INDEX OF SHEETS FOR CONSTRUCTION PLANS – THE COLLECTION – PHASE 1

SHEET 0 – ZONING CONDITIONS
SHEET 1 – EXISTING CONDITIONS PLAN
SHEET 2 – SITE PLAN – PHASE 1
SHEET 3 – UTILITY PLAN – PHASE 1
SHEET 3A – UTILITY PLAN ENLARGED 'A' = PHASE 1
SHEET 3B – UTILITY PLAN ENLARGED 'B' – PHASE 1
SHEET 4 – STORM DRAINAGE PLAN – PHASE 1
SHEET 5 – STORM DRAINAGE AREA MAP – PHASE 1
SHEET 6 – STORM DRAINAGE PIPE & STRUCTURE CHART – PHASE 1
SHEET 7 – GRADING PLAN – PHASE 1
SHEET 7A – RETAINING WALL – SPOT ELEVATIONS – PHASE 1
SHEET 8 – SCM #1 WET POND PLANS AND DETAILS – PHASE 1
SHEET 9 – SCM #2 WET POND PLANS AND DETAILS – PHASE 1
SHEET 11 – PRE-DEVELOPMENT DRAINAGE/STORMWATER PLAN
SHEET 12 – POST DEVELOPMENT DRAINGAGE/STORMWATER PLAN – PHASE 1
SHEET 13 – INITIAL EROSION CONTROL PLAN
SHEET 13A – INITIAL EROSION CONTROL PLAN ENLARGED 'A'
SHEET 13B – INITAL EROSION CONTROL PLAN ENLARGED 'B'
SHEET 14 – PHASE 1 EROSION CONTROL PLAN
SHEET 14A – PHASE 1 EROSION CONTROL PLAN ENLARGED 'A'
SHEET 14B – PHASE 1 EROSION CONTROL PLAN ENLARGED 'B'
SHEET 15 – CRANMER PINES STREET PLAN AND PROFILE – PHASE 1
SHEET 16 – HEATHERS MIST ST. PLAN AND PROFILE (PART '1') – PHASE 1
SHEET 18 – ALLEY 1 PLAN AND PROFILE – PHASE 1
SHEET 21 – ALLEY 2 AND ALLEY 3 PLAN AND PROFILE – PHASE 1
SHEET 22 – SANITARY SEWER OUTFALL Y-2 – PHASE 1
SHEET 24 – ROBERTSON STREET IMPROVEMENTS (PART 1) – PHASE 1
SHEET 25 – ROBERTSON STREET IMPROVEMENTS (PART 2) – PHASE 1
SHEET 26 – ROBERTSON STREET PAVEMENT STRIPING – PHASE 1
SHEET 29 – KEITH STREET IMPROVEMENTS – PHASE 1
SHEET 30 – KEITH STREET X-SECTIONS – PHASE 1
SHEET 31 – SIGNAGE AND STRIPPING PLAN – PHASE 1
SHEET 32 – CODE COMPLIANT LANDSCAPE PLAN – PHASE 1
SHEET 32A – TREE REPLACEMENT PLAN – PHASE 1
SHEET 33A – LIGHTING PLAN ROBERTSON ST.
SHEET 34 – TYPICAL ROADWAY SECTIONS
SHEET 35 – SITE DETAILS 1
SHEET 36 – SITE DETAILS 2
SHEET 37 – UTILITY DETAILS 1
SHEET 38 – UTILITY DETAILS 2
SHEET 39 – EROSION CONTROL DETAILS 1
SHEET 40 – EROSION CONTROL DETAILS 2
SHEET 41 – ROBERTSON STREET FEE IN LIEU OF REQUEST
SHEET L100 – COMMUNITY GARDEN SITE PLAN – PHASE 1
SHEET L101 – CENTRAL PARK SITE PLAN – PHASE 1
SHEET L200 – COMMUNITY GARDEN PLANTING PLAN – PHASE 1
SHEET L201 – CENTRAL PARK PLANTING PLAN – PHASE 1
SHEET L400 – PLANTING AND SITE DETAILS – PHASE 1
SHEET L401 – PLANTING AND SITE DETAILS – PHASE 1
SHEET L402 – STANDARD PLANTING DETAILS – PHASE 1

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

SITE PERMITTING APPROVAL

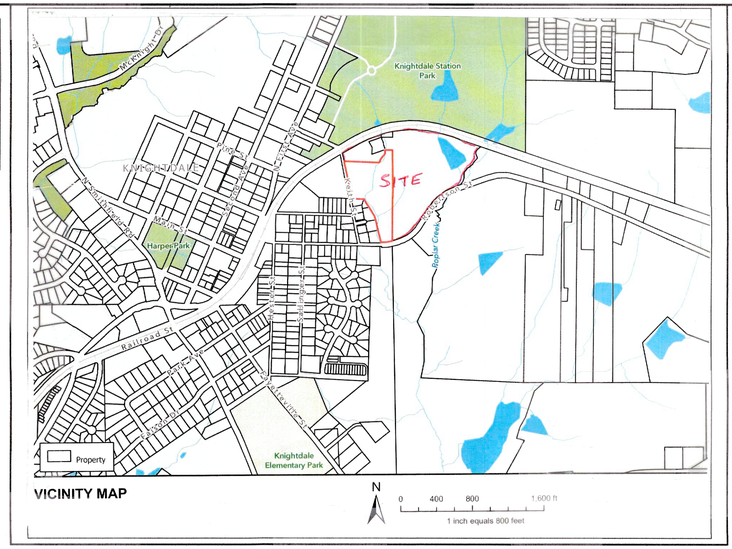
WATER AND SEWER PERMITS

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC SEWER SYSTEM** AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# S-5041

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC WATER SYSTEM** ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# W-3926



VICINITY MAP

OFFSITE SPOIL NOTE:
IF AN OFFSITE SPOIL OR BORROW SITE IS UTILIZED, THEN THE DISTURBED AREA FOR THE SPOIL/BORROW AREA SHALL BE INCLUED/ADDED INTO THE LAND DISTURBANCE PLAN AND PERMIT UNLESS THE SPOIL/BORROW SITE ALREADY HAS A SEPARATE LAND DISTURBANCE PERMIT.

DENUDED AREA = 21.8 AC.

NOTE:
ALL CONSTRUCTION & MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND CORPUD STANDARDS, SPECIFICATIONS, AND DETAILS.

TOWN APPROVED STANDARDS SHALL CONTROL. In the event of a conflict or inconsistency between these construction drawings and the Town of Knightdale's Approved Standards for this project, the Approved Standards shall control. Town of Knightdale Approved Standards shall mean all development documents necessary for approval for the Property including but not limited to, any special use permit, subdivision plan, site plan, subdivision plat(s), phasing schedule, Development Agreement, Utility Allocation Agreement, Annexation Agreement, the Town of Knightdale Standard Specification and Details Manual and applicable provisions of the North Carolina State Building Code.

WATER ALLOCATION REQUEST

POINTS REQUIRED: 50	
POINTS PROVIDED: 50	
– MAJOR SUBDIVISION (5 OR MORE LOTS):	15
– HOUSES AND TOWNHOMES:	15
– OUTDOOR DISPLAY OF PUBLIC ART:	4
– IPEMA CERTIFIED PLAYGROUND EQUIPMENT:	4
– STORMWATER-BIO-RETENTION:	5
– PROVISION OF ON STREET PARKING:	4
– USE OF DROUGHT TOLERANT PLANTINGS:	3

SITE DATA – THE COLLECTION PUD

CURRENT PINS – 1754 53 7747 1754 53 9404 1754 63 0926
1754 53 9814 1754 63 5524

DEVELOPER – TCTBM, LLC
6131 FALLS OF NEUSE ROAD SUITE 200
RALEIGH, NORTH CAROLINA 27609
(919) 247 – 1932

TRACT AREAS:
CURRENT TRACT SIZE – 28.264 ACRES 1,231,186 SF
MEASURED TO Q L OF KEITH ST. AND ROBERTSON ST.

R/W DEDICATION KEITH ST. AND ROBERTSON ST.: 1.274 AC 55,495.44 SF
NET TOTAL TRACT SIZE AFTER R/W DEDICATION – 26.99 ACRES 1,175,684.4 SF

CURRENT LAND USES – VACANT/AGRICULTURE
PROPOSSED LAND USE – MIXED DENSITY LAND USE
CURRENT ZONING: GR8-PUD
INSIDE CITY LIMITS
WATERSHED: LOWER NEUSE RIVER

PROPOSED DENSITY: 3.33 DU/AC
90 PROPOSED LOTS
PROPOSED IMPERVIOUS SURFACE AREA: 9.523 AC
35.28%

TREE SAVE AREA:
REQUIRED TREE SAVE (SITE AREA 26.99 AC)
SITE PERIMETER X 20' (10% OF SITE 2.7 AC. MAX) =
4547 LF X 20' = 91,140 SF 2.09 AC

PROVIDED TREE SAVE AREA:

AREA 1:	11,136 SF	0.26 AC
AREA 2:	15,538 SF	0.36 AC
AREA 3:	30,443 SF	0.70 AC
AREA 4:	10,781 SF	0.25 AC
AREA 5:	25,946 SF	0.60 AC
TOTAL AREA:	93,844 SF	2.15 AC

CONNECTIVITY INDEX: 17 LINKS/12 NODES = 1.42

SETBACKS:

FRONT LOADED SINGLE FAMILY:	12 LOTS
MINIMUM LOT SIZE:	7,500 SF
LOT WIDTH:	60' MIN.
FRONT SETBACK:	10'
MIN. DRIVEWAY LENGTH	20'
SIDE SETBACK:	20% LOT WIDTH (MIN. 5')
REAR SETBACK:	25'
MAX. BUILDING HEIGHT:	3 STORIES
REAR LOADED SINGLE FAMILY:	41 LOTS
MINIMUM LOT SIZE:	4,500 SF
LOT WIDTH:	35' MIN.
FRONT SETBACK:	10'
SIDE SETBACK:	20% LOT WIDTH (MIN. 3')
REAR SETBACK:	20' (FROM CENTER OF ALLEY)
MAX. BUILDING HEIGHT:	3 STORIES
TOWNHOMES:	37 LOTS
MINIMUM FRONT SETBACK:	0'
MAXIMUM FRONT SETBACK:	25'
MINIMUM BUILDING SEPARATION:	10'
REAR SETBACK:	15' (FROM CENTER OF ALLEY)
MAX. BUILDING HEIGHT:	3 STORIES

SITE CONTAINS NO FEMA 100 YEAR FLOOD PLAIN PER 3720175400K DATE 7/19/2022
SITE CONTAINS WETLAND AREAS
SITE CONTAINS NEUSE RIVER BUFFER AREAS.
REFERENCE: SAGE ECOLOGICAL SERVICES, LLC PER APPROVED MASTER PLAN BY MCADAMS: KNIGHTDALE PROJECT # ZMA-6-19 DATED OCT. 14, 2019

ALL WORK AND MATERIALS SHALL CONFORM TO THE TOWN OF KNIGHTDALE DESIGN AND CONSTRUCTION STANDARDS AND NCDOT WATER AND SEWER CONSTRUCTION PER THE CITY OF RALEIGH PUBLIC UTILITY DEPT. DESIGN AND CONSTRUCTION STANDARDS
CONTRACTOR SHALL VERIFY THE ABOVE AND BELOW GROUND LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION
CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY CONFLICTING UTILITIES WITH THE APPROPRIATE UTILITY COMPANY AND/OR AUTHORITY
CONTRTACTOR SHALL VERIFY ALL EXISTING SITE CONDITIONS PRIOR TO THE START OF CONSTRUCTION

*** PROPOSED CONSTRUCTION DRAWING REVISIONS**

1. Add phasing and reduce from 97 to 90 dwelling units.
2. Switch the location of the Rear Load Single Family along Robertson Road with Townhomes for higher denisty dwelling units along higher traffic corridor and less sewer infrastructure.
3. Switch the location of the Central Park to be adjacent to the natural area and SCMs to create a larger and more comprehensive amenity offering.
4. Add pedestrian connectivity from townhomes to open space, additional visitor parking spaces along Alleys and on-street parking along 1 side of Heathers Mist Road.
5. Add three (3) active recreation amenities including a butterfly garden, dog park, and pocket park.
6. Adjust Keith Street and Robertson Road improvements to comply with updates to the Comprehensive Transportation Plan after the original approval of the Construction Drawings.

**REVISED*

CONSTRUCTION PLANS – PHASE 1
THE COLLECTION
PUD
SINGLE FAMILY AND TOWNHOMES DEVELOPMENT

614 KEITH ST.
KNIGHTDALE, NORTH CAROLINA 27545
WAKE COUNTY PINS: 1754 53 7747, 1754 53 9814,
1754 53 9404, 1754 63 5524 AND 1754 63 0926
KNIGHTDALE PROJECT #: ZMA-6-19

OPEN SPACE CALCULATIONS

PHASE 1	# OF UNITS	# OF BR	TOTAL # BR
SINGLE FAMILY HOMES	10	3.5	35
TOWNHOMES	14	2.5	35
			70
PHASE 1	MULTIPLER	SQUARE FT	ACRES
TOTAL OPEN SPACE REQUIRED	260	18,200	0.418
TOTAL OPEN SPACE PROVIDED		189,565	4.35
*based on all proposed units within 1/4 mile of Knightdale Station Park			
PASSIVE OPEN SPACE REQ.		9,100	0.209
PASSIVE OPEN SPACE PROVID.		171,918	3.95
ACTIVE OPEN SPACE REQ.		9,100	0.209
ACTIVE OPEN SPACE PROVID.		17,647	0.40

PHASE 2	# OF UNITS	# OF BR	TOTAL # BR
SINGLE FAMILY HOMES	43	3.5	151
TOWNHOMES	23	2.5	58
			208
PHASE 2	MULTIPLER	SQUARE FT	ACRES
TOTAL OPEN SPACE REQUIRED	260	54,080	1.242
TOTAL OPEN SPACE PROVIDED		388,129	8.91
*based on all proposed units within 1/4 mile of Knightdale Station Park			
PASSIVE OPEN SPACE REQ.		27,040	0.821
PASSIVE OPEN SPACE PROVID.		352,957	8.10
ACTIVE OPEN SPACE REQ.		27,040	0.621
ACTIVE OPEN SPACE PROVID.		35,172	0.81

TOTAL	ACRES	DIFFERENCE	%CHANGE
TOTAL OPEN SPACE APPROVED	10.48		
TOTAL OPEN SPACE REVISED	13.26	+2.78	26.53%
PASSIVE OPEN SPACE APPROV.	9.35		
PASSIVE OPEN SPACE REVISED	12.05	+2.70	28.88%
ACTIVE OPEN SPACE APPROV.	1.13		
ACTIVE OPEN SPACE REVISED	1.21	+0.08	7.08%

PROPOSED IMPERVIOUS AREA BREAKDOWN		
ROADWAYS	132,338.15 SF	3.038 AC
INTERNAL S/W & CONC.	13,459.57 SF	0.309 AC
R/W S/W & SIDE PATH	29,132.35 SF	0.669 AC
LOTS	239,900 SF	5.507 AC
TOTAL IMPERVIOUS AREA:	414,830.07 SF	9.523 AC

NOTE ON LOT IMPERVIOUS:
SINGLE FAMILY FRONT LOAD @ 4,400 SF IMP./LOT
REAR ALLEY LOAD SINGLE FAMILY @ 3,300 SF IMP./LOT
TOWNHOMES @ 1,400 SF IMP./LOT

PROPOSED IMPERVIOUS SURFACE AREA: 9.523 AC
35.28%

PUBLIC IMPROVEMENT QUANTITIES: TOWN OF KNIGHTDALE

	PHASE 1	PHASE 2	TOTAL
Public Street (LF)	1,308	1,227	2,535
Curb and Gutter (LF)	3,830	2,461	6,291
Public Sidewalk (LF)	1,573	2,581	4,154
Public Multi-Use Path (LF)	1,792	0	1,792
Stormdrain (LF)	2,138	2,366	4,504
Tree Protection Fence (LF)	713	789	1,502
# STORM WATER SCM'S	2	1	3

RALEIGH WATER INSPECTIONS QUANTITIES (SUBDIVISIONS & SITE PLANS)

Phase Number(s)	PHASE 1	PHASE 2	TOTAL
Number of Lot(s)	24	66	90
Number of Units	24	66	90
Public Water (LF)	2,600	2,482	5,082
Public Sewer (LF)	1,422	2,105	3,527
Public Force Main (LF)	0	0	0
Private Sewer* (LF)	0	0	0
Water Service Stubs (Quantity)	27	66	93
Sewer Service Stubs (Quantity)	26	67	93
Average Daily Flow per Phase**	5,400	14,850	20,250

*Sewer mains and manholes as part of a collection system.
**Entire Project Flow. Based on 75gpd per bedroom for residential (apartments, single family dwelling, townhouse, condos), or based on 15A NCAC 02T .0114 Wastewater Design Flow Rates for Commercial and Industrial.
The meter size must match domestic service size (exemption – 3/4" service tap with 5/8" meter).

NOTES:

ALL SHOWN INFORMATION FROM A SURVEY BY THE JOHN R. MCADAMS COMPANY, INC. AND APPROVED KNIGHTDALE MASTER PLAN PROJECT #ZMA-6-19 DATED OCT 14, 2019 ALSO BY THE MCADAMS COMPANY

ATTENTION CONTRACTORS:

*THE **CONSTRUCTION CONTRACTOR** RESPONSIBLE FOR THE EXTENSION OF WATER, SEWER, AND/OR REUSE AS APPROVED IN THESE PLANS, IS RESPONSIBLE FOR CONTACTING THE **PUBLIC UTILITIES DEPARTMENT** AT **(919) 996-4540** AT LEAST **TWENTY FOUR HOURS** PRIOR TO BEGINNING ANY OF THEIR CONSTRUCTION.*

***FAILURE** TO NOTIFY BOTH **CITY DEPARTMENTS** IN ADVANCE OF BEGINNING CONSTRUCTION, WILL RESULT IN THE ISSUANCE OF **MONETARY FINES,** AND REQUIRE REINSTALLATION OF ANY WATER OR SEWER FACILITIES NOT INSPECTED AS A RESULT OF THIS NOTIFICATION FAILURE.*

FAILURE** TO CALL FOR **INSPECTION, INSTALL A DOWNSTREAM PLUG,** HAVE **PERMITTED PLANS** ON THE **JOBSITE**, OR ANY OTHER **VIOLATION** OF **CITY OF RALEIGH STANDARDS** WILL RESULT IN A **FINE AND POSSIBLE EXCLUSION** FROM FUTURE WORK IN THE **CITY OF RALEIGH.

TOWN OF KNIGHTDALE CONTACTS:

KNIGHTDALE PUBLIC WORKS
919-217-2250
swengineering@knightdalenc.gov

INSPECTIONS MANAGER, TOK PUBLIC WORKS
JOHN STOVER
919-349-2521
john.stover@knightdalenc.gov

TOWN ESC CONSTRUCTION INSPECTOR
919-919-2254

STORMWATER MANAGER, PUBLIC WORKS
IKE ARCHER
919-217-2255
ike.archer@knightdalenc.gov

STORMWATER TECH, PUBLIC WORKS
919-217-2256

CODE ENFORCEMENT OFFICER, DS
DONOVAN APPLEWHITE
919-217-2248
donovan.applewhite@knightdalenc.gov

REV 5/21/25 FOR UPDATED LAND DISTURBANCE PERMIT

THOMPSON and ASSOCIATES, P.A.
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
TEL. 919 465-1566
C-0343

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

PROFESSIONAL DESIGN ENGINEER CERTIFICATION. These improvements shall be constructed in accordance with the following drawings and with the Standard Specifications of the Town of Knightdale.
I, Randall L. Miller, PE, certify that the Standard Specifications of the town of Knightdale have been thoroughly checked and found to be applicable to this project. All exceptions to the applicable Town standards have been previously approved by the Town of Knightdale and said exceptions are shown on Sheet(s) _____ of the drawings. Specification and Details Manual and applicable provisions of the North Carolina State Building Code.

Seal: NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER

By: Randall L. Miller, PE
Date: 12/19/25

PRELIMINARY DRAWING FOR REVIEW ONLY

REVISIONS:

PLAN PREPARATION DATE	NO.	DATE	DESCRIPTION	BY
7/28/2025	1	8/12/25	IST SUBMITTAL	RLM
	2	10/22/25	IST REVIEW COMMENTS	RLM
	3	12/19/25	IST REVIEW COMMENTS	RLM

TOWN OF KNIGHTDALE

950 Steeple Square Court
Knightdale, NC 27545
KnightdaleNC.gov

ORDINANCE #20-08-19-002
AN ORDINANCE TO AMEND THE UNIFIED DEVELOPMENT ORDINANCE OF THE TOWN OF KNIGHTDALE WHICH INCLUDES THE ZONING DISTRICT MAP

ZMA-6-19 The Collection Planned Unit Development

WHEREAS, the Town of Knightdale has received a petition to amend the zoning of the property from Rural Transition (RT) to General Residneital-8 Planned Unit Development (GR-8 PUD); and

WHEREAS, the Town Council finds the proposed Zoning Map Amendment is consistent with the KnightdaleNext 2035 Comprehensive Plan as it addresses several of the guiding principles including encouraging infill development & redevelopment, providing great neighborhoods & expanded home choices, supporting parks & recreation, promoting compact development patterns, and sustaining the natural environment. It is further consistent with the General Growth Framework, Growth & Conservation, Street Network, and Trails & Greenway Maps. The request is also reasonable and in the public interest as it aids in developing a vibrant, sustainable, and safe community design in which people desire to live, work, and visit;

NOW, THEREFORE, BE IT ORDAINED by the Town Council of the Town of Knightdale, North Carolina:

SECTION 1: That the Unified Development Ordinance of the Town of Knightdale Code, which includes the Zoning District Map, be amended to rezone approximately 28.13 ± acres located within the Town of Knightdale's Corporate Limits and Extra Territorial Jurisdiction located east of Keith Street, and north of Robertson Street, and identified as Wake County PINs 1754-63-5524, 1754-53-9404, 1754-53-7747, 1754-53-9814, and 1754-63-0926 from Rural Transition (RT) to General Residnetial-8 Planned Unit Development (GR-8 PUD) as indicated.

SECTION 2. That the additional conditions contained within the application identified as ZMA-6-19 and PUD document (Exhibit A), and listed below apply as additional zoning conditions to the parcels of land identified as PINs 1754-63-5524, 1754-53-9404, 1754-53-7747, 1754-53-9814, and 1754-63-0926:

1. Townhomes within the proposal will comprise 41.24% of the total number of dwelling units.
2. Single-family dwelling units on lots 60 feet in width will be accessed via a driveway that connects to the fronting public right-of-way. Additionally, front- and rear-loaded single-family dwellings will be served by driveways that are a minimum length of 20' rather than the UDO requirement of 35".
3. Allowance of mass grading the entire site, including lots exceeding the UDO required prohibition on mass grading.
4. Single-Family Dwelling Architectural Standards: In addition to the elevations, the applicant agrees to the Single-Family Dwelling Architectural Standards found in UDO Ch. 5.7 and the additional conditions listed below:
   a. Single-family 2-story homes built on lots at least 60-feet wide will have a minimum of 2,000 square feet and 1-story homes on such lots will be a minimum of 1,600 square feet. Lots that are at least 60-feet wide will have front-loaded two car garages.
   b. Single-family homes built on lots less than 60-square feet will have a minimum of 1,450 square feet and have alley-loaded garages with the exceptions that a maximum of 15% of such homes may be a minimum of 1,450 square feet.
   c. All single-family homes shall be raised from the finished grade a minimum of 18" and shall have stem wall or raised slab foundations that shall be covered on all sides with brick or stone. Areas under porches may be enclosed with lattice.
   d. All single-family homes with a crawl space will be wrapped in brick or stone on all sides.
   e. All single-family homes will have a combination of two or more of the following materials on the front façade (not counting the foundation): stone, brick, lap siding, fiber cement siding, shake or board and batten. All siding will be fiber cement. Vinyl may only be used for soffits, fascia, and corner boards.
   f. All single-family homes will have a front porch with a minimum depth of five (5) feet. Front porch posts will be at least 6"x6".
   g. Main roof pitches (excluding porches) for 2-story homes shall be at least 7:12.
   h. There shall be a 12" overhang on every gable roof end,
   i. Main roof pitches for 1-story and 1.5-story homes will be at least 6:12.
   j. Garages for lots that are at least 60-feet wide will not protrude more than six (6) feet from the front porch or stoop and all garage doors shall over window inserts and hardware.
   k. For every linear 30 feet (or fraction) of continuous side elevation, there shall be one window or door added to the side elevation. Any siding break on the side of the home such as a fireplace, porch, wall offset can be used as an alternative to a window or door.
   l. Garages will not exceed 45% of the front façade width or will be split into two bays.
5. Townhouse Architectural Standards: In addition to the elevations, the applicant agrees to the Townhouse Architectural Standards found in UDO Ch. 5.8 and the additional conditions listed below:
   a. All townhouse units will have alley-loaded two car garages.
   b. All townhouse units shall be raised from the finished grade a minimum of 18" and have stem wall or raised slab foundations that shall be covered on all sides with brick or stone. Areas under porches may be enclosed with lattice.
   c. All townhouse units will have a combination of two or more of the following materials on the front façade (not counting the foundation): stone, brick, lap siding, fiber cement siding, shake or board and batten. All siding will be fiber cement. Vinyl may be used for soffits, fascias, and corner boards.
   d. Usable front porches shall be at least five (5) feet deep and extend more than 30% of the primary façade.
   e. All townhouse units shall provide detailed design elements using at least one (1) of the features from each of the four categories below:
      - Entrance:
        - Recessed entry with 6" minimum width door trim
        - Covered porch with 6" minimum width pillars/posts/columns
      - Building Offset:
        - Façade offset
        - Roofline offset
      - Roof:
        - Dormer
        - Gable
        - Cupola/Tower/Chimney
        - Decorative cornice of roof line (flat roof only)

      And at least two (2) of the following elements:
      - Front Façade:
        - Bay window
        - Balcony
        - Porch
        - Shutters
        - Window trim with 4" minimum width
        - Patterned finish (scales, shakes, wainscoting, brick, or stone)
   f. There shall be a 12" overhang on every gable roof end.
   g. Townhouse building walls shall be wood clapboard, cement fiber board or shingle, wood board and batten, brick, or stone.
   h. Main roofs on townhouse buildings shall have a pitch between 6:12 and 12:12. Monopitch (shed) roofs are allowed only if they are attached to the wall of the main building. Monopitch roofs shall have a pitch of at least 3:12.
   i. For every second and third story of the side elevations, there shall be a minimum of three windows added to the side elevation. Any siding break on the side of the home such as a fireplace or wall offset can be used as an alternate to a window. On the ground floor there shall be at minimum of one window on the side elevations.
   j. The second and third stories of the rear elevation shall have either a balcony and door(s) or windows making up a minimum of 25% of the length of the rear elevation. The percentage is measured as the horizontal plane (lineal feet) containing a balcony and door(s) or windows divided by the total horizontal plane length.
   k. No two townhome units in a building shall have the same exterior paint color scheme.
   l. All townhomes shall be three (3) stories.
6. The submitted site plan (Exhibit A) and PUD Document with home elevations and zoning conditions (Exhibit B) will serve as the site-specific development plan. However, the applicant must submit Construction Drawings to the Town for approval that are in conformance with the approved conditions of the GR-8 PUD zoning district, master plan comments, Unified Development Ordinance, and comments from the October 31, 2019 DRC meeting.

SECTION 3. That all laws and clauses of law in conflict herewith are hereby repealed to the extent of said conflict.

SECTION 4. That if this ordinance or application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions of this ordinance which can be given separate effect and to the end the provisions of this ordinance are declared to be severable.

SECTION 5. That this ordinance has been adopted following a duly advertised public hearing of the Town Council and following review and recommendation by the Land Use Review Board.

SECTION 6. That this ordinance shall be enforced as provided in G.S. 160A-175 or as provided for in the Knightdale Town Code

SECTION 7. That this ordinance shall become effective upon its adoption by Town Council.

Adopted this 19th day of August, 2020

James A. Roberson, Mayor

ATTEST:

Heather M. Smith, Town Clerk

APPROVED AS TO FORM:

Roger Knight, Town Attorney

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

CONSTRUCTION PLANS **SHEET 0**

ZONING CONDITIONS
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
FAX (919) 465-1585
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA			
OWNER: TCTBM, LLC			ZONED PUD
DATE 2/15/21	DRAWN MTH		JOB NO. 20-
SCALE 1" = 60	SURVEYED ----		DWG COLLECTION-SITE
REVISIONS: 12/19/25			PIN: SEE SITE DATA TABLE

PROPERTY CURVE TABLE				
CURVE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C1	1193.80'	635.90'	N 88°33'36" E	628.41'
C2	2198.01'	186.66'	S 73°24'07" E	186.60'
C3	415.71'	230.12'	S 48°35'54" W	227.20'
C4	580.48'	200.27'	S 42°33'17" W	199.28'
C5	571.75'	286.68'	S 70°46'00" W	283.69'
C6	1605.55'	63.58'	S 87°24'03" W	63.57'
C7	1365.59'	318.65'	S 66°21'31" W	317.93'

PROPERTY LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 14°30'01" W	47.06'
L2	N 88°01'36" W	18.39'
L3	N 63°39'41" E	16.65'
L4	N 54°49'03" E	30.82'
L5	N 04°09'46" W	28.45'
L6	N 07°44'48" W	18.23'
L7	N 32°57'08" E	18.23'
L8	N 75°26'51" E	13.71'
L9	N 04°10'22" E	44.06'
L10	N 04°10'22" E	36.52'
L11	N 01°55'47" W	34.75'
L12	N 12°32'57" W	34.75'
L13	N 21°53'45" W	25.40'
L14	N 50°41'47" W	25.40'
L15	N 20°18'12" W	13.80'
L16	N 20°18'12" W	23.98'
L17	S 18°57'15" W	23.17'
L18	S 33°37'38" E	25.58'
L19	S 06°07'03" W	34.34'
L20	S 38°04'15" E	18.15'
L21	S 34°53'45" W	9.01'
L22	S 17°03'59" E	19.44'
L23	S 89°46'45" E	10.32'
L24	S 16°24'44" E	5.43'
L25	N 75°50'52" W	14.02'
L26	S 36°17'51" W	55.17'
L27	S 11°30'45" W	14.30'
L28	S 70°57'34" W	22.39'
L29	N 32°54'46" W	14.37'
L30	S 71°14'02" W	17.09'
L31	S 11°52'36" W	13.89'
L32	S 16°47'46" E	37.00'
L33	S 45°47'43" W	18.54'
L34	S 07°49'18" W	33.34'
L35	S 61°23'21" W	40.02'
L36	N 38°46'44" W	21.30'
L37	S 62°32'29" W	54.07'
L38	S 23°51'10" W	48.67'
L39	S 50°29'55" W	29.16'
L40	N 79°26'15" W	19.86'
L41	S 32°55'51" W	24.78'
L42	S 59°03'01" W	27.50'
L43	S 67°37'41" W	34.62'
L44	S 74°16'22" W	4.13'
L45	S 13°25'14" W	6.75'
L46	S 04°35'54" E	26.25'
L47	N 21°34'02" W	10.00'

NC GRID (NAD83-2011)

NORFOLK SOUTHERN RAILROAD
100' RIGHT OF WAY
B.M. 2018, PG. 750

KEITH STREET
50' PUBLIC R/W
B.M. 1996, PG. 1629

MF DEVELOPMENT LLC
PIN: 1754635524, 1754630926, 1754539404, 1754539814
D.B. 18570 PG. 438
B.M. 1994, PG. 445
1,126,929 SQ.FT.
25.87 AC.

N/F CAROLYN SCHATZ
PIN: 1754536281
D.B. 15871, PG. 1216

N/F CAROLYN SCHATZ
PIN: 1754537168
D.B. 15871, PG. 1216

N/F DWIGHT HIGH
PIN: 1754538007
D.B. 12378, PG. 1155

N/F JOANNE DENNIS
PIN: 1754528935
D.B. 17015, PG. 2134

N/F MAOLA JONES
PIN: 1754528863
D.B. 4657, PG. 15

N/F JAMES POOLE, ETAL
PIN: 1754834965
D.B. 15997, PG. 77

ROBERTSON ROAD (SR 2500)
60' PUBLIC R/W
B.M. 1994, PG. 445

30' CITY OF RALEIGH UTILITY EASEMENT
B.M. 2009, PG. 1282

50' BUFFER FROM TOP OF BANK

200' BUFFER FROM TOP OF BANK

WETLAND WC-1
WETLAND WC-2
WETLAND WC-3
WETLAND WC-4
WETLAND WB-1
WETLAND WB-2
WETLAND WB-3
WETLAND WD

WOODED
OPEN
POND
BARN
SHED
HOUSE
FOOTER
FENCE OVER LINE
SWINGS OVER LINE
SHED OVER LINE 3.2'

TBM CONCRETE MONUMENT =292.98

TBM SET IRON PIPE =309.20

24"CMP=317.35
24"CMP=316.68
36"RCP=301.93
36"RCP=300.93
15"RCP=295.14
30"RCP=290.99
30"RCP=291.49

SS1
RIM=324.00
10"HDPE(N)=312.90
10"HDPE(E)=313.05
10"HDPE(S)=312.75

SS2
RIM=320.49
10"HDPE(N)=310.29
10"HDPE(S)=310.19

SS3
RIM=324.60
10"HDPE(N)=304.45
10"HDPE(S)=303.40

SS4
RIM=307.03
10"HDPE(N)=289.43
10"HDPE(S)=288.63

SS5
RIM=305.80
10"HDPE(N)=285.80
10"HDPE(S)=285.20

SS6
RIM=312.38
10"HDPE(N)=281.38
10"HDPE(S)=281.18

SS7
RIM=313.99
8"HDPE(S)=305.59

SS8
RIM=312.38
8"HDPE(N)=299.40
8"HDPE(N)=296.56
8"HDPE(S)=296.48
8"HDPE(W)=297.16

SS9
RIM=295.64
8"HDPE(S)=289.56
8"HDPE(W)=289.64

LEGEND

(WF)	WETLAND FLAG
O(SZ)	DECIDUOUS P(SZ) EVERGREEN
(S) EXSS1	EXISTING SANITARY SEWER MANHOLE
	EX. FIRE HYDRANT
(W)	EX. WATER METER
WV	EX. WATER VALVE
	EXISTING POWER POLE
	EXISTING FIBER OPTIC MARKER
	EXISTING TELEPHONE PEDESTAL
FOH	EXISTING FIBER OPTIC BOX
	EX. SIGN
AC	EX. AIR CONDITIONER
	EX. CLEANOUT
	EX. ELECTRICAL PANEL
---W---W--	EXISTING WATERLINE
--- EXSS ---	EXISTING SANITARY SEWER
---OU---OU---	EXISTING OVERHEAD UTILITY
---UT---UT---	EXISTING UNDERGROUND UTILITY
---SD---SD---	EXISTING STORM DRAIN
	TREE LINE
+329.06	SPOT ELEV.

0 60 120 180

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER

12/15/2025

PRELIMINARY DRAWING FOR REVIEW ONLY

NOTES:

ALL SHOWN INFORMATION FROM A SURVEY BY THE JOHN R. MCADAMS COMPANY, INC. AND APPROVED KNIGHTDALE MASTER PLAN PROJECT #ZMA-6-19 DATED OCT 14, 2019 ALSO BY THE MCADAMS COMPANY

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

CONSTRUCTION PLANS ***SHEET 1***

EXISTING CONDITIONS PLAN
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 2/15/21	DRAWN MTH	JOB NO. 20-
SCALE 1" = 60	SURVEYED ----	DWG COLLECTION EXCOND
REVISIONS: 3/23/22; 12/19/25		PIN: SEE SITE DATA TABLE

NC GRID (NAD83-2011)

PHASE 1

PHASE 2

EX. 100' RAILROAD R/W

N 59°54'15" E 182.56'

10' TYPE 'B' BUFFER

C1

C2

C7

WETLAND WC-1

WETLAND WC-2

WETLAND WC-3

WETLAND WC-4

HEATHERS MIST ST.
54' PUBLIC R/W

KEITH STREET
EX. 30' PUBLIC R/W
FUTURE 54' PUBLIC R/W

CRANMER PINES ST.
54' PUBLIC R/W

ROBERTSON ST. S.R. 2500
EX. 63' PUBLIC R/W
FUTURE 3 LANE AVENUE
80' PUBLIC R/W

JUTSON STREET

DALE PLACE

ALLEY 1
20' PRIVATE R/W

ALLEY 2
20' PRIVATE R/W

ALLEY 3
20' PRIVATE R/W

ALLEY 4
20' PRIVATE R/W

ALLEY 5
20' PRIVATE R/W

ALLEY 6
20' PRIVATE R/W

CENTRAL PARK
ACTIVE OPEN SPACE
17,647 SF

CENTRAL PARK AREA - PHASE 1
SEE SHEETS L101, L201, L401, & L401
FOR SITE AND PLANTING DETAILS

PHASE 2
CENTRAL PARK
ACTIVE OPEN SPACE
17,672 SF

(57) 18' UNIT
& (1) 10' UNIT
MAIL KIOSKS -
ON 9' X 22'
CONCRETE PAD
& 5 PARKING
SPACES

AREA FOR
PUBLIC ART

ADA PARKING
SIGN

PASSIVE OPEN
SPACE 114,204 SF

PASSIVE OPEN
SPACE 7,334 SF
FLOWER GARDEN

PASSIVE OPEN
SPACE 298,737 SF

PASSIVE OPEN
SPACE 108,705 SF

EX. LAKE
TO REMAIN

PICNIC TABLE
TRASH RECEPTICAL
5' MULCH PATH

5' MULCH PATH

5' MULCH PATH
TRASH RECEPTICAL
PICNIC TABLE

TREE SAVE
AREA 1

TREE SAVE
AREA 2

TREE SAVE
AREA 3

TREE SAVE
AREA 4

TREE SAVE
AREA 5

SCM#1

SCM#2

SCM#3

RETAINING WALL W/
FENCE ALONG TOP

RETAINING WALL W/ FENCE ALONG TOP
SEE DETAIL THIS SHEET

RETAINING WALL W/ FENCE ALONG TOP
SEE DETAIL THIS SHEET

4' BENCH ON
6' X 8' CONC.
PAD. SEE
DETAIL ON
DETAIL SHEET

10' CMU
28' CONC. FRONT

BUTTERFLY GARDEN
SEE SHEETS L100, L200, L400, & L401
FOR SITE AND PLANTING DETAILS

POTENTIAL FUTURE EXTENTION
(BY OTHERS)

EX. CREEK TOP

EX. CREEK TOE

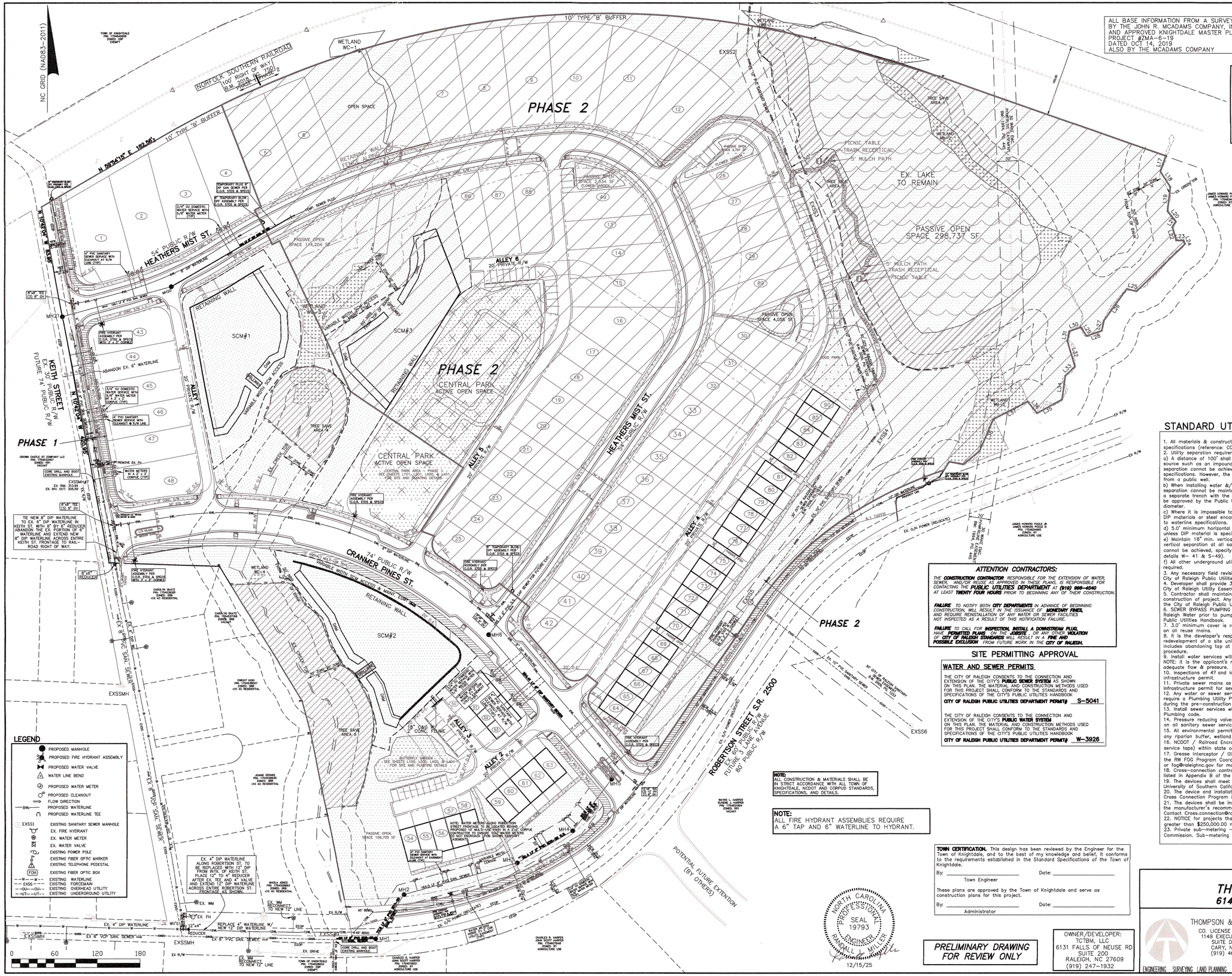
EX. 100 YR FLOOD PLAIN

EX. 50' RIPARIAN BUFFER

EX. 30' NEUSE RIVER BUFFER

EX. 30' WARE DRAINAGE EASEMENT
BK. 1926, PG. 445

EX. 30' CITY OF RALEIGH SANITARY
SEWER EASEMENT
BK. 16826, PG. 1522


PHASE 1
PHASE 2
CENTRAL PARK
ACTIVE OPEN SPACE
CENTRAL PARK AREA = PHASE 1
SEE SHEETS L101, L301, L400, & L401
FOR SITE AND GRADING DETAILS
NORFOLK SOUTHERN RAILROAD
100' RIGHT OF WAY
B.M. 2018, PG. 750
PHASE 2
10' TYPE 'B' BUFFER
WETLAND WC-1
WETLAND WC-2
WETLAND WC-3
WETLAND WC-4
WETLAND WC-5
N 59°54'19" E 182.56'
N 59°54'19" W 850.8'
N 17°09'24" W 450.8'
54' PUBLIC R/W
HEATHERS MIST ST.
74' PUBLIC R/W
CRANMER PINES ST.
KEITH STREET
EX. 50' PUBLIC R/W
FUTURE 74' PUBLIC R/W
ROBERTSON STREET S.R. 2500
80' PUBLIC R/W
FUTURE 3 LANES
ALLEY 1
20' PRIVATE R/W
ALLEY 2
20' PRIVATE R/W
ALLEY 3
20' PRIVATE R/W
ALLEY 4
20' PRIVATE R/W
ALLEY 5
20' PRIVATE R/W
ALLEY 6
20' PRIVATE R/W
SCM#1
SCM#2
SCM#3
RETAINING WALL
FENCE ALONG TOP
PASSIVE OPEN SPACE 174,204 SF
PASSIVE OPEN SPACE 2,834 SF (LOWER GARDEN)
PASSIVE OPEN SPACE 2,331 SF
PASSIVE OPEN SPACE 298,737 SF
PASSIVE OPEN SPACE 4,058 SF
PASSIVE OPEN SPACE 108,705 SF
EX. LAKE TO REMAIN
TREE SAVE AREA 1
TREE SAVE AREA 2
TREE SAVE AREA 3
TREE SAVE AREA 4
TREE SAVE AREA 5
PICNIC TABLE
TRASH RECEPTICAC
5' MULCH PATH
EX. 4" DIP WATERLINE ALONG ROBERTSON ST. TO BE REPLACED WITH 12" DIP FROM INTX. OF KEITH ST. PLACE 12" TO 4" REDUCER AFTER EX. TEE AND 4" VALVE AND EXTEND 12" DIP WATERLINE ACROSS ENTIRE ROBERTSON ST. FRONTAGE AS SHOWN
TIE NEW 8" DIP WATERLINE TO EX. 6" DIP WATERLINE IN KEITH ST. WITH 8" BY 6" REDUCER ABANDON THE EX. PORTION OF 6" WATERLINE AND EXTEND NEW 8" DIP WATERLINE ACROSS ENTIRE KEITH ST. FRONTAGE TO RAIL-ROAD RIGHT OF WAY.
ABANDON EX. 6" WATERLINE
RETAINING WALL
EXSSMH#7
EX. RIM: 313.55
EX. INV. OUT: 308.59
EXSSMH#2
EX. RIM: 313.55
EX. INV. OUT: 308.59
MH1
MH2
MH3
MH4
MH5
MH6
EX. 8" PVC SAN. SEWER
EX. 6" DIP WATERLINE
EX. 4" DIP WATERLINE
EX. WM RECONNECT TO NEW 12" LINE
EX. FH
EX. DRIVE
EX. 8" PVC SAN. SEWER
EX. 6" PVC SAN. SEWER
EX. 10" PVC SANITARY SEWER
30' CITY OF RALEIGH SANITARY SEWER EASEMENT
EX. O/H POWER (RELOCATE)
EX. O/H POWER (RELOCATE)
EX. O/H POWER
EX. R/W
EX. CREEK FLOW
EX. CREEK TOP OF BANK
EX. CREEK TOE OF SLOPE
EX. CREEK TOP OF BANK
EX. CREEK FLOW

NC GRID (NAD83-2011)

PHASE 1

PHASE 2

KEITH STREET
EX. 30' PUBLIC R/W
FUTURE 74' PUBLIC R/W

CRANMER PINES ST.
74' PUBLIC R/W

HEATHERS MIST ST.
54' PUBLIC R/W

ROBERTSON STREET S.R. 2500
EX. 60' PUBLIC R/W
FUTURE 3 LANE AVENUE
80' PUBLIC R/W

ALLEY 1 20' PRIVATE R/W
ALLEY 2 20' PRIVATE R/W
ALLEY 3 20' PRIVATE R/W
ALLEY 4 20' PRIVATE R/W
ALLEY 5 20' PRIVATE R/W

CENTRAL PARK
ACTIVE OPEN SPACE

CENTRAL PARK ACTIVE OPEN SPACE
CENTRAL PARK LOTS 400, & 1401
SEE SHEETS L100, L200, L400, & L401
FOR SITE AND PLANTING DETAILS

SCM#2

WETLAND WC-4

TREE SAVE AREA 4

TREE SAVE AREA 5

BUTTERFLY GARDEN
SEE SHEETS L100, L200, L400, & L401
FOR SITE AND PLANTING DETAILS

PASSIVE OPEN SPACE 108,705 SF

PASSIVE OPEN SPACE 2,247 SF

N 10°42'04" W 420.65'

ABANDON EX. 6" WATERLINE

3/4" CU DOMESTIC WATER SERVICE WITH 5/8" WATER METER IN A 2' x 2' CORPUE (TYP)

4" PVC SANITARY SEWER SERVICE WITH CLEANOUT @ R/W LINE

REMOVE EX. FH

CORE DRILL AND BOOT EXISTING MANHOLE.

EXSSMH#7
EX. RIM: 313.99
EX. INV. OUT: 305.59

WATER METERS IN A 2' x 2' CORPUE (TYP)

8"x8" TEE (3) 8" GV

TIE NEW 8" DIP WATERLINE TO EX. 6" DIP WATERLINE IN KEITH ST. WITH 8" BY 6" REDUCER ABANDON THE EX. PORTION OF 6" WATERLINE AND EXTEND NEW 8" DIP WATERLINE ACROSS ENTIRE KEITH ST. FRONTAGE TO RAIL-ROAD RIGHT OF WAY.

8"x6" REDUCER

FIRE HYDRANT ASSEMBLY PER C.O.R. STDS & SPECS WITH 3' x 3' CORWLE

FIRE HYDRANT ASSEMBLY PER C.O.R. STDS & SPECS

8" TEMPORARY BLOW OFF ASSEMBLY PER C.O.R. STDS & SPECS

CAP SEWER FOR FUTURE EXT.

MH6

MH5

MH4

MH3

MH2

MH1

EXSSMH

EXSSMH#9

EXSS1

EXSS4

EXSS5

EXSS6

CROWN CASTLE GT COMPANY LLC
PIN: 1754533467
ZONED: RR1
VACANT

CAROLYN SHATZ
PIN: 1754536281
ZONED: GRB
<10 AC RESIDENTIAL

CAROLYN SHATZ
PIN: 1754537168
ZONED: GRB
VACANT

DWIGHT HIGH
PIN: 1754538007
ZONED: GRB
<10 AC RESIDENTIAL

JOANIE DENNIS
PIN: 1754528535
ZONED: GRB
<10 AC RESIDENTIAL

MAGLA JONES
PIN: 1754528863
ZONED: GRB
<10 AC RESIDENTIAL

TOWN OF KNIGHTDALE
PIN: 1754528603
ZONED: OSP
EXEMPT

CHARLES R. HARPER
JOHN SCOTT HARPER
PIN: 1754519021
ZONED: RT
AGRICULTURE USE

CHARLES R. HARPER
JOHN SCOTT HARPER
PIN: 1754607946
ZONED: RT
AGRICULTURE USE

WAYNE L. HARPER
EUGENE J. HARPER
PIN: 1754621854
ZONED: RR1
VACANT

EX. 4" DIP WATERLINE ALONG ROBERTSON ST. TO BE REPLACED WITH 12" DIP FROM INTX. OF KEITH ST. PLACE 12" TO 4" REDUCER AFTER EX. TEE, AND 4" VALVE AND EXTEND 12" DIP WATERLINE ACROSS ENTIRE ROBERTSON ST. FRONTAGE AS SHOWN.

EX. WM RECONNECT TO NEW 12" LINE

REPLACE 4" WATERLINE W/ NEW 12" DIP WATERLINE

EX. 4" DIP WATERLINE

EX. WV'S

EX. FH

12"x4" REDUCER

EX. 8" PVC SAN. SEWER

EX. 6" DIP WATERLINE

EX. 10" PVC SANITARY SEWER

30' CITY OF RALEIGH SANITARY SEWER EASEMENT B.M. 2008, PG 1233

EX. O/H POWER (RELOCATE)

EX. O/H POWER (RELOCATE)

EX. DRIVE

CORE DRILL AND BOOT EXISTING MANHOLE.

POTENTIAL FUTURE EXTENTION (BY OTHERS)

NOTE: WATER METERS ALONG ROBERTSON STREET FRONTAGE TO BE LOCATED BEHIND PROPOSED 10' MULTI-USE PATH IN A 2'x2' CORPUE CONTRACTOR TO ENSURE THAT WATER METERS DO NOT ENCROACH UPON SHOWN SANITARY EASEMENTS

LEGEND

- PROPOSED MANHOLE
- PROPOSED FIRE HYDRANT ASSEMBLY
- PROPOSED WATER VALVE
- WATER LINE BEND
- PROPOSED WATER METER
- PROPOSED CLEANOUT
- FLOW DIRECTION
- 8WL — PROPOSED WATERLINE
- PROPOSED WATERLINE TEE
- EXSS1 — EXISTING SANITARY SEWER MANHOLE
- EX. FIRE HYDRANT
- EX. WATER METER
- EX. WATER VALVE
- EXISTING POWER POLE
- EXISTING FIBER OPTIC MARKER
- EXISTING TELEPHONE PEDESTAL
- FOH — EXISTING FIBER OPTIC BOX
- W — W — EXISTING WATERLINE
- EXSS — EXISTING FORCEMAIN
- OU — OU — EXISTING OVERHEAD UTILITY
- UT — UT — EXISTING UNDERGROUND UTILITY

0 60 120 180

0 40 80 120

NOTE:
ALL CONSTRUCTION & MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND CORPUD STANDARDS, SPECIFICATIONS, AND DETAILS.

ALL BASE INFORMATION FROM A SURVEY BY THE JOHN R. MCADAMS COMPANY, INC. AND APPROVED KNIGHTDALE MASTER PLAN PROJECT #ZMA-6-19 DATED OCT 14, 2019 ALSO BY THE MCADAMS COMPANY

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL R. MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

NOTE:
ALL CONSTRUCTION & MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND CORPUD STANDARDS, SPECIFICATIONS, AND DETAILS.

NOTE:
ALL FIRE HYDRANT ASSEMBLIES REQUIRE A 6" TAP AND 6" WATERLINE TO HYDRANT.

SITE PERMITTING APPROVAL

WATER AND SEWER PERMITS

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC SEWER SYSTEM** AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# S-5041

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC WATER SYSTEM** ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# W-3926

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

CONSTRUCTION PLANS *SHEET 3A*

UTILITY PLAN ENLARGED 'A'
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA			
OWNER: TCTBM, LLC			ZONED PUD
DATE 7/28/2025	DRAWN RLM		JOB NO. 20-
SCALE 1" = 40	SURVEYED ----		DWG COLLECTION-UTIL
REVISIONS: 10-22-25; 12-15-25			PIN: SEE SITE DATA TABLE

SITE PERMITTING APPROVAL

WATER AND SEWER PERMITS

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC SEWER SYSTEM** AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# S-5041

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC WATER SYSTEM** ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# W-3926

NOTE:
ALL CONSTRUCTION & MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND CORPUD STANDARDS, SPECIFICATIONS, AND DETAILS.

NOTE:
ALL FIRE HYDRANT ASSEMBLIES REQUIRE A 6" TAP AND 6" WATERLINE TO HYDRANT.

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

0 40 80 120

NC GRID (NAD83-2011)

TOWN OF KNIGHTDALE
PIN: 1754645656
ZONED: OSP
EXEMPT

NORFOLK SOUTHERN RAILROAD
100' RIGHT OF WAY
B.M. 2018, PG. 750

PHASE 1 / PHASE 2

OPEN SPACE

PHASE 2

10' TYPE 'B' BUFFER

N 59°54'15" E 182.56'

N 10°42'04" W 83.95'

54' PUBLIC R/W
HEATHERS MIST ST.

RETAINING WALL W/ FENCE ALONG TOP

8" TEMPORARY BLOW OFF ASSEMBLY PER C.O.R. STDS & SPECS

TEMPORARY PLUG 8" DIP SAN SEWER PER C.O.R. STDS & SPECS

8" TEMPORARY BLOW OFF ASSEMBLY PER C.O.R. STDS & SPECS

TEMP. SEWER PLUG

3/4" CU DOMESTIC WATER SERVICE WITH 5/8" WATER METER (TYP)

4" PVC SANITARY SEWER SERVICE WITH CLEANOUT AT R/W LINE (TYP)

8" x8" TEE (3) 8" GV

MH21

MH20

156± LF 8" PVC SAN. SEWER

6WL - 8" DIP WATERLINE

8" CONC. S/W

5' CONC. S/W

20' D.E.

FIRE HYDRANT ASSEMBLY PER C.O.R. STDS & SPECS WITH 3' x 3' CORNER

ABANDON EX. 6" WATERLINE

KEITH STREET
EX. 50' PUBLIC R/W
FUTURE 74' PUBLIC R/W

20' PRIVATE R/W
ALLEY 1

RETAINING WALL

SCM#1

SCM#3

WETLAND WC-3

VARIABLE WIDTH SCM ACCESS & MAINT. ESMT.

50' NRB FROM TOP OF BANK

EX. CREEK TOP OF BANK

100' ZONE 'A' FEMA

100' ZONE 'B' FEMA

DAM

DAM ACCESS

WETLAND WC-1

WETLAND WB-1

EXSS1

EXSS2

EXSS3

EX. 10" DIP SAN. SEWER

EX. 8" DIP SAN. SEWER

50' CITY OF RALEIGH SANITARY SEWER EASEMENT PER BOOK OF MAPS 2008, PG. 1520

ALLEY 4
20' PRIVATE R/W

ALLEY 6
20' PRIVATE R/W

PASSIVE OPEN SPACE 114,204 SF

PASSIVE OPEN SPACE 2,534 SF
FLOWER GARDEN

PASSIVE OPEN SPACE 2,791 SF
FLOWER GARDEN

CENTRAL PARK
ACTIVE OPEN SPACE

PHASE 2

PICNIC TABLE
TRASH RECEPTICAL
5' MULCH PATH

TREE SAVE AREA

EX. LAKE TO REMAIN

PASSIVE SPACE 2

5' MULCH PATH
TRASH RECEPTICAL
PICNIC TABLE

50'

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 26 27 28 29 43 44 49 86 87 88 89

SHEET 3B

CONSTRUCTION PLANS
UTILITY PLAN ENLARGED 'B'
THE COLLECTION – PHASE 1
614 KEITH ST, KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING, SURVEYING, LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA

OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20-
SCALE 1" = 40	SURVEYED ----	DWG COLLECTION-UTIL
REVISIONS:10-22-25;12-15-25		PIN: SEE SITE DATA TABLE

NOTES:

ALL SHOWN INFORMATION FROM A SURVEY BY THE JOHN R. MCADAMS COMPANY, INC. AND APPROVED KNIGHTDALE MASTER PLAN PROJECT #ZMA-6-19 DATED OCT 14, 2019 ALSO BY THE MCADAMS COMPANY

NOTE:
- ALL WORK AND MATERIALS SHALL BE AS PER THE TOWN OF KNIGHTDALE UDO, TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS, AND/OR CITY OF RALEIGH PUBLIC UTILITY STANDARDS AND NCDOT.

NOTE:
EXACT LOCATION OF THE MULCH PATH TO BE DETERMINED IN THE FIELD TO AVOID ANY TREE REMOVAL IN ZONE 1 OF NEUSE RIVER BUFFER

LEGEND:
- CURB INLET
- DROP INLET
- RCP STORM DRAIN
- STORM DRAIN
- FLOW DIRECTION
- PROPOSED GRADE
- TP — TREE PROTECTION FENCE
- CF — COMBINATON SILT/TREE PROTECTION FENCE
- RETAINING WALL

NC GRID (NAD83-2011)

FOR PIPE AND STRUCTURE SCHEDULES SEE SHEET 6

FOR SCM #1, 2, & 3 INFORMATION SEE SHEETS 8, 9, & 10

FOR PRE DEVELOPMENT DRAINAGE SEE SHEET 11

FOR POST DEVELOPMENT DRAINAGE SEE SHEET 12

FOR EROSION CONTROL SEE SHEETS 13 & 14

FOR PIPE AND STRUCTURE SCHEDULES SEE SHEET 6

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

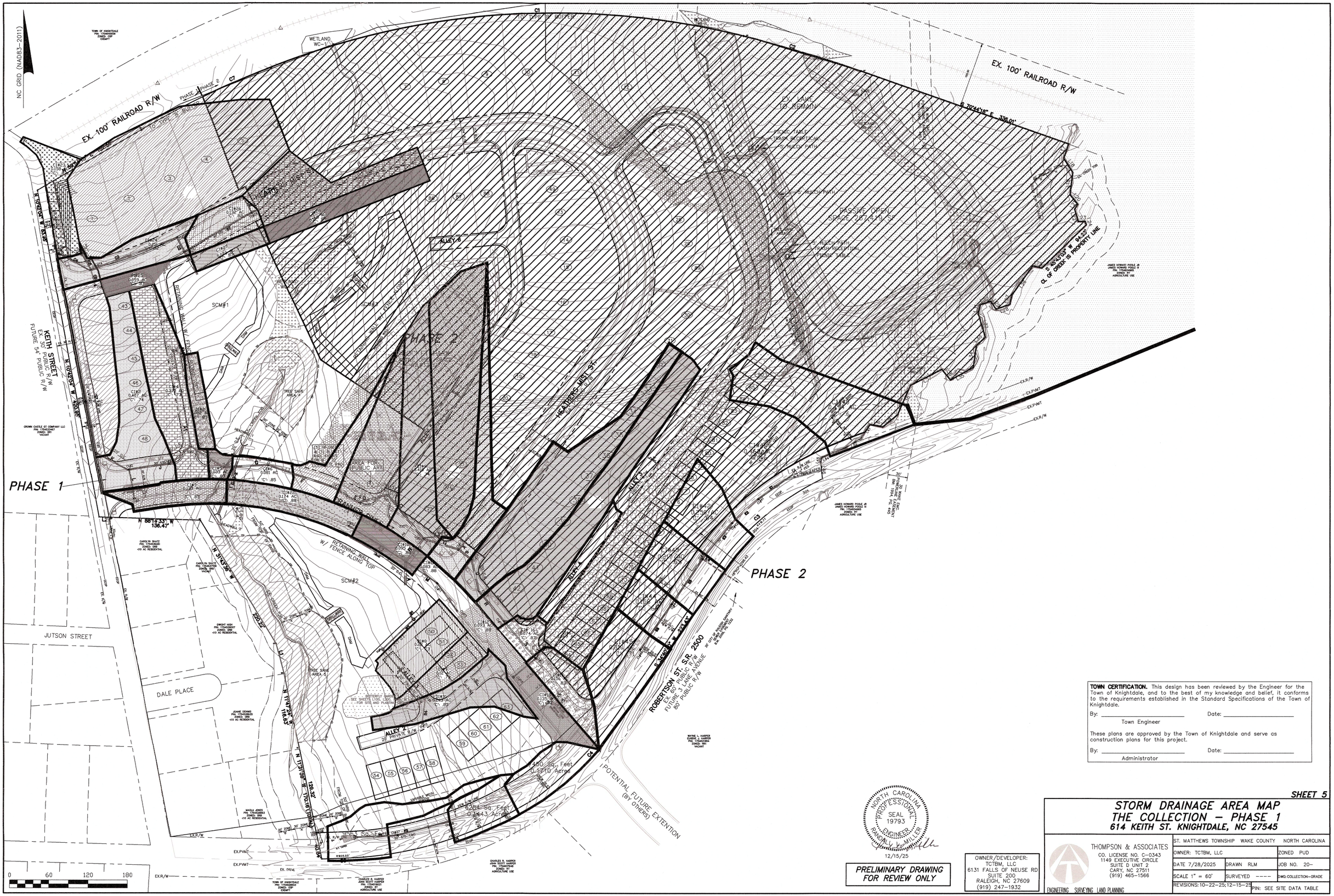
OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

SHEET 4

STORM DRAINAGE PLAN
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20–
SCALE 1" = 60'	SURVEYED ----	DWG:COLLECTION–GRADE
REVISIONS:10–22–25;12–15–25		PIN: SEE SITE DATA TABLE



TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER

12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

SHEET 5

STORM DRAINAGE AREA MAP
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20-
SCALE 1" = 60'	SURVEYED ----	DWG: COLLECTION-GRADE
REVISIONS: 10-22-25;12-15-25		PIN: SEE SITE DATA TABLE

STORM DRAINAGE SCHEDULE SYSTEM #1 DRAINS TO SCM#2

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	Q10	V10	NOTES
A	HDPE	42"	~35'	300.80	300.50	0.86%	7.76 AC	33.00 cfs	6.81 fps	W/ FES ✪ OUTLET
B	HDPE	36"	~44'	301.30	301.00	0.68%	7.32 AC			
C	HDPE	30"	~82'	302.50	301.80	0.85%	2.11 AC			
D	HDPE	30"	~43'	303.20	302.70	1.16%	1.78 AC			
E	HDPE	24"	~47'	305.50	303.40	4.47%	1.63 AC			
F	RCP	24"	~97'	306.20	305.70	0.51%	1.53 AC			
G	RCP	24"	~63'	306.90	306.40	0.79%	1.45 AC			
H	RCP	24"	~60'	307.50	307.10	0.67%	1.42 AC			
I	RCP	24"	~39'	308.00	307.70	0.79%	1.23 AC			
J	RCP	18"	~39'	308.40	308.10	0.78%	0.86 AC			
K	HDPE	18"	~53'	308.80	308.50	0.57%	0.32 AC			
L	HDPE	15"	~43'	308.80	308.50	0.70%	0.13 AC			
M	HDPE	15"	~57'	304.40	304.00	0.70%	0.17 AC			
N	HDPE	15"	~50'	304.90	304.50	0.80%	.09 AC			
O	HDPE	30"	~56'	303.50	302.90	1.07%	4.02 AC			
P	HDPE	30"	~23'	303.80	303.60	0.87%	2.40 AC			
Q	HDPE	30"	~50'	304.20	303.90	0.60%	1.80 AC			
R	HDPE	18"	~56'	304.80	304.50	0.54%	1.28 AC			
S	HDPE	18"	~70'	305.60	305.20	0.54%	0.97 AC			
T	HDPE	15"	~44'	306.70	306.30	0.68%	0.14 AC			
U	HDPE	15"	~21'	307.00	306.40	2.86%	0.67 AC			
V	HDPE	15"	~52'	306.67	306.40	0.53%	0.24 AC			
W	HDPE	15"	~201'	312.80	309.80	2.69%	0.14 AC			
X	HDPE	15"	~97'	306.60	304.00	2.22%	1.21 AC			
Y	HDPE	15"	~125'	310.20	306.90	2.64%	0.96 AC			PHASE 2 CONSTRUCTION
Z	HDPE	15"	~25'	311.00	310.80	0.80%	0.29 AC			
A1	RCP	15"	~141'	312.70	309.30	2.41%	0.11 AC			
A2	HDPE	15"	~102'	304.90	303.20	1.67%	0.17 AC			
A3	HDPE	15"	~34'	305.00	304.00	2.94%	0.62 AC			

STORM STRUCTURE SCHEDULE SYSTEM #1

CRANMER PINES ST

DI#10
CL STA. 15+15.85 23.5' RIGHT
TBOC: 308.24
INV. IN = 301.90 (PIPE B)
INV. IN = 303.20 (PIPE A2)
INV. IN = 303.50 (PIPE A3)
INV. OUT = 300.80 (PIPE A)

CRANMER PINES ST

DI#9
CL STA. 15+15.85 23.5' LEFT
TBOC: 308.24
INV. IN = 301.80 (PIPE C)
INV. IN = 304.00 (PIPE A3)
INV. IN = 302.90 (PIPE O)
INV. OUT = 301.30 (PIPE B)

CRANMER PINES ST

DI#8
CL STA. 14+07.84 17.5' LEFT
TBOC: 309.10
INV. IN = 303.40 (PIPE E)
INV. OUT = 303.20 (PIPE D)

CRANMER PINES ST

DI#7
CL STA. 13+58.94 23.5' LEFT
TBOC: 309.81
INV. IN = 305.70 (PIPE F)
INV. OUT = 305.50 (PIPE E)

SHADY HAVEN LN

DI#3
CL STA. 10+47 ✪ CL OF SHADY HAVEN
GRATE: 310.48
INV. IN = 306.10 (PIPE F)
INV. OUT = 306.00 (PIPE E)

CRANMER PINES ST

DI#6
CL STA. 12+62.84 28.5' LEFT
TBOC: 311.72
INV. IN = 306.40 (PIPE G)
INV. OUT = 306.20 (PIPE F)

CRANMER PINES ST

DI#5
CL STA. 12+00.00 17.5' LEFT
TBOC: 312.66
INV. IN = 307.10 (PIPE H)
INV. OUT = 306.90 (PIPE G)

ALLEY 1

DI#2
CL STA. 12+91.51 ✪ CL OF ALLEY 1
GRATE: 312.71
INV. IN = 307.70 (PIPE I)
INV. IN = 309.30 (PIPE A1)
INV. OUT = 307.50 (PIPE H)

ALLEY 1

DI#1
CL STA. 11+44.85 CL ALLEY 1
GRATE: 317.82

INV. OUT = 312.70 (PIPE A1)

CRANMER PINES ST

DI#4
CL STA. 11+18.48 23.5' LEFT
TBOC: 312.51
INV. IN = 308.10 (PIPE J)
INV. OUT = 308.00 (PIPE I)

CRANMER PINES ST

DI#3
CL STA. 10+58.36 23.5' RIGHT
TBOC: 311.94

INV. OUT = 308.80 (PIPE L)

CRANMER PINES ST

DI#2
CL STA. 10+58.36 23.5' LEFT
TBOC: 311.94
INV. IN = 308.50 (PIPE K)
INV. IN = 308.50 (PIPE L)
INV. OUT = 308.40 (PIPE J)

KEITH ST.

DI#1
CL STA. 18+19.08 15.5' RIGHT
TBOC: 313.60

INV. OUT = 308.80 (PIPE K)

HEATHERS MIST ST

DI#13
CL STA. 26+19.40 13.5" RIGHT
TBOC: 308.95
INV. IN = 304.00 (PIPE X)
INV. OUT = 303.50 (PIPE G)

HEATHERS MIST ST

DI#14
CL STA. 26+19.40 13.5" LEFT
TBOC: 308.95
INV. IN = 303.90 (PIPE Q)
INV. OUT = 303.80 (PIPE P)

CRANMER PINES ST

DI#15
CL STA. 16+27.63 23.5' LEFT
TBOC: 309.03

INV. OUT = 304.20(PIPE Q)

CRANMER PINES ST

DI#16
CL STA. 16+81.93 17.5' LEFT
TBOC: 309.99
INV. IN = 305.20 (PIPE S)
INV. IN = 306.40 (PIPE V)
INV. OUT = 304.80 (PIPE R)

CRANMER PINES ST

DI#17
CL STA. 17+10.74 23.5' LEFT
TBOC: 310.17
INV. IN = 306.30 (PIPE T)
INV. IN = 306.40 (PIPE U)
INV. OUT = 305.60 (PIPE S)

CRANMER PINES ST

DI#18
CL STA. 17+10.74 23.5' RIGHT
TBOC: 310.17

INV. OUT = 306.70 (PIPE T)

OFFSITE (SEE PLANS)

DI#6
GRATE: ~310.00

INV. OUT = 307.00 (PIPE U)

ALLEY 4

DI#4
CL STA. 12+45.62 CL ALLEY 4
GRATE: 317.24
INV. IN = 308.90 (PIPE W)
INV. OUT = 308.70 (PIPE V)

PHASE 2 CONSTRUCTION

ALLEY 4

DI#5
CL STA. 12+63.60 CL ALLEY 4
GRATE: 317.31

INV. OUT = 312.60 (PIPE W)

HEATHERS MIST ST

DI#19
CL STA. 25+31.40 13.5" RIGHT
TBOC: 311.51
INV. OUT = 306.90 (PIPE Y)

HEATHERS MIST ST

DI#20
CL STA. 24+05.57 13.5" RIGHT
TBOC: 315.80
INV. IN = 310.80 (PIPE Z)
INV. OUT = 310.20 (PIPE Y)

HEATHERS MIST ST

DI#21
CL STA. 24+05.57 13.5" LEFT
TBOC: 315.80

INV. OUT = 311.00 (PIPE Z)

OFFSITE — SEE PLANS

DI#7
GRATE: ~308.00

INV. OUT = 305.00 (PIPE A3)

CRANMER PINES ST

DI#11
CL STA. 15+75.20 17.5' RIGHT
TBOC: 308.57
INV. IN = 304.50 (PIPE N)
INV. OUT = 304.40 (PIPE M)

CRANMER PINES ST

DI#12
CL STA. 16+27.63 23.5' RIGHT
TBOC: 309.03

INV. OUT = 304.90 (PIPE N)

CRANMER PINES ST

DI#22
CL STA. 14+08.00 23.5' RIGHT
TBOC: 308.98

INV. OUT = 304.90 (PIPE A2)

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL R. MILLER

12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

STORM DRAINAGE SCHEDULE SYSTEM #2 DRAINS TO SCM#2

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	Q10	V10	NOTES
B1	HDPE	15"	~16'	300.60	300.50	0.63%	0.59 AC	3.07 cfs	4.34 fps	W/ FES ✪ OUTLET
B2	HDPE	15"	~37'	301.00	300.70	0.81%	0.58 AC			
B3	HDPE	15"	~96'	301.60	301.10	0.52%	0.36 AC			
B4	HDPE	15"	~54'	302.00	301.70	0.56%	0.24 AC			

STORM STRUCTURE SCHEDULE SYSTEM #2

SCM #2 INLET

JB#1
RIM: ~307.3
INV. IN = 300.70 (PIPE B2)
INV. OUT = 300.60 (PIPE B1)

ALLEY 3
BEYOND PAVEMENT CL STA. 11+30.29

DI#8
GRATE: ~303.75
INV. IN = 301.10 (PIPE B3)
INV. OUT = 301.00 (PIPE B2)

ALLEY 3

DI#9
CL STA. 10+30.80 ALLEY 3
GRATE: 305.92
INV. IN = 301.70 (PIPE B4)
INV. OUT = 301.60 (PIPE B3)

ALLEY 2

DI#10
CL STA. 11+72.95 ALLEY 2 (SAG)
GRATE: 305.33

INV. OUT = 302.00 (PIPE B4)

STORM DRAINAGE SCHEDULE SYSTEM #3 DRAINS TO SCM#1

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	Q10	V10	NOTES
C1	HDPE	30"	~39'	314.90	311.00	10.00%	2.80 AC	12.12 cfs	10.0 fps	W/ FES ✪ OUTLET
C2	HDPE	24"	~24'	315.20	315.00	0.83%	2.73 AC			
C3	HDPE	24"	~136'	318.50	317.70	0.59%	1.56 AC			
C4	HDPE	15"	~53'	323.10	319.60	6.60%	0.16 AC			
C5	HDPE	18"	~28'	320.60	319.80	2.86%	1.13 AC			
C6	HDPE	15"	~24'	320.60	320.40	0.83%	0.06 AC			
C7	RCP	18"	~116'	322.30	320.90	1.21%	1.04 AC			
C8	RCP	15"	~24'	323.60	322.60	4.17%	0.28 AC			
C9	RCP	15"	~8'	322.60	322.50	1.36%	0.60 AC			
C10	RCP	15"	~24'	327.10	326.10	4.17%	0.29 AC			
C11	RCP	15"	~177'	327.60	326.10	0.85%	0.22 AC			
C12	HDPE	15"	~59'	328.30	327.70	1.02%	0.20 AC			
C13	HDPE	15"	~24'	328.60	328.40	0.83%	0.15 AC			PHASE 2 CONSTRUCTION

STORM STRUCTURE SCHEDULE SYSTEM #3 DRIANS TO SCM#1

KEITH STREET

C#23
CL STA. 19+27.54 15.5' RIGHT
TBOC: 327.96

INV. OUT = 323.10 (PIPE C4)

HEATHERS MIST ST.

C#24
CL STA. 10+58.88 13.5' LEFT
TBOC: 323.78
INV. IN = 319.60 (PIPE C4)
INV. IN = 319.80 (PIPE C5)
INV. IN = 320.40 (PIPE C6)
INV. OUT = 318.50 (PIPE C3)

HEATHERS MIST ST.

C#25
CL STA. 10+58.88 13.5' RIGHT
TBOC: 323.78

INV. OUT = 320.60 (PIPE C6)

OFFSITE LOT #1 SEE PLANS

DI#12

GRATE: ~325.00

INV. OUT = 320.60 (PIPE C5)

HEATHERS MIST ST.

C#26
CL STA. 12+02.00 13.5' LEFT
TBOC: 325.41
INV. IN = 317.70 (PIPE C3)
INV. OUT = 315.20 (PIPE C2)

HEATHERS MIST ST.

C#27
CL STA. 12+02.00 13.5' RIGHT
TBOC: 325.41
INV. IN = 315.00 (PIPE C2)
INV. IN = 320.90 (PIPE C7)
INV. OUT = 314.90 (PIPE C1)

HEATHERS MIST ST.

C#28
CL STA. 13+20.43 13.5" RIGHT
TBOC: 326.75
INV. IN = 322.60 (PIPE C8)
INV. IN = 322.50 (PIPE C9)
INV. OUT = 322.30 (PIPE C7)

HEATHERS MIST ST.

C#29
CL STA. 13+20.43 13.5" LEFT
TBOC: 326.75

INV. OUT = 323.60 (PIPE C8)

HEATHERS MIST ST.

C#30
CL STA. 15+82.55 13.5" RIGHT
TBOC: 329.73
INV. IN = 326.10 (PIPE C10)
INV. IN = 326.10 (PIPE C11)
INV. OUT = 326.00 (PIPE C9)

HEATHERS MIST ST.

C#31
CL STA. 15+82.55 13.5" LEFT
TBOC: 329.73

INV. OUT = 327.10 (PIPE C10)

HEATHERS MIST ST.

C#32
CL STA. 17+68.77 13.5" RIGHT
TBOC: 331.79
INV. IN = 327.70 (PIPE C12)
INV. OUT = 327.60 (PIPE C11)

HEATHERS MIST ST.

C#33
CL STA. 18+35.90 13.5" RIGHT
TBOC: 331.82
INV. IN = 328.40 (PIPE C13)
INV. OUT = 328.30 (PIPE C12)

HEATHERS MIST ST.

C#34
CL STA. 18+35.90 13.5" LEFT
TBOC: 331.82

INV. OUT = 328.60 (PIPE C13)

PHASE 2 CONSTRUCTION

STORM DRAINAGE SCHEDULE SYSTEM #4 DRAINS TO SCM#3

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	Q10	V10	NOTES
D1	HDPE	30"	~32'	312.20	312.00	0.63%	2.47 AC	10.77 cfs	5.51 fps	W/ FES ✪ OUTLET
D2	HDPE	15"	~130'	313.10	312.40	0.54%	0.07 AC			
D3	HDPE	24"	~43'	313.00	312.30	1.63%	2.34 AC			
D4	HDPE	24"	~42'	313.40	313.10	0.71%	2.13 AC			
D5	HDPE	24"	~38'	313.70	313.50	0.53%	2.02 AC			
D6	HDPE	24"	~77'	314.20	313.80	0.52%	1.94 AC			
D7	HDPE	24"	~18'	314.40	314.30	0.56%	1.87 AC			
D8	HDPE	24"	~76'	314.90	314.50	0.53%	1.80 AC			
D9	HDPE	24"	~54'	315.30	315.00	0.56%	1.73 AC			
D10	HDPE	18"	~112'	316.60	316.00	0.54%	1.07 AC			
D11	HDPE	18"	~69'	317.10	316.70	0.57%	0.70 AC			
D12	HDPE	15"	~63'	318.90	317.80	1.75%	0.51 AC			
D13	HDPE	15"	~79'	324.00	319.80	5.32%	0.28 AC			
D14	HDPE	15"	~29'	324.60	324.20	1.40%	0.11 AC			

STORM STRUCTURE SCHEDULE SYSTEM #4

ALLEY 5

DI#13
CL STA. 12+05.00 CL ALLEY 5
GRATE: 316.83

INV. OUT = 313.10 (PIPE 02)

ALLEY 5

DI#14
CL STA. 13+35.00 CL ALLEY 5
GRATE: 323.51
INV. IN = 313.40 (PIPE 02)
INV. IN = 312.90 (PIPE D3)
INV. OUT = 312.20 (PIPE D1)

ALLEY 5

DI#15
CL STA. 13+80.18 ✪ CL ALLEY 5
GRATE: 325.94
INV. IN = 313.10 (PIPE D4)
INV. OUT = 313.00 (PIPE D3)

ALLEY 5

STMH1 (STORM MANHOLE)
CL STA. 15+23.52 5' LEFT
RIM: 328.17
INV. IN = 314.50 (PIPE D5)
INV. OUT = 314.40 (PIPE D4)

SHADY HAVEN LN

DI#15A ADDED DROP INLET
CL STA. 14+62.50 ✪ CL SHADY HAVEN
GRATE: 330.01
INV. IN = 313.80 (PIPE D5)
INV. OUT = 313.70 (PIPE D5)

ALLEY 5

STMH2 (STORM MANHOLE)
CL STA. 15+40.26 5' LEFT
GRATE: 330.88
INV. IN = 314.90 (PIPE D7)
INV. OUT = 314.20 (PIPE D6)

ALLEY 5

DI#16
CL STA. 15+58.14.00 CL ALLEY 5
GRATE: 330.30
INV. IN = 314.50 (PIPE D6)
INV. OUT = 314.40 (PIPE D7)

ALLEY 5

DI#17
CL STA. 16+36.00 CL ALLEY 5
GRATE: 328.02
INV. IN = 315.00 (PIPE D9)
INV. OUT = 314.90 (PIPE D8)

ALLEY 5

DI#18
CL STA. 16+90.00 CL ALLEY 5
GRATE: 328.44
INV. IN = 316.00 (PIPE D10)
INV. IN = 316.80 (PIPE D13)
INV. OUT = 315.30 (PIPE D9)

ALLEY 5

DI#19
CL STA. 18+03.83 CL ALLEY 5
GRATE: 323.59
INV. IN = 316.70 (PIPE D11)
INV. OUT = 316.60 (PIPE D10)

ALLEY 5

DI#20
CL STA. 18+72.51 CL ALLEY 5=
CL STA. 15+47.55 CL ALLEY 6
GRATE: 321.53
INV. IN = 317.80 (PIPE D12)
INV. OUT = 317.10 (PIPE D11)

HEATHERS MIST ST.

CI#36
CL STA. 20+89.50 19.5' RIGHT
TBOC: 328.63
INV. IN = 324.20 (PIPE D14)
INV. OUT = 324.00 (PIPE D13)

HEATHERS MIST ST.

CI#35
CL STA. 20+89.50 13.5' LEFT
TBOC: 328.63

INV. OUT = 324.60 (PIPE D14)

PHASE 2 CONSTRUCTION

ROBERTSON STREET STORM DRAINAGE

STORM DRAINAGE SCHEDULE SYSTEM #6 ROBERTSON ST. S.R. 2500

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	V10		NOTES
F1	RCP	15"	~66'	293.30	293.00	0.45%	0.36 AC	4.01 fps		WITH 15"FES ✪ OUTLET
F2	RCP	15"	~80'	296.30	293.40	3.63%	0.27 AC			

STORM STRUCTURE SCHEDULE SYSTEM #6 ROBERTSON ST. S.R. 2500

ROBERTSON ST.

CI#37
CL STA. 13+62.00 36.5' LEFT CL OF R/W
TBOC: ~296.67
INV. IN = 293.40 (PIPE F2)
INV. OUT = 293.30 (PIPE F1)

ROBERTSON ST.

CI#38
CL STA. 14+50.00 36.5' LEFT CL OF R/W
TBOC: 301.60

INV. OUT = 296.30 (PIPE F2)

ROBERTSON STREET STORM DRAINAGE

STORM DRAINAGE SCHEDULE SYSTEM #5 ROBERTSON ST. S.R. 2500

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	VELOC.		NOTES
E1	RCP	15"	~64'	304.50	303.70	1.25%	0.32 AC			WITH 15" FES ✪ INVERT
E2	RCP	15	~53'	303.60	301.40	4.15%	0.26 AC			
E3	RCP	15"	~68'	301.30	300.20	1.62%	0.39 AC			
E4	RCP	18"		299.64	298.43	2.37%	1.01 AC	7.96 fps		PIPE E-4 IS AN EXISTING 18" RCP UNDER ROBERTSON ST. TO NEW CURB INLET # 43
E5	RCP	18"	~81'	301.60	300.00	1.98%	0.29 AC			
E6	RCP	15"	~82'	304.00	301.70	2.81%	0.20 AC			

STORM STRUCTURE SCHEDULE SYSTEM #5 ROBERTSON ST. S.R. 2500

ROBERTSON ST.

CI#42
CL STA. 19+98.83 36.5' LEFT CL OF R/W
TBOC: 307.37
INV. IN = 301.40 (PIPE E2)
INV. OUT = 301.30 (PIPE E3)

ROBERTSON ST.

CI#44
CL STA. 19+50.00 36.5' LEFT CL OF R/W
TBOC: 308.35
INV. IN = 301.70 (PIPE E6)
INV. OUT = 301.60 (PIPE E5)

ROBERTSON ST.

CI#41
CL STA. 21+47.00 36.5' LEFT CL OF R/W
TBOC: 307.37
INV. IN = 303.70 (PIPE E1)
INV. OUT = 303.60 (PIPE E2)

ROBERTSON ST.

CI#43
CL STA. 20+31.44 36.5' LEFT CL OF R/W
TBOC: 307.50
INV. IN = 300.20 (PIPE E3)
INV. IN = 300.00 (PIPE E5)
INV. OUT = 299.64 (PIPE E4)

ROBERTSON ST.

CI#45
CL STA. 18+68.38 36.5' LEFT CL OF R/W
TBOC: 308.52

INV. OUT = 304.00 (PIPE E6)

STREAM CROSSING STORM DRAINAGE

STORM DRAINAGE SCHEDULE X-PIPE #1

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	Q10	V10	NOTES
X-PIPE 1	RCP	36"	~111'	303.00	302.00	0.90%	8.71 AC	44.63 cfs	8.95 fps	W/ HEADWALL ✪ OUTLET AND INLET

STORM DRAINAGE SCHEDULE X-PIPE #2

PHASE 2 CONSTRUCTION

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	Q10	V10	NOTES
X-PIPE 2	RCP	24"	~112'	320.00	314.00	5.36%	2.30 AC	11.62 cfs	9.53 fps	W/ HEADWALL ✪ OUTLET AND INLET

ENERGY DISSIPATOR SCHEDULE

DISSIPATOR NUMBER	OUTLET PIPE	V25 (FPS)	LG (FT.)	W (FT.)	D50 STONE SIZE (IN.)	MIN. LINING THICK. (IN.)	APRON MATERIAL
D2	X-PIPE 1	8.86	24	9	13	18	CLASS "B" STONE
D3	X-PIPE 2	9.95	16	6	13	18	CLASS "B" STONE

PHASE 2 CONSTRUCTION

USE SPECIFIED STONE FOR EROSION CONTROL
PLACE DISSIPATOR AS PER DETAIL SHOWN ON DETAIL SHEET
WITH REQUIRED UNDERLINER

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

SHEET 6

STORM DRAINAGE PIPE & STRUCTURE SCHEDULE
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566

ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP	WAKE COUNTY	NORTH CAROLINA
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20-
NO SCALE	SURVEYED ----	DWG COLLECTION STM
REVISIONS: 10-3-25; 12-15-25		PIN: SEE SITE DATA TABLE

NOTES:

ALL SHOWN INFORMATION FROM A SURVEY BY THE JOHN R. MCADAMS COMPANY, INC. AND APPROVED KNIGHTDALE MASTER PLAN PROJECT #ZMA-6-19 DATED OCT 14, 2019 ALSO BY THE MCADAMS COMPANY

TOWN OF KNIGHTDALE PROPERTY SITUATED IN WAKE COUNTY, NORTH CAROLINA

NOTE:
- ALL WORK AND MATERIALS SHALL BE AS PER THE TOWN OF KNIGHTDALE UDO, TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS, AND/OR CITY OF RALEIGH PUBLIC UTILITY STANDARDS AND NCDOT.

NOTE:
EXACT LOCATION OF THE MULCH PATH TO BE DETERMINED IN THE FIELD TO AVOID ANY TREE REMOVAL IN ZONE 1 OF NEUSE RIVER BUFFER

LEGEND:

- CURB INLET
- DROP INLET
- RCP STORM DRAIN
- STORM DRAIN
- FLOW DIRECTION
- 298 PROPOSED GRADE
- TP TREE PROTECTION FENCE
- CF COMBINATON SILT/TREE PROTECTION FENCE
- RETAINING WALL

FOR PIPE AND STRUCTURE SCHEDULES SEE SHEET 6

FOR SCM #1, 2, & 3 INFORMATION SEE SHEETS 8, 9, & 10

FOR PRE DEVELOPMENT DRAINAGE SEE SHEET 11

FOR POST DEVELOPMENT DRAINAGE SEE SHEET 12

FOR EROSION CONTROL SEE SHEETS 13 & 14

EROSION CONTROL NOTES:

ALL WAKE COUNTY EROSION CONTROL ORDINANCES SHALL BE CONFORMED TO DURING CONSTRUCTION.
ALL DRAINAGE STRUCTURES AND PIPES SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.
PLACEMENT, LOCATION AND QUANTITY OF EROSION CONTROL DEVICES AND DRAINAGE STRUCTURES MAY ALTER TO BETTER CONFORM TO EXISTING FIELD CONDITIONS IF APPROVED BY THE ENVIRONMENTAL INSPECTOR OF WAKE COUNTY.
CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION.
CONTRACTOR SHALL VERIFY THE LOCATION AF ALL EXISTING UTILITIES (ABOVE AND BELOW GROUND) PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY UTILITY CONFLICTS WITH THE APPROPRIATE UTILITY AUTHORITY.

GENERAL PROJECT NOTES:

CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE, CITY OF RALEIGH, AND WAKE WAKE COUNTY TO REFER TO DURING CONSTRUCTION OF THE PROJECT.

CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING ABOVE AND BELOW GROUND UTILITIES IN THE AREA PRIOR TO CONSTRUCTION AND COORDINATE RELOCATION, IF NEEDED, OF THESE UTILITIES WITH THE APPROPRIATE AUTHORITIES.

ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH WAKE COUNTY SEDIMENT AND EROSION CONTROL STANDARDS AND SPECIFICATIONS.

NOTE ON RETAINING WALLS:

RETAINING WALLS TO BE DESIGNED BY OTHERS
RETAINING WALLS TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS
RETAINING WALLS TO BE AS PER ALL STANDARDS OF INSTALLATION AS OUTLINED BY MANUFACTURER

CONTRACTOR SHALL OBTAIN ALL PERMITS AND APPROVALS FOR RETAINING WALL INSTALLATION

GROUND STABILIZATION REQUIRED WITHIN 7 DAYS FOR PERIMETER AREAS AND FOR SLOPES GREATER THAN 3:1. ALL OTHER AREAS IT IS REQUIRED WITHIN 14 DAYS OF ANY PHASE OF GRADING.

GRADING NOTES:
PRIOR TO GRADING, A GRADING AND EROSION CONTROL PLAN SHALL BE FILED WITH APPROPRIATE AGENCY.
A GRADING PERMIT SHALL BE OBTAINED AS REQUIRED.
ALL GRADING AND EROSION CONTROL REQUIREMENTS OF THE SOIL AND EROSION CONTROL ORDINANCE OF THE GOVERNING AGENCY SHALL BE COMPLIED WITH.

LOCATION, PLACEMENT, AND/OR QUANTITY OF EROSION CONTROL MATERIALS AND/OR DEVICES MAY VARY TO BETTER CONFORM TO FIELD CONDITIONS.

NOTE ON INSPECTIONS:
PROJECT WILL BE SUBJECT TO THE NORTH CAROLINA DIVISION OF LAND RESOURCES SELF INSPECTION PROGRAM. AN EROSION CONTROL INSPECTION WILL BE PREFORMED AFTER EACH PHASE OF GRADING AND THE INSPECTION SHALL BE DOCUMENTED IN WRITING. IT IS RECOMMENDED THAT THE NCDEMLR JOINT INSPECTION FORM BE UTILIZED FOR THIS AND THE REQUIRED NPDES INSPECTIONS.

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

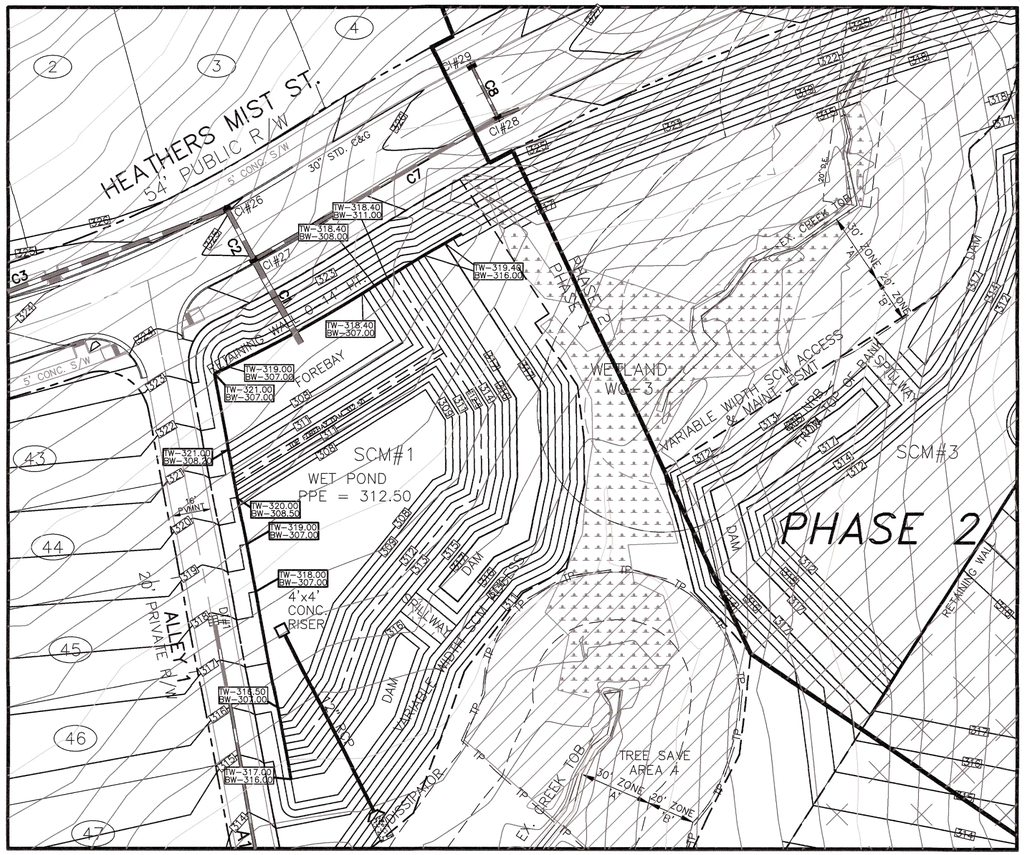
OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

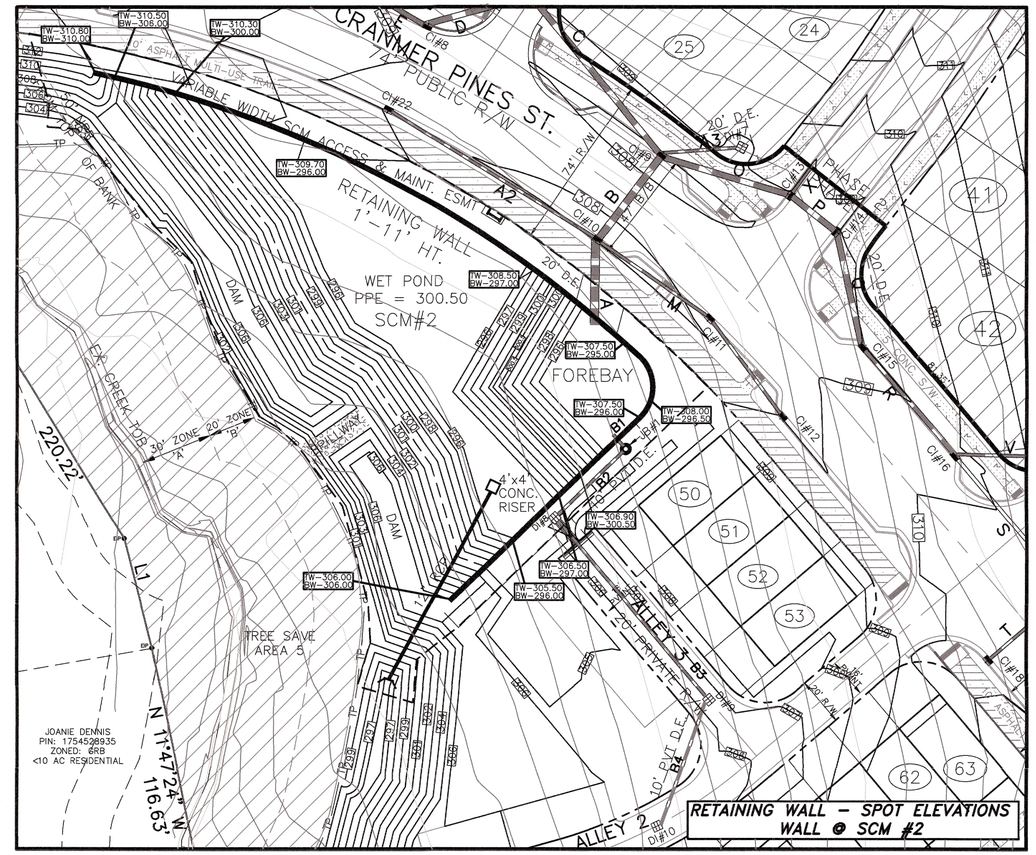
SHEET 7

GRADING AND DRAINAGE PLAN
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20–
SCALE 1" = 60'	SURVEYED ----	DWG: COLLECTION–GRADE
REVISIONS: 10-22-25;12-15-25		PIN: SEE SITE DATA TABLE





LEGEND:

- CURB INLET
- DROP INLET
- RCP STORM DRAIN
- STORM DRAIN
- FLOW DIRECTION
- 298 PROPOSED GRADE
- TP — TREE PROTECTION FENCE
- CF — COMBINATON SILT/TREE PROTECTION FENCE
- RETAINING WALL

FOR PIPE AND STRUCTURE SCHEDULES SEE SHEET 6

FOR SCM #1, 2, & 3 INFORMATION SEE SHEETS 8, 9, & 10

FOR PRE DEVELOPMENT DRAINAGE SEE SHEET 11

FOR POST DEVELOPMENT DRAINAGE SEE SHEET 12

FOR EROSION CONTROL SEE SHEETS 13 & 14

GENERAL PROJECT NOTES:

CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE, CITY OF RALEIGH, AND WAKE WAKE COUNTY TO REFER TO DURING CONSTRUCTION OF THE PROJECT.

CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING ABOVE AND BELOW GROUND UTILITIES IN THE AREA PRIOR TO CONSTRUCTION AND COORDINATE RELOCATION, IF NEEDED, OF THESE UTILITIES WITH THE APPROPRIATE AUTHORITIES.

ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH WAKE COUNTY SEDIMENT AND EROSION CONTROL STANDARDS AND SPECIFICATIONS.

NOTE ON RETAINING WALLS:

RETAINING WALLS TO BE DESIGNED BY OTHERS
RETAINING WALLS TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS
RETAINING WALLS TO BE AS PER ALL STANDARDS OF INSTALLATION AS OUTLINED BY MANUFACTURER

CONTRACTOR SHALL OBTAIN ALL PERMITS AND APPROVALS FOR RETAINING WALL INSTALLATION

NOTES:

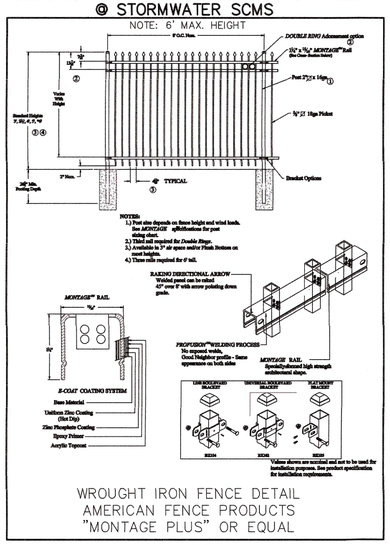
ALL SHOWN INFORMATION FROM A SURVEY BY THE JOHN R. MCADAMS COMPANY, INC. AND APPROVED KNIGHTDALE MASTER PLAN PROJECT #ZMA-6-19 DATED OCT. 14, 2019 ALSO BY THE MCADAMS COMPANY

NOTE:
- ALL WORK AND MATERIALS SHALL BE AS PER THE TOWN OF KNIGHTDALE UDO, TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS, AND/OR CITY OF RALEIGH PUBLIC UTILITY STANDARDS

RETAINING WALL - SPOT ELEVATIONS WALL @ SCM #2

FENCING ALONG TOP OF RETAINING WALLS @ STORMWATER SCMS

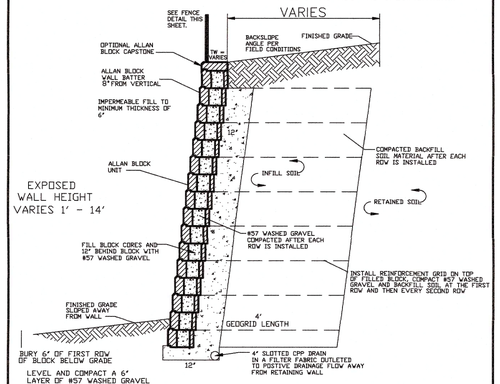
NOTE: 6' MAX. HEIGHT



WROUGHT IRON FENCE DETAIL
AMERICAN FENCE PRODUCTS
"MONTAGE PLUS" OR EQUAL

A GEOTECHNICAL ENGINEER SHALL EVALUATE THE EXISTING SOILS AND SUBSURFACE CONDITIONS IN THE LOCATION OF PROPOSED RETAINING WALL CONSTRUCTION TO DETERMINE FEASIBILITY OF RETAINING WALL CONSTRUCTION

RETAINING WALL DESIGN BASED UPON REQUIRENMENTS AND SPECIFICATIONS FOR THE USE OF ALLAN BLOCK RETAINING WALL SYSTEM AS RELATED TO A REINFORCED WALL DESIGN. ALL WALL MATERIALS AND GEOGRID SHALL BE AS PER ALLAN BLOCK RETAINING WALL STANDARDS AND SPECIFICATIONS.



RETAINING WALL DESIGN SHALL BE APPROVED BY ENGINEERING AND BY BUILDING INSPECTIONS. PERMIT FOR INSTALLATION WITH BE REQUIRED

RETAINING WALL SECTION (NTS)

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
12/15/2025

PRELIMINARY DRAWING FOR REVIEW ONLY

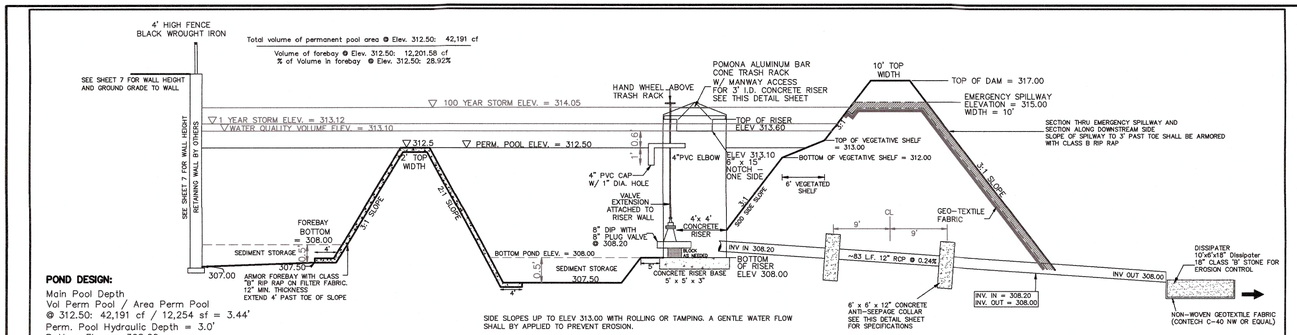
OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

SHEET 7A

RETAINING WALL - SPOT ELEVATIONS THE COLLECTION - PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA			
OWNER: TCTBM, LLC			ZONED PUD
DATE 7/28/2025	DRAWN RLM		JOB NO. 20-
SCALE 1" = 30'	SURVEYED ----		DWG: COLLECTION-GRADE
REVISIONS: 10-3-25; 12-12-25			PIN: SEE SITE DATA TABLE



POND DESIGN:

Main Pool Depth
Vol Perm Pool / Area Perm Pool
@ 312.50: 42,191 cf / 12,254 sf = 3.44'
Perm. Pool Hydraulic Depth = 3.0'
Bottom Elev. = 308.00
Perm Pool Elev. = 312.50
Emergency Spillway Elev. = 315.00
Top of Dam = 317.00
Maximum slopes: 3:1
Required surface area @ perm pool to remove 85% of TSS:
~60% of the drainage area is impervious surface area
For a 3.44' deep pond SA = 1.949% x 3.12 acres = 2,648.83 sf
Proposed surface area SA @ Elev. 312.50: 12,254 sf

SEE THIS DETAIL SHEET FOR INFORMATION ON WET POND, ITS COMPONENTS, SPECIFICATIONS, AND DETAILS. ALSO SEE THIS SHEET FOR INFORMATION ON VEGETATION PLANTINGS ALONG POND SHELF.

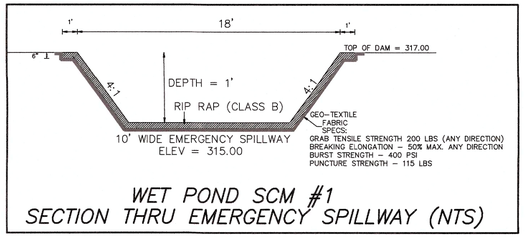
PERMANENT WET POND SCM #1 (NTS)

TREATMENT VOLUME SIZING – SCM #1 WET POND:
WET POND AREA TREATS & STORES 1" OF RUNOFF FROM THE SITE.
TREATMENT VOLUME FOR SCM USING THE SIMPLE METHOD:

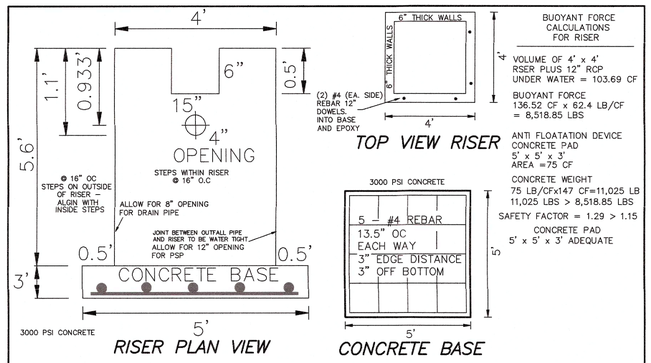
1. POST RUN-OFF FROM SITE:
   IMPERVIOUS AREA = 1.347 AC.
   PERVIOUS AREA = 1.429 AC.
2. REQUIRED VOLUME OF RUNOFF FROM FIRST 1" RUNOFF FROM SITE AREA AS PER NCDENR BMP MANUAL
   Rv = 0.05 + 0.9 x I
   where I_a = 1.88 ac./3.12 ac. = 0.60
   Rv = 0.59
   V required = 3,630 x 1" x 0.59 x 3.12 ac.
   V required = 6,,682.10 cf
3. Total V provided between Elev. 312.50 and 313.10 = 7,715.90 cf

DRAW DOWN CALCULATIONS FOR WET POND – SCM #1:

Permanent Pool Elevation @ 312.50
Volume @ 312.50 = 31,276 cf
Treatment Volume Elevation @ 313.10
Volume @ 313.10 = 36,921.80 cf
Volume runoff to drain = 5,645.80 cf
Draw down 2 – 5 days
2 days(24hr/day)(60min/hr)(60sec/min) = 172,800 secs.
7,715.90 cf / 172,800 secs. = 0.045 cfs (Q out)
Orifice Equation
0.045 cfs = 0.6 A ((2)(32.2)(0.6'))$^{0.5}$
A = 0.012 sf
A = (3.14)R^2
0.012 sf = (3.14) R^2
R = 0.062 ft = 0.744 in.
=> USE 1" DIAMETER ORIFICE – DRAW DOWN 4.39 DAYS

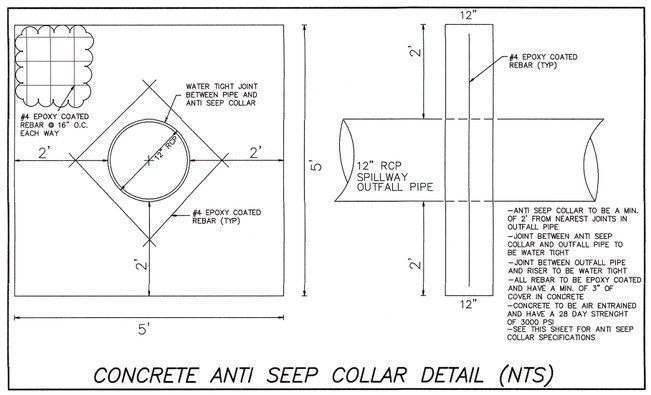


WET POND SCM #1 SECTION THRU EMERGENCY SPILLWAY (NTS)

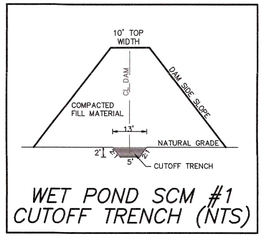


TOP VIEW RISER | RISER PLAN VIEW | CONCRETE BASE

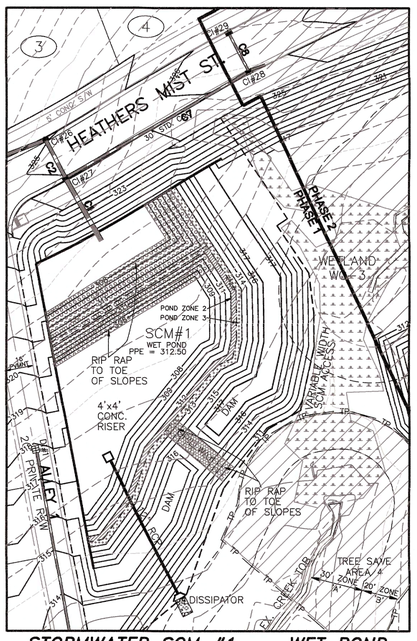
CONCRETE RISER DETAILS WET POND SCM #1 (NTS)



CONCRETE ANTI SEEP COLLAR DETAIL (NTS)



WET POND SCM #1 CUTOFF TRENCH (NTS)



STORMWATER SCM #1 – WET POND
1" = 40'

NC DEQ STORMWATER DESIGN MANUAL
WET POND MIN. DESIGN CRITERIA

MDC 1 MAIN POOL SURFACE AREA AND VOLUME
SCM USING SA/DA TABLE FOR 3.44' AVE. DEPTH – NEED 2,674.30 SF SCM HAS 8,633.50 SF
MDC 2 MAIN POOL DEPTH
SCM MAIN POOL DEPTH USING D=AVG OF PERM POOL VOL/PERM POOL AREA = 3.44'
MDC 3 SEDIMENT STORAGE
SCM CALLS FOR A MIN. OF 6" OF SEDIMENT STORAGE AT THE FORBAY AND MAIN POOL AREAS
MDC 4 LOCATION OF INLETS AND OUTLETS
SCM HAS THE OUTLET STRUCTURE AT THE WIDEST WIDTH OF POND
MDC 5 FOREBAY
SCM HAS FOREBAY THAT HAS A 28.92% VOLUME CAPACITY
MDC 6 VEGETATED SHELF
SCM HAS THE REQUIRED 6' VEGETATED SHELF AROUND THE POND
MDC 7 DRAWDOWN TIME
SCM HAS AN ORIFICE THAT WILL ALLOW FOR A DRAWDOWN TIME OF 4.39 DAYS
MDC 8 PROTECTION OF RECEIVING STREAM
SCM OUTLETS THE 1 YEAR 24 HOUR STORM AT A RATE OF 0.18 CFS WHICH IS NON EROSIVE
MDC 9 FOUNTAINS
SCM WILL HAVE NO FOUNTAINS
MDC 10 TRASH RACK
SCM WILL HAVE A TRASH RACK
MDC 11 VEGETATION
SCM WILL BE PLANTED AS REQUIRED

STANDARDS AND SPECIFICATIONS FOR WET POND

A. ACSESS
1. UNOBSTRUCTED ACCESS FROM THE NEARBY PUBLIC RIGHT OF WAY SHALL BE PROVIDED TO THE TOP OF THE DAM. THIS MAINTAINED ACCESS TO THE TOP OF DAM SHALL BE A MINIMUM OF 10' WIDE, SHALL HAVE A MAXIMUM CENTERLINE GRADE AND CROSS SLOPE OF 5:1 HORIZONTAL TO VERTICAL (H: V) AND 10:1 (H: V), RESPECTIVELY, AND SHALL BE PLACED IN A 20' WIDE CLEARED ACCESS EASEMENT. THIS ACCESS EASEMENT SHALL REMAIN FREE OF ALL TREES, SHRUBS, OR OTHER OBSTRUCTIONS, INCLUDING FENCES, MAILBOXES, AND UTILITY STRUCTURES. AT CURB AND GUTTER SECTIONS, A CONCRETE DRIVEWAY ENTRANCE (OR A MOUNTABLE/ROLL CURB) SHALL BE PROVIDED. THE USE OF RESIDENTIAL DRIVEWAYS FOR ACCESS SHALL NOT BE PERMITTED.

2. THE PRINCIPAL ACCESS TO THE TOP OF DAM AND THE RISER STRUCTURE IS ACROSS THE TOP OF DAM AND DOWN THE 4:1 SIDE SLOPES OF THE EMERGENCY SPILLWAY. SPILLWAY LINED WITH RIP RAP.

3. ACCESS SHALL BE PROVIDED TO THE INSIDE AND INVERT OF THE RISER STRUCTURE. THIS CAN BE PROVIDED BEST WITH THE PROVISION OF A TRASH RACK ACCESS HATCH AND STEPS DOWN THE INSIDE FACE OF THE RISER. WHEN THE TOP OF THE RISER IS GREATER THAN 4' ABOVE THE ADJACENT GROUND SURFACE, STEPS UP THE OUTSIDE FACE OF THE RISER SHALL BE PROVIDED ALSO.

B. DAM EMBANKMENTS
1. THE MINIMUM FOUNDATION ZONE FOR THE EARTHEN DAM SHALL BE 7' (THIS IS A CLASS C DAM)

2.THE PLANTING OF TREES AND OTHER LANDSCAPING EXCEPT GRASS ON THE STRUCTURAL EMBANKMENT OR FOUNDATION ZONES OF ANY EARTHEN DAM IS PROHIBITED. NO NEW LANDSCAPING SHALL BE PERMITTED WITHIN THE LIMITS OF THE EMERGENCY SPILLWAY AREA.

3. THE TOP OF THE DAM SHALL BE 10' IN WIDTH.

4. A CUT OFF TRENCH OF A 5' MINIMUM WIDTH ON THE CENTERLINE OF DAM DAM TO A DEPTH OF 2' SHALL BE INCORPORATED.

C. EMERGENCY SPILLWAY
1. EMERGENCY SPILLWAY SHALL BE ARMORED WITH RIP RAP OR EQUAL. INSTALLATION SHALL BE AS PER MANUFACTURER'S SPECIFICATIONS.

2. EMERGENCY SPILLWAY SHALL BE ARMORED THRU THE DAM SECTION AND DOWN ALONG BACK SLOPE OF DAM TO A POINT 3' PAST THE TOE OF DAM.

D. RISER STRUCTURE
1. RISER STRUCTURE TO BE REINFORCED PRECAST CONCRETE. RISER STRUCTURES WITH MULTIPLE SECTIONS SHALL HAVE WATER TIGHT JOINTS WITH EACH SECTION BOLTED TO ADJACENT SECTIONS WITH STAINLESS STEEL STRAPS AND HARDWARE.

2. RISER STRUCTURE SHALL INCLUDE A PEAK–ROOFED TRASH RACK WITH A MINIMUM ROOF SLOPE OF 2:1 (H: V). TRASH RACK TO INCLUDE AN ACCESS HATCH. HATCH TO HAVE A MIN. CLEAR SPACE OPENING OF AT LEAST 2' x 3' AND SHALL AGLIN WITH ACCESS STEPS INSIDE THE STRUCTURE. HATCH TO BE SECURED WITH LOCK AND CHAIN. TRASH RACK TO BE BOLTED TO TOP OF RISER. MATERIAL TO BE EITHER GALVANIZED OR PRIMED AND PAINTED. BOLTS TO BE STAINLESS STEEL. TRASH RACK TO BE ALUMINUM BAR CONE TRASH RACK WITH MANWAY ACCESS FOR 3' I.D. CONCRETE MANHOLE RISER BY POMONA PIPE PRODUCTS.

3. A 8" DIAMETER PLUG VALVE, WHICH INCLUDES A STEM EXTENSION AND FLYWHEEL SHALL BE PROVIDED. THE STEM EXTENSION SHALL BE ATTACHED TO THE INSIDE WALL OF THE RISER STRUCTURE. THE FLYWHEEL SHALL EXTEND ABOVE THE TOP OF THE TRASH RACK. PLUG AND VALVE TO BE BLOCKED UP 1' ABOVE POND BOTTOM.

E. PRINCIPAL SPILLWAY PIPE (PSP)
1. PRINCIPAL SPILLWAY PIPE SHALL BE RCP. THE RCP SHALL HAVE A MINIMUM PIPE STRENGTH CONFORMING TO AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) C–76, CLASS III STANDARDS.

2. GASKETED JOINT PIPE SHALL BE WRAPPED WITH A DOUBLE LAYER OF NON–WOVEN FILTER FABRIC ON THE OUTSIDE OF THE PIPE AT EACH JOINT. THE FABRIC WRAP SHALL COVER A 2' LENGTH OF PIPE AND SHALL BE CENTERED OVER THE JOINT.

F. OUTFALL STRUCTURES
1. ALL DISSIPATOR DEVICES ASSOCIATED WITH THE POND OUTFALL SHALL BE INSTALLED IN ACCORDANCE WITH NCDEQ AND TOWN OF KNIGHTDALE GUIDELINES.

G. INLETS
1. POND INLET PIPES SHALL EXTEND THRU THE SLOPES AND INTO THE POND AREA. PIPE OUTLET TO EXTEND A MINIMUMOF 12" BEYOND THE FACE OF THE SLOPE.

H. VEGETATIVE SHELF
1. A 6' WIDE AQUATIC BENCH SHALL BE PROVIDED AT THE SHORELINE. THE AQUATIC BENCH SHALL, AT THE OUTER LIMITS (SHORELINE), BEGIN 6" ABOVE THE SURFACE OF THE PERMANENT POOL AND SHALL BE GRADED AT 6:1 (H:V) SLOPE SUCH THAT A 6" DEPTH IS PROVIDED AT THE INNER LIMITS OF THE BENCH.

I. DAM EMBANKMENT CONSTRUCTION STANDARDS
1. CONTROLL FILL, AS SPECIFIED BY THE GEOTECHNICAL ENGINEER, IN THE DAM EMBANKMENT SHALL BE PLACED IN 6" LOOSE LAYERS (3" LOOSE LAYERS WITHIN 3' OF EITHER SIDE OF THE PRINCIPAL SPILLWAY PIPE TO A DEPTH OF 2' OVER THE PIPE), AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF = OR – 2% POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE TO ASTM D698.
2. ALL VISIBLE ORGANIC DEBRIS, SUCH AS ROOTS AND LIMBS, SHALL BE REMOVED FROM THE FILL MATERIAL PRIOR TO COMPACTION TO THE REQUIRED DENSITY. SOILS WITH ORGANIC MATTER CONTENT EXCEEDING 5% BY WEIGHT SHALL NOT BE USED. STONE WITH SIZE MEASUREMENTS GREATER THAN 3" (IN ANY DIRECTION) SHALL BE REMOVED FROM THE FILL PRIOR TO COMPACTION.
3. FILL MATERIAL PLACED AT DENSITIES LOWER THAN SPECIFIED MINIMUM DENSITIES OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED RANGES OR OTHERWISE NOT CONFORMING TO THE SPECIFIED REQUIREMENTS SHALL BE REMOVED AND REWORKED OR REMOVED AND REPLACED WITH ACCEPTABLY PLACED MATERIALS.
4. ANY FILL LAYER THAT IS SMOOTH DRUM ROLLED TO REDUCE MOISTURE PENETRATION DURING A STORM EVENT SHALL BE PROPERLY SCARIFIED PRIOR TO THE PLACEMENT OF THE NEXT SOIL LIFT.
5. SURFACE WATER AND STREAM FLOW S SHALL BE CONTROLLED CONTINUOUSLY THROUGHOUT CONSTRUCTION AND THE PLACEMENT OF CONTROLLED FILL.
6. FOUNDATION AREAS MAY REQUIRE UNDERCUTTING OF COMPRESSIBLE AND/ORUNSUITABLE SOILS IN ADDITION TO THAT INDICATED ON THE PLANS. ALL SUCH UNDERCUTTING SHALL BE PERFORMED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER AND SHALL BE MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER DURING CONSTRUCTION. IN NO CASE SHALL THERE BE AN ATTEMPT TO STABILIZE ANY PORTIONS OF THE FOUNDATION SOILS WITH CRUSHED STONE.
7. TREATMENT OF SEEPAGE ARES, SUBGRADE PREPARATION, FOUNDATION DEWATERING, AND ROCK FOUNDATION PREPARATION (TREATMENT WITH SLUSH GROUTING, DENTAL CONCRETE, ETC) MAY BE REQUIRED AT THE DISRECTION OF THE TOWN OR THE GEOTECHNICAL ENGINEER OVERSEEING THE CONSTRUCTION OF THE DAM AND OUTLET WORKS OF THE FACILITY. ALL SUCH ACTIVITIES SHALL BE CLOSELY MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER DURING CONSTRUCTION.
8. FILL PLACED ADJACENT TO THE RISER AND PRINCIPAL SPILLWAY PIPE SHALL BE PLACED IN A MANNER WHERE LIFTS ARE AT THE SAME LEVEL ON BOTH SIDES OF THE STRUCTURES.
9.EARTHWORK COMPACTION WITHIN 3' OF ANY STRUCTURES SHALL BE ACCOMPLISHED BY MEANS OF HAND TAMPERS, MANUALLY DIRECTED POWER TAMPERS OR PLATE COMPACTORS, OR MINATURE SELF PROPELLED ROLLERS.

I. DAM EMBANKMENT CONSTRUCTION STANDARDS (CONTINUED)
10. COMPACTION BY MEANS OF DROP WEIGHTS FROM A CRANE OR HOIST SHALL NOT BE PERMITTED.
11. HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER CAST IN PLACE STRUCTURES (INCLUDING CRADDLE) UNTIL ADEQUATE CURING TIME HAS ELASPED.
12. TO RE–ESTABLISH VEGETATION AFTER CONSTRUCTION, A 2"–3" LAYER OF TOPSOIL SHALL BE PLACED ON THE DISTURBED EMBANKMENT SURFACE AND THE AREA SEEDED AND MULCHED OR HYDROSEEDED. IF GRASS STABILIZATION IS ATTEMPTED DURING THE SUMMER MONTHS, THE PLACEMENT OF SOD AND THE IMPLEMENTATION OF AN AGGRESSIVE WATERING PROGRAM MAY BE THE BEST AND QUICKEST MEANS OF ACHIEVING THE 85% STABILIZATION REQUIREMENT OF THE BCE CERTIFICATION PROGRAM. WHEN WATERING RESTRICTIONS ARE IN PLACE DURING DROUGHT CONDITIONS, OTHER AVENUES FOR WATERING (SUCH AS USING RECLAIMED WATER, ETC) SHALL BE IMPLEMENTED.

NOTE: ALL SLOPES OF DEVISE SHALL BE STABILIZED WITH NON CLUMPING TURF GRASS. 90% GERMINATION OF NON–CLUMPING TURF GRASS (CENTIPEDE OR HYBRID BERMUDA) WILL BE REQUIRED ON ALL SLOPES PRIOR TO FINAL CERTIFICATION.

J. SEEPAGE CONTROL STANDARDS
1. ANTI SEEP COLLARS INSTALLED AS PER DETAIL AND PLACED AT POINT IN DAM THAT ALLOWS FOR 2' OF COVER.
2. UTILITY CONDUITS OTHER THAN THE PRINCIPAL SPILLWAY SHALL NOT BE PERMITTED TO PENETRATE THE EMBANKMENT OR THE EMBANKMENT FOUNDATION OF THE EARTHEN DAM. THESE UTILITY CONDUITS SHALL BE ROUTED AROUND THE EMBANKMENT AND FOUNDATION AREAS.
3. ANTI SEEP COLLAR SHALL FORM A WATER TIGHT CONNECTION WITH THE PRINCIPAL SPILLWAY PIPE. ANTI SEEP COLLAR SHALL EXTEND A MINIMUM OF 2' BEYOND THE OUTLET BARREL AND INCREASE THE HYDRAULIC LENGTH OF TRAVEL BY AT LEAST 15%. COLLARS TO BE PLACED NO CLOSER THAN 10' AND NO FURTHER THAN 25' APART. A MINIMUM OF 1 ANTI SEEP COLLAR SHALL BE LOCATED DOWNSTREAM OF THE CENTERLINE OF THE DAM.

L. TESTING, OBSERVATION, AND CERTIFICATION
1. TESTS OF THE DEGREE (%) OF COMPACTION OF THE PLACED FILL IN THE DAM SHALL BE PERFORMED AS A PART OF THE PERMITTEE'S NORMAL QUALITY CONTROL PROGRAM FOR THE CONSTRUCTION OF THE DAM. TESTS SHALL BE CONDUCTED CONCURRENT WITH THE INSTALLATION OF THE COMPACTED FILL, AND THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF THE DAM SO THAT THE TESTING CAN BE COMPLETED. SHOULD THE RESULTS OF THE TESTS INDICATE THAT THE SPECIFIED DEGREE OF COMPACTION HAS NOT BEEN OBTAINED, THE PORTIONS OF THE DAM REPRESENTED BY SUCH TESTS SHALL BE REWORKED OR REBUILT. ALL PORTIONS OF THE DAM SHALL ACHIEVE THE SPECIFIED MINIMUM DEGREE OF COMPACTION.

M. MAINTENANCE AND ANNUAL CERTIFICATION
1. THE IMPOUNDMENT SCM SHALL BE MAINTAINED IN ACCORDANCE WITH THE SPECIFIC RECOMMENDATIONS AND REQUIREMENTS CONTAINED IN THE OPERATION AND MAINTENANCE MANUAL PREPARED FOR THE FACILITY AND IN ACCORDANCE WITH THE GENERAL RECOMMENDATIONS CONTAINED IN THE OWNER'S MAINTENANCE GUIDE FOR STORWATER SCM'S CONSTRUCTED IN THE TOWN OF KNIGHTDALE. THIS DOCEMENT CAN BE FOUND ON THE STORMWATER SERVICES PAGE OF THE TOWN OF KNIGHTDALE WEBSITE.
2. THE IMPOUNDMENT SCM SHALL BE CERTIFIED ANNUALLY IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE'S SCM MAINTENANCE CERTIFICATION PROTOCOL. THESE DOCUMENTS CAN BE FOUND ON THE STORMWATER SERVICES PAGE OF THE TOWN OF KNIGHTDALE'S WEBSITE.

REQUIRED TOWN OF KNIGHTDALE SCM BASIN REMOVAL SEQUENCE

1. SCHEDULE A SITE MEETING WITH THE TOWN OF KNIGHTDALE EROISION CONTROL INSPECTOR TO DETERMINE IF A BASIN CAN BE REMOVED, INSTALL SILT FENCING OR OTHER TEMPORARY CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
2. CONTACT NCDEQ–RALEIGH REGIONAL OFFICE (919) 791–4200 TO DETERMINE THE DIVISION OF ENERGY, MINERAL AND LAND RESOURCES CONTACT PERSON TO RECEIVE DEWATERING NOTIFICATIONS. AT LEAST 10 DAYS PRIOR TO BEGINNING DEWATERING ACTIVITY, SEND EMAIL TO NCDEQ–DEMLR CONTACT PERSON AND COPY ENVIRONMENTAL CONSULTANT THAT MET YOU ONSITE. THE EMAIL SHOULD INCLUDE E&SC JURISDICTION: WAKE COUNTY, WAKE COUNTY PROJECT: NAME, NUMBER, AND LOCATION (CITY/TOWN), ENVIRONMENTAL CONSULTANT NAME, AND ADDRESS THE FOLLOWING: a) REASON FOR CONVERSION b) BASIN #, c) DEWATERING METHOD, AND d) ALL OTHER NECESSARY INFO FROM PART II, SECTION G, ITEM 4 OF THE NCG01. (KEEP EMAIL FOR YOUR NPDES MONITORING DOCUMENTATION.
3. AFTER RECEIVING POSITIVE CONFIRMATION FROM NCDEQ–DEMLR THAT YOU MAY REMOVE THE BASIN OR ON >DAY 11, WHICHEVER IS SOONER, REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPERATION FOR SEEDING.
4. PERFORM SEEDBED PREPERATION, SEED, MULCH, AND ANCHOR ANY RESULTING BARE AREAS IMMEDIATELY USING NON–CLUMPING TURF GRASS (CENTIPEDE/HYBRID BERMUDA).
5. INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
6. WHEN SITE IS FULLY STABILIZED, CALL EROSION CONTROL INSPECTOR FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION. NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE EROSION CONTROL INSPECTOR AND STORMWATER TECHNICIAN TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE.

WET POND SCM #1 PLANT LIST:
PLANTINGS ARE AT 50 PLANTINGS/200 SF OF AREA

NOTE: ALL SLOPES OF DEVICE SHALL BE STABILIZED WITH NON–CLUMPING TURF GRASS
CENTIPEDE/EREMOCHLOA OPHIUROIDES OR HYBRID BERMUDA/CYNODON DACTYLON x C. TRANSVAGLENSIS GERMPLASMA

WET POND:
POND ZONE 4 – TEMPORARY INUNDATION: 73.7 SF AREA
(REGULAR TO TEMPORARY INUNDATION ELEV. 313.00 – 313.10)

COMMON NAME/BOTANICAL NAME	SPREAD	AREA/%	QUANTITY	ROOT
NO PLANTINGS PROPOSED GIVEN AREA IS SMALL AND ONLY 0.33' IN WIDTH				

WET POND:
POND ZONE 3 – SHALLOW WATER: 724.2 SF AREA
(FIRST 3' OF VEGETATIVE SHELF ELEV. 312.50 – 313.00)

COMMON NAME/BOTANICAL NAME	SPREAD	AREA/%	QUANTITY	ROOT
Starrush whitetop/Rhynchospora colorata	2' o.c.	241 sf/33.24%	60	Small Pot or bare Root
Swamp Milkweed/Asclepias incarnata	2' o.c.	242 sf/33.38%	60	
Narrow plumegrass/Saccharum baldwinii	2' o.c.	242 sf/33.38%	60	

WET POND:
POND ZONE 2 – DEEP POOL TO SHALLOW WATER TRANSITION: 588.70 SF AREA
(LAST 3' OF VEGETATIVE SHELF ELEV. 312.5 – 312.00)

COMMON NAME/BOTANICAL NAME	SPREAD	AREA/%	QUANTITY	ROOT
White Turtlehead/Chelone glabra	2' o.c.	196 sf/33.28%	49	Small Pot or bare Root
Joe Pye Weed/Eupatoriadelphus dubius	2' o.c.	196 sf/33.28%	49	
Quill sedge/Carex tenera	2' o.c.	197 sf/33.44%	49	

PRELIMINARY DRAWING FOR REVIEW ONLY

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL K. MILLER
12/15/25

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

SHEET 8

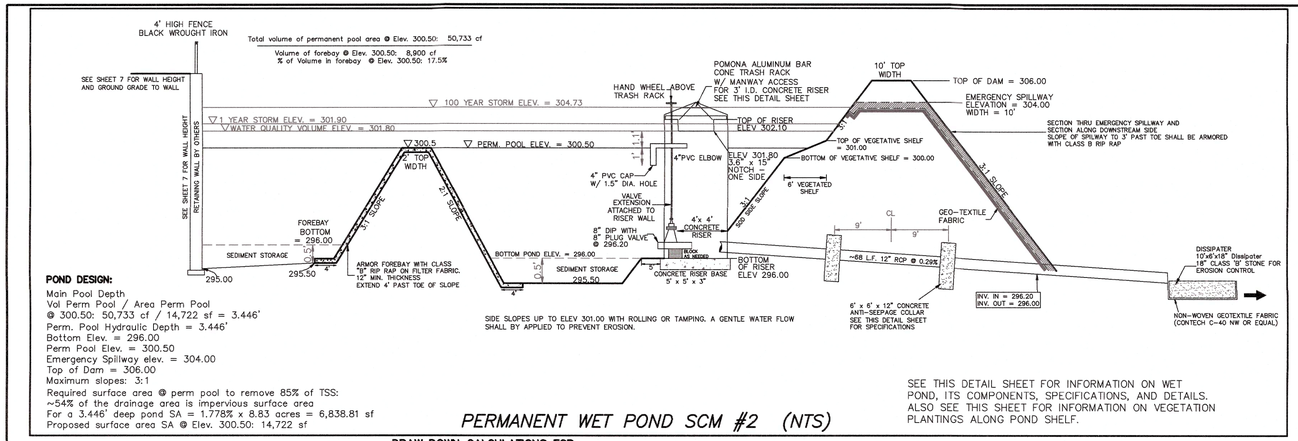
SCM #1 – WET POND DETAILS THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C–0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465–1566
ENGINEERING SURVEYING LAND PLANNING

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247–1932

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20–
SCALE 1" = 60'	SURVEYED ----	DWG COLLECTION–POST DA
REVISIONS: 10–22–25; 12–15–25	PIN: SEE SITE DATA TABLE	

SEE THIS SHEET FOR POND PLANTINGS AND SCHEDULE
SEE SHEET 7 FOR PROPOSED GRADING AND DRAINAGE PLAN
SEE SHEET 11 FOR PROPOSED PRE DEVELOPMENT DRAINAGE
SEE SHEET 12 FOR POST DEVELOPMENT DRAINAGE AND STORMWATER



POND DESIGN:

Main Pool Depth
Vol Perm Pool / Area Perm Pool
@ 300.50: 50,733 cf / 14,722 sf = 3.446'
Perm. Pool Hydraulic Depth = 3.446'
Bottom Elev. = 296.00
Perm Pool Elev. = 300.50
Emergency Spillway elev. = 304.00
Top of Dam = 306.00
Maximum slopes: 3:1
Required surface area @ perm pool to remove 85% of TSS:
~54% of the drainage area is impervious surface area
For a 3.446' deep pond SA = 1.778A x 8.83 acres = 6,838.81 sf
Proposed surface area SA @ Elev. 300.50: 14,722 sf

PERMANENT WET POND SCM #2 (NTS)

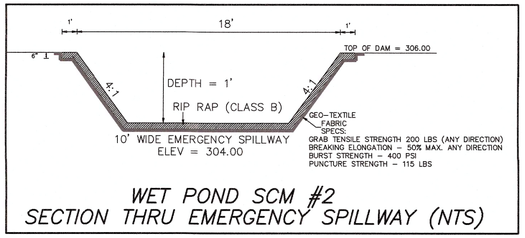
SEE THIS DETAIL SHEET FOR INFORMATION ON WET POND, ITS COMPONENTS, SPECIFICATIONS, AND DETAILS. ALSO SEE THIS SHEET FOR INFORMATION ON VEGETATION PLANTINGS ALONG POND SHELF.

TREATMENT VOLUME SIZING – SCM WET POND #2:
WET POND AREA TREATS & STORES 1" OF RUNOFF FROM THE SITE.
TREATMENT VOLUME FOR SCM USING THE SIMPLE METHOD:

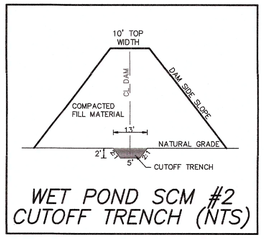
1. POST RUN-OFF FROM SITE:
   IMPERVIOUS AREA = 5.60 AC.
   PERVIOUS AREA = 3.23 AC.
2. REQUIRED VOLUME OF RUNOFF FROM FIRST 1" RUNOFF FROM SITE AREA AS PER NCDENR BMP MANUAL
   Rv = 0.05 + 0.9 x I
   where I_a = 5.60 ac./8.83 ac. = 0.63
   Rv = 0.62
   V required = 3,630 x 1" x 0.62 x 8.83 ac.
   V required = 19,872.80 cf
3. Total V provided between Elev. 300.50 and 301.80 = 20,880.08 cf

DRAW DOWN CALCULATIONS FOR WET POND – SCM #2:

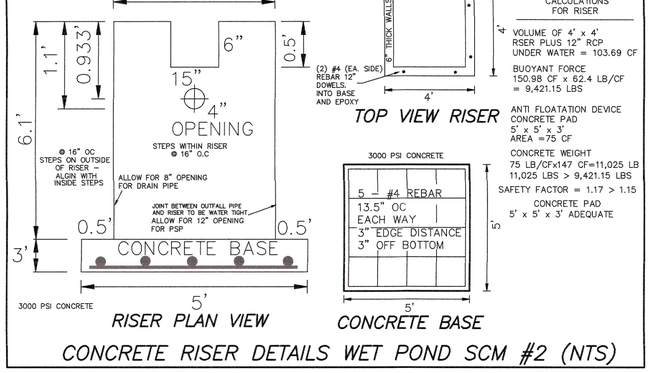
Permanent Pool Elevation @ 300.50
Volume @ 300.50 = 50,733 cf
Treatment Volume Elevation @ 301.60
Volume @ 301.80 = 71,613.08 cf
Volume runoff to drain = 20,880.08 cf
Draw down 2 – 5 days
2 days(24hr/day)(60min/hr)(60sec/min) = 172,800 secs.
20,880.08 cf / 172,800 secs. = 0.12 cfs (Q out)
Orifice Equation
$0.12 \text{ cfs} = 0.6 \text{ A } ((2)(32.2)(1.3'))^{0.5}$
A = 0.022 sf
$A = (3.14)R^2$
$0.022 \text{ sf} = (3.14) R^2$
R = 0.084 ft = 1.01 in.
=> USE 1.5" DIAMETER ORIFICE – DRAW DOWN 3.61 DAYS



WET POND SCM #2 SECTION THRU EMERGENCY SPILLWAY (NTS)

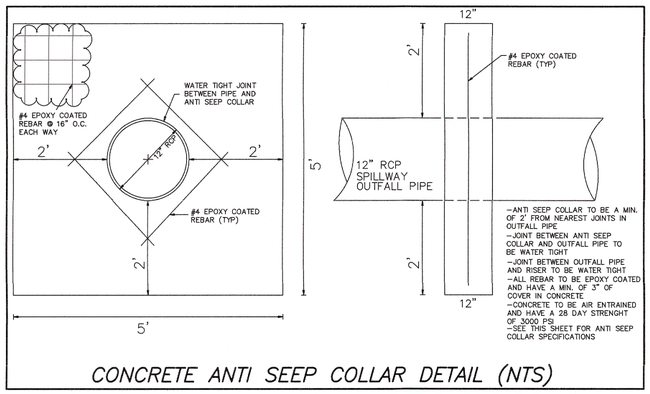


WET POND SCM #2 CUTOFF TRENCH (NTS)

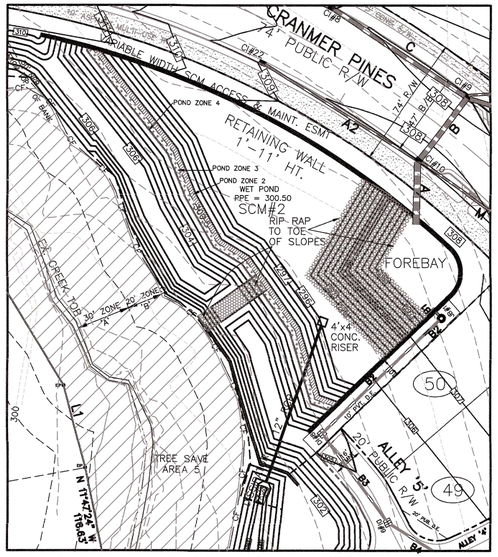


TOP VIEW RISER — RISER PLAN VIEW — CONCRETE BASE

CONCRETE RISER DETAILS WET POND SCM #2 (NTS)



CONCRETE ANTI SEEP COLLAR DETAIL (NTS)



STORMWATER SCM #2 – WET POND
1" = 40'

NC DEQ STORMWATER DESIGN MANUAL
WET POND MIN. DESIGN CRITERIA

MDC 1 MAIN POOL SURFACE AREA AND VOLUME
SCM USING SA/DA TABLE FOR 3.446' AVE. DEPTH – NEED 15,974.03 SF SCM HAS 17,048.20 SF
MDC 2 MAIN POOL DEPTH
SCM MAIN POOL DEPTH USING D-AVG OF PERM POOL VOL/PERM POOL AREA = 3.446'
MDC 3 SEDIMENT STORAGE
SCM CALLS FOR A MIN. OF 6" OF SEDIMENT STORAGE AT THE FORBAY AND MAIN POOL AREAS
MDC 4 LOCATION OF INLETS AND OUTLETS
SCM HAS THE OUTLET STRUCTURE AT THE WIDEST WIDTH OF POND
MDC 5 FOREBAY
SCM HAS FOREBAY THAT HAS A 17.5% VOLUME CAPACITY
MDC 6 VEGETATED SHELF
SCM HAS THE REQUIRED 6' VEGETATED SHELF AROUND THE POND
MDC 7 DRAWDOWN TIME
SCM HAS AN ORIFICE THAT WILL ALLOW FOR A DRAWDOWN TIME OF 3.61 DAYS
MDC 8 PROTECTION OF RECEIVING STREAM
SCM OUTLETS THE 1 YEAR 24 HOUR STORM AT A RATE OF 0.52 CFS WHICH IS NON EROSIVE
MDC 9 FOUNTAINS
SCM WILL HAVE NO FOUNTAINS
MDC 10 TRASH RACK
SCM WILL HAVE A TRASH RACK
MDC 11 VEGETATION
SCM WILL BE PLANTED AS REQUIRED

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

STANDARDS AND SPECIFICATIONS FOR WET POND

A. ACSESS
1. UNOBSTRUCTED ACCESS FROM THE NEARBY PUBLIC RIGHT OF WAY SHALL BE PROVIDED TO THE TOP OF THE DAM. THIS MAINTAINED ACCESS TO THE TOP OF DAM SHALL BE A MINIMUM OF 10' WIDE, SHALL HAVE A MAXIMUM CENTERLINE GRADE AND CROSS SLOPE OF 5:1 HORIZONTAL TO VERTICAL (H:V) AND 10:1 (H:V), RESPECTIVELY, AND SHALL BE PLACED IN A 20' WIDE CLEARED ACCESS EASEMENT. THIS ACCESS EASEMENT SHALL REMAIN FREE OF ALL TREES, SHRUBS, OR OTHER OBSTRUCTIONS, INCLUDING FENCES, MAILBOXES, AND UTILITY STRUCTURES. AT CURB AND GUTTER SECTIONS, A CONCRETE DRIVEWAY ENTRANCE (OR A MOUNTABLE/ROLL CURB) SHALL BE PROVIDED. THE USE OF RESIDENTIAL DRIVEWAYS FOR ACCESS SHALL NOT BE PERMITTED.
2. THE PRINCIPAL ACCESS TO THE TOP OF DAM AND THE RISER STRUCTURE IS ACROSS THE TOP OF DAM AND DOWN THE 4:1 SIDE SLOPES OF THE EMERGENCY SPILLWAY. SPILLWAY LINED WITH RIP RAP.
3. ACCESS SHALL BE PROVIDED TO THE INSIDE AND INVERT OF THE RISER STRUCTURE. THIS CAN BE PROVIDED BEST WITH THE PROVISION OF A TRASH RACK ACCESS HATCH AND STEPS DOWN THE INSIDE FACE OF THE RISER. WHEN THE TOP OF THE RISER IS GREATER THAN 4' ABOVE THE ADJACENT GROUND SURFACE, STEPS UP THE OUTSIDE FACE OF THE RISER SHALL BE PROVIDED ALSO.

B. DAM EMBANKMENTS
1. THE MINIMUM FOUNDATION ZONE FOR THE EARTHEN DAM SHALL BE 7' (THIS IS A CLASS C DAM)
2.THE PLANTING OF TREES AND OTHER LANDSCAPING EXCEPT GRASS ON THE STRUCTURAL EMBANKMENT OR FOUNDATION ZONES OF ANY EARTHEN DAM IS PROHIBITED. NO NEW LANDSCAPING SHALL BE PERMITTED WITHIN THE LIMITS OF THE EMERGENCY SPILLWAY AREA.
3. THE TOP OF THE DAM SHALL BE 10' IN WIDTH.
4. A CUT OFF TRENCH OF A 5' MINIMUM WIDTH ON THE CENTERLINE OF DAM DAM TO A DEPTH OF 2' SHALL BE INCORPORATED.

C. EMERGENCY SPILLWAY
1. EMERGENCY SPILLWAY SHALL BE ARMORED WITH RIP RAP OR EQUAL. INSTALLATION SHALL BE AS PER MANUFACTURER'S SPECIFICATIONS.
2. EMERGENCY SPILLWAY SHALL BE ARMORED THRU THE DAM SECTION AND DOWN ALONG BACK SLOPE OF DAM TO A POINT 3' PAST THE TOE OF DAM.

D. RISER STRUCTURE
1. RISER STRUCTURE TO BE REINFORCED PRECAST CONCRETE. RISER STRUCTURES WITH MULTIPLE SECTIONS SHALL HAVE WATER TIGHT JOINTS WITH EACH SECTION BOLTED TO ADJACENT SECTIONS WITH STAINLESS STEEL STRAPS AND HARDWARE.
2. RISER STRUCTURE SHALL INCLUDE A PEAK-ROOFED TRASH RACK WITH A MINIMUM ROOF SLOPE OF 2:1 (H:V). TRASH RACK TO INCLUDE AN ACCESS HATCH. HATCH TO HAVE A MIN. CLEAR SPACE OPENING OF AT LEAST 2' x 3' AND SHALL AGLIN WITH ACCESS STEPS INSIDE THE STRUCTURE. HATCH TO BE SECURED WITH LOCK AND CHAIN. TRASH RACK TO BE BOLTED TO TOP OF RISER. MATERIAL TO BE EITHER GALVANIZED OR PRIMED AND PAINTED. BOLTS TO BE STAINLESS STEEL. TRASH RACK TO BE ALUMINUM BAR CONE TRASH RACK WITH MANWAY ACCESS FOR 3' I.D. CONCRETE MANHOLE RISER BY POMONA PIPE PRODUCTS.
3. A 8" DIAMETER PLUG VALVE, WHICH INCLUDES A STEM EXTENSION AND FLYWHEEL SHALL BE PROVIDED. THE STEM EXTENSION SHALL BE ATTACHED TO THE INSIDE WALL OF THE *RISER STRUCTURE*. THE FLYWHEEL SHALL EXTEND ABOVE THE *TOP OF THE* TRASH RACK. PLUG AND VALVE TO BE BLOCKED UP 1' ABOVE POND BOTTOM.

E. PRINCIPAL SPILLWAY PIPE (PSP)
1. PRINCIPAL SPILLWAY PIPE SHALL BE RCP. THE RCP SHALL HAVE A MINIMUM PIPE STRENGTH CONFORMING TO AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) C-76, CLASS III STANDARDS.
2. GASKETED JOINT PIPE SHALL BE WRAPPED WITH A DOUBLE LAYER OF NON-WOVEN FILTER FABRIC ON THE OUTSIDE OF THE PIPE AT EACH JOINT. THE FABRIC WRAP SHALL COVER A 2' LENGTH OF PIPE AND SHALL BE CENTERED OVER THE JOINT.

F. OUTFALL STRUCTURES
1. ALL DISSIPATOR DEVICES ASSOCIATED WITH THE POND OUTFALL SHALL BE INSTALLED IN ACCORDANCE WITH NCDEQ AND TOWN OF KNIGHTDALE GUIDELINES.

G. INLETS
1. POND INLET PIPES SHALL EXTEND THRU THE SLOPES AND INTO THE POND AREA. PIPE OUTLET TO EXTEND A MINIMUMOF 12" BEYOND THE FACE OF THE SLOPE.

H. VEGETATIVE SHELF
1. A 6' WIDE AQUATIC BENCH SHALL BE PROVIDED AT THE SHORELINE. THE AQUATIC BENCH SHALL, AT THE OUTER LIMITS (SHORELINE), BEGIN 6" ABOVE THE SURFACE OF THE PERMANENT POOL AND SHALL BE GRADED AT 6:1 (H:V) SLOPE SUCH THAT A 6" DEPTH IS PROVIDED AT THE INNER LIMITS OF THE BENCH.

I. DAM EMBANKMENT CONSTRUCTION STANDARDS
1. CONTROLL FILL, AS SPECIFIED BY THE GEOTECHNICAL ENGINEER, IN THE DAM EMBANKMENT SHALL BE PLACED IN 6" LOOSE LAYERS (3" LOOSE LAYERS WITHIN 3' OF EITHER SIDE OF THE PRINCIPAL SPILLWAY PIPE TO A DEPTH OF 2' OVER THE PIPE), AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF = OR – 2% POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE TO ASTM D698.
2. ALL VISIBLE ORGANIC DEBRIS, SUCH AS ROOTS AND LIMBS, SHALL BE REMOVED FROM THE FILL MATERIAL PRIOR TO COMPACTION TO THE REQUIRED DENSITY. SOILS WITH ORGANIC MATTER CONTENT EXCEEDING 5% BY WEIGHT SHALL NOT BE USED. STONE WITH SIZE MEASUREMENTS GREATER THAN 3" (IN ANY DIRECTION) SHALL BE REMOVED FROM THE FILL PRIOR TO COMPACTION.
3. FILL MATERIAL PLACED AT DENSITIES LOWER THAN SPECIFIED MINIMUM DENSITIES OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED RANGES OR OTHERWISE NOT CONFORMING TO THE SPECIFIED REQUIREMENTS SHALL BE REMOVED AND REWORKED OR REMOVED AND REPLACED WITH ACCEPTABLY PLACED MATERIALS.
4. ANY FILL LAYER THAT IS SMOOTH DRUM ROLLED TO REDUCE MOISTURE PENETRATION DURING A STRORM EVENT SHALL BE PROPERLY SCARIFIED PRIOR TO THE PLACEMENT OF THE NEXT SOIL LIFT.
5. SURFACE WATER AND STREAM FLOW S SHALL BE CONTROLLED CONTINUOUSLY THROUGHOUT CONSTRUCTION AND THE PLACEMENT OF CONTROLLED FILL.
6. FOUNDATION AREAS MAY REQUIRE UNDERCUTTING OF COMPRESSIBLE AND/ORUNSUITABLE SOILS IN ADDITION TO THAT INDICATED ON THE PLANS. ALL SUCH UNDERCUTTING SHALL BE PERFORMED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER AND SHALL BE MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER DURING CONSTRUCTION. IN NO CASE SHALL THERE BE AN ATTEMPT TO STABILIZE ANY PORTIONS OF THE FOUNDATION SOILS WITH CRUSHED STONE.
7. TREATMENT OF SEEPAGE ARES, SUBGRADE PREPARATION, FOUNDATION DEWATERING, AND ROCK FOUNDATION PREPARATION (TREATMENT WITH SLUSH GROUTING, DENTAL CONCRETE, ETC) MAY BE REQUIRED AT THE DISRECTION OF THE TOWN OR THE GEOTECHNICAL ENGINEER OVERSEEING THE CONSTRUCTION OF THE DAM AND OUTLET WORKS OF THE FACILITY. ALL SUCH ACTIVITIES SHALL BE CLOSELY MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER DURING CONSTRUCTION.
8. FILL PLACED ADJACENT TO THE RISER AND PRINCIPAL SPILLWAY PIPE SHALL BE PLACED IN A MANNER WHERE LIFTS ARE AT THE SAME LEVEL ON BOTH SIDES OF THE STRUCTURES.
9.EARTHWORK COMPACTION WITHIN 3' OF ANY STRUCTURES SHALL BE ACCOMPLISHED BY MEANS OF HAND TAMPERS, MANUALLY DIRECTED POWER TAMPERS OR PLATE COMPACTORS, OR MINATURE SELF PROPELLED ROLLERS.

I. DAM EMBANKMENT CONSTRUCTION STANDARDS (CONTINUED)
10. COMPACTION BY MEANS OF DROP WEIGHTS FROM A CRANE OR HOIST SHALL NOT BE PERMITTED.
11. HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER CAST IN PLACE STRUCTURES (INCLUDING CRADDLE) UNTIL ADEQUATE CURING TIME HAS ELASPED.
12. TO RE-ESTABLISH VEGETATION AFTER CONSTRUCTION, A 2"–3" LAYER OF TOPSOIL SHALL BE PLACED ON THE DISTURBED EMBANKMENT SURFACE AND THE AREA SEEDED AND MULCHED OR HYDROSEEDED. IF GRASS STABILIZATION IS ATTEMPTED DURING THE SUMMER MONTHS, THE PLACEMENT OF SOD AND THE IMPLEMENTATION OF AN AGGRESSIVE WATERING PROGRAM MAY BE THE BEST AND QUICKEST MEANS OF ACHIEVING THE 85% STABILIZATION REQUIREMENT OF THE BCE CERTIFICATION PROGRAM. WHEN WATERING RESTRICTIONS ARE IN PLACE DURING DROUGHT CONDITIONS, OTHER AVENUES FOR WATERING (SUCH AS USING RECLAIMED WATER, ETC) SHALL BE IMPLEMENTED.

NOTE: ALL SLOPES OF DEVISE SHALL BE STABILIZED WITH NON CLUMPING TURF GRASS, 90% GERMINATION OF NON-CLUMPING TURF GRASS (CENTIPEDE OR HYBRID BERMUDA) WILL BE REQUIRED ON ALL SLOPES PRIOR TO FINAL CERTIFICATION.

J. SEEPAGE CONTROL STANDARDS
1. ANTI SEEP COLLARS INSTALLED AS PER DETAIL AND PLACED AT POINT IN DAM THAT ALLOWS FOR 2' OF COVER.
2. UTILITY CONDUITS OTHER THAN THE PRINCIPAL SPILLWAY SHALL NOT BE PERMITTED TO PENETRATE THE EMBANKMENT OR THE EMBANKMENT FOUNDATION OF THE EARTHEN DAM. THESE UTILITY CONDUITS SHALL BE ROUTED AROUND THE EMBANKMENT AND FOUNDATION AREAS.
3. ANTI SEEP COLLAR SHALL FORM A WATER TIGHT CONNECTION WITH THE PRINCIPAL SPILLWAY PIPE. ANTI SEEP COLLAR SHALL EXTEND A MINIMUM OF 2' BEYOND THE OUTLET BARREL AND INCREASE THE HYDRAULIC LENGTH OF TRAVEL BY AT LEAST 15% COLLARS TO BE PLACED NO CLOSER THAN 10' AND NO FURTHER THAN 25' APART. A MINIMUM OF 1 ANTI SEEP COLLAR SHALL BE LOCATED DOWNSTREAM OF THE CENTERLINE OF THE DAM.

L. TESTING, OBSERVATION, AND CERTIFICATION
1. TESTS OF THE DEGREE (%) OF COMPACTION OF THE PLACED FILL IN THE DAM SHALL BE PERFORMED AS A PART OF THE PERMITTEE'S NORMAL QUALITY CONTROL PROGRAM FOR THE CONSTRUCTION OF THE DAM. TESTS SHALL BE CONDUCTED CONCURRENT WITH THE INSTALLATION OF THE COMPACTED FILL, AND THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF THE DAM SO THAT THE TESTING CAN BE COMPLETED. SHOULD THE RESULTS OF THE TESTS INDICATE THAT THE SPECIFIED DEGREE OF COMPACTION HAS NOT BEEN OBTAINED, THE PORTIONS OF THE DAM REPRESENTED BY SUCH TESTS SHALL BE REWORKED OR REBUILT. ALL PORTIONS OF THE DAM SHALL ACHIEVE THE SPECIFIED MINIMUM DEGREE OF COMPACTION.

M. MAINTENANCE AND ANNUAL CERTIFICATION
1. THE IMPOUNDMENT SCM SHALL BE MAINTAINED IN ACCORDANCE WITH THE SPECIFIC RECOMMENDATIONS AND REQUIREMENTS CONTAINED IN THE OPERATION AND MAINTENANCE MANUAL PREPARED FOR THE FACILITY AND IN ACCORDANCE WITH THE GENERAL RECOMMENDATIONS CONTAINED IN THE OWNER'S MAINTENANCE GUIDE FOR STORWATER SCM'S CONSTRUCTED IN THE TOWN OF KNIGHTDALE. THIS DOCEMENT CAN BE FOUND ON THE STORMWATER SERVICES PAGE OF THE TOWN OF KNIGHTDALE WEBSITE.
2. THE IMPOUNDMENT SCM SHALL BE CERTIFIED ANNUALLY IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE'S SCM MAINTENANCE CERTIFICATION PROTOCOL. THESE DOCUMENTS CAN BE FOUND ON THE STORMWATER SERVICES PAGE OF THE TOWN OF KNIGHTDALE'S WEBSITE.

REQUIRED TOWN OF KNIGHTDALE SCM BASIN REMOVAL SEQUENCE

1. SCHEDULE A SITE MEETING WITH THE TOWN OF KNIGHTDALE EROISION CONTROL INSPECTOR TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCING OR OTHER TEMPORARY CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
2. CONTACT NCDEQ–RALEIGH REGIONAL OFFICE (919) 791–4200 TO DETERMINE THE DIVISION OF ENERGY, MINERAL AND LAND RESOURCES CONTACT PERSON TO RECEIVE DEWATERING NOTIFICATIONS. AT LEAST 10 DAYS PRIOR TO BEGINNING DEWATERING ACTIVITY, SEND EMAIL TO NCDEQ–DEMLR CONTACT PERSON AND COPY ENVIRONMENTAL CONSULTANT THAT MET YOU ONSITE. THE EMAIL SHOULD INCLUDE E&SC JURISDICTION: WAKE COUNTY, WAKE COUNTY PROJECT: NAME, NUMBER, AND LOCATION (CITY/TOWN), ENVIRONMENTAL CONSULTANT NAME, AND ADDRESS THE FOLLOWING: a) REASON FOR CONVERSION b) BASIN #, c) DEWATERING METHOD, AND d) ALL OTHER NECESSARY INFO FROM PART II, SECTION G, ITEM 4 OF THE NCG01. (KEEP EMAIL FOR YOUR NPDES MONITORING DOCUMENTATION.
3. AFTER RECEIVING POSITIVE CONFIRMATION FROM NCDEQ–DEMLR THAT YOU MAY REMOVE THE BASIN OR ON >DAY 11, WHICHEVER IS SOONER, REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
4. PERFORM SEEDBED PREPERATION, SEED, MULCH, AND ANCHOR ANY RESULTING BARE AREAS IMMEDIATELY USING NON–CLUMPING TURF GRASS (CENTIPEDE/HYBRID BERMUDA).
5. INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
6. WHEN SITE IS FULLY STABILIZED, CALL EROSION CONTROL INSPECTOR FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION. NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE EROSION CONTROL INSPECTOR AND STORMWATER TECHNICIAN TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE.

WET POND SCM #2 PLANT LIST:
PLANTINGS ARE AT 50 PLANTINGS/200 SF OF AREA

NOTE: ALL SLOPES OF DEVICE SHALL BE STABILIZED WITH NON–CLUMPING TURF GRASS CENTIPEDE/EREMOCHLOA OPHIUROIDES OR HYBRID BERMUDA/CYNODON DACTYLON x C. TRANSVAGLENSIS GERMPLASMA

WET POND:
POND ZONE 4 – TEMPORARY INUNDATION: 49 SF AREA (REGULAR TO TEMPORARY INUNDATION ELEV. 301.00 – 301.60)

COMMON NAME/BOTANICAL NAME	SPREAD	AREA/%	QUANTITY	ROOT
Longleaf lobelia/Lobelia elongata	2' o.c.	17 sf/34.69%	5	Small Pot or bare Root
Cardinal Flower/Lobelia cardinalis	2' o.c.	16 sf/32.65%	4	
Halberdleaf rosemallow/Hibiscus laevis	2' o.c.	16 sf/32.65%	4	

WET POND:
POND ZONE 3 – SHALLOW WATER: 742 SF AREA (FIRST 3' OF VEGETATIVE SHELF ELEV. 300.50 – 301.00)

COMMON NAME/BOTANICAL NAME	SPREAD	AREA/%	QUANTITY	ROOT
Starrush whitetop/Rhynchospora colorata	2' o.c.	248 sf/33.42%	62	Small Pot or bare Root
Swamp Milkweed/Asclepias incarnata	2' o.c.	247 sf/33.29%	62	
Narrow plumegrass/Saccharum baldwinii	2' o.c.	247 sf/33.29%	62	

WET POND:
POND ZONE 2 – DEEP POOL TO SHALLOW WATER TRANSITION: 734 SF AREA (LAST 3' OF VEGETATIVE SHELF ELEV. 300.50 – 300.00)

COMMON NAME/BOTANICAL NAME	SPREAD	AREA/%	QUANTITY	ROOT
White Turtlehead/Chelone glabra	2' o.c.	245 sf/33.38%	61	Small Pot or bare Root
Joe Pye Weed/Eupatoriadelphus dubius	2' o.c.	245 sf/33.38%	61	
Quill sedge/Carex tenera	2' o.c.	244 sf/33.24%	61	

PRELIMINARY DRAWING FOR REVIEW ONLY

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
12/15/25

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

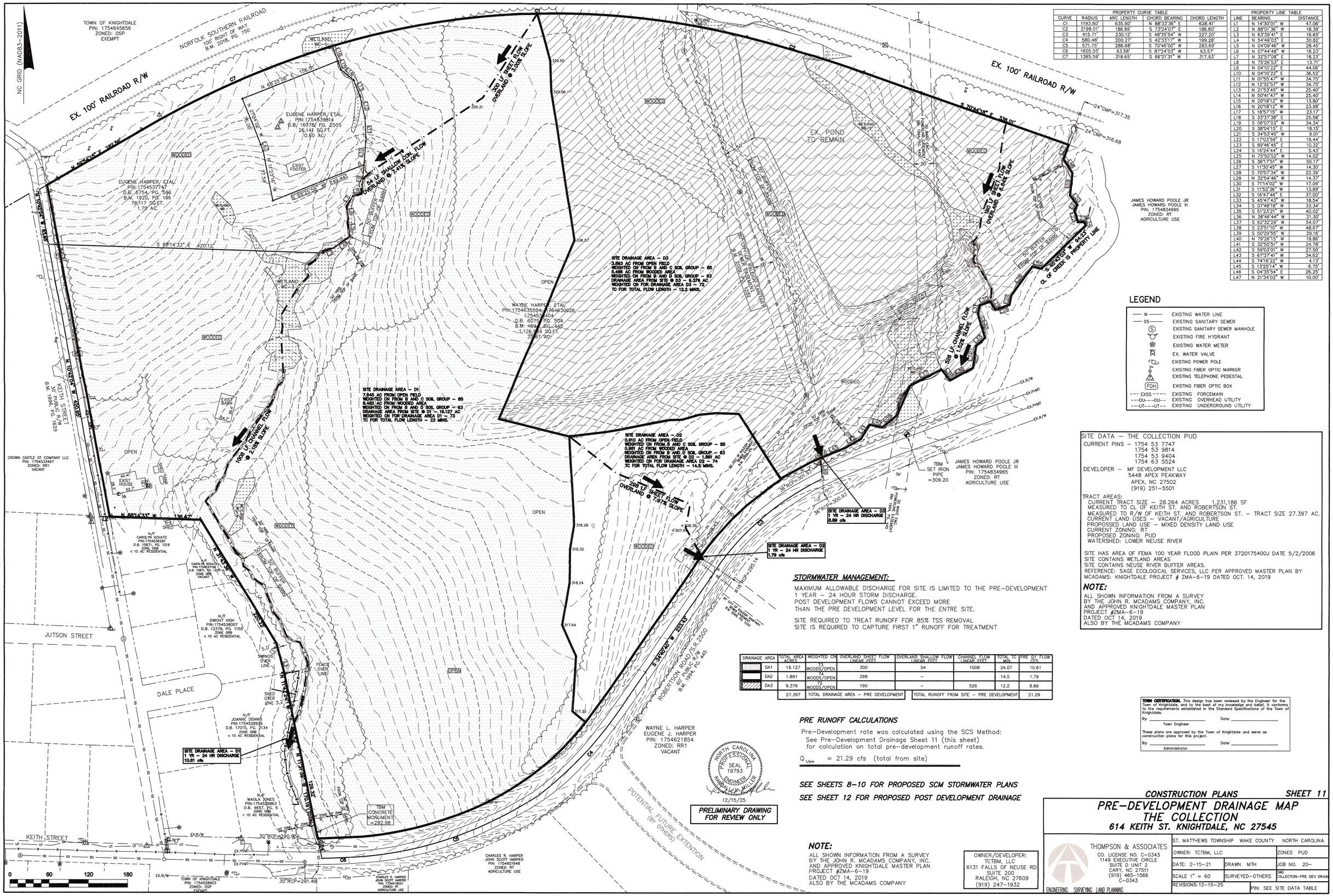
SEE THIS SHEET FOR POND PLANTINGS AND SCHEDULE
SEE SHEET 7 FOR PROPOSED GRADING AND DRAINAGE PLAN
SEE SHEET 11 FOR PROPOSED PRE DEVELOPMENT DRAINAGE
SEE SHEET 12 FOR POST DEVELOPMENT DRAINAGE AND STORMWATER

SHEET 9

SCM #2 – WET POND DETAILS
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20–
SCALE 1" = 60'	SURVEYED ----	DWG COLLECTION–POST DA
REVISIONS: 10–22–25; 12–15–25		PIN: SEE SITE DATA TABLE


NC GRID (NAD83-2011)
TOWN OF KNIGHTDALE
PIN: 1754646656
ZONED: OSP
EXEMPT
NORFOLK SOUTHERN RAILROAD
100' RIGHT OF WAY
B.M. 2018, PG. 750
EX. 100' RAILROAD R/W
N 10°32'04" W 1052.54'
EUGENE HARPER, ETAL
PIN:1754539814
D.B. 16578, PG. 2505
26,147 SQ.FT.
0.60 AC.
EUGENE HARPER, ETAL
PIN:1754537747
D.B. 6754, PG. 596
B.M. 1920, PG. 186
78,117 SQ.FT.
1.79 AC.
EXIST FOOTER
EXIST BARN
EXIST HOUSE
WETLAND WC-1
WETLAND WC-2
WETLAND WC-3
WETLAND WC-4
WOODED
OPEN
S 88°14'33" E 420.12'
N 88°25'58" E 156.91'
N 21°34'02" W 76.08'
N 68°25'58" W 849.84'
N 21°34'02" W 77.54'
S 88°14'33" E 420.12'
64 LF SHALLOW CON. FLOW OVERLAND @ 7.41% SLOPE
300' LF SHEET FLOW OVERLAND @ 3.00% SLOPE
50' BUFFER FROM TOP OF BANK
EXTEND 50' BUFFER FROM TOP OF BANK
50' BUFFER FROM TOP OF BANK
EX. POND TO REMAIN
EX. 100' RAILROAD R/W
S 70°44'16" E 338.01'
24"CMP=317.35
24"CMP=316.68
WETLAND WC-5
WETLAND WC-6
WETLAND WC-7
WETLAND WC-8
WETLAND WC-9
WETLAND WC-10
WETLAND WC-11
WETLAND WC-12
WETLAND WC-13
WETLAND WC-14
WETLAND WC-15
WETLAND WC-16
WETLAND WC-17
WETLAND WC-18
WETLAND WC-19
WETLAND WC-20
WETLAND WC-21
WETLAND WC-22
WETLAND WC-23
WETLAND WC-24
WETLAND

NOTES:

ALL SHOWN INFORMATION FROM A SURVEY BY THE JOHN R. MCADAMS COMPANY, INC. AND APPROVED KNIGHTDALE MASTER PLAN PROJECT #ZMA-6-19 DATED OCT 14, 2019 ALSO BY THE MCADAMS COMPANY

NOTE:
- ALL WORK AND MATERIALS SHALL BE AS PER THE TOWN OF KNIGHTDALE UDO, TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS, AND/OR CITY OF RALEIGH PUBLIC UTILITY STANDARDS AND NCDOT.

LEGEND:

- CURB INLET
- DROP INLET
- RCP STORM DRAIN
- STORM DRAIN
- FLOW DIRECTION
- 298 PROPOSED GRADE
- TP TREE PROTECTION FENCE
- CF COMBINATON SILT/TREE PROTECTION FENCE
- RETAINING WALL

NITROGEN LOADING TABLE FROM SITE:

TYPE OF LAND COVER	SITE AREA (ACRES)	TN EXPORT COEFF. (LBS/AC/YR)	TN EXPORT BY LAND USE (LBS/YR)	TN EXPORT FROM SITE (LBS/AC/YR)
PERMANENTLY PRESERVED UNDISTURBED AREA	9.173	0.60	5.504	
PERMANENTLY PRESERVED MANAGED OPEN SPACE (lawns – managed)	8.294	1.20	9.953	
IMPERVIOUS SURFACES (pavement, sidewalk, drives, roof tops)	9.523	21.2	201.888	
TOTAL	26.990		217.345	
AVERAGE FOR SITE				8.053

Nitrogen Control Calculations:

Total TN export by land use = 217.345 lbs/yr
Total TN export from site = 8.053 lbs/ac/yr

=> Export is more than 3.60 lbs/ac/yr and less than 10.0 lbs/ac/yr.

Since export is more than 3.6 lbs/ac/yr, developer to do a combination of on-site SCM's to lessen payment impacts. Then, the developer will pay a one time off-set payment to bring the nitrogen down to 3.6 lbs/ac/yr.

Wet Pond Area removes 30% of the nitrogen load and Bio-retention Area removes 40% (WS) of nitrogen load. Only get credit for nitrogen removal from surfaces draining into SCM from the site. No credit for treatment of offsite drainage surfaces into SCM.

Wet Pond Areas removes 30% of the nitrogen load
Managed pervious = 5.32 ac; Impervious Surfaces = 6.32 ac. (from on site drainage only)
TN Export:
(5.32 ac. x 1.2 lbs/ac/yr) + (6.32 ac. x 21.2 lbs/ac/yr) = 140.368 lbs/yr
140.368 lbs/yr x 0.30 = 42.110 lbs/yr

Bio-retention Area removes 40% (WS) of nitrogen load
Impervious Surfaces = 1.65 ac.; Managed pervious = 1.22 ac.
TN Export:
(1.65 ac. x 21.2 lbs/ac/yr) + (1.22 ac. x 1.2 lbs/ac/yr) = 36.444 lbs/yr
36.444 lbs/yr x 0.40 = 14.578 lbs/yr

217.345 lbs/yr – 42.110 lbs/yr – 14.578 lbs/yr = 160.657 lbs/yr
160.657 lbs/yr / 26.990 ac. = 5.952 lbs/ac/yr < 6 lbs/ac/yr - buy down remaining to 3.6 target

TOTAL NUTRIENT OFFSET PAYMENT FOR SITE:
(5.952 lbs/ac/yr – 3.6 lbs/ac/yr) x 26.99 ac x 30 yr x $18.40/lb = $35,212.62
(already paid $36,836.37)

SEE SHEETS 8–10 FOR PROPOSED SCM STORMWATER PLANS
SEE SHEET 6 FOR DRAINAGE STRUCTURE SCHEDULES

STORMWATER MANAGEMENT:

MAXIMUM ALLOWABLE DISCHARGE FOR SITE IS LIMITED TO THE PRE–DEVELOPMENT 1 YEAR – 24 HOUR STORM DISCHARGE.
POST DEVELOPMENT FLOWS CANNOT EXCEED MORE THAN THE PRE DEVELOPMENT LEVEL FOR THE ENTRE SITE.

SITE REQUIRED TO TREAT RUNOFF FOR 85% TSS REMOVAL
SITE IS REQUIRED TO CAPTURE FIRST 1" RUNOFF FOR TREATMENT

SEE SHEET 11 FOR PRE DEVELOPMENT DRAINAGE

PRE DEVELOPMENT RUNOFF FROM SITE – SEE SHEET 11 FOR DRAINAGE MAP

DRAINAGE AREA	TOTAL AREA ACRES	WEIGHTED CN	OVERLAND SHEET FLOW LINEAR FEET	OVERLAND SHALLOW FLOW LINEAR FEET	CHANNEL FLOW LINEAR FEET	TOTAL TC MIN	PRE Q1 TOTAL CFS
DA1	16.127	67 WOODS/OPEN	300	54	1008	24.07	10.61
DA2	1.891	74 WOODS/OPEN	298	–		14.5	1.79
DA3	9.379	72 WOODS/OPEN	190	–	526	12.2	8.89
	27.397	TOTAL DRAINAGE AREA – PRE DEVELOPMENT		TOTAL RUNOFF FROM SITE – PRE DEVELOPMENT			21.29

PRE RUNOFF CALCULATIONS

Pre–Development rate was calculated using the SCS Method:
See Pre–Development Drainage Sheet 11 for calculation on total pre–development runoff rates.

$Q_{1/pre}$ = 21.29 cfs (total from site)

POST DEVELOPMENT RUNOFF FROM SITE AFTER CONSTRUCTION NOT TO SCM

DRAINAGE AREA	TOTAL AREA ACRES	WEIGHTED CN	OPEN SPACE AREA CN = 63	MAN.PERV. CN = 61	IMPERVIOUS AREA CN = 98	TOTAL TC MIN.	POST Q1 FLOW –CFS
DA1 TO OFFSITE	4.93	67	3.34 AC	0.91 AC	0.68 AC	25.10	1.80
DA2 TO OFFSITE	6.26	65	5.23 AC	0.63 AC	0.40 AC	12.2	2.91
DA3 TO OFFSITE	0.90	81	–	0.42 AC	0.48 AC	5	1.81
					TOTAL POST Q1 (CFS) FLOWING FROM SITE NOT TO A SCM		6.52

TOTAL POST DEVELOPMENT RUNOFF FROM SITE & FROM OFFSITE DRAINING TO SCM

DRAINAGE AREA	TOTAL AREA ACRES	WEIGHTED CN	MANAGED PERVIOUS 61	IMPERVIOUS AREA CN = 98	TOTAL TC MIN.	POST Q1 FLOW INTO SCM –CFS	POST Q1 ROUTED THRU SCM –CFS
DA TO SCM #1	(0.31 OFFSITE) (2.81 SITE) 3.12	75	1.90 AC	1.22 AC	USE 5	4.49	0.05
DA TO SCM #2	(8.83 SITE) 8.83	82	3.73 AC	5.10 AC	USE 5	18.63	0.76
DA TO SCM #3	(2.87 SITE) 2.87	82	1.22 AC	1.65 AC	USE 5	6.06	(PLUS 0.22 THRU MEDIA) 0.32
					TOTAL POST Q1 (CFS) FLOWING FROM SITE ROUTED THRU SCM's		1.13 (PLUS 0.22 THRU MEDIA)

TOTAL ROUTING THRU SCM's PLUS FLOWS NOT TO SCM's – TOTAL RESULTING OUTFLOWS (POST DEVELOPMENT)

$Q_{1/post\ routed\ thru\ scm\ including\ offsite\ da's}$ = 0.05 cfs + 0.76 cfs + 0.32 cfs = 1.13 cfs total routed thru scm's

$Q_{1/post\ not\ to\ scm's}$ = 1.80 cfs + 2.91 cfs + 1.81 cfs = 6.52 cfs total not to scm's – directly offsite

$Q_{1/post\ –\ total\ from\ site}$ = 1.13 cfs thru scm's + 0.22 cfs thru bio soil + 6.52 cfs not to scm = 7.87 cfs total

$Q_{1/post\ total\ from\ site}$ = 7.87 cfs is less than $Q_{1/pre\ total\ from\ site}$ = 21.29 cfs

SITE IS IN COMPLIANCE

SITE DRAINAGE AREA – DA1 TO OFFSITE – NOT TO SCM
1 YR – 24 HR DISCHARGE
POST = 1.80 cfs + TOTAL
1 YR – 24 HR DISCHARGE
POST = 1.32 cfs FROM SCM's
TOTAL POST 1 YR – 24 HR = 3.015 cfs LESS THAN
1 YR – 24 HR DISCHARGE
PRE = 10.61 cfs

SITE DRAINAGE AREA – DA2 TO OFFSITE – NOT TO SCM
1 YR – 24 HR DISCHARGE
POST = 2.91 cfs LESS THAN
1 YR – 24 HR DISCHARGE
PRE = 8.89 cfs

SITE DRAINAGE AREA – DA3 TO OFFSITE – NOT TO SCM
1 YR – 24 HR DISCHARGE
POST = 1.81 cfs
1 YR – 24 HR DISCHARGE
PRE = 1.79 cfs

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL K. MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

OWNER/DEVELOPER:
TBM PARTNERS
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247–1932

THOMPSON & ASSOCIATES
CO. LICENSE NO. C–0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465–1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA
OWNER: TCTBM, LLC ZONED PUD
DATE 7/28/2025 DRAWN RLM JOB NO. 20–
SCALE 1" = 60' SURVEYED ---- DWG: COLLECTION–GRADE
REVISIONS: 10–22–25; 12–15–25 PIN: SEE SITE DATA TABLE

SHEET 12

POST DEVELOPMENT DRAINAGE MAP
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

OPEN SPACE
TREE SAVE AREA
WETLAND

0 60 120 180

- ALL WORK AND MATERIALS SHALL BE AS PER TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS, AND/OR CITY OF RALEIGH PUBLIC UTILITY STANDARDS, AND NCDOT. EROSION CONTROL SHALL BE AS PER TOWN OF KNIGHTDALE EROSION CONTROL STANDARDS.

NC GRID (NAD83-2011)

TOWN OF KNIGHTDALE
PIN: 1754645656
ZONED: OSP
EXEMPT

NORFOLK SOUTHERN RAILROAD
100' RIGHT OF WAY
B.M. 2018, PG. 750

EX. 100' RAILROAD R/W

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

GROUND STABILIZATION REQUIRED WITHIN 7 DAYS FOR PERIMETER AREAS AND FOR SLOPES GREATER THAN 3:1. ALL OTHER AREAS IT IS REQUIRED WITHIN 14 DAYS OF ANY PHASE OF GRADING.

GRADING NOTES:
PRIOR TO GRADING, A GRADING AND EROSION CONTROL PLAN SHALL BE FILED WITH APPROPRIATE AGENCY. A GRADING PERMIT SHALL BE OBTAINED AS REQUIRED.

ALL GRADING AND EROSION CONTROL REQUIREMENTS OF THE SOIL AND EROSION CONTROL ORDINANCE OF THE GOVERNING AGENCY SHALL BE COMPLIED WITH.

NOTES ON TREE PROTECTION FENCE:

TREE PROTECTION FENCE TO BE PLACED ON ITS OWN STAKED LINE AND SUPPORTS. TREE PROTECTION FENCE SHALL NOT BE ON SAME STAKED LINE AND SUPPORTS WITH SILT FENCING.

FOLLOWING PLAN APPROVAL, PLEASE CONTACT THE TOWN OF KNIGHTDALE SEDIMENTATION AND EROSION CONTROL AT 919-217-2255 FOR REVIEW AND APPROVAL OF THE SOIL EROSION AND SEDIMENT PLAN. APPROVAL OF THE PLAN BY THE TOWN OF KNIGHTDALE IS CONTINGENT ON A LETTER FROM THE TOWN STATING THAT THE REQUIRED TREE PROTECTION FENCING HAS BEEN INSTALLED, INSPECTED, AND APPROVED BY THE SEDIMENT AND EROSION CONTROL DEPARTMENT. A "CERTIFICATE OF COMPLIANCE" FROM THE TOWN, FOR THIS PROJECT, IS REQUIRED PRIOR TO RECEIVING A BUILDING PERMIT.

GENERAL PROJECT NOTES:

ALL WORK AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE SEDIMENT AND EROSION CONTROL DEPARTMENT AND ORDINANCE.

CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE & ITS SEDIMENT AND EROSION CONTROL ORDINANCE TO REFER TO DURING CONSTRUCTION OF THE PROJECT.

CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING ABOVE AND BELOW GROUND UTILITIES IN THE AREA PRIOR TO CONSTRUCTION AND COORDINATE RELOCATION, IF NEEDED, OF THESE UTILITIES WITH THE APPROPRIATE AUTHORITIES.

ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH TOWN OF KNIGHTDALE SEDIMENT AND EROSION CONTROL STANDARDS AND SPECIFICATIONS.

WETLAND WC-1
WETLAND WC-2
WETLAND WB-2
WETLAND WB-1

LIMITS OF DISTURBANCE (TYPICAL)

TEMPORARY DIVERSION DITCH 2 (SEE DETAIL)
TEMPORARY DIVERSION DITCH 6 (SEE DETAIL)
TEMPORARY DIVERSION DITCH 1 (SEE DETAIL)

COMBINATION TREE AND SILT FENCE (TYP.)
ROCK CHECK DAM (TYP)
HORSESHOE INLET PROTECTION(TYP)

+329.55
~15 lf 12" CPP SLOPE DRAIN WITH 5' x 15" x 18" CLASS "B" RIPRAP DISSIPATOR
+329.06
+326.21
~10 lf 12" CPP SLOPE DRAIN WITH 5' x 15" x 18" CLASS "B" RIPRAP DISSIPATOR

DISSIPATOR Lo =6', W =4', D =16" CLASS "B" STONE SEE DETAIL SHEET

15 x 15 FILTER BAG ATOP AN AREA 20' x 20' OF 8"-9" STONE ATOP A DRAINAGE GEOTEXTILE FABRIC

SB#5
SKIMMER W/ BAFFLES

TREE SAVE AREA 1
TREE SAVE AREA 2
TREE SAVE AREA 3
TREE SAVE AREA 4

EX. POND TO REMAIN

S 70°44'16" E 338.01'

24"CMP=317.35
24"CMP=316.68

WETLAND WB-3

50' BUFFER FROM TOP OF BANK

EX. 100' RAILROAD R/W

N 19°07'44" W 1,403.96'

S 59°26'45" E 182.56'

WOODED
OPEN

VEHICLE CROSSING AREA ALONG MAIN DIVERSION DITCH SEE DETAIL ON SHEET 40 AT END OF EACH DAY, MAINTAIN DIVERSION DITCH TO ENSURE SEDIMENT LADEN RUNOFF IS DIVERTED INTO SEDIMENT BASIN.

SEE INSET 1 SHEET 18D FOR IMPACT INFORMATION

TO BE REMOVED
EXIST FOOTER

~19 LF 15" HDPE TEMP. STORMDRAIN PIPE WITH FILTER FABRIC & CHANNEL AGGREGATE SEE DETAIL SHEET 39 4' L. CONCRETE WASH WIDE & 4' DEEP

WETLAND AREA APPROVED TO BE FILLED

~16 lf 12" CPP SLOPE DRAIN WITH 5' x 15" x 18" CLASS "B" RIPRAP DISSIPATOR

SILT FENCE (TYP.)

CWO CONCRETE WASH OUT SEE DETAIL SHEET

NCDOT SELF INSPECTION RECORDS: PERMIT BOX & RAIN GAUGE

HORSESHOE INLET PROTECTION

25' x 50' x 12" RIP RAP CONSTRUCTION ENTRANCE. SEE DETAIL SHEET

~24 lf 12" CPP SLOPE DRAIN WITH 5' x 15" x 18" CLASS "B" RIPRAP DISSIPATOR

~32 LF TEMP 15" HDPE IN EX. DITCH

PIPE DISCHARGE THRU SILT FENCE OUTLET & TO DISCHARGE OFFSITE

+336.57

ALONG SIDE SLOPE OF BFD. BASIN DOUBLE ROW SILT STOP OR EQUAL (TYP. ALL BASINS)

SB#3
SKIMMER W/ BAFFLES

OPEN

TEMPORARY DIVERSION DITCH 8 (SEE DETAIL)

SILT FENCE OUTLET EVERY 100' (TYP.)

~27 lf 12" CPP SLOPE DRAIN WITH 5' x 15" x 18" CLASS "B" RIPRAP DISSIPATOR

SB#4
SKIMMER W/ BAFFLES

DISSIPATOR Lo =27', W =4', D =16" CLASS "B" STONE SEE DETAIL SHEET

HORSESHOE INLET PROTECTION(TYP)

LIMITS OF DISTURBANCE (TYPICAL)

JAMES HOWARD POOLE JR
JAMES HOWARD POOLE III
PIN: 1754834965
ZONED: RT
AGRICULTURE USE

WETLAND WB-2

WETLAND WC-3

WETLAND WC-4

WETLAND WC-5

WETLAND WC-6

WETLAND WC-7

WETLAND WC-8

WETLAND WC-9

WETLAND WC-10

WETLAND WC-11

WETLAND WC-12

WETLAND WC-13

WETLAND WC-14

WETLAND WC-15

WETLAND WC-16

WETLAND WC-17

WETLAND WC-18

WETLAND WC-19

WETLAND WC-20

WETLAND WC-21

WETLAND WC-22

WETLAND

CONSTRUCTION PLANS — SHEET 13-A

INITIAL EROSION CONTROL PLANS WITH APPROVED CROSSING AND IMPACT PERMITS

THE COLLECTION

614 KEITH ST. KNIGHTDALE, NC 27545

NC GRID (NAD83–2011)

DENUDED AREA = 21.8 AC.

TEMP SED BASIN SB#1	DIMENSIONS	ELEV.
EMERGENCY SPILLWAY	10'	316.00
TOP OF DAM WIDTH	10'	317.00
ANTI-SEEP COLLAR	5'W x 5'H EA. SIDE	
RIP RAP DISSIPATER PAD	La = 6' W = 4' D = 18	
OUTLET PIPE INVERT IN	6" CMP	308.00
OUTLET PIPE INVERT OUT	6" CMP	307.00
SEDIMENT STORAGE AREA	SEE GRADES	315.00

SEDIMENT BASIN WILL HAVE 12" SLOPE DRAIN ENTERING INTO BASIN. SEE THIS SHEET FOR ~LOCATION AND ~LENGTH. ALSO SEE STANDARD DETAIL ON SHEET 39 FOR ADDITIONAL INFORMATION. OUTLET END OF SLOPE DRAIN TO HAVE A RIPRAP DISSIPATOR (5' x 15' x 18" – CLASS B STONE)

PLAN VIEW

ALONG SIDE SLOPE OF SED. BASIN PLACE ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL (TYP. ALL BASINS)

SKIMMER SIZES
RESULTING DEWATERING TIME IS 3 DAYS
SB#1 – SKIMMER SIZE = 3" WITH A 2.5" ORIFICE DIA.

CROSS SECTION — DRAWING NOT TO SCALE

SEDIMENT BASIN WITH SKIMMER AND BAFFLES – SB#1

TEMP SED BASIN SB#3	DIMENSIONS	ELEV.
EMERGENCY SPILLWAY	10'	316.00
TOP OF DAM WIDTH	10'	317.00
ANTI-SEEP COLLAR	5'W x 5'H EA. SIDE	
RIP RAP DISSIPATER PAD	La = 6' W = 4' D = 18	
OUTLET PIPE INVERT IN	6" CMP	312.00
OUTLET PIPE INVERT OUT	6" CMP	311.00
SEDIMENT STORAGE AREA	SEE GRADES	315.00

SEDIMENT BASIN WILL HAVE 12" SLOPE DRAIN ENTERING INTO BASIN. SEE THIS SHEET FOR ~LOCATION AND ~LENGTH. ALSO SEE STANDARD DETAIL ON SHEET 39 FOR ADDITIONAL INFORMATION. OUTLET END OF SLOPE DRAIN TO HAVE A RIPRAP DISSIPATOR (5' x 15' x 18" – CLASS B STONE)

PLAN VIEW

ALONG SIDE SLOPE OF SED. BASIN PLACE ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL (TYP. ALL BASINS)

SKIMMER SIZES
RESULTING DEWATERING TIME IS 3 DAYS
SB#3 – SKIMMER SIZE = 3" WITH A 2.5" ORIFICE DIA.

CROSS SECTION — DRAWING NOT TO SCALE

SEDIMENT BASIN WITH SKIMMER AND BAFFLES – SB#3

SKIMMER SEDIMENT BASIN #1:

=> Rainfall intensity for 10 Year 5 Minute Storm = I = 7.2 in./hr.
=> Q = C x I x A = 0.7 x 7.2 in/hr x 2.5 ac. = 12.6 cfs

MINIMUM STORAGE CAPACITY:
1,800 cf/acre x drainage area = 1,800 cf/ac x 2.5 ac = 4,500 cf

PROPOSED STORAGE CAPACITY:
Volume (cf) = surface area (sq.ft.) x max. pool depth (ft.)
Volume (cf) @ 315' = 19,178.65 cf

MINIMUM REQUIRED SURFACE AREA:
435 sf x 12.6 cfs = 5,481 sf
PROPOSED SURFACE AREA = 5,675.60 SF @ ELEVATION 315.00
BASIN SIZE: SEE GRADES ON PLAN FROM BOTTOM 308' TO 315' INSIDE BASIN

SKIMMER SEDIMENT BASIN #3:

=> Rainfall intensity for 10 Year 5 Minute Storm = I = 7.2 in./hr.
=> Q = C x I x A = 0.7 x 7.2 in/hr x 3.9 ac. = 19.66 cfs

MINIMUM STORAGE CAPACITY:
1,800 cf/acre x drainage area = 1,800 cf/ac x 3.9 ac = 7,020 cf
PROPOSED STORAGE CAPACITY:
Volume (cf) = surface area (sq.ft.) x max. pool depth (ft.)
Volume (cf) @ 315' = 19,597.5 cf
MINIMUM REQUIRED SURFACE AREA:
435 sf x 19.66 cfs = 8,552.1 sf
PROPOSED SURFACE AREA = 8,708.3 SF @ ELEVATION 315.00
BASIN SIZE: SEE GRADES ON PLAN FROM BOTTOM 312' TO 315' INSIDE BASIN

OFFSITE SPOIL NOTE:
IF AN OFFSITE SPOIL OR BORROW SITE IS UTILIZED, THEN THE DISTURBED AREA FOR THE SPOIL/BORROW AREA SHALL BE INCLUED/ADDED INTO THE LAND DISTURBANCE PLAN AND PERMIT UNLESS THE SPOIL/BORROW SITE ALREADY HAS A SEPARATE LAND DISTURBANCE PERMIT.

GROUND STABILIZATION REQUIRED WITHIN 7 DAYS FOR PERIMETER AREAS AND FOR SLOPES GREATER THAN 3:1. ALL OTHER AREAS IT IS REQUIRED WITHIN 14 DAYS OF ANY PHASE OF GRADING.

LEGEND

- W —— EXISTING WATER LINE
- SS —— EXISTING SANITARY SEWER
- (S) EXISTING SANITARY SEWER MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING WATER METER
- EX. WATER VALVE
- EXISTING POWER POLE
- EXISTING FIBER OPTIC MARKER
- EXISTING TELEPHONE PEDESTAL
- FOH EXISTING FIBER OPTIC BOX
- EXSS EXISTING FORCEMAIN
- OHU OHU OHU EXISTING OVERHEAD UTILITY
- UTL UTL UTL EXISTING UNDERGROUND UTILITY

LEGEND:

- CF COMBINATION SILT FENCE TREE PROTECTION FENCE
- TF TREE PROTECTION FENCE
- SF SILT FENCE
- TEMPOARY DIVERSION
- SFO SILT FENCE OUTLET
- 2957 PROPOSED GRADE
- ROCK CHECK DAM
- HORSESHOE INLET PROTECTION

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
C-0343
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA

OWNER: TCTBM, LLC		ZONED PUD
DATE: 3-11-22	DRAWN MTH	JOB NO. 20–
SCALE 1" = 40	SURVEYED–OTHERS	DWG COLLECTION–EXCOND

REVISIONS:7/14/22;8/24/22;1/12/23
2/17/23;3/9/23;5/21/25;12/15/25 PIN: SEE SITE DATA TABLE

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

NOTES ON TREE PROTECTION FENCE:
TREE PROTECTION FENCE TO BE PLACED ON ITS OWN STAKED LINE AND SUPPORTS. TREE PROTECTION FENCE SHALL NOT BE ON SAME STAKED LINE AND SUPPORTS WITH SILT FENCING.
FOLLOWING PLAN APPROVAL, PLEASE CONTACT THE TOWN OF KNIGHTDALE SEDIMENTATION AND EROSION CONTROL AT 919-217-2255 FOR REVIEW AND APPROVAL OF THE SOIL EROSION AND SEDIMENT PLAN. APPROVAL OF THE PLAN BY THE TOWN OF KNIGHTDALE IS CONTINGENT ON A LETTER FROM THE TOWN STATING THAT THE REQUIRED TREE PROTECTION FENCING HAS BEEN INSTALLED, INSPECTED, AND APPROVED BY THE SEDIMENT AND EROSION CONTROL DEPARTMENT. A "CERTIFICATE OF COMPLIANCE" FROM THE TOWN, FOR THIS PROJECT, IS REQUIRED PRIOR TO RECEIVING A BUILDING PERMIT.

NOTE:
PLAN WILL BE SUBJECT TO NCDEMLUR SELF–INSPECTION PROGRAM. AN EROSION CONTROL INSPECTION WILL BE CONDUCTED AFTER EACH PHASE OF GRADING AND THE INSPECTION DOCUMENTED IN WRITING. IT IS RECOMMENDED THAT THE CONTRACTOR UTILIZE THE NCDLQ/NCDWR JOINT SELF–INSPECTION FORM.

TOWN OF KNIGHTDALE CONSTRUCTION SEQUENCE:
1. SCHEDULE AN INITIAL PRE–CONSTRUCTION CONFERENCE WITH THE TOWN OF KNIGHTDALE. OBTAIN A LAND DISTURBANCE PERMIT.
2. INSTALL ALL PERIMETER CONTROLS AS SHOWN ON APPROVED PLANS. CLEAR ONLY AS NECESSARY TO INSTALL PERIMETER CONTROLS. INSTALL SILT FENCE IN A MINIMUM 20' "BERMUDA" ASSUMED PERIMETER TO INSTALL CONTROLS. NO GRADING OR EXCAVATION SHOULD OCCUR.
3. SCHEDULE ON SITE PRECONSTRUCTION MEETING WITH THE TOWN OF KNIGHTDALE TO INSPECT THE INSTALLED PERIMETER CONTROLS.
4. IF APPROVED, PROCEED WITH INSTALLING OF THE TEMPORARY STREAM CROSSINGS AS SHOWN ON THE APPROVED PLANS. PLEASE REFER TO DETAIL ON SHEET 39 FOR TEMPORARY STREAM CROSSING. CONTRACTOR SHALL INSTALL TEMP. STREAM CROSSING DURING DRY CONDITIONS. CONTRACTOR SHALL NOT DISTURB ANY AREA BEYOND THE TEMPORARY STREAM CROSSING THIS SHEET. ONLY DISTURB AREA NEEDED FOR TEMPORARY CROSSINGS.
5. AFTER TEMPORARY STREAM CROSSING INSTALLTIONS, PROCEED WITH INSTALLING GRAVEL CONSTRUCTION PAD, TEMP. DIVERSIONS, SILT FENCE, COMBINATION FENCE, SILT FENCE OUTLETS, ROCK CHECK DAMS, SEDIMENT BASINS, AND ALL OTHER EROSION CONTROL DEVICES AS SHOWN ON APPROVED PLANS. CLEAR ONLY AS NEEDED TO INSTALL THESE DEVICES. NEED ALL TEMP. DIVERSIONS, BERMS, AND SEDIMENT BASINS IMMEDIATELY STABILIZED AFTER INSTALL.
6. CALL TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO SCHEDULE AN ON SITE INSPECTION AND OBTAIN A CERTIFICATE OF COMPLIANCE.
7. INITIAL TEMP. VEHICLE CROSSINGS ALONG TEMP. DIVERSION DITCHES AS SHOWN ON PLANS. REFER TO DETAIL ON SHEET 40 FOR INFORMATION ON CROSSINGS AT END OF DIVERSION. CONTRACTOR SHALL MAINTAIN DIVERSION DITCH TO ENSURE SEDIMENT LADEN RUNOFF IS DIVERTED INTO SEDIMENT BASIN. RE–ESTABLISH DIVERSION AS NEEDED TO ENSURE POSITIVE FLOW TO A SEDIMENT BASIN.
8. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE. ENSURE COMPLIANCE WITH ALL APPROVED IMPACT AND CROSSING PERMITS.
9. MAINTAIN ALL TEMP. EROSION CONTROL DEVICES UNTIL PERMANENT COVER IS ESTABLISHED. AFTER EACH RAIN EVENT, 1" OVER 24 HOURS, REMOVE SILT FENCE OUTLETS AND RE–ESTABLISH A SEDIMENT BASIN.
10. SEE SHEET 14 FOR ADDITIONAL SEQUENCE AND EROSION CONTROL MEASURES.

STOCK PILE NOTES:
Soil stockpiles shall be located on the approved plan and shall adhere to the following requirements:
Delays: [check]
a. A 25–foot temporary maintenance and access easement shall be shown around all proposed stockpiles (erosion control measures surrounding the stockpile shall be shown at the outer limit of this easement).
b. Stockpile footprints shall be setback a minimum of 25' from adjacent property lines.
c. A note shall be provided on the approved plan that stockpile height shall not exceed 35 feet.
d. Stockpile slopes shall be 2:1 or flatter.
e. Stockpiles shall be shown on a plan to control any potential sediment loss from a stockpile.
f. Stockpiling materials adjacent to a ditch, drainageway, watercourses, wetland, stream buffer, or other body of water shall be avoided unless an alternative location is demonstrated to be unavailable.
g. Any unprotected flow likely to affect the stockpile shall be diverted to an approved basin.
h. Off–site spoil or borrow areas must be in compliance with Town of Knightdale UDO and State Regulations. All spoil areas over an acre are required to have an approved sediment control plan. Developer/Contractor shall notify Town of Knightdale Public Works Director prior to any off–site borrow areas. FEMA Floodplain or Non–encroachment areas are prohibited except as otherwise provided by the Town of Knightdale Unified Development Ordinance (certifications and permits required).
Maintenance Requirements to be Noted on the Plan
a. Temporary stockpiles shall be inspected as required and will reduce erosion problems. Slope should be keyed in at the top of the slope to keep water from running underneath the plastic.
b. If a stockpile is to remain for future use after the project is complete (bollards, etc.), the financial responsible party must notify the Town of Knightdale that the stockpile will remain for future use.
c. The approved plan shall provide for the use of staged seeding and mulching on a portion basis while the stockpile is in use.
d. Establish and maintain a vegetative buffer at the toe of the slope (where practical)

TEMPORARY DIVERSION DITCH 1
LENGTH =428 LF.
DA = 1.44 AC.
WEIGHTED "C" = 0.70
Time of Concentration = 5 minutes
Q10 = 0.70 x 7.2 IN/HR x 1.44 AC = 7.25 CFS
V10= 6.14 fps
D10 = 0.42'
Slope = 2.8%
n = 0.018
Shear Stress = 0.74 psf
Allow. Shear Stress = 1.75 psf

DITCH TO BE LINED WITH ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL

SEED OUT AND STABILIZE DIVERSION DITCH. USE TEMPORARY EROSION CONTROL MATTING TO ESTABLISH TEMP. GRASS COVER. USE NORTH AMERICAN GREEN ERONET SC 150 OR APPROVED EQUAL FOR STABILIZATION.

TEMPORARY DIVERSION DITCH 2 (SEE DETAIL)
LENGTH =331 LF.
DA = 1.73 AC.
WEIGHTED "C" = 0.70
Time of Concentration = 5 minutes
Q10 = 0.70 x 7.2 IN/HR x 1.73 AC = 8.72 CFS
V10= 5.82 fps
D10 = 0.5'
Slope = 2.0%
n = 0.018
Shear Stress = 0.62 psf
Allow. Shear Stress = 1.75 psf

DITCH TO BE LINED WITH ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL

SEED OUT AND STABILIZE DIVERSION DITCH. USE TEMPORARY EROSION CONTROL MATTING TO ESTABLISH TEMP. GRASS COVER. USE NORTH AMERICAN GREEN ERONET SC 150 OR APPROVED EQUAL FOR STABILIZATION.

TEMPORARY DIVERSION DITCH 6
LENGTH =164 LF.
DA = 0.40 AC.
WEIGHTED "C" = 0.70
Time of Concentration = 5 minutes
Q10 = 0.70 x 7.2 IN/HR x 0.40 AC = 2.02 CFS
V10= 4.72 fps
D10 = 0.18'
Slope =4.27%
n = 0.018
Shear Stress = 0.48 psf
Allow. Shear Stress = 1.75 psf

DITCH TO BE LINED WITH ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL

SEED OUT AND STABILIZE DIVERSION DITCH. USE TEMPORARY EROSION CONTROL MATTING TO ESTABLISH TEMP. GRASS COVER. USE NORTH AMERICAN GREEN ERONET SC 150 OR APPROVED EQUAL FOR STABILIZATION.

TEMPORARY DIVERSION DITCH 7
LENGTH =218 LF.
DA = 0.65 AC.
WEIGHTED "C" = 0.70
Time of Concentration = 5 minutes
Q10 = 0.70 x 7.2 IN/HR x 0.65 AC = 3.28 CFS
V10= 2.66 fps
D10 = 0.43'
Slope =2.85%
n = 0.018
Shear Stress = 0.13 psf
Allow. Shear Stress = 1.75 psf

DITCH TO BE LINED WITH ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL

SEED OUT AND STABILIZE DIVERSION DITCH. USE TEMPORARY EROSION CONTROL MATTING TO ESTABLISH TEMP. GRASS COVER. USE NORTH AMERICAN GREEN ERONET SC 150 OR APPROVED EQUAL FOR STABILIZATION.

TEMPORARY DIVERSION DITCH 8
LENGTH =206 LF.
DA = 0.86 AC.
WEIGHTED "C" = 0.70
Time of Concentration = 5 minutes
Q10 = 0.70 x 7.2 IN/HR x 0.86 AC = 4.84 CFS
V10= 5.55 fps
D10 = 0.5'
Slope =2.85%
n = 0.018
Shear Stress = 0.59 psf
Allow. Shear Stress = 1.75 psf

DITCH TO BE LINED WITH ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL

SEED OUT AND STABILIZE DIVERSION DITCH. USE TEMPORARY EROSION CONTROL MATTING TO ESTABLISH TEMP. GRASS COVER. USE NORTH AMERICAN GREEN ERONET SC 150 OR APPROVED EQUAL FOR STABILIZATION.

SKIMMER SEDIMENT BASIN #4:
=> Rainfall intensity for 10 Year 5 Minute Storm = I = 7.2 in./hr.
=> Q = C x I x A = 0.7 x 7.2 in/hr x 2.9 ac. = 14.62 cfs
MINIMUM STORAGE CAPACITY:
1,800 cf/acre x drainage area = 1,800 cf/ac x 2.9 ac = 5,220 cf
PROPOSED STORAGE CAPACITY:
Volume (cf) = surface area (sq.ft.) x max. pool depth (ft.)
Volume (cf) @ 314' = 42,516 cf
MINIMUM REQUIRED SURFACE AREA:
435 sf x 14.62 cfs = 6,656.7 sf
PROPOSED SURFACE AREA = 13,222 SF @ ELEVATION 314.00
BASIN SIZE: SEE GRADES ON PLAN FROM BOTTOM 310' TO 314' INSIDE BASIN

TEMP SED BASIN SB#5	DIMENSIONS	ELEV.
EMERGENCY SPILLWAY	10'	334.00
TOP OF DAM WIDTH	10'	335.00
ANTI-SEEP COLLAR	5'W x 5'H EA. SIDE	
RIP RAP DISSIPATER PAD	La = 6' W = 4' D = 18	
OUTLET PIPE INVERT IN	6" CMP	333.00
OUTLET PIPE INVERT OUT	6" CMP	332.00
SEDIMENT STORAGE AREA	SEE GRADES	334.00

SEDIMENT BASIN WILL HAVE 12" SLOPE DRAIN ENTERING INTO BASIN. SEE THIS SHEET FOR ~LOCATION AND ~LENGTH. ALSO SEE STANDARD DETAIL ON SHEET 39 FOR ADDITIONAL INFORMATION. OUTLET END OF SLOPE DRAIN TO HAVE A RIPRAP DISSIPATOR (5' x 15' x 18" – CLASS B STONE)

PLAN VIEW

ALONG SIDE SLOPE OF SED. BASIN PLACE ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL (TYP. ALL BASINS)

SKIMMER SIZES
RESULTING DEWATERING TIME IS 3 DAYS
SB#5 – SKIMMER SIZE = 2" WITH A 1.7" ORIFICE DIA.

CROSS SECTION — DRAWING NOT TO SCALE

SEDIMENT BASIN WITH SKIMMER AND BAFFLES – SB#5

SKIMMER SEDIMENT BASIN #5:
=> Rainfall intensity for 10 Year 5 Minute Storm = I = 7.2 in./hr.
=> Q = C x I x A = 0.7 x 7.2 in/hr x 1.4 ac. = 7.06 cfs
MINIMUM STORAGE CAPACITY:
1,800 cf/acre x drainage area = 1,800 cf/ac x 1.4 ac = 2,520 cf
PROPOSED STORAGE CAPACITY:
Volume (cf) = surface area (sq.ft.) x max. pool depth (ft.)
Volume (cf) @ 333' = 8,909.7 cf
MINIMUM REQUIRED SURFACE AREA:
435 sf x 7.06 cfs = 3071.1 sf
PROPOSED SURFACE AREA = 5,565 SF @ ELEVATION 333.00
SEE GRADES ON PLAN FROM BOTTOM 331' TO 334' INSIDE BASIN

TEMP SED BASIN SB#6	DIMENSIONS	ELEV.
EMERGENCY SPILLWAY	10'	315.00
TOP OF DAM WIDTH	10'	316.00
ANTI-SEEP COLLAR	5'W x 5'H EA. SIDE	
RIP RAP DISSIPATER PAD	La = 6' W = 4' D = 18	
OUTLET PIPE INVERT IN	6" CMP	313.00
OUTLET PIPE INVERT OUT	6" CMP	312.00
SEDIMENT STORAGE AREA	SEE GRADES	314.00

SEDIMENT BASIN WILL HAVE 12" SLOPE DRAIN ENTERING INTO BASIN. SEE THIS SHEET FOR ~LOCATION AND ~LENGTH. ALSO SEE STANDARD DETAIL ON SHEET 39 FOR ADDITIONAL INFORMATION. OUTLET END OF SLOPE DRAIN TO HAVE A RIPRAP DISSIPATOR (5' x 15' x 18" – CLASS B STONE)

PLAN VIEW

ALONG SIDE SLOPE OF SED. BASIN PLACE ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL (TYP. ALL BASINS)

SKIMMER SIZES
RESULTING DEWATERING TIME IS 3 DAYS
SB#6 – SKIMMER SIZE = 3" WITH A 3.4" ORIFICE DIA.

CROSS SECTION — DRAWING NOT TO SCALE

SEDIMENT BASIN WITH SKIMMER AND BAFFLES – SB#6

STOCKPILE NOTES:
SEEDING OR COVERING STOCKPILE WITH TARPS OR MULCH IS REQUIRED. TARPS SHOULD BE KEYED IN AT TOP OF THE SLOPE TO KEEP WATER FROM RUNNING UNDER THE PLASTIC.
IF STOCKPILE IS TO REMAIN FOR FUTURE USE AFTER THE PROJECT IS COMPLETE, THE FINANCIAL RESPONSIBLE PARTY MUST NOTIFY THE TOWN OF KNIGHTDALE OF A NEW RESPONSIBLE PARTY FOR THAT STOCKPILE.
THE STOCKPILE AREA SHALL BE MULCHED AND SEEDED ON A CONTINUOUS BASIS WHILE IN USE.
ESTABLISH A VEGETATIVE BUFFER AT THE TOE OF SLOPE OF THE STOCKPILE WHERE PRACTICAL.

NORFOLK SOUTHERN RAILROAD
100' RIGHT OF WAY
B.M. 2018, PG. 750

EX. 100' RAILROAD R/W

TOWN OF KNIGHTDALE
PIN: 1754645656
ZONED: OSP
EXEMPT

EUGENE HARPER, ETAL. WOODED
PIN:1754537747
D.B. 6754, PG. 596
B.M. 1920, PG. 196
78,117 SQ.FT.
1.79 AC.

EUGENE HARPER, ETAL
PIN:1754539814
D.B. 16378, PG. 2505
26,141 SQ.FT.
0.60 AC.

WAYNE HARPER, ETAL.
PIN:1754635524, 1754630926, 1754539404
D.B. 6075, PG. 504
B.M. 1994, PG. 445
1,126,929 SQ.FT.
25.87 AC.

KEITH STREET
30' PUBLIC R/W
B.M. 1996, PG. 1629

CROWN CASTLE GT COMPANY LLC
PIN: 1754533467
ZONED: RR1
VACANT

WETLAND WG–1
WETLAND WG–2
WETLAND WG–3
WETLAND WG–4

SB#1 SKIMMER
SB#3 SKIMMER
SB#4 SKIMMER
SB#5 SKIMMER
SB#6 SKIMMER

SKIMMER W/ BAFFLES

ROCK CHECK DAM (TYP)

HORSESHOE INLET PROTECTION(TYP)

COMBINATION TREE AND SILT FENCE (TYP.)

SILT FENCE (TYP.)

SILT FENCE OUTLET (TYP.)

SILT FENCE OUTLET EVERY 100' (TYP.)

CWO CONCRETE WASH OUT SEE DETIAL SHEET

NCG01 SELF INSPECTION RECORDS, PERMIT BOX & RAIN GAUGE

25' x 50' x 12" RIP RAP CONSTRUTION ENTRANCE. SEE DETIAL SHEET

PIPE DISCHARGE THRU SILT FENCE OUTLET & TO DISCHARGE OFFSITE

~32 LF TEMP 15" HDPE IN EX. DITCH

~24 lf 12" CPP SLOPE DRAIN WITH 5' x 15" x 18" CLASS "B" RIPRAP DISSIPATOR

~10 lf 12" CPP SLOPE DRAIN WITH 5' x 15" x 18" CLASS "B" RIPRAP DISSIPATOR

~16 lf 12" CPP SLOPE DRAIN WITH 5' x 15" x 18" CLASS "B" RIPRAP DISSIPATOR

~27 lf 12" CPP SLOPE DRAIN WITH 5' x 15" x 18" CLASS "B" RIPRAP DISSIPATOR

~15 lf 12" CPP SLOPE DRAIN WITH 5' x 15" x 18" CLASS "B" RIPRAP DISSIPATOR

~19 LF 18" HDPE TEMP. CROSSING PIPE WITH FILTER FABRIC & COARSE AGGREGATE SEE DETAIL SHEET 39 EX. CREEK, ~2' WIDE & <1' DEEP

~19 LF 18" HDPE TEMP. CROSSING PIPE WITH FILTER FABRIC & COARSE AGGREGATE

VEHICLE CROSSING AREA ALONG TEMP. DIVERSION DITCH SEE DETAIL ON SHEET 40. AT END OF EACH DAY, MAINTAIN DIVERSION DITCH TO ENSURE SEDIMENT LADEN RUNOFF IS DIVERTED INTO SEDIMENT BASIN.

SEE INSET 1 SHEET JM2 FOR IMPACT INFORMATION

TEMPORARY DIVERSION DITCH 1 (SEE DETAIL)

TEMPORARY DIVERSION DITCH 2 (SEE DETAIL)

TEMPORARY DIVERSION DITCH 3 (SEE DETAIL)

TEMPORARY DIVERSION DITCH 6 (SEE DETAIL)

TEMPORARY DIVERSION DITCH 7 (SEE DETAIL)

TEMPORARY DIVERSION DITCH 8 (SEE DETAIL)

LIMITS OF DISTURBANCE (TYPICAL)

TO BE REMOVED

EXIST FOOTER

EXIST BARN TO BE REMOVED

WETLAND AREA APPROVED TO BE FILLED

50' NRB FROM TOP OF BANK

TREE SAVE AREA 1

TREE SAVE AREA 2

TREE SAVE AREA 3

TREE SAVE AREA 4

EX. POND TO REMAIN

15 x 15 FILTER BAG

15' x 15' FILTER BAG ATOP AN AREA OF 20' x 20' OF 8" #57 STONE ATOP A DRAINAGE GEOTEXTILE FABRIC (TYP)

DISSIPATOR La =6' W =4' D = 18" CLASS "B" STONE SEE DETAIL SHEET

+316.10 STOCK PILE AREA MAX. 35' HT. MAX. SLOPES 2:1

+322.17

+329.55

+329.06

336.57+

OPEN

WOODED

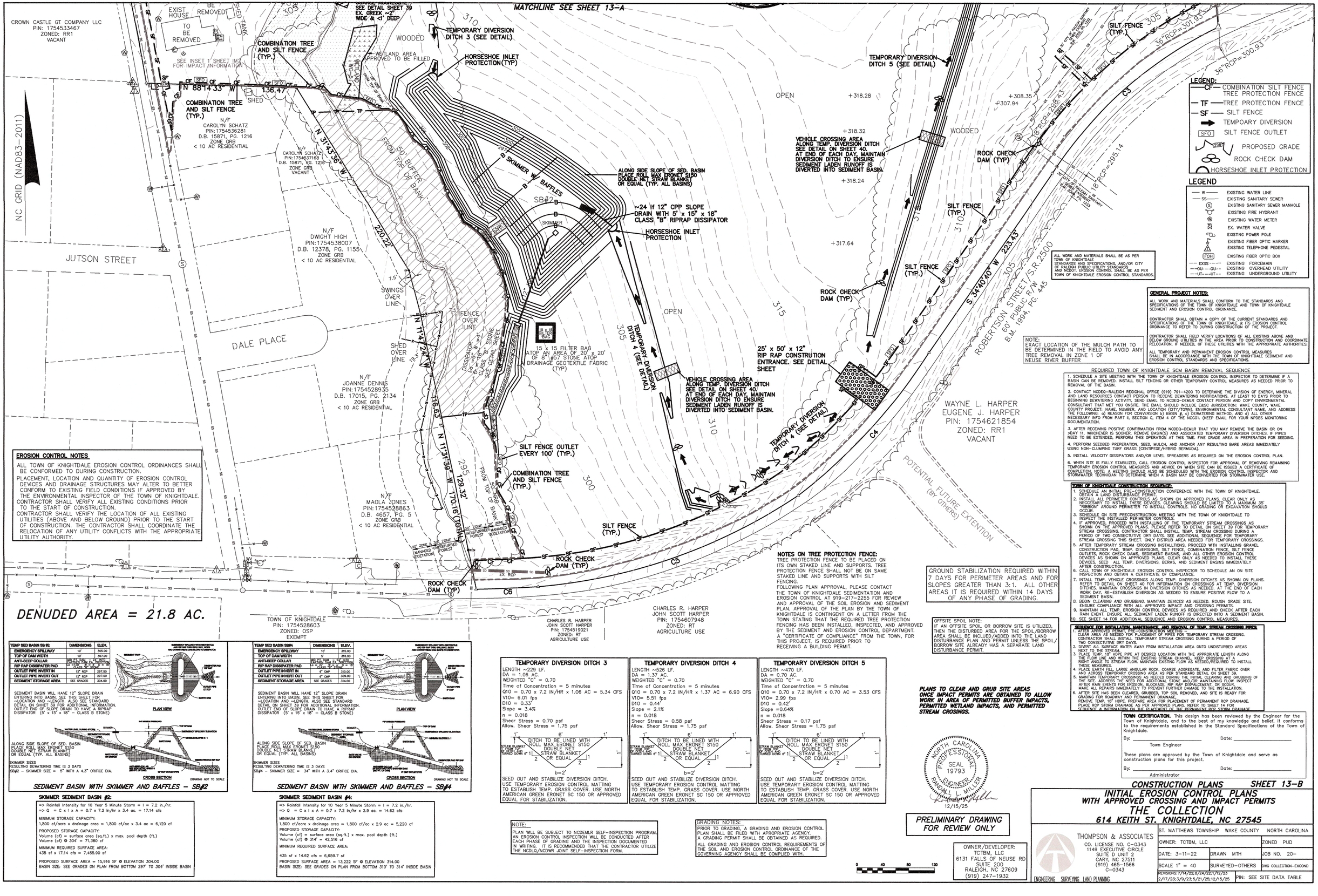
SILT FENCE OUTLET (TYP.)

MATCHLINE SEE SHEET 13–B

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER 12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

0 40 80 120


MATCHLINE SEE SHEET 13-A
CROWN CASTLE GT COMPANY LLC
PIN: 1754533467
ZONED: RR1
VACANT
EXIST HOUSE TO BE REMOVED
SHED TO BE REMOVED
TANK
SEE INSET 1 SHEET IM2 FOR IMPACT INFORMATION
NC GRID (NAD83-2011)
JUTSON STREET
DALE PLACE
COMBINATION TREE AND SILT FENCE (TYP.)
N 88°14'33" W 136.47'
N/F CAROLYN SCHATZ PIN:1754536281 D.B. 15871, PG. 1216 ZONE GRB < 10 AC RESIDENTIAL
N/F CAROLYN SCHATZ PIN:1754637168 D.B. 15871, PG. 1216 ZONE GRB VACANT
N/F DWIGHT HIGH PIN:1754538007 D.B. 12378, PG. 1155 ZONE GRB < 10 AC RESIDENTIAL
N/F JOANNE DENNIS PIN:1754528935 D.B. 17015, PG. 2134 ZONE GRB < 10 AC RESIDENTIAL
N/F MAOLA JONES PIN:1754528863 D.B. 4657, PG. 5 ZONE GRB < 10 AC RESIDENTIAL
N 31°43'36" W 220.22'
N 11°41'24" W 116.83'
N 11°31'38" W 170.16'
50' BUFFER FROM TOP OF BANK
WETLAND AREA APPROVED TO BE FILLED
WETLAND WC-5
CONCRETE WASHOUT SEE DETAIL SHEET 39
EX. CREEK ~2' WIDE & <1' DEEP
WOODED
TEMPORARY DIVERSION DITCH 3 (SEE DETAIL)
HORSESHOE INLET PROTECTION(TYP)
B SKIMMER W/ BAFFLES
SB#2
SKIMMER
ALONG SIDE SLOPE OF SED. BASIN PLACE ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL (TYP. ALL BASINS)
~24 lf 12" CPP SLOPE DRAIN WITH 5' x 15" x 18" CLASS "B" RIPRAP DISSIPATOR
HORSESHOE INLET PROTECTION
15 x 15 FILTER BAG
15 x 15 FILTER BAG ATOP AN AREA OF 20' x 20' OF 8" #57 STONE ATOP DRAINAGE GEOTEXTILE FABRIC (TYP.)
DISSIPATOR 14' L x 8' W x 24" D CLASS "B" STONE SEE DETAIL SHEET
TEMPORARY DIVERSION DITCH 4 (SEE DETAIL)
VEHICLE CROSSING AREA ALONG TEMP. DIVERSION DITCH SEE DETAIL ON SHEET 40. AT END OF EACH DAY, MAINTAIN DIVERSION DITCH TO ENSURE SEDIMENT LADEN RUNOFF IS DIVERTED INTO SEDIMENT BASIN.
25' x 50' x 12" RIP RAP CONSTRUTION ENTRANCE. SEE DETIAL SHEET
SILT FENCE OUTLET EVERY 100' (TYP.)
COMBINATION TREE AND SILT FENCE (TYP.)
SILT FENCE (TYP.)
ROCK CHECK DAM (TYP)
TEMPORARY DIVERSION DITCH 5 (SEE DETAIL)
VEHICLE CROSSING AREA ALONG TEMP. DIVERSION DITCH SEE DETAIL ON SHEET 40. AT END OF EACH DAY, MAINTAIN DIVERSION DITCH TO ENSURE SEDIMENT LADEN RUNOFF IS DIVERTED INTO SEDIMENT BASIN.
ROCK CHECK DAM (TYP)
SILT FENCE (TYP.)
SILT FENCE (TYP.)
ROCK CHECK DAM (TYP)
S 34°40'40" W 223.43'
ROBERTSON STREET S.R.2500
60' PUBLIC R/W B.M. 1994, PG. 445
WAYNE L. HARPER EUGENE J. HARPER PIN: 1754621854 ZONED: RR1 VACANT
POTENTIAL FUTURE EXTENTION (BY OTHERS)
TOWN OF KNIGHTDALE PIN: 1754528603 ZONED: OSP EXEMPT
CHARLES R. HARPER JOHN SCOTT HARPER PIN: 1754519021 ZONED: RT AGRICULTURE USE
CHARLES R. HARPER JOHN SCOTT HARPER PIN: 1754607948 ZONED: RT AGRICULTURE USE
OPEN
WOODED
+318.28
+318.32
+318.24
+317.64
+308.35
+307.94
SILT FENCE (TYP.)
36" RCP=301.93
36" RCP=300.93
18" RCP=298.43
18" RCP=295.14
C3
C4
C5
C6
LEGEND:
CF — COMBINATION SILT FENCE TREE PROTECTION FENCE
TF — TREE PROTECTION FENCE
SF — SILT FENCE
TEMPOARY DIVERSION
SFO SILT FENCE OUTLET
PROPOSED GRADE
ROCK CHECK DAM
HORSESHOE INLET PROTECTION
LEGEND
EXISTING WATER LINE
EXISTING SANITARY SEWER
EXISTING SANITARY SEWER MANHOLE
EXISTING FIRE HYDRANT
EXISTING WATER METER
EX. WATER VALVE
EXISTING POWER POLE
EXISTING FIBER OPTIC MARKER
EXISTING TELEPHONE PEDESTAL
FOH EXISTING FIBER OPTIC BOX
EXISTING FORCEMAIN
EXISTING OVERHEAD UTILITY
EXISTING UNDERGROUND UTILITY
ALL WORK AND MATERIALS SHALL BE AS PER TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS, AND/OR CITY OF RALEIGH PUBLIC UTILITY STANDARDS AND NCDOT. EROSION CONTROL SHALL BE AS PER TOWN OF KNIGHTDALE EROSION CONTROL STANDARDS.
NOTE: EXACT LOCATION OF THE MULCH PATH TO BE DETERMINED IN THE FIELD TO AVOID ANY TREE REMOVAL IN ZONE 1 OF NEUSE RIVER BUFFER
GENERAL PROJECT NOTES:
ALL WORK AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE AND TOWN OF KNIGHTDALE SEDIMENT AND EROSION CONTROL ORDINANCE.
CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE & ITS EROSION CONTROL ORDINANCE. TO REFER TO DURING CONSTRUCTION OF THE PROJECT.
CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING ABOVE AND BELOW GROUND UTILITIES IN THE AREA PRIOR TO CONSTRUCTION AND COORDINATE RELOCATION, IF NEEDED, OF THESE UTILITIES WITH THE APPROPRIATE AUTHORITIES.
ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE SEDIMENT AND EROSION CONTROL STANDARDS AND SPECIFICATIONS.
REQUIRED TOWN OF KNIGHTDALE SCM BASIN REMOVAL SEQUENCE
1. SCHEDULE A SITE MEETING WITH THE TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCING OR OTHER TEMPORARY CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
2. CONTACT NCDEQ-RALEIGH REGIONAL OFFICE (919) 791-4200 TO DETERMINE THE DIVISION OF ENERGY, MINERAL AND LAND RESOURCES CONTACT PERSON TO RECEIVE DEWATERING NOTIFICATIONS. AT LEAST 10 DAYS PRIOR TO BEGINNING DEWATERING ACTIVITY, SEND EMAIL TO NCDEQ-DEMLR CONTACT PERSON AND COPY ENVIRONMENTAL CONSULTANT THAT MET YOU ONSITE. THE EMAIL SHOULD INCLUDE: E&SC JURISDICTION: WAKE COUNTY, WAKE COUNTY PROJECT: NAME, NUMBER, AND LOCATION (CITY/TOWN), ENVIRONMENTAL CONSULTANT NAME, AND ADDRESS THE FOLLOWING: a) REASON FOR CONVERSION b) BASIN #, c) DEWATERING METHOD, AND d) ALL OTHER NECESSARY INFO FROM PART II, SECTION G, ITEM 4 OF THE NCG01. (KEEP EMAIL FOR YOUR NPDES MONITORING DOCUMENTATION.
3. AFTER RECEIVING POSITIVE CONFIRMATION FROM NCDEQ-DEMLR THAT YOU MAY REMOVE THE BASIN OR ON >DAY 11, WHICHEVER IS SOONER, REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPERATION FOR SEEDING.
4. PERFORM SEEDBED PREPERATION, SEED, MULCH, AND ANCHOR ANY RESULTING BARE AREAS IMMEDIATELY USING NON-CLUMPING TURF GRASS (CENTIPEDE/HYBRID BERMUDA).
5. INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
6. WHEN SITE IS FULLY STABILIZED, CALL EROSION CONTROL INSPECTOR FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION. NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE EROSION CONTROL INSPECTOR AND STORMWATER TECHNICIAN TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE.
TOWN OF KNIGHTDALE CONSTRUCTION SEQUENCE:
1. SCHEDULE AN INITIAL PRE-CONSTRUCTION CONFERENCE WITH THE TOWN OF KNIGHTDALE. OBTAIN A LAND DISTURBANCE PERMIT.
2. INSTALL ALL PERIMETER CONTROLS AS SHOWN ON APPROVED PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. CLEARING SHOULD BE LIMITED TO A MAXIMUM 35' "RIBBON" AROUND PERIMETER TO INSTALL CONTROLS. NO GRADING OR EXCAVATION SHOULD OCCUR.
3. SCHEDULE ON SITE PRECONSTRUCTION MEETING WITH THE TOWN OF KNIGHTDALE TO INSPECT THE INSTALLED PERIMETER CONTROLS.
4. IF APPROVED, PROCEED WITH INSTALLING OF THE TEMPORARY STREAM CROSSINGS AS SHOWN ON THE APPROVED PLANS. PLEASE REFER TO DETAIL ON SHEET 39 FOR TEMPORARY STREAM CROSSING. CONTRACTOR SHALL INSTALL TEMP. STREAM CROSSING DURING A PERIOD OF TWO CONSECUTIVE DRY DAYS. SEE ADDITIONAL SEQUENCE FOR TEMPORARY STREAM CROSSING THIS SHEET. ONLY DISTRUB AREA NEEDED FOR TEMPORARY CROSSINGS.
5. AFTER TEMPORARY STREAM CROSSING INSTALLTIONS, PROCEED WITH INSTALLING GRAVEL CONSTRUCTION PAD, TEMP. DIVERSIONS, SILT FENCE, COMBINATION FENCE, SILT FENCE OUTLETS, ROCK CHECK DAMS, SEDIMENT BASINS, AND ALL OTHER EROSION CONTROL DEVICES AS SHOWN ON APPROVED PLANS. CLEAR ONLY AS NEEDED TO INSTALL THESE DEVICES. SEED ALL TEMP. DIVERSIONS, BERMS, AND SEDIMENT BASINS IMMEDIATELY AFTER CONSTRUCTION.
6. CALL TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO SCHEDULE AN ON SITE INSPECTION AND OBTAIN A CERTIFICATE OF COMPLIANCE.
7. INTALL TEMP. VEHICLE CROSSINGS ALONG TEMP. DIVERSION DITCHES AS SHOWN ON PLANS. REFER TO DETAIL ON SHEET 40 FOR INFORMATION ON CROSSINGS AT TEMP. DIVERSION DITCHES. MAINTAIN CROSSINGS IN DIVERSION DITCHES AS NEEDED. AT THE END OF EACH WORK DAY, RE-ESTABLISH DIVERSION AS NEEDED TO ENSURE POSITIVE FLOW TO A SEDIMENT BASIN.
8. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE. ENSURE COMPLIANCE WITH ALL APPROVED IMPACT AND CROSSING PERMITS.
9. MAINTAIN ALL TEMP. EROSION CONTROL DEVICES AS REQUIRED AND CHECK AFTER EACH RAIN EVENT. ENSURE ALL SEDIMENT LADEN RUNOFF IS DIRECTED INTO A SEDIMENT BASIN.
10. SEE SHEET 14 FOR ADDITIONAL SEQUENCE AND EROSION CONTROL MEASURES.
EROSION CONTROL NOTES
ALL TOWN OF KNIGHTDALE EROSION CONTROL ORDINANCES SHALL BE CONFORMED TO DURING CONSTRUCTION.
PLACEMENT, LOCATION AND QUANTITY OF EROSION CONTROL DEVICES AND DRAINAGE STRUCTURES MAY ALTER TO BETTER CONFORM TO EXISTING FIELD CONDITIONS IF APPROVED BY THE ENVIRONMENTAL INSPECTOR OF THE TOWN OF KNIGHTDALE. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION.
CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES (ABOVE AND BELOW GROUND) PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY UTILITY CONFLICTS WITH THE APPROPRIATE UTILITY AUTHORITY.
NOTES ON TREE PROTECTION FENCE:
TREE PROTECTION FENCE TO BE PLACED ON ITS OWN STAKED LINE AND SUPPORTS. TREE PROTECTION FENCE SHALL NOT BE ON SAME STAKED LINE AND SUPPORTS WITH SILT FENCING.
FOLLOWING PLAN APPROVAL, PLEASE CONTACT THE TOWN OF KNIGHTDALE SEDIMENTATION AND EROSION CONTROL AT 919-217-2255 FOR REVIEW AND APPROVAL OF THE SOIL EROSION AND SEDIMENT PLAN. APPROVAL OF THE PLAN BY THE TOWN OF KNIGHTDALE IS CONTINGENT ON A LETTER FROM THE TOWN STATING THAT THE REQUIRED TREE PROTECTION FENCING HAS BEEN INSTALLED, INSPECTED, AND APPROVED BY THE SEDIMENT AND EROSION CONTROL DEPARTMENT. A "CERTIFICATE OF COMPLIANCE" FROM THE TOWN, FOR THIS PROJECT, IS REQUIRED PRIOR TO RECEIVING A BUILDING PERMIT.
GROUND STABILIZATION REQUIRED WITHIN 7 DAYS FOR PERIMETER AREAS AND FOR SLOPES GREATER THAN 3:1. ALL OTHER AREAS IT IS REQUIRED WITHIN 14 DAYS OF ANY PHASE OF GRADING.
OFFSITE SPOIL NOTE:
IF AN OFFSITE SPOIL OR BORROW SITE IS UTILIZED, THEN THE DISTURBED AREA FOR THE SPOIL/BORROW AREA SHALL BE INCLUDED/ADDED INTO THE LAND DISTURBANCE PLAN AND PERMIT UNLESS THE SPOIL/BORROW SITE ALREADY HAS A SEPARATE LAND DISTURBANCE PERMIT.
SEQUENCE FOR INSTALLATION, MAINTENANCE, AND REMOVAL OF TRUE STREAM CROSSING PIPES:
1. AFTER APPROVED PERMIT, PRE-CONSTRUCTION MEETING.
2. CLEAR AREA AS NEEDED FOR PLACEMENT OF PIPES FOR TEMPORARY STREAM CROSSING. CONTRACTOR SHALL INSTALL TEMPORARY STREAM CROSSING DURING A PERIOD OF TWO CONSECUTIVE DRY DAYS.
3. DIVERT ALL SURFACE WATER AWAY FROM INSTALLATION AREA ONTO UNDISTURBED AREAS NEXT TO THE STREAM.
4. PLACE TEMP. 18" HDPE PIPE AT DESIRED LOCATION WITH THE APPROPRIATE LENGTH ALONG THE FLOW LINE AND WITHIN THE EXISTING STREAM CHANNEL. KEEP CROSSING AT A RIGHT ANGLE TO STREAM FLOW. MAINTAIN EXISTING FLOW AS NEEDED/REQUIRED TO INSTALL THESE MEASURES.
5. PLACE EARTH FILL, LARGE ANGULAR ROCK, COARSE AGGREGATE, AND FILTER FABRIC OVER AND ACROSS TEMPORARY CROSSING AREA AS PER STANDARD DETAIL ON SHEET 39.
6. MAINTAIN TEMPORARY CROSSINGS AS NEEDED DURING THE INITIAL CLEARING AND GRUBBING OF THE SITE. ADDRESS THE NEED FOR ADDITIONAL STONE AND/OR MAINTAINING FLOW. INSPECT AFTER RAIN EVENTS FOR EROSION, BLOCKAGE, RIP RAP DISPLACEMENT, OR SCOUR. MAKE ALL REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.
7. AFTER SITE HAS BEEN CLEARED, GRUBBED, TOP SOIL REMOVED, AND SITE IS READY FOR GRADING FOR ROADWAY AND PERMANENT DRAINAGE.
8. REMOVE TEMP. 18" HDPE PREPARE AREA FOR PLACEMENT OF PERMANENT RCP DRAINAGE. PLACE RCP STORM DRAINAGE AS PER APPROVED PLANS. REFER TO SHEET 14 FOR SEQUENCE & INFORMATION ON THE PLACEMENT OF THE PERMANENT RCP STORM DRAINAGE.
PLANS TO CLEAR AND GRUB SITE AREAS ONCE IMPACT PERMITS ARE OBTAINED TO ALLOW WORK IN AREA OF PERMITTED BUFFER IMPACTS, PERMITTED WETLAND IMPACTS, AND PERMITTED STREAM CROSSINGS.
DENUDED AREA = 21.8 AC.
TEMP SED BASIN SB #2
EMERGENCY SPILLWAY 10' 305.00
TOP OF DAM WIDTH 10' 307.00
ANTI-SEEP COLLAR MIN 8'-0" FROM 2'-0" BOTTOM RIP RAP DISSIPATOR PAD 4'-0" W x 6'-0" L x 0.5' D STONE
OUTLET PIPE INVERT IN 12" RCP 297.50
OUTLET PIPE INVERT OUT 12" RCP 297.00
SEDIMENT STORAGE AREA SEE GRADES 304.00
SEDIMENT BASIN WILL HAVE 12" SLOPE DRAIN ENTERING INTO BASIN. SEE THIS SHEET FOR ~LOCATION AND ~LENGTH. ALSO SEE STANDARD DETAIL ON SHHET 39 FOR ADDITIONAL INFORMATION. OUTLET END OF SLOPE DRAIN TO HAVE A RIPRAP DISSIPATOR (5' x 15' x 18" - CLASS B STONE)
PLAN VIEW
ALONG SIDE SLOPE OF SED. BASIN PLACE ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL (TYP. ALL BASINS)
SKIMMER SIZES
RESULTING DEWATERING TIME IS 3 DAYS
SB#2 - SKIMMER SIZE = 5" WITH A 4.3" ORIFICE DIA.
CROSS SECTION
DRAWING NOT TO SCALE
SEDIMENT BASIN WITH SKIMMER AND BAFFLES - SB#2
TEMP SED BASIN SB#4
EMERGENCY SPILLWAY 5' 315.00
TOP OF DAM WIDTH 5' 318.00
ANTI-SEEP COLLAR MIN 8'-0" FROM 2'-0" BOTTOM RIP RAP DISSIPATOR PAD 4'-0" W x 6'-0" L x 0.5' D STONE
OUTLET PIPE INVERT IN 6" CMP 310.00
OUTLET PIPE INVERT OUT 6" CMP 309.00
SEDIMENT STORAGE AREA SEE GRADES 314.00
SEDIMENT BASIN WILL HAVE 12" SLOPE DRAIN ENTERING INTO BASIN. SEE THIS SHEET FOR ~LOCATION AND ~LENGTH. ALSO SEE STANDARD DETAIL ON SHHET 39 FOR ADDITIONAL INFORMATION. OUTLET END OF SLOPE DRAIN TO HAVE A RIPRAP DISSIPATOR (5' x 15' x 18" - CLASS B STONE)
PLAN VIEW
ALONG SIDE SLOPE OF SED. BASIN PLACE ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL (TYP. ALL BASINS)
SKIMMER SIZES
RESULTING DEWATERING TIME IS 3 DAYS
SB#4 - SKIMMER SIZE = 3.4" WITH A 3.4" ORIFICE DIA.
CROSS SECTION
DRAWING NOT TO SCALE
SEDIMENT BASIN WITH SKIMMER AND BAFFLES - SB#4
SKIMMER SEDIMENT BASIN #2:
=> Rainfall Intensity for 10 Year 5 Minute Storm = I = 7.2 in./hr.
=> Q = C x I x A = 0.7 x 7.2 in/hr x 3.4 ac. = 17.14 cfs
MINIMUM STORAGE CAPACITY:
1,800 cf/acre x drainage area = 1,800 cf/ac x 3.4 ac = 6,120 cf
PROPOSED STORAGE CAPACITY:
Volume (cf) = surface area (sq.ft.) x max. pool depth (ft.)
Volume (cf) @ 304' = 71,380 cf
MINIMUM REQUIRED SURFACE AREA:
435 sf x 17.14 cfs = 7,455.90 sf
PROPOSED SURFACE AREA = 15,916 SF @ ELEVATION 304.00
BASIN SIZE: SEE GRADES ON PLAN FROM BOTTOM 297' TO 304' INSIDE BASIN
SKIMMER SEDIMENT BASIN #4:
=> Rainfall Intensity for 10 Year 5 Minute Storm = I = 7.2 in./hr.
=> Q = C x I x A = 0.7 x 7.2 in/hr x 2.9 ac. = 14.62 cfs
MINIMUM STORAGE CAPACITY:
1,800 cf/acre x drainage area = 1,800 cf/ac x 2.9 ac = 5,220 cf
PROPOSED STORAGE CAPACITY:
Volume (cf) = surface area (sq.ft.) x max. pool depth (ft.)
Volume (cf) @ 314' = 42,516 cf
MINIMUM REQUIRED SURFACE AREA:
435 sf x 14.62 cfs = 6,659.7 sf
PROPOSED SURFACE AREA = 13,222 SF @ ELEVATION 314.00
BASIN SIZE: SEE GRADES ON PLAN FROM BOTTOM 310' TO 314' INSIDE BASIN
TEMPORARY DIVERSION DITCH 3
LENGTH ~229 LF.
DA = 1.06 AC.
WEIGHTED "C" = 0.70
Time of Concentration = 5 minutes
Q10 = 0.70 x 7.2 IN/HR x 1.06 AC = 5.34 CFS
V10= 6.01 fps
D10 = 0.33'
Slope = 3.4%
n = 0.018
Shear Stress = 0.70 psf
Allow. Shear Stress = 1.75 psf
DITCH TO BE LINED WITH ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL
STRAW BLANKET W/ DOWN SIDE STAKES AND FLANGE DOWN 6" (TYP.)
b=2'
SEED OUT AND STABILIZE DIVERSION DITCH. USE TEMPORARY EROSION CONTROL MATTING TO ESTABLISH TEMP. GRASS COVER. USE NORTH AMERICAN GREEN ERONET SC 150 OR APPROVED EQUAL FOR STABILIZATION.
TEMPORARY DIVERSION DITCH 4
LENGTH ~526 LF.
DA = 1.37 AC.
WEIGHTED "C" = 0.70
Time of Concentration = 5 minutes
Q10 = 0.70 x 7.2 IN/HR x 1.37 AC = 6.90 CFS
V10= 5.51 fps
D10 = 0.44'
Slope = 2.1%
n = 0.018
Shear Stress = 0.58 psf
Allow. Shear Stress = 1.75 psf
DITCH TO BE LINED WITH ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL
STRAW BLANKET W/ DOWN SIDE STAKES AND FLANGE DOWN 6" (TYP.)
b=2'
SEED OUT AND STABILIZE DIVERSION DITCH. USE TEMPORARY EROSION CONTROL MATTING TO ESTABLISH TEMP. GRASS COVER. USE NORTH AMERICAN GREEN ERONET SC 150 OR APPROVED EQUAL FOR STABILIZATION.
TEMPORARY DIVERSION DITCH 5
LENGTH ~470 LF.
DA = 0.70 AC.
WEIGHTED "C" = 0.70
Time of Concentration = 5 minutes
Q10 = 0.70 x 7.2 IN/HR x 0.70 AC = 3.53 CFS
V10= 2.99 fps
D10 = 0.42'
Slope =0.64%
n = 0.018
Shear Stress = 0.17 psf
Allow. Shear Stress = 1.75 psf
DITCH TO BE LINED WITH ROLL MAX ERONET S150 DOUBLE NET STRAW BLANKET OR EQUAL
STRAW BLANKET W/ DOWN SIDE STAKES AND FLANGE DOWN 6" (TYP.)
b=2'
SEED OUT AND STABILIZE DIVERSION DITCH. USE TEMPORARY EROSION CONTROL MATTING TO ESTABLISH TEMP. GRASS COVER. USE NORTH AMERICAN GREEN ERONET SC 150 OR APPROVED EQUAL FOR STABILIZATION.
NOTE:
PLAN WILL BE SUBJECT TO NCDEMLR SELF-INSPECTION PROGRAM. AN EROSION CONTROL INSPECTION WILL BE CONDUCTED AFTER EACH PHASE OF GRADING AND THE INSPECTION DOCUMENTED IN WRITING. IT IS RECOMMENDED THAT THE CONTRACTOR UTILIZE THE NCDLQ/NCDWR JOINT SELF-INSPECTION FORM.
GRADING NOTES:
PRIOR TO GRADING, A GRADING AND EROSION CONTROL PLAN SHALL BE FILED WITH APPROPRIATE AGENCY. A GRADING PERMIT SHALL BE OBTAINED AS REQUIRED.
ALL GRADING AND EROSION CONTROL REQUIREMENTS OF THE SOIL AND EROSION CONTROL ORDINANCE OF THE GOVERNING AGENCY SHALL BE COMPLIED WITH.
0 40 80 120
OWNER/DEVELOPER: TCTBM, LLC 6131 FALLS OF NEUSE RD SUITE 200 RALEIGH, NC 27609 (919) 247-1932
GENERAL NOTES:
TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.
By: _____ Date: _____
Town Engineer
These plans are approved by the Town of Knightdale and serve as construction plans for this project.
By: _____ Date: _____
Administrator
NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
12/15/25
PRELIMINARY DRAWING FOR REVIEW ONLY
CONSTRUCTION PLANS SHEET 13-B
INITIAL EROSION CONTROL PLANS
WITH APPROVED CROSSING AND IMPACT PERMITS
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545
THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
C-0343
ENGINEERING SURVEYING LAND PLANNING
ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA
OWNER: TCTBM, LLC ZONED PUD
DATE: 3-11-22 DRAWN MTH JOB NO. 20-
SCALE 1" = 40 SURVEYED-OTHERS DWG COLLECTION-EXCOND
REVISIONS:7/14/22;8/24/22;1/12/23 2/17/23;3/9/23;5/21/25;12/15/25
PIN: SEE SITE DATA TABLE

SEQUENCE FOR PERMANENT STREAM CROSSING WITH X-PIPE 1 AND X-PIPE 2 WITH PUMP AROUND.

AFTER SITE HAS BEEN CLEARED, GRUBBED, TOP SOIL REMOVED, AND SITE IS READY FOR GRADING FOR ROADWAY AND PERMANENT DRAINAGE, REMOVE THE TEMP. 18" HDPE. SEE SHEETS 13, 13A, AND 13B FOR SEQUENCE ON THE REMOVAL OF THE TEMP. 18" HDPE. BEGIN PREPARATION FOR PERMANENT RCP DRAINAGE INSTALLATION:

1. Install upstream dam structure, consisting of sand bags wrapped in plastic sheeting with rock, at the location shown on the approved plans.
2. Place appropriately sized pump at a location that allows the pump intake to be placed in the pool above the upstream dam area.
3. Intake to be suspended above the bottom of the stream bed, with a mesh screen over the hose inlet.
4. Install the downstream dam structure, consisting of sand bags wrapped in plastic with rock, at the the location shown on the approved plans.
5. Install velocity dissipation device at the downstream end of the pumping unit.
6. Once pump is transporting the stream flow, begin in-stream construction activities.
7. Prepare bottom of pipe crossing as required per approved crossing plan with pipe inlet and outlet 1' below existing stream bottom.
8. Install pipe crossing as per approved plan with pipe installation, fill, and headwalls.
9. Inspect permanent crossing periodically and after each rain event to check blockage, erosion, scour, slope failure, and riprap displacement. Make all repairs immediately to prevent further damage to installation.
10. Once in-stream construction activities are complete, permanently stabilize stream bottom and banks prior to returning flow to the channel. Install dissipator and place matting, seeding, and mulch to establish a re-vegetative surface along banks and along disturbed areas next to stream. During the remaining construction project, provide measures needed to divert runoff from areas along stream that are being re-vegetated.
11. Remove the downstream dam structure first, followed by upstream dam structure. Shut off/remove pumps.
12. Each waterbody crossing is treated as a specialized separate construction activity, such that trenching, pipe installation, backfilling, and permanent stabilization are completed in as few calendar days as possible and in no event greater than an extended dry period of 5 days.

NOTE:
- ALL WORK AND MATERIALS SHALL BE AS PER THE TOWN OF KNIGHTDALE UDO, TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS, AND/OR CITY OF RALEIGH PUBLIC UTILITY STANDARDS AND NCDOT.

LEGEND:
- CURB INLET
- DROP INLET
- RCP STORM DRAIN
- STORM DRAIN
- FLOW DIRECTION
- 295 PROPOSED GRADE
- TF TREE PROTECTION FENCE
- RETAINING WALL
- CF COMBINATION SILT FENCE TREE PROTECTION FENCE
- SF SILT FENCE
- SFO SILT FENCE OUTLET
- ROCK CHECK DAM
- GRAVEL INLET PROTECTION

FOR PIPE AND STRUCTURE SCHEDULES SEE SHEET 6

FOR SCM #1, 2, & 3 INFORMATION SEE SHEETS 8, 9, & 10

FOR PRE DEVELOPMENT DRAINAGE SEE SHEET 11

FOR POST DEVELOPMENT DRAINAGE SEE SHEET 12

FOR INITIAL EROSION CONTROL SEE SHEET 13

EROSION CONTROL NOTES:

ALL TOWN OF KNIGHTDALE EROSION CONTROL ORDINANCES SHALL BE CONFORMED TO DURING CONSTRUCTION.
ALL DRAINAGE STRUCTURES AND PIPES SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.
PLACEMENT, LOCATION AND QUANTITY OF EROSION CONTROL DEVICES AND DRAINAGE STRUCTURES MAY ALTER TO BETTER CONFORM TO EXISTING FIELD CONDITIONS IF APPROVED BY THE ENVIRONMENTAL INSPECTOR OF THE TOWN OF KNIGHTDALE. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION.
CONTRACTOR SHALL VERIFY LOCATION AT ALL EXISTING UTILITIES (ABOVE AND BELOW GROUND) PRIOR TO THIS START OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY UTILITY CONFLICTS WITH THE APPROPRIATE UTILITY AUTHORITY.

GENERAL PROJECT NOTES:

CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE AND THE CITY OF RALEIGH TO REFER TO DURING CONSTRUCTION OF THE PROJECT.

CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING ABOVE AND BELOW GROUND UTILITIES IN THE AREA PRIOR TO CONSTRUCTION AND COORDINATE RELOCATION, IF NEEDED, OF THESE UTILITIES WITH THE APPROPRIATE AUTHORITIES.

ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE SEDIMENT AND EROSION CONTROL STANDARDS AND SPECIFICATIONS.

NOTE ON RETAINING WALLS:
RETAINING WALLS TO BE DESIGNED BY OTHERS
RETAINING WALLS TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS
RETAINING WALLS TO BE AS PER ALL STANDARDS OF INSTALLATION AS OUTLINED BY MANUFACTURER
RETAINING WALLS WILL BE POURED IN PLACED REINFORCED CONCRETE WALLS (NO GEO GRID)
CONTRACTOR SHALL OBTAIN ALL PERMITS AND APPROVALS FOR RETAINING WALL INSTALLATION

OFFSITE SPOIL NOTE:
IF AN OFFSITE SPOIL OR BORROW SITE IS UTILIZED, THEN THE DISTURBED AREA FOR THE SPOIL/BORROW AREA SHALL BE INCLUED/ADDED INTO THE LAND DISTURBANCE PLAN AND PERMIT UNLESS THE SPOIL/BORROW SITE ALREADY HAS A SEPARATE LAND DISTURBANCE PERMIT.

GROUND STABILIZATION REQUIRED WITHIN 7 DAYS FOR PERIMETER AREAS AND FOR SLOPES GREATER THAN 3:1. ALL OTHER AREAS IT IS REQUIRED WITHIN 14 DAYS OF ANY PHASE OF GRADING.

GRADING NOTES:
PRIOR TO GRADING, A GRADING AND EROSION CONTROL PLAN SHALL BE FILED WITH APPROPRIATE AGENCY.
A GRADING PERMIT SHALL BE OBTAINED AS REQUIRED.
ALL GRADING AND EROSION CONTROL REQUIREMENTS OF THE SOIL AND EROSION CONTROL ORDINANCE OF THE GOVERNING AGENCY SHALL BE COMPLIED WITH.

LOCATION, PLACEMENT, AND/OR QUANTITY OF EROSION CONTROL MATERIALS AND/OR DEVICES MAY VARY TO BETTER CONFORM TO FIELD CONDITIONS.

NOTE ON INSPECTIONS:
PROJECT WILL BE SUBJECT TO THE NORTH CAROLINA DIVISION OF LAND RESOURCES SELF INSPECTION PROGRAM. AN EROSION CONTROL INSPECTION WILL BE PREFORMED AFTER EACH PHASE OF GRADING AND THE INSPECTION SHALL BE DOCUMENTED IN WRITING. IT IS RECOMMENDED THAT THE NCDEMLR JOINT INSPECTION FORM BE UTILIZED FOR THIS AND THE REQUIRED NPDES INSPECTIONS.

TOWN OF KNIGHTDALE CONSTRUCTION SEQUENCE.

10. SEE SHEETS 13, 13A, AND 13B FOR INITIAL SEQUENCE AND INSTALLATIONS.
11. AFTER SITE HAS BEEN CLEARED, GRUBBED, TOP SOIL REMOVED, AND SITE IS READY FOR GRADING FOR ROADWAY AND PERMANENT DRAINAGE, REMOVE TEMP. 18" HDPE CROSSINGS. PREPARE AREA FOR PLACEMENT OF PERMANENT RCP DRAINAGE. SEE THIS SHEET FOR SEQUENCE AND INFORMATION ON THE PLACEMENT OF THE PERMANENT RCP STORM DRAINAGE.
12. AFTER PERMANENT RCP CROSSINGS ARE IN PLACE AS SHOWN ON APPROVED PLANS, ENSURE DISTURBED AREAS AROUND PERMANENT CROSSINGS ARE STABILIZED AND SURROUNDING AREAS ARE DIVERTED INTO SEDIMENT BASINS. MAINTAIN THESE DIVERSIONS DURING CONSTRUCTION.
13. CONTINUE TO GRADE SITE AS REQUIRED AND SHOWN ON APPROVED PLANS, MAINTAIN DIVERSIONS INTO SEDIMENT BASINS DURING GRADING, AS SITE IS GRADED, INSTALL STROM DRAINAGE AS REQUIRED AND SHOWN ON APPROVED PLANS.
14. PROTECT INLETS WITH BLOCK AND GRAVEL CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED. MEASURES AS SHOWN ON THE APPROVED PLANS.
15. BEGIN SITE CONSTRUCTION FOR GRADING SITE FOR ROADWAYS AND BUILDING PAD CONSTRUCTION.
16. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
17. FINISH GRADING SITE FOR ALL ROADWAYS, UTILITIES, AND IMPROVEMENTS AS PER APPROVED PLANS. STABILIZE FINISHED AREAS AS REQUIRED AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED.
18. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL EROSION CONTROL INSPECTOR FOR AN INSPECTION.
19. IF THE SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC. AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS SHOULD NOW BE INSTALLED.
20. WHEN VEGETATION HAS BECOME ESTABLISHED (90% GERMINATION), CALL FOR A FINAL INSPECTION BY THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATE OF COMPLETION.
21. WHEN APPROVED, BEGIN TO REMOVE SEDIMENT BASINS #4 & #5. DEWATER BASIN WITH FILTER BAG AS PER STANDARD FILTER BAG FOR DEWATERING ACTIVITIES. SEE DETAIL SHEET FOR FILTER BAG DETAILS. SEE SCM BASIN REMOVAL SEQUENCE ON THIS SHEET FOR MORE INFORMATION ON REMOVAL. REMOVE SEDIMENT AS NEEDED AND DISPOSE OF PROPERLY ON SITE. FILL BASIN AREAS AS REQUIRED, SEED AND STABILIZE ALL DISTURBED AREAS.
22. WHEN APPROVED, BEGIN TO CONVERT SEDIMENT BASINS #1-#3 TO PERMANENT SCM's. DEWATER BASINS WITH FILTER BAG AS PER STANDARD FILTER BAG FOR DEWATERING ACTIVITIES. SEE DETAIL SHEET FOR FILTER BAG DETAILS. SEE SCM BASIN REMOVAL SEQUENCE ON THIS SHEET FOR MORE ON REMOVAL. REMOVE SEDIMENT AS NEEDED AND DISPOSE OF PROPERLY ON SITE. RE-SHAPE AND GRADE AREAS FOR FINAL SCM SHAPE. INSTALL RISERS AND PIPES FOR ALL SCM's AS PER APPROVED PLANS. SEED AND STABILIZE ALL DISTURBED AREAS.
23. WHEN VEGETATION HAS BEEN ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATION OF COMPLIANCE.

ENERGY DISSIPATOR SCHEDULE

DISSIPATOR NUMBER	OUTLET PIPE	V25 (FPS)	I.D. (FT.)	# (FT.)	D50 STONE LINING SIZE (IN.)	MIN. LINING THICK. (IN.)	APRON MATERIAL
D1	E1	4.20	8	6	6	12	CLASS 'B' STONE
D2	X-PIPE 1	8.86	24	9	13	18	CLASS 'B' STONE
D3	X-PIPE 2	9.95	16	6	13	18	CLASS 'B' STONE

USE SPECIFIED STONE FOR EROSION CONTROL
PLACE DISSIPATOR AS PER DETAIL SHOWN ON DETAIL SHEET
WITH REQUIRED UNDERLINER

REQUIRED TOWN OF KNIGHTDALE SCM BASIN REMOVAL SEQUENCE

1. SCHEDULE A SITE MEETING WITH THE TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCING OR OTHER TEMPORARY CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
2. CONTACT NCDEQ-RALEIGH REGIONAL OFFICE (919) 791-4200 TO DETERMINE THE DIVISION OF ENERGY, MINERAL AND LAND RESOURCES CONTACT PERSON TO RECEIVE DEWATERING NOTIFICATIONS. AT LEAST 10 DAYS PRIOR TO BEGINNING DEWATERING ACTIVITY, SEND EMAIL TO NCDEQ-DEMLR CONTACT PERSON AND COPY ENVIRONMENTAL CONSULTANT THAT MET YOU ONSITE. THE EMAIL SHOULD INCLUDE E&SC JURISDICTION: WAKE COUNTY, WAKE COUNTY PROJECT: NAME, NUMBER, AND LOCATION (CITY/TOWN), ENVIRONMENTAL CONSULTANT NAME, AND ADDRESS THE FOLLOWING: a) REASON FOR CONVERSION b) BASIN #, c) DEWATERING METHOD, AND d) ALL OTHER NECESSARY INFO FROM PART II, SECTION D, ITEM 4 OF THE NCG01. (KEEP EMAIL FOR YOUR NPDES MONITORING DOCUMENTATION.
3. AFTER RECEIVING POSITIVE CONFIRMATION FROM NCDEQ-DEMLR THAT YOU MAY REMOVE THE BASIN OR ON >DAY 11, WHICHEVER IS SOONER, REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPERATION FOR SEEDING.
4. PERFORM SEEDBED PREPERATION, SEED, MULCH, AND ANCHOR ANY RESULTING BARE AREAS IMMEDIATELY USING NON-CLUMPING TURF GRASS (CENTIPEDE/HYBRID BERMUDA).
5. INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
6. WHEN SITE IS FULLY STABILIZED, CALL EROSION CONTROL INSPECTOR FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION. NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE EROSION CONTROL INSPECTOR AND STORMWATER TECHNICIAN TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE.

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

NOTES:

ALL SHOWN INFORMATION FROM A SURVEY BY THE JOHN R. MCADAMS COMPANY, INC. AND APPROVED KNIGHTDALE MASTER PLAN PROJECT #ZMA-6-19 DATED OCT 14, 2019 ALSO BY THE MCADAMS COMPANY

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER PAMDALL L. MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

DENUDED AREA = 21.8 AC.

CONSTRUCTION PLANS *SHEET 14*

PHASE 1 EROSION CONTROL PLAN – OVERALL VIEW
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA

OWNER: TCTBM, LLC		ZONED PUD
DATE: 3-11-22	DRAWN MTH	JOB NO. 20-
SCALE 1" = 60	SURVEYED ----	DWG: COLLECTION-GRADE
REVISIONS: 7/14/22; 8/24/22; 1/12/23 2/17/23; 3/9/23; 5/21/25; 12/15/25		PIN: SEE SITE DATA TABLE

CONSTRUCTION PLANS
PHASE 2 EROSION CONTROL PLAN – ENLARGED PLAN A
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
FAX (919) 465-1585
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP	WAKE COUNTY		NORTH CAROLINA
OWNER: TCTBM, LLC			ZONED PUD
DATE: 2-16-2021	DRAWN MTH		JOB NO. 20-
SCALE 1" = 40	SURVEYED ----		DWG: COLLECTION-GRADE
REVISIONS:7/14/22;8/24/22;1/12/23 2/17/23;3/9/23;5/21/25;12/15/25			PIN: SEE SITE DATA TABLE

0 40 80 120

OPEN SPACE

TREE SAVE AREA

WETLAND

LEGEND:

- CURB INLET
- DROP INLET
- RCP STORM DRAIN
- STORM DRAIN
- FLOW DIRECTION
- PROPOSED GRADE
- TF — TREE PROTECTION FENCE
- RETAINING WALL
- CF — COMBINATION SILT FENCE TREE PROTECTION FENCE
- SF — SILT FENCE
- SFO — SILT FENCE OUTLET
- ROCK CHECK DAM
- GRAVEL INLET PROTECTION

TOWN OF KNIGHTDALE CONSTRUCTION SEQUENCE:

10. SEE SHEETS 13, 13A, AND 13B FOR INITIAL SEQUENCE AND INSTALLATIONS.
11. AFTER SITE HAS BEEN CLEARED, GRUBBED, TOP SOIL REMOVED, AND SITE IS READY FOR GRADING FOR ROADWAY AND PERMANENT DRAINAGE, REMOVE TEMP. 18" HDPE CROSSINGS. PREPARE AREA FOR PLACEMENT OF PERMANENT RCP DRAINAGE. SEE THIS SHEET FOR SEQUENCE AND INFORMATION ON THE PLACEMENT OF THE PERMANENT RCP STORM DRAINAGE.
12. AFTER PERMANENT RCP CROSSINGS ARE IN PLACE AS SHOWN ON APPROVED PLANS., ENSURE DISTURBED AREAS AROUND PERMANENT CROSSINGS ARE STABILIZED AND SURROUNDING AREAS ARE DIVERTED INTO SEDIMENT BASINS. MAINTAIN THESE DIVERSIONS DURING CONSTRUCTION.
13. CONTINUE TO GRADE SITE AS REQUIRED AND SHOWN ON APPROVED PLANS. MAINTAIN DIVERSIONS INTO SEDIMENT BASINS DURING GRADING. AS SITE IS GRADED, INSTALL STROM DRAINAGE AS REQUIRED AND SHOWN ON APPROVED PLANS.
14. PROTECT INLETS WITH BLOCK AND GRAVEL CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED. MEASURES AS SHOWN ON THE APPROVED PLANS.
15. BEGIN SITE CONSTRUCTION FOR GRADING SITE FOR ROADWAYS AND BUILDING PAD CONSTRUCTION.
16. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
17. FINISH GRADING SITE FOR ALL ROADWAYS, UTILITIES, AND IMPROVEMENTS AS PER APPROVED PLANS. STABILIZE FINISHED AREAS AS REQUIRED AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED.
18. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL EROSION CONTROL INSPECTOR FOR AN INSPECTION.
19. IF THE SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC. AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS SHOULD NOW BE INSTALLED.
20. WHEN VEGETATION HAS BECOME ESTABLISHED (90% GERMINATION), CALL FOR A FINAL INSPECTION BY THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATE OF COMPLETION.
21. WHEN APPROVED, BEGIN TO REMOVE SEDIMENT BASINS #4 & #5. DEWATER BASIN WITH FILTER BAG AS PER STANDARD FILTER BAG FOR DEWATERING ACTIVITIES. SEE DETAIL SHEET FOR FILTER BAG DETAILS. SEE SCM BASIN REMOVAL SEQUENCE ON THIS SHEET FOR MORE INFORMATION ON REMOVAL. REMOVE SEDIMENT AS NEEDED AND DISPOSE OF PROPERLY ON SITE. FILL BASIN AREAS AS REQUIRED. SEED AND STABILIZE ALL DISTURBED AREAS.
22. WHEN APPROVED, BEGIN TO CONVERT SEDIMENT BASINS #1–#3 TO PERMANENT SCM's. DEWATER BASINS WITH FILTER BAG AS PER STANDARD FILTER BAG FOR DEWATERING ACTIVITIES. SEE DETAIL SHEET FOR FILTER BAG DETAILS. SEE SCM BASIN REMOVAL SEQUENCE ON THIS SHEET FOR MORE ON REMOVAL. REMOVE SEDIMENT AS NEEDED AND DISPOSE OF PROPERLY ON SITE. RE-SHAPE AND GRADE AREAS FOR FINAL SCM SHAPE. INSTALL RISERS AND PIPES FOR ALL SCM's AS PER APPROVED PLANS. SEED AND STABILIZE ALL DISTURBED AREAS.
23. WHEN VEGETATION HAS BEEN ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATION OF COMPLIANCE.

SEQUENCE FOR PERMANENT STREAM CROSSING WITH X-PIPE 1 AND X-PIPE 2 WITH PUMP AROUND:

AFTER SITE HAS BEEN CLEARED, GRUBBED, TOP SOIL REMOVED, AND SITE IS READY FOR GRADING FOR ROADWAY AND PERMANENT DRAINAGE, REMOVE THE TEMP. 18" HDPE. SEE SHEETS 13, 13A, AND 13B FOR SEQUENCE ON THE REMOVAL OF THE TEMP. 18" HDPE. BEGIN PREPARATION FOR PERMANENT RCP DRAINAGE INSTALLATION:

1. Install upstream dam structure, consisting of sand bags wrapped in plastic sheeting with rock, at the location shown on the approved plans.
2. Place appropriately sized pump at a location that allows the pump intake to be placed in the pool above the upstream dam area.
3. Intake to be suspended above the bottom of the stream bed, with a mesh screen over the hose inlet.
4. Install the downstream dam structure, consisting of sand bags wrapped in plastic with rock, at the the location shown on the approved plans.
5. Install velocity dissipation device at the downstream end of the pumping unit.
6. Once pump is transporting the stream flow, begin in-stream construction activities.
7. Prepare bottom of pipe crossing as required per approved crossing plan with pipe inlet and outlet 1' below existing stream bottom.
8. Install pipe crossing as per approved plan with pipe installation, fill, and headwalls.
9. Inspect permanent crossing periodically and after each rain event to check blockage, erosion, scour, slope failure, and riprap displacement. Make all repairs immediately to prevent further damage to installation.
10. Once in-stream construction activities are complete, permanently stabilize stream bottom and banks prior to returning flow to the channel. Install dissipator and place matting, seeding, and mulch to estasblish a re-vegetative surface along banks and along disturbed areas next to stream. During the remaining construction project, provide measures needed to divert runoff from areas along stream that are being re-vegetated.
11. Remove the downstream dam structure first, followed by upstream dam structure. Shut off/remove pumps.
12. Each waterbody crossing is treated as a specialized separate construction activity, such that trenching, pipe installation, backfilling, and permanent stabilization are completed in as few calendar days as possible and in no event greater than an extended dry period of 5 days.

EROSION CONTROL NOTES

ALL TOWN OF KNIGHTDALE EROSION CONTROL ORDINANCES SHALL BE CONFORMED TO DURING CONSTRUCTION.
ALL DRAINAGE STRUCTURES AND PIPES SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.
PLACEMENT, LOCATION AND QUANTITY OF EROSION CONTROL DEVICES AND DRAINAGE STRUCTURES MAY ALTER TO BETTER CONFORM TO EXISTING FIELD CONDITIONS IF APPROVED BY THE ENVIRONMENTAL INSPECTOR OF THE TOWN OF KNIGHTDALE.
CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION.
CONTRACTOR SHALL VERIFY THE LOCATION AF ALL EXISTING UTILITIES (ABOVE AND BELOW GROUND) PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY UTILITY CONFLICTS WITH THE APPROPRIATE UTILITY AUTHORITY.

GENERAL PROJECT NOTES:

CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE AND THE CITY OF RALEIGH TO REFER TO DURING CONSTRUCTION OF THE PROJECT.

CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING ABOVE AND BELOW GROUND UTILITIES IN THE AREA PRIOR TO CONSTRUCTION AND COORDINATE RELOCATION, IF NEEDED, OF THESE UTILITIES WITH THE APPROPRIATE AUTHORITIES.

ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE SEDIMENT AND EROSION CONTROL STANDARDS AND SPECIFICATIONS.

NOTE ON RETAINING WALLS:

RETAINING WALLS TO BE DESIGNED BY OTHERS
RETAINING WALLS TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS
RETAINING WALLS TO BE AS PER ALL STANDARDS OF INSTALLATION AS OUTLINED BY MANUFACTURER
RETAINING WALLS WILL BE POURED IN PLACED REINFORCED CONCRETE WALLS (NO GEO GRID)
CONTRACTOR SHALL OBTAIN ALL PERMITS AND APPROVALS FOR RETAINING WALL INSTALLATION

OFFSITE SPOIL NOTE:
IF AN OFFSITE SPOIL OR BORROW SITE IS UTILIZED, THEN THE DISTURBED AREA FOR THE SPOIL/BORROW AREA SHALL BE INCLUED/ADDED INTO THE LAND DISTURBANCE PLAN AND PERMIT UNLESS THE SPOIL/ BORROW SITE ALREADY HAS A SEPARATE LAND DISTURBANCE PERMIT.

NOTE ON INSPECTIONS:
PROJECT WILL BE SUBJECT TO THE NORTH CAROLINA DIVISION OF LAND RESOURCES SELF INSPECTION PROGRAM. AN EROSION CONTROL INSPECTION WILL BE PREFORMED AFTER EACH PHASE OF GRADING AND THE INSPECTION SHALL BE DOCUMENTED IN WRITING. IT IS RECOMMENDED THAT THE NCDEMLR JOINT INSPECTION FORM BE UTILIZED FOR THIS AND THE REQUIRED NPDES INSPECTIONS.

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

ENERGY DISSIPATOR SCHEDULE

DISSIPATOR NUMBER	OUTLET PIPE	V25 (FPS)	La (FT.)	W (FT.)	D50 STONE SIZE (IN.)	MIN. LINING THICK. (IN.)	APRON MATERIAL
D1	F2	4.20	8	6	6	12	CLASS 'B' STONE
D2	X–PIPE 1	8.86	24	9	13	18	CLASS 'B' STONE
D3	X–PIPE 2	9.95	16	6	13	18	CLASS 'B' STONE

USE SPECIFIED STONE FOR EROSION CONTROL
PLACE DISSIPATOR AS PER DETAIL SHOWN ON DETAIL SHEET WITH REQUIRED UNDERLINER

GROUND STABILIZATION REQUIRED WITHIN 7 DAYS FOR PERIMETER AREAS AND FOR SLOPES GREATER THAN 3:1. ALL OTHER AREAS IT IS REQUIRED WITHIN 14 DAYS OF ANY PHASE OF GRADING.

GRADING NOTES:
PRIOR TO GRADING, A GRADING AND EROSION CONTROL PLAN SHALL BE FILED WITH APROPRIATE AGENCY.
A GRADING PERMIT SHALL BE OBTAINED AS REQUIRED.
ALL GRADING AND EROSION CONTROL REQUIREMENTS OF THE SPL AND EROSION CONTROL ORDINANCE OF THE GOVERNING AGENCY SHALL BE COMPLIED WITH.

LOCATION, PLACEMENT, AND/OR QUANTITY OF EROSION CONTROL MATERIALS AND/OR DEVICES MAY VARY TO BETTER CONFORM TO FIELD CONDITIONS.

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

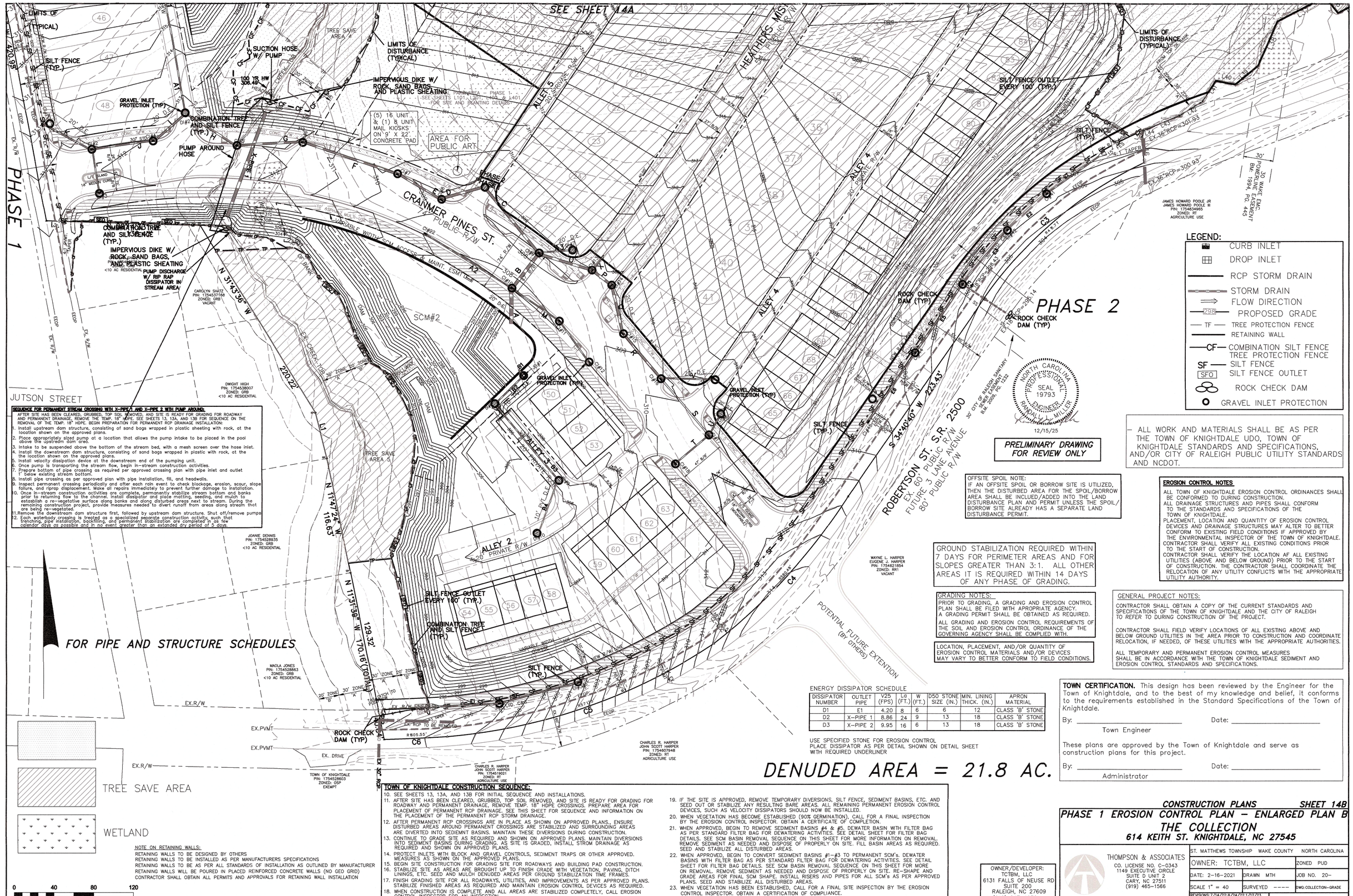
NOTE:
– ALL WORK AND MATERIALS SHALL BE AS PER THE TOWN OF KNIGHTDALE UDO, TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS, AND/OR CITY OF RALEIGH PUBLIC UTILITY STANDARDS AND NCDOT.

NOTE:
EXACT LOCATION OF THE MULCH PATH TO BE DETERMINED IN THE FIELD TO AVOID ANY TREE REMOVAL IN ZONE 1 OF NEUSE RIVER BUFFER

DENUDED AREA = 21.8 AC.

FOR PIPE AND STRUCTURE SCHEDULES SEE SHEET 6

EX. 100' RAILROAD R/W
N 59°54'15" E 182.56'
10' TYPE 'B' BUFFER
PHASE 1 PHASE 2
LIMITS OF DISTURBANCE
COMBINATION TREE AND SILT FENCE
C1 C2 C3 C4 C5 C6 C7 C8
HEATHERS MIST ST.
54' PUBLIC R/W
KEITH STREET
EX. 30' PUBLIC R/W
FUTURE 54' PUBLIC R/W
PHASE 1
N 10°41'04" W 183.85'
SILT FENCE (TYP.)
NCG01 SELF INSPECTION RECORDS, PERMIT BOX & RAIN GAUGE
SEE DETAIL SHEET 40
CONC. WASH OUT
20' D.E.
25' x 50' x 12" RIP RAP CONSTRUCTION ENTRANCE. SEE DETAIL SHEET
~32 LF TEMP 15" HDPE IN EX. DITCH
ROCK CHECK DAM (TYP)
GRAVEL INLET PROTECTION (TYP)
#28 #27
WETLAND WD
WETLAND WC-4
WETLAND WC-3
SCM#1
SCM#3
100 YR HW 320.41
SUCTION HOSE W/ PUMP
IMPERVIOUS DIKE W/ ROCK, SAND BAGS,
PUMP AROUND HOSE
HEADWALL 2
HEADWALL 3
D3
ROCK CHECK DAM (TYP)
IMPERVIOUS DIKE W/ ROCK, SAND BAGS, AND PLASTIC SHEATING
PUMP DISCHARGE W/ RIP RAP DISSIPATOR IN STREAM AREA
ALLEY 6
VARIABLE WIDTH SCM ACCESS & MAINTENANCE
PHASE 2
ROCKET PARK
ACTIVE OPEN SPACE
52,632 SF
SEE SHEET 14B
LIMITS OF DISTURBANCE (TYPICAL)
COMBINATION TREE AND SILT FENCE(TYP.)
SS1
WETLAND WB-2
EX. LAKE TO REMAIN
TREE SAVE AREA 1
PICNIC TABLE
TRASH RECEPTICAL
5' MULCH PATH
SILT FENCE OUTLET EVERY 100' (TYP.)
PASSIVE OPEN SPACE 267,419 SF
TREE SAVE AREA 15
COMBINATION TREE AND SILT FENCE
50' DEPRESSED CURB & GUTTER
55' R/W BROOKSTONE PKWY
ST.



SEQUENCE FOR PERMANENT STREAM CROSSING WITH X-PIPE 1 AND X-PIPE 2 WITH PUMP AROUND.

AFTER SITE HAS BEEN CLEARED, GRUBBED, TOP SOIL REMOVED, AND SITE IS READY FOR GRADING FOR ROADWAY AND PERMANENT DRAINAGE, REMOVE THE TEMP. 18" HDPE. SEE SHEETS 13, 13A, AND 13B FOR SEQUENCE ON THE REMOVAL OF THE TEMP. 18" HDPE. BEGIN PREPARATION FOR PERMANENT RCP DRAINAGE INSTALLATION:

1. Install upstream dam structure, consisting of sand bags wrapped in plastic sheeting with rock, at the location shown on the approved plans.
2. Place appropriately sized pump at a location that allows the pump intake to be placed in the pool above the upstream dam area.
3. Intake to be suspended above the bottom of the stream bed, with a mesh screen over the hose inlet.
4. Install the downstream dam structure, consisting of sand bags wrapped in plastic with rock, at the the location shown on the approved plans.
5. Install velocity dissipation device at the downstream end of the pumping unit.
6. Once pump is transporting the stream flow, begin in-stream construction activities.
7. Prepare bottom of pipe crossing as required per approved crossing plan with pipe inlet and outlet 1' below existing stream bottom.
8. Install pipe crossing as per approved plan with pipe installation, fill, and headwalls.
9. Inspect permanent crossing periodically and after each rain event to check blockage, erosion, scour, slope failure, and riprap displacement. Make all repairs immediately to prevent further damage to installation.
10. Once in-stream construction activities are complete, permanently stabilize stream bottom and banks prior to returning flow to the channel. Install dissipator and place matting, seeding, and mulch to establish a re-vegetative surface along banks and along disturbed areas next to stream. During the remaining construction project, provide measures needed to divert runoff from areas along stream that are being re-vegetated.
11. Remove the downstream dam structure first, followed by upstream dam structure. Shut off/remove pumps
12. Each waterbody crossing is treated as a specialized separate construction activity, such that trenching, pipe installation, backfilling, and permanent stabilization are completed in as few calendar days as possible and in no event greater than an extended dry period of 5 days.

NOTE ON RETAINING WALLS:

RETAINING WALLS TO BE DESIGNED BY OTHERS
RETAINING WALLS TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS
RETAINING WALLS TO BE AS PER ALL STANDARDS OF INSTALLATION AS OUTLINED BY MANUFACTURER
RETAINING WALLS WILL BE POURED IN PLACED REINFORCED CONCRETE WALLS (NO GEO GRID)
CONTRACTOR SHALL OBTAIN ALL PERMITS AND APPROVALS FOR RETAINING WALL INSTALLATION

0 40 80 120

TOWN OF KNIGHTDALE CONSTRUCTION SEQUENCE:

10. SEE SHEETS 13, 13A, AND 13B FOR INITIAL SEQUENCE AND INSTALLATIONS.
11. AFTER SITE HAS BEEN CLEARED, GRUBBED, TOP SOIL REMOVED, AND SITE IS READY FOR GRADING FOR ROADWAY AND PERMANENT DRAINAGE, REMOVE TEMP. 18" HDPE CROSSINGS. PREPARE AREA FOR PLACEMENT OF PERMANENT RCP DRAINAGE. SEE THIS SHEET FOR SEQUENCE AND INFORMATION ON THE PLACEMENT OF THE PERMANENT RCP STORM DRAINAGE.
12. AFTER PERMANENT RCP CROSSINGS ARE IN PLACE AS SHOWN ON APPROVED PLANS., ENSURE DISTURBED AREAS AROUND PERMANENT CROSSINGS ARE STABILIZED AND SURROUNDING AREAS ARE DIVERTED INTO SEDIEMNT BASINS. MAINTAIN THESE DIVERSIONS DURING CONSTRUCTION.
13. CONTINUE TO GRADE SITE AS REQUIRED AND SHOWN ON APPROVED PLANS. MAINTAIN DIVERSIONS INTO SEDIMENT BASINS DURING GRADING. AS SITE IS GRADED, INSTALL STROM DRAINAGE AS REQUIRED AND SHOWN ON APPROVED PLANS.
14. PROTECT INLETS WITH BLOCK AND GRAVEL CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED. MEASURES AS SHOWN ON THE APPROVED PLANS.
15. BEGIN SITE CONSTRUCTION FOR GRADING SITE FOR ROADWAYS AND BUILDING PAD CONSTRUCTION.
16. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
17. FINISH GRADING SITE FOR ALL ROADWAYS, UTILITIES, AND IMPROVEMENTS AS PER APPROVED PLANS. STABILIZE FINISHED AREAS AS REQUIRED AND MAINTAIN EROSION CONTROL DEVICES AS REQUIRED.
18. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL EROSION CONTROL INSPECTOR FOR AN INSPECTION.
19. IF THE SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC. AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS SHOULD NOW BE INSTALLED.
20. WHEN VEGETATION HAS BECOME ESTABLISHED (90% GERMINATION), CALL FOR A FINAL INSPECTION BY THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATE OF COMPLETION.
21. WHEN APPROVED, BEGIN TO REMOVE SEDIMENT BASINS #4 & #5. DEWATER BASIN WITH FILTER BAG AS PER STANDARD FILTER BAG FOR DEWATERING ACTIVITIES. SEE DETAIL SHEET FOR FILTER BAG DETAILS. SEE SCM BASIN REMOVAL SEQUENCE ON THIS SHEET FOR MORE INFORMATION ON REMOVAL. REMOVE SEDIMENT AS NEEDED AND DISPOSE OF PROPERLY ON SITE. FILL BASIN AREAS AS REQUIRED. SEED AND STABILIZE ALL DISTURBED AREAS.
22. WHEN APPROVED, BEGIN TO CONVERT SEDIMENT BASINS #1–#3 TO PERMANENT SCM's. DEWATER BASINS WITH FILTER BAG AS PER STANDARD FILTER BAG FOR DEWATERING ACTIVITIES. SEE DETAIL SHEET FOR FILTER BAG DETAILS. SEE SCM BASIN REMOVAL SEQUENCE ON THIS SHEET FOR MORE ON REMOVAL. REMOVE SEDIMENT AS NEEDED AND DISPOSE OF PROPERLY ON SITE. RE-SHAPE AND GRADE AREAS FOR FINAL SCM SHAPE. INSTALL RISERS AND PIPES FOR ALL SCM's AS PER APPROVED PLANS. SEED AND STABILIZE ALL DISTURBED AREAS.
23. WHEN VEGETATION HAS BEEN ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATION OF COMPLIANCE.

ENERGY DISSIPATOR SCHEDULE

DISSIPATOR NUMBER	OUTLET PIPE	V25 (FPS)	Lg (FT.)	W (FT.)	D50 STONE SIZE (IN.)	MIN. LINING THICK. (IN.)	APRON MATERIAL
D1	E1	4.20	8	6	6	12	CLASS 'B' STONE
D2	X-PIPE 1	8.86	24	9	13	18	CLASS 'B' STONE
D3	X-PIPE 2	9.95	16	6	13	18	CLASS 'B' STONE

USE SPECIFIED STONE FOR EROSION CONTROL
PLACE DISSIPATOR AS PER DETAIL SHOWN ON DETAIL SHEET WITH REQUIRED UNDERLINER

LEGEND:

- CURB INLET
- DROP INLET
- RCP STORM DRAIN
- STORM DRAIN
- FLOW DIRECTION
- 298 PROPOSED GRADE
- TF TREE PROTECTION FENCE
- RETAINING WALL
- CF COMBINATION SILT FENCE TREE PROTECTION FENCE
- SF SILT FENCE
- SFO SILT FENCE OUTLET
- ROCK CHECK DAM
- GRAVEL INLET PROTECTION

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

– ALL WORK AND MATERIALS SHALL BE AS PER THE TOWN OF KNIGHTDALE UDO, TOWN OF KNIGHTDALE STANDARDS AND SPECIFICATIONS, AND/OR CITY OF RALEIGH PUBLIC UTILITY STANDARDS AND NCDOT.

OFFSITE SPOIL NOTE:
IF AN OFFSITE SPOIL OR BORROW SITE IS UTILIZED, THEN THE DISTURBED AREA FOR THE SPOIL/BORROW AREA SHALL BE INCLUED/ADDED INTO THE LAND DISTURBANCE PLAN AND PERMIT UNLESS THE SPOIL/BORROW SITE ALREADY HAS A SEPARATE LAND DISTURBANCE PERMIT.

EROSION CONTROL NOTES

ALL TOWN OF KNIGHTDALE EROSION CONTROL ORDINANCES SHALL BE CONFORMED TO DURING CONSTRUCTION.
ALL DRAINAGE STRUCTURES AND PIPES SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.
PLACEMENT, LOCATION AND QUANTITY OF EROSION CONTROL DEVICES AND DRAINAGE STRUCTURES MAY ALTER TO BETTER CONFORM TO EXISTING FIELD CONDITIONS IF APPROVED BY THE ENVIRONMENTAL INSPECTOR OF THE TOWN OF KNIGHTDALE.
CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION.
CONTRACTOR SHALL VERIFY THE LOCATION AF ALL EXISTING UTILITIES (ABOVE AND BELOW GROUND) PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY UTILITY CONFLICTS WITH THE APPROPRIATE UTILITY AUTHORITY.

GROUND STABILIZATION REQUIRED WITHIN 7 DAYS FOR PERIMETER AREAS AND FOR SLOPES GREATER THAN 3:1. ALL OTHER AREAS IT IS REQUIRED WITHIN 14 DAYS OF ANY PHASE OF GRADING.

GRADING NOTES:

PRIOR TO GRADING, A GRADING AND EROSION CONTROL PLAN SHALL BE FILED WITH APPROPRIATE AGENCY. A GRADING PERMIT SHALL BE OBTAINED AS REQUIRED.

ALL GRADING AND EROSION CONTROL REQUIREMENTS OF THE SOIL AND EROSION CONTROL ORDINANCE OF THE GOVERNING AGENCY SHALL BE COMPLIED WITH.

LOCATION, PLACEMENT, AND/OR QUANTITY OF EROSION CONTROL MATERIALS AND/OR DEVICES MAY VARY TO BETTER CONFORM TO FIELD CONDITIONS.

GENERAL PROJECT NOTES:

CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE AND THE CITY OF RALEIGH TO REFER TO DURING CONSTRUCTION OF THE PROJECT.

CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING ABOVE AND BELOW GROUND UTILITIES IN THE AREA PRIOR TO CONSTRUCTION AND COORDINATE RELOCATION, IF NEEDED, OF THESE UTILITIES WITH THE APPROPRIATE AUTHORITIES.

ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE SEDIMENT AND EROSION CONTROL STANDARDS AND SPECIFICATIONS.

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

CONSTRUCTION PLANS *SHEET 14B*

PHASE 1 EROSION CONTROL PLAN – ENLARGED PLAN B

THE COLLECTION

614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA

OWNER: TCTBM, LLC		ZONED PUD
DATE: 2-16-2021	DRAWN MTH	JOB NO. 20–
SCALE 1" = 40	SURVEYED ----	DWG:COLLECTION-GRADE
REVISIONS:7/14/22;8/24/22;1/12/23 2/17/23;3/9/23;5/21/25;12/15/25		PIN: SEE SITE DATA TABLE

SITE PERMITTING APPROVAL

WATER AND SEWER PERMITS

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC SEWER SYSTEM** AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# S-5041

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC WATER SYSTEM** ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# W-3926

NOTE:
ALL CONSTRUCTION & MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND CORPUD STANDARDS, SPECIFICATIONS, AND DETAILS.

GENERAL NOTES:

- ALL WORK AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECS. OF THE TOWN OF KNIGHTDALE, C.O.R.P.U.D. & NCDOT
- CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL VERIFY THE LOCATION (ABOVE AND BELOW GROUND) OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND COORDINATE, IF NECESSARY, THE RELOCATION OF ANY UTILITIES WITH THE APPROPRIATE UTILITY AUTHORITY.
- ALL REQUIRED PERMITS FOR CONSTRUCTION SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- CONTRACTOR SHALL OBTAIN A COPY OF THE TOWN OF KNIGHTDALE & CORPUD STDS. AND SPECIFICATIONS TO USE AND REFER TO DURING CONSTRUCTION.

STORM DRAINAGE SCHEDULE SYSTEM #1 — DRAINS TO SCM#2

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	Q10	V10	NOTES
A	HDPE	42"	~35'	300.80	300.50	0.86%	7.76 AC	33.00 cfs	6.81 fps	W/ FES @ OUTLET
B	HDPE	36"	~44'	301.30	301.00	0.68%	7.32 AC			
C	HDPE	30"	~82'	302.50	301.80	0.85%	2.11 AC			
D	HDPE	30"	~43'	303.20	302.70	1.16%	1.78 AC			
E	HDPE	24"	~47'	305.50	303.40	4.47%	1.63 AC			
F	RCP	24"	~97'	306.20	305.70	0.51%	1.53 AC			
G	RCP	24"	~63'	306.90	306.40	0.79%	1.45 AC			
H	RCP	24"	~60'	307.50	307.10	0.67%	1.42 AC			
I	RCP	24"	~39'	308.00	307.70	0.79%	1.23 AC			
J	RCP	18"	~39'	308.40	308.10	0.78%	0.86 AC			
K	HDPE	18"	~53'	308.80	308.50	0.57%	0.32 AC			
L	HDPE	15"	~43'	308.80	308.50	0.70%	0.13 AC			
M	HDPE	15"	~57'	304.40	304.00	0.70%	0.17 AC			
N	HDPE	15"	~50'	304.90	304.50	0.80%	.09 AC			
O	HDPE	30"	~56'	303.50	302.90	1.07%	4.02 AC			
P	HDPE	30"	~23'	303.80	303.60	0.87%	2.40 AC			
Q	HDPE	30"	~50'	304.20	303.90	0.60%	1.80 AC			
R	HDPE	18"	~56'	304.80	304.50	0.54%	1.28 AC			
S	HDPE	18"	~70'	305.60	305.20	0.54%	0.97 AC			
T	HDPE	15"	~44'	306.70	306.30	0.68%	0.14 AC			
U	HDPE	15"	~21'	307.00	306.40	2.86%	0.67 AC			
V	HDPE	15"	~52'	306.67	306.40	0.53%	0.24 AC			
W	HDPE	15"	~20'	312.60	308.80	2.89%	8.14 AC			
X	HDPE	18"	~87'	308.80	304.00	5.22%	1.21 AC			
Y	HDPE	15"	~125'	310.20	305.90	3.64%	0.96 AC	**PHASE 2 CONSTRUCTION**		
Z	HDPE	15"	~25'	311.00	310.90	0.80%	0.29 AC			
A1	RCP	15"	~141'	312.70	309.30	2.41%	0.11 AC			
A2	HDPE	15"	~102'	304.90	303.20	1.67%	0.17 AC			
A3	HDPE	15"	~34'	305.00	304.00	2.94%	0.62 AC			

STORM DRAINAGE SCHEDULE X-PIPE #1

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	Q10	V10	NOTES
X-PIPE 1	**RCP**	36"	~111'	303.00	302.00	0.90%	8.71 AC	44.63 cfs	8.95 fps	W/ HEADWALL @ OUTLET AND INLET

STORM STRUCTURE SCHEDULE SYSTEM #1

CRANMER PINES ST
DI#D
CL STA. 15+15.85 23.5' RIGHT
TBOC: 309.65
INV. IN = 301.00 (PIPE B)
INV. IN = 303.20 (PIPE A3)
INV. IN = 304.90 (PIPE A2)
INV. OUT = 300.80 (PIPE A)

CRANMER PINES ST
DI#E
CL STA. 15+15.85 23.5' LEFT
TBOC: 308.14
INV. IN = 301.80 (PIPE C)
INV. IN = 304.00 (PIPE A3)
INV. IN = 302.90 (PIPE O)
INV. OUT = 301.20 (PIPE B)

CRANMER PINES ST
DI#F
CL STA. 14+07.84 17.5' LEFT
TBOC: 308.10
INV. IN = 303.40 (PIPE E)
INV. OUT = 303.20 (PIPE D)

CRANMER PINES ST
DI#T
CL STA. 13+58.94 23.5' LEFT
TBOC: 309.81
INV. IN = 305.70 (PIPE F)
INV. OUT = 305.60 (PIPE E)

ALLEY 5
DI#S
CL STA. 10+47 ℄ CL OF ALLEY 5
GRATE: 310.46
INV. IN = 306.10 (PIPE F)
INV. OUT = 306.00 (PIPE E)

CRANMER PINES ST
DI#R
CL STA. 12+62.84 28.5' LEFT
TBOC: 311.52
INV. IN = 306.40 (PIPE G)
INV. OUT = 306.30 (PIPE F)

CRANMER PINES ST
DI#Q
CL STA. 12+00.00 17.5' LEFT
TBOC: 312.66
INV. IN = 307.10 (PIPE H)
INV. OUT = 306.90 (PIPE G)

ALLEY 1
DI#Z
CL STA. 12+91.51 ℄ CL OF ALLEY 1
GRATE: 313.71
INV. IN = 307.70 (PIPE I)
INV. IN = 309.30 (PIPE A1)
INV. OUT = 307.60 (PIPE H)

ALLEY 1
DI#1
CL STA. 11+44.85 CL ALLEY 1
GRATE: 317.82
INV. OUT = 312.70 (PIPE A1)

CRANMER PINES ST
DI#4
CL STA. 11+18.48 23.5' LEFT
TBOC: 312.66
INV. IN = 308.10 (PIPE J)
INV. OUT = 308.00 (PIPE I)

CRANMER PINES ST
DI#3
CL STA. 10+58.36 23.5' RIGHT
TBOC: 311.84
INV. OUT = 308.80 (PIPE L)

CRANMER PINES ST
DI#2
CL STA. 10+58.36 23.5' LEFT
TBOC: 311.84
INV. IN = 308.50 (PIPE K)
INV. IN = 308.50 (PIPE L)
INV. OUT = 308.40 (PIPE J)

KEITH ST.
DI#1
CL STA. 10+19.08 15.5' RIGHT
TBOC: 313.60
INV. OUT = 308.80 (PIPE K)

HEATHERS MIST ST
DI#F3
CL STA. 26+19.40 13.5' RIGHT
TBOC: 308.90
INV. IN = 303.60 (PIPE P)
INV. IN = 304.00 (PIPE Y)
INV. OUT = 303.50 (PIPE O)

HEATHERS MIST ST
DI#F4
CL STA. 26+19.40 13.5' LEFT
TBOC: 308.90
INV. IN = 303.90 (PIPE Q)
INV. OUT = 303.80 (PIPE P)

CRANMER PINES ST
DI#F5
CL STA. 16+27.63 23.5' RIGHT
TBOC: 309.03
INV. IN = 304.50 (PIPE R)
INV. OUT = 304.20(PIPE Q)

CRANMER PINES ST
DI#F6
CL STA. 16+81.93 17.5' LEFT
TBOC: 308.98
INV. IN = 305.30 (PIPE S)
INV. IN = 308.40 (PIPE X)
INV. OUT = 304.80 (PIPE R)

CRANMER PINES ST
DI#F7
CL STA. 17+10.74 23.5' LEFT
TBOC: 310.17
INV. IN = 306.30 (PIPE T)
INV. IN = 306.40 (PIPE U)
INV. OUT = 305.60 (PIPE S)

CRANMER PINES ST
DI#F8
CL STA. 17+10.74 23.5' RIGHT
TBOC: 310.17
INV. OUT = 306.70 (PIPE T)

OFFSITE (SEE PLANS)
DI#9
GRATE: ~310.00
INV. OUT = 307.00 (PIPE U)

HEATHERS MIST ST
DI#F9
CL STA. 25+31.40 13.5' RIGHT
TBOC: 311.70
INV. IN = 308.90 (PIPE Y)
INV. OUT = 308.80 (PIPE X)

HEATHERS MIST ST
DI#F10
CL STA. 24+05.57 13.5' RIGHT
TBOC: 313.80
INV. IN = 310.80 (PIPE Z)
INV. OUT = 310.20 (PIPE Y)

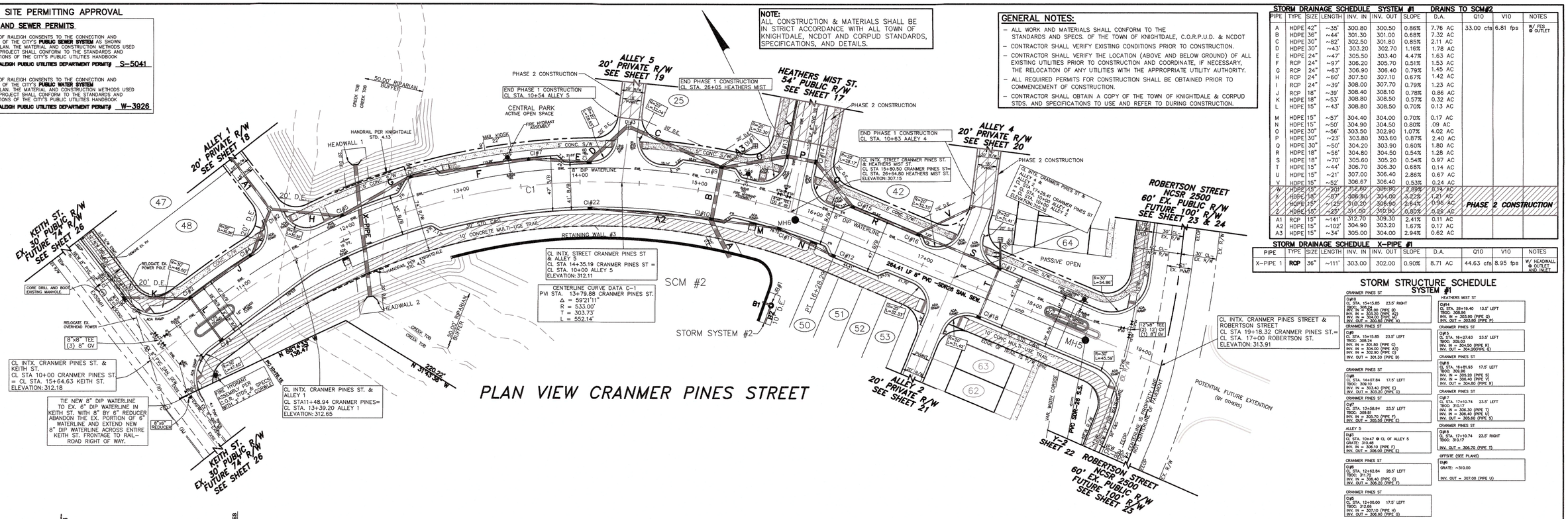
HEATHERS MIST ST
DI#F11
CL STA. 24+05.57 13.5' LEFT
TBOC: 313.80
OFFSITE – SEE PLANS
DI#F
GRATE: ~308.00
INV. OUT = 305.00 (PIPE A3)

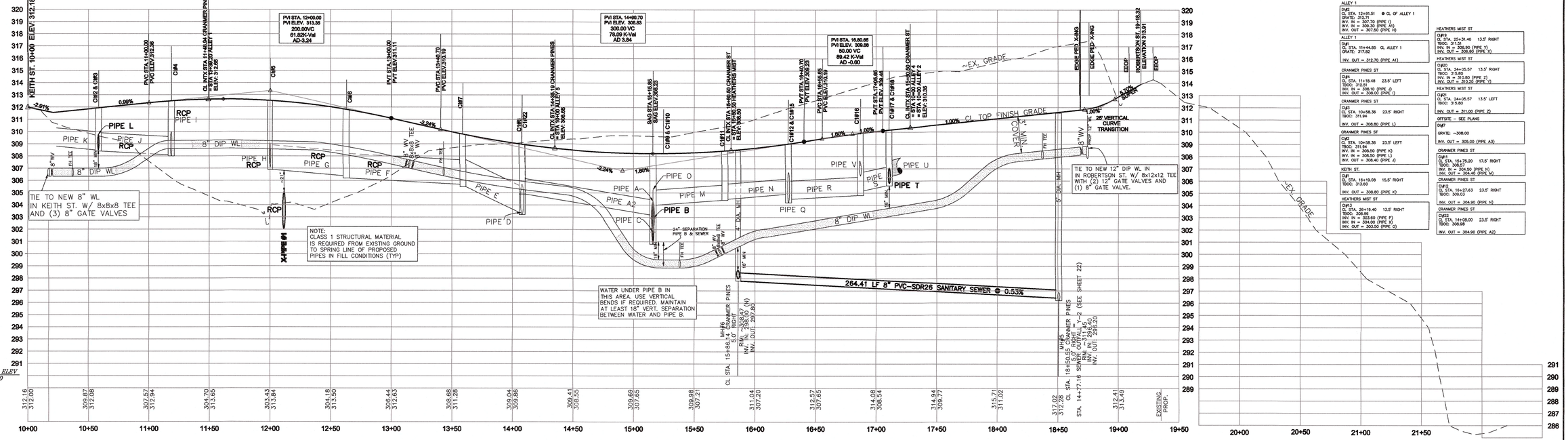
CRANMER PINES ST
DI#F12
CL STA. 15+75.20 17.5' RIGHT
TBOC: 308.57
INV. IN = 304.90 (PIPE N)
INV. OUT = 304.45 (PIPE M)

CRANMER PINES ST
DI#F13
CL STA. 16+27.63 23.5' RIGHT
TBOC: 309.03
INV. OUT = 304.90 (PIPE N)

CRANMER PINES ST
DI#F2
CL STA. 26+19.40 13.5' RIGHT
TBOC: 308.90
INV. IN = 303.60 (PIPE P)
INV. IN = 304.00 (PIPE Y)
INV. OUT = 303.50 (PIPE O)

CRANMER PINES ST
DI#F22
CL STA. 14+08.00 23.5' RIGHT
TBOC: 308.98
INV. OUT = 304.90 (PIPE A2)





SCALE: 1" = 40' HORIZ.
1" = 4' VERT.
0 40 80 120

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL A. MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

PLAN AND PROFILE CRANMER PINES STREET
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

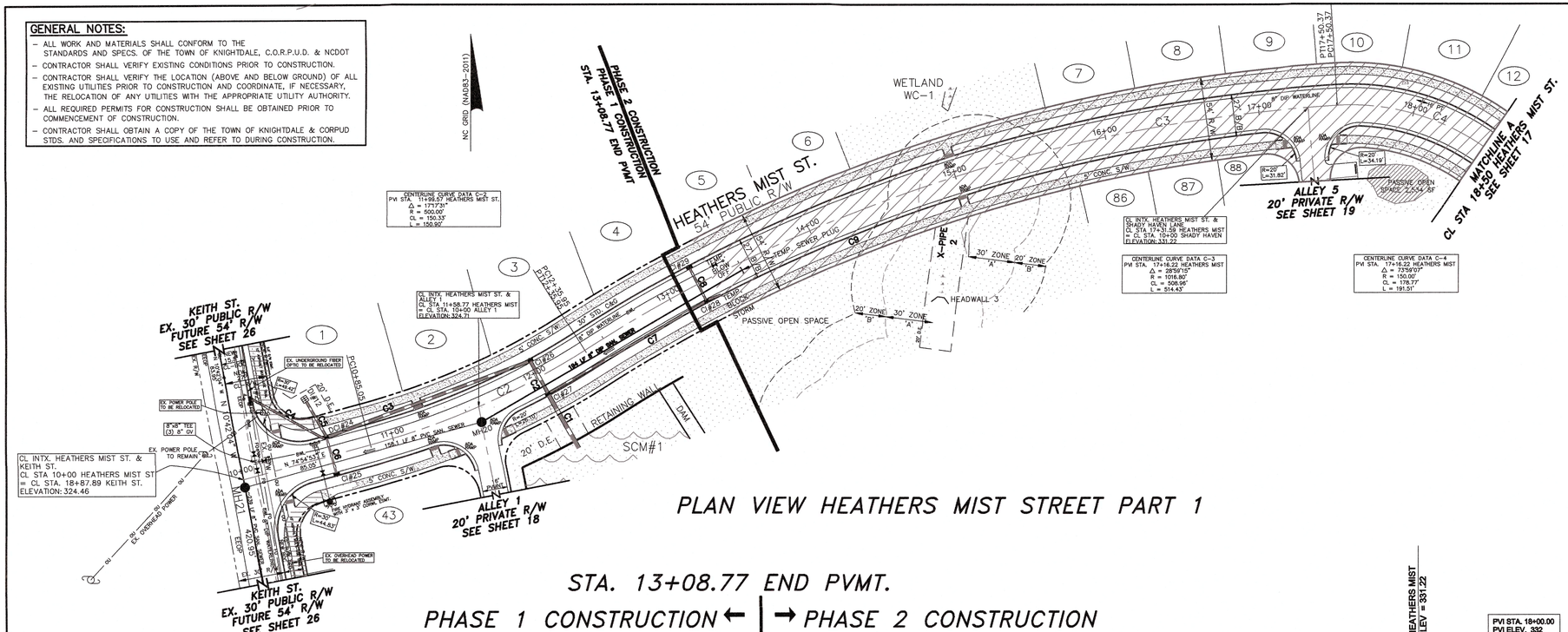
THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP	WAKE COUNTY	NORTH CAROLINA	
OWNER: TCTBM, LLC		ZONED PUD	
DATE 7/28/2025	DRAWN RLM	JOB NO. 20–	
SCALE 1" = 40'	SURVEYED ----	DWG STREET A	
REVISIONS: 10-3-2; 12-15-25	PIN: SEE SITE DATA TABLE		

SHEET 15

GENERAL NOTES:

- ALL WORK AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECS. OF THE TOWN OF KNIGHTDALE, C.O.R.P.U.D. & NCDOT
- CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL VERIFY THE LOCATION (ABOVE AND BELOW GROUND) OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND COORDINATE, IF NECESSARY, THE RELOCATION OF ANY UTILITIES WITH THE APPROPRIATE UTILITY AUTHORITY.
- ALL REQUIRED PERMITS FOR CONSTRUCTION SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- CONTRACTOR SHALL OBTAIN A COPY OF THE TOWN OF KNIGHTDALE & CORPUD STDS. AND SPECIFICATIONS TO USE AND REFER TO DURING CONSTRUCTION.



PLAN VIEW HEATHERS MIST STREET PART 1

STORM DRAINAGE SCHEDULE X-PIPE #2 — PHASE 2 CONSTRUCTION

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	Q10	V10	NOTES
X-PIPE 2	RCP	24"	~112'	320.00	314.00	5.36%	2.30 AC	11.62 cfs	9.53 fps	W/ HEADWALL @ OUTLET AND INLET

STORM DRAINAGE SCHEDULE SYSTEM #3 DRAINS TO SCM#1

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	Q10	V10	NOTES
C1	HDPE	30"	~39'	314.90	311.00	10.00%	2.80 AC	12.12 cfs	10.0 fps	W/ FES @ OUTLET
C2	HDPE	24"	~24'	315.20	315.00	0.83%	2.73 AC			
C3	HDPE	24"	~136'	318.50	317.70	0.59%	1.56 AC			
C4	HDPE	15"	~53'	323.10	319.60	6.60%	0.16 AC			
C5	HDPE	18"	~28'	320.60	319.80	2.86%	1.13 AC			
C6	HDPE	15"	~24'	320.60	320.40	0.83%	0.06 AC			
C7	RCP	18"	~116'	322.30	320.90	1.21%	1.04 AC			
C8	RCP	15"	~24'	323.60	322.60	4.17%	0.28 AC			
C9	RCP	15"	~8'	322.61	322.50	1.36%	0.60 AC			
C10	RCP	15"	~24'	327.10	326.10	4.17%	0.29 AC			
C11	RCP	15"	~177'	327.90	326.10	0.85%	0.22 AC			
C12	HDPE	15"	~59'	328.30	327.70	1.02%	0.80 AC			PHASE 2 CONSTRUCTION
C13	HDPE	15"	~24'	328.60	328.40	0.83%	0.15 AC			

STORM STRUCTURE SCHEDULE SYSTEM #3 DRIANS TO SCM#1

KEITH STREET

DI#23
CL STA. 19+27.54 15.5' RIGHT
TBOC: 327.96
INV. OUT = 323.10 (PIPE C4)

HEATHERS MIST ST.

DI#24
CL STA. 10+58.88 13.5' LEFT
TBOC: 323.78
INV. IN = 319.60 (PIPE C4)
INV. IN = 319.80 (PIPE C5)
INV. IN = 320.40 (PIPE C6)
INV. OUT = 318.50 (PIPE C3)

HEATHERS MIST ST.

DI#25
CL STA. 10+58.88 13.5' RIGHT
TBOC: 323.78
INV. OUT = 320.60 (PIPE C6)

OFFSITE LOT #1 SEE PLANS

DI#12
GRATE: ~325.00
INV. OUT = 320.60 (PIPE C5)

HEATHERS MIST ST.

DI#26
CL STA. 12+02.00 13.5' LEFT
TBOC: 325.41
INV. IN = 317.70 (PIPE C3)
INV. OUT = 315.20 (PIPE C2)

HEATHERS MIST ST.

DI#27
CL STA. 12+02.00 13.5' RIGHT
TBOC: 325.41
INV. IN = 315.00 (PIPE C2)
INV. IN = 320.90 (PIPE C7)
INV. OUT = 314.90 (PIPE C1)

HEATHERS MIST ST.

DI#28
CL STA. 13+20.43 13.5' RIGHT
TBOC: 326.75
INV. IN = 322.60 (PIPE C8)
INV. IN = 322.50 (PIPE C9)
INV. OUT = 322.30 (PIPE C7)

HEATHERS MIST ST.

DI#29
CL STA. 13+20.43 13.5' LEFT
TBOC: 326.75
INV. OUT = 323.60 (PIPE C8)

HEATHERS MIST ST.

DI#30
CL STA. 15+62.58 13.5' RIGHT
TBOC: 328.75
INV. IN = 326.10 (PIPE C10)
INV. IN = 326.10 (PIPE C11)
INV. OUT = 326.00 (PIPE C9)

HEATHERS MIST ST.

DI#31
CL STA. 15+62.55 13.5' LEFT
TBOC: 329.73
INV. OUT = 327.10 (PIPE C10)

HEATHERS MIST ST.

DI#32
CL STA. 17+66.77 13.5' RIGHT
TBOC: 331.79
INV. IN = ~327.70 (PIPE C12)
INV. OUT = ~327.60 (PIPE C11)

HEATHERS MIST ST.

DI#33
CL STA. 18+35.90 13.5' RIGHT
TBOC: 331.82
INV. IN = ~328.40 (PIPE C13)
INV. OUT = ~328.30 (PIPE C12)

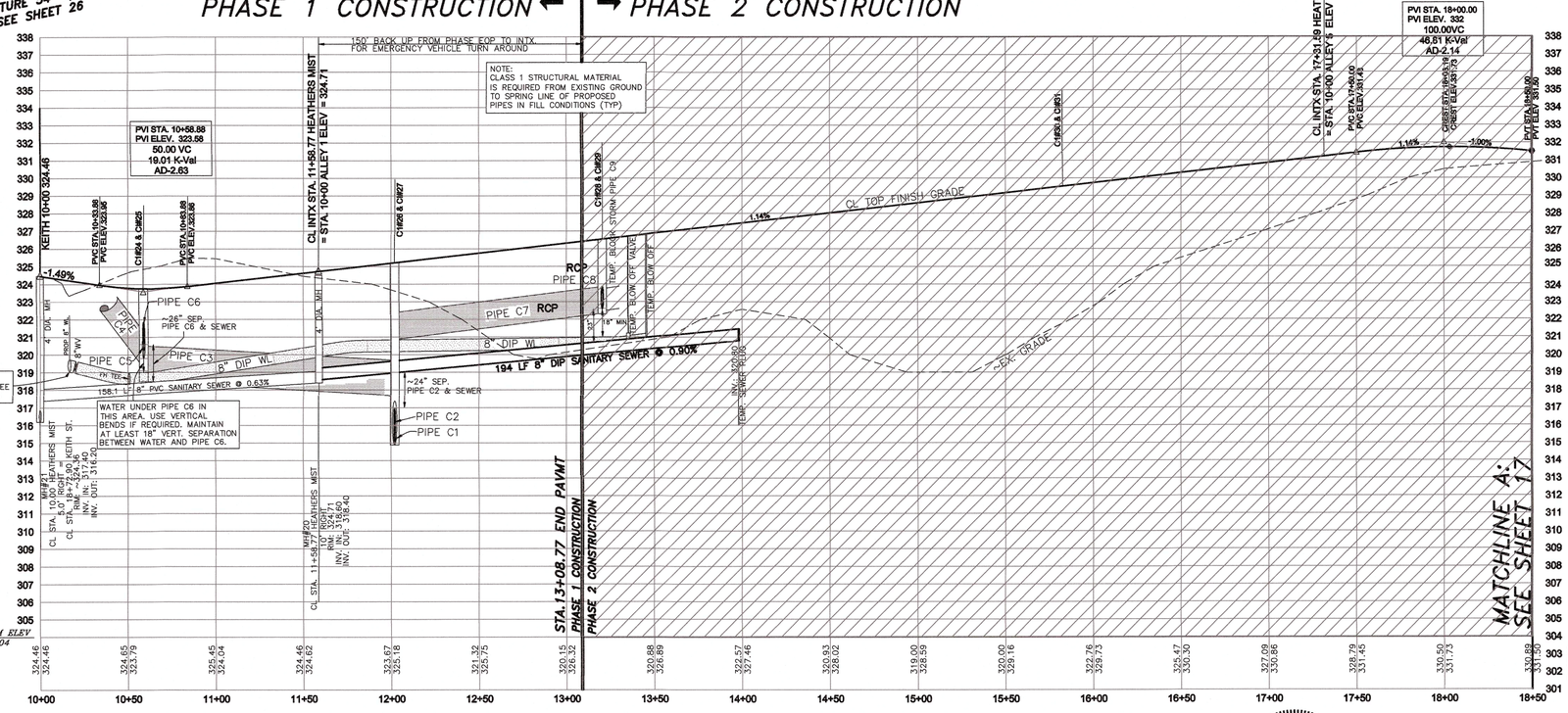
HEATHERS MIST ST.

DI#34
CL STA. 18+35.90 13.5' LEFT
TBOC: 331.82
INV. OUT = ~328.60 (PIPE C13)

PHASE 2 CONSTRUCTION

STA. 13+08.77 END PVMT.

PHASE 1 CONSTRUCTION ← | → PHASE 2 CONSTRUCTION



PROFILE VIEW HEATHERS MIST STREET PART 1

NOTE:
ALL CONSTRUCTION & MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND CORPUD STANDARDS, SPECIFICATIONS, AND DETAILS.

SCALE: 1" = 40' HORIZ.
1" = 4' VERT.
0 40 80 120

SITE PERMITTING APPROVAL

WATER AND SEWER PERMITS

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC SEWER SYSTEM** AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# S-5041

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC WATER SYSTEM** ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# W-3926

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

SHEET 16

PLAN AND PROFILE HEATHERS MIST ST. (PART 1)
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20-
SCALE 1" = 40'	SURVEYED -----	DWG STREET B
REVISIONS: 10-3-25; 12-15-25		PIN: SEE SITE DATA TABLE

NC GRID (NAD83-2011)

NOTE:
ALL CONSTRUCTION & MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND CORPUD STANDARDS, SPECIFICATIONS, AND DETAILS.

GENERAL NOTES:

- ALL WORK AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECS. OF THE TOWN OF KNIGHTDALE, C.O.R.P.U.D. & NCDOT
- CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL VERIFY THE LOCATION (ABOVE AND BELOW GROUND) OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND COORDINATE, IF NECESSARY, THE RELOCATION OF ANY UTILITIES WITH THE APPROPRIATE UTILITY AUTHORITY.
- ALL REQUIRED PERMITS FOR CONSTRUCTION SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- CONTRACTOR SHALL OBTAIN A COPY OF THE TOWN OF KNIGHTDALE & CORPUD STDS. AND SPECIFICATIONS TO USE AND REFER TO DURING CONSTRUCTION.

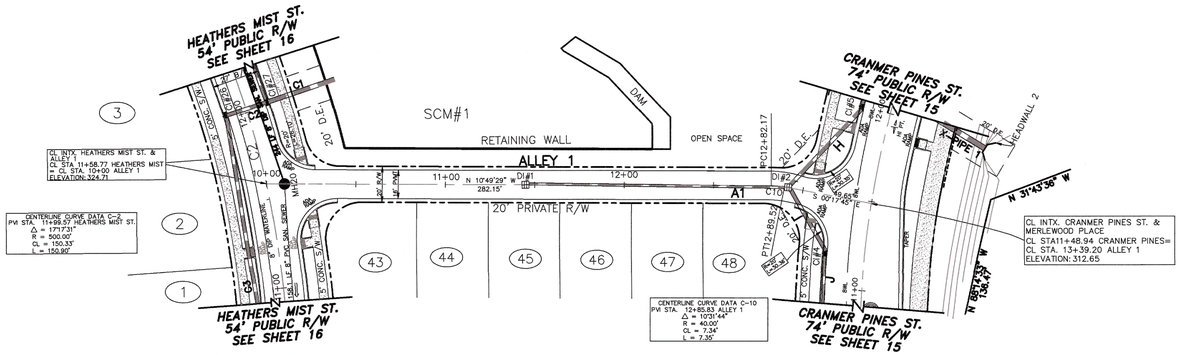
STORM DRAINAGE SCHEDULE SYSTEM #1
DRAINS TO SCM #2

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.
A1	RCP	15"	~141'	312.70	309.30	2.41%	0.11 AC
H	RCP	24"	~60'	307.50	307.10	0.67%	1.42 AC
I	RCP	24"	~39'	308.00	307.70	0.79%	1.23 AC

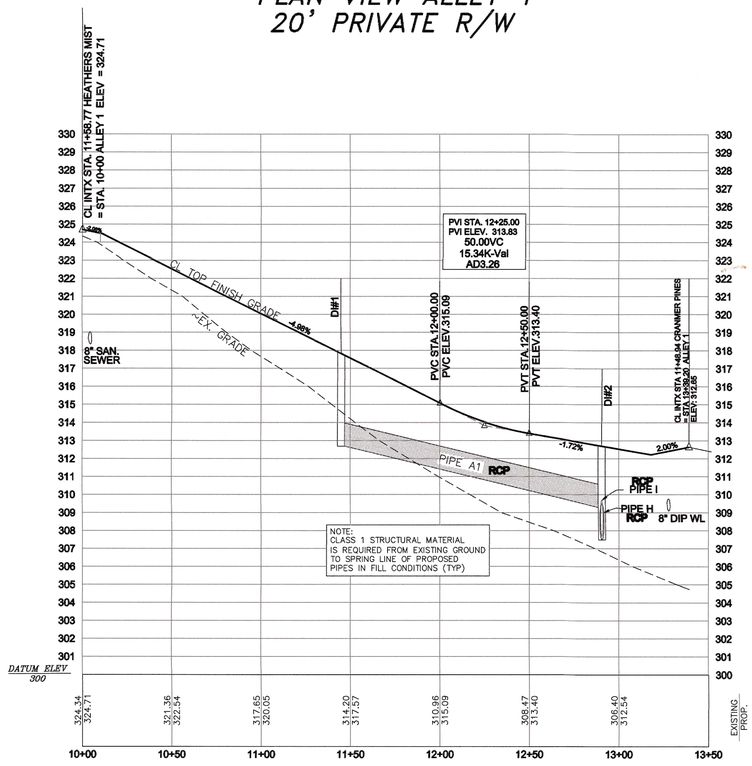
STORM STRUCTURE SCHEDULE
SYSTEM #1

ALLEY 1
DI#2
CL STA. 12+90.42 @ CL ALLEY 1
GRATE: 312.74
INV. IN = 307.70 (PIPE I)
INV. IN = 309.30 (PIPE A1)
INV. OUT = 307.50 (PIPE H)

ALLEY 1
DI#1
CL STA. 11+44.85 @ CL ALLEY 1
GRATE: 317.82
INV. OUT = 312.70 (PIPE A1)



PLAN VIEW ALLEY 1
20' PRIVATE R/W



PROFILE VIEW ALLEY 1

SCALE: 1" = 40' HORIZ.
1" = 4' VERT.
0 40 80 120

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
10/3/25

PRELIMINARY DRAWING FOR REVIEW ONLY

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

SHEET 18

PLAN AND PROFILE ALLEY 1
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20–
SCALE 1" = 40'	SURVEYED ----	DWG ALLEY 1
REVISIONS: 10/3/25		PIN: SEE SITE DATA TABLE

NOTE:
ALL CONSTRUCTION & MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL TOWN OF KNIGHJTDALE, NCDOT AND CORPUD STANDARDS, SPECIFICATIONS, AND DETAILS.

(1NCH = 60FEET GRID)

STORM DRAINAGE SCHEDULE SYSTEM #2 DRAINS TO SCM#2

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	Q10	V10	NOTES
B1	HDPE	15"	~16'	300.60	300.50	0.63%	0.59 AC	3.07 cfs	4.34 fps	W/ FES @ OUTLET
B2	HDPE	15"	~37'	301.00	300.70	0.81%	0.58 AC			
B3	HDPE	15"	~96'	301.60	301.10	0.52%	0.36 AC			
B4	HDPE	15"	~54'	302.00	301.70	0.56%	0.24 AC			

STORM STRUCTURE SCHEDULE SYSTEM #2

SCM #2 INLET

JB#1
RIM: ~307.3
INV. IN = 300.70 (PIPE B2)
INV. OUT = 300.60 (PIPE B1)

ALLEY 3
BEYOND PAVEMENT CL STA. 11+30.29

DI#8
GRATE: ~303.75
INV. IN = 301.10 (PIPE B3)
INV. OUT = 301.00 (PIPE B2)

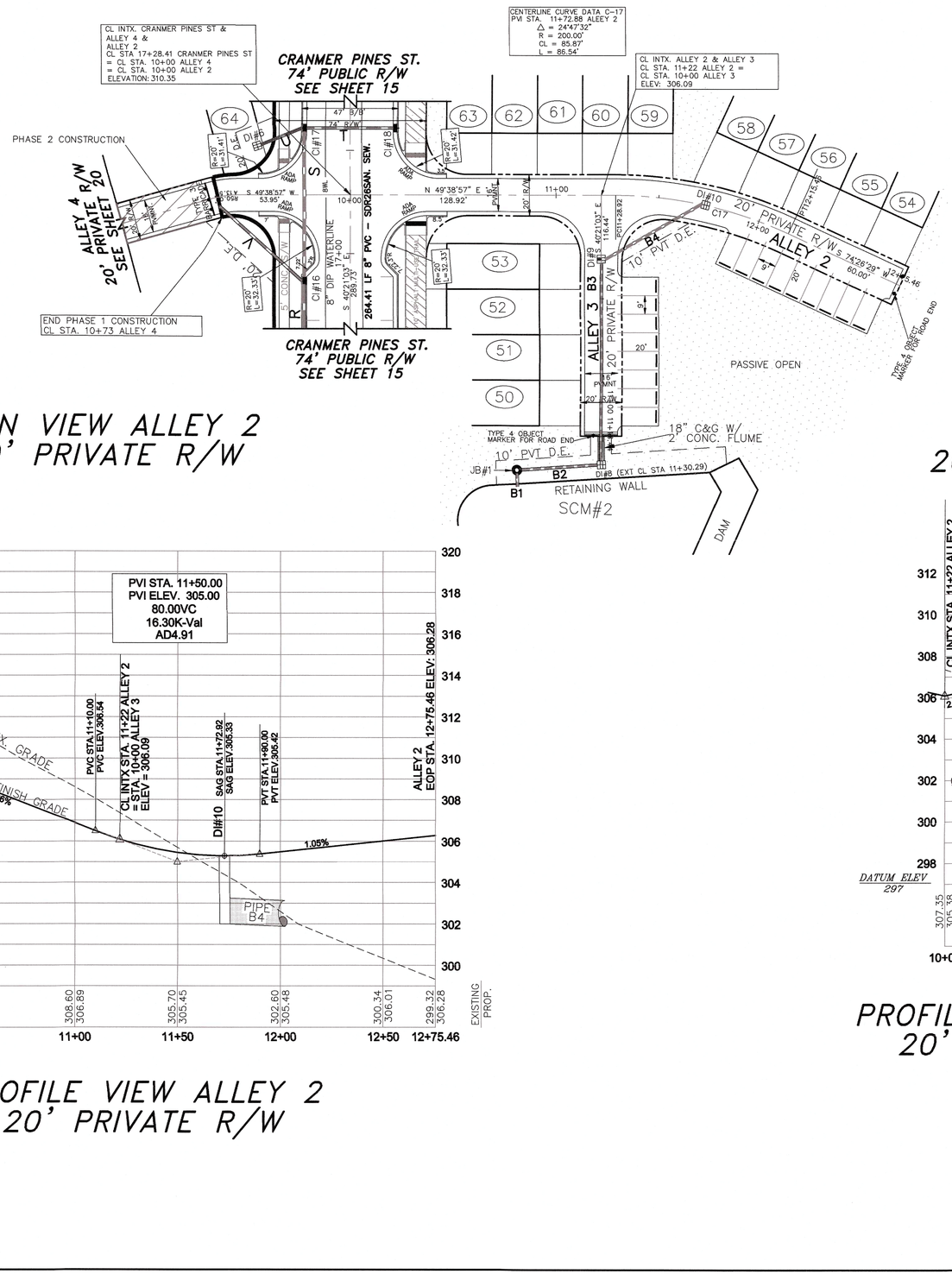
ALLEY 3

DI#9
CL STA. 10+30 ALLEY 3
GRATE: 305.92
INV. IN = 301.70 (PIPE B4)
INV. OUT = 301.60 (PIPE B3)

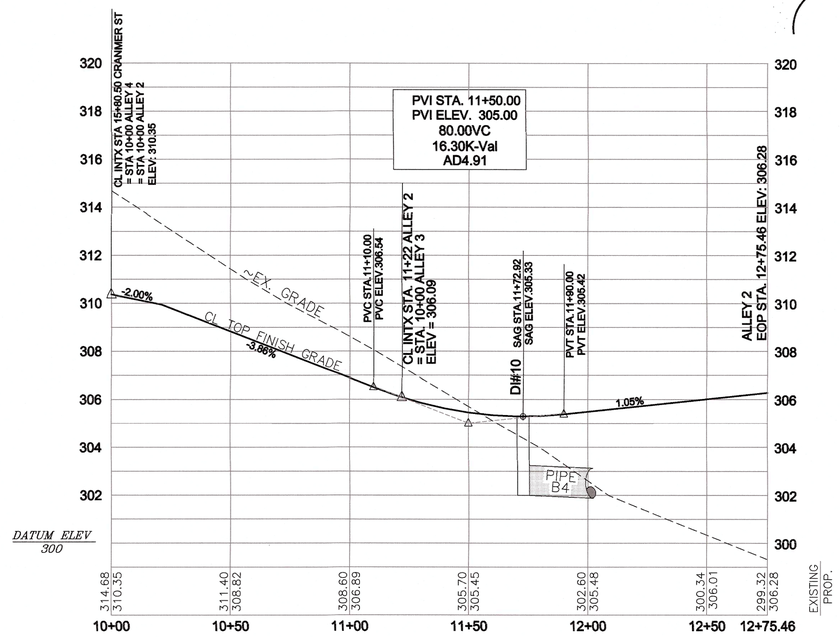
ALLEY 2

DI#10
CL STA. 11+72.95 ALLEY 2 (SAG)
GRATE: 305.33

INV. OUT = 302.00 (PIPE B4)

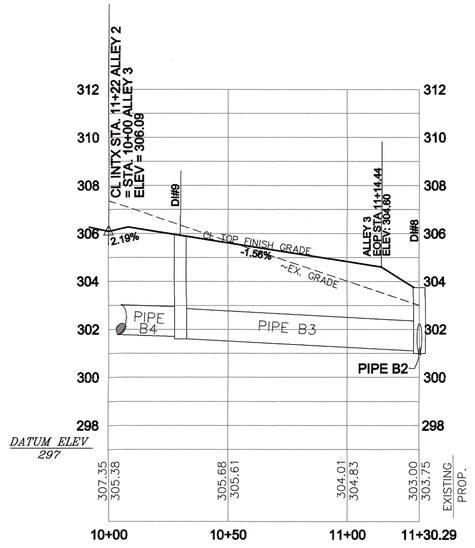


PLAN VIEW ALLEY 2 20' PRIVATE R/W



PROFILE VIEW ALLEY 2 20' PRIVATE R/W

PLAN ALLEY 3 20' PRIVATE R/W



PROFILE VIEW ALLEY 3 20' PRIVATE R/W

SCALE: 1" = 30' HORIZ.
1" = 3' VERT.
0 30 60 90

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
10/3/2025

PRELIMINARY DRAWING FOR REVIEW ONLY

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

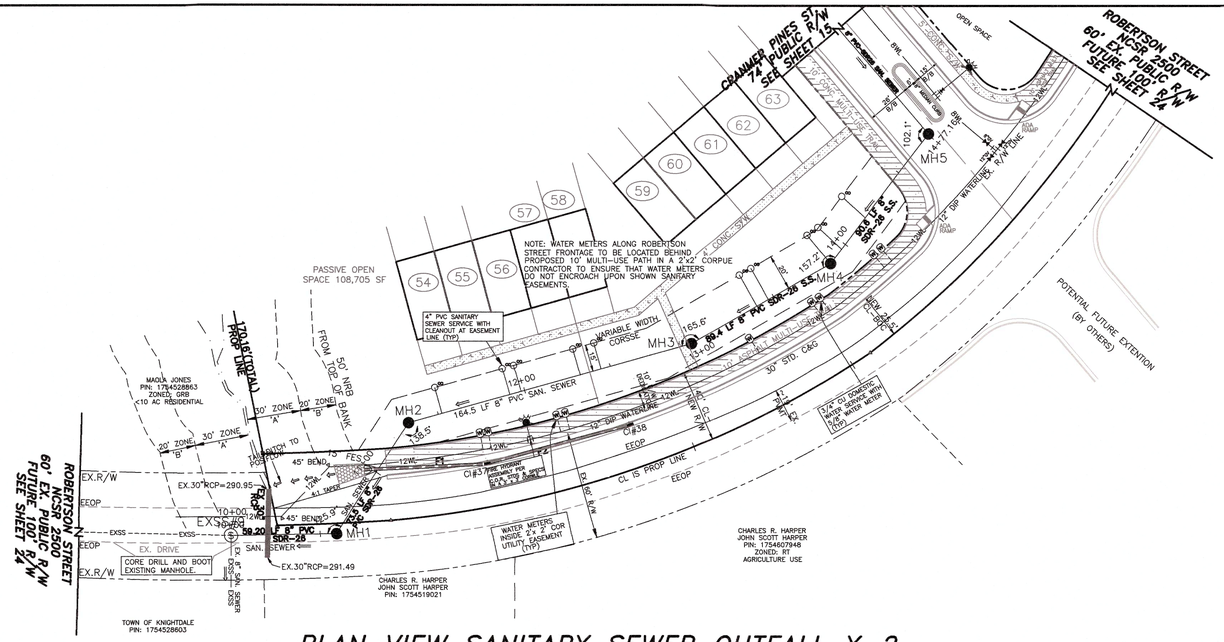
SHEET 21

PLAN AND PROFILE ALLEY 2 AND ALLEY 3
THE COLLECTION - PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

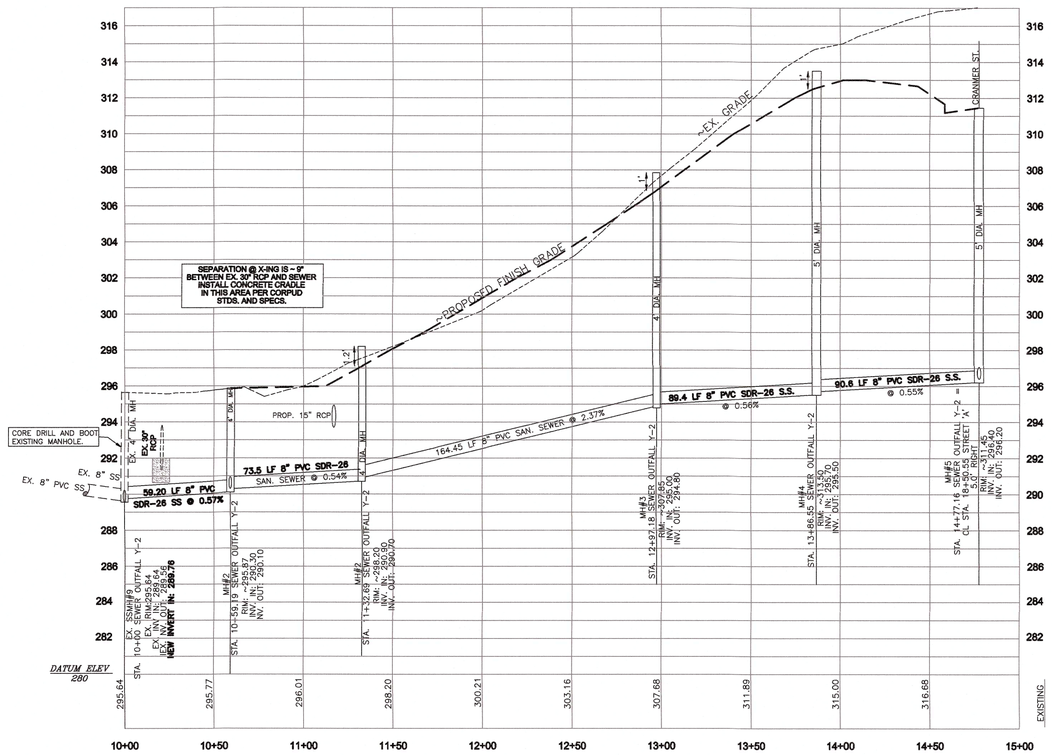
THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20-
SCALE 1" = 30'	SURVEYED ----	DWG ALLEY 4 & 5
REVISIONS: 10-3-25		PIN: SEE SITE DATA TABLE

NC GRID (NAD83-2011)



PLAN VIEW SANITARY SEWER OUTFALL Y-2



PROFILE VIEW SANITARY SEWER OUTFALL Y-2

SCALE: 1" = 40' HORIZ.
1" = 4' VERT.
0 40 80 120

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

SITE PERMITTING APPROVAL

WATER AND SEWER PERMITS

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC SEWER SYSTEM** AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# S-5041

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC WATER SYSTEM** ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# W-3926

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

SHEET 22

PLAN AND PROFILE SANITARY SEWER OUTFALL Y-2
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20–
SCALE 1" = 40'	SURVEYED ----	DWG OUTFALLS Y1 Y2
REVISIONS: 10-3-25; 12-15-25		PIN: SEE SITE DATA TABLE

MILL AND OVERLY LIMITS

MILL ENTIRE FRONTAGE EX. CL PAVEMENT TO EEOP
LEFT SIDE
CL STA. 12+41.28 TO 22+52.60
MILL 1.5"

OVERLAY ENTIRE FRONTAGE EX. CL PAVEMENT TO EEOP
LEFT SIDE
CL STA. 12+41.28 TO 22+52.60
OVERLAY WITH 1.5" S 9.5 C

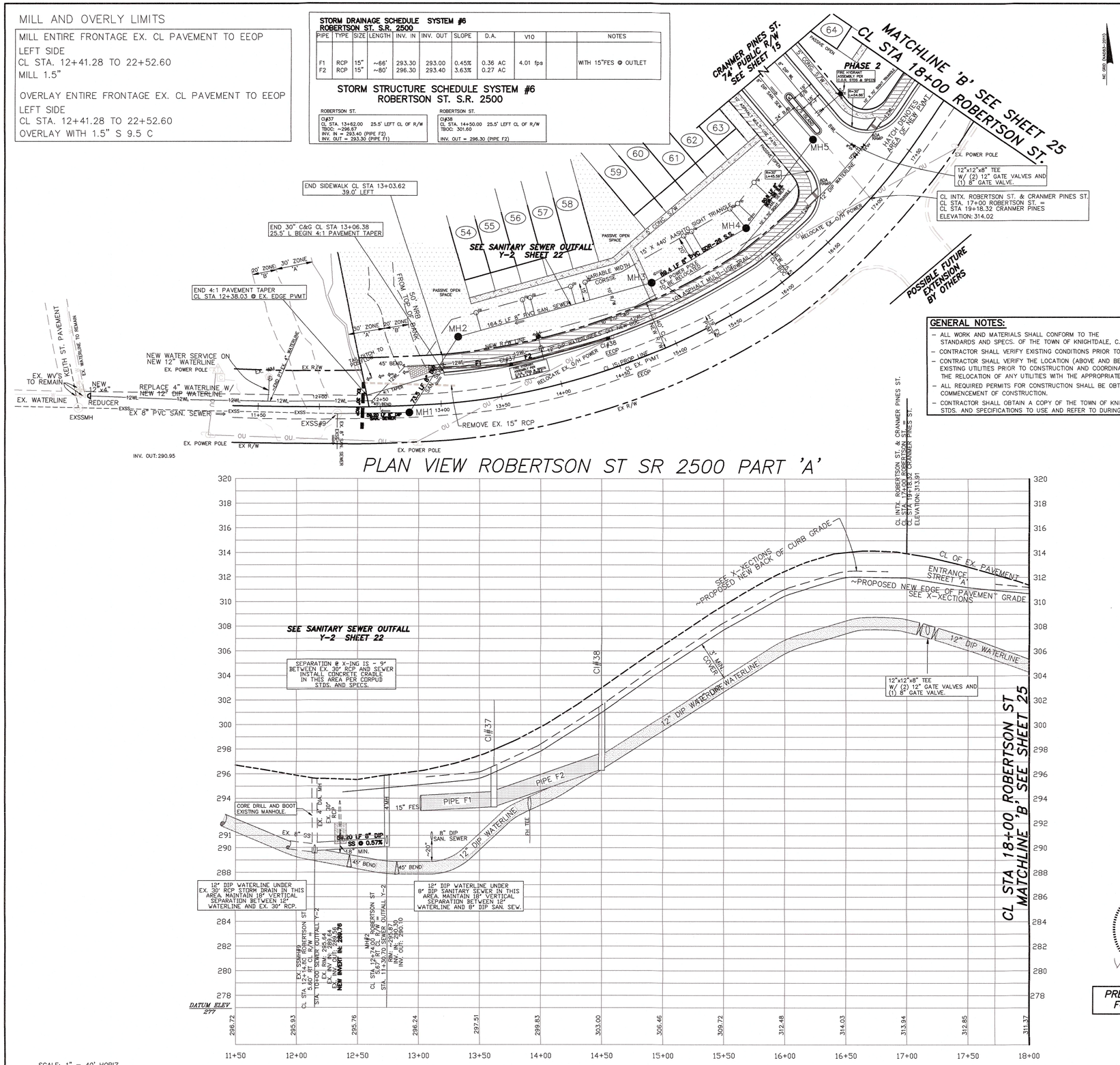
STORM DRAINAGE SCHEDULE SYSTEM #6
ROBERTSON ST. S.R. 2500

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.	V10		NOTES
F1	RCP	15"	~66'	293.30	293.00	0.45%	0.36 AC	4.01 fps		WITH 15"FES @ OUTLET
F2	RCP	15"	~80'	296.30	293.40	3.63%	0.27 AC			

STORM STRUCTURE SCHEDULE SYSTEM #6
ROBERTSON ST. S.R. 2500

ROBERTSON ST.
CI#37
CL STA. 13+62.00 25.5' LEFT CL OF R/W
TBOC: ~296.67
INV. IN = 293.40 (PIPE F2)
INV. OUT = 293.30 (PIPE F1)

ROBERTSON ST.
CI#38
CL STA. 14+50.00 25.5' LEFT CL OF R/W
TBOC: 301.60
INV. OUT = 296.30 (PIPE F2)



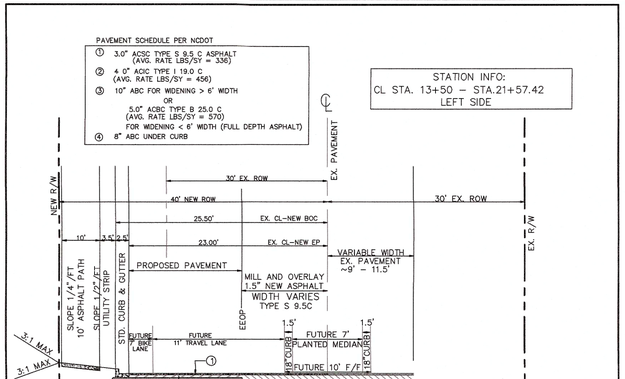
PLAN VIEW ROBERTSON ST SR 2500 PART 'A'

SCALE: 1" = 40' HORIZ.
1" = 4' VERT.
0 40 80 120

PROFILE VIEW ROBERTSON ST SR 2500 PART 'A'
SEE X-SECTIONS SHEETS 27 & 28 FOR MORE INFORMATION

GENERAL NOTES:

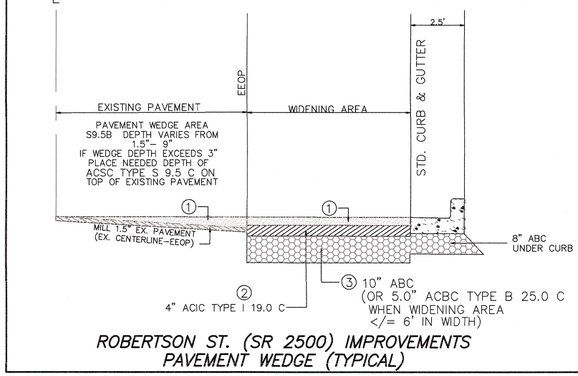
- ALL WORK AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECS. OF THE TOWN OF KNIGHTDALE, C.O.R.P.U.D. & NCDOT
- CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL VERIFY THE LOCATION (ABOVE AND BELOW GROUND) OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND COORDINATE, IF NECESSARY, THE RELOCATION OF ANY UTILITIES WITH THE APPROPRIATE UTILITY AUTHORITY.
- ALL REQUIRED PERMITS FOR CONSTRUCTION SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- CONTRACTOR SHALL OBTAIN A COPY OF THE TOWN OF KNIGHTDALE & CORPUD STDS. AND SPECIFICATIONS TO USE AND REFER TO DURING CONSTRUCTION.



ROBERTSON ST. (SR 2500) IMPROVEMENTS TYPICAL SECTION (NTS)

KNIGHTDALE SECTION: AVENUE – 3 LANES BUFFERED BIKE LANES 80' R/W AND 51' B/B ROAD SECTION

SEE CROSS SECTIONS FOR AREAS REQUIRING PAVEMENT WEDGE



ROBERTSON ST. (SR 2500) IMPROVEMENTS PAVEMENT WEDGE (TYPICAL)

SEE SHEET 26 FOR STRIPING PLAN
SEE SHEETS 27 & 28 FOR X-SECTIONS

SITE PERMITTING APPROVAL

WATER AND SEWER PERMITS

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC SEWER SYSTEM** AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# S-5041

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC WATER SYSTEM** ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# W-3926

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
12/15/2025

PRELIMINARY DRAWING FOR REVIEW ONLY

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

CONSTRUCTION PLANS *SHEET 24*

PLAN AND PROFILE ROBERTSON ST. S.R. 2500 PART 'A'
THE COLLECTION – PHASE 1

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA

OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20–
SCALE 1" = 40'	SURVEYED ----	DWG ROBERTSON ST
REVISIONS:10-3-2025;12-15-25		PIN: SEE SITE DATA TABLE

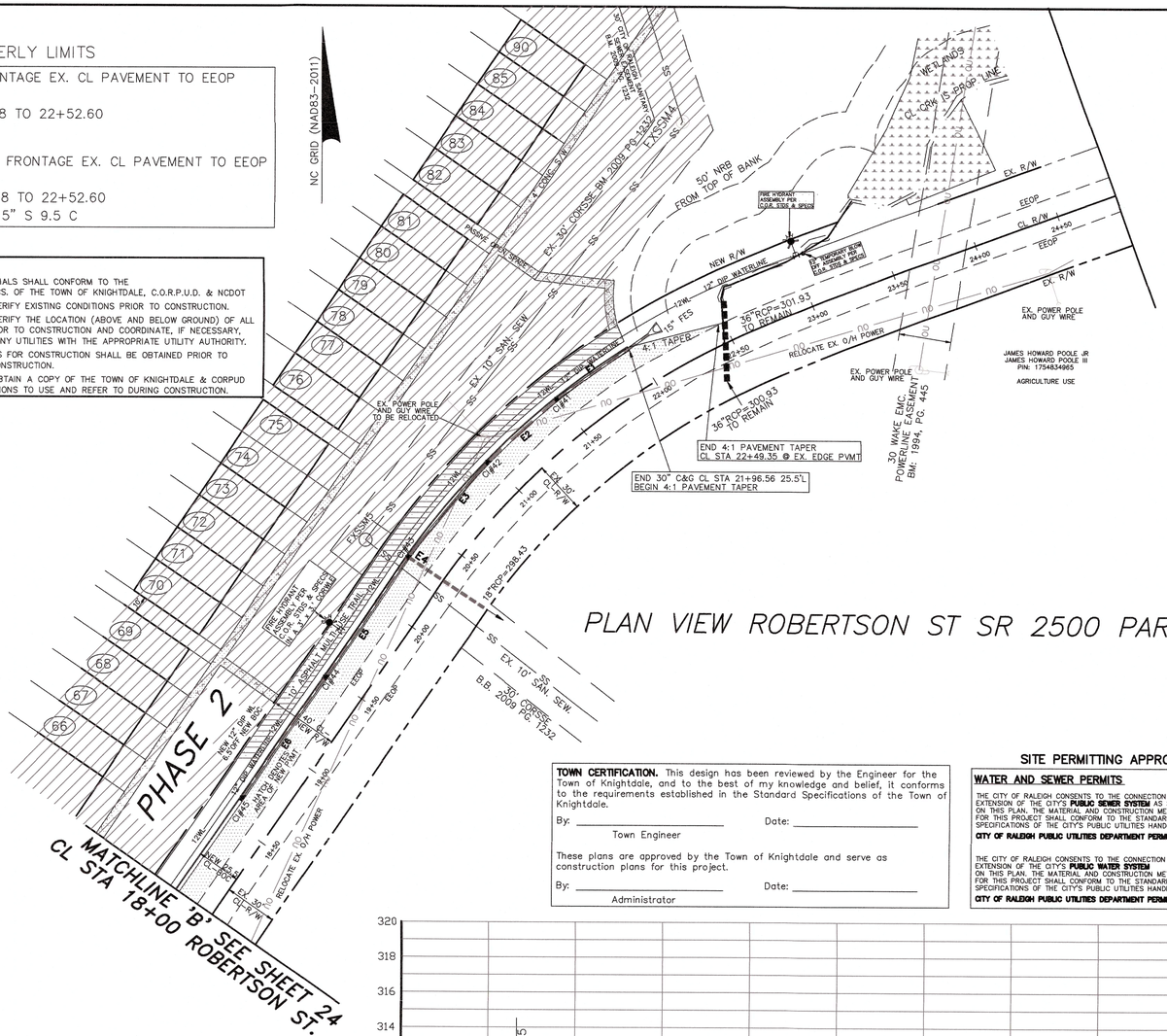
MILL AND OVERLY LIMITS

MILL ENTIRE FRONTAGE EX. CL PAVEMENT TO EEOP
LEFT SIDE
CL STA. 12+41.28 TO 22+52.60
MILL 1.5"

OVERLAY ENTIRE FRONTAGE EX. CL PAVEMENT TO EEOP
LEFT SIDE
CL STA. 12+41.28 TO 22+52.60
OVERLAY WITH 1.5" S 9.5 C

GENERAL NOTES:

- ALL WORK AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECS. OF THE TOWN OF KNIGHTDALE, C.O.R.P.U.D. & NCDOT
- CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL VERIFY THE LOCATION (ABOVE AND BELOW GROUND) OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND COORDINATE, IF NECESSARY, THE RELOCATION OF ANY UTILITIES WITH THE APPROPRIATE UTILITY AUTHORITY.
- ALL REQUIRED PERMITS FOR CONSTRUCTION SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- CONTRACTOR SHALL OBTAIN A COPY OF THE TOWN OF KNIGHTDALE & CORPUD STDS. AND SPECIFICATIONS TO USE AND REFER TO DURING CONSTRUCTION.


NC GRID (NAD83-2011)
PHASE 2
MATCHLINE 'B' SEE SHEET 24
CL STA 18+00 ROBERTSON ST.
WETLANDS
CL CORE IS EEOP LINE
50' NRB FROM TOP OF BANK
EX. 30" CORRSE BM 2009 PID 1232
EX. 10" SAN. SEW.
NEW R/W
EX. R/W
EEOP
CL R/W
12" DIP WATERLINE
15" FES
4:1 TAPER
36"RCP=301.93 TO REMAIN
36"RCP=300.93 TO REMAIN
RELOCATE EX. O/H POWER
EX. POWER POLE AND GUY WIRE
EX. POWER POLE AND GUY WIRE TO BE RELOCATED
JAMES HOWARD POOLE JR
JAMES HOWARD POOLE III
PIN: 1754834965
AGRICULTURE USE
30' WAKE EMC POWERLINE EASEMENT BM: 1994, PG: 445
END 4:1 PAVEMENT TAPER
CL STA 22+49.35 @ EX. EDGE PVMT
END 30" C&G CL STA 21+96.56 25.5'L
BEGIN 4:1 PAVEMENT TAPER
FIRE HYDRANT ASSEMBLY PER (C.O.R. STDS. & SPECS)
TEMPORARY TURN EASEMENT (C.O.R. STDS. & SPECS)
EX. 10" SAN. SEW.
B.B. 2009 PID 11532
18"RCP=298.43
EXISTING MULTI-USE TRAIL
10' ASPHALT MULTI-USE TRAIL
CURB & GUTTER
EX. 30' R/W
EX. 10" WATER
EX. 8" WATER
EX. 6" WATER
EX. 12" WATER
EX. 16" WATER
EX. 24" WATER
EX. 30" WATER
EX. 36" WATER
EX. 12" SAN. SEW.
EX. 8" SAN. SEW.
EX. 6" SAN. SEW.
EX. 4" FORCE MAIN
EX. 8" FORCE MAIN
EX. 12" FORCE MAIN
EX. 16" FORCE MAIN
EX. 24" FORCE MAIN
EX. 30" FORCE MAIN
EX. 36" FORCE MAIN
EX. 12" STORM DRAIN
EX. 18" STORM DRAIN
EX. 24" STORM DRAIN
EX. 30" STORM DRAIN
EX. 36" STORM DRAIN
EX. 42" STORM DRAIN
EX. 48" STORM DRAIN
EX. 54" STORM DRAIN
EX. 60" STORM DRAIN
EX. 66" STORM DRAIN
EX.

NOTE: TURN LANE STRIPING PER NCDOT STD. 1205.05

PAVEMENT MARKING SCHEDULE

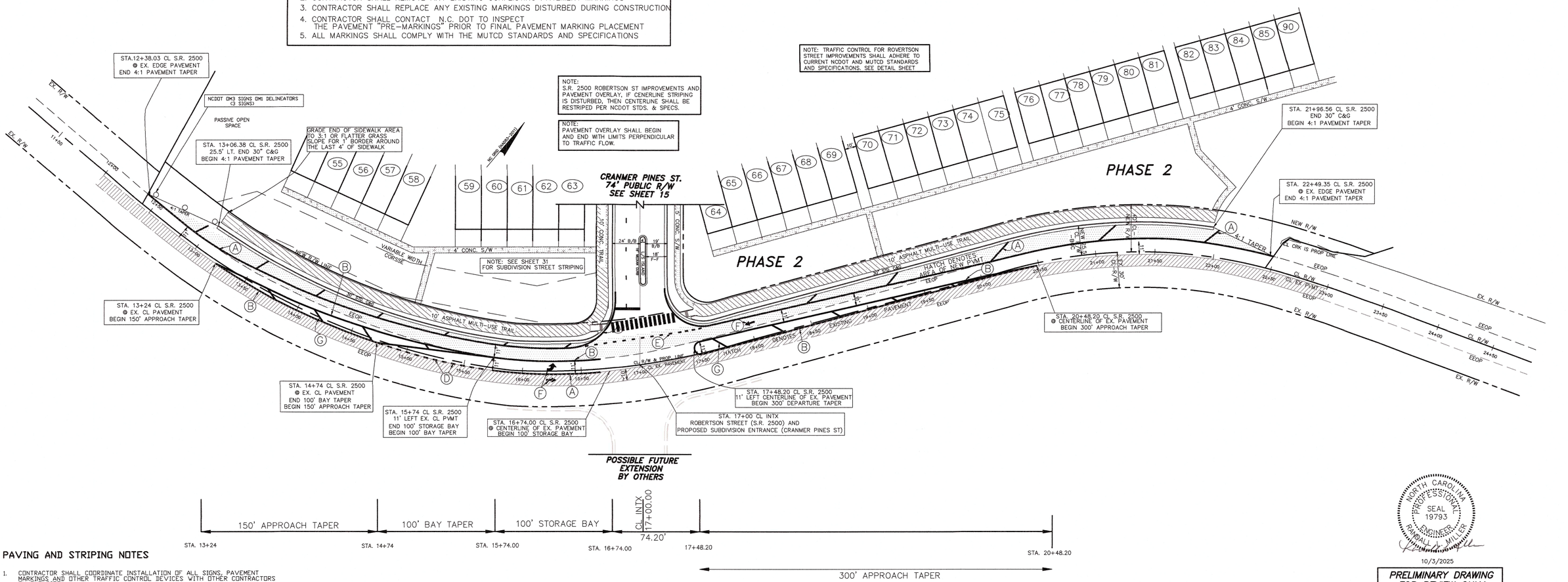
- Ⓐ 4" SOLID WHITE LINE (THERMOPLASTIC)
- Ⓑ 4" DOUBLE SOLID YELLOW LINE (THERMOPLASTIC)
- Ⓓ 4" x 3'–9'/SP MINI–SKIP WHITE LINE (THERMOPLASTIC)
- Ⓔ 4" x 2'–6'/SP MINI–SKIPPED WHITE LINE (THERMOPLASTIC)
- Ⓕ TURN ARROWS – WHITE (THERMOPLASTIC)
- Ⓖ 12" SOLID YELLOW LINE

1. CONTRACTOR SHALL FURNISH AND INSTALL ALL PAVEMENT MARKINGS ON FINAL WEARING SURFACE AS SHOWN
2. CONTRACTOR SHALL REMOVE ANY EXISTING CONFLICTING PAVEMENT MARKINGS
3. CONTRACTOR SHALL REPLACE ANY EXISTING MARKINGS DISTURBED DURING CONSTRUCTION
4. CONTRACTOR SHALL CONTACT N.C. DOT TO INSPECT THE PAVEMENT "PRE–MARKINGS" PRIOR TO FINAL PAVEMENT MARKING PLACEMENT
5. ALL MARKINGS SHALL COMPLY WITH THE MUTCD STANDARDS AND SPECIFICATIONS

GENERAL NOTES:

PLAN REPRESENTS A CONCEPTUAL VIEW OF PROPOSED ROADWAY IMPROVEMENTS
CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION
CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO GRADING FOR ROADWAY IMPROVEMENTS
CONTRACTOR SHALL VERIFY EXISTING TYPICAL SECTION PRIOR TO CONSTRUCTION
ALL WORK SHALL BE DONE IN ACCORDANCE TO THE STANDARDS AND SPECIFICATIONS OF N.C. DOT
ALL MARKINGS, SIGNAGE, AND STRIPPING TO BE DONE IN ACCORDANCE WITH MUTCD.

NOTE:
ALL CONSTRUCTION & MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND CORPUD STANDARDS, SPECIFICATIONS, AND DETAILS.



PAVING AND STRIPING NOTES

1. CONTRACTOR SHALL COORDINATE INSTALLATION OF ALL SIGNS, PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROL DEVICES WITH OTHER CONTRACTORS ON THE SITE.
2. CONTRACTOR SHALL MILL A 1' WIDE STRIP ALONG EX. EDGE OF ASPHALT TO A DEPTH EQUAL TO THE FINAL LIFT OF ASPHALT TO PROVIDE A SMOOTH TRANSITION AT THE TIE–IN TO EXISTING EDGES OF PAVEMENT (WHEN APPLICABLE).
3. JOINTS OR SCORE MARKS ARE TO BE SHARP AND CLEAN WITHOUT SHOWING EDGES OF JOINTING.
4. DO NOT POUR ANY CONCRETE BEFORE FORMS ARE INSPECTED AND APPROVED BY THE PROJECT MANAGER OR INSPECTOR AS APPLICABLE.
5. CONTRACTOR SHALL SAW–CUT TIE–INS AT EXISTING CURBS AND SIDEWALKS AS NECESSARY TO INSURE SMOOTH TRANSITIONS. CONTRACTOR SHALL SAW–CUT AND TRANSITION TO MEET EXISTING PAVEMENT AS NECESSARY AND AS DIRECTED BY INSPECTOR TO INSURE POSITIVE DRAINAGE. (TYP. ALL INTERSECTIONS)
6. CONTRACTOR SHALL COMPLY WITH ALL PERTINENT PROVISIONS OF THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" ISSUED BY AGC OF AMERICA, INC. AND THE SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION ISSUED BY THE U.S. DEPARTMENT OF LABOR.
7. WHERE ASPHALT MEETS CONCRETE PAVING SUCH AS AT CONCRETE CURBING, THE ASPHALT SHOULD BE FINISHED 1/4" TO 1/2" ABOVE THE CONCRETE SURFACE TO ALLOW FOR FURTHER TRAFFIC COMPACTION OF THE ASPHALT.
8. DURING PREPARATION OF THE SUB–GRADE AND UNTIL THE PAVING IS IN PLACE, THE CONTRACTOR SHALL PROMPTLY TAKE REASONABLE ACTION TO OBTAIN AND MAINTAIN A DRY SITE CONDITION. SUCH MEASURES SHALL INCLUDE PUMPING OF FREE SURFACE WATER, MINOR MACHINE OR HAND SHAPING TO FACILITATE WATER REMOVAL, AND OTHER OPERATIONS TO SPEED DRYING.
9. ALL DELETERIOUS SUBSURFACE MATERIAL (I.E. MUCK, PEAT, BURIED DEBRIS, ECT.) IS TO BE EXCAVATED AND REPLACED WITH SUITABLE/COMPACTED SOILS AS DIRECTED BY OWNER'S SOIL TESTING COMPANY. DELETERIOUS MATERIAL IS TO BE STOCKPILED OR REMOVED FROM THE SITE AS DIRECTED BY THE OWNER. EXCAVATED AREAS ARE TO BE BACKFILLED WITH APPROVED MATERIALS AND COMPACTED AS SHOWN ON THESE PLANS. CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ANY PERMITS THAT ARE NECESSARY FOR REMOVING DELETERIOUS MATERIAL FROM THE SITE.
10. PROPOSED SPOT ELEVATIONS REPRESENT FINISHED PAVEMENT OR GROUND SURFACE GRADES UNLESS OTHERWISE NOTED.
11. CONTRACTOR SHALL TRIM, TACK, AND MATCH EXISTING PAVEMENT AT LOCATIONS WHERE NEW PAVEMENT MEETS EXISTING PAVEMENT.
12. ALL TRAFFIC CONTROL PAVEMENT MARKING TO BE MADE IN ACCORDANCE WITH NCDOT STANDARDS AND SPECIFICATIONS.
13. ALL PAVEMENT MARKINGS SHALL WILL BE RETRORREFLECTIVE THERMOPLASTIC PER NCDOT STANDARDS AND SPECIFICATIONS.
14. ALL TRAFFIC CONTROL DEVICES AND PROCEDURES SHALL CONFORM TO THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND NCDOT STANDARDS AND SPECIFICATIONS.

ADDITIONAL NOTES:

1. ALL CONSTRUCTION AND TRAFFIC CONTROL SHALL BE IN ACCORDANCE TO NCDOT STANDARDS AND SPECIFICATIONS, AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" CURRENT EDITION AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES CURRENT EDITION.
2. ROADWAY STRIPING SHALL BE PER NCDOT STANDARDS AND SPECIFICATIONS.
3. ANY DISCREPANCIES BETWEEN THESE PLANS AND WHAT IS IN THE FIELD SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

SEE SHEETS 24 & 25 FOR ROAD IMPROVEMENTS
SEE SHEETS 27 & 28 FOR X–SECTIONS

0 40 80 120

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER

10/3/2025

PRELIMINARY DRAWING FOR REVIEW ONLY

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

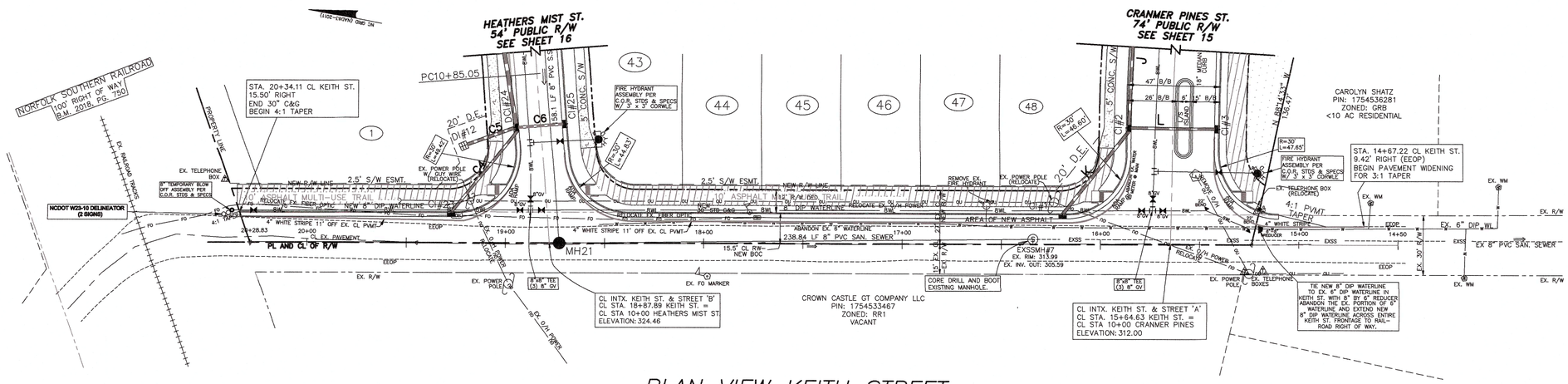
CONSTRUCTION PLANS *SHEET 26*

ROBERTSON STREET S.R. 2500 STRIPING PLAN
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

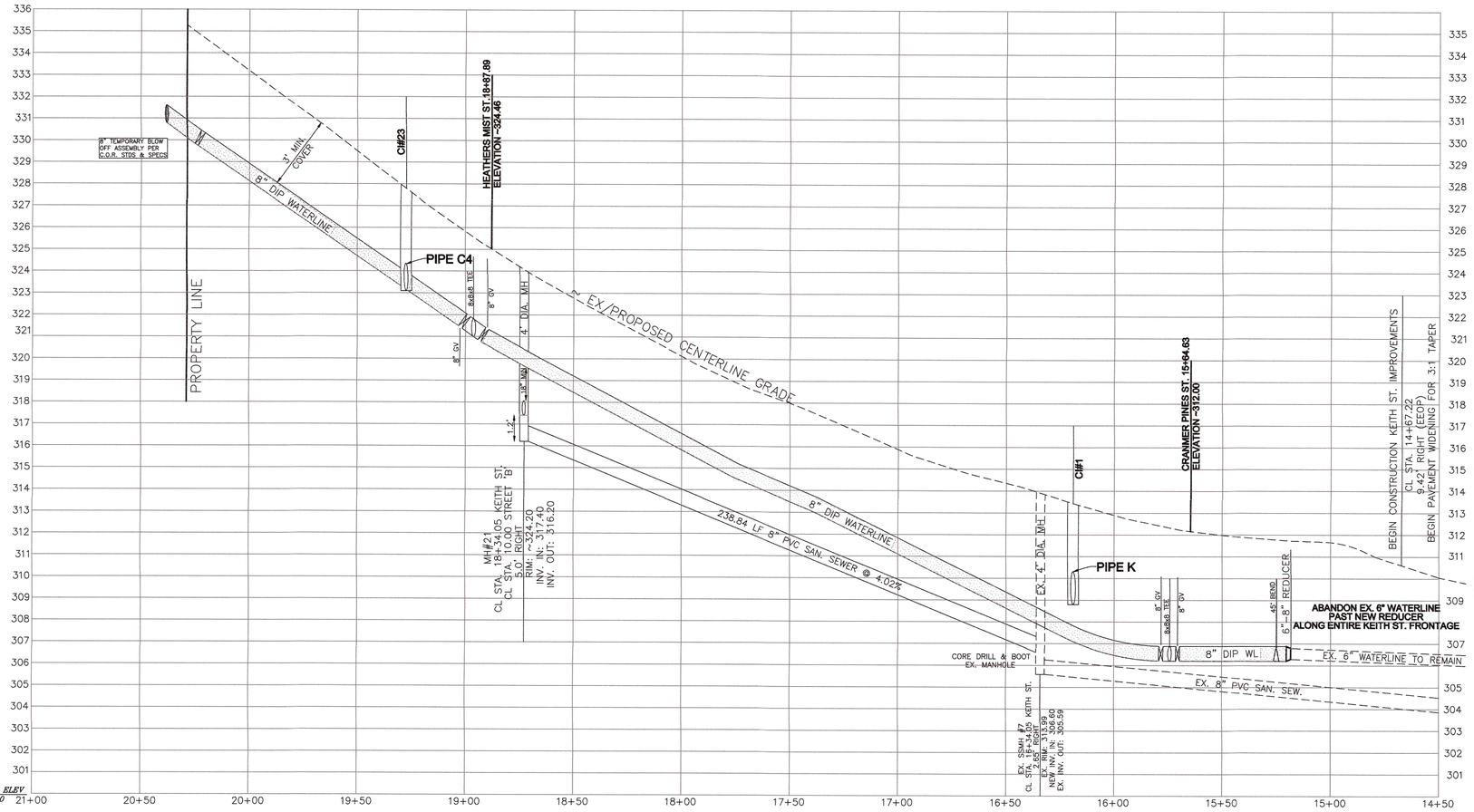
OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247–1932

THOMPSON & ASSOCIATES
CO. LICENSE NO. C–0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465–1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA			
OWNER: TCTBM, LLC			ZONED PUD
DATE 7/28/2025	DRAWN RLM		JOB NO. 20–
SCALE 1" = 40'	SURVEYED -----		DWG ROBERTSON ST
REVISIONS: 10–3–2025		PIN: SEE SITE DATA TABLE	

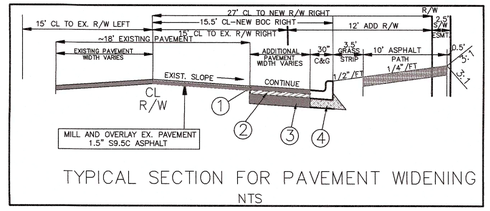


PLAN VIEW KEITH STREET



PROFILE VIEW KEITH STREET
SEE X-SECTIONS SHEET 30 FOR MORE INFORMATION

SCALE: 1" = 30' HORIZ.
1" = 3' VERT.
0 30 60 90



TYPICAL SECTION FOR PAVEMENT WIDENING
NTS

PAVEMENT SCHEDULE PER TOWN OF KNIGHTDALE STD. 3.04

① 1.5" S 9.5B ASPHALT SURFACE COURSE
② 2.5" I 19.0B INTERMEDIATE COURSE
③ 8" ABC FOR WIDENING > 6' WIDTH
OR
5.0" ACBC TYPE B 25.0 C
FOR WIDENING < 6' WIDTH (FULL DEPTH ASPHALT)
④ 6" ABC UNDER CURB

MILL AND OVERLY LIMITS

MILL ENTIRE FRONTAGE EX. CL PAVEMENT TO EEOP
RIGHT SIDE
CL STA. 14+67.22 TO 20+67.50
MILL 1.5" AND OVERLAY WITH 1.5" S 9.5 C

OVERLAY ENTIRE FRONTAGE EX. CL PAVEMENT TO EEOP
RIGHT SIDE
CL STA. 14+67.22 TO 20+67.50
MILL 1.5" AND OVERLAY WITH 1.5" S 9.5 C

STORM DRAINAGE SCHEDULE

PIPE	TYPE	SIZE	LENGTH	INV. IN	INV. OUT	SLOPE	D.A.
K	HDPE	18"	~49'	308.80	308.50	0.61%	0.32 AC
C4	HDPE	15"	~49'	323.10	319.60	7.14%	0.16 AC

STORM STRUCTURE SCHEDULE

KEITH ST.
CI#1
CL STA. 16+19.08 15.5' RIGHT
TBOC: 313.60
INV. OUT = 308.80 (PIPE K)

KEITH STREET
CI#23
CL STA. 19+27.54 15.5' RIGHT
TBOC: 327.96
INV. OUT = 323.10 (PIPE C4)

SITE PERMITTING APPROVAL

WATER AND SEWER PERMITS

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC SEWER SYSTEM** AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# S-5041

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC WATER SYSTEM** ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# W-3926

PRELIMINARY DRAWING FOR REVIEW ONLY

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L MILLER
12/15//25

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

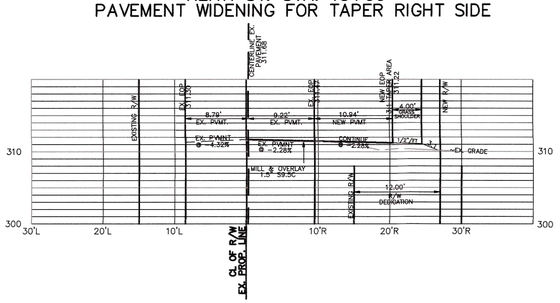
SHEET 29

PLAN AND PROFILE KEITH STREET
THE COLLECTION - PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

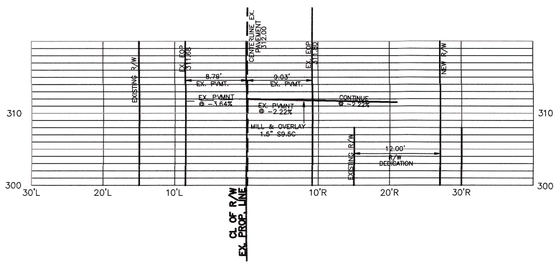
THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20-
SCALE 1" = 30'	SURVEYED ----	DWG KEITH ST
REVISIONS: 10-3-25; 12-15-25		

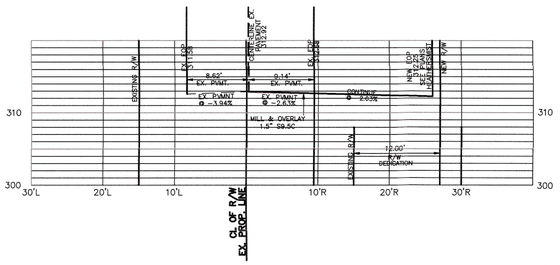
KEITH ST. STA. 15+00
PAVEMENT WIDENING FOR TAPER RIGHT SIDE



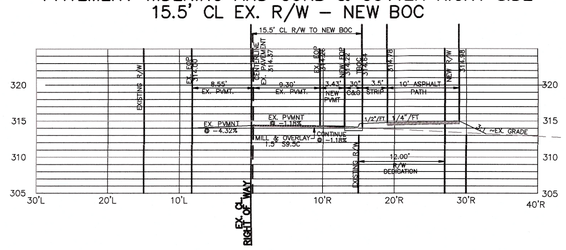
KEITH ST. STA. 15+50
PAVEMENT WIDENING RIGHT SIDE
AREA AT ENTRANCE CRANMER PINES ST.
SEE PLANS CRANMER PINES ST.



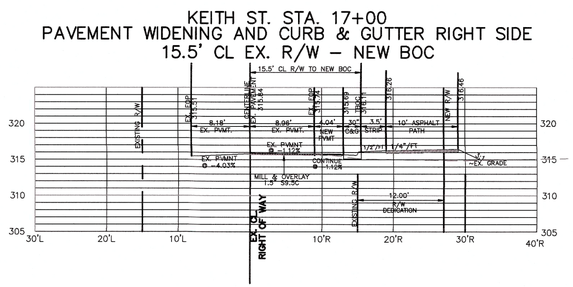
KEITH ST. STA. 16+00
PAVEMENT WIDENING RIGHT SIDE
AREA AT ENTRANCE HEATHERS MIST ST.
SEE PLANS HEATHERSMIST ST.



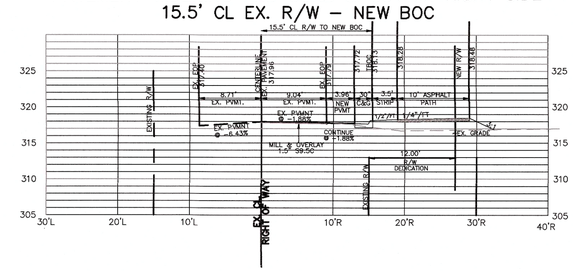
KEITH ST. STA. 16+50
PAVEMENT WIDENING AND CURB & GUTTER RIGHT SIDE
15.5' CL EX. R/W – NEW BOC



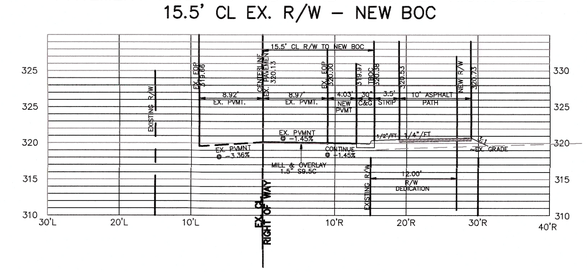
KEITH ST. STA. 17+00
PAVEMENT WIDENING AND CURB & GUTTER RIGHT SIDE
15.5' CL EX. R/W – NEW BOC



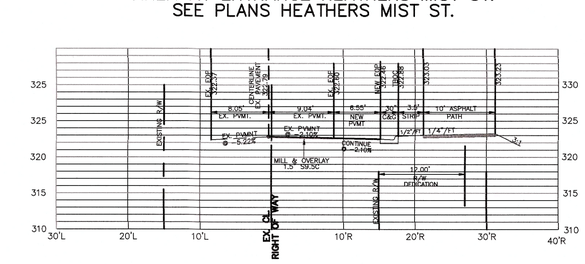
KEITH ST. STA. 17+50
PAVEMENT WIDENING AND CURB & GUTTER RIGHT SIDE
15.5' CL EX. R/W – NEW BOC



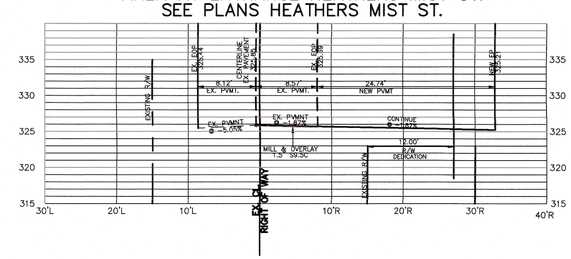
KEITH ST. STA. 18+00
PAVEMENT WIDENING AND CURB & GUTTER RIGHT SIDE
15.5' CL EX. R/W – NEW BOC



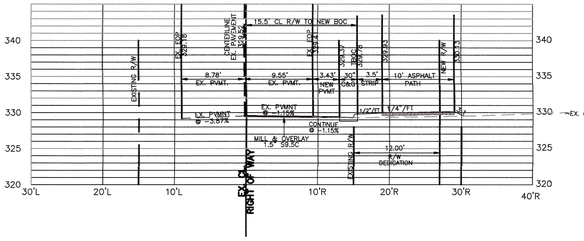
KEITH ST. STA. 18+50
PAVEMENT WIDENING RIGHT SIDE
AREA AT ENTRANCE HEATHERS MIST ST.
SEE PLANS HEATHERS MIST ST.



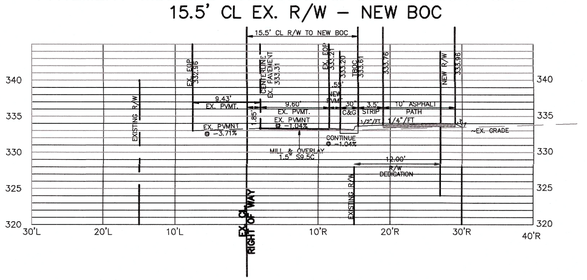
KEITH ST. STA. 19+00
PAVEMENT WIDENING RIGHT SIDE
AREA AT ENTRANCE HEATHERS MIST ST.
SEE PLANS HEATHERS MIST ST.



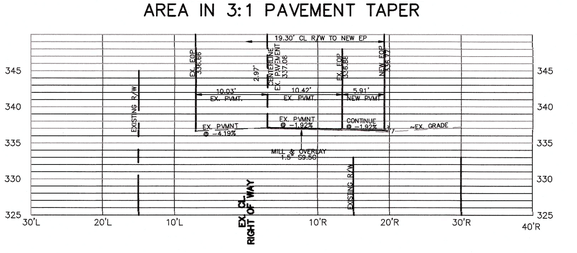
KEITH ST. STA. 19+50
PAVEMENT WIDENING AND CURB & GUTTER RIGHT SIDE
15.5' CL EX. R/W – NEW BOC



KEITH ST. STA. 20+00
PAVEMENT WIDENING AND CURB & GUTTER RIGHT SIDE
15.5' CL EX. R/W – NEW BOC



KEITH ST. STA. 20+50
PAVEMENT WIDENING RIGHT SIDE
AREA IN 3:1 PAVEMENT TAPER



SCALE: 1" = 10' HORIZ.
1" = 10' VERTICAL

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
10/22/25

PRELIMINARY DRAWING FOR REVIEW ONLY

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

SHEET 30

KEITH STREET X-SECTIONS
THE COLLECTION – PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20-
SCALE 1" = 10	SURVEYED ----	DWG KEITH ST
REVISIONS: 10/22/25		

HEATHERS MIST ST

PASSIVE OPEN

STOP SIGN MUTCD R1-1

10' HI-VISIBILITY X-WALK PER MUTCD

NO PARKING MUTCD R8-3

24" STOP BAR PER MUTCD

8' HI-VISIBILITY PER MUTCD

5' CONC. S/W

ST. NAME PER TOK 3.16

SPEED LIMIT 25 MUTCD R2-1

4" SOLID WHITE LINE 11' OFF EX. CL PAVEMENT SEE SHEET 29

10' ASPHALT MULTI-USE TRAIL

EX.R/W

EOAP

KEITH STREET
EX. 30' PUBLIC R/W
FUTURE 54' PUBLIC R/W

N 10°42'04" W 83.95'

N 10°42'04" W 420.95'

ALLEY 1

RETAINING WALL W/ FENCE ALONG TOP

SCM#1

DAM

SPILLWAY

PHASE 1

43 44 45 46 47 48

TOWN CASTLE GT COMPANY LLC
PIN: 1754533467
ZONED: RR1
VACANT

ADA PARKING SIGN

WHITE TURN ARROWS (THERMOPLASTIC)

4" WHITE SKIP LANE LINE

4" SOLID YELLOW LINE W/ INTERNAL DIAGONALS

C/S ISLAND

CRANMER PINES ST.

SPEED LIMIT 25 MUTCD R2-1

10' HI-VISIBILITY X-WALK PER MUTCD

4" SOLID WHITE LINE

N 88°14'33" W 136.47'

MONUMENT SIGN BY DEVELOPER REQUIRES SEPARATE PERMIT FROM T.O.K.

CAROLYN SHATZ
PIN: 1754536281
ZONED: GR8
<10 AC RESIDENTIAL

CAROLYN SHATZ
PIN: 1754537158
ZONED: GR8
VACANT

N 31°43'36" W 220.22'

L1

L2

NOTE:
PER KNIGHTDALE STANDARD 3.05 A, ALL PAVEMENT MARKINGS INCLUDING TRAFFIC CONTROL, STOP BARS, FIRE LANES AND CROSS WALKS SHALL BE MADE WITH REFLECTORIZED THERMOPLASTIC STRIPING WITH A MINIMUM THICKNESS IN ACCORDANCE WITH NCDOT STANDARDS AND SPECIFICATIONS FOR ROADS AND STRUCTURES. ALL MARKINGS SHALL BE 120 MIL THICK WITH THE EXCEPTION OF SYMBOLS WHICH SHALL BE 90 MIL THICK.

DWIGHT HIGH
PIN: 1754538007
ZONED: GR8
<10 AC RESIDENTIAL

JUTSON STREET

DALE PLACE

JOANIE DENNIS
PIN: 1754528935
ZONED: GR8
<10 AC RESIDENTIAL

N 11°47'24" W 116.63'

N 11°51'39" W 12

NC GRID (NAD83-2011)

0 40 80 120

PHASE 2

CENTRAL PARK
ACTIVE OPEN SPACE

-CENTRAL PARK AREA - PHASE 1-
-SEE SHEETS L101, L201, L400, & L401 FOR SITE AND PLANTING DETAILS-

SCM#3

RETAINING WALL W/ FENCE ALONG TOP

ALLEY 6

ALLEY 5
20' PRIVATE R/W

HEATHERS MIST ST.

13 14 15 16 17 18 19 20 21 22 23 24 25

STOP SIGN MUTCD R1-1

24" STOP BAR PER MUTCD

8' HI-VISIBILITY X-WALK PER MUTCD

ST. NAME PER TOK 3.16

SCM#2

10' HI-VISIBILITY X-WALK PER MUTCD

4" WHITE PARKING LINES

4" SOLID YELLOW LINE W/ INTERNAL DIAGONALS

4" WHITE SKIP LANE LINE

10' ASPHALT MULTI-USE TRAIL

ALLEY 3

ALLEY 2
20' PRIVATE R/W

50 51 52 53 54 55 56 57 58 59 60 61 62 63

BUTTERFLY GARDEN
SEE SHEETS L100, L200, L400, & L401 FOR SITE AND PLANTING DETAILS

PASSIVE OPEN

ALLEY 4

26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42

PASSIVE OPEN SPACE 4,058 SF

DOG PARK

TREE SAVE AREA 3

5' MULCH PATH
TRASH RECEPTICAL
PICNIC TABLE

89

30' CITY OF RALEIGH SANITARY SEWER EASEMENT B.M. 2005, PG. 1232

64 65 66 67 68 69 74 75 76 77 78 79 80 81 82 83 84 85 90

50' NSB FROM TOP OF BANK

EX.R/W

L40 L41 L42 L43 L44 L45 L46

30' WAKE EMC POWERLINE EASEMENT B.M. 1994, PG. 445

JAMES HOWARD POOLE JR
JAMES HOWARD POOLE III
PIN: 1754834965
ZONED: RT
AGRICULTURE USE

C3 R=415.77'

S 34°40'40" W 223.43'

ROBERTSON ST. S.R. 2500
EX. 60' PUBLIC R/W
FUTURE 3 LANE AVENUE
80' PUBLIC R/W

MONUMENT SIGN BY DEVELOPER REQUIRES SEPARATE PERMIT FROM T.O.K.

ST. NAME SEE SHEET 36

SPEED LIMIT 25 MUTCD R2-1

C4

POTENTIA

WAYNE L. HARPER
EUGENE J. HARPER
PIN: 1754621854
ZONED: RR1
VACANT

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

SEE SHEET 36 FOR SIGN POLE DETAIL

FOR ROBERTSON STREET PAVEMENT STRIPING SEE SHEET 26

FOR KEITH STREET PAVEMENT STRIPING SEE SHEET 29

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDAL R. MILLER
12/15/25

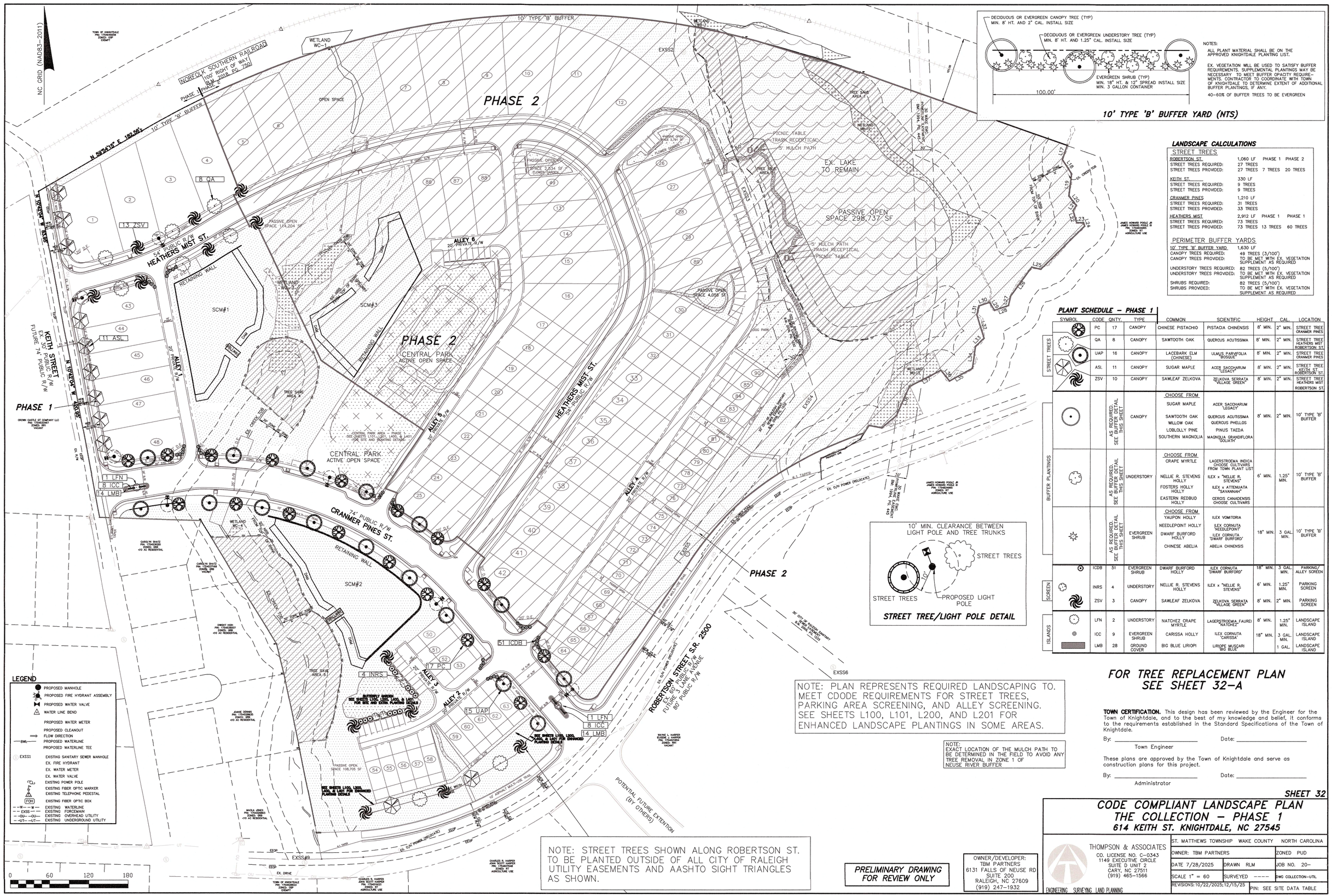
PRELIMINARY DRAWING FOR REVIEW ONLY

CONSTRUCTION PLANS *SHEET 31*

SIGNAGE AND STRIPING PLAN – PHASE 1
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA			
OWNER: TCTBM, LLC			ZONED PUD
DATE 10/17/2025	DRAWN RLM		JOB NO. 20–
SCALE 1" = 40	SURVEYED ----		DWG COLLECTION-STRIPE
REVISIONS: 12-15-25			PIN: SEE SITE DATA TABLE



DECIDUOUS OR EVERGREEN CANOPY TREE (TYP)
MIN. 8' HT. AND 2" CAL. INSTALL SIZE

DECIDUOUS OR EVERGREEN UNDERSTORY TREE (TYP)
MIN. 8' HT. AND 1.25" CAL. INSTALL SIZE

EVERGREEN SHRUB (TYP)
MIN. 18" HT. & 12" SPREAD INSTALL SIZE
MIN. 3 GALLON CONTAINER

100.00'

NOTES:
ALL PLANT MATERIAL SHALL BE ON THE APPROVED KNIGHTDALE PLANTING LIST.

EX. VEGETATION WILL BE USED TO SATISFY BUFFER REQUIREMENTS, SUPPLEMENTAL PLANTINGS MAY BE NECESSARY TO MEET BUFFER OPACITY REQUIREMENTS. CONTRACTOR TO COORDINATE WITH TOWN OF KNIGHTDALE TO DETERMINE EXTENT OF ADDITIONAL BUFFER PLANTINGS, IF ANY.

40-60% OF BUFFER TREES TO BE EVERGREEN

10' TYPE 'B' BUFFER YARD (NTS)

LANDSCAPE CALCULATIONS

STREET TREES

ROBERTSON ST.	1,060 LF	PHASE 1	PHASE 2
STREET TREES REQUIRED:	27 TREES		
STREET TREES PROVIDED:	27 TREES	7 TREES	20 TREES
KEITH ST.	330 LF		
STREET TREES REQUIRED:	9 TREES		
STREET TREES PROVIDED:	9 TREES		
CRANMER PINES	1,210 LF		
STREET TREES REQUIRED:	31 TREES		
STREET TREES PROVIDED:	33 TREES		
HEATHERS MIST	2,912 LF	PHASE 1	PHASE 1
STREET TREES REQUIRED:	73 TREES		
STREET TREES PROVIDED:	73 TREES	13 TREES	60 TREES

PERIMETER BUFFER YARDS

10' TYPE 'B' BUFFER YARD	1,630 LF
CANOPY TREES REQUIRED:	49 TREES (3/100')
CANOPY TREES PROVIDED:	TO BE MET WITH EX. VEGETATION SUPPLEMENT AS REQUIRED
UNDERSTORY TREES REQUIRED:	82 TREES (5/100')
UNDERSTORY TREES PROVIDED:	TO BE MET WITH EX. VEGETATION SUPPLEMENT AS REQUIRED
SHRUBS REQUIRED:	82 TREES (5/100')
SHRUBS PROVIDED:	TO BE MET WITH EX. VEGETATION SUPPLEMENT AS REQUIRED

PLANT SCHEDULE - PHASE 1

	SYMBOL	CODE	QNTY.	TYPE	COMMON	SCIENTIFIC	HEIGHT	CAL.	LOCATION
STREET TREES		PC	17	CANOPY	CHINESE PISTACHIO	PISTACIA CHINENSIS	8' MIN.	2" MIN.	STREET TREE CRANMER PINES
		QA	8	CANOPY	SAWTOOTH OAK	QUERCUS ACUTISSIMA	8' MIN.	2" MIN.	STREET TREE HEATHERS MIST ROBERTSON ST.
		UAP	16	CANOPY	LACEBARK ELM (CHINESE)	ULMUS PARVIFOLIA 'BOSQUE'	8' MIN.	2" MIN.	STREET TREE CRANMER PINES
		ASL	11	CANOPY	SUGAR MAPLE	ACER SACCHARUM 'LEGACY'	8' MIN.	2" MIN.	STREET TREE KEITH ST. ROBERTSON ST.
		ZSV	10	CANOPY	SAWLEAF ZELKOVA	ZELKOVA SERRATA 'VILLAGE GREEN'	8' MIN.	2" MIN.	STREET TREE HEATHERS MIST ROBERTSON ST.
BUFFER PLANTINGS		AS REQUIRED SEE BUFFER DETAIL THIS SHEET		CANOPY	CHOOSE FROM: SUGAR MAPLE, SAWTOOTH OAK, WILLOW OAK, LOBLOLLY PINE, SOUTHERN MAGNOLIA	ACER SACCHARUM 'LEGACY', QUERCUS ACUTISSIMA, QUERCUS PHELLOS, PINUS TAEDA, MAGNOLIA GRANDIFLORA 'GOLIATH'	8' MIN.	2" MIN.	10' TYPE 'B' BUFFER
		AS REQUIRED SEE BUFFER DETAIL THIS SHEET		UNDERSTORY	CHOOSE FROM: CRAPE MYRTLE, NELLIE R. STEVENS HOLLY, FOSTERS HOLLY HOLLY, EASTERN REDBUD HOLLY	LAGERSTROEMA INDICA CHOOSE CULTIVARS FROM TOWN PLANT LIST, ILEX x 'NELLIE R. STEVENS', ILEX x ATTENUATA 'SAVANNAH', CERCIS CANADENSIS CHOOSE CULTIVARS	6' MIN.	1.25" MIN.	10' TYPE 'B' BUFFER
		AS REQUIRED SEE BUFFER DETAIL THIS SHEET		EVERGREEN SHRUB	CHOOSE FROM: YAUPON HOLLY, NEEDLEPOINT HOLLY, DWARF BURFORD HOLLY, CHINESE ABELIA	ILEX VOMITORIA, ILEX CORNUTA 'NEEDLEPOINT', ILEX CORNUTA 'DWARF BURFORD', ABELIA CHINENSIS	18" MIN.	3 GAL. MIN.	10' TYPE 'B' BUFFER
SCREEN		ICDB	51	EVERGREEN SHRUB	DWARF BURFORD HOLLY	ILEX CORNUTA 'DWARF BURFORD'	18" MIN.	3 GAL. MIN.	PARKING/ ALLEY SCREEN
		INRS	4	UNDERSTORY	NELLIE R. STEVENS HOLLY	ILEX x 'NELLIE R. STEVENS'	6' MIN.	1.25" MIN.	PARKING SCREEN
		ZSV	3	CANOPY	SAWLEAF ZELKOVA	ZELKOVA SERRATA 'VILLAGE GREEN'	8' MIN.	2" MIN.	PARKING SCREEN
ISLANDS		LFN	2	UNDERSTORY	NATCHEZ CRAPE MYRTLE	LAGERSTROEMIA FAUREI 'NATCHEZ'	8' MIN.	1.25" MIN.	LANDSCAPE ISLAND
		ICC	9	EVERGREEN SHRUB	CARISSA HOLLY	ILEX CORNUTA 'CARISSA'	18" MIN.	3 GAL. MIN.	LANDSCAPE ISLAND
		LMB	28	GROUND COVER	BIG BLUE LIRIOPI	LIRIOPE MUSCARI 'BIG BLUE'		1 GAL.	LANDSCAPE ISLAND

10' MIN. CLEARANCE BETWEEN LIGHT POLE AND TREE TRUNKS

STREET TREES
10'
STREET TREES
PROPOSED LIGHT POLE

STREET TREE/LIGHT POLE DETAIL

NOTE: PLAN REPRESENTS REQUIRED LANDSCAPING TO MEET CDODE REQUIREMENTS FOR STREET TREES, PARKING AREA SCREENING, AND ALLEY SCREENING. SEE SHEETS L100, L101, L200, AND L201 FOR ENHANCED LANDSCAPE PLANTINGS IN SOME AREAS.

NOTE: EXACT LOCATION OF THE MULCH PATH TO BE DETERMINED IN THE FIELD TO AVOID ANY TREE REMOVAL IN ZONE 1 OF NEUSE RIVER BUFFER

NOTE: STREET TREES SHOWN ALONG ROBERTSON ST. TO BE PLANTED OUTSIDE OF ALL CITY OF RALEIGH UTILITY EASEMENTS AND AASHTO SIGHT TRIANGLES AS SHOWN.

PRELIMINARY DRAWING FOR REVIEW ONLY

OWNER/DEVELOPER:
TBM PARTNERS
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

LEGEND

- PROPOSED MANHOLE
- PROPOSED FIRE HYDRANT ASSEMBLY
- PROPOSED WATER VALVE
- WATER LINE BEND
- PROPOSED WATER METER
- PROPOSED CLEANOUT
- FLOW DIRECTION
- PROPOSED WATERLINE
- PROPOSED WATERLINE TEE
- EXSS1 EXISTING SANITARY SEWER MANHOLE
- EX. FIRE HYDRANT
- EX. WATER METER
- EX. WATER VALVE
- EXISTING POWER POLE
- EXISTING FIBER OPTIC MARKER
- EXISTING TELEPHONE PEDESTAL
- FDH EXISTING FIBER OPTIC BOX
- EXISTING WATERLINE
- EXISTING FORCEMAIN
- EXISTING OVERHEAD UTILITY
- EXISTING UNDERGROUND UTILITY

FOR TREE REPLACEMENT PLAN SEE SHEET 32-A

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

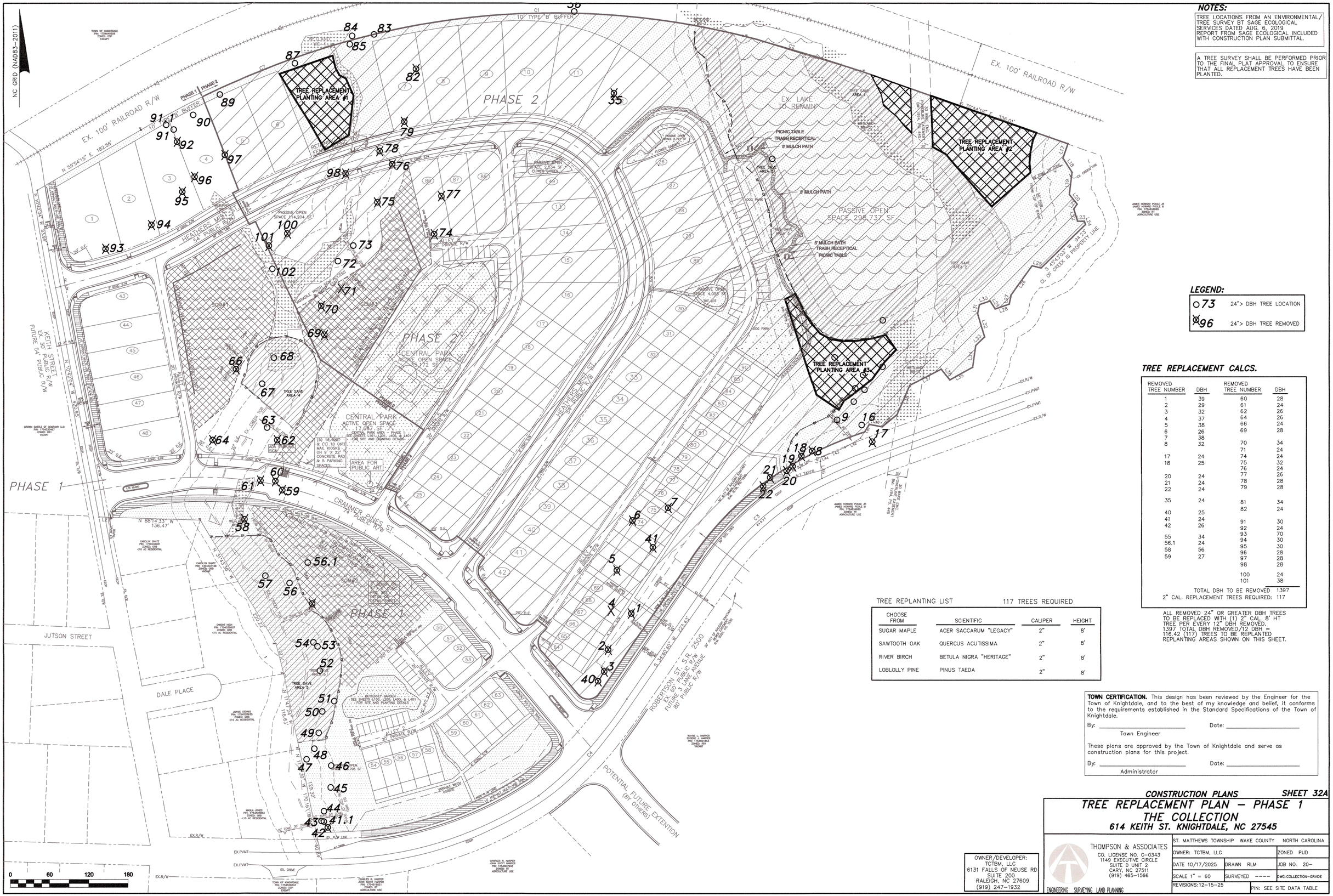
By: _____ Date: _____
Administrator

SHEET 32

CODE COMPLIANT LANDSCAPE PLAN
THE COLLECTION - PHASE 1
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA			
OWNER: TBM PARTNERS			ZONED PUD
DATE 7/28/2025	DRAWN RLM		JOB NO. 20-
SCALE 1" = 60	SURVEYED ----		DWG COLLECTION-UTIL
REVISIONS: 10/22/2025; 12/15/25			PIN: SEE SITE DATA TABLE



NOTES:

TREE LOCATIONS FROM AN ENVIRONMENTAL/ TREE SURVEY BY SAGE ECOLOGICAL SERVICES DATED AUG. 6, 2019. REPORT FROM SAGE ECOLOGICAL INCLUDED WITH CONSTRUCTION PLAN SUBMITTAL.

A TREE SURVEY SHALL BE PERFORMED PRIOR TO THE FINAL PLAT APPROVAL TO ENSURE THAT ALL REPLACEMENT TREES HAVE BEEN PLANTED.

LEGEND:

73	24"> DBH TREE LOCATION
96	24"> DBH TREE REMOVED

TREE REPLACEMENT CALCS.

REMOVED TREE NUMBER	DBH	REMOVED TREE NUMBER	DBH
1	39	60	28
2	29	61	24
3	32	62	26
4	37	64	26
5	38	66	24
6	26	69	28
7	38		
8	32	70	34
		71	24
17	24	74	24
18	25	75	32
		76	24
20	24	77	26
21	24	78	28
22	24	79	28
35	24	81	34
		82	24
40	25		
41	24	91	30
42	26	92	24
		93	70
55	34	94	30
56.1	24	95	30
58	56	96	28
59	27	97	28
		98	28
		100	24
		101	38

TOTAL DBH TO BE REMOVED 1397
2" CAL. REPLACEMENT TREES REQUIRED: 117

ALL REMOVED 24" OR GREATER DBH TREES TO BE REPLACED WITH (1) 2" CAL. 8' HT TREE PER EVERY 12" DBH REMOVED. 1397 TOTAL DBH REMOVED/12 DBH = 116.42 (117) TREES TO BE REPLANTED REPLANTING AREAS SHOWN ON THIS SHEET.

TREE REPLANTING LIST — 117 TREES REQUIRED

CHOOSE FROM	SCIENTIFIC	CALIPER	HEIGHT
SUGAR MAPLE	ACER SACCARUM "LEGACY"	2"	8'
SAWTOOTH OAK	QUERCUS ACUTISSIMA	2"	8'
RIVER BIRCH	BETULA NIGRA "HERITAGE"	2"	8'
LOBLOLLY PINE	PINUS TAEDA	2"	8'

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

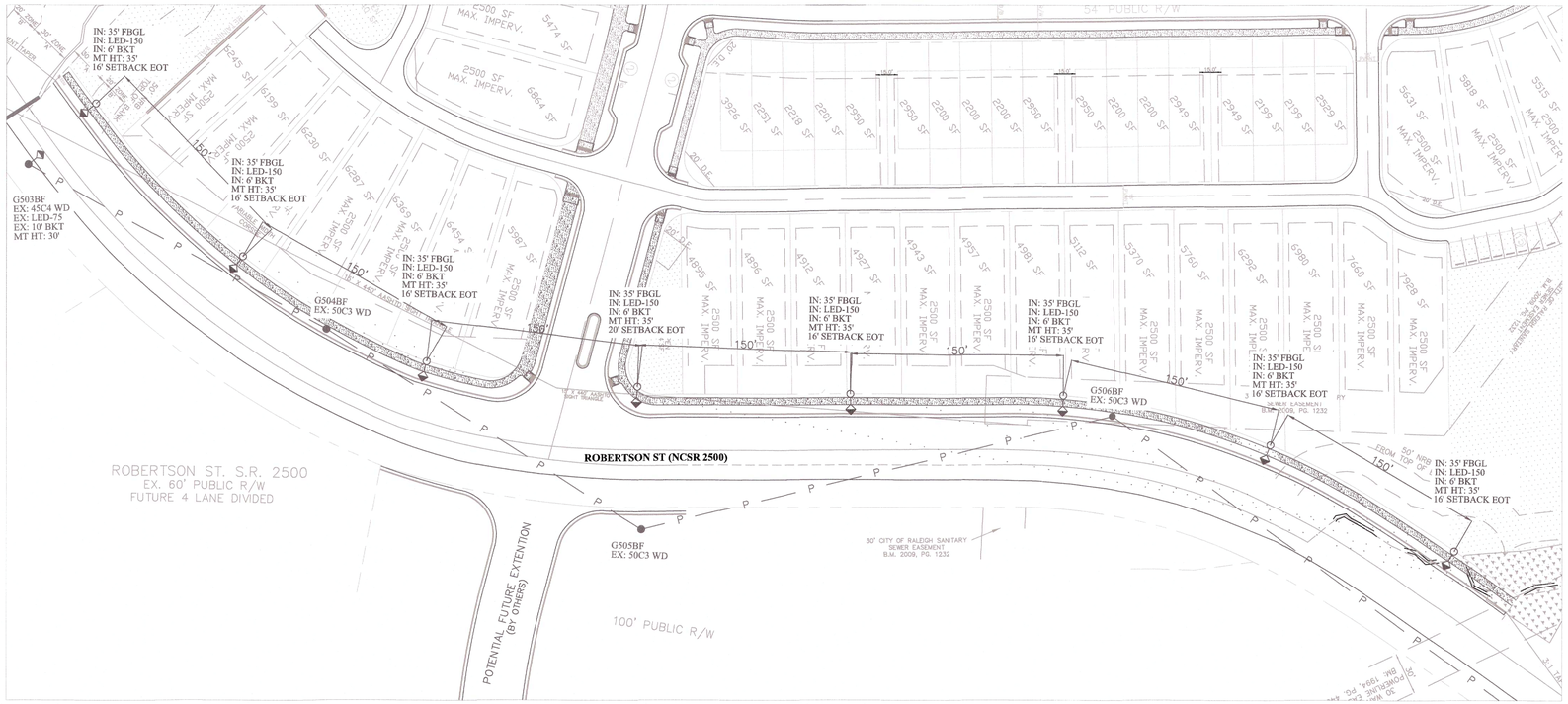
OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

CONSTRUCTION PLANS — SHEET 32A

TREE REPLACEMENT PLAN – PHASE 1
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA			
OWNER: TCTBM, LLC		ZONED PUD	
DATE 10/17/2025	DRAWN RLM	JOB NO. 20-	
SCALE 1" = 60	SURVEYED ----	DWG COLLECTION-GRADE	
REVISIONS: 12-15-25		PIN: SEE SITE DATA TABLE	



PROPESD	EXISTING	REMOVE	ABANDN	LEGEND
				LED LUMINAIRE
				DECORATIVE LUMINAIRE
				FIBERGLASS/STEEL LIGHTING POLE
				WOOD POLE
				FOREIGN POLE
				TRANSFORMER (POLE MOUNTED)
				STREET LIGHT CIRCUIT UNDERGROUND
				PRIMARY CIRCUIT UNDERGROUND
				STREET LIGHT CIRCUIT OVERHEAD
				PRIMARY CIRCUIT OVERHEAD
				RIGHT OF WAY
				PROPERTY LINE
				INSTALL CONDUIT
				EXISTING CONDUIT
				EXISTING SPAN GUY
				ABOVE GROUND PEDESTAL
				FLUSH MOUNTED 13" X 23" PED
				PAD MOUNTED ENCLOSURE
				JUNCTION BOX
				TRANSFORMER (PAD MOUNTED)
				RECLOSER
				CABLE MARKER

FOR CONSTRUCTION DETAILS, REFER IN PARTICULAR TO THE FOLLOWING PE SPECIFICATION DRAWINGS

DRAWING NUMBER	DRAWING TITLE
30.09-101	GRAY FIBERGLASS POLE LIGHTING INSTALLATION
30.02-120	LIGHTING BRACKETS FOR STEEL (AND FIBERGLASS) POLES
22.01-104	TRENCH DETAILS
03.02-100	SECONDARIES AND SERVICES
30.08-124	MOUNTING HEIGHT FOR LUMINAIRES

(NCSR 2500) ROBERTSON ST.

IES REQUIREMENTS COLLECTOR / RESIDENTIAL			ACTUAL
AVE. MAINT. FC :	0.6	MIN.	1.51
AVE. / MIN. RATIO :	4:1	MAX.	2.38:1
Lv RATIO:	0.4:1	MAX.	0.23:1

LIGHTING LEVELS CALCULATED USING ALADAN/LITEPRO
AVG DAILY TRAFFIC: 3,100
DESIGN SPEED LIMIT: 35 MPH
ACTUAL SPEED LIMIT: 35 MPH
AVG SPAN DISTANCE: 150 FEET

NOTES

1. LIGHTING LEVELS ARE BASED ON A ONE-SIDED LIGHTING FOR ROBERTSON ST.

2. ALL LIGHTING WITH UNDERGROUND SERVICE WILL BE INSTALLED ON NEW FIBERGLASS POLES LOCATED INSIDE OF ROBERTSON ST. R/W.

4. MOUNTING HEIGHT FOR LIGHTING FIXTURES: 35' WITH 6' BRACKET ON NEW 35' FIBERGLASS POLES.

5. MINIMUM SETBACK OF NEW LIGHTING POLES IS 12'-14' BACK OF TRAVEL LANE.

6. ALL POWER SOURCES WILL BE FROM DUKE ENERGY-PROGRESS FACILITIES.

7. ALL CONSTRUCTION WILL COMPLY WITH NESC REQUIREMENTS AND DUKE ENERGY-PROGRESS SPECIFICATIONS. REFER TO THE DUKE ENERGY-PROGRESS DRAWINGS LISTED.

8. PROPOSED LIGHT LOCATIONS ARE PRELIMINARY AND SUBJECT TO CHANGE.

9. THIS IS AN NCDOT ROADWAY. APPROVED NCDOT ENCROACHMENT MUST BE ON-SITE DURING CONSTRUCTION.

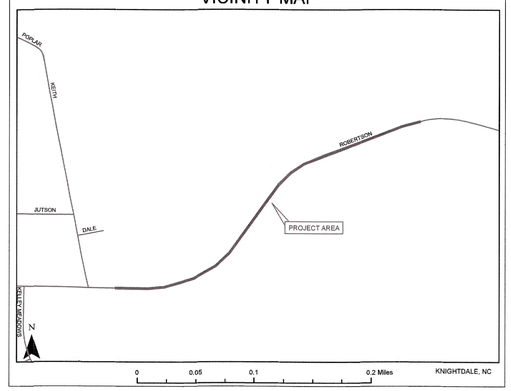
TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

VICINITY MAP



BY INITIALING THIS BLOCK THE CUSTOMER STATES THEY HAVE REVIEWED EACH SHEET OF THE PROPOSED LIGHTING DESIGN AND APPROVES OF ALL PROPOSED LIGHTING FACILITY LOCATIONS. CUSTOMER HAS VERIFIED THERE ARE NO CONFLICTS WITH PROPOSED LIGHTING ARRANGEMENT AND THE PLANS ARE CURRENT.

CUSTOMER INITIALS
X _____

SAFETYFirst
▷ PERSONAL ACCOUNTABILITY
▷ ACTIVE CARING
▷ HAZARD RECOGNITION

Safety Reminders / Adverse Conditions

?:
?:
?:

WZS: REMEMBER "YOUR CIRCLE OF SAFETY"
WZS: SET PROPER WORK ZONE NEEDED
WZS: SET PROPER SIGNS, CONES, AND BARRICADES
WZS: REMEMBER WALK AROUNDS AND PRETRIP
WZS:

REMEMBER: Work zone area conditions may have changed for this job! Everyone is responsible for verifying the above safety information is correct prior to any work being performed each day.

NO.	DATE	REVISION	BY

LIGHTING DESIGN TOLERANCE

The calculated footcandle light levels in this lighting design are predicted values and are based on specific information that has been supplied to Duke Energy. Any inaccuracies in the supplied information, differences in luminaire installation, lighted area geometry including elevation differences, reflective properties of surrounding surfaces, obstructions (foliage or otherwise) in the lighted area, or lighting from sources other than listed in this design may produce different results from the predicted values. Normal tolerances of voltage, lamp output, and ballast and luminaire manufacture will also affect results.

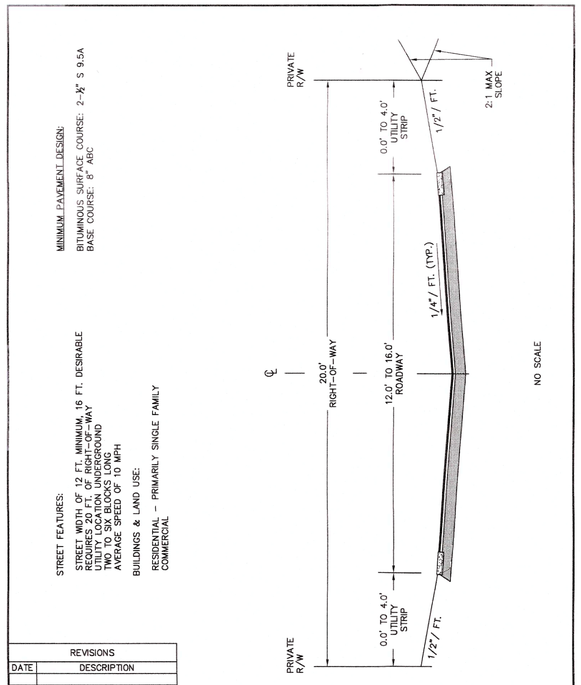
DUKE ENERGY® PROGRESS

PROPRIETARY & CONFIDENTIAL

This document together with the concepts and designs presented herein, presented as an instrument of service, is the sole property of Duke Energy, and is intended only for the specific purpose and prospective client as stated in the title block of this drawing. Any use, copying, reproduction or disclosure of the drawing, design or any information contained herein by the prospective customer or other entities, including without limitation, architects, engineers, or equipment manufacturers is hereby expressly prohibited and shall not be permitted absent prior written consent from, and payment of compensation to Duke Energy. Duke Energy disclaims any liability or responsibility for any unauthorized use of or reliance on this document.

STREET LIGHTING ARRANGEMENT FOR
(NCSR 2500) ROBERTSON ST
KNIGHTDALE, NC

Designed by DUKE ENERGY PROGRESS LIGHTING SOLUTIONS
Reviewed by JOHN THORN Scale 1" = 50'
Date 11/22/2021 Size Drawing size "D"
Description WR#s 42971718
Drawing No. 971718 **SHEET 33A**



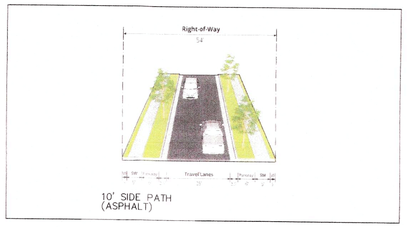
MINIMUM PAVEMENT DESIGN:
BITUMINOUS SURFACE COURSE: 2-½" S 9.5A
BASE COURSE: 8" ABC

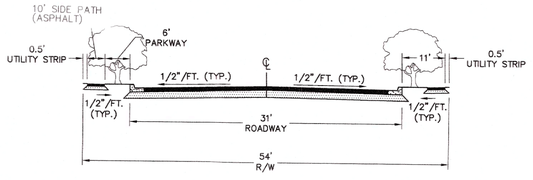
STREET FEATURES:
STREET WIDTH OF 12 FT. MINIMUM, 16 FT. DESIRABLE
REQUIRES 20 FT. OF RIGHT-OF-WAY
UTILITY LOCATION UNDERGROUND
TWO TO SIX BLOCKS LONG
AVERAGE SPEED OF 10 MPH

BUILDINGS & LAND USE:
RESIDENTIAL - PRIMARILY SINGLE FAMILY
COMMERCIAL

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	ALLEY SECTION	STD. NO. 3.01-1





NO SCALE

MINIMUM PAVEMENT DESIGN:

BITUMINOUS SURFACE COURSE: 1 1/2" S 9.5B
INTERMEDIATE COURSE: 2 1/2" I 19.0B
BASE COURSE: 8" ABC

STREET FEATURES:

FLEXIBLE STREET DESIGN
COORDINATE STREET DESIGN ELEMENTS WITH TOWN STAFF
STREET WIDTH OF 20 FT. FOR ONE-WAY
STREET WIDTH OF 31 FT. FOR TWO-WAY
CURB & GUTTER
INFORMAL PARKING – ONE SIDE ONLY
PARKWAY – 6 FT. ON EACH SIDE
SIDEWALK – 5 FT. ON EACH SIDE
UTILITY STRIP – 0.5 FT. ON EACH SIDE
REQUIRES 47 FT. OF RIGHT-OF-WAY FOR ONE-WAY
REQUIRES 54 FT. OF RIGHT-OF-WAY FOR TWO-WAY
UTILITY LOCATION UNDERGROUND
AVERAGE SPEED 20 MPH
STREET TREES LOCATED IN PARKWAY

REVISIONS	
DATE	DESCRIPTION

KEITH STREET

TOWN OF KNIGHTDALE STANDARD DETAILS	LOCAL STREET - 2 LANES SIDEWALKS	STD. NO. 3.02-1

Type 4 Object Markers (end of roadway)

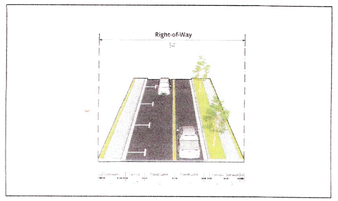
OM4-1, OM4-2, and OM4-3 are shown labeled as end-of-roadway markers (end of roadway):

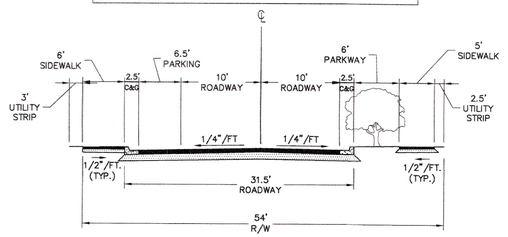
OM4-1 is shown as a red diamond shape with nine red circles denoting red retroreflectors mounted symmetrically in three diagonal rows on the marker.

OM4-2 is shown as a black diamond shape with nine red circles denoting red retroreflectors, mounted symmetrically in three diagonal rows on the marker.

OM4-3 is shown as an all-red diamond shape.

The minimum mounting height, measured vertically from the bottom of a Type 4 object marker to the elevation of the near edge of the traveled way, shall be 4 feet.





NO SCALE

MINIMUM PAVEMENT DESIGN:

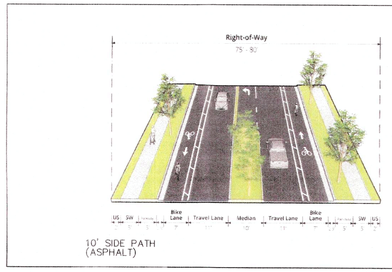
BITUMINOUS SURFACE COURSE: 1 1/2" S 9.5B
INTERMEDIATE COURSE: 2 1/2" I 19.0B
BASE COURSE: 8" ABC

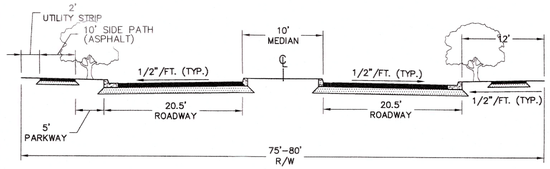
STREET FEATURES:

FLEXIBLE STREET DESIGN
COORDINATE STREET DESIGN ELEMENTS WITH TOWN STAFF
TRAVEL LANES OF 10 FT.
CURB & GUTTER
STRIPED PARALLEL PARKING – ONE SIDE ONLY
PARKWAY – 6 FT. ON ONE SIDE
SIDEWALK – 6 FT. ON PARKING SIDE; 5 FT. ON OPPOSING SIDE
REQUIRES 54 FT. OF RIGHT-OF-WAY
UTILITY LOCATION UNDERGROUND
AVERAGE SPEED 20 MPH
STREET TREES LOCATED IN PARKWAY
STREET TREES LOCATED ON PARKING SIDE OF STREET WILL BE PLACED IN CURB BULB OUT OR BACK OF SIDEWALK

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	LOCAL STREET - ON STREET PARKING ONE SIDE ONLY	STD. NO. 3.02-2





NO SCALE

MINIMUM PAVEMENT DESIGN:

BITUMINOUS SURFACE COURSE: 1 1/2" S 9.5B
INTERMEDIATE COURSE: 2 1/2" I 19.0B
BASE COURSE: 8" ABC

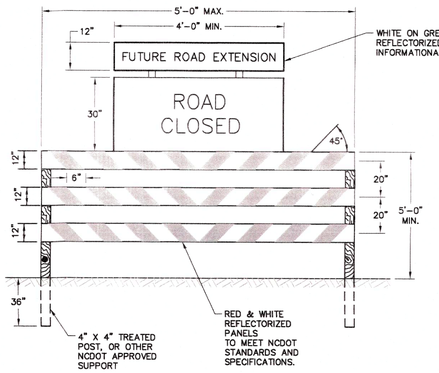
STREET FEATURES:

MEDIAN OF 10 FT.
TRAVEL LANES OF 11 FT.
BIKE LANE OF 7 FT.
CURB & GUTTER
PARKWAY – 5 FT. ON EACH SIDE
SIDEWALKS – 5 FT. ON EACH SIDE
REQUIRES 75 FT. OF RIGHT-OF-WAY
WHEN UDO APPENDIX B CALLS FOR A 10 FT. SIDEPATH, RIGHT-OF-WAY WIDTH INCREASES TO 80 FT.
UTILITY LOCATION UNDERGROUND OR ALLEY
AVERAGE SPEED 35-45 MPH
STREET TREES LOCATED IN PARKWAY
UTILITY LOCATION BEHIND CURB ON NCDOT FACILITIES
BICYCLE FACILITY PAVEMENT MARKINGS SHALL ADHERE TO MUTCD STANDARDS
PROVIDE ELEMENTS PER URBAN STREETSCAPE DESIGN FEATURES DETAIL

REVISIONS	
DATE	DESCRIPTION

ROBERTSON STREET

TOWN OF KNIGHTDALE STANDARD DETAILS	AVENUE - 3 LANES BUFFERED BIKE LANES	STD. NO. 3.05



NOTES:

1. BARRICADE(S) TO BE ERECTED ACROSS ENTIRE ROADWAY INCLUDING CURB & GUTTER.
2. ADVANCE WARNING SIGN W14-1 (DEAD END) SHALL BE PLACED JUST AFTER LAST INTERSECTING STREET.
3. MARKINGS FOR BARRICADE RAILS SHALL BE REFLECTIVE AND ALTERNATE RED AND WHITE STRIPS.
4. "ROAD CLOSED" SIGN SHALL MEET SPECIFICATIONS OF M.U.T.C.D R11-2 AND BE REQUIRED ATOP EACH BARRICADE USED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TEMPORARY BARRICADE FOR DEAD END ROADS	STD. NO. 3.18

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

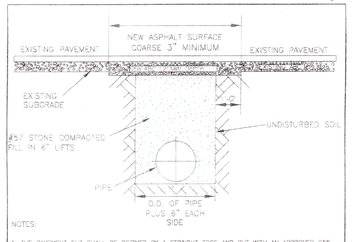
OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

SHEET 34

TYPICAL ROADWAY SECTIONS AND DETAILS
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA			
OWNER: TCTBM, LLC			ZONED PUD
DATE 7/28/2025	DRAWN RLM		JOB NO. 20-
NO SCALE	SURVEYED ----		DWG COLLECTION-SITE
REVISIONS: 10-17-2025			PIN: SEE SITE DATA TABLE

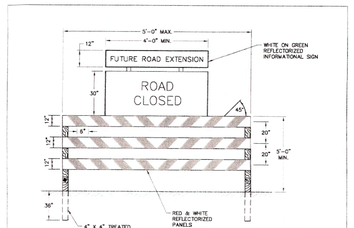


NOTES:

1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROVED SAW CUT MACHINE.
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
3. THE FINAL 1' OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-180 AS MODIFIED BY NCDOT.
4. THE ENTIRE THICKNESS/ VERTICAL EDGE OF CUT SHALL BE TACKED.
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
7. NO HAND PATCHING ALLOWED.
8. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.
9. MINIMUM PATCH WIDTH TO BE WIDTH OF THE ROADWAY.
10. ANY EXISTING PAVEMENT MARKINGS DISTURBED BY WORK SHALL BE REPLACED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD ASPHALT PAVEMENT PATCH DETAIL	STD. NO. 3.14

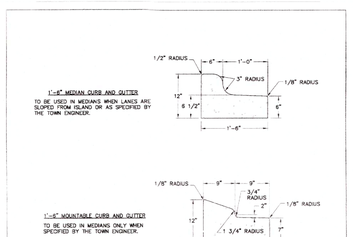


NOTES:

1. BARRICADE(S) TO BE ERECTED ACROSS ENTIRE ROADWAY INCLUDING CURB & GUTTER.
2. ADVANCE WARNING SIGN W14-1 (DEAD END) SHALL BE PLACED JUST AFTER LAST INTERSECTING STREET.
3. MARKINGS FOR BARRICADE RAILS SHALL BE REFLECTIVE AND ALTERNATE RED AND WHITE STRIPS.
4. "ROAD CLOSED" SIGN SHALL MEET SPECIFICATIONS OF R11-2 OLD R11-2 AND BE REQUIRED AYOP EACH BARRICADE USED.

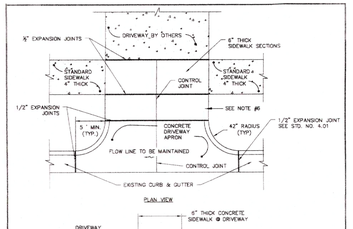
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TEMPORARY BARRICADE FOR DEAD END ROADS	STD. NO. 3.18



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	CURB AND GUTTER	2 of 3 STD. NO. 4.01

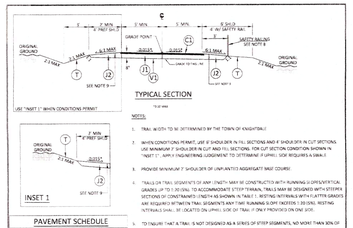


NOTES:

1. RESIDENTIAL DRIVEWAYS TO BE 12' TO 18' WIDE AT RIGHT-OF-WAY.
2. COMMERCIAL DRIVEWAYS TO BE A MAXIMUM OF 36' WIDE AT RIGHT-OF-WAY.
3. CONCRETE SHALL BE 3000 P.S.I.
4. CONTROL JOINTS NOT TO EXCEED 10' ON CENTER.
5. CURB RADIUS SHALL NOT RISE MORE THAN 1 (ONE) INCH.
6. IF THE DRIVEWAY SECTION BETWEEN THE SIDEWALK AND THE DRIVEWAY APRON IS 18" OR LESS THE SIDEWALK WILL BE WIDENED TO THE APRON AND AN EXPANSION JOINT ELIMINATED.
7. DRIVEWAY SHALL BE A MINIMUM OF 2 FEET FROM PROPERTY LINES.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD DRIVEWAY APRON	STD. NO. 4.03

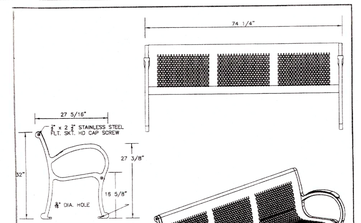


NOTES:

1. TRAIL WIDTH TO BE DETERMINED BY THE TOWN OF KNIGHTDALE
2. WHEN CONDITIONS PERMIT, USE 4' SHOULDER IN FILL SECTIONS AND 4' SHOULDER IN CUT SECTIONS USE MINIMUM 2' SHOULDER IN CUT AND FILL SECTIONS, FOR CUT SECTION CONDITION SHOWN IN "INSET 1", APPLY ENGINEERING JUDGEMENT TO DETERMINE IF UPHILL SIDE REQUIRES A SWALE.
3. PROVIDE MINIMUM 3' SHOULDER OF UNPAVED AGGREGATE BASE COURSE.
4. TRAILS OR TRAIL SEGMENTS OF ANY LENGTH MAY BE CONSTRUCTED WITH RUNNING SLOPES/VERTICAL GRADES UP TO 1.20 (12%). TO ACCOMMODATE STEEP TERRAIN, TRAILS MAY BE DESIGNED WITH STEEPER SECTIONS OF CONSTRAINED LENGTH AS SHOWN IN TABLE 1. RESTING INTERVALS WITH FLATTER GRADES ARE REQUIRED BETWEEN TRAIL SEGMENTS ANY TIME RUNNING SLOPE EXCEEDS 1.20 (12%). RESTING INTERVALS SHALL BE LOCATED ON UPHILL SIDE OF TRAIL IF ONLY PROVIDED ON ONE SIDE.
5. TO ENSURE THAT A TRAIL IS NOT DESIGNED AS A SERIES OF STEEP SEGMENTS, NO MORE THAN 30% OF THE TOTAL LENGTH OF TRAIL MAY HAVE A RUNNING SLOPE/VERTICAL GRADE OF 7.0% (8.33% OR 1.13 MAX). RESTING INTERVALS MUST BE PROVIDED FREQUENTLY AS THE RUNNING SLOPE INCREASES.
6. RUNNING SLOPE/VERTICAL GRADE RECOMMENDATIONS MAY NOT BE ABLE TO BE ACHIEVED FOR TRAIL REPLACEMENT PROJECTS. FOR THESE TYPE OF PROJECTS, REPLACEMENT OF EXISTING CONDITION IN KIND IS SUFFICIENT.
7. TYPICAL CROSS SLOPE SHALL BE 2.0% (2.06% OR 1.66 MAX). CROSS SLOPE DIRECTION VARIES. SLOPE TOWARDS FOR POSITIVE DRAINAGE WHICH MAY REQUIRE CONTINUING PAVEMENT OR SHOULDER SLOPE UNTIL TIE-IN WITH NATURAL GROUND. SEE PLAN SHEETS AND CROSS SECTIONS.
8. WHEN CONDITIONS PERMIT, SHOULDERS TO MATCH CROSS SLOPE OF TRAIL AND SLOPE SLOPES TO BE 3:1 OR FLATTER.
9. PROVIDE A SAFETY RAIL FOR THE FOLLOWING CIRCUMSTANCES WITHIN 6' OF THE EDGE OF PAVEMENT: 1) SLOPE > 3:1 AND DROP OF 6', 2) SLOPE > 2:1 AND DROP OF 3', 3) SLOPE > 1:1 AND DROP OF 1'.
10. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED DURING CONSTRUCTION.
11. PROOF ROLLING SHALL OCCUR IN PRESENCE OF THE OWNER OR THE OWNER'S TESTING AGENCY AT THE FOLLOWING STAGES: (PRIOR TO PLACING FILL IN LOW AREAS) 2) AFTER THE PREPARATION OF SUBGRADE PRIOR TO PLACING ABC; 3) AFTER THE PLACEMENT OF ABC PRIOR TO PAVING.
12. PAVEMENT EDGE SLOPES ARE 3:1 UNLESS OTHERWISE NOTED.
13. NO ABOVE-GROUND UTILITIES OR UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN THE TRAIL AND SHALL BE A MINIMUM OF 2' FROM THE EDGE OF TRAIL. RAISED MANHOLES SHALL BE A MINIMUM OF 6' FROM THE EDGE OF TRAIL.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	ASPHALT TYPICAL GREENWAY SECTION VARIABLE WIDTH (10' MIN)	STD. NO. 4.09-1

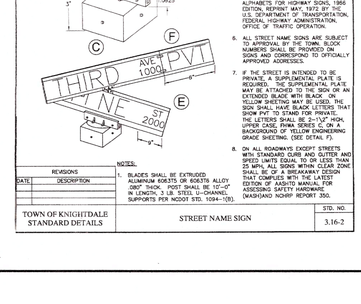


NOTES:

1. BENCH SHALL BE DUMOR 169 SERIES 6 FT. STEEL PERFORATED SEAT (BLACK), OR EQUIVALENT.
2. OTHER DESIGNS MAY BE ALLOWED PER TOWN OF KNIGHTDALE REVIEW AND APPROVAL.
3. BENCH TO BE INSTALLED BY CONTRACTORS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND DETAILS.
4. ALL STEEL MEMBERS COATED WITH ZINC RICH EPOXY COATING THEN FINISHED WITH POLYESTER POWDER COATED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TYPICAL BENCH	STD. NO. 4.14

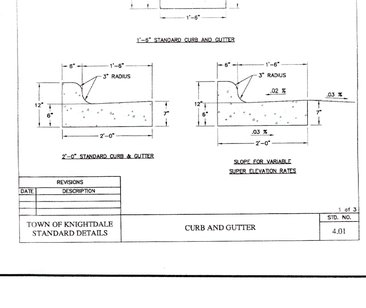


NOTES:

1. TWO STREET NAME MARKERS ARE REQUIRED IF THE MAJOR STREET HAS 3 OR MORE LANES.
2. ANY VARIANCE FROM THIS STANDARD MUST BE APPROVED BY THE TOWN OF KNIGHTDALE.
3. ALL DECORATIVE SIGNS MUST BE REVIEWED AND APPROVED BY THE TOWN.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STREET NAME SIGN INSTALLATION LOCATIONS	STD. NO. 3.16-1

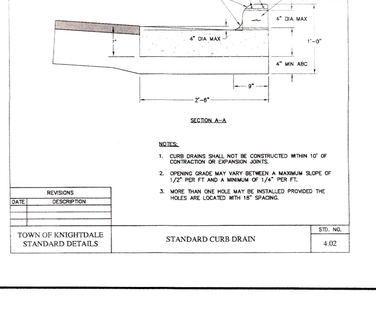


NOTES:

1. TAPER ON BOTH ENDS OF ROADWAY WIDENING SHALL BE A MINIMUM 2:1. THE TOWN ENGINEER AND/OR NCDOT RESERVE THE RIGHT TO REQUIRE A LONGER TAPER IF DEEMED NECESSARY FOR THE SAFETY OF THE PUBLIC.
2. A SOLID WHITE EDGE MARKING SHALL BE EXTENDED ALONG WIDENING AT EXISTING PAVEMENT.
3. DELINEATORS SHALL ONLY BE REQUIRED AT TAPER FROM CURB TO EXISTING PAVEMENT IN DIRECTION OF TRAVEL.
4. DELINEATORS SHALL BE ORIENTED SUCH THAT THE FACE OF THE SIGN IS PERPENDICULAR TO TRAVEL LANE.
   A. BOTTOM EDGE OF DELINEATOR 4' ABOVE ROADWAY.
   B. THE DELINEATOR STRIPES SHALL SLOPE UPWARD SLOPE UPWARD AND OUTWARD FROM TRAFFIC.
   C. DELINEATORS TO BE SPACED ON CENTERS AT 1/3 OF THE DISTANCE, D SHOWN BELOW FOR NEW ASPHALT WIDTHS ≥ 15 FT. OR AT 1/4 OF D FOR NEW ASPHALT WIDTHS > 15 FT.
   D. DELINEATORS SHALL BE MOUNTED ON BREAKAWAY POSTS.
   E. DELINEATORS SHALL BE REFLECTORIZED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD PAVEMENT WIDENING TAPER AND MARKINGS	STD. NO. 3.19

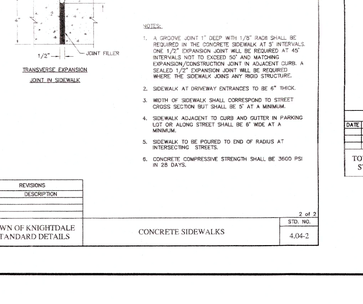


NOTES:

1. CONTRACTION JOINTS SHALL BE SPACED AT 10-FOOT INTERVALS. JOINT SPACING MAY BE ALTERED BY THE ENGINEER TO PREVENT UNCONTROLLED CRACKING.
2. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS, WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1-1/2" SHALL BE OBTAINED.
3. ALL EXPANSION JOINTS SHALL BE SPACED AT 30-FOOT INTERVALS, AND ADJACENT TO ALL RIGID OBJECTS. JOINTS SHALL MATCH LOCATIONS WITH JOINTS IN ABUTTING SIDEWALK.
4. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 PSI IN 28 DAYS.
5. CURB SHALL BE DEPRESSED AT INTERSECTIONS TO PROVIDE FOR FUTURE ACCESSIBLE RAMPS.
6. TOP 8" OF SUBGRADE BENEATH THE CURB AND GUTTER SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	CURB AND GUTTER	3 of 3 STD. NO. 4.01

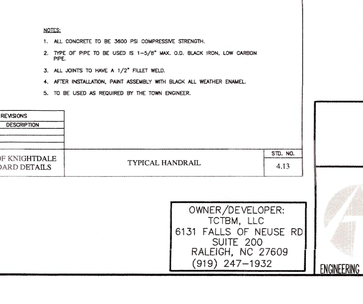


NOTES:

1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 50 FEET APART.
2. CONTROL JOINTS TO BE AT 5 FEET O.C.
3. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	CONCRETE SIDEWALKS	1 of 2 STD. NO. 4.04-1

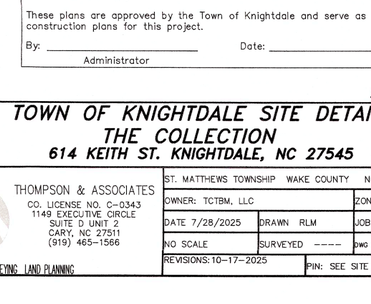


NOTES:

1. TRAIL WIDTH TO BE DETERMINED BY THE TOWN OF KNIGHTDALE
2. PROVIDE MINIMUM 3' SHOULDER OF UNPAVED AGGREGATE BASE COURSE.
3. TRAILS OR TRAIL SEGMENTS OF ANY LENGTH MAY BE CONSTRUCTED WITH RUNNING SLOPES/VERTICAL GRADES UP TO 1.20 (12%). TO ACCOMMODATE STEEP TERRAIN, TRAILS MAY BE DESIGNED WITH STEEPER SECTIONS OF CONSTRAINED LENGTH AS SHOWN IN TABLE 1. RESTING INTERVALS WITH FLATTER GRADES ARE REQUIRED BETWEEN TRAIL SEGMENTS ANY TIME RUNNING SLOPE EXCEEDS 1.20 (12%). RESTING INTERVALS SHALL BE LOCATED ON UPHILL SIDE OF TRAIL IF ONLY PROVIDED ON ONE SIDE.
4. TO ENSURE THAT A TRAIL IS NOT DESIGNED AS A SERIES OF STEEP SEGMENTS, NO MORE THAN 30% OF THE TOTAL LENGTH OF TRAIL MAY HAVE A RUNNING SLOPE/VERTICAL GRADE OF 7.0% (8.33% OR 1.13 MAX). RESTING INTERVALS MUST BE PROVIDED FREQUENTLY AS THE RUNNING SLOPE INCREASES.
5. RUNNING SLOPE/VERTICAL GRADE RECOMMENDATIONS MAY NOT BE ABLE TO BE ACHIEVED FOR TRAIL REPLACEMENT PROJECTS. FOR THESE TYPE OF PROJECTS, REPLACEMENT OF EXISTING CONDITION IN KIND IS SUFFICIENT.
6. TYPICAL CROSS SLOPE SHALL BE 2.0% (2.06% OR 1.66 MAX). CROSS SLOPE DIRECTION VARIES. SLOPE TOWARDS FOR POSITIVE DRAINAGE WHICH MAY REQUIRE CONTINUING PAVEMENT OR SHOULDER SLOPE UNTIL TIE-IN WITH NATURAL GROUND. SEE PLAN SHEETS AND CROSS SECTIONS.
7. WHEN CONDITIONS PERMIT, SHOULDERS TO MATCH CROSS SLOPE OF TRAIL AND SLOPE SLOPES TO BE 3:1 OR FLATTER.
8. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED DURING CONSTRUCTION.
9. PROOF ROLLING SHALL OCCUR IN PRESENCE OF THE OWNER OR THE OWNER'S TESTING AGENCY AT THE FOLLOWING STAGES: (PRIOR TO PLACING FILL IN LOW AREAS) 2) AFTER THE PREPARATION OF SUBGRADE PRIOR TO PLACING ABC; 3) AFTER THE PLACEMENT OF ABC PRIOR TO PAVING.
10. PAVEMENT EDGE SLOPES ARE 3:1 UNLESS OTHERWISE NOTED.
11. NO ABOVE-GROUND UTILITIES OR UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN THE TRAIL AND SHALL BE A MINIMUM OF 2' FROM THE EDGE OF TRAIL. RAISED MANHOLES SHALL BE A MINIMUM OF 6' FROM THE EDGE OF TRAIL.
12. DO NOT PLANT TREES WITHIN 2'-0" SHOULDER, RECOMMENDED 6'-0" DISTANCE FROM TRAIL EDGE OR GREATER IF SHADE OR SUN IS PRESENT.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	ASPHALT TYPICAL SIDEPATH	STD. NO. 4.09-3



NOTES:

1. BIKE RACK SHALL BE DUMOR 292 SERIES POWDER COATED (BLACK) OR EQUIVALENT.
2. OTHER DESIGNS MAY BE ALLOWED PER TOWN OF KNIGHTDALE REVIEW AND APPROVAL.
3. BIKE RACK TO BE INSTALLED BY CONTRACTORS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND DETAILS.
4. ALL STEEL MEMBERS COATED WITH ZINC RICH EPOXY COATING THEN FINISHED WITH POLYESTER POWDER COATED.
5. 3" x 3/8" EXPANSION ANCHOR BOLTS PROVIDED FOR OPTIONS S-2 & S-4.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TYPICAL BIKE RACK	STD. NO. 4.15

NOTES:

1. BLADES SHALL BE EXTRUDED ALUMINUM 6063T5 OR 6063T6 ALLOY .080" THICK. POST SHALL BE 10'-0" IN LENGTH, 2 LB. STEEL U-CHANNEL SUPPORTS PER NCDOT STD. 1084-1(B).
2. CAP TO BE ALUMINUM 6360 ALLOY OR EQUAL SLOTTED FOR .92" EXTRUDED BLADE, 0.375" I.D. BASE, DIE CAST AND POLISHED. CAP SHALL BE TAPPED TO RECEIVE AND INCLUDE 3 STAINLESS STEEL SET SCREWS FOR POST MOUNTING AND 2 STAINLESS STEEL SET SCREWS FOR BLADE MOUNTING. SET SCREWS TO HAVE ALLEN HEADS (SEE DETAIL C).
3. BLADE SPACER BRACKET SHALL MEET SAME SPECIFICATIONS AS THE CAP WITH 2 SCREWS TO EACH BLADE MOUNTING (SEE DETAIL D).
4. THE FACE OF ALL BLADES SHALL MEET COVERED WITH ENGINEERING GRADE SHEETING WITH #2390 WHITE DIE CUT LETTERS WITH REVERSED SCREENED #700 TRANSPARENT GREEN. THE PRIMARY LETTERS SHALL BE 5" HIGH UPPER CASE, FHWA SERIES D. SECONDARY/SUFFIX LETTERS SHALL BE 2-1/2" HIGH, UPPER CASE, FHWA SERIES D. BLOCK NUMBERS SHALL BE PLACED IN THE LOWER RIGHT CORNER AND SHALL BE 2-1/2" HIGH, FHWA SERIES C. ALL MATERIALS TO BE APPLIED TO A SMOOTH, FLAT, AND PREPARED ALUMINUM BLADE, WHICH HAS BEEN CLEANED AND ALL FOREIGN MATERIAL REMOVED (SEE DETAIL E).
5. LETTERS, NUMBERS AND SPACING SHALL CONFORM TO THE STANDARD ALPHABETS FOR HIGHWAY SIGNS, 1966 EDITION, REPRINT MAY, 1972, BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, OFFICE OF TRAFFIC OPERATION.
6. ALL STREET NAME SIGNS ARE SUBJECT TO APPROVAL BY THE TOWN. BLOCK NUMBERS SHALL BE PROVIDED ON SIGNS AND CORRESPOND TO OFFICIALLY APPROVED ADDRESSES.
7. IF THE STREET IS INTENDED TO BE PRIVATE, A SUPPLEMENTAL PLATE IS REQUIRED. THE SUPPLEMENTAL PLATE MAY BE ATTACHED TO THE SIGN OR AN EXTENDED BLADE WITH BLACK ON WHITE LETTERS. ON THE FACE OF THE SIGN SHALL HAVE BLACK LETTERS THAT SHOW PVT TO STAND FOR PRIVATE. THE LETTERS SHALL BE 2-1/2" HIGH, UPPER CASE, FHWA SERIES C, ON A BACKGROUND OF YELLOW ENGINEERING GRADE SHEETING. (SEE DETAIL F).
8. ON ALL ROADWAYS EXCEPT STREETS WITH STANDARD CURB AND GUTTER AND SPEED LIMITS EQUAL TO OR LESS THAN 25 MPH, ALL SIGNS WITHIN CLEAR ZONE SHALL BE MOUNTED ON BREAKAWAY POSTS THAT COMPLIES WITH THE LATEST EDITION OF AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE. (WASHINGTON NCHRP REPORT 350.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STREET NAME SIGN	STD. NO. 3.16-2

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	CURB AND GUTTER	1 of 3 STD. NO. 4.01

NOTES:

1. CURB DRAINS SHALL NOT BE CONSTRUCTED WITHIN 10' OF CONTRACTION OR EXPANSION JOINTS.
2. OPENING GRADE MAY VARY BETWEEN A MAXIMUM SLOPE OF 1/2" PER FT AND A MINIMUM OF 1/4" PER FT.
3. MORE THAN ONE HOLE MAY BE INSTALLED PROVIDED THE HOLES ARE LOCATED WITH 18" SPACING.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD CURB DRAIN	STD. NO. 4.02

NOTES:

1. A GROOVE JOINT 1" DEEP WITH 1/8" RADII SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 45' INTERVALS NOT TO EXCEED 50' AND MATCHING EXPANSION/CONSTRUCTION JOINT IN ADJACENT CURB. A SEALED 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
2. SIDEWALK AT DRIVEWAY ENTRANCES TO BE 6" THICK.
3. WIDTH OF SIDEWALK SHALL CORRESPOND TO STREET CROSS SECTION BUT SHALL BE 5' AT A MINIMUM.
4. SIDEWALK ADJACENT TO CURB AND GUTTER IN PARKING LOT OR ALONG STREET SHALL BE 8' WIDE AT A MINIMUM.
5. SIDEWALK TO BE POURED TO END OF RADIUS AT INTERSECTING STREETS.
6. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 PSI IN 28 DAYS.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	CONCRETE SIDEWALKS	2 of 2 STD. NO. 4.04-2

NOTES:

1. ALL CONCRETE TO BE 3600 PSI COMPRESSIVE STRENGTH.
2. TYPE OF PIPE TO BE USED IS 1-5/9" MAX. O.D. BLACK IRON, LOW CARBON PIPE.
3. ALL JOINTS TO HAVE A 1/2" FILLET WELD.
4. AFTER INSTALLATION, PAINT ASSEMBLY WITH BLACK ALL WEATHER ENAMEL.
5. TO BE USED AS REQUIRED BY THE TOWN ENGINEER.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TYPICAL HANDRAIL	STD. NO. 4.13

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

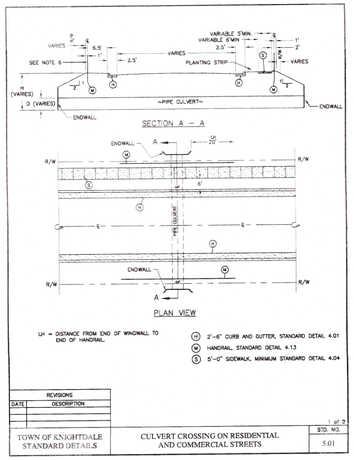
These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

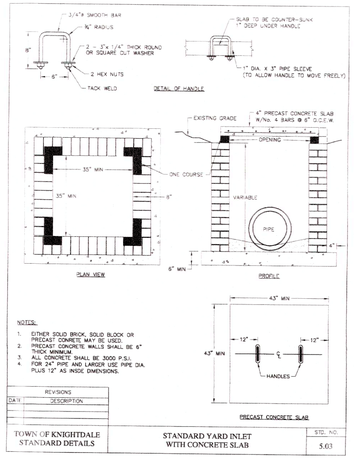
SHEET 35

TOWN OF KNIGHTDALE SITE DETAILS
THE COLLECTION
614 KEITH



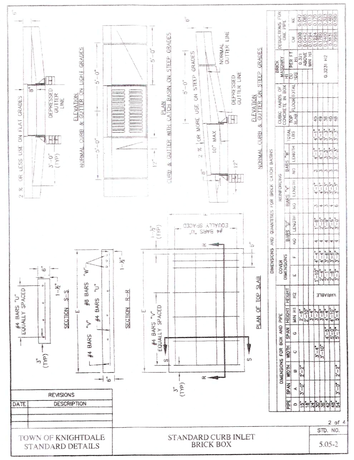
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — CULVERT CROSSING ON RESIDENTIAL AND COMMERCIAL STREETS — STD. NO. 5.01 — 1 of 2



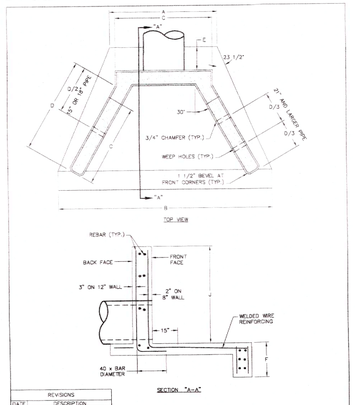
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD YARD INLET WITH CONCRETE SLAB — STD. NO. 5.03



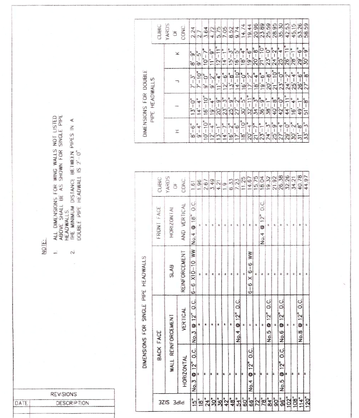
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD CURB INLET BRICK BOX — STD. NO. 5.05-2 — 2 of 4



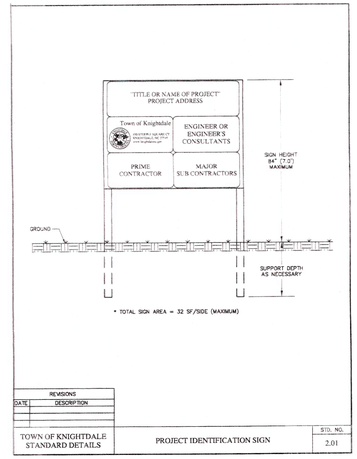
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD REINFORCED CONCRETE HEADWALL WITH WINGWALLS — STD. NO. 5.06 — 1 of 2



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — DIMENSIONS FOR HEADWALL WITH WINGWALLS — STD. NO. 5.09 — 2 of 2



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — PROJECT IDENTIFICATION SIGN — STD. NO. 2.01

NOTES:

1. UNLESS OTHERWISE DETERMINED BY THE TOWN ENGINEER, THE MEASURES ILLUSTRATED SHALL BE USED WHEN CULVERT DIAMETER IS TO GREATER THAN OR EQUAL TO 24 INCHES AND WHEN THE DIFFERENCE IN ELEVATION BETWEEN THE CULVERT INVERT AND THE TOP OF SLOPE, H, IS GREATER THAN OR EQUAL TO 5 FEET.
2. INSTALLATION OF 2'-6" CURB AND GUTTER MAY NOT BE REQUIRED WHEN AN ADEQUATE CLEAR ZONE IS PROVIDED FOR VEHICLES WITH A MAXIMUM OF 6:1 SLOPE (SEE TABLE 1).
3. INSTALLATION OF HANDRAIL MAY NOT BE REQUIRED WHEN A 10-FOOT PEDESTRIAN CLEAR ZONE IS PROVIDED BEHIND THE SIDEWALK WITH A MAXIMUM OF 6:1 SLOPE, WHERE NO SIDEWALK IS REQUIRED, INSTALLATION OF HANDRAIL MAY NOT BE REQUIRED WHEN A 15-FOOT PEDESTRIAN CLEAR ZONE IS PROVIDED BEHIND THE CURB WITH A MAXIMUM OF 6:1 SLOPE.
4. FOR CULVERT CROSSINGS WITHOUT ENDWALLS (I.E. SHALL BE MEASURED FROM THE OUTSIDE OF THE HEAVIEST WALL OF THE CULVERT BARREL).
5. WHEN NECESSARY, AS DETERMINED BY THE TOWN ENGINEER, ADDITIONAL MEASURES MAY BE REQUIRED.
6. INSTALLATION OF HANDRAIL IS REQUIRED ON BOTH SIDES OF STREET IF SIDEWALK IS REQUIRED ON BOTH SIDES.
7. INSTALLATION OF HANDRAIL IS REQUIRED ON BOTH SIDES OF STREET IF NO SIDEWALK IS REQUIRED. INSTALLATION OF A 10-FOOT PEDESTRIAN CLEAR ZONE IS REQUIRED BEHIND THE CURB WITH A MAXIMUM OF 6:1 SLOPE.
8. INSTALLATION OF HANDRAIL IS REQUIRED ON THE SIDEWALK SIDE OF STREET IF SIDEWALK IS ONLY REQUIRED ON ONE SIDE OF STREET.
9. DESIGN ADT IS CALCULATED ASSUMING A TRIP GENERATION OF 13 DAILY TRIPS PER SINGLE FAMILY DWELLING UNIT.

TABLE 1.
CLEAR ZONE DISTANCES
LOCAL, COLLECTOR, AND COMMERCIAL STREETS

DESIGN ADT	CLEAR ZONE FROM EDGE OF PAVEMENT	
	TANGENT SECTION	CURVE (WITHIN 125' OF CULVERT)
UNDER 750	10'	15'
750 – 1500	12'	18'
1501 – 6000	14'	21'
OVER 6000	16'	24'

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — CULVERT CROSSING ON RESIDENTIAL AND COMMERCIAL STREETS — STD. NO. 5.01 — 2 of 2

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD DROP INLET WITH GRATE AND FRAME — STD. NO. 5.04

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD CURB INLET PRECAST CONCRETE BOX — STD. NO. 5.05-3 — 3 of 4

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD REINFORCED CONCRETE HEADWALL WITH WINGWALLS — STD. NO. 5.06 — 2 of 2

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD MANHOLE RING & COVER — STD. NO. 5.10

MAIL KIOSK DETAIL

NOTES:

1. A MINIMUM OF 24" FROM OUTSIDE DIAMETER OF PIPE TO SIDE OF TRENCH MUST BE ALLOWED FOR COMPACTION OF FILL MATERIAL. BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER THE PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE PLACED IN LAYERS NOT TO EXCEED 6", UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED. COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL TAMPS OR VIBRATORY EQUIPMENT. BACKFILL SHALL BE PLACED LOOSE AND THOROUGHLY COMPACTED INTO PLACE.
2. ALL BACKFILL MATERIAL SHALL HAVE AN IN PLACE COMPACTED DENSITY OF AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY.
3. THE FINAL 24" OF BACKFILL MATERIAL SHALL BE COMPACTED TO 100% OF THE STANDARD PROCTOR MAXIMUM DENSITY.
4. ALL TRENCHING OPERATIONS SHALL MEET OSHA STANDARDS.
5. BACKFILL MATERIAL BENEATH ROADWAY SHALL BE SELECT BACKFILL MATERIAL.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — TRENCH FOR STORM DRAIN PIPES — STD. NO. 5.02

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD CURB INLET BRICK BOX — STD. NO. 5.05-1 — 1 of 4

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD CURB INLET PRECAST CONCRETE BOX — STD. NO. 5.05-4 — 4 of 4

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — DIMENSIONS FOR HEADWALL WITH WINGWALLS — STD. NO. 5.09 — 1 of 2

MAILBOX KIOSK COVER DETAIL

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

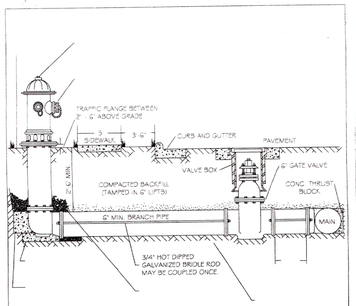
SHEET 36

TOWN OF KNIGHTDALE SITE DETAILS
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20–
NO SCALE	SURVEYED ----	DWG COLLECTION-SITE
REVISIONS: 10-17-2025		PIN: SEE SITE DATA TABLE

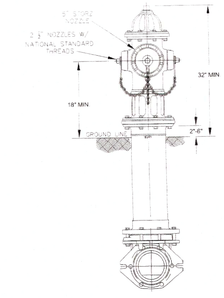


NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M&H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
2. TBRANCH PIPE SHALL BE DUCTILE IRON AWWA C151-91-96
3. 6" GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT
4. STEEL RODS AND BOLTS SHALL BE ☡ HOT DIPPED GALVANIZED
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION. RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE. FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW

ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THIS WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD FIRE HYDRANT INSTALLATION DETAIL

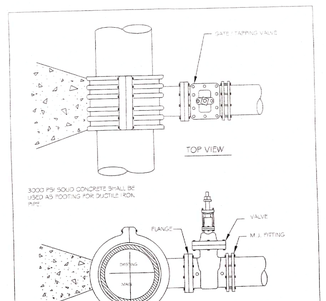
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4G	ABB	4-6-04		



NOTES:
1. ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLESVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.
2. ALL PRIVATE FIRE HYDRANTS SHALL BE RED.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
RALEIGH, GARNER, KNIGHTDALE, ROLESVILLE, WAKE FOREST, WENDELL & ZEBULON
STANDARD FIRE HYDRANT WITH 5" STORZ PUMPER NOZZLE

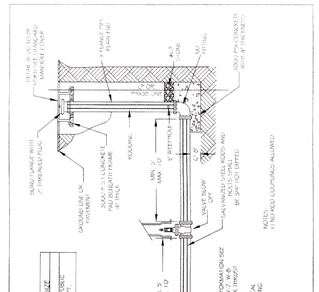
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-5	MAR KAT	1-30-18 5-15-17		



NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. SEE STANDARD REACTION BLOCK TABLES: W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.

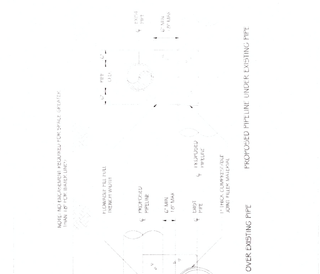
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
4" - 24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-14	Y.G.A. D.W.C.	2-3-93 10-7-99	KRH JPS	3-31-00 1-11-10



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TEMPORARY WATER MAIN BLOW OFF ASSEMBLY

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-21	D.W.C. KRH	1-28-09 3-31-09	A.B.B. DRC	4-12-04 10-16-07



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
CONCRETE CRADLE PROTECTION FOR WATER LINE CROSSINGS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-41	DRL	2-20-08		

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS
STANDARD HYDRANT LOCATION
STD. NO. 6.03

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
HYDRANT OPERATING NUT AND 2 1/2" OUTLET THREADS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-6	RKH A.B.B.	3-31-00 4-13-04	DRL J.P.S.	2-16-06 1-11-10

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
VALVE BOX INSTALLATION AND EXTENSION DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-17	D.W.C. RKH	10-7-99 3-31-00	A.B.B. DRL	4-13-04 8-16-07

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD 3/4" & 1" WATER SERVICE INSTALLATION

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-23	ABB RKH	4-6-04 6/1/05	REV	7/23/10

NOTES:
1. CONCRETE UNIT - 3 LBS +/- 5%
2. CAN TO BE COATED WITH BITUMINOUS COAL TAR COATING
3. BOLTS AND CAN MUST BE MANUFACTURED FROM SAME DOMESTIC FOUNDRY

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
WATER METER BOX DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-25	R.K.V.	8-28-13	ABB J.P.S.	1-20-05 1-14-10

NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING. DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-3	D.W.C. RKH	9-3-99 3-31-00	ABB J.P.S.	2-15-05 10-29-10

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD VERTICAL BEND

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-12	ABB DTL	4-6-04 6-15-06	TPS	1-11-10

NOTE 1 - 'WATER' LETTERING MUST BE 1" RAISED/RECESSED FLUSH)
NOTE 2 - VALVE COVER SHALL BE DOMESTICALLY CAST.
NOTE 3 - COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
NOTE 4 - COVER MUST BE CLASS 35 OR GREATER.
NOTE 5 - COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
5 1/4" VALVE BOX DROP LID WITH 4" SKIRT

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-18				

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
ONE OR TWO FAMILY DWELLINGS BACKFLOW PREVENTION/ METER ASSEMBLY INSTALLATION

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-24	D.W.C. A.B.B.	9-3-99 4-7-04	K.R.H. J.P.S.	5/1/06 1/14/10

SITE PERMITTING APPROVAL

WATER AND SEWER PERMITS

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC SEWER SYSTEM** AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# S-5041

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC WATER SYSTEM** ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK

CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# W-3926

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

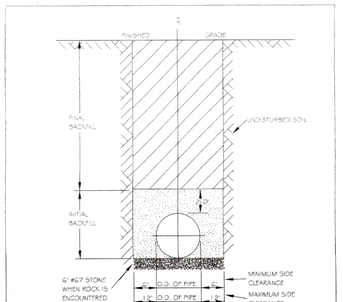
OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

CONSTRUCTION PLANS **SHEET 37**

UTILITY DETAILS
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

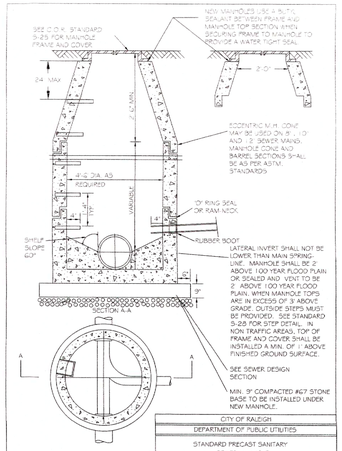
ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20-
NO SCALE	SURVEYED ----	DWG COLLECTION-SITE
REVISIONS: 10-17-2025		PIN: SEE SITE DATA TABLE



NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 12" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
5. ACHIEVE 80% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
6. IF IN EASEMENT 4" TOPSOIL AND 12" CLEAN SOLECT FILL MAY BE REQUIRED.
7. NO BOULDERS 6" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

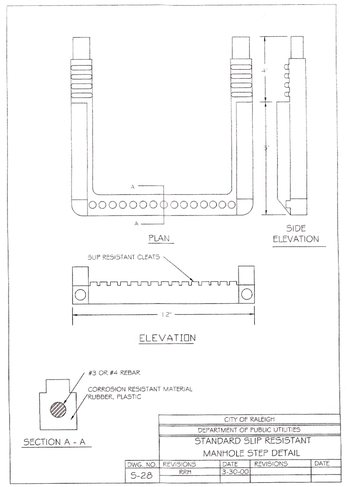
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-4	D.W.C.	9-3-99		
	RRH	3-30-00		



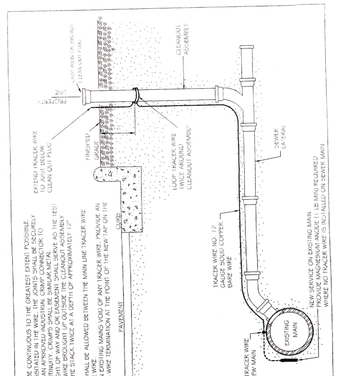
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD PRECAST SANITARY SEWER MANHOLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20	Y.C.A.	12-1-92	ABB	2-21-01
	RRH	3-30-00	D.H.L.	6-16-08



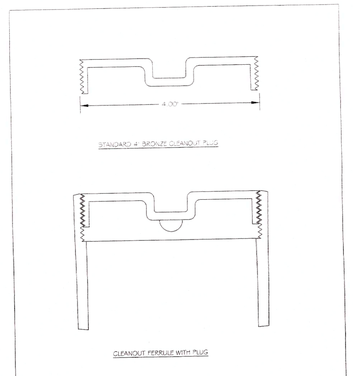
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD SLIP RESISTANT MANHOLE STEP DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-28	RRH	3-30-00		



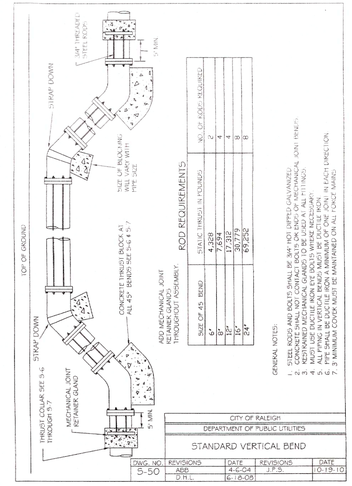
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TYPICAL SANITARY SEWER LATERAL TRACER WIRE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-30A	WKD	3-1-94		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
4" CLEANOUT PLUG

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-34	D.W.C.	3-27-95	RRH	3-30-00



ROD REQUIREMENTS

STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
4,328	2
7,744	4
17,332	4
30,779	6
69,326	8

GENERAL NOTES:
1. ALL BOLTS AND NUTS SHALL BE SAE HOT DIPPED GALVANIZED.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. MECHANICAL JOINT RESTRAINT GLANDS SHALL BE USED ON ALL FITTINGS.
4. MEGA-LUG OR EQUAL (ROD SIZES AS SHOWN ON DETAIL).
5. ALL PIPING IN VERTICAL BENDS MUST BE OF THE SAME MATERIAL.
6. CONCRETE SHALL NOT BE PLACED OVER JOINT IN EACH DIRECTION.
7. A MINIMUM COVER MUST BE MAINTAINED ON ALL FORCE MAINS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD VERTICAL BEND

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-50	ABB	4-6-04	J.F.S.	0-19-10
	D.H.L.	6-16-08		

TYPICAL TRENCH BOTTOM DIMENSIONS FOR SDR 35 PVC GRAVITY PIPE

NOTES:
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-5	TO NOTES	3-1-87	D.W.C.	9-3-99
		7-2-92	RRH	3-30-00

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20A	WKD	09-11		

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-29	Y.C.A.	2-21-91	ABB	9-20-04
	RRH	3-30-00	DHL	1-29-07

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
LATERAL SADDLE INSTALLATION DETAIL FOR PVC PIPE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-31		3-1-87		
	RRH	3-30-00		

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
CONCRETE CRADLE PROTECTION FOR SEWER LINE CROSSINGS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-49	DHL	2-20-08		

NOTES:
1. PIPE FOR INSIDE DROP SHALL BE SDR 35 PVC CONFORMING TO ASTM SPECIFICATION D3034.
2. INFLUENT ELBOW TO BE 90° SHORT BEND, BELL SPIGOT OF SDR 35 PVC. EFFLUENT ELBOW TO BE 90° LONG BEND, BELL SPIGOT OF SDR PVC. SPIGOT OF BEND TO BE CUT FROM DROP EFFLUENT TO MAKE CONSTRUCT MASONRY TROUGH FLOW.
3. MITCH BELL OF PIPE SPIGOT TO ACCEPT D.I.P. SPIGOT AS SHOWN.
4. LOCATE DROP PIPE AS SHOWN ON PLANS AND MOVE BELL UP NOT MORE THAN SPACING OF TEN FEET.
5. HOLE IN MANHOLE FOR PIPE SHALL TO BE MADE WITH A CORING MACHINE. INSTALL FLEXIBLE RUBBER COUPLING.
6. CORE HOLE SHALL NOT EXCEED CONE SECTION.
7. STEPS SHALL BE RELOCATED IF THEY CONFLICT WITH INSIDE DROP.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
INSIDE DROP MANHOLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-53	MAB	1-16-13		

NOTES:
1. CONCRETE SHALL BE 3000 P.S.I.
2. ALL BOLTS AND NUTS SHALL BE SAE HOT DIPPED GALVANIZED.
3. SEE STANDARD THRUST BLOCK TABLES, W-10 THRU W-11, FOR THRUST BLOCK AREA REQUIRED.
4. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD THRUST BLOCKING VIEWS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-7		3-1-87	RRH	3-31-00
	D.W.C.	9-7-99	D.H.L.	6-16-08

NOTES:
1) ALL MANHOLE FRAMES SHALL BE DOVIESTICALLY CAST.
2) FRAME SHALL BE A MINIMUM WEIGHT OF 162 LBS. WITHIN PUBLIC ROW AND 160 LBS WITHIN EASEMENTS.
3) COVER SHALL WEIGH A MIN. OF 130 LBS.
4) ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

5/8"X3" LAGSHIELD IN HOLE DRILLED INTO CONE OR RING WITH ANCHOR SUNK TO DESIGN DEPTH, AND 5/8"X3" HOT DIPPED GALVANIZED LAG BOLT AND WASHER.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE COVER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25		3-1-87	A.B.B.	12-18-08
	RRH	3-30-00	D.H.L.	16-18-08

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TYPICAL SANITARY SEWER LATERAL CONNECTION

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-30	Y.C.A.	6-92	A.B.B.	4-6-04
	RRH	3-30-00	D.H.L.	6-16-08

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
LATERAL SADDLE INSTALLATION DETAIL FOR VCP AND DUCTILE IRON PIPE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-32		3-1-87		
	RRH	3-30-00		

SITE PERMITTING APPROVAL

WATER AND SEWER PERMITS

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC SYSTEM** AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# S-5041

THE CITY OF RALEIGH CONSENTS TO THE CONNECTION AND EXTENSION OF THE CITY'S **PUBLIC WATER SYSTEM** AS SHOWN ON THIS PLAN. THE MATERIAL AND CONSTRUCTION METHODS USED FOR THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY'S PUBLIC UTILITIES HANDBOOK
CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PERMIT# W-3926

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

CONSTRUCTION PLANS **SHEET 38**

UTILITY DETAILS
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20-
NO SCALE	SURVEYED ----	DWG COLLECTION-SITE
REVISIONS: 10-17-2025		PIN: SEE SITE DATA TABLE

SEEDING SCHEDULE		
MAXIMUM SLOPE 3:1		
SEEDING PERIOD	SEEDING TYPE	APPLICATION RATE (LBS/ACRE)
AUGUST 15 – NOVEMBER 01	TALL FESCUE	300
NOVEMBER 01 – MARCH 01	TALL FESCUE AND	300
	ABRUZZI RYE	25
MARCH 01 – APRIL 15	TALL FESCUE	300
APRIL 15 – JUNE 30	HULLED COMMON BERMUDAGRASS	25
JULY 01 – AUGUST 15	TALL FESCUE AND	120
	*BROWNTOP MILLET OR	35
	*SORGHUM–SUDAN HYBRIDS	30
SLOPES 2:1 TO 3:1		
MARCH 01 – JUNE 01	SERICEA LESPEDEZA (SCARIFIED) AND	50
MARCH 01 – APRIL 15	TALL FESCUE OR	120
MARCH 01 – JUNE 30	WEEPING LOVEGRASS OR	10
	HULLED COMMON BERMUDAGRASS	25
JUNE 01 – SEPTEMBER 01	*TALL FESCUE AND	120
	*BROWNTOP MILLET OR	35
	*SORGHUM–SUDAN HYBRIDS	30
SEPTEMBER 01 – MARCH 01	SERICEA LESPEDEZA (UNHULLED, USCARIFIED) AND	70
	TALL FESCUE OR	120
NOVEMBER 01 – MARCH 01	ABRUZZI RYE	25

*TEMPORARY – RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING. OTHERWISE, FESCUE MAY BE USED IN PLACE OF BROWNTOP MILLET. CONTACT DO SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING ENGINEERING ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

GROUND COVER – WHEREVER LAND DISTURBING ACTIVITY IS UNDERTAKEN ON A TRACT COMPRISING MORE THAN ONE (1) ACRE, A GROUND COVER SUFFICIENT TO RESTRAIN EROSION MUST BE PLANTED OR PROVIDED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS.

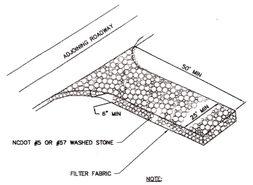
GRADED SLOPES AND FILLS – WITHIN 15 WORKING DAYS OR 30 CALENDAR DAYS, OR COMPLETION OF ANY PHASE, OF GRADING, WHICHEVER PERIOD IS SHORTER, SLOPES SHALL BE PLANTED OR OTHERWISE PROVIDED WITH GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS | SEEDING SCHEDULE | STD. NO. 2.01

NOTES:

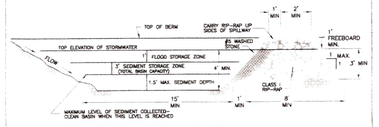
1. NCDOT #5 OR #57 WASHED STONE SHALL BE USED. PAD TO BE 50'L X 20'W X 6" D AT A MINIMUM.
2. TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS IS TO BE PROVIDED.
3. ENTRANCE(S) SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.
4. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY; KEEP SOME HANDY.
5. ANY MATERIAL WHICH STILL MAKES IT ONTO THE ROAD MUST BE CLEANED UP IMMEDIATELY.



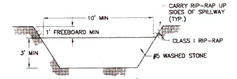
NOTE:
APPLICABLE AT ALL POINTS OF INGRESS & EGRESS UNTIL SITE IS STABILIZED. FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE MUST BE PROVIDED.

REVISIONS	
DATE	DESCRIPTION

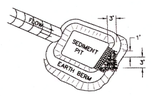
TOWN OF KNIGHTDALE STANDARD DETAILS | TEMPORARY CONSTRUCTION ENTRANCE/EXIT | STD. NO. 2.04



SECTION THROUGH BASIN & FILTER



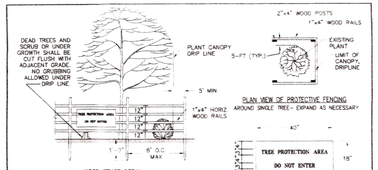
SECTION THROUGH BERM & FILTER



PERSPECTIVE VIEW

REVISIONS	
DATE	DESCRIPTION

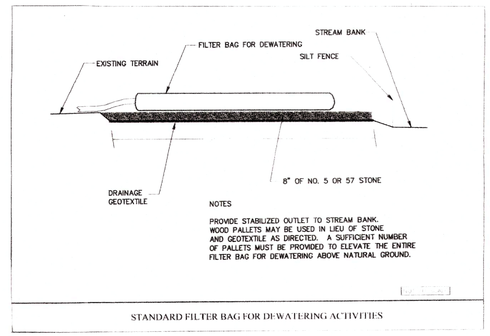
TOWN OF KNIGHTDALE STANDARD DETAILS | STANDARD SEDIMENT BASIN | STD. NO. 2.07



NOTES:
1. REMOVE ALL BARRIERS UPON COMPLETION OF PROJECT.
2. LANDSCAPING PLANS SHALL SHOW LOCATIONS OF ALL TREE PROTECTION FENCES.
3. ALL PLANTS TO BE SAVED SHALL BE PROTECTED BY FENCING AS SHOWN IN THIS DETAIL.
4. CONTRACTOR SHALL INSTALL FENCING PRIOR TO BEGINNING ANY CONSTRUCTION OR GRADING ACTIVITY.
5. FENCING SHALL BE INSPECTED DAILY FOR CONDITION AND APPROVAL OF PROTECTIVE FENCING PRIOR TO BEGINNING ANY CONSTRUCTION OR GRADING.
6. PROTECTIVE FENCING SHALL BE LOCATED 3' OUTSIDE DRIPLINE OF TREES AND 1' MINIMUM OUTSIDE SHRUBS OR OTHER PLANTS.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS | PLANT PROTECTIVE FENCING | STD. NO. 2.10

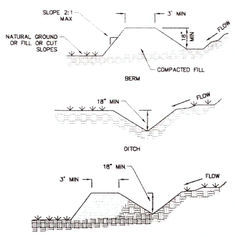


NOTES
PROVIDE STABILIZED OUTLET TO STREAM BANK. WOOD PALLETS MAY BE USED IN LIEU OF STONE AND GEOTEXTILE AS DIRECTED. A SUFFICIENT NUMBER OF PALLETS MUST BE PROVIDED TO ELEVATE THE ENTIRE FILTER BAG FOR DEWATERING ABOVE NATURAL GROUND.

STANDARD FILTER BAG FOR DEWATERING ACTIVITIES

NOTES:

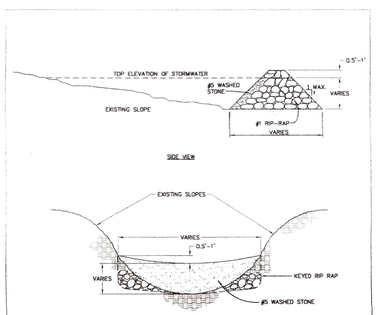
1. MACHINE COMPACTION OF ALL FILL IS REQUIRED. DIVERSIONS SUFFICIENT TO DIRECT ALL SEDIMENT–LADEN STORMWATER INTO A SEDIMENT CONTROL DEVICE MUST BE INSTALLED PRIOR TO CLEARING AND GRUBBING OF THE AREA (OR IN CONJUNCTION WITH THIS OPERATION IF SEDIMENT CONTROLS AND DIVERSIONS ARE INSTALLED AS EACH CRITICAL POINT IS REACHED).
2. DIVERSIONS SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS.
3. DIVERSIONS SHOULD BE SEEDED AND MULCHED IF THEY ARE TO REMAIN IN PLACE OVER 30 DAYS.
4. CHECK DEVICE AFTER EACH RAIN, BUT ONCE A WEEK REGARDLESS. REPAIR AS NECESSARY.



NOTE:
POSITIVE GRADE MUST BE PROVIDED TO ASSURE DRAINAGE. IF SLOPE EXCEEDS 2%, SEED AND MULCH DIVERSION. TRY NOT TO EXCEED 2% (HIGH VELOCITIES RESULT). MAXIMUM DRAINAGE AREA = 5 ACRES WITHOUT SUPPORTING CALCS. MINIMUM FLOW DEPTH = 1' FOR DITCH; DEPTH INTO AN APPROVED SLOPE DRAIN. BERM/DITCH IS MOST COMMONLY USED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS | TEMPORARY DIVERSION BERM/DITCH | STD. NO. 2.02



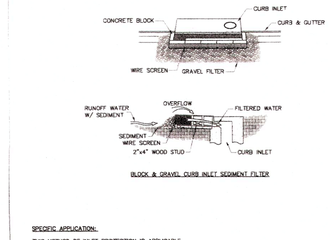
DESIGN OF SPILLWAYS

DRAINAGE AREA (ACRES)	MINIMUM WEIR LENGTH (FT)
1	4.0
2	8.0
3	8.0
4	10.0
5	12.0

NOTES:
1. HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.
2. KEY RIP RAP INTO THE DAM FOR STABILIZATION.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS | STANDARD CHECK DAM | STD. NO. 2.05



BLOCK & GRAVEL CURB INLET SEDIMENT FILTER

SPECIFIC APPLICATION:

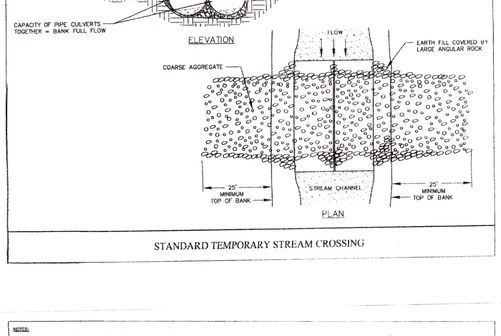
THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

MAINTENANCE:

1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP.
3. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
4. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS | CURB INLET SEDIMENT FILTER | STD. NO. 2.08



NOTES:
1. REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED
2. REPLACE STONE AS NEEDED TO ENSURE DEWATERING.

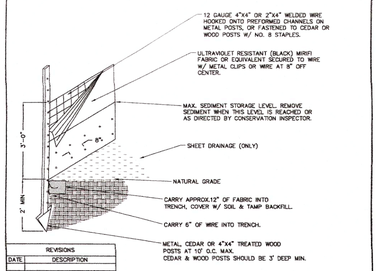
STANDARD SILT FENCE OUTLET

STANDARD TEMPORARY STREAM CROSSING

NOTES:

1. TOTAL DRAINAGE AREA FLOWING TO SILT FENCE MAY NOT EXCEED 1 ACRE.
2. SILT FENCES SHOULD NOT BE USED AT PIPE OUTLETS OR IN AREAS OF CONCENTRATED FLOW (CREEKS, DITCHLINES, SWELLS ETC.)

TO INCREASE STORAGE CAPACITY AND PROLONG THE LIFE OF THE SILT FENCE, IT IS GENERALLY ADVISABLE TO DIG A SEDIMENT PIT IN FRONT OF YOUR SILT FENCE WHENEVER POSSIBLE.



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS | TEMPORARY SILT FENCE | STD. NO. 2.03

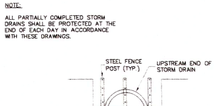
NOTES:

1. TO BE USED WHERE EXCESSIVE STORMWATER VELOCITIES PROHIBIT VEGETATIVE LININGS.
2. SIZE OF STONE MUST BE DETERMINED BY APPROPRIATE DESIGN PROCEDURE.
3. DIMENSIONS FOR d & W VARY ACCORDING TO DESIGN.

REVISIONS	
DATE	DESCRIPTION

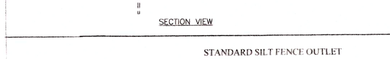
TOWN OF KNIGHTDALE STANDARD DETAILS | STANDARD RIP RAP LINED CHANNELS | STD. NO. 2.06

NOTE:
ALL PARTIALLY COMPLETED STORM DRAINS SHALL BE PROTECTED AT THE END OF EACH DAY IN ACCORDANCE WITH THESE DRAWINGS.



REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS | PIPE INLET PROTECTION | STD. NO. 2.09

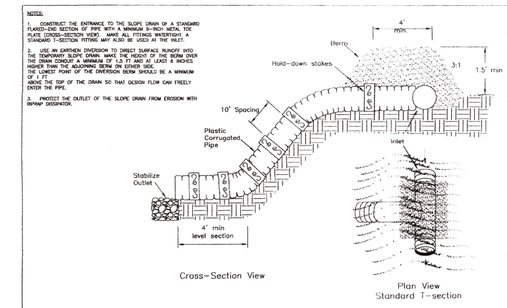


NOTES:
1. L = THE LENGTH OF THE RIPRAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (INCHES)
3. IN A WELL–DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" (INCHES) ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION

STANDARD PIPE OUTLET TO WELL–DEFINED CHANNEL

NOTES:
1. L = THE LENGTH OF THE RIPRAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (INCHES)
3. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION

STANDARD PIPE OUTLET TO FLAT AREA NO WELL–DEFINED CHANNEL



STANDARD TEMPORARY SLOPE DRAIN

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247–1932

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

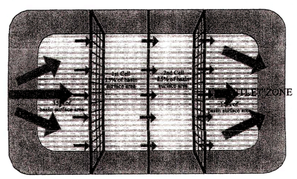
By: _____ Date: _____
Administrator

CONSTRUCTION PLANS *SHEET 39*

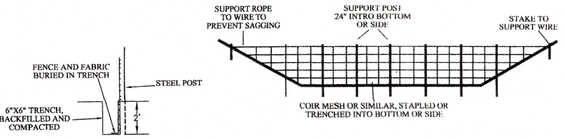
EROSION CONTROL DETAILS
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C–0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465–1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20–
NO SCALE	SURVEYED ----	DWG COLLECTION–SITE
REVISIONS: 10–17–2025		PIN: SEE SITE DATA TABLE



PLAN VIEW

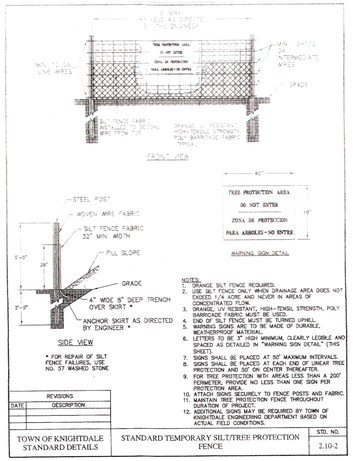


CROSS SECTION

SECTION VIEW AT OPENING

NOTES:
1) BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
2) MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
3) PROVIDE 3 BAFFLES (USE TWO IF LESS THAN 20 FEET IN LENGTH). PROVIDE 5 BAFFLES FOR DRAINAGE AREAS GREATER THAN 10 ACRES.
4) BAFFLE SHALL BE 700 G/M2 COIR EROSION BLANKET.
5) TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS
6) INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL

STANDARD BAFFLES DETAIL

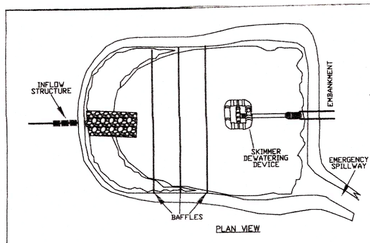


* FOR REPAIR OF SILT FENCE FAILURES, USE NO. 57 WASHED STONE

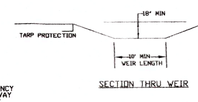
NOTES:
1. SIGNAGE SILT FENCE REQUIRED.
2. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.
3. FENCE POSTS SHALL BE HARDWOOD, HIGH-TENSIL STRENGTH, POLY SIGNAGE FABRIC MUST BE USED.
4. END OF SILT FENCE MUST BE TURNED UPHILL.
5. WARNING SIGNS ARE TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
6. LETTERS TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED IN "WARNING SIGN DETAIL" (THIS SHEET).
7. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS.
8. SIGNS SHALL BE PLACED AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
9. FOR TREE PROTECTION WITH AREAS LESS THAN A 200' PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
10. INSTALL SIGNS PERPENDICULARLY TO FENCE POSTS AND FABRIC.
11. MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
12. ADDITIONAL SIGNS MAY BE REQUIRED BY TOWN OF KNIGHTDALE ENGINEERING DEPARTMENT BASED ON ACTUAL FIELD CONDITIONS.

REVISIONS	
DATE	DESCRIPTION

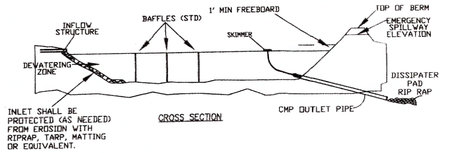
TOWN OF KNIGHTDALE STANDARD DETAILS	STANDARD TEMPORARY SILT/TREE PROTECTION FENCE	STD. NO. 2.10-2



PLAN VIEW



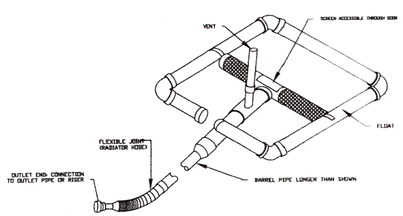
SECTION THRU WEIR



CROSS SECTION

NOTES:
1) BASIN SHOULD BE CLEANED OUT WHEN CAPACITY REACHES AN ELEVATION REPRESENTING THAT THE BASIN IS HALF-FULL.
2) THE TARP USED TO PROTECT THE WEIR SHALL BE THE WIDTH SPECIFIED. THE LENGTH OF THE TARP SHALL BE ACCORDING TO AVAILABLE SUPPLY. IF MULTIPLE TARPS ARE TO BE USED, THEN TARPS SHALL BE OVERLAPPED AT LEAST 12". THE UPSTREAM 12" TARP SHALL OVERLAP THE DOWNSTREAM TARP. THE TARP SHALL BE 50 MIL HEAVY DUTY SILVER TARPAULINS OR EQUIVALENT FOR U.V. RESISTANCE.
3) PROVIDE A MINIMUM OF THREE POROUS BAFFLES TO EVENLY DISTRIBUTE FLOW ACROSS THE BASIN, REDUCING TURBULENCE.
4) BAFFLE MATERIAL MUST BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR A SILT FENCE.
5) MOST OF THE SEDIMENT WILL ACCUMULATE IN THE FIRST BAY, SO THIS SHOULD BE READILY AVAILABLE FOR MAINTENANCE.
6) DURING THE CONSTRUCTION PHASE OF THE PROJECT, PERMANENT STORMWATER RISER SHALL ONLY DEWATER FROM THE TOP OF PIPE.
7) POND SHALL NOT BE CONVERTED FOR STORMWATER USE UNTIL APPROVED BY ENVIRONMENTAL ENGINEER.

STANDARD SKIMMER BASIN



STANDARD SKIMMER DETAIL

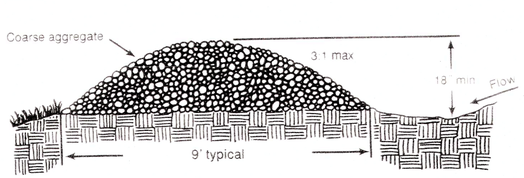
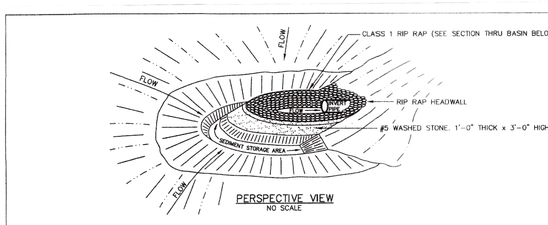


Figure 6.20b Temporary gravel diversion dike for vehicle crossing (modified from Va SWCC).

DETAIL FOR TEMPORARY VEHICLE CROSSING AT TEMPORAL DIVERSION DITCH as per figure 6.20b – NCDEQ (9' wide berm w/ coarse aggregate)



STANDARD HORSESHOE INLET PROTECTION

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (RePr 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (RePr 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, they shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• *A report at least ten days before the date of the bypass, if possible.* The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4) DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific the periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items.

(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit.

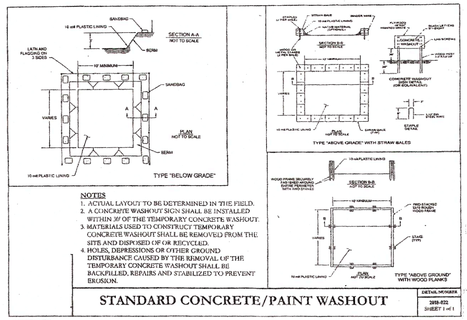
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems.

(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c), above.

(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and

(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING — EFFECTIVE: 04/01/19



NOTES

1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT SHALL BE REMOVED FROM THE SITE AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT SHALL BE BACKFILLED, REPAIRS AND STABILIZED TO PREVENT EROSION.

STANDARD CONCRETE/PAINT WASHOUT

DETAIL NUMBER 1618-031 SHEET 1 of 1

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE GENERAL CONSTRUCTION (GENERAL PERMIT)

Implementing the details, and specifications on this plan sheet will result in the construction activities being constructed compliant with the Ground Stabilization and Materials Handling requirements of the NCDEQ, Land Quality Section General Permit. Every contractor working on this construction project shall implement the following practices and shall be responsible for the Ground Stabilization and Materials Handling practices listed on this sheet that relate to their work. This may not apply during rain or the threat of rain, however, rain may not always come at predictable times, so the following practices shall be implemented as applicable and appropriate for the weather conditions at the site throughout the duration of the project.

SECTION I: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High-Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 50' or less in length and are not steeper than 2:1, 14 days are allowed.
(d) Slopes 3:1 to 4:1	14	• 7 days for slopes greater than 50' in length with slopes steeper than 4:1 • 7 days for perimeter dikes, swales, ditches, and perimeter slopes and HQW Zones • 10 days for Falls Lake Watershed
(e) Areas with Slopes flatter than 4:1	14	• 7 days for perimeter dikes, swales, ditches, and perimeter slopes and HQW Zones • 10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary stabilization shall be converted to permanent stabilization as soon as conditions are practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained as a maintain to render the surface adequately stabilized until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Sections that ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below.

TEMPORARY GROUND COVER	TEMPORARY OR PERMANENT GROUND COVER
• Mulch: Apply 6" of straw or other suitable mulch. Anchor straw by crimping in with mulcher and tackifiers. • Hydroseeding. • Rolled erosion control products with moderate to high potential for erosion. • Tackifier as directed by manufacturer.	• Permanent grass seed prepared with mixes as specified in the E&SC plan. • Hydroseeding. • Rolled erosion control products with moderate to high potential for erosion. • Sodding. • Turf reinforcement mats (TRMs). • Other ground cover blankets and mattings.

NON-VEGETATIVE BMPS

TEMPORARY OR PERMANENT GROUND COVER
• Permanent soil reinforcement matting for steep slopes or concentrated flows as specified in the E&SC plan.

SECTION II: MATERIALS HANDLING

PRODUCT SPECIFIC PRACTICES
• Products shall be kept in their original containers with the original manufacturer's label. • Substances shall not be mixed in containers unless recommended by the manufacturer. • Manufacturer's recommended methods for proper use and disposal shall be followed. • The contractor shall inspect daily to ensure proper use and disposal of materials onsite.

PRODUCT SPECIFIC PRACTICES
• Petroleum products shall be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used onsite shall comply with the applicable water quality standards. • Fertilizers shall be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit exposure to stormwater. Storage of fertilizers shall be in a covered area. • Apply herbicides, pesticides, and other chemicals in accordance with the manufacturer's label and in conformance with the most stringent practices and incorporate all sediment and erosion control measures for areas that receive chemical applications.

PRODUCT SPECIFIC PRACTICES
• Provide sanitary facilities that are serviced regularly by a state licensed solid waste management contractor. Temporary sanitary facilities shall be located a minimum of 50 feet from storm drain inlets, surface waters, and stormwater conveyances unless there is no other feasible location to locate the facility, then adequate secondary containment must be provided.

PRODUCT SPECIFIC PRACTICES
• Paving operations shall be conducted during forecasted dry weather periods. • Paving equipment and vehicles shall be checked for leaks and repaired immediately. • Drainage ditches and culverts shall be cleaned out as necessary to maintain adequate capacity. • Broken pavement and associated base material must be collected and removed.

PRODUCT SPECIFIC PRACTICES
• Stockpiles shall be protected with sediment trapping measures and stabilized with vegetation during each phase of grading. • Borrow areas and soil stockpiles shall be shown on the erosion control plan.

PRODUCT SPECIFIC PRACTICES
• Solid waste shall be stored in a secure, designated area and collected on a regular basis by a licensed solid waste management contractor. • Construction debris and sediment shall be removed from the site and disposed of in accordance with all local and state solid waste regulations. • All trees removed shall be properly disposed of unless otherwise noted on the plans. Burning shall not be allowed on site. Burning of stumps shall require approval by the Fire Marshall.

PRODUCT SPECIFIC PRACTICES
• Hazardous waste materials shall be disposed of in accordance with all local and state regulations. • Training shall be provided for all construction employees who handle hazardous materials. • Measures shall be taken to prevent the contamination of groundwater and surface waters from hazardous materials.

PRODUCT SPECIFIC PRACTICES
• Wash water from concrete mixer chutes shall be discharged into a temporary pit or basin. Dried concrete waste shall be removed and disposed of properly. • Concrete trucks shall not be washed on the ground or into storm drains, waterways, or sediment basins. • Excess concrete shall be disposed of on site in designated areas only.

PRODUCT SPECIFIC PRACTICES
• Sanitary waste shall be collected from portable units a minimum of two times per week. • Any spills shall be contained and cleaned up immediately.

PRODUCT SPECIFIC PRACTICES
• Spill kits shall be maintained on site and all personnel shall be trained in their proper use. • Spills shall be cleaned up immediately and disposed of properly. • Any hazardous waste materials spills shall be reported to the appropriate local emergency response agency.

PRODUCT SPECIFIC PRACTICES
• Vehicles and equipment shall be inspected daily for leaks and shall be repaired immediately. • Vehicles and equipment shall be washed only in designated areas that do not drain directly to surface waters. • Fuel tanks shall be filled using secondary containment to prevent spills.

PRODUCT SPECIFIC PRACTICES
• Adequate containment shall be provided for all liquid materials stored onsite. • Secondary containment structures shall be impervious and capable of containing 110% of the volume of the largest container within the containment area. • Containers shall not be overfilled and shall be placed within containment during filling and unloading.

PRODUCT SPECIFIC PRACTICES
• Wastes shall be collected and stored in appropriate containers. • Waste containers shall be covered and protected from vandalism. • Waste shall be disposed of by a licensed waste management contractor.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Vehicle and equipment maintenance to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove broken equipment from the project.
4. Collect all spent fluids, store in appropriate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Drag used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

SITTING, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Waste facility locations on plans. Locate sanitary material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown why other alternatives are not reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide onsite storm access point when feasible.
4. Locate waste containers (dumpsters) at least 50 feet away from storm drains, in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will maintain accelerated erosion or disturbed soils for temporary or permanent control needs.

CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle washout, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Locate washouts at least 50 feet away from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, locate washouts at least 10 feet from storm drain inlets and surface waters which could receive spills or overflow.
4. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad for vehicles. Additional controls may be required for the washout area to prevent leaching of wastes into the groundwater or runoff.
5. Install signage directing concrete trucks to the washout within the project limits. Post signage on the washout to identify its location.
6. Remove leavings from the washout when at approximately 75% capacity to-thus preventing overflow. Do not dump leavings from washout into stormwater conveyances or surface waters. Do not wash out concrete trucks, pumping apparatus or other concrete equipment into streets, gutters, or any stormwater conveyance.
7. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and backfill or shotcrete to prevent the washout of materials.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label specifications.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental exposure.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is expected to occur or where they may contact stormwater runoff, storm drains, ground water or surface water. If a pesticide is taken onto embankments.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Store designated hazardous waste collection areas onsite.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING — EFFECTIVE: 04/01/19

Required Town of Knightdale SCM Basin Removal Sequence

1. Schedule a site meeting with the Town of Knightdale Erosion Control Inspector to determine if sediment has been removed/ reduced/cleaning of other temporary erosion control measures as needed prior to removal of the basin.
2. Contact NCDEQ - Raleigh Regional Office (919) 791-4200 to determine the Division of Energy, Mineral and Land Resources contact person to receive dewatering notification(s). At least 12 days prior to beginning dewatering activity, send Email to NCDEQ.DEMLR.contact.email and copy Knightdale Stormwater Plan Reviewer. Provide the email should include E&SC jurisdiction: Town of Knightdale, SCM Project Name, Number, and Location (Written Environmental Compliance Point Name), and address the following: a) Reason for conversion to Basin #, b) Dewatering method, and c) All other necessary information from Section 3.4 Part II of the NCG01. Keep email for your NPDES monitoring documentation.
3. After receiving positive confirmation from NCDEQ DEMLR that you may remove the basin OR in Year 10, whichever is sooner. Remove baffles and apply erosion control to disturbed areas. Pumps need to be inspected to perform this operation at this time. Fine grade area in preparation for seeding.
4. Perform seedbed preparations, seed, mulch and anchor any resulting bare areas immediately using non-clumping turf grass (Centipede / Hybrid Bermuda).
5. Install velocity dissipators and/or level spreaders as required on the Erosion Control Plan.
6. When site is fully stabilized, call Erosion Control Inspector for approval of removing remaining temporary erosion control measures and advice on when site can be issued a Certificate of Completion. **Note: A meeting should also be scheduled with the Erosion Control Inspector and Stormwater Technician to determine when a basin may be converted for stormwater use.**

Town of Knightdale SCM Planting Notes

1. THE DAM STRUCTURE, INCLUDING FRONT AND BACK EMBANKMENT SLOPES, OF THE POND SHALL BE ESTABLISHED WITH A NON-CLUMPING TURF GRASS OR SOD. CONTINENTAL/HYBRID BERMUDA. **NON GERMINATION OF NON-CLUMPING TURF WILL BE REQUIRED PRIOR TO FINAL CERTIFICATION FROM THE TOWN.**
2. THE VEGETATED SHELF SHALL BE PLANTED WITH A MINIMUM OF THREE DIVERSE SPECIES OF HERBACEOUS, NATIVE VEGETATION AT A MINIMUM DENSITY OF 30 PLANTS PER 200 FEET OF SHELF AREA.
3. CONTRACTOR TO WORK WITH SOILS SCIENTIST TO ENSURE SOILS ARE ADEQUATE TO SUPPORT PROPER ESTABLISHMENT AND GROWTH OF THE AQUATIC PLANTING. CONTRACTOR TO AMEND SOILS AND INSTALL SOILS IN PLANT SHELF AND TREE AREAS PER DETAILS AND SPECIFICATIONS. NORMA SPECIFICATION AND SOILS SCIENTIST RECOMMENDATIONS.
4. ALL AQUATIC PLANTINGS ARE TO BE INSTALLED DURING THE APPROPRIATE TIME OF YEAR TO ENSURE SURVIVABILITY. (LAST SPRING FROST AND THE FIRST FALL FROST).
5. ALL DISTURBED AREAS AROUND THE OUTSIDE OF THE DRYED SHALL BE SEEDED WITH A LAWN AREA SEED MIX (PER SEEDING SPECIFICATIONS) NATIVE GRASSES, LEGUMES, CLOVERS, AND WILDFLOWERS.
6. IF THE DEVICE WAS USED DURING CONSTRUCTION AS A SEDIMENT BASIN OR TRAP, THE BASIN MUST BE CLEANED OUT, GRADED, APPROPRIATE AREAS COVERED WITH 6" OF TOPSOIL AS SPECIFIED IN NOTE #2 ABOVE, AND VEGETATED WITHIN 14 DAYS OF THE COMPLETION OF CONSTRUCTION.
7. CONTRACTOR SHALL WATER ALL VEGETATION AND GRASS ON A WEEKLY BASIS AS NEEDED TO ENSURE GRASS AND PLANT SURVIVAL UNTIL AFTER THE SCM IS CERTIFIED AND ACCEPTED BY THE TOWN.

OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

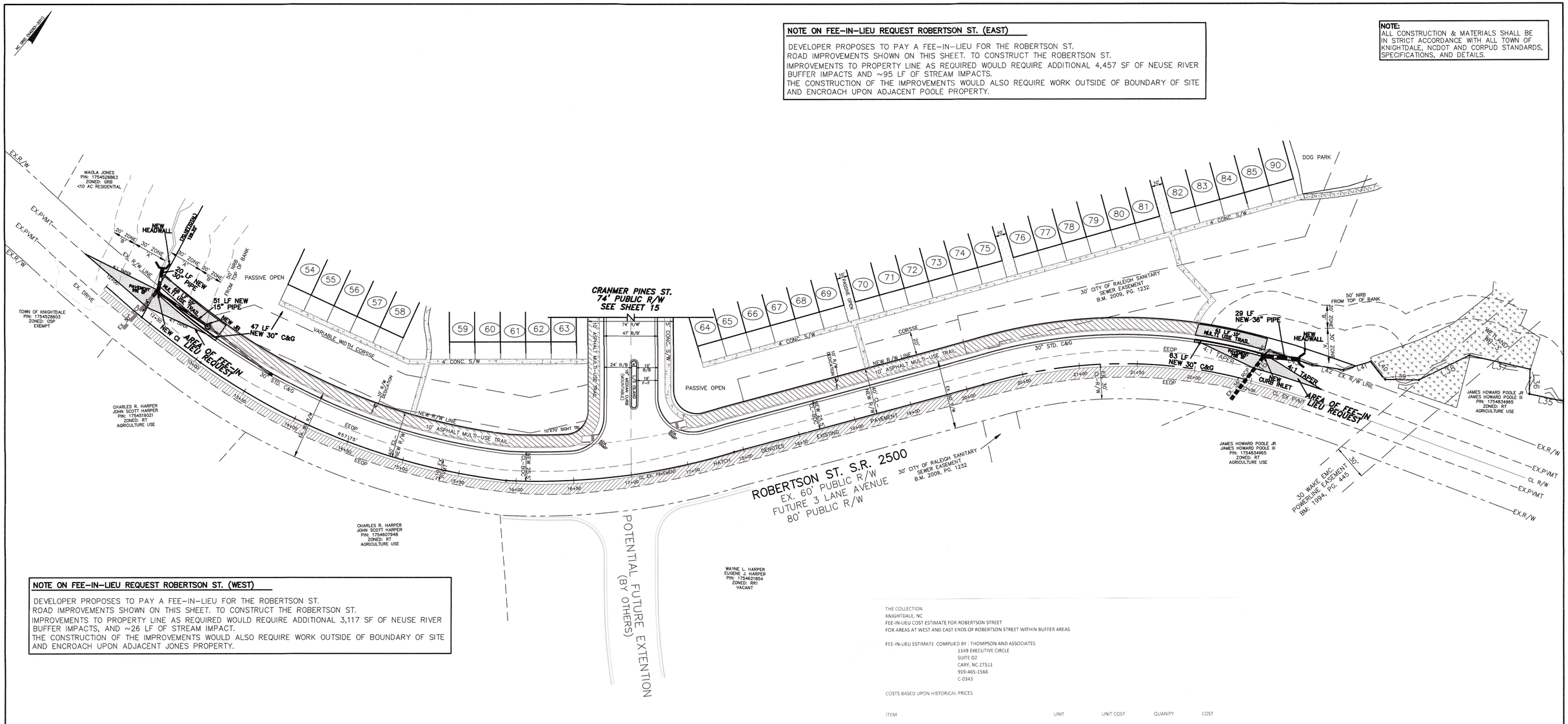
CONSTRUCTION PLANS — SHEET 40

EROSION CONTROL DETAILS
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566

ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP	WAKE COUNTY	NORTH CAROLINA
OWNER: TCTBM, LLC		ZONED PUD
DATE 7/28/2025	DRAWN RLM	JOB NO. 20-
NO SCALE	SURVEYED ----	DWG COLLECTION-SITE
REVISIONS: 10-17-2025		PIN: SEE SITE DATA TABLE



NOTE ON FEE-IN-LIEU REQUEST ROBERTSON ST. (EAST)

DEVELOPER PROPOSES TO PAY A FEE-IN-LIEU FOR THE ROBERTSON ST. ROAD IMPROVEMENTS SHOWN ON THIS SHEET. TO CONSTRUCT THE ROBERTSON ST. IMPROVEMENTS TO PROPERTY LINE AS REQUIRED WOULD REQUIRE ADDITIONAL 4,457 SF OF NEUSE RIVER BUFFER IMPACTS AND ~95 LF OF STREAM IMPACTS.
THE CONSTRUCTION OF THE IMPROVEMENTS WOULD ALSO REQUIRE WORK OUTSIDE OF BOUNDARY OF SITE AND ENCROACH UPON ADJACENT POOLE PROPERTY.

NOTE:
ALL CONSTRUCTION & MATERIALS SHALL BE IN STRICT ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND CORPUD STANDARDS, SPECIFICATIONS, AND DETAILS.

NOTE ON FEE-IN-LIEU REQUEST ROBERTSON ST. (WEST)

DEVELOPER PROPOSES TO PAY A FEE-IN-LIEU FOR THE ROBERTSON ST. ROAD IMPROVEMENTS SHOWN ON THIS SHEET. TO CONSTRUCT THE ROBERTSON ST. IMPROVEMENTS TO PROPERTY LINE AS REQUIRED WOULD REQUIRE ADDITIONAL 3,117 SF OF NEUSE RIVER BUFFER IMPACTS, AND ~26 LF OF STREAM IMPACT.
THE CONSTRUCTION OF THE IMPROVEMENTS WOULD ALSO REQUIRE WORK OUTSIDE OF BOUNDARY OF SITE AND ENCROACH UPON ADJACENT JONES PROPERTY.

0 40 80 120

THE COLLECTION
KNIGHTDALE, NC
FEE-IN-LIEU COST ESTIMATE FOR ROBERTSON STREET
FOR AREAS AT WEST AND EAST ENDS OF ROBERTSON STREET WITHIN BUFFER AREAS

FEE-IN-LIEU ESTIMATE COMPLIED BY : THOMPSON AND ASSOCIATES
1149 EXECUTIVE CIRCLE
SUITE D2
CARY, NC 27511
919-465-1566
C-0343

COSTS BASED UPON HISTORICAL PRICES

ITEM	UNIT	UNIT COST	QUANITY	COST
ASPHALT PAVEMENT 1.5" S9.FB	SY	$10.00	194	$1,940.00
ASPHALT PAVEMENT 2.5" I-19C	SY	$20.00	194	$3,888.00
1.5" MILLING	SY	$6.50	97	$630.50
6" ABC UNDER CURB	SY	$12.00	49	$588.00
8" ABC	SY	$12.50	194	$2,425.00
4" THERMOPLASTIC STRIPPING	LF	$4.00	256	$1,024.00
30" CURB AND GUTTER	LF	$27.00	110	$2,970.00
10' ASPHALT MULTI-USE PATH	LF	$10.00	144	$1,440.00
5'-6' DEPTH CATCH BASIN	EA	$3,700.00	1	$3,700.00
6'-8' DEPTH CATCH BASIN	EA	$4,000.00	1	$4,000.00
6' DEPTH JUNTION BOX	EA	$3,800.00	1	$3,800.00
15" RCP STORM DRAIN	LF	$46.00	51	$2,346.00
30" RCP STORM DRAIN	LF	$92.00	20	$1,840.00
36" RCP STORM DRAIN	LF	$110.00	29	$3,190.00
30" RCP CONCRETE HEADWALL	EA	$3,500.00	1	$3,500.00
36" RCP CONCRETE HEADWALL	EA	$3,800.00	1	$3,800.00
ROUGH GRADING	CY	$9.00	162	$1,458.00
FINE GRADING	CY	$5.00	70	$350.00
SEEDING AND MULCHING	SF	$1.50	828	$1,242.00

ESTIMATED FEE-IN-LIEU COSTS ROBERTSON STREET - THE COLLECTION $44,131.50

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

NORTH CAROLINA PROFESSIONAL SEAL 19793 ENGINEER RANDALL L. MILLER
12/15/25

PRELIMINARY DRAWING FOR REVIEW ONLY

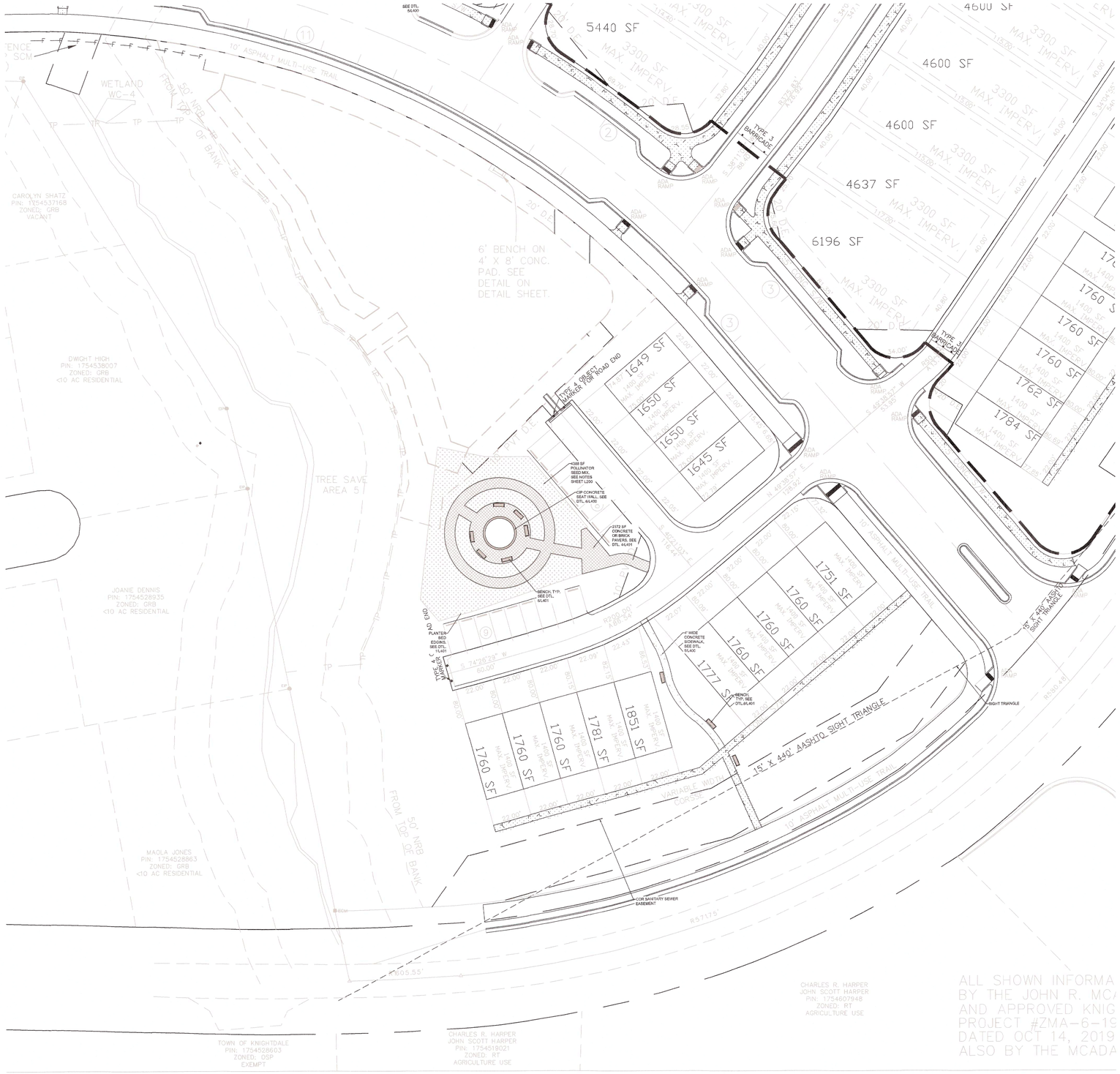
OWNER/DEVELOPER:
TCTBM, LLC
6131 FALLS OF NEUSE RD
SUITE 200
RALEIGH, NC 27609
(919) 247-1932

SHEET 41

ROBERTSON STREET FEE-IN-LIEU VS. FULL IMPROVEMENTS
THE COLLECTION
614 KEITH ST. KNIGHTDALE, NC 27545

THOMPSON & ASSOCIATES
CO. LICENSE NO. C-0343
1149 EXECUTIVE CIRCLE
SUITE D UNIT 2
CARY, NC 27511
(919) 465-1566
ENGINEERING SURVEYING LAND PLANNING

ST. MATTHEWS TOWNSHIP WAKE COUNTY NORTH CAROLINA		
OWNER: MF DEVELOPMENT LLC		ZONED PUD
DATE 2/15/21	DRAWN MTH	JOB NO. 20-
SCALE 1" = 40	SURVEYED -----	DWG ROBERTSON ST
REVISIONS: 12-15-25		PIN: SEE SITE DATA TABLE



0 30 60 feet

1" = 30'

NORTH

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

General Notes

No.	Revision/Issue	Date
4	SITE PLAN RESUBMITTAL 3	2025/12/19
3	SITE PLAN RESUBMITTAL 2	2025/10/17
2	SITE PLAN DRAFT	2025/10/07
1	SITE PLAN RESUBMITTAL	2025/09/26

Designed By:
PROSPECT LANDSCAPE ARCHITECTURE, PLLC
227 GLASCOCK STREET
RALEIGH, NC 27604
919-607-0025
JENWAGNERLANDSCAPE@GMAIL.COM
WWW.PROSPECT-LA.COM

PROSPECT LANDSCAPE ARCHITECTURE PLLC

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1791 JENNIFER L. WAGNER

12/19/2025

Project/Client:
TBM PARTNERS

THE COLLECTION RESIDENTIAL

614 KEITH STREET
KNIGHTDALE, NC

Project	Sheet
THE COLLECTION	COMMUNITY GARDEN SITE PLAN
Date: 2025/12/19	L100
Scale: 1"=30'	

0 30 60 feet

1" = 30'

NORTH

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

General Notes

No.	Revision/Issue	Date
4	SITE PLAN RESUBMITTAL 3	2025/12/19
3	SITE PLAN RESUBMITTAL 2	2025/10/17
2	SITE PLAN DRAFT	2025/10/07
1	SITE PLAN RESUBMITTAL	2025/09/26

Designed By:
PROSPECT LANDSCAPE ARCHITECTURE, PLLC
227 GLASCOCK STREET
RALEIGH, NC 27604
919-607-0025
JENWAGNERLANDSCAPE@GMAIL.COM
WWW.PROSPECT-LA.COM

PROSPECT LANDSCAPE ARCHITECTURE PLLC

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1791 JENNIFER L. WAGNER

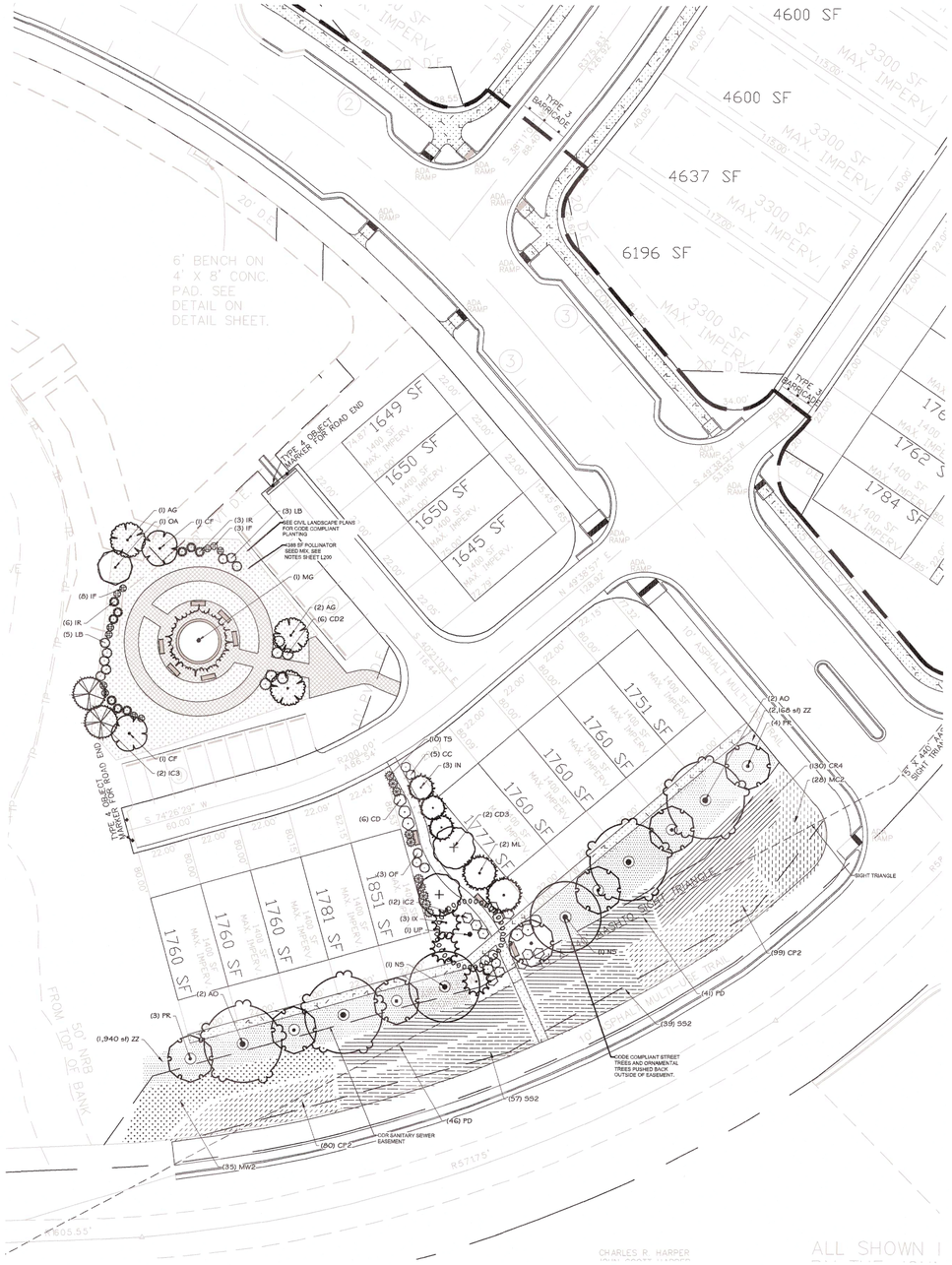
12/19/2025

Project/Client:
TBM PARTNERS

THE COLLECTION RESIDENTIAL

614 KEITH STREET
KNIGHTDALE, NC

Project	Sheet
THE COLLECTION	CENTRAL PARK SITE PLAN
Date: 2025/12/19	L101
Scale: 1"=30'	



PLANT SCHEDULE COMMUNITY GARDEN

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	INSTALL HEIGHT	MATURE HEIGHT	QTY	REMARKS
TREES									
	AO	Acer rubrum 'October Glory'	October Glory Red Maple	3" Cal.		14'		4	
	IX	Ilex x 'Magden'	Golden Oakland® Holly	7 gal.	Pot		15'x12'	3	yellow-green variegated foliage
	IN	Ilex x 'Nellie R. Stevens'	Nellie R. Stevens Holly	---	B&B	8`	15-20`	3	
SHADE TREES									
	MG	Metasequoia glyptostroboides	Dawn Redwood	3" Cal.	B&B	10` min.	60-80`	1	
	NS	Nyssa sylvatica `Wildfire`	Black Gum	3" Cal.	B&B	10` min.	60`	2	
	UP	Ulmus americana 'Princeton'	Princeton American Elm	3" Cal.	B&B	10` min.	60-80`	1	
UNDERSTORY TREES									
	AG	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Apple Serviceberry	1.5" Cal.	Pot			3	for buffer
	CD3	Chionanthus virginicus `Dirr`	Dirr White Fringetree	1.5" Cal.	Pot			2	
	CF	Cornus florida	Flowering Dogwood	1" Cal.	Pot			2	for buffer
	IC3	Ilex opaca 'Cardinal'	Cardinal American Holly	---		6` minimum		2	evergreen
	ML	Magnolia grandiflora 'Little Gem'	Little Gem Dwarf Southern Magnolia	8` Ht.	Pot			2	evergreen
	OA	Oxydendrum arboreum	Sourwood Tree	1" Cal.	Pot			1	buffer
	PR	Pistacia chinensis `Red Push`	Red Push Chinese Pistache	1.5" Cal.	B&B			7	single-stem

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	INSTALL HEIGHT	MATURE SIZE	QTY	REMARKS
SHRUBS									
	CD	Camellia japonica 'Debutante'	Debutante Camellia	3 gal.	Pot			6	
	CC	Camellia sasanqua 'Dwarf Shishi'	Dwarf Shishi Camellia	3 gal.	Pot			5	
	CD2	Cephalotaxus harringtonia 'Duke Gardens'	Duke Gardens Plum Yew	3 gal.	Pot			6	
	IC2	Ilex crenata 'Compacta'	Dwarf Japanese Holly	5 gal.	Pot	30"	5`x5`	12	
	IR	Ilex verticillata `Red Sprite`	Red Sprite Winterberry	3 gal.	Pot		3`x5`	9	
	IF	Ilex verticillata 'FarrowMrF'	Mr. Poppins® Winterberry	3 gal.	Pot		3`x5`	11	male plant for pollination
	LB	Loropetalum chinense 'Blush'	Blush Fringe Flower	3 gal.	Pot	18" HEIGHT MIN	6'x4'	8	
	OF	Osmanthus fragrans 'Fudingzhu'	Fudingzhu Sweet Olive	7 gal.	Pot			3	
	TS	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	7 gal.	Pot			10	

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	QTY	REMARKS
GROUND COVERS								
	CR4	Carex buchananii 'Red Rooster'	Red Rooster Leather Leaf Sedge	4"	FLAT	40" o.c.	130	plant 2' o.c.
	CP2	Carex testacea 'Prairie Fire'	Prairie Fire Orange Sedge	1 gal.	Pot	42" o.c.	179	
	MC2	Muhlenbergia capillaris	Pink Muhly Grass	1 gal.	Pot	72" o.c.	28	
	MW2	Muhlenbergia capillaris 'White Cloud'	White Cloud Muhly Grass	1 gal.	Pot	72" o.c.	35	
	PD	Panicum virgatum 'Dallas Blues'	Dallas Blues Switch Grass	4"	Plug	60" o.c.	87	for large area north of bldg
	SS2	Schizachyrium scoparium 'Standing Ovation'	Standing Ovation Little Bluestem	4"	FLAT	54" o.c.	96	
	ZZ	Zoysia x Zeon®	Zeon® Zoysia	sod			4,108 sf	

ALL PLANTER BEDS TO RECEIVE 3-4" TRIPLE SHREDDED HARDWOOD MULCH

PLANTING NOTES ON L400.

POLLINATOR SEED MIX, AS SHOWN ON PLANTING PLAN (4388 SF TOTAL)

Potential Seed providers and seed mixes:

Ernst Conservation Seeds
8884 Mercer Pike,
Meadville, PA 16335
(800) 873-3321
sales@ernstseed.com
VA Southern Piedmont UPL Meadow Mix, Item Number: ERNMX-861 -20 lbs acre

Eden Brothers
2099 Brevard road
Arden, NC 28704
edenbrothers.com
Perennial Pollinator Wildflower Mix - 25 lbs/more than acre

Garrett Wildflower Seed Farm
NC
919-989-3031
garrettseed.com
Pollinator Mix - 20 lbs/acre

0 30 60 feet
1" = 30'

NORTH

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

General Notes

No.	Revision/Issue	Date
4	SITE PLAN RESUBMITTAL 3	2025/12/19
3	SITE PLAN RESUBMITTAL 2	2025/10/17
2	SITE PLAN DRAFT	2025/10/07
1	SITE PLAN RESUBMITTAL	2025/09/26

Designed By:
PROSPECT LANDSCAPE ARCHITECTURE, PLLC
227 GLASCOCK STREET
RALEIGH, NC 27604
919-607-0025
JENWAGNERLANDSCAPE@GMAIL.COM
WWW.PROSPECT-LA.COM

PROSPECT LANDSCAPE ARCHITECTURE PLLC

NORTH CAROLINA LANDSCAPE ARCHITECT 1791 JENNIFER L. WAGNER 12/19/2025

Project/Client:
TBM PARTNERS

THE COLLECTION RESIDENTIAL

614 KEITH STREET
KNIGHTDALE, NC

Project	Sheet
THE COLLECTION	COMMUNITY GARDEN PLANTING PLAN
Date: 2025/12/19	L200
Scale: 1"=30'	

PLANT SCHEDULE CENTRAL PARK

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	INSTALL HEIGHT	MATURE HEIGHT	QTY	REMARKS
TREES									
	AO	Acer rubrum 'October Glory'	October Glory Red Maple	3" Cal.		14'		3	
	IN	Ilex x 'Nellie R. Stevens'	Nellie R. Stevens Holly	---	B&B	8`	15-20`	6	
SHADE TREES									
	MG	Metasequoia glyptostroboides	Dawn Redwood	3" Cal.	B&B	10` min.	60-80`	1	
	NS	Nyssa sylvatica `Wildfire`	Black Gum	3" Cal.	B&B	10` min.	60`	4	
	QL	Quercus lyrata	Overcup Oak	3" Cal.	B&B	10` min.	60-80`	3	matching
	UP	Ulmus americana 'Princeton'	Princeton American Elm	3" Cal.	B&B	10` min.	60-80`	5	
UNDERSTORY TREES									
	ML	Magnolia grandiflora 'Little Gem'	Little Gem Dwarf Southern Magnolia	8` Ht.	Pot			3	evergreen

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	INSTALL HEIGHT	MATURE SIZE	QTY	REMARKS
SHRUBS									
	CS	Camellia sasanqua 'Autumn Moon'	Sasanqua Camellia	5 gal.	Pot			25	
	CC	Camellia sasanqua 'Dwarf Shishi'	Dwarf Shishi Camellia	3 gal.	Pot			12	
	CD2	Cephalotaxus harringtonia 'Duke Gardens'	Duke Gardens Plum Yew	3 gal.	Pot			21	
	CP	Cephalotaxus harringtonia 'Prostrata'	Prostrate Plum Yew	1 gal.	Pot		2`x4`	14	
	DV	Distylium x `Vintage Jade`	Vintage Jade Distylium	3 gal.	Pot			28	
	EU	Euonymus japonicus 'Green Spire'	Green Spire Japanese Euonymus	---		30"		3	
	GD	Gardenia radicans	Dwarf Gardenia	3 gal.	Pot			13	
	HL	Hydrangea paniculata `Limelight`	Limelight Panicle Hydrangea	5 gal.	Pot			4	
	ICB	Ilex cornuta `Burfordii Nana`	Dwarf Burford Holly	3 gal.	Pot	30"	6'x8'	5	
	IC2	Ilex crenata 'Compacta'	Dwarf Japanese Holly	5 gal.	Pot	30"	5`x5`	31	
	IR	Ilex verticillata `Red Sprite`	Red Sprite Winterberry	3 gal.	Pot		3`x5`	15	
	IF	Ilex verticillata 'FarrowMrP'	Mr. Poppins® Winterberry	3 gal.	Pot		3`x5`	6	male plant for pollination
	ID	Ilex vomitoria `Schillings Dwarf`	Schillings Dwarf Yaupon Holly	3 gal.	Pot	12-15"	4'x4'	8	
	LB	Loropetalum chinense 'Blush'	Blush Fringe Flower	3 gal.	Pot	18" HEIGHT MIN	6'x4'	28	
	LN	Loropetalum chinense rubrum 'PIILC-I'	Crimson Fire™ Fringe Flower	3 gal.	Pot			6	
	LU	Loropetalum chinense rubrum 'PIILC-III'	Purple Daydream® Dwarf Loropetalum	3 gal.		24" MIN.		16	
	MC	Myrica cerifera	Wax Myrtle	5 gal.	Pot	36"	10`x10`	9	Evergreen
	OF	Osmanthus fragrans 'Fudingzhu'	Fudingzhu Sweet Olive	7 gal.	Pot			12	
	RD	Rosmarinus officinalis 'Prostratus'	Dwarf Rosemary	1 gal.	Pot			37	
	VC	Viburnum awabuki 'Chindo'	Chindo Sweet Viburnum	---			12`X8`	7	

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	QTY	REMARKS
GROUND COVERS								
	AR	Andropogon gerardii 'Red October'	Red October Big Bluestem	4"	Plug	36" o.c.	70	
	CR4	Carex buchananii 'Red Rooster'	Red Rooster Leather Leaf Sedge	4"	FLAT	24" o.c.	272	plant 2' o.c.
	CP2	Carex testacea 'Prairie Fire'	Prairie Fire Orange Sedge	1 gal.	Pot	24" o.c.	81	
	CF2	Carex x 'ET CRX01'	Feather Falls Japanese Sedge	4"	FLAT	30" o.c.	34	
	MW2	Muhlenbergia capillaris 'White Cloud'	White Cloud Muhly Grass	4"	Plug	48" o.c.	156	
	PH	Panicum virgatum 'Heavy Metal'	Heavy Metal Switch Grass	4"	FLAT	36" o.c.	68	
	PB	Pennisetum alopecuroides 'Burgundy Bunny'	Burgundy Bunny Dwarf Fountain Grass	4"	FLAT	18" o.c.	17	
	SS2	Schizachyrium scoparium 'Standing Ovation'	Standing Ovation Little Bluestem	4"	FLAT	30" o.c.	166	
	TD3	Turf Seed Drought Tolerant Dwarf Fescue Blend		seed			4,145 sf	
	ZZ	Zoysia x Zeon®	Zeon® Zoysia	sod			7,610 sf	

ALL PLANTER BEDS TO RECEIVE 3-4" TRIPLE SHREDDED HARDWOOD MULCH

PLANTING NOTES ON L400.

0 30 60 feet

1" = 30'

NORTH

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

General Notes

No.	Revision/Issue	Date
4	SITE PLAN RESUBMITTAL 3	2025/12/19
3	SITE PLAN RESUBMITTAL 2	2025/10/17
2	SITE PLAN DRAFT	2025/10/07
1	SITE PLAN RESUBMITTAL	2025/09/26

Designed By:
PROSPECT LANDSCAPE ARCHITECTURE, PLLC
227 GLASCOCK STREET
RALEIGH, NC 27604
919-607-0025
JENWAGNERLANDSCAPE@GMAIL.COM
WWW.PROSPECT-LA.COM

PROSPECT LANDSCAPE ARCHITECTURE PLLC

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 791 JENNIFER L. WAGNER

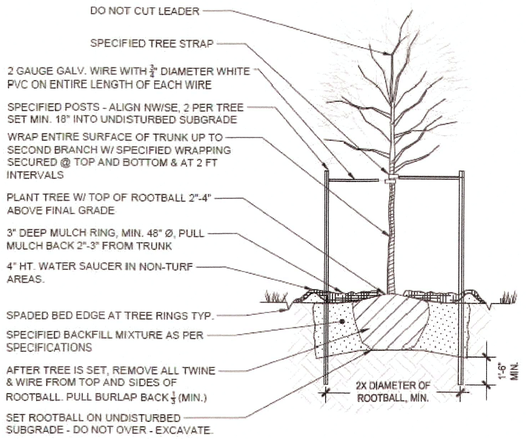
12/19/2025

Project/Client:
TBM PARTNERS

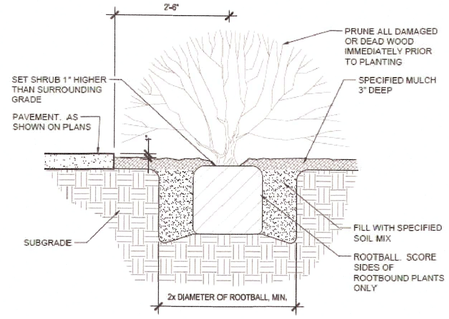
THE COLLECTION RESIDENTIAL

614 KEITH STREET
KNIGHTDALE, NC

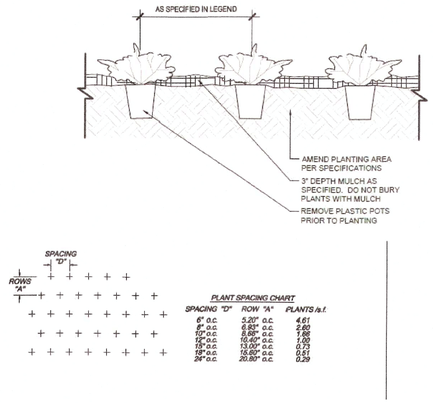
Project	Sheet
THE COLLECTION	CENTRAL PARK PLANTING PLAN
Date: 2025/12/19	L201
Scale: 1"=30'	



DETAIL 1 - TREE PLANTING



DETAIL 2 - SHRUB PLANTING



PLANT SPACING CHART

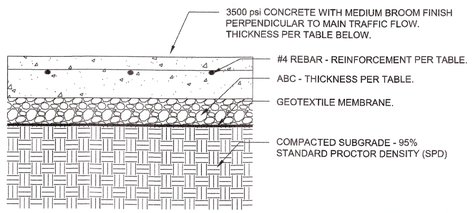
SPACING "D"	ROW "A"	PLANTS /s.f.
6" o.c.	5.20" o.c.	4.61
8" o.c.	6.93" o.c.	2.60
10" o.c.	8.66" o.c.	1.66
12" o.c.	10.40" o.c.	1.00
15" o.c.	13.00" o.c.	0.73
18" o.c.	15.63" o.c.	0.51
24" o.c.	20.80" o.c.	0.29

DETAIL 3 - GROUNDCOVER PLANTING

PLANTING NOTES

1. ALL DISTURBED AREAS NOT SHOWN WITH PLANTS SHALL BE PLANTED WITH ZEON ZOYSIA
2. ROUGH GRADING SHALL BE COMPLETED PRIOR TO THE START OF PLANT INSTALLATION.
3. CONTRACTOR RESPONSIBLE FOR LOCATING ALL UTILITIES AND ALL OTHER UNDERGROUND STRUCTURES PRIOR TO PLANTING.
4. PLANTING SHOULD OCCUR IMMEDIATELY AFTER CONSTRUCTION TO STABILIZE AREAS OF BARE SOIL.
5. ALL DEBRIS, ROCKS, ETC. LARGER THAN .5 INCH ARE TO BE REMOVED PRIOR TO SEEDING/SODDING OR PLANTING.
6. MULCH SHALL BE TRIPLED SHREDDED HARDWOOD MULCH, FREE OF WEEDS.
7. DO NOT STAKE TREES EXCEPT WHERE SPECIFIED OR ON SLOPES.
8. FOR PLANTER BEDS: RECEIVE A MINIMUM OF 4" OF APPROVED TOPSOIL. TILL IN SOIL AMENDMENTS TO A DEPTH OF 6" AND WHERE PLANTS SHARE ROOT SPACE - TILL THE ENTIRE AREA, NOT JUST THE PLANT HOLES. FOR SEEDING/SOD: ALL AREAS TO RECEIVE A MINIMUM OF 2" OF APPROVED TOPSOIL TILLED INTO A DEPTH OF 4" TO ENSURE INTEGRATION WITH EXISTING SOIL.
9. FOR CONTAINER GROWN PLANTS, USE FINGERS OR SMALL HAND TOOLS TO GENTLY PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL AND CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
10. BEFORE PLANTING, ADD 3-4" OF WELL COMPOSTED LEAVES, RECYCLED YARD WASTE OR OTHER COMPOST AND TILL INTO TOP 4-6" OF PREPARED SOIL. ADD COMPOST AT 20-35% BY VOLUME TO BACKFILL.
11. DO NOT PLACE MULCH IN CONTACT WITH TRUNK.
12. PROVIDE GATOR BAGS FOR TREES WHERE IRRIGATION IS NOT PROVIDED. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
13. PLANTS SHALL BE REPRESENTATIVE OF THEIR SPECIES AND MEET ANSI STANDARD Z60.
14. LANDSCAPE ARCHITECT OR OWNER MAINTAINS THE RIGHT TO REJECT ANY PLANT DUE TO AESTHETICS OR STRUCTURAL DEFICIENCY AT ANY TIME.
15. QUANTITIES SHOWN ON THE PLANT LEGEND ARE FOR THE CONTRACTOR'S CONVENIENCE. IF DISCREPANCIES OCCUR, THE PLANS SHALL OVERRULE THE PLANT LEGEND.
16. IF ANY PLANT SUBSTITUTIONS ARE REQUESTED BY THE CONTRACTOR, SUGGESTED ACCEPTABLE REPLACEMENTS SHALL BE PRESENTED AND A MINIMUM OF 72-HOURS SHALL BE GIVEN TO THE LANDSCAPE ARCHITECT PRIOR TO ORDERING DATE FOR FINAL DECISION.
17. BALLED AND BURLAPPED TREES SHALL BE PLANTED PRIOR TO CONTAINER OR BEDDING PLANTS.
18. STREET TREES SHALL BE 10' AWAY FROM STORMWATER PIPES, WITH A MINIMUM OF 5' FROM STORMWATER STRUCTURES.
19. LARGE TREES SHALL BE NO CLOSER THAN 20' FROM ANY STRUCTURE WITH AT LEAST 350 SF OF NON-PAVED AREA AROUND THE TRUNK.
20. SMALL TREES SHALL BE NO CLOSER THAN 10' FROM ANY STRUCTURE WITH AT LEAST 250 SF OF NON-PAVED AREA AROUND THE TRUNK.
21. ALL BUILDINGS SHALL BE SET BACK 10' AND ALL VEHICULAR USE AREAS SHALL BE SET BACK FIVE FEET FROM ANY AREA DESIGNATED AS RCA.

DETAIL 4 - PLANTING NOTES



PAVEMENT TYPE	ABC	REINFORCEMENT	CONCRETE
SIDEWALKS AT DRIVE LANES	0'-4"	#4 @ 12" O.C. B.W.	0'-8"
CONCRETE AT SERVICE AREAS	0'-4"	#4 @ 12" O.C. B.W.	0'-6"
MOUNTABLE CURB	0'-4"	#4 @ 12" O.C. B.W.	0'-6"
ACCESSIBLE PARKING SPACES	0'-4"	#4 @ 12" O.C. B.W.	0'-6"
PEDESTRIAN SIDEWALKS	0'-4"	NONE	4"-5"

1. CONTRACTOR TO CONTACT LANDSCAPE ARCHITECT TO REVIEW FORMS PRIOR TO POURING.
2. SEE PLANS FOR JOINT LOCATIONS.

DETAIL 5 - PEDESTRIAN CONCRETE

PICNIC SHELTERS
1. LARGE SHELTER: ENWOOD "THE WILMINGTON" 20'X40'.
2. SMALL SHELTERS: ENWOOD "THE PINEHURST" 10'X10'.

ENWOOD
10224 DURANT ROAD
SUITE 201
RALEIGH, NC 27614
800.777.8648
zenecar@enwood.com
www.enwood.com

POURED IN PLACE RUBBER SURFACING -
SEE LIMITS ON SHEETS L101.

COLOR AND FINAL LIMITS TO BE DETERMINED. USE SURFACE AMERICA FOR PRODUCT AND INSTALL OR SIMILAR PRODUCT. DEPTH TO BE DETERMINED BY PLAYGROUND MANUFACTURER.

Surface America, Inc.
45 Earhart Drive, Suite 102-A
Williamsville, NY 14221
Phone: 716-632-8413
Toll-Free: 800-999-0555

ENGINEERED WOOD FIBER SURFACING

FINAL LIMITS TO BE DETERMINED. USE FIBAR OR SIMILAR PRODUCT. DEPTH TO BE DETERMINED BY PLAYGROUND MANUFACTURER.

FIBAR
80 Business Park Drive
Armonk NY 10504
(800) 342-2721

DETAIL 6 - BASIS OF DESIGN PRODUCTS

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

General Notes

No.	Revision/Issue	Date
4	SITE PLAN RESUBMITTAL 3	2025/10/19
3	SITE PLAN RESUBMITTAL 2	2025/10/17
2	SITE PLAN DRAFT	2025/10/07
1	SITE PLAN RESUBMITTAL	2025/09/26

Designed By:
PROSPECT LANDSCAPE ARCHITECTURE, PLLC
227 GLASCOCK STREET
RALEIGH, NC 27604
919-607-0025
JENWAGNERLANDSCAPE@GMAIL.COM
WWW.PROSPECT-LA.COM

PROSPECT LANDSCAPE ARCHITECTURE PLLC

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1791 JENNIFER L. WAGNER
12/19/2025

Project/Client:
TBM PARTNERS

THE COLLECTION RESIDENTIAL

614 KEITH STREET
KNIGHTDALE, NC

Project	Sheet
THE COLLECTION	PLANTING & SITE DETAILS
Date: 2025/12/19	L400
Scale	

Crisp-Edge

Sure-loc CrispEdge professional aluminum landscape edging is primarily used in residential and light commercial applications where greater flexibility is desired and offers years of proven performance.

CrispEdge is the edging of choice specified by Landscape Architects and Designers and preferred by landscape contractors and homeowners who refuse to compromise

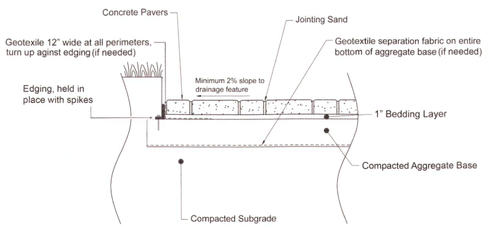
MADE IN THE U.S.A. FROM RECYCLED MATERIAL

1/8" x 4" (3.2mm x 102mm)

Primarily used in residential and light commercial applications where greater flexibility is desired. Thickened straight runs are possible but will require additional labor due to flexibility differences compared to 3/16" thick material. Applications include, but are not limited to, planting beds, tree rings, paver walkways and paths. 16 foot edging sections are packaged 15 pieces (240") per box. 8 foot edging sections are packaged 15 pieces (120") per box.

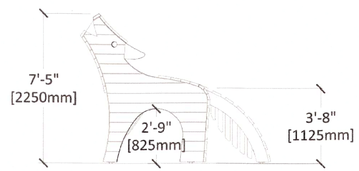
1. AT PLANTER BED EDGES WHERE THERE IS NO HARDSCAPE AS AN EDGE.
2. SURE-LOC 'CRISP EDGE' PRODUCT OR SIMILAR.
3. ALUMINUM EDGING:BRONZE PAINT COLOR.
4. 3/16" X 4" SIZE.
5. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

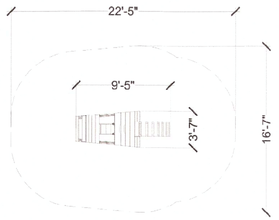
DETAIL 1 - PLANTER EDGING



1. CONCRETE PAVERS BY HANOVER, BELGARD OR UNILOCK.
2. MIXTURE OF 3"X6", 6"X6", 6"X9".
3. COLOR: TBD
4. INSTALL IN ASHLAR/FRENCH PATTERN. DRY LAID WITH POLYMERIC SAND BETWEEN 1/4" JOINTS.
5. INSTALL ON 4" CABC BASE.

DETAIL 4 - CONCRETE PAVERS

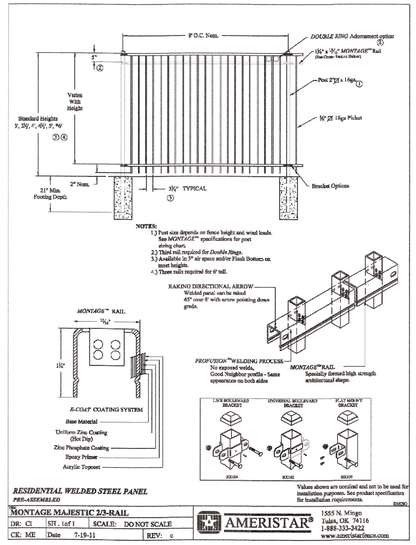




1. EARTHSCAPE "HOWLER"
   1.1. www.earthscapeplay.com
   1.2. 7215 Wellington Road 86, Wallenstein, ON N0B 2SO Canada
   1.3. 519-804-6854
2. "Wolf" stain
3. Fall height: 7' 5"

OWNER RESERVES THE RIGHT TO CHANGE EQUIPMENT MANUFACTURERS AND PRODUCTS PENDING FINAL BUDGET DECISIONS.

DETAIL 2 - ART/PLAY SCULPTURE



MONTAGE MAJESTIC 2/3-RAIL			
DR: CI	ST. 1 of 1	SCALE: DO NOT SCALE	
CK: ME	Date 7-18-11	REV. c	

AMERISTAR®
1555 N. Mingo
Tulsa, OK. 74116
1-888-333-3422
www.ameristarfence.com

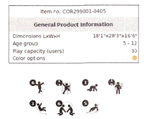
AMERISTAR FENCE

MONTAGE, MAJESTIC STYLE - 3-4' TALL.
BLACK E-COAT SURFACE PROTECTION.

DETAIL 5 - ALUMINUM FENCE

SkyTwister, Physical

KOMPAN



MAIN PLAY STRUCTURE:

KOMPAN - SKY TWISTER, Physical, PE Slide

include bridge over slope connecting to top of structure, slides and stairs and net climbing for entries and exits.

ADDITIONAL EQUIPMENT:

1. SWING, 8ft H, 1 Rope Seat, KSW92011 (21'11" X 6' X 8'4" tall, fall zone: 33' 11" x 31' 8")
2. SPINNER: SATURN CAROUSEL (10'4" diameter, fall zone: 50' 9" diameter)
3. SPRINGERS: SPRING BOARD (3'x2'9", fall zone: 14'9"x14'6") and BEE SPRINGER (2'6"x2'3", fall zone: 14'6"x13'7")

Bee Springer, Oak — KOMPAN

Swing, 8 ft H, 1 Rope Seat — KOMPAN

Spring Board — KOMPAN

Saturn 4 Carousel — KOMPAN

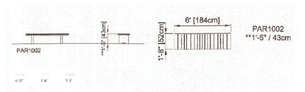
OWNER RESERVES THE RIGHT TO CHANGE EQUIPMENT MANUFACTURERS AND PRODUCTS PENDING FINAL BUDGET DECISIONS.

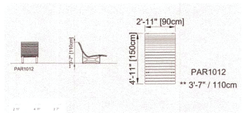
KOMPAN
www.kompan.com
605 W Howard Lane, Suite 101 Austin, TX 78753
800-426-9788

DETAIL 3 - PLAYGROUND EQUIPMENT

Rumba Bench, Straight, 6 ft — KOMPAN

Rumba Suncouch, 3 ft — KOMPAN





BENCH
6' BENCH, STRAIGHT, OPTIONAL BACKREST

CHAISE LOUNGE
3' CHAIR: RUMBA SUN COUCH 3ft - Ash wood color

OWNER RESERVES THE RIGHT TO CHANGE EQUIPMENT MANUFACTURERS AND PRODUCTS PENDING FINAL BUDGET DECISIONS.

KOMPAN
www.kompan.com
605 W Howard Lane, Suite 101 Austin, TX 78753
800-426-9788

DETAIL 6 - BENCH AND CHAISE LOUNGE

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

General Notes

No.	Revision/Issue	Date
4	SITE PLAN RESUBMITTAL 2	2025/12/19
3	SITE PLAN RESUBMITTAL 2	2025/10/17
2	SITE PLAN DRAFT	2025/10/07
1	SITE PLAN RESUBMITTAL	2025/09/26

Designed By:
PROSPECT LANDSCAPE ARCHITECTURE, PLLC
227 GLASCOCK STREET
RALEIGH, NC 27604
919-607-0025
JENWAGNERLANDSCAPE@GMAIL.COM
WWW.PROSPECT-LA.COM

PROSPECT LANDSCAPE ARCHITECTURE PLLC

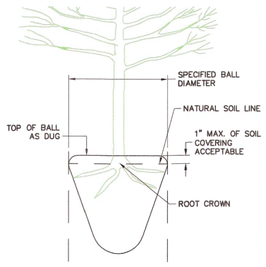
NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 1791 JENNIFER L. WAGNER
12/19/2025

Project/Client:
TBM PARTNERS

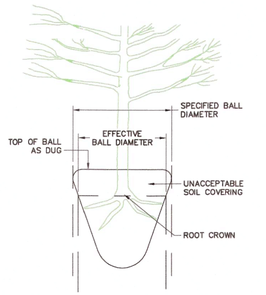
THE COLLECTION RESIDENTIAL

614 KEITH STREET
KNIGHTDALE, NC

Project	Sheet
THE COLLECTION	PLANTING & SITE DETAILS
Date: 2025/12/19	L401
Scale	



ACCEPTABLE CONDITION



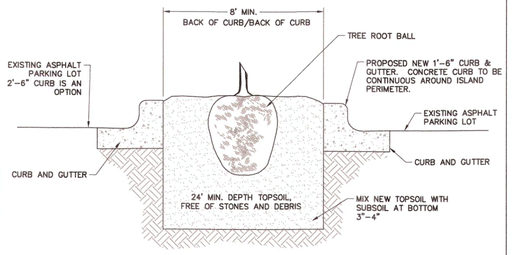
UNACCEPTABLE CONDITION

NOTE:

A ROOT COLLAR EXCAVATION FOR ALL TREES SPECIFIED WILL BE DONE BY THE TOWN TO ENSURE THAT TREES WERE NOT PLANTED/GROWN TOO DEEPLY AT SOURCE (NURSERY). LANDSCAPE CONTRACTOR SHALL HAVE SUPPLIER MARK GROUND LEVEL LINE ABOVE ROOT BALL. IF TOWN DETERMINES THAT THERE IS EXCESSIVE SOIL OVER THE ROOT CROWN, THESE TREES WILL BE REJECTED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	ROOT CROWN DEPTHS	STD. NO. 3.21



NOTES:

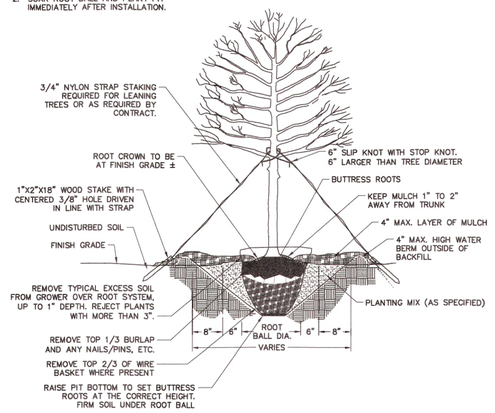
1. 300 SF MIN. TOTAL REQUIRED AREA PER TREE.
2. FOR NEW PLANTING AREAS, REMOVE ALL PAVEMENT, GRAVEL SUB-BASE AND CONSTRUCTION DEBRIS BEFORE PREPARING SOIL AND PLANTING TREES.
3. REMOVE COMPACTED SOIL AND ADD 24" NEW OR TOPSOIL/PLANTING MIX OR UNCOMPACT AND AMEND TOP 24" OF EXISTING SOIL TO MEET TOPSOIL/PLANTING MIX STANDARDS FOR TREES.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TREE PLANTING ISLAND IN PARKING LOTS	STD. NO. 3.23

NOTES:

1. REMOVE WIRE OR NYLON TWINE FROM BALL.
2. SOAK ROOT BALL AND PLANT PIT IMMEDIATELY AFTER INSTALLATION.



ALL TREES SHALL MEET AMERICAN STANDARD FOR NURSERY STOCK
(AMSI, 1990, PART 1, "SHADE AND FLOWERING TREES")

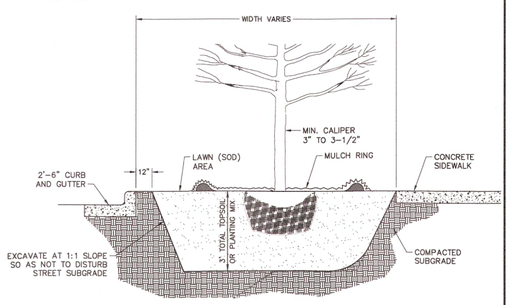
FOR EXAMPLE:	CALIPER	HEIGHT (RANGE)	MAX. HEIGHT	MIN. ROOT BALL DIA.	MIN. ROOT BALL DEPTH
	2"	12-14'	16'	24"	16"
	3"	14-16'	18'	32"	21"

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TREE PLANTING (FOR SINGLE AND MULTI-STEM TREES)	STD. NO. 3.25

NOTES:

1. MEANT TO PROVIDE GUIDANCE ON STREET TREE PLANTING. REFERENCE SPECIFIC CROSS SECTION FOR PLANTING LOCATION AND WIDTH.
2. 6 FT. PLANTING WIDTH PREFERRED, WHERE POSSIBLE.
3. FOR NEW PLANTING AREAS, REMOVE ALL PAVEMENT, GRAVEL, SUB-BASE, AND CONSTRUCTION DEBRIS BEFORE PREPARING SOIL AND PLANTING TREES.
4. REMOVE COMPACTED SOIL AND ADD 24" NEW TOPSOIL WITH PLANT MIX OR UNCOMPACT AND AMEND TO 24" OF EXISTING SOIL TO MEET TOPSOIL WITH PLANTING MIX STANDARDS FOR TREES.
5. MULCH SHALL NOT BE STACKED AGAINST BASE OF PLANTING.



REVISIONS	
DATE	DESCRIPTION
	07.01.2024

TOWN OF KNIGHTDALE STANDARD DETAILS	STREET TREE PLANTING	STD. NO. 3.26

TOWN CERTIFICATION. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
Administrator

General Notes

No.	Revision/Issue	Date
4	SITE PLAN RESUBMITTAL 3	2025/12/19
3	SITE PLAN RESUBMITTAL 2	2025/10/17
2	SITE PLAN DRAFT	2025/10/07
1	SITE PLAN RESUBMITTAL	2025/09/26

Designed By:
PROSPECT LANDSCAPE ARCHITECTURE, PLLC
227 GLASCOCK STREET
RALEIGH, NC 27604
919-607-0025
JENWAGNERLANDSCAPE@GMAIL.COM
WWW.PROSPECT-LA.COM

PROSPECT LANDSCAPE ARCHITECTURE

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 781 JENNIFER L. WAGNER

12/19/2025

Project/Client:
TBM PARTNERS

THE COLLECTION RESIDENTIAL

614 KEITH STREET
KNIGHTDALE, NC

Project	Sheet
THE COLLECTION	STANDARD PLANTING DETAILS
Date: 2025/12/19	L402
Scale	