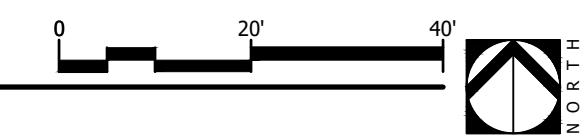


**1** OVERALL PLANTING PLAN  
Scale: 1" = 20'



PROJECT No:	No.	DATE	REVISION
79540	1	09.23.19	Per City of Plainfield comments
DATE 09.05.20	2	10.10.19	Per City of Plainfield comments
DES.	3	10.18.19	Per City of Plainfield comments
DR.	4	12.20.19	Per City of Plainfield comments
CKD.	5	01.16.20	Per City of Plainfield comments

333 North Alabama Street  
Suite 200  
Indianapolis, IN 46204  
317.299.7500  
FAX: 317.291.5805

**WOOLPERT**  
ARCHITECTURAL ENGINEERING INTERIOR

**RESIDENCE INN**  
**THE SHOPS AT PERRY CROSSING**

PLAINFIELD, INDIANA

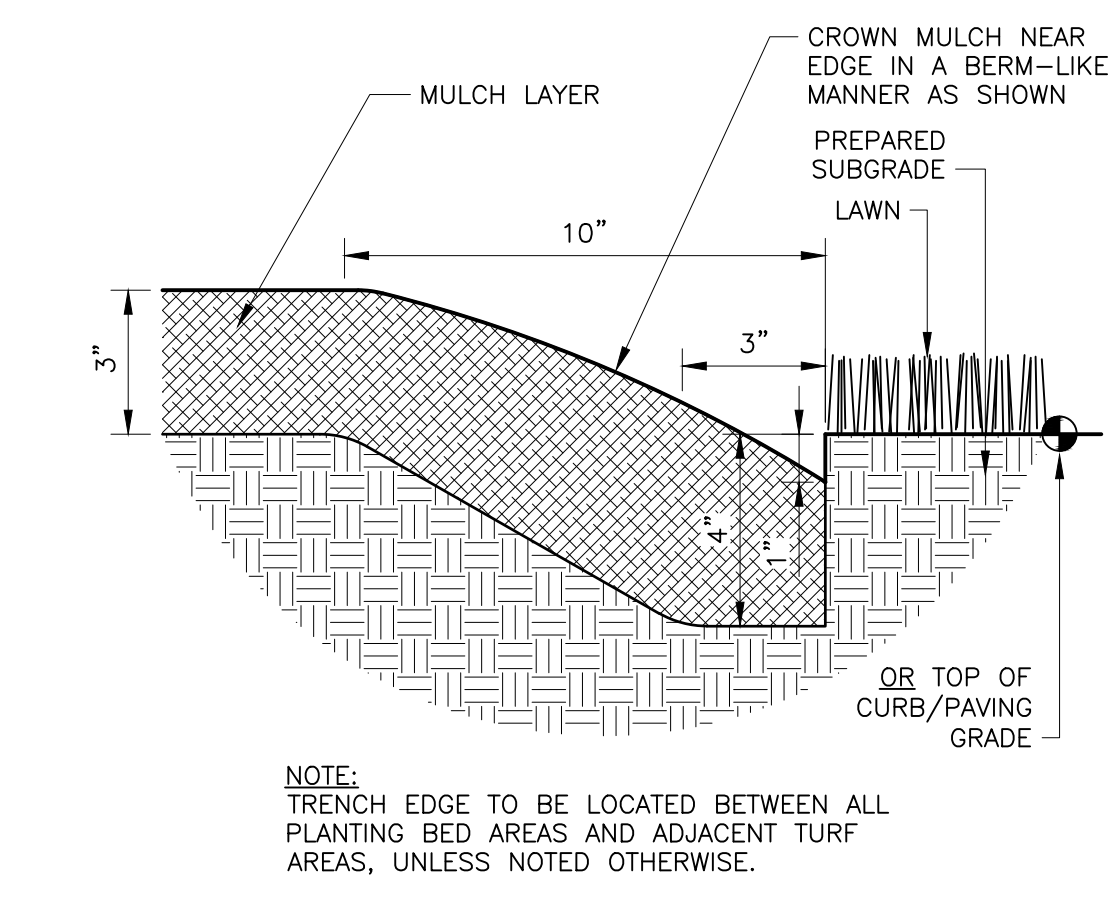
SHEET NO.  
**LP100**

**PLANT SCHEDULE**

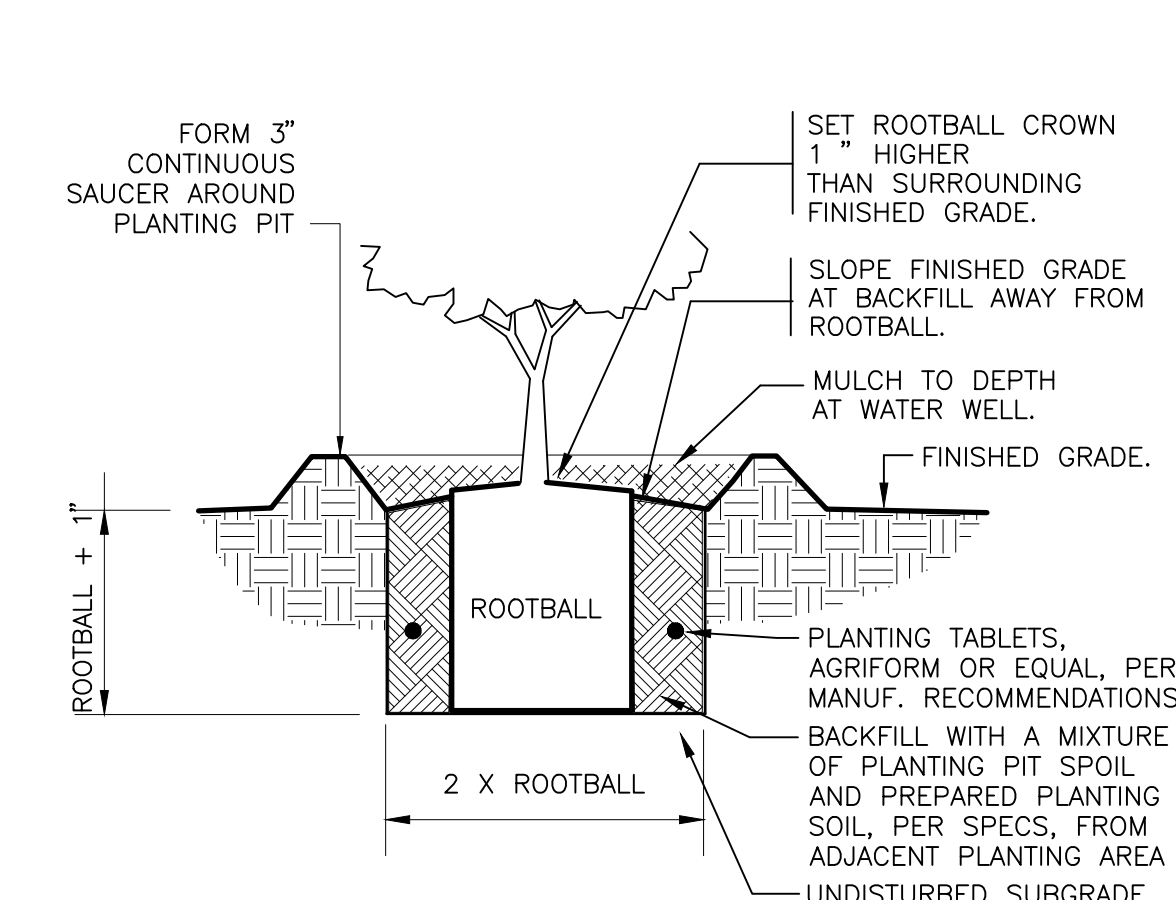
TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	HT	REMARKS
	FT	4	Chionanthus virginicus	White Fringetree	30 gal. or B&B	1.5"Cal	8'-10'	Full Head, Specimen Quality
	WK	7	Crataegus viridis 'Winter King'	'Winter King' Hawthorn	30 gal. or B&B	1.5"Cal	8'-10'	Full Head, Specimen Quality
	UN	8	Ulmus americana 'New Harmony'	New Harmony American Elm	45 gal. or B&B	2.5"Cal	14'	Full Head, Specimen Quality
SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SIZE	SPACING	REMARKS
	BC	44	Berberis thunbergii 'Crimson Pygmy'	Crimson Pygmy Barberry	3 gal	24"x24"	36" o.c.	Full Form
	WG	122	Buxus microphylla japonica 'Winter Gem'	Winter Gem Boxwood	3 gal	18"x18"	36" o.c.	Full Form
	FG	87	Forsythia x intermedia 'Golden Peep'	Dwarf Forsythia	3 gal	24"x24"	36" o.c.	Full Form
	JF	41	Juniperus chinensis 'Sea Green'	Sea Green Juniper	3 gal	18"x18"	36" o.c.	Full Form
	PH	148	Pennisetum alopecuroides 'Hameln'	Hameln Dwarf Fountain Grass	1 gal	18"x18"	24" o.c.	Full Form
	PP	9	Pinus mugo pumilio	Dwarf Mugo Pine	3 gal	18"x18"	36" o.c.	Full Form
	FS	18	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant Sumac	7 gal	24"x24"	48" o.c.	Full Form
	KO	41	Rosa x 'Radrazz' TM	Knock Out Shrub Rose	3 gal	24"x24"	48" o.c.	Full Form
	SM	25	Syringa meyeri 'Palibin'	Dwarf Korean Lilac	7 gal	24"x24"	48" o.c.	Full Form
	TY	129	Taxus x media 'Tauntonii'	Taunton's Yew	7 gal	24"x24"	48" o.c.	Full Form
	TT	2	Thuja occidentalis 'Techny'	Techny Arborvitae	15 gal	4'-5'	48" o.c.	Full Form
SHRUB AREAS	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SIZE	SPACING	REMARKS
	HA	176	Hakonechloa macra 'Aureola'	Golden Japanese Forest Grass	1 gal		18" o.c.	Full Form
	JV	83	Juniperus chinensis sargentii 'Viridis'	Green Sargent Juniper	3 gal		36" o.c.	Full Form
GROUND COVERS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SPACING	REMARKS		
	LB	93	Liriope muscari 'Big Blue'	Big Blue Lilyturf	12" o.c.	Full Form		
	RG	189	Rudbeckia fulgida sultivantii 'Goldsturm'	Black-eyed Susan	18" o.c.	Full Form		
PERENNIAL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SPACING	REMARKS		
	VC	423	Vinca minor	Common Periwinkle	12" o.c.	Full Form		
SOD/SEED	CODE	QTY	BOTANICAL NAME	COMMON NAME	SPACING	REMARKS		
	SS	5,605 sf	SOD			90% FINE LEAF FESCUE (FESTUCA ARUNDINACEA) REBEL, REBEL II, WRANGLER, BONANZA, MOJAVE OR EQUAL, 10% KENTUCKY BLUEGRASS (POA PRATENSIS) MIDNIGHT, RUGBY II, MIDIRON VARIETIES OR EQUAL, 98% PURITY AND 85% GERMINATION, 95% WEED FREE		

QUANTITY TAKEOFF DISCLAIMER:  
 QUANTITIES NOTED ON PLANS ARE OFFERED AS A CONVENIENCE TO THE CONTRACTOR FOR BID PURPOSES ONLY. CONTRACTOR SHALL VERIFY ALL QUANTITIES AND REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT.

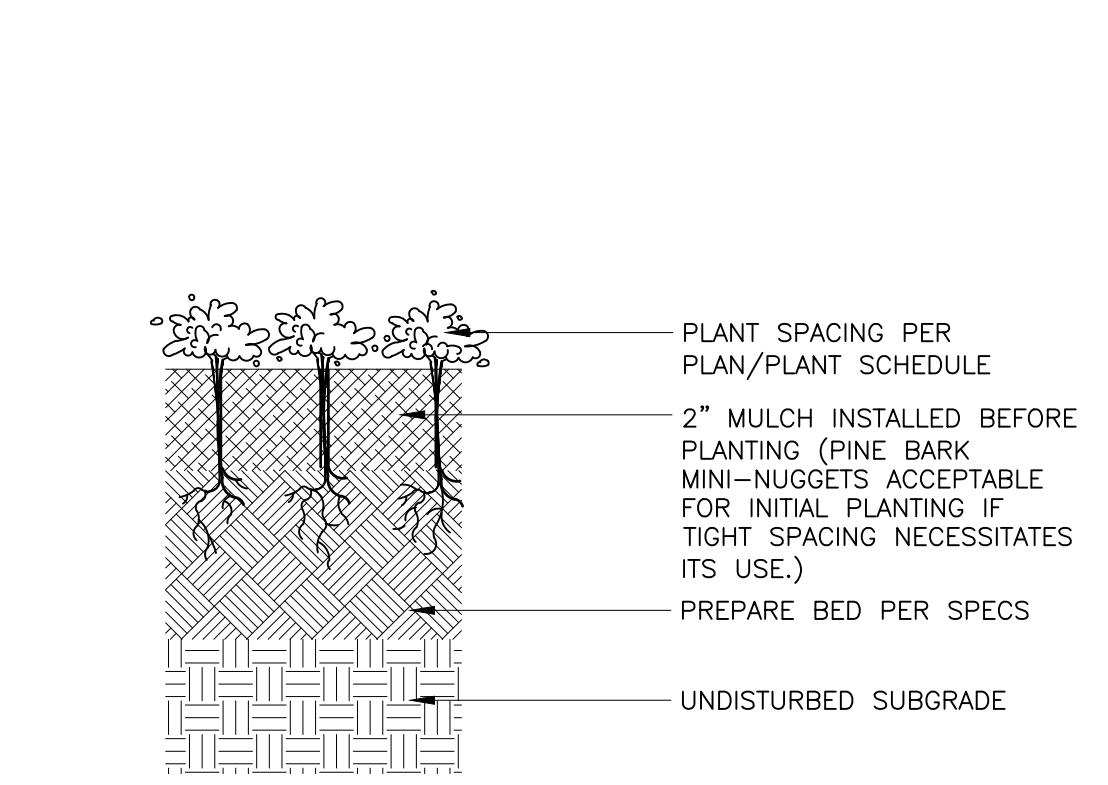
**1 TYPICAL PLANT SPACING**  
 NOT TO SCALE



**2 TRENCH EDGE**  
 3" = 1'-0"

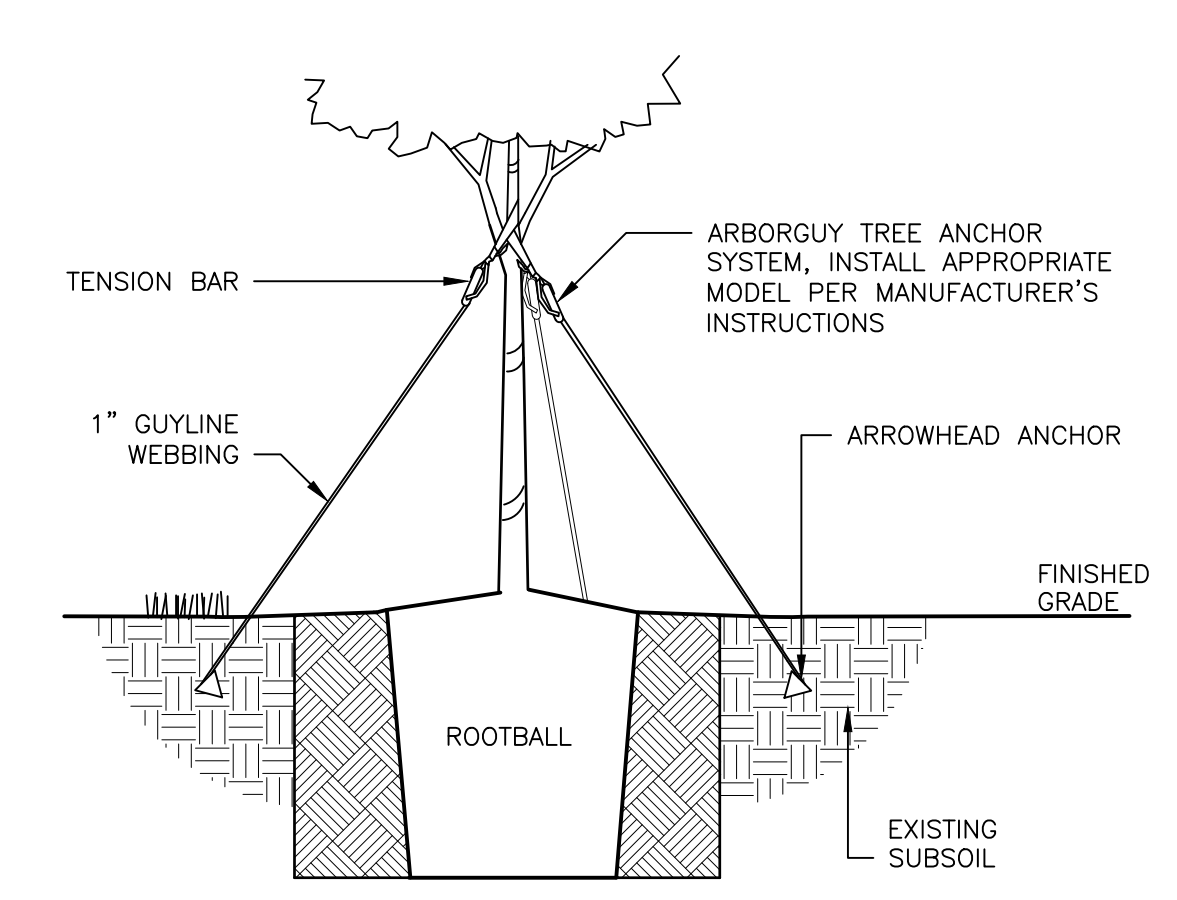


**3 SHRUB PLANTING**  
 1" = 1'-0"

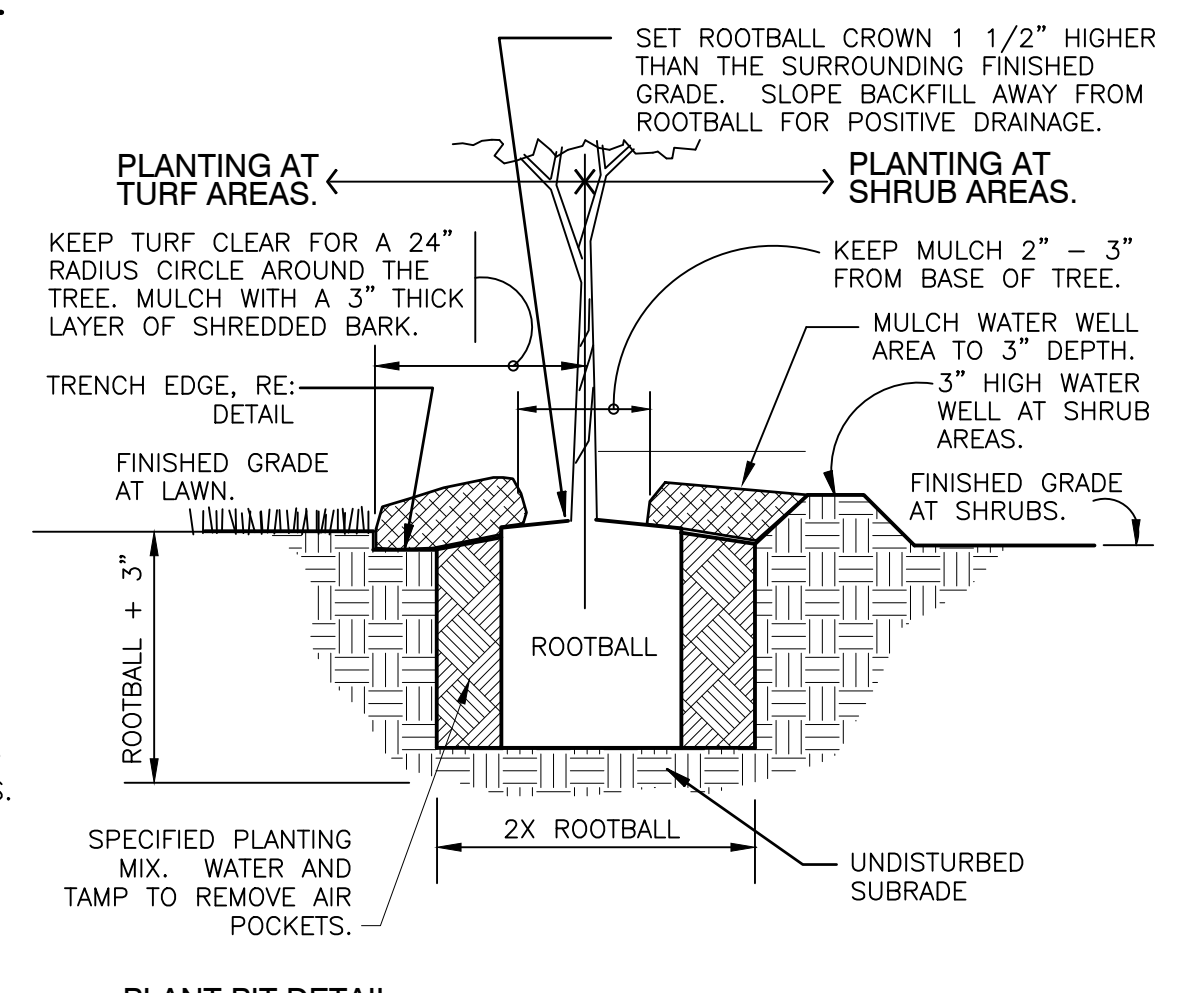


**4 GROUNDCOVER PLANTING**  
 3" = 1'-0"

**5 MULTI-TRUNK TREE STAKING**  
 1/2" = 1'-0"



STAKING DETAIL



**6 TREE PLANTING - GUY STRAP**  
 1" = 1'-0"

329343.26-02

REVISION	DATE	DESCRIPTION
1	09.23.19	Per City of Plainfield comments
2	10.10.19	Per City of Plainfield comments
3	10.18.19	Per City of Plainfield comments
4	12.20.19	Per City of Plainfield comments
5	01.16.20	Per City of Plainfield comments

PROJECT No: 79540  
 DATE: 09.05.20  
 DES. DR.  
 CKD.

333 North Alabama Street  
 Suite 200  
 Indianapolis, IN 46204  
**WOOLPERT**  
 ARCHITECTS (INCORPORATED)  
 317.299.7500  
 317.291.5805  
**RESIDENCE INN**  
**THE SHOPS AT PERRY CROSSING**  
 PLAINFIELD, INDIANA  
 SHEET NO.  
**LP500**

**SECTION 329200 - TURF AND GRASSES**

- 1.1 RELATED DOCUMENTS
  - A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- 1.2 SUMMARY
  - A. Section Includes:
    - 1. Sodding
  - B. Related Requirements:
    - 1. Section 329300 "Plants" for trees, shrubs, ground covers, and other plants as well as border edgings and mow strips.
- 1.3 DEFINITIONS
  - A. Finish Grade: Elevation of finished surface of planting soil.
  - B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, molluscicides, and molluscicides. They also include substances for use as a plant regulator, defoliant, or desiccant.
  - C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
  - D. Planting Soil: Existing on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation" and drawing designations for planting soils.
- 1.4 PREINSTALLATION MEETINGS
  - A. Reinstallation Conference: Conduct conference at Project site.
- 1.5 INFORMATIONAL SUBMITTALS
  - A. Product Certificates: For fertilizers, from manufacturer.
- 1.6 CLOSEOUT SUBMITTALS
  - A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.
- 1.7 DELIVERY, STORAGE, AND HANDLING
  - A. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.
  - B. Bulk Materials:
    - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
    - 2. Accompany each delivery of bulk materials with appropriate certificates.
- 1.8 FIELD CONDITIONS
  - A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and maximum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.
- 1.9 TURFGRASS SOD
  - A. Turfgrass Sod: Certified, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.
  - B. Turfgrass Species: Tifton 419 Bermudagrass (Cynodon dactylon 'Tifton 419').
- 1.10 FERTILIZERS
  - A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorus, and potassium in the following composition:
    - 1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorus, and 2 percent potassium, by weight.
  - B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
    - 1. Composition: 20 percent nitrogen, 10 percent phosphorus, and 10 percent potassium, by weight.
    - 2. Composition: Nitrogen, phosphorus, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.
- 1.11 PESTICIDES
  - A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
  - B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
  - C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.
- 1.12 EXAMINATION
  - A. Examine areas to be prepared for compliance with requirements and other conditions affecting installation and performance of the Work.
    - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
    - 2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
    - 3. Uniformly moisten excessively dry soil that is not workable or which is dusty.
    - B. Proceed with installation only after unsatisfactory conditions have been corrected.
    - C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.
- 1.13 PREPARATION
  - A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
    - 1. Protect grade stakes set by others until directed to remove them.
- 1.14 TURF AREA PREPARATION
  - A. General: Till and rake planting area free and clear of debris to allow for a smooth planting surface. Adjust elevation of planting soil to accept thickness of sod to achieve a smooth plane for optimal mowing equipment.
  - B. Moist prepared areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
  - C. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- 1.15 SODDING
  - A. Lay sod within 24 hours of harvesting unless a suitable preservation method is accepted by Architect prior to delivery time. Do not lay sod if dormant or if ground is frozen or muddy.
  - B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
  - 1. Lay sod across slopes exceeding 1:3.
  - 2. Anchor sod on slopes exceeding 1:6 with wood pegs spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent slippage.
  - C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.
- 1.16 TURF MAINTENANCE
  - A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and reseed to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
    - 1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
    - 2. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
  - B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
    - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
    - 2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.
  - C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Removes no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
    - 1. Mow Tifton 419 bermudagrass to a height of 1/2 to 1 inch.
  - D. Turf Fertilization: Apply commercial fertilizer after initial mowing and when grass is dry.
    - 1. Use fertilizer that provides actual nitrogen of at least 1 lb/1000 sq. ft. to turf area.
- 1.17 SATISFACTORY TURF
  - A. Turf installation criteria meet the following criteria as determined by Architect.
    - 1. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
  - B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.
- 1.18 PESTICIDE APPLICATION
  - A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
  - B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.
- 1.19 CLEANUP AND PROTECTION
  - A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
  - B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.
  - C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove plantings areas established.

- 1.20 MAINTENANCE SERVICE
    - A. Turf Maintenance Service: Provide full maintenance by skilled employees of landscape installer. Maintain as required in "Turf Maintenance" Article. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:
      - 1. Sodded Turf: 30 days from date of Substantial Completion.
- SECTION 329300 - PLANTS**
- 1.1 RELATED DOCUMENTS
    - A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
  - 1.2 SUMMARY
    - A. Section Includes:
      - 1. Plants.
      - 2. Planting soils.
    - B. Related Sections:
      - 1. Section 311000 "Site Clearing" for protection of existing trees and plantings, topsoil stripping and stockpiling, and site clearing.
      - 2. Section 329200 "Turf and Grasses" for turf (lawn) and meadow planting, hydroseeding, and erosion-control materials.
  - 1.3 UNIT PRICES
    - A. Work of this Section is affected by unit prices specified in Section 012200 "Unit Prices."
      - 1. Unit prices apply to authorized work covered by quantity allowances.
      - 2. Unit prices apply to additions to and deletions from Work as authorized by Change Orders.
  - 1.4 DEFINITIONS
    - A. Backfill: The earth used to replace or the act of replacing earth in an excavation.
    - B. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1.
    - C. Balled and Potted Stock: Plants dug with firm, natural balls of earth in which they are grown and placed, unbroken, in a container. Ball size is not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required.
    - D. Bare-Root Stock: Plants with a well-branched, fibrous-root system developed by transplanting or root pruning, with soil or growing medium removed, and with not less than minimum root spread according to ANSI Z60.1 for type and size of plant required.
    - E. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.
    - F. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.
    - G. Finish Grade: Elevation of finished surface of planting soil.
    - H. Pests: Living organisms that occur where they are not desired, or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
    - I. Planting Area: Areas to be planted.
    - J. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
    - K. Plant: Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, and herbaceous vegetation.
    - L. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk branches to form roots; the area of transition between the root system and the stem or trunk.
    - M. Stem Girdling Roots: Roots that encircle the stems (trunks) of trees below the soil surface.
    - N. Subsoil: Surface or subsurface of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
    - O. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
    - P. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.
  - 1.5 ACTION SUBMITTALS
    - A. Product Data: For each type of product indicated, including soils.
      - 1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
      - 2. Plant Photographs: Include color photographs in digital format of each required species and size of plant material as it will be furnished to the Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species where more than 20 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished. Identify each photograph with the scientific name of the plant, plant size, and name of the growing nursery.
    - B. Samples for Verification: For each of the following:
      - 1. Organic Mulch: 1-pint volume of each organic mulch required; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and organic makeup.
  - 1.6 INFORMATIONAL SUBMITTALS
    - A. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before start of required maintenance periods.
    - B. Warranty: Sample of special warranty.
  - 1.7 QUALITY ASSURANCE
    - A. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.
    - B. Measurements: Measure according to ANSI Z60.1, typical, or Florida Grades & Standards, if referenced. Do not prune to obtain required sizes.
      - 1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container-grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
      - 2. Other Plants: Measure with stems, petioles, and foliage in their normal position.
    - C. Plant Material Observation: Architect may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Architect retains right to observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.
      - 1. Notify Architect of sources of planting materials seven days in advance of delivery to site.
    - D. Preinstallation Conference: Conduct conference at Project site.
  - 1.8 DELIVERY, STORAGE, AND HANDLING
    - A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.
    - B. Bulk Materials:
      - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
      - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
      - 3. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.
    - C. Deliver bare-root stock plants freshly dug. Immediately after digging up bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until planting.
    - D. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.
    - E. Handle planting stock by root ball.
    - F. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F until planting.
    - G. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.
      - 1. Heel-in bare-root stock. Soak roots that are in dry condition in water for two hours. Reject dried-out plants.
      - 2. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
      - 3. Do not remove container-grown stock from containers before time of planting.
      - 4. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist but not overly-wet condition.
  - 1.9 PROJECT CONDITIONS
    - A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.
    - B. Interruption of Existing Services or Utilities: Do not interrupt services or utilities to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary services or utilities according to requirements indicated:
      - 1. Notify Architect no fewer than two days in advance of proposed interruption of each service or utility.
      - 2. Do not proceed with interruption of services or utilities without Architect's written permission.
    - C. Planting Restrictions: Planting during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
    - D. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.
    - E. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.
      - 1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.
  - 1.10 WARRANTY
    - A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
      - 1. Failures include, but are not limited to, the following:
        - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control.
        - b. Structural failures including plantings falling or blowing over.

- c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- 2. Warranty Periods from Date of Substantial Completion:
  - a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
  - b. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.
  - c. Annuals: Three months.
- 3. Include the following remedial actions as a minimum:
  - a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
  - b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
  - c. A limit of one replacement of each plant will be required except for losses or replacements due to failure to comply with requirements.
  - d. Provide extended warranty for period equal to original warranty period, for replaced plant material.
- 1.11 MAINTENANCE SERVICE
  - A. Initial Maintenance Proposal: From Installer to Owner and/or Bid Administrator, in the form of a standard yearly (or other period) maintenance agreement as an addendum to Bid Proposal or Bid Form if not requested otherwise in bidding documents, starting on date that maintenance begins as defined in this Section. State services, obligations, conditions, and terms for agreement period and for future renewal options.
  - B. Initial Maintenance Service for Trees and Shrubs: Provide maintenance by skilled employees of landscape installer. Maintain as required in Part 3. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than maintenance period below.
    - 1. Maintenance Period: 12 months from date of Substantial Completion.
  - C. Initial Maintenance Service for Ground Cover and Other Plants: Provide maintenance by skilled employees of landscape installer. Maintain as required in Part 3. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than maintenance period below.
    - 1. Maintenance Period: Six months from date of Substantial Completion.
  - D. Continuing Maintenance Proposal: From Installer to Owner, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.
- 1.12 PLANT MATERIAL
  - A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant Schedule or Plant Legend shown on Drawings and complying with ANSI Z60.1, and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and discoloration.
    - 1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots will be rejected.
    - 2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.
  - B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Architect, with a proportionate increase in size of roots or balls.
  - C. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
  - D. Labeling: Label at least one plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant as shown on Drawings.
  - E. Field plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Architect, with a proportionate increase in size of roots or balls.
  - F. Annuals: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery.
- 1.13 ORGANIC SOIL AMENDMENTS
  - A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1/2-inch sieve; soluble salt content of 5 to 10 decaiemsm/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
    - 1. Organic Matter Content: 50 to 60 percent of dry weight.
    - 2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.
  - B. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.
    - 1. In lieu of decomposed wood derivatives, mix partially decomposed wood derivatives with ammonium nitrate at a minimum rate of 0.15 lb/cu. ft. of loose sawdust or ground bark, or with ammonium sulfate at a minimum rate of 0.25 lb/cu. ft. of loose sawdust or ground bark.
    - 2. Some regional trade names include "Topsoil Conditioner" or "IP Mulch."
- 1.14 FERTILIZERS
  - A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorus, and potassium in the following composition:
    - 1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorus, and 2 percent potassium, by weight.
  - B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
    - 1. Composition: 20 percent nitrogen, 10 percent phosphorus, and 10 percent potassium, by weight.
  - C. Planting Tablets: Tightly compressed chip type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.
    - 1. Size: 21-gram tablets.
    - 2. Nutrient Composition: 20 percent nitrogen, 10 percent phosphorus, and 5 percent potassium, by weight plus micronutrients.
- 1.15 PLANTING SOILS
  - A. Planting Soil: Typical: Existing, native surface topsoil formed under natural conditions with the duff layer retained during excavation process. Verify suitability of native surface topsoil to produce viable planting soil. Clean soil of roots, plants, soil, stones, clay lumps, and other extraneous materials harmful to plant growth.
    - 1. Mix existing, native surface topsoil with either of the following soil amendments and fertilizers in the following quantities to produce planting soil:
      - a. Ratio of Loose Compost to Topsoil by Volume: 1:3.
      - b. Ratio of Loose Wood Derivatives to Topsoil by Volume: 1:3.
      - c. Weight of Commercial Fertilizer per 1000 Sq. Ft.: 1 lb..
      - d. Weight of Slow-Release Fertilizer per 1000 Sq. Ft.: 1 lb..
  - B. MULCHES
    - A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:
      - 1. Type: Hardwood Mulch.
      - 2. Color: Dark in color to match existing Perry Crossing Development mulch.
- 1.16 EXAMINATION
  - A. Examine areas to receive plants for compliance with requirements and conditions affecting installation and performance.
    - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
    - 2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
    - 3. Suspend soil spreading, grading, and filling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
    - 4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
  - B. Proceed with installation only after unsatisfactory conditions have been corrected.
  - C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.
- 1.18 PREPARATION
  - A. Protect structures; utilities; sidewalks; pavements; and other facilities and turf areas and existing plants from damage caused by planting operations.
  - B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
  - C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, and adjust locations when requested, and obtain Architect's acceptance of layout before excavating or planting. Make minor adjustments as required.
  - D. Lay out plants at locations directed by Architect. Stake locations of individual trees and shrubs and outline areas for multiple plantings.
- 1.19 PLANTING AREA ESTABLISHMENT
  - A. Loosen subgrade of planting areas to a minimum depth of 4 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
    - 1. Apply each fertilizer directly to subgrade before loosening.
    - 2. Till and rake planting area to receive amendments. Spread amendments to achieve ratios at 4" depth. Till and rake planting area to receive amendments. Spread amendments to achieve ratios at 4" depth. Till and rake planting area to receive amendments. Spread amendments to achieve ratios at 4" depth. Till and rake, remove ridges, and fill depressions to meet finish grades.
  - B. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
  - C. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- 1.20 EXCAVATION FOR TREES AND SHRUBS
  - A. Planting Pits and Trenches: Excavate circular planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are not acceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
    - 1. Excavate approximately three times as wide as ball diameter for balled and burlapped stock.
    - 2. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
    - 3. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
    - 4. If area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
    - 5. Maintain required degrees of repose of adjacent materials as shown on the Drawings. Do not excavate subgrade of adjacent paving, structures, hardscapes, or other new or existing improvements.
    - 6. Maintain supervision of excavations during working hours.

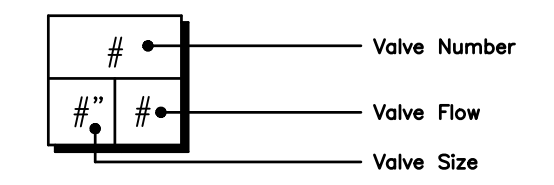
- 7. Keep excavations covered or otherwise protected after working hours.
  - B. Subsoil and topsoil removed from excavations may be used as planting soil.
  - C. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
    - 1. Hardpan Layer: Drill 6-inch-diameter holes, 24 inches apart, into free-draining strata or to a depth of 10 feet, whichever is less, and backfill with free-draining material.
  - D. Drainage: Notify Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.
  - E. Fill excavations with water and allow to percolate away before positioning trees and shrubs.
  - 1.21 TREES, SHRUBS, AND VINE PLANTING
    - A. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.
    - B. Remove stem girdling roots and kninked roots. Remove injured roots by cutting cleanly; do not break.
    - C. Set balled and burlapped stock plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
      - 1. Use planting soil, typical, for backfill.
    - 2. After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
    - 3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
    - 4. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended in soil reports from soil-testing laboratory. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
    - 5. Continue backfilling process. Water again after placing and tamping final layer of soil.
  - D. Set container-grown stock plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
    - 1. Use planting soil, typical, for backfill.
    - 2. Carefully remove root ball from container without damaging root ball or plant.
    - 3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
    - 4. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended in soil reports from soil-testing laboratory. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
    - 5. Continue backfilling process. Water again after placing and tamping final layer of soil.
  - E. When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.
- 1.22 TREE, SHRUB, AND VINE PRUNING
  - A. Prune, trim, and shape trees, shrubs, and vines as directed by Architect.
  - B. Do not apply pruning paint to wounds.
- 1.23 GROUND COVER AND PLANT PLANTING
  - A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated in even rows with triangular spacing.
  - B. Use planting soil, typical, for backfill.
  - C. Dig holes large enough to allow spreading of roots.
  - D. For rooted cutting plants supplied in flats, plant each in a manner that will minimally disturb the root system but to a depth not less than two nodes.
  - E. Water soil around roots to eliminate air pockets and leave a slight surface indentation around plants to hold water.
  - F. Work thoroughly after planting, taking care not to cover plant surfaces with wet soil.
  - G. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.
- 1.24 PLANTING AREA MULCHING
  - A. Mulch backfilled surfaces of planting areas and other areas indicated.
    - 1. Trees and Tree-like Shrubs in Turf Areas: Apply organic mulch ring of 3-inch average thickness, with 36-inch radius around trunks or stems. Do not place mulch within 3 inches of trunks or stems.
    - 2. Organic Mulch in Planting Areas: Apply 3-inch average settled thickness of organic mulch over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 2 inches of trunks or stems.
- 1.25 PLANT MAINTENANCE
  - A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades and vertical position, and performing other operations as required to establish healthy, viable plantings. Spray or treat as required to keep trees and shrubs free of insects and disease.
  - B. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
- 1.26 CLEANUP AND PROTECTION
  - A. During planting, keep adjacent paving and construction clean and work area in an orderly condition.
  - B. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.
  - C. After installation and before Substantial Completion, remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.
- 1.27 DISPOSAL
  - A. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

PROJECT NO: 79540	DATE 09.05.20	DES. DR.	CKD.	REVISION		333 North Alabama Street Suite 200 Indianapolis, IN 46204 WOOLPERT ARCHITECTURAL ENGINEERING GROUP, INC. PLAINFIELD, INDIANA	S&K		
				No.	DATE			Per City of Plainfield comments	Per City of Plainfield comments
				1	09.23.19			Per City of Plainfield comments	Per City of Plainfield comments
				2	10.10.19			Per City of Plainfield comments	Per City of Plainfield comments
				3	10.18.19</				

**IRRIGATION SCHEDULE**

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI
Q H F	Rain Bird 1806-PRS 5 Series MPR Turf Spray 6.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. Pressure Regulating.	24	30
Q T H F	Rain Bird 1806-PRS 8 Series MPR Turf Spray 6.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. Pressure Regulating.	42	30
Q T H F	Rain Bird 1806-PRS 10 Series MPR Turf Spray 6.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. Pressure Regulating.	32	30
Q T H F	Rain Bird 1806-PRS 12 Series MPR Turf Spray 6.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. Pressure Regulating.	9	30
Q T H F	Rain Bird 1806-PRS 15 Series MPR Turf Spray 6.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. Pressure Regulating.	11	30
8 08HE-WAN 12 12HE-WAN 10 10HE-WAN 15 15HE-WAN	Rain Bird 1806-PRS ADJ Turf Spray 6.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. Pressure Regulating.	8	30
EST LCS RCS CST SST	Rain Bird 1812-PRS 15 Strip Series Shrub Spray 12.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. With Pressure Regulating Device.	28	25
Q H F	Rain Bird 1812-PRS 5 Series MPR Shrub Spray 12.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. With Pressure Regulating Device.	23	25
Q T H F	Rain Bird 1812-PRS 8 Series MPR Shrub Spray 12.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. With Pressure Regulating Device.	68	25
Q T H F	Rain Bird 1812-PRS 10 Series MPR Shrub Spray 12.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. With Pressure Regulating Device.	55	25
Q T H F	Rain Bird 1812-PRS 12 Series MPR Shrub Spray 12.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. With Pressure Regulating Device.	35	25
Q T H F	Rain Bird 1812-PRS 15 Series MPR Shrub Spray 12.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. With Pressure Regulating Device.	9	25
8 08HE-WAN 12 12HE-WAN 10 10HE-WAN 15 15HE-WAN	Rain Bird 1812-PRS ADJ Shrub Spray 12.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. With Pressure Regulating Device.	7	25

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
⊕	Rain Bird PGA Globe 1" 1", 1-1/2", 2" Electric Remote Control Valve, Globe.	11
⊕	Rain Bird PGA Globe 1" 1", 1-1/2", 2" Electric Remote Control Valve, Globe.	11
BF	Febco 765 1" Pressure Vacuum Breaker, brass with ball valve SOV. Install 12" (305MM) above highest downstream outlet and the highest point in the downstream piping.	1
C	Rain Bird ESP8LXMEF with (03) ESPLXMS4 20 Station Commercial Controller. Mounted on a Plastic Wall Mount. Flow Sensing and Water Management Capabilities.	1
M	Water Meter 1" Basis of design 37.50 gpm @ 54.99 psi, contractor to verify and size accordingly	1
---	Irrigation Lateral Line: PVC Class 200 SDR 21 1" Only lateral transition pipe sizes 1 1/4" and above are indicated on the plan, with all others being 1" in size.	3,183 l.f.
---	Irrigation Lateral Line: PVC Class 200 SDR 21 1 1/2" Only lateral transition pipe sizes 1 1/4" and above are indicated on the plan, with all others being 1" in size.	176.1 l.f.
---	Irrigation Mainline: PVC Class 200 SDR 21 1 1/2" Only lateral transition pipe sizes 1 1/4" and above are indicated on the plan, with all others being 1" in size.	78.8 l.f.
---	Irrigation Mainline: PVC Class 200 SDR 21 2" Only lateral transition pipe sizes 1 1/4" and above are indicated on the plan, with all others being 1" in size.	626.1 l.f.
---	Pipe Sleeve: PVC Schedule 40	82.6 l.f.

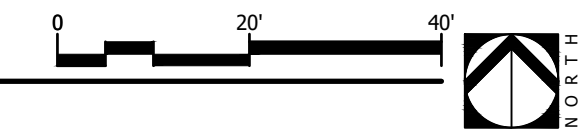


**QUANTITY TAKEOFF DISCLAIMER:**  
 QUANTITIES NOTED ON PLANS ARE OFFERED AS A  
 CONVENIENCE TO THE CONTRACTOR FOR BID PURPOSES ONLY.  
 CONTRACTOR SHALL VERIFY ALL QUANTITIES AND REPORT ANY  
 DISCREPANCIES TO THE LANDSCAPE ARCHITECT.

**NOTE:**  
 MAINLINE AND VALVES SHOWN OUTSIDE OF TRENCH  
 FOR GRAPHIC CLARITY. ALL EQUIPMENT AND PIPE  
 SHALL BE WITHIN PROPERTY BOUNDARIES UNLESS  
 OTHERWISE NOTED. SLEEVE SIZES TO BE  
 DETERMINED BY CONTRACTOR.



**1 OVERALL IRRIGATION PLAN**  
 Scale: 1" = 10'



PROJECT No.	DATE	REVISION
79540	09.23.19	Per City of Plainfield comments
09.05.20	10.10.19	Per City of Plainfield comments
	10.18.19	Per City of Plainfield comments
	12.20.19	Per City of Plainfield comments
	01.16.20	Per City of Plainfield comments

333 North Alabama Street  
 Suite 200  
 Indianapolis, IN 46204  
 317.299.7500  
 FAX: 317.291.5805

**WOOLPERT**  
 ARCHITECTURAL ENGINEERING GROUP

**RESIDENCE INN  
 THE SHOPS AT PERRY CROSSING**

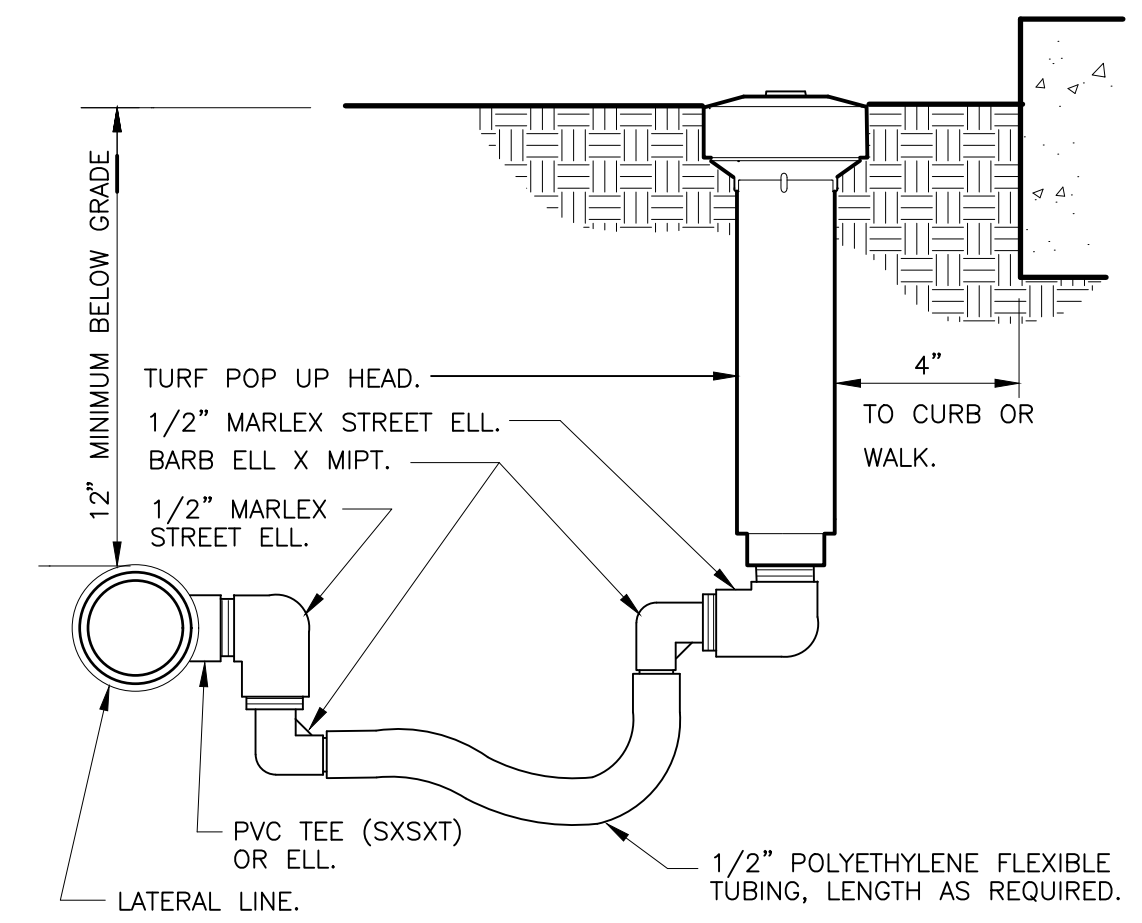
PLAINFIELD, INDIANA

SHEET NO.  
**LI100**

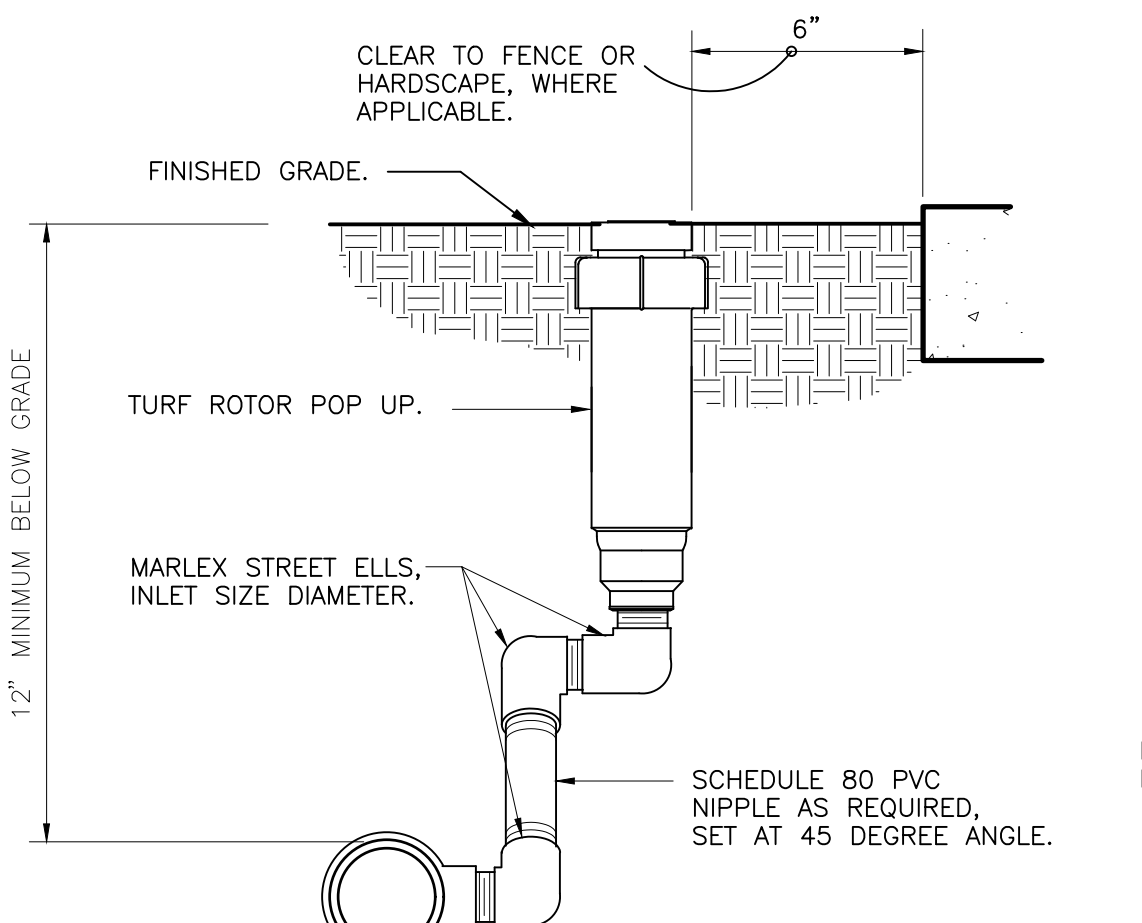
SECTION 328400 - PLANTING IRRIGATION

- 1.1 RELATED DOCUMENTS  
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- 1.2 SUMMARY  
A. Section Includes:  
1. Piping.  
2. Manual valves.  
3. Automatic control valves.  
4. Sprinklers.  
5. Controllers.  
6. Boxes for automatic control valves.
- 1.3 DEFINITIONS  
A. Circuit Piping: Downstream from control valves to sprinklers, specialties, and drain valves. Piping is under pressure during flow.  
B. Main Piping: Downstream from point of connection to water distribution piping to, and including, control valves. Piping is under water-distribution-system pressure.  
C. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control, signaling power-limited circuits.
- 1.4 PERFORMANCE REQUIREMENTS  
A. Irrigation zone control shall be automatic operation with controller and automatic control valves.  
B. Location of Sprinklers and Specialties: Design location is approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards. Maintain 100 percent irrigation coverage of areas indicated.  
C. Minimum Working Pressures: The following are minimum pressure requirements for piping, valves, and specialties unless otherwise indicated:  
1. Irrigation Main Piping: 200 psig.  
2. Circuit Piping: 150 psig.
- 1.5 ACTION SUBMITTALS  
A. Product Data: For each type of product indicated, include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- 1.6 INFORMATIONAL SUBMITTALS  
A. Qualification Data: For qualified installer.  
B. Zoning Chart: Show each irrigation zone and its control valve.  
C. Controller Timing Schedule: Indicate timing settings for each automatic controller zone.  
D. Field quality-control reports.
- 1.7 CLOSEOUT SUBMITTALS  
A. Operation and Maintenance Data: For sprinklers and controllers to include in operation and maintenance manuals.
- 1.8 QUALITY ASSURANCE  
A. Installer Qualifications: An employer of workers that include a supervisor with at least five years of experience on projects of similar size, scope, and budget.  
B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- 1.9 DELIVERY, STORAGE, AND HANDLING  
A. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.  
B. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.
- 1.10 PROJECT CONDITIONS  
A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:  
1. Notify Owner no fewer than two days in advance of proposed interruption of water service.  
2. Do not proceed with interruption of water service without Owner's written permission.
- 1.11 PIPES, TUBES, AND FITTINGS  
A. Comply with requirements in the piping schedule for applications of pipe, tube, and fitting materials, and for joining methods for pipe services, sizes, locations, and pipe sizes.  
B. Galvanized-Steel Pipe: ASTM A 53/A 53M, Standard Weight, Type E, Grade B.  
1. Malleable-Iron Unions: ASME B16.39, Class 150, hexagonal-stock body with ball-and-socket, metal-to-metal, bronze seating surface, and female threaded ends.  
2. Cast-Iron Flanges: ASME B16.1, Class 125.  
C. PE Pressure Pipe: AWWA C900, with DR of 7.3, 9, or 9.3 and PE compound number required to give pressure rating not less than 200 psig.  
D. PVC Pipe: ASTM D 1785, PVC 1120 compound, Schedule 40.  
1. PVC Socket Fittings: ASTM D 2464, Schedule 40.  
2. PVC Threaded Fittings: ASTM D 2464, Schedule 40.  
3. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket or threaded ends.  
E. PVC Pipe, Pressure Rated: ASTM D 2241, PVC 1120 compound, SDR 26.  
1. PVC Socket Fittings: ASTM D 2467, Schedule 80.  
2. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket or threaded ends.
- 1.12 PIPING JOINING MATERIALS  
A. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick unless otherwise indicated; full-face or ring type unless otherwise indicated.  
B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.  
C. Brazing Filler Metals: AWS A5.8/A5.8M, BcUP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.  
D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.  
E. Solvent Cements for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.  
F. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.
- 1.13 MANUAL VALVES  
A. Plastic Ball Valves:  
1. Description:  
a. Standard: MSS SP-122.  
b. Pressure Rating: 125 psig minimum.  
c. Body Material: PVC.  
d. Type: Union.  
e. End Connections: Socket or threaded.  
f. Part: Full.
- 1.14 AUTOMATIC CONTROL VALVES  
A. Plastic, Automatic Control Valves:  
1. Description: Molded-plastic body, normally closed, diaphragm type with manual-flow adjustment, and operated by 24-V ac solenoid.
- 1.15 SPRINKLERS  
A. General Requirements: Designed for uniform coverage over entire spray area indicated at available water pressure.  
B. Plastic, Pop-up Spray Sprinklers:  
1. Description:  
a. Body Material: ABS.  
b. Nozzle: ABS.  
c. Retraction Spring: Stainless steel.  
d. Internal Parts: Corrosion resistant.  
e. Pattern: Fixed, with flow adjustment.  
C. Plastic Shrub Sprinklers:  
1. Description:  
a. Body Material: ABS or other plastic.  
b. Pattern: Fixed, with flow adjustment.
- 1.16 CONTROLLERS  
A. Description:  
1. Controller Stations for Automatic Control Valves: Each station is variable from approximately 5 to 60 minutes. Include switch for manual or automatic operation of each station.  
2. Irrigation controller: As indicated on Drawings.  
3. Control Transformer: 24-V secondary, with primary fuse.  
4. Moisture Sensor: As indicated on Drawings.  
5. Wiring: UL 493, Type UF, multiconductor, with solid-copper conductors; insulated cable, suitable for direct burial.  
a. Feeder-Circuit Cables: No. 12 AWG minimum, between building and controllers.  
b. Low-Voltage, Branch-Circuit Cables: No. 14 AWG minimum, between controllers and automatic control valves; color-coded different from feeder-circuit-cable jacket color; with jackets of different colors for multiple-cable installation in same trench.  
c. Splicing Materials: Manufacturer's packaged kit consisting of insulating, spring-type connector or crimped joint and epoxy resin moisture seal; suitable for direct burial.
- 1.17 BOXES FOR AUTOMATIC CONTROL VALVES  
A. Plastic Boxes:  
1. Description: Box and cover, with open bottom and openings for piping; designed for installing flush with grade.  
a. Size: As required for valves and service.  
b. Shape: Rectangular.  
c. Sidewall Material: PE, ABS, or FRP.  
d. Cover Material: PE, ABS, or FRP.  
1) Lettering: "IRRIGATION."
- 1.18 EARTHWORK  
A. Excavating, trenching, and backfilling are specified in Section 312000 "Earth Moving."  
B. Install warning tape directly above pressure piping, 12 inches below finished grades, except 6 inches below subgrade under pavement and slabs.  
C. Drain Pockets: Excavate to sizes indicated. Backfill with cleaned gravel or crushed stone, graded from 3/4 to 3 inches to 12 inches below grade. Cover gravel or crushed stone with sheet of asphalt-saturated felt and backfill remainder with excavated material.  
D. Provide minimum cover over top of underground piping according to the following:  
1. Irrigation Main Piping: Minimum depth of 24-inches below finished grade, or not less than 18 inches below average local frost depth, whichever is deeper.  
2. Circuit Piping: 12 inches.  
3. Drain Piping: 12 inches.  
4. Sleeves: 24 inches.

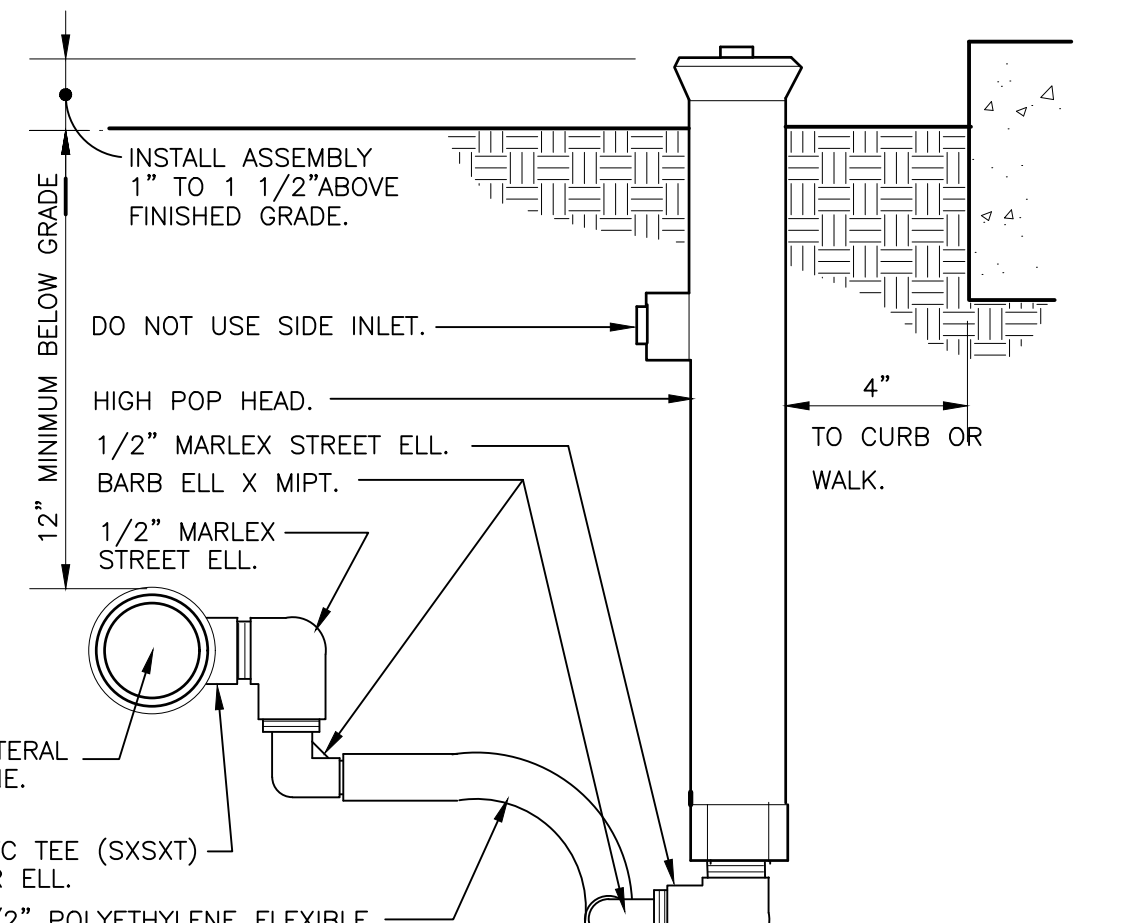
- 1.19 PREPARATION  
A. Set stakes to identify locations of proposed irrigation system. Obtain Architect's approval before excavation.
- 1.20 PIPING INSTALLATION  
A. Location and Arrangement: Drawings indicate location and arrangement of piping systems. Install piping as indicated unless deviations are approved on Coordination Drawings.  
B. Install piping at minimum uniform slope of 0.5 percent down toward drain valves.  
C. Install piping free of sags and bends.  
D. Install groups of pipes parallel to each other, spaced to permit valve servicing.  
E. Install fittings for changes in direction and branch connections.  
F. Install flanges adjacent to valves and to final connections to other components with NPS 2-1/2 or larger pipe connection.  
G. Install underground thermoplastic piping according to ASTM D 2774.  
H. Install expansion loops in control-valve boxes for plastic piping.  
I. Lay piping on solid substrate, uniformly sloped without humps or depressions.  
J. Install PVC piping in dry weather when temperature is above 40 deg F. Allow joints to cure at least 24 hours at temperatures above 40 deg F before testing.  
K. Install piping in sleeves under parking lots, roadways, and sidewalks.  
L. Install sleeves made of Schedule 40 PVC pipe and socket fittings, and solvent-cemented joints.
- 2.1 JOINT CONSTRUCTION  
A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.  
B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.  
C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:  
1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.  
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.  
D. Flanged Joints: Select rubber gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on both threads.  
E. PE Piping Fastener Joints: Join with insert fittings and bands or fasteners according to piping manufacturer's written instructions.  
F. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2857.  
1. Plain-End PE Pipe and Fittings: Use butt fusion.  
2. Plain-End PE Pipe and Socket Fittings: Use socket fusion.  
G. PVC Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:  
1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.  
2. PVC Pressure Piping: Join schedule number, ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2872. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.  
3. PVC Nonpressure Piping: Join according to ASTM D 2855.



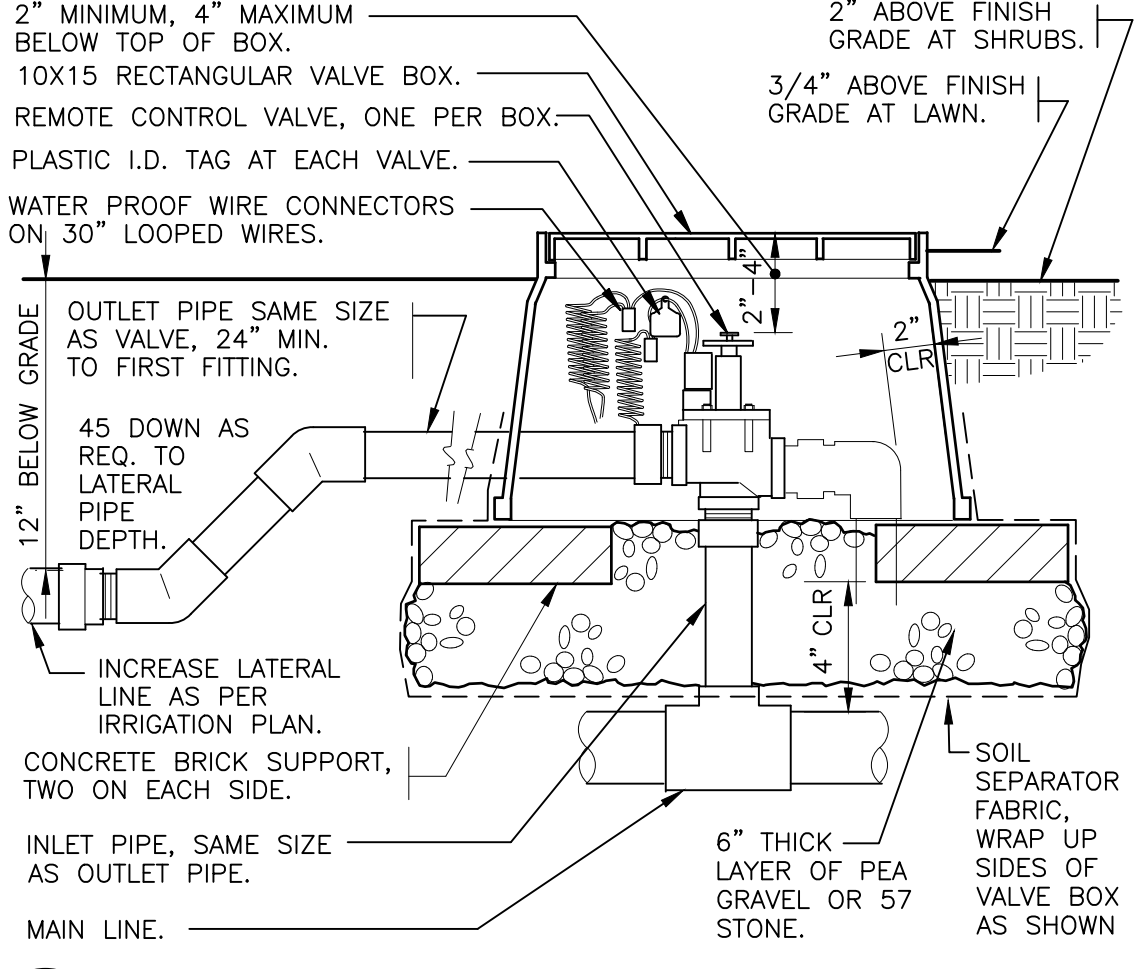
2 TURF SPRAY FLEX ASSEMBLY  
3" = 12" 328413.76-13



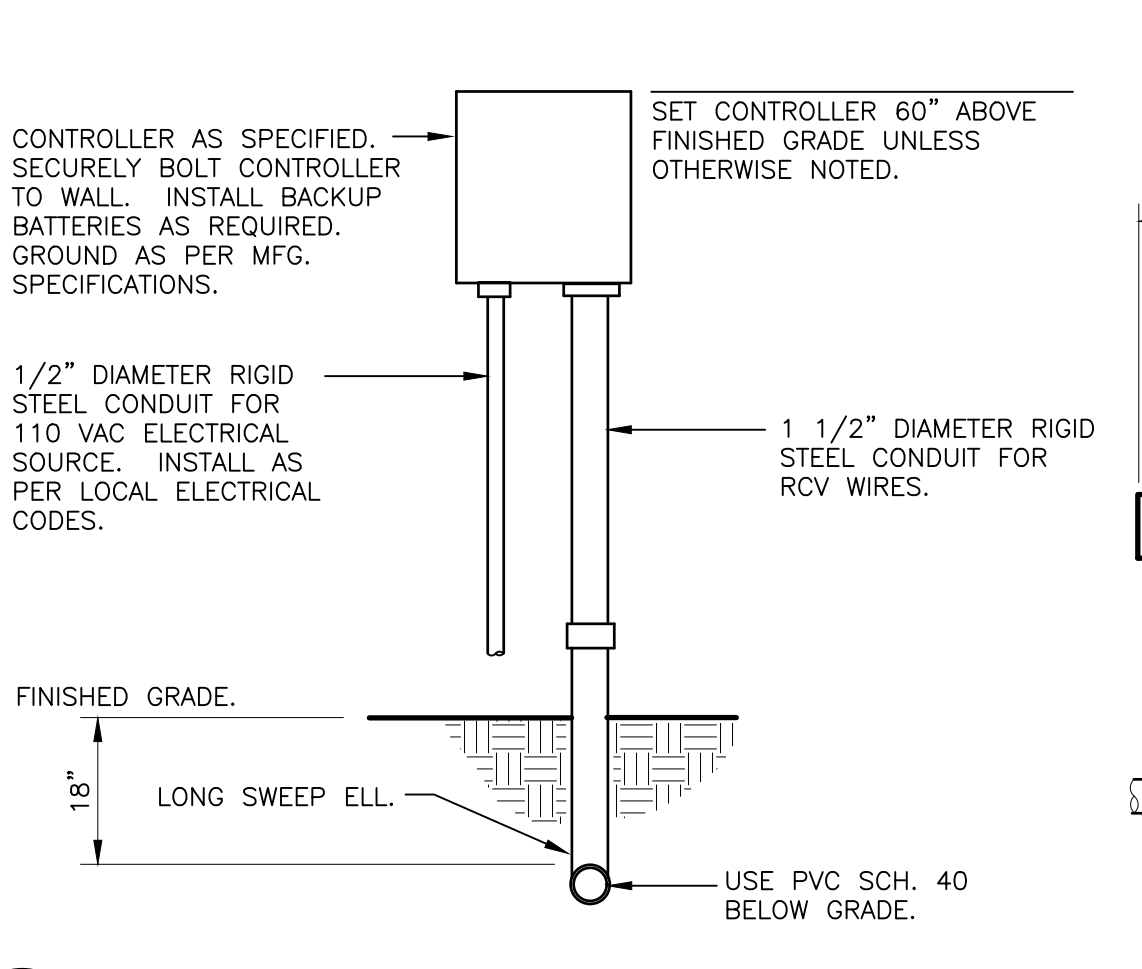
3 TURF ROTOR MARLEX ASSEMBLY  
3" = 12" 328403.16-01



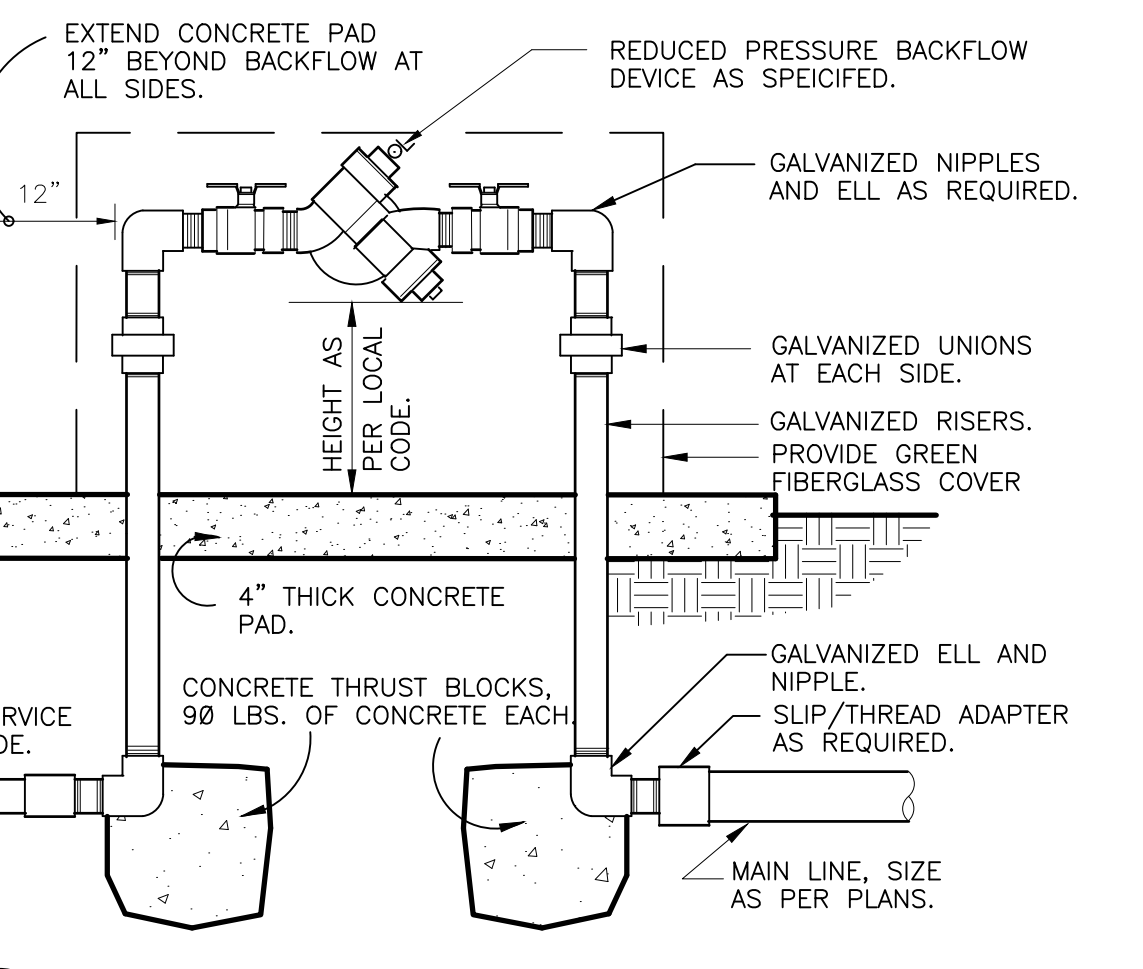
4 SHRUB SPRAY HIGHPOP W/ FLEX ASSEMBLY  
3" = 12" 328403.29-01



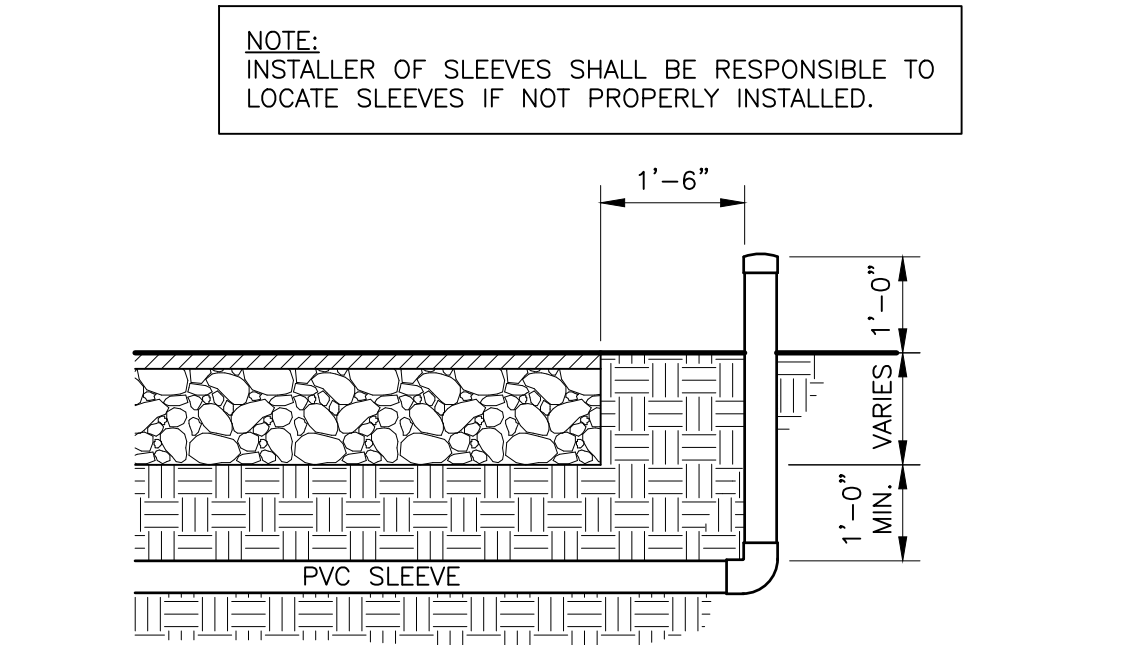
5 ELECTRIC REMOTE CONTROL VALVE  
1 1/2" = 12" 328413.76-13



6 WALL MOUNT CONTROLLER  
1" = 12" 328409.13-01



7 REDUCED PRESSURE BACKFLOW  
1 1/2" = 12" 328409.43-02



8 SLEEVING DETAIL  
1/2" = 1'-0" 328413.76-13

- 1.21 PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2857.  
1. Plain-End PE Pipe and Fittings: Use butt fusion.  
2. Plain-End PE Pipe and Socket Fittings: Use socket fusion.  
G. PVC Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:  
1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.  
2. PVC Pressure Piping: Join schedule number, ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2872. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.  
3. PVC Nonpressure Piping: Join according to ASTM D 2855.
- 1.22 VALVE INSTALLATION  
A. Aboveground Valves: Install as components of connected piping system.  
B. Throttling Valves: Install in underground piping in boxes for automatic control valves.
- 1.23 SPRINKLER INSTALLATION  
A. Install sprinklers after hydrostatic test is completed.  
B. Install sprinklers at manufacturer's recommended heights.  
C. Locate part-circle sprinklers to maintain a minimum distance of 4 inches from walls and 2 inches from other boundaries unless otherwise indicated.
- 1.24 AUTOMATIC IRRIGATION CONTROL SYSTEM INSTALLATION  
A. Equipment Mounting: Install interior controllers on wall.  
1. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.  
2. Install anchor bolts to elevations required for proper attachment to supported equipment.  
B. Install control cable in same trench as irrigation piping and at least 2 inches below or beside piping. Provide conductors of size not smaller than recommended by controller manufacturer. Install cable in separate sleeve under paved areas.
- 1.25 CONNECTIONS  
A. Comply with requirements for piping specified in Section 221113 "Facility Water Distribution Piping" for water supply from exterior water service piping, water meters, protective enclosures, and backflow preventers. Drawings indicate general arrangement of piping, fittings, and specialties.  
B. Install piping adjacent to equipment, valves, and devices to allow service and maintenance.  
C. Connect wiring between controllers and automatic control valves.
- 1.26 IDENTIFICATION  
A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplates and signs on each automatic controller.  
1. Text: In addition to identifying unit, distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.  
B. Warning Tapes: Arrange for installation of continuous, underground, detectable warning tapes over underground piping during backfilling of trenches. See Section 312000 "Earth Moving" for warning tapes.
- 1.27 FIELD QUALITY CONTROL  
A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.  
B. Tests and Inspections:  
1. Leak/Hydrostatic Test: After installation, charge system at 150% of operating pressure continuously for 2 hours with open trenches and observe for leaks. Repair leaks and retest until no leaks exist.  
2. Operational Test: After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.  
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and safeties.  
C. Any irrigation product will be considered defective if it does not pass tests and inspections.  
D. Prepare test and inspection reports.
- 1.28 STARTUP SERVICE  
A. Perform startup service.  
1. Complete installation and startup checks according to manufacturer's written instructions.  
2. Verify that controllers are installed and connected according to the Contract Documents.  
3. Verify that electrical wiring installation complies with manufacturer's submittal.
- 1.29 ADJUSTING  
A. Adjust settings of controllers.  
B. Adjust automatic control valves to provide flow rate at rated operating pressure required for each sprinkler circuit.  
C. Adjust sprinklers and devices, except those intended to be mounted aboveground, so they will be flush with, or not more than 1/2 inch above, finish grade.
- 1.30 CLEANING  
A. Flush dirt and debris from piping before installing sprinklers and other devices.
- 1.31 DEMONSTRATION  
A. Train Owner's maintenance personnel to adjust, operate, and maintain automatic control valves and controllers.
- 1.32 PIPING SCHEDULE  
A. Install components having pressure rating equal to or greater than system operating pressure.  
B. Piping in control-valve boxes and aboveground may be joined with flanges or unions instead of joints indicated.  
C. Underground irrigation main piping, NPS 4 and smaller, shall be one of the following as indicated on Drawings:  
1. Schedule 40, PVC pipe and socket fittings, and solvent-cemented joints.  
2. SDR 21, PVC, pressure-rated pipe; Schedule 80, PVC socket fittings, and solvent-cemented joints.  
3. SDR 26, PVC, pressure-rated pipe; Schedule 40, PVC socket fittings, and solvent-cemented joints.  
D. Circuit piping, NPS 2 and smaller, shall be one of the following as indicated on Drawings:  
1. Schedule 40, PVC pipe and socket fittings, and solvent-cemented joints.  
2. SDR 21, PVC, pressure-rated pipe; Schedule 40, PVC socket fittings, and solvent-cemented joints.  
3. SDR 26, PVC, pressure-rated pipe; Schedule 40, PVC socket fittings, and solvent-cemented joints.  
E. Underground Branches and Offsets at Sprinklers and Devices: Schedule 80, PVC pipe, threaded PVC fittings, and threaded joints.  
1. Option: Plastic swing-joint assemblies, with offsets for flexible joints, manufactured for this application.

GENERAL NOTES:  
1. TYPICAL DETAILS AND SPECIFICATIONS ARE SHOWN FOR CONVENIENCE PURPOSES ONLY, NOT ALL DETAILS AND EQUIPMENT SHOWN MAY BE REQUIRED. PROVIDE FILTER DRAINS AS NEEDED TO PROTECT AGAINST FREEZING BY AUTOMATICALLY DRAINING PIPES.

REVISION	DATE	PROJECT NO.	NO.	PER CITY OF PLAINFIELD COMMENTS
	09.23.19	79540	1	
	10.10.19	09.05.20	2	
	10.18.19	DES.	3	
	12.20.19	DR.	4	
	01.16.20	CKD.	5	

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PLAINFIELD, INDIANA  
FAX: 317.291.5805

RESIDENCE INN  
THE SHOPS AT PERRY CROSSING

SHEET NO. LI500