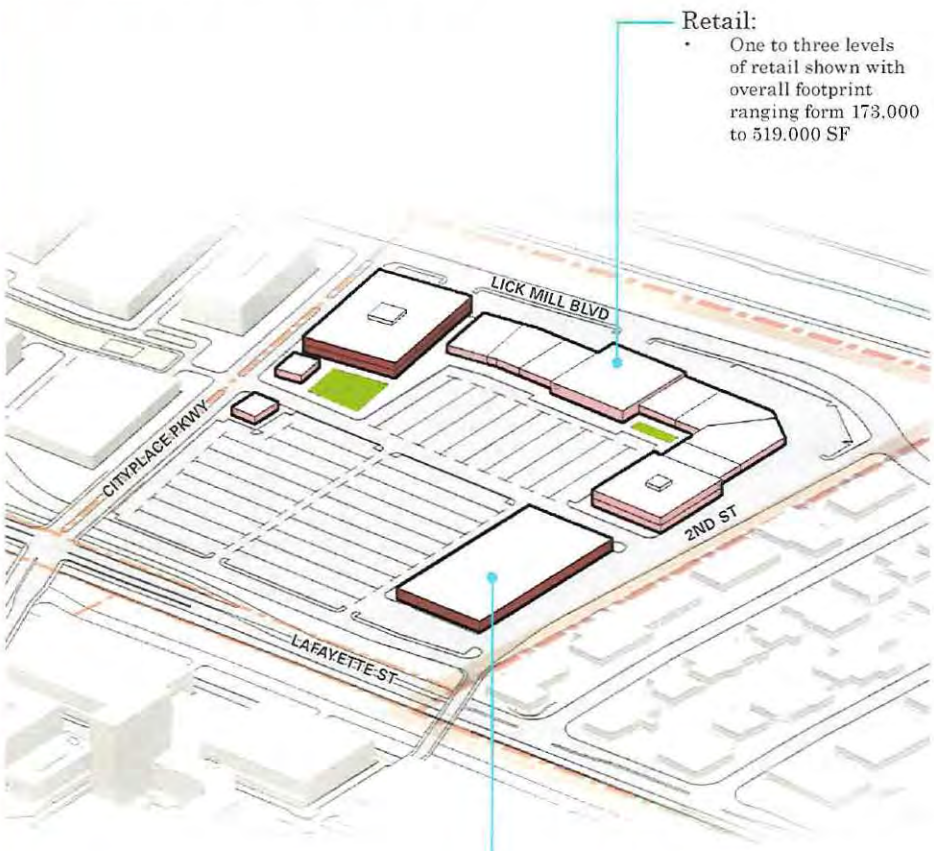
LEGEND

- Active Frontage
- Build-to-Line
- Setback From Curb
- Landscaped Open Space
- Buffer Landscape
- Parking Access
- Service Access
- Building Entrance
- Photovoltaics
- Site
- Parcel

1" = 400'

0' 100' 200' 400'

EXHIBIT 4–7: PARCEL 2 (SCHEME A VARIANT) EXPLODED AXONOMETRIC VIEW*



LEGEND

Land Uses

- Retail Anchor
- Retail or F&B
- Hotel (Potential Use)
- Entertainment (Potential Use)

Open Space

- Landscaped Open Space

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.5 PARCEL 2 (SCHEME B): OFFICE CAMPUS SE

TABLE 4–4: PARCEL 2 (SCHEME B) PROGRAM*

*PARCEL 2-SCHEME B	
Primary Land Use	*Gross Area*
Retail	
Retail	200,000
Office	
Office	1,960,000
TOTAL	2,160,000
AREA: 60.9 Acres	FAR: 0.81

Potential Land Use Categories Include:

Hotel — *A potential business-oriented hotel may be considered.*

Site Coverage:

- *35 percent maximum allowable coverage (includes parking structures)*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

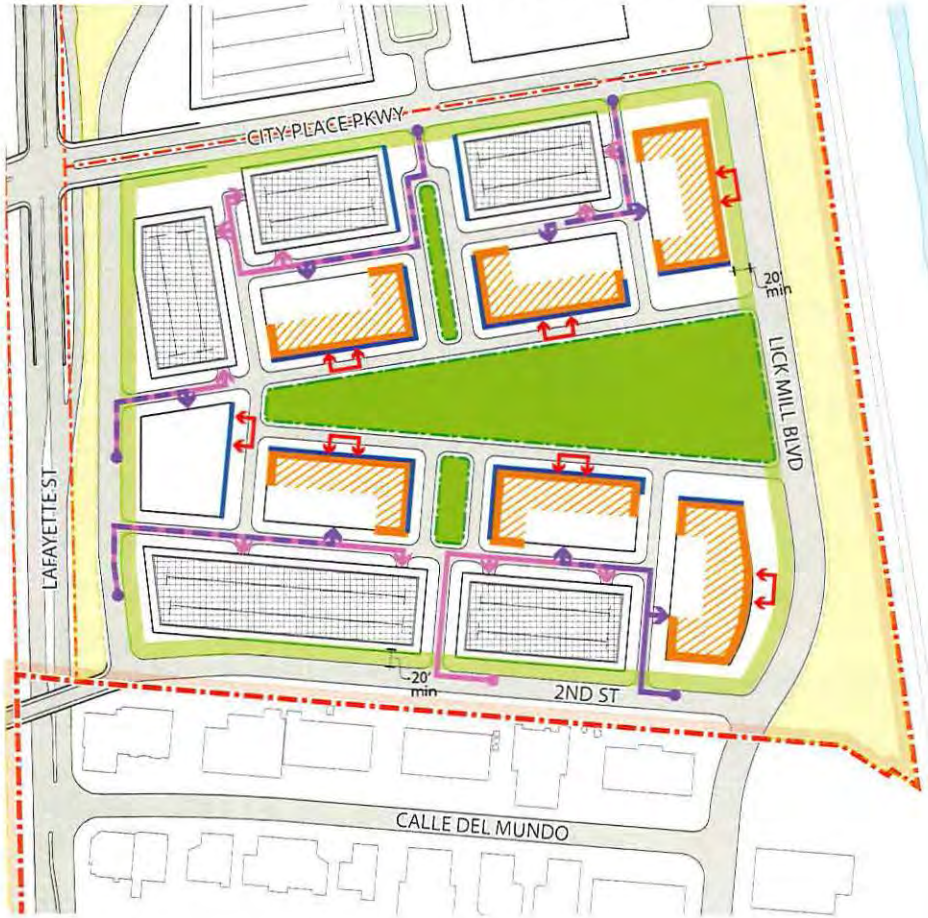
PARCEL CHARACTER

Anchoring the southeastern corner of the site, the Scheme B version of Parcel 2 is envisioned as either a signature open tenant office campus, a secure office campus, or as a combination of office campus types. There will be a green space within the parcel. The main difference between this Scheme and Scheme A will be retail buildings and smaller stand-alone food and beverage buildings that will front the green space, with major entries facing the green.

PARCEL DEVELOPMENT DESIGN GUIDELINES

- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required around the perimeter loop road. A shared bike route is suggested along interior roads within the parcel.
- *Active Frontages:* These are suggested within land uses other than parking structures that front the interior open space. Retail and food & beverage uses should also front the open space.
- *Parking Access:* Entries to parking are located off secondary streets running perpendicular to the campus loop road. Parking may be either structured or located in surface lots.
- *Open Space & Amenities:* An accessible multifunction recreation area is identified in the center of the site, and could focus all the buildings around it within the parcel. A kiosk structure or structures might be provided within the central recreation area to support recreation or accommodate retail/food & beverage. Outside of the loop road, land is significantly sloped and can provide a picturesque landscape that includes trails, native habitat, etc.
- *Build-To Lines & Setbacks:* Build to lines are suggested to follow the interior open space and also along adjacent streets fronting open spaces. Setbacks along the perimeter loop road should be 20' minimum from the curbline.
- *View Corridors:* View corridors should be kept open at both ends of the primary open space. In the case of separate buildings, clear views should be maintained through the lobby at ground level.
- *Concealed & Exposed Parking:* Parking structures and /or lots shall be made visually attractive, either by landscaping, visual buffering, siting, or appropriate screening.
- *Building Heights:* Buildings are expected to be moderate height (roughly two to seven stories), and "read" as a campus, however, to accommodate a range of unique design solutions, a maximum building height of 219' above msl is established consistent with ALUC regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* These shall be located off secondary streets running perpendicular to the campus loop road.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

EXHIBIT 4–8: PARCEL 2(SCHEME B) GROUND FLOOR PLAN*



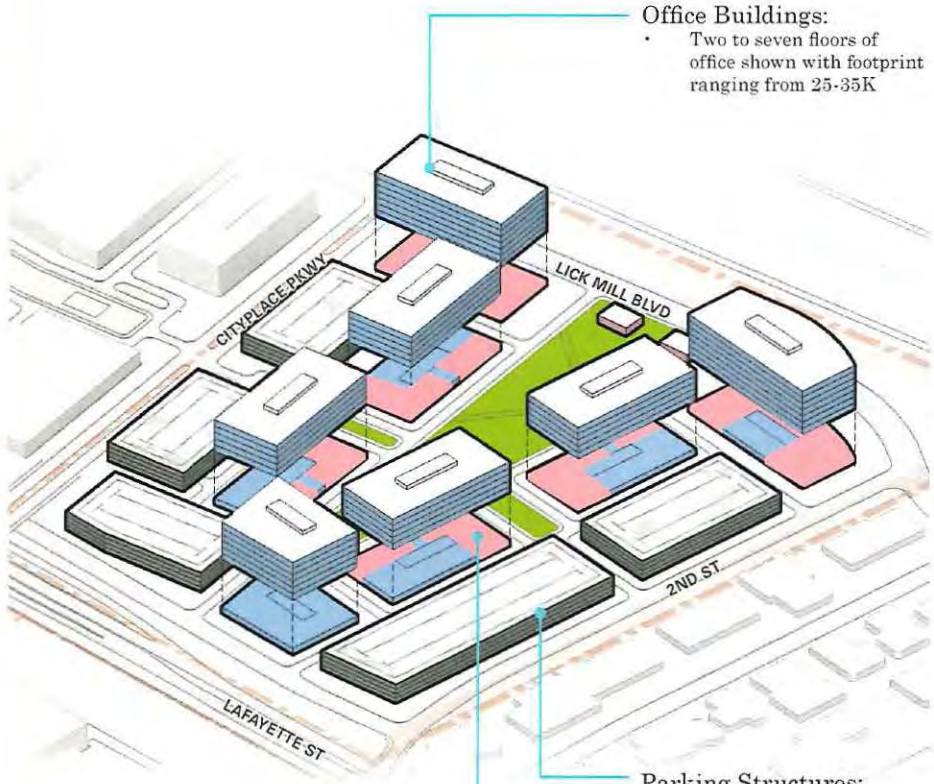
LEGEND

- Active Frontage
- Build-to-Line
- Setback From Curb
- Landscaped Open Space
- Buffer Landscape
- Parking Access
- Service Access
- Building Entrance
- Photovoltaics
- Site
- Parcel

1" = 400'

0' 100' 200' 400'

EXHIBIT 4–9: PARCEL 2(SCHEME B) EXPLODED AXONOMETRIC VIEW*



LEGEND

Land Uses

- Office
- Retail or F&B
- Structured Parking
- Hotel (Potential Use)

Open Space

- Landscaped Open Space

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.6 PARCEL 3: OFFICE CAMPUS NW

TABLE 4–5: PARCEL 3 PROGRAM*

PARCEL 3	
Primary Land Use	*Gross Area*
Office	
Office	720,000
TOTAL	720,000
AREA: 34.9 Acres	FAR: 0.47

Potential Land Use Categories Include:

Retail/F&B — *This use may be considered in the form of either standalone kiosk structures and/or as an accessory use.*

Hotel — *A potential business-oriented hotel may be considered.*

Site Coverage:

- *25 percent maximum allowable coverage (includes parking structures)*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

PARCEL CHARACTER

With high visibility from Highway 237 to the north and anchoring the northwestern portion of the project, this parcel will have high potential as either a signature open tenant office campus, a secure office campus, or as a combination of office campus types. An internal green space is envisioned as a central gathering area within the parcel, as well as green buffers and trails surrounding the parcel. A loop road will serve surface and structured parking areas shared between several buildings on the site.

PARCEL DEVELOPMENT DESIGN GUIDELINES

- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*). A pedestrian stair that connects the campus to the City Center is also suggested.
- *Bicycle Circulation:* Dedicated bike lanes are required around the perimeter loop road. A shared bike route is suggested along interior roads within the parcel.
- *Active Frontages:* These are suggested within land uses other than parking structures that front the interior open space. Potential retail and food & beverage uses should also front the open space.
- *Parking Access:* Entries to parking are to be located off secondary streets or driveways running perpendicular to the campus loop road. Parking may be either structured or located in surface lots.
- *Open Space & Amenities:* An accessible passive open space is identified in the center of the site, and will focus all the buildings around it within the parcel. A kiosk or similar structure or structures may be provided within the central recreation area, supporting recreation or accommodating retail/food and & beverage as an accessory use. Outside of the loop road, land is significantly sloped and can provide picturesque landscape that includes trails, native habitat, etc. The southern edge of Parcel 3 has frontage along a potential park dedication identified as North Park in this document. Connections to this park and possible extension of it up to the useable development area should be considered. Topographic conditions may make this challenging, but potential exists for an exercise stair that could connect active recreation opportunities below and on top.
- Setbacks shall be 20' minimum from the curbline.
- *View Corridors:* A dual access view corridor could be kept open along the central open space. In the case of separate buildings, clear views should be maintained through the lobby at ground level.
- *Concealed & Exposed Parking:* Parking structures and /or lots should be made visually attractive, either by landscaping, visual buffering, siting, artwork, or appropriate screening.
- *Building Heights:* Buildings are expected to be moderate height (roughly three to seven stories) and "read" as a campus; however, to accommodate a range of unique design solutions, a maximum building height of 219' above msl is established consistent with ALUC regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Access:* These shall be located off secondary streets or driveways running perpendicular to the campus loop road.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

EXHIBIT 4–10: PARCEL 3 GROUND FLOOR PLAN*



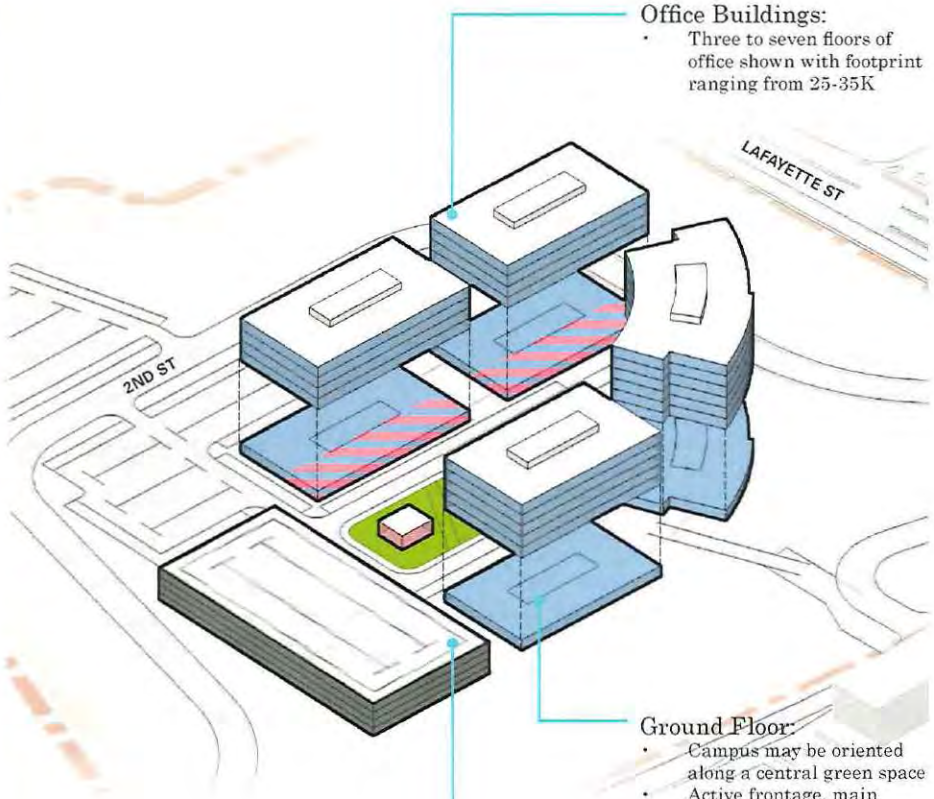
LEGEND

- Active Frontage
- Build-to-Line
- Setback From Curb
- Landscaped Open Space
- Buffer Landscape
- Parking Access
- Service Access
- Building Entrance
- Photovoltaics
- Site
- Parcel

1" = 300'

0' 75' 150' 300'

EXHIBIT 4–11: PARCEL 3 EXPLODED AXONOMETRIC VIEW*



Office Buildings:

- Three to seven floors of office shown with footprint ranging from 25-35K

Ground Floor:

- Campus may be oriented along a central green space
- Active frontage. main building entrances may be located along the 2nd Street ring road or facing inwards
- Potential retail/food & beverage accessory uses oriented along central green space

Parking Structures:

- Parcel 3 will be self-parked in a combination of surface and structured parking

LEGEND

Land Uses
- Office
- Retail or F&B
- Structured Parking
- Potential Retail/F&B
- Hotel (Potential Use)

Open Space
- Landscaped Open Space

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.7 BLOCK 4A: CITY CENTER NW OFFICE ZONE

TABLE 4–6: BLOCK 4A PROGRAM*

BLOCK 4A	
Primary Land Use	*Gross Area*
Office	
Office	1,185,400
TOTAL	1,185,400
AREA: 19.4 Acres	FAR: 1.40

Potential Land Use Categories Include:

Retail/F&B — *This use may be considered in the form of either standalone kiosk structures and/or as an accessory use.*

Hotel — *A potential business-oriented hotel may be considered.*

Site Coverage:

- *55 percent maximum allowable coverage (includes parking structures)*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

BLOCK CHARACTER

As the gateway block at the northwestern boundary of Parcel 4, the site is bounded by Great America Parkway and CityPlace Parkway as well as San Tomas Aquino Creek. It is envisioned as either a signature open tenant office campus, a secure office campus, or as a combination of land uses. Block 4A buildings will share a parking structure along the western boundary of the block that will need to be sensitively buffered.

BLOCK DEVELOPMENT DESIGN GUIDELINES

- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required along Avenue A, and off street bike paths are required along CityPlace Parkway and San Tomas Aquino Creek.
- *Active Frontages:* These are suggested along Avenue A. Potential retail and food & beverage uses should also front Avenue A.
- *Parking Access:* Entries to parking shall be located off secondary streets running perpendicular to CityPlace Parkway and Avenue A. Parking may be either structured or located in surface lots.
- *Open Space & Amenities:* Small, distributed mini parks or landscaped areas or a large passive open space are suggested for the center of the block. A kiosk structure or structures may be provided within these spaces. In addition, linear open spaces or landscaped areas are suggested along CityPlace Parkway and Avenue A. A linear open space or buffering is recommended along the frontage of San Tomas Aquino Creek.
- *Public Park:* This block includes a landscaped open space that may become a public park identified as West Park. Depending of the amount of dedicated active park space needed to support residential uses on adjacent uses, this park may accommodate an amphitheater and children's play space for various age groups. The minimum size for this park is one acre (to qualify as residential active open space).
- *Build-To Lines & Setbacks:* Build to lines are suggested to follow the corner of CityPlace Parkway and Avenue A. There shall be a 15' minimum setback from the Avenue A curbline, as well as a 20' minimum setback from the CityPlace Parkway curbline, and the block boundary fronting San Tomas Aquino Creek.
- *Buffers:* A 20' landscape buffer shall be kept open along the western edge of the block, fronting San Tomas Aquino Creek.
- *Concealed & Exposed Parking:* Parking structures and /or lots should be made visually attractive, either by landscaping, visual buffering, siting, artwork, or appropriate screening. Special design attention shall be given to parking structure facade fronting the San Tomas Aquino Creek.
- *Building Heights:* Buildings are expected to be moderate height (roughly three to seven stories) and "read" as a campus, however, to accommodate a range of unique design solutions a maximum building height of 219' above msl is established consistent with ALUC regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* These shall be located off secondary streets or driveways running perpendicular to CityPlace Parkway or Avenue A.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

EXHIBIT 4–12: BLOCK 4A GROUND FLOOR PLAN*



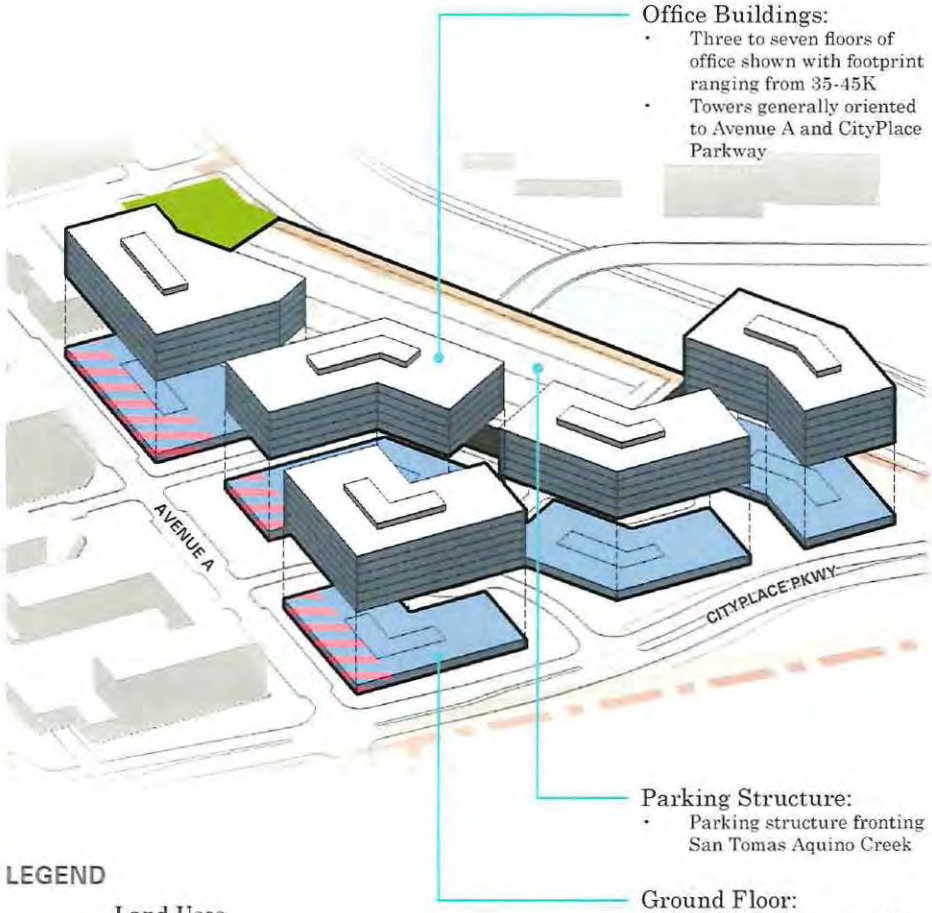
LEGEND

- Active Frontage
- Build-to-Line
- Setback From Curb
- Landscaped Open Space
- Buffer Landscape
- Parking Access
- Service Access
- Building Entrance
- Photovoltaics
- Site
- Parcel

1" = 300'

0' 75' 150' 300'

EXHIBIT 4–13: BLOCK 4A EXPLODED AXONOMETRIC VIEW*



LEGEND

Land Uses
- Office
- Structured Parking
- Potential Retail/F&B
- Hotel (Potential Use)

Open Space
- Landscaped Open Space

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.8 BLOCK 4B: CITY CENTER WEST

BLOCK CHARACTER

A dense mixed-use block that will act as a western boundary of City Center abutting the San Tomas Aquino Creek and Santa Clara Convention center to the west, the City parking structure to the south, and the core of the City Center to the East. Residential buildings will wrap the block and parking structures.

BLOCK DEVELOPMENT DESIGN GUIDELINES

- *Block Composition:* Bisected by 1st Street, Block 4B may be composed of a northern building (retail anchor), and a southern building (podium residential with ground floor retail).
- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required along Avenue A and 1st Street, and off street bike paths are required along the San Tomas Aquino Creek frontage. A bicycle parking/share facility is recommended within this block.
- *Active Frontages:* These are required along the majority of the 1st Street and Avenue A frontages. .
- *Parking Access:* Parking will be provided internal to the block and may include an attached connection to the City Parking structure to the south. Entries to the podium parking structure are recommended to be located off of Avenue A and 1st Street.
- *Open Space & Amenities:* A generous landscaped open space buffer shall be located along the western edge of the podium building, fronting San Tomas Aquino Creek. The podium building, if developed as residential, should provide an amenity deck to its tenants.
- *Build-To Lines & Setbacks:* Build to lines are suggested to follow the Avenue A frontage of the retail anchor, as well as the corner of Avenue A and 1st Street. There shall be a 15' minimum setback from the Avenue A and 1st Street curblines, as well as a 20' minimum setback from the block boundary or the driveway curbline fronting San Tomas Aquino Creek.
- *View Corridors:* A view corridor should be kept open along the western edge of the block, fronting San Tomas Aquino Creek.
- *Concealed & Exposed Parking:* The podium building should conceal parking structures along its north and east frontages. Parking shall be visually attractive, including landscaping, visual buffering, siting, artwork, or appropriate screening.
- *Building Heights:* The northern anchor is expected to be less than 80' in height. The southern building is expected to be at a moderate height to incorporate a parking structure and wrapped residential buildings above, however, to accommodate a range of unique design solutions, a maximum building height of 219' above msl is established consistent with ALUC regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* Service entries for both buildings may be located perpendicular to 1st Street, as shown in the plan. Servicing for the retail anchor may partially or entirely take place within the block 4A parking structure.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

TABLE 4–7: BLOCK 4B PROGRAM*

BLOCK 4B		
Primary Land Use	*Units*	*Gross Area*
Residential		
Residential	540 units	443,000
Retail		
Anchors		120,000
F&B		5,500
Retail		10,500
TOTAL		579,000
AREA: 6.1 Acres	FAR: 2.18	

Potential Land Use Categories Include:

Office — *In-lieu of the residential podium, there is potential to reprogram the block as creative office over retail, or as an office tower.*

Site Coverage:

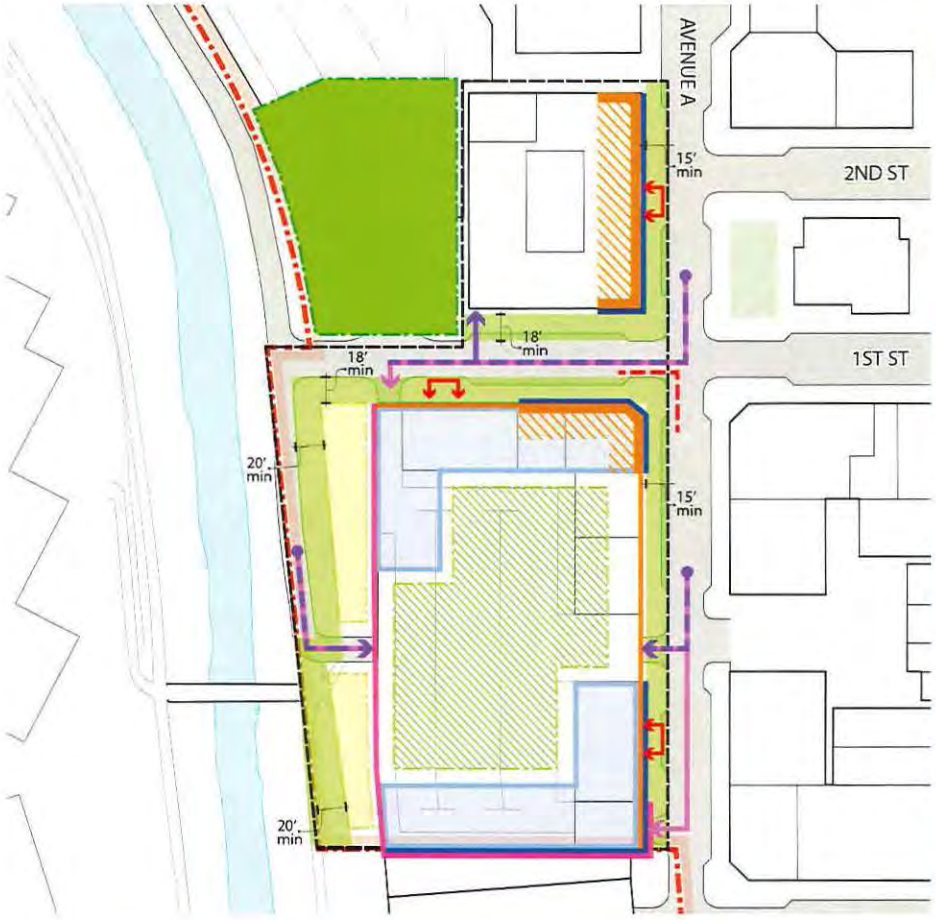
- *75 percent maximum allowable coverage (includes parking structure)*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

EXHIBIT 4–14: BLOCK 4B GROUND FLOOR PLAN*



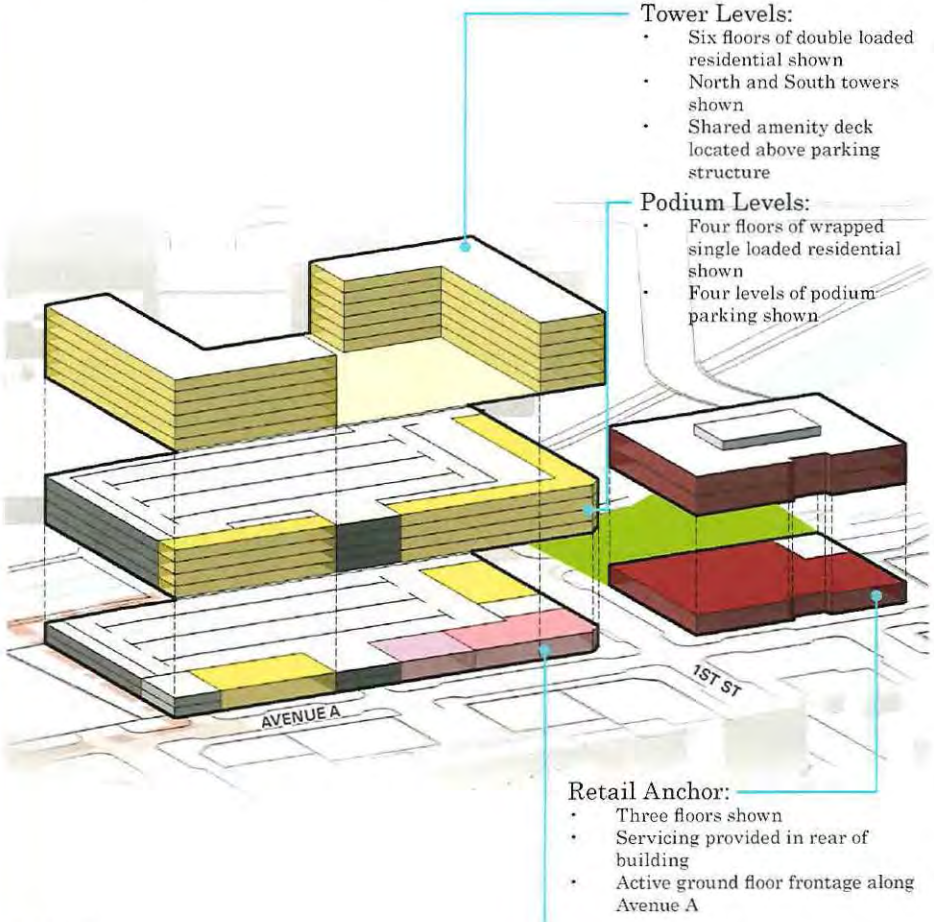
LEGEND

- Active Frontage (primary)
- Active Frontage (secondary)
- Build-to-Line
- Setback From Curb
- Landscaped Open Space
- Buffer Landscape
- Parking Access
- Service Access
- Building Lobby Entrance
- Roof Deck Open Space
- Parking Structure Exposure
- Preferred Podium Location
- Corner Focus
- Site
- Block

1" = 200'

0' 50' 100' 200'

EXHIBIT 4–15: BLOCK 4B EXPLODED AXONOMETRIC VIEW*



LEGEND

Land Uses

- Residential
- Retail Anchor
- Retail
- Food & Beverage (F&B)
- Structured Parking / Service
- Office (Potential Use)

Open Space

- Landscaped Open Space
- Amenity Deck

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.9 BLOCK 4C: DESIGN DISTRICT

TABLE 4–8: BLOCK 4C PROGRAM*

BLOCK 4C		
Primary Land Use	*Units*	*Gross Area*
Residential		
Residential	500 units	450,000
Retail		
Anchors		75,000
F&B		20,000
Retail		93,000
Office		
Office		81,000
TOTAL		719,000
AREA: 10.6 Acres	FAR: 1.56	

Site Coverage:

- *60 percent maximum allowable coverage (includes parking structures)*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

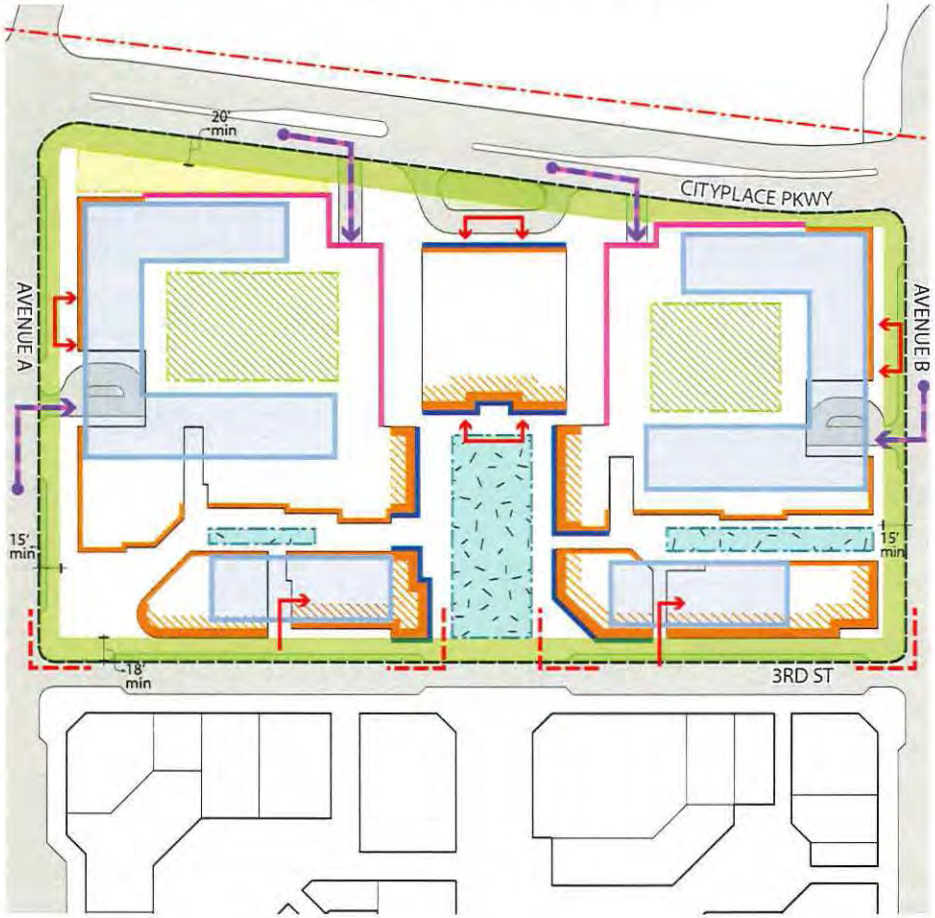
BLOCK CHARACTER

Acting as the northern terminus to the primary north/south commercial axis through the City Center, this block will accommodate a variety of mixed-use including an anchor retailer, ground floor active uses fronting all major streets, and upper story offices and residential towers filling out the perimeter of the block.

BLOCK DEVELOPMENT DESIGN GUIDELINES

- *Block Composition:* The block is intended to be divided into east and west sides, anchored in the center by a retail anchor and a central open space.
- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required along Avenue A and CityPlace Parkway and bike routes are required along 3rd Street and Avenue B.
- *Active Frontages:* These are required along the majority of 3rd Street, Avenue A, and Avenue B frontages, as well as within the paseo spaces and the anchor forecourt. Frontages are expected to be most intensively active along the promenade and along 3rd Street.
- *Parking Access:* Parking access shall be provided primarily along CityPlace Parkway, though access to parking may be provided along Avenue A and Avenue B.
- *Open Space & Amenities:* A network of outdoor spaces organizes the internal block with one primary forecourt and two secondary courtyards interconnected with active pedestrian passages. An open space buffer is recommended along CityPlace Parkway. If developed as residential, both podium buildings should provide an amenity deck to its tenants.
- *Build-To Lines & Setbacks:* Build-to lines are suggested to follow the shape of the retail anchor forecourt. There shall be a 15' minimum setback from the Avenue A and Avenue B curblines, and an 18' minimum setback from the 3rd Street curbline. A 20' minimum setback from the CityPlace Parkway curbline is also required.
- *View Corridors:* A view corridor should be oriented north/south, terminating at the retail anchor.
- *Concealed & Exposed Parking:* The podium building should conceal parking structures along its south, east, and west frontages. Measures to conceal parking shall be visually attractive, and may include landscaping, visual buffering, siting, artwork, or appropriate screening.
- *Building Heights:* Podium buildings are expected to be at a moderate height and should incorporate a parking structure with residential or office buildings above, however, to accommodate a range of unique design solutions a maximum building height of 219' above msl is established consistent with ALUC regulations. Retail/food & beverage buildings should be of low height, not to exceed two to three stories, and should consider active retail uses on ground and and possibly upper levels. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* Should be located along CityPlace Parkway.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

EXHIBIT 4–16: BLOCK 4C GROUND FLOOR PLAN*



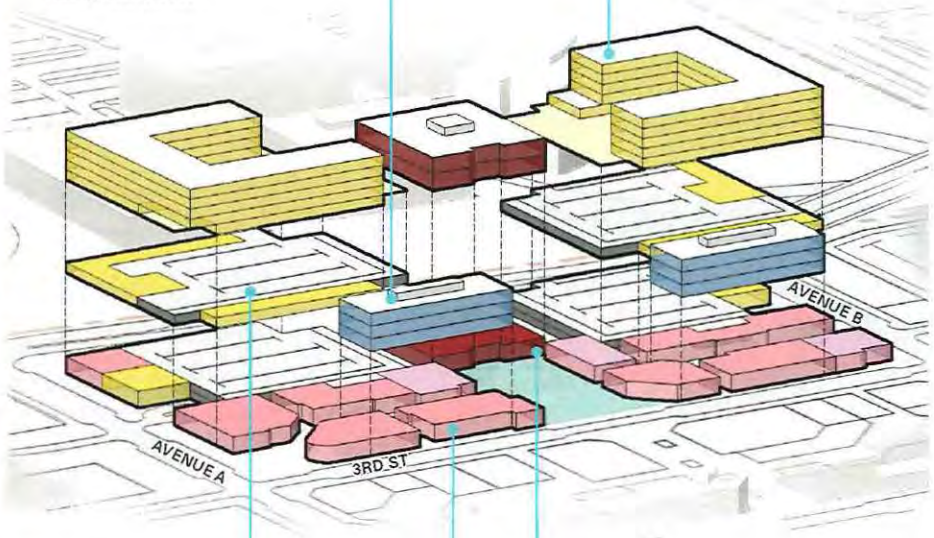
LEGEND

- Active Frontage (primary)
- Active Frontage (secondary)
- Build-to-Line
- Setback From Curb
- Plaza / Paseo
- Buffer Landscape
- Parking Access
- Service Access
- Building Lobby Entrance
- Roof Deck Open Space
- Parking Structure Exposure
- Preferred Podium Location
- Corner Focus
- Site
- Block

1" = 200'

0' 50' 100' 200'

EXHIBIT 4–17: BLOCK 4C EXPLODED AXONOMETRIC VIEW*



Office:
- East and west buildings
- Three levels of creative office provided along 3rd Street shown
- Primary entrances provided on ground floor along 3rd Street

Residential Podium:
- East and west buildings
- Six residential floors shown
- Shared amenity deck located above parking structure

Podium Level:
- East and west podiums
- 1 floor of single loaded residential wrapped around parking level shown

Sub-Anchor:
- Three floors shown
- Active ground floor frontage north facing CityPlace Parkway and south facing forecourt

Ground Floor:
- Active frontages along Avenue A. 3rd Street. and Avenue B
- Southern portion features in-line retail facing street and within east and west pedestrian paseos
- Parking structure entrances along CityPlace Parkway
- Residential lobbies along Avenue A and Avenue B

LEGEND

Land Uses
- Podium Residential
- Retail Anchor
- Retail
- Food & Beverage (F&B)
- Office
- Structured Parking / Service

Open Space
- Plaza
- Amenity Deck

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.10 BLOCK 4D: HOTEL & LIVE/ WORK DISTRICTS

TABLE 4–9: BLOCK 4D PROGRAM*

BLOCK 4D		
Primary Land Use	*Units*	*Gross Area*
Residential		
Residential	290 units	395,000
Hotel		
Hotel	300 keys	341,500
Retail		
F&B		58,500
Retail		184,500
TOTAL		979,500
PARCEL AREA: 8.6 Acres	FAR: 2.61	

Potential Land Use Categories Include:

Office — *There is potential to reprogram the residential or hotel blocks as creative office over retail, or as an office tower.*

Entertainment — *Entertainment uses, such as a cinema multiplex or smaller venues, may be considered.*

Site Coverage:

- *60 percent maximum allowable coverage*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

BLOCK CHARACTER

At the core of the City Center, this block will straddle the primary pedestrian promenade running north to south through the City Center. Retail/food & beverage uses will form the block along the ground plane with internal courtyards. The block will include two towers (hotel and residential) on the northern boundary facing 3rd Street.

BLOCK DEVELOPMENT DESIGN GUIDELINES

- *Block Composition:* The block is envisioned to be divided into east and west sides, with a western luxury hotel block and an eastern residential block subject to alternative approaches consistent with the overall intent of the plan.
- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required along Avenue A and 2nd Street, and bike routes are required along 3rd Street and Avenue B.
- *Active Frontages:* These are required along the majority of street frontages, as well as within internal courtyards and along the north/south pedestrian promenade. Frontages are expected to be most intensively active along the promenade and along 2nd Street and 3rd Street.
- *Parking Access:* There are no parking structures recommended for Block 4D. Access to parking is shared in adjacent structures. The hotel and residential component may provide limited parking spaces.
- *Open Space & Amenities:* A network of outdoor spaces organizes the block with a primary north/south promenade space and two secondary courtyards interconnected with active pedestrian passages. Both hotel and residential blocks should provide an amenity deck to tenants or guests.
- *Build-To Lines & Setbacks:* Build-to lines are suggested to follow the north/south pedestrian promenade. There shall be a 15' minimum setback from the Avenue A and Avenue B curblines, and an 18' minimum setback from 3rd Street and 2nd Street curblines.
- *View Corridors:* A view corridor should be oriented north/south along the pedestrian promenade.
- *Building Heights:* Proposed towers located on this block shall be no taller than 219' above mean sea level. Podium buildings are expected to be at a moderate height; however, to accommodate a range of unique design solutions a maximum building height of 219' above msl is established consistent with ALUC regulations. Retail/food & beverage buildings should be of low height, not exceed two to three stories, and should contain active retail uses on ground levels and consider them on upper levels. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* Loading docks should be located along 3rd Street. Avenue A and Avenue B may provide locations for valet/drop-off service.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

EXHIBIT 4–18: BLOCK 4D GROUND FLOOR PLAN *



LEGEND

- Active Frontage (primary)
- Active Frontage (secondary)
- Build-to-Line
- Setback From Curb
- Landscaped Open Space
- Plaza / Paseo
- Service Access
- Building Lobby Entrance
- Preferred Podium Location
- Preferred Tower Location
- Corner Focus
- Block

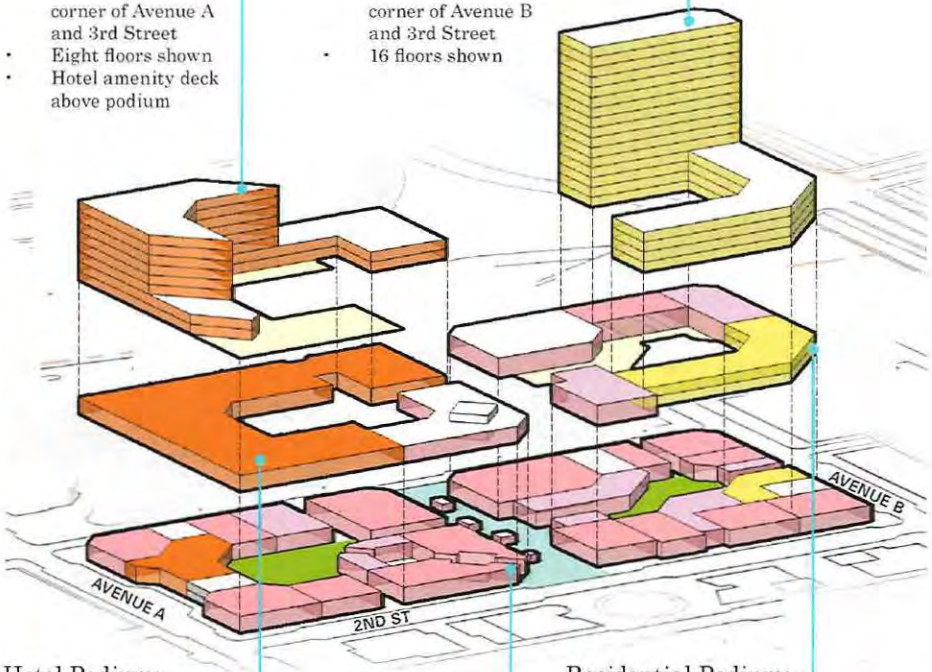
1" = 200'

0' 50' 100' 200'

EXHIBIT 4–19: BLOCK 4D EXPLODED AXONOMETRIC VIEW*

Hotel Tower:
- Tower situated on corner of Avenue A and 3rd Street
- Eight floors shown
- Hotel amenity deck above podium

Residential Tower:
- Tower situated at corner of Avenue B and 3rd Street
- 16 floors shown



Hotel Podium:
- 1 floor of luxury hotel facilities shown

Residential Podium:
- One floor of retail/food & beverage and two floors of residential shown
- Provision for residential amenity deck

Ground Floor:
- North/south pedestrian street bisects block
- Active frontages along all four sides, pedestrian street, and east and west courtyards
- Hotel lobby provided along Avenue A; residential lobby along and Avenue B

LEGEND

Land Uses
- Hotel
- Residential
- Retail
- Food & Beverage (F&B)
- Structured Parking / Service
- Office (Potential Use)
- Entertainment (Potential Use)

Open Space
- Plaza
- Landscaped Open Space
- Amenity Deck

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.11 BLOCK 4E: BOULEVARD

TABLE 4–10: BLOCK 4E PROGRAM*

BLOCK 4E	
Primary Land Use	*Gross Area*
Retail	
F&B	32,000
Retail	39,000
TOTAL	71,000
PARCEL AREA: 3.2 Acres	FAR: 0.50

Site Coverage:

- *35 percent maximum allowable coverage*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

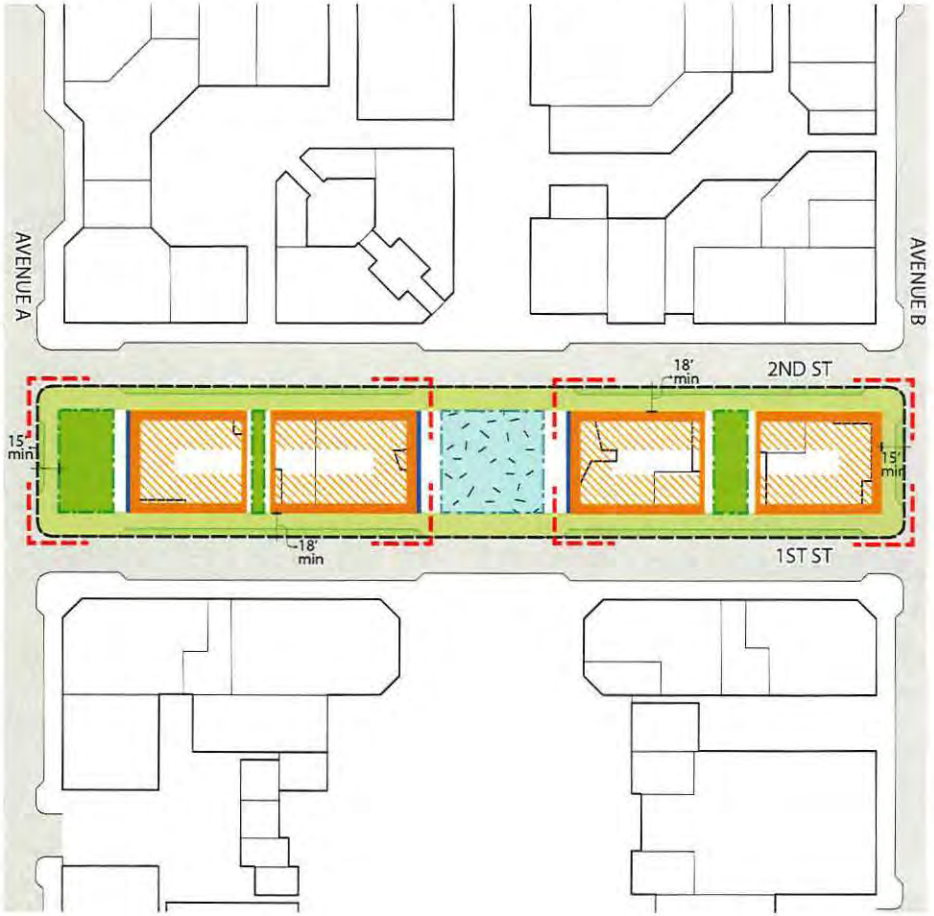
BLOCK CHARACTER

The central activity space of the City Center, this block will include four retail / food & beverage kiosks as well as a central multi-function event plaza, which could incorporate a major landscape component and/or art feature. Each kiosk could include an outdoor seating area.

BLOCK DEVELOPMENT DESIGN GUIDELINES

- *Block Composition:* The block is intended to be divided into east and west sides, each containing two retail/ food & beverage kiosks.
- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required along Avenue A and 2nd Street, and bike routes are required along 1st Street and Avenue B.
- *Active Frontages:* These are suggested along all street frontages, as well as within internal courtyards and along the north/south pedestrian promenade. Frontages are expected to be most intensively active along the promenade and along 2nd Street and 3rd Street.
- *Parking Access:* There are no parking structures recommended for Block 4E. Access to parking is shared in adjacent structures.
- *Open Space & Amenities:* A network of outdoor spaces organizes the block with a primary north/south promenade space and a landscaped open space (landscaped and furnished park-like areas) on the western end of the block. The wide sidewalks envisioned for this block should include a variety of linear open space features, as well as outdoor seating, especially in between each kiosk.
- *Build-To Lines & Setbacks:* Build-to lines are suggested to follow the north/south pedestrian promenade, as well fronting the western open space. There shall be a 15' minimum setback from the Avenue A and Avenue B curblines, and an 18' minimum setback from the 2nd Street and 1st Street curblines.
- *View Corridors:* A view corridor should be preserved through the center of the block that orients north/south along the pedestrian promenade.
- *Building Heights:* Retail/food & beverage buildings should not exceed two to three stories, and should consider active retail uses on ground and upper levels. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* Loading docks are not required, and retail and food & beverage uses may be serviced from the surrounding streets.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

EXHIBIT 4–20: BLOCK 4E GROUND FLOOR PLAN*



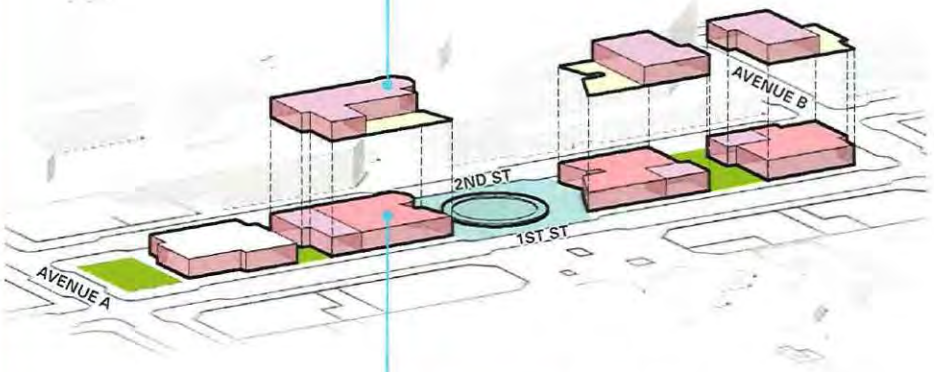
LEGEND

- Active Frontage (primary)
- Active Frontage (secondary)
- Build-to-Line
- Setback From Curb
- Landscaped Open Space
- Plaza / Paseo
- Corner Focus
- Block

1" = 200'

0' 50' 100' 200'

EXHIBIT 4–21: BLOCK 4E EXPLODED AXONOMETRIC VIEW*



Second floor:

- Outdoor terraces provided for food & beverage uses shown

Ground Floor:

- Four retail/food & beverage kiosks shown
- Hardscaped plaza/paseos divide block; landscaped space on west end
- Active frontages along all four sides and along central plaza

LEGEND

Land Uses

- Retail
- Food & Beverage (F&B)
- Structured Parking / Service

Open Space

- Plaza/Paseo
- Landscaped Open Space

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.12 BLOCK 4F: CITY CENTER STATION DISTRICT

TABLE 4–11: BLOCK 4F PROGRAM*

BLOCK 4F	
Primary Land Use	*Gross Area*
Retail	
F&B	99,500
Retail	298,000
Entertainment	
Entertainment	257,500
Office	
Office	120,000
TOTAL	775,000
AREA: 11.5 Acres	FAR: 1.55

Potential Land Use Categories Include:

Retail/F&B *Additional retail may be considered in the form of standalone kiosk structures within the central courtyard.*

Site Coverage:

- *60 percent maximum allowable coverage*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

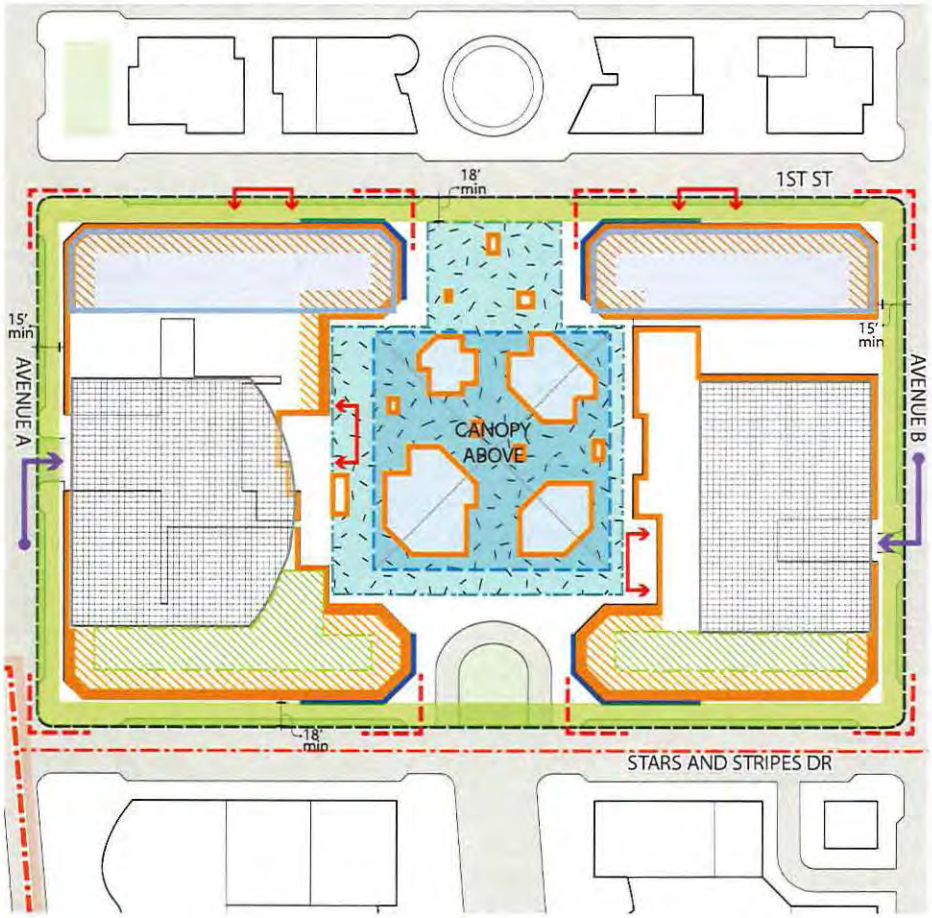
BLOCK CHARACTER

Serving as the entertainment core of the City Center, this block will be broken into two distinct halves with a central plaza in between. Terraces and other carefully designed spaces will create a variety of internal gathering areas combined with movable kiosks and seating areas. Ground floor active uses will line all major streets as well as the central internal courtyard. An overhead canopy may be accommodated in the plaza that will provide some protection from the elements, while increasing visual interest.

BLOCK DEVELOPMENT DESIGN GUIDELINES

- *Block Composition:* The block is intended to be divided into east and west sides, with large entertainment venues fronting a potential central covered space.
- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required along Avenue A. Bike routes are required along 2nd Street, Stars & Stripes Drive, and Avenue B.
- *Active Frontages:* These are required along the majority of street frontages, as well as within the central courtyard space and along the north/south pedestrian promenade. Frontages are expected to be most intensively active along the promenade and courtyard, and along 1st Street.
- *Parking Access:* There are no parking structures recommended for block 4F. Access to parking is shared in adjacent parking structures. Limited short-term parking may be located within service areas fronting Avenue A and Avenue B. Pedestrian access to the below surface grade parking, located at the southern portion of the block, may be provided.
- *Open Space & Amenities:* The primary north/south promenade space should act as the central organizing element. The promenade should expand into an open court, potentially covered by a canopy and/or canopies. Retail kiosks should complement the courtyard. Retail, food & beverage, or entertainment uses may provide an amenity terrace to their tenants or guests.
- *Build-To Lines & Setbacks:* Build-to lines are suggested to follow the corners framing the north/south pedestrian promenade. There shall be a 15' minimum setback from the Avenue A and Avenue B curblines, and an 18' minimum setback from the 1st Street and Stars & Stripes Drive curblines.
- *View Corridors:* A view corridor should be oriented north/south along the pedestrian promenade.
- *Building Heights:* Podium buildings are expected to be at a moderate height; however, to accommodate a range of unique design solutions a maximum building height of 219' above msl is established consistent with ALUC regulations. Retail/food & beverage buildings should be of low height, not exceed two to three stories, and shall consider active retail uses on ground levels and possibly upper levels. If entertainment uses are placed above retail, the overall height shall not exceed 219' in compliance with ALUC regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* Loading docks should be located mid-block along Avenue A and Avenue B. A central location along Stars & Stripes Drive may provide a drop-off area for taxis, buses, and other services, as shown in the plan diagram.
- Trash and mechanical equipment shall be screened from view along the public and private street r-o-w.

EXHIBIT 4–22: BLOCK 4F GROUND FLOOR PLAN*



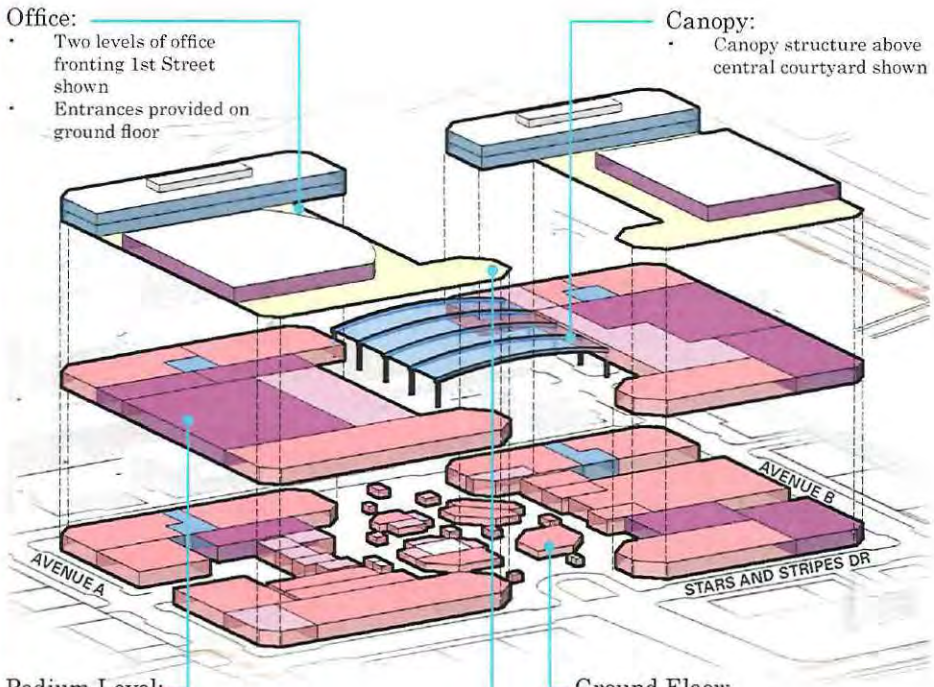
LEGEND

- Active Frontage (primary)
- Active Frontage (secondary)
- Build-to-Line
- Setback From Curb
- Plaza / Paseo
- Service Access
- Building Lobby Entrance
- Photovoltaics
- Roof Deck Open Space
- Preferred Podium Location
- Corner Focus
- Site
- Block

1" = 200'

0' 50' 100' 200'

EXHIBIT 4–23: BLOCK 4F EXPLODED AXONOMETRIC VIEW*



LEGEND

Land Uses
- Entertainment
- Retail
- Food & Beverage (F&B)
- Structured Parking / Service

Open Space
- Amenity Deck

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.13 BLOCK 4G: CITY CENTER EAST

BLOCK CHARACTER

Located along the eastern boundary of the City Center, the block will provide important support uses for the rest of the core, and will include a potential market, supporting retail, and significant parking structures to the north and south.

BLOCK DEVELOPMENT DESIGN GUIDELINES

- *Block Composition:* This block is suggested to be composed of a potential food market, supporting retail, as well as two large parking structures that serves this and adjacent blocks.
- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required along 2nd Street and CityPlace Parkway. Bike routes are required along Avenue B and 2nd Street.
- *Active Frontages:* These are proposed along Avenue B and the southwest corner of the block. The frontage of the retail uses may be most intensive in character.
- *Parking Access:* Access to the parking structure is provided from Avenue B and Avenue C.
- *Open Space & Amenities:* A landscape buffer is required as part of the CityPlace Parkway setback and a landscape buffer is suggested along Avenue C. The area between Avenue C and the UP railroad tracks is part of a PG&E utility easement that will be utilized as open space and possibly dedicated as a public park identified as part of East Park in *Exhibit 3-23.* and discussed in Chapters 3.2 and 3.4. The park will accommodate a bike and hike trail and may also support other active uses if this space is utilized for park land dedication required for residential development. Once the CityCenter residential program is confirmed, specific active use accommodation can be determined and shall be described in the DAP submission.
- *Build-To Lines & Setbacks:* Build-to lines are suggested along the market frontage, which terminates 3rd Street. There shall be a 15' minimum setback along the Avenue B curbline, an 18' minimum setback from the 2nd Street curbline, and a 20' minimum setback along the CityPlace Parkway curbline.
- *Building Heights:* Retail anchors are suggested to be no taller than 80', while parking structures should be no taller than 100', however, to accommodate a range of unique design solutions, a maximum building height of 219' above msl is established consistent with ALUC regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* Loading dock entrances should be located along Avenue C, as shown in the plan diagram.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

TABLE 4–12: BLOCK 4G PROGRAM*

BLOCK 4G	
Primary Land Use	*Gross Area*
Retail	
F&B	45,000
Retail	32,500
TOTAL	77,500
AREA: 5.3 Acres	FAR: 0.34

Potential Land Use Categories Include:

Residential — *A residential podium component may be located above the parking structure.*

Retail/F&B — *A retail anchor may be considered in-lieu of the market.*

Site Coverage:

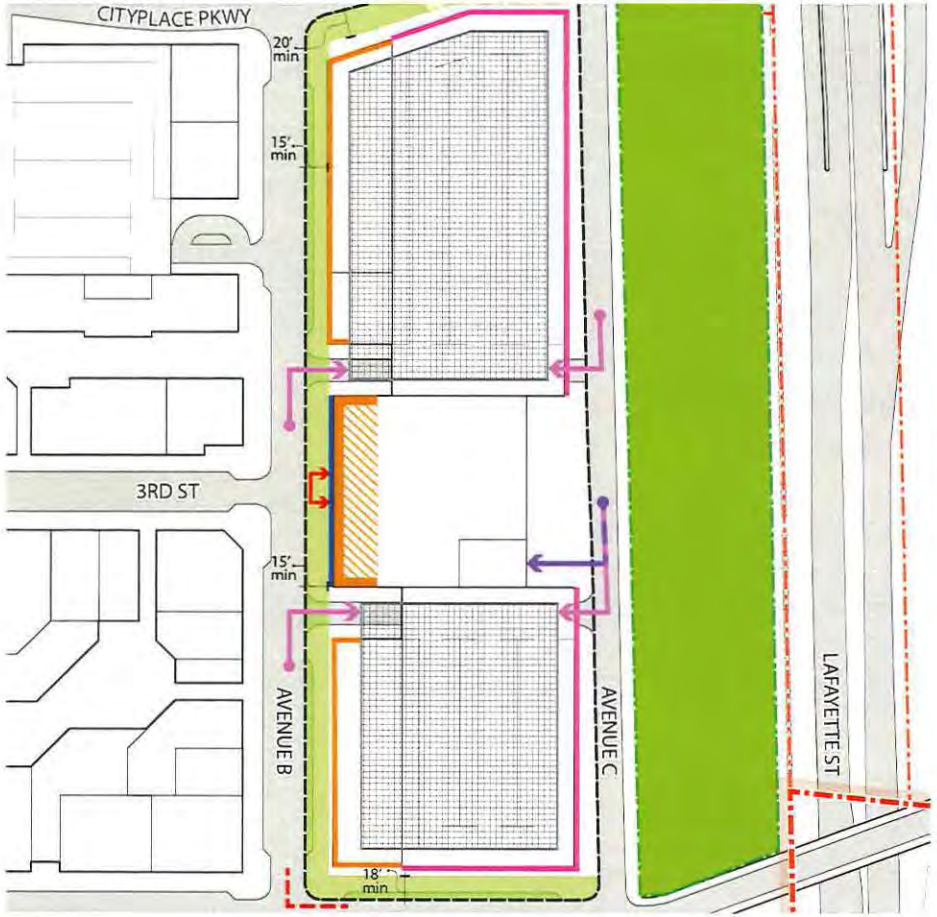
- *75 percent maximum allowable coverage (includes parking structures)*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

EXHIBIT 4–24: BLOCK 4G GROUND FLOOR PLAN*



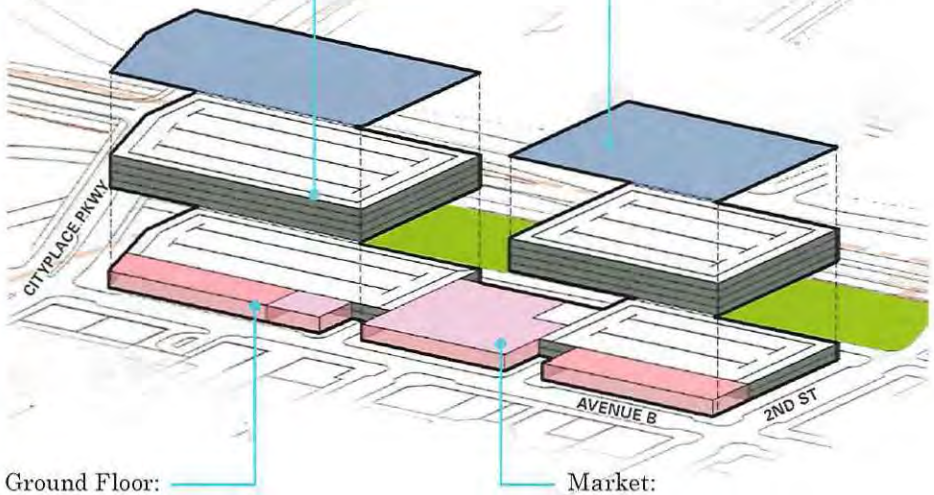
LEGEND

- Active Frontage (primary)
- Active Frontage (secondary)
- Build-to-Line
- Setback From Curb
- Landscaped Open Space
- Buffer Landscape
- Parking Access
- Service Access
- Building Lobby Entrance
- Photovoltaics
- Parking Structure Exposure
- Corner Focus
- Site
- Block

1" = 200'

0' 50' 100' 200'

EXHIBIT 4–25: BLOCK 4G EXPLODED AXONOMETRIC VIEW*



LEGEND

Land Uses
- Retail
- Food & Beverage (F&B)
- Structured Parking / Service
- Residential (Potential Use)

Open Space
- Roof-mounted Photovoltaics
- Landscaped Open Space

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.14 BLOCK 4H: CITY CENTER SOUTHEAST

TABLE 4–13: BLOCK 4H PROGRAM*

BLOCK 4H	
Primary Land Use	*Gross Area*
Retail	
Anchors	165,000
F&B	25,000
Retail	12,500
TOTAL	202,500
AREA: 6.4 Acres	FAR: 0.72

Potential Land Use Categories Include:

Residential *A residential podium component may be located above the parking structure.*

Site Coverage:

- *75 percent maximum allowable coverage (includes parking structures)*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*



KEY

BLOCK CHARACTER

This block will include a large retail anchor, supporting in-line retail, and food & beverage. A large parking structure will serve this and surrounding parcels of the City Center. An existing firehouse along the southern boundary may be incorporated into the design of the block.

BLOCK DEVELOPMENT DESIGN GUIDELINES

- *Block Composition:* This block is suggested to be composed of a large retail anchor, supporting food & beverage, as well as a large parking structure that services this and surrounding blocks.
- *Pedestrian Circulation:* Sidewalks are required along all public (City maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*).
- *Bicycle Circulation:* Dedicated bike lanes are required along 2nd Street. Bike routes are required along Avenue B and Stars & Stripes Drive. A bicycle parking/share facility is recommended within the parking structure.
- *Active Frontages:* These are required along Avenue B and the northwest corner of the block. The frontage of the retail anchor may be most intensive in character. The continued presence of the fire station may preclude active frontages along the southwest corner of the block and along Stars & Stripes Drive.
- *Parking Access:* Access to the parking structure is provided along Avenue B and Avenue C.
- *Open Space & Amenities:* The retail anchor may choose to provide a terraced open space above ground level. A landscape buffer is suggested along Avenue C. The area between Avenue C and the UPRR tracks is part of a PG&E utility easement that will be utilized as open space and possibly dedicated as a public park identified as part of East Park in *Exhibit 3-23*, and discussed in Chapters 3.2 and 3.4. The park will accommodate a bike and hike trail and may also support other active uses if this space is utilized for park land dedication required for residential development. Once the CityCenter residential program is confirmed, specific active use accommodation can be determined and shall be described in the DAP submission.
- *Build-To Lines & Setbacks:* Build-to lines are suggested along the retail anchor, framing the central Boulevard to the west. There shall be a 15' minimum setback from the Avenue B curbline, and an 18' minimum setback from the 2nd Street and Stars & Stripes Drive curblines.
- *Building Heights:* Retail anchors are suggested to be no taller than 80', while parking structures should be no taller than 100'; however, to accommodate a range of unique design solutions a maximum building height of 219' above msl is established consistent with ALUC regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* Loading dock entrances should be located along Avenue C. Existing entrances to the fire station are located along Stars & Stripes Drive.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

STATION AREA DESIGN GUIDELINES

- Parcel 4H sits adjacent to the existing Capital Corridor/ ACE Great America Station and should be integrated with its operations by connecting Stars & Stripes Drive to the existing shuttle bus loading plaza. Stars & Stripes Drive should ramp up as it leaves the existing station curb frontage at a 5 percent slope to maintain accessibility for users of all abilities and mobility levels.

- With inclusion of the New Tasman Drive/Avenue C Intersection in Variant 2, the relocation of Stars & Stripes Drive and the extension of Avenue C would allow for an enhanced transit plaza with a new vehicle turn around just beyond the northern end of the station, which would provide room for an additional six transit bus loading positions.

- Further enhancements to Great America station could be considered as part of a Station Area Master Plan that VTA has proposed. Adapting to the Station Area Project as it progresses through its future design stages, Parcel 4H design should respond to station needs, enhancing the transit and pedestrian/bicycle connectivity to/from the Station.

- The Station Area Project Master Plan may encompass area within the CityPlace development boundary and other city owned properties outside of the existing Station Area. Specific station improvements may also be identified in a separate Deficiency Plan/Multimodal Improvement Plan (MIP), which is identified as a Mitigation Measure in the EIR.

EXHIBIT 4–26: BLOCK 4H GROUND FLOOR PLAN*

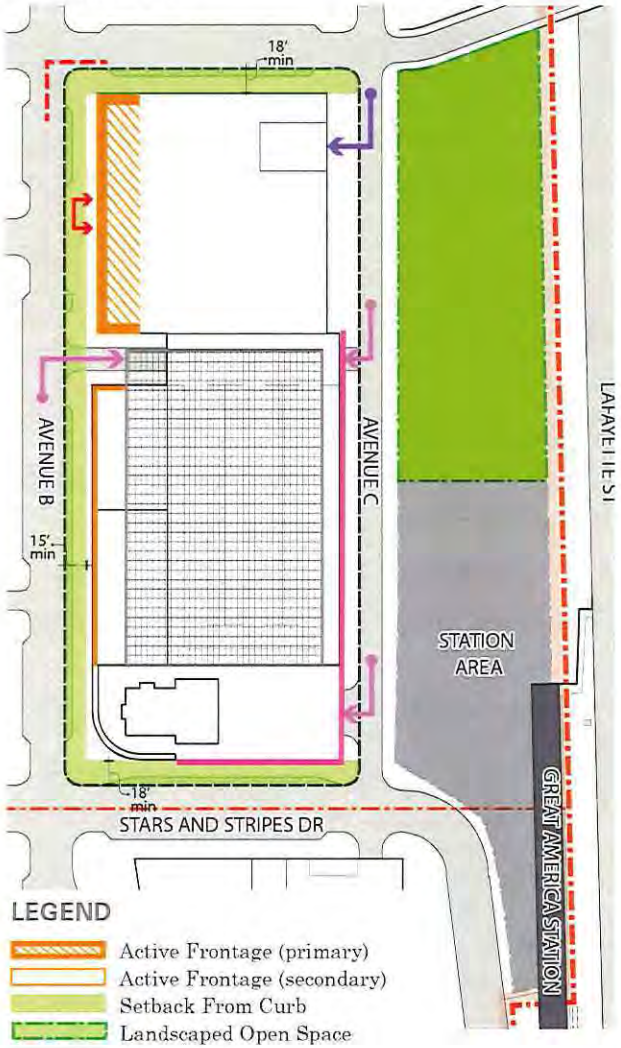
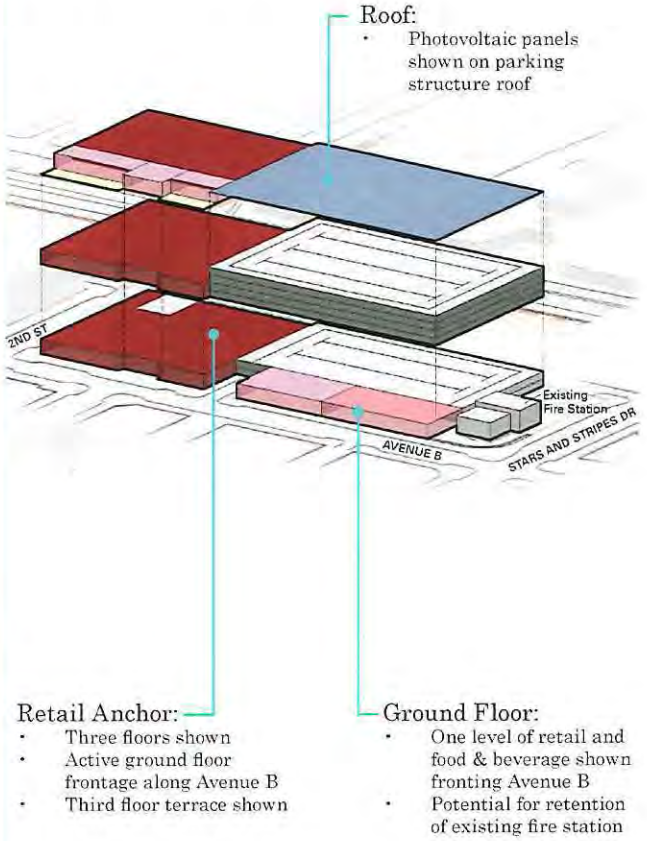


EXHIBIT 4–27: BLOCK 4H EXPLODED AXONOMETRIC VIEW*



** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.15 BLOCK 5A: GATEWAY OFFICE

BLOCK CHARACTER

Facing Tasman Drive and Levi's Stadium to the south as well as Centennial Boulevard to the east, this block will be a component of the City Center, acting as a gateway, as well as both a vehicular and pedestrian connection into and out of the City Center. A significant potential office tower will front Avenue A, with ground floor retail and food & beverage filling out the majority of the block. Multi-level storefronts acting as product showcases facing Tasman Drive are also appropriate uses. A significant setback is envisioned along Tasman Drive for outdoor dining and augmented landscape elements.

BLOCK DEVELOPMENT DESIGN GUIDELINES

- *Block Composition:* This block is suggested to be composed of a potential office tower block, incorporating multi-level retail and food & beverage. The block is located above a substantial underground parking structure.
- *Pedestrian Circulation:* Sidewalks are required along all public (city maintained) roads and recommended along private roads (as illustrated in *Exhibit 3-11: Public and Private Streets* and *Exhibit 3-20: Pedestrian Network*). Generous pedestrian amenities and provisions for outdoor dining are suggested along Tasman Drive and Centennial Boulevard.
- *Bicycle Circulation:* Dedicated bike lanes are required along Tasman Drive and Avenue A. Bike routes are required along Centennial Boulevard and Stars & Stripes Drive.
- *Active Frontages:* These are required along the majority of Tasman Drive, Centennial Boulevard, and Stars & Stripes Drive. The frontages along Tasman Drive and Centennial Boulevard are expected to be most intensive in character.
- *Parking Access:* Access to the underground parking structures is provided at the Centennial Boulevard median and internal to the block along Stars & Stripes Drive.
- *Open Space & Amenities:* Wide setbacks along Tasman Drive and Centennial Boulevard shall accommodate generous landscaping. Office or retail tenants may provide an amenity deck or terrace above the retail podium.
- *Build-To Lines & Setbacks:* Build-to lines are suggested at the northeast corner of the block, framing the north/south pedestrian axis. There shall be a 20' minimum setback from the Centennial Boulevard curbline and a 30' minimum setback from the Tasman Drive curbline, in order to accommodate high pedestrian flows, significant landscaping, and outdoor dining. In addition, there shall be a 15' minimum setback from the Avenue A curbline, and an 18' minimum setback along the Stars & Stripes Drive curbline.
- *Building Heights:* Proposed towers located on this block have a maximum building height of 219' above msl consistent with ALUC regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* Loading dock entrances should be located along Stars & Stripes Drive, as shown in the plan diagram.
- *Multiple Tenant Signage:* Allow the ability for multiple office tenants to integrate their signage on facades and roof, subject to City review and approval as part of the Development Area Plan process.
- Trash and mechanical equipment shall be screened from view along the public and private street r-o-w.

TABLE 4–14: BLOCK 5A PROGRAM*

BLOCK 5A	
Primary Land Use	*Gross Area*
Retail	
F&B	10,000
Retail/Product Showcase	60,000
Office	
Office	282,000
TOTAL	352,000
AREA: 3.3 Acres	FAR: 2.42

Potential Land Use Categories Include:

Residential — *A residential tower may be considered in-lieu of the office tower.*

Hotel — *A hotel may be considered in-lieu of the office tower.*

Site Coverage:

- *70 percent maximum allowable coverage*

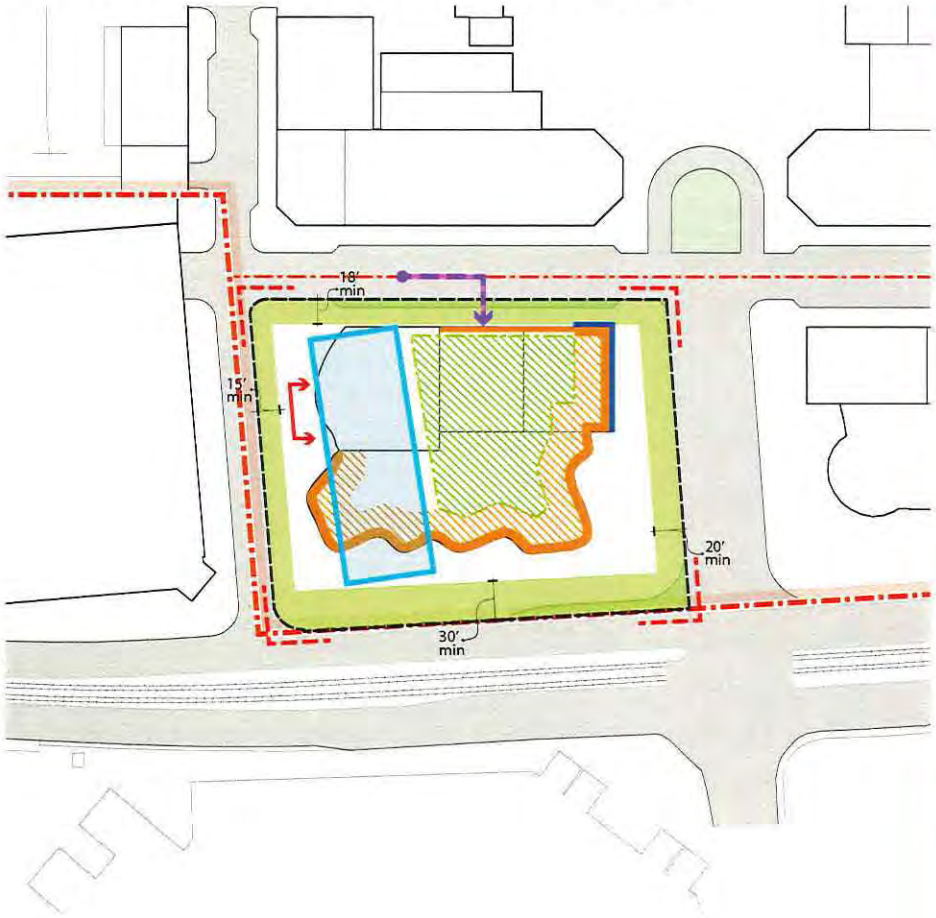
** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*

*** Within Parcel 5, the dominant land uses on Parcels 5A, 5B an 5C are interchangeable as long as the aggregate areas of Office, Hotel and Residential are respected.*



KEY

EXHIBIT 4–28: BLOCK 5A GROUND FLOOR PLAN*



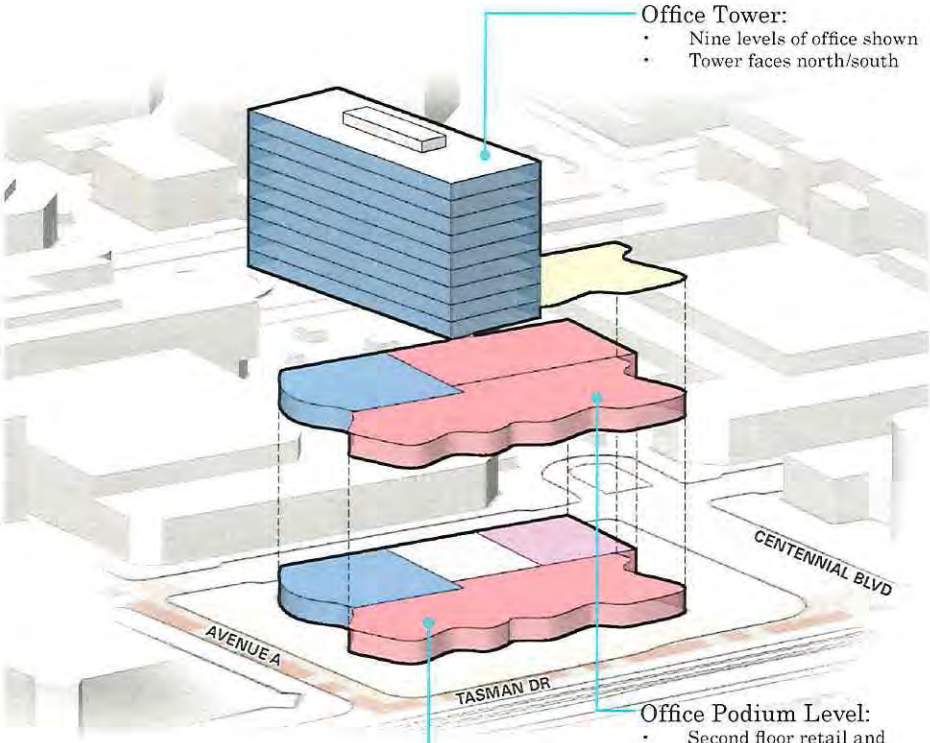
LEGEND

- Active Frontage (primary)
- Active Frontage (secondary)
- Build-to-Line
- Setback From Curb
- Service Access
- Building Lobby Entrance
- Roof Deck Open Space
- Preferred Tower Location
- Corner Focus
- Site
- Block

1" = 200'

0' 50' 100' 200'

EXHIBIT 4–29: BLOCK 5A EXPLODED AXONOMETRIC VIEW*



LEGEND

Land Uses

- Office
- Retail
- Food & Beverage (F&B)
- Structured Parking / Service
- Residential (Potential Use)
- Hotel (Potential Use)

Open Space

- Amenity Deck

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.16 BLOCK 5B: GATEWAY HOTEL

TABLE 4–15: BLOCK 5B PROGRAM*

BLOCK 5B		
Primary Land Use	*Units*	*Gross Area*
Hotel		
Hotel	400 keys	227,000
Retail		
F&B		10,000
Retail		44,000
TOTAL		281,000
AREA: 2.6 Acres	FAR: 2.46	

Potential Land Use Categories Include:

Residential	*A residential tower may be considered in-lieu of the hotel.*
Office	*An office tower may be considered in-lieu of the hotel.*
Product Showcase	*Product showcase venues (including auto showroom) may be considered in-lieu of retail.*

Site Coverage:

- *70 percent maximum allowable coverage*

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*

*** Within Parcel 5, the dominant land uses on Parcels 5A, 5B an 5C are interchangeable as long as the aggregate areas of Office, Hotel and Residential are respected.*



KEY

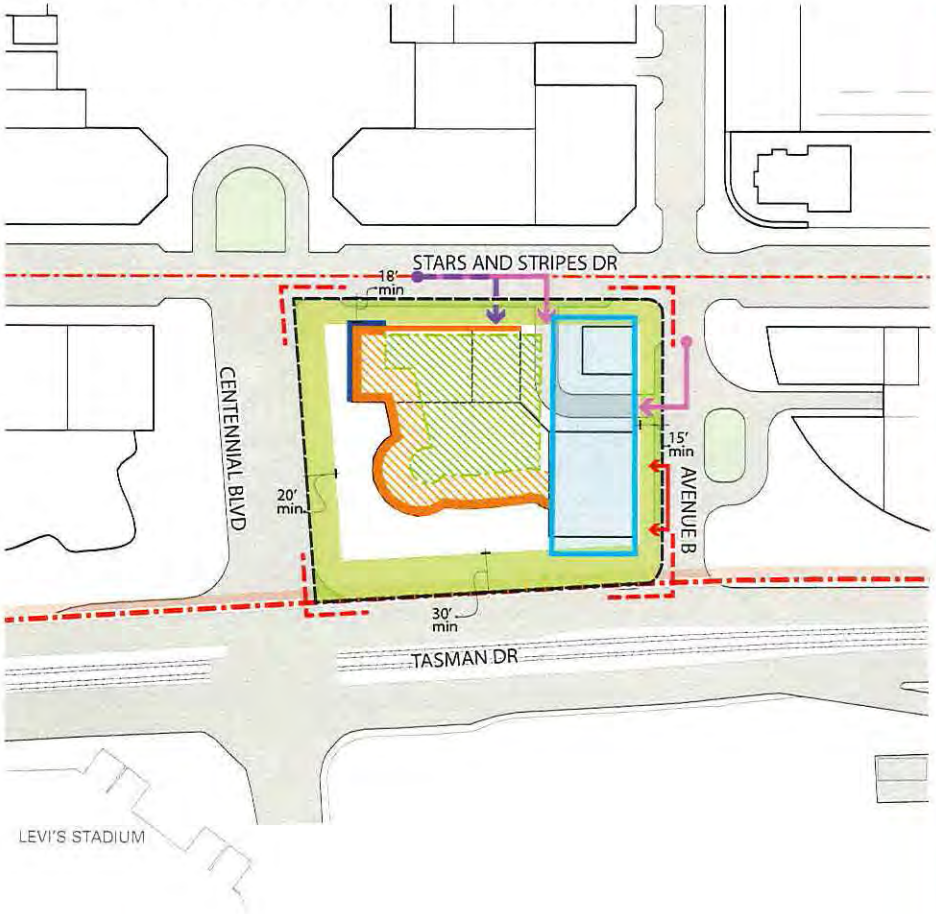
BLOCK CHARACTER

The "bookend" condition to Block 5A, the block will be anchored by a hotel tower along the eastern frontage of Avenue B. A porte-cochere will connect Avenue B to Stars & Stripes Drive, internal to the block. Active uses will line the block, with retail and food & beverage along all major street frontages. Commercial spaces facing Tasman Drive will have major street exposure as well as pedestrian exposure. Multi-level storefronts acting as product showcases facing Tasman Drive are also appropriate uses. A significant setback is envisioned along Tasman Drive and Centennial Boulevard for outdoor dining and augmented landscape elements.

BLOCK DEVELOPMENT DESIGN GUIDELINES

- *Block Composition:* This block is suggested to be composed of a business-oriented hotel, incorporating multi-level in-line retail and food & beverage. The block is located above a substantial underground parking structure.
- *Pedestrian Circulation:* Sidewalks are required along all street frontages. Generous pedestrian amenities and provisions for outdoor dining are suggested along Tasman Drive and Centennial Boulevard.
- *Bicycle Circulation:* Dedicated bike lanes are required along Tasman Drive. Bike routes are required along Centennial Boulevard and Stars & Stripes Drive.
- *Active Frontages:* These are required along Centennial Boulevard, Stars & Stripes Drive and along majority of Tasman Drive frontage. The frontages along Centennial Boulevard and Stars & Stripes are expected to be most intensive in character.
- *Open Space & Amenities:* Wide setbacks along Tasman Drive and Centennial Boulevard should accommodate generous landscaping. The hotel shall provide an amenity deck above the retail podium to its tenants.
- *Build-To Lines & Setbacks:* Build-to lines are suggested at the northwest corner of the block, framing the north/south pedestrian axis. There shall be a 20' minimum setback from the Centennial Boulevard curbline and a 30' minimum setback from the Tasman Drive curbline, in order to accommodate high pedestrian flows, significant landscaping, and outdoor dining. In addition, there should be a 15' minimum setback from the Avenue B curbline, and an 18' minimum setback along the Stars & Stripes Drive curbline.
- *Building Heights:* Proposed towers located on this block have a maximum building height of 219' above msl consistent with ALUC regulations. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* Loading dock entrances should be located along Stars & Stripes Drive. Stars & Stripes Drive and Avenue B may provide locations for hotel valet/drop-off service.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

EXHIBIT 4–30: BLOCK 5B GROUND FLOOR PLAN*



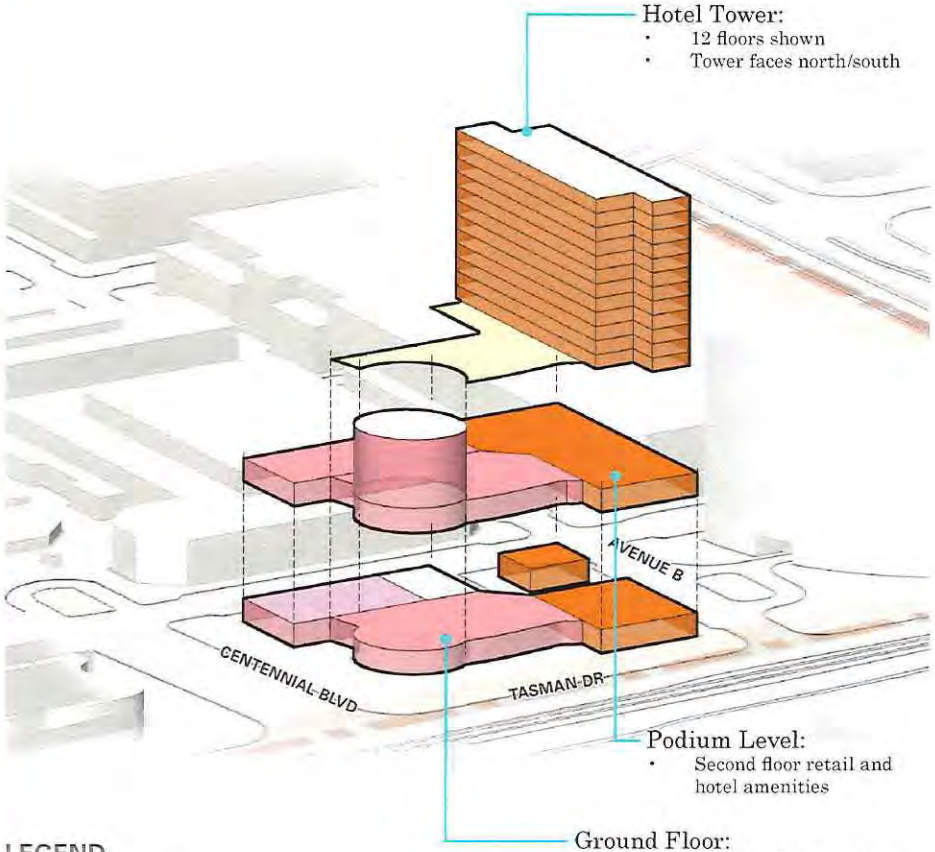
LEGEND

- Active Frontage (primary)
- Active Frontage (secondary)
- Build-to-Line
- Setback From Curb
- Parking Access
- Service Access
- Building Lobby Entrance
- Roof Deck Open Space
- Preferred Tower Location
- Corner Focus
- Site
- Block

1" = 200'

0' 50' 100' 200'

EXHIBIT 4–31: BLOCK 5B EXPLODED AXONOMETRIC VIEW*



LEGEND

Land Uses

- Hotel
- Retail
- Food & Beverage (F&B)
- Structured Parking / Service
- Residential (Potential Use)
- Office (Potential Use)
- Product Showcase (Potential Use)

Open Space

- Amenity Deck

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*

4.17 BLOCK 5C: GATEWAY RESIDENTIAL

BLOCK CHARACTER

The easternmost of the gateway blocks, this block will accommodate an iconic residential tower with active uses along the ground plane including retail and food and beverage facing Tasman Drive, Stars & Stripes Drive, and Avenue B. An amenity deck is identified with views north and east. The residential porte-cochere will be located along Avenue B.

BLOCK DEVELOPMENT DESIGN GUIDELINES

- *Block Composition:* The block is suggested to be a residential tower located above a parking podium, incorporating ground floor retail.
- *Pedestrian Circulation:* Sidewalks are required along all street frontages. Generous pedestrian amenities along Stars & Stripes Drive are suggested, due to the adjacent Great America Light Rail Station.
- *Bicycle Circulation:* Dedicated bike lanes are required along Tasman Drive and the north/south segment of Stars & Stripes Drive. Bike routes are required along the east/west segment of Stars & Stripes Drive.
- *Use:* This block may be developed as serviced apartments (a residential use) associated with the hotel on Block 5B.
- *Active Frontages:* These are suggested along Avenue B and the east/west segment of Stars & Stripes Drive.
- *Parking Access:* The podium parking structure on the block is accessed by the residential porte-cochere along Avenue B and by an entry on one of the other streets. Entries to the underground parking structure are suggested.
- *Open Space & Amenities:* No significant ground floor open spaces are suggested, aside from landscaping along the southern edge of the block. The residential component should provide an amenity deck above the parking structure to its tenants.
- *Build-To Lines & Setbacks:* Build-to lines are not recommended for this block. There should be a 15' minimum setback from the Avenue B curbline, and an 18' minimum setback along the Stars & Stripes Drive curbline. There should be a 30' minimum setback from the Tasman Drive curbline, accommodating additional pedestrian amenities and/or landscaping.
- *Concealed & Exposed Parking:* Best efforts shall be made to conceal the podium parking structures along its south and west frontages. Measures to conceal parking shall be visually attractive, and may include landscaping, visual buffering, artwork screening, or similar forms of concealment.
- *Building Heights:* Proposed towers located on this block have a maximum building height of 219' above msl consistent with ALUC regulations. This is suggested to include a parking podium and a tower volume. Final building mass and height will be subject to City review and approval through the Development Area Plan process.
- *Service Entries:* Loading dock entrances should be located along the east/west segment of Stars & Stripes Drive.
- Trash and mechanical equipment shall be screened from view along the public and private street rights-of-way.

TABLE 4–16: BLOCK 5C PROGRAM*

BLOCK 5C		
Primary Land Use	*Units*	*Gross Area*
Residential		
Residential	180 units	257,500
Retail		
F&B		7,000
TOTAL		264,500
AREA: 2.7 Acres	FAR: 2.25	

Potential Land Use Categories Include:

Retail/F&B	*Additional retail or food and beverage uses may be considered.*
Office	*There is potential to reprogram the residential component as office over retail, or as an office tower.*
Product Showcase	*Product showcase venues (including auto showroom) may be considered.*
Hotel	*A hotel, including extended stay, may be considered in-lieu of the residential tower.*

Site Coverage:

- *70 percent maximum allowable coverage (includes parking structure)*

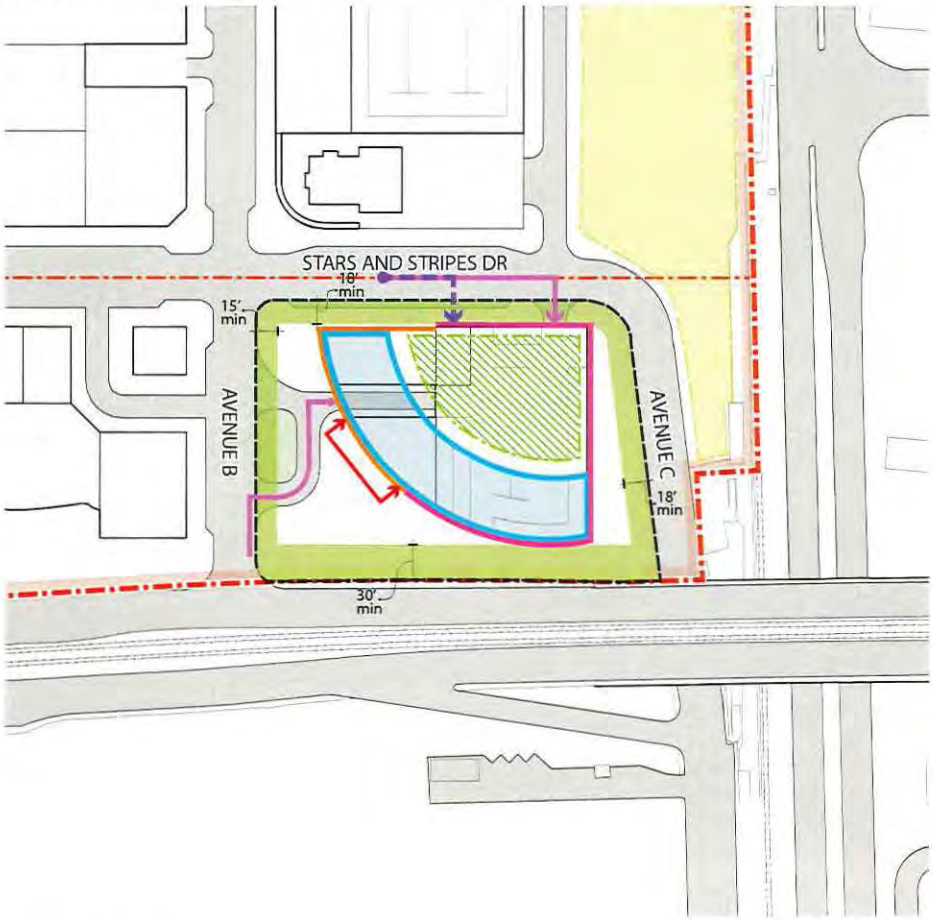
** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval.*

*** Within Parcel 5, the dominant land uses on Parcels 5A, 5B an 5C are interchangeable as long as the aggregate areas of Office, Hotel and Residential are respected.*



KEY

EXHIBIT 4–32: BLOCK 5C GROUND FLOOR PLAN*



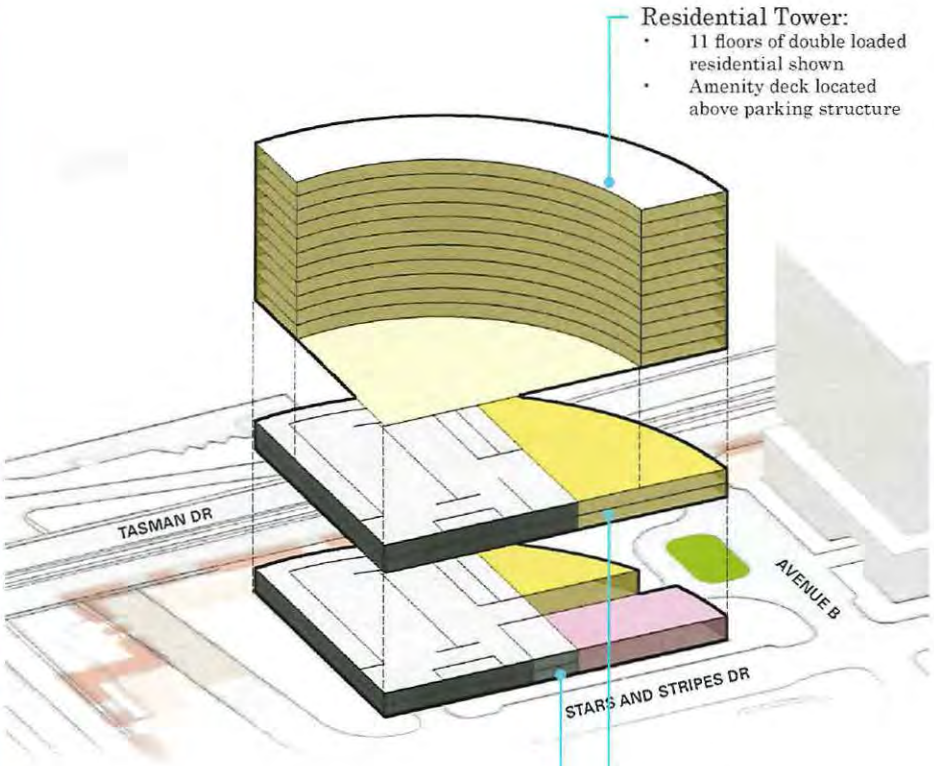
LEGEND

- Active Frontage (secondary)
- Setback From Curb
- Buffer Landscape
- Parking Access
- Service Access
- Building Lobby Entrance
- Roof Deck Open Space
- Parking Structure Exposure
- Preferred Tower Location
- Site
- Block

1" = 200'

0' 50' 100' 200'

EXHIBIT 4–33: BLOCK 5C EXPLODED AXONOMETRIC VIEW*



LEGEND

Land Uses

- Podium Residential
- Food & Beverage (F&B)
- Structured Parking / Service
- Office (Potential Use)
- Hotel (Potential Use)
- Product Showcase (Potential Use)

Open Space

- Amenity Deck
- Landscaped Space

** The program, plan, and exploded axonometric view depict a potential configuration for illustrative purposes only. The actual program and layout may vary subject to City review and approval. Accessory uses are not depicted but may replace portions of the elements in the illustrated plan.*





CHAPTER 5

DESIGN GUIDELINES



5.1 DESIGN PRINCIPLES

...informing choices regarding site/hardscape elements, building massing, fenestration, material choices and more.

SITE PLANNING

Building Orientation:

- Locate and mass buildings so as to consistently frame and define outdoor space, including sidewalks, pedestrian walkways and paseos, and public plazas.
- Orient buildings and their entrances to link to key outdoor spaces, including sidewalks, pedestrian walkways and paseos, and public plazas.

Parking Facilities:

- Wrap parking garages with retail uses on the ground floor where appropriate, adjacent to pedestrian zones.
- Use compatible landscape treatment to break up the expansiveness of surface parking fields, and reduce parking's visual and environmental impacts.
- Place landscape along the street level or ground level portion of any parking structure to screen or buffer views of that ground level from the public right-of-way.
- Design parking structures to minimize light trespass from headlights of vehicles within.
- Capture rooftops for renewable energy: e.g., photovoltaic panel installations that can shade upper parking decks.

Service and Loading Facilities:

- Locate service, trash, and loading storage areas so that they are not visible from areas with high pedestrian traffic. Strategies may include aggregation of services areas to serve more than one building and locating entrances along streets less frequented by pedestrians.
- Servicing from street curbs or pedestrian concourses is allowed for retail zones, but limited to early morning periods when there is no conflict with pedestrian activity or residential use.
- Screen service, loading, and storage areas with compatible landscape and/or architectural treatment.
- Screen ground level mechanical equipment from view.

ARCHITECTURAL DESIGN

Mass & Scale:

- Employ simple yet varied massing. Elevation breaks should be introduced on buildings with multiple floors.
- Include design features that provide pedestrian scale for lower level(s).
- Consider special treatment at building corners (e.g., distinctive or strong corner massing), especially at gateways and key intersections.

Windows:

- Limit use of highly reflective exterior glazing and/or utilize bird safety treatments, consistent with Chapter 6.8 of this MCP (Bird Safety Guidelines).
- Consider recessed windows to enhance façade depth and add shadow lines.
- Utilize energy efficient glazing or consider use of exterior shading on critical exposures.

Roofs:

- Locate and/or screen rooftop equipment so that it is not visible from adjacent streets or other important pedestrian areas. Rooftop screening should be integral to the building's form (e.g., through the use of raised parapets, louvers, etc.).

Articulation & Fenestration:

- Modulate exterior walls. Blank, unadorned walls are to be avoided especially along streets and areas with pedestrian traffic.
- Establish a clear pattern of fenestration that unifies the building, including well-marked and articulated building and shop entrances.
- Clearly differentiate main building entrances (e.g., entrances to upper floor office or residential) from storefront entrances.

SIGNAGE & LIGHTING DESIGN

Signage:

- Design project signage that is compatible with the overall site design and immediate surroundings in both scale and character, while also developing signage for each development area.
- Use signage to identify the project and reinforce placemaking, as well as to focus and guide both pedestrian and vehicular circulation throughout the project.
- Include directional signs and maps that guide persons on foot to important areas of the project, outdoor gathering areas, transit nodes, parks, trailheads and major tenants.

Lighting:

- Discourage illumination of an entire building or large portions of an entire building.
- Locate and shield architectural lighting to minimize glare on adjacent properties and streets. Intense architectural lighting should be limited to areas with special security needs including the pedestrian concourse and other highly active areas.
- Configure interior lighting to minimize spill onto outdoor areas and to limit unnecessary glare, particularly with parking structures.
- Integrate project signage and lighting. Unobtrusive and attractive external forms of lighting are appropriate for most project sign types, although major gateway signage may incorporate more dramatic lighting displays.

5.2 CITY CENTER MIXED-USE DESIGN GUIDELINES



CITY CENTER MIXED-USE

These guidelines are integral in the building and site planning of a successful urban place. The pedestrian and public realm will be framed by buildings and open spaces, and it will be the arrangement of these in-between spaces that determines the quality of the urban form as a whole. Tenant branding elements should be accommodated on a case by case basis.

SITE PLANNING

Building Siting & Orientation:

Buildings should be sited so that the coordinated relationship between buildings is legible and strong. The positioning of buildings on their parcels should improve pedestrian and driver visibility, ensure pedestrian comfort and human scale, provide connectivity of uses and lend to an overall sense of an orderly district.

Design Guidelines:

- *MU-1:* Orient main building entrances toward the key pedestrian spine / pedestrian concourse. Secondary entrances may be oriented to paseos, parking facilities, and streets.
- *MU-2:* Building facades should respect the street and sidewalk by building out to the property line and forming a strong visual edge along the street frontage, except, that forecourts and set back building corners should be allowed to announce building entrances, welcome pedestrians and allow more expressive building facades, and should be viewed as consistent with the goal of developing a strong street edge.
- *MU-3:* Situate buildings on the site so that they are oriented to maximize daylighting opportunities and collect natural light within interior spaces.
- *MU-4:* Position entries to buildings so that they are easily identifiable from adjoining public rights-of-ways and primary access drives.

Vehicular Circulation & Parking:

On-site circulation and site access should provide for the safe, efficient, convenient, and functional movement of multiple modes of transportation both on and off the site to prevent pedestrian/bicycle/vehicle conflicts. The site planning process should make provision for alternate modes of transportation, including public transit, bicycles and pedestrians.

Design Guidelines:

- *MU-5:* Provide vehicular, pedestrian, and bicycle circulation systems for safe and efficient site utilization.
- *MU-6:* On-site circulation should be coordinated in a manner to minimize vehicle and pedestrian interaction with a clear and hierarchical order which makes pedestrian routes and development access points visually different from vehicular parking lots, parking structures or service access points.
- *MU-7:* Pave on-site drop-off and vehicular driveways to match the material and pattern of on-site sidewalks and plazas in order to communicate a slow-speed shared pedestrian and vehicular realm.
- *MU-8:* Enhance the intersections of gateways by incorporating wayfinding signs, accent paving, special landscaping and lighting.
- *MU-9:* In the City Center, create compact street sections and utilize traffic calming techniques that reinforce an urban feel, while ensuring adequate accommodation for service vehicles, emergency vehicles and identified bus routes.
- *MU-10:* Provide bicycle lockers and/or racks near building entrances. Disperse bicycle parking facilities throughout the development area located in convenient and visible areas in close proximity to primary

entrances. Refer to the bicycle plan (*Exhibit 3-19*) in this document for more information.

Service & Loading Facilities:

Services and loading, including trash disposal areas should be designed and located to adequately provide for commercial, hotel, entertainment, residential and office uses without impacting the visual character of the City Center Mixed-Use district.

Design Guidelines:

- *MU-11:* Screen all mechanical equipment from view along the public and private right-of-way. This includes back flow devices, traffic signal boxes, transformers, meters etc. and may include planting of vegetation to adequately screen equipment.
- *MU-12:* Incorporate storage, trash delivery, and loading areas into the overall building form.

Site Landscape Design:

Landscaping within the City Center Mixed-Use District should be provided to enhance development aesthetics, create a pedestrian friendly environment, provide screening and buffering, enhance connections to the public realm, provide shade, and communicate site organization and hierarchy.

Design Guidelines:

- *MU-13:* Utilize landscaping to add texture and visual interest at the street level. Landscaping should not create a solid visual barrier between the public realm and the building frontage or views into buildings at the ground floor. Visual buffering and filtering of windowless facades from the public right of way is encouraged.
- *MU-14:* Incorporate pedestrian and bicycle connections to the Guadalupe and San Tomas Aquino Creek trails.
- *MU-15:* Encourage the use of drought tolerant, native and adapted plant species.
- *MU-16:* Landscaping may include any practicable combination of shrubs, trees, ground cover, minimal lawns, planter boxes, flowers, or fountains.
- *MU-17:* Utilize landscaped islands and medians to improve the definition of circulation patterns, provide shading for paved areas and beautify streets.
- *MU-18:* Incorporate complete streets with bike lanes, ample and cohesive street furniture, and tree canopy.

ARCHITECTURAL DESIGN

Building Massing & Form:

Building height, massing, and scale should relate to pedestrian scale in the immediate vicinity, and facilitate a hierarchical and varied aesthetic throughout the district. Modulating massing will help to reduce the mass of otherwise large buildings while maintaining visual interest. Massing should also improve site navigation and experience by incorporating landmarks to emphasize key elements such as access and internal uses.

Design Guidelines:

- *MU-19:* Architectural elements such as entries, porticoes, cornices, and awnings should be compatible in scale with the building massing and should not be exaggerated or made to appear as a caricature of a historic architectural style. Reasonable accommodation may be made for store branding elements associated with retail, food and beverage tenants.
- *MU-20:* Multi-story buildings should contain three parts; a base, a midsection, and a top. The different parts should be expressed through varied detailing of the facade and discernible vertical and horizontal offsets should be provided to reduce the visual bulk of the building.
- *MU-21:* Organize massing to emphasize certain parts of the building such as entries, corners, and display areas. Entrances should be identifiable by an accompanying modulation in massing - this may include a portion of the building with a differing building or parapet height (above or below) and/or with a projected or recessed building massing.
- *MU-22:* Ensure that districts are compatible and complementary in scale, massing, style, and/or architectural materials, but retain diversity typically characteristic of the urban idiom.

Roof Forms & Materials:

Rooftops should contribute to the unified appearance of the district. Visually clean rooftops with mechanical and service facilities kept screened, green roofs that are



Landscaping to add texture & visual interest



Identifiable entry massing



Green roof



Modulated roofline with varied setbacks



Architectural canopy provides shade and reduces heat gain



Clear visual division between upper & lower floors

energy efficient, or rooftops with photovoltaics are all viable rooftop options for rooftops in this area.

Design Guidelines:

- *MU-23:* Use high albedo roof and paving materials which mitigate the heat-island and embody "cool roof" design practices. Otherwise, employ roof materials and assemblies which utilize or capture stormwater such as "blue roofs" or "green roofs" with drought and heat tolerant plant selections to reduce cooling and heating costs. Rooftop photovoltaic solar panel systems are encouraged, and compatible with green roofs.
- *MU-24:* Roofs should be designed as an integral component of building form, mass, and facade.
- *MU-25:* Integrate varied roof lines through the use of sloping roofs, modulated building heights, setbacks, or innovative architectural solutions.
- *MU-26:* Within a block or district, rooftop materials should be limited in design complexity and in the number of colors; moreover, their material should be specified as an integral and unobtrusive part of a limited palette for the entire building.
- *MU-27:* Locate and/or screen rooftop equipment so that it is not visible from adjacent streets. Rooftop screening should be integral to the building's form (e.g., through the use of raised parapets, louvers, etc.)

Building Articulation & Fenestration:

Articulation and fenestration should communicate clear points of entry and contribute to the overall visual aesthetic and apparent accessibility of each building.

Design Guidelines:

- *MU-28:* Promote pedestrian activity by providing a primary entry that fronts a public right-of-way.
- *MU-29:* Incorporate windows and doors with well-designed trims, recesses and details as character defining features to reflect an architectural style or theme consistent with other facade elements and building architecture.
- *MU-30:* At entrances and openings, include overhead architectural features, such as awnings, canopies, trellises or cornice treatments that provide shade, weather protection, and reduce daytime heat gain, especially on south-facing facades.

Architectural Details:

Enrich the pedestrian and site occupant experience at the street level by providing a ground level facade that relates to a more detailed human scale, is accessible, and facilitates retail and commercial activity. An active, safe, and enjoyable street environment depends on buildings that connect and interact with the pedestrian realm when they meet the ground.

Design Guidelines:

- *MU-31:* Design storefronts with a focus on window design that creates a visual connection between the interior and exterior.
- *MU-32:* Ensure that commercial ground floor uses provide clear and unobstructed windows (not precluding tree planting), free of reflective coatings and exterior mounted gates and security grills. Ensure that landscaping does not create a barrier between pedestrians and the building frontage, nor views into buildings at the ground floor.
- *MU-33:* Provide shelter from the sun and rain for pedestrians along the public right-of-way where the buildings meet the sidewalk. Extend overhead cover across sidewalks and/or driveways or provide architecturally integrated awnings, arcades, and canopies.

Building Materials & Colors:

These guidelines are intended to ensure the appearance of a high-value, high-quality district that is both cohesive and visually interesting. Basic harmony of architecture shall be developed to promote the quality and attractiveness of the mixed-use environment.

Design Guidelines:

- *MU-34:* A clear visual division between upper and lower floors should be incorporated by changes in materials and colors, or building modulation, and by the use of canopies and awnings.
- *MU-35:* Introduce transparency along sidewalks (with the exception of street trees) and paths, especially in proximity to store entrances; generous storefront window and displays are encouraged.
- *MU-36:* Treat all facades of the building with appropriate level of architectural detail and articulation. Building elevations, whether such elevations function as the front, side, or rear of the building, shouchitecturally detailed to avoid the appearance of once being the "back of the building".

- *MU-37:* Minimize the number of colors appearing on a structure's exterior.

- *MU-38:* Exterior materials shall be of natural finish, factory coated, stained, integrally colored, or otherwise suitably treated, avoiding field applied coatings where practical. High gloss finishes should be of limited area only.

- *MU-39:* Large expanses of smooth material should be broken up with expansion joints, reveals or changes in texture and color. Expanses of highly reflective surfaces and mirrored glass walls are strongly discouraged.

- *MU-40:* Storefront windows should be transparent and not be obstructed or coated with any material to preclude visibility within the interior space that is not of a decorative or photographic medium.

Parking Structures:

Parking structures are secondary structures and should only contribute to the pedestrian comfort of the City Center Mixed-Use District, providing the requisite amount of space without overwhelmingly impacting the massing, order, and visual reading of the district.

Design Guidelines:

- *MU-41:* Use landscape features and wall art to screen parking structures. Trees, shrubbery, planter boxes, climbing plants, vines, green walls, or berms can be used to soften views from the public right-of-way and art to create visual interest and detract from use.

- *MU-42:* Design parking structure facades with attractive entrances, varied building materials, or screening to provide visual interest.

- *MU-43:* Laminate or wrap parking facilities with active uses such as retail spaces or conveniences other than parking (such as bicycle lockers or bike-sharing).

SIGNAGE & LIGHTING DESIGN

Site Signage:

Signage packages for each land use area shall be prepared to improve the streetscape experience and uniformly communicate key information without creating visual clutter. Signs shall be designed as a 'family', incorporating similar, compatible materials that reinforce the design and style of the project architecture. Signs will be consistent with the applicable Comprehensive Sign Program approved pursuant to Section 7.1 of this MCP.

Design Guidelines:

- *MU-44:* Include signage at height and of a size that is visible to pedestrians and facilitates access to the building entrance. Allow LED/digital signage in City Center (subject to City review and approval through the DAP process).

- *MU-45:* Signs shall incorporate materials, colors, and designs that are compatible with the associated structures.

- *MU-46:* Window signage is limited to individual tenant name only.

- *MU-47:* Individually cut lettering visible at a distance and made of durable material is encouraged, while small, undifferentiated, and flush lettering with weak coloring is discouraged.

Site Lighting:

Lighting shall be essentially and efficiently used to provide illumination for safety without intruding on adjacent properties, the public right-of-way., or the night sky. Site lighting shall be architecturally compatible and consistent in design between parcels, and shall be consistent with the guidelines of Section 7.8 Bird-safe lighting measures shall be integrated into the design, consistent with Section 6.8 (Bird Safety).

Design Guidelines:

- *MU-48:* Poles and fixtures should be designed to be pedestrian scaled and architecturally compatible with structures and all other lighting fixtures on-site. Lighting within the public realm shall have a theme.

- *MU-49:* Select and locate all lighting fixtures to shield or confine light spread within a site's boundaries.

- *MU-50:* To facilitate security, specify lighting levels that are adequate for visibility, but not overly bright. All building entrances, pedestrian pathways, and parking facilities should be well-illuminated.

- *MU-51:* To the extent consistent with the normal and expected operations of the office, hotel, retail, food/beverage, entertainment and residential uses of the project, take appropriate measures to turn unnecessary lighting off at night, especially during bird migration season (February–May and August–November), including, to the extent feasible, the use of motion sensor lighting, automatic lighting shut-off mechanisms, and installation of downward facing exterior lighting.



Parking garage wrapped with retail



Durable, individually cut letters, with strong color contrast



Pedestrian scaled light fixtures

5.3 CITY CENTER N-W OFFICE DESIGN GUIDELINES



CITY CENTER NORTHWEST OFFICE

The City Center Northwest Office Design Guidelines will be essential in creating a thriving office component for CityPlace. The guidelines will aid in the creation of a cohesive public realm with a clear overall aesthetic. A successful work environment depends widely on its inviting, comfortable, and easily accessible surroundings and buildings.

SITE PLANNING

Building Siting & Orientation:

Buildings within the City Center Northwest Office District may be organized either as an open tenant office park, a secure office campus, or as a combination of multiple uses. These buildings should be sited so that the coordinated relationship between buildings is legible and strong. The positioning of buildings on their parcels should improve pedestrian and driver visibility, ensure pedestrian comfort and human scale, provide connectivity to adjacent uses and lend to an overall sense of an orderly district.

Design Guidelines:

- *CCO-1:* Provide human scaled blocks that allow convenient pedestrian access and connectivity throughout the district.
- *CCO-2:* Locate and mass buildings to consistently frame and define public space. An especially strong relationship between the building and street is encouraged.
- *CCO-3:* Use strong identifiable architectural forms at building corners, especially to mark gateways and key intersections.
- *CCO-4:* Orient main building entrances, lobbies and ground floor auxiliary uses like cafes so that they open onto pedestrian space, including sidewalks, paseos and active areas.

Vehicular, Pedestrian, & Bicycle Circulation:

On-site circulation and access systems should provide for the safe, efficient, convenient, and functional movement of multiple modes of transportation both on and off the site.

Design Guidelines:

- *CCO-5:* Emphasize safe and comfortable pedestrian/bicycle movement throughout the district, whether the district is an open campus or a secure closed campus. Sidewalks and paths should incorporate amenities while connecting important adjacent uses and public spaces.
- *CCO-6:* Introduce traffic calming measures where pedestrian activity will be greatest, including curb bulb-outs, enhanced crosswalks, and on-street parking and landscaping.
- *CCO-7:* Create strong pedestrian connections to neighboring blocks through scaled gateway entry markers, landscaping, lighting, and specialty paving for crosswalks at primary intersections.
- *CCO-8:* Incorporate bicycle facilities (lockers and/or racks) near important building entrances.

Service, Loading Facilities & Mechanical Equipment:

Services and loading including trash disposal and service yards shall be designed and located to adequately provide for their associated developments without impact to the visual character of the City Center Northwest Office District.

Design Guidelines:

- *CCO-9: Locate* service, *loading, and storage facilities (including refuse/recycling areas) away from streets, public spaces, and adjacent sensitive land uses. These facilities should not face public streets, and where they do face public streets, they shall be shielded from public view. .*
- *CCO-10:* Screen ground-level mechanical and electrical equipment and service areas from view. Cohesive architectural treatment is strongly recommended; dense landscape treatment and physical screening may also serve as an effective screen.
- *CCO-11:* Intrusion of service, loading, and storage areas into open spaces, such as landscape buffers and required setbacks, is prohibited.

Site Landscape Design:

Landscaping within the City Center Northwest Office District should be provided to enhance development aesthetics, create a pedestrian friendly environment, and provide an overall enriched and finished landscape look.

Design Guidelines:

- *CCO-12:* Introduce landscape features and plantings that are scaled to surrounding streets, outdoor spaces, and buildings. Include tree canopies.
- *CCO-13:* Use a rich coordinated palette of landscape materials to provide scale, texture, and color.
- *CCO-14:* Utilize hardscape/paving materials that are compatible with their surroundings, and enhance the building and landscape design. In particular, decorative paving may be used to highlight key pedestrian areas, including plazas, intersections, and crosswalks.
- *CCO-15:* Emphasize plants that are adapted to the local climate. Native and drought tolerant plants are preferred.
- *CCO-16:* Landscape all open areas not used for buildings, drives, parking structures, or pedestrian amenities. Landscaping may include any practicable combination of shrubs, trees, ground cover, minimal lawns, planter boxes, flowers, or fountains that reduce dust and other pollutants.

ARCHITECTURAL DESIGN

Building Massing & Form:

Modulating massing will maintain visual interest and help to reduce the apparent mass of office buildings and other potential land uses that may be typical in the City Center Northwest Office District. Massing should also improve site navigation and experience by emphasizing key elements such as access and internal uses.

Design Guidelines:

- *CCO-17:* Accentuate important locations, especially entries through architectural massing.
- *CCO-18:* Create a varied skyline with strong forms (i.e., towers, domes, extruded roof forms and rotundas), especially at corners.
- *CCO-19:* Encourage massing changes and architectural articulation to provide visual interest and texture facing streets and public spaces.
- *CCO-20:* Reinforce a strong corner condition at street intersections.
- *CCO-21:* Define a base, middle, and cap in order to clearly define building form.
- *CCO-22:* Make the ground floor taller than typical upper stories.

Roof Forms & Materials:

Rooftops should contribute to the unified appearance of the development, the energy and efficiency of each building, and the visual cleanliness from higher areas, ground level, and other buildings and roadways. Green roofs that are energy efficient or rooftops with photovoltaics are also welcome in this area.

Design Guidelines:

- *CCO-23:* Express roofs in a visually interesting manner that complements the building. Flat, unarticulated expressions are discouraged. Rooftop photovoltaic solar panel systems are encouraged, and can provide the added benefit of shading for parking structures.



Rich,coordinated landscape adding texture and color



Visually interesting rooftop



Clearly articulated building entrance



Transparent entry offers views into lobby



Neutrally colored quality materials



Vertical garden on parking garage to screen cars

- *CCO-24:* Complement the composition of the building, varying the roof form in accordance with the building's massing.

- *CCO-25:* Locate and/or screen rooftop equipment so that it is not visible from adjacent sidewalks or open space. Rooftop screening should be integral to the building's form (e.g., through the use of raised parapets, louvers, etc.).

Building Articulation & Fenestration:

Clear marked points of entry, overall visual readability, and perceptible accessibility all become well defined through articulation and fenestration of the building within the City Center Northwest Office District.

Design Guidelines:

- *CCO-26:* Utilize major articulation of the facades at corners and areas around entries.

- *CCO-27:* Use fenestration, as well as changes in wall plane, material, texture, color, etc., to create shadow lines and articulate building walls. Deep wall openings are encouraged.

- *CCO-28:* Introduce three-dimensional interest at the street level. In general, buildings should provide transparent views into their entrance lobbies, and commercial/retail spaces.

Architectural Details:

Architectural details enrich the pedestrian experience especially at the street level where the facade relates at a more human scale that feels familiar and accessible for the pedestrian.

Design Guidelines:

- *CCO-29:* Emphasize architecture that enhances the pedestrian experience by providing street level details and amenities.

- *CCO-30:* Design buildings to be architecturally differentiated from their neighbors yet be complementary to their materials, colors, and scale.

- *CCO-31:* Provide shade along pedestrian paths for comfort through awnings, canopies, etc.

Building Materials & Colors:

Building materials and finish guidelines are intended to ensure the appearance of a high-value, high-quality Office Campus that is both cohesive and visually interesting. Basic harmony of architecture shall be developed to promote the quality and attractiveness of the business environment.

Design Guidelines:

- *CCO-32:* Building exterior materials should be a natural finish, factory coated, stained, colored, or otherwise suitably treated. High gloss finishes should be of limited area only.

- *CCO-33:* Treat all facades of the building with an equal level of architectural detail and articulation.

- *CCO-34:* Choose material and color palettes such that the majority of colors for new buildings are compatible with the materials and colors of adjacent structures.

Parking Structures:

Parking structures offer a great opportunity to implement renewable energy collecting photovoltaic panels (PV) within the City Center Northwest Office District; these elements provide shade and visually show the commitment CityPlace has to sustainability. PV installations are not incompatible with green roofs, which are also encouraged.

Design Guidelines:

- *CCO-35:* Screen cars through measures attached to the exterior of garages, such as latticework, sheer panels, art panels, or the use of vertical gardens.

- *CCO-36:* Encourage structured parking where the height of the parking garage does not significantly exceed the height of the principal buildings that it serves.

- *CCO-37:* Structures should architecturally complement surrounding buildings.

- *CCO-38:* Interior walls and ceilings should be painted a light color to improve illumination.

- *CCO-39:* Parking should appear inconspicuous and visually screened or softened from public streets and adjoining properties by planting of trees and shrubs.

SIGNAGE & LIGHTING DESIGN

Site Signage:

Office building signage shall be an integrated and cohesive part of the building architecture. Signage shall be made of compatible materials that reinforce the design style of the overall district. Signs will be consistent with the applicable Comprehensive Sign Program approved pursuant to Section 7.1 of this MCP.

Design Guidelines:

- *CCO-40:* Provide signage that is compatible with the streetscape, the building materials and overall design aesthetic.
- *CCO-41:* Construct signs of durable, high-quality materials that suggest permanence.
- *CCO-42:* Identity signage should be sufficiently visible from surrounding public streets so that site entrances can be readily identified by both pedestrians and persons in vehicles.
- *CCO-43:* Discourage signage that obscures architectural features, such as vertical piers, trim work, etc.
- *CCO-44:* Multiple Tenant Signage - Allow the ability for multiple office tenants to integrate tenant signage on facades and roof, subject to City Review and approval as part of the DAP process.

Site Lighting:

Lighting shall be efficiently used to provide illumination for the security and safety of workers and visitors without intruding on adjacent properties. Spill will be limited on off-site right-of-ways, and shall be consistent with the guidelines of Section 7.8. Bird-safe lighting measures shall be integrated into the design, consistent with Section 6.8 (Bird Safety).

Design Guidelines:

- *CCO-45:* Select exterior lighting fixtures that are pedestrian scaled and compatible with the architectural design.
- *CCO-46:* Locate and shield architectural lighting to minimize glare on adjacent properties and streets. Intense architectural lighting is discouraged. Limit exterior light spill from interior office lighting and utilize nighttime lighting curfews where appropriate.
- *CCO-47:* Complement the lighting employed for surrounding streetscapes and landscape.
- *CCO-48:* Illuminate all building entries, walkways, steps or ramps along pedestrian routes.
- *CCO-49:* Provide only as much light/illumination as necessary to provide safety and security of the City Center Northwest Office Zone.



Illuminated steps for safe pedestrian movement

5.4 OFFICE CAMPUS DESIGN GUIDELINES



OFFICE CAMPUS

These guidelines will be integral in the building and site planning of a successful work environment. Connectivity between buildings, ample outdoor recreation areas, proper lighting for safe pedestrian travel, outdoor furniture, and landscaping will all help to construct an enjoyable office or light manufacturing campus. These guidelines are intended to be applicable to multiple office typologies including: multi-tenant office parks, a single tenant open corporate campus and a closed (secure) corporate campus. The potential also exists for a dedicated campus that will integrate multiple parcels into a single secured campus of office or light manufacturing.

ALTERNATIVE DEVELOPMENT FRAMEWORK POTENTIAL:

The policy statements and design principles expressed in this section are focused on office campus development consisting primarily of an open campus single or multi-tenant use. It is recognized that numerous other forms of office campus development are being incorporated throughout the region, and are designed to meet the specific operational needs and desires of cutting edge high-tech companies and industries. As site development is anticipated over many years, both the City and the developer desire enough flexibility to incorporate many different campus design configurations that attract a variety of tenants and building typologies. Therefore, specific campus typology and design configuration for each development area will be submitted in each DAP application.

SITE PLANNING

Building Siting & Orientation:

Buildings within Parcels 1, 2 & 3 may be organized either as an open tenant office park, a secure office campus, or as a combination of multiple land uses. Buildings should be sited so that the coordinated relationship between buildings is legible and strong. Arrangement of buildings on their parcels should be designed to improve pedestrian connectivity and driver visibility, ensure pedestrian comfort and human scale, and lend to an overall sense of an orderly district.

Design Guidelines:

- *OC-1:* Situate buildings on-site so they are oriented to maximize daylighting opportunities and optimize natural light within interior work spaces.
- *OC-2:* Explore opportunities to group buildings so as to frame and share active pedestrian and communal outdoor gathering spaces.
- *OC-3:* Building setbacks should be varied to enhance visual interest along the streetscape.
- *OC-4:* Position entries to buildings so that they are easily identifiable from adjoining rights-of-way and primary access drives.

Vehicular, Pedestrian, & Bicycle Circulation:

The on-site circulation and access system should provide for the safe, efficient, convenient, and functional movement of multiple modes of transportation both on and off the site to avoid pedestrian/bicycle/vehicle conflict.

Design Guidelines:

- *OC-5:* Pedestrian linkages shall be provided between the Office Campus District and City Center Mixed-Use District to promote shared use of all districts within the development.
- *OC-6:* Provide plazas at primary building entrances as a means of distinguishing them from secondary and service entries.
- *OC-7:* Provide pedestrian connections from building entries and required exits to walkways that adjoin on-site parking structures and/or surface lots. Where provided, these pedestrian connections should have a different ground material and color to the adjoining surface.

- *OC-8:* Provide bicycle lockers and/or racks near building entrances. Disperse bicycle parking facilities throughout the Campus located at convenient and visible areas in close proximity to primary entrances (see *Exhibit 3-19* for more information).

Service, Loading Facilities & Mechanical Equipment:

Service and loading areas should be designed and located to adequately provide for their associated developments without impact to the visual character of the Campus District.

Design Guidelines:

- *OC-9:* Place loading docks, outside storage, and service areas in areas of low visibility such as at the side or rear of buildings.
- *OC-10:* Locate transformers away from major pedestrian routes and outdoor employee areas.
- *OC-11:* Screen all mechanical equipment from view along the public and private right-of-way. This includes back flow devices, traffic signal boxes, transformers, meters etc., and may include planting of vegetation to adequately screen equipment.
- *OC-12:* Hide trash enclosures within parking garages, lots, or buildings so that they are not visible to passers-by. Screen outdoor standalone trash enclosures using walls consistent with the architectural character of the overall campus, and locate them so that they are out of the line-of-sight from crosswalks or sidewalks.

Site Landscape Design:

Landscaping within the Campus should be provided to enhance the overall aesthetic, create a pedestrian friendly environment, provide screening and buffering where necessary, enhance connections to the public realm, provide shade, and communicate hierarchy.

Design Guidelines:

- *OC-13:* Paving of sidewalks, plazas, and pedestrian surfaces should be differentiated at primary building entries and on-site employee break areas.
- *OC-14:* Incorporate on-site plazas and courtyards. These should be functional, well-defined spaces that reinforce the social life of the employees within the Office Campus District.
- *OC-15:* A variety of planting materials and plant heights should be provided in landscaped areas. Appropriate planting includes: drought tolerant trees, shrubs, groundcovers, and accent plants and flowers of varied heights and textures.
- *OC-16:* Introduce pedestrian and bicycle linkages between open spaces and the various districts.
- *OC-17:* Furnish outdoor employee areas with amenities such as benches, landscaping, and/or recreational areas. These outdoor spaces shall be functional and not appear as leftover spaces.
- *OC-18:* Outdoor seating areas should include permanent shade from trees, structures, trellises, pergolas, or canopies to effectively reduce heat gain and employee discomfort.

ARCHITECTURAL DESIGN

Building Massing & Form:

Building height, massing, and scale should relate to pedestrian scale in the immediate vicinity. In the case of an open tenant office park, a secure office campus, or as a combination of multiple land uses, modulating building massing will help to reduce the apparent mass of otherwise large buildings typical of an primarily office development, while maintaining visual interest.

Design Guidelines:

- *OC-19:* Architectural elements such as entries, porticoes, cornices, and awnings should be compatible in scale with the building massing.
- *OC-20:* Introduce significant vertical and horizontal offsets to reduce visual bulk. Exterior wall planes should be varied in height, depth, and direction.
- *OC-21:* Organize massing to emphasize entries, corners, or working spaces.
- *OC-22:* Ensure that buildings are compatible in scale with existing structures in the immediate vicinity.



Functional, well landscaped, on-site courtyard



Emphasize internal uses through thoughtful building massing



Visually interesting sloping roof form



Incorporates awnings & canopies as part of a harmonious design



Incorporates human-scaled elements (i.e., exterior lights & overhangs)



All facades treated with architectural detail

Roof Forms & Materials:

Rooftops should contribute to the unified appearance of each development, the energy efficiency of each building, and the visual cleanliness from higher areas, ground level, and other buildings and roadways.

Design Guidelines:

- *OC-23:* Integrate varied roof lines through the use of sloping roofs, modulated building heights, setbacks, or innovative architectural solutions.
- *OC-24:* Express roofs in a visually interesting manner that complements the composition of the building and creates added interest to the building profile. Sculptural roof forms are permitted.
- *OC-25:* Use high albedo materials which mitigate the heat island and embody "cool roof" design practices. Employ roof materials and assemblies which utilize or capture stormwater such as "blue roofs" or "green roofs" with drought and heat tolerant plant selections to reduce cooling and heating costs. Rooftop PV solar panel systems are encouraged on all structures.
- *OC-26:* Locate and/or screen rooftop equipment so that it is not visible from adjacent streets, sidewalks or open space. Rooftop screening should be integral to the building's form (e.g., through the use of raised parapets, louvers, etc.)

Building Articulation & Fenestration:

Articulation and fenestration should communicate clear points of entry and contribute to the overall visual legibility and apparent accessibility of each building.

Design Guidelines:

- *OC-27:* Introduce major and minor projecting features as part of a harmonious design.
- *OC-28:* Promote pedestrian activity by providing a primary entry that fronts a right-of-way or has a framed view from a right-of-way.
- *OC-29:* Modulate exterior walls. Blank unadorned wall surfaces are to be avoided, especially along streets.
- *OC-30:* At entrances, openings, and south facing facades include overhead architectural features, such as awnings, canopies, trellises or cornice treatments that provide shade to reduce daytime heat gain and cooling loads.

Architectural Details:

An active, safe, and enjoyable street environment depends on buildings that connect and interact with the pedestrian realm. Ground floor details in particular play a large role in providing pedestrians with a pleasant urban experience.

Design Guidelines:

- *OC-31:* Provide highly visible and readily identifiable public building entrances. Along with changes in building form, entrances may be expressed through special materials and/or detailing.
- *OC-32:* Introduce elements that establish a comfortable transition between indoors and outdoors, for example, canopies, awnings, trellises or similar features.
- *OC-33:* Ensure that all sides of an office building are highly articulated. Blank or monotonous wall surfaces should be avoided.
- *OC-34:* Incorporate design elements that offer a human dimension, such as frequent entries, landscaping, exterior light fixtures, awnings and overhangs.

Building Materials & Colors:

Building materials and finish guidelines are intended to ensure the appearance of a high-value, high-quality Campus that is both cohesive and visually interesting. Basic harmony of architecture should promote the quality and attractiveness of a working environment.

Design Guidelines:

- *OC-35:* Building exterior materials should be of natural finish, factory coated, stained, integrally colored, or otherwise suitably treated. Use of glossy finishes should be restricted to limited areas. Extensive use of reflective glazing should be avoided.
- *OC-36:* Treat all facades of the building with an equal level of architectural detail and articulation.
- *OC-37:* Choose material and color palettes such that the majority of colors for new buildings are compatible and complementary with the materials and colors of adjacent structures.

Parking Structures:

Parking structures should only contribute to the pedestrian comfort and human scale of the Campus, providing the requisite amount of space without overwhelmingly impacting the massing, order, and visual reading of the area.

Design Guidelines:

- *OC-38:* Landscape features such as trees, shrubbery, planter boxes, climbing plants, vines, green walls, or berms should be placed along the street level or ground level portion of any parking structure to screen or buffer views of that ground level from the public right-of-way.
- *OC-39:* Exterior walls of parking structures should have an open-air design with the first floor (ground level) walls being a maximum of three feet high (except for sheer panels).
- *OC-40:* Include moderately scaled canopy trees within surface parking lots and landscaped parking strips.
- *OC-41:* The design of parking structures should integrate high quality and permanent materials. Automobiles within the parking structure should be screened from view where possible with art walls, cascading landscaping, or other suitable screening.
- *OC-42:* On-site parking structures should not be significantly taller than adjacent buildings.
- *OC-43:* Wayfinding graphics and lighting within and surrounding parking structures should encourage safe and effective pedestrian and vehicular entry and exit movement patterns.
- *OC-44:* Incorporation of photovoltaic panels into parking structure design is encouraged.

SIGNAGE & LIGHTING DESIGN

Site Signage:

Building signage shall improve the streetscape experience and uniformly communicate information without creating visual clutter. Signs shall be designed as a 'family', incorporating similar, compatible materials that reinforce the design style of an overall district or a specific office campus. Signs will be consistent with the applicable Comprehensive Sign Program approved pursuant to Section 7.1 of this MCP.

Design Guidelines:

- *OC-45:* Mark district thresholds with distinctive public signage and/or graphics.
- *OC-46:* Signs should be sufficiently visible from public streets so that site entrances can be readily identified by both pedestrians and persons in vehicles.
- *OC-47:* Utilize signage materials, colors, and designs that are compatible with the associated structures.
- *OC-48:* Individually cut lettering visible at a distance and made of durable material is encouraged.
- *OC-49:* Flashing or moving signs are not permitted.
- *OC-50:* Multiple Tenant Signage - Allow the ability for multiple office tenants to integrate their signage on facades, subject to City Review and approval as part of the DAP process.

Site Lighting:

Site Lighting shall be efficiently used to provide illumination for security and safety without intruding on adjacent properties. Lighting shall be architecturally compatible and consistent in design within parcels or office campuses, and shall be consistent with the guidelines of Section 7.8. Bird-safe lighting measures shall be integrated into the design, consistent with Section 6.8 (Bird Safety).

Design Guidelines:

- *OC-51:* Site lighting should provide consistent levels of illumination, avoiding pockets of very high or low levels of illumination.
- *OC-52:* Provide only as much light/illumination as necessary to provide safety and security of the area.
- *OC-53:* Use ornamental lighting, bollard fixtures, or other low-level elevation fixtures to identify and to highlight pedestrian walkways, plazas, drop-off areas, and pedestrian paths at entrances to office buildings.
- *OC-54:* Illuminate all pedestrian routes, including walkways, steps or ramps.
- *OC-55:* Provide separate, pedestrian scaled lighting for all pedestrian ways through surface parking lots.



Green parking garage screening



Parking structure with rooftop solar panels



Well lit pedestrian walkways

5.5 RETAIL CENTER DESIGN GUIDELINES



RETAIL CENTER

The Retail Center Design Guidelines will be key in the success of CityPlace. Buildings, open spaces, wide sidewalks, and paseos will all aid in the creation of a unique urban retail environment. Designing a cohesive public realm will help in facilitating a quality development as a whole.

SITE PLANNING

Building Siting & Orientation:

The building street relationship should be apparent and strong. Arrangement and orientation of buildings should promote sustainable measures such as optimal direction for use of photovoltaic panels or orientation to minimize heat gain from the sun.

Design Guidelines:

- *RC-1:* Establish a consistent "street wall" with continuous retail frontage. Minor modulations will accommodate recessed shop entrances, "eroded" building corners, etc.
- *RC-2:* Locate and mass buildings so as to consistently frame and define outdoor space, including sidewalks, pedestrian walkways and paseos, and public plazas.
- *RC-3:* Reinforce the edges of on-site open spaces. Building placement should delineate the size and area of the green space.
- *RC-4:* Orient major anchors for heightened visibility from adjacent parcels and from Tasman Drive and Lick Mill Boulevard.

Vehicular, Pedestrian, & Bicycle Circulation:

Site planning should make on-site circulation and parking fields safe, efficient, convenient, and functional while moving multiple modes of transportation seamlessly throughout.

Design Guidelines:

- *RC-5:* Position on-site parking facilities to minimize their visual impact on the street. Where feasible, parking facilities should be located interior to the block.
- *RC-6:* Mask parking structures through design, art, and/or landscaping.
- *RC-7:* Use compatible landscape treatment to break up the expansiveness of parking fields, and reduce parking's visual and environmental impacts.
- *RC-8:* Provide a landscape buffer where a parking field fronts the street. The buffer should have a depth of at least five feet, measured from the rear edge of the sidewalk.
- *RC-9:* Provide bicycle lockers and/or racks near building entrances. Disperse bicycle parking facilities throughout the retail center located in convenient and visible areas in close proximity to primary entrances. Refer to the bicycle plan in this document for more information.

Service & Loading Facilities:

The visual character of the Retail Center should not be impacted by service, trash disposal, loading, and storage facilities. Service areas and facilities should integrate into the design while being positioned, screened and scaled appropriately for an overall high-quality appearance.

Design Guidelines:

- *RC-10:* Locate service, loading and storage areas so that they are not readily visible from the public right-of-way and areas with high pedestrian traffic. In general, these areas should be located behind the building.

- *RC-11:* Screen ground level mechanical and electrical equipment (including meters, back flow devices, transformers etc.) from public view. Cohesive architectural treatment is recommended, although dense landscape may also serve as an effective screen.

- *RC-12:* Screen service, trash disposal, loading, and storage areas with compatible landscape and/or architectural treatment. The intrusion of service, loading and storage areas into open spaces such as landscape buffers and required setbacks is prohibited.

Site Landscape Design:

Landscape within the Retail Center should enhance the development aesthetic, create a pedestrian friendly environment, and aid in creating connections throughout the Retail Center.

Design Guidelines:

- *RC-13:* Enrich outdoor pedestrian areas with decorative paving, overhead cover, outdoor furniture, and pedestrian- scaled lighting. A high level of amenity is desired throughout the Retail Center.

- *RC-14:* Plant canopy trees within off-street parking lots, providing protection from sun and wind, and reducing urban heat island effect.

- *RC-15:* Rely on simple, bold, and easy to maintain landscape planting schemes, typically using native and drought tolerant species.

- *RC-16:* Provide special landscape treatment at major focal points, entryways, and major pedestrian gathering areas. These areas may incorporate water features, specimen trees, accents plantings, landscape lighting, decorative hardscape, etc.

- *RC-17:* Use plantings to: reduce architectural scale, enliven blank or unadorned walls, and scre en service facilities.

- *RC-18:* Irrigate all permanently landscaped areas with an underground recycled water irrigation system, operated by an automatic controller. Utilize native and adapted plantings that would not require permanent irrigation systems in appropriate areas.

ARCHITECTURAL DESIGN

Building Massing & Form:

Modulating building mass will help to provide visual interest and aid in site navigation through the emphasis of key elements such as entries.

Design Guidelines:

- *RC-19:* Employ simple, yet varied, massing. Elevation breaks should be introduced on buildings over a single story, and single story buildings with substantial or elongated building walls.

- *RC-20:* Introduce articulated sub-volumes as necessary to provide a transition to an adjacent structure that is smaller in scale.

- *RC-21:* Consider special treatment at building corners and building entrances (e.g., distinctive or strong corner massing), especially at gateways and key intersections.

Roof Forms & Materials:

Rooftops should contribute to the unified appearance of the each district. Visually clean rooftops with mechanical and service facilities kept screened, or rooftops with photovoltaics and/or greenroofs are all viable rooftop options.

Design Guidelines:

- *RC-22:* Complement the composition of the building by varying roof form in accordance with the building's massing.

- *RC-23:* Treat building's roof line in a visually interesting manner. Sculptural roof forms are generally encouraged, while flat roof forms should incorporate a strong and attractively detailed cornice or parapet.



High level of pedestrian amenity



Building massing as special corner treatment



Modulated building massing provides interest



Architectural details provide visual relief



High degree of transparency and high quality materials



High quality signage that is compatible in scale and character with the building facade

- *RC-24:* Locate and/or screen rooftop equipment so that it is not visible from adjacent streets, sidewalks or open space. Rooftop screening should be integral to the building's form (e.g., through the use of raised parapets, louvers, etc.)

Building Articulation & Fenestration:

Articulation and fenestration of the facade help to create "architecture of mass" that provides deep openings, shadow lines, and details enhanced by the sun.

Design Guidelines:

- *RC-25:* Establish a clear pattern of fenestration that unifies the building, including well marked and articulated building and shop entrances.
- *RC-26:* Modulate exterior walls. Blank, unadorned walls are to be avoided unless screened by landscaping, especially along areas with high levels of pedestrian traffic.
- *RC-27:* Consider recessing windows to create depth and shadow lines.
- *RC-28:* Utilize a high degree of ground floor transparency where appropriate.
- *RC-29:* Storefront windows should be transparent and not be obstructed or coated with any material to preclude visibility within the interior space that is not of a decorative or photographic medium.

Architectural Details:

Details, especially at street level, enrich the pedestrian experience providing eye-level features at a human scale that feel familiar, accessible, and facilitate retail and commercial activity.

Design Guidelines:

- *RC-30:* Introduce architectural details and elements that provide visual relief for example, pilaster, course lines, window heads and sills brackets, cornices, etc.
- *RC-31:* Encourage details that modulate the light and show evidence of artistry and craft.
- *RC-32:* Allow for creativity and individual expression in storefront design, provided that each storefront is compatible with the overall building design.
- *RC-33:* Ensure that architectural features are integral and contribute to a harmonious design. Ornamentation and features that appear tacked-on or are artificially thin are discouraged.
- *RC-34:* Encourage inviting entries and expansive storefront windows with engaging displays that add to the adjacent pedestrian areas.
- *RC-35:* Introduce pedestrian scaled details at street level. Canopies, awnings and overhangs are especially appropriate as climate protection, and at building and shop entrances.
- *RC-36:* Continue design elements and detailing (e.g., trim details, materials) around the entire structure, and especially along elevations that are readily visible to the public.

Building Materials & Colors:

The material and color guidelines are intended to provide a uniform character and complimentary material relationship between buildings, promote the perception of strength and permanence of buildings, while maintaining appropriate variety for design flexibility.

Design Guidelines:

- *RC-37:* Use materials and colors that will enhance a building's visual quality, requiring compatible materials on all sides.
- *RC-38:* Emphasize especially durable and high quality materials at the street level. Materials such as stone, wood, tile, terra-cotta, concrete, metal and glass may be introduced as part of the facade treatment, and to break-up the predominance of a single material such as cement plaster.

- *RC-39:* Choose a color palette that offers visual simplicity and harmony, generally emphasizing light, neutral colors. The use of bright or intense colors should normally be limited to an accent within a carefully balanced color scheme; for example, to help articulate the facade, highlight building features, or add visual interest.

- *RC-40:* Discourage the use of reflective, opaque or highly-tinted glass.

SIGNAGE & LIGHTING DESIGN

Site Signage:

Signage shall add to the pedestrian streetscape experience and uniformly express information without creating visual clutter or confusion. Signs shall be thought of as a "family" and incorporate a similar "language" when it comes to materials and colors, etc. Signs will be consistent with the applicable Comprehensive Sign Program approved pursuant to Section 7.1 of this MCP.

Design Guidelines:

- *RC-41:* Signs shall be consistent with the applicable Comprehensive Sign Program approved pursuant to Section 7.1 of this MCP.

- *RC-42:* Design signs that complement one another rather than compete with one another.

- *RC-43:* Conceive of signs as an integral part of building facade. Tenant signage shall be compatible in scale and character with the building and storefront design. Nonetheless, encourage high quality, innovative and expressive tenant signage.

- *RC-44:* Tenant identification signage shall be appropriately scaled to fit the storefronts, with tenant branding elements reasonably accommodated.

- *RC-45:* Place signs in accordance with facade rhythm, scale and proportion. Signs shall not obscure architectural features such as vertical piers, trim work, ornamental features, etc.

- *RC-46:* Construct signs of high quality and durable materials.

- *RC-47:* Coordinate sign materials and colors with the building and storefront design. In general sign letters and symbols should contrast with background materials to achieve readability.

Site Lighting:

Lighting shall be efficient, effective, and well thought out in its placement. A balance is needed of being mindful of night lighting issues and light pollution while also creating a pleasant and comfortable shopping experience, consistent with the guidelines of Section 7.8. Bird-safe lighting measures shall be integrated into the design, consistent with Section 6.8 (Bird Safety).

Design Guidelines:

- *RC-48:* Limit illumination of an entire building or large portions of an entire building.

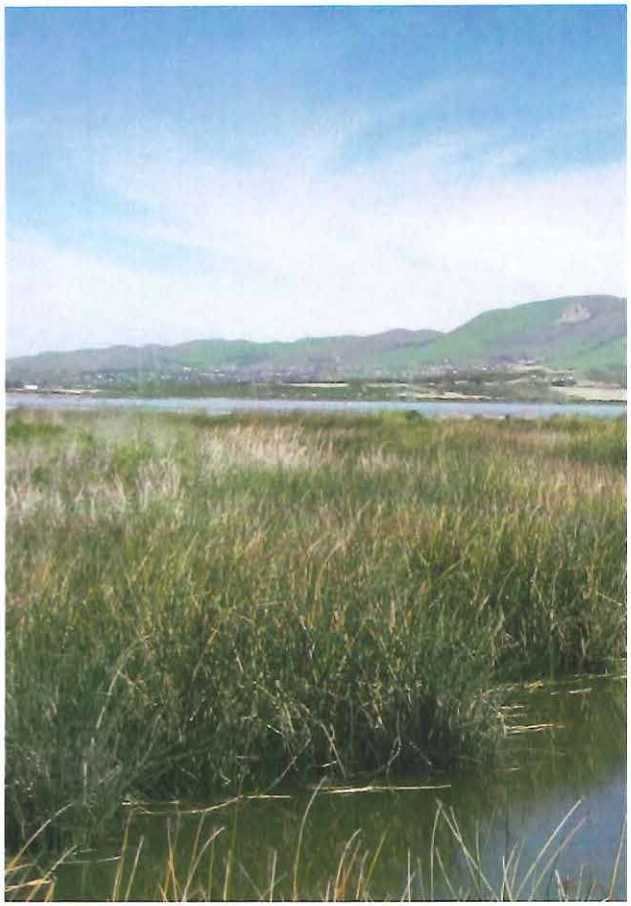
- *RC-49:* Select exterior lighting fixtures that are pedestrian scaled and compatible with the architectural design of the structure and/or streetscape aesthetic.

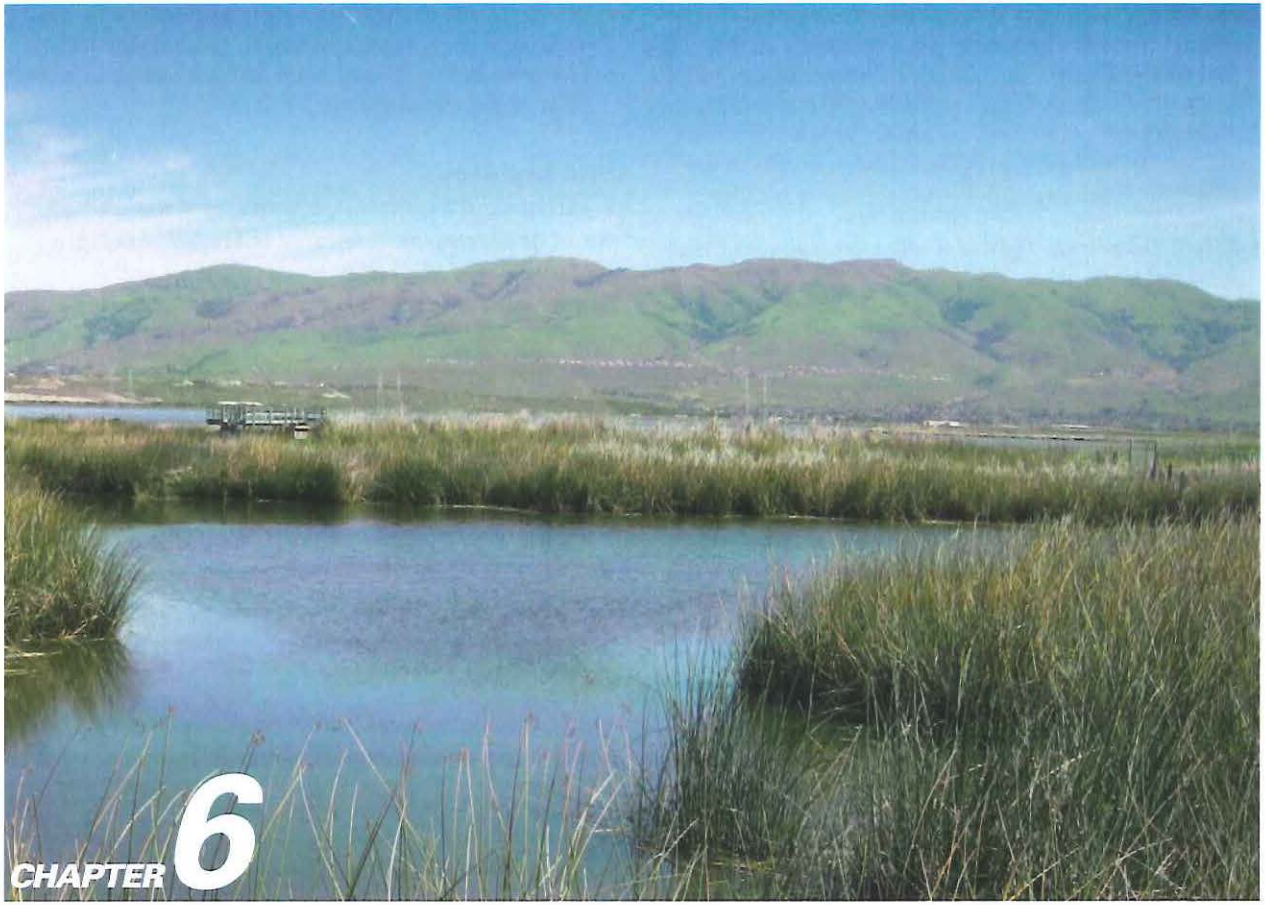
- *RC-50:* Lighting employed for streetscapes, public open spaces, and project signage should form a complementary family of fixtures with a similar aesthetic, emphasizing efficiency and good light control.

- *RC-51:* Limit uplighting throughout the project.



Pedestrian scaled and compatible light fixtures





CHAPTER 6

LANDSCAPE MASTER PLAN



6.1 LANDSCAPE DESIGN CONCEPT

...establishes design principles, guidelines and recommendations for open space improvements throughout CityPlace; it builds on the open space framework and elaborate on the landscape design and character of the project.

CONCEPT OVERVIEW

The landscape design concept will reinforce and expand on the design framework established by the open space plan to more fully describe a distinctive, sustainable landscape featuring a diversity of inviting and interesting outdoor environments. The proposed network of open spaces encompasses shared outdoor spaces and landscape zones. Important features of the landscape also include streetscapes, gateways, and enhansced inersections.

This interconnected network of landscapes and open spaces will be integral to the overall master plan. It will enrich the local and regional environment and provide highly desirable amenities for workers, residents, and visitors. Collectively, these multiple and various landscape elements are intended to create an engaging public realm and will contribute to the project's identity, functionality, sociability and visual appeal.

The landscape design concept will be refined as details of the project are worked out through Development Area Plans and related approvals. Nonetheless, it is expected that the essential landscape quality as described in this chapter will be implemented. Landscaping plans will be provided in the manner required by "Development Area Plans – Submittal and Approval Procedures" in Appendix C.

LANDSCAPE DESIGN PRINCIPLES

The following are fundamental design principles that will guide the landscape design concept and to which all future landscape design proposals shall respond. These principles are grouped according to four broader concepts established by the open space plan: 1) open space network; 2) distinctive landscape setting; 3) eco-sensitive landscape design; and 4) user-friendly spaces.



Alviso Marina County Park view at sunset

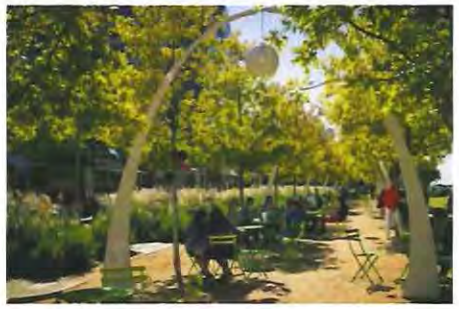
Open Space Network:



Principle No. 1 - Multi-functional: Integrate a variety of high performance outdoor spaces to create distinct and assorted experiences that address the full range of anticipated users and perform numerous functions. The resulting network of green infrastructure will bring added value to the project, community, and environment.



Principle No. 2 - Physical Connectivity: Ensure that pedestrian and bicycle circulation is continuous, safe and secure, including a network of full service green streets supplemented by trails, paths and paseos. It will be important that on-site pedestrian and bicycle networks provide convenient links to the regional open space system and nearby transit facilities.



Principle No. 3 - Communal Space: Incorporate a range of outdoor spaces encompassing public and semi-public settings that comfortably support formal and informal gatherings and social interaction. Spaces that have potential for public gathering will be essential, and will be anchored by the City Center Boulevard.



Principle No. 4 - Recreational Opportunity: Encourage active and passive recreational facilities that meet the needs of residents, workers and visitors. Facilities are to feature a variety of picturesque and horticultural gardens, as well as trails and paths and multi-functional activity spaces, which may include sports courts, playing fields and par courses where appropriate.

Distinctive Landscape Setting:



Principle No. 5 –Private Open Space: Certain project elements including residential rooftop recreational areas and courtyards, as well as secure areas of closed corporate campuses will be allowed as private open spaces.



Principle No. 6 - Landscape Identity: Employ a cohesive landscape design concept to promote project identity, including a coordinated design palette for the public realm. This principle recognizes that the landscape will be an important aspect of placemaking, encouraging unique or special design qualities and features.



Principle No. 7 - Regional Character: Contribute to the authentic character of the place through the use of regionally appropriate materials, especially native and adapted drought tolerant plant species. To the extent feasible, reliance on locally and regionally sourced materials is encouraged.



Principle No. 8 - Enhanced Public Realm: Establish a high standard of quality for the design of public outdoor spaces, in particular, to make a statement about the public character of the City Center. The public landscape should contribute to a welcoming environment and enhance visual appeal.

Eco-Sensitive Landscape Design:



Principle No. 9 - Low Maintenance & Energy Conservation: Minimize the urban heat island effect, and provide shading and cooling design features for buildings and outdoor spaces. The shading of paved areas will be critical, including the provision of a continuous tree canopy along streets. Choosing drought tolerant native plants, quality street furniture, appropriate tree species, and energy efficient lighting all help to create a low maintenance project.



Principle No. 10 - Water Wise: Minimize resource inputs through efficient use of water resources and a drought tolerant plant scheme. This will be best accomplished through the use of native and climate adapted plant materials that will contribute to long term sustainability, as well as efficient irrigations systems, and use of recycled water for irrigation and water features.



Principle No. 11 - Stormwater Management: Integrate stormwater management into the landscape planting scheme to create a sustainable urban drainage system. Landscape features such as bio-swales, rain gardens, and green roofs are recommended to collect, convey and cleanse rainwater and will be incorporated into the project site design for conformance with C3 requirements.

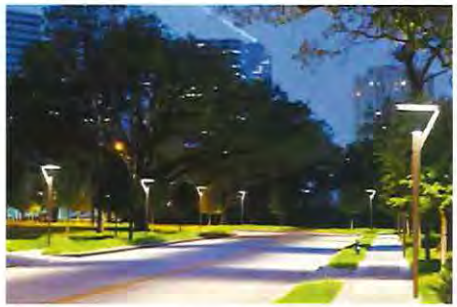


Principle No. 12 - Habitat Enrichment: Introduce native landscape communities and natural systems to create a regenerative and resilient site that reduces maintenance and minimizes water and energy inputs. Habitat enrichment of this kind will increase biodiversity and will create a positive environmental impact.

User Friendly Spaces:



Principle No. 13 - Site Accessibility: Provide a landscape experience that invites and engages the community, first and foremost ensuring ease of access through physical and visual connections both on- and off-site. This principal assumes universal accessibility and compliance with the American with Disabilities Act.



Principle No. 14 - Security & Comfort: Make user safety and comfort a priority, for example, offering appropriate exterior lighting that promotes on-site security and by creating favorable micro-climates that result in extended outdoor use. Additionally, the presence of uses that will activate a public outdoor space should be encouraged.



Principle No. 15 - Spatial Enclosure: Design active public spaces that take on the character of outdoor rooms, especially within the mixed-use City Center. Surrounding buildings and trees should define streets and outdoor spaces, with pleasing transitions between the interior and exterior.



Principle No. 16 - Site Amenities: Contribute to the physical comfort and convenience of on-site users by incorporating landscape design elements such as canopy trees for shade and site furnishings. These features will let people know they are a welcome presence and support the shopping and entertainment experience.

6.2 SUSTAINABLE LANDSCAPE MEASURES

CityPlace's landscapes will support an environmentally sustainable infrastructure that will address efficient use of resources, energy and water conservation, stormwater management, habitat enhancement, and restoration of natural ecological processes. A primary objective will be to minimize the inputs required to sustain a healthy landscape, especially energy and water, while limiting negative impacts on the environment such as pollution and stormwater runoff. Following are ten interrelated measures with supporting design guidelines for achieving a sustainable landscape.

HIGH PERFORMANCE OUTDOOR SPACES

Sustainability Concept: The project will encourage high performing landscapes that simultaneously embrace social, recreational, ecological, and aesthetic values. A driving factor behind the planning and design of the landscape will be the interdependence between aesthetic and recreational outdoor environments and the green infrastructure that will deliver ecological benefits such as stormwater management and energy conservation and production. The emphasis will be on multi-functional, adaptable, and resilient outdoor spaces that are vital to a successful urban environment.

Design Guidelines:

- *SL-1:* Orchestrate outdoor spaces that incorporate integrated stormwater BMPs in a manner that contributes to its aesthetic character and flexible use.

ECOLOGICAL HABITAT

Sustainability Concept: The project will create and enhance local and regional habitats through the emulation of plant communities associated with the South Bay region to include coastal wetland, riparian, prairie, shrubland, and woodland zones. Establishment of native plant communities will be especially appropriate along the perimeter of the site, thereby transforming landfill embankments into an aesthetic and ecological amenity. This method of landscape treatment also will present an opportunity to enrich adjacent waterways, introducing constructed wetland and riparian habitats to aid in the bio-filtering of pollutants and will attract wildlife that rely on healthy local ecologies.

Design Guidelines:

- *SL-2:* Set aside areas for the establishment of native plant communities to enhance bio-diversity.

NATIVE & ADAPTED PLANT SPECIES

Sustainability Concept: The project will favor regionally native plants and species adapted to the local climate; these will normally require less care than exotic species and contribute to more ecologically resilient habitats and landscapes. This approach will depend on a heavy reliance on water conserving plants derived from native plant communities, while limiting the use of turf grass and other water intensive landscapes to only the most appropriate areas. See *Exhibit 6-4: Examples of Sustainable Landscape* for examples of

EXHIBIT 6–1: LANDSCAPE FUNCTION*



Public Park Space
- *Courts, Sports Fields*
- *Areas for active play*
- *Typically turf areas*
- *Playgrounds*



Passive Recreation
- *Areas for lingering & relaxation*
- *Typically turf and hardscape*



Picturesque
- *Grasslands, native landscape areas*
- *Colorful wildflowers along slopes*



Ornamental Garden
- *Unique colorful plantings*
- *Mini-Park*
- *Roof gardens*



Working Gardens
- *Recreational community gardens ,chef's gardens.*
- *Urban rooftop gardens*



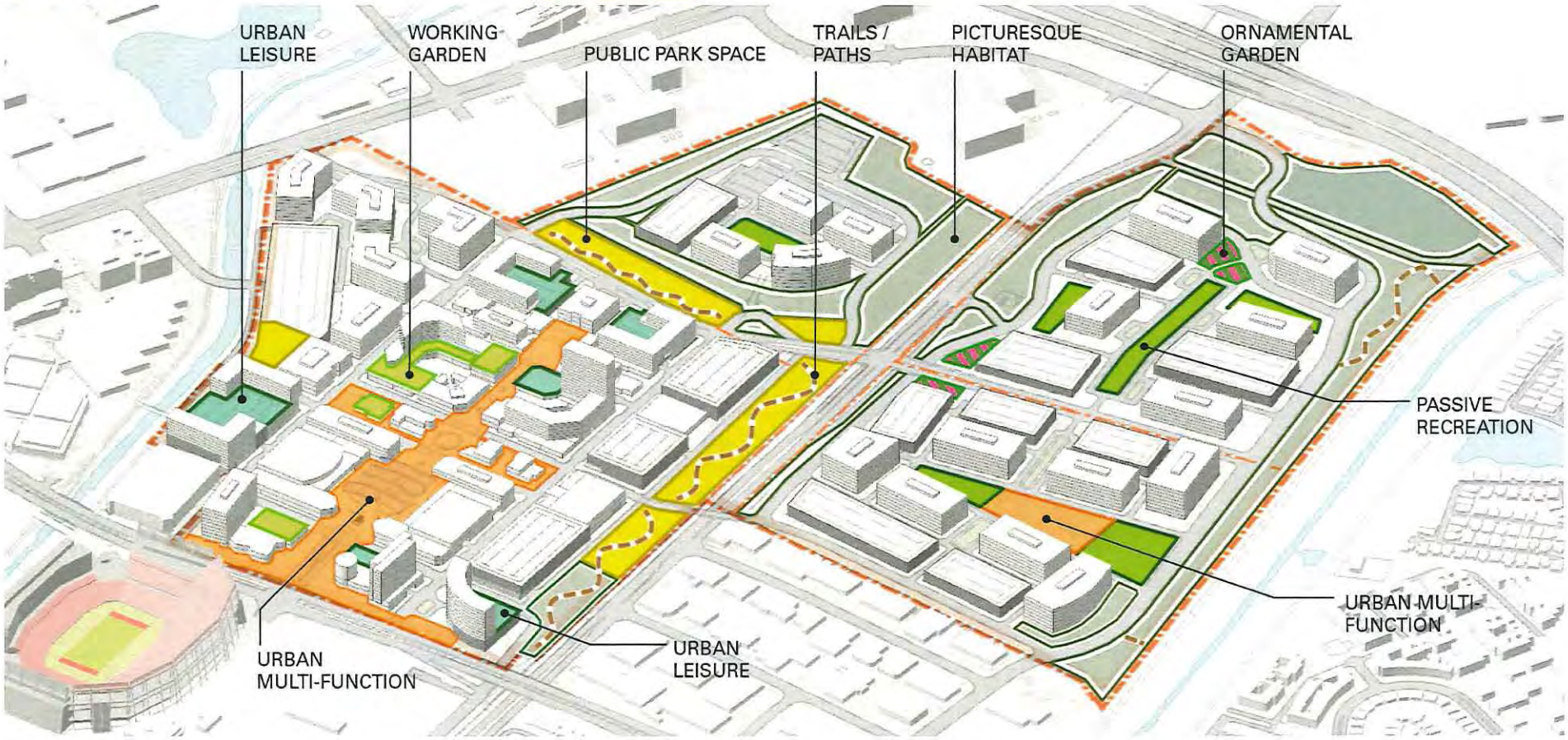
Urban Multi-Function
- *Plazas & pedestrian spine*
- *Highly pedestrian area*
- *Typically hardscape*



Urban Leisure
- *Mixed-use courtyards*
- *Amenities areas*
- *Public & Private*



Trails / Paths
- *Multi-use trail for walking, biking, jogging etc.*
- *Native plantings*



** The depiction of landscape infrastructure is illustrative in nature, particularly on parcels 1-3. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

various native/drought tolerant species adapted to the project area that may be included in the design.

Design Guidelines:

- *SL-3:* Select plants suited to the soil and climatic conditions of the site, emphasizing drought tolerant and adapted species that minimize water use.
- *SL-4:* Minimize the use of water intensive landscapes such as turf grass and extensive annual beds, especially within perimeter landscape zones.
- *SL-5:* Use low maintenance varieties of turf grass in locations where turf is necessary or uniquely advantageous. Consider non-turf alternatives such as artificial turf for sports fields.
- *SL-6:* Favor native species and water conserving plants that are also suitable for erosion control along embankments and sloped areas.
- *SL-7:* Install and utilize recycled water irrigation and water saving technology.

EFFICIENT IRRIGATION

Sustainability Concept: The project will support efficient use of water resources by relying on the most sustainable systems and technologies for irrigation. Although limiting the need for irrigation through the use of water conserving plants will be important, high efficiency irrigation systems that employ recycled water, and minimize runoff and evaporation will be installed. Furthermore, it will be necessary to group plants with similar water needs to maximize the effectiveness and reduce water consumption. Irrigation will be a favored end-use for greywater recycling and rainwater harvesting systems.

Design Guidelines:

- *SL-8:* Group plants according to their requirements for sun, water, and soil to promote efficient irrigation, designating areas for lower or higher water use.
- *SL-9:* Install efficient irrigation systems that employ deep or subsurface delivery, low volume and/ or low flow methods and recycled water.
- *SL-10:* Employ automatic irrigation sensors and controllers; for example, utilizing either evapotranspiration or soil moisture sensor data.
- *SL-11:* Eliminate or reduce to a minimum potable water use in the landscape by utilizing alternative sources of irrigation, such as the use of stored rainwater and reclaimed water from utility and on-site sources.

BIO-RETENTION / BIO-SWALES:

Sustainability Concept: The project will use BMP's to manage and treat anticipated urban stormwater runoff, involving on-site collection, filtration and reuse. More specifically, the project will employ a system of bio-swales, rain gardens, and green roofs and walls to intercept and gradually convey rainwater to water storage basins and adjacent creeks, as well as to feed a system of greywater treatment and reuse. Additional benefits will be derived from the ability of plants to filter runoff and maintain water quality; for example, by removing and degrading contaminants.

Design Guidelines:

- *SL-12:* Install and direct runoff toward designed dry ponds, rain gardens, bio-swales and other landscape features that retain water and slow the rate of discharge.
- *SL-13:* Set aside landscape areas to harvest and clean stormwater for reuse in water irrigation and building systems.
- *SL-14:* Incorporate stormwater management into site design, including features that serve multiple functions, for example, bio-retention areas and planters along streets and in lieu of parking islands.

GREEN STREETS

Sustainability Concept: The project will utilize on-site roadways as a critical component of its green

EXHIBIT 6–2: LANDSCAPE INFRASTRUCTURE*



Retention Pond

- *Basin to manage stormwater runoff to prevent flooding and downstream erosion*
- *Artificial lake with vegetation around the perimeter*



Stormwater Catchment

- *The collection, accumulation, treatment or purification, and storing of stormwater for its eventual reuse*



Bioswales

- *Stormwater runoff conveyance system*
- *Removes pollution & silt from runoff*
- *Drainage w/ sloped sides & vegetation*



Green Streets / Bioswales

- *Stormwater runoff conveyance system*
- *Removes pollution & silt from runoff*
- *Drainage w/ sloped sides & vegetation*



Rain Garden

- *Reduce rain runoff by allowing stormwater to soak into the ground*
- *Rain gardens can cut down on the amount of pollution reaching creeks and streams by up to 30 percent*



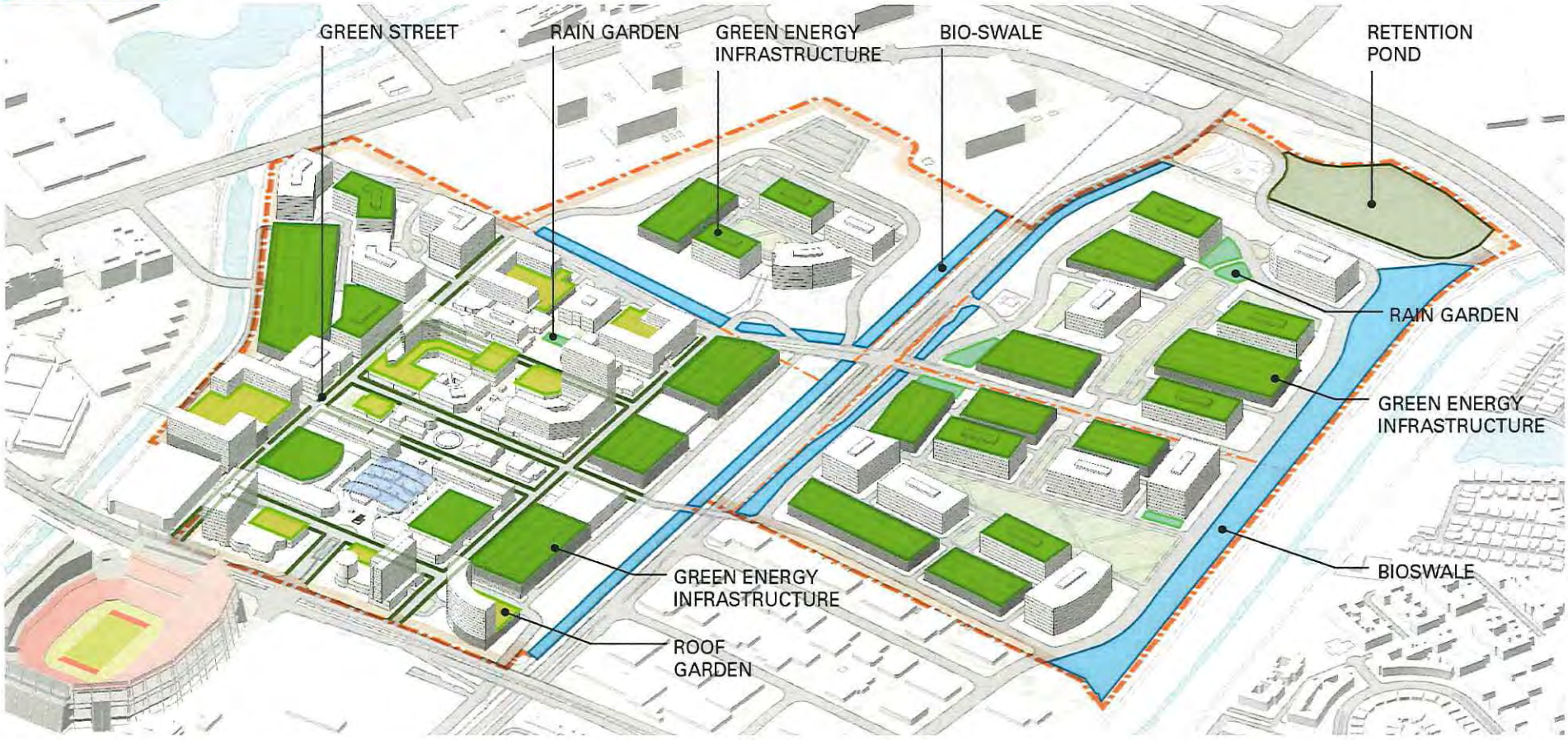
Roof Garden

- *May provide food, temperature control, hydrological benefits, architectural enhancement, habitats for wildlife, recreational opportunities, and aesthetic benefits and recreational areas for building users*



Green Energy Infrastructure (PV's)

- *Energy from resources which are naturally replenished on a human timescale*
- *Photovoltaic systems employ solar panels supplying usable solar power*



** The depiction of landscape infrastructure is illustrative in nature, particularly on parcels 1-3. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

infrastructure. Key aspects of green streets include narrow streets to reduce runoff and the use of landscape within the right-of-way to support natural processes, such as integration of swales and vegetation for bio-retention within curbside planter strips, curb extensions, and sidewalk planters. These design features will take advantage of the opportunity to intercept and treat stormwater close to its source. Permeable pavers will also aid in stormwater runoff. Sidewalk trees with sufficient planting area to mature will reduce the urban heat island effect, improve air quality, improve site aesthetics, and have the added effect as a traffic calming measure to slow vehicle travel and provide a buffer for safe pedestrian travel. These concepts are wholly compatible with complete streets policies and objectives that support multi-modal movement and walkability.

Design Guidelines:

- *SL-15:* Plant street trees to enhance the urban forest and reduce the heat island effect through evapotranspiration and shade.
- *SL-16:* Design and install planters within the sidewalk area to aid in the management of stormwater runoff.

GREEN ROOFS & GREEN WALLS

Sustainability Concept: The project will integrate green roofs and walls as part of its green infrastructure, delivering numerous sustainable benefits. Their extra thermal mass and evapotranspiration will promote natural cooling to reduce ambient temperatures and will provide insulation and shade that decreases heating and cooling loads on buildings. Additionally, they will have the capacity to retain rainwater, promote bio-filtration, increase biodiversity and support urban agriculture. Use of green screens on parking structures has both an aesthetic function, and the practical advantages of shading and screening. By capturing airborne pollutants and absorbing carbon dioxide emissions from parking structures, green screens also will improve air quality.

Design Guidelines:

- *SL-17:* Allow green roofs for tenant/resident managed small-scale food production, for example, as a residential plot garden, or a showcase "chef's garden" associated with one or more restaurants, and for additional outdoor open space, recreational use or social gathering.

HIKE AND BIKE / NATURE TRAILS

Sustainability Concept: The project will incorporate a trail system designed for safe pedestrian and bicycle use, highlighting the aesthetic and recreational benefits associated with sustainable landscapes. On-site trails with linkages to the regional trail network will be a special opportunity to improve access to natural resources and will support environmental education. For example, trails that run the perimeter of the site among native plant communities and enhanced habitats may be signed with interpretive information.

Design Guidelines:

- *SL-18:* Create hike and bike trails with a minimum of 4' in width for hiking trails and minimum 6' in width for shared trails that include multiple users.
- *SL-19:* Link on-site hike and bike trails into the regional trail network.
- *SL-20:* Incorporate interpretive signage along trails to include information about local and regional history and culture, natural processes and/or ecological principles.

REGULATED MICRO-CLIMATES

Sustainability Concept: The project will utilize the landscape to create comfortable micro-climates, delivering functional outdoor spaces that also will deliver on improved energy efficiency for buildings. Deciduous trees will be especially valued for their ability to regulate access to sun and shade and providing cooling effects on hardscape areas and may be utilized as street trees, as well as solar control for south and southwest facing facades. Other design features that will be utilized to regulate micro-climates and reduce

EXHIBIT 6–3: LANDSCAPE ZONES*



Native Wetland
- *Historically marshes transitioned to coastal grasslands and then to coastal shrub beyond*
- *Creates a nesting & feeding habitat for waterfowl*



Native Riparian Woodlands
- *Grow along stream banks leading to the Bay*
- *Understory growing* b/w woods and marsh



Native Coastal Prairie / Grassland
- *Once grew along the gentle slopes to the Bay*
- *Mix of grasses, wildflowers, and perennials*
- *Typically no trees or shrubs*



Native Coastal Shrub
- *Low shrubs within grassy open meadows*
- *Adaptable and drought tolerant shrubs*
- *Shrubs range* from *1-5 ft high*



Native Coastal Woodland
- *Often mixes with Coastal Grassland*
- *Generally begins at foot of the hills & moves up*
- *Tree dominated* vegetation
- *Dominated by* coast live oaks



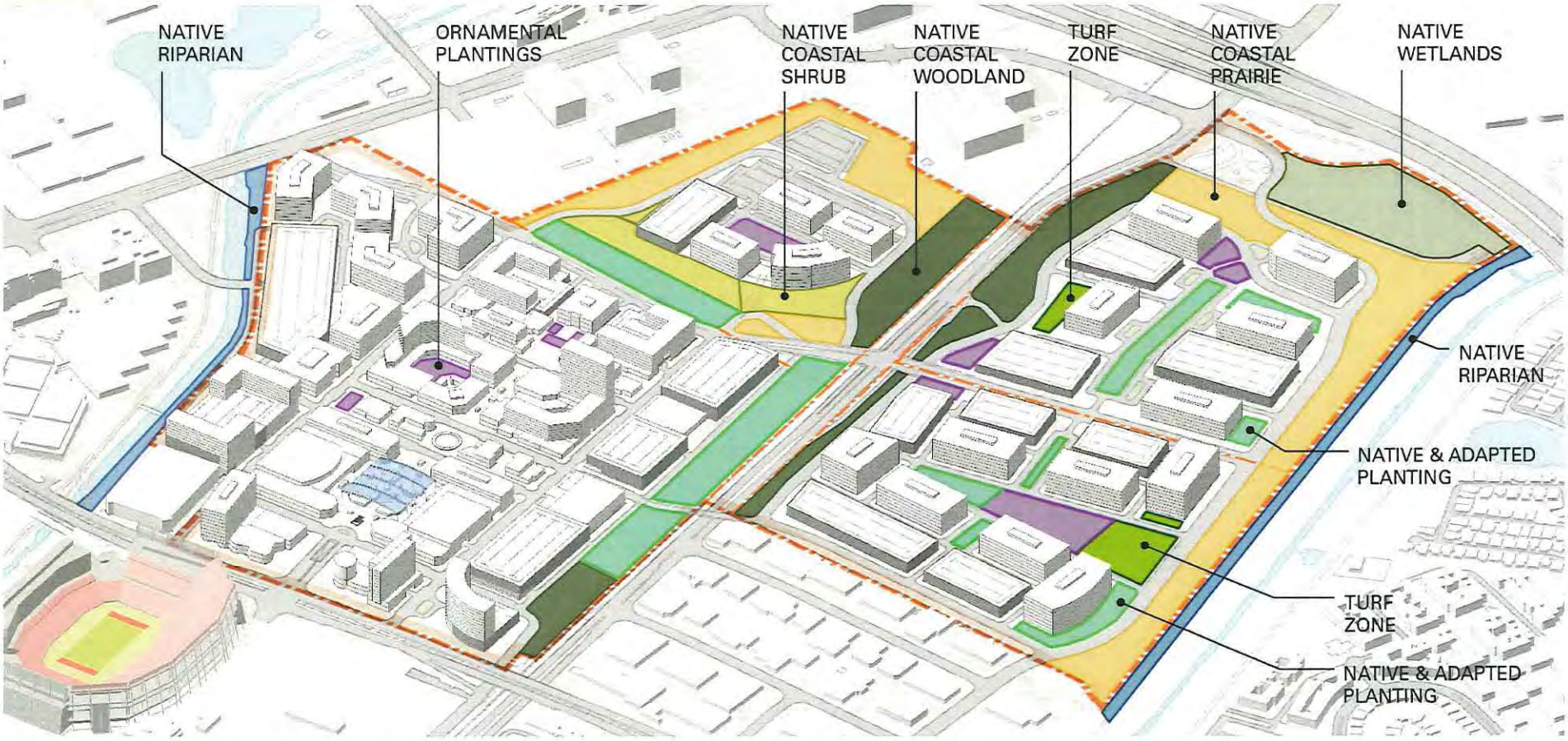
Native & Adapted Plantings
- *Native plants species that are indigenous to this region*
- *Adapted plants are not native and not invasive, but are able to thrive in the local climate and soil conditions.*



Ornamental Plantings
- *Gateway plantings*
- *Colorful/decorative plantings in areas of special interest*



Turf Zone
- *Grassy lawn areas*
- *Passive or active zones*
- *Sports fields or quiet relaxation areas*



** The depiction of landscape infrastructure is illustrative in nature, particularly on parcels 1-3. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

urban heat island effects include roof gardens and vegetated structures (e.g., trellises, green screens), and a reduction in paved areas, especially the area devoted to parking lots.

Design Guidelines:

- *SL-21:* Select and place trees to provide shading of streets, pedestrian walkways, and southwest facing windows of buildings.

- *SL-22:* Use landscape to mitigate the expansiveness of surface parking lots, incorporating canopy trees to reduce the heat island effect.

RENEWABLES INFRASTRUCTURE

Sustainability Concept: The project has the potential to support significant production of renewable energy on-site, primarily by use of photovoltaics on un-programmed rooftops. Other renewable energy sources should also be considered, but primary attention to demand side reductions will be most crucial. Automated Energy Load Management systems, user energy use feedback information and efficient infrastructure systems will promote sustainability through reduced energy use.

Design Guidelines:

- *SL-23:* Integrate on-site renewable energy generation where practical, for example, photovoltaic cells on un-programmed rooftops or shade structures.

- *SL-24:* Employ exterior light fixtures that use efficient technologies like LED,s, dimming capabilities, sensors and curfews, to reduce demand side energy load.

WATER BUDGET

In addition to the previous sustainable landscape measures, each Development Area Plan shall complete a Water Budget Calculation for the landscape component of the project as required per section 24.I Water Budget Calculation from the Water Service and Use Rules and Regulations, Ordinance No.1871, adopted January 11, 2011, or as amended. A water budget shall be completed by a certified professional who is authorized by the State of California to complete a water budget. On-site recovery of rainwater and/or wastewater is encouraged to augment supply of City reclaimed water. Such on-site reclaimed water can be considered as additive (above the calculated water budget) and may be used to support water features and landscape irrigation outside of the budget.

EXHIBIT 6–4: EXAMPLES OF SUSTAINABLE LANDSCAPE

NATIVE WETLAND / MARSH




Typical Wetland Plants:

- Alkali bulrush (*Bolboschoenus maritimus*)
- Red willow (*Salix laevigata*)
- Arroyo willow (*Salix lasiolepis*)
- California bulrush (*Schoenoplectus californicus*)

NATIVE RIPARIAN WOODLANDS




Typical Riparian Woodland Plants:

- Box elders (*Acer negundo*)
- Willows (*Salix laevigata, S. lasiolepis*)
- Bigleaf maple (*Acer macrophyllum*)
- Marsh baccharis (*Baccharis douglasii*)
- California rose (*Rosa californica*)
- California blackberry (*Rubus ursinus*)
- California grape (*Vitis californica*)

COASTAL PRAIRIE / GRASSLAND




Typical Grassland Plants:

- Diego bent grass (*Agrostis pallens*)
- Blue wild rye (*Elymus glaucus*)
- Red fescue (*Festuca rubra*)
- Douglas iris (*Iris douglasiana*)
- Creeping wild rye (*Leymus triticoides*)
- Purple needle grass (*Nassella pulchra*)
- Blue-eyed grass (*Sisyrinchium bellum*)

NATIVE COASTAL SHRUB




Typical Coastal Shrub Plants:

- California sagebrush (*Artemisia californica*)
- Buckwheat (*Eriogonum nudum*)
- Silver bush lupine (*Lupinus albifrons*)
- Sticky monkey flower (*Mimulus aurantiacus*)
- Coffeeberry (*Rhamnus californica*)
- Coyote bush (*Baccharis pilularis var. consanguinea*)

NATIVE COASTAL WOODLAND




Typical Coastal Woodland Plants:

- Buckeye (*Aesculus californica*)
- Western redbud (*Cercis occidentalis*)
- Toyon (*Heteromeles arbutifolia*)
- Coast live oak (*Quercus agrifolia*)
- California blackberry (*Rubus ursinus*)

NATIVE & ADAPTED PLANTINGS




Typical Native & Adapted Plants:

- Rock rose cress (*Arabis blepharophylla*)
- Sandhill sage (*Artemisia pycnocephala*)
- Berkeley sedge (*Carex tumulicola*)
- Beach Aster (*Erigeron glaucus*)
- Pacific Reed Grass (*Calamagrostis nutkaensis*)

NATIVE ORNAMENTAL PLANTINGS




Typical Ornamental Plants:

- Sea pink (*Armeria maritima*)
- Deer grass (*Muhlenbergia rigens*)
- Cape Mendicino Reed Grass (*Calamagrostis foliosa*)
- California fescue (*Festuca californica*)
- Cleveland Sage (*Salvia clevelandii*)

6.3 STREETSCAPE

This section describes the proposed landscape treatment of CityPlace's streets, including roadway, bicycle and pedestrian circulation components. It includes design intent and general design guidelines for the project's streetscapes, with specific recommendations for the various streetscape typologies, augmented by drawings and photo illustrations.

STREETSCAPE DESIGN INTENT

The project's streetscapes are envisioned as a system of landscaped corridors designed to accommodate multiple modes of travel and deliver a pedestrian friendly experience. Moreover, their design should enrich the public realm, achieving spatial enclosure, offering ADA and pedestrian comfort, and providing visual appeal, through the use of such features as wide sidewalks, canopy street trees, and benches for rest and relaxation.

STREETSCAPE GENERAL DESIGN STANDARDS / GUIDELINES

Traffic Calming:

- *SD-1:* Introduce traffic calming measures where pedestrian activity is heaviest, including curb bulb-outs, enhanced crosswalks, park strips or tree wells with canopy tree planting and on-street parking.
- *SD-2:* Use curb extensions (i.e., bulb-outs) at intersections, particularly in combination with on-street parking, to slow vehicular traffic and decrease the crossing distance for non-vehicular traffic (ADA, pedestrians, bicyclists).
- *SD-3:* Encourage on-street parking along local streets, especially in support of short-term customer access and to slow vehicular traffic along these roadways.

Pedestrian Circulation:

The intent is to design streets for safe and comfortable movement on foot.

- *SD-4:* Provide generous sidewalks with sufficient width to accommodate clear pedestrian passage while allowing sufficient room for street trees and other streetscape amenities, as well as commercial activity such as sidewalk dining as appropriate.
- *SD-5:* Offer pedestrian amenities along streets and sidewalks, such as street trees, site furniture, pedestrian lighting, wayfinding signage, special paving, etc.
- *SD-6:* Locate streetscape amenities in a zone adjacent to or near the curb as a physical and psychological barrier to vehicular traffic.
- *SD-7:* Provide additional pedestrian amenities (within the core pedestrian areas of the City Center) such as raised intersections, use of "scramble" interchanges, etc.

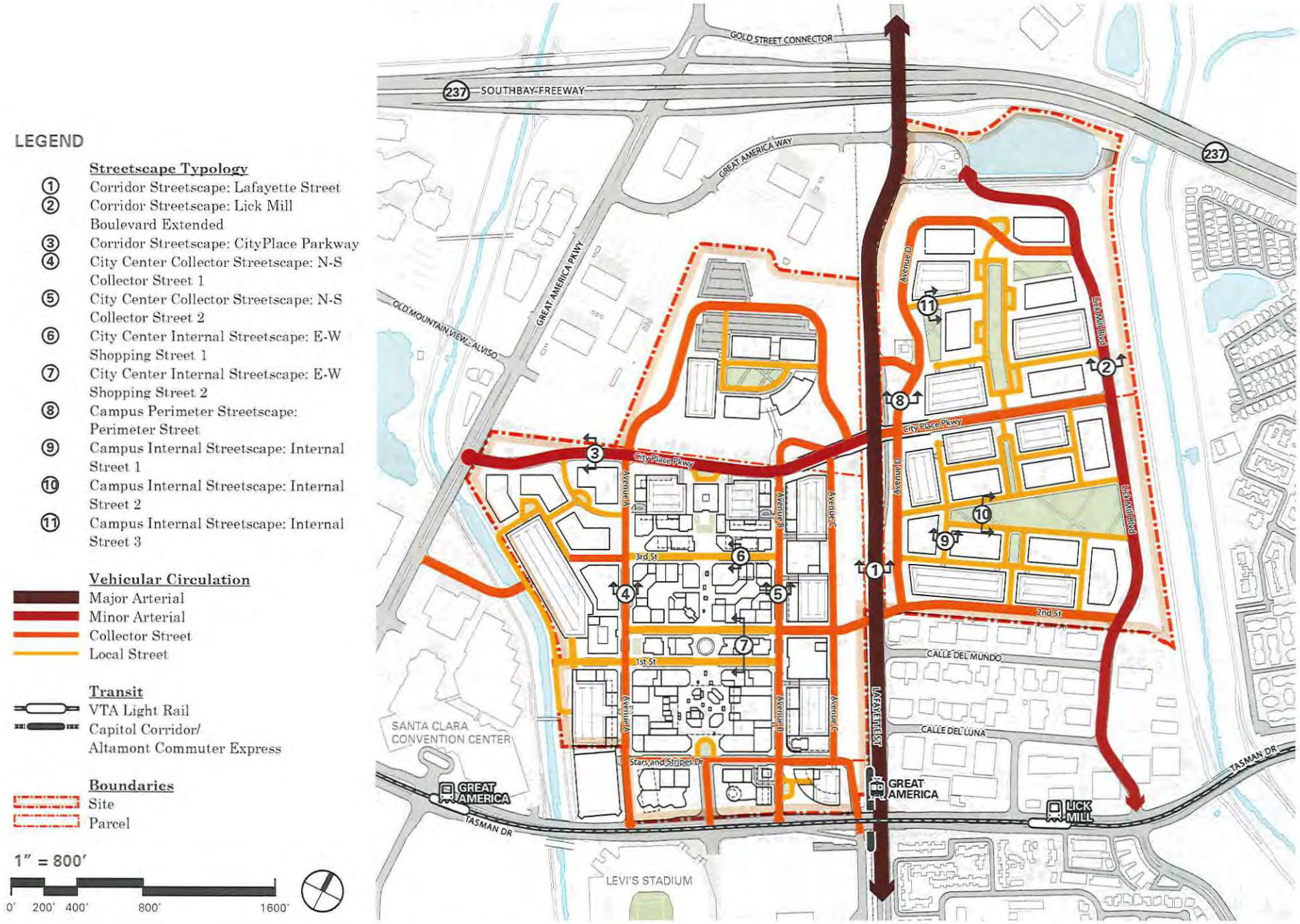
Bicycle Circulation:

- *SD-8:* Use off-street bike paths whenever possible within a hierarchy of bicycle accommodations featuring bike trails, bike lanes and shared routes (sharrows), using colored bicycle lanes in conflict areas.
- *SD-9:* Connect to existing bicycle and pedestrian trail network creating linkages that improve the local and regional system.

Street Trees:

- *SD-10:* Plant street trees throughout the project, thereby contributing to the spatial definition and visual appeal of the project's roadways, while providing shade and comfort for pedestrians.

EXHIBIT 6–5: STREETSCAPE TYPOLOGIES*



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- *SD-11:* Determine street tree species, size and spacing based on street hierarchy and function, while maintaining visibility of commercial signage.

- *SD-12:* Select street trees that are disease resistant, hold up to urban conditions and provide shady canopies at maturity.

Streetscape Amenities:

- *SD-13:* Place street furniture at regular intervals along sidewalks for pedestrian comfort and use in the City Center pedestrian zones. A high level of amenity is especially important and should be provided where pedestrian activity is most desired.

- *SD-14:* Select a consistent palette of street furniture that enhances project identity and reinforces the hierarchy of streets; durable materials and finishes are advised in each district.

- *SD-15:* Coordinate landscape design with the placement of utilities to avoid interference with streetscape amenities and pedestrian flows.

Sidewalk Activity:

- *SD-16:* Accommodate sidewalk dining along commercial streets where pedestrian activity is most desired: locate outdoor dining to maintain pedestrian flows and ADA accessibility.

Green Streets:

- *SD-17:* Include Low Impact Development (LID) measures to comply with the City Santa Clara stormwater C.3 provision requirements, State Water Resources Control Board (SWRCB) and National Pollutant Discharge Elimination System (NPDES) requirements (see section 8.4 for description).

A comprehensive Servicing and Trash Plan for the City Center will be provided with the first Development Area Plan submission. Reflecting the integrated nature of the City Center planning and operation, this plan should combine/optimize loading/trash locations and orchestrate movements of large vehicles away from pedestrian zones where possible. Curb-side loading may be utilized on private streets and utilize the Pedestrian Concourse during hours with minimum pedestrian activity. Office parcel loading/trash will be addressed in associated DAP submittals.

STREETSCAPE RECOMMENDATIONS

TABLE 6–1: STREET TYPOLOGY MATRIX

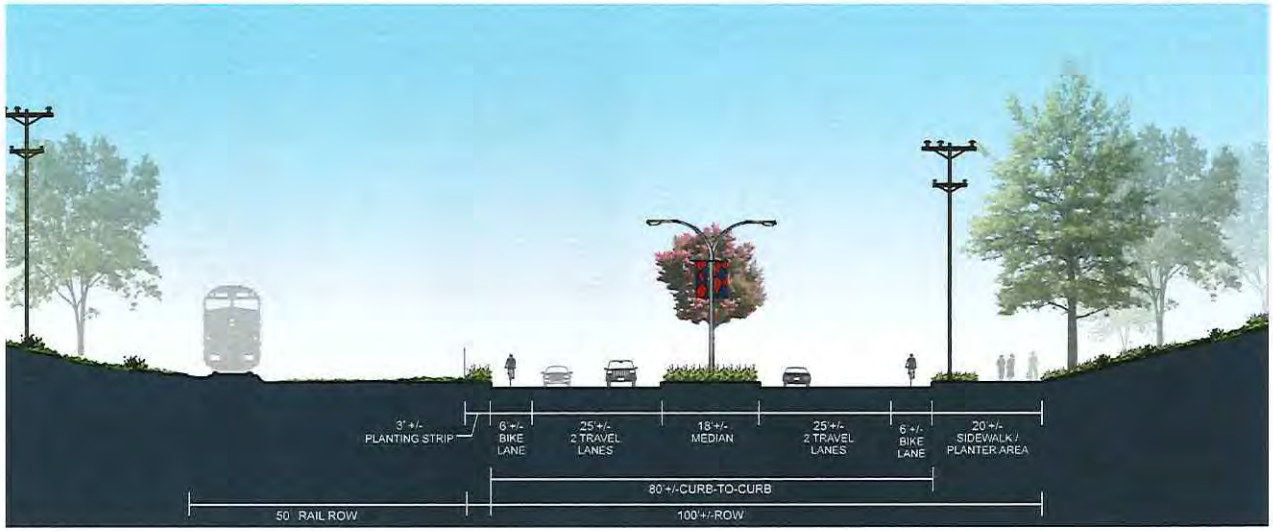
STREET TYPOLOGY		TRAVEL LANES		TURN LANE /MEDIAN		BIKE LANES		ON-STREET PARKING		SIDEWALK & PLANTER STRIP		TOTAL ROW
STREET	DESIGNATION	#	WIDTH	#	WIDTH	#	WIDTH	#	WIDTH	#	WIDTH	
1- Corridor Streetscape: Lafayette Street	Major Arterial	4	12-13*	1	18	2	5-8			1	16' min, 20' typ.	92-106
2- Corridor Streetscape: Lick Mill Boulevard Extended	Collector Street	4	11-13*			2	5-8			2	14' min, 16' typ.	82-100
3- Corridor Streetscape: CityPlace Parkway	Minor Arterial	4	12-13*	1	10	2	5-8			2	14' min, 16' typ.	96-110
4- City Center Collector Streetscape: N-S Collector Street 1	Collector Street	2	11-13*	1	12	2	5-8	2	8	2	12' min, 15' typ.	84-100
5- City Center Collector Streetscape: N-S Collector Street 2	Collector Street	2	11-13*	1	12	2	sharrow	2	8	2	12' min, 15' typ.	74-84
6- City Center Internal Streetscape: E-W Shopping Street 1	Local Street	2	11-12*			2	sharrow	2	8	2	16' min, 18' typ.	70-76
7a- City Center Internal Streetscape: E-W Shopping Street 2	Local Street	2	11-12*			2	sharrow	2	8	2	16' min, 20' typ.	70-80
7b- City Center Internal Streetscape: E-W Shopping Street 2	Local Street	2	10.5-12*			2	5-8	2	8	2	16' min, 20' typ.	79-96
8- Campus Perimeter Streetscape: Perimeter Street 1	Collector Street	2	10.5-12*	1	10	2	5-8			2	14' min, 16' typ.	69-82
9- Campus Internal Streetscape: Internal Street 1	Local Street	2	10.5-12*				sharrow	2	9	2	14' min, 16' typ.	67-74
10- Campus Internal Streetscape: Internal Street 2	Local Street	2	10.5-12*							2	14' min, 16' typ.	49-56
11- Campus Internal Streetscape: Internal Street 3	Local Street	2	10.5-12*							2	14' min, 16' typ.	49-56

**Street widths will be designed to accommodate emergency service vehicles and delivery trucks as appropriate.*

CORRIDOR STREETSCAPE TYPOLOGY

Corridor Streetscape: Lafayette Street*

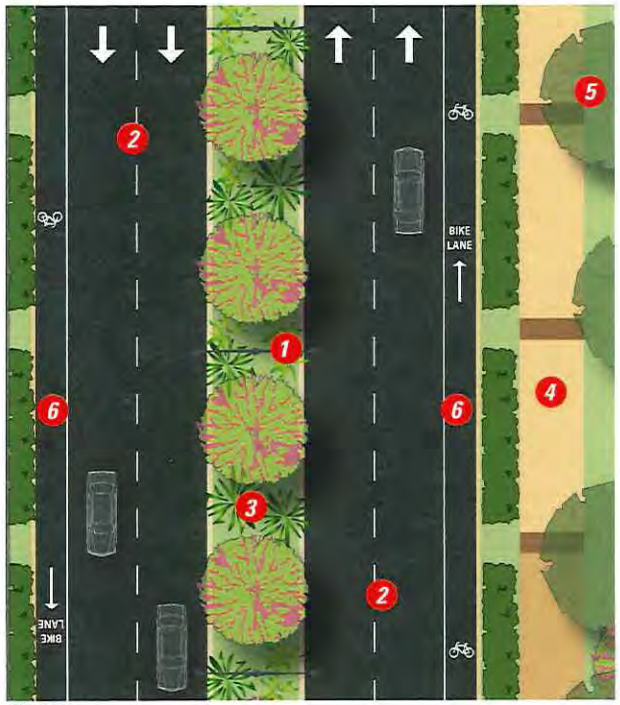
** Section and plan views depict a potential/typical configuration for illustrative purposes only. The actual dimensions and layout may vary subject to City review and approval.*



SECTION

Design Standards:

1. ***Amenities:*** Hang banners on street light poles for local events.
2. ***Travel Lanes:*** Maintain four travel lanes, two in each directions separated by a raised median and multiple left turn lanes where warranted.
3. ***Median:*** Maintain median with drought tolerant planting, adding in small scale flowering trees where lacking.
4. ***Sidewalk:*** Continue existing sidewalk north of Calle Del Mundo incorporating areas for planter strips creating a physical separation between the pedestrian and street traffic where possible.
5. ***Trees:*** Planting of street trees (large canopy) consistent with a parkway aesthetic.
6. ***Bicycle:*** Create two dedicated bicycle lanes: one in each direction. Use buffered bicycle lanes if possible. use colored bicycle lanes in conflict areas.



PLAN



KEY

Corridor Streetscape: Lick Mill Boulevard Extended*

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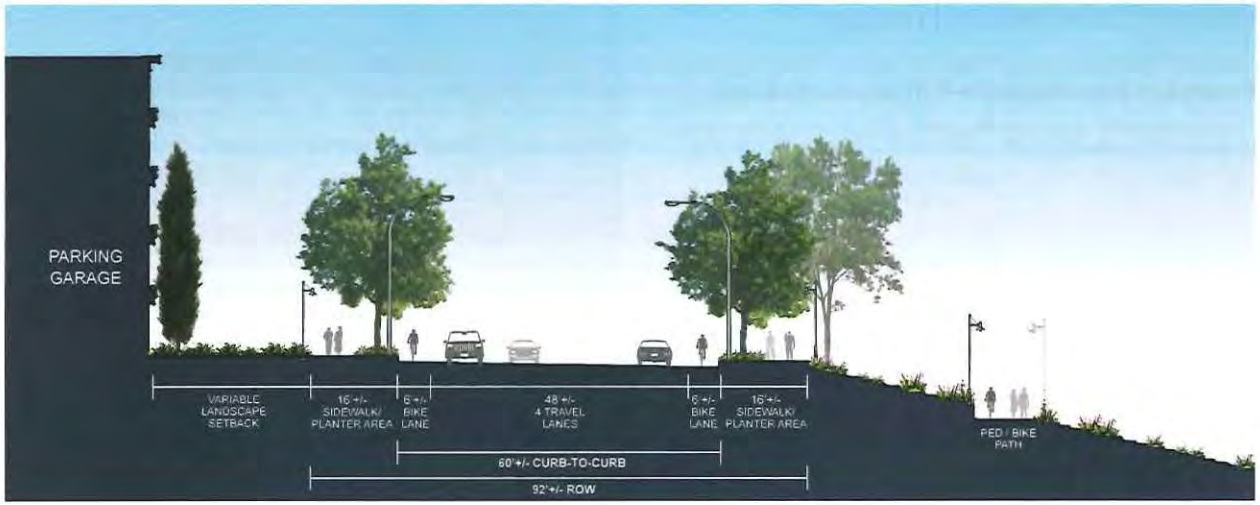
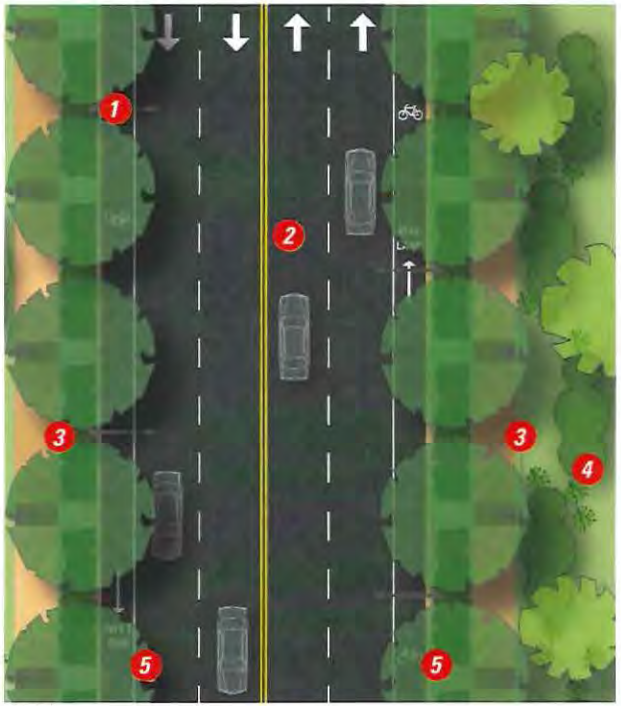


SECTION

Design Standards:

1. ***Amenities:*** Locate both auto-scaled and pedestrian scaled light fixtures at regular intervals along the sidewalk.
2. ***Travel Lanes:*** Provide four travel lanes, two in each direction.
3. ***Sidewalk:*** Allow for wide sidewalk widths along with areas for planter strips to separate pedestrians from moving traffic if curb parking does not create this buffer. Locate landscape planter strip adjacent to roadway with sidewalk behind landscape buffer.
4. ***Trees:*** Provide large scaled canopy trees to create pleasing rhythm and define the street. Utilize appropriate columnar and broad canopy trees and landscaping to break up large expanses of blanks wall such as parking garages.
5. ***Bicycle:*** Create two dedicated bicycle lanes one in each direction. Use colored bicycle lanes in conflict areas.



PLAN



KEY

Corridor Streetscape: CityPlace Parkway*

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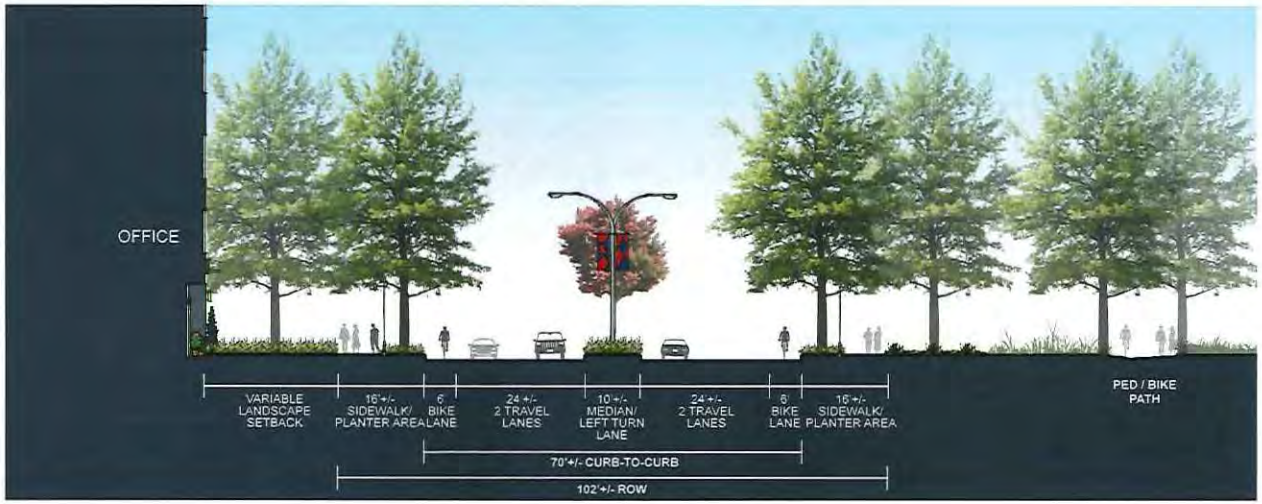
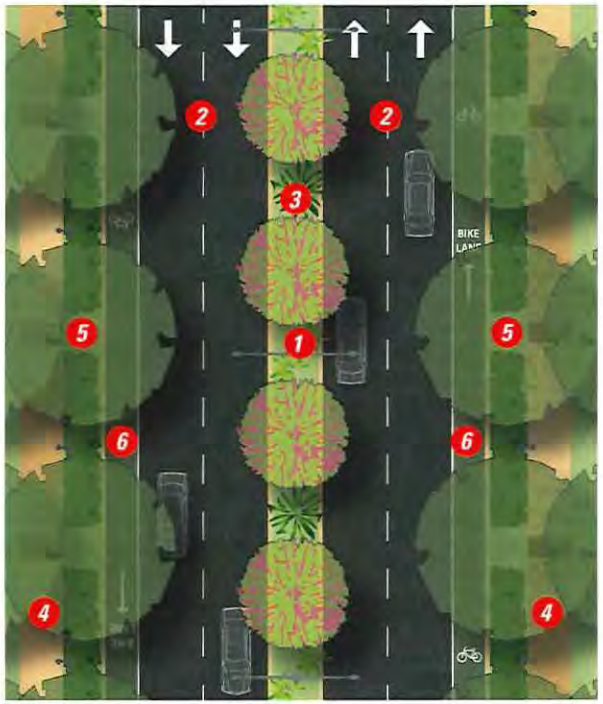


SECTION

Design Standards:

1. ***Amenities:*** Hang banners on street light poles for local events. Provide pedestrian scaled light fixtures at regular intervals along the sidewalk.
2. ***Travel Lanes:*** Provide four travel lanes, two in each directions separated by a raised landscape median with tree plantings and left turn lanes at intersections.
3. ***Median:*** Introduce small scaled flowering trees for an added pop of color and native drought tolerant landscaping.
4. ***Sidewalk:*** Allow for wide sidewalk widths along with areas for planter strips to separate pedestrians from moving traffic if curb parking does not create this buffer. Locate landscape planter strip adjacent to roadway with sidewalk behind landscape buffer.
5. ***Trees:*** Provide large scale canopy street trees to define the street and create a prominent entry boulevard.
6. ***Bicycle:*** Create two dedicated bicycle lanes one in each direction. Use colored bicycle lanes in conflict areas.



PLAN



KEY

City Center Collector Streetscape: N-S Collector Street 1*

** Section and plan views depict a potential/typical configuration for illustrative purposes only. The actual dimensions and layout may vary subject to City review and approval.*



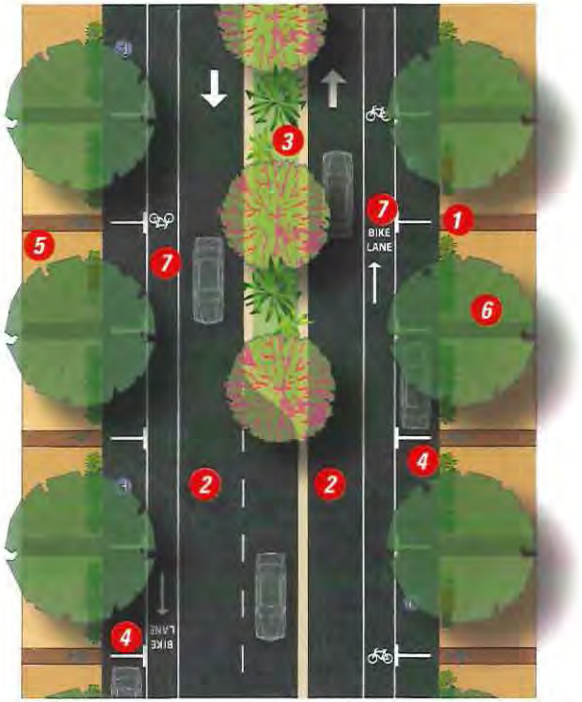
SECTION



KEY

Design Standards:

1. ***Amenities:*** Locate pedestrian scaled light fixtures at regular intervals along the sidewalk. Add planters, street furniture, bicycle racks, and wayfinding signage. Allow outdoor seating areas for restaurants.
2. ***Travel Lanes:*** Provide four travel lanes, two in each direction, and separated by a raised tree landscaped median with left turn lanes at intersections and entrances to parking structures.
3. ***Median:*** Introduce small scaled flowering trees for an added pop of color and native drought tolerant landscaping or xeriscaping.
4. ***Parking Lanes:*** Introduce on-street parallel parking on both sides of the street, interrupted by bulb-outs at intersections and mid-block crosswalks (if needed)
5. ***Sidewalk:*** Allow for wide sidewalk widths and space for large scale planters.
6. ***Trees:*** Provide rhythmic planting of large scale canopy trees creating shade for pedestrians.
7. ***Bicycle:*** Create two dedicated bicycle lanes one in each direction. Use colored bicycle lanes in conflict areas.



PLAN

City Center Collector Streetscape: N-S Collector Street 2*

** Section and plan views depict a potential/typical configuration for illustrative purposes only. The actual dimensions and layout may vary subject to City review and approval.*



SECTION

Design Standards:

1. ***Amenities:*** Provide pedestrian scaled light fixtures at regular intervals along the sidewalk. Add planters, street furniture, bicycle racks, and wayfinding signage.
2. ***Travel Lanes:*** Provide two travel lanes, one in each direction separated by a raised tree landscaped median with left turn lanes at intersections and entrances to parking structures.
3. ***Median:*** Introduce small scaled flowering trees for an added pop of color and native drought tolerant landscaping or xeriscaping.
4. ***Parking Lanes:*** Introduce on-street parallel parking on both sides of the street, interrupted by bulb-outs at intersections and mid-block crosswalks.
5. ***Sidewalk:*** Allow for wide sidewalk widths along with areas for large scale planters and benches creating a physical separation between the pedestrian and street traffic.
6. ***Trees:*** Provide rhythmic planting a varied scale of canopy trees adding to pedestrian comfort.
7. ***Bicycle:*** Designate street as a shared bike route (sharrow) using appropriate signage and graphics.



KEY



PLAN

City Center Internal Streetscape: E-W Shopping Street 1*

** Section and plan views depict a potential/typical configuration for illustrative purposes only. The actual dimensions and layout may vary subject to City review and approval.*



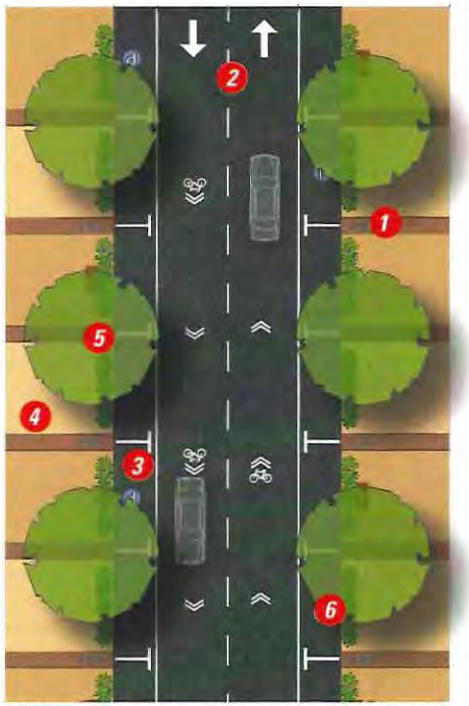
SECTION

Design Standards:

1. ***Amenities:*** Locate pedestrian scaled light fixtures at regular intervals along the sidewalk. Incorporate Banner Program and/or hang flowering baskets from pedestrian street lights for added interest. Add planters, street furniture, bicycle racks, and wayfinding signage. Allow outdoor seating areas for restaurants.
2. ***Travel Lanes:*** Provide two travel lanes, one in each direction.
3. ***Parking Lanes:*** Introduce on-street parking on both sides of the street, interrupted by bulb-outs at intersections and mid-block crosswalks.
4. ***Sidewalk:*** Provide space for street amenities within sidewalks.
5. ***Trees:*** Provide rhythmic planting of a varied scale of canopy trees creating shade for pedestrians.
6. ***Bicycle:*** Designate street as a shared bike route (sharrow) using appropriate signage and graphics.
7. ***Street Closure:*** Street design should facilitate occasional street closures for special events.



KEY



PLAN

City Center Internal Streetscape: E-W Shopping Street 2*



SECTION

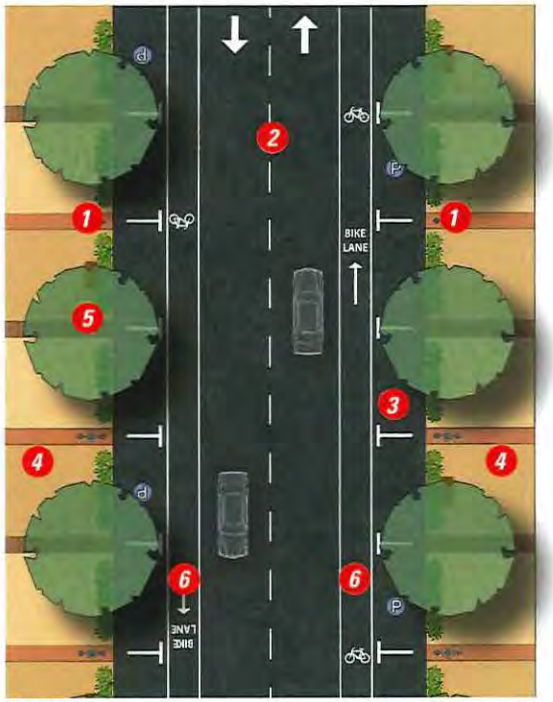
** Section and plan views depict a potential/typical configuration for illustrative purposes only. The actual dimensions and layout may vary subject to City review and approval.*



KEY

Design Standards:

1. ***Amenities:*** Locate pedestrian scaled light fixtures at regular intervals along the sidewalk. Hang flowering baskets from pedestrian street lights for added interest. Add planters, street furniture, bicycle racks, and wayfinding signage. Allow outdoor seating areas for restaurants.
2. ***Travel Lanes:*** Provide two travel lanes.
3. ***Parking Lanes:*** Introduce on-street parking on both sides of the street, interrupted by bulb-outs at intersections and mid-block crosswalks.
4. ***Sidewalk:*** Provide space for street amenities within sidewalks.
5. ***Trees:*** Provide rhythmic planting of a varied scale of canopy trees creating shade for pedestrians, but also allowing visibility for retail storefronts.
6. ***Bicycle:*** Create two dedicated bicycle lanes or bike routes, one in each direction. Use colored bicycle lanes in conflict areas.
7. ***Street Closure:*** Street design should facilitate occasional street closures for special events and regular programmed use like farmers markets.



PLAN

CAMPUS PERIMETER STREETSCAPE TYPOLOGY

Campus Perimeter Streetscape: Perimeter Street 1*

** Section and plan views depict a potential/typical configuration for illustrative purposes only. The actual dimensions and layout may vary subject to City review and approval.*



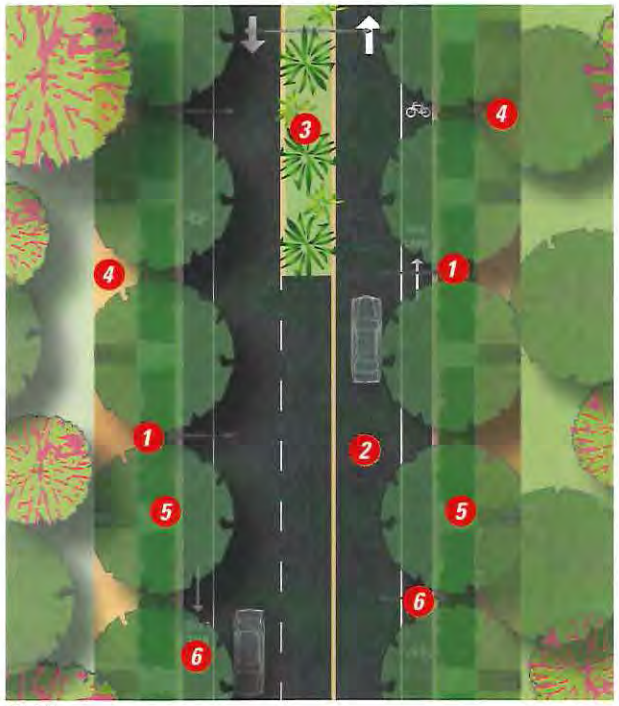
SECTION

Design Standards:

1. ***Amenities:*** Locate auto-scaled light fixtures at regular intervals along the sidewalk. Hang banners on auto-scaled light fixtures for local events.
2. ***Travel Lanes:*** Provide two travel lanes, one in each direction, with a center turn lane.
3. ***Median:*** Introduce native drought tolerant landscaping or xeriscaping for a pop of color.
4. ***Sidewalk:*** Allow for wide sidewalk widths along with areas for planter strips to separate pedestrians from moving traffic if curb parking does not create this buffer. Locate landscape planter strip adjacent to roadway with sidewalk behind landscape buffer.
5. ***Trees:*** Provide rhythmic planting of a varied scale of canopy trees creating shade for pedestrians.
6. ***Bicycle:*** Create two dedicated bicycle lanes, one in each direction and/or a dedicated off street adjacent bicycle path. Use only use colored bicycle lanes in conflict areas.



KEY

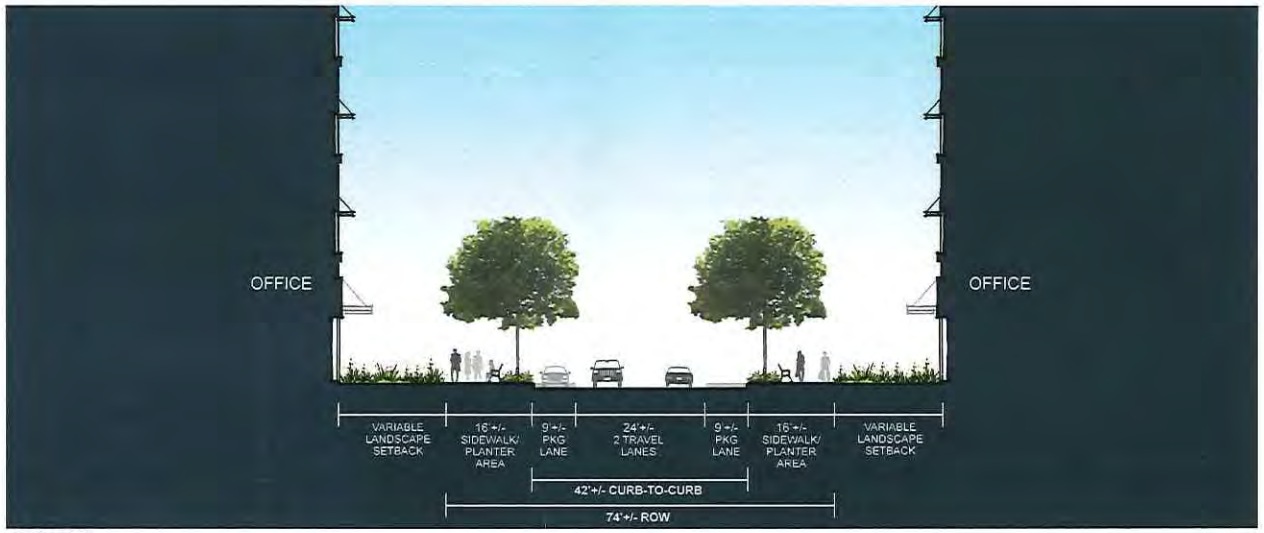


PLAN

CAMPUS INTERNAL STREETSCAPE TYPOLOGY

Campus Internal Streetscape: Internal Street 1*

** Section and plan views depict a potential/typical configuration for illustrative purposes only. The actual dimensions and layout may vary subject to City review and approval.*



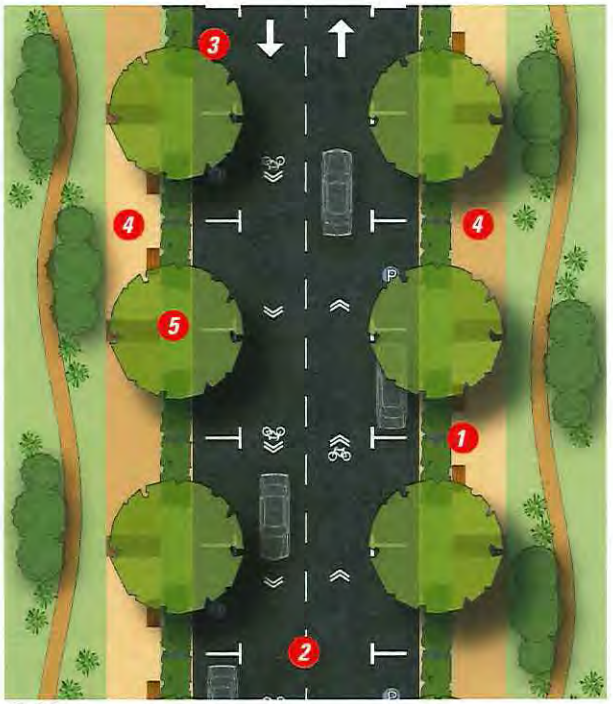
SECTION

Design Standards:

1. ***Amenities:*** Locate pedestrian scaled light fixtures at regular intervals along the sidewalk. Add planters, street furniture, bicycle racks, and wayfinding signage.
2. ***Travel Lanes:*** Provide two travel lanes, one in each direction.
3. ***Parking Lanes:*** Introduce on-street parallel parking on both sides of the street.
4. ***Sidewalk:*** Provide space for street amenities within sidewalks such as benches.
5. ***Trees:*** Provide rhythmic planting of moderately scaled canopy trees creating shade for pedestrians.



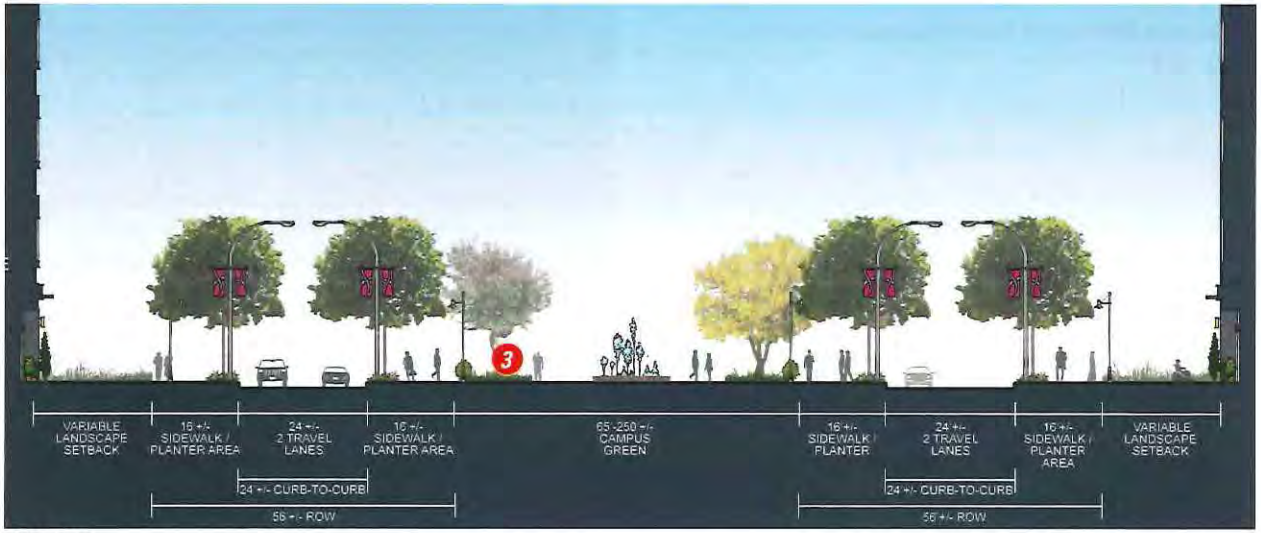
KEY



PLAN

Campus Internal Streetscape: Internal Street 2*

** Section and plan views depict a potential/typical configuration for illustrative purposes only. The actual dimensions and layout may vary subject to City review and approval.*



SECTION

Design Standards:

1. ***Amenities:*** Hang banners on street light poles for local events. Provide pedestrian scaled light fixtures at regular intervals along the sidewalk. Add planters, street furniture, bicycle racks, and wayfinding signage.

2. ***Travel Lanes:*** Provide two travel lanes, one in each direction on either side of the campus green.

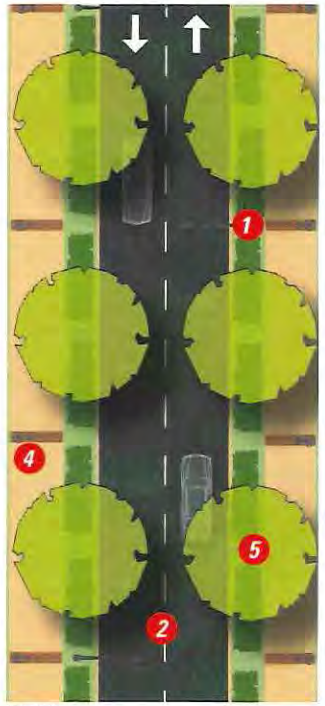
3. ***Campus Green:*** Introduce small scaled flowering trees for an added pop of color in conjunction with canopy trees, native landscaping, and other special landscape features.

4. ***Sidewalk:*** Allow for wide sidewalk widths along with areas for planter strips to separate pedestrians from moving traffic if curb parking does not create this buffer. Locate landscape planter strip adjacent to roadway with sidewalk behind landscape buffer.

5. ***Trees:*** Provide small to moderately scaled canopy trees to define the street and create a prominent entry boulevard.



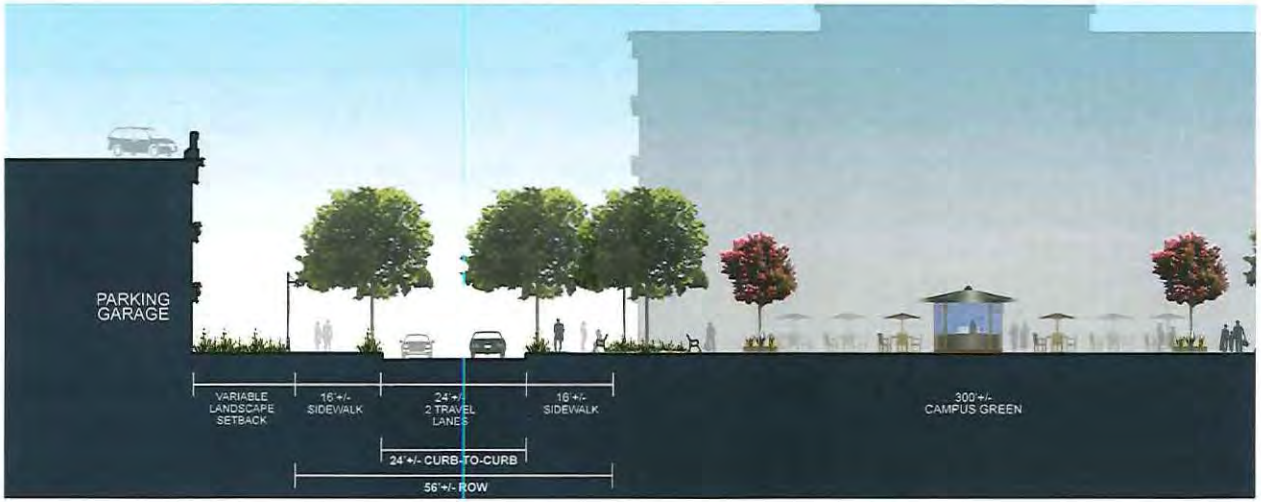
KEY



PLAN

Campus Internal Streetscape: Internal Street 3*

** Section and plan views depict a potential/typical configuration for illustrative purposes only. The actual dimensions and layout may vary subject to City review and approval.*



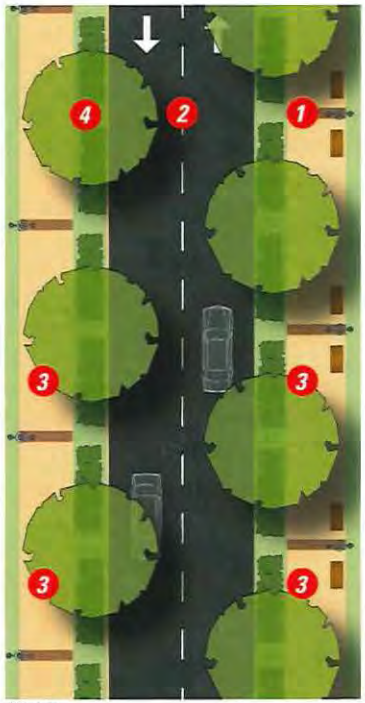
SECTION

Design Standards:

1. ***Amenities:*** Locate pedestrian scaled light fixtures at regular intervals along the sidewalk. Add planters, street furniture, bicycle racks, and wayfinding signage.
2. ***Travel Lanes:*** Provide two travel lanes, one in each direction.
3. ***Sidewalk:*** Provide space for street amenities within sidewalks.
4. ***Trees:*** Provide rhythmic planting of moderately scaled canopy trees creating shade and comfort for pedestrians.



KEY



PLAN

6.4 SHARED OUTDOOR SPACE

This section describes the desired character of CityPlace's shared outdoor spaces, including plazas, greens, courtyards and similar spaces. It includes design intent and general design guidelines for these publicly and communally oriented spaces, with specific outlined features for applicable typologies, augmented by photo illustrations.

SHARED OUTDOOR SPACE DESIGN INTENT

The project's outdoor spaces will range from plazas that support civic engagement and will enhance the public domain to interior courtyards that will serve as an amenity for project residents. Generally located at the core of the project's development parcels and typically presenting a multi-functional urban character, the general intent will be to make shared outdoor space comfortable for human use, public congregation and/or social interaction.

SHARED OUTDOOR SPACE GENERAL DESIGN STANDARDS / GUIDELINES

- *OS 1:* Make outdoor spaces comfortable for human occupation and social interaction, utilizing decorative paving, plants, site furniture, and lighting to shape, embellish and give purpose to these spaces.
- *OS 2:* Use trees to regulate sun and shade, and create a pleasant micro-climate; deciduous canopy trees are generally recommended.
- *OS 3:* Introduce elements that establish a comfortable transition between indoors and outdoors, for example canopies, awnings, trellises, and similar features.
- *OS 4:* Rely on movable seating and planters where flexible use of the space is especially desired.
- *OS 5:* Incorporate art pieces or special landscape features within key outdoor spaces; for example, a sculptural piece may serve as the focal point of a plaza or campus green.
- *OS-6:* Design outdoor spaces with safety in mind, allowing for active surveillance from adjacent buildings or the street.
- *OS-7:* Encourage the presence of uses such as outdoor cafes and vendors in outdoor spaces, to the extent appropriate to that space's character and function.
- *OS-8:* Define and contain outdoor spaces through a combination of building and landscaping. In general, open spaces should take on the character of "outdoor rooms" that complement the streetscape.
- *OS-9:* Establish an immediate physical and visual connection between sidewalks and outdoor rooms, such as plazas and paseos. These spaces should be located at or near the same grade as adjacent sidewalks.
- *OS-10:* Employ a rich, yet coordinated palette of landscape materials and drought tolerant plantings to provide scale, texture, and color. Warm materials and details that are pleasing to the eye should be incorporated.
- *OS-11:* Introduce decorative, pedestrian-scaled fixtures that emit a warm light. Special accent lighting such as landscape lighting, twinkle lights, etc. may also be appropriate.

SHARED OUTDOOR SPACE CHARACTERISTICS

BOULEVARD TYPOLOGY



* Exhibit is conceptual and subject to change.

Boulevard

Summary Description:

- Functions as the heart of the project and is adjacent to restaurants, specialty shops, etc.
- Flexible space serves for both formal and informal gatherings, celebrations, and people watching.
- Quality public space with enhanced amenities.
- Community space for special events such as outdoor movies, concerts, and farmers markets which can expand into private streets by use of temporary closures.
- Special paving, unique lighting features, ornamental along with canopy trees, and decorative plantings and public art promote a festive character and support a community atmosphere.





CITY CENTER PEDESTRIAN CONCOURSE TYPOLOGY



* Exhibit is conceptual and subject to change.

City Center Pedestrian Concourse

Summary Description:

- Heaviest pedestrian traffic is here along with the best access to shopping, food and beverage and entertainment, and highest levels of pedestrian amenity.
- Incorporates shaded "outdoor rooms" that support informal congregations and social interaction -meeting, sitting, conversing, eating etc.
- Includes decorative hardscape features, plantings, water features, and project signage to aid in pedestrian movement through the space.
- Specimen trees, public art, and fountains all aid in creating this animated pedestrian environment.
- Canopies, awnings, trellises etc. augment pedestrian comfort in this active area.
- Design will incorporate adequate clearances to allow emergency vehicles and accommodate off-hour service to internal uses.





PUBLIC PARK SPACE TYPOLOGY



* Exhibit is conceptual and subject to change. Campuses may be open and publicly accessible, may be closed to the public, or may also incorporate other land uses. The open space types depicted do not dictate the building typologies that may be employed. Additionally, the depicted plan representation of the campuses are only illustrative of one possible office typology.

Public Park Space

Summary Description:

- Provides active recreation areas for the project.
- Flexible space typically not programmed. Provide space that accommodates a variety of flexible uses.
- Quality public space with enhanced amenities.
- Community spaces include: playfields, jogging trails, par courses, playgrounds etc.









CAMPUS GREEN TYPOLOGY



* Exhibit is conceptual and subject to change. Campuses may be open and publicly accessible, may be closed to the public, or may also incorporate other land uses. The open space types depicted do not dictate the building typologies that may be employed. Additionally, the depicted plan representation of the campuses are only illustrative of one possible office typology.

Typical Primary Campus Green

Summary Description:

- Campus greens incorporate grassy areas, canopy trees for shade, and outdoor seating.
- Provides the office campus environment with a comfortable setting to either relax or be active before, during, and after work.
- Outdoor space framed by adjacent office buildings offering the desired effect of enclosure.



Typical Secondary Campus Green

Summary Description:

- Small quiet greens nestled between buildings contributing to a positive work environment by offering places to relax in addition to an attractive outdoor landscape.
- Includes seating areas suitable for rest and relaxation, people watching, or a business lunch.
- Secondary campus greens include small and moderately scaled trees, water features, shade and seating areas.





MIXED-USE COURTYARD TYPOLOGY



* Exhibit is conceptual and subject to change.

Typical Street Level Courtyard

Summary Description:

- Outdoor dining for restaurants and cafes is located along the perimeter of courtyards.
- Includes shaded areas with street furniture for relaxation and people watching.
- Trellises, planters and planter-pots featuring lush plants embellish outdoor courtyards and add to their visual appeal.
- Courtyards create intimate outdoor space that accommodates pedestrian movement while offering a place to rest and relax or enjoy a meal outdoors.





Typical Podium Level Courtyard (Residential Communal Space)

Summary Description:

- Outdoor "living rooms" are created through the use of outdoor furniture groupings and other amenities that will allow people to comfortably occupy the space.
- Adjacent buildings frame courtyards creating desired sense of enclosure.
- Courtyards can include pools and Jacuzzis, lounge chairs, eating and barbecue areas, recreation spaces, garden/green spaces etc.
- Residential courtyards aid in creating a sense of community for residents.
- Landscaping that includes decorative plantings and accent and shade trees.





** If any of these podium or courtyard spaces are intended to qualify as Private Open Space for the purpose of satisfying Residential Parkland Dedication requirements, information shall be provided in the DAP submission identifying how SCCC 17.35.070 "CREDIT FOR PRIVATE OPEN SPACE" requirements will be satisfied.*

PLAZA & PARKLETS TYPOLOGY



* Exhibit is conceptual and subject to change.

Typical Secondary Plaza

Summary Description:

- Introduce both hardscape and softscape features including decorative plantings, specialty paving, seating areas, and some areas of grass for relaxation.
- Adjacent buildings enliven, activate, and/or delineate the plaza edges.
- Pedestrian scaled lighting, benches, trash receptacles, and planters all enhance secondary plaza spaces.





Typical Mini-Park

Summary Description:

- Small distinctive parks with individual character offering shade from the sun and comfortable places to relax or socialize.
- Includes plantings, outdoor furniture, and other site amenities that enhance the space and promote user comfort.
- Focal elements such as specimen trees, fountain or water features, sculpture or other civic art help to enrich the spaces.





6.5 LANDSCAPE ZONES

This section describes the desired character and quality of the landscape zones identified by the Open Space Plan for CityPlace, addressing the project's perimeter and other landscape areas that are key to promoting site sustainability. It includes design intent and general design guidelines for these areas, with specific characteristics for various landscape typologies, augmented by photo illustrations.

LANDSCAPE ZONES DESIGN INTENT

Generally located at the perimeter of parcels, the scale of landscape zones will afford an opportunity to deliver multiple visual, recreational and environmental benefits, while maintaining the integrity of the landfill embankments. Their extent will also make it important to incorporate design strategies that minimize water use.

LANDSCAPE ZONES GENERAL DESIGN STANDARDS / GUIDELINES

- *LZ-1:* Minimize the use of turf grass in identified landscape zones to the extent feasible.
- *LZ-2:* Rely on simple, bold, easy to maintain landscape planting schemes, typically utilizing native and adapted drought tolerant species.
- *LZ-3:* Use reclaimed water for all irrigation needs.
- *LZ-4:* Incorporate pedestrian/bicycle paths within the landscape zones.
- *LZ-5:* Make campus landscape zones comfortable for human occupation and social interaction. Include decorative paving, plants, furniture, trash receptacles and lighting to embellish the space.
- *LZ-6:* Employ a rich, yet coordinated, palette of landscape materials to provide scale, texture, and color.
- *LZ-7:* Incorporate green roofs to absorb rainwater, provide building insulation, and aid in creating a habitat for wildlife.

LANDSCAPE ZONE CHARACTERISTICS

PERIMETER LANDSCAPE TYPOLOGY



* Exhibit is conceptual and subject to change.

Typical Perimeter Landscape 1: Riparian Habitat

Summary Description:

- Vegitated natural habitat found directly adjacent to the Retention Basin, Guadalupe River and the San Tomas Aquino Creek in areas associated with permanent surface water.
- Streamside trees, shrubs and other plants help to purify the streams by removing contaminants, controlling erosion and flooding, increasing available water by maintaining stream banks, and supporting wildlife.
- Willows, deciduous trees, and shrubs occupy this area.





Typical Perimeter Landscape 2: Upland Slopes Habitat

Summary Description:

- Rising above the riparian habitat below is drier upland habitat.
- Upland habitat is the dryer habitat along the slopes of the rivers, but not immediately river adjacent.
- Coyote brush, oaks and many varieties of grass provide cover for the upland slopes habitat.





CAMPUS LANDSCAPE TYPOLOGY



* Exhibit is conceptual and subject to change. Campuses may be open and publicly accessible, may be closed to the public, or may also incorporate other land uses. The landscape types depicted do not dictate the building typologies that may be employed. Additionally, the depicted plan representation of the campuses are only illustrative of one possible office typology.

Typical Campus Landscape 1: Campus Garden



Summary Description:

- Campus gardens offer quiet retreats for employees or a comfortable spot to enjoy lunch with colleagues.
- Shade, comfortable seating, and decorative planting create a pleasant outdoor environment for employees and visitors to enjoy.
- Adjacent office buildings frame campus gardens, creating intimate outdoor spaces that accommodate pedestrian movement while offering a place for rest and relaxation.

Typical Campus Landscape 2: Campus Greenfield



Summary Description:

- Campus greenfield areas offer outdoor spaces for multiple purposes. These areas offer space to take a break outdoors, catch up with a colleague or leisurely enjoy a picnic lunch.
- Includes seating areas suitable for rest and relaxation, or a working lunch.
- Greenfields include decorative planting, native and adapted species, and grass areas.

Typical Campus Landscape 3: Campus Recreation



Summary Description:

- Tennis courts, basketball courts, and other recreational courts and/or fields add to the office campus environment, giving employees healthy lifestyle choices close and convenient to the workplace.
- Offering easily accessible ways for employees to exercise will improve their health and well-being.
- Office recreation courts/fields offer an attractive perk to employees, improving a company's ability to recruit and retain workers.

GREEN ROOF TYPOLOGY



* Exhibit is conceptual and subject to change.

Typical Green Roof 1: Agricultural Garden

Summary Description:

- Agricultural green roof gardens offer the opportunity for locally grown food production, co-ops, community gardens etc. in the form of chef's gardens or divided garden plots associated with the residential units.
- Green roof agricultural gardens help to reach the principles of smart growth and positively affect the urban environment by increasing amenity and green space while aiding in stormwater control, energy-saving insulation for the building, and even a boost in the efficiency of rooftop solar panels.
- Green roofs utilized for an urban agriculture project can reduce the community's urban footprint through adding to the local food system.
- Agricultural green roof gardens can serve as a source of community empowerment, give increased feelings of self-reliance, and improve levels of nutrition.





Typical Green Roof 2: Horticultural Garden

Summary Description:

- Green roofs serve several purposes for buildings at CityPlace, such as absorbing rainwater and providing insulation, while providing a more aesthetically pleasing landscape, and helping to lower urban air temperatures and mitigate the heat island effect.
- Green roof gardens have positive impacts on community and psychological well-being of their inhabitants through visual and environmental diversity.
- Horticulture gardens beautify the built environment, increase investment opportunity, and provide a shared community experience.





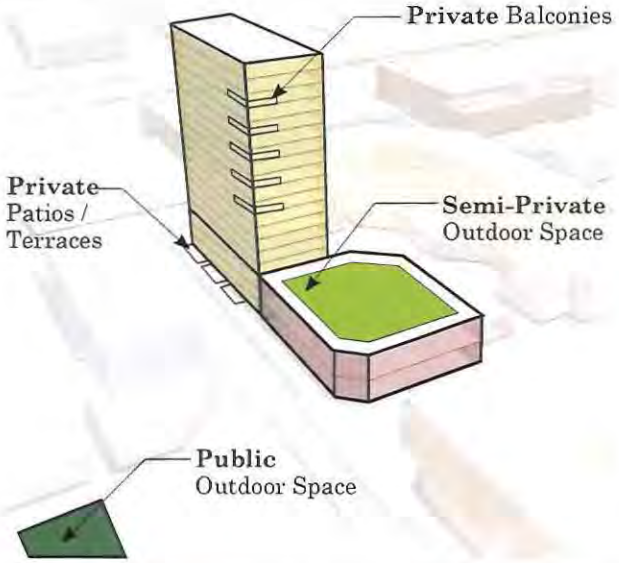
6.6 PRIVATE OUTDOOR SPACE

This section discusses the desired character of CityPlace's private and semi-private outdoor spaces. It includes general design intent and general design guidelines, as well as photo illustrations to convey the key ideas.

PRIVATE OUTDOOR SPACE DESIGN INTENT

The project's private outdoor spaces will range from private residential balconies and terraces to interior courtyards and semi- private outdoor living spaces that will serve as extensions of indoor amenities for residents to enjoy. Generally located at the core of the project's development parcels, the general intent will be to make private outdoor space comfortable for human occupation, easily accessible for residents, and private in that they create a sense of personal space and seclusion when desired.

Balconies and terraces are often used to provide private open spaces for residential buildings, however, their exposure to wind can make them unusable, and in some cases it may be more appropriate for apartments at the upper levels of buildings to be provided with semi-private gardens or public open space at ground or roof-top levels of the building.



PRIVATE OUTDOOR SPACE GENERAL DESIGN STANDARDS / GUIDELINES

- *POS-1:* Make outdoor spaces comfortable for human occupation and social interaction, utilizing decorative paving, plants, site furniture, and lighting to shape, embellish and give purpose to these spaces.
- *POS-2:* Create spaces that are usable in a range of weather conditions at various times of the year.
- *POS-3:* Introduce elements that establish a comfortable transition between indoors and outdoors, for example canopies, awnings, trellises, and similar features.
- *POS-4:* Integrate balconies, terraces and roof gardens with the overall building form and facade composition.
- *POS-5:* Orient towards views and sunlight and away from noise or unsightly views.
- *POS-6:* Balconies should be sufficient size to accommodate outdoor seating.
- *POS-7:* Define and contain outdoor space through a combination of building and landscaping. In general, open spaces should take on the character of "outdoor rooms" that complement the streetscape.
- *POS-8:* Establish an immediate physical and visual connection between balconies and terraces and the building's interior.
- *POS-9:* Employ a rich, yet coordinated, palette of landscape materials and drought tolerant plantings that is pleasing to the eye, to provide scale, texture, and color.
- *POS-10:* Private outdoor spaces generally should provide for approporate recreation and entertainment uses while preserving privacy and allowing views to the outside.
- *POS-11:* Design private outdoor spaces that can be well maintained.
- *POS-12:* Consider that roof spaces may be good locations for open space as they provide access to sun not always available at lower levels.

PRIVATE OUTDOOR SPACE CHARACTERISTICS

OUTDOOR SPACE - SEMI-PRIVATE

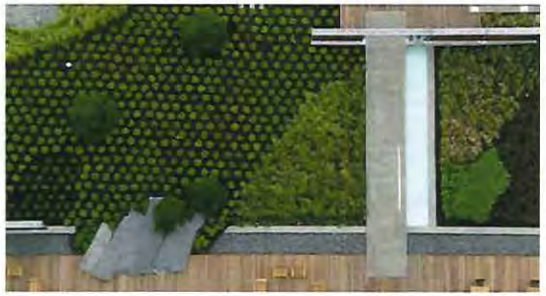
Semi-private outdoor spaces should be easily accessible and extensions of indoor amenity / community rooms.

Summary Description:

- Opportunity to create interesting patterns to be viewed from above.
- Variety of spaces from semi-private to larger gathering spaces.
- May include decorative planting, native and adapted species, and grass areas.
- An easily accessible and usable space.
- May incorporate movable seating and planters where flexible use of the space is desired in common private spaces









OUTDOOR SPACE - PRIVATE

Incorporate private outdoor living spaces for each home in the form of patios or balconies.

Patios & Terraces:

- Patios are screened by vegetation or walls for privacy; where a patio faces a street, it could also be slightly elevated.
- Includes space large enough to accommodate outdoor dining.

Balconies:

- Accommodates walls or landscaping as barriers for privacy between neighboring units.
- Includes space large enough to accommodate outdoor dining.









6.7 GATEWAYS & ENHANCED INTERSECTION DESIGN

This section describes the desired character of project and district gateways, as well as enhanced intersections at major pedestrian crossings. It includes design intent and general design guidelines for these landscape elements, with specific outlined characteristics for key typologies, augmented by photo illustrations.

GATEWAYS & ENHANCED INTERSECTIONS DESIGN INTENT

Gateways will deserve special treatment as they are critical in providing the first impression of the project for visitors. Distinctive landscape design and entry monumentation will signal entrance into the project and its districts, and set the standard for quality design. On the other hand, intersections that will feature substantial pedestrian activity should be regarded as public space suitable for design enhancements, including special crosswalk treatment and "bulb-outs" that also promote pedestrian safety and traffic calming.

GATEWAYS & ENHANCED INTERSECTIONS DESIGN STANDARDS / GUIDELINES

- *GD-1:* Demarcate gateways with distinctive landscape treatment that establishes a precedent for high quality design in the public realm, including special hardscape, planting and lighting.
- *GD-2:* Ensure that project identity signage and environmental graphics are fully integrated with the gateway landscape design.
- *GD-3:* Explore opportunities to integrate works of art, potentially featuring designs that handle the project signage as an art piece.
- *GD-4:* Emphasize bold project signage with unique, sculptural and/or highly graphic treatment at major gateways.
- *GD-5:* Use decorative paving to highlight major gateways, especially to demarcate pedestrian accessible areas, i.e., visitor orientation and experience.
- *GD-6:* Rely on adjacent buildings to reinforce major gateways. Architectural emphasis at major gateway locations is strongly encouraged, including strong corner massing or other architectural features that create a distinct building profile.
- *EI-1:* Demarcate intersections that are anticipated to receive heavy pedestrian use, for example, through the use of decorative paving to delineate crosswalks.
- *EI-2:* Encourage the use of "bulb-outs" at key pedestrian intersections, providing a comfortable area for pedestrians to wait and congregate, and permitting a high level of streetscape amenity.
- *EI-3:* Incorporate abundant streetscape amenities, such as street trees, benches, pedestrian-scaled light fixtures, planters, and project signage, especially at heavily trafficked intersections.
- *EI-4:* Consider ramping down to a "curb-less" condition at street corners along private streets to ease pedestrian crossing, especially within the City Center.

GATEWAYS & ENHANCED INTERSECTION CHARACTERISTICS

GATEWAY TYPOLOGY



* Exhibit is conceptual and subject to change.

LEGEND



Gateways
Project Gateway
District Gateway- Typical Office
District Gateway- Typical City Center

Project Gateway: Great America Gateway, Centennial Gateway, Urban Interchange

Summary Description:

- Bold graphics and/or sculptural art pieces establish a precedent for high quality design applicable to the streetscapes and public spaces throughout CityPlace.
- Identifiable planting schemes using ornamental trees, shrubs, and groundcover augment the visual impact of the project gateways.
- Decorative paving and light fixtures highlight major gateways and demarcate pedestrian accessible areas, and are compatible with the overall design of each gateway.



District Gateway: Typical Office Campus Gateway

Summary Description:

- Distinctive entry feature that announces the office campus, whether it be open and publicly accessible, or closed to the public. It may be an architectural, landscape or signage element.
- Adjacent office buildings reinforce the office campus gateway with architectural emphasis such as corner massing on buildings.
- Bold project signage with unique, sculptural and/or highly graphic treatment. Integrating properly scaled artwork at campus gateways heightens the visual impact of gateways.



District Gateway: Typical City Center Gateway

Summary Description:

- City Center Gateways are main entries into the core of the project, and are of utmost importance as they provide the first impression of the project for visitors.
- Special signage, landscape and hardscape treatment, and building massing all combine to create a memorable point of arrival and distinctive project identity.
- Graphics and/or art pieces establish a precedent for high quality design applicable to streetscapes and public spaces throughout CityPlace.



ENHANCED INTERSECTION TYPOLOGY



* Exhibit is conceptual and subject to change.

LEGEND

Gateways
Major Intersection
Minor Intersection

Enhanced Intersection: Major Intersection

Summary Description:

- Major street intersections are important spaces where pedestrians tend to congregate, requiring a special high quality aesthetic.
- Enhancements such as curb bulb-outs and crosswalks treated with decorative paving improve the aesthetic quality of the streetscape, calm vehicular traffic, and improve safety and comfort for pedestrians.
- Abundant streetscape amenities such as street trees, pedestrian scaled light fixtures, planters, and wayfinding signage improve major intersections.
- Benches, trash receptacles, and planters at heavily trafficked intersections reflect the overall high quality design at CityPlace, while aiding in the comfort of those traveling by foot and bicycle.





Enhanced Intersection: Minor Intersection

Summary Description:

- Specialty paving enhances street intersections and demarcates crosswalk making them safer for pedestrians by calming vehicular traffic.
- "Curb-less" corner conditions along private streets ease pedestrian crossing with ramping down to the street level rather than a large step down at curbs.
- Integrally colored and textured concrete or other decorative treatments help to designate minor intersections as important outdoor areas.





6.8 BIRD SAFETY

This section briefly discusses bird safety and its relation to the built environment. Bird safe design is an important design aspect to will be incorporated within the project site.

BIRD SAFETY

Each Development Area Plan (DAP) approved by the City shall include a set of specific standards for minimizing hazards to birds, to be implemented by the developer. The development of the specific bird safety standards for each Development Area Plan shall be tailored to the specific potential hazards to birds in that development area, taking into account the specific locations, types and heights of buildings, lighting, and landscaping. In addition, the DAP shall require enhanced protective measures for buildings within 300 feet of the retention pond, the Guadalupe River, and San Tomas Aquino Creek, such as siting buildings in relation to existing landscape features to reduce conflicts with existing features that may serve as attractive bird habitat; minimizing the reflection of existing vegetation on building facades; or using soil berms, furniture, landscaping, or architectural features to prevent reflection of water in glazed building facades.

The specific bird safety standards in each DAP shall be based on the following bird-friendly building principles, to the extent applicable to the particular development area:

- Reduce mirrors and large areas of transparent or reflective glass.
- Avoid transparent glass skyways, walkways, or entryways, free-standing glass walls, and minimize transparent building corners, or utilize glazing treatments to mitigate the hazard.
- Minimize funneling of open space toward a building façade.
- Strategically place landscaping to reduce reflection and views of foliage inside or through glass.
- Reduce potential light and glare by requiring low-profile, low-intensity lighting directed downward, and requiring shielded fixtures for outdoor lighting.
- To the extent consistent with the normal and expected operations of the uses planned for the particular development area, take appropriate measures to avoid use of unnecessary lighting at night, especially during bird migration season (February–May and August–November) through the installation of motion-sensor lighting, automatic light shut-off mechanisms, downward-facing exterior light fixtures, or other effective measures to the extent possible feasible.
- The specific bird safety standards shall also provide for a monitoring program, and placing signs around the buildings with phone numbers to authorized bird conservation organizations.



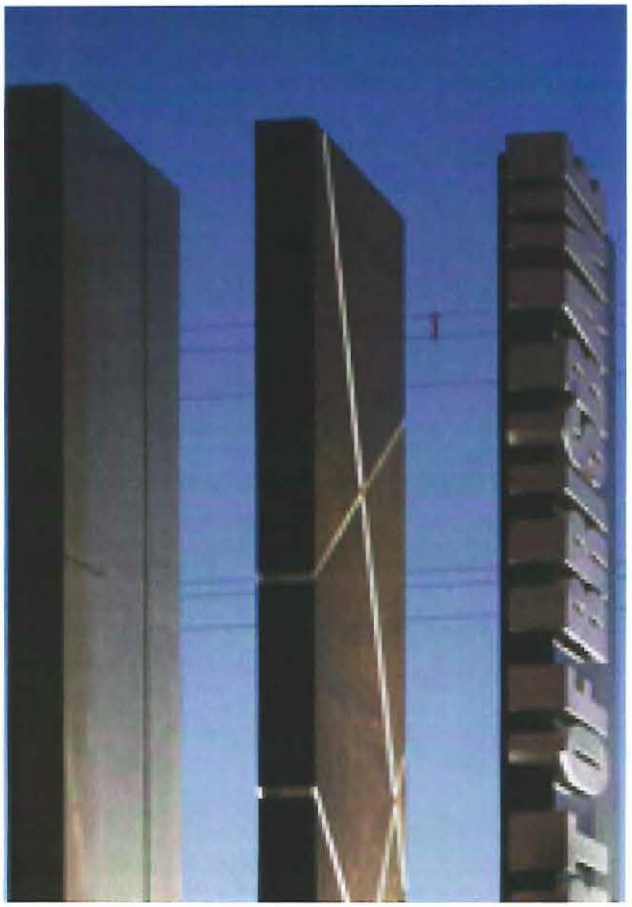
Bird-safe windows through art application at the University of Waterloo



Perforated copper screen keeps birds from colliding with the windows



Acid-etched glass for bird safe design





CHAPTER 7

SIGNAGE & LIGHTING GUIDELINES



7.1 SIGNAGE CONCEPT PLAN*

...will be applied with respect to signage and lighting within the CityPlace Project area. The provisions of this section supersede the existing City Signage Code Regulations in the Zoning Ordinance. A "Comprehensive Sign Program" will be provided as part of the Development Area Plan (DAP) process.

COMPREHENSIVE SIGN PROGRAMS

A Comprehensive Sign Program for the City Center (Parcels 4 and 5) shall be submitted for approval by the City Council in conjunction with the submission for approval of the first Development Area Plan for any portion of the City Center, and separate Comprehensive Sign Programs shall be submitted for approval in conjunction with the approval of the Development Area Plans for each of Parcels 1, 2 and 3. Notwithstanding the provisions of SCCC 18.80 SIGNAGE REGULATIONS, the City Signage Code regulations do not apply to the CityPlace Project, including but not limited to the provisions of Sections 18.80.050 related to height limitations, 18.80.090 related to design and location, 18.80.200 related to limitations on total sign area in residential, professional, office, and public building zoning districts and 18.80.220 related to Outdoor Advertising.

By adopting this MCP, the City Council finds that creating a specific, limited exception to the limitations on outdoor advertising (billboards) for outdoor advertising in City Center that faces inward into City Center or faces toward Levi's Stadium on Tasman Drive pursuant to a Comprehensive Signage Program approved by the City Council will facilitate the City's objective to establish a vibrant mixed-use, urban core, creating a pedestrian friendly "live, work, and play" environment that will function as a well-defined center for the Santa Clara community. The City Council further finds that creating this specific limited exception does not weaken the direct link between the City's objectives and its general prohibition of new billboards, and will not denigrate the City's interests in reducing visual clutter and blight to the appearance of the City, and in promoting traffic safety and reducing traffic hazards.

The Comprehensive Sign Programs shall include City Center-specific standards for all signage, including specifying the types of signs allowed, establishing specific limitations on sign height and total sign area, specifying the number and location of signs, as well as establishing specifications for sign characteristics including illumination, electronic imagery, and seasonal and temporary signage. Comprehensive Sign Programs may allow for outdoor advertising (billboards) only in the City Center (Parcels 4 and 5), and outdoor advertising must face inward into the City Center, except outdoor advertising may face outward toward Levi's Stadium on Tasman Drive.

CONCEPT OVERVIEW

Signs in general should be designed to help ensure quality and clarity of message. Well-designed and coordinated signage is both a business and cultural asset to the City. The signage concepts included herein are intended to illustrate methods in which signs can be suitably designed, constructed, and placed within CityPlace. This Signage Design Concept Plan provides good examples of signs and methodologies that meet the City's expectations to attract high quality businesses and institutions. The Comprehensive Sign Programs will be broken into four major categories: 1) Project Signage: includes wayfinding and district wide project identity, major and minor gateways, street signs, parking, vehicular and pedestrian directional signage types, etc.; 2) Tenant Signage: identifies particular businesses and institutions within the project area, including freestanding, building mounted, and storefront signage types.; 3) Sponsorship and Advertising: includes use of interactive technologies and animated signage, light and sound towers, rooftop signage, naming rights, and sponsorship "zones" within the project area, and 4) Public Artwork: includes sculptures, light installations, interactive pieces, sight specific furniture, events, site pageantry/banners, and other pieces seen as part of the cultural infrastructure of the project.

SIGNAGE ILLUMINATION

All signs within the City Center Mixed-Use district may be illuminated by either internal or external means. Methods of signage illumination may include, but not be limited to: electric lamps, such as neon tubes; fiber optic; LEDs; cathode ray tubes exposed directly to view; shielded downward spot lights and wall wash fixtures. All illuminated signs shall be designed, located or screened so as to limit direct light sources onto any residential units that are located within the project area and roadways internal and external to the project.

* The provisions below must be implemented consistent with, and are subject to, the terms of any public agreements in place as of the time this MCP is approved.

SIGNAGE DESIGN PRINCIPLES intended to create functional, attractive signage incorporating a uniformly high level of design.



Principle No. 1: Coordinated Project Signage: Use coordinated signage to promote CityPlace identity. Signage based on a consistent unified design motif will add to a cohesive consistent look at CityPlace.



Principle No. 2 - Complementary Tenant Signage: Integrate tenant signage with the site design, building architecture and design theme of the district. Ensure signage is compatible in scale and character with the building and storefront.



Principle No. 3 - Wayfinding System: Wayfinding serves to orient visitors and offers a sense of familiarity to returning customers. Wayfinding will create a superior level of comfort for visitor orientation.



Principle No. 4 - High-Quality Signage: High quality signage materials will offer an elevated aesthetic for tenants but also should reflect the overall high quality of design at CityPlace.



Principle No. 5 - Legible Signage: Create signs that present a clear and simple message. Concise signage with few words tends to convey the best message.



Principle No. 6 - Durable Signage: Construct signs of durable, high quality materials that withstand weathering. Durable signage will create a feeling of permanence throughout CityPlace



Principle No. 7 - Civic Art Potential: Civic art will provide the opportunity to enrich the environment. Civic art may be used to highlight special locations such as gateways and public plazas, or to enrich architectural and landscape details.

7.2 PROJECT SIGNAGE

Project signage will enhance project identity at CityPlace and create a cohesive graphic family of signs for getting around CityPlace. Project signage will include project identity signage, transportation and traffic control signage, parking access and availability, and wayfinding signage.

PROJECT SIGNAGE DESIGN INTENT

Project and district identifiers will include highly visible gateway markers. In addition to advertising the project and/or its districts, these signs should enhance project identity and establish a welcoming point of arrival. Wayfinding signs will be especially useful in orienting first-time visitors, while offering a sense of familiarity to returning customers. All signage is expected to make a positive contribution to the public realm.

PROJECT SIGNAGE DESIGN STANDARDS / GUIDELINES

- *PS-1:* Implement signs that make a positive contribution to the general appearance of the street or pedestrian corridor in which they are located.
- *PS-2:* Use project signage and environmental graphics to assist wayfinding and reinforce project identity.
- *PS-3:* Create a "family" of signage that creates a graphic continuity throughout the project. In the City Center, districting concepts may require individualized district signage "families".
- *PS-4:* Provide vehicular directionals consistent with City requirements that guide motorists to important destinations on-site, including major attractions, parks and parking facilities.
- *PS-5:* Include directional signs and maps that guide persons on foot and bicycle to important public services and facilities, parks, outdoor gathering areas, and major tenants.
- *PS-6:* Encourage high quality, imaginative, and innovative signage.
- *PS-7:* Employ a unified motif for each of the City Center Mixed-Use districts. A separate motif is possible for the office campus, although a degree of compatibility should be maintained.
- *PS-8:* Select signage colors that contribute to legibility and design integrity. Too many colors used thoughtlessly can confuse the reader and negate the sign's message.
- *PS-9:* Use signage materials that are compatible with the surrounding environment.
- *PS-10:* Project signage should be brief with a succinct message. The fewer the words the more effective the sign.
- *PS-11:* Prohibit signage in corner/driveway sight clearance areas.

PROJECT SIGNAGE CHARACTERISTICS

PROJECT IDENTITY TYPOLOGY



Major Gateway Signage

Summary Description:

- Gateway signage clearly identifies the project at vehicular points of entry and provides information (or place identification).
- Signs are scaled to their surroundings and in accordance with their function as primarily vehicular-oriented project identifiers.
- Gateway signage coordinates with other gateway design elements, including landscape, hardscape, light displays and art.
- Signage enhances the project and establishes the overall character of the signage program.
- Gateway signage is generally limited to the name of project and its corresponding logo.
- Signs are constructed of high quality and durable materials that are weather and vandal resistant.







Minor Gateway Signage

Summary Description:

- Minor gateway signage identifies important project features, districts within the project or, in the case of office campuses, corporate identity.
- Minor gateway signage is smaller in scale than major gateway signage and placed at secondary points of entry or subdistrict entries.
- Signage enhances the project and/or district identity and establishes the overall character of the signage program.
- Minor gateway signage emphasizes bold, highly legible graphic design providing information to vehicles, pedestrians, and cyclists.
- Signs are constructed of high quality and durable materials that are weather and vandal resistant.





TRANSPORTATION / TRAFFIC CONTROL TYPOLOGY

Street Name (Private)*

Summary Description:

- Signs and typefaces are kept simple to augment readability for users.
- Light letters on a darker background work best for both day and night time use.
- Contrast of colors is especially important to the functionality and legibility of street name signage.









* Subject to City approval.

Parking Identity & Regulation

Summary Description:

- Signage is strategically placed to guide visitors toward their preferred destination.
- Parking identity signage engages users with bold, highly graphic signage design.
- Highly legible lettering is used to ensure clear and concise direction for vehicular traffic within parking garages. Typefaces are made simple to ensure user readability.
- Incorporate real time parking status information.









DIRECTIONAL / WAYFINDING TYPOLOGY

Vehicular Directional

Summary Description:

- Directionals are located at or near project entrances and key intersections and other locations that will serve to guide motorists to their destination, and positioned outside traffic sightline angles of safety. Signs direct motorists toward parking, and major destinations and attractions, including the larger tenants.
- Vehicular directionals are freestanding or mounted on light poles, and scaled to their surroundings for a comfortable read by slow moving vehicles and cyclists.
- Materials for vehicular directionals are similar to those making up other project signage and compatible with the overall signage program.
- Signs are visually attractive with highly legible text and graphics.







Pedestrian Directional

Summary Description:

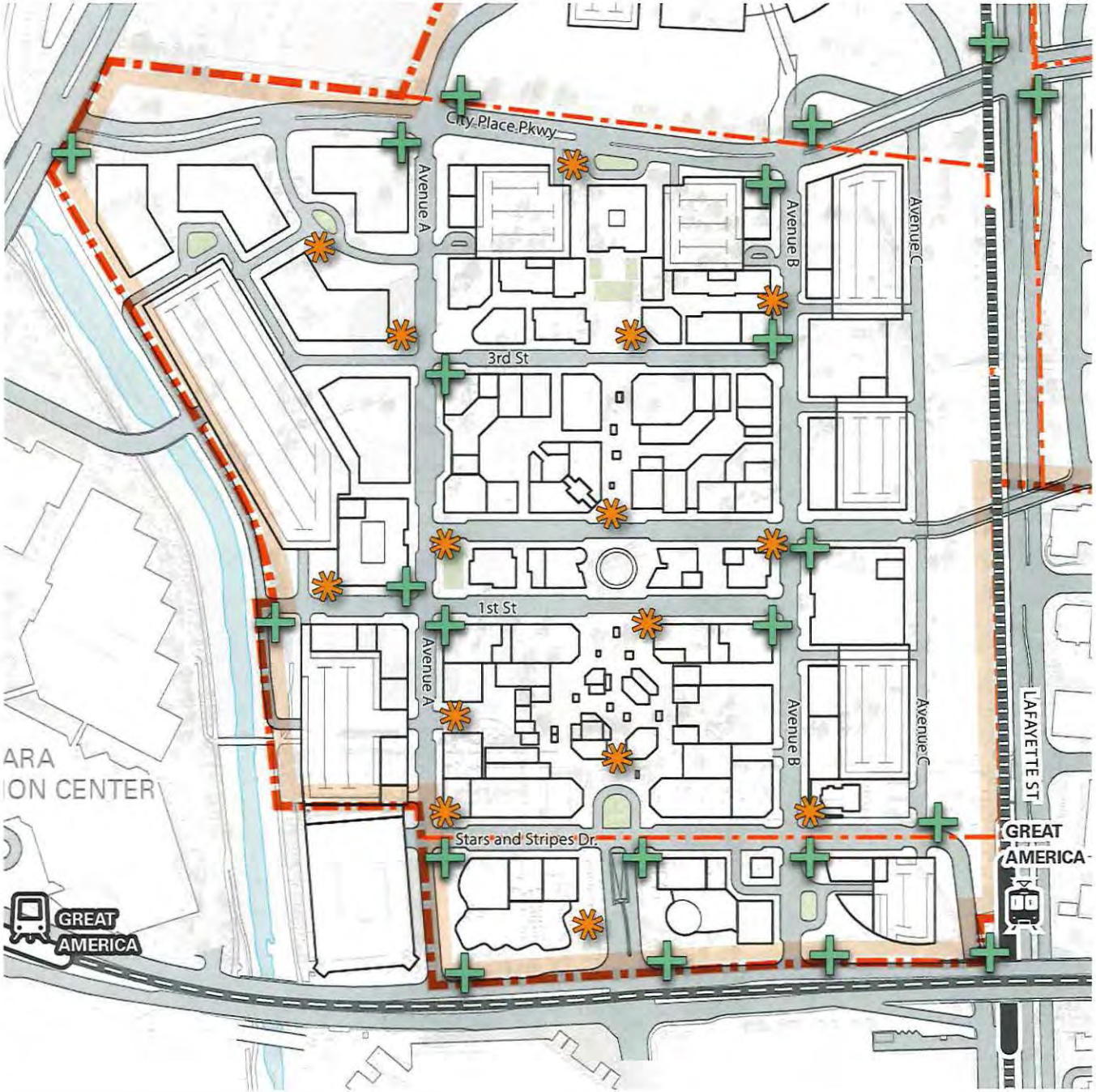
- Directionals are located along major pedestrian circulation routes and other locations that will serve to guide the pedestrians toward public and/or guest services and amenities.
- Pedestrian directionals maintain pedestrian flows and sight lines.
- Signs are scaled to their surroundings for a comfortable read by persons-on-foot and bicycle.
- Directionals enhance project identity and maintain compatibility with the overall signage program at CityPlace.
- Signs are created from high quality and durable materials that are weather and vandal resistant.







EXHIBIT 7–1: VEHICULAR & PEDESTRIAN DIRECTIONALS - PARCELS 4 & 5*



LEGEND

Directional/Wayfinding
- Vehicular Directional
- Pedestrian Directional

Transit
- VTA Light Rail
- Capitol Corridor/ Altamont Commuter Express

Boundaries
- Site
- Parcel

1" = 400'

0' 100' 200' 400' 800'

** Exhibit is conceptual and subject to change.*

Wayfinding Directory

Summary Description:

- Directories are located within or near major pedestrian gathering spaces and key intersections subject to heavy pedestrian flow.
- Wayfinding directories present essential information needed to navigate the project.
- Directories are made from high quality durable materials, as these elements are exposed to the weather and will receive an especially high degree of contact with the public.
- Wayfinding directories and maps may also locate points of interests and essential services provided off-site.
- Information is presented in a clear and highly graphic manner, and locates project tenants, major destinations, and public and/or guest services.







Information Kiosk

Summary Description:

- Kiosks are situated to maintain pedestrian flows and preserve sight lines.
- Information kiosks present visitors with the essential information needed to navigate the project. Information is clear and highly graphic.
- Kiosks can also function as "community boards" that advertise upcoming events.







EXHIBIT 7–2: WAYFINDING DIRECTORIES & INFORMATION KIOSKS - PARCELS 4 & 5*



LEGEND

Informational Wayfinding
Wayfinding Directory
Information Kiosk

Transit
VTA Light Rail
Capitol Corridor/
Altamont Commuter Express

Boundaries
Site
Parcel

1" = 400'

0' 100' 200' 400' 800'

** Exhibit is conceptual and subject to change.*

7.3 TENANT SIGNAGE

Tenant signage quality will be measured through its compatibility with the building architecture, its level of integration with the storefront design, and the ability to clearly communicate.

TENANT SIGNAGE DESIGN INTENT

High quality, innovative, and expressive tenant signage will create a cohesive look and feel at CityPlace. A tenant's primary signage will consist of the name of the business and/or logo depicted on a wall sign, and will be designed to comfortably fit the building and storefront. Signage should reflect the character of the tenant and services provided, while clear and legible to passing pedestrian, bicycle and automotive traffic.

TENANT SIGNAGE DESIGN - STANDARDS

• TS-1 Locate and design tenant identity signs to complement the building architecture and storefront design.

• TS-2: Restrict tenant identification signs to the business name and/or simple logo.

• TS-3: Ensure that window signage and graphics augment and minimally obscure display areas, limiting such signage to 10-15 percent of the window area and preferably placed in the lower third of the window.

• TS-4: Office buildings and associated parking structures facing major roadways are allowed to have ID signage near the top of their buildings that is sufficiently scaled to be readable from adjacent arterial roads and freeway. Signage is limited to the corporate entity name and/or logo, and/or the name of a company that has purchased naming rights. There shall be only one sign per exposure, positioned to provide wayfinding clues for vehicles approaching from arterial roads.

• TS-5: Allow the ability for multiple office tenants to integrate their signage on facades and roof, subject to City review and approval as part of the DAP process.

TENANT SIGNAGE DESIGN - GUIDELINES

• TS-6 Use bold typefaces that are easy-to-read; for example letter and words should be spaced for heightened legibility. Crowding or excessive spacing of letter and words is generally discouraged, as are overly intricate type faces and symbols.

• TS-7: Tenant wall signs should be located on flat, unadorned surfaces. This is generally a panel or band above the storefront entrance, although alternative locations may be considered.

• TS-8: Coordinate sign placement with the arrangement of bays, windows, and other architectural features.

• TS-9: The overall size, materials and graphic composition of a tenant sign should be coordinated with architectural character of the project district and storefront design. Tenant signage will follow guidelines illustrated in the "Project Criteria" (part of the tenant lease). These criteria will vary in keeping with the character established for the various districts and will be detailed in the Development Area Plans that will be submitted for City approval.

• *TS-10: Encourage pedestrian-scaled projecting signs (overhead mounted, projecting blade signs, etc.) along pedestrian sidewalks and pathways.*

TENANT SIGNAGE CHARACTERISTICS

Free-Standing Signage

Summary Description:

- Freestanding signage (signage affixed to the ground or connected to supports affixed to ground, and not affixed to a building) includes architectural details, quality materials, and colors of the associated buildings.
- Signage incorporates extremely durable sign materials that withstand exposure to the elements.
- Freestanding signage should be easily and comfortably read by both pedestrians and by vehicular traffic.

Building-Mounted Signage

Summary Description:

- Building-mounted signs are conceived as an integral part of the building façade, placed in accordance with façade rhythm, scale and proportion.
- Signs do not obscure architectural features such as vertical piers, trimwork, ornamental features, etc.

Storefront Signage

Summary Description:

- Storefront signage is integrated with the design of the building, coordinating with the architectural details and color scheme of the building.
- Storefront signs are placed to establish rhythm, scale, and proportion.
- Signs are considerate of nearby residential uses and have little or no impact on adjacent residential uses.

Supergraphic / Building Integrated Signage

Summary Description:

- Supergraphics are integrated with the building architecture, coordinating with the overall design.
- Large-scale painted or applied decorative art in bold colors and typically in geometric or typographic designs.
- May be permanent or temporary and used over walls or windows to create an illusion of expanded or altered space.

















7.4 SPONSORSHIP & ADVERTISING

Sponsorship and advertising will enhance the identity of the City Center and create an active core with a unique vibe at CityPlace, thereby serving the City's objective to create a vibrant mixed-use, urban core, creating a pedestrian friendly "live, work, and play" environment that will function as a well-defined center for the Santa Clara community.

SPONSORSHIP & ADVERTISING SIGNAGE DESIGN INTENT

The types of sponsorship and advertising signs used at CityPlace are based on levels of animation, and hours of operation. The proposed sponsorship and advertising signs will advertise businesses within CityPlace, or special events happening within the site. Buildings and plazas may be named after companies or individuals who have purchased naming rights. The signage may also include digital displays, reader boards and other graphics that may enhance the functions held within the City Center.

SPONSORSHIP & ADVERTISING SIGNAGE DESIGN STANDARDS / GUIDELINES

- *SA-1:* Increase contrast for a visual advantage. More contrast between foreground text and background color is appropriate.
- *SA-2:* Locate and design signs to complement the building architecture and storefront design.
- *SA-3:* Locate animated signs on flat, unadorned surfaces. This is generally a panel or band above the storefront entrance, although alternative locations may be considered.
- *SA-4:* Design digital signs as clean, simple, attractive, appropriate and brief messages.
- *SA-5:* Coordinate signage placement with the arrangement of bays, windows, and other architectural features.
- *SA-6:* Keep message content brief, include thoughtful design placement.
- *SA-7:* Ensure that signage and interactive technologies augment and minimally obscure display areas of storefronts.
- *SA-8:* Use multiple image slides as a series in order to communicate a subject.
- *SA-9:* Enhance communication by ensuring that each element (typography, color and image) has the intrinsic attributes that make it clear and legible.
- *SA-10:* Limit the number of words used for copy on each sign face.
- *SA-11:* Use color as a design element to clarify communication and create visual impact. A good strategy for digital signage is to use high-contrast color combinations but to avoid garish combinations.
- *SA-12:* Outdoor advertising must face inward into the City Center, except outdoor advertising may face outward toward Levi's Stadium on Tasman Drive.

SPONSORSHIP & ADVERTISING SIGNAGE CHARACTERISTICS

Animated Signage / Interactive Technologies

Summary Description:

- Signage contains images, parts or illumination which flash, change, move, stream, scroll, blink or otherwise incorporate motion.
- Signage incorporates extremely durable sign materials that withstand exposure to the elements.
- Animated signage shall be located internal to the project to avoid distraction and safety hazards to passing cars on roadways.
- Interactive technologies can include areas subject to projected images containing GOes Before Optics (GOBO) technology.
- Signs do not obscure architectural features such as vertical piers, trimwork, ornamental features, etc.
- Signage should be integrated into the design of buildings and spaces.

Light & Sound

Summary Description:

- Freestanding multi-sided structures may consist of animated and/or non-animated signs.
- Animated signs shall be allowed only in the City Center (Parcels 4 and 5), shall face the interior of the development only and shall not be visible from roadways outside the CityCenter, except they may face Levi's Stadium on Tasman Avenue.
- Includes architectural details, quality materials, and relates spatially to its surroundings.
- Light and sound towers are conceived as an integral part of the outdoor space, placed in accordance with façade rhythm, scale and proportion.
- Appropriate locations within the City Center to be determined as part of the Signage Master Plan.
- Sound shall be subject to and comply with SCCC 9.10.040.

Rooftop Signage

Summary Description:

- Rooftop signs identifying a structure are an important sponsorship opportunity for purchasers of naming rights.
- Signs that are applied or placed upon the roof surface, usually not visible from any adjacent public right-of-way.
- Signage is integrated with the design of the building, coordinating with the architectural details and color scheme of the building.
- Signs are considerate of nearby residential uses and have little or no impact on adjacent residential uses.













7.5 PUBLIC ART

Public art at CityPlace will offer a great opportunity to further enrich the environment. Art pieces may be used to highlight special locations such as gateways and public plazas, or simply enrich architectural and landscape details.

PUBLIC ART DESIGN INTENT

Public art will enhance the visual environment making a more memorable place, enhance wayfinding, reinforce the overall image and project identity, and even function as a conceptual link to disparate parts of the project. It is important to consider how the selected art form might serve as a local landmark, delineate outdoor space, add richness to the landscape, or create an expression of local history and culture through creative artwork. Suitable art forms range from sculptural art pieces that enliven a public plaza to artisan crafted details.

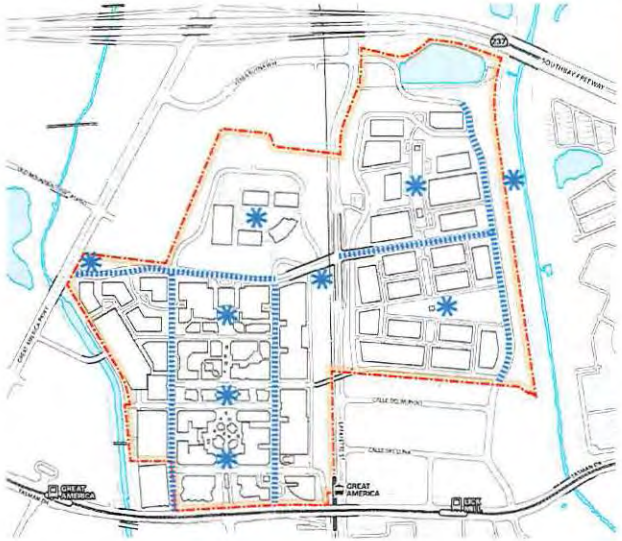
PUBLIC ART DESIGN GUIDELINES

- *CA-1:* Use civic art to highlight special locations, such as gateways, focal intersections, and important pedestrian gathering areas.
- *CA-2:* Incorporate art pieces that celebrate Santa Clara and the Silicon Valley's history and culture.
- *CA-3:* Allow for a broad range of expression, media and materials, while ensuring that the scale, material, form and content are appropriate to the immediate surroundings.
- *CA-4:* Make works of art visually and where appropriate physically accessible, generally encouraging a high degree of interaction with the art piece.
- *CA-5:* Explore opportunities to integrate artisan crafted landscape and building details.
- *CA-6:* Design permanent art pieces of durable, exterior grade materials, with consideration given to structural and surface integrity, assuring protection against vandalism, weathering, and excessive maintenance and repair.
- *CA-7:* Allow for temporary art pieces in addition to permanent works of art, potentially accommodating new or different modes of expression including banner programs.

PUBLIC ART DESIGN RECOMMENDATIONS

- *Custom Identity:* Explore opportunities to tastefully incorporate a project logo or similar graphic element as decorative sidewalk plaques or integral to on-site furnishing and landscape features, such as benches, trash receptacles, tree grates, etc.
- *Site Pageantry/Banners:* Colorful banner signs applied to light poles or building facades may advertise CityPlace and local events, and are especially appropriate for gateways and streets with retail frontages, where they will contribute to a festive environment. Banners are not intended for the display of tenant identity.

COMMUNITY ART TYPOLOGY



LEGEND

Community Art
CA-6: Permanent Art Pieces
CA-7: Temp/Changing Installations & Banner Programs





1. Sculptural Art





2. Light Art Installations





3.Intereactive Art





4. Public Art/Furniture

7.6 OUTDOOR LIGHTING

This section defines light pollution and how it relates to the CityPlace project. It assigns lighting character zones to the project site, offers general outdoor lighting guidelines, and reinforces the commitment CityPlace has to preserving the night sky.

WHAT IS LIGHT POLLUTION?

Light pollution is misdirected or obtrusive artificial light that is used in excess, usually in an outdoor environment. In recent years, in many parts of the globe, star filled nights have disappeared and have been replaced with a yellow haze due to excessive use of outdoor lighting. Artificial light pollution not only degrades the star-filled night sky, diminishing our connection with nature, but also disrupts ecosystems, interrupts birds migratory patterns (as discussed in the Bird Safety section), limits astronomical research, affects human circadian rhythms, and wastes abundant amounts of energy and of course money.

MODEL LIGHTING ORDINANCE

The IDA (International Dark-Sky Association) is a recognized authority on light pollution. The IDA and the IES (Illuminating Engineering Society) together have compiled a guide for environmentally responsible outdoor lighting for use in North America. Communities can take the Model Lighting Ordinance (MLO) adopt it and adapt it to their specific needs. Though Santa Clara has no ordinance in place to address outdoor lighting, the project is mindful of the concerns and lighting solutions set forth in the MLO. The MLO recommends limits for the amount of light in five different zones of lighting intensity, ranging from LZ0-LZ4. The California Energy Commission has designated CityPlace and the surrounding areas as LZ3, a moderately high ambient lighting zone. This area requires moderate lighting levels, given that this is what users are adapted to in the surrounding areas. The MLO also makes use of the "BUG" rating system (Backlight-Uplight-Glare), as a classification of outdoor lighting fixtures to ensure that only well-shielded fixtures meeting these standards are used. CityPlace recognizes these tools and will use them to aid in creating an outdoor lighting environment that is mindful of light pollution and sensitive to these concerns and the environment.

OUTDOOR LIGHTING DESIGN INTENT

The project's outdoor spaces range in size, location, and vary greatly in use, though all sidewalks, pedestrian areas, and parking areas shall meet minimum safety standards. The City Center Mixed-Use District (with retail emphasis) will have heavy pedestrian activity well into the evening, while the Office Campus pedestrian traffic will significantly diminish after office hours. An important aspect of outdoor lighting, as noted by the California Energy Commission, is to base the lighting power that is allowed on the brightness of surrounding conditions. The project's neighbor to the south, Levi's Stadium, establishes appropriate illumination levels for the intensity of pedestrian activity that occurs along Tasman Drive. That general character of illumination will carry through to the City Center Mixed-Use District along Tasman Drive and into the core of the district. Existing illumination characteristics at other project boundary conditions vary considerably, and project lighting levels will adjust to be compatible with their established character.

The various uses and hours of operation within the project site also require various lighting types and intensities. Due to the unique nature and topography of the site with sloped landscape borders on nearly all sides, the possibility of light trespass outside of the project boundary is nearly eliminated. The general intent at CityPlace is to make the outdoor environment safe and comfortable for pedestrians while being mindful of concerns pertaining to light pollution and only lighting what is necessary when it is necessary.

The general intentions for the use of artificial outdoor lighting includes the following:

- Allow reasonable uses of outdoor lighting for safety and enjoyment at night while preserving the ambiance of the night.
- Limit the degradation of the nighttime environment and the night sky.
- Minimize glare and obtrusive lighting by limiting outdoor lighting that is misdirected, excessive, or unnecessary.
- Conserve energy and resources employing LED lighting to the greatest extent possible.
- Help protect the natural environment from the damaging effects of night lighting.

PRACTICAL CONSIDERATIONS

Some common practices for outdoor lighting at CityPlace that should be considered include the following:

- Light only what needs to be lit when it needs to be lit. One only needs the right amount of light, in the right place, at the right time to ensure safety.
- Shield parking structure fixtures especially when structures front adjacent uses.
- Promote downward facing lighting, and consider shorter light standards to light ground level and avoid light loss to night sky.
- Focus on lighting sidewalks, not roadways.
- Employ motion sensor controlled lighting when appropriate to dim or turn off fixtures not required to meet code safety lighting levels.
- Incorporate curfews (i.e. turn lights off or dim automatically) after a certain hour when businesses close or traffic is minimal.
- Promote lighting that performs well under the "BUG" (Backlight-Uplight-Glare) rating system to limit light trespass and promote efficient use of exterior lighting.
- To the extent consistent with the normal and expected operations of the office, hotel, retail, food/beverage, entertainment and residential uses of the project, take appropriate measures to turn unnecessary lighting off at night, especially during bird migration season (February–May and August–November), including, to the extent feasible, the use of motion sensor lighting, automatic lighting shut-off mechanisms, and installation of downward facing exterior lighting.

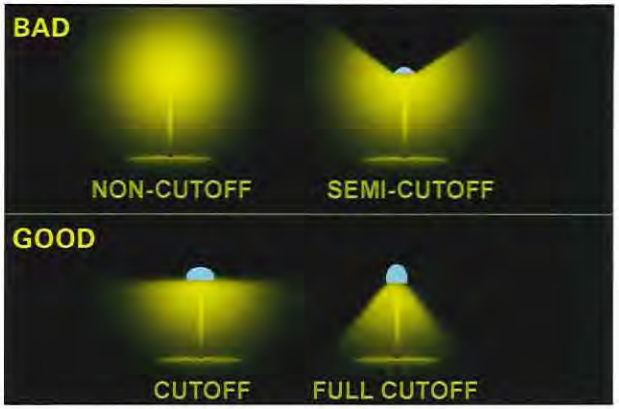
OUTDOOR LIGHTING CHARACTER ZONES

Lighting character zones as seen in the illustration will be established to allow for flexibility and customization of outdoor lighting within the diverse areas of the project site. Zones will range from low lighting within more natural landscape areas to environments with high activity levels and moderate lighting where pedestrians and a vibrant well-lit environment will be priority. Each lighting character zone has its recommendations for lighting best suited to that part of the project site.

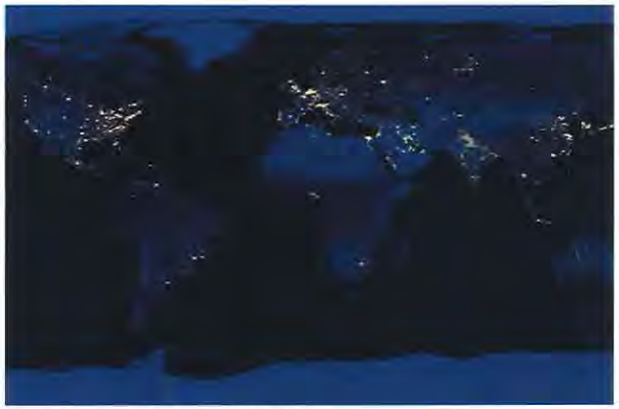
Zone A: Low Lighting Natural Zone

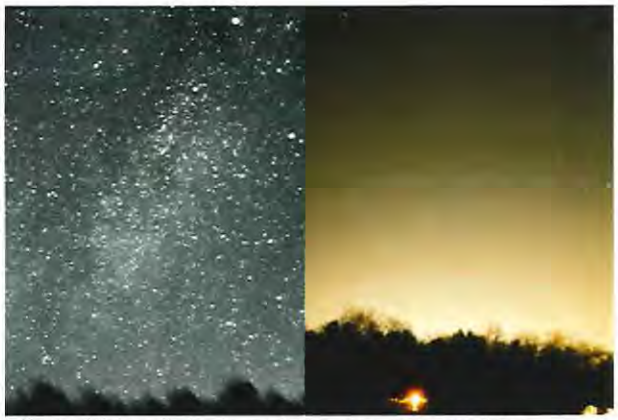
Zone A, the low lighting natural zone generally contains open spaces in more passive areas with little pedestrian activity. Lighting in these areas may adversely affect flora and fauna and have an unfavorable affect on the character of the area, but is necessary in small quantities and lower intensities. These areas typically have limited nighttime activity. Most of the areas within this zone are perimeter landscape areas that require little lighting with the exception of some low ambient landscape lighting to build on the project character.

- Lighting may be used for safety and convenience but not necessarily continuously.
- After curfew most lighting should be extinguished or reduced significantly.
- Uplighting in this area should be very limited, if any.
- Use the lowest lighting levels possible in this zone, and shield fixtures to direct light downward.



Examples of good and bad fixture types


Satellite view of global light pollution


Effects of light pollution in nearly the same spot years later

Zone B: Moderate Activity Lighting Zone

Zone B, the moderate activity lighting zone tends to be occupied by commercial and/or office with limited evening activities. On-site recreation fields and outdoor uses that require more moderate levels of lighting are also prevalent in this zone. These areas will be for modest nighttime uses and lighting requirements, and will not require an overabundance of lighting, especially as the activity levels in these areas will be most intense during daylight hours.

- Outdoor lighting is used for safety and convenience.
- Office uses will minimize light spill and trespass from interior lighting through shades and/or curfew shut off times for interior lighting.
- Implement down lighting for building facades and landscape within this zone when practical.
- Parking structures within this zone should have shielded lighting.
- After curfew some lighting should be extinguished or reduced as activity levels decline.

Zone C: Moderate-High Activity Lighting Zone

Zone C, the moderate-high activity lighting zone will include a large portion of the City Center Mixed-Use District which will contain restaurants, shopping, entertainment, residential and office uses. Moderately high lighting levels will be necessary for proper retail functioning, and the creation of a dynamic mixed-use environment. Zone C will function as a transition zone between the moderate zone and the high activity zone, and will extend use of exterior lighting later in the evening to accommodate commercial activity and safety needs.

- Lighting is needed for safety, convenience, character and is uniform and/or continuous.
- Tree up lighting in this area is allowed in a limited amount.
- Animated signage is discouraged but may be considered on a case by case basis subject to City approval
- Curfew may be later in these areas and lighting can be reduced as activity levels decline.
- Parking structures within this zone should employ shielded exterior lighting.

Zone D: High Activity Lighting Zone

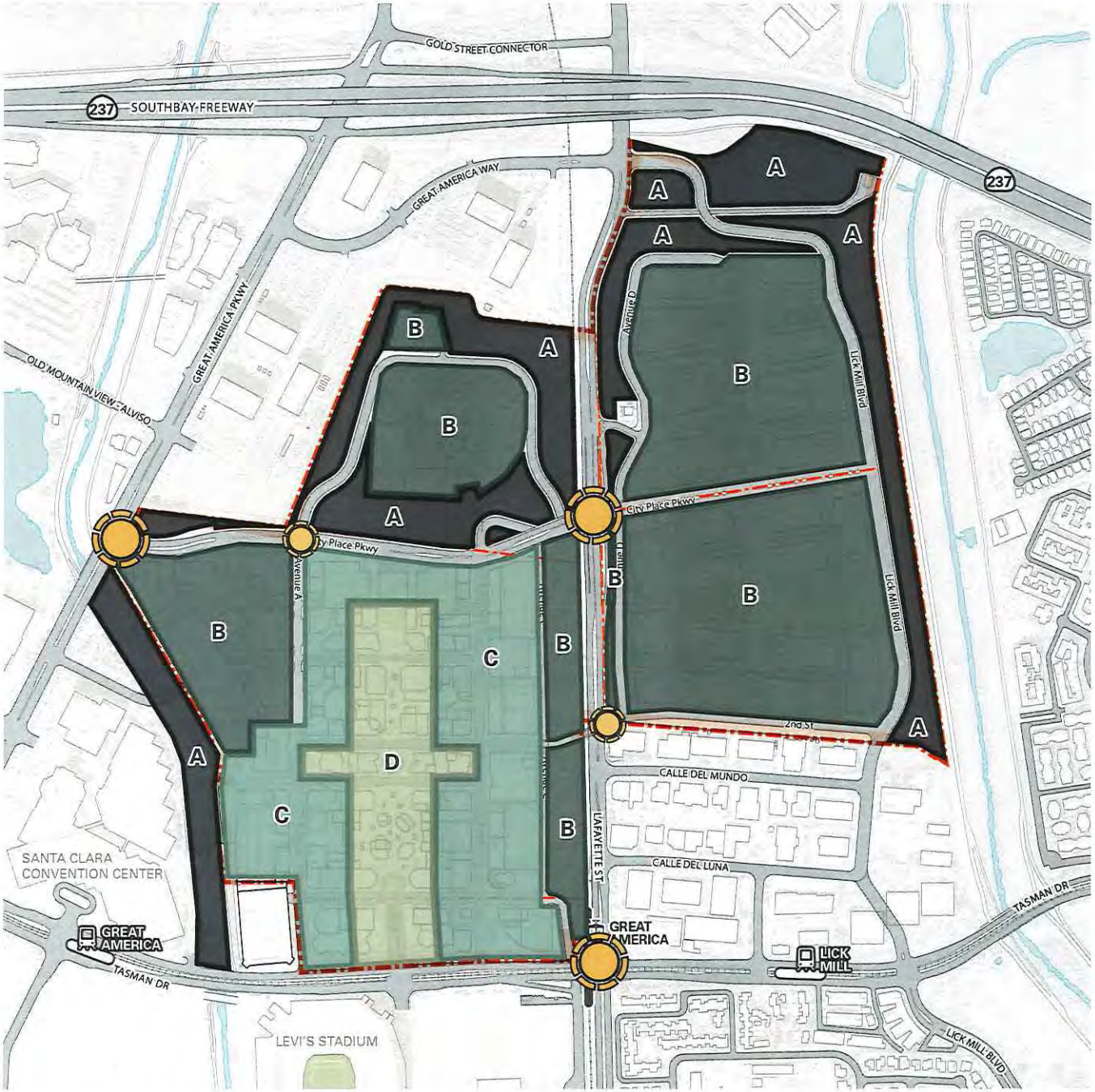
Zone D, the high activity lighting zone will be for the vibrant pedestrian spine located within the core of the City Center Mixed-Use District. This area will have the highest lighting levels throughout the project due to its mixed-use pedestrian environment, as well as the fact that this area will be a continuation of the elevated levels of pedestrian activity and lighting originating at the adjacent Levi's Stadium. High ambient lighting levels in this area will be critical to a safe, vibrant, and lively retail environment.

- Curfew is later in this area and lighting can be reduced as activity levels decline.
- Limited animated signage is allowed within this area, subject to City approval.
- Tower-mounted or building-mounted, aerial lighting that faces downward into the interior of this area or faces Levi's stadium on Tasman Drive is allowed for special occasions throughout the year.
- Tree uplighting in this area is allowed in a limited amount.
- Lighting is necessary for safety, convenience, character, and is uniform and/or continuous.

Gateways

All project gateways, regardless of the lighting character zone they fall within, will all have increased lighting levels. These main entryways serve to announce the project, and as such will require additional landscape, signage, and specialty lighting. Limited up lighting should be allowed in these unique gateways to the project. Increased lighting levels will be necessary to offer the appropriate impact upon arrival and sense of entry into this unique project.

EXHIBIT 7–3: OUTDOOR LIGHTING CHARACTER ZONES*

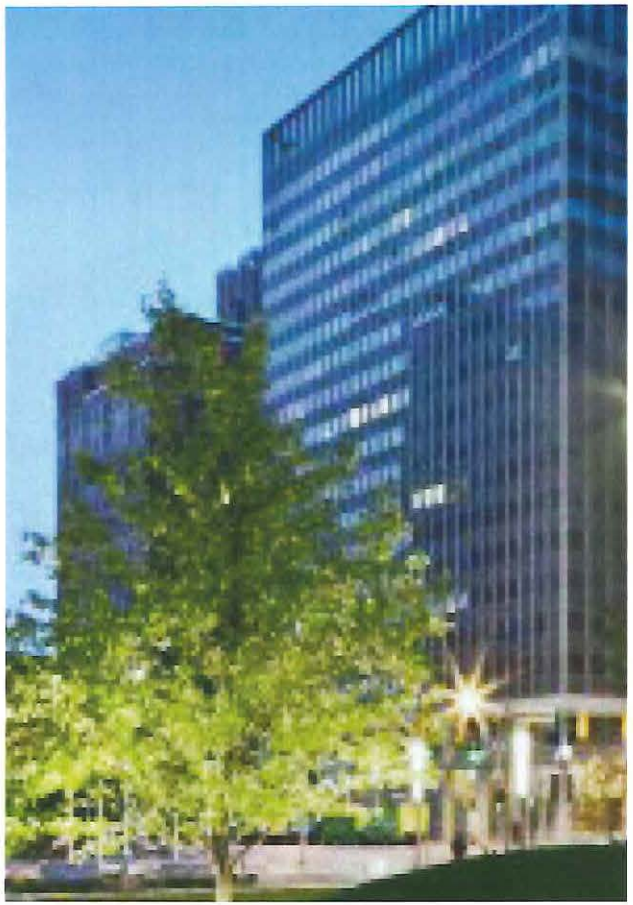


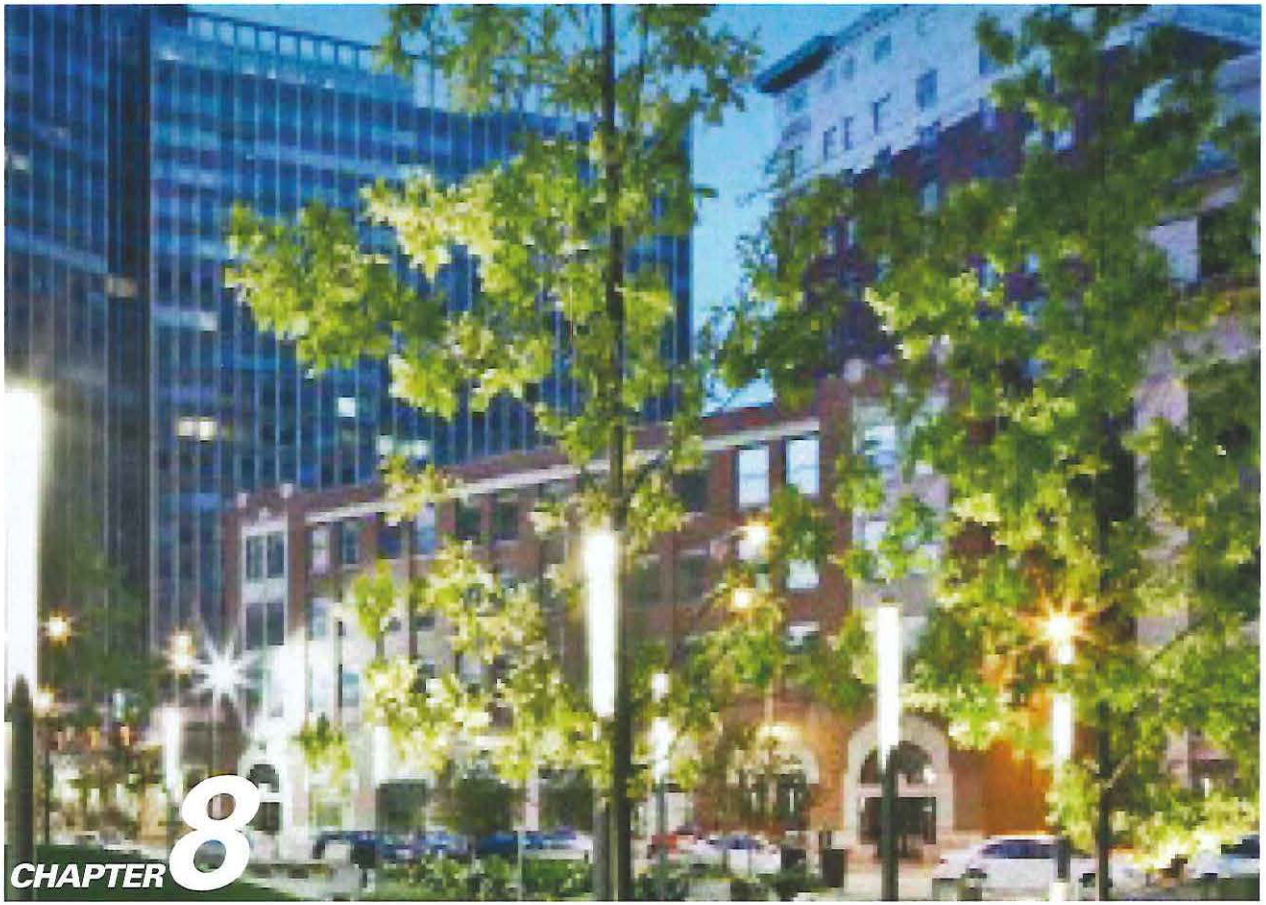
LEGEND

- **A:** Low Lighting Natural Area
- **B:** Moderate Activity Lighting Area
- **C:** Moderate-High Activity Lighting Area
- **D:** High Activity Lighting Area
- Major Gateway Special Lighting
- Secondary Gateway Special Lighting
- Site
- Parcel

0' 200' 400' 800' 1600'

** Exhibit is conceptual and subject to change. The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*





CHAPTER 8

INFRASTRUCTURE OVERVIEW



8.1 INTRODUCTION

CityPlace will require new construction and reconstruction of substantial infrastructure. This infrastructure plan will provide overall guidance for the design and construction of infrastructure to support development of the project. It addresses both on-site and off-site roadway and utility infrastructure, and other related improvements.

OVERVIEW

This chapter presents a general description, layout, and preliminary standards and criteria for the project's infrastructure, including streets, domestic and fire water, recycled water, wastewater, stormwater drainage and management, and other infrastructure as appropriate, coordinated with the landfill operation and maintenance systems. The entitlement and approval processes, including the review and approval of Development Area Plans, will entail further design and development of the project's infrastructure. Final design of the infrastructure shall be consistent with this chapter, as well as the "Preliminary Infrastructure Master Plan" (prepared by Langan Treadwell Rollo, dated June 30, 2015), which contains additional specifications and details, including supporting figures and plans.

DEDICATION & EASEMENTS CONCEPT

The mapping, dedication and acceptance of streets and other infrastructure improvements will occur through the subdivision map process in accordance with the City's subdivision code and regulations. The majority of infrastructure described in this plan shall be constructed within the public right-of-way or dedicated easements to provide for access and maintenance of infrastructure facilities. Private roads may also be developed with private infrastructure and/or public infrastructure in dedicated easements. The eventual project layout within the project boundaries will ultimately determine the entity that owns, operates and maintains each infrastructure element.

INFRASTRUCTURE MASTER PLAN AND TECHNICAL MEMORANDA

Each infrastructure element is more fully described in the Infrastructure Master Plan (IMP) and the technical memoranda appended to the IMP These documents identify key design criteria and provide more detailed layouts of each infrastructure system. Each utility will be constructed according to the provisions of relevant City Standard Plans and Specifications per the City's standard design criteria, standard details, Rules and Regulations and specifications, except where deviations are expressly specified in the IMP and except where specifically approved by the City, and in accordance with the timing set forth in the Sensitivity Analysis prepared for each Development Area Plan.

CONFORMANCE WITH EIR AND ENTITLEMENTS

With the development of the design and associated documentation, consistency will be maintained with project mitigation measures required by the EIR and other entitlement documents. Compliance with project mitigation measures shall be the responsibility of the developer until acceptance of the infrastructure by the respective Agency or the City.

INFRASTRUCTURE PHASING

As each of the Project phases described in Section 2.3 above are built, the onsite infrastructure (e.g., road network, and wet and dry utility installations) necessary to support the development of the phase shall be constructed in the portion of the site where the phase under development. In some cases, it will be necessary to construct infrastructure in portions of the site where future phases would be developed to connect to existing infrastructure and provide a path that would serve the phase under development, as reflected in the MMRP.. Site earthwork may require moving existing fill material between parcels, as well as phasing the earthwork to accommodate the landfill operation systems reconstruction. The Post Closure Land Use Plan (PCLUP) and Post Closure Maintenance Plan documents the requirements for the landfill systems as part of the project.

8.2 SITE CONSTRAINTS

This section briefly describes the existing infrastructure pertaining to the project site. This includes landfill systems, rail infrastructure, stormwater drainage systems and more.

OVERVIEW

The site is proximate to a significant amount of existing infrastructure. The City owned and operated systems include sanitary sewer, stormwater drainage, water (domestic and fire), recycled water and landfill operation systems (gas extraction, leachate collection and monitoring) within and adjacent to the site. Utility providers and infrastructure owners with facilities near the site include Silicon Valley Power (SVP), Comcast, AT&T, Santa Clara Valley Water District (SCVWD), Pacific Gas & Electric (PG&E), Union Pacific Railroad (UPRR), Ameresco and Valley Transportation Authority (VTA).

EXISTING INFRASTRUCTURE

Each infrastructure system is briefly described below and as appropriate discussed in greater detail within the ensuing sections of this chapter.

- *Stormwater Drainage System* includes gravity underground conveyance piping, surface drainage channels, retention basin and two pump stations that discharge stormwater runoff to the east to the Guadalupe River and to the west to San Tomas Aquino Creek.
- *SCVWD and the San Francisco Hetch Hetchy system.*
- *Recycled Water Distribution System* is a source of water available to the City for irrigation and other purposes via the San Jose/Santa Clara Water Pollution Control Plant's South Bay Recycled Water facility.
- *Potable Water System.*
- *Wastewater (Sanitary Sewer) System* includes pump stations and both force and gravity sewers that convey sewage to the existing San Jose/Santa Clara Regional Wastewater Facility (Water Pollution Control Plant) located northeast of the site, adjacent to the San Francisco Bay.
- *Landfill Operation Systems* within Parcels 1, 2, 3 and 4 include a landfill gas extraction system and leachate collection system. The landfill gas is extracted via a system of vertical wells and horizontal pipes, and the gas is conveyed to a landfill gas-to-energy system operated by Ameresco, a private company under contract with the City. The leachate collection system (within Parcel 1 and Parcel 3 only) includes a central sump, laterals, risers and pump that discharge to the City sanitary sewer. Additionally, a groundwater monitoring well system and a landfill gas monitoring probe network are present at the site.
- *Rail Infrastructure:* The UPRR infrastructure includes a single track within a 50-ft right-of-way between the west side of Lafayette Street and the east sides of Parcel 3 and 4. There is an existing Station, Santa Clara – Great America Station to the east of Parcel 5 accessible via Stars & Stripes Drive. Additionally, the VTA operates a light rail on Tasman Drive south of Parcel 5 with stations located east and west of the project site.
- *Flood Control Infrastructure:* The SCVWD is responsible for the existing levees along the entire west side of Parcel 4 along Sam Tomas Aquino Creek and the entire east side of Parcel 1 and Parcel 2 along the Guadalupe River.
- *Electric & Telecommunications Systems:* The SVP electric system is Santa Clara's municipal electric utility, including both overhead and underground facilities. PG&E facilities include high-voltage overhead electric and buried gas services; AT&T and Comcast telecommunications are located in underground facilities.
- *Topology:* Existing topology characteristics are illustrated in *Exhibit 1-4: Site Boundaries & Topography.*

8.3 GEOTECHNICAL AND ENVIRONMENTAL CONSIDERATIONS

This section describes significant environmental considerations, most importantly, those having to do with the existing landfill.

OVERVIEW

Structural improvements developed on landfills must comply with specific construction standards set forth in the California Code of Regulations (CCR), Title 27, §21190. Planning documents, design, and construction of these improvements will need to be submitted as part of the Post-Closure Land Use Plan, Closure Plan and Post-Closure Maintenance Plan, and associated regulatory submittals to the County Local Enforcement Agency (LEA), CalRecycle, and the Regional Water Quality Control Board (RWQCB). Title 27 requires that post-closure construction on the site maintain the integrity of the landfill, including any existing final cover, drainage and erosion control systems, and gas monitoring and control systems. Modifications to these systems must be designed to be protective of public health and safety and the environment. Other post-closure land use requirements will include monitoring and ventilating landfill gases beneath proposed buildings and installing improvements designed to keep moisture from penetrating into the landfill materials.

LANDFILL SUMMARY DESCRIPTION

The closed former landfill was the result of several episodes of filling on the separate parcels. The landfill on Parcel 4 operated between the 1960s and 1970s; landfill operations at the other parcels took place from the late 1970s through early 1990s. Current research indicates that the lower portion of refuse was placed by excavating slots (drag technique) into the native soil and backfilling the slots with refuse. The topography indicates that soil embankments were constructed around the waste units and that refuse continued to be placed, which created large mounds above current street elevations. On the basis of the available subsurface information, the refuse on Parcels 1 and 3 ranges from about 40-ft to 80-ft thick; and on Parcels 2 and 4, the thickness of refuse ranges from about 20-to 50-ft. The area of the refuse is approximately 136 acres within the four Parcels. The refuse is underlain by alluvial deposits consisting predominately of clay and sandy clay layers with occasional interbedded layers of sand and silt. Groundwater table elevations are generally in or within 10-ft of the bottom portion of the waste unit based on data from the groundwater monitoring program, and from groundwater levels observed in recently drilled borings.

8.4 SITE GRADING & STORMWATER MANAGEMENT

This section briefly describes site grading, the important impacts the landfill has on grading, as well as stormwater management.

SITE GRADING

The existing site topography varies significantly, with low elevations near sea level and high elevations above 65 feet North American Vertical Datum of 1988 (NAVD 88). This large range in elevation is a result of the placement of the underlying refuse discussed in Section 8.3 above. In order to accommodate the planned development, significant earth moving will be required to provide for safe and accessible access to the proposed facilities on each of the five parcels.

Due to the underlying refuse and the on-going settlement, the final site grading design will be a complex exercise. It is preferable to avoid cutting into the refuse for reasons such as cost, air quality, health and safety and financial cost. Additionally, because the refuse has very low compressive strength, adding fill to the site will surcharge the weak refuse and potentially result in additional settlement. These constraints combined with the need to respect the continuity and integrity of the landfill cap (clay soil layer) result in strict grading criteria and the development of detailed methods that will focus on minimizing the disturbance required to grade the site. As the site grading plan is developed and site improvements plans are prepared, interaction with the City and Local Enforcement Agency (LEA) will be required. The Grading and Site Access Technical Memorandum attached to the IMP shows a preliminary grading scheme for the project which includes general pad elevations and access road grading for the development.

Finished grading elevations will be set following verification of landfill cap profile and cut/fill calculations associated with establishing the various development pads. At property lines, stormwater drainage patterns will be maintained so to not increase flow and adjacent grades will be maintained at the existing Tasman Parking Structure.

STORMWATER MANAGEMENT

Site drainage is also complicated by the underlying refuse. The addition of water to the refuse can result in the production of toxic leachate, and can also contribute to settlement by further surcharging the already weak refuse. Due to these factors, infiltration of stormwater runoff is not feasible on the majority of the site. This non-infiltration based design will be discussed with the City, LEA, RWQCB and Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) to ensure that mechanisms are in-place to exclude the site from any stormwater infiltration requirements.

Because the project will construct or replace more than 10,000 square feet of impervious surface area on the project site, the project must comply with the City of Santa Clara Stormwater C.3 provision requirements and the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) permit. In order to meet C.3 and NPDES requirements, the project will include low impact development (LID) measures to reduce runoff pollutant loads including bio-retention (with underdrain), flow-through planters, tree wells with media filter, infiltration trenches (with underdrain), landscaped open space, catch basin filters, green roofs, rainwater harvesting and on-site re-use and green streets (bioretention / permeable pavements with underdrain).

The proposed treatment facilities will be numerically sized in accordance with City requirements to ensure that they will have sufficient capacity to treat the requisite volume of stormwater runoff entering the storm drainage system. Full trash capture devices, as well as other source control measures, will also be included. In addition, the project will be required to record a Stormwater Treatment Measures Inspection and Maintenance Agreement to ensure continued maintenance and performance of the post-construction measures.

Both the San Tomas Aquino Creek and Guadalupe River are contained within FEMA certified levees adjacent to the site. As such, no increase in the 100 year flood elevation as a result of the development will be permitted without recertifying the levees. The on-site stormwater management and treatment features for each parcel will be dynamically modeled during final design, including buildings, parking garages, site, landscape, etc. The results of the modeling will be used to compare the proposed "permanent" storm-water peak flows and volumes for the project with the existing peak flows and show compliance with the jurisdictional regulations. A separate Stormwater Management Report inclusive of detailed hydrologic and hydraulics calculations, analysis and conclusions will be prepared to document the final design of the stormwater management and storm drain system and to obtain the requisite approvals.

TABLE 8–1: EARTHWORK ESTIMATES

Parcel	Total Earthwork (CY)
1	410,000
2	220,000
3	250,000
4	500,000
5	350,000

* *Specific compliance will be addressed in the DAP.*

8.5 PROJECT ACCESS

This section discusses project access both regionally and locally, and offers a detailed description of project access points broken down by parcel.

OVERVIEW

The site is currently serviced by two existing freeways. US Route 101 is an eight lane divided freeway running north-south up the Peninsula, along the west side of the San Francisco Bay. It is a major commuter route providing access from San Francisco to South San Jose. US 101 passes to the south of the development site and is accessed by traveling on Great America Parkway or Lafayette Street and Montague Expressway. State Route 237 is a six lane divided highway running east-west from Milpitas to Mountain View, connecting the east and west sides of the Silicon Valley. SR 237 passes to the north of the site, with access from Lafayette Street and the Gold Street Connector or Great America Parkway. Currently there are no plans to expand either US 101 or SR 237.

Local access to the project is provided by three arterial streets. Great America Parkway is a north-south six lane divided major arterial to the west side of the development. There is a short frontage along Parcel 4, measuring approximately 350 feet. Great America Parkway provides primary access to US 101 and SR 237. Tasman Drive is an east-west six lane divided arterial to the south of the project and includes a center-running VTA owned and operated light rail. Lafayette Street is a north-south four lane arterial between the east and west side parcels of the development and includes the UPRR right-of-way along its west side. Lafayette Street provides access to US 101 by way of Montague Expressway and SR 237 by way of the Gold Street Connector. Great America Parkway and Tasman Drive are currently developed with no apparent opportunities for expansion. Lafayette Street has limited opportunity for expansion on the east side and no opportunity for west expansion.

It is a development goal to make CityPlace both bike and pedestrian friendly. Currently, north-south bicycle access to the site is provided by dedicated bicycle trails along San Tomas Aquino Creek to the west of the site and the Guadalupe River Trail. There are also on-street bike lanes along Great America Parkway, as well as bike lanes on Lafayette Street that extend to Calle de Luna just to the south of the development. Bike access to the project in the east-west direction is more limited. Bike lanes currently exist on Tasman Drive, but terminate near Lick Mill Boulevard east of the site. To the west, there are on-street bike lanes along Old Mountain View-Alviso Road, which provide access to residential neighborhoods in northern Sunnyvale.

The following is intended to briefly summarize the current conditions and address how these conditions and the planned development impact infrastructure planning for the project as analysed in the CityPlace EIR.

Timing of off-site infrastructure is addressed in the MMRP. On-site improvements will be addressed at the time of DAP submittals.

SITE ACCESS

Site access points and variant options are illustrated in Exhibits: 3-12, 3-13 and 3-14. The two access points currently serving the existing City owned Tasman Parking Structure will be maintained by creation of a new access point connecting to the relocated Stars and Stripes Drive north of the building (replacing the current lower level second access): the existing lower entrance may connect to the CityPlace below podium parking planned for the Tasman Blocks (Parcel 5).

STREETS & INTERSECTIONS

A new on-site street network comprised of both public and private streets, and improvements to some of the off-site roadways and intersections outside of the project boundary will be constructed. Based upon the current concept plan and transportation analysis, the parcel access summary is as follows:

The street and intersection improvements for site access will require a detailed engineering evaluation with respect to lane configuration, dimensions, signalization, etc. (access variants illustrated in *Exhibits 3-13* and *3-14*). The following summarizes the current planning for the existing, new and modified intersections for the project. Additional design information is provided in the Grading and Site Access Technical Memorandum attached to the IMP. Public and Private Street designations are depicted in *Exhibit 3-11: Public and Private Streets*, which documents preliminary concepts developed with the City of Santa Clara Department of Public Works.

Parcel 1

- One access point from Lafayette Street with a minimum of two entrance and three exit lanes.
- A new "Urban Interchange" which involves raising a portion of Lafayette Street and a new bridge over the UPRR Railroad providing access to Parcels 1, 2 and 4 with two entrance and three exit lanes, including bypass lanes for through traffic on Lafayette Street in each direction.
- As an alternate to the "Urban Interchange": "T" intersections may be introduced on Lafayette Street in two locations to allow "Jug Handle" type access approaches, with bridges over Lafayette Street connecting the eastern and western parcels. One access point from the north at Great America Way.
- Multiple connection points to Parcel 2 located along shared parcel line with a minimum one lane in each direction.

Parcel 2

- One access point from Lafayette Street with a minimum of two entrance and three exit lanes.
- A new "Urban Interchange" which involves raising Lafayette Street and a new bridge over the UP Railroad providing access to Parcels 1, 2 and 4 with two entrance and three exit lanes, including bypass lanes for through traffic on Lafayette Street in each direction.
- As an alternate to the "Urban Interchange": "T" intersections may be introduced on Lafayette Street in two locations to allow "Jug Handle" type access approaches, with bridges over Lafayette Street connecting the eastern and western parcels.
- One access point from the south via the Lick Mill Boulevard extension.
- One connection to Parcel 4 via a new bridge over Lafayette Street.
- Multiple connection points to Parcel 1 located along shared parcel line with a minimum one lane in each direction.

Parcel 3

- Two connection points to Parcel 4 with a minimum two lanes in each direction.

Parcel 4

- A new "Urban Interchange" which involves raising a portion of Lafayette Street and a new bridge over the UPRR providing access to Parcels 1, 2 and 4 with two entrance and three exit lanes, including bypass lanes for through traffic on Lafayette Street in each direction.
- As an alternate to the "Urban Interchange"; "T" intersections may be introduced on Lafayette Street in two locations to allow "Jug Handle" type access approaches, with bridges over Lafayette Street connecting the eastern and western parcels. One access point from Great America Parkway just north of Great America Parkway/San Tomas Aquino Creek crossing with a minimum two entrance and three exit lanes.

TABLE 8–2: ACCESS SUMMARY

Parcel	No. of Access Lanes In	No. of Access Lanes Out
1	4	4
2	4	4
3	2	2
4	9	10
5	4	4

- Supplemental access point from Great America Parkway through the existing convention center property via a new bridge over the San Tomas Aquino Creek or via access through the Santa Clara Gateway office park.

- Three access points from Stars & Stripes Drive via Avenue A, Avenue B and Avenue C with a minimum three entrance and three exit lanes.

Parcel 5

- Main access from the Tasman Drive / Centennial Boulevard intersection to Stars & Stripes Drive and site.

- Supplemental right-in/right-out access to Tasman Drive via new Avenue A and Avenue C. With VTA concurrence on crossing of tracks, outbound left turns to westbound Tasman Drive may be incorporated from Avenue C.

- Supplemental access from a new Tasman Drive (eastbound) slip ramp to lower Stars & Stripes Drive or Great America Station Transit Plaza, which will also provide access to the below podium parking garage.

The Lafayette Street "Urban Interchange" has numerous design and regulatory permitting challenges. There are overhead PG&E transmission lines on both sides of Lafayette Street and overhead SVP electric on the east side of Lafayette Street. The interchange will have to provide the proper clearances (or necessary relocation or undergrounding) from these utilities. It will also have to meet minimum vertical clearance requirements above the UPRR on the west side of Lafayette Street and obtain PG&E approval for encroachment through the existing easement.

The access point at Great America Parkway will be the marquee entrance to the development, and will be designed to set the atmosphere for the entire development. However, there are challenges in the layout and design of this access point. As proposed, the access road from Lafayette Street to Great America Parkway follows the northern parcel line for Parcel 4, which meets Great America Parkway at a skew. Per the Caltrans Highway Design Manual, Section 403.3, the minimum interior angle must be 75°, which will affect the approach of the access road. Because the Parcel 4 frontage on Great America Parkway is limited, the location of the access point is relatively fixed. This location is approximately 200-ft from the existing bridge crossing San Tomas Aquino Creek, which means that any improvements to Great America Parkway must conform to the existing bridge. There is also a potential sight distance issue as the intersection is approached from the south due to the existing vertical curve on the San Tomas Aquino bridge structure. Approximately 550-ft north of the access point is the intersection of Great America Parkway and Old Mountain View-Alviso Road. The Grading and Site Access Technical Memorandum attached to the IMP shows the concept site access locations for each Parcel.

8.6 STORMWATER DRAINAGE

This section briefly describes stormwater drainage, including current systems and proposed future infrastructure.

OVERVIEW

The San Tomas Aquino Creek watershed covers an area of approximately 45 square miles. San Tomas Creek originates in the forested foothills of the Santa Cruz Mountains flowing in a northern direction through the cities of Campbell and Santa Clara, into the Guadalupe Slough, and finally into the Lower South San Francisco Bay. The major tributaries to San Tomas Aquino Creek include Saratoga, Wildcat, Smith and Vasona Creeks. Most of the San Tomas Aquino watershed is developed as single and multi-family residential neighborhoods, with additional areas developed for commercial and industrial uses. The majority of the San Tomas Aquino Creek channel has been modified and lined with concrete (from the Smith Creek confluence in the upper reaches downstream to Highway 101).

The Guadalupe River watershed covers an area of approximately 171 square miles. The headwaters drain from the eastern Santa Cruz Mountains near the summit of Loma Prieta in heavily forested unincorporated county land with pockets of low-density residential developments. The Guadalupe River actually begins on the Valley floor at the confluence of Alamitos Creek and Guadalupe Creek, just downstream of Coleman Road in San Jose. From there it flows north, approximately 14 miles until it reaches the Lower South San Francisco Bay via the Alviso Slough. The upper watershed is characterized by heavily forested areas with pockets of scattered residential areas. Residential density gradually increases to high density on the valley floor. Commercial development is focused along major surface streets. Industrial developments are located closer to the Bay, primarily downstream of the El Camino Real crossing. Six major reservoirs exist in the watershed: Calero Reservoir on Calero Creek, Guadalupe Reservoir on Guadalupe Creek, Almaden Reservoir on Alamitos Creek, Vasona Reservoir, Lexington Reservoir, and Lake Elsman on Los Gatos Creek.

The climate of the City of Santa Clara is characterized as dry-summer subtropical (often referred to as Mediterranean), with cool wet winters and relatively warmer dry summers. The mean annual precipitation in the vicinity of Santa Clara is approximately 15 inches (95 percent of which falls between October and April) per the 2007 Santa Clara County Drainage Manual (SCCDM). This value is typical of Santa Clara County east of the coastal range. It is important to note that the site can be subject to a wide range of annual precipitation.

Due to the nature of the existing topography and drainage infrastructure, the five parcels along with the tributary off-site areas have been divided into four distinct sub-watersheds: San Tomas, East Basin, Eastside Channel and Basin Direct. Each watershed, the existing stormwater drainage system, and the proposed infrastructure improvements are described in detail in the Stormwater Technical Memorandum attached to the IMP.

EXISTING SYSTEMS

The existing City owned and operated drainage system includes pump stations, retention basins, open drainage channels, underground conveyance piping and appurtenant drainage structures. The on-site drainage system is made up of an intricate corrugated poly-pipe network and inlet structures. The off-site drainage systems that convey the stormwater runoff from the project to the discharge locations are shown on the City's Storm Drain System Information Maps.

Parcel 1, 2, 3 and about 45 percent of Parcel 4 are tributary to the Guadalupe River. The stormwater runoff from these parcels is collected in the Eastside Retention Basin, which has a surface area of approximately 5.3 acres and had a 1972 design storage capacity (retention volume) of 30 acre/feet, and discharged to the Guadalupe River via the Eastside Pump Station. The basin also collects runoff from off-site areas to the south and west of the site. The Basin and Pump Station are operated and maintained by the City. The remainder of Parcel 4 and Parcel 5 are tributary to the San Tomas Aquino Creek. The surface water runoff is discharged to the Creek via two existing gravity outfalls (12 inch diameter) and the Golf Course Club House Storm Drain Pump Station and outfall (30 inch diameter).

The Eastside Pump Station, originally constructed in 1973, was last upgraded in 2005 and has a design capacity of 50,000 gallons per minute (gpm). There are approximately 524 acres of the City tributary that flows to this pump station, which includes about 180 acres (34 percent of watershed) from the project. The City prepared a Hydrologic Investigation for the Eastside Pump Station Report in 2000. This Report concluded that the existing pumps had sufficient capacity to prevent the 100-year runoff from ponding in Lafayette Street. However, future pump upgrades were identified as a possibility under worst case scenario conditions.

The Eastside Drainage Channel was constructed in 1971. The City prepared an Initial Study in 2010 for the Eastside Retention Basin Drainage Swale Vegetation Clearing Project. The project proposed to clear vegetation within the drainage channel and establish a recurring maintenance program for these drainage facilities. As of 2016, the construction project has not been initiated.

The Golf Course Pump Station was originally constructed in 1987 and has a design capacity of 11,100 gpm. There is approximately 65.8 acres tributary to this pump station including about 43.6 acres from Parcel 4 (66 percent of area), all 8.0 acres of Parcel 5 and 14.2 acres from the public right-of-way including Stars & Stripes Drive, Tasman Drive and the City parking garage. The system utilizes the depressed area on Parcel 4 within the golf course driving range for detention and includes submersible pumps and an outfall to the San Tomas Aquino Creek.

PROPOSED INFRASTRUCTURE

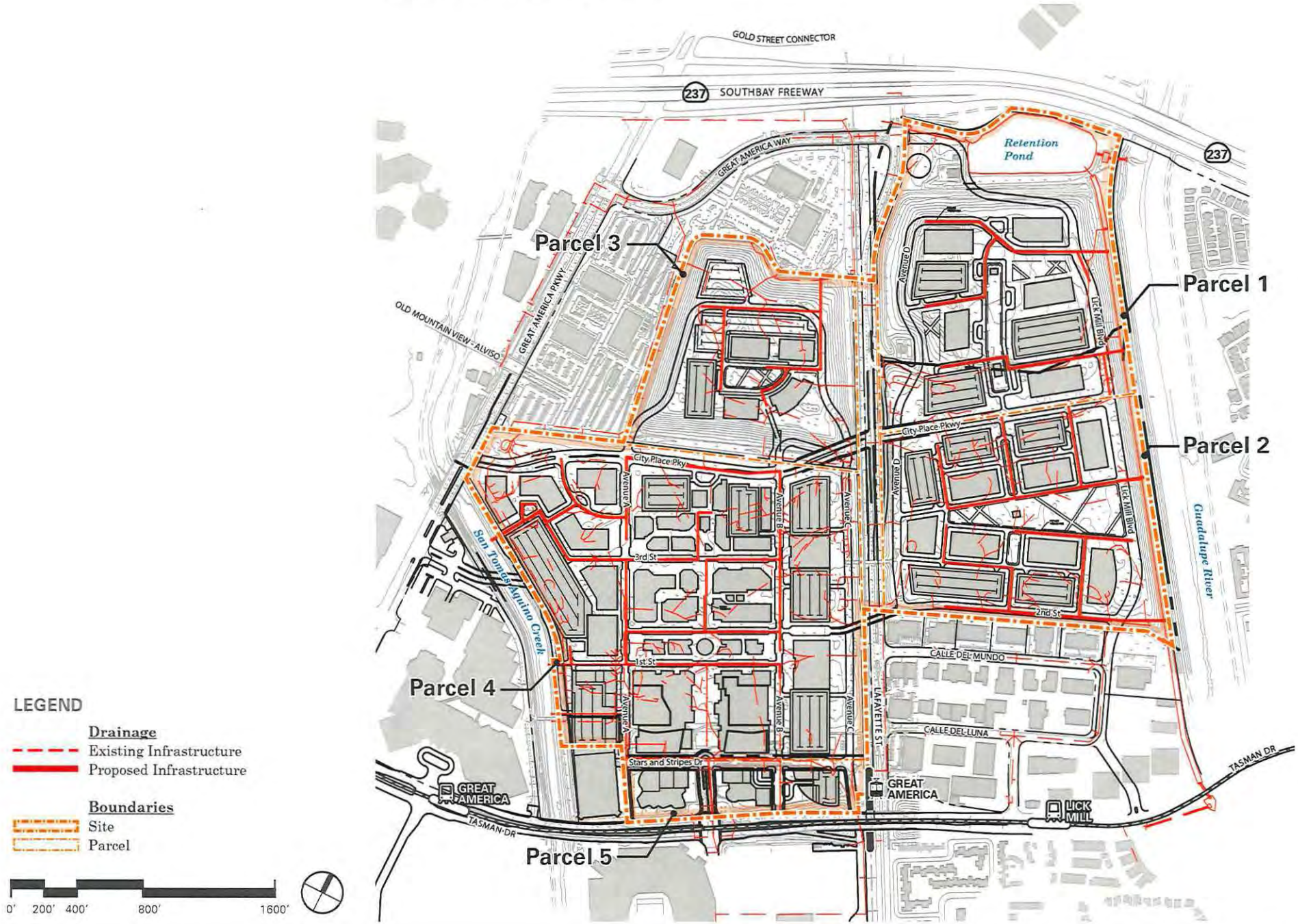
The storm drainage system for the project will be an underground gravity network of pipes, catch basin, manholes, water quality treatment measures and other appurtenances (as illustrated in *Exhibit 8-1: Storm Drain*). The building drainage will be via internal systems piped directly to the storm drains. A complete storm drain study for the 10-year and 100-year storm events prior to grading permit issuance will be prepared and submitted for review and approval by the City for each Development Area Plan. For final design, the public underground piped storm drain conveyance system will be capable of conveying the 10-year peak runoff as well as safely convey the 100-year event peak flows from the site via a combination of the piped system and surface conveyance. Public streets shall be designed such that the 100-year event flow remains within the roadway limits and not extend into private property.

The stormwater runoff from Parcels 1, 2 and 3 will discharge to the Eastside Retention Basin and be pumped to the Guadalupe River via the existing Eastside Pump Station. From Parcels 1 and 2, there will be multiple new outfalls from the site to the existing Eastside Drainage Channel. Minor modifications will be required to accommodate the new outfalls into the existing Eastside Drainage Channel. From Parcel 3, the existing drainage infrastructure located north of the parcel and west of the UPRR will be utilized. An option to utilize the existing infrastructure to the west of the parcel in the adjacent Gateway property may also be explored. The preliminary evaluation identified that a portion of the existing off-site system may need to be upsized to accommodate Parcel 3. However, these upgrades may not be required if enough of the stormwater on Parcel 3 is collected and re-used or routed to the existing drainage area between Parcel 3 and 4.

The stormwater runoff from Parcel 4 and Parcel 5 will discharge to the San Tomas Aquino Creek via three new stormwater outfalls. The invert of the outfalls will be set above the bottom of the Creek at a final elevation to be coordinated with the SCVWD to ensure the location is above sediment levels within the Creek. The Golf Course Pump Station will need to be modified,or based on the final design may be abandoned and removed, as the project will collect and convey stormwater runoff at higher elevations obviating the need for pumping.

As previously stated, the goal for the final stormwater management design will be to reduce the proposed peak flows to existing peak flow levels through the incorporation of sustainable stormwater measures. During final design, the extent of stormwater management measures such as LID, stormwater treatment BMPs, rainfall harvesting and re-use within the project will be determined.

EXHIBIT 8–1: STORM DRAIN



8.7 POTABLE WATER

This section briefly describes potable water systems, including current and proposed future infrastructure, in addition to estimated future water demands for CityPlace.

EXISTING SYSTEM

The water system in the City of Santa Clara is operated and maintained by the City of Santa Clara Water and Sewer Utility. This system is supplied with potable water from three main sources: the Santa Clara Valley Water District (the "SCVWD"), the San Francisco Public Utility Commission (the "SFPUC Hetch Hetchy"), and 27 groundwater wells operated by the Water and Sewer Utility. The potable water supply is augmented with recycled water from South Bay Water Recycling. This recycled water is not permitted for potable use, but it can be used for irrigation, toilet flushing and approved industrial uses.

The existing domestic water system near the site is provided on the City of Santa Clara Water Base Maps W93 – W115. There is a network of water mains around all four sides of Parcels 3, 4 and 5. This network is also located along the west and south sides of the Parcels 1 and 2.

PROPOSED INFRASTRUCTURE

Parcels 1 and 2 will be served by the existing water main in Lafayette Street. Parcel 3 will be served by the same water main in Lafayette Street, a stubbed main beneath the UPRR tracks to the east of Parcel 3. Parcels 4 and 5 will be served by the existing water mains in Great America Parkway, Stars & Stripes Drive, Centennial Boulevard and Tasman Drive.

Each site will include a combined domestic and fire water system "looped" network with a minimum two points of connection to the existing system. The Water Technical Memorandum attached to the IMP shows a preliminary layout of the water system, including possible connection points. Due to the height of some proposed buildings, it may be necessary to include booster pumps in the looped system to maintain water pressure for fire flows. Location of these pumps either within or external to the buildings will be evaluated. Connections to the public system will be provided by the City of Santa Clara Water Utility. Each connection to the existing public water system will require a meter and backflow preventer to keep water from flowing from the project back into the public system.

California Code of Regulations, 22CCR§64572.(f) states that new water mains shall not be installed within 100-ft of the nearest edge of any sanitary landfill, wastewater disposal pond, etc. The City is seeking a waiver from this requirement. Specific water utility materials, methods of construction, locations of appurtenances such as valves, meters, backflow devices, etc. must be addressed and approved by the City. Some sections of the water system on Parcel 4 may need to be private due to the inclusion of the structural platform and site design features.

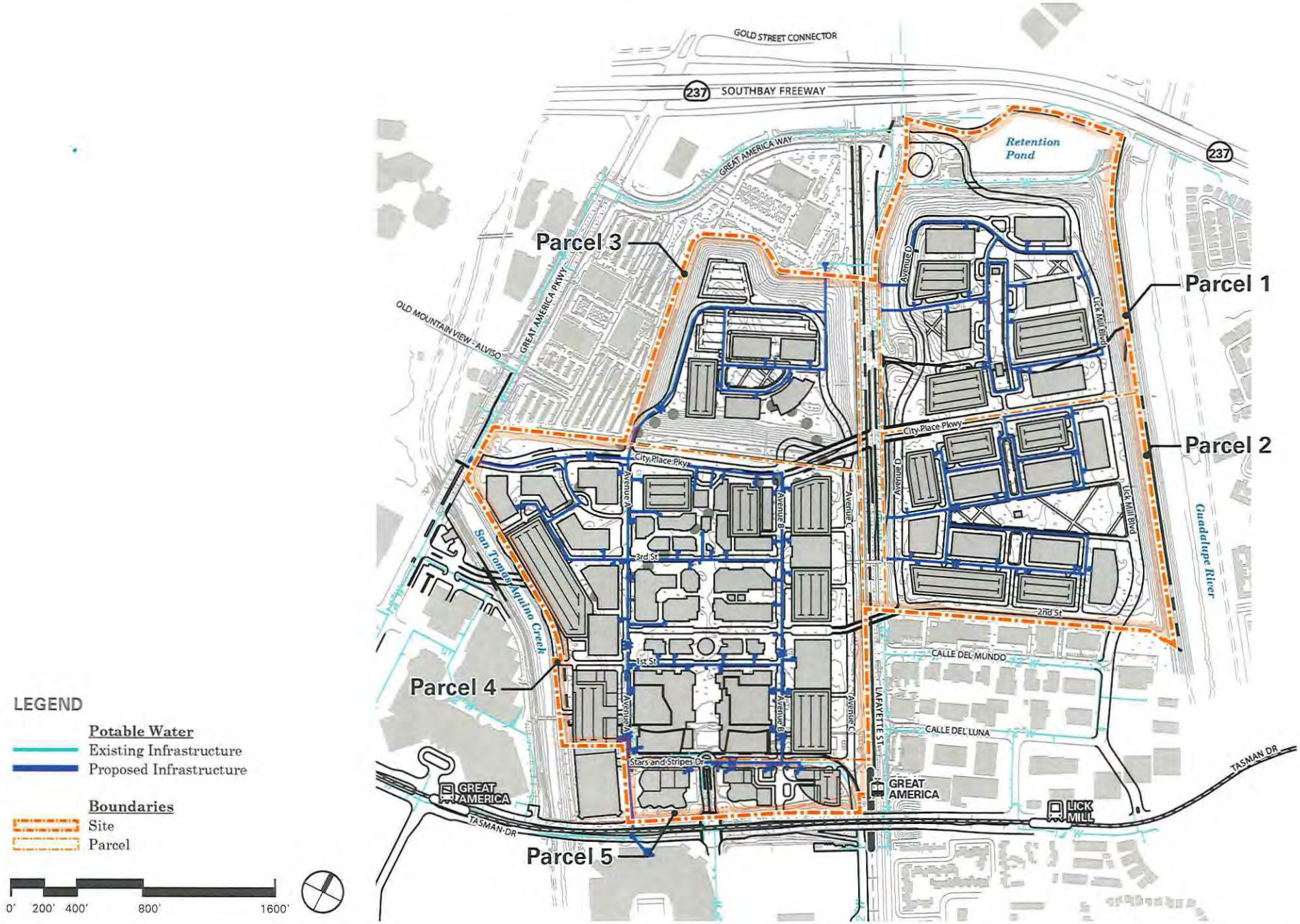
Based upon the current concept plan, the estimated water demand per Parcel is as shown in *Table 8-3: Estimated Water Demand*. As the design is finalized, these estimates will be refined and used to design a system which meets the needs and phasing of the project. Additional design information is provided in the Water Technical Memorandum attached to the IMP.

Implementation of the water system as currently designed will likely require some off-site improvements to the existing utility systems. The connection point to the northeast of Parcel 3 is a stubbed asbestos cement water main that was installed in 1970 and later abandoned. It may not be in an acceptable condition to serve the project. Also, a considerable amount of fill may be added to Stars & Stripes Drive. Previous City studies indicate that this will require the existing utilities in Stars & Stripes to

TABLE 8–3: ESTIMATED WATER DEMAND

Parcel	Potential Development Area (gsf)	Water Demand(gpd) Scheme A	Water Demand(gpd) Scheme B
1	1,200,000	232,064	232,064
2	2,160,000	401,014	388,189
3	720,000	172,241	172,241
4	4,259,400	692,366	714,406
5	825,000	208,039	208,039

EXHIBIT 8–2: POTABLE WATER



be raised. The City also noted approximately 2,000-ft of domestic water mains that may need to be upsized. Specifically, these include the 8-inch asbestos cement main in Great America Parkway, the 8-inch asbestos cement main in Lafayette Street, and parts of the loop in Calle de Luna and Calle del Mundo. An extension of the existing water main in Tasman Drive may also be necessary. More study will be required to determine if these sections or others will need to be upsized to meet the water demand of the projectand will occur with each Development Area Plan.

City standards that govern development shall be those current/approved at the time of DAP approval. All water utilities shall be designed to comply with the City's design criteria and standards.

Per City Water Department the following water utility horizontal clearances are required:

- 12" of vertical clearance at water service crossing with other utilities
- 10' of horizontal clearances between water and sanitary sewer utilities
- 8' of horizontal clearances between water and storm drain utilities
- 5' of horizontal clearances between fire and other water utilities
- 5' of horizontal clearances between water and gas utilities

8.8 RECYCLED WATER

This section discusses recycled water as it relates to CityPlace, including existing and proposed infrastructure.

EXISTING DISTRIBUTION

The existing recycled water distribution system near the site is provided on the City of Santa Clara Water Base Maps RCW93 – RCW115. There is a network of recycled water mains along the north, east and west sides of Parcel 1, the east and south side of Parcel 2, and between Parcel 3 and Parcel 4.

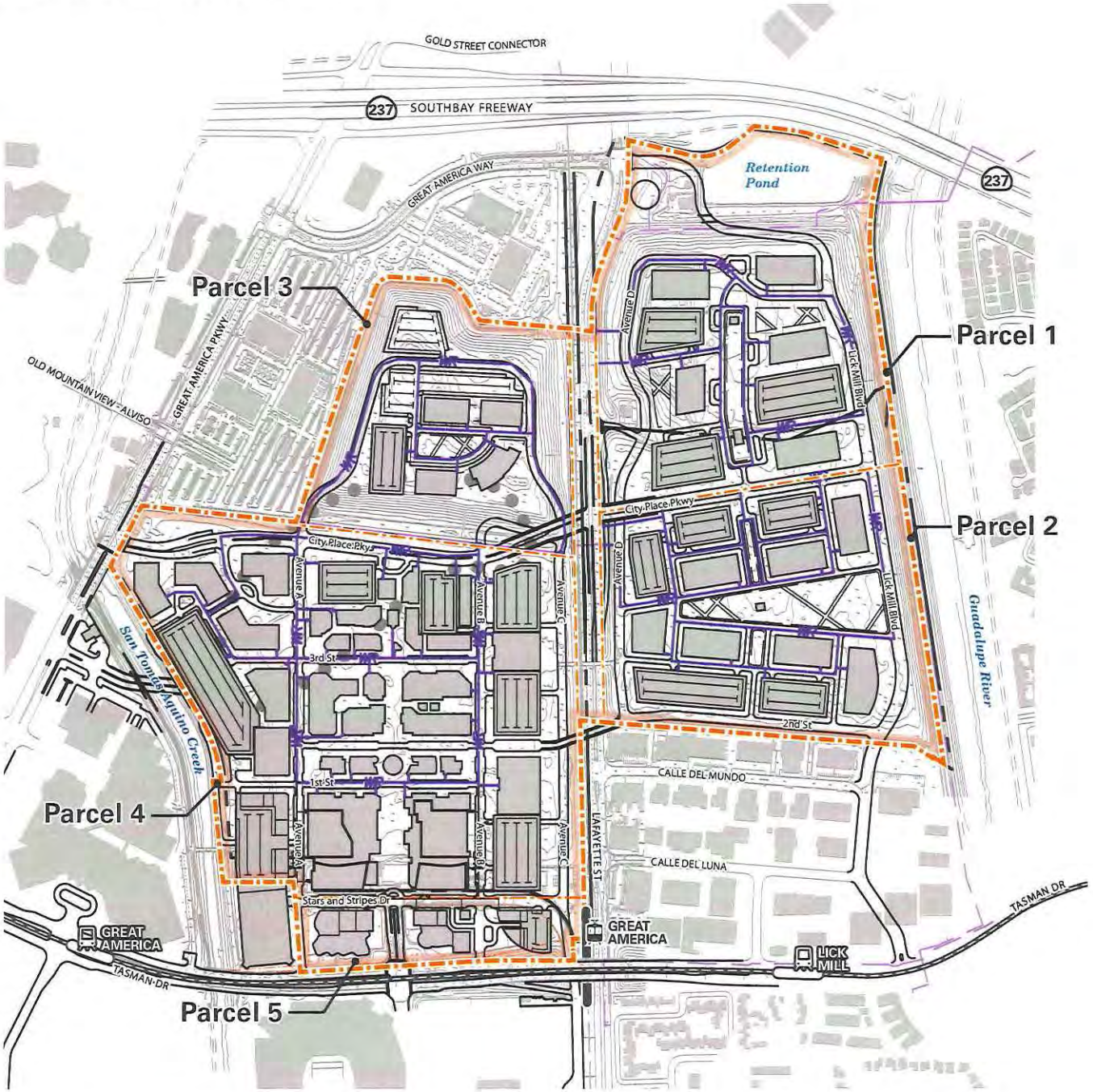
Recycled water is supplied to the site from the South Bay Water Recycling Program. It is conveyed from the plant to the northeast corner of Parcel 1 by a 16-inch plastic pipe. This pipe travels beneath State Route 237 then crosses the Guadalupe River. On the west bank of the Guadalupe River the recycled water main splits. One 12-inch Yelomine (plastic) pipe is located along the east side of Parcel 1 and Parcel 2 until it reaches Tasman Drive. It then turns west and mixes with a 30-inch steel recycled water main located along Tasman Drive before crossing this main and continuing in Lick Mill Boulevard. The second branch of the recycled water system is a 16-inch plastic main along the north side of Parcel 1. At Lafayette Street it turns to the south and travels approximately 1,500-ft, passing through a reducer to become a 12-inch plastic pipe. At the boundary between Parcel 3 and Parcel 4 the main turns west and travels through a 30-ft wide Recycled Water and Sanitary Sewer easement to Great America Parkway. At Great America Parkway, the main turns north before continuing west along Old Mountain View – Alviso Road. The City of Santa Clara Water Utility estimates pressure in the recycled water system to be between 80 and 90 psi in the vicinity of the site.

PROPOSED INFRASTRUCTURE

The recycled water system for each parcel will have two points of connection to maintain recycled water service. For both Parcels 1 and 2, the recycled water distribution will include one point of connection to the existing recycled water main in Lafayette Street and one point of connection to the recycled water main along the eastern edge of Parcels 1 and 2. For Parcels 3 and 4, the recycled water distribution will include two points of connection to the existing recycled water main located in the easement between Parcel 3 and Parcel 4. Parcel 5 will connect to the new infrastructure in Parcel 4.

As the design of the project progresses, the use of recycled water will be evaluated. The recycled water system can be used to supply non-potable water for different uses such as irrigation, HVAC equipment (cooling tower make-up), and toilet flushing. As these systems are designed, the entire water balance (domestic source, recycled source, reuse source) can be developed. Each connection for each use will require a separate meter as well as City and State approval via an independent recycled water permitting process. Additional design information is provided in the Water Technical Memorandum attached to the IMP.

EXHIBIT 8–3: RECYCLED WATER



8.9 WASTEWATER

This section briefly describes wastewater systems, including current and proposed future infrastructure, in addition to estimated future sewage generation for CityPlace.

EXISTING SYSTEM

The existing wastewater collection system for the City of Santa Clara includes a series of gravity trunk sewers, pump stations and sanitary force mains. The system conveys the wastewater to the existing San Jose/Santa Clara Regional Wastewater Facility (RWF) located approximately 2 miles northeast of the site. The site is located at the downstream end of the piped collection system. From Great America Parkway on the west side of the project, two main sewers are located between Parcel 3 and Parcel 4. The northernmost gravity trunk sewer is a 33-inch reinforced concrete pipe (RCP), and the southernmost is a 42-inch RCP. Within Lafayette Street there is a 36-inch gravity trunk sewer. These three sewers join in Lafayette Street into two 42-inch RCP's and continue north in Lafayette Street between Parcels 1 and 3. At the northern edge of Parcel 1, these sewers turn to the northeast, following the Parcel 1 boundary to the existing diversion structure which diverts the flow to both the existing Rabello Pump Station and the Northside Pump Station. There is a 12-inch sewer in Stars & Stripes Drive, which connects to the 36-inch sewer in Lafayette Street.

The gravity sewer that bypasses the Rabello Pump Station continues beneath the Guadalupe River and California State Highway 237, where it flows to the Northside Pump Station. From the Northside Pump Station, the wastewater is pumped and conveyed in a force main to the RWF. The Rabello Pump Station will pump wastewater to the RWF through a secondary force main, which follows the alignment of the Northside Pump Station gravity sewer and its force main once crossing beneath the Guadalupe River and Highway 237.

The current pump station operation includes the Rabello and Northside Pump Stations working in parallel to pump the wastewater to the RWF. The maximum capacity of this system, referred to as the Firm Capacity, is defined as the maximum capacity of the combined pump stations with the largest pump for each pump station out of commission. This builds some redundancy into the system, allowing it to function even if one of the pumps for each pump station is out of service. The Northside Pump Station has four pumps running in parallel to pump effluent, and the Rabello Pump Station has eight pumps running in parallel. Currently, the City of Santa Clara estimates the Firm Capacity of these two stations to be 41.0 million gallons per day (mgd). Per RMC's Sanitary Sewer Capacity Evaluation for the project dated 6 August 2015, the peak wet weather flow (PWWF) results predicated by the model are 43.0 mgd without the project and 44.8 mgd with the project.

PROPOSED INFRASTRUCTURE

Based upon the current concept plan, the estimated sewage generation per parcel is as follows:

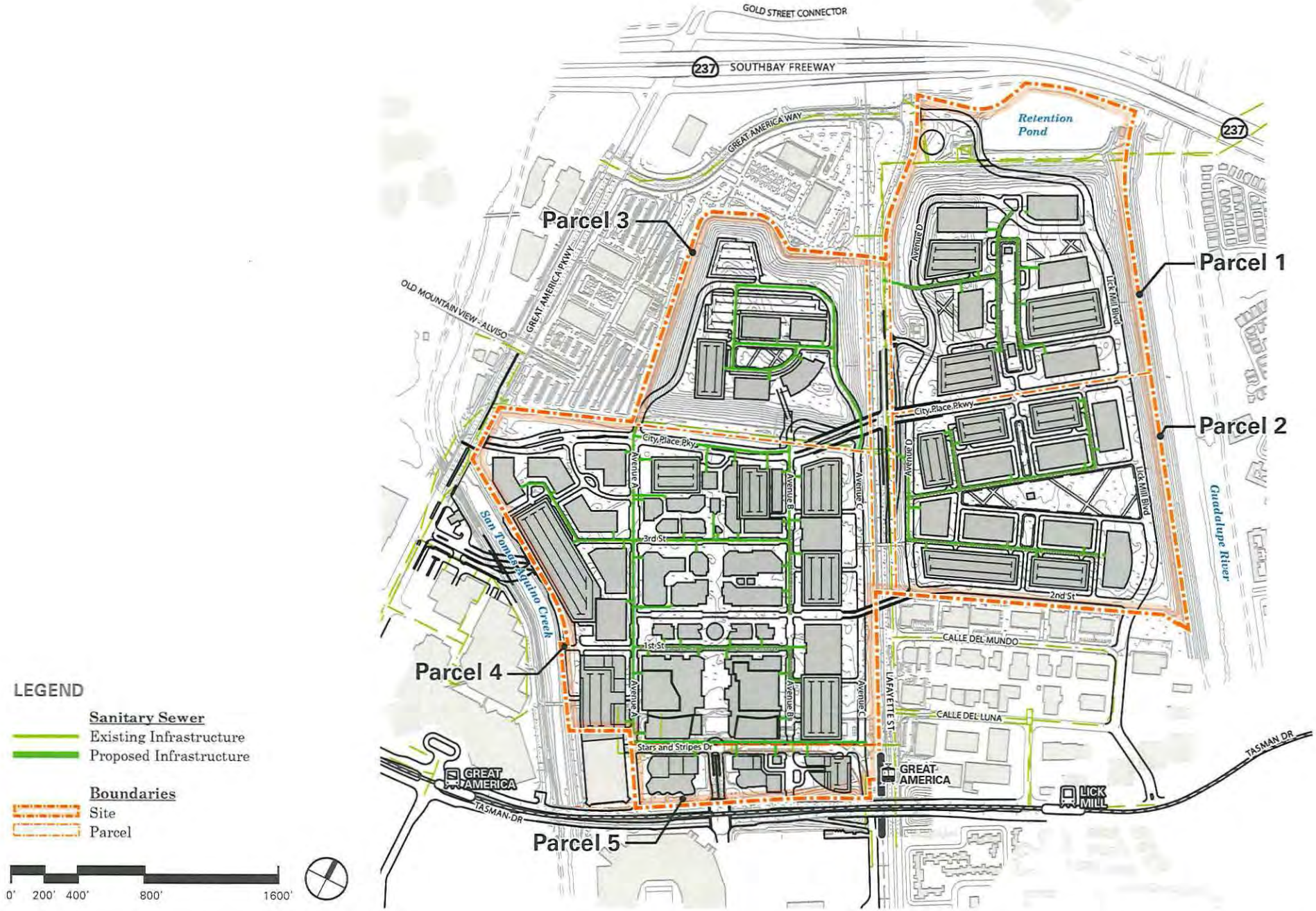
TABLE 8–4: ESTIMATED SEWAGE GENERATION

Parcel	Potential Development Area (gsf)	Sewage Generation (gpd)
1	1,200,000	168,000
2	2,160,000	302,400
3	720,000	100,800
4	4,259,400	941,506
5	825,000	236,432

The proposed sanitary sewer system for the project will connect to the existing City gravity trunk sewers between Parcels 3 and 4, in Lafayette Street and in Stars & Stripes Drive. The preliminary locations for the points of connection and for the routing of the sewers within in development parcel are provided in the Sanitary Sewer Technical Memorandum attached to the IMP. The preliminary design includes multiple gravity sanitary sewer systems with laterals, mains, manholes and cleanouts designed per City standards. The pipes will have the capacity to convey the total peak wet weather flow at a minimum velocity of 2 feet per second when flowing half full and no more than 75 percent full. Parcels 1 and 2 will connect to the westernmost existing 42-inch sewer in Lafayette Street, and Parcels 3 and 4 will connect to the existing 42-inch sewer located between Parcels 3 and 4. Parcel 5 will connect to the Stars & Stripes Drive system. The Stars & Stripes Drive system will need to be completely replaced to accommodate the proposed below grade parking structures. The systems are proposed as a looped system to provide redundancy as required by the City.

As the design is finalized, these estimates will be refined and used to design a system which meets the needs and phasing of the project. A detailed hydraulic analysis of the sewer system shall be performed to confirm the findings in the RMC Technical Memoranda, as well as to evaluate the timing for upgrades to the Rabello and North Side Pump Stations.

EXHIBIT 8–4: SANITARY SEWER



8.10 FIRE STATION

The existing City of Santa Clara Fire Station No: 10 is currently located on the project site and may continue to operate at this location or be relocated to an agreed location concurrent with a future project phase as outlined in the DDA.

OVERVIEW

The current fire station location is at the intersection of Stars & Stripes Drive and the proposed Avenue B, as depicted in *Exhibit 3-16: Fire Station Relocation*. The fire station may be retained in its current position during initial development phases or permanently. Two possible relocation options are proposed both situating the fire station along Great America Parkway. Other accommodations (temporary and/or permanent) shall be agreed upon through consultation with the Fire Chief. Further details regarding Fire Department access and coordination with the Fire Chief on emergency service requirements will be provided with each DAP submittal or other documentation associated with each design development.

8.11 ELECTRIC, GAS AND TELECOMMUNICATIONS

This section describes the existing and proposed systems for electric, gas and telecommunications at CityPlace.

ELECTRICAL DISTRIBUTION SYSTEM

Pacific Gas and Electric (PG&E) provides gas and electrical services to the vast majority of Northern California. However, some cities have historically provided their own municipal electric company. Such is the case for the City of Santa Clara whose municipal electric company is referred to as Silicon Valley Power (SVP). SVP provides electric utility power to all residences and commercial businesses in the City of Santa Clara. Since the City is surrounded by PG&E territory, there are locations within Santa Clara where PG&E owned electric transmission systems exist, within appropriate right-of-ways. PG&E transmission systems traverse all four parcels.

Existing System

PG&E maps indicate that two separate PG&E 115kV overhead transmission pole lines run "north-south" along the westerly side of Lafayette Street. There is a 175-ft wide easement within Parcels 5, 4 and 3 for these transmission lines. Additionally, a PG&E overhead transmission pole line runs "north-south" along the east side of Lafayette Street. These pole lines are in dedicated rights-of-way, which typically forbid structures of any kind.

SVP's electric distribution maps indicate that an existing 12kV underground distribution line provides service to existing commercial buildings along Stars and Stripes Drive. There is an existing 12kV overhead line running north-south under the PG&E transmission pole line on the easterly side of Lafayette Street that branches easterly to serve the residential development southeast of the proposed new development. There also is an existing 230kV underground transmission line (part of the Northern Receiving Station system) in Lafayette Street. This underground line is in the west side of Lafayette Street from Tasman Drive to the southern edge of Parcel 2. The 230kV line turns east, crossing Lafayette Street, continuing along the toe of the southern slope in Parcel 2 then turns north continuing along the toe of the eastern slope in Parcel 2 and Parcel 1. At the northern limit of Parcel 1, just south of the Eastside Retention Basin, the line turns east and traverses under the Guadalupe River. Lastly, SVP underground electric 12kV feeder-lines exist along Great America Parkway, adjacent to Parcel 4, and along the Guadalupe River adjacent to Parcel 2. Discussions with SVP indicate that all of the existing underground and overhead distribution lines in the immediate vicinity of the new development are fully utilized and could not be extended to serve the new development.

Proposed Infrastructure

It is common for parking lots to intrude into PG&E easement areas. When that occurs, care must be taken to avoid placement of parking lot lights and trees within the easement. PG&E would need to be consulted to obtain approval for any development (i.e. grading/landscape plans) planned within the easement areas. Additionally, site improvements would be designed to avoid conflict with existing transmission line steel support poles. It is conceivable, however, that PG&E would allow a support pole to be adjusted to be "taller" or moved "tangentially" along the north-south corridor to eliminate a conflict with proposed grading or utility improvements. Moving poles perpendicularly to the north-south route should be

avoided because it is impractical to add the necessary "down-guys" and provide the additional easements, to consider off-setting the transmission pole line.

SVP has confirmed that to provide electrical service to the new development, new circuits will need to be installed and extended from the existing "Northern Receiving Substation" located south of Levi's stadium. Specifically, it is expected that four new 600A, 12kV feeder lines will be needed to serve Parcels 4 and 5.

Two more feeder lines will be required for Parcel 2, and one for each of Parcels 1 and 3, for a total of eight new feeders.

The feeder lines will be installed as part of a multi-circuit conduit bank of up to four 5 inch primary conduits. Accordingly, it is expected that two new trench routes, each typically 36 inch x 60 inch, will need to be extended approximately 1,800-ft from the substation to the south end of the new development, although further study is needed to determine the appropriate routing of the new feeder-lines throughout the development.

SVP manholes would be needed, typically spaced no more than 500-ft apart, to facilitate cable pulling and to allow the installation of pad mount switches and transformers. Further study is needed to determine the number and locations of manholes, switches and transformers that would be required to serve the new development and will occur with the submission of each Development Area Plan.

The applicant will be responsible for trenching and installing all new SVP conduits and substructures. SVP does not utilize sub-surface equipment. All switches and transformers will be pad-mounted and locations will need to be coordinated with SVP during the design stages.

Streetlights will be part of the project on all new streets. For new streets that are to be dedicated as public streets, SVP will provide public streetlights (e.g. electroliers) as part of their electric service. If the streets are to be "private", the applicant would be required to bear the cost of providing City approved street lights.

SVP has recently announced that "fiber services" are being offered to schools and residential developments. The extent and locations of SVP "fiber" services for each of the four development parcels will need to be coordinated with SVP during the design stages.

NATURAL GAS DISTRIBUTION SYSTEM

Existing System

PG&E will be the service provider for natural gas to the development. PG&E's maps indicate that an existing 24-inch high-pressure gas transmission main is located north-south along Lafayette Street. Specifically, the gas main is along the west side of Lafayette Street from the south, northward, until it reaches the midpoint of Parcel 4, then it crosses to the east side and traverses northward along the east-side of Lafayette Street along the entire frontage of Parcels 1 and 2. Any street improvements to Lafayette Street (i.e. road widening, road overlay) will need to be reviewed by PG&E to ensure the integrity to their gas facilities would be maintained.

PG&E's gas distribution maps also indicate that 2-inch and 1¼-inch distribution gas mains exist along Stars & Stripes Drive. Also a 4-inch gas main is located north-south along the east side of Lafayette Street, and a second 4-inch main is located along the east side of Great America Parkway adjacent to Parcel 4.

Proposed Infrastructure

It is feasible that the 4-inch existing gas mains in the vicinity could be extended into the new development to provide gas service, assuming standard "commercial gas loads" are needed. If any "campus boiler/steam" type systems or "bloom box generators" are being considered, specific studies will be required for PG&E planning to evaluate. Gas facilities within Stars & Stripes Drive could be utilized to serve only the two

nearby proposed buildings, but may need to be relocated if Stars & Stripes is reconfigured.

Extending the gas service from the 4-inch gas main from Lafayette Street into Parcels 4 and 5 would require crossing the UPRR right-of-way. This crossing, if necessary, will require railroad permits and a "jack and bore" crossing. As an alternative, it is feasible that a gas sleeve could be incorporated into any new bridge structures that may span the rail right-of-way and Lafayette Street.

If the total expected gas loads of the new development are sufficiently large, PG&E may require the installation of a new gas regulator station to serve the development. The proximity of the high-pressure transmission line provides the capacity to provide service to a gas regulator station should one be required. A new gas regulator station would take approximately three years for PG&E to plan, design, and build.

PG&E gas mains would typically be extended in a trench joint with SVP electric facilities. SVP trenches are typically minimum 36 inches wide and often 48 inches wide when accommodating all four utilities. This is because SVP requires 12 inch horizontal separation from gas, telephone/catv facilities, rather than "vertical" separation, which is more common PG&E requirement.

The applicant is responsible for all trenching and has the option to install gas facilities and to be credited by PG&E for the estimated cost of the installation. It is recommended that gas meters be located outside of proposed new buildings, either in an alcove, or perhaps adjacent to landscape walls. PG&E clearances and truck access to gas meters would need to be provided. PG&E does allow gas meters to be located in "gas rooms", but the requirements are strict (E.G. forced air ventilation system, gas detection, explosion proof fixtures, etc.), and the process typically delays the PG&E approval process significantly (6 to 12 months additional).

TELECOMMUNICATION SERVICE

Existing System

AT&T service maps indicate that limited AT&T facilities exist along Stars & Stripes Drive. It does appear, however, that significant AT&T facilities exist on a north-south "wood pole line" along the east side of Lafayette Street.

Comcast service maps indicate that facilities exist along Stars & Stripes Drive, and it appears that significant Comcast facilities exist on a north-south "wood pole line" along the east side of Lafayette Street.

Proposed Infrastructure

AT&T will provide service to one Minimum Point of Entry (MPOE) for up to one building on each non-contiguous property. AT&T will serve multiple buildings on one property, but the applicant will be billed for the estimated cost of the additional AT&T services. The applicant is responsible for trenching and installation of AT&T conduits.

It is typical for developers to discuss the possible extension of "fiber services" with AT&T. If desired, a utility consultant would work with AT&T's engineering department to discuss the need for fiber pads if fiber service is ultimately to be provided to the project.

Conduits for new Comcast service would typically be installed by Comcast contractors in an "open trench" provided by the developer. Number and sizes of conduits would be based on the types of services desired for the development program.

It would be necessary for AT&T and Comcast to cross the UPRR right-of-way to serve Parcels 4 and 5. This crossing would require railroad permits and a "jack and bore" crossing (the same jack and bore pits that would be needed for gas facilities could be used for these services, however, separate conduit/sleeves would be required to provide separation). As an alternative, it is feasible that the conduits could be incorporated into any new bridge structures that may span the rail right-of-way and Lafayette Street.

8.12 ADDITIONAL FACTORS

This section briefly describes additional infrastructure elements such as interstitial spaces, settlement vaults, structural slabs, and utility trenching.

LANDFILL INFRASTRUCTURE

The development of the site will impact the current configuration of portions of the landfill operations monitoring, collection and removal systems. Initial assumptions for abandonment and replacement or maintenance of the above systems include the following:

- Protection and maintenance of groundwater monitoring wells and groundwater piezometers;
- Monitoring existing leachate collection and removal system during site development; and
- Abandonment and replacement of the landfill gas collection and removal system including the landfill gas monitoring probes.

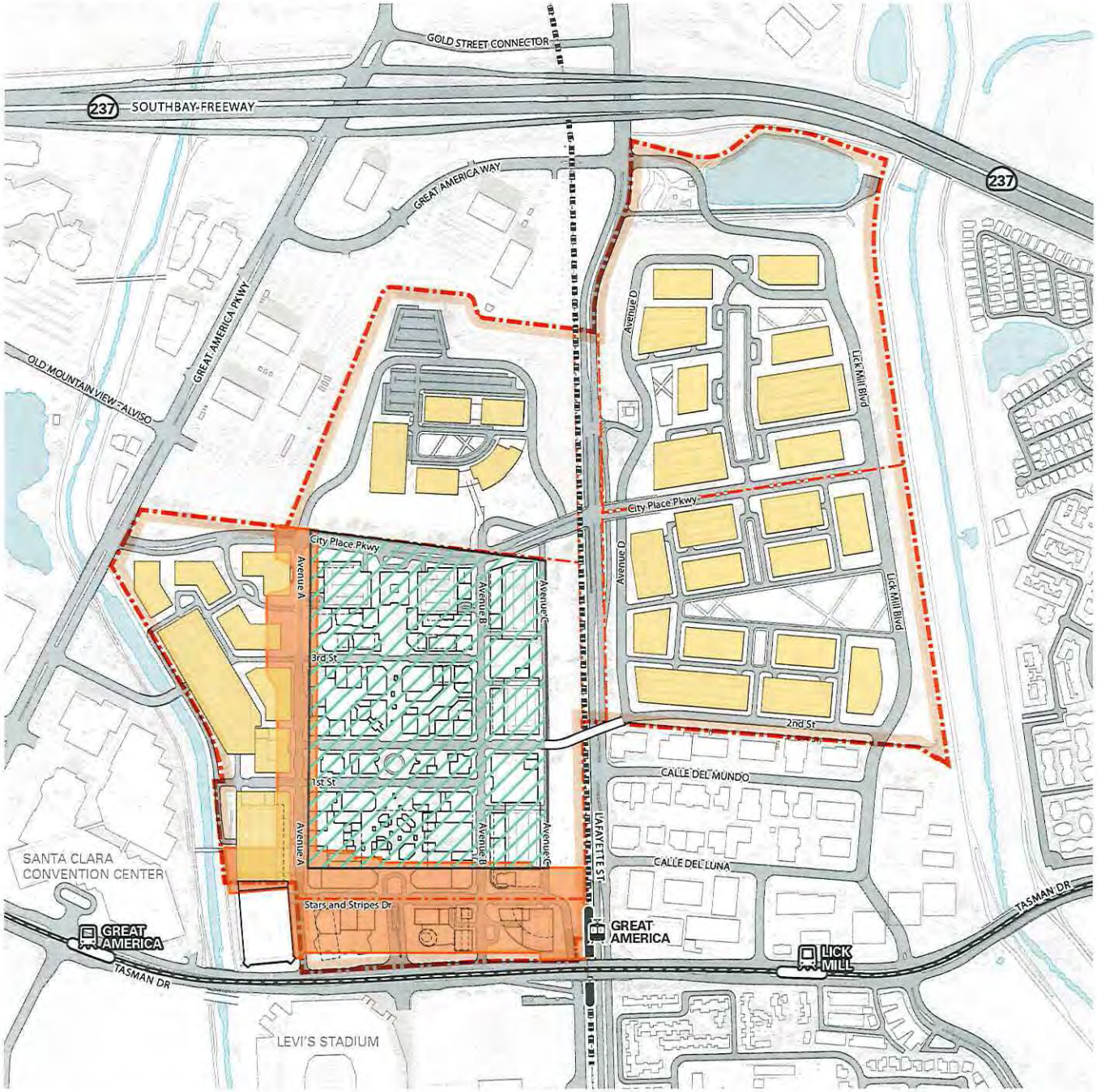
The design of specific landfill infrastructure components including the Landfill Gas Extraction System Re-Design, Landfill Gas Mitigation System at Building Pads and Landfill Monitoring Features will require further design coordination. Infrastructure modifications will be done in accordance with applicable laws and regulations, with review and input from the regulatory agencies that administer compliance including the Santa Clara County Department of Environmental Health Local Enforcement Agency (LEA), the California Department of Resources, Recycling, and Recovery (CalRecycle), the San Francisco Bay Regional Water Quality Control Board (RWQCB), the Bay Area Air Quality Management District (BAAQMD), and the City of Santa Clara Planning Department.

NON-STANDARD DESIGN ELEMENTS

Some of the non-standard design elements that may be incorporated into the site design to address the landfill issues for the project include interstitial spaces, settlement slabs, settlement vaults/flexible connections, special utility trenching for landfill cap disruption and refuse handling and considerations for landfill gas. Typical utility/roadway corridor sections have been prepared for several variations of roadways, streetscape amenities and the multiple utilities that will be located within each street (sewer, storm drain, domestic/fire water, recycled water, gas, joint trench, automated waste collection, landfill gas extraction system), and are provided in the applicable technical memoranda. The following briefly discusses some of the non-standard elements that will be incorporated into the final design of the system.

- *Interstitial Spaces:* Beneath the buildings within the City Center portion of the project and other select office buildings, there will be an interstitial space. The current design assumes a 4-ft to 5-ft high interstitial space, which will allow the building utility laterals to be accessible from within the building first floor space without disrupting the landfill systems.
- *Settlement Vaults/Flexible Connections:* At locations where differential settlement is expected, settlement vaults and/or flexible connections will be included in the design. These direct buried vault structures will either enclose a flexible connection (such as a Flex-Tend device) or be located adjacent to a building structure to allow for a piped configuration within the vault to settle. There are two conditions that will need to be addressed: 1) transition from structure to direct bury support over refuse; and 2) transition from direct bury to direct bury over refuse.
- *Structural Slabs:* Within City Center, the majority of the infrastructure systems will be constructed on a structural slab supported on deep foundations. The slabs will support the roadways between the proposed City Center buildings and have been designed to minimize disruption to the landfill cap and refuse. The gravity utility systems have a direct impact on the depth of the structural slab relative to street grade, and will require deeper utility corridors in the slab, which may impact/disrupt the landfill cover and refuse.
- *Utility Trenching for Landfill Cap Disruption:* Utility corridors, which may or may not be within a roadway, may need a sub-grade improvement program to reduce total and differential settlements. Utility trenching that penetrates the landfill cap will require excavating and disposing of all the material encountered below the cap. The exposed trench will be lined with a polyethylene liner to re-establish the cap and the trench will be backfilled with clean import backfill. This will allow for the future maintenance of the utility without encountering landfill material and impacting the cap.

EXHIBIT 8–5: FOUNDATION SYSTEMS*



LEGEND

Foundation Types
- Continuous Podium Supported on Piles Through Refuse
- No Refuse Below (Conventional Foundations)
- Individual Structures Supported on Piles Through Refuse

Transit
- VTA Light Rail
- Capitol Corridor/ Altamont Commuter Express

Boundaries
- Site
- Parcel

1″ = 800′

0′ 200′ 400′ 800′ 1600′

** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

EXHIBIT 8–6: LANDFILL BOUNDARY*



LEGEND

Landfill
Landfill Boundary

Transit
VTA Light Rail
Capitol Corridor/
Altamont Commuter Express

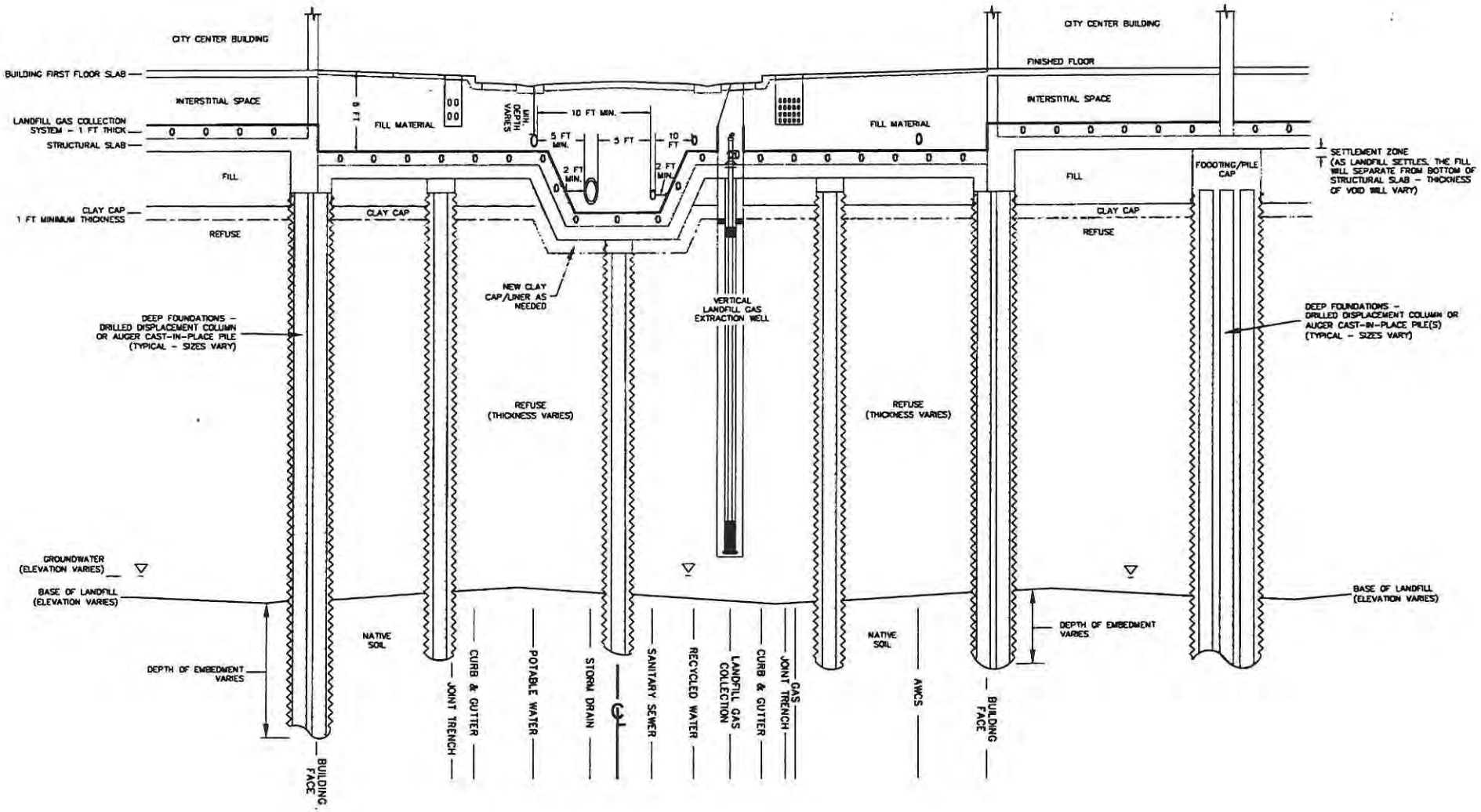
Boundaries
Site
Parcel

1" = 800'

0' 200' 400' 800' 1600'

** The retention pond area (while part of the legal parcel) is a City utility facility and not part of the development area or FAR calculations.*

EXHIBIT 8–7: CONCEPTUAL FOUNDATION CONDITIONS - STREET SECTION (PARCEL 4 SETTLEMENT SLAB SECTION)



* Not to a scale

EXHIBIT 8–8: CONCEPTUAL FOUNDATION CONDITIONS - BUILDING (RETAIL, OFFICE & HOTEL) SECTION

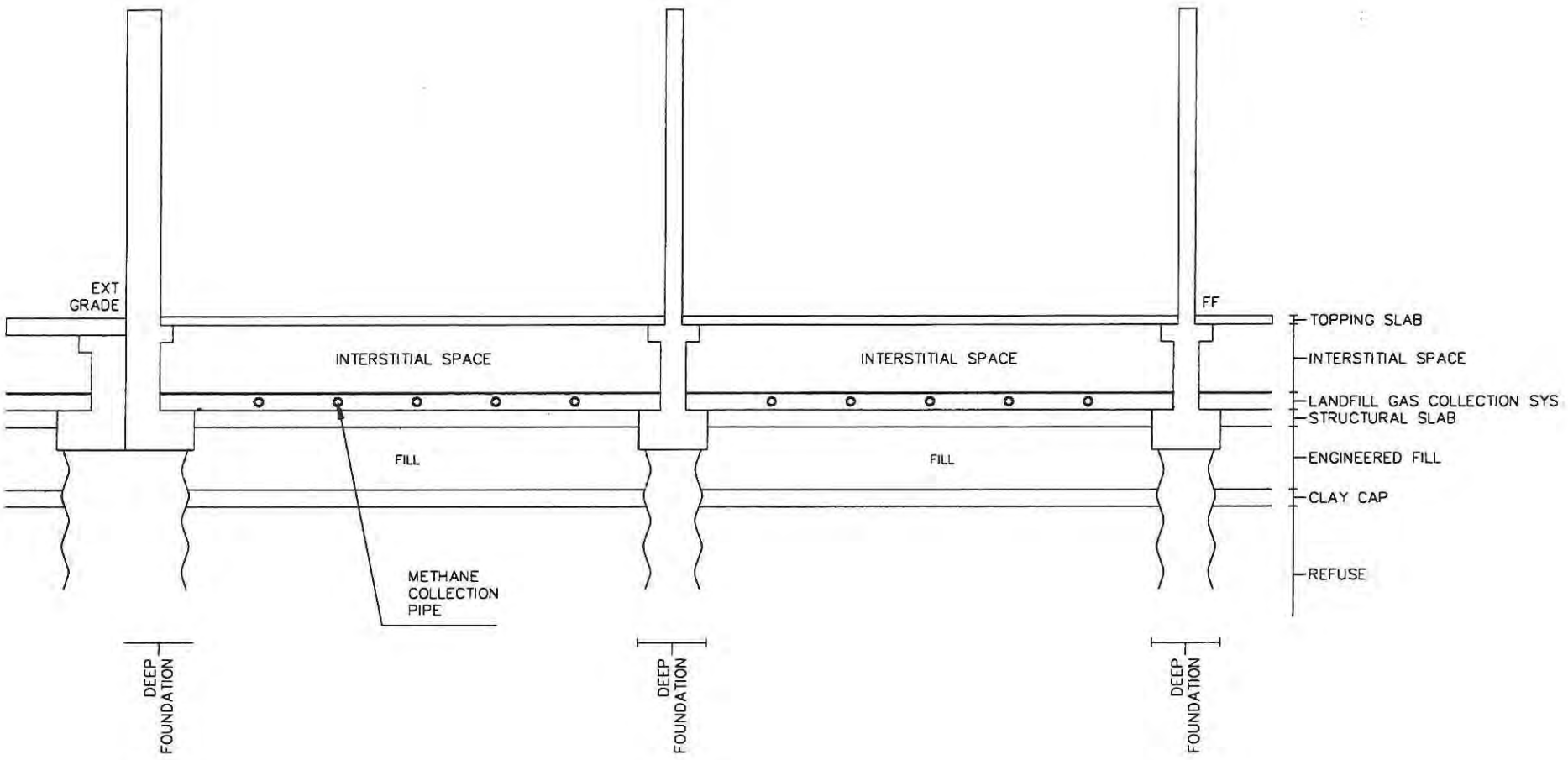


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EXHIBIT 8–9: CONCEPTUAL FOUNDATION CONDITIONS - PLAZA SECTION

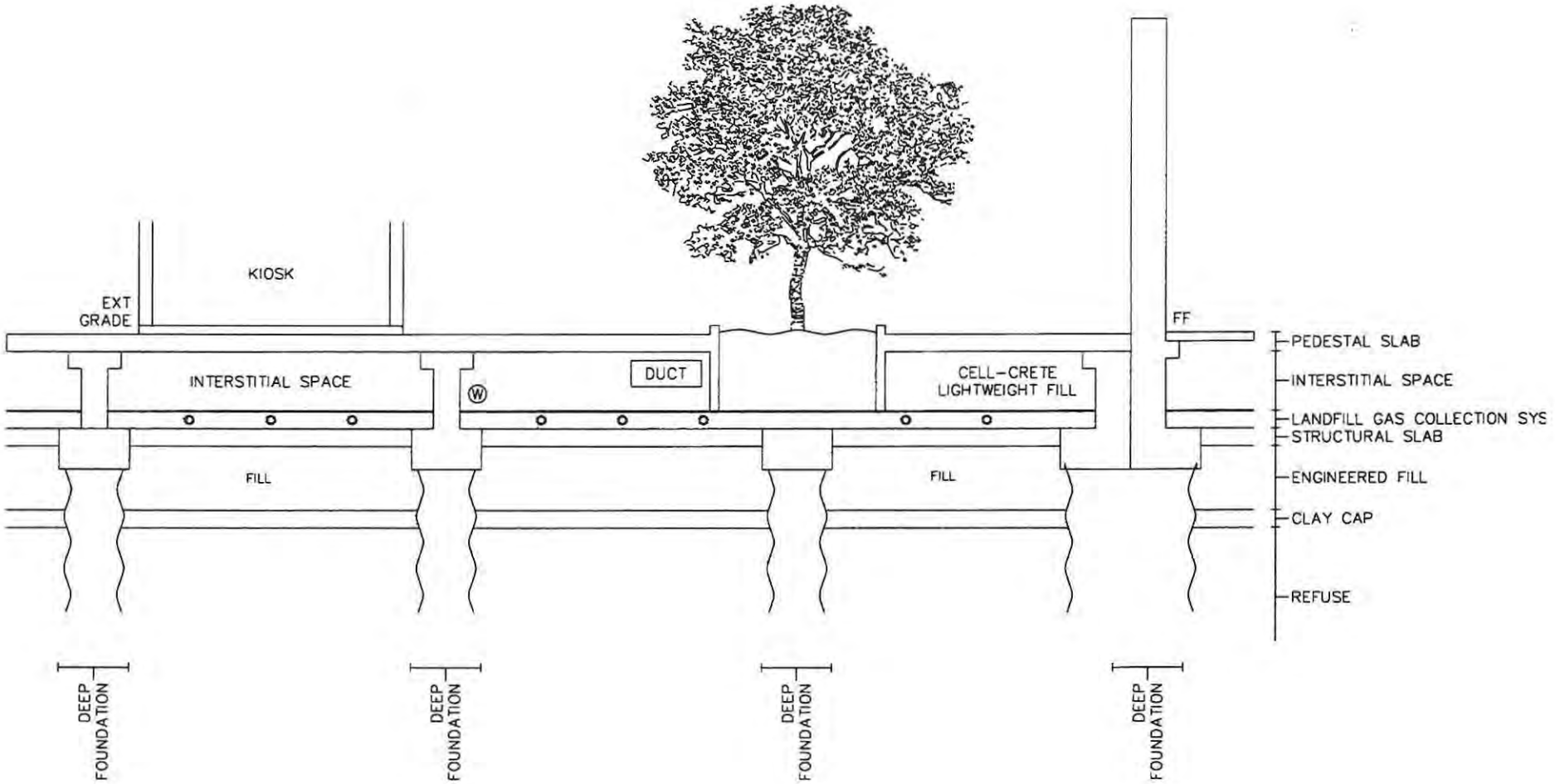

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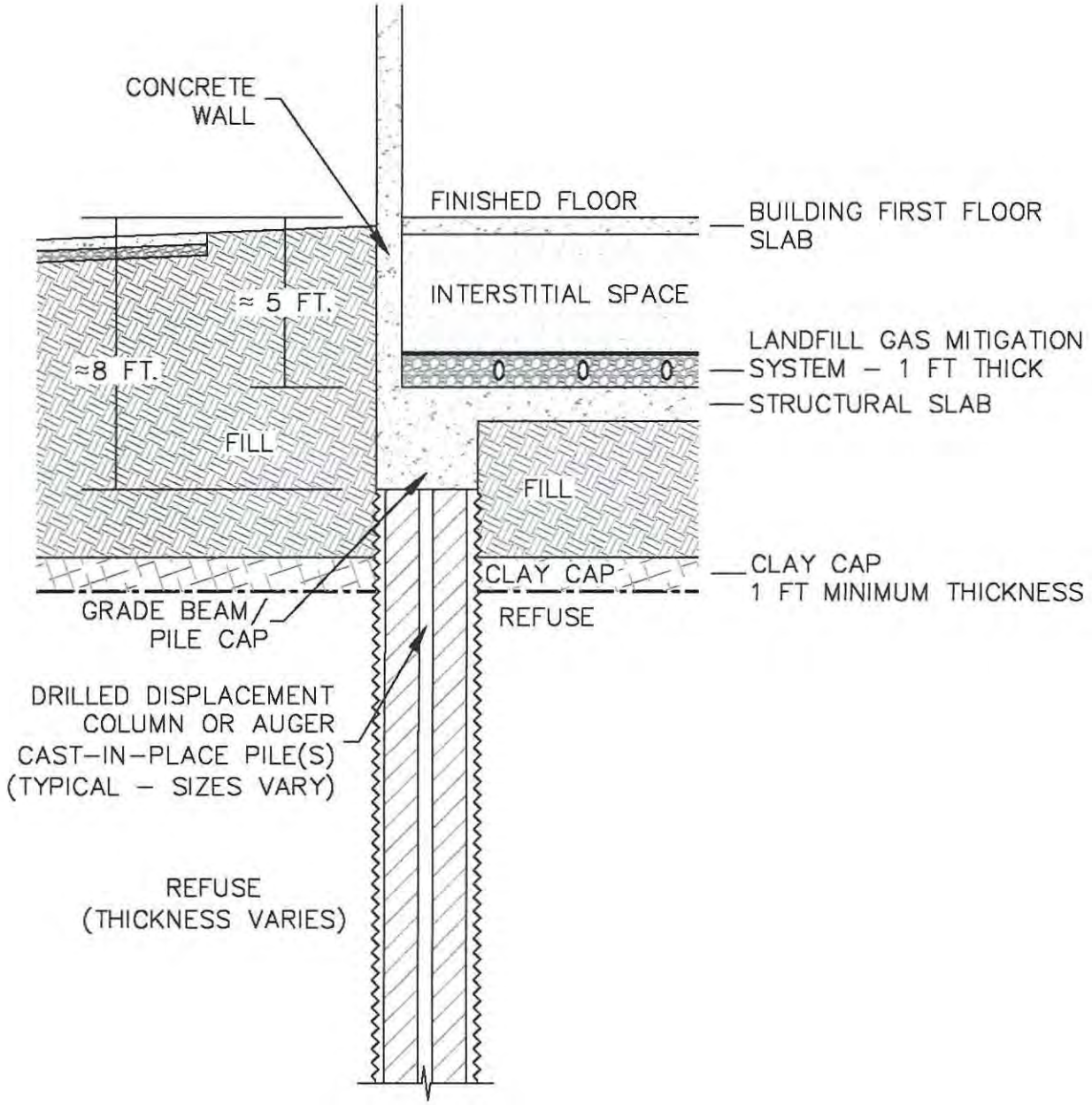
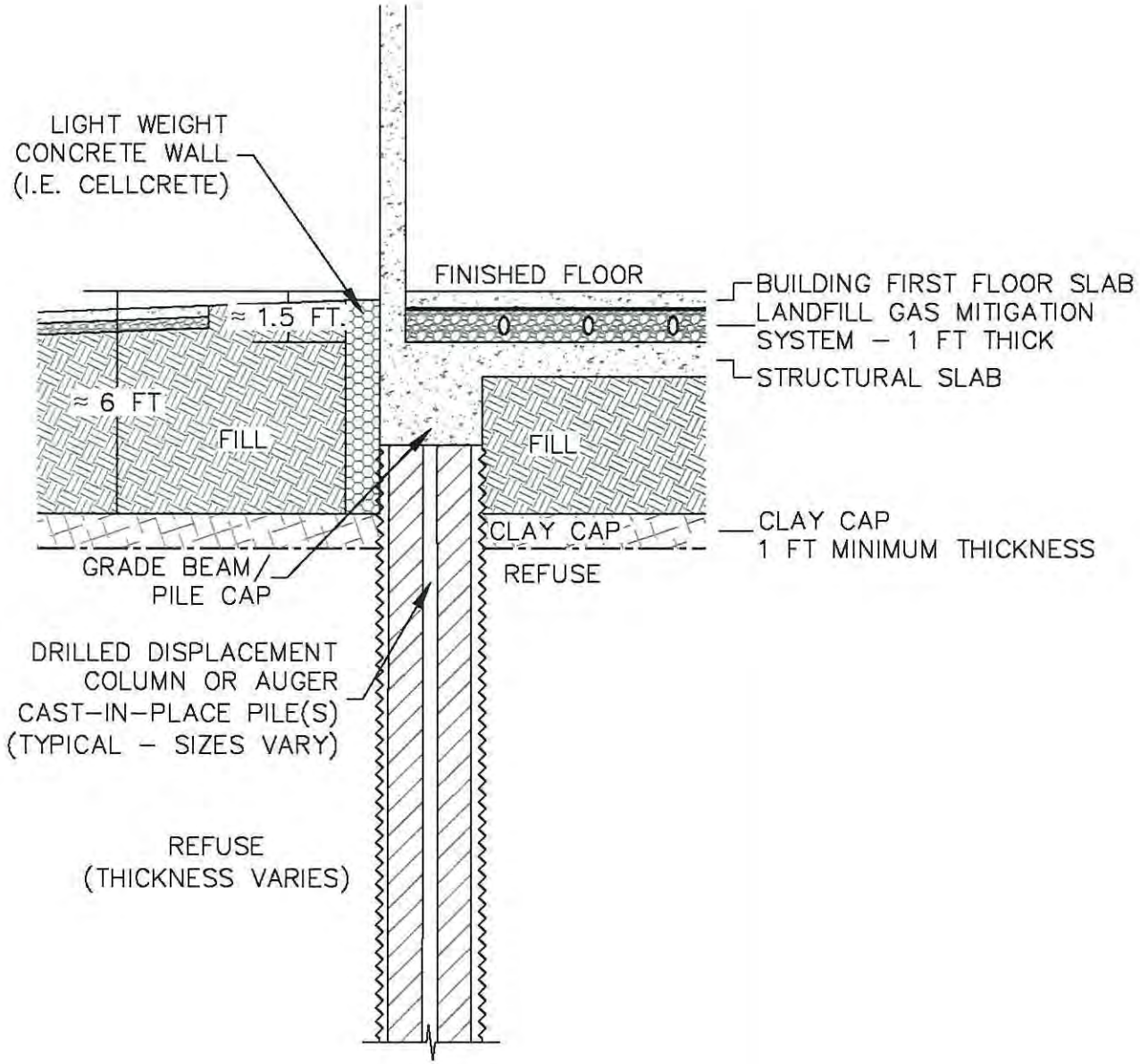
EXHIBIT 8–10: FOUNDATION CONDITIONS - BUILDING EDGE WITH WALL



* Not to a scale

EXHIBIT 8–11: FOUNDATION CONDITIONS - BUILDING EDGE WITH LIGHT WEIGHT CONCRETE WALL



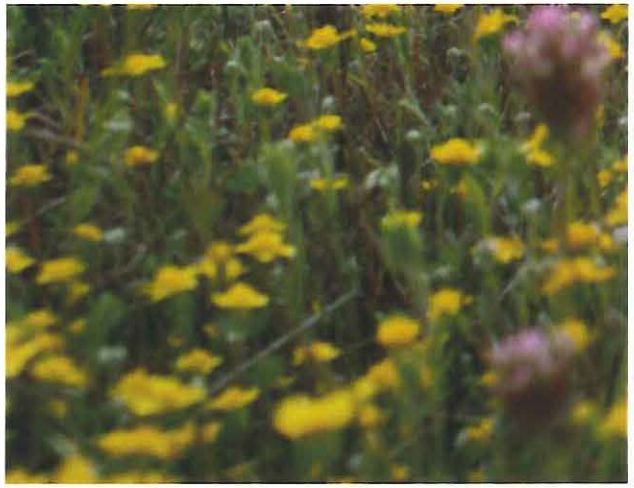
* Not to a scale





CHAPTER 9

SUSTAINABILITY



9.1 INTRODUCTION

The International Living Future Institute has put forth the notion of a "Living Community" and has set in place a challenge: "to create the foundation for a sustainable future in the fabric of our communities". CityPlace presents an excellent opportunity to put this sentiment into action.

INTRODUCTION

Integration of sustainable features into building projects is often challenged because the optimum implementation scale for a certain technology exceeds the scale of the project. Synergies can exist for efficiency optimization through sharing of resources, but projects need to be of sufficient scale, diversity of use and have the organizational structure needed to manage the resource exchange.

As conceived, CityPlace will function at an urban scale, with a diversity of uses typically found in City or neighborhood scaled urban environments. Integration of the various design elements and implementing systems at the optimum scale will be key to achieving the most important sustainability objectives. The public-private nature of this development will also assist with opening up new avenues for planning and infrastructure optimization.

CityPlace's greatest sustainability advantage stems from inherently sustainable mixed-use programming choices and location decisions, which work together to form the critical mass necessary for creation of a new community focus. By grouping jobs, residences, shopping, entertainment and services near transit and other non-auto based mobility modes, CityPlace offers a more walkable, bikeable, transit-accessible alternative to customary development in Silicon Valley, a paradigm which encourages inherently reduced carbon lifestyles and employment opportunities.

Transportation accounts for nearly half of emissions in the region and reducing transportation demand by optimizing use of established public transit nodes is a key support strategy. Accommodating job and housing growth while meeting community obligations under AB32 and SB375 climate change goals is a challenge for Santa Clara and the region. Offering opportunities for a live/work/play environment that supports connectivity without the necessity of an automobile is the strategy upon which CityPlace is conceived.

Mixed-Use and Transit Connected Sustainable Communities are built through the following combination of elements:

1. **Compact Development** – CityPlace is targeting a density of development of 1.0 FAR (Urban Zones generally fall in a range of 0.5 to 1.5 FAR) and incorporates a mix of uses and services that will support active walkable streets, facilitating lifestyle choices that do not necessarily rely on a car.

2. **Pedestrian Orientation** – CityPlace is anchored by the City Center, the pedestrian centric mixed-use urban retail and entertainment core that connects transit options to community supporting urban activity, featuring active streets with strong linkages to significant office and residential options.

3. **Transportation Alternatives** – As an alternative to typical suburban development, CityPlace will offer a full complement of live, work, play opportunities in a "park once" urban experience, supported by a full complement of multi-mode transportation options. This model will help Santa Clara to accommodate ongoing regional growth in a less impactful manner by creating local options for jobs, shopping and entertainment; facilitating connections to neighboring public facilities; and supporting existing transit/bike/trail infrastructure.

4. **Energy and Resource Efficiency** – CityPlace recognizes the impacts of construction and long term operation by focusing on optimization of water conservation/reuse, energy conservation, renewable energy production, waste minimization and resource recovery.

5. **Community and Economic Benefits of Sustainability Measures** – Accommodating a diverse mix of uses will attract a diverse population of workers, residents, shoppers and recreation seekers interested in an auto-optional urban experience. This new community will become an attractive landmark for the broader community and offer a full range of accommodation for the resident population of apartment dwellers and office workers. Substantial economic benefits will accrue to the City, County, schools, and transit from the sales taxes and fees associated with this new development.

CityPlace is committed to implementing "Best In Class" sustainability concepts, benchmarked by the goals for water, energy, waste and performance metrics outlined in 9.2, 9.3 and 9.4.

9.2 WATER

This section briefly describes project goals and strategies along with potential concepts related to water use reduction both indoors and outdoors at CityPlace.

PROJECT GOALS

- **Indoor water use reduction:** Reduce water use from City baseline by 10 percent.
- **Outdoor water use reduction:** Reduce water use from City baseline by 20 percent.
- **Manage 100 percent of storm water on-site.**
- **Limit utilization of municipal potable water** by utilization of rain/stormwater and/or other sources of reclaimed water for all non-potable water needs (to the fullest extent practical).

WATER REDUCTION STRATEGIES MAY INCLUDE:

- Use of WaterSense low and ultralow-flow fixtures including but not limited to: faucets, water closets and urinals.
- Planting the site with a combination of very low, low, medium and high planting hydrozones (which can include both native and drought tolerant plantings), and use of reclaimed water for supplemental irrigation.
- Efficient irrigation utilizing best available technologies and practices.
- Water saving multi-stage cooling towers utilizing advanced water treatment and reclaimed water.
- Implementation of dual-plumbing in buildings and purple pipe irrigation systems, to facilitate use of reclaimed water.

ADDITIONAL CONCEPTS FOR FURTHER WATER REDUCTIONS THAT MAY BE CONSIDERED INCLUDE:

- Supplying the indoor flushing demands with recycled water.
- Supplying cooling tower demands using recycled water.
- Ground source heat rejection (using underground water loops) to reduce cooling tower use (lowering water consumption).
- Reuse stormwater for non-potable uses where possible.



Purple pipe irrigation system

9.3 ENERGY

This section generally explains project goals and strategies for energy reduction.

PROJECT GOALS

The project would include a range of energy-use efficiencies, including:

- The project developer will pursue Leadership in Energy and Environmental Design (LEED) for Neighborhood Development (LEED-ND) v2009 certification for the proposed City Center, LEED v2009 Gold for the proposed commercial buildings outside of the City Center, and LEED v2009 Silver for the proposed residential buildings. This LEED program includes strategies that optimize the energy performance and environmental and health benefits for the buildings and their inhabitants. Energy reduction strategies should include building scale energy efficiency measures for building envelope, HVAC, and lighting.
- The Project's energy efficiency shall be 15 percent better than the base case energy model developed pursuant to the 2013 Title 24 requirements or shall meet the Title 24 requirements that are applicable at the time of issuance of the building permits for individual phases, whichever is more stringent.
- The project will include on-site self-generation using photovoltaics (PV) to meet a minimum of 15 percent of the overall project's electricity demand.
- The project shall obtain renewable energy electricity corresponding to 50 percent of on-site electricity demand by 2030, through a combination of on-site solar, purchase of renewable energy or other measures. This requirement may be phased in as follows: 2020–15%, 2025 –29%, 2030 –50%).
- The project will also incorporate features to reduce per capita water use, such as low-flow fixtures as well as and native and drought-resistant plants, which would reduce indoor water demand by 10 percent and outdoor water demand by 20 percent, with a corresponding reduction in water pumping electricity demand.
- CityPlace is a mixed-use project that is located near existing transit lines, which would reduce vehicle trips and associated fuel consumption compared to average development. In addition, the project use of newer off-road construction equipment that is generally more fuel efficient than older equipment, which will result in lower carbon emissions.
- The project will require the use of alternative fuels for 30 percent of construction diesel equipment.
- The project will implement a series of measures that will reduce energy consumption derived from the City's Climate Action Plan, including: installing electrical outlets for electrical landscaping equipment (which is less polluting than fossil-fuel landscaping equipment); installing electric vehicle (EV) charging stations and preferential parking (EVs are more energy efficient than fossil-fueled vehicles); and planting of shade trees and pavement treatments for uncovered parking (which reduces the urban heat island effect and thus reduces energy demand for building air conditioning).



Rooftop Photovoltaics

9.4 WASTE

This section briefly describes project goals and strategies for waste reduction at CityPlace. Also included are additional concepts for further waste reduction potential.

PROJECT GOALS

- **Construction and Demolition Waste Diversion Rate:** It is expected that 100 percent of the demolition materials will be recycled or reused during all phases except on portions of Parcels 4 & 5 where demolition of existing buildings, concrete retaining walls, paving, concrete, and other materials is required; in which case at least 50 percent of nonhazardous construction and demolition debris material will be diverted from landfills.
- **Operational Waste Diversion Rate:** The project will comply with the mandatory requirements of the Santa Clara Commercial and Residential Recycling Programs to help the City meet its waste diversion goals. As well as the City ordinances that regulate single-use carryout bags, expanded polystyrene foam food service ware, and composting. Solid waste reduction strategies that will be implemented as part of the project and include optimization of an organic waste collection system to support operations at Mission Trail Waste Systems, grease collection/recycling for off-site biofuel conversion, and triple-chute waste collection in proposed residential and hotel buildings.

OPERATIONAL WASTE REDUCTION STRATEGIES MAY INCLUDE:

- Wet Organic Waste Reduction/Collection Program (optimized to allow resource recovery).
- Purchasing policy recommendations (preferred purchasing guidelines for cleaning products and consumables used in the maintenance of common areas and policy recommendations for tenants) and container/bag programs for retail/food and beverage/entertainment facilities.
- Grease collection/recycling for offsite biofuel conversion.
- Triple-chute waste collection in high-rise residential buildings, plus a wet organic material collection system for hotel, restaurant and residential uses.

ADDITIONAL CONCEPTS FOR FURTHER WASTE REDUCTIONS THAT MAY BE CONSIDERED INCLUDE:

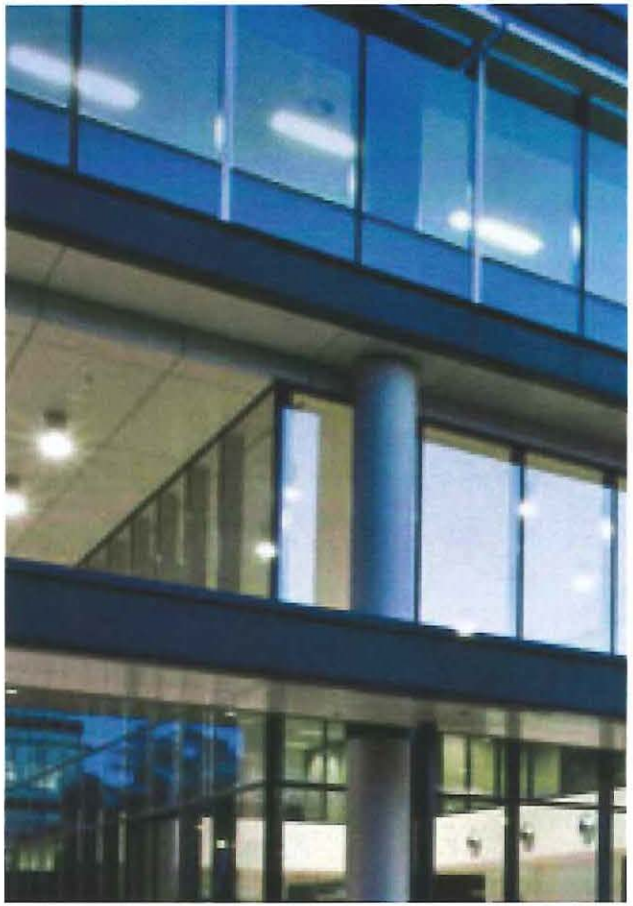
- Vacuum waste collection system in the City Center to centralize collection and improve efficiency of waste removal operations.

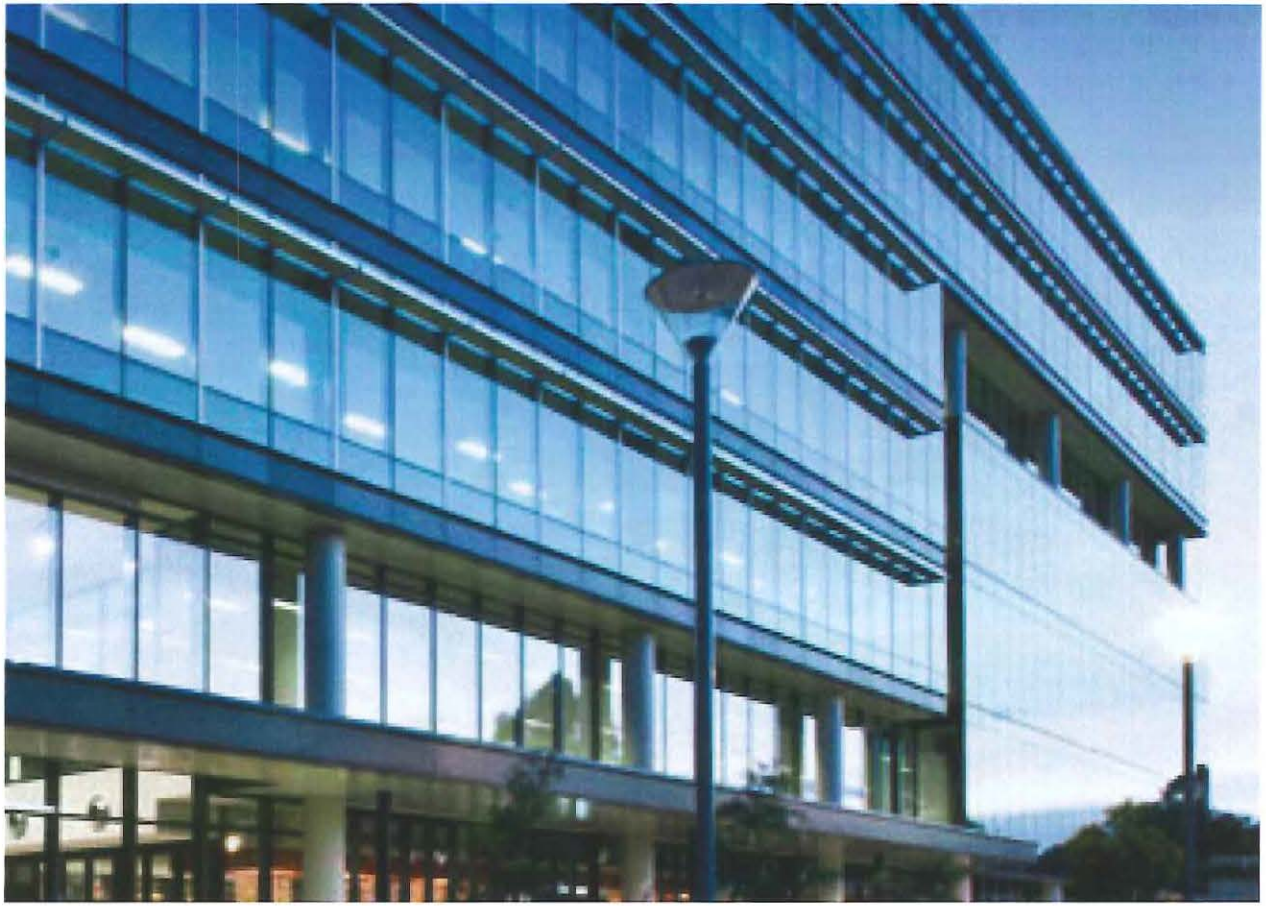


Wet organic waste collection

EXHIBIT 9–1: CITYPLACE - VIEW LOOKING SOUTHEAST









APPENDICES

APPENDIX A: LEGAL SITE DESCRIPTION

LEGAL DESCRIPTION

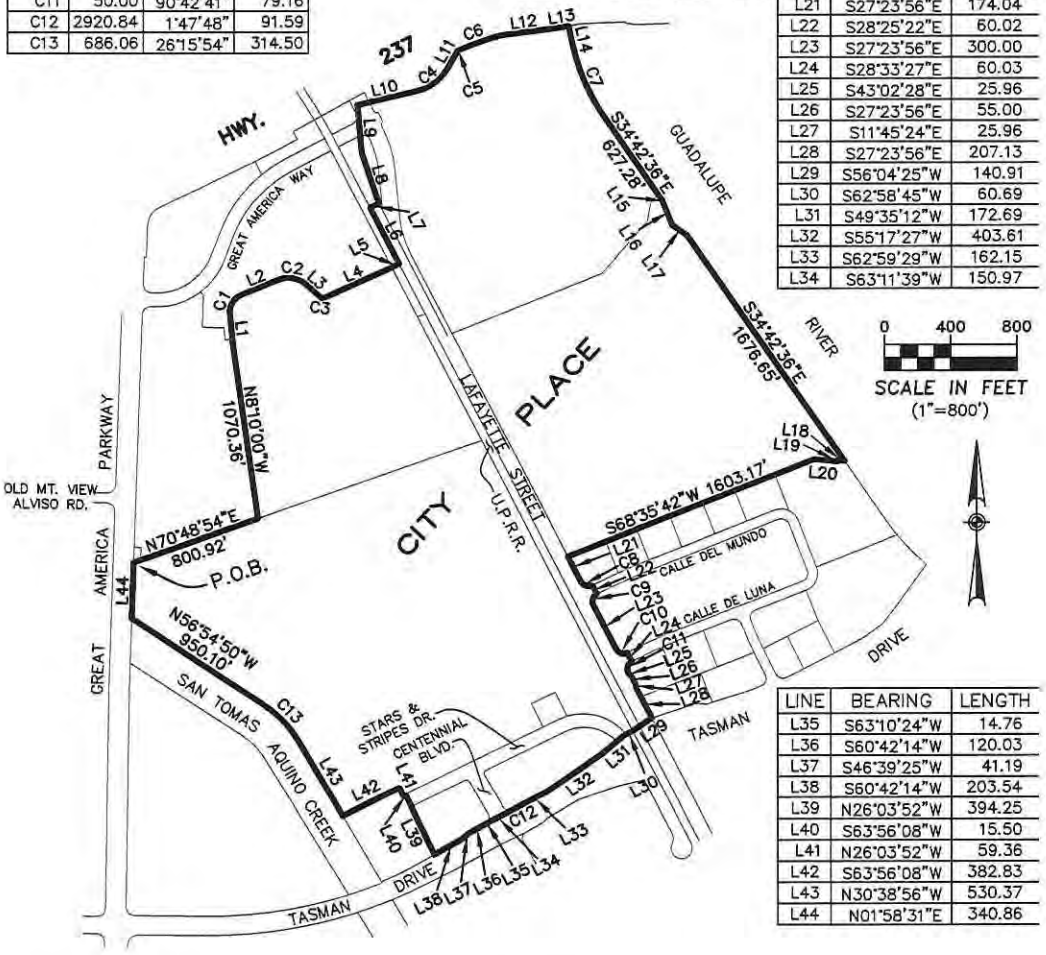
The adjoining *Exhibit 10-1:Plat Map* constitutes a legal site description of the project area.

EXHIBIT 10-1: PLAT MAP

CURVE TABLE			
CURVE	RADIUS	DELTA	LENGTH
C1	109.99	73°36'48"	141.32
C2	159.99	63°38'58"	177.73
C3	16.00	65°46'18"	18.37
C4	300.00	47°19'56"	247.83
C5	987.00	0°21'48"	6.26
C6	1987.00	7°36'13"	263.69
C7	1204.94	22°10'15"	466.25
C8	50.00	89°23'52"	78.01
C9	50.00	90°37'37"	79.08
C10	50.00	89°19'14"	77.94
C11	50.00	90°42'41"	79.16
C12	2920.84	1°47'48"	91.59
C13	686.06	26°15'54"	314.50

LINE TABLE		
LINE	BEARING	LENGTH
L1	N05°35'14"W	191.73
L2	N68°01'34"E	247.17
L3	S48°19'28"E	120.04
L4	N65°54'14"E	452.69
L5	N62°36'04"E	50.00
L6	N27°23'56"W	383.89
L7	N62°36'04"E	60.00
L8	N18°41'34"W	324.57
L9	N04°49'01"W	291.65
L10	N76°46'00"E	367.73

LINE TABLE		
LINE	BEARING	LENGTH
L11	N29°26'04"E	115.92
L12	N82°36'47"E	359.94
L13	N79°54'20"E	63.77
L14	S12°32'21"E	124.61
L15	S38°48'48"W	2.93
L16	S22°11'12"E	158.39
L17	S54°41'12"E	108.85
L18	N84°23'47"W	47.65
L19	S23°19'21"E	7.40
L20	N84°25'47"W	139.94
L21	S27°23'56"E	174.04
L22	S28°25'22"E	60.02
L23	S27°23'56"E	300.00
L24	S28°33'27"E	60.03
L25	S43°02'28"E	25.96
L26	S27°23'56"E	55.00
L27	S11°45'24"E	25.96
L28	S27°23'56"E	207.13
L29	S56°04'25"W	140.91
L30	S62°58'45"W	60.69
L31	S49°35'12"W	172.69
L32	S55°17'27"W	403.61
L33	S62°59'29"W	162.15
L34	S63°11'39"W	150.97



LINE TABLE		
LINE	BEARING	LENGTH
L35	S63°10'24"W	14.76
L36	S60°42'14"W	120.03
L37	S46°39'25"W	41.19
L38	S60°42'14"W	203.54
L39	N26°03'52"W	394.25
L40	S63°56'08"W	15.50
L41	N26°03'52"W	59.36
L42	S63°56'08"W	382.83
L43	N30°38'56"W	530.37
L44	N01°58'31"E	340.86

APPENDIX B: DEFINITIONS OF USES

"Anchor" means one or retail outlets in a shopping center that have the largest amount of square footage and are fundamental to the center's market positioning strategy.

"Bona fide public eating place" means a restaurant or hotel which is regularly and in a bona fide manner used and kept open for the serving of meals to guests for compensation and which has suitable kitchen facilities connected therewith, containing conveniences for cooking an assortment of foods which may be required for ordinary meals, the kitchen of which must be kept in a sanitary condition with the proper amount of refrigeration for keeping of food on said premises and must comply with all the regulations of the local department of health. For purposes of this definition, "meals" means the usual assortment of foods commonly ordered at various hours of the day; the service of such food and victuals only as sandwiches or salads shall not be deemed a compliance with this requirement. For purposes of this definition, "guests" shall mean persons who, during the hours when meals are regularly served therein, come to a bona fide public eating place for the purpose of obtaining, and actually order and obtain at such time, in good faith, a meal therein. Nothing in this definition, however, shall be construed to require that any food be sold or purchased with any beverage.

"Dwelling" means a building or portion thereof, but not including a vessel or boat, house trailer or mobile home, designed or used exclusively for residential occupancy, including one-family dwelling units, two-family dwelling units, and multiple-family units, but not including hotels.

"Dwelling unit" means a room or group of rooms including living, sleeping, eating, cooking, and sanitation facilities, constituting a separate and independent housekeeping unit, occupied or intended for residential occupancy on a nontransient basis and having not more than one kitchen.

"Entertainment" means performance and recreational uses including amphitheaters, arenas, auditoriums or other similar facilities; museums; art galleries; live theaters; movie theaters; live entertainment; cabarets; comedy clubs; dance clubs; sports bars; billiards; bowling alleys; electronic/game arcades; family entertainment centers; ice and in-line skating rinks; and similar uses or enterprises which are oriented, marketed and intended for tourists, visitors and/or recreational consumers.

"Food and beverage (F&B)" means restaurants, including establishments that only serve beverages, and markets.

"General office" means administrative facilities, corporate office campuses (including campuses closed to the public), banks, financial and general business offices, nurseries and preschools, studios and instructional facilities such as dance studio, music studio, or similar establishment teaching a specific subject as distinguished from a school (not to include industrial training such as welding or automotive repair involving the use of tools and materials appropriate to an industrial use area).

"Hotel" means an establishment consisting of one building or a group of attached or detached buildings containing lodging accommodations a majority of which are designed for use by transients, travelers or temporary guests. Facilities provided may include

maid services, laundering of linen used on premises, telephone and secretarial or desk service, food and beverage service to guest rooms, meeting and banquet rooms, restaurants, incidental entertainment, meeting rooms, incidental retail, incidental alcoholic beverage service, incidental personal services, and other incidental services and facilities.

"Incidental alcoholic beverage service" means the service of beer, wine, liquor or other alcoholic beverages at a bona fide public eating place.

"Incidental light manufacturing/research and development" means light manufacturing/research and development included in an office building or corporate campus in which the primary activity is not light manufacturing, which does not exceed 25 percent of the floor area of the office building or corporate campus.

"Incidental live music or dancing" means the performance of live music, or dancing by customers to live or recorded music at a bona fide public eating place.

"Incidental personal services" means an establishment providing personal services inside or adjacent to an office building or office complex or hotel primarily intended to serve employees and ocustomers of the office building or hotel, not to exceed 10 percent of the floor area of the office building or hotel.

"Incidental restaurant" means a restaurant inside or adjacent to an office building or office complex primarily intended to serve employees of and visitors to the office building or office complex, not exceeding 10 percent of the floor area of the office building or office complex.

"Incidental retail" means a retail establishment inside or adjacent to an office building or office complex or hotel primarily intended to serve employees and customers of the office building or hotel or office complex, not exceeding 10 percent of the floor area of the office building or office complex.

"Light manufacturing/research and development" means facilities for the assembly, compounding, manufacture, packaging, processing, repairing, or treatment of equipment, materials, merchandise, or products, including research laboratories within an enclosed building, that are not objectionable or detrimental to adjacent properties because of signing, noise, smoke, odor, dust, noxious gases, vibrations, glare, heat, fire hazards, or industrial wastes emanating from the property.

"Market" or "Food Market means a retail store (often identified as a grocery store) that primarily sells food for consumption off-site or on-site, including non-perishable food that is packaged in cans, bottles and boxes, and may also have fresh produce, butchers, delis, and bakeries, and operate under a single proprietor or have multiple vendors.

"Multi-family residential" means multiple dwellings.

"Multiple dwelling" means three or more dwelling units forming an apartment, townhouse, condominium, court, or group complex.

"Office" (as used in the Table 3-2 and the "Minimum and Maximum Requirements" set forth in Section 3.2) means general office, professional office, and personal services

"Personal services" means barber and beauty shops, nail salons, fitness centers and spas (which may include the provision of therapeutic massages), laundry and dry cleaning services, and similar establishments providing on-site personal care services.

"Professional office" means architect, attorney, chiropractor, professional engineer, drafting office, collection agency, dentist, doctor, insurance office, private detective, real estate agency, social worker, or similar use.

"Product showcase venues" means a retail establishment primarily intended to display examples of products, including automobiles.

"Residential" means dwellings.

"Residential unit" means a dwelling unit.

"Restaurant" means a public eating or drinking establishment, including service of food or beverages over-the-counter or with table service, and including establishments with outdoor seating or that provide on-site banquet services, and including bona fide eating places.

"Retail" means any enterprise or establishment involving the on-site transaction or transfer of merchandise to the general public, including but not limited to advertising products as available to the public, and over the counter sales, including product showcase venues, markets and pharmacies.

APPENDIX C: DEVELOPMENT AREA PLANS - SUBMITTAL & APPROVAL PROCEDURES

DEVELOPMENT AREA PLANS AND ARCHITECTURAL REVIEW

SUBMITTAL AND APPROVAL PROCEEDURES

1. LEGAL FRAMEWORK
2. DAP APPLICATION REVIEW PROCESS
   - 2.1 Summary of Review Process.
   - 2.2 Priority Project; Priority Project Manager
   - 2.3 Summary of Developer and City Roles in the DAP Process
   - 2.4 Subdivision Map Review
   - 2.5 Other Governmental Entity Approvals
   - 2.6 Review Periods.
   - 2.7 Development Area Plan Approvals
     - 2.8.1 Application Process
     - 2.8.2 Review by City
3. ARCHITECTURAL REVIEW
   - 3.1 WHEN ARCHITECTURAL REVIEW IS NOT REQUIRED.
   - 3.2 WHEN ARCHITECTURAL REVIEW IS REQUIRED.
   - 3.3 REVIEW OF ARCHITECTURAL MATERIALS
     - 3.3.1 City Review - Initial
     - 3.3.2 City Review – Action on Complete Architectural Review Application
     - 3.3.3 Amendments to Architectural Review Application Approvals
4. GOVERNMENT REQUIRED PROVISIONS, CHANGES

Exhibit 1 Definitions

Exhibit 2 Documents to be Submitted for DAP Applications

CITYPLACE SANTA CLARA MASTER COMMUNITY PLAN

DEVELOPMENT AREA PLANS AND ARCHITECTURAL REVIEW DESIGN SUBMITTAL AND APPROVAL PROCEDURES

These Development Area Plans and Architectural Review Submittal and Approval Procedures (collectively, the "DAP Procedures") implement and are part of the CityPlace Santa Clara Master Community Plan (the "MCP") and are included as Appendix C thereto. As used herein, certain capitalized terms are defined in Exhibit 1 (Definitions).

1. LEGAL FRAMEWORK

Concurrently with the City's adoption of the MCP and these DAP Procedures, the City has approved the Transaction Documents for the development of the Project Site, including the DDA. These DAP Procedures set forth the procedures for submitting, reviewing, and approving Development Area Plan ("DAP") applications (each, a "DAP Application") and Architectural Review applications (each, an "Architectural Review Application") for the Project Site and are intended to supersede in its entirety the submittal and approval procedures set forth in in the City's Zoning Code Section 18.56.080 through 18.56.110, inclusive during the term of the DDA and for the terms of each applicable Ground Lease. The City shall, in accordance with the Development Agreement and the DDA, review each DAP Application and Architectural Review Application to ensure that it conforms to and is consistent with the Development Requirements. The review and approval process set forth in Section 2 of these DAP Procedures relates to the DAP Application process for each Phase or Partial Phase of development under the DDA and compliance with various obligations under the DDA connected with such Phase or Partial Phase. The architectural review procedures for submitting, reviewing and approving Architectural Review Applications for Buildings in the Project Site are set forth in Section 3 of these DAP Procedures. The City and any Developer of the Project Site under the Development Agreement and DDA must comply with these DAP Procedures.

2. DAP APPLICATION REVIEW PROCESS

2.1 Summary of Review Process.

In order to approve a DAP Application, the City Council shall find that the proposed development conforms to the Development Requirements applicable to the subject Phase or Partial Phase. DAP Application submittal requirements are set forth in Exhibit 2 attached hereto, but generally include overall site plans, vicinity plans, illustrative concept plans for Infrastructure and other matters specified in the DDA. The City Council must approve the DAP Application as a condition precedent to Take Down of the applicable Phase or Partial Phase under the DDA.

2.2 Priority Project; Priority Project Manager

The development of the project contemplated under the DDA and the MCP (the "Project") is a priority to the City. As contemplated under and in accordance with the Development Agreement, the City shall designate a priority project manager (the "Priority Project Manager"), who may be a City employee or a third party. The Priority Project Manager shall serve as the single point of contact for the receipt, distribution and processing of DAP Applications and Architectural Review Applications, as well as for coordinating the timely and efficient review and approval by City staff and outside consultants of all other development applications (such as infrastructure and building permits). The Priority Project Manager shall report directly to the City Manager and shall be responsible for coordinating City's review of applications hereunder with the Director of Planning and Inspection (the "Director") and the heads of the other applicable City Departments reviewing DAP Applications or their designees (together with the Director and City Manager, the "Executive Project Clearance Committee" or "Executive PCC").

The Priority Project Manager shall be charged with the timely and efficient processing of applications in accordance with the time frames set forth in these DAP Procedures, including the following: (i) coordinating pre-submittal conferences with the applicant and making applicable staff experts available for review and comment; (ii) convening the Executive PCC and key department staff having expertise to review the completeness of the applications and to generate substantive comments on complete applications; (iii) preparing and transmitting to the Developer City comments on each application that are clear, concise and consistent with each other and with the Development Requirements and MCP; and (iv) coordinating with the Developer as necessary to address City comments and to observe the time periods for review and approval set forth herein.

2.3 Summary of Developer and City Roles in the DAP Process

Developer shall submit all DAP Applications to the Priority Project Manager in accordance with these DAP Procedures and will work with the Priority Project Manager to obtain City input in the formulation of a DAP Application in advance of the required submission of the DAP Application. The Priority Project Manager shall coordinate with the Executive PCC and applicable City Staff for scheduling of such requested meetings and consultation.

Once received, the Priority Project Manager shall distribute the DAP Applications to the Executive PCC members, each of whom will in turn distribute the DAP Applications to key staff and third-party consultants within their respective departments. Each City Department shall assign key technical experts to the Project to maintain consistency and continuity of application reviews throughout the Project to the extent feasible. The Priority Project Manager shall coordinate with the Executive PCC, City Staff and any third-party consultants that any of the foregoing parties require (including third-party consultants identified and engaged by or through the Priority Project Manager) to review all DAP Application submittals for completeness and shall evaluate complete DAP Applications for consistency with the Development Requirements and all Applicable Regulations. Executive PCC members shall provide any comments related to the applicable City Department's jurisdiction to the Priority Project Manager within the time required by these DAP Procedures.

Whenever Approval or any other action is required by the Planning Commission or City Council, the Priority Project Manager shall submit such matter to the Planning Commission and/or City Council in accordance with the time required by these DAP Procedures and the time required for notice of public hearings. With regard to any public hearings and presentations relating to the Project, Developer shall cooperate with, prepare materials for, and participate in presentations to the Planning Commission and City Council, as applicable and as desired by City

2.4 Subdivision Map Review

The review and approval of DAP Applications are in addition to and do not waive the requirements for approval of tentative, final and/or parcel maps under the Subdivision Map Act and the City's Municipal Code related to Subdivisions (Development Code, Chapter 17.05). The City's consideration and approval or disapproval of Developer's applications for such maps shall be done in accordance with the procedures set forth in the City's Development Code.

2.5 Other Governmental Approvals

Nothing contained in these DAP Procedures is intended to eliminate or alter the process or approval requirements set forth under applicable provisions of state or federal law or the regulations of other Governmental Entities, as applicable, with respect to any development at the Project Site.

Any applicable Santa Clara Police Department permits, either currently required or required at any point in the future, shall be obtained prior to

initiation of applicable uses, such as massage, alcohol, event, entertainment, etc.

2.6 Review Periods.

2.6.1.1 Calculation of Days.

All review periods specified in these DAP Procedures shall refer to business days and not calendar days unless expressly stated otherwise. All review periods shall commence on the business day immediately following the day of submission.

2.6.1.2 Extensions for CEQA.

Notwithstanding anything to the contrary herein, any review periods specified herein shall be extended to accommodate subsequent or supplemental environmental review to the extent required under the California Environmental Quality Act.

2.6.1.3 Relationship to Schedule of Performance Under the DDA.

The DDA requires the Developer to comply with certain obligations in accordance with the Schedule of Performance. The DDA provides that the Schedule of Performance shall be automatically extended under certain circumstances to account for delays caused by the City's failure to comply with its times for review and approval under these DAP Procedures and to allow Developer to respond to certain matters as contemplated under Sections 2.7.2.6(ii) and 3.3.2(d) hereunder.

2.7 Development Area Plan Approvals

Developer shall submit DAP Applications for ultimate consideration and approval by the City Council as set forth in the DDA and this Section 2.7. The purpose of the DAP approval is for the City to confirm that the DAP Application conforms to and is consistent with the MCP and applicable Development Requirements and for Developer to obtain approval by the City of the additional information included in a DAP Application that has not been previously reviewed or approved by the City. Subject to consistency with the MCP and Development Requirements, there shall be no minimum acreage requirement for property that is subject to the DAP Application.

2.7.1 Application Process

2.7.1.1 Pre-Submission Conference

Prior to submitting a DAP Application, Developer may, at its election, submit to the Priority Project Manager drafts of the materially important submittals of the type listed for DAP Applications in Exhibit 2 and any other data as Developer shall so desire concerning the applicable Phase or Partial Phase. Upon receipt of such pre-submission materials, the Priority Project Manager shall coordinate with Executive PCC members and/or identify technical experts among the City Staff that will be charged with review the DAP Application. Within twelve (12) business days after receipt of such pre-submission materials, Developer, the Priority Project Manager and applicable City Staff and/or members of the Executive PCC identified by the Priority Project Manager shall hold at least one pre-submission conference at a mutually agreeable time, during which such City Staff shall preview their key issues and concerns with respect to their review of the DAP Application and provide preliminary feedback on the pre-submission materials. Developer may submit information and materials iteratively, and Developer and the Priority Project Manager may agree to hold such additional pre-submission conferences as they may deem useful or appropriate.

2.7.1.2 Submission

Developer shall submit a DAP Application to the Priority Project Manager (12 copies for City review and any additional copies requested by the Priority Project Manager to the extent needed for review by third-party consultants), together with any applicable fees. Unless a more limited submission is otherwise approved by the Director, all DAP Applications shall include all of the documents and

materials described for DAP Applications in Exhibit 2. The Priority Project Manager shall distribute a copy of the DAP Application to the Executive PCC and any third-party consultants identified by Priority Project Manager as soon as possible upon receipt.

2.7.2 Review by City

2.7.2.1 City Review - Initial

The Executive PCC shall coordinate with their key staff the review of each DAP Application as expeditiously as reasonably possible for conformance with the Development Requirements and MCP and report to the Priority Project Manager. Within fifteen (15) business days following receipt of a DAP Application, the Priority Project Manager, following consultation with the Executive PCC, shall (i) compile, edit as necessary for consistency, and distribute to Developer all comments received from City Staff, through the Executive PCC, to date with respect to the DAP Application and (ii) notify Developer in writing of either:

(a) any deficiencies in the DAP Application and requests for additional information or materials that are reasonably necessary in order to process the DAP Application under these DAP Procedures and are consistent with the type of documents listed in Exhibit 2 for DAP Applications, such that the DAP Application is not a Complete Application; or

(b) a determination that the DAP Application is a Complete Application, accompanied by a set of preliminary comments on the DAP Application compiled by the Priority Project Manager.

If deficiencies are identified, Developer shall promptly correct any such deficiencies and provide any such requested information and materials, following receipt of which the Priority Project Manager shall have fifteen (15) business days to notify Developer in writing whether deficiencies persist or the DAP Application is a Complete Application consistent with this Section 2.8.2.1. If the Priority Project Manager does not so advise Developer within such fifteen (15) business-day period, Developer may submit a subsequent request for determination of completeness to the Priority Project Manager and the City Attorney by certified mail, which request shall be labeled prominently: "Second Request: Application Deemed Complete Matter." If City fails to respond to the subsequent request within fifteen (15) business days, then the DAP Application shall be deemed a Complete Application and all time periods for City review shall run from the date of such deemed completeness. Notwithstanding the foregoing, a determination that a DAP Application is deemed a Complete Application shall not prevent the Priority Project Manager from requesting such additional materials as the Priority Project Manager determines are reasonably necessary for the City's review of the DAP Application in accordance with these DAP Procedures.

2.7.2.2 City Department Review – Complete DAP Application

As soon as practicable but in no event more than three (3) business days after the determination that a DAP Application is a Complete Application or within three (3) business days after the date that such DAP Application is deemed a Complete Application, the Priority Project Manager shall submit such Complete Application, or applicable portions thereof, to the Executive PCC for distribution to the applicable City Departments, any other Governmental Entities consulted by the City, and any third-party consultants identified by Priority Project Manager or Executive PCC members. From time to time after the initial application submittal, the Priority Project Manager may request additional copies of complete or partial plan sets for distribution to reviewing entities noted above that represent additional reviewing parties. Developer shall submit such additional plan sets within three (3) business days from request, with any additional days beyond such three (3) business day period being added on a business day for business day basis to the review time line in Section 2.7.2.3. Each Executive PCC member will coordinate review by key

technical staff within its respective department for consistency with the Development Requirements and Applicable Regulations.

2.7.2.3 City Review - Complete DAP Application

Each member of the Executive PCC will coordinate with key staff to review each Complete Application as expeditiously as reasonably possible and to provide any comments on the submittal within twenty-two (22) business days of their receipt of the submittal. The Priority Project Manager shall convene one or more meetings of the Executive PCC to receive comments generated from this review process and to resolve conflicts to the extent necessary. As promptly as reasonably feasible, but in no event later than thirty-two (32) business days after the date the DAP Application is Complete, the Priority Project Manager shall provide Developer with a summary of City comments on the DAP Application, reasonably compiled and edited as necessary for clarity and consistency, and any other comments by other Governmental Entities and community organizations consulted by the City. The City comments provided by the Priority Project Manager may include requests for additional information or changes to a Complete Application that do not conflict with the Development Requirements. If changes are proposed, then the Developer, the Priority Project Manager and other City Staff as the Priority Project Manager requests shall promptly meet and confer in good faith to reach agreement on any such changes, provided, however, that in no event shall the total time from the date of a Complete Application to submittal of a staff recommendation to the Planning Commission exceed sixty (60) business days, unless otherwise agreed to by Developer and the Priority Project Manager, provided, however, that if the Priority Project Manager reasonably requests additional materials from Developer in connection with its review of the Complete Application and Developer does not furnish such materials within five (5) business days, such sixty (60) business-day period shall be extended on a business-day-for-business-day basis until the date on which Developer furnishes such materials.

2.7.2.4 Planning Commission Recommendation

As promptly as reasonably feasible, but in no event later than the expiration of the sixty (60) business-day period specified above (as may be extended as set forth above), the Director shall submit to the Planning Commission the Complete Application and a written staff report (which may contain a staff recommendation) concerning the DAP Application. The Planning Commission may hear the DAP Application and make a recommendation to the City Council within twenty-two (22) business days after the submittal date. The scope of the Planning Commission's review and recommendation shall be limited to the DAP approval standard set forth in Section 2.7.2.6 .

Consideration of DAP Applications by the Planning Commission shall include notification to surrounding property owners and neighbors pursuant to SCCC Section 18.112.060.

2.7.2.5 City Council Approval

As promptly as reasonably feasible following the earlier to occur of (i) the Planning Commission's hearing and/or recommendation or (ii) the expiration of the twenty-two (22) business-day period for review under Section 2.7.2.4 without Planning Commission hearing and/or recommendation, the Director shall submit the Complete Application to the City Clerk for review and consideration by the City Council at a public meeting held within twenty-two (22) business days after such Complete Application is submitted, unless Developer consents to an extension of such period (including continuances). At the public meeting, the City Council shall approve, approve with conditions, or deny the DAP Application.

Consideration of DAP Applications by the City Council shall include notification to surrounding

property owners and neighbors pursuant to SCCC Section 18.112.060.

2.7.2.6 City Review - Approval Standard

In order for the City Council to approve or conditionally approve a DAP Application, the City Council, in its reasonable discretion, must find that (1) the DAP Application conforms to and is consistent with the applicable Development Requirements and the MCP, (2) the Infrastructure that Developer proposes to construct in connection with the applicable Phase or Partial Phase that is the subject of the DAP Application is sufficient to serve the proposed development on the subject property, and (3) the proposed shared outdoor space provided for the applicable Phase or Partial Phase in accordance with the MCP is reasonable and appropriate to the proposed level of development. In its consideration of the DAP Application, the City Council may alter or supersede previously imposed conditions of approval (whether related to the MCP, a prior DAP, or otherwise) so long as they are consistent with the foregoing standards of approval and acceptable to Developer .

(i) If a DAP Application is disapproved by the City Council, then the City Council shall, at the public hearing during which the DAP Application is being considered, state the basis for the disapproval. The Council shall, at its discretion, memorialize the findings for the disapproval in a resolution at that same meeting, or at a subsequent meeting, or direct the Director to summarize the findings in writing after the hearing. Following any disapproval of a DAP Application, Developer may within sixty-five (65) business days following receipt by Developer of such resolution or summary (subject to such extensions as may be approved by the Director) make changes to and resubmit the DAP Application. Promptly following the City's receipt of a revised DAP Application, the Priority Project Manager shall submit such revised DAP Application in accordance with the procedure set forth in this Section 2.7.2.

2.7.2.7 Amendments to DAP Approvals

Developer may apply to the City for an amendment to a DAP approval in accordance with the standards and procedures for a DAP Application. All proposed amendments shall be subject to review and consideration by the Director, unless he or she determines that the proposed amendment is material. The Director shall have reasonable discretion in determining whether or not an amendment is material, provided, however, that in no event shall an amendment be considered material if it increases or decreases by no more than ten percent any of the numerical standards set forth in the MCP, including, without limitation, standards related to any of the following: Site Coverage, Maximum Building Heights (subject to compliance with applicable FAA regulations), Setbacks, Vehicle/Parking/Servicing Access, Pedestrian/Bicycle Accommodations, Active Street Frontages and Open Space and Amenities (collectively, the "MCP Standards"). Conversely, an amendment shall be considered material if it (i) increases any of the numerical MCP Standards by more than twenty-five percent or (ii) reduces the proposed number of parking spaces by more than twenty-five percent below the applicable supply ratios specified in the MCP. If the Director determines that the amendment is material, he or she shall submit the proposed amendment for City review and approval in accordance with the standards and procedures set forth in Sections 2.7.2.2 through 2.7.2.6.

3. ARCHITECTURAL REVIEW

3.1 WHEN ARCHITECTURAL REVIEW IS NOT REQUIRED.

Notwithstanding SCCC 18.76.020 (Architectural review process), no review by the City's Architectural Committee or under Section 3.3 below shall be required for the issuance of any approvals or Building Permits for any Building within the Project Site if the approved DAP Application included, at Developer's option, all of the materials listed in Exhibit 2, Section 1.8 ("Architectural Materials") with respect to that

particular Building. In such case, the provisions of Sections 3.2 and 3.3 below shall not apply. If the DAP Application did not include a complete submission of the Architectural Materials, this Section 3.1 shall not apply and the DAP Application shall undergo architectural review in accordance with Section 3.2.

3.2 WHEN ARCHITECTURAL REVIEW IS REQUIRED.

Except as otherwise provided in Section 3.1 above, no Building Permit for any Building within the Project Site shall be issued, and no structure or building shall be constructed or used in any case hereinabove mentioned unless Architectural Materials have been approved by the Director (or the City Council, upon appeal) and no appeal or review is pending and the time to appeal has expired. In the event of an appeal by Developer or Others Affected, or action to review is taken by the City Council, no such permit shall be granted until the matter has been finally acted upon and final approval has been received. All buildings, structures, and grounds shall be in accordance with the plans and drawings as finally approved. Notwithstanding the foregoing, signage shall be reviewed and approved by the Director or his or her designee, in accordance with the Master Sign Program established for each Phase.

3.3 REVIEW OF ARCHITECTURAL MATERIALS

3.3.1 City Review - Initial

The Priority Project Manager shall process each Architectural Review Application as expeditiously as reasonably feasible using the same procedures described for a DAP Application for a Phase or Partial Phase in Section 2.7.2.1, including but not limited to the "deemed completeness" concept described therein. An Architectural Review Application shall not be deemed a Complete Application for purposes of the review periods set forth below until the Priority Project Manager notifies Developer in writing that it is a Complete Application and the review periods shall commence on the date of such notification.

3.3.2 City Review – Action on Complete Architectural Review Application

(a) The Director shall render a decision on any Architectural Review Application within twenty-eight (28) business days following the determination that such Architectural Review Application is a Complete Application, except where the Developer consents to an extension of time.

(b) The authority for approval of any Architectural Review Application in accordance with the provisions of this Section 3 is imposed upon the Director (and his or her designees), and the action thereon by the Director shall be final and conclusive, except in the event of an appeal and referral as hereinafter provided.

(c) The Director (or his or her designee) shall review each Architectural Review Application and shall approve such application in writing if the Director determines, in the Director's reasonable discretion, that the Architectural Materials conform to and are consistent with the applicable design requirements and standards of the MCP and the Development Requirements. In the event Developer or Others Affected are not satisfied with the decision of the Director, he or she may within five (5) business days after such decision appeal in writing to the City Council in accordance with the procedures set forth in SCCC 18.108.060.

(d) If an Architectural Review Application is disapproved by the Director, the Director shall state the basis for the disapproval, which basis shall be summarized in writing by the Director and delivered to Developer within twelve (12) business days of the decision date. Following any disapproval of an Architectural Review Application, Developer may make changes to and resubmit the Architectural Review Application at any time. A revised Architectural Review Application that is deemed a

Complete Application shall be processed in accordance with the procedure set forth in this Section 3.3.2.

3.3.3 Amendments to Architectural Review Application Approvals

Developer may apply to the City for an amendment to an approved Architectural Review Application in accordance with the same standards and procedures for review of an Architectural Review Application set forth in this Section 3.3.

4. GOVERNMENT REQUIRED PROVISIONS, CHANGES

Where a change in a Complete Application is required by a City Department or other Governmental Entity where such City Department or Governmental Entity has authority to require such change pursuant to either applicable state or federal law or, in the case of City Departments, pursuant to the Development Agreement, the City and the Developer acknowledge and agree that: (i) they will meet and confer and make every reasonable effort to respond to such requirement in a manner that is consistent with the Development Requirements, MCP and applicable State and federal law and (ii) the City will not deny its Approval of any change that is required to comply with applicable state or federal law or the requirements of City Departments and Governmental Entities so long as such change does not conflict with the Development Requirements.

EXHIBIT 1

Definitions

"**Additional Initial Buildings**" means, in addition to the Minimum Initial Buildings, an additional 200,000 square feet of office, retail and/or residential Buildings in Phase 1, and an additional 230,000 square feet of office, retail and/or residential Buildings in Phase 2, as more particularly described in the DDA.

"**Additional Retail Buildings**" means an aggregate of one million five hundred thousand (1,500,000) square feet of retail, within Phases 2 and 3, as more particularly described in the DDA.

"**Architectural Materials**" as defined in Section 3.1.

"**Applicable Regulations**" as defined in the Development Agreement.

"**Architectural Review Application**" as defined in Section 1.

"**Building Permit**" means a building permit issued by Building Inspection Division pursuant to the City's Building Code.

"Buildings" means each physical structure located within a Phase that is intended for human occupancy or the conduct of a business, including but not limited to hotels, retail and office space, parking structures and apartments.

"**City**" as defined in the Preamble.

"**City Departments**" mean all City departments having permitting or review authority over the Project Site.

"**City Staff**" means employees of the City or other City staff or outside consultants retained and authorized by the City to review and/or approve Applications under these DAP Procedures on behalf of the City.

"**Complete Application**" means, with respect to a DAP Application or an Architectural Review Application, the submission of all documents and materials in such detail as is required under the DDA and these DAP Procedures for such Application.

"**DAP**" as defined in Section 1.

"**DAP Application**" as defined in Section 1.

"**DAP Procedures**" as defined in the Preamble.

"**DDA**" means that certain Disposition and Development Agreement by and between the City and Master Developer.

"**Developer**" means the Master Developer or applicable Phase Developer submitting a DAP Application.

"**Development Agreement**" as defined in the Preamble.

"**Development Requirements**" means (i) the Project Approvals, (ii) the Transaction Documents and (iii) the documents approved under these DAP Procedures, as they may be amended from time to time.

"**Executive Project Clearance Committee**" or "**Executive PCC**" as defined in Section 2.2.

"**Governmental Entity**" means all federal, state, local and/or regional governmental and quasi-governmental bodies and authorities other than the City, including departments, agencies, boards and councils, and any political subdivision, public corporation, district or other political or public entity or department thereof having or exercising jurisdiction over City, Developer or the Project or the Project Site, or such portions thereof as the context indicates.

"**Ground Lease**" means a ground lease between City and the applicable Phase Developer.

"**Infrastructure**" means those items identified in the Infrastructure Master Plan including open space improvements (such as park improvements and restrooms), streets and transportation improvements, sewer and storm drainage systems, water systems, traffic signal systems, dry utilities and other improvements any of which are to be constructed in or for the benefit of the applicable real property or any other matters described in the Infrastructure Master Plan. Infrastructure does not include Buildings.

"**Major Department Store**" means a department store of 100,000 gross square feet or larger with middle to high price points in terms of caliber of merchandise.

"**Master Developer**" means Related Santa Clara, LLC, a Delaware limited liability company.

"**MCP**" as defined in the Preamble.

"**Minimum Initial Buildings**" means (i) not less than 600,000 square feet of office, hotel and/or retail Buildings in Phase 1, which shall include a minimum of a 300-key (or larger) hotel other than an extended stay hotel and 50,000 square feet of retail uses; and (ii) not less than 700,000 square feet of Buildings in Phase 2, consisting of (x) 500,00 square feet of Retail, and (y) 200,000 square feet of office and/or a 300-key (or larger) hotel, as more particularly described in the DDA.

"**Minimum Retail Buildings**" means (i) not less than 50,000 square feet of retail Buildings in Phase 1 and (ii) not less than 750,000 square feet of retail Buildings in the aggregate in Phases 2 and 3, as more particularly described in the DDA.

"**Others Affected**" are anyone with a property interest in land located within 1,000 feet (but outside the boundaries of the MCP) of the site for which architectural review is approved. These entities may appeal an Architectural Review approval.

"**Outside Date**" means the last date by which a particular obligation may be satisfied, as such date is set forth in the Schedule of Performance.

"**Partial Phase**" means a proposal to develop less than all of the land within the boundaries of a particular Phase.

"**Phase**" means, individually or collectively as the context requires, each parcel or parcels designated as a Phase of development by Master Developer from time to time under the DDA.

"**Phase Developer**" means the tenant under a Ground Lease for a particular Phase.

"**Planning Department**" means the Planning Department of the City, or any successor public agency designated by or under law.

"**Priority Project Manager**" as defined in Section 2.2.

"**Project**" as defined in Section 2.2.

"**Project Approvals**" means, collectively, the following actions taken by the City following certification of the Environmental Impact Report for the City Place Project:

i. adoption of a Resolution rezoning the Property as PD-MC and adopting the MCP and Infrastructure Master Plan;

ii. adoption of amendments to the General Plan, including a new General Plan land use classification of Urban Center/Entertainment District; an amendment to the Climate Action Plan setting forth vehicle trip reduction targets for the new classification; and an amendment revising city-wide limitations on office development ;

iii. adoption of a Resolution approving the DDA; and

iv. adoption of an Ordinance approving the Development Agreement.

"**Project MMRP**" means the Mitigation Monitoring and Reporting Program for the City Place Project, attached as an exhibit to the DDA.

"**Project Site**" means the property that is the subject of the CityPlace Santa Clara Master Community Plan.

"**Schedule of Performance**" means the schedule of performance attached as an exhibit to the DDA, as such schedule of performance may be updated, amended or extended by any delay in accordance with the DDA.

"**Take Down**" means the City and Master Developer or a Phase Developer designated by Master Developer entering into a Ground Lease for the parcels within a particular Phase.

"**Transaction Documents**" means the (1) DDA, (2) the Development Agreement, (3) Ground Leases and related conveyance agreements governing the development of the Project Site in accordance with the DDA, and (4) other necessary transaction documents for the conveyance, management and redevelopment of the Property.

EXHIBIT 2

Documents to be Submitted for DAP Applications

During each stage of the project design review process set forth in these DAP Procedures, the Director and the Developer may mutually approve changes to the type and scope of documents set forth in these DAP Procedures for a particular Application, in order to ensure consistency with standards and guidelines in the Development Requirements.

Subject to consistency with the MCP and Development Requirements, there shall be no minimum acreage requirement for property that is subject to the DAP Application. The Development Area Plan application shall include the following information, subject to the satisfaction of the Director:

1.1. Written Narrative of Compliance with MCP

A written statement regarding: (a) the proposed land use program, including the total dwelling units, if any, in the plan by type (such as multi-family and the like), the square footage of nonresidential uses and a parking calculation of required and proposed spaces by use, and opportunities for shared parking; (b) how the DAP conforms with the MCP; (c) a summary of material conditions that must be satisfied under the DDA in connection with the applicable Phase; (d) a description of the Infrastructure that will be provided in connection with the applicable Phase or Partial Phase by reason of geographic adjacencies or need to serve the Phase or Partial Phase; and (e) contextual information about the area surrounding the Site, if requested by the Director.

1.2. Data Charts

Each submittal shall include the following data charts:

1.2.1. Program of uses and approximate aggregate square footage of such uses, including open space, including indication of whether such uses are permitted or conditional;

1.2.2. Estimated Phase aggregate development in relation to the total allowable building program;

1.2.3. Anticipated building heights;

1.2.4. A parking data table;

1.2.5. Status of overall development build-out for previous Phases, if any;

1.3. Site Plan

The Site Plan will pertain to the total area of development and improvement included in the Phase. A Site Plan or Plans as needed (at a scale of 1" = 100') should conceptually indicate:

1.3.1. Location of potential uses;

1.3.2. Phase blocks, parcel boundaries and dimensions to the extent reasonably known or anticipated;

1.3.3. Location of public property (i.e., sites that will either not be conveyed via Ground Lease to Developer, or will be conveyed to Developer and conveyed back to City upon Completion of applicable Infrastructure);

1.3.4. Generalized lot coverage, floor area ratio, and conceptual diagrams of massing, height and bulk of future buildings illustrated in neighborhood-wide plans, sections and three dimensional figures.

1.3.5. Planned public and private shared outdoor open space, within and surrounding the proposed Phase; and

1.3.6. Diagram of proposed roads and sidewalks separating blocks, and, to the extent known, mid-block alleys and pedestrian and bicycle connections and pathways;

1.4. **Development Obligations**

The following materials as required under the DDA:

1.4.1. In connection with the Phase 1 DAP, the location, construction schedule and Architectural Materials Documents for the Temporary Station Site (DDA, Section 5.3.1);

1.4.2. In connection with the DAP for such Phase, the location and square footages of: the Minimum Initial Buildings within Phase 1 or Phase 2, as applicable, the Minimum Retail Buildings within Phase 1, 2 or 3, as applicable (DDA Section 5.3.2 and 5.3.4), and a minimum of 200 residential units within Phase 1, 2 or 3, as applicable;

1.4.3. In connection with the DAP for such Phase, the proposed location and square footages of the Additional Initial Buildings that could be satisfied under the best efforts standard of the DDA within Phase 1 or 2, as applicable (DDA Section 5.3.3);

1.4.4. In connection with the DAP for such Phase, the proposed location and square footages of the Additional Retail Buildings that could be satisfied under the best efforts standard of the DDA within Phase 2 or 3, as applicable (DDA Section 5.3.5).

1.4.5. For all obligations that can be satisfied among two or more Phases (i.e., the Minimum Retail Buildings, the best efforts requirements for the Additional Retail Buildings, and the best efforts requirements for Major Department Stores), the DAP for Phase 2 shall indicate whether or not each of the Additional Retail Buildings will be included in Phase 2, or if part of such Development Obligation will be deferred to Phase 3. (DDA Section 5.4.1).

1.4.6. In connection with the DAP for such Phase, the proposed location and square footages of the Major Department Stores that could be satisfied under the best efforts standard of the DDA within Phase 1, 2 or 3, as applicable (DDA Section 5.3.6);

1.4.7. The DAP for Phase 3 shall indicate how any of the Additional Initial Buildings, Additional Minimum Buildings or Major Department Stores that may be allocated to City Center Phase 3 will be met within Phase 3, to the extent that such City Center Buildings have not been previously satisfied by the inclusion of Improvements within the DAPs for Phases 1 and/or 2, as applicable. (DDA 5.4.2).

1.4.8. A summary of the uses and square footages of Minimum Initial Buildings, Minimum Retail Buildings, Additional Initial Buildings, Additional Retail Buildings and Major Department Stores that have been constructed to date, the proposed square footages of such categories of buildings to be constructed under the proposed DAP Application and the remaining balance to be constructed in future Phases. (Phases 1-3 only).

1.4.9. A Parking Management Plan to be updated with each DAP Application in accordance with DDA Section 5.5 that will show how at least 3,000 parking spaces will be accommodated on the entire Project Site including City-controlled property that has not yet been Taken-Down to serve non-NFL events at Levi's Stadium on a non-reserved basis.

1.5. Signage Plan

The DAP Application for Phase 1 will include comprehensive signage standards for all of Phases 1, 2 and 3. The first DAP Application submitted for each successive Phase after Phases 1, 2 and 3 will include comprehensive signage standards for the entire applicable Phase.

1.6. Tentative Subdivision Map

A tentative subdivision map or vesting tentative map that includes the property within the development area plan area.

1.7. Topography

A map showing the existing topography of the district at one-foot contour intervals, if required by the Director.

1.8. Architectural Materials

At Developer's option and to the extent known, the following Architectural Materials:

1.8.1. Preliminary elevations of all proposed structures drawn to scale. The purpose of such drawings is to indicate the building heights, materials, fenestration, colors, and the general appearance of the existing and/or proposed structures consistent with the MCP design standards and guidelines;

1.8.2. A proposed plot plan for the applicable Building site showing the existing and/or proposed buildings (indicating maximum and minimum distances between buildings, between building and property or building site boundaries, percentage of building coverage and percentage of landscaping, if applicable), paving and areas to be landscaped;

1.8.3. A parking and/or loading plan drawn to scale;

1.8.4. Preliminary floor plans of the proposed structures;

1.8.5. Preliminary landscaping plan;

1.8.6. Fencing, trash disposal and recycling storage areas;

1.8.7. Preliminary stormwater treatment plan; and

If Developer does not submit the foregoing Architectural Materials, then the provisions of Sections 3.2 and 3.3 of the DAP Procedures shall apply.

1.9. Infrastructure Plans and Documents

Illustrative concept plans for Infrastructure shall be submitted for both transportation systems and utilities within the Phase and shall correspond to any Improvements to be provided with the applicable tentative subdivision map.

1.9.1. Roadways, including identifying proposed public and private ownership.

1.9.2. Transit.

1.9.3. Pedestrian routes and improvements, including identifying proposed public and private ownership.

1.9.4. Bicycle lanes and improvements.

1.10. Open Space

Conceptual drawings and data charts showing acreages and uses for all proposed open spaces within the Phase, including an analysis of compliance with the SCCC Chapter 17.35 (Parks and Recreational Land). The City Center North Neighborhood Park (on Parcel 3) is included with Phase 2A for which no DAP application will be submitted. Therefore, if the Phase 3 DAP Application (or the Phase 2 DAP Application if required for compliance with Chapter 17.35 of the Code) does not include the relevant information required under this Section 1.101 pertaining to the City Center North Neighborhood Park, the Developer shall include the proposed terms for an agreement regarding the timing and procedures for approval and development of the City Center North Neighborhood Park, which agreement shall be a condition of approval to the applicable DAP Application.

1.11. Project MMRP

A report describing the substance and timing of compliance with the applicable Mitigation Measures from the Project MMRP to be completed during the Phase.

1.12. Retail Plan

For any DAP Application that includes retail components. Developer shall submit a retail plan for informational purposes that includes the sizes and types of retail that will be targeted during that Phase.

1.13. Traffic Analysis

A traffic report prepared by a qualified third-party traffic consultant analyzing the projected vehicle trips and trip reduction measures for the Phase consistent with the requirements of the MMRP and Development Agreement.

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CITYPLACE

SANTA CLARA

MASTER COMMUNITY PLAN SUPPLEMENT | JUNE 1, 2016

CITYPLACE

SANTA CLARA

MASTER COMMUNITY PLAN

PREPARED FOR:

RELATED COMPANIES
MASTER DEVELOPER

PREPARED BY:

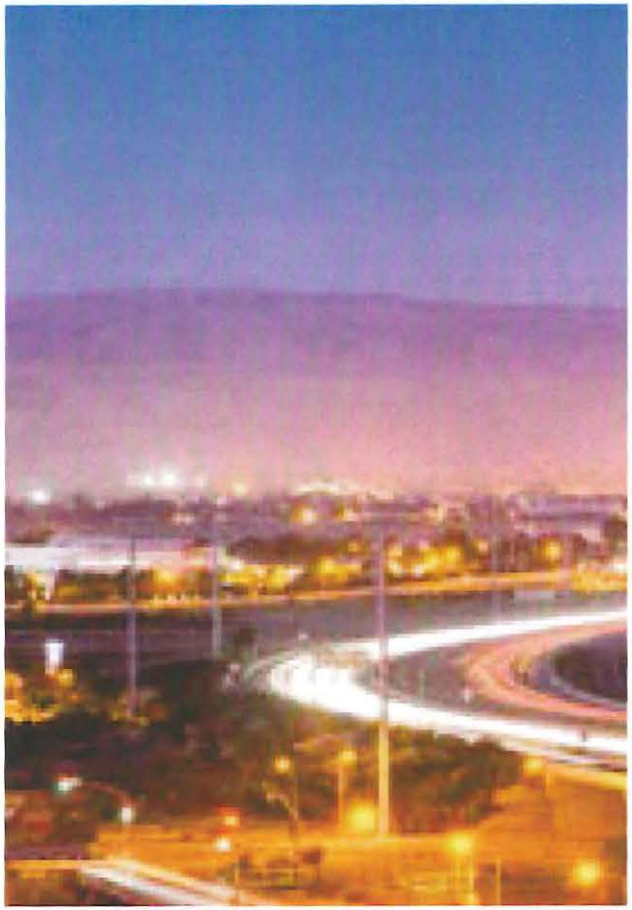
RTKL ASSOCIATES, INC.
MASTER COMMUNITY PLANNING

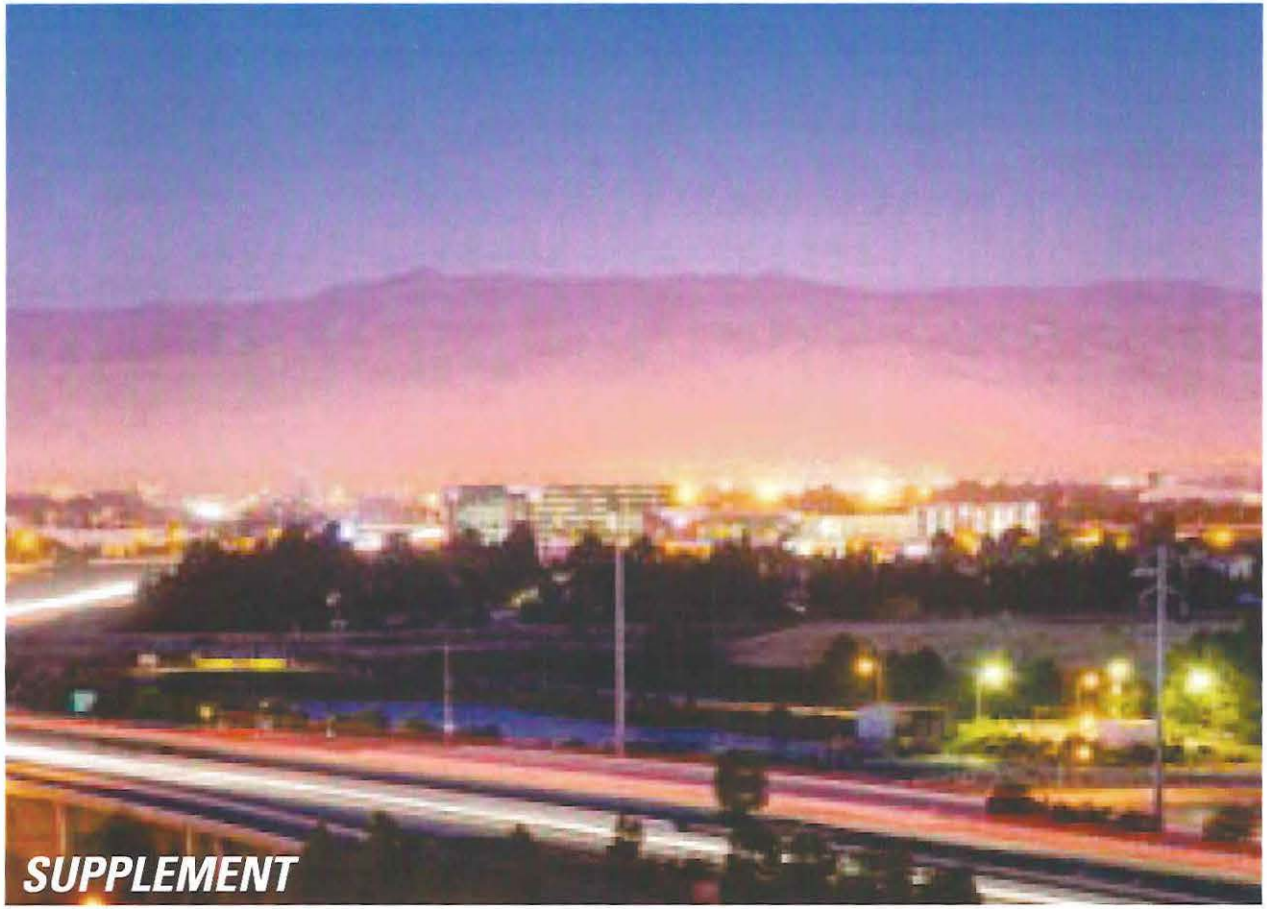
IN COLLABORATION WITH:

ELKUS MANFREDI ARCHITECTS
MIXED-USE PLANNING

FEHR & PEERS
TRANSPORTATION ENGINEERING

LANGAN TREADWELL ROLLO
CIVIL ENGINEERING





SUPPLEMENT

PARCEL 3 PARK



ENHANCED OPEN SPACE "EOS" VARIANT

This supplement describes an additional variant, as proposed by the Master Developer.

OVERVIEW

After the initial public release of the Draft MCP, the Master Developer proposed an additional land use scheme, referred to as the Enhanced Open Space ("EOS") Variant, in contrast to Scheme A and Scheme B as they are described in Chapter 3.2. Under the EOS Variant, Parcel 3 would be set aside by the developer for the City and reserved for park uses, as depicted in Exhibit S-2 [1] (the "City Place Park"), instead of being developed by the Master Developer for up to 720,000 square feet of office building uses and associated parking. The 720,000 square feet of office that had been planned for Parcel 3 would be reallocated to other parcels as described below.

It is anticipated that if the City Council approves the MCP and adopts the EOS Variant as the Project, the City would require that the Master Developer submit an Integrated MCP for approval by the Director of Planning and Inspection following City Council approval of the project to reflect the City Place Park and the shift of office square footage to other sites. Such an Integrated MCP would revise the text and figures as necessary to reflect and eliminate any inconsistencies with the EOS Variant that is described in this MCP Supplement.

FUTURE CITY PLANNING FOR DEVELOPMENT OF PARCEL 3 PARK

There currently exist no specific plans for Parcel 3 development and use as a park (except for North Park as indicated in footnote 1). In the future, in consultation with the Master Developer and with community input, the City will consider plans for park, recreation, and open space uses that are complementary to, and do not unreasonably interfere with, the City Center development.

Additional CEQA evaluation would potentially be required prior to the development of the City Center Park if the City proposes park development that would: require significant structures; require any intrusion into the landfill refuse layer; or be designed with facilities to regularly accommodate major events or activities generating significant levels of traffic.

MASTER DEVELOPER OBLIGATION TO PROVIDE ACCESS TO PARCEL 3 PARK

Parcel 3 is currently accessible via an existing on-site road within the golf course grounds that extends from a low point at the Southeast corner of the parcel and traverses up the eastern landfill embankment to reach the higher areas of this parcel where it joins a cart path utilized by the golf course. This road is primarily utilized by golf course maintenance vehicles and golf carts and does not meet the standards of a city street. A second off-site access road connects Parcel 3 to Great America Way by use of an easement through and along the eastern edge of Santa Clara Gateway's parking lot and is not intended for future public access. This easement is provided for maintenance/emergency access only.

The master developer shall provide an access road from the development side to the south (Parcel 4) to meet City public street standards, in a manner that provides useful access to the upper sections of the parcel from the City Center development. This road will be improved so as to accommodate two lanes of traffic and also include street lighting consistent with the design of street lighting for the City Center development. A

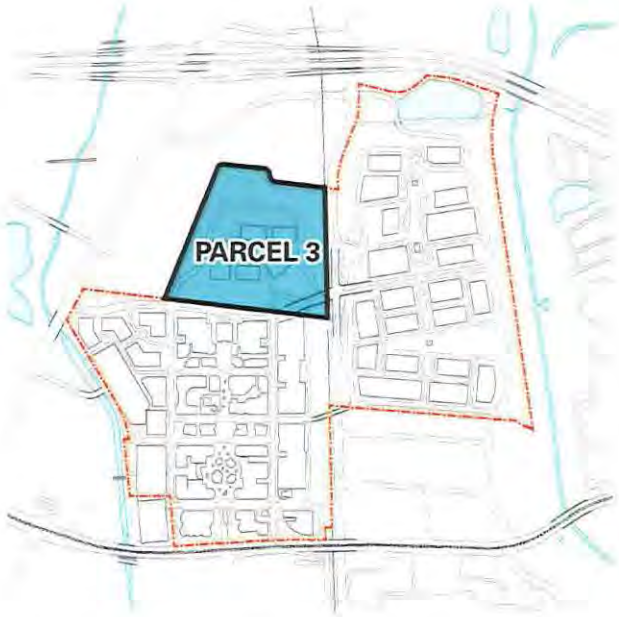


Exhibit S–1: PARCEL 3 KEY DIAGRAM

[1] *The southern 2.5 acre portion of Parcel 3 would continue to be retained and developed by the Applicant as North Park as part of the DAP for Phase 3.*

turning circle shall be provided to redirect traffic back to the City Center. Any additional infrastructure and park improvements for the City Place Park will be carried out and funded by the City.

The Master Developer may at its option regrade and lower the contours of Parcel 3 prior to the handover of the parcel for park development. Surplus dirt is currently stockpiled on this parcel, which may be required as fill for other parcels of the project. Parcel 3 is currently serviced by a functioning landfill maintenance system that serves the site as presently configured for public golf course use. If this system is disturbed by surplus dirt removal, it will be repaired by the Master Developer. In such case, any disturbed portions of Parcel 3 would be rough graded by the Master Developer to a level pad.

As specified in the Disposition and Development Agreement, the Master Developer shall enter into a Ground Lease for Parcel 3 within the earlier of (i) 12 months from the start of construction of any Residential development within Phase 2; or (ii) 24 months of the start of construction of Phase 2. The Master Developer will construct and dedicate the street to access Parcel 3, and Parcel 3 will be made available to the City within 24 months after Take Down of the Parcel 3 Ground Lease. Upon acceptance of the street dedication, the City will assume full responsibility for constructing, maintaining and operating the City Center Park. Accordingly, instead of being designated as Phase 5, Parcel 3 shall be designated as Phase 2A (and Phases 6, 7 and 8 shall be redesignated as Phases 5 through 7.)

In addition to these obligations to provide access improvements, the Development and Disposition Agreement requires the Master Developer to make a monetary contribution to the City to be used toward the costs of planning and developing the City Center Park.

RELOCATION OF OFFICE USES

On Parcels 1, 2 and 5, the Applicant would be allowed to increase the amount of office space by up to 20% of the total planned development for those parcels. For Scheme A, this variant would result in up to an additional 240,000 sf of office space on Parcel 1, an additional 432,000 sf of office space on Parcel 2, and an additional 48,000 sf of office space on Parcel 5 (slightly less than 20% of the Parcel 5 square footage so that the total re-allocated office space equals 720,000 sf.). Table S-1 sets forth the updated summary development yields for each parcel in the different schemes under the Enhanced Open Space Variant.

This intensification of use on Parcels 1, 2 and 5 would increase the intensity of land uses for individual parcels, which may result in an increase in the heights of individual office buildings, but the overall height of buildings will not exceed 17 stories on any parcel, which is the same as Scheme A and Scheme B. The increased intensity may result in higher floor area ratios (FAR) for individual parcels or Phases, but the overall FAR for the development within the project boundaries remains the same.

EXHIBIT S-2: ILLUSTRATIVE SITE CONCEPT PLAN



1" = 800'

0' 200' 400' 800' 1600'

TABLE S-1: SUMMARY DEVELOPMENT YIELDS FOR ENHANCED OPEN SPACE VARIANT

PROJECT YIELDS *(Scheme "A" with Parcel 3 changed to park use, and P-3 Office GSF redistributed proportionately to Parcels P-1, P-2 & P-3.)*

PARCEL 1 - SCHEME A

Building Type		Floors	Gross Area
Office			
Office	*(5 Buildings, 30k-45k footprint)*	6~8	1,440,000
TOTAL of PARCEL 1			1,440,000
SITE AREA: 49.6 Acres (less 10 Acre Retention Basin)		FAR:	0.63

PARCEL 2 - SCHEME A

Building Type		Floors	Gross Area
Office			
Office	*(7 Buildings, 30k-50k footprint)*	6~10	2,592,000
TOTAL of PARCEL 2			2,592,000
SITE AREA: 60.9 Acres		FAR:	0.98

PARCEL 3 - SCHEME A

Building Type			
Park			
CityPlace Park		0	0
TOTAL of PARCEL 3			0
SITE AREA: 34.9 Acres		FAR:	0.00

PARCEL 4 - SCHEME A

Building Type		Floors	Gross Area
Residential			
Residential	*(5 buildings, 20-30K footprint)*	3~17	1,480,000
Hotel			
Hotel	*(825sf / key)*	8~17	298,000
Retail			
Anchors	*(4 buildings, 20-60K footprint)*	1~3	330,000
F&B		1	225,000
Retail		1~2	670,000
Entertainment			
Entertainment	*(3 buildings, 40-60K footprint)*	1~2	190,000
Office			
Office	*(6-9 buildings, 25-40K footprint)*	3~17	1,066,400
TOTAL of PARCEL 4			4,259,400
SITE AREA: 86.6 Acres		FAR:	1.13

PARCEL 5 - SCHEME A

Building Type		Floors	Gross Area
Residential			
Residential	*(1 building, 18-20K footprint)*	10~17	200,000
Hotel			
Hotel	*(750 sf / key)*	7~17	280,000
Retail			
F&B		1	25,000
Retail		1~2	62,000
Office	*(1 buildings, 25-30K footprint)*	11	306,000
TOTAL of PARCEL 5			873,000
SITE AREA: 8 Acres		FAR:	2.52

PROJECT TOTALS			9,164,400
SITE AREA: 240 Acres (less 10 Acre Retention Basin)		FAR:	0.96

PROJECT YIELDS *(for other scheme options identified in EIR)*

PARCEL 2 - SCHEME A VARIANT

Building Type		Floors	Gross Area
Office			
Office	*(2 buildings, 30k-50k footprint)*	5~6	423,000
Retail			
Anchors	*(2 buildings, 75-100K footprint)*	1~2	260,000
Retail		1~2	259,000
TOTAL of PARCEL 2			942,000
SITE AREA: 60.9 Acres		FAR:	0.35

PARCEL 2 - SCHEME B

Building Type		Floors	Gross Area
Office			
Office		6~10	2,392,000
Retail			
Retail		1~2	200,000
TOTAL of PARCEL 2			2,592,000
SITE AREA: 60.9 Acres		FAR:	0.96

PARCEL 4 - SCHEME B

Building Type		Floors	Gross Area
Hotel			
Hotel	*(825sf / key)*	8~17	298,000
Retail			
Anchors	*(4 buildings, 20-60K footprint)*	1~3	330,000
F&B		1	225,000
Retail		1~2	670,000
Entertainment			
Entertainment	*(3 buildings, 40-60K footprint)*	1~2	190,000
Office			
Office		3~17	2,546,400
TOTAL of PARCEL 4			4,259,400
SITE AREA: 86.6 Acres		FAR:	1.13



CITYPLACE

SANTA CLARA

VOLUME 2

INFRASTRUCTURE MASTER PLAN & TECHNICAL MEMORANDUMS

JUNE 1, 2016

PRELIMINARY INFRASTRUCTURE MASTER PLAN

for

CITY PLACE SANTA CLARA
Santa Clara, CA

Prepared For:

Related Santa Clara, LLC

Prepared By:

Langan Treadwell Rollo
4030 Moorpark Avenue, Suite 210
San Jose, California 95117

01 June 2016
770611601

LANGAN TREADWELL ROLLO

TABLE OF CONTENTS

1.0 INTRODUCTION 1
- **1.1 Overview** 1
- **1.2 Property Acquisition, Dedication and Easements** 1
- **1.3 Technical Memoranda / Reports** 2
- **1.4 Revisions** 2

2.0 PROJECT DESCRIPTION 2
- **2.1 Site Description** 2
- **2.2 Planned Development** 2
- **2.3 Project Phasing** 3

3.0 SITE CONSTRAINTS 3

4.0 GEOTECHNICAL AND ENVIRONMENTAL CONDITIONS 4

5.0 SITE GRADING AND STORMWATER MANAGEMENT 5

6.0 PROJECT ACCESS 7
- **6.1 Overview** 7
- **6.2 Site Access** 7
- **6.3 Street and Intersections** 8

7.0 STORMWATER DRAINAGE 10
- **7.1 Existing System** 11
- **7.2 Proposed Infrastructure** 12

8.0 POTABLE WATER 13
- **8.1 Existing System** 13
- **8.2 Proposed Infrastructure** 13

9.0 RECYCLED WATER 14
- **9.1 Existing Distribution** 14
- **9.2 Proposed Infrastructure** 15

10.0 WASTEWATER 15
- **10.1 Existing System** 15
- **10.2 Proposed Infrastructure** 16

11.0 ELECTRIC, GAS AND TELECOMMUNICATIONS 17
- **11.1 Electrical Distribution System** 17
- **11.2 Natural Gas Distribution System** 19
- **11.3 Telecommunication Service** 20

12.0 ADDITIONAL FACTORS 20
- **12.1 Landfill Infrastructure** 20
- **12.2 Non-Standard Design Elements** 21

FIGURES

1 Site Location Map

APPENDICES

Appendix A: Grading and Site Access Technical Memorandum

Appendix B: Stormwater Technical Memorandum

Appendix C: Water Technical Memorandum

Appendix D: Sanitary Sewer Technical Memorandum

1.0 INTRODUCTION

1.1 Overview

This Preliminary Infrastructure Master Plan (the "Plan") has been prepared for Related Santa Clara, LLC ("Related") to support the planned City Place Santa Clara (the "Project") mixed-use development project in the City of Santa Clara, Santa Clara County, California. The Plan addresses roadway and utility infrastructure and other related improvements. .

The Plan establishes the general layout, design standards, guidelines, criteria, and specifications for the Project's infrastructure including streets, domestic and fire water, recycled water, wastewater, stormwater drainage and management, utility corridors, other infrastructure, and coordination of infrastructure installation with the landfill operation and maintenance systems.. More specific conceptual plans for infrastructure for each development area within the project will be submitted with each Development Area Plan, and the applicable tentative subdivision map. Such submittals shall be consistent with this Plan.

The Plan focuses on the infrastructure required to build the Project as described in the Master Community Plan (MCP). The process of developing this plan included City Department Head meetings to review each infrastructure element, developing an understanding of the project's usage/demand based on the overall MCP, developing an understanding of the City's infrastructure needs and establishing infrastructure design criteria based on existing and available information. The conceptual infrastructure design is based on the preliminary layout of the Project and the MCP and other design requirements, but it is expected to be updated and refined as the Project proceeds through Development Area Plan (DAP) approval, tentative and final subdivision map approval, grading and building permit approvals. and regulatory approvals associated with the landfill.

1.2 Property Acquisition, Dedication and Easements

The Mapping, property acquisition, dedication and acceptance of streets and other infrastructure improvements will occur through the Subdivision Map process in accordance with the City's Subdivision Code and Regulations. Except as otherwise noted, all infrastructure described in this Plan shall be constructed within the public right-of-way or dedicated easements to provide for access and maintenance of infrastructure facilities. The eventual project layout within the Project boundaries will ultimately determine the entity that owns, operates and maintains each infrastructure element.

City Resolutions to address the private infrastructure elements and specific public utility easements will be allowed within the Project as may be necessary to service the development. Utilities in these areas will be installed in accordance with the standards in this Plan and applicable City Regulations for public acquisition and acceptance within public utility easement areas, including provisions for maintenance access.

1.3 Technical Memoranda / Reports

Each infrastructure element described herein is more fully described in a Technical Memorandum included as an appendix to this Plan.. These memoranda identify the design criteria and provide more detailed conceptual layouts of each infrastructure system. Each utility system will be constructed according to the provisions of relevant City Standard Plans and Specifications, except

where the City approves a deviation. The Technical Memoranda included as appendices are as follows::

- Appendix A: Grading and Site Access Technical Memorandum
- Appendix B: Stormwater Technical Memorandum
- Appendix C: Water Technical Memorandum
- Appendix D: Sanitary Sewer Technical Memorandum

1.4 Revisions

This Infrastructure Master Plan and the technical memoranda included as appendices may be revised with the approval of the Santa Clara Director of Public Works without amending the Master Community Plan.

2.0 PROJECT DESCRIPTION

2.1 Site Description

The overall site (the "Site") for the Project is the former Santa Clara All Purpose Landfill and two additional sites (see Figure 1). The subject property includes five parcels: Parcel 1, Parcel 2, Parcel 3, Parcel 4 and Parcel 5 totaling approximately 240 acres. The landfill is no longer active and the Final Closure and Post-Closure Maintenance Plan (FCPMP) was approved in December 1992 and amended multiple times, most recently in December 2013. The site boundaries include Lafayette Street, Great America Parkway, , Tasman Drive, the Guadalupe River and the San Tomas Aquino Creek.

2.2 Planned Development

The development currently envisioned includes office, hotel, mixed-used retail, restaurant, entertainment, residential and parking structures with significant site improvements. The City has reported that the existing infrastructure systems were designed and constructed based on the 2010-2035 General Plan. The approvals for the Project include a zoning change to Planned Development –Master Community ("PD-MC") from the "B" zoning district and the ((Public, Quasi-Public and Public Park or Recreation) for Parcels 1 through 4 and from the "CP" (Commercial Park) zoning district in Parcel 5 is zoned "CP". MCP authorizes up to 9,164,400 gross square feet (gsf) with associated parking and site improvements. The current breakdown by parcel is as follows:

Table 1
Current Development Program

Parcel	Site Area (acres)	Potential Development Area (gsf)
1	49.6	1,200,000
2	60.9	2,160,000
3	34.9	720,000
4	86.6	4,259,400
5	8.0	825,000

This information was used to develop the initial water demand, sewer generation and electric load estimates. The preliminary estimates are provided in the Technical Memoranda.

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Errata:Text Insertion

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This information was used to develop the initial water demand, sewer generation and electric load estimates. The preliminary estimates are provided in the Technical Memoranda.

2.3 Project Phasing

The current project planning includes a phasing strategy for full development of the five parcels in eight phases. Parcel 4 and 5, the location of City Center, would be developed in the first four phases. Parcel 3 would be developed in phase 5, Parcel 1 in phase 6 and Parcel 2 in the phases 7 and 8. The infrastructure will be phased with the parcel development as defined in the Development Area Plans.

The design of both the landfill operation and maintenance systems and the roadway and utility infrastructure for the development of the Project will consider the phasing strategy. The impact of the phasing will be handled through the design of each infrastructure element, considering which elements need to be designed, permitted and constructed prior to other elements. The design and construction of the roadway infrastructure and access to each site will be phased with the development and with the EIR Mitigation, Monitoring and Reporting Program (MMRP) requirements. Site earthwork may require moving existing fill material between parcels as well as phasing the earthwork to accommodate the landfill operation systems reconstruction. The Post Closure Land Use Plan (PCLUP) documents the requirements for the landfill systems as part of the Project.

3.0 SITE CONSTRAINTS

A Base Map (aka Site Constraints Map) has been prepared to compile all of the relevant information received to date. The Map includes but is not limited to information from the City's 2013 aerial topography, preliminary title report, easements, ENA documents, GIS mapping, record utility maps, State and City codes, landfill activity (haul roads) sketches and landfill records, as well data provided verbally from various sources including the City and previous City employees. A copy of the latest version of the Site Constraints Map is provided in the Technical Memoranda.

The site is proximate to a significant amount of existing infrastructure. The City owned and operated systems include sanitary sewer, stormwater drainage, water (domestic and fire), recycled water, landfill operation systems (gas extraction, leachate collection and monitoring) within and adjacent to the Site. Utility providers and infrastructure owners with facilities near the site include Silicon Valley Power (SVP), a City owned utility, Comcast, AT&T, Santa Clara Valley Water District (SCVWD), Pacific Gas & Electric (PG&E), Union Pacific Railroad (UPRR) and Valley Transportation Authority (VTA). Each system is briefly described below and record maps are provided in the Technical Memoranda.

- The stormwater drainage system includes gravity underground conveyance piping, surface drainage channels, retention basin and two pump stations that discharge stormwater runoff to the east to the Guadalupe River and to the west to San Tomas Aquino Creek.
- The domestic and fire water distribution system includes water mains, pumps, hydrants and other appurtenances; the sources for the system available to the City include an extensive local underground aquifer and imported water supplies delivered by the Santa Clara Valley Water District (SCVWD) and the San Francisco Hetch Hetchy system.
- The recycled water distribution system is a source of water available to the City for irrigation and other purposes via the San Jose/Santa Clara Water Pollution Control Plant's South Bay Recycled Water facility.

- The wastewater (sanitary sewer) system includes pump stations and both force and gravity sewers that convey sewage to the existing San Jose/Santa Clara Regional Wastewater Facility (Water Pollution Control Plant) located northeast of the site, adjacent to the San Francisco Bay.
- The landfill operation systems within Parcel 1, 2, 3 and 4 include a landfill gas extraction system and leachate collection system. The landfill gas is extracted via a system of vertical wells and horizontal pipes, and the gas is conveyed to a landfill gas-to-energy flare system operated by Ameresco, a private company under contract with the City. The leachate collection system (within Parcel 1 and Parcel 3 only) includes a central sump, laterals, risers and pump that discharge to the City sanitary sewer. Additionally, a groundwater monitoring well system and a landfill gas monitoring probe network are present at the Site.
- The UPRR infrastructure includes a single track within a 50-ft right-of-way between the west side of Lafayette Street and the east sides of Parcel 3 and 4. There is an existing Station, Santa Clara – Great America Station to the east of Parcel 5 accessible via Stars and Stripes Drive.
- The VTA operates a light rail on Tasman Drive south of Parcel 5.
- The SCVWD is responsible for the existing levees along the entire west side of Parcel 4 along Sam Tomas Aquino Creek and the entire east side of Parcel 1 and Parcel 2 along the Guadalupe River.
- The Silicon Valley Power electric system, Santa Clara's municipal electric utility, includes both overhead and underground facilities.
- The PG&E facilities include high-voltage overhead electric and buried gas services.
- AT&T and Comcast telecommunications are located in underground facilities.

4.0 GEOTECHNICAL AND ENVIRONMENTAL CONSIDERATIONS

Structural improvements developed on landfills must comply with specific construction standards set forth in the California Code of Regulations (CCR), Title 27, §21190. Planning documents, design, and construction of these improvements will need to be submitted as part of the Post-Closure Land Use Plan, Closure Plan and Post-Closure Maintenance Plan, and associated regulatory submittals to the County Local Enforcement Agency (LEA), CalRecycle, and the Regional Water Quality Control Board. Title 27 requires that post-closure construction on the site maintain the integrity of the landfill, including any existing final cover, drainage and erosion control systems, and gas monitoring and control systems. Modifications to these systems must be designed to be protective of public health and safety and the environment. Other post-closure land use requirements include monitoring and ventilating landfill gases beneath proposed buildings and installing improvements designed to keep moisture from penetrating into the landfill materials.

The former landfill consists of waste deposited during several episodes of filling on the separate parcels. It has been reported that landfill operations occurred between 1934 and 1994; however, based on historical aerial photographs and topographic maps, it appears that landfill operations began in the late 1960s (beginning in Landfill Parcel 4). The Landfill received final landfill closure certification in September 1994. The landfill on Parcel 4 operated between the 1960s and 1970s; landfill operations at the other parcels took place from the late 1970s through early 1990s. Our research indicates the lower portion of refuse was placed by excavating slots (*drag* technique) into the native soil and backfilling the slots with refuse. The topography indicates that soil embankments were constructed around the waste units and that refuse continued to be placed which created large mounds above current street elevation. On the basis of the available subsurface

information, the refuse on Parcels 1 and 3 ranges from about 40 ft to 80 ft thick. On Parcels 2 and 4, the thickness of refuse ranges from about 20 ft to 50 ft. The area of the refuse is approximately 136 acres within the four Parcels. The refuse is underlain by alluvial deposits consisting predominately of clay and sandy clay layers with occasional interbedded layers of sand and silt. Groundwater table elevations are generally in or within 10 ft of the bottom portion of the waste unit based on data from the groundwater monitoring program, and from groundwater levels observed in the recently drilled borings.

5.0 SITE GRADING AND STORMWATER MANAGEMENT

The existing site topography varies significantly, with low elevations near sea level and high elevations above 65 feet North American Vertical Datum of 1988 (NAVD 88). This large range in elevation is a result of the placement of the underlying refuse discussed in Section 4 above. In order to accommodate the planned development significant earth moving to provide for safe and accessible access to the proposed facilities on each of the five parcels will be required.

Based on the preliminary grading, the earthwork estimates to achieve subgrade for each Parcel are as follows:

Table 2
Earthwork Estimates

Parcel	Total Earthwork (CY)
1	410,000
2	220,000
3	250,000
4	500,000
5	350,000

Due to the underlying refuse and the on-going settlement, the final site grading design will be a complex exercise. It is preferable to avoid cutting into the refuse for reasons such as cost, air quality and health and safety. Additionally, because the refuse has very low compressive strength, adding fill to the site will surcharge the weak refuse and potentially result in additional settlement. These constraints combined with respecting the continuity and integrity of the landfill cap (clay soil layer) result in strict grading criteria and the development of detailed method statements that will focus on minimizing the disturbance required to grade the site. As the site grading plan is developed and the site improvements plans are prepared, interaction with the City and Local Enforcement Agency (LEA) will be required. The Grading and Site Access Technical Memorandum shows a preliminary grading scheme for the Project which includes general pad elevations and access road grading for the proposed development.

Drainage of the site is also complicated by the underlying refuse. The addition of water to the refuse can result in the production of toxic leachate, and can also contribute to settlement by further surcharging the already weak refuse. Due to these factors, infiltration of stormwater runoff is not feasible on the majority of the site. This non-infiltration based design will be discussed with the City, LEA, Regional Water Quality Control Board and Santa Clara Valley Urban Runoff Pollution

Prevention Program (SCVURPPP) to ensure the mechanisms are in-place to exclude the site from any stormwater infiltration requirements.

Because the project will replace more than 10,000 square feet of impervious surface area on the project site, the project must comply with the City of Santa Clara Stormwater C.3 provision requirements and the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) permit. In order to meet C.3 and NPDES requirements, the project will include low impact development (LID) measures to reduce runoff pollutant loads including bio-retention (with underdrain), flow-through planters, tree wells with media filter, infiltration trenches (with underdrain), landscaped open space, catch basin filters, green roofs, rainwater harvesting and on-site re-use and green streets (bioretention/permeable pavements with underdrain). The proposed treatment facilities will be numerically sized in accordance with City requirements to ensure that they will have sufficient capacity to treat the requisite volume of stormwater runoff entering the storm drainage system. In addition, the project will be required to to ensure continued maintenance and performance of the post-construction measures.

Both the San Tomas Aquino Creek and Guadalupe River are contained within FEMA certified levees adjacent to the site. As such, no increase in the 100 year flood elevation as a result of the development will be permitted without recertifying the levees. The on-site stormwater management and treatment features for each Parcel will be dynamically modeled during final design including buildings, parking garages, site, landscape, etc. The results of the modeling will be used to compare the proposed "permanent" stormwater peak flows and volumes for the Project with the existing peak flows and show compliance with the jurisdictional regulations. A separate Stormwater Management Report inclusive of detailed hydrologic and hydraulics calculations, analysis and conclusions will be prepared to document the final design of the stormwater management and storm drain system and to obtain the requisite approvals.

6.0 PROJECT ACCESS

6.1 Overview

The City Place Santa Clara site is currently serviced by two existing freeways. US Route 101 is an eight lane divided freeway running north-south up the Peninsula, along the west side of the San Francisco Bay. It is a major commuter route providing access from San Francisco to South San Jose. US 101 passes to the south of the development site and is accessed by travelling on Great America Parkway or Lafayette Street and Montague Expressway. State Route 237 is a six lane divided highway running east-west from Milpitas to Mountain View, connecting the east and west sides of the Silicon Valley. SR 237 passes to the north of the site, with access from Lafayette Street and the Gold Street Connector or Great America Parkway. Currently there are no plans to expand either US 101 or SR 237.

Local access to the Project is provided by three arterial streets. Great America Parkway is a north-south six lane divided major arterial to the west side of the development. There is a short frontage along Parcel 4, approximately 350 ft. Great America Parkway provides primary access to US 101 and SR 237. Tasman Drive is an east-west six lane divided arterial to the south of the Project and includes a center-running VTA owned and operated light rail. Lafayette Street is a north-south four lane arterial between the east and west side parcels of the development and includes the UPRR right-of-way along its west side. Lafayette Street provides access to US 101 by way of Montague

Expressway and SR 237 by way of the Gold Street Connector. Great America Parkway and Tasman Drive are currently developed with no apparent opportunities for expansion. Lafayette Street has limited opportunity for expansion on the east side and no opportunity for west expansion.

It is a development goal to make City Place Santa Clara both bike and pedestrian friendly. Currently, north-south bicycle access to the site is provided by dedicated bicycle trails along San Thomas Aquino Creek to the west of the site and the Guadalupe River Trail. There are also on street bike lanes along Great America Parkway, as well as bike lanes on Lafayette Street that extend to Calle de Luna just to the south of the development. Bike access to City Place in the east-west direction is more limited. Bike lanes currently exist on Tasman Drive, but they terminate near Lick Mill Boulevard east of the site. To the west, there are on street bike lanes along Old Mountain View-Alviso Road which provide access to residential neighborhoods in northern Sunnyvale.

A Traffic Impact Assessment will be prepared as part of the EIR. The following is intended to briefly summarize the current conditions and address how these conditions and the planned development impact the infrastructure planning for the Project. This section relies heavily upon the Fehr & Peers memoranda entitled "Existing Conditions Assessment for the Proposed City Place Santa Clara Mixed-Use Project" dated 2 May 2014 and "Preliminary Transportation Review of the Proposed City Place Santa Clara Mixed-Use Project" dated 14 May 2014.

6.2 Site Access

There are many challenges in providing access to City Place Santa Clara. The most difficult of these challenges is the amount of automobile congestion during commute hours. Both major freeways are operating above capacity now, with little opportunity for expansion. There is also little opportunity for expansion of existing arterial surface streets to boost capacity. A development of the scale of City Place will add to the traffic load of the surrounding area.,

Another challenge is that there is limited frontage to major arterials which makes it difficult to locate access points which will have adequate capacity to meet the demands of the Project. Parcel 1 and Parcel 2 front only to Lafayette Street on the west. They are bounded to the north, east and south by SR 237, the Guadalupe River and Lafayette Industrial Park, respectively, leaving only Lafayette Street available for access. Because it is surrounded by the Santa Clara Gateway Property to the west and north, the UPRR to the east and Parcel 4 to the south, Parcel 3 is essentially land locked. It is also significantly higher in elevation than the surrounding area, which adds constraints to access because of road grading and the existing landfill. Parcel 4 has limited frontage along Great America Parkway to the west, but is bounded to the north by Parcel 3, the east by the UPRR, the south by Stars and Stripes Drive and the south-west by the San Tomas Aquino Creek. Tasman Drive will provide multiple points of access to Parcel 5 and Parcel 4 via Centennial Boulevard, three new access locations (Avenue A, Avenue B and Avenue C (variant)) and an eastbound slip ramp to Stars and Stripes Drive. There are other access options that will be studied as the design of the Project is further developed.

6.3 Streets and Intersections

A new on-site street network comprised of both public and private streets, and improvements to some of the off-site roadways and intersections outside of the project boundary will be constructed to serve the Project. The following descriptions are based on the initial planning exercises and will require further evaluation as part of the TIA and final review and approval by the City.

Based upon the current concept plan and the initial preliminary transportation review, the conceptual parcel access summary is as follows:

Table 3
Conceptual Access Summary

Parcel	No. of Access Lanes In	No. of Access Lanes Out
1	4	4
2	4	4
3	4	4
4	9	10
5	4	4

The street and intersection improvements for site access may vary from the table above and the descriptions below after detailed engineering evaluations with respect to lane configuration, dimensions, signalization, etc. The following summarizes the current planning for the existing, new and modified intersections for the Project. Additional design information is provided in the Grading and Site Access Technical Memorandum.

6.3.1 Parcel 1

- One access point from Lafayette Street with a minimum of two entrance and three exit lanes. This access may be further developed in a "jug handle" configuration to serve as the primary access to Parcels 1, 2, and 4 and negate the need for the "urban interchange" described below.
- A new "Urban Interchange" which involves raising Lafayette Street and a new bridge over the UP Railroad providing access to Parcels 1, 2 and 4 with two entrance and three exit lanes, including bypass lanes for through traffic on Lafayette Street in each direction.
- One access point from the north at Great America Way.
- Multiple connection points to Parcel 2 located along shared parcel line with a minimum one lane in each direction.

6.3.2 Parcel 2

- One access point from Lafayette Street with a minimum of two entrance and three exit lanes. This access may be further developed in a "jug handle" configuration to serve as the primary access to Parcel 2 with secondary access to Parcels 1and 4 and negate the need for an "urban interchange," as defined below.
- A new "Urban Interchange" which involves raising Lafayette Street and a new bridge over the UP Railroad providing access to Parcels 1, 2 and 4 with two entrance and three exit lanes, including bypass lanes for through traffic on Lafayette Street in each direction.
- One access point from the south via the Lick Mill extension.

- One connection to Parcel 4 via a new bridge over Lafayette.
- Multiple connection points to Parcel 1 located along shared parcel line with a minimum one lane in each direction.

6.3.3 Parcel 3

- Two connection points to Parcel 4 with a minimum two lanes in each direction.

6.3.4 Parcel 4

- A new "Urban Interchange" which involves raising Lafayette Street and a new bridge over the UP Railroad providing access to Parcels 1, 2 and 4 with two entrance and three exit lanes, including bypass lanes for through traffic on Lafayette Street in each direction.
- One access point from Great America Parkway just north of Great America Parkway/San Tomas Aquino Creek crossing with a minimum two entrance and three exit lanes.
- Supplemental access point from Great America Parkway through the existing convention center property via a new bridge over the San Tomas Aquino Creek.
- Three access points from Stars and Stripes Drive via Avenue A, Avenue B and Avenue C with a minimum three entrance and three exit lanes.

6.3.5 Parcel 5

- Main access from the Tasman Drive / Centennial Boulevard intersection, and Stars and Stripes Drive (access to the below grade parking garage will need to be coordinated considering both vehicular and pedestrian movements).
- Supplemental right-in/right-out access to Tasman Drive via new Avenue A, Avenue B and possibly right-in / right-out / left-out at Avenue C (variant.)
- Supplemental access from a new Tasman Drive (eastbound) slip ramp to Stars and Stripes Drive.

The Lafayette Street "Urban Interchange" has numerous design and regulatory permitting challenges. There are overhead PG&E transmission lines on both sides of Lafayette Street and overhead SVP electric on the east side of Lafayette. The interchange will have to provide the proper clearances (or necessary relocation or undergrounding) from these utilities. It will also have to meet minimum vertical clearance requirements above the UPRR on the west side of Lafayette Street.

The access point at Great America Parkway will be the marquee entrance to the development. It will be designed to set the atmosphere for the entire development. There are challenges in the layout and design of this access point. As proposed, the access road from Lafayette Street to Great America Parkway follows the northern parcel line for Parcel 4, which meets Great America Parkway at a skew. Per the Caltrans Highway Design Manual, Section 403.3, the minimum interior angle must be 75°, which will affect the approach of the access road. Because the Parcel 4 frontage on Great America Parkway is limited, the location of the access point is relatively fixed. This location is approximately 200-ft from the existing bridge crossing San Thomas Aquino Creek, which means that any improvements to Great America Parkway must conform to the existing bridge. There is also a potential sight distance issue as the intersection in approached from the south due to the existing vertical curve on the San Tomas Aquino bridge structure. Approximately 550-ft north of

the access point is the intersection of Great America Parkway and Old Mountain View-Alviso Road. The traffic impacts of locating an access point close to this intersection will need to be studied. The Grading and Site Access Technical Memorandum show the concept site access locations for each Parcel.

7.0 STORMWATER DRAINAGE

The Site is adjacent to the San Tomas Aquino Creek and the Guadalupe River. A brief description of each as provided by the Santa Clara Valley Urban Runoff Pollution Protection Program (SCVURPPP) is summarized below.

The San Tomas Aquino Creek watershed covers an area of approximately 45 square miles. San Tomas Creek originates in the forested foothills of the Santa Cruz Mountains flowing in a northern direction through the cities of Campbell and Santa Clara, into the Guadalupe Slough, and finally into the Lower South San Francisco Bay. The major tributaries to San Tomas Aquino Creek include Saratoga, Wildcat, Smith and Vasona Creeks. Most of the San Tomas Aquino watershed is developed as high-density residential neighborhoods, with additional areas developed for commercial and industrial uses. The majority of the San Tomas Aquino Creek channel has been modified and lined with concrete (from the Smith Creek confluence in the upper reaches downstream to Highway 101).

The Guadalupe River watershed covers an area of approximately 171 square miles. The headwaters drain from the eastern Santa Cruz Mountains near the summit of Loma Prieta in heavily forested unincorporated county land with pockets of low-density residential developments. The Guadalupe River actually begins on the Valley floor at the confluence of Alamitos Creek and Guadalupe Creek, just downstream of Coleman Road in San Jose. From there it flows north, approximately 14 miles until it flows into the Lower South San Francisco Bay via the Alviso Slough. The upper watershed is characterized by heavily forested areas with pockets of scattered residential areas. Residential density gradually increases to high density on the valley floor. Commercial development is focused along major surface streets. Industrial developments are located closer to the Bay, primarily downstream of the El Camino Real crossing. Six major reservoirs exist in the watershed: Calero Reservoir on Calero Creek, Guadalupe Reservoir on Guadalupe Creek, Almaden Reservoir on Alamitos Creek, Vasona Reservoir, Lexington Reservoir, and Lake Elsman on Los Gatos Creek.

The climate of the City of Santa Clara is characterized as dry-summer subtropical (often referred to as Mediterranean), with cool wet winters and relatively warmer dry summers. The mean annual precipitation in the vicinity of Santa Clara is approximately 15 inches (95 percent of which falls between October and April) per the 2007 Santa Clara County Drainage Manual (SCCDM). This value is typical of Santa Clara County east of the coastal range. It is important to note that the Site can be subject to a wide range of annual precipitation.

Due to the nature of the existing topography and drainage infrastructure, the five parcels along with the tributary off-site areas have been divided into four distinct sub-watersheds: San Tomas, East Basin, Eastside Channel and Basin Direct. Each watershed, the existing stormwater drainage system and the proposed infrastructure improvements are described in detail in Stormwater Technical Memorandum.

7.1 Existing Systems

The existing City owned and operated drainage system includes pump stations, retention basins, open drainage channels, underground conveyance piping and appurtenant drainage structures. The on-site drainage system is made up of an intricate corrugated poly-pipe network and inlet structures. The off-site drainage systems that convey the stormwater runoff from the Project to the discharge locations are shown on the City's Storm Drain System Information Maps.

Parcel 1, 2, 3 and about 45% of Parcel 4 are tributary to the Guadalupe River. The stormwater runoff from these parcels is collected in the Eastside Retention Basin, which has a surface area of approximately 5.3 acres and had a 1972 design storage capacity (retention volume) of 30 acre-feet, and discharged to the Guadalupe River via the Eastside Pump Station. The basin also collects runoff from off-site areas to the south and west of the Site. The Basin and Pump Station are operated and maintained by the City. The remainder of Parcel 4 and Parcel 5 are tributary to the San Tomas Aquino Creek. The surface water runoff is discharged to the Creek via two existing gravity outfalls (12 inch diameter) and the Golf Course Club House Storm Drain Pump Station and outfall (30 inch diameter).

The Eastside Pump Station was originally constructed in 1973, was last upgraded in 2005 and has a design capacity of 50,000 gallons per minute (gpm). There are approximately 524 acres of the City tributary to this pump station, which includes about 180 acres (34% of watershed) from the Project. The City prepared a Hydrologic Investigation for the Eastside Pump Station Report in 2000. This Report concluded that the existing pumps had sufficient capacity to prevent the 100-year runoff from ponding in Lafayette. However, future pump upgrades were identified as a possibility under worst case scenario conditions.

The Eastside Drainage Channel was constructed in 1971. The City prepared an Initial Study in 2010 for the Eastside Retention Basin Drainage Swale Vegetation Clearing Project. The project proposed to clear vegetation within the drainage channel, desilt the Eastside Retention Basin, which had not been done since the late 1980's, and establish a recurring maintenance program for these drainage facilities. Reportedly, the construction project was not initiated.

The Golf Course Pump Station was originally constructed in 1987 and has a design capacity of 11,100 gpm. There is approximately 65.8 acres tributary to this pump station including about 43.6 acres from Parcel 4 (66% of area), all 8.0 acres of Parcel 5 and 14.2 acres from the public right-of-way including Stars and Stripes Drive, Tasman Drive and the City parking garage. The system utilizes the depressed area on Parcel 4 within the golf course driving range for detention and includes submersible pumps and an outfall to the San Tomas Aquino Creek.

7.2 Proposed Infrastructure

The storm drainage system for the Project will be an underground gravity network of pipes, catch basin, manholes, water quality treatment measures and other appurtenances. The building drainage will be via internal systems piped directly to the storm drains. A complete storm drain study for the 10-year and 100-year storm events prior to grading permit issuance will be prepared and submitted for review and approval by the City. For final design, the public underground piped storm drain conveyance system will be capable of conveying the 10-year peak runoff as well as safely convey the 100-year event peak flows from the Site via a combination of the piped system and surface conveyance. Public streets shall be designed such that the 100-year event flow remains within the roadway limits and not extend into private property.

The stormwater runoff from Parcels 1, 2 and 3 will discharge to the Eastside Retention Basin and be pumped to the Guadalupe River via the existing Eastside Pump Station. The preliminary results indicate there is sufficient storage and pumping capacity within the current system (assuming existing conditions) to safely convey the post-development peak runoff from the 100-year storm. From Parcels 1 and 2 there will be multiple new outfalls from the Site to the existing Eastside Drainage Channel. The channel should be cleared of vegetation in order to safely convey the peak flows from 100-year storm event for existing and proposed conditions. From Parcel 3, the existing drainage infrastructure located north of the Parcel and west of the UPRR will be utilized. An option to utilize the existing infrastructure to the west of the Parcel in the adjacent Gateway property may also be explored. The preliminary evaluation identified that a portion of the existing off-site system may need to be upsized to accommodate Parcel 3. However, these upgrades may not be required if enough of the stormwater on Parcel 3 is collected and re-used or routed to the existing drainage area between Parcel 3 and 4.

The stormwater runoff from Parcel 4 and Parcel 5 will discharge to the San Tomas Aquino Creek via three new stormwater outfalls. The invert of the outfalls will be set above the bottom of the Creek at a final elevation to be coordinated with the SCVWD to ensure the location is above sediment levels within the Creek. The Golf Course Pump Station will likely be abandoned and removed.

As previously stated, the goal for the final stormwater management design will be to reduce the proposed peak flows to existing peak flow levels through the incorporation of sustainable stormwater measures. During final design, the extent of the stormwater management measure such as low-impact development (LID) stormwater treatment best management practices (BMPs), rainfall harvesting and re-use within the Project will be determined, and the potential off-site improvements will need to be further studied.

8.0 POTABLE WATER

8.1 Existing System

The water system in the City of Santa Clara is operated and maintained by the City of Santa Clara Water and Sewer Utility. This system is supplied with potable water from three main sources; the Santa Clara Valley Water District (the "SCVWD"), the San Francisco Public Utility Commission (the "SFPUC Hetch Hetchy"), and 27 groundwater wells operated by the Water and Sewer Utility. The potable water supply is augmented with recycled water from South Bay Water Recycling. This recycled water is not permitted for potable use, but it can be used for irrigation, toilet flushing and approved industrial uses.

The existing domestic water system near the Site is provided on the City of Santa Clara Water Base Maps W93 – W115. There is a network of water mains around all four sides of Parcel 3, Parcel 4 and Parcel 5. This network is also located along the west and south sides of the Parcel 1 and Parcel 2.

8.2 Proposed Infrastructure

It is anticipated that: 1) Parcel 1 and Parcel 2 will be served by the existing water main in Lafayette Street; 2) Parcel 3 will be served by the same water main in Lafayette Street, a stubbed main beneath the UPRR tracks to the east of Parcel 3, and 3) Parcel 4 and Parcel 5 will be served by the existing water mains in Great America Parkway, Stars and Stripes Drive, Centennial Boulevard and Tasman Drive.

Each site will include a combined domestic and fire water system "looped" network with a minimum two points of connection to the existing system. The Water Technical Memorandum shows a preliminary layout of the water system, including possible connection points. Due to the height of some proposed buildings, it may be necessary to include booster pumps in the looped system to maintain water pressure for fire flows. Location of these pumps either within or external to the buildings will be evaluated. Connections to the public system will be provided by the City of Santa Clara Water Utility. Each connection to the existing public water system will require a meter and backflow preventer to keep water from flowing from the project back into the public system.

California Code of Regulations, 22CCR§64572.(f) states that new water mains shall not be installed within 100-ft of the nearest edge of any sanitary landfill, wastewater disposal pond, etc. The City is seeking a waiver from this requirement. Specific water utility materials, methods of construction, locations of appurtenances such as valves, meters, backflow devices, etc. must be addressed and approved by the City. Some sections of the water system on Parcel 4 may need to be private due to the inclusion of the structural platform and site design features.

Based upon the current concept plan, the estimated water demand per Parcel is as follows:

Table 4
Estimated Water Demand

Parcel	Potential Development Area (gsf)	Water Demand (gpd)
1	1,200,000	176,400
2	2,160,000	317,520
3	720,000	105,840
4	4,259,400	988,578
5	825,000	248,253

As the design is finalized, these estimates will be refined and used to design a system which meets the needs and phasing of the Project. Additional design information is provided in the Water Technical Memorandum.

Implementation of the water system as currently designed will likely require some offsite improvements to the existing utility systems. The connection point to the north east of Parcel 3 is a stubbed asbestos cement water main that was installed in 1970 and later abandoned. It may not be in an acceptable condition to serve the project. Also, a considerable amount of fill may be added to Stars and Stripes Drive. Per the City of Santa Clara Council/Staff Work Study Session (see Appendix C) on 11/20/2013, this will require the existing utilities in Stars and Stripes to be raised. The City also noted approximately 2,000-ft of domestic water mains that may need to be upsized. Specifically, these include the 8 inch asbestos cement main in Great America Parkway, the 8-inch asbestos cement main in Lafayette Street, and parts of the loop in Calle de Luna and Calle del Mundo. An extension of the existing water main in Tasman Drive may also be necessary. More study will be required to determine if these sections or others will need to be upsized to meet the water demand of the Project.

9.0 RECYCLED WATER

9.1 Existing Distribution

The existing recycled water distribution system near the Site is provided on the City of Santa Clara Water Base Maps RCW93 – RCW115. There is a network of recycled water mains along the north, east and west sides of Parcel 1, the east and south side of Parcel 2, and between Parcel 3 and Parcel 4.

Recycled water is supplied to the Site from the South Bay Water Recycling Program. It is conveyed from the plant to the northeast corner of Parcel 1 by a 16-inch plastic pipe. This pipe travels beneath State Route 237 then crosses the Guadalupe River. On the west bank of the Guadalupe River the recycled water main splits. One 12-inch Yelomine (plastic) pipe is located along the east side of Parcel 1 and Parcel 2 until it reaches Tasman Drive. It then turns west and mixes with a 30 inch steel recycled water main located along Tasman Drive before crossing this main and continuing in Lick Mill Road. The second branch of the recycled water system is a 16 inch plastic main along the north side of Parcel 1. At Lafayette it turns to the south and travels approximately 1,500-ft, passing through a reducer to become a 12-inch plastic pipe. At the boundary between Parcel 3 and Parcel 4 the main turns west and travels through a 30-ft wide Recycled Water and Sanitary Sewer easement to Great America Parkway. At Great America Parkway, the main turns north before continuing west along Old Mountain View – Alviso Road. The City of Santa Clara Water Utility estimates pressure in the recycled water system to be between 80 and 90 psi in the vicinity of the Site.

9.2 Proposed Infrastructure

The recycled water system for each parcel will have two points of connection to maintain recycled water service. Potential connection points for each of the parcels are as follows. For both Parcel 1 and Parcel 2, the recycled water distribution will include one point of connection to the existing recycled water main in Lafayette Street and one point of connection to the recycled water main along the eastern edge of Parcel 1 and Parcel 2. For Parcel 3 and Parcel 4, the recycled water distribution will include two points of connection to the existing recycled water main located in the easement between Parcel 3 and Parcel 4. Parcel 5 will connect to the new infrastructure in Parcel 4.

As the Project is designed, the use of recycled water will be evaluated. The recycled water system can be used to supply non-potable water for different uses such as irrigation, HVAC equipment (cooling tower make-up), and toilet flushing. As these systems are designed, the entire water balance (domestic source, recycled source, reuse source) can be developed. Each connection for each use will require a separate meter as well as City and State approval via an independent recycled water permitting process. Additional design information is provided in the Water Technical Memorandum.

10.0 WASTEWATER

10.1 Existing System

The existing wastewater collection system for the City of Santa Clara includes a series of gravity trunk sewers, pump stations and sanitary force mains. The system conveys the wastewater to the existing San Jose/Santa Clara Regional Wastewater Facility (WWTF) located approximately 2 miles northeast of the Site. The Site is located at the downstream end of the piped collection system. From Great America Parkway on the west side of the Project, two main sewers are located between Parcel 3 and Parcel 4. The northernmost gravity trunk sewer is a 33-inch Reinforced Concrete Pipe

(RCP), and the southernmost is a 42-inch RCP. Within Lafayette Street there is a 36-inch gravity trunk sewer. These three sewers join in Lafayette Street into two 42-inch RCP's and continue north in Lafayette Street between Parcel 3 and 1. At the northern edge of Parcel 1, these sewers turn to the northeast, following the Parcel 1 boundary to the existing diversion structure which diverts the flow to both the existing Rabello Pump Station and the Northside Pump Station. There is a 12-inch sewer in Stars and Stripes Drive, which connects to the 36-inch sewer in Lafayette Street.

The gravity sewer that bypasses the Rabello Pump Station continues beneath the Guadalupe River and California State Highway 237, where it flows to the Northside Pump Station. From the Northside Pump Station, the wastewater is pumped and conveyed in a force main to the WWTF. The Rabello Pump Station will pump wastewater to the WWTF through a secondary force main, which follows the alignment of the Northside Pump Station gravity sewer and its force main once crossing beneath the Guadalupe River and Highway 237.

The current pump station operation includes the Rabello and Northside Pump Stations working in parallel to pump the wastewater to the WWTF. The maximum capacity of this system, referred to as the Firm Capacity, is defined as the maximum capacity of the combined pump stations with the largest pump for each pump station out of commission. This builds some redundancy into the system, allowing it to function even if one of the pumps for each pump station is out of service. The Northside Pump Station has 4 pumps running in parallel to pump effluent, and the Rabello Pump Station has 8 pumps running in parallel. Currently, the City of Santa Clara estimates the Firm Capacity of these two stations to be 38.2 Million Gallons per Day (MGD). Per RMC's Sanitary Sewer Capacity Evaluations for the Project both dated 14 November 2014, the peak wet weather flow (PWWF) results predicted by the model are 49.8 MGD without the Project and 53.1 MGD with the Project. Another study would be needed to determine the required improvements to increase the pump stations total firm capacity to convey the predicted flow in 2035 General Plan PWWF.

10.2 Proposed Infrastructure

Based upon the current concept plan, the estimated sewage generation per Parcel is as follows:

Table 5
Estimated Sewage Generation

Parcel	Potential Development Area (gsf)	Sewage Generation (gpd)
1	1,200,000	168,000
2	2,160,000	302,400
3	720,000	100,800
4	4,259,400	941,506
5	825,000	236,432

It is anticipated that the proposed sanitary sewer system for the Project will connect to the existing City gravity trunk sewers between Parcels 3 and 4, in Lafayette Street and in Stars and Stripes Drive. The preliminary locations for the points of connection and for the routing of the sewers within a development parcel are provided in the Sanitary Sewer Technical Memorandum. The preliminary design includes multiple gravity sanitary sewer systems with laterals, mains, manholes and cleanouts designed per City standards. The pipes will be sized for the capacity to convey the total peak wet weather flow at a minimum velocity of 2 fps when flowing half full and no more than

75% full. Preliminarily, Parcel 1 and Parcel 2 will connect to the westernmost existing 42-inch sewer in Lafayette Street and Parcel 3 and Parcel 4 will connect to the existing 42-inch sewer located between Parcels 3 and 4. Parcel 5 will connect to the Stars and Stripes Drive system. It is anticipated that the Stars and Stripes Drive system will need to be completely replaced to accommodate the proposed below grade parking structures. The systems are proposed as a looped system to provide redundancy as required by the City.

As the design is finalized, these estimates will be refined and used to design a system which meets the needs and phasing of the Project. A detailed hydraulic analysis of the sewer system should be performed to confirm the findings in the RMC Technical Memoranda, as well as to evaluate the timing for upgrades to the Rabello and North Side Pump Stations.

11.0 ELECTRIC, GAS AND TELECOMMUNICATIONS

11.1 Electrical Distribution System

Pacific Gas and Electric (PG&E) provides gas and electrical services to the vast majority of Northern California. However, some cities have historically provided their own municipal electric company. Such is the case for the City of Santa Clara whose municipal electric utility is referred to as Silicon Valley Power (SVP). SVP provides electric utility power to all residences and commercial businesses in the City of Santa Clara. Since the City is surrounded by PG&E territory, there are locations within Santa Clara where PG&E owned electric transmission systems exist, within appropriate right-of-ways. PG&E transmission systems traverse all five parcels.

11.1.1 Existing System

PG&E maps indicate that two separate PG&E 115kV overhead transmission pole lines run "north-south" along the westerly side of Lafayette Street. There is a 175-ft wide easement within Parcels 5, 4 and 3 for these transmission lines. Additionally, a PG&E overhead transmission pole line runs "north-south" along the east side of Lafayette Street. These pole lines are in dedicated rights-of-way, which typically forbid structures of any kind.

SVP's electric distribution maps indicate that an existing 12kV underground distribution line provides service to existing commercial buildings along Stars and Stripes Drive. Additionally, there is an existing 12kV overhead line running north-south under the PG&E transmission pole line on the easterly side of Lafayette Street. This pole line branches easterly to serve the residential development southeast of the proposed new development. SVP underground electric 12kV feeder-lines exist along Great America Parkway, adjacent to Parcel 4, and along the Guadalupe River adjacent to Parcel 2. Discussions with SVP indicate that all of the existing underground and overhead distribution lines in the immediate vicinity of the new development are fully utilized and could not be extended to serve the new development.

11.1.2 Proposed Infrastructure

It is common for parking lots to intrude into PG&E easement areas. When that occurs, care must be taken to avoid placement of parking lot lights and trees within the easement. PG&E would need to

be consulted to obtain approval for any development (i.e. grading/landscape plans) planned within the easement areas. Additionally, site improvements would be designed to avoid conflict with existing transmission line steel support poles. It is conceivable, however, that PG&E would allow a support pole to be adjusted to be "taller" or moved "tangentially" along the north-south corridor to eliminate a conflict with proposed grading or utility improvements. Moving poles perpendicularly to the north-south route should be avoided because it is impractical to add the necessary "down-guys" and provide the additional easements, to consider off-setting the transmission pole line.

SVP has confirmed that to provide electrical service to the new development, new circuits would need to be installed and extended from the existing "Northern Receiving Substation" located south of Levi's stadium. Specifically, it is expected that four new 600A, 12kV feeder lines would be needed to serve Parcel 4 and Parcel 5. Two more feeder lines would be required for Parcel 2, and one for each of Parcels 1 and 3, for a total of 8 new feeders.

The feeder lines would be installed as part of a multi-circuit conduit bank of up to four 5 inch primary conduits. Accordingly, it is expected that two new trench routes, each typically 36 inch x 60 inch, would need to be extend approximately 1,800-ft from the substation to the south end of the new development. To the extent that spare conduits were previously extended north toward Tasman from the substation, SVP has indicated that those conduits may be utilized to provide service to the project. Further study is needed to determine the appropriate routing of the new feeder-lines throughout the development.

SVP manholes would be needed, typically spaced no more than 500-ft apart, to facilitate cable pulling and to allow the installation of pad mount switches and transformers. Further study is needed to determine the number and locations of manholes, switches and transformers that would be required to serve the new development.

The applicant would be responsible for trenching and installing all new SVP conduits and substructures. SVP does not utilize sub-surface equipment. All switches and transformers would be pad-mounted and locations would need to be coordinated with SVP during the design stages.

Streetlights will be part of the Project on all new streets. If new streets are to be dedicated as public streets, SVP would provide public streetlights (e.g. electroliers) as part of their electric service. If the streets are to be "private", the applicant would be required to bear the cost of providing City approved street lights.

SVP has recently announced "fiber services" are being offered to schools and residential developments. The extent and locations of SVP "fiber" services for each of the five development parcels would need to be coordinated with SVP during the design stages.

11.2 Natural Gas Distribution System

11.2.1 Existing System

PG&E would be the service provider for natural gas to the development. PG&E's maps indicate that an existing 24 inch high-pressure gas transmission main is located north-south along Lafayette Street. Specifically, the gas main is along the west side of Lafayette Street from the south,

northward, until it reaches the midpoint of Parcel 4, then it crosses to the east side and traverses northward along the east-side of Lafayette Street along the entire frontage of Parcels 1 and 2. Any street improvements to Lafayette Street (i.e. road widening, road overlay) would need to be reviewed by PG&E to ensure the integrity to their gas facilities would be maintained.

PG&E's gas distribution maps also indicate that 2 inch and 1¼ inch distribution gas mains exist along Stars and Stripes Drive. Also a 4- inch gas main is located north-south along the east side of Lafayette Street, and a second 4-inch main is located along the east side of Great America Parkway adjacent to Parcel 4.

11.2.2 Proposed Infrastructure

It is feasible that the 4 inch existing gas mains in the vicinity could be extended into the new development to provide gas service, assuming standard "commercial gas loads" are needed. If any "campus boiler/steam" type systems or "bloom box generators" are being considered, specific studies would be required for PG&E planning to evaluate. It is not likely that the gas facilities along Stars and Stripes Drive could be utilized, except perhaps to serve only the two nearby proposed buildings.

Extending the gas service from the 4 inch gas main from Lafayette Street into Parcels 5 and 4 would require crossing the UPRR right-of-way. This crossing, if necessary, would require railroad permits and a "jack and bore" crossing. As an alternative, it is feasible that a gas sleeve could be incorporated into any new bridge structures that may span the rail right-of-way and Lafayette Street.

If the total expected gas loads of the new development are sufficiently large, PG&E may require the installation of a new gas regulator station to serve the development. The proximity of the high-pressure transmission line provides the capacity to provide service to a gas regulator station should one be required. A new gas regulator station would take approximately 3 years for PG&E to plan, design, and build.

PG&E gas mains would typically be extended in a trench joint with SVP electric facilities. SVP trenches are typically minimum 36 inches wide and often 48 inches wide when accommodating all four utilities. This is because SVP requires 12 inch horizontal separation from gas, telephone/catv facilities.

The applicant is responsible for all trenching and has the option to install gas facilities and to be credited by PG&E for the estimated cost of the installation. It is recommended that gas meters be located outside of proposed new buildings, either in an alcove, or perhaps adjacent to landscape walls. PG&E clearances and truck access to gas meters would need to be provided. PG&E does allow gas meters to be located in "gas rooms", but the requirements are strict (E.G. forced air ventilation system, gas detection, explosion proof fixtures, etc.), and the process typically delays the PG&E approval process significantly (6 to 12 months additional).

11.3 Telecommunication Service

11.3.1 Existing System

AT&T service maps indicate that minimum AT&T facilities exist along Stars and Stripes Drive. It does appear, however, that significant AT&T facilities existing on a north-south "wood pole line" along the east side of Lafayette Street.

Comcast service maps indicate that facilities exist along Stars and Stripes Drive, and it appears that significant Comcast facilities exist on a north-south "wood pole line" along the east side of Lafayette Street.

11.3.2 Proposed Infrastructure

AT&T will provide service to one Minimum Point of Entry (MPOE) for up to one building on each non-contiguous property. AT&T will serve multiple buildings on one property, but the applicant will be billed for the estimated cost of the additional AT&T services. The applicant is responsible for trenching and installation of AT&T conduits.

It is typical for developers to discuss the possible extension of "fiber services" with AT&T. If desired, a utility consultant would work with AT&T's engineering department to discuss the need for fiber pads if fiber service is ultimately to be provided to the project.

Conduits for new Comcast service would typically be installed by Comcast contractors in an "open trench" provided by the developer. Number and sizes of conduits would be based on the types of services desired for the development program.

It would be necessary for AT&T and Comcast to cross the UPRR right-of-way to serve Parcel 4 and Parcel 5. This crossing would require railroad permits and a "jack and bore" crossing (the same jack and bore pits that would be needed for gas facilities could be used for these services, however, separate conduit/sleeves would be required to provide separation). As an alternative, it is feasible that the conduits could be incorporated into any new bridge structures that may span the rail right-of-way and Lafayette Street.

12.0 ADDITIONAL FACTORS

12.1 Landfill Infrastructure

The development of the site will impact the current configuration of portions of the landfill operations monitoring, collection and removal systems. Initial assumptions for abandonment and replacement or maintenance of the above systems include the following:

- Protection and maintenance of groundwater monitoring wells and groundwater piezometers;
- Protection and maintenance of the existing leachate collection and removal system during site development;
- Abandonment and replacement of the landfill gas collection and removal system including the landfill gas monitoring probes; and
- Protection and maintenance of the existing composite barrier wall along the north and west boundary of the development area.

As the LEA and City is further engaged, the specific landfill infrastructure components including the Landfill Gas Extraction System Re-Design, Landfill Gas Mitigation System at Building Pads, Landfill Leachate Collection System Re-Design and Landfill Monitoring Features will be defined.

12.2 Non-Standard Design Elements

Some of the non-standard design elements that may be incorporated into the site design to address the landfill issues for the Project include interstitial spaces, settlement slabs, settlement vaults/flexible connections, special utility trenching for landfill cap disruption and refuse handling and considerations for landfill gas. Typical utility/roadway corridor sections have been prepared for several variations of roadways, streetscape amenities and the multiple utilities that will be located within each street (sewer, storm drain, domestic/fire water, recycled water, gas, joint trench, automated waste collection, landfill gas extraction system). The following briefly discusses some of the non-standard elements that will be incorporated into the final design of the system.

- Interstitial Spaces – Beneath the buildings within the City Center portion of the Project and other select office buildings there will be an interstitial space. The current design assumes a 4-ft to 5-ft high interstitial space, which will allow the building utility laterals to be accessible from within the building first floor space without disrupting the landfill systems.
- Settlement Vaults/Flexible Connections – At locations where differential settlement is expected settlement vaults and/or flexible connections will be included in the design. These direct buried vault structures will either enclose a flexible connection (such as a Flex-Tend device) or be located adjacent to a building structure to allow for a piped configuration within the vault to settle. There are two conditions that will need to be addressed; 1) transition from structure to direct bury support over refuse, and 2) transition from direct bury to direct bury over refuse.
- Structural Slabs – Within City Center the majority of the infrastructure systems will be constructed on a structural slab supported on deep foundations. The slabs will support the roadways between the proposed City Center buildings and have been designed to minimize disruption to the landfill cap and refuse. The gravity utility systems have a direct impact on the depth of the structural slab relative to street grade, and may require deeper utility corridors in the slab, which may impact/disrupt the landfill cover and refuse.
- Utility Trenching for Landfill Cap Disruption – Utility corridors, which may or may not be within a roadway, may need a subgrade improvement program to reduce total and differential settlements. Utility trenching that penetrates the landfill cap will require excavating and disposing of all the material encountered below the cap. The exposed trench will be lined with a polyethylene liner to re-establish the cap and the trench will be backfilled with clean fill. This will allow for the future maintenance of the utility without encountering landfill material and impacting the cap.

GRADING AND SITE ACCESS TECHNICAL MEMORANDUM

for

CITY PLACE SANTA CLARA
Santa Clara, CA

Prepared For:

Related Santa Clara, LLC

Prepared By:

Langan Treadwell Rollo
4030 Moorpark Avenue, Suite 210
San Jose, California 95117

01 June 2016
770611601

LANGAN TREADWELL ROLLO

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 PROJECT DESCRIPTION 1

2.1 Site Description 1
2.2 Planned Development 1

3.0 BASIS OF DESIGN 2

3.1 References 2
3.2 Design Criteria 3
3.3 Flood Potential 4

4.0 SITE GRADING 5

4.1 Existing Topography 5
4.2 Proposed Site Grading 7

5.0 SITE ACCESS 8

5.1 Existing Roadway Network 8
5.2 Site Access Intersections 9
5.3 On-Site Streets 13

6.0 PHASING 15

GRADING AND SITE ACCESS PHASING MATRIX

FIGURES

1 Site Location Map
2 Key Map – Existing Topography
3 Plan - Existing Topography
4 Plan - Existing Topography
5 Plan - Existing Topography
6 Plan - Existing Topography
7 Plan - Existing Topography
8 Plan - Existing Topography
9 Plan - Existing Topography
10 Plan - Existing Topography
11 Plan - Existing Topography
12 Plan - Existing Topography
13 Plan - Existing Topography
14 Plan - Existing Topography

15 Key Map - Preliminary Grading
16 Plan - Preliminary Grading
17 Plan - Preliminary Grading
18 Plan - Preliminary Grading
19 Plan - Preliminary Grading
20 Plan - Preliminary Grading
21 Plan - Preliminary Grading
22 Plan - Preliminary Grading
23 Plan - Preliminary Grading
24 Plan - Preliminary Grading
25 Plan - Preliminary Grading
26 Plan - Preliminary Grading
27 Plan - Preliminary Grading
28 Existing Roadway Network
29 Access Location Summary
30 On-site Roadway Green Street Section
31 Typical City Center Foundation Section (Type 1)
32 Typical City Center Foundation Section (Type 2)
33 Typical City Center Foundation Section (Type 3)

DRAWINGS

CG-2.01 Parcel 1 Preliminary Grading Plan
CG-2.02 Parcel 2 Preliminary Grading Plan
CG-2.03 Parcel 3 Preliminary Grading Plan
CG-2.04 Parcels 4 and 5 Preliminary Grading Plan

1.0 INTRODUCTION

Grading and Site Access Technical Memorandum (the "Memo") is to document the existing and proposed site grading, existing roadway network and proposed access intersections for the City Place Santa Clara Project (the "Project").

2.0 PROJECT DESCRIPTION

2.1 Site Description

The overall site (the "Site") for the Project includes the former Santa Clara All Purpose Landfill and two additional sites (see Figure 1). The subject property includes five parcels: Parcel 1, Parcel 2, Parcel 3, Parcel 4, and Parcel 5 totaling approximately 240 acres. The landfill is no longer active and the Final Closure and Post-Closure Maintenance Plan was approved in December 1992 and amended multiple times, most recently in December 2013.

The former landfill consists of individual landfills on the four separate parcels. It has been reported that landfill operations occurred between 1934 and 1994; however, based on historical aerial photographs and topographic maps, it appears that landfill operations began in the late 1960s (beginning in Landfill Parcel 4). The Landfill received final landfill closure certification in September 1994.. Open burning took place at the first landfill and, to our knowledge, waste types accepted at the landfills included industrial and construction/demolition debris. The topography indicates that soil embankments were constructed and that refuse was placed which created large mounds. On the basis of the available subsurface information, the refuse in Parcels 1 and 3 ranges from about 40 to 80 feet thick. In Parcels 2 and 4 the thickness of refuse ranges from about 20 to 50 feet.

The Site is proximate to a significant amount of existing roadway and utility infrastructure. The roadways providing current access to the boundaries of the Site include Lafayette Street, Great America Parkway, Great America Way, Stars and Stripes Drive, Centennial Boulevard, and Tasman Drive. The City owned and operated systems include sanitary sewer, stormwater drainage, water (domestic and fire), recycled water and landfill operation systems (gas extraction, leachate collection and monitoring) within and adjacent to the Site. Utility providers and infrastructure owners include Silicon Valley Power (SVP), Comcast, AT&T, Santa Clara Valley Water District (SCVWD), Pacific Gas & Electric (PG&E), Union Pacific Railroad (UPRR) and Valley Transportation Authority (VTA).

2.2 Planned Development

The planned development currently envisioned includes office, hotel, mixed-used retail, restaurant, entertainment, residential and parking structures with significant site improvements. The approvals for the Project include a zoning change to Planned Development –Master Community ("PD-MC") from the "B" zoning district and the ((Public, Quasi-Public and Public Park or Recreation) for Parcels 1 through 4 and from the "CP" (Commercial Park) zoning district in Parcel 5 is zoned "CP". MCP authorizes up to 9,164,400 gross square feet (gsf) with associated parking and site improvements. The current breakdown by site is as follows:

Table 1

Current Development Program

Parcel	Area (acres)	Potential Development Area (gsf)
1	49.6	1,200,000
2	60.9	2,160,000
3	34.9	720,000
4	86.6	4,259,400
5	8.0	825,000

3.0 BASIS OF DESIGN

3.1 References

The following reports and standards are supplemental to the design requirements and were used in the preliminary conceptual design of the grading and access intersections. These documents, or updated versions of these documents, should be used in the final design of the Project.

- "Design Criteria for Improvements in Public Right-of-Ways and City Easements" City of Santa Clara, Public Works Department, September 17, 2014.
- "Standard Specifications for Public Works" City of Santa Clara, Public Works Department, latest edition.
- "Standard Details" City of Santa Clara, Public Works Department, latest edition.
- "Santa Clara City Code Title 10 and 12."
- "State of California Highway Design Manual" latest edition.
- CALDAG 2013 and ADA Standards, latest edition
- 2013 California Building Code (CBC)
- "Preliminary Geotechnical Investigation City Place Santa Clara, August 22, 2014.
- Topographic Survey (via aerial photogrammetry) provided by City of Santa Clara, performed on November 15, 2013.
- "Existing Conditions Assessment for the Proposed City Place Santa Clara Mixed-Use Project," May 2, 2014.
- "Preliminary Transportation Review of the Proposed City Place Santa Clara Mixed-Use Project," May 14, 2014.
- FEMA Flood Insurance Rate Map (FIRM) include Panels 61, 62, 63 and 64 of 830, Map Numbers 06085C0061H, 06085C0062J, 06085C0063H and 06085C0064H dated May 18, 2009
- Anderson Dam EAP 2009 Flood Inundation Map, Santa Clara Valley Water District
- Tsunami Inundation Map for Emergency Planning, State of California Emergency Management Agency, California Geological Survey, 2009.

3.2 Design Criteria

The City of Santa Clara Public Works Department, CALDAG and the CBC have some general design criteria relative to grading and streets. Some of key items that will need to be considered for final design, as well as the non-standard design elements to address the landfill aspects of the Project are as follows, subject to the City approving deviations.

- Minimum standard Section 3.3 of the Master Commmunity Plan specifies approximate right-of way and roadway widths (face of curb to face of curb) as follows:
    - ResidentialMinor arterial spines
        - Right-of-Way – 102 ft
        - Roadway Width – 70 ft
    - IndustrialCollector streets
        - Right-of-Way – 75-90 ft
        - Roadway Width – 45-55-ft
    - CommercialLocal streets
        - Right-of-Way - 60-96 ft
        - Roadway Width – 36-56 ft
- Minimum allowable street grades:
    - South of State Highway 101: 0.3%
    - North of State Highway 101: 0.25%
    - Around Curb Returns: 0.5%
- Undulated street grades shall have a favorable fall to the low point of the drainage basin such that a grade line drawn through the high points of the undulation would not be less than 0.05% grade. The elevation at any low point must not be more than six (6) inches below the lower adjacent high point elevation.
- Cul-de-sacs shall drain toward the intersecting street.
- In areas of street widening, the cross slope shall be designed between 2% and 4%. Greater cross slopes may be allowed only with the permission of the Director of Public Works/City Engineer.
- When the vehicle travel way of an existing street is being reduced (i.e., installation of "traffic calming" features) the effect of grade changes to the street must be investigated and clearly indicated on the plans. The cross slope shall be designed between 2% and 4%.
- Vertical curves shall be used whenever a 1.5% grade differential or more occurs. Vertical curves shall be 200 feet minimum.
- The centerline profile of the through street shall be continuous through the intersection. The cross street centerline profile shall meet the through street cross slope at the centerline except when the through street pavement width is 60 feet or more. In this case, the cross street centerline profile shall meet the through street cross slope at 10 feet from the face of curb of the through street with the cross street profile sloping away from the through street.
- Medians with landscaping shall require curbing. The top of curbs shall be constructed 8.5 inches above street surface grade, or in areas of median extension, match the existing curbing height as allowed by the Director of Public Works/City Engineer. Depending on the scope of the project root barriers and/or median subdrains may be required by the Director of Public Works/City Engineer.
- Slurry seal shall be required on portions of existing streets that have been modified and then newly paved, as well as on newly paved trenches, and potholes.. The slurry seal shall extend 12 inches beyond the limits of pavement reconstruction.
- Proposed bridges over Lafayette St. shall have a minimum 20-ft height clearance over existing pavement and 23-ft 10-inches height clearance over top of rail.
- Accessible routes – "Accessible routes shall consist of one or more of the following components: walking surfaces with a running slope not steeper than 1:20, doorways, ramps, curb ramps excluding the flared sides, elevator and platform lifts [2013 CBC 11B-206, 2010 ADA Standards 206] (CALDAG 2013)"

- Accessible means of egress – "Means of egress shall comply with CBC Chapter 10, Section 1007. Accessible spaces shall be provided with not less than one accessible means of egress. [2013 CBC 11B-207.1, 2010 ADA Standards 207.1] (CALDAG 2013)".
- Walking surfaces – "Walkways shall be of sufficient width to accommodate pedestrian traffic, but in no case shall they be less than 4 feet in width. Walkways shall be provided with a durable walking surface. [2013 CBC CBC 3306.2, 2010 ADA Standards 403]. The running slope of walking surfaces is not steeper than 1:20. The cross slope of the walking surfaces is not steeper than 1:48. [2013 CBC 11B-403.3, ADA Standards 403] (CALDAG 2013)."
- Ramps - "A walking surface which has a running slope steeper than one unit vertical in 20 units horizontal (5%slope). Cross slope of ramp runs are not steeper 1:12 (8.33%). Cross slope of ramp runs are not steeper than 1:48 (2.08%). The clear width of ramp run shall be 48 inches minimum. The rise of any ramp is 30 inches maximum. Ramps have landings at the top of the bottom of each ramp run. The landing clear length is 60 inches long minimum. [2013 CBC 11B-405.1, 11B-405.1.2, 11B-405.1.3, 11B-405.1.7;,ADA Standards 405] (CALDAG 2013)."
- Curb ramps – "A sloping pedestrian way, intended for pedestrian traffic, which provides access between a walk and sidewalk to a surface located above or below an adjacent curb face. Ramp runs have a running slope not steeper than 1:12 (8.33%). Landings are provided at the tops of curb ramps and blended transitions. The landing clear length is 48 inches minimum. A turning space 48 inches minimum is provided at the bottom of the curb ramp. The slope of the turning space in all directions is 1:48 maximum (2.08%). [2013 CBC 11B-406.2.1, 11B-406.2.1, 11B-406.3.2, 11B-405.1.7; ADA Standards 405] (CALDAG 2013)."
- Detectable warning and detectable directional texture – "Detectable warning surface shall be installed as provided in the California Code of Regulations (CCR), Title 24, Part 1 Chapter 5, Articles 2,3 and 4. Detectable warnings shall consist of a surface of truncated domes. For curb ramps, detectable warnings shall extend 36 inches in the direction of travel. Detectable warning shall extend the full width of the ramp excluded any flared sides. [2013 CBC 11B-247, 11B-247.1.2, 11B-247.2.2, ADA Standards 247] (CALDAG 2013)".

3.3 Flood Potential

The site is located within Zone X "Other Flood Areas" identified as areas of 0.2% chance of flood, areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance flood. The relevant FEMA Flood Insurance Rate Map (FIRM) include Panels 61, 62, 63 and 64 of 830, Map Numbers 06085C0061H, 06085C0062J, 06085C0063H and 06085C0064H dated May 18, 2009. Within the Site, Map 06085C0061H includes the following caveat "Note: This area is shown as being protected from the 1-percent-annual-chance or greater flood hazard by a levee system.

The eastern edge of Parcel 2 (Eastside Drainage Channel) and the eastern edge and northern section of Parcel 1 (Eastside Retention Basin area north of the landfill) are identified within a special flood hazard area subject to inundation by the 1% annual chance flood (100-year flood). The area is identified as Zone AH with flood depths of 1 to 3 feet (usually areas of ponding) and a Base Flood Elevation of el. 6.0.

The Site is located within the inundation area of the Anderson Dam. Anderson Dam and Reservoir is the largest of ten Santa Clara Valley Water District reservoirs and provides a reliable supply of

water to Santa Clara County. It has a total storage capacity of 89,073 acre-feet. Anderson Dam and Reservoir was built in the 1950s and named after the key founder and first president of the water district, Leroy Anderson. Currently, a storage restriction of about 45 feet below the dam crest has been put in place to protect the public with a reduced storage capacity of 61,810 acre-feet. Water district staff and the regulatory agencies (California Division of Safety of Dams and the Federal Energy Regulatory Commission) have approved the restriction and believe that this would prevent the uncontrolled release of water in case of a failure after a major earthquake. The Site is located approximately 26 miles downstream of the Dam. The inundation mapping prepared by the Santa Clara Valley Water District indicate that in the event of a dam breach during the inflow design flood, the potential maximum flood elevation of +19.94 would occur at the Site within 9 hours 18 minutes. If the event happened during "fair weather" then the potential maximum flood elevation of el. 16.84 would occur within 11 hours 17 minutes.

The Site is not within a tsunami inundation area based on the Tsunami Inundation Map for Emergency Planning prepared by the California Emergency Management Agency California Geological Survey.

4.0 SITE GRADING

4.1 Existing Topography

The existing topography of the Site was provided by the City of Santa Clara in an AutoCAD file of an aerial photogrammetric survey performed on November 15, 2013. All elevations noted herein are in the North American Vertical Datum of 1988 (NAVD88). An updated topographic survey and detailed boundary and utility survey will be required for final design.

- Parcel 1 – The existing elevations around the perimeter of Parcel 1 vary between elevation (el.) 5 and el. 8. The elevation high points are within the central portion of the parcel at about el. 60 and at the northwest corner at about el. 70. The grades fall from the high points to the edge of the refuse mound to about el. 40 to the east and northeast and to about el. 55 to the west and south. From the top of edge of the landfill the side slopes down to the perimeter elevations vary from 3H:1V to 5H:1V. Based on City records and previous investigations performed to date, it is anticipated that the top of the refuse layer varies between el. 47 and el. 37. The surface grades vary between 5 ft and 15 ft higher than the refuse.

  There is an existing driveway access to Lafayette Street in the southwest corner of the Parcel at about el. 8. The paved driveway slopes up into the Parcel at about an 8% grade to provide access to the existing BMX facility and for golf course maintenance. There is also a City drainage conveyance ditch along the entire eastern edge of the Parcel at el. 0 and a levee for the Guadalupe River with the top of berm at el. 25.

- Parcel 2 – The existing elevations around the perimeter of Parcel 2 vary between el. 5 and el. 8. The elevation high point is within the north central portion of the Parcel at about el. 52. The grades fall from the high point to the edge of the refuse mound to about el. 35 to the east, el. 25 to the south and el. 20 to the west. From the top of edge of the landfill the side slopes down to the perimeter elevations vary from 2H:1V to 3H:1V. Based on City records and previous investigations performed to date, it is anticipated that the top of the refuse

layer varies between el. 19 and el. 40. The surface grades vary between 7 ft and 10 ft higher than the refuse.

There is an existing golf cart bridge over Lafayette Street from Parcel 4 that connects to Parcel 2 at about el. 25. The bridge span reaches high point of about el. 39. There is also a City drainage conveyance ditch along the entire eastern edge of the Parcel at el. 0 and a levee for the Guadalupe River with the top of berm at el. 25.

- Parcel 3 – The existing elevations around the perimeter of Parcel 3 vary between el. 9 and el. 11. The elevation high point is within the central portion of the parcel at about el. 82. The grades fall from the high point to the edge of the refuse mound to between el. 53 to el. 56 around the majority of the edge and el. 68 in the southwest corner. From the top of edge of the landfill the side slopes down to the perimeter elevations are at about 3H:1V. Based on City records and previous investigations performed to date, it is anticipated that the top of the refuse layer varies between el. 31 and el. 54. The surface grades vary between 10 ft and 35 ft higher than the refuse. There is an existing paved golf cart access path in the southeast corner from Parcel 4 that slopes up to Parcel 3 from el. 12 to el. 54 at about a 10% slope. There is also an access location in the northeast corner of the Parcel from the adjacent property to the north from el. 10 to el. 30. The Union Pacific railroad tracks are located along the entire eastern edge of Parcel 3 at about el. 9. There is also a City drainage conveyance ditch along the entire eastern edge of the Parcel at about el. 17 and along the southern edge of the Parcel between el. 8 and el. 11.

- Parcel 4 – The existing elevations around the perimeter of Parcel 4 vary between el. 10 and el. 20. The elevation high points are located throughout the Parcel up to about el. 34. The grades around the edge of the refuse mound are el. 20. There is an area within the Parcel where no refuse exists and existing grades drop to as low as el. 7 (within a portion of the existing driving range and lined pond). Based on City records and previous investigations performed to date, it is anticipated that the top of the refuse layer varies between el. 18 and el. 27. The surface grades vary between 3 ft and 7 ft higher than the refuse.
  The elevation of Great America Parkway along the approximate 340-ft frontage is between el. 15 and el. 22. Stars and Stripes drive along the majority of the southern boundary of the Parcel is between el. 13 and el. 19. The UPRR tracks are located along the entire eastern edge of Parcel 4 at about el. 10 to el. 13. There is also a City drainage conveyance ditch along most of the northern edge of the Parcel between el. 8 and el. 11. The City has the following utilities under the drainage conveyance ditch between Parcels 3 and 4: 33-inch and 42-inch sanitary sewers; and 12-inch recycled water main. Grading (excavation or backfill) shall be designed and performed in such a manner that has no impact to said City utilities.

- Parcel 5 – The existing elevations around the perimeter of Parcel 5 vary between el. 24 and el. 40 along Tasman Drive and between el. 12 and el. 19 along Stars and Stripes Drive. The existing parking lots slope south to the north with the low points around el. 12. The 90-ft wide Centennial Boulevard splits Parcel 5 sloping from el. 23.8 at Tasman Drive to el. 15.7 at Stars and Stripes Drive. The parking lots are access from Stars and Stripes Drive. Stars and Stripes Drive provides access to the existing City parking garage at approximately el. 15.5.

4.2 Proposed Site Grading

The goals for the proposed grading of the Site include:

- Minimizing disturbance of existing refuse.
- Phasing of earthwork to efficiently replace, relocate, operate and maintain the landfill collection systems.
- Satisfying and maintaining ADA slope and access guidelines recommendations for buildings, site and access to public areas.
- Strategically designing site grades to accommodate future settlement of landfill and to not impact existing utilities.
- Site aesthetics.

The City Center section of the Project, inclusive of all buildings, parking garages, plazas and streets, within Parcel 4 will be structurally supported on a deep foundation system. The structural system for the retail buildings will include interstitial space between the first floor and subgrade. The grading of the streets and plaza areas will be coordinated with the first floor elevations of the retail, office and parking structures. The development within Parcel 5 and beneath Stars and Stripes Drive and Centennial Boulevard will include a below grade parking structure. The grades will need to correspond to the existing Tasman Drive elevations and the southern edge of the Parcel 4 structure. For the remainder of the development, the buildings and parking structures will be supported on deep foundations and the streets, plazas and open space/landscaped areas will be supported on terra firma (on-grade). The three different preliminary foundation sections (over landfill area) are included herein as Figures 31 to 33.

The design maintains the first floor elevation (for the Parcel 4 settlement slab and other buildings and parking garage structures) a minimum of 10 feet above the anticipated refuse elevations to minimize excavation of waste. Mass earthwork will include grading each Parcel to a subgrade elevation, which is about 5 feet above the refuse. This will allow for the protection of the existing clay cap during earthwork, provide a working pad for the installation of the landfill gas collection system, maintenance of the leachate recovery system risers, deep foundations, and a provide vertical clearance above the refuse to minimize refuse disturbance during earthwork, pile cap, utility corridor, and building slab construction. There are instances where the clay cover will be disrupted by utilities trenches and refuse will be impacted.

Based on the preliminary grading, the earthwork estimates to achieve subgrade for each Parcel are as follows:

Table 2
Earthwork Estimates

Parcel	Total Earthwork (CY)
1	410,000
2	220,000
3	250,000
4	500,000

5	350,000

The preliminary grading design has minimized the disturbance of refuse to achieve the subgrade elevations. Some access locations may require cutting into the refuse. The preliminary estimate is approximately 25,000 CY, of which 10,000 CY is at the new Lick Mill Boulevard access (southeast corner of Parcel 2).

The final design for the on-grade streets, plazas and open space/landscape areas will be designed with a combination of hinged slabs, adjustable footings and other "situation specific" elements such as lightweight fill. Because of the heterogeneity of the refuse, it is difficult to accurately predict the amount of settlement over a given period of time, or where it will occur. Once the settlement locations are determined, the final grading plans will be designed for the ultimate grade after site settlement. Building entrances, plazas, and access pathways will be designed to maintain compliance with the requirements of the California Building Code, CALDAG and ADA Standards. A periodic monitoring and maintenance program will need to be implemented to maintain compliance and site aesthetics.

5.0 SITE ACCESS

5.1 Existing Roadway Network

Primary automobile access to the site is provided by US 101, SR 237, Great America Parkway, Tasman Drive and Lafayette Street. These roadways are described below and shown on Figure 28:

- US 101 is an eight-lane divided freeway that extends from east San Jose to San Francisco along the west side of San Francisco Bay, connecting communities along the Peninsula.
- State Route 237 is a six-lane divided freeway that connects the east and west sides of Silicon Valley via Mountain View, Sunnyvale, Santa Clara and north San Jose.
- Great America Parkway is a six-lane divided major arterial that extends from SR 237 to Homestead Road, providing access to US 101, Central Expressway and El Camino Real. South of US 101 it continues as Bowers Avenue, narrowing to two lanes in each direction south of Central Expressway. It provides primary access from the site to SR 237 and US 101.
- Lafayette Street is a four-lane arterial that connects to SR 237 immediately north of the City Place Santa Clara site (via Gold Street) and to US 101 approximately two miles south of the site. Lafayette is below-grade at Tasman Drive and connects directly to Great America Way. Union Pacific railroad tracks with Amtrak and ACE commuter rail passenger service, and high-voltage power lines run along the west (southbound) side of the street.
- Tasman Drive is a four-lane divided arterial with center-running light rail, running between I-880 in the east to Java Drive in the West. The VTA Mountain View-Winchester Light Rail Line runs within the median of Tasman Drive.
- Stars and Stripes Drive is a two-lane local east-west street that connects directly to the existing City parking garage (to the west) and turns south at its east end and goes under Tasman Drive to provide access to the commuter rail station, parking lot and Santa Clara Youth Soccer Park.
- Centennial Boulevard is a five-lane divided local street that connects Tasman Drive to Stars and Stripes Drive.

5.2 Site Access Intersections

An existing conditions assessment and a preliminary transportation review of the Project was performed by Fehr and Peers. A detailed traffic impact study has been prepared for the Project as part of the CEQA Environmental Impact Report. Based on the current planning being performed for the Project, the following presents the conceptual locations for potential access intersections and conceptually summarizes some of key elements of each. Figure 29 provides access locations being evaluated. As the design of the Project progresses, the feasibility of each access locations as well as alternative access locations and configurations will be assessed. The intersection and lane configurations, roadway slopes, vision triangles, turning radius and other design elements will be designed to meet City standards (inclusive of turning lanes, bike lanes, sidewalks, crosswalks, queue lengths, etc.) and the needs of the phased Project. The preliminary access locatons are as follows:

- Great America Parkway (main)
  - Provides direct access to Parcel 4
  - Signalized (new)
  - Lanes:
    - South/Eastbound (in) - two
    - North/Eastbound (in) - one
    - Westbound (out) – two left turn / one right turn
  - Requires modifications to existing Great America parkway median
  - Requires incorporation of existing commercial development right-in/right-out access into the intersection
  - Limited southbound left turn stacking distance due to limited frontage and Old Mountain View Alviso Road / Private site driveway intersection

- Great America Parkway (secondary)
  - Provides direct access to Parcel 4
  - Signalized (new)
  - Lanes:
    - South/Eastbound (in) - two
    - North/Eastbound (in) - one
    - Westbound (out) – two left turn / one right turn
  - Requires modifications to existing Great America parkway median, existing bike trail and maintenance roadways
  - Requires new bridge structure over San Tomas Aquino Creek and approval from Santa Clara Valley Water District (and joint agency approval from Regional Water Quality Control Board, California Department of Fish and Game, and the US Army Corps of Engineers and their Federal consulting agencies)

- Lafayette Street Urban Interchange
  - Provides direct access to Parcel 4, Parcel 1 and Parcel 2
  - Signalized (new)
  - Lanes:
    - South/Westbound (in) - two
    - North/Westbound (in) - two
    - Westbound (out) - three

        - South/Eastbound (in) - one
        - North/Eastbound (in) - one
        - Eastbound (out) - two
    - Requires construction of new bridge overpass structure to span Lafayette Street and railroad and modifications to existing Lafayette Street
    - Requires northbound bypass lane within Parcel 2
    - Requires additional structural span over infrastructure corridor between Parcels 3 and 4 (required to avoid impact to existing City sanitary sewer and recycled water main utilities within the drainage conveyance ditch)
    - Requires accommodations be made to maintain access to the infrastructure corridor during construction
    - Requires under-grounding of existing SVP electric infrastructure along east side of Lafayette Street and possible replacement/relocation of existing sanitary sewer
    - Requires approval from City, PG&E (including California Public Utilities Commission – CPUC), UPRR and SVP - Final configuration of the interchange will consider all comments from these agencies

- Lafayette Street (Middle)
    - Provides direct access to Parcel 1 and access to Parcel 4 via new Lafayette Street Bridge
    - Signalized (new)
    - Lanes:
        - South/Eastbound (in) - one
        - North/Eastbound (in) - one
        - Westbound (out) – two
    - Utilizes existing access location
    - May require site improvements to existing gas collection facility
    - Lane alignments need to ensure acceleration, deceleration and through lanes

- Great America Way
    - Provides direct access to Parcel 1
    - Signalized (new)
    - Lanes:
        - South/Eastbound (in) - one
        - North/Eastbound (in) - one
        - Westbound (out) - three
    - Requires improvements to area adjacent to existing Rabello Pump Station and Eastside Retention Basin
    - Requires coordination with future expansion of Rabello Pump Station and new recycled water tank
    - Requires long side-hill access roadway, possible retaining walls, bridge structure (to span existing City sanitary sewers, PG&E gas transmission mains and City recycled water main) and possible refuse disruption (cut)
    - Requires protecting the sanitary sewers, PG&E gas and recycled water within the infrastructure corridor along the sewer easement/access road

- Lick Mill

  - Provides direct access to Parcel 2
  - Unsignalized
  - Lanes:
    - Northbound (in) - two
    - Southbound (out) - two
  - Requires access easement, improvements to existing Lick Mill and Tasman Drive intersection and additional off-site property
  - Requires refuse disruption (cut)
- Parcel 3 Access
  - Access from Parcel 4 via two internal streets
  - Unsignalized
  - Lanes:
    - Northbound (in) - four
    - Southbound (out) – four
  - Requires protecting the sanitary sewers and recycled water within the infrastructure corridor between Parcel 3 and 4

- Parcel 4/2 Connector
  - Provides access between Parcel 2 and Parcel 4
  - Lanes:
    - East/Westbound – one in each direction
  - Requires construction of new bridge overpass structure to span existing Lafayette Street and railroad
  - Requires approval from City, PG&E (including California Public Utilities Commission – CPUC), UPRR and SVP

- Stars and Stripes Drive
  - Provides direct access to Parcel 4
  - Three unsignalized intersections - Avenue A, Avenue B and Avenue C
  - Lanes:
    - Southbound (out) - three
    - Northbound (in) – three
  - Requires coordination with existing parking deck access and ingress/egress to below grade parking garages

- Tasman Drive/Centennial Boulevard/Avenue A/Avenue B / Avenue C (variant)
  - Provides direct access to Parcel 5 and below grade parking garages via Centennial Boulevard, Avenue A and Avenue B, and Avenue C (variant)
  - Two new unsignalized right-in only intersections – Avenue A and Avenue B
  - Existing signalized Centennial Boulevard intersection
  - Lanes:
    - West/Northbound (in) – two
    - East/Northbound (in) – four
    - South/Westbound (out) – four
    - South/Eastbound (out) - two
  - Requires coordination with below grade parking garage access
  - Requires modifications to existing Tasman median and signal timing
  - Requires approval from VTA

- Requires significant public utility relocation

- Tasman Slip Ramp/Stars and Stripes Drive
  - Provides direct access to north/south section of Stars and Stripes Drive and Parcel 4 and 5 from eastbound Tasman Drive
  - Unsignalized at Tasman Drive / possible new signal at Stars and Stripes
  - Lanes:
    - West/Northbound (in) - one
  - Requires modifications to existing Tasman Drive embankment for adjacent bridge structure (including new retaining walls) and City approval

- Lafayette Street Bridge (option)
  - Provides access between Parcel 1, 2 and 4
  - Requires construction of new bridge overpass structure to span Lafayette Street and UPRR and modifications to existing Lafayette Street
  - Requires under-grounding of existing SVP electric infrastructure along east side of Lafayette Street

- Lafayette Street (jug-handle north and south option)
  - Provides direct access to Parcel 1 (same location as Lafayette Street Middle) and Parcel 2, and access to Parcel 4 via the new Lafayette Street Bridge
  - Signalized (new)
  - Lanes (for each):
    - South/Eastbound (in) - one
    - North/Eastbound (in) - two
    - West/Northbound (out) – two
    - West/Southbound (out) – two
    - North (through) – two
    - South (through) - two
  - Requires refuse disruption (cut) and possibly retaining walls
  - Lane alignments need to ensure acceleration, deceleration and through lanes
  - Some right-of-way acquisition from Parcel 1 may be required
  - Depending on required queueing length, additional transmission poles may be affected.
  - Requires approval from City, PG&E (including California Public Utilities Commission – CPUC), UPRR and SVP

The following table presents a parcel access summary based on intersections presented above.

Table 3
Parcel Access

Parcel	Proposed		Fehr & Peers**	
	In	Out	In	Out
1	4	4	3	2
2	4	4	4	4

3	4	4	2	2
4	9	10	6	6
5	4	4	n/a	n/a

** The Fehr & Peers information is taken from the Preliminary Transportation Review of the Proposed City Place Santa Clara Mixed-Use Project. Parcel 5 was not studied.

5.3 On-Site Streets

Because the traffic demand is not known at this time we have developed recommended pavement sections for traffic indices (TI) of 4.5 through 6.5. The driveway traffic index assumes passenger car traffic and light to moderate truck traffic for a 20-year period. Table 4 provides the recommended flexible pavement sections (based on assumed R-value of 20) for the various TI's as provided in the Preliminary Geotechnical Investigation Report.

Table 4
Recommended Flexible Pavement Sections

Design TI	Asphalt Concrete (inches)	Class II Aggregate Base (R=78) (inches)	Full Depth AC Thickness (inches)
4.5	2.0	7.0	8.0
5.0	2.5	8.5	8.0
5.5	3.0	9.0	8.0
6.0	3.0	10.5	9.0
6.5	3.5	11.5	9.5

After placement of utility trench backfill, the final soil subgrade in paved areas should be scarified to a depth of six inches, moisture-conditioned, and compacted to at least 95 percent relative compaction to provide a smooth, non-yielding surface. Aggregate base should conform to the current State of California (Caltrans) Standard Specifications and be compacted to at least 95 percent relative compaction.

Due to the "urban" nature of the City Center portion of the development, green streets will be considered to assist the Project in complying with stormwater management regulations. One principle of green infrastructure involves reducing and treating stormwater close to its source. Green streets achieve multiple benefits, such as improved water quality through the integration of stormwater treatment techniques which use natural processes and landscaping. Green streets can incorporate a wide variety of design elements. Although the design and appearance of green streets will vary, the functional goals are the same: provide source control of stormwater, limit its transport and pollutant conveyance to the collection system, and provide environmentally enhanced roads. A typical green street detail is provided as Figure 54 for future design consideration. The system would provide multiple benefits along the street right-of-way including:

STORMWATER TECHNICAL MEMORANDUM

for

CITY PLACE SANTA CLARA
Santa Clara, CA

Prepared For:

Related Santa Clara, LLC

Prepared By:

Langan Treadwell Rollo
4030 Moorpark Avenue, Suite 210
San Jose, California 95117

01 June 2016
770611601

LANGAN TREADWELL ROLLO

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 PROJECT DESCRIPTION 1

2.1 Site Description 1
2.2 Planned Development 1

3.0 EXISTING CONDITIONS 2

3.1 Watershed Characteristics 2
3.2 Existing System 4

4.0 BASIS OF DESIGN 5

4.1 References 5
4.2 Applicable Codes and Regulations 6
4.3 Design Requirements 7

5.0 ANALYSIS 9

5.1 Methodology 9
5.2 Evaluation 10

6.0 PROPOSED SYSTEM 14

6.1 Storm Drainage System 14
6.2 Stormwater Management and Treatment 16

7.0 PHASING 17

STORMWATER PHASING MATRIX

FIGURES

1 Site Location Map
2 Overall Existing Drainage Map
3 Parcel 1 Existing Drainage Map
4 Parcel 2 Existing Drainage Map
5 Parcel 3 Existing Drainage Map
6 Parcel 4 Existing Drainage Map
7 Parcel 5 Existing Drainage Map
8 Overall Proposed Drainage Map
9 Preliminary Storm Drain Key
10 Plan - Preliminary Storm Drain

11 Plan - Preliminary Storm Drain
12 Plan - Preliminary Storm Drain
13 Plan - Preliminary Storm Drain
14 Plan - Preliminary Storm Drain
15 Plan - Preliminary Storm Drain
16 Plan - Preliminary Storm Drain
17 Plan - Preliminary Storm Drain
18 Plan - Preliminary Storm Drain
19 Plan - Preliminary Storm Drain
20 Plan - Preliminary Storm Drain
21 Plan - Preliminary Storm Drain
22 Detail - Utility Trench Penetrating Clay Cap
23 Detail - Storm Drain Gravity Pipes Through Transition Zone
24 Detail - Utility Structure Penetrating Clay Cap
25 Detail - Storm Drain Curb Inlet
26 Detail - Storm Drain Catch Basin
27 Detail - Manhole
28 Detail - Manhole – Type A
29 Detail - Methane Gas Cut-off Barrier in Utility Trench
30 Detail - Settlement Vault – Type I
31 Detail – Settlement Vault – Type II
32 Section – Typical Street/Utility Section on Settlement Slab
33 Eastside Retention Basin – Bathymetric Survey

DRAWINGS

CSD2.01 Parcel 1 Preliminary Storm Drain Plan
CSD2.02 Parcel 2 Preliminary Storm Drain Plan
CSD2.03 Parcel 3 Preliminary Storm Drain Plan
CSD2.04 Parcel 4 & 5 Preliminary Storm Drain Plan
CT2.01 Parcel 1 Preliminary Stormwater Management
CT2.02 Parcel 2 Preliminary Stormwater Management
CT2.03 Parcel 3 Preliminary Stormwater Management
CT2.04 Parcel 4 & 5 Preliminary Stormwater Management

APPENDICES

A City of Santa Clara Storm Drain System Index and Basic Information Maps
B Excerpts from Santa Clara Storm Drain Pump Station Evaluation and Eastside Retention Basin Report
C Excerpt from Santa Clara County Drainage Manual
D HMP Applicability Map City of Santa Clara
E Golf Course Pump Station Design Report
F FEMA FIRM and Anderson Dam Inundation Map
G Preliminary Calculations
H Stormwater Collection and Treatment Examples

1.0 INTRODUCTION

The purpose of this Stormwater Technical Memorandum (the "Memo") is to assist Related Santa Clara, LLC in the preliminary design of the City Place Santa Clara Development (the "Project") and to provide updated information for preliminary cost estimating. The Memo documents the existing storm drainage system, stormwater design criteria and storm drain infrastructure. It also provides stormwater management and treatment options for sustainable development and addresses the non-standard landfill design elements for the Project.

2.0 PROJECT DESCRIPTION

2.1 Site Description

The overall site (the "Site") for the Project is the former Santa Clara All Purpose Landfill and two additional sites (see Figure 1). The subject property includes five parcels: Parcel 1, Parcel 2, Parcel 3, Parcel 4 and Parcel 5 totaling approximately 240 acres. The landfill is no longer active and the Final Closure and Post-Closure Maintenance Plan was approved in December 1992 and amended multiple times, most recently in December 2013. The site boundaries include Lafayette Street, Great America Parkway, Tasman Drive, the Guadalupe River and the San Tomas Aquino Creek.

The former landfill consists of individual landfills on the four separate parcels. Parcel 4 operated between the 1930s and 1970s; landfill operations at the other parcels took place from the late 1970s through early 1990s. Open burning took place at the first landfill and, to our knowledge, waste types accepted at the landfills included industrial and construction/demolition debris. The topography indicates that soil embankments were constructed and that refuse was placed which created large mounds. On the basis of the available subsurface information, the refuse in Parcels 1 and 3 ranges from about 40 to 80 feet thick. In Parcels 2 and 4 the thickness of refuse ranges from about 20 to 50 feet.

The Site is proximate to a significant amount of existing infrastructure. The City owned and operated systems include sanitary sewer, stormwater drainage, water (domestic and fire), recycled water and landfill operation systems (gas extraction, leachate collection and monitoring) within and adjacent to the Site. Utility providers and infrastructure owners with facilities near the Site include Silicon Valley Power (SVP), Comcast, AT&T, Santa Clara Valley Water District (SCVWD), Pacific Gas & Electric (PG&E), Union Pacific Railroad (UPRR) and Valley Transportation Authority (VTA).

2.2 Planned Development

The planned development currently envisioned includes office, hotel, mixed-used retail, restaurant, entertainment, residential and parking structures with significant site improvements. The approvals for the Project include a zoning change to Planned Development –Master Community ("PD-MC") from the "B" zoning district and the ((Public, Quasi-Public and Public Park or Recreation) for Parcels 1 through 4 and from the "CP" (Commercial Park) zoning district in Parcel 5 is zoned "CP". MCP authorizes up to 9,164,400 gross square feet (gsf) with associated parking and site improvements. The current breakdown by site is as follows:

Table 1
Current Development Program

Site	Site Area (acres)	Potential Development Area (gsf)
1	49.6	1,200,000
2	60.9	2,160,000
3	34.9	720,000
4	86.6	4,259,400
5	8.0	825,000

3.0 EXISTING CONDITIONS

3.1 Watershed Characteristics

The Site is tributary to the San Tomas Aquino Creek and the Guadalupe River. A brief description of each as provided by the Santa Clara Valley Urban Runoff Pollution Protection Program (SCVURPPP) is summarized below.

The San Tomas Aquino Creek watershed covers an area of approximately 45 square miles. San Tomas Creek originates in the forested foothills of the Santa Cruz Mountains flowing in a northern direction through the cities of Campbell and Santa Clara, into the Guadalupe Slough, and finally into the Lower South San Francisco Bay. The major tributaries to San Tomas Aquino Creek include Saratoga, Wildcat, Smith and Vasona Creeks. Most of the San Tomas Aquino watershed is developed as high-density residential neighborhoods, with additional areas developed for commercial and industrial uses. The majority of the San Tomas Aquino Creek channel has been modified and lined with concrete (from the Smith Creek confluence in the upper reaches downstream to Highway 101).

The Guadalupe River watershed covers an area of approximately 171 square miles. The headwaters drain from the eastern Santa Cruz Mountains near the summit of Loma Prieta in heavily forested unincorporated county land with pockets of low-density residential developments. The Guadalupe River actually begins on the Valley floor at the confluence of Alamitos Creek and Guadalupe Creek, just downstream of Coleman Road in San Jose. From there it flows north, approximately 14 miles until it flows into the Lower South San Francisco Bay via Alviso Slough. The upper watershed is characterized by heavily forested areas with pockets of scattered residential areas. Residential density gradually increases to high density on the valley floor. Commercial development is focused along major surface streets. Industrial developments are located closer to the Bay, primarily downstream of the El Camino Real crossing. Six major reservoirs exist in the watershed: Calero Reservoir on Calero Creek, Guadalupe Reservoir on Guadalupe Creek, Almaden Reservoir on Alamitos Creek, Vasona Reservoir, Lexington Reservoir, and Lake Elsman on Los Gatos Creek.

The climate of the City of Santa Clara is characterized as dry-summer subtropical (often referred to as Mediterranean), with cool wet winters and relatively warmer dry summers. The mean annual precipitation in the vicinity of Santa Clara is approximately 15 inches (95 percent of which falls between October and April) per the 2007 Santa Clara County Drainage Manual (SCCDM). This value is typical of Santa Clara County east of the coastal range. It is important to note that the Site can be subject to a wide range of annual precipitation.

Due to the nature of the existing topography and drainage infrastructure, the five parcels along with the tributary off-site areas have been divided into four distinct sub-watersheds referenced herein and shown on Figure 2 as the San Tomas, East Basin, Eastside Channel and Basin Direct. Note that

the East Basin, Eastside Channel and Basin Direct are tributary to the Guadalupe River via the Eastside Retention Basin and Pump Station.

- San Tomas – The San Tomas sub-watershed includes the areas from Parcel 4 that drain directly to the San Tomas Aquino Creek via existing outfalls. The Golf Course Pump Station conveys runoff to the Creek from areas of Parcel 4, Parcel 5 and sections of Stars and Stripes Drive, Centennial Boulevard, Tasman Drive and the existing City parking garage.

- East Basin – The East Basin sub-watershed includes areas from Parcels 1, 2, 3 and 4 along with the off-site areas that drain through the west ditch/channel to the Eastside Retention Basin.

- Eastside Channel – The East Side Channel sub-watershed includes areas from Parcels 1 and 2 and the off-site areas that drain to the Eastside Retention Basin via the existing Eastside Drainage Channel.

- Basin Direct – The Basin Direct sub-watershed includes areas that surface flow directly to the Eastside Retention Basin.

Within these sub-watersheds the drainage characteristics for each of the Parcels are as follows:

- Parcel 1 – The 49.6 acre Parcel 1 includes open space, a BMX facility, a landfill gas recovery facility, access roads, the Eastside Retention Basin, and City operated pump stations for sanitary sewer and stormwater. The existing surface cover consists of shrub land, gravel, pavement and open water. The surface water hydrology includes overland flow and piped conveyance with surface runoff tributary to the Eastside Retention Basin and Guadalupe River. The drainage areas and patterns are shown on Figure 3.

- Parcel 2 – The 60.9 acre Parcel 2 includes golf course open space, golf cart paths and access roads. The existing surface cover consists of golf course features (grass, sand traps, paved golf cart paths), shrub land, gravel and pavement. The surface water hydrology includes overland flow and piped conveyance systems with surface runoff tributary to the Eastside Retention Basin and Guadalupe River. The drainage areas and patterns are shown on Figure 4.

- Parcel 3 – The 34.9 acre Parcel 3 includes golf course open space, golf cart paths and access roads. Additional fill was placed over the landfill cover creating an elevated ridge within the center of the site. The existing surface cover consists of golf course features (grass, sand traps, paved golf cart paths), shrub land, gravel and pavement. The surface water hydrology includes overland flow and piped conveyance systems with surface runoff tributary to the Eastside Retention Basin/Guadalupe River. There is an open depressed area along the toe of the southern slope of the landfill on Site 3 that collects surface water runoff from both Parcel 3 and Parcel 4. This area is utilized as a utility corridor for the City's recycled water and sanitary sewer systems. The drainage areas and patterns are shown on Figure 5.

- Parcel 4 – The 86.6 acre Parcel 4 includes golf course open space, golf cart paths, the golf course driving range, several buildings, access roads, parking lots and a maintenance area. The existing surface cover consists of golf course features (grass, sand traps, paved golf cart paths), shrub land, open water ponds, gravel, paved areas and building structures. The northern portion of the site drains to the open depressed area along the toe of the southern slope of the

landfill on Parcel 3 and the piped conveyance system within the adjacent property to the north, the eastern portion of the site drains to a ditch along the adjacent railroad right-of-way (located adjacent to Lafayette Street), the western portion of the site drains directly to the San Tomas Creek gravity outfalls and the southern portion of the site drains to the piped conveyance system in Stars and Stripes Drive. This storm drain system is tributary to the Golf Course Club House Pump Station. In addition, there is a lined open water pond located within Parcel 4. The drainage areas and patterns are shown on Figure 6.

- Parcel 5 – The 8.0 acre Parcel 5 includes parking lots and some open space areas. The existing surface cover consists of pavement and vegetated landscape. The site drains to on-site catch basins that are connected to the existing storm drainage system in Stars and Stripes Drive. This storm drain system is tributary to the Golf Course Club House Pump Station. The drainage areas and patterns for Parcel 5 are provided in Table 1 and on Figure 7.

3.2 Existing Drainage System

The existing City owned and operated drainage system includes pump stations, retention basins, open drainage channels, underground conveyance piping and appurtenant drainage structures. The on-site drainage system is made up of an intricate corrugated poly-pipe network and inlet structures. The off-site drainage systems that convey the stormwater runoff from the Project to the discharge locations are shown on the City's Storm Drain System Maps included herein as Appendix A.

Parcel 1, 2, 3 and about 45% of Parcel 4 are tributary to the Guadalupe River. The stormwater runoff from these parcels is collected in the Eastside Retention Basin, which has a surface area of approximately 5.3 acres and had a 1972 design storage capacity (retention volume) of 30 acre/feet, and discharged to the Guadalupe River via the Eastside Pump Station. The basin also collects runoff from off-site areas to the south and west of the Site. The Basin and Pump Station are operated and maintained by the City. The remainder of Parcel 4 and Parcel 5 are tributary to the San Tomas Aquino Creek. The surface water runoff is discharged to the Creek via two existing gravity outfalls (12 inch diameter) and the Golf Course Club House Storm Drain Pump Station and outfall (30 inch diameter).

The Eastside Pump Station was originally constructed in 1973, was last upgraded in 2005 and has a design capacity of 50,000 gpm. There is approximately 524 acres of the City tributary to this pump station, which includes about 180 acres (34% of watershed) from the Project. The City prepared a Hydrologic Investigation for the Eastside Pump Station Report in 2000. This Report concluded that the existing pumps had sufficient capacity to prevent the 100-year runoff from ponding in Lafayette. However, future pump upgrades were identified as a possibility under worst case scenario conditions.

The Eastside Drainage Channel was constructed in 1971. The City prepared an Initial Study in 2010 for the Eastside Retention Basin Drainage Swale Vegetation Clearing Project. The project proposed to clear vegetation within the drainage channel, desilt the Eastside Retention Basin, which had not been done since the late 1980's, and establish a recurring maintenance program for these drainage facilities. Reportedly, the construction project was not initiated.

The Golf Course Pump Station was originally constructed in 1987 and has a design capacity of 11,100 gpm. There is approximately 65.8 acres tributary to this pump station including about 43.6

acres from Parcel 4 (66% of area), all 8.0 acres of Parcel 5 and 14.2 acres from the public right-of-way including Stars and Stripes Drive, Tasman Drive and the City parking garage. The system utilizes the depressed area on Parcel 4 within the golf course driving range for detention and includes submersible pumps and an outfall to the San Tomas Aquino Creek.

4.0 BASIS OF DESIGN

4.1 References

The following reports and standards are supplemental to the design requirements and were used in preliminary design. These documents should be used in the final design of the Project's storm drainage and stormwater management systems for temporary (during construction) and permanent conditions.

- Santa Clara Valley Urban Runoff Pollution Prevention Program Watersheds.
- Santa Clara Valley Water District Permit Application Requirements
- "Golf Course Pump Station – Pump Station Design Report" by City of Santa Clara / GHD, 2012.
- "Santa Clara Storm Drain Pump Station Evaluation" for City of Santa Clara by Schaaf & Wheeler, November 2010. (Appendix B)
- "Findings of Hydrologic Investigation for Eastside Pump Station" for City of Santa Clara by Schaaf & Wheeler, November 2000. (Appendix B)
- San Francisco Bay Board adopted Municipal Regional Stormwater NPDES Permit Order R2-2009-0074 NPDES Permit No. CAS612008 (Adopted 10-14-2009 and amended by Order No. R2-2011-0083 on 11-28-2011).
- C.3 Stormwater Handbook, Santa Clara Valley Urban Runoff Pollution Prevention Program, April 2012.
- Santa Clara County Drainage Manual, 2007.
- "Design Criteria for Improvements in Public Right-of-Ways and City Easements" City of Santa Clara, Public Works Department, September 17, 2014.
- "Standard Specifications for Public Works" City of Santa Clara, Public Works Department, latest edition.
- "Standard Details" City of Santa Clara, Public Works Department, latest edition.
- Sheets D94, D103, D104, D105, D113, D114, City of Santa Clara Storm Drain System Maps, City of Santa Clara, August 2014.

4.2 Applicable Codes and Regulations

The development is subject to federal, state, county and local municipality regulations. The regulations provide requirements for stormwater system design, stormwater quality and base flood elevation. The amended Clean Water Act of 1987 required stormwater discharges to be in compliance with a National Pollution Discharge Elimination System (NPDES) Permit. In California this permit is issued through the State Water Resources Control Board (SWRCB) which is made up of nine (9) Regional Water Quality Control Boards (RWQCB). The San Francisco Bay Board adopted Municipal Regional Stormwater NPDES Permit Order R2-2009-0074 NPDES Permit No. CAS612008 (Adopted 10-14-2009 and amended by Order No. R2-2011-0083 on 11-28-2011), aka the Bay Area Municipal Regional Stormwater Permit (MRP).

In Santa Clara County, the cities of Campbell, Cupertino, Los Altos, Milpitas, Monte Sereno, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, and Sunnyvale, the towns of Los Altos Hills and Los Gatos, the Santa Clara Valley Water District, and the County of Santa Clara (Co-permittees) have joined together to form the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). These entities share a common permit to discharge stormwater to South San Francisco Bay with a mission to assist in the protection of beneficial uses of receiving waters by preventing pollutants generated from activities in urban service areas from entering runoff to the maximum extent practicable.

The Program's Permit Provision C.3 contains requirements for controlling the potential impacts of land development on stormwater quality and flow. In 2006, the C.3 requirements became effective for projects that create or replace 10,000 square feet or more of impervious surface. To meet the C.3 requirements, projects must include appropriate site design measures, pollutant source controls and treatment control measures. Projects that produce increases in runoff peak flows, volumes and durations that may cause erosion in downstream receiving water must also include hydromodification control measures. The SRVURPPP prepared a C.3 Stormwater Handbook dated April 2012 to assist projects in designing appropriate post-construction stormwater controls to meet local jurisdictional requirements and the requirements of the MRP.

The Santa Clara Valley Water District (SCVWD) has jurisdiction over the San Tomas Aquino Creek and Guadalupe River, their existing levees and the conveyance of stormwater to these waterways. Since the existing levees adjacent to the Site are certified by FEMA, any impacts to or proposed modifications of the levee will require SCVWD review and approval, and may require a submission to FEMA for levee re-certification. Furthermore, the SCVWD requires that no increase to the 100-year peak flood elevation within these waterways is permissible without levee certification.

The Project will disturb one or more acres of soil and is required to obtain coverage under the General Permit for Discharges of Stormwater Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ). Construction activity subject to this permit includes clearing, grading and disturbances to the ground (e.g., stockpiling or excavation). The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP will contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography (both before and after construction) and drainage patterns across the project. The SWPPP will list BMPs that will be used to protect stormwater runoff and the placement of those BMPs. In addition, the SWPPP will contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the Site discharges directly to a water body listed in the Clean Water Act Section 303(d) list for specific water bodies in California.

4.3 Design Requirements

The final design for the stormwater management and storm drainage system will meet the following criteria. Note that there are numerous non-standard design elements to address the landfill aspects of the project including settlement vaults, flexible connections, settlement slabs and utility corridors in refuse.

- The storm drain pipe system shall be designed to convey the 10-year. event flow. The storm drain pipe system near storm drain pump stations, as determined by the Director of Public Works/City Engineer, shall be designed to convey the 100-year event flow.
- When a proposed development increases the storm discharge such that it will surcharge the existing storm drain system and/or breach the discharge capacity limit of the existing pump station, the developer shall upgrade/supplement the existing storm drain system and/or existing pump station to accommodate the proposed development.
- For runoff calculations, use the Rational Method of Design (Q = CIA).
- Use County of Santa Clara Standard Form DM-2 (see Exhibit "G") found in the Santa Clara County Drainage Manual 2007 for tabulating design calculation and pipe size selection. Submit completed form DM-2 and tributary area drainage map with improvement plans. Hydrology software providing similar inputs and outputs may be used, if accepted by the Director of Public Works/City Engineer.
- Pipe slope shall generally be parallel with the ground gradient of the drainage basin.
- Roughness coefficient (n) for Reinforced Concrete Pipe shall be 0.013.
- A drop in hydraulic grade line (HGL) shall be provided for head losses due to transitions such as bends, pipe size changes, grade changes, and at drainage structures (e.g., manholes).
- Curved storm drain conduit shall not be used except when written permission is obtained from the Director of Public Works/City Engineer.
- Full flow velocity shall not be less than 2 fps.
- Maximum flow velocity shall be 10 fps.
- Minimum size of conduit shall be 12-inch inside diameter.
- Storm conduit generally shall be located 5 feet from the street centerline on the side opposite the sanitary sewer.
- Pipe material shall be reinforced concrete pipe with minimum strength of Class III (1350- D). Pipe shall be Class V in areas of high electrolysis (e.g., north of Highway 101). *Note that the Project will likely propose the use HDPE pipe over landfill areas within the Parcels and may request use of HDPE pipe within designated City right-of-way over landfill areas.*
- Minimum cover over pipe shall be 2 feet to street subgrade for mains, and 2 feet to lip of gutter for catch basin laterals.
- In general, storm drain main lines should be designed such that all other parallel facilities have at least an eight-foot clear distance separation. Pipelines that have large diameters or are deeper/shallower in elevation may require greater separation from other facilities as determined by the Director of Public Works/City Engineer.
- Drainage structures (e.g., manholes) shall be located at the following points:
    - Changes in direction, slope and size;
    - Intersections of mains and laterals (unless a concrete lug connection is permitted by the Director of Public Works/City Engineer as shown in the City Standard Details);
    - Changes in pipe material; and
    - A nominal spacing of 450 feet with a maximum spacing of 500 feet.
    - The Standard Manhole (as shown in the City Standard Details) is applicable in most cases where a drainage structure is required. However, the drainage structure shall be individually designed for any of the following conditions:
        - Through mains larger than 39 inch with less than a 5 degree change in alignment;
        - 27 inch or larger through mains with a 5 degree or larger change in alignment;
        - Side mains larger than 24 inch; and
        - Other special conditions as identified by the Director of Public Works/City Engineer.

- Street pickup points shall not exceed 1,000-foot intervals. Use City standard curb inlet catch basins; or Type "A" catch basins, with approval of the Director of Public Works/City Engineer.
- Maximum depth of City standard catch basins shall be eight feet. Deeper inlet structures require individual designs and approval by the Director of Public Works/City Engineer.
- Backflow protection devices shall be provided whenever the pipe system discharges into a flood control channel in which the 100-year event water surface elevation is higher than the lowest natural ground elevation of the drainage basin. Whenever this occurs, an overflow release protection system, such as culvert, channel, or drainage swale, shall be provided for the ultimate delivery of water to a flood control facility.
- A backflow preventive device shall be provided for on-site storm drain laterals when an on-site elevation of a pick-up point is more than 6 inches below the lowest top of curb on the fronting street(s). The backflow device shall be located in a private structure outside the street right-of-way and maintained by the property owner.
- Private property connections to the City storm system shall be first authorized by proper permits and then connected to the City's storm drain system either directly at an existing or new manhole or to the back of an existing catch basin or, if no storm drain exists, by means of curb face drainage, if permitted by the Director of Public Works/City Engineer.
- Force main delivery from on-site pump systems shall not flow directly through curb face, or into City storm drain system.
- Cross connections between the sanitary sewer system and the storm drainage system are prohibited.
- Storm drain lines shall be constructed by new development or redevelopment up to the property and include capacity for the upstream watershed area.
- Storm drain lines shall be constructed downstream to a point of adequate discharge.
- Pipe stubs with plugs shall be provided at points of known future extensions.
- Outfalls and work within the Santa Clara Valley Water District (SCVWD) right-of-way are subject to approval and issuance of permits by the SCVWD.
- Maximum water surface elevation in the Eastside Retention Basin shall be el. 5.0 NAVD88 as determined in the final Stormwater Management Report for the Project.
- Bridge crossings over the San Tomas Aquino Creek must maintain a freeboard over the 100-year flood elevation as recently advised during a preliminary application meeting with SCVWD. This freeboard clearance will be discussed further with SCVWD as part of the Encroachment Permit application review and approval process.
- Hydraulic grade analysis for design of new outfall and pipeline shall take into consideration the 10-year and 100-year storm event water surface elevations of the receiving river or creek.
- SCVWD requires that there be no increase in the 100-year flood elevation within the San Tomas Aquino Creek or Guadalupe River resulting from the Project.

5.0 ANALYSIS

5.1 Methodology

The Rational Method, as prescribed in the Santa Clara County Drainage Manual, was used to estimate the preliminary peak discharges for the combined on-site and off-site areas tributary to the San Tomas Aquino Creek and Guadalupe River for the 10-year and 100-year events. In a highly urbanized area with relatively small watersheds with largely impervious areas this method has a long history of usefulness for peak flow estimation and stormwater runoff conveyance design. The

Rational Method is generally considered acceptable to determine peak design discharges for small urban catchments for tributary areas less than or equal to 200 acres. The Rational Method is defined as Q=CiA, where:

- Q = peak flow rate (cfs)
- C = weighted runoff coefficient
- i = design rainfall intensity (inches per hour) for a specific time of concentration (Tc)
- A = drainage area (acres)

The Unit Hydrograph Method, as prescribed in the Santa Clara County Drainage Manual, was used to estimate peak discharges for the combined on-site and off-site areas tributary to the Eastside Retention Basin, Pump Station and Guadalupe River.

Utilizing the Autodesk Hydraflow Storm Sewers computer application, the sections of the existing City storm drain pipe network and the proposed on-site storm drain pipe networks were modeled. The computer application Hydrologic Modeling System (HEC HMS) was utilized to model the entire 524 acre watershed tributary to the Eastside Retention Basin and estimate a peak runoff rate for the 100-year storm event. The rainfall data and other pertinent hydrologic information are included as Appendix C. The existing and proposed tributary areas are shown on Figures 2 through 8.

The computer application HEC-RAS – Hydrologic Engineering Centers River Analysis System was used to evaluate the water surface impacts to the existing San Tomas Aquino Creek, Guadalupe River and Eastside Drainage Channel. The existing HEC-RAS model for the San Tomas Aquino Creek and Guadalupe River was provided by the SCVWD.

The hydrologic characteristics of the existing and proposed sub-watershed areas were estimated using the watershed criteria defined in the Santa Clara County Drainage Manual, provided in past report and based on visual observation. The following Table 2 indicates the runoff coefficients (C) for the Rational Method and Curve Numbers (CN) Antecedent Moisture Condition II-1/2 (AMC II-1/2) for the Unit Hydrograph Method used in the preliminary analysis. The final runoff coefficients will be determined as part of the final Hydrologic and Hydraulic Study and Stormwater Management Report for the Project).

Table 2
Runoff Coefficients

Land-Use	C (Rational Method)	CN (AMC II-1/2) (Unit Hydrograph)
Residential (low-density)	0.45	92
Commercial	0.80	96
Golf Course/Landfill	0.75	86
Pavement	0.85	98
Urban Open Space	0.45	91

5.2 Evaluation

The points-of-discharge for the four sub-watersheds were modeled (using the Rational Method) and evaluated during the 10-year and 100-year storm events, and the peak flows were estimated for the existing (pre-development) and proposed (post-development) conditions assuming no on-site stormwater attenuation. The following Table 3 and Table 4 present the preliminary results.

Table 3
Area Summary

Parcel	Size (Acres)	Existing Impervious / Pervious		Proposed Impervious / Pervious	
		Acres	% of Site	Acres	% of Site
1	49.6	6.6 / 43.0	13.3% / 86.7%	17.7 / 31.9	35.7% / 64.3%
2	60.9	2.5 / 58.4	4.1% / 95.9%	31.5 / 29.4	51.7% / 48.3%
3	34.9	1.0 / 33.9	2.7% / 97.3%	13.6 / 21.3	39.0% / 61.0%
4	86.6	9.7 / 76.9	11.2% / 88.8%	54.6 / 32.0	63.0% / 37.0%
5	8.0	5.5 / 2.5	68.7% / 31.3%	6.0 / 2.0	75.0% / 25.0%
Totals	240.0	25.3 / 214.7	10.5% / 89.5%	123.4 / 116.6	51.4% / 48.6%

Table 4
Peak Flow Summary (by Sub-Watershed)

Sub - Watershed	10-year Peak Flow		100-year Peak Flow	
	Existing (cfs)	Proposed (cfs)	Existing (cfs)	Proposed (cfs)
San Tomas	78.3	54.2	124.2	88.5
East Basin	168.5	117.7	288.8	173.7
Eastside Channel	68.0	82.8	117.5	143.1
Basin Direct	9.7	11.9	13.1	16.1

The proposed peak flow estimates do not take into account any on-site stormwater management or treatment. The flows are only provided for comparison between the existing and proposed conditions based on the current preliminary level of design. The goal for the final stormwater management design will be to maintain the reduction in proposed peak flows to existing peak

flows, or lower, through the incorporation of sustainable stormwater measures as further discussed herein Section 6.0.

The Project is exempt from the SCVURPPP Permit Provision C.3.f.i (Hydromodification Control Requirements) since the Site is beyond the hydromodification zone limits. All points-of-discharge drain to sections of the Guadalupe River and San Tomas Aquino Creek identified with hardened channels or in tidal areas. The HMP Applicability Map for the City of Santa Clara is provided as Appendix D. As such, there are no restrictions on the timing, peak discharge and volume of runoff from the Site resulting from the development of the Project. However, the SCVWD requires that the 100-year flood water surface elevation within their jurisdictional waterways cannot be increased unless FEMA approval is obtained.

The preliminary evaluation included assessing the hydraulic impacts of the Project on the downstream "receiving waterways" including the Golf Course Storm Drain Pump Station, San Tomas Aquino Creek, Eastside Drainage Channel, Eastside Retention Basin, Eastside Storm Drain Pump Station, existing storm drains serving Parcel 3 and the Guadalupe River. The model also included additional upstream information included in the previous studies prepared for the City. The preliminary analysis indicated that there is sufficient capacity within these off-site waterways to convey the peak stormwater runoff for the Project. Minor improvements to accommodate the Project may be required depending on the final design of the stormwater management systems.

The following summarizes the results of the preliminary hydrologic and hydraulic evaluation at each point-of-discharge. The preliminary calculations are provided in Appendix G.

1. San Tomas Aquino Direct – The existing 100-year peak flow in the San Tomas Aquino Creek is approximately 7,100 cfs within the reach adjacent to Parcel 4. The corresponding 100-year peak water surface elevation is el. 19.39 at the Great American Parkway Crossing and el. 21.16 at Tasman Drive. Based on the preliminary estimates, the peak flow from the 100-year storm event to the San Tomas Aquino Creek will be reduced. The SCVWD will need to review the final development design and calculations as part of the required Encroachment Permit and verify that the 100-year water surface elevation within the Creek will not be impacted.

2. Golf Course Pump Station – The reported capacity of the existing Golf Course Pump Station is 11,100 gpm (24.7 cfs). The 2012 Design Report by the City indicated that the current pump station had the capacity to convey the 100-year peak flow, with minor ponding in Stars and Stripes Drive. The hydraulic model developed assumed the utilization of the Parcel 4 golf course driving range for detention. The report also identified a series of pump station improvements as the facility has surpassed its 25 year maintenance/replacement interval. The City report is included as Appendix E and the proposed improvements are on Page 4. Plans and specifications were previously prepared for the proposed improvements.

   Preliminarily, the Golf Course Pump Station can be abandoned and the existing outfall abandoned or re-used. The development within Parcel 5 and beneath Stars and Stripes Drive and Centennial Boulevard will raise grades such that the pumping of the stormwater runoff may not be necessary. The eastern end of Stars and Stripes Drive will drain to the south to the existing storm drain system south of the overhead Tasman Drive structure and the runoff from Tasman Drive and the existing City parking garage will be accommodated via the new Parcel 5 storm drainage system within the below grade parking structure.

Some portions of Tasman Drive (south side) may need to be routed to the existing Stars and Stripes Drive drainage system south of Tasman Drive.

3. Eastside Drainage Channel – The Eastside Drainage Channel is an existing trapezoidal-shaped ditch located between Parcel 1 and 2 and the earthen levee for the Guadalupe River. It extends approximately 3,780 ft from Tasman Drive to the Eastside Retention Basin terminating at a 64 inch by 43 inch arch culvert under an existing basin access roadway. The City prepared an Initial Study in 2010 to clear vegetation from the drainage channel to restore its conveyance capacity. Reportedly, the construction project was not initiated.

   The Project will connect to the existing channel via a series of new outfalls from Parcel 1 and 2. The design conveyance capacity within the drainage channel is approximately 250 cfs (assuming a 5 ft flow depth) and the capacity of the culvert (inlet controlled) is approximately 210 cfs without overtopping the roadway. We visually assessed the conditions within the channel, and have reduced its available conveyance capacity to approximately 65 cfs (75% reduction) as there is significant vegetation and silt within the entire length of the channel. The channel should be cleared of vegetation in order to safely convey the peak flows from 100-year storm event for existing and proposed conditions. These flows are estimated to be 177.2 cfs and 204.0 cfs, respectively, and can be safely conveyed by the existing channel once cleared.

4. Eastside Retention Basin and Pump Station – The Eastside Retention Basin and Pump Station has a reported pumping capacity of 50,000 gpm (111.4 cfs) and had a reported 1972 design storage capacity (retention volume) of 30 acre-feet. The Hydrologic Evaluation for the Eastside Pump Station Report prepared in 2000 indicated that Basin retention volume was originally 37 acre-feet and was expanded to 45 acre-feet in 1978. The volume was further estimated to be 54 acre-feet up to el. 6.7 NAVD88 by overtopping of the embankment and utilizing the broad, flat area bound by Route 237. This Report concluded that the existing pumps had sufficient capacity to prevent the 100-year local runoff from ponding in Lafayette Street, which would occur at el. 7.7 NAVD88, assuming a Guadalupe River tailwater elevation of el. 20.7 NAVD88. The Eastside Retention Basin storage capacity was slightly reduced in 1992 when Highway 237 was widened. Some of the pumping equipment was reportedly replaced in 2005, and the City's 2010 evaluation indicated that some of the equipment should be considered for replacement in 2023. The City prepared an Initial Study in 2010 to desilt the East Drainage Basin to restore its 45 acre-feet storage capacity within the Basin itself.

   We performed a bathymetric survey of the Basin (see Figure 33) and estimated the available storage capacity, up to el. 5.7 NAVD88, to be 51.6 acre-feet. The 524 acre watershed tributary to the Basin was modeled in HEC-HMS utilizing the information provided in previous evaluations and the Santa Clara County Drainage Manual. Since the evaluation performed in 2000, the SCVWD has estimated the 100-year water surface elevation in the Guadalupe River at Route 237 to be el. 19.0 NAVD88. Utilizing additional stage-storage and pump on-off information from the 2000 Hydrologic Evaluation the basin was modeled assuming a static water level of el. -0.3 NAVD88, which is the lowest elevation that a pump is set to turn on. The preliminary results indicate there is sufficient storage and pumping capacity within the current system (assuming existing conditions) to safely convey the post-development peak runoff from the 100-year storm. The peak elevation in the

Basin is el. 5.14 NAVD88 for existing conditions and el. 5.25 NAVD88 for proposed conditions (based on current concept design).

There is also a west ditch that conveys stormwater to the Basin from existing storm drains in Lafayette Street and Great America Way. Depending on the final configuration of the on-site stormwater management and drainage system for Parcel 3, improvements to the ditch and some of the City storm drain system through the existing commercial property to the north may be required. However, other options for Parcel 3 drainage including the use of the drainage channel between Parcel 3 and 4 and of the existing City storm drain system within the existing commercial property to the west will be evaluated.

6.0 PROPOSED SYSTEM

6.1 Storm Drainage System

The storm drainage system for the Project will be an underground gravity network of pipes, catch basin, manholes, water quality treatment measures and other appurtenances. The building drainage will be via internal systems piped directly to the storm drains. For final design, the public underground piped storm drain conveyance system will be capable of conveying the 10-year peak runoff as well as safely convey the 100-year event peak flows from the Site via a combination of the piped system and surface conveyance. Public streets shall be designed such that the 100-yearevent flow remains within the roadway limits and not extend into private property.

The stormwater runoff from Parcel 4 and Parcel 5 will discharge to the San Tomas Aquino Creek via three new stormwater outfalls. The invert of the outfalls will be set above the bottom of the Creek at a final elevation to be coordinated with the SCVWD to ensure the location is above sediment levels within the Creek. As indicated, the Golf Course Pump Station will likely be abandoned and removed.

The stormwater runoff from Parcels 1, 2 and 3 will discharge to the Eastside Retention Basin and be pumped to the Guadalupe River via the existing Eastside Pump Station. From Parcels 1 and 2 there will be multiple new outfalls from the Site to the existing Eastside Drainage Channel. From Parcel 3, the existing drainage infrastructure located north of the Parcel and west of the railroad will be utilized. The preliminary evaluation identified that a portion of the existing off-site system may need to be upsized to accommodate Parcel 3. However, these upgrades may not be required if enough of the stormwater on Parcel 3 is collected and re-used or routed to the existing drainage area between Parcel 3 and 4. The preliminary storm drain design is provided on Figures 9 through 21 and Drawings CSD-2.01 through CSD-2.04.

As previously stated, the goal for the final stormwater management design will be to reduce the proposed peak flows to existing peak flow levels through the incorporation of sustainable stormwater measures. During final design, the extent of the stormwater management measures (such as LID stormwater treatment, harvesting and re-use) within the Project will be determined, and the potential off-site improvements will need to be further studied.

The non-standard design elements that are incorporated into the preliminary design of the storm drain system to address the landfill issues for the Project include interstitial spaces, structural slabs, settlement vaults/flexible connections, special utility trenching for landfill cap disruption and refuse handling and considerations for methane gas. Typical utility/roadway corridor sections

have been prepared for several variations of roadways, streetscape amenities and the multiple utilities that will be located within each street (sewer, storm drain, domestic/fire water, recycled water, gas, joint trench, automated waste collection, landfill gas extraction system). The following briefly discusses some of the non-standard elements that will be incorporated into the final design of the system and preliminary details are provided as Figures 22 through 32.

- Interstitial Spaces – Beneath the buildings within the City Center portion of the Project and other select office buildings there will be an interstitial space. The current design assumes a 4-ft to 5-ft high interstitial space, which will allow the storm drain lateral, as well as other building utilities, to be accessible from within the building first floor space without disrupting the landfill systems. The storm drains will need to be supported within the interstitial space and transition to the laterals at the perimeter of the buildings.

- Settlement Vaults/Flexible Connections – At locations where differential settlement is expected settlement vaults and/or flexible connections will be included in the design. Specific for storm drains, these vaults, which will be direct buried concrete structures, will either enclose a flexible connection (such as a Flex-Tend device) or be located adjacent to a building structure to allow for a piped configuration within the vault to settle. There are two conditions that will be addressed; 1) transition from structure to direct bury support over refuse, and 2) transition from direct bury to direct bury over refuse. The locations of the settlement vaults based on the preliminary storm drainage design are included on the plans.

- Structural Slabs – Within City Center the majority of the storm drain system will be constructed on a structural slab supported on deep foundations. The approximate limits of the structural slabs within the City Center portion of the Project are provided on the Drawings. The structural slabs will support the roadways between the proposed City Center buildings and have been designed to minimize disruption to the landfill cap and refuse. The storm drains are currently designed as a gravity system, which has a direct impact on the depth of the structural slab relative to street grade. The Storm Drain Plans identify the areas where the deeper slabs, as set by the gravity storm drain (and sewer), may impact the landfill cover and refuse. The slabs should extend to the limits of the refuse to allow for a smooth transition within the settlement vaults.

- Utility Trenching for Landfill Cap Disruption – As the gravity storm drain (and sanitary sewer) systems get deeper, there are instances where, based on our current information, the landfill cap will be disrupted by the utility trench and refuse will need to be removed. The Storm Drain Plans preliminarily identify these areas and details showing the preliminary trenching are provided.

6.2 Stormwater Management and Treatment

As required by the Bay Area Municipal Regional Stormwater Permit (MRP), post-construction stormwater controls will be required for the Project. A combination of site design measures, source control measures and stormwater treatment will be designed and implemented. The site design

and source control measures will be addressed as part of the planning and operation of the development. The stormwater treatment measures are engineered systems designed to remove pollutants from stormwater using filtration, infiltration and sedimentation. Since infiltration is not feasible due to the landfill, the stormwater treatment measures will need to rely on measures designed and built into the structure of the development.

For hydraulic sizing purposes, the measures are either volume-based, flow-based or combination volume/flow based. Typically, volume-based design includes the computation of a water quality design volume, while a flow-based design uses rainfall intensity (0.2 inches per hours). In either case, the measures include an overflow to safely convey the more intense less frequent rainfall events. The following stormwater treatment measures will be considered and carefully selected as part of the final design process for the different sections of the proposed development:

- Bioretention Areas (impermeable liner with underdrain – no infiltration into landfill)
- Flow-through Planters
- Tree Well and Media Filters
- Infiltration Trenches (impermeable liner with underdrain – no infiltration into landfill
- Rainwater Harvesting and Reuse
- Green Roofs
- Green Streets (with bioretention, impermeable liner and underdrain)
- Pervious Pavements (impermeable liner with underdrain – no infiltration into landfill)

A minimum of 4% of the site area will need to be used for the stormwater treatment measures. As part of final design, these treatment measures for the Site will be incorporated into the aesthetics of the landscape. Some attenuation of the peak flows can be recognized depending on the measures selected.

The stormwater management and treatment features for each parcel will be modeled during final design including buildings, parking garages, site, landscape, etc. Dynamic modeling, such as the EPA Storm Water Management Model (SWMM), will be used. SWMM tracks the quantity and quality of runoff generated within each subcatchment, and the flow rate, flow depth, and quality of water in each pipe and channel during a simulation period comprised of multiple time steps. The results of the modeling will be used to compare the proposed "permanent" stormwater peak flows and volumes for the Project with the existing peak flows and show compliance with the jurisdictional regulations. The preliminary design for the on-site stormwater management is provided on Drawings CT2.01 through CT2.04.

A Stormwater Management Report inclusive of detailed hydrologic and hydraulics calculations, analysis and conclusions will be prepared to document the final design of the stormwater management and storm drain system and to obtain the requisite approvals.

7.0 PHASING

The current Project planning includes a phasing strategy for the full development of the five parcels in eight phases. Parcels 4 and 5, the location of City Center, would be developed in the first four phases. Parcel 3 would be developed in phase 5, Parcel 1 in phase 6 and Parcel 2 in the phases 7 and 8. Based on this current phasing the following Stormwater Phasing Matrix provides details and quantities for the various components of the stormwater management system for the Project. The matrix has also captured the potential off-site storm drain related improvements that may be

required depending on the on-site stormwater management implemented into the Project. The matrix can be adjusted as the design is developed and phasing is modified such that costs can be properly allocated.

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STORMWATER PHASING MATRIX								
Phase / Parcel	**Gross Sq. Footage**	**Storm Pipe (LF)**	**Manholes (#)**	**Catch Basins (#)**	**Laterals (LF)**	**Settlement Vaults (#)**	**Refuse Trenching (CY) Note 2**	**Off-Site Improvements**
1 / 5	825,000	526 - 12" 856 - 18" 286 - 24" 176 - 30" 300 - 36" 1,231 - 42"	14	28	-	-	-	Abandon Golf Course Pump Station Outfall to San Tomas Creek - sized for future phases
2 / 4	2,411,470	256 - 15" 2,587 - 18" 1,808 - 24" 796 - 30" 1,922 - 36" 217 - 42" 418 - 48" 476 - 54"	40	80	244 - 15" 684 - 18"	6	4,000	Outfalls to San Tomas Aquino Creek (3) sized for future phases
3 / 4	752,300	-	2	4	372 - 18"	11	-	-
4 / 4	1,095,900	622 - 18"	3	6	-	7	-	-
5 / 3	750,000	989 - 18" 1,147 - 24" 398 - 36"	15	30	98 - 18"	5	-	Possible off-site Storm drain upgrades – 870 LF of 42 inch RCP Including 5 new manholes and Eastside Drainage Channel , Retention Basin and Pump Station – See Note 1
6 / 1	1,200,000	1,809 - 18" 374 - 24" 1,408 --36"	18	36	-	8	9,000	Eastside Drainage Channel , Retention Basin and Pump Station – See Note 1
7 / 2	1,080,000	1,,436 - 18" 1,108 - 24" 1,033 - 36" 276 - 42"	13	26	-	6	2,500	Eastside Drainage Channel , Retention Basin and Pump Station – See Note 1
8 \ 2	1,080,000	1,732 - 18" 493 - 36"	8	16	-	6	4,500	Eastside Drainage Channel , Retention Basin and Pump Station – See Note 1

Notes:
1. The clearing of the Eastside Drainage Channel and Eastside Pump Station upgrades (approximate cost of $1,260,000 in 2010) and Basin improvements (approximate cost of $250,000) may be required by the City (possibly in Phases 5, 6, 7 or 8).
2. Refuse Trenching for structural slab include average width of 20-ft and depth of 5-ft.

LANGAN TREADWELL ROLLO

WATER TECHNICAL MEMORANDUM

for

CITY PLACE SANTA CLARA
Santa Clara, CA

Prepared For:

Related Santa Clara, LLC

Prepared By:

Langan Treadwell Rollo
4030 Moorpark Avenue, Suite 210
San Jose, California 95117

01 June 2016
770611601

LANGAN TREADWELL ROLLO

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 PROJECT DESCRIPTION 1

- **2.1 Site Description** 1
- **2.2 Planned Development** 1

3.0 EXISTING CONDITIONS 2

- **3.1 Existing Water Usage** 2
- **3.2 Existing Water Supply** 2
- **3.3 Existing Domestic Water System** 2
- **3.4 Existing Recycled Water Distribution** 3

4.0 BASIS OF DESIGN 3

- **4.1 References** 3
- **4.2 Applicable Codes and Regulations** 4
- **4.3 Design Requirements** 4

5.0 PROPOSED SYSTEM 6

- **5.1 Proposed Water Demand** 6
- **5.2 Proposed Water Supply** 8
- **5.3 Proposed Domestic Water System** 8
- **5.4 Proposed Recycled Water Distribution** 9
- **5.5 Off-Site Improvements** 10

6.0 PHASING 10

DOMESTIC WATER PHASING MATRIX

RECYLCED WATER PHASING MATRIX

FIGURES

1 Site Location Map
2 Preliminary Domestic Water Key Map
3 Preliminary Domestic Water
4 Preliminary Domestic Water
5 Preliminary Domestic Water
6 Preliminary Domestic Water
7 Preliminary Domestic Water
8 Preliminary Domestic Water

9 Preliminary Domestic Water
10 Preliminary Domestic Water
11 Preliminary Domestic Water
12 Preliminary Domestic Water
13 Preliminary Domestic Water
14 Preliminary Domestic Water
15 Leak Detection Vault at Water Valves and Meter Service Connections to Main
16 Termination of Containment Pipe at Limits of Refuse
17 Containment Pipe Termination Structure
18 Pressure Pipe Enclosed in Containment Pipe
19 Termination of Containment Pipe at Air Release Valve
20 Termination of Containment Pipe at Blow-Offs
21 Settlement Vault – Type I
22 Settlement Vault – Type II
23 3 inch Water Service with RP
24 4 inch, 6 inch, & 8 inch Water Service w/ RP
25 4 inch, 6 inch, & 8 inch Water Service w/ RP (Dual Meter Service)
26 4 inch – 10 inch Fire Service Assembly (w/DCDA)
27 4 inch – 10 inch Fire Service Assembly (w/RPDA)
28 Reduced Pressure Backflow Assembly
29 Fire Hydrant Assembly
30 Gate Valve Installation
31 Traffic Valve Box
32 Thrust Blocking
33 Concrete Reverse Thrust Block
34 Trench Backfill
35 Air Release Valve
36 Blow-Off Assembly
37 Tree Root Barrier
38 Water Sampling Station
39 1 ½ inch & 2 inch Recycled Water Service
40 3 inch Recycled Water Service
41 4 inch, 6 inch, & 8 inch Recycled Water Service
42 4 inch & 6 inch Recycled Water Service (Dual Meter Service)
43 8 inch Recycled Water Service (Dual Meter Service)
44 Foundation Concept Type 1

DRAWINGS

CDW-2.01 Parcel 1 Preliminary Domestic Water Plan
CDW-2.02 Parcel 2 Preliminary Domestic Water Plan
CDW-2.03 Parcel 3 Preliminary Domestic Water Plan
CDW-2.04 Parcel 4 & 5 Preliminary Domestic Water Plan
EX-01 Water Main Upsize Exhibit

APPENDICES

A **City of Santa Clara Domestic Water and Recycled Water Index and Basic Information Maps**

B **Correspondence from City of Santa Clara Water & Sewer Utility**

C **City of Santa Clara Council/Staff Work Study Session – Infrastructure Requirements Water and Sewer Utilities**

1.0 INTRODUCTION

The purpose of this Water Technical Memorandum (the "Memo") is to assist Related Santa Clara, LLC in the preliminary design of the City Place Santa Clara Development (the "Project") and to provide updated information for preliminary cost estimating. The Memo documents the existing domestic and recycled water systems, water design criteria and proposed water infrastructure. It also provides information about the water supply and addresses the non-standard landfill design elements for the Project.

2.0 PROJECT DESCRIPTION

2.1 Site Description

The overall site (the "Site") for the Project is the former Santa Clara All Purpose Landfill and two additional sites (see Figure 1). The subject property includes five parcels: Parcel 1, Parcel 2, Parcel 3, Parcel 4 and Parcel 5 totaling approximately 240 acres. The landfill is no longer active and the Final Closure and Post-Closure Maintenance Plan was approved in December 1992 and amended multiple times, most recently in December 2013. The site boundaries include Lafayette Street, Great America Parkway, Tasman Drive and the Guadalupe River and the San Tomas Aquino Creek.

The site is proximate to a significant amount of existing infrastructure. The City owned and operated systems include sanitary sewer, stormwater drainage, water (domestic and fire) and landfill operation systems (gas extraction, leachate collection and monitoring) within and adjacent to the site. Utility providers and infrastructure owners include South Bay Water Recycling, Silicon Valley Power (SVP), Comcast, AT&T, Santa Clara Valley Water District (SCVWD), Pacific Gas & Electric (PG&E), Union Pacific Rail Road (UPRR) and Valley Transportation Authority (VTA).

2.2 Planned Development

The planned development currently envisioned includes office, hotel, mixed-used retail, restaurant, entertainment, residential and parking structures with significant site improvements. The approvals for the Project include a zoning change to Planned Development –Master Community ("PD-MC") from the "B" zoning district and the ((Public, Quasi-Public and Public Park or Recreation) for Parcels 1 through 4 and from the "CP" (Commercial Park) zoning district in Parcel 5 is zoned "CP". MCP authorizes up to 9,164,400 gross square feet (gsf) with associated parking and site improvements. The current breakdown by site is as follows:

Table 1
Current Development Program

Parcel	Area (acres)	Potential Development Area (gsf)
1	49.6	1,200,000
2	60.9	2,160,000
3	34.9	720,000
4	86.6	4,259,400
5	8.0	825,000

3.0 EXISTING CONDITIONS

3.1 Existing Water Usage

The City of Santa Clara Water and Sewer Utility estimates that the existing Santa Clara Golf and Tennis Club located on the Site uses approximately 38,000 gpd of potable water and 238,000 gpd of recycled water for a total water usage of 276,000 gpd.

3.2 Existing Water Supply

The water system in the City of Santa Clara is operated and maintained by the City of Santa Clara Water and Sewer Utility. This system is supplied with potable water from three main sources; the Santa Clara Valley Water District (the "SCVWD"), the San Francisco Public Utility Commission (the "SFPUC Hetch Hetchy"), and 27 groundwater wells operated by the Water and Sewer Utility. The potable water supply is augmented with recycled water from South Bay Water Recycling. This recycled water is not permitted for potable use, but it can be used for irrigation, toilet flushing and approved industrial uses.

3.3 Existing Domestic Water System

The existing domestic water system near the Site is provided on the City of Santa Clara Water Base Maps W 93, 94, 95, 103, 104, 105, 113 and 114 included in this memo as Appendix A. There is a network of water mains around all four sides of Parcel 3, Parcel 4 and Parcel 5. This network is also located along the west and south sides of the Parcel 1 and Parcel 2.

Domestic water is conveyed to the Site from the 16 inch ductile iron main. This main connects to a 12 inch asbestos cement main in Tasman Drive, which travels both east and west. To the east, the water main in Tasman Drive intersects a 12 inch plastic main in Centennial Boulevard. The Centennial main travels north to an intersection with the 12 inch plastic main in Stars and Stripes Drive. The water main in Stars and Stripes Drive services the Santa Clara Golf and Tennis Club on the south boundary of Parcel 4. It also follows Stars and Stripes to the east and then turns south. After Stars and Stripes Drive passes beneath Tasman Drive, the domestic water main is connected by an encased 12 inch pipe beneath the UPRR right-of-way to the 12 inch asbestos cement main in Lafayette Street. The main in Lafayette Street travels north to an offshoot 12 inch asbestos cement loop that follows Calle de Luna and Calle del Mundo before returning to Lafayette Street. The Lafayette main then continues north approximately 2,400 feet (ft). At this point a 12 inch asbestos cement pipe branches to the west beneath the UPRR right of way and terminates near the northern boundary of Parcel 3. The main in Lafayette also reduces size to an 8 inch asbestos cement pipe and continues north until it intersects a 12 inch plastic pipe located at the intersection of Lafayette

Street and Great America Way. A 2 inch water service is located along the north side of Parcel 1 to the East Side Retention Basin Pump Station.

From the intersection of Lafayette Street and Great America Way, a 12 inch plastic main travels west along Great America Way until it intersects an 8 inch asbestos cement main in Great America Parkway. This main travels south approximately 900-ft, where it passes a reducer to connect to a 12-inch asbestos cement main. The 12-inch main in Great America Parkway travels south, passes a loop serving the Santa Clara Convention Center, and continues until it meets the 12-inch main in Tasman Drive, completing the loop around Parcel 3 and Parcel 4.

The City reported a current pressure in the existing public water mains around the site of 80 pounds per square inch (psi). The 28 April 2015 letter from the City is included in Appendix B.

3.4 Existing Recycled Water Distribution

The existing recycled water distribution system near the Site is provided on the City of Santa Clara Water Base Maps RCW 93, 94, 95, 103, 104, 105, 114 and 115 included in this memo as Appendix A. There is a network of recycled water mains along the north, east and west sides of Parcel 1, the east and south side of Parcel 2, and between Parcel 3 and Parcel 4.

Recycled water is supplied to the Site from the South Bay Water Recycling Program. It is conveyed from the plant to the northeast corner of Parcel 1 by a 16 inch plastic pipe. This pipe travels beneath State Route 237 then crosses the Guadalupe River. On the west bank of the Guadalupe River the recycled water main splits. One 12 inch Yelomine (plastic) pipe is located along the east side of Parcel 1 and Parcel 2 until it reaches Tasman Drive. It then turns west and mixes with a 30 inch steel recycled water main located along Tasman Drive before crossing this main and continuing in Lick Mill Road. The second branch of the recycled water system is a 16 inch plastic main along the north side of Parcel 1. At Lafayette it turns to the south and travels approximately 1,500 ft, passing through a reducer to become a 12 inch plastic pipe. At the boundary between Parcel 3 and Parcel 4 the main turns west and travels through a 30 ft wide Recycled Water and Sanitary Sewer easement to Great America Parkway. At Great America Parkway, the main turns north before continuing west along Old Mountain View – Alviso Road. The City of Santa Clara Water Utility estimates pressure in the recycled water system to be between 80 and 90 psi in the vicinity of the Site.

4.0 BASIS OF DESIGN

4.1 References

The following reports and standards are supplemental to the design requirements and were used in preliminary design as provided herein. These documents should be used in the final design of the Project's water system for temporary (during construction) and permanent conditions.

- "City of Santa Clara Council/Staff Work Study Session – Centennial Gateway & Santa Clara City Place" November 20, 2013.
- "Design Criteria for Improvements in Public Right-of-Ways and City Easements" City of Santa Clara, Public Works Department, September 17, 2014.
- "Standard Specifications for Public Works" City of Santa Clara, Public Works Department, latest edition.

- "Standard Details" City of Santa Clara, Public Works Department, latest edition.
- "Standard Details" City of Santa Clara, Water and Sewer Utility Department
- "Santa Clara City Code Chapter 13.15."
- "Santa Clara City Code Chapter 15.35."
- Sheets W93, W94, W95, W103, W104, W105, W113, W114, City of Santa Clara Water Distribution System Map, City of Santa Clara, July 2012.
- Sheets RCW93, RCW94, RCW103,RCW104, RCW105, RCW113, RCW114, RCW115 City of Santa Clara Recycled Water System Map, City of Santa Clara, July 2012.
- "California Regulations Related to Drinking Water", California Department of Public Health, July 1, 2014.
- "California Regulations Related to Recycled Water", California Department of Public Health, June 18, 2014.
- "California Fire Code 2013 - California Code of Regulations, Title 24, Part 9"

4.2 Applicable Codes and Regulations

The development is subject to federal, state, county and local municipality regulations. The regulations provide requirements for domestic water system design and potable water quality. The applicable codes and regulations include, but are not limited to, the USEPA Safe Drinking Water Act, the California Health and Safety Code, California Code of Regulations Title 17, California Code of Regulations Title 22, the California Fire Code 2013, the Uniform Plumbing Code 2012, Santa Clara City Code Chapter 13.15, and Santa Clara City Code Chapter 15.35.

4.3 Design Requirements

The final design for the domestic water system will meet the following criteria. Note that there are numerous non-standard design elements to address the landfill aspects of the project including settlement vaults, flexible connections, and settlement slabs.

- Materials and installation must comply with the standards of the American Water Works Association. Depth Requirements (PVC/DIP only):
    - The typical depth of new potable and recycled water mains from top of near side curb (or finished grade for non-standard or non-street locations) to invert of the pipe:
        - 4-inch pipe - 3.50 ft
        - 6-inch pipe - 3.70 ft
        - 8-inch pipe - 4.10 ft
        - 10-inch pipe - 4.50 ft
        - 12-inch pipe - 5.00 ft
        - Pipe over 12-inches - top of pipe at 4 feet below finished grade
    - A minimum cover of 3 ft from finished grade to top of pipe.
    - A minimum cover of 2 ft from scarified sub-grade to top of pipe during construction.
    - For horizontal alignment, the centerline of the potable/recycled water main shall be located seven feet from face of curb into the street. Other situations should be reviewed with the Water and Sewer Utilities Department prior to beginning of design.
- Minimum Horizontal Clearance Requirements:
    - From potable water mains, services and facilities:*
        - To all sanitary sewer mains, manholes, and laterals - 10 ft

- To all recycled water mains, services, and facilities - 10 ft
- To all trees - 10 ft**
- To other utilities and general conflicts - 5 ft

*If either pipes are 12 inches diameter or smaller, the clearance dimension noted above shall be measured from center to center of the pipes. If either pipe is larger than 12 inch diameter, clearance shall be the clear distance between the edges of the pipes.

**A note shall be placed on the landscape drawings to indicate that there is a 10 ft clearance requirement from trees and public water, recycled water and sewer facilities (i.e., mains, FH's, WM's, sewer manholes, C/O's, etc.) unless City-approved Tree Root Barriers (TRB) are utilized. TRB's must be 5 ft from the public facility. The TRB's must be shown on the plans and the TRB criteria must be included on the plans.

  - Provide a minimum of 12 inches of clearance around water meter boxes from any above-ground structures such as mail boxes, or fences.
- Minimum Vertical Clearance Requirement:
  - Vertical clearance when crossing typical conflicts shall be 12 inches minimum from outside of pipe to outside of pipe (or conduit). For crossings with less than 12 inches clearance, a concrete saddle shall be installed. Vertical separation is required only when the horizontal distance between a water main and pipeline is less than ten feet.
- Other Miscellaneous Requirements:
  - To clear conflicts, the pipe should be gradually deflected up or down sufficiently in advance to cross with the proper clearance without using fittings. In cases where this is not possible standard fittings shall be used.
  - Use air release valves at locations where the peak of the deflected pipe is more than one pipe diameter above the general elevation of the main. Air release valve cabinets shall be located in landscaped or non-paved areas behind the sidewalk at the nearest most convenient location.
  - Main line gate valves should be installed at tees for branching mains, large services, and fire hydrants, and at approximately:
    - After every three major connections to the water system (i.e. water services greater than three inches, fire services, and fire hydrants).
    - After every two fire hydrants with no other services.
- Fire hydrants are general placed at 300 to 350 ft intervals on the same side of the street as the main. Typically, fire hydrant locations are at (or near) the returns of street intersections, seven feet minimum from driveways, on property lines between properties, etc. The Fire Department requires three feet of clearance around all fire hydrants.
- Any utilities crossing the public main are required to cross at or near 90 degrees.
- Water meters shall be located in landscaped or non-paved areas with a minimum of 12 inches clearance from above-ground structures such as mailbox posts of fences on all sides of the meter box. They shall be located in front of the property to be served.
- Cooling towers require a separate water meter (credit for evaporation will only be provided if a separate meter is installed).
- Provide minimum five feet clearance around all above-grade water utilities and water services over 2 inches. Include bollards as needed to protect the utilities.

5.0 PROPOSED SYSTEM

5.1 Proposed Water Demand

For preliminary design purposes, the estimated water demand for the Project in gallons per day (gpd) estimated at approximately 105% of the average dry weather flow wastewater generation as provided in the Sanitary Sewer Technical Memorandum for City Place Santa Clara is provided in Table 2.

Table 2
Water Demand

Phase 1 - Parcel 5 **8.0 Acres**

Building Type	Gross Sq. Footage	Water Demand (gpd)
Residential	200,000	36,960
Retail - Inline Retail	62,000	4,947
Retail - Food and Beverage	25,000	27,300
Office	258,000	37,926
Hotel	280,000	141,120
	Total	**248,253**

Phase 2 – Parcel 4 **52.2 Acres**

Building Type	Gross Sq. Footage	Water Demand (gpd)
Residential	660,000	121,968
Retail - Anchor	330,000	25,294
Retail - Inline Retail	493,250	39,361
Retail - Food and Beverage	200,220	218,640
Retail - Entertainment	190,000	95,760
Office	240,000	35,280
Hotel	298,000	150,192
	Total	**686,495**

Phase 3 - Parcel 4 **18.5 Acres**

Building Type	Gross Sq. Footage	Water Demand (gpd)
Residential	500,000	92,400
Retail - Inline Retail	147,250	11,750
Retail - Food and Beverage	24,780	27,058
Office	80,000	11,760
	Total	**142,968**

Phase 4 - Parcel 4 **15.9 Acres**

Building Type	Gross Sq. Footage	Water Demand (gpd)

Retail – Inline Retail	29,500	2,354
Office	1,066,400	156,761
	Total	**159,115**

Phase 5 - Parcel 3 **34.9 Acres**

Building Type	Gross Sq. Footage	Water Demand (gpd)
Office	720,000	105,840
	Total	**105,840**

Phase 6 - Parcel 1 **49.6 Acres**

Building Type	Gross Sq. Footage	Water Demand (gpd)
Office	1,200,000	176,400
	Total	**176,400**

Phase 7 - Parcel 2 **25.7 Acres**

Building Type	Gross Sq. Footage	Water Demand (gpd)
Office	1,080,000	158,760
	Total	**158,760**

Phase 8 - Parcel 2 **35.2 Acres**

Building Type	Gross Sq. Footage	Water Demand (gpd)
Office	1,080,000	158,760
	Total	**158,760**

Total By Parcel **240 Acres**

Building Type	Gross Sq. Footage	Water Demand (gpd)
Parcel 1	1,200,000	176,400
Parcel 2	2,160,000	317,520
Parcel 3	720,000	105,840
Parcel 4	4,259,400	988,578
Parcel 5	825,000	248,253
Totals	**9,164,400**	**1,836,591**

5.2 Proposed Water Supply

As part of the Environmental Impact Report for the Project, the City of Santa Clara Water and Sewer Utility prepared a Water Supply Assessment (WSA) to assess the availability of water to serve the Project. There are differences between the water demand projections provided in the WSA and the demand projections presented herein due to differing development schemes and phasing, and projection methodologies.

5.3 Proposed Domestic Water System

It is assumed for the purposes of this memo that each Parcel/Building will be served by its own public water system. Should this not be permitted, the Project will be served by a privately maintained and operated system. Section 5.5 of this memo provided more information about a public water system versus a private water system.

The domestic water systems for each Parcel will be part of the public system and have multiple connections to the existing water system to maintain the required volume and residual pressure during fire flow scenarios. The preliminary layout and points of connection for each Parcel can be found on Figures 2 through 14 as well as Drawings CU-2.01 through CU-2.04. The preliminary points of connection for Parcel 1 and Parcel 2 are located in Lafayette Street. Parcel 3 will connect to the stubbed water line located to the northeast of the Parcel 3/6 boundary, as well as to the proposed main in City Place Parkway at the intersection with Avenue A. Due to its size, Parcel 4 has 3 preliminary connections. The first is located at the intersection of Great America Parkway and City Place Parkway, the second at Tasman Drive and Avenue A, and the third at Tasman Drive and Centennial Boulevard. Parcel 5 will connect to the main in Tasman Drive and include the removal and replacement of the Stars and Stripes water main and the potential extension of the water main in Tasman Drive to Avenue B to accommodate the below grade parking.

The proposed domestic water mains will be located in each street to the opposite side of the centerline alignment from the sanitary sewer and recycled water and maintain a minimum 10 ft horizontal clearance from said utilities and 5 ft horizontal clearance from storm drains. The domestic water mains would also maintain a 12 inch vertical clearance over all utilities. See Figure 44 of this memo for a typical street/utility section. Within the proposed below grade parking (beneath Stars and Stripes Avenue, Centennial Boulevard, Avenue A and Avenue B), the mains will be hung from the structure. Each building will have a water service connection from a proposed or existing water main. Each water service connection will have a separate backflow prevention device, a meter to determine water usage, and a dedicated fire service connection with a backflow prevention device. Due to the elevation difference between the project site and the surrounding area, it is likely that booster pumps (fit with backup emergency backup generators) will be required to maintain fire flows and residual pressure on the top floors of proposed buildings. It is assumed that each building will require its own booster pump, and that the pumps will be integrated into the design of the building systems. An alternative is to provide public booster pumps. Water mains and laterals shall be sized to meet the minimum fire flow pressures in accordance with Appendix B and C of the California Fire Code, as well as to meet the peak daily demand for domestic water service.

The non-standard design elements that are incorporated into the design of the domestic water system to address the landfill issues for the Project include interstitial spaces, settlement slabs and settlement vaults/flexible connections. Typical utility/roadway corridor sections have been prepared for several variations of roadways, streetscape amenities and the multiple utilities that will be located within each street (sewer, storm drain, domestic water, recycled water, gas, joint

trench, automated waste collection, landfill gas extraction system). A variety of water details are provided as Figures 15 through 44 and a description of how each non-standard element is incorporated into the design are as follows:

- Structural Slabs – With respect to Parcel 4 and the proposed City Center, the majority of the domestic water system will be constructed on a structural slab supported on deep foundations. The approximate limits of the structural slabs within the City Center portion of the Project are provided on Drawing CU-2.04. The slabs will support the roadways between the proposed City Center buildings and have been designed to minimize disruption to the landfill cap and refuse. The slabs should extend to the limits of the refuse to allow for a smooth transition within the settlement vaults as the swath of non-refuse area within Parcel 4 is being utilized for the deeper gravity system utilities.

- Settlement Vaults/Flexible Connections – At locations where utilities transfer from a structurally supported condition (over a settlement slab or from a pile-supported building) to a typical "terra firma" (on sub-grade) support condition settlement vaults and/or flexible connections are included in the design. Specifically for domestic water, these vaults, which will be direct buried concrete structures, will enclose a flexible connection (such as a Flex-Tend device). The locations of the settlement vaults based on the preliminary domestic water design are included on the plans.

5.4 Proposed Recycled Water Distribution

The proposed recycled water distribution for the Project will be designed for each parcel to have its own internal system. The proposed recycled water system can be used to supply non-potable water for different uses such as irrigation, HVAC equipment (cooling tower make-up), and toilet flushing. As these systems are designed, the entire water balance for the Project can be developed.

The recycled water distribution system for each parcel will have two points of connection to maintain recycled water service. The preliminary layout and points of connection for each Parcel can be found on Drawings CU-2.01 through CU-2.04. For both Parcel 1 and Parcel 2, the recycled water system will have one point of connection to the existing recycled water main in Lafayette Street and one point of connection to the recycled water main along the eastern edge of Parcel 1 and Parcel 2. For Parcel 3 and Parcel 4, the recycled water systems will have two points of connection to the existing recycled water main located in the easement between Parcel 3 and Parcel 4. Parcel 5 will connect to the new recycled water mains in Parcel 4.

The proposed recycled water mains will be located in each street to the same side of the centerline alignment as sanitary sewer and opposite the domestic water. The proposed recycled water mains will maintain a minimum clear distance of 10 ft from the sanitary sewer. They will also maintain a minimum clear distance of 10 ft from the domestic water. See Figure 44 of this memo for a typical street/utility section.

5.5 Off-Site Improvements

Implementation of the water system as currently designed will likely require some offsite improvements to the existing utility systems. The connection point to the north east of Parcel 3 is a stubbed asbestos cement water main that was installed in 1970 and later abandoned. It may not be in an acceptable condition to serve the project. Also, a considerable amount of fill may be added to

Stars and Stripes Drive. Per the City of Santa Clara Council/Staff Work Study Session (see Appendix C) on 11/20/2013, this will require the existing utilities in Stars and Stripes to be raised. The City also noted approximately 2,000 ft of domestic water mains that may need to be upsized. Specifically, these include the 8 inch asbestos cement main in Great America Parkway, the 8 inch asbestos cement main in Lafayette Street, and parts of the loop in Calle de Luna and Calle del Mundo. More study will be required to determine if these sections or others will need to be upsized to meet the water demand of the Project. The off-site improvements are conceptually shown on Drawing EX-01.

6.0 PHASING

The current project planning includes a phasing strategy for the full development of the five sites in eight phases. Parcel 4 and Parcel 5, the location of City Center, would be developed in the first four phases. Parcel 3 would be developed in Phase 5, Parcel 1 in Phase 6 and Parcel 2 in Phases 7 and 8. Based on this current phasing, the following Domestic Water and Recycled Water Phasing Matrices provide details and quantities for the various components of the domestic water system and recycled water system for the Project. The matrix can be adjusted as the design is developed and phasing is modified such that costs can be properly allocated.

DOMESTIC WATER PHASING MATRIX											
Phase / Parcel	Gross Sq. Footage	Water Main (16-inch) (LF)	Laterals (8-inch) (LF)	Settlement Vault (#)	Water Meter (#)	Back Flow Preventer (#)	FD Connection (#)	Booster Pumps		Fire Hydrant (#)	Off-Site
								Infrastructure (#)	Building (#)		
1 / 5	825,000	5,860	505	-	4	4	4	-	4	3	See Note 1
2 / 4	2,411,470	2,900	3,645	10	23	23	23	-	23	8	-
3 / 4	752,030	1,330	2,775	6	14	14	14	-	14	3	-
4 / 4	1,095,900	240	650	4	4	4	4	-	4	3	See Note 2
5 / 3	750,000	4,076	610	5	5	5	5	1	5	3	-
6 / 1	1,200,000	5,445	1,585	8	8	8	8	1	8	10	-
7 / 2	1,080,000	5,052	1,075	6	6	6	6	1	6	9	
8 / 2	1,080,000	1,800	400	6	6	6	6	-	6	3	-

Notes:

1. Approximately 1,500 LF of existing water mains along Stars and Stripes Dive and Centennial Boulevard need to be raised or replaced based on the amount of fill needed. Existing domestic mains may be required to be upsized on sections of Great America Parkway. Lafayette Street, Calle de Luna, and Calle del Mundo, see attached exhibit.
2. Possible improvements required on an existing abandoned 12-inch main connecting to Great America Parkway.

RECYCLED WATER PHASING MATRIX					
Phase / Parcel	Gross Sq. Footage	Recycled Water Main (12-inch) (LF)	Laterals (8-inch) (LF)	Settlement Vaults (#)	Water Meters (#)
1 / 5	825,000	5,075	221	-	4
2 / 4	2,411,470	1,880	1,548	9	23
3 / 4	752,030	945	1,178	7	14
4 / 4	1,095,900	1,380	160	4	4
5 / 3	750,000	4,318	230	5	5
6 / 1	1,200,000	5,532	490	8	8
7 / 2	1,080,000	4,470	216	6	6
8 / 2	1,080,000	4,556	232	6	6

SANITARY SEWER TECHNICAL MEMORANDUM

for

CITY PLACE SANTA CLARA
Santa Clara, CA

Prepared For:

Related Santa Clara, LLC

Prepared By:

Langan Treadwell Rollo
4030 Moorpark Avenue, Suite 210
San Jose, California 95117

01 June 2016
770611601

LANGAN TREADWELL ROLLO

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 PROJECT DESCRIPTION 1

2.1 Site Description 1
2.2 Planned Development 1

3.0 EXISTING CONDITIONS 2

3.1 Existing System 2
3.2 Wastewater Treatment 3

4.0 BASIS OF DESIGN 3

4.1 References 3
4.2 Sewage Coefficients 4
4.3 Design Requirements 5

5.0 PROPOSED SYSTEM 7

5.1 Wastewater Generation 7
5.2 Proposed System 10
5.3 Off-Site System 12

6.0 PHASING 12

SANITARY SEWER PHASING MATRIX

FIGURES

1 Site Location Map
2 Sanitary Sewer Key Map
3 Plan - Sanitary Sewer
4 Plan - Sanitary Sewer
5 Plan - Sanitary Sewer
6 Plan - Sanitary Sewer
7 Plan - Sanitary Sewer
8 Plan - Sanitary Sewer
9 Plan - Sanitary Sewer
10 Plan - Sanitary Sewer
11 Plan - Sanitary Sewer
12 Plan - Sanitary Sewer
13 Plan - Sanitary Sewer
14 Plan - Sanitary Sewer

15 Detail – Utility Trench Penetrating Clay Cap
16 Detail – Sanitary Sewer Gravity Pipes Through Transition Zone
17 Detail – Utility Structure Penetrating Clay Cap
18 Detail – Sanitary Sewer Lateral Connection
19 Detail – Sanitary Sewer Clean-Out
20 Detail – Manhole
21 Detail – Manhole Frame, Cover & Grate
22 Detail – Methane Gas Cut-off Barrier in Utility Trench
23 Detail – Settlement Vault – Type I
24 Detail – Settlement Vault – Type II
25 Section – Typical Street/Utility Section on Settlement Slab

DRAWINGS

CSS-2.01 Parcel 1 Preliminary Sanitary Sewer Plan
CSS-2.02 Parcel 2 Preliminary Sanitary Sewer Plan
CSS-2.03 Parcel 3 Preliminary Sanitary Sewer Plan
CSS-2.04 Parcels 4 & 5 Preliminary Sanitary Sewer Plan

APPENDICES

A City of Santa Clara Sanitary Sewer System Index and Basic Information Maps
B San Jose – Santa Clara Water Pollution Control Plan Specific Use Code & Sewage Coefficient Table
C City of Santa Clara Sanitary Sewer Capacity Evaluation for the City Place Development Site

1.0 INTRODUCTION

The purpose of this Sanitary Sewer Technical Memorandum (the "Memo") is to assist Related Santa Clara, LLC in the design of the City Place Santa Clara Development (the "Project") and to provide updated information for preliminary cost estimating. The Memo documents the wastewater design criteria, demands and sanitary sewer infrastructure required to support the Project, and addresses the non-standard landfill design requirements.

2.0 PROJECT DESCRIPTION

2.1 Site Description

The overall site (the "Site") for the Project is the former Santa Clara All Purpose Landfill and two additional sites (see Figure 1). The subject property includes five parcels: Parcel 1, Parcel 2, Parcel 3, Parcel 4 and Parcel 5 totaling approximately 240 acres. The landfill is no longer active and the Final Closure and Post-Closure Maintenance Plan was approved in December 1992 and amended multiple times, most recently in December 2013. The site boundaries include Lafayette Street, Great America Parkway, , Tasman Drive, the Guadalupe River and the San Tomas Aquino Creek.

The former landfill consists of individual landfills on the four separate parcels. Parcel 4 operated between the 1930s and 1970s; landfill operations at the other parcels took place from the late 1970s through early 1990s. Open burning took place at the first landfill and, to our knowledge, waste types accepted at the landfills included industrial and construction/demolition debris. The topography indicates that soil embankments were constructed and that refuse was placed which created large mounds. On the basis of the available subsurface information, the refuse in Parcels 1 and 3 ranges from about 40 to 80 feet thick. In Parcels 2 and 4 the thickness of refuse ranges from about 20 to 50 feet.

The site is proximate to a significant amount of existing infrastructure. The City owned and operated systems include sanitary sewer, stormwater drainage, water (domestic and fire) and landfill operation systems (gas extraction, leachate collection and monitoring) within and adjacent to the Site. Utility providers and infrastructure owners include South Bay Water Recycling, Silicon Valley Power (SVP), Comcast, AT&T, Santa Clara Valley Water District (SCVWD), Pacific Gas & Electric (PG&E), Union Pacific Rail Road (UPRR) and Valley Transportation Authority (VTA).

2.2 Planned Development

The planned development currently envisioned includes office, hotel, mixed-used retail, restaurant, entertainment, residential and parking structures with significant site improvements. The approvals for the Project include a zoning change to Planned Development –Master Community ("PD-MC") from the "B" zoning district and the ((Public, Quasi-Public and Public Park or Recreation) for Parcels 1 through 4 and from the "CP" (Commercial Park) zoning district in Parcel 5 is zoned "CP". MCP authorizes up to 9,164,400 gross square feet (gsf) with associated parking and site improvements. The current breakdown by site is as follows:

Table 1
Current Development Program

Parcel	Area (acres)	Potential Development Area (gsf)

1	49.6	1,200,000
2	60.9	2,160,000
3	34.9	720,000
4	86.6	4,259,400
5	8.0	825,000

3.0 EXISTING CONDITIONS

3.1 Existing System

The existing wastewater collection system for the City of Santa Clara includes a series of gravity trunk sewers, pump stations and sanitary force mains. The system conveys the wastewater to the existing San Jose/Santa Clara Regional Wastewater Facility (WWTF) located approximately 2 miles northeast of the Site. The Site is located at the downstream end of the piped collection system. From Great America Parkway on the west side of the Project, two main sewers are located between Parcel 3 and Parcel 4. The northernmost gravity trunk sewer is a 33 inch Reinforced Concrete Pipe (RCP), and the southernmost is a 42 inch RCP. Within Lafayette Street there is a 36 inch gravity trunk sewer. These three sewers join in Lafayette Street into two 42 inch RCP's and continue north in Lafayette Street between Parcel 3 and 1. At the northern edge of Parcel 1, these sewers turn to the northeast, following the Parcel 1 boundary to the existing diversion structure which diverts the flow to both the existing Rabello Pump Station and the Northside Pump Station. There is a 12 inch sewer in Stars and Stripes Drive, which connects to the 36 inch sewer in Lafayette Street. A map showing the City infrastructure adjacent to the Site is provided as Figure 2.

The gravity sewer that bypasses the Rabello Pump Station continues beneath the Guadalupe River and California State Highway 237, where it flows to the Northside Pump Station. From the Northside Pump Station, the wastewater is pumped and conveyed in a force main to the WWTF. The Rabello Pump Station will pump wastewater to the WWTF through a secondary force main, which follows the alignment of the Northside Pump Station gravity sewer and its force main once crossing beneath the Guadalupe River and Highway 237.

The current pump station operation includes the Rabello and Northside Pump Stations working in parallel to pump the wastewater to the WWTF. The maximum capacity of this system, referred to as the Firm Capacity, is defined as the maximum capacity of the combined pump stations with the largest pump for each pump station out of commission. This builds some redundancy into the system, allowing it to function even if one of the pumps for each pump station is out of service. The Northside Pump Station has 4 pumps running in parallel to pump effluent, and the Rabello Pump Station has 8 pumps running in parallel. Currently, the City of Santa Clara estimates the Firm Capacity of these two stations to be 38.2 Million Gallons per Day (MGD). Per RMC's Sanitary Sewer Capacity Evaluation for the Project dated 6 August 2015, the peak wet weather flow (PWWF) results predicted by the model are 43.0 MGD without the Project and 44.8 MGD with the Project. Another study would be needed to determine the required improvements to increase the pump stations total firm capacity to convey the predicted flow in 2035 General Plan PWWF.

3.2 Wastewater Treatment

The San Jose/Santa Clara Regional Wastewater Facility was built in 1956 and is the largest advanced wastewater treatment facility in the western United States. The Facility is a round-the-clock operation that cleans an average of 110 million gallons of wastewater per day, and has the

capacity to clean up to 167 million gallons per day. Advanced (tertiary) level treatment is necessary to meet the region's strict state regulations for the shallow waters and sensitive ecosystem of the southern Bay.

The Facility is located on 2,600 acres at the South Bay shoreline, covering more area than twice the size of San Francisco's Golden Gate Park, and includes a 175-acre wastewater operations area, a 750-acre sludge drying area, and an 850-acre former salt production pond. The remaining acreage is open land that buffers adjacent communities from odors and hazardous operations. The Facility serves eight cities, including the City of Santa Clara, with 1.4 million residents and a business sector with more than 17,000 main sewer connections. The wastewater undergoes a 10.5-hour treatment process that simulates the way nature cleans water. Reportedly, the Facility removes 99 percent of the impurities before the cleaned water is discharged into the South San Francisco Bay or recycled for other uses such as industrial processes, cooling towers, and flushing toilets. There are no current treatment capacity concerns or issues for the treatment of the project wastewater generated by the Project.

4.0 BASIS OF DESIGN

4.1 References

The following reports and standards are supplemental to the design requirements and were used in the preliminary design of the sanitary sewer system as provided herein. These documents should be used in the final design of the Project's sanitary sewer system.

- "San Jose – Santa Clara Water Pollution Control Plant Specific Use Code & Sewage Coefficient."
- "Design Criteria for Improvements in Public Right-of-Ways and City Easements" City of Santa Clara, Public Works Department, September 17, 2014.
- "Standard Specifications for Public Works" City of Santa Clara, Public Works Department, latest edition.
- "Standard Details" City of Santa Clara, Public Works Department, latest edition.
- "Santa Clara City Code Chapter 13.10."
- Sanitary Sewer Capacity Assessment for General Plan Update, RMC Water and Environment, September 1, 2009 and November 14, 2014**
- Sanitary Sewer Capacity Evaluation for the City Place Development (APN: 097-01-039 and -073, 104-01-102, 104-03-036 through 040), RMC Water and Environment, August 6, 2015**
- Sheets S93, S94, S95, S103, S104, S105, S113, S114, S115, City of Santa Clara Sanitary Sewer System Map, City of Santa Clara, July 2012 and November 2013.

**Note: The Sanitary Sewer Capacity Evaluation Report output has changed based on approved projects and may change again pending development applications and future projects. The report output does not guarantee or in any way reserve or hold sanitary sewer conveyance capacity until the Project has been entitled.

4.2 Sewage Coefficients

The Sewage Coefficients (based on the San Jose – Santa Clara Water Pollution Control Plant Specific Use Code and Sewage Coefficient Table – provided as Appendix B), used to determine the Average Dry Weather Flow, are provided below as Table 2.

Table 2
Sewage Coefficients

Land Use	Sewage Coefficient
Bars	0.350 gpd/sf
Dwellings (2 – 4 units)	176 gpd/unit
Dwellings (5+ units)	121 gpd/unit
Home Furnishings (retail)	0.027 gpd/sf
Hotels (small)	0.350 gpd/sf
Hotels (large, w/ convention facilities	0.480 gpd/sf
Markets (grocery)	0.240 gpd/sf
Movie Theater (indoor)	4.8 gpd/seat
Office Building	0.140 gpd/sf
Parks – Community Center	0.110 gpd/sf
Public Agency	0.210 gpd/sf
Retail (large structure)	0.073 gpd/sf
Retail (small structure)	0.076 gpd/sf
Restaurant (full service)	1.040 gpd/sf
Single Family (attached, townhouses)	180 gpd/unit

4.3 Design Requirements

The final design for the sanitary sewer system will meet the following criteria. Note that there are numerous non-standard design elements to address the landfill aspects of the project including settlement vaults, flexible connections, settlement slabs and utility corridors in refuse.

- Pipe material shall conform to Section 02062, FURNISHING AND INSTALLING OF PIPE, of the City's Technical Provisions. For pipe sizes 24 inches in diameter or less, use vitrified clay pipe. For pipe sizes greater than 24 inches in diameter, fully lined reinforced concrete pipe may be used. Polyvinyl Chloride (PVC) SDR 26 pipe 12 inches or less may be used. PVC pipe larger than 12 inches in diameter may be used upon approval by the Director of Public Works/City Engineer.
- In general, sanitary sewers shall be placed in every street with a 5-foot offset from street centerline on the side opposite the storm drain.
- Minimum cover over mains shall be 6 feet from finished grade.
- Design:
  - Coefficient of friction "n":

    - Vitrified Clay Pipe: 0.013
    - Reinforced Concrete Pipe: 0.013
    - Polyvinyl Chloride Pipe: 0.011
  - Minimum pipe diameter:
    - Residential: 8 inch
    - Commercial: 10 inch
    - Industrial: 12 inch
- Sufficient slope shall be used to provide a minimum flow velocity of 2 feet per second (fps) when flowing full or half full.
- For design of pipes, the Proposed Development Peak Flow shall not be less than 2.5 times the computed average flow.
- The Design Flow (total peak flow) shall be as determined below.
  - $Q_D = Q_M + Q_{WWGWI} + Q_{RDI/I} + Q_{PD}$, where:
    - Q = Flow
    - D = Design
    - M = Monitored
    - WWGWI = Wet Weather Groundwater Infiltration
    - RDI/I = Rainfall-Dependent Infiltration and Inflow
    - PD = Proposed Development
    - Q_D = Design Flow
    - Q_M = The Monitored Peak Flow or 2.5 times the Monitored Average Flow, whichever is greater.
    - Q_{WWGWI} = The gpd/acre value is obtained by using Figure 3-3 and Table 3-2 of the Sanitary Sewer Capacity Assessment Report, May 2007. Multiply the factor by the Tributary Area served by the sanitary sewer main being monitored.
    - $Q_{RDI/I}$ = Same as QWWGWI above. For now, use 1,000 gpd/acre.
    - Q_{PD} = Proposed Development Peak Flow.
- Sanitary sewers shall be considered full at a d/D (ratio of liquid depth to pipe diameter) value of 0.75 or greater.
- At all changes of direction, a drop in flow line shall be installed equal to the velocity head times the ratio of angular change to 90 degrees.
  - $V^2/2g \times A^o/90^o$ = Head Loss = drop in flow line*, where:
    - V = velocity in ft./sec
    - g = acceleration of gravity (32.17 ft./sec2)
    - A^o = the angular change in degrees
      *If junction is fully shaped, this value may be reduced by 30%. This value shall not be less than 0.1 foot.
- Where minor mains connect to trunk main, the crown of the minor main shall match the crown of the trunk main.
- A drop in hydraulic grade line (HGL) shall be provided for head losses due to transitions such as bends, pipe size changes, grade changes, and at drainage structures (e.g., manholes).
- The sanitary sewer system shall be designed as a complete grid system.
- In general, sanitary sewer main lines should be designed such that all other parallel facilities have at least an eight-foot clear distance separation. Sanitary sewer main lines that have large diameters or are deeper/shallower in elevation may require greater separation from other facilities as determined by the Director of Public Works/City Engineer.

- Curved sanitary sewer conduit shall not be used except when written permission is obtained from the Director of Public Works/City Engineer.
- Cross connections between the storm drainage system and the sanitary sewer system are prohibited.
- Drainage structures (e.g., manholes) shall be located at the following points:
  - Change in direction;
  - Change in slope;
  - Change in size;
  - Intersection of mains;
  - Changes in pipe material;
  - A nominal spacing of 450 feet with a maximum spacing of 500 feet;
  - Upstream end of lines; and
  - Where laterals are the same size as the main or are 8 inches or larger.
- The Standard Manhole (as shown in the City Standard Details) is applicable in most cases where a drainage structure is required. However, the drainage structure shall be individually designed for any of the following conditions:
  - Through mains larger than 39 inch with less than a 5 degree change in alignment;
  - 27 inch or larger through mains with a 5 degree or larger change in alignment;
  - Side mains larger than 24 inch; and
  - Other special conditions as identified by the Director of Public Works/City Engineer.
- Laterals:
  - Laterals for residential dwellings up to four (4) units shall be at least 4 inches in diameter. All others will be 6 inches or larger;
  - Laterals shall have a minimum slope of 2% and be installed at right angles or radial to street right-of-way;
  - Laterals with clean-outs shall be provided to every lot and known future developments; and
  - Lateral to main connections:
    - Connection to a manhole shall be made wherever possible. Manhole connections shall be as follows:
      - When lateral and main are constructed at the same time, the lateral and main crowns shall have the same elevation.
      - When connecting to an existing manhole, the outside bottom of lateral pipe shall be at or above the manhole shelf. The maximum height of lateral flow line above the manhole shelf floor shall be one and one half feet (see City Standard Details).
    - When main and lateral are constructed at the same time, and a manhole connection is not possible, a wye connection is to be used as shown in the City Standard Details.
    - A 4 inch or 6 inch lateral connection to an existing larger main shall be made by the "Tap-tite" method as shown in the City Standard Details.
    - Lateral cover measured from top of curb shall not be less than 4.5 feet.
    - Siphon connections to mains are prohibited.
  - Clean-outs shall be installed on all sanitary sewer laterals at the street right-of-way or easement line as shown in the City Standard Details. If the sanitary sewer lateral is 8 inches or larger, a manhole shall be used in place of a clean-out; and
  - On-site sanitary sewer pump system force mains shall not discharge directly into the City's sanitary sewer system.
- Grit Traps:

- Grit traps shall be placed just upstream of siphons and at other locations as determined by the Director of Public Works/City Engineer.
- Grit traps shall be designed with adequate capacity to accommodate the peak flow(s) of the sanitary sewer main(s) discharging into the grit trap.

- A Condition Assessment will need to be performed per City standards of all City mains from the Project to the Rabello and Northside Sanitary Sewer Pump Stations and the force mains for said pump stations to the junction structure at the Treatment Plant, and Related and the City will need to develop a plan to correct any deficiencies

5.0 PROPOSED SYSTEM

5.1 Wastewater Generation

The wastewater generation (Average Dry Weather Flow) for the Project based on the Concept Program Option E-1 yield Summary and wastewater demands identified above are as follows. For sewer design purposes, the Average Dry Weather Flow (ADWF) is converted to the Proposed Development Peak Flow (or total peak wet weather flow under design storm conditions) by applying the 2.5 peaking factor and adding the Wet Weather Groundwater Infiltration (WWGI) and Rainfall-Dependent Infiltration and Inflow (RDI/I). The City will also apply diurnal flows curves for the variety of residential, commercial, office, hotel and public space uses in determining the peak flows.

Table 3
Wastewater Generation

Phase 1 - Parcel 5 **8.0 Acres**

Building Type	Gross Sq. Footage	Sewage Coefficient (gpd/SF)	Wastewater Generation (gpd)
Residential	200,000	0.176	35,200
Retail - Inline Retail	62,000	0.076	4,712
Retail - Food and Beverage	25,000	1.040	26,000
Office	258,000	0.140	36,120
Hotel	280,000	0.480	134,400
		Total ADWF	236,432
WWGI & RDI/I (approximate)			8,000
		Total Peak Flow	599,080

Phase 2 - Parcel 4 **52.2 Acres**

Building Type	Gross Sq. Footage	Sewage Coefficient (gpd/SF)	Wastewater Generation (gpd)
Residential	660,000	0.176	116,160
Retail - Anchor	330,000	0.073	24,090
Retail - Inline Retail	493,250	0.076	37,487
Retail - Food and Beverage	200,220	1.040	208,229
Retail - Entertainment	190,000	0.480	91,200
Office	240,000	0.140	33,600
Hotel	298,000	0.480	143,040
		Total ADWF	653,806
WWGI & RDI/I (approximate)			52,200
		Total Peak Flow	1,686,715

Phase 3 – Parcel 4 **18.5 Acres**

Building Type	Gross Sq Footage	Sewage Coefficient (gpd/SF)	Wastewater Generation (gpd)
Residential	500,000	0.176	88,000
Retail – Inline Retail	147,250	0.076	11,191
Retail – Food and Beverage	24,780	1.040	25,771
Office	80,000	0.140	11,200
		Total ADWF	136,162
WWGI & RDI/I (approximate)			18,500
		Total Peak Flow	358,905

Phase 4 - Parcel 4 **15.9 Acres**

Building Type	Gross Sq Footage	Sewage Coefficient (gpd/SF)	Wastewater Generation (gpd)
Retail – Inline Retail	29,500	0.076	2,242
Office	1,066,400	0.140	149,296
		Total ADWF	151,538
WWGI & RDI/I (approximate)			15,900
		Total Peak Flow	394,745

Phase 5- Parcel 3 **34.9 Acres**

Building Type	Gross Sq Footage	Sewage Coefficient (gpd/SF)	Wastewater Generation (gpd)
Office	720,000	0.140	100,800
		Total ADWF	100,800
WWGI & RDI/I (approximate)			34,900
		Total Peak Flow	286,900

Phase 6 - Parcel 1 **49.6 Acres**

Building Type	Gross Sq Footage	Sewage Coefficient (gpd/SF)	Wastewater Generation (gpd)
Office	1,200,000	0.140	168,000
		Total ADWF	168,000
WWGI & RDI/I (approximate)			49,600
		Total Peak Flow	469,600

Phase 7 - Parcel 2 **25.7 Acres**

Building Type	Gross Sq Footage	Sewage Coefficient (gpd/SF)	Wastewater Generation (gpd)
Office	1,080,000	0.140	151,200
		Total ADWF	151,200
WWGI & RDI/I (approximate)			25,700
		Total Peak Flow	403,700

Phase 8 - Parcel 2 **35.2 Acres**

Building Type	Gross Sq Footage	Sewage Coefficient (gpd/SF)	Wastewater Generation (gpd)
Office	1,080,000	0.140	151,200
		Total ADWF	151,200
WWGI & RDI/I (approximate)			35,200
		Total Peak Flow	413,200

Total By Parcel **240 Acres**

Building Type	Gross Sq Footage	Total Generation (gpd)
Parcel 1	1,200,000	168,000
Parcel 2	2,160,000	302,400
Parcel 3	720,000	100,800
Parcel 4	4,259,400	941,506
Parcel 5	825,000	236,432
	Total ADWF	**1,749,138**
	Total WWGI & RDI/I (estimate)	**240,000**
	Total Peak Flow	**4,612,845**

5.2 Proposed System

The It is anticipated that the proposed sanitary sewer system for the Project will connect to the existing City gravity trunk sewers between Parcels 3 and 4, in Lafayette Street and in Stars and Stripes Drive. The preliminary locations for the points of connection and for the routing of the sewers within a development parcel are provided on Figures 2 through 14 and Drawings CSS-2.01 through CSS-2.04. The preliminary design includes multiple gravity sanitary sewer systems with laterals, mains, manholes and cleanouts designed per City standards. The pipes will be sized for the capacity to convey the total peak wet weather flow at a minimum velocity of 2 fps when flowing half full and no more than 0.75 full. Parcel 1 and Parcel 2 will connect to the westernmost existing 42 inch sewer in Lafayette Street. Parcel 3 and Parcel 4 will connect to the existing 42 inch sewer located between Parcels 3 and 4. Parcel 5 will connect to the Stars and Stripes Drive sewer system, which may need to be completely replaced to accommodate the development. The proposed sanitary systems are proposed as looped systems to provide redundancy as required by the City. Note the preliminary sewer sizes vary from 10 to 14 inches, and the quantities are provided in Section 6 Phasing Matrix and on the Figures.

The non-standard design elements that are incorporated into the design of the sanitary sewer system to address the landfill issues for the Project include interstitial spaces, settlement slabs, settlement vaults/flexible connections, special utility trenching for landfill cap disruption and refuse handling and considerations for methane gas. Typical utility/roadway corridor sections have been prepared for several variations of roadways, streetscape amenities and the multiple utilities that will be located within each street (sewer, storm drain, domestic/fire water, recycled water, gas, joint trench, automated waste collection, landfill gas extraction system). A variety of

sanitary sewer details are provided as Figures 15 through 24 and a description of how each non-standard element is incorporated into the design are as follows:

- Interstitial Spaces – Beneath the buildings within the City Center portion of the Project there will be an interstitial space. The current design assumes a 5-ft interstitial space and sanitary sewer invert at the building point-of-connection at 5-ft below first floor elevations (FFE). The interstitial space will allow the sewer utility, as well as other building utilities, to be accessible from within the building first floor space without disrupting the landfill systems. The sewer will need to be hung from the first-floor slab within the interstitial space and transition to the sewer lateral (2% minimum slope) at a cleanout positioned in the sidewalk adjacent to the building.

- Structural Slabs – With respect to Parcel 4 and the proposed City Center, the majority of the sanitary sewer system will be constructed on a structural slab supported on deep foundations. The approximate limits of the structural slab within the City Center portion of the Project are provided on Drawing CSS-2.04. The slabs will support the roadways between the proposed City Center buildings and have been designed to minimize disruption to the landfill cap and refuse. The sewers are currently designed as a gravity system, which has a direct impact on the depth of the structural slab relative to street grade. The City requires a minimum depth of cover of 6-ft for sewer mains and 4.5-ft for sewer laterals (at curb). These cover requirements set the depth of the sewer at the upstream end of the system and impact the depth of the settlement slab. The Sewer Plans identify the areas where the deeper settlement slabs, as set by the gravity sewer (and storm drain), may impact the landfill cover and refuse. The settlement slabs should extend to the limits of the refuse to allow for a smooth transition within the settlement vaults as the swath of non-refuse area within Parcel 4 is being utilized for the deeper sewer mains.

- Settlement Vaults/Flexible Connections – At locations where utilities transfer from a structurally supported condition (over a settlement slab or from a pile-supported building) to a typical "terra firma" (on sub-grade) support condition settlement vaults and/or flexible connections are included in the design. Specific for sanitary sewers, these vaults, which will be direct buried concrete structures, will either enclose a flexible connection (such as a Flex-Tend device) or be located adjacent to a building structure to allow for a piped configuration within the vault to settle. The locations of the settlement vaults based on the preliminary sanitary sewer design are included on the plans.

- Utility Trenching for Landfill Cap Disruption – As the gravity sewer (and storm drain) systems get deeper, there are instances where, based on our current information, the landfill cap will be disrupted by a sewer utility trench and refuse will need to be removed. Within Parcel 4, this will occur towards the edges of the settlement slab and within Parcels 1, 2 and 3 will occur as the sewer makes the final transition down the landfill slope. The Sewer Plans identify the areas where the deeper utility trenches as set by the gravity sewer (and storm drain), may impact the landfill cover and refuse.

5.3 Off-Site System

A Sanitary Sewer Capacity Evaluation for City Place Development dated August 6, 2015 was prepared for the City by RMC Water and Environment (included in Appendix C). The model predicted that the downstream pipes of the development would be approaching full capacity with

the additional flow, but no surcharge was triggered. The technical memorandum summarized a hydraulic model showing the sanitary sewer system capacity with and without the respective development. This model was based upon the 2035 peak wastewater generation provided in the City of Santa Clara General Plan Phase 3. The model predicts that without the City Place Santa Clara development, the total effluent flow based on the 2035 flow will be 43.0 MGD. With the City Place Santa Clara development, the total effluent flow to the pump stations is estimated to be 44.8 MGD.

The City's model did not include the Rabello and Northside pump stations. However, the 2035 estimated peak wet weather flow of 44.8 MGD, which includes the Project, is approximately 6.6 MGD higher than the current Rabello and Northside Pump Station system's Firm Capacity of 38.2 MGD. Due to this, the Firm Capacity of these pump stations will need to be upgraded to meet the demand of the 2035 General Plan Load. The upgrades would include additional wet well and pumping capacity as well as force main improvements.

The City's peak flow estimates included all planned major developments and redevelopments as well as potential increased densities in certain areas consistent with the City's 2035 General Plan. As such, the Project is not the sole contributor of wastewater to the system and should not be solely responsible for the system upgrades that will be required as part of the 2035 General Plan. An assessment of the pumping station capacity should be performed and used to determine the timing of the improvements and the contributors. As no flow from the Site was previously included in the City's hydraulic model developed for the 2035 General Plan, the Project will be responsible for a portion of the pump station improvement costs. The threshold for when the pump stations improvements would be required remains to be determined by the City. An estimate of the potential timing of the pump station improvements would need to be completed soon after the Project is entitled. The current phasing is provided in the Section 6 Phasing Matrix. This timing should be updated as the City continues assessing the sewer capacity issues as part of the General Plan updates.

6.0 PHASING

The current Project planning includes a phasing strategy for the full development of the five sites in eight phases. Parcels 4 and 5, the location of City Center, would be developed in the first four phases. Parcel 3 would be developed in phase 5, Parcel 1 in phase 6 and Parcel 2 in phases 7 and 8. Based on this current phasing the following Sanitary Sewer Phasing Matrix provides details and quantities for the various components of the sanitary sewer system for the Project. The matrix can be adjusted as the phasing is modified such that costs can be properly allocated.

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SANITARY SEWER PHASING MATRIX								
Phase / Parcel	**Gross Sq. Footage**	**Sewer Pipe (LF)**	**Manholes (#)**	**Laterals (LF)**	**Clenaouts (#)**	**Settlement Vaults/Flexible Connections (#)**	**Refuse Trenching (CY) Note 2**	**Off-Site Improvements**
1 / 5	825,000	1,418 – 14"	4	332	2	0	0	New Stars and Stripes Sewer
2 / 4	2,411,470	941 – 10" 2,980 – 12" 1,586 – 14"	20	1,556	24	10	7,500	Two MH Connections to P3/P4 42 inch sewer See Note 1
3 / 4	752,030	947 – 10"	5	1,133	14	7	1,000	See Note 1
4 / 4	1,095,900	489 – 12"	2	183	4	4	0	See Note 1
5 / 3	750,000	2,235 – 12" 894 – 14"	17	240	5	5	0	One MH Connection to P3/P4 33 inch sewer.
6 / 1	1,200,000	1,636 – 10" 686 – 12"	15	489	8	8	9,200	One MH Connection to Lafayette Street sewer
7 / 2	1,080,000	1,692 – 10" 606 – 12"	10	253	6	6	6,600	One MH Connection to Lafayette Street sewer
8 / 2	1,080,000	1,343 – 10"	6	231	6	6	4,600	-

Notes:
1. Depending on pace of development in the City improvements to Rabello and Northside pump stations may be required. (The potential timing of the upgrades is discussed in Section 5.3).
2. Refuse Trenching for settlement slab include average width of 20-ft and depth of 5-ft.

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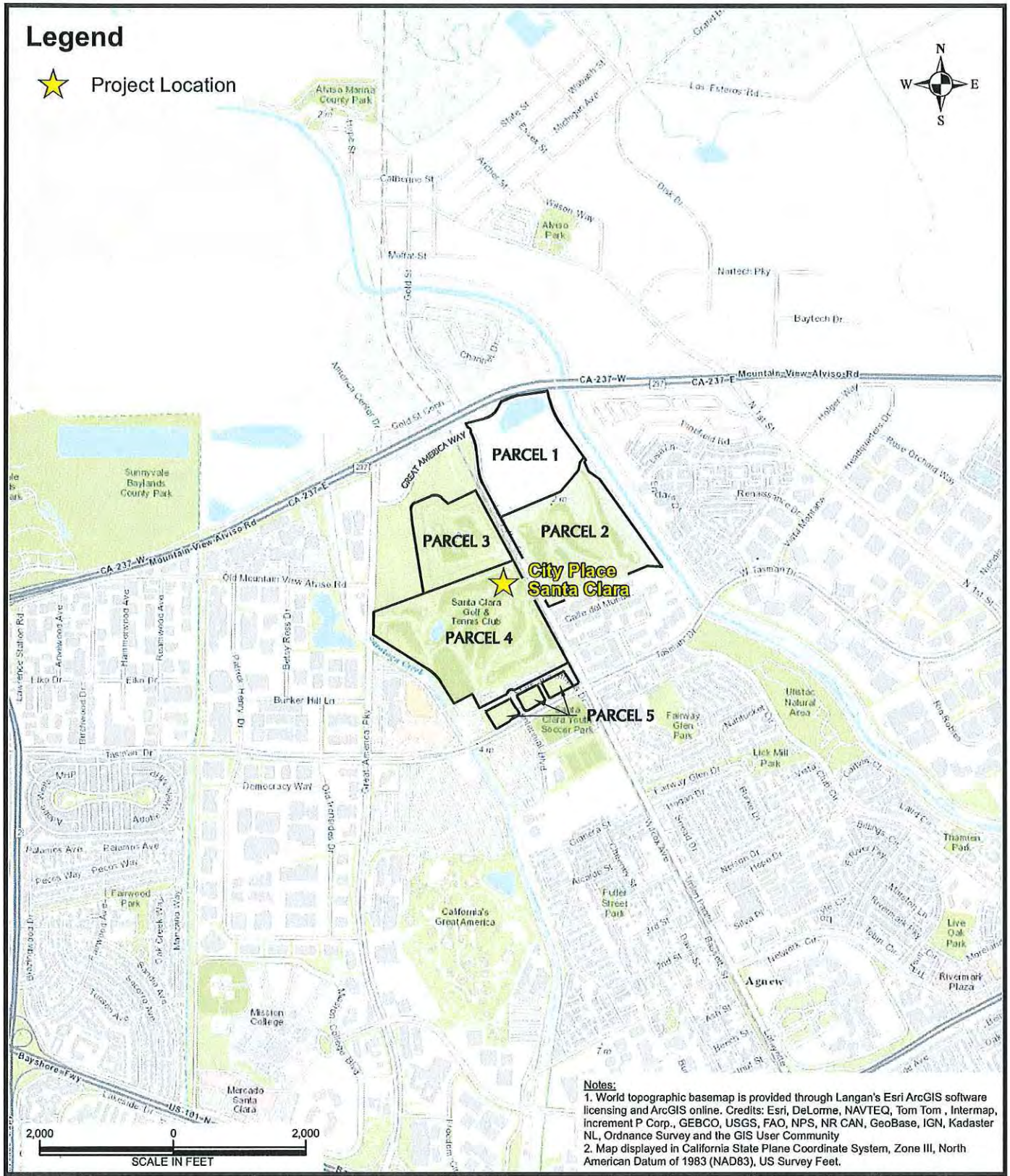
FIGURES



Notes:
1. World topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online. Credits: Esri, DeLorme, NAVTEQ, Tom Tom , Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NR CAN, GeoBase, IGN, Kadaster NL, Ordnance Survey and the GIS User Community
2. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

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San Jose, CA 95117
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SITE LOCATION MAP

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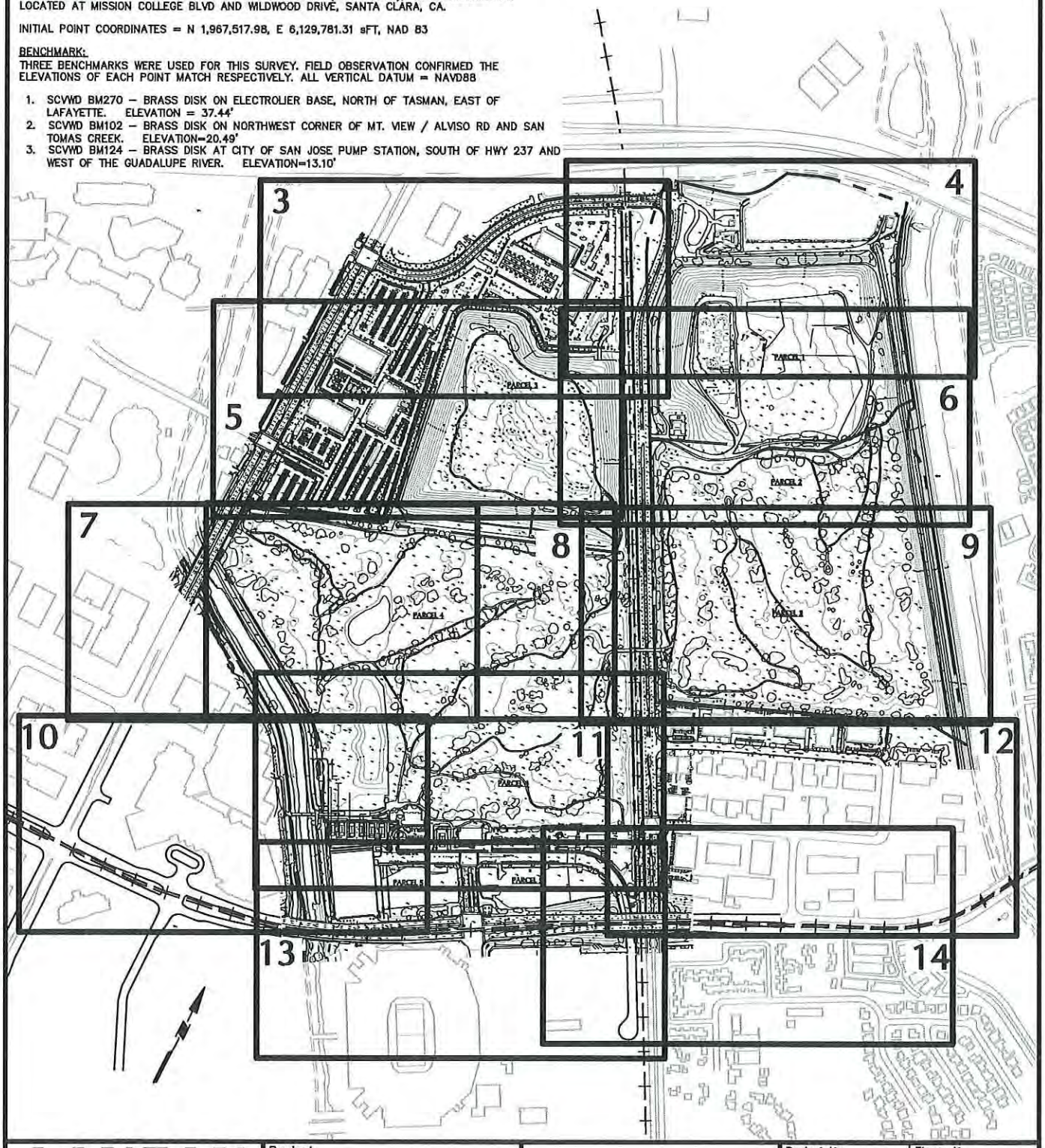
Figures from Grading and Site Access Technical Memorandum

BASIS OF BEARINGS:
THE BEARING, NORTH 00°00'00" EAST, AS DETERMINED BY GPS OBSERVATION WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY. THE HORIZONTAL COORDINATES USED FOR THIS SURVEY ARE BASED ON THE STATE OF CALIFORNIA STATE PLANE SYSTEM, CA ZONE 3, AS ESTABLISHED FROM GPS OBSERVATION OF NGS POINT "HPGN D CA MISSION" (PID AA1873), AN ALUMINUM DISK LOCATED AT MISSION COLLEGE BLVD AND WILDWOOD DRIVE, SANTA CLARA, CA.

INITIAL POINT COORDINATES = N 1,967,517.98, E 6,129,781.31 sFT, NAD 83

BENCHMARK:
THREE BENCHMARKS WERE USED FOR THIS SURVEY. FIELD OBSERVATION CONFIRMED THE ELEVATIONS OF EACH POINT MATCH RESPECTIVELY. ALL VERTICAL DATUM = NAVD88

1. SCVWD BM270 – BRASS DISK ON ELECTROLIER BASE, NORTH OF TASMAN, EAST OF LAFAYETTE. ELEVATION = 37.44'
2. SCVWD BM102 – BRASS DISK ON NORTHWEST CORNER OF MT. VIEW / ALVISO RD AND SAN TOMAS CREEK. ELEVATION=20.49'
3. SCVWD BM124 – BRASS DISK AT CITY OF SAN JOSE PUMP STATION, SOUTH OF HWY 237 AND WEST OF THE GUADALUPE RIVER. ELEVATION=13.10'



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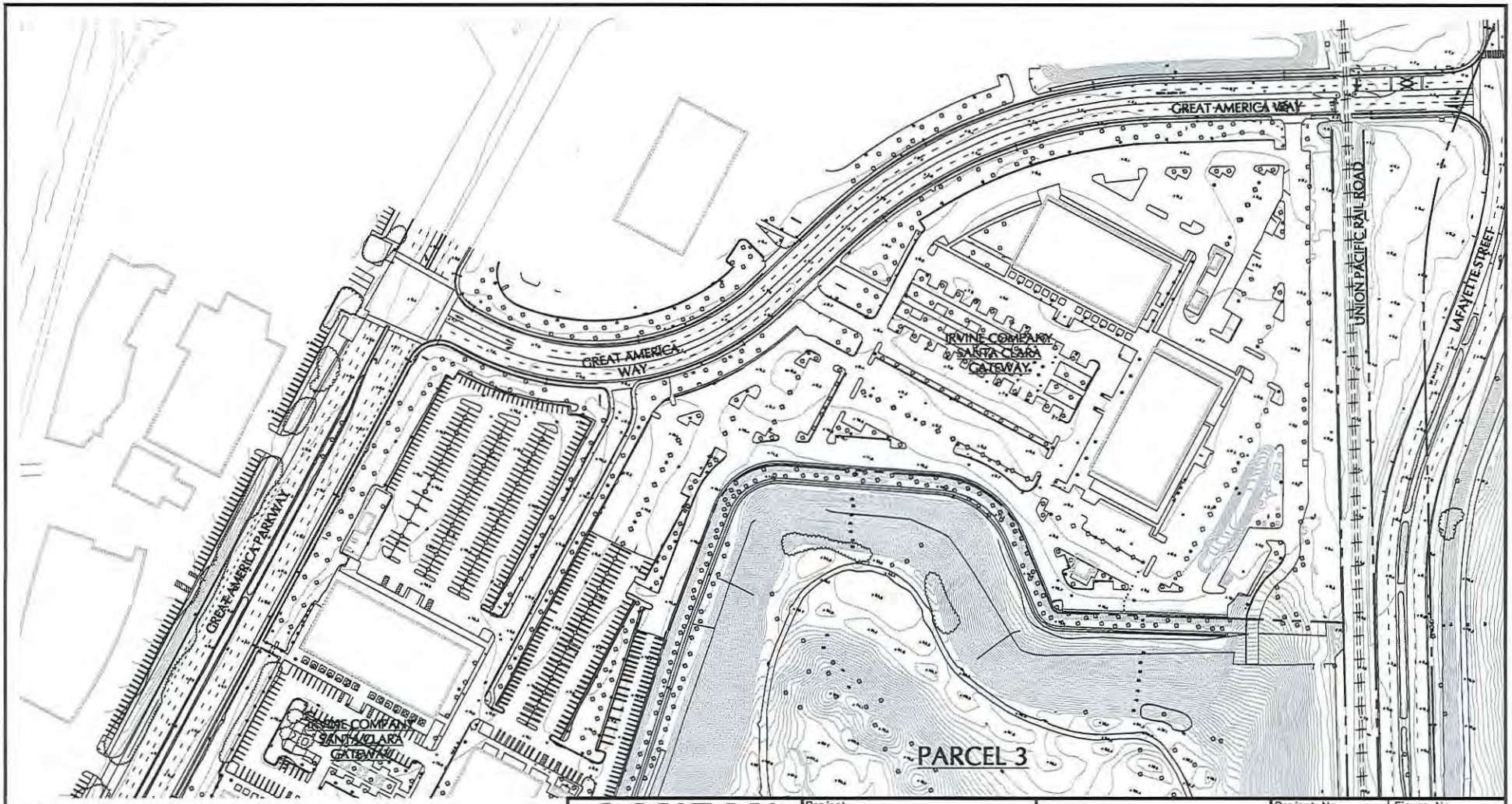

NOTE:
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Figure No. 3

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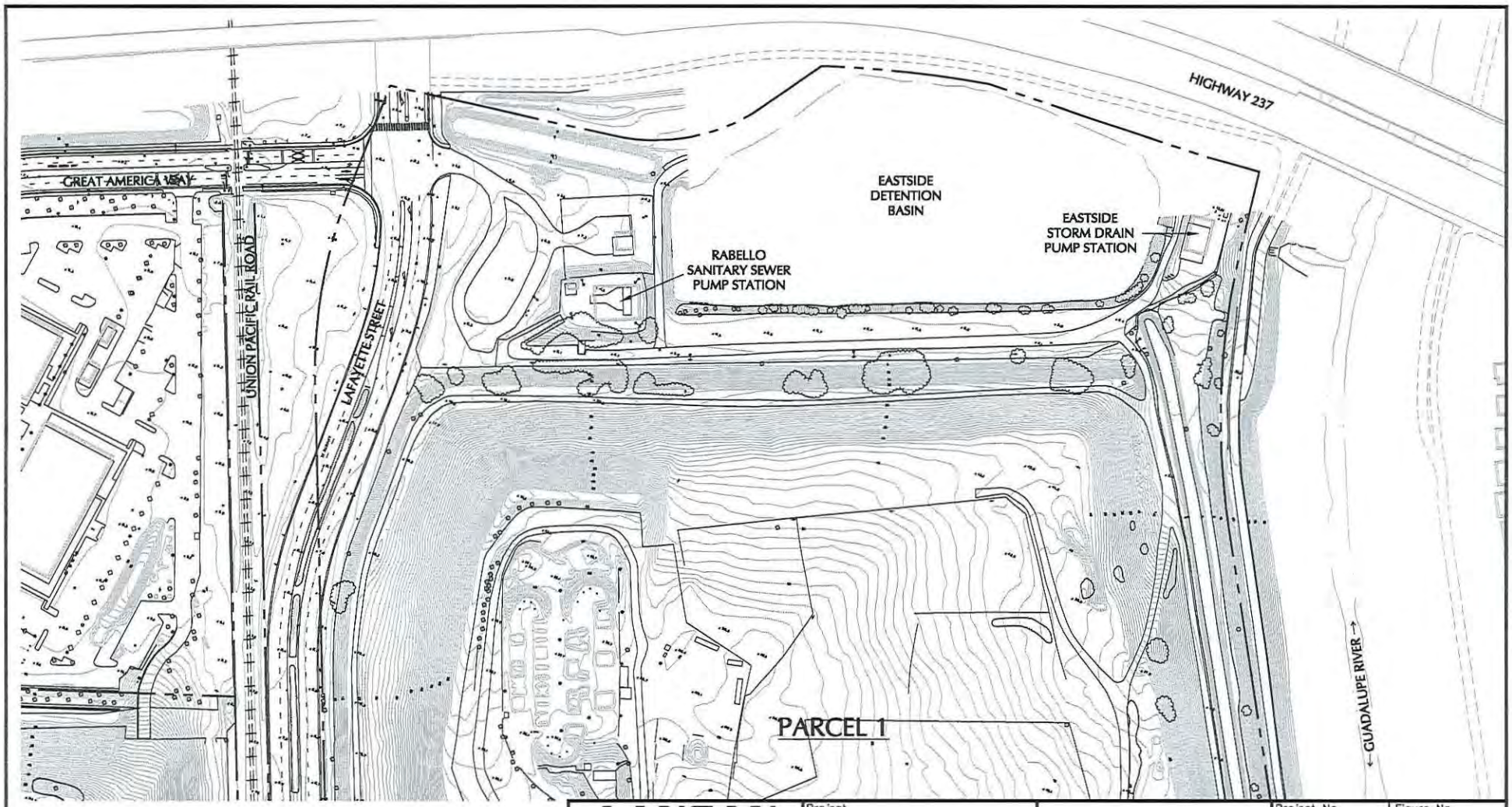

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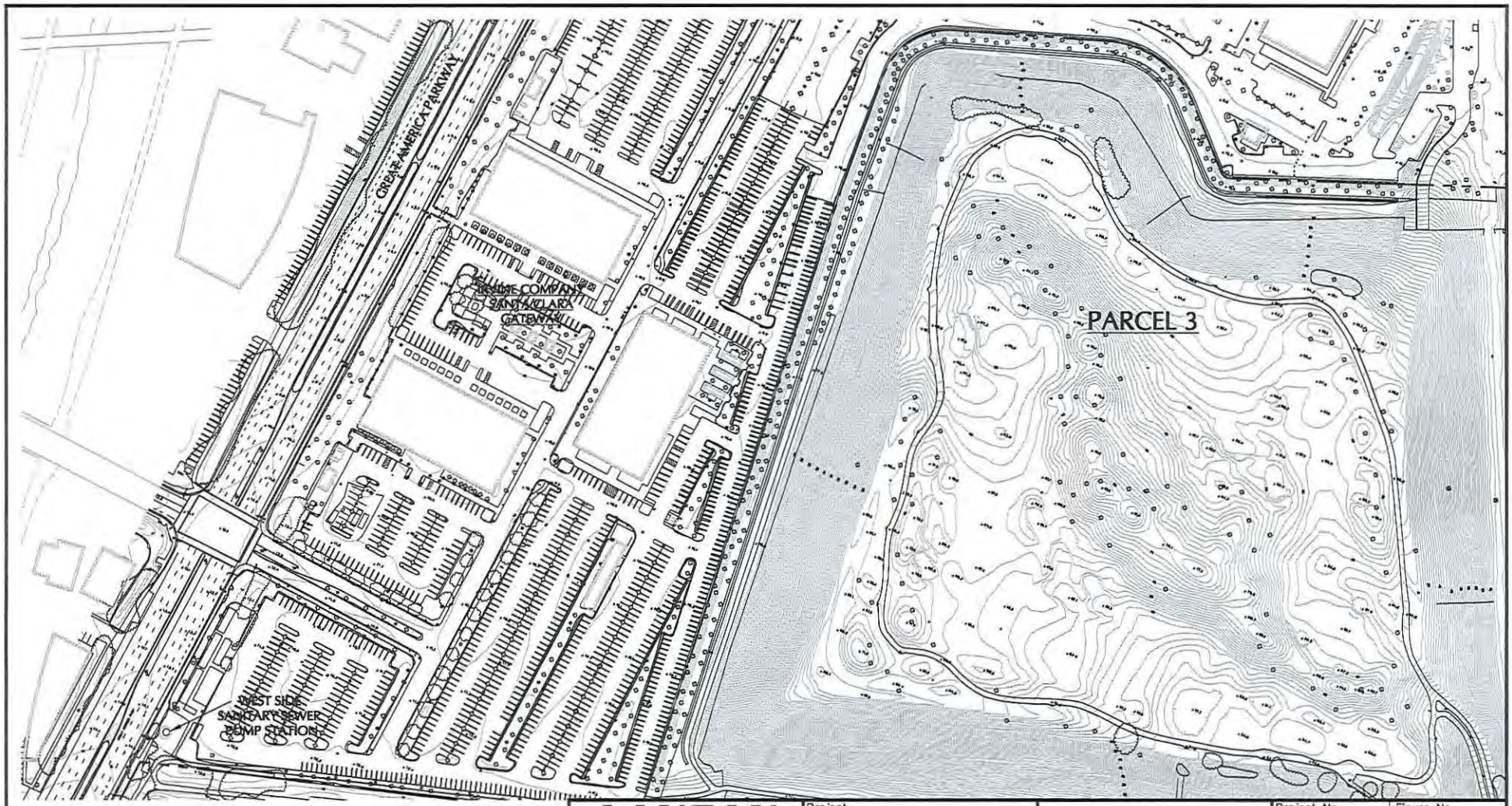

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Figure No. 5

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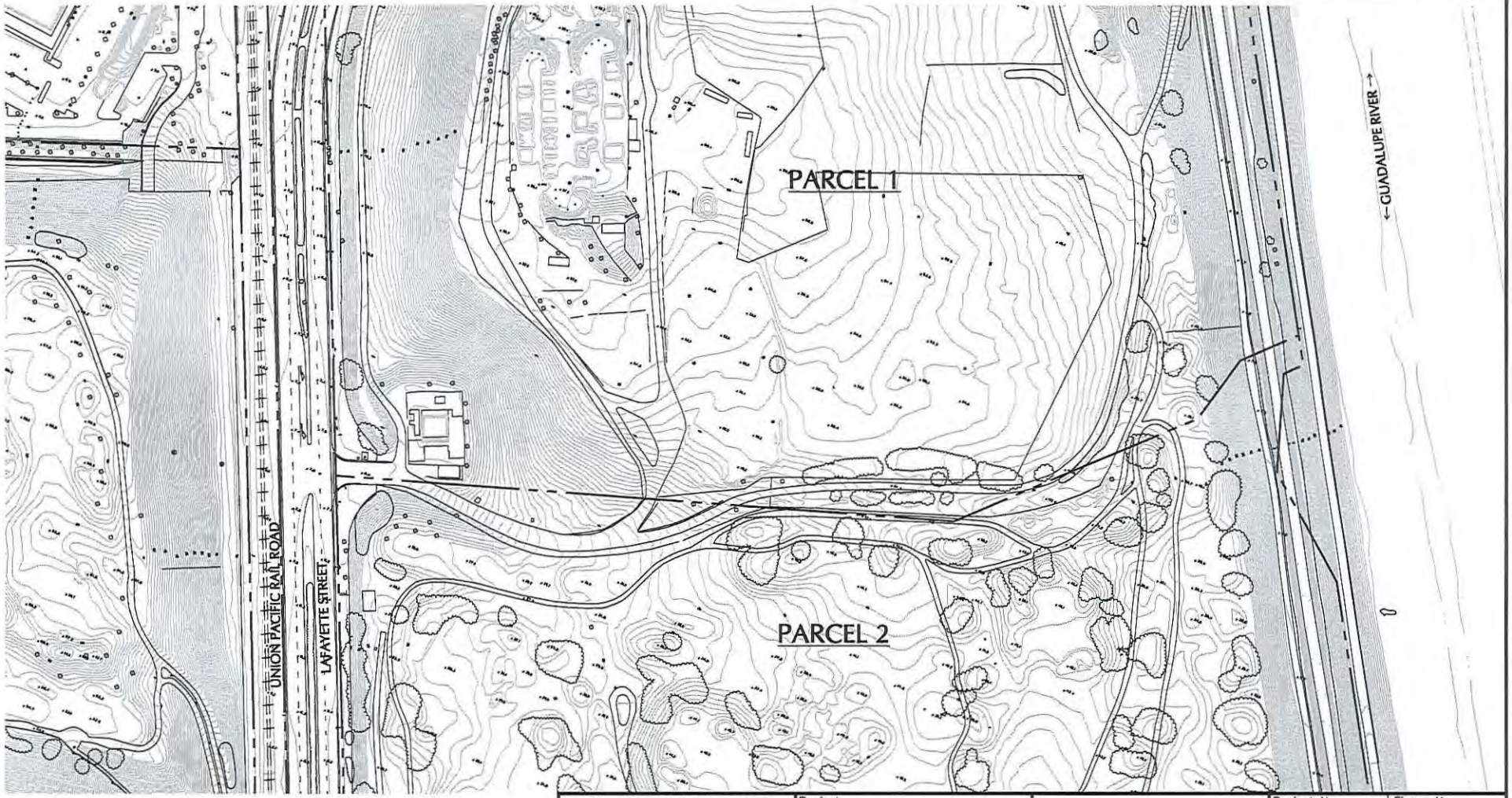

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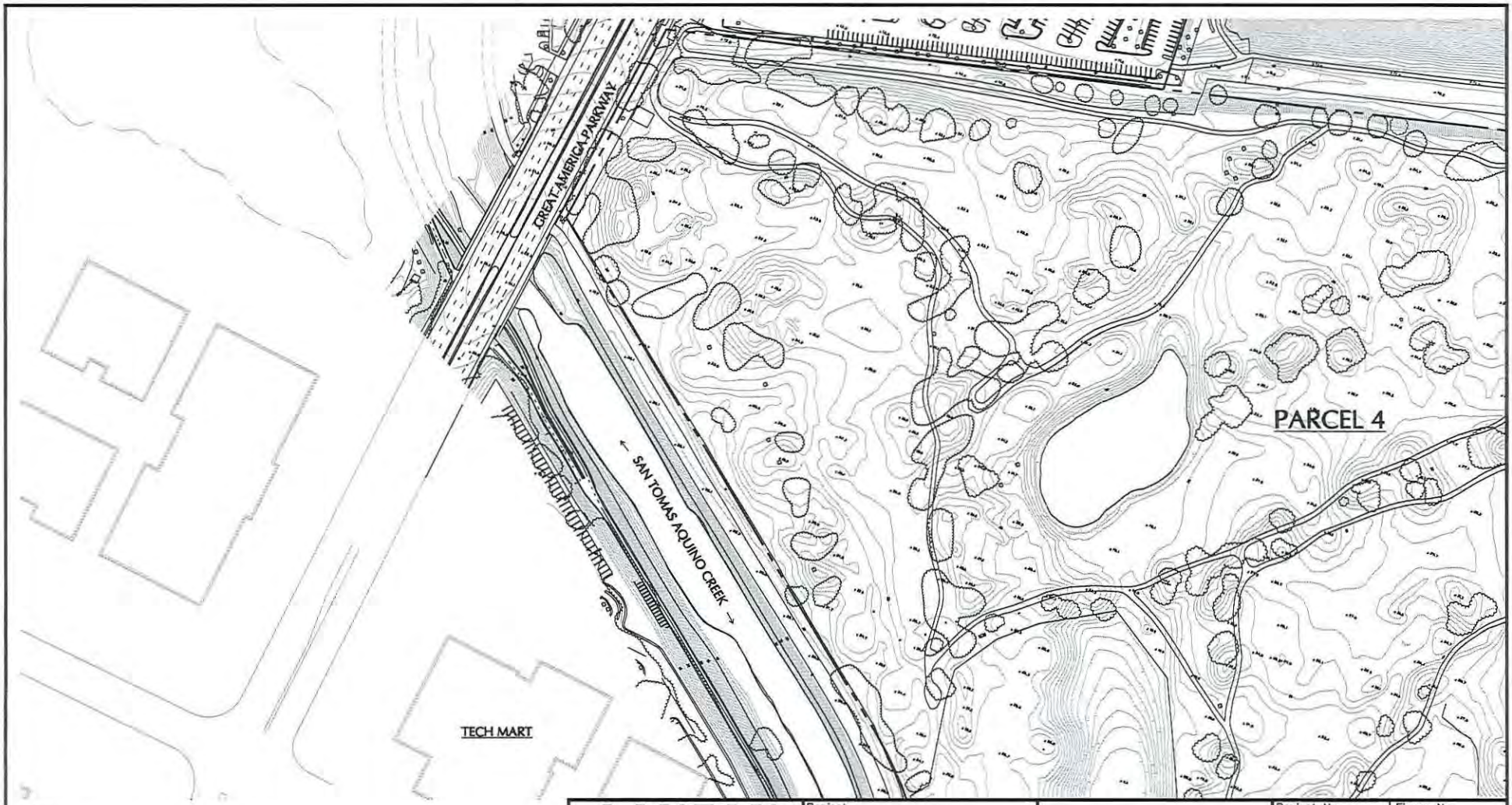

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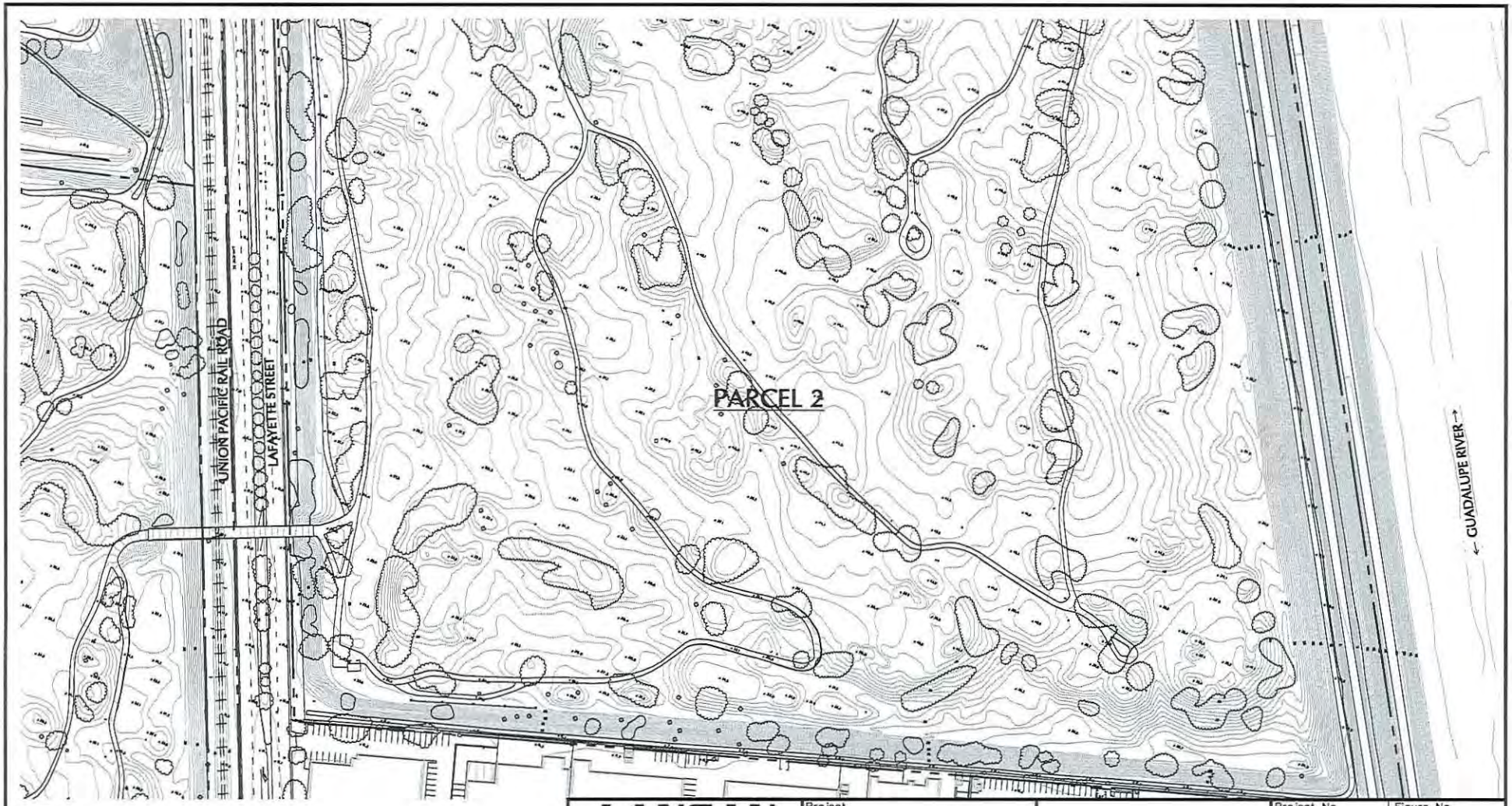

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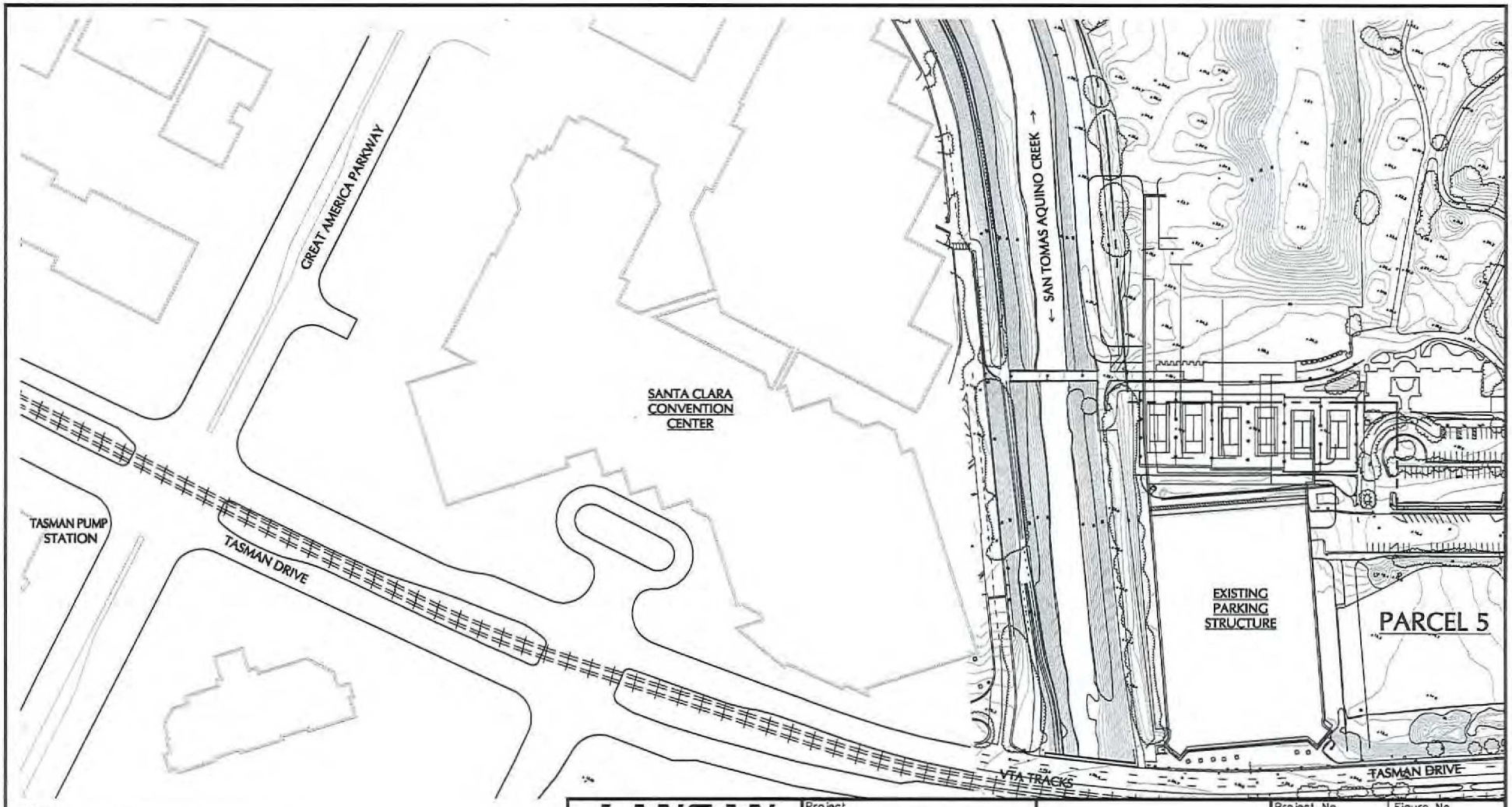

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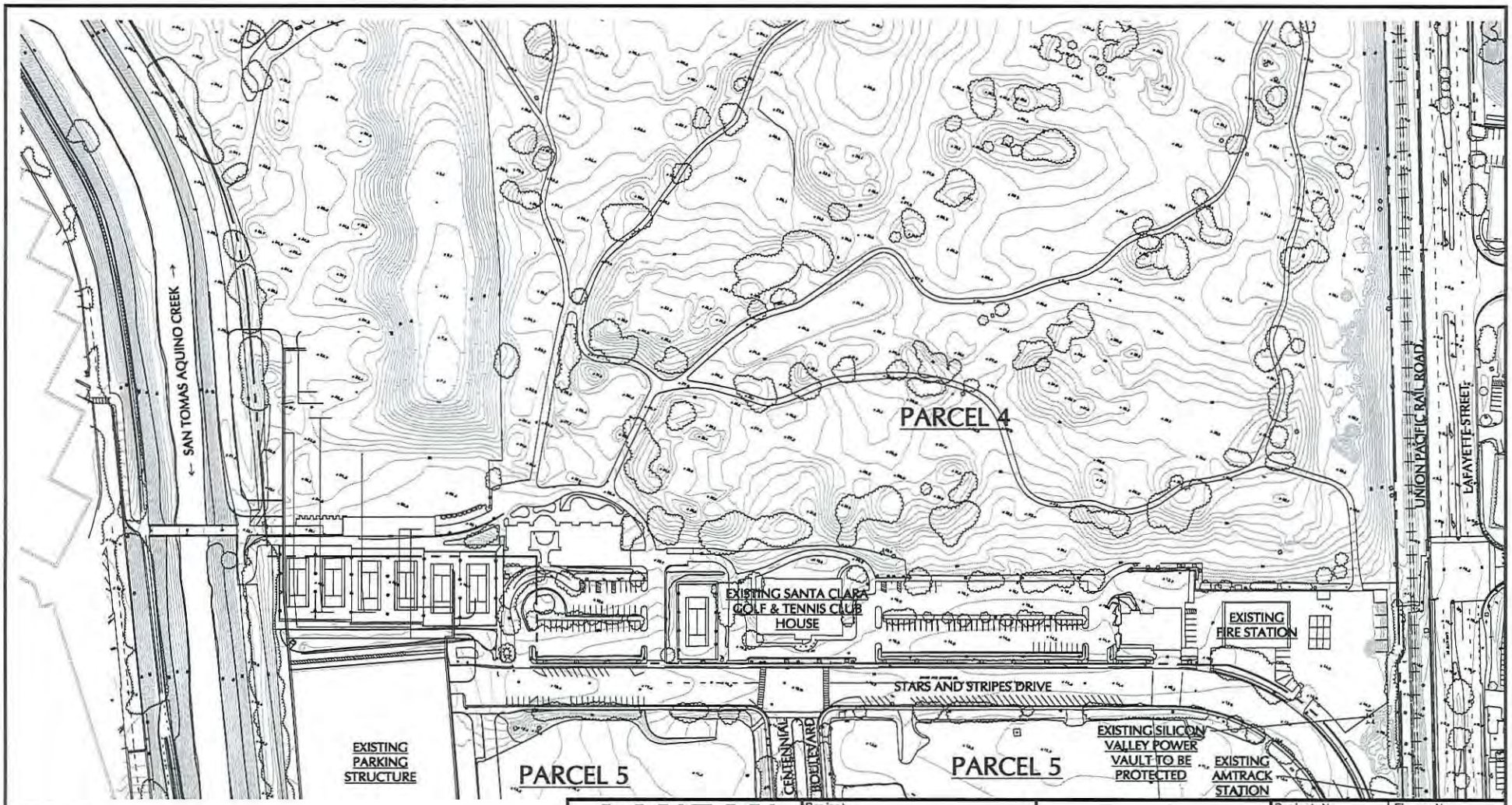

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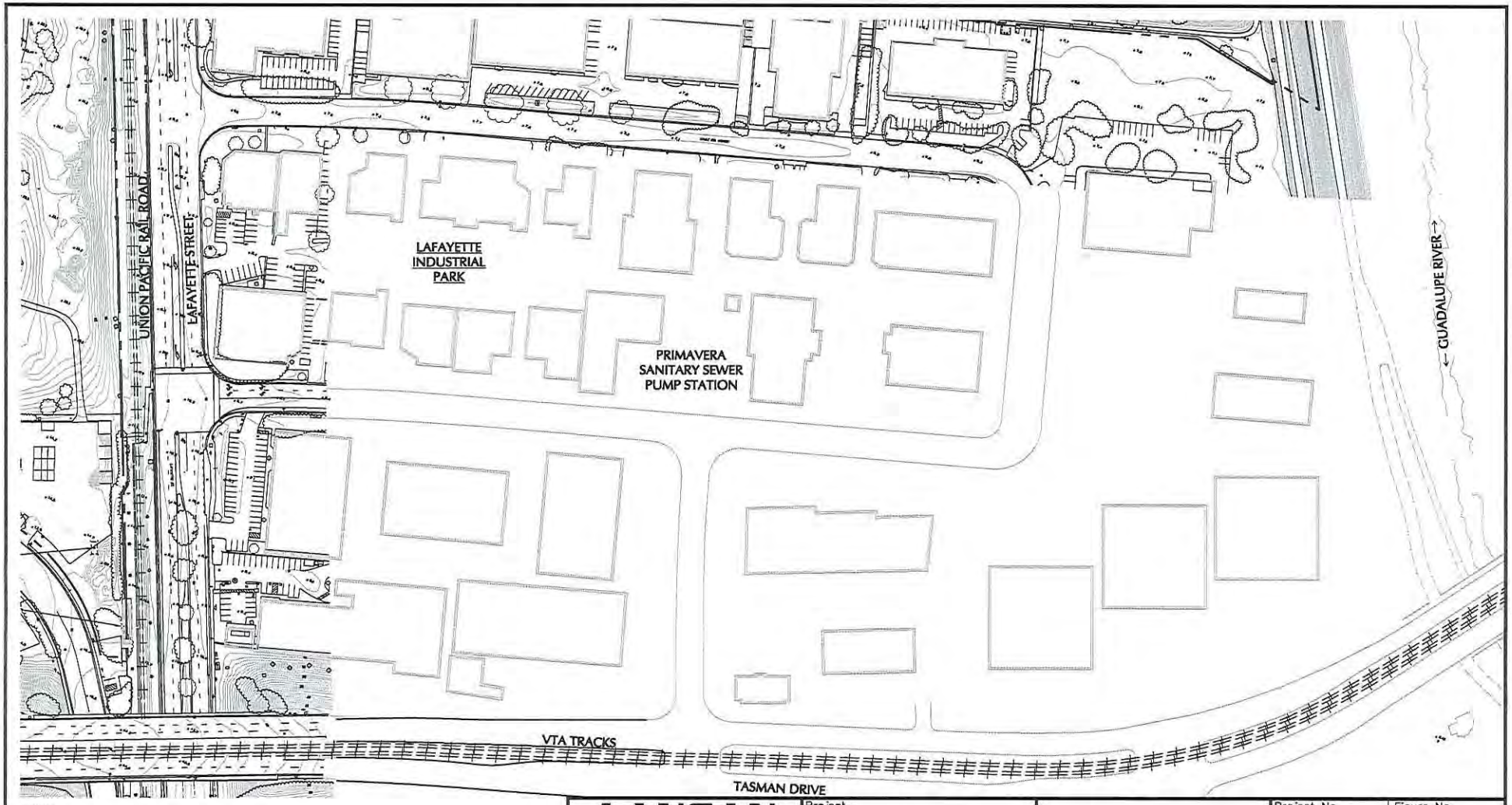

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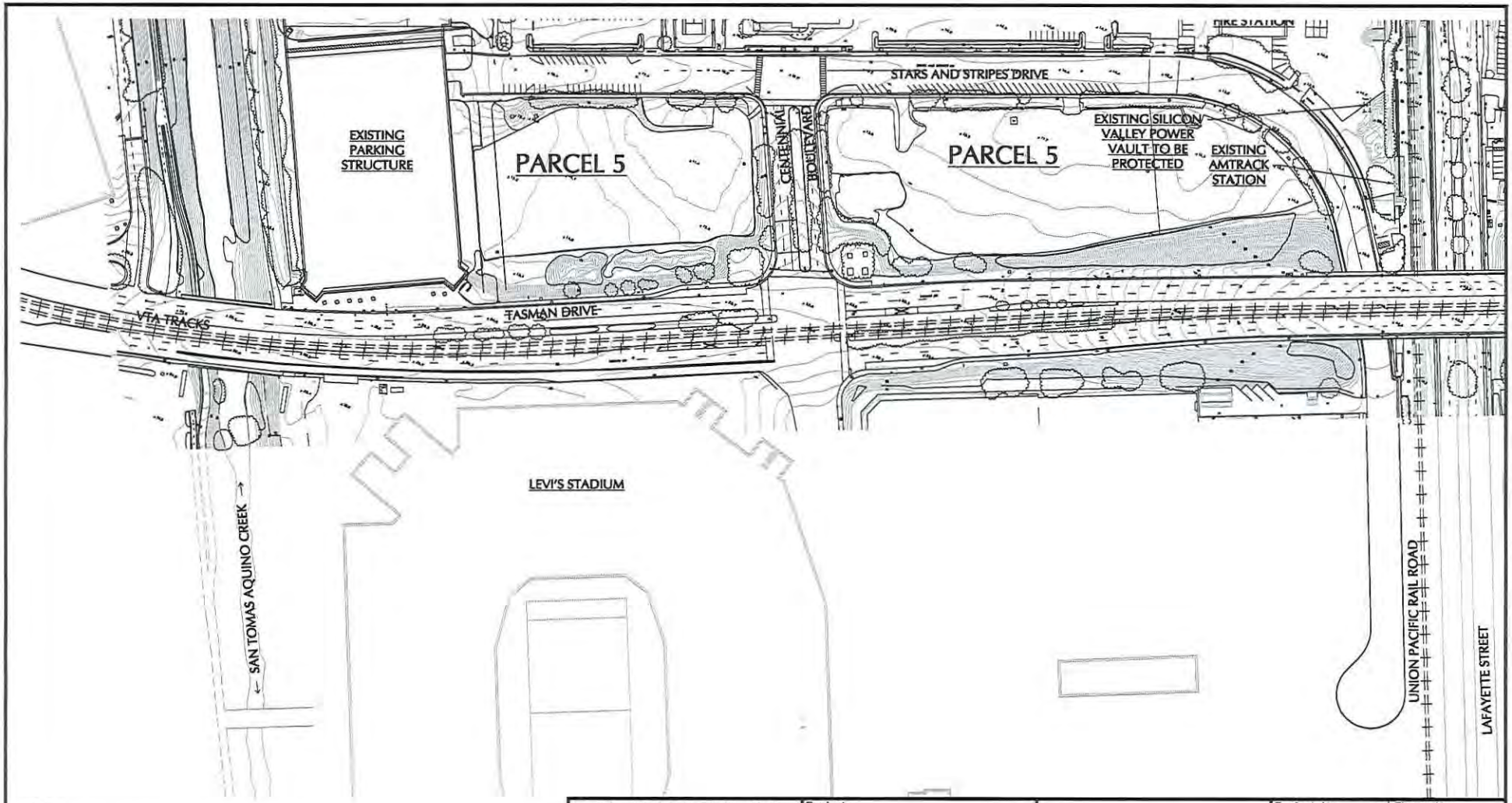

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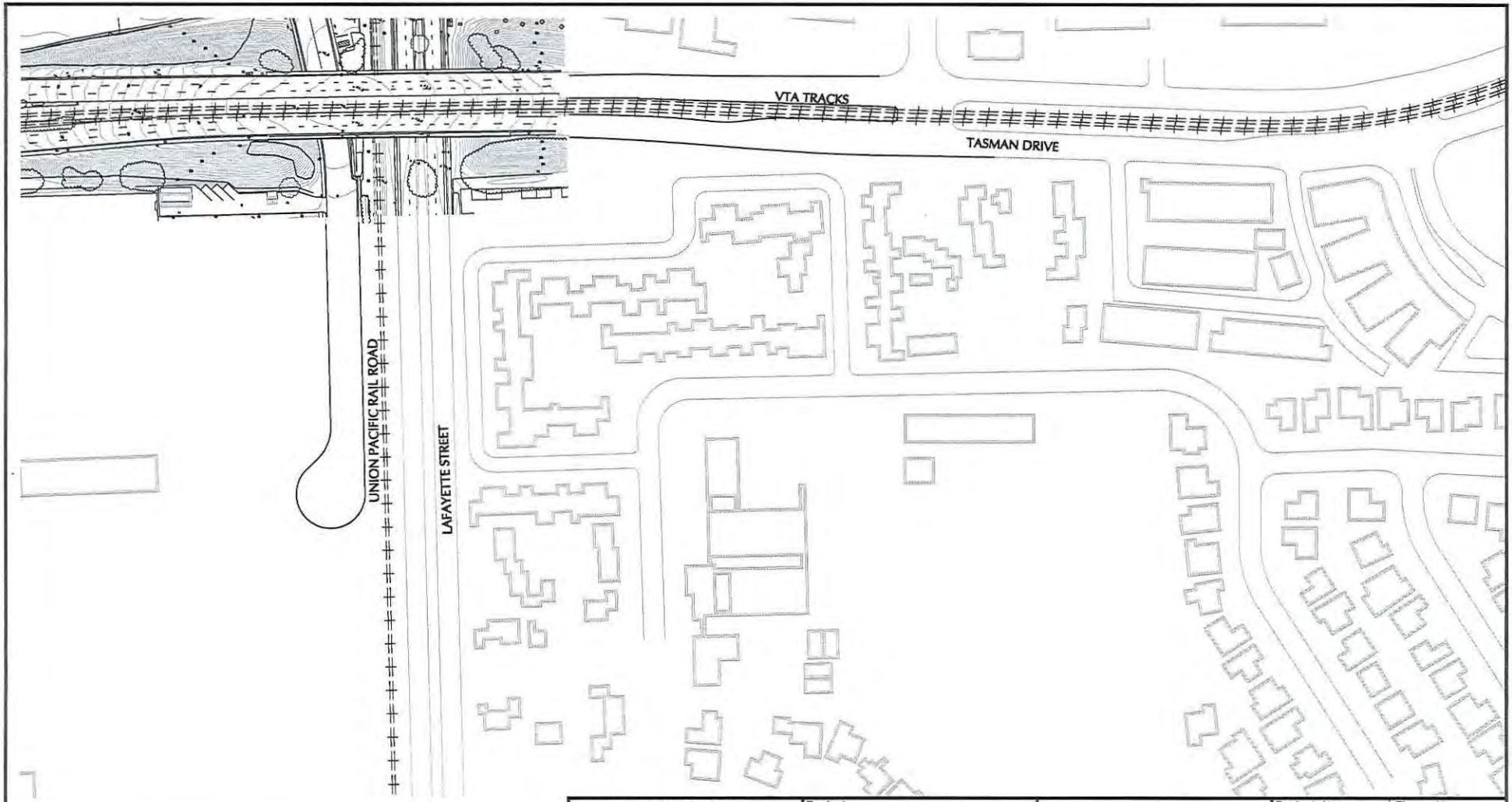

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EXISTING TOPOGRAPHY

Project No. 770611601	Figure No. 14
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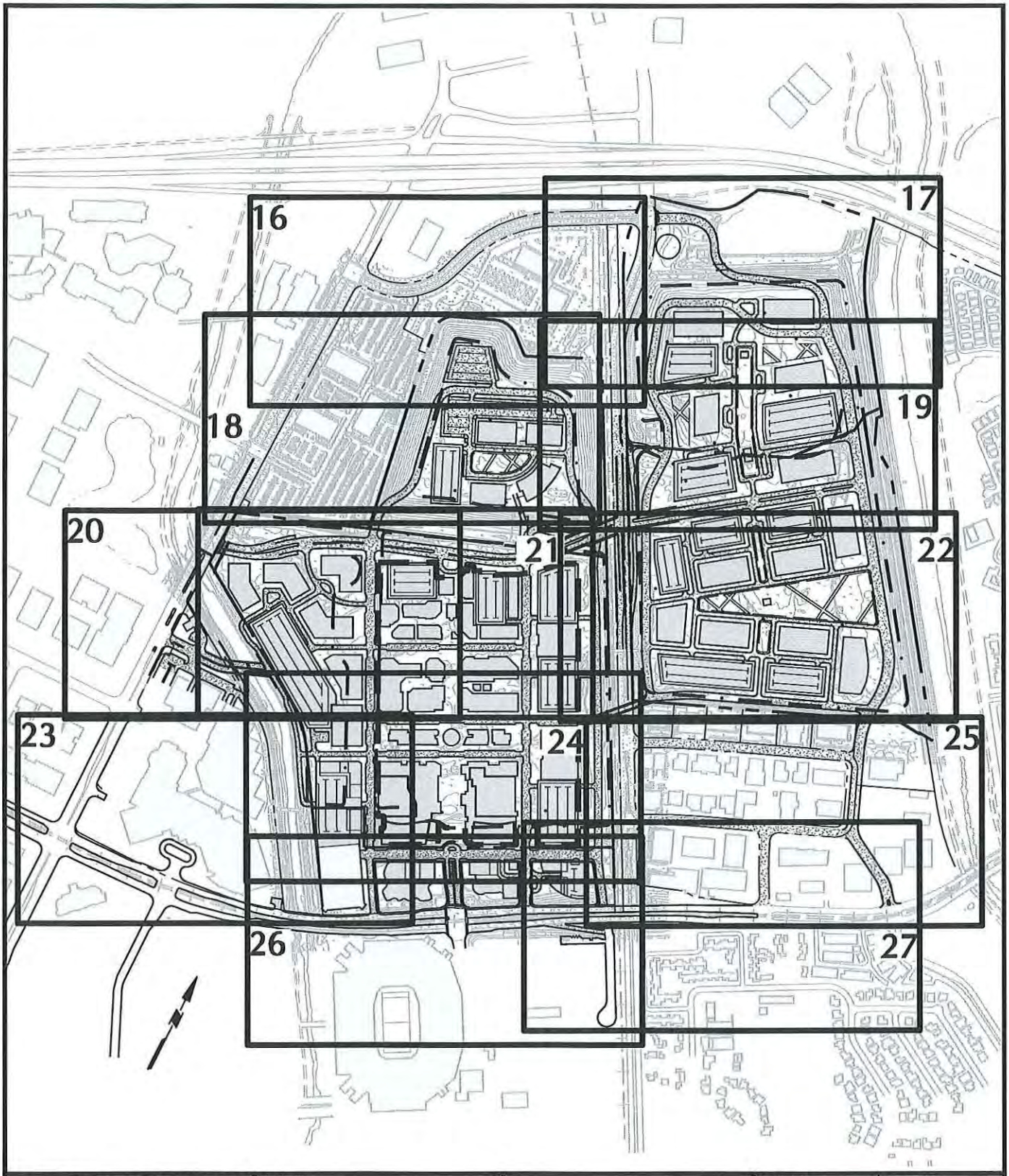

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PRELIMINARY GRADING KEY MAP

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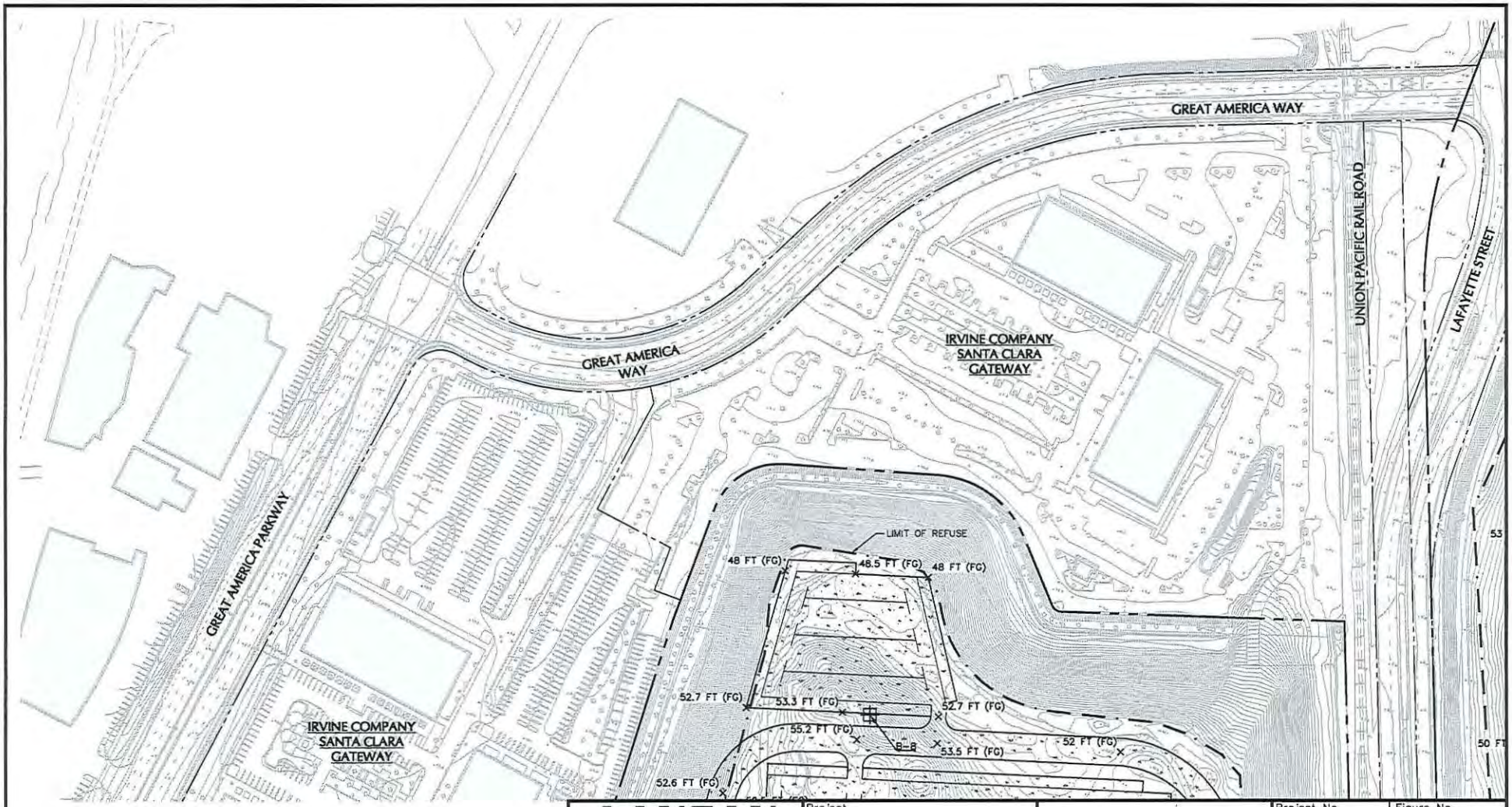

150 0 75 150
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Figure No.
16

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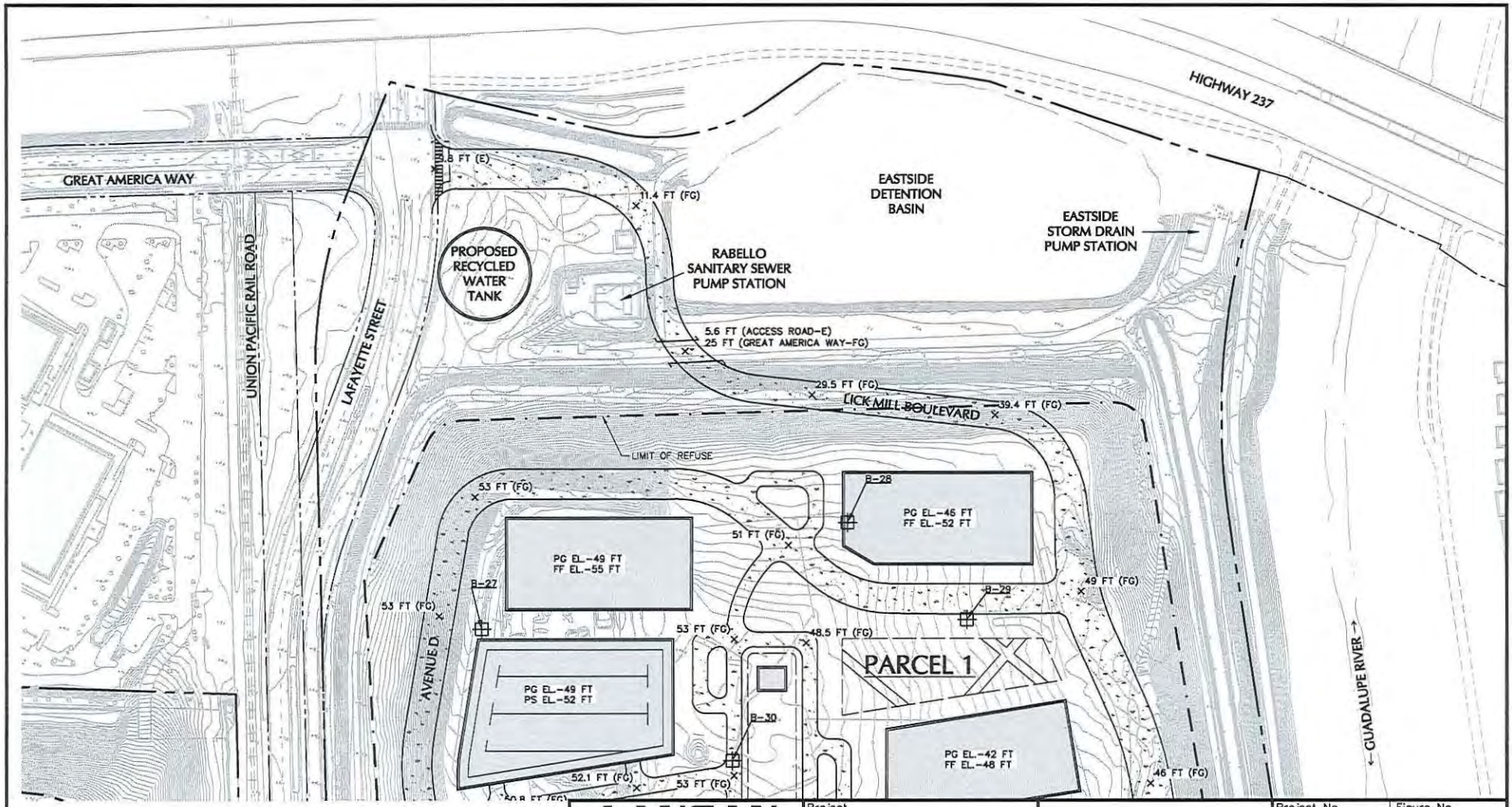

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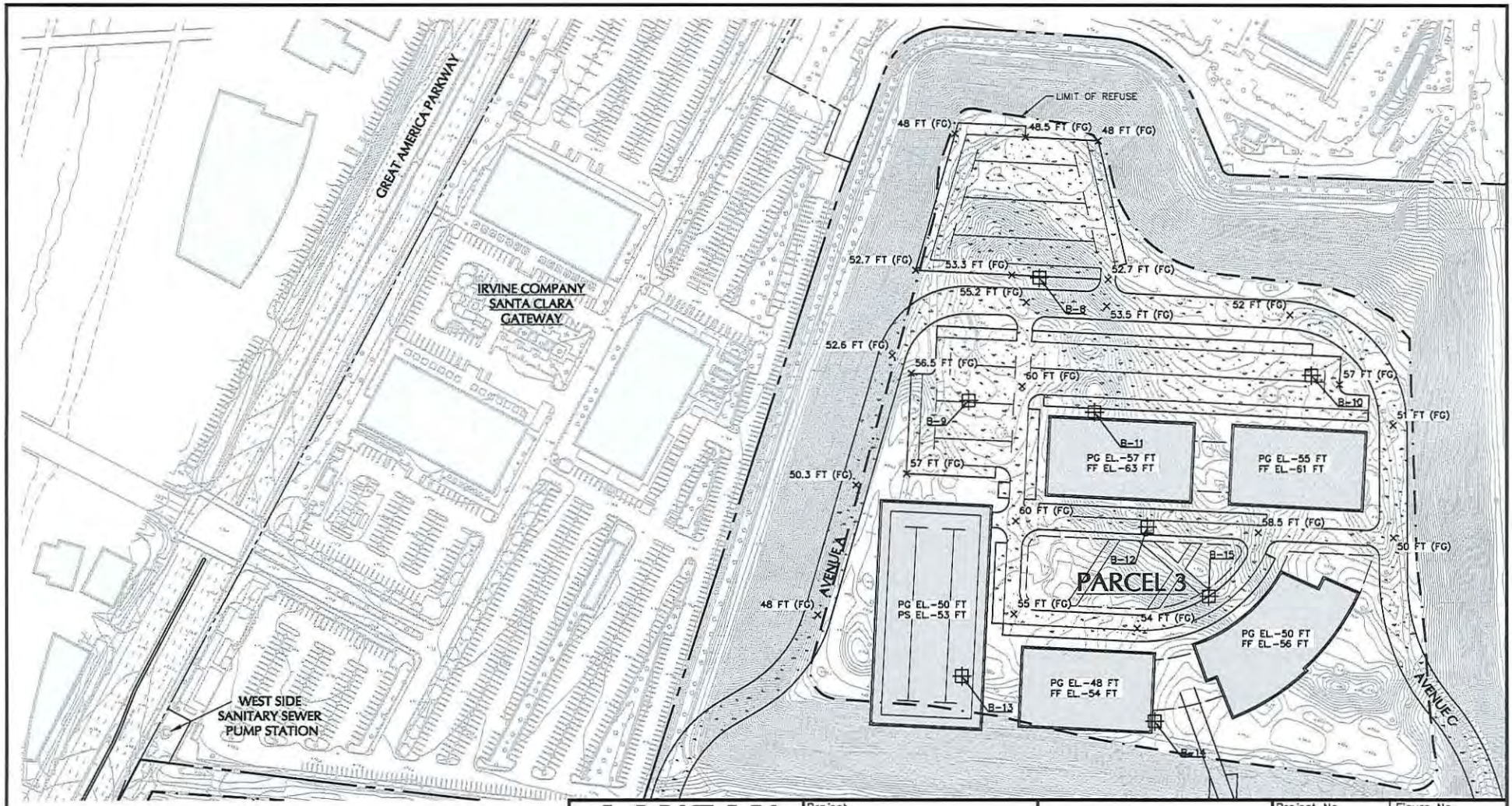

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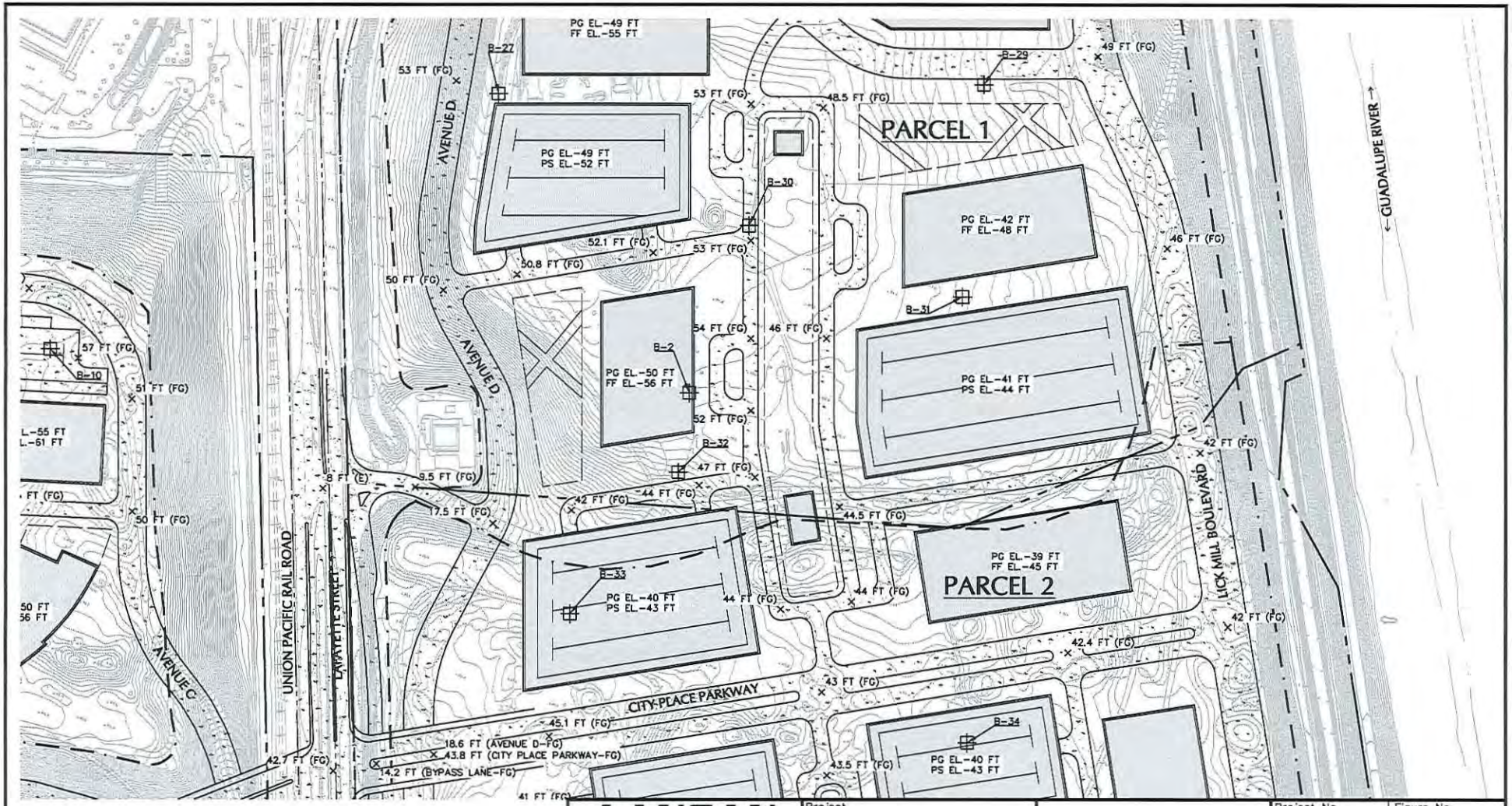

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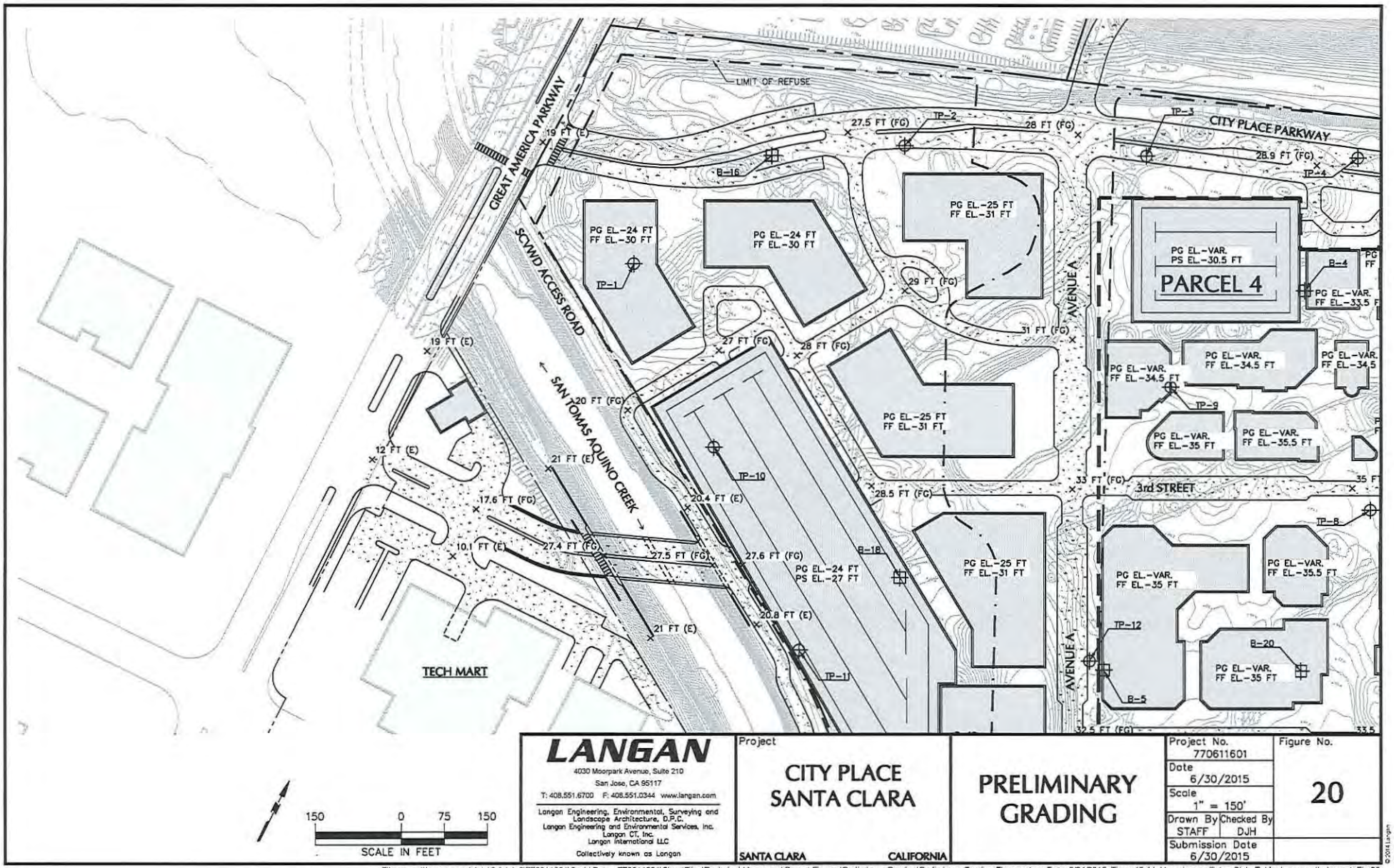

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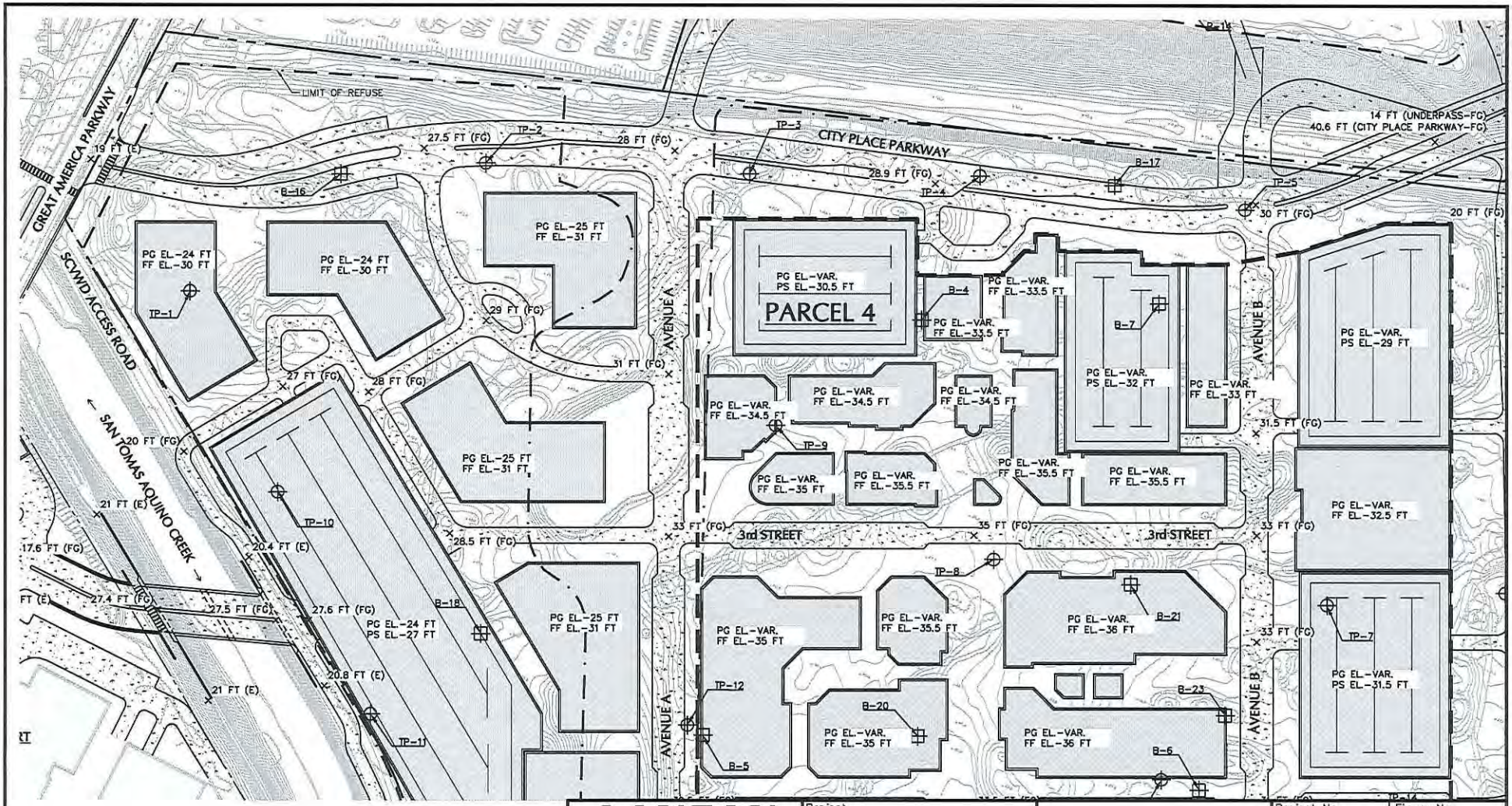

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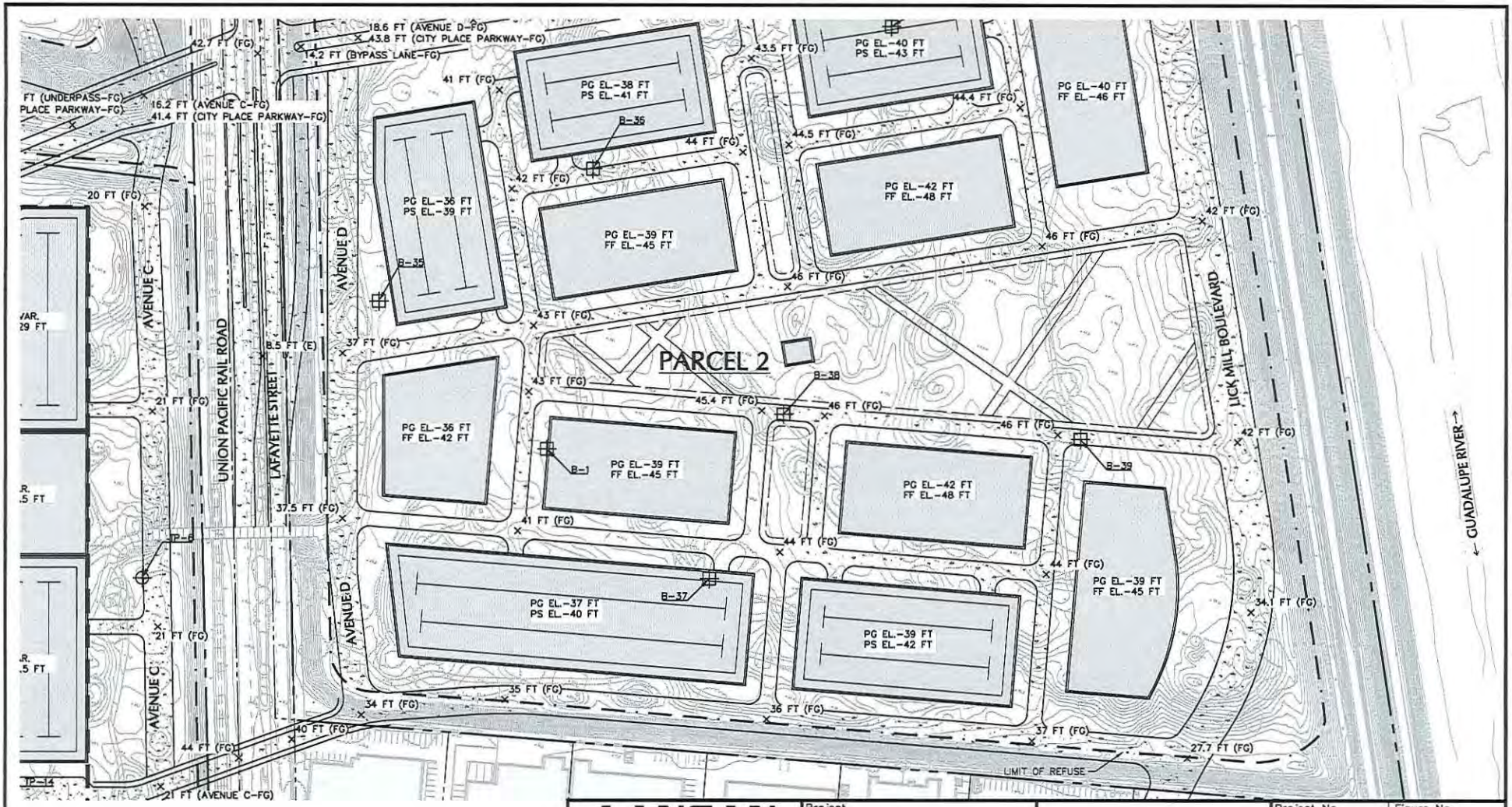

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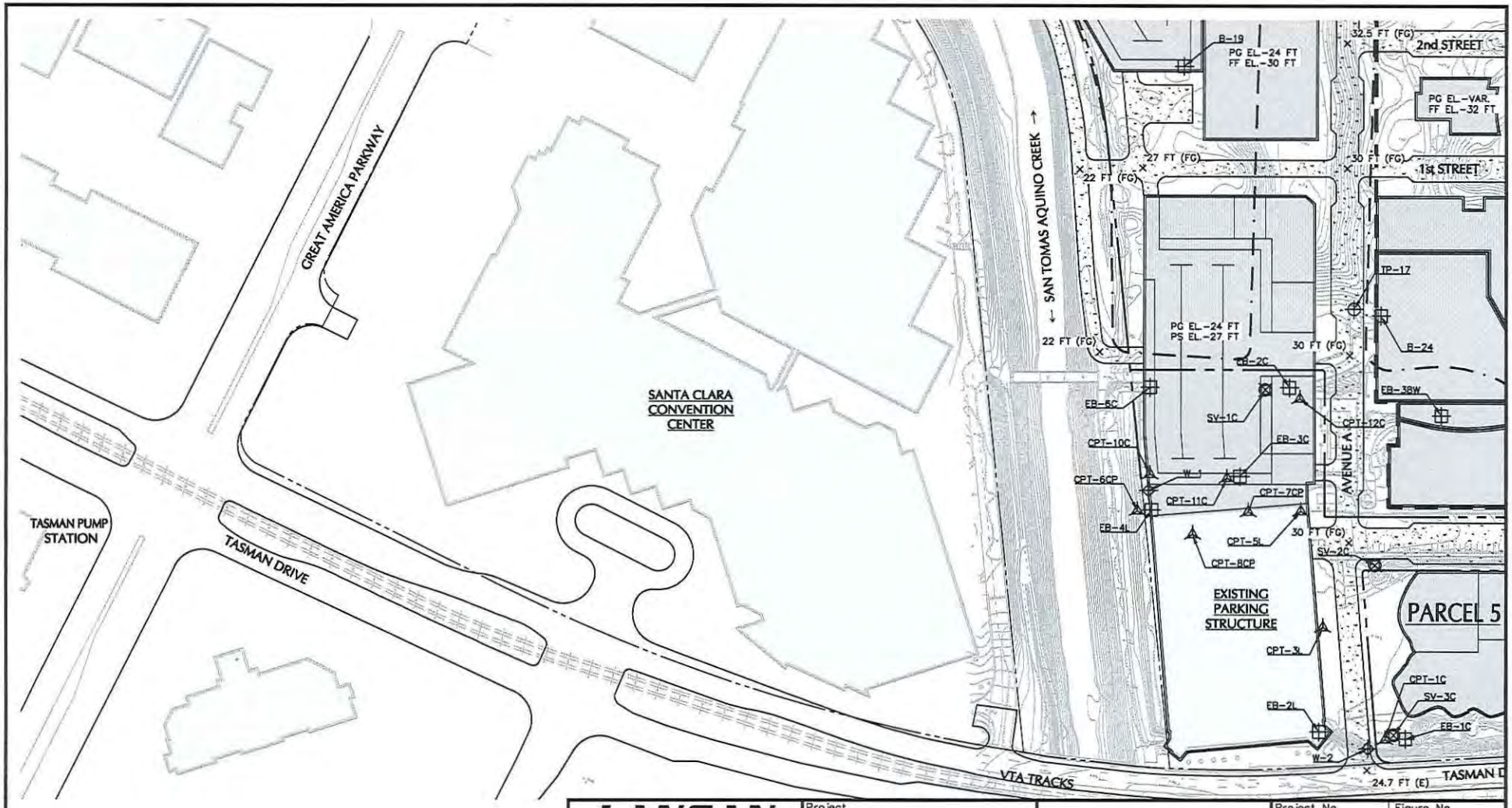

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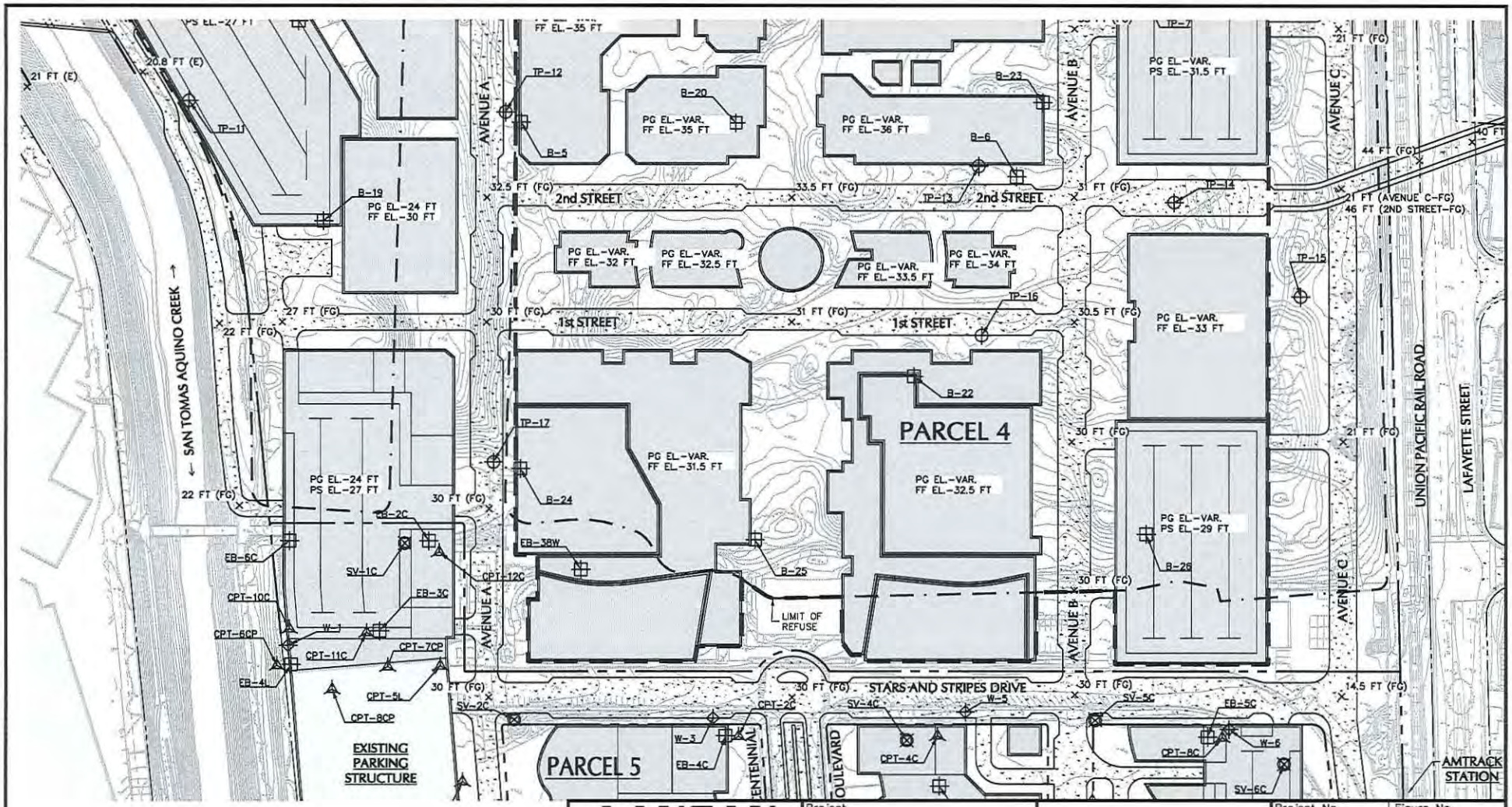

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Figure No. **24**

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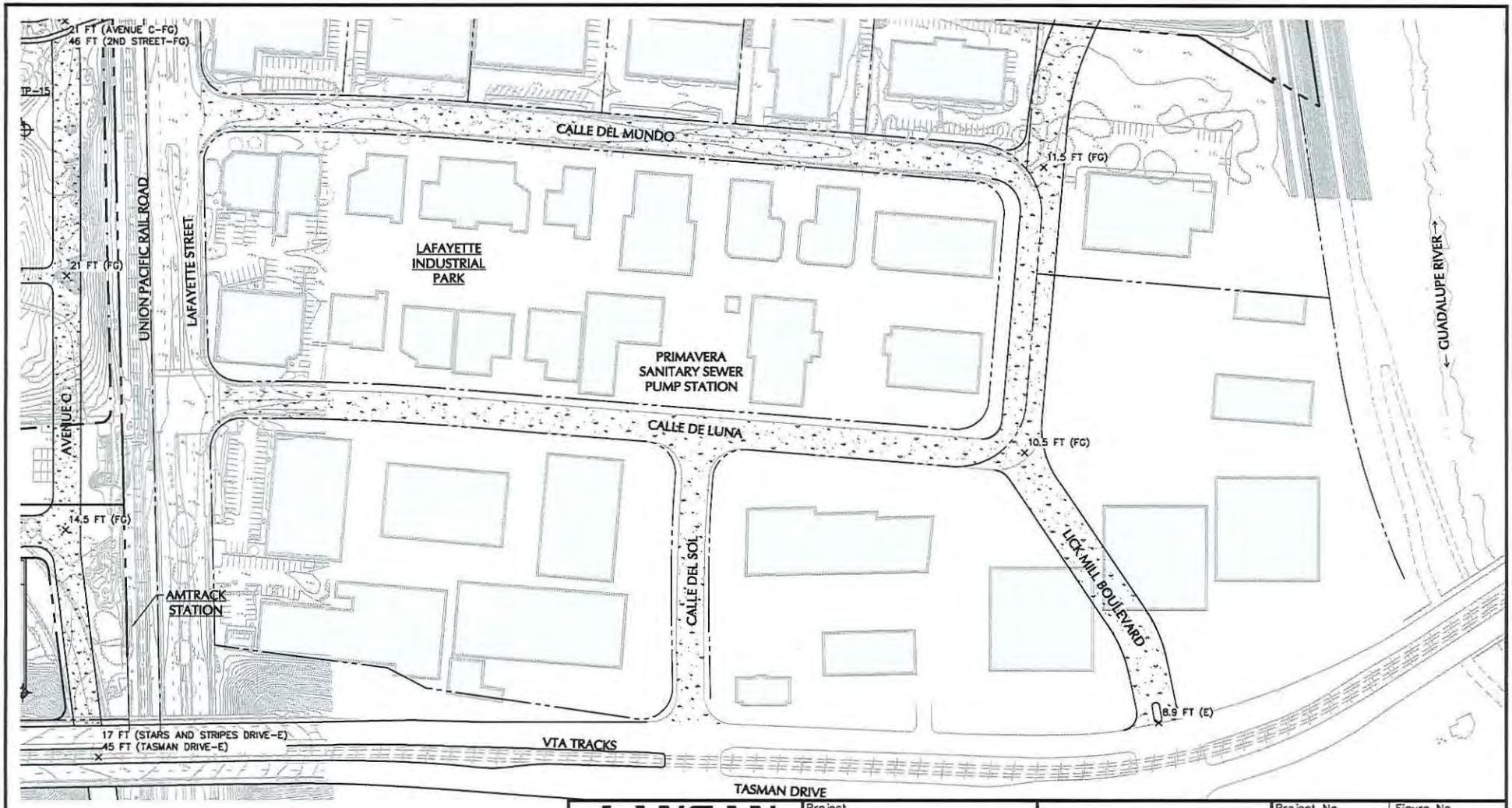

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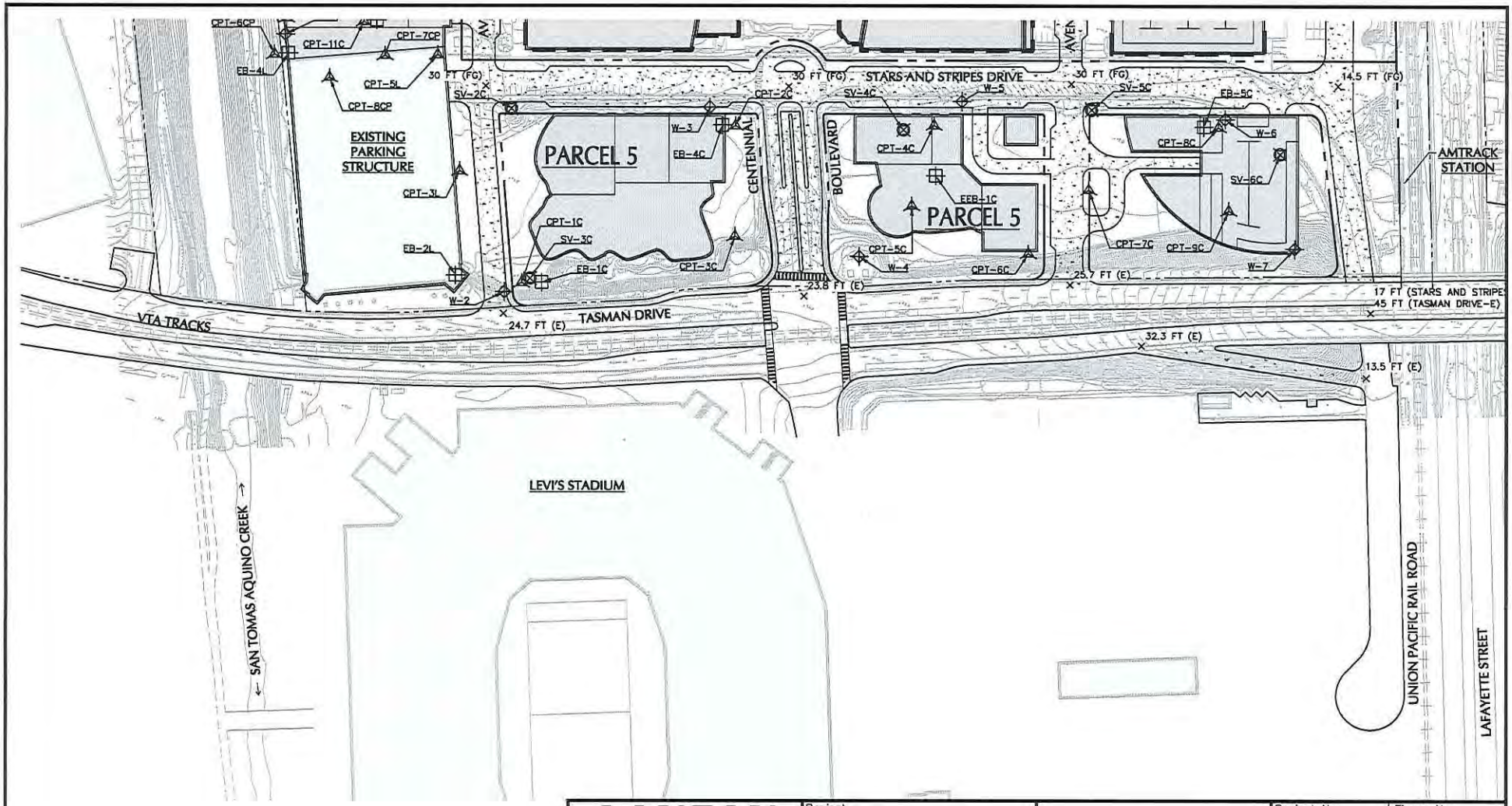

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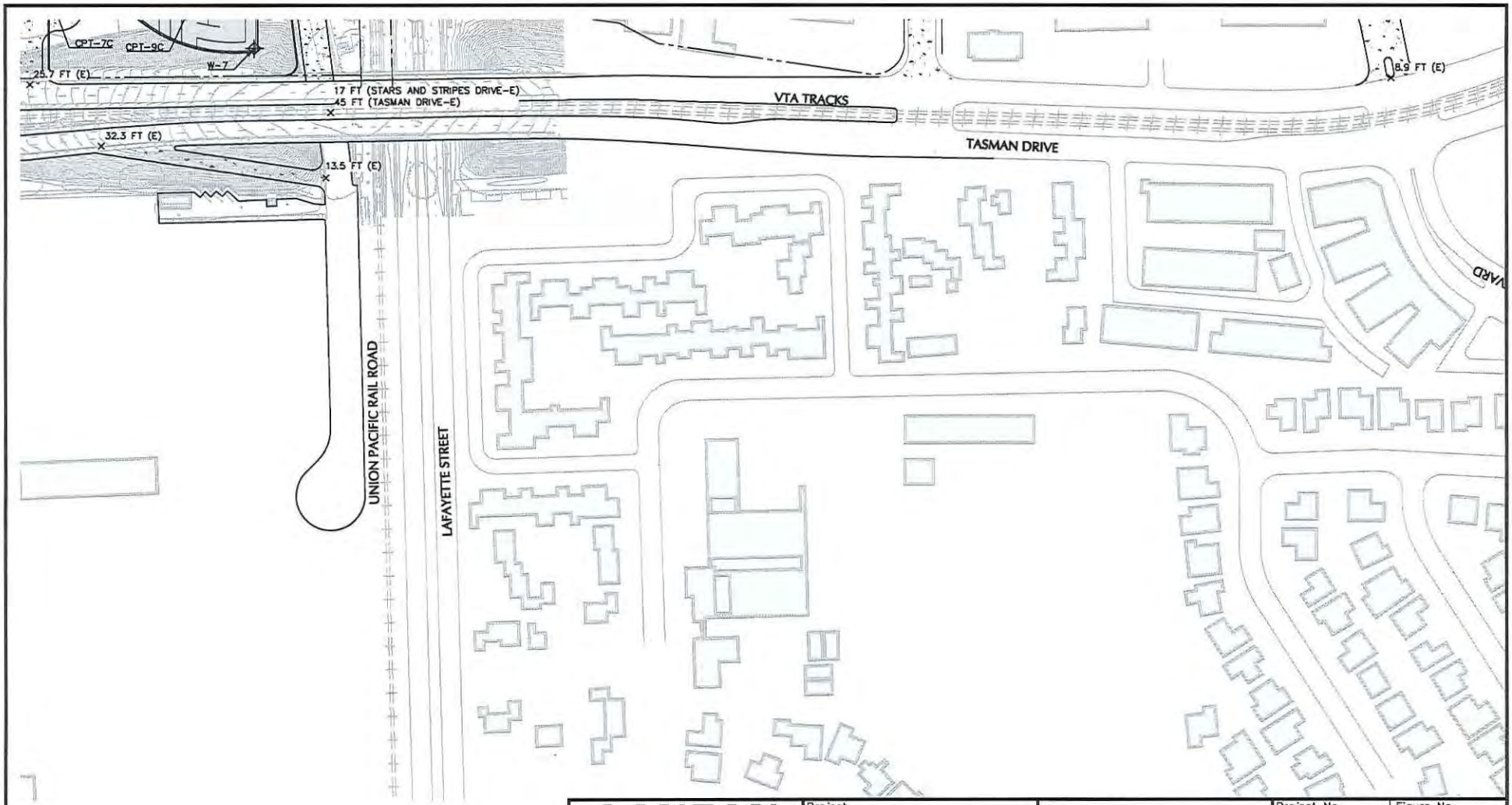

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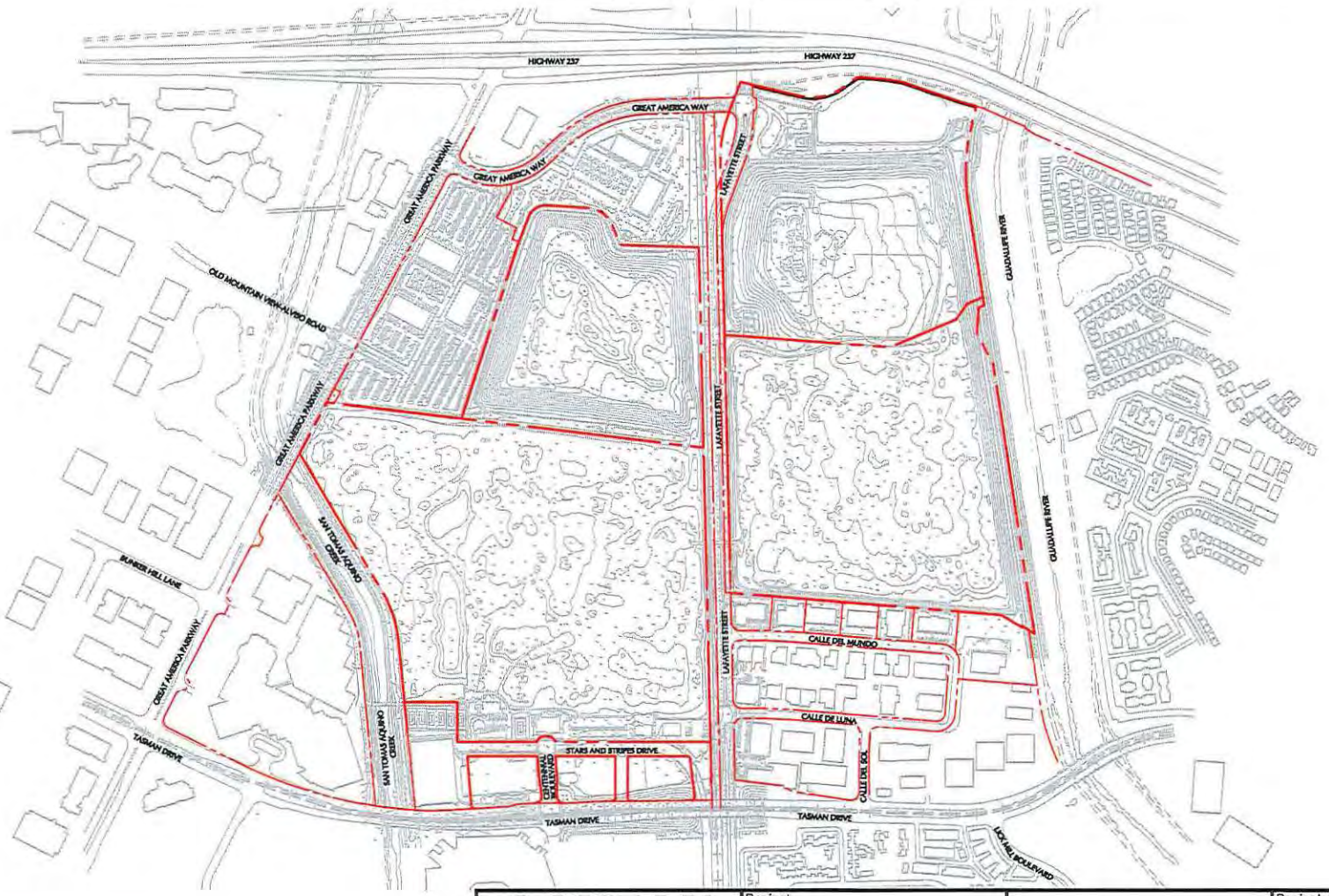

LEGEND:

PROPERTY LINE

150 0 75 150

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EXISTING ROADWAY NETWORK

Project No.	770611601
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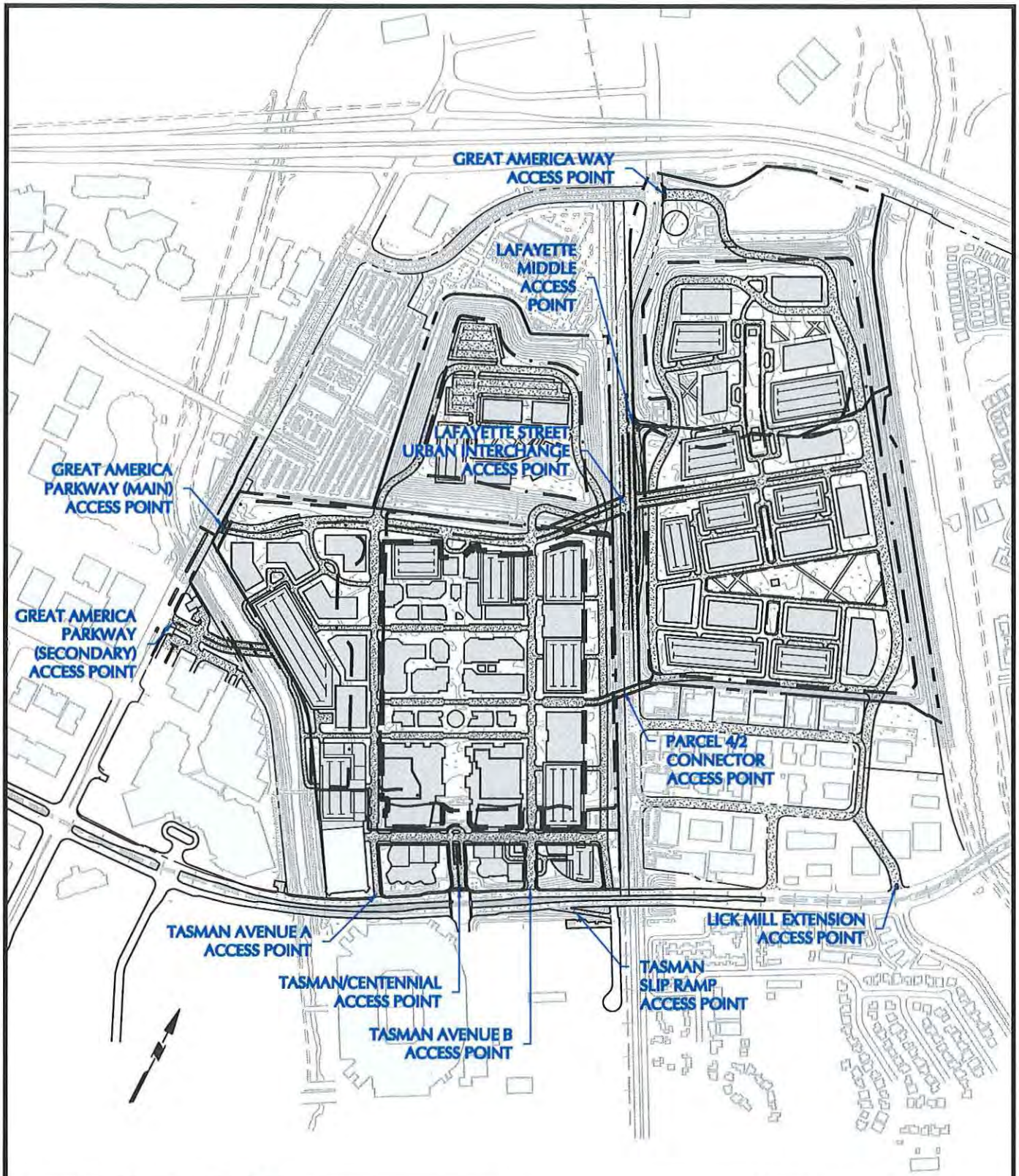

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ACCESS LOCATION SUMMARY

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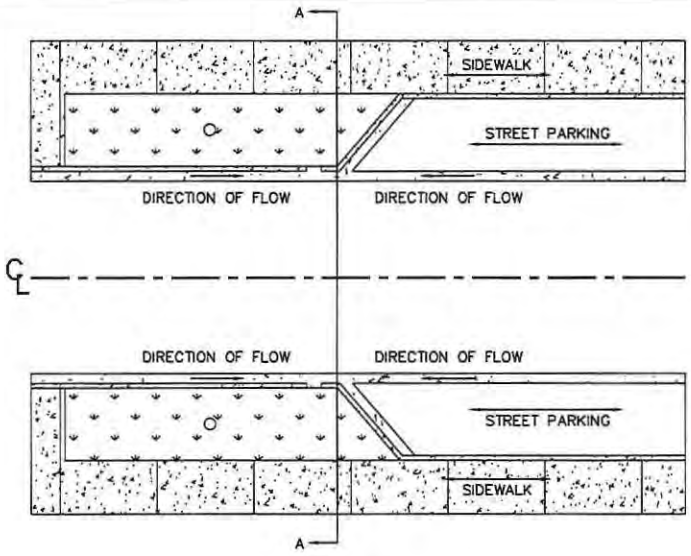
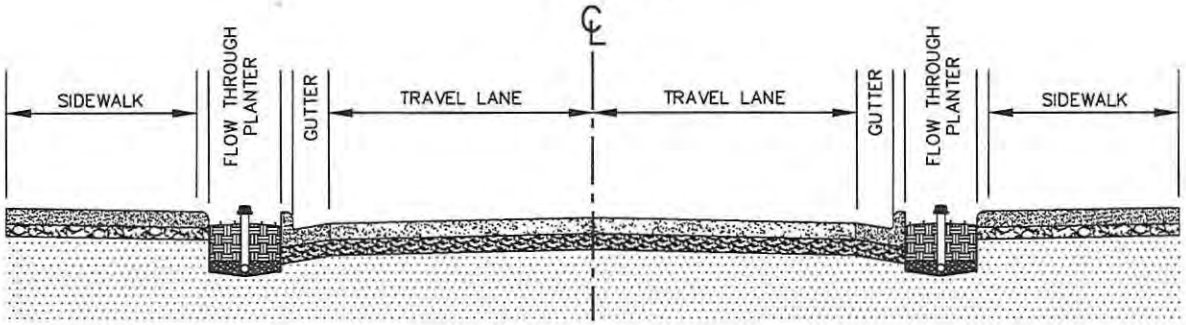


PLAN VIEW



CROSS SECTION A-A
STREET PROFILE

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ON-SITE ROADWAY GREEN STREET SECTION

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Figure No. 30

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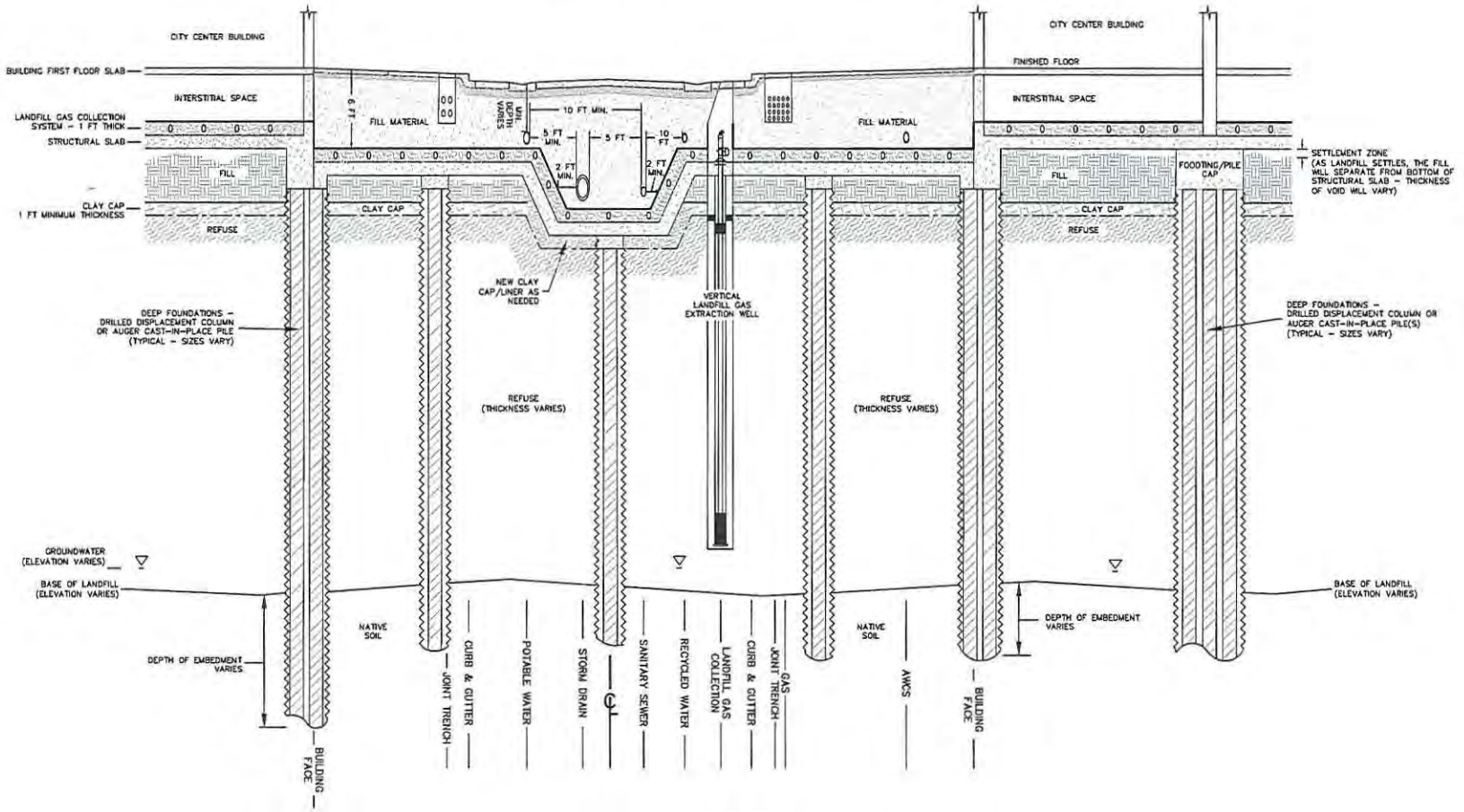
STREET SECTION - WIDTH VARIES
(PARCEL 4 SETTLEMENT SLAB SECTION)



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FOUNDATION CONCEPT TYPE 1

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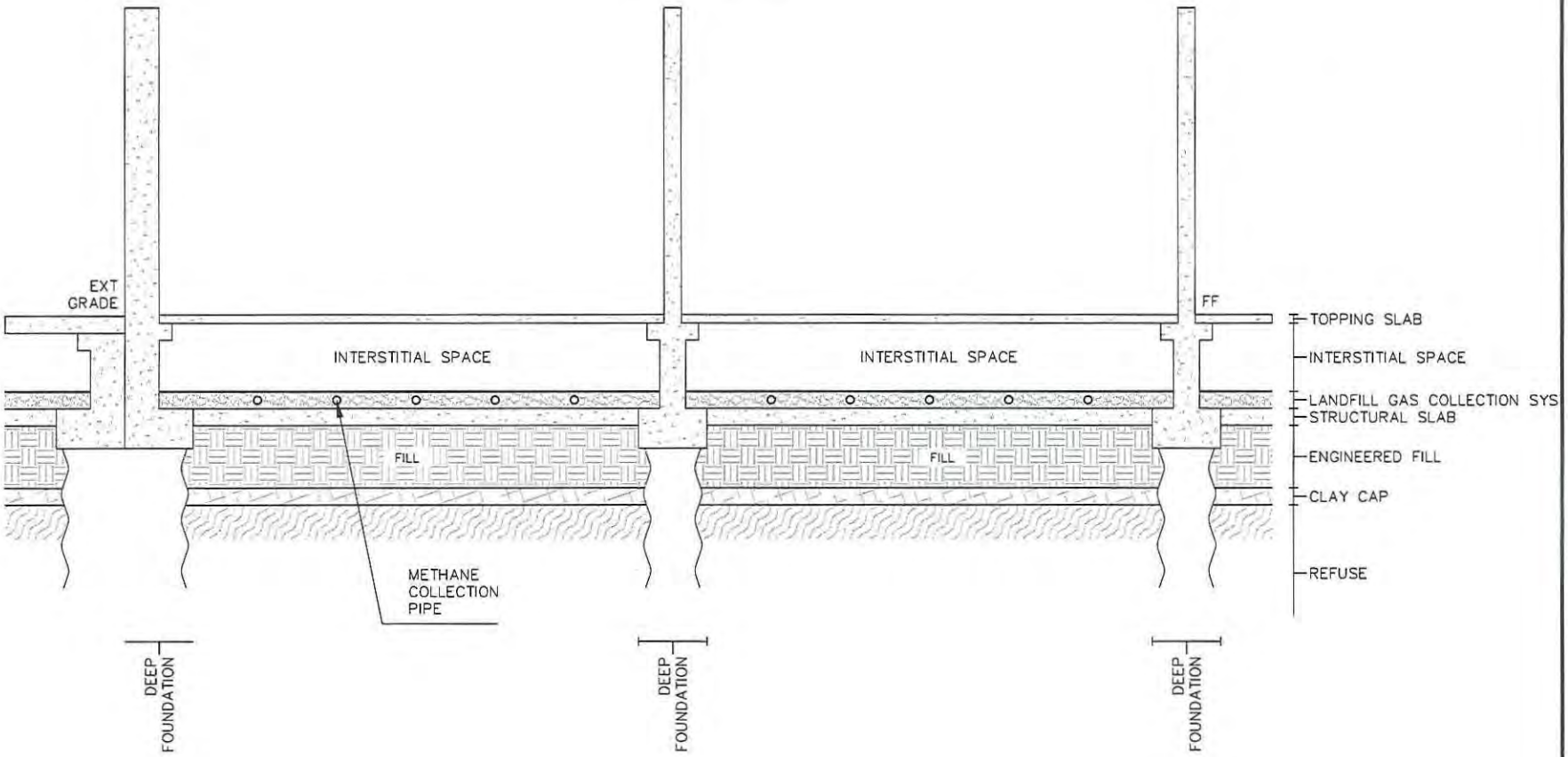
CONCEPTUAL FOUNDATION
BUILDING (RETAIL, OFFICE & HOTEL)



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FOUNDATION CONCEPT TYPE 2

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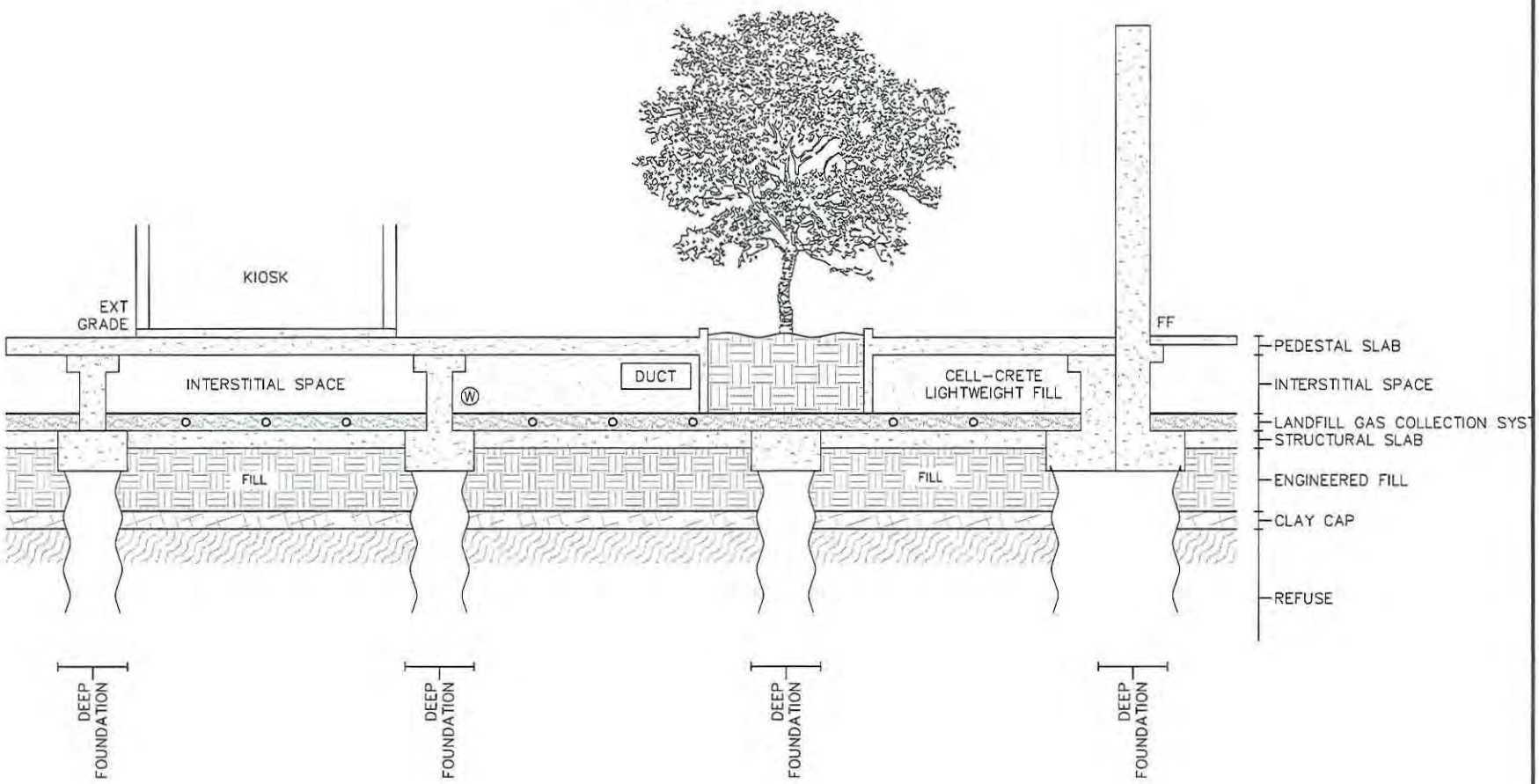
CONCEPTUAL FOUNDATION
PLAZA



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SANTA CLARA CA

FOUNDATION CONCEPT TYPE 3

Project No.	770611601
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Scale	N.T.S.
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Checked By	JL
Submission Date	6/30/2015

Figure No. 33

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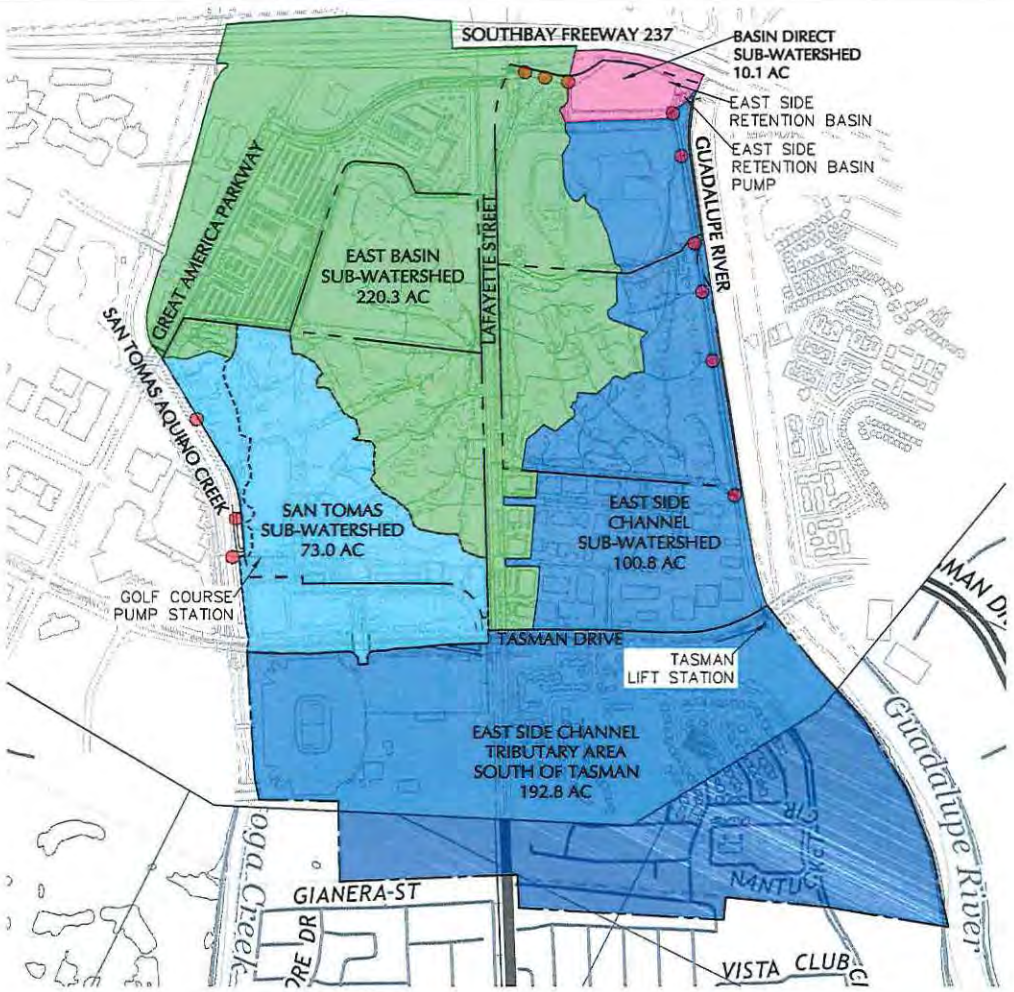
Figures from Stormwater Technical Memorandum



LEGEND:

- EXISTING OUTFALL LOCATION
- PROPERTY LINE
- AREA TRIBUTARY TO GOLF COURSE PUMP
- AREA SOUTH OF TASMAN DRIVE TRIBUTARY TO EAST SIDE CHANNEL SUB WATERSHED

AREA SUMMARY:

SUB WATERSHED	ONSITE (AC)	OFFSITE (AC)
SAN TOMAS	50.8	22.2
EAST SIDE CHANNEL	57.0	43.8
EAST BASIN	114.8	105.5
BASIN DIRECT	8.0	2.1
SOUTH OF TASMAN	-	192.8
TOTAL	230.6	366.4

NOTES:

EAST SIDE CHANNEL SUB-WATERSHED OUTFALLS DRAIN TO THE EXISTING NATURAL CHANNEL JUST WEST AND ADJACENT TO THE GUADALUPE RIVER

LIMITS FOR THE TRIBUTARY AREA SOUTH OF TASMAN DRIVE ARE APPROXIMATE AND OBTAINED FROM HYDRAULIC EVALUATION FOR EASTSIDE PUMP STATION AND RETENTION BASIN (NOV. 22, 2000)

TOPOGRAPHIC INFORMATION FOR AREAS SOUTH OF TASMAN DRIVE SUPPLEMENTED BY USGS TOPOGRAPHIC MAP FOR MILPITAS, CA DATED 2015

900 0 450 900
SCALE IN FEET

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Project	CITY PLACE SANTA CLARA
	SANTA CLARA CA
Drawing Title	OVERALL EXISTING DRAINAGE MAP
Project No.	770611601
Date	6/30/2015
Scale	1" = 900'
Drawn By / Checked By	STAFF / DJH
Submission Date	6/30/2015
Figure No.	2

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LEGEND:

- EXISTING OUTFALL LOCATION
- PROPOSED OUTFALL LOCATION
- PROPERTY LINE

AREA SUMMARY:

SUB WATERSHED	ONSITE (AC)	OFFSITE (AC)
SAN TOMAS	87.4	13.0
EAST SIDE CHANNEL	79.2	43.8
EAST BASIN	62.9	105.6
BASIN DIRECT	10.2	2.1
SOUTH OF TASMAN	–	192.8
TOTAL	239.7	357.3

NOTES:

EAST SIDE CHANNEL SUB–WATERSHED OUTFALLS DRAIN TO THE EXISTING NATURAL CHANNEL JUST WEST AND ADJACENT TO THE GUADALUPE RIVER

LIMITS FOR THE TRIBUTARY AREA SOUTH OF TASMAN DRIVE ARE APPROXIMATE AND OBTAINED FROM HYDRAULIC EVALUATION FOR EASTSIDE PUMP STATION AND RETENTION BASIN (NOV. 22, 2000)

FOR APPROXIMATE LIMITS OF THE TRIBUTARY AREA SOUTH OF TASMAN DRIVE SEE FIGURE 2

600 0 300 600
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Drawing Title: OVERALL PROPOSED DRAINAGE MAP

Project No. 770611601
Date 6/30/2015
Scale 1" = 600'
Drawn By STAFF | Checked By DJH
Submission Date 6/30/2015

Figure No. 8

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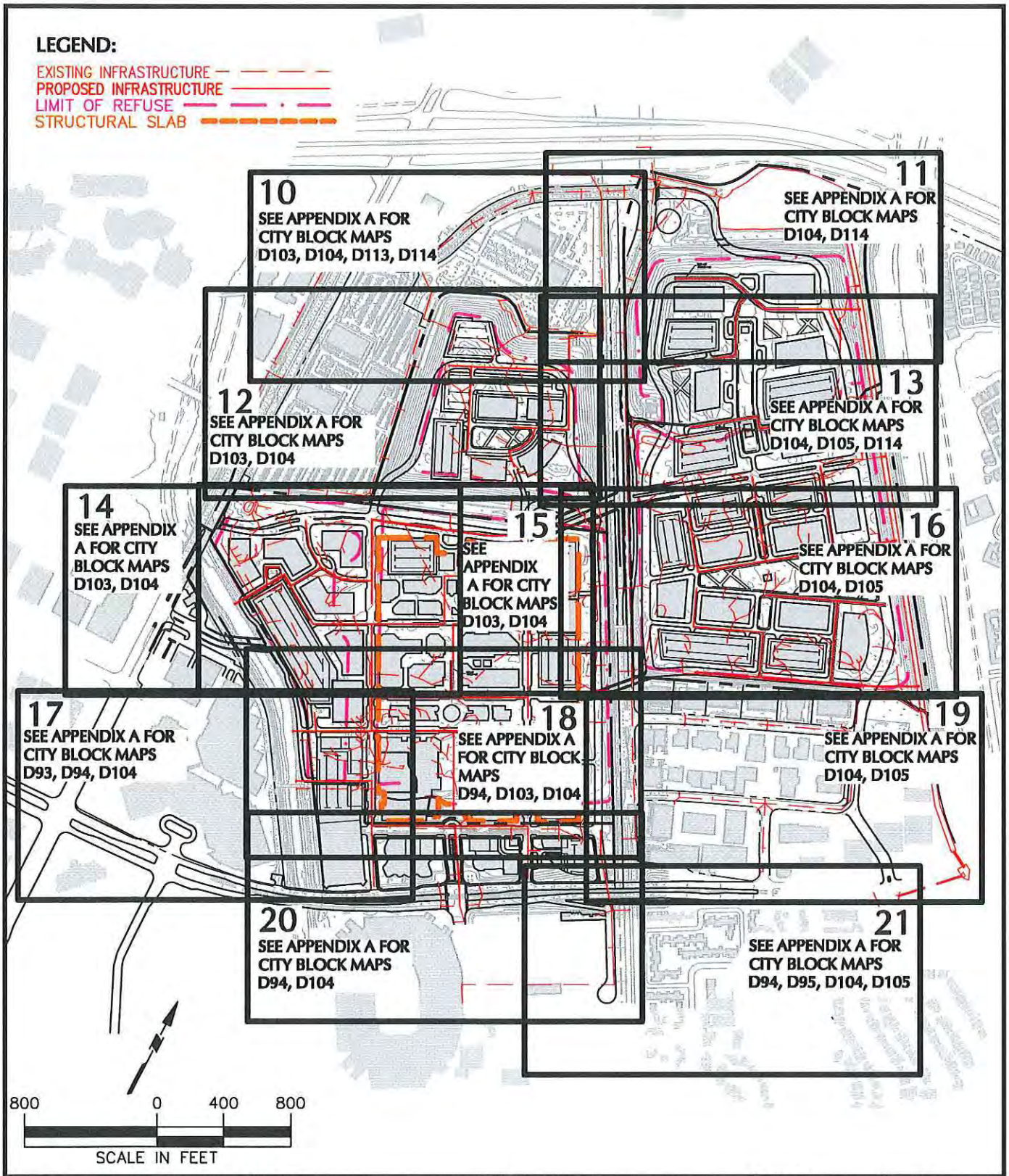

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PRELIMINARY STORM DRAIN KEY

Project No. 770611601	Figure No. 9
Date 6/30/2015	
Scale 1" = 800	
Drawn By STAFF / Checked By DJH	
Submission Date 6/30/2015	

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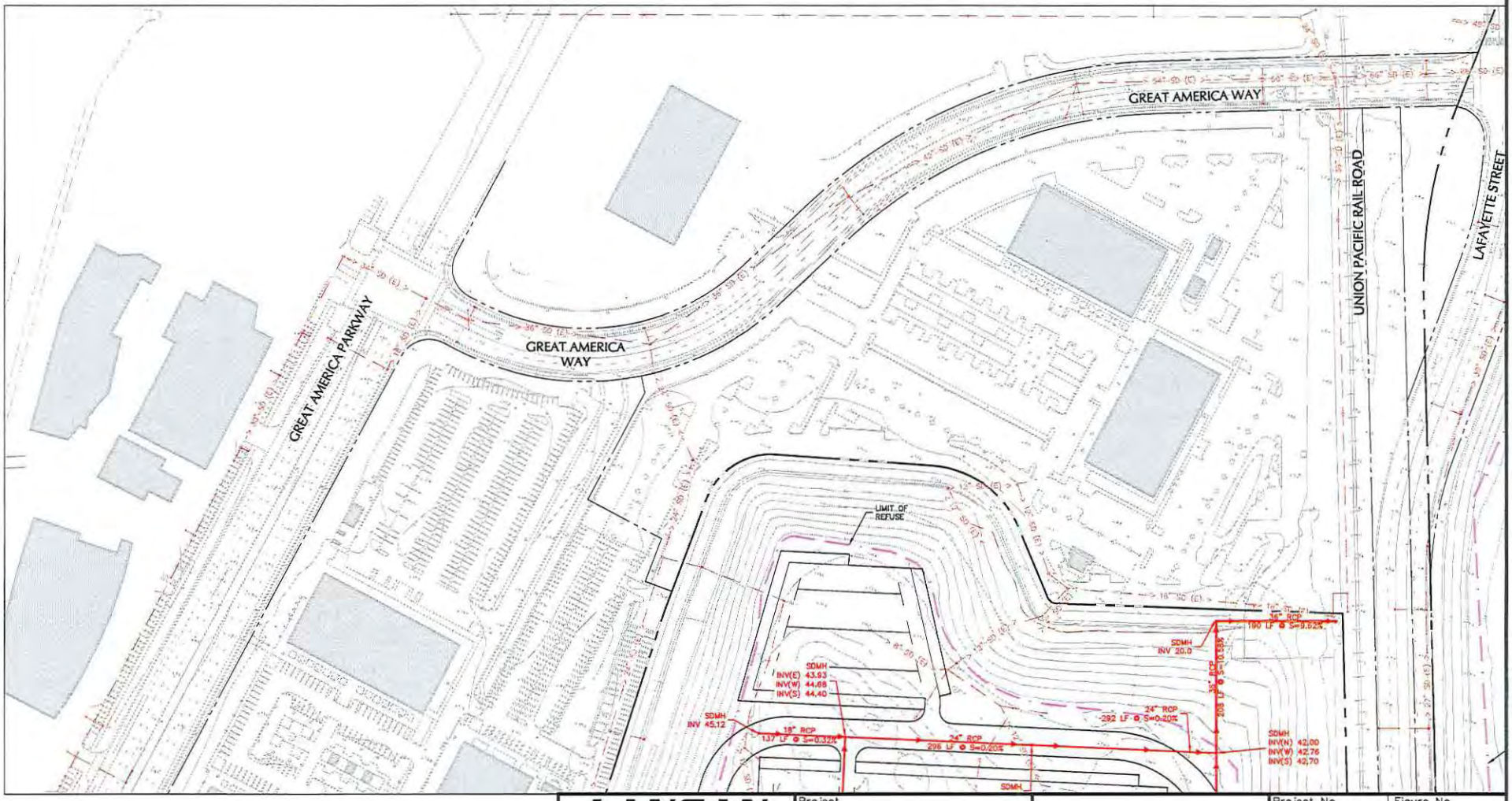

LEGEND:

EXISTING INFRASTRUCTURE — —> XX" SD (E) >— —

PROPOSED INFRASTRUCTURE —> XX" RCP / XX LF @ S=X% >—

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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PRELIMINARY STORM DRAIN

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Scale	1" = 150'
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Submission Date	6/30/2015

Figure No. 10

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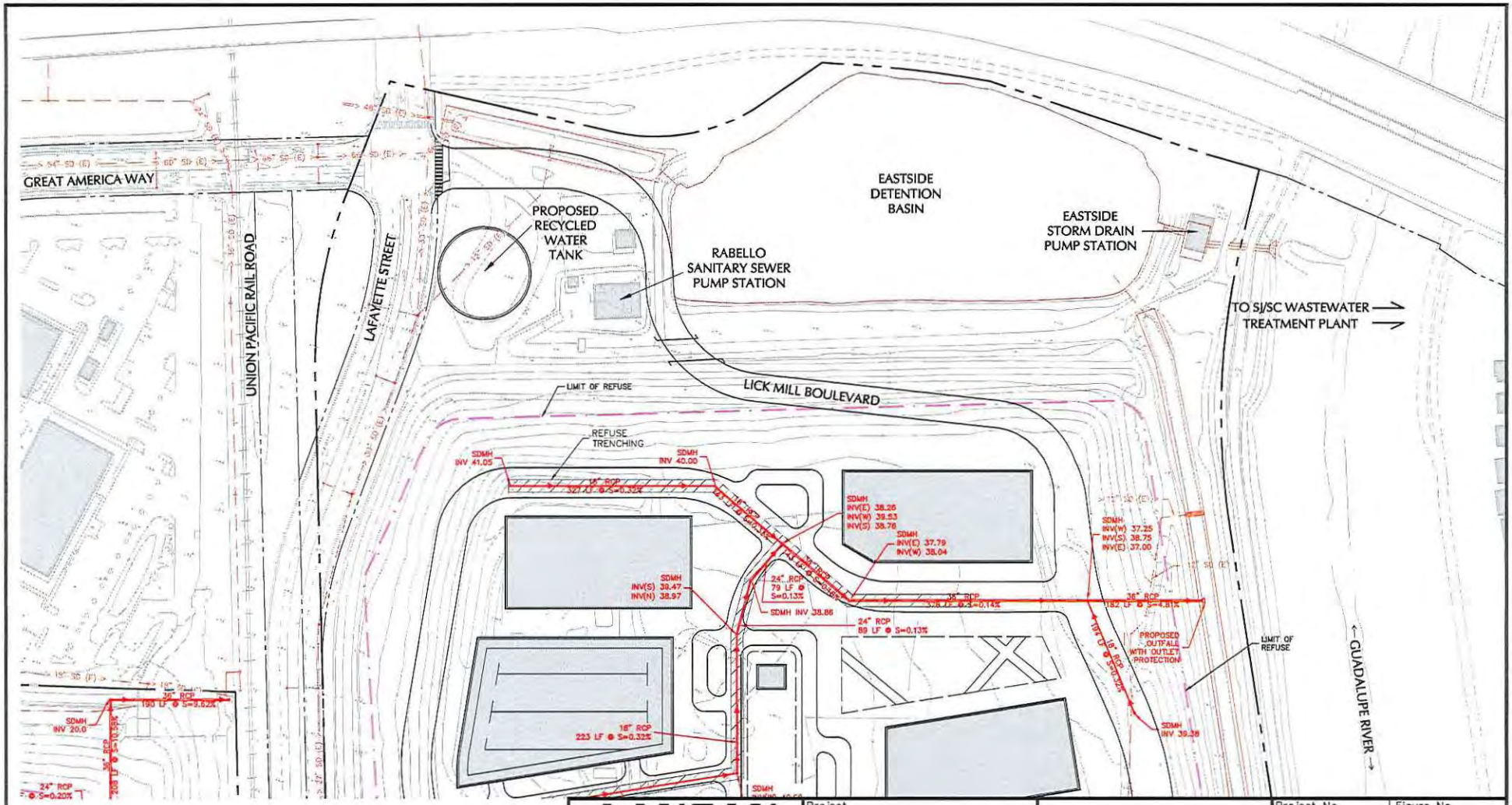

LEGEND:

EXISTING INFRASTRUCTURE

PROPOSED INFRASTRUCTURE

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

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Figure No. 11

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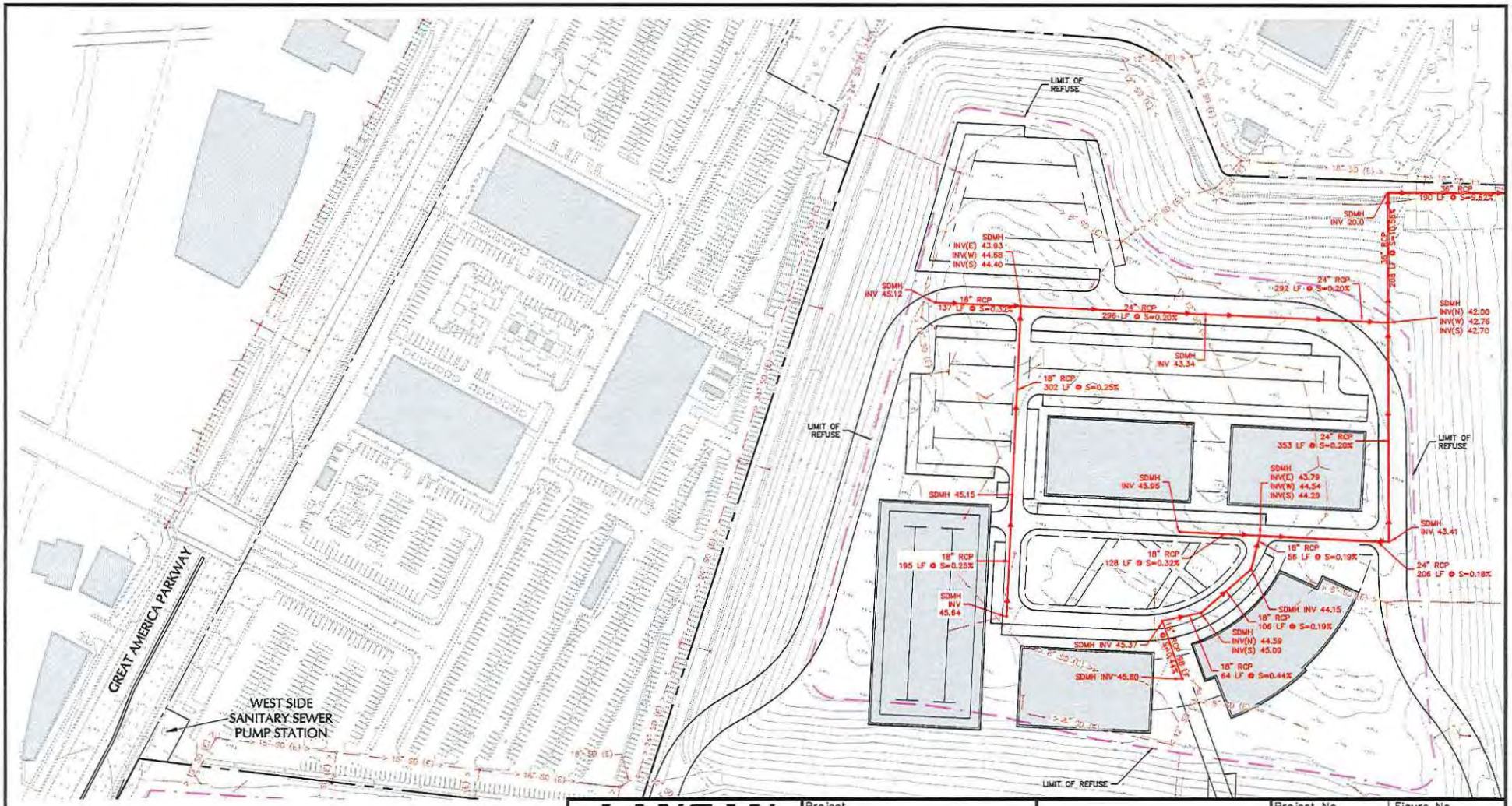

LEGEND:

EXISTING INFRASTRUCTURE — —> YY" SD (E) >— —

PROPOSED INFRASTRUCTURE —> XX" RCP XX LF @ S=XX% —>

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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Figure No. 12

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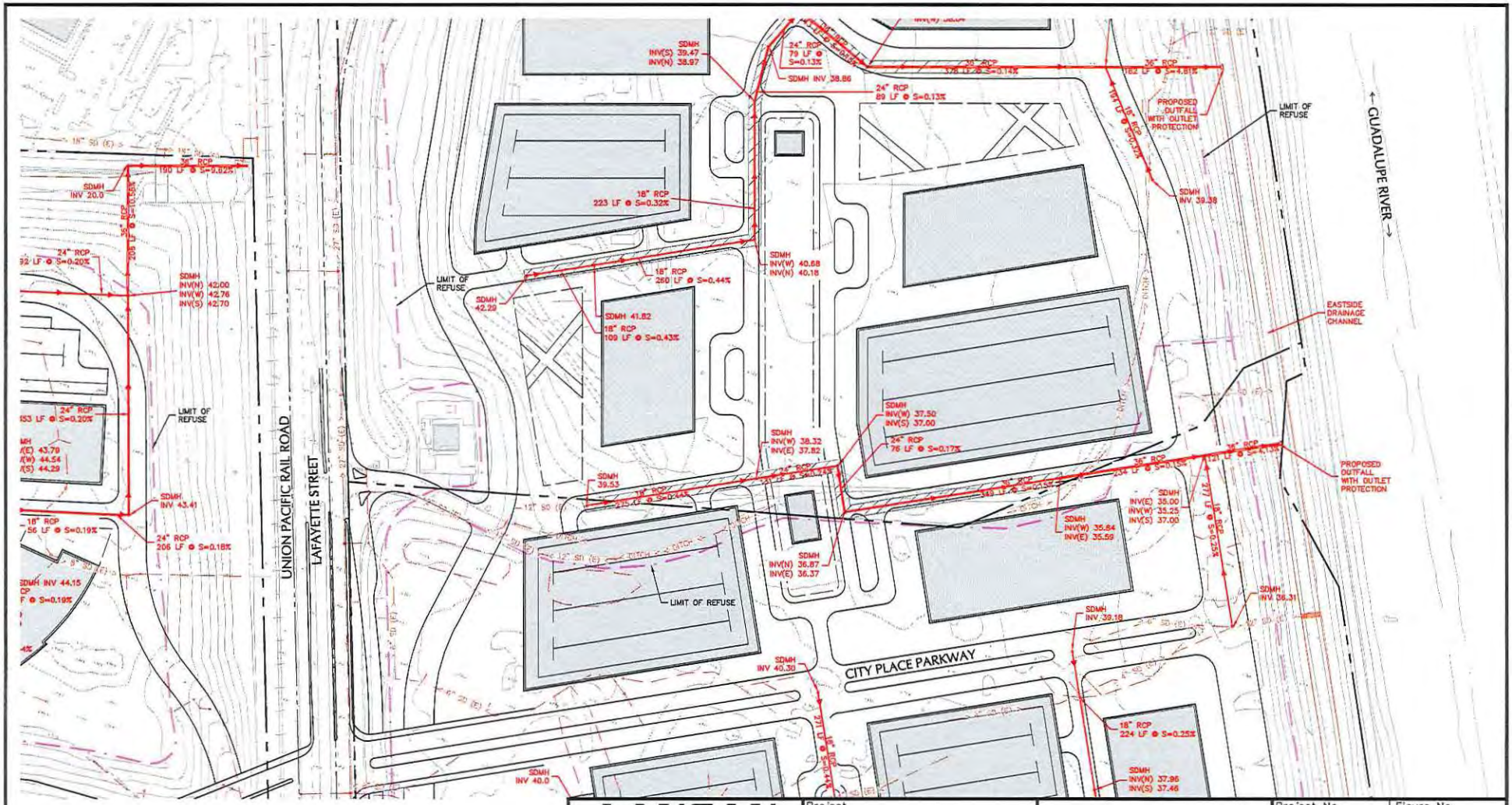

LEGEND:

EXISTING INFRASTRUCTURE

PROPOSED INFRASTRUCTURE — XX" RCP, XX LF @ S=X%

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

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Figure No. 13

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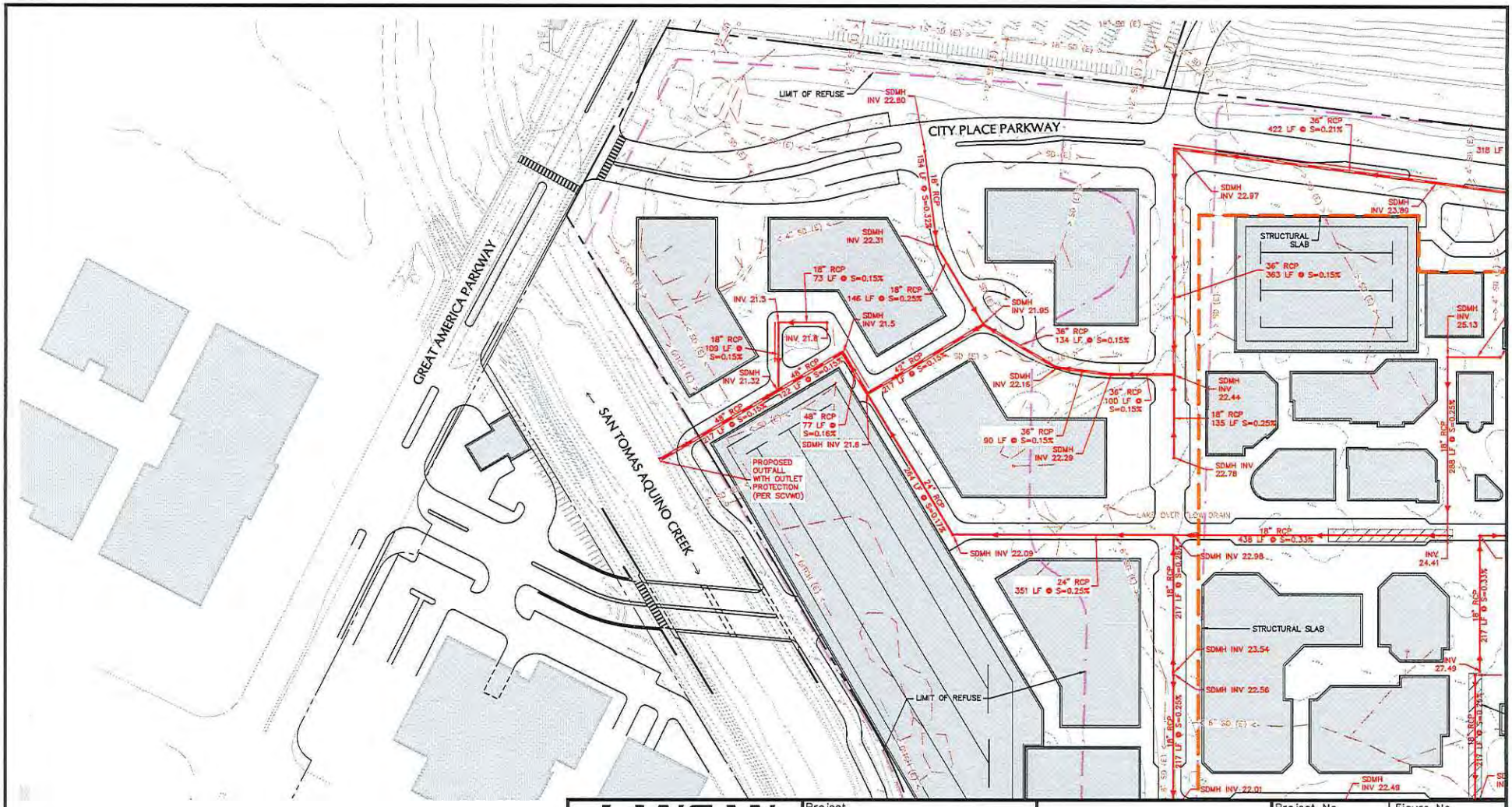

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Figure No.	14

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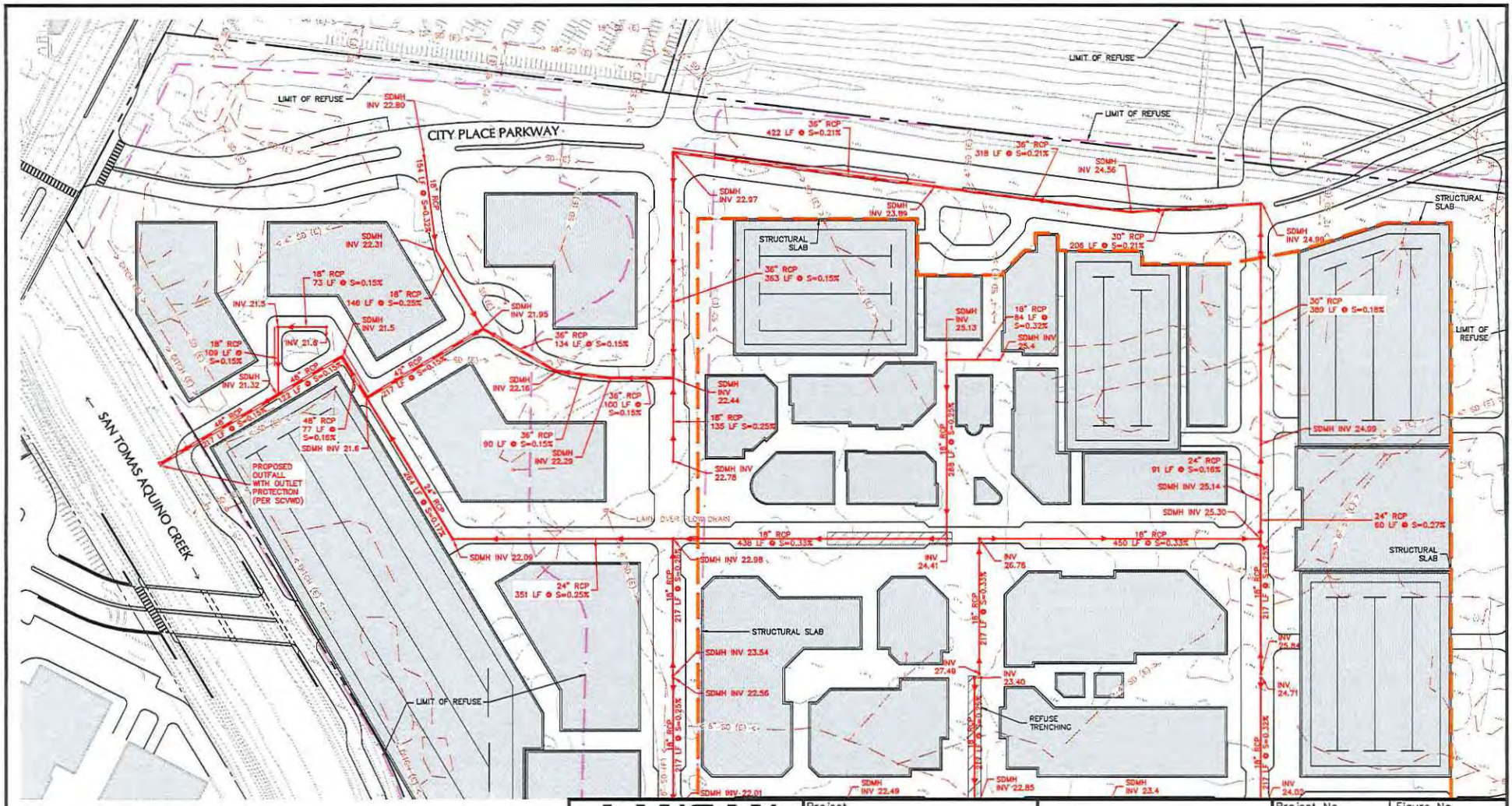

LEGEND:

EXISTING INFRASTRUCTURE

PROPOSED INFRASTRUCTURE — XX" RCP, XX LF @ S=X%

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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Figure No. 15

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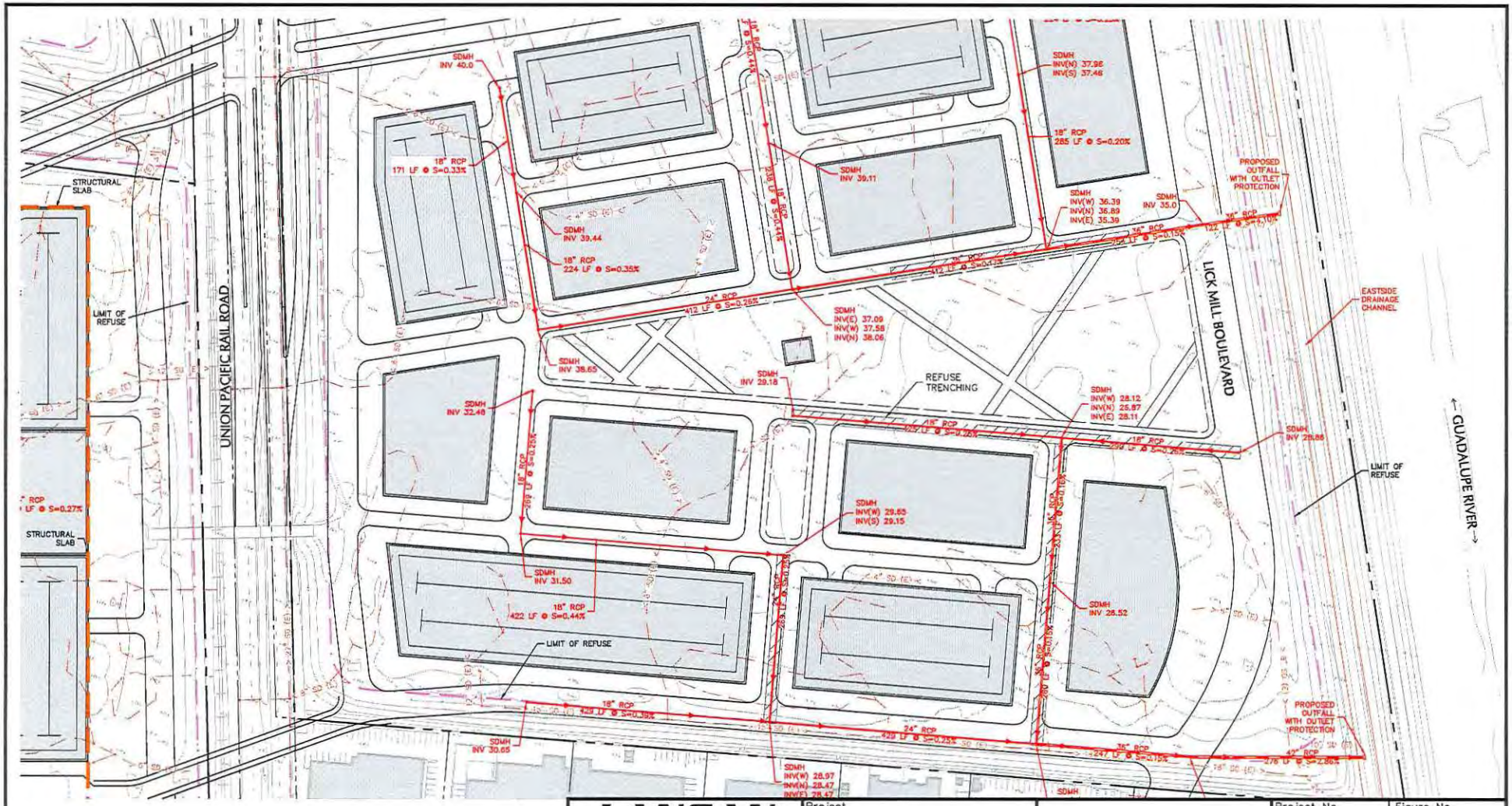

LEGEND:

EXISTING INFRASTRUCTURE

PROPOSED INFRASTRUCTURE — XX" RCP XX LF @ S=XX%

LIMIT OF REFUSE

STRUCTURAL SLAB

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Figure No. 16

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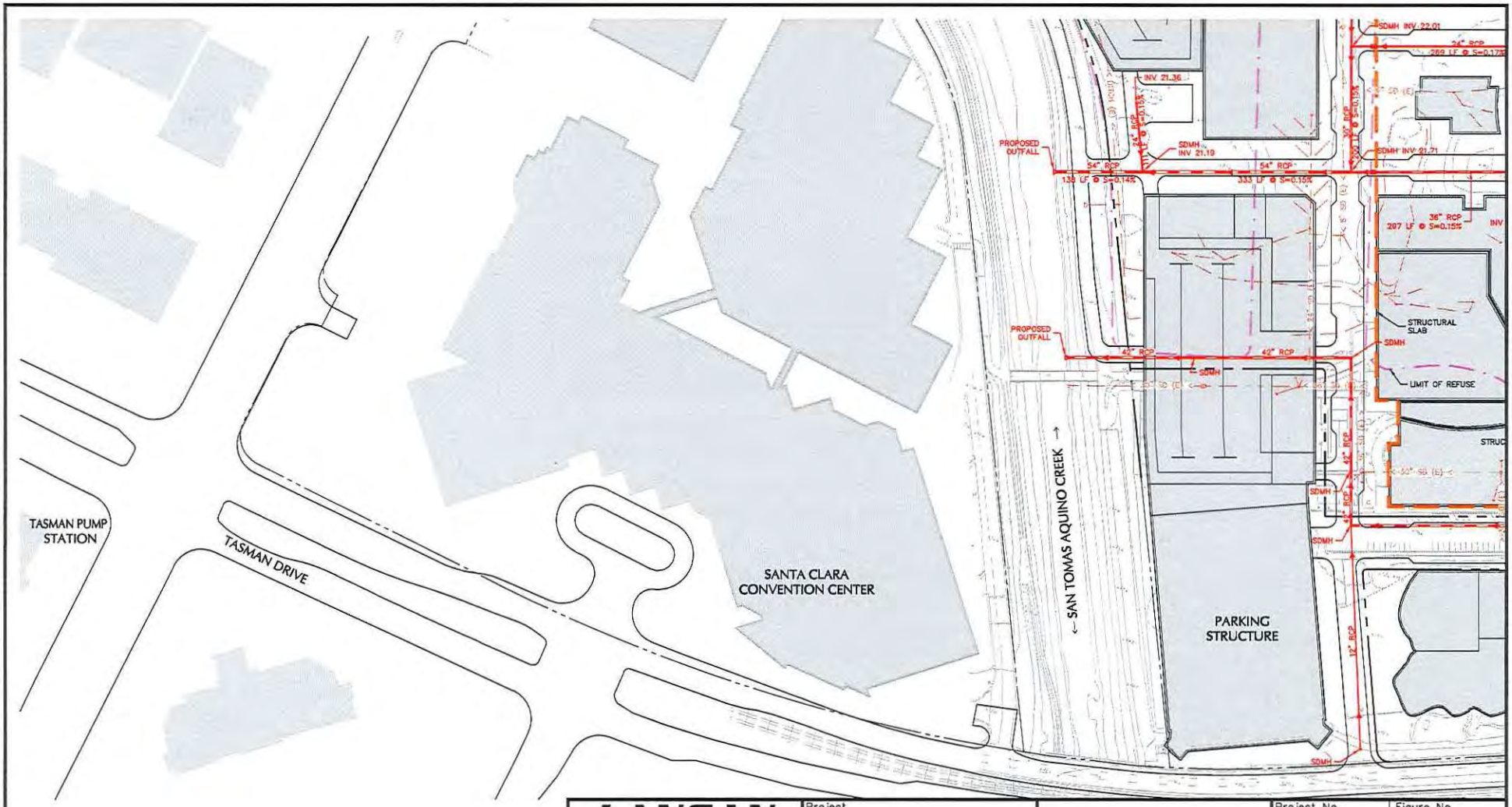

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Figure No. 17

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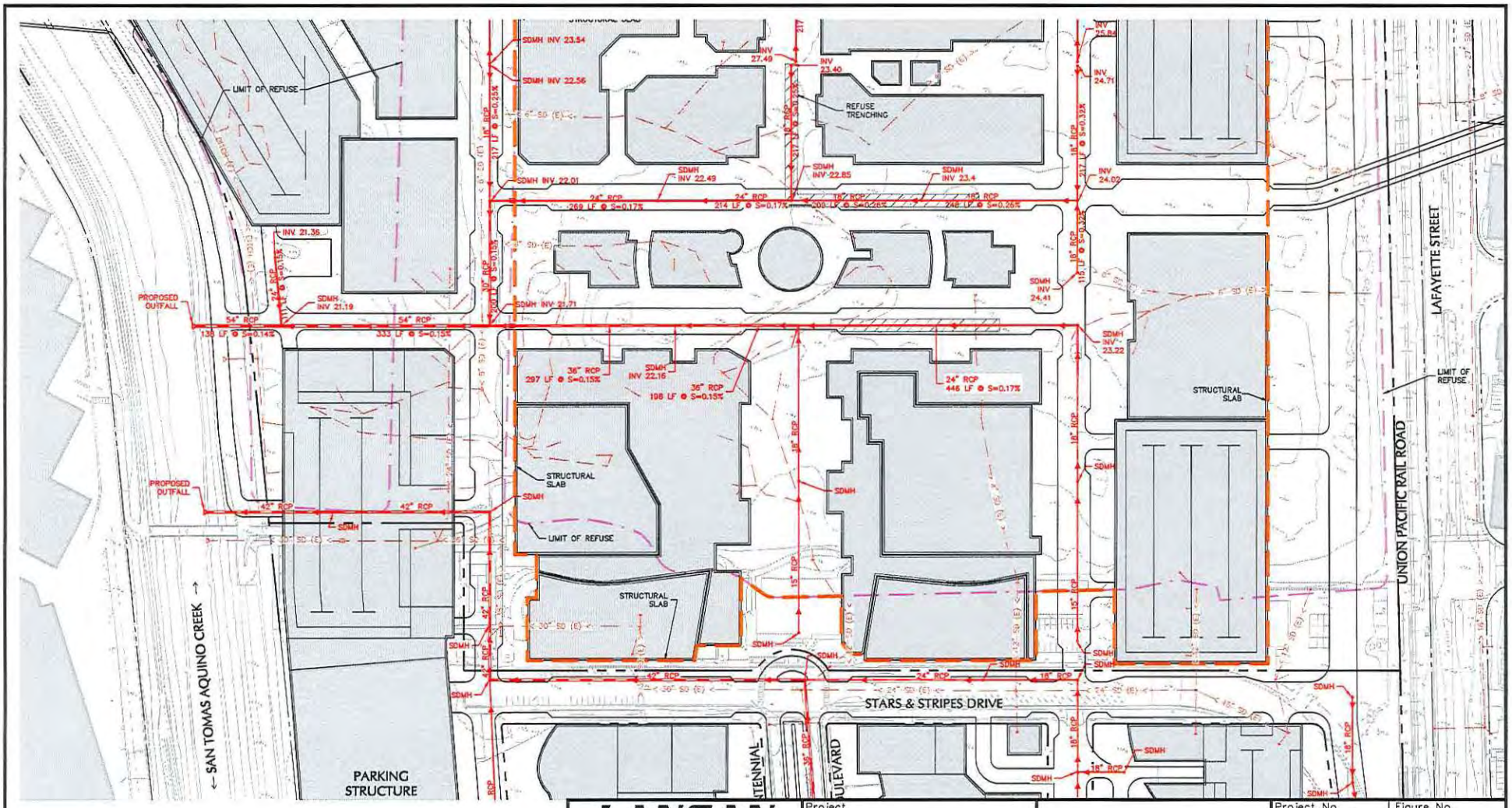

LEGEND:

EXISTING INFRASTRUCTURE — —> XX" SD (E) >— —

PROPOSED INFRASTRUCTURE — XX" RCP / XX LF @ S=XX% —

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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Figure No. 18

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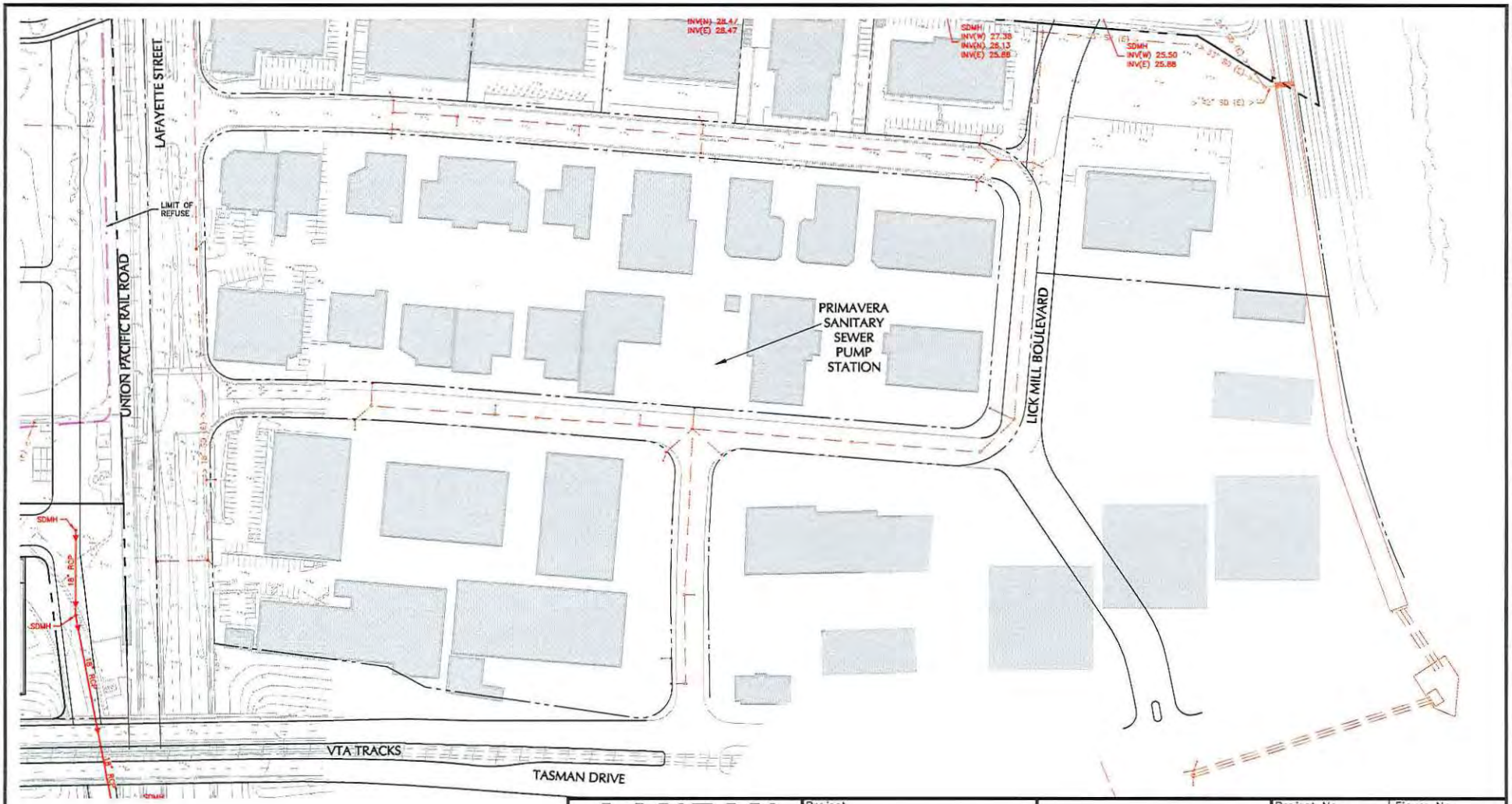

LEGEND:

EXISTING INFRASTRUCTURE

PROPOSED INFRASTRUCTURE

LIMIT OF REFUSE

STRUCTURAL SLAB

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Figure No. 19

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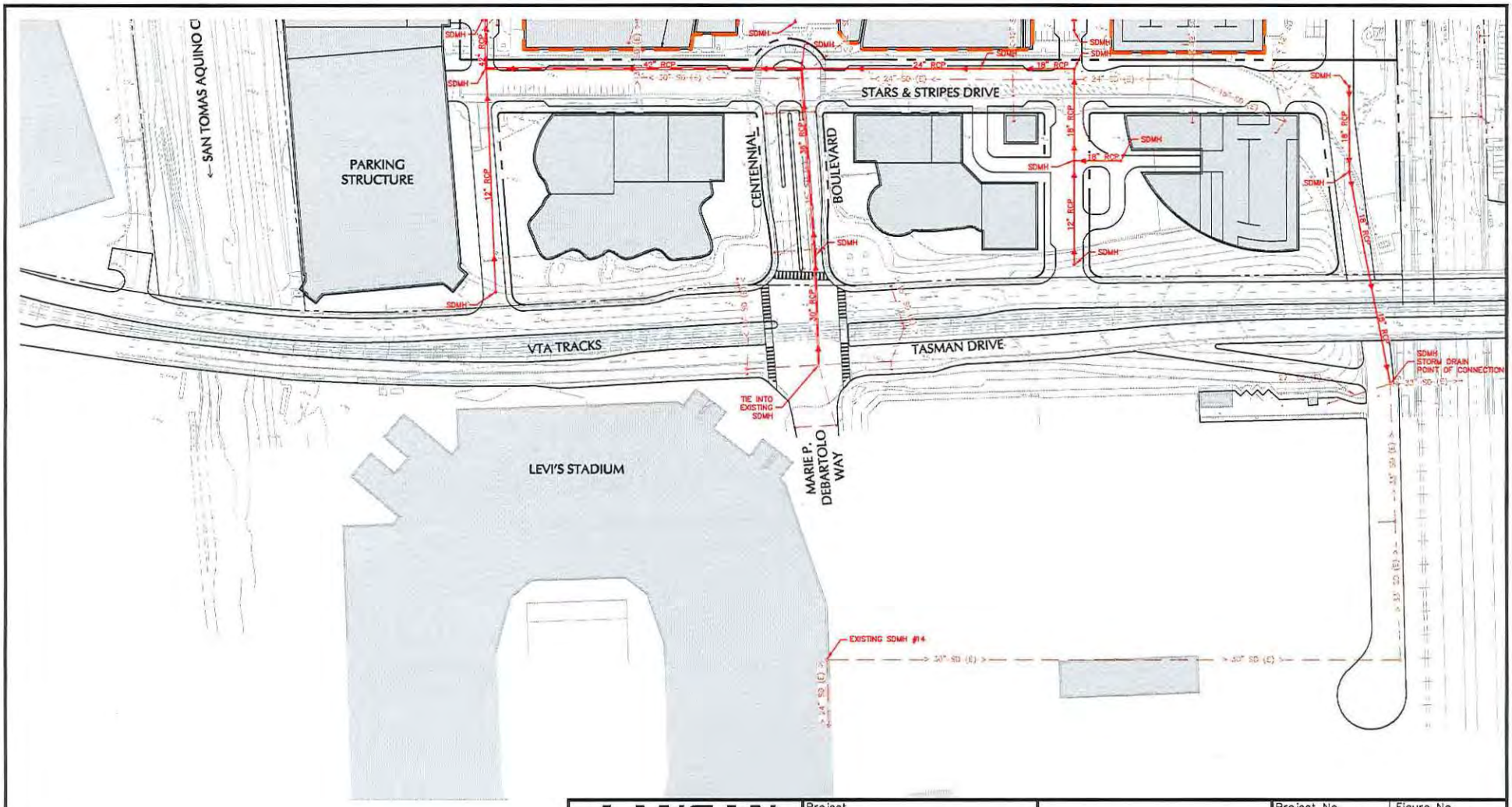

LEGEND:

- EXISTING INFRASTRUCTURE
- PROPOSED INFRASTRUCTURE — XX" RCP, XX LF @ S=XX%
- LIMIT OF REFUSE
- STRUCTURAL SLAB

150 0 75 150
SCALE IN FEET

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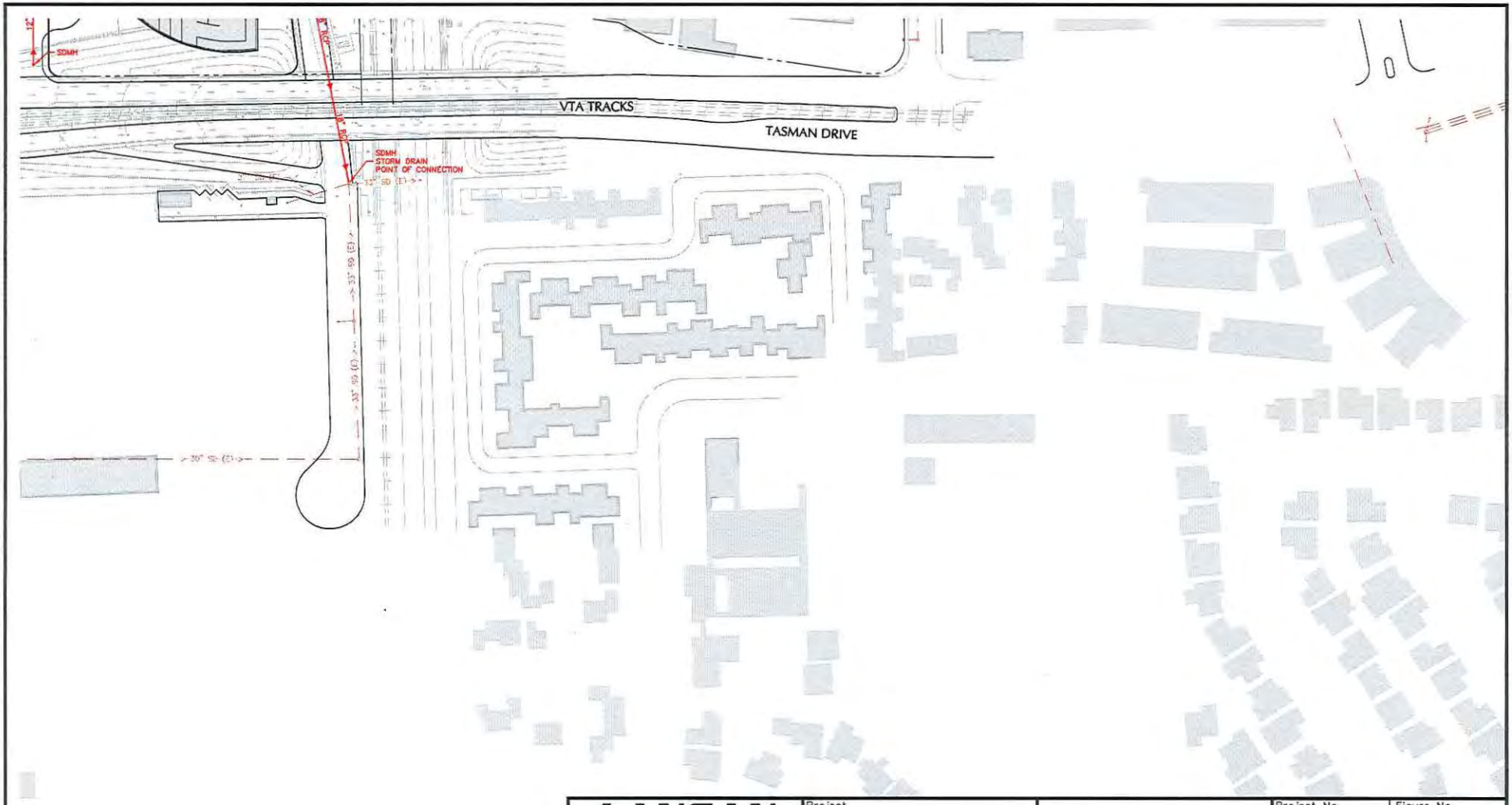

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PRELIMINARY
STORM DRAIN

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Figure No.
21

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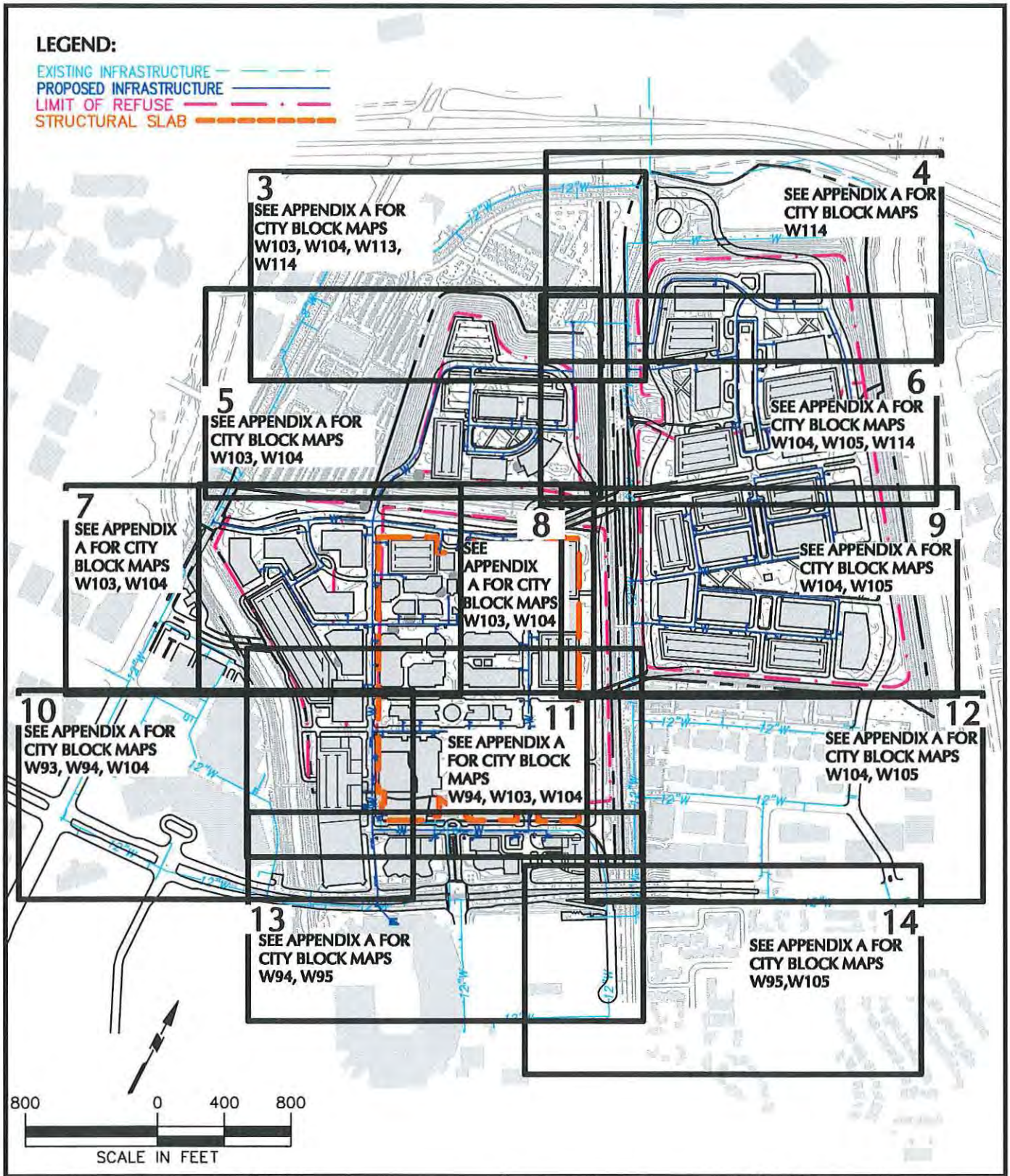
Figures from Water Technical Memorandum



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CITY PLACE
SANTA CLARA
SANTA CLARA CALIFORNIA

PRELIMINARY DOMESTIC WATER KEY

Project No. 770611601	Figure No. 2
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Scale 1" = 800	
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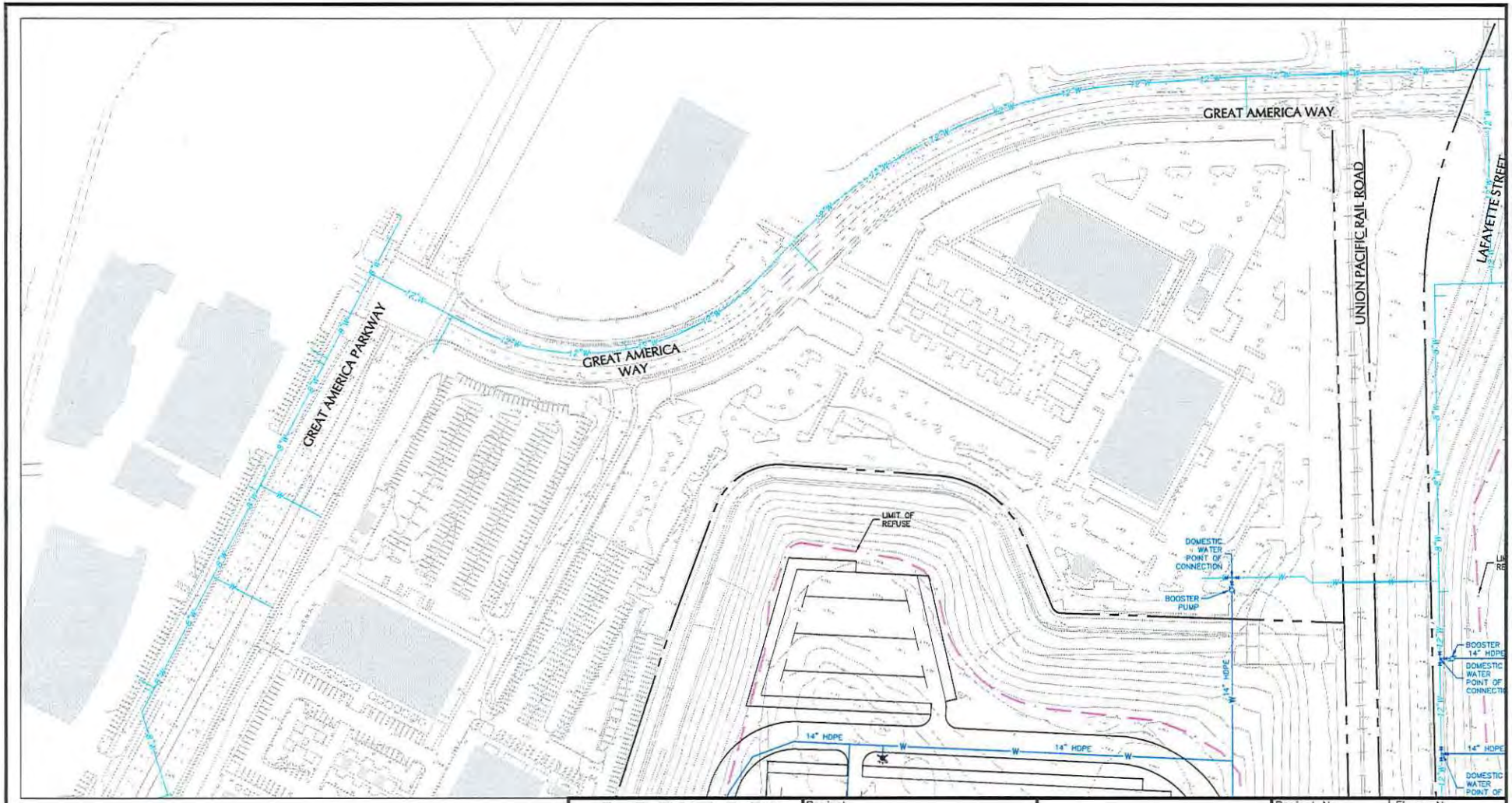

LEGEND:

EXISTING INFRASTRUCTURE — XX" W —

PROPOSED INFRASTRUCTURE — W — XX" HDPE —

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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SANTA CLARA CA

PRELIMINARY DOMESTIC WATER

Project No.	770611601
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Figure No. 3

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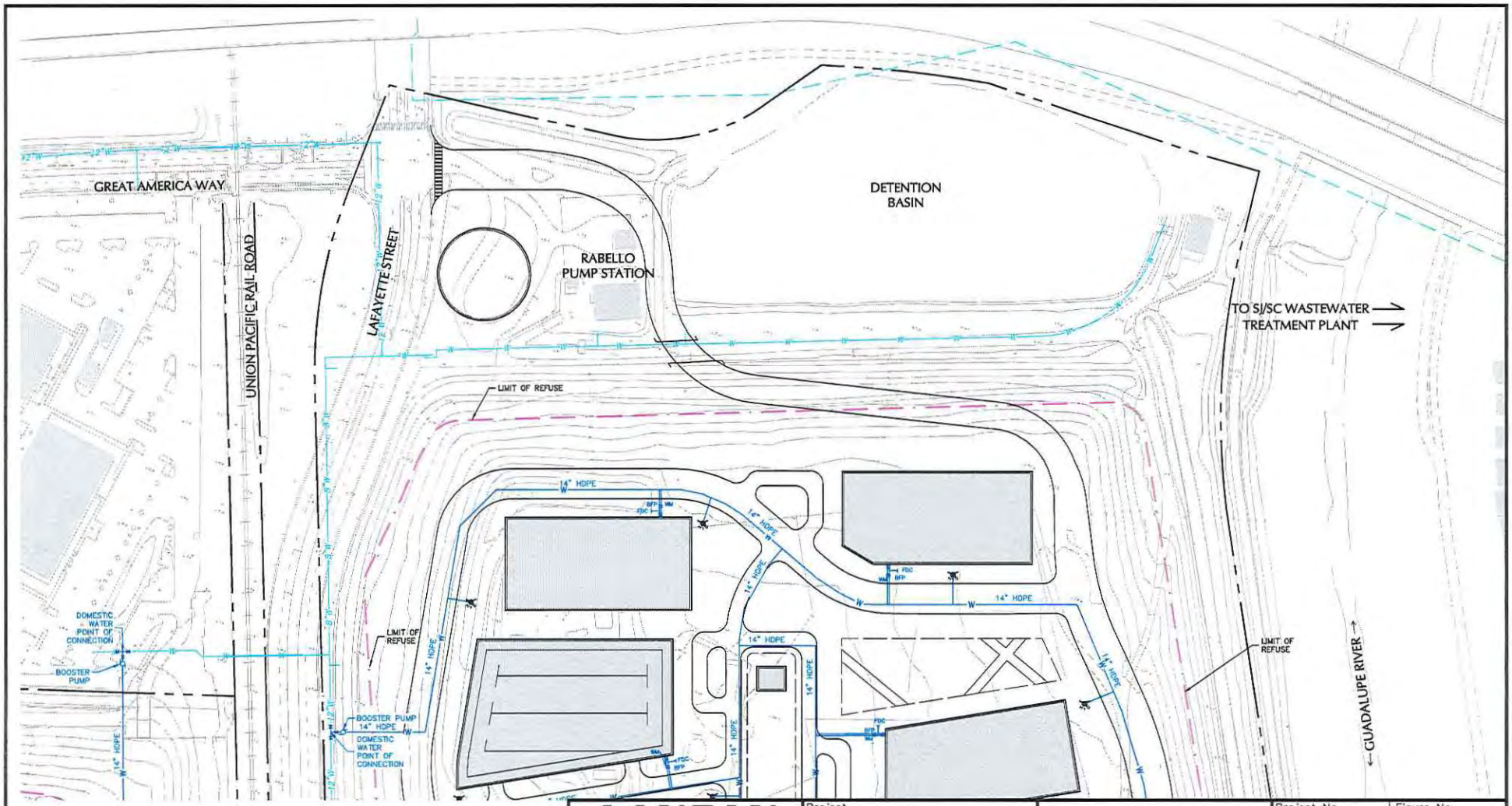

LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W — XX" HDPE ———

LIMIT OF REFUSE — — — — — —

STRUCTURAL SLAB ▬▬▬▬▬▬▬▬

150 0 75 150

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Project No. 770611601	Figure No. 4
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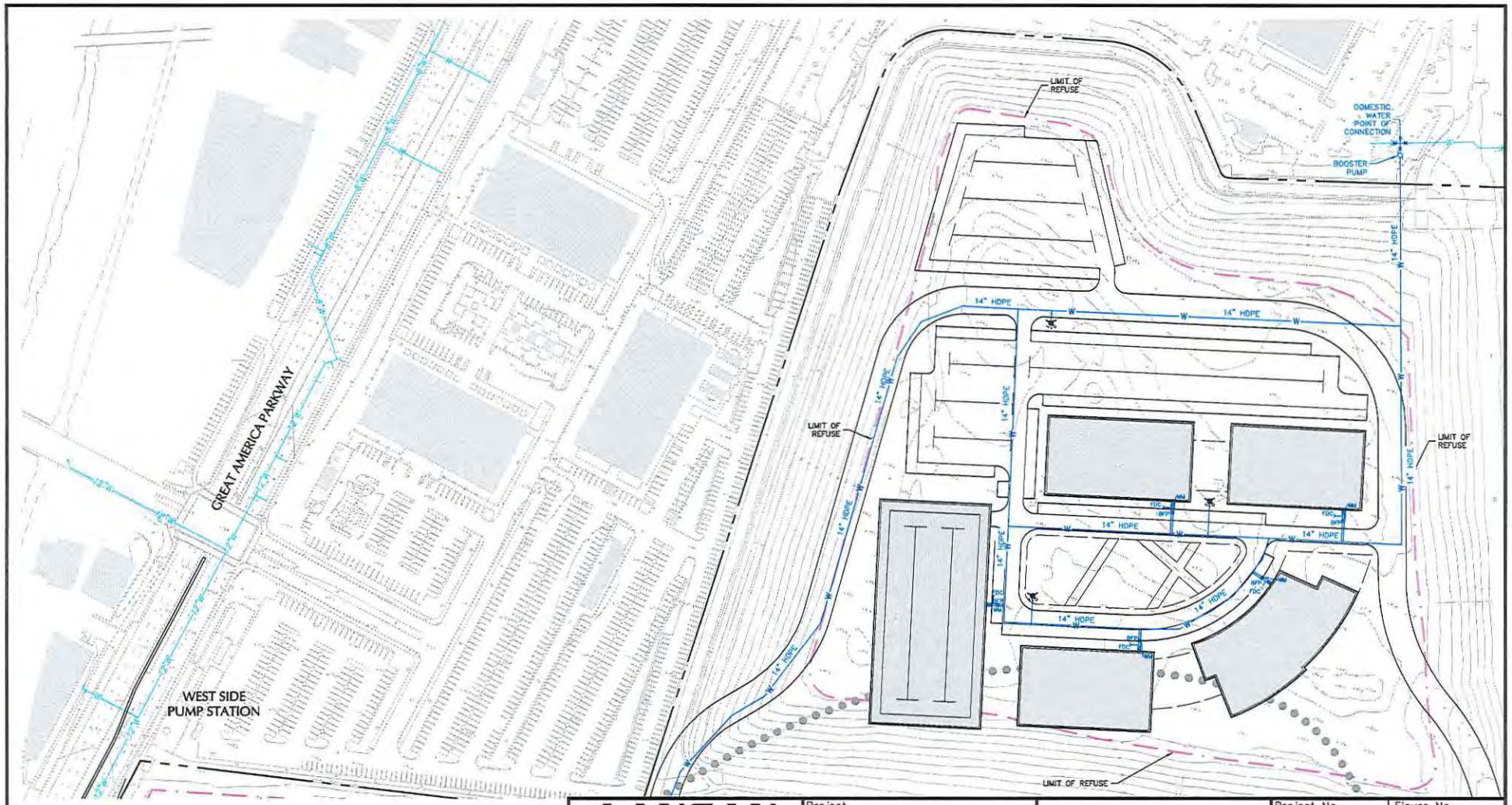

LEGEND:

EXISTING INFRASTRUCTURE — XX" W —

PROPOSED INFRASTRUCTURE — W — XX" HDPE —

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

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Figure No. 5

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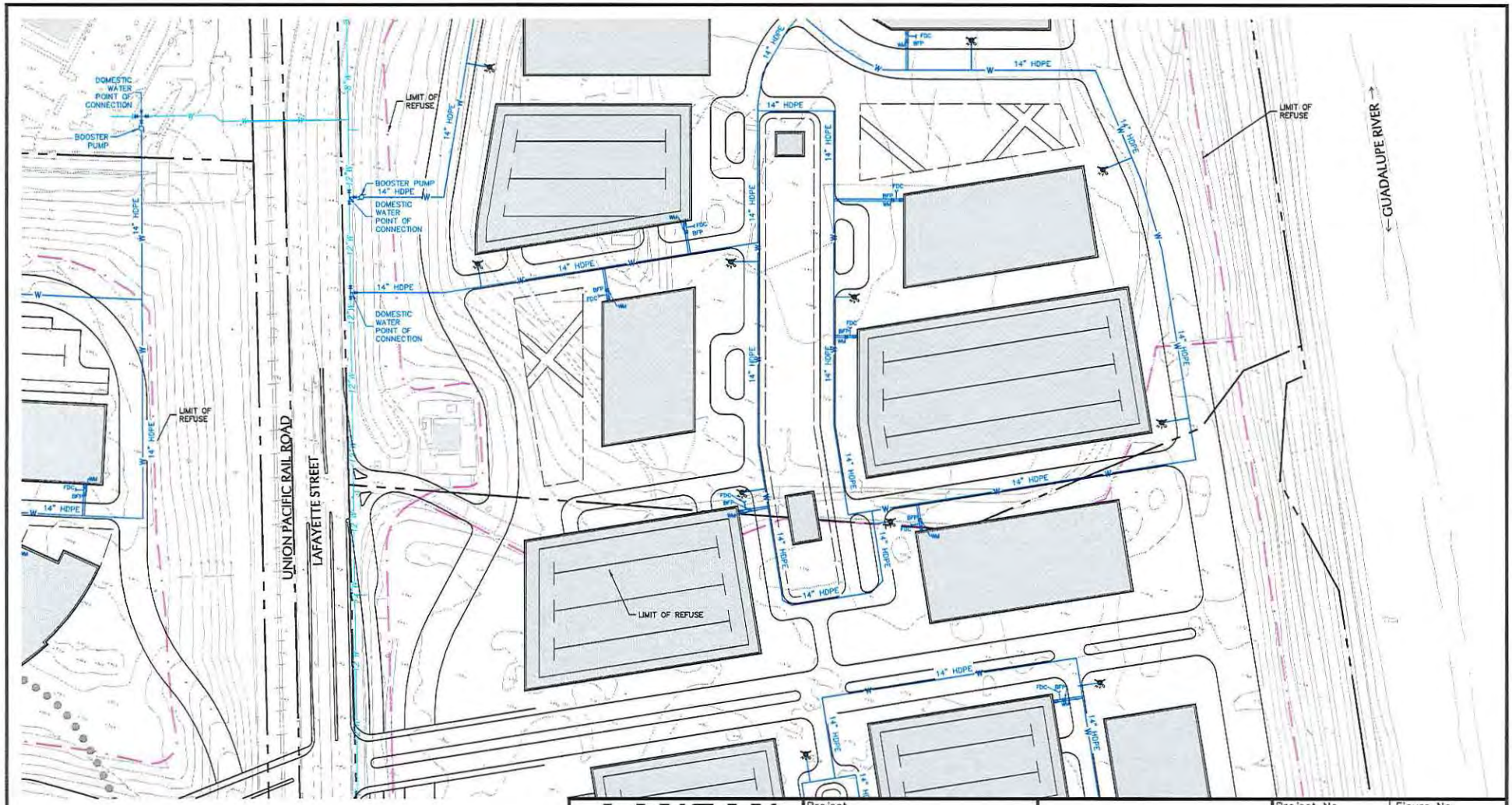

LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W — XX" HDPE ———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB ▬▬▬▬▬▬

150 0 75 150

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Figure No. 6

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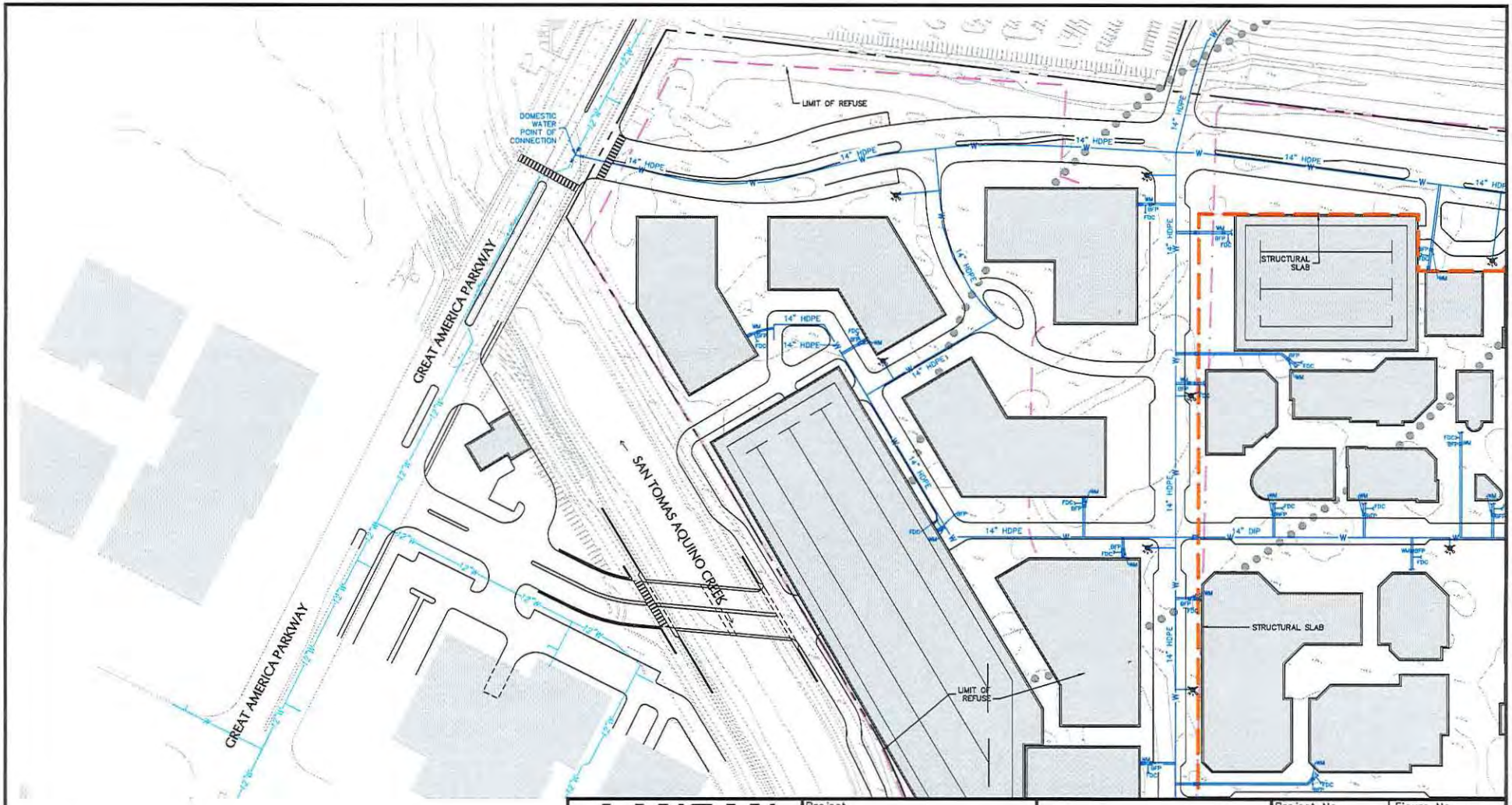

LEGEND:

EXISTING INFRASTRUCTURE ——— xx" ø ———

PROPOSED INFRASTRUCTURE ——— W —xx" HDPE———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB ▬▬▬▬▬▬

150 0 75 150

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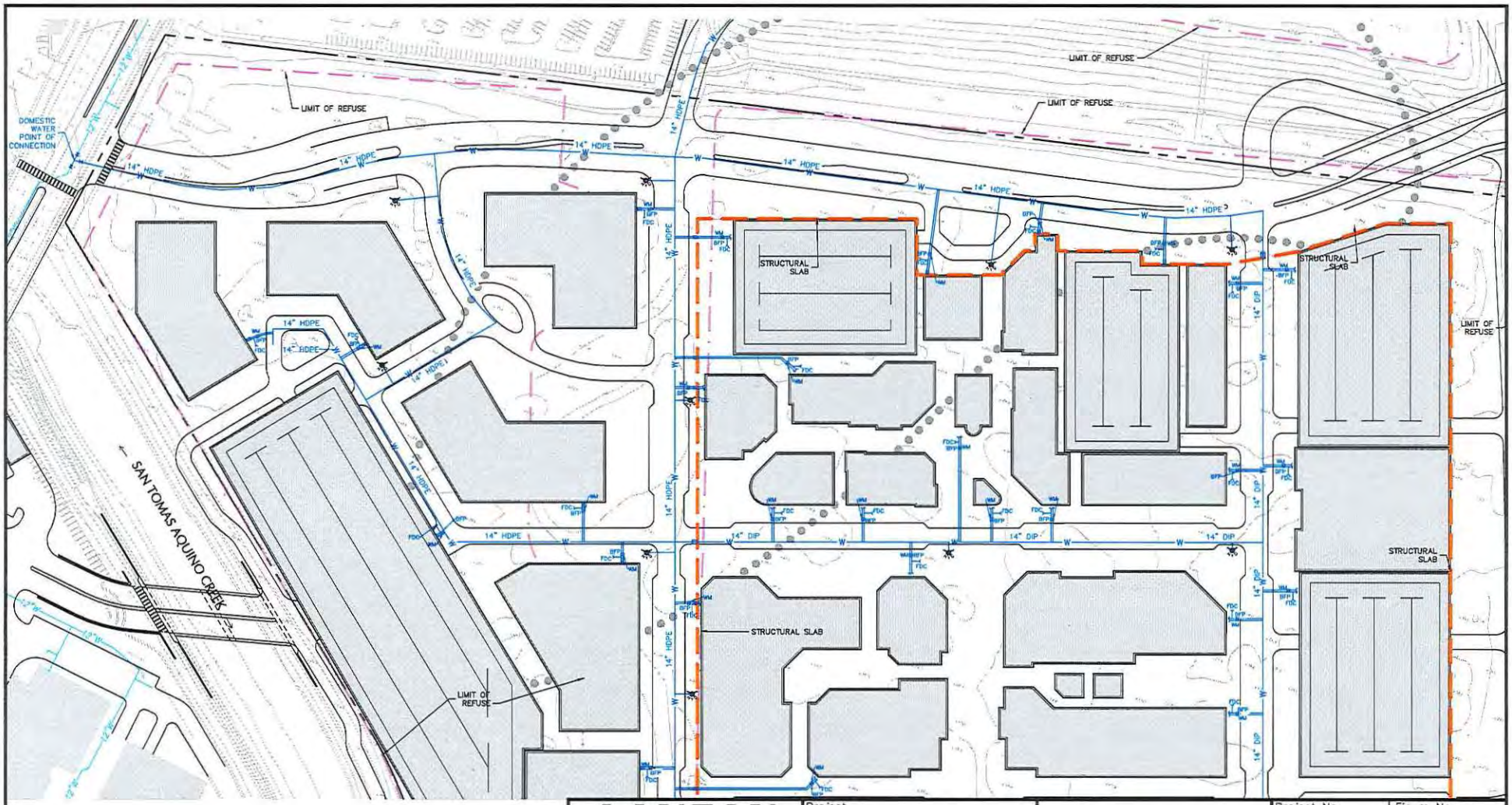

LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W — XX" HDPE ———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB ▬▬▬▬▬▬

150 0 75 150

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Project No. 770611601	Figure No. 8
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Submission Date 6/30/2015	

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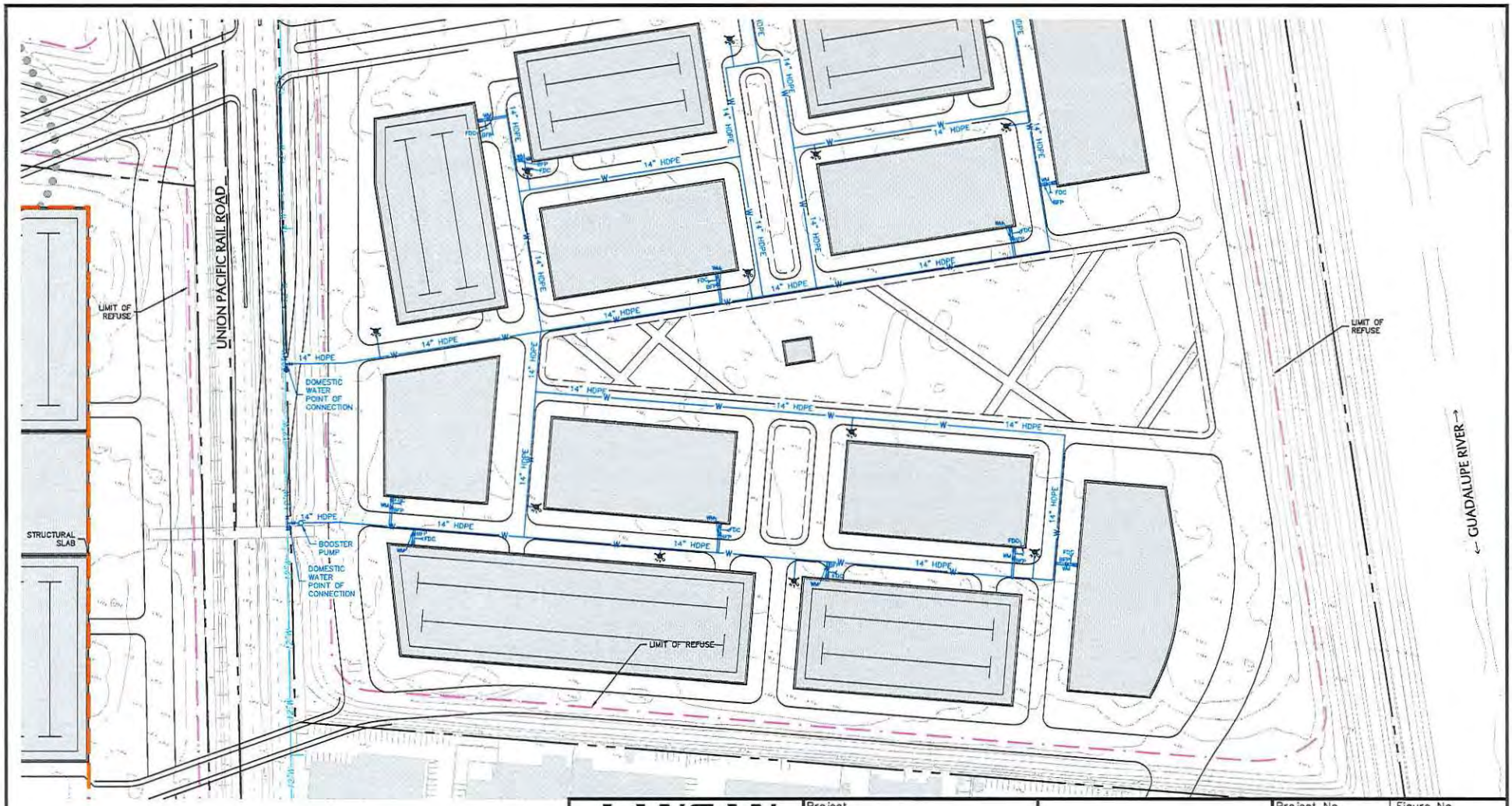

LEGEND:

EXISTING INFRASTRUCTURE

PROPOSED INFRASTRUCTURE —W—XX" HDPE—

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

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Project No. 770611601	Figure No. 9
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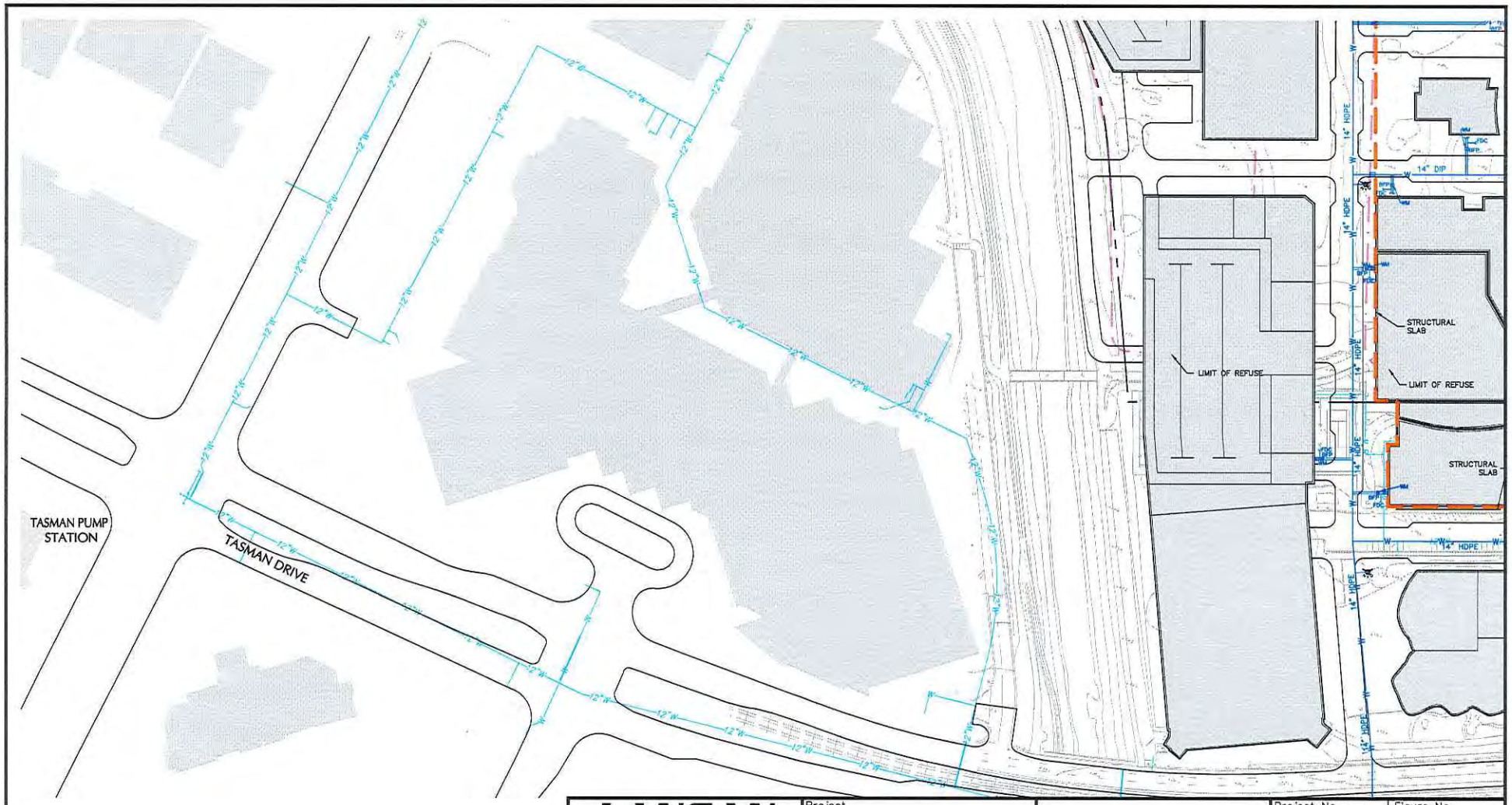

LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W — XX" HDPE ———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB ▬▬▬▬▬▬

150 0 75 150

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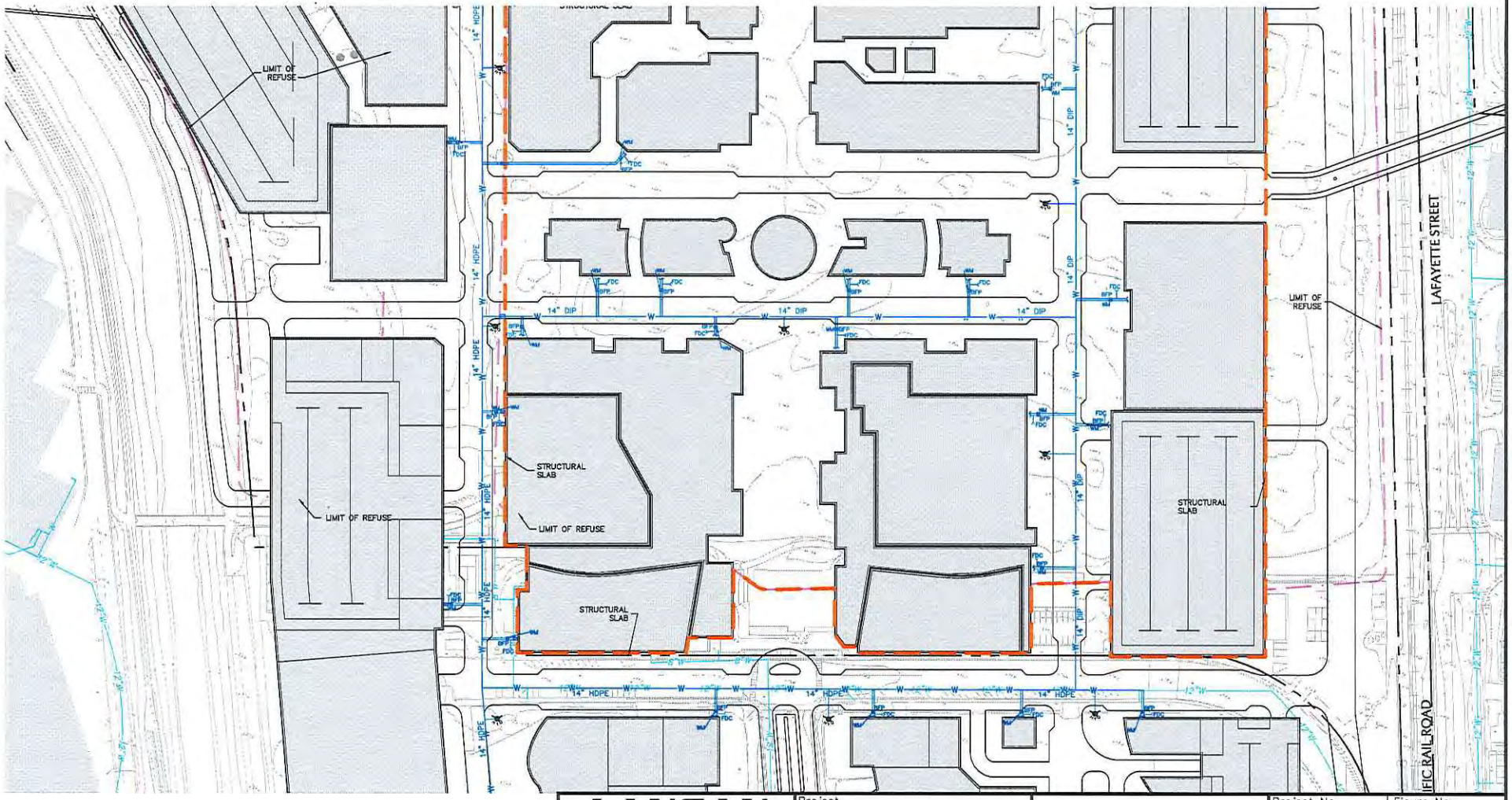

LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W —XX" HDPE———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB ▬▬▬▬▬▬

150 0 75 150

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Figure No. 11

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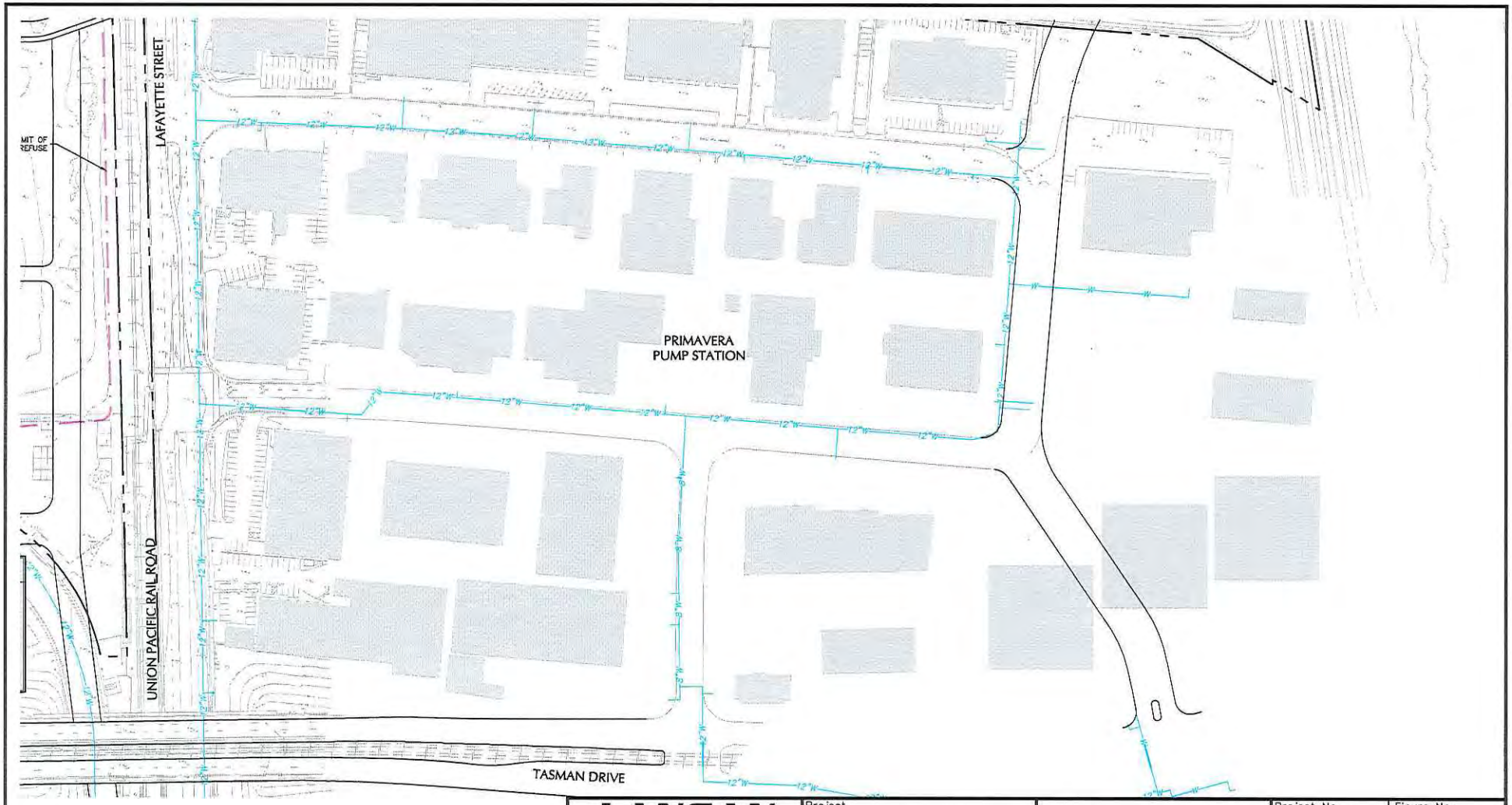

LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W—XX" HDPE———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB ▬▬▬▬▬▬▬▬

150 0 75 150

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Figure No. 12

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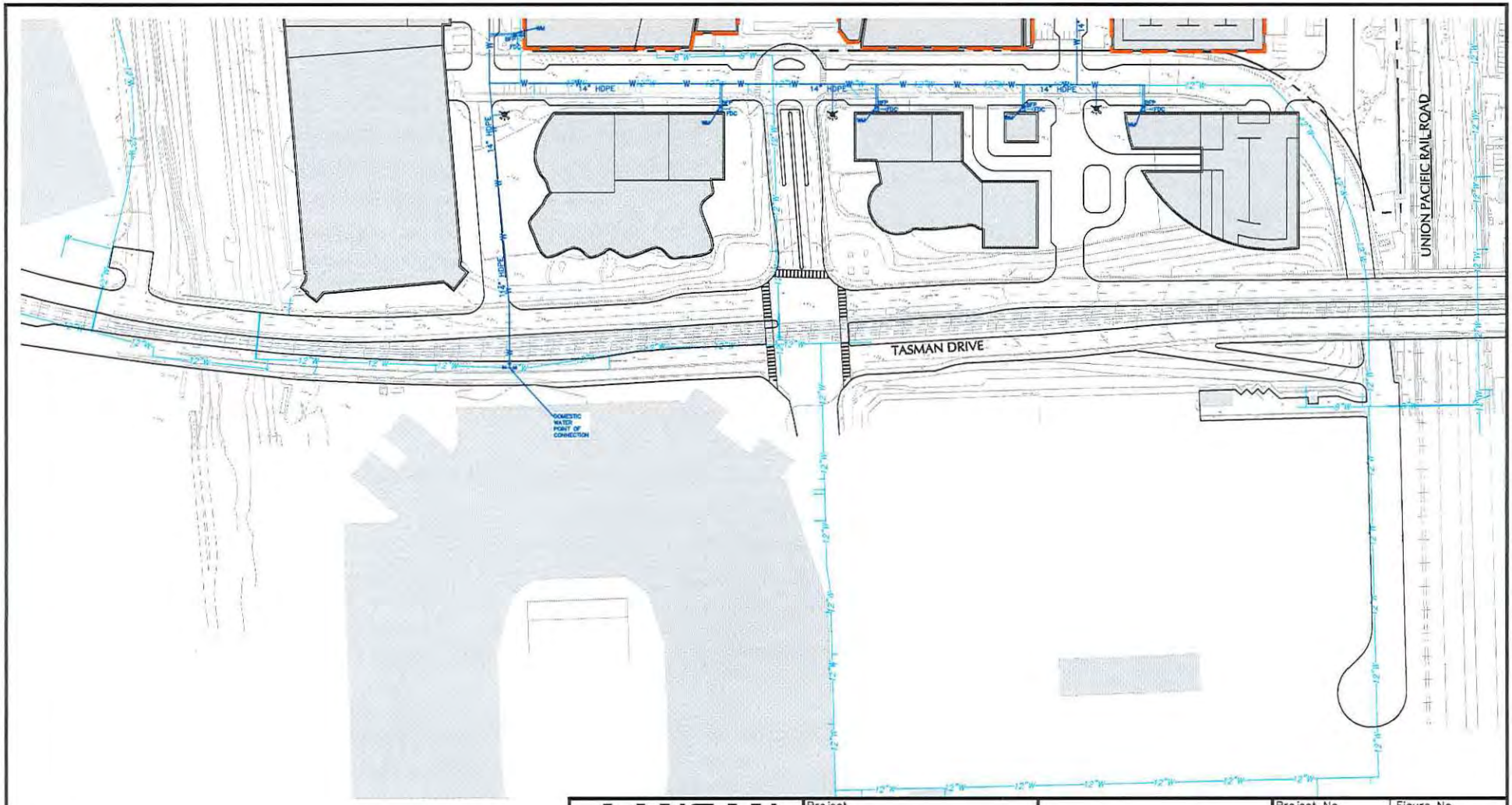

LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W — XX" HDPE ———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB ▬▬▬▬▬▬▬▬

150 0 75 150

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Figure No. 13

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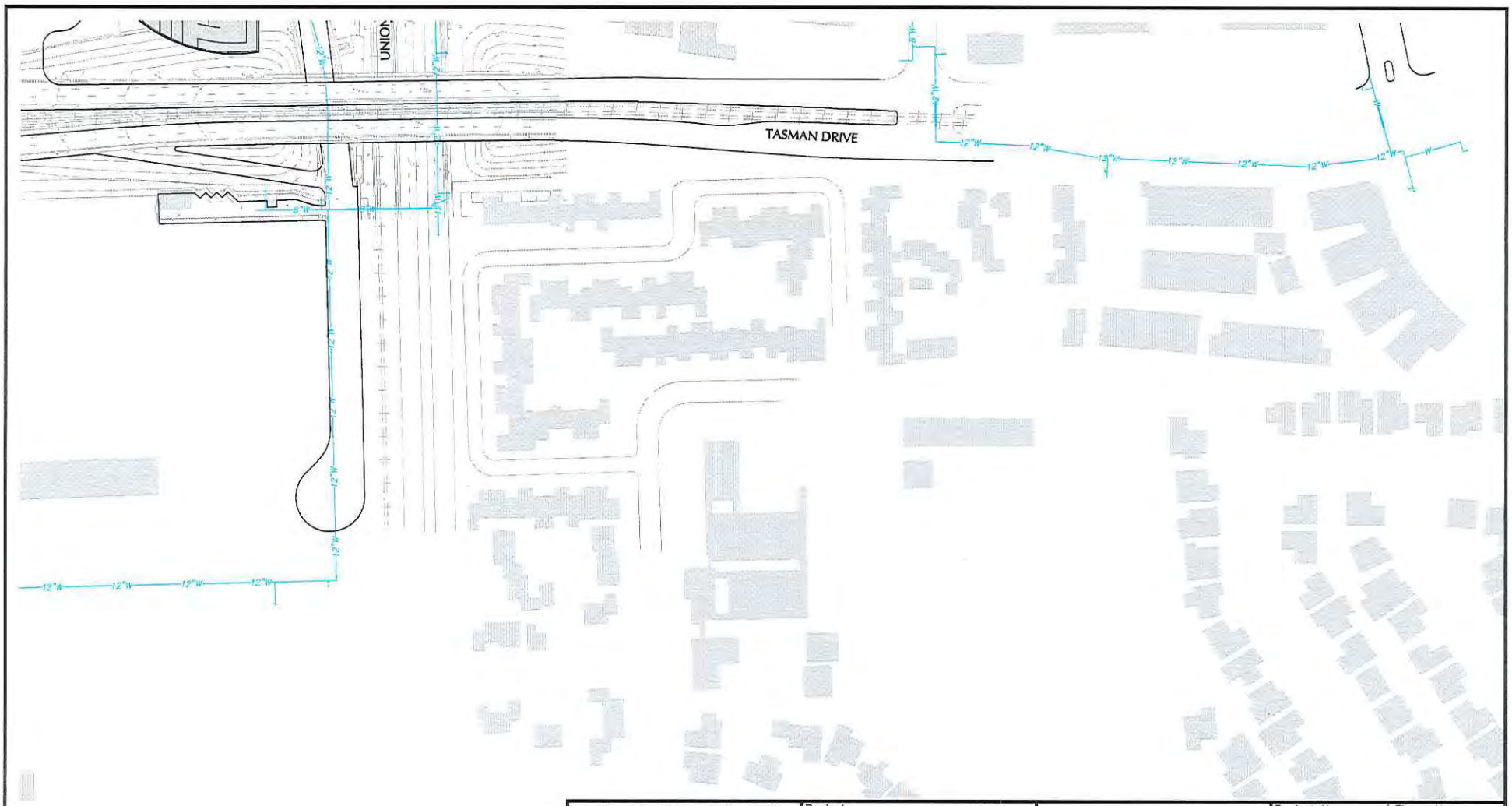

LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W—XX" HDPE———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB ▬▬▬▬▬▬▬▬

150 0 75 150

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Checked By	DJH
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Figure No. 14

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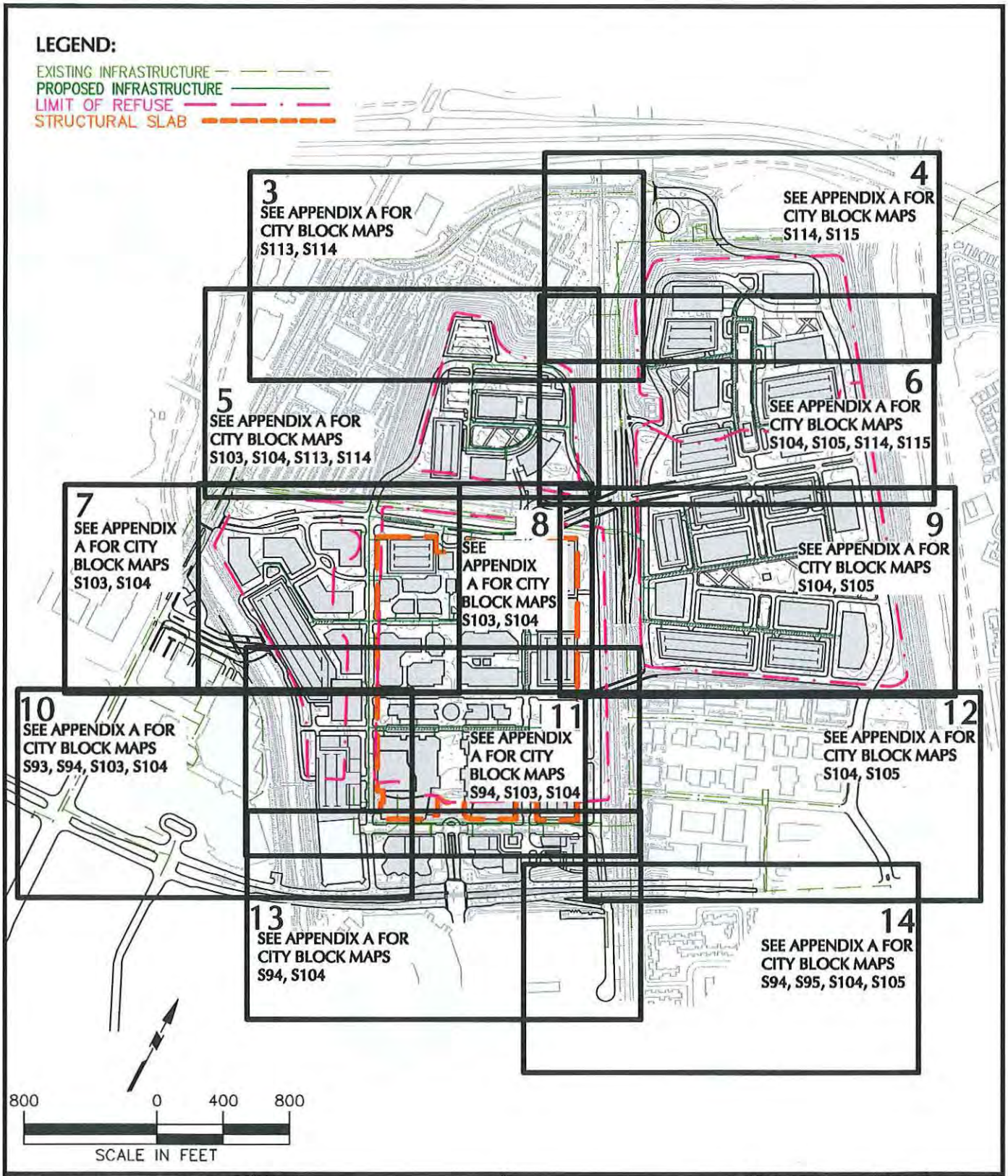
Figures from Sanitary Sewer Technical Memorandum



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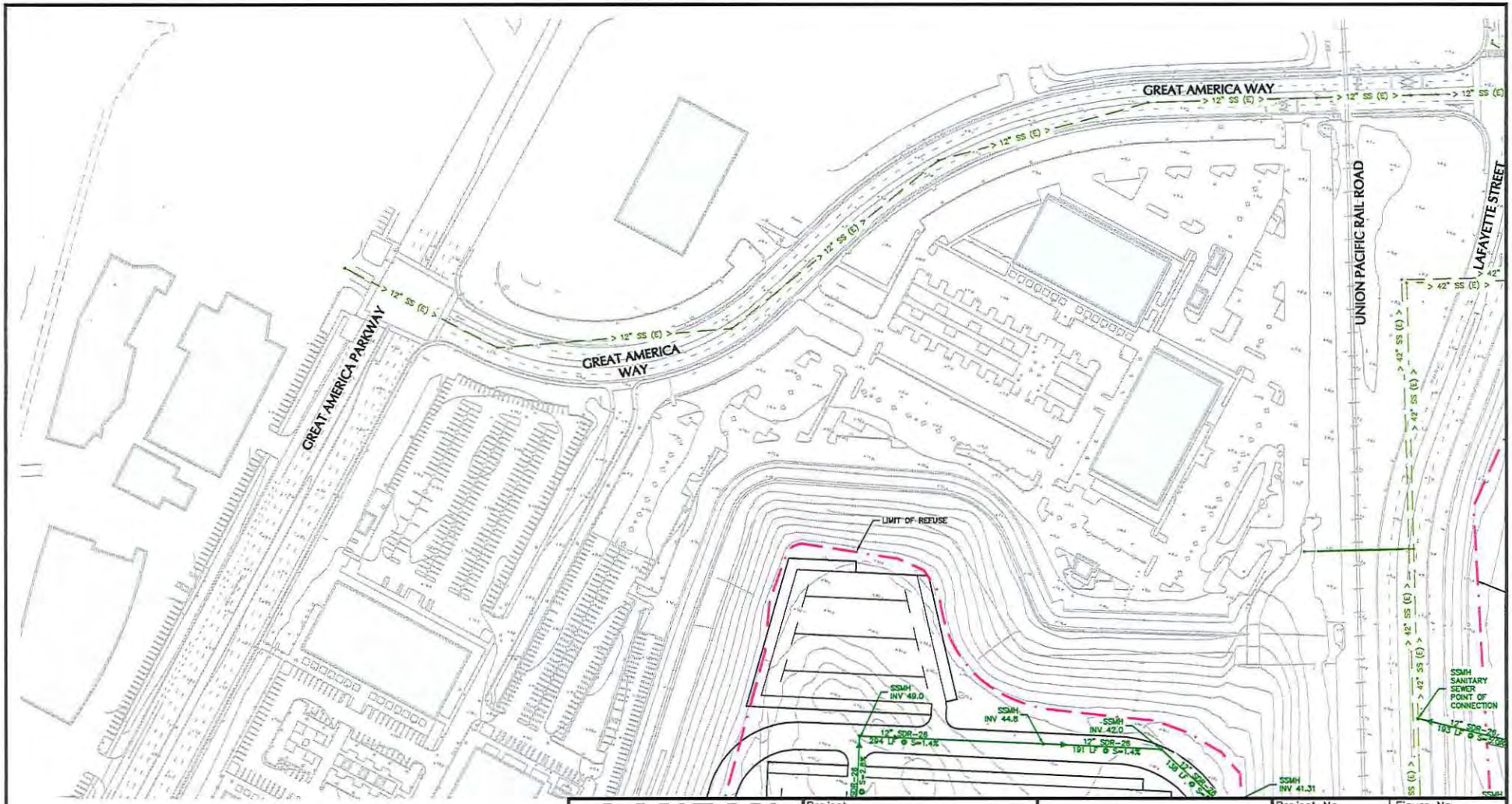

LEGEND:

EXISTING INFRASTRUCTURE — > xx" SS (E) > —

PROPOSED INFRASTRUCTURE → xx" SDR-26 xx LF @ S=x.x% →

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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Project No.	770611501
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Scale	1" = 150'
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Figure No. 3

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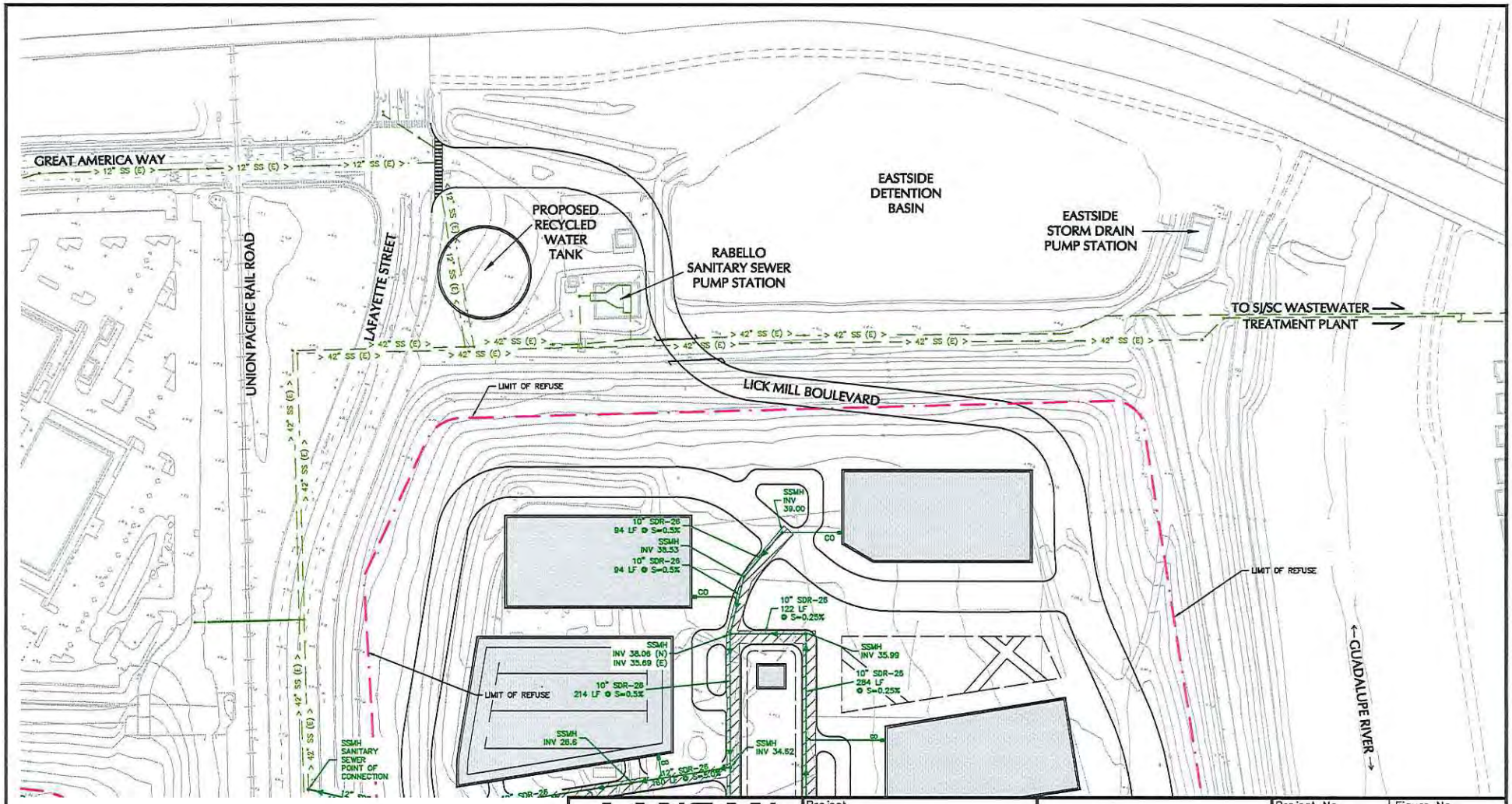

LEGEND:

EXISTING INFRASTRUCTURE — > XX" SS (E) >

PROPOSED INFRASTRUCTURE — XX" SDR-26 XX LF @ S=XX%

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

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Scale	1" = 150'
Drawn By	STAFF
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Figure No. 4

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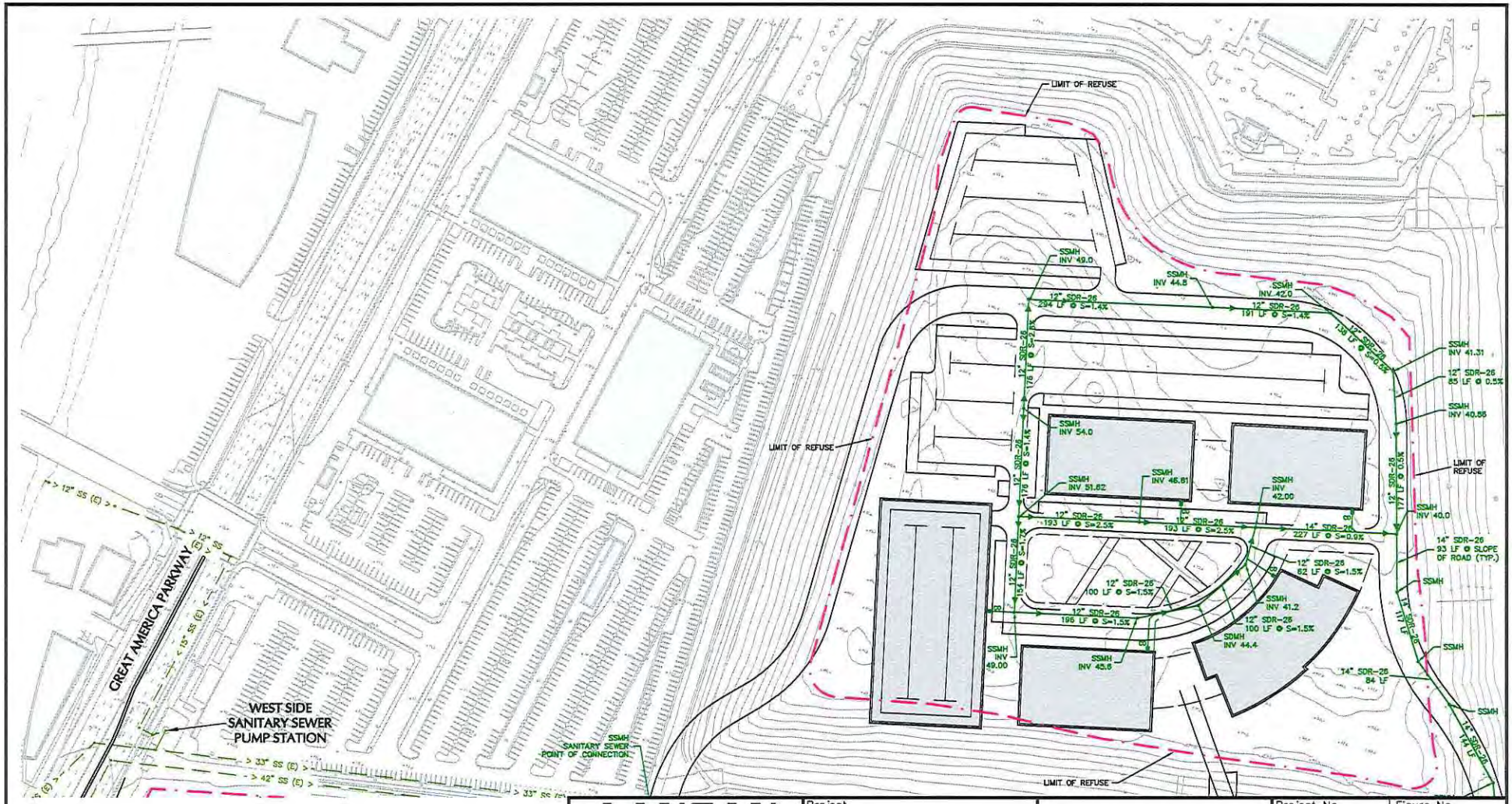

LEGEND:

EXISTING INFRASTRUCTURE — > xx" SS (E) >

PROPOSED INFRASTRUCTURE — xx" SDR-26 xx LF @ S=x%

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

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Project No. 770611601	Figure No. 5
Date 6/30/2015	
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LEGEND:

EXISTING INFRASTRUCTURE — — > xx" ss (E) > — —

PROPOSED INFRASTRUCTURE → xx" SDR-26 xx LF @ S=x% →

LIMIT OF REFUSE — · — · —

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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CITY PLACE SANTA CLARA

SANTA CLARA CALIFORNIA

PRELIMINARY SANITARY SEWER

Project No. 770611601	Figure No. 6
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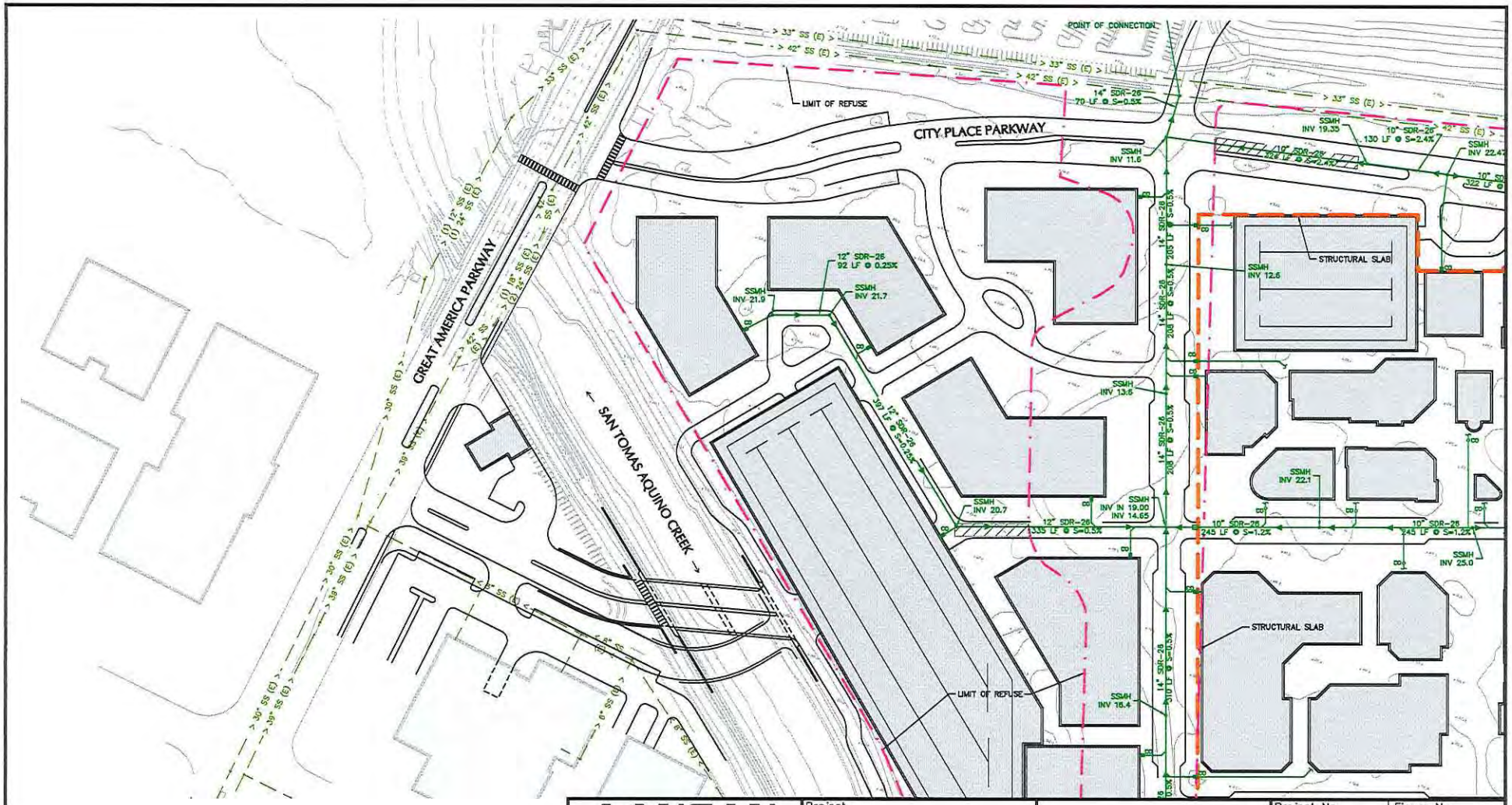

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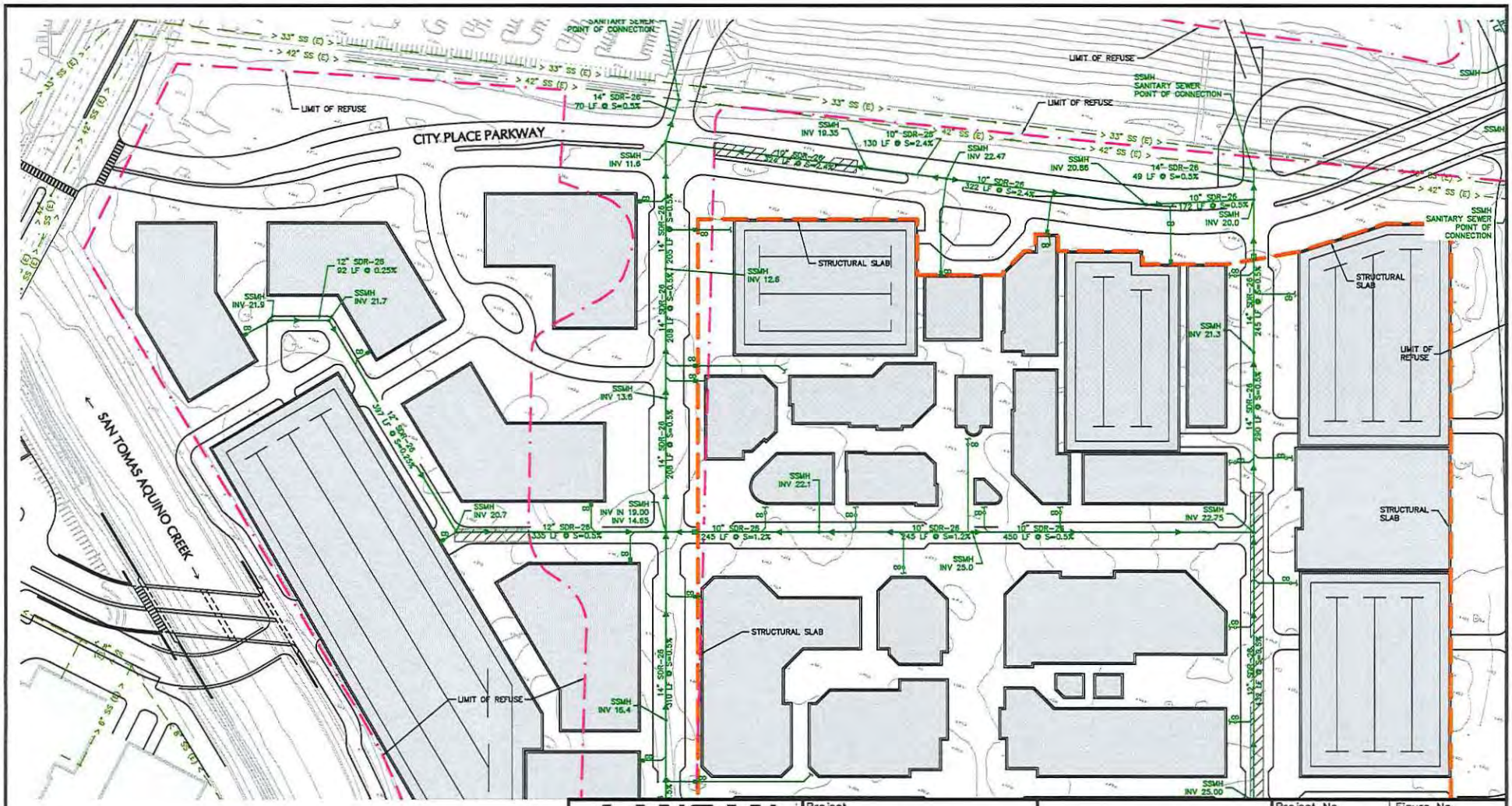

LEGEND:

EXISTING INFRASTRUCTURE — — > XX" SS (E) > — —

PROPOSED INFRASTRUCTURE —— XX" SDR-26 XX LF @ S=X% ——

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

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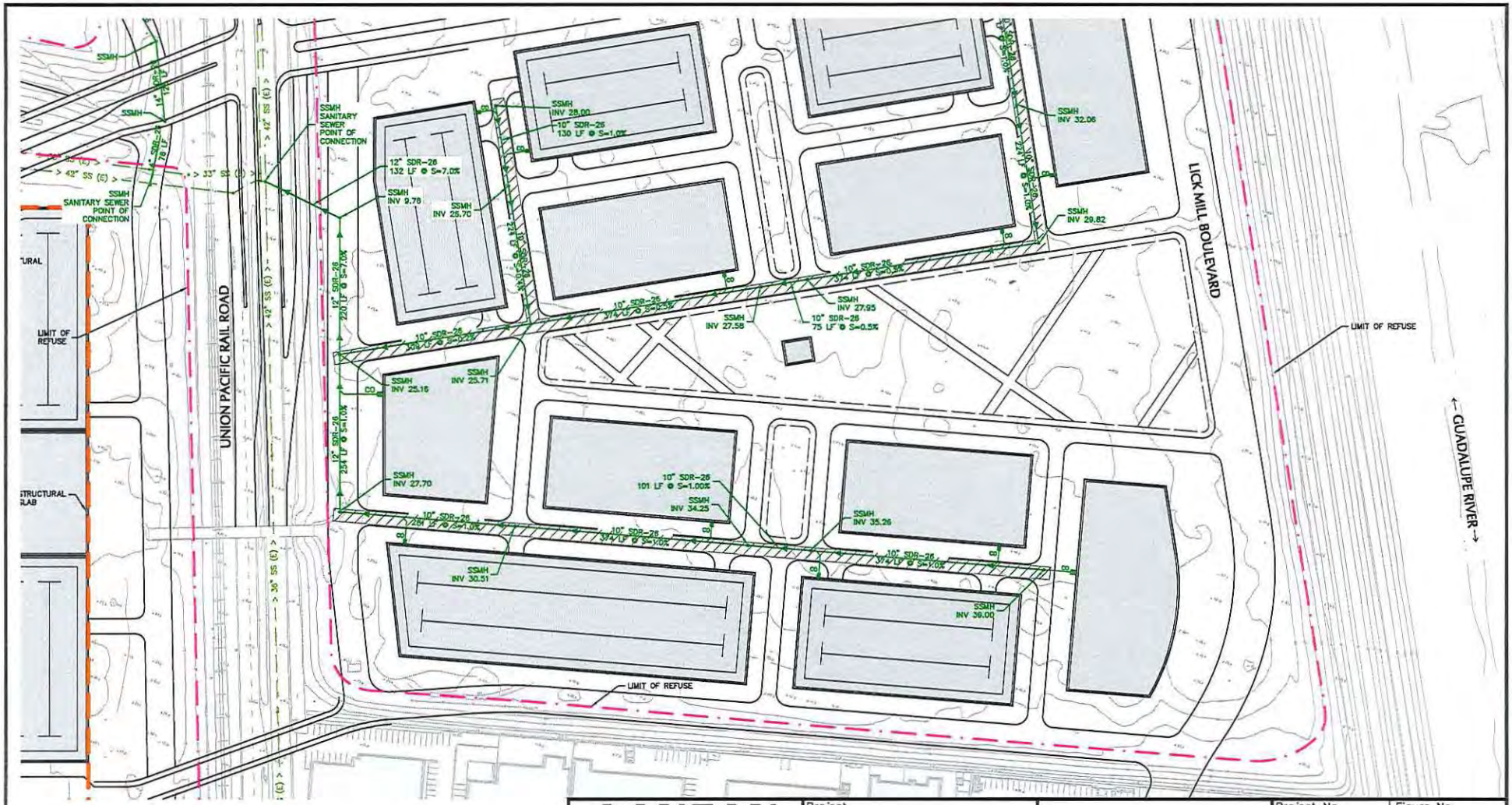

LEGEND:

EXISTING INFRASTRUCTURE — — > XX" SS (E) > — —

PROPOSED INFRASTRUCTURE — > XX" SDR-26 XX LF @ S=XX% >

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

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Figure No. **9**

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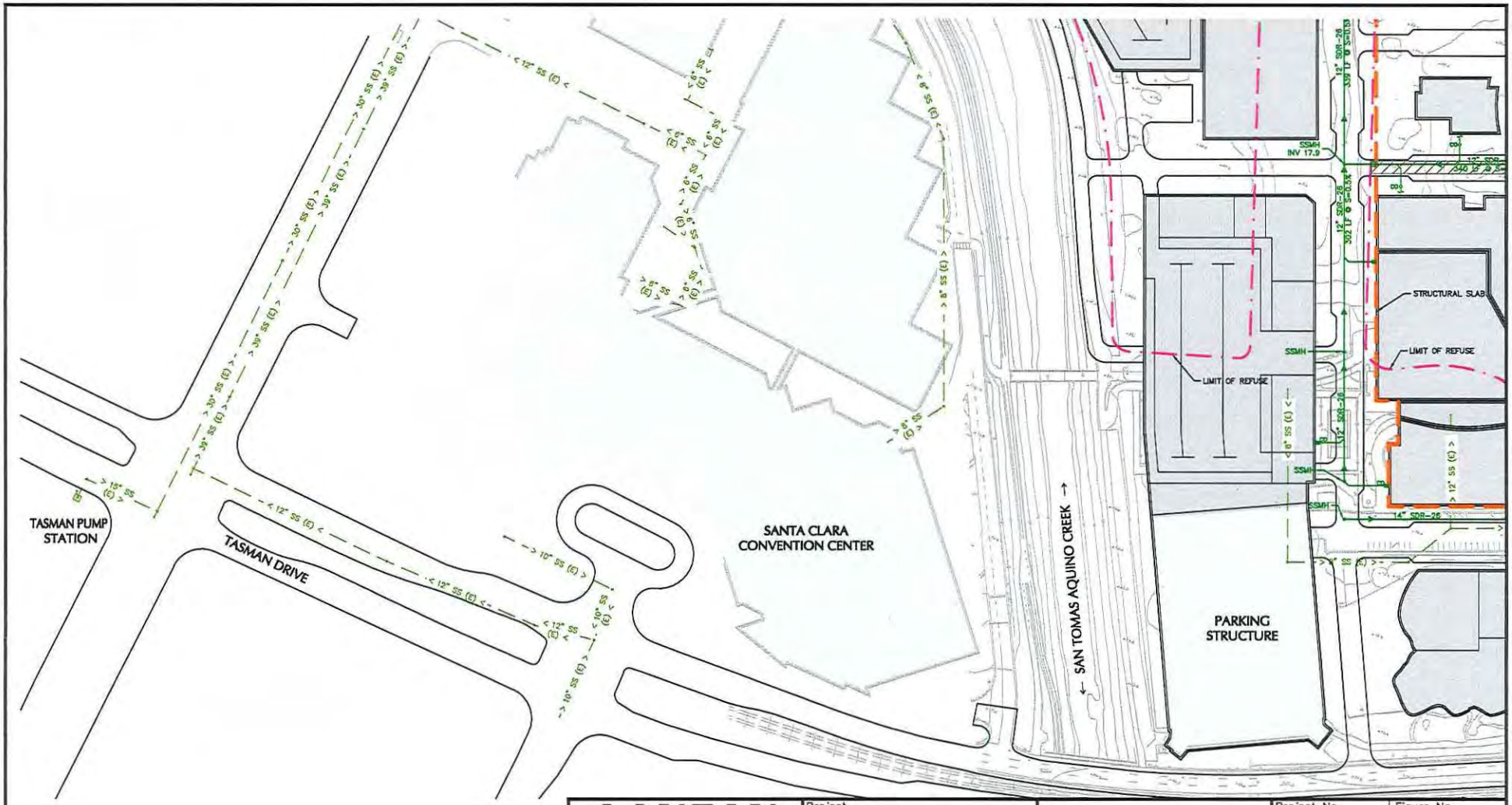
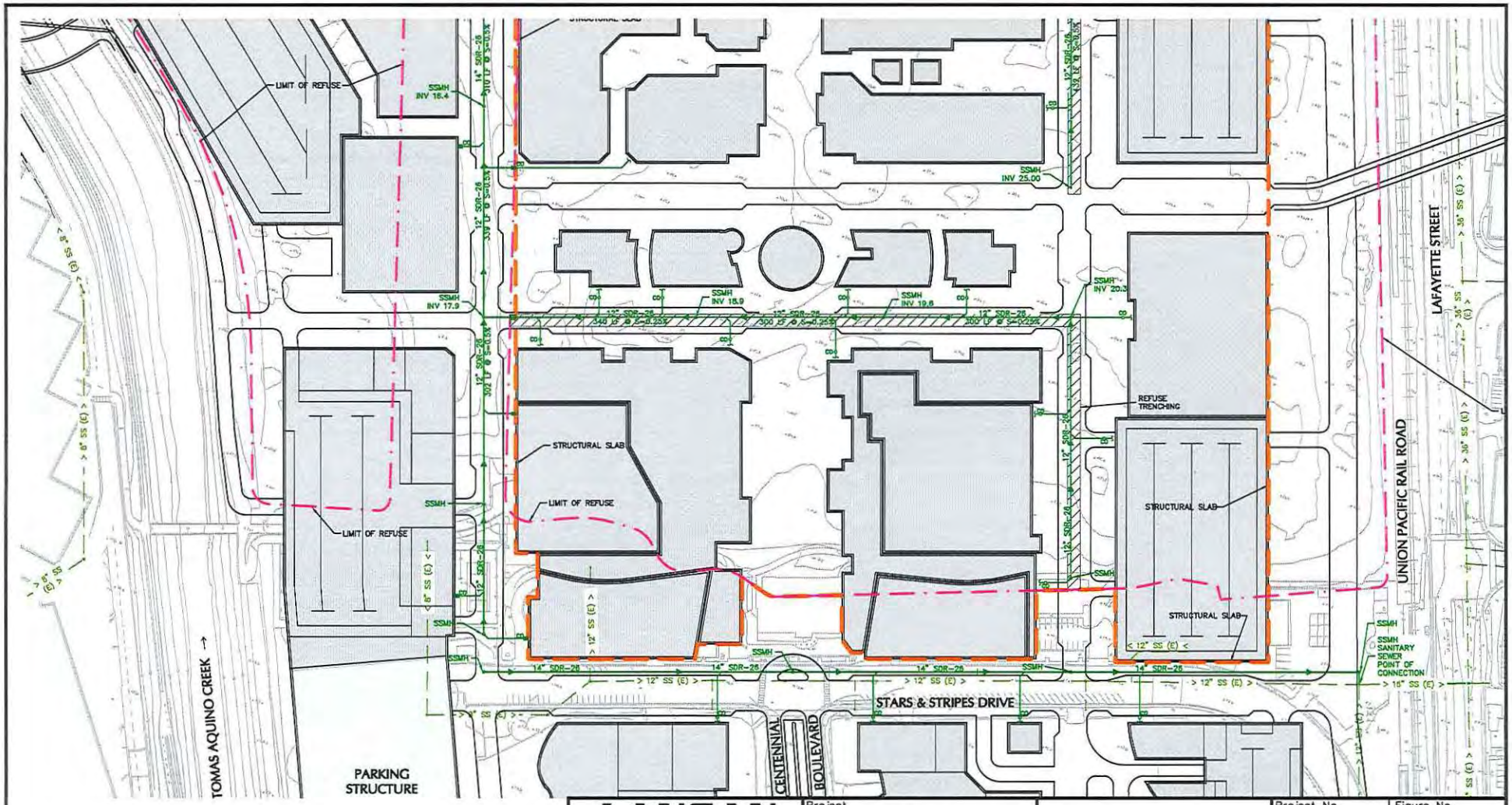

TASMAN PUMP STATION
TASMAN DRIVE
SANTA CLARA CONVENTION CENTER
SAN TOMAS AQUINO CREEK
PARKING STRUCTURE
STRUCTURAL SLAB
LIMIT OF REFUSE
LIMIT OF REFUSE
SSMH
SSMH
SSMH



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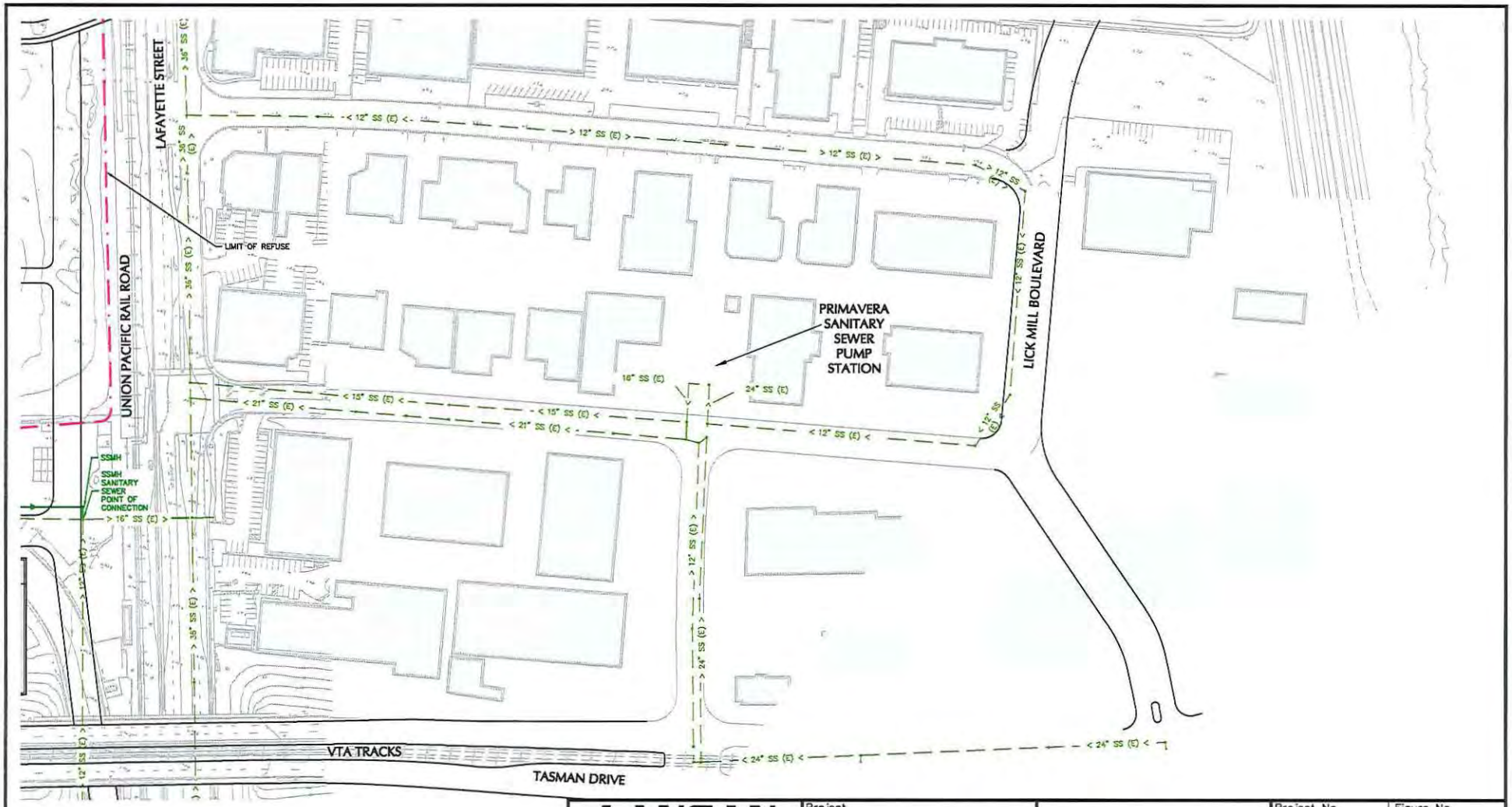

LEGEND:

EXISTING INFRASTRUCTURE — > xx" SS (E) >

PROPOSED INFRASTRUCTURE — xx" SDR-26 XX LF @ S=XX%

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

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Figure No. 12

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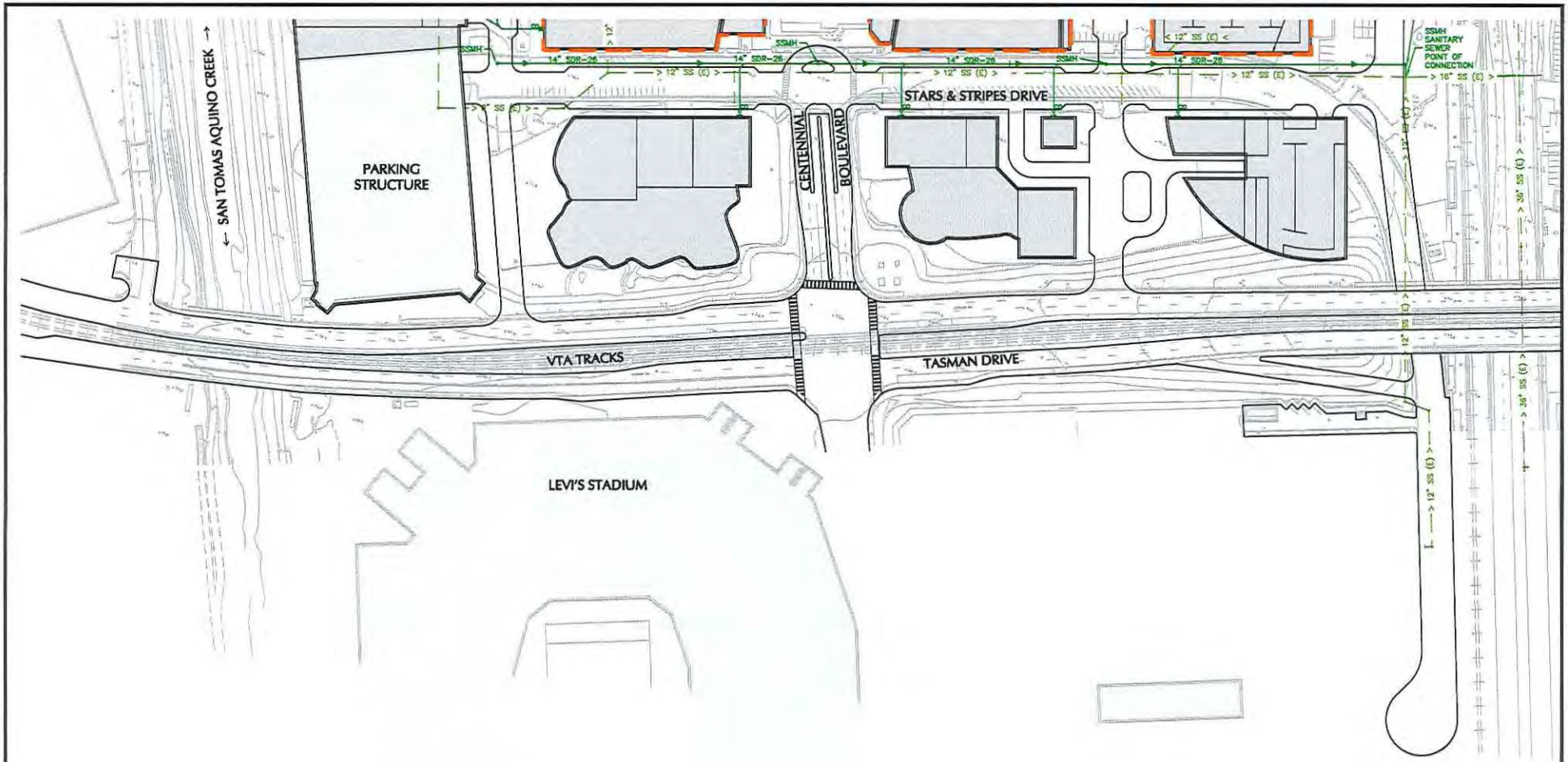

LEGEND:

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PROPOSED INFRASTRUCTURE → XX" SDR-26 XX LF @ S=XX →

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

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Figure No.	13

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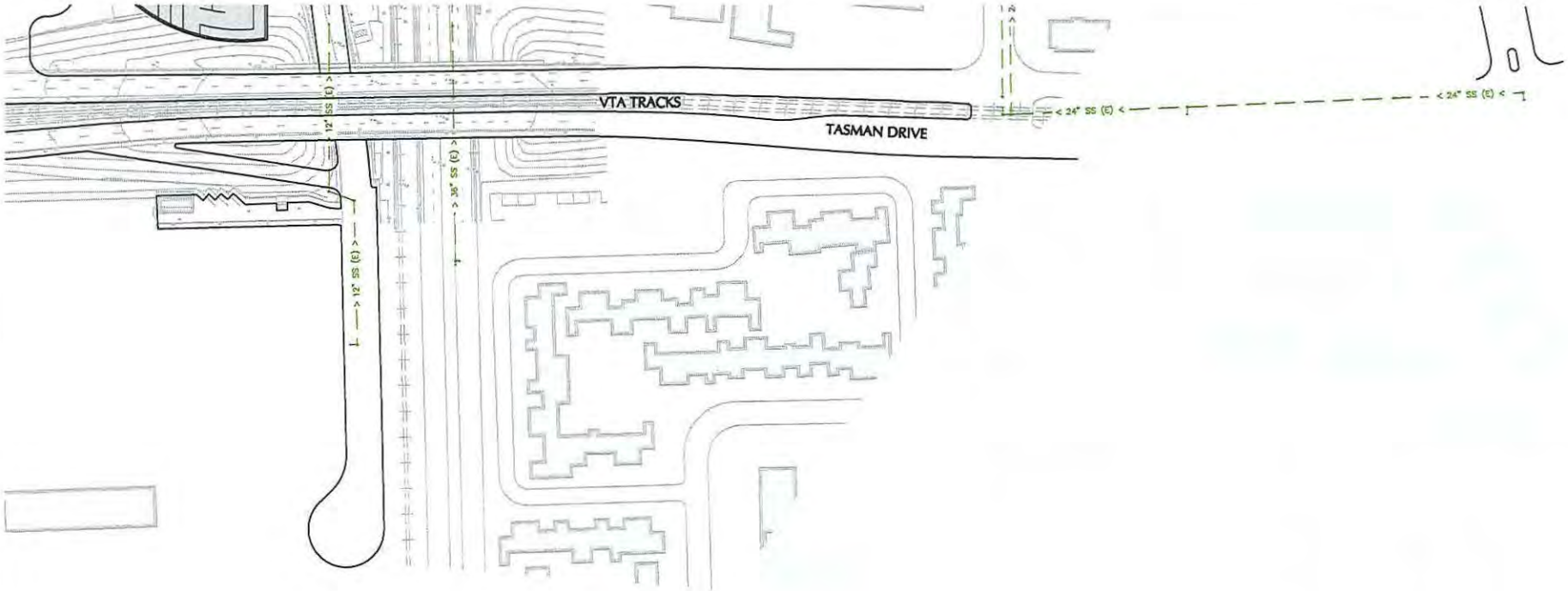

LEGEND:

EXISTING INFRASTRUCTURE — — > XX" SS (E) > — —

PROPOSED INFRASTRUCTURE → XX" SDR-26 XX LF @ S=XX% →

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

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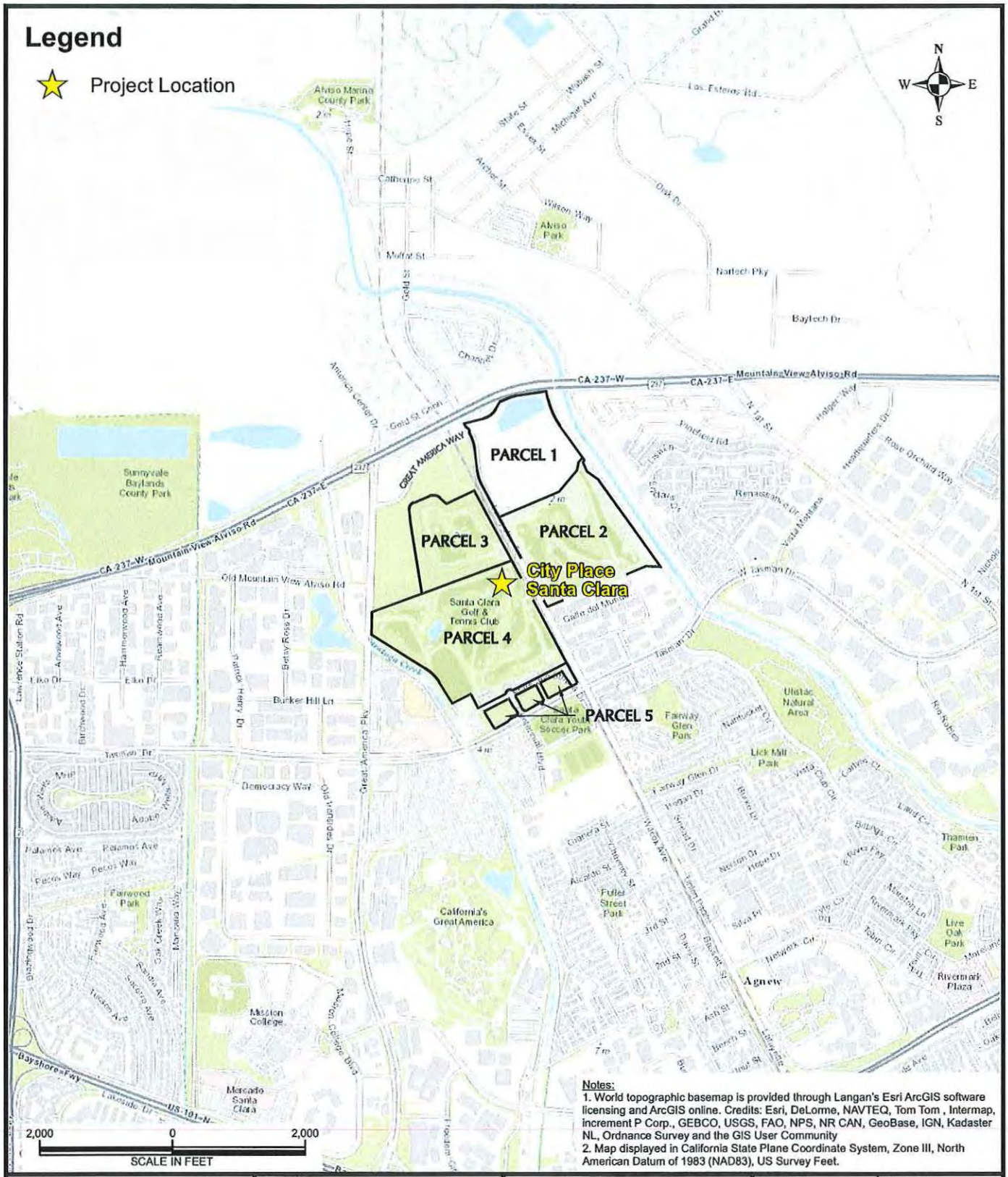
GRADING AND SITE ACCESS PHASING MATRIX				
Phase / Parcel	**Gross Sq. Footage**	**Approximate Earthwork**	**Access Intersections**	**Access Structures**
1 / 5	825,000	350,000 CY cut from Parcel 5 to Parcel 4	Tasman Drive, Centennial Boulevard, Stars and Stripes, Tasman Slip Ramp, A & B	
2 / 4	2,411,470	500,000 CY cut/fill on Parcel 4 and 250,000 CY (from Parcel 3 to Parcel 4)	Great America Parkway Lafayette Urban Interchange A, B & C	72,000 SF of bridge structure and abutments/fill in Lafayette Street
3 / 4	752,030	Fine Grading – See Note 1	-	-
4 / 4	1,095,900	Fine Grading – See Note 1	Great America Parkway (secondary)	20,000 SF of Bridge Structure over San Tomas Aquino Creek
5 / 3	750,000	Fine Grading – See Note 2	Two connections to Parcel 4	Two bridge structures over the infrastructure corridor
6 / 1	1,200,000	410,000 CY	Great America Way Lafayette Street Middle (at-grade)	Bridge structure over infrastructure corridor and City access
7 / 2	1,080,000	220,000 CY	Parcel 4/2 Connector Lick Mill Boulevard	35,000 SF of bridge structure over Lafayette Street
8 / 2	1,080,000	Fine Grading – See Note 3	-	-

Notes:
1. Earthwork performed during Phase 2 to accommodate gas extraction system replacement/relocation.
2. Earthwork performed during Phase 2 (250,000 CY of cut to Parcel 4).
3. Earthwork performed during Phase 7 to accommodate gas extraction system replacement/relocation.

FIGURES



Notes:
1. World topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online. Credits: Esri, DeLorme, NAVTEQ, Tom Tom , Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NR CAN, GeoBase, IGN, Kadaster NL, Ordnance Survey and the GIS User Community
2. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

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SITE LOCATION MAP

Project No. 770611601	Figure No. 1
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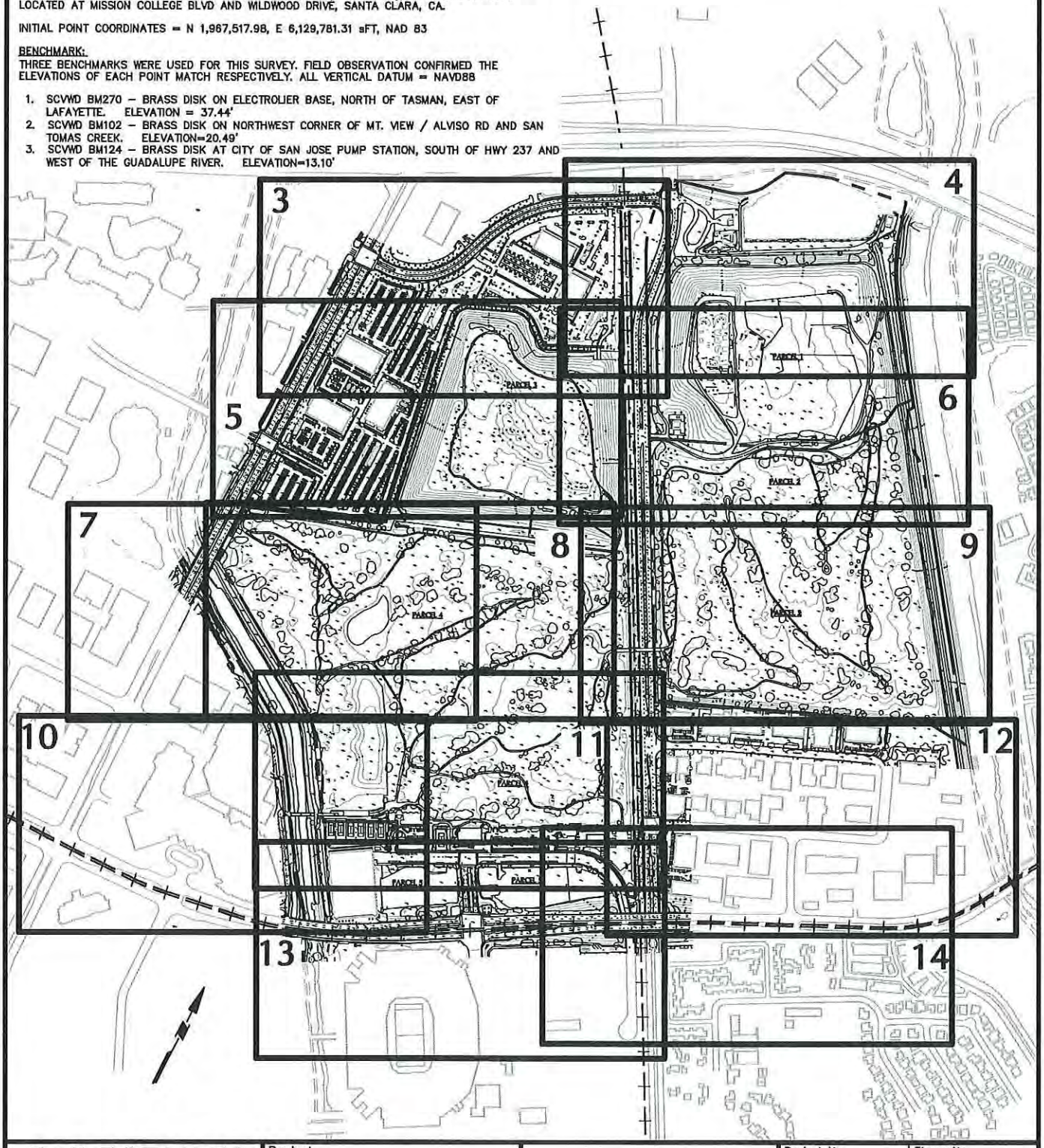
BASIS OF BEARINGS:
THE BEARING, NORTH 00°00'00" EAST, AS DETERMINED BY GPS OBSERVATION WAS USED AS THE BASIS OF BEARINGS FOR THIS SURVEY. THE HORIZONTAL COORDINATES USED FOR THIS SURVEY ARE BASED ON THE STATE OF CALIFORNIA STATE PLANE SYSTEM, CA ZONE 3, AS ESTABLISHED FROM GPS OBSERVATION OF NGS POINT "HPGN D CA MISSION" (PID AA1873), AN ALUMINUM DISK LOCATED AT MISSION COLLEGE BLVD AND WILDWOOD DRIVE, SANTA CLARA, CA.

INITIAL POINT COORDINATES = N 1,967,517.98, E 6,129,781.31 sFT, NAD 83

BENCHMARK:
THREE BENCHMARKS WERE USED FOR THIS SURVEY. FIELD OBSERVATION CONFIRMED THE ELEVATIONS OF EACH POINT MATCH RESPECTIVELY. ALL VERTICAL DATUM = NAVD88

1. SCVWD BM270 – BRASS DISK ON ELECTROLIER BASE, NORTH OF TASMAN, EAST OF LAFAYETTE. ELEVATION = 37.44'
2. SCVWD BM102 – BRASS DISK ON NORTHWEST CORNER OF MT. VIEW / ALVISO RD AND SAN TOMAS CREEK. ELEVATION=20.49'
3. SCVWD BM124 – BRASS DISK AT CITY OF SAN JOSE PUMP STATION, SOUTH OF HWY 237 AND WEST OF THE GUADALUPE RIVER. ELEVATION=13.10'



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EXISTING TOPOGRAPHY KEY MAP

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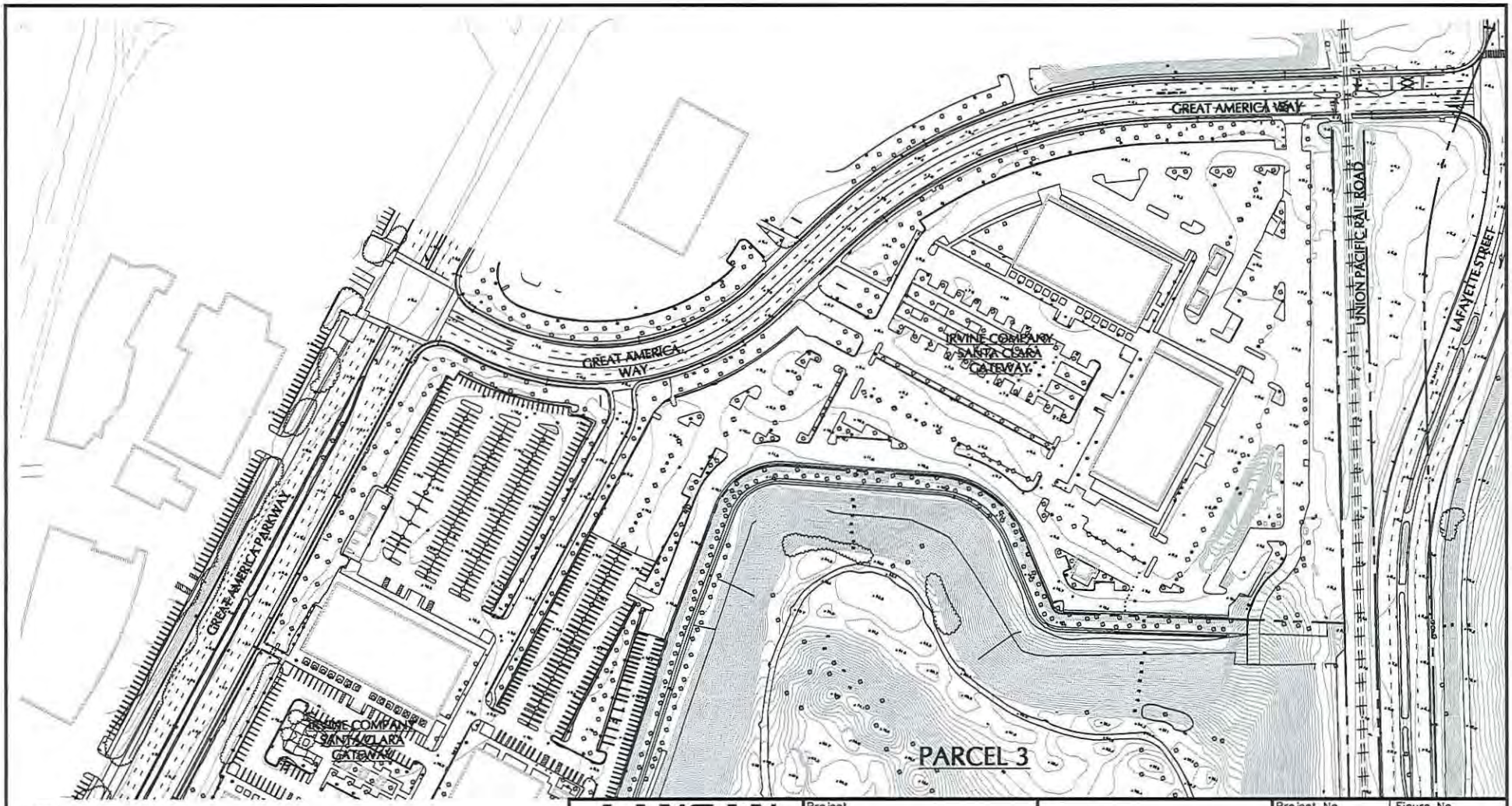

NOTE:
SEE FIGURE No. 2 FOR BASIS OF BEARINGS AND BENCHMARK.

150 0 75 150
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Figure No. 3

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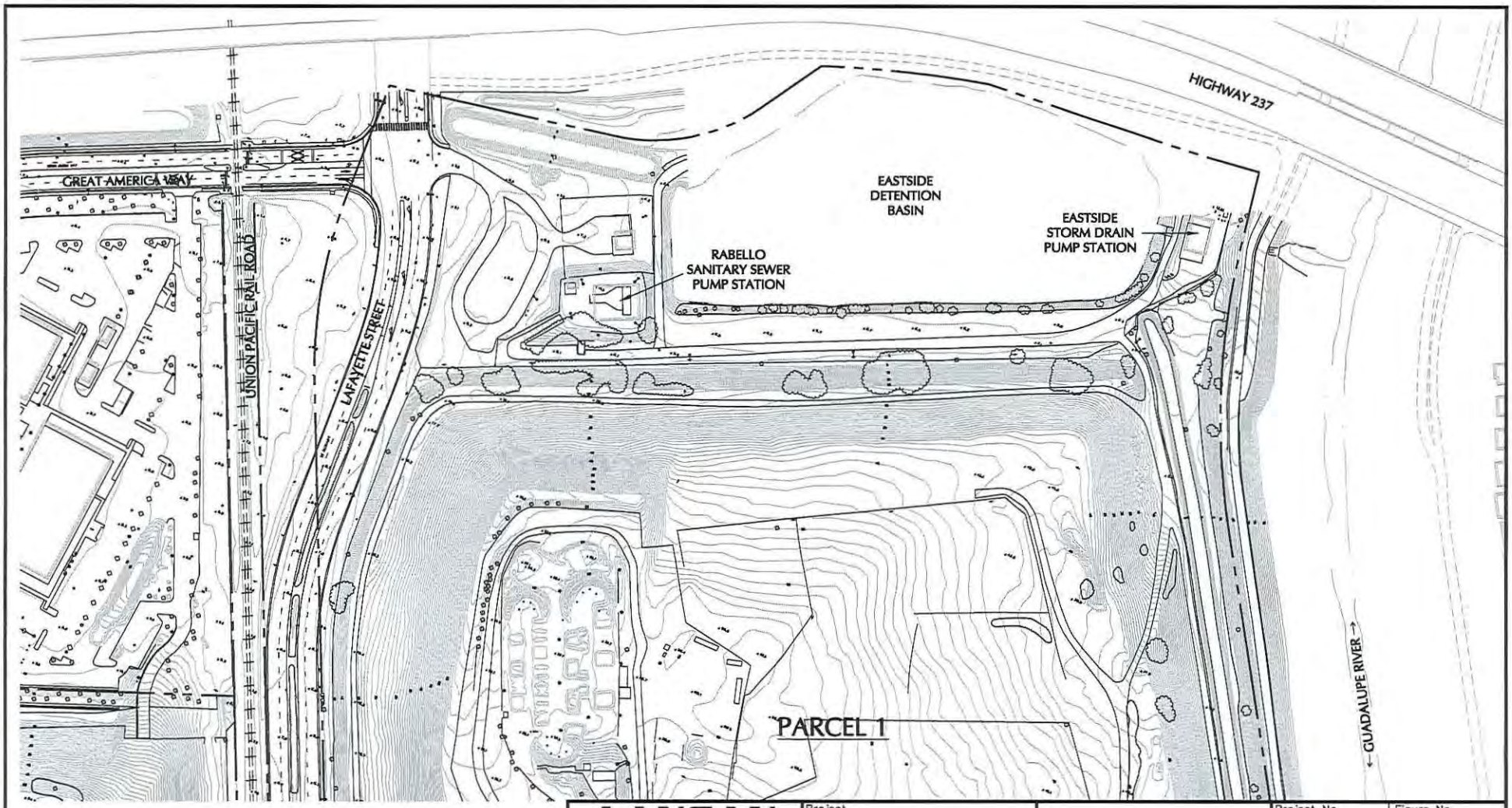

NOTE:
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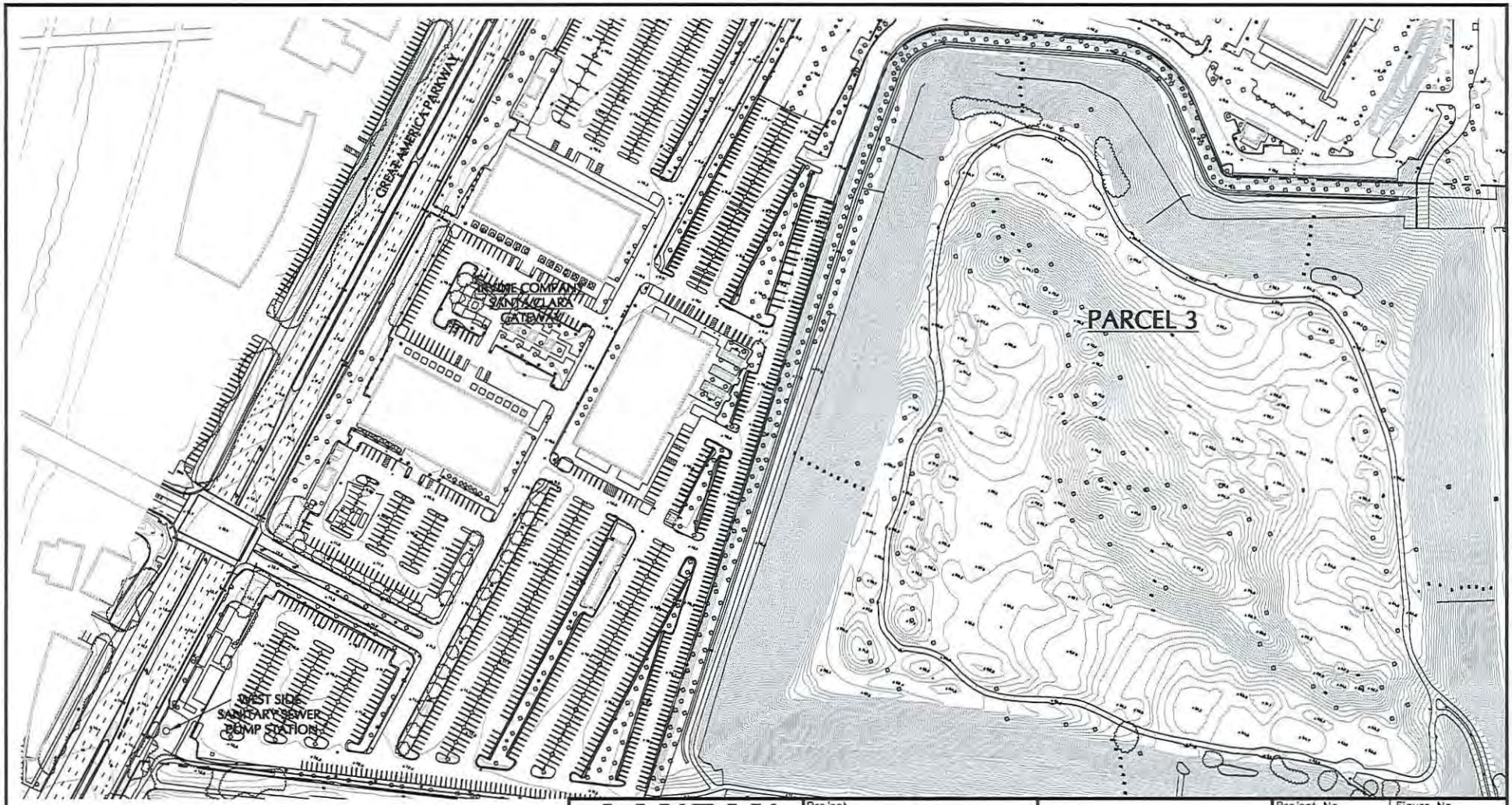

NOTE:
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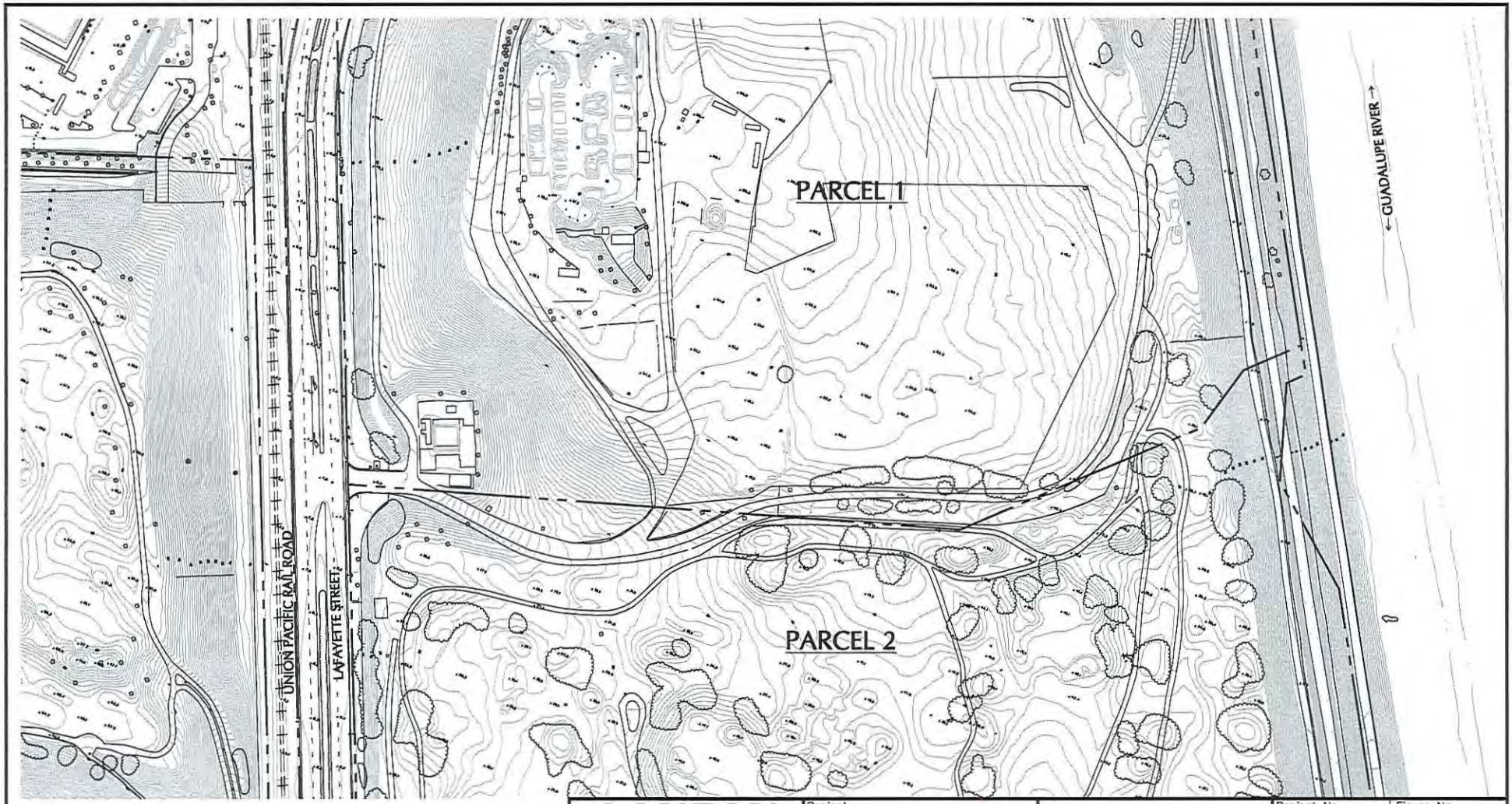

NOTE:
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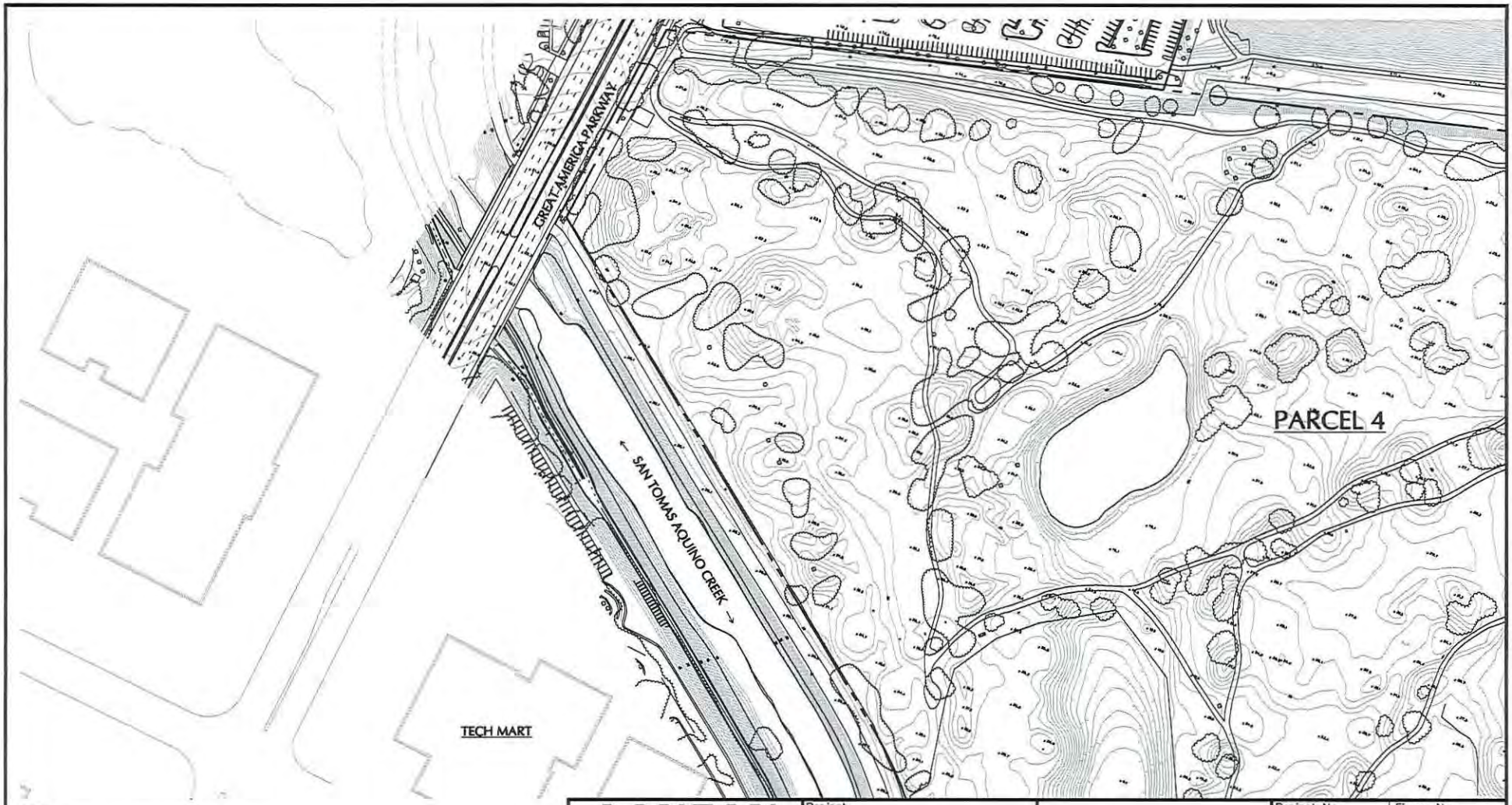

NOTE:
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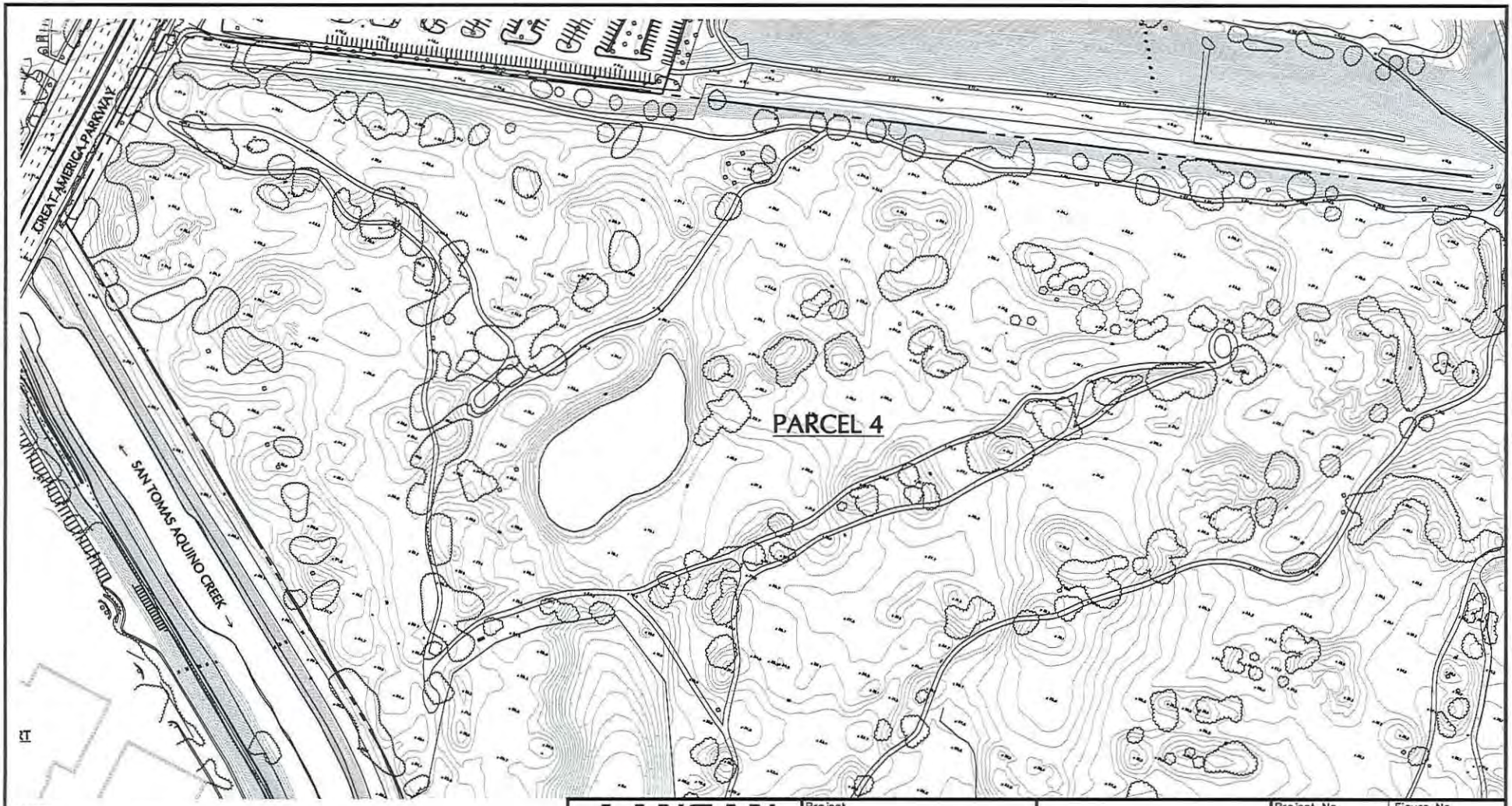

NOTE:
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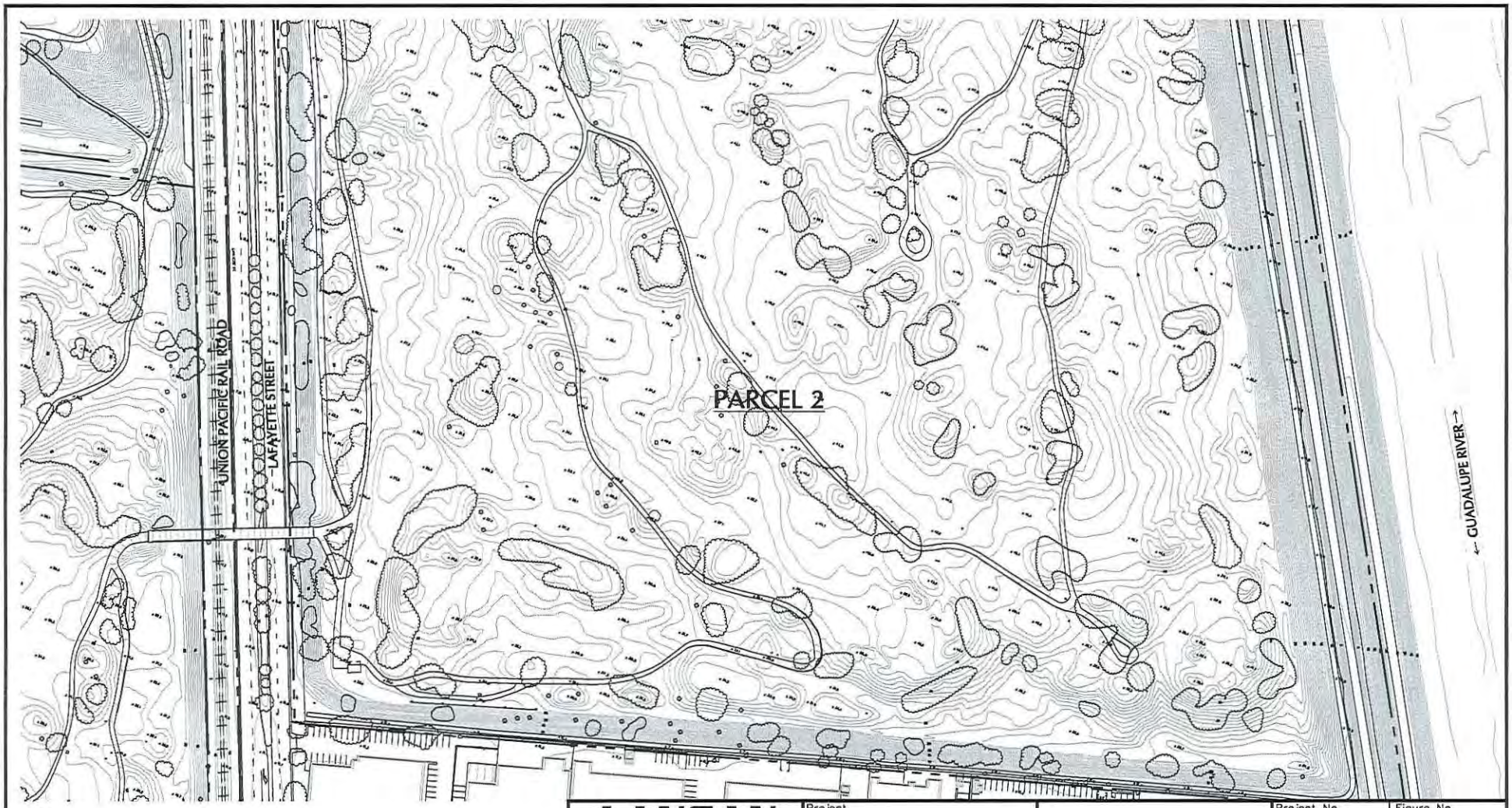

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Figure No. 9

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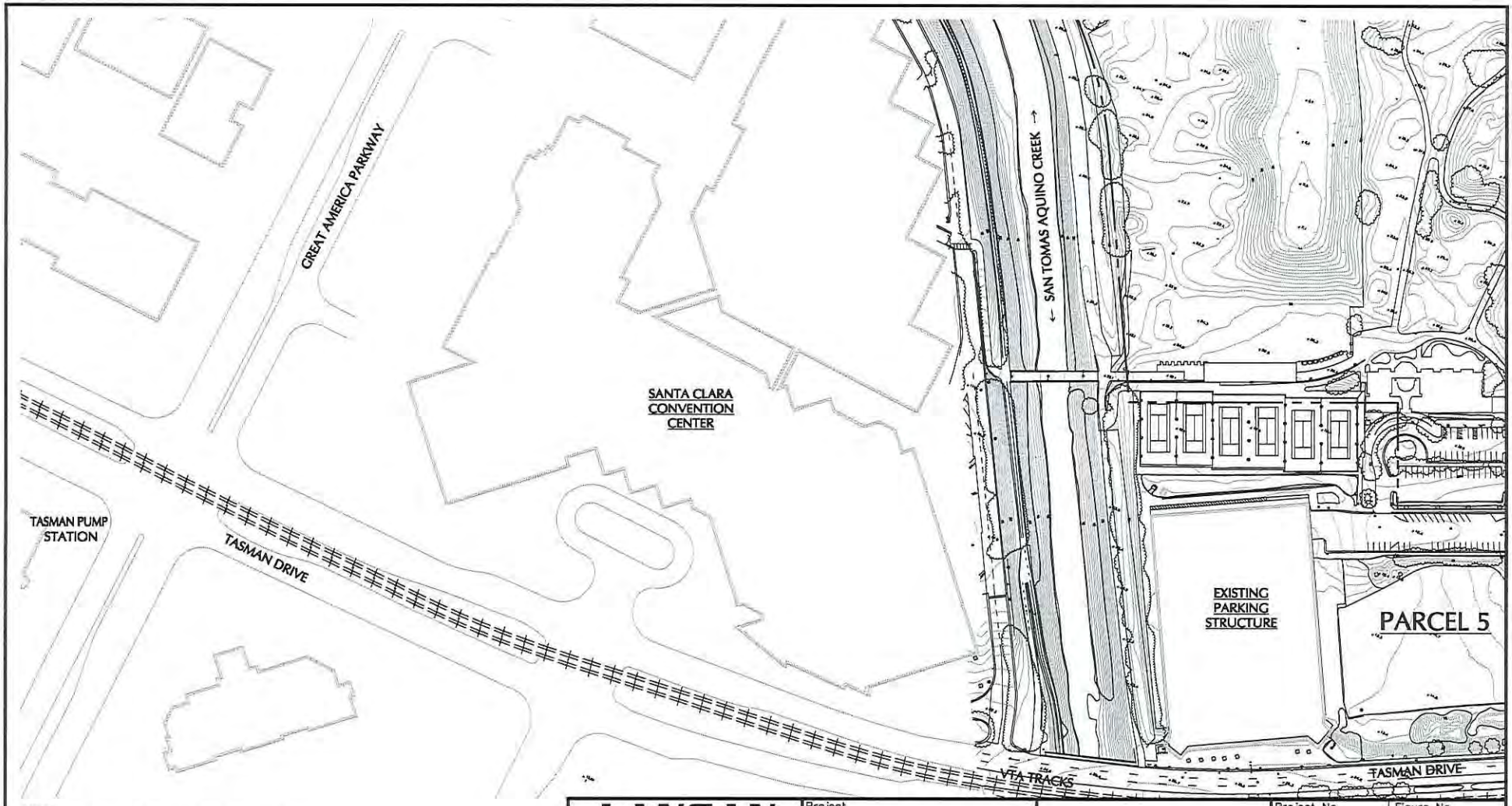

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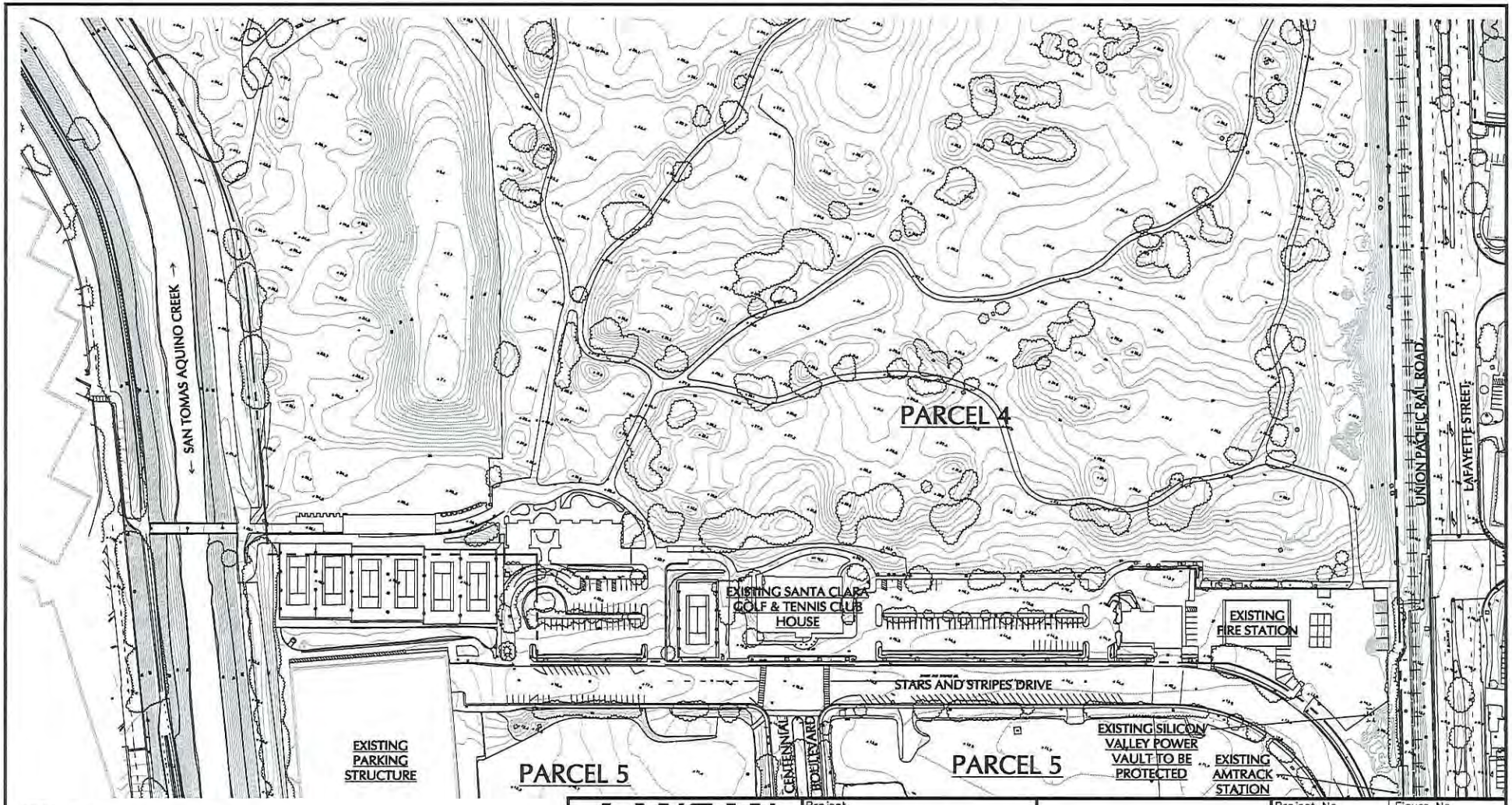

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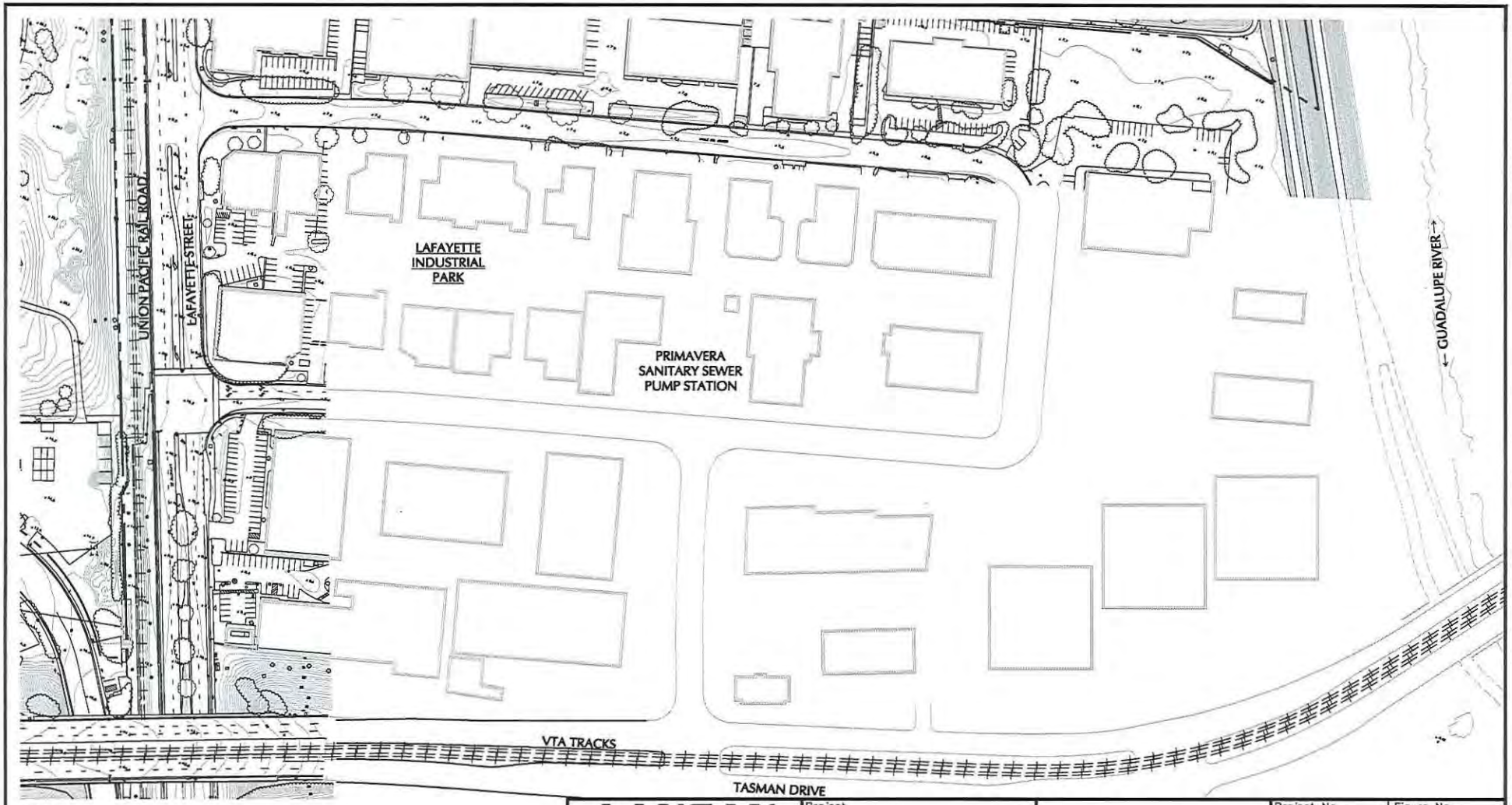

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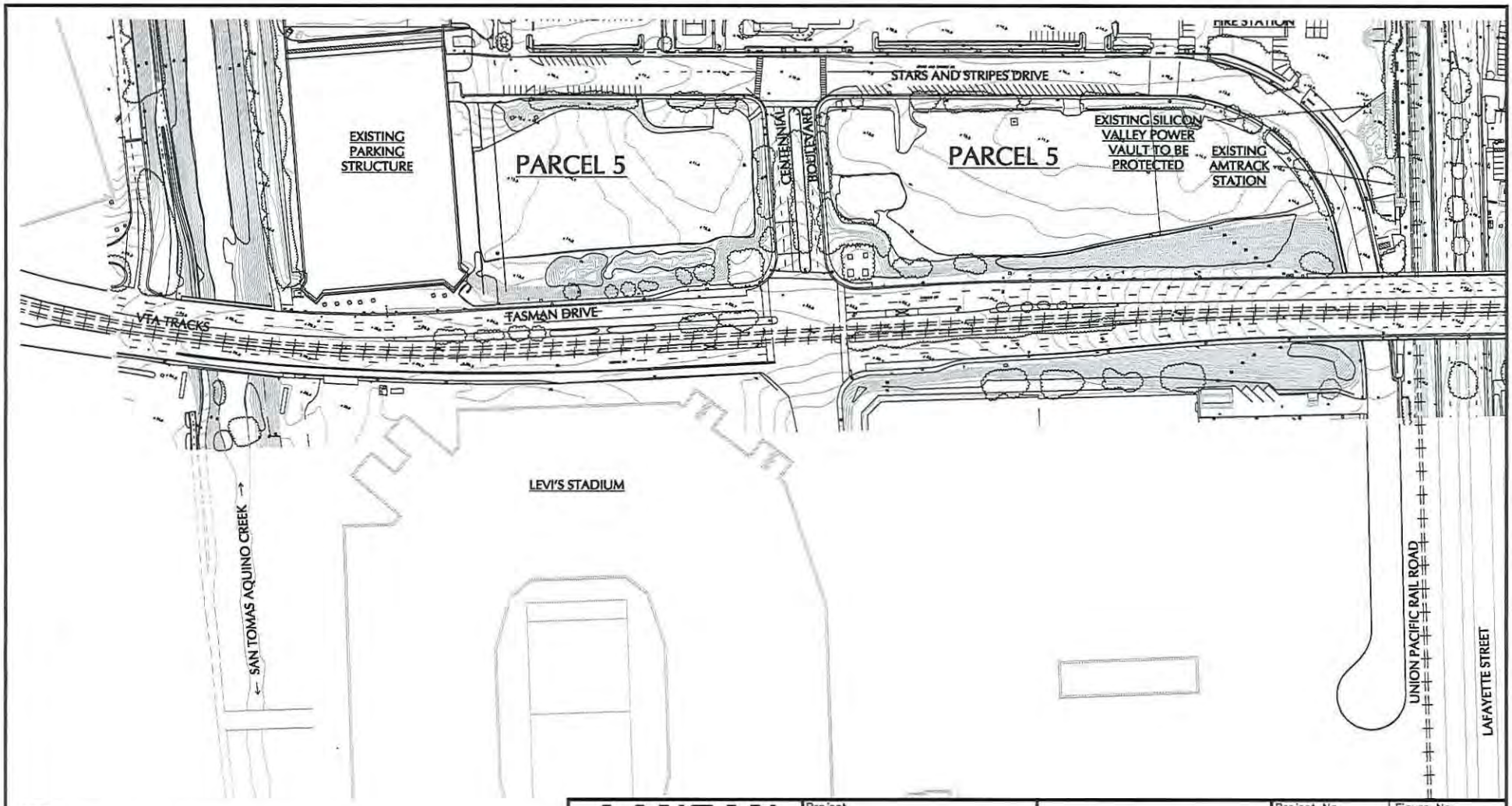

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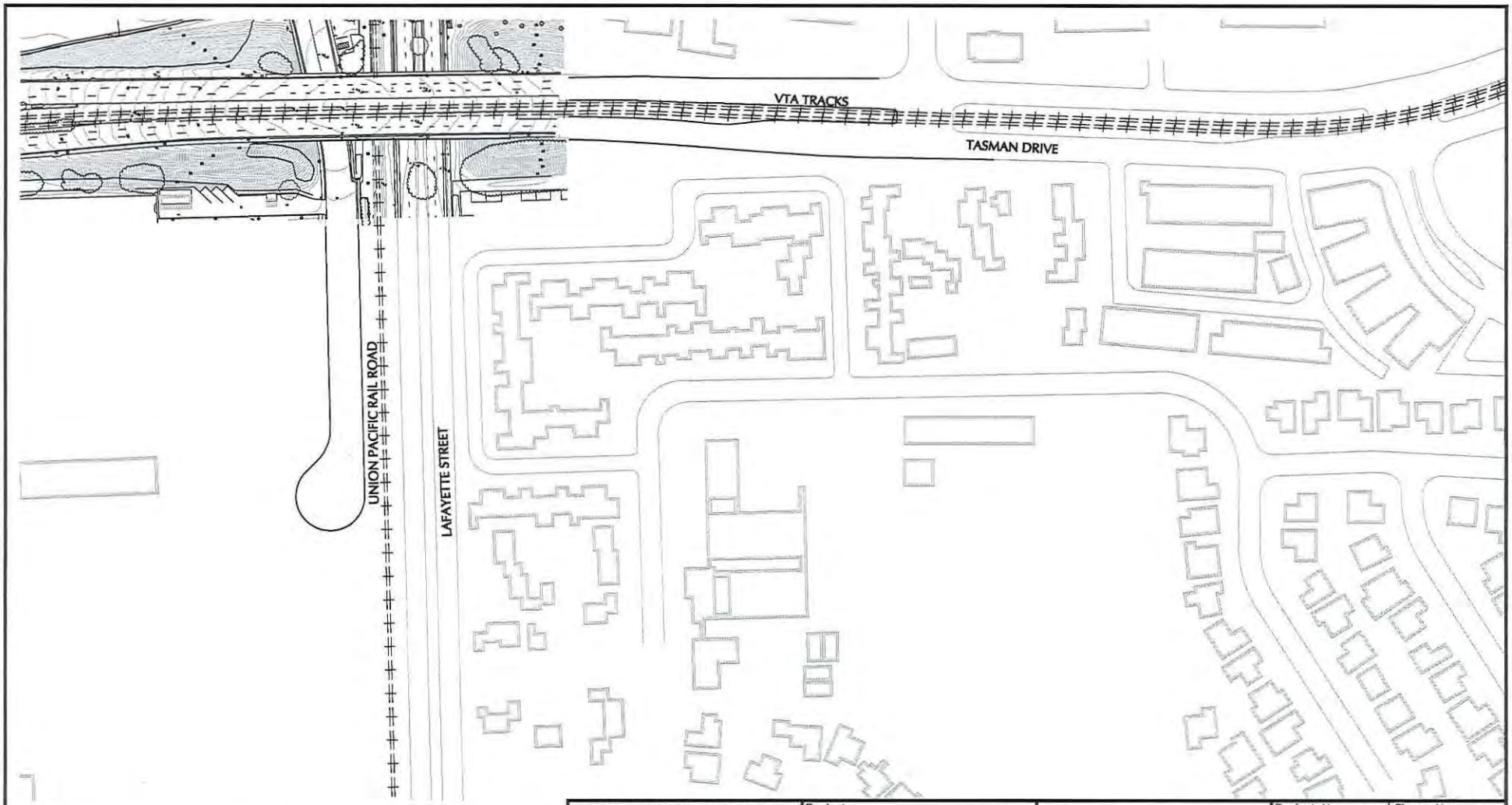

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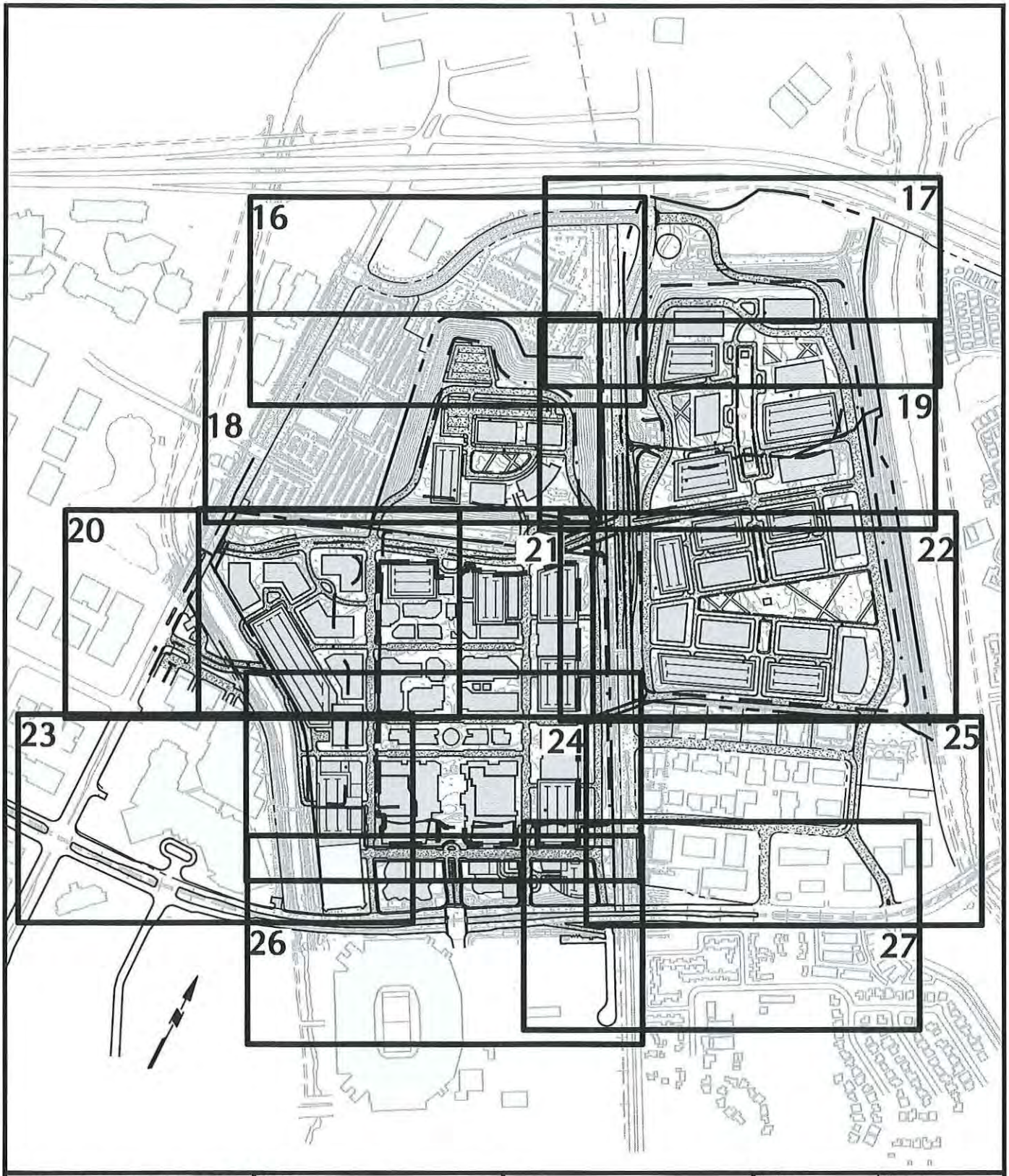

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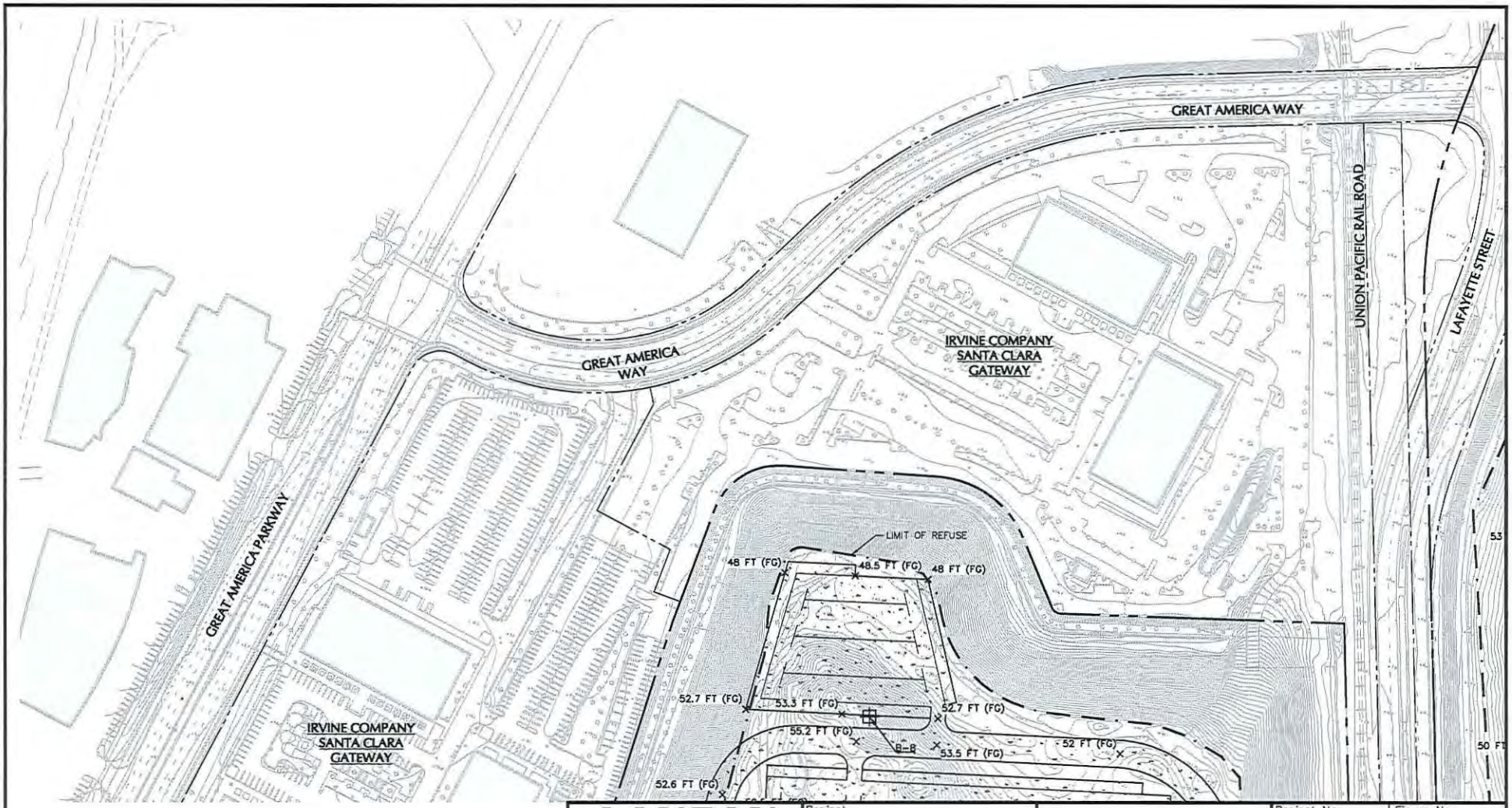

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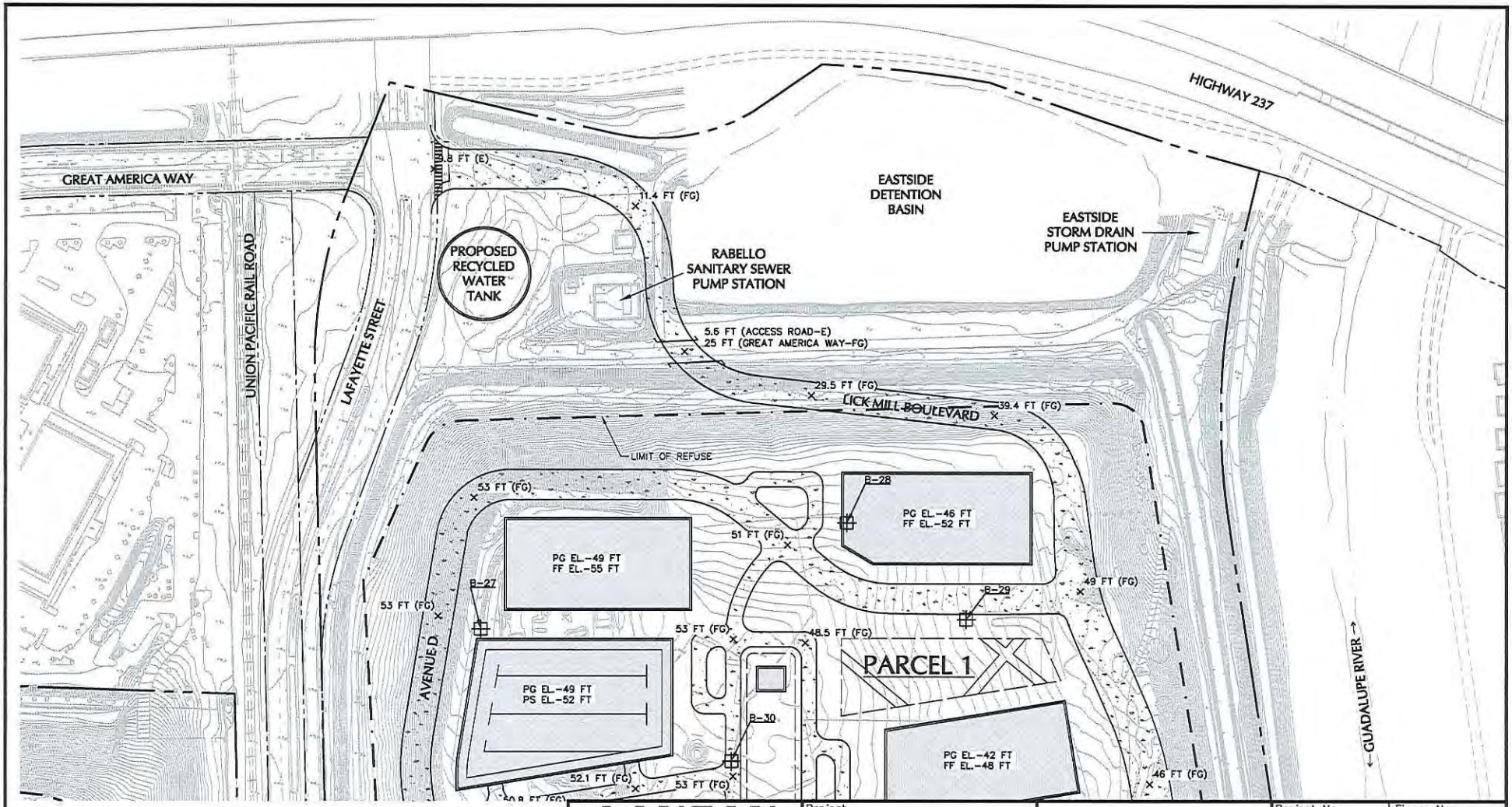

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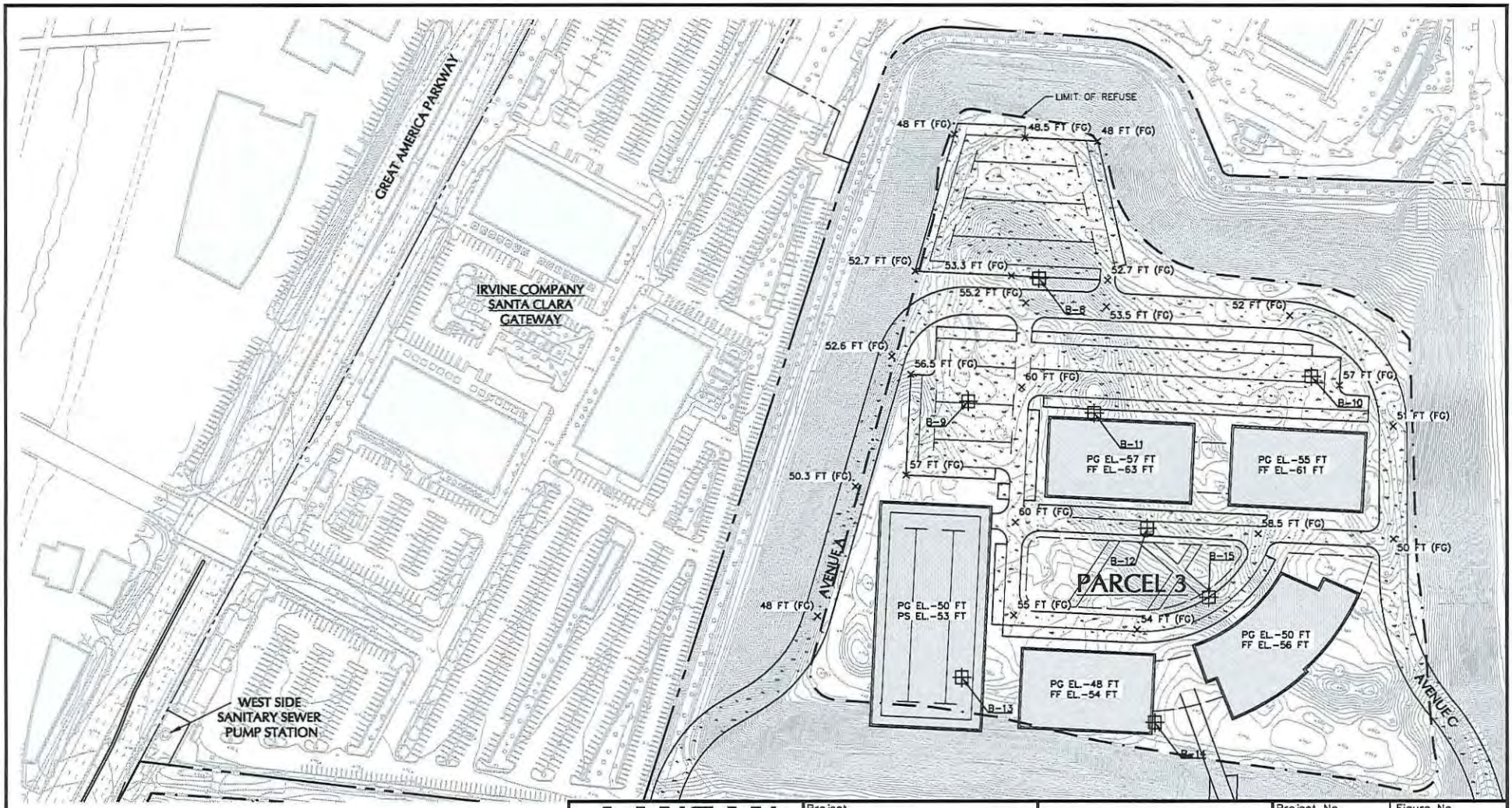

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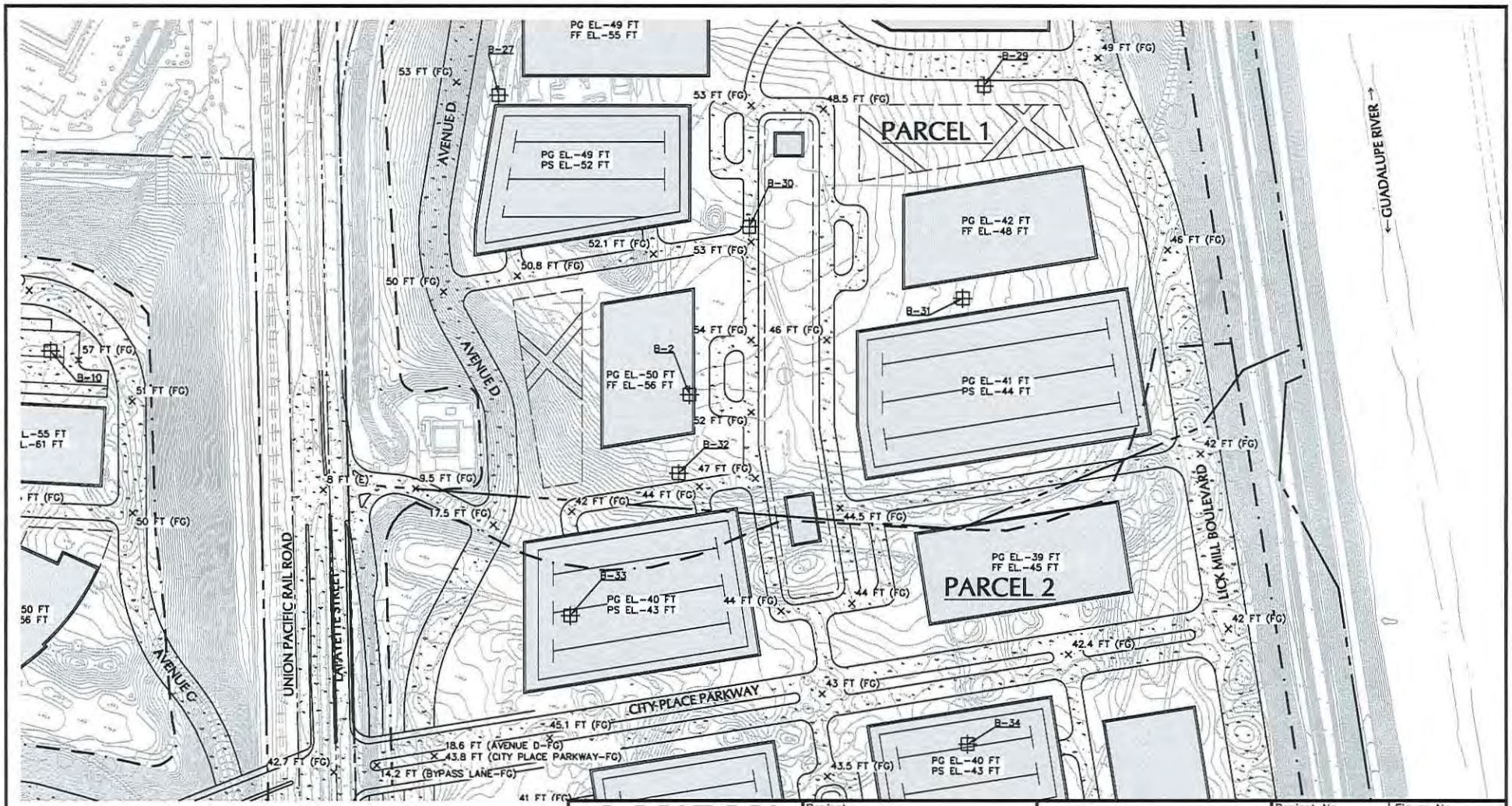

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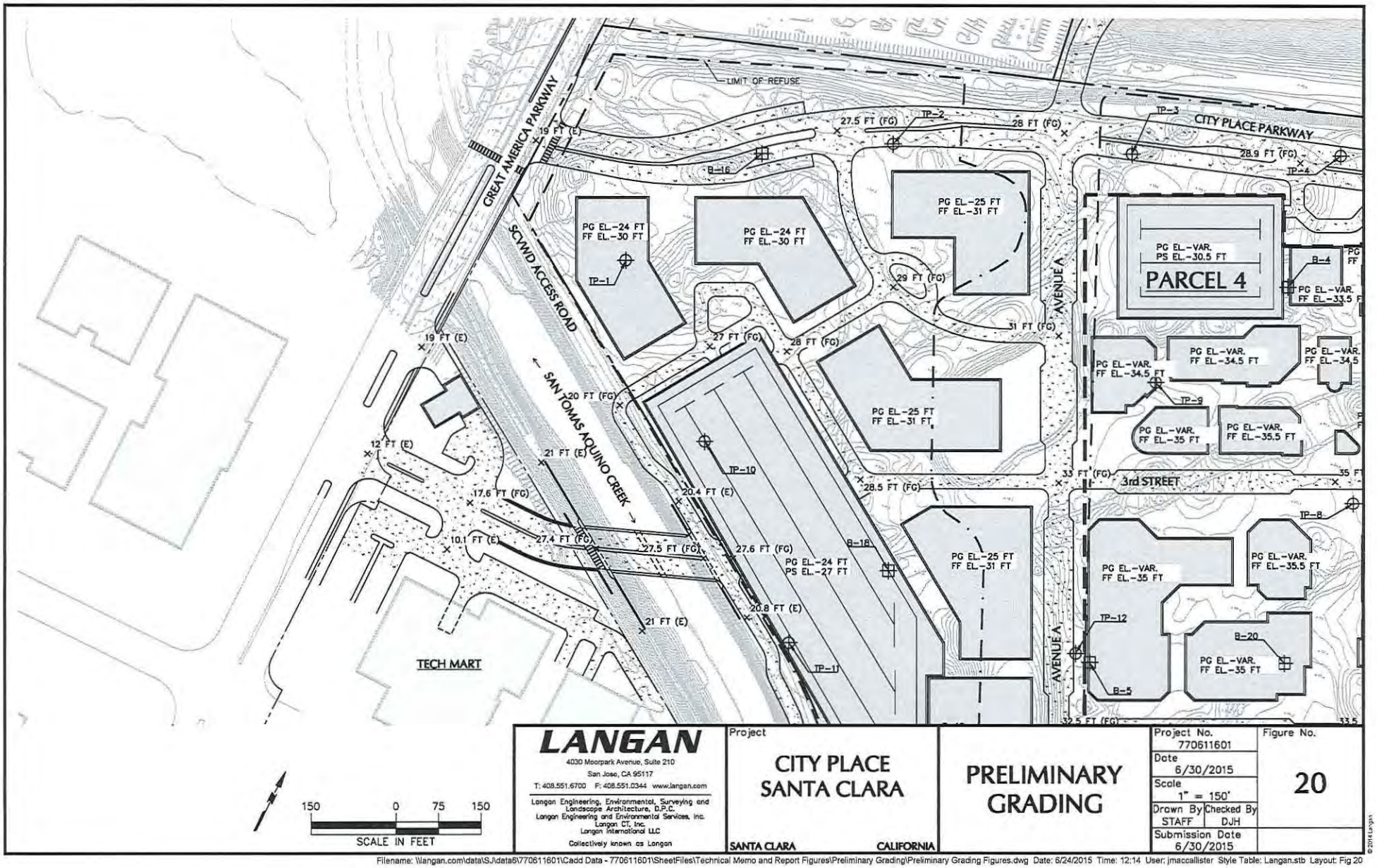

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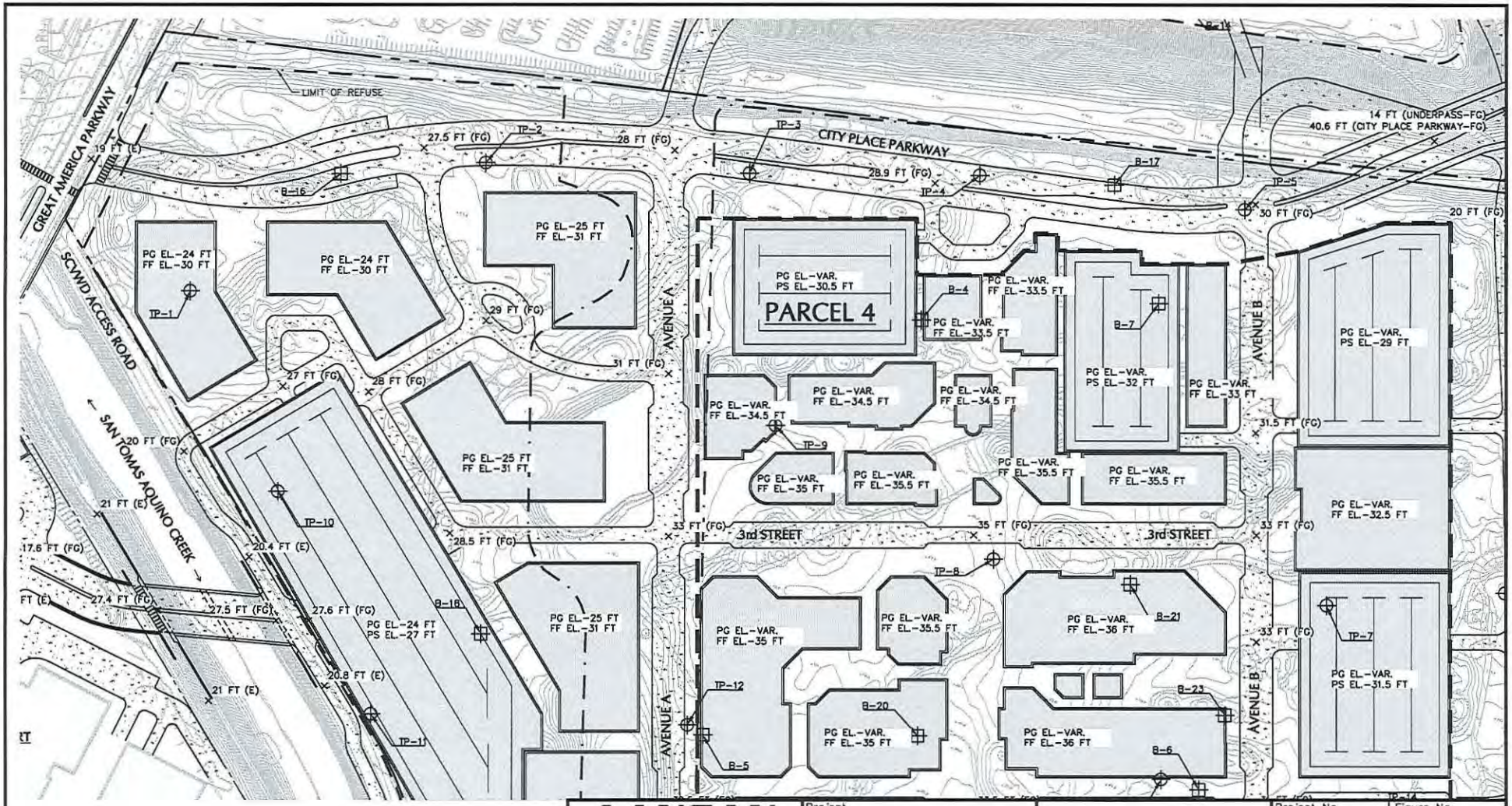

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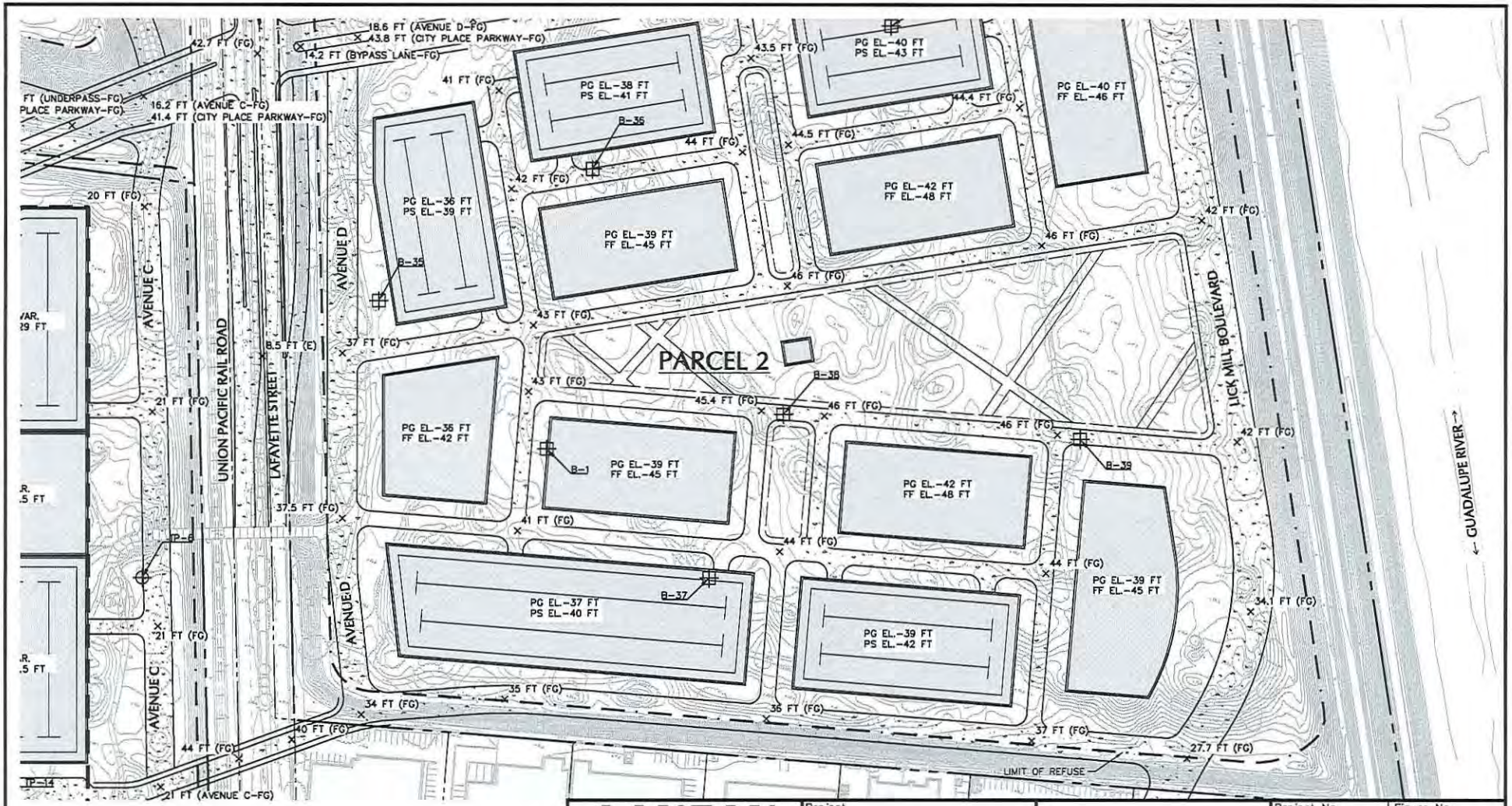

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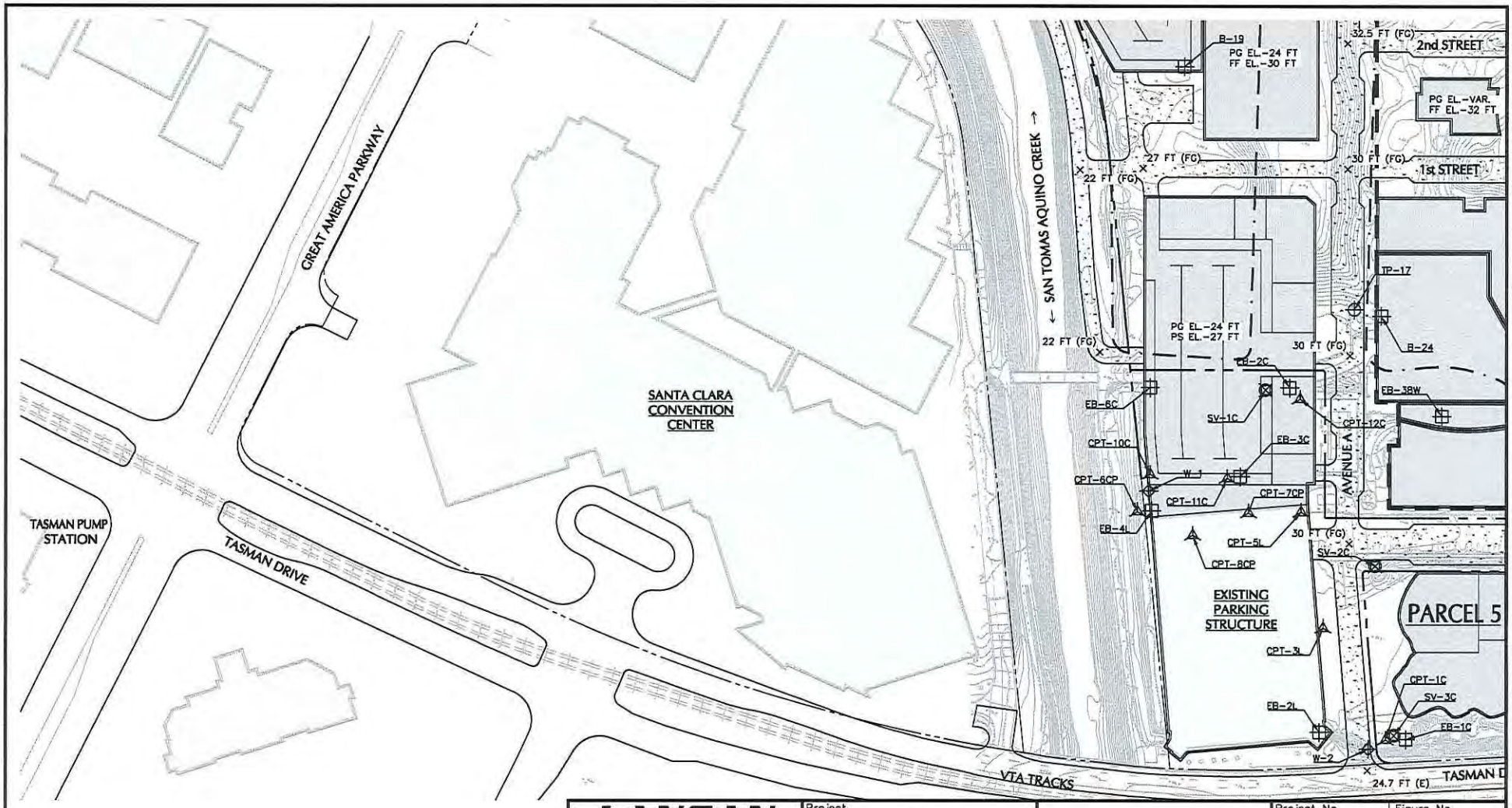

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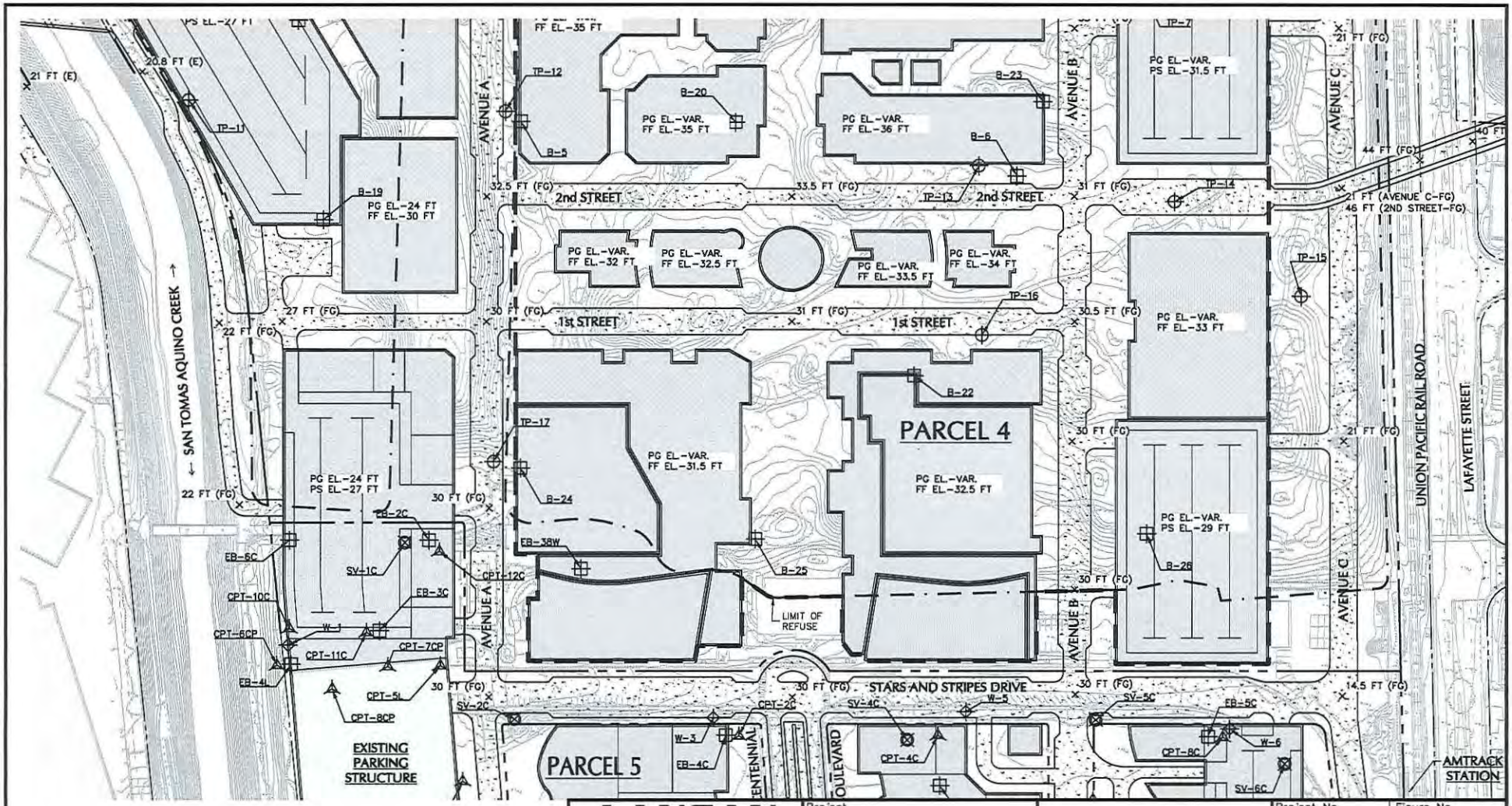

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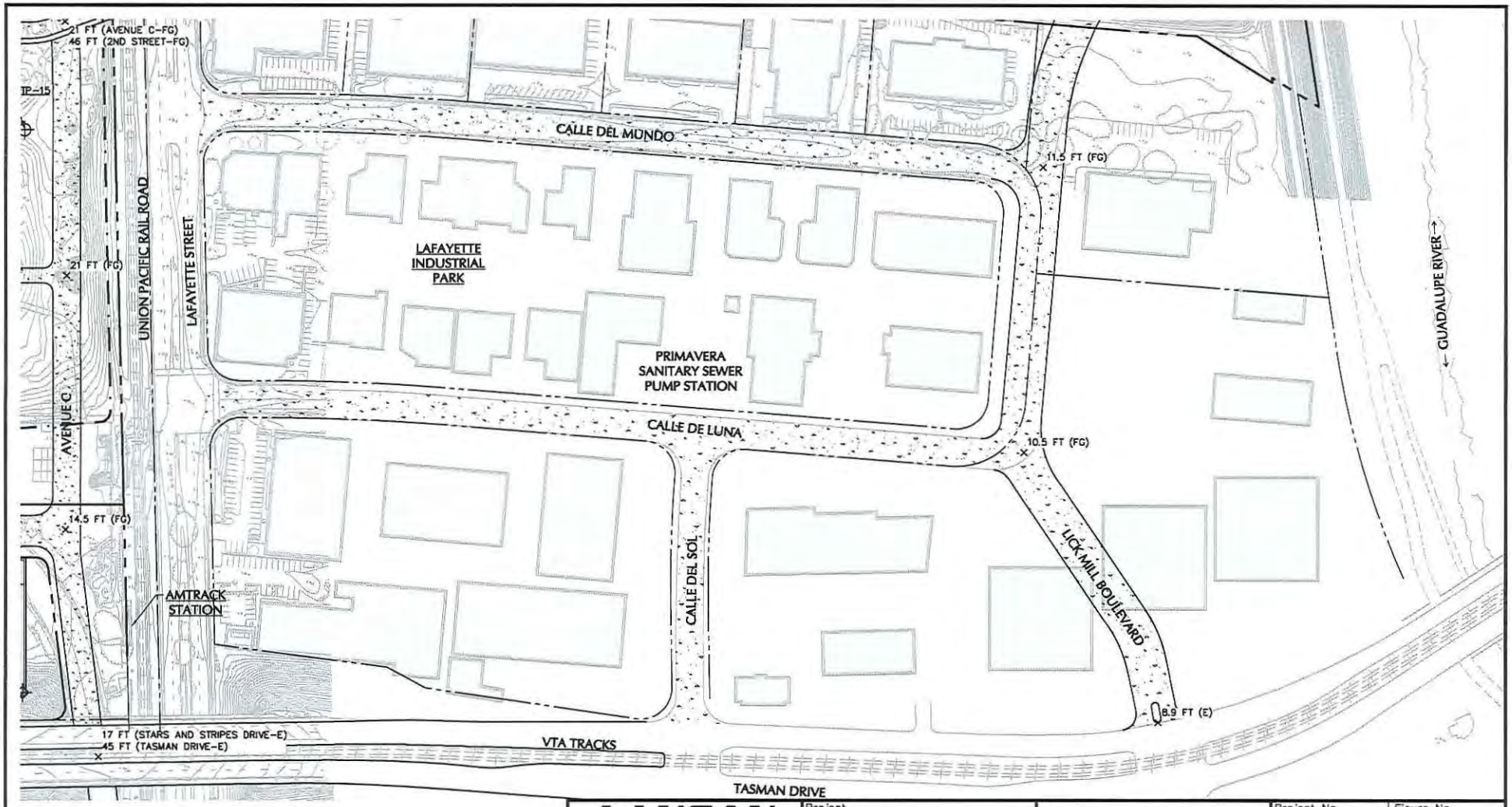

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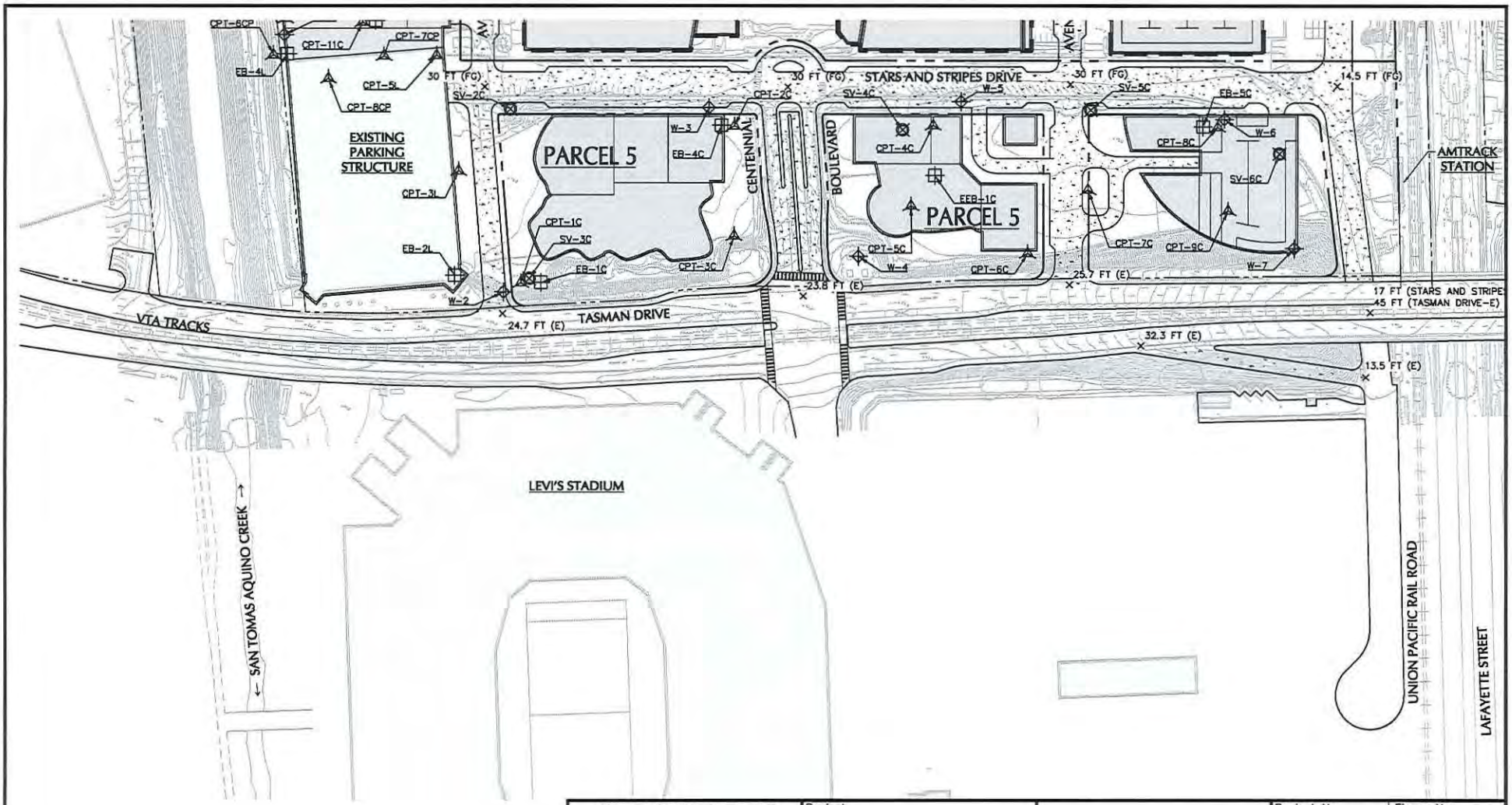

150 0 75 150
SCALE IN FEET

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Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project
CITY PLACE
SANTA CLARA
SANTA CLARA CALIFORNIA

PRELIMINARY GRADING

Project No.	770611601
Date	6/30/2015
Scale	1" = 150'
Drawn By	STAFF
Checked By	DJH
Submission Date	6/30/2015

Figure No. 26

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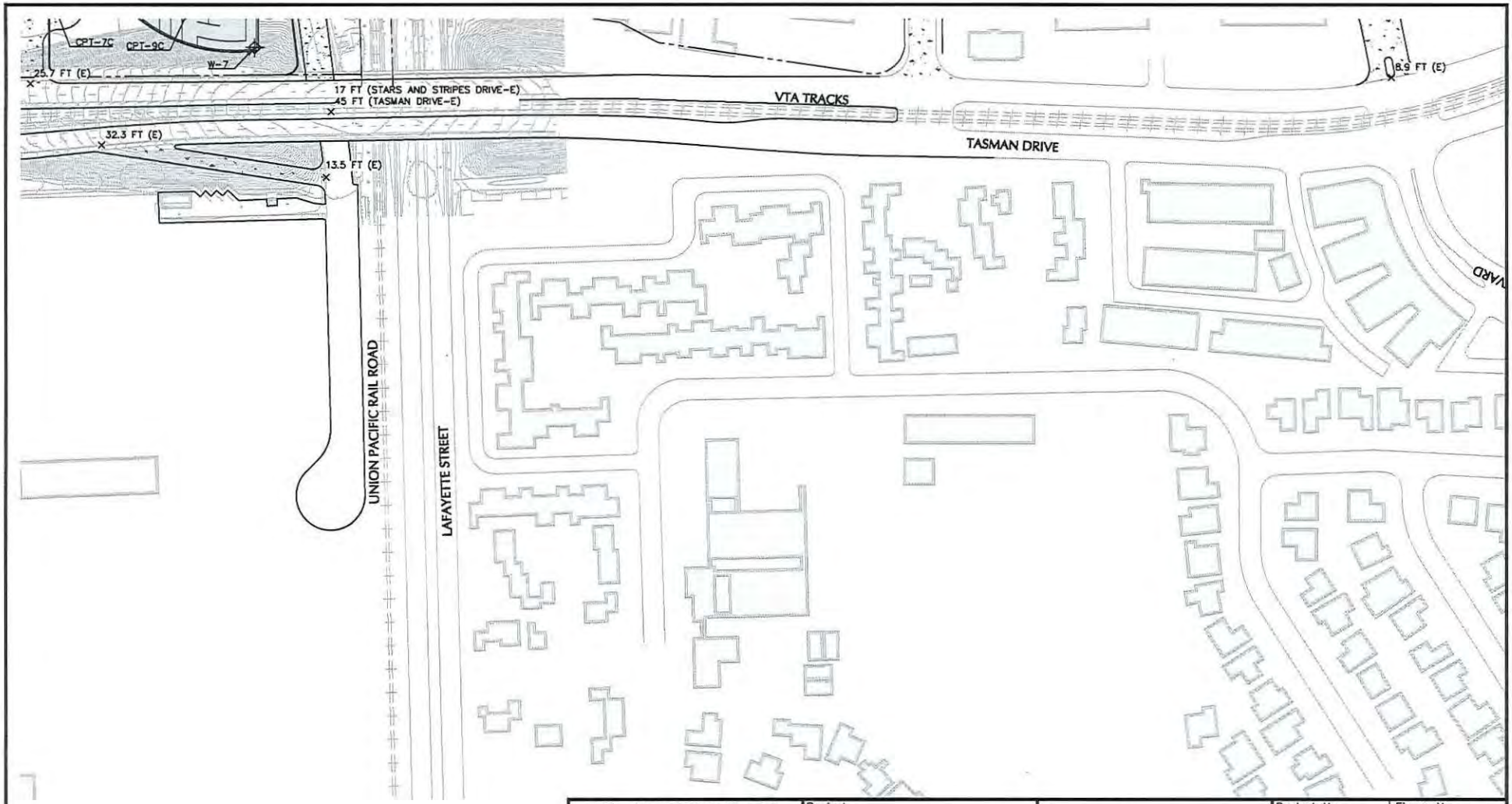

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PRELIMINARY GRADING

Project No. 770611601	Figure No. 27
Date 6/30/2015	
Scale 1" = 150'	
Drawn By STAFF / Checked By DJH	
Submission Date 6/30/2015	

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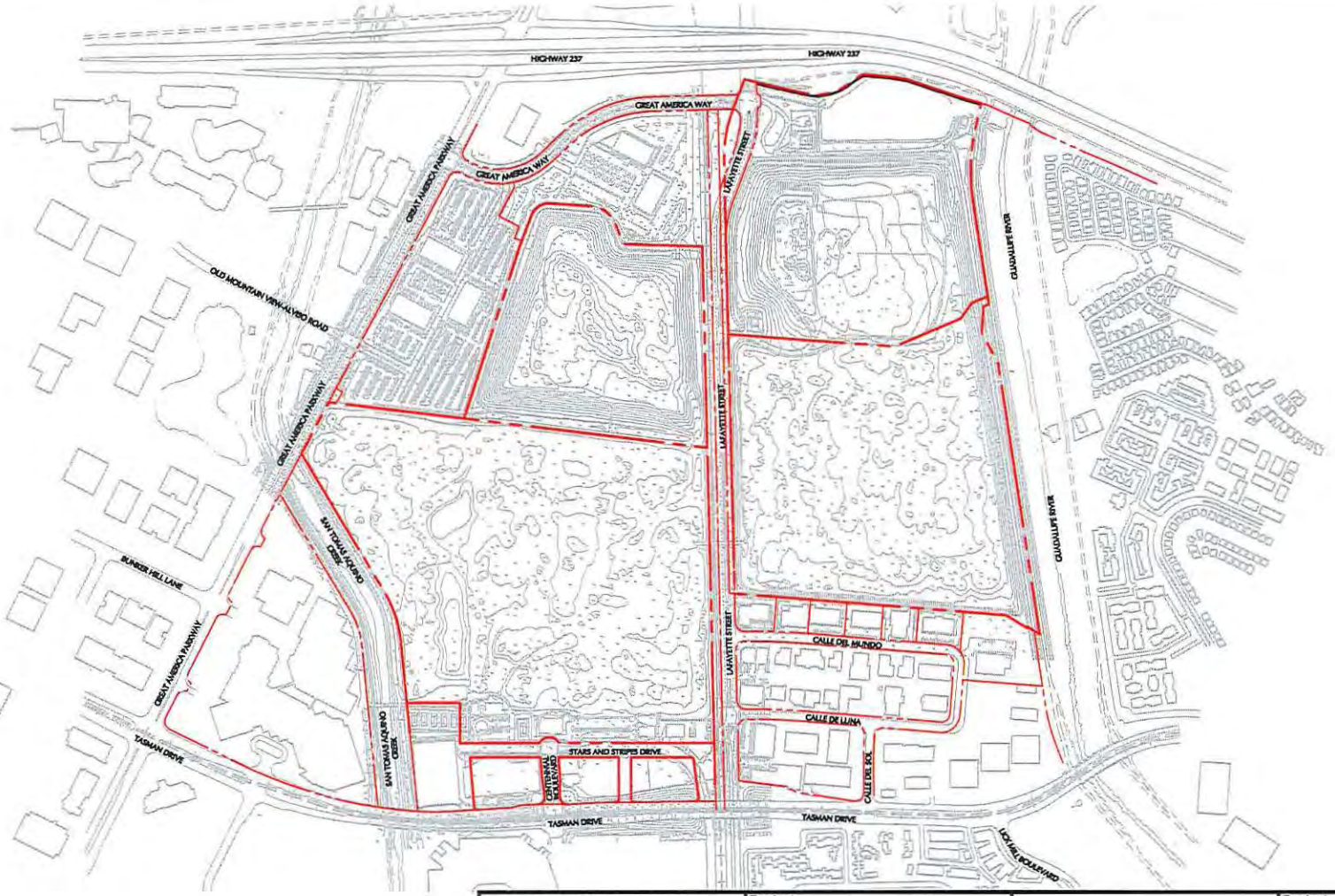

LEGEND:

PROPERTY LINE

150 0 75 150

SCALE IN FEET

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EXISTING ROADWAY NETWORK

Project No.	770611601
Date	6/30/2015
Scale	N.T.S.
Drawn By	STAFF
Checked By	DJH
Submission Date	6/30/2015

Figure No. 28

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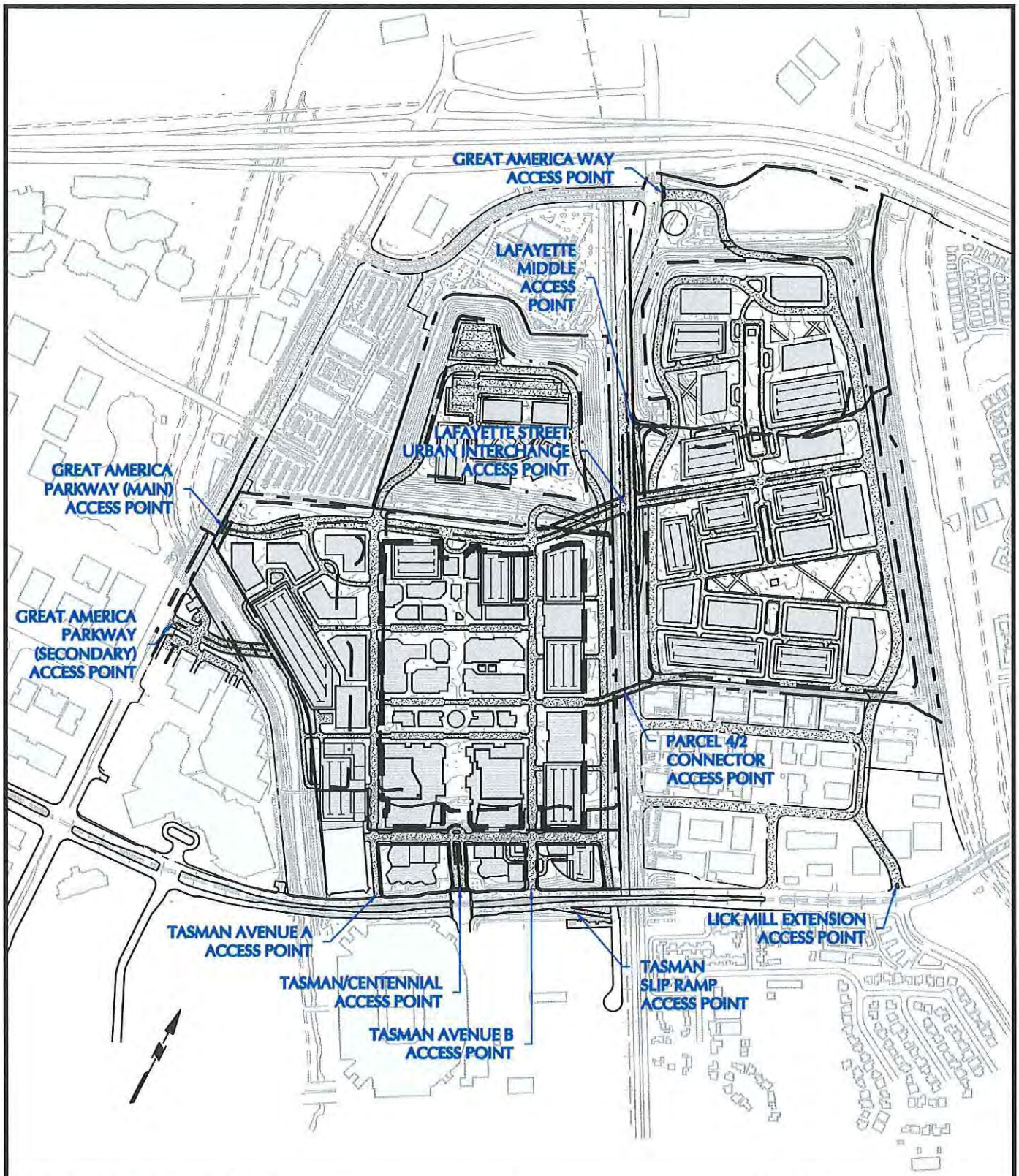

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ACCESS LOCATION SUMMARY

Project No. 770611601	Figure No. 29
Date 6/30/2015	
Scale 1" = 800	
Drawn By STAFF / Checked By DJH	
Submission Date 6/30/2015	

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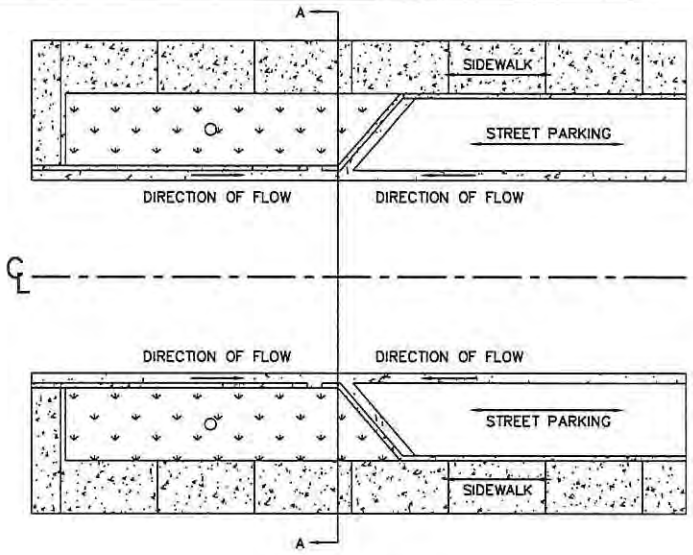
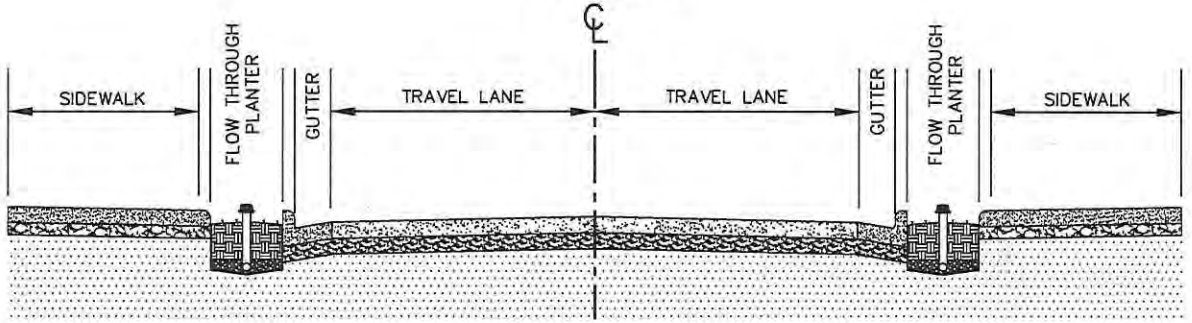


PLAN VIEW



CROSS SECTION A-A
STREET PROFILE

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ON-SITE ROADWAY GREEN STREET SECTION

Project No.	770611601
Date	6/30/2015
Scale	N.T.S.
Drawn By	STAFF
Checked By	DJH
Submission Date	6/30/2015

Figure No. 30

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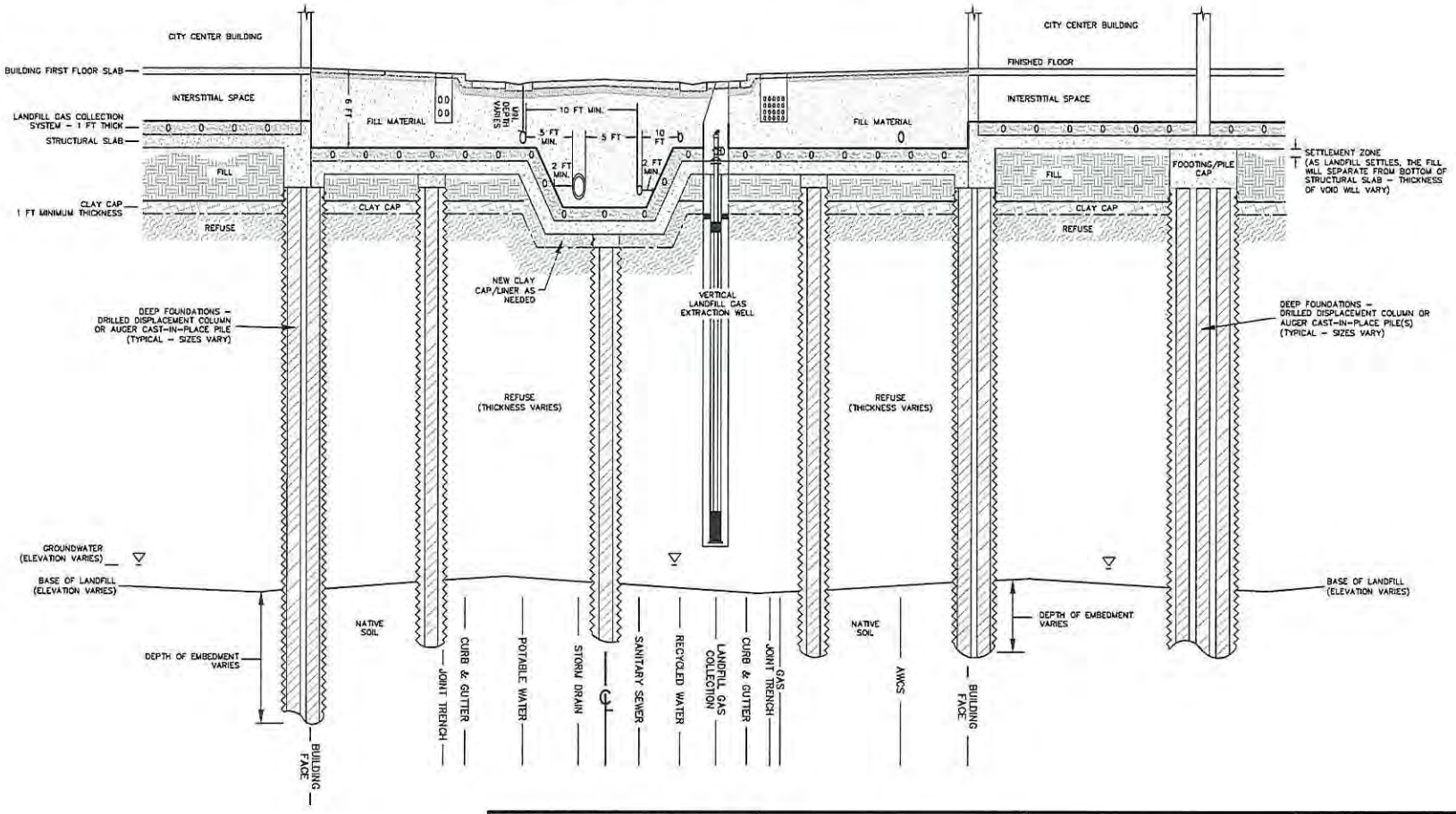
STREET SECTION - WIDTH VARIES
(PARCEL 4 SETTLEMENT SLAB SECTION)



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CITY PLACE
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FOUNDATION CONCEPT TYPE 1

Project No.	770611601
Date	6/30/2015
Scale	N.T.S.
Drawn By	DJH
Checked By	JL
Submission Date	6/30/2015

Figure No. 31

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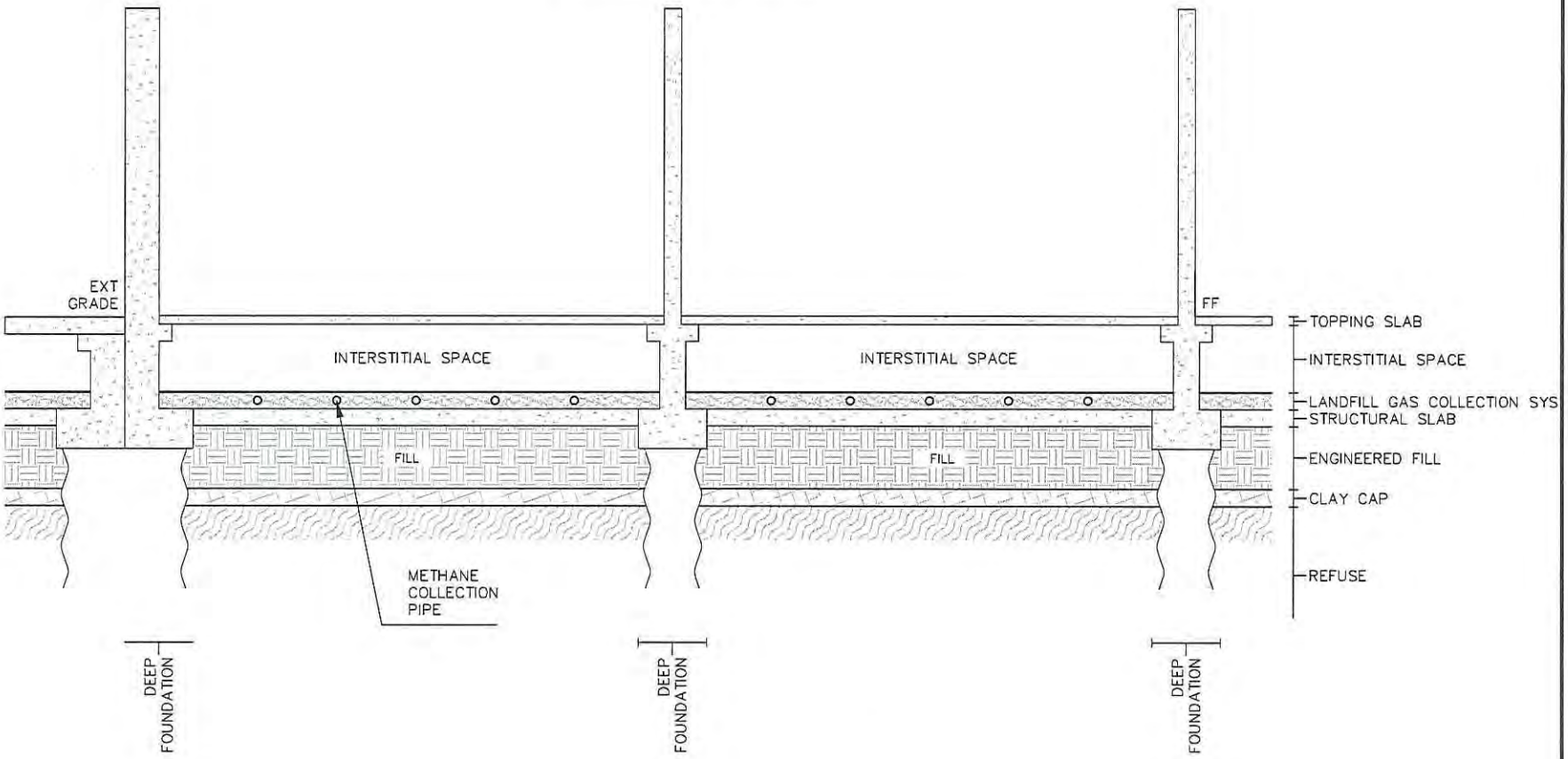
CONCEPTUAL FOUNDATION
BUILDING (RETAIL, OFFICE & HOTEL)



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FOUNDATION CONCEPT TYPE 2

Project No.	770611601
Date	6/30/2015
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Drawn By / Checked By	DJH / JL
Submission Date	6/30/2015
Figure No.	32

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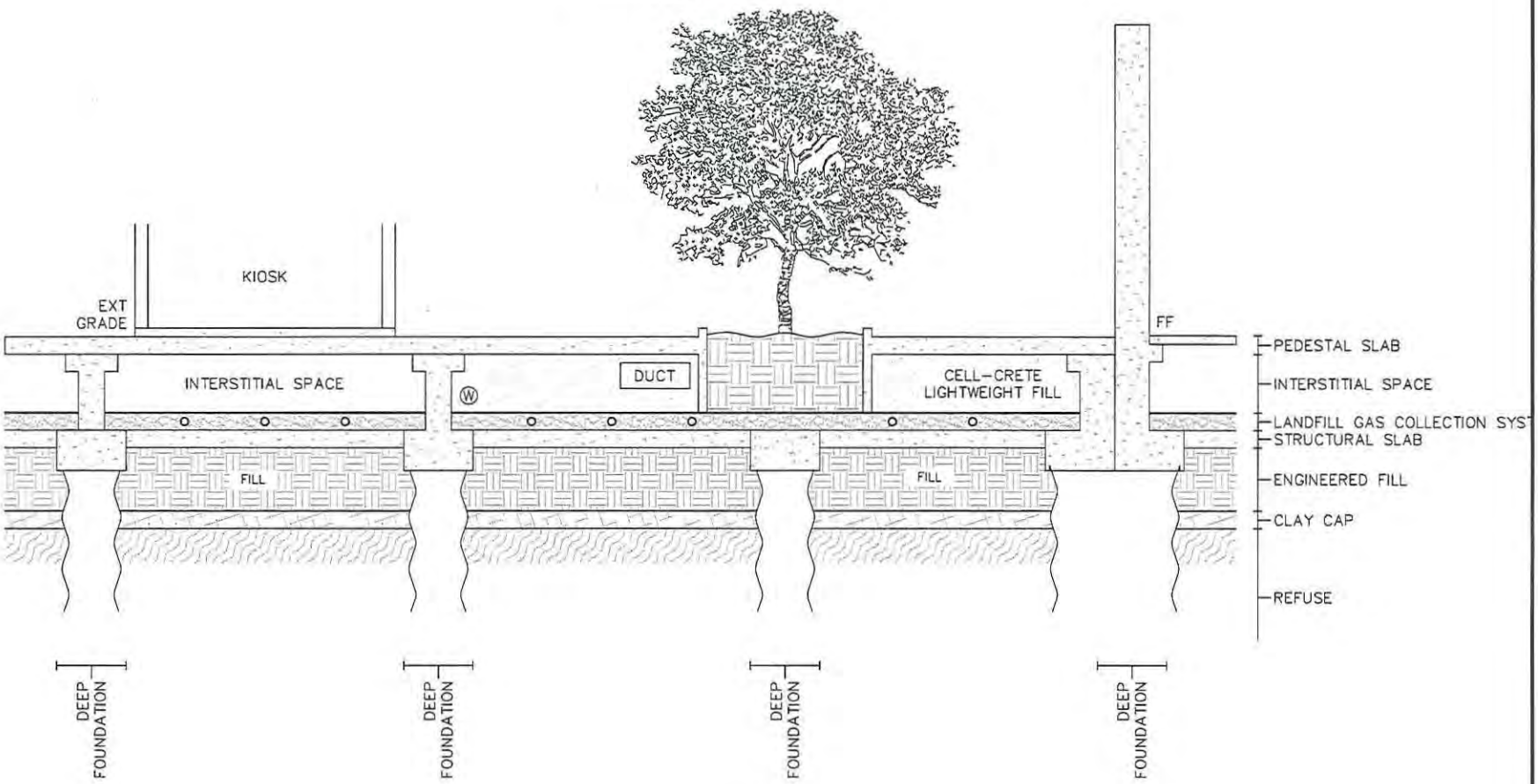
CONCEPTUAL FOUNDATION
PLAZA



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FOUNDATION CONCEPT TYPE 3

Project No.	770611601
Date	6/30/2015
Scale	N.T.S.
Drawn By	DJH
Checked By	JL
Submission Date	6/30/2015

Figure No. 33

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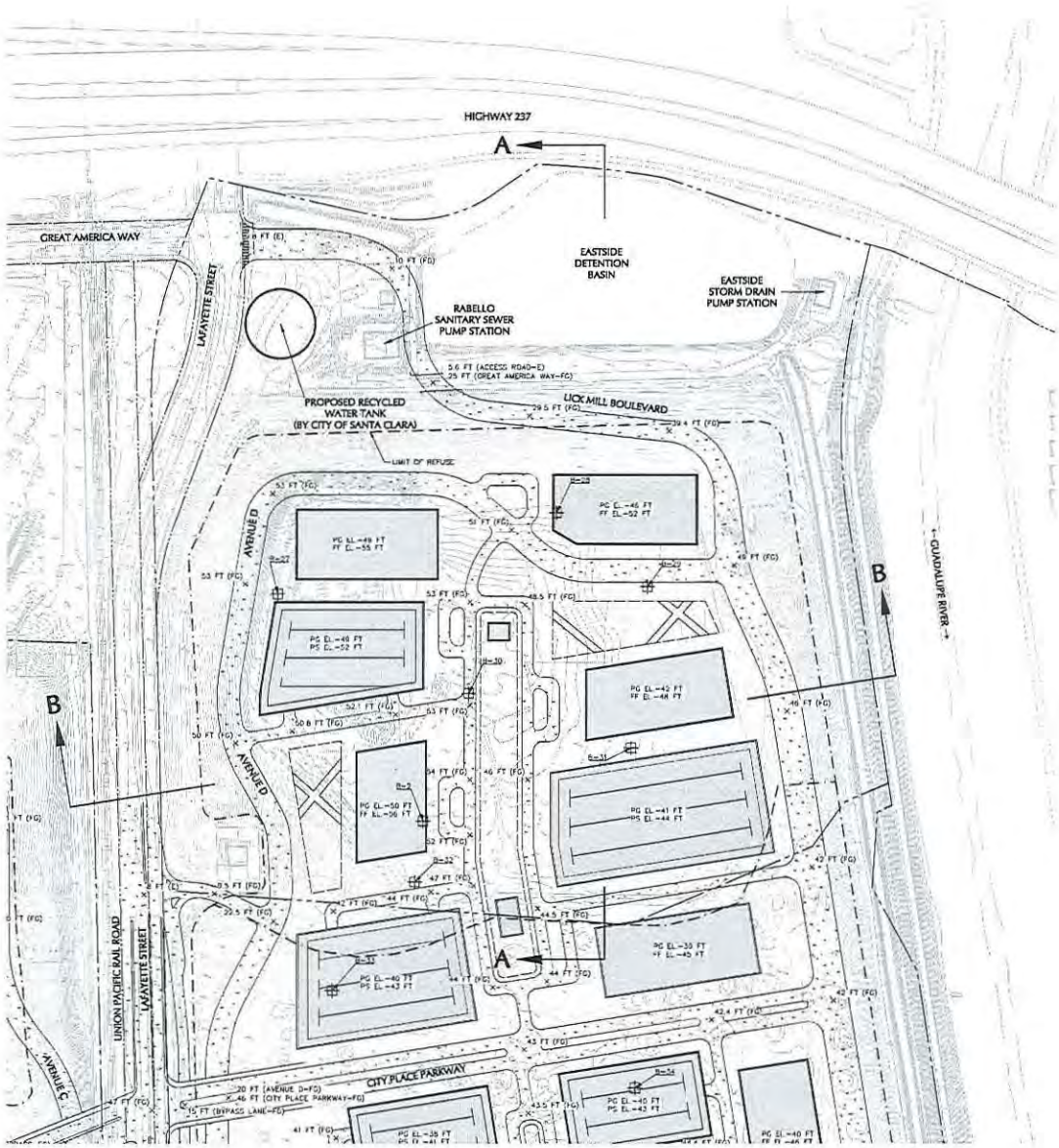
DRAWINGS



GRADING LEGEND

- EXISTING ELEVATION — 28'(E)
- PROPOSED ELEVATION — 28'(FG)
- APPROXIMATE LOCATION OF EXPLORATORY BORING — B-#/EB-#/CB-#
- APPROXIMATE LOCATION OF TEST PIT — TP-#
- APPROXIMATE LOCATION OF CONE PENETRATION TEST — CPT-#
- APPROXIMATE LOCATION OF WENNER 4-PIN IN SITU CORROSION TEST — W-#
- APPROXIMATE LOCATION OF SOIL VAPOR SAMPLE WELL — SV-#

GRADING NOTES

1. FOR SECTIONS, SEE SHEETS CG3.01 TO CG3.05.
2. BORINGS B-1, B-2 AND B-4 THROUGH B-7 PERFORMED BY LANGAN TREADWELL ROLLO (3/17/2014 TO 3/20/2014)
3. BORINGS B-8 THROUGH B-39 PERFORMED BY LANGAN TREADWELL ROLLO (10/7/2014 TO 10/10/2014)
4. TEST PITS TP-1 THROUGH TP-17 PERFORMED BY LANGAN TREADWELL ROLLO (7/13/2014 TO 7/16/2014)
5. CONE PENETRATION TESTS CPT-8CP, CPT-8CP, CPT-10CP AND CPT-1C THROUGH CPT-12C PERFORMED BY CORNERSTONE EARTH GROUP (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
6. CONE PENETRATION TESTS CPT-3L AND CPT-5L PERFORMED BY LOWNEY ASSOCIATES (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
7. EXPLORATORY BORINGS EB-1C THROUGH EB-5C PERFORMED BY CORNERSTONE EARTH GROUP (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
8. EXPLORATORY BORINGS EB-2L AND EB-4L PERFORMED BY LOWNEY ASSOCIATES (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
9. WENNER 4-PIN IN SITU CORROSION TEST PERFORMED BY JDH CORROSION CONSULTANTS (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
10. EXPLORATORY BORINGS EB-1C AND EB-6C PERFORMED BY CORNERSTONE EARTH GROUP (PER PHASE I ENVIRONMENTAL SITE ASSESSMENT AND PRELIMINARY SOIL AND SOIL VAPOR QUALITY EVALUATION, CORNERSTONE EARTH GROUP, 4/23/2014)
11. SOIL VAPOR SAMPLE WELLS PERFORMED BY CORNERSTONE EARTH GROUP (PER PHASE I ENVIRONMENTAL SITE ASSESSMENT AND PRELIMINARY SOIL AND SOIL VAPOR QUALITY EVALUATION, CORNERSTONE EARTH GROUP, 4/23/2014)

ABBREVIATIONS

E	–	EXISTING
FF	–	FINISHED FLOOR
FG	–	FINISHED GRADE
PG	–	PAD GRADE
PS	–	PARKING SURFACE
VAR.	–	VARIES

PARCEL 1 BORING DATA

BORING #	DATE	EXISTING ELEVATION (FT)	REFUSE DEPTH (FT)	REFUSE ELEVATION (FT)
B-2	3/2014	52.13	6.5	45.63
B-27	10/2014	50.87	17.0	33.87
B-28	10/2014	49.29	8.5	40.79
B-29	10/2014	44.52	9.5	35.02
B-30	10/2014	58.38	15.0	43.38
B-31	10/2014	51.52	17.0	34.52
B-32	10/2014	45.09	4.5	40.59

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No.	Description	Date
	REVISIONS	

LANGAN

Project: CITY PLACE SANTA CLARA

SANTA CLARA CALIFORNIA

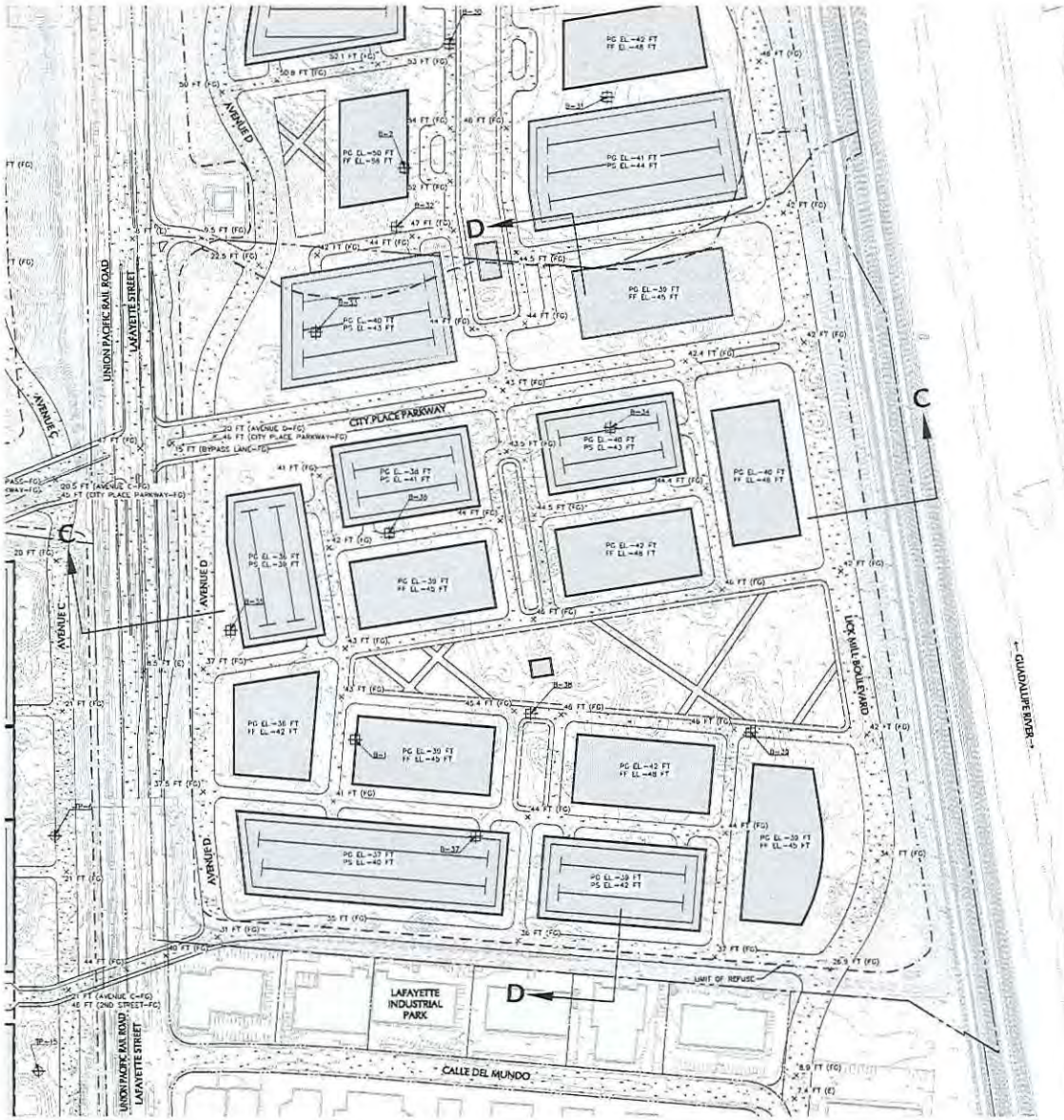
Figure Title: PARCEL 1 PRELIMINARY GRADING PLAN

Project No.	770611601
Date	3/20/2015
Scale	AS SHOWN
Drawn By	JJM
Checked By	DPH
Submission Date	3/20/2015
Figure	CG2.01
Sheet	1 of 4

SCALE IN FEET

PROJECT No. 770611601

LANGAN



GRADING LEGEND

- EXISTING ELEVATION — 28'[E]
- PROPOSED ELEVATION — 28'[FG]
- APPROXIMATE LOCATION OF EXPLORATORY BORING — B-#/CB-#/CCB-#
- APPROXIMATE LOCATION OF TEST PIT — TP-#
- APPROXIMATE LOCATION OF CONE PENETRATION TEST — CPT-#
- APPROXIMATE LOCATION OF WENNER 4-PIN IN SITU CORROSION TEST — W-#
- APPROXIMATE LOCATION OF SOIL VAPOR SAMPLE WELL — SV-#

GRADING NOTES

1. FOR SECTIONS, SEE SHEETS CG3.01 TO CG3.05.
2. BORINGS B-1, B-2 AND B-4 THROUGH B-7 PERFORMED BY LANGAN TREADWELL ROLLO (3/17/2014 TO 3/20/2014)
3. BORINGS B-8 THROUGH B-39 PERFORMED BY LANGAN TREADWELL ROLLO (10/7/2014 TO 10/10/2014)
4. TEST PITS TP-1 THROUGH TP-17 PERFORMED BY LANGAN TREADWELL ROLLO (7/13/2014 TO 7/16/2014)
5. CONE PENETRATION TESTS CPT-6CP, CPT-8CP, CPT-10CP AND CPT-11C THROUGH CPT-12C PERFORMED BY CORNERSTONE EARTH GROUP (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
6. CONE PENETRATION TESTS CPT-3L AND CPT-5L PERFORMED BY LOWNEY ASSOCIATES (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
7. EXPLORATORY BORINGS EB-1C THROUGH EB-5C PERFORMED BY CORNERSTONE EARTH GROUP (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
8. EXPLORATORY BORINGS EB-2L AND EB-4L PERFORMED BY LOWNEY ASSOCIATES (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
9. WENNER 4-PIN IN SITU CORROSION TEST PERFORMED BY JDH CORROSION CONSULTANTS (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
10. EXPLORATORY BORINGS EB3-1C AND EB-6C PERFORMED BY CORNERSTONE EARTH GROUP (PER PHASE I ENVIRONMENTAL SITE ASSESSMENT AND PRELIMINARY SOIL AND SOIL VAPOR QUALITY EVALUATION, CORNERSTONE EARTH GROUP, 4/23/2014)
11. SOIL VAPOR SAMPLE WELLS PERFORMED BY CORNERSTONE EARTH GROUP (PER PHASE I ENVIRONMENTAL SITE ASSESSMENT AND PRELIMINARY SOIL AND SOIL VAPOR QUALITY EVALUATION, CORNERSTONE EARTH GROUP, 4/23/2014)

ABBREVIATIONS

E	=	EXISTING
FF	=	FINISHED FLOOR
FG	=	FINISHED GRADE
PG	=	PAD GRADE
PS	=	PARKING SURFACE
VAR.	=	VARIES

PARCEL 2 BORING DATA

BORING #	DATE	EXISTING ELEVATION (FT)	REFUSE DEPTH (FT)	REFUSE ELEVATION
B-1	4/2014	32.11	4.5	27.61
B-2	3/2014	28.63	4.5	24.13
B-34	10/2014	40.32	7.0	33.32
B-35	10/2014	25.79	7.5	18.29
B-36	10/2014	36.92	8.0	28.92
B-37	10/2014	38.51	10.5	28.01
B-38	10/2014	47.37	8.0	39.37
B-39	10/2014	47.91	7.5	40.41

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Date	Description	No
REVISIONS		

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CITY PLACE
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Figure Title
PARCEL 2
PRELIMINARY
GRADING PLAN

Project No. 770611601	Figure CG2.02
Date 3/20/2015	
Scale AS SHOWN	
Drawn By JJM / Checked By DJH	
Submission Date 3/20/2015	Sheet 2 of 4

SCALE IN FEET

PROJECT No. 770611601

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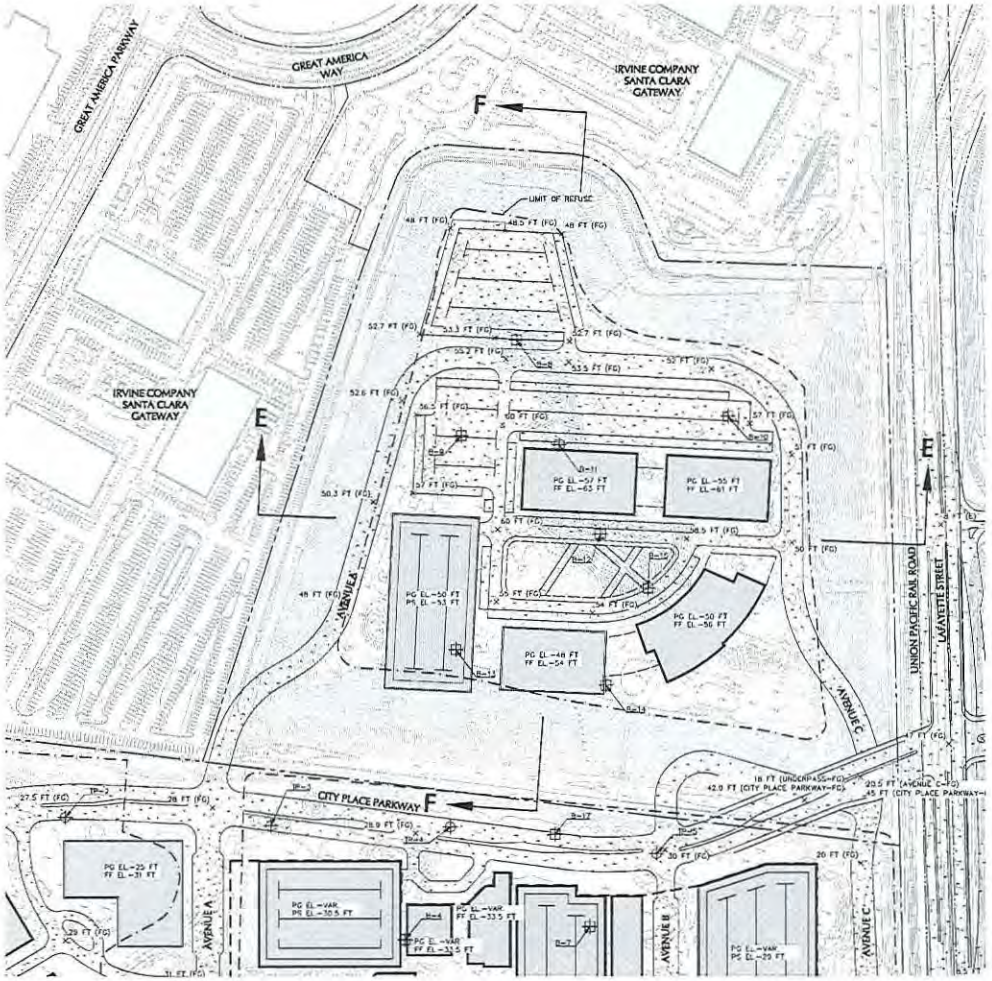

GRADING LEGEND

EXISTING ELEVATION — 28'(E)

PROPOSED ELEVATION — 28'(FG)

APPROXIMATE LOCATION OF EXPLORATORY BORING — B-6/TB-6/TPT-6

APPROXIMATE LOCATION OF TEST PIT — TP-#

APPROXIMATE LOCATION OF CONE PENETRATION TEST — CPT-#

APPROXIMATE LOCATION OF WENNER 4-PIN IN SITU CORROSION TEST — W-#

APPROXIMATE LOCATION OF SOIL VAPOR SAMPLE WELL — SW-#

GRADING NOTES

1. FOR SECTIONS, SEE SHEETS CG3.01 TO CG3.05.
2. BORINGS B-1, B-2 AND B-4 THROUGH B-7 PERFORMED BY LANGAN TREADWELL ROLLO (3/17/2014 TO 3/20/2014)
3. BORINGS B-8 THROUGH B-39 PERFORMED BY LANGAN TREADWELL ROLLO (10/7/2014 TO 10/10/2014)
4. TEST PITS TP-1 THROUGH TP-17 PERFORMED BY LANGAN TREADWELL ROLLO (7/13/2014 TO 7/16/2014)
5. CONE PENETRATION TESTS CPT-8CP, CPT-8CP, CPT-10CP AND CPT-1C THROUGH CPT-12C PERFORMED BY CORNERSTONE EARTH GROUP (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
6. CONE PENETRATION TESTS CPT-3L AND CPT-5L PERFORMED BY LOWNEY ASSOCIATES (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
7. EXPLORATORY BORINGS EB-1C THROUGH EB-5C PERFORMED BY CORNERSTONE EARTH GROUP (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
8. EXPLORATORY BORINGS EB-2L AND EB-4L PERFORMED BY LOWNEY ASSOCIATES (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
9. WENNER 4-PIN IN SITU CORROSION TEST PERFORMED BY JDH CORROSION CONSULTANTS (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
10. EXPLORATORY BORINGS ECB-1C AND EB-6C PERFORMED BY CORNERSTONE EARTH GROUP (PER PHASE I ENVIRONMENTAL SITE ASSESSMENT AND PRELIMINARY SOIL AND SOIL VAPOR QUALITY EVALUATION, CORNERSTONE EARTH GROUP, 4/23/2014)
11. SOIL VAPOR SAMPLE WELLS PERFORMED BY CORNERSTONE EARTH GROUP (PER PHASE I ENVIRONMENTAL SITE ASSESSMENT AND PRELIMINARY SOIL AND SOIL VAPOR QUALITY EVALUATION, CORNERSTONE EARTH GROUP, 4/23/2014)

ABBREVIATIONS

E	–	EXISTING
FF	–	FINISHED FLOOR
FG	–	FINISHED GRADE
PG	–	PAD GRADE
PS	–	PARKING SURFACE
VAR.	–	VARIES

PARCEL 3 BORING DATA

BORING #	DATE	EXISTING ELEVATION (FT)	REFUSE DEPTH (FT)	REFUSE ELEVATION
B-8	10/2014	72.86	35.0	37.86
B-9	10/2014	62.95	9.0	53.95
B-10	10/2014	57.79	20.5	37.29
B-11	10/2014	73.54	20.0	53.54
B-12	10/2014	77.12	29.0	48.12
B-13	10/2014	86.00	35.0	51.00
B-14	10/2014	54.63	10.0	44.63
B-15	10/2014	77.56	30.0	47.56

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Date	Description	No.
REVISIONS		

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Project
CITY PLACE SANTA CLARA

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Figure Title
PARCEL 3 PRELIMINARY GRADING PLAN

Project No. 770611601	Figure CG2.03
Date 3/20/2015	
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Submission Date 3/20/2015	Sheet 3 of 4

100 0 50 100 SCALE IN FEET

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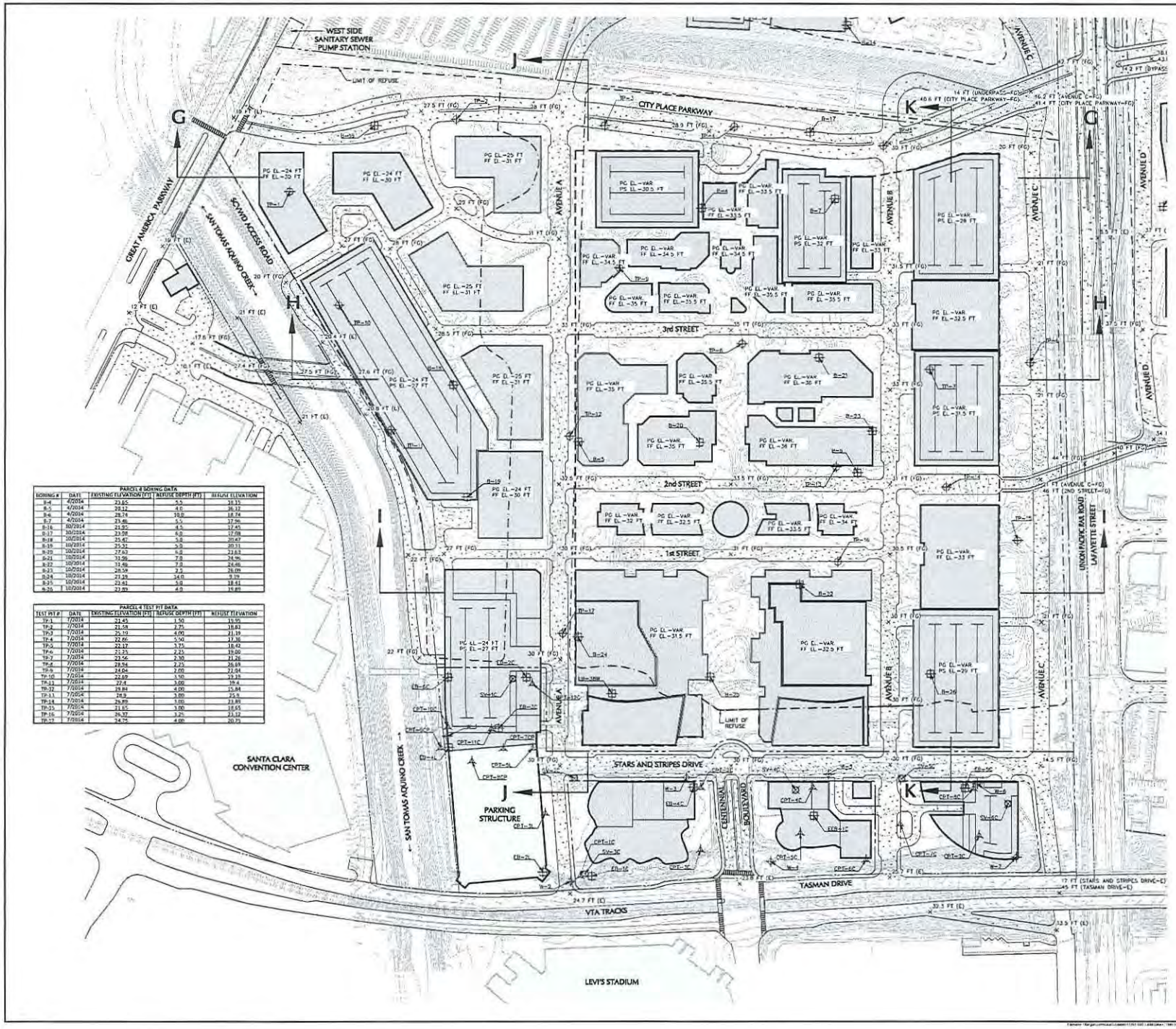

GRADING LEGEND

- EXISTING ELEVATION — 28'(E)
- PROPOSED ELEVATION — 28'(FG)
- APPROXIMATE LOCATION OF EXPLORATORY BORING — B-#/CB-#/EB-#
- APPROXIMATE LOCATION OF TEST PIT — TP-#
- APPROXIMATE LOCATION OF CONE PENETRATION TEST — CPT-#
- APPROXIMATE LOCATION OF WENNER 4-PIN IN SITU CORROSION TEST — W-#
- APPROXIMATE LOCATION OF SOIL VAPOR SAMPLE WELL — SV-#

GRADING NOTES

1. FOR SECTIONS, SEE SHEETS CG3.01 TO CG3.05.
2. BORINGS B-1, B-2 AND B-4 THROUGH B-7 PERFORMED BY LANGAN TREADWELL ROLLO (3/17/2014 TO 3/20/2014)
3. BORINGS B-8 THROUGH B-39 PERFORMED BY LANGAN TREADWELL ROLLO (10/7/2014 TO 10/10/2014)
4. TEST PITS TP-1 THROUGH TP-17 PERFORMED BY LANGAN TREADWELL ROLLO (7/13/2014 TO 7/16/2014)
5. CONE PENETRATION TESTS CPT-8CP, CPT-8CP, CPT-10CP AND CPT-1C THROUGH CPT-12C PERFORMED BY CORNERSTONE EARTH GROUP (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
6. CONE PENETRATION TESTS CPT-3L AND CPT-5L PERFORMED BY LOWNEY ASSOCIATES (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
7. EXPLORATORY BORINGS EB-1C THROUGH EB-5C PERFORMED BY CORNERSTONE EARTH GROUP (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
8. EXPLORATORY BORINGS EB-2L AND EB-4L PERFORMED BY LOWNEY ASSOCIATES (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
9. WENNER 4-PIN IN SITU CORROSION TEST PERFORMED BY .OH CORROSION CONSULTANTS (PER PRELIMINARY GEOTECHNICAL INVESTIGATION, CORNERSTONE EARTH GROUP, 5/2/2014)
10. EXPLORATORY BORINGS EEB-1C AND EB-5C PERFORMED BY CORNERSTONE EARTH GROUP (PER PHASE I ENVIRONMENTAL SITE ASSESSMENT AND PRELIMINARY SOIL AND SOIL VAPOR QUALITY EVALUATION, CORNERSTONE EARTH GROUP, 4/23/2014)
11. SOIL VAPOR SAMPLE WELLS PERFORMED BY CORNERSTONE EARTH GROUP (PER PHASE I ENVIRONMENTAL SITE ASSESSMENT AND PRELIMINARY SOIL AND SOIL VAPOR QUALITY EVALUATION, CORNERSTONE EARTH GROUP, 4/23/2014)

ABBREVIATIONS

E	=	EXISTING
FF	=	FINISHED FLOOR
FC	=	FINISHED GRADE
PG	=	PAD GRADE
PS	=	PARKING SURFACE
VAR.	=	VARIES

PARCEL 4 BORING DATA

BORING #	DATE	EXISTING ELEVATION (FT)	REFUSE DEPTH (FT)	REFUSE ELEVATION
B-4	4/2014	23.65	5.5	18.15
B-5	4/2014	28.12	4.0	24.12
B-6	4/2014	28.74	10.0	18.74
B-7	4/2014	23.46	5.5	17.96
B-16	10/2014	21.95	4.5	17.45
B-17	10/2014	23.08	6.0	17.08
B-18	10/2014	25.47	5.0	20.47
B-19	10/2014	25.32	5.0	20.32
B-20	10/2014	27.63	4.0	23.63
B-21	10/2014	31.96	7.0	24.96
B-22	10/2014	31.46	7.0	24.46
B-23	10/2014	28.59	9.5	26.09
B-24	10/2014	23.59	14.0	9.59
B-25	10/2014	23.63	5.0	18.63
B-26	10/2014	23.89	4.0	19.89

PARCEL 4 TEST PIT DATA

TEST PIT #	DATE	EXISTING ELEVATION (FT)	REFUSE DEPTH (FT)	REFUSE ELEVATION
TP-1	7/2014	21.45	1.50	19.95
TP-2	7/2014	21.58	2.75	18.83
TP-3	7/2014	25.19	4.00	21.19
TP-4	7/2014	22.86	5.50	17.36
TP-5	7/2014	22.17	3.75	18.42
TP-6	7/2014	21.25	2.25	19.00
TP-7	7/2014	23.56	2.30	21.26
TP-8	7/2014	28.54	2.25	26.29
TP-9	7/2014	24.04	2.00	22.04
TP-10	7/2014	22.69	3.50	19.19
TP-11	7/2014	27.4	3.00	19.4
TP-12	7/2014	19.84	4.00	15.84
TP-13	7/2014	28.9	3.00	25.9
TP-14	7/2014	26.89	3.00	23.89
TP-15	7/2014	31.65	3.00	28.65
TP-16	7/2014	24.37	3.25	21.12
TP-17	7/2014	24.75	4.00	20.75

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.
REVISIONS		

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Project: CITY PLACE SANTA CLARA

SANTA CLARA, CALIFORNIA

Figure Title: PARCELS 4 & 5 PRELIMINARY GRADING PLAN

Project No.	770611601
Date	6/30/2015
Scale	AS SHOWN
Drawn By	JJM
Checked By	DJH
Submission Date	6/30/2015
Figure	CG2.04
Sheet	4 of 4

SCALE IN FEET: 100 0 50 100

PROJECT No. 770611601

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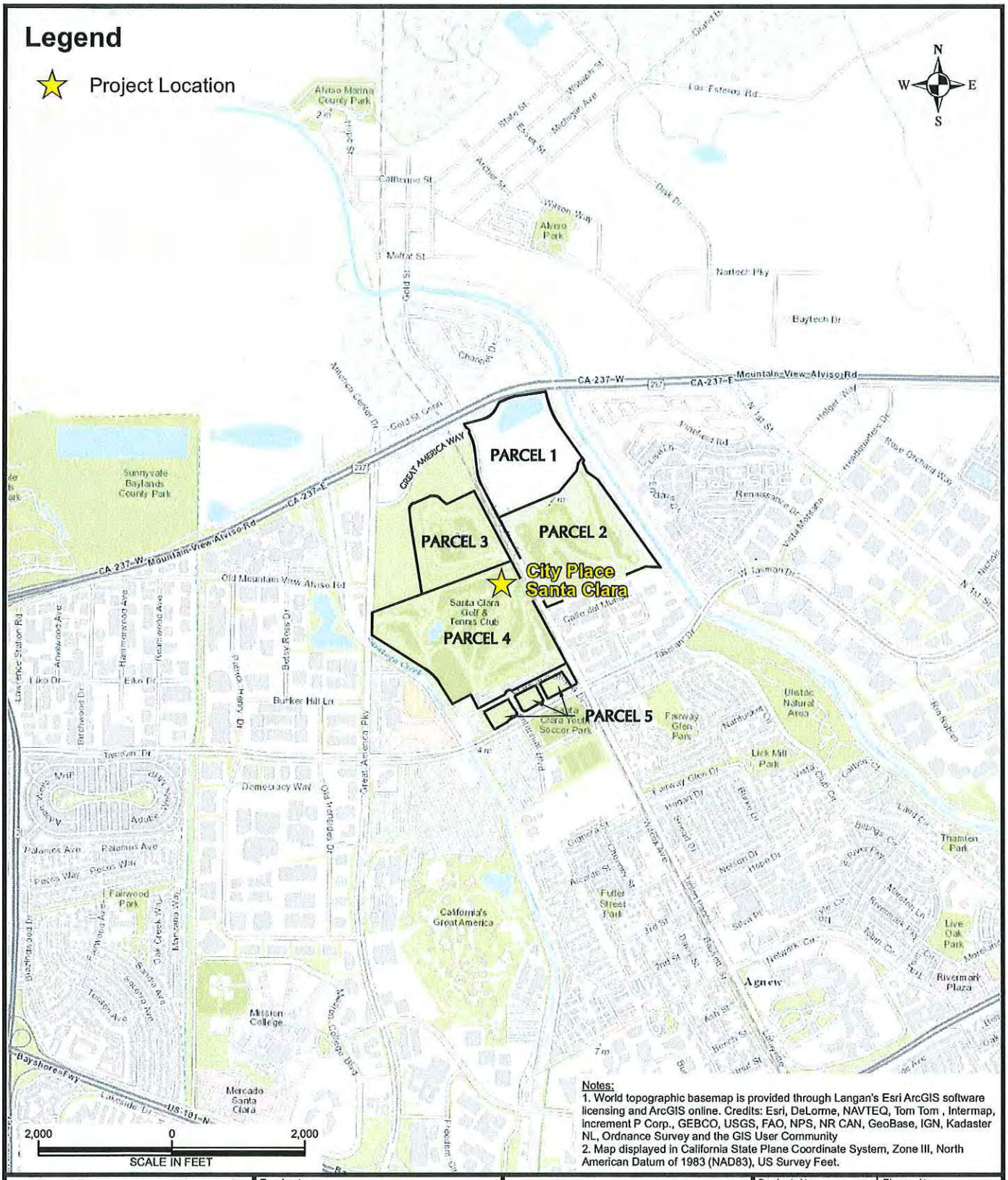
STORMWATER PHASING MATRIX								
Phase / Parcel	**Gross Sq. Footage**	**Storm Pipe (LF)**	**Manholes (#)**	**Catch Basins (#)**	**Laterals (LF)**	**Settlement Vaults (#)**	**Refuse Trenching (CY) Note 2**	**Off-Site Improvements**
1 / 5	825,000	526 - 12" 856 - 18" 286 - 24" 176 - 30" 300 - 36" 1,231 - 42"	14	28	-	-	-	Abandon Golf Course Pump Station Outfall to San Tomas Creek - sized for future phases
2 / 4	2,411,470	256 - 15" 2,587 - 18" 1,808 - 24" 796 - 30" 1,922 - 36" 217 - 42" 418 - 48" 476 - 54"	40	80	244 - 15" 684 - 18"	6	4,000	Outfalls to San Tomas Aquino Creek (3) sized for future phases
3 / 4	752,300	-	2	4	372 - 18"	11	-	-
4 / 4	1,095,900	622 - 18"	3	6	-	7	-	-
5 / 3	750,000	989 - 18" 1,147 - 24" 398 - 36"	15	30	98 - 18"	5	-	Possible off-site Storm drain upgrades – 870 LF of 42 inch RCP Including 5 new manholes and Eastside Drainage Channel , Retention Basin and Pump Station – See Note 1
6 / 1	1,200,000	1,809 - 18" 374 - 24" 1,408 –36"	18	36	-	8	9,000	Eastside Drainage Channel , Retention Basin and Pump Station – See Note 1
7 / 2	1,080,000	1,,436 - 18" 1,108 - 24" 1,033 - 36" 276 - 42"	13	26	-	6	2,500	Eastside Drainage Channel , Retention Basin and Pump Station – See Note 1
8 \2	1,080,000	1,732 - 18" 493 - 36"	8	16	-	6	4,500	Eastside Drainage Channel , Retention Basin and Pump Station – See Note 1

Notes:
1. The clearing of the Eastside Drainage Channel and Eastside Pump Station upgrades (approximate cost of $1,260,000 in 2010) and Basin improvements (approximate cost of $250,000) may be required by the City (possibly in Phases 5, 6, 7 or 8).
2. Refuse Trenching for structural slab include average width of 20-ft and depth of 5-ft.

FIGURES



Notes:
1. World topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online. Credits: Esri, DeLorme, NAVTEQ, Tom Tom , Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NR CAN, GeoBase, IGN, Kadaster NL, Ordnance Survey and the GIS User Community
2. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

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4030 Moorpark Avenue, Suite 210
San Jose, CA 95117
T: 408.551.6700 F: 408.551.0344 www.langan.com
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SITE LOCATION MAP

Project No. 770611601	Figure No. 1
Date 6/30/2015	
Scale 1" = 2000	
Drawn By STAFF / Checked By DJH	
Submission Date 6/30/2015	

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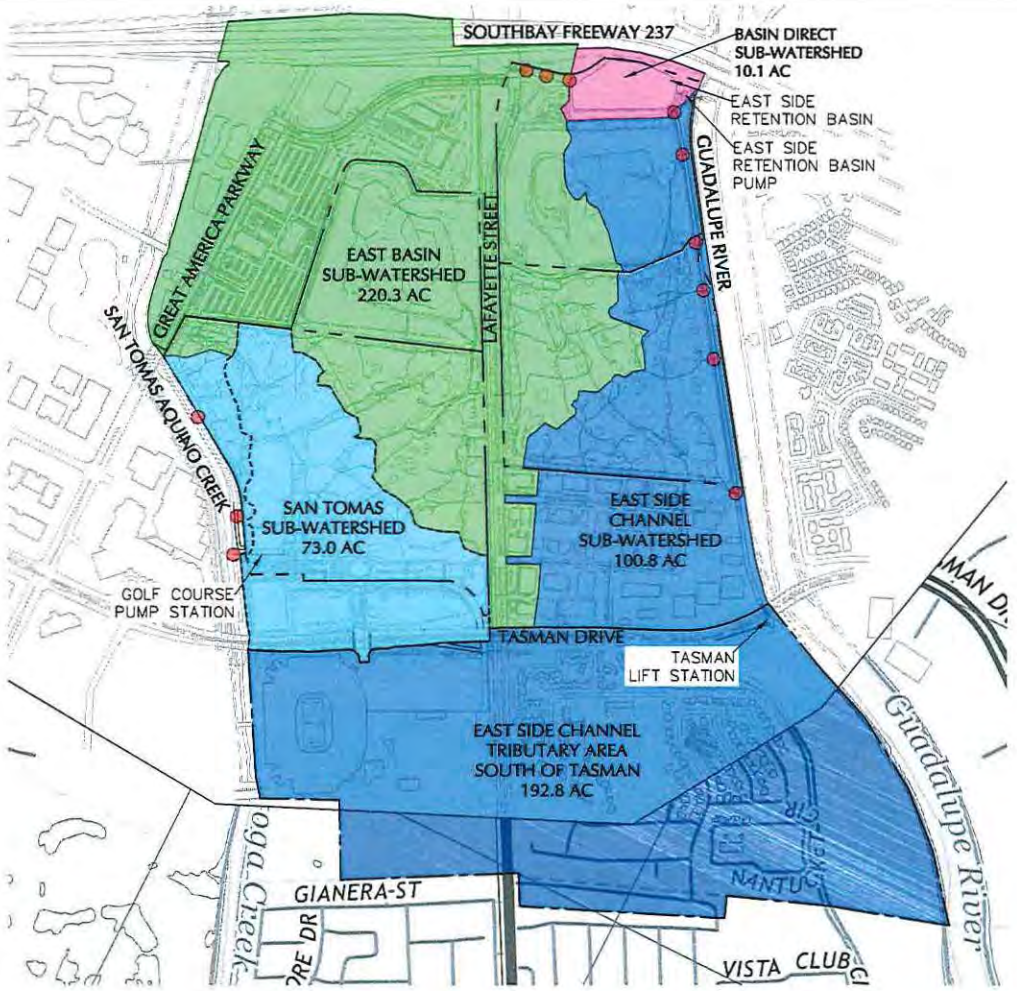

LEGEND:

- EXISTING OUTFALL LOCATION
- PROPERTY LINE
- AREA TRIBUTARY TO GOLF COURSE PUMP
- AREA SOUTH OF TASMAN DRIVE TRIBUTARY TO EAST SIDE CHANNEL SUB WATERSHED

AREA SUMMARY:

SUB WATERSHED	ONSITE (AC)	OFFSITE (AC)
SAN TOMAS	50.8	22.2
EAST SIDE CHANNEL	57.0	43.8
EAST BASIN	114.8	105.5
BASIN DIRECT	8.0	2.1
SOUTH OF TASMAN	–	192.8
TOTAL	230.6	366.4

NOTES:

EAST SIDE CHANNEL SUB-WATERSHED OUTFALLS DRAIN TO THE EXISTING NATURAL CHANNEL JUST WEST AND ADJACENT TO THE GUADALUPE RIVER

LIMITS FOR THE TRIBUTARY AREA SOUTH OF TASMAN DRIVE ARE APPROXIMATE AND OBTAINED FROM HYDRAULIC EVALUATION FOR EASTSIDE PUMP STATION AND RETENTION BASIN (NOV. 22, 2000)

TOPOGRAPHIC INFORMATION FOR AREAS SOUTH OF TASMAN DRIVE SUPPLEMENTED BY USGS TOPOGRAPHIC MAP FOR MILPITAS, CA DATED 2015

900 0 450 900
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4030 Moorpark Avenue, Suite 210
San Jose, CA 95117
T: 408.551.6700 F: 408.551.0344 www.langan.com
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Project	CITY PLACE SANTA CLARA
	SANTA CLARA CA
Drawing Title	OVERALL EXISTING DRAINAGE MAP
Project No.	770611601
Date	6/30/2015
Scale	1" = 900'
Drawn By / Checked By	STAFF / DJH
Submission Date	6/30/2015
Figure No.	2

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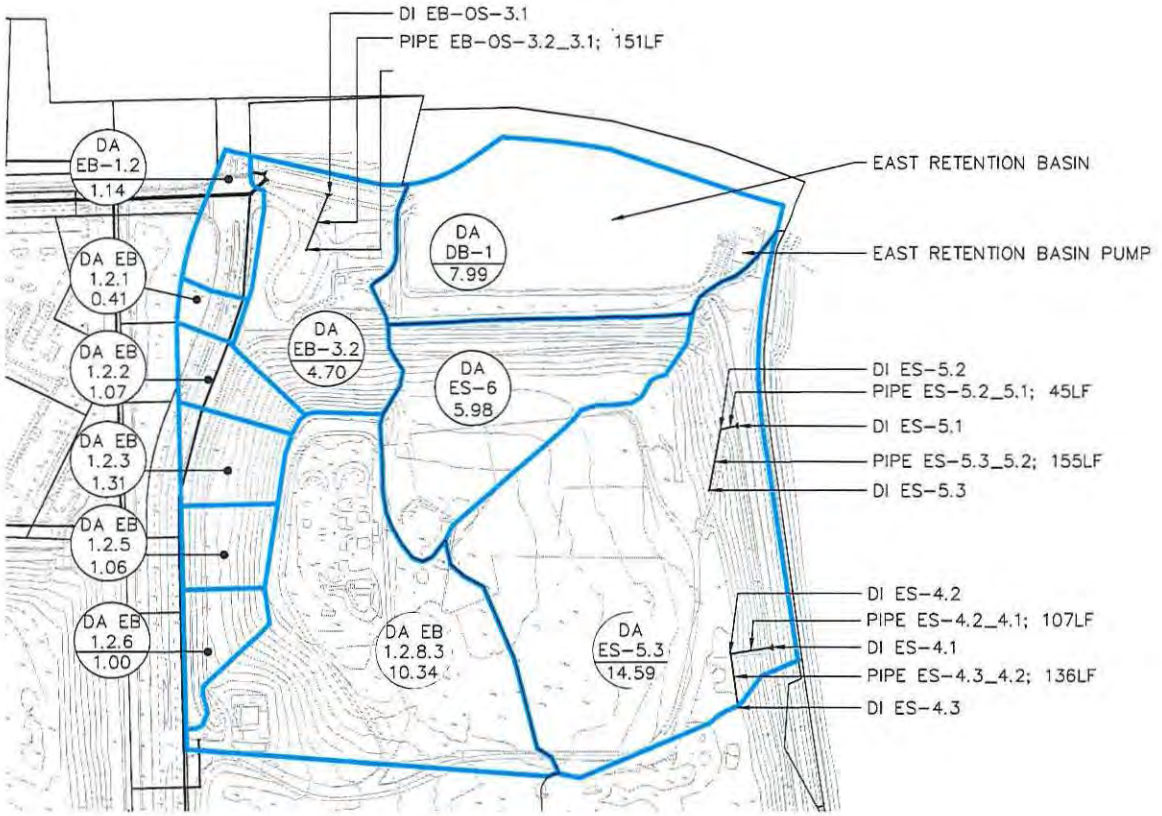
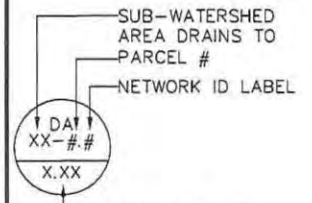
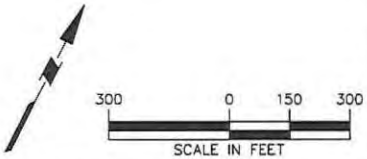


LEGEND/ABBREVIATIONS

DRAINAGE AREA BOUNDARY

DA	DRAINAGE AREA
ST	SAN TOMAS SUB-WATERSHED
EB	EAST BASIN SUB-WATERSHED
ES	EAST SIDE SUB-WATERSHED
DB	DIRECT BASIN SUB-WATERSHED





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Drawing Title
PARCEL 1
EXISTING
DRAINAGE MAP

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Submission Date	6/30/2015

Figure No. 3

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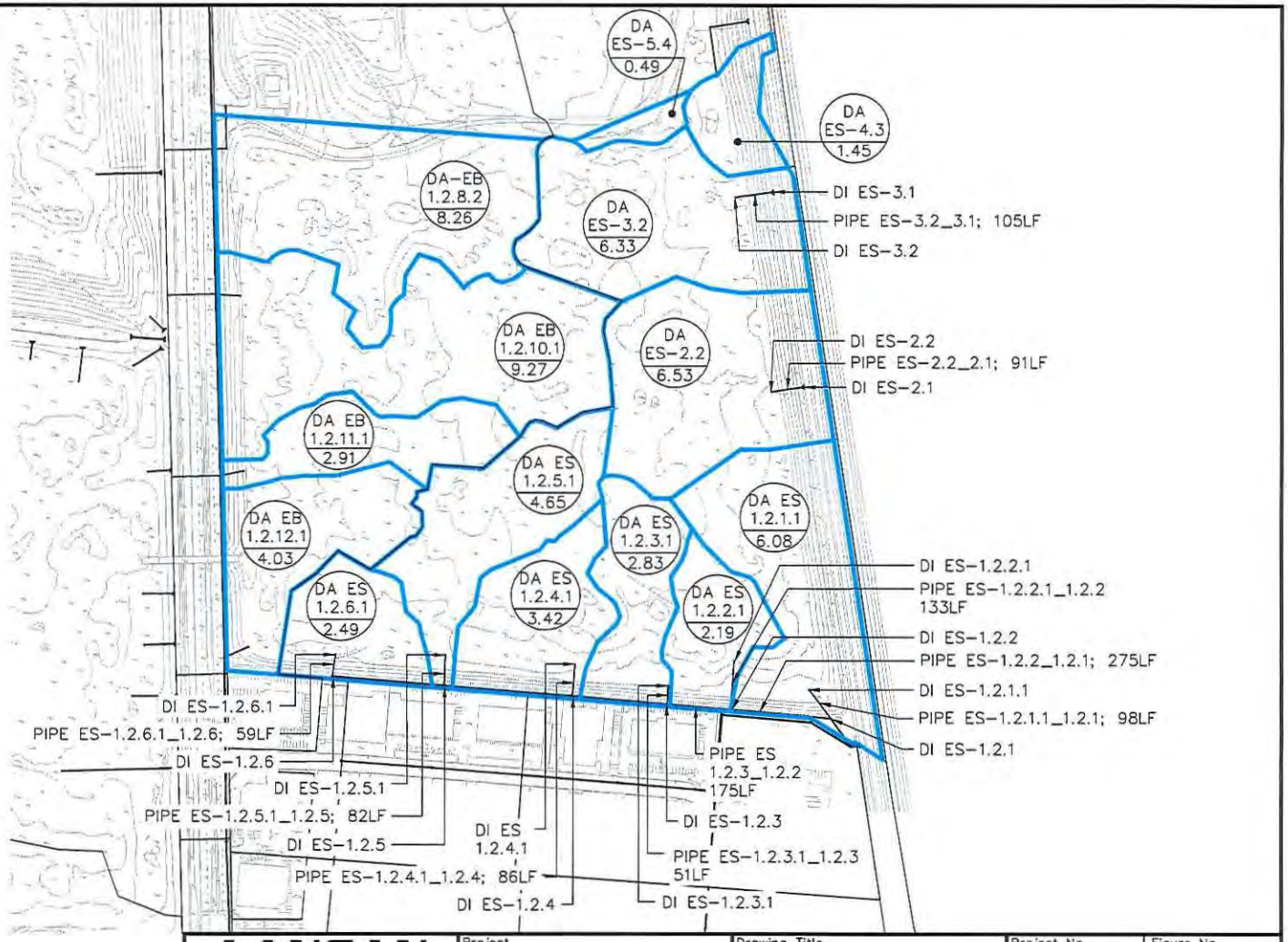
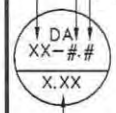


LEGEND/ABBREVIATIONS

DRAINAGE AREA BOUNDARY

DA	DRAINAGE AREA
ST	SAN TOMAS SUB-WATERSHED
EB	EAST BASIN SUB-WATERSHED
ES	EAST SIDE SUB-WATERSHED
DB	DIRECT BASIN SUB-WATERSHED



SUB-WATERSHED AREA DRAINS TO PARCEL #

NETWORK ID LABEL

DRAINAGE AREA IN ACRES

300 0 150 300

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SANTA CLARA CA

Drawing Title: PARCEL 2 EXISTING DRAINAGE MAP

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Submission Date	6/30/2015

Figure No. 4

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LEGEND/ABBREVIATIONS

DRAINAGE AREA BOUNDARY

DA	DRAINAGE AREA
ST	SAN TOMAS SUB-WATERSHED
EB	EAST BASIN SUB-WATERSHED
ES	EAST SIDE SUB-WATERSHED
DB	DIRECT BASIN SUB-WATERSHED

DA XX-#.# X.XX

- SUB-WATERSHED AREA DRAINS TO PARCEL #
- NETWORK ID LABEL
- DRAINAGE AREA IN ACRES

300 0 150 300
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Drawing Title
PARCEL 3
EXISTING
DRAINAGE MAP

Project No.	770611601
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Figure No. 5

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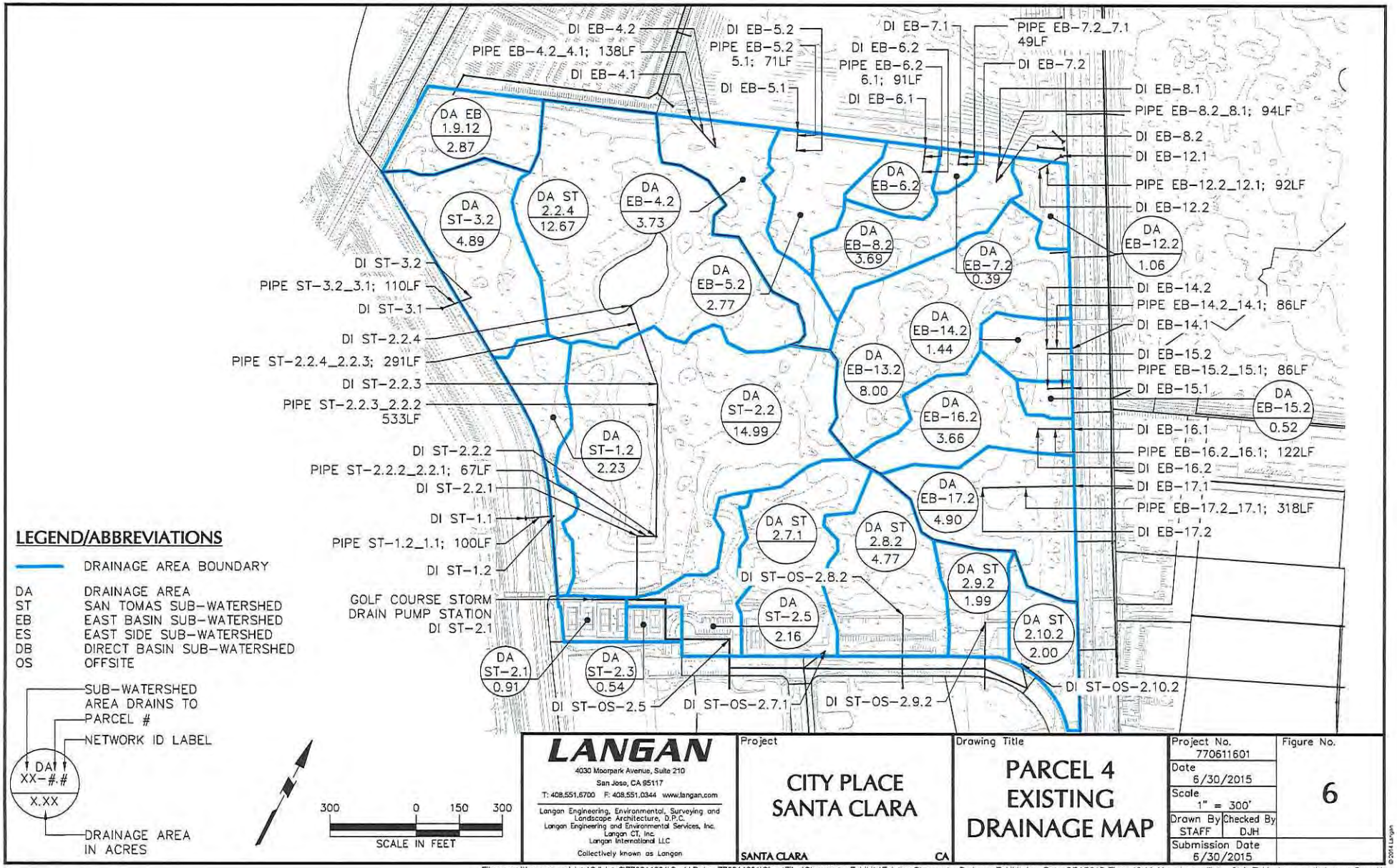

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PARCEL 4 EXISTING DRAINAGE MAP

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Submission Date	6/30/2015

Figure No. 6

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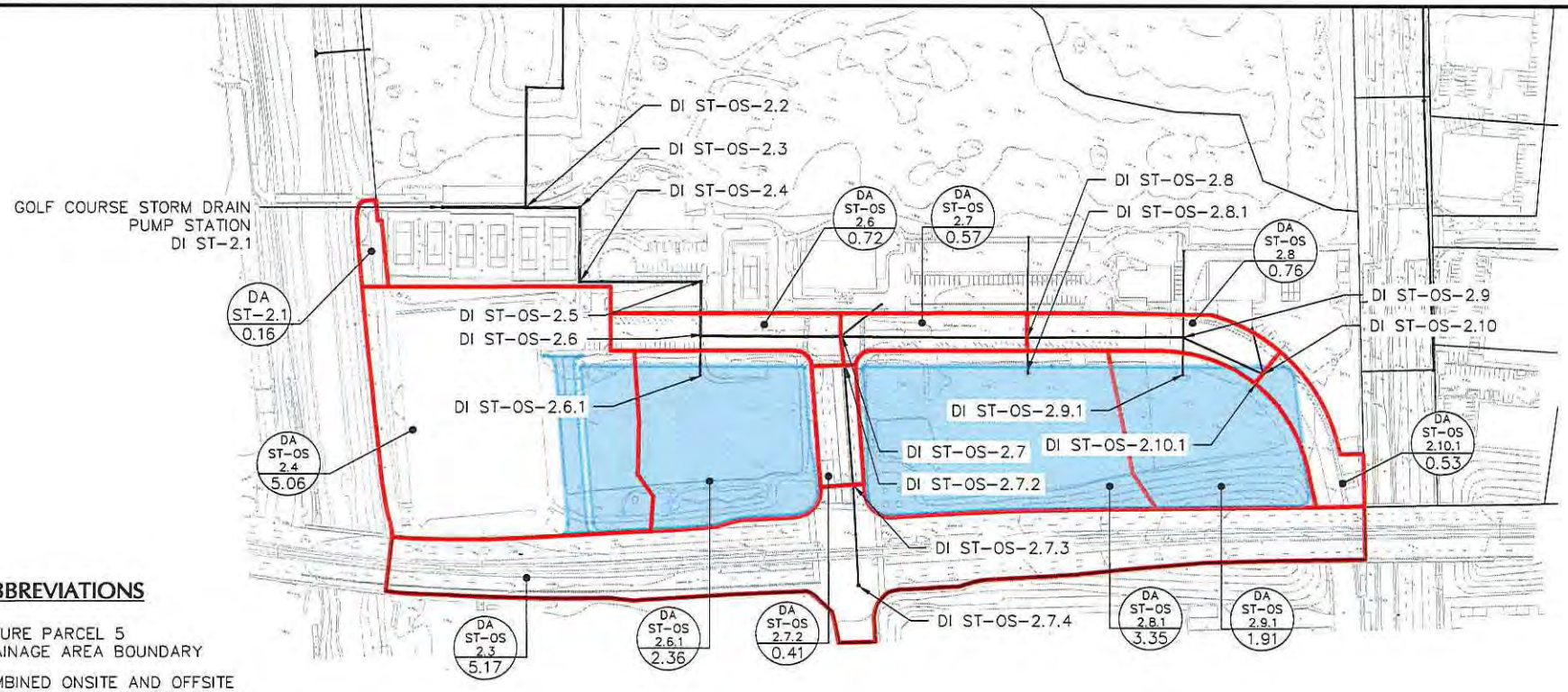

LEGEND/ABBREVIATIONS

FUTURE PARCEL 5 DRAINAGE AREA BOUNDARY

COMBINED ONSITE AND OFFSITE DRAINAGE AREA BOUNDARY

DA	DRAINAGE AREA
ST	SAN TOMAS SUB-WATERSHED
EB	EAST BASIN SUB-WATERSHED
ES	EAST SIDE SUB-WATERSHED
DB	DIRECT BASIN SUB-WATERSHED
OS	OFFSITE

DA XX-#.# / X.XX

- SUB-WATERSHED AREA DRAINS TO PARCEL #
- NETWORK ID LABEL
- DRAINAGE AREA IN ACRES

200 0 100 200
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Drawing Title: PARCEL 5 EXISTING DRAINAGE MAP

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Figure No. 7

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LEGEND:

- EXISTING OUTFALL LOCATION
- PROPOSED OUTFALL LOCATION
- PROPERTY LINE

AREA SUMMARY:

SUB WATERSHED	ONSITE (AC)	OFFSITE (AC)
SAN TOMAS	87.4	13.0
EAST SIDE CHANNEL	79.2	43.8
EAST BASIN	62.9	105.6
BASIN DIRECT	10.2	2.1
SOUTH OF TASMAN	–	192.8
TOTAL	239.7	357.3

NOTES:

EAST SIDE CHANNEL SUB–WATERSHED OUTFALLS DRAIN TO THE EXISTING NATURAL CHANNEL JUST WEST AND ADJACENT TO THE GUADALUPE RIVER

LIMITS FOR THE TRIBUTARY AREA SOUTH OF TASMAN DRIVE ARE APPROXIMATE AND OBTAINED FROM HYDRAULIC EVALUATION FOR EASTSIDE PUMP STATION AND RETENTION BASIN (NOV. 22, 2000)

FOR APPROXIMATE LIMITS OF THE TRIBUTARY AREA SOUTH OF TASMAN DRIVE SEE FIGURE 2

600 0 300 600
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Project	CITY PLACE SANTA CLARA
	SANTA CLARA CA
Drawing Title	OVERALL PROPOSED DRAINAGE MAP
Project No.	770611601
Date	6/30/2015
Scale	1" = 600'
Drawn By / Checked By	STAFF / DJH
Submission Date	6/30/2015
Figure No.	8

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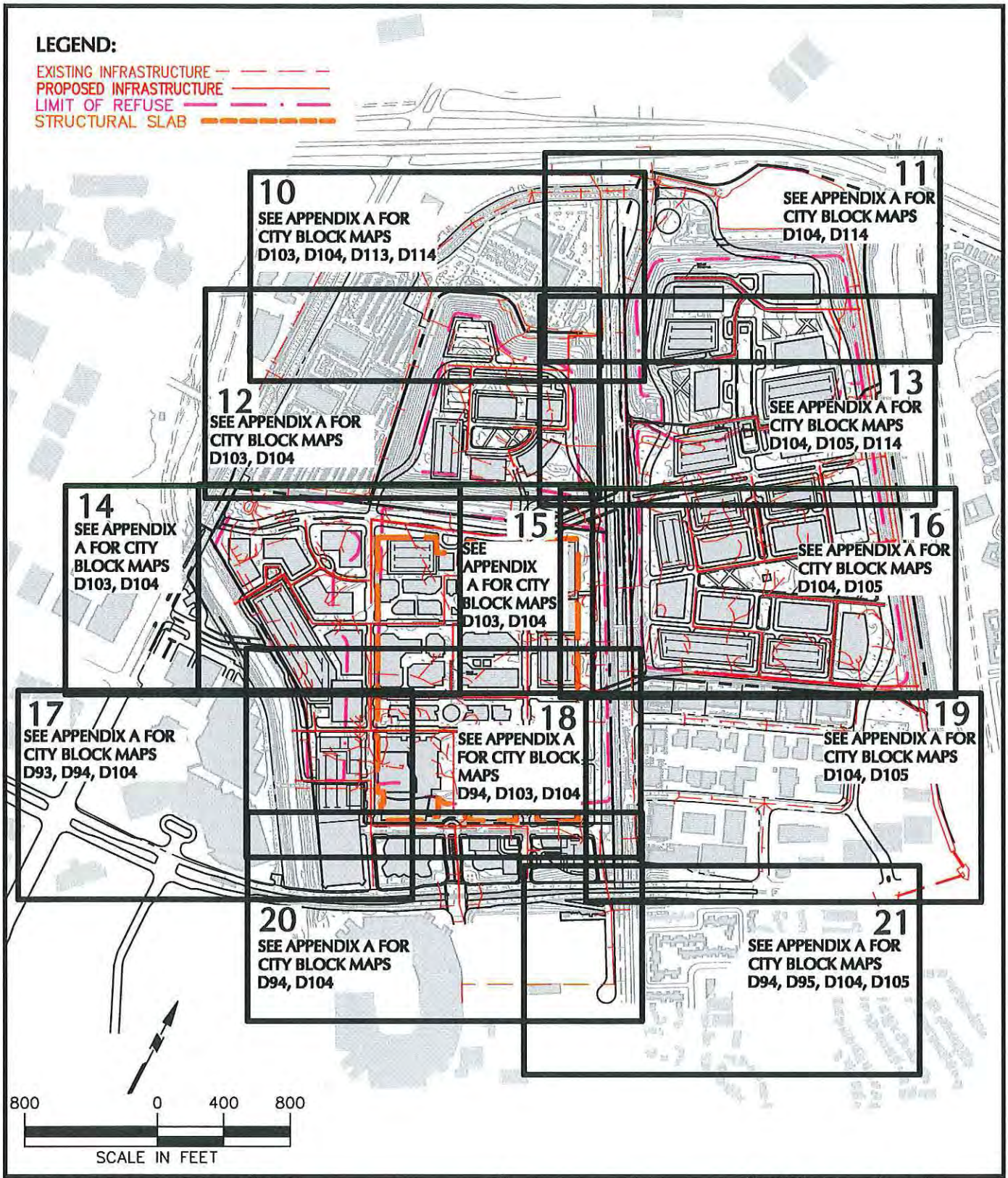

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4030 Moorpark Avenue, Suite 210
San Jose, CA 95117
T: 408.551.6700 F: 408.551.0344 www.langan.com
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PRELIMINARY STORM DRAIN KEY

Project No. 770611601	Figure No. 9
Date 6/30/2015	
Scale 1" = 800	
Drawn By STAFF / Checked By DJH	
Submission Date 6/30/2015	

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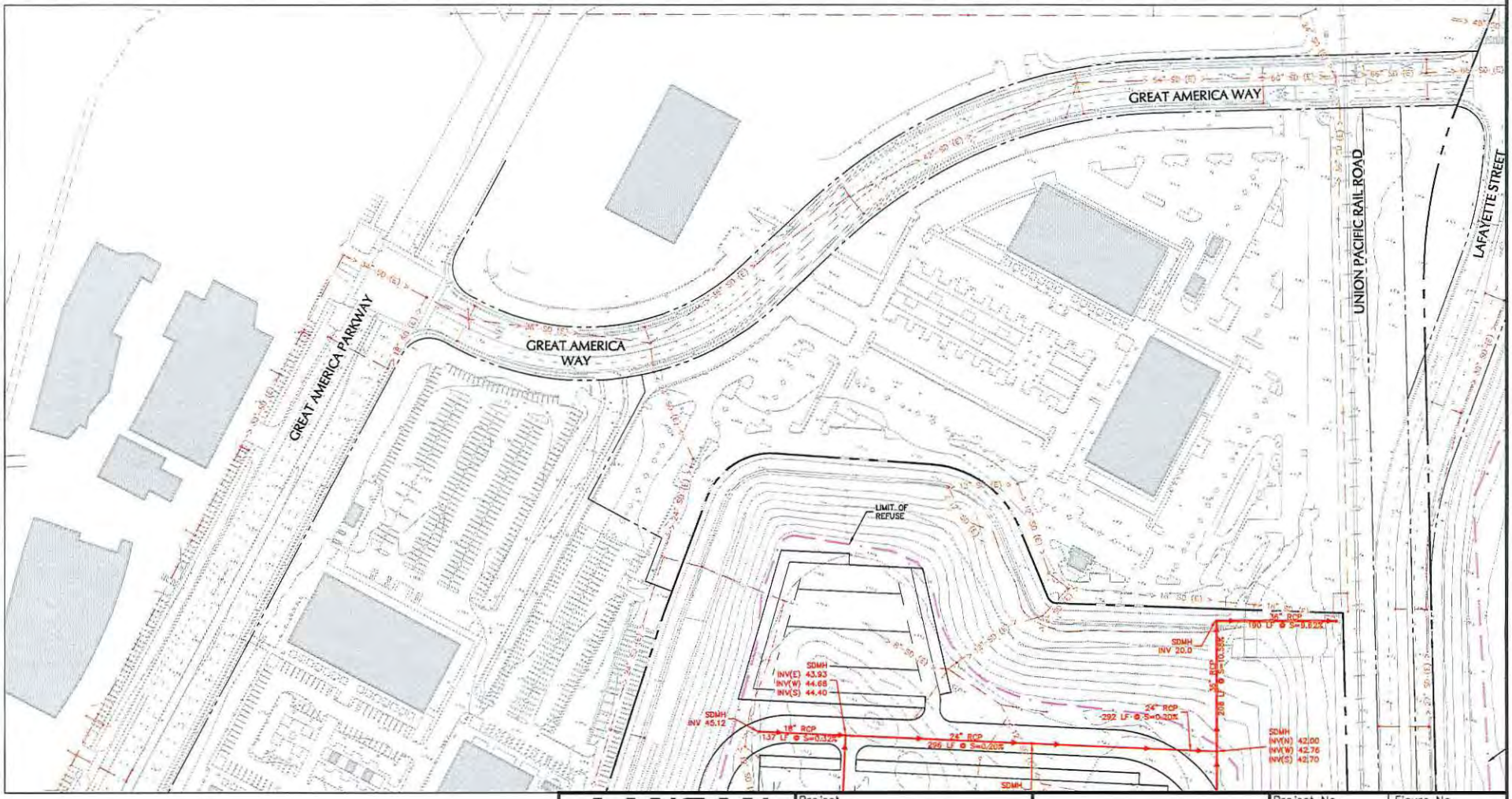

LEGEND:

EXISTING INFRASTRUCTURE — — > XX" SD (E) > — —

PROPOSED INFRASTRUCTURE → XX" RCP / XX LF @ S=X% →

LIMIT OF REFUSE — — · — · —

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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PRELIMINARY
STORM DRAIN

Project No. 770611601	Figure No. 10
Date 6/30/2015	
Scale 1" = 150'	
Drawn By STAFF	Checked By DJH
Submission Date 6/30/2015	

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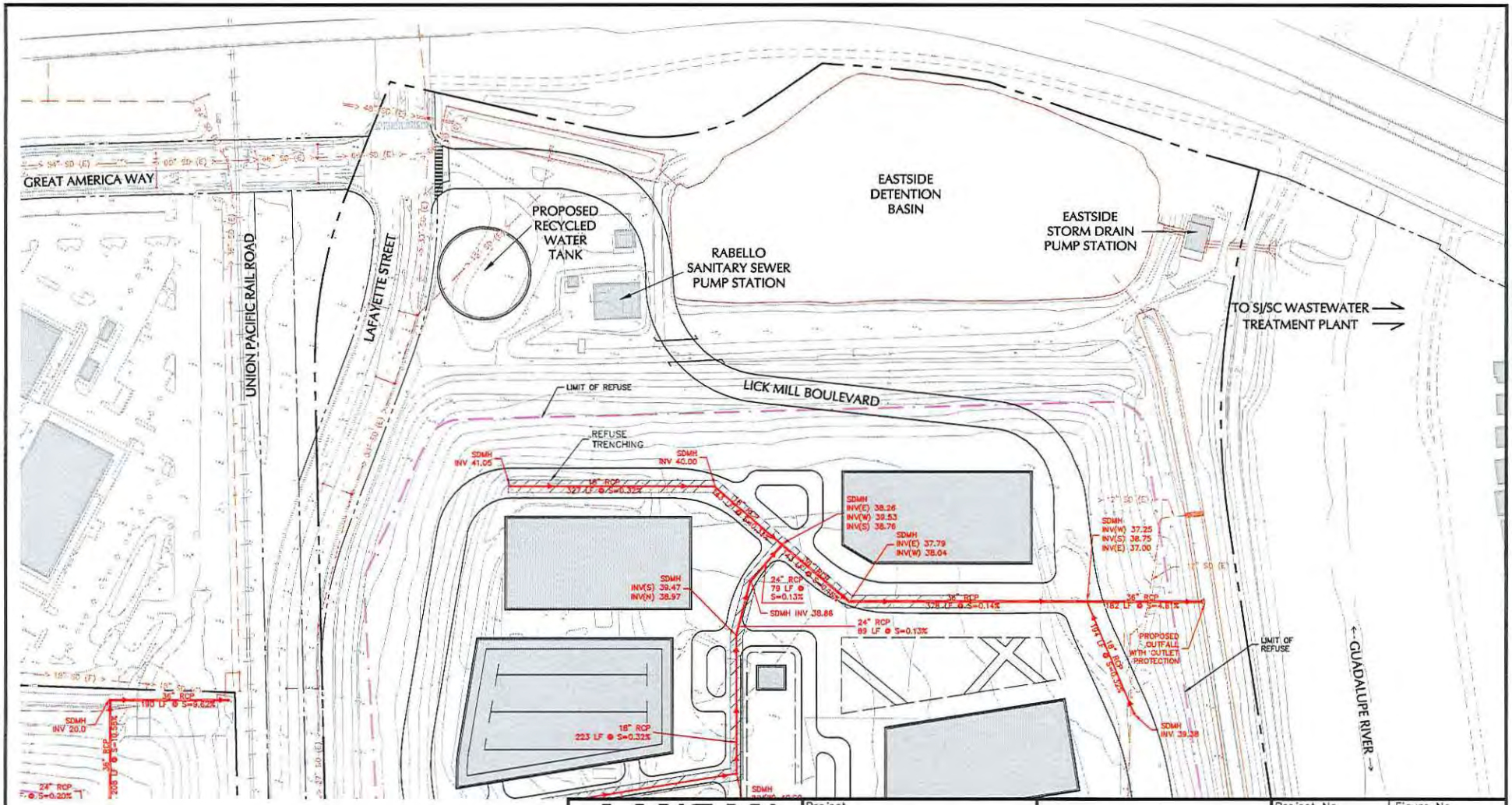

LEGEND:

EXISTING INFRASTRUCTURE

PROPOSED INFRASTRUCTURE — XX" RCP XX LF @ S=XX%

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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CITY PLACE SANTA CLARA

SANTA CLARA CA

PRELIMINARY STORM DRAIN

Project No.	770611601
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Scale	1" = 150'
Drawn By	STAFF
Checked By	DJH
Submission Date	6/30/2015

Figure No. 11

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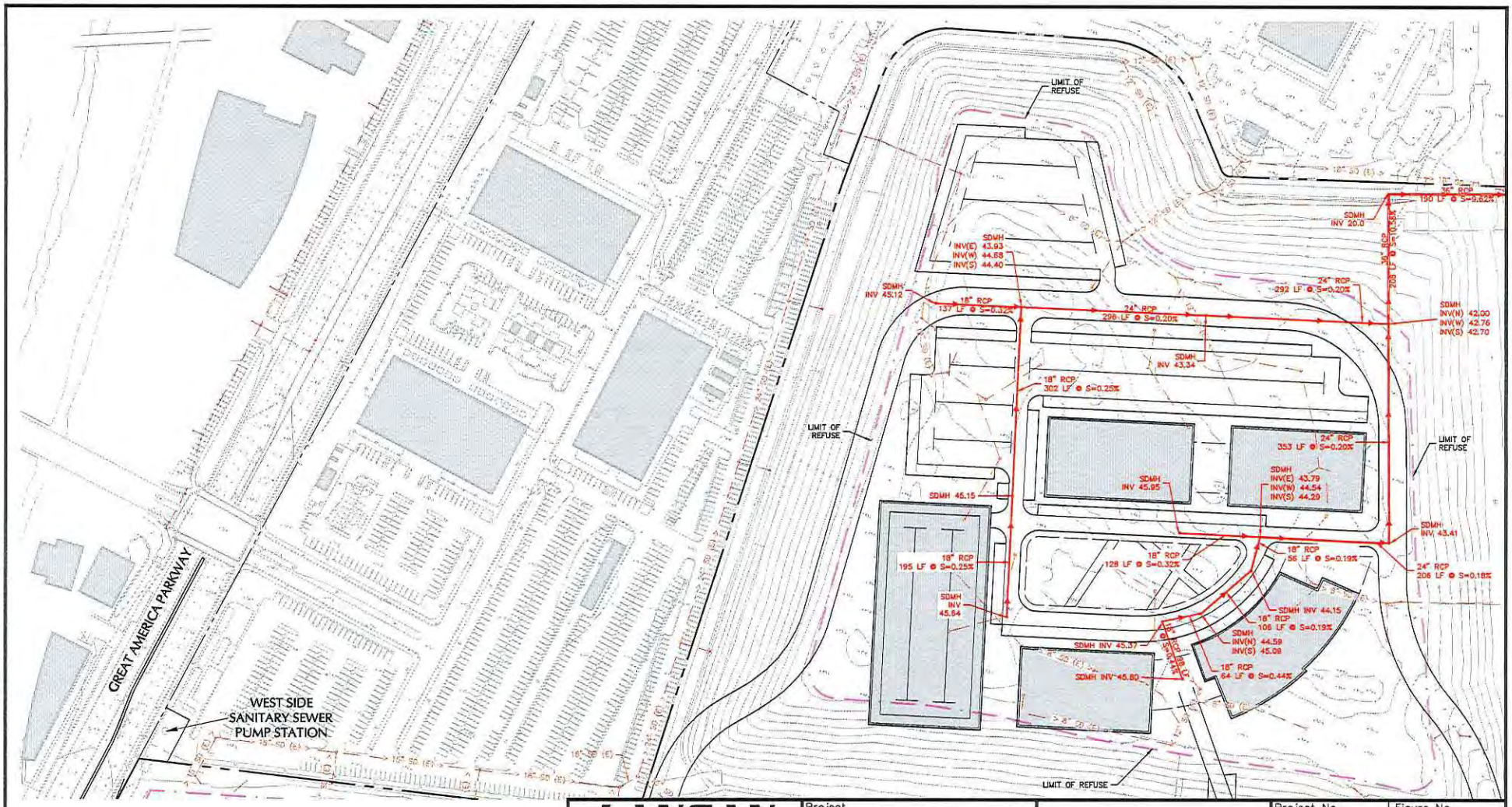

LEGEND:

EXISTING INFRASTRUCTURE — XX" SD (E)

PROPOSED INFRASTRUCTURE — XX" RCP, XX LF @ S=X%

LIMIT OF REFUSE

STRUCTURAL SLAB

150 0 75 150

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Figure No. 12

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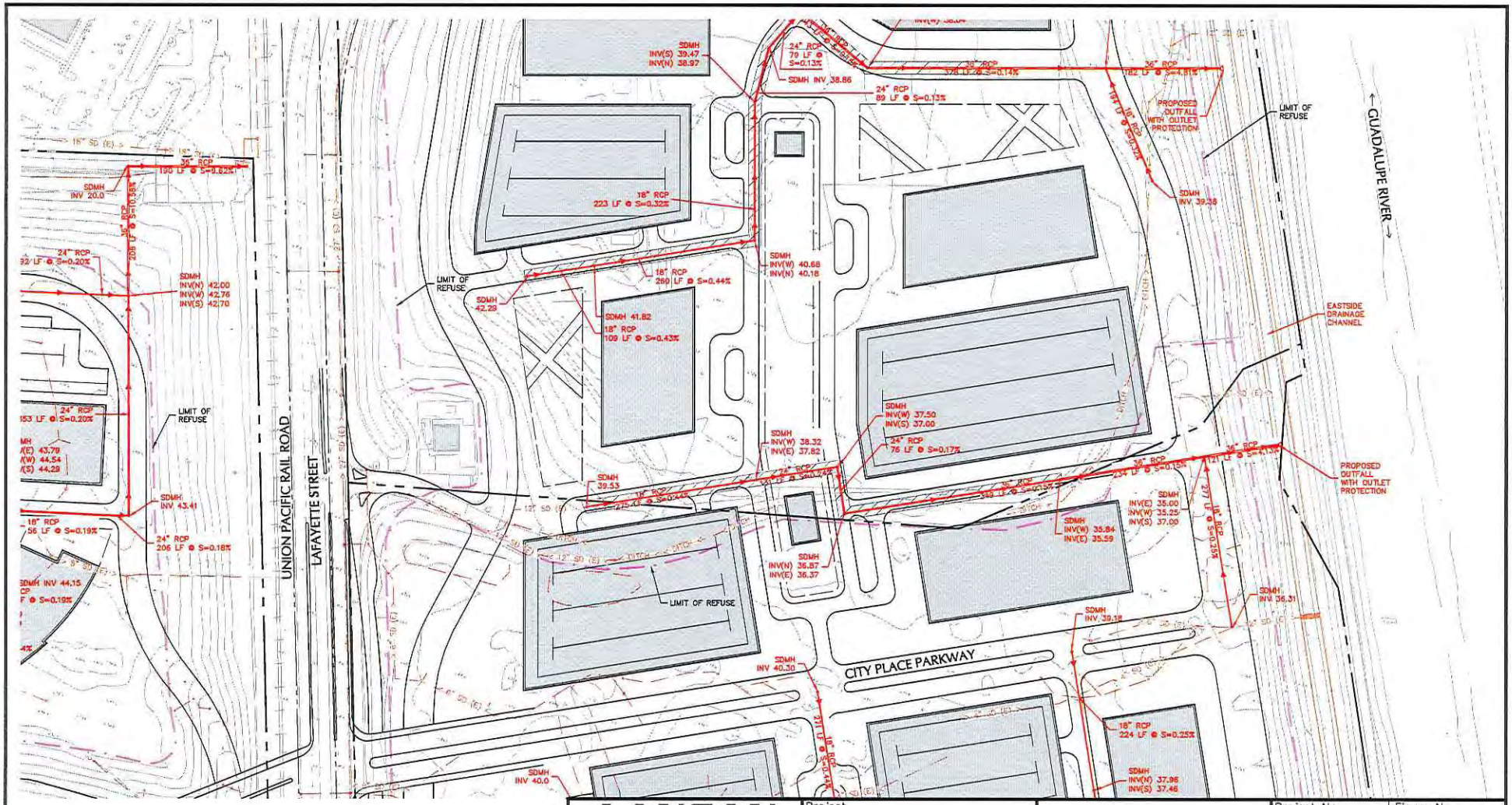

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Figure No. 13

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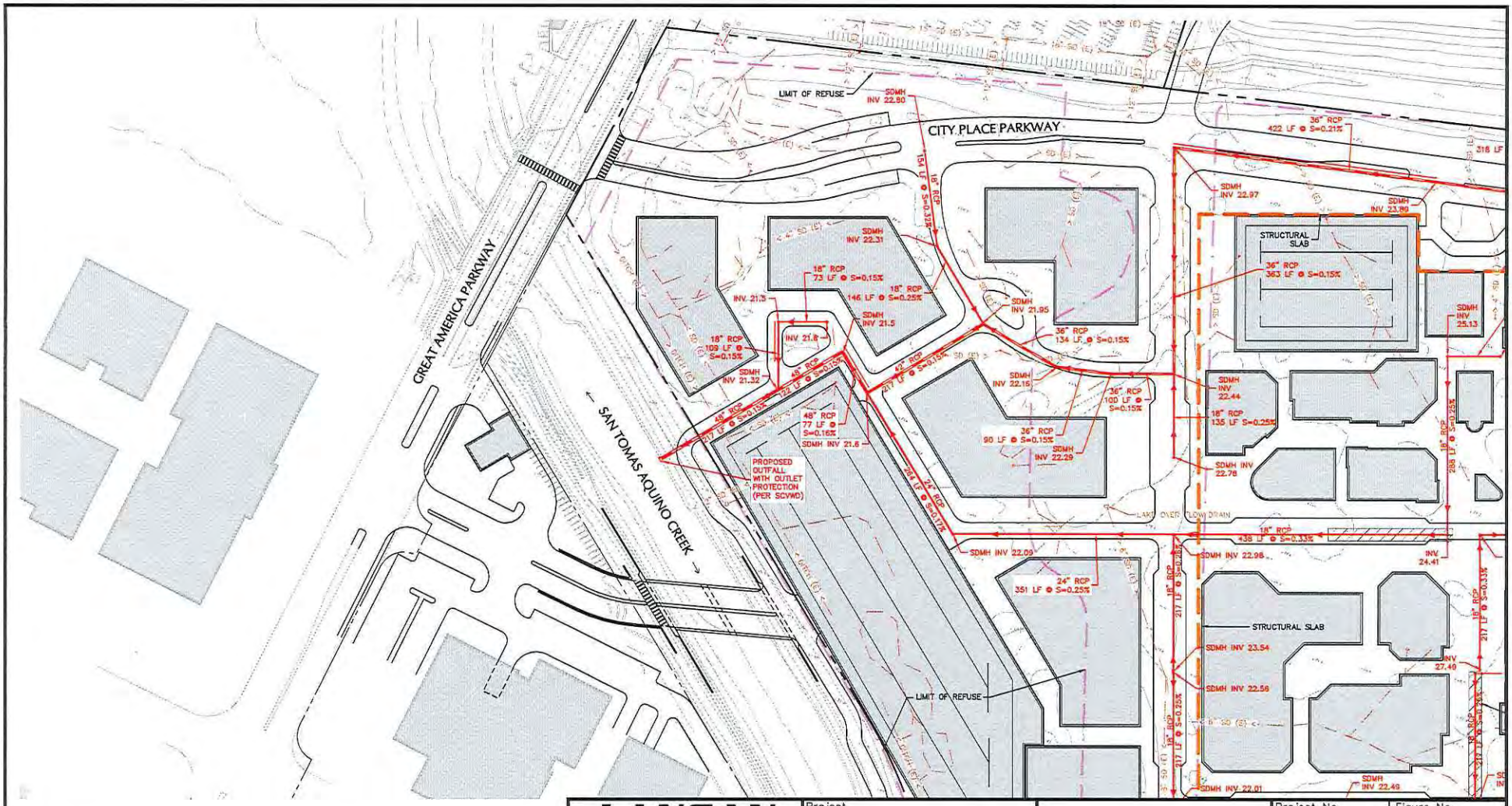

LEGEND:

EXISTING INFRASTRUCTURE — —> XX"-SD-(E) >— —

PROPOSED INFRASTRUCTURE — XX" RCP / XX LF @ S=X% —>

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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Project No. 770611601	Figure No. 14
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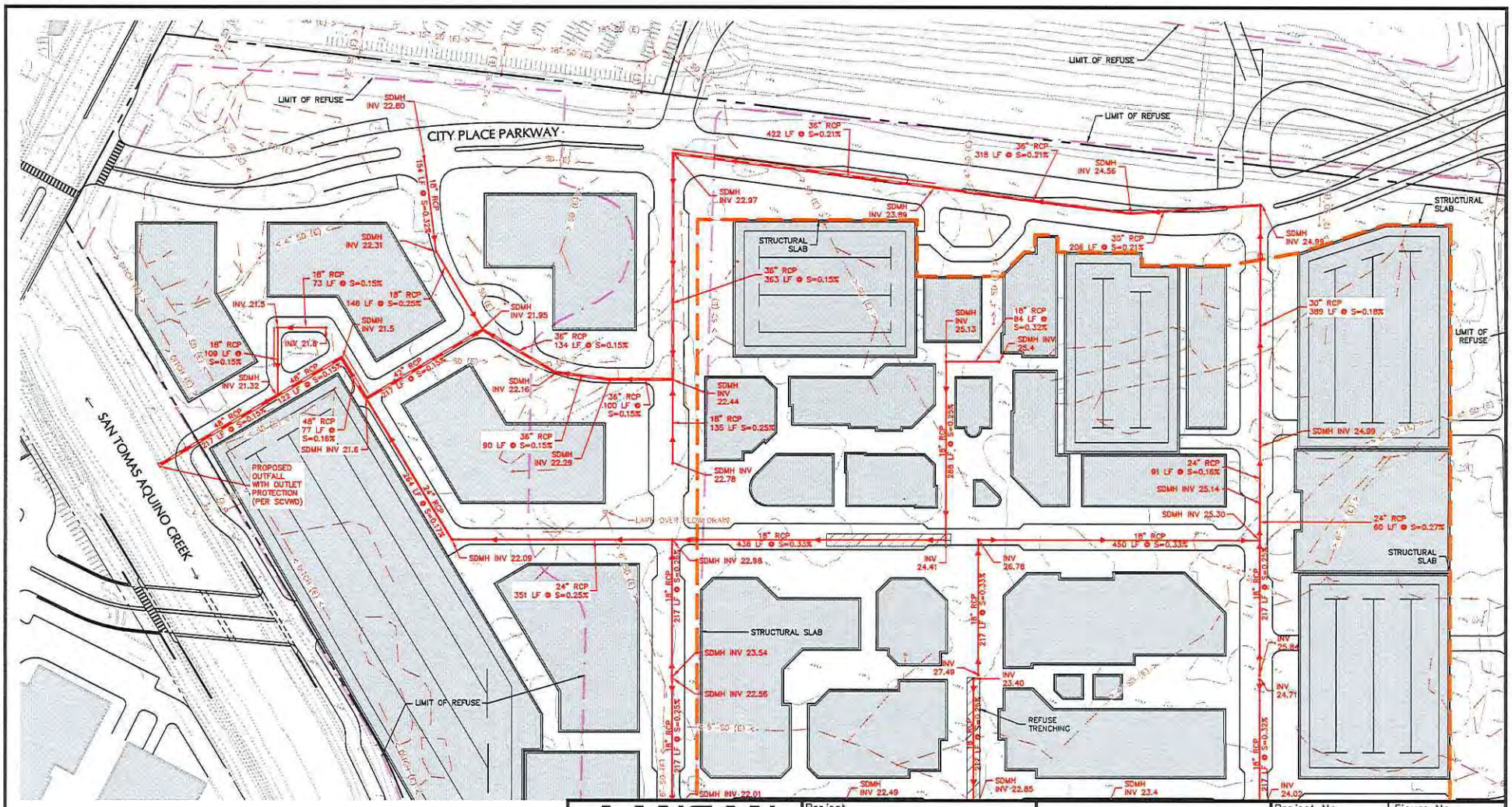

LEGEND:

EXISTING INFRASTRUCTURE — —> XX" RCP (E) <— —

PROPOSED INFRASTRUCTURE —> XX" RCP XX LF @ S=X% <—

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

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Project No. 770611601	Figure No. 15
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Submission Date 6/30/2015	

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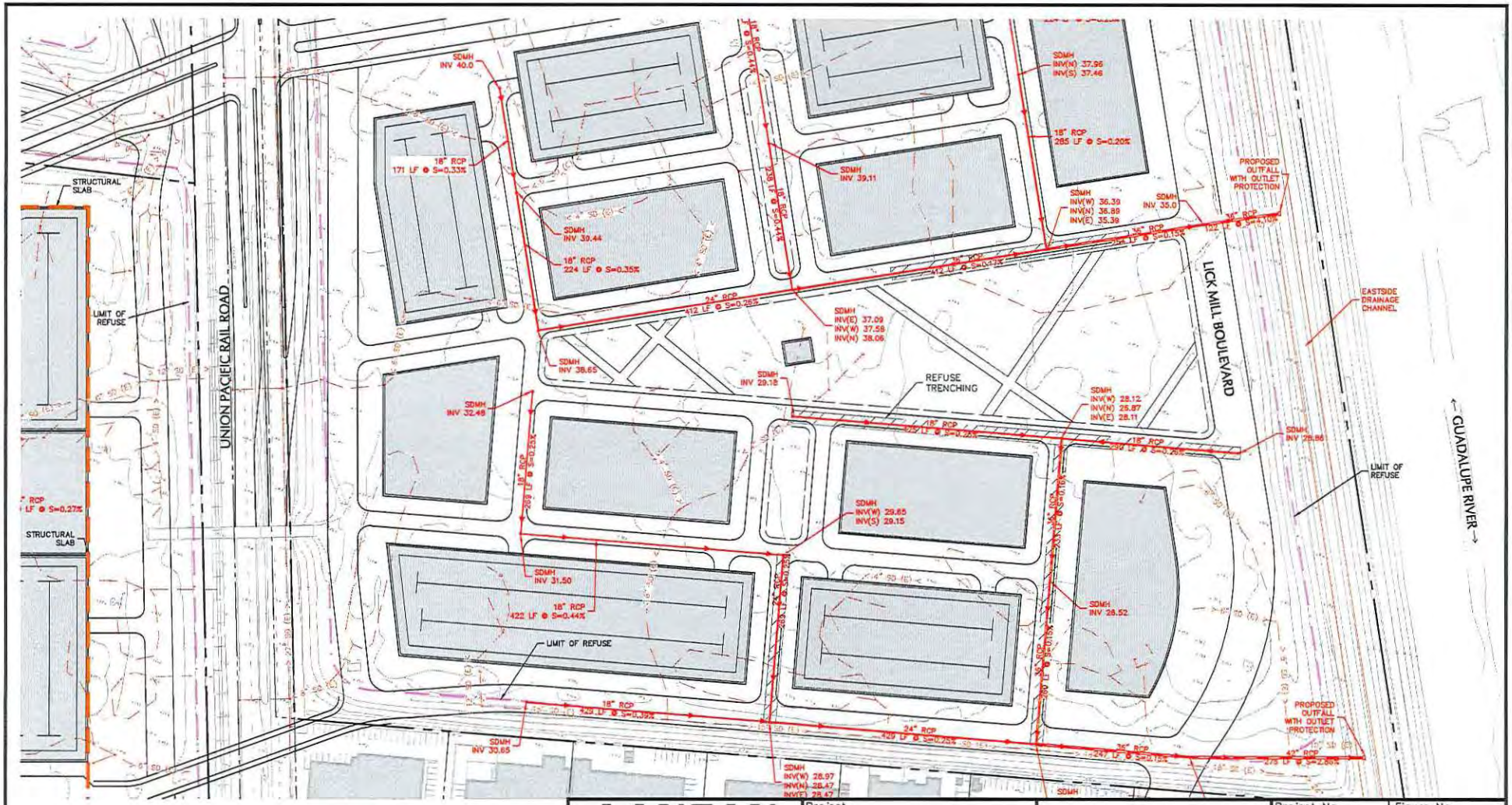

LEGEND:

- EXISTING INFRASTRUCTURE
- PROPOSED INFRASTRUCTURE — XX" RCP, XX LF @ S=XX%
- LIMIT OF REFUSE
- STRUCTURAL SLAB

150 0 75 150

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Figure No. 16

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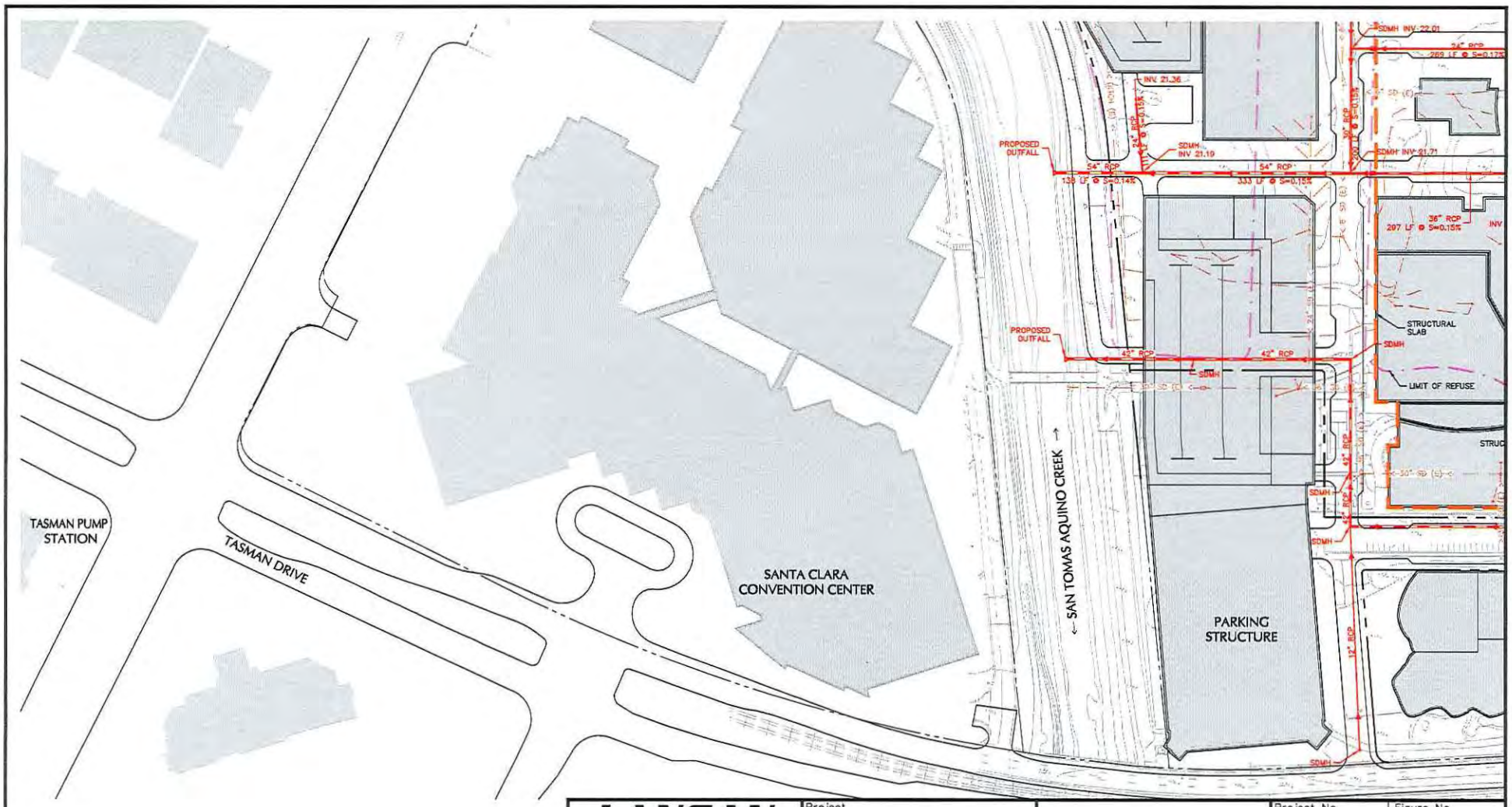

LEGEND:

- EXISTING INFRASTRUCTURE
- PROPOSED INFRASTRUCTURE — XX" RCP, XX LF @ S=XX%
- LIMIT OF REFUSE
- STRUCTURAL SLAB

150 0 75 150

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Project No. 770611601	Figure No. 17
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Submission Date 6/30/2015	

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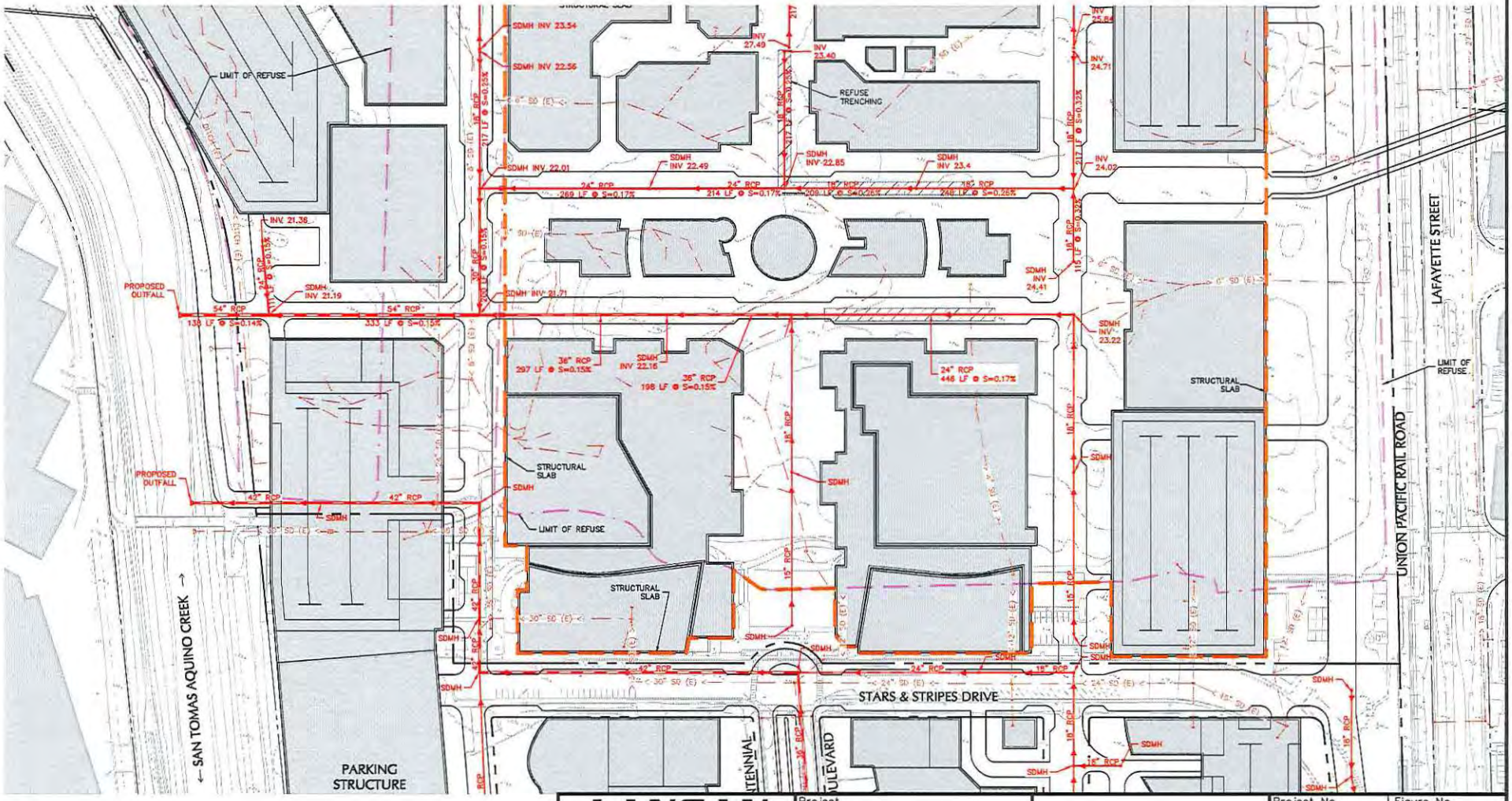

LEGEND:

EXISTING INFRASTRUCTURE — —> XX" SD (E) >— —

PROPOSED INFRASTRUCTURE —> XX" RCP / XX LF @ S=XX% >—

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB ▬▬▬

150 0 75 150

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Submission Date 6/30/2015	

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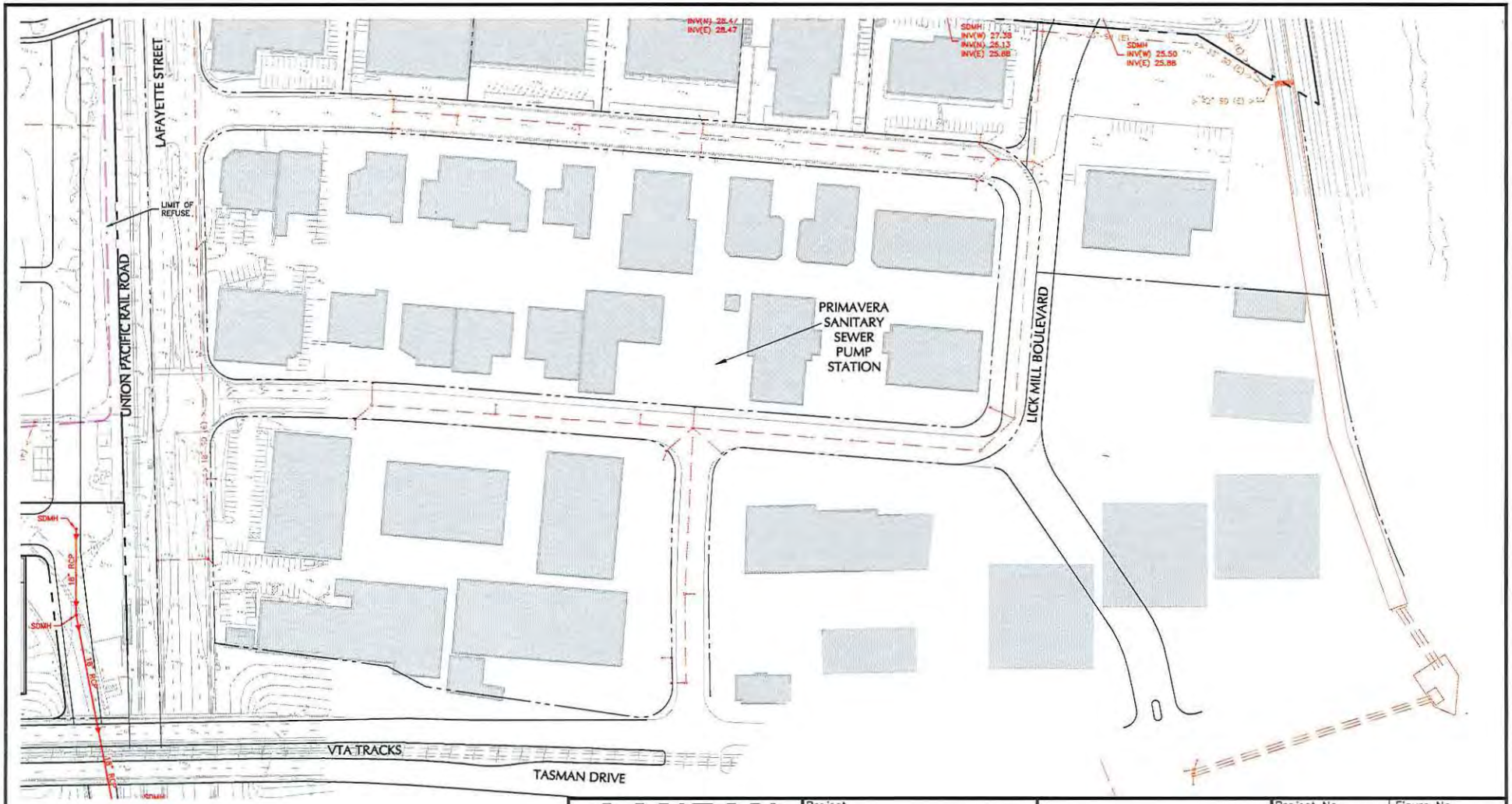

LEGEND:

EXISTING INFRASTRUCTURE — —> XX"-SD-(E) >— —

PROPOSED INFRASTRUCTURE — XX" RCP, XX LF @ S=XX% —>

LIMIT OF REFUSE — · — · —

STRUCTURAL SLAB

150 0 75 150

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Figure No. 19

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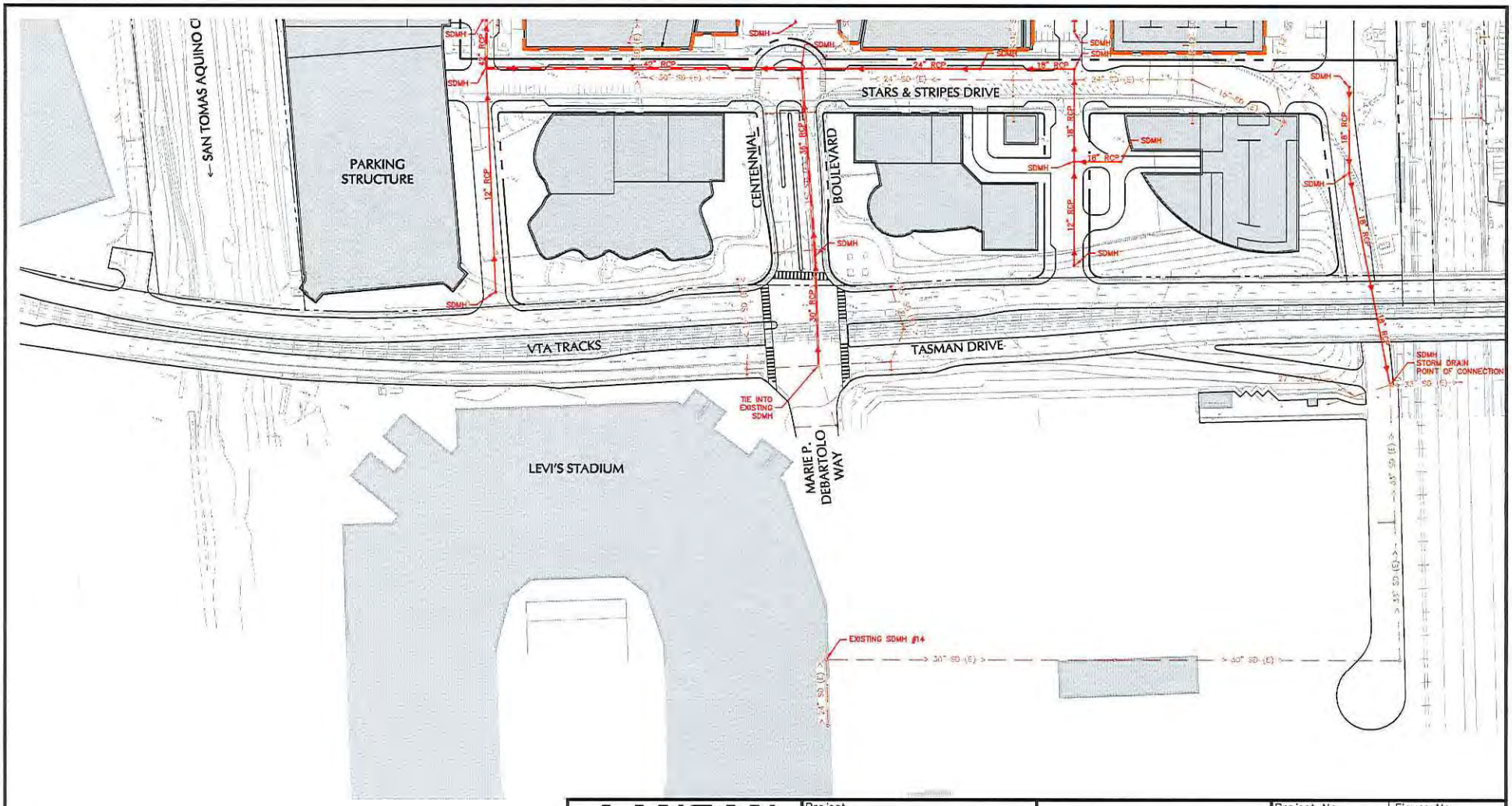

LEGEND:

EXISTING INFRASTRUCTURE — —> XX" SD (E) >— —

PROPOSED INFRASTRUCTURE —> XX" RCP / XX LF @ S=XX% >

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

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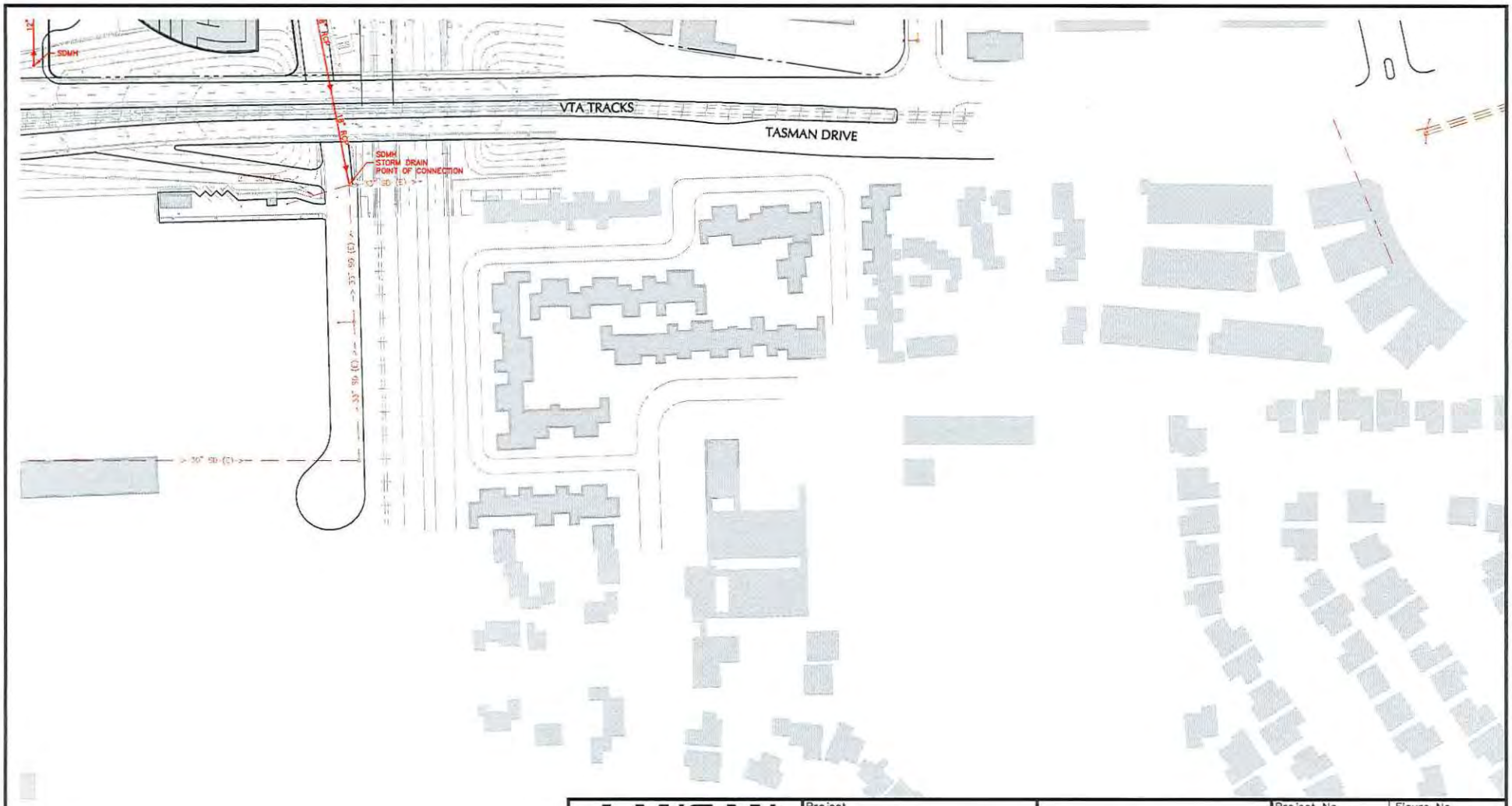

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Project No.	770611601
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Figure No.
21

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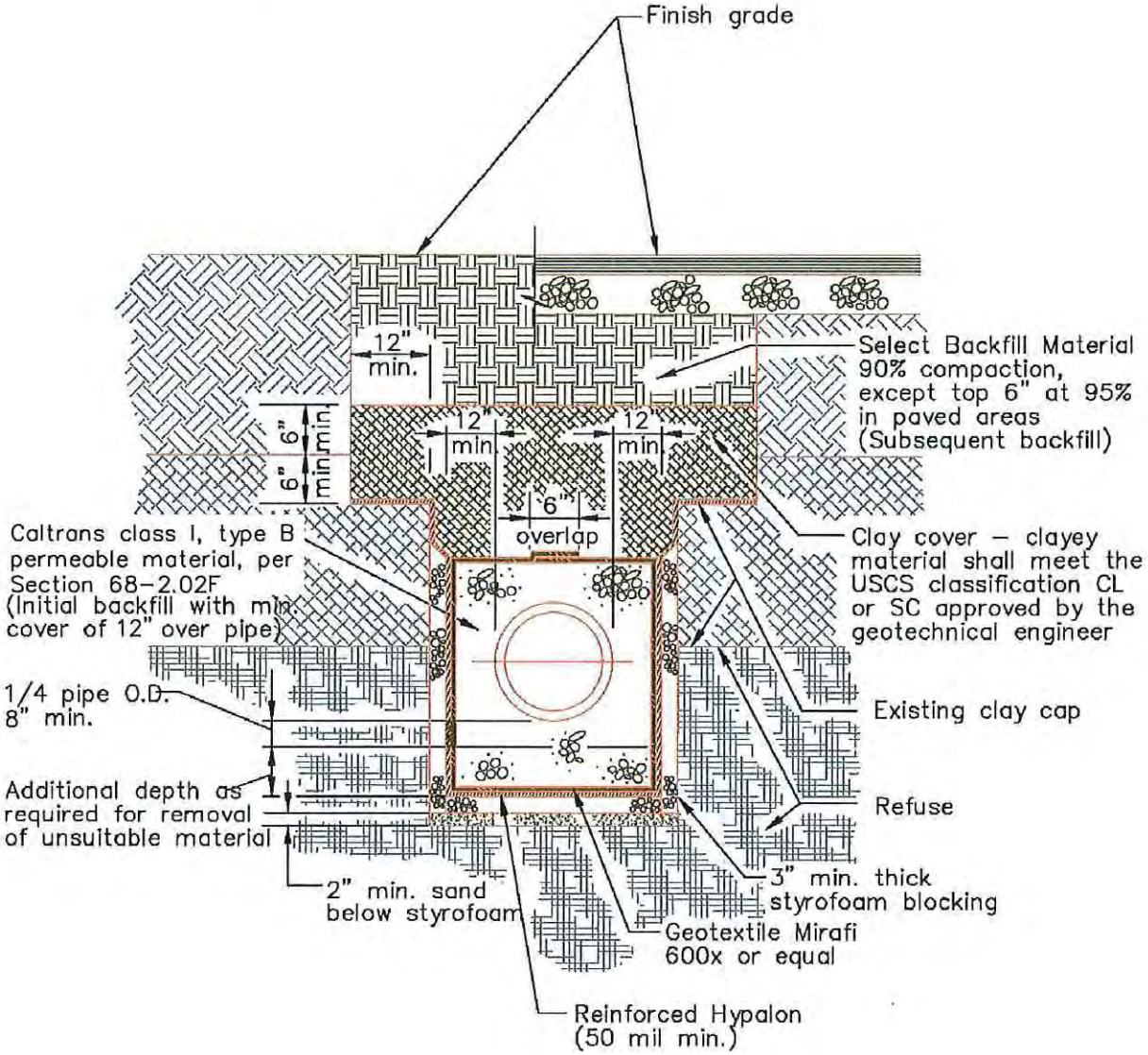

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UTILITY TRENCH PENETRATING CLAY CAP

Project No. 770611601	Figure No. 22
Date 6/30/2015	
Scale N.T.S.	
Drawn By STAFF / Checked By DJH	
Submission Date 6/30/2015	

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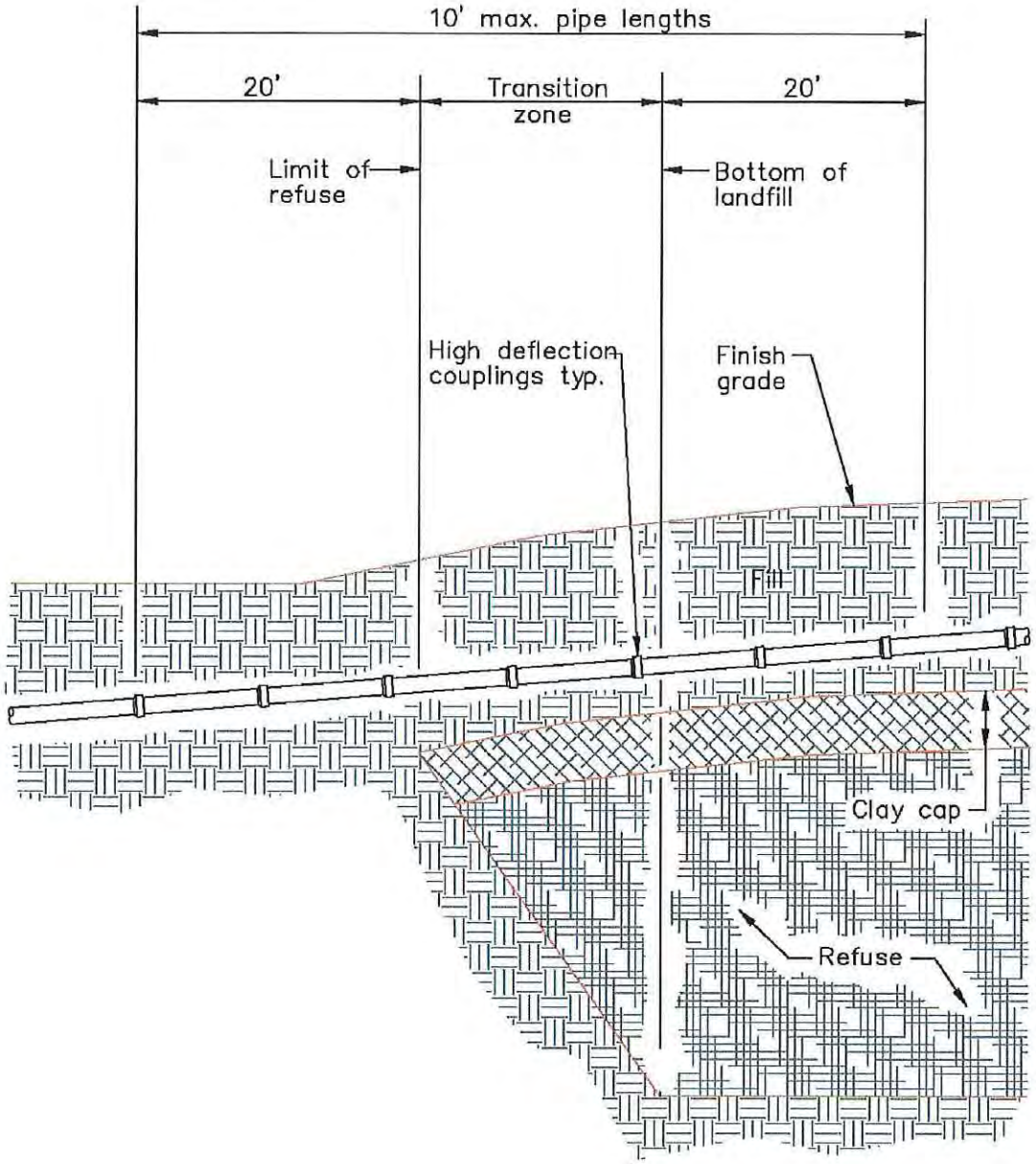

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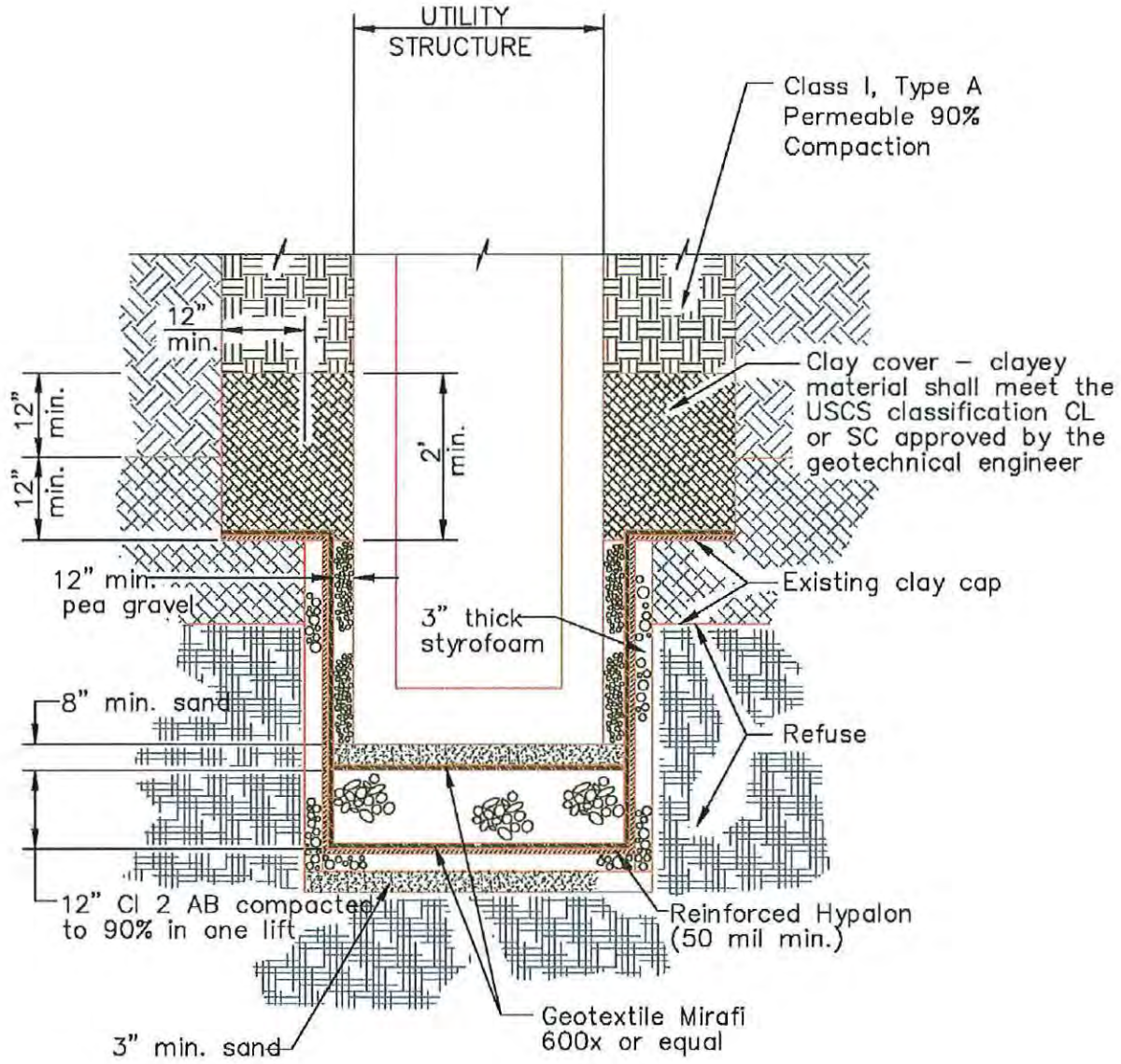

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UTILITY STRUCTURE PENETRATING CLAY CAP

Project No. 770611601	Figure No. 24
Date 6/30/2015	
Scale N.T.S.	
Drawn By STAFF / Checked By DJH	
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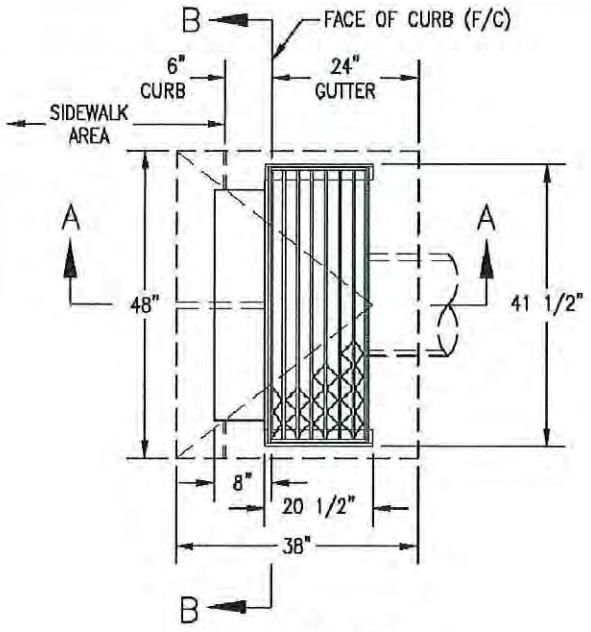
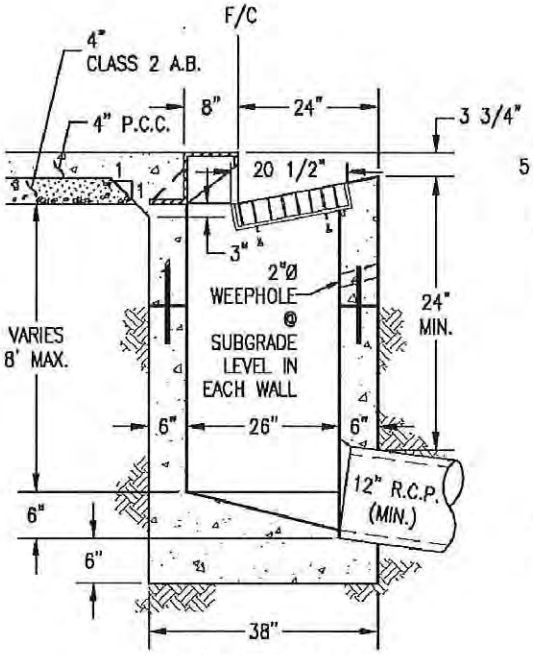


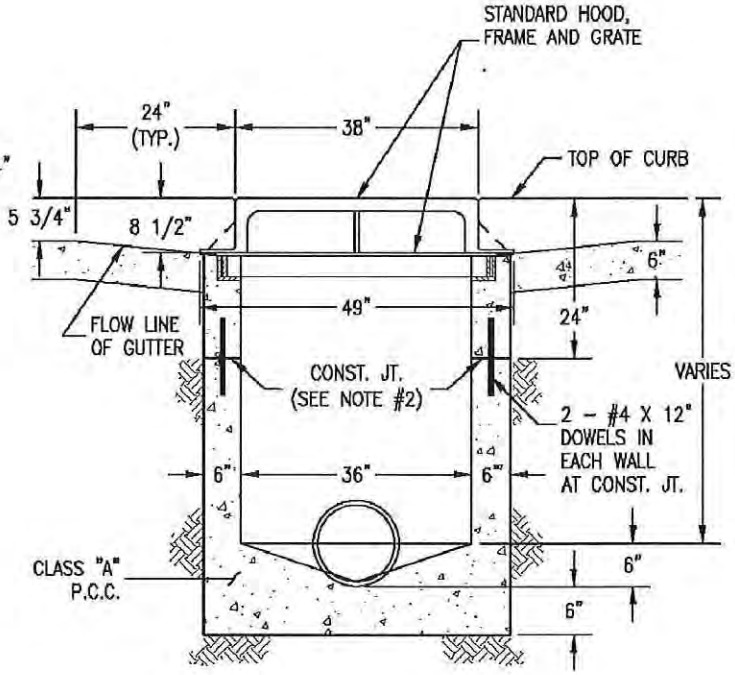
PLAN VIEW
NO SCALE

NOTES:

1. PRECAST CONCRETE CATCH BASIN (C.B.) MAY BE USED SUBJECT TO WRITTEN APPROVAL OF THE CITY ENGINEER.
2. C.B. WALLS MAY BE POURED TO AN ELEVATION NOT LESS THAN 2'-0" BELOW TOP OF CURB. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FRAME IN AND POUR THE UPPER 2'-0" OF THE C.B. MONOLITHICALLY WITH CURB AND GUTTER.
3. WHEN CURB AND SIDEWALK ARE NOT POURED MONOLITHICALLY, CONCRETE CURB POUR SHALL ALSO ENCASE SIDES AND BACK OF HOOD A MINIMUM OF 12" WIDE AND 12" DEEP. SAID ENCASEMENT SHALL BE POURED IN FORM TO PROVIDE STRAIGHT EDGES.



SECTION A–A
NO SCALE



SECTION B–B
NO SCALE

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STORM DRAIN
CURB INLET

Project No. 770611601	Figure No. 25
Date 6/30/2015	
Scale N.T.S.	
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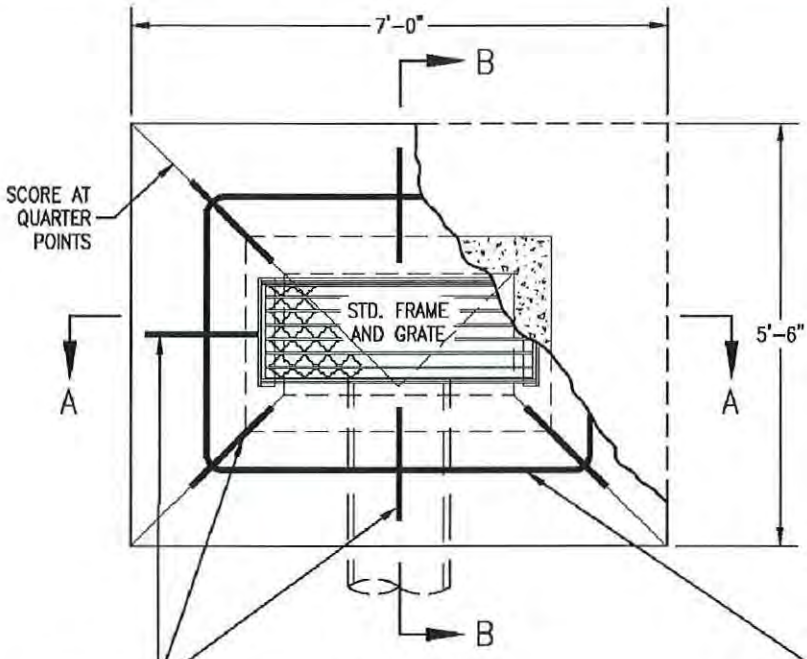
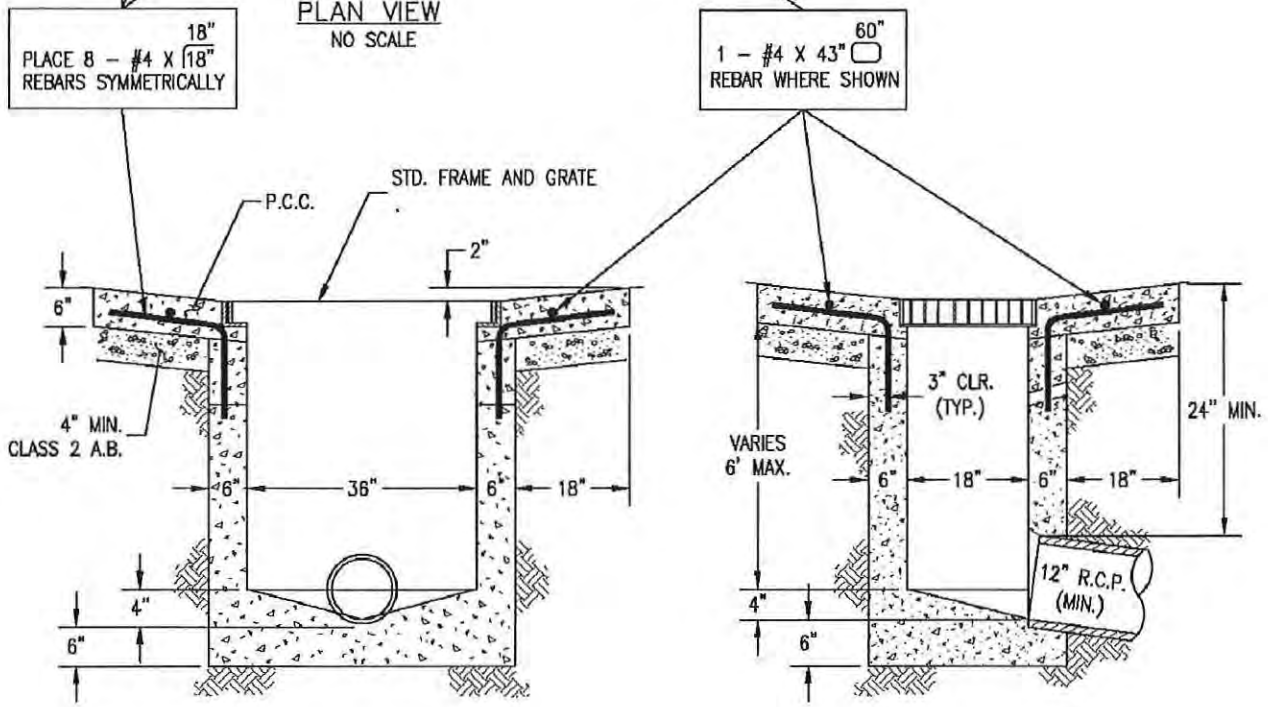


PLAN VIEW
NO SCALE

NOTES:

1. WHERE VALLEY GUTTER MEETS INLET APRON, SHAPE APRON TO CONFORM TO VALLEY GUTTER.
2. PRECAST INLETS MAY BE USED SUBJECT TO WRITTEN APPROVAL OF THE CITY ENGINEER.



SECTION A–A
NO SCALE

SECTION B–B
NO SCALE

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STORM DRAIN CATCH BASIN

Project No.	Figure No.
770611601	26
Date: 6/30/2015	
Scale: N.T.S.	
Drawn By: STAFF / Checked By: DJH	
Submission Date: 6/30/2015	

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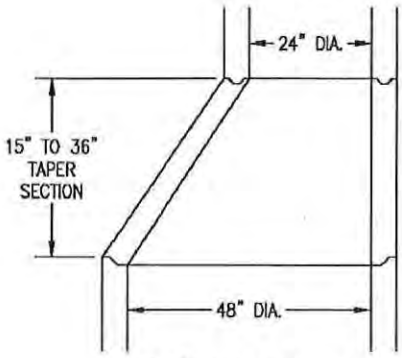
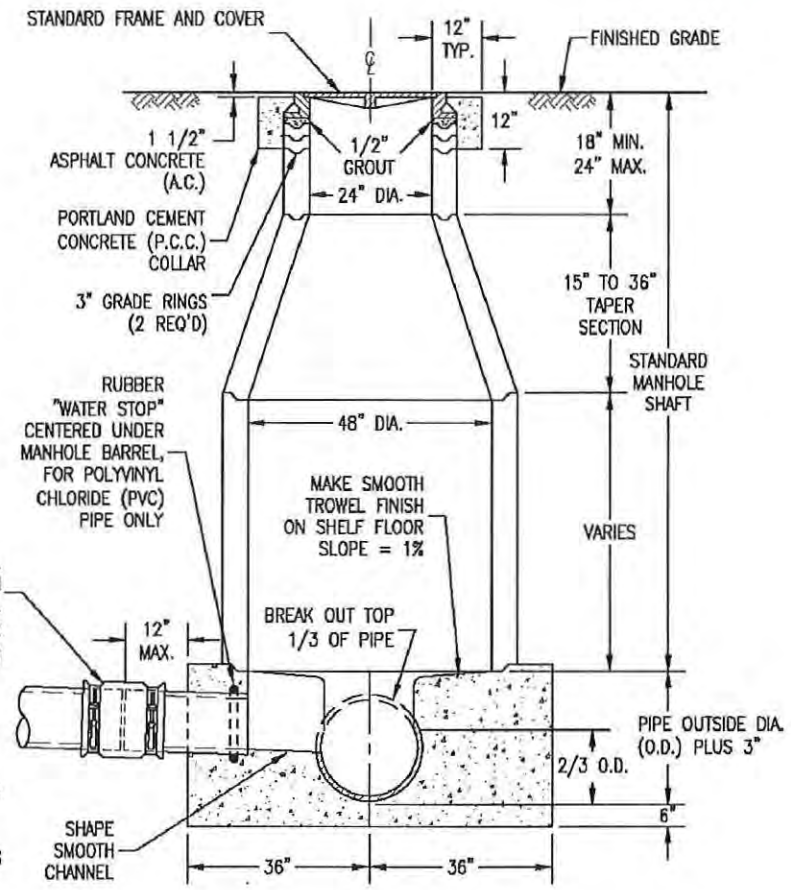


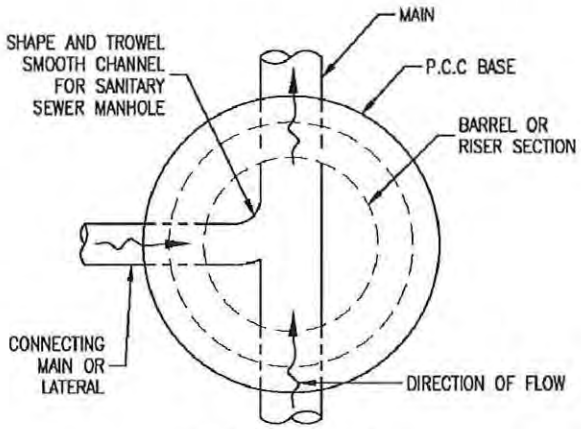
ECCENTRIC MANHOLE
(OPTION FOR STORM DRAIN MANHOLE ONLY)



CONCENTRIC MANHOLE – ELEVATION VIEW
NO SCALE

NOTES:

1. MANHOLE BASE SHALL BE POURED ON UNDISTURBED GROUND. IF OVER EXCAVATION OCCURS BELOW MANHOLE BASE, BACKFILL WITH CONCRETE. AN APPROVED 'IMPRESSION RING' MUST BE USED TO FORM KEYWAY FOR MANHOLE BARREL SECTION.
2. INTERSECTING LATERALS' AND MAINS' CROWNS SHALL MATCH.
3. ALL JOINTS SHALL BE SEALED WITH "RAMNEK" OR APPROVED EQUAL.
4. CENTER OF ECCENTRIC MANHOLE COVER SHALL BE LOCATED OVER THE CENTER OF THE MAIN ON THE UPSTREAM SIDE.
5. TYPE V PORTLAND CEMENT FOR SANITARY SEWER STRUCTURES AND TYPE II PORTLAND CEMENT FOR STORM DRAIN STRUCTURES.
6. BELL END OF PIPE SHALL BE 12" MAX. FROM WALL OF MANHOLE
7. THIS DESIGN IS USABLE FOR PIPES UP TO 39" DIA. ONLY.
8. ALL SANITARY SEWER MANHOLES SHOULD BE LINED WITH INTEGRALLY LOCKING PVC (T-LOCK) OR APPROVED EQUAL. GRADE RINGS SHALL BE PVC LINED VIA THE MANHOLE TOPPER BY AMERON OR APPROVED EQUAL.



BOTTOM VIEW
NO SCALE

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MANHOLE

Project No. 770611601	Figure No. 27
Date 6/30/2015	
Scale N.T.S.	
Drawn By STAFF / Checked By DJH	
Submission Date 6/30/2015	

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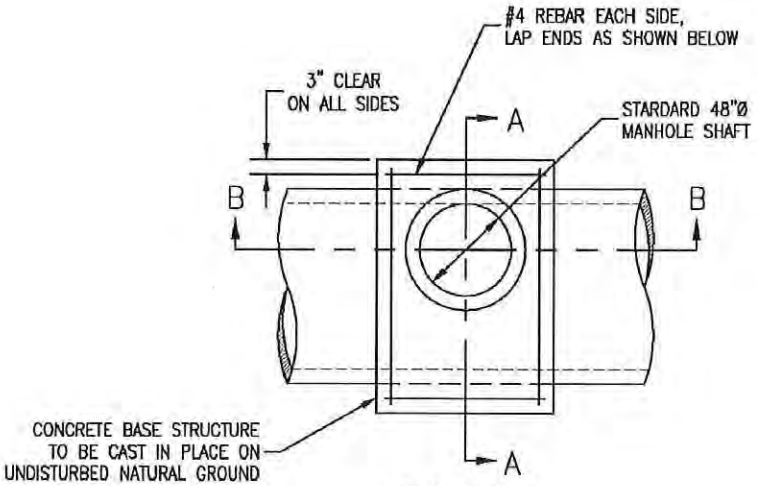
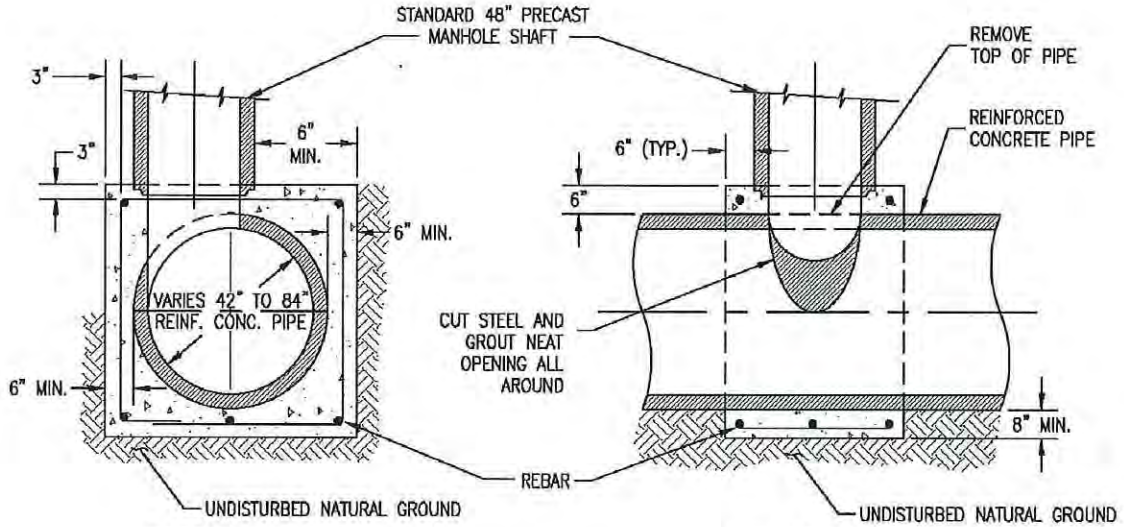


PLAN VIEW
NO SCALE



SECTION A–A
NO SCALE

SECTION B–B
NO SCALE

NOTES:

1. MANHOLE SHAFT SHALL BE CENTERED AT MID-LENGTH OF PIPE SECTION.
2. DETAIL NOT APPLICABLE WHERE PIPE DEFLECTION OCCURS AT MANHOLE. SPECIAL MANHOLE BASE DETAIL REQUIRED IF LOCATED AT PIPE JOINT.
3. ALL JOINTS SHALL BE SEALED WITH "RAMNEK" OR APPROVED EQUAL.
4. BACKFILL AROUND THE MANHOLE AND ANY NEW OR EXISTING PIPE CONNECTION(S).

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MANHOLE - TYPE A

Project No. 770611601	Figure No. 28
Date 6/30/2015	
Scale N.T.S.	
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Submission Date 6/30/2015	

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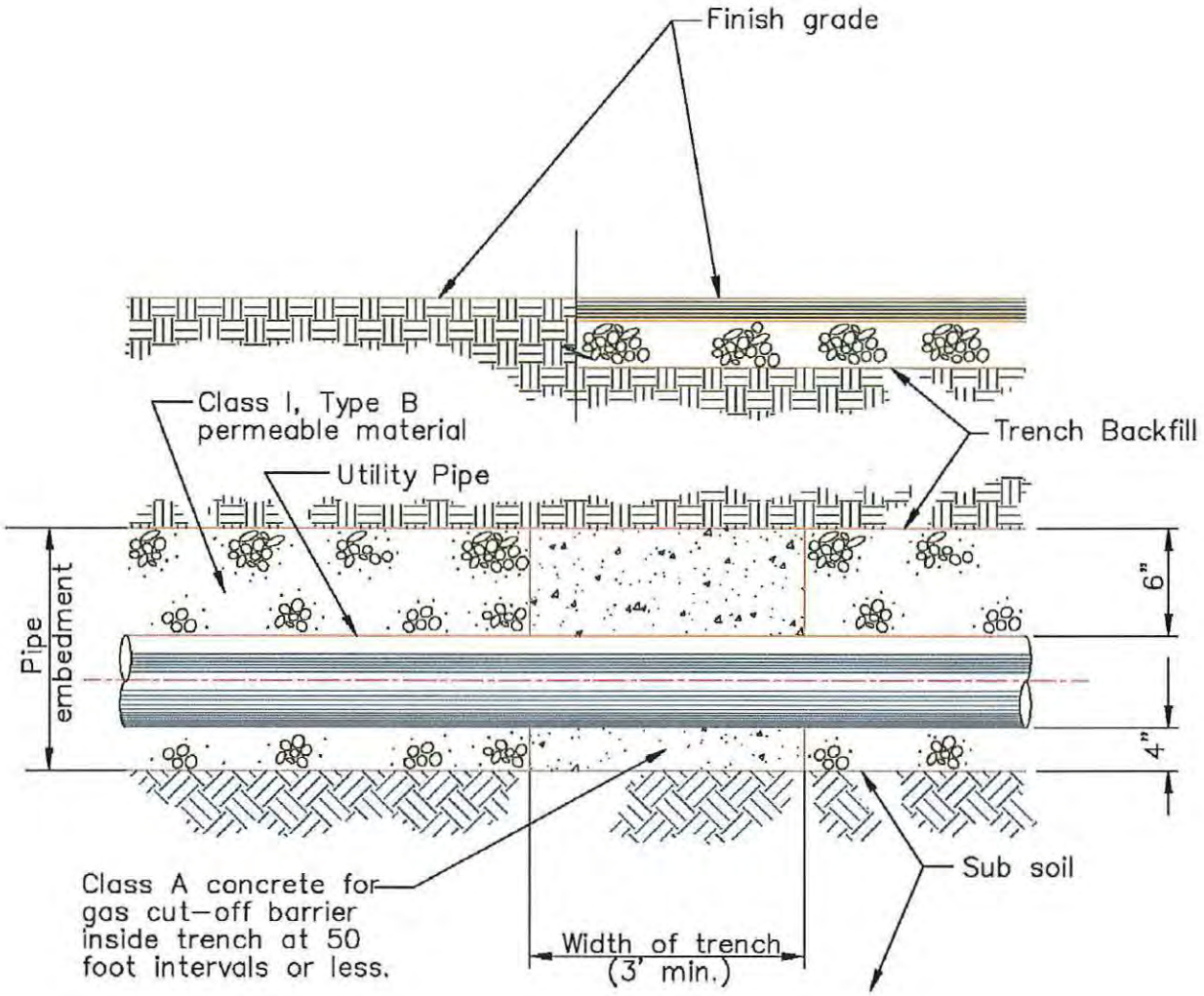

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METHANE GAS CUT-OFF BARRIER IN UTILITY TRENCH

Project No. 770611601	Figure No. 29
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Scale N.T.S.	
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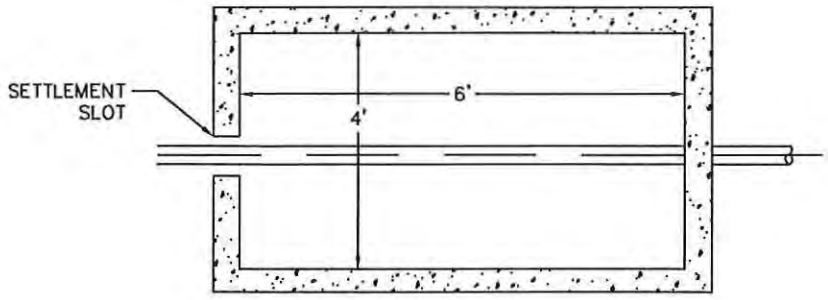

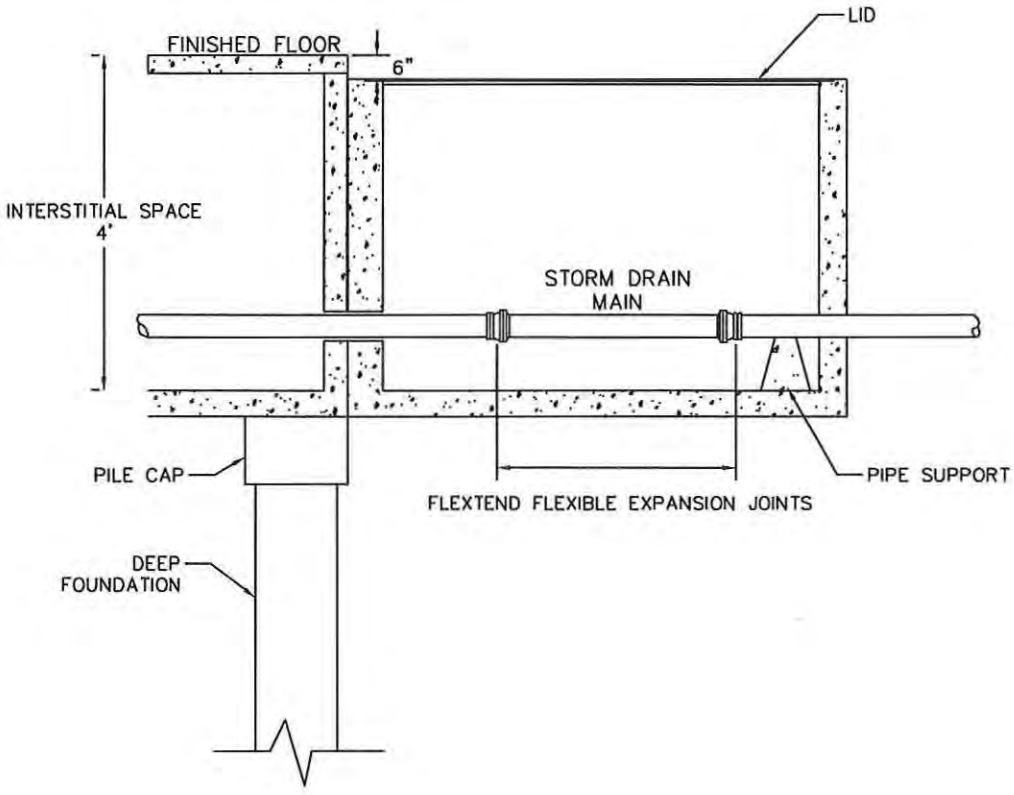

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SETTLEMENT VAULT-TYPE 1

Project No. 770611601	Figure No. 30
Date 6/30/2015	
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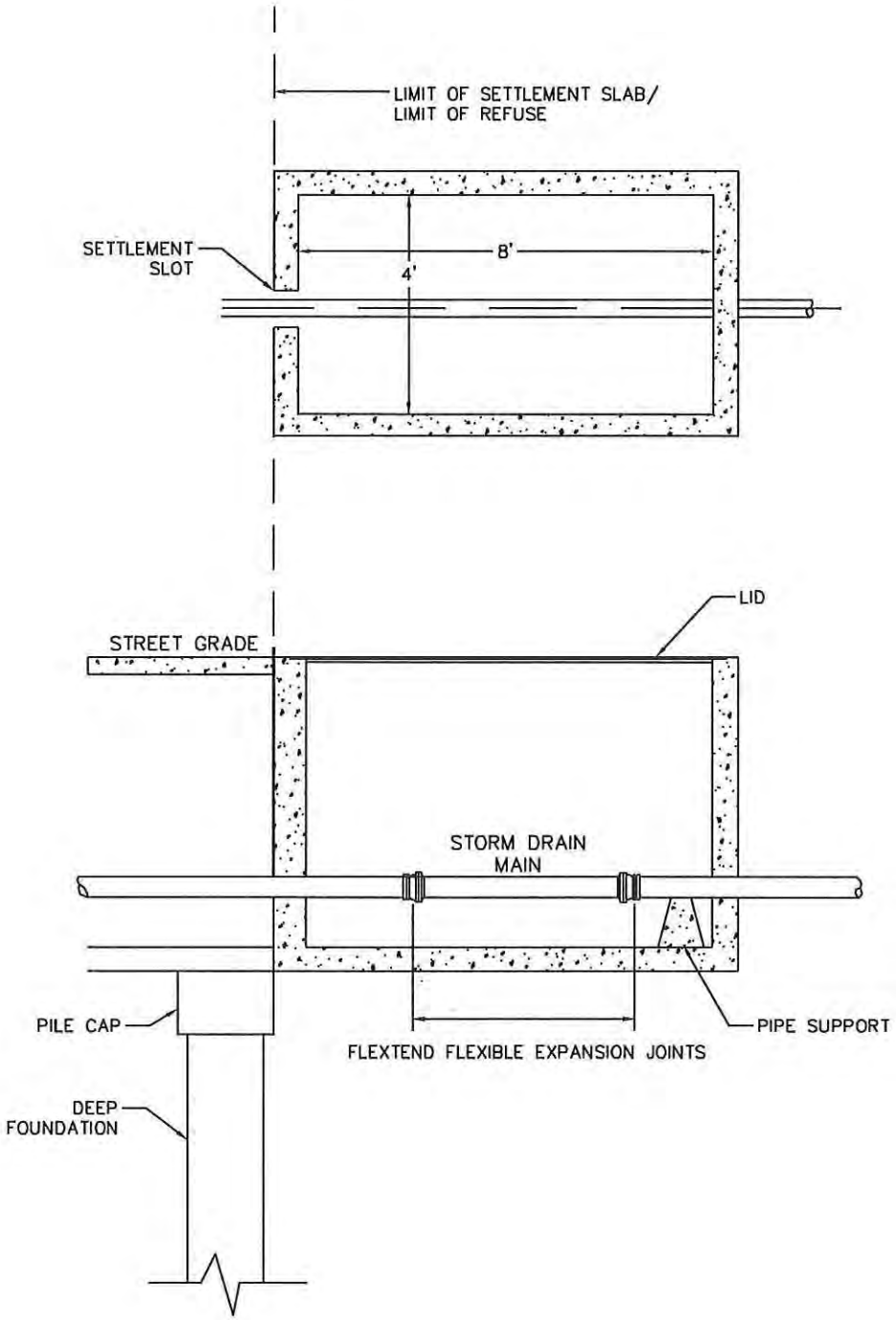

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SETTLEMENT VAULT-TYPE II

Project No. 770611601	Figure No. 31
Date 6/30/2015	
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CONTOUR INTERVAL

1' CONTOUR INTERVAL

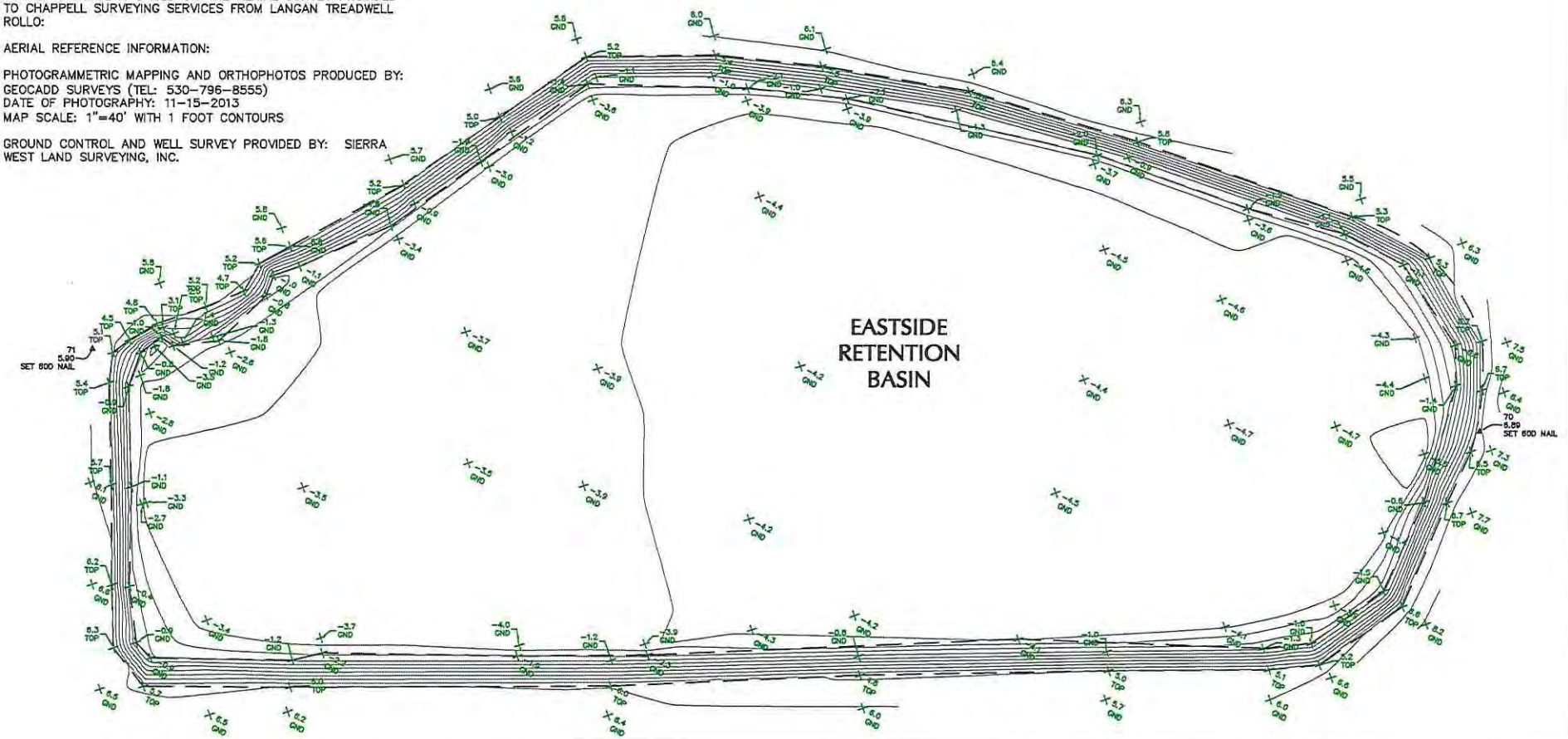
BASIS OF SURVEY CONTROL:

SURVEY CONTROL IS BASED ON THE AERIAL SURVEY PROVIDED TO CHAPPELL SURVEYING SERVICES FROM LANGAN TREADWELL ROLLO:

AERIAL REFERENCE INFORMATION:

PHOTOGRAMMETRIC MAPPING AND ORTHOPHOTOS PRODUCED BY:
GEOCADD SURVEYS (TEL: 530-796-8555)
DATE OF PHOTOGRAPHY: 11-15-2013
MAP SCALE: 1"=40' WITH 1 FOOT CONTOURS

GROUND CONTROL AND WELL SURVEY PROVIDED BY: SIERRA WEST LAND SURVEYING, INC.



ABBREVIATIONS:

GND GROUND ELEVATION
TOP TOP OF SLOPE

60 0 30 60
SCALE IN FEET

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EAST SIDE RETENTION BASIN BATHYMETRIC SURVEY

Project No.	770611601
Date	6/30/2015
Scale	1" = 60'
Drawn By	STAFF
Checked By	DJH
Submission Date	6/30/2015
Figure No.	33

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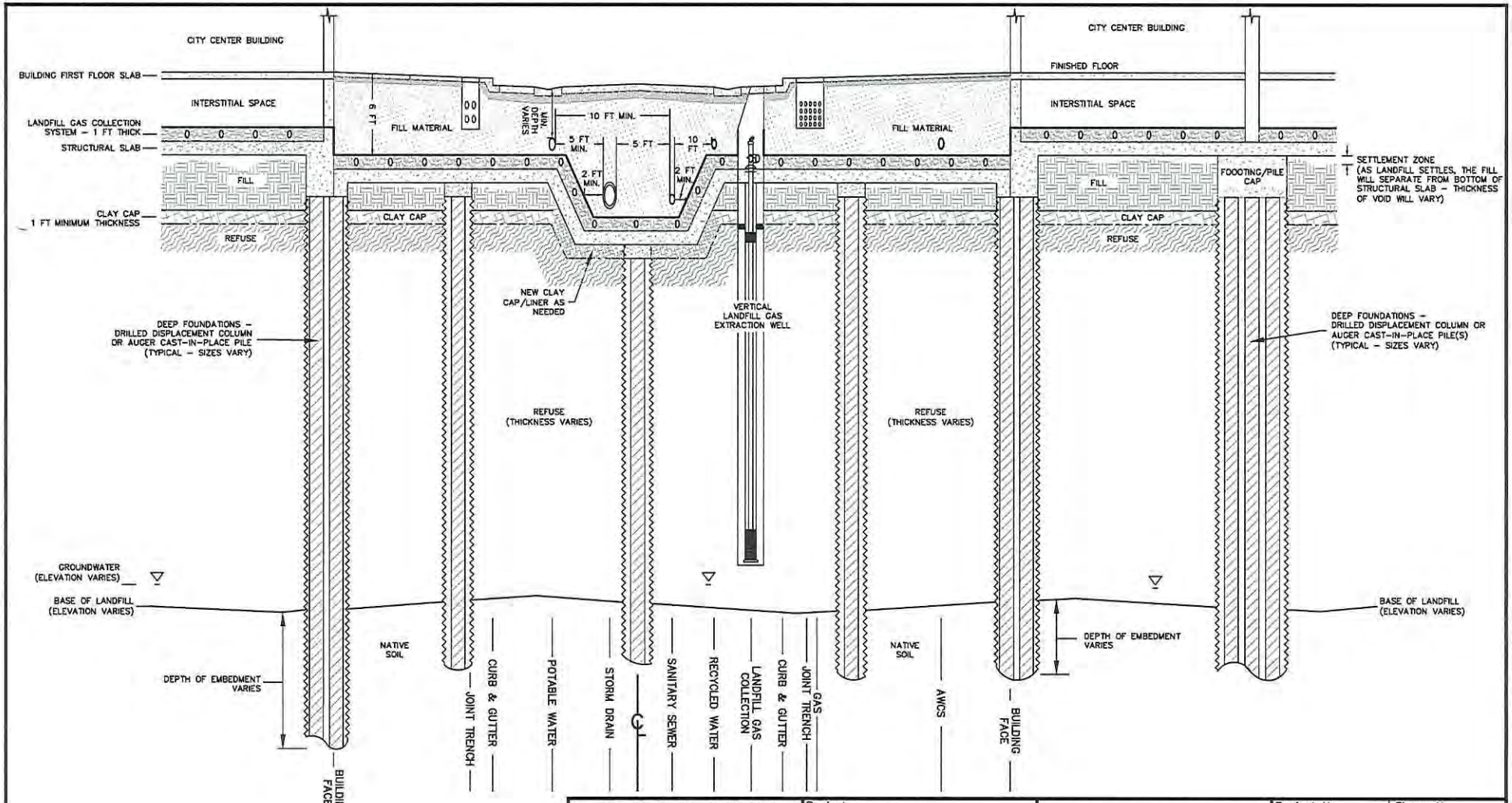

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TYPICAL STREET/ UTILITY SECTION ON STRUCTURAL SLAB

Project No. 770611601	Figure No. 32
Date 6/30/2015	
Scale N.T.S.	
Drawn By STAFF / Checked By DJH	
Submission Date 6/30/2015	

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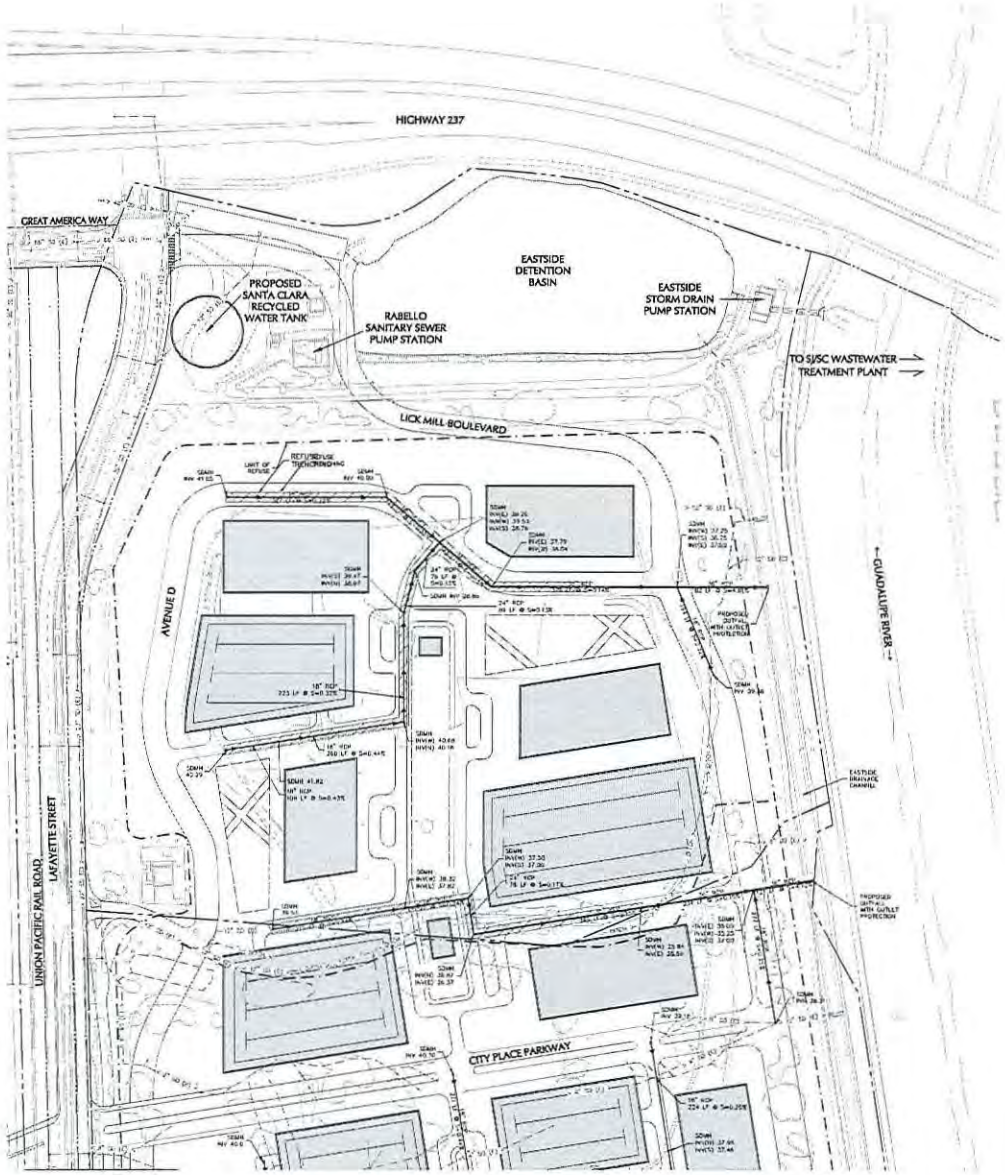
DRAWINGS



STORM DRAIN LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- LIMIT OF REFUSE
- STRUCTURAL SLAB
- REFUSE TRENCHING
- EXISTING MANHOLE
- PROPOSED MANHOLE
- SETTLEMENT VAULT TYPE I
- SETTLEMENT VAULT TYPE II
- DETAIL No. / SHEET No.

UTILITY NOTES

1. EXISTING UTILITY INFORMATION OBTAINED FROM CITY OF SANTA CLARA SYSTEM MAP. FIELD VERIFY PRIOR TO CONSTRUCTION.
2. APPROXIMATE ELEVATION OF TOP OF SLAB WAS USED TO SET INVERT ELEVATIONS.
3. HDPE PIPES COULD BE USED AS AN ALTERNATIVE TO RCP.

LIST OF DETAILS

- UTILITY TRENCH PENETRATING CLAY CAP
- UTILITY STRUCTURE PENETRATING CLAY CAP
- STORM DRAIN GRAVITY PIPES THROUGH TRANSITION ZONE
- STORM DRAIN CURB INLET
- STORM DRAIN CATCH BASIN
- MANHOLE
- MANHOLE – TYPE A
- METHANE GAS CUT-OFF BARRIER IN UTILITY TRENCH
- SETTLEMENT VAULT – TYPE I
- SETTLEMENT VAULT – TYPE II
- TYPICAL STREET/UTILITY SECTION ON SETTLEMENT SLAB

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.
REVISIONS		

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Figure Title
PARCEL 1
PRELIMINARY
STORM DRAIN
PLAN

Project No. 770611601	Figure CSD2.01
Date 3/20/2015	
Scale AS SHOWN	
Drawn By DM	Checked By DPH
Submission Date 3/20/2015	Sheet 1 of 4

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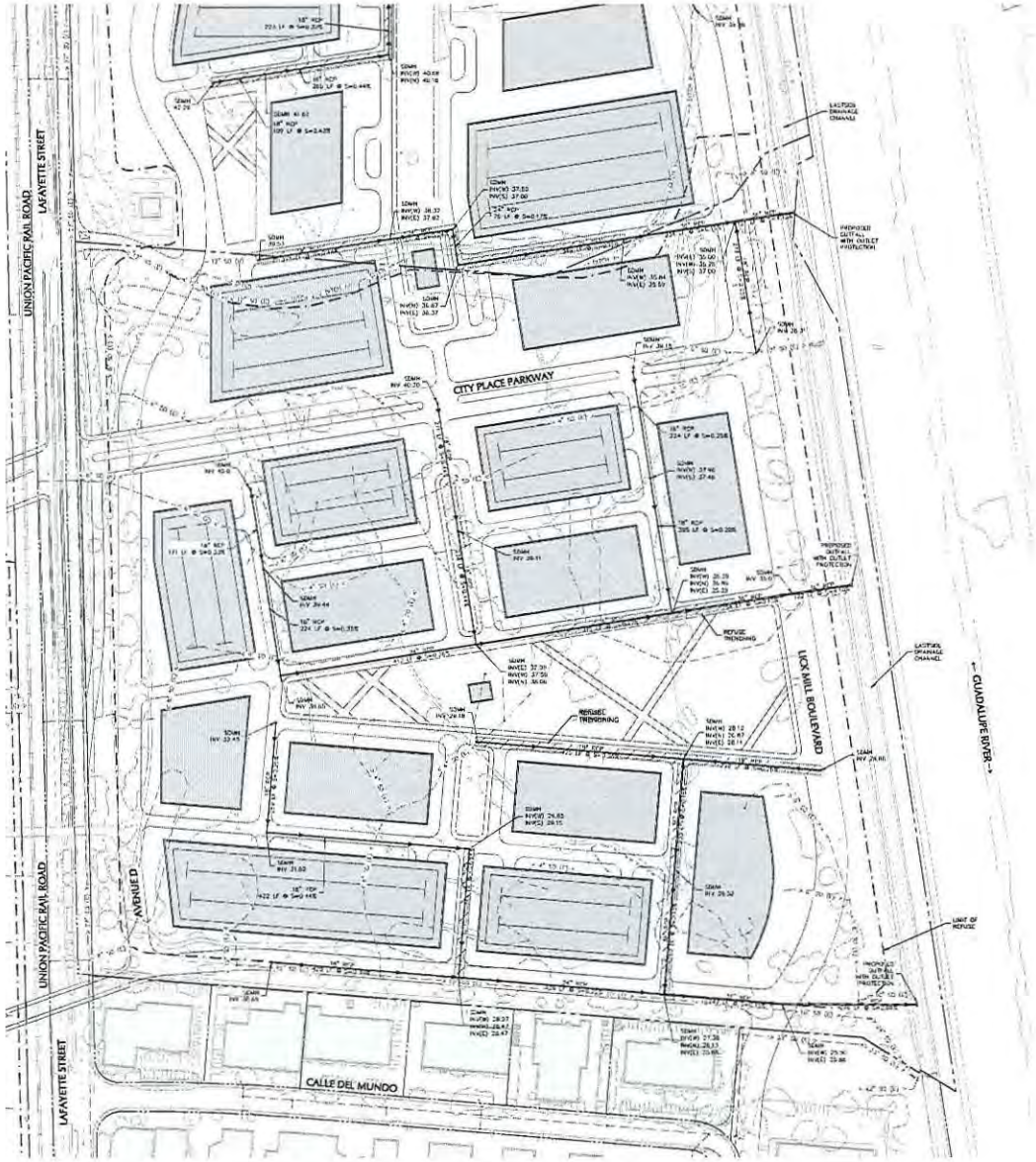
PROJECT No. 770611601



STORM DRAIN LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- LIMIT OF REFUSE
- STRUCTURAL SLAB
- REFUSE TRENCHING
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- PROPOSED MANHOLE
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- SETTLEMENT VAULT TYPE II
- DETAIL No. / SHEET No.

UTILITY NOTES

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LIST OF DETAILS

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- UTILITY STRUCTURE PENETRATING CLAY CAP
- STORM DRAIN GRAVITY PIPES THROUGH TRANSITION ZONE
- STORM DRAIN CURB INLET
- STORM DRAIN CATCH BASIN
- MANHOLE
- MANHOLE – TYPE A
- METHANE GAS CUT-OFF BARRIER IN UTILITY TRENCH
- SETTLEMENT VAULT – TYPE I
- SETTLEMENT VAULT – TYPE II
- TYPICAL STREET/UTILITY SECTION ON SETTLEMENT SLAB

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

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REVISIONS		

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Figure Title
PARCEL 2
PRELIMINARY
STORM DRAIN
PLAN

Project No. 770611601	Figure CSD2.02
Date 3/20/2015	
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Drawn By PM / Checked By DPH	
Submission Date 3/20/2015	Sheet 2 of 4

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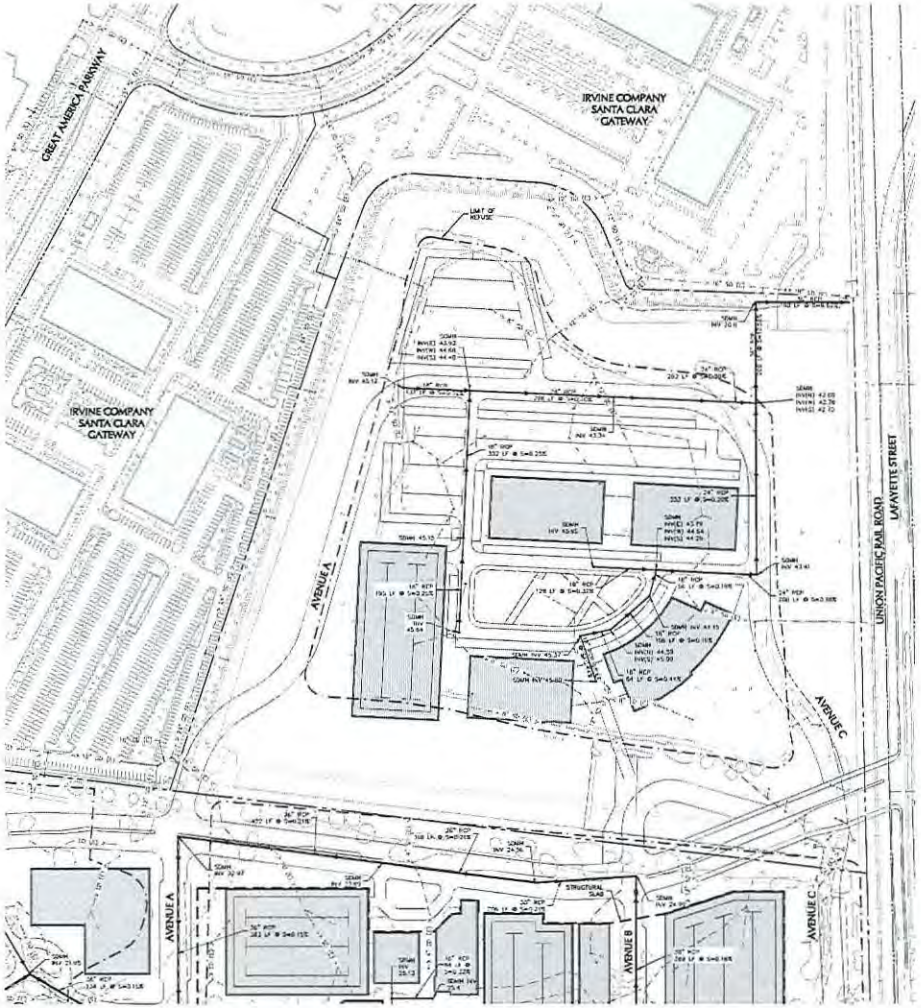
PROJECT No. 770611601



STORM DRAIN LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- LIMIT OF REFUSE
- STRUCTURAL SLAB
- REFUSE TRENCHING
- EXISTING MANHOLE
- PROPOSED MANHOLE
- SETTLEMENT VAULT TYPE I
- SETTLEMENT VAULT TYPE II
- DETAIL No. / SHEET No.

UTILITY NOTES

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2. APPROXIMATE ELEVATION OF TOP OF SLAB WAS USED TO SET INVERT ELEVATIONS.
3. HDPE PIPES COULD BE USED AS AN ALTERNATIVE TO RCP.

LIST OF DETAILS

- UTILITY TRENCH PENETRATING CLAY CAP
- UTILITY STRUCTURE PENETRATING CLAY CAP
- STORM DRAIN GRAVITY PIPES THROUGH TRANSITION ZONE
- STORM DRAIN CURB INLET
- STORM DRAIN CATCH BASIN
- MANHOLE – TYPE A
- METHANE GAS CUT-OFF BARRIER IN UTILITY TRENCH
- SETTLEMENT VAULT – TYPE I
- SETTLEMENT VAULT – TYPE II
- TYPICAL STREET/UTILITY SECTION ON SETTLEMENT SLAB

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Figure Title: PARCEL 3 PRELIMINARY STORM DRAIN PLAN

Project No. 770611601	Figure CSD2.03
Date 3/20/2015	
Scale AS SHOWN	
Drawn By JM / Checked By DJH	
Submission Date 3/20/2015	Sheet 3 of 4

SCALE IN FEET

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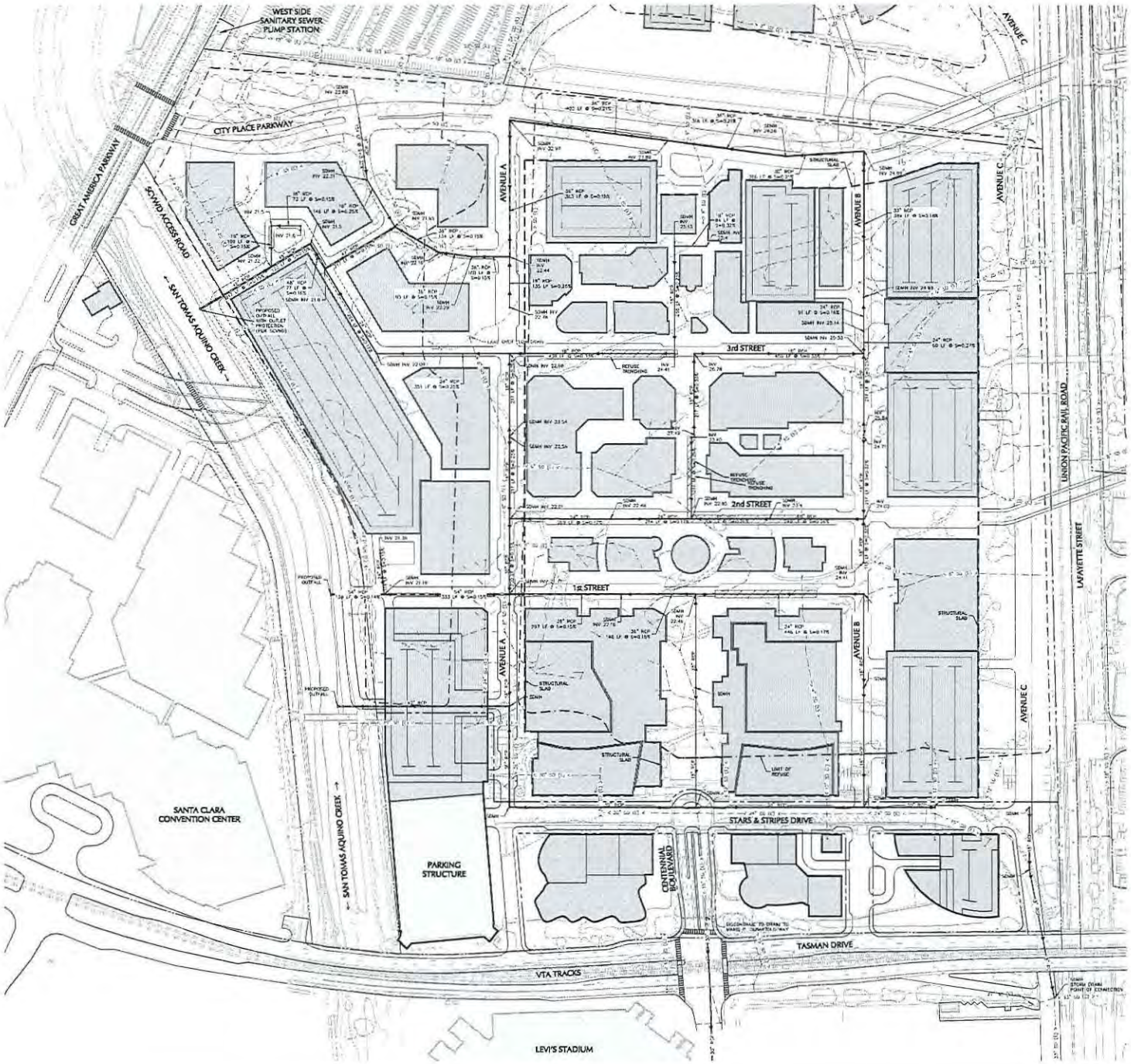
PROJECT No. 770611601



STORM DRAIN LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- LIMIT OF REFUSE
- STRUCTURAL SLAB
- REFUSE TRENCHING
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- PROPOSED MANHOLE
- SETTLEMENT VAULT TYPE I
- SETTLEMENT VAULT TYPE II
- DETAIL No. / SHEET No.

UTILITY NOTES

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2. APPROXIMATE ELEVATION OF TOP OF SLAB WAS USED TO SET INVERT ELEVATIONS.
3. HDPE PIPES COULD BE USED AS AN ALTERNATIVE TO RCP.

LIST OF DETAILS

- UTILITY TRENCH PENETRATING CLAY CAP
- UTILITY STRUCTURE PENETRATING CLAY CAP
- STORM DRAIN GRAVITY PIPES THROUGH TRANSITION ZONE
- STORM DRAIN CURB INLET
- STORM DRAIN CATCH BASIN
- MANHOLE
- MANHOLE – TYPE A
- METHANE GAS CUT-OFF BARRIER IN UTILITY TRENCH
- SETTLEMENT VAULT – TYPE I
- SETTLEMENT VAULT – TYPE II
- TYPICAL STREET/UTILITY SECTION ON SETTLEMENT SLAB

SCALE IN FEET

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.
REVISIONS		

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Figure Title
PARCEL 4 & 5
PRELIMINARY
STORM DRAIN
PLAN

Project No. 770611601	Figure CSD2.04
Date 3/10/2015	
Scale AS SHOWN	
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Submission Date 3/10/2015	Sheet 4 of 4

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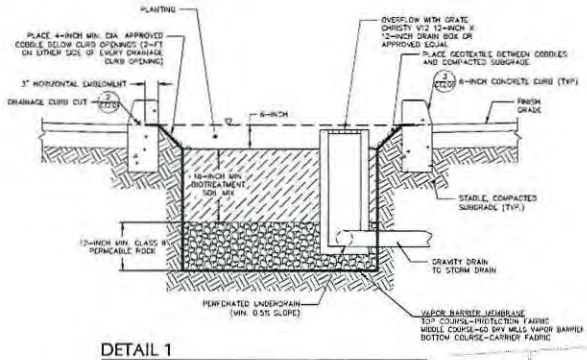
PROJECT No. 770611601



DETAIL 1
BIO-RETENTION/DETENTION SECTION
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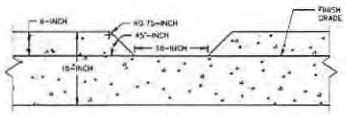
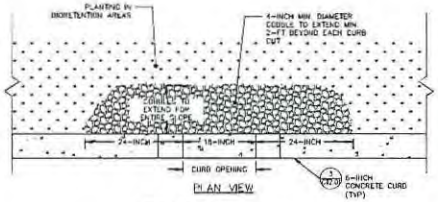
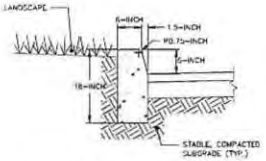


ELEVATION VIEW

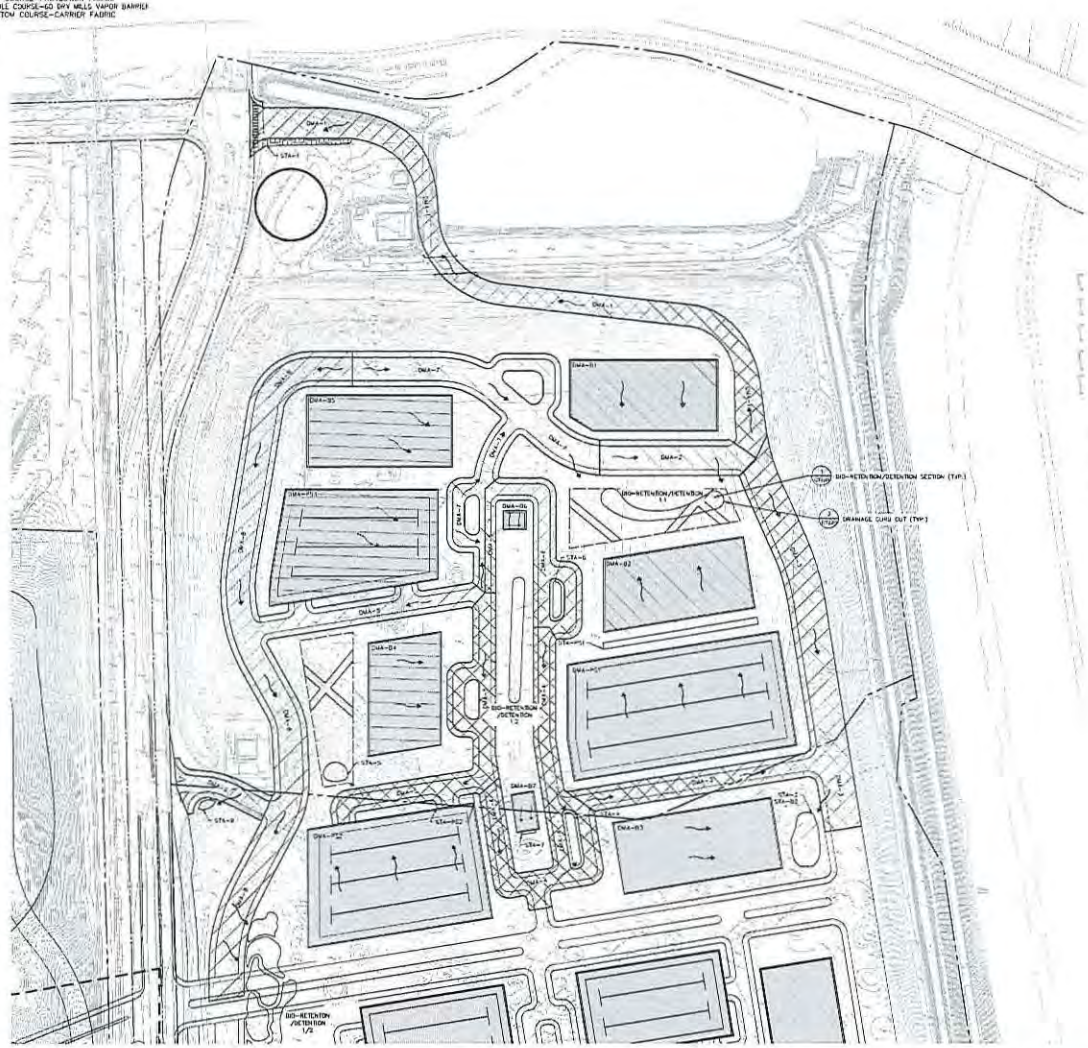


PLAN VIEW

DETAIL 2
DRAINAGE CURB CUT
NOT TO SCALE



DETAIL 3
6 INCH CONCRETE CURB
NOT TO SCALE



ABBREVIATIONS
DMA DRAINAGE MANAGEMENT AREA
STA STORMWATER TREATMENT AREA
B BUILDING
PS PARKING STRUCTURE

LEGEND
DMA = ROADWAY
STA
BUILDINGS
BIO-RETENTION/DETENTION 1/2 DMA
BIO-RETENTION/DETENTION 1/3 DMA
BIO-RETENTION/DETENTION 1.2 DMA
STORMWATER FLOW DIRECTION

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

No.	Description	Date
	REVISIONS	

LANGAN

Project
CITY PLACE SANTA CLARA
SANTA CLARA CALIFORNIA

Figure Title
PARCEL 1 PRELIMINARY STORMWATER MANAGEMENT

Project No.	770611601
Date	3/20/2015
Scale	AS SHOWN
Drawn By	NT
Checked By	DJH
Submission Date	3/20/2015
Figure	CT2.01
Sheet	1 of 4

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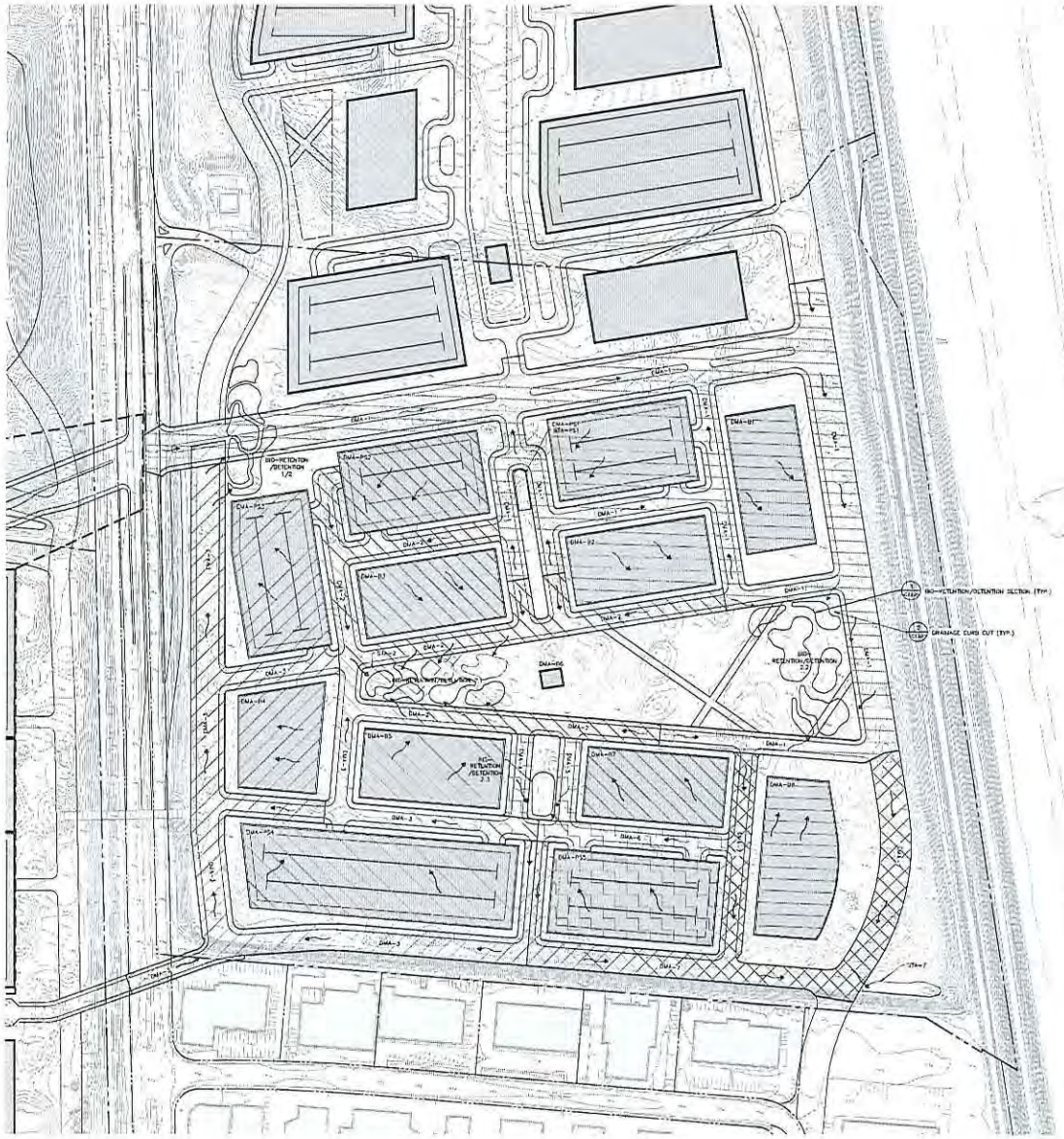
PROJECT No. 770611601



DRAINAGE MANAGEMENT AREAS - ROADWAY (PARCEL 2)

Drainage Management Area	DMA Area (sf)	Required Stormwater Treatment Area (sf)	Stormwater Treatment Area (sf)
DMA-1	74,343	7,434	8,356
DMA-2	16,442	1,644	1,644

DRAINAGE MANAGEMENT AREAS - PARKING STRUCTURE (PARCEL 2)

Drainage Management Area	DMA Area (sf)	Required Stormwater Treatment Area (sf)	Stormwater Treatment Area (sf)
DMA-4	11,882	1,188	1,188
DMA-5 (PS)	11,882	1,188	1,188

DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 1/2 (PARCEL 2)

Drainage Management Area	DMA Area (sf)	Required Stormwater Treatment Area (sf)	Stormwater Treatment Area (sf)
DMA-1	74,343	7,434	8,356
DMA-2	16,442	1,644	1,644
DMA-3 (PS)	11,882	1,188	1,188
DMA-4 (PS)	11,882	1,188	1,188
DMA-5 (PS)	11,882	1,188	1,188
DMA-6	1,277	128	128
DMA-7	4,192	419	419
TOTAL	132,900	13,290	14,110

DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 2.1 (PARCEL 2)

Drainage Management Area	DMA Area (sf)	Required Stormwater Treatment Area (sf)	Stormwater Treatment Area (sf)
DMA-1	74,343	7,434	8,356
DMA-2	16,442	1,644	1,644
DMA-3 (PS)	11,882	1,188	1,188
DMA-4 (PS)	11,882	1,188	1,188
DMA-5 (PS)	11,882	1,188	1,188
DMA-6	1,277	128	128
DMA-7	4,192	419	419
TOTAL	132,900	13,290	14,110

DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 2.2 (PARCEL 2)

Drainage Management Area	DMA Area (sf)	Required Stormwater Treatment Area (sf)	Stormwater Treatment Area (sf)
DMA-1	74,343	7,434	8,356
DMA-2	16,442	1,644	1,644
DMA-3 (PS)	11,882	1,188	1,188
DMA-4 (PS)	11,882	1,188	1,188
DMA-5 (PS)	11,882	1,188	1,188
DMA-6	1,277	128	128
DMA-7	4,192	419	419
TOTAL	132,900	13,290	14,110

DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 2.3 (PARCEL 2)

Drainage Management Area	DMA Area (sf)	Required Stormwater Treatment Area (sf)	Stormwater Treatment Area (sf)
DMA-1	74,343	7,434	8,356
DMA-2	16,442	1,644	1,644
DMA-3	11,882	1,188	1,188
DMA-4	11,882	1,188	1,188
DMA-5	11,882	1,188	1,188
DMA-6	1,277	128	128
DMA-7	4,192	419	419
TOTAL	132,900	13,290	14,110

ABBREVIATIONS

DMA	DRAINAGE MANAGEMENT AREA
STA	STORMWATER TREATMENT AREA
B	BUILDING
PS	PARKING STRUCTURE

LEGEND

- DMA – ROADWAY
- STA
- BUILDINGS
- BIO-RETENTION/DETENTION 1/2 DMA
- BIO-RETENTION/DETENTION 2.1 DMA
- BIO-RETENTION/DETENTION 2.2 DMA
- BIO-RETENTION/DETENTION 2.3 DMA
- STORMWATER FLOW DIRECTION

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.
REVISIONS		

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Project
CITY PLACE
SANTA CLARA
SANTA CLARA CALIFORNIA

Figure Title
PARCEL 2
PRELIMINARY
STORMWATER
MANAGEMENT

Project No. 770611601	Figure CT2.02
Date 3/20/2015	
Scale AS SHOWN	
Drawn By NT / Checked By DJH	
Submission Date 3/20/2015	Sheet 2 of 4

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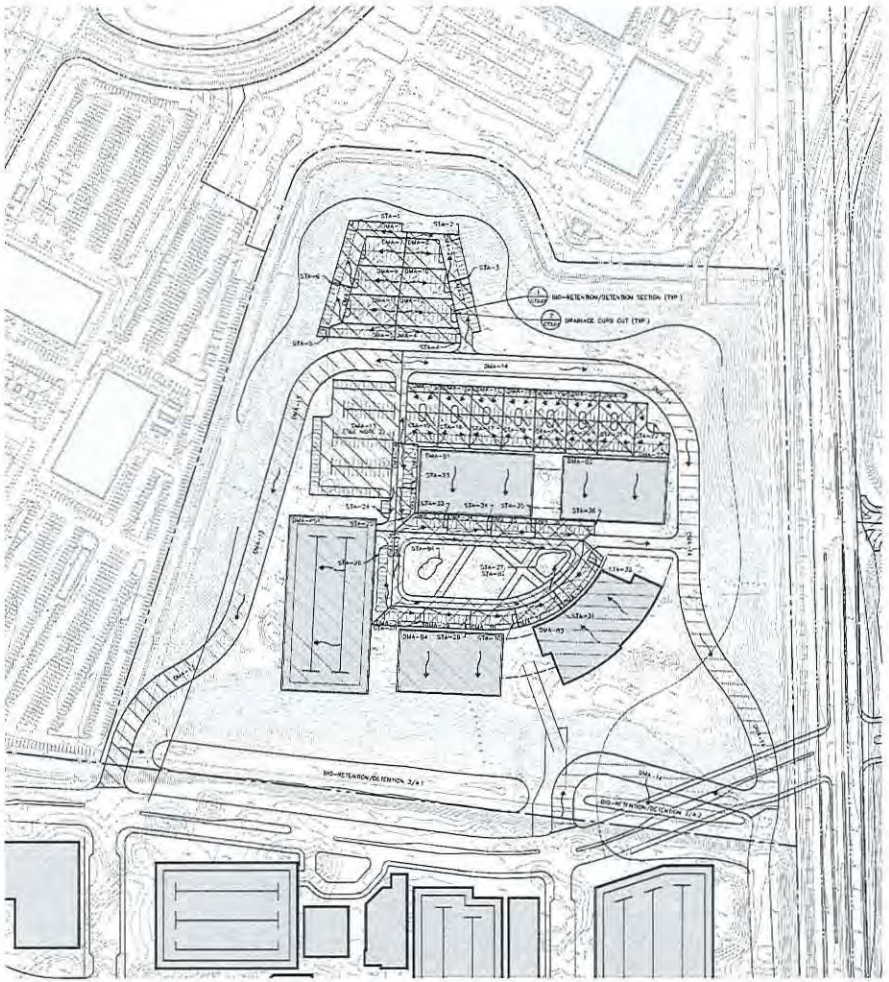
PROJECT No. 770611601



DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 3/4.1

PARCEL 3

Drainage Management Areas	DMA Area (sf)	Required Stormwater Treatment Area	Stormwater Treatment Area
DMA1-P	760	57(4%)	760
DMA1-1	17,907	716	17,907
DMA1-2	7,593	304	7,593
DMA1-3	11,852	474	11,852
DMA1-4	7,583	303	7,583
DMA1-5	9,407	376	9,407
DMA1-6	7,960	318	7,960
DMA1-7	17,965	719	17,965
DMA1-8	11,760	470	11,760
DMA1-9	7,961	319	7,961
DMA1-10	9,466	379	9,466
DMA1-11	8,731	349	8,731
DMA1-12	9,730	389	9,730
DMA1-13	8,560	342	8,560
DMA1-14	8,548	342	8,548
DMA1-15	8,548	342	8,548
DMA1-16	8,548	342	8,548
DMA1-17	7,778	311	7,778
DMA1-18	7,981	319	7,981
DMA1-19	11,615	465	11,615
DMA1-20	17,972	719	17,972
DMA1-21	11,760	470	11,760
DMA1-22	7,961	319	7,961
DMA1-23	9,466	379	9,466
DMA1-24	8,731	349	8,731
DMA1-25	9,730	389	9,730
DMA1-26	8,560	342	8,560
DMA1-27	7,809	312	7,809
DMA1-28	7,814	313	7,814
DMA1-29	7,814	313	7,814
DMA1-30	7,814	313	7,814
DMA1-31	7,814	313	7,814
DMA1-32	7,341	294	7,341
DMA1-33	7,814	313	7,814
DMA1-34	7,809	312	7,809
DMA1-35	7,961	319	7,961
DMA1-36	8,101	324	8,101

DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 3/4.2

PARCEL 3

Drainage Management Areas	DMA Area (sf)	Required Stormwater Treatment Area	Stormwater Treatment Area
DMA2-P	760	57(4%)	760
PARCEL 3			
ROADWAY			
DMA2-1	16,783	671	
PARKING STRUCTURE			
DMA2-P1	61,960	2,478	
BUILDING			
DMA2-B1	27,930	1,118	
SUBTOTAL		3,768	
PARCEL 4			
ROADWAY			
DMA2-2	103,945	4,158	47,591
PARKING STRUCTURE			
DMA2-P2	38,180	1,527	
DMA2-P3	84,660	3,386	
DMA2-P4	84,814	3,393	
BUILDING			
DMA2-B2	10,910	436	
DMA2-B3	13,177	527	
DMA2-B4	17,988	720	
DMA2-B5	17,988	720	
DMA2-B6	17,177	687	
DMA2-B7	4,808	192	
DMA2-B8	1,944	78	
DMA2-B9	48,296	1,932	
DMA2-B10	13,989	560	
DMA2-B11	13,989	560	
DMA2-B12	43,376	1,735	
DMA2-B13	42,474	699	
DMA2-B14	44,872	1,795	
DMA2-B15	30,764	831	
DMA2-B16	17,631	647	
DMA2-B17	5,114	67	
DMA2-B18	13,837	553	
DMA2-B19	16,798	672	
DMA2-B20	18,750	750	
DMA2-B21	17,297	692	
DMA2-B22	11,347	454	
DMA2-B23	10,965	439	
SUBTOTAL	717,995	28,720	
TOTAL		32,488	

DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 3/4.2

PARCEL 3 & 4

Drainage Management Areas	DMA Area (sf)	Required Stormwater Treatment Area	Stormwater Treatment Area
DMA2-P	760	57(4%)	760
PARCEL 3			
ROADWAY			
DMA2-1A	9,221.3	2,765	
BUILDING			
DMA2-B1	27,930	1,397	7,104
SUBTOTAL		4,162	
PARCEL 4			
ROADWAY			
DMA2-1	17,747	2,662	
SUBTOTAL		2,662	
TOTAL		6,824	

ABBREVIATIONS

DMA	DRAINAGE MANAGEMENT AREA
STA	STORMWATER TREATMENT AREA
B	BUILDING
PS	PARKING STRUCTURE

LEGEND

- DMA - ROADWAY
- STA
- BUILDINGS
- BIO-RETENTION/DETENTION 3/4.1 DMA
- BIO-RETENTION/DETENTION 3/4.2 DMA
- LIMIT OF BIO-RETENTION/DETENTION DMA
- STORMWATER FLOW DIRECTION

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.
REVISIONS		

LANGAN

Project
CITY PLACE
SANTA CLARA
SANTA CLARA CALIFORNIA

Figure Title
PARCEL 3
PRELIMINARY
STORMWATER
MANAGEMENT

Project No. 770611601
Date 3/20/2015
Scale AS SHOWN
Drawn By NT Checked By DJH
Submission Date 3/20/2015

Figure CT2.03

Sheet 3 of 4

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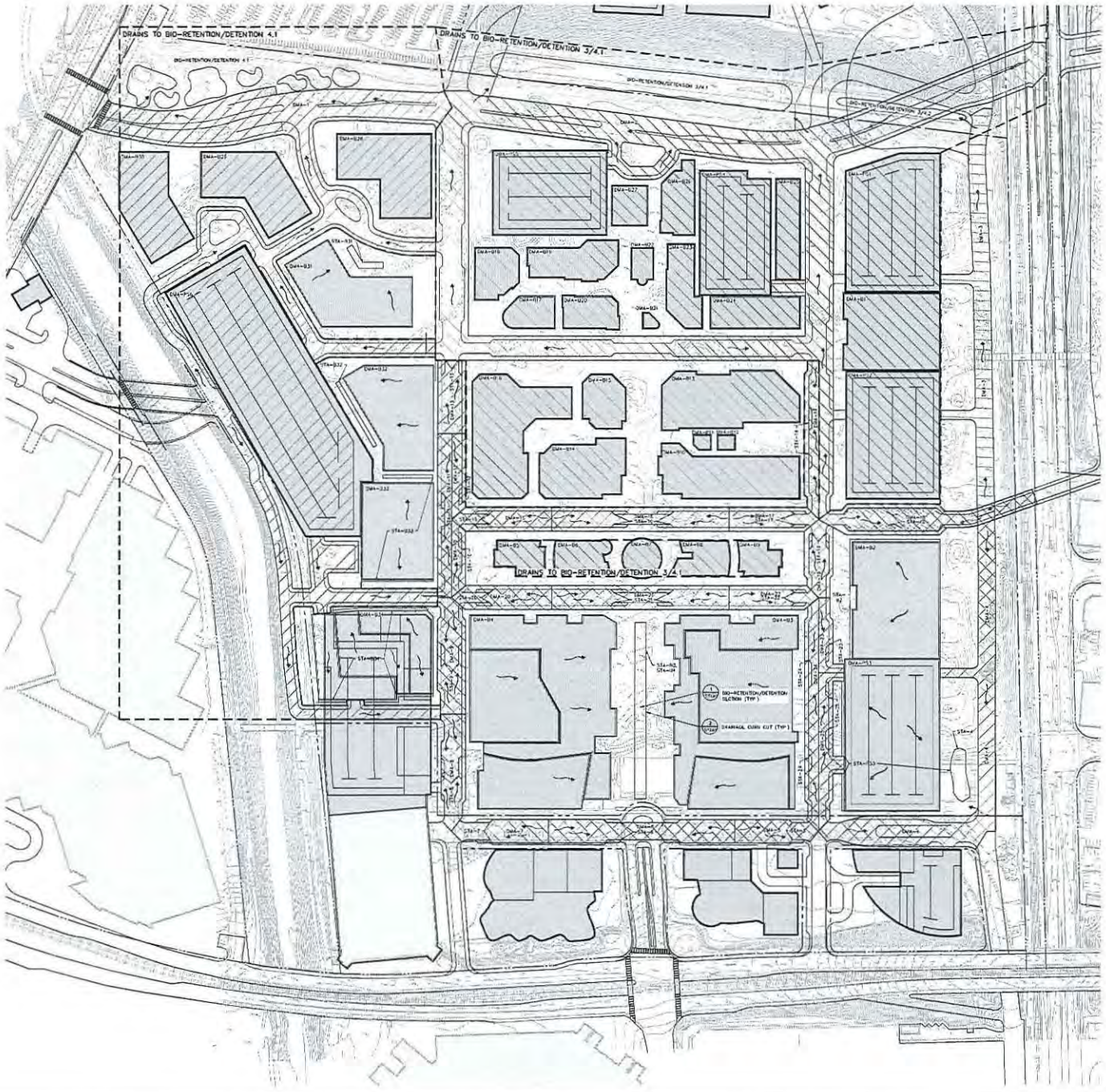
PROJECT No. 770611601



DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 4.1

Drainage Management Areas	DMA Area (SF)	Required Stormwater Treatment Area (SF)	Stormwater Treatment Area (SF)
DMA-1	47,400	1,896	STA-1 & 2 (W) 2,146
DMA-2	11,400	456	STA-3 (W) 1,117
DMA-3	19,410	1,164	STA-4 (W) 1,307
DMA-4	39,928	1,597	STA-5 (W) 1,802
DMA-5	36,292	651	STA-18 (W) 908
DMA-6	21,129	845	STA-19 (W) 854
DMA-7	5,941	238	STA-6 (W) 267
DMA-8	14,187	568	STA-7 (W) 637
DMA-9	14,187	568	STA-8 (W) 638
DMA-10	14,187	568	STA-9 (W) 638
DMA-11	14,187	568	STA-10 (W) 638
DMA-12	28,374	1,135	STA-11 (W) 1,275
DMA-13	28,374	1,135	STA-12 (W) 1,277
DMA-14	28,374	1,135	STA-13 (W) 1,277
DMA-15	27,177	1,087	STA-14 (W) 1,223
DMA-16	11,776	471	STA-15 (W) 530
DMA-17	12,439	498	STA-16 (W) 560
DMA-18	14,418	577	STA-17 (W) 649
DMA-19	39,828	1,593	STA-18 (W) 1,792
DMA-20	44,605	1,784	STA-19 (W) 2,007
DMA-21	44,948	2,475	STA-20 (E) 2,825
DMA-22	117,551	4,702	STA-21 (E) 5,291
DMA-23	174,113	6,965	STA-22 (E) 6,965
DMA-24	44,190	1,768	STA-23 (E) 1,988
DMA-25	46,758	1,870	STA-24 (E) 2,105
DMA-26	30,749	1,230	STA-25 (E) 1,384
DMA-27	47,187	1,887	STA-26 (E) 2,123

DRAINAGE MANAGEMENT AREAS - PARKING STRUCTURE

Drainage Management Areas	DMA Area (SF)	Required Stormwater Treatment Area (SF)	Stormwater Treatment Area (SF)
DMA-1.3	(SF)		STA-1 (SF)
DMA-1.4	No DMA	1,841	STA-24 (E) 1,947

DRAINAGE MANAGEMENT AREAS - BUILDING

Drainage Management Areas	DMA Area (SF)	Required Stormwater Treatment Area (SF)	Stormwater Treatment Area (SF)
DMA-1.2	(SF)		STA-1 (SF)
DMA-2.2	44,948	2,475	STA-20 (E) 2,825
DMA-3.2	117,551	4,702	STA-21 (E) 5,291
DMA-4.2	174,113	6,965	STA-22 (E) 6,965
DMA-5.2	44,190	1,768	STA-23 (E) 1,988
DMA-6.2	46,758	1,870	STA-24 (E) 2,105
DMA-7.2	30,749	1,230	STA-25 (E) 1,384
DMA-8.2	47,187	1,887	STA-26 (E) 2,123

DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 4.1

PARCEL 4

Drainage Management Areas	DMA Area (SF)	Required Stormwater Treatment Area (SF)	Stormwater Treatment Area (SF)
ROADWAYS			
DMA-1	212,473	57,151	
PARKING STRUCTURE			
DMA-1.3a	130,497	7,337	22,969
BUILDING			
DMA-1.1	57,960	9,996	
DMA-1.2	47,187	1,887	
DMA-1.4	30,749	1,841	
PARCEL 5			
TOTAL		73,048	

DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 3/4.1

PARCEL 4

Drainage Management Areas	DMA Area (SF)	Required Stormwater Treatment Area (SF)	Stormwater Treatment Area (SF)
DMA-1	47,400	1,896	STA-1 & 2 (W) 2,146
DMA-2	11,400	456	STA-3 (W) 1,117
DMA-3	19,410	1,164	STA-4 (W) 1,307
DMA-4	39,928	1,597	STA-5 (W) 1,802
DMA-5	36,292	651	STA-18 (W) 908
DMA-6	21,129	845	STA-19 (W) 854
DMA-7	5,941	238	STA-6 (W) 267
DMA-8	14,187	568	STA-7 (W) 637
DMA-9	14,187	568	STA-8 (W) 638
DMA-10	14,187	568	STA-9 (W) 638
DMA-11	14,187	568	STA-10 (W) 638
DMA-12	28,374	1,135	STA-11 (W) 1,275
DMA-13	28,374	1,135	STA-12 (W) 1,277
DMA-14	28,374	1,135	STA-13 (W) 1,277
DMA-15	27,177	1,087	STA-14 (W) 1,223
DMA-16	11,776	471	STA-15 (W) 530
DMA-17	12,439	498	STA-16 (W) 560
DMA-18	14,418	577	STA-17 (W) 649
DMA-19	39,828	1,593	STA-18 (W) 1,792
DMA-20	44,605	1,784	STA-19 (W) 2,007
DMA-21	44,948	2,475	STA-20 (E) 2,825
DMA-22	117,551	4,702	STA-21 (E) 5,291
DMA-23	174,113	6,965	STA-22 (E) 6,965
DMA-24	44,190	1,768	STA-23 (E) 1,988
DMA-25	46,758	1,870	STA-24 (E) 2,105
DMA-26	30,749	1,230	STA-25 (E) 1,384
DMA-27	47,187	1,887	STA-26 (E) 2,123

DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 3/4.2

PARCEL 5

Drainage Management Areas	DMA Area (SF)	Required Stormwater Treatment Area (SF)	Stormwater Treatment Area (SF)
DMA-1.4			
PARCEL 4			
ROADWAYS			
DMA-1.2	167,551	7,498	
PARKING STRUCTURE			
DMA-1.3a	130,497	7,337	
BUILDING			
DMA-1.1	57,960	9,996	
DMA-1.3b	47,187	1,887	
DMA-1.4	30,749	1,841	
PARCEL 5			
TOTAL		28,559	

DRAINAGE MANAGEMENT AREAS - BIO-RETENTION/DETENTION 3/4.2

PARCEL 4 & 5

Drainage Management Areas	DMA Area (SF)	Required Stormwater Treatment Area (SF)	Stormwater Treatment Area (SF)
DMA-1.4			
PARCEL 5			
ROADWAYS			
DMA-1.2	167,551	7,498	
BUILDING			
DMA-1.1	57,960	9,996	
DMA-1.3b	47,187	1,887	
DMA-1.4	30,749	1,841	
DETENTION			
DMA-1.3	130,497	7,337	
TOTAL		28,559	

ABBREVIATIONS

DMA DRAINAGE MANAGEMENT AREA
STA STORMWATER TREATMENT AREA
B BUILDING
PS PARKING STRUCTURE

LEGEND

- DMA - ROADWAY
- STA
- BUILDINGS
- BIO-RETENTION/DETENTION 4.1 DMA
- BIO-RETENTION/DETENTION 3/4.1 DMA
- BIO-RETENTION/DETENTION 3/4.2 DMA
- LIMIT OF BIO-RETENTION/DETENTION DMA
- STORMWATER FLOW DIRECTION

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.
REVISIONS		

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Project
CITY PLACE
SANTA CLARA
SANTA CLARA CALIFORNIA

Figure Title
PARCEL 4 & 5
PRELIMINARY
STORMWATER
MANAGEMENT

Project No. 770611601
Date 3/20/2015
Scale AS SHOWN
Drawn By NT
Checked By DPH
Submission Date 3/20/2015
Figure CT2.04
Sheet 4 of 4

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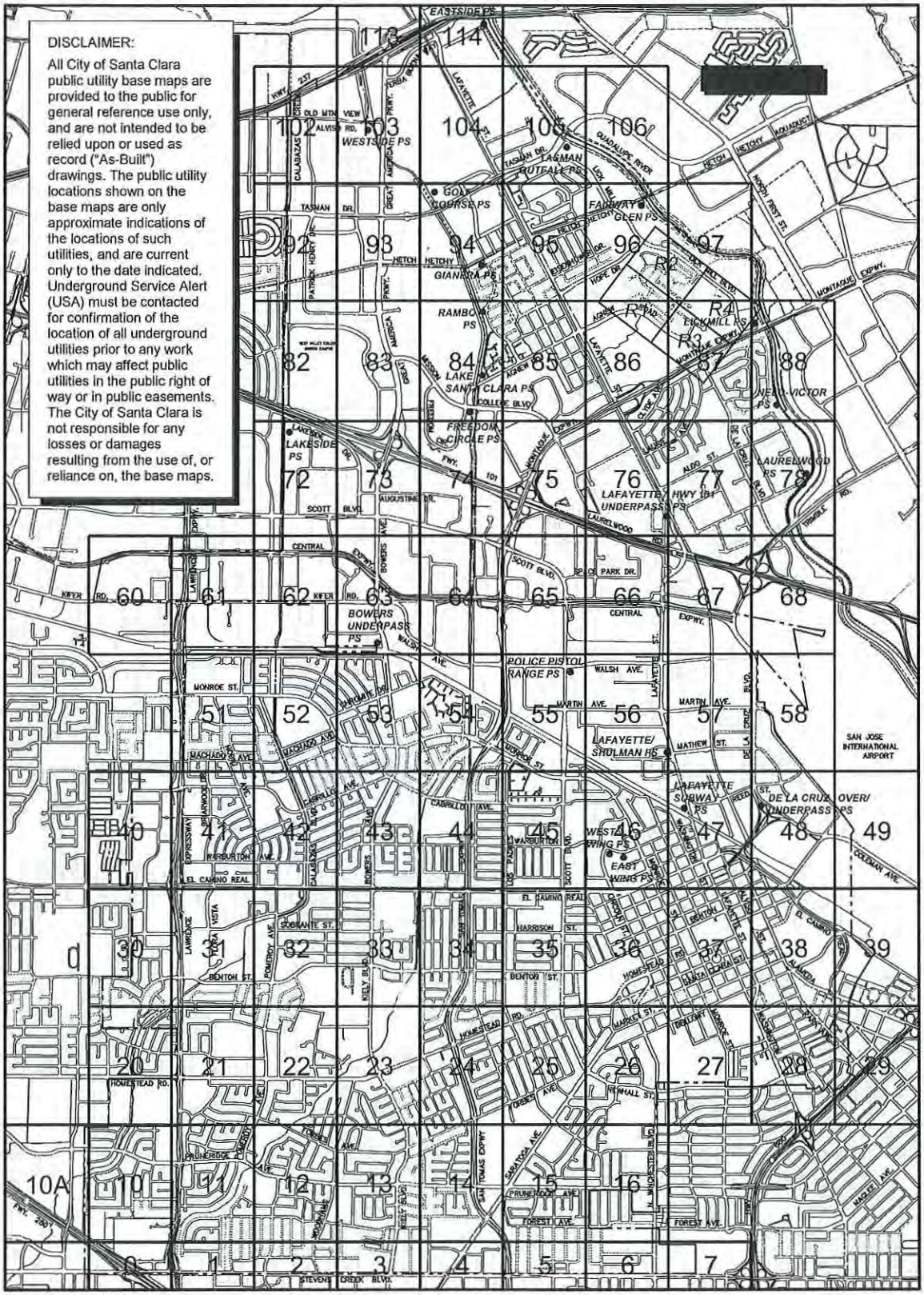
PROJECT No. 770611601

APPENDIX A

City of Santa Clara Storm Drain System Index and Basic Information Maps

CITY OF SANTA CLARA STORM DRAIN SYSTEM - INDEX MAP



STORM DRAIN LEGEND:

———	Storm Drain Lines	—○—	Manhole (MH)		Storm Drain Pump Station
——→	Direction of Flow	△	Catch Basin (CB)	RCP	Reinforced Concrete Pipe *Default unless otherwise specified.
– – – – –	Other Storm Drain Lines belonging to county, private, or other cities	⊘	Catch Basin over Manhole	CIP	Cast Iron Pipe
21–350	Pipe dimension: 1st element is size of pipe in inches; 2nd element is distance between structures in feet.	7	Manhole ID Number	DIP	Ductile Iron Pipe
		△FD	French Drain	ACP	Asbestos Cement Pipe
9,587D–86	Drawing Designation: 1st element is drawing/tracing no.; 2nd element is the year construction was completed.	FG	Flap Gate	APC	Alternative Pipe Culvert
		□	Drop Inlet	CMP	Corrugated Metal Pipe
EL. 23.4 / 6.5	Elevation in feet of MH Rim or CB Grate. Depth in feet, from MH Rim or CB Grate to Invert of pipe. *Elevations are based upon 1977 City of Santa Clara Datum.	□CO	Clean Out Box	V.55.25	Valley Gutter Elevation

CITY OF SANTA CLARA BASIC INFORMATION MAP	100 50 0 100 200 300 400 500 FT.	DRAWN BY	LAST REVISED DATE	TOTAL NO.	MAP NO.
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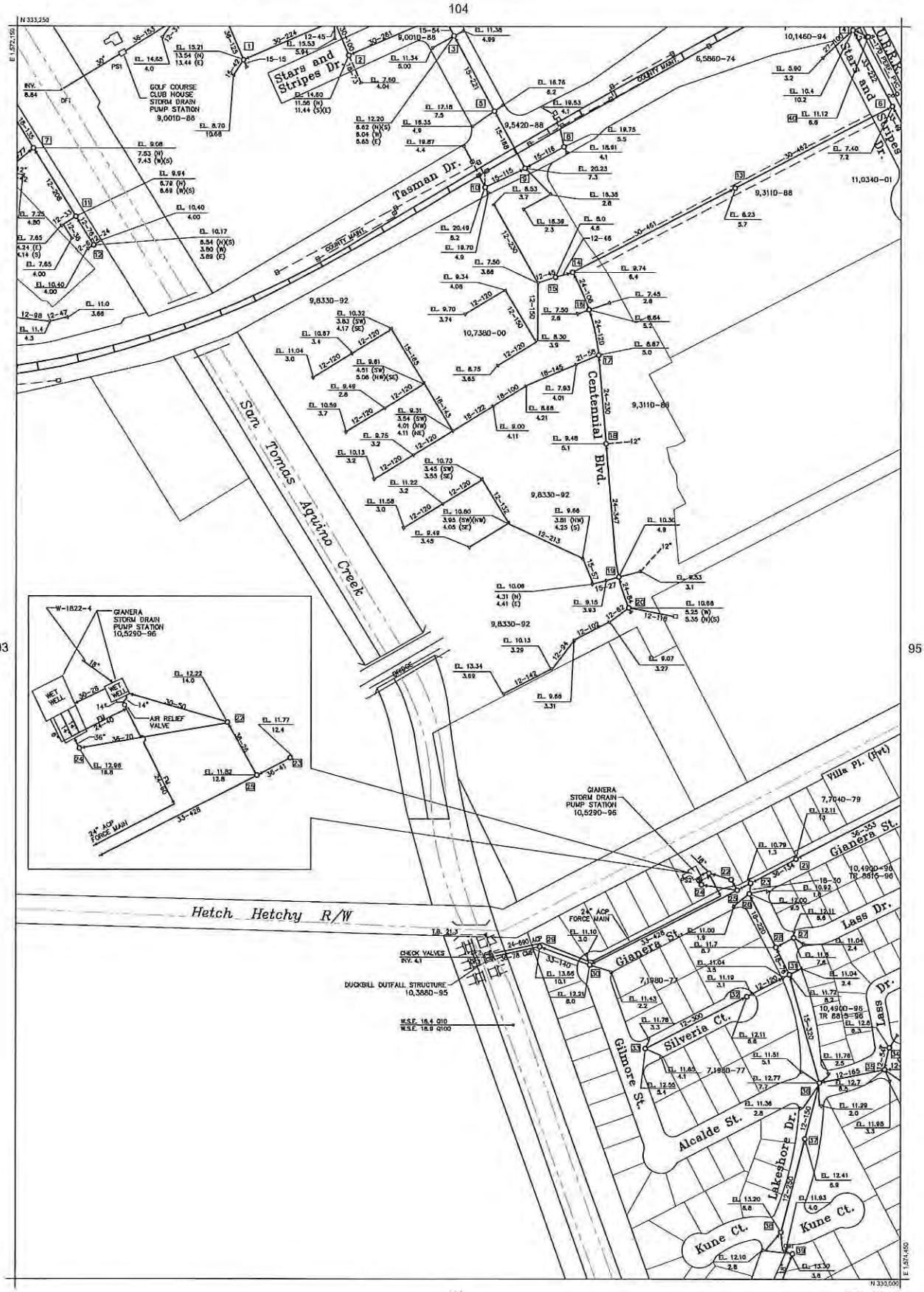

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CITY OF SANTA CLARA BASIC INFORMATION MAP	100 50 0 100 200 300 400 500 FT.	DRAWN BY	LAST REVISED DATE	TOTAL MH	MAP NO.
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105



D 95

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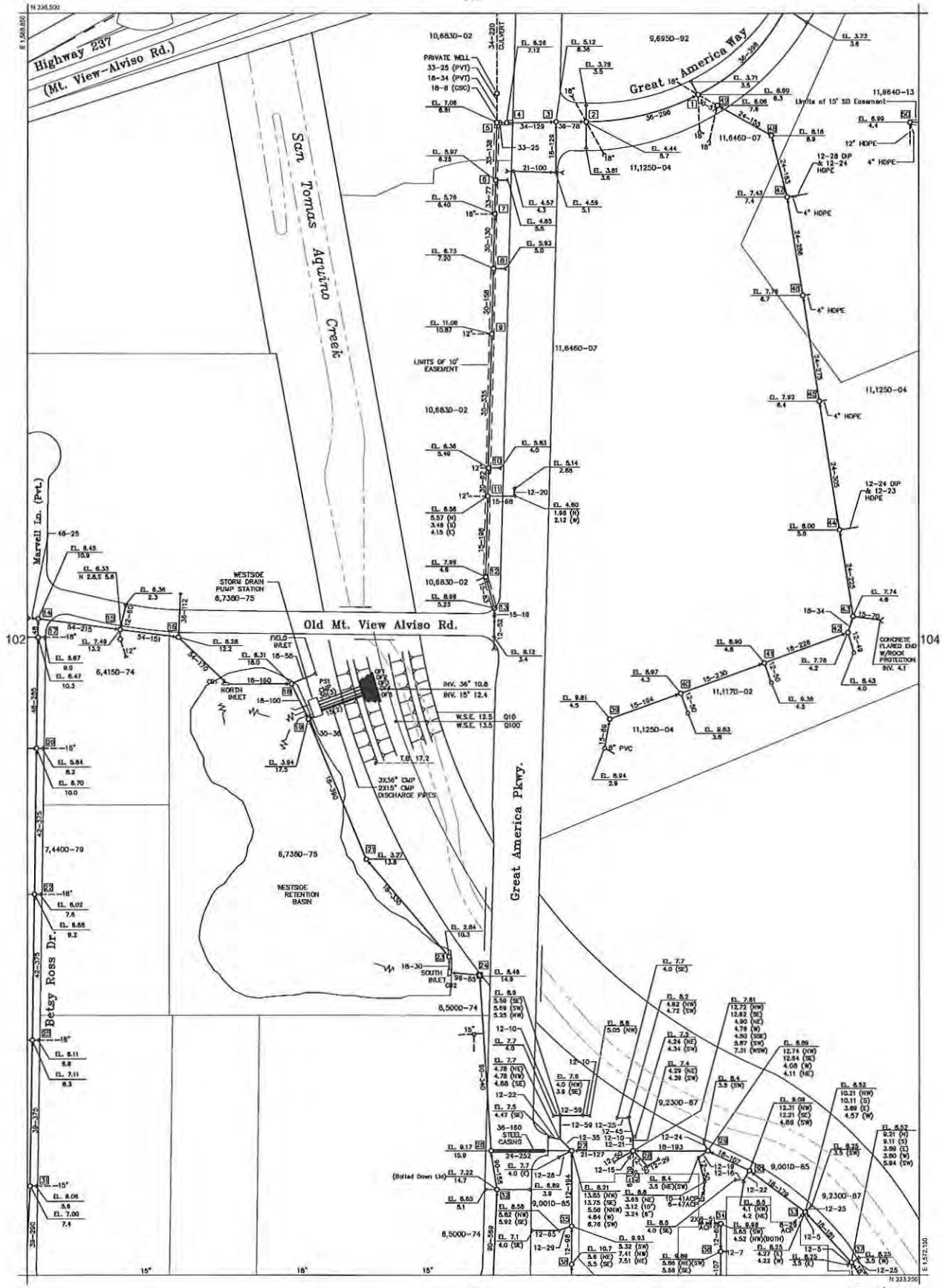

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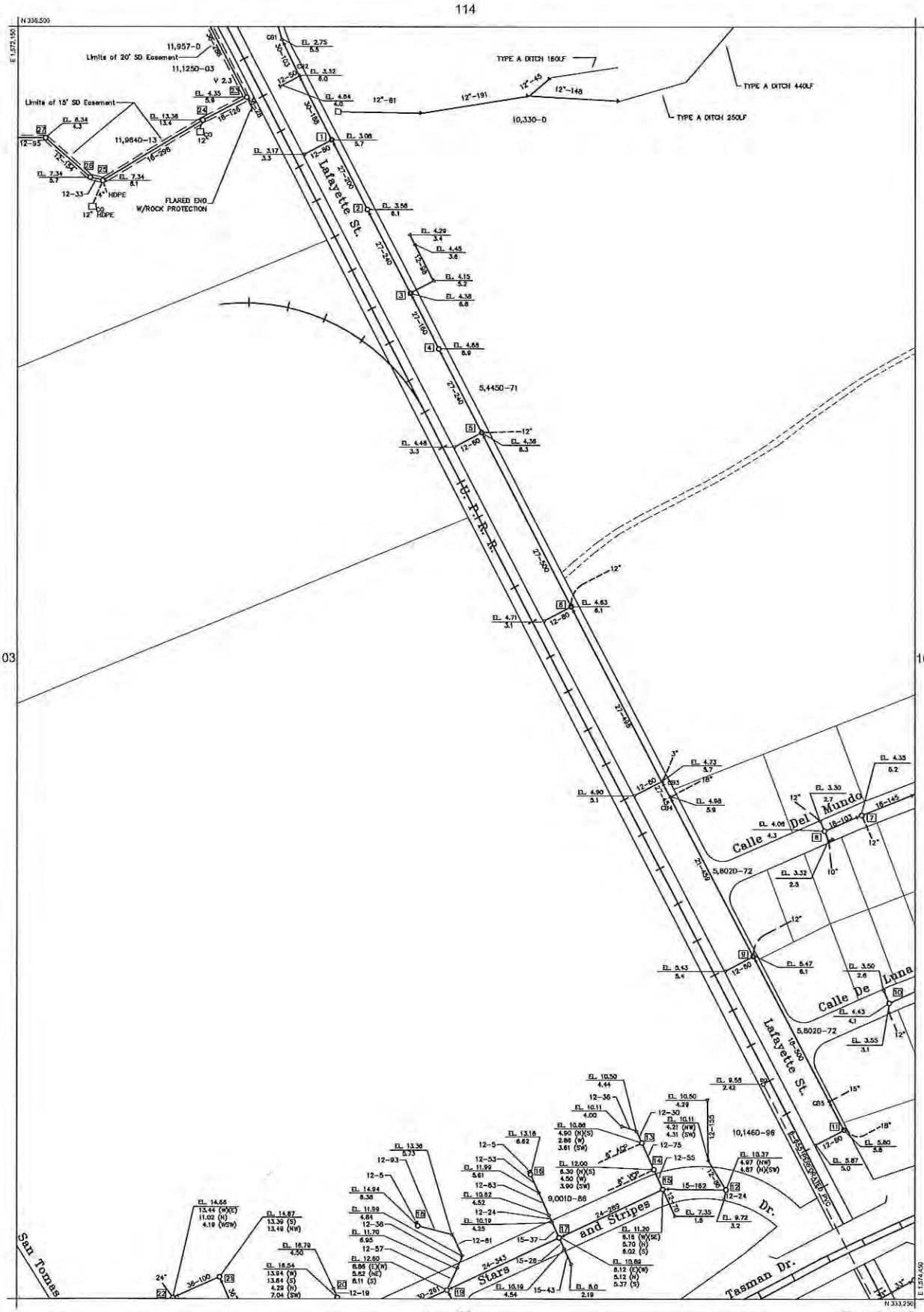

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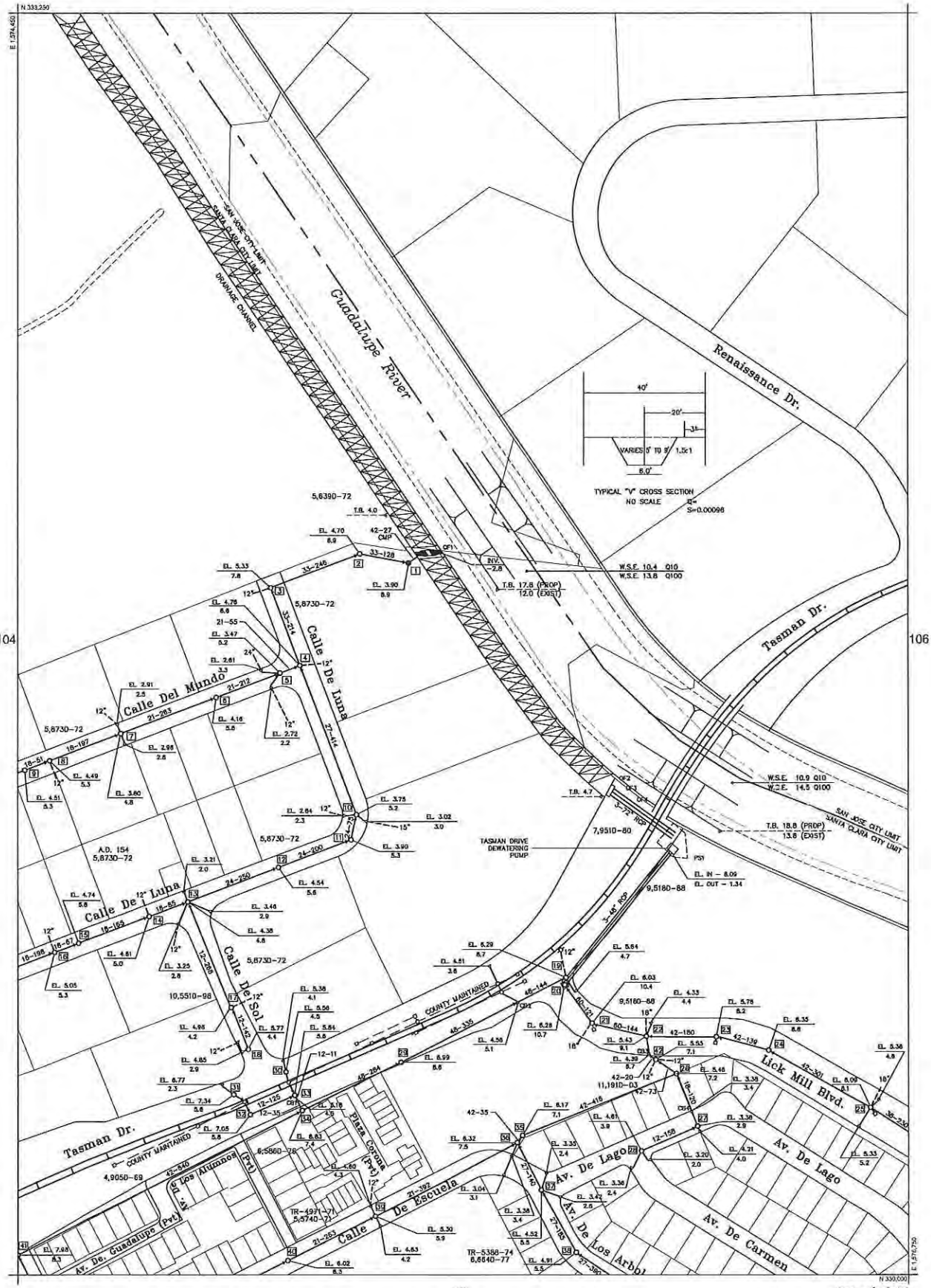

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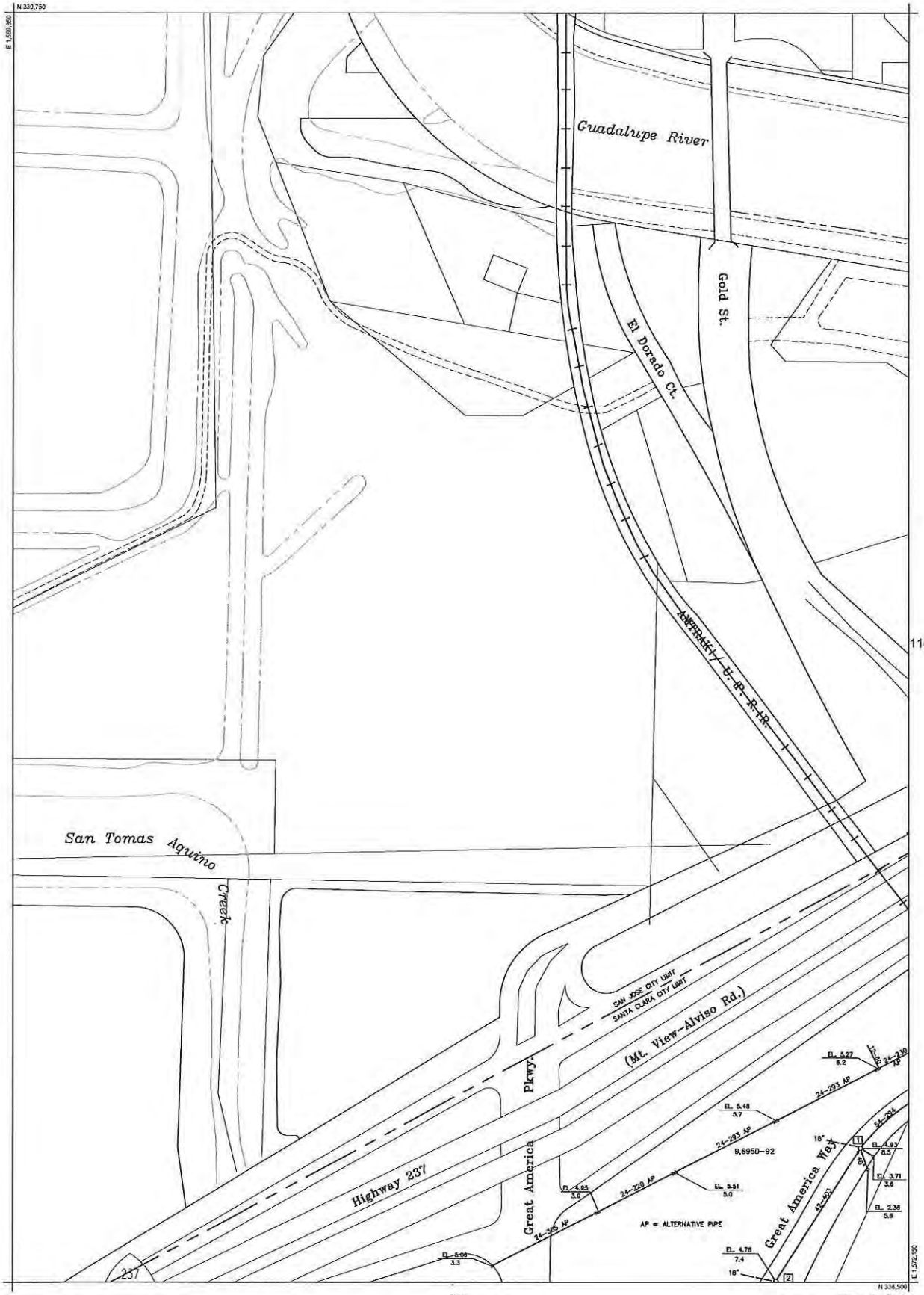

114

D 113

CITY OF SANTA CLARA BASIC INFORMATION MAP	100 50 0 100 200 300 400 500 FT.	DRAWN BY	LAST REVISED DATE	TOTAL MH	MAP NO.
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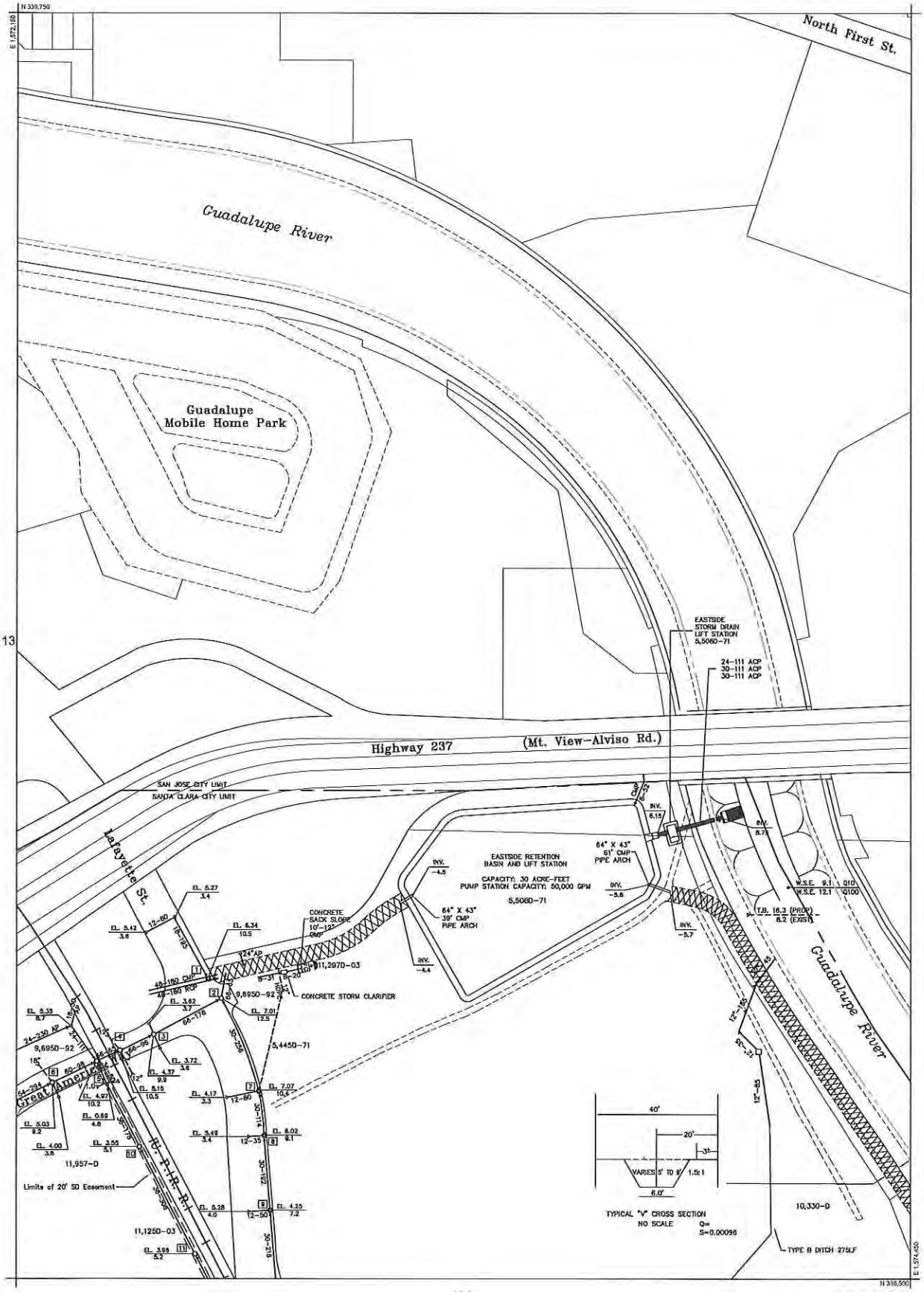

APPENDIX B

Excerpts from the Santa Clara Storm Drain Pump Station Evaluation and Hydrologic Evaluation of the Eastside Retention Basin

Storm Drain Pump Station Evaluation

City of Santa Clara, CA

Prepared

November 3, 2010

for

City of Santa Clara
Water and Sewer Utilities Department
1500 Warburton Avenue
Santa Clara, CA 95050



03 NOV 10

Andrew A. Sterbenz, RCE No. ~~69703~~ (Date)

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS

100 N. Winchester Blvd., Suite 200
Santa Clara, CA 95050
(408) 246-4848
FAX (408) 246-5624
s&w@swsv.com

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CITY OF SANTA CLARA
PUMP STATION EVALUATION

Table of Contents

Page

Overview 1
Pump Station Evaluation Methods 5
General Pump Station Maintenance 7
Pump Station Evaluation 11
- Eastside Retention Basin 12
- Fairway Glen Pump Station 13
- Lick Mill Pump Station 14
- Nelo-Victor Pump Station 15
- Laurelwood Pump Station 16
- Westside Retention Basin Pump Station 17
- Santa Clara Golf Course Pump Station 18
- Gianera Pump Station 19
- Rambo Pump Station 20
- Freedom Circle Pump Station 21
- Lakeside Pump Station 22
- Smaller Pump Stations 23
- Tasman Outfall 24

Summary 25
References 28

APPENDICES
A. Pump Station Summary Tables
B. Pump Station Cost Estimates

Table of Figures

Figure 1: Pump Station Locations 3
Figure 2: Pump Station Drainage Areas 4

Table of Tables

Table 1: Stormwater Pump Stations in Santa Clara 2
Table 2: Typical Maintenance Frequency for Engines and Generator Sets 8
Table 3: Pump Station Summary 11
Table 4: Eastside Retention Basin Replacement Cost Summary 12
Table 5: Fairway Glen Pump Station Replacement Cost Summary 13
Table 6: Lick Mill Pump Station Replacement Cost Summary 14
Table 7: Nelo/Victor Pump Station Replacement Cost Summary 15
Table 8: Laurelwood Pump Station Replacement Cost Summary 16
Table 9: Westside Retention Basin Pump Station Replacement Cost Summary 17
Table 10: Santa Clara Golf Course Pump Station Replacement Cost Summary 18
Table 11: Gianera Pump Station Replacement Cost Summary 19
Table 12: Rambo Pump Station Replacement Cost Summary 20
Table 13: Replacement Cost Summary 21
Table 14: Lakeside Pump Station Replacement Cost Summary 22
Table 15: Smaller Pump Station Replacement Cost Summary 23
Table 16: Replacement Schedule and Cost Summary 25
Table 17: Chronological Replacement Schedule and Cost Summary 26
Table 18: Yearly Sinking Fund Required for Positive Cash Flow 27

Appendices

Appendix A: Pump Station Summary
- Eastside Retention Basin A-1
- Fairway Glen A-4
- Lick Mill A-7
- Nelo Victor A-10
- Laurelwood A-13
- Westside Retention Basin A-16
- Santa Clara Golf Course A-19
- Gianera A-21
- Rambo A-24
- Freedom Circle A-27
- Lakeside A-30

Appendix B: Cost Estimates
- Eastside Retention Station B-1
- Fairway Glen Pump Station B-3
- Lick Mill Pump Station B-5
- Nelo Victor Pump Station B-7
- Laurelwood B-9
- West Side Retention Basin Pump Station B-11

Santa Clara Golf Course Pump Station B-13
Gianera Pump Station B-15
Rambo Pump Station B-17
Freedom Circle Pump Station B-19
Lakeside Pump Station B-21
Bowers Ave Underpass Pump Station B-23
Tri-Level Underpass Pump Station B-24
Lafayette Over and Under Pump Station B-25
Lafayette Subway Pump Station B-26
Lake Santa Clara Pump Station B-27
Shulman B-28
City Hall East Pump Station B-29
City Hall West Pump Station B-30
Police Pistol Range Pump Station B-31
Tasman Outfall Pump Station B-32

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OVERVIEW

The City of Santa Clara (City) engaged the firm of Schaaf & Wheeler to evaluate the storm water pump stations operated by the City. The City operates a system of 21 stations, listed in Table 1. The location of each pump station is shown on Figure 1, and the drainage areas of those discharging to creeks and rivers are shown on Figure 2. The stormwater collection system, including the pump station wetwells and forebays, is maintained by the City's Streets and Automotive Services Department. The stormwater pumps and stations are maintained by the Water and Sewer Utilities Department, which allows efficiencies for operator training and certification. Pump stations are generally located in the northern half of the City, where stormwater must be pumped over or through the levees into the Lower Guadalupe River, San Tomas Aquino Creek and Calabazas Creek. Of the 21 stations, nine are internal lift stations that drain basements or underpasses into the stormwater collection system.

The City is a member of the Santa Clara Valley Urban Runoff Pollution Prevention Program, and operates its stormwater collection system under the San Francisco Bay Municipal Regional Stormwater Permit, National Pollutant Discharge Elimination System (NPDES) No. CAS612008. The Regional Permit was updated in October 2009, and now includes a requirement for trash capture, which is discussed in this report.

The pump stations range from nine to 47 years in age. The equipment at many of these stations is nearing the end of its service life, and it may become necessary to replace equipment or even entire pump stations within the next few years. This can be a costly task which requires financial planning. It is recommended that the City set up an annual sinking fund for the upkeep and replacement of their pump stations. The goal of the fund is to budget and allocate sufficient funds to replace/upgrade major pump station equipment as it becomes necessary. The fund would also be used to fund routine maintenance and unforeseen improvements.

This report describes each pump station and how it operates, and documents the analysis and calculations that were performed to estimate the current replacement cost of each pump station.

Table 1: Stormwater Pump Stations in Santa Clara

Pump Stations Draining to Guadalupe River				
Station	**Originally Constructed**	**Last Upgraded**	**Drainage Area**	**Design Capacity**
Eastside Retention Basin	1973	2005	566 acres	50,000 gpm
Fairway Glen	1989		355 acres	111,500 gpm
Lick Mill	1988		620 acres	105,500 gpm
Nelo Victor	1986	2004	157 acres	78,150 gpm
Laurelwood	1986		308 acres	59,150 gpm
Pump Stations Draining to San Tomas Aquino Creek				
Station	**Originally Constructed**	**Last Upgraded**	**Drainage Area**	**Design Capacity**
Westside Retention Basin	1975	2001	854 acres	64,500 gpm
Golf Course	1987		54 acres	11,100 gpm
Gianera	1978	1996	58 acres	17,500 gpm
Rambo	1986	2001	351 acres	61,200 gpm
Lake Santa Clara	1986		20 acres	not listed
Freedom Circle	2001		46 acres	35,200 gpm
Pump Stations Draining to Calabazas Creek				
Station	**Originally Constructed**	**Last Upgraded**	**Drainage Area**	**Design Capacity**
Lakeside	1998		103 acres	30,000 gpm
Lift Stations to the City Storm Drain System				
Station	**Originally Constructed**	**Last Upgraded**	**Drainage Area**	**Design Capacity**
Bowers Ave Underpass	1974		n/a	2,750 gpm
City Hall – East Wing	1964		n/a	not listed
City Hall – West Wing	1964		n/a	not listed
Lafayette Over/Under	1976		n/a	2,300 gpm
Lafayette Subway	1963	1995	n/a	200 gpm
Police Pistol Range	1979		n/a	not listed
Shulman	1979		n/a	600 gpm
Tasman	1990		n/a	not listed
Tri-Level Underpass	1968	1975	n/a	not listed

Figure 1: Pump Station Locations

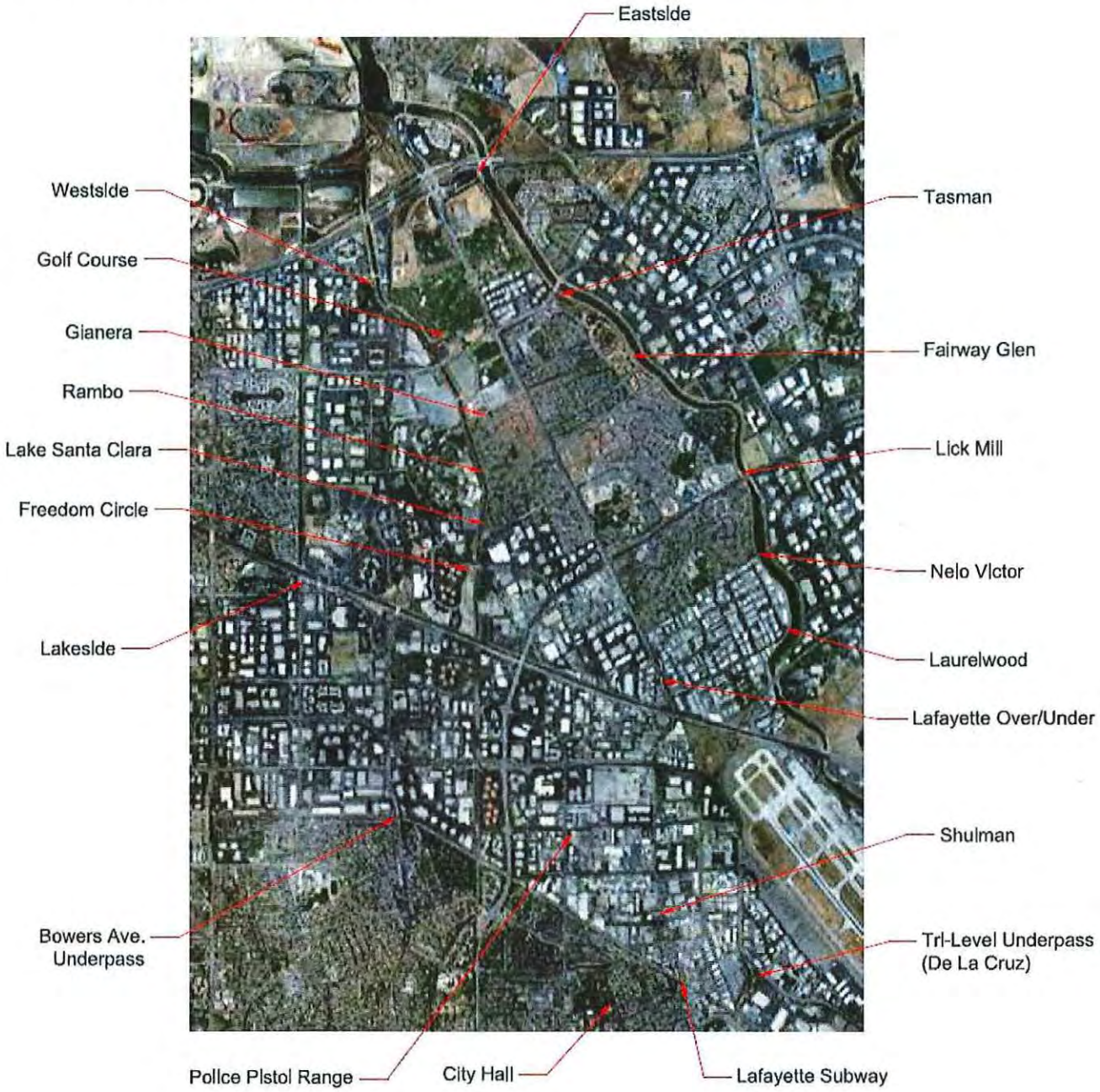
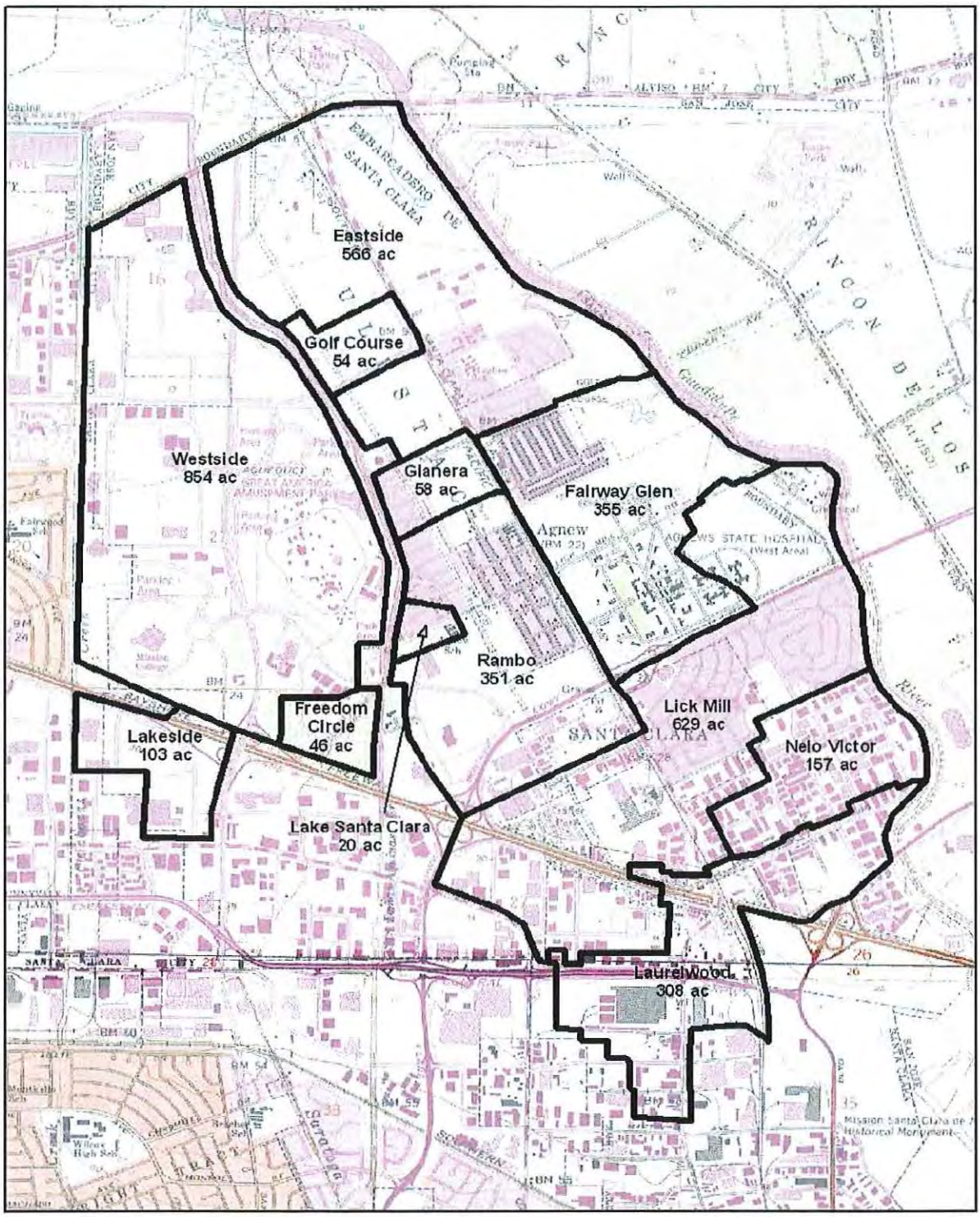


Figure 2: Pump Station Drainage Areas



PUMP STATION EVALUATION METHODS

Pump stations are evaluated based on their installation date, current condition, and any pertinent information provided by the City. The eleven largest pump stations (those with three or more pumps) have been visited and visually inspected. The remaining smaller stations are evaluated solely on the information provided by City Staff. Current replacement costs for each pump station are estimated assuming all items would be replaced in-kind.

All of the pump station buildings, with the exception of the Eastside Retention Basin Pump Station, are constructed with concrete or CMU (concrete block) which can be expected to last indefinitely, so replacement schedule/costs for these buildings are not included. Pumping facilities, on the other hand, rely heavily on mechanical and electrical equipment that will wear out, particularly since the stations are not operated on a constant basis. On average pumping equipment can be expected to last anywhere from 20 to 30 years with proper maintenance. Structural facilities should last much longer, at least 50 years, although metal, wood, and even concrete surfaces all require regular care. Therefore, a 25-year replacement schedule for all equipment within the pump station is used. Certain replacement items such as pump station roofs and concrete structure rehabilitation are put on a 50-year replacement schedule. Reinforced concrete pipes (RCP) will last well over 50 years in a non-corrosive environment, but corrugated metal pipes (CMP) are assumed to require replacement at 50 years. Replacement schedules are based on either the original construction date, or when the pump station had its last major upgrade or replacement. It is recommended that City maintenance crews monitor the condition of these facilities and prepare for system replacement several years in advance.

All but five of the stormwater pump stations are equipped with RTUs (Remote Terminal Units) for communication with the City-wide SCADA (Supervisory Control and Data Acquisition) system. Of the five unmonitored stations, three are basement pumps with alarms and the remaining two have gravity overflows. Each RTU converts signals from the various pump station controls for level, pump operation, valve position etc. and communicates status via radio or City network to master SCADA computers. This pump station evaluation project identifies the replacement costs for more conventional items and does not include the SCADA-dependent items. These electronic communication items require more frequent replacement to provide upgraded operating systems and control logic. These costs should be included in City-wide upgrades to the SCADA system.

Generator sizes were reviewed with respect to the ability to start and run the pumps. The evaluation assumed that pumps would be started sequentially, and that the largest pump would be started last. This produces the highest instantaneous load on the generator. Starting voltages were estimated

based on motor size and assumed across-the-line starting. Units with VFDs or soft-starters would require smaller generators, as discussed later under the respective pump stations.

This study focuses on the pump station equipment and age of the station and applies standard replacement schedules and costs to determine appropriate funding levels. Certain aspects of the pump stations have not been analyzed including: structural/seismic stability of the stations, routine maintenance requirements, and current pumping capacity and efficiency. Analysis of the current condition of each station is limited to visual inspection and information provided by the City. Replacement schedules are solely based on original construction or rehabilitation dates. It may be necessary to replace some equipment earlier than noted, and some may last longer than expected.

It is important to keep in mind that numerous uncertainties could alter the future costs and replacement methods. This study projects costs more than 50 years into the future, when available technology, relevant regulations, and climate trends are unknown at this time. Green technology efforts could alter the replacement methods and resulting costs; and, it may be necessary to reduce the carbon footprint by installing more efficient equipment or to include alternate sources of energy (solar, natural gas) or other technologies. There are numerous regulatory unknowns such as water quality and FEMA requirements. If current NPDES measures do not achieve their desired results, it could conceivably become necessary to require water treatment at stormwater pump stations. Significant differences in extreme event hydrology due to large-scale climate change could speculatively require pump stations to be re-sized or relocated.

One additional cost consideration for the stormwater pump stations is the new trash capture requirements in the San Francisco Bay Municipal Regional Stormwater Permit, NPDES Permit No. CAS162008, issued October 14, 2009. Under the new permit, cities must reduce the trash loads from the municipal separate storm sewer system (MS4). The required milestones are: a 40% reduction by the year 2014; a 70% reduction by the year 2017; and 100% reduction by the year 2022. Also, by July 2014 each permittee must install full trash capture devices to treat runoff from an area equivalent to 30% of the retail/wholesale/commercial lands that drain to MS4's. In Santa Clara, the required minimum area for full trash capture by 2014 is 168 acres, as established by the NPDES Permit, Attachment J. The standard for a "full trash capture device" is one that traps all particles on a 5 mm mesh screen for the one-year one-hour design storm (estimated as 0.3 in/hr). Trash capture options at pump stations are discussed in the "Technical Report on Feasibility of Trash Removal at Pump Stations," prepared by Schaaf & Wheeler in July 2009 for Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). Not all of the City's stormwater passes through the stormwater pump stations, but the stations offer a single point of capture for large

drainage areas. Coordinate with the SCVURPPP manager to ensure the City's trash capture efforts meet the regional standards currently being established.

Mechanical trash screens are discussed in the station descriptions as potential means of meeting the new requirement. Typically installed in the forebay of water and wastewater treatment plants, mechanical screens consist of either a static screen with a scraper that removes accumulated trash, or a moving screen that carries trash out of the water and delivers it into a collection pile. Either type requires a source of electrical power, a dedicated portion of the forebay for installation of the device in advance of the pump intakes, and sufficient deck space for the collection bins or piles. The site design must address the effect of strong winds carrying the removed trash from the collection pile back into the forebay and/or into the receiving water body.

As previously mentioned, annual routine maintenance costs are not included within this study. The City is in a better position to evaluate the efficacy of their ongoing maintenance operations, identify the need for expansion or reduction of their operation and maintenance program, and calculate the associated increase or decrease in cost as appropriate. However, recommended generalized pump station maintenance schedules are described in the following section.

General Pump Station Maintenance

Each pump station should have a bound copy of its site-specific operations and maintenance manual on site; and all personnel need to be familiar with the contents of the manuals. Proper equipment lubrication and maintenance following manufacturer's recommendations (which must be included in the operations and maintenance manual) is essential to efficient operation and longevity, particularly when one considers how infrequent pump operation may be. For this reason it is also recommended that any pump station control system that does not automatically alternate lead and lag pump status be retrofitted so that each pump within a station operates roughly the same number of hours every year.

Large axial flow pumps are the predominant pump type in the system. Shafts and bearings need to be periodically balanced and/or replaced. The frequency of inspection (where pumps need to be pulled out of the building) will vary depending upon the L-10 bearing life rating of the pump in question. The AFBMA (the Anti-Friction Bearing Manufacturers Association) defines L-10 as the bearing life associated with a 90% reliability when operating under conventional conditions, i.e., after a stated amount of time, 90% of a group of identical bearings will not yet have developed metal fatigue. Average bearing life, or the L-50, is defined as the operating hours at which half of the group of bearings fail and the rest continue to operate. The AFBMA defines average life (L-50) statistically

as three to five times the L-10 life.

Manufacturer's maintenance instructions for engine drive units and standby engine-generators should be followed exactly, particularly while the engine is under warranty. Maintenance schedules depend somewhat on whether the engine is used as the prime pump driver (as in most stations), or is on standby (such as for backup power generation). A typical schedule of maintenance based on references provided by Cummins/Onan (Sanks, 1989) is provided as Table 2, giving both operating hours and calendar time.

Diesel engine generators should be operated at full power for at least 15 to 30 minutes after reaching operating temperatures once a month to eliminate carbon deposits. Unfortunately, without significant stormwater inflow to the station, generators cannot be run under load for any significant length of time (the water quickly runs out). Pump stations can be designed with recirculation piping so that the engines and pumps can be tested and exercised; however, it may be cost prohibitive to retrofit a recirculation system onto existing pump stations.

Table 2: Typical Maintenance Frequency for Engines and Generator Sets

Maintenance Task	Operating Time	Calendar Time
Inspect fuel, oil level, coolant	8 hr	1 Mo.
Inspect air cleaner, battery	50 hr	1 Yr.
Clean governor linkage, breather, air cleaner	100 hr	1 Yr.
Clean fuel filter, replace oil filter, change crankcase oil, check switchgear	200 hr	1 Yr.
Clean commutator, collector rings, relays, cooling system; inspect brushes, valve clearances, starting and stopping systems, water pump	500 hr	1 Yr.
Check injectors, grind valves (if required), remove carbon, clean oil passages, replace secondary fuel filter, clean generator, grease bearings	1000 hr	2 Yr.

Pump Station Standardization

It is recommended that the City develop design and maintenance standards for stormwater pump stations, and where possible, retrofit the existing stations to comply with these standards. A typical standard requirement might be the type and manufacturer of stormwater pumps and engine-generators so that a more limited inventory of spare parts is needed and maintenance procedures are

familiar to field crews. The City is generally built-out, so it is unlikely that new pump stations will be constructed. Instead, the standards should focus on standardizing equipment and processes across the existing pump stations. Proposed standards include:

- Set Programmable Logic Controller (PLC) to rotate lead and lag pumps. Large pumps should accrue similar run hours during the year.
- Standard display and operator interface at each station PLC. SCADA screen should mirror field display. Include gravity bypass on station schematic, where applicable.
- Primary controller should be a pressure transducer with float switches as backup. Controls should be installed in a stilling well or column to prevent them from swinging during pump start-up, which causes undue cycling. Controls for lift stations (simplex or duplex) internal to the storm drain system should be coordinated with City standards for sanitary lift stations of similar size and function.
- Measure and mark the water levels in each wetwell, measured on a standard datum. Marking may be stenciled on the wall, but must be visible from an easily accessible location such as an access hatch. This will aid in calibrating the station controls, and allow the operators to visually identify control errors.
- Pump bays should be configured per Hydraulic Institute standards for pump intake design (approach length, width and depth).
- All of the larger pump stations are equipped with emergency generators. The smaller pump stations should be equipped with receptacles for portable generators.
- Generators must be sized to run all pumps within the station (started sequentially). If the existing generator cannot carry that load, the PLC must be programmed to limit the number of pumps running while on backup power.
- Generators should have internal fuel tanks with secondary containment. External fuel tanks should be phased out as equipment is replaced.
- Inlets should be configured with a closure device (gate valve, slide gate or stop logs) so that the forebay and wetwell may be dewatered and cleaned. Stations which receive year-round flow but lack a gravity bypass also require a location to place a bypass sump pump.
- Trash racks must be configured to meet the new regional stormwater standards. Capturing trash to a smaller size will increase the required cleaning frequency and trash rack size. Motorized self-cleaning screens may be installed at some stations where space and power are available.
- All outdoor hatches should be locked with a padlock to prevent unauthorized access.
- All access hatches should be protected by guard rails meeting OSHA requirements. Permanent installation of rails is impractical in some locations; therefore, it may be necessary to install receiving cups for removable rails to be used when the station is serviced. Removable rails may be stored within the station building, or kept on the service

truck for use at multiple sites.

- All inlet and outfall piping should be RCP. Replace CMP piping as it reaches an age of 50 years, or as it becomes corroded, or use a rehabilitative cured-in-place-pipe (CIPP) lining such as Insituform.
- All creek outfalls should have flap gates to prevent animals nesting in the piping.

The SCADA system may also be standardized to collect and display information from each pump station, to include:

- Wetwell level (current standard)
- Record water levels and station settings in history (to evaluate station performance during rain events)
- Station settings (lead on, lag on, high water alarm)
- Pump-on, -off and fail
- HOA (hand-off-auto) status
- Slide gate % open (where applicable)
- Communications (current standard)
- Power (service or generator) (current standard)
- Site security (current standard)
- RTU status (current standard)
- Generator parameters including fuel level
- Battery (current standard)
- Battery voltage (current standard)
- Fuel leakage (current standard)

PUMP STATION EVALUATIONS

For this cost analysis all pumps, motor control centers and backup generators are assumed to be

replaced in-kind. Also, trash screens are assumed to be replaced with static screens and not mechanical devices. Replacement of all equipment provides a worst-case cost estimate. The City should evaluate each pump station individually to determine if the pumps and equipment may be rehabilitated rather than replaced. The cost of relining bowls, replacing impellors and rewinding motors is significantly less than the cost of replacements. If axial flow pumps are replaced in-kind, the pump columns may be rehabilitated rather than replaced. Also, the salvage credit for existing equipment was not included in the replacement cost estimate.

The following sections describe each large pump station and outline the associated replacement costs. Station details are tabulated in Appendix A and detailed cost estimates are provided in Appendix B. Table 3 summarizes pump station information and the long-term rehabilitation/replacement plan.

Table 3: Pump Station Summary

Station Name	Capacity (gpm)	# of Pumps	Pump Type*	Primary Drive Units	Standby Power	Originally Constructed	Last Major Upgrade
Eastside	50,000	3	axial flow	electric motor	generator	1973	2005
Fairway Glen	111,500	5	axial flow submersible	electric motor	generator	1989	
Lick Mill	105,500	4	axial flow submersible	electric motor	generator	1988	
Nelo Victor	78,150	4	axial flow submersible	electric motor	generator	1986	2004
Laurelwood	59,150	3	axial flow	electric motor	generator	1986	
Westside	64,500	5	axial flow	electric motor	generator	1975	2001
Golf Course	11,100	3	submersible	electric motor	generator	1987	
Gianera	17,500	5	submersible	electric motor	generator	1978	1996
Rambo	61,200	4	axial flow	electric motor	generator	1986	2001
Freedom Circle	35,200	4	axial flow submersible	electric motor	generator	2001	
Lakeside	30,000	4	axial flow submersible	electric motor	generator	1998	

*Pump type reflects high flow pumps, not low flow sump pumps

1. Eastside Retention Basin Pump Station

The Eastside Retention Basin Pump Station was constructed in 1973 and upgraded in 2005. The station has three vertical turbine pumps with electric motors. There is a stated problem with the control settings for Pump 1 (50-hp) and Pump 3 (105-hp). If both are in automatic mode ("Auto"), they will cycle excessively. The current work-around for this is to have only the large pumps in Auto during the rainy season and only the smaller pump in Auto during the summer. The controls and level monitoring equipment (condition, location) should be evaluated to resolve this recurring error. The emergency generator is large enough to start and run all pumps. The pump station building is wood frame, and should be considered for replacement in 2023.

The station has a trash rack to prevent large items from damaging the pumps, and adequate space in the retention pond to reconfigure the inlet and achieve the trash capture standard. The inlet channel could be elongated to accommodate tiered trash screens (2", 1", ½", 5mm). The finer screens would require cleaning throughout the rainy season to prevent clogging.

Costs to replace all major components of the East Side Retention Basin Pump Station are shown in Table 4. Fifty-year replacement items include replacement of the pump station building and rehabilitation of the concrete wetwell. All other major components are on a 25-year replacement interval.

Table 4: East Side Retention Basin Replacement Cost Summary

Eastside Retention Basin Pump Station	Current Replacement Cost
Pumps and Motors	$161,000
Electrical Equipment	$297,000
Miscellaneous Equipment	$62,000
Subtotal	$520,000
25% Engineering and Admin.	$130,000
Subtotal	$650,000
40% Contingency	$260,000
Total of 25-Year items	**$910,000**
50 Year Replacement Items	$200,000
25% Engineering and Admin.	$50,000
Subtotal	$250,000
40% Contingency	$100,000
Total of 50-Year items	**$350,000**
Pump Station Total:	**$1,260,000**

7. Santa Clara Golf Course Pump Station

The Santa Clara Golf Course Pump Station was constructed in 1987 and there have been no major improvements to the station since completion of construction. The station has three rail-mounted submersible pump/motors, installed in a vault under the golf course service driveway. The electrical room is under the driving range, and has experienced some settling. Immediate repair is needed for one of the access doors and there is erosion around the outfall requiring the addition or replacement of sackcrete slope protection. Otherwise the station is in good shape and no major improvements are expected until its next scheduled replacement in 2037.

The trash screen at this station is a course basket under the inlet pipe. If additional screening is required, an additional vault must be added on the inlet pipe.

Costs to replace all major components of the Santa Clara Golf Course Pump Station are shown in Table10. Fifty-year replacement items include rehabilitation of the concrete wetwell. All other major components are on a 25-year replacement interval. Replacement of the electrical building is not included as it is expected to last longer than 50 years

Table 10: Santa Clara Golf Course Pump Station Replacement Cost Summary

Santa Clara Golf Course Pump Station	Current Replacement Cost
Pumps and Motors	$120,000
Electrical Equipment	$230,000
Miscellaneous Equipment	$71,000
Subtotal	$421,000
25% Engineering and Admin.	$105,000
Subtotal	$526,000
40% Contingency	$210,000
Total of 25-Year items	**$736,000**
50 Year Replacement Items	$246,000
25% Engineering and Admin.	$62,000
Subtotal	$308,000
40% Contingency	$123,000
Total of 50-Year items	**$431,000**
Pump Station Total:	**$1,170,000**

SUMMARY

Replacement schedule and associated replacement costs for each of the 21 pump stations are shown in Table 16. A replacement schedule in chronological order is provided in Table 17. A detailed replacement cost estimate for each pump station is included in Appendix B.

Table 16: Replacement Schedule and Cost Summary

Pump Station	25th year	Replacement Cost	50th year	Replacement Cost	75th year	Replacement Cost
Bowers Ave Underpass	1999	$340,000	2024	$10,000	2049	$340,000
City Hall – East Wing	1989	$170,000	2014	$10,000	2039	$170,000
City Hall – West Wing	1989	$170,000	2014	$10,000	2039	$170,000
East Side Retention Basin	2030	$910,000	2055	$350,000	2080	$910,000
Fairway Glen	2014	$3,490,000	2039	$660,000	2064	$3,490,000
Freedom Circle	2026	$1,430,000	2051	$1,310,000	2076	$1,430,000
Gianera	2021	$1,420,000	2046	$310,000	2071	$1,420,000
Golf Course	2012	$740,000	2037	$430,000	2062	$740,000
Lafayette Over and under	2001	$290,000	2026	$10,000	2051	$290,000
Lafayette Subway	1988	$270,000	2013	$10,000	2038	$270,000
Lake Santa Clara	2011	$430,000	2036	$20,000	2061	$430,000
Lakeside	2023	$1,110,000	2048	$680,000	2073	$1,110,000
Laurelwood	2011	$1,180,000	2036	$730,000	2061	$1,180,000
Lick Mill	2013	$3,070,000	2038	$1,320,000	2063	$3,070,000
Nelo Victor	2029	$1,780,000	2054	$430,000	2079	$1,780,000
Police Pistol Range	2004	$170,000	2029	$10,000	2054	$170,000
Rambo	2026	$1,310,000	2051	$740,000	2076	$1,310,000
Shulman	2004	$120,000	2029	$10,000	2054	$120,000
Tasman	2015	$220,000	2040	$10,000	2065	$220,000
Tri-Level Underpass	2000	$190,000	2025	$10,000	2050	$190,000
West Side Retention Basin	2026	$1,310,000	2051	$770,000	2076	$1,310,000

The replacement costs are used to calculate a yearly cash flow assuming that a constant sinking fund amount is deposited into an account each year. There are nine pump stations coming due for renovation in the first five years, City Hall East, City Hall West, Fairway Glen, Golf Course, Lafayette Subway, Lake Santa Clara, Laurelwood, Lick Mill and Tasman, totaling $9,160,000. These are considered up-front costs, because there is not sufficient time to build a sinking fund balance for them. The sinking fund begins in the year 2016, and continues to year 2062, which completes the second replacement cycle. Various inflation and interest (rate of return) rates are used to calculate the required sinking fund amount to maintain a positive funding balance. Table 18 summarizes the results for replacing the pump stations in-kind. This assumes the replacements occur as outlined in Tables 16 and 17.

References:

1. City of Santa Clara Storm Drain Lift Stations data table, provided by City staff
2. City of Santa Clara 2008 Storm Drain System Map (AutoCAD), provided by City staff
3. Pump Station Operator Notes, prepared by Andy Dale, March 15, 2010
4. Pump Station Operator Notes, prepared by Joe Luna, March 15, 2010
5. *Storm Pump Station Safety Evaluation Audit Report*, prepared by ERM-West Inc., December 2009 for the City of Santa Clara
6. *Technical Report on Feasibility of Trash Removal at Pump Stations*, prepared by Schaaf & Wheeler, July 2009 for Santa Clara Valley Urban Pollution Prevention Program
7. San Francisco Bay Municipal Regional Stormwater Permit, National Pollutant Discharge Elimination System (NPDES) No. CAS612008, issued October 14, 2009

Appendices:

A. Pump Station Summary Tables
B. Pump Station Cost Estimates

Appendix A: Pump Station Summary

PUMP STATION SUMMARY

Station:	**Eastside Retention Basin**
Address:	5611 Lafayette St.
Drainage Area:	566 acres
Constructed:	1973, equipment replaced 2005
Station Building:	Wood frame building over concrete deck and pump vault
Forebay:	30 acre-foot retention pond
Comments:	Operator note: retention pond needs to be dredged. Original genset was under the building roof. Conduits and wall penetrations may be removed.
Inlet	
Inlet Pipe 1:	30-inch RCP (forebay to wet well)
Inlet Pipe 2:	30-inch RCP (forebay to wet well)
Headwall:	Concrete headwall, wing walls and inlet invert.
Isolation valve:	Two 30-inch gate valves at inlet headwall
Trash Screen:	Bar screen at inlet. Manually raked.
Comments:	Need to add a guard rail at inlet headwall. Operator note: Isolation gates need to be exercised.
Pumps	
Pump/Motor 1:	50 hp vertical turbine pump with electric motor
Pump/Motor 2:	105 hp vertical turbine pump with electric motor
Pump/Motor 3:	105 hp vertical turbine pump with electric motor
Station Capacity:	50,000 gpm
Pump Bays:	Concrete walls between bays
Access:	Removable roof panels for pump lift out - crane required. Unlimited site clearance.
Controllers:	Pressure transducer with backup float switches
Comments:	Operator note: Pumps 1 and 3 cannot both be in Auto (leads to excessive cycling). Operator Note: Pump 2 is more efficient than Pump 3. P3 may require maintenance. Pumps 2 and 3 have right angle drives but in-line electric motors.
Outfall	
Outfalls to:	Guadalupe River
Outlet pipe 1:	24-inch RCP
Outlet pipe 2:	30-inch RCP
Outlet pipe 3:	30-inch RCP
Headwall:	Concrete headwall, wing and divider walls. Slope and outfall lined with concrete sandbags.
Flap Gates:	Yes
Comments:	

Station:	**Eastside Retention Basin**
Power	
Station Power:	Overhead electrical service, weather head above front door.
Conduits:	Underground conduit from generator to building. Overhead conduits inside building
Cabinets:	NEMA standard
Generator:	350 kW diesel electric generator located at northeast corner of property. The generator is large enough to run all pumps concurrently, starting pumps sequentially.
Comments:	Generator pedestal is tripping hazard. Place fill to bring existing grade within 1-inch of pedestal height. Original generator still on-site, but disconnected.
Aerial Photo	



Station:	Eastside Retention Basin
Site Photo:	







PUMP STATION SUMMARY

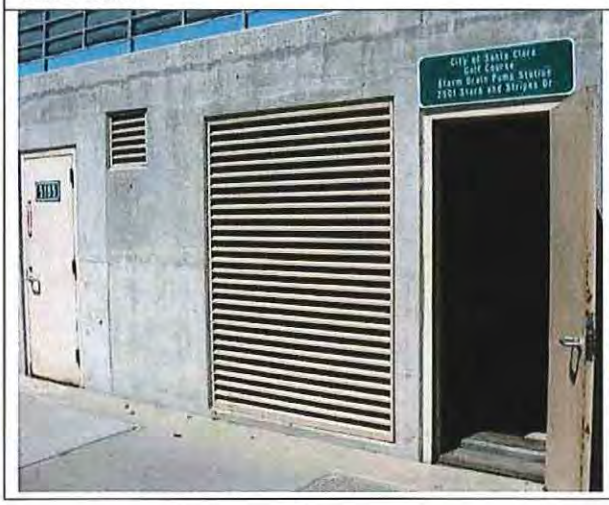
Station:	**Santa Clara Golf Course**
Address:	2501 Stars & Stripes drive
Drainage Area:	54 acres
Constructed:	1987
Station Building:	Cast-in-place concrete electrical room located under driving range.
Forebay:	Integral with wet well
Comments:	Electrical room has two access doors. West door is difficult to open due to differential settlement of building and street. Man-way hatch for accessing wet well is outside east door. Recommend cutting 1-inch off west door to allow resumed use.
Inlet	
Inlet Pipe 1:	36-inch CMP
Headwall:	Connects to concrete wet well
Isolation valve:	None.
Trash Screen:	Trash screen box below inlet pipe collects trash. When blinded, water can overflow into wet well.
Comments:	Trash visible in wet well.
Pumps	
Pump/Motor 1:	32 hp Flygt submersible pump/motor, rail-mounted
Pump/Motor 2:	32 hp Flygt submersible pump/motor, rail-mounted
Pump/Motor 3:	32 hp Flygt submersible pump/motor, rail-mounted
Station Capacity:	11,100 gpm
Pump Bays:	None – common wet well
Access:	Deck hatches outside electrical room. Pump service truck can back up to site.
Controllers:	Pressure transducer with backup floats
Comments:	Operator note: PLC should be standardized with newer pump stations. Vault hatches are located in single lane service drive for golf course and tennis courts. Consider adding mounts for removable guard rails to be set up during work.
Outfall	
Outfalls to:	San Tomas Aquino Creek
Outlet pipe 1:	30-inch CMP
Headwall:	Concrete sandbags used for headwall and slope protection.
Flap Gates:	None. Metal grate across opening to keep animals out.
Comments:	Visible erosion around outfall. Need to place fill and recover with concrete sandbags.

Station:	**Santa Clara Golf Course**
Power	
Station Power:	Underground electrical service
Conduits:	Underground conduit from electrical room to wet well.
Cabinets:	NEMA standard
Generator:	200 kW diesel electric generator located inside electrical room.
Comments:	Genset has separate fuel tank with concrete curb wall for secondary containment. Entry through east door is into the secondary containment sump. Genset removal requires removing air louver from wall. The generator is large enough to run all pumps concurrently, starting pumps sequentially. It is also oversized. Only a 150 kW generator is required.

Aerial Photo



Site Photo:





Appendix B: Cost Estimates

Eastside Retention Basin Pump Station

Item	Size	Make	Comments	Original Construction Date	Current Replacement Cost
Pumps and Motors					
Electric Motor #1	50 hp		50 hp	2005	$20,000
Vertical Pump #1	50 hp			2005	$20,000
Oiler				2005	$250
Oil Reservoir				2005	$150
Electric Motor #2, 3	105 hp		2x 105 hp	2005	$60,000
Vertical Pump #2, 3	105 hp			2005	$60,000
Oiler				2005	$500
Oil Reservoir				2005	$300
			Subtotal		**$161,000**
Electrical Equipment					
MCC Panel(s)			x3		$90,000
Hour Meter(s)			x3		$3,000
Programmable Logic Controller (PLC)					$30,000
Graphic Interface					$20,000
Remote Telemetry Unit (RTU)					$8,000
Electrical Service Panel					$10,000
Electric Distribution Panel					$10,000
Pressure Transducer			2		$1,600
Float Switches			6		$600
LEL Gas Monitor					$2,000
Emergency Generator Set	350 kW		350 kW		$102,000
Automatic Transfer Switch					$10,000
Power Receptacle					$200
Batteries					$4,000
Battery Charger(s)					$6,000
			Subtotal		**$297,000**
Miscellaneous Equipment					
Antenna					$1,000
Wall Vent Screens					$2,000
Overhead Lights					$10,000
Outside Lights					$2,000
Fan - Control Room					$2,000
Floor Grates					$25,200
Safety Railings					$4,750
Metal Ladders					$1,950
Perimeter Fence					na
Misc. Operation & Safety Items					$2,000
Slope Protection			Sackcrete		$11,100
			Subtotal		**$62,000**
			Total of 25 Year Replacement Items		**$520,000**
			25% Engineering and Admin.		$130,000
			Subtotal		$650,000
			40% Contingency		$260,000
			Total w/ Contingency		**$910,000**

Item	Size	Make	Comments	Original Construction Date	Current Replacement Cost
50 Year Replacement Items					
Rehab Wetwell				1973	$80,000
Replace roof				1973	$4,114
Replace woodframe building				1973	$57,112
Piping					
Inlet Slide Gate			2x 30"		$32,200
Trash Rack(s)			2x 36" bar screens		$12,000
Outfall Flap Gates(s)			1x 24"		$3,600
Outfall Flap Gates(s)			2x 30"		$11,200
			Subtotal		**$200,000**
			25% Engineering and Admin.		$50,000
			Subtotal		$250,000
			40% Contingency		$100,000
			Total w/ Contingency		**$350,000**
			Total of All Items w/ Contingency		**$1,260,000**

Notes:

This estimate of construction cost is a professional opinion, based upon the engineer's experience with the design and construction of similar projects. It is prepared only as a guide and is subject to change. Schaaf & Wheeler makes no warranty, whether expressed or implied, that the actual costs will not vary from these estimated costs, and assumes no liability for such variances.

Item	Size	Make	Comments	Original Construction Date	Current Replacement Cost
50 Year Replacement Items					
Rehab Wetwell					$300,000
Replace roof					$5,313
Piping					
Inlet stop logs			3x 36"		$30,000
Trash Rack(s)			3x 36" bar screen		$3,600
Outfall Flap Gates(s)			Add 3x 36"		$18,000
Outfall Flap Gates(s)			Add 2x 15"		$5,000
Replace CMP outfall pipe(s)	36"		Replace 36" with RCP		$64,800
Replace CMP outfall pipe(s)	15"		Replace 15" with RCP		$14,640
			Subtotal		**$441,000**
			25% Engineering and Admin.		$110,000
			Subtotal		$551,000
			40% Contingency		$220,000
			Total w/ Contingency		**$771,000**
			Total of All Items w/ Contingency		**$2,080,000**

Notes:

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Santa Clara Golf Course Pump Station

Item	Size	Make	Comments	Original Construction Date	Current Replacement Cost
Pumps and Motors					
Submersible Pump/Motor #1, 2, 3	32 hp	flygt	3x 32 hp	1987	$90,000
Guide rails and base					$30,000
			Subtotal		**$120,000**
Electrical Equipment					
MCC Panel(s)			3x		$60,000
Hour Meter(s)			3x		$3,000
Programmable Logic Controller (PLC)					$30,000
Graphic Interface					$20,000
Remote Telemetry Unit (RTU)					$8,000
Electrical Service Panel					$10,000
Electric Distribution Panel					$10,000
Pressure Transducer			2		$1,600
Float Switches			6		$600
LEL Gas Monitor					$2,000
Emergency Generator Set	150 kW		current 200 kW unit oversized		$65,000
Automatic Transfer Switch					$10,000
Power Receptacle					$200
Batteries					$4,000
Battery Charger(s)					$6,000
Fuel Tank			Next genset to have		$0
Fuel Sensor			integral fuel tank		$0
			Subtotal		**$230,000**
Miscellaneous Equipment					
Antenna					$1,000
Wall Vent Screens					$2,000
Air Duct					$4,000
Louvers					$4,000
Overhead Lights					$10,000
Outside Lights					$2,000
Fan - Control Room					$2,000
Access Hatches					$12,750
Safety Railings					$7,680
Metal Ladders					$1,560
Metal Landings					$12,700
Misc. Operation & Safety Items					$2,000
Slope Protection			Sackcrete		$9,250
			Subtotal		**$71,000**
			Total of 25 Year Replacement Items		**$421,000**
			25% Engineering and Admin.		$105,000
			Subtotal		$526,000
			40% Contingency		$210,000
			Total w/ Contingency		**$736,000**

Item	Size	Make	Comments	Original Construction Date	Current Replacement Cost
50 Year Replacement Items					
Rehab Wetwell					$50,000
Piping					
Inlet Slide Gate			add 36"		$20,000
Trash Rack(s)			Bar screen basket under inlet		$1,200
Outfall Check Valve(s)			3x 24"		$60,000
Outfall Gate Valve(s)			3x 24"		$60,000
Outfall Flap Gates(s)			1x 30"		$4,300
Replace CMP inlet pipe(s)	36"		Replace 36" with RCP		$25,200
Replace CMP outfall pipe(s)	30"		Replace 30" with RCP		$25,560
			Subtotal		**$246,000**
			25% Engineering and Admin.		$62,000
			Subtotal		$308,000
			40% Contingency		$123,000
			Total w/ Contingency		**$431,000**
			Total of All Items w/ Contingency		**$1,170,000**

Notes:

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G-1

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS

James R. Schaaf, PE
Kirk R. Wheeler, PE
David A. Foote, PE
Peder C. Jorgensen, PE
Katherine M. Oven, PE
Charles D. Anderson, PE

100 N. Winchester Blvd., Suite 200
Santa Clara, CA 95050
(408) 246-4848
FAX (408) 246-5624
s&w@swsv.com

Monterey Bay Office
(831) 582-2648
swmb@swsv.com

Puget Sound Office
(206) 624-9932
swps@swsv.com

November 22, 2000

RECEIVED
NOV 27 2000
CITY OF SANTA CLARA
WATER DEPARTMENT

Mr. Robin Saunders, P.E.
City of Santa Clara
Department of Water and Sewer Utilities
1500 Warburton Avenue
Santa Clara, California 95050

Subject: ***Findings of Hydrologic Investigation for Eastside Pump Station***

Dear Robin:

The enclosed report presents the findings of a hydrologic investigation undertaken within the Eastside Pumping Station drainage area. This study has been prepared at your request for two reasons:

(1) Confirm the pump station capacity required to discharge the one-percent (100-year) inflow from those areas tributary to the Eastside Retention Basin; and

(2) Confirm pump horsepower requirements to meet design water surface elevations in the Guadalupe River in conjunction with the pump capacities determined above.

Summary of Findings

Under all foreseeable design conditions in the Guadalupe River, it appears that the existing pumps have sufficient capacity to prevent one-percent local runoff from ponding in Lafayette Street. (The scope of this analysis did not include an examination of storm drain system capacity, nor potential street flooding upstream.) The elevation of maximum ponding within the retention facility depends upon the ultimate design water surface in the river. Three potential conditions have been examined: (Note that street flooding occurs above elevation 5 NGVD.)

Scenario	Guadalupe River 1% WSEL at Highway 237	1% WSEL in Eastside Retention Basin
Best Case	15 feet NGVD	2.8 feet NGVD
Average	18 feet NGVD	3.2 feet NGVD
Worst Case	21 feet NGVD	3.8 feet NGVD

Unfortunately, the Santa Clara Valley Water District cannot provide an ultimate design water surface elevation for the Guadalupe River at Highway 237. Their Draft Engineer's Report on the planning effort for the river was due out in August 2000, but has been delayed indefinitely. Conversations with the consultants working for the District have resulted in the preliminary values shown in the table above, but there is no commitment to those numbers from the District at this time. The report discusses this issue in some detail.

Due to the uncertainty in the ultimate water surface elevation in the Guadalupe River, and the timing of the improvements that will result in that water surface, horsepower requirements for each pump also remain unclear. The following table lists horsepower requirements based on an available performance curve for Pump #1 (24-inch diameter discharge pipe), and pump characteristics estimated for Pumps #2 and #3 (30-inch diameter discharge pipe).

Scenario	Horsepower for 24" Pump	Horsepower for 30" Pump
Best Case (15' tailwater)	60	125
Average (18' tailwater)	60	125
Worst Case (21' tailwater)	75	150

Based on the available performance curve for the 24-inch pump, a new pump is required for the worst case tailwater condition, and it assumed that new pumps and motors might be necessary for the two 30-inch pumps as well. This would be necessary to meet maximum pumping heads. We have also found that under minimum pumping heads, the 24-inch pump operates in excess of its rated capacity, and may cavitate.

Since the worst case tailwater condition seems unreasonable from a levee building perspective, the City may wish to budget for the worst case, but wait until the District can provide more information before ordering any equipment. Please review the enclosed report and call me with any comments. I am happy to discuss our findings with you at any time.

Very truly yours,

SCHAAF & WHEELER

Charles D. Anderson

Charles D. Anderson, P.E.
Principal

enclosure

HYDROLOGIC EVALUATION

for

EASTSIDE PUMP STATION AND RETENTION BASIN

SANTA CLARA, CALIFORNIA

November 22, 2000

Prepared for:

City of Santa Clara
Department of Water and Sewer Utilities
1500 Warburton Avenue
Santa Clara, California 95050

The following report has been prepared under the supervision of the undersigned, who hereby certifies that he is a Registered Civil Engineer in the State of California.

Prepared by:

Charles D. Anderson 11-22-00

CHARLES D. ANDERSON, RCE No. 43776 (Date)



Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS
100 N. Winchester Blvd, Ste. 200
Santa Clara, CA 95050
(408) 246-4848
FAX:408-246-5624

BACKGROUND

The Eastside Pump Station and Retention Basin were constructed in 1972 to store and discharge local stormwater runoff into the Guadalupe River at State Highway 237 (Mountain View-Alviso Road at the time). The life cycle of the original pumping and electrical equipment is nearing its end, and the City of Santa Clara may wish to replace some equipment, and add standby power generation.

Prior to doing so, the City needs to evaluate the operation of this facility in light of two factors:

1) a better understanding of upstream hydrology and the need to accommodate overflows from the Rambo Pump Station basin; and

2) changes to the design water surface elevation in the Guadalupe River, based on contemplated improvements to be made by the Santa Clara Valley Water District.

SUMMARY OF FINDINGS

Although the contemplated changes to the water surface elevation in the Guadalupe River are still subject to conjecture at this point, it appears that the existing pumps have sufficient capacity to prevent one-percent local runoff from ponding in Lafayette Street (elevation 5 feet ± NGVD). The elevation of maximum ponding within the retention facility depends upon the ultimate design water surface in the river, for which three potential conditions have been examined:

Scenario	Guadalupe River 1% WSEL at Highway 237	1% WSEL in Eastside Retention Basin
Best Case	15 feet NGVD	2.8 feet NGVD
Average	18 feet NGVD	3.2 feet NGVD
Worst Case	21 feet NGVD	3.8 feet NGVD

The following table lists horsepower requirements based on an available performance curve for Pump #1 (24-inch diameter discharge pipe), and pump characteristics estimated for Pumps #2 and #3 (30-inch diameter discharge pipe), for the potential Guadalupe tailwater conditions:

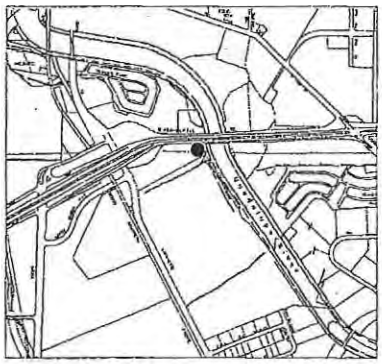
Scenario	Horsepower for 24" Pump	Horsepower for 30" Pump
Best Case (15' tailwater)	60	125
Average (18' tailwater)	60	125
Worst Case (21' tailwater)	75	150

Based on available data for the 24-inch pump, a new pump is required for the worst case tailwater condition, because the extra static lift results in a system head-discharge curve that is above the left-hand side of its pump performance curve. A new pump would not be needed for either the best case or average tailwater conditions. Although pump performance curves for Pump Nos. 2 and 3 are not available in the City's files, a similar conclusion might also be reached for the larger pumps. Also, under minimum pumping head conditions, the 24-inch pump operates in excess of its rated capacity, and could potentially cavitate.

The worst-case tailwater condition may be unreasonable from a levee building perspective. One would not expect the design discharge of Guadalupe River to increase from 13,000 cfs to 20,000 cfs without a commensurate increase in water surface. However, raising the water surface elevation from 10 feet to nearly 21 feet requires levee elevations of 25 feet at the 237 bridge. This is twenty feet higher than surrounding ground elevations. Since the Santa Clara Valley is currently working on solutions to what is seemingly becoming an intractable problem on the lower Guadalupe River, the City may wish to budget for the worst case, but wait until the District can provide more information before ordering any equipment.

EASTSIDE PUMP STATION AND RETENTION BASIN

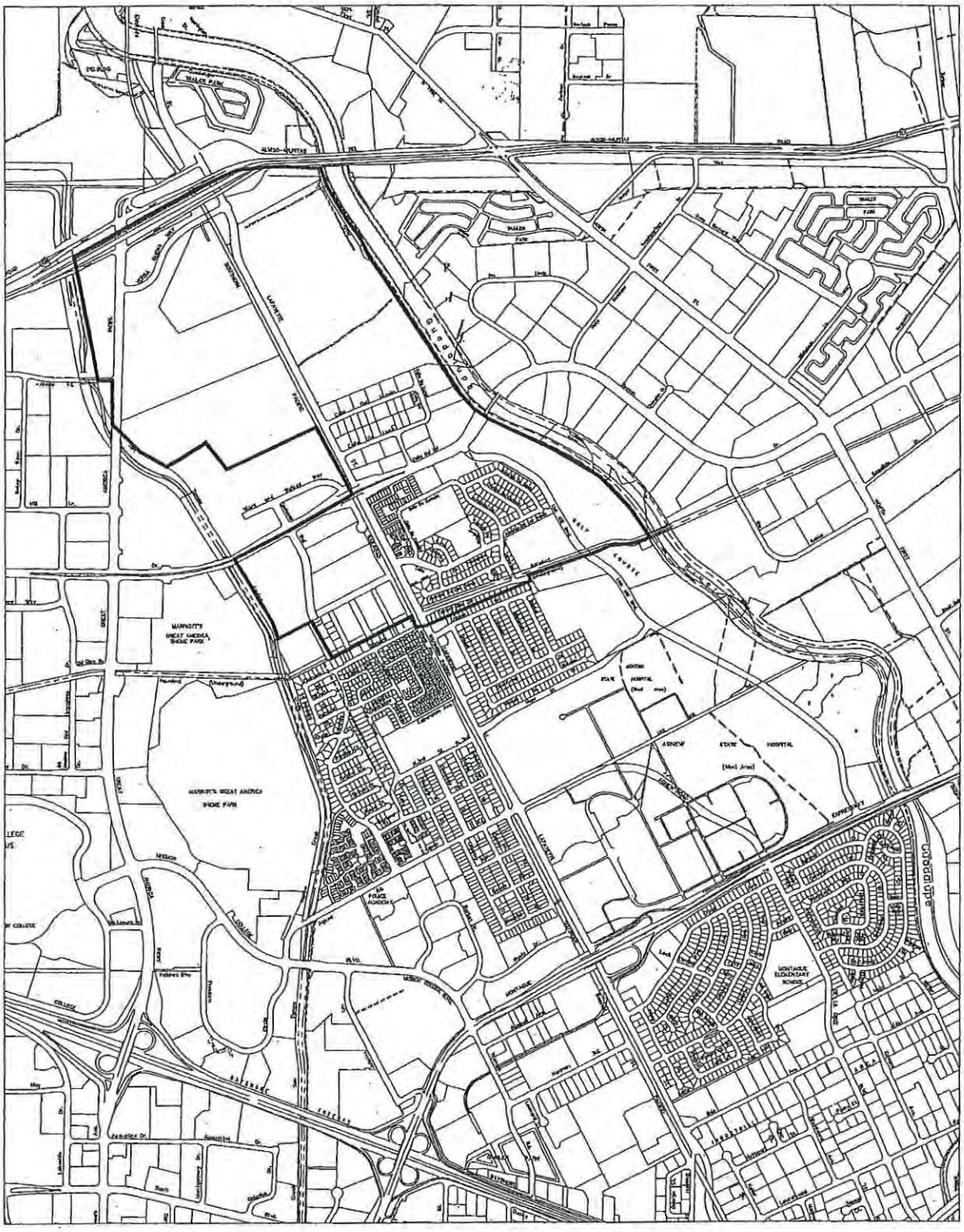
Location:	Off Lafayette Street at Hwy 237
Discharge to:	Guadalupe River
Design WSEL:	3 feet ± (NGVD)
Storage:	6.5 acre retention basin
Tributary Area:	590 acres (Figure 1)
Station Capacity:	110 cfs ±
Constructed:	1972



Eastside Pump Station Location

This facility stores local stormwater runoff and discharges that runoff into the Guadalupe River. The retention basin and pump station are located near the eastbound lane of State Highway 237 on the west bank of the river. The retention basin is designed as a "dry" pond which is pumped down to its minimum level after every runoff event. Stormwater is then pumped through one 24-inch diameter and two 30-inch diameter asbestos cement pipes directly into the Guadalupe River. A flapgated discharge structure is located within the river bank to dissipate energy; each pipe invert elevation is 8.75 feet (NGVD) at the discharge. Record drawings indicate that the Guadalupe River's west bank levee was elevation 13.5 feet NGVD at the time of construction. Recent field surveys performed by CH2M-Hill for the Santa Clara Valley Water District indicates that the current levee elevation at this location is 6.3m (NAVD), which converts to 17.9 feet NGVD.

Figure 1



AREAS TRIBUTARY TO EASTSIDE RETENTION BASIN

FILE NAME: CSGL\03-EASTSIDE\FIGURE1.DWG

Schaaf & Wheeler

Drainage Areas. Figure 1 outlines those areas within Santa Clara that are directly tributary to the Eastside Retention Basin, which are also tabulated below.

TABLE 1
Areas Directly Tributary to Eastside Retention Basin

Land Use	Tributary Area (acres)
Residential	160
Commercial	50
Golf Course	160
Landfill / Open	220
Total	**590**

In addition to these 590 acres of tributary area, some overflow from the Rambo and Gianera basins to the south is intercepted by Eastside Basin storm drains at the intersection of Tasman Drive and the Union Pacific Railroad / Lafayette Street. This analysis assumes that the Rambo Pump Station has been upgraded to 140 cfs capacity, which due to structural constraints at the facility, is not sufficient to discharge the estimated one-percent peak runoff into San Tomas Aquino Creek. Spill from the Rambo Basin will travel down Lakeshore Drive to Gianera Street and east to the railroad. Additional runoff in excess of storm drain capacity at Esperanca Avenue will also flow to this location, combine with the Gianera overflow, and make its way north to Tasman Drive, where it is blocked and captured by the storm system draining to the Eastside Retention Basin.

Local runoff and excess flow from other basins is conveyed to the Eastside Retention Basin, either through a 48-inch diameter outfall, or in a drainage channel that parallels the west side of the Guadalupe River.

EXISTING PUMP STATION AND BASIN CAPACITIES

A pump performance curve is available for Pump #1, which has a 10,000 gpm nominal capacity and a 60 horsepower motor. This pump discharges through a 24-inch forcemain to the river. Performance curves are not available in City files, however, for the two 30-inch discharge pumps. City records indicate that these pumps (Pumps #2 and #3) are rated at 20,000 gpm each. (Total station capacity is 50,000 gpm or 110 cfs.) Without actual pump curves, it is difficult to assess pump capacities and the effects of different tailwater conditions. To make an educated guess, a 30-inch Fairbanks Morse axial flow pump curve is used for sensitivity analyses.

The Eastside Retention Basin as originally graded in 1972 held a volume of roughly 37 acre-feet at elevation 3.0 feet NGVD. The basin was enlarged in 1978, increasing the volume to 45 acre-feet. However, ponding levels can exceed elevation 3 without causing property damage. Water flowing in the ditch that parallels Highway 237 from Lafayette to the basin will simply overflow onto a broad, flat area bound by 237, the westerly basin levee, Lafayette, and the sanitary sewage pumping plant. By adding this area to the storage capacity of the basin, 54 acre-feet are available to store water to elevation 4 feet. (At elevation 5 feet, ponded water will begin to back up onto Lafayette Street.) Figure 2 shows the storage-elevation curve for the Eastside Retention Basin.

GUADALUPE RIVER TAILWATER

Since there is no standpipe system or discharge box to provide nearly constant pumping heads at this station, tailwater in the Guadalupe River significantly affects pump performance. Over the years, the capacity of the river to convey flood flows has been drastically reduced due to sedimentation and vegetation growth in the channel. The Santa Clara Valley Water District is currently studying project alternatives to improve the situation and provide 100-year flood protection to Santa Clara and San Jose.

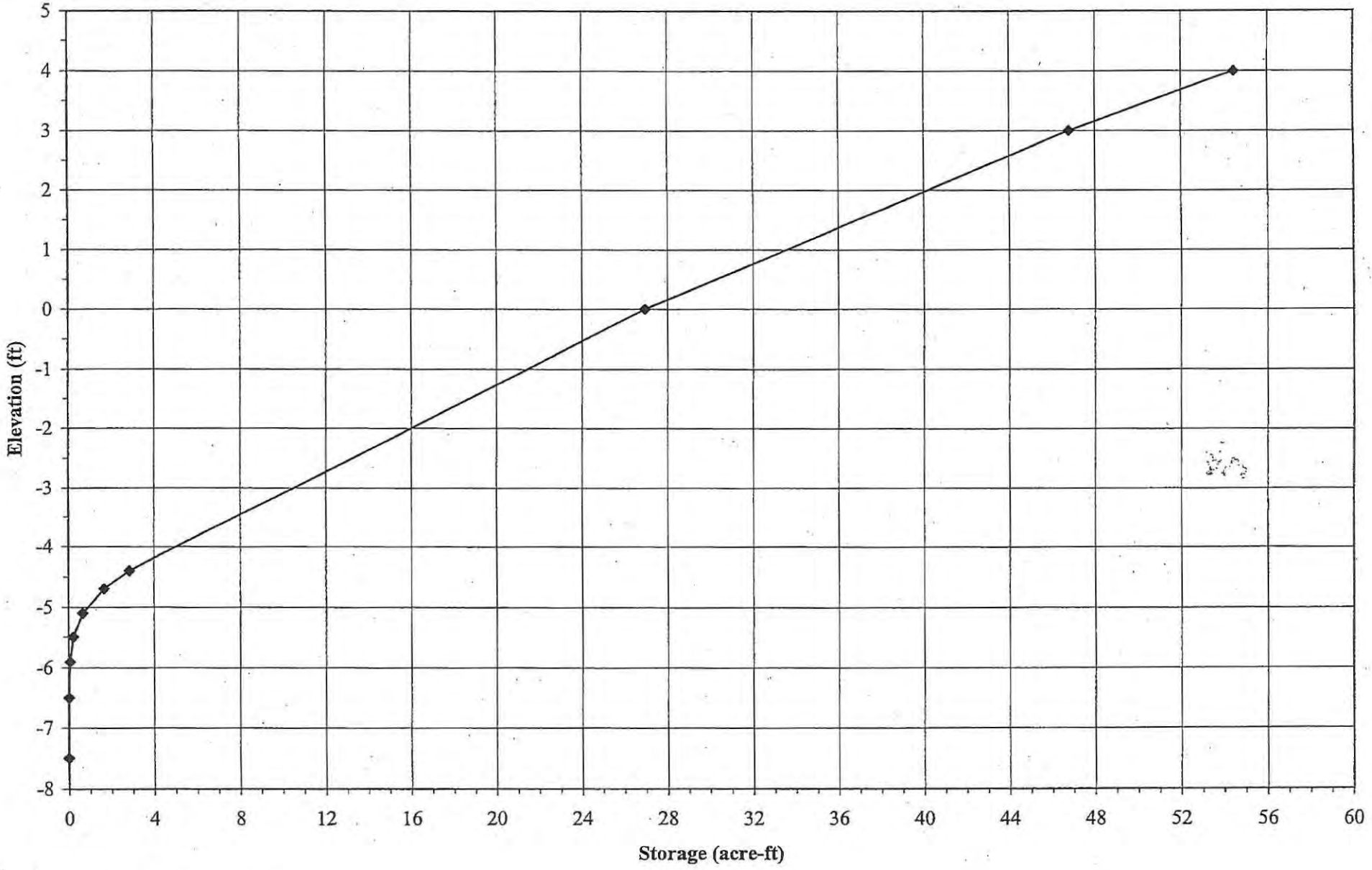
Project alternatives have not been finalized as of late 2000, so concrete values for potential tailwater elevations at Highway 237 are not available. Discussions with District consultants, however, have provided a range of possible outcomes which are listed below:

1. ***Best-Case Scenario.*** The likely best-case outcome is one in which sufficient improvements are made to the channel so that existing levees would not need to be raised. With the existing levee at elevation 18 feet NGVD, the design water surface (less three feet for freeboard) would be elevation 15 feet NGVD.

2. ***Worst-Case Scenario.*** Ms. Erica Gomez of CH2M-Hill indicates that the maximum worst-case water surface elevation upstream of Highway 237 with 20,000 cfs of Guadalupe River discharge is 7.15m (NAVD). This converts to 20.7 feet NGVD, which has been rounded to 21 feet NGVD for analysis.

3. ***Average Tailwater.*** In all likelihood, the final design tailwater will lie somewhere between the best- and worst-case scenarios. Therefore a median value of 18 feet NGVD is used to analyze this condition.

Figure 2
Storage vs. Elevation for Eastside Retention Basin



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INFLOW HYDROGRAPH

In order to examine pump and basin operation under various scenarios, a design discharge hydrograph is necessary to model local runoff into the basin. Hydrologic analyses utilize information previously gathered for the City of Santa Clara, modified as needed to reflect conditions at the site.

Rainfall Data. Since it is impossible to anticipate the effect of every conceivable storm, precipitation frequency analyses are often used to design facilities that control storm runoff. A common practice is to construct a "design storm", which is a rainfall pattern used in hydrologic models to estimate surface runoff.

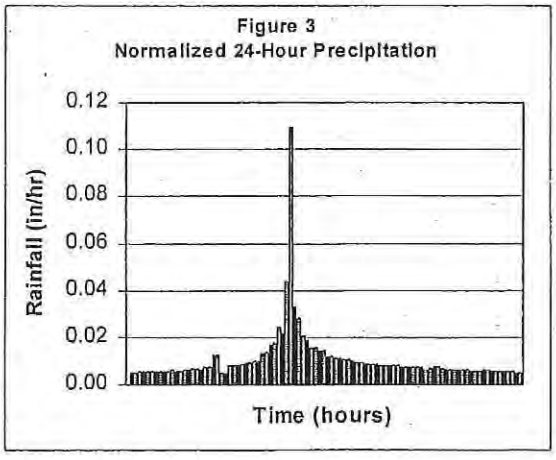
Using the Santa Clara Valley Water District's mean annual precipitation map (1988), the average annual precipitation over the Eastside tributary area is 13.25 inches. Since the mean annual precipitation for the California Department of Water Resources' statistical analysis for the "San Jose City" rain gage is 13.4 inches, its statistics are used to create the design storm pattern.

The 24-hour precipitation depth for this basin is 3.89 inches.

Design Storm Pattern. To evaluate lagoon and pump operation under different conditions, estimates of stormwater volume are required. Because IDF relationships for precipitation are not sufficient to provide this information, temporal rainfall patterns (hyetographs) must be specified for rainfall depths of a given duration and frequency.

An SCS Type I storm pattern has been used to distribute rainfall, since the project site is located to the west of the Sierra Nevada crest. Local rainfall duration-depth data based on the DWR IDF curves are then applied so that the rainfall pattern used in runoff computations is the Type I SCS distribution, but the maximum depth of rainfall for any duration reflects local statistics. These patterns are multiplied by rainfall depth for the frequency and duration of interest. Figure 3 shows the normalized 24-hour rainfall pattern used in this analysis.

Figure 3
Normalized 24-Hour Precipitation



Runoff Hydrographs. When it becomes necessary to evaluate collection system facilities where the *storage* of runoff is important (e.g. basin detention), a synthetic unit hydrograph procedure is used with aforementioned rainfall patterns to produce the requisite runoff hydrographs through a process

known as convolution. A unit hydrograph is defined as the basin runoff produced by one inch of rainfall excess applied uniformly over the basin over that "unit" of time. The Clark dimensionless unit hydrograph is established based on two parameters, t_c, which is equal to the time of concentration (in hours) for that basin, and R, a storage coefficient (in hours) which modifies the "peakedness" of the unit hydrograph. R is related to t_c by the following ratio:

$$\frac{R}{t_c + R}$$

which generally ranges between 0.1 and 0.5 within impervious (urbanized) areas. Times of concentration for individual storm drain systems have been calculated using the Rational Formula as shown on appended spreadsheets. R is then adjusted within the range of ratios given above so that the peak discharge from any given basin matches that as calculated using the Rational Formula.

Infiltration. Direct runoff is equivalent to precipitation in excess of the soil's infiltration capacity. This is based on soil type, land use, cover, and antecedent moisture conditions (i.e. how saturated the soil is at the beginning of the storm event). This analysis uses the Soil Conservation Service (SCS) Curve Number methodology. Table 2 presents SCS Curve Numbers for various land use types for both Antecedent Moisture Condition (AMC) II, and for AMC II½, which we have found to calibrate well to local stream gage frequency analyses for the 100-year discharge. SCS soil maps for Santa Clara County indicate that the entire area tributary to Eastside Retention Basin is underlain by soils classified in Hydrologic Soil Group "D".

TABLE 2
SCS Curve Numbers

Land Use	CN_{AMCII}	$CN_{AMCII½}$
Residential	87	92
Commercial	93	96
Golf Course	80	87
Landfill / Open	89	93

Storage Routing. Kinematic wave routines available in HEC-1 are used to route flows down streets (Manning's "n" = 0.020) or in storm drain pipes (n = 0.013).

BASIN OPERATION

Table 3 provides the results of pump station and basin modeling under three Guadalupe River tailwater conditions. Increasing tailwater derates each pump and decreases the pump station's effective capacity, and therefore raises the ponding level. Ponded water is not expected to flood Lafayette Street under any of the analyzed tailwater conditions with the existing pump station at its assumed capacity.

TABLE 3
Maximum Ponding in Eastside Retention Basin

Scenario	Pump Station Capacity	1% WSEL in Basin
Best Case (15' tailwater)	47,000 gpm	2.8 feet NGVD
Average (18' tailwater)	44,000 gpm	3.2 feet NGVD
Worst Case (21' tailwater)	40,000 gpm	3.8 feet NGVD

Analyses are based on the following operational assumptions, including an average basin pumping level of elevation 0 to determine static head:

Pumping Levels Provided by City

HI ALARM†	1.0	(11.0')
PUMP #3 ON	-2.0	(8.0')
PUMP #2 ON	-2.5	(7.5')
PUMP #1 ON	-3.0	(7.0')
PUMP #3 OFF	-4.0	(6.0')
PUMP #2 OFF	-4.5	(5.5')
PUMP #1 OFF	-4.5	(5.5')
LOW ALARM	-8.0	(2.0')

†All levels are NAVD with distance above wet well floor in parenthesis

The Verti-line 16P (1170 rpm) pump characteristic curve for Pump #1 found in City files is used to derive capacities for various pumping heads. A Fairbanks-Morse 30" 8211 (705 rpm) characteristic curve is used to infer capacities for Pump #2 and Pump #3 in lieu of the missing curves for the actual installed pumps. Without an actual curve, this is an educated guess at best.

As demonstrated by Table 4, horsepower requirements are also affected by tailwater conditions in the Guadalupe River. Tabulated horsepower is the maximum required when pumping against the design water surface in the river while evacuating the retention basin to each pump's lowest operating level (approaching pump-off). This assumes that the local runoff peaks in advance of the Guadalupe River peak. Based on a maximum pumping head with the worst-case tailwater, different pump trims would be needed to stay on the performance curve. Hence, the listed horsepower requirements assume that it would be necessary to operate each pump near its present off-level setting. Pump curves showing maximum horsepower requirements are appended to this report.

TABLE 4

Maximum Horsepower Requirements

Scenario	Horsepower for 24" Pump	Horsepower for 30" Pump
Best Case (15' tailwater)	60	125
Average (18' tailwater)	60	125
Worst Case (21' tailwater)	75	150

One potential problem with the current pumping configuration, however, is the lack of tailwater control during periods of lower river levels. If the Guadalupe River stage is less than elevation 10, the pumping head is controlled by the elevation of each pump discharge forcemain outfall. Examining the Pump #1 pump curve when the river is low, the minimum pumping head to remain on the operating curve is 10 feet, which requires a minimum static head of 8 feet. Thus, the maximum pumping level in the basin is 9.75 feet - 8 feet, or 1.75 feet. Once basin levels exceed this, the pump is operating outside of its proscribed range; although it is not clear for how long this would occur, or if any damage would result. Pump #2 and Pump #3 cannot be evaluated without an actual curve, but the minimum pumping head for the Fairbanks-Morse model is 8 feet, which limits the maximum basin level to elevation 5 feet, and should not pose a problem.

RECOMMENDATIONS

If the current pumps are operating at or near their assumed capacities, this facility provides adequate flood protection, even against the worst-case Guadalupe River tailwater. The only question is whether to provide sufficient horsepower and/or replace pumps to accommodate the full range of pumping operation against the worst tailwater. The length of time to decipher the Guadalupe River problem, and the fairly remote possibility of such high water surface elevations, do not appear to warrant the provision of additional horsepower for the Eastside pumps.

Motor horsepower should be verified from the nameplates, and if possible, actual pump curves for the two larger pumps should be obtained. If the existing motors do not have sufficient power to operate the pumps at all levels against predicted tailwater conditions, the pump off-levels could be adjusted to ensure that sufficient horsepower is available throughout each pumps operating range.

For instance, Pump #1's maximum pumping head with a 60 hp motor is about 25 feet, so the maximum static head is 23 feet. The pump can operate with current level settings for all but the worst-case tailwater. For that worst-case condition, the off-level needs to be raised by 2.5 feet. Given the large storage volume available to prevent pump cycling, on- and off-levels are really only constrained by the repeatability of the level sensing equipment. Assuming a six-inch operating interval as a minimum requirement, the maximum basin level under worst-case operation would be elevation 4.1 feet NGVD, which should not cause street flooding on Lafayette.

This report has not addressed pump intake hydraulics nor submergence requirements. Since this facility has operated for nearly 30 years without significant reported problems, these issues apparently do not need to be examined at this time. Storm drain performance with different basin levels has not been modeled.

APPENDICES

Time of Concentration Calculations
HEC-1 Model (Best Case Tailwater Condition Shown)
Pump Characteristic Curves
Head Loss Calculations
Storage Basin Volume Calculations

Eastside Detention Basin Inflow
(Interior Basin G-1)

Time of Concentration Calculations

Description	Area	Runoff Coefficient	CA	Cumulative CA	tc	I	Q	Ground Elev	Length	Ground Slope	Pipe Dia	Q_{pipe}	V_{pipe}	Q_{street}	Street ROW	V_{street}	V_{avg}	Travel Time
	(acres)	C	(acres)	(acres)	(min)	(in/hr)	(cfs)	(ft)	(ft)	(ft/ft)	(in)	(cfs)	(cfs)	(cfs)	(feet)	(fps)	(fps)	(min)
Storm Drain System 1																		
18" from a to b	1.86	0.8	1.49	1.49	16.0	2.07	3.1	5.8	500	0.0006	18	2.6	1.5	0.5	—	0.0	1.5	5.7
21" from b to c	2.87	0.8	2.30	3.78	21.7	1.54	5.8	5.5	504	0.0016	21	5.8	2.4	0.0	—	0.0	2.4	3.5
24" from c to c1	2.70	0.8	2.16	5.94	25.2	1.49	8.9	4.7	498	0.0002	24	3.2	1.0	5.7	84	0.3	0.6	14.1
27" from c1 to d	18.95	0.3	5.69	11.63	39.3	1.07	12.5	4.6	1340	0.0011	27	10.4	2.6	2.1	84	0.8	2.3	9.6
30" from d to e	31.18	0.3	9.35	20.98	48.9	1.02	21.5	3.1	1156	-0.0034	30	21.5	4.4	0.0	—	0.0	4.4	4.4
48" from e to f	17.16	0.8	13.73	34.71	53.3	1.00	34.8	7.0	20	0.0330	48	34.8	2.8	0.0	—	0.0	2.8	0.1
	74.72																	
Storm Drain System 2																		
18" from 1 to 3	3.54	0.8	2.83	2.83	13.0	2.30	6.5	5.1	515	0.0014	18	3.9	2.2	2.6	—	0.0	2.2	3.9
12" from 2 to 3	3.21	0.8	2.57	2.57	16.9	2.03	5.2	5.8	410	0.0034	12	2.1	2.7	3.1	—	0.0	2.7	2.6
24" from 3 to 4	10.22	0.8	8.18	13.58	19.5	1.91	25.9	4.4	525	0.0011	24	7.7	2.4	18.3	60	0.6	1.2	7.5
27" from 4 to 7	9.30	0.8	7.44	21.02	26.9	1.56	32.8	3.8	414	-0.0024	27	32.8	8.3	0.0	—	0.0	8.3	0.8
18" from 5 to 6	2.39	0.8	1.91	1.91	13.0	2.30	4.4	4.1	502	0.0006	18	2.6	1.5	1.8	—	0.0	1.5	5.7
21" from 6 to 7	6.08	0.8	4.86	6.78	18.7	1.95	13.2	3.8	530	-0.0019	21	13.2	5.5	0.0	—	0.0	5.5	1.6
33" from 7 to 8	6.90	0.8	5.52	33.31	27.8	1.52	50.8	4.8	588	0.0015	33	50.8	8.5	0.0	—	0.0	8.5	1.1
42" from 8 to 9	4.80	0.8	3.84	37.15	28.9	1.47	54.6	3.9	27		42	54.6	5.7	0.0	—	0.0	5.7	0.1
	46.44																	
Storm Drain System 3																		
30" from 16 to 17	9.53	0.6	5.72	5.72	15.0	2.12	12.1	8.5	680	0.0010	30	12.1	2.5	0.0	—	0.0	2.5	4.6
33" from 17 to 18	8.55	0.6	5.13	10.85	19.6	1.91	20.7	7.8	495	-0.0034	33	20.7	3.5	0.0	—	0.0	3.5	2.4
24" from 18a to 18b	8.20	0.3	2.46	2.46	15.0	2.12	5.2	10.3	697	0.0022	24	5.2	1.7	0.0	—	0.0	1.7	7.0
24" from 18b to 18c	27.50	0.3	8.25	10.71	22.0	1.79	19.2	8.8	106	-0.0085	24	19.2	6.1	0.0	—	0.0	6.1	0.3
30" from 18c to 18	7.02	0.3	2.11	12.82	22.3	1.78	22.8	9.7	923	0.0042	30	22.8	4.6	0.0	—	0.0	4.6	3.3
27" from 18 to 19	8.66	0.6	5.20	28.86	25.6	1.63	46.9	5.8	130	-0.0169	27	46.9	11.8	0.0	—	0.0	11.8	0.2
18" from a to b	4.48	0.6	2.69	2.69	10.0	2.58	6.9	9.5	92	-0.0022	18	6.9	3.9	0.0	—	0.0	3.9	0.4
24" from b to c	0.34	0.6	0.20	2.89	10.4	2.54	7.4	9.7	307	0.0055	24	7.4	2.3	0.0	—	0.0	2.3	2.2
27" from c to 19	4.30	0.6	2.58	5.47	12.6	2.34	12.8	9.1	1320	0.0008	27	9.0	2.3	3.9	84	0.6	1.8	12.6
42" from 19 to 20	6.20	0.6	3.72	38.05	25.8	1.62	61.5	8.0	1126	0.0009	42	30.1	3.1	31.5	60	1.5	2.3	8.2
48" from 20 to 21	3.67	0.6	2.20	40.25	33.9	1.36	54.8	7.0	660	0.0011	48	46.9	3.7	7.9	60	1.2	3.4	3.3
12" from 1 to 2	2.41	0.6	1.45	1.45	15.0	2.12	3.1	8.5	277	0.0047	12	2.4	3.1	0.6	60	0.7	2.6	1.8
18" from 2 to 5	2.27	0.6	1.36	2.81	16.8	2.04	5.7	7.2	932	0.0013	18	3.8	2.1	1.9	60	0.6	1.6	9.6
12" from 3 to 4	4.18	0.6	2.51	2.51	12.0	2.40	6.0	7.8	280	0.0025	12	1.8	2.3	4.2	60	1.0	1.3	3.5
15" from 4 to 5	3.10	0.6	1.86	4.37	15.5	2.10	9.2	7.1	275	0.0038	15	4.0	3.3	5.2	60	1.1	2.0	2.3
24" from 5 to 6	13.02	0.6	7.81	14.99	26.4	1.59	23.8	6.0	173	0.0029	24	12.2	3.9	11.6	60	1.3	2.6	1.1
27" from 6 to 10	1.84	0.6	1.10	16.09	27.5	1.54	24.7	5.5	915	-0.0009	27	24.7	6.2	0.0	—	0.0	6.2	2.5
12" from 7 to 8	1.83	0.6	1.10	1.10	16.0	2.07	2.3	9.9	661	0.0020	12	1.6	2.0	0.7	60	0.5	1.6	7.0
15" from 8 to 9	7.35	0.6	4.41	5.51	23.0	1.75	9.6	8.6	238	0.0109	15	6.8	5.5	2.8	60	1.5	4.3	0.9
21" from 9 to 10	2.89	0.6	1.73	7.24	23.9	1.70	12.3	6.0	655	-0.0005	21	12.3	5.1	0.0	—	0.0	5.1	2.1
42" from 10 to 13	14.44	0.6	8.66	32.00	29.9	1.42	45.6	6.3	416	0.0019	42	45.6	4.7	0.0	—	0.0	4.7	1.5
12" from 11 to 12	6.89	0.6	4.13	4.13	27.0	1.56	6.4	4.6	158	0.0076	12	3.1	4.0	3.3	60	1.4	2.6	1.0
18" from 12 to 13	6.70	0.6	4.02	8.15	28.0	1.51	12.3	3.4	120	-0.0175	18	12.3	7.0	0.0	—	0.0	7.0	0.3
42" from 13 to 14	2.75	0.6	1.65	41.80	31.4	1.40	58.5	5.5	287	-0.0019	42	58.5	6.1	0.0	—	0.0	6.1	0.7
42" from 14 to 21	0.00	0.0	0.00	41.80	32.1	1.39	58.0	6.0	80	-0.0038	42	58.0	6.0	0.0	—	0.0	6.0	0.2
3 - 48" from 21 to 22	1.38	0.6	0.83	82.88	37.2	1.31	108.7	6.3	450		83	108.7	2.9	0.0	—	0.0	2.9	2.6
	159.50																	
Rainfall Intensity (DWR San Jose City)	min	5	10	15	30	60	120	180	1440									
	d	0.30	0.43	0.53	0.71	0.97	1.35	1.59	3.89									
	I	3.60	2.58	2.12	1.42	0.97	0.68	0.53	0.16									
Manning's "n" for RCP =	0.013																	

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1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*          SEPTEMBER 1990               *
*            VERSION 4.0                *
*                                       *
*  RUN DATE  11/22/2000  TIME  15:28:10 *
*                                       *
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*                                       *
*   U.S. ARMY CORPS OF ENGINEERS        *
*   HYDROLOGIC ENGINEERING CENTER       *
*        609 SECOND STREET              *
*      DAVIS, CALIFORNIA 95616          *
*          (916) 756-1104               *
*                                       *
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X       XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

   1          ID   CITY OF SANTA CLARA
   2          ID   EASTSIDE DETENTION BASIN AND PUMPING PLANT (100 YEAR)
   3          ID   INCLUDES SPILLS FROM RAMBO BASIN
   4          ID   (1) 10,000 GPM PUMP AND (2) 20,000 GPM PUMPS
   5          ID   Grades Adjusted to City Datum
   6          IT      15 01JAN99    2400     300
   7          IO       5
              * **********

   8          KK      S4
   9          KM    DRAINAGE BASIN TRIBUTARY TO RAMBO PUMP STATION (RESIDENTIAL)
  10          BA    0.53
  11          PB    3.89
  12          IN     15. 01JAN99    2400
  13          PI  .00515  .00515  .00550  .00550  .00536  .00550  .00550  .00553  .00588  .00588
  14          PI  .00630  .00588  .00588  .00630  .00652  .00664  .00664  .00652  .00718  .00718
  15          PI  .01251  .01251  .00509  .00509  .00809  .00809  .00831  .00883  .00944  .00928
  16          PI  .01021  .01021  .01292  .01338  .01663  .01762  .02447  .02206  .04367  .10929
  17          PI  .03324  .02788  .02023  .01879  .01580  .01580  .01444  .01444  .01180  .01180
  18          PI  .01119  .01119  .01067  .01043  .00980  .00962  .00912  .00897  .00883  .00883
  19          PI  .00883  .00820  .00788  .00788  .00788  .00788  .00751  .00734  .00734  .00751
  20          PI  .00718  .00718  .00641  .00676  .00718  .00718  .00676  .00641  .00630  .00630
  21          PI  .00630  .00630  .00630  .00572  .00533  .00568  .00630  .00630  .00568  .00533
  22          PI  .00533  .00568  .00568  .00533  .00521  .00521
  23          LS      0.     92.
  24          UC     1.2     1.2
              * **********

  25          KK   RAMBO
  26          KM   UPGRADED RAMBO PUMP STATION WITH 140 CFS CAPACITY
  27          DT    PUMP
  28          DI       0      50     100     140     141     150     200     250     300
  29          DQ       0      50     100     140     140     140     140     140     140
              * **********

  30          KK   LKSHR
  31          KM   ROUTE RAMBO SPILL DOWN LAKESHORE DRIVE TO GIANERA AT WILCOX
  32          RK    2700   .0012    .025            TRAP      60       0
              * **********

  33          KK    MONT
  34          KM    BASIN AT MONTAGUE AND BASSETT (PAVED)
  35          BA   0.032
  36          LS                99
  37          UC    0.33    0.04
              * **********

  38          KK    BASS
  39          KM    ROUTE DOWN BASSETT/WILCOX TO GIANERA
  40          RK    5150   .0017    .025            TRAP      50       0
              * **********
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  41      KK    GNRA
  42      KM    COMBINE RAMBO SPILLS AT GIANERA
  43      HC       2
          * ***********

  44      KK    TOSD
  45      KM    ROUTE SPILLS TO STORM DRAIN SYSTEM #3
  46      RK     600   .0028    .025            TRAP      50       0

  47      KK    SDRT
  48      KM    ROUTE SPILLS IN STORM DRAIN TO SD SYSTEM #3 OUTFALL AT DRAINAGE CHANNEL
  49      RK    2850   .0016    .013            CIRC     3.5
          * ***********

  50      KK     SD3
  51      KM    AREA TRIBUTARY TO STORM DRAIN SYSTEM #3 (RESIDENTIAL)
  52      BA    0.25
  53      LS              92
  54      UC    0.62    0.62
          * ***********

  55      KK     TAS
  56      KM    HYDROGRAPH AT TASMAN AND LICK MILL BLVD. OUTFALL
  57      HC       2
          * ***********

  58      KK    CHAN
  59      KM    CHANNEL ROUTING TO OUTFALL FROM SD SYSTEM #2
  60      RK     800    .001    .035            TRAP       6     1.5
          * ***********

  61      KK     SD2
  62      KM    AREA TRIBUTARY TO STORM DRAIN SYSTEM #2 (INDUSTRIAL)
  63      BA   0.075
  64      LS              96
  65      UC    0.48    0.16
          * ***********

  66      KK    OUT2
  67      KM    COMBINE HYDROGRAPHS AT STORM DRAIN OUTFALL
  68      HC       2
          * ***********

  69      KK    CHAN
  70      KM    CHANNEL ROUTING
  71      RK    1800    .001    .035            TRAP       6     1.5
          * ***********

  72      KK    GOLF
  73      KM    AREA DRAINING TO DRAINAGE CHANNEL ALONG GUADALUPE RIVER
  74      BA     .04
  75      LS              87
  76      UC     0.6     0.6
          * ***********

  77      KK    CHAN
  78      KM    COMBINE
  79      HC       2
          * ***********

  80      KK    CHAN
  81      KM    CHANNEL ROUTING
  82      RK    1200    .001    .035            TRAP       6     1.5
          * ***********

  83      KK   BASIN
  84      KM    AREA DIRECTLY TRIBUTARY TO DETENTION BASIN (LANDFILL)
  85      BA    0.05
  86      LS              93
  87      UC     0.3     0.3
          * **************

  88      KK   BASIN
  89      KM    COMBINE
  90      HC       2
          * **************

  91      KK     SD1
  92      KM    AREA TRIBUTARY TO SD SYSTEM #1 (1/3 LANDFILL; 2/3 GOLF)
  93      BA    0.12
  94      LS              89
  95      UC    0.89    0.89
          * ***********

  96      KK    YERB
  97      KM    AREA TRIBUTARY AT YERBA BUENA WAY (2/3 LANDFILL; 1/3 GOLF)
  98      BA    0.38
  99      LS              91
 100      UC    1.67    1.67
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

          * ***********

  101     KK    LFYT
  102     KM    COMBINE AT LAFAYETTE STREET
  103     HC      2
          * ***********

  104     KK   DITCH
  105     KM    ROUTE THROUGH DITCH ALONG 237 TO BASIN
  106     RK     600   .0017    .035           TRAP      6     1.5
          * ***********

  107     KK   BASIN
  108     KM    COMBINE HYDROGRAPHS AT EASTSIDE BASIN
  109     HC      2
          * ***********

  110     KK   BASIN
  111     KM    STORAGE-ELEVATION FROM RECORD DRAWINGS
  112     KO      1
  113     RS      1    STOR     1.7
  114     SV    0.0    0.01     0.2     0.7     1.7     2.8    27.0    46.8    54.5
  115     SE   -7.5    -6.5    -5.5    -5.1    -4.7    -4.4     0.0     3.0     4.0
  116     SQ    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
  117     SE   -7.5    -6.5    -5.5    -5.1    -4.7    -4.4     0.0     3.0     4.0
  118     WP   -3.0     20.    -4.5       1
  119     WP   -2.5     42.    -4.5       2
  120     WP   -2.0     42.    -4.0       3
  121     ZZ
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1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *          SEPTEMBER 1990               *
 *           VERSION 4.0                 *
 *                                       *
 *  RUN DATE  11/22/2000  TIME  15:28:10 *
 *                                       *
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*****************************************
 *                                       *
 *    U.S. ARMY CORPS OF ENGINEERS       *
 *    HYDROLOGIC ENGINEERING CENTER      *
 *          609 SECOND STREET            *
 *       DAVIS, CALIFORNIA 95616         *
 *           (916) 756-1104              *
 *                                       *
*****************************************

                    CITY OF SANTA CLARA
                    EASTSIDE DETENTION BASIN AND PUMPING PLANT (100 YEAR)
                    INCLUDES SPILLS FROM RAMBO BASIN
                    (1) 10,000 GPM PUMP AND (2) 20,000 GPM PUMPS
                    Grades Adjusted to City Datum

  7 IO        OUTPUT CONTROL VARIABLES
                  IPRNT          5  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT        HYDROGRAPH TIME DATA
                   NMIN         15  MINUTES IN COMPUTATION INTERVAL
                  IDATE     1JAN99  STARTING DATE
                  ITIME       0000  STARTING TIME
                     NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                 NDDATE     5JAN99  ENDING DATE
                 NDTIME       0245  ENDING TIME
                  ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL     .25 HOURS
                  TOTAL TIME BASE   74.75 HOURS

        ENGLISH UNITS
            DRAINAGE AREA          SQUARE MILES
            PRECIPITATION DEPTH    INCHES
            LENGTH, ELEVATION      FEET
            FLOW                   CUBIC FEET PER SECOND
            STORAGE VOLUME         ACRE-FEET
            SURFACE AREA           ACRES
            TEMPERATURE            DEGREES FAHRENHEIT

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          *************
          *           *
110 KK    *   BASIN   *
          *           *
          *************

112 KO        OUTPUT CONTROL VARIABLES
                  IPRNT          1  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

            HYDROGRAPH ROUTING DATA

113 RS        STORAGE ROUTING
                  NSTPS          1  NUMBER OF SUBREACHES
                   ITYP       STOR  TYPE OF INITIAL CONDITION
                 RSVRIC       1.70  INITIAL CONDITION
                      X        .00 WORKING R AND D COEFFICIENT

114 SV          STORAGE        .0       .0       .2       .7      1.7      2.8     27.0     46.8     54.5

115 SE        ELEVATION      -7.50    -6.50    -5.50    -5.10    -4.70    -4.40      .00     3.00     4.00

116 SQ        DISCHARGE        0.       0.       0.       0.       0.       0.       0.       0.       0.

117 SE        ELEVATION      -7.50    -6.50    -5.50    -5.10    -4.70    -4.40      .00     3.00     4.00

118 WP        PUMPING DATA

                PUMP ON    PUMPING    PUMP OFF
               ELEVATION     RATE    ELEVATION

                  -3.0       20.        -3.0
                  -2.5       42.        -2.5
                  -2.0       42.        -2.0

                  ISTAD          3  PUMP FLOW HYDROGRAPH IDENTIFICATION

                                          ***

                                COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      .01      .20      .70     1.70     2.80    27.00    46.80    54.50
          OUTFLOW        .00      .00      .00      .00      .00      .00      .00      .00      .00
        ELEVATION      -7.50    -6.50    -5.50    -5.10    -4.70    -4.40      .00     3.00     4.00
```

HYDROGRAPH AT STATION BASIN

DA	MON	HRMN	ORD	PUMP Q	OUTFLOW	STORAGE	STAGE
2	JAN	0000	1	0.	0.	1.7	-4.7
2	JAN	0015	2	0.	0.	1.7	-4.7
2	JAN	0030	3	0.	0.	1.7	-4.7
2	JAN	0045	4	0.	0.	1.7	-4.7
2	JAN	0100	5	0.	0.	1.7	-4.7
2	JAN	0115	6	0.	0.	1.7	-4.7
2	JAN	0130	7	0.	0.	1.7	-4.7
2	JAN	0145	8	0.	0.	1.7	-4.7
2	JAN	0200	9	0.	0.	1.7	-4.7
2	JAN	0215	10	0.	0.	1.7	-4.7
2	JAN	0230	11	0.	0.	1.7	-4.7
2	JAN	0245	12	0.	0.	1.7	-4.7
2	JAN	0300	13	0.	0.	1.7	-4.7
2	JAN	0315	14	0.	0.	1.8	-4.7
2	JAN	0330	15	0.	0.	1.8	-4.7
2	JAN	0345	16	0.	0.	1.9	-4.6
2	JAN	0400	17	0.	0.	2.0	-4.6
2	JAN	0415	18	0.	0.	2.1	-4.6
2	JAN	0430	19	0.	0.	2.3	-4.5
2	JAN	0445	20	0.	0.	2.5	-4.5
2	JAN	0500	21	0.	0.	2.8	-4.4
2	JAN	0515	22	0.	0.	3.1	-4.3
2	JAN	0530	23	0.	0.	3.5	-4.3
2	JAN	0545	24	0.	0.	4.0	-4.2
2	JAN	0600	25	0.	0.	4.6	-4.1
2	JAN	0615	26	0.	0.	5.1	-4.0
2	JAN	0630	27	0.	0.	5.8	-3.9
2	JAN	0645	28	0.	0.	6.4	-3.7
2	JAN	0700	29	0.	0.	7.1	-3.6
2	JAN	0715	30	0.	0.	7.8	-3.5
2	JAN	0730	31	0.	0.	8.6	-3.3
2	JAN	0745	32	0.	0.	9.4	-3.2
2	JAN	0800	33	0.	0.	10.3	-3.0
2	JAN	0815	34	0.	0.	11.3	-2.9
2	JAN	0830	35	20.	0.	11.9	-2.7
2	JAN	0845	36	20.	0.	12.6	-2.6
2	JAN	0900	37	20.	0.	13.5	-2.5
2	JAN	0915	38	62.	0.	13.7	-2.4
2	JAN	0930	39	62.	0.	14.1	-2.3
2	JAN	0945	40	62.	0.	14.9	-2.2
2	JAN	1000	41	62.	0.	16.3	-1.9
2	JAN	1015	42	104.	0.	18.0	-1.6
2	JAN	1030	43	104.	0.	20.8	-1.1
2	JAN	1045	44	104.	0.	24.2	-.5
2	JAN	1100	45	104.	0.	27.6	.1
2	JAN	1115	46	104.	0.	30.7	.6
2	JAN	1130	47	104.	0.	33.5	1.0
2	JAN	1145	48	104.	0.	35.9	1.3
2	JAN	1200	49	104.	0.	38.0	1.7
2	JAN	1215	50	104.	0.	39.8	1.9
2	JAN	1230	51	104.	0.	41.3	2.2
2	JAN	1245	52	104.	0.	42.5	2.3
2	JAN	1300	53	104.	0.	43.4	2.5
2	JAN	1315	54	104.	0.	44.2	2.6
2	JAN	1330	55	104.	0.	44.8	2.7
2	JAN	1345	56	104.	0.	45.2	2.8
2	JAN	1400	57	104.	0.	45.5	2.8
2	JAN	1415	58	104.	0.	45.7	2.8
2	JAN	1430	59	104.	0.	45.8	2.8
2	JAN	1445	60	104.	0.	45.7	2.8
2	JAN	1500	61	104.	0.	45.7	2.8
2	JAN	1515	62	104.	0.	45.5	2.8
2	JAN	1530	63	104.	0.	45.3	2.8
2	JAN	1545	64	104.	0.	45.0	2.7
2	JAN	1600	65	104.	0.	44.6	2.7
2	JAN	1615	66	104.	0.	44.2	2.6
2	JAN	1630	67	104.	0.	43.7	2.5
2	JAN	1645	68	104.	0.	43.3	2.5
2	JAN	1700	69	104.	0.	42.7	2.4
2	JAN	1715	70	104.	0.	42.2	2.3
2	JAN	1730	71	104.	0.	41.5	2.2
2	JAN	1745	72	104.	0.	40.9	2.1
2	JAN	1800	73	104.	0.	40.2	2.0
2	JAN	1815	74	104.	0.	39.5	1.9
2	JAN	1830	75	104.	0.	38.8	1.8
2	JAN	1845	76	104.	0.	38.1	1.7
2	JAN	1900	77	104.	0.	37.3	1.6
2	JAN	1915	78	104.	0.	36.5	1.4
2	JAN	1930	79	104.	0.	35.7	1.3
2	JAN	1945	80	104.	0.	34.9	1.2
2	JAN	2000	81	104.	0.	34.0	1.1
2	JAN	2015	82	104.	0.	33.2	.9
2	JAN	2030	83	104.	0.	32.3	.8
2	JAN	2045	84	104.	0.	31.4	.7
2	JAN	2100	85	104.	0.	30.5	.5
2	JAN	2115	86	104.	0.	29.5	.4

DA	MON	HRMN	ORD	PUMP Q	OUTFLOW	STORAGE	STAGE
3	JAN	1330	151	0.	0.	10.5	-3.0
3	JAN	1345	152	0.	0.	10.5	-3.0
3	JAN	1400	153	0.	0.	10.5	-3.0
3	JAN	1415	154	0.	0.	10.5	-3.0
3	JAN	1430	155	0.	0.	10.5	-3.0
3	JAN	1445	156	0.	0.	10.5	-3.0
3	JAN	1500	157	0.	0.	10.5	-3.0
3	JAN	1515	158	0.	0.	10.5	-3.0
3	JAN	1530	159	0.	0.	10.5	-3.0
3	JAN	1545	160	0.	0.	10.5	-3.0
3	JAN	1600	161	0.	0.	10.5	-3.0
3	JAN	1615	162	0.	0.	10.5	-3.0
3	JAN	1630	163	0.	0.	10.5	-3.0
3	JAN	1645	164	0.	0.	10.5	-3.0
3	JAN	1700	165	0.	0.	10.5	-3.0
3	JAN	1715	166	0.	0.	10.5	-3.0
3	JAN	1730	167	0.	0.	10.5	-3.0
3	JAN	1745	168	20.	0.	10.1	-3.1
3	JAN	1800	169	0.	0.	10.1	-3.1
3	JAN	1815	170	0.	0.	10.1	-3.1
3	JAN	1830	171	0.	0.	10.1	-3.1
3	JAN	1845	172	0.	0.	10.1	-3.1
3	JAN	1900	173	0.	0.	10.1	-3.1
3	JAN	1915	174	0.	0.	10.1	-3.1
3	JAN	1930	175	0.	0.	10.1	-3.1
3	JAN	1945	176	0.	0.	10.1	-3.1
3	JAN	2000	177	0.	0.	10.1	-3.1
3	JAN	2015	178	0.	0.	10.1	-3.1
3	JAN	2030	179	0.	0.	10.1	-3.1
3	JAN	2045	180	0.	0.	10.1	-3.1
3	JAN	2100	181	0.	0.	10.1	-3.1
3	JAN	2115	182	0.	0.	10.1	-3.1
3	JAN	2130	183	0.	0.	10.1	-3.1
3	JAN	2145	184	0.	0.	10.1	-3.1
3	JAN	2200	185	0.	0.	10.1	-3.1
3	JAN	2215	186	0.	0.	10.1	-3.1
3	JAN	2230	187	0.	0.	10.1	-3.1
3	JAN	2245	188	0.	0.	10.1	-3.1
3	JAN	2300	189	0.	0.	10.1	-3.1
3	JAN	2315	190	0.	0.	10.1	-3.1
3	JAN	2330	191	0.	0.	10.1	-3.1
3	JAN	2345	192	0.	0.	10.1	-3.1
4	JAN	0000	193	0.	0.	10.1	-3.1
4	JAN	0015	194	0.	0.	10.1	-3.1
4	JAN	0030	195	0.	0.	10.1	-3.1
4	JAN	0045	196	0.	0.	10.1	-3.1
4	JAN	0100	197	0.	0.	10.1	-3.1
4	JAN	0115	198	0.	0.	10.1	-3.1
4	JAN	0130	199	0.	0.	10.1	-3.1
4	JAN	0145	200	0.	0.	10.1	-3.1
4	JAN	0200	201	0.	0.	10.1	-3.1
4	JAN	0215	202	0.	0.	10.1	-3.1
4	JAN	0230	203	0.	0.	10.1	-3.1
4	JAN	0245	204	0.	0.	10.1	-3.1
4	JAN	0300	205	0.	0.	10.1	-3.1
4	JAN	0315	206	0.	0.	10.1	-3.1
4	JAN	0330	207	0.	0.	10.1	-3.1
4	JAN	0345	208	0.	0.	10.1	-3.1
4	JAN	0400	209	0.	0.	10.1	-3.1
4	JAN	0415	210	0.	0.	10.1	-3.1
4	JAN	0430	211	0.	0.	10.1	-3.1
4	JAN	0445	212	0.	0.	10.1	-3.1
4	JAN	0500	213	0.	0.	10.1	-3.1
4	JAN	0515	214	0.	0.	10.1	-3.1
4	JAN	0530	215	0.	0.	10.1	-3.1
4	JAN	0545	216	0.	0.	10.1	-3.1
4	JAN	0600	217	0.	0.	10.1	-3.1
4	JAN	0615	218	0.	0.	10.1	-3.1
4	JAN	0630	219	0.	0.	10.1	-3.1
4	JAN	0645	220	0.	0.	10.1	-3.1
4	JAN	0700	221	0.	0.	10.1	-3.1
4	JAN	0715	222	0.	0.	10.1	-3.1
4	JAN	0730	223	0.	0.	10.1	-3.1
4	JAN	0745	224	0.	0.	10.1	-3.1
4	JAN	0800	225	0.	0.	10.1	-3.1
4	JAN	0815	226	0.	0.	10.1	-3.1
4	JAN	0830	227	0.	0.	10.1	-3.1
4	JAN	0845	228	0.	0.	10.1	-3.1
4	JAN	0900	229	0.	0.	10.1	-3.1
4	JAN	0915	230	0.	0.	10.1	-3.1
4	JAN	0930	231	0.	0.	10.1	-3.1
4	JAN	0945	232	0.	0.	10.1	-3.1
4	JAN	1000	233	0.	0.	10.1	-3.1
4	JAN	1015	234	0.	0.	10.1	-3.1
4	JAN	1030	235	0.	0.	10.1	-3.1
4	JAN	1045	236	0.	0.	10.1	-3.1

2 JAN 2130	87	104.	0.	28.6	.2	*	4 JAN 1100	237	0.	0.	10.1	-3.1
2 JAN 2145	88	104.	0.	27.6	.1	*	4 JAN 1115	238	0.	0.	10.1	-3.1
2 JAN 2200	89	104.	0.	26.6	-.1	*	4 JAN 1130	239	0.	0.	10.1	-3.1
2 JAN 2215	90	104.	0.	25.6	-.3	*	4 JAN 1145	240	0.	0.	10.1	-3.1
2 JAN 2230	91	104.	0.	24.6	-.4	*	4 JAN 1200	241	0.	0.	10.1	-3.1
2 JAN 2245	92	104.	0.	23.5	-.6	*	4 JAN 1215	242	0.	0.	10.1	-3.1
2 JAN 2300	93	104.	0.	22.5	-.8	*	4 JAN 1230	243	0.	0.	10.1	-3.1
2 JAN 2315	94	104.	0.	21.5	-1.0	*	4 JAN 1245	244	0.	0.	10.1	-3.1
2 JAN 2330	95	104.	0.	20.4	-1.2	*	4 JAN 1300	245	0.	0.	10.1	-3.1
2 JAN 2345	96	104.	0.	19.3	-1.4	*	4 JAN 1315	246	0.	0.	10.1	-3.1
3 JAN 0000	97	104.	0.	18.2	-1.6	*	4 JAN 1330	247	0.	0.	10.1	-3.1
3 JAN 0015	98	104.	0.	17.1	-1.8	*	4 JAN 1345	248	0.	0.	10.1	-3.1
3 JAN 0030	99	104.	0.	15.9	-2.0	*	4 JAN 1400	249	0.	0.	10.1	-3.1
3 JAN 0045	100	62.	0.	15.5	-2.1	*	4 JAN 1415	250	0.	0.	10.1	-3.1
3 JAN 0100	101	62.	0.	15.0	-2.2	*	4 JAN 1430	251	0.	0.	10.1	-3.1
3 JAN 0115	102	62.	0.	14.4	-2.3	*	4 JAN 1445	252	0.	0.	10.1	-3.1
3 JAN 0130	103	62.	0.	13.6	-2.4	*	4 JAN 1500	253	0.	0.	10.1	-3.1
3 JAN 0145	104	62.	0.	12.8	-2.6	*	4 JAN 1515	254	0.	0.	10.1	-3.1
3 JAN 0200	105	20.	0.	12.7	-2.6	*	4 JAN 1530	255	0.	0.	10.1	-3.1
3 JAN 0215	106	20.	0.	12.6	-2.6	*	4 JAN 1545	256	0.	0.	10.1	-3.1
3 JAN 0230	107	20.	0.	12.4	-2.7	*	4 JAN 1600	257	0.	0.	10.1	-3.1
3 JAN 0245	108	20.	0.	12.2	-2.7	*	4 JAN 1615	258	0.	0.	10.1	-3.1
3 JAN 0300	109	20.	0.	12.0	-2.7	*	4 JAN 1630	259	0.	0.	10.1	-3.1
3 JAN 0315	110	20.	0.	11.7	-2.8	*	4 JAN 1645	260	0.	0.	10.1	-3.1
3 JAN 0330	111	20.	0.	11.4	-2.8	*	4 JAN 1700	261	0.	0.	10.1	-3.1
3 JAN 0345	112	20.	0.	11.1	-2.9	*	4 JAN 1715	262	0.	0.	10.1	-3.1
3 JAN 0400	113	20.	0.	10.8	-2.9	*	4 JAN 1730	263	0.	0.	10.1	-3.1
3 JAN 0415	114	20.	0.	10.5	-3.0	*	4 JAN 1745	264	0.	0.	10.1	-3.1
3 JAN 0430	115	0.	0.	10.5	-3.0	*	4 JAN 1800	265	0.	0.	10.1	-3.1
3 JAN 0445	116	20.	0.	10.2	-3.1	*	4 JAN 1815	266	0.	0.	10.1	-3.1
3 JAN 0500	117	0.	0.	10.2	-3.1	*	4 JAN 1830	267	0.	0.	10.1	-3.1
3 JAN 0515	118	0.	0.	10.2	-3.0	*	4 JAN 1845	268	0.	0.	10.1	-3.1
3 JAN 0530	119	0.	0.	10.3	-3.0	*	4 JAN 1900	269	0.	0.	10.1	-3.1
3 JAN 0545	120	0.	0.	10.3	-3.0	*	4 JAN 1915	270	0.	0.	10.1	-3.1
3 JAN 0600	121	0.	0.	10.3	-3.0	*	4 JAN 1930	271	0.	0.	10.1	-3.1
3 JAN 0615	122	0.	0.	10.4	-3.0	*	4 JAN 1945	272	0.	0.	10.1	-3.1
3 JAN 0630	123	0.	0.	10.4	-3.0	*	4 JAN 2000	273	0.	0.	10.1	-3.1
3 JAN 0645	124	0.	0.	10.4	-3.0	*	4 JAN 2015	274	0.	0.	10.1	-3.1
3 JAN 0700	125	0.	0.	10.4	-3.0	*	4 JAN 2030	275	0.	0.	10.1	-3.1
3 JAN 0715	126	0.	0.	10.4	-3.0	*	4 JAN 2045	276	0.	0.	10.1	-3.1
3 JAN 0730	127	0.	0.	10.4	-3.0	*	4 JAN 2100	277	0.	0.	10.1	-3.1
3 JAN 0745	128	0.	0.	10.4	-3.0	*	4 JAN 2115	278	0.	0.	10.1	-3.1
3 JAN 0800	129	0.	0.	10.4	-3.0	*	4 JAN 2130	279	0.	0.	10.1	-3.1
3 JAN 0815	130	0.	0.	10.5	-3.0	*	4 JAN 2145	280	0.	0.	10.1	-3.1
3 JAN 0830	131	0.	0.	10.5	-3.0	*	4 JAN 2200	281	0.	0.	10.1	-3.1
3 JAN 0845	132	0.	0.	10.5	-3.0	*	4 JAN 2215	282	0.	0.	10.1	-3.1
3 JAN 0900	133	0.	0.	10.5	-3.0	*	4 JAN 2230	283	0.	0.	10.1	-3.1
3 JAN 0915	134	0.	0.	10.5	-3.0	*	4 JAN 2245	284	0.	0.	10.1	-3.1
3 JAN 0930	135	0.	0.	10.5	-3.0	*	4 JAN 2300	285	0.	0.	10.1	-3.1
3 JAN 0945	136	0.	0.	10.5	-3.0	*	4 JAN 2315	286	0.	0.	10.1	-3.1
3 JAN 1000	137	0.	0.	10.5	-3.0	*	4 JAN 2330	287	0.	0.	10.1	-3.1
3 JAN 1015	138	0.	0.	10.5	-3.0	*	4 JAN 2345	288	0.	0.	10.1	-3.1
3 JAN 1030	139	0.	0.	10.5	-3.0	*	5 JAN 0000	289	0.	0.	10.1	-3.1
3 JAN 1045	140	0.	0.	10.5	-3.0	*	5 JAN 0015	290	0.	0.	10.1	-3.1
3 JAN 1100	141	0.	0.	10.5	-3.0	*	5 JAN 0030	291	0.	0.	10.1	-3.1
3 JAN 1115	142	0.	0.	10.5	-3.0	*	5 JAN 0045	292	0.	0.	10.1	-3.1
3 JAN 1130	143	0.	0.	10.5	-3.0	*	5 JAN 0100	293	0.	0.	10.1	-3.1
3 JAN 1145	144	0.	0.	10.5	-3.0	*	5 JAN 0115	294	0.	0.	10.1	-3.1
3 JAN 1200	145	0.	0.	10.5	-3.0	*	5 JAN 0130	295	0.	0.	10.1	-3.1
3 JAN 1215	146	0.	0.	10.5	-3.0	*	5 JAN 0145	296	0.	0.	10.1	-3.1
3 JAN 1230	147	0.	0.	10.5	-3.0	*	5 JAN 0200	297	0.	0.	10.1	-3.1
3 JAN 1245	148	0.	0.	10.5	-3.0	*	5 JAN 0215	298	0.	0.	10.1	-3.1
3 JAN 1300	149	0.	0.	10.5	-3.0	*	5 JAN 0230	299	0.	0.	10.1	-3.1
3 JAN 1315	150	0.	0.	10.5	-3.0	*	5 JAN 0245	300	0.	0.	10.1	-3.1
						*						

****

PEAK OUTFLOW IS 0. AT TIME .00 HOURS

***** PUMP FLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	74.75-HR
+ (CFS)	(HR)					
		(CFS)				
+ 104.	10.25		104.	72.	24.	23.
		(INCHES)	.655	1.802	1.807	1.807
		(AC-FT)	52.	142.	143.	142.

***** OUTFLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	74.75-HR
+ (CFS)	(HR)					
		(CFS)				
+ 0.	.25		0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	74.75-HR
46.	14.50	44.	26.	15.	14.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	74.75-HR
2.84	14.50	2.53	.00	.00	-2.34

CUMULATIVE AREA = 1.48 SQ MI

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	S4	153.	11.00	93.	43.	14.	.53		
DIVERSION TO	PUMP	140.	11.00	92.	42.	14.	.53		
HYDROGRAPH AT	RAMBO	13.	11.00	1.	0.	0.	.53		
ROUTED TO	LKSHR	12.	11.50	2.	0.	0.	.53		
HYDROGRAPH AT	MONT	23.	10.25	7.	3.	1.	.03		
ROUTED TO	BASS	23.	10.75	7.	3.	1.	.03		
2 COMBINED AT	GNRA	23.	10.75	8.	4.	1.	.56		
ROUTED TO	TOSD	22.	10.75	8.	4.	1.	.56		
ROUTED TO	SDRT	20.	10.75	8.	4.	1.	.56		
HYDROGRAPH AT	SD3	101.	10.50	45.	20.	7.	.25		
2 COMBINED AT	TAS	114.	10.50	53.	24.	8.	.81		
ROUTED TO	CHAN	112.	10.75	53.	24.	8.	.81		
HYDROGRAPH AT	SD2	51.	10.25	15.	7.	2.	.08		
2 COMBINED AT	OUT2	148.	10.50	68.	31.	10.	.89		
ROUTED TO	CHAN	145.	10.50	68.	31.	10.	.89		
HYDROGRAPH AT	GOLF	14.	10.50	6.	3.	1.	.04		
2 COMBINED AT	CHAN	159.	10.50	74.	33.	11.	.93		
ROUTED TO	CHAN	153.	10.75	74.	33.	11.	.93		
HYDROGRAPH AT	BASIN	28.	10.25	9.	4.	1.	.05		
2 COMBINED AT	BASIN	174.	10.50	83.	38.	13.	.98		
HYDROGRAPH AT	SD1	36.	10.75	19.	9.	3.	.12		
HYDROGRAPH AT	YERB	89.	11.50	62.	29.	10.	.38		
2 COMBINED AT	LFYT	118.	11.25	81.	38.	13.	.50		
ROUTED TO	DITCH	118.	11.25	81.	38.	13.	.50		

2 COMBINED AT
+ BASIN 272. 10.75 163. 76. 25. 1.48

PUMP FLOW TO
+ 3 104. 10.25 104. 72. .24 1.48

HYDROGRAPH AT
+ BASIN 0. .25 0. 0. 0. 1.48
+ 2.84 14.50
1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
LKSHR	MANE	5.43	12.65	685.81	.03	15.00	12.43	690.00	.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5690E+00 EXCESS= .0000E+00 OUTFLOW= .7553E+00 BASIN STORAGE= .4567E-03 PERCENT ERROR= -32.8

BASS	MANE	13.57	23.36	644.71	3.84	15.00	23.17	645.00	3.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6436E+01 EXCESS= .0000E+00 OUTFLOW= .6555E+01 BASIN STORAGE= .1700E-02 PERCENT ERROR= -1.9

TOSD	MANE	1.45	22.84	646.85	.24	15.00	22.30	645.00	.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7342E+01 EXCESS= .0000E+00 OUTFLOW= .7343E+01 BASIN STORAGE= .3320E-03 PERCENT ERROR= .0

SDRT	MANE	2.92	21.70	652.05	.25	15.00	20.13	645.00	.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7356E+01 EXCESS= .0000E+00 OUTFLOW= .7357E+01 BASIN STORAGE= .6477E-04 PERCENT ERROR= .0

CHAN	MANE	1.45	113.66	632.76	1.09	15.00	111.00	645.00	1.09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4736E+02 EXCESS= .0000E+00 OUTFLOW= .4736E+02 BASIN STORAGE= .1583E-03 PERCENT ERROR= .0

CHAN	MANE	2.81	147.26	636.46	1.29	15.00	145.28	630.00	1.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6104E+02 EXCESS= .0000E+00 OUTFLOW= .6105E+02 BASIN STORAGE= .3972E-03 PERCENT ERROR= .0

CHAN	MANE	1.94	158.65	634.07	1.34	15.00	153.29	645.00	1.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6644E+02 EXCESS= .0000E+00 OUTFLOW= .6645E+02 BASIN STORAGE= .2826E-03 PERCENT ERROR= .0

DITCH	MANE	.97	118.02	677.16	2.85	15.00	117.64	675.00	2.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7606E+02 EXCESS= .0000E+00 OUTFLOW= .7605E+02 BASIN STORAGE= .3421E-07 PERCENT ERROR= .0

*** NORMAL END OF HEC-1 ***

→ EAST SIDE #1

Date **April 1994**

Supersedes **All previous catalog materials**

CURVE data

Verti-Line

16P 1170 R.P.M.

PUMP REPAIR SERVICE CO.
405 ALLAN ST. • P. O. BOX 34327
SAN FRANCISCO, CA 94134
(415) 467-2150

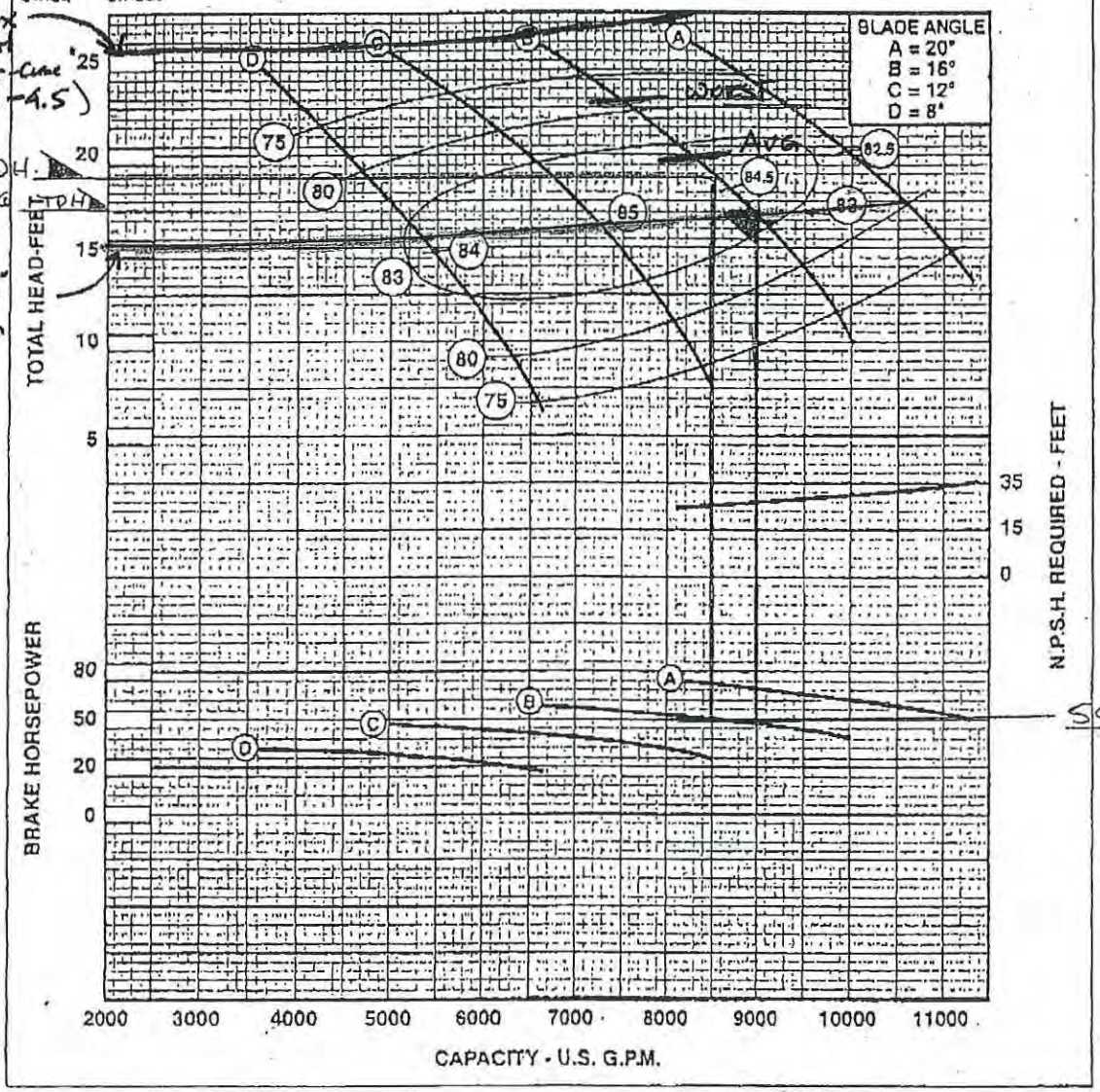
PUMP PERFORMANCE

ONE STAGE ( ) STAGES

MAX TDH "Worst-Case" (Pump to 4.5)

MAX TDH PERFECTING

"Best-Case" Tailwater



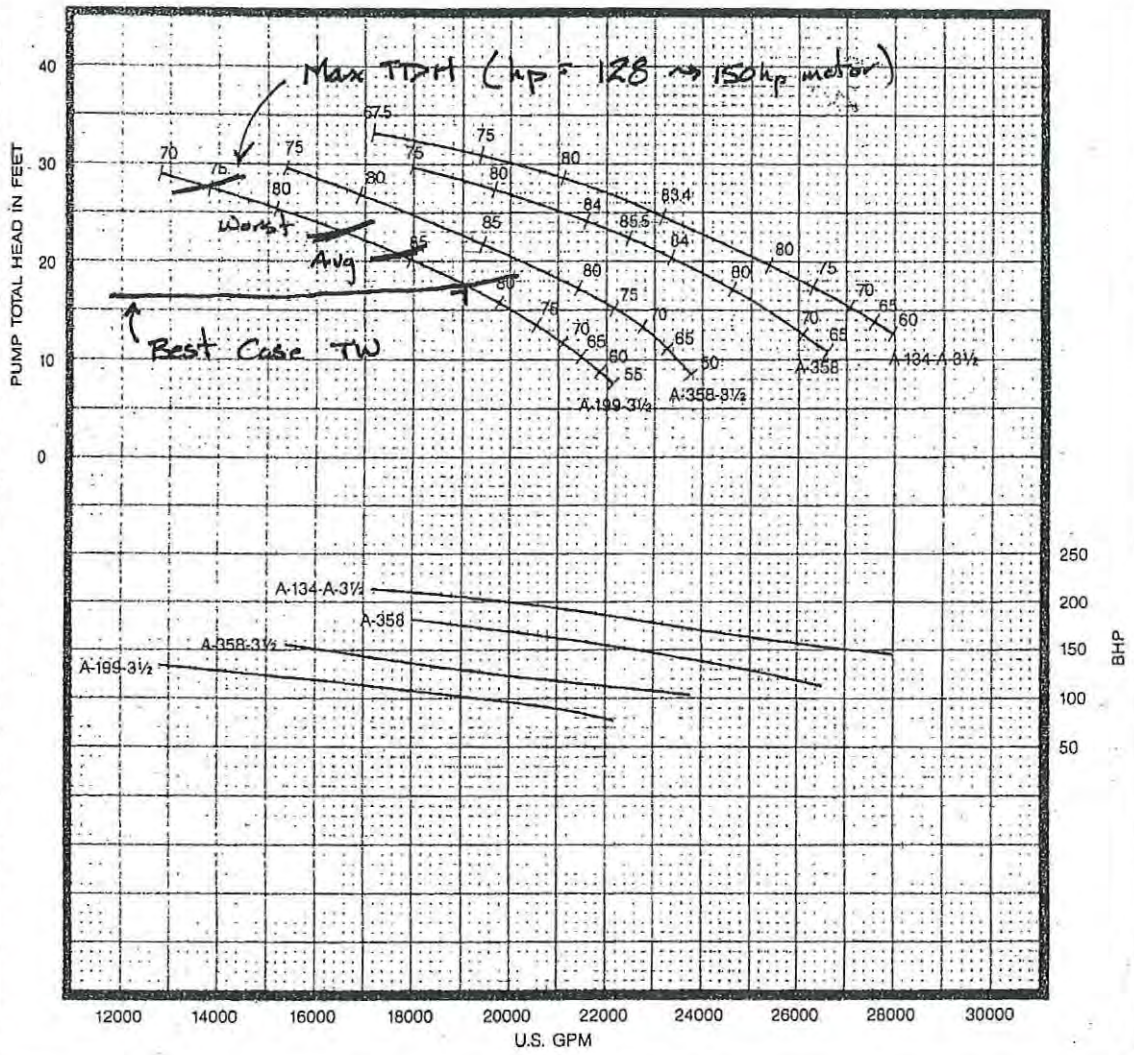
50 HP motor

IMPELLER DIAMETER	SHUT-OFF HEAD	HORSEPOWER	"K" FACTOR	MAX. SPHERES	1.2
A	67.4	184.0	85.0	IMP. PATT. NO.	16P
B	63.7	168.0	85.0	CASE PATT. NO.	16P2
C	58.9	128.0	85.0	DISCHARGE BOWL	-
D	55.8	91.0	85.0	INTER. BOWL	-

VL1170B0P1160

Curves reflect typical performance, refer to factory for certification

Sump #1



30″
8211
705 RPM
1 STAGE

30″ COLUMN

30″ FABRICATED STEEL ELBOW

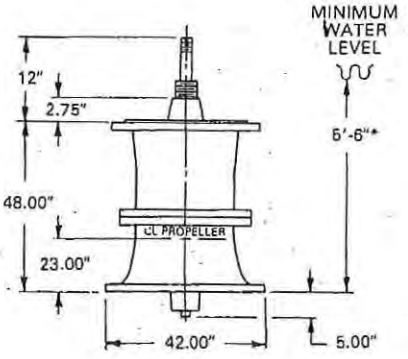
2-3/16″ LINESHAFT

3″ ENCLOSING TUBE

DATA	VALUE	
PUMP SHAFT DIAMETER	2.4375 IN.	
MAXIMUM SPHERE SIZE	4.00 IN.	
K_t (THRUST FACTOR)	215 LBS./FT.	
K_a (TOTAL ROTOR WEIGHT)	270 LBS.	
K_s (SETTING CONSTANT)	12.8 LBS./FT.	
WK^2	152 LBS.-FT.²	
BOWL ASSEMBLY WEIGHT	1900 LBS.	
EYE AREA: PROPELLER NO. A-199-3 1/2	351.0 SQ. IN.	3 VANE
PROPELLER NO. A-358-3 1/2	351.0 SQ. IN.	3 VANE
PROPELLER NO. A-358	384.7 SQ. IN.	3 VANE
PROPELLER NO. A-134-A-3 1/2	351.0 SQ. IN.	4 VANE
PROPELLER NO.		
PROPELLER NO.		

HYDRAULIC PERFORMANCE IS CONTINGENT ON FURNISHING THE PUMP WITH SPECIFIED AMOUNT OF CLEAR, FRESH, NON-AERATED WATER NOT TO EXCEED 85° F.

PUMP PERFORMANCE SHOWN IS BOWL ASSEMBLY WITH 10 FEET OF COLUMN INCLUDING A STANDARD ABOVE GROUND DISCHARGE ELBOW. ADDITIONAL COLUMN LOSSES SHOULD BE ADDED WHEN SETTINGS ARE DEEPER THAN 10 FEET AND/OR FOR OTHER DISCHARGE ARRANGEMENTS.



*This value is the minimum submergence required to prevent vortexing only. This value may need to be increased to provide adequate NPSHA.

Guestimate for Sump #2 & #3

Table
Rating Table for Pressure Pipe

Project Description	
Project File	f:\data\jobs\cscl\03-eastside\calculations\pumps.fm2
Worksheet	24" Pump Discharge
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Elevation at 1

Constant Data	
Pressure at 1	0.00 psi
Pressure at 2	0.00 psi
Elevation at 2	0.00 ft
Length	111.00 ft
C Coefficient	120.0
Diameter	24.00 in

Input Data			
	Minimum	Maximum	Increment
Discharge	2,000.0	10,000.0	1,000.0 gal/min

Rating Table

Discharge (gal/min)	Elevation at * 1 (ft)	Velocity (ft/s)
2,000.0	0.04	1.42
3,000.0	0.09	2.13
4,000.0	0.15	2.84
5,000.0	0.22	3.55
6,000.0	0.31	4.26
7,000.0	0.41	4.96
8,000.0	0.52	5.67
9,000.0	0.65	6.38
10,000.0	0.79	7.09

Minor Losses:

	K
Bell Intake	0.05
3 piece mitre el	0.30
Flapgate	0.10
Exit	1.00
	1.45

say $1.5\ V^2/2g$

* Friction Loss

Table
Rating Table for Pressure Pipe

Project Description	
Project File	f:\data\jobs\cscl\03-eastside\calculations\pumps.fm2
Worksheet	30" Pump Discharge
Flow Element	Pressure Pipe
Method	Hazen-Williams Formula
Solve For	Elevation at 1

Constant Data	
Pressure at 1	0.00 psi
Pressure at 2	0.00 psi
Elevation at 2	0.00 ft
Length	111.00 ft
C Coefficient	120.0
Diameter	30.00 in

Input Data			
	Minimum	Maximum	Increment
Discharge	12,000.0	22,000.0	1,000.0 gal/min

Rating Table

Discharge (gal/min)	Elevation at * 1 (ft)	Velocity (ft/s)
12,000.0	0.38	5.45
13,000.0	0.44	5.90
14,000.0	0.50	6.35
15,000.0	0.57	6.81
16,000.0	0.64	7.26
17,000.0	0.72	7.72
18,000.0	0.79	8.17
19,000.0	0.88	8.62
20,000.0	0.97	9.08
21,000.0	1.06	9.53
22,000.0	1.15	9.99

* Friction Loss

Minor Losses:

	K
Bell Intake	0.05
3piece mitre el	0.30
Flapgate	0.10
EXIT	1.00
	1.45

SAY $1.5\ V^2/2g$

City of Santa Clara

Storage Volume of Eastside Detention Facility and Surrounding Area

Eastside Basin							
Elevation	Area	Vertical Dist	Volume	Cum Vol.			
(City Datum)	(ft^2)	(feet)	(ft^3)	(ft^3)			
-7.5	159			-			
		1	576				
-6.5	992			576		Elevation	Cum Vol
		0.6	1,913			(feet)	(acre-ft)
-5.9	5,383			2,488		-7.5	0.00
		0.4	7,136			-6.5	0.01
-5.5	30,295			9,624		-5.9	0.06
		0.4	19,003			-5.5	0.22
-5.1	64,718			28,626		-5.1	0.66
		0.4	43,736			-4.7	1.66
-4.7	153,964			72,363		-4.4	2.84
		0.3	51,549			0.0	26.95
-4.4	189,696			123,912		3.0	46.80
		4.4	868,463			4.0	54.45
0.0	205,060			992,375			
		3	630,890				
3.0	215,533			1,623,264			
		0.2	45,037				
3.2	234,835			1,668,301			
		0.8	189,806				
4.0	239,680			1,858,107			
1978 Enlargement of Eastside Basin							
Elevation	Area	Vertical Dist	Volume	Cum Vol.			
(City Datum)	(ft^2)	(feet)	(ft^3)	(ft^3)			
-4.4	40,200			-			
		4.4	181,654				
0.0	42,370			181,654			
		3	129,330				
3.0	43,850			310,984			
		1	43,975				
4.0	44,100			354,959			
Land bound by 237, Eastside Basin and Sanitary Sewage Pumping Station							
Elevation	Area	Vertical Dist	Volume	Cum Vol.			
(City Datum)	(ft^2)	(feet)	(ft^3)	(ft^3)			
0.0	18,000			-			
		3	104,550				
3.0	51,700			104,550			
		1	54,285				
4.0	56,870			158,835			

APPENDIX C

Excerpt from the Santa Clara County Drainage Manual

A. APPENDIX A

Overland Flow Velocity

Mean Annual Precipitation Map

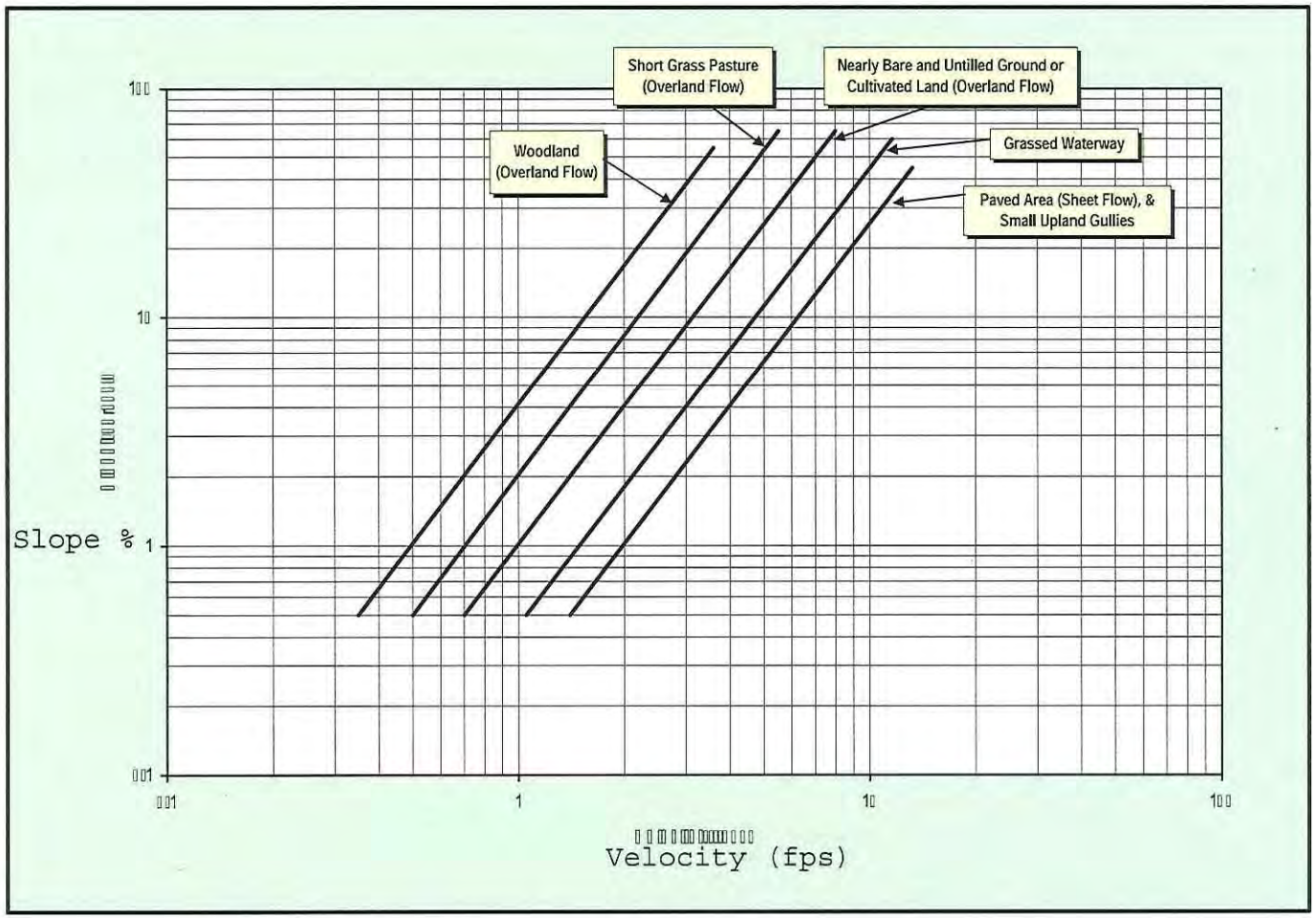
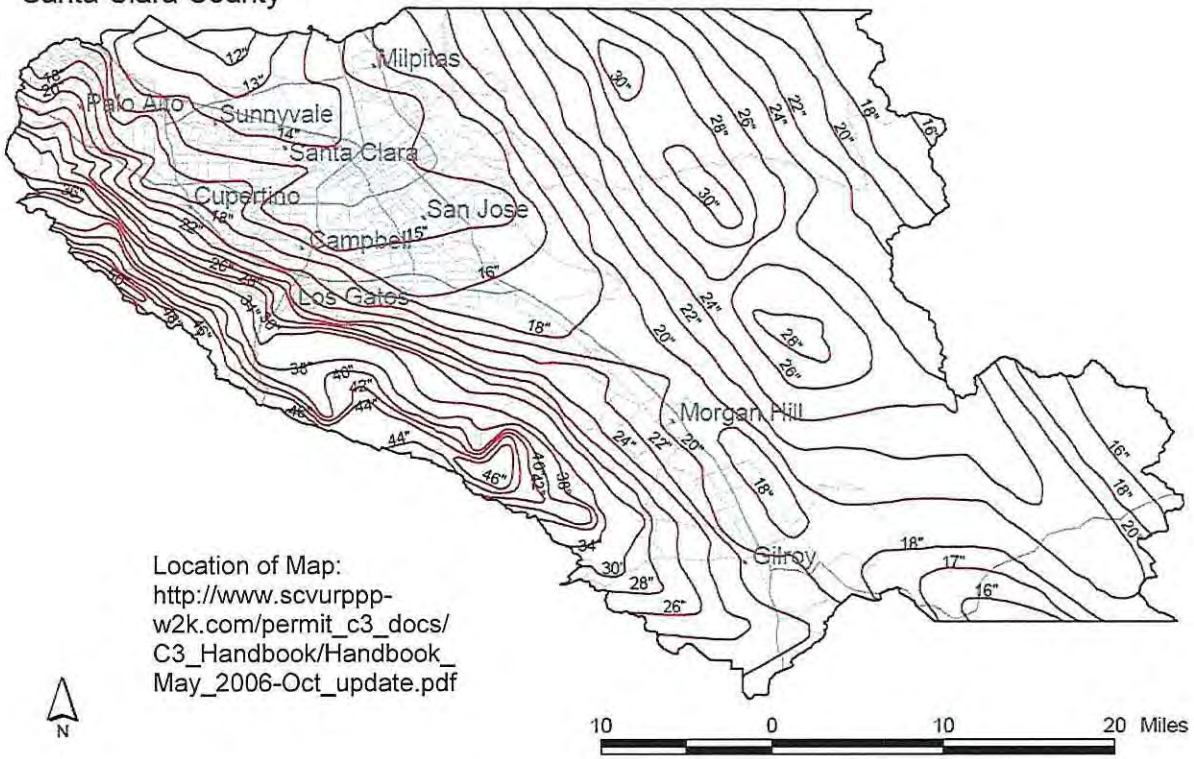


Figure A-1: Overland Flow Velocity

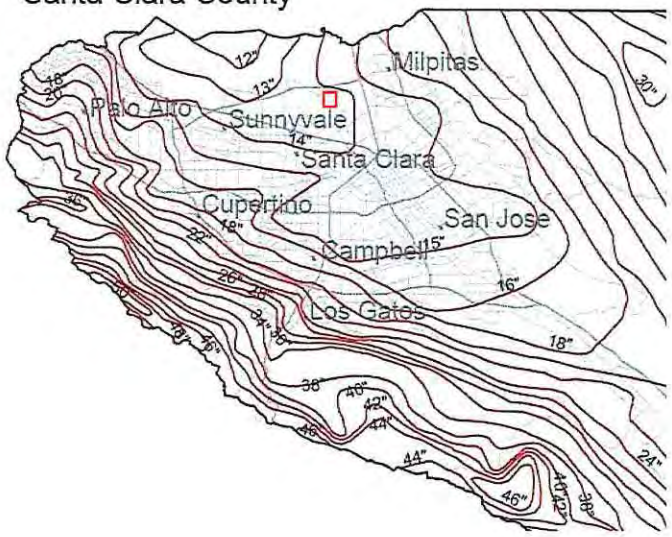
Figure A-2
Mean Annual Precipitation Map
Santa Clara County



SOURCE: Santa Clara Valley Water District, Mean Annual Precipitation Map, San Francisco & Monterey Bay Region, 1998

Figure A-2: Mean Annual Precipitation, Santa Clara County

Figure A-2
Mean Annual Precipitation Map
Santa Clara County



B. APPENDIX B

IDF Curves

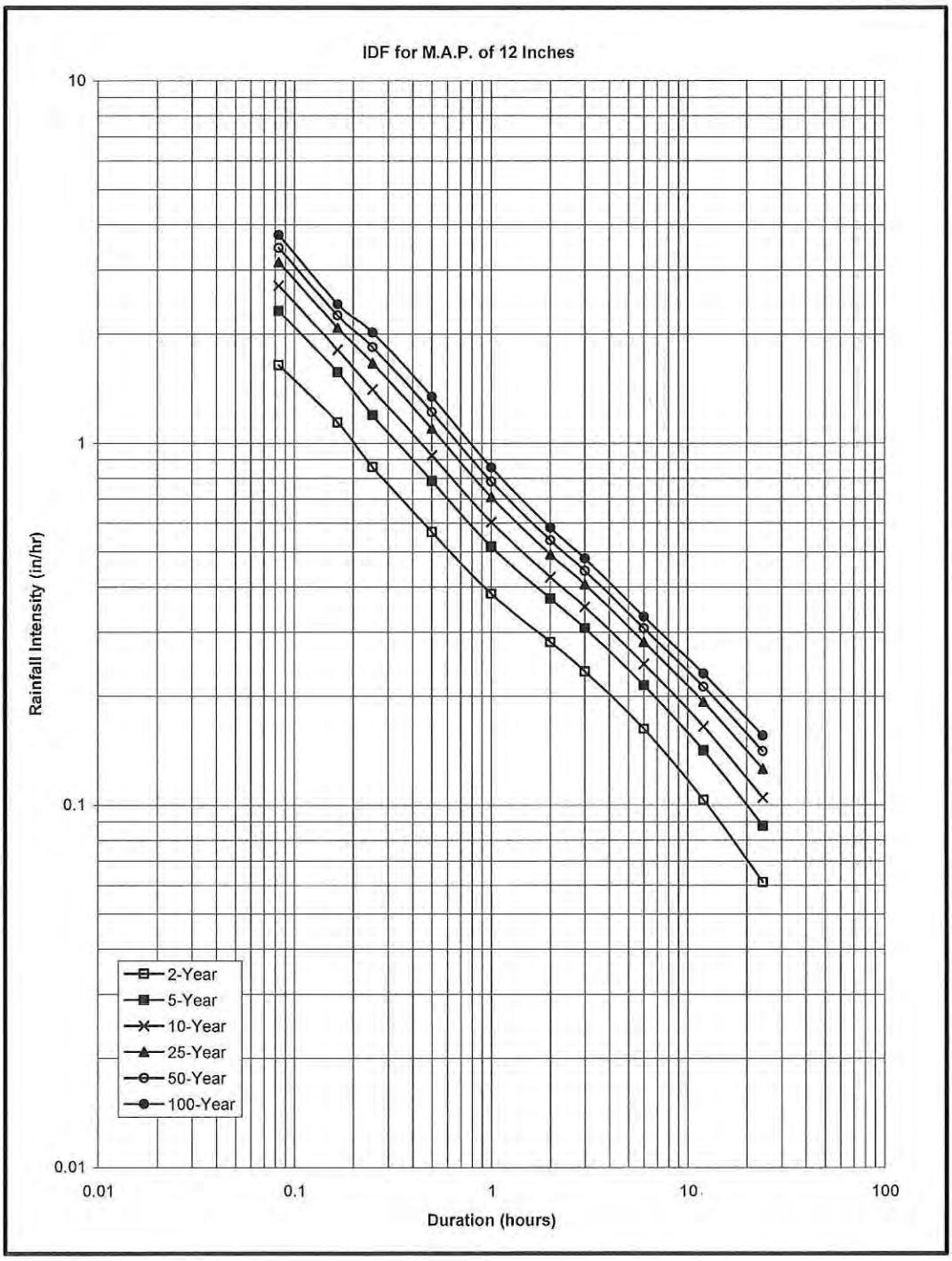


Figure B-1: IDF for M.A.P. of 12 Inches

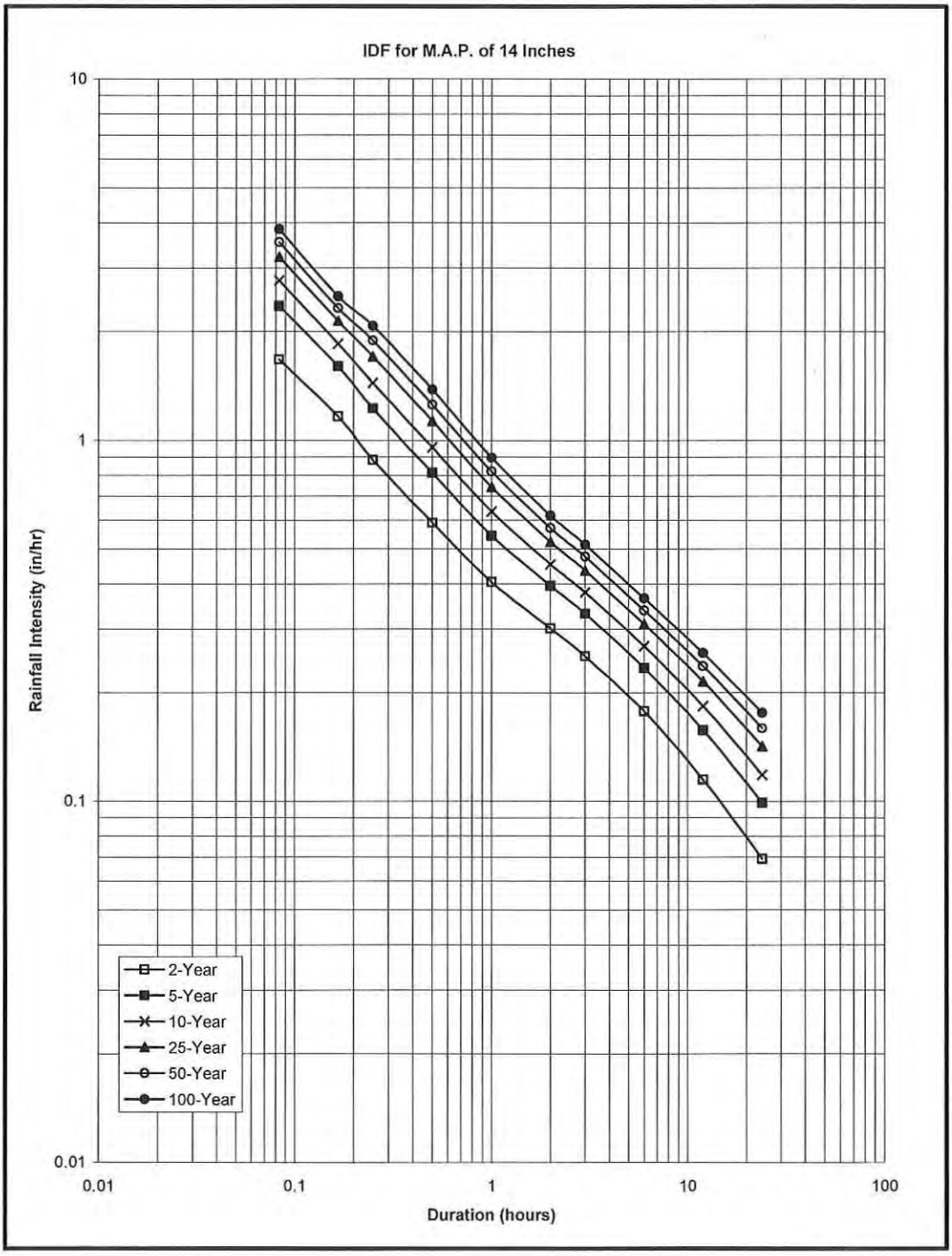


Figure B-2: IDF for M.A. P. of 14 Inches

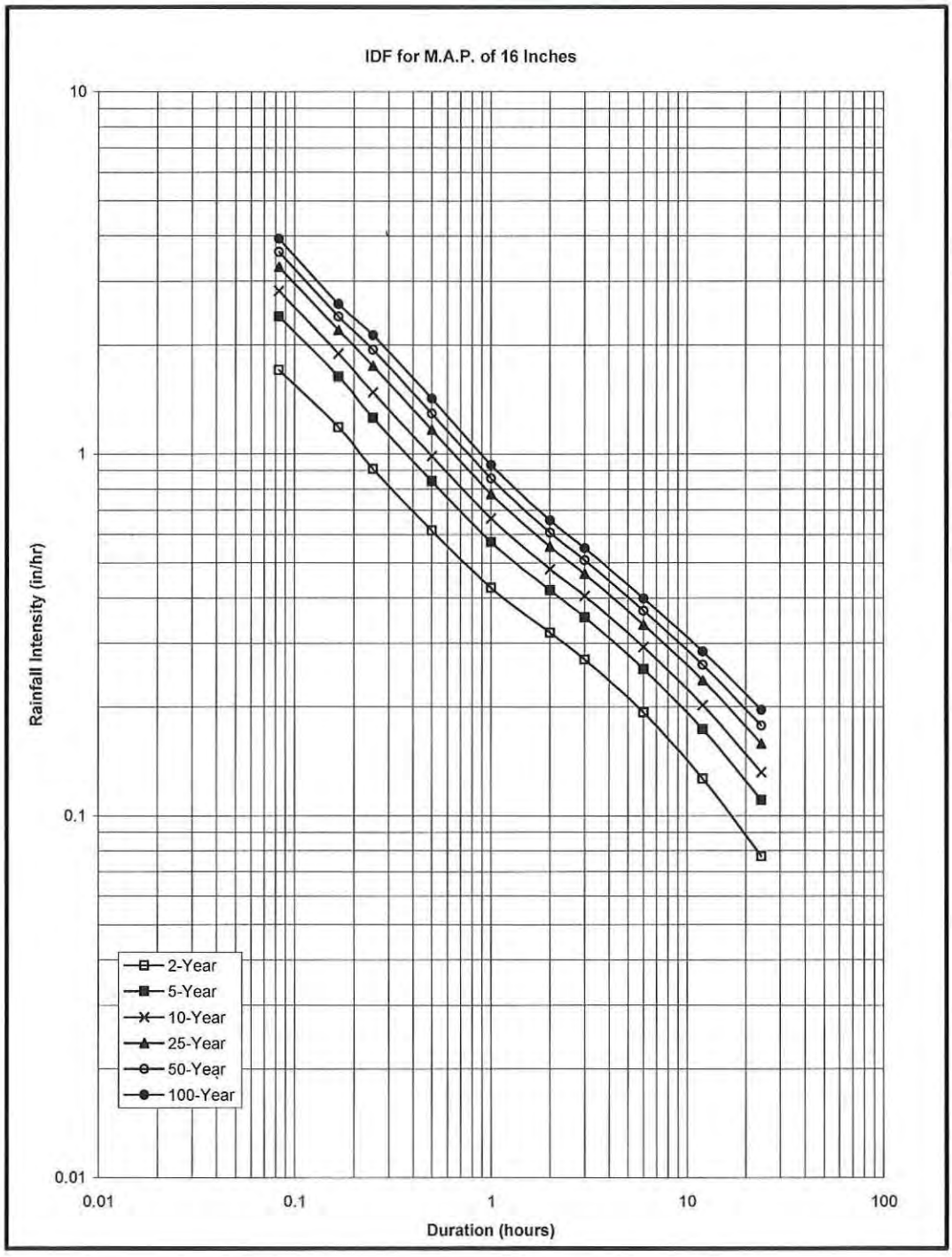


Figure B-3: IDF for M.A.P. of 16 Inches

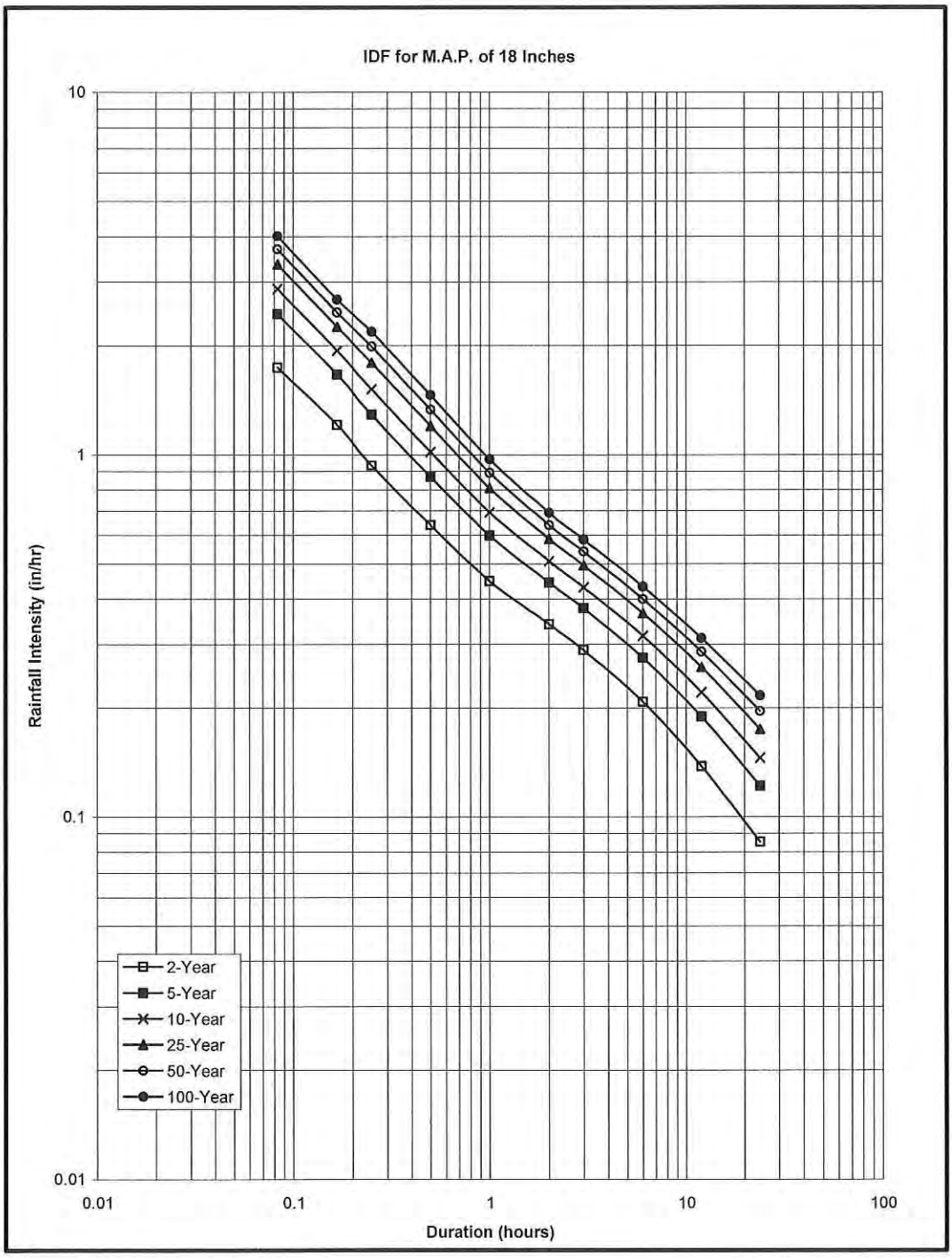


Figure B-4: IDF for M.A. P. of 18 Inches

Table B-1: Parameters $A_{T,D}$ and $B_{T,D}$ for TDS Equation

2-YR RETURN PERIOD		
5-min	0.120194	0.001385
10-min	0.166507	0.001956
15-min	0.176618	0.003181
30-min	0.212497	0.005950
1-hr	0.253885	0.010792
2-hr	0.330848	0.019418
3-hr	0.374053	0.027327
6-hr	0.425178	0.045735
12-hr	0.409397	0.069267
24-hr	0.314185	0.096343
48-hr	0.444080	0.134537
72-hr	0.447104	0.159461
5-YR RETURN PERIOD		
5-min	0.170347	0.001857
10-min	0.228482	0.002758
15-min	0.250029	0.004036
30-min	0.307588	0.007082
1-hr	0.357109	0.013400
2-hr	0.451840	0.024242
3-hr	0.512583	0.034359
6-hr	0.554937	0.060859
12-hr	0.562227	0.094871
24-hr	0.474528	0.136056
48-hr	0.692427	0.187173
72-hr	0.673277	0.224003
10-YR RETURN PERIOD		
5-min	0.201876	0.002063
10-min	0.258682	0.003569
15-min	0.294808	0.004710
30-min	0.367861	0.007879
1-hr	0.427723	0.014802
2-hr	0.522608	0.027457
3-hr	0.591660	0.038944
6-hr	0.625054	0.070715
12-hr	0.641638	0.111660
24-hr	0.567017	0.162550
48-hr	0.832445	0.221820
72-hr	0.810509	0.265469

Table B-2: Parameters $A_{T,D}$ and $B_{T,D}$ for TDS Equation

Return Period/Duration	$A_{T,D}$	$B_{T,D}$
25-YR RETURN PERIOD		
5-min	0.230641	0.002691
10-min	0.287566	0.004930
15-min	0.348021	0.005594
30-min	0.443761	0.008719
1-hr	0.508791	0.016680
2-hr	0.612629	0.031025
3-hr	0.689252	0.044264
6-hr	0.693566	0.083195
12-hr	0.725892	0.132326
24-hr	0.675008	0.195496
48-hr	0.989588	0.264703
72-hr	0.967854	0.316424
50-YR RETURN PERIOD		
5-min	0.249324	0.003241
10-min	0.300971	0.006161
15-min	0.384016	0.006315
30-min	0.496301	0.009417
1-hr	0.568345	0.017953
2-hr	0.672662	0.033694
3-hr	0.754661	0.048157
6-hr	0.740666	0.092105
12-hr	0.779967	0.147303
24-hr	0.747121	0.219673
48-hr	1.108358	0.295510
72-hr	1.075643	0.353143
100-YR RETURN PERIOD		
5-min	0.269993	0.003580
10-min	0.315263	0.007312
15-min	0.421360	0.006957
30-min	0.553934	0.009857
1-hr	0.626608	0.019201
2-hr	0.732944	0.036193
3-hr	0.816471	0.051981
6-hr	0.776677	0.101053
12-hr	0.821859	0.162184
24-hr	0.814046	0.243391
48-hr	1.210895	0.325943
72-hr	1.175000	0.389038

D. APPENDIX D

Normalized Rainfall Pattern

Fractions of Total Rainfall

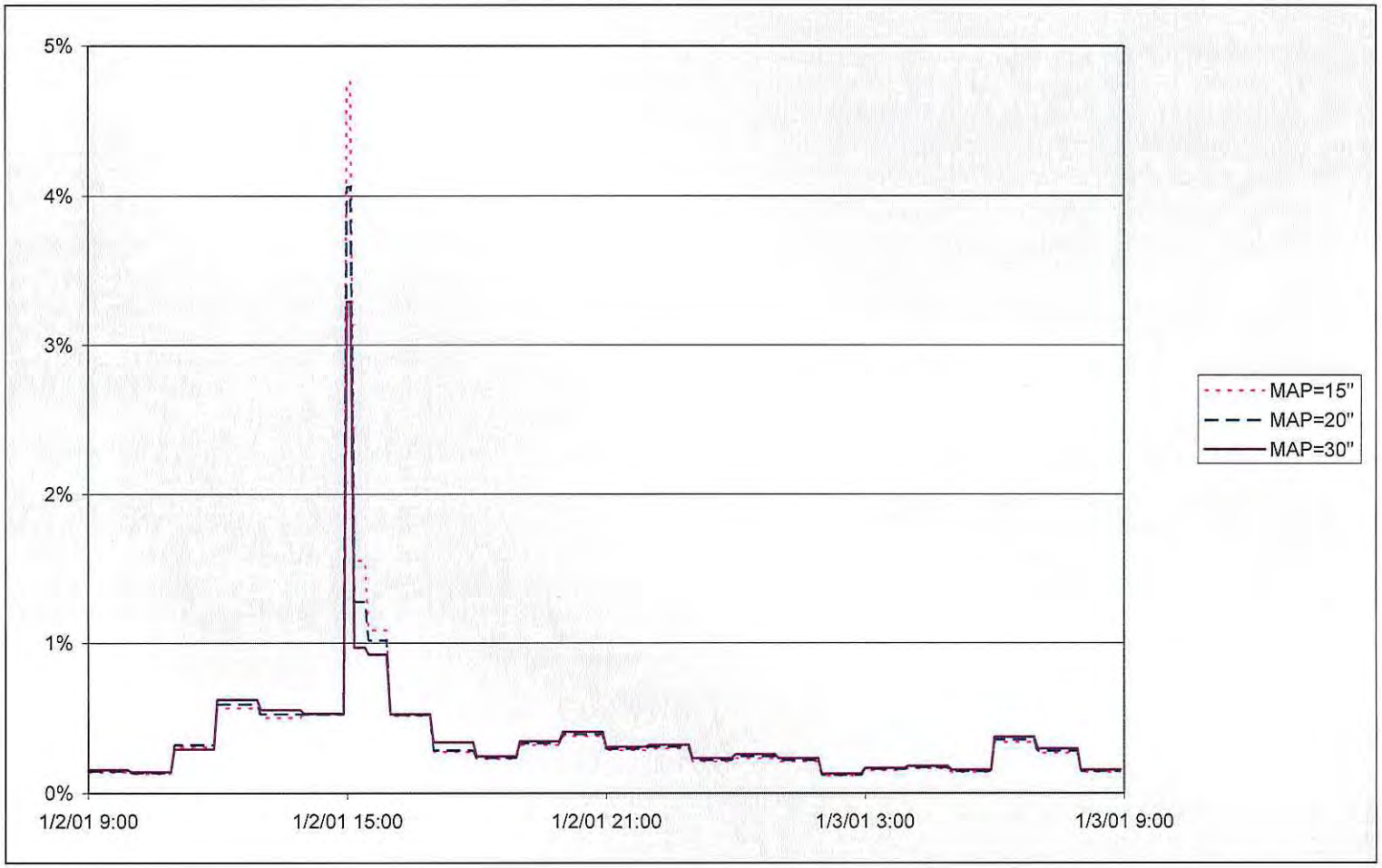


Figure D-1: Normalized Rainfall Pattern

Table D-1: Fractions of Total Rainfall for 24-Hour, 5-Minute Pattern

Time Starting	Fraction of Total Rainfall (%) *MAP=15″*	Fraction of Total Rainfall (%) *MAP=20″*	Fraction of Total Rainfall (%) *MAP=30″*
0:00	0.1412	0.1482	0.1558
1:00	0.1294	0.1358	0.1429
2:00	0.3080	0.3223	0.2945
3:00	0.5667	0.5930	0.6214
4:00	0.5051	0.5285	0.5538
5:00	0.5272	0.5266	0.5324
6:00	4.760	4.060	3.2950
6:10	1.554	1.275	0.9700
6:30	1.085	1.0169	0.9253
7:00	0.5177	0.5229	0.5263
8:00	0.2763	0.2860	0.3410
9:00	0.2302	0.2384	0.2478
10:00	0.3223	0.3337	0.3469
11:00	0.3799	0.3933	0.4089
12:00	0.2878	0.2979	0.3098
13:00	0.2993	0.3099	0.3222
14:00	0.2118	0.2223	0.2338
15:00	0.2353	0.2470	0.2597
16:00	0.2118	0.2223	0.2338
17:00	0.1177	0.1235	0.1299
18:00	0.1530	0.1605	0.1688
19:00	0.1647	0.1729	0.1818
20:00	0.1412	0.1482	0.1558
21:00	0.3412	0.3581	0.3766
22:00	0.2706	0.2840	0.2987
23:00	0.1412	0.1482	0.1558

E. APPENDIX E

Curve Numbers

Table E-1: Curve Numbers for AMC II

Land Use Type	Hydrologic Condition	Hydrologic Soil Group A	B	C	D
Open Water (100% Impervious)	good				
	fair				
	poor				
Low Density Residential (25% Impervious)	good	35	48	66	70
	fair	44	58	71	74
	poor	64	68	78	79
High Density Residential (50% Impervious)	good	35	48	65	70
	fair	44	58	71	74
	poor	64	68	78	79
Commercial/Industrial (80% Impervious)	good	35	48	65	70
	fair	44	58	71	74
	poor	64	68	78	79
Bare Rock/Sand/Clay (Imperviousness Varies)					
Quarries/Gravel Pits (0 % Impervious)	good	0	0	0	0
	fair	0	0	0	0
	poor	0	0	0	0
Deciduous Forest (0% Impervious)	good	27	30	41	48
	fair	35	48	57	63
	poor	48	66	74	79
Evergreen Forest (0% Impervious)	good	37	43	62	70
	fair	45	57	69	80
	poor	58	71	85	90
Mixed Forest	good	32	36	51	59
	fair	40	52	63	72
	poor	53	68	80	85
Shrub Land (0% Impervious)	good	27	43	60	68
	fair	35	51	65	72
	poor	48	62	72	78
Orchards (1% Impervious)	good	39	52	66	71
	fair	43	65	76	82
	poor	57	73	82	86
Vineyards (1% Impervious)	good	64	70	77	80
	fair	67	75	82	85
	poor	71	80	87	90
Grassland (0% Impervious)	good	38	50	69	76
	fair	48	60	74	80
	poor	58	70	80	84
Pasture/Hay (0% Impervious)	good	34	50	69	76
	fair	44	60	74	80
	poor	64	70	80	84
Row Crops (1% Impervious)	good	64	70	77	80
	fair	67	75	82	85
	poor	71	80	87	90
Small Grains (0% Impervious)	good	48	58	70	74
	fair	49	59	71	75
	poor	50	60	71	75
Fallow (1% Impervious)	good	64	68	78	79
	fair	70	77	84	86
	poor	77	86	91	94
Urban Recreational (10% Impervious)	good	34	48	66	70
	fair	44	58	71	74
	poor	64	64	78	79

Table E-2: Conversion of AMC II Curve Numbers to Other AMC Values

AMC II	AMC I	AMC III	AMC II-1/4	AMC II-1/2
100	100	100	100	100
99	97	100	99.5	100
98	94	99	98.5	99
97	91	99	97.5	98
96	89	99	97	98
95	87	98	96	97
94	85	98	95	96
93	83	98	94.5	96
92	81	97	93.5	95
91	80	97	92.5	94
90	78	96	91.5	93
89	76	96	91	93
88	75	95	90	92
87	73	95	89	91
86	72	94	88	90
85	70	94	87.5	90
84	68	93	86.5	89
83	67	93	85.5	88
82	66	92	84.5	87
81	64	92	84	87
80	63	91	83	86
79	62	91	82	85
78	60	90	81	84
77	59	89	80	83
76	58	89	79.5	83
75	57	88	78.5	82
74	55	88	77.5	81
73	54	87	76.5	80
72	53	86	75.5	79
71	52	86	75	79
70	51	85	74	78
69	50	84	73	77
68	48	84	72	76
67	47	83	71	75
66	46	82	70	74
65	45	82	69.5	74
64	44	81	68.5	73
63	43	80	67.5	72

AMC II	AMC I	AMC III	AMC II-1/4	AMC II-1/2
61	41	78	65.5	70
60	40	78	64.5	69
59	39	77	63.5	68
58	38	76	62.5	67
57	37	75	61.5	66
56	36	75	61	66
55	35	74	60	65
54	34	73	59	64
53	33	72	58	63
52	32	71	57	62
51	31	70	56	61
50	31	70	55	60
49	30	69	54	59
48	29	68	53	58
47	28	67	52	57
46	27	66	51	56
45	26	65	50	55
44	25	64	49	54
43	25	63	48	53
42	24	62	47	52
41	23	61	46	51
40	22	60	45	50
39	21	59	44	49
38	21	58	43	48
37	20	57	42	47
36	19	56	41	46
35	18	55	40	45
34	18	54	39	44
33	17	53	38	43
32	16	52	37	42
31	16	51	36	41
30	15	50	35	40
25	12	43	29.5	34
20	9	37	24.5	29
15	6	30	19	23
10	4	22	13	16
5	2	13	7	9
0	0	0	0	0

F. APPENDIX F

Manning's N-Values

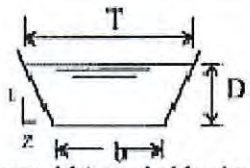
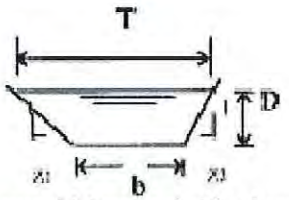
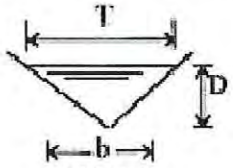
Open Channel Cross Sections

Loss Coefficients

Table F-1: Manning's Roughness Coefficients for Closed Conduits and Open Channels

Conveyance Material	Manning's n-value
Closed Conduits	
Concrete	
1. Precast or cast-in-place	0.013-0.015
2. Steel troweled or smooth-form finish	0.014-0.016
3. Wood float or broomed finish; including pneumatically applied mortar	0.014-0.017
Corrugated Metal Pipe	
1. Plain	0.022-0.026
2. Paved invert	0.018-0.022
3. Spun asphalt lined	0.011-0.015
Plastic (HDPE, PVC)	0.008-0.015
Vitrified Clay	0.011-0.015
Steel, coated	0.010-0.017
Brick	0.013-0.017
Open Channels	
Excavated or Dredged	
1. Earth, straight and uniform	0.020-0.030
2. Earth, winding and fairly uniform	0.025-0.040
3. Rock, smooth and uniform	0.025-0.033
4. Rock, jagged and irregular	0.035-0.045
5. With short grass, few weeds	0.022-0.033
6. Unmaintained, abundant vegetation as tall as flow depth	0.050-0.140
Lined	
1. Asphalt	0.013-0.017
2. Brick	0.011-0.018
3. Concrete	0.011-0.020
4. Riprap or rubble	0.020-0.035
5. Sack concrete riprap/Grouted rock riprap	0.028-0.032
6. With short grass, few weeds	0.022-0.033
7. Unmaintained, abundant vegetation as tall as flow depth	0.050-0.140
Natural Stream Channels	
1. Clean, straight bank, full stage no rifts or deep pools	0.025-0.033
2. Same as (1), but some weeds and stones	0.030-0.040
3. Clean, winding, some pools and shoals	0.033-0.045
4. Same as (3), lower stages, more ineffective slope and sections	0.040-0.055
5. Same as (3), some weeds and stones	0.035-0.050
6. Same as (5), some stony sections	0.045-0.060
7. Sluggish river reaches, rather weedy or with very deep pools	0.050-0.080
8. Very weedy reaches, trees or underbrush	0.075-0.150

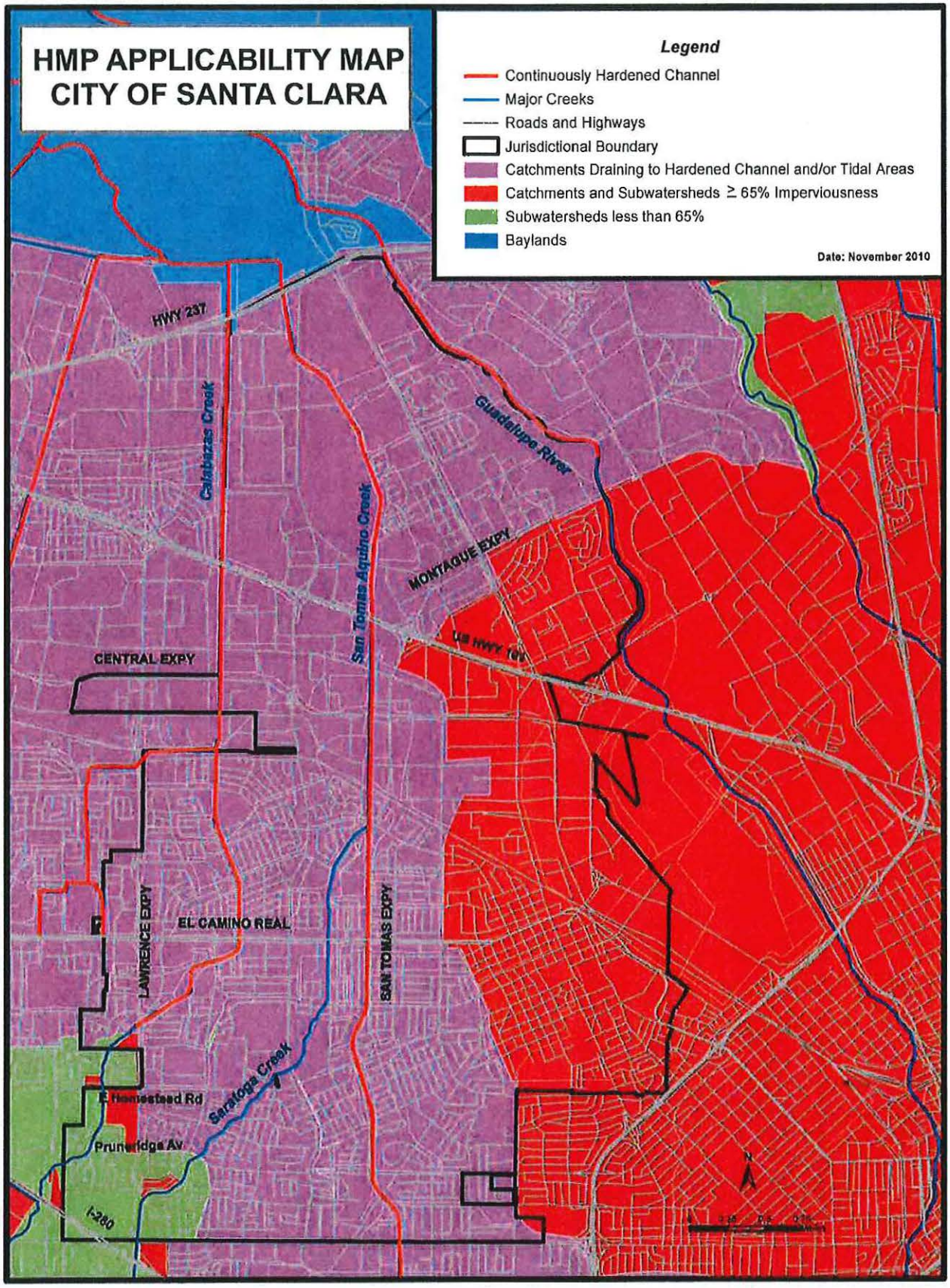
Table F-2: Geometric Elements of Channel Sections

Cross Section	Area, A	Wetted Perimeter, WP
 Rectangle	bD	b + 2D
 Trapezoid (equal side slopes)	(b + ZD)D	$b + 2D\sqrt{1 + Z^2}$
 Trapezoid (unequal side slopes)	$\frac{D^2}{2}(Z_1 + Z_2) + Db$	$b + D(\sqrt{1 + Z_1^2} + \sqrt{1 + Z_2^2})$
 Triangle	ZD^2	$2D\sqrt{1 + Z^2}$

Reference: VT Chow "Open Channel Hydraulics" for a more complete table of geometric elements.

APPENDIX D

HMP Applicability Map City of Santa Clara


HMP APPLICABILITY MAP
CITY OF SANTA CLARA
Legend
Continuously Hardened Channel
Major Creeks
Roads and Highways
Jurisdictional Boundary
Catchments Draining to Hardened Channel and/or Tidal Areas
Catchments and Subwatersheds ≥ 65% Imperviousness
Subwatersheds less than 65%
Baylands
Date: November 2010
HWY 237
Calabazas Creek
Guadalupe River
San Tomas Aquino Creek
MONTAGUE EXPY
US HWY 101
CENTRAL EXPY
LAWRENCE EXPY
EL CAMINO REAL
SAN TOMAS EXPY
Saratoga Creek
E Homestead Rd
Prunedge Av
I-280
N

APPENDIX E

Golf Course Pump Station Design Report

REGISTERED PROFESSIONAL ENGINEER
RICHARD E. JORGENSEN
No. C 30547
EXP 3-31-14
CIVIL
STATE OF CALIFORNIA

11-07-12

TECHNICAL MEMORANDUM NO. 2

November 7, 2012

To:	Ron Eng, City of Santa Clara Engineering Department		
Cc:	Yousra Tilden, Raymond Wong		
From:	Rick Jorgensen	Tel:	707.523.1010
Subject:	Golf Course Pump Station – Pump Station Design Report	Job no.:	11205-12001-38040

1. Introduction

GHD was hired by the City of Santa Clara (City) in April 2012, to complete the evaluation of the Santa Clara Golf Course Stormwater Pump Station and prepare design documents for the upgrade of the pump station.

The City has scheduled the rehabilitation of the Golf Course Stormwater Pump Station located at the Golf & Tennis Facility just off Stars and Stripes Drive. The pump station, constructed in 1987, has an equipment room that houses electrical equipment, a backup generator and fuel tank, and a wet well that contains the pumps, check valves and trash rack. The City wants to upgrade the pump station as some of the existing equipment is coming to the end of their design life. In addition, the City would like to confirm that the station is adequately sized for a 100-year flood event.

2. Evaluation/Condition Assessment

A kickoff meeting was held on May 1, 2012 at the City to review the scope of services and available documents. At the meeting, the City indicated that part of the Golf Course driving range acts as a detention facility, reducing peak flows arriving at the pump station.

2.1 Current Pump Station Operation

The current pump station consists of three 30 HP Davis EMU submersible pumps sized for 3750 gpm at 20 feet of head. The pumps are equipped with 12-inch discharges. These tie to 14-inch piping that combines outside the wet well at a Y and an increased to an existing 30-inch RCP storm water outfall to San Tomas Aquino Creek. 14-inch check valves are installed in the vertical piping inside the wet well and shut off valves are located just outside the wet well in individual valve boxes. A trash rack is located at the 36-inch gravity inlet to the pump station. A 3-foot by 3-foot hatch, ladder and landing allows access to the trash rack but the City indicated at the kickoff meeting that cleaning of the trash rack is difficult and time consuming.

The utility electrical service to the pump station is provided by 3/0 AWG, 600-volt, copper cables in a 4-inch underground conduit operating at 480-volts, 3-phase, 60 Hz. The 3/0 AWG cables are rated to carry 200-amps (approx. 150-kW) continuous at 75° C temperature rise and 30° C ambient per NEC 2011 Table 310.15(B)(16). The utility power, standby power and load for the circuit conduits enter the Automatic Transfer Switch (ATS) from the bottom. Standby power is provided by a Caterpillar engine-generator (EG) unit rated 200-kW, 480-volts, 3-phase, 60 Hz in the event of the Utility power being interrupted. The engine-generator has a 200 gallon fuel tank which has significant Code related deficiencies.

The pump station load is comprised of three 32 HP pump motors, miscellaneous loads to support the EG unit, PLC control system, and lighting. The two section Motor Control Center (MCC) is rated for 480-volt, 600-amp. 3-phase, 4-wire operation and is equipped with main lugs only, Size 2 full voltage non-reversing

GHD Inc.
2235 Mercury Way Suite 150 Santa Rosa CA 95407 USA
T 1 707 523 1010 F 1 707 527 8679 E santarosa@ghd.com W www.ghd.com

combination motor starters (FVNR) with 100-amp circuit breakers for the pump motors, a space to add a Size 1 FVNR motor starter and a 40-amp circuit breaker that feeds a 15-kVA, 3-phase dry type transformer and a 120/208-volt, 3-phase, 4-wire, 12 circuit Panel PPS. This panel serves miscellaneous 120-volt loads in the electrical/generator room. The existing submersible pump cable splices are not easily accessible and very hard to maintain. There is a concern for maintenance personnel and pedestrian safety in and around the wet well when the vault hatches are open.

The existing pumps are controlled by a Programmable Logic Controller (PLC). The existing PLC, replaced in 2009, is in good condition and functional. The City would like to reuse the PLC. The level sensor floats in the wet well provide a signal to the PLC. The PLC logic is programmed as follows:

1. When wet well level is "Low" as determined by the level set point, all pumps are "OFF".
2. When wet well level is "High" as determined by the level set point(s), the pump(s) "Start". The mode of operation is setup as "Lead", "Lag 1" and Lag 2". The "Lag" pumps "Start" as the wet well level rises, until all three pumps are "Running". Each pump "Stops" as the wet well level decreases, until all pumps are "Off" when the low level set point is reached.
3. The "Lead", "Lag1" and "Lag2" operation cycles each time the pumps are "OFF", such that all pumps are run equally.

The operators indicated that during dry weather minimal flow conditions, the "Lead" pump cycle time is very short. This short cycling would increase wear and tear on the pump motor.

2.2 Condition Assessment

GHD conducted a site visit and prepared Technical memorandum No. 1 - Golf Course Pump Station – Pump Station Assessment and Improvement Recommendations that outlined existing conditions and made preliminary recommendations for improvements. This Technical Memorandum presented final agreed upon improvements, and provided a basis for design including a hydrologic/hydraulic analysis of the watershed and existing detention facilities in the golf course.

Technical Memorandum No. 1 was submitted on May 23 and was followed by a teleconference with City staff to review the document. The following table lists the identified issues and recommended improvements

Table 1 – Condition Assessment – Recommended Improvements

Issue	Improvement/Fix
West door to electrical room is difficult to open due to differential settlement – cut 1-inch off bottom of door	Tentative fix - replace and lower existing concrete cap and dowel into wall
Man-way hatch for accessing wet well is opposite east door to electrical room – restricts door opening	Tentative fix - replace and lower existing concrete cap and dowel into wall – replace hatch
Provide visibility to wet well to avoid trash accumulation at screen box below inlet pipe - install new hatch	The trash box will be removed. A new trash capture unit will be installed upstream of the existing wet well.
Existing pumps are old - replace with Flygt submersible rail mounted system	New pumps will be installed – Sizing to be determined based on H&H analysis of watershed
Existing pumps short - cycle during summer flows	Install a small jockey pump in a recessed pocket to handle summer flows

Issue	Improvement/Fix
Existing check valves are located in the wet well in a vertical alignment	Replace the existing check valves in a new valve vault located outside of the wet well. Valve vault will also house relocated shutoff valves
Uneven settlement at wet well adjacent to control building	Tentative fix - replace and lower existing concrete cap and dowel into wall
Hatches not traffic rated and not supplied with fall protection	Install H-20 Traffic rated, spring loaded hatches equipped with fall protection
Metal ladders and landings are showing signs of corrosion and wear	Replace all metal ladders and landings
No way to isolate site during maintenance	Install removable posts
Electrical equipment	Most of the electrical equipment is in fair condition and can be reused. The existing PLC will be re-programmed.
Fuel Storage Tank does not meet current code requirements	Replace fuel tank to meet current fire code requirements
Pump motor cable connections not easily accessible	Replace existing submersible pump cable splices with new twist-lock type plug and receptacle assemblies in secure enclosure
Existing float switch system is not reliable	Install redundant float systems with multiple set points

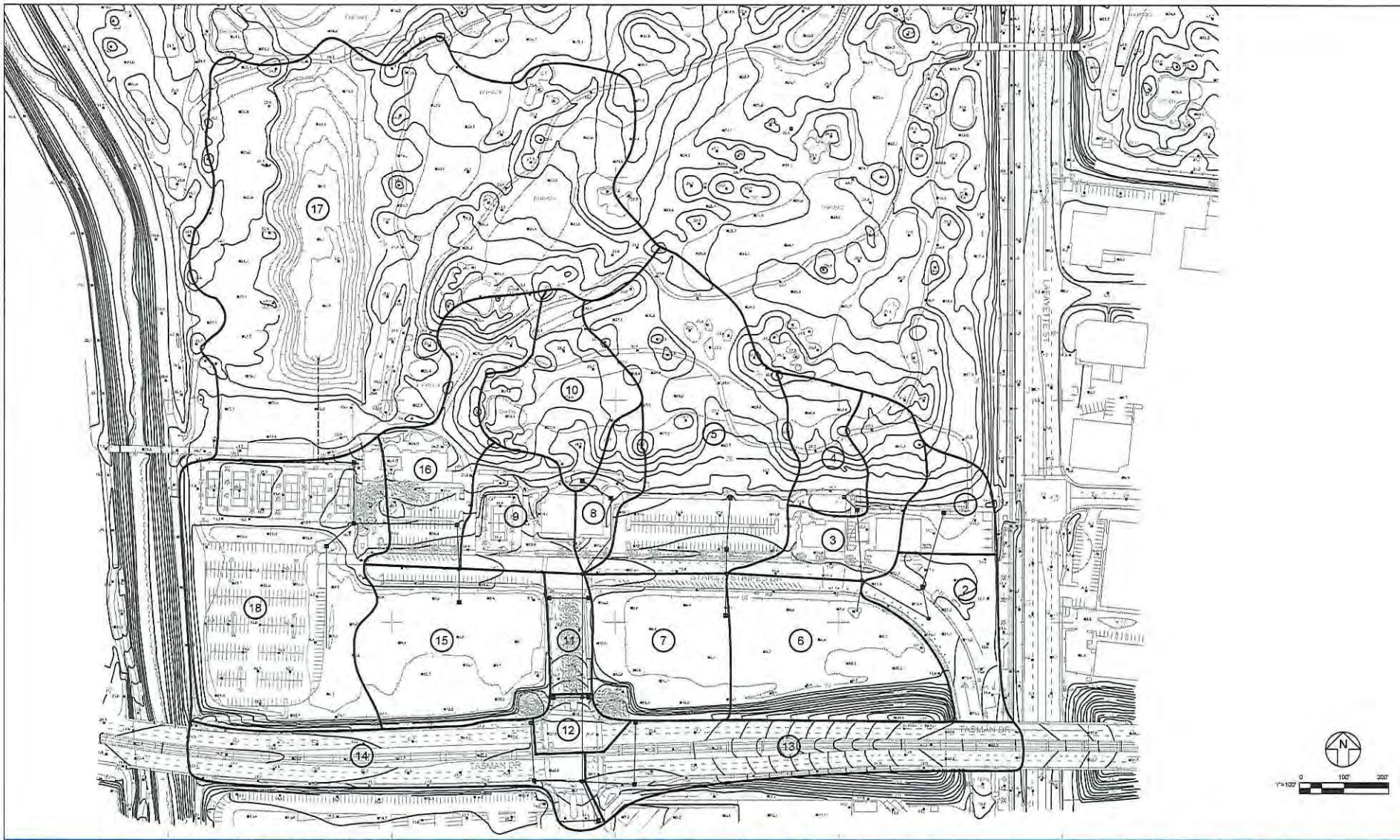
The following items were discussed with City staff during the teleconference following submittal of TM #1:

- Finalize the pump station sizing. Pump station sizing is pending the hydrology analysis findings. However, since the existing electrical equipment can only support pump sizes up to 30 HP, realistically it will limit the final pump selection.
- The City agreed that a new stormwater treatment (full trash capture) unit be installed upstream of the wet well, and the existing trash box in the wet well be demolished.
- The City agreed that the wet well concrete slab be demolished and lowered to match existing building grade. The access doors will also be replaced, if needed
- Preliminary analysis indicates that a new fuel tank can fit in the existing control building. GHD is currently reviewing options to remove the existing fuel tank and install a new one.

3. Hydrologic and Hydraulic Analysis of the Stormwater Collection System.

During the Kickoff meeting, GHD learned that a detention basin at the driving range is available for storage in order to reduce peak flows to the stormwater pump station. Review of as-built drawings indicates that a stormwater trunk main is located in Stars and Stripes Drive that routes the flow to the pump station. However, the actual street grade in Stars and Stripes Drive slopes away from the pump station to a low point near the overcrossing of Tasman Drive. The City requested that an analysis of potential street ponding be completed as part of the hydrologic analysis during a 100-year flood event. A detailed hydrologic model was developed utilizing HEC-HMS, and a hydraulic model in EPA SWMM in order to analyze flow routing from the various sub-watersheds and storage impacts from the detention basin. The contributing 54 acre watershed was broken down into 18 sub-watersheds as indicated in Figure 1. Only sub-watershed 17 flows directly to the detention basin. All others flow to the storm drain system in Stars and Stripes Drive.

The HEC-HMS model was developed for the 18 sub-watersheds. The purpose of this hydrology model was to estimate the 100-year 24-hour hydrograph from each of the sub-watersheds. The SCS method



No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
-	-		-			-

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W www.ghd.com

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Drafting Check	C. PHELPS	Design Check	R. JORGENSEN
Approved (Project Director)			
Date			
Scale	1"=100'	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	

Client CITY OF SANTA CLARA
Project GOLF COURSE PUMP STATION REHABILITATION
Title FIGURE 1 - WATERSHED MAP

Original Size Ansi D
Drawing No: 1
Rev:

Plot Date: 15 June 2012 - 2:19 PM Plotted by: Coby Phelps
Cad File No: G:\11\265 - City of Santa Clara\11265-12-001 Santa Clara Storm Drain PSDS\CAD\Figures\Watershed.dwg

was used based on the design storm data and procedures outlined in the Santa Clara County Hydrology Manual. The hydrograph output was then imported into the SWMM hydraulic model for collection system routing analysis. The detailed HEC-HMS output in included in Appendix A.

The SWMM hydraulic model consists of the existing stormwater collection system along Stars and Stripes drive, the detention basin at the driving range, piping connecting to the Golf Course Pump Station, and a symbolic representation of the pump station, to simulate the pump station's maximum capacity. In addition, the model included four street cross sections along Stars and Stripes Drive, to model street overland flow during a 100-year storm event, and the potential ponding at the sump area near the Tasman Drive overpass. The street overland flow and the pipeline collection system are hydraulically coupled in the SWMM model. The SWMM model was manipulated by adjusting pump station outflow, taking into account the available detention basin storage volume and maximum depth until street flooding in Stars and Stripes Drive was essentially removed. The pump station capacity necessary for this to occur was approximately 14.2 cfs (6380 gpm). Under this design condition, only minor ponding, less than 4-inches in depth are anticipated within the roadway during the 100-year design storm.

A new parking structure is under construction at the south end of Stars and Stripes Drive. The grade is being elevated so flooding of the facility should not be a problem. The SWMM model shows a maximum hydraulic grade line (HGL) at the parking lot storm drain tie in manhole J1 of 11.15 feet which is lower than the rim of the lowest parking facility catch basin which has an elevation of 11.35 feet. However, the adjacent bioswale system to the north of the parking facilities will have standing water during high flow conditions.

Worst case scenario would occur during a 100-year water surface of approximately 17 feet in San Tomas Aquino Creek. A system head curve (Figure 2) was developed and based on discussions with Flgyt, a Flygt pump was selected to produce the 14.2 cfs output when two pumps are operated in parallel, with a third pump in standby. Based on the Condition Assessment and the hydrologic/hydraulic analysis, it appears that the current pump station wet well is adequately sized for the 100-year flood event.

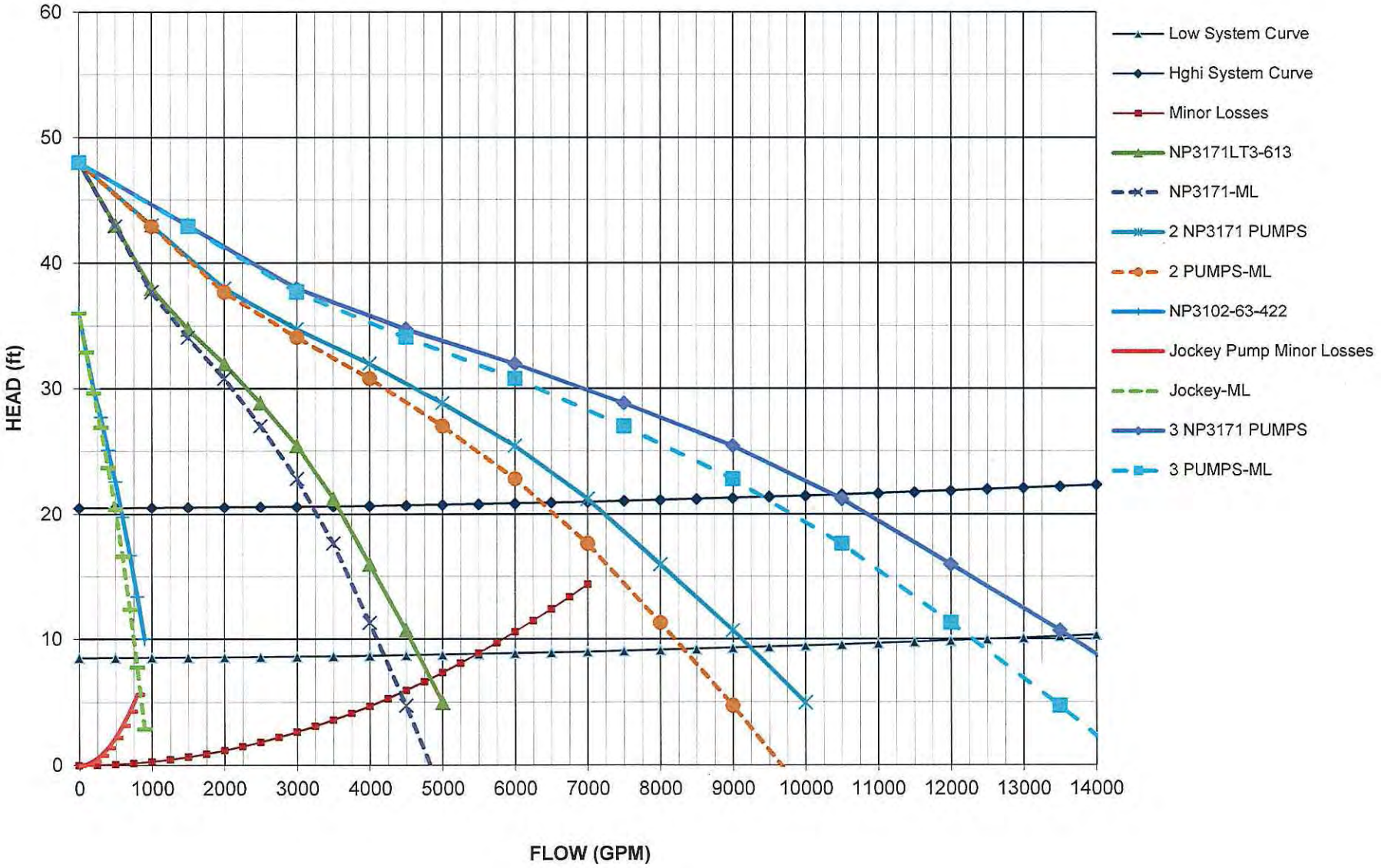
As mentioned above, the current MCC panels will only accommodate 30 HP pumps. Based on the design flow developed from the SWMM model, development of the system head curve data and discussions with Flygt, preliminary pump selection was made. System head curves and pump operation curves are provided on Figure 2. This figure indicates a single 25 HP pump capacity ranging between 3240 gpm and 4200 gpm with two pumps providing between 6380 gpm and 8320 gpm, allowing pump station flow of 6380 gpm (14.2 cfs) under worst case scenario. Model results indicate that detention storage based on this scenario would peak at elevation 9.79, storing approximately 9,250 cubic feet (0.21 acre-feet) of stormwater runoff mainly from the golf course. Minimal street flooding would occur at the low point in Stars and Stripes Drive at the existing upstream storm drain inlets to a depth of approximately 0.27 feet. Detailed SWMM model output is included in Appendix B.

4. Design Recommendations

Based on the above analysis and ongoing discussions with City staff, the following items are included in the pump station improvements:

- Demolish all internal components in the pump station wet well including pumps, piping, ladders, platform and trash rack
- Demolish wet well top and lower wet well walls to accommodate uneven settlement at the adjacent pump control building
- Demolish concrete walk to the limits shown (removal to existing concrete joints located just outside the reconstruction work)

FIGURE 2
Golf Course Pump Station
System Head Curve



- Grout pump station wet well bottom to form a sump for a jockey pump
- Install three new 25 HP Flygt pumps – model NP3171LT3-613 including all necessary associated equipment
- Install one new 5 HP Flygt jockey pump – model NP3102-63-422 including all necessary associated equipment
- Install one new 12-ft by 9-ft by6-ft valve vault adjacent to pump station wet well
- Install new pump piping (14-inch and 6-inch), and associated check valves and shut off valves in the new valve vault
- Reconstruct new wet well top including new fall-protected hatches centered over the three main pumps, and two 3-ft by 3-ft hatches in the wet well, one centered over the jockey pump and the other centered over the new ladder. Ladder to be placed to avoid egress issue with the hatch over the ladder
- Install new ladder for access to wet well
- Install new stormwater treatment (full trash capture) unit upstream of the pump station, connecting to the existing 36-inch storm drain pipe. Note that the purpose of the stormwater treatment unit is for trash capture.
- Remove existing diesel fuel tank and portions of the associated fuel piping serving the generator located in the pump control room, and portions of the associated vent piping to the exterior of the generator room.
- Provide and install new 275 gallon diesel fuel tank (sized for a 24-hour run time), supply and return fuel piping to the generator, fill piping and a remote fill port at the exterior of the building, and new associated vent piping and appurtenances to the exterior of the building.
- Provide and install a new fuel tank leak detection system and fuel level alarms with control/alarm panel for the new diesel fuel tank.
- Reuse existing MCC motor starters for the main wet well pumps. Use existing spare starter for the jockey pump.
- Provide new level sensor and backup floats in the wet well.
- Re-program existing PLC as necessary to incorporate any changes to pumping scheme.
- Provide junction box, remote from wet well, for pump motor cable connections.

Appendices:

Appendix A – HEC-HMS Model Output

Appendix B – SWMM Model Output

Appendix C – Cost Estimate (*provided under separate cover*)

Appendix D – 100% Design documents (*provided under separate cover*)

Appendix A

HEC-HMS Model Output

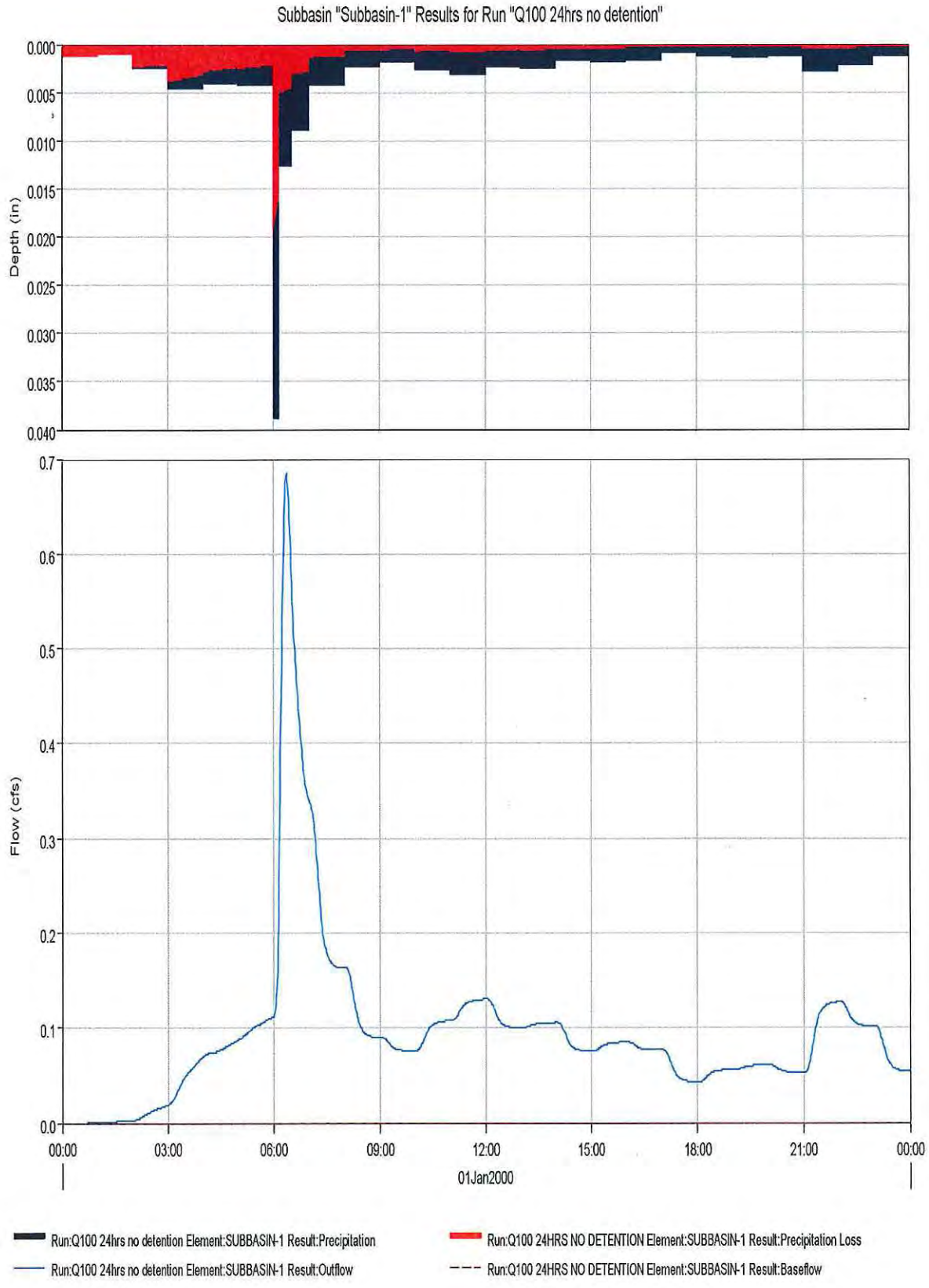
HMS - Data Input Table

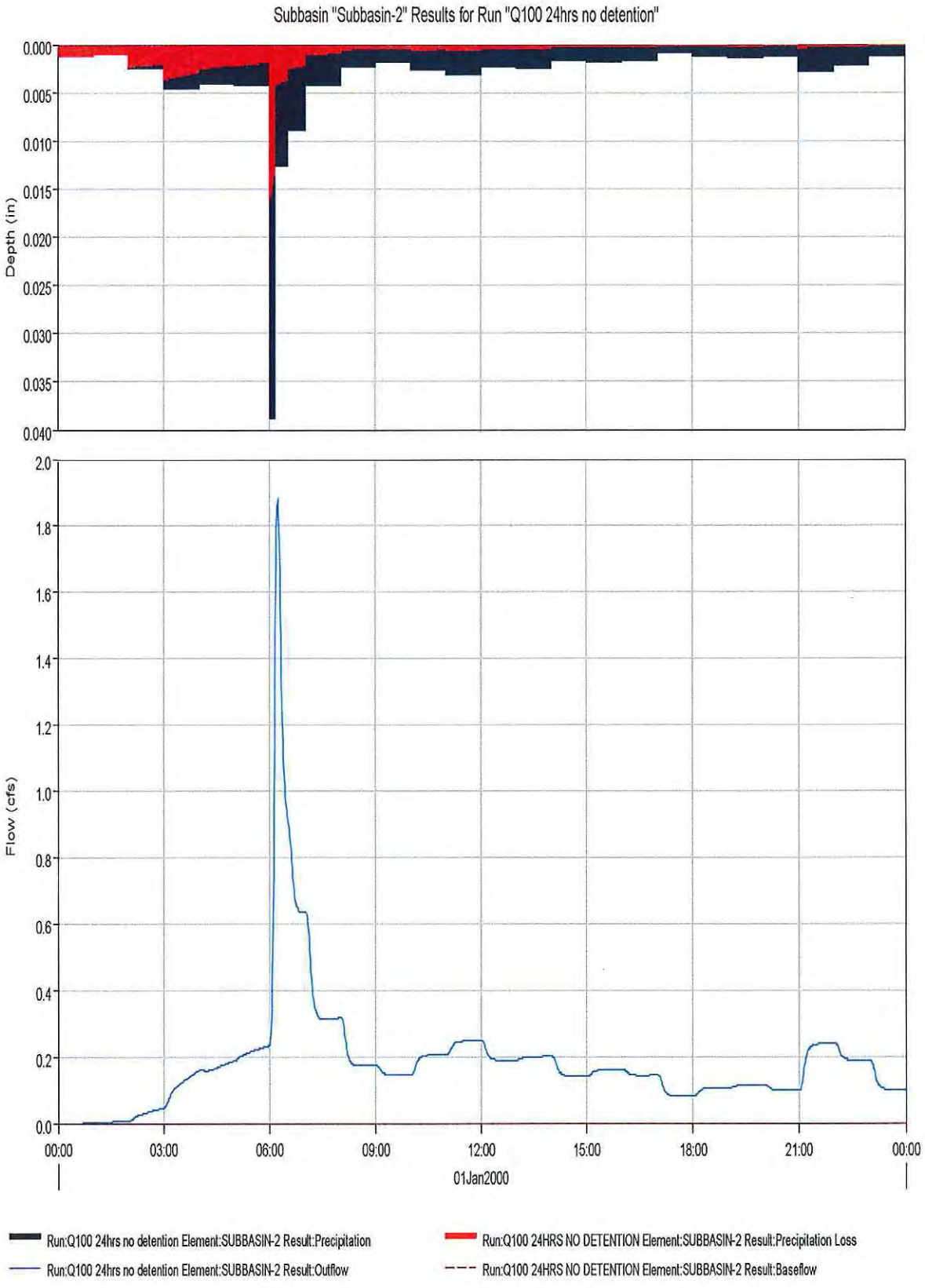
Shed No.	Acre	sq mile	Soil Group	CN grass - 77*	CN com - 84*	CNt*	Initial Abstraction	N	L	Lc	Δ Elev.	S	D	T lag
1	0.9011	0.001408	C	0.44	0.46	80.6	0.05	0.08	130	190	13	0.043	0.1	13.99994
2	1.6279	0.002544	C	0.00	1.63	84.0	0.05	0.025	370	110	3	0.008	0.1	7.256633
3	1.7018	0.002659	C	0.80	0.90	80.7	0.05	0.08	410	170	16	0.039	0.1	21.17925
4	1.0615	0.001659	C	1.06	0.00	77.0	0.60	0.08	250	20	10	0.052	0.1	7.335441
5	5.2525	0.008207	C	3.85	1.40	78.9	0.05	0.08	550	330	10	0.019	0.1	34.96212
6	3.1606	0.004938	C	0.00	3.16	84.0	0.05	0.025	340	140	2	0.006	0.1	8.140312
7	2.3226	0.003629	C	0.00	2.32	84.0	0.05	0.025	290	110	3	0.01	0.1	6.33409
8	0.7332	0.001146	C	0.09	0.64	83.1	0.05	0.08	375	200	15	0.04	0.1	21.67403
9	1.4174	0.002215	C	0.44	0.98	81.8	0.05	0.025	350	200	9	0.026	0.1	7.12713
10	2.0334	0.003177	C	2.03	0.00	77.0	0.60	0.08	350	185	10	0.026	0.1	22.2464
11	0.6066	0.000948	C	0.00	0.61	84.0	0.05	0.025	270	180	5	0.019	0.1	6.581582
12	0.4731	0.000739	C	0.00	0.47	84.0	0.05	0.025	110	80	3	0.027	0.1	3.190431
13	2.914	0.004553	C	0.00	2.91	84.0	0.05	0.025	860	340	21	0.024	0.1	12.49555
14	2.7523	0.0043	C	0.00	2.75	84.0	0.05	0.025	750	300	3	0.004	0.1	15.91234
15	3.2741	0.005116	C	0.00	3.27	84.0	0.05	0.025	340	190	11	0.003	0.1	10.44286
16	2.422	0.003784	C	1.34	1.08	80.1	0.05	0.025	590	220	11	0.019	0.1	9.582515
17	15.6099	0.02439	C	15.61	0.00	77.0	0.60	0.08	1610	520	20	0.014	0.1	66.28142
18	5.9136	0.00924	C	0.00	5.91	84.0	0.05	0.025	450	180		0.01	0.1	9.046678

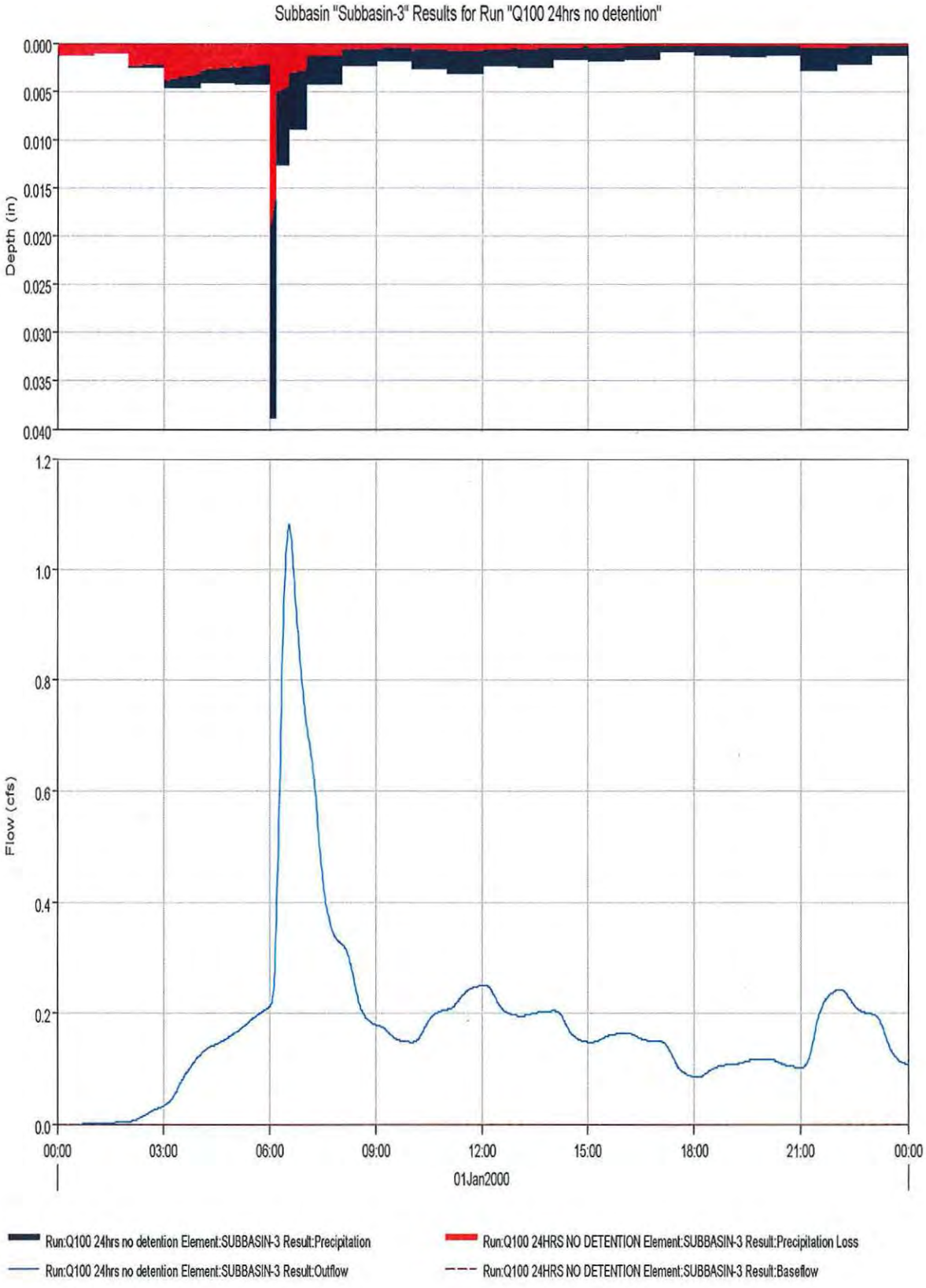
*Assumes AMC 2.5

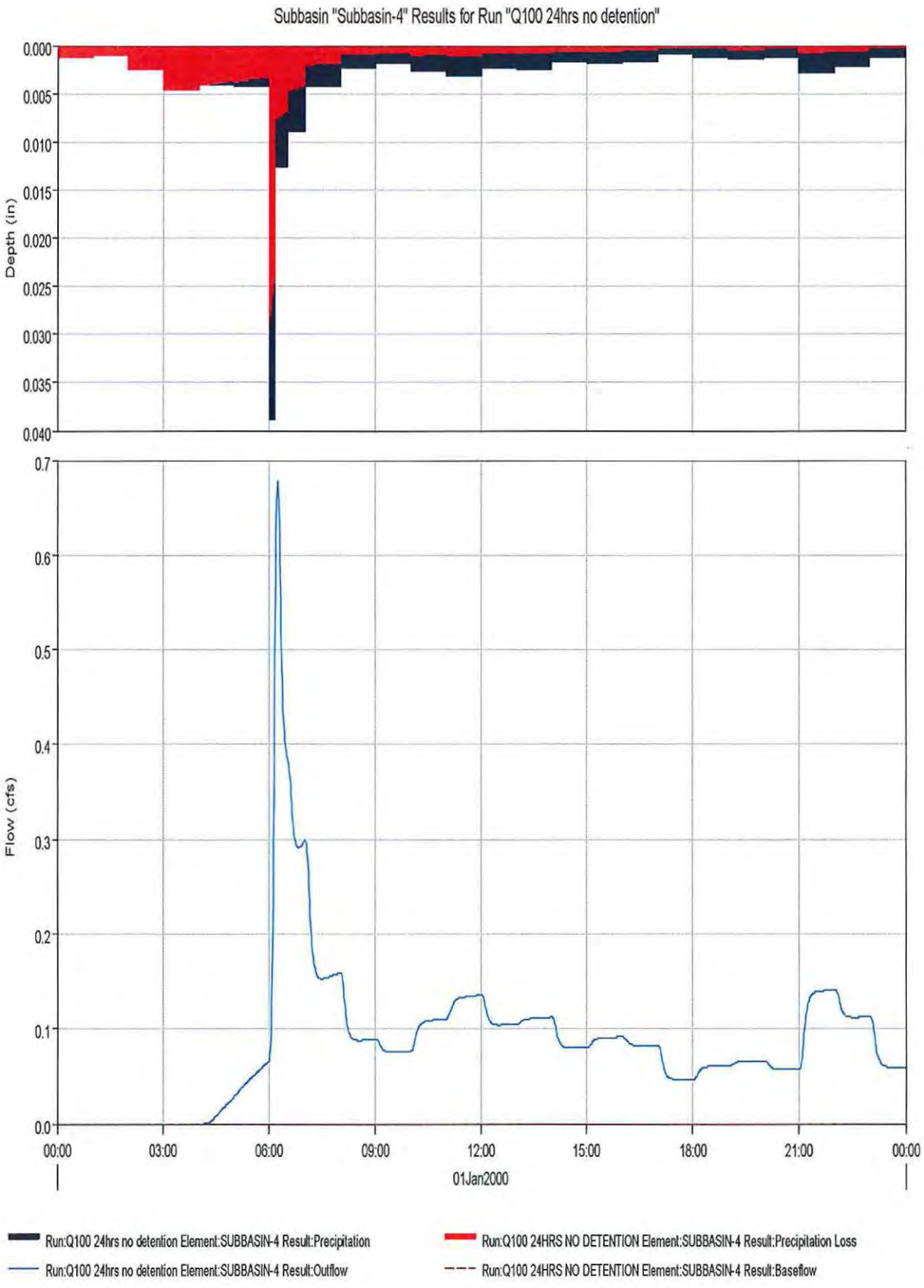
Golf Course Pump Station – Pump Station Design Report
HEC-HMS 3.5
Simulation Run:Q100 24hrs No Detention

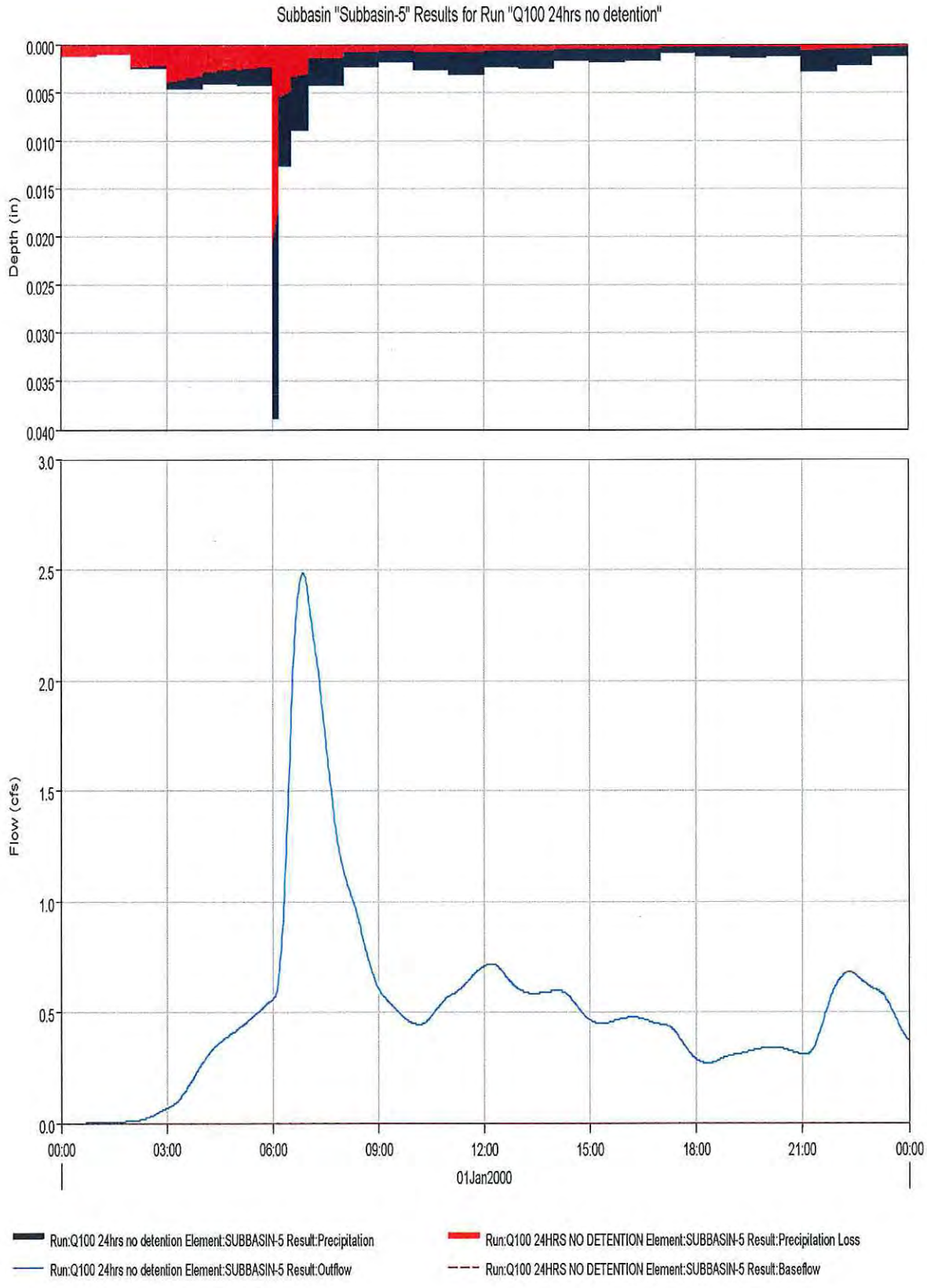
Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
Subbasin-17	0.0240	3.7	01Jan2000, 07:38	2.3
Subbasin-5	0.0082	2.5	01Jan2000, 06:51	1.0
Subbasin-7	0.0036	2.8	01Jan2000, 06:13	0.5
Junction-4	0.0118	3.6	01Jan2000, 06:13	1.6
Subbasin-13	0.0050	2.9	01Jan2000, 06:20	0.7
Subbasin-14	0.0040	2.1	01Jan2000, 06:24	0.6
Subbasin-12	0.0007	0.6	01Jan2000, 06:10	0.1
Junction-3	0.0097	5.1	01Jan2000, 06:21	1.4
Reach-7	0.0097	5.1	01Jan2000, 06:21	1.4
Subbasin-11	0.0009	0.7	01Jan2000, 06:13	0.1
Junction-2	0.0106	5.5	01Jan2000, 06:21	1.5
Subbasin-15	0.0050	3.2	01Jan2000, 06:17	0.7
Subbasin-16	0.0040	2.3	01Jan2000, 06:16	0.5
Junction-1	0.0090	5.5	01Jan2000, 06:17	1.3
Subbasin-18	0.0090	6.1	01Jan2000, 06:16	1.3
Subbasin-6	0.0049	3.5	01Jan2000, 06:15	0.7
Subbasin-3	0.0027	1.1	01Jan2000, 06:32	0.4
Junction-5	0.0076	4.1	01Jan2000, 06:15	1.1
Subbasin-2	0.0025	1.9	01Jan2000, 06:14	0.4
Subbasin-1	0.0014	0.7	01Jan2000, 06:22	0.2
Junction-6	0.0039	2.4	01Jan2000, 06:15	0.6
Subbasin-9	0.0022	1.5	01Jan2000, 06:14	0.3
Subbasin-8	0.0011	0.5	01Jan2000, 06:32	0.2
Junction-7	0.0033	1.8	01Jan2000, 06:14	0.5
Subbasin-10	0.0032	0.8	01Jan2000, 06:35	0.3
Subbasin-4	0.0017	0.7	01Jan2000, 06:14	0.2
Sink-1	0.0000	0.0	01Jan2000, 00:00	0.0

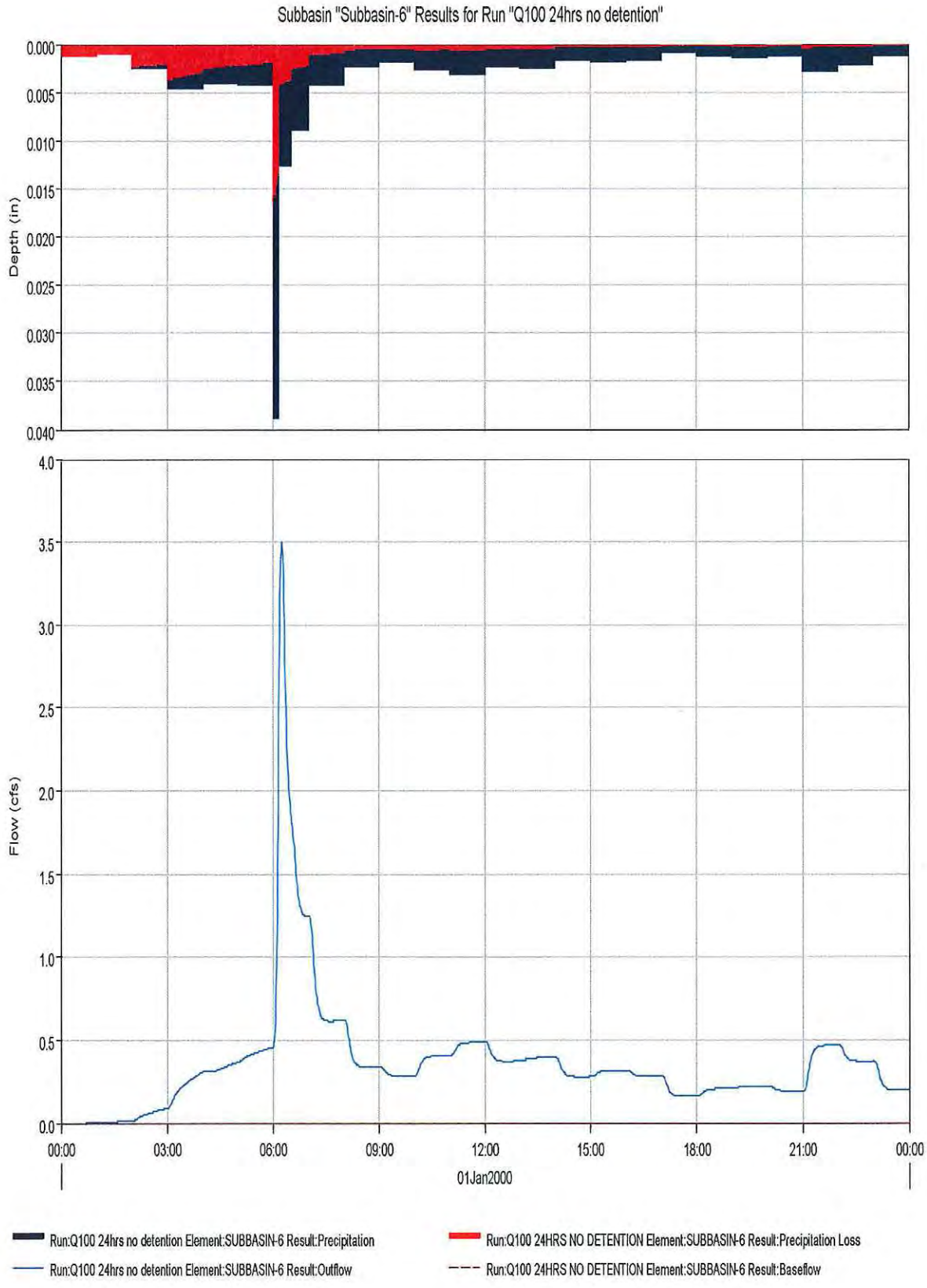

Subbasin "Subbasin-1" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-1 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-1 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-1 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-1 Result:Baseflow

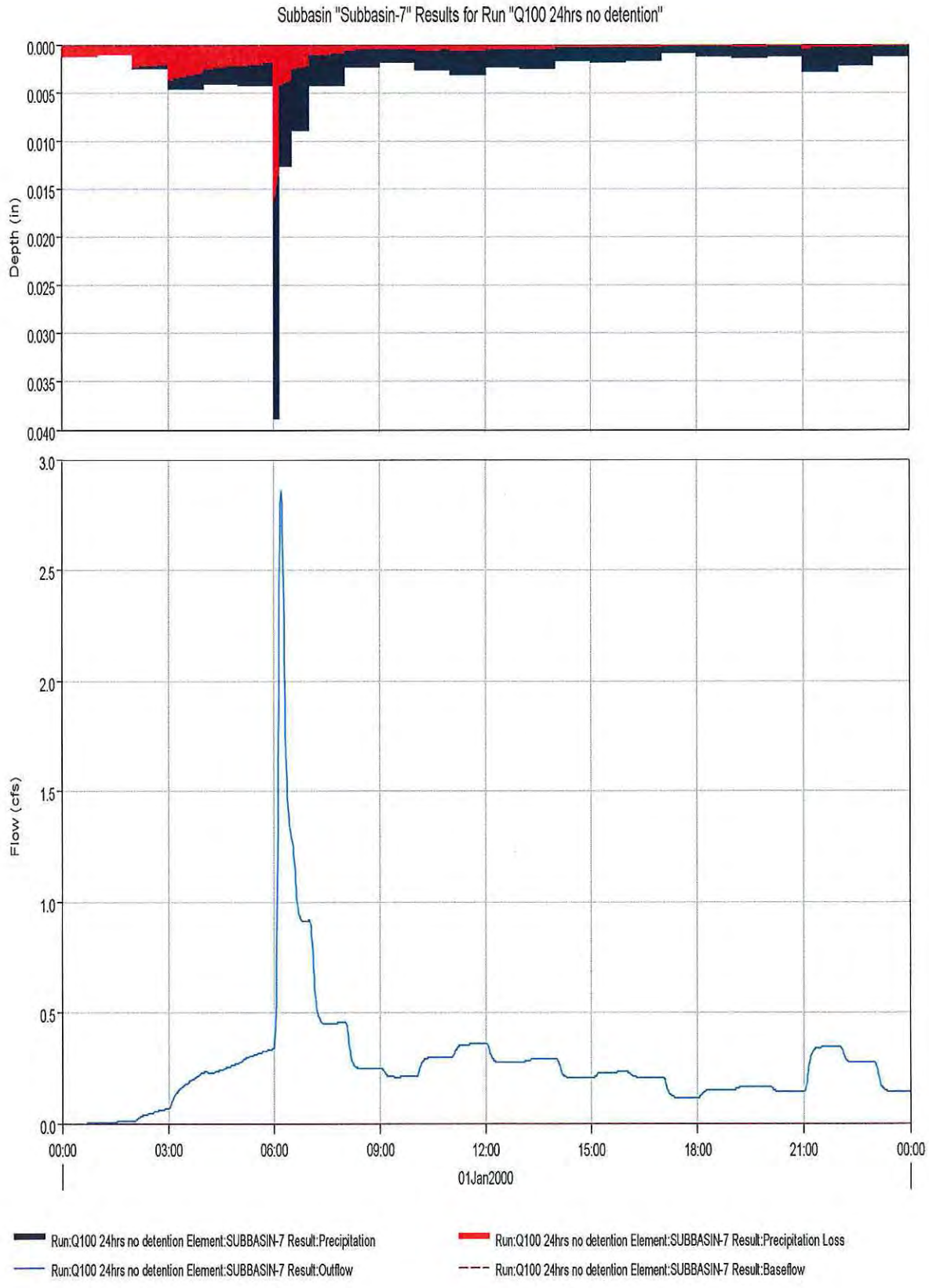

Subbasin "Subbasin-2" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-2 Result:Precipitation
Run:Q100 24hrs no detention Element:SUBBASIN-2 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-2 Result:Precipitation Loss
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-2 Result:Baseflow

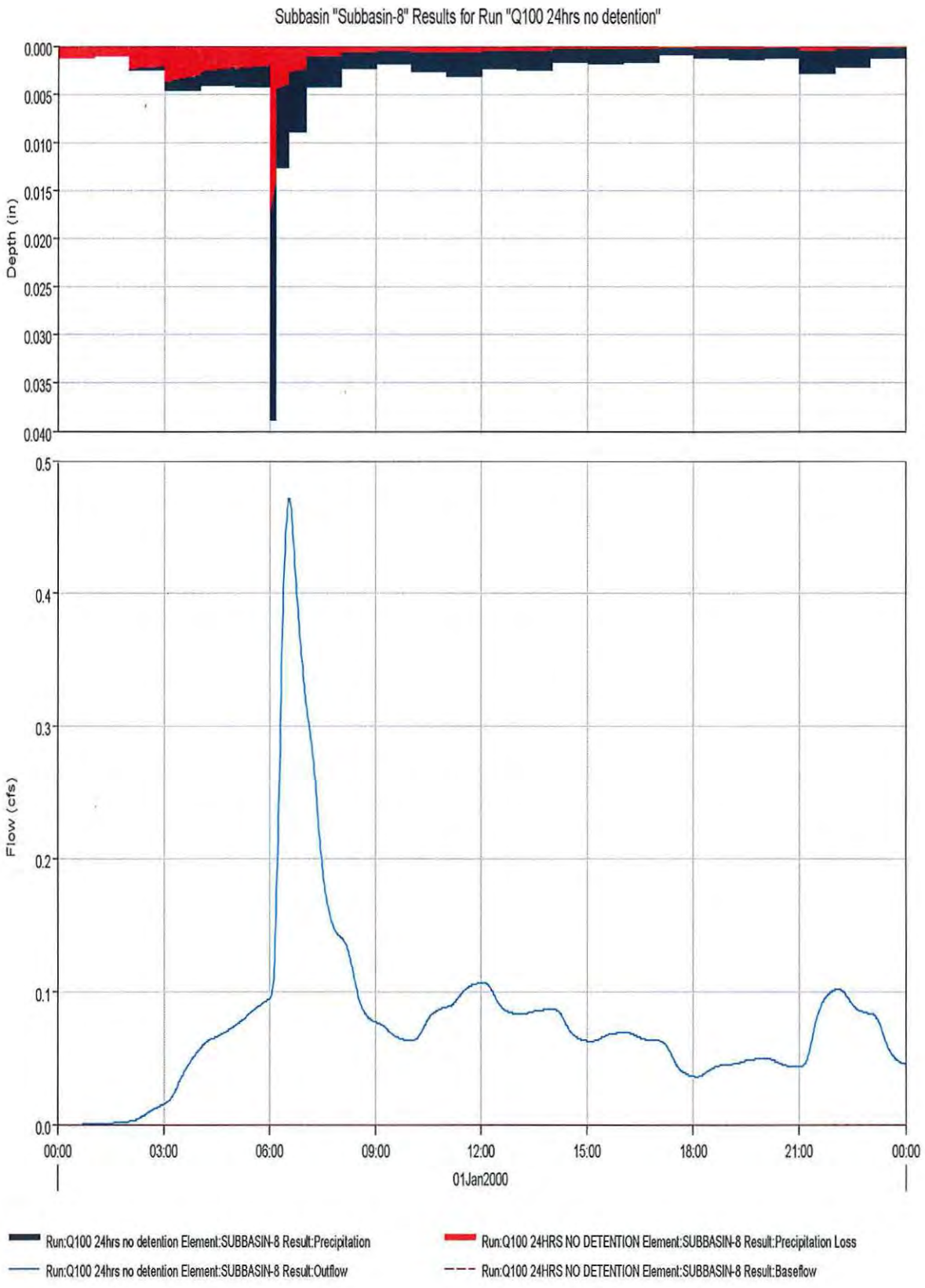

Subbasin "Subbasin-3" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-3 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-3 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-3 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-3 Result:Baseflow

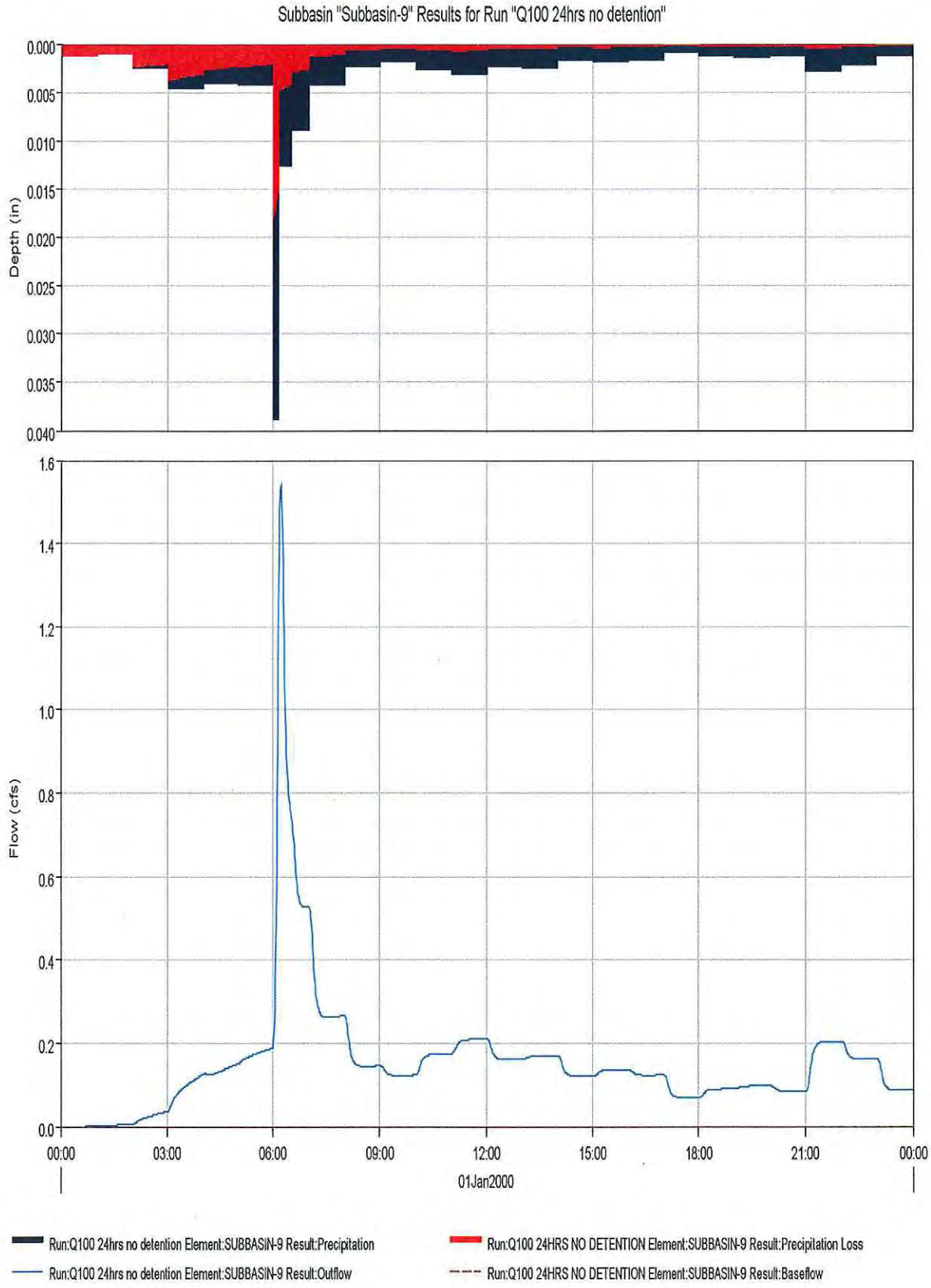

Subbasin "Subbasin-4" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-4 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-4 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-4 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-4 Result:Baseflow

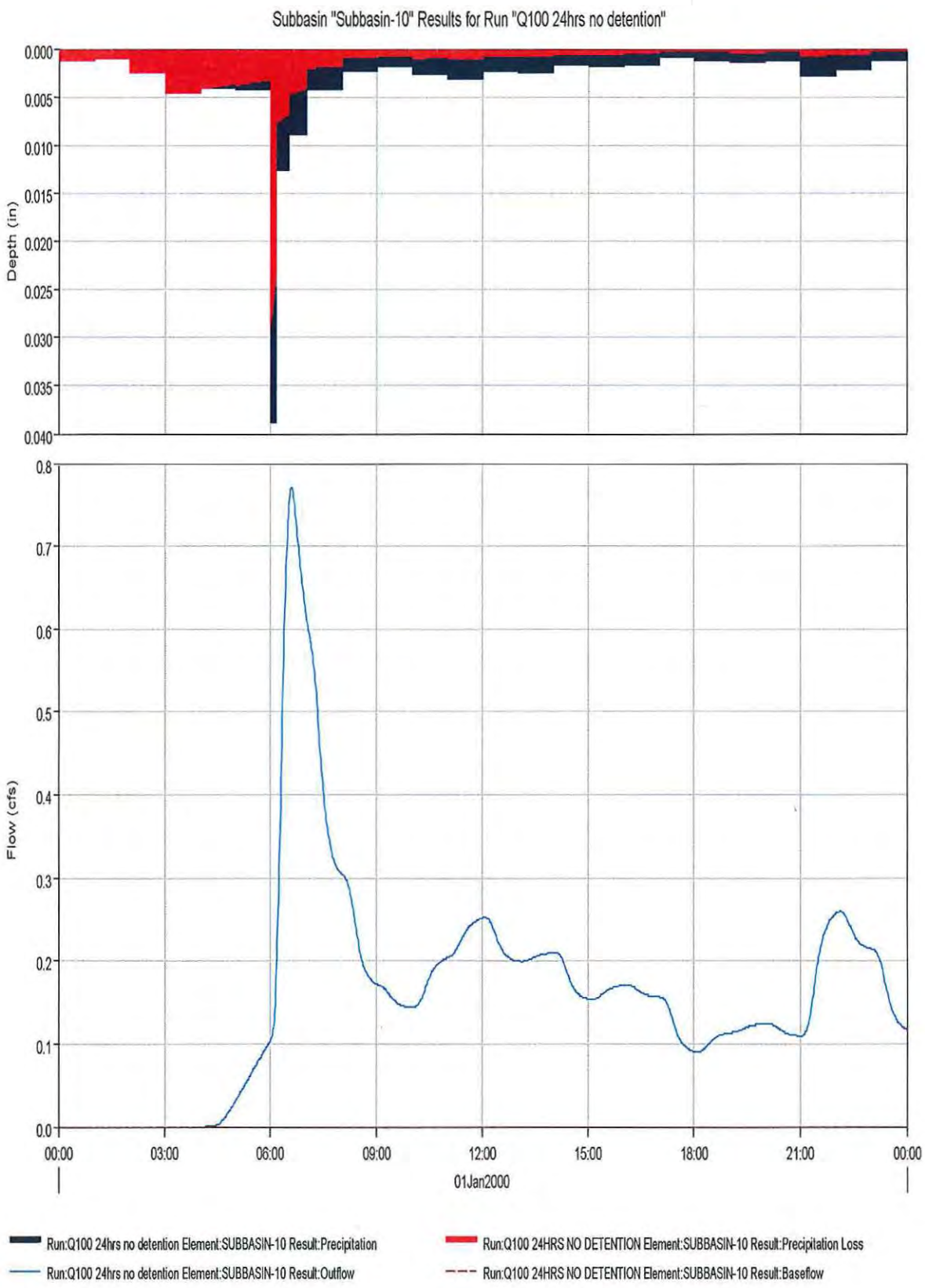

Subbasin "Subbasin-5" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-5 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-5 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-5 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-5 Result:Baseflow

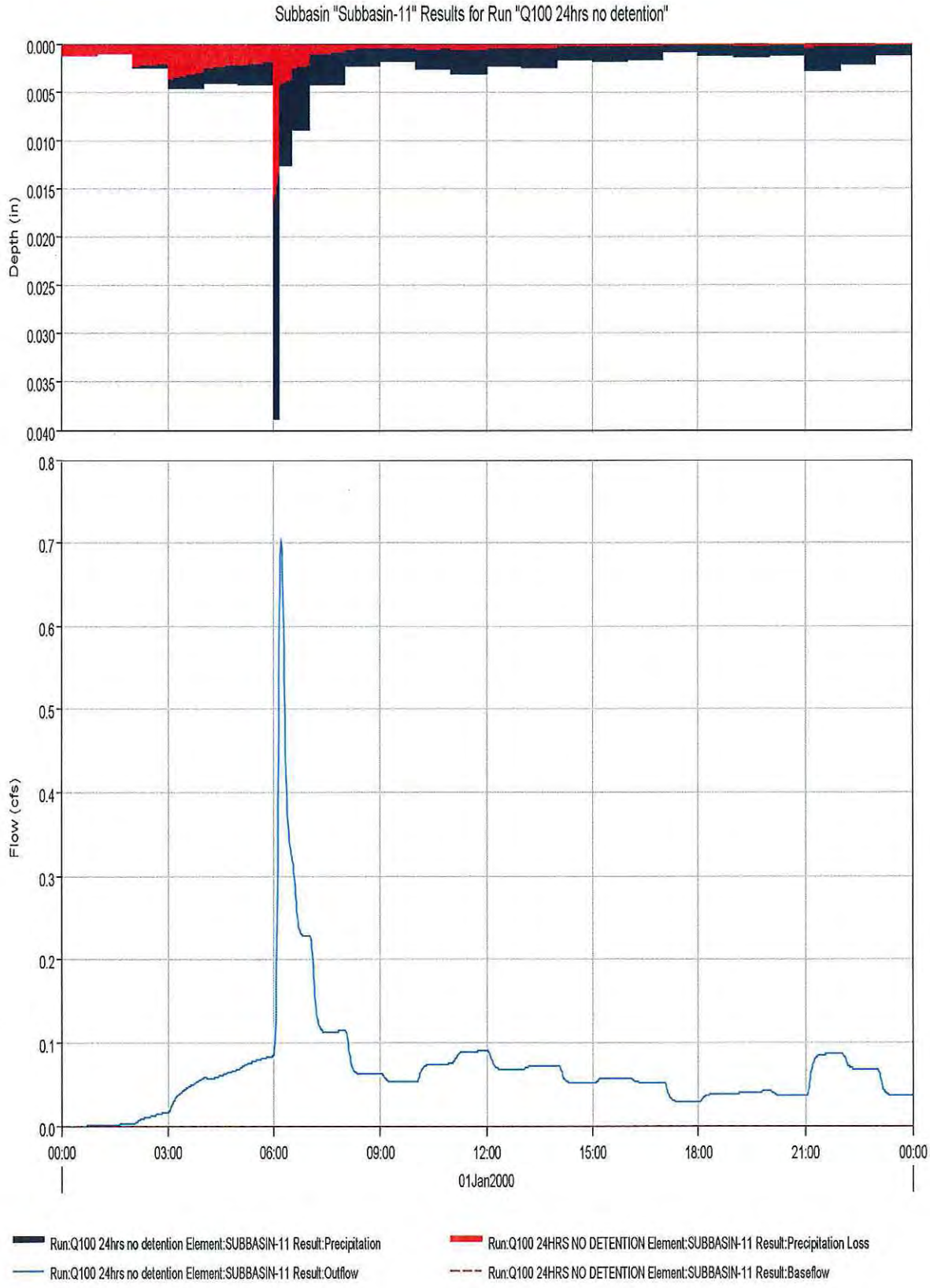

Subbasin "Subbasin-6" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-6 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-6 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-6 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-6 Result:Baseflow

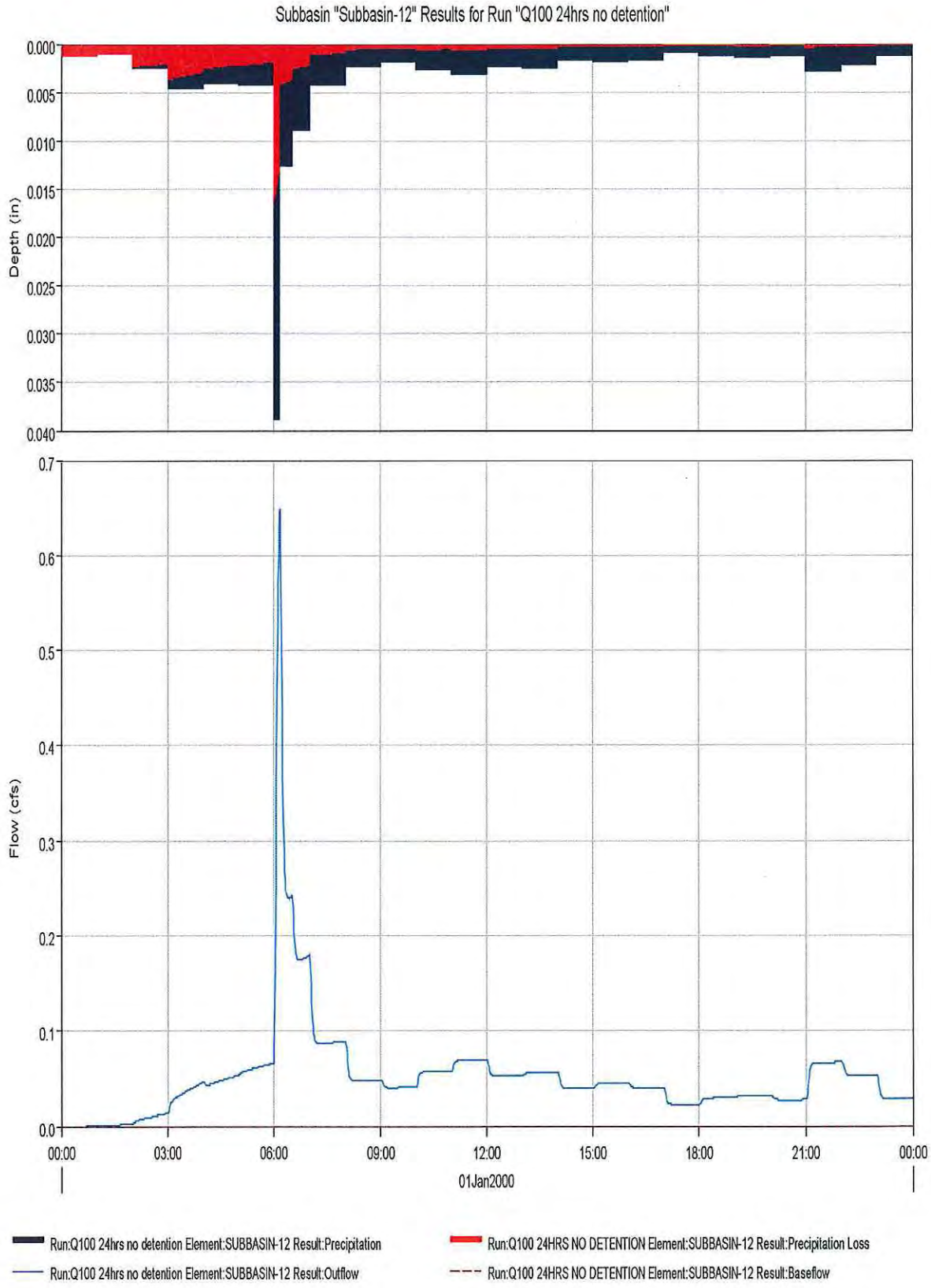

Subbasin "Subbasin-7" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-7 Result:Precipitation
Run:Q100 24hrs no detention Element:SUBBASIN-7 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-7 Result:Outflow
Run:Q100 24hrs no detention Element:SUBBASIN-7 Result:Baseflow

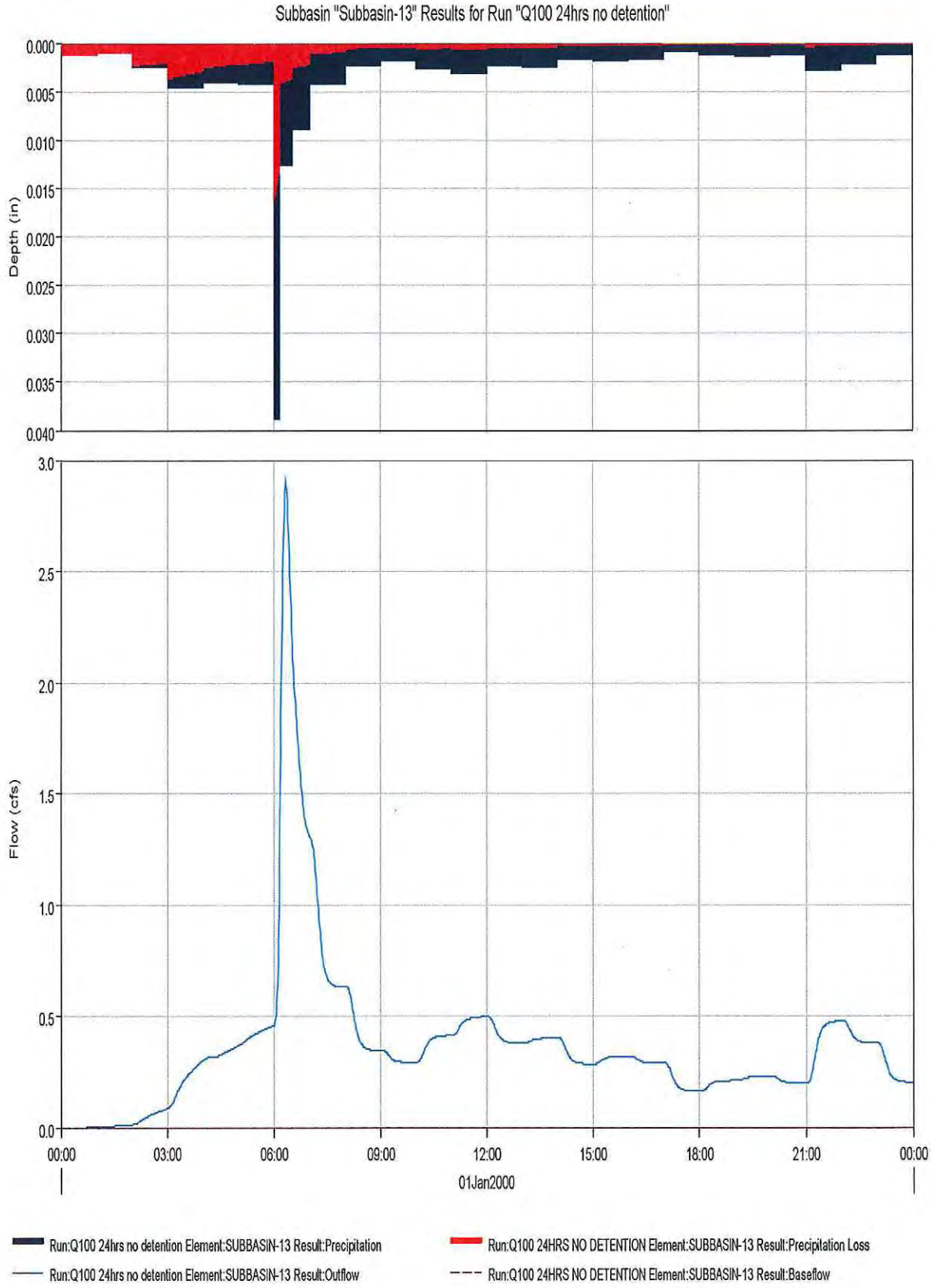

Subbasin "Subbasin-8" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
0.5
0.4
0.3
0.2
0.1
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-8 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-8 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-8 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-8 Result:Baseflow

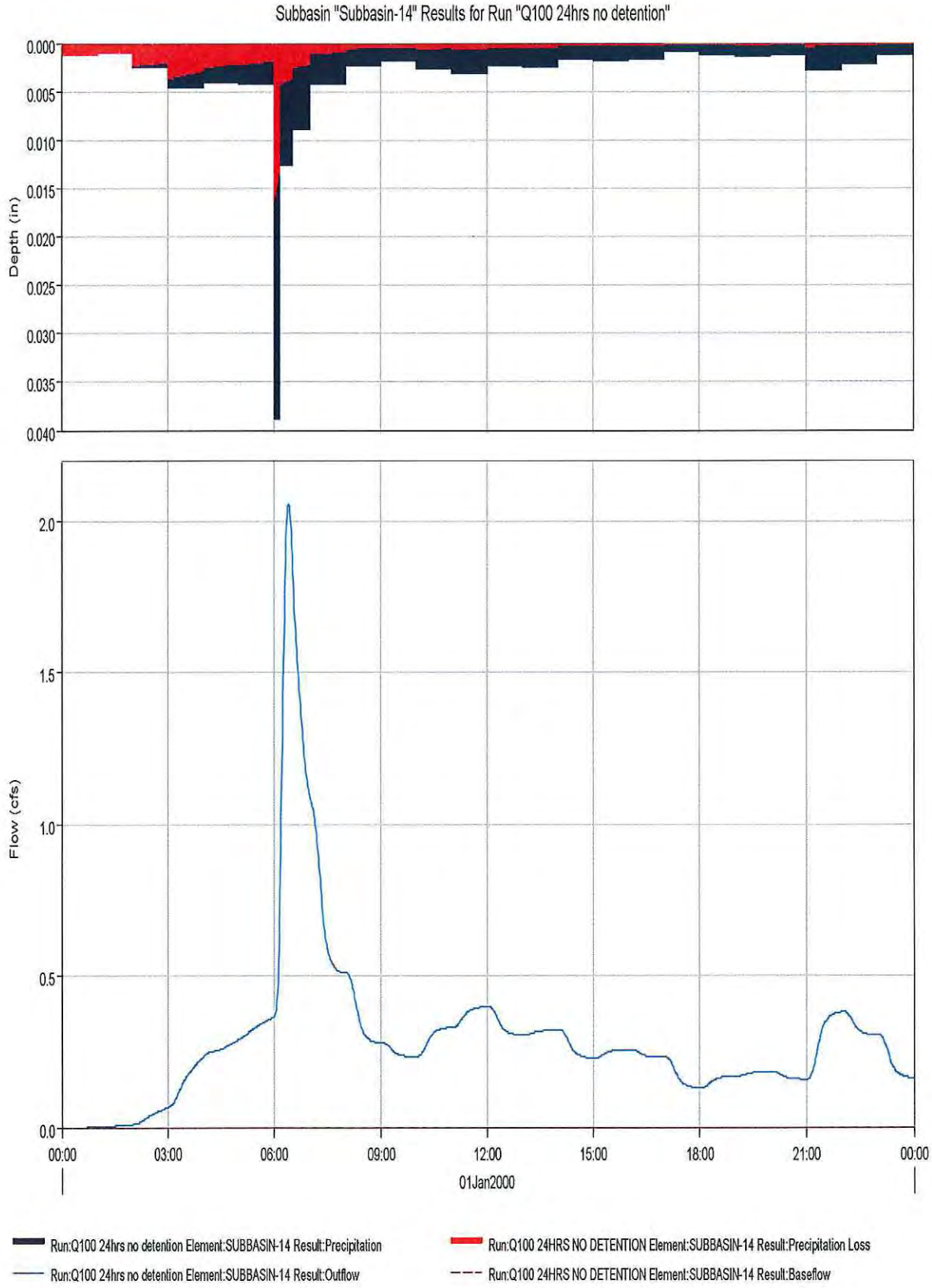

Subbasin "Subbasin-9" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-9 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-9 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-9 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-9 Result:Baseflow

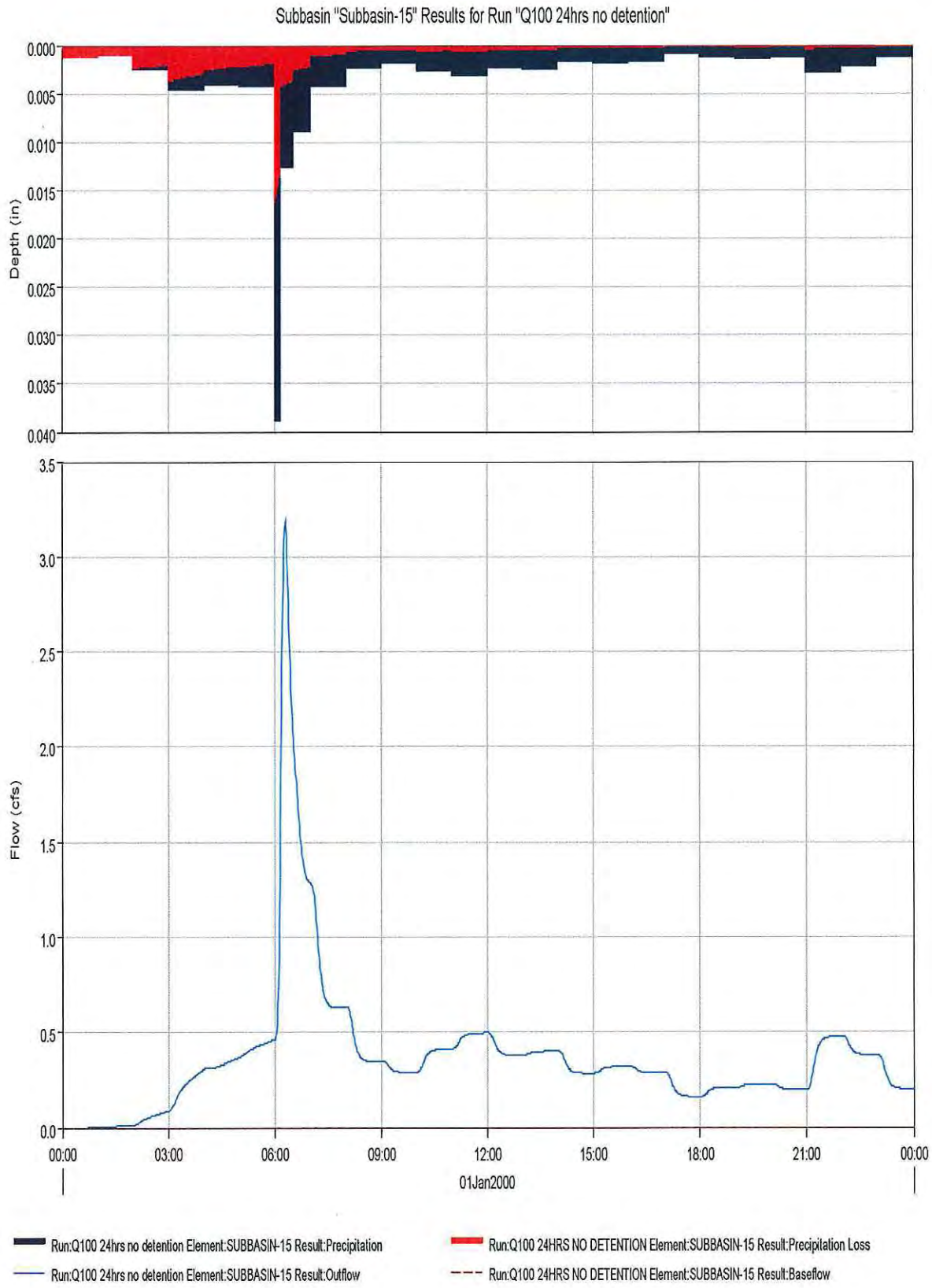

Subbasin "Subbasin-10" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-10 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-10 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-10 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-10 Result:Baseflow

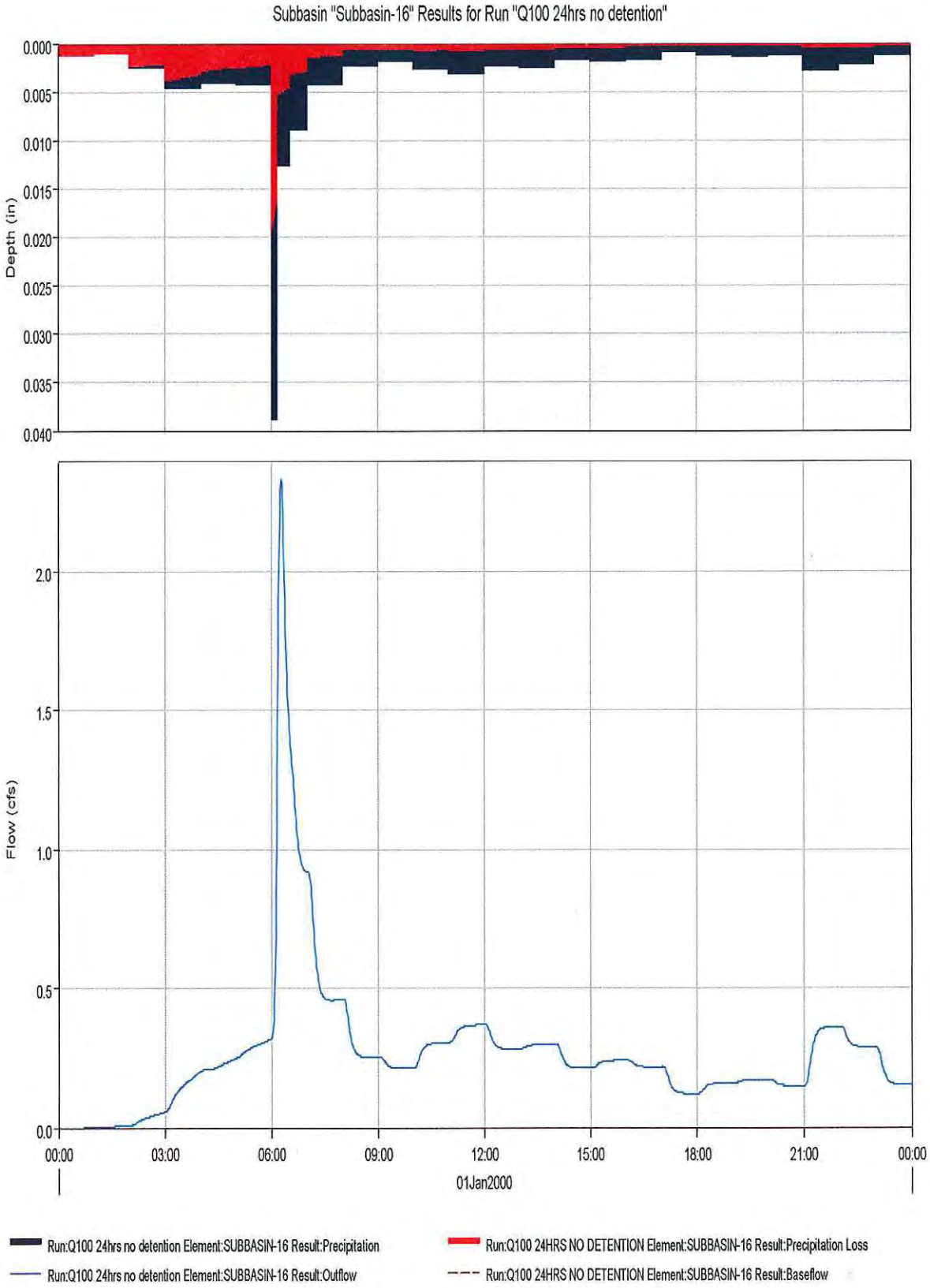

Subbasin "Subbasin-11" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-11 Result:Precipitation
Run:Q100 24hrs no detention Element:SUBBASIN-11 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-11 Result:Precipitation Loss
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-11 Result:Baseflow

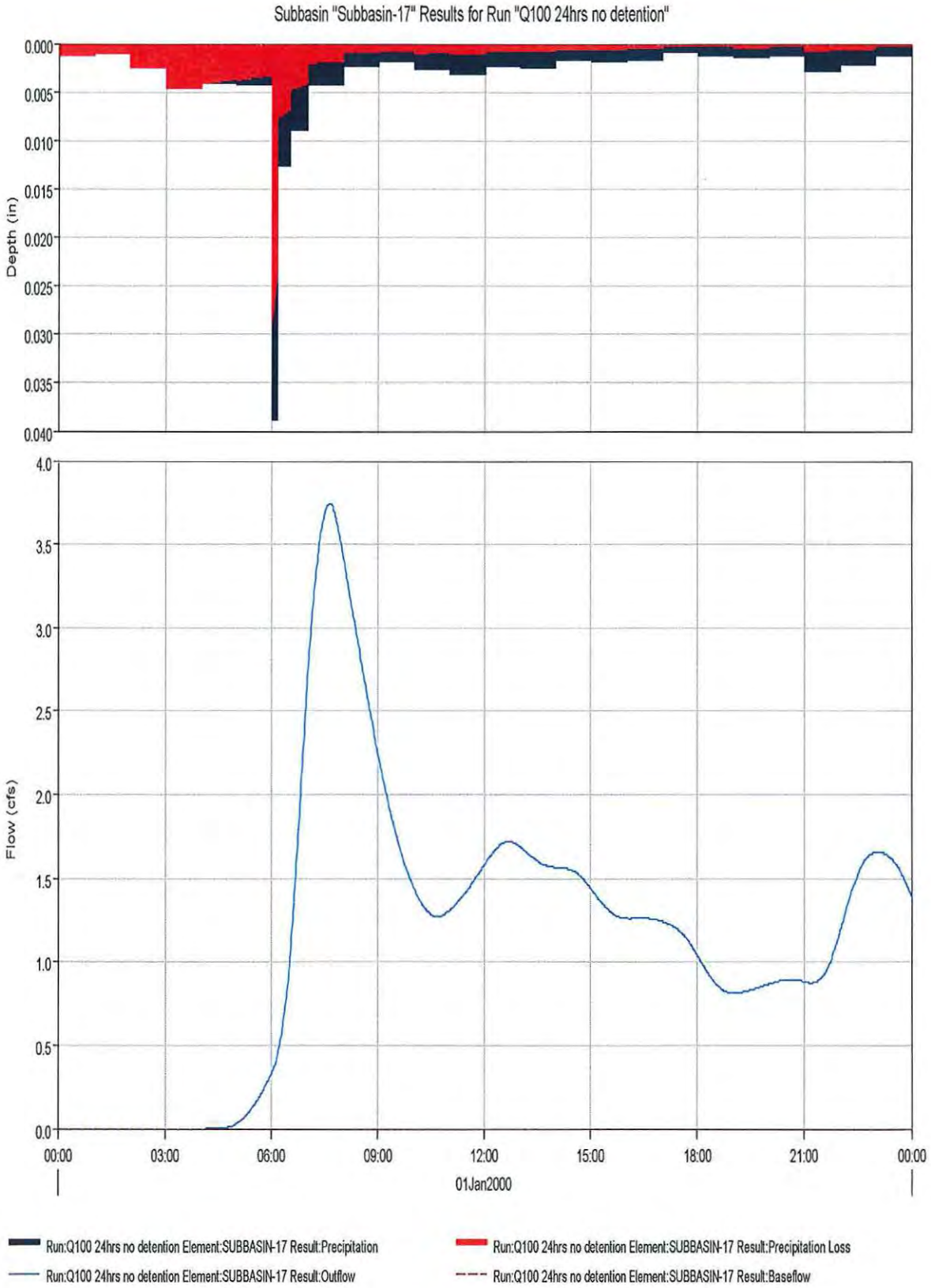

Subbasin "Subbasin-12" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-12 Result:Precipitation
Run:Q100 24hrs no detention Element:SUBBASIN-12 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-12 Result:Precipitation Loss
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-12 Result:Baseflow

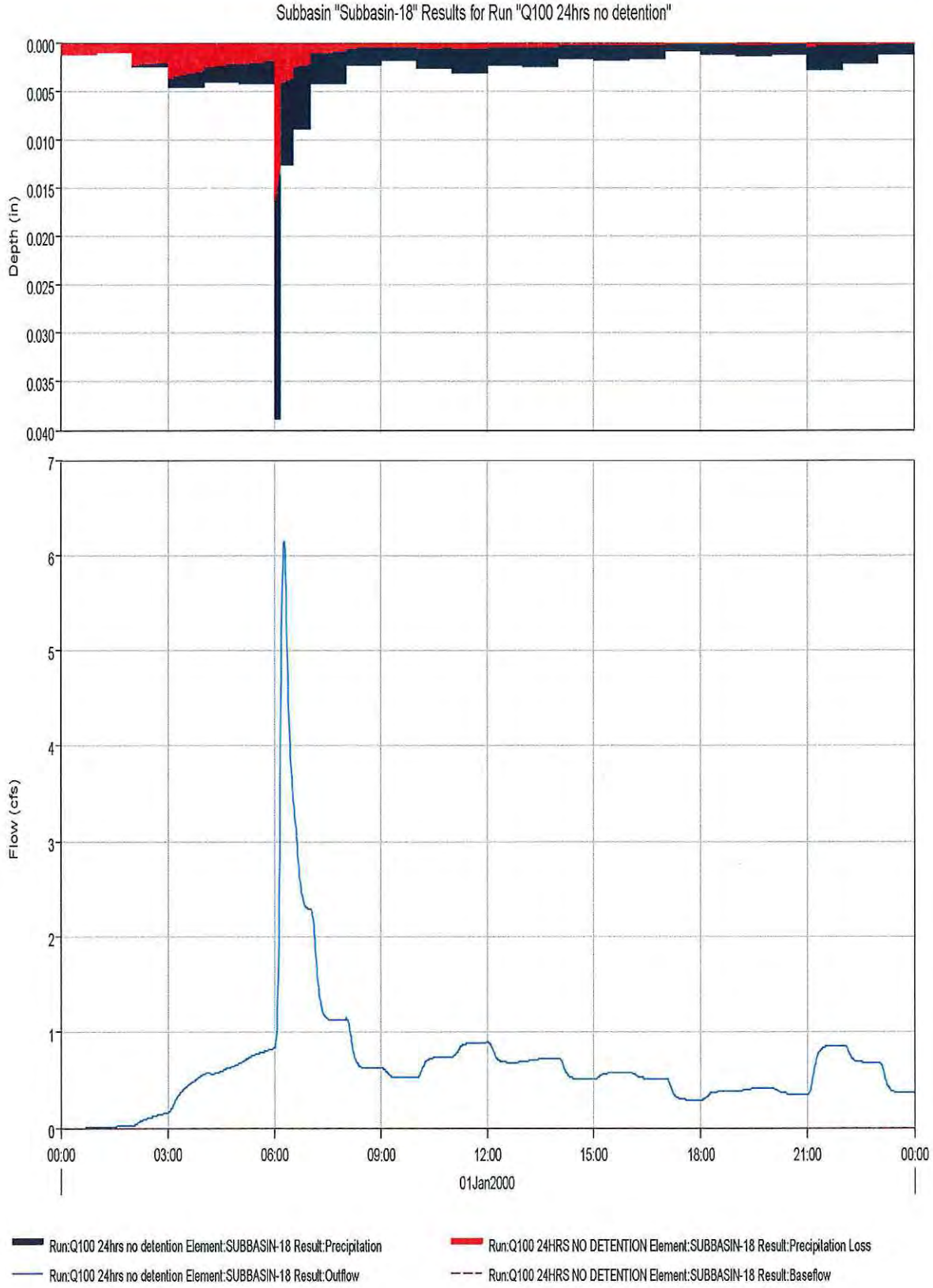

Subbasin "Subbasin-13" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-13 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-13 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-13 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-13 Result:Baseflow


Subbasin "Subbasin-14" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
2.0
1.5
1.0
0.5
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-14 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-14 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-14 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-14 Result:Baseflow


Subbasin "Subbasin-15" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-15 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-15 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-15 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-15 Result:Baseflow


Subbasin "Subbasin-16" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
2.0
1.5
1.0
0.5
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-16 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-16 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-16 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-16 Result:Baseflow


Subbasin "Subbasin-17" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-17 Result:Precipitation
Run:Q100 24hrs no detention Element:SUBBASIN-17 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-17 Result:Outflow
Run:Q100 24hrs no detention Element:SUBBASIN-17 Result:Baseflow

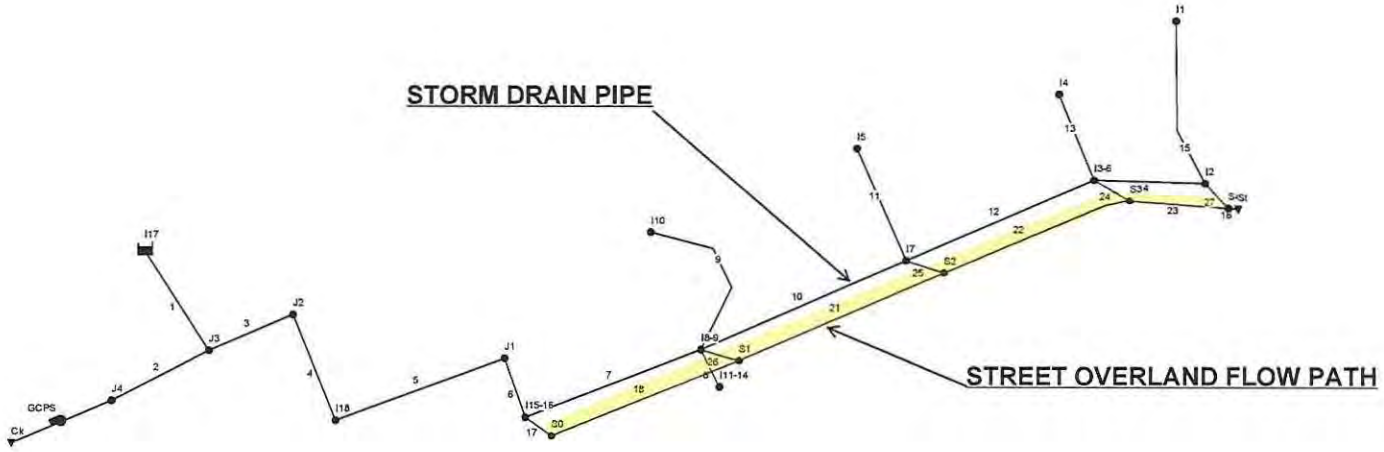

Subbasin "Subbasin-18" Results for Run "Q100 24hrs no detention"
Depth (in)
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Flow (cfs)
0
1
2
3
4
5
6
7
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Jan2000
Run:Q100 24hrs no detention Element:SUBBASIN-18 Result:Precipitation
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-18 Result:Precipitation Loss
Run:Q100 24hrs no detention Element:SUBBASIN-18 Result:Outflow
Run:Q100 24HRS NO DETENTION Element:SUBBASIN-18 Result:Baseflow

Appendix B

SWMM Model Output

SWMM MODEL
Stars and Stripes Drive
Santa Clara, Ca

01/01/2000 00:01:00



```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.022)
--------------------------------------------------------------

***********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
***********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Flow Routing Method ...... DYNWAVE
Starting Date ............ JAN-01-2000 00:00:00
Ending Date .............. JAN-02-2000 05:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Routing Time Step ........ 1.00 sec


WARNING 08: elevation drop exceeds length for Conduit 24

WARNING 08: elevation drop exceeds length for Conduit 25

WARNING 08: elevation drop exceeds length for Conduit 26

WARNING 08: elevation drop exceeds length for Conduit 27

WARNING 04: minimum elevation drop used for Conduit 16

WARNING 08: elevation drop exceeds length for Conduit 17

WARNING 03: negative offset ignored for Link GCPS

**************************        Volume         Volume
Flow Routing Continuity        acre-feet      10^6 gal
**************************     ---------      ---------
Dry Weather Inflow .......         0.000          0.000
Wet Weather Inflow .......         0.000          0.000
Groundwater Inflow .......         0.000          0.000
RDII Inflow ..............         0.000          0.000
External Inflow ..........        10.471          3.412
External Outflow .........        10.243          3.338
Internal Outflow .........         0.239          0.078
Storage Losses ...........         0.000          0.000
Initial Stored Volume ....         0.000          0.000
Final Stored Volume ......         0.001          0.000
Continuity Error (%) .....        -0.116


*************************
Highest Continuity Errors
*************************
Node S2 (-16.59%)
Node S4 (1.16%)


***************************
Time-Step Critical Elements
***************************
None
```

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec
Average Time Step : 1.00 sec
Maximum Time Step : 1.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.02

****
Node Depth Summary
****

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days	hr:min
J2	JUNCTION	0.90	10.78	12.16	0	06:18
I18	JUNCTION	0.84	10.58	12.25	0	06:18
J1	JUNCTION	0.72	11.92	14.52	0	06:15
I11-14	JUNCTION	0.32	6.62	12.20	0	06:16
I10	JUNCTION	0.14	6.38	14.94	0	06:18
I5	JUNCTION	0.33	6.62	13.18	0	06:17
I4	JUNCTION	0.24	4.90	10.86	0	06:17
I1	JUNCTION	0.24	4.29	10.50	0	06:17
S1	JUNCTION	0.00	0.00	12.40	0	00:00
S2	JUNCTION	0.00	0.09	10.89	0	06:24
S3	JUNCTION	0.00	0.04	10.99	0	06:17
S4	JUNCTION	0.01	0.27	10.37	0	06:18
S0	JUNCTION	0.00	0.00	14.00	0	00:00
J4	JUNCTION	0.42	11.12	12.02	0	06:18
J3	JUNCTION	0.92	10.86	12.08	0	06:18
I15-16	JUNCTION	0.69	9.43	12.47	0	06:18
I8-9	JUNCTION	0.67	8.29	12.03	0	06:18
I7	JUNCTION	0.54	6.12	10.89	0	06:17
I3-6	JUNCTION	0.53	6.08	11.12	0	06:17
I2	JUNCTION	0.35	4.97	10.37	0	06:18
St	OUTFALL	1.90	1.90	12.00	0	00:00
Ck	OUTFALL	0.00	0.00	0.90	0	00:00
I17	STORAGE	0.77	5.59	9.79	0	07:32

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal
J2	JUNCTION	0.00	23.54	0	06:14	0.000	2.601
I18	JUNCTION	6.10	26.21	0	06:14	0.426	2.601
J1	JUNCTION	0.00	21.24	0	06:15	0.000	2.175
I11-14	JUNCTION	5.50	6.15	0	06:16	0.497	0.497
I10	JUNCTION	0.80	3.23	0	06:18	0.103	0.103
I5	JUNCTION	2.50	3.19	0	06:17	0.338	0.339
I4	JUNCTION	0.70	4.21	0	06:17	0.058	0.061
I1	JUNCTION	0.70	3.63	0	06:17	0.066	0.066
S1	JUNCTION	0.00	0.00	0	00:00	0.000	0.000

S2	JUNCTION	0.00	3.77	0	06:17	0.000	0.002
S3	JUNCTION	0.00	4.89	0	06:17	0.000	0.000
S4	JUNCTION	0.00	5.40	0	06:18	0.000	0.008
S0	JUNCTION	0.00	0.00	0	00:00	0.000	0.000
J4	JUNCTION	0.00	19.11	0	06:12	0.000	3.338
J3	JUNCTION	0.00	21.94	0	06:13	0.000	3.366
I15-16	JUNCTION	5.50	22.35	0	06:16	0.410	2.174
I8-9	JUNCTION	1.80	20.98	0	06:16	0.146	1.767
I7	JUNCTION	2.80	15.38	0	06:16	0.169	1.035
I3-6	JUNCTION	4.10	12.14	0	06:17	0.347	0.562
I2	JUNCTION	1.90	8.64	0	06:18	0.114	0.225
St	OUTFALL	0.00	0.00	0	00:00	0.000	0.000
Ck	OUTFALL	0.00	14.20	0	06:10	0.000	3.338
I17	STORAGE	3.70	3.82	0	06:17	0.737	0.765

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
J2	JUNCTION	1.54	7.783	2.707
I18	JUNCTION	1.48	7.577	2.963
J1	JUNCTION	1.40	9.418	2.022
I11-14	JUNCTION	1.04	5.370	0.000
I10	JUNCTION	0.90	5.380	0.000
I5	JUNCTION	1.03	5.620	0.000
I4	JUNCTION	1.04	3.900	0.000
I1	JUNCTION	1.02	3.290	0.000
J4	JUNCTION	1.63	8.121	2.979
J3	JUNCTION	1.57	7.863	2.577
I15-16	JUNCTION	1.31	6.932	2.128
I8-9	JUNCTION	1.15	5.787	0.573
I7	JUNCTION	1.07	4.120	0.000
I3-6	JUNCTION	1.03	4.081	0.079
I2	JUNCTION	1.14	3.720	0.000
I17	STORAGE	2.95	4.586	2.214

****
Node Flooding Summary
****

Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CFS	Time of Max Occurrence days	Time of Max Occurrence hr:min	Total Flood Volume 10^6 gal	Maximum Ponded Depth Feet
I11-14	0.01	4.84	0	06:16	0.000	6.62
I10	0.01	2.83	0	06:18	0.000	6.38
I5	0.01	1.64	0	06:17	0.000	6.62
I4	0.27	3.90	0	06:17	0.005	4.90
I1	0.04	3.54	0	06:17	0.001	4.29
I7	0.11	10.21	0	06:21	0.009	6.12
I2	0.82	8.45	0	06:18	0.062	4.97

****
Storage Volume Summary
****

	Average Volume	Avg Pcnt	E&I Pcnt	Maximum Volume	Max Pcnt	Time of Max Occurrence	Maximum Outflow

Storage Unit	1000 ft3	Full	Loss	1000 ft3	Full	days hr:min	CFS
I17	0.583	1	0	9.244	14	0 07:32	4.82

****
Outfall Loading Summary
****

Outfall Node	Flow Freq. Pcnt.	Avg. Flow CFS	Max. Flow CFS	Total Volume 10^6 gal
St	0.00	0.00	0.00	0.000
Ck	83.22	5.14	14.20	3.338
System	41.61	5.14	14.20	3.338

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
1	CONDUIT	4.82	0 08:14	6.14	1.57	1.00
3	CONDUIT	21.45	0 06:13	5.35	0.80	1.00
4	CONDUIT	23.54	0 06:14	5.08	0.73	1.00
5	CONDUIT	20.12	0 06:14	5.02	0.76	1.00
6	CONDUIT	21.24	0 06:15	5.87	0.78	1.00
7	CONDUIT	16.85	0 06:16	4.63	0.79	1.00
8	CONDUIT	5.98	0 06:16	5.11	0.50	1.00
9	CONDUIT	2.82	0 06:18	4.08	0.57	1.00
10	CONDUIT	10.00	0 06:16	3.91	0.81	1.00
11	CONDUIT	2.50	0 06:47	3.53	0.70	1.00
12	CONDUIT	7.00	0 06:16	2.86	1.01	1.00
13	CONDUIT	3.61	0 06:17	4.61	1.34	1.00
14	CONDUIT	4.04	0 06:18	3.30	1.33	1.00
15	CONDUIT	3.03	0 06:17	3.87	1.47	1.00
21	CHANNEL	0.00	0 00:00	0.00	0.00	0.11
22	CHANNEL	0.01	0 06:18	0.14	0.00	0.05
23	CHANNEL	0.03	0 06:17	0.97	0.00	0.09
24	CONDUIT	5.91	0 06:18	2.89	0.00	0.55
25	CONDUIT	8.15	0 06:21	3.54	0.00	0.61
26	CONDUIT	0.00	0 00:00	0.00	0.00	0.50
27	CONDUIT	5.39	0 06:18	1.78	0.00	0.84
16	CHANNEL	0.00	0 00:00	0.00	0.00	0.58
17	CONDUIT	0.00	0 00:00	0.00	0.00	0.50
18	CHANNEL	0.00	0 00:00	0.00	0.00	0.00
2	CONDUIT	19.11	0 06:12	13.67	0.63	1.00
GCPS	PUMP	14.20	0 06:10		1.00	

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Avg. Froude Number	Avg. Flow Change
1	1.00	0.07	0.18	0.00	0.74	0.00	0.00	0.00	0.34	0.0001
3	1.00	0.07	0.07	0.00	0.85	0.00	0.00	0.00	0.45	0.0000
4	1.00	0.07	0.00	0.00	0.93	0.00	0.00	0.00	0.51	0.0000
5	1.00	0.07	0.00	0.00	0.92	0.00	0.00	0.00	0.61	0.0000
6	1.00	0.08	0.00	0.00	0.44	0.48	0.00	0.00	0.75	0.0000

7	1.00	0.08	0.00	0.00	0.92	0.00	0.00	0.00	0.61	0.0001
8	1.00	0.08	0.16	0.00	0.75	0.02	0.00	0.00	0.50	0.0000
9	1.00	0.08	0.24	0.00	0.69	0.00	0.00	0.00	0.14	0.0000
10	1.00	0.08	0.00	0.00	0.92	0.00	0.00	0.00	0.49	0.0001
11	1.00	0.08	0.15	0.00	0.77	0.00	0.00	0.00	0.44	0.0000
12	1.00	0.08	0.00	0.00	0.92	0.00	0.00	0.00	0.33	0.0001
13	1.00	0.08	0.24	0.00	0.69	0.00	0.00	0.00	0.11	0.0000
14	1.00	0.08	0.03	0.00	0.89	0.00	0.00	0.00	0.22	0.0001
15	1.00	0.11	0.02	0.00	0.88	0.00	0.00	0.00	0.28	0.0000
21	1.00	0.99	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
22	1.00	0.99	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
23	1.00	0.97	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
24	1.00	0.08	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
25	1.00	0.08	0.91	0.00	0.01	0.00	0.00	0.00	0.00	0.0000
26	1.00	0.08	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
27	1.00	0.11	0.86	0.00	0.03	0.00	0.00	0.00	0.00	0.0000
16	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.0000
17	1.00	0.08	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
18	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
2	1.00	0.07	0.00	0.00	0.20	0.72	0.00	0.00	2.22	0.0000

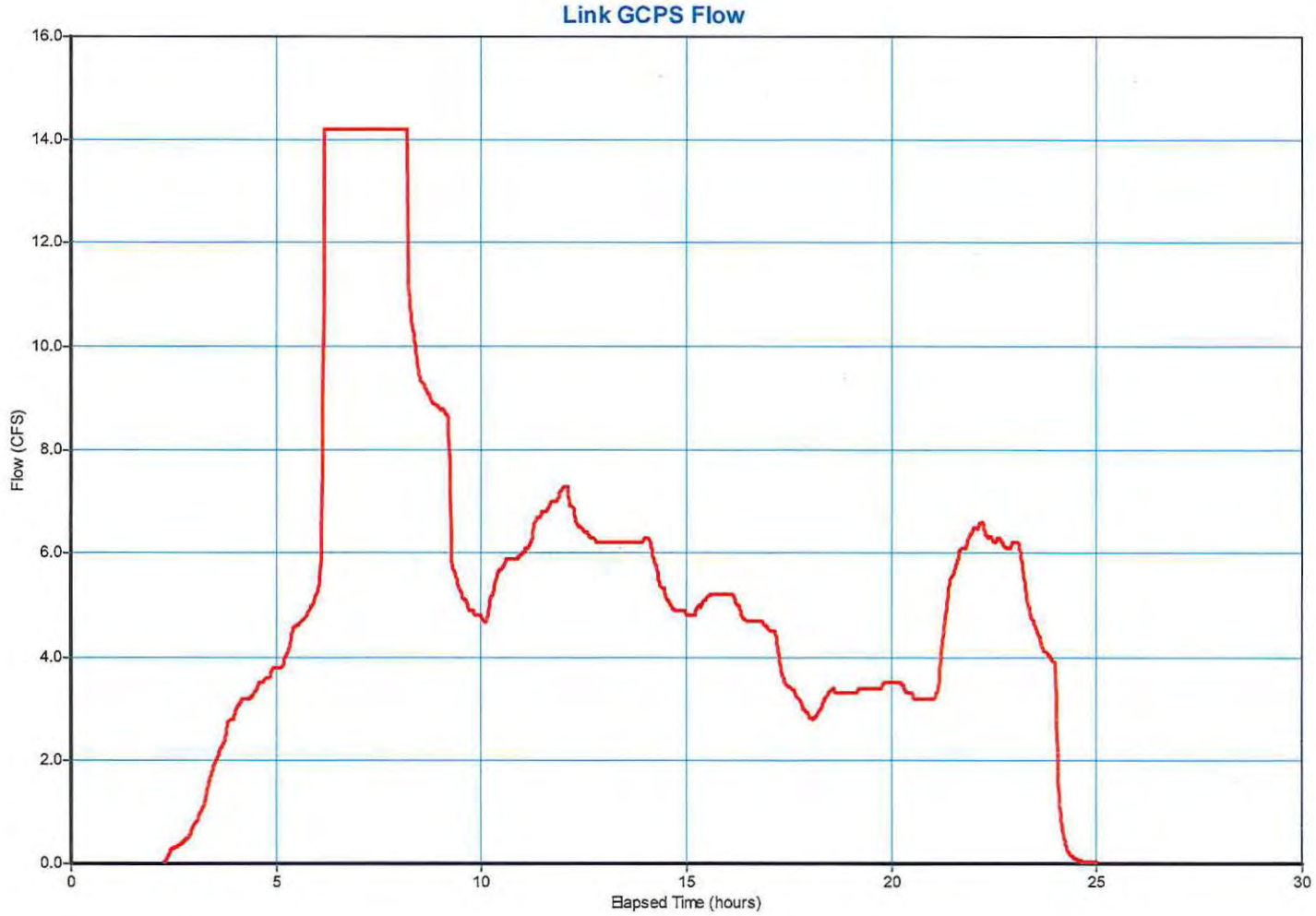
****
Conduit Surcharge Summary
****

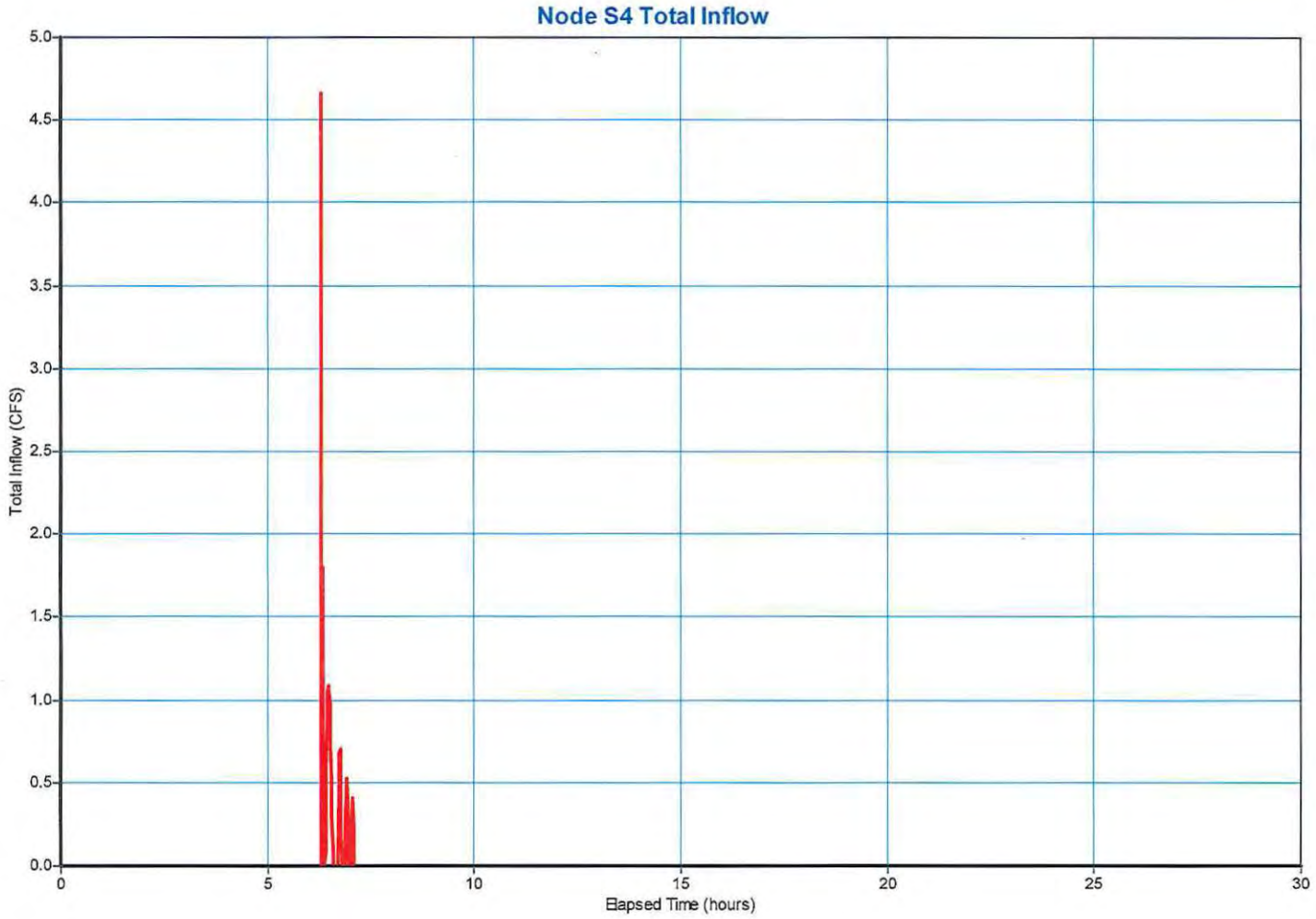
Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
1	2.41	2.41	2.41	1.93	1.38
3	1.54	1.54	1.54	0.01	0.01
4	1.48	1.48	1.48	0.01	0.01
5	1.40	1.40	1.40	0.01	0.01
6	1.31	1.31	1.31	0.01	0.01
7	1.15	1.15	1.15	0.01	0.01
8	1.04	1.04	1.04	0.01	0.01
9	0.90	0.90	0.90	0.01	0.01
10	1.07	1.07	1.07	0.01	0.01
11	1.03	1.03	1.03	0.01	0.01
12	1.03	1.03	1.03	0.01	0.01
13	1.04	1.04	1.04	0.01	0.01
14	1.14	1.14	1.14	0.29	0.01
15	1.02	1.02	1.02	0.01	0.01
2	1.57	1.57	1.57	0.01	0.01

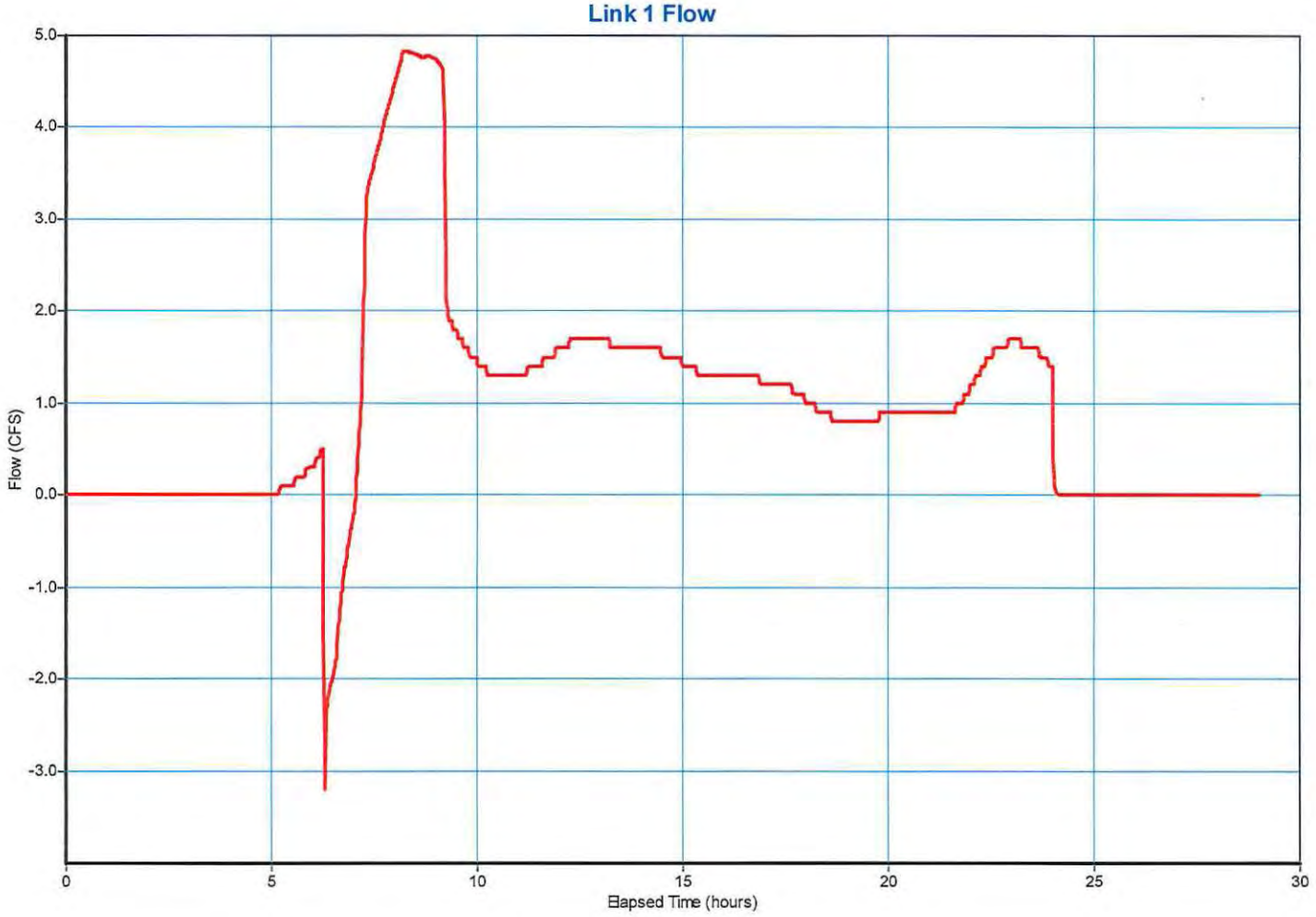
****
Pumping Summary
****

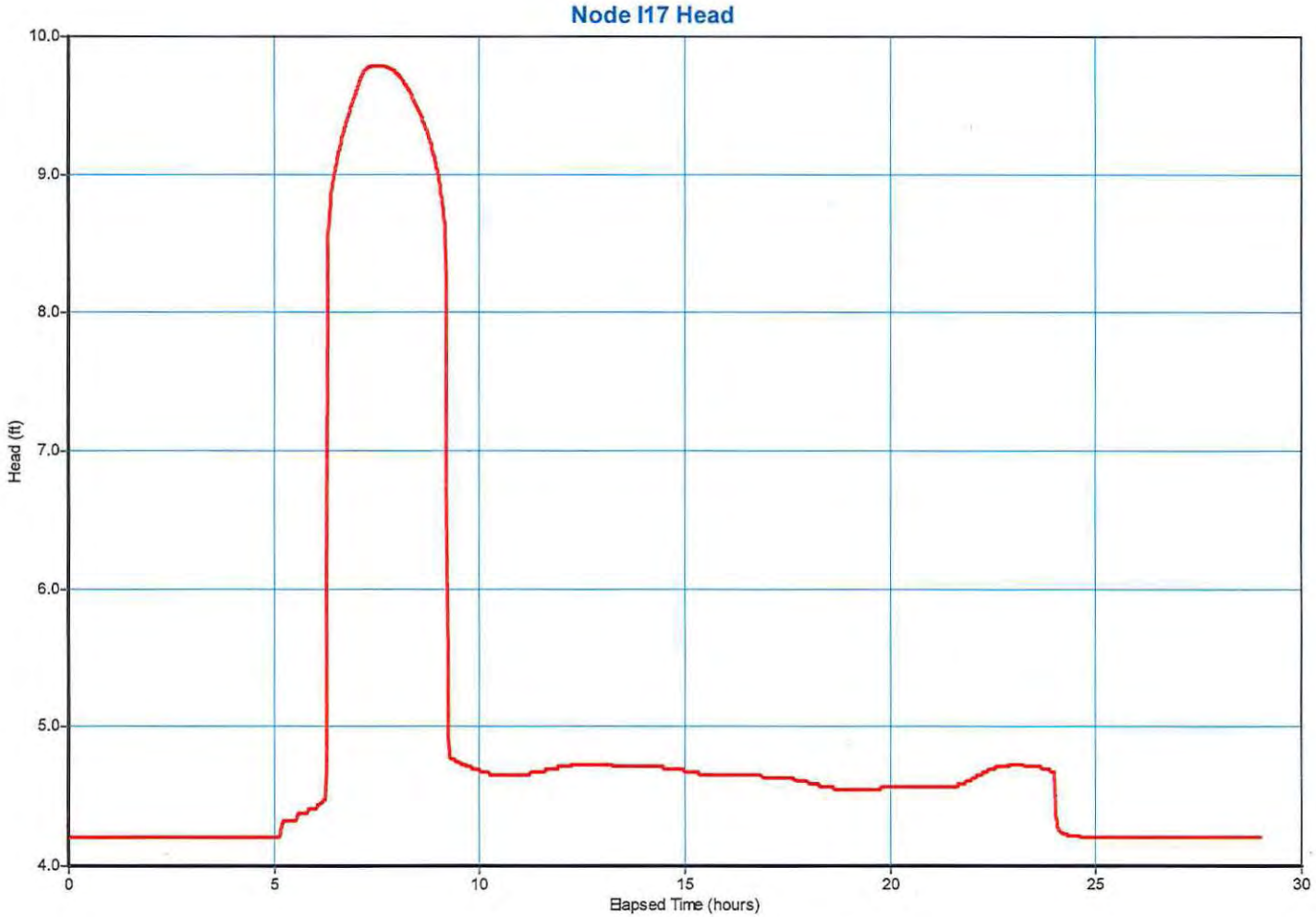
Pump	Percent Utilized	Number of Start-Ups	Min Flow CFS	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal	Power Usage Kw-hr	% Time Off Pump Curve: Low	% Time Off Pump Curve: High
GCPS	83.22	1	0.00	5.14	14.20	3.338	14.71	0.0	0.0

Analysis begun on: Fri Jul 13 13:19:36 2012
Analysis ended on: Fri Jul 13 13:19:43 2012
Total elapsed time: 00:00:07

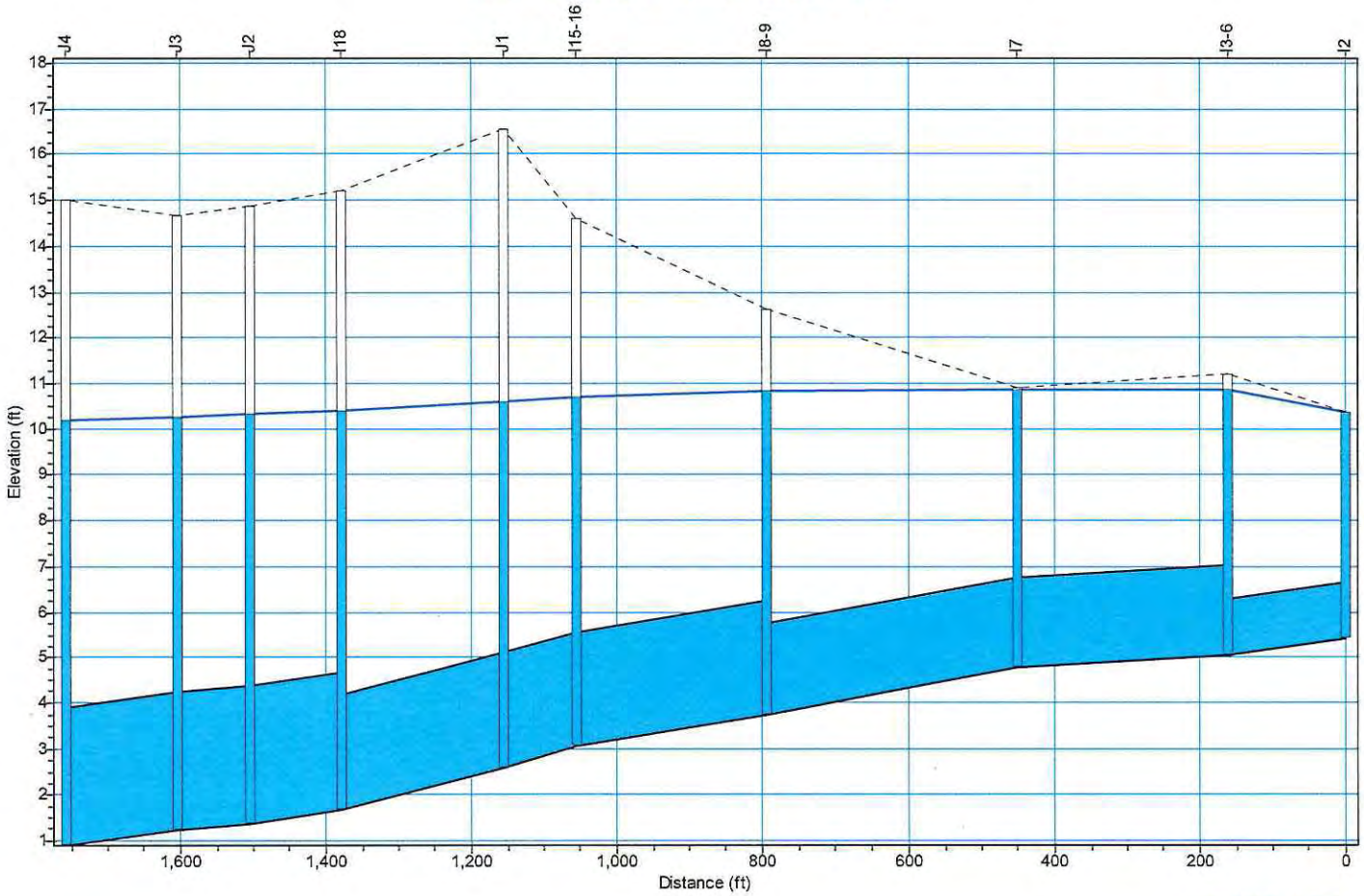

Link GCPS Flow
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Flow (CFS)
0
5
10
15
20
25
30
Elapsed Time (hours)

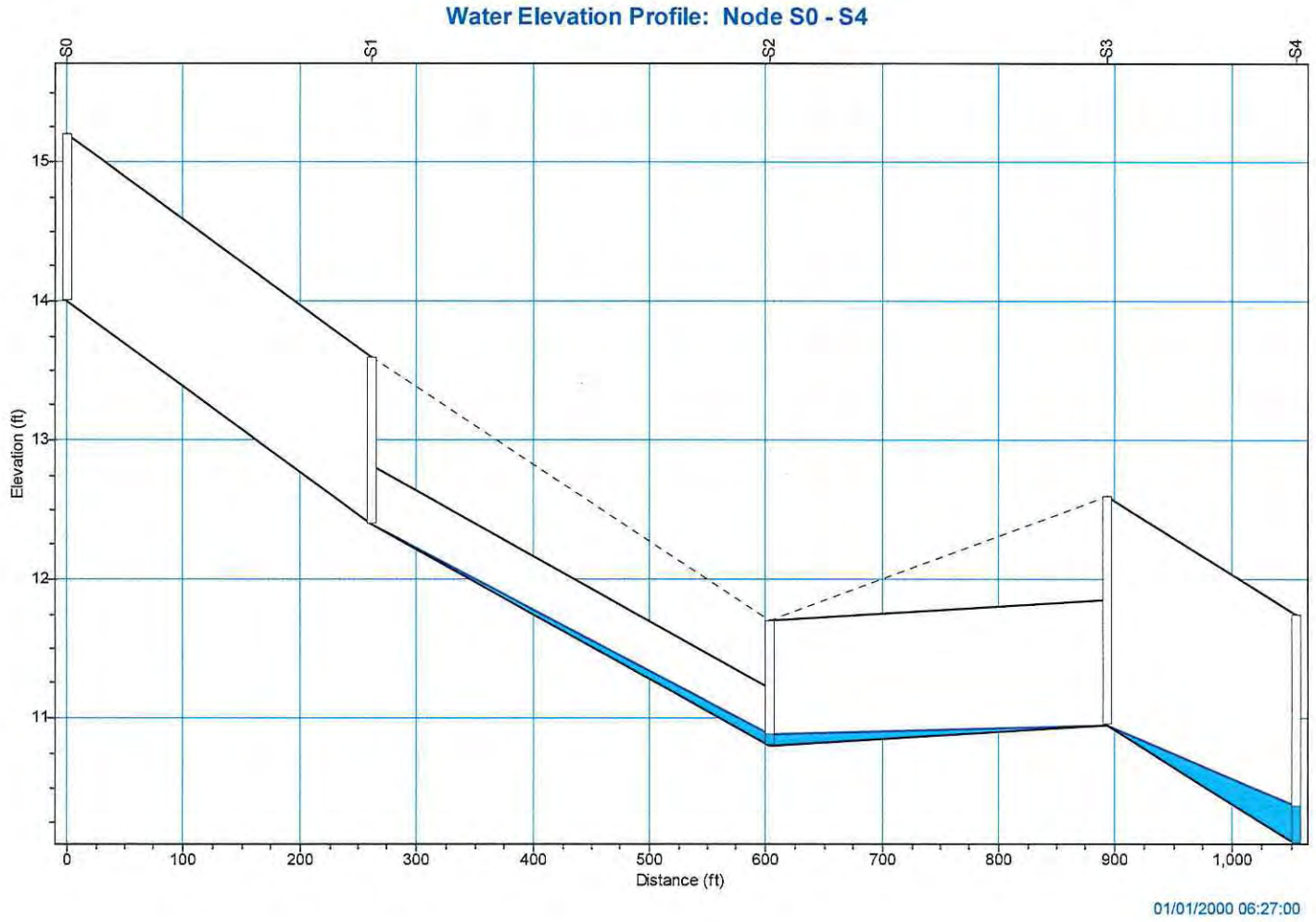

Node S4 Total Inflow
Total Inflow (CFS)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
5
10
15
20
25
30
Elapsed Time (hours)


Link 1 Flow
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
Flow (CFS)
0
5
10
15
20
25
30
Elapsed Time (hours)


Node I17 Head
Head (ft)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
0
5
10
15
20
25
30
Elapsed Time (hours)

Water Elevation Profile: Node I2 - J4




Water Elevation Profile: Node S0 - S4
S0
S1
S2
S3
S4
15
14
13
12
11
Elevation (ft)
0
100
200
300
400
500
600
700
800
900
1,000
Distance (ft)
01/01/2000 06:27:00

APPENDIX F

FEMA FIRM and Anderson Dam Inundation

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 10N. The horizontal datum was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by the USDA National Agriculture Imagery Program (NAIP). This information was photogrammetrically compiled at a scale of 1:24,000 from aerial photography dated 20060.

This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

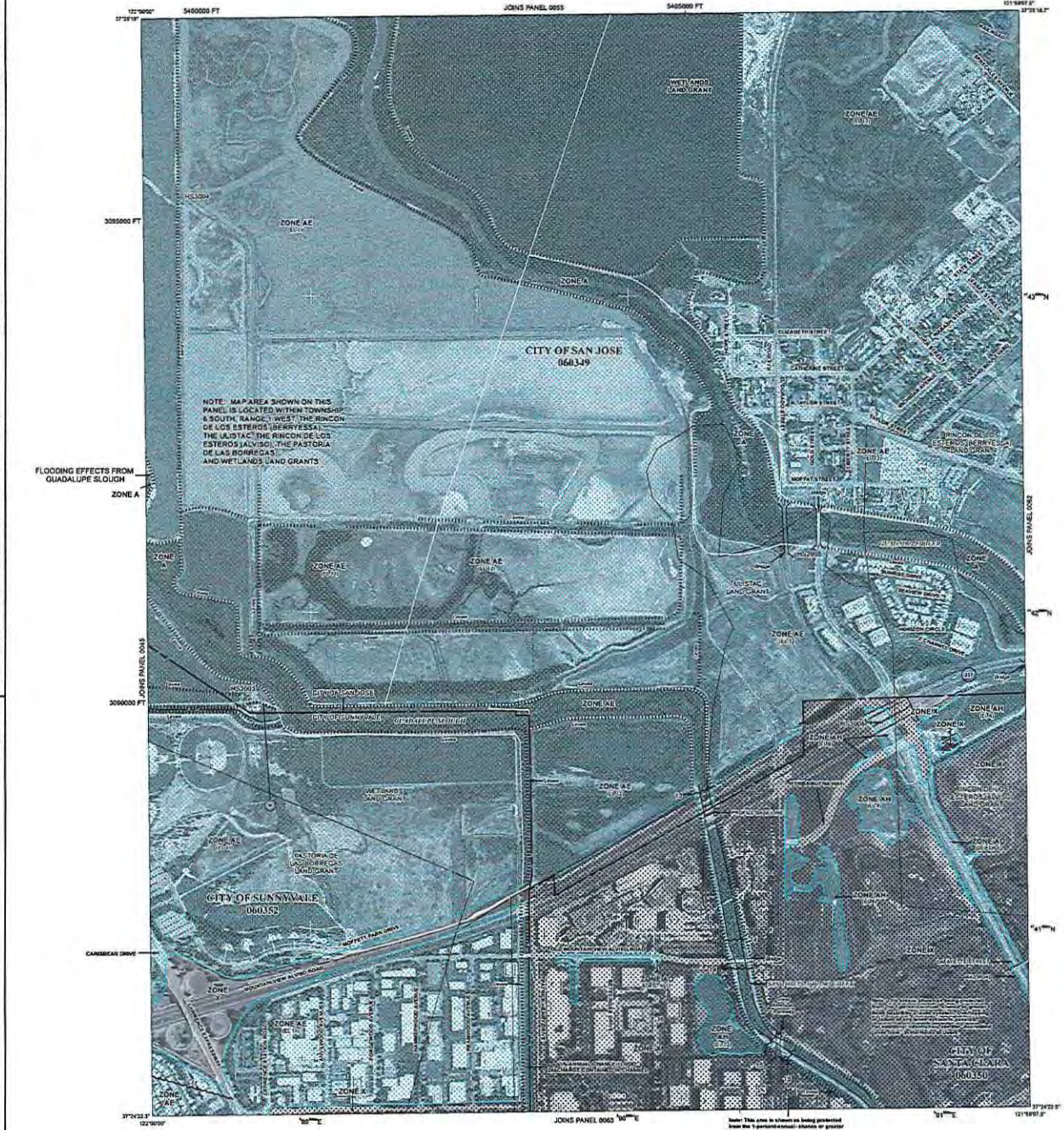
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the FEMA Map Service Center at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.

Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are generally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL. 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- Cross section line
- Transect line
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4276000 mN — 1000-meter Universal Transverse Mercator grid values, zone 10N
- 600000 FT — 5000-foot grid ticks: California State Plane coordinate system, zone III (FIPSZONE 0403), Lambert Conformal Conic projection
- DX5510 X — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
May 18, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
500 0 500 1000 FEET
150 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0061H

FIRM

FLOOD INSURANCE RATE MAP

SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 61 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN JOSE, CITY OF	060349	0061	H
SANTA CLARA, CITY OF	060350	0061	H
SUNNYVALE, CITY OF	060352	0061	H

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
06085C0061H

EFFECTIVE DATE
MAY 18, 2009

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 10. The horizontal datum was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

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Base map information shown on this FIRM was provided in digital format by the USDA National Agriculture Imagery Program (NAIP). This information was photogrammetrically compiled at a scale of 1:24,000 from aerial photography dated 2009.

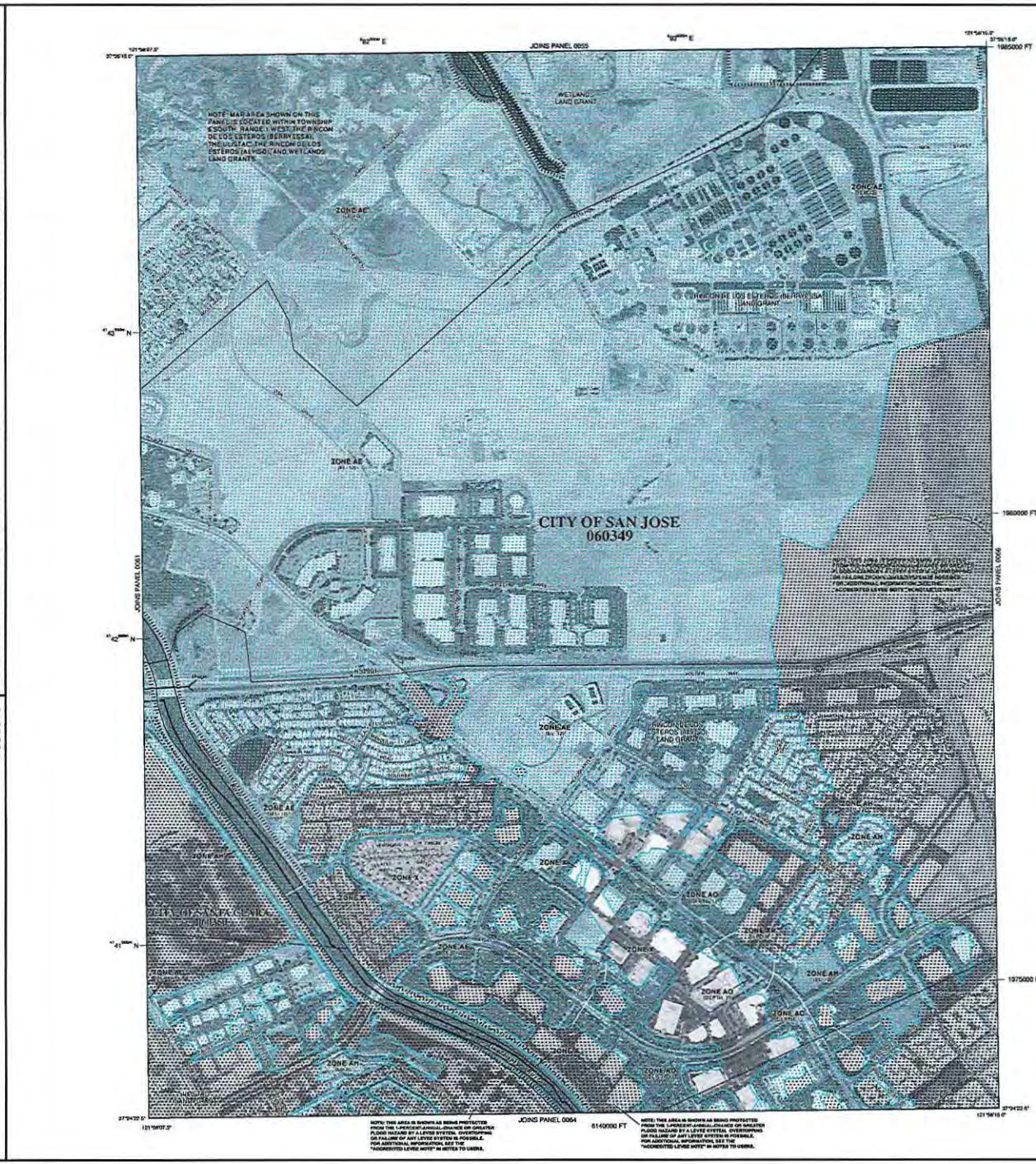
This map may reflect more detailed or up to date stream channel configurations than those shown on the previous FIRM. The floodplains and floodways that were transformed from the previous FIRM may have been adjusted to conform to these new stream channel configurations and improved topographic data. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please **refer** to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information and questions about this map, available products associated with the FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the **FEMA Map Service Center** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the **FEMA Map Service Center** website or by calling the FEMA Map Information eXchange.

Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.



LEGEND

SFHAs — SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A — No Base Flood Elevations determined.
- ZONE AE — Base Flood Elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A — Cross section line
- B — B — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4332000mN — 1000-meter Universal Transverse Mercator grid ticks, zone 10
- 6000000 FT — 5000-foot grid ticks: California State Plane coordinate system, zone 3 (FIPSZONE 0403), Lambert Conformal Conic
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
May 18, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
February 19, 2014 - to incorporate previously issued Letters of Map Revision, to change zone designations, to add Base Flood Elevation, to update datum conversion factors, to reflect updated topographic information, and to change Special Flood Hazard Areas

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
200 0 500 1000 FEET
100 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0062J

FIRM
FLOOD INSURANCE RATE MAP
SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 62 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN JOSE, CITY OF	060349	0062	J
SANTA CLARA, CITY OF	060356	0062	J

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
06085C0062J
MAP REVISED
FEBRUARY 19, 2014

Federal Emergency Management Agency

NOTES TO USERS

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To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 10N. The horizontal datum was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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NGS Information Services
NOAA, NNGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

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Base map information shown on this FIRM was provided in digital format by the USDA National Agriculture Imagery Program (NAIP). This information was photogrammetrically compiled at a scale of 1:24,000 from aerial photography dated 20005.

This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

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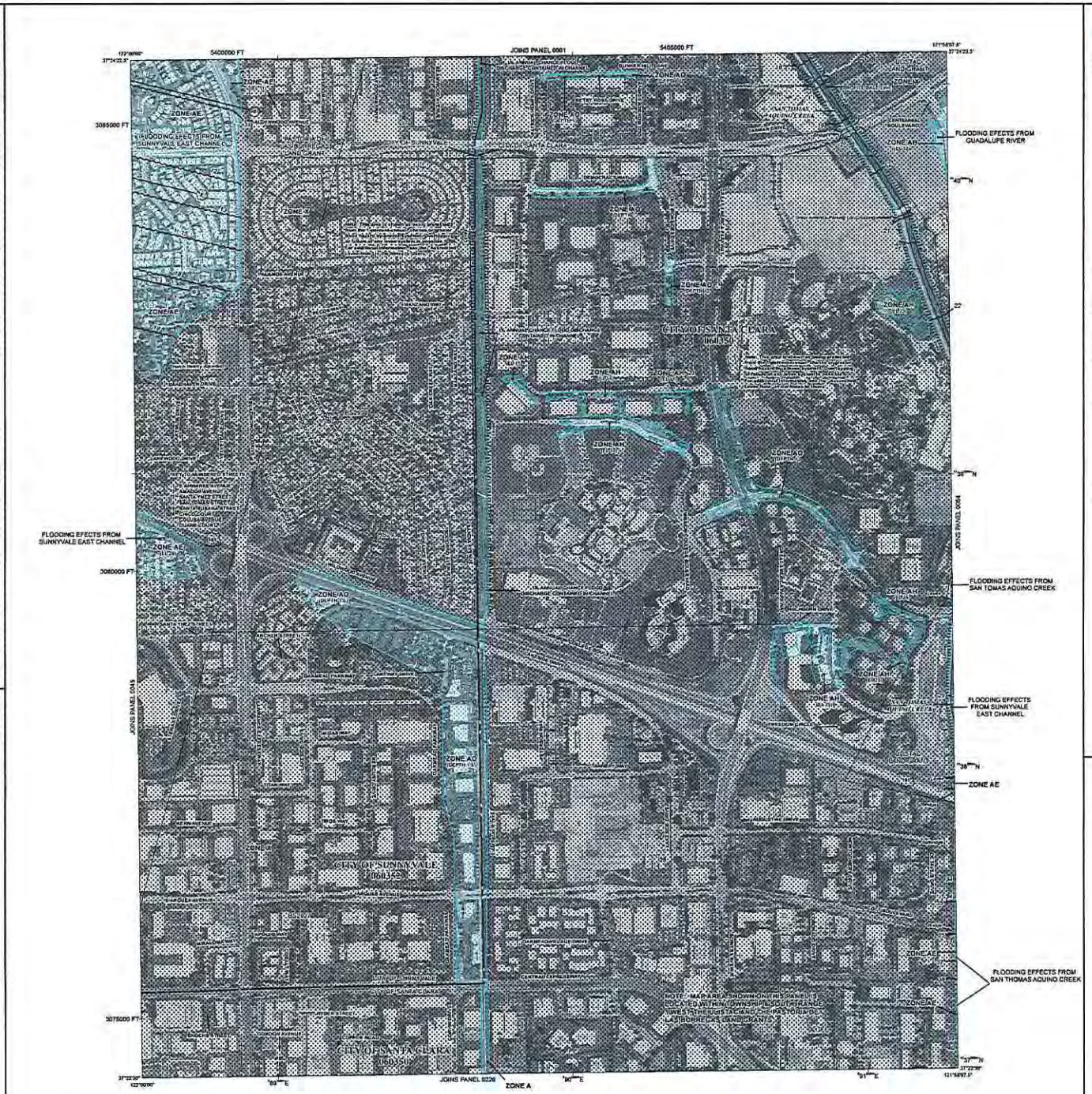

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

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ZONE A	No Base Flood Elevations determined.
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ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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- (EL. 987) — Base Flood Elevation value where uniform within zone; elevation in feet*
- * Referenced to the North American Vertical Datum of 1988
- Cross section line
- Transect line
- 97°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western hemisphere
- 4275000 FT — 1000-meter Universal Transverse Mercator grid values, zone 10S
- 6000000 FT — 5000-foot grid ticks: California State Plane coordinate system, zone III (FIPSZONE 0403), Lambert Conformal Conic projection
- DX5510 — Bench mark (see explanation in notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
May 18, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For communities map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

PANEL 0063H

FIRM

FLOOD INSURANCE RATE MAP

SANTA CLARA COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 63 OF 830

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SANTA CLARA, CITY OF	060350	0063	H
SUNNYVALE, CITY OF	060352	0063	H

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
06085C0063H

EFFECTIVE DATE
MAY 18, 2009

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 10N. The horizontal datum was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by the USDA National Agriculture Imagery Program (NAIP). This information was photogrammetrically compiled at a scale of 1:24,000 from aerial photography dated 20090.

This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

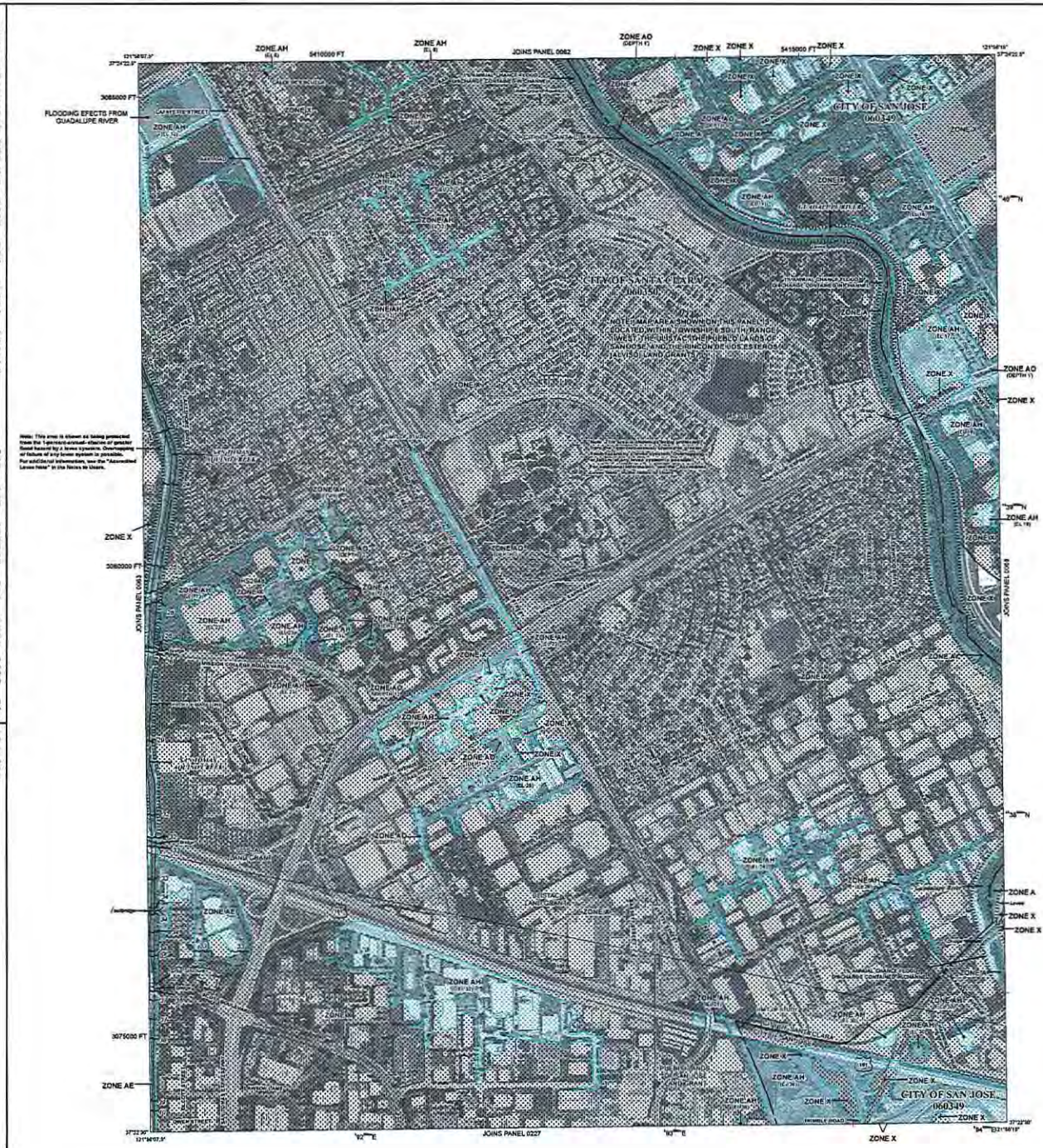
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.

Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A — No Base Flood Elevations determined.
- ZONE AE — Base Flood Elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL. 987) — Base Flood Elevation value where uniform within zone; elevation in feet*
- * Referenced to the North American Vertical Datum of 1988
- Cross section line
- Transect line
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4276000 FT — 1000-meter Universal Transverse Mercator grid values, zone 10N
- 600000 FT — 5000-foot grid ticks: California State Plane coordinate system, zone VII (FIPSZONE 0403), Lambert Conformal Conic projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
May 18, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
500 0 500 1000 FEET
150 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0064H

FIRM

FLOOD INSURANCE RATE MAP

SANTA CLARA COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 64 OF 830
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

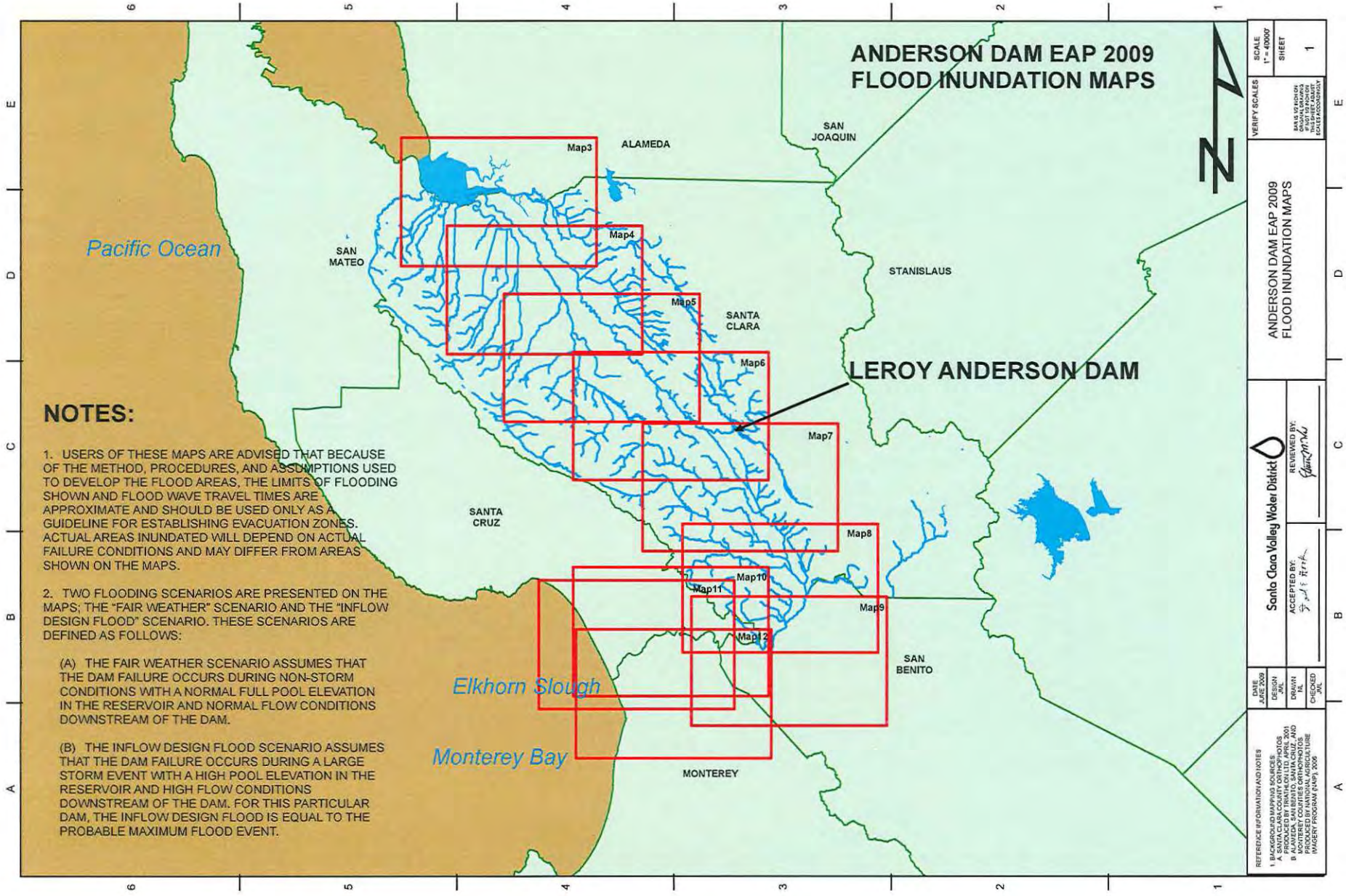
COMMUNITY	NUMBER	PANEL	SUFFIX
SAN JOSE, CITY OF	060349	0064	H
SANTA CLARA, CITY OF	060350	0064	H

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
06085C0064H

EFFECTIVE DATE
MAY 18, 2009

Federal Emergency Management Agency


ANDERSON DAM EAP 2009
FLOOD INUNDATION MAPS
Pacific Ocean
SAN MATEO
ALAMEDA
SAN JOAQUIN
STANISLAUS
SANTA CLARA
SANTA CRUZ
SAN BENITO
MONTEREY
Elkhorn Slough
Monterey Bay
LEROY ANDERSON DAM
Map3
Map4
Map5
Map6
Map7
Map8
Map9
Map10
Map11
Map12
NOTES:
1. USERS OF THESE MAPS ARE ADVISED THAT BECAUSE OF THE METHOD, PROCEDURES, AND ASSUMPTIONS USED TO DEVELOP THE FLOOD AREAS, THE LIMITS OF FLOODING SHOWN AND FLOOD WAVE TRAVEL TIMES ARE APPROXIMATE AND SHOULD BE USED ONLY AS A GUIDELINE FOR ESTABLISHING EVACUATION ZONES. ACTUAL AREAS INUNDATED WILL DEPEND ON ACTUAL FAILURE CONDITIONS AND MAY DIFFER FROM AREAS SHOWN ON THE MAPS.
2. TWO FLOODING SCENARIOS ARE PRESENTED ON THE MAPS; THE "FAIR WEATHER" SCENARIO AND THE "INFLOW DESIGN FLOOD" SCENARIO. THESE SCENARIOS ARE DEFINED AS FOLLOWS:
(A) THE FAIR WEATHER SCENARIO ASSUMES THAT THE DAM FAILURE OCCURS DURING NON-STORM CONDITIONS WITH A NORMAL FULL POOL ELEVATION IN THE RESERVOIR AND NORMAL FLOW CONDITIONS DOWNSTREAM OF THE DAM.
(B) THE INFLOW DESIGN FLOOD SCENARIO ASSUMES THAT THE DAM FAILURE OCCURS DURING A LARGE STORM EVENT WITH A HIGH POOL ELEVATION IN THE RESERVOIR AND HIGH FLOW CONDITIONS DOWNSTREAM OF THE DAM. FOR THIS PARTICULAR DAM, THE INFLOW DESIGN FLOOD IS EQUAL TO THE PROBABLE MAXIMUM FLOOD EVENT.
SCALE 1" = 40000'
SHEET 1
VERIFY SCALES
ANDERSON DAM EAP 2009
FLOOD INUNDATION MAPS
Santa Clara Valley Water District
ACCEPTED BY:
REVIEWED BY:
DATE
DESIGN
DRAWN
CHECKED
REFERENCE INFORMATION AND NOTES
1. BACKGROUND MAPPING SOURCES
A. SANTA CLARA COUNTY ORTHOPHOTOS
PRODUCED BY THATCHER LTD. APRIL 2001
B. ALAMEDA, SAN MATEO, SAN JOAQUIN AND
MONTEREY COUNTIES ORTHOPHOTOS
PRODUCED BY NATIONAL AGRICULTURE
IMAGERY PROGRAM (NAIP), 2005

PROFILE OF CRESTS AND TIMES FOR "FAIR WEATHER" BREACH FLOWS ALONG NORTHWEST VALLEY

DISTANCE FROM	TIME OF	TIME OF	MAX FLOW	MAX ELEV	FLOOD ELEV	MAX DEPTH	MAX VEL	MAX DEPTH
DAM-MILE	WAVE ARRIVAL	MAX ELEV	CFS	FEET	FEET	FEET	FPS	x VEL
0.5	0 HR. 0 MIN	2 HR. 8 MIN	594,000	428.5	402.9	25.6	14.4	369
2.0	0 HR. 18 MIN	2 HR. 14 MIN	580,780	377.8	342.9	34.9	11.3	394
4.0	0 HR. 42 MIN	2 HR. 32 MIN	535,847	323.5	302.9	20.6	7.1	146
6.0	1 HR. 2 MIN	2 HR. 50 MIN	492,860	284.2	265.9	18.3	8.0	146
8.0	1 HR. 20 MIN	3 HR. 23 MIN	339,723	270.8	244.9	25.9	6.3	163
8.5	1 HR. 24 MIN	3 HR. 26 MIN	332,886	266.0	242.9	23.1	10.3	238
9.0	1 HR. 34 MIN	3 HR. 29 MIN	327,132	258.1	233.9	24.2	10.6	257
10.0	1 HR. 53 MIN	3 HR. 53 MIN	291,529	244.4	210.9	33.5	11.8	395
12.0	2 HR. 33 MIN	4 HR. 44 MIN	247,500	199.2	177.9	21.3	5.6	119
14.0	3 HR. 28 MIN	5 HR. 44 MIN	206,593	170.6	157.9	12.7	3.7	47
16.0	4 HR. 14 MIN	6 HR. 38 MIN	179,244	143.2	137.9	5.3	6.3	33
18.0	4 HR. 48 MIN	7 HR. 23 MIN	170,171	113.5	107.9	5.6	3.2	18
20.0	5 HR. 48 MIN	8 HR. 11 MIN	163,146	85.1	77.9	7.2	4.9	35
22.0	6 HR. 22 MIN	8 HR. 47 MIN	159,005	56.1	52.9	3.2	3.4	11
24.0	6 HR. 48 MIN	9 HR. 50 MIN	149,912	32.0	24.9	7.1	2.6	18
26.0	7 HR. 57 MIN	11 HR. 17 MIN	132,810	16.8	10.9	5.9	2.6	15
27.5	8 HR. 42 MIN	13 HR. 23 MIN	115,596	9.9	6.9	3.0	1.0	3
32.0	12 HR. 42 MIN	16 HR. 35 MIN	70,129	7.7	6.9	0.8	0.6	0
33.9	14 HR. 12 MIN	16 HR. 50 MIN	69,610	6.9	6.9	0.0	0.6	0

PROFILE OF CRESTS AND TIMES FOR "FAIR WEATHER" BREACH FLOWS ALONG SOUTHEAST VALLEY

DISTANCE FROM	TIME OF	TIME OF	MAX FLOW	MAX ELEV	FLOOD ELEV	MAX DEPTH	MAX VEL	MAX DEPTH
DAM-MILE	WAVE ARRIVAL	MAX ELEV	CFS	FEET	FEET	FEET	FPS	x VEL
0.5	0 HR. 0 MIN	2 HR. 0 MIN	710,000	422.3	402.9	19.4	12.6	244
2.0	0 HR. 23 MIN	2 HR. 12 MIN	625,576	381.2	347.9	33.3	8.5	283
4.0	0 HR. 54 MIN	2 HR. 36 MIN	619,955	334.4	320.9	13.5	6.5	88
5.0	1 HR. 10 MIN	2 HR. 54 MIN	589,152	315.1	297.9	17.2	7.0	120
6.0	1 HR. 26 MIN	3 HR. 3 MIN	579,701	295.2	281.9	13.3	7.2	96
8.0	1 HR. 57 MIN	3 HR. 30 MIN	541,734	255.7	244.9	10.8	5.7	62
10.0	2 HR. 28 MIN	4 HR. 6 MIN	487,468	221.9	212.9	9.0	4.5	41
12.0	2 HR. 59 MIN	4 HR. 42 MIN	450,505	196.5	183.9	12.6	4.7	59
14.0	3 HR. 30 MIN	5 HR. 18 MIN	418,418	174.6	152.9	21.7	4.0	87
16.0	3 HR. 54 MIN	11 HR. 27 MIN	345,878	157.5	141.9	15.6	4.4	69
18.0	4 HR. 19 MIN	11 HR. 36 MIN	89,723	157.3	132.9	24.4	1.5	37
18.3	4 HR. 23 MIN	11 HR. 43 MIN	88,719	156.1	129.9	26.2	7.4	194
20.3	4 HR. 30 MIN	11 HR. 54 MIN	87,842	151.7	126.9	24.8	7.5	186

PROFILE OF CRESTS AND TIMES FOR "FAIR WEATHER" BREACH FLOWS ALONG PAJARO RIVER

DISTANCE FROM	TIME OF	TIME OF	MAX FLOW	MAX ELEV	FLOOD ELEV	MAX DEPTH	MAX VEL	MAX DEPTH
DAM-MILE	WAVE ARRIVAL	MAX ELEV	CFS	FEET	FEET	FEET	FPS	x VEL
20.3	4 HR. 30 MIN	11 HR. 54 MIN	87,842	151.7	126.9	24.8	7.5	186
20.8	4 HR. 35 MIN	11 HR. 59 MIN	87,826	141.3	125.9	15.4	8.6	132
21.1	4 HR. 38 MIN	12 HR. 2 MIN	88,784	141.3	125.9	15.4	5.0	77
22.2	4 HR. 53 MIN	12 HR. 17 MIN	88,803	135.9	123.9	12.0	6.4	77
24.1	5 HR. 21 MIN	12 HR. 45 MIN	88,757	111.1	99.9	11.2	4.7	53
26.0	5 HR. 45 MIN	13 HR. 9 MIN	88,643	98.2	86.9	11.3	11.2	127
28.1	6 HR. 4 MIN	13 HR. 28 MIN	88,610	87.2	80.9	6.3	11.2	71
30.1	6 HR. 19 MIN	13 HR. 43 MIN	88,539	66.2	54.9	11.3	7.4	84
32.0	6 HR. 40 Min	14 HR. 4 MIN	88,400	52.4	48.9	3.5	8.7	30
34.0	7 HR. 4 MIN	14 HR. 28 Min	88,371	40.7	36.9	3.8	4.8	18
35.9	7 HR. 38 MIN	15 HR. 2 MIN	81,231	31.3	30.9	0.4	4.3	2
36.0	7 HR. 38 MIN	15 HR. 2 Min	81,218	31.0	30.9	0.1	5.7	1
38.0	9 HR. 14 MIN	16 HR. 38 MIN	73,604	20.9	18.9	2.0	6.8	14
40.0	11 HR. 5 MIN	18 HR. 29 MIN	69,172	19.4	13.9	5.5	1.7	9
41.9	12 HR. 24 MIN	19 HR. 48 MIN	68,698	17.0	10.9	6.1	5.0	31

PROFILE OF CRESTS AND TIMES FOR "FAIR WEATHER" BREACH FLOWS ALONG ELKHORN SLOUGH

DISTANCE FROM	TIME OF	TIME OF	MAX FLOW	MAX ELEV	FLOOD ELEV	MAX DEPTH	MAX VEL	MAX DEPTH
DAM-MILE	WAVE ARRIVAL	MAX ELEV	CFS	FEET	FEET	FEET	FPS	x VEL
35.9	7 HR. 38 MIN	15 HR. 2 MIN	7,348	31.3	22.9	8.4	5.4	45
37.2	9 HR. 43 MIN	17 HR. 7 MIN	6,790	26.0	19.9	6.1	0.6	4
39.1	12 HR. 15 MIN	19 HR. 39 MIN	6,698	19.9	14.9	5.0	4.3	22
41.3	14 HR. 27 MIN	21 HR. 51 MIN	6,545	12.8	9.9	2.9	1.1	3
44.1	18 HR. 12 MIN	25 HR. 36 MIN	6,527	7.5	7.5	0.0	0.1	0

PROFILE OF CRESTS AND TIMES FOR IDF BREACH FLOWS ALONG NORTHWEST VALLEY

DISTANCE FROM	TIME OF	TIME OF	MAX FLOW	MAX ELEV	FLOOD ELEV	MAX DEPTH	MAX VEL	MAX DEPTH
DAM-MILE	WAVE ARRIVAL	MAX ELEV	CFS	FEET	FEET	FEET	FPS	x VEL
0.5	0 HR. 0 MIN	2 HR. 0 MIN	746,884	431.0	402.9	28.1	16.1	452
2.0	0 HR. 14 MIN	2 HR. 6 MIN	718,169	378.9	342.9	36.0	12.1	436
4.0	0 HR. 34 MIN	2 HR. 24 MIN	679,674	325.5	302.9	22.6	7.5	170
6.0	0 HR. 55 MIN	2 HR. 42 MIN	642,079	286.2	265.9	20.3	9.0	183
8.0	1 HR. 16 MIN	3 HR. 18 MIN	478,490	276.6	244.9	31.7	6.4	203
8.5	1 HR. 20 MIN	3 HR. 24 MIN	474,044	271.8	242.9	28.9	11.2	324
9.0	1 HR. 30 MIN	3 HR. 27 MIN	462,948	265.1	233.9	31.2	11.6	362
10.0	1 HR. 37 MIN	3 HR. 42 MIN	437,163	250.2	210.9	39.3	12.6	495
12.0	1 HR. 56 MIN	4 HR. 24 MIN	406,081	202.2	177.9	24.3	5.9	143
14.0	2 HR. 22 MIN	5 HR. 24 MIN	361,461	174.0	157.9	16.1	4.6	74
16.0	2 HR. 39 MIN	6 HR. 0 MIN	325,542	146.5	137.9	8.6	5.7	49
18.0	3 HR. 16 MIN	6 HR. 36 MIN	395,347	116.4	107.9	8.5	4.0	34
20.0	3 HR. 56 MIN	7 HR. 24 MIN	382,838	90.5	77.9	12.6	5.6	71
22.0	4 HR. 30 MIN	7 HR. 48 MIN	378,840	59.5	52.9	6.6	4.4	29
24.0	5 HR. 15 MIN	8 HR. 30 MIN	372,912	35.0	24.9	10.1	3.1	31
26.0	6 HR. 16 MIN	9 HR. 18 MIN	359,640	19.9	10.9	9.0	2.7	24
27.5	7 HR. 13 MIN	11 HR. 30 MIN	322,930	14.0	6.9	7.1	1.6	11
32.0	11 HR. 59 MIN	13 HR. 48 MIN	234,172	10.3	6.9	3.4	1.3	4
33.9	13 HR. 55 MIN	14 HR. 6 MIN	232,021	6.9	6.9	0.0	1.9	0

PROFILE OF CRESTS AND TIMES FOR IDF BREACH FLOWS ALONG SOUTHEAST VALLEY

DISTANCE FROM	TIME OF	TIME OF	MAX FLOW	MAX ELEV	FLOOD ELEV	MAX DEPTH	MAX VEL	MAX DEPTH
DAM-MILE	WAVE ARRIVAL	MAX ELEV	CFS	FEET	FEET	FEET	FPS	x VEL
0.5	0 HR. 0 MIN	2 HR. 0 MIN	882,653	429.4	402.9	26.5	15.7	416
2.0	0 HR. 14 MIN	2 HR. 6 MIN	858,924	383.3	347.9	35.4	9.6	340
4.0	0 HR. 37 MIN	2 HR. 25 MIN	817,431	336.2	320.9	15.3	7.2	110
5.0	0 HR. 48 MIN	2 HR. 34 MIN	797,923	317.2	297.9	19.3	7.8	151
6.0	0 HR. 59 MIN	2 HR. 43 MIN	776,590	297.0	281.9	15.1	8.0	121
8.0	1 HR. 23 MIN	3 HR. 4 MIN	739,262	257.2	244.9	12.3	6.5	80
10.0	1 HR. 53 MIN	3 HR. 34 MIN	674,157	223.4	212.9	10.5	5.1	54
12.0	2 HR. 28 MIN	4 HR. 6 MIN	592,153	198.0	183.9	14.1	5.2	73
14.0	3 HR. 4 MIN	4 HR. 43 MIN	533,040	175.8	152.9	22.9	4.4	101
16.0	3 HR. 41 MIN	11 HR. 11 MIN	442,658	161.6	141.9	19.7	4.9	97
18.0	4 HR. 41 MIN	11 HR. 16 MIN	102,596	161.5	132.9	28.6	1.3	37
18.3	4 HR. 55 MIN	11 HR. 16 MIN	102,491	160.4	129.9	30.5	6.5	198
20.3	5 HR. 34 MIN	11 HR. 23 MIN	102,184	157.7	126.9	30.8	3.8	117

PROFILE OF CRESTS AND TIMES FOR IDF BREACH FLOWS ALONG PAJARO RIVER

DISTANCE FROM	TIME OF	TIME OF	MAX FLOW	MAX ELEV	FLOOD ELEV	MAX DEPTH	MAX VEL	MAX DEPTH
DAM-MILE	WAVE ARRIVAL	MAX ELEV	CFS	FEET	FEET	FEET	FPS	x VEL
20.3	5 HR. 34 MIN	11 HR. 23 MIN	102,184	157.7	126.9	30.8	3.8	117
20.8	5 HR. 44 MIN	11 HR. 32 MIN	180,393	156.1	125.9	30.2	7.9	239
21.1	5 HR. 47 MIN	11 HR. 35 MIN	258,874	156.1	125.9	30.2	7.9	239
22.2	5 HR. 57 MIN	11 HR. 45 MIN	258,607	144.2	123.9	20.3	17.0	345
24.1	6 HR. 12 MIN	12 HR. 1 MIN	258,366	132.3	99.9	32.4	6.8	220
26.0	6 HR. 27 MIN	12 HR. 16 MIN	258,490	110.5	86.9	23.6	19.7	465
28.1	6 HR. 43 MIN	12 HR. 32 MIN	258,010	104.4	80.9	23.5	13.9	327
30.1	6 HR. 53 MIN	12 HR. 41 MIN	257,828	72.9	54.9	18.0	11.2	202
32.0	7 HR. 8 Min	12 HR. 56 MIN	257,772	57.3	48.9	8.4	10.8	91
34.0	7 HR. 28 MIN	13 HR. 16 Min	257,501	44.8	36.9	7.9	5.9	47
35.9	7 HR. 59 MIN	13 HR. 48 MIN	231,205	38.7	30.9	7.8	3.4	27
36.0	8 HR. 0 MIN	13 HR. 49 Min	231,183	38.6	30.9	7.7	3.8	29
38.0	9 HR. 38 MIN	15 HR. 26 MIN	229,693	27.9	18.9	9.0	3.6	32
40.0	11 HR. 2 MIN	16 HR. 51 MIN	227,548	27.1	13.9	13.2	2.5	33
41.9	11 HR. 50 MIN	17 HR. 39 MIN	227,134	23.9	10.9	13.0	7.3	95

PROFILE OF CRESTS AND TIMES FOR IDF BREACH FLOWS ALONG ELKHORN SLOUGH

DISTANCE FROM	TIME OF	TIME OF	MAX FLOW	MAX ELEV	FLOOD ELEV	MAX DEPTH	MAX VEL	MAX DEPTH
DAM-MILE	WAVE ARRIVAL	MAX ELEV	CFS	FEET	FEET	FEET	FPS	x VEL
35.9	7 HR. 59 MIN	13 HR. 48 MIN	28,891	38.7	22.9	15.8	10.8	171
37.2	9 HR. 10 MIN	14 HR. 58 MIN	28,703	32.6	19.9	12.7	1.2	15
39.1	10 HR. 31 MIN	16 HR. 19 MIN	28,688	24.2	14.9	9.3	7.0	65
41.3	11 HR. 47 MIN	17 HR. 36 MIN	28,574	15.7	9.9	5.8	1.9	11
44.1	13 HR. 31 MIN	19 HR. 19 MIN	28,551	7.5	7.5	0.0	0.2	0

SHEET 2

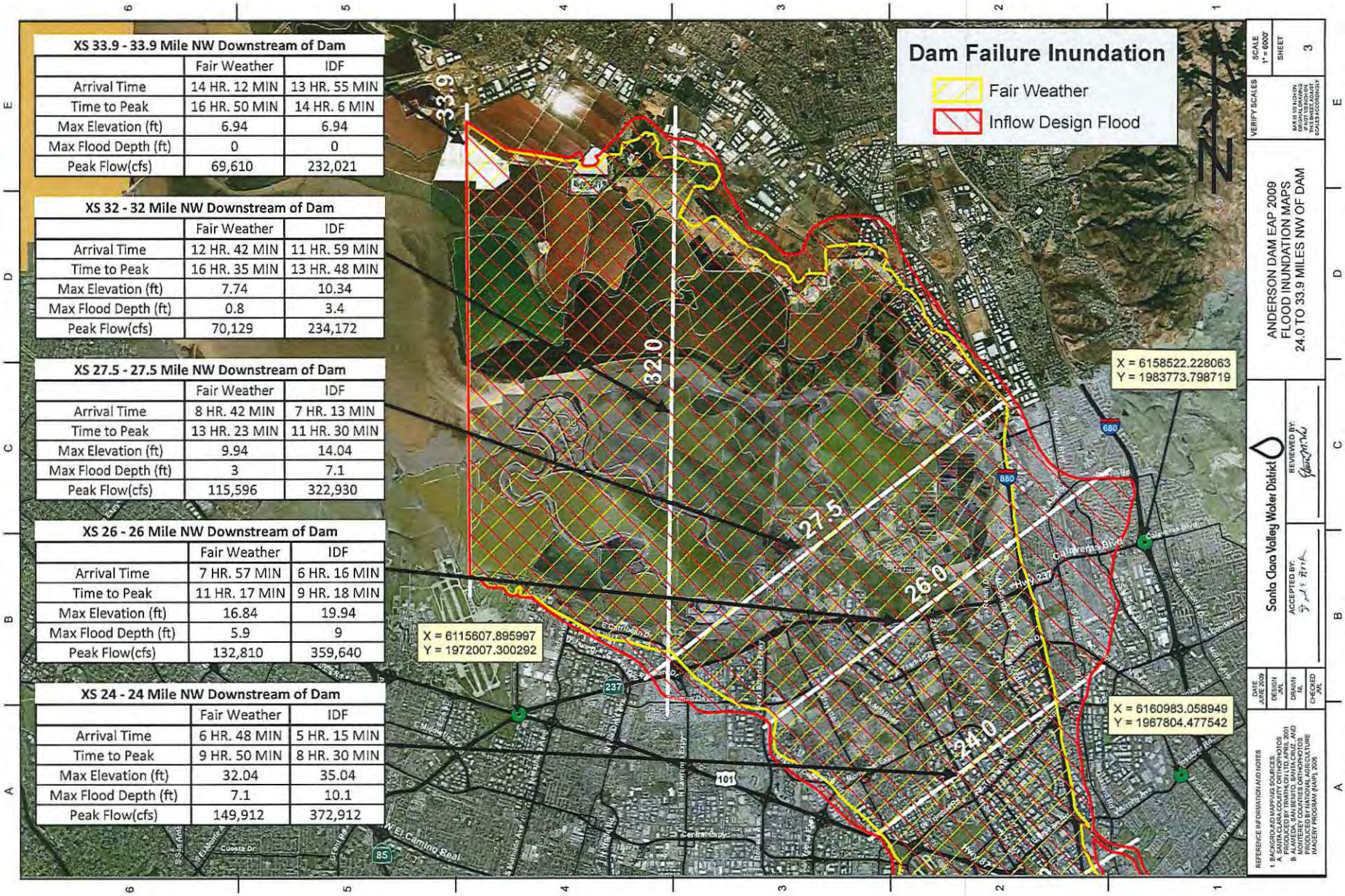
ANDERSON DAM EAP 2009
FLOOD INUNDATION MAPS

Santa Clara Valley Water District

REVIEWED BY:

ACCEPTED BY:

DATE: AUG 2009
DESIGN: JKL
DRAWN: TR
CHECKED: JKL



XS 33.9 - 33.9 Mile NW Downstream of Dam

	Fair Weather	IDF
Arrival Time	14 HR. 12 MIN	13 HR. 55 MIN
Time to Peak	16 HR. 50 MIN	14 HR. 6 MIN
Max Elevation (ft)	6.94	6.94
Max Flood Depth (ft)	0	0
Peak Flow(cfs)	69,610	232,021

XS 32 - 32 Mile NW Downstream of Dam

	Fair Weather	IDF
Arrival Time	12 HR. 42 MIN	11 HR. 59 MIN
Time to Peak	16 HR. 35 MIN	13 HR. 48 MIN
Max Elevation (ft)	7.74	10.34
Max Flood Depth (ft)	0.8	3.4
Peak Flow(cfs)	70,129	234,172

XS 27.5 - 27.5 Mile NW Downstream of Dam

	Fair Weather	IDF
Arrival Time	8 HR. 42 MIN	7 HR. 13 MIN
Time to Peak	13 HR. 23 MIN	11 HR. 30 MIN
Max Elevation (ft)	9.94	14.04
Max Flood Depth (ft)	3	7.1
Peak Flow(cfs)	115,596	322,930

XS 26 - 26 Mile NW Downstream of Dam

	Fair Weather	IDF
Arrival Time	7 HR. 57 MIN	6 HR. 16 MIN
Time to Peak	11 HR. 17 MIN	9 HR. 18 MIN
Max Elevation (ft)	16.84	19.94
Max Flood Depth (ft)	5.9	9
Peak Flow(cfs)	132,810	359,640

XS 24 - 24 Mile NW Downstream of Dam

	Fair Weather	IDF
Arrival Time	6 HR. 48 MIN	5 HR. 15 MIN
Time to Peak	9 HR. 50 MIN	8 HR. 30 MIN
Max Elevation (ft)	32.04	35.04
Max Flood Depth (ft)	7.1	10.1
Peak Flow(cfs)	149,912	372,912

APPENDIX G

Preliminary Calculations

Existing (Landfill C=0.75)

San Tomas Network

10-yr						100-yr				
Area	C	CxA	Tc	I	Q	Area	CxA	Tc	I	Q
65.83	0.78	51.41	16.10	1.38	71.02	65.83	51.41	14.00	2.19	112.70
2.23	0.75	1.67	16.10	1.38	2.31	2.23	1.67	14.00	2.19	3.66
4.89	0.73	3.57	16.10	1.38	4.93	4.89	3.57	14.00	2.19	7.83
72.95					78.26					124.19

East Basin Network

10-yr						100-yr				
Area	C	CxA	Tc	I	Q	Area	CxA	Tc	I	Q
167.60	0.79	131.82	28.40	0.99	130.24	167.60	131.82	21.60	1.69	223.26
4.14	0.75	3.11	28.40	0.99	3.07	4.14	3.11	21.60	1.69	5.27
4.08	0.75	3.06	28.40	0.99	3.02	4.08	3.06	21.60	1.69	5.18
1.37	0.75	1.03	28.40	0.99	1.02	1.37	1.03	21.60	1.69	1.74
0.39	0.74	0.29	28.40	0.99	0.29	0.39	0.29	21.60	1.69	0.49
3.69	0.76	2.80	28.40	0.99	2.77	3.69	2.80	21.60	1.69	4.74
0.70	0.76	0.53	28.40	0.99	0.52	0.70	0.53	21.60	1.69	0.90
8.26	0.75	6.20	28.40	0.99	6.13	8.26	6.20	21.60	1.69	10.50
1.06	0.76	0.81	28.40	0.99	0.80	1.06	0.81	21.60	1.69	1.37
8.00	0.75	6.00	28.40	0.99	5.93	8.00	6.00	21.60	1.69	10.16
1.44	0.76	1.09	28.40	0.99	1.08	1.44	1.09	21.60	1.69	1.85
0.52	0.75	0.39	28.40	0.99	0.39	0.52	0.39	21.60	1.69	0.66
3.66	0.75	2.75	28.40	0.99	2.72	3.66	2.75	21.60	1.69	4.66
4.90	0.75	3.68	28.40	0.99	3.64	4.90	3.68	21.60	1.69	6.23
6.40	0.62	3.97	28.40	0.99	3.92	6.40	3.97	21.60	1.69	6.72
0.34	0.85	0.29	28.40	0.99	0.29	0.34	0.29	21.60	1.69	0.49
3.73	0.73	2.72	28.40	0.99	2.69	3.73	2.72	21.60	1.69	4.61
220.28					168.50					288.84

East Side Channel Network*

10-yr						100-yr				
Area	C	CxA	Tc	I	Q	Area	CxA	Tc	I	Q
64.50	0.77	49.98	34.10	0.89	44.33	64.50	49.98	25.40	1.53	76.65
6.63	0.75	4.97	34.10	0.89	4.41	6.63	4.97	25.40	1.53	7.62
6.40	0.75	4.80	34.10	0.89	4.26	6.40	4.80	25.40	1.53	7.36
1.84	0.68	1.25	34.10	0.89	1.11	1.84	1.25	25.40	1.53	1.92
15.43	0.73	11.32	34.10	0.89	10.04	15.43	11.32	25.40	1.53	17.36
5.98	0.72	4.30	34.10	0.89	3.82	5.98	4.30	25.40	1.53	6.60
100.78					67.96					117.51

Draining Directly to East Basin

10-yr						100-yr				
Area	C	CxA	Tc	I	Q	Area	CxA	Tc	I	Q
2.10	0.45	0.95	10	1.85	1.75	2.10	0.95	10.00	2.51	2.37
7.99	0.53	4.26	10	1.85	7.90	7.99	4.26	10.00	2.51	10.69
10.09					9.65					13.05

Proposed

San Tomas Network

10-yr						100-yr				
Area	C	CxA	Tc	I	Q	Area	CxA	Tc	I	Q
40.43	0.80	32.43	33.00	0.91	29.45	40.43	32.43	26.80	1.48	48.12
34.00	0.80	27.20	33.00	0.91	24.70	34.00	27.20	26.80	1.48	40.36
25.93	0.81	21.13	33.00	0.91	19.19	25.93	21.13	26.80	1.48	31.35
100.36					54.16					88.48

East Basin Network

10-yr						100-yr				
Area	C	CxA	Tc	I	Q	Area	CxA	Tc	I	Q
162.01	0.76	123.77	32.20	0.92	113.58	162.01	123.77	30.90	1.36	168.37
0.34	0.85	0.29	32.20	0.92	0.27	0.53	0.45	30.90	1.36	0.61
6.02	0.70	4.21	32.20	0.92	3.86	6.13	3.47	30.90	1.36	4.72
168.37					117.71					173.70

East Side Channel Network*

10-yr						100-yr				
Area	C	CxA	Tc	I	Q	Area	CxA	Tc	I	Q
20.01	0.80	16.01	34.10	0.89	14.20	20.01	16.01	25.40	1.53	24.56
14.93	0.80	11.94	34.10	0.89	10.59	14.93	11.94	25.40	1.53	18.31
13.74	0.80	10.99	34.10	0.89	9.75	13.74	10.99	25.40	1.53	16.86
18.22	0.80	14.65	34.10	0.89	13.00	18.22	14.65	25.40	1.53	22.47
12.35	0.45	5.56	34.10	0.89	4.93	12.35	5.56	25.40	1.53	8.52
79.25					52.47					90.72

Eastside Channel Network* (Offsite)

10-yr						100-yr				
Area	C	CxA	Tc	I	Q	Area	CxA	Tc	I	Q
42.62	0.79	33.66	34.10	0.89	29.86	42.62	33.66	25.40	1.53	51.63
1.13	0.45	0.510116632	34.10	0.89	0.45	1.13	0.5085	25.40	1.53	0.78
43.75					30.31					52.41

Draining Directly to East Basin

10-yr						100-yr				
Area	C	CxA	Tc	I	Q	Area	CxA	Tc	I	Q
2.55	0.80	2.04	10	1.85	3.77	2.55	2.04	10.00	2.51	5.10
2.10	0.45	0.94	10	1.85	1.75	2.10	0.94	10.00	2.51	2.36
7.69	0.45	3.46	10	1.85	6.41	7.69	3.46	10.00	2.51	8.67
12.33					11.92					16.13

	Existing (ac)	Proposed (ac)
San Tomas Network	72.95	100.36
East Basin Network	220.28	168.37
Eastside Channel Network	100.78	123.00
Basin Direct	10.09	12.33

	Existing		Proposed		% Difference	
Outfall Location	Q_{10}	Q_{100}	Q_{10}	Q_{100}	10-yr	100-yr
San Tomas Network	78.26	124.19	54.16	88.48	-31%	-29%
East Basin Network	168.50	288.84	117.71	173.70	-30%	-40%
Eastside Channel Network	67.96	117.51	82.78	143.13	22%	22%
Basin Direct	9.65	13.05	11.92	16.13	24%	24%

Eastside Retention Basin

100-yr Peak Inflow (cfs)		100-yr Basin Depth (NAVD88 - ft)		100-yr W.S. Elev (NGVD - ft); TOP OF BASIN = 3ft	
Existing	Proposed	Existing	Proposed	Existing	Proposed
325.75	333.13	9.94	10.05	2.44	2.55

Eastside Channel Capacity

Channel Parameters: b=6ft, d=5 to 9 ft, z=1.5:1, S=0.00096 per City SD Map No. 114

	Flow Depth based on channel condition (ft)	
	Design (n=0.025)	Observed (n=0.1)
Existing	4.09	7.84
Proposed	4.33	8.26

	Flow Capacity based on channel condition	
	d=5 ft	d = 9 ft
Design	252.70	908.20
Observed	63.17	227.00

	100-yr Peak Flow (cfs)	
	Existing	Proposed
Eastside Channel Network	177.15	204.03

	Existing Condition	
	Impervious	Pervious
Parcel 1	13.30%	86.70%
Parcel 2	4.10%	95.90%
Parcel 3	2.70%	97.30%
Parcel 4	11.20%	88.80%
Parcel 5	68.70%	31.30%

HEC-HMS Model - Existing

	Area (ac)	Sq mi	Tc (min)	Tc (hr)	R	R/(tc+R)	CN	% Imp
EB	220.33	0.339	20.4	0.34	0.34	0.5	91.8	44.69%
ES1	64.5	0.099	25.4	0.42	0.42	0.5	86.6	52.12%
ES2	14.7	0.023	10	0.17	0.17	0.5	92.5	4.54%
ES3	21.8	0.034	10	0.17	0.17	0.5	86.6	3.48%
DB	10.09	0.016	10	0.17	0.17	0.5	87.7	5.15%

HEC-HMS Model - Proposed

	Area (ac)	Sq mi	Tc (min)	Tc (hr)	R	R/(tc+R)	CN	% Imp
EB	168.37	0.259	30.9	0.52	0.52	0.5	95.2	72.65%
DB	12.33	0.019	10	0.17	0.17	0.5	88.1	16.52%
ES1	42.63	0.066	23.8	0.40	0.40	0.5	95.7	77.20%
ES2	20.84	0.032	18.2	0.30	0.30	0.5	95.6	76.78%
ES3	21.75	0.033	17	0.28	0.28	0.5	94.4	66.99%
ES4	16.60	0.026	14.44	0.24	0.24	0.5	94.3	66.18%
ES5	17.47	0.027	16.4	0.27	0.27	0.5	94.6	68.43%
ES6	3.72	0.006	10	0.17	0.17	0.5	86.0	0.00%
	303.70							

HEC-HMS Model - South of Tasman

	Area (ac)	Sq mi	Tc (min)	Tc (hr)	R	R/(tc+R)	CN	% Imp
SD4	344.50	0.530	72	1.20	1.20	0.50	92.0	0.00%
MONT	20.80	0.032	19.8	0.33	0.04	0.11	99.0	0.00%
SD3	192.80	0.297	37.2	0.62	0.62	0.50	92.0	0.00%

From City

	CN - AMC 2	CN - AMC 2.5
Residential	87	92
Commercial	93	96
Golf Course (good cover)	80	86
Landfill / Open	89	93
Pavement	98	98
Gravel	91	94
Dirt	89	93

From 2000 Report (City Datum)

Orginal Design				
Elev	Volume	STAGE	Cum Vol	Cum Vol
(City Datum)	(ft^3)	(ft)	(ft^3)	(ac-ft)
-7.5		0	0	0.00
	576			
-6.5		1	576	0.01
	1913			
-5.9		1.6	2489	0.06
	7136			
-5.5		2	9625	0.22
	19003			
-5.1		2.4	28628	0.66
	43736			
-4.7		2.8	72364	1.66
	51549			
-4.4		3.1	123913	2.84
	868463			
0		7.5	992376	22.78
	630890			
3		10.5	1623266	37.27
	45037			
3.2		10.7	1668303	38.30
	189806			
4		11.5	1858109	42.66

1978 Enlargement of Eastside Basin				
Elev	Volume	STAGE	Cum Vol	Cum Vol
(City Datum)	(ft^3)	(ft)	(ft^3)	(ac-ft)
-7.5		0	0	0.00
	0			
-6.5		1	0	0.00
	0			
-5.9		1.6	0	0.00
	0			
-5.5		2	0	0.00
	0			
-5.1		2.4	0	0.00
	0			
-4.7		2.8	0	0.00
	0			
-4.4		3.1	0	0.00
	181654			
0		7.5	181654	4.17
	129330			
3		10.5	310984	7.14
	43975			
4		11.5	354959	8.15

Land bound by 237, Eastside Basin and Sewer Pump Station				
Elev	Volume	STAGE	Cum Vol	Cum Vol
(City Datum)	(ft^3)	(ft)	(ft^3)	(ac-ft)
-7.5		0	0	0.00
	0			
-6.5		1	0	0.00
	0			
-5.9		1.6	0	0.00
	0			
-5.5		2	0	0.00
	0			
-5.1		2.4	0	0.00
	0			
-4.7		2.8	0	0.00
	0			
-4.4		3.1	0	0.00
0		7.5	0	0.00
	104550			
3		10.5	104550	2.40
	54285			
4		11.5	158835	3.65

From 2015 Eastside Basin Survey (NAVD88)

Elev	Volume	STAGE	Cum Vol	Cum Vol
(City Datum)	(ft^3)	(ft)	(ft^3)	(ac-ft)
-5		0	0	0.00
	44863.2			
-4		3.5	44863.2	1.03
	160920			
-3		4.5	205783	4.72
	208561			
-2		5.5	414344	9.51
	219841			
-1		6.5	634185	14.56
	226834			
0		7.5	861019	19.77
	231123			
1		8.5	1092142	25.07
	235188			
2		9.5	1327330	30.47
	239281			
3		10.5	1566611	35.96
	243401			
4		11.5	1810012	41.55
	247748			
5		12.5	2057760	47.24
	189936			
5.7		13.2	2247696	51.60

Combined Stage Storage		
Elev	Cum Vol	
(ft)	(ac-ft)	
-7.5	0.00	**Basin Bottom**
-6.5	0.01	
-5.9	0.06	
-5.5	0.22	
-5.1	0.66	
-4.7	1.66	
-4.4	2.84	
0	26.95	
3	46.80	**Top of Basin**
4	54.45	

2015 Survey Stage Storage		
Elev	Cum Vol	
(ft)	(ac-ft)	
-5	0.00	**Basin Bottom**
-4	1.03	
-3	4.72	
-2	9.51	
-1	14.56	
0	19.77	
1	25.07	
2	30.47	
3	35.96	
4	41.55	
5	47.24	
5.7	51.60	**Top of Basin**

HEC-HMS does not allow the input of negative elevation values; therefore the stage storage information shown in the two tables above have been adjusted in the program so that the lowest elevation point would be 0. The 2015 Survey Stage Storage information was used in the analysis of the existing and proposed condition models.

PUMP 1

ELEV	SH	TDH	WS + 7.5'	Qout	
-7.5	23.79	25.48	0	0	Basin Bottom
-6.5	22.79	24.48	1	0	
-5.5	21.79	23.48	2	0	
-5.1	21.39	23.08	2.4	0	
-4.7	20.99	22.68	2.8	0	
-4.5	20.79	22.48	3	0	
-4	20.29	21.98	3.5	0	
-3	19.29	20.98	4.5	17.81	
0	16.29	17.98	7.5	19.40	
3	13.29	14.98	10.5	20.72	Top of Basin
4	12.29	13.98	11.5	21.09	
5	11.29	12.98	12.5	21.44	
6	10.29	11.98	13.5	21.76	
7	9.29	10.98	14.5	22.05	
8	8.29	9.98	15.5	22.28	
9	7.29	8.98	16.5	22.28	
10	6.29	7.98	17.5	22.28	
11	5.29	6.98	18.5	22.28	
12	4.29	5.98	19.5	22.28	
13	3.29	4.98	20.5	22.28	
14	2.29	3.98	21.5	22.28	
15	1.29	2.98	22.5	22.28	
16	0.29	1.98	23.5	22.28	
			24.5	22.28	
			25.5	22.28	
			26.5	22.28	
			27.5	22.28	
			28.5	22.28	

-To simplify calculations, TDH = SH+1.69'

Combined Stage Storage			Adjusted Elev - Combined Stage Storage		
Elev (ft)	Cum Vol (ac-ft)		Elev (ft)	Cum Vol (ac-ft)	
-7.5	0.00	Basin Bottom	0	0.00	Basin Bottom
-6.5	0.01		1	0.01	
-5.9	0.06		1.6	0.06	
-5.5	0.22		2	0.22	
-5.1	0.66		2.4	0.66	
-4.7	1.66		2.8	1.66	
-4.4	2.84		3.1	2.84	
0	26.95		7.5	26.95	
3	46.80	Top of Basin	10.5	46.80	Top of Basin
4	54.45		11.5	54.45	

2015 Survey Stage Storage			Adjusted Elev - 2015 Survey Stage Storage		
Elev (ft)	Cum Vol (ac-ft)		Elev (ft)	Cum Vol (ac-ft)	
-5	0.00	Basin Bottom	0	0.00	Basin Bottom
-4	1.03		1	1.03	
-3	4.72		2	4.72	
-2	9.51		3	9.51	
-1	14.56		4	14.56	
0	19.77		5	19.77	
1	25.07		6	25.07	
2	30.47		7	30.47	
3	35.96		8	35.96	
4	41.55		9	41.55	
5	47.24		10	47.24	
5.7	51.60	Top of Basin	10.7	51.60	Top of Basin

PUMP 2

ELEV	SH	TDH	WS + 7.5'	Qout	
-7.5	23.79	26.554	0	0	Basin Bottom
-6.5	22.79	25.554	1	0	
-5.5	21.79	24.554	2	0	
-5.1	21.39	24.154	2.4	0	
-4.7	20.99	23.754	2.8	0	
-4.5	20.79	23.554	3	0	
-4	20.29	23.054	3.5	0	
-3	19.29	22.054	4.5	0	
-2.5	18.79	21.554	5	38.72	
0	16.29	19.054	7.5	41.22	
3	13.29	16.054	10.5	43.88	Top of Basin
4	12.29	15.054	11.5	44.68	
5	11.29	14.054	12.5	45.44	
6	10.29	13.054	13.5	46.17	
7	9.29	12.054	14.5	46.85	
8	8.29	11.054	15.5	47.49	
9	7.29	10.054	16.5	48.09	
10	6.29	9.054	17.5	48.13	
11	5.29	8.054	18.5	48.13	
12	4.29	7.054	19.5	48.13	
13	3.29	6.054	20.5	48.13	
14	2.29	5.054	21.5	48.13	
15	1.29	4.054	22.5	48.13	
16	0.29	3.054	23.5	48.13	
			24.5	48.13	
			25.5	48.13	
			26.5	48.13	
			27.5	48.13	
			28.5	48.13	

-To simplify calculations, TDH = SH+2.764

Pump 3

ELEV	SH	TDH	WS + 7.5'	Qout	
-7.5	23.79	26.554	0	0	Basin Bottom
-6.5	22.79	25.554	1	0	
-5.5	21.79	24.554	2	0	
-5.1	21.39	24.154	2.4	0	
-4.7	20.99	23.754	2.8	0	
-4.5	20.79	23.554	3	0	
-4	20.29	23.054	3.5	0	
-3	19.29	22.054	4.5	0	
-2	18.29	21.054	5.5	39.24	
0	16.29	19.054	7.5	41.22	
3	13.29	16.054	10.5	43.88	Top of Basin
4	12.29	15.054	11.5	44.68	
5	11.29	14.054	12.5	45.44	
6	10.29	13.054	13.5	46.17	
7	9.29	12.054	14.5	46.85	
8	8.29	11.054	15.5	47.49	
9	7.29	10.054	16.5	48.09	
10	6.29	9.054	17.5	48.13	
11	5.29	8.054	18.5	48.13	
12	4.29	7.054	19.5	48.13	
13	3.29	6.054	20.5	48.13	
14	2.29	5.054	21.5	48.13	
15	1.29	4.054	22.5	48.13	
16	0.29	3.054	23.5	48.13	
			24.5	48.13	
			25.5	48.13	
			26.5	48.13	
			27.5	48.13	
			28.5	48.13	

-To simplify calculations, TDH = SH+2.764

ELEVATIONS

	NGVD	+7.5 ft	
LEVEE	17.9	25.4	-From As-builts
OUTLET INVERT	8.75	16.25	-From As-builts
BASIN BOTTOM	-7.5	0	-From As-builts
INLET PIPE INVERT	-8	-0.5	-From As-builts

	NAVD	NVGD	NVGD + 7.5'	
100yr WS	18.99	16.29	23.79	-Tailwater (From Guadalupe HEC-RAS Model)
LEVEE	26.11	23.41	30.91	-Levee elev. (From Guadalupe HEC-RAS Model)

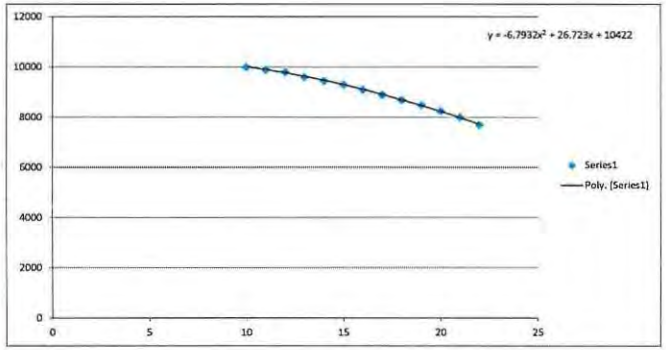
Results:

Assuming the water surface elevation and volume of water contained in the basin is at the brink of Pump #1 turning on (Elev. -3 ft NGVD; WS is 6 ft from top of basin)

	Existing	Proposed
NGVD	2.44	2.55
NAVD (+2.7 ft)	5.14	5.25

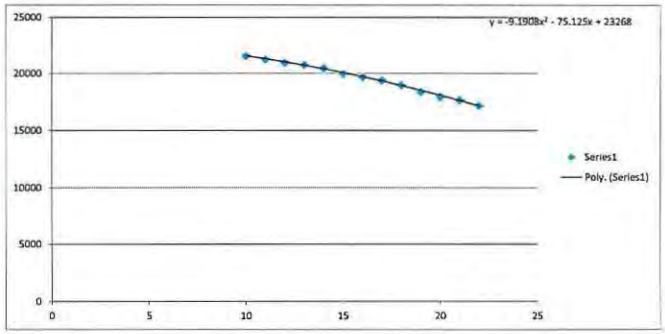
Pump 1 - Curve

	TOTAL HEAD	Q (gal/min)	Q (cfs)	V (ft/s)	V^2/2g	Minor Loss (ft)	Friction Loss	Total Loss	SH	WS	WS - 7.5'
PUMP OFF	22	7700	17.156	5.461	0.463	0.671	0.501	1.172	20.828	2.962	-4.538
	21	8000	17.824	5.674	0.500	0.725	0.538	1.262	19.738	4.052	-3.448
PUMP ON	20	8250	18.381	5.851	0.532	0.771	0.569	1.340	18.660	5.130	-2.370
	19	8500	18.938	6.028	0.564	0.818	0.601	1.420	17.580	6.210	-1.290
	18	8700	19.384	6.170	0.591	0.857	0.628	1.485	16.515	7.275	-0.225
	17	8900	19.829	6.312	0.619	0.897	0.655	1.552	15.448	8.342	0.842
	16	9100	20.275	6.454	0.647	0.938	0.682	1.620	14.380	9.410	1.910
	15	9300	20.721	6.596	0.675	0.979	0.711	1.690	13.310	10.480	2.980
	14	9450	21.055	6.702	0.697	1.011	0.732	1.743	12.257	11.533	4.033
	13	9600	21.389	6.808	0.720	1.044	0.754	1.797	11.203	12.587	5.087
	12	9800	21.835	6.950	0.750	1.088	0.783	1.870	10.130	13.660	6.160
	11	9900	22.057	7.021	0.765	1.110	0.798	1.908	9.092	14.698	7.198
	10	10000	22.280	7.092	0.781	1.132	0.813	1.945	8.055	15.735	8.235



Pump 2 - Curve

	TOTAL HEAD	Q (gal/min)	Q (cfs)	V (ft/s)	V^2/2g	Minor Loss (ft)	Friction Loss	Total Loss	SH	WS	WS - 7.5'
PUMP OFF	22	17200	38.322	7.807	0.946	1.372	0.749	2.122	19.878	3.912	-3.588
	21	17700	39.436	8.034	1.002	1.453	0.790	2.243	18.757	5.033	-2.467
PUMP ON	20	18000	40.104	8.170	1.036	1.503	0.815	2.318	17.682	6.108	-1.392
	19	18400	40.995	8.352	1.083	1.570	0.849	2.419	16.581	7.209	-0.291
	18	19000	42.332	8.624	1.155	1.675	0.901	2.575	15.425	8.365	0.865
	17	19400	43.223	8.805	1.204	1.746	0.936	2.682	14.318	9.472	1.972
	16	19700	43.892	8.942	1.241	1.800	0.963	2.764	13.236	10.554	3.054
	15	20000	44.560	9.078	1.280	1.855	0.991	2.846	12.154	11.636	4.136
	14	20500	45.674	9.305	1.344	1.949	1.037	2.986	11.014	12.776	5.276
	13	20800	46.343	9.441	1.384	2.007	1.065	3.072	9.928	13.862	6.362
	12	21000	46.788	9.532	1.411	2.046	1.084	3.130	8.870	14.920	7.420
	11	21300	47.457	9.668	1.451	2.104	1.113	3.218	7.782	16.008	8.508
	10	21600	48.125	9.804	1.493	2.164	1.142	3.307	6.693	17.097	9.597



Pump 3 - Curve

	TOTAL HEAD	Q (gal/min)	Q (cfs)	V (ft/s)	V^2/2g	Minor Loss (ft)	Friction Loss	Total Loss	SH	WS	WS - 7.5'
PUMP OFF	22	17200	38.322	7.807	0.946	1.372	0.749	2.122	19.878	3.912	-3.588
	21	17700	39.436	8.034	1.002	1.453	0.790	2.243	18.757	5.033	-2.467
PUMP ON	20	18000	40.104	8.170	1.036	1.503	0.815	2.318	17.682	6.108	-1.392
	19	18400	40.995	8.352	1.083	1.570	0.849	2.419	16.581	7.209	-0.291
	18	19000	42.332	8.624	1.155	1.675	0.901	2.575	15.425	8.365	0.865
	17	19400	43.223	8.805	1.204	1.746	0.936	2.682	14.318	9.472	1.972
	16	19700	43.892	8.942	1.241	1.800	0.963	2.764	13.236	10.554	3.054
	15	20000	44.560	9.078	1.280	1.855	0.991	2.846	12.154	11.636	4.136
	14	20500	45.674	9.305	1.344	1.949	1.037	2.986	11.014	12.776	5.276
	13	20800	46.343	9.441	1.384	2.007	1.065	3.072	9.928	13.862	6.362
	12	21000	46.788	9.532	1.411	2.046	1.084	3.130	8.870	14.920	7.420
	11	21300	47.457	9.668	1.451	2.104	1.113	3.218	7.782	16.008	8.508
	10	21600	48.125	9.804	1.493	2.164	1.142	3.307	6.693	17.097	9.597

HEC-HMS

Project : Related - Eastside Basin

Basin Model : Existing - Survey Basin

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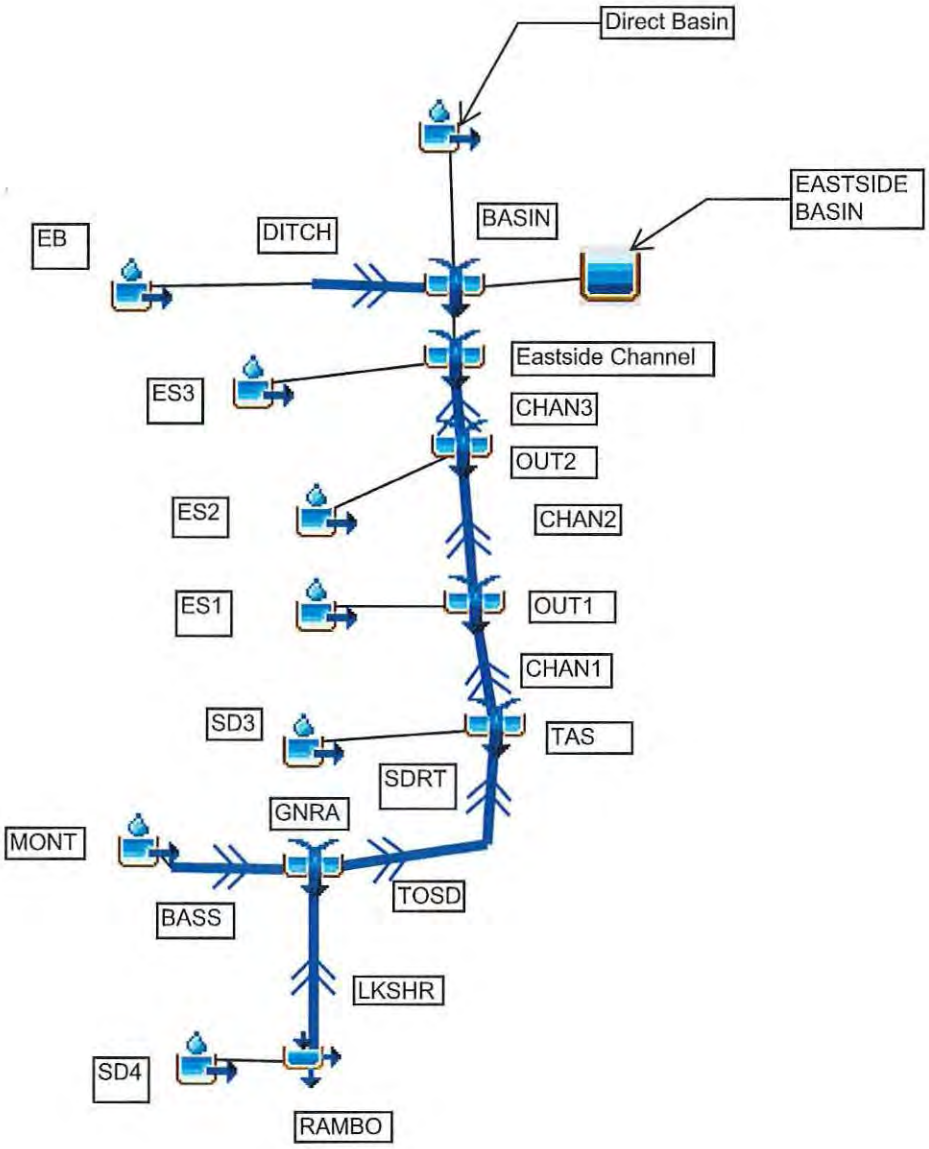


Project: Related Simulation Run: EX - 100yr - SC - Survey

Start of Run: 01Jan2000, 00:00 Basin Model: Existing - Survey Ba
End of Run: 05Jan2000, 02:45 Meteorologic Model: 100 yr - SC Dist
Compute Time: 02Jul2015, 10:28:28 Control Specifications: SC - Dist

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
SD4	0.53	150.9104	01Jan2000, 07:25	90.8382
RAMBO	0.53	10.9104	01Jan2000, 07:25	0.4664
LKSHR	0.53	10.8608	01Jan2000, 07:55	0.5819
MONT	0.032	33.3660	01Jan2000, 06:20	6.7936
BASS	0.032	29.7591	01Jan2000, 06:55	6.9449
GNRA	0.562	29.7591	01Jan2000, 06:55	7.5268
TOSD	0.562	29.6740	01Jan2000, 07:00	7.5229
SDRT	0.562	27.7381	01Jan2000, 07:10	7.5183
SD3	0.297	114.1743	01Jan2000, 06:45	50.9036
TAS	0.859	133.0619	01Jan2000, 07:10	58.4219
CHAN1	0.859	132.1624	01Jan2000, 07:15	58.4179
ES1	0.099	46.0746	01Jan2000, 06:35	18.0848
OUT1	0.958	164.4816	01Jan2000, 07:15	76.5027
CHAN2	0.958	161.7305	01Jan2000, 07:25	76.4662
ES2	0.023	16.8192	01Jan2000, 06:15	4.0514
OUT2	0.981	168.1616	01Jan2000, 06:55	80.5176
CHAN3	0.981	167.8249	01Jan2000, 07:00	80.5133
ES3	0.034	18.8738	01Jan2000, 06:15	4.9689
Eastside Channel	1.015	177.1504	01Jan2000, 07:00	85.4822
EB	0.339	188.5446	01Jan2000, 06:25	65.0556
DITCH	0.339	187.9577	01Jan2000, 06:30	65.0507
Direct Basin	0.016	9.4722	01Jan2000, 06:15	2.4409
BASIN	1.370	325.7524	01Jan2000, 06:50	152.9737
EASTSIDE BASIN	1.370	118.5300	01Jan2000, 06:20	159.9919

Project: Related Simulation Run: EX - 100yr - SC - Survey

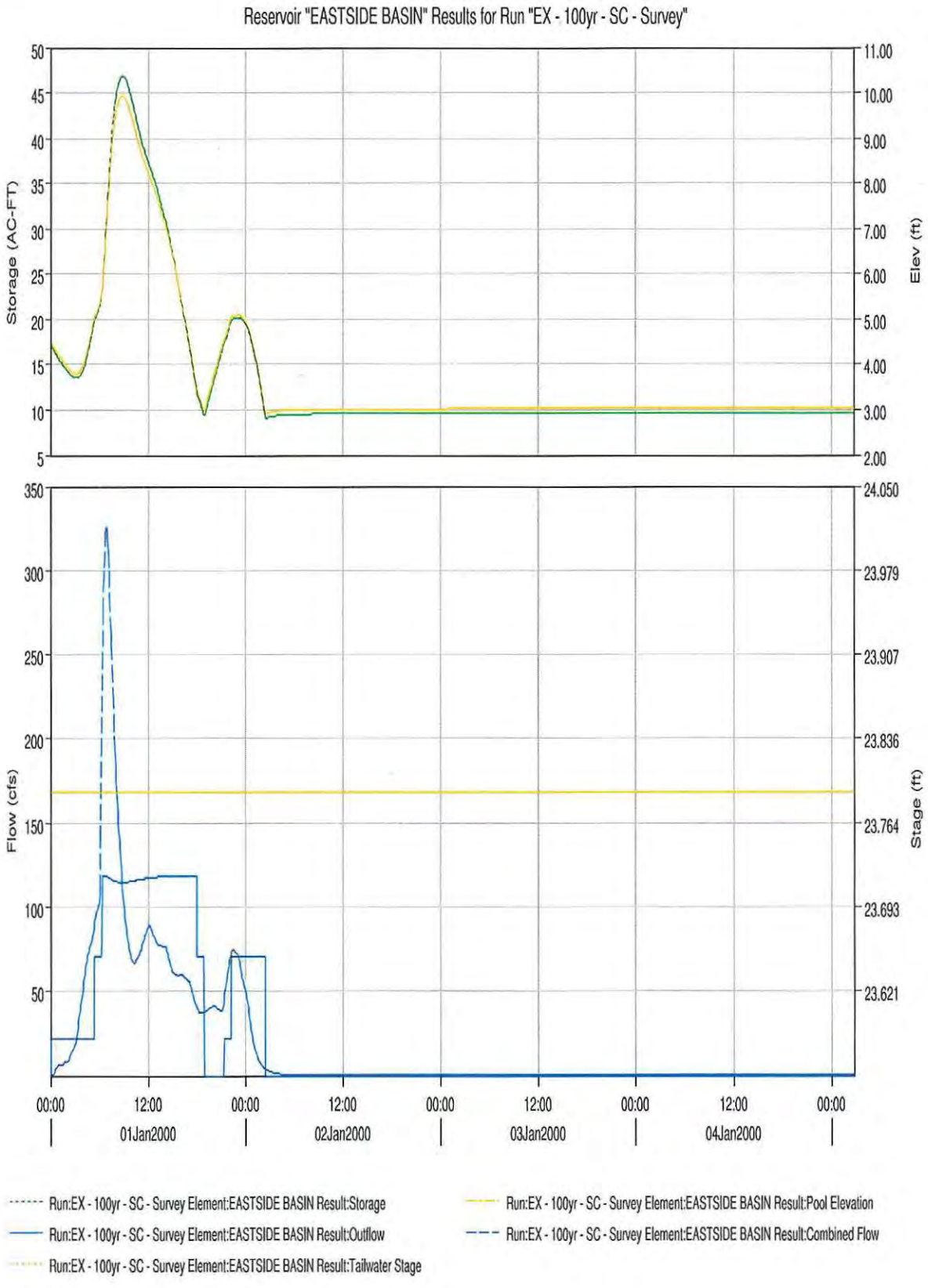
Reservoir: EASTSIDE BASIN

Start of Run:	01Jan2000, 00:00	Basin Model:	Existing - Survey Basin
End of Run:	05Jan2000, 02:45	Meteorologic Model:	100 yr - SC Dist
Compute Time:	02Jul2015, 10:28:28	Control Specifications:	SC - Dist

Volume Units:IN

Computed Results

Peak Inflow:	325.7524 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 06:50
Peak Discharge:	118.5300 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 06:20
Inflow Volume:	2.0936 (IN)	Peak Storage:	46.8945 (AC-FT)
Discharge Volume:	2.1897 (IN)	Peak Elevation:	9.9393 (FT)


Reservoir "EASTSIDE BASIN" Results for Run "EX - 100yr - SC - Survey"
Storage (AC-FT)
Elev (ft)
Flow (cfs)
Stage (ft)
00:00
12:00
01Jan2000
02Jan2000
03Jan2000
04Jan2000
Run:EX - 100yr - SC - Survey Element:EASTSIDE BASIN Result:Storage
Run:EX - 100yr - SC - Survey Element:EASTSIDE BASIN Result:Pool Elevation
Run:EX - 100yr - SC - Survey Element:EASTSIDE BASIN Result:Outflow
Run:EX - 100yr - SC - Survey Element:EASTSIDE BASIN Result:Combined Flow
Run:EX - 100yr - SC - Survey Element:EASTSIDE BASIN Result:Tailwater Stage

Project: Related Simulation Run: EX - 100yr - SC - Survey
Reservoir: EASTSIDE BASIN

Start of Run: 01Jan2000, 00:00 Basin Model: Existing - Survey Ba
End of Run: 05Jan2000, 02:45 Meteorologic Model: 100 yr - SC Dist
Compute Time: 02Jul2015, 10:28:28 Control Specifications: SC - Dist

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0000	17.1625	4.5000	0.0000
01Jan2000	00:05	0.0087	17.0858	4.4853	22.2800
01Jan2000	00:10	0.0317	16.9325	4.4558	22.2800
01Jan2000	00:15	0.0556	16.7794	4.4264	22.2800
01Jan2000	00:20	0.2330	16.6269	4.3971	22.2800
01Jan2000	00:25	1.4345	16.4792	4.3688	22.2800
01Jan2000	00:30	2.9817	16.3410	4.3422	22.2800
01Jan2000	00:35	3.9843	16.2115	4.3174	22.2800
01Jan2000	00:40	4.6593	16.0878	4.2936	22.2800
01Jan2000	00:45	5.1768	15.9683	4.2706	22.2800
01Jan2000	00:50	5.5674	15.8518	4.2483	22.2800
01Jan2000	00:55	5.8691	15.7378	4.2264	22.2800
01Jan2000	01:00	6.1028	15.6255	4.2048	22.2800
01Jan2000	01:05	6.2833	15.5147	4.1836	22.2800
01Jan2000	01:10	6.4162	15.4050	4.1625	22.2800
01Jan2000	01:15	6.4897	15.2960	4.1415	22.2800
01Jan2000	01:20	6.5137	15.1874	4.1207	22.2800
01Jan2000	01:25	6.5311	15.0788	4.0998	22.2800
01Jan2000	01:30	6.6453	14.9708	4.0791	22.2800
01Jan2000	01:35	6.9179	14.8640	4.0586	22.2800
01Jan2000	01:40	7.4638	14.7601	4.0386	22.2800
01Jan2000	01:45	7.9546	14.6598	4.0194	22.2800
01Jan2000	01:50	8.2662	14.5622	4.0006	22.2800
01Jan2000	01:55	8.4165	14.4662	3.9816	22.2800
01Jan2000	02:00	8.4687	14.3709	3.9627	22.2800
01Jan2000	02:05	8.4989	14.2759	3.9439	22.2800

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:10	8.6773	14.1816	3.9252	22.2800
01Jan2000	02:15	9.2371	14.0898	3.9070	22.2800
01Jan2000	02:20	10.2597	14.0035	3.8899	22.2800
01Jan2000	02:25	11.6260	13.9254	3.8745	22.2800
01Jan2000	02:30	12.8827	13.8564	3.8608	22.2800
01Jan2000	02:35	13.9168	13.7952	3.8487	22.2800
01Jan2000	02:40	14.7969	13.7406	3.8379	22.2800
01Jan2000	02:45	15.5955	13.6919	3.8282	22.2800
01Jan2000	02:50	16.3779	13.6485	3.8196	22.2800
01Jan2000	02:55	17.1976	13.6107	3.8121	22.2800
01Jan2000	03:00	18.0857	13.5787	3.8058	22.2800
01Jan2000	03:05	19.1046	13.5534	3.8007	22.2800
01Jan2000	03:10	20.5493	13.5365	3.7974	22.2800
01Jan2000	03:15	22.8871	13.5326	3.7966	22.2800
01Jan2000	03:20	26.1164	13.5479	3.7997	22.2800
01Jan2000	03:25	29.8312	13.5871	3.8074	22.2800
01Jan2000	03:30	33.3668	13.6513	3.8201	22.2800
01Jan2000	03:35	36.4300	13.7382	3.8374	22.2800
01Jan2000	03:40	39.2702	13.8454	3.8586	22.2800
01Jan2000	03:45	42.1393	13.9723	3.8838	22.2800
01Jan2000	03:50	45.1932	14.1196	3.9129	22.2800
01Jan2000	03:55	48.5713	14.2890	3.9465	22.2800
01Jan2000	04:00	52.1350	14.4824	3.9848	22.2800
01Jan2000	04:05	55.7340	14.7004	4.0272	22.2800
01Jan2000	04:10	59.1685	14.9426	4.0737	22.2800
01Jan2000	04:15	62.2168	15.2072	4.1245	22.2800
01Jan2000	04:20	64.7416	15.4909	4.1790	22.2800
01Jan2000	04:25	66.9993	15.7911	4.2366	22.2800
01Jan2000	04:30	69.0959	16.1063	4.2972	22.2800
01Jan2000	04:35	71.1903	16.4359	4.3605	22.2800
01Jan2000	04:40	73.0711	16.7793	4.4264	22.2800

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:45	74.8159	17.1351	4.4947	22.2800
01Jan2000	04:50	76.4575	17.5025	4.5653	22.2800
01Jan2000	04:55	77.9693	17.8809	4.6380	22.2800
01Jan2000	05:00	79.3848	18.2693	4.7126	22.2800
01Jan2000	05:05	80.7857	18.6674	4.7890	22.2800
01Jan2000	05:10	82.3623	19.0757	4.8674	22.2800
01Jan2000	05:15	84.6153	19.4973	4.9484	22.2800
01Jan2000	05:20	87.9088	19.9379	5.0324	22.2800
01Jan2000	05:25	91.3347	20.0775	5.0587	70.4050
01Jan2000	05:30	93.7401	20.2299	5.0874	70.4050
01Jan2000	05:35	95.3832	20.3963	5.1188	70.4050
01Jan2000	05:40	96.8029	20.5732	5.1521	70.4050
01Jan2000	05:45	98.1672	20.7597	5.1873	70.4050
01Jan2000	05:50	99.4855	20.9554	5.2242	70.4050
01Jan2000	05:55	100.7420	21.1600	5.2627	70.4050
01Jan2000	06:00	101.9164	21.3730	5.3029	70.4050
01Jan2000	06:05	109.7338	21.6169	5.3488	70.4050
01Jan2000	06:10	138.8314	21.9880	5.4188	70.4050
01Jan2000	06:15	190.8311	22.6383	5.5413	70.4050
01Jan2000	06:20	242.2112	23.3364	5.6729	118.5300
01Jan2000	06:25	274.3912	24.2990	5.8543	118.5300
01Jan2000	06:30	289.8696	25.4257	6.0655	118.5300
01Jan2000	06:35	301.3837	26.6454	6.2914	118.5300
01Jan2000	06:40	314.1242	27.9487	6.5328	118.5126
01Jan2000	06:45	323.0161	29.3265	6.7880	118.4942
01Jan2000	06:50	325.7524	30.7446	7.0498	118.4754
01Jan2000	06:55	324.0574	32.1664	7.3086	118.4368
01Jan2000	07:00	319.4513	33.5677	7.5637	118.1307
01Jan2000	07:05	311.3229	34.9272	7.8113	117.8337
01Jan2000	07:10	299.3177	36.2194	8.0457	117.5524
01Jan2000	07:15	284.7064	37.4218	8.2609	117.2941

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:20	271.4216	38.5300	8.4592	117.0038
01Jan2000	07:25	264.1599	39.5695	8.6452	116.7228
01Jan2000	07:30	257.0685	40.5614	8.8227	116.4546
01Jan2000	07:35	243.0878	41.4825	8.9876	116.2055
01Jan2000	07:40	227.9198	42.3049	9.1324	115.9867
01Jan2000	07:45	214.3935	43.0299	9.2598	115.7941
01Jan2000	07:50	202.5905	43.6689	9.3722	115.6129
01Jan2000	07:55	192.2741	44.2330	9.4713	115.4491
01Jan2000	08:00	183.3120	44.7317	9.5590	115.3042
01Jan2000	08:05	175.1332	45.1723	9.6365	115.1763
01Jan2000	08:10	166.4569	45.5558	9.7039	115.0649
01Jan2000	08:15	157.5604	45.8794	9.7608	114.9709
01Jan2000	08:20	149.3591	46.1447	9.8074	114.8938
01Jan2000	08:25	143.1560	46.3610	9.8455	114.8310
01Jan2000	08:30	139.7995	46.5447	9.8778	114.7777
01Jan2000	08:35	134.5711	46.6991	9.9049	114.7328
01Jan2000	08:40	127.5858	46.8118	9.9247	114.7001
01Jan2000	08:45	120.5751	46.8765	9.9361	114.6813
01Jan2000	08:50	114.0140	46.8945	9.9393	114.6761
01Jan2000	08:55	108.0045	46.8692	9.9348	114.6834
01Jan2000	09:00	102.6820	46.8048	9.9235	114.7021
01Jan2000	09:05	97.9558	46.7057	9.9061	114.7309
01Jan2000	09:10	93.7302	46.5755	9.8832	114.7687
01Jan2000	09:15	89.8076	46.4169	9.8553	114.8148
01Jan2000	09:20	86.1678	46.2320	9.8228	114.8685
01Jan2000	09:25	82.9159	46.0229	9.7860	114.9292
01Jan2000	09:30	80.0746	45.7924	9.7455	114.9962
01Jan2000	09:35	77.6057	45.5432	9.7017	115.0686
01Jan2000	09:40	75.4401	45.2774	9.6550	115.1457
01Jan2000	09:45	73.5063	44.9970	9.6057	115.2272
01Jan2000	09:50	71.7537	44.7034	9.5540	115.3125

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:55	70.1444	44.3975	9.5003	115.4013
01Jan2000	10:00	68.6405	44.0803	9.4445	115.4934
01Jan2000	10:05	67.3740	43.7530	9.3870	115.5885
01Jan2000	10:10	66.6339	43.4180	9.3281	115.6858
01Jan2000	10:15	66.5511	43.0796	9.2686	115.7809
01Jan2000	10:20	67.0854	42.7421	9.2092	115.8706
01Jan2000	10:25	67.9187	42.4087	9.1506	115.9591
01Jan2000	10:30	68.7093	42.0802	9.0929	116.0464
01Jan2000	10:35	69.4175	41.7564	9.0359	116.1324
01Jan2000	10:40	70.1672	41.4369	8.9794	116.2178
01Jan2000	10:45	71.0083	41.1224	8.9231	116.3029
01Jan2000	10:50	71.9043	40.8132	8.8678	116.3865
01Jan2000	10:55	72.8373	40.5098	8.8135	116.4685
01Jan2000	11:00	73.7652	40.2122	8.7602	116.5490
01Jan2000	11:05	74.7517	39.9207	8.7081	116.6278
01Jan2000	11:10	75.9629	39.6362	8.6572	116.7047
01Jan2000	11:15	77.4230	39.3604	8.6078	116.7793
01Jan2000	11:20	79.0304	39.0946	8.5602	116.8512
01Jan2000	11:25	80.6070	38.8393	8.5146	116.9202
01Jan2000	11:30	81.9963	38.5938	8.4706	116.9866
01Jan2000	11:35	83.2132	38.3568	8.4282	117.0507
01Jan2000	11:40	84.3509	38.1275	8.3872	117.1127
01Jan2000	11:45	85.4518	37.9054	8.3474	117.1727
01Jan2000	11:50	86.5068	37.6904	8.3089	117.2309
01Jan2000	11:55	87.5103	37.4821	8.2717	117.2812
01Jan2000	12:00	88.4468	37.2801	8.2355	117.3246
01Jan2000	12:05	89.1128	37.0834	8.2003	117.3668
01Jan2000	12:10	89.1781	36.8889	8.1655	117.4086
01Jan2000	12:15	88.5934	36.6923	8.1303	117.4508
01Jan2000	12:20	87.5640	36.4898	8.0941	117.4943
01Jan2000	12:25	86.4045	36.2796	8.0565	117.5394

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	12:30	85.3804	36.0614	8.0174	117.5863
01Jan2000	12:35	84.4773	35.8364	7.9768	117.6351
01Jan2000	12:40	83.5640	35.6047	7.9346	117.6857
01Jan2000	12:45	82.5964	35.3662	7.8912	117.7378
01Jan2000	12:50	81.5873	35.1205	7.8464	117.7915
01Jan2000	12:55	80.5803	34.8675	7.8004	117.8467
01Jan2000	13:00	79.6136	34.6073	7.7530	117.9036
01Jan2000	13:05	78.7563	34.3405	7.7044	117.9619
01Jan2000	13:10	78.0816	34.0679	7.6548	118.0214
01Jan2000	13:15	77.6291	33.7911	7.6044	118.0819
01Jan2000	13:20	77.3675	33.5114	7.5535	118.1430
01Jan2000	13:25	77.2302	33.2299	7.5023	118.2045
01Jan2000	13:30	77.1523	32.9472	7.4508	118.2663
01Jan2000	13:35	77.0994	32.6636	7.3992	118.3282
01Jan2000	13:40	77.0545	32.3793	7.3474	118.3903
01Jan2000	13:45	77.0145	32.0943	7.2955	118.4526
01Jan2000	13:50	76.9876	31.8088	7.2435	118.4614
01Jan2000	13:55	76.9805	31.5231	7.1915	118.4652
01Jan2000	14:00	76.9853	31.2374	7.1395	118.4689
01Jan2000	14:05	76.8256	30.9511	7.0874	118.4727
01Jan2000	14:10	76.1857	30.6621	7.0348	118.4764
01Jan2000	14:15	74.9601	30.3666	6.9807	118.4803
01Jan2000	14:20	73.3126	30.0612	6.9241	118.4844
01Jan2000	14:25	71.5343	29.7440	6.8653	118.4886
01Jan2000	14:30	69.9136	29.4150	6.8044	118.4930
01Jan2000	14:35	68.4815	29.0755	6.7415	118.4976
01Jan2000	14:40	67.1294	28.7263	6.6769	118.5022
01Jan2000	14:45	65.8179	28.3680	6.6105	118.5070
01Jan2000	14:50	64.5608	28.0008	6.5425	118.5119
01Jan2000	14:55	63.3648	27.6251	6.4729	118.5169
01Jan2000	15:00	62.2493	27.2414	6.4018	118.5220

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	15:05	61.2754	26.8505	6.3294	118.5272
01Jan2000	15:10	60.5339	26.4536	6.2559	118.5300
01Jan2000	15:15	60.0419	26.0525	6.1816	118.5300
01Jan2000	15:20	59.7698	25.6487	6.1068	118.5300
01Jan2000	15:25	59.6354	25.2436	6.0318	118.5300
01Jan2000	15:30	59.5455	24.8377	5.9558	118.5300
01Jan2000	15:35	59.4761	24.4312	5.8792	118.5300
01Jan2000	15:40	59.4553	24.0244	5.8026	118.5300
01Jan2000	15:45	59.4806	23.6177	5.7259	118.5300
01Jan2000	15:50	59.5355	23.2112	5.6493	118.5300
01Jan2000	15:55	59.6142	22.8051	5.5728	118.5300
01Jan2000	16:00	59.7106	22.3997	5.4964	118.5300
01Jan2000	16:05	59.7761	21.9949	5.4201	118.5300
01Jan2000	16:10	59.7295	21.5901	5.3438	118.5300
01Jan2000	16:15	59.5305	21.1844	5.2673	118.5300
01Jan2000	16:20	59.1993	20.7769	5.1905	118.5300
01Jan2000	16:25	58.7970	20.3669	5.1133	118.5300
01Jan2000	16:30	58.3824	19.9541	5.0355	118.5300
01Jan2000	16:35	57.9728	19.5385	4.9563	118.5300
01Jan2000	16:40	57.5770	19.1200	4.8759	118.5300
01Jan2000	16:45	57.2026	18.6990	4.7951	118.5300
01Jan2000	16:50	56.8482	18.2754	4.7137	118.5300
01Jan2000	16:55	56.5169	17.8494	4.6319	118.5300
01Jan2000	17:00	56.2128	17.4213	4.5497	118.5300
01Jan2000	17:05	55.7719	16.9906	4.4670	118.5300
01Jan2000	17:10	54.8887	16.5553	4.3834	118.5300
01Jan2000	17:15	53.4761	16.1122	4.2983	118.5300
01Jan2000	17:20	51.6660	15.6579	4.2110	118.5300
01Jan2000	17:25	49.7561	15.1908	4.1213	118.5300
01Jan2000	17:30	48.0531	14.7113	4.0293	118.5300
01Jan2000	17:35	46.5827	14.2209	3.9330	118.5300

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	17:40	45.2067	13.7206	3.8339	118.5300
01Jan2000	17:45	43.8647	13.2110	3.7329	118.5300
01Jan2000	17:50	42.5590	12.6923	3.6301	118.5300
01Jan2000	17:55	41.2943	12.1647	3.5256	118.5300
01Jan2000	18:00	40.0915	11.7115	3.4358	70.4050
01Jan2000	18:05	39.0217	11.4991	3.3937	70.4050
01Jan2000	18:10	38.2199	11.2802	3.3503	70.4050
01Jan2000	18:15	37.7326	11.0568	3.3061	70.4050
01Jan2000	18:20	37.5852	10.8313	3.2614	70.4050
01Jan2000	18:25	37.5897	10.6053	3.2166	70.4050
01Jan2000	18:30	37.6256	10.3794	3.1719	70.4050
01Jan2000	18:35	37.6209	10.1536	3.1271	70.4050
01Jan2000	18:40	37.6451	9.9279	3.0824	70.4050
01Jan2000	18:45	37.6867	9.7025	3.0377	70.4050
01Jan2000	18:50	37.7923	9.4775	2.9928	70.4050
01Jan2000	18:55	37.9335	9.4958	2.9966	0.0000
01Jan2000	19:00	38.1296	9.7577	3.0487	0.0000
01Jan2000	19:05	38.3634	10.0212	3.1009	0.0000
01Jan2000	19:10	38.6709	10.2864	3.1534	0.0000
01Jan2000	19:15	39.0317	10.5540	3.2065	0.0000
01Jan2000	19:20	39.4275	10.8242	3.2600	0.0000
01Jan2000	19:25	39.8194	11.0971	3.3141	0.0000
01Jan2000	19:30	40.1529	11.3724	3.3686	0.0000
01Jan2000	19:35	40.4245	11.6499	3.4236	0.0000
01Jan2000	19:40	40.6283	11.9290	3.4789	0.0000
01Jan2000	19:45	40.7860	12.2094	3.5345	0.0000
01Jan2000	19:50	40.9119	12.4907	3.5902	0.0000
01Jan2000	19:55	41.0276	12.7729	3.6461	0.0000
01Jan2000	20:00	41.1477	13.0558	3.7022	0.0000
01Jan2000	20:05	41.2213	13.3395	3.7584	0.0000
01Jan2000	20:10	41.1697	13.6232	3.8146	0.0000

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	20:15	40.9697	13.9060	3.8706	0.0000
01Jan2000	20:20	40.6295	14.1870	3.9263	0.0000
01Jan2000	20:25	40.2435	14.4655	3.9815	0.0000
01Jan2000	20:30	39.8958	14.7415	4.0350	0.0000
01Jan2000	20:35	39.6090	15.0153	4.0876	0.0000
01Jan2000	20:40	39.3343	15.2871	4.1398	0.0000
01Jan2000	20:45	39.0741	15.5571	4.1917	0.0000
01Jan2000	20:50	38.8033	15.8253	4.2432	0.0000
01Jan2000	20:55	38.5414	16.0916	4.2943	0.0000
01Jan2000	21:00	38.2861	16.3562	4.3451	0.0000
01Jan2000	21:05	38.3774	16.6202	4.3958	0.0000
01Jan2000	21:10	39.4293	16.8881	4.4473	0.0000
01Jan2000	21:15	41.7415	17.1676	4.5010	0.0000
01Jan2000	21:20	45.2011	17.3903	4.5437	22.2800
01Jan2000	21:25	48.9701	17.5611	4.5766	22.2800
01Jan2000	21:30	52.2407	17.7562	4.6140	22.2800
01Jan2000	21:35	54.9473	17.9718	4.6554	22.2800
01Jan2000	21:40	57.5231	18.2057	4.7003	22.2800
01Jan2000	21:45	60.0722	18.4572	4.7486	22.2800
01Jan2000	21:50	62.9172	18.7273	4.8005	22.2800
01Jan2000	21:55	65.7229	19.0168	4.8561	22.2800
01Jan2000	22:00	68.5830	19.3258	4.9155	22.2800
01Jan2000	22:05	71.0781	19.6533	4.9784	22.2800
01Jan2000	22:10	72.8839	19.9956	5.0433	22.2800
01Jan2000	22:15	73.9029	20.0234	5.0485	70.4050
01Jan2000	22:20	74.2943	20.0488	5.0533	70.4050
01Jan2000	22:25	74.3157	20.0757	5.0584	70.4050
01Jan2000	22:30	74.2496	20.1024	5.0634	70.4050
01Jan2000	22:35	74.1200	20.1284	5.0683	70.4050
01Jan2000	22:40	73.8814	20.1532	5.0730	70.4050
01Jan2000	22:45	73.5349	20.1759	5.0773	70.4050

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	22:50	73.1057	20.1960	5.0810	70.4050
01Jan2000	22:55	72.6193	20.2129	5.0842	70.4050
01Jan2000	23:00	72.1203	20.2265	5.0868	70.4050
01Jan2000	23:05	71.3931	20.2358	5.0885	70.4050
01Jan2000	23:10	70.0145	20.2378	5.0889	70.4050
01Jan2000	23:15	67.9224	20.2279	5.0871	70.4050
01Jan2000	23:20	65.3421	20.2019	5.0822	70.4050
01Jan2000	23:25	62.6861	20.1579	5.0739	70.4050
01Jan2000	23:30	60.3608	20.0968	5.0623	70.4050
01Jan2000	23:35	58.4328	20.0210	5.0480	70.4050
01Jan2000	23:40	56.7798	19.9328	5.0314	70.4050
01Jan2000	23:45	55.2816	19.8338	5.0128	70.4050
01Jan2000	23:50	53.7884	19.7245	4.9920	70.4050
01Jan2000	23:55	52.1746	19.6045	4.9690	70.4050
02Jan2000	00:00	50.5082	19.4732	4.9438	70.4050
02Jan2000	00:05	48.7122	19.3300	4.9163	70.4050
02Jan2000	00:10	46.4164	19.1727	4.8861	70.4050
02Jan2000	00:15	43.4485	18.9973	4.8524	70.4050
02Jan2000	00:20	40.0039	18.7998	4.8144	70.4050
02Jan2000	00:25	36.4612	18.5782	4.7719	70.4050
02Jan2000	00:30	33.2719	18.3334	4.7249	70.4050
02Jan2000	00:35	30.4853	18.0681	4.6739	70.4050
02Jan2000	00:40	27.9608	17.7845	4.6194	70.4050
02Jan2000	00:45	25.5634	17.4839	4.5617	70.4050
02Jan2000	00:50	23.2992	17.1673	4.5009	70.4050
02Jan2000	00:55	21.1545	16.8355	4.4372	70.4050
02Jan2000	01:00	19.1509	16.4894	4.3707	70.4050
02Jan2000	01:05	17.3033	16.1300	4.3017	70.4050
02Jan2000	01:10	15.6068	15.7585	4.2304	70.4050
02Jan2000	01:15	14.1071	15.3759	4.1569	70.4050
02Jan2000	01:20	12.7663	14.9836	4.0815	70.4050

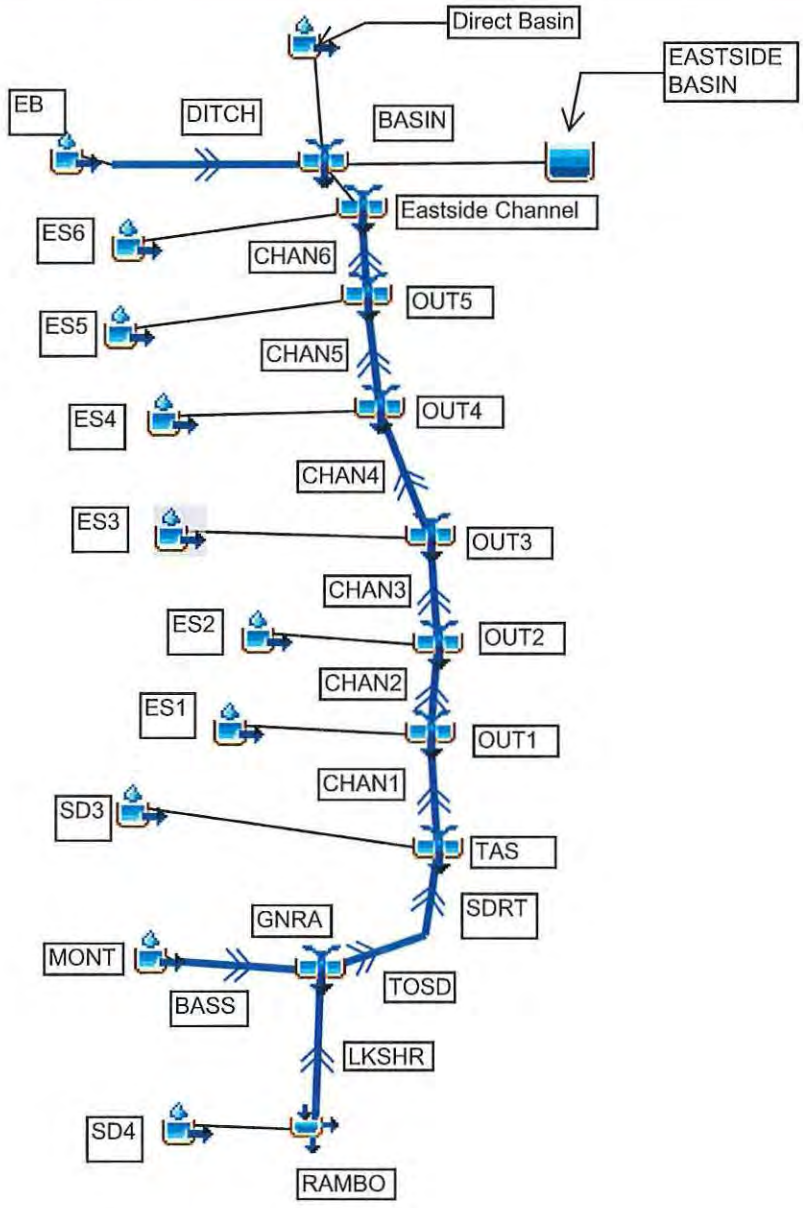
Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
02Jan2000	01:25	11.5724	14.5825	4.0045	70.4050
02Jan2000	01:30	10.5131	14.1737	3.9237	70.4050
02Jan2000	01:35	9.5497	13.7579	3.8413	70.4050
02Jan2000	01:40	8.6766	13.3357	3.7576	70.4050
02Jan2000	01:45	7.8948	12.9079	3.6729	70.4050
02Jan2000	01:50	7.1863	12.4750	3.5871	70.4050
02Jan2000	01:55	6.5406	12.0374	3.5004	70.4050
02Jan2000	02:00	5.9602	11.5955	3.4128	70.4050
02Jan2000	02:05	5.4492	11.1499	3.3245	70.4050
02Jan2000	02:10	4.9913	10.7010	3.2356	70.4050
02Jan2000	02:15	4.5788	10.2491	3.1460	70.4050
02Jan2000	02:20	4.2209	9.7945	3.0560	70.4050
02Jan2000	02:25	3.9017	9.3376	2.9636	70.4050
02Jan2000	02:30	3.6120	9.1210	2.9183	0.0000
02Jan2000	02:35	3.3624	9.1450	2.9234	0.0000
02Jan2000	02:40	3.1364	9.1674	2.9280	0.0000
02Jan2000	02:45	2.9339	9.1883	2.9324	0.0000
02Jan2000	02:50	2.7526	9.2079	2.9365	0.0000
02Jan2000	02:55	2.5867	9.2263	2.9403	0.0000
02Jan2000	03:00	2.4385	9.2436	2.9439	0.0000
02Jan2000	03:05	2.3032	9.2599	2.9473	0.0000
02Jan2000	03:10	2.1746	9.2753	2.9506	0.0000
02Jan2000	03:15	2.0506	9.2899	2.9536	0.0000
02Jan2000	03:20	1.9294	9.3036	2.9565	0.0000
02Jan2000	03:25	1.8131	9.3165	2.9592	0.0000
02Jan2000	03:30	1.7013	9.3286	2.9617	0.0000
02Jan2000	03:35	1.5939	9.3399	2.9641	0.0000
02Jan2000	03:40	1.4914	9.3505	2.9663	0.0000
02Jan2000	03:45	1.4011	9.3605	2.9684	0.0000
02Jan2000	03:50	1.3158	9.3699	2.9703	0.0000
02Jan2000	03:55	1.2346	9.3786	2.9721	0.0000

HEC-HMS

Project : Related - Eastside Basin

Basin Model : Proposed - Survey Basin

Apr 02 16:02:09 PDT 2015



Project: Related Simulation Run: PR - 100yr - SC - Survey

Start of Run: 01Jan2000, 00:00 Basin Model: Proposed - Survey B
End of Run: 05Jan2000, 02:45 Meteorologic Model: 100 yr - SC Dist
Compute Time: 02Jul2015, 10:26:10 Control Specifications: SC - Dist

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
SD4	0.53	150.9104	01Jan2000, 07:25	90.8382
RAMBO	0.53	10.9104	01Jan2000, 07:25	0.4664
LKSHR	0.53	10.8608	01Jan2000, 07:55	0.5819
MONT	0.032	33.3660	01Jan2000, 06:20	6.7936
BASS	0.032	29.7591	01Jan2000, 06:55	6.9449
GNRA	0.562	29.7591	01Jan2000, 06:55	7.5268
TOSD	0.562	29.6740	01Jan2000, 07:00	7.5229
SDRT	0.562	27.7381	01Jan2000, 07:10	7.5183
SD3	0.297	114.1743	01Jan2000, 06:45	50.9036
TAS	0.859	133.0619	01Jan2000, 07:10	58.4219
CHAN1	0.859	132.1624	01Jan2000, 07:15	58.4179
ES1	0.066	37.7841	01Jan2000, 06:30	14.0335
OUT1	0.925	156.4915	01Jan2000, 07:15	72.4514
CHAN2	0.925	155.2750	01Jan2000, 07:15	72.4550
ES2	0.032	20.9366	01Jan2000, 06:25	6.7962
OUT2	0.957	166.8949	01Jan2000, 06:45	79.2512
CHAN3	0.957	166.8251	01Jan2000, 06:50	79.2439
ES3	0.033	21.7188	01Jan2000, 06:25	6.8461
OUT3	0.990	181.8081	01Jan2000, 06:50	86.0900
CHAN4	0.990	181.2635	01Jan2000, 06:55	86.0839
ES4	0.026	18.6771	01Jan2000, 06:20	5.3817
OUT4	1.016	191.8013	01Jan2000, 06:55	91.4656
CHAN5	1.016	191.6822	01Jan2000, 06:55	91.4611
ES5	0.027	18.1310	01Jan2000, 06:20	5.6242
OUT5	1.043	203.0448	01Jan2000, 06:55	97.0854
CHAN6	1.043	202.4029	01Jan2000, 06:55	97.0851
ES6	0.006	3.1532	01Jan2000, 06:15	0.8437

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
Eastside Channel	1.049	204.0263	01Jan2000, 06:55	97.9287
EB	0.259	130.5913	01Jan2000, 06:40	54.5539
DITCH	0.259	130.0628	01Jan2000, 06:40	54.5499
Direct Basin	0.019	12.1104	01Jan2000, 06:15	3.0809
BASIN	1.327	333.1263	01Jan2000, 06:50	155.5595
EASTSIDE BASIN	1.327	118.5300	01Jan2000, 06:00	162.4570

Project: Related Simulation Run: PR - 100yr - SC - Survey

Reservoir: EASTSIDE BASIN

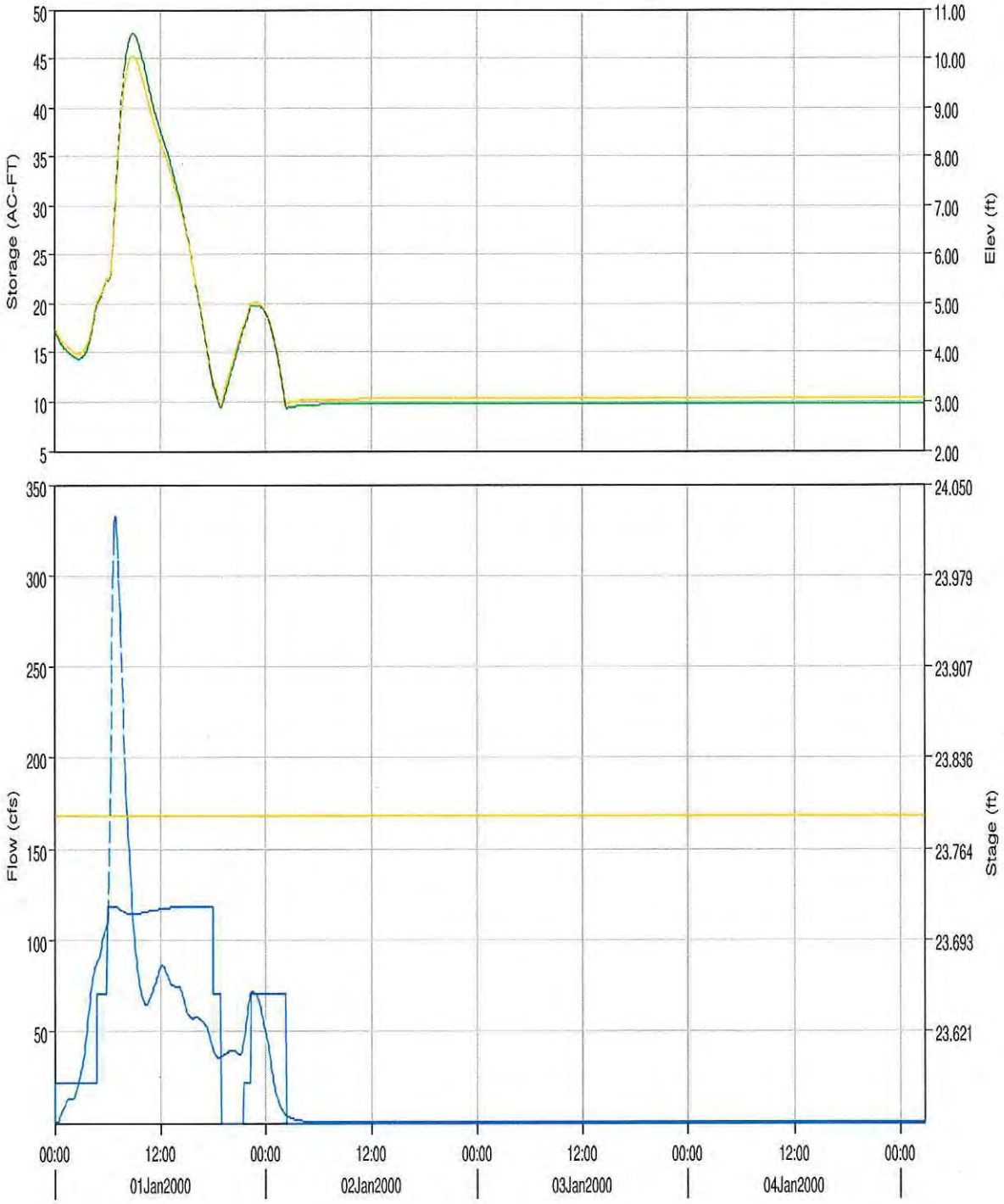
Start of Run:	01Jan2000, 00:00	Basin Model:	Proposed - Survey Basin
End of Run:	05Jan2000, 02:45	Meteorologic Model:	100 yr - SC Dist
Compute Time:	02Jul2015, 10:26:10	Control Specifications:	SC - Dist

Volume Units:IN

Computed Results

Peak Inflow:	333.1263 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 06:50
Peak Discharge:	118.5300 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 06:00
Inflow Volume:	2.1980 (IN)	Peak Storage:	47.5354 (AC-FT)
Discharge Volume:	2.2955 (IN)	Peak Elevation:	10.0474 (FT)

Reservoir "EASTSIDE BASIN" Results for Run "PR - 100yr - SC - Survey"



Project: Related Simulation Run: PR - 100yr - SC - Survey
Reservoir: EASTSIDE BASIN

Start of Run: 01Jan2000, 00:00 Basin Model: Proposed - Survey B
End of Run: 05Jan2000, 02:45 Meteorologic Model: 100 yr - SC Dist
Compute Time: 02Jul2015, 10:26:10 Control Specifications: SC - Dist

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	00:00	0.0000	17.1625	4.5000	0.0000
01Jan2000	00:05	0.0135	17.0858	4.4853	22.2800
01Jan2000	00:10	0.0495	16.9326	4.4558	22.2800
01Jan2000	00:15	0.0857	16.7796	4.4265	22.2800
01Jan2000	00:20	0.1217	16.6269	4.3971	22.2800
01Jan2000	00:25	0.4519	16.4754	4.3680	22.2800
01Jan2000	00:30	1.6242	16.3291	4.3400	22.2800
01Jan2000	00:35	3.0456	16.1918	4.3136	22.2800
01Jan2000	00:40	4.2434	16.0634	4.2889	22.2800
01Jan2000	00:45	5.3392	15.9430	4.2658	22.2800
01Jan2000	00:50	6.2848	15.8296	4.2440	22.2800
01Jan2000	00:55	7.0305	15.7220	4.2233	22.2800
01Jan2000	01:00	7.7583	15.6195	4.2037	22.2800
01Jan2000	01:05	8.5597	15.5222	4.1850	22.2800
01Jan2000	01:10	9.6243	15.4314	4.1675	22.2800
01Jan2000	01:15	11.0046	15.3490	4.1517	22.2800
01Jan2000	01:20	11.9823	15.2747	4.1374	22.2800
01Jan2000	01:25	12.4684	15.2054	4.1241	22.2800
01Jan2000	01:30	12.7493	15.1388	4.1114	22.2800
01Jan2000	01:35	12.9360	15.0738	4.0989	22.2800
01Jan2000	01:40	13.0667	15.0099	4.0866	22.2800
01Jan2000	01:45	13.1583	14.9468	4.0745	22.2800
01Jan2000	01:50	13.2232	14.8842	4.0625	22.2800
01Jan2000	01:55	13.2675	14.8220	4.0505	22.2800
01Jan2000	02:00	13.3028	14.7600	4.0386	22.2800
01Jan2000	02:05	13.3543	14.6984	4.0268	22.2800

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	02:10	13.5471	14.6376	4.0151	22.2800
01Jan2000	02:15	14.0430	14.5791	4.0039	22.2800
01Jan2000	02:20	14.9514	14.5255	3.9934	22.2800
01Jan2000	02:25	16.2812	14.4796	3.9843	22.2800
01Jan2000	02:30	17.9333	14.4440	3.9772	22.2800
01Jan2000	02:35	19.7399	14.4203	3.9725	22.2800
01Jan2000	02:40	21.5732	14.4091	3.9703	22.2800
01Jan2000	02:45	23.3975	14.4105	3.9706	22.2800
01Jan2000	02:50	25.2541	14.4246	3.9734	22.2800
01Jan2000	02:55	27.0693	14.4513	3.9787	22.2800
01Jan2000	03:00	28.6843	14.4899	3.9863	22.2800
01Jan2000	03:05	30.1106	14.5389	3.9960	22.2800
01Jan2000	03:10	31.6178	14.5980	4.0075	22.2800
01Jan2000	03:15	33.5657	14.6690	4.0211	22.2800
01Jan2000	03:20	36.1473	14.7557	4.0378	22.2800
01Jan2000	03:25	39.3304	14.8621	4.0582	22.2800
01Jan2000	03:30	42.9896	14.9921	4.0832	22.2800
01Jan2000	03:35	47.0281	15.1487	4.1132	22.2800
01Jan2000	03:40	51.3701	15.3341	4.1489	22.2800
01Jan2000	03:45	55.7884	15.5496	4.1903	22.2800
01Jan2000	03:50	60.0806	15.7952	4.2374	22.2800
01Jan2000	03:55	64.0992	16.0694	4.2901	22.2800
01Jan2000	04:00	67.9127	16.3705	4.3479	22.2800
01Jan2000	04:05	71.4688	16.6970	4.4106	22.2800
01Jan2000	04:10	74.6868	17.0469	4.4778	22.2800
01Jan2000	04:15	77.4871	17.4174	4.5490	22.2800
01Jan2000	04:20	79.8546	17.8058	4.6235	22.2800
01Jan2000	04:25	81.8147	18.2091	4.7010	22.2800
01Jan2000	04:30	83.4550	18.6247	4.7808	22.2800
01Jan2000	04:35	84.8455	19.0509	4.8627	22.2800
01Jan2000	04:40	86.0726	19.4860	4.9462	22.2800

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	04:45	87.2035	19.9292	5.0308	22.2800
01Jan2000	04:50	88.2578	20.0557	5.0546	70.4050
01Jan2000	04:55	89.2474	20.1821	5.0784	70.4050
01Jan2000	05:00	90.1960	20.3151	5.1035	70.4050
01Jan2000	05:05	91.2038	20.4549	5.1298	70.4050
01Jan2000	05:10	92.5630	20.6028	5.1577	70.4050
01Jan2000	05:15	94.6603	20.7626	5.1878	70.4050
01Jan2000	05:20	97.3991	20.9391	5.2211	70.4050
01Jan2000	05:25	99.9377	21.1338	5.2578	70.4050
01Jan2000	05:30	101.7476	21.3434	5.2973	70.4050
01Jan2000	05:35	103.0882	21.5639	5.3388	70.4050
01Jan2000	05:40	104.2551	21.7930	5.3820	70.4050
01Jan2000	05:45	105.3497	22.0299	5.4267	70.4050
01Jan2000	05:50	106.3874	22.2741	5.4727	70.4050
01Jan2000	05:55	107.3607	22.5253	5.5200	70.4050
01Jan2000	06:00	108.2528	22.4746	5.5105	118.5300
01Jan2000	06:05	112.6793	22.4191	5.5000	118.5300
01Jan2000	06:10	127.9278	22.4313	5.5023	118.5300
01Jan2000	06:15	155.2325	22.5900	5.5322	118.5300
01Jan2000	06:20	190.1428	22.9630	5.6025	118.5300
01Jan2000	06:25	228.7654	23.5892	5.7205	118.5300
01Jan2000	06:30	267.1404	24.4806	5.8885	118.5300
01Jan2000	06:35	298.6930	25.6127	6.1001	118.5300
01Jan2000	06:40	318.9314	26.9232	6.3429	118.5263
01Jan2000	06:45	329.2378	28.3390	6.6051	118.5074
01Jan2000	06:50	333.1263	29.8037	6.8764	118.4879
01Jan2000	06:55	332.1927	31.2788	7.1471	118.4684
01Jan2000	07:00	327.2863	32.7341	7.4120	118.3128
01Jan2000	07:05	319.2093	34.1466	7.6691	118.0042
01Jan2000	07:10	308.8313	35.4976	7.9151	117.7091
01Jan2000	07:15	297.8698	36.7771	8.1455	117.4326

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	07:20	288.4605	37.9883	8.3623	117.1503
01Jan2000	07:25	280.6693	39.1423	8.5688	116.8383
01Jan2000	07:30	270.7536	40.2375	8.7648	116.5421
01Jan2000	07:35	256.4907	41.2514	8.9462	116.2680
01Jan2000	07:40	240.5506	42.1631	9.1074	116.0244
01Jan2000	07:45	225.6713	42.9702	9.2493	115.8100
01Jan2000	07:50	212.4525	43.6820	9.3745	115.6091
01Jan2000	07:55	200.8081	44.3095	9.4848	115.4269
01Jan2000	08:00	190.6424	44.8631	9.5821	115.2661
01Jan2000	08:05	181.6185	45.3516	9.6680	115.1242
01Jan2000	08:10	173.1923	45.7810	9.7435	114.9995
01Jan2000	08:15	165.2269	46.1547	9.8092	114.8909
01Jan2000	08:20	158.1804	46.4774	9.8659	114.7972
01Jan2000	08:25	152.7266	46.7577	9.9152	114.7158
01Jan2000	08:30	147.9822	47.0034	9.9584	114.6445
01Jan2000	08:35	141.6273	47.2113	9.9950	114.5841
01Jan2000	08:40	133.7642	47.3706	10.0210	114.5411
01Jan2000	08:45	125.9318	47.4762	10.0379	114.5131
01Jan2000	08:50	118.6380	47.5297	10.0465	114.4989
01Jan2000	08:55	112.0077	47.5354	10.0474	114.4974
01Jan2000	09:00	106.0879	47.4978	10.0414	114.5073
01Jan2000	09:05	100.8680	47.4218	10.0292	114.5275
01Jan2000	09:10	96.1802	47.3115	10.0115	114.5568
01Jan2000	09:15	91.8238	47.1698	9.9877	114.5961
01Jan2000	09:20	87.9564	46.9995	9.9577	114.6456
01Jan2000	09:25	84.5864	46.8039	9.9233	114.7024
01Jan2000	09:30	81.5065	46.5856	9.8850	114.7658
01Jan2000	09:35	78.7057	46.3467	9.8429	114.8352
01Jan2000	09:40	76.2034	46.0890	9.7976	114.9100
01Jan2000	09:45	73.9892	45.8145	9.7494	114.9897
01Jan2000	09:50	71.9854	45.5250	9.6985	115.0738

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	09:55	70.1418	45.2215	9.6451	115.1620
01Jan2000	10:00	68.4222	44.9053	9.5895	115.2538
01Jan2000	10:05	66.8796	44.5771	9.5318	115.3491
01Jan2000	10:10	65.6539	44.2387	9.4723	115.4474
01Jan2000	10:15	64.8701	43.8927	9.4115	115.5479
01Jan2000	10:20	64.5579	43.5423	9.3499	115.6497
01Jan2000	10:25	64.7117	43.1906	9.2881	115.7514
01Jan2000	10:30	65.2205	42.8405	9.2265	115.8444
01Jan2000	10:35	65.9917	42.4942	9.1656	115.9364
01Jan2000	10:40	66.9244	42.1531	9.1057	116.0270
01Jan2000	10:45	67.9221	41.8181	9.0468	116.1160
01Jan2000	10:50	68.9515	41.4894	8.9888	116.2036
01Jan2000	10:55	69.9896	41.1673	8.9312	116.2907
01Jan2000	11:00	70.9985	40.8516	8.8747	116.3761
01Jan2000	11:05	71.9925	40.5422	8.8193	116.4598
01Jan2000	11:10	73.0415	40.2393	8.7651	116.5417
01Jan2000	11:15	74.1635	39.9433	8.7121	116.6217
01Jan2000	11:20	75.3497	39.6547	8.6605	116.6997
01Jan2000	11:25	76.6123	39.3740	8.6102	116.7756
01Jan2000	11:30	77.9314	39.1017	8.5615	116.8493
01Jan2000	11:35	79.2711	38.8380	8.5143	116.9206
01Jan2000	11:40	80.5773	38.5830	8.4687	116.9895
01Jan2000	11:45	81.8204	38.3362	8.4245	117.0562
01Jan2000	11:50	82.9955	38.0974	8.3818	117.1208
01Jan2000	11:55	84.0954	37.8660	8.3404	117.1834
01Jan2000	12:00	85.1100	37.6414	8.3002	117.2441
01Jan2000	12:05	85.9347	37.4227	8.2610	117.2939
01Jan2000	12:10	86.4151	37.2082	8.2227	117.3400
01Jan2000	12:15	86.5215	36.9955	8.1846	117.3857
01Jan2000	12:20	86.2757	36.7819	8.1464	117.4316
01Jan2000	12:25	85.7063	36.5652	8.1076	117.4781

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	12:30	84.8867	36.3434	8.0679	117.5257
01Jan2000	12:35	83.8976	36.1150	8.0270	117.5748
01Jan2000	12:40	82.8080	35.8792	7.9846	117.6257
01Jan2000	12:45	81.6728	35.6353	7.9402	117.6790
01Jan2000	12:50	80.5313	35.3832	7.8943	117.7341
01Jan2000	12:55	79.4097	35.1229	7.8469	117.7909
01Jan2000	13:00	78.3436	34.8547	7.7981	117.8495
01Jan2000	13:05	77.3918	34.5791	7.7479	117.9097
01Jan2000	13:10	76.6014	34.2972	7.6966	117.9713
01Jan2000	13:15	75.9911	34.0099	7.6443	118.0341
01Jan2000	13:20	75.5613	33.7187	7.5912	118.0977
01Jan2000	13:25	75.2778	33.4245	7.5377	118.1620
01Jan2000	13:30	75.1034	33.1284	7.4838	118.2267
01Jan2000	13:35	74.9959	32.8308	7.4296	118.2917
01Jan2000	13:40	74.9162	32.5321	7.3752	118.3569
01Jan2000	13:45	74.8485	32.2325	7.3207	118.4224
01Jan2000	13:50	74.7978	31.9321	7.2660	118.4598
01Jan2000	13:55	74.7676	31.6312	7.2112	118.4637
01Jan2000	14:00	74.7490	31.3302	7.1564	118.4677
01Jan2000	14:05	74.6418	31.0287	7.1015	118.4716
01Jan2000	14:10	74.2789	30.7256	7.0464	118.4756
01Jan2000	14:15	73.6049	30.4189	6.9904	118.4796
01Jan2000	14:20	72.6309	30.1065	6.9325	118.4838
01Jan2000	14:25	71.3907	29.7864	6.8732	118.4881
01Jan2000	14:30	69.9510	29.4571	6.8122	118.4925
01Jan2000	14:35	68.4091	29.1174	6.7493	118.4970
01Jan2000	14:40	66.8684	28.7672	6.6844	118.5017
01Jan2000	14:45	65.3879	28.4064	6.6176	118.5065
01Jan2000	14:50	63.9774	28.0357	6.5489	118.5114
01Jan2000	14:55	62.6463	27.6556	6.4785	118.5165
01Jan2000	15:00	61.4102	27.2665	6.4065	118.5217

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	15:05	60.3121	26.8694	6.3329	118.5270
01Jan2000	15:10	59.4008	26.4653	6.2581	118.5300
01Jan2000	15:15	58.6852	26.0556	6.1822	118.5300
01Jan2000	15:20	58.1610	25.6416	6.1055	118.5300
01Jan2000	15:25	57.8091	25.2247	6.0283	118.5300
01Jan2000	15:30	57.5984	24.8058	5.9498	118.5300
01Jan2000	15:35	57.5005	24.3858	5.8707	118.5300
01Jan2000	15:40	57.4776	23.9654	5.7914	118.5300
01Jan2000	15:45	57.5003	23.5450	5.7122	118.5300
01Jan2000	15:50	57.5558	23.1249	5.6330	118.5300
01Jan2000	15:55	57.6358	22.7052	5.5539	118.5300
01Jan2000	16:00	57.7291	22.2862	5.4750	118.5300
01Jan2000	16:05	57.8068	21.8677	5.3961	118.5300
01Jan2000	16:10	57.8210	21.4495	5.3173	118.5300
01Jan2000	16:15	57.7523	21.0312	5.2384	118.5300
01Jan2000	16:20	57.5874	20.6120	5.1594	118.5300
01Jan2000	16:25	57.3163	20.1914	5.0802	118.5300
01Jan2000	16:30	56.9417	19.7685	5.0005	118.5300
01Jan2000	16:35	56.5059	19.3429	4.9187	118.5300
01Jan2000	16:40	56.0626	18.9142	4.8364	118.5300
01Jan2000	16:45	55.6423	18.4825	4.7535	118.5300
01Jan2000	16:50	55.2505	18.0480	4.6701	118.5300
01Jan2000	16:55	54.8858	17.6110	4.5861	118.5300
01Jan2000	17:00	54.5519	17.1715	4.5017	118.5300
01Jan2000	17:05	54.1677	16.7296	4.4169	118.5300
01Jan2000	17:10	53.5880	16.2843	4.3313	118.5300
01Jan2000	17:15	52.7839	15.8343	4.2449	118.5300
01Jan2000	17:20	51.7368	15.3779	4.1573	118.5300
01Jan2000	17:25	50.4621	14.9135	4.0681	118.5300
01Jan2000	17:30	49.0025	14.4397	3.9764	118.5300
01Jan2000	17:35	47.4328	13.9554	3.8804	118.5300

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	17:40	45.8441	13.4603	3.7823	118.5300
01Jan2000	17:45	44.3048	12.9544	3.6821	118.5300
01Jan2000	17:50	42.8304	12.4381	3.5798	118.5300
01Jan2000	17:55	41.4183	11.9119	3.4755	118.5300
01Jan2000	18:00	40.0773	11.6745	3.4285	70.4050
01Jan2000	18:05	38.8620	11.4615	3.3863	70.4050
01Jan2000	18:10	37.8453	11.2407	3.3425	70.4050
01Jan2000	18:15	37.0522	11.0137	3.2976	70.4050
01Jan2000	18:20	36.4835	10.7821	3.2517	70.4050
01Jan2000	18:25	36.1295	10.5472	3.2051	70.4050
01Jan2000	18:30	35.9526	10.3106	3.1582	70.4050
01Jan2000	18:35	35.9112	10.0732	3.1112	70.4050
01Jan2000	18:40	35.9564	9.8358	3.0641	70.4050
01Jan2000	18:45	36.0533	9.5988	3.0172	70.4050
01Jan2000	18:50	36.1938	9.3627	2.9688	70.4050
01Jan2000	18:55	36.3771	9.3702	2.9704	0.0000
01Jan2000	19:00	36.5952	9.6215	3.0217	0.0000
01Jan2000	19:05	36.8407	9.8744	3.0718	0.0000
01Jan2000	19:10	37.1122	10.1290	3.1223	0.0000
01Jan2000	19:15	37.3994	10.3856	3.1731	0.0000
01Jan2000	19:20	37.6942	10.6442	3.2243	0.0000
01Jan2000	19:25	37.9951	10.9048	3.2760	0.0000
01Jan2000	19:30	38.2921	11.1675	3.3280	0.0000
01Jan2000	19:35	38.5670	11.4322	3.3805	0.0000
01Jan2000	19:40	38.7992	11.6986	3.4332	0.0000
01Jan2000	19:45	38.9854	11.9665	3.4863	0.0000
01Jan2000	19:50	39.1433	12.2355	3.5396	0.0000
01Jan2000	19:55	39.2898	12.5056	3.5931	0.0000
01Jan2000	20:00	39.4315	12.7767	3.6469	0.0000
01Jan2000	20:05	39.5463	13.0486	3.7007	0.0000
01Jan2000	20:10	39.5948	13.3211	3.7547	0.0000

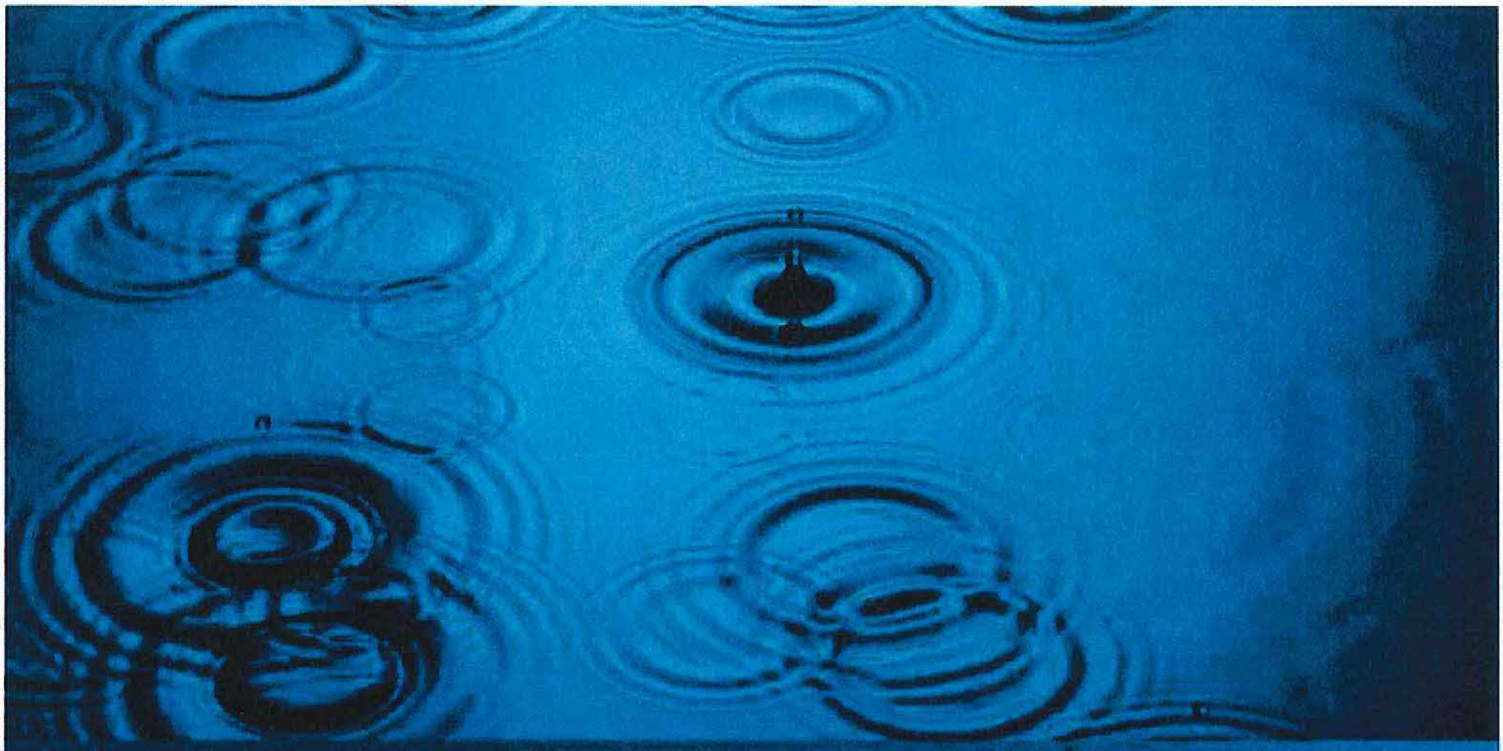
Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	20:15	39.5685	13.5937	3.8087	0.0000
01Jan2000	20:20	39.4591	13.8659	3.8627	0.0000
01Jan2000	20:25	39.2683	14.1370	3.9164	0.0000
01Jan2000	20:30	39.0146	14.4065	3.9698	0.0000
01Jan2000	20:35	38.7164	14.6742	4.0221	0.0000
01Jan2000	20:40	38.3987	14.9398	4.0731	0.0000
01Jan2000	20:45	38.0810	15.2031	4.1237	0.0000
01Jan2000	20:50	37.7705	15.4643	4.1739	0.0000
01Jan2000	20:55	37.4715	15.7234	4.2236	0.0000
01Jan2000	21:00	37.1895	15.9805	4.2730	0.0000
01Jan2000	21:05	37.0973	16.2363	4.3221	0.0000
01Jan2000	21:10	37.4899	16.4932	4.3715	0.0000
01Jan2000	21:15	38.4634	16.7547	4.4217	0.0000
01Jan2000	21:20	40.0498	17.0251	4.4736	0.0000
01Jan2000	21:25	42.2414	17.3084	4.5280	0.0000
01Jan2000	21:30	44.9053	17.5318	4.5709	22.2800
01Jan2000	21:35	47.9204	17.6980	4.6028	22.2800
01Jan2000	21:40	51.0856	17.8855	4.6389	22.2800
01Jan2000	21:45	54.2743	18.0949	4.6791	22.2800
01Jan2000	21:50	57.4838	18.3263	4.7235	22.2800
01Jan2000	21:55	60.6632	18.5797	4.7722	22.2800
01Jan2000	22:00	63.6877	18.8544	4.8249	22.2800
01Jan2000	22:05	66.3944	19.1489	4.8815	22.2800
01Jan2000	22:10	68.5836	19.4603	4.9413	22.2800
01Jan2000	22:15	70.2149	19.7848	5.0035	22.2800
01Jan2000	22:20	71.2951	19.7944	5.0054	70.4050
01Jan2000	22:25	71.8755	19.8025	5.0069	70.4050
01Jan2000	22:30	72.0735	19.8133	5.0089	70.4050
01Jan2000	22:35	71.9713	19.8245	5.0110	70.4050
01Jan2000	22:40	71.6704	19.8342	5.0129	70.4050
01Jan2000	22:45	71.2633	19.8415	5.0142	70.4050

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
01Jan2000	22:50	70.7867	19.8458	5.0150	70.4050
01Jan2000	22:55	70.2685	19.8466	5.0152	70.4050
01Jan2000	23:00	69.7414	19.8439	5.0147	70.4050
01Jan2000	23:05	69.1179	19.8372	5.0134	70.4050
01Jan2000	23:10	68.2136	19.8252	5.0112	70.4050
01Jan2000	23:15	66.9912	19.8059	5.0075	70.4050
01Jan2000	23:20	65.4608	19.7771	5.0021	70.4050
01Jan2000	23:25	63.6466	19.7368	4.9944	70.4050
01Jan2000	23:30	61.6605	19.6834	4.9841	70.4050
01Jan2000	23:35	59.6357	19.6162	4.9712	70.4050
01Jan2000	23:40	57.7337	19.5355	4.9557	70.4050
01Jan2000	23:45	55.9681	19.4422	4.9378	70.4050
01Jan2000	23:50	54.2059	19.3367	4.9175	70.4050
01Jan2000	23:55	52.3790	19.2188	4.8949	70.4050
02Jan2000	00:00	50.5590	19.0884	4.8699	70.4050
02Jan2000	00:05	48.7306	18.9454	4.8424	70.4050
02Jan2000	00:10	46.7249	18.7892	4.8124	70.4050
02Jan2000	00:15	44.4925	18.6185	4.7796	70.4050
02Jan2000	00:20	42.0370	18.4316	4.7437	70.4050
02Jan2000	00:25	39.3452	18.2269	4.7044	70.4050
02Jan2000	00:30	36.4893	18.0032	4.6614	70.4050
02Jan2000	00:35	33.5638	17.7595	4.6147	70.4050
02Jan2000	00:40	30.7078	17.4960	4.5640	70.4050
02Jan2000	00:45	28.0057	17.2133	4.5097	70.4050
02Jan2000	00:50	25.4662	16.9125	4.4520	70.4050
02Jan2000	00:55	23.0983	16.5949	4.3910	70.4050
02Jan2000	01:00	20.8900	16.2614	4.3270	70.4050
02Jan2000	01:05	18.8544	15.9134	4.2601	70.4050
02Jan2000	01:10	16.9960	15.5520	4.1907	70.4050
02Jan2000	01:15	15.3138	15.1784	4.1189	70.4050
02Jan2000	01:20	13.8213	14.7938	4.0451	70.4050

Date	Time	Inflow (CFS)	Storage (AC-FT)	Elevation (FT)	Outflow (CFS)
02Jan2000	01:25	12.4918	14.3995	3.9684	70.4050
02Jan2000	01:30	11.3038	13.9966	3.8886	70.4050
02Jan2000	01:35	10.2354	13.5859	3.8072	70.4050
02Jan2000	01:40	9.2721	13.1682	3.7244	70.4050
02Jan2000	01:45	8.4005	12.7441	3.6404	70.4050
02Jan2000	01:50	7.6177	12.3144	3.5553	70.4050
02Jan2000	01:55	6.9119	11.8796	3.4691	70.4050
02Jan2000	02:00	6.2879	11.4401	3.3820	70.4050
02Jan2000	02:05	5.7267	10.9966	3.2942	70.4050
02Jan2000	02:10	5.2247	10.5495	3.2056	70.4050
02Jan2000	02:15	4.7800	10.0990	3.1163	70.4050
02Jan2000	02:20	4.3844	9.6457	3.0265	70.4050
02Jan2000	02:25	4.0374	9.3110	2.9580	0.0000
02Jan2000	02:30	3.7268	9.3378	2.9636	0.0000
02Jan2000	02:35	3.4527	9.3625	2.9688	0.0000
02Jan2000	02:40	3.2077	9.3854	2.9736	0.0000
02Jan2000	02:45	2.9882	9.4068	2.9780	0.0000
02Jan2000	02:50	2.7930	9.4267	2.9822	0.0000
02Jan2000	02:55	2.6168	9.4453	2.9861	0.0000
02Jan2000	03:00	2.4574	9.4628	2.9897	0.0000
02Jan2000	03:05	2.3135	9.4792	2.9931	0.0000
02Jan2000	03:10	2.1787	9.4947	2.9964	0.0000
02Jan2000	03:15	2.0489	9.5092	2.9994	0.0000
02Jan2000	03:20	1.9235	9.5229	3.0022	0.0000
02Jan2000	03:25	1.8010	9.5357	3.0047	0.0000
02Jan2000	03:30	1.6855	9.5477	3.0071	0.0000
02Jan2000	03:35	1.5754	9.5590	3.0093	0.0000
02Jan2000	03:40	1.4749	9.5695	3.0114	0.0000
02Jan2000	03:45	1.3814	9.5793	3.0133	0.0000
02Jan2000	03:50	1.2947	9.5885	3.0152	0.0000
02Jan2000	03:55	1.2159	9.5972	3.0169	0.0000

APPENDIX H

Stormwater Collection and Treatment Examples

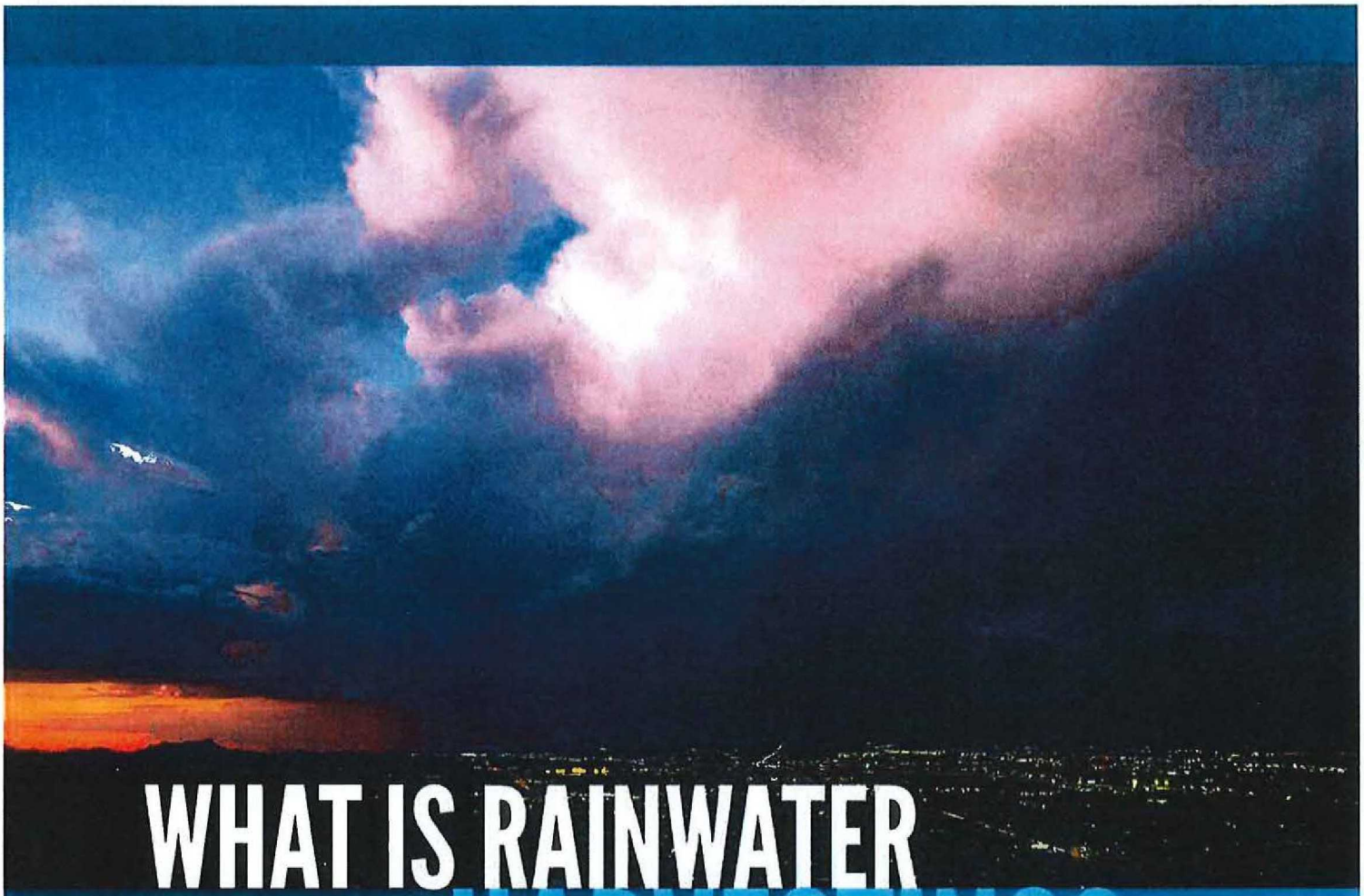


BRAE™ | RAINWATER HARVESTING

Complete Solutions for RAINWATER HARVESTING





WHAT IS RAINWATER HARVESTING?

Rainwater harvesting is just what it sounds like: The process of capturing rainwater to supplement the non-potable water needs of businesses, institutions, industrial facilities, and agriculture.

Although the idea of capturing rainwater for secondary use has been around for thousands of years, today it offers building owners, architects, and design engineers a number of important benefits.

Implementing a rainwater harvesting system in your next project can help supplement existing stormwater management plans and ensure adequate water for operations. By reducing dependence on municipal water supplies a rainwater harvesting system can help lower water bills. Adding a rainwater harvesting system to your specifications for energy-efficient plumbing and water-saving equipment can also help your project achieve LEED certification and serve as an important cornerstone in a corporate sustainability strategy.

Typical rainwater uses

- Irrigating landscapes
- Commercial process water
- Cooling tower make-up
- Flushing toilets
- Laundry systems
- Onsite water storage for fire suppression
- Agricultural process water
- Public fountains
- Washing vehicles
- Custodial services
- Ice rinks
- Chiller make-up supply

Case Study: Rainwater Harvesting Systems in Action

Border Patrol facility captures rainwater for flushing toilets and irrigating plantings

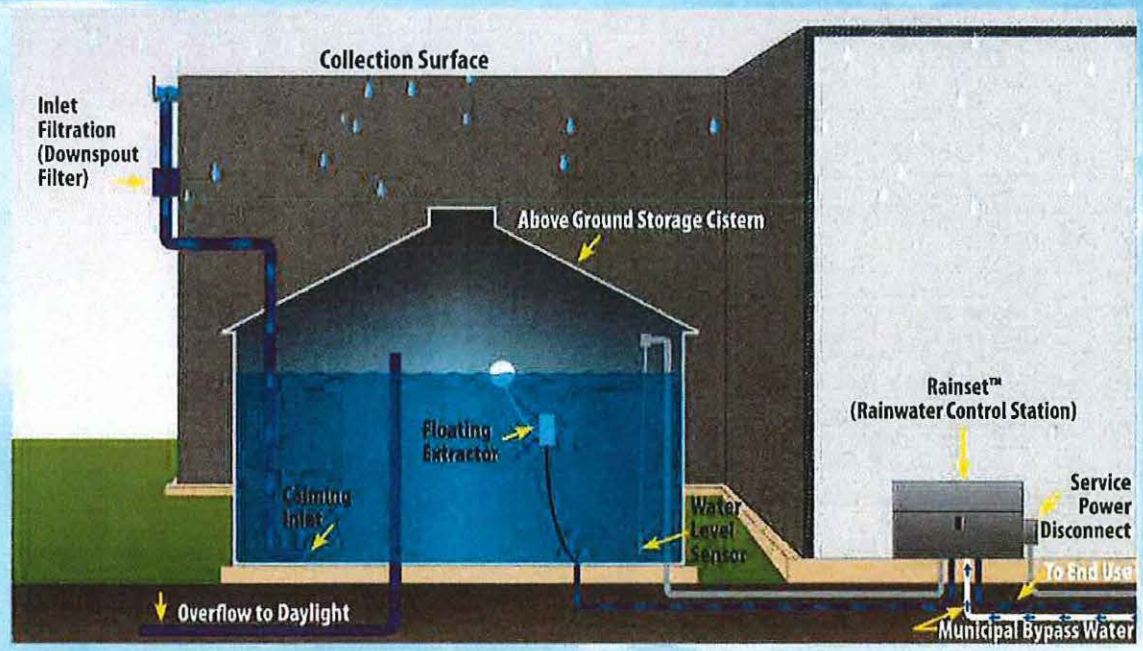


Every drop of water counts in the Chihuahuan desert, which straddles the U.S.-Mexico border. So when the Naco, Arizona Border Patrol designed its new $40 million, 58,000 sq. ft. facility, sustainability was a key design criterion. The solution: A BRAE rainwater harvesting system with three main components: Inlet filtration (rainwater capture), storage tanks, and a Rainset™ for pumping & treatment. The system's rainwater capture equipment is buried just below grade (and accessed via a manhole cover), and rainwater is stored in two underground 25,000-gallon fiberglass tanks. The system's Rainset™, found in the mechanical room, serves as the control station, the treatment station, and the pressure booster pack all in one; the skid containing the Rainset™ also includes monitoring, pumping, and cleaning controls. The NACO Border Patrol expects to collect nearly half a million gallons of rainwater each year which it will use for flushing toilets and irrigating outdoor plants.

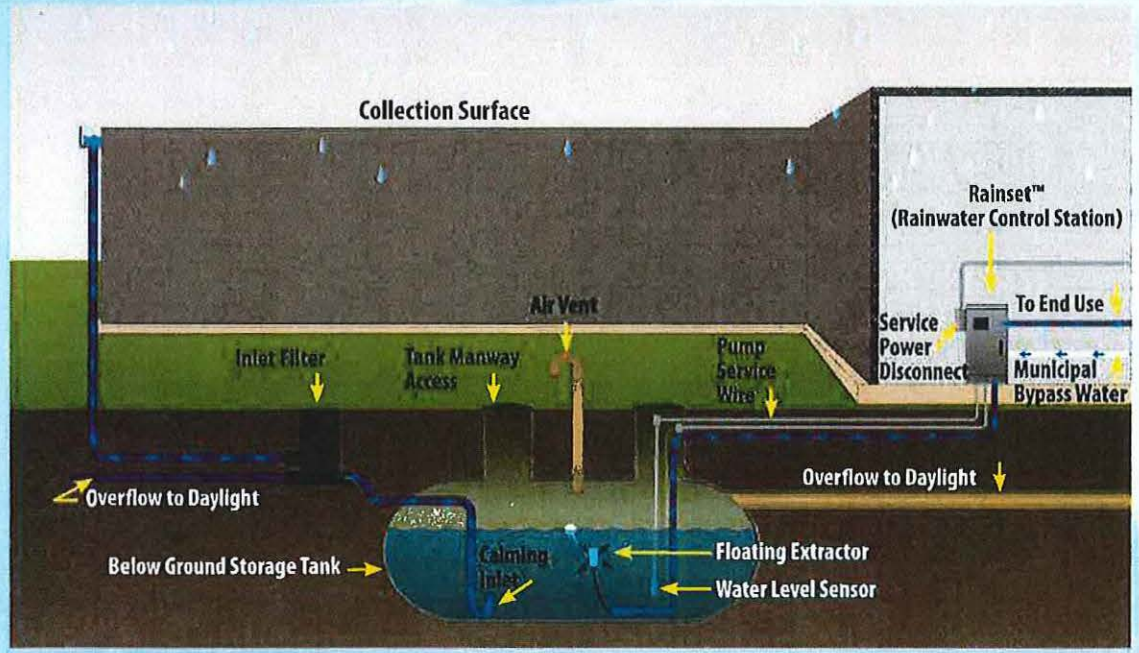
What form do rainwater harvesting systems take?

Rainwater harvesting systems can be very simple: An above ground storage tank attached to a downspout for irrigating landscapes. They can also be complex: A fully-engineered series of storage cisterns with custom data and power supply management delivering water to multiple end uses—including toilets, irrigation, cooling towers, and process water—while at the same time supporting a site's stormwater management objectives.

BRAE Typical Above Ground System



BRAE Typical Below Ground System



How do rainwater harvesting systems work?

All rainwater harvesting systems must do three things: Capture rainwater, store rainwater, and pump & treat rainwater.



Step one: Capture rainwater

Rainwater is captured off rooftops and other surfaces, then sent through an inlet filtration device designed to remove debris before storage in a tank. Inlet filters can be located in a variety of locations depending on site constraints.

BRAE's line of inlet filtration products can be used for a diverse range of projects, regardless of size or scope. The line includes:

- Commercial rain heads designed to filter out mosquitoes, vermin, and debris
- Commercial downspout filters designed to remove sediment, gravel, and oil and grease from stormwater runoff



Step two: Store rainwater

Collected rainwater is stored in a tank or cistern which can be located above or below ground. Depending on the project's requirements, tanks are available in a variety of materials, with plastic (polyethylene), fiberglass, or galvanized steel the most common.

BRAE's storage tank & cistern product line includes a range of solutions for above and below ground rainwater storage. The line includes:

- Above and below ground high density polyethylene (HDPE) tanks offering superior corrosion resistance and a wide range of storage capacities
- Below ground fiberglass tanks designed to meet AWWA D120, NFPA 22, NSF 61, and IAPMO standards
- Above ground galvanized steel cisterns with capacities up to 600,000 gallons/tank



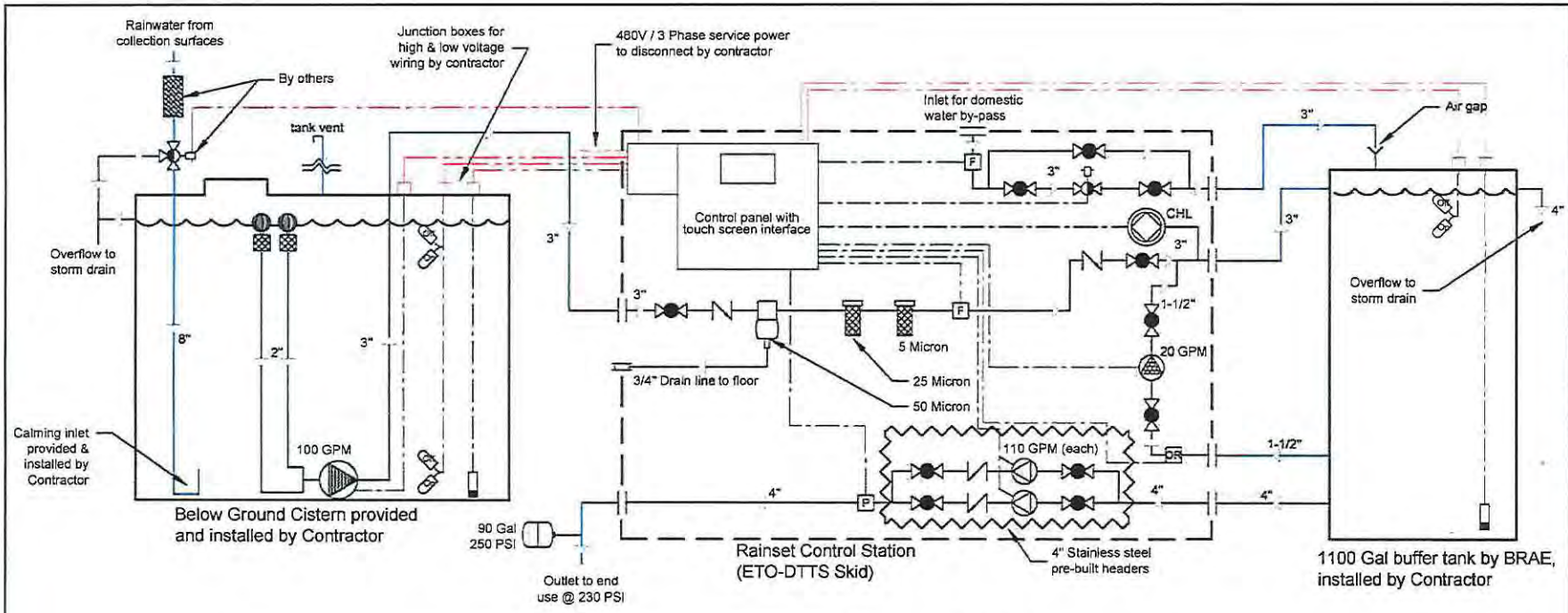
Step three: Pump & treat rainwater

All rainwater harvesting systems require a rainwater control station to manage the system as well as treat and pump water. Water is distributed from the storage tank via pumps. Many applications also require filtering the water before pumping in order to safeguard non-potable water quality.

BRAE refers to rainwater control stations as Rainsets™, and ours are designed to manage pressurized pumping for water distribution, filter/disinfect rainwater for non-potable use, and manage power supplies/connections to ensure continuous operation. The BRAE Rainset™ line includes:

- Compact Rainsets™ offering an economical and space-saving design
- Compact Rainsets™ with integrated constant pressure pump controls
- Modular Rainsets™ designed for indoor installations with limited mechanical room space
- Custom skid-mounted systems





SYMBOLS LEGEND

P	Pressure Sensor		Check Valve
F	Flow Sensor		Pressure Relief Valve
DR	Oxygen Reduction Sensor		Inlet Pre-Filter
	Level Sensor		Ball Valve
	Floating Extractor		Flange Connection
	Vertical Centrifugal Pump		Union Connection
	Submersible Pump		Manual Cleaning Sediment Strainer
	Recirculation Pump		Bag Filter Housing
NO/NC	Electronically Controlled Solenoid Ball Valve		Hydro-Pneumatic Pressure Tank
	Electronically Controlled 3-way Solenoid Ball Valve	CHL	Chlorine Storage Tank with Injector Kit
	Float Switch		

FIELD NOTES:

1. Contractor is responsible for providing and installing all piping that is outside of Rainset skid.
2. Contractor is responsible for providing and installing all electrical wiring that is outside of Rainset skid.
3. Contractor is responsible for installing the submersible pump, level sensors, floating extractor, and float switches that are provided by BRAE.

PIPING LEGEND

- Type "L" Copper Piping by Brae with direction of water flow
- Perimeter of Rainset Skid
- Piping Installed by Contractor with direction of water flow
- Elec Wiring by Brae
- Elec Wiring Installed by Contractor

340 Fremont
Process Flow Diagram
San Francisco CA

Blue Ridge Atlantic Enterprises (BRAE)
2850 Fairfax Trafficway
Kansas City, KS 66115

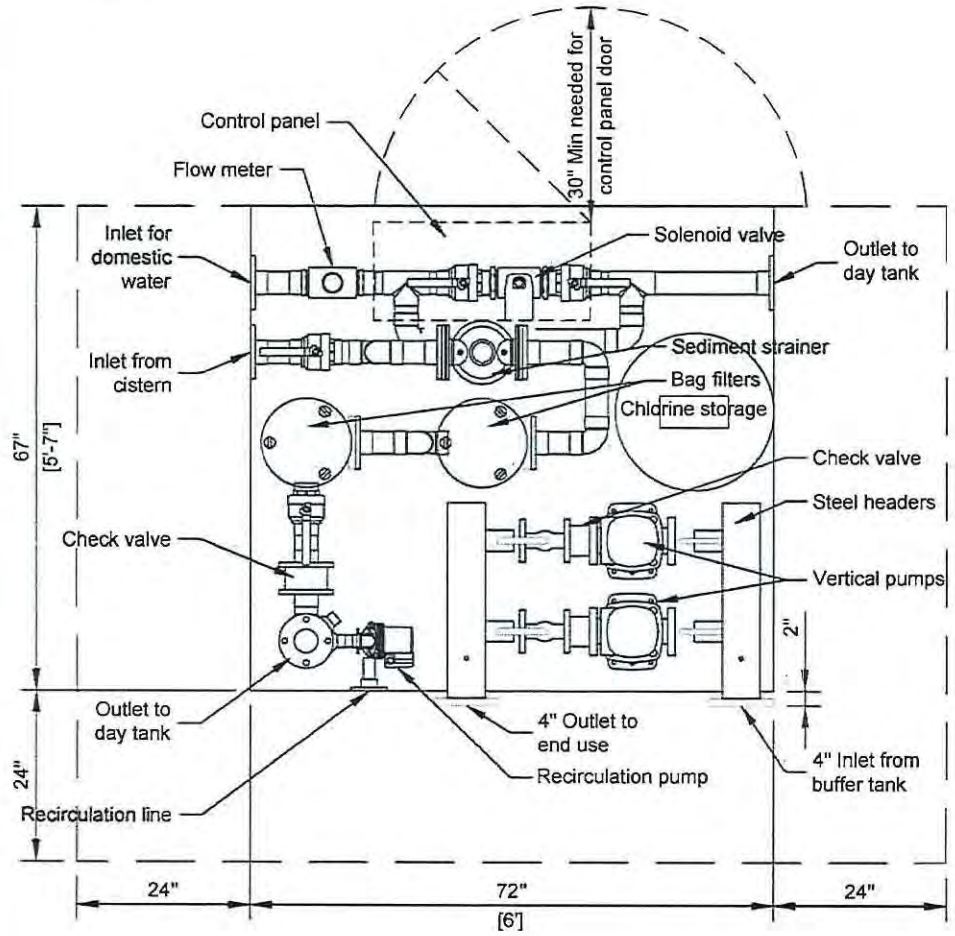
Drawn By: JW
Draw Date: 01/20/14
Approved By: SB
Date Approved: 01/21/14

BRAE™

Revision	Description	Date	Approved
	Updated pump flow and pipe size, added pressure tank & pre-built header	04/01/14	SB

Skid Layout

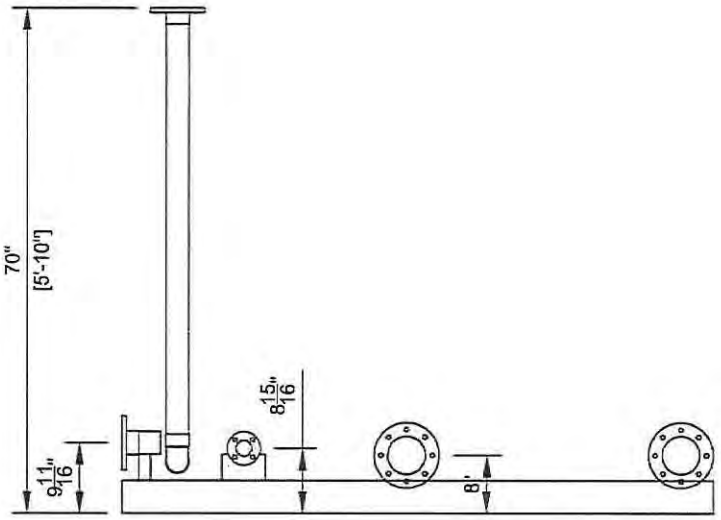
Scale: 3/4" = 1' - 0"



Dimensions are for construction reference only

Flange Dimensions

Scale: 3/4" = 1' - 0"



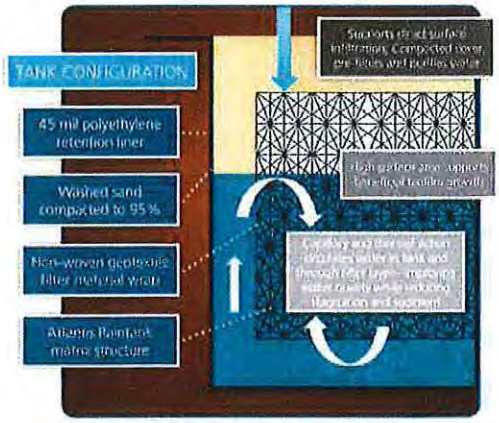
BRAE	ETO-DTTS Skid	JW	01/28/2014
	340 Fremont, San Francisco CA		
	Component & Piping Layout		
			3/4" = 1' - 0"

wahaso
WATER HARVESTING SOLUTIONS

Atlantis Raintank







Atlantis Underground Tank System from Wahaso

The Atlantis Raintank® system is the superior method for storing harvested water for reuse below grade. In addition to being more economical than sealed tanks, it creates a "living system" below the ground that can actually improve the quality of the water being stored.

System Features

- Modular design for highly flexible tank shape and depth.
- Certified to support HS-20 surface loads for installation below parking areas and roadways.
- 95% space-efficient—reduces excavation and fill by 40% or more compared to cylinder and pipe systems.
- Ships flat for low-cost transport and assembles fast without heavy lifting equipment.
- Extra LEED credits available — made with up to 85% recycled polypropylene is manufactured and sourced in Mid-West U.S.
- Surface water can filter directly into top of tank through planted areas and permeable pavers.
- "Living" system
  - Beneficial micro-organisms in sand layer and bio-film on tank matrix help digest organic material and some pollutants.
  - Capillary and thermal action circulates and oxygenates water-eliminating need for tank sanitation or mechanical recirculation.
- Atlantis invented the modular tank system—don't be fooled by imitations!

Atlantis

Wahaso.com

304 South Lincoln Street | Hinsdale, IL 60521 | **P** 800.580.5350 | **E** info@wahaso.com

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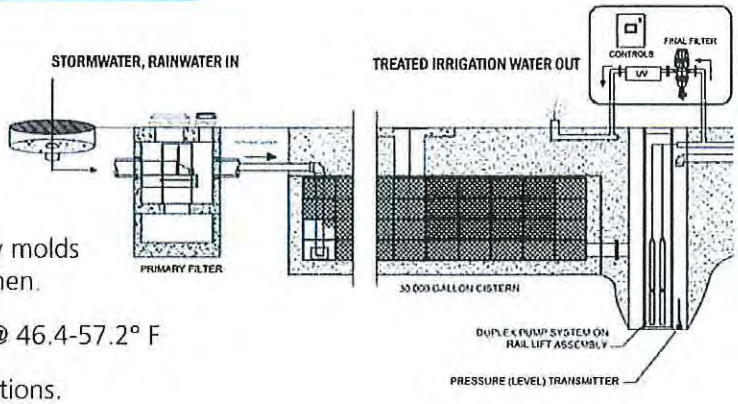
wahaso
WATER HARVESTING SOLUTIONS

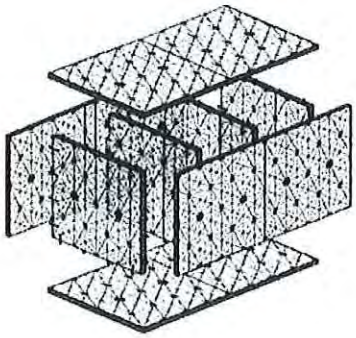
Wahaso Integrates Raintanks into Systems for Sustainable Irrigation and Other Uses

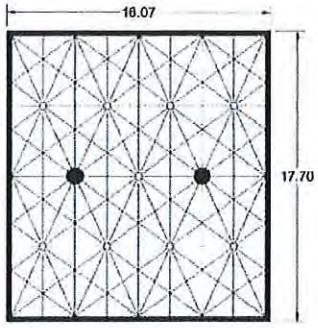
Atlantis

Specifications

- Surface area: 95% void
- Material: 85% recycled polypropylene & 15% proprietary Atlantis materials
- Biological and Chemical Resistance: Unaffected by molds and algae, soil-born chemicals, bacteria and bitumen.
- Ultimate crush load: 34 PSI, Displacement .433" @ 46.4-57.2° F
- Tested and certified by IAPMO and other organizations. Test result documentation available on request.







Module	Width	Length	Height (inches)	Tank Volume (cf)	Water Storage (cf)	Water Storage (gal)	Tank Weight (lbs)
Single (1)	16.06	26.97	17.72	4.44	4.22	31.56	14.0
Double (2)	16.06	26.97	34.65	8.69	8.25	61.72	26.0
Triple (3)	16.06	26.97	51.57	12.93	12.28	91.88	38.0
Quad (4)	16.06	26.97	68.50	17.17	16.31	122.03	50.0
Penta (5)	16.06	26.97	85.43	21.42	20.35	152.19	62.0

Technical Notes:
1 To support stated surface loads, tanks must be properly installed with 95% compacted sand below tanks and around sides and top Minimum top cover 500-700 mm (20-28") required Standard 4-plate matrix supports loads to HS-20; an additional fifth plate can be added to increase the structural strength of the system for heavier loads See Installation Guidelines for all requirements It is the responsibility of the customer to have a qualified engineer calculate and review loads and safety factors to suit each specific project 2 For proper operation, water entering tank must be pre-screened to remove particulates greater than 350 microns in size Failure to properly pre-filter water can result in sediment build up and anaerobic bacteria contamination 3 Atlantis® Matrix™ tank modules are manufactured using recycled products Atlantis recommends a structural capacity incorporating a minimum safety factor of 2 to allow for variation in recycled plastic batches Engineering support is available through Wahaso and Atlantis

Manufactured by Atlantis Water Management, 3/19-21 Gibbes Street, Chatswood, NSW 2067 Australia U S Manufacturing facility is located in Victor, IA Wahaso is an authorized reseller of Atlantis products

Disclaimer: All information provided in this publication is correct to the best knowledge of the company and is given out in good faith This information is intended only as a general guide, no responsibility can be accepted for any errors, omissions or incorrect assumption as each project is unique, and as Rebirth Pty Ltd, Atlantis Water Management and Atlantis Corporation Pty Ltd have no control over the final design and no control over the methods employed by the user in specifying, installing or supervising of its products, hence no responsibility is accepted by Wahaso ' Water Harvesting Solutions, Inc , Rebirth Pty Ltd, Atlantis Water Management, Atlantis Corporation Pty Ltd Users should satisfy themselves as to the suitability of the product for their purpose All product designs, and specification are subject to change without further notice All Atlantis' products are tested in approved NATA laboratories, and safe allowed tolerances should be practiced in the actual field to compensate for any unforeseen situations, on site and on products

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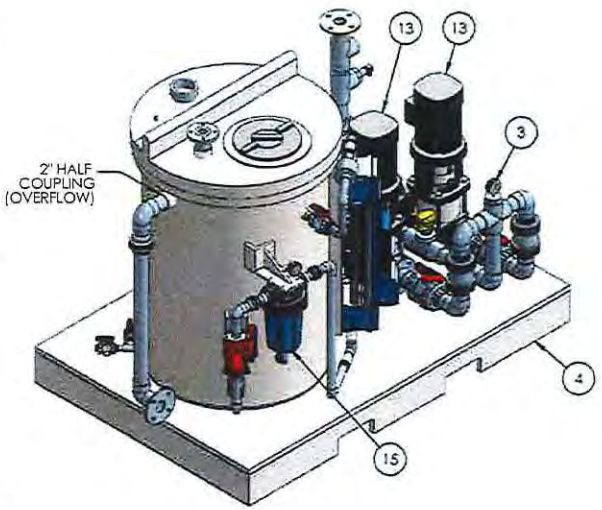
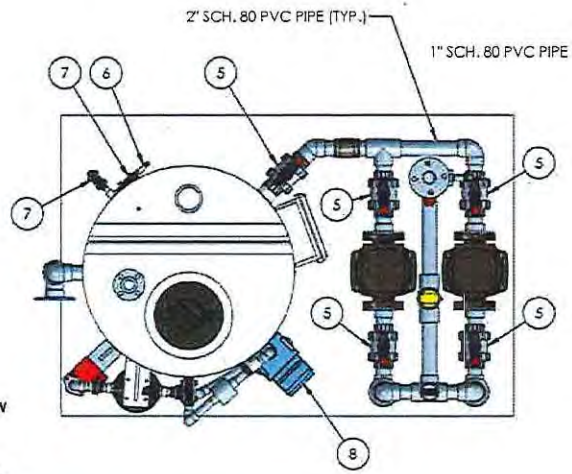
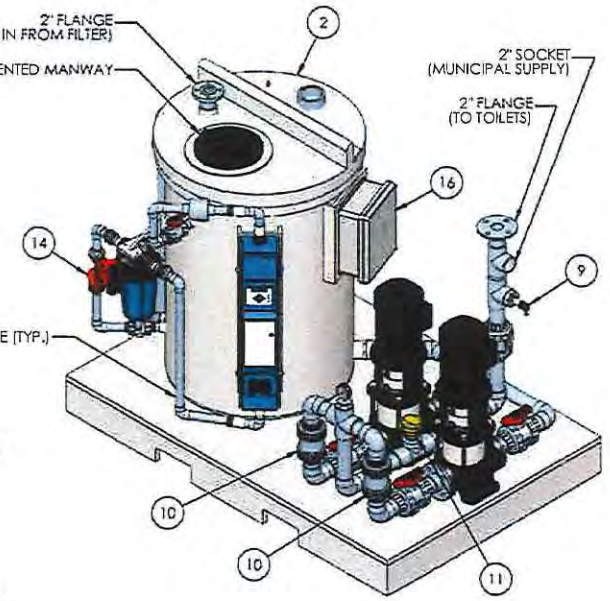
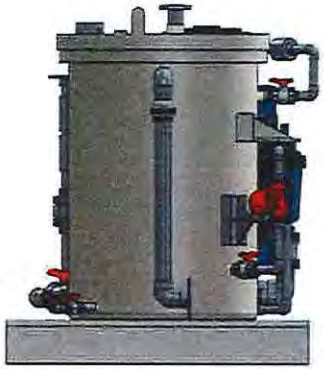
ITEM NO.	DESCRIPTION
1	FLOW CONTROL VALVE, 10 GPM
2	120 GALLON HDPE TANK
3	PRESSURE GAUGE
4	PLATFORM - PP
5	2" BALL VALVE
6	LEVEL TRANSMITTER
7	1/2" BALL VALVE
8	UV STERILIZER, 10 GPM, SELF-CLEANING
9	PRESSURE TRANSMITTER
10	2" CHECK VALVE
11	PADDLEWHEEL FLOWMETER
12	1" BALL VALVE
13	PUMP, 7.5 HP, 90 GPM @ 65 PSI
14	PUMP, RECIRCULATION - 1/6 HP, 25 GPM @ 10 PSI
15	BAG FILTER WITH 1" CONNECTIONS, 10 MICRON BAG
16	ELECTRICAL ENCLOSURE



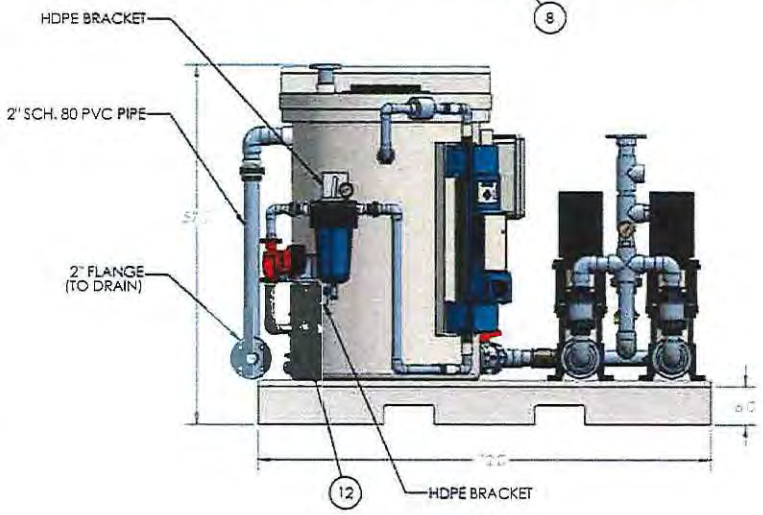


TOP VIEW

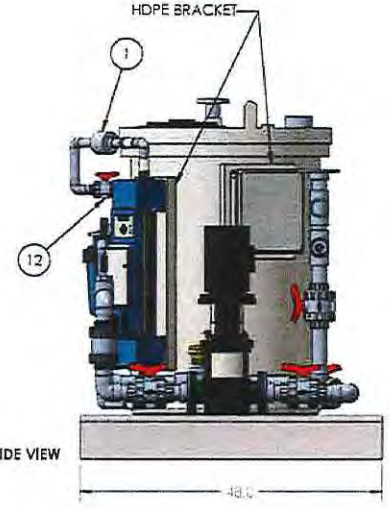




LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW

REV	DATE	DESCRIPTION
A	03/27/12	PRELIMINARY DESIGN

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UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
FRACTIONALS
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±
INTERPRET GEOMETRIC TOLERANCING PER:
MATERIAL
FINISH
DO NOT SCALE DRAWING

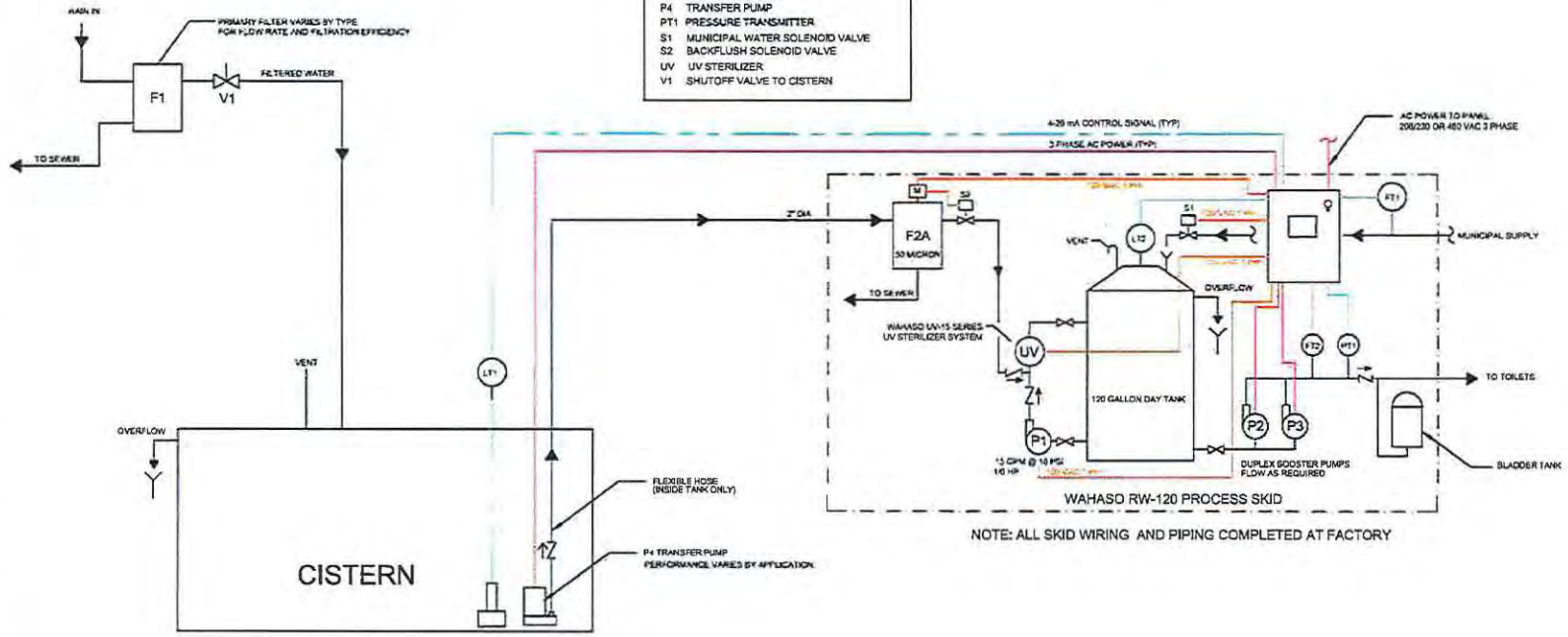
NAME DATE
DRAWN DKE 03/27/12
CHECKED
ENG APPR.
MFG APPR.
Q.A.

WATER SOLUTIONS

TITLE:
TANK AND BOOSTER PUMP SKID

SIZE C | DWG. NO. W00100 | REV A
SCALE: 1:14 WEIGHT: SHEET 1 OF 1

F1 PRELIMINARY FILTER
F2A FINAL FILTER 50 MICRON - AUTOMATIC
LT1 LEVEL TRANSMITTER - CISTERN
LT2 LEVEL TRANSMITTER - DAY TANK
FT1 DOMESTIC WATER FLOW TRANSMITTER
FT2 BUILDING FLOW TRANSMITTER
P1 RECIRCULATION PUMP 15 GPM @ 10 PSI
P2 BOOSTER PUMP #1
P3 BOOSTER PUMP #2
P4 TRANSFER PUMP
PT1 PRESSURE TRANSMITTER
S1 MUNICIPAL WATER SOLENOID VALVE
S2 BACKFLUSH SOLENOID VALVE
UV UV STERILIZER
V1 SHUTOFF VALVE TO CISTERN



NOTE: ALL SKID WIRING AND PIPING COMPLETED AT FACTORY

DATE: 6/8/2013	SCALE: NONE	BY: SLB	CHECKED:			
wahaso	RW 120 RAINWATER HARVEST FLOW SCHEMATIC					
	120 GALLON SYSTEM			REV	DATE	DESCRIPTION

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COLUMBIA GREEN TECHNOLOGIES

INNOVATIVE GREEN ROOF TECHNOLOGY



Columbia Green Technologies endeavors to provide the most appropriate green roof for your project, rather than a one-size-fits-all approach. Each comprehensive green roof solution has been engineered to meet the unique challenges of the rooftop growing environment.



Green roofs, also known as eco-roofs or vegetative roofs, are increasingly common. There are many environmental and economic benefits to the implementation of green roofs that contribute to the rapid industry growth. The plantings provide elements of design to an otherwise un-used space and the plant material improves air quality by sequestering air-borne particulates and pollutants. The green roof can reduce the temperature of the surrounding ambient air, thereby reducing the heat island effect. The green roof protects the roof membrane, increasing its useful life. Perhaps most importantly, green roofs can reduce both the amount and rate of stormwater run-off, making them a real asset to cities struggling with aging storm and sewer infrastructure.

Summary of the benefits of a green roof

- Reduce the amount of stormwater runoff and also delay the time at which runoff occurs. In summer, depending on the plants and depth of growing medium, green roofs retain up to 70% of the precipitation that falls on them; in winter they retain between 25-40%. Green roofs can sustain a variety of plants and invertebrates, and provide a habitat for various bird species.
- 2x-3x Prolonged life of roof membrane
- Provide year-round energy savings; the thermal blanket saves energy and costs for both heating and cooling – as many as fourteen Leadership in Energy & Environmental Design (LEED) credits
- Aesthetics; Attractive Amenity Spaces and Increased Property Values, Occupancy Rates

WHY COLUMBIA GREEN?

Columbia Green Technologies has a long history of innovation in the industry; our products are engineered specifically for the unique requirements of a roof environment, taking everything from wind uplift to irrigation into consideration. We offer comprehensive green roof solutions for a variety of situations: extensive, semi-intensive and intensive roof gardens. Designers appreciate the flexibility to use trays or layered assemblies, as the project requirements dictate. Building owners love the single source 'Roof to Green Roof' warranty options provided through our roofing partners.

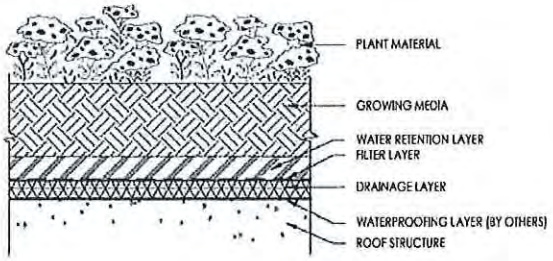
FM APPROVED **Declare.**





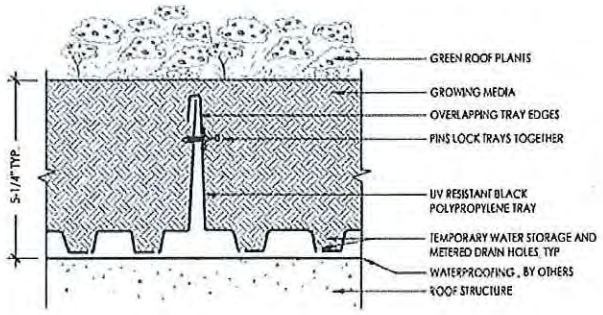
LAYERED ASSEMBLY

- Layered systems are built-in-place systems that are consist of following components
  - » Growing Media
  - » Retention Layer, which provides supplemental moisture retention for plant available water, high porosity for root aeration, and anchorage for plant root. Available in .5-inch or 1-inch thicknesses.
  - » Filter Layer, which prevents gravitational erosion of the growing media.
  - » Drainage Layer for preventing ponding and moving excess water across the roof surface to the nearest drain. Available in .40-inch, .75-inch, or 1.5-inch increments.
  - » Edger for perimeter stability
- Layered systems are most compatible with curvilinear or organically shaped roof layouts.
- Layered systems offer maximum soil depth flexibility. We recommend anywhere from 3-inches to 24-inches+ of media depth.



TRAY SYSTEMS: PRE-GROWN AND PLANTED-IN-PLACE

- Our patented interlocking and overlapping tray system was designed by landscape architects, stormwater engineers, horticulturists and roofing experts specifically for the unique challenges of the rooftop environment- just fill it with growing media and plants. Each of the individual functions found in the layered assembly is inherent to the tray, thus eliminating the need for separate drainage mats, root barriers, filter fabric, etc.
- Can be pre-grown as well as planted at the job site.
- Maximum stormwater retention capability.
- Easily installed.
- Integrated drip irrigation available.
- Optimal growing environment for plants.



PLANTING OPTIONS



Custom matched and most often regionally-sourced to meet each project's design and installation parameters. Plants are available in un-rooting sedum cuttings, plugs, pre-grown sedum tiles (15"x20") and pre-grown sedum mats (4'x 6'). Media depth permitting, we can also source regionally appropriate accent plants such as bulbs, grasses, perennials and shrubs.

ROOFING PARTNERS

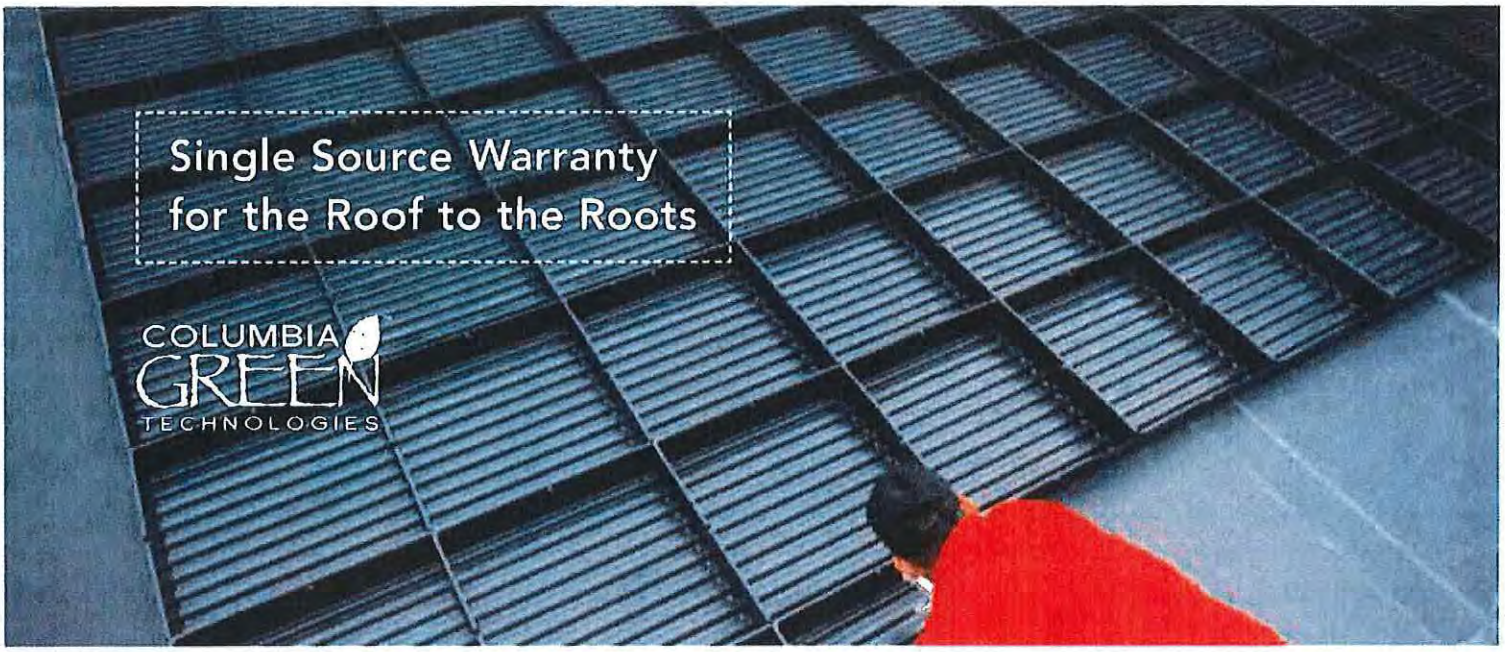
Our roofing membrane partnerships allow us to offer single-source warranties on our assemblies. We partner with leading manufacturers of roofing materials to offer a complete solution for every type of roof construction. Regardless of your region, roof type or price point, we can find a solution for you. Our roofing partners are listed to the right.

Partner	Available Membranes
Fiberlite Green	PVC
Henry	Hot Rubber
BAKOR	Mod Bit, SBS
Malarkey Roofing Products	Mod Bit, SBS
DERBIGUM MAKING BUILDINGS SMART	Mod Bit, SBS
KEMPER SYSTEM	Cold Applied

ABOUT COLUMBIA GREEN TECHNOLOGIES

Columbia Green is a green roof development company whose core technologies are based in vegetative roofs and sustainable functions that help manage the quality/quantity of storm water, energy use, and air/water pollution. Cities across the world are using vegetative roofs to manage these environmental issues. Columbia Green is a USA manufacturer — delivering product through both domestic and international channels to meet these needs.

Contact:
79 SE Taylor, Suite 201 | Portland, OR 97214
503 327 8723 | info@columbia-green.com
www.columbia-green.com



COLUMBIA GREEN TECHNOLOGIES

TECHNICAL INFORMATION SHEET

Pre-Grown Tray System

(Patented: 7,603,808)

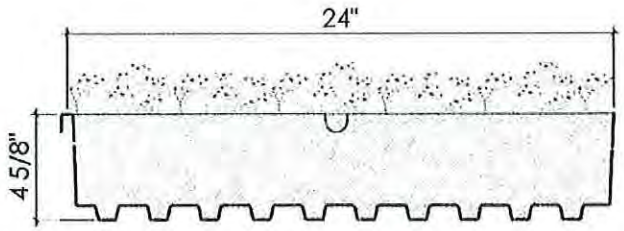
Product NUMBER: TR1000



Description:

The pre-grown tray provides a turnkey solution that meets or exceeds all guidelines for Green Roofs. The trays are easy to install, and feature interlocking edges which prevent shifting or migration of growing media onto the roof membrane. At 24" x 24" x 4.625" deep, the pre-grown tray is appropriate for extensive and semi-intensive vegetative roof profiles. The modules are pre-grown with plants (most commonly sedum) selected by the project designer and shipped to the job site with approximately 90%+ vegetation coverage.

Comprised of a heavy duty recycled polypropylene, the Columbia Green Technologies' Tray system is designed with a channelized bottom to maximize stormwater retention. It can reduce both the amount and rate of stormwater run-off and is capable of retaining up to 70% of annual precipitation. Detailed stormwater retention calculations and hydrographs are available upon request.



Planting Options:

- Plants are grown per the project specifications, provided they are appropriate for the local climate zone and sufficient lead time has been provided. Please contact Columbia Green Technologies for more information.

LEED Information:

- Post-Consumer Recycled Content: 88%
- Manufacturing Location: Washougal, WA 98671

FM Fire Rating:

FM APPROVED

FM is a third party, objective testing program to certify that building products and services meet rigorous loss prevention standards. These standards are particularly important within the roofing industry. We are pleased to offer FM approval for our Tray system under Approval Standard 4470.

Declare Label for Materials Transparency:

Declare.

The Declare Label is a voluntary disclosure of building material ingredients which offers Living Building Challenge and other project teams concerned about building product ingredients a guide for product specification. We are pleased to announce that our tray system is 'Red List Free' which means it doesn't contain "worst in class" materials, chemicals, and elements known to pose serious risks to human health and the greater ecosystem. www.declareproducts.com

Wind Uplift:

- *ANSI/SPRI RP-14 Wind Design Standard for Vegetative Roof Systems* is the only Wind Uplift standard for the United States.
- Due to the interlocking design, The Planted-In-Place Tray is considered a #2 Ballast system (Increased wind uplift resistance).
- Please request a copy of our ANSI/SPRI RP-14 User Guide.

COLUMBIA GREEN TECHNOLOGIES

TECHNICAL INFORMATION SHEET

System Weight:

System Depth	Dry Weight	Saturated Weight	Typical Field Weights
4.625" Media Depth	14 lbs./ft²	27 lbs./ft²	20 lbs./ft²

** System weights vary by region due to variances in growing media weight contact your local representative for more information.*

Packaging/Component Size:

Empty Tray:	
Thickness:	100 MIL.
Dimension:	24"W. x 24"L. X 4.625"
Coverage:	4 ft²
Weight:	3.6lbs.
Packaging:	Stacked – 400 trays/pallet
Pre-Vegetated Tray:	
Typical Weight for Handling Purposes Only:	+/- 80lbs each

Installation:

1. Prior to installation it is the Project Representative's responsibility to determine whether the structure is adequately reinforced to withstand the added weight of a fully saturated vegetative tray. This decision should be completed with the aid of a registered structural engineer.
2. Perform tray installation only after a representative from the roofing membrane manufacturer has inspected the membrane and found it to be in accordance with the membrane manufacture's Specifications.
3. Place the vegetative trays directly on the roofing membrane or protective layer as determined by the membrane manufacture.
4. Using the interlocking sides, overlap the vegetative trays.
5. Secure the trays to each other using the removable pin fastener.
6. After all trays have been installed sufficiently irrigate plant material to ensure growth.

Storage:

- Immediately move plants out of direct sun to a cool location and remove cellophane wrapping.
- Trays may be left unstacked for a maximum of 12-hours, provided they are kept in the shade.
- Water 2-3 times/week until the trays are installed on the roof.
- Store away from sources of ignition and extremely high temperatures.

Precautions:

- Confirm with a certified Structural Engineer that the structure can support the saturated weight of the vegetative roof system.
- To facilitate drainage a minimum roof slope of 1/8" in 12" min. must be provided.
- Typical installation of Vegetative Roofing Trays is between April 1 and November 1. It is advised that system components not be installed when the weather is below 45 ºF (7.2 ºC) or above 95 ºF (35 ºC).
- Do not drag modules into position.
- Use caution when lifting trays.
- Check roof drains regularly to ensure there are no obstructions to impede water flow.
- Wash exposed skin prior to eating, drinking or smoking and at the end of each shift.
- Wear impermeable protective clothing, eye wear and self-contained breathing apparatus when cutting trays.

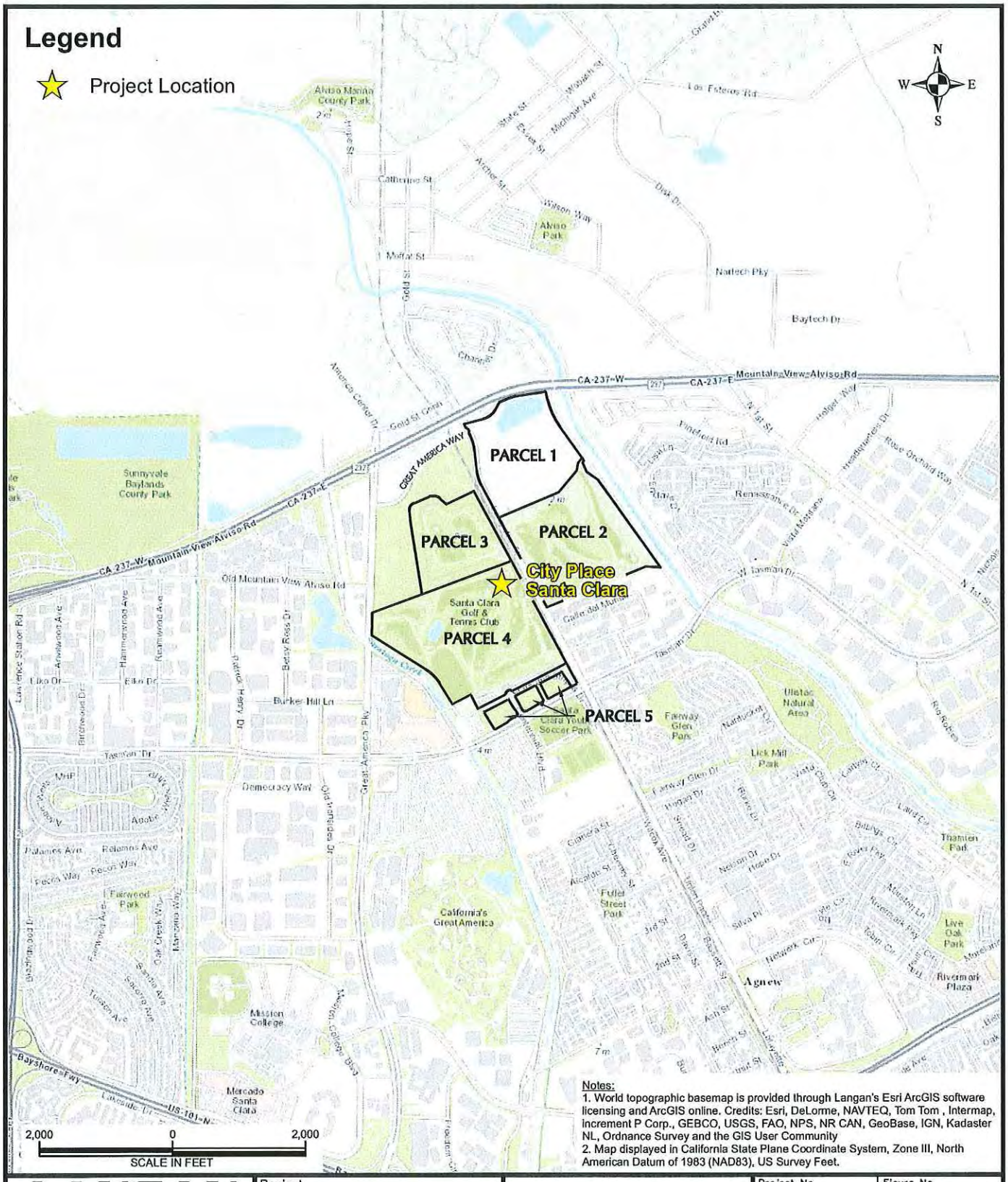
DOMESTIC WATER PHASING MATRIX											
								Booster Pumps			
Phase / Parcel	Gross Sq. Footage	Water Main (16-inch) (LF)	Laterals (8-inch) (LF)	Settlement Vault (#)	Water Meter (#)	Back Flow Preventer (#)	FD Connection (#)	Infrastructure (#)	Building (#)	Fire Hydrant (#)	Off-Site
1 / 5	825,000	5,860	505	-	4	4	4	-	4	3	See Note 1
2 / 4	2,411,470	2,900	3,645	10	23	23	23	-	23	8	-
3 / 4	752,030	1,330	2,775	6	14	14	14	-	14	3	-
4 / 4	1,095,900	240	650	4	4	4	4	-	4	3	See Note 2
5 / 3	750,000	4,076	610	5	5	5	5	1	5	3	-
6 / 1	1,200,000	5,445	1,585	8	8	8	8	1	8	10	-
7 / 2	1,080,000	5,052	1,075	6	6	6	6	1	6	9	
8 / 2	1,080,000	1,800	400	6	6	6	6	-	6	3	-

Notes:

1. Approximately 1,500 LF of existing water mains along Stars and Stripes Dive and Centennial Boulevard need to be raised or replaced based on the amount of fill needed. Existing domestic mains may be required to be upsized on sections of Great America Parkway. Lafayette Street, Calle de Luna, and Calle del Mundo, see attached exhibit.
2. Possible improvements required on an existing abandoned 12-inch main connecting to Great America Parkway.

RECYCLED WATER PHASING MATRIX					
Phase / Parcel	Gross Sq. Footage	Recycled Water Main (12-inch) (LF)	Laterals (8-inch) (LF)	Settlement Vaults (#)	Water Meters (#)
1 / 5	825,000	5,075	221	-	4
2 / 4	2,411,470	1,880	1,548	9	23
3 / 4	752,030	945	1,178	7	14
4 / 4	1,095,900	1,380	160	4	4
5 / 3	750,000	4,318	230	5	5
6 / 1	1,200,000	5,532	490	8	8
7 / 2	1,080,000	4,470	216	6	6
8 / 2	1,080,000	4,556	232	6	6

FIGURES



Notes:
1. World topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online. Credits: Esri, DeLorme, NAVTEQ, Tom Tom , Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NR CAN, GeoBase, IGN, Kadaster NL, Ordnance Survey and the GIS User Community
2. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

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San Jose, CA 95117
T: 408.551.6700 F: 408.551.0344 www.langan.com

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CITY PLACE
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SANTA CLARA CALIFORNIA

SITE LOCATION MAP

Project No. 770611601	Figure No. 1
Date 9/22/2015	
Scale 1" = 2000	
Drawn By STAFF / Checked By DJH	
Submission Date 9/22/2015	

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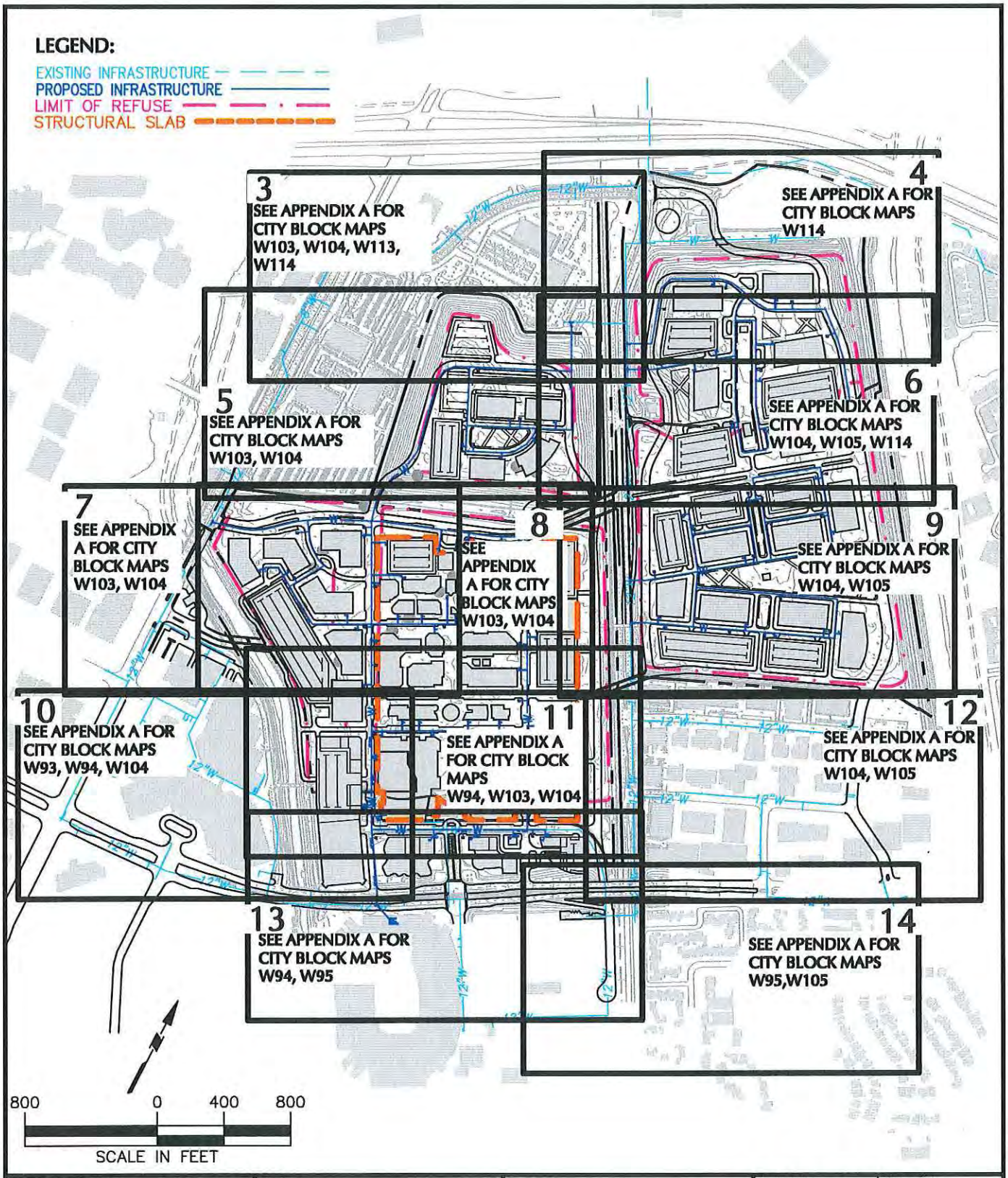

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T: 408.551.6700 F: 408.551.0344 www.langan.com

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PRELIMINARY DOMESTIC WATER KEY

Project No. 770611601	Figure No. 2
Date 9/22/2015	
Scale 1" = 800	
Drawn By STAFF / Checked By DJH	
Submission Date 9/22/2015	

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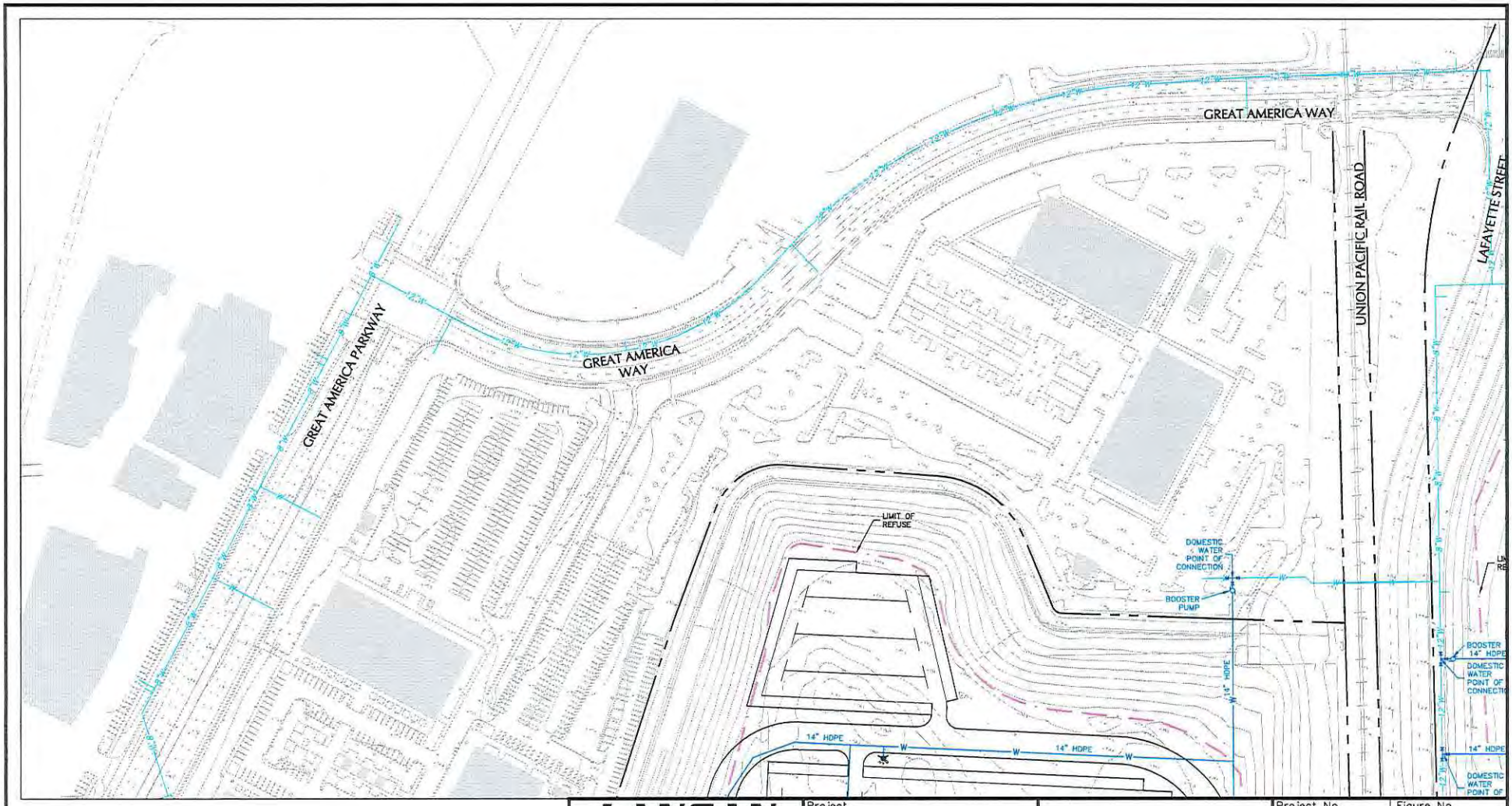

LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W ——XX" HDPE———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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PRELIMINARY DOMESTIC WATER

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Scale	1" = 150'
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Figure No. 3

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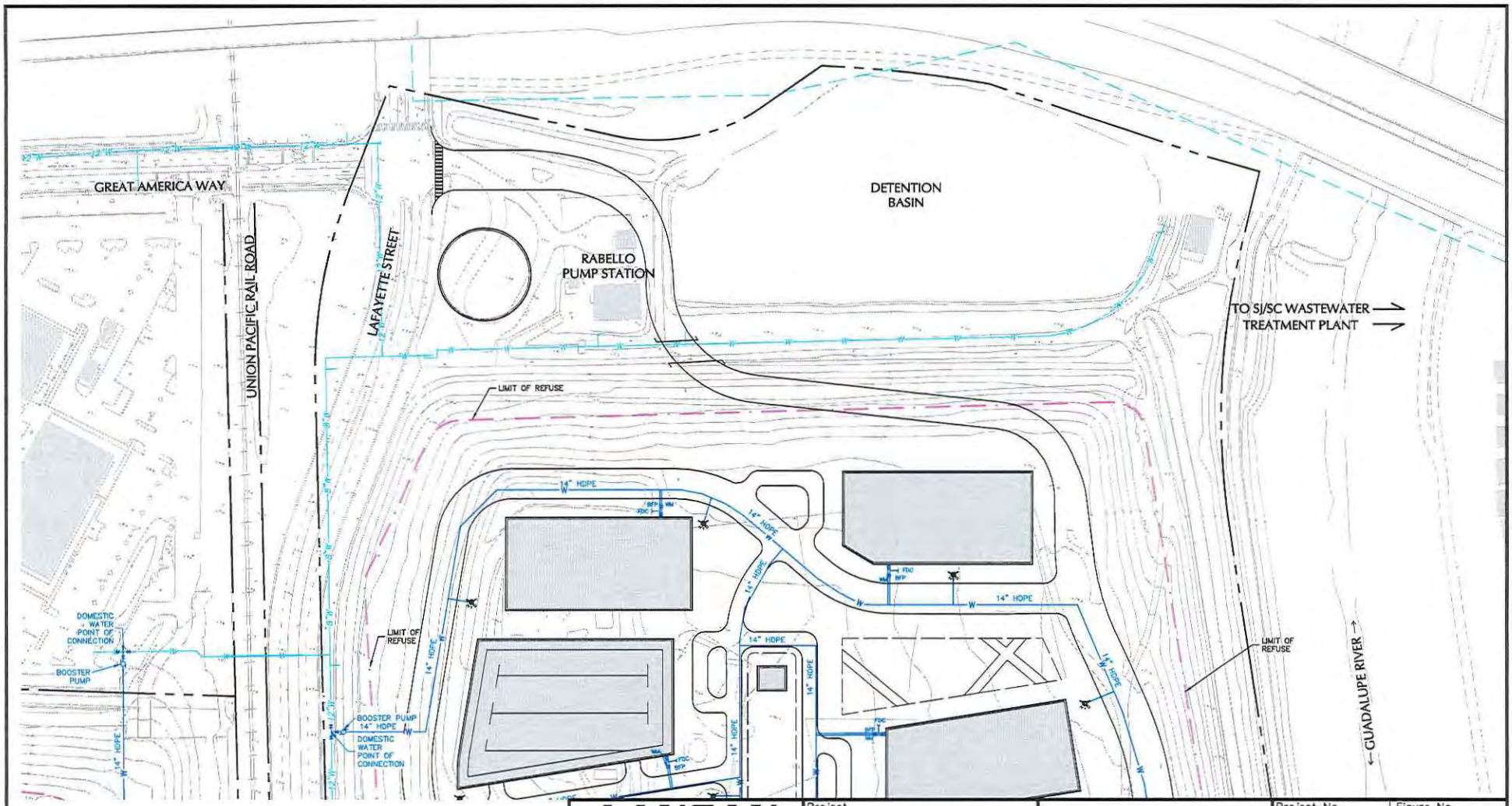

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PRELIMINARY DOMESTIC WATER

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Figure No. 4

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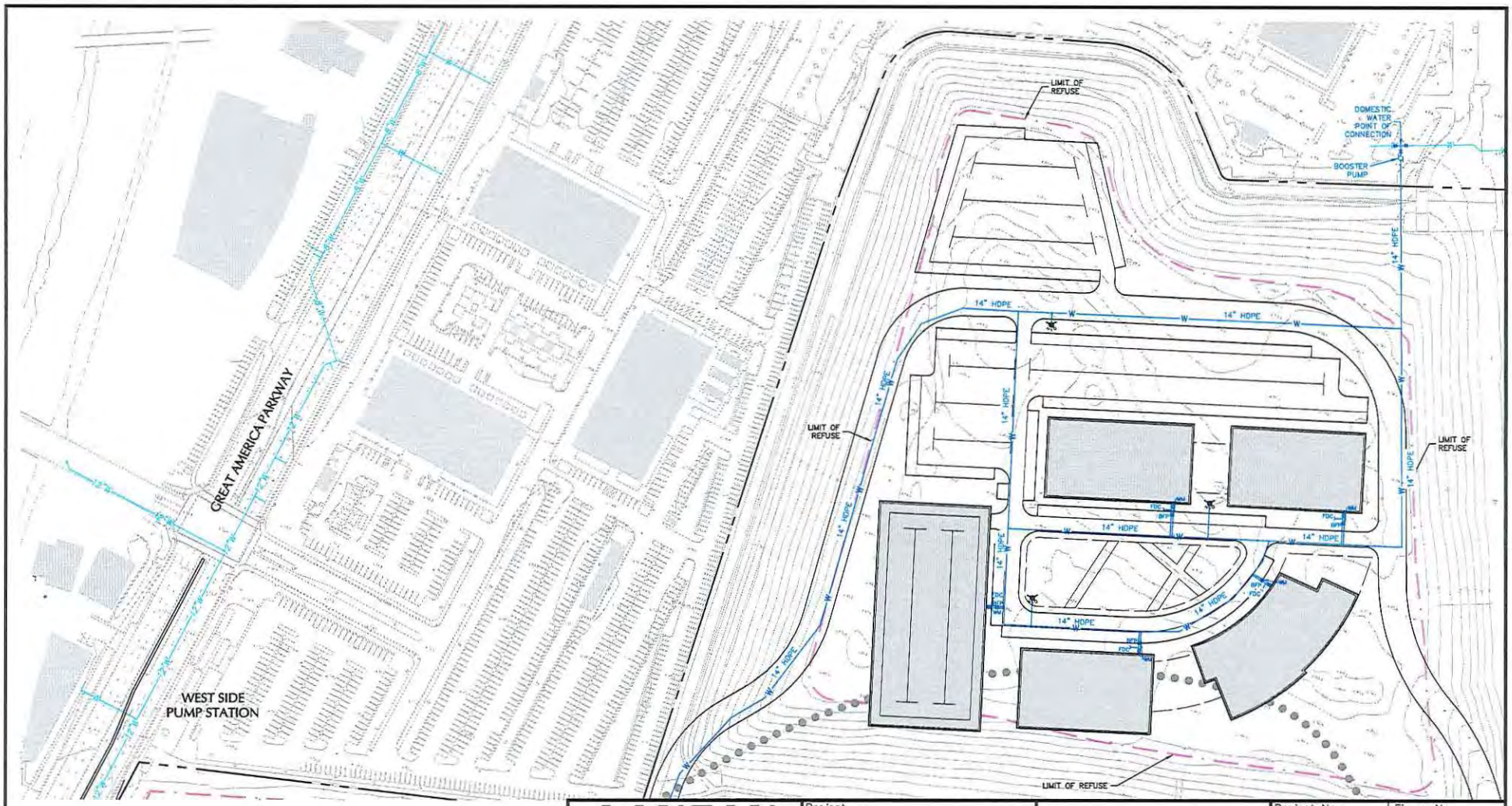

LEGEND:

EXISTING INFRASTRUCTURE ——— xx" W ———

PROPOSED INFRASTRUCTURE ——— W—xx" HDPE———

LIMIT OF REFUSE — — · — — · —

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150 0 75 150

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PRELIMINARY DOMESTIC WATER

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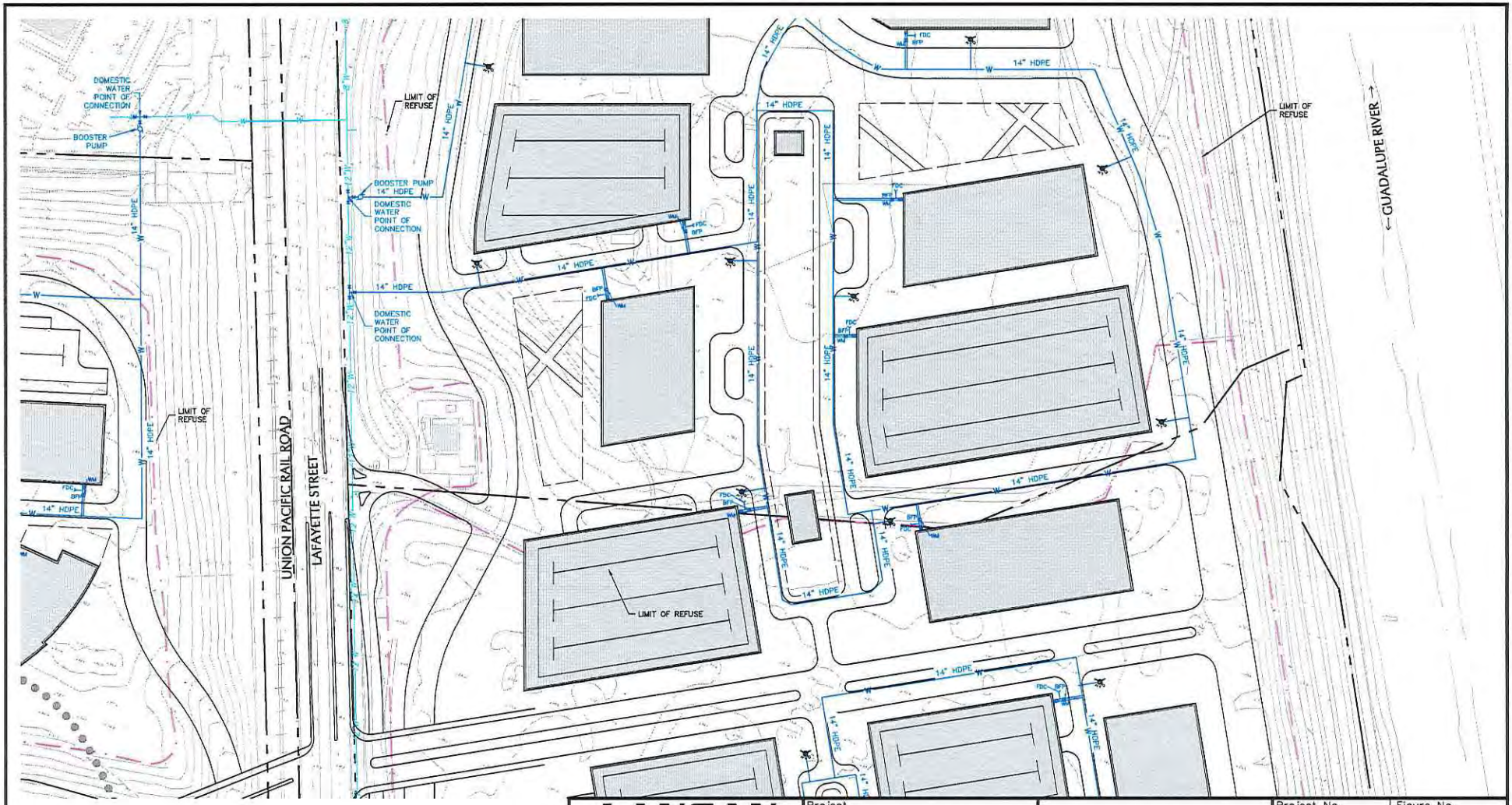

LEGEND:

EXISTING INFRASTRUCTURE ——— W" W ———

PROPOSED INFRASTRUCTURE ——— W—XX" HDPE———

LIMIT OF REFUSE — — · — — · — —

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PRELIMINARY DOMESTIC WATER

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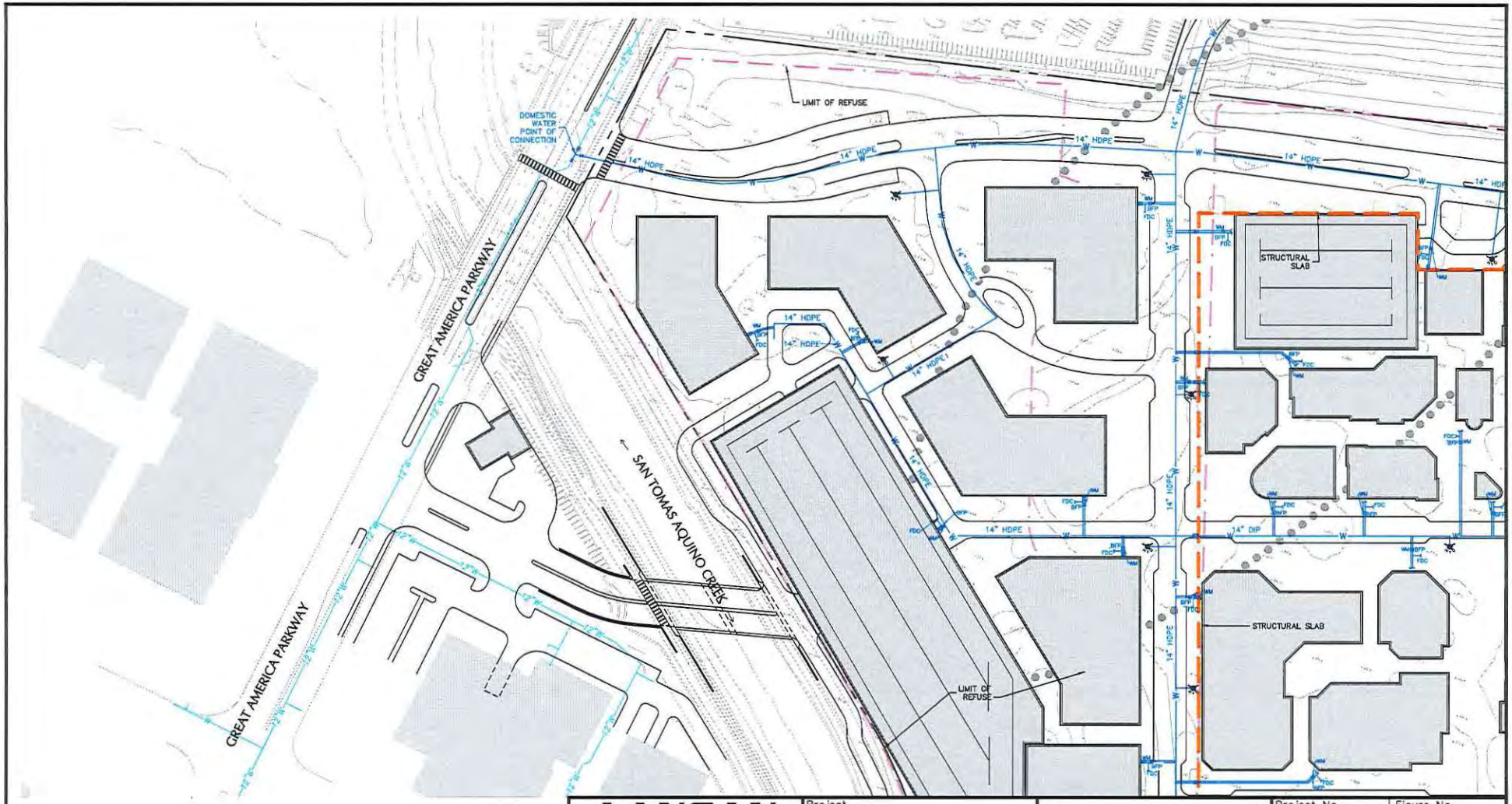

LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W — XX" HDPE ———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

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PRELIMINARY DOMESTIC WATER

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Submission Date 9/22/2015	

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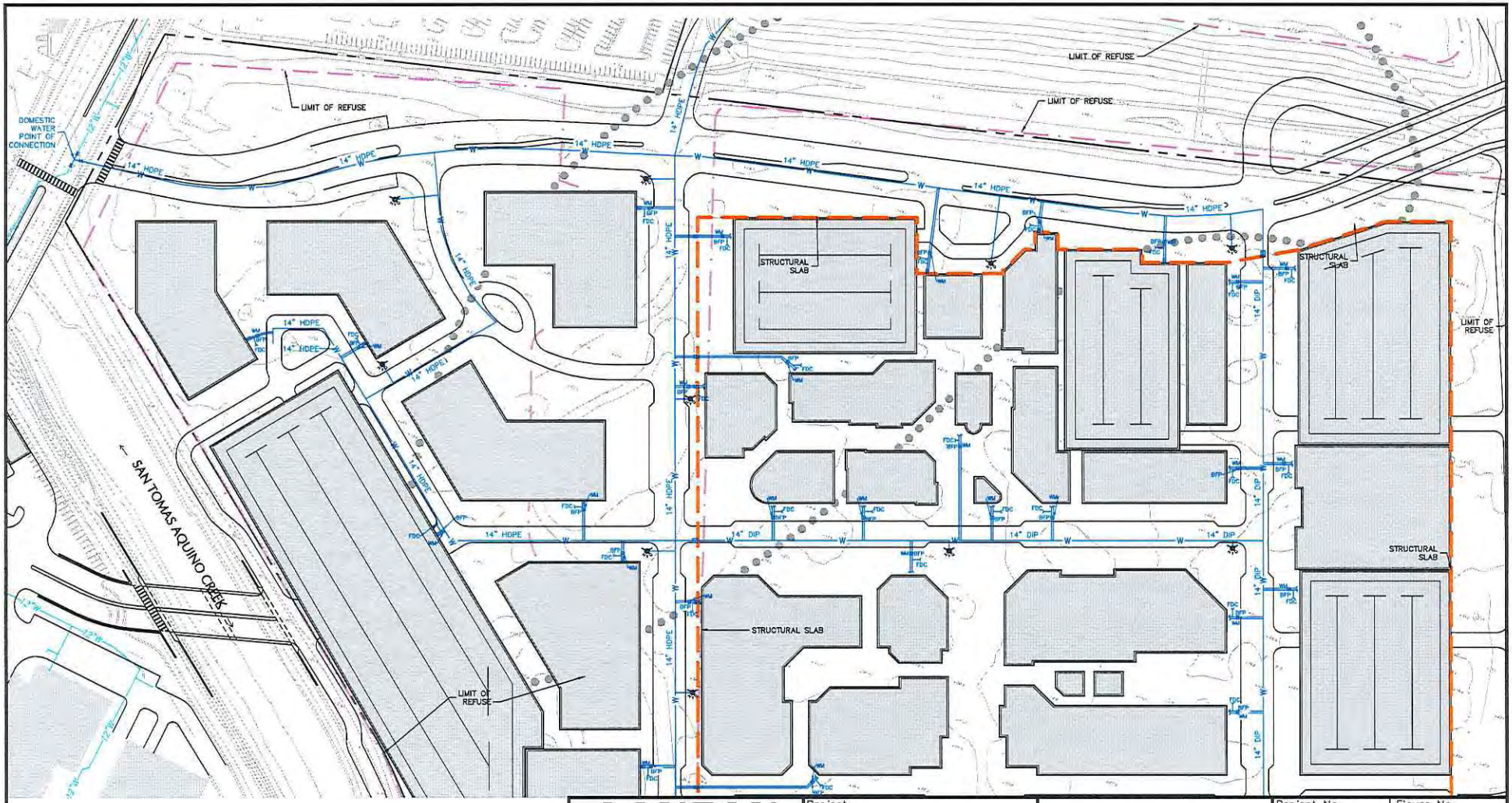

LEGEND:

- EXISTING INFRASTRUCTURE — 4X" W
- PROPOSED INFRASTRUCTURE — W — XX" HDPE
- LIMIT OF REFUSE
- STRUCTURAL SLAB

150 0 75 150

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Figure No. 8

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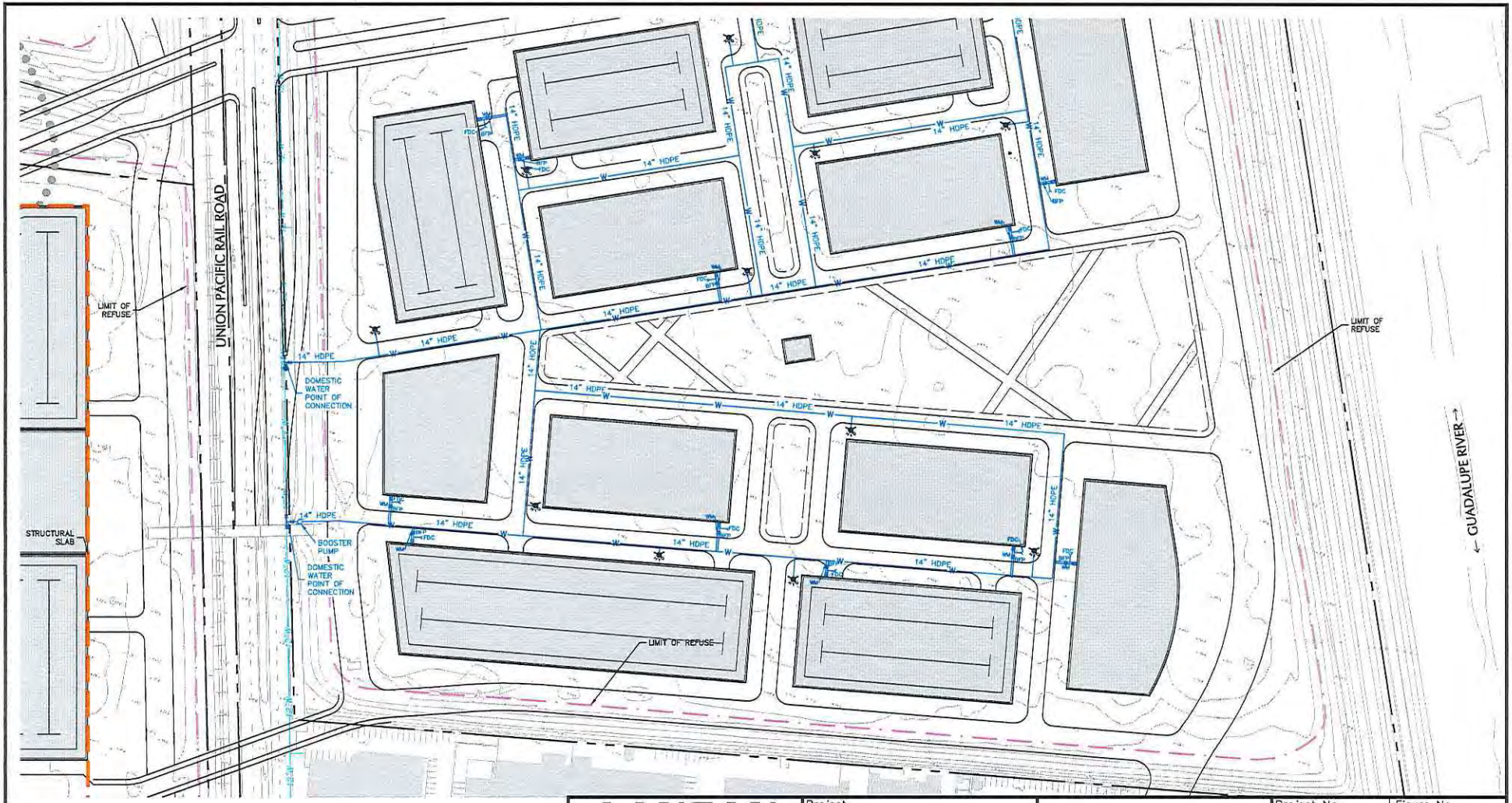

LEGEND:

EXISTING INFRASTRUCTURE ——— xx" W ———

PROPOSED INFRASTRUCTURE ——— W—XX" HDPE———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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CITY PLACE
SANTA CLARA

SANTA CLARA CA

PRELIMINARY DOMESTIC WATER

Project No.	770611601
Date	9/22/2015
Scale	1" = 150'
Drawn By	STAFF
Checked By	DJH
Submission Date	9/22/2015

Figure No. 9

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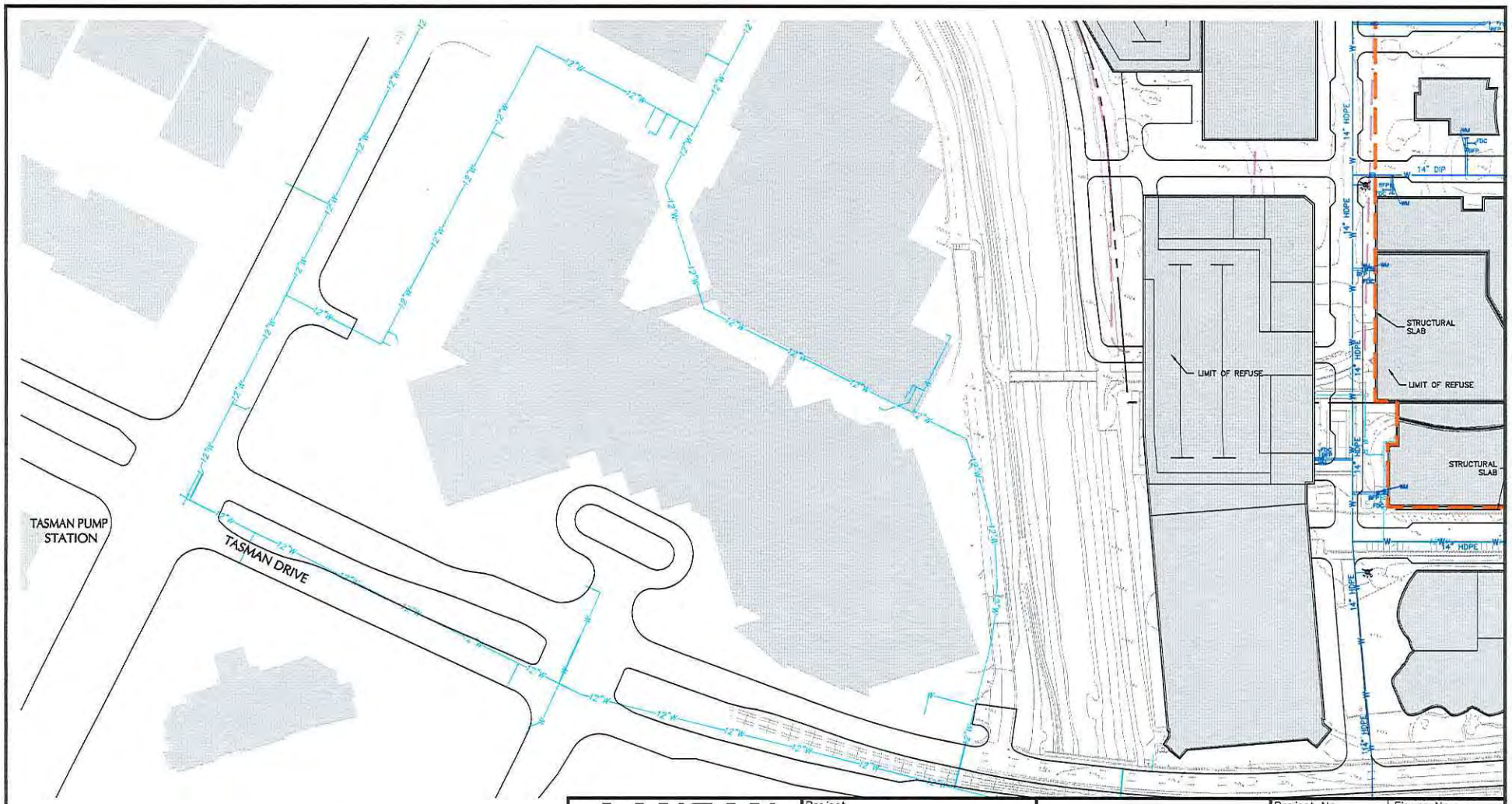

LEGEND:

- EXISTING INFRASTRUCTURE — xx" w
- PROPOSED INFRASTRUCTURE — W — XX" HDPE
- LIMIT OF REFUSE
- STRUCTURAL SLAB

150 0 75 150

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Project No. 770611601	Figure No. 10
Date 9/22/2015	
Scale 1" = 150'	
Drawn By STAFF / Checked By DJH	
Submission Date 9/22/2015	

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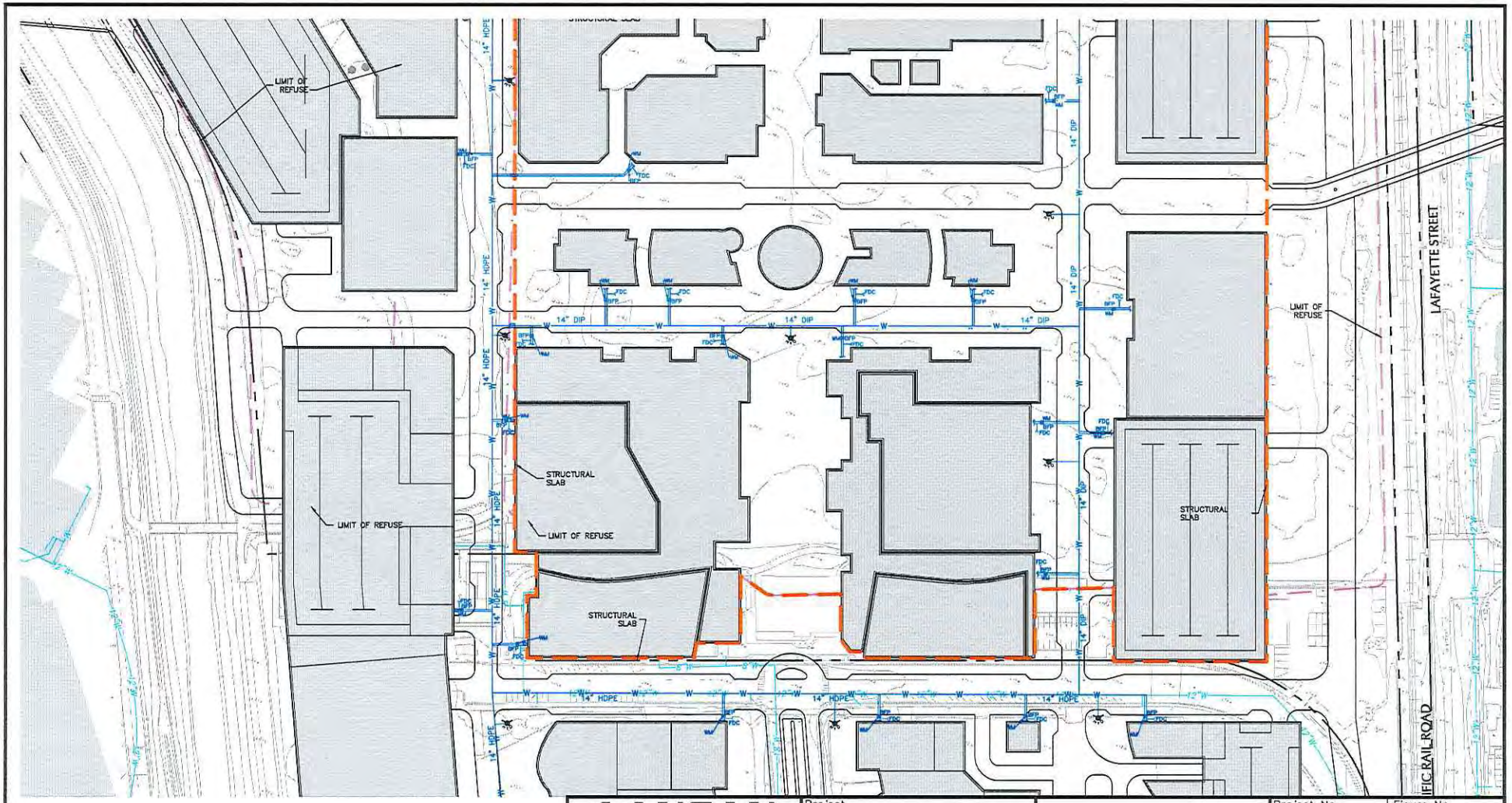

LEGEND:

EXISTING INFRASTRUCTURE ——— xx" W ———

PROPOSED INFRASTRUCTURE ——— W—XX" HDPE———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

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PRELIMINARY DOMESTIC WATER

Project No. 770611601	Figure No. 11
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Submission Date 9/22/2015	

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LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W—XX" HDPE———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB ▬▬▬▬▬▬▬▬

150 0 75 150

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PRELIMINARY DOMESTIC WATER

Project No. 770611601	Figure No. 12
Date 9/22/2015	
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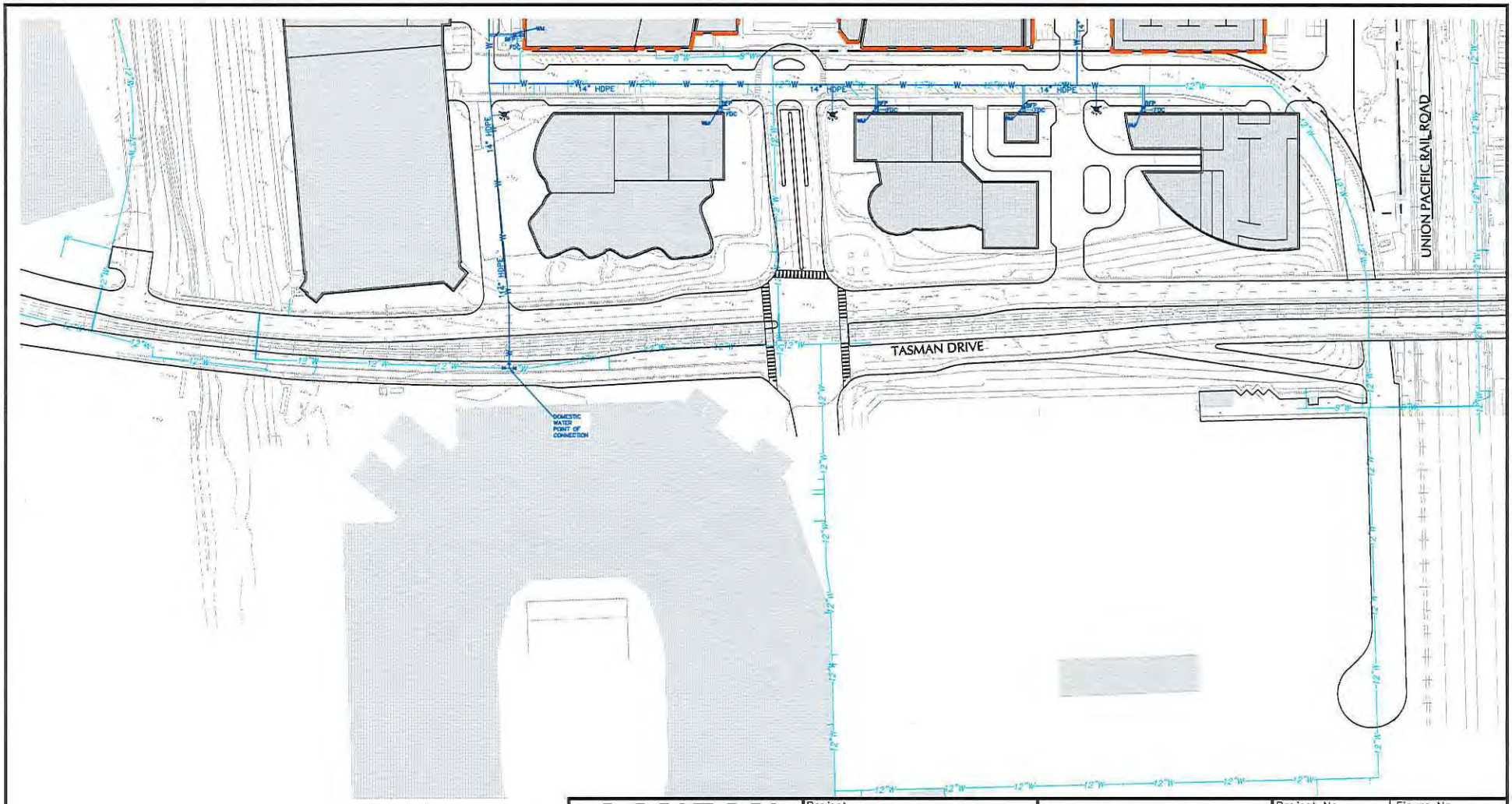

LEGEND:

EXISTING INFRASTRUCTURE ——— XX" W ———

PROPOSED INFRASTRUCTURE ——— W—XX" HDPE———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB ▬▬▬▬▬▬▬▬

150 0 75 150

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Figure No. 13

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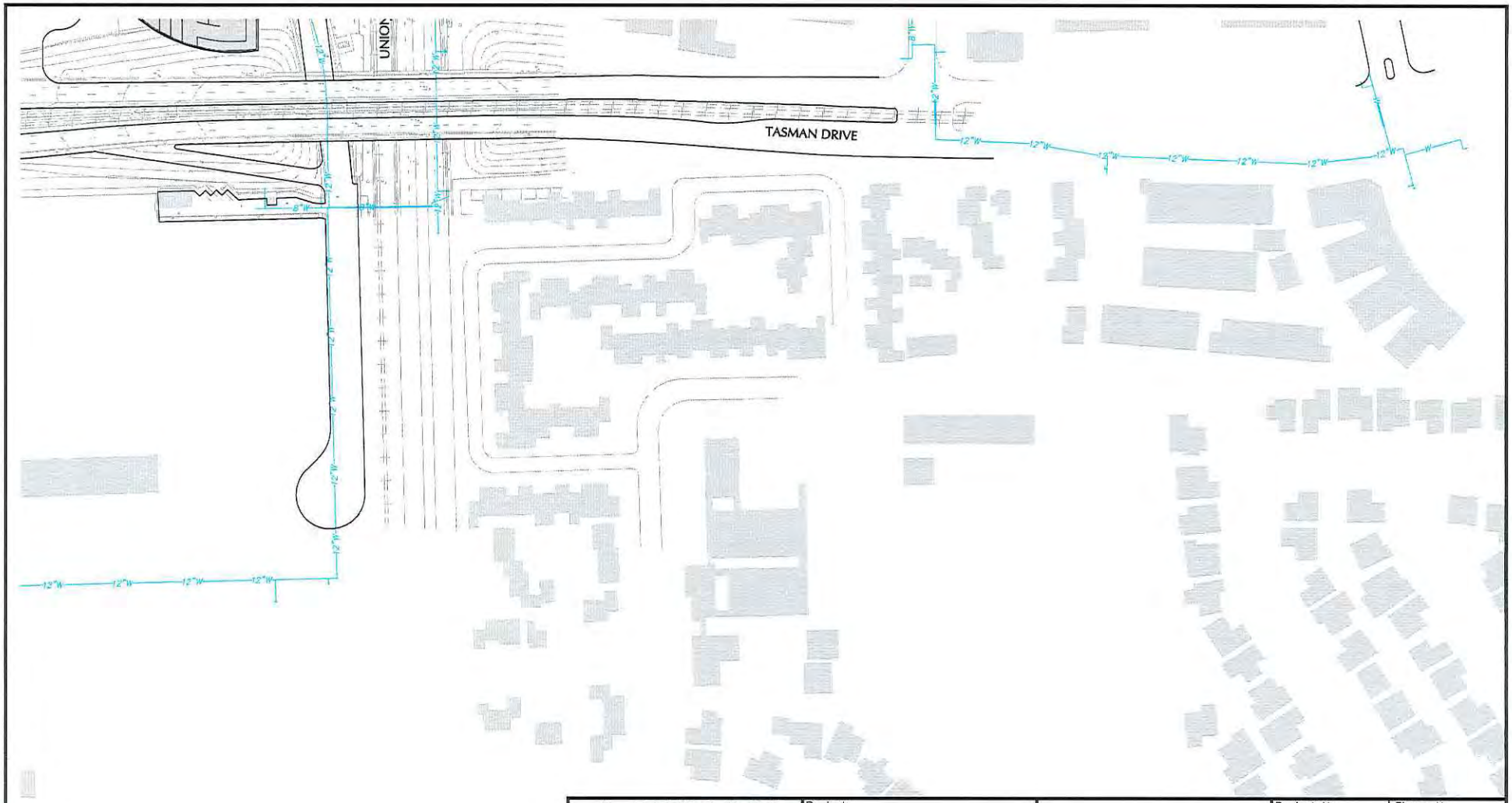

LEGEND:

EXISTING INFRASTRUCTURE ——— xx" w ———

PROPOSED INFRASTRUCTURE ——— W—xx" HDPE———

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

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Project No. 770611601	Figure No. 14
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Submission Date 9/22/2015	

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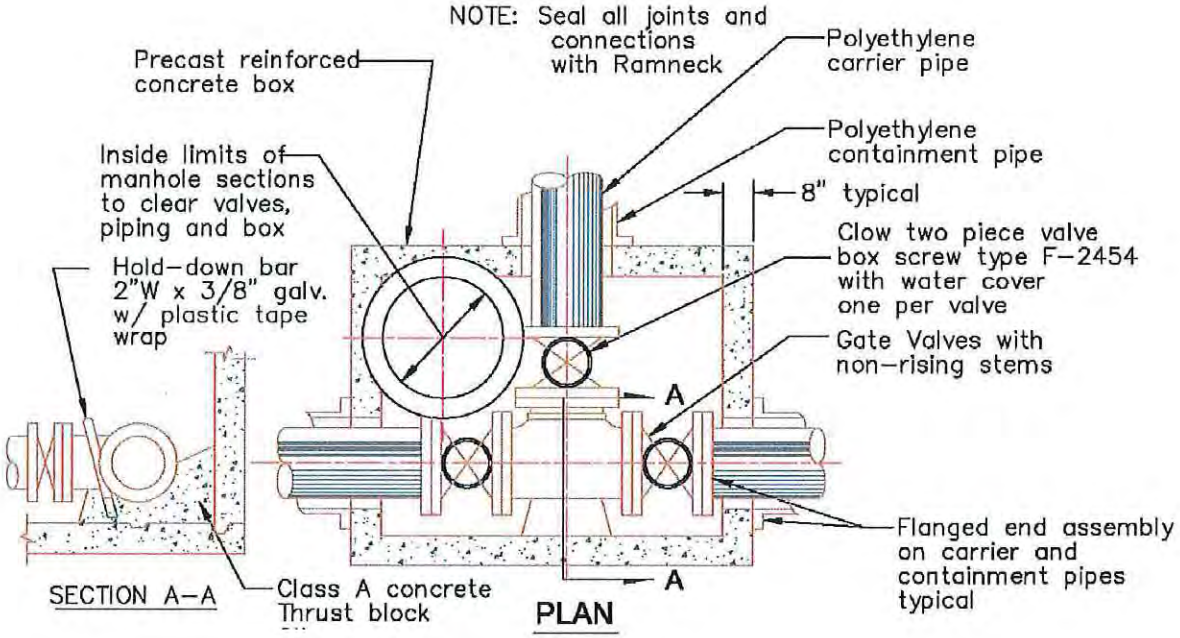

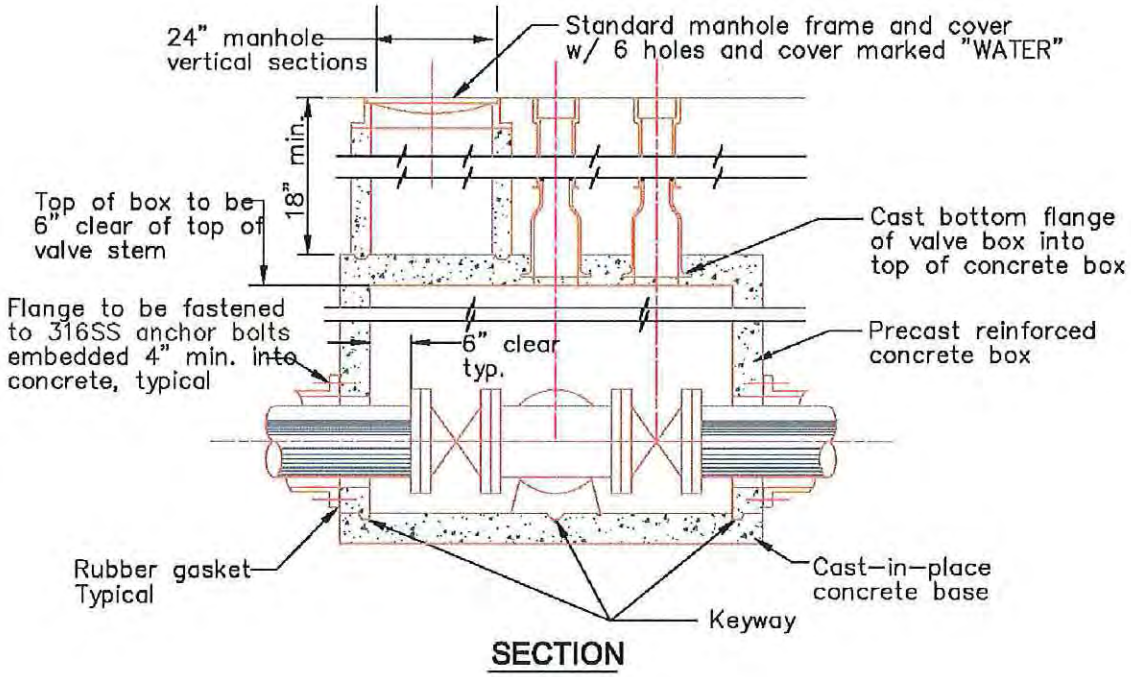

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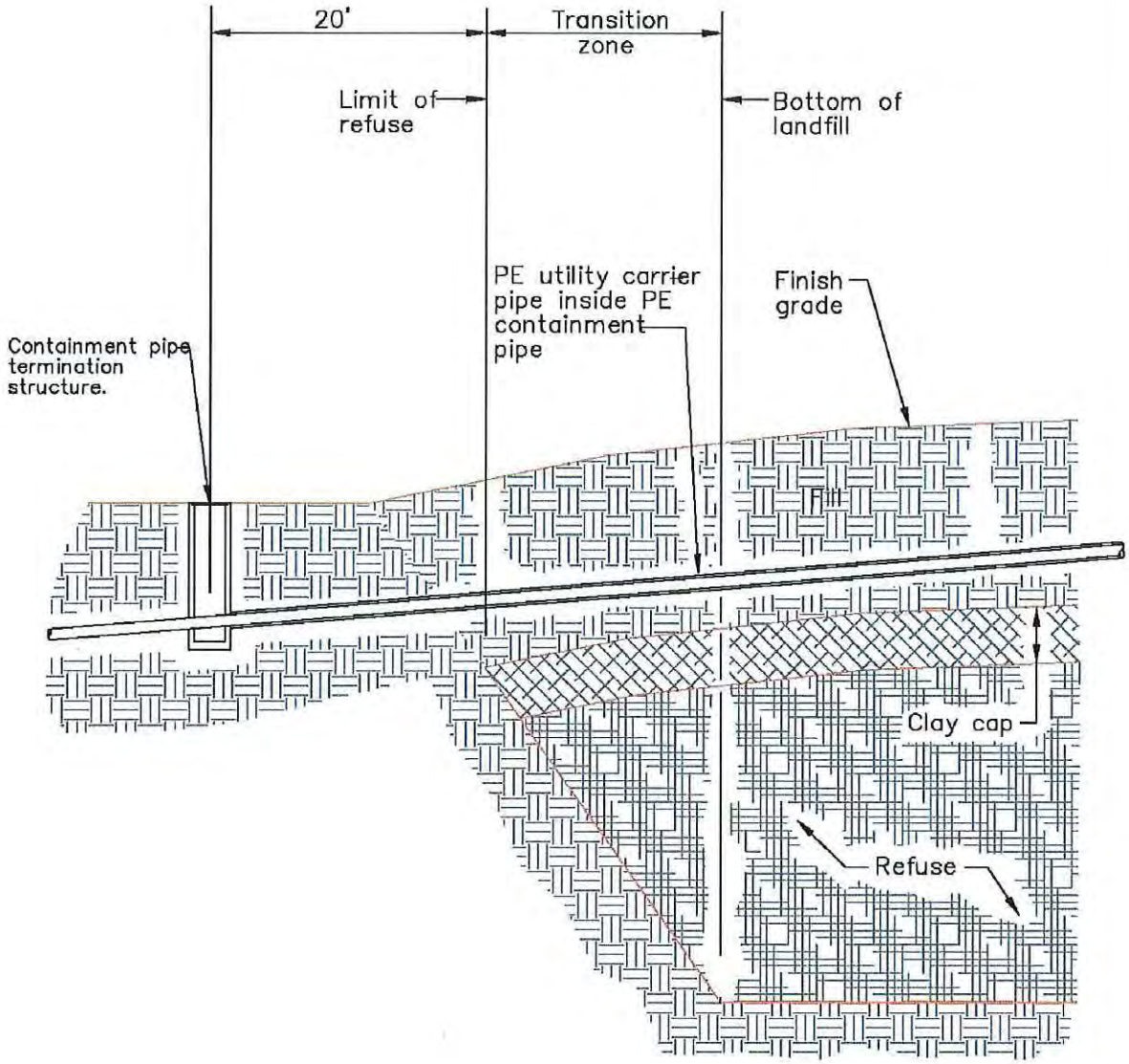

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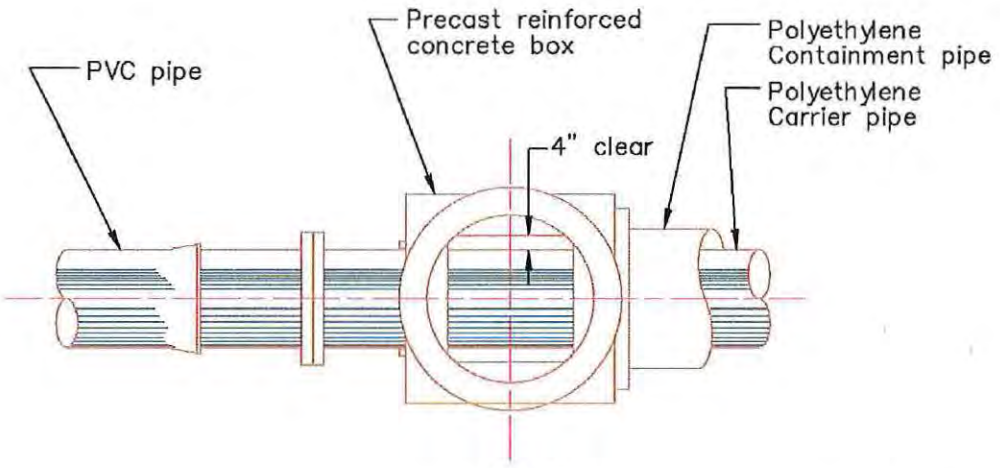
TERMINATION OF CONTAINMENT PIPE AT LIMITS OF REFUSE

Project No. 770611601	Figure No. 16
Date 9/22/2015	
Scale N.T.S.	
Drawn By STAFF / Checked By DJH	
Submission Date 9/22/2015	

Filename: \\langan.com\data\SJ\data6\770611601\Cadd Data - 770611601\SheetFiles\Technical Memo and Report Figures\Water\Utility - Water Details.dwg Date: 9/22/2015 Time: 12:54 User: dhodson Style Table: Langan.stb Layout: Fig 16



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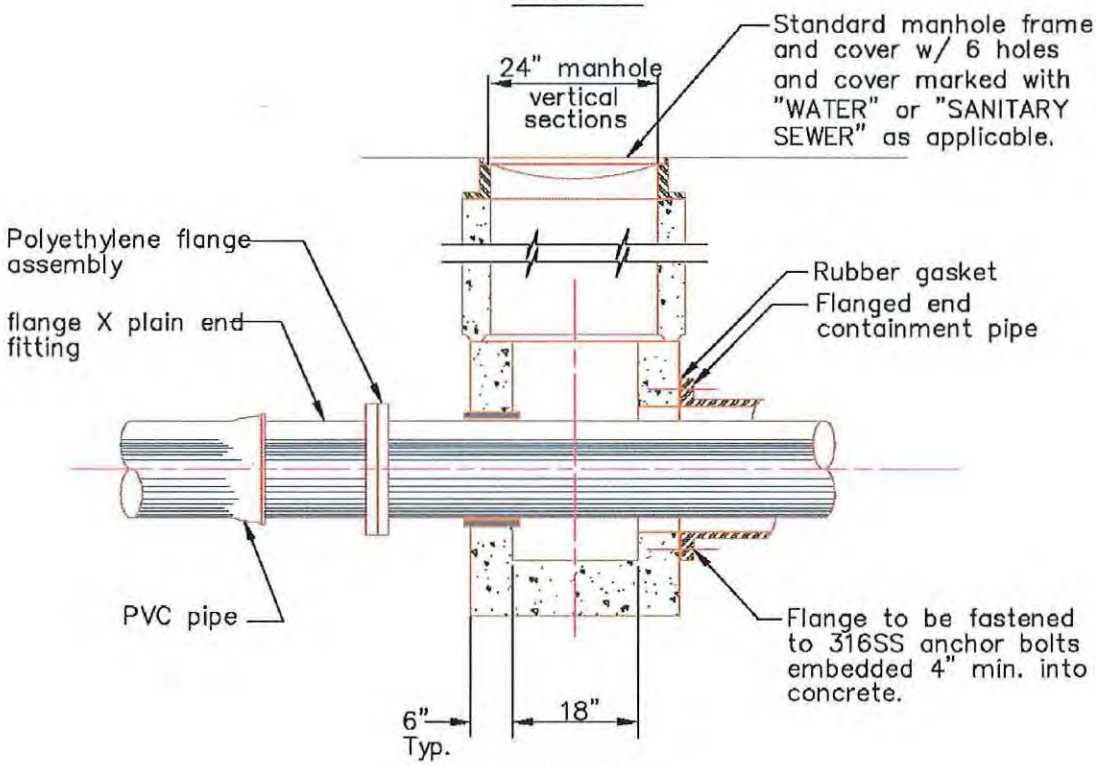

SECTION

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CONTAINMENT PIPE TERMINATION STRUCTURE

Project No. 770611601	Figure No. 17
Date 9/22/2015	
Scale N.T.S.	
Drawn By STAFF / Checked By DJH	
Submission Date 9/22/2015	

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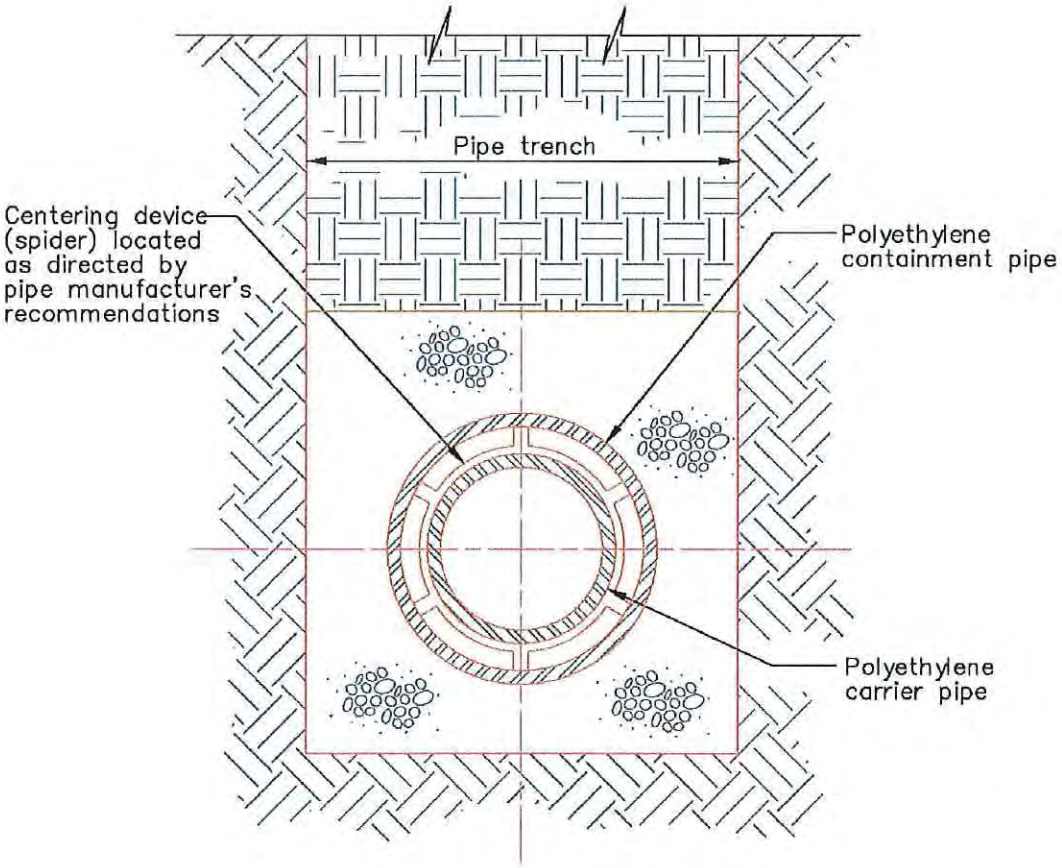

Carrier pipe diameter	2"	3"	4"	6"	8"	10"	12"
Containment pipe diameter	6"	8"	8"	10"	14"	16"	18"

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PRESSURE PIPE ENCLOSED IN CONTAINMENT PIPE

Project No. 770611601
Date 9/22/2015
Scale N.T.S.
Drawn By STAFF
Checked By DJH
Submission Date 9/22/2015

Figure No. 18

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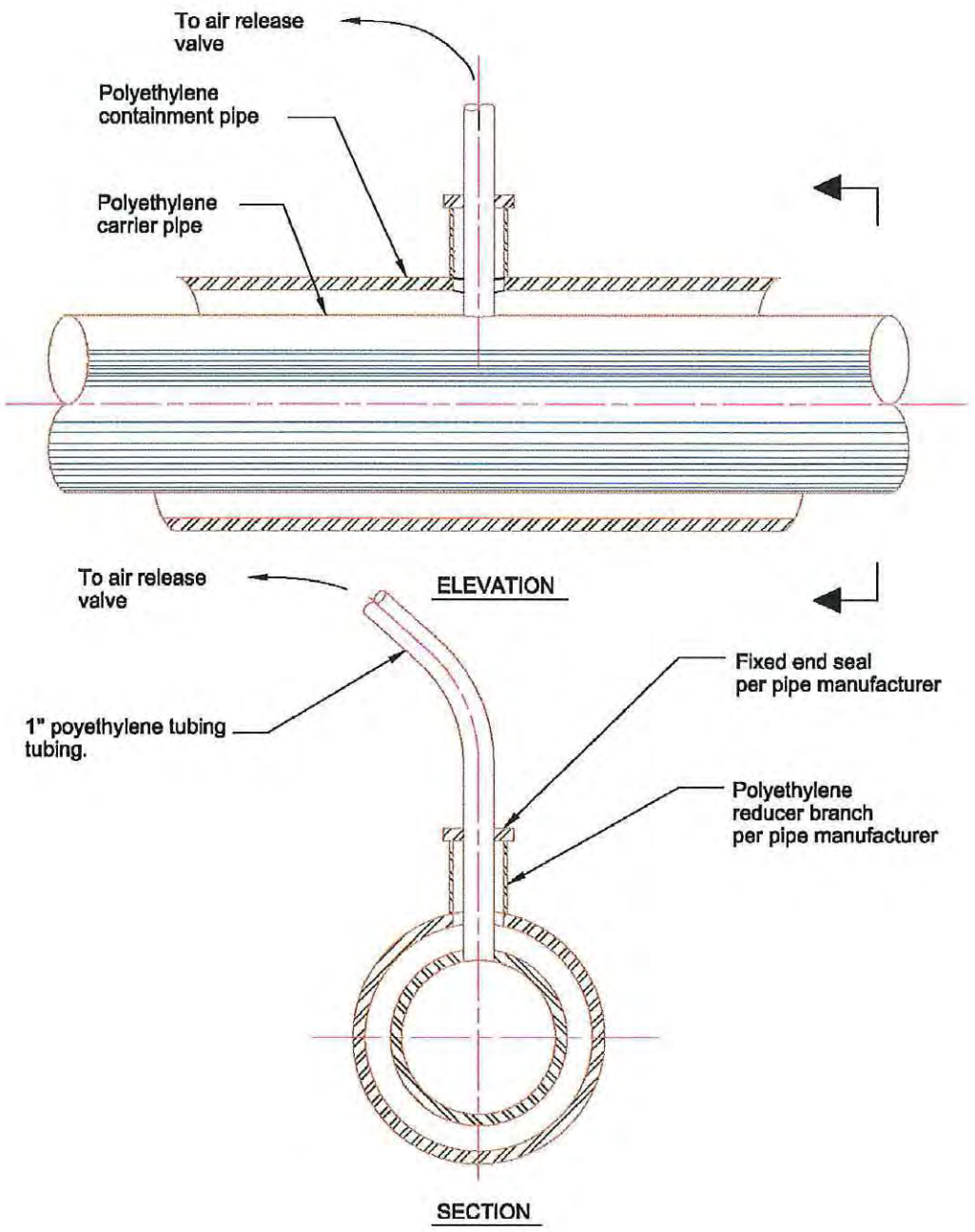

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TERMINATION OF CONTAINMENT PIPE AT AIR RELEASE VALVE

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
Drawn By	STAFF
Checked By	DJH
Submission Date	9/22/2015
Figure No.	19

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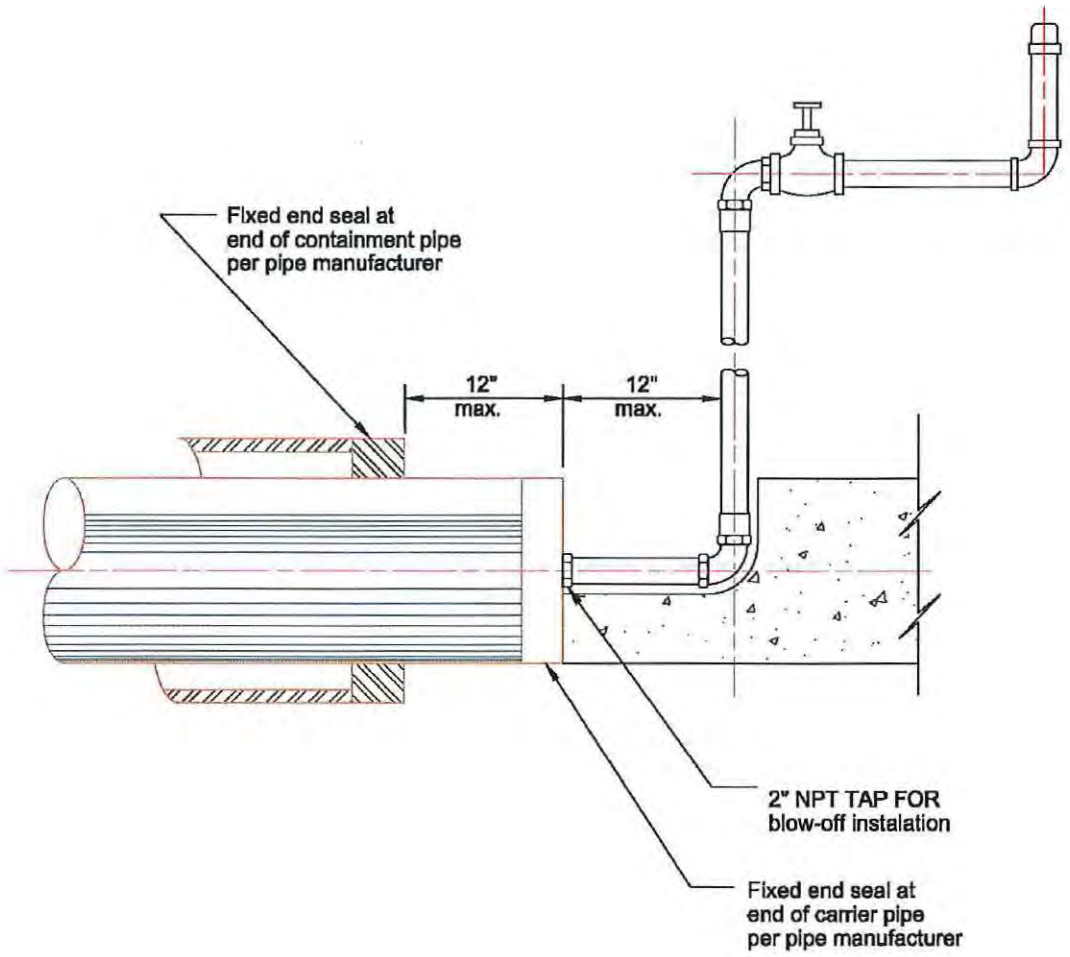

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TERMINATION OF CONTAINMENT PIPE AT BLOW-OFFS

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
Drawn By	STAFF
Checked By	DJH
Submission Date	9/22/2015

Figure No. 20

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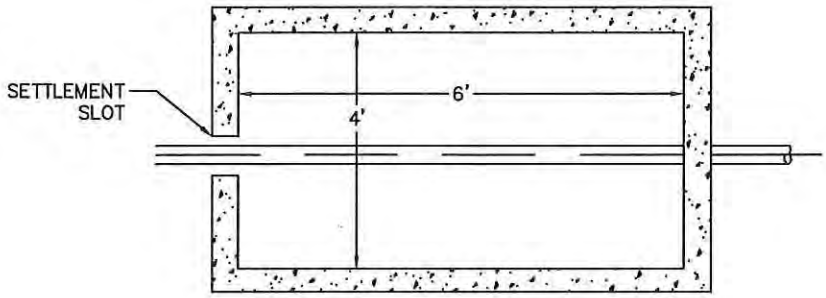

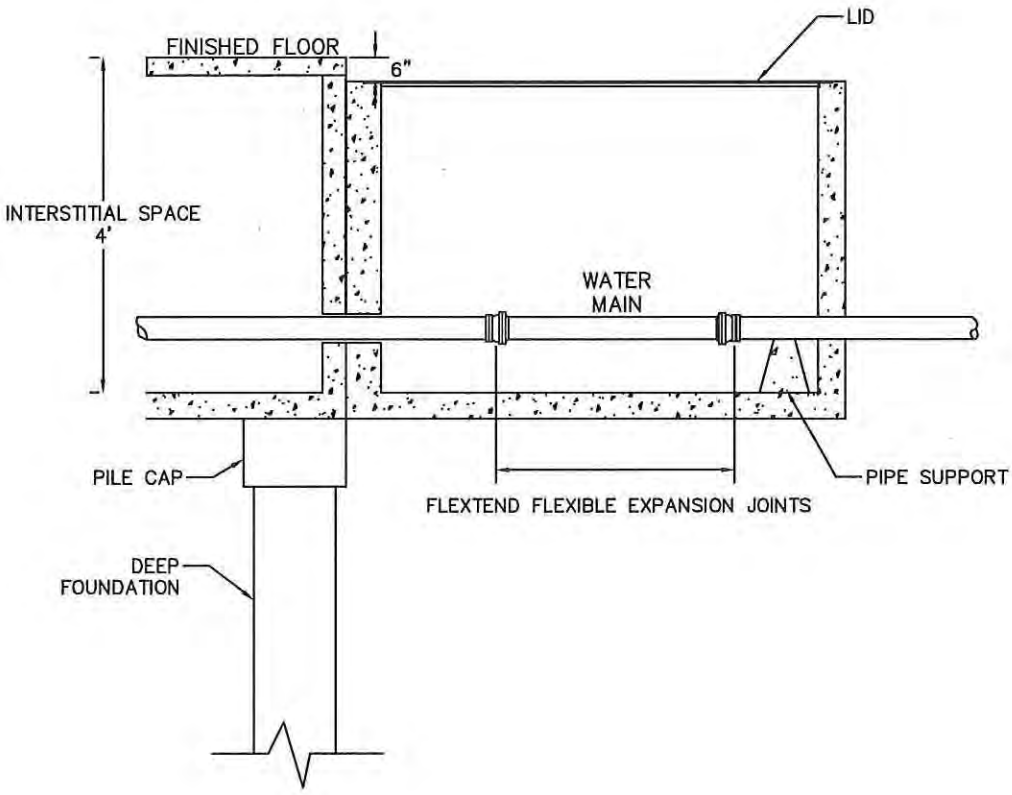

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SETTLEMENT VAULT-TYPE 1

Project No.	770611601
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Scale	N.T.S.
Drawn By	STAFF
Checked By	DJH
Submission Date	9/22/2015

Figure No. 21

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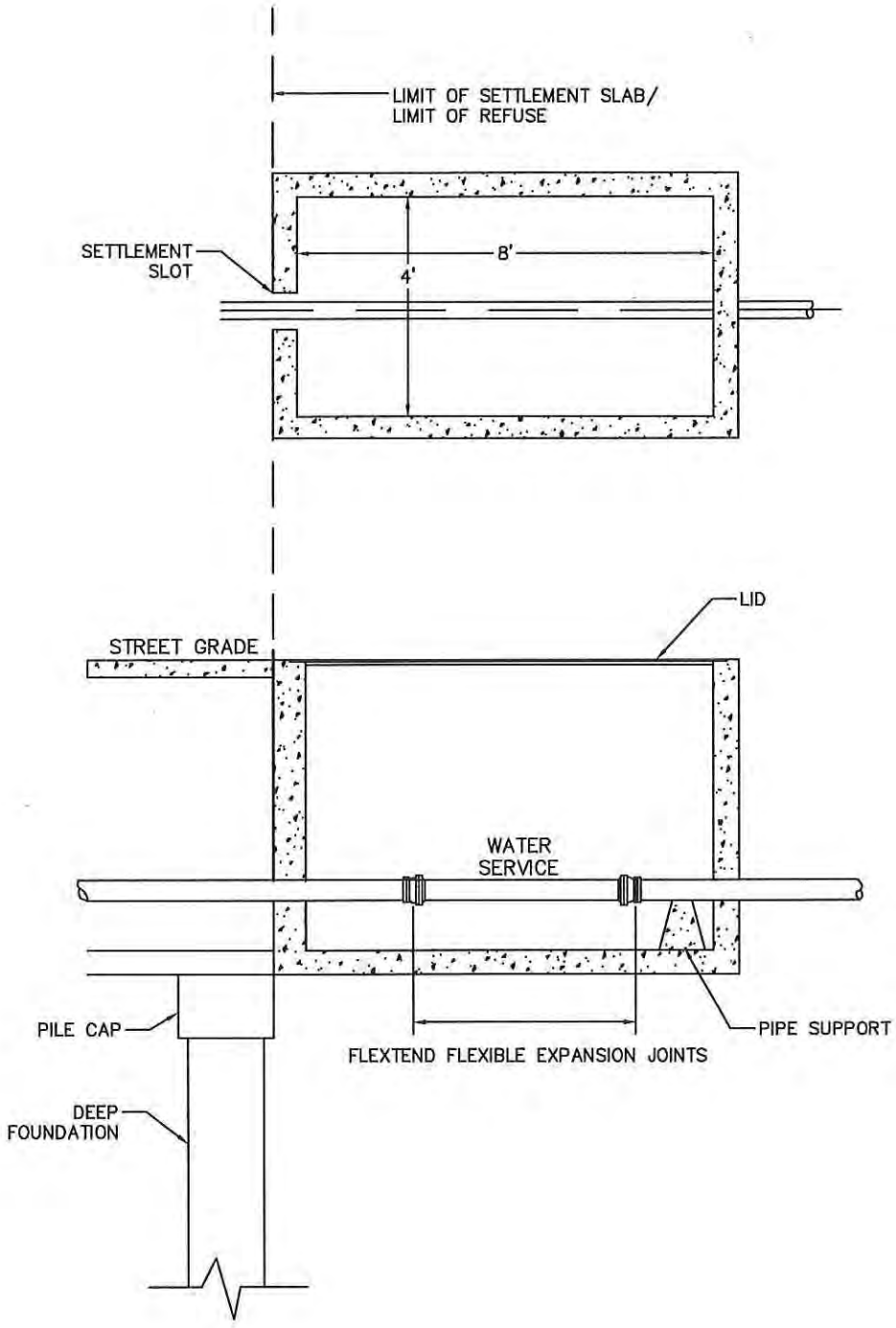

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SETTLEMENT VAULT-TYPE II

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Submission Date 9/22/2015	

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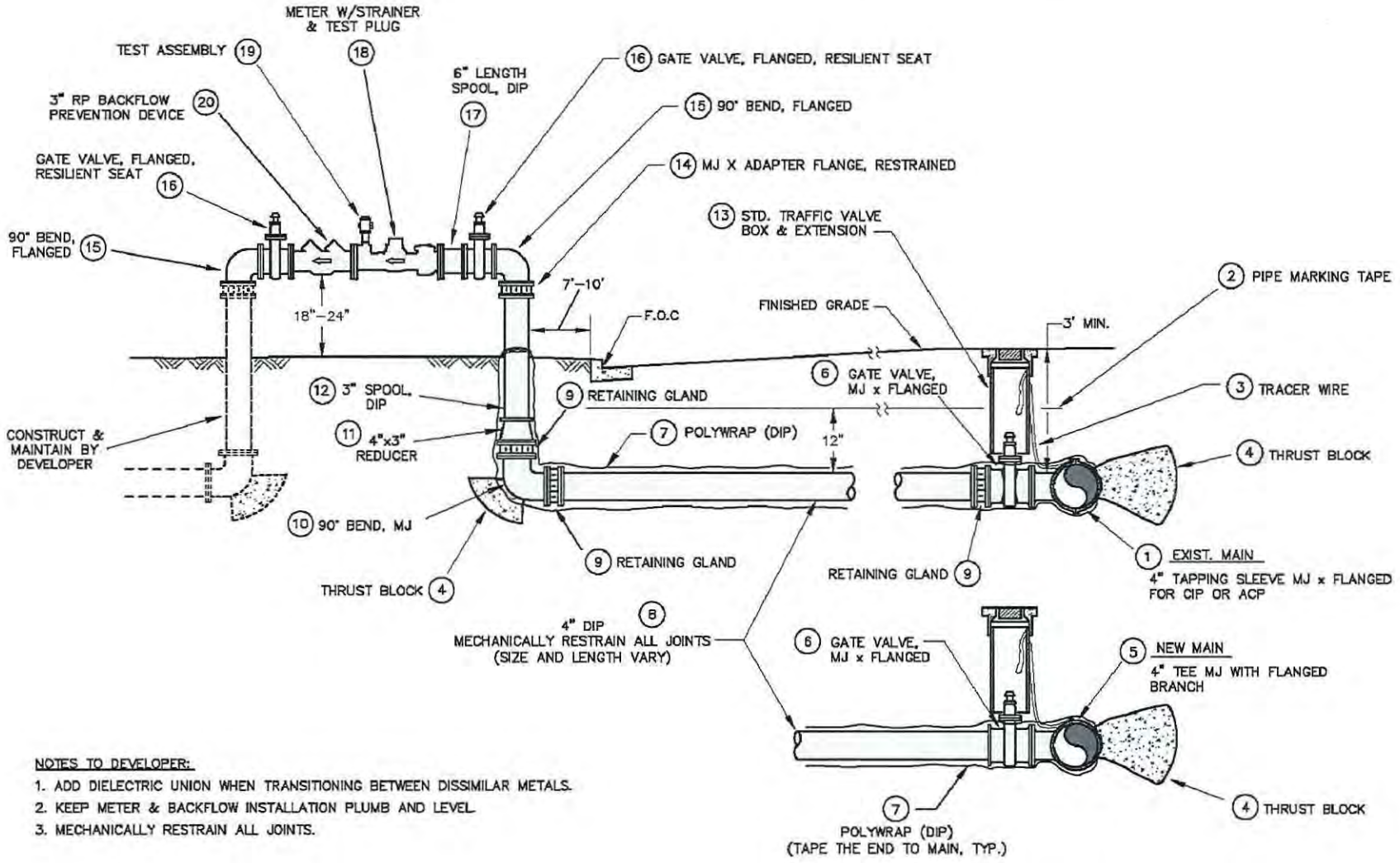

NOTES TO DEVELOPER:

1. ADD DIELECTRIC UNION WHEN TRANSITIONING BETWEEN DISSIMILAR METALS.
2. KEEP METER & BACKFLOW INSTALLATION PLUMB AND LEVEL.
3. MECHANICALLY RESTRAIN ALL JOINTS.

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3" WATER SERVICE WITH RP

Project No. 770611601	Figure No. 23
Date 9/22/2015	
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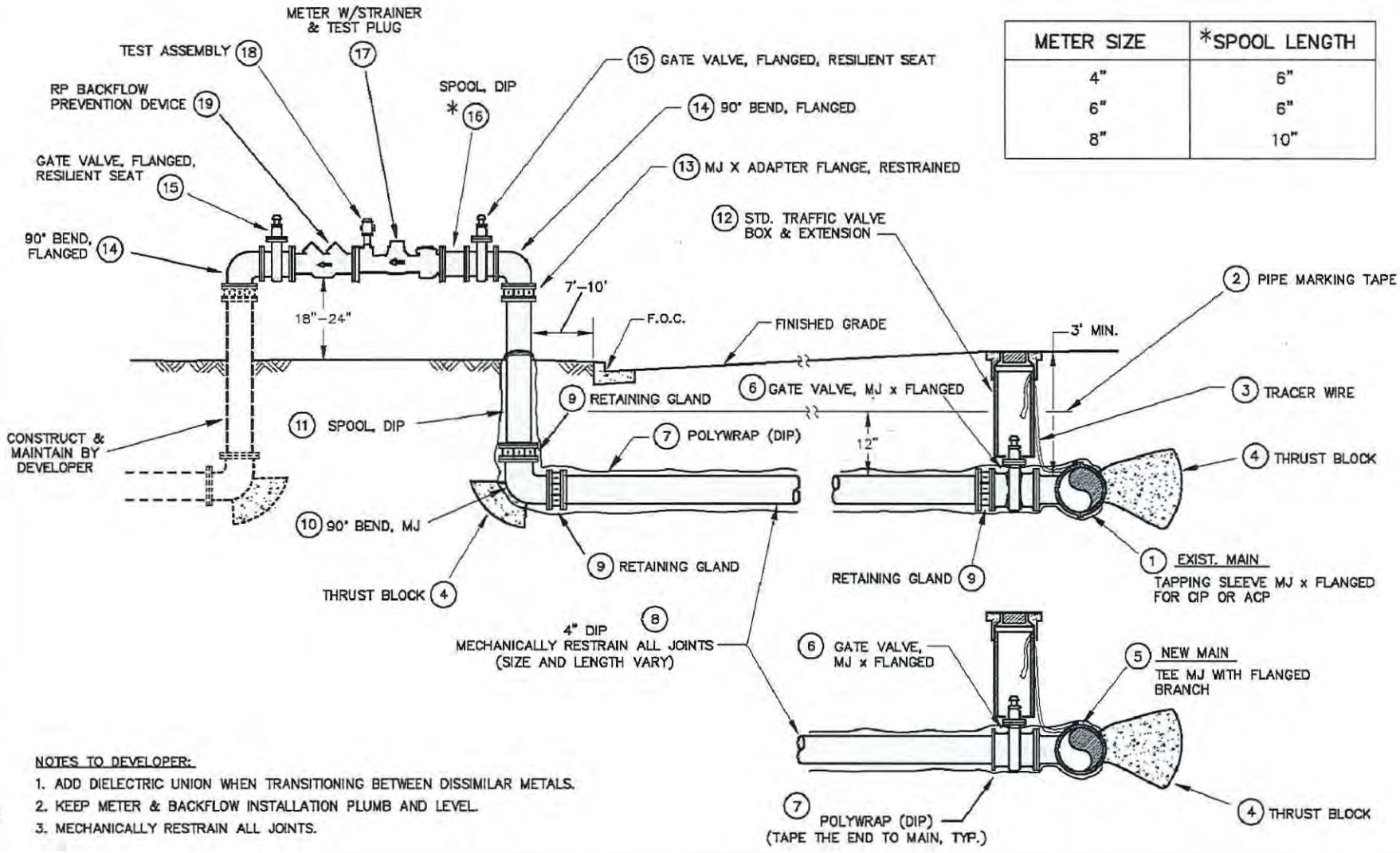
Drawn By STAFF / Checked By DJH	
Submission Date 9/22/2015	

Filename: \\langan.com\data\SJ\data6\770611601\Cadd Data - 770611601\SheetFiles\Technical Memo and Report Figures\Water\Utility - Water Details.dwg Date: 9/22/2015 Time: 12:52 User: dhodson Style Table: Langan.stb Layout: Fig 23



METER SIZE	*SPOOL LENGTH
4"	6"
6"	6"
8"	10"

NOTES TO DEVELOPER:

1. ADD DIELECTRIC UNION WHEN TRANSITIONING BETWEEN DISSIMILAR METALS.
2. KEEP METER & BACKFLOW INSTALLATION PLUMB AND LEVEL.
3. MECHANICALLY RESTRAIN ALL JOINTS.

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4", 6" & 8" WATER SERVICE W/ RP

Project No. 770611601	Figure No. 24
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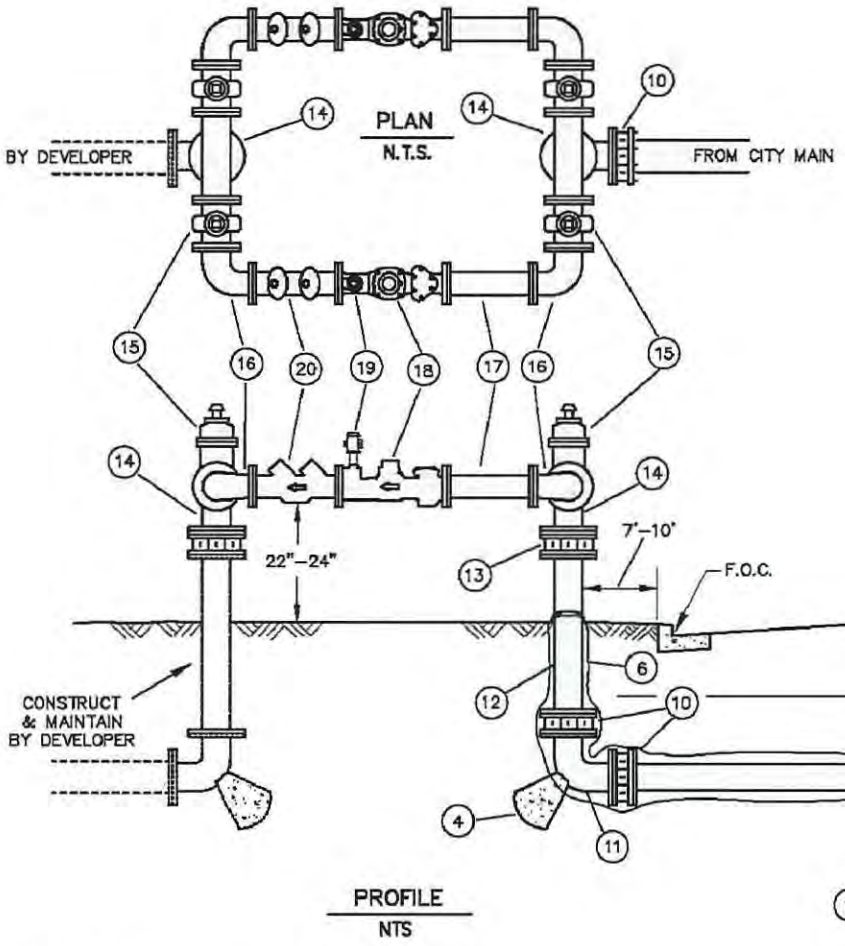
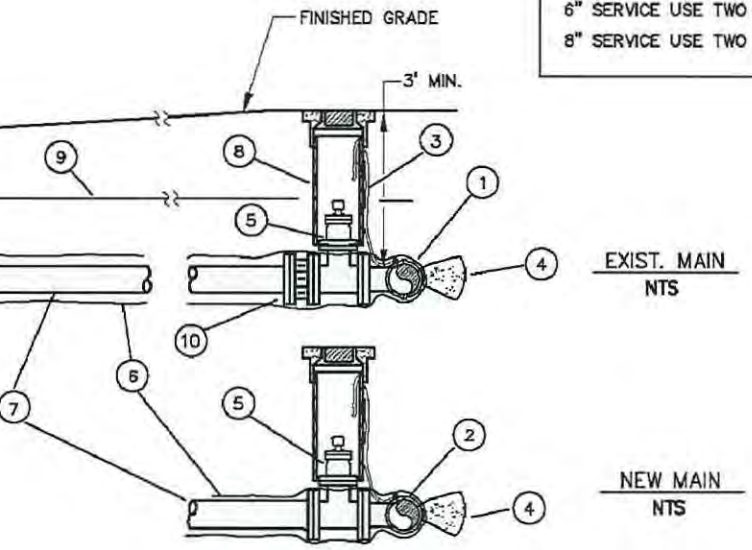


1. TAPPING SLEEVE, MJ
2. TEE MJ WITH FLANGED BRANCH
3. TRACER WIRE
4. THRUST BLOCK (SEE STANDARD NO. 21)
5. GATE VALVE, MJ X FLANGED
6. POLYWRAP (TAPE THE END TO MAIN)
7. DUCTILE IRON PIPE
8. STD. TRAFFIC VALVE BOX & EXTENSION (SEE STANDARD NO. 19 & 20)
9. PIPE MARKING TAPE
10. RETAINING GLAND
11. 90° BEND, MJ X FLANGED
12. SPOOL, DIP
13. MJ X FLANGE ADAPTER, RESTRAINED
14. TEE, FLANGED
15. GATE VALVE, FLANGED
16. REDUCING 90° BEND, FLANGED
17. 6" FLANGED X PE SPOOL PIECE
18. TURBINE METER
19. TEST ASSEMBLY
20. RP BACKFLOW PREVENTION DEVICE, SAME SIZE AS METER

NOTE:
4" SERVICE USE TWO 3" METERS
6" SERVICE USE TWO 4" METERS
8" SERVICE USE TWO 6" METERS



NOTES TO DEVELOPER:
1. ADD DIELECTRIC UNION WHEN TRANSITIONING BETWEEN DISSIMILAR METALS.
2. KEEP METER & BACKFLOW INSTALLATION PLUMB AND LEVEL.
3. MECHANICALLY RESTRAIN ALL JOINTS.

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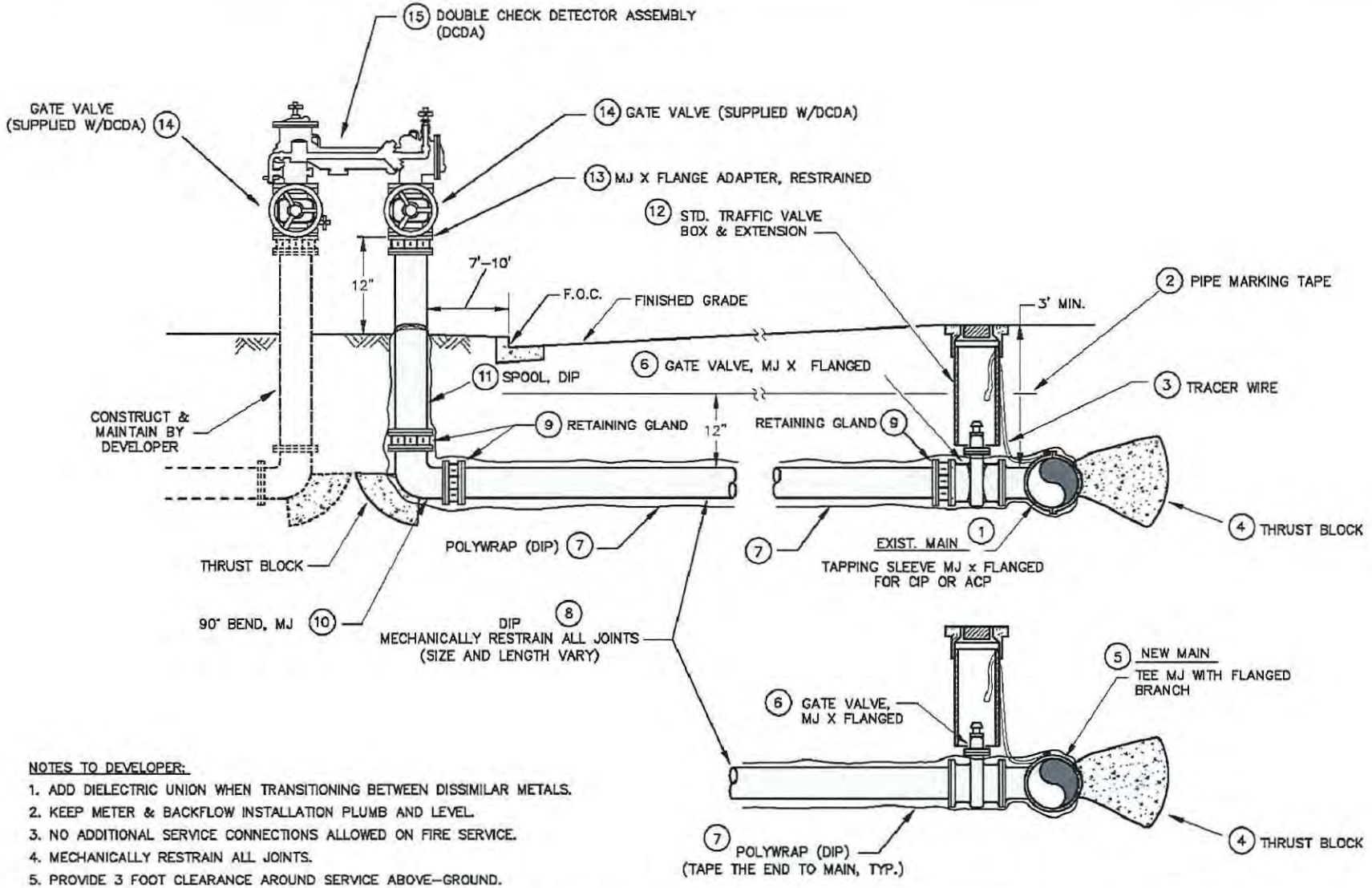
4", 6", & 8" WATER SERVICE W/ RP (DUAL METER SERVICE)

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
Drawn By	STAFF
Checked By	AP
Submission Date	9/22/2015
Figure No.	25

Filename: \\langan.com\data\SJ\data6\770611601\Cadd Data - 770611601\SheetFiles\Technical Memo and Report Figures\Water\Utility - Water Details.dwg Date: 9/22/2015 Time: 12:51 User: dhodson Style Table: Langan.stb Layout: Fig 25



NOTES TO DEVELOPER:

1. ADD DIELECTRIC UNION WHEN TRANSITIONING BETWEEN DISSIMILAR METALS.
2. KEEP METER & BACKFLOW INSTALLATION PLUMB AND LEVEL.
3. NO ADDITIONAL SERVICE CONNECTIONS ALLOWED ON FIRE SERVICE.
4. MECHANICALLY RESTRAIN ALL JOINTS.
5. PROVIDE 3 FOOT CLEARANCE AROUND SERVICE ABOVE-GROUND.

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4" - 10" FIRE SERVICE ASSEMBLY (W/ DCDA)

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
Drawn By	STAFF
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Submission Date	9/22/2015
Figure No.	26

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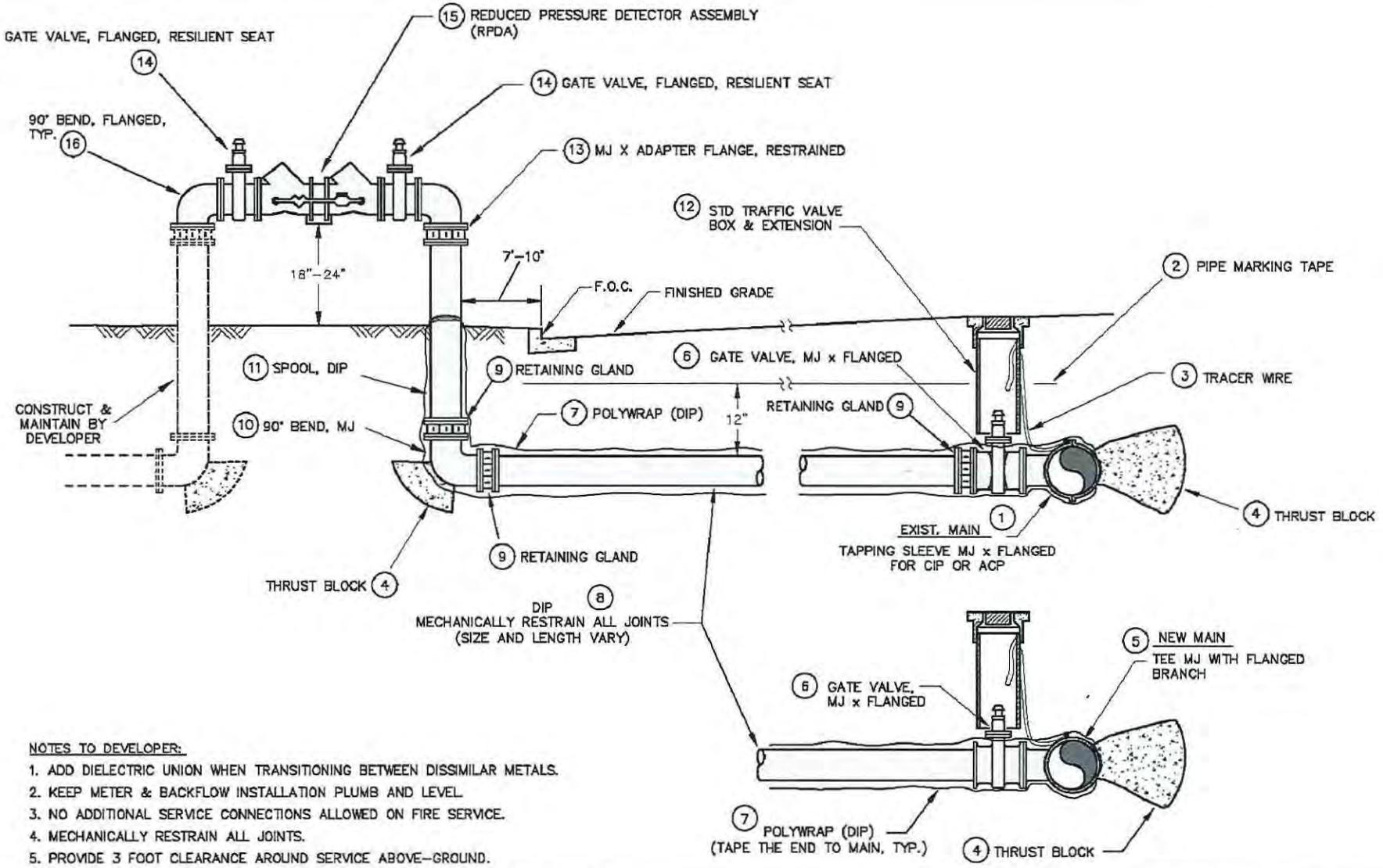

NOTES TO DEVELOPER:

1. ADD DIELECTRIC UNION WHEN TRANSITIONING BETWEEN DISSIMILAR METALS.
2. KEEP METER & BACKFLOW INSTALLATION PLUMB AND LEVEL.
3. NO ADDITIONAL SERVICE CONNECTIONS ALLOWED ON FIRE SERVICE.
4. MECHANICALLY RESTRAIN ALL JOINTS.
5. PROVIDE 3 FOOT CLEARANCE AROUND SERVICE ABOVE–GROUND.

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4" - 10" FIRE SERVICE ASSEMBLY (W/ RPDA)

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
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Figure No.	27

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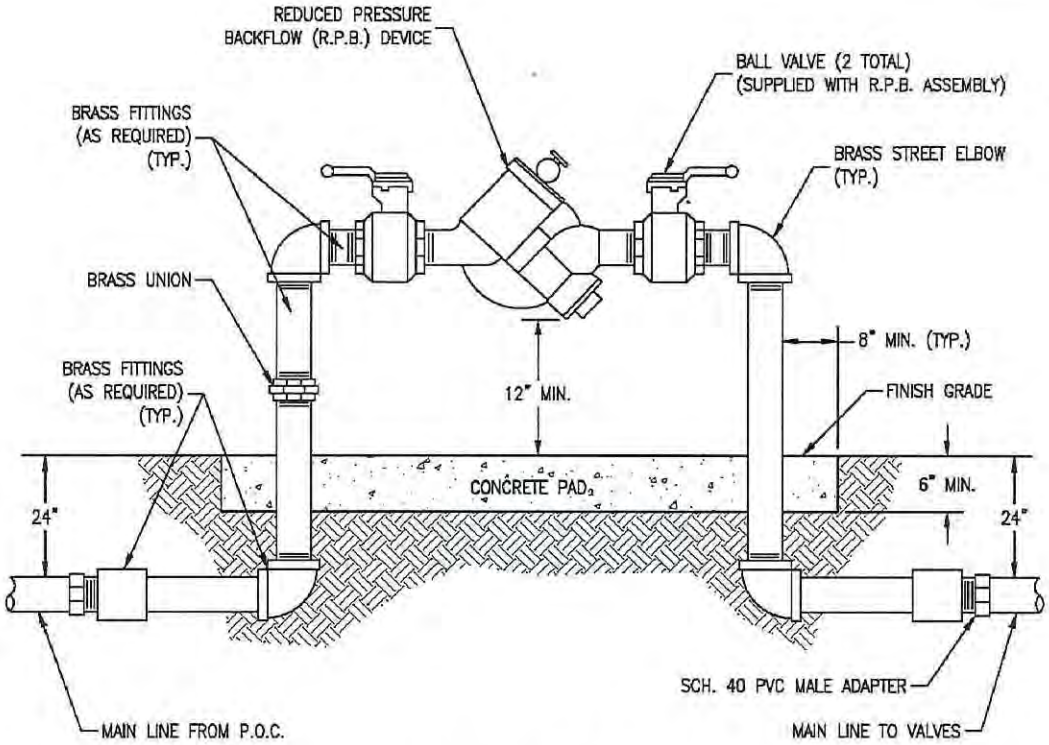

ELEVATION VIEW
NO SCALE

NOTES:

1. EVENLY COAT METAL FITTINGS EXPOSED TO SOIL AND CONCRETE WITH 3M SCOTCHRAP PIPE PRIMER AND THEN WRAP WITH 3M SCOTCHRAP NO. 51 BLACK TAPE (3/4" OVERLAP).
2. FOR SERVICE CONNECTION, REFER TO WATER & SEWER DEPARTMENT STANDARD DETAILS.

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REDUCED PRESSURE BACKFLOW ASSEMBLY

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
Drawn By / Checked By	STAFF / AP
Submission Date	9/22/2015
Figure No.	28

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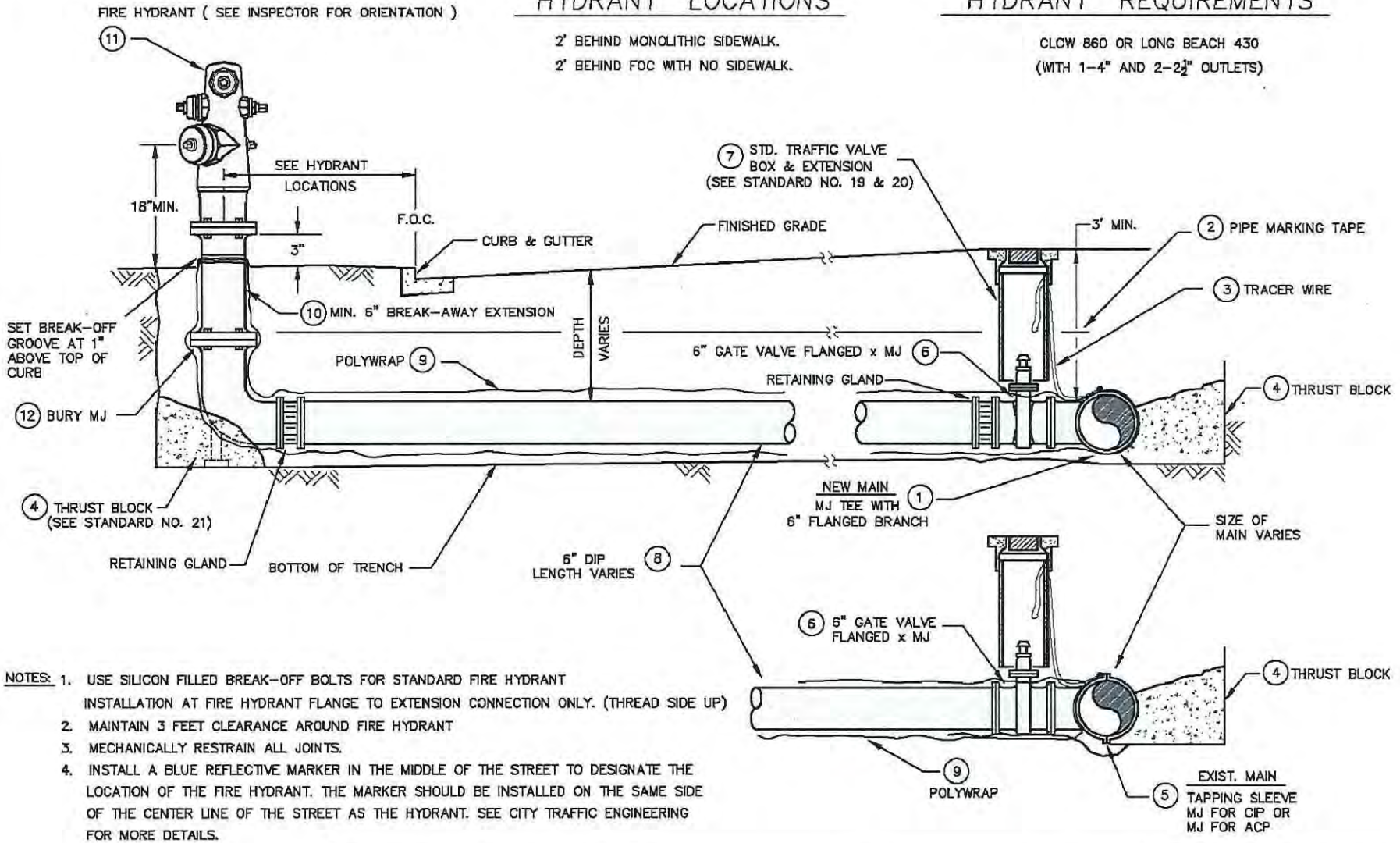
HYDRANT LOCATIONS

2' BEHIND MONOLITHIC SIDEWALK.

2' BEHIND FOC WITH NO SIDEWALK.

HYDRANT REQUIREMENTS

CLOW 860 OR LONG BEACH 430
(WITH 1–4" AND 2–2½" OUTLETS)



NOTES:
1. USE SILICON FILLED BREAK–OFF BOLTS FOR STANDARD FIRE HYDRANT INSTALLATION AT FIRE HYDRANT FLANGE TO EXTENSION CONNECTION ONLY. (THREAD SIDE UP)
2. MAINTAIN 3 FEET CLEARANCE AROUND FIRE HYDRANT
3. MECHANICALLY RESTRAIN ALL JOINTS.
4. INSTALL A BLUE REFLECTIVE MARKER IN THE MIDDLE OF THE STREET TO DESIGNATE THE LOCATION OF THE FIRE HYDRANT. THE MARKER SHOULD BE INSTALLED ON THE SAME SIDE OF THE CENTER LINE OF THE STREET AS THE HYDRANT. SEE CITY TRAFFIC ENGINEERING FOR MORE DETAILS.

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FIRE HYDRANT ASSEMBLY

Project No. 770611601	Figure No. 29
Date 9/22/2015	
Scale N.T.S.	
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Submission Date 9/22/2015	

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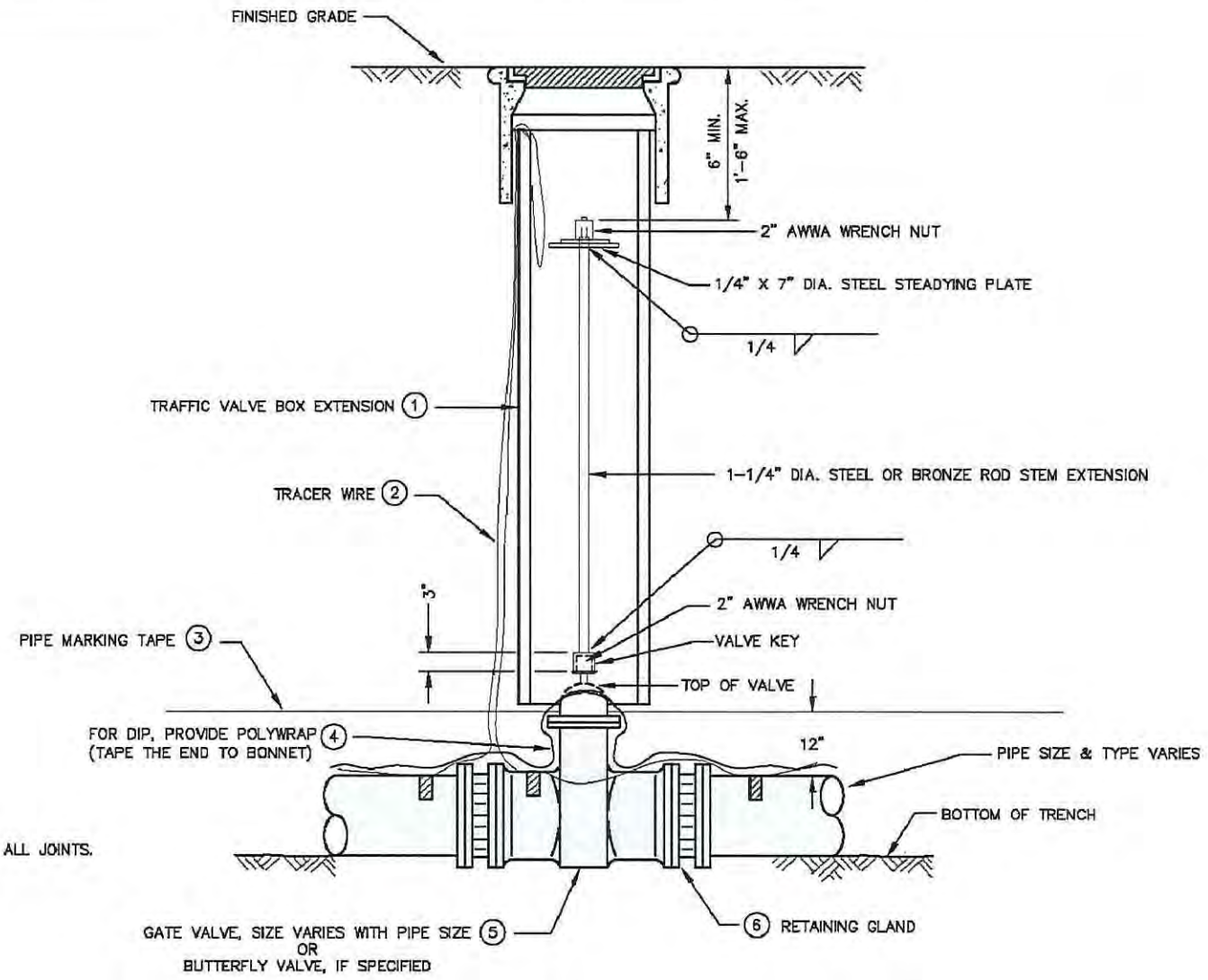

NOTE TO DEVELOPER:

1. MECHANICALLY RESTRAIN ALL JOINTS.

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GATE VALVE INSTALLATION

Project No.	770611601
Date	9/22/2015
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Submission Date	9/22/2015

Figure No. 30

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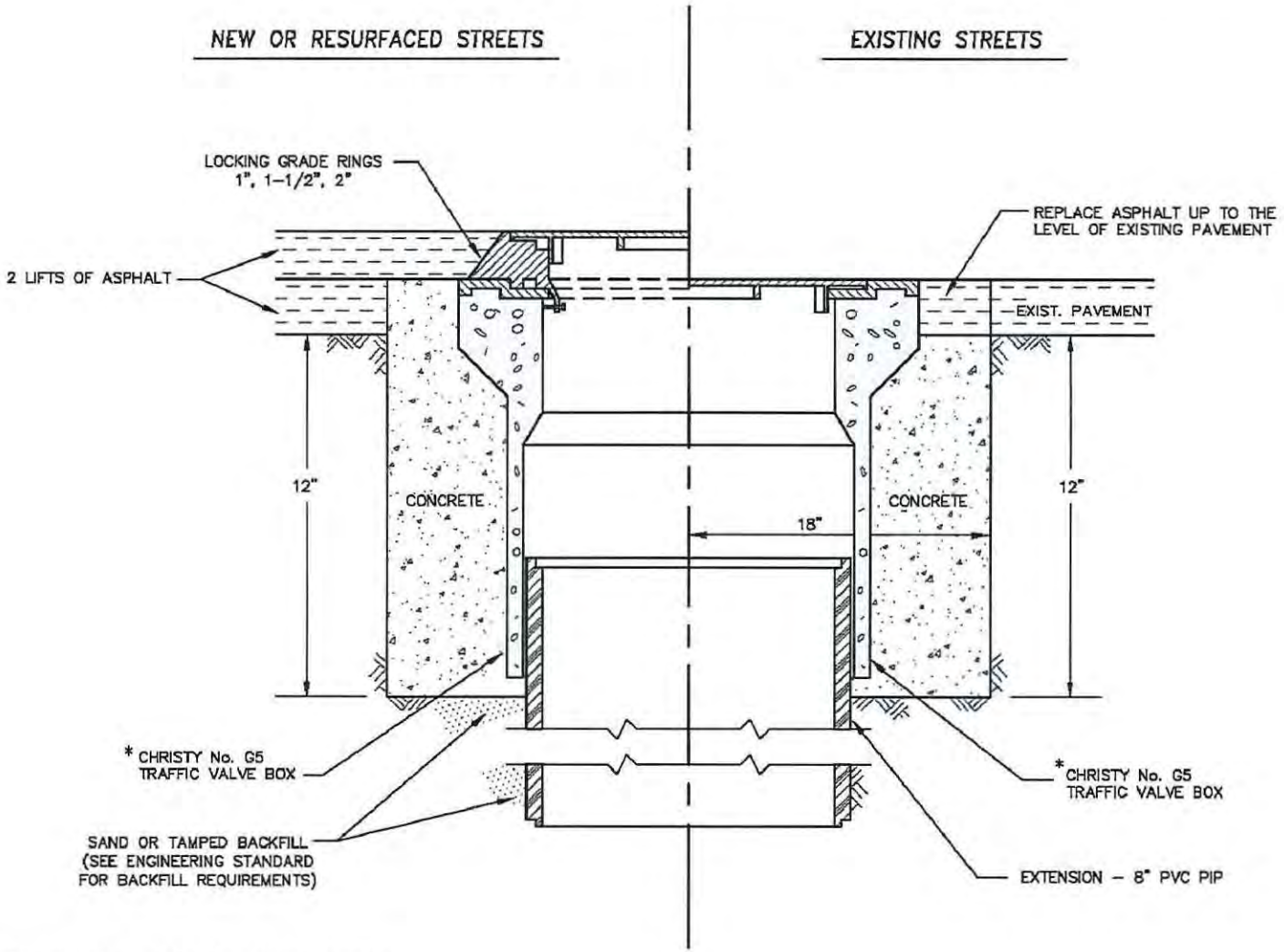

* FOR POTABLE WATER, PROVIDE LID MARKED "WATER"
FOR RECYCLED WATER, PAINT INSIDE OF THE VALVE BOX PURPLE AND PROVIDE PURPLE LID MARKED "CSC-RW"

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TRAFFIC VALVE BOX

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
Drawn By	STAFF
Checked By	AP
Submission Date	9/22/2015
Figure No.	31

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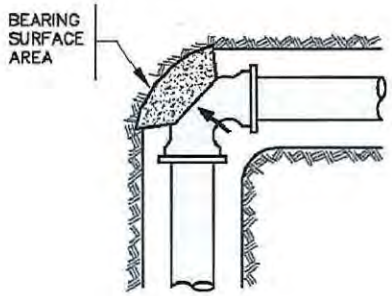
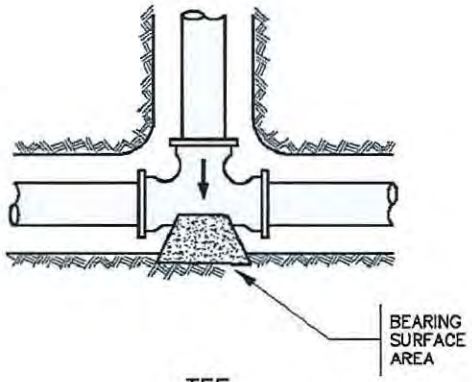
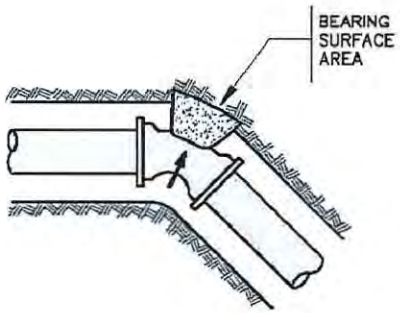


90°
ELBOW



TEE



(45° – 22 1/2° – 11 1/4°)
ELBOW

MIN. BEARING SURFACE AREA (sq. ft. of undisturbed earth) [2,3]

PIPE SIZE	TEES[1], PLUG OR DEAD END	90° ELBOW	45° ELBOW	22 1/2° ELBOW	11 1/4° ELBOW
2"	1/2	1/2	1/2	1/2	1/2
4"	1	1–1/2	1	1/2	1/2
6"	2	3	2	1	1
8"	4	5	3	1–1/2	1
10"	6	8	5	3	2
12"	8	12	6	3	3

NOTES:

1. BRANCH OUTLET SIZE.
2. AREAS BASED ON 150 PSI. WATER PRESSURE AND 2000 PSF. ALLOWABLE SOIL BEARING CAPACITY.
3. FOR SOFT OR DAMP CLAY, DOUBLE THE MIN. BEARING SURFACE AREA.
4. PORTLAND CEMENT SHALL BE – 6 SACK – 2" SLUMP – 3/4" ROCK.

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THRUST BLOCKING

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
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Submission Date	9/22/2015
Figure No.	32

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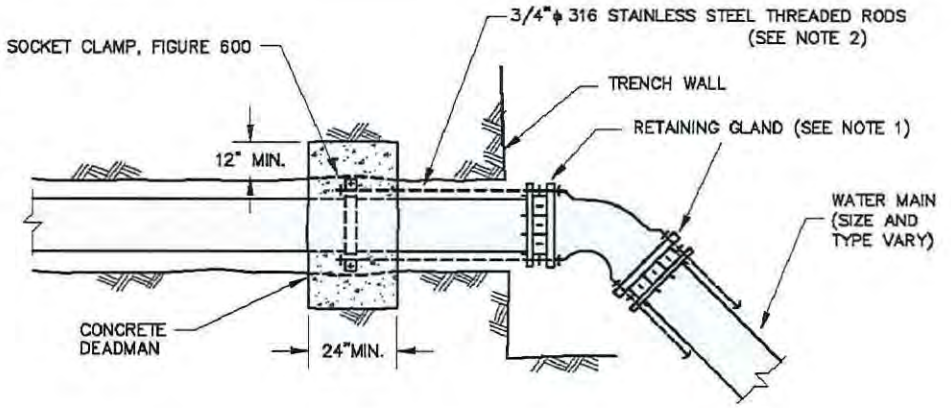
NOTES:

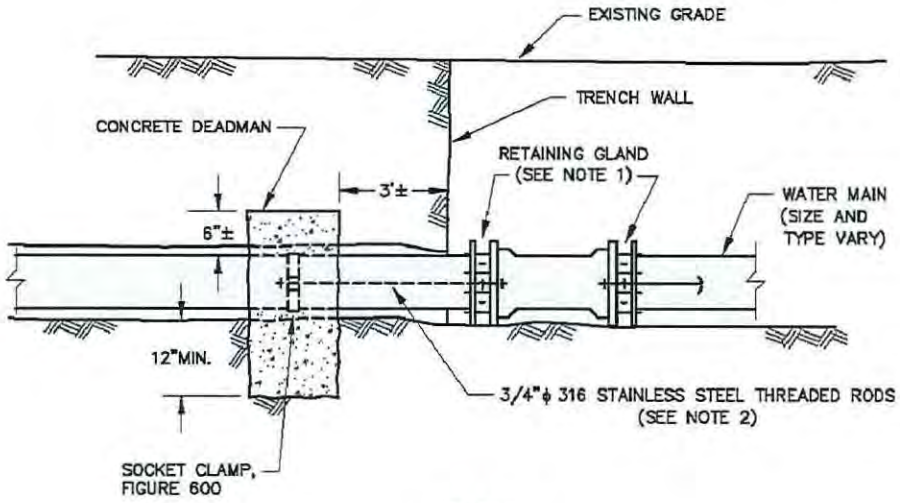
1. FOR DIP & PVC, USE DEADMAN W/ SOCKET CLAMP WITHOUT 3/4"ø 316 STAINLESS STEEL THREADED RODS. USE RETAINING GLANDS ON FITTINGS AS INSTRUCTED BY WATER DEPT. INSPECTOR.

	MANUFACTURER	MODEL
RETAINING GLAND	US PIPE EBAA UNIFLANGE	MJ FIELD LOK MEGA LUG SERIES 1100 SERIES 1400 (DIP) SERIES 1500 (PVC)

2. FOR ACP & CIP, USE DEADMAN W/ SOCKET CLAMP AND 3/4"ø 316 STAINLESS STEEL THREADED RODS TO FITTINGS, EQUALLY SPACED.
3. USE OTHER ADDITIONAL RESTRAINTS AS DIRECTED BY WATER DEPT. INSPECTOR.
4. FOR MAINS 8" OR LESS, USE ONE SOCKET CLAMP AND TWO 3/4"ø 316 STAINLESS STEEL THREADED RODS, WHERE REQUIRED.
5. FOR 10" & 12" MAINS, USE TWO SOCKET CLAMPS AND FOUR 3/4"ø 316 STAINLESS STEEL THREADED RODS, WHERE REQUIRED.
6. CONCRETE SHALL BE SACK – 2" SLUMP – 3/4" ROCK WITH NO ADDITIVES FOR HIGH EARLY STRENGTH.
7. DIMENSIONS BASED ON 150 PSI. WATER PRESSURE AND 2000 PSF. ALLOWABLE SOIL BEARING CAPACITY FOR 12" MAIN.
8. USE SS BOLTS, NUTS AND WASHERS FOR ALL FLANGE CONNECTIONS.



PLAN
NTS



PROFILE
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CONCRETE REVERSE THRUST BLOCK

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
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Submission Date	9/22/2015
Figure No.	33

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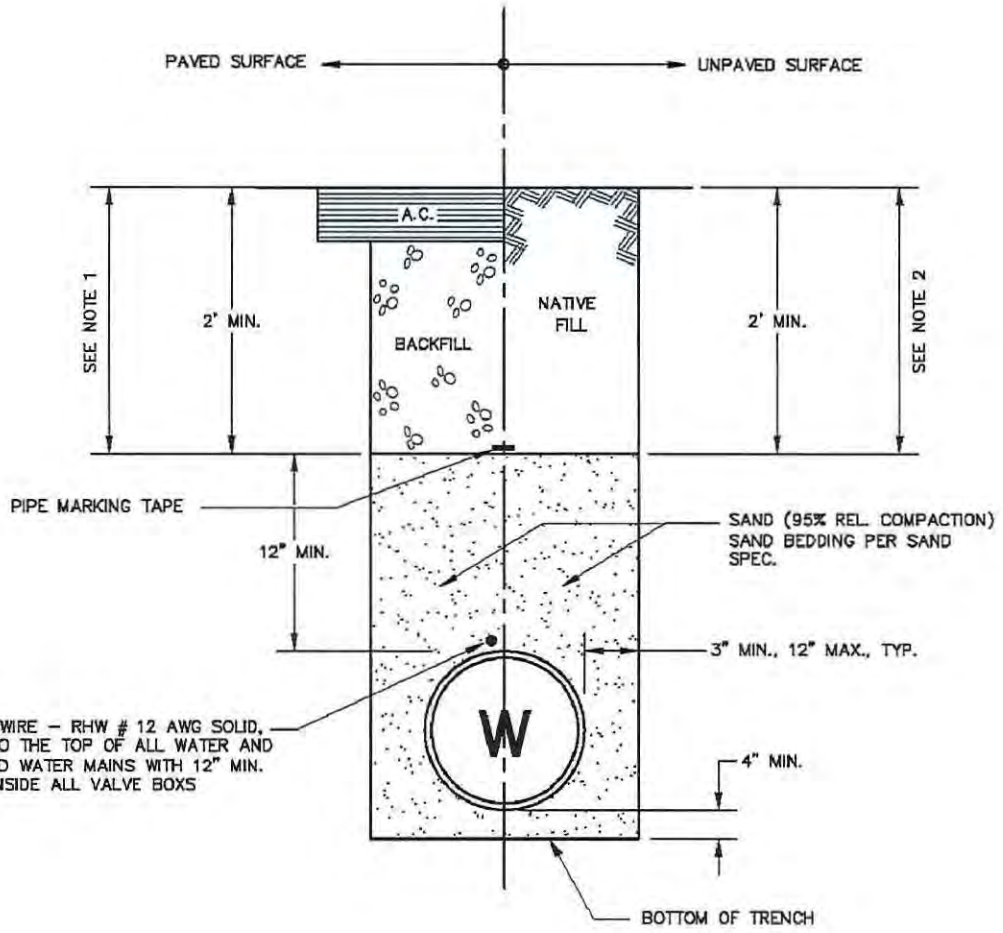
NOTES:

1. USE PUBLIC WORKS DEPT. STANDARD DRAWING ST-19 FOR TRENCH BACKFILL AND PAVEMENT REPLACEMENT. FOR PAVED SURFACE, USE ONLY OPTION A.
2. FOR UNPAVED SURFACE, CONTRACTOR CAN PROPOSE SUITABLE NATIVE BACKFILL MATERIAL.
3. FOR PCC SURFACE, REPLACE PCC TO MATCH EXISTING. INSTALL DOWELS PER ENGINEERING DEPT. STANDARD DRAWING ST-12 AND ST-13. REPLACE PCC PER CALTRANS STANDARD SPECS SECTION 90, CLASS 2. USE ONLY PORTLAND CEMENT, NO FLY ASH.

SAND SPEC.

SAND SHALL BE CLEAN AND FREE FROM CLAY AND ORGANICS. IT SHALL BE A CLEAN, HARD, DURABLE MATERIAL RESULTING FROM NATURAL DISINTEGRATION AND ABRASION OF GRANITE, QUARTZ, OR SIMILAR HARD ROCK OR BY THE PROCESSING OF COMPLETELY FRIABLE SANDSTONE. IT SHALL HAVE A SAND EQUIVALENT VALUE OF NOT LESS THAN 35. THE PERCENTAGE COMPOSITION BY WEIGHT AS DETERMINED BY LABORATORY SIEVES SHALL CONFORM TO THE FOLLOWING GRADING LIMITS:

SIEVE SIZE	% PASSING
# 4	100
# 10	95 – 100
# 40	20 – 65
# 100	5 – 30
# 200	0 – 10



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TRENCH BACKFILL

Project No. 770611601	Figure No. 34
Date 9/22/2015	
Scale N.T.S.	
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Submission Date 9/22/2015	

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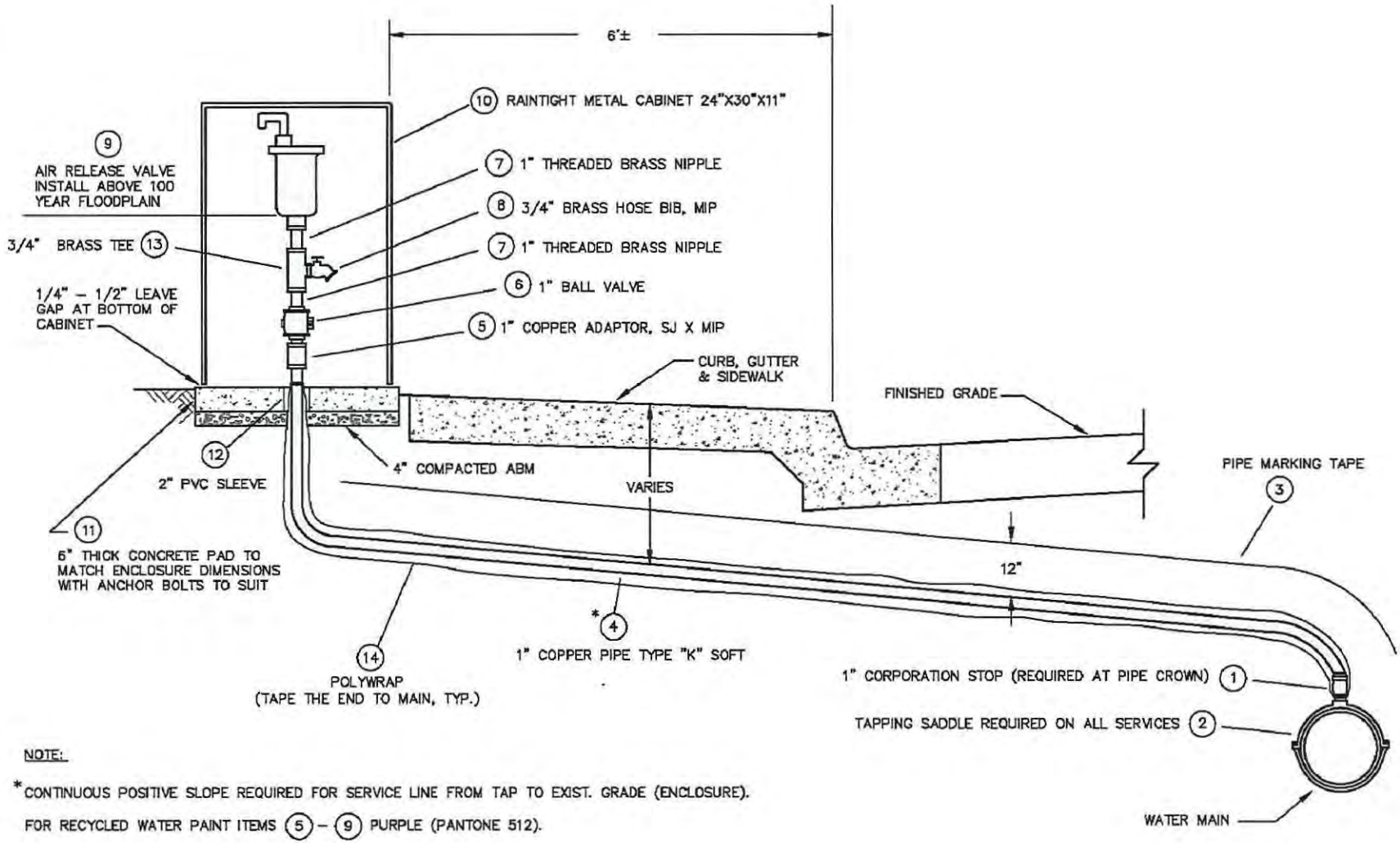

NOTE:

*CONTINUOUS POSITIVE SLOPE REQUIRED FOR SERVICE LINE FROM TAP TO EXIST. GRADE (ENCLOSURE).

FOR RECYCLED WATER PAINT ITEMS (5) – (9) PURPLE (PANTONE 512).

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Project: CITY PLACE SANTA CLARA
SANTA CLARA CALIFORNIA

AIR RELEASE VALVE

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
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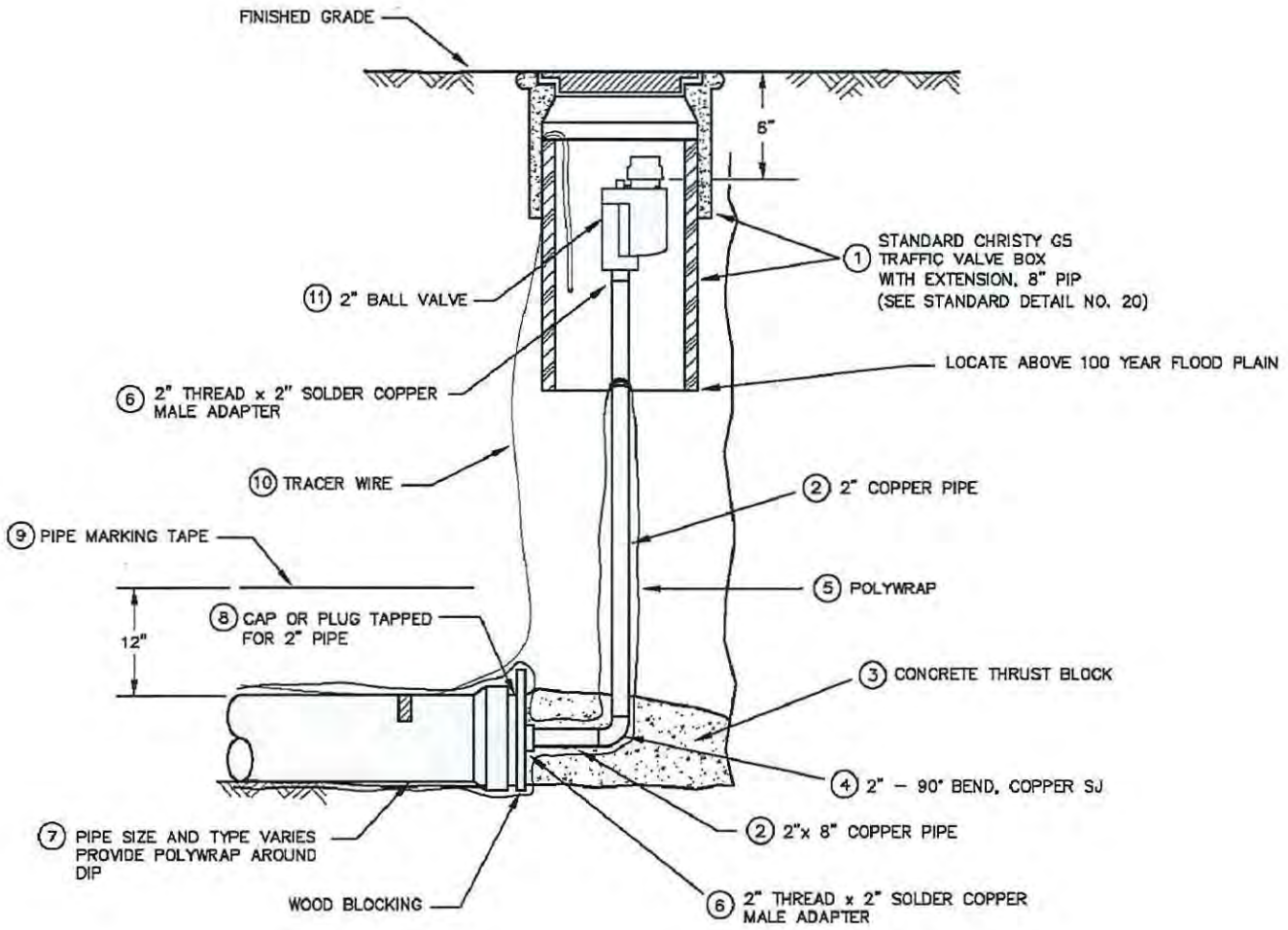
Submission Date	9/22/2015

Figure No. 35

Filename: \\langan.com\data\SJ\data6\770611601\Cadd Data - 770611601\SheetFiles\Technical Memo and Report Figures\Water\Utility - Water Details.dwg Date: 9/22/2015 Time: 12:49 User: dhodson Style Table: Langan.stb Layout: Fig 35.



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BLOW-OFF ASSEMBLY

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
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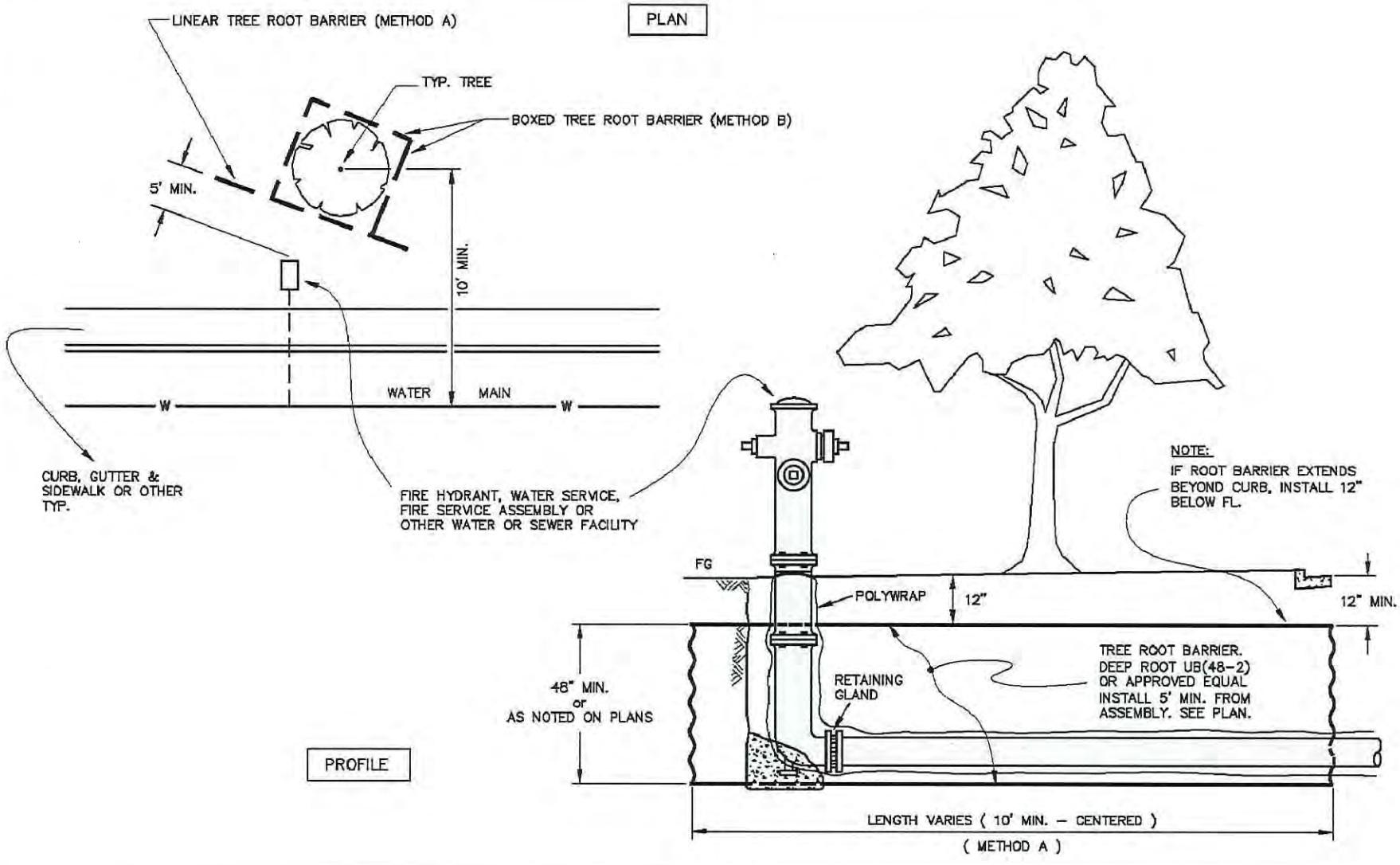
Submission Date	9/22/2015

Figure No. 36

Filename: \\langan.com\data\SJ\data6\770611601\Cadd Data - 770611601\SheetFiles\Technical Memo and Report Figures\Water\Utility - Water Details.dwg Date: 9/22/2015 Time: 12:49 User: dhodson Style Table: Langan.stb Layout: Fig 36.



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TREE ROOT BARRIER

Project No.	770611601
Date	9/22/2015
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Figure No.	37

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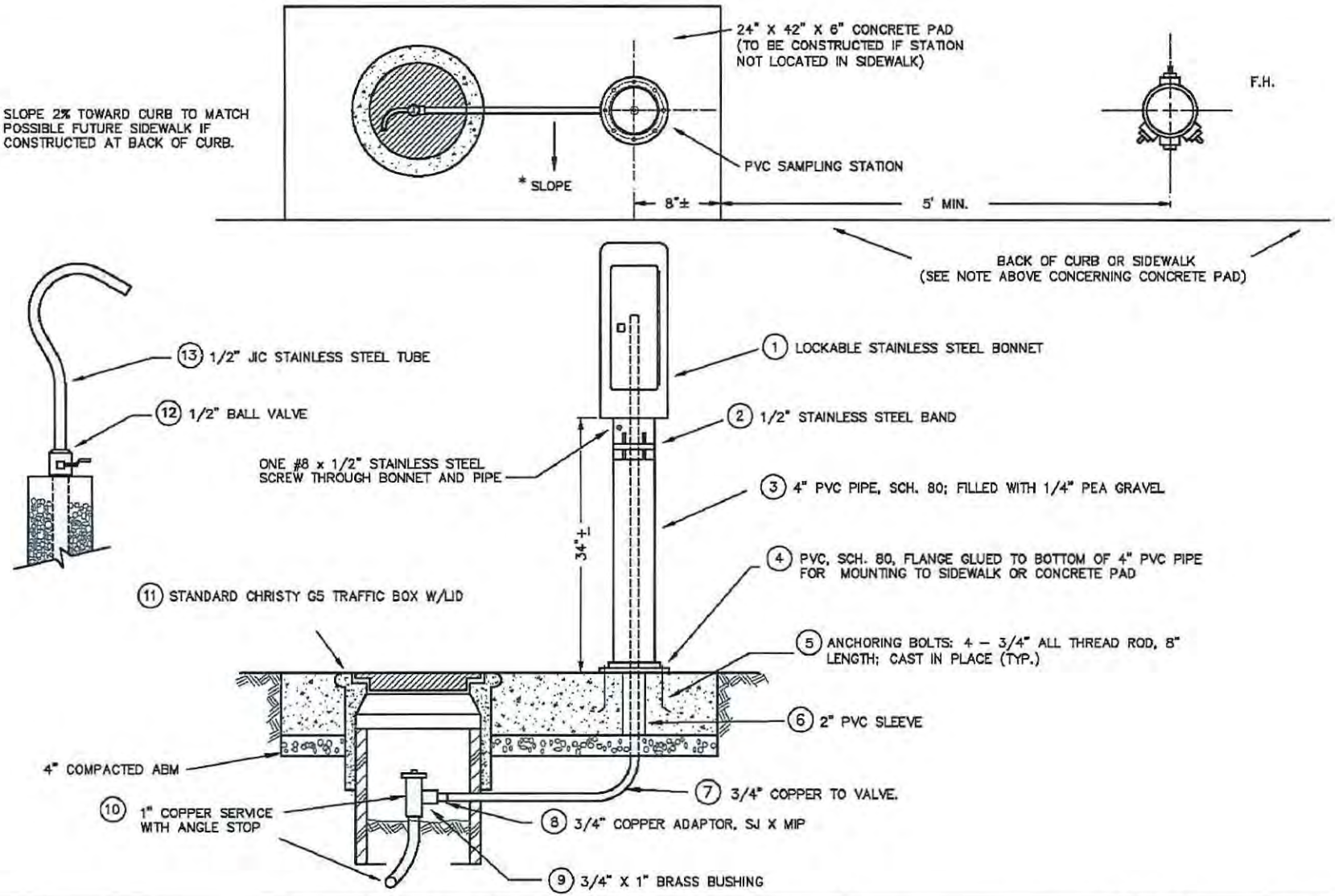

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Langan International LLC
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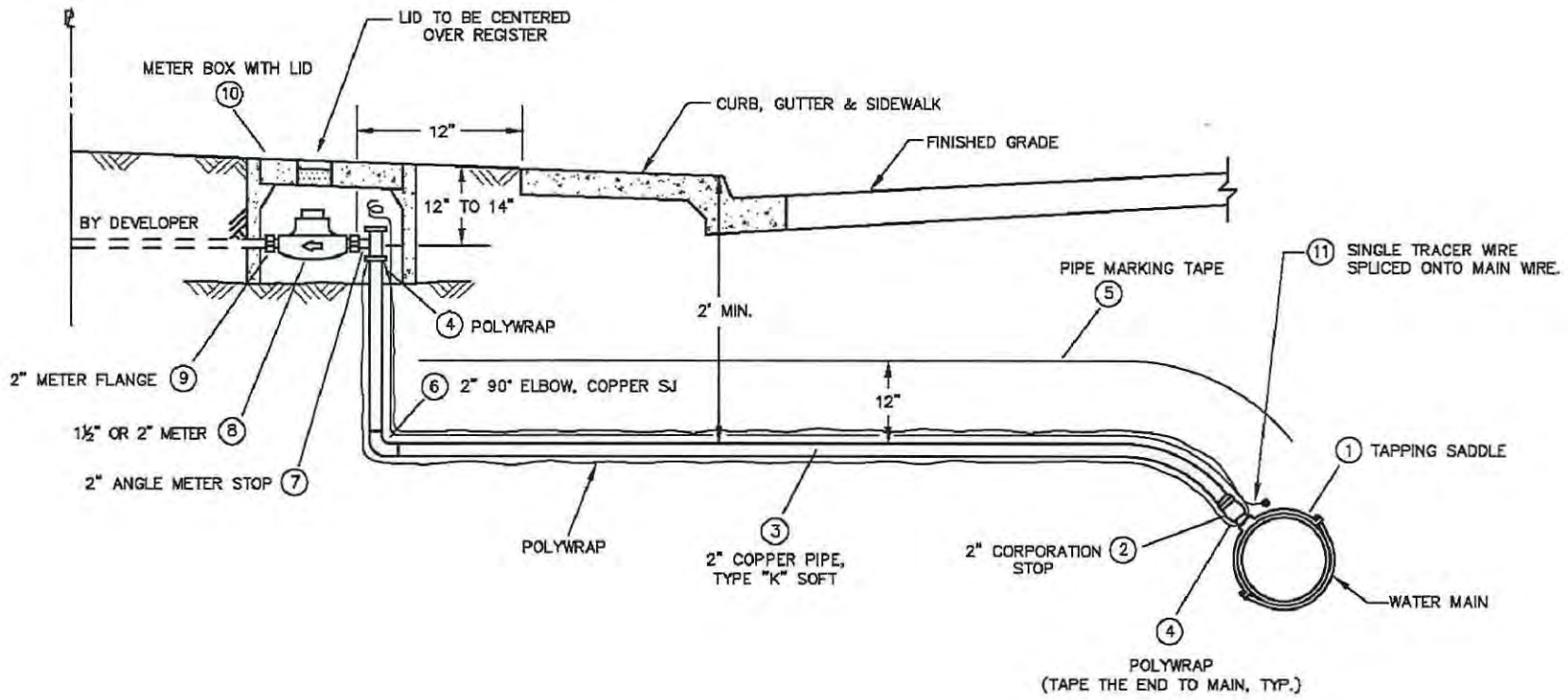
Project
CITY PLACE
SANTA CLARA
SANTA CLARA CALIFORNIA

WATER SAMPLING STATION

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
Drawn By	STAFF
Checked By	AP
Submission Date	9/22/2015
Figure No.	38

Filename: \\langan.com\data\SJ\data6\770611601\Cadd Data - 770611601\SheetFiles\Technical Memo and Report Figures\Water\Utility - Water Details.dwg Date: 9/22/2015 Time: 12:49 User: dhodson Style Table: Langan.stb Layout: Fig 38.



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4030 Moorpark Avenue, Suite 210
San Jose, CA 95117
T: 408.551.6700 F: 408.551.0344 www.langan.com
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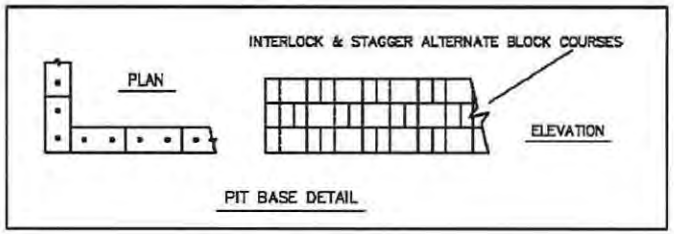
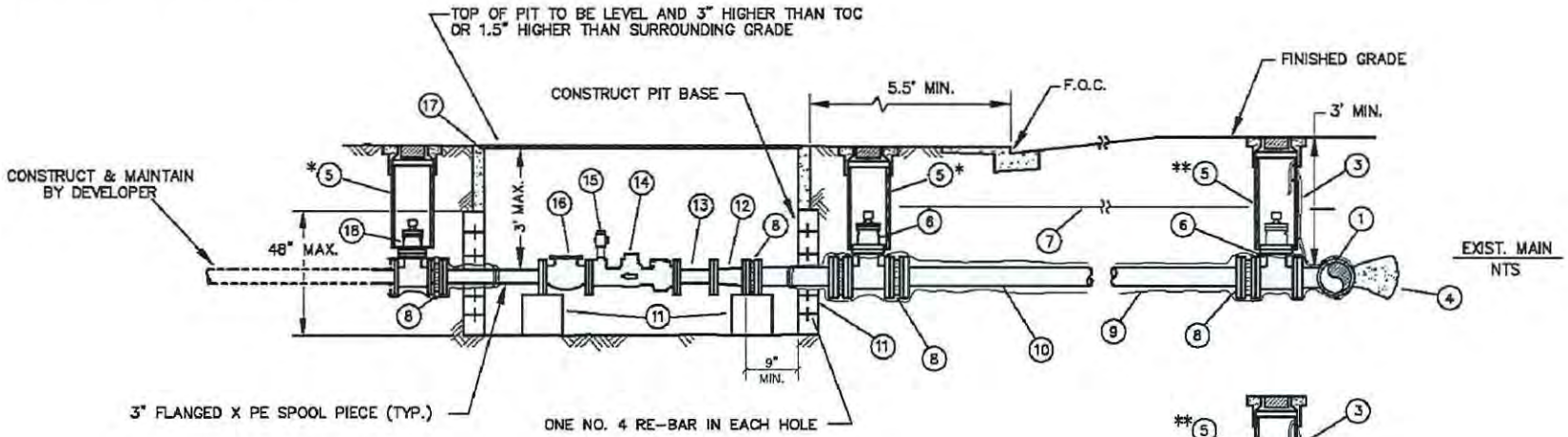
1 ½" & 2" RECYCLED WATER SERVICE

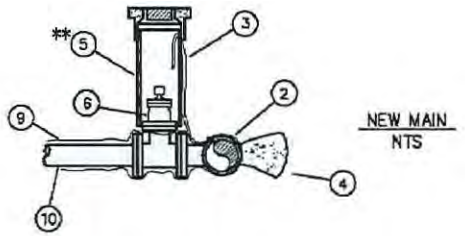
Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
Drawn By	STAFF
Checked By	AP
Submission Date	9/22/2015
Figure No.	39

Filename: \\langan.com\data\SJ\data5\770611601\Cadd Data - 770611601\SheetFiles\Technical Memo and Report Figures\Water\Utility - Water Details.dwg Date: 9/22/2015 Time: 12:49 User: dhodson Style Table: Langan.stb Layout: Fig 39

1. TAPPING SLEEVE
2. TEE MJ WITH FLANGED BRANCH
3. TRACER WIRE
4. THRUST BLOCK
5. STD. TRAFFIC VALVE BOX & EXTENSION
6. 4" GATE VALVE, MJ X FLANGED
7. PIPE MARKING TAPE
8. RETAINING GLAND, TYP.
9. POLYWRAP (TAPE THE END TO MAIN)
10. 4" DUCTILE IRON PIPE
11. 8" X 8" X 16" STD. CONC. BUILD. BLOCK
12. REDUCER (4"x3"), FLANGED
13. 3" FLANGED X PE SPOOL PIECE (6" LENGTH)
14. 3" TURBINE METER AND STRAINER
15. TEST ASSEMBLY
16. 3" CHECK VALVE, FLANGED
17. CHRISTY R-33 PIT WITH LID (4' X 5')
18. 3" GATE VALVE, MJ X FLANGED







NOTES TO DEVELOPER:

1. METER SHALL BE TAGGED AND LABELED TO INDICATE RECYCLED WATER, PAINT PURPLE (PANTONE 512)
2. MECHANICALLY RESTRAIN ALL JOINTS.

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4030 Moorpark Avenue, Suite 210
San Jose, CA 95117
T: 408.551.6700 F: 408.551.0344 www.langan.com
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3" RECYCLED WATER SERVICE

Project No. 770611601	Figure No. 40
Date 9/22/2015	
Scale N.T.S.	
Drawn By STAFF / Checked By AP	
Submission Date 9/22/2015	

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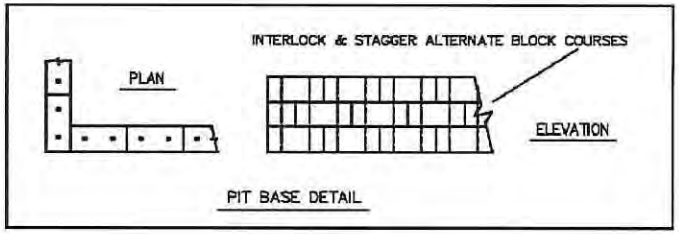
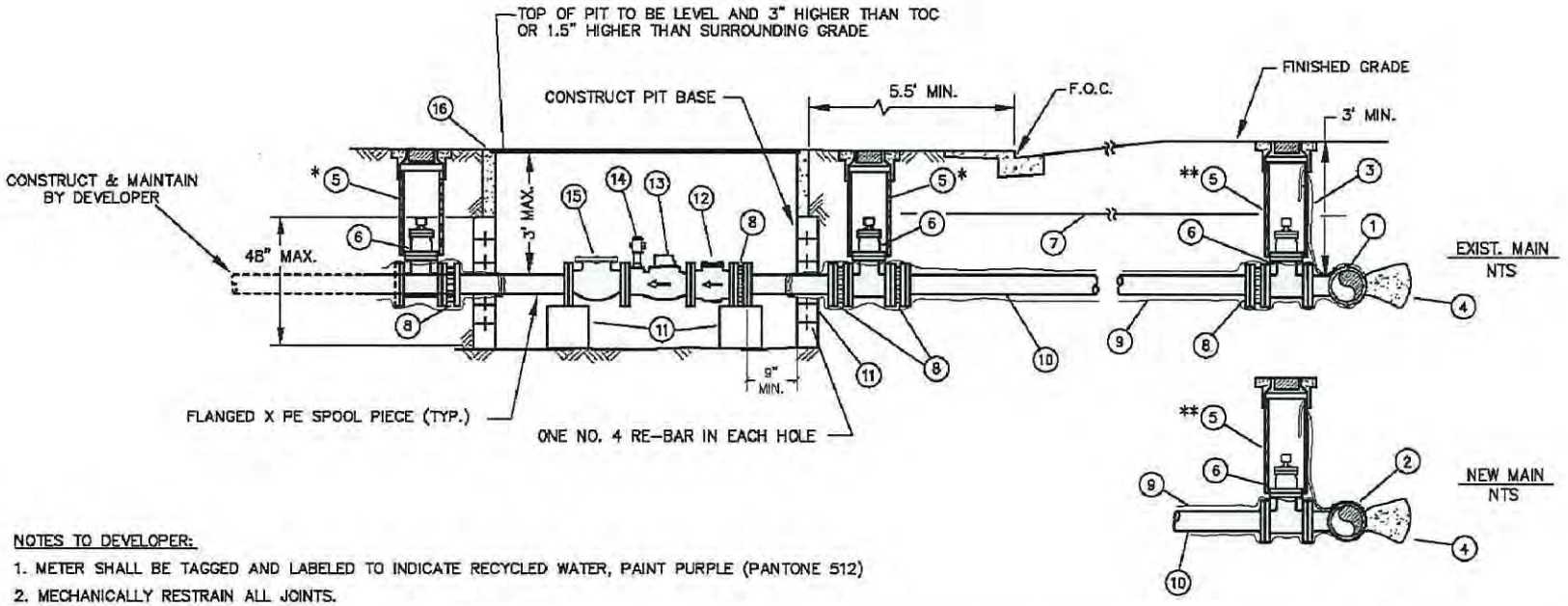
1. TAPPING SLEEVE
2. TEE MJ WITH FLANGED BRANCH
3. TRACER WIRE
4. THRUST BLOCK
5. STD. TRAFFIC VALVE BOX & EXTENSION
6. GATE VALVE, MJ X FLANGED
7. PIPE MARKING TAPE
8. RETAINING GLAND, TYP.
9. POLYWRAP (TAPE THE END TO MAIN), TYP.
10. DUCTILE IRON PIPE
11. 8" X 8" X 16" STD. CONC. BUILD. BLOCK
12. STRAINER, FLANGED
    (FOR USE WITH 6" & 8" BADGER METERS)
13. TURBINE METER
14. TEST ASSEMBLY
15. CHECK VALVE, FLANGED
16. CHRISTY R-33 PIT WITH LID (4' X 5') FOR 4" & 6" SERVICE
    CHRISTY R-37 PIT WITH LID (4' X 7') FOR 8" SERVICE





NOTES TO DEVELOPER:

1. METER SHALL BE TAGGED AND LABELED TO INDICATE RECYCLED WATER, PAINT PURPLE (PANTONE 512)
2. MECHANICALLY RESTRAIN ALL JOINTS.

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4030 Moorpark Avenue, Suite 210
San Jose, CA 95117
T: 408.551.6700 F: 408.551.0344 www.langan.com
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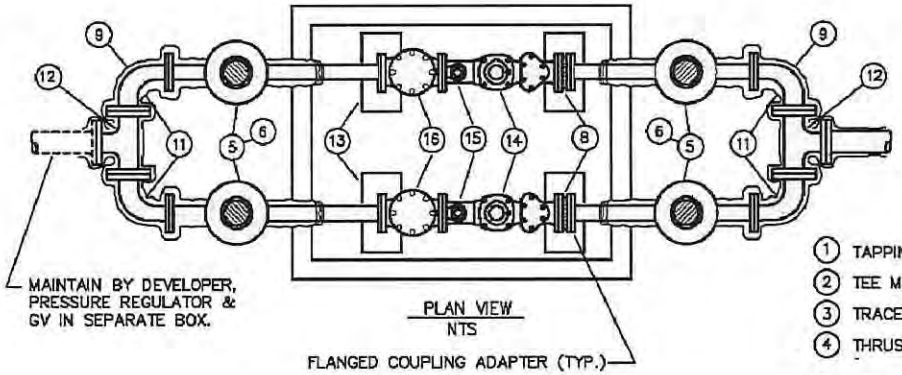
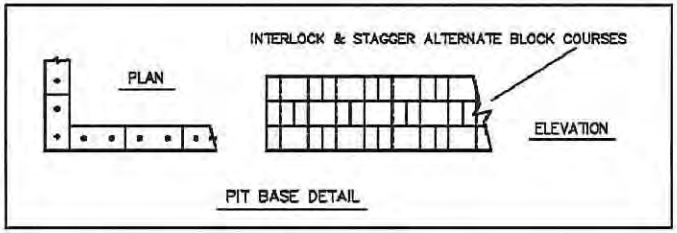
4", 6" & 8" RECYCLED WATER SERVICE

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
Drawn By	STAFF
Checked By	AP
Submission Date	9/22/2015
Figure No.	41

Filename: \\langan.com\data\SJ\data6\770611601\Cadd Data - 770611601\SheetFiles\Technical Memo and Report Figures\Water\Utility - Water Details.dwg Date: 9/22/2015 Time: 12:48 User: dhodson Style Table: Langan.stb Layout: Fig 41



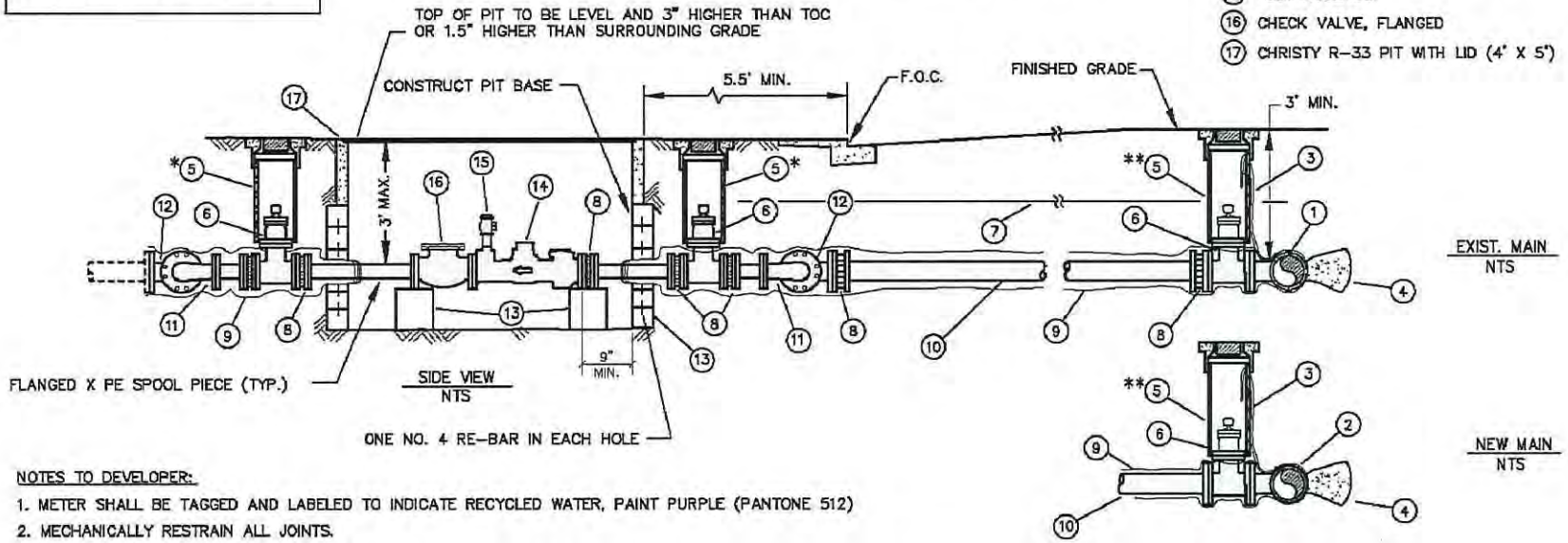
PLAN VIEW
NTS



PIT BASE DETAIL

1. TAPPING SLEEVE
2. TEE MJ WITH FLANGED BRANCH
3. TRACER WIRE
4. THRUST BLOCK
5. STD. TRAFFIC VALVE BOX & EXTENSION
6. GATE VALVE, MJ X FLANGED
7. PIPE MARKING TAPE
8. RETAINING GLAND, TYP.
9. POLYWRAP (TAPE THE END TO MAIN)
10. DUCTILE IRON PIPE
11. REDUCING 90° BEND, FLANGED
12. TEE, FLANGED
13. 8" X 8" X 16" STD. CONC. BUILD. BLOCK
14. TURBINE METER AND STRAINER
15. TEST ASSEMBLY
16. CHECK VALVE, FLANGED
17. CHRISTY R-33 PIT WITH LID (4' X 5')

NOTE:
4" SERVICE USE TWO 3" METER
6" SERVICE USE TWO 4" METER



SIDE VIEW
NTS

EXIST. MAIN
NTS

NEW MAIN
NTS

NOTES TO DEVELOPER:

1. METER SHALL BE TAGGED AND LABELED TO INDICATE RECYCLED WATER, PAINT PURPLE (PANTONE 512)
2. MECHANICALLY RESTRAIN ALL JOINTS.

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4030 Moorpark Avenue, Suite 210
San Jose, CA 95117
T: 408.551.6700 F: 408.551.0344 www.langan.com
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4" & 6" RECYCLED WATER SERVICE (DUAL METER SERVICE)

Project No. 770611601	Figure No. 42
Date 9/22/2015	
Scale N.T.S.	
Drawn By STAFF / Checked By AP	
Submission Date 9/22/2015	

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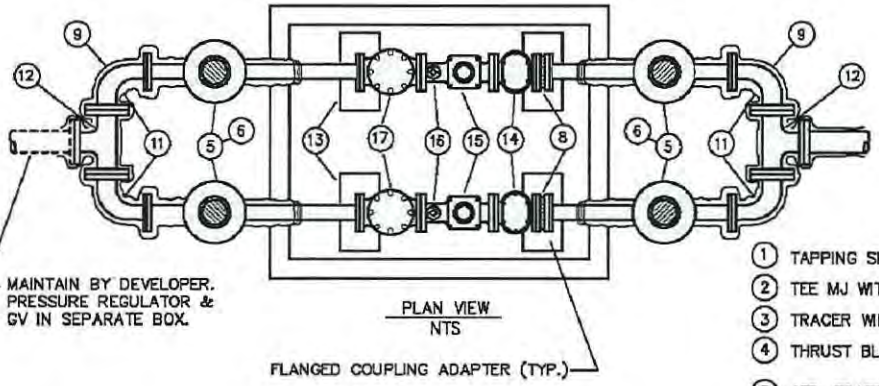
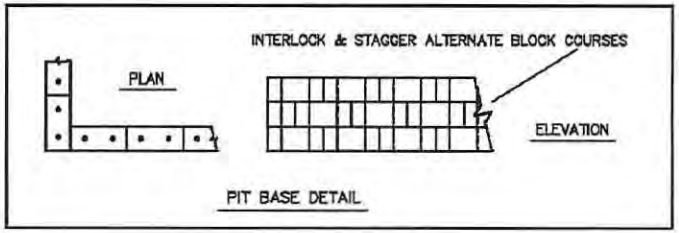


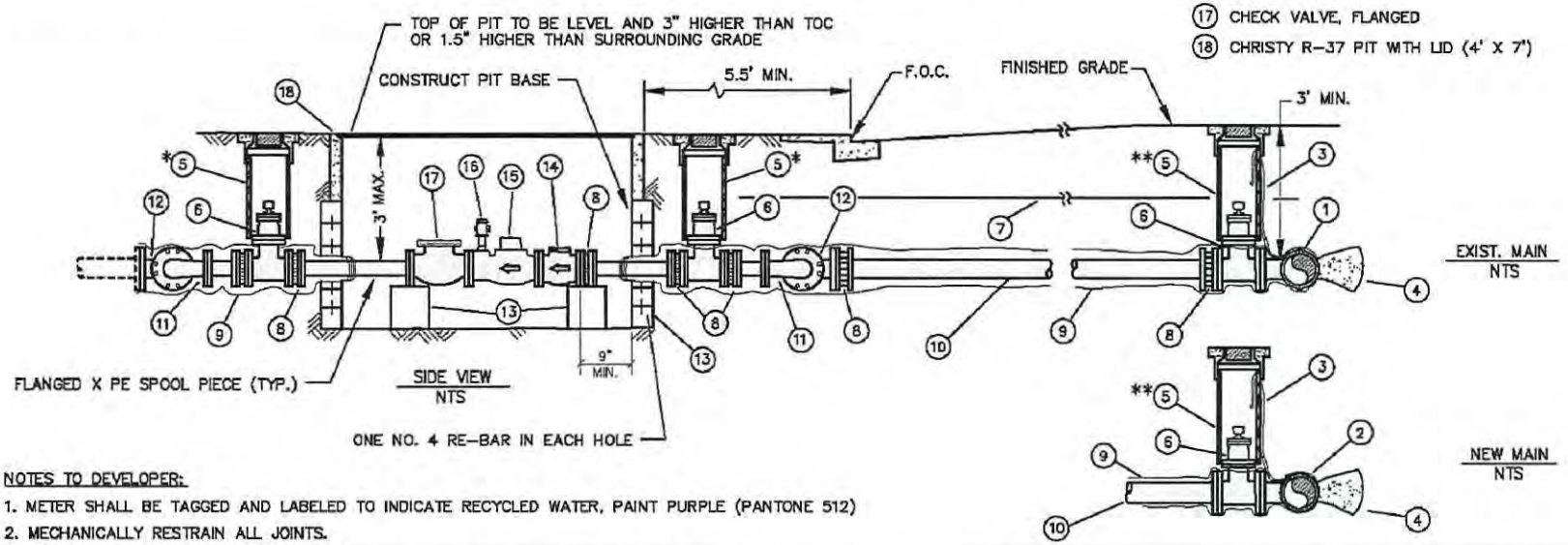
PLAN VIEW
NTS



PIT BASE DETAIL

1. TAPPING SLEEVE
2. TEE MJ WITH FLANGED BRANCH
3. TRACER WIRE
4. THRUST BLOCK
5. STD. TRAFFIC VALVE BOX & EXTENSION
6. GATE VALVE, MJ X FLANGED
7. PIPE MARKING TAPE
8. RETAINING GLAND, TYP.
9. POLYWRAP (TAPE THE END TO MAIN)
10. DUCTILE IRON PIPE
11. REDUCING 90° BEND, FLANGED
12. TEE, FLANGED
13. 8" X 8" X 16" STD. CONC. BUILD. BLOCK
14. STRAINER, FLANGED (FOR USE WITH BADGER METER
15. TURBINE METER
16. TEST ASSEMBLY
17. CHECK VALVE, FLANGED
18. CHRISTY R-37 PIT WITH LID (4' X 7')

NOTE:
8" SERVICE USE TWO 6" METER, STRAINERS



SIDE VIEW
NTS

NOTES TO DEVELOPER:

1. METER SHALL BE TAGGED AND LABELED TO INDICATE RECYCLED WATER, PAINT PURPLE (PANTONE 512)
2. MECHANICALLY RESTRAIN ALL JOINTS.

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4030 Moorpark Avenue, Suite 210
San Jose, CA 95117
T: 408.551.6700 F: 408.551.0344 www.langan.com
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CITY PLACE
SANTA CLARA
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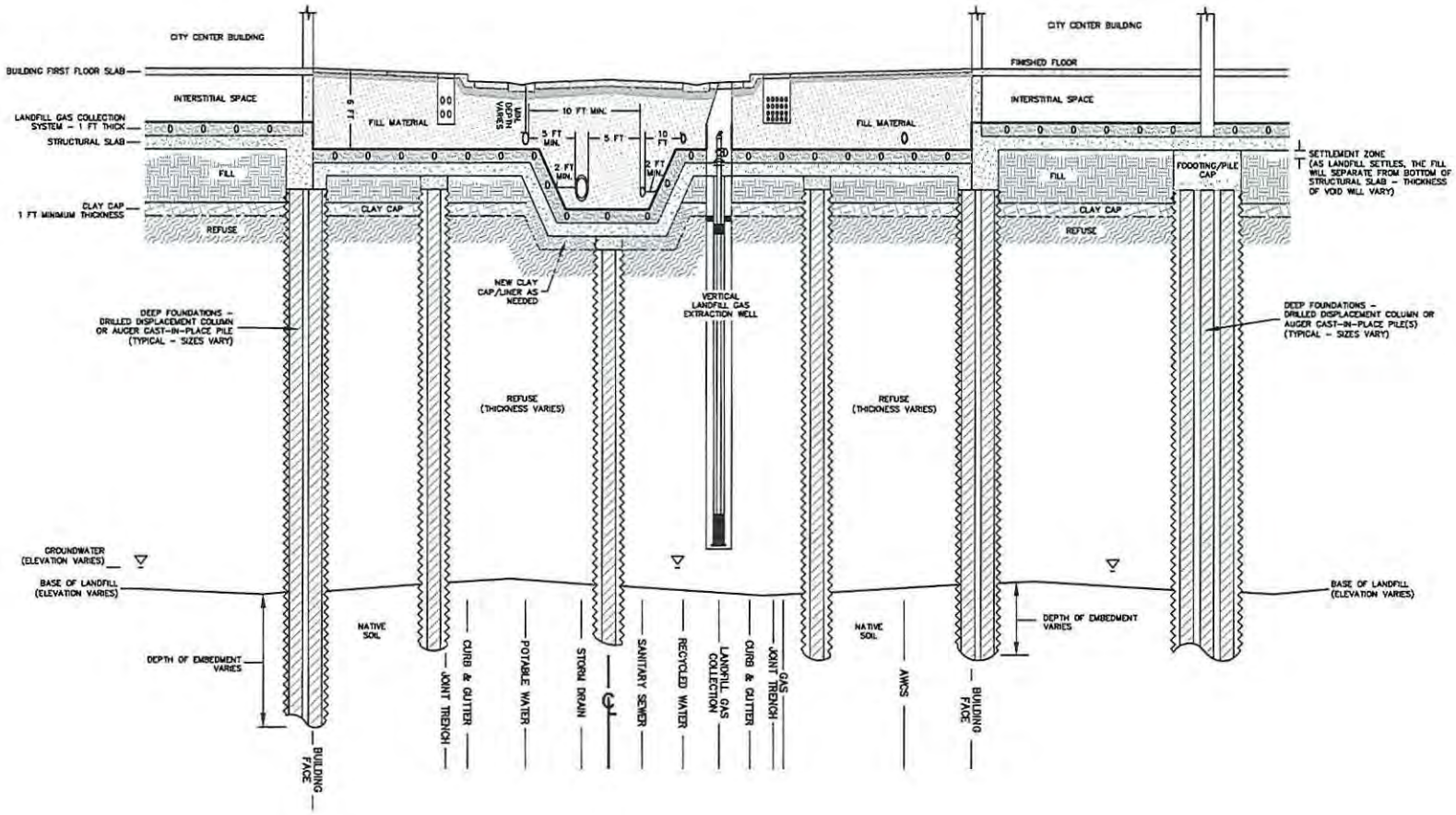
8" RECYCLED WATER SERVICE (DUAL METER SERVICE)

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
Drawn By	STAFF
Checked By	AP
Submission Date	9/22/2015
Figure No.	43

Filename: \\langan.com\data\SJ\data6\770611601\Cadd Data - 770611601\SheetFiles\Technical Memo and Report Figures\Water\Utility - Water Details.dwg Date: 9/22/2015 Time: 12:48 User: dhodson Style Table: Langan.stb Layout: Fig 43



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4030 Moorpark Avenue, Suite 210
San Jose, CA 95117
T: 408.551.6700 F: 408.551.0344 www.langan.com

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Project

CITY PLACE SANTA CLARA

SANTA CLARA CA

FOUNDATION CONCEPT TYPE 1

Project No.	770611601
Date	9/22/2015
Scale	N.T.S.
Drawn By	STAFF
Checked By	DJH
Submission Date	9/22/2015

Figure No. **44**

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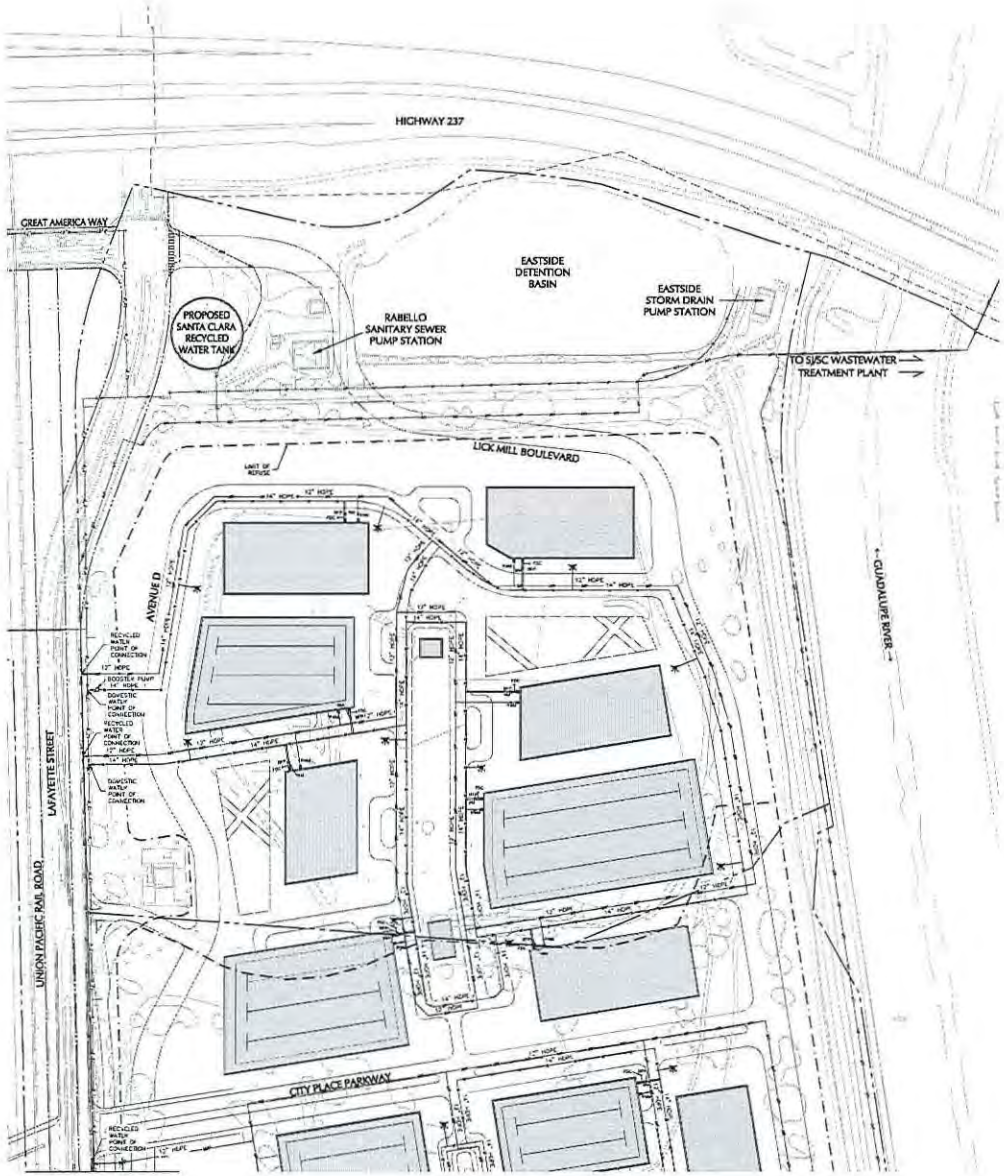
DRAWINGS



DOMESTIC WATER LEGEND

EXISTING DOMESTIC WATER
EXISTING RECYCLED WATER
PROPOSED DOMESTIC WATER
PROPOSED RECYCLED WATER
LIMIT OF REFUSE
STRUCTURAL SLAB
VOLATILE ORGANIC CHEMICAL PIPING
EXISTING FIRE HYDRANT
PROPOSED FIRE HYDRANT
PROPOSED VALVE
SETTLEMENT VAULT TYPE I
SETTLEMENT VAULT TYPE II
DETAIL No. SHEET No.

ABBREVIATIONS

WM	WATER METER
RWM	RECYCLED WATER METER
BFP	BACK FLOW PREVENTER

UTILITY NOTES

1. EXISTING UTILITY INFORMATION OBTAINED FROM CITY OF SANTA CLARA SYSTEM MAP. FIELD VERIFY PRIOR TO CONSTRUCTION.

LIST OF DETAILS

LEAK DETECTION VAULT AT WATER VALVES AND METER SERVICE CONNECTION TO MAIN
TERMINATION OF CONTAINMENT PIPE AT LIMITS OF REFUSE
CONTAINMENT PIPE TERMINATION STRUCTURE
PRESSURE PIPE ENCLOSED IN CONTAINMENT PIPE
TERMINATION OF CONTAINMENT PIPE AT AIR RELEASE VALVE
TERMINATION OF CONTAINMENT PIPE AT BLOW-OFFS
SETTLEMENT VAULT - TYPE I
SETTLEMENT VAULT - TYPE II
2" WATER SERVICE WITH BP
4", 6", & 8" WATER SERVICE W/BP
4", 6", & 8" WATER SERVICE W/ BP (DUAL METER SERVICE)
4"-10" FIRE SERVICE ASSEMBLY (W/DCDA)
4"-10" FIRE SERVICE ASSEMBLY (W/RPDA)
REDUCED PRESSURE BACKFLOW ASSEMBLY
FIRE HYDRANT ASSEMBLY
GATE VALVE INSTALLATION
TRAFFIC VALVE BOX
THRUST BLOCKING
CONCRETE REVERSE THRUST BLOCK
TRENCH BACKFILL
AIR RELEASE VALVE
BLOW-OFF ASSEMBLY
TREE ROOT BARRIER
WATER SAMPLING STATION
1 1/2" & 2" RECYCLE WATER SERVICE
2" RECYCLED WATER SERVICE
4", 6", & 8" RECYCLED WATER SERVICE
4" & 6" RECYCLED WATER SERVICE (DUAL METER SERVICE)
8" RECYCLED WATER SERVICE (DUAL METER SERVICE)
FOUNDATION TYPE 1

100 0 50 100
SCALE IN FEET

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.

REVISIONS

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Project
CITY PLACE
SANTA CLARA
SANTA CLARA CALIFORNIA

Figure Title
PARCEL 1
PRELIMINARY
WATER PLAN

Project No.	770611601
Date	3/20/2015
Scale	AS SHOWN
Drawn By	NT
Checked By	DH
Submission Date	3/20/2015

Figure
CDW2.01
Sheet 1 of 4

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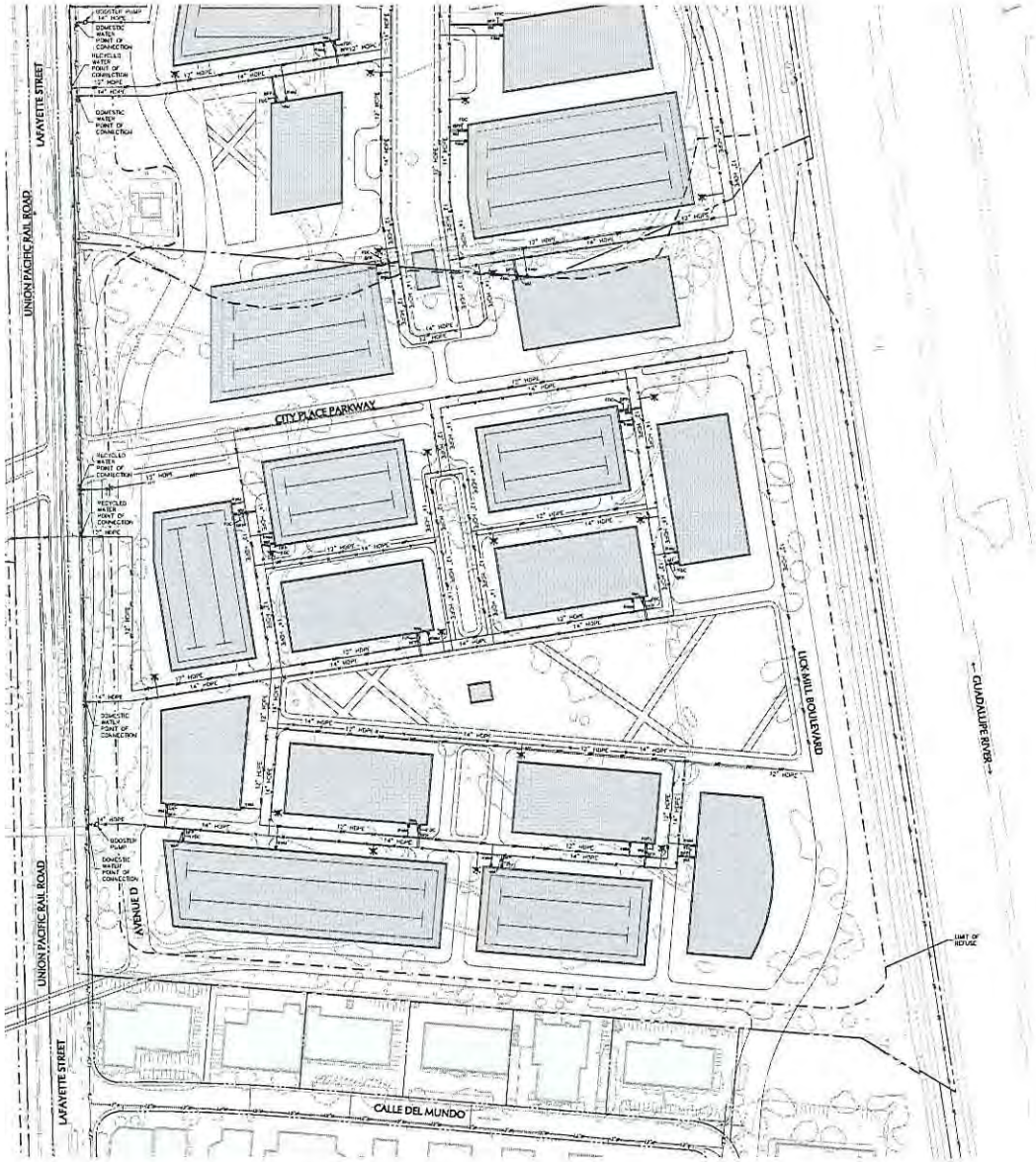
PROJECT No. 770611601



DOMESTIC WATER LEGEND

EXISTING DOMESTIC WATER
EXISTING RECYCLED WATER
PROPOSED DOMESTIC WATER
PROPOSED RECYCLED WATER
LIMIT OF REFUSE
STRUCTURAL SLAB
VOLATILE ORGANIC CHEMICAL PLUME
EXISTING FIRE HYDRANT
PROPOSED FIRE HYDRANT
PROPOSED VALVE
SETTLEMENT VAULT TYPE I
SETTLEMENT VAULT TYPE II
DETAIL No. / SHEET No.

ABBREVIATIONS

WM	WATER METER
RWM	RECYCLED WATER METER
BFP	BACK FLOW PREVENTER

UTILITY NOTES

1. EXISTING UTILITY INFORMATION OBTAINED FROM CITY OF SANTA CLARA SYSTEM MAP. FIELD VERIFY PRIOR TO CONSTRUCTION.

LIST OF DETAILS

LEAK DETECTION VAULT AT WATER VALVES AND METER SERVICE CONNECTION TO MAIN
TERMINATION OF CONTAINMENT PIPE AT LIMITS OF REFUSE
CONTAINMENT PIPE TERMINATION STRUCTURE
PRESSURE PIPE ENCLOSED IN CONTAINMENT PIPE
TERMINATION OF CONTAINMENT PIPE AT AIR RELEASE VALVE
TERMINATION OF CONTAINMENT PIPE AT BLOW-OFFS
SETTLEMENT VAULT – TYPE I
SETTLEMENT VAULT – TYPE II
3" WATER SERVICE WITH RP
4", 6", & 8" WATER SERVICE W/RP
4", 6", & 8" WATER SERVICE W/ RP (DUAL METER SERVICE)
4"-10" FIRE SERVICE ASSEMBLY (W/DCDA)
4"-10" FIRE SERVICE ASSEMBLY (W/RPDA)
REDUCED PRESSURE BACKFLOW ASSEMBLY
FIRE HYDRANT ASSEMBLY
GATE VALVE INSTALLATION
TRAFFIC VALVE BOX
THRUST BLOCKING
CONCRETE REVERSE THRUST BLOCK
TRENCH BACKFILL
AIR RELEASE VALVE
BLOW-OFF ASSEMBLY
TREE ROOT BARRIER
WATER SAMPLING STATION
1 1/2" & 2" RECYCLE WATER SERVICE
3" RECYCLED WATER SERVICE
4", 6", & 8" RECYCLED WATER SERVICE
4" & 6" RECYCLED WATER SERVICE (DUAL METER SERVICE)
8" RECYCLED WATER SERVICE (DUAL METER SERVICE)
FOUNDATION TYPE I

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.
REVISIONS		

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Figure Title
PARCEL 2
PRELIMINARY
WATER PLAN

Project No. 770611601
Figure CDW2.02
Date
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Drawn By NT
Checked By DIH
Submission Date
Sheet 2 of 4

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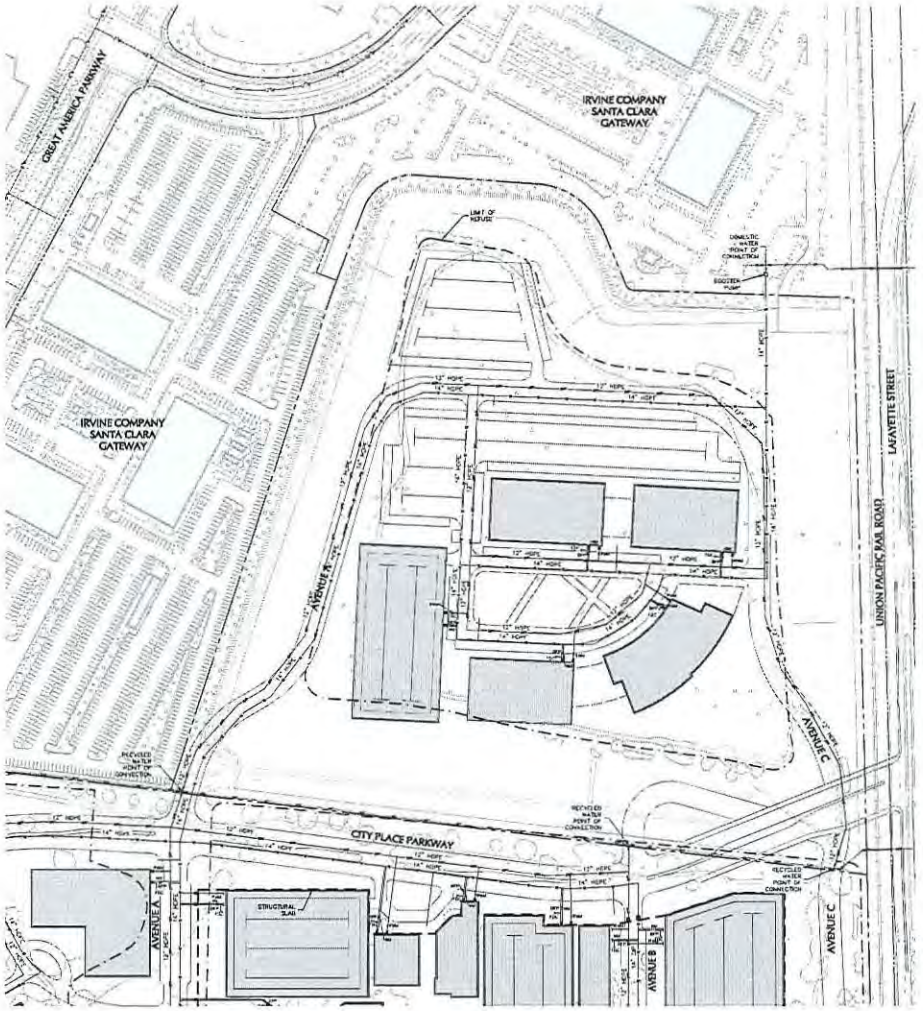
SCALE IN FEET

LANGAN
PROJECT No. 770611601



DOMESTIC WATER LEGEND

EXISTING DOMESTIC WATER
EXISTING RECYCLED WATER
PROPOSED DOMESTIC WATER
PROPOSED RECYCLED WATER
LIMIT OF REFUSE
STRUCTURAL SLAB
VOLATILE ORGANIC CHEMICAL PLUME
EXISTING FIRE HYDRANT
PROPOSED FIRE HYDRANT
PROPOSED VALVE
SETTLEMENT VAULT TYPE I
SETTLEMENT VAULT TYPE II
DETAIL No. — SHEET No.

ABBREVIATIONS

WM	WATER METER
RWM	RECYCLED WATER METER
BFP	BACK FLOW PREVENTER

UTILITY NOTES

1. EXISTING UTILITY INFORMATION OBTAINED FROM CITY OF SANTA CLARA SYSTEM MAP. FIELD VERIFY PRIOR TO CONSTRUCTION.

LIST OF DETAILS

LEAK DETECTION VAULT AT WATER VALVES AND METER SERVICE CONNECTION TO MAIN
TERMINATION OF CONTAINMENT PIPE AT LIMITS OF REFUSE
CONTAINMENT PIPE TERMINATION STRUCTURE
PRESSURE PIPE ENCLOSED IN CONTAINMENT PIPE
TERMINATION OF CONTAINMENT PIPE AT AIR RELEASE VALVE
TERMINATION OF CONTAINMENT PIPE AT BLOW-OFFS
SETTLEMENT VAULT – TYPE I
SETTLEMENT VAULT – TYPE II
3" WATER SERVICE WITH RP
4", 6", & 8" WATER SERVICE W/RP
4", 6", & 8" WATER SERVICE W/ RP (DUAL METER SERVICE)
4"–10" FIRE SERVICE ASSEMBLY (W/DCDA)
4"–10" FIRE SERVICE ASSEMBLY (W/RPDA)
REDUCED PRESSURE BACKFLOW ASSEMBLY
FIRE HYDRANT ASSEMBLY
GATE VALVE INSTALLATION
TRAFFIC VALVE BOX
THRUST BLOCKING
CONCRETE REVERSE THRUST BLOCK
TRENCH BACKFILL
AIR RELEASE VALVE
BLOW-OFF ASSEMBLY
TREE ROOT BARRIER
WATER SAMPLING STATION
1 1/2" & 2" RECYCLE WATER SERVICE
2" RECYCLED WATER SERVICE
4", 6", & 8" RECYCLED WATER SERVICE
4" & 6" RECYCLED WATER SERVICE (DUAL METER SERVICE)
8" RECYCLED WATER SERVICE (DUAL METER SERVICE)
FOUNDATION TYPE I

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.

REVISIONS

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Project
CITY PLACE SANTA CLARA
SANTA CLARA CALIFORNIA

Figure Title
PARCEL 3 PRELIMINARY WATER PLAN

Project No. 770611601	Figure
Date 3/20/2015	CDW2.03
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Submission Date 3/20/2015	Sheet 3 of 4

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SCALE IN FEET

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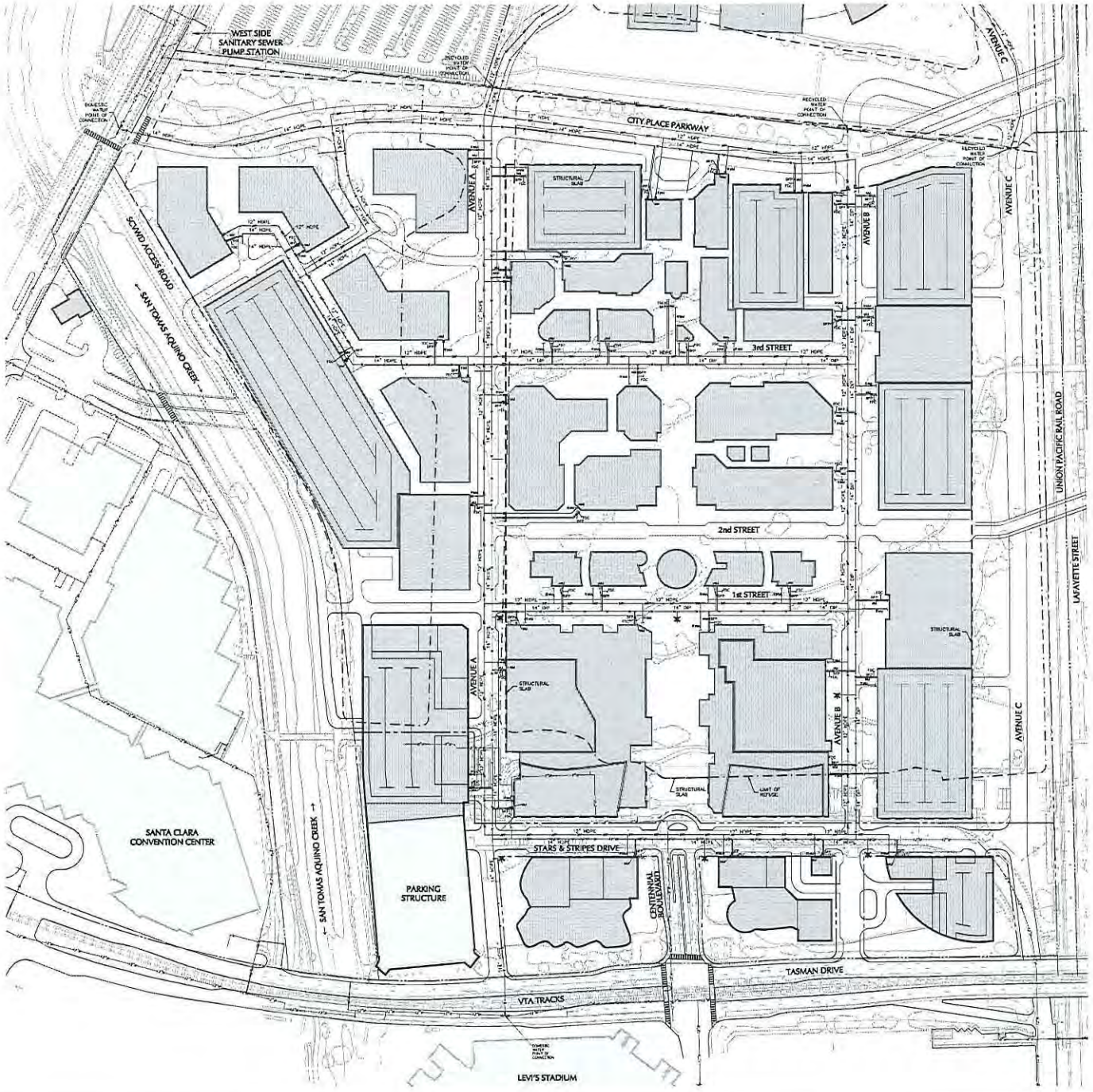
PROJECT No. 770611601



DOMESTIC WATER LEGEND

EXISTING DOMESTIC WATER
EXISTING RECYCLED WATER
PROPOSED DOMESTIC WATER
PROPOSED RECYCLED WATER
LIMIT OF REFUSE
STRUCTURAL SLAB
VOLATILE ORGANIC CHEMICAL PLUME
EXISTING FIRE HYDRANT
PROPOSED FIRE HYDRANT
PROPOSED VALVE
SETTLEMENT VAULT TYPE I
SETTLEMENT VAULT TYPE II
DETAIL No.
SHEET No.

ABBREVIATIONS

WM	WATER METER
RWM	RECYCLED WATER METER
BFP	BACK FLOW PREVENTER

UTILITY NOTES

1. EXISTING UTILITY INFORMATION OBTAINED FROM CITY OF SANTA CLARA SYSTEM MAP. FIELD VERIFY PRIOR TO CONSTRUCTION.

LIST OF DETAILS

LEAK DETECTION VAULT AT WATER VALVES AND METER SERVICE CONNECTION TO MAIN
TERMINATION OF CONTAINMENT PIPE AT LIMITS OF REFUSE
CONTAINMENT PIPE TERMINATION STRUCTURE
PRESSURE PIPE ENCLOSED IN CONTAINMENT PIPE
TERMINATION OF CONTAINMENT PIPE AT AIR RELEASE VALVE
TERMINATION OF CONTAINMENT PIPE AT BLOW-OFFS
SETTLEMENT VAULT - TYPE I
SETTLEMENT VAULT - TYPE II
3" WATER SERVICE WITH RP
4", 6", & 8" WATER SERVICE W/RP
4", 6", & 8" WATER SERVICE W/ RP (DUAL METER SERVICE)
4"-10" FIRE SERVICE ASSEMBLY (W/DCDA)
4"-10" FIRE SERVICE ASSEMBLY (W/RPDA)
REDUCED PRESSURE BACKFLOW ASSEMBLY
FIRE HYDRANT ASSEMBLY
GATE VALVE INSTALLATION
TRAFFIC VALVE BOX
THRUST BLOCKING
CONCRETE REVERSE THRUST BLOCK
TRENCH BACKFILL
AIR RELEASE VALVE
BLOW-OFF ASSEMBLY
TREE ROOT BARRIER
WATER SAMPLING STATION
1 1/2" & 2" RECYCLE WATER SERVICE
3" RECYCLED WATER SERVICE
4", 6", & 8" RECYCLED WATER SERVICE
4" & 6" RECYCLED WATER SERVICE (DUAL METER SERVICE)
8" RECYCLED WATER SERVICE (DUAL METER SERVICE)
FOUNDATION TYPE 1

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.
REVISIONS		

LANGAN

4160 Dublin Boulevard, Suite 210, San Jose, CA 94568
T 408.251.0700 F 408.251.1249 www.langan.com

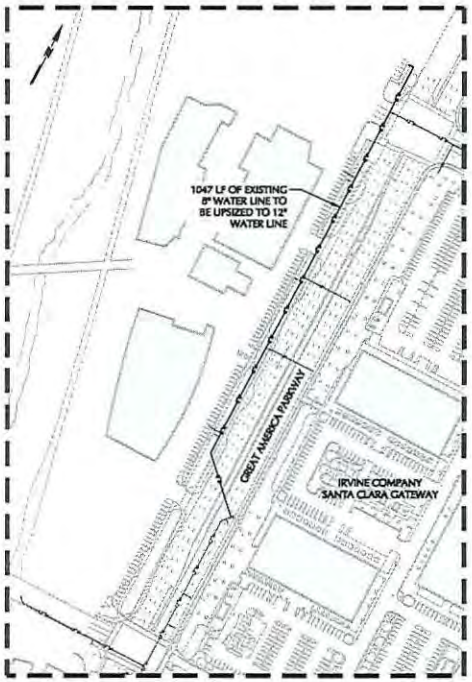
Project
CITY PLACE SANTA CLARA
SANTA CLARA CALIFORNIA

Figure Title
PARCEL 4 & 5 PRELIMINARY WATER PLAN

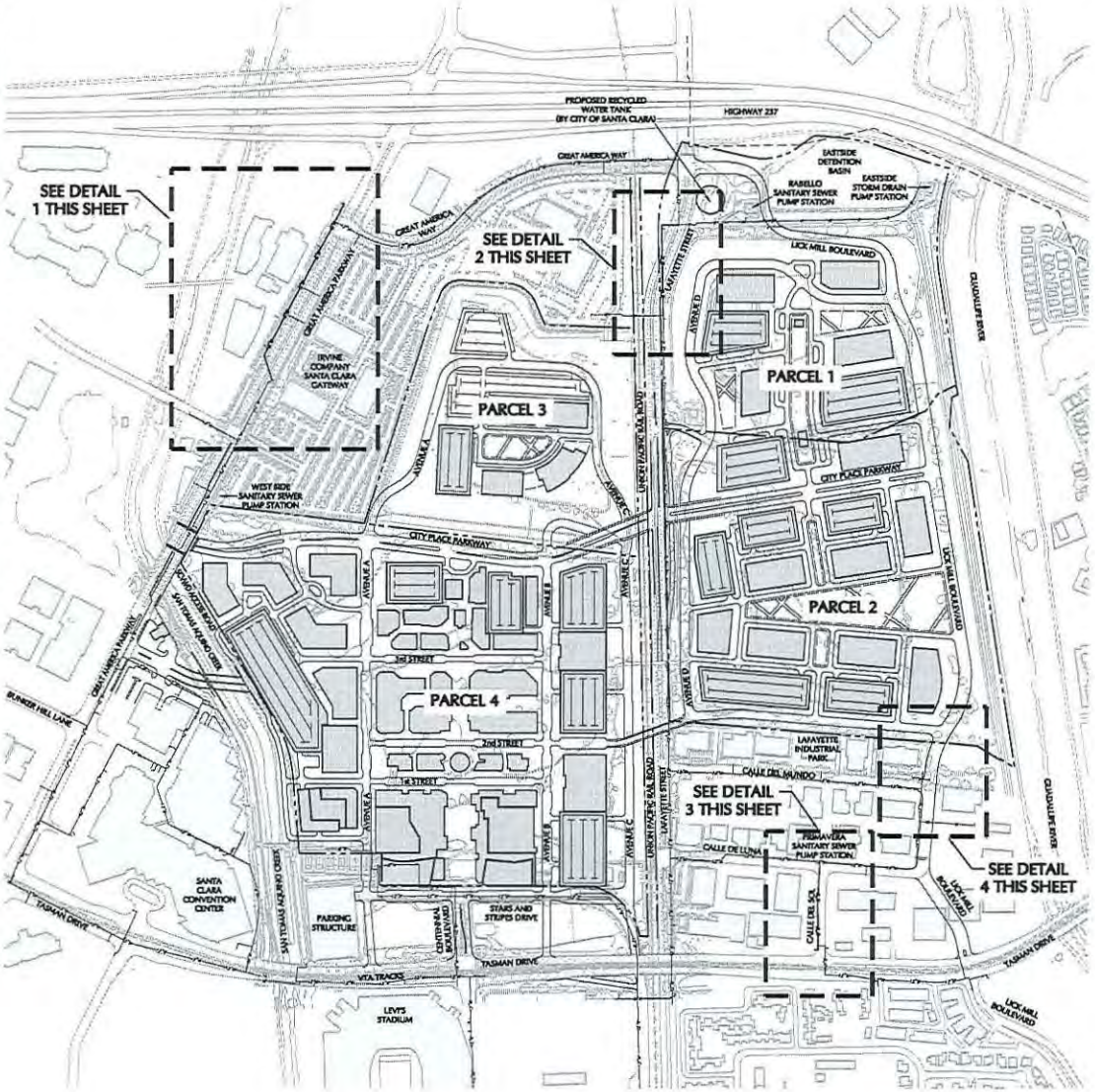
Project No. 770611601	Figure CDW2.04
Date	
Scale AS SHOWN	
Drawn By NT / Checked By DH	
Submission Date	Sheet 4 of 4

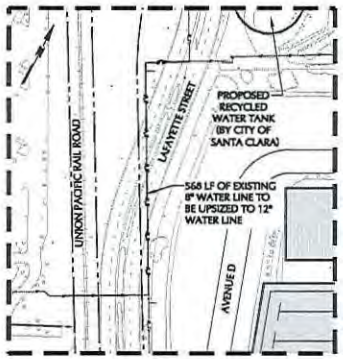
100 0 50 100
SCALE IN FEET

LANGAN
PROJECT No. 770611601



DETAIL 1
SCALE: 1"=100'





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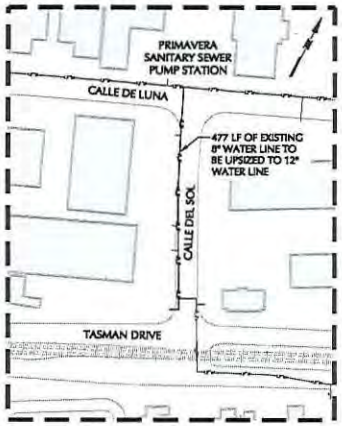


DETAIL 3
SCALE: 1"=100'



DETAIL 4
SCALE: 1"=100'

DOMESTIC WATER LEGEND

- EXISTING DOMESTIC WATER
- EXISTING DOMESTIC WATER LINE TO BE UPSIZED
- PARCEL LINE
- PROPOSED IMPROVEMENTS
- PROPOSED BUILDING
- EXISTING BUILDING

UTILITY NOTES

1. EXISTING UTILITY INFORMATION OBTAINED FROM CITY OF SANTA CLARA SYSTEM MAP.
2. FOR MORE INFORMATION, REFER TO THE "CITY OF SANTA CLARA COUNCIL/STAFF WORK STUDY SESSION INFRASTRUCTURE REQUIREMENTS WATER AND SEWER UTILITIES" REPORT, DATED NOVEMBER 20, 2013.

250 0 125 250
SCALE IN FEET

Date	Description	No.
REVISIONS		

LANGAN

Project
CITY PLACE
SANTA CLARA

SANTA CLARA CALIFORNIA

Figure Title
WATER MAIN
UPSIZE EXHIBIT

Project No. 770611601	Figure EX-01
Date 1/23/2015	
Scale AS SHOWN	
Drawn By ACL / Checked By AP	
Submission Date 1/23/2015	Sheet 1 of 1

LANGAN
PROJECT No. 770611601

APPENDIX A

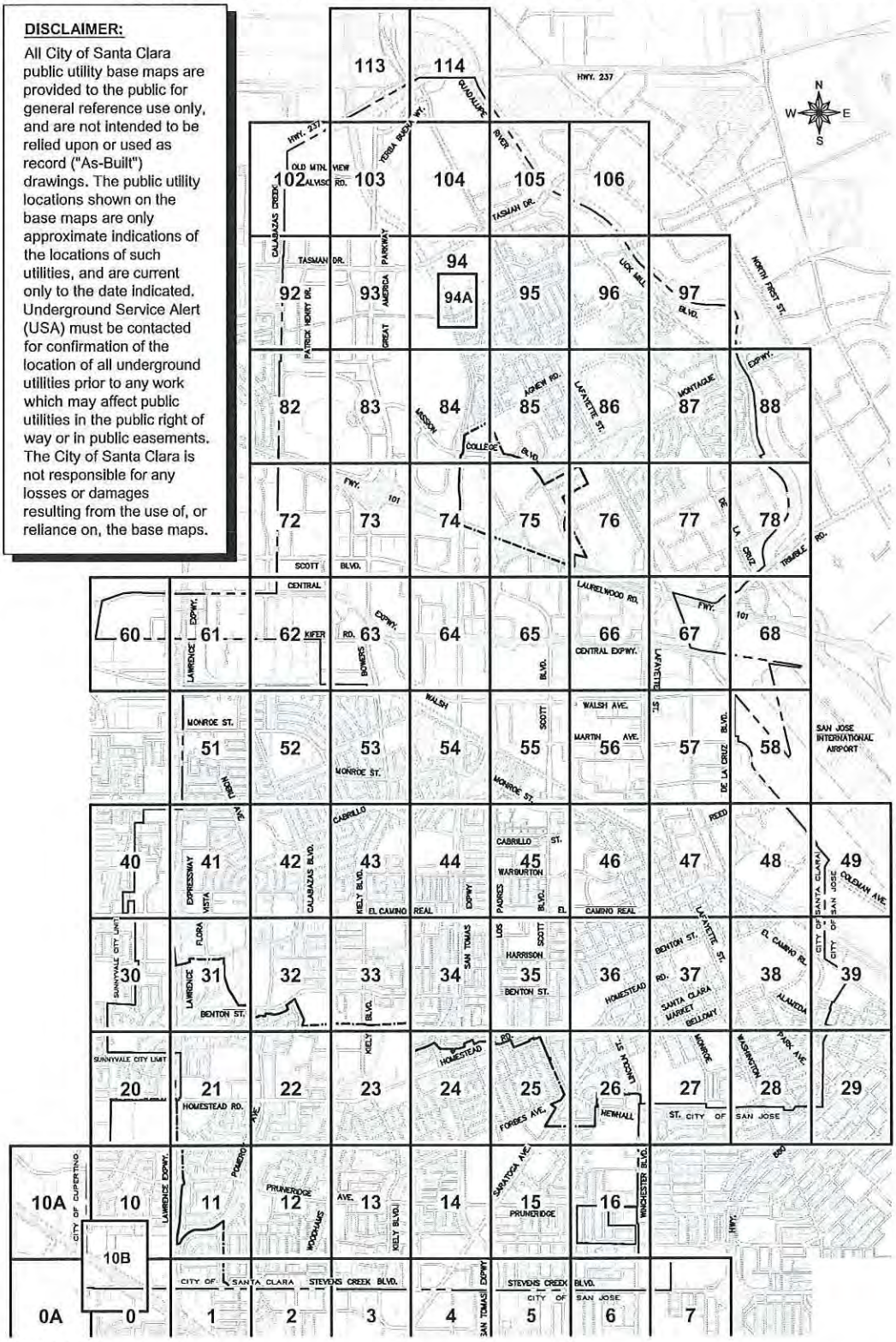
City of Santa Clara Domestic Water and Recycled Water Index and Basic Information Maps

JULY 2012

CITY OF SANTA CLARA WATER DISTRIBUTION SYSTEM - INDEX MAP

DISCLAIMER:

All City of Santa Clara public utility base maps are provided to the public for general reference use only, and are not intended to be relied upon or used as record ("As-Built") drawings. The public utility locations shown on the base maps are only approximate indications of the locations of such utilities, and are current only to the date indicated. Underground Service Alert (USA) must be contacted for confirmation of the location of all underground utilities prior to any work which may affect public utilities in the public right of way or in public easements. The City of Santa Clara is not responsible for any losses or damages resulting from the use of, or reliance on, the base maps.



WATER SYSTEM LEGEND

- MAIN
- ABANDONED MAIN
- VALVE
- CLOSED VALVE
- BUTTERFLY VALVE
- CLOSED BF. VALVE
- CITY LIMIT
- METER
- REGULATOR
- REDUCER
- AIR RELEASE VALVE
- BLOW OFF
- HYDRANT & NO.
- WELL & NO.
- PRESSURE ZONE
- SAMPLING STATION WATER SERVICES (FIRE & DOMESTIC) 2" AND LARGER WILL BE INDICATED
- DIMENSIONS ARE TO THE NEAREST FOOT FROM PROPERTY LINES AND BETWEEN VALVES, HYDRANTS, ETC.
- IRRIGATION CROSS OVER
- EASEMENT LINE PUE–PUBLIC UTILITY EASEMENT WUE–WATER UTILITY EASEMENT

BAC-65-623 PIPE DESIGNATION (SEE NOTE)

NOTE:

The first element of pipe designation grouping will express the size of the pipe. The second element will be the letter code describing kind and coating (if other than cast iron or copper services). The third element will be the year installation and the fourth element will be the job number.

Examples: BAC-65-635 8" asbestos cement, installed in 1965, job number 635

12-63-700 12" cast iron, installed in 1963, job number 700

XX Project under construction. Final dimension to be obtained from as-builts.

PIPE CODE	
Asbestos cement	AC
Cast Iron	None
Copper	K
Ductile Iron	D
Plastic	P
Wrapped Steel	WS
Concrete Cylinder (Cement Lined Steel)	CCP
Cement Lined and Coated Steel	SC

COATING CODE	
Mortar or cement	C
Insulating material (coal tar, somastic, etc.)	A

SERVICE CODE	
Copper	None
Plastic	P
Steel	S
Galvanized	G

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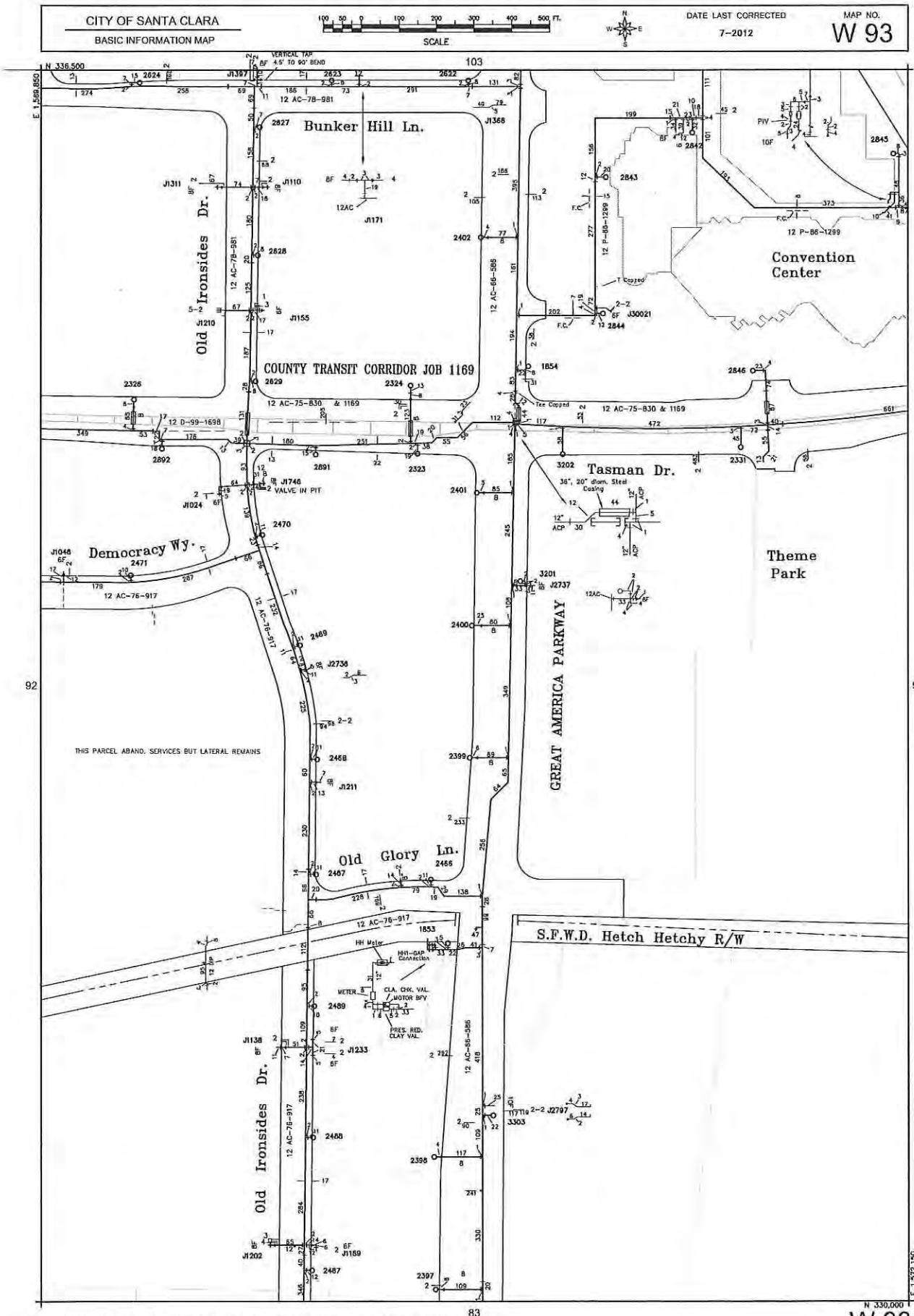
CITY OF SANTA CLARA
BASIC INFORMATION MAP
SCALE
DATE LAST CORRECTED
7-2012
MAP NO.
W 93
Bunker Hill Ln.
Old Ironsides Dr.
COUNTY TRANSIT CORRIDOR JOB 1169
Convention Center
Tasman Dr.
Theme Park
GREAT AMERICA PARKWAY
Democracy Wy.
Old Glory Ln.
S.F.W.D. Hetch Hetchy R/W
THIS PARCEL ABAND. SERVICES BUT LATERAL REMAINS
103
92
94
83

W 93

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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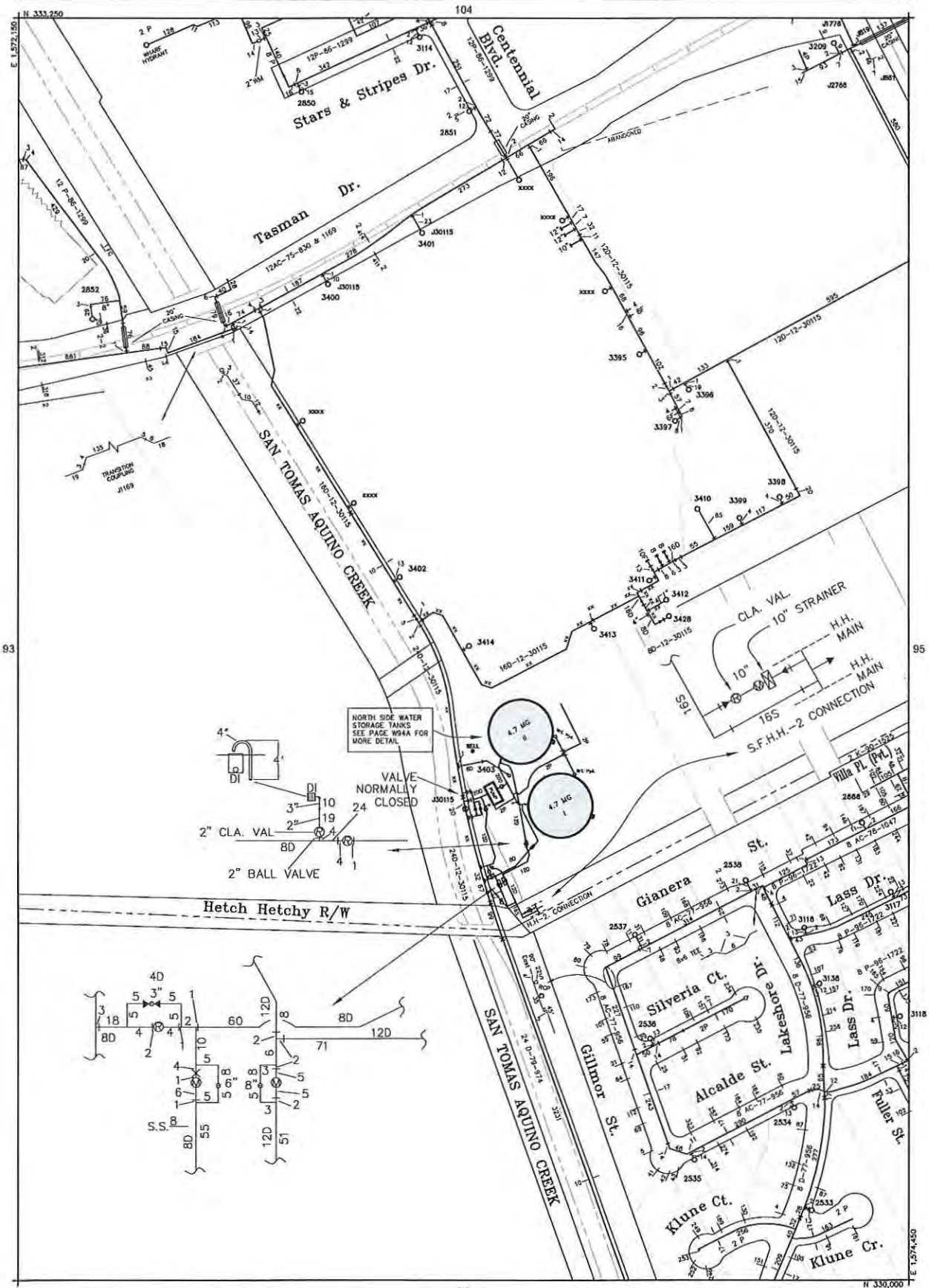
SCALE

DATE LAST CORRECTED 7-2012

MAP NO. W 94



CITY OF SANTA CLARA

BASIC INFORMATION MAP

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DATE LAST CORRECTED

7-2012

MAP NO.

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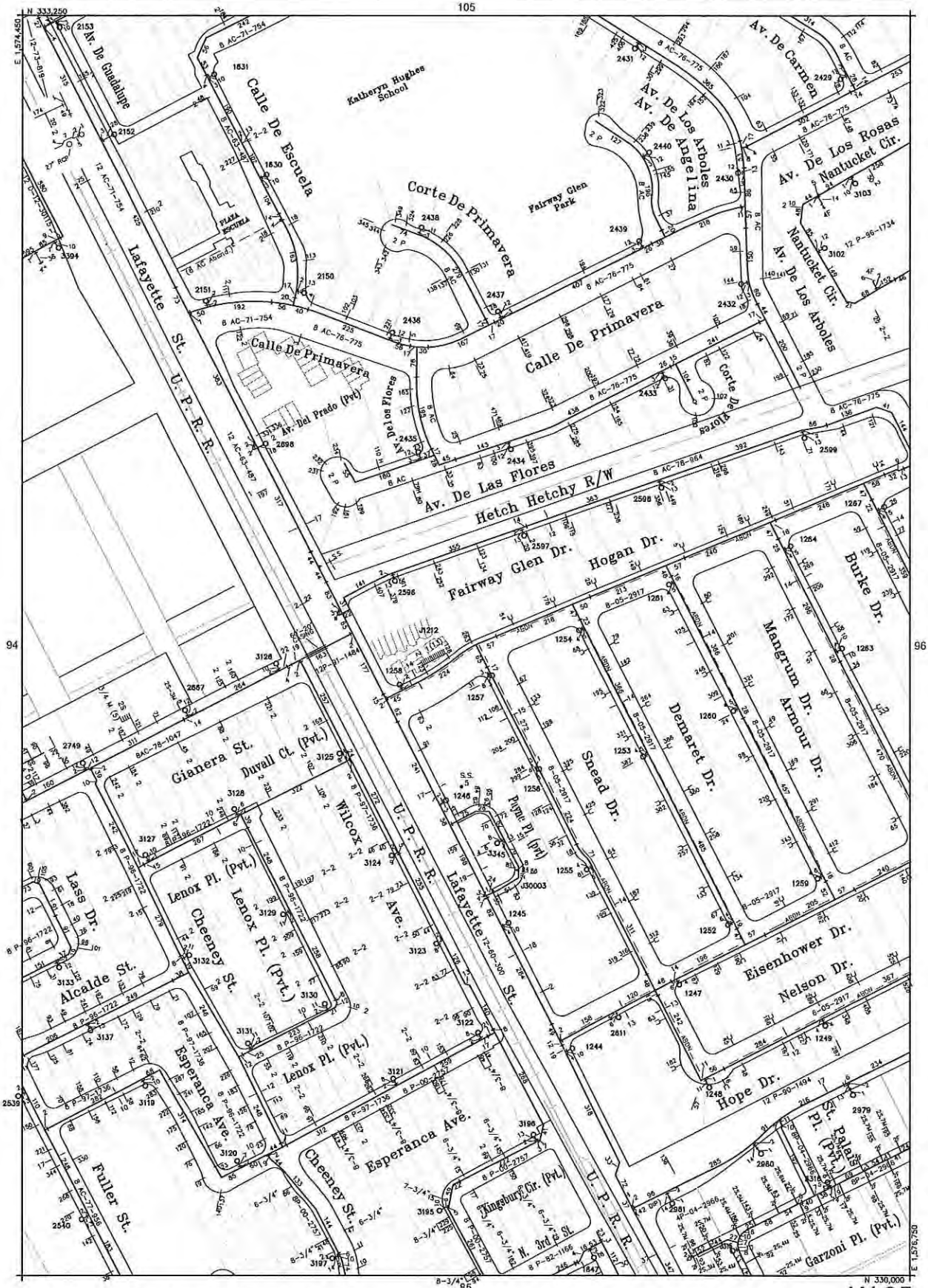

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CITY OF SANTA CLARA
BASIC INFORMATION MAP

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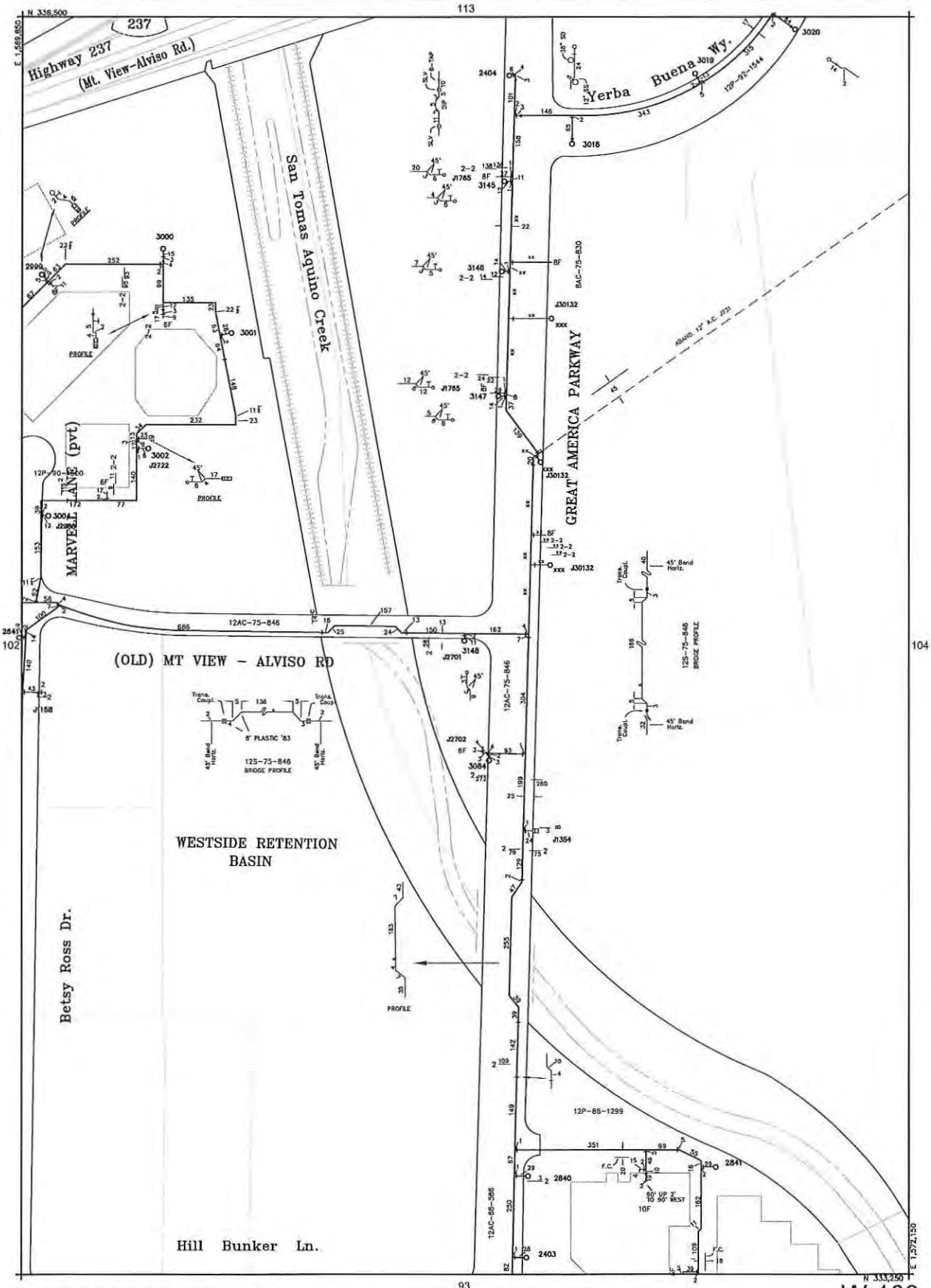

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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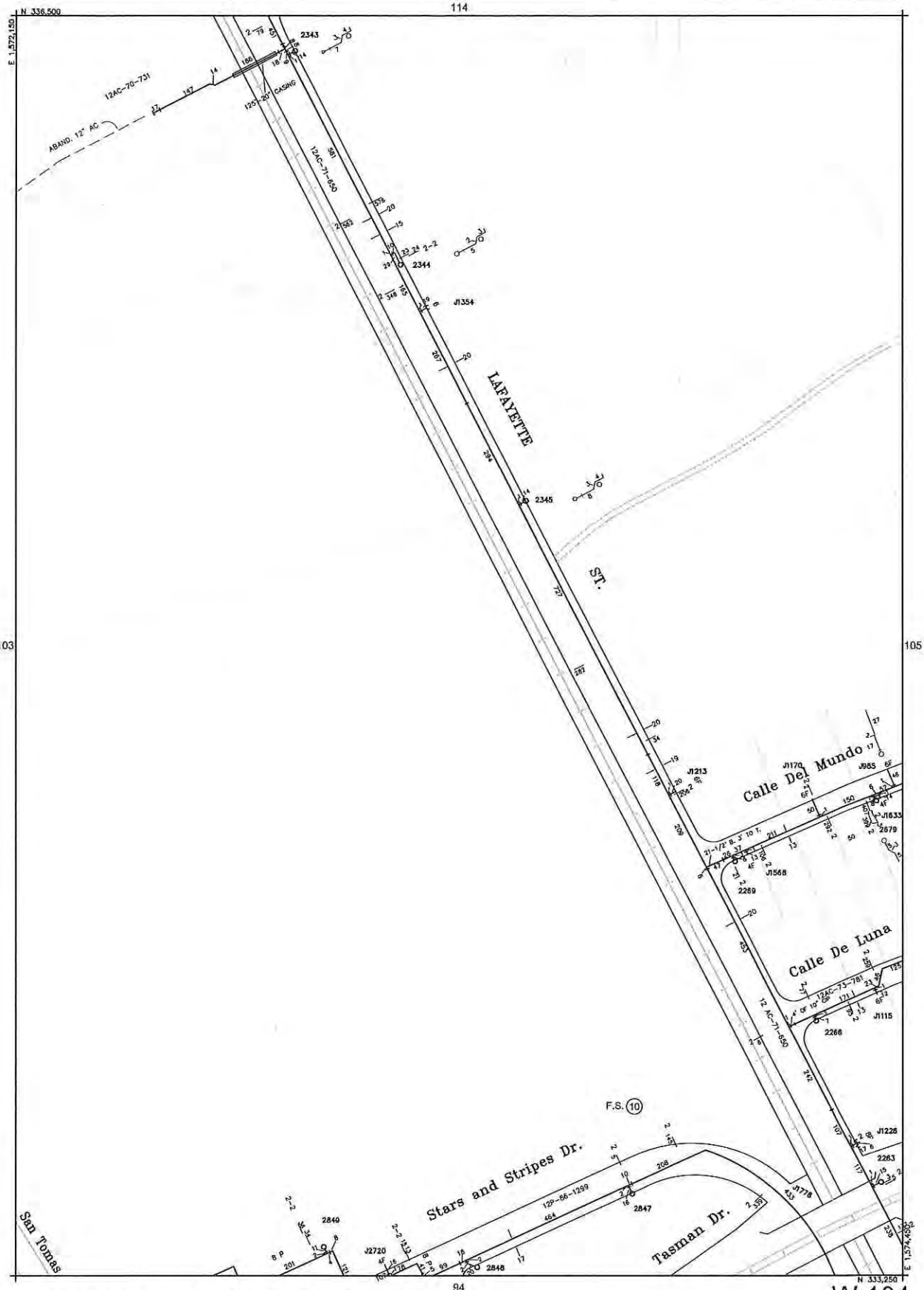

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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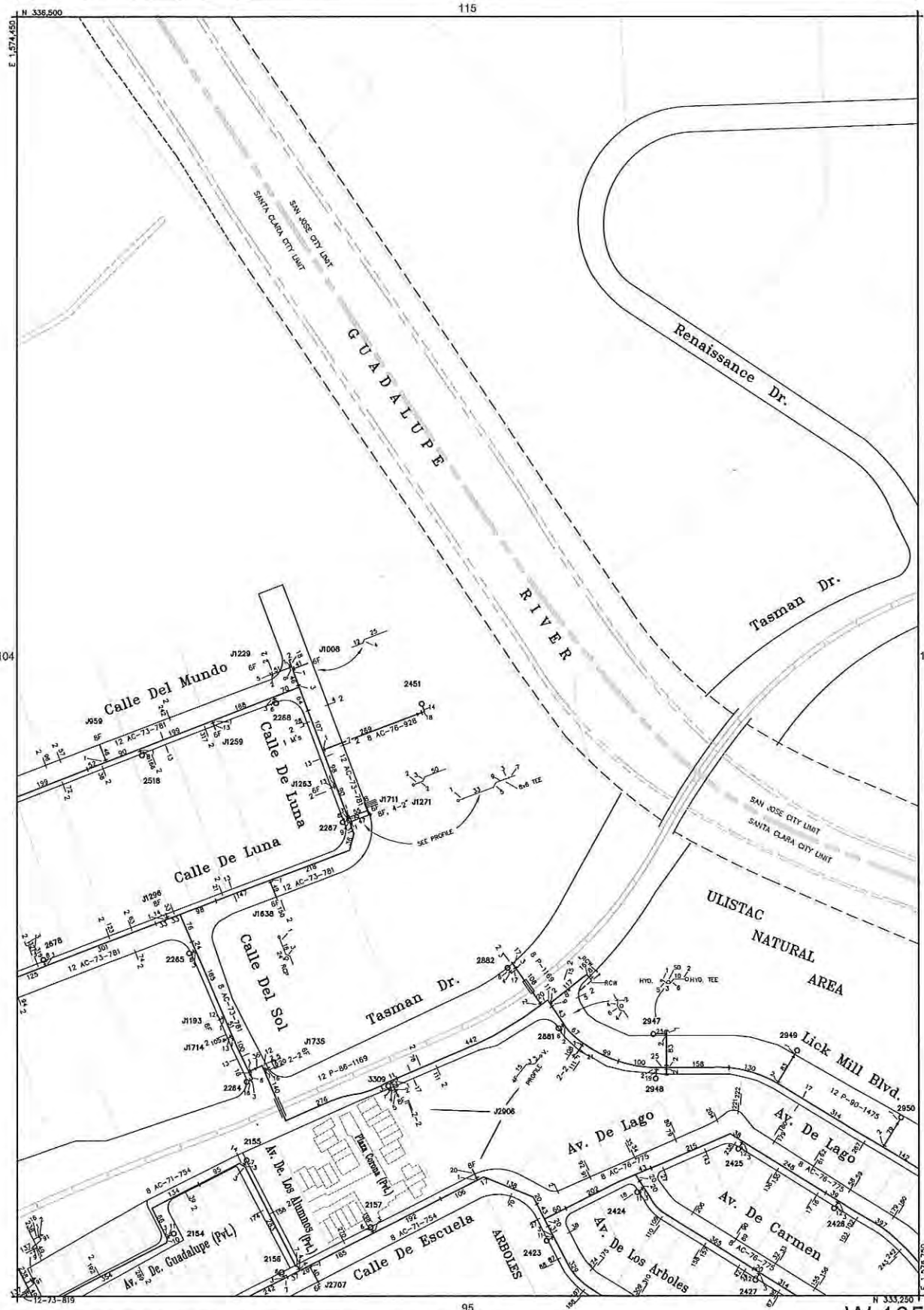

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CITY OF SANTA CLARA

BASIC INFORMATION MAP

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SCALE

N W E S

DATE LAST CORRECTED 7-2012

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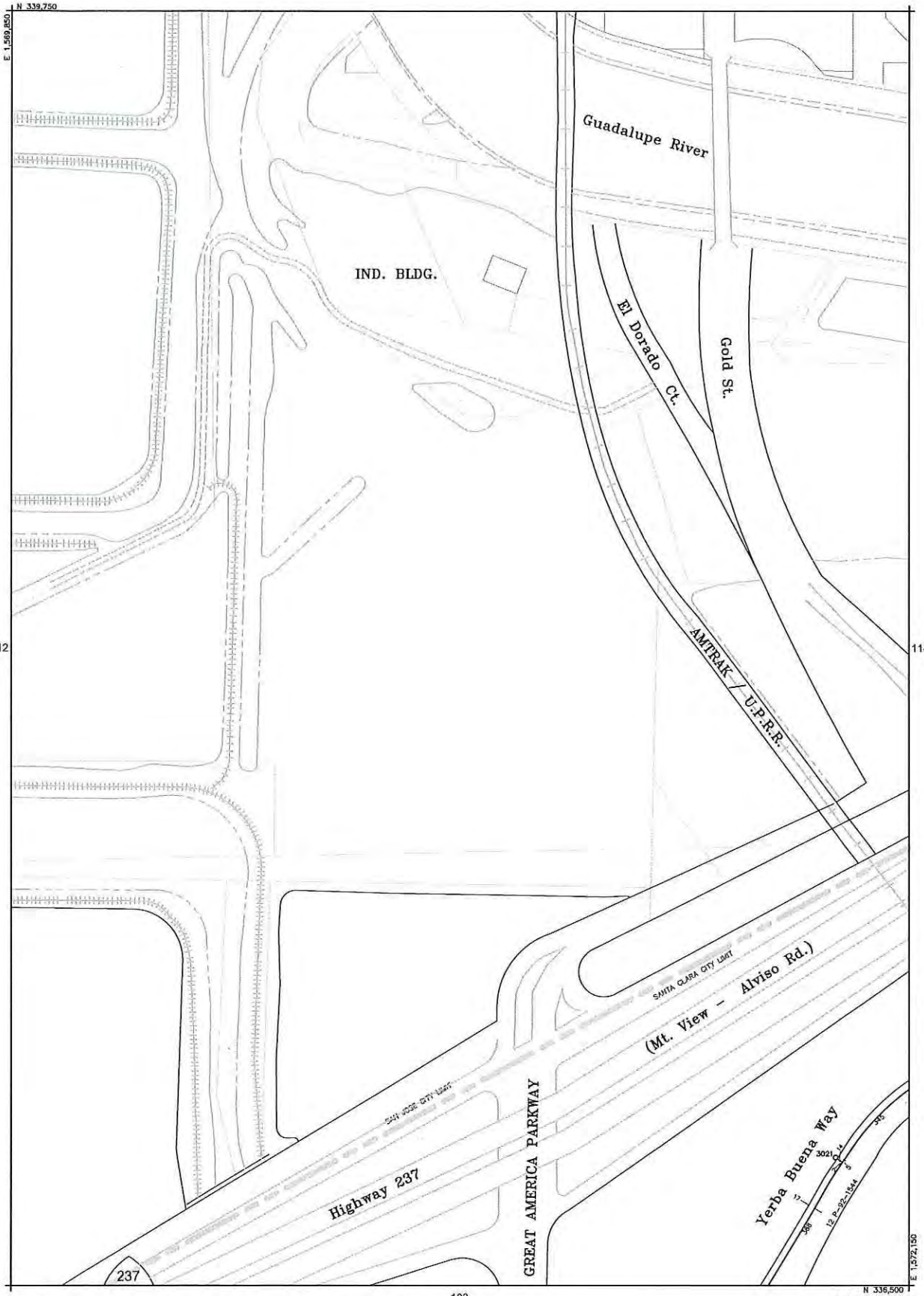

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W 113

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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SCALE

N W E S

DATE LAST CORRECTED 7-2012

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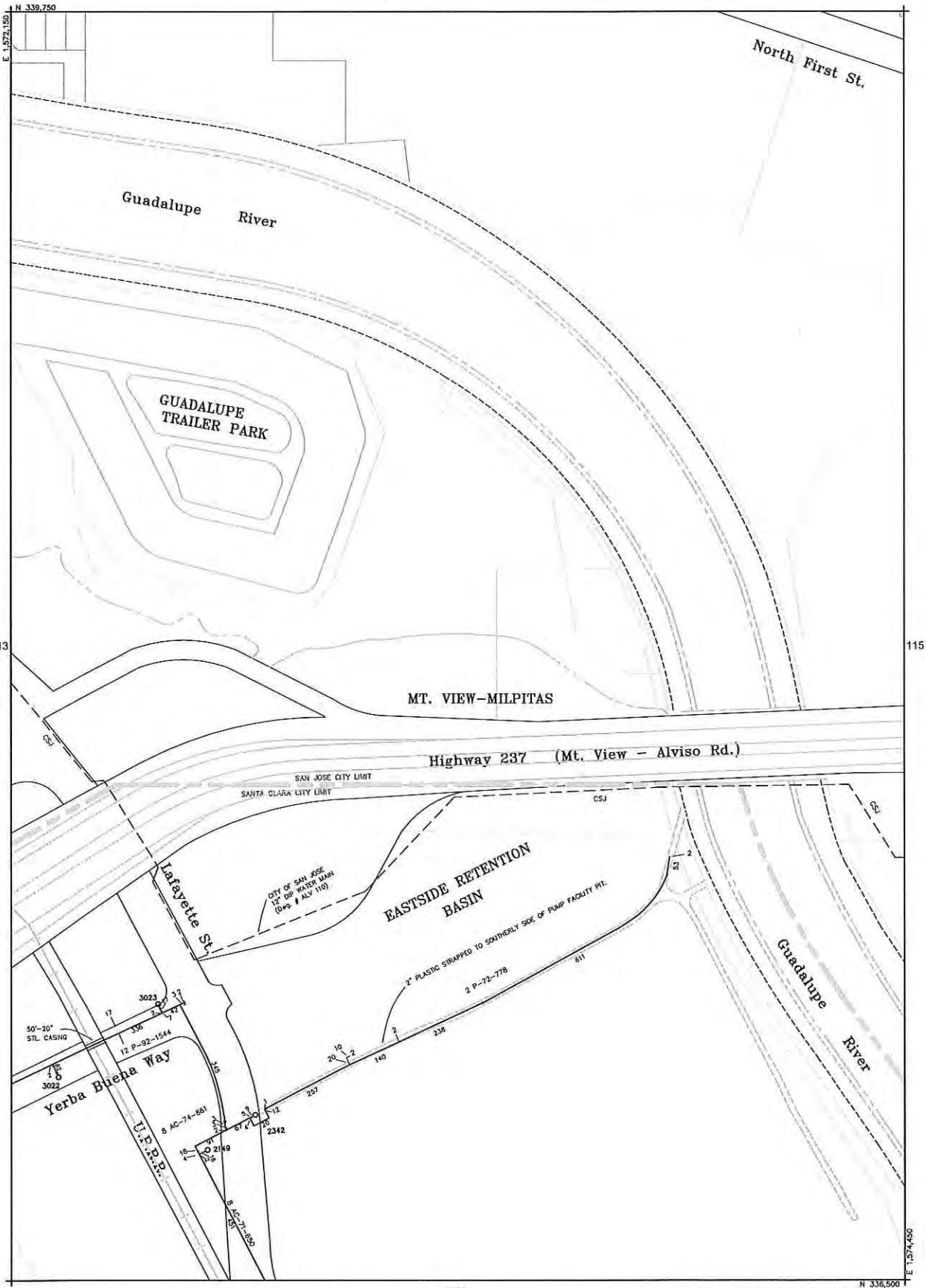
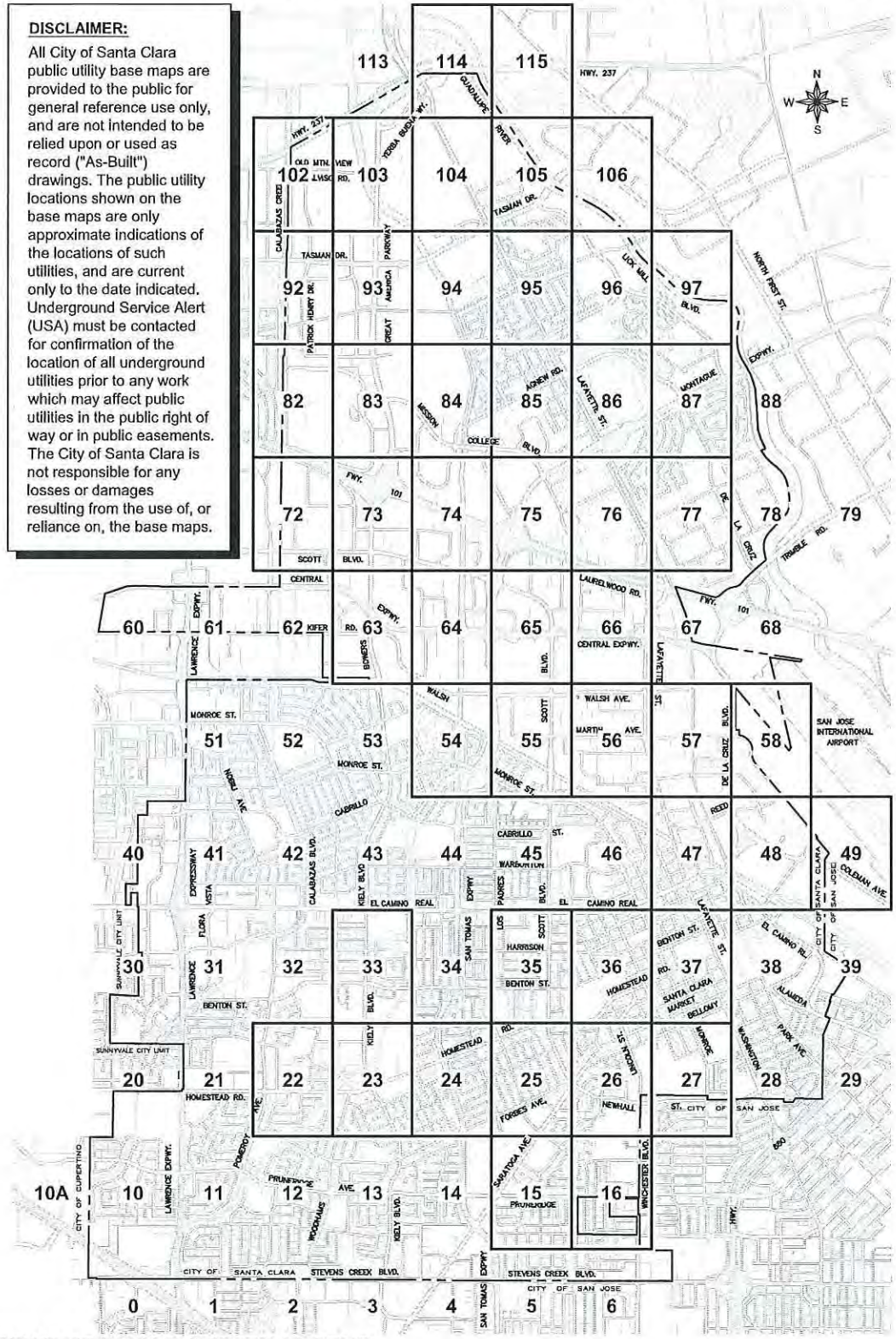


JULY 2012

CITY OF SANTA CLARA RECYCLED WATER SYSTEM - INDEX MAP

DISCLAIMER:

All City of Santa Clara public utility base maps are provided to the public for general reference use only, and are not intended to be relied upon or used as record ("As-Built") drawings. The public utility locations shown on the base maps are only approximate indications of the locations of such utilities, and are current only to the date indicated. Underground Service Alert (USA) must be contacted for confirmation of the location of all underground utilities prior to any work which may affect public utilities in the public right of way or in public easements. The City of Santa Clara is not responsible for any losses or damages resulting from the use of, or reliance on, the base maps.



RECYCLED WATER SYSTEM LEGEND

- MAIN
- ABANDONED MAIN
- VALVE
- CLOSED VALVE
- BUTTERFLY VALVE
- CLOSED BF. VALVE
- REDUCER
- SURGE RELIEF VALVE
- PUMP OUT
- BLOW OFF
- CORR. TEST STA.
- JTS, ATS, FPTS, CATS — JTS–INSULATING JOINT TEST STA. ATS– ANODE TEST STA. FPTS–FOREIGN PIPELINE TEST STA. CATS–CASING TEST STA.
- DIMENSIONS ARE TO THE NEAREST FOOT FROM PROPERTY LINES AND BETWEEN VALVES, HYDRANTS, ETC.
- AMH / BAMH — AMH–ACCESS MANHOLE, BAMH–BURIED ACCESS MANHOLE
- 4 2 — WATER SERVICES 2" AND LARGER WILL BE INDICATED
- 17 30 — DIMENSIONS ARE TO THE NEAREST FOOT FROM PROPERTY LINES AND BETWEEN VALVES, HYDRANTS, ETC.
- MARV ARV — ARV–COMBINATION AIR VALVE, MARV–MANUAL AIR RELEASE VALVE
- 8Y–92–1592 — PIPE DESIGNATION (SEE NOTE)
- CITY LIMIT
- EASEMENT LINE
  PUE–PUBLIC UTILITY EASEMENT
  RWUE–RECYCLED WATER UTILITY EASEMENT

NOTE: The first element of pipe designation grouping will express the size of the pipe. The second element will be the letter code describing kind and coating (if other than cast iron or copper services). The third element will be the year installation and the fourth element will be the job number.

Examples: 8Y–92–1592 8" Yellowmina, installed in 1992, job number 1592

PIPE CODE
Yellowmina — Y
Ductile Iron — D
Plastic — K
Copper — S
Steel —

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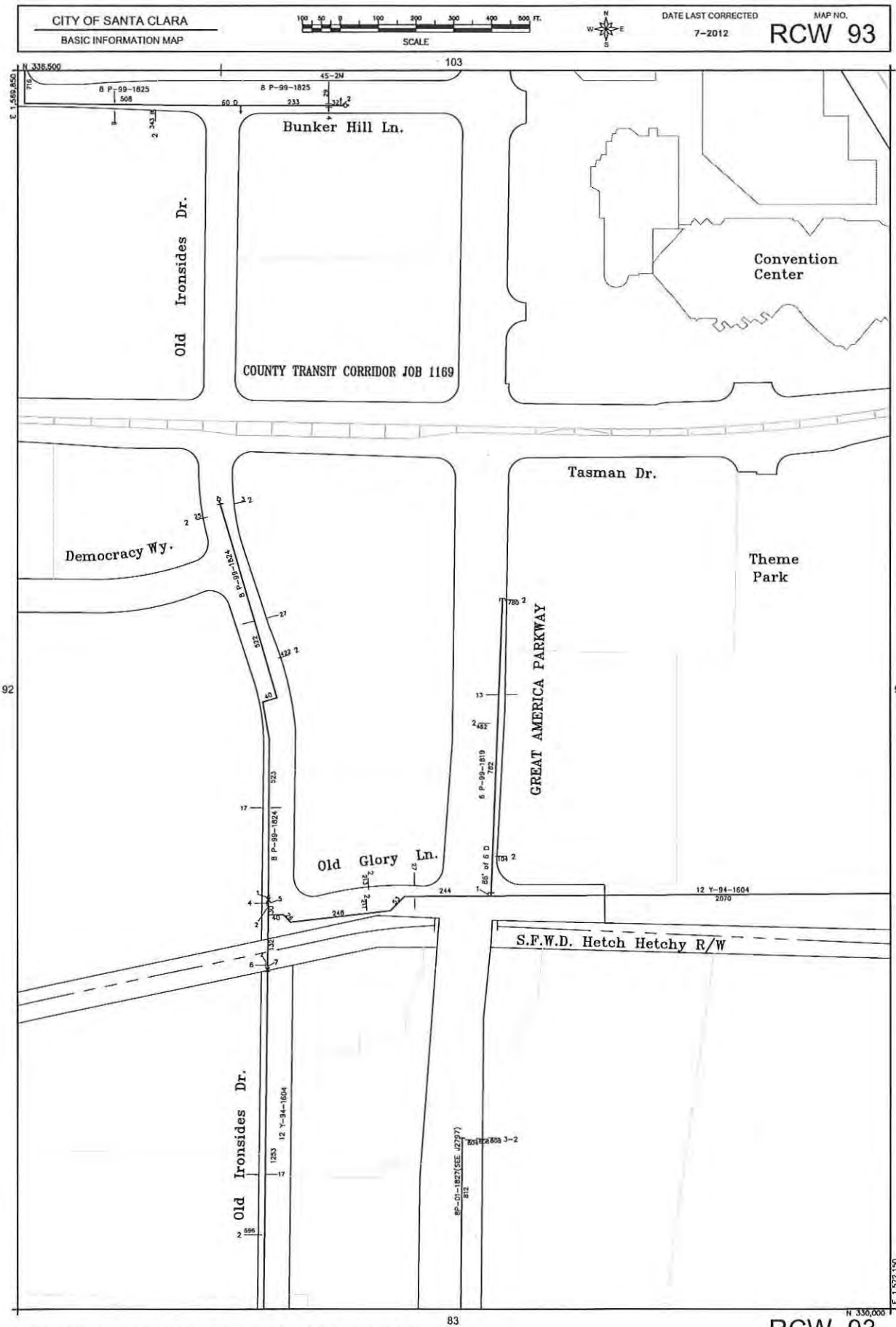
CITY OF SANTA CLARA
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7-2012
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E 1,569,850
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Old Ironsides Dr.
COUNTY TRANSIT CORRIDOR JOB 1169
Convention Center
Tasman Dr.
Democracy Wy.
Theme Park
GREAT AMERICA PARKWAY
Old Glory Ln.
S.F.W.D. Hetch Hetchy R/W
Old Ironsides Dr.
92
94
83
N 330,000
E 1,572,150
RCW 93

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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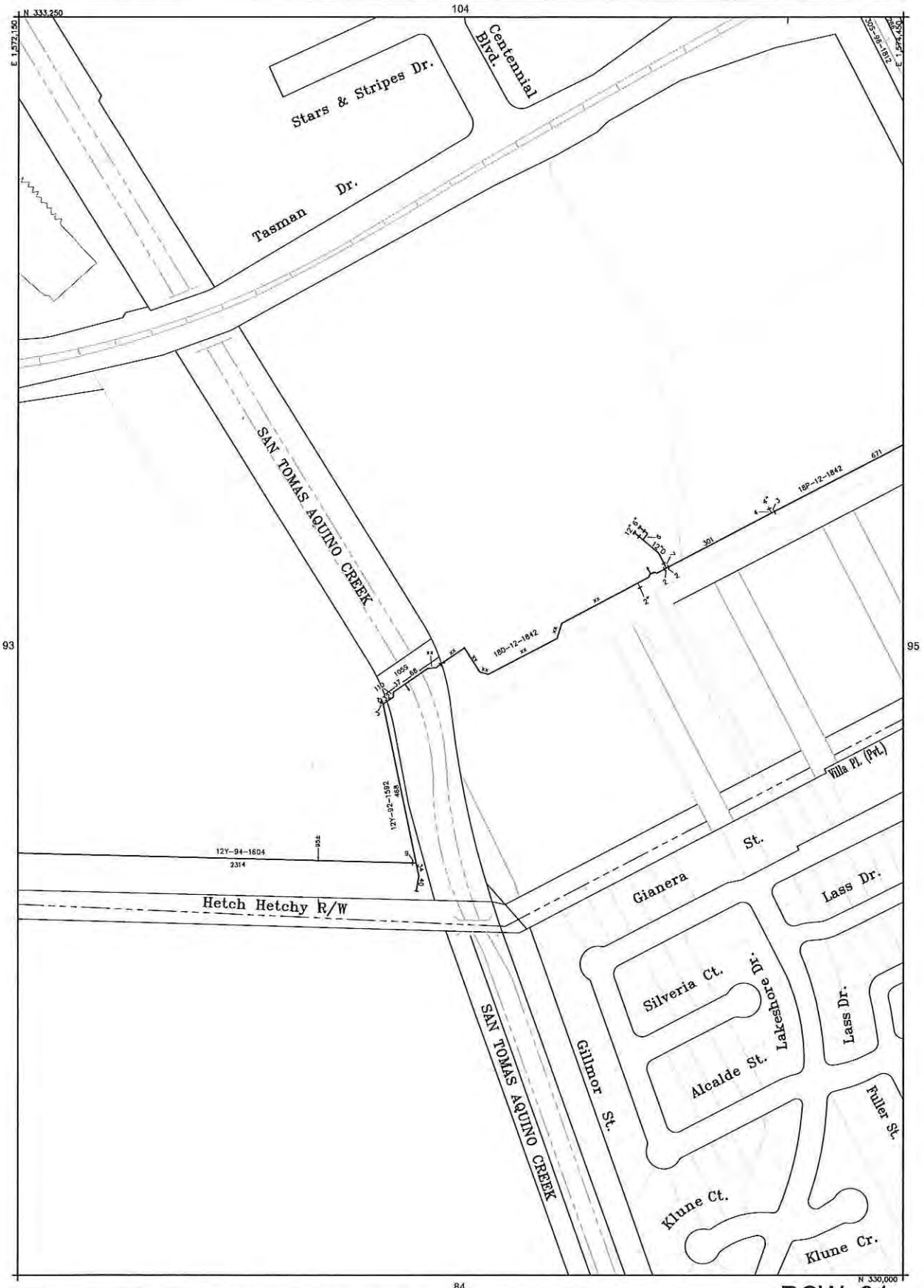

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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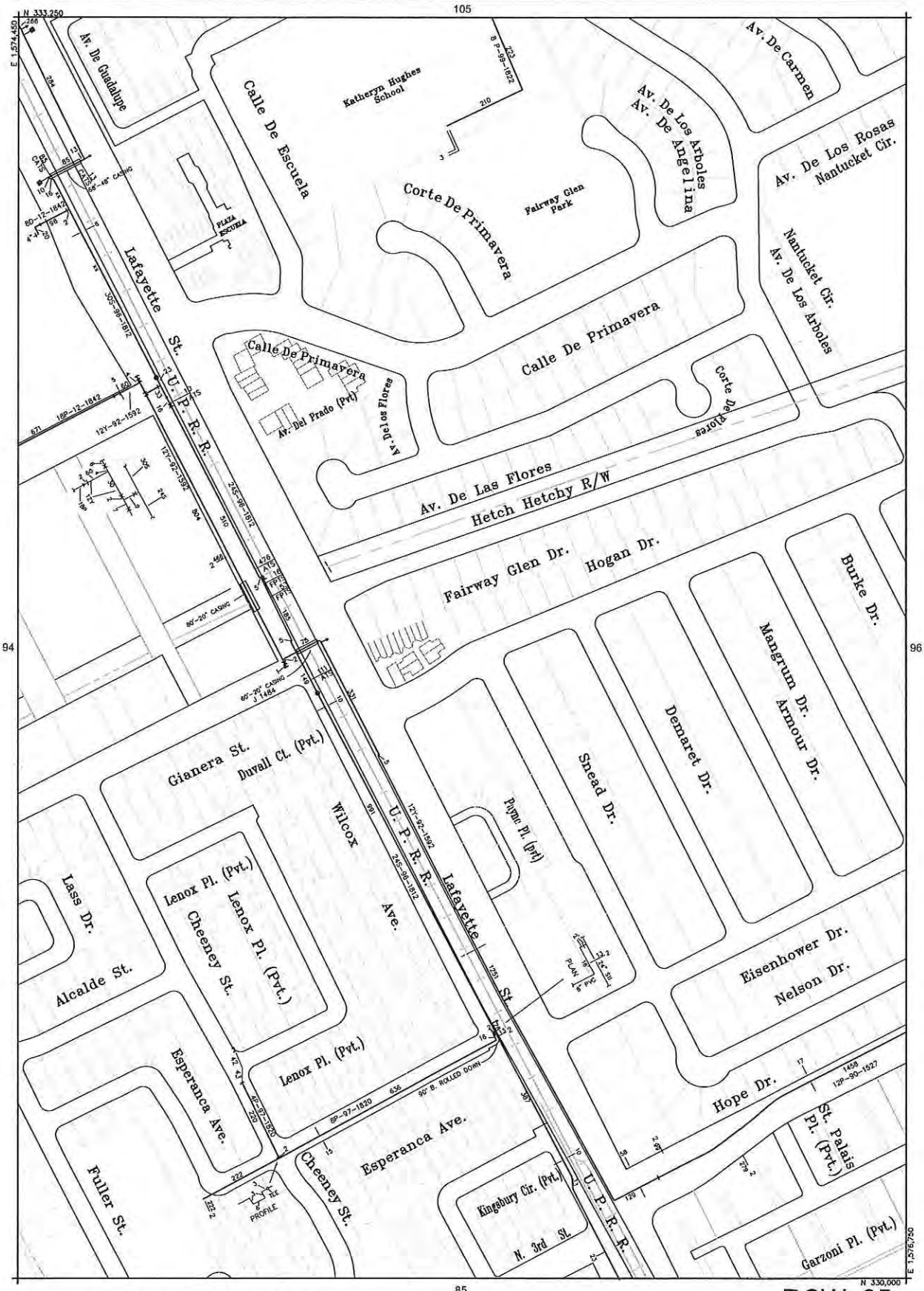

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7-2012

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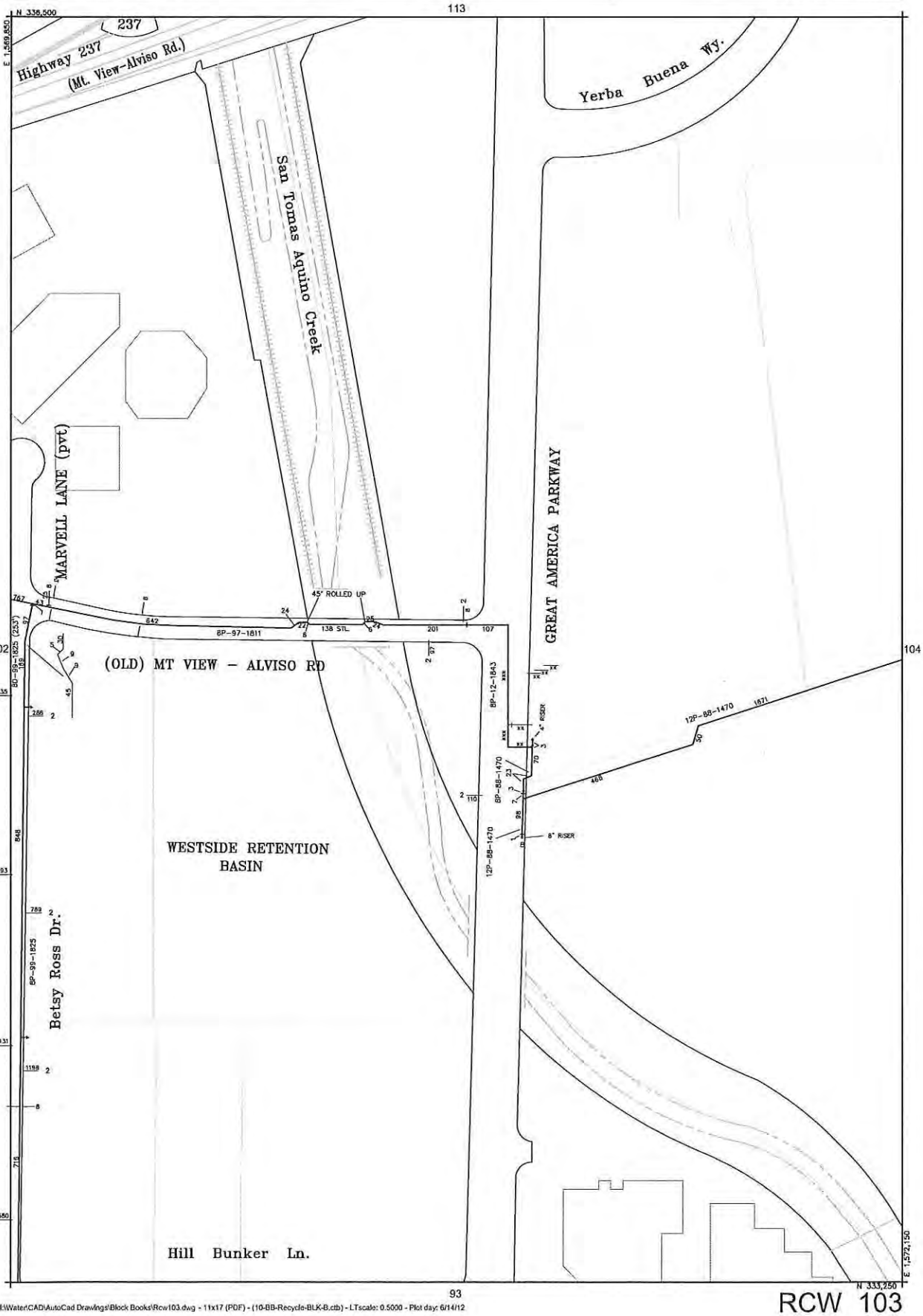

CITY OF SANTA CLARA
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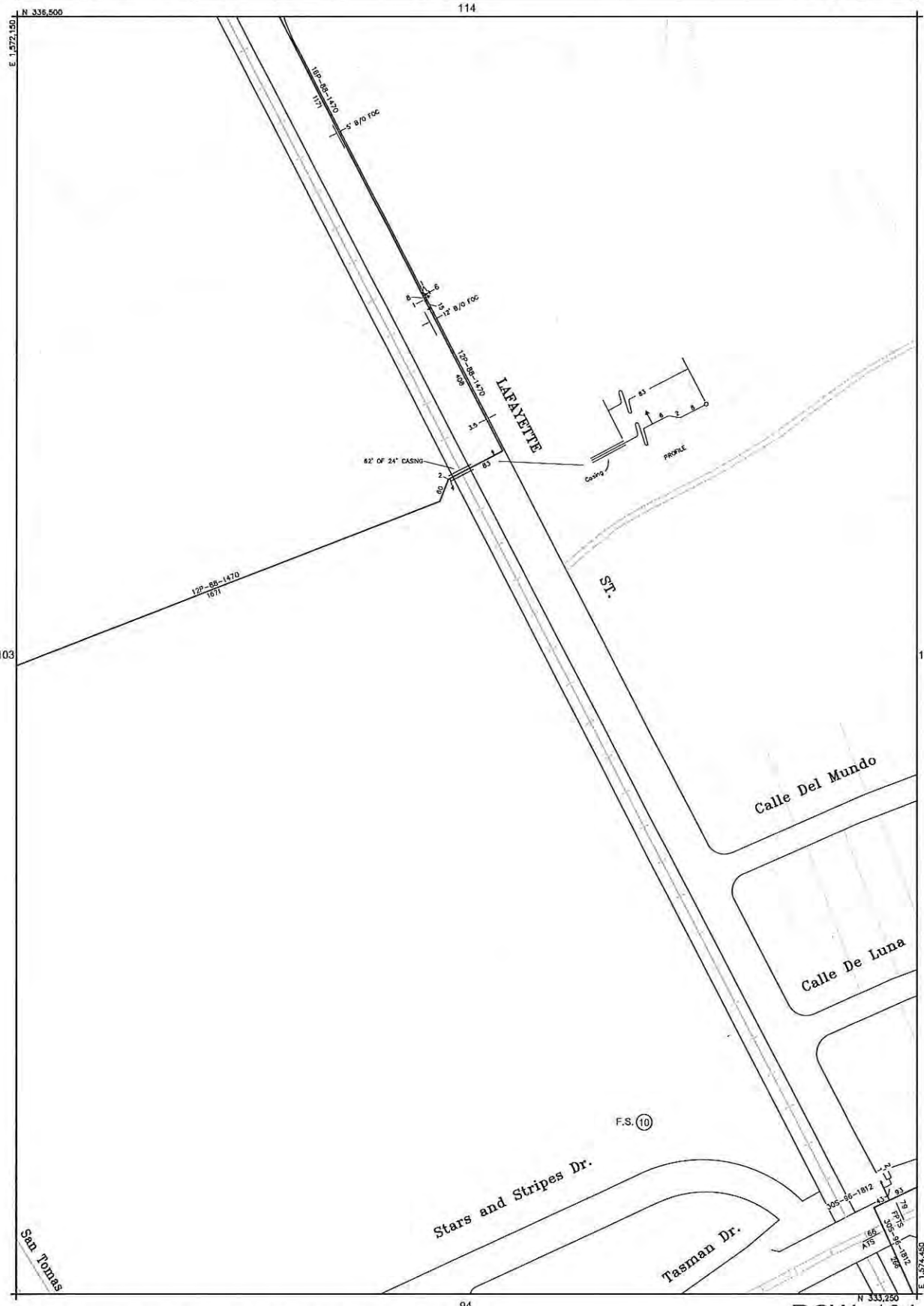

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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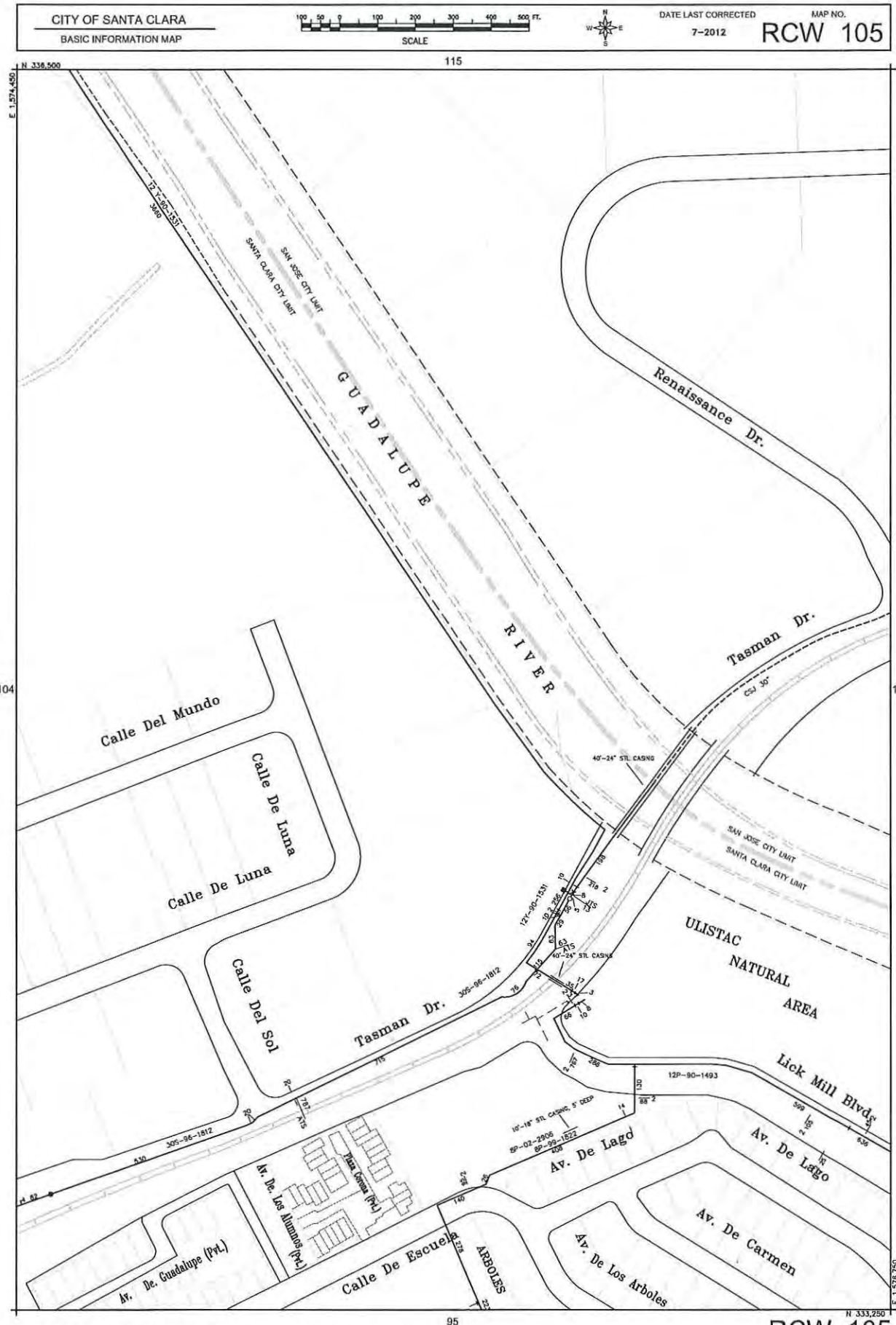

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RCW 105

CITY OF SANTA CLARA
BASIC INFORMATION MAP

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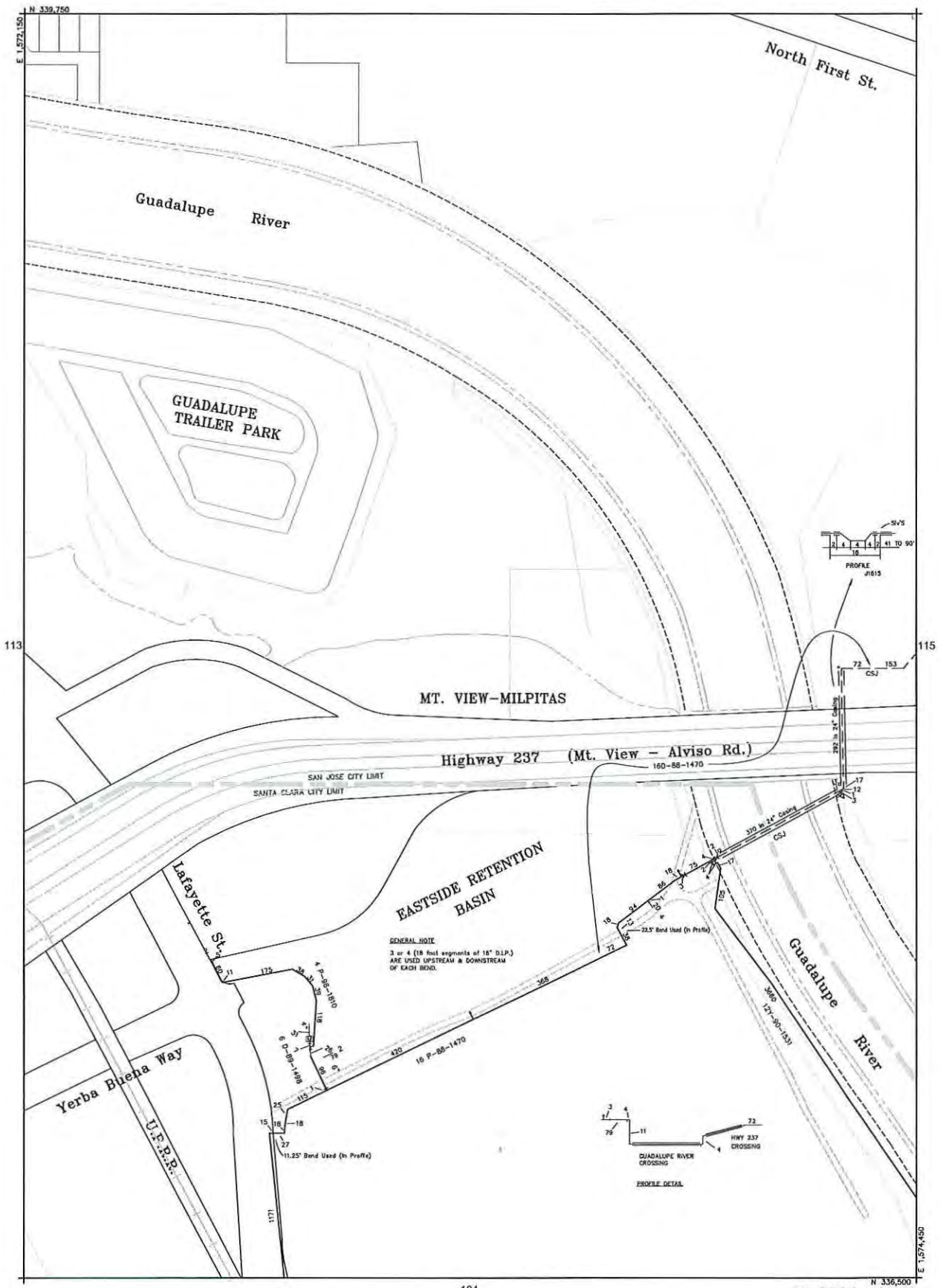
DATE LAST CORRECTED
7-2012

MAP NO.
RCW 114



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CITY OF SANTA CLARA

BASIC INFORMATION MAP

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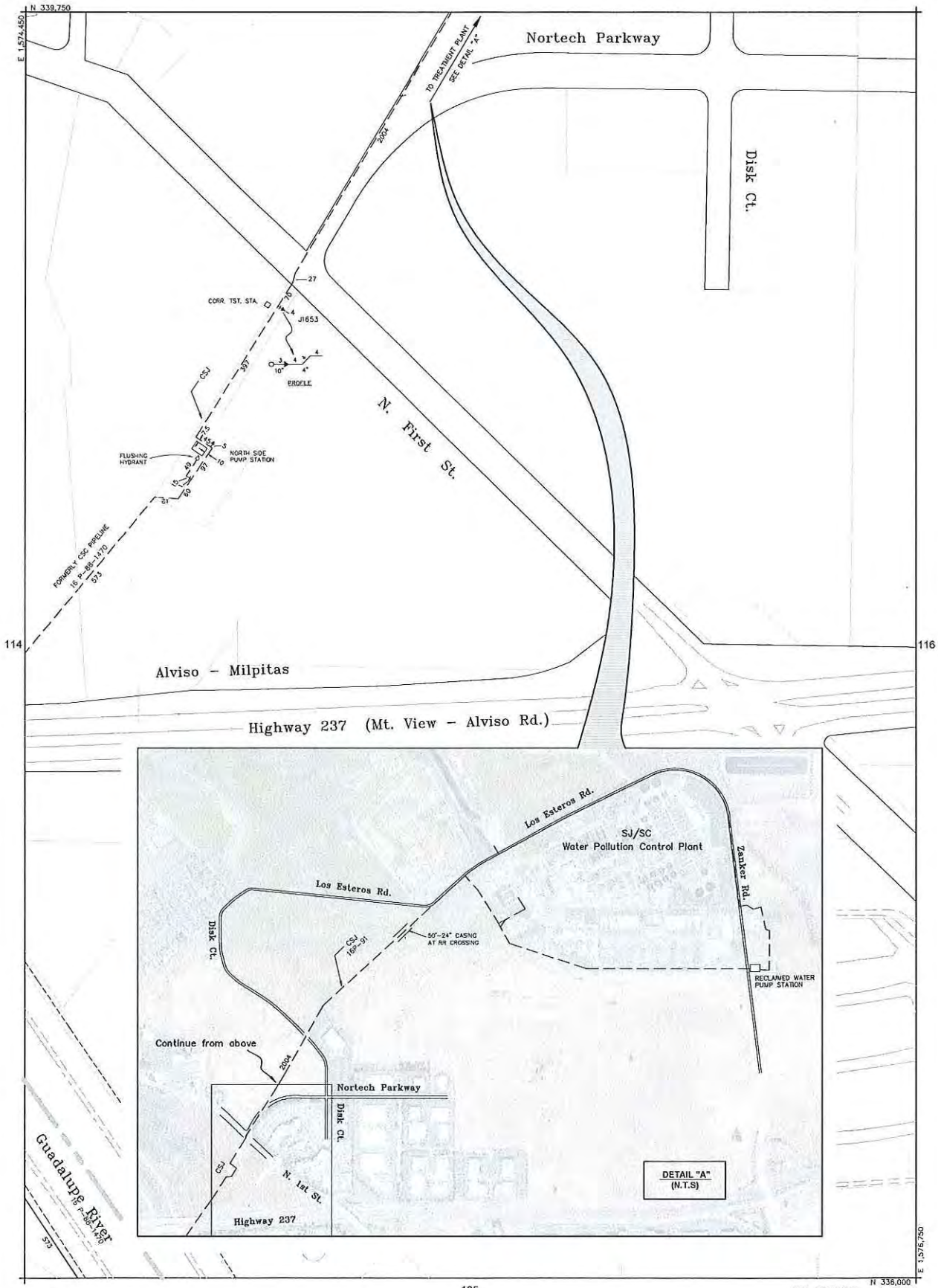
MAP NO. RCW 115



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APPENDIX B

Correspondence from City of Santa Clara Water & Sewer Utility

SANTA CLARA CALIFORNIA

Santa Clara All-America City 2001

Water & Sewer Utilities

April 28, 2015

DJ Hodson PE
Langan Treadwell Rollo
555 Montgomery Street Suite 1300
San Francisco, CA 94111-2554
Email: dhodson@Langan.com

SUBJECT: Water Pressure Information for City Place Project, Santa Clara

Dear Mr. Hodson:

Per your request, this letter is in response to the project ("project") named City Place Project, located north of Tasman Drive, east of Great American Parkway and San Tomas Aquino Creek, west of the Guadalupe River and south of Great America Way and State Route 237. The existing project site currently experiences a water pressure within the public potable water distribution system of approximately 80 psi (pounds per square inch). This water pressure is an average day water demand at the public water main.

Please note that the aforementioned potable water distribution system pressure of 80 psi, may undergo pressure fluctuations within the City's main as a function of demand within the neighborhood project, unplanned and emergency events. It is a function of the City's existing hydraulic grade line, existing public street elevations, and additional operational factors. Any pressure fluctuations that occur downstream of water or fire services delivering water to the project site are beyond control of the City and therefore the sole responsibility of the property owner.

If you have any questions, please contact me at (408) 615-2000.

Sincerely,

Shilpa Mehta
Principal Engineer – Water and Sewer

cc: Chron

I:\Water\Shilpa\Water Pressure - Related.doc

1500 Warburton Avenue
Santa Clara, CA 95050
(408) 615-2000
FAX (408) 247-0784
www.santaclaraca.gov

APPENDIX C

City of Santa Clara Council/Staff Work Study Session Infrastructure Requirements Water and Sewer Utilities

City of Santa Clara Council/Staff Work Study Session

Infrastructure Requirements Water and Sewer Utilities

November 20, 2013

Both Projects - Assumptions

- Developments will cover cost of utility infrastructure to provide service to the development
  - On site water distribution system
  - Changes to existing infrastructure triggered by development

- On site water system would be constructed as part of development

Centennial Gateway - Montana Group

- Relocation or modification of existing infrastructure
  - Approximately 1,500 ft. of water mains on Centennial Blvd. and Stars and Stripes must be raised if significant fill is added to the site.

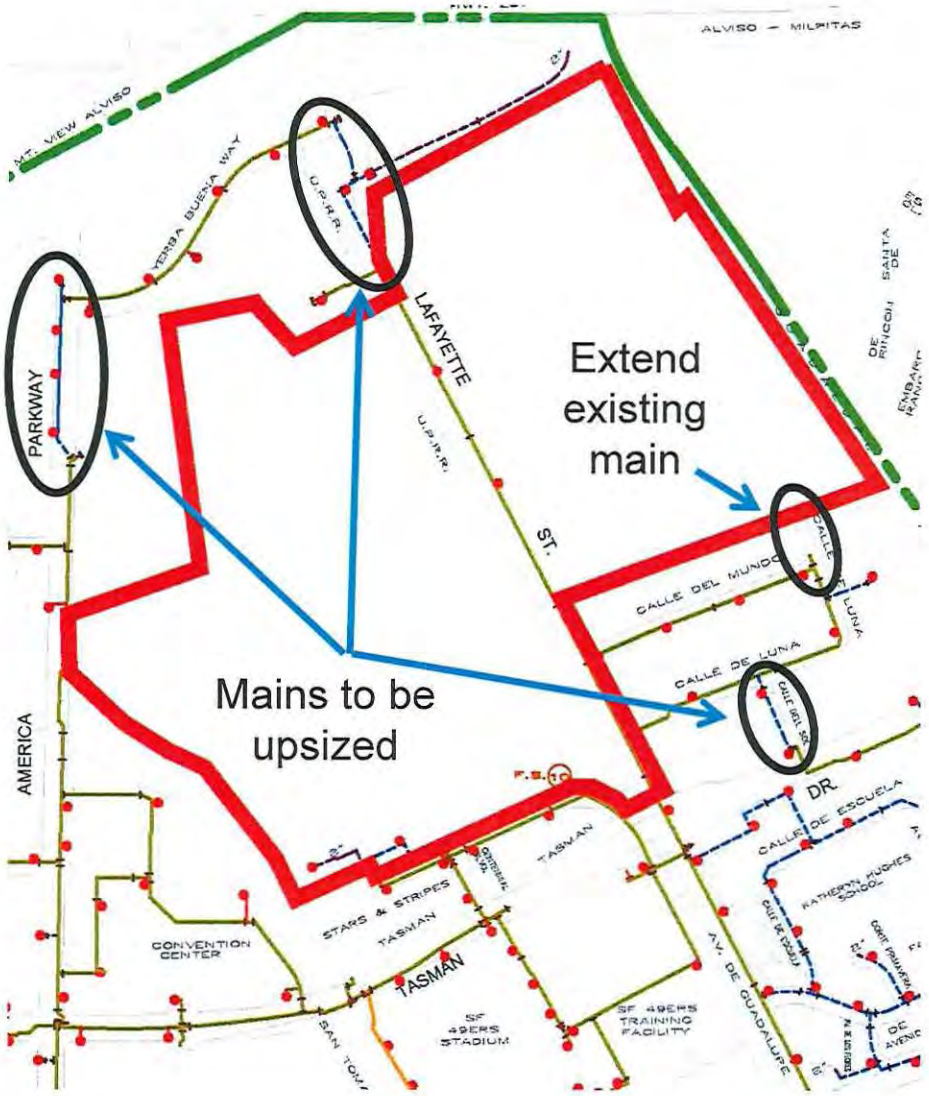


City Place – Related
On Site Infrastructure

- On site water system must be on top of and not under the podium(s) to be accessible for repair, replacement, and service
- Booster Pump Stations
- Approximately 33,000 to 38,000 linear feet of water mains, with associated valves, hydrants etc. will need to be constructed based on most recent proposal
- Costs for water mains will be dependent on required construction materials and techniques

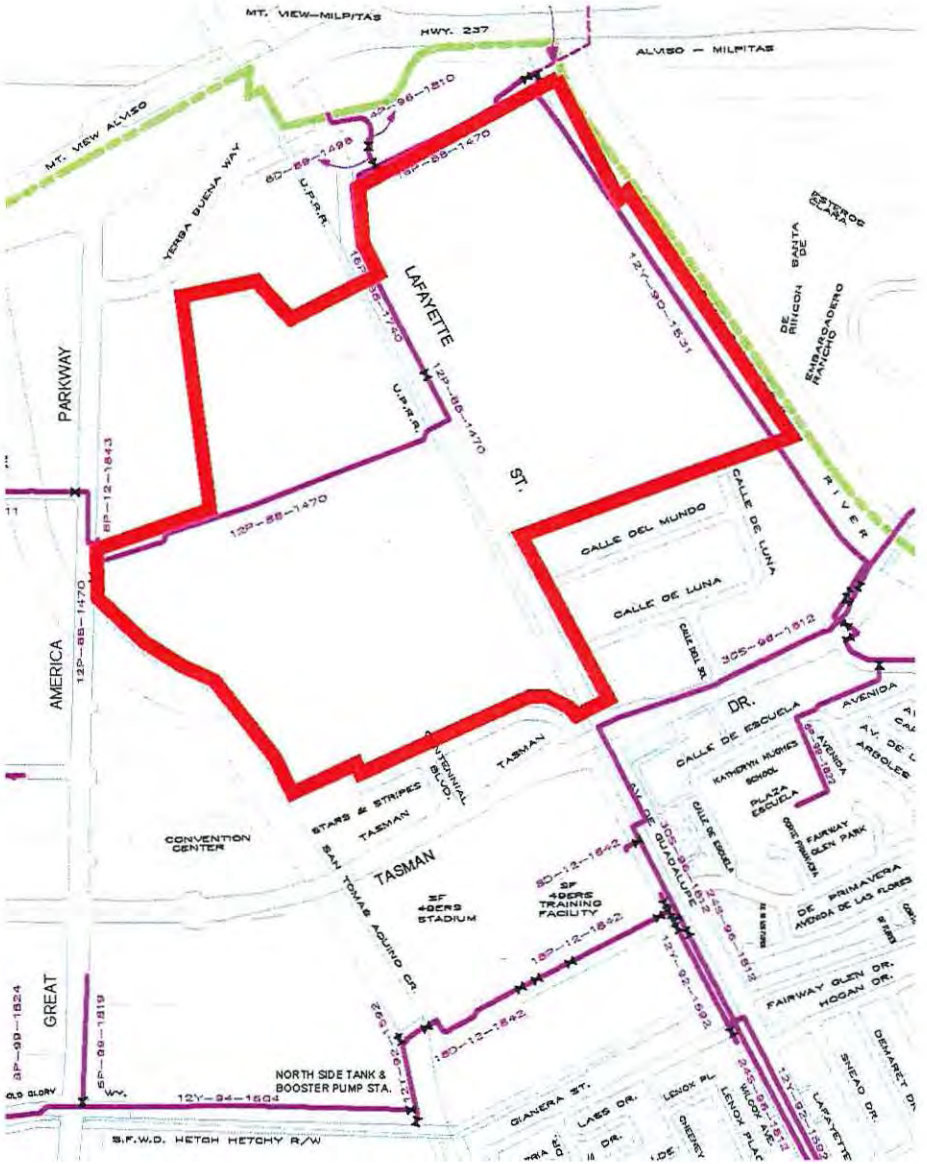
City Place – Related
Off Site Infrastructure

- Approximately 2,000 ft. of water mains will need to be upsized to improve hydraulic capacity
- Extension of existing water main
- Connections to the existing City water mains – number of connections and locations will be dependent on the projected on site demands and whether the water system is public or private



Both Projects – Recycled Water

- Recycled water is adjacent to both sites and must be used for uses such as landscape irrigation and cooling towers if economically feasible.
- Permitting process for recycled water can take 6 to 12 months to gain approval from the State.



City Place - Related

- Public vs. Private Water System

  Public Water System

  - Permitting may be difficult and require additional engineering studies, soil sampling, and analysis to gain approval from CDPH
  - Alternate construction techniques may be required

  Private Water System

  - Connection points would be provided
  - Related would own and operate the on-site water system
  - Permitting would be more streamlined
  - Standard construction techniques may be used

Both Projects - Other Requirements

- Water Supply Assessments

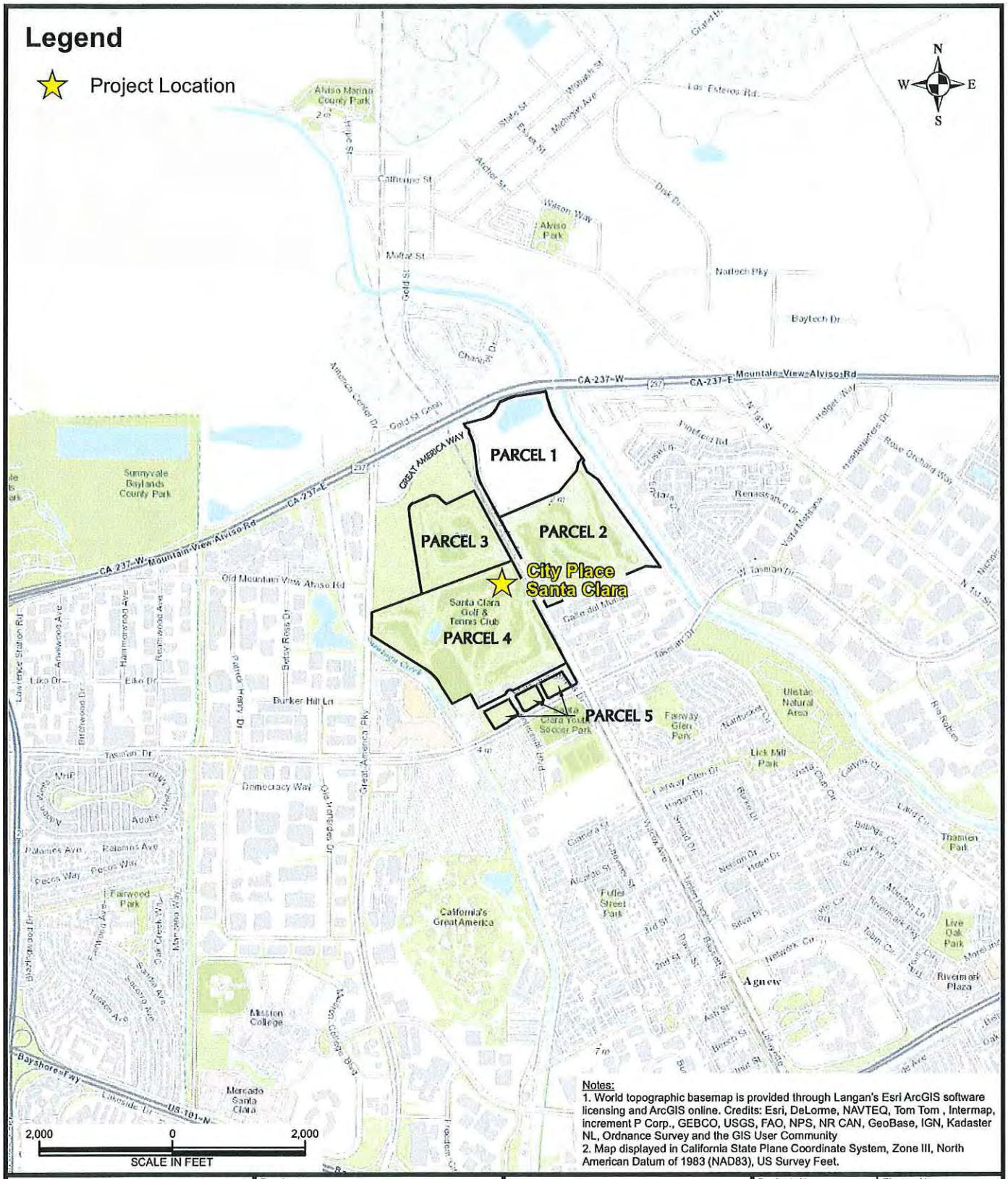
  Water Supply Assessments will need to be completed for each phase or the project as a whole.

Questions ?

SANITARY SEWER PHASING MATRIX								
Phase / Parcel	**Gross Sq. Footage**	**Sewer Pipe (LF)**	**Manholes (#)**	**Laterals (LF)**	**Clenaouts (#)**	**Settlement Vaults/Flexible Connections (#)**	**Refuse Trenching (CY) Note 2**	**Off-Site Improvements**
1 / 5	825,000	1,418 – 14"	4	332	2	0	0	New Stars and Stripes Sewer
2 / 4	2,411,470	941 – 10" 2,980 – 12" 1,586 – 14"	20	1,556	24	10	7,500	Two MH Connections to P3/P4 42 inch sewer See Note 1
3 / 4	752,030	947 – 10"	5	1,133	14	7	1,000	See Note 1
4 / 4	1,095,900	489 – 12"	2	183	4	4	0	See Note 1
5 / 3	750,000	2,235 – 12" 894 – 14"	17	240	5	5	0	One MH Connection to P3/P4 33 inch sewer.
6 / 1	1,200,000	1,636 – 10" 686 – 12"	15	489	8	8	9,200	One MH Connection to Lafayette Street sewer
7 / 2	1,080,000	1,692 – 10" 606 – 12"	10	253	6	6	6,600	One MH Connection to Lafayette Street sewer
8 / 2	1,080,000	1,343 – 10"	6	231	6	6	4,600	-

Notes:
1. Depending on pace of development in the City improvements to Rabello and Northside pump stations may be required. (The potential timing of the upgrades is discussed in Section 5.3).
2. Refuse Trenching for settlement slab include average width of 20-ft and depth of 5-ft.

FIGURES



Notes:
1. World topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online. Credits: Esri, DeLorme, NAVTEQ, Tom Tom , Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NR CAN, GeoBase, IGN, Kadaster NL, Ordnance Survey and the GIS User Community
2. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

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SITE LOCATION MAP

Project No. 770611601	Figure No. 1
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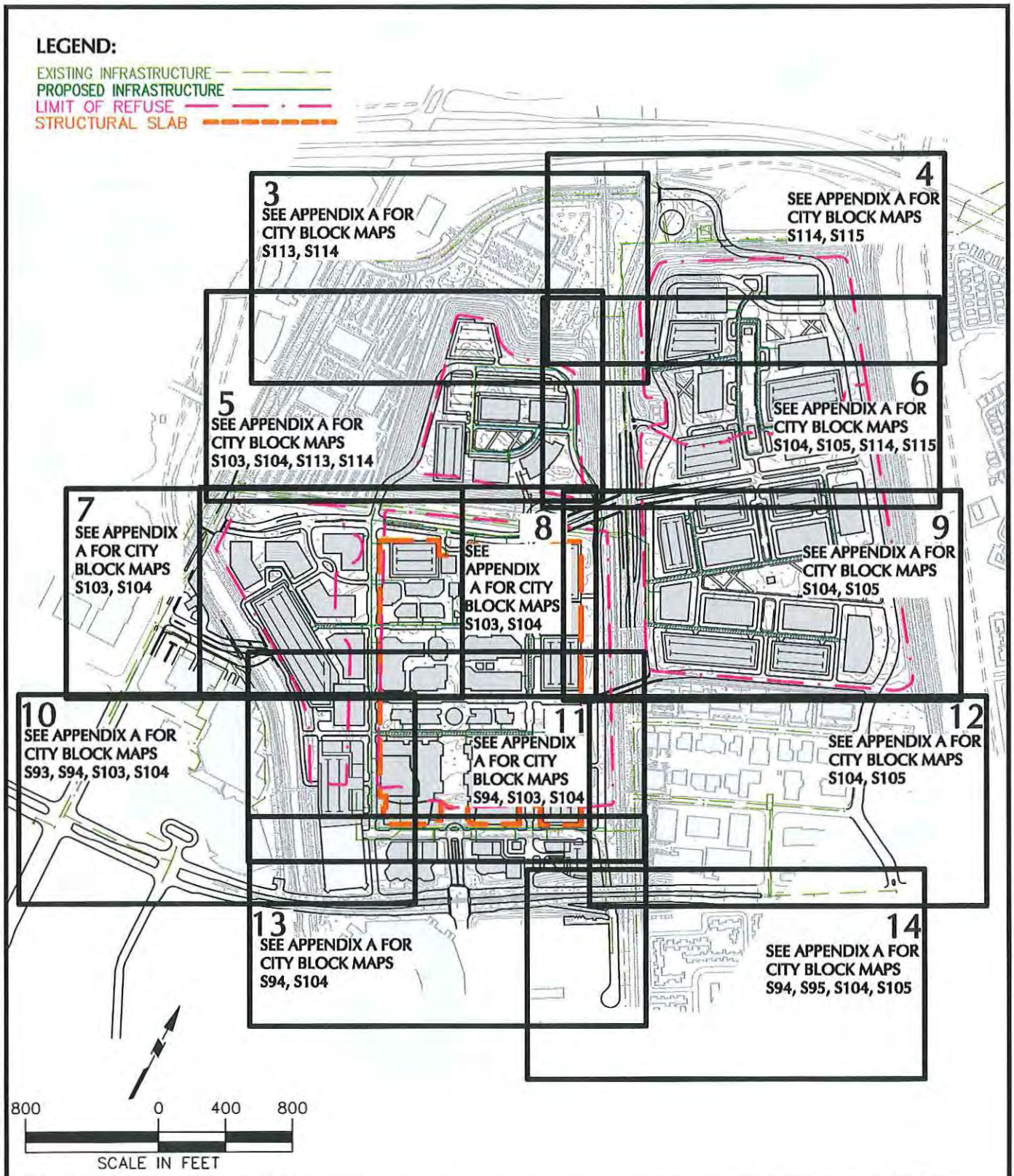

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PRELIMINARY SANITARY SEWER KEY

Project No. 770611601	Figure No. 2
Date 8/24/2015	
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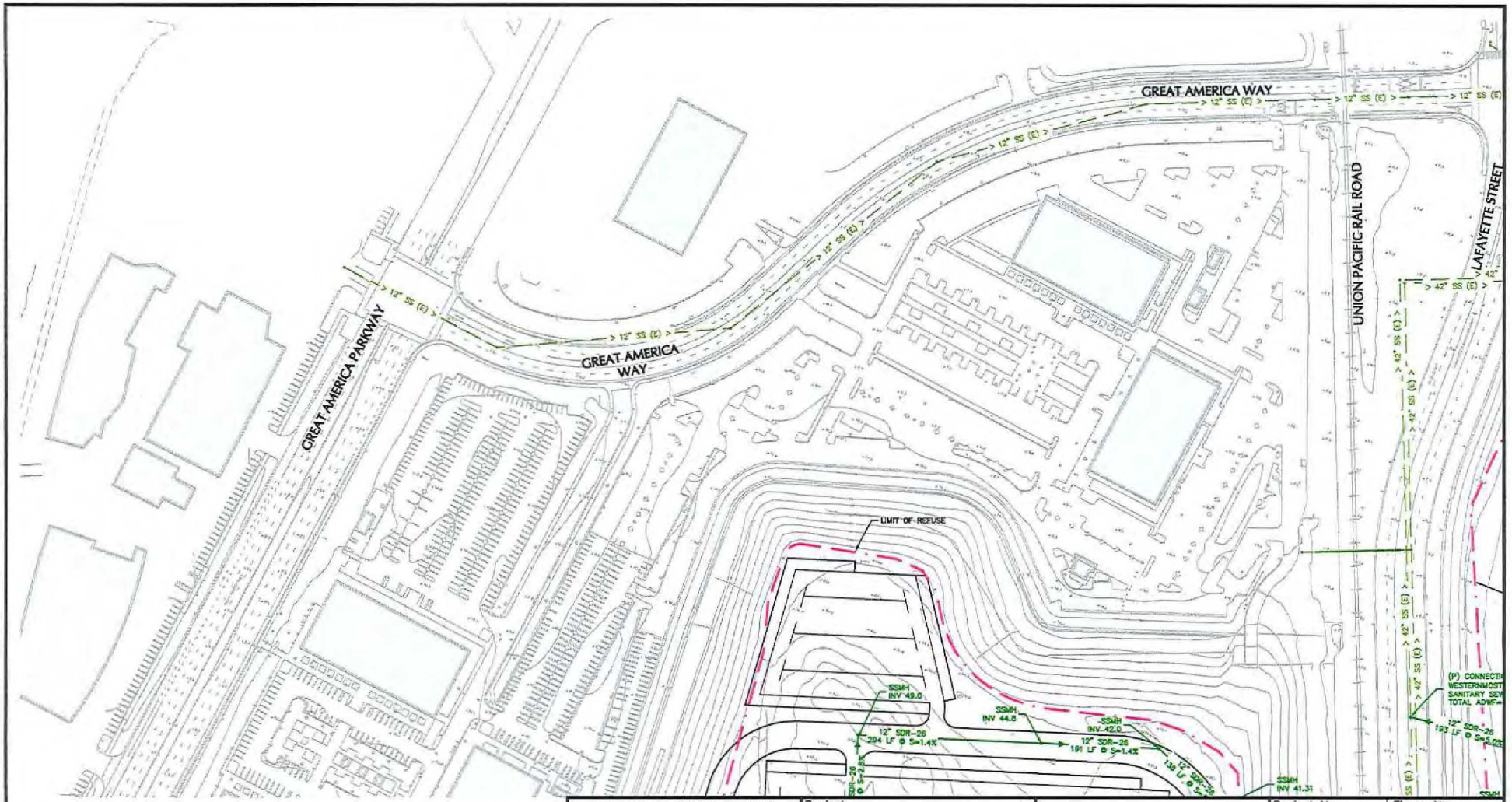

LEGEND:

EXISTING INFRASTRUCTURE — — > xx" ss (e) > — —

PROPOSED INFRASTRUCTURE — xx" SDR-26 xx LF @ S=xx% →

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

SCALE IN FEET

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Figure No. **3**

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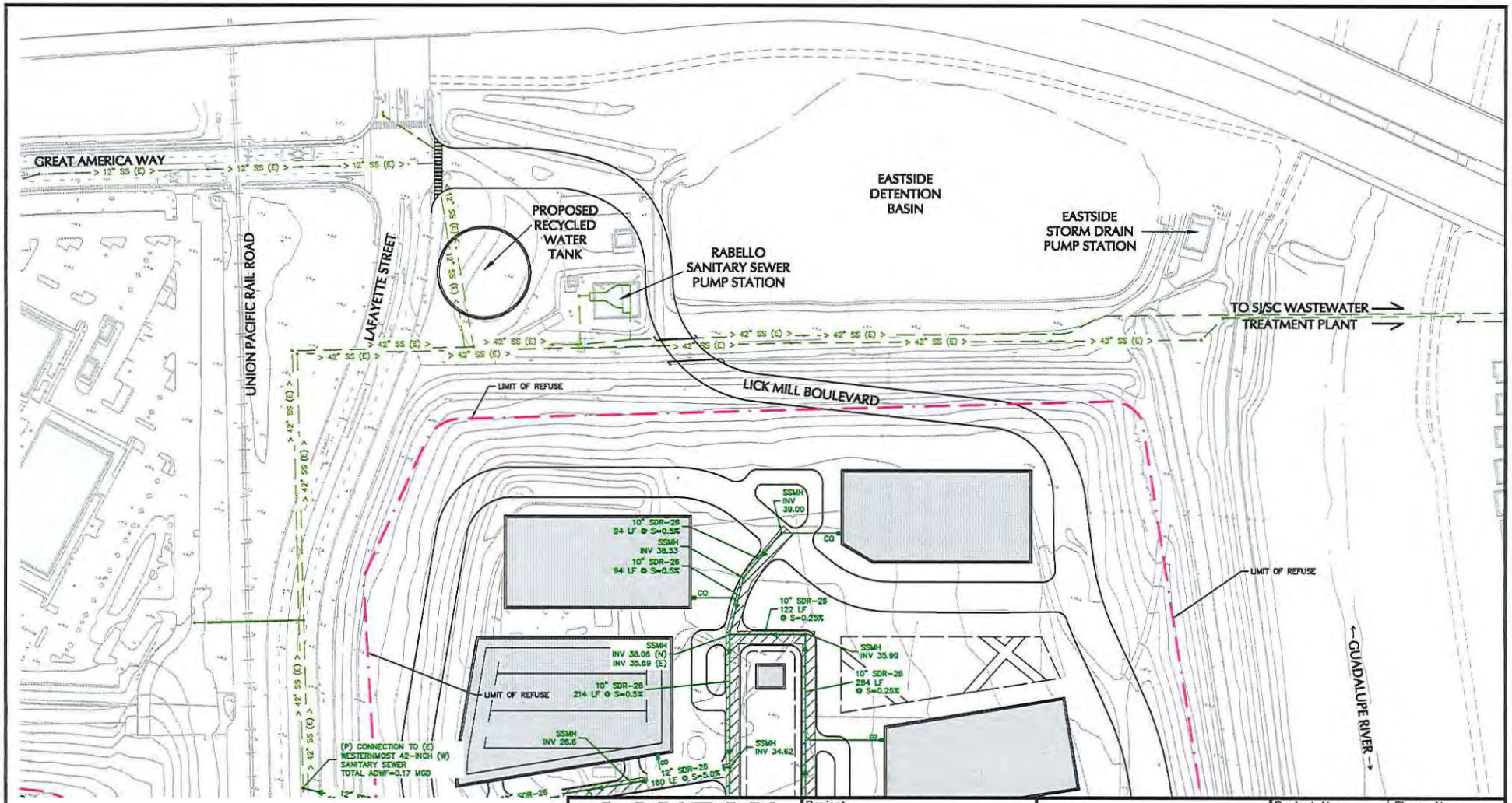

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PROPOSED INFRASTRUCTURE → XX" SDR-26 XX LF @ S=XX%

LIMIT OF REFUSE — — — — —

STRUCTURAL SLAB

150 0 75 150

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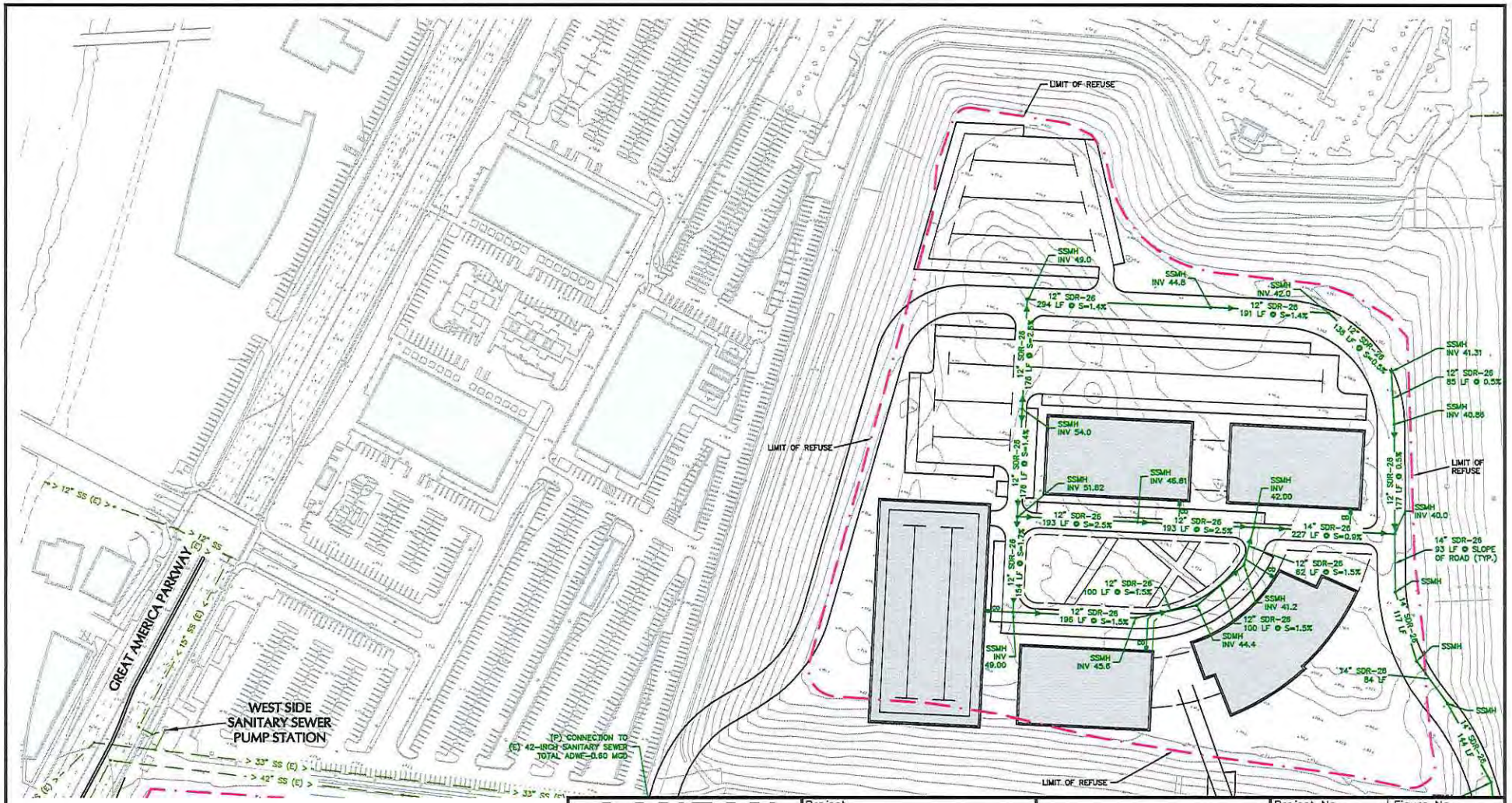

LEGEND:

EXISTING INFRASTRUCTURE — — > xx" SS (E) > — —

PROPOSED INFRASTRUCTURE → xx" SDR-26 xx LF @ S=x% →

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

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Submission Date 8/24/2015	

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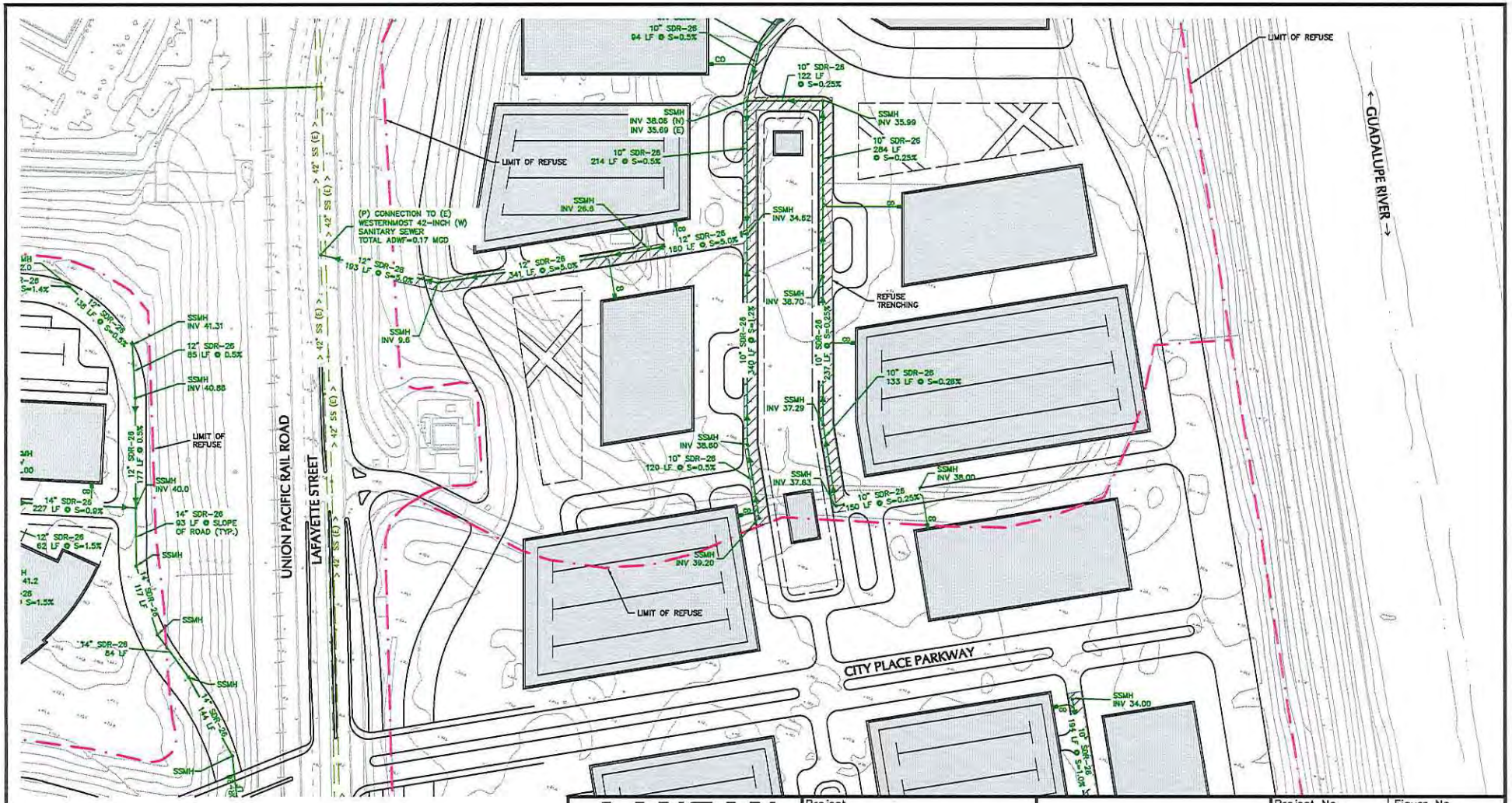

LEGEND:

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PROPOSED INFRASTRUCTURE → XX" SDR-26 XX LF @ S=X% →

LIMIT OF REFUSE — — · — — · — —

STRUCTURAL SLAB

150 0 75 150

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LEGEND:

EXISTING INFRASTRUCTURE — — > XX" SS (E) > — —

PROPOSED INFRASTRUCTURE — XX" SDR-26 XX LF @ S=X% →

LIMIT OF REFUSE — — — — —

STRUCTURAL SLAB

150 0 75 150

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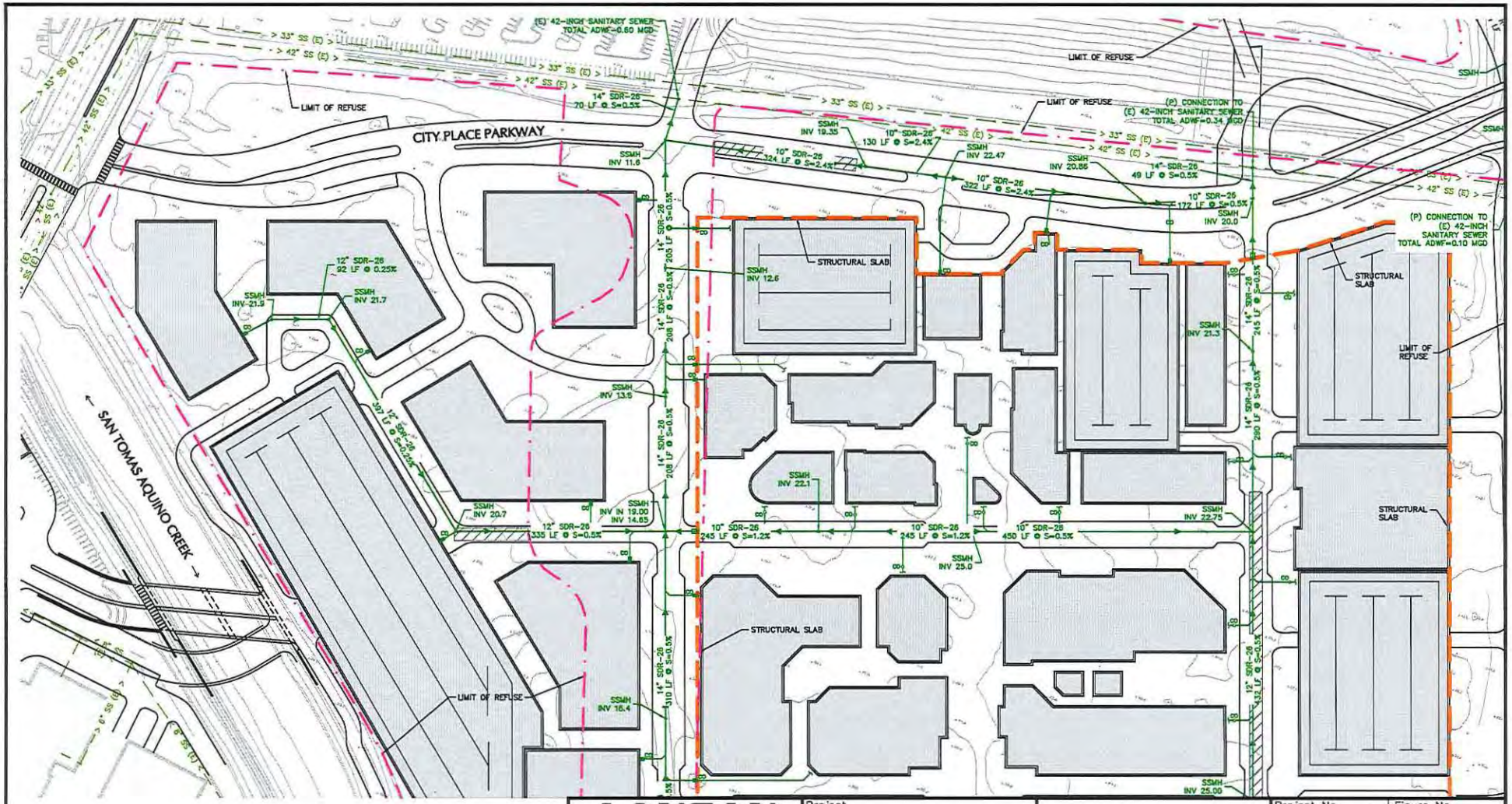

LEGEND:

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PROPOSED INFRASTRUCTURE — xx" SDR-26 xx LF @ S=x.x% →

LIMIT OF REFUSE — — — — — —

STRUCTURAL SLAB

150 0 75 150

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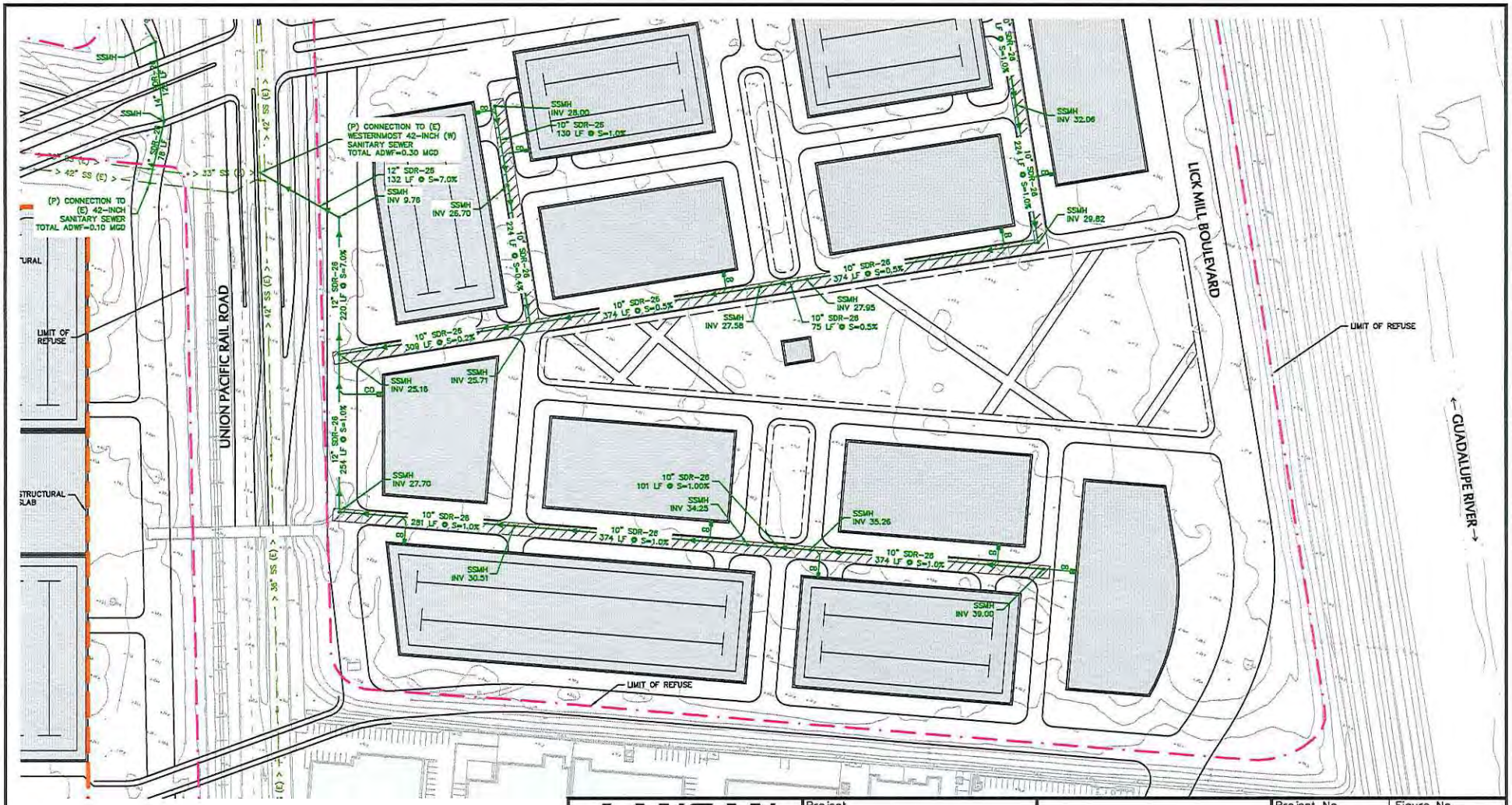

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PROPOSED INFRASTRUCTURE → XX" SDR-26 / XX LF @ S=X% →

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

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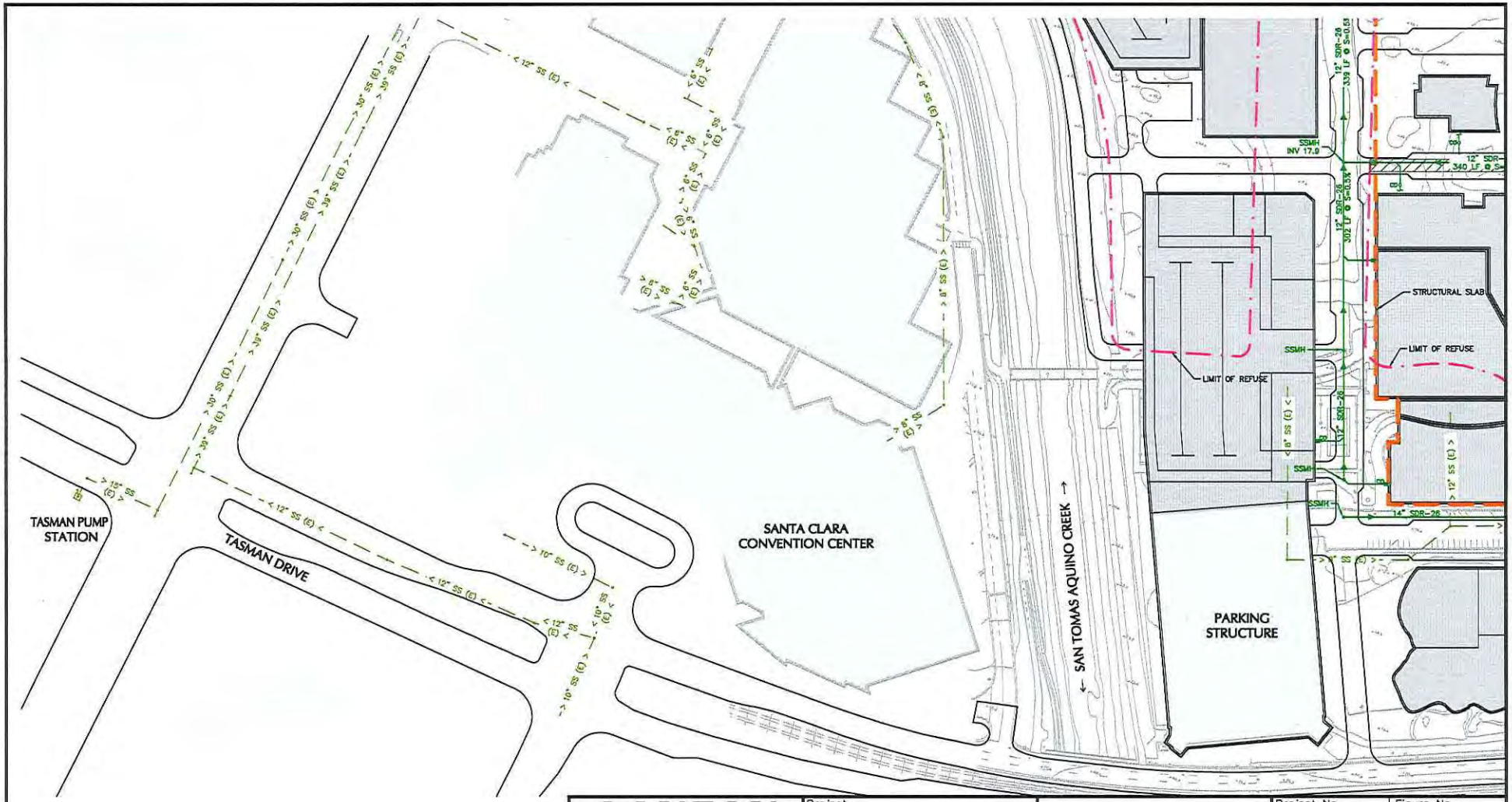

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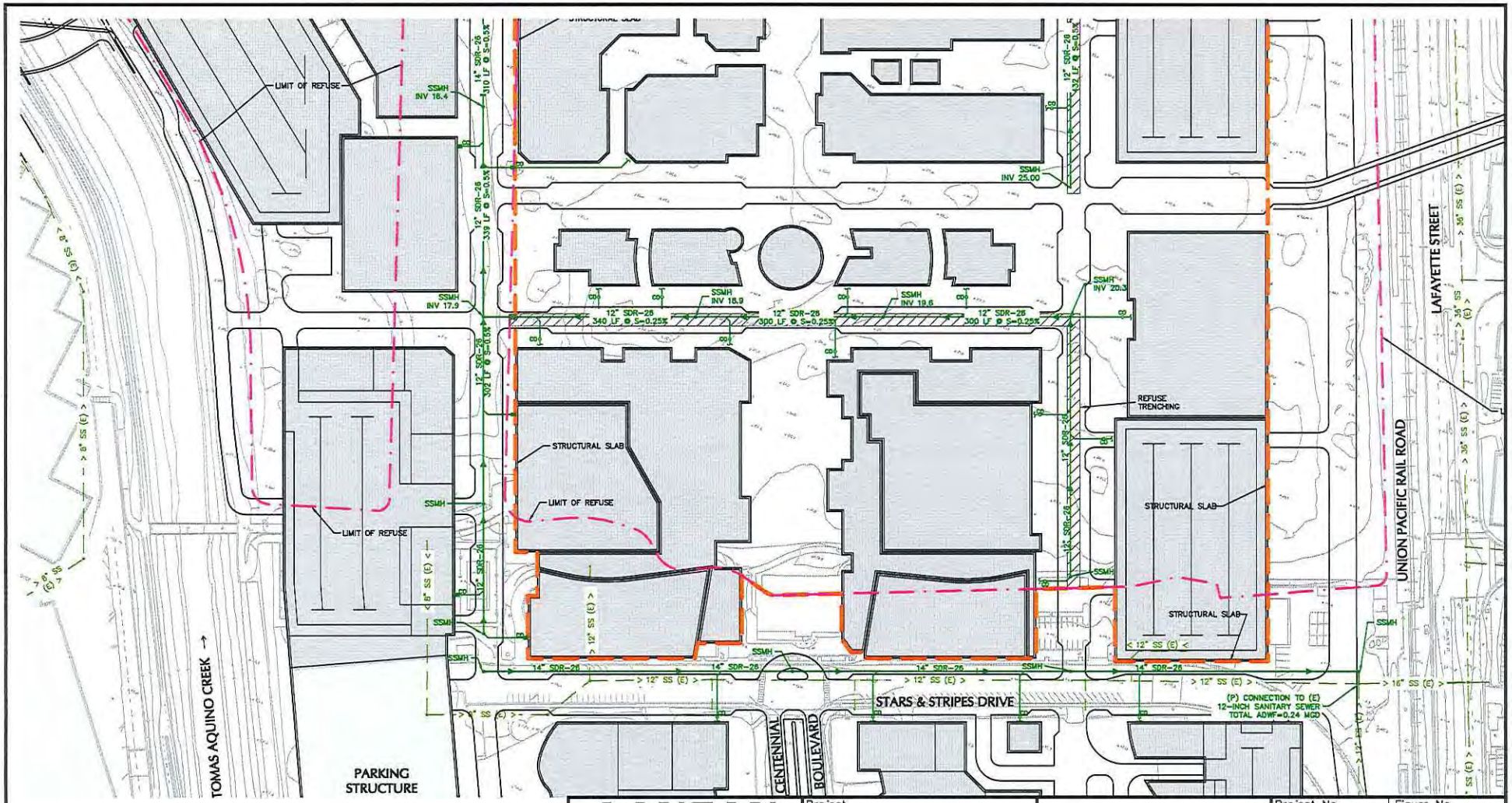

LEGEND:

EXISTING INFRASTRUCTURE — —> XX" SS (E) > — —

PROPOSED INFRASTRUCTURE —→ XX" SDR-26 XX LF @ S=X% →

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

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Figure No. 11

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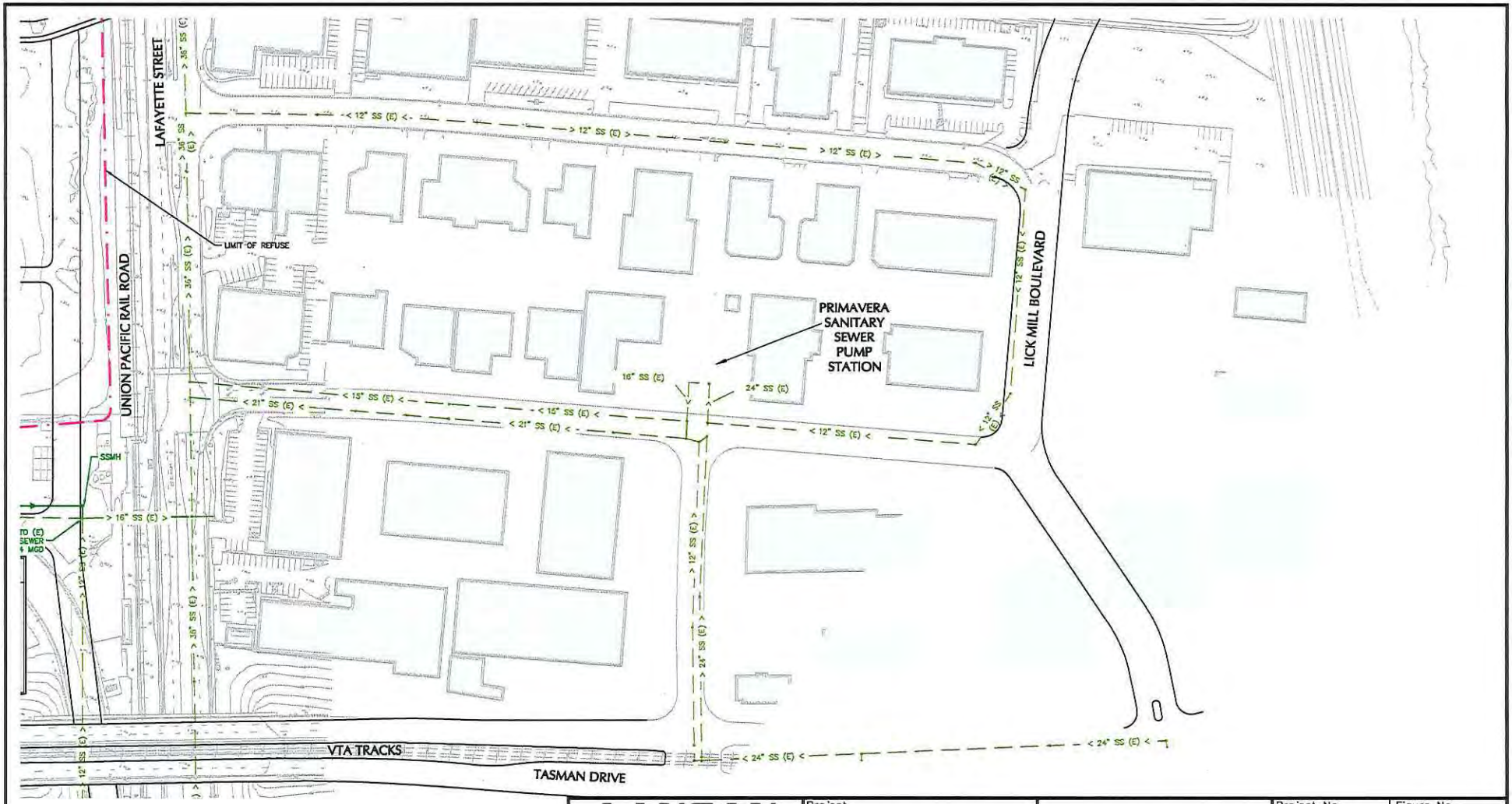

LEGEND:

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PROPOSED INFRASTRUCTURE → XX" SDR-26 XX LF @ S=X% →

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

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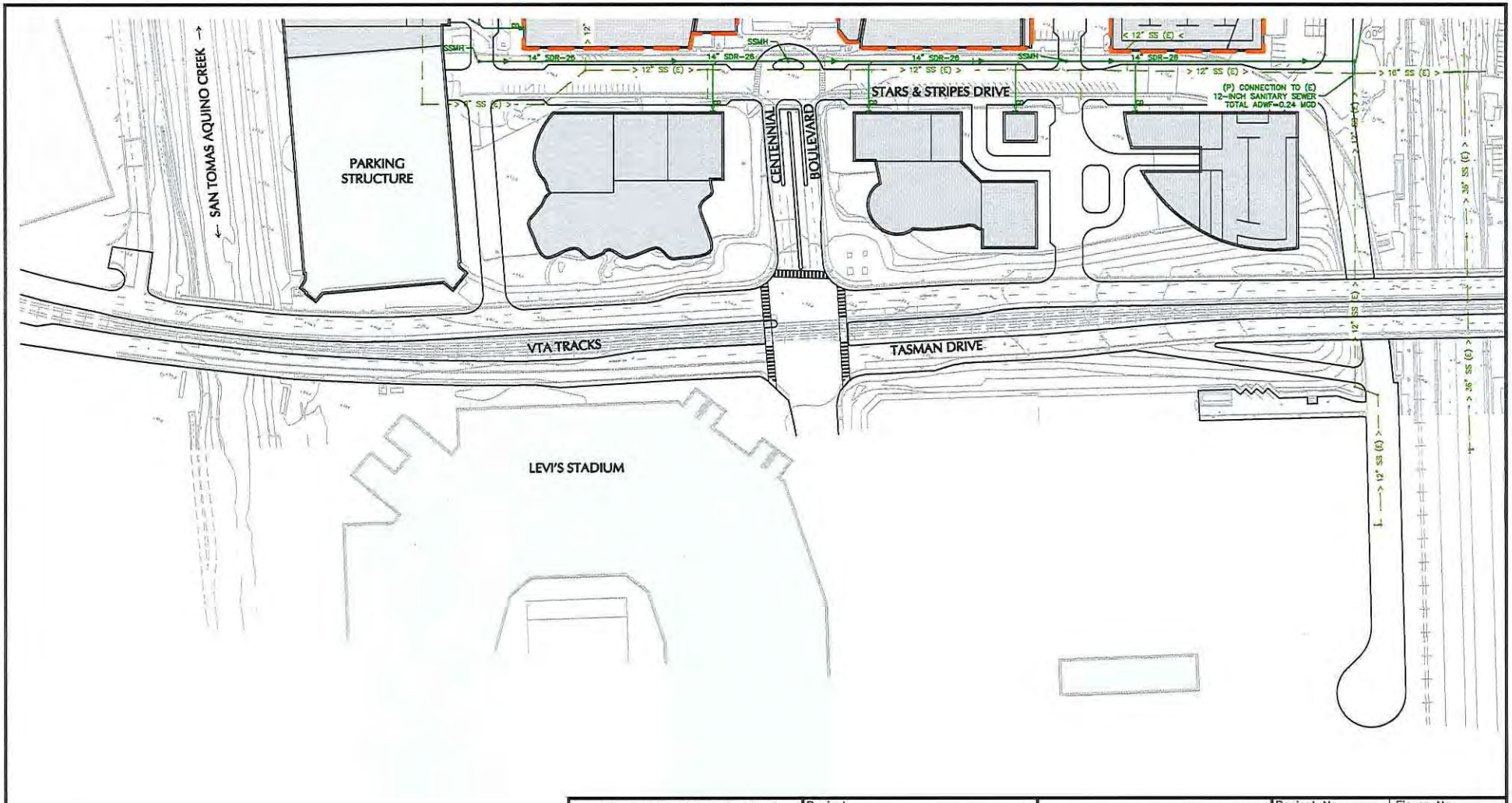

LEGEND:

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PROPOSED INFRASTRUCTURE — XX" SDR-26 XX LF @ S=XX —

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

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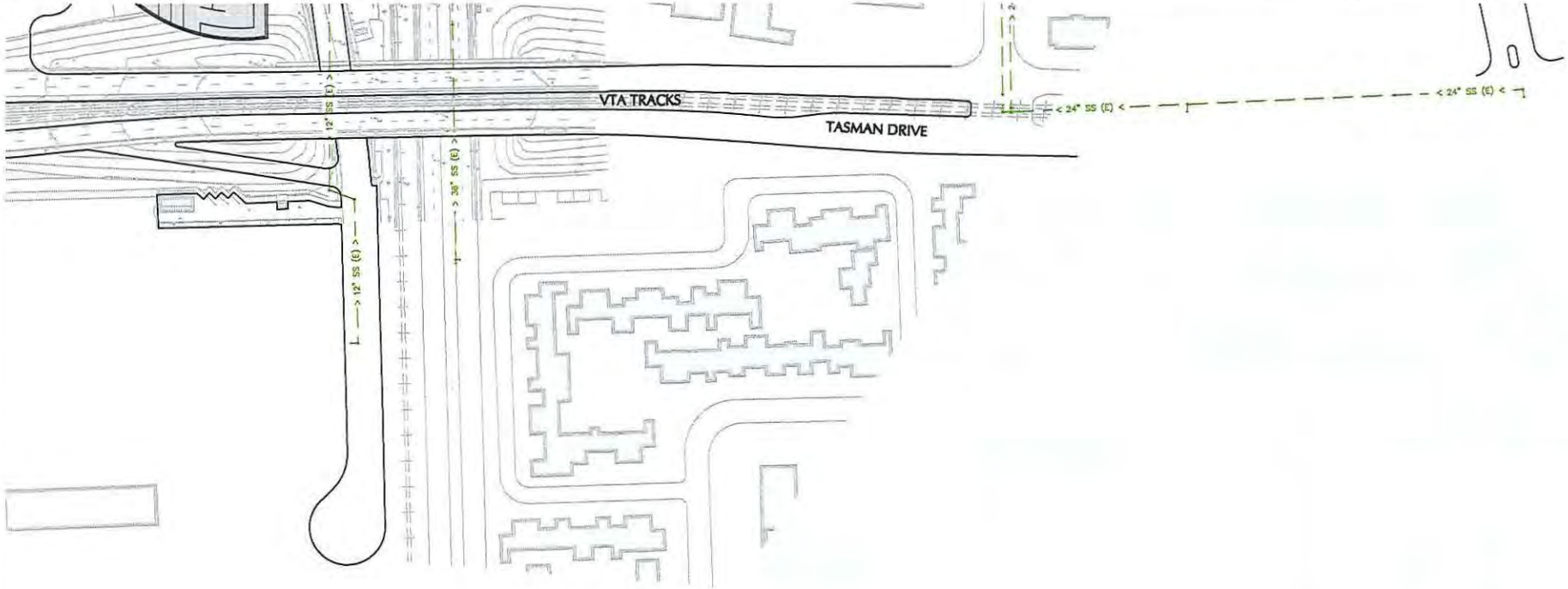

LEGEND:

EXISTING INFRASTRUCTURE — — > xx" ss (e) > — —

PROPOSED INFRASTRUCTURE — → XX" SDR-26 XX LF @ S=XX%

LIMIT OF REFUSE — — · — — · —

STRUCTURAL SLAB

150 0 75 150

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PRELIMINARY SANITARY SEWER

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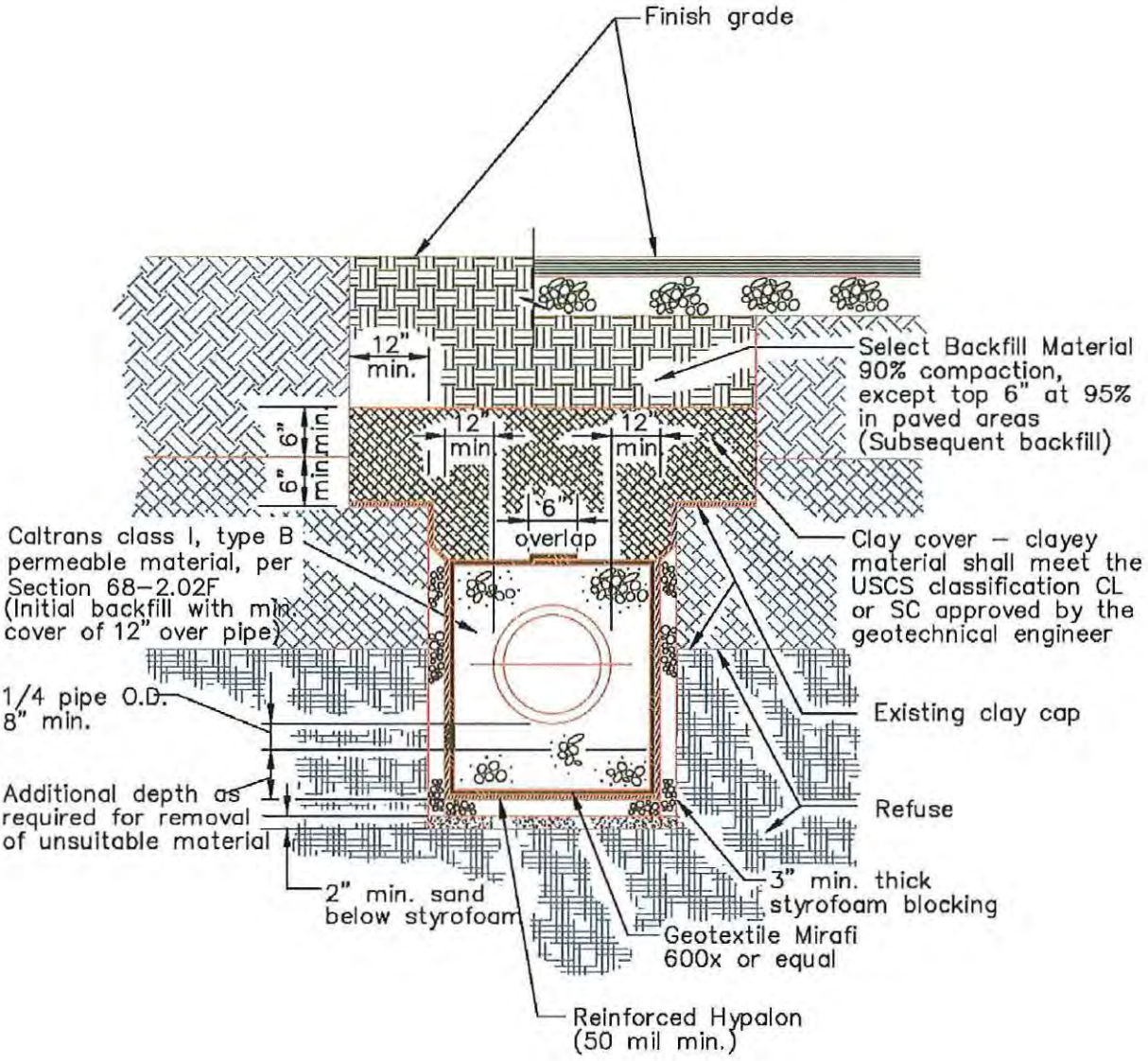

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UTILITY TRENCH PENETRATING CLAY CAP

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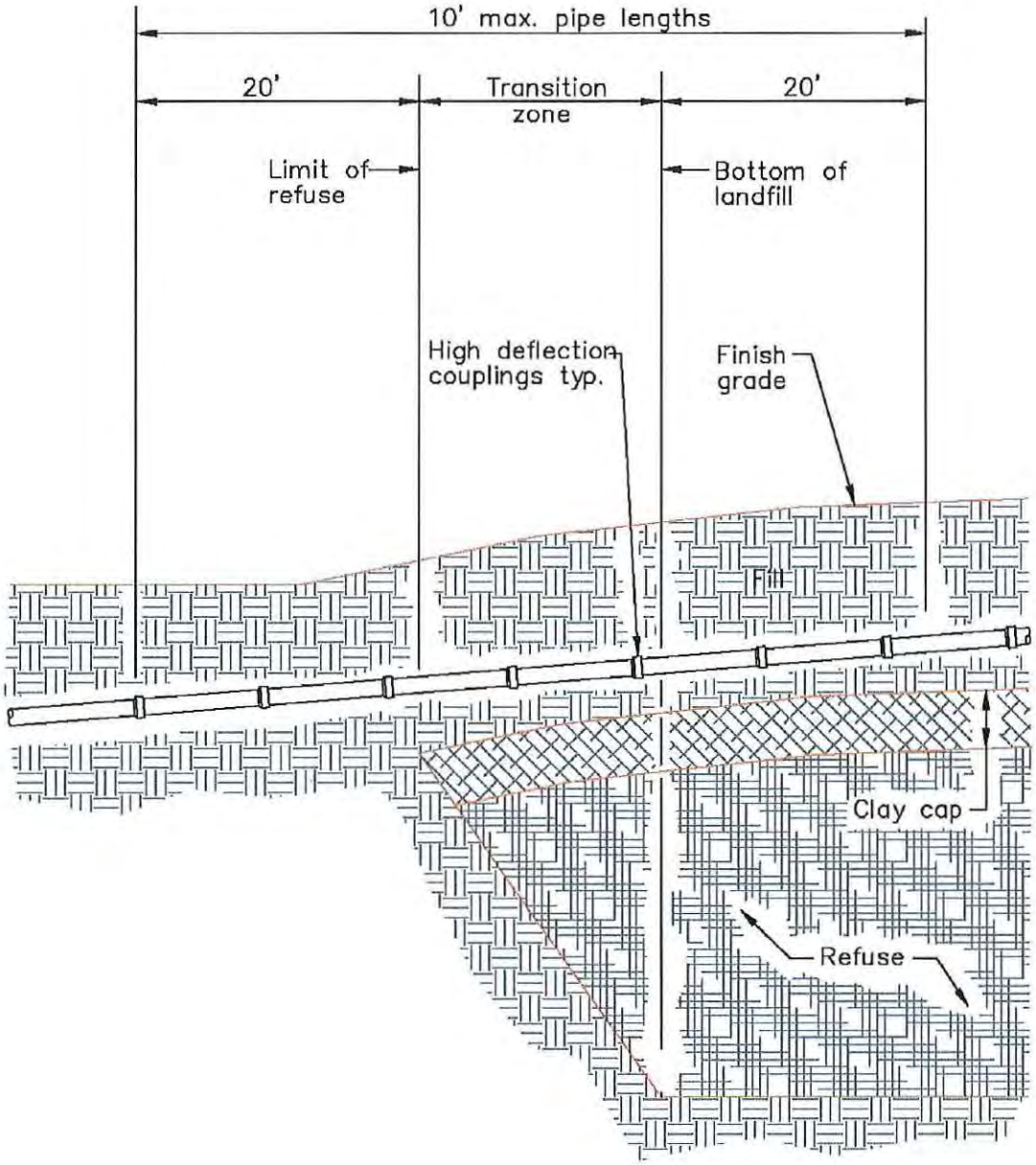
Filename: \\langan.com\data\SJ\data6\770611601\Cadd Data - 770611601\SheetFiles\Technical Memo and Report Figures\Sanitary Sewer\Utility - Sanitary Sewer Details.dwg Date: 8/24/2015 Time: 08:04 User: dhodson Style Table: Langan.stb Layout: Fig 15 Utility Trench Penetrating Clay Cap



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SANITARY SEWER GRAVITY PIPES THROUGH TRANSITION ZONE

Project No. 770611601	Figure No. 16
Date 8/24/2015	
Scale NOT TO SCALE	
Drawn By STAFF / Checked By DJH	
Submission Date 8/24/2015	

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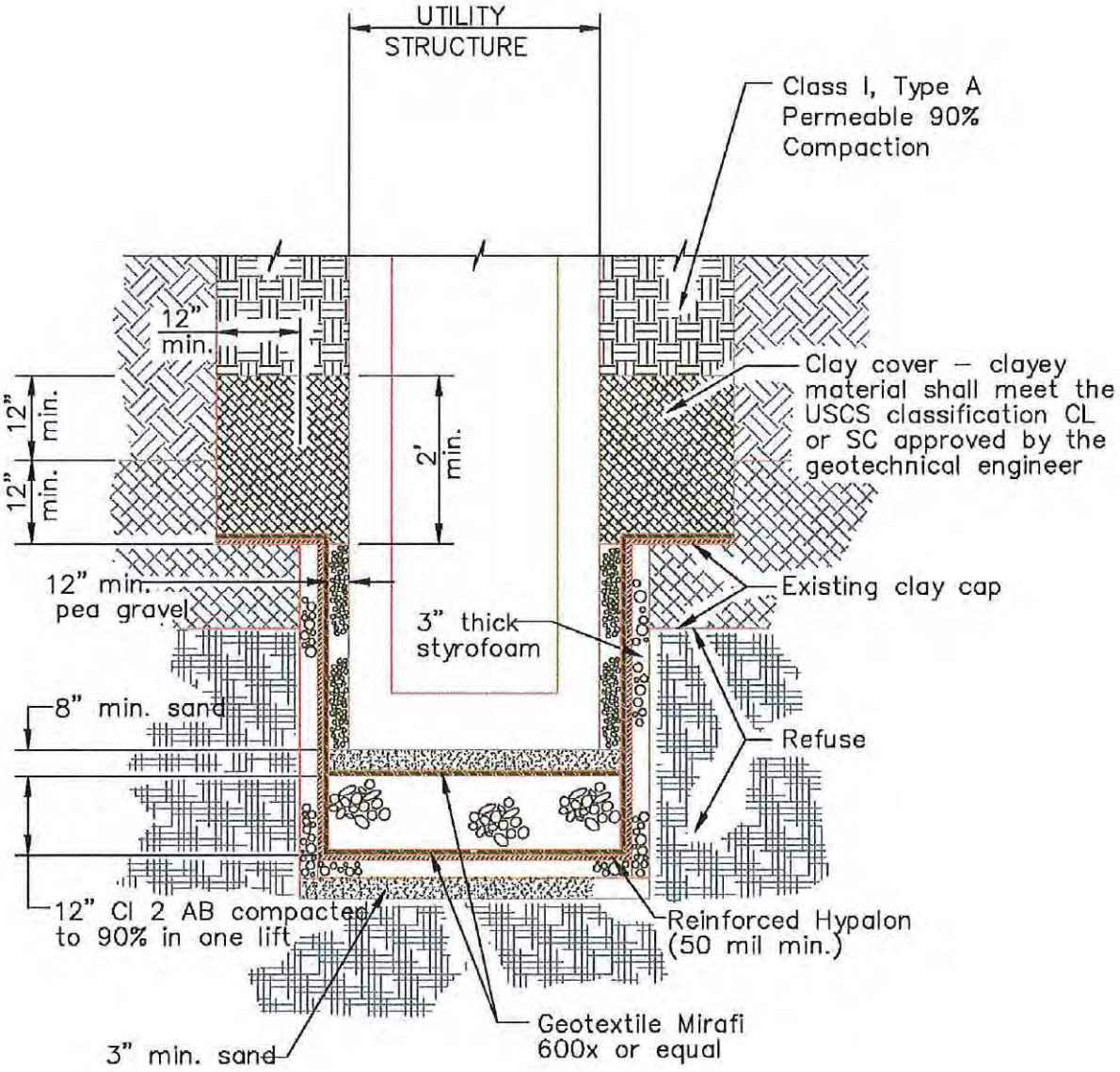

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UTILITY STRUCTURE PENETRATING CLAY CAP

Project No. 770611601	Figure No. 17
Date 8/24/2015	
Scale NOT TO SCALE	
Drawn By STAFF / Checked By DJH	
Submission Date 8/24/2015	

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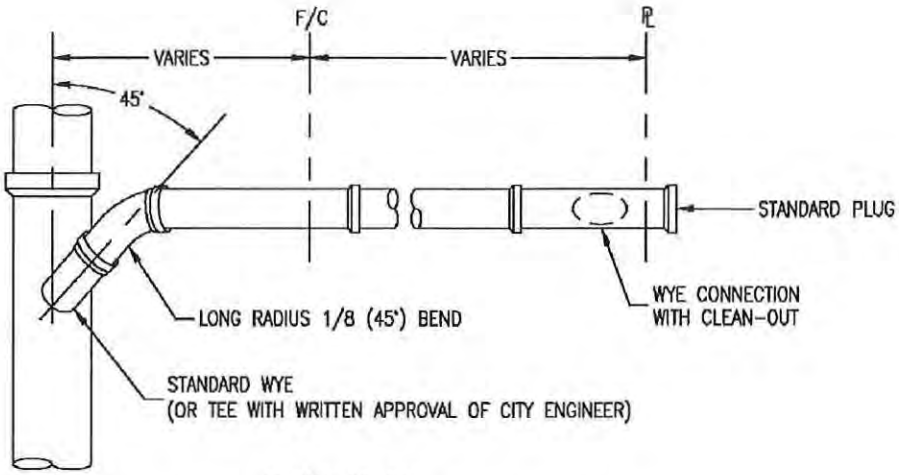
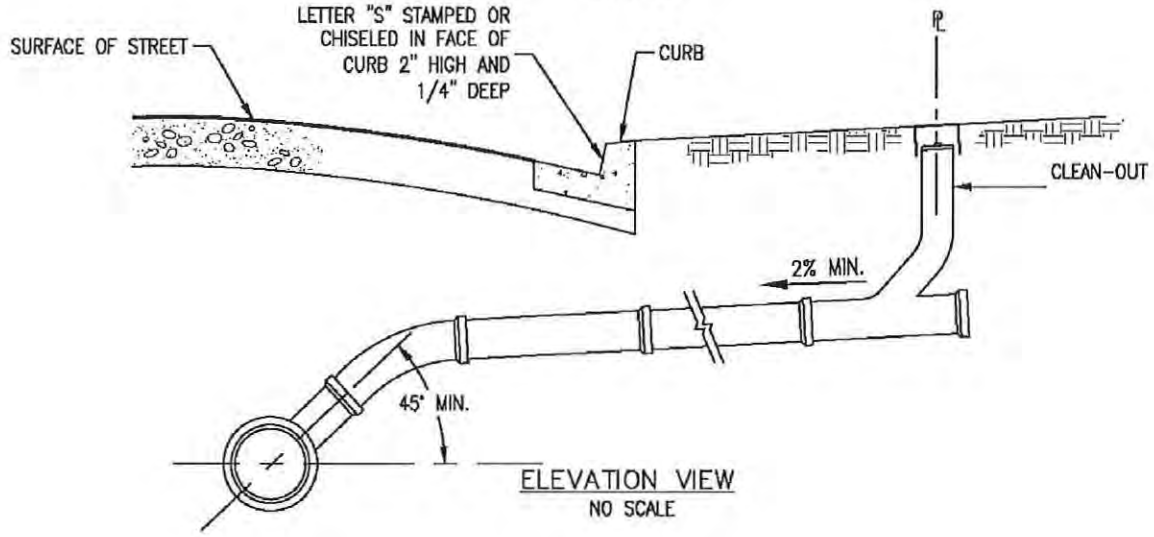
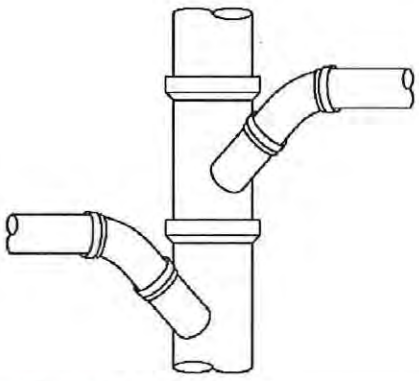


PLAN VIEW
NO SCALE



ELEVATION VIEW
NO SCALE



NOTES:

1. IN NO CASE SHALL A LATERAL CONNECT TO THE SANITARY SEWER MAIN DIRECTLY ON TOP OF THE PIPE.
2. ONLY ONE CONNECTION MAY BE MADE IN EACH SECTION OF SANITARY SEWER MAIN.
3. SANITARY SEWER LATERALS SHALL HAVE A MINIMUM SLOPE OF 2%.
4. ALL LATERAL PIPE JOINTS SHALL BE COMPRESSION TYPE.
5. LATERAL SHALL EXTEND TO PROPERTY LINE UNLESS OTHERWISE NOTED, AND A CLEANOUT SHALL BE INSTALLED AT THE PROPERTY LINE.

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SANITARY SEWER LATERAL CONNECTION

Project No. 770611601	Figure No. 18
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Submission Date 8/24/2015	

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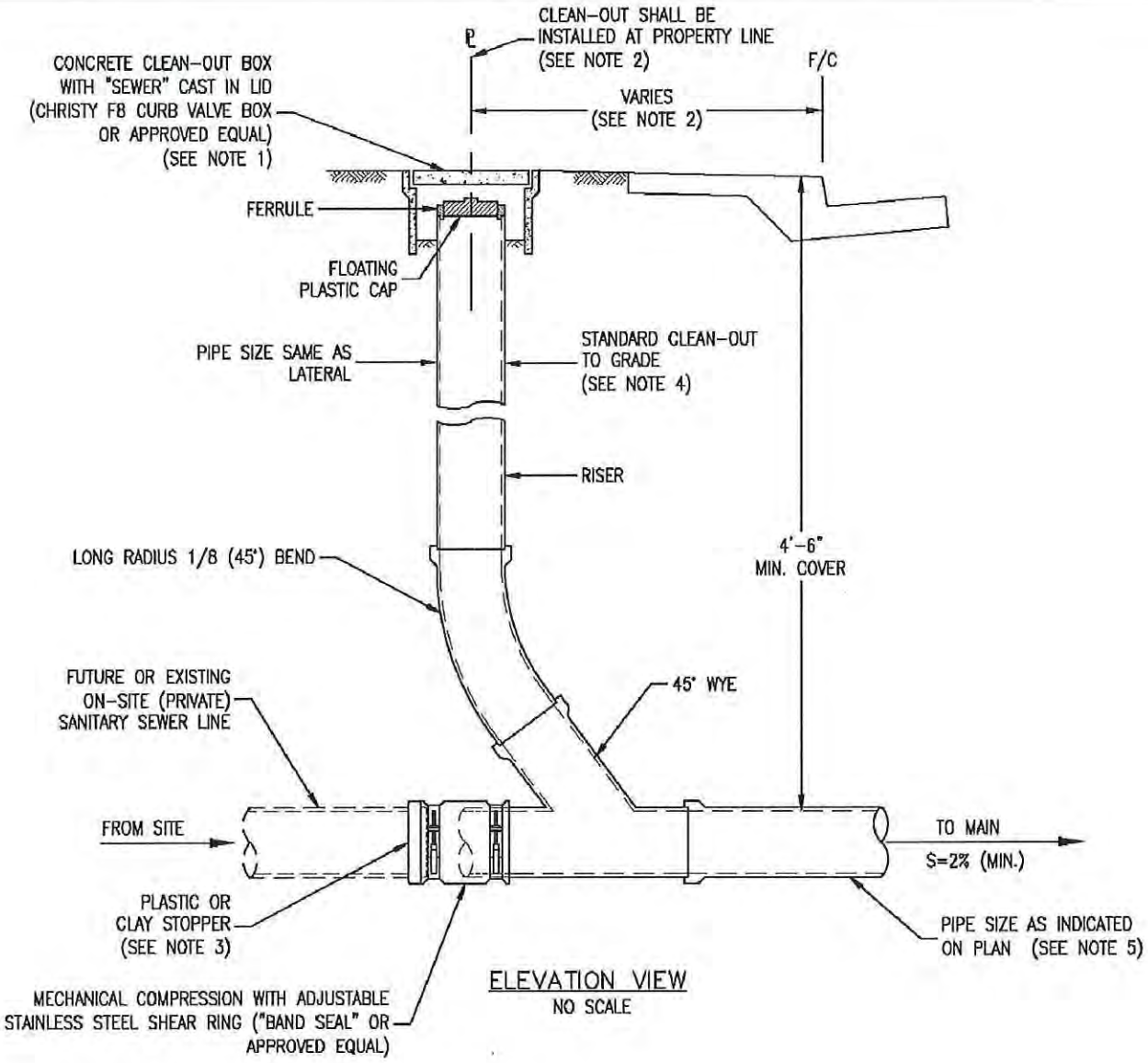

ELEVATION VIEW
NO SCALE

NOTES:

1. IF CLEAN-OUT IS INSTALLED IN DRIVEWAY OR FOR 6" LATERALS, USE CHRISTY G5 TRAFFIC VALVE BOX WITH "SEWER" CAST IN LID (OR APPROVED EQUAL). BOX SHALL HAVE A CONCRETE COLLAR.
2. WHEN PROPERTY LINE IS AT BACK OF WALK, INSTALL CLEAN-OUT BEHIND BACK OF WALK.
3. PROVIDE STOPPER WHEN THERE IS NO ON-SITE LATERAL CONNECTION.
4. MATERIAL FOR THE CLEANOUT PIPE SHALL MATCH THE MATERIAL FOR THE LATERAL. SEE CITY'S SPECIFICATIONS FOR MATERIALS.
5. FOR 8" OR LARGER LATERALS, A STANDARD MANHOLE SHALL BE INSTALLED AT OR NEAR THE PROPERTY LINE.

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SANITARY SEWER CLEAN-OUT

Project No. 770611601	Figure No. 19
Date 8/24/2015	
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Submission Date 8/24/2015	

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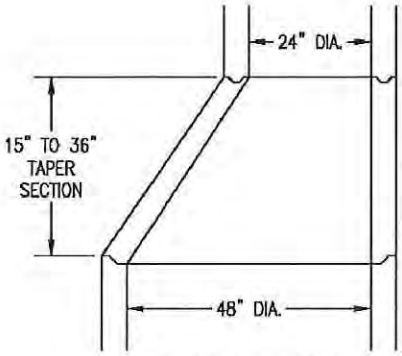
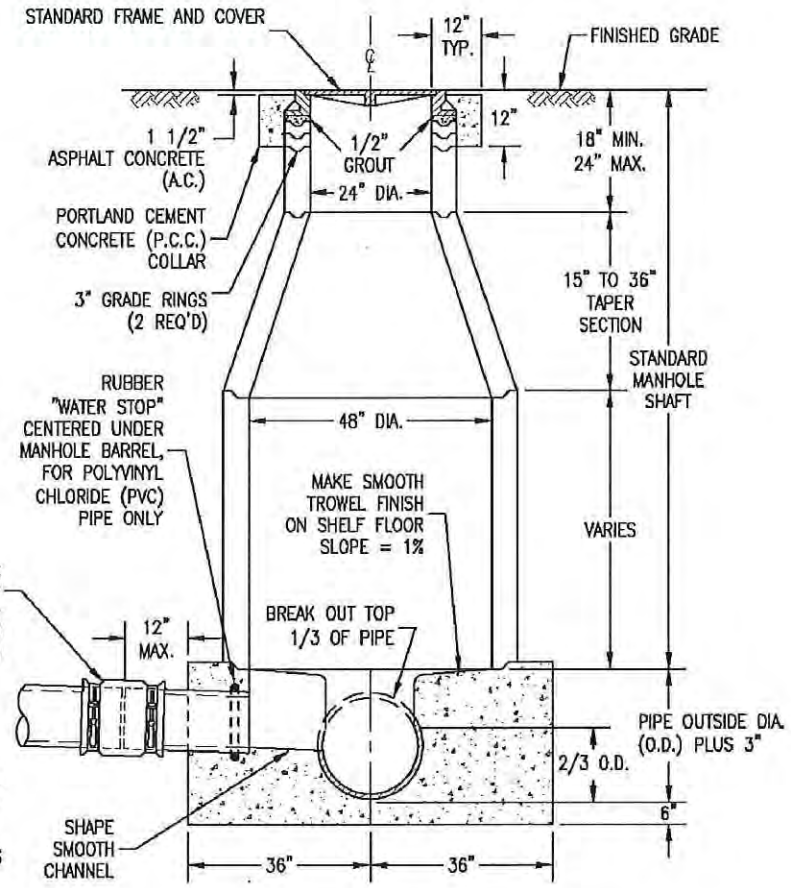


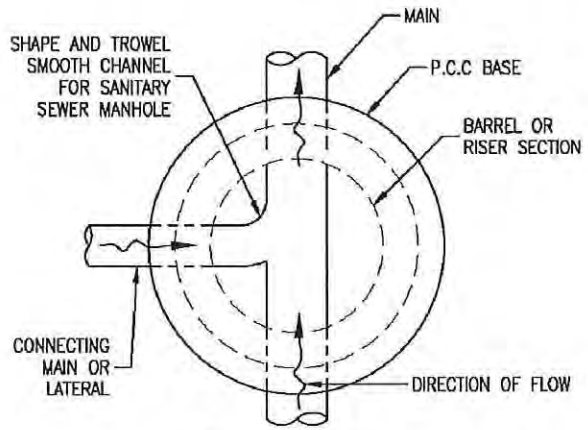
ECCENTRIC MANHOLE
(OPTION FOR STORM DRAIN MANHOLE ONLY)



CONCENTRIC MANHOLE – ELEVATION VIEW
NO SCALE

NOTES:

1. MANHOLE BASE SHALL BE POURED ON UNDISTURBED GROUND. IF OVER EXCAVATION OCCURS BELOW MANHOLE BASE, BACKFILL WITH CONCRETE. AN APPROVED 'IMPRESSION RING' MUST BE USED TO FORM KEYWAY FOR MANHOLE BARREL SECTION.
2. INTERSECTING LATERALS' AND MAINS' CROWNS SHALL MATCH.
3. ALL JOINTS SHALL BE SEALED WITH "RAMNEK" OR APPROVED EQUAL.
4. CENTER OF ECCENTRIC MANHOLE COVER SHALL BE LOCATED OVER THE CENTER OF THE MAIN ON THE UPSTREAM SIDE.
5. TYPE V PORTLAND CEMENT FOR SANITARY SEWER STRUCTURES AND TYPE II PORTLAND CEMENT FOR STORM DRAIN STRUCTURES.
6. BELL END OF PIPE SHALL BE 12" MAX. FROM WALL OF MANHOLE
7. THIS DESIGN IS USABLE FOR PIPES UP TO 39" DIA. ONLY.
8. ALL SANITARY SEWER MANHOLES SHOULD BE LINED WITH INTEGRALLY LOCKING PVC (T-LOCK) OR APPROVED EQUAL. GRADE RINGS SHALL BE PVC LINED VIA THE MANHOLE TOPPER BY AMERON OR APPROVED EQUAL.



BOTTOM VIEW
NO SCALE

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MANHOLE

Project No. 770611601	Figure No. 20
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Submission Date 8/24/2015	

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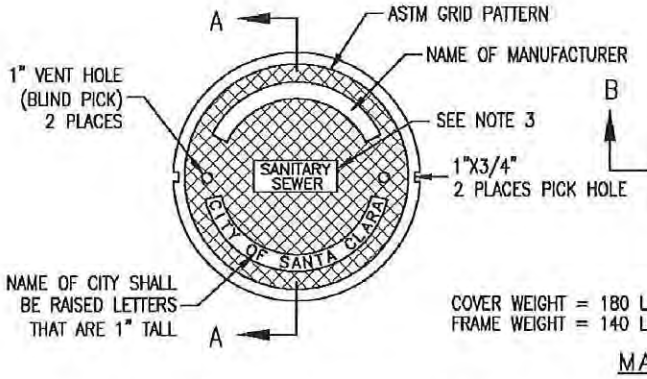
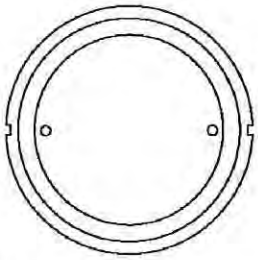
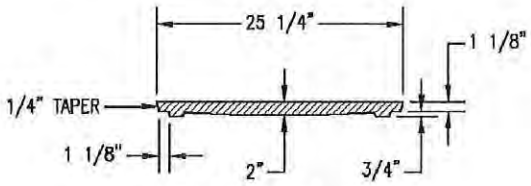


MANHOLE COVER – PLAN VIEW
NO SCALE



MANHOLE COVER – BOTTOM VIEW
NO SCALE



SECTION A–A
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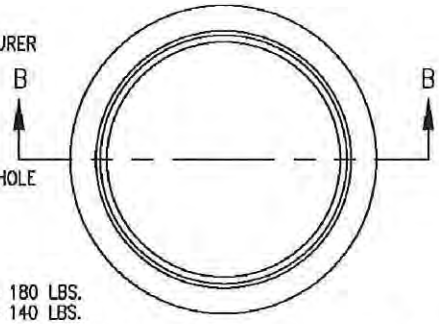
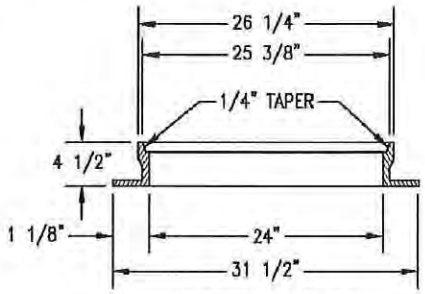


COVER WEIGHT = 180 LBS.
FRAME WEIGHT = 140 LBS.

MANHOLE FRAME – PLAN VIEW
NO SCALE



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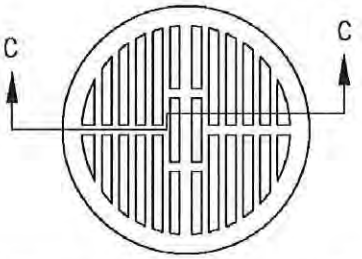
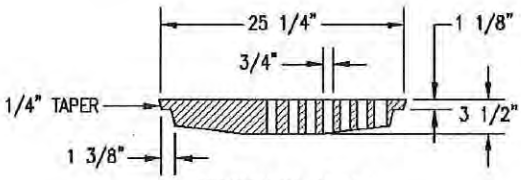


MANHOLE GRATE – PLAN VIEW
NO SCALE



SECTION C–C
NO SCALE

NOTES:

1. ALL MATERIAL TO BE CAST IRON DIPPED IN ASPHALT PAINT.
2. FRAME, GRATE AND COVER SHALL BE SUITABLE FOR H-20 LOADING.
3. COVER SHALL HAVE EITHER "SANITARY SEWER" FOR SANITARY SEWERS OR "STORM DRAIN" FOR STORM DRAINS IN RAISED LETTERS THAT ARE 1-1/2" TALL.

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MANHOLE FRAME, COVER, & GRATE

Project No. 770611601	Figure No. 21
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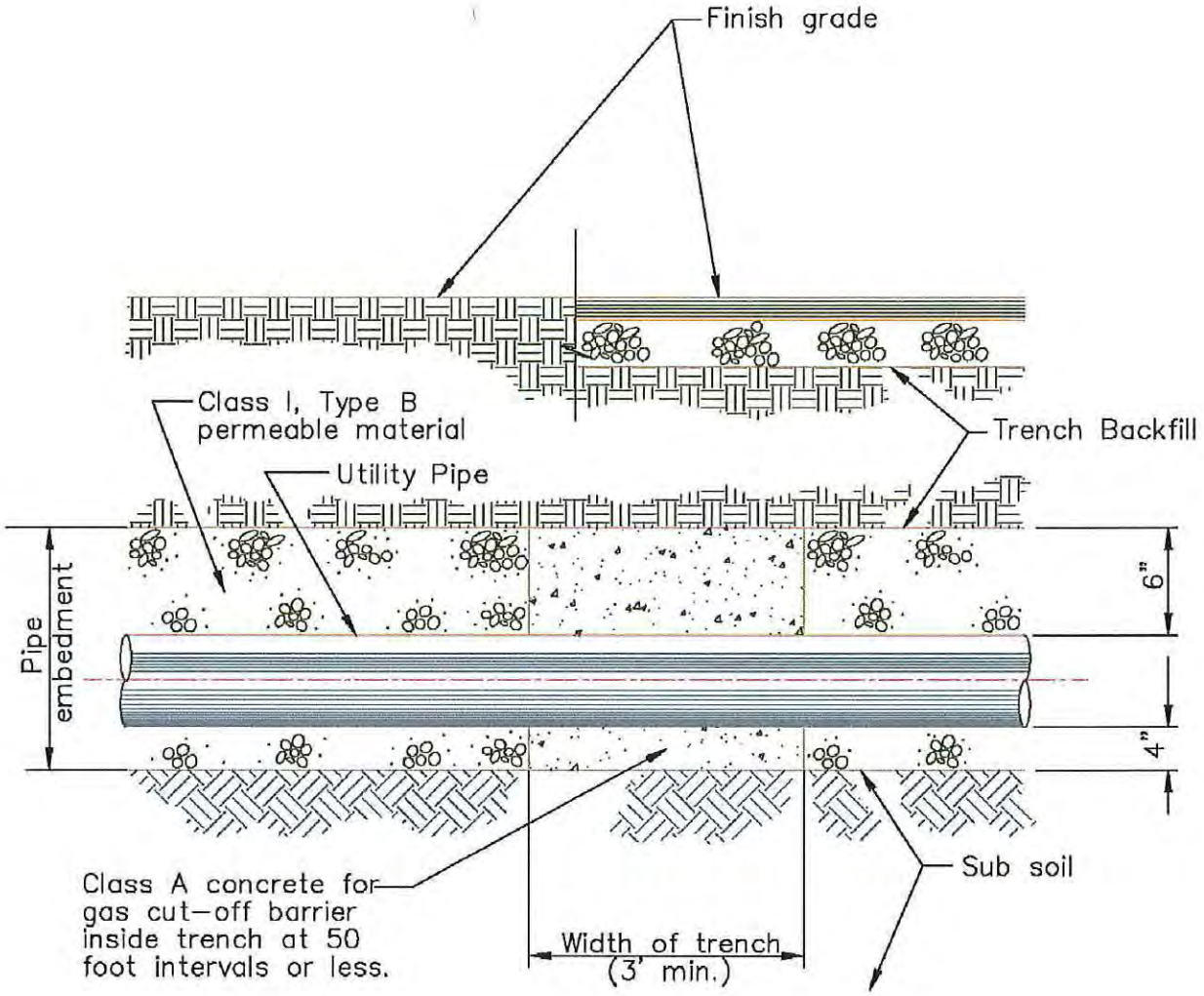

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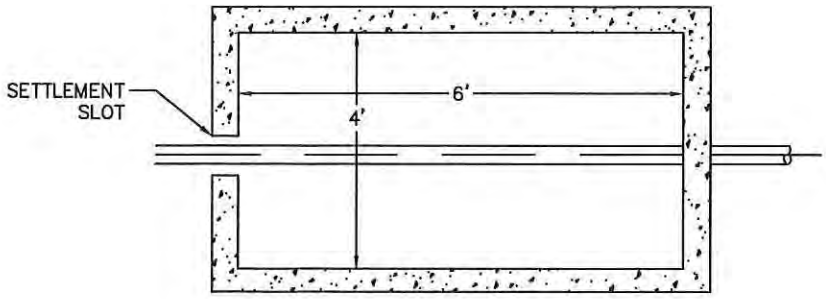
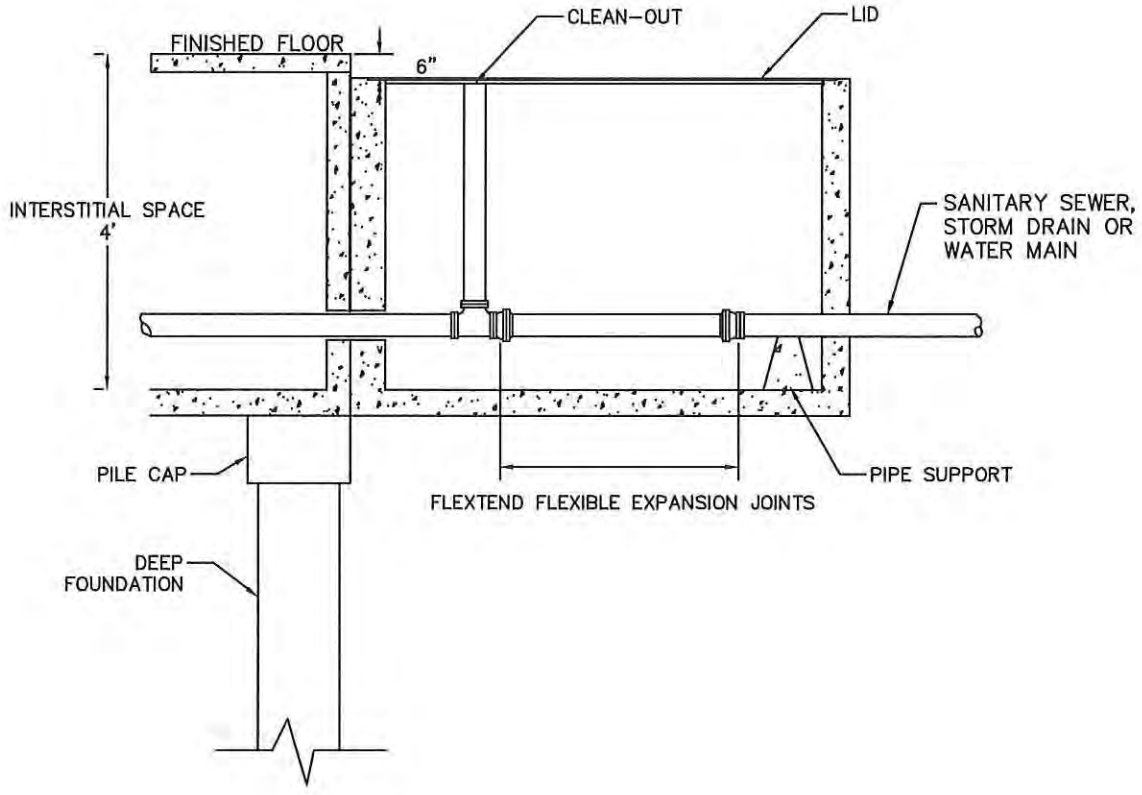
Filename: \\langan.com\data\SJ\data6\770611601\Cadd Data - 770611601\SheetFiles\Technical Memo and Report Figures\Sanitary Sewer\Utility - Sanitary Sewer Details.dwg Date: 8/24/2015 Time: 08:07 User: dhodson Style Table: Langan.stb Layout: Fig 22 Methane Gas Cut-Off Barrier In Utility Trench





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SETTLEMENT VAULT-TYPE 1

Project No. 770611601	Figure No. 23
Date 8/24/2015	
Scale NOT TO SCALE	
Drawn By STAFF / Checked By DJH	
Submission Date 8/24/2015	

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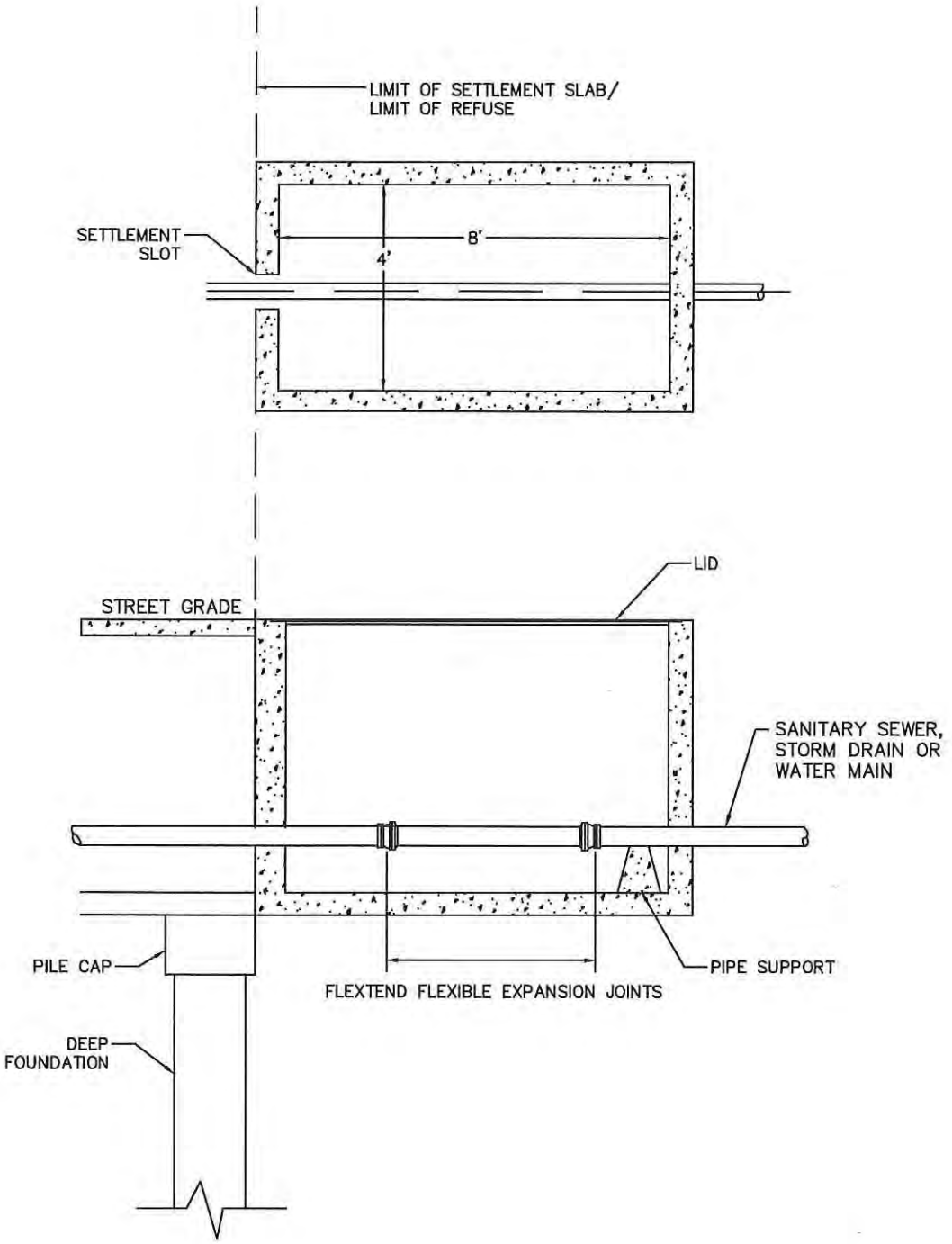

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SETTLEMENT VAULT-TYPE II

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Submission Date	8/24/2015

Figure No. 24

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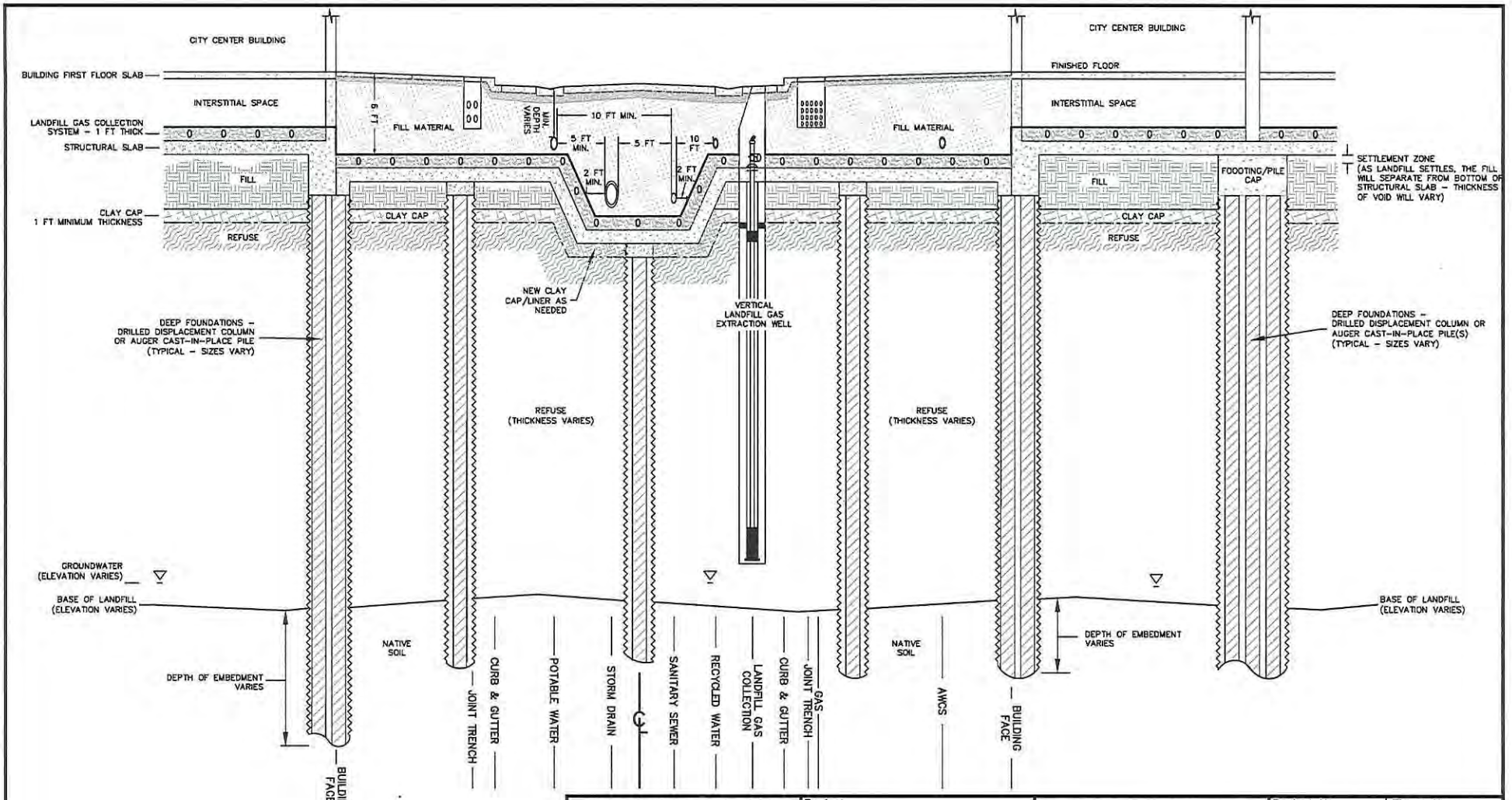

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TYPICAL STREET/ UTILITY SECTION ON SETTLEMENT SLAB

Project No. 770611601	Figure No. 25
Date 8/24/2015	
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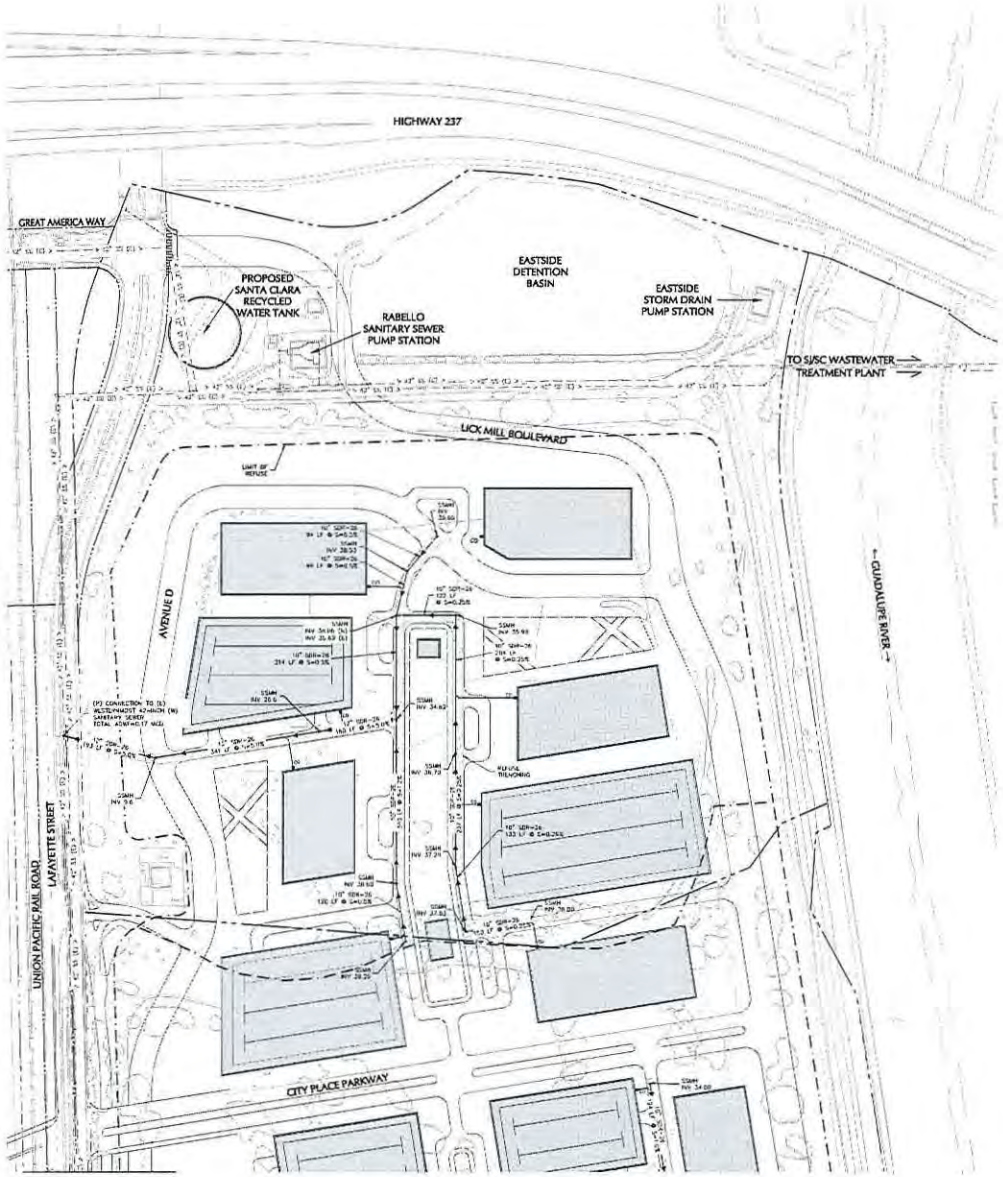
DRAWINGS



SANITARY SEWER LEGEND

- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- LIMIT OF REFUSE
- STRUCTURAL SLAB
- REFUSE TRENCHING
- EXISTING MANHOLE
- PROPOSED MANHOLE
- SANITARY SEWER CLEAN-OUT
- SETTLEMENT VAULT TYPE 1
- SETTLEMENT VAULT TYPE 2
- DETAIL No. / SHEET No.

UTILITY NOTES

1. EXISTING UTILITY INFORMATION OBTAINED FROM CITY OF SANTA CLARA SYSTEM MAP. FIELD VERIFY PRIOR TO CONSTRUCTION.

LIST OF DETAILS

- UTILITY TRENCH PENETRATING CLAY CAP
- UTILITY STRUCTURE PENETRATING CLAY CAP
- SANITARY SEWER GRAVITY PIPES THROUGH TRANSITION ZONE
- SANITARY SEWER LATERAL CONNECTION
- SANITARY SEWER CLEAN-OUT
- MANHOLE
- MANHOLE FRAME, COVER, & GRATE
- METHANE GAS CUT-OFF BARRIER IN UTILITY TRENCH
- SETTLEMENT VAULT – TYPE 1
- SETTLEMENT VAULT – TYPE 2
- TYPICAL STREET/UTILITY SECTION ON SETTLEMENT SLAB

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.
REVISIONS		

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Figure Title
PARCEL 1 PRELIMINARY SANITARY SEWER PLAN

Project No. 770611601	Figure CSS2.01
Date 3/20/2015	
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Drawn By BM / Checked By DIH	
Submission Date 3/20/2015	Sheet 1 of 4

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SCALE IN FEET

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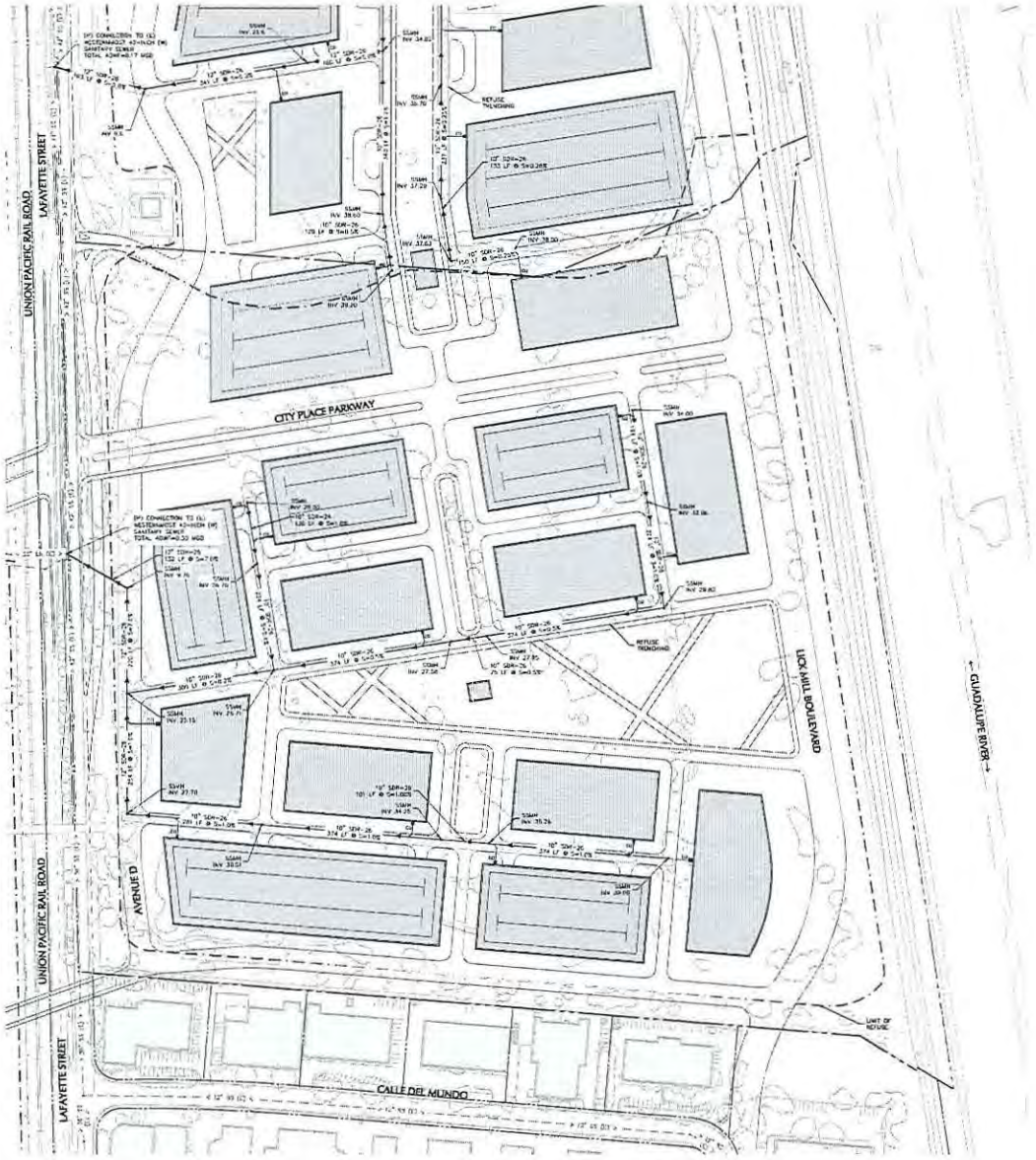

SANITARY SEWER LEGEND

- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- LIMIT OF REFUSE
- STRUCTURAL SLAB
- REFUSE TRENCHING
- EXISTING MANHOLE
- PROPOSED MANHOLE
- SANITARY SEWER CLEAN-OUT
- SETTLEMENT VAULT TYPE 1
- SETTLEMENT VAULT TYPE 2
- DETAIL No. / SHEET No.

UTILITY NOTES

1. EXISTING UTILITY INFORMATION OBTAINED FROM CITY OF SANTA CLARA SYSTEM MAP. FIELD VERIFY PRIOR TO CONSTRUCTION.

LIST OF DETAILS

- UTILITY TRENCH PENETRATING CLAY CAP
- UTILITY STRUCTURE PENETRATING CLAY CAP
- SANITARY SEWER GRAVITY PIPES THROUGH TRANSITION ZONE
- SANITARY SEWER LATERAL CONNECTION
- SANITARY SEWER CLEAN-OUT
- MANHOLE
- MANHOLE FRAME, COVER, & GRATE
- METHANE GAS CUT-OFF BARRIER IN UTILITY TRENCH
- SETTLEMENT VAULT – TYPE 1
- SETTLEMENT VAULT – TYPE 2
- TYPICAL STREET/UTILITY SECTION ON SETTLEMENT SLAB

100 0 50 100
SCALE IN FEET

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

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REVISIONS		

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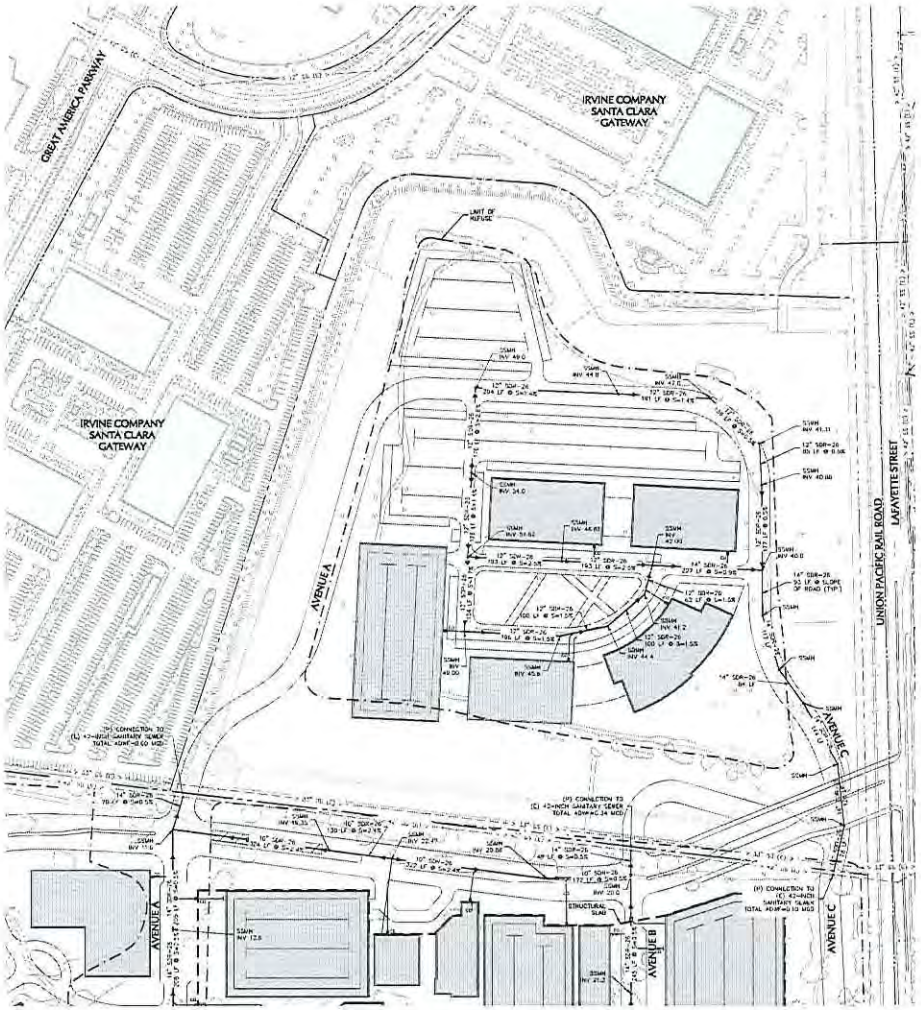
Figure Title
PARCEL 2
PRELIMINARY
SANITARY SEWER
PLAN

Project No. 770611601	Figure CSS2.02
Date 3/20/2015	
Scale AS SHOWN	
Drawn By JBM / Checked By DIH	
Submission Date 3/20/2015	Sheet 2 of 4

LANGAN
PROJECT No. 770611601



SANITARY SEWER LEGEND

- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER — X" SDR-26 X LF @ S=X.XX
- LIMIT OF REFUSE
- STRUCTURAL SLAB
- REFUSE TRENCHING
- EXISTING MANHOLE
- PROPOSED MANHOLE
- SANITARY SEWER CLEAN-OUT
- SETTLEMENT VAULT TYPE 1
- SETTLEMENT VAULT TYPE 2
- DETAIL No. / SHEET No.

UTILITY NOTES

1. EXISTING UTILITY INFORMATION OBTAINED FROM CITY OF SANTA CLARA SYSTEM MAP. FIELD VERIFY PRIOR TO CONSTRUCTION.

LIST OF DETAILS

- UTILITY TRENCH PENETRATING CLAY CAP (1/CSS2.03)
- UTILITY STRUCTURE PENETRATING CLAY CAP (2/CSS2.03)
- SANITARY SEWER GRAVITY PIPES THROUGH TRANSITION ZONE (3/CSS2.03)
- SANITARY SEWER LATERAL CONNECTION (3/CSS2.03)
- SANITARY SEWER CLEAN-OUT (4/CSS2.03)
- MANHOLE (1/CSS2.03)
- MANHOLE FRAME, COVER, & GRATE (2/CSS2.03)
- METHANE GAS CUT-OFF BARRIER IN UTILITY TRENCH (4/CSS2.03)
- SETTLEMENT VAULT – TYPE 1 (5/CSS2.03)
- SETTLEMENT VAULT – TYPE 2 (6/CSS2.03)
- TYPICAL STREET/UTILITY SECTION ON SETTLEMENT SLAB (5/CSS2.03)

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

Date	Description	No.
REVISIONS		

LANGAN

Project
CITY PLACE SANTA CLARA
SANTA CLARA CALIFORNIA

Figure Title
PARCEL 3 PRELIMINARY SANITARY SEWER PLAN

Project No.	770611601
Date	3/20/2015
Scale	AS SHOWN
Drawn By	DM
Checked By	DM
Submission Date	3/20/2015
Figure	CSS2.03
Sheet	3 of 4

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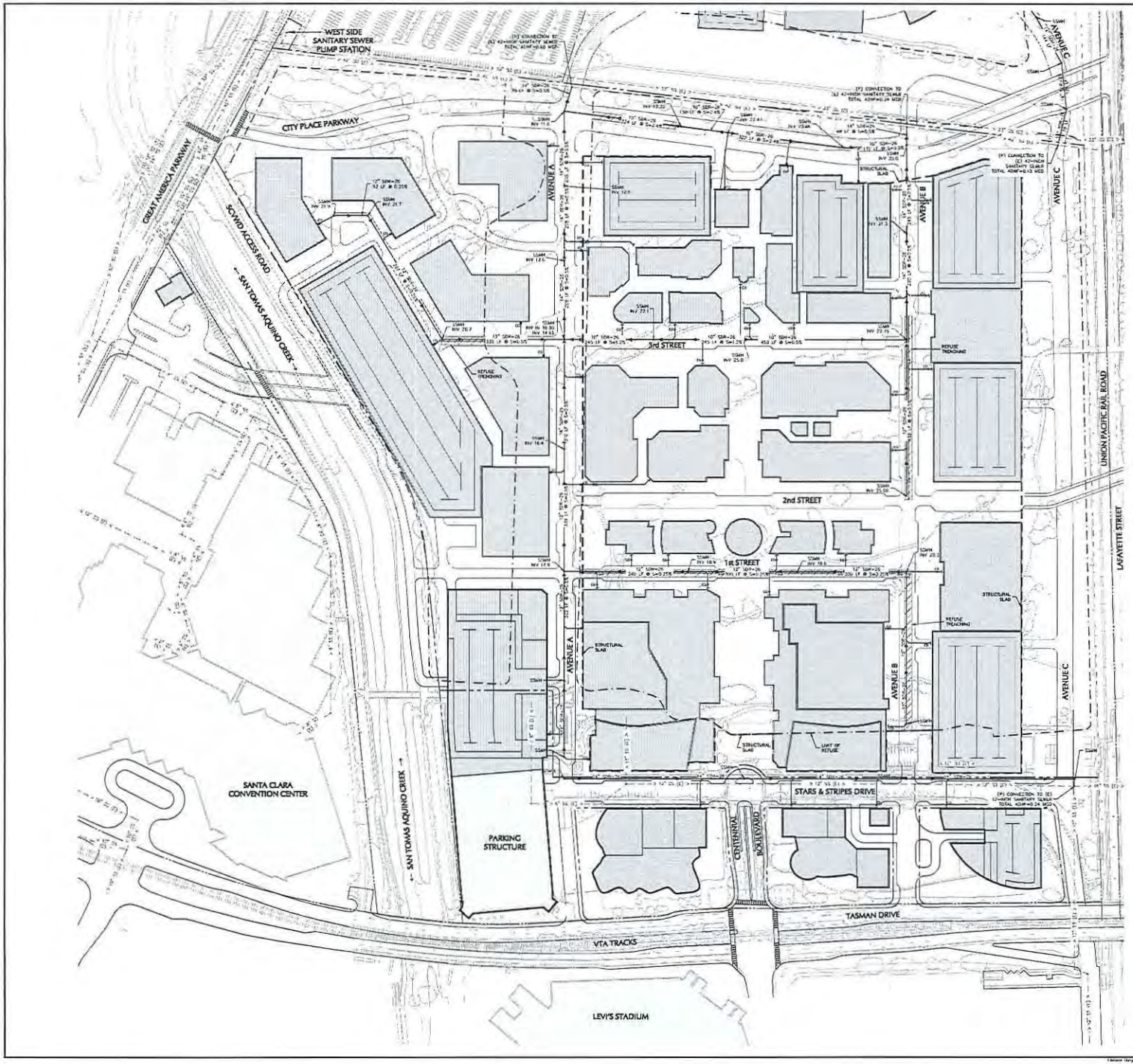
SCALE IN FEET

LANGAN
PROJECT No. 770611601



SANITARY SEWER LEGEND

- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- LIMIT OF REFUSE
- STRUCTURAL SLAB
- REFUSE TRENCHING
- EXISTING MANHOLE
- PROPOSED MANHOLE
- SANITARY SEWER CLEAN-OUT
- SETTLEMENT VAULT TYPE 1
- SETTLEMENT VAULT TYPE 2
- DETAIL No. / SHEET No.

UTILITY NOTES

1. EXISTING UTILITY INFORMATION OBTAINED FROM CITY OF SANTA CLARA SYSTEM MAP. FIELD VERIFY PRIOR TO CONSTRUCTION.

LIST OF DETAILS

- UTILITY TRENCH PENETRATING CLAY CAP
- UTILITY STRUCTURE PENETRATING CLAY CAP
- SANITARY SEWER GRAVITY PIPES THROUGH TRANSITION ZONE
- SANITARY SEWER LATERAL CONNECTION
- SANITARY SEWER CLEAN-OUT
- MANHOLE
- MANHOLE FRAME, COVER, & GRATE
- METHANE GAS CUT-OFF BARRIER IN UTILITY TRENCH
- SETTLEMENT VAULT – TYPE 1
- SETTLEMENT VAULT – TYPE 2
- TYPICAL STREET/UTILITY SECTION ON SETTLEMENT SLAB

100 0 50 100
SCALE IN FEET

PRELIMINARY DRAFT, NOT FOR CONSTRUCTION

No.	Description	Date
	REVISIONS	

LANGAN

Project
CITY PLACE SANTA CLARA
SANTA CLARA CALIFORNIA

Figure Title
PARCELS 4 & 5 PRELIMINARY SANITARY SEWER PLAN

Project No. 770611601	Figure CSS2.04
Date 3/20/2015	
Scale AS SHOWN	
Drawn By BM / Checked by DSH	
Submission Date 3/20/2015	Sheet 4 of 4

LANGAN
PROJECT No. 770611601

APPENDIX A

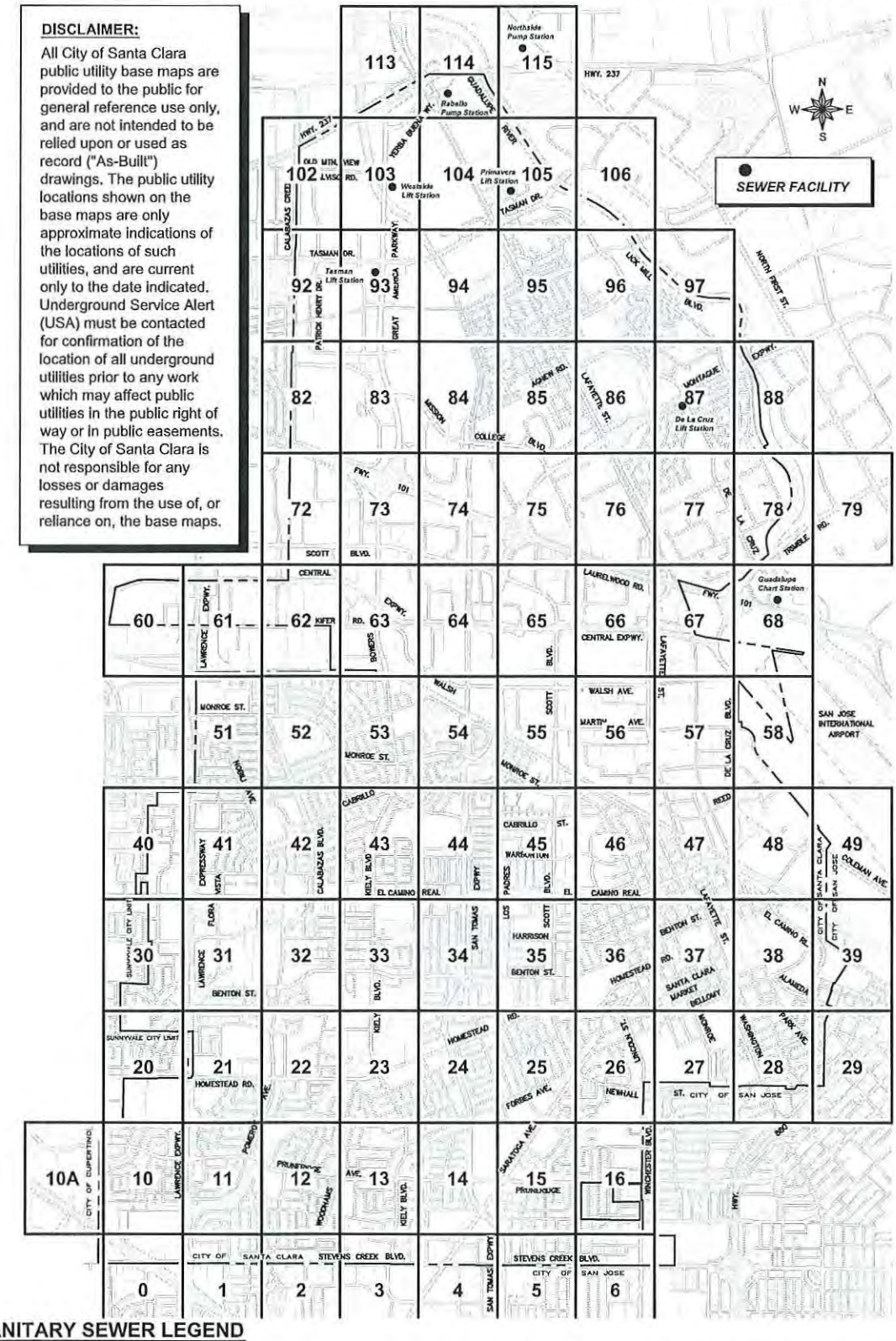
City Sewer Record Block Maps

JULY 2012

CITY OF SANTA CLARA SANITARY SEWER SYSTEM - INDEX MAP

DISCLAIMER:

All City of Santa Clara public utility base maps are provided to the public for general reference use only, and are not intended to be relied upon or used as record ("As-Built") drawings. The public utility locations shown on the base maps are only approximate indications of the locations of such utilities, and are current only to the date indicated. Underground Service Alert (USA) must be contacted for confirmation of the location of all underground utilities prior to any work which may affect public utilities in the public right of way or in public easements. The City of Santa Clara is not responsible for any losses or damages resulting from the use of, or reliance on, the base maps.



SANITARY SEWER LEGEND

(FM) MAIN (FORCE MAIN)	
ABANDONED MAIN	
PRIVATE MAIN	
MANHOLE	
1 MANHOLE NUMBER	
DIRECTION OF FLOW	
FLUSHING INLET	
Sp / 39 LATERAL	The location of each lateral will be shown and dimensioned from a lot line, a manhole, or end of return, whichever is readily available. Sp indicates Septic
6.5 DEPTH OF MANHOLE	The depth shown will be from rim of manhole to invert
12–123 PIPE – DIMENSIONS	The first element of the dimension grouping will express the size of the pipe and the second element will be the distance between each manhole. Note A 'P' after the size indicates P.V.C., a 'RCP' after the size indicates Reinforced Concrete Pipe, lines where there is no indication are Vitrified Clay Pipe (VCP).
95870–86 PIPE DESIGNATION	The first element of the pipe designation grouping will be the tract, tracing or job number and the second element will be the year of installation.

I:\Water\CAD\AutoCad Drawings\Block Books\doIndex=Page.dwg - 11x17 - (10-BB-Sewer=Index=BLK-B.ctb) - Lscale 0.3000 Plot date: 6.8.2012

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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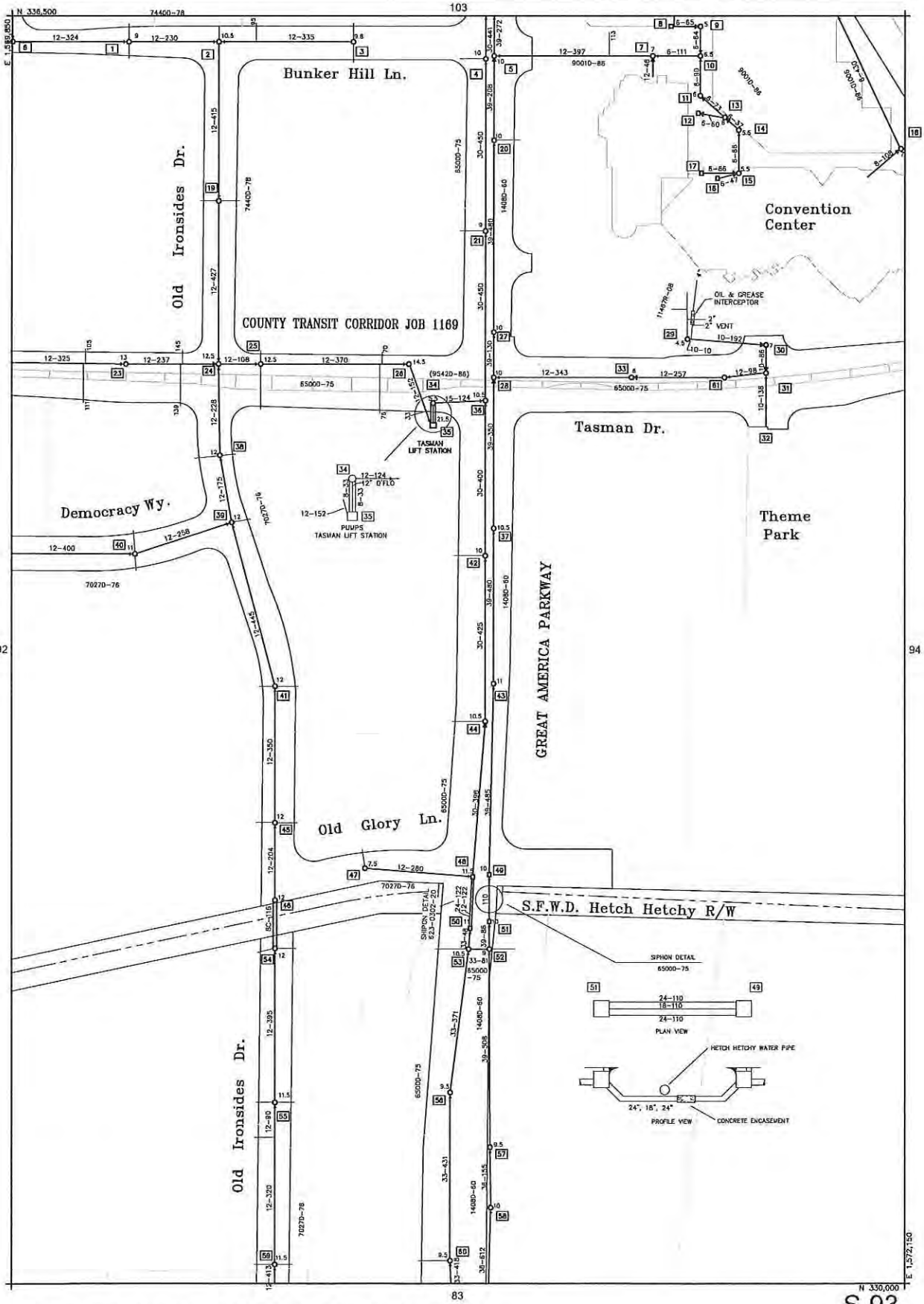
SCALE

DATE LAST CORRECTED 7-2012

MAP NO. S 93



S 93

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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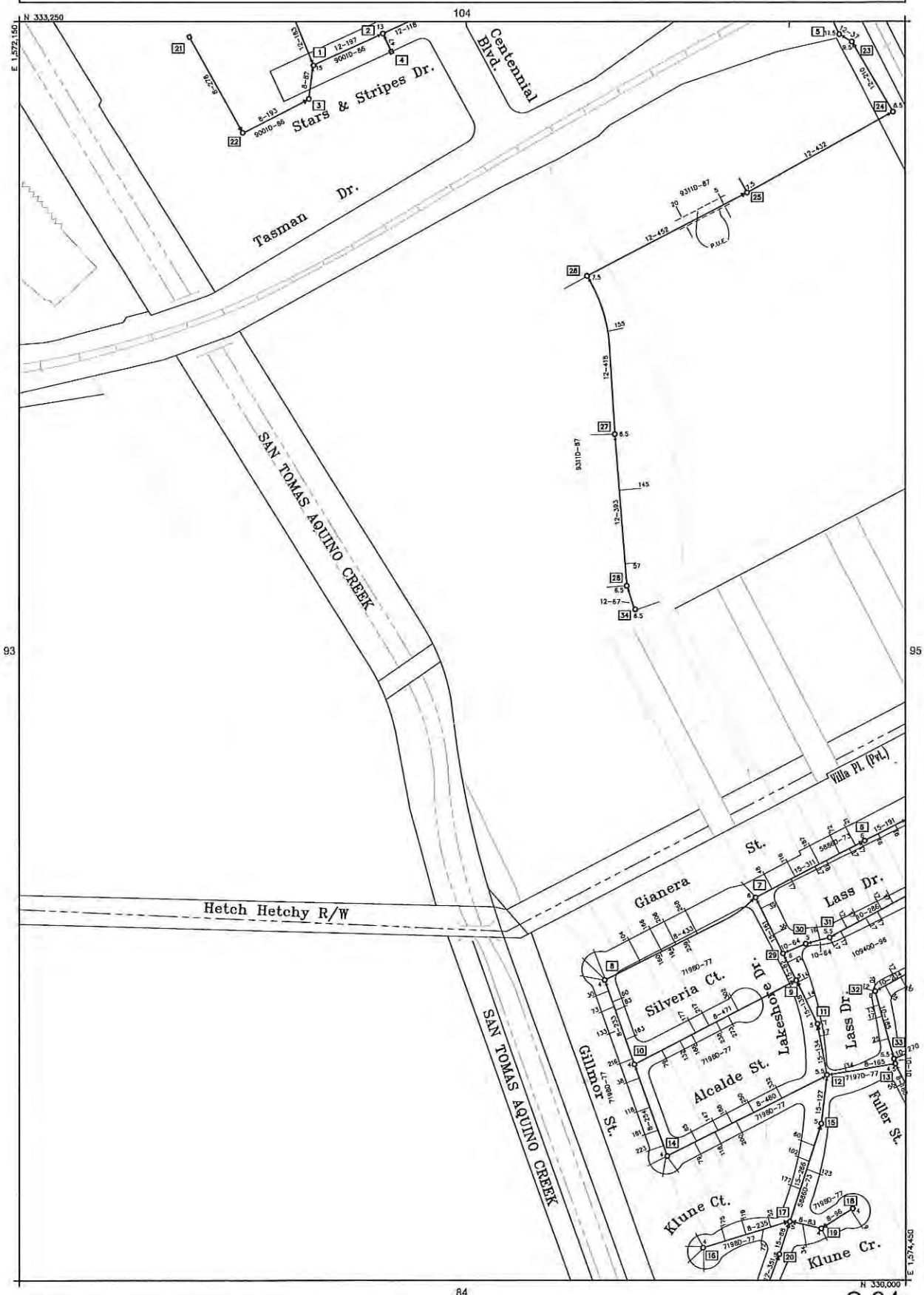
DATE LAST CORRECTED 7-2012

MAP NO. S 94



S 94

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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SCALE

DATE LAST CORRECTED

7-2012

MAP NO.

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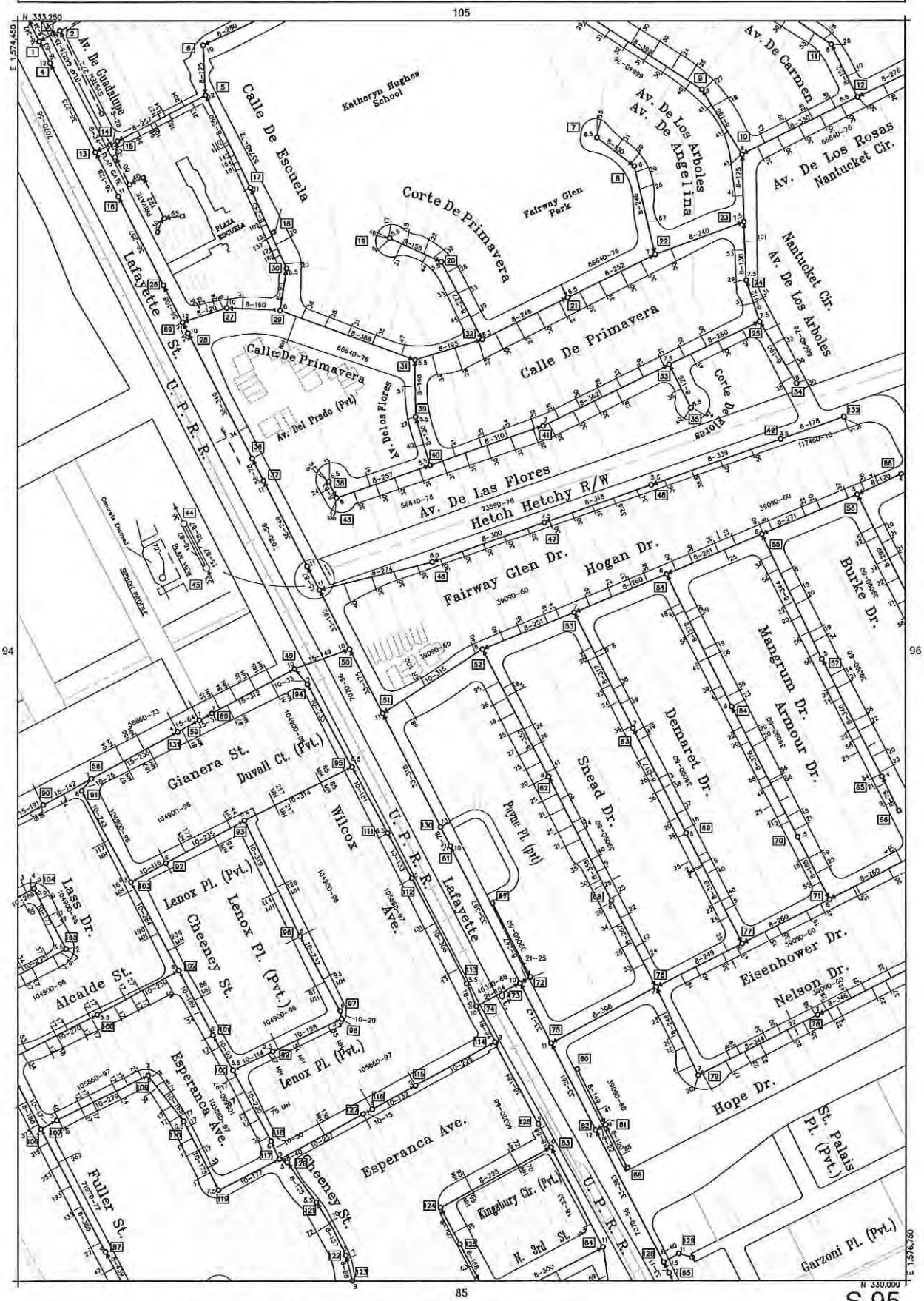

S 95

CITY OF SANTA CLARA
BASIC INFORMATION MAP

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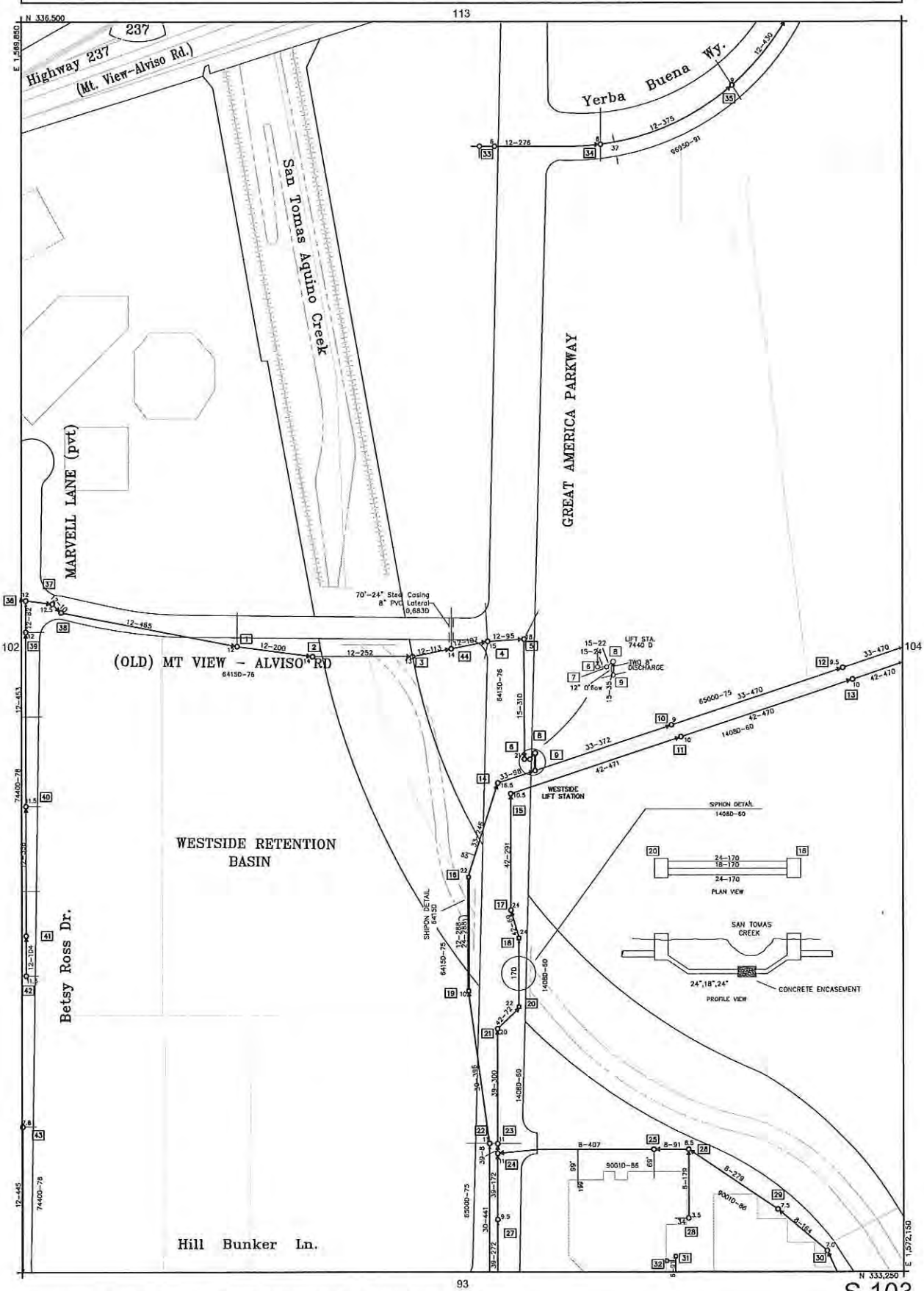
SCALE

DATE LAST CORRECTED
7-2012

MAP NO.
S 103



S 103

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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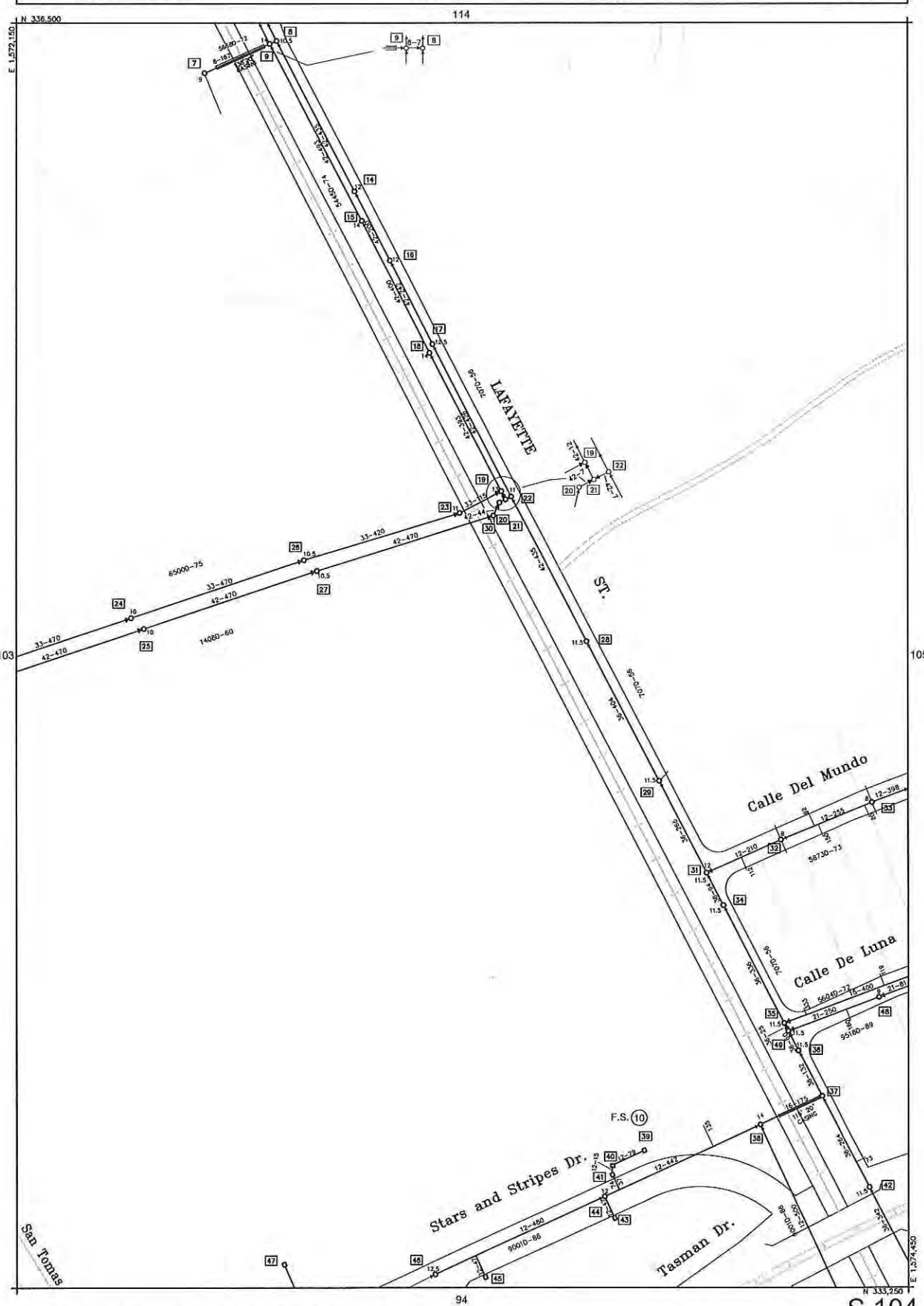
SCALE

DATE LAST CORRECTED

7-2012

MAP NO.

S 104



S 104

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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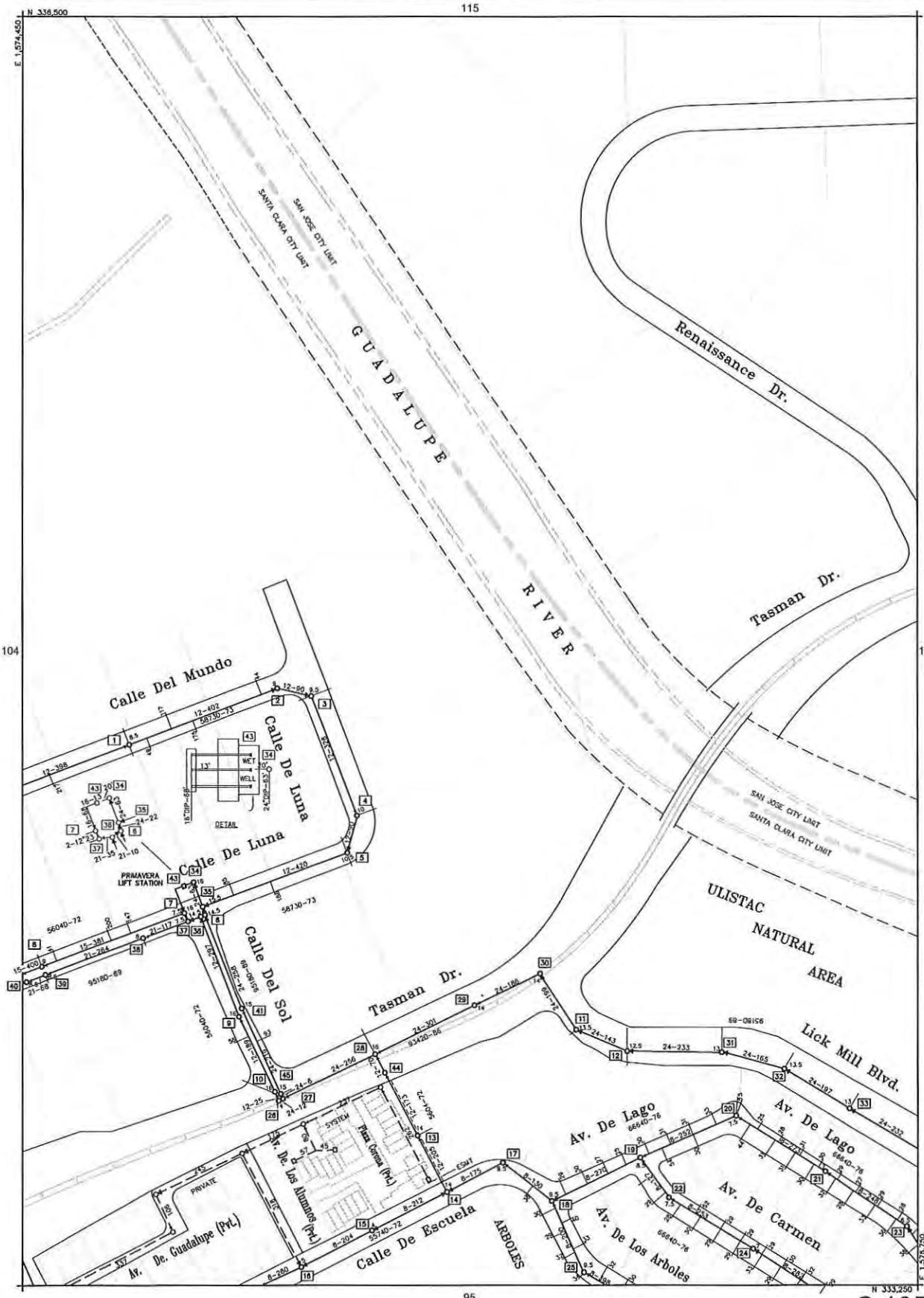
SCALE

N W E S

DATE LAST CORRECTED 7-2012

MAP NO. S 105



CITY OF SANTA CLARA

BASIC INFORMATION MAP

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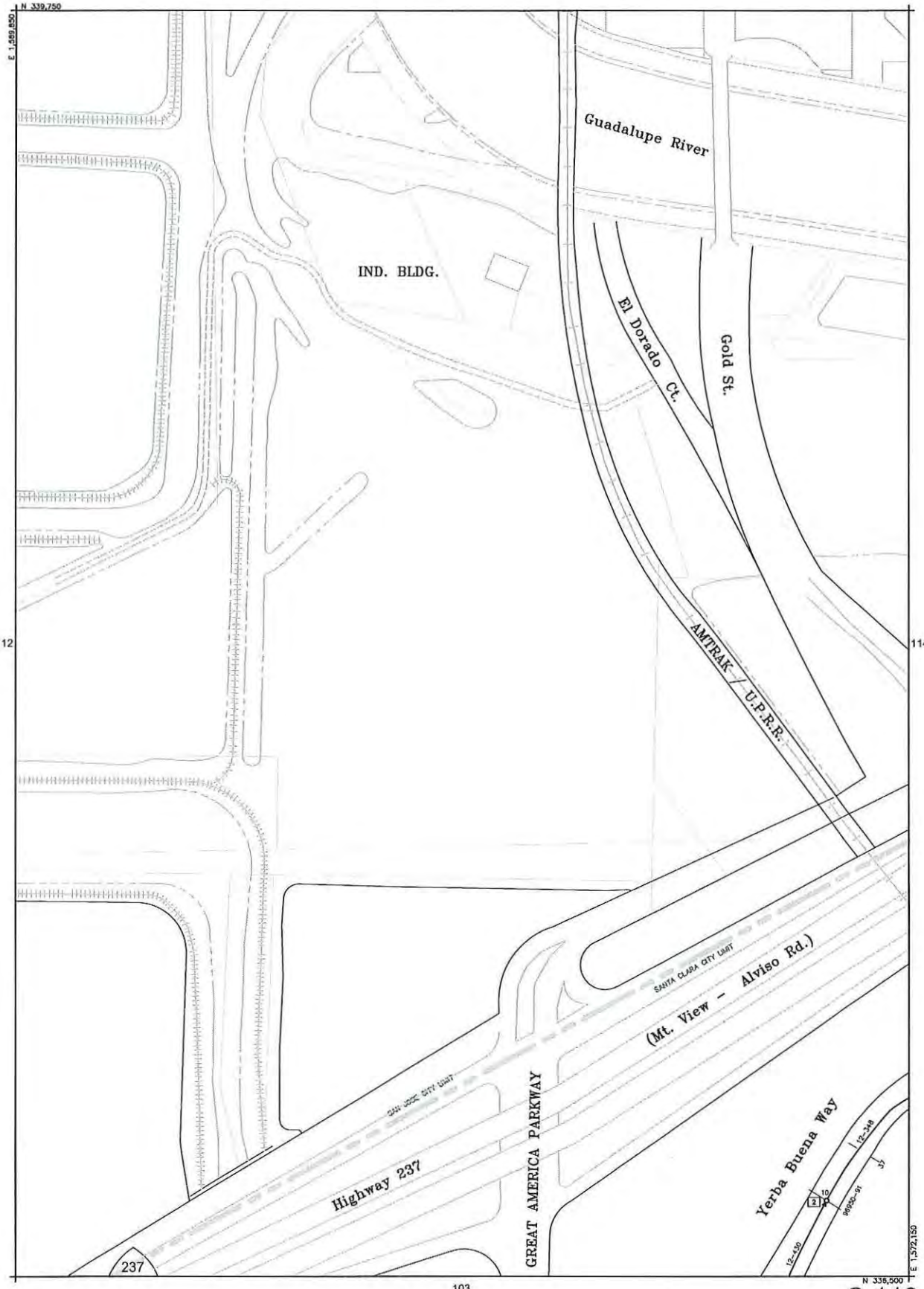
SCALE

DATE LAST CORRECTED

7-2012

MAP NO.

S 113



S 113

CITY OF SANTA CLARA

BASIC INFORMATION MAP

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SCALE

DATE LAST CORRECTED 7-2012

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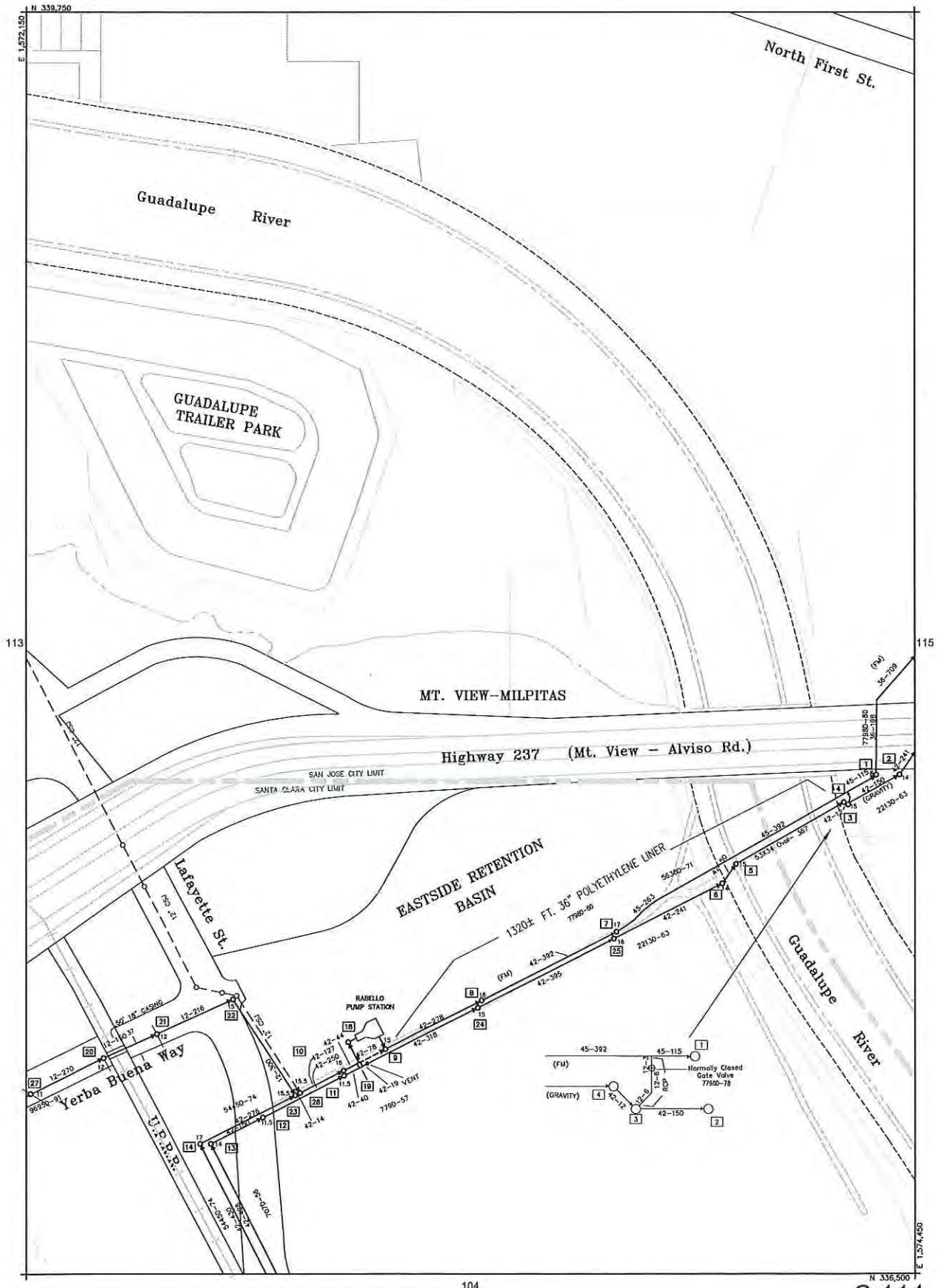

S 114

CITY OF SANTA CLARA
BASIC INFORMATION MAP

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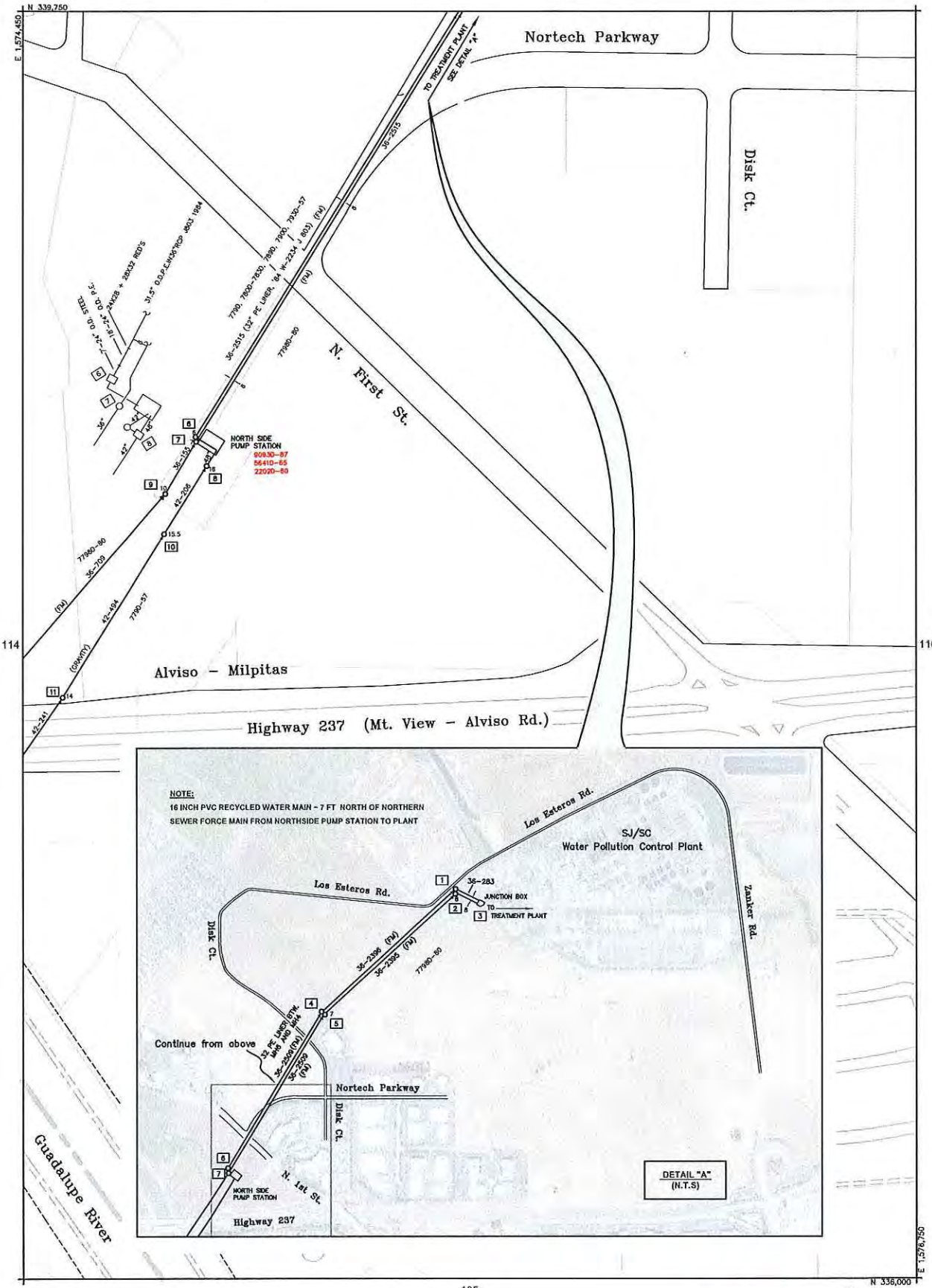
SCALE

DATE LAST CORRECTED
11-15-2013

MAP NO.
S 115



As-Built color = 241

S 115

APPENDIX B

San Jose – Santa Clara Water Pollution Control Plan Specific Use Code & Sewage Coefficient Table

SAN JOSE - SANTA CLARA WATER POLLUTION CONTROL PLAN
SPECIFIC USE CODE & SEWAGE COEFFICIENT

CODE	SPECIFIC BUILDING USE CODE	SEWAGE GPD/DU	COEFF. GPD/SF
2951	ASPHALT BATCH PLANT		0.500
5510	AUTO DEALERS		0.110
5931	AUTO DISMANTLERS		0.072
7531	AUTO BODY SHOP		0.110
8399	ALCOHOLIC REHABILITATION	85/BED	
8640	AUDITORIUM, HALLS, SOCIAL & FRATERNAL		0.110
2051	BAKERIES - DONUT SHOP		0.600
5160	BAKERIES		0.600
5813	BARS		0.350
6020	BANKS		0.150
7230	BEAUTY PARLORS		0.470
7240	BARBER SHOP		0.140
7332	BLUEPRINT SERVICE		0.140
7930	BOWLING ALLEY		0.280
8361	BOARD AND CARE HOME	85/BED	
3272	CONCRETE MANUFACTURING		0.500
3471	CHROME PLATING SHOP		2.090
5810	CAFETERIAS - DAY USE		0.710
7542	CAR WASHES		1.700
8660	CHURCHES		0.280
300	DWELLINGS - 2 TO 4 UNITS	176	
40	DWELLINGS - 5+ UNITS	121	
5912	DRUG STORES		0.040
7210	DRY CLEANERS		0.800
8351	DAY CARE CENTER (NURSERY SCHOOL)		0.183
3674	ELECTRONICS FABRICATION		6.360
3675	ELECTRONICS - ASSEMBLY		1.000
3676	ELECTRONICS - STRGE, WAREH'SE, DESIGN, ENG'G		0.180
3677	ELECTRONICS - COMBINATION OF ABOVE		1.070
5540	GAS STATIONS		0.500
742	HOSPITALS (VETERINARY)		0.230
8059	HOSPITALS (CONVALESCENT)		0.520
8060	HOSPITALS (GENERAL)		0.230
7997	HEALTH STUDIO		0.420
5710	HOME FURNISHINGS (RETAIL)		0.027
7011	HOTELS (SMALL)		0.350
7012	HOTELS (LARGE, W/CONVENTION FACILITIES)		0.480
7218	INDUSTRIAL LAUNDRY		1.000
2000	INDUSTRIAL SHELL - UNKNOWN USE		0.120
3231	INDUSTRIAL GLASS WORK		0.053
7215	LAUNDRY (COIN-OP)		2.520

SAN JOSE - SANTA CLARA WATER POLLUTION CONTROL PLAN
SPECIFIC USE CODE & SEWAGE COEFFICIENT

CODE	SPECIFIC BUILDING USE CODE	SEWAGE GPD/DU	COEFF. GPD/SF
800	MOBILE HOME	139	
3440	METAL FABRICATION		0.053
3540	METALWORKING MACHINERY EQUIPMENT		0.370
3541	MACHINE SHOP		0.053
3599	MACHINERY - MISC., EXCEPT ELECTRICAL		0.053
4224	MINI -STORAGE WAREHOUSE		0.020
5411	MARKETS (GROCERY)		0.240
5421	MEAT AND FISH (SEAFOOD) MARKETS		0.248
7010	MOTEL		0.480
7260	MORTUARY		0.100
7832	MOVIE THEATER (INDOOR)	4.8/SEAT	
8010	MEDICAL (DOCTORS)		0.400
8015	MEDICAL (DENTAL BUILDING)		0.510
8020	MEDICAL (DENTIST)		1.600
723	NUTSHELL PROCESSING		0.110
2711	OFFICE BUILDING		0.140
3470	PLATING SHOP		2.090
5074	PLUMBING SUPPLY		0.076
5261	PLANT NURSERY		0.076
9100	PUBLIC AGENCY		0.210
9501	PARKS - COMMUNITY CENTER		0.110
4832	RADIO STATION		0.085
5093	RECYCLE CENTER		0.072
5311	RETAIL (LARGE STRUCTURE)		0.073
5390	RETAIL (SMALL STRUCTURE)		0.076
5730	RADIO TV & MUSIC STORES		0.020
7690	REPAIR SHOP (MISCELLANEOUS)		0.140
5811	RESTAURANT (FAST FOOD)		0.900
5812	RESTAURANT (FULL SERVICE)		1.040
7033	RV PARK	121/RV	
100	SINGLE FAMILY (DETACHED)	237	
150	SINGLE FAMILY (ATTACHED - TOWNHOUSES)	180	
1790	TRADE CONTRACTORS		0.072
4231	TRUCK TERMINAL		0.052
4833	TV STATION		0.080
7394	TOOL & EQUIPMENT RENTAL		0.110
2084	WINERY		1.??0
2591	WINDOW SHADE MANUFACTURING		0.052
2431	WOODWORKING SHOP		0.052
4225	WAREHOUSES		0.052

APPENDIX C

Sanitary Sewer Capacity Evaluation for the City Place Development Site

Technical Memorandum

Subject: **Sanitary Sewer Capacity Evaluation for the City Place Development (APN: 097-01-039 and -073, 104-01-102, -036 through 040)**

Prepared For: Evelyn Liang, City of Santa Clara

Prepared by: Winola Cheong, P.E. California License No. C71669

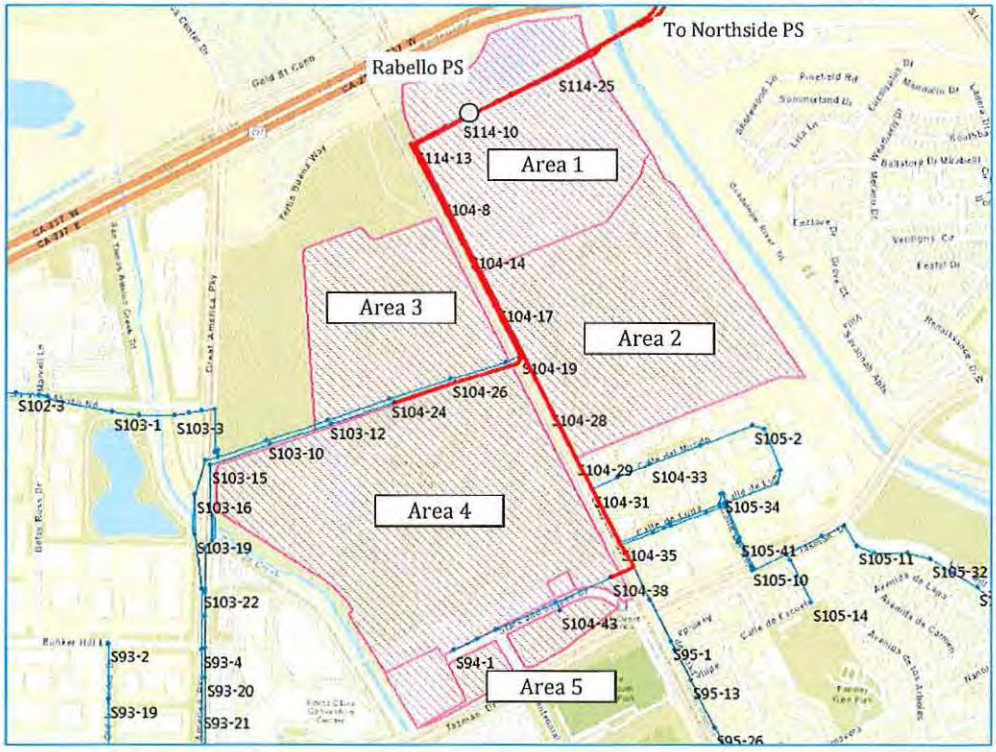
Reviewed by: Gisa Ju, P.E. California License No. C31823

Date: August 6, 2015

At the request of the City of Santa Clara (City), RMC evaluated the potential sanitary sewer capacity impact of the proposed City Place development project near Lafayette Street, Stars and Stripes Drive, and Great America Way using the City's updated sanitary sewer hydraulic model. This technical memorandum (TM) summarizes the approach, model input, and results of the analysis.

The development site consists of five areas that encompass eight parcels (APN 097-01-039 and -073; 104-01-102, -036 through -040), shown in **Figure 1** below as Areas 1 through 5. Flow from the development would enter the City's sanitary sewer system at multiple manholes in or near Lafayette Street, and drain northward to Rabello and Northside pump stations via two 42-inch lines. **Figure 1** shows the sewer lines that are affected by the additional flow from this development (affected lines in red). Note that the Rabello and Northside pump stations are included in the model but are subject to further study as part of the City's Master Plan Update effort. As such, this analysis only evaluated the capacity impact of the development to its downstream pipes, but did not include any evaluation of the capacities of the two pump stations or force mains.

Figure 1: Trunk Sewers Downstream of the Proposed City Place Development Site



1 Approach

To evaluate the potential sewer capacity impact of the proposed development, the following model configurations were used:

- *Sewer network*: the City's most current network was used. The network consists of the City's expanded trunk sewer system, which also includes all constructed improvements (e.g., Phase I and Phase II Improvement Projects, Walsh, etc.). The network also has all the pump stations and force mains in the system, including the recently constructed pump station at the Levi's Stadium that is immediately upstream of the proposed development. As noted previously, although this network includes the Rabello and Northside pump stations, the modeling parameters of these two stations are subject to further study as part of the City's Master Plan Update project, and are therefore not ready to be evaluated at this time.
- *Sanitary sewer load*: the Updated General Plan Phase 3 Loads (aka 2035 Loads) were used for this analysis. These loads were recently developed for the City's Master Plan Update effort, which included updated base loads, updated development assumptions consistent with the City's 2035 General Plan, as well as projected loads for additional developments that were approved between 2009 (after the completion of the original 2035 Loads) and now. In addition, it was noted that since the City Place development is still in its conceptual stage with no definite timeline for implementation, other developments that are currently pending approval could be implemented before it. As such, all proposed developments, whether approved or not, were added to the model for this analysis.
- *Design storm*: System capacity was evaluated based on the ability of the sanitary sewer system to convey peak wet weather flow (PWWF) under design storm conditions. This analysis used the same 10-year design storm that is being used for the City's Master Plan Update project.

2 Model Input

The City Place development was modeled as five subcatchments, representing the five areas shown in Figure 1. The following settings were used:

- *Sanitary Sewer load*: The development consists of a mix of residential, hotel, commercial, and office uses. Table 1 provides a detailed summary of the square footage or number of units of each parcel, their corresponding unit flow factor, and the estimated sewer flow. Total average daily wastewater flow contributed by the development was estimated to be about 1.52 mgd.
- *Diurnal Profile:* A residential diurnal curve was applied to the residential flows, and a commercial diurnal curve was applied to retail and offices flows.
- *Rainfall Profile:* The City's design storm profile was applied to the model to predict system performance under peak wet weather flow. The storm was timed to cause peak rainfall-dependent infiltration/inflow (RDI/I) at approximately the same time as the peak base wastewater flow of the system.
- *Contributing Area and I/I Parameters*: The I/I contributing area was set to be equal to the subcatchment area. Considering that the development would install new sewer lines, there should be minimal I/I flow. As such, the development's I/I parameters were set to be the same as an area in the vicinity with the lowest I/I values.

Table 1: Development Flow Estimates by Parcel

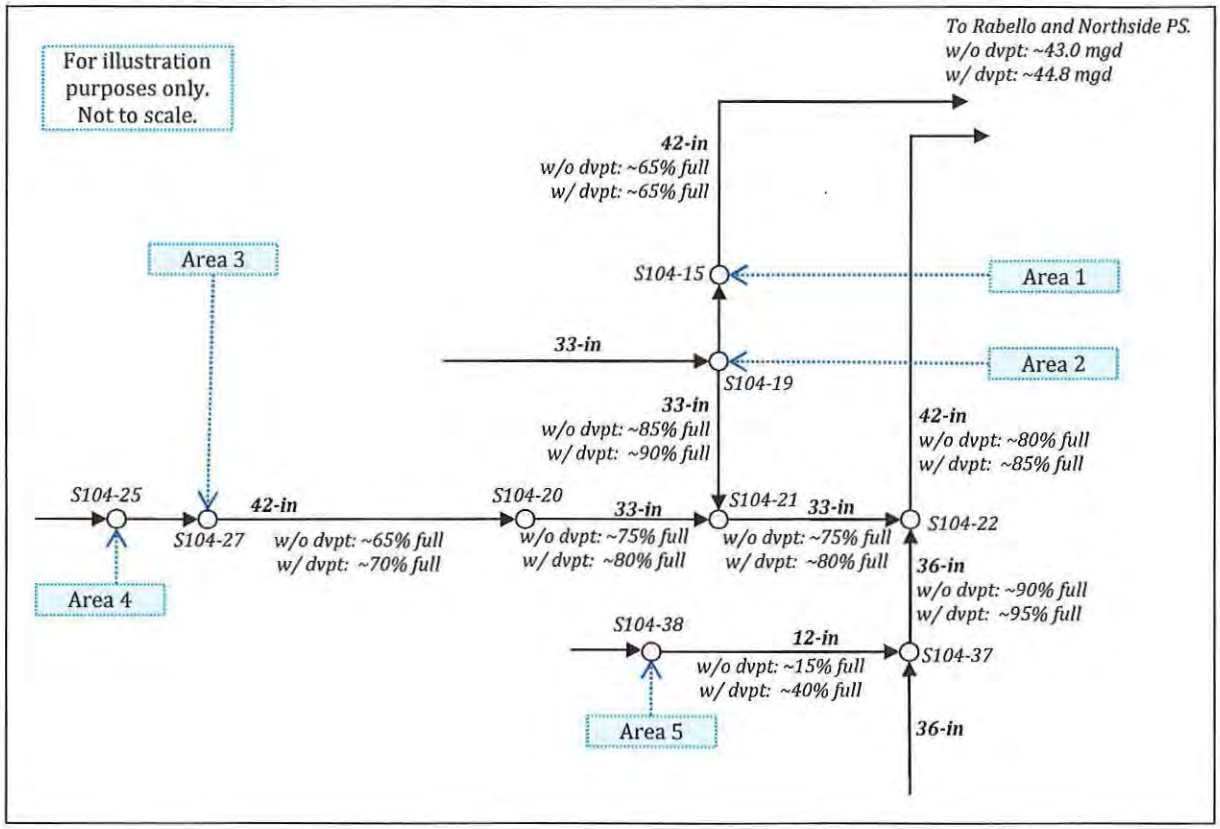
Area	Building Type [1]	Gross Square Footage [1]	Unit Flow Factor (gpd/sf)	Est. Flow (gpd) [3]	Residential Units [2]	Unit Flow Factor (gpd/unit)	Est. Flow (gpd) [4]	Total Non-Residential Flow (mgd)	Total Residential Flow (mgd)	Total Flow (mgd)
1	Office	1,200,000	0.100 [5]	120,000	--	--	--	0.120	0.000	0.120
2	Office	2,160,000	0.100 [5]	216,000	--	--	--	0.216	0.000	0.216
3	Office	720,000	0.100 [5]	72,000	--	--	--	0.072	0.000	0.072
4	Retail - Anchor	330,000	0.073 [6]	24,090	--	--	--	0.682	0.203	0.885
	Retail - Inline	670,000	0.076 [6]	50,920	--	--	--			
	Retail - Restaurant	225,000	1.040 [6]	234,000	--	--	--			
	Retail - Entertainment	190,000	0.480 [6]	91,200	--	--	--			
	Office	1,386,400	0.100 [5]	138,640	--	--	--			
	Hotel	298,000	0.480 [6]	143,040	--	--	--			
	Residential	--	--	--	1,160	175 [5]	203,000			
5	Residential	--	--	--	200	175 [5]	35,000	0.191	0.035	0.226
	Retail - Inline	62,000	0.076 [6]	4,712	--	--	--			
	Retail - Restaurant	25,000	1.040 [6]	26,000	--	--	--			
	Office	258,000	0.100 [5]	25,800	--	--	--			
	Hotel	280,000	0.480 [6]	134,400	--	--	--			
	Total:	**7,804,400**	**n/a**	**1,280,802**	**1,360**	**n/a**	**238,000**	**1.281**	**0.238**	**1.519**

1. Source: CU1 – Overall Utility Plan.pdf, provided by City staff via email
2. Source: Information from developer, provided by City staff via email
3. Estimated Non-Residential Flow = Gross Square Footage x Unit Flow Factor
4. Estimated Residential Flow = Number of Units x Unit Flow Factor
5. Source: City of Santa Clara 2007 Sanitary Sewer Capacity Assessment, Table 2-5.
6. Source: San Jose/Santa Clara Water Pollution Control Plant – Sewage Treatment Plant Connection Fees, Coefficients, and Rates, Exhibit E.

3 Model Results

As described earlier, the development discharges sewer into five loading manholes, and the flow is conveyed northward to the Rabello and Northside pump stations via two 42-inch lines. Hydraulic profiles of the sewers downstream of each loading manhole under PWWF conditions were reviewed. **Figure 2** below illustrates the loading manholes of each parcel and the downstream network configuration, and the PWWF results predicted by the model.

Figure 2: Summary of Model Results (2035 Loads and Design Storm PWWF)



As shown above, the model predicted that the downstream pipes of the development would be approaching full capacity with the additional flow, but no surcharge was triggered.

As previously stated, this analysis did not include any evaluation of the pump capacities of the Rabello and Northside pump stations. According to City staff, the total firm capacity[1] for both the Rabello and Northside stations is approximately 38.2 MGD[2]. The City is in the process of completing its Master Plan Update, which would determine the required improvements to increase the stations' firm capacity to accommodate the flow.

[1] Firm capacity is defined as the capacity of a pump station with the largest pump out of service.
[2] Source: Table 1- Pump Station Firm Capacities and Inflows, City of Santa Clara Sanitary Sewer Pump Station Evaluation, Schaaf & Wheeler, December 3, 2010.

Attachment 18

Conditions of Approval

CONDITIONS OF APPROVAL

In addition to complying with all applicable codes, regulations, ordinances and resolutions, the following conditions of approval are recommended to be applied to the City Place Master Community Plan (MCP). The conditions of approval and obligations cited herein may be altered as necessary and additional specific detailed conditions may be added by the Executive Project Clearance Committee (Exec PCC) to accommodate the specific development Phases provided for in individual Development Area Plans (DAPs) called for under the provisions of the Master Community Plan (MCP). Detailed requirements and conditions specific to any DAP will be applied to the Council's consideration of that DAP approval.

References herein to the term *Parcels* shall be consistent with those five identified in Exhibit 1-4 of the MCP. References herein to the term *Phases* shall be consistent with those five identified in Exhibit 2-1 or 2-2 of the MCP, as appropriate.

GENERAL

1. The Master Developer shall submit within 45 days of Council final approvals of the PD-MC zoning an Integrated MCP with the Increased Housing Alternative and Enhanced Open Space (EOS) Variant as the Project, subject to review and approval by the of Director of Planning and Inspection; the Integrated MCP would revise the text and figures as necessary to reflect and eliminate any inconsistencies in the submitted MCP with the Increased Housing Alternative and the EOS Variant that is described in the MCP Supplement. The Integrated MCP shall include also any other changes incorporated into the MCP in accordance with Council approvals. The following specific changes shall be included in the integrated MCP:
   (a) Change the word "should" to "shall" in both sentences of the first bullet point under Station Area Design Guidelines on page 112 and include a conceptual plan for the improvements described.
   (b) In the second bullet point under Station Area Guidelines on page 112, include a conceptual plan for the enhanced transit plaza described and add a final sentence stating, "It is a City objective that improvements be made to the overall transit station area."
   (c) Change "2.8.2.1" to "2.7.2.1" at the bottom of the first column of page 245.
   (d) Correct the number "500,000" as to the minimum retail in Phase 2 in the definition of Minimum Initial Buildings on page 251.

2. All development, construction and uses shall comply with all applicable codes, regulations, ordinances and resolutions that are not otherwise altered by the specific development entitlements for the City Place Project.

3. If relocation of an existing public facility becomes necessary due to a conflict with the Developer's new improvements, then the cost of said relocation shall be borne by the Developer.

4. The project shall comply with the conditions set forth in the Development Agreement and Development and Disposition Agreement in effect between the City of Santa Clara and Related, Santa Clara, LLC.

5. The project shall comply with the mitigation measures included within the Mitigation Monitoring or Reporting Program for the Project, each of which is hereby imposed as a condition of approval.

6. Provide filtration systems for on-site residences and daycare centers as necessary to reduce operational cancer risks and exposure to particulate matter 2.5 microns in diameter or less (PM2.5). This measure only applies to on-site residences and daycare centers. The Project Developer shall implement the following measures, as necessary, to reduce cancer risks to a level less than BAAQMD project-level thresholds:

   (a) Revised Health Risk Assessment (HRA): The Project Developer may choose to reassess the potential on-site cancer risk and PM2.5 concentrations to be experienced by on-site residential receptors and on-site daycare centers later in the design Phase, but prior to occupancy, and to prepare a revised HRA using updated receptor location information and more detailed assessment of risks associated with existing and project operational sources, and submit to the City for review. If the revised HRA demonstrates, to the satisfaction of the City, that the cancer risk and exposure to PM2.5 for all potentially exposed on-site receptors will be less than BAAMQD project-level thresholds, then no additional measures are necessary. If the revised HRA demonstrates, to the satisfaction of the City, that the cancer risk or exposure to PM2.5 for on-site sensitive receptors will be less than presented in the EIR but still over BAAMQD threshold, then the control effort may be less.

   (b) Install filtration systems on ventilation and recirculation systems. Filtration systems shall be installed on ventilation and recirculation systems within on-site residences and the heating, cooling, and ventilation systems that serve daycare centers that are exposed to risks above BAAQMD thresholds due to individual existing sources. All filters must be rated MERV 13 or higher. The Project Developer shall submit a plan for installation and maintenance of all filters in accordance with the manufacturer's recommendations to the City prior to approval of the first building permits.

7. Prepare and implement a noise control plan to reduce interior noise at sensitive land uses. The Project Developer shall conduct a design-level acoustic study that identifies exterior noise levels for residential and commercial uses on the project site. This study shall take into account existing, project, and reasonably foreseeable future noise sources (such as proposed increases in passenger rail service along the Lafayette Street corridor). Where this study finds that the exterior noise level would exceed the residential compatibility standard of 55 dBA Ldn or the commercial incompatibility standard of 65 dBA Ldn, the Project Developer shall prepare a design-level operational noise control plan to provide acceptable interior noise levels. This plan shall identify all project features and treatments that will be implemented to ensure that the project is in compliance with the interior noise standards listed in the City's General Plan and City Code as well as the standards specified for new construction within the Comprehensive Land Use Plan (CLUP) for Mineta San Jose International Airport (SJC). The study and plan shall be developed by an acoustical design professional. Design features and treatments will be identified to ensure that interior noise levels at new proposed uses are in compliance with the noise standards. The

report shall be submitted to the City for review and approval prior to the issuance of building permits for the project. Depending on the noise exposure for a particular site, such treatments may include, but are not limited to, those listed below, as recommended by the acoustical design professional.

(a) Construction of enclosures around noise-generating mechanical equipment at commercial uses.
(b) Use of setbacks from noise sources to maximum attenuation of noise over distance.
(c) Installation of noise-reducing treatments in new buildings, including:
- High-performance, sound-rated double-glazed windows,
- Sound-rated doors,
- Sound-rated exterior wall construction,
- Special acoustical details for vents,
- Acoustical caulking at all exterior façade penetrations,
- Sound-rated roof and ceiling constructions, and
- Adequate mechanical ventilation so that windows and doors may be kept closed at the discretion of the building occupants to control environmental noise intrusion.

8. Prepare and implement a vibration control plan to reduce vibration from the Union Pacific Railroad (UPRR) for sensitive land uses. The Project Developer shall prepare a design-level operational vibration control plan that identifies all project features and treatments that would be implemented to ensure that the project is in compliance with the vibration standards recommended by the Federal Transportation Administration (FTA) relative to railway operational vibration associated with UPRR operations. The plan shall be prepared when new uses would be located within the following screening distances, as recommended by FTA (FTA 2006):

(a) Category 1: Buildings where vibration would interfere with interior operations (600 feet).
(b) Category 2: Residences and buildings where people normally sleep (200 feet).
(c) Category 3: Institutional land uses with primarily daytime use (120 feet).
The plan shall take into account current and future expected passenger and freight rail service levels adjacent to the project site. The plan shall be developed by an acoustical design professional and shall include a detailed investigation of ground-borne train vibration that considers site-specific train vibration source and propagation conditions and the actual building designs. The design features and treatments shall be identified to ensure that vibration levels at new proposed uses are in compliance with FTA standards. The report shall be submitted to the City for review and approval prior to the issuance of building permits for the project. Depending on the vibration exposure for a particular site, such treatments may include, but are not limited to, those listed below, as recommended by the acoustical design professional.
(d) Increased setbacks of noise-sensitive uses from the train track.
(e) Foundation isolation systems to reduce the transmission of vibration into buildings with noise-sensitive uses that are near the tracks.

9. Incorporate flood warnings for the Lick Mill Boulevard extension and other access roads for areas vulnerable to flooding. The Project Developer and the City shall coordinate to provide flood warnings for new and existing roadways that provide access to the site and are vulnerable to 100-year flood levels. The Project Developer shall review the City's flood warning and emergency response plan and submit a brief plan for the project that is consistent with the City's plan. The plan shall be submitted to the City's Emergency Services Coordinator in the City's Fire Department for review and approval. The specific frequency of expected flooding on-site access roads shall be determined by the Project Developer and reviewed by the City. Flood warnings may be temporary or permanent, depending on the frequency of expected flooding, as determined by the City. Information about alternative access/egress routes, based on flooding potential and other factors, shall also be provided by the Project Developer to the City's Emergency Services Coordinator in the City's Fire Department for review and approval. If other flood improvements are implemented that remove the flooding risk at the Lick Mill Boulevard extension or other site access roads, then this condition of approval shall no longer be required.

ENGINEERING

E1. Developer is responsible for cost of relocation or modification of any public facility necessary to accommodate subject development, unless the cost of relocation or modification of a utility is the responsibility of a franchisee under a franchise agreement. Planned changes to existing facilities shall be included with and described in proposed infrastructure plans required at the time of DAPs.

E.2. Following approval of Tentative Maps and/or Vesting Tentative Maps by Council, the Developer shall file Final Maps for approval and recordation to the satisfaction of the Director of Public Works prior to the issuance of building permits for the DAP.

E.3 Infrastructure plans that are submitted with the DAP application shall address infrastructure needs for the entire phase where the DAP infrastructure needs must rely on, may be affected by, or may affect any future phase(s) of development. The submitted DAP infrastructure plans in that case shall provide not less than conceptual plans for or a description of the design of the infrastructure in the future phase(s), to the satisfaction of the Director of Public Works. Plans shall be prepared by a Registered Civil Engineer and approved by the City Engineer prior to approval and recordation of Final Map and/or issuance of building permits.

E4. The Sanitary sewer (SS) laterals from Parcel 1 and Parcel 2 shall connect to the westernmost 42" SS main in Lafayette Street. The SS laterals from Parcel 3 and Parcel 4 shall connect to the 42" SS main running between the two parcels from Great America Parkway to Lafayette Street. Parcel 5 shall be connected to the 12" SS main in Stars and Stripes Drive. The City shall determine available SS capacity for each main as of the time of project entitlements, including each DAP or DAP Amendment, and the Developer shall construct facility improvements to accommodate the maximum MCP development. The Developer may be reimbursed for design and construction costs above its fair share costs.

E5. Execute Covenant(s) Running with the Land to assume maintenance responsibility for non-standard street improvements within public rights-of-way prior to the City's acceptance of said improvements. Non-standard street improvements include, but are not limited to, curb return type driveway(s).

E6. Obtain site clearance through the Engineering Department prior to issuance of building permits. Site clearance will require payment of applicable development fees prior to issuance of the building permit. Other requirements may be identified for compliance during the site clearance process.

ELECTRIC

EL1. DAP infrastructure plans and documents that address the electrical distribution system shall specify on-site private electric facilities and off-site public electric facilities to address the needs of the particular DAP and, conceptually, the needs of the overall phase which contains that DAP. To the extent that development of any particular DAP or phase may affect service to other phases, a conceptual plan or description of those needs shall be included in the application.

EL2. On-site infrastructure is the Developer's responsibility. The Developer shall install the substructures required to meet Silicon Valley Power (SVP) design requirements. SVP will install all cable and equipment facilities. The Developer will be assessed development fees to cover the costs associated with installation of these facilities. Any costs associated with non-SVP standard equipment, including design reviews, will be the responsibility of the Developer.

EL3. Easements for electric facilities and access will be required for all facilities located on private streets or within structure boundaries.

EL4. Prior to the approval of the DAP for Phase 1, Developer shall enter into a separate agreement with the City to address the rights and obligations of the parties with respect to providing interim electrical capacity and service at full build-out. The agreement will address such matters as the construction obligations of the City for additional substation and off-site distribution facilities, electrical service requirements to be provided by the City, construction and payment obligations of Developer, the granting of easements or other property rights and mutual cooperation as reasonably necessary to accommodate the electric service needs of the Project.

WATER

W1. Each DAP submittal shall indicate all service connections and facilities for potable and recycled water and sanitary sewer facilities to serve the development area. To the extent necessary, plans shall include conceptual plans to serve the remainder of the Phase or future Phases that will rely on these facilities, to the satisfaction of the Director of the Water and Sewer Utilities.

W2. Prior to issuance of Building Permits, the Developer shall submit plans for water service to each individual building parcel, site and/or building to be connected to a public main in the public right-of-way to the satisfaction of the Director of Water & Sewer Utilities. Additionally, different types of water use (domestic, irrigation, fire) shall be served by separate water services. Plans shall also indicate locations of proposed fire hydrants.

FIRE DEPARTMENT

FD1. When in the opinion of the fire code official, a new structure obstructs emergency radio communications to existing buildings or to any other locations the Developer shall resolve the deficiency to the satisfaction of the Fire Department, which may include requirements to provide and install radio retransmission equipment necessary to restore communications capabilities. Any required equipment shall be located in a space or area within a new structure approved by the Fire Department.

FD2. Each DAP application shall include proposed access routes for emergency service vehicles. Plans may be required to include the entire Phase in which the DAP is included and may necessitate conceptual plans for access through or to future Phases to the extent that may be necessary to the satisfaction of the Fire Chief.

FD3. Construction and final development in each Phase and DAP shall comply with applicable fire standards, codes, and policies, including emergency access requirements.

FD4. The Developer shall provide a replacement Fire Station in accordance with the Development and Disposition Agreement.

POLICE

PD1. The Developer shall include, for each building, design specifications that meet the City of Santa Clara's guidelines established for radio signal penetration, as detailed in the Communications Department's Public Safety Radio System Building Penetration Guidelines. The intended use of telecommunications sites/equipment shall be clearly and accurately stated in the building documentation. The signal, of whatever nature, of any communications facility or system, shall in no way whatsoever interfere with or affect any police communication or police communication system.

PARKS AND RECREATION

PR1. The Developer shall comply with the City's Park and Recreational Land Ordinance (SCCC Ch. 17.35), subject to conformance with and as otherwise satisfied by the provisions of the MCP, DA and Development and Disposition Agreement, to the satisfaction of the City Manager.

STREET DEPARTMENT

ST1. Submit copy of complete landscape and automatic irrigation plans for all public rights-of-way for review and comment by City staff. The Developer is to supply and install City street trees per the MCP and City specifications. Spacing, specie, and sizes of street trees shall be subject to approval of the City Arborist.

ST2. Special Urban Runoff Stormwater Pollution Prevention requirements apply. Provide the Street Department with information to evaluate proposed stormwater pollution prevention improvements for each Phase.

ST3. Developer shall comply with City Development Guidelines for Solid Waste Services in each Phase, as specified by development type.

PLANNING AND BUILDING INSPECTION

P1. DAP applications for partial Phases as described in the MCP may be required to include conceptual plans and information for areas outside of the DAP boundaries that address site access for the provision of safety and service by City forces, as well as related utility facilities, and schematic or concept plans addressing such items as open space and parks that may be constructed in future Phases on abutting sites.

P2. Tentative Subdivision Map, Vesting Tentative Subdivision Map and/or Parcel Map applications consistent with the intent and obligations of the MCP, DA and DDA, and consistent with any parcel(s) indicated in the submission of the DAP, shall be approved by City Council prior to issuance of building permits for development within any Phase, Sub Phase or DAP within the area of that map application. Maps shall define development sites and provide for the dedication or disposition of public streets, utilities and parks/open space, to the satisfaction of the City.

P3. The Developer will be required to prepare acoustical analyses and implement noise insulation features in building construction as required by the Mitigation Monitoring and Reporting Program.

P4. The Developer shall be required to incorporate within the residential tenant lease agreements notification of the occurrence of aircraft traffic noise over the project site.

P5. The Developer shall convey an avigation easement to the City of San Jose on behalf of the San Jose International Airport.

P6. Obtain required permits and inspections from the Building Official and comply with the conditions thereof, based upon approved DAPs. Submittal of plans shall be consistent with a predetermined address numbering scheme based upon Phases identified in the MCP, to the satisfaction of the Building Official.

P7. The Developer shall file a Notice of Intent (NOI) with the State Water Resources Control Board prior to issuance of any permit for grading or construction in accordance with an approved DAP, or as otherwise permitted or required under the obligations and rights of the DDA. A copy of the NOI shall be sent to the City Building Inspection Division. A stormwater pollution prevention plan is also required with the NOI.

P8. Along with the submission of the first DAP within any Phase, a landscape and lighting concept plan for that Phase shall be provided and agreed upon by the Developer and the City. Landscaping and lighting concepts shall address public areas and street frontage areas, as well as open space and park areas within the Phase.

P9. The Developer shall employ green building standards and materials in the site design and construction of structures within each DAP, designed to meet USGBC LEED standards for new construction, in accordance with the approved MCP.

P10. The project will be required to comply with the City's Urban Runoff Pollution Prevention

Program, including best management practice measures for construction and post-construction activity, including reducing runoff to public storm drain facilities from rooftops and paved surfaces.

P11. DAP applications shall include third-party certification that the conceptual stormwater control plan meets applicable post-construction stormwater control (C3) requirements. Prior to the issuance of grading or building permits, the Developer shall provide to the Planning Division third-party certification that the stormwater control plan meets applicable C3 requirements, along with an Operations and Maintenance Agreement approved by the City for post-construction maintenance of C3 devices/measures.

P12. Trees removed shall be replaced at a ratio of two new trees for every one removed tree. Any trees not replaced at the 2:1 ratio shall be subject to in-lieu payments consistent with City policy. The developer shall be responsible for maintaining a master accounting of all tree removals, tree replacements, and in-lieu fee payments and shall provide such information with each DAP submittal and upon the City's request.

P13. The Developer shall prepare a Construction Management Plan (CMP) for review and approval prior to the issuance of initial grading or building permits for development within any Phase, Sub Phase or DAP. To the extent that information is known, a CMP may address some or all construction within the DAP or Phase, such that a CMP may not be required for each permit as called for in the adopted Mitigation Monitoring or Reporting Program.

P14. Construction activity not confined within an enclosed building shall be limited to the hours of 7:00 a.m. to 6:00 p.m. weekdays and 8:00 a.m. to 6:00 p.m. Saturdays for construction within 300 feet of a residential use. Construction activity shall not be allowed on Sundays or recognized State and Federal holidays.

P15. The Comprehensive Sign Program required for either Parcels 4/5 or Parcels 1 and 2, as specified in the MCP shall be submitted with the initial DAP submission for each area and shall be considered concurrently with and as a part of the DAP plans for the Council's consideration.

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