DEVELOPER/ APPLICANT

ASHBURY & THE HOLDING
COMPANY L.L.C.

PO BOX 90427
RALEIGH, NC 27675-0427
(919) 741-7993

Contact: TOM QUACKENBUSH
TOM@GLENWOODHOMES.COM

CIVIL ENGINEER

Rivers & Associates, Inc.

353 E. Six Forks Rd.
Raleigh, NC 27609
(919) 594-1626

Contact: Stephen Ballentine, PE
sballentine@riversandassociates.com

SURVEYOR

RESIDENTIAL LAND
SERVICES, PLLC.

1917 EVANS ROAD
CARY NC 27513
(919) 378-9316

Contact: Dean M. Rhoads
dean@rls-nc.com

LAND USE ATTORNEY

MATTOX LAW FIRM

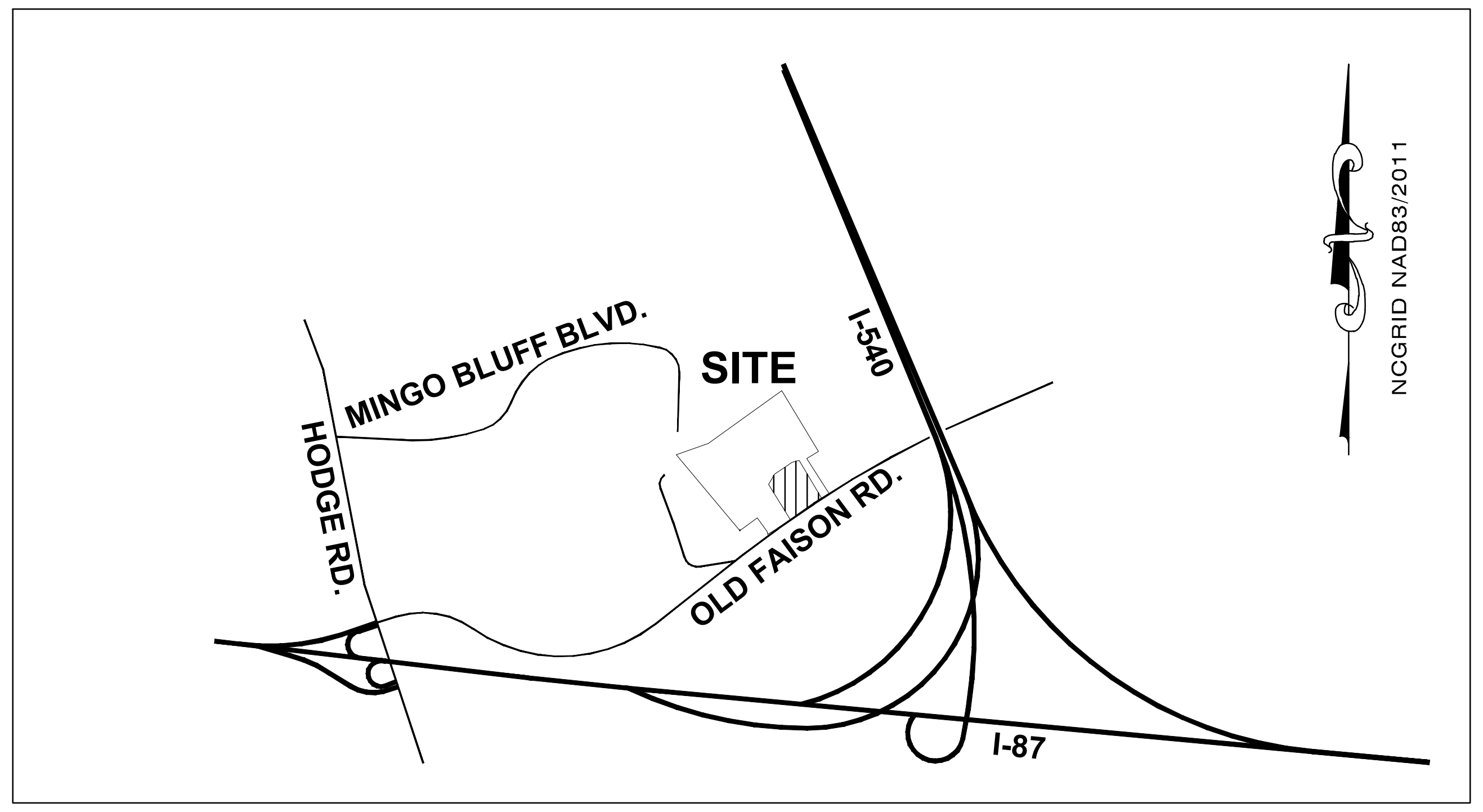
127 W HARGETT STREET STE #500
RALEIGH, NC 27601
(919) 828-7171

Contact: Isabel Mattox
isabel@mattoxlawfirm.com

OLD FAISON PLACE

OLD FAISON ROAD, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA 27545

CONSTRUCTION DRAWINGS (REF. MASTER PLAN #ZMA-1-24)



VICINITY MAP
N.T.S.

SITE DATA

Subdivision Name	Old Faison Place
PIN #'S	1743463116 / 1743466606
Project Area	20.78 Acres
OLD FAISON RD R/W Dedication	0.03 Acres
Project Area After R/W Dedication	20.75 Acres
Current Zoning	GR8 (Medium Density)
Proposed Zoning	GR8 PUD
Adjacent Zoning	North- UR12 (Urban Residential 12) Townhomes South- RT (Rural Transition) Single Family Residential East- GR8 (Single Family Residential) West- RT (Rural Transition) Single Family Residential
River Basin	Neuse
Watershed	Property is not within a water supply watershed
Land Use:	
Current	Vacant
Proposed	Residential- Single-Family and Townhomes
Dwelling Units:	
Single Family	23
Townhomes	94
Total DU's	117
Proposed Density	5.65 DU/AC
PROP ONSITE IMPERVIOUS	431,254 SF = 9.90 AC = 47.8%
PROP OFFSITE IMPERVIOUS	15,948 AF = 0.37 AC
TOTAL DISTURBED AREA	942,751 SF = 21.65 AC

NOTES:

Survey performed by Residential Land Services, PLLC

Description of existing natural resources:

- There are no wetlands onsite. There are some offsite wetlands to the east on the neighbor's
- There is an existing pond in the middle of the site, which will be removed.
- There is a riparian stream buffer at the east edge of the property.

Description of Stormwater Management:

- This project includes one proposed wet detention pond in the northeast corner of the property as shown. Stormwater discharges towards the northeast.
- Offsite stormwater enters the property from the north, west, and south.
- This project will retain the pre-existing drainage patterns.

Sheet List Table

Sheet Number	Sheet Title
C1.01	COVER SHEET
C1.21	EXISTING CONDITIONS & ENVIRONMENTAL PLAN
C2.01	SITE PLAN
C2.11	OPEN SPACE PLAN
C2.51	SITE DETAILS
C2.52	SITE DETAILS
C2.53	SITE DETAILS
C3.01	UTILITY PLAN
C3.02	SANITARY SEWER OUTFALL
C3.41	WATER DETAILS
C3.42	WATER DETAILS
C3.51	SANITARY SEWER DETAILS
C3.52	SANITARY SEWER DETAILS
C4.01	GRADING PLAN
C4.01A	STORM PIPES AND STRUCTURES TABLES
C4.02	MINGO BLUFF BLVD PLAN AND PROFILE
C4.03	MINGO BLUFF BLVD PLAN AND PROFILE
C4.04	SIMONTON ST PLAN AND PROFILE
C4.05	SIMONTON ST PLAN AND PROFILE
C4.06	WHITEHEAD ST PLAN AND PROFILE
C4.07	EATON ALLEY PLAN AND PROFILE
C4.08	DUVAL ALLEY & SOUTHARD ALLEY PLAN AND PROFILE
C4.09	TRUMAN ALLEY PLAN AND PROFILE
C4.10	TRUMAN ALLEY PLAN AND PROFILE
C4.31	WET POND AND STORMWATER MANAGEMENT PLAN
C6.01	OLD FAISON ROAD WIDENING PLAN
C6.02	OLD FAISON ROAD WIDENING DETAILS
C6.31	SIGNS & PAVEMENT MARKING PLAN
L1.01	LANDSCAPE PLAN
L1.11	LANDSCAPE PLAN SOUTHEAST ENLARGEMENT
L1.12	LANDSCAPE PLAN NORTHWEST ENLARGEMENTS
L2.21	LANDSCAPE DETAILS & NOTES
C5.01	EROSION CONTROL PLAN - STAGE 1
C5.02	EROSION CONTROL PLAN - STAGE 2
C5.03	EROSION CONTROL PLAN - STAGE 3
C5.21	EROSION CONTROL DETAILS
C5.22	EROSION CONTROL DETAILS
C5.23	EROSION CONTROL DETAILS
C5.24	EROSION CONTROL DETAILS

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WWW.NC811.ORG
N.C. ONE-CALL CENTER
IT'S THE LAW!

REVIEW NAME	REVIEW #
CITY OF RALEIGH PUBLIC UTILITY REVIEW	TBD
WAKE COUNTY STORM & ESC REVIEW	TBD
NCDOT - ENCROACHMENT - UTILITY	TBD
- ENCROACHMENT - NON-UTILITY	TBD
- STREET TREE APPROVAL	TBD

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH TOWN OF KNIGHTDALE, CITY OF RALEIGH PUBLIC UTILITIES DEPT., WAKE COUNTY, NCDOT & NCDEQ STANDARDS, SPECIFICATIONS AND DETAILS.

RALEIGH WATER CONDITIONS OF APPROVAL :

- ALL WATER, SANITARY SEWER AND REUSE FACILITIES SHALL BE INSTALLED, INSPECTED, TESTED, AND ACCEPTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT FOR OPERATIONS AND MAINTENANCE PRIOR TO 1ST CO
- A PETITION FOR ANNEXATION INTO THE CITY LIMITS SHALL BE SUBMITTED IN ACCORDANCE WITH CITY COUNCIL POLICY FOR EXTENSION OF UTILITY SERVICE TO PROPERTIES CURRENTLY OUTSIDE OF THE CITY LIMITS PRIOR TO PLAT RECORDATION
- CONSTRUCTION DRAWINGS MUST BE APPROVED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT FOR ALL PUBLIC WATER, PUBLIC SEWER AND/OR PRIVATE SEWER EXTENSIONS PRIOR TO PLAT RECORDATION.
- A PLAT MUST BE RECORDED AT THE WAKE COUNTY REGISTER OF DEEDS OFFICE FOR ALL UTILITY EASEMENT DEDICATIONS PRIOR TO BUILDING PERMIT ISSUANCE
- A DOWNSTREAM SEWER CAPACITY STUDY IN COMPLIANCE WITH CORPUD HANDBOOK SHALL BE SUBMITTED BY THE PROJECT ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION DRAWING APPROVAL
- A DEED SHALL BE RECORDED PRIOR TO CONSTRUCTION DRAWING APPROVAL FOR ALL NECESSARY OFFSITE CITY OF RALEIGH SANITARY SEWER EASEMENTS TO ACCOMMODATE FUTURE SEWER LINE CONSTRUCTION

ATTENTION CONTRACTORS

The Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Public Utilities Inspector at 919-996-3245 or https://cityworks.raleighnc.gov/pucontractors/New and schedule a Pre-construction meeting prior to beginning any construction.
Raleigh Water must be contacted at (919) 996-4540 at least twenty-four hours prior to beginning any work activity around critical water and sewer infrastructure.

Failure to notify the Divisions 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.

EROSION AND SEDIMENT CONTROL
APPROVED PLAN
DATE: ____________________
PERMIT NO. SEC-____-____
Town of Knightdale Public Works
Sedimentation & Erosion Control
(919) 217-2250

KNIGHTDALE
____
Town of Knightdale Construction Inspector Signature

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.

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, _________________, 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 these drawings.
Seal By: ___________________, PE
Date: _________________

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: _______________
Land Use Administrator

Rivers
& ASSOCIATES, INC.
riversandassociates.com
Since 1918

353 EAST SIX FORKS ROAD
SUITE 230
RALEIGH, NC 27609
(919)594-1626

Engineers
Planners
Surveyors
Landscape Architects

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers
& ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493
STEPHEN J. BALLENTINE

Stephen Ballentine
Digitally signed by Stephen Ballentine
DN: C=US, E=sballentine@riversandassociates.com, O=Rivers and Associates, OU=Rivers and Associates, CN=Stephen Ballentine
Date: 2026.07.07 11:36:57-04'00'

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

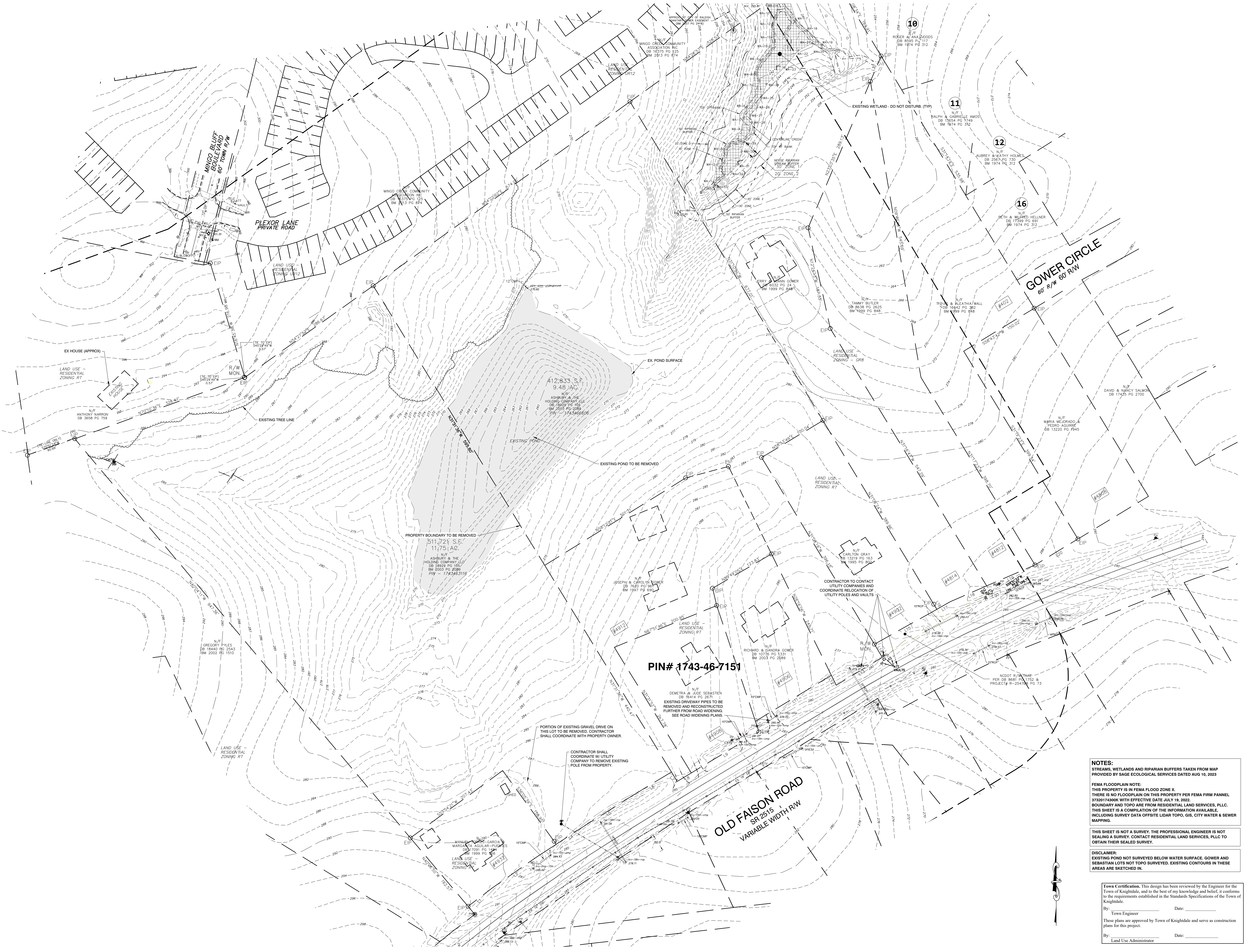
COVER SHEET

DATE:	
DESIGNED BY:	CHK
DRAWN BY:	CHK
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN

SHEET No.
C1.01

R:\LANDDEV\GLENWOOD_HOMES-OLD_FAISON_PLACE-2022113\CADD_DWG\SHEETS - CD SET\C1.01 COVER SHEET.DWG - C1.01 COVER SHEET - 7/2/2026 9:44:06 AM - EDWIN NANCE

Do Not Use for Construction - PRELIMINARY


MINGO BLUFF BOULEVARD
60' TOWN R/W
PLEXOR LANE
PRIVATE ROAD
N/F
MINGO CREEK COMMUNITY ASSOCIATION INC
DB 16375 PG 125
BM 2013 PG 874
LAND USE – RESIDENTIAL ZONING UR12
APPROX. 30' CITY OF RALEIGH SANITARY SEWER EASEMENT (BM 2007 PG 2908)
EX HOUSE (APPROX)
EXISTING HOUSE
LAND USE – RESIDENTIAL ZONING RT
N/F
ANTHONY NARRON
DB 3658 PG 759
R/W MON.
EIP
(TIE TO EIP) S45°29'49"W 0.57'
(TIE-LINE ONLY) S70°51'24"W 90.99'
N70°10'36"E 328.47'
N54°27'52"E 286.67'
N54°22'02"E 574.05'
N16°45'30"W 216.98'
EXISTING TREE LINE
12"CMP
pipe goes underground 270.82
EX. POND SURFACE
412,833 S.F.
9.48 AC.
N/F
ASHBURY & THE HOLDING COMPANY LLC
DB 18929 PG 105
BM 2003 PG 2089
PIN – 1743466606
EXISTING POND
EXISTING POND TO BE REMOVED
N31°31'36"W 595.80'
PROPERTY BOUNDARY TO BE REMOVED
511,721 S.F.
11.75 AC.
N/F
ASHBURY & THE HOLDING COMPANY LLC
DB 18929 PG 105
BM 2003 PG 2089
PIN – 1743463116
N40°04'11"W 947.36'
N/F
GREGORY PYLES
DB 18440 PG 2543
BM 2002 PG 1510
EXISTING WETLAND - DO NOT DISTURB. (TYP)
TOP OF BANK
50' RIPARIAN BUFFER
20' ZONE 2
30' ZONE 1
CENTERLINE CREEK
NEUSE RIPARIAN STREAM BUFFER
N54°28'57"E 325.53'
10
N/F
ROGER & ANA WOODS
DB 8595 PG 117
BM 1974 PG 312
11
N/F
RALPH & GABRIELLE AMOS
DB 13654 PG 1749
BM 1974 PG 312
12
N/F
AUBREY & KATHY HOLMES
DB 2567 PG 730
BM 1974 PG 312
16
N/F
BETH & WILFRED HELLNER
DB 17399 PG 691
BM 1974 PG 312
N23°03'35"E 289.13'
S31°14'19"E 535.98'
N09°40'46"W 545.59'
N31°10'51"W 677.01'
N12°24'13"W 187.33'
N/F
JERRY & JOANN GOWER
DB 6032 PG 24
BM 1999 PG 848
N/F
TAMMY BUTLER
DB 8638 PG 2625
BM 1999 PG 848
N/F
TRAVIS & ALEATHIA WALL
DB 16642 PG 382
BM 1999 PG 848
GOWER CIRCLE
60' R/W 60' R/W
#402
S58°43'42"W 150.02'
LAND USE – RESIDENTIAL ZONING – GR8
N/F
DAVID & NANCY SALMON
DB 17475 PG 2700
N/F
MARIA MEJORADO & PEDRO AGUIRRE
DB 13220 PG 1945
#4808
#4812
#4814
#4902
#4906
#4908
#4912
#4932
N58°12'21"E 301.31'
N59°49'05"E 123.83'
N67°51'46"E 200.95'
N31°08'19"W 396.15'
N31°06'24"W 389.96'
N26°16'06"W 245.71'
N31°31'36"W 440.47'
N31°31'52"W 267.78'
N/F
JOSEPH & CAROLYN GOWER
DB 7620 PG 961
BM 1997 PG 690
N/F
CARLTON GRAY
DB 13219 PG 163
BM 1995 PG 802
N/F
RICHARD & SANDRA GOWER
DB 10776 PG 1331
BM 2003 PG 2089
PIN# 1743-46-7151
N/F
DEMETRA & JUDE SEBASTIEN
DB 16414 PG 2671
EXISTING DRIVEWAY PIPES TO BE REMOVED AND RECONSTRUCTED FURTHER FROM ROAD WIDENING. SEE ROAD WIDENING PLANS.
CONTRACTOR TO CONTACT UTILITY COMPANIES AND COORDINATE RELOCATION OF UTILITY POLES AND VAULTS
ATT VAULTS
NCDOT R/W TAKE PER DB 8681 PG 1752 & PROJECT# R-2547BB PG 73
S58°51'33"W 94.65' (TIE-LINE ONLY)
12.67' EIP TIE
15"RCP
15"CMP
20"RCP
PORTION OF EXISTING GRAVEL DRIVE ON THIS LOT TO BE REMOVED. CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNER.
CONTRACTOR SHALL COORDINATE W/ UTILITY COMPANY TO REMOVE EXISTING POLE FROM PROPERTY.
SHED
S53°54'21"W 207.43'
S36°05'39"E 158.95'
N40°06'50"W 162.57'
N/F
MANUEL TORRES-GARCIA & MARGARITA AGUILAR-PUENTES
DB 17091 PG 1484
BM 1999 PG 566
WELL
EX. 16" DIP
OLD FAISON ROAD
SR 2515
VARIABLE WIDTH R/W

NOTES:

STREAMS, WETLANDS AND RIPARIAN BUFFERS TAKEN FROM MAP PROVIDED BY SAGE ECOLOGICAL SERVICES DATED AUG 10, 2023

FEMA FLOODPLAIN NOTE:
THIS PROPERTY IS IN FEMA FLOOD ZONE X.
THERE IS NO FLOODPLAIN ON THIS PROPERTY PER FEMA FIRM PANNEL 37320174300K WITH EFFECTIVE DATE JULY 19, 2022.
BOUNDARY AND TOPO ARE FROM RESIDENTIAL LAND SERVICES, PLLC.
THIS SHEET IS A COMPILATION OF THE INFORMATION AVAILABLE, INCLUDING SURVEY DATA OFFSITE LIDAR TOPO, GIS, CITY WATER & SEWER MAPPING.

THIS SHEET IS NOT A SURVEY. THE PROFESSIONAL ENGINEER IS NOT SEALING A SURVEY. CONTACT RESIDENTIAL LAND SERVICES, PLLC TO OBTAIN THEIR SEALED SURVEY.

DISCLAIMER:
EXISTING POND NOT SURVEYED BELOW WATER SURFACE. GOWER AND SEBASTIAN LOTS NOT TOPO SURVEYED. EXISTING CONTOURS IN THESE AREAS ARE SKETCHED IN.

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

NORTH CAROLINA PROFESSIONAL SEAL 26493 ENGINEER STEPHEN J. BALLENTINE

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

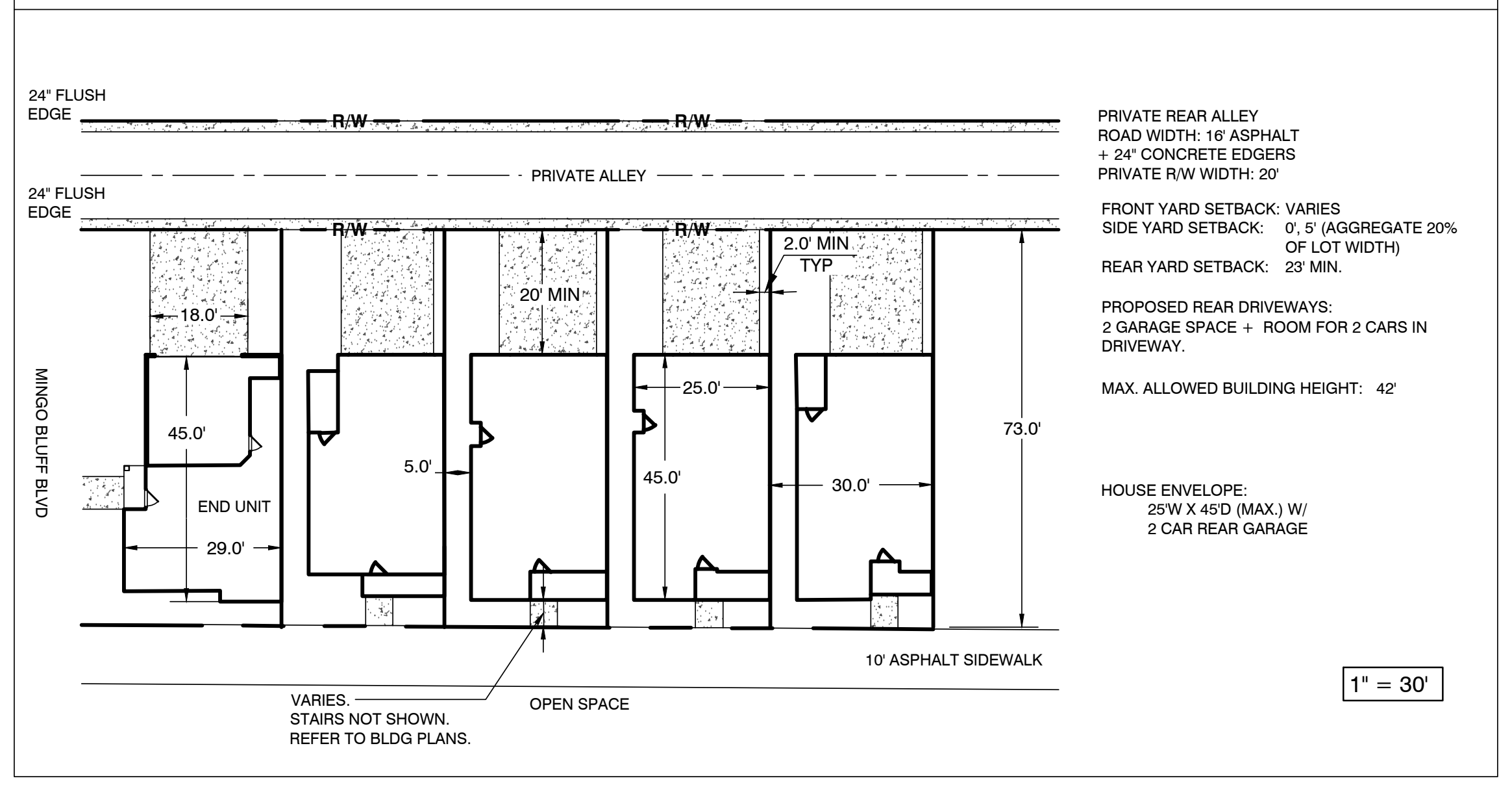
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

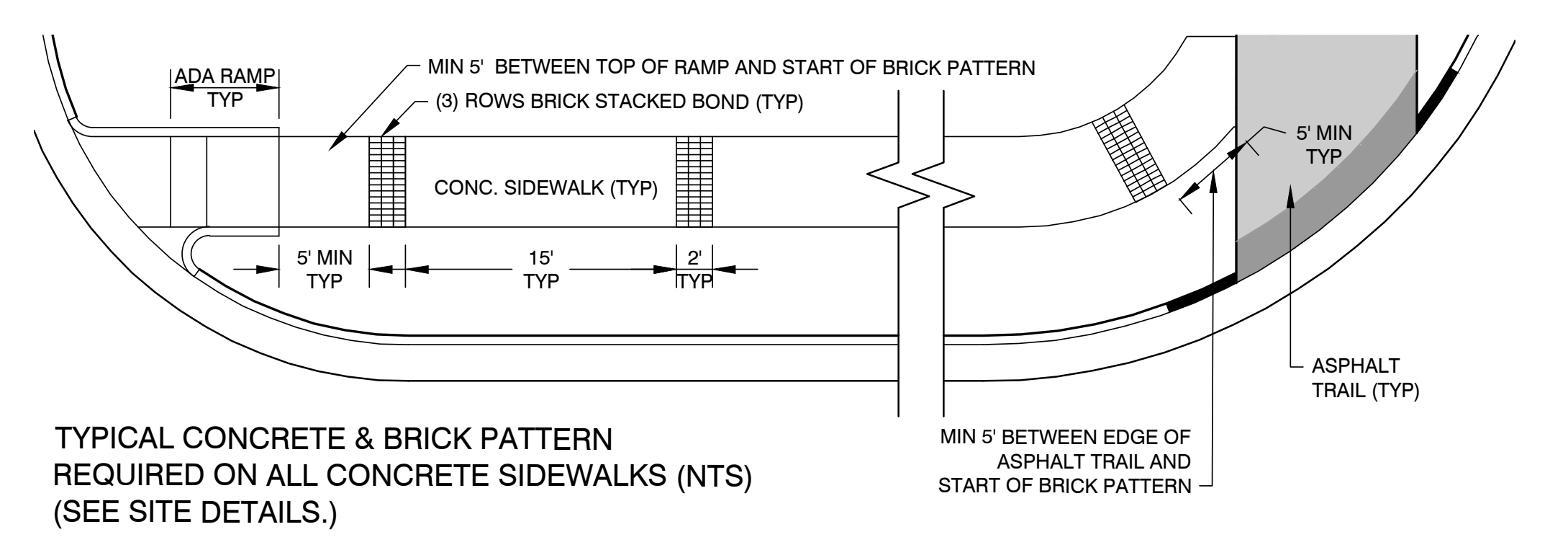
EXISTING CONDITIONS & ENVIRONMENTAL PLAN

DATE:
DESIGNED BY: CS
DRAWN BY: TAH
CHECKED BY: SJB
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.
C1.21

Do Not Use for Construction - PRELIMINARY

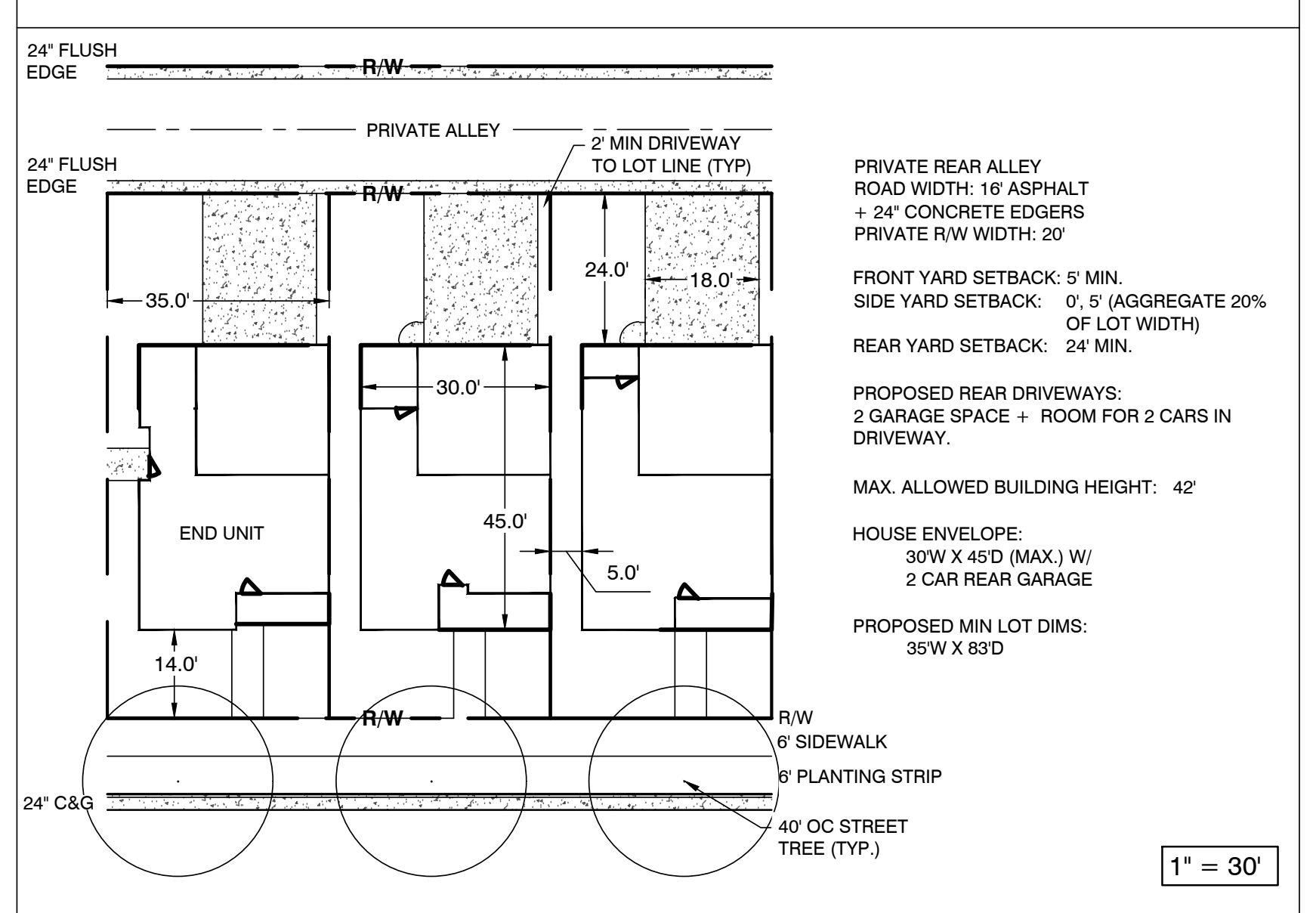
TYPICAL 30' LOT WIDTH CHARLESTON SF HOME + END UNIT


24" FLUSH EDGE
R/W
PRIVATE ALLEY
24" FLUSH EDGE
18.0'
20' MIN
2.0' MIN TYP
25.0'
45.0'
5.0'
END UNIT
29.0'
30.0'
73.0'
MINGO BLUFF BLVD
10' ASPHALT SIDEWALK
VARIES. STAIRS NOT SHOWN. REFER TO BLDG PLANS.
OPEN SPACE
PRIVATE REAR ALLEY
ROAD WIDTH: 16' ASPHALT
+ 24" CONCRETE EDGERS
PRIVATE R/W WIDTH: 20'
FRONT YARD SETBACK: VARIES
SIDE YARD SETBACK: 0', 5' (AGGREGATE 20% OF LOT WIDTH)
REAR YARD SETBACK: 23' MIN.
PROPOSED REAR DRIVEWAYS:
2 GARAGE SPACE + ROOM FOR 2 CARS IN DRIVEWAY.
MAX. ALLOWED BUILDING HEIGHT: 42'
HOUSE ENVELOPE:
25'W X 45'D (MAX.) W/
2 CAR REAR GARAGE
1" = 30'

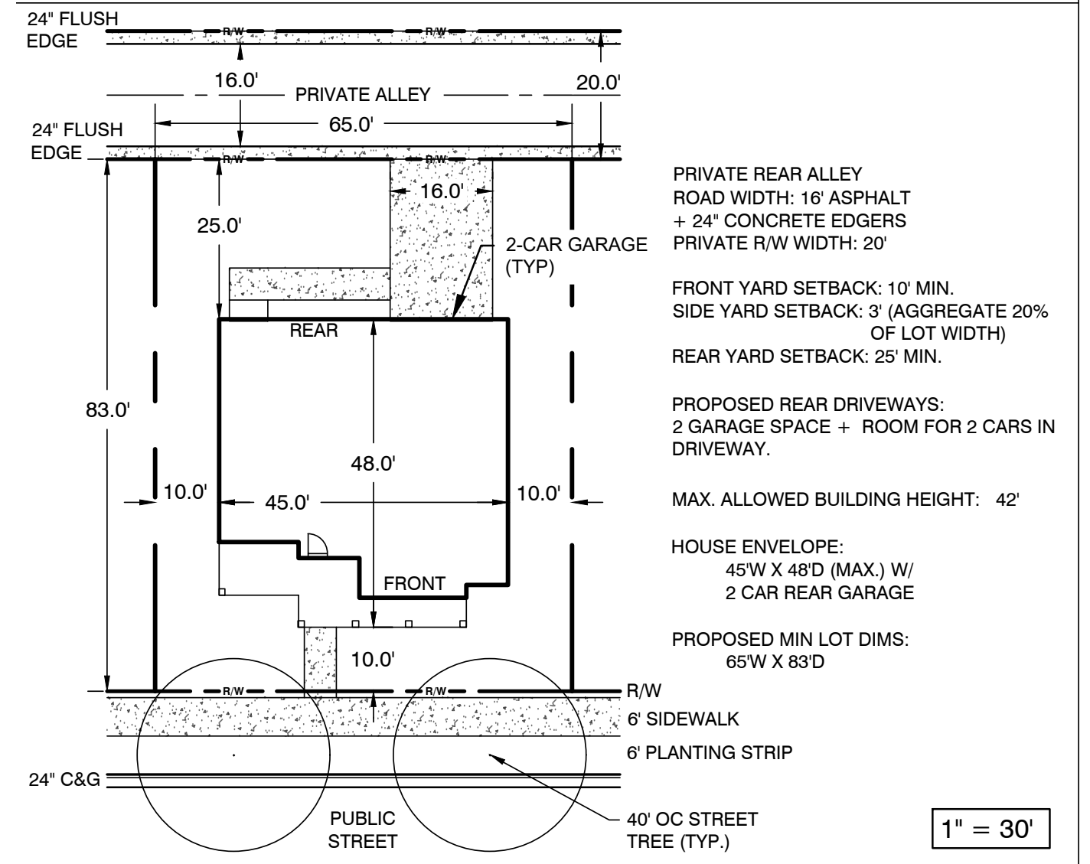

ADA RAMP TYP
MIN 5' BETWEEN TOP OF RAMP AND START OF BRICK PATTERN
(3) ROWS BRICK STACKED BOND (TYP)
CONC. SIDEWALK (TYP)
5' MIN TYP
15' TYP
2' TYP
5' MIN TYP
ASPHALT TRAIL (TYP)
MIN 5' BETWEEN EDGE OF ASPHALT TRAIL AND START OF BRICK PATTERN

TYPICAL CONCRETE & BRICK PATTERN
REQUIRED ON ALL CONCRETE SIDEWALKS (NTS)
(SEE SITE DETAILS.)

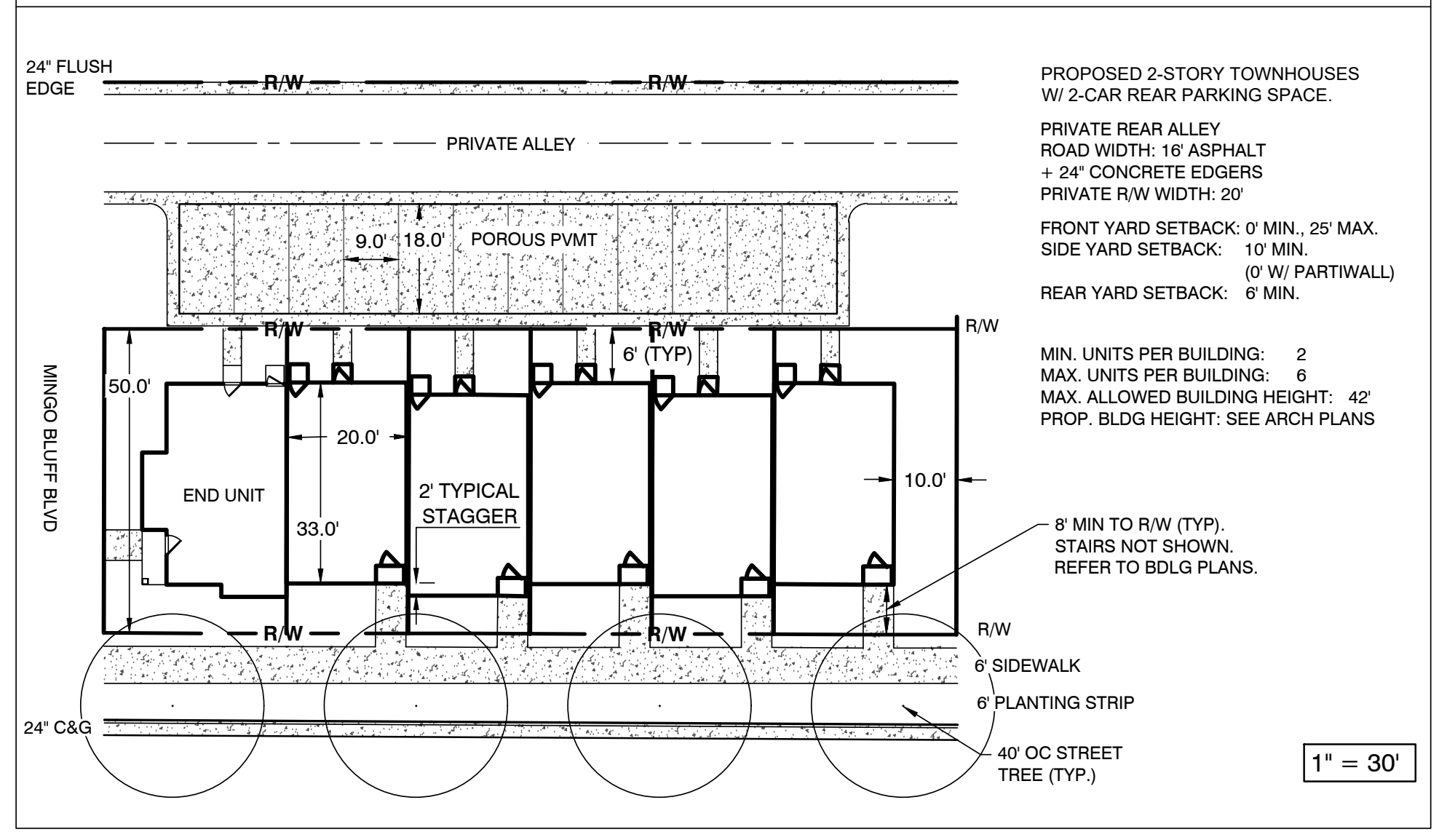
TYPICAL 35' LOT WIDTH CHARLESTON SF HOME + END UNIT


24" FLUSH EDGE
R/W
PRIVATE ALLEY
2' MIN DRIVEWAY TO LOT LINE (TYP)
24" FLUSH EDGE
35.0'
24.0'
18.0'
30.0'
END UNIT
45.0'
5.0'
14.0'
R/W
6' SIDEWALK
6' PLANTING STRIP
24" C&G
40' OC STREET TREE (TYP.)
PRIVATE REAR ALLEY
ROAD WIDTH: 16' ASPHALT
+ 24" CONCRETE EDGERS
PRIVATE R/W WIDTH: 20'
FRONT YARD SETBACK: 5' MIN.
SIDE YARD SETBACK: 0', 5' (AGGREGATE 20% OF LOT WIDTH)
REAR YARD SETBACK: 24' MIN.
PROPOSED REAR DRIVEWAYS:
2 GARAGE SPACE + ROOM FOR 2 CARS IN DRIVEWAY.
MAX. ALLOWED BUILDING HEIGHT: 42'
HOUSE ENVELOPE:
30'W X 45'D (MAX.) W/
2 CAR REAR GARAGE
PROPOSED MIN LOT DIMS:
35'W X 83'D
1" = 30'

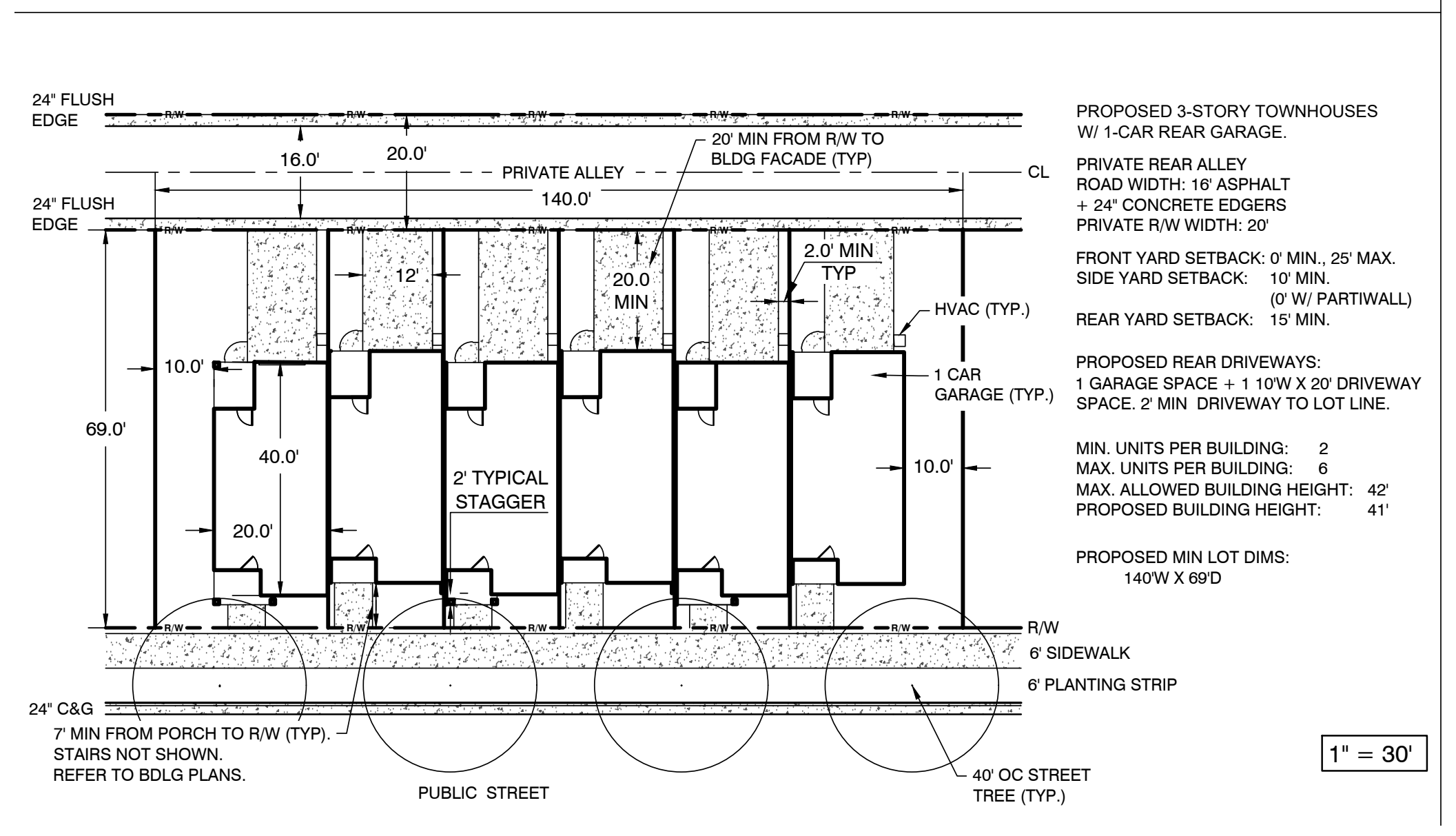
TYPICAL SINGLE FAMILY LOT
(PUBLIC STREET FRONTAGE)


24" FLUSH EDGE
R/W
16.0'
PRIVATE ALLEY
20.0'
65.0'
24" FLUSH EDGE
16.0'
25.0'
2-CAR GARAGE (TYP)
REAR
83.0'
48.0'
10.0'
45.0'
10.0'
FRONT
10.0'
R/W
6' SIDEWALK
6' PLANTING STRIP
24" C&G
PUBLIC STREET
40' OC STREET TREE (TYP.)
PRIVATE REAR ALLEY
ROAD WIDTH: 16' ASPHALT
+ 24" CONCRETE EDGERS
PRIVATE R/W WIDTH: 20'
FRONT YARD SETBACK: 10' MIN.
SIDE YARD SETBACK: 3' (AGGREGATE 20% OF LOT WIDTH)
REAR YARD SETBACK: 25' MIN.
PROPOSED REAR DRIVEWAYS:
2 GARAGE SPACE + ROOM FOR 2 CARS IN DRIVEWAY.
MAX. ALLOWED BUILDING HEIGHT: 42'
HOUSE ENVELOPE:
45'W X 48'D (MAX.) W/
2 CAR REAR GARAGE
PROPOSED MIN LOT DIMS:
65'W X 83'D
1" = 30'

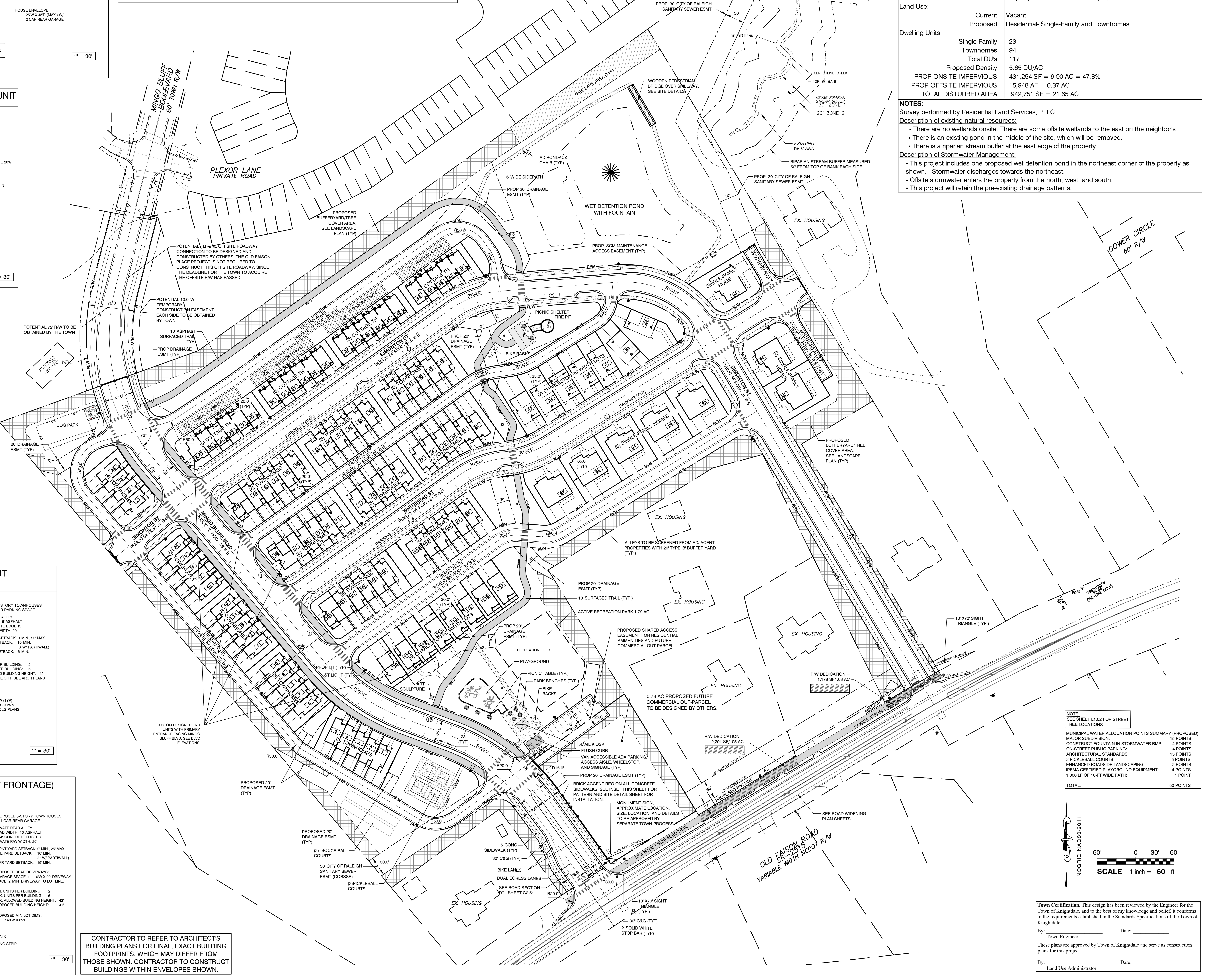
TYPICAL COTTAGE TOWNHOME + END UNIT LAYOUT
(PUBLIC STREET FRONTAGE)


24" FLUSH EDGE
R/W
PRIVATE ALLEY
9.0'
18.0'
POROUS PVMT
6' (TYP)
50.0'
20.0'
END UNIT
33.0'
2' TYPICAL STAGGER
10.0'
MINGO BLUFF BLVD
R/W
6' SIDEWALK
6' PLANTING STRIP
24" C&G
40' OC STREET TREE (TYP.)
8' MIN TO R/W (TYP). STAIRS NOT SHOWN. REFER TO BDLG PLANS.
PROPOSED 2-STORY TOWNHOUSES
W/ 2-CAR REAR PARKING SPACE.
PRIVATE REAR ALLEY
ROAD WIDTH: 16' ASPHALT
+ 24" CONCRETE EDGERS
PRIVATE R/W WIDTH: 20'
FRONT YARD SETBACK: 0' MIN., 25' MAX.
SIDE YARD SETBACK: 10' MIN. (0' W/ PARTIWALL)
REAR YARD SETBACK: 6' MIN.
MIN. UNITS PER BUILDING: 2
MAX. UNITS PER BUILDING: 6
MAX. ALLOWED BUILDING HEIGHT: 42'
PROP. BLDG HEIGHT: SEE ARCH PLANS
1" = 30'

TYPICAL TOWNHOME LAYOUT (PUBLIC STREET FRONTAGE)


24" FLUSH EDGE
R/W
16.0'
20.0'
20' MIN FROM R/W TO BLDG FACADE (TYP)
PRIVATE ALLEY
CL
140.0'
24" FLUSH EDGE
12'
20.0 MIN
2.0' MIN TYP
HVAC (TYP.)
10.0'
1 CAR GARAGE (TYP.)
69.0'
40.0'
2' TYPICAL STAGGER
10.0'
20.0'
R/W
6' SIDEWALK
6' PLANTING STRIP
24" C&G
7' MIN FROM PORCH TO R/W (TYP). STAIRS NOT SHOWN. REFER TO BDLG PLANS.
PUBLIC STREET
40' OC STREET TREE (TYP.)
PROPOSED 3-STORY TOWNHOUSES
W/ 1-CAR REAR GARAGE.
PRIVATE REAR ALLEY
ROAD WIDTH: 16' ASPHALT
+ 24" CONCRETE EDGERS
PRIVATE R/W WIDTH: 20'
FRONT YARD SETBACK: 0' MIN., 25' MAX.
SIDE YARD SETBACK: 10' MIN. (0' W/ PARTIWALL)
REAR YARD SETBACK: 15' MIN.
PROPOSED REAR DRIVEWAYS:
1 GARAGE SPACE + 1 10'W X 20' DRIVEWAY SPACE. 2' MIN DRIVEWAY TO LOT LINE.
MIN. UNITS PER BUILDING: 2
MAX. UNITS PER BUILDING: 6
MAX. ALLOWED BUILDING HEIGHT: 42'
PROPOSED BUILDING HEIGHT: 41'
PROPOSED MIN LOT DIMS:
140'W X 69'D
1" = 30'

CONTRACTOR TO REFER TO ARCHITECT'S BUILDING PLANS FOR FINAL, EXACT BUILDING FOOTPRINTS, WHICH MAY DIFFER FROM THOSE SHOWN. CONTRACTOR TO CONSTRUCT BUILDINGS WITHIN ENVELOPES SHOWN.


EX SANITARY SEWER MANHOLE FROM RECORDED AS-BUILT RIM EL: 260.26 INV IN: 237.56 (FROM MH #6) INV IN: 235.26 INV OUT: 235.06
EX SANITARY SEWER MANHOLE RIM: 254.51' INV: 235.81'
APPROX. 30' CITY OF RALEIGH SANITARY SEWER EASEMENT (BM 2007 PG 2908)
EX 8" DIP
PROP. 30' CITY OF RALEIGH SANITARY SEWER ESMT
TOP OF BANK
CENTERLINE CREEK
NEUSE RIPARIAN STREAM BUFFER
30' ZONE 1
20' ZONE 2
EXISTING WETLAND
RIPARIAN STREAM BUFFER MEASURED 50' FROM TOP OF BANK EACH SIDE
TREE SAVE AREA (TYP)
WOODEN PEDESTRIAN BRIDGE OVER SPILLWAY. SEE SITE DETAILS.
ADIRONDACK CHAIR (TYP)
6' WIDE SIDEPATH
PROP 20' DRAINAGE ESMT (TYP)
WET DETENTION POND WITH FOUNTAIN
PROP. SCM MAINTENANCE ACCESS EASEMENT (TYP)
MINGO BLUFF BOULEVARD 60' TOWN R/W
PLEXOR LANE PRIVATE ROAD
PROPOSED BUFFERYARD/TREE COVER AREA. SEE LANDSCAPE PLAN (TYP)
POTENTIAL FUTURE OFFSITE ROADWAY CONNECTION TO BE DESIGNED AND CONSTRUCTED BY OTHERS. THE OLD FAISON PLACE PROJECT IS NOT REQUIRED TO CONSTRUCT THIS OFFSITE ROADWAY, SINCE THE DEADLINE FOR THE TOWN TO ACQUIRE THE OFFSITE R/W HAS PASSED.
POTENTIAL 10.0' W TEMPORARY CONSTRUCTION EASEMENT EACH SIDE TO BE OBTAINED BY TOWN
POTENTIAL 72' R/W TO BE OBTAINED BY THE TOWN
10' ASPHALT SURFACED TRAIL (TYP)
PROP DRAINAGE ESMT (TYP)
EXISTING HOUSE
WELL
DOG PARK
20' DRAINAGE ESMT (TYP)
TRUMAN ALLEY PRIVATE 20' ROW - 20' B-B
PERVIOUS ASPHALT
(6) COTTAGE TH
(5) COTTAGE TH
SIMONTON ST PUBLIC 54' ROW - 31.5' B-B
(6) TOWNHOMES
(5) TOWNHOMES
(4) TOWNHOMES
PARKING (TYP)
EATON ALLEY PRIVATE 20' ROW - 20' B-B
WHITEHEAD ST PUBLIC 54' ROW - 31.5' B-B
DUVAL ALLEY
MINGO BLUFF BLVD
(9) CHARLESTON 30' WIDTH LOTS
(7) CHARLESTON 35' WIDTH LOTS
(9) SINGLE FAMILY HOMES
(2) SINGLE FAMILY HOMES
SINGLE-FAMILY HOME
SOUTHARD ALLEY
PICNIC SHELTER
FIRE PIT
BIKE RACKS
SINGLE FAMILY HOME
GOWER CIRCLE 60' R/W
EX. HOUSING
PROPOSED BUFFERYARD/TREE COVER AREA. SEE LANDSCAPE PLAN (TYP)
ALLEYS TO BE SCREENED FROM ADJACENT PROPERTIES WITH 20' TYPE 'B' BUFFER YARD (TYP.)
PROP 20' DRAINAGE ESMT (TYP)
10' SURFACED TRAIL (TYP.)
ACTIVE RECREATION PARK 1.79 AC
PROPOSED SHARED ACCESS EASEMENT FOR RESIDENTIAL AMMENITIES AND FUTURE COMMERCIAL OUT-PARCEL
RECREATION FIELD
PLAYGROUND
PICNIC TABLE (TYP.)
PARK BENCHES (TYP.)
BIKE RACKS
ART SCULPTURE
PROP FH (TYP)
ST LIGHT (TYP)
0.78 AC PROPOSED FUTURE COMMERCIAL OUT-PARCEL TO BE DESIGNED BY OTHERS.
R/W DEDICATION = 2,291 SF/ .05 AC
R/W DEDICATION = 1,179 SF/ .03 AC
10' X70' SIGHT TRIANGLE (TYP.)
MAIL KIOSK
FLUSH CURB
VAN ACCESSIBLE ADA PARKING, ACCESS AISLE, WHEELSTOP, AND SIGNAGE (TYP)
PROP 20' DRAINAGE ESMT (TYP)
BRICK ACCENT REQ ON ALL CONCRETE SIDEWALKS. SEE INSET THIS SHEET FOR PATTERN AND SITE DETAIL SHEET FOR INSTALLATION.
MONUMENT SIGN, APPROXIMATE LOCATION. SIZE, LOCATION, AND DETAILS TO BE APPROVED BY SEPARATE TOWN PROCESS.
30' LANDSCAPE ESMT (TYP)
10' DRAINAGE ESMT
PROPOSED R/W LINE
10' ASPHALT SURFACED TRAIL
10' WIDE ASPHALT SURFACED TRAIL
SEE ROAD WIDENING PLAN SHEETS
OLD FAISON ROAD SR-2515 VARIABLE WIDTH NCDOT R/W
CUSTOM DESIGNED END UNITS WITH PRIMARY ENTRANCE FACING MINGO BLUFF BLVD. SEE BLVD ELEVATIONS.
PROPOSED 20' DRAINAGE ESMT (TYP)
(2) BOCCE BALL COURTS
30' CITY OF RALEIGH SANITARY SEWER ESMT (CORSSE)
(2)PICKLEBALL COURTS
5' CONC SIDEWALK (TYP)
30" C&G (TYP)
BIKE LANES
DUAL EGRESS LANES
SEE ROAD SECTION DTL SHEET C2.51
4:1 TAPER TO BOC
10' X70' SIGHT TRIANGLE (TYP.)
30" C&G (TYP)
2' SOLID WHITE STOP BAR (TYP)
PP
NCGRID NAD83/2011
60' 0 30' 60'
SCALE 1 inch = 60 ft

SITE DATA

Subdivision Name	Old Faison Place
PIN #'S	1743463116 / 1743466606
Project Area	20.78 Acres
OLD FAISON RD R/W Dedication	0.03 Acres
Project Area After R/W Dedication	20.75 Acres
Current Zoning	GR8 (Medium Density)
Proposed Zoning	GR8 PUD
Adjacent Zoning	North- UR12 (Urban Residential 12) Townhomes South- RT (Rural Transition) Single Family Residential East- GR8 (Single Family Residential) West- RT (Rural Transition) Single Family Residential
River Basin	Neuse
Watershed	Property is not within a water supply watershed
Land Use:	
Current	Vacant
Proposed	Residential- Single-Family and Townhomes
Dwelling Units:	
Single Family	23
Townhomes	94
Total DU's	117
Proposed Density	5.65 DU/AC
PROP ONSITE IMPERVIOUS	431,254 SF = 9.90 AC = 47.8%
PROP OFFSITE IMPERVIOUS	15,948 AF = 0.37 AC
TOTAL DISTURBED AREA	942,751 SF = 21.65 AC

NOTES:

Survey performed by Residential Land Services, PLLC

Description of existing natural resources:

- There are no wetlands onsite. There are some offsite wetlands to the east on the neighbor's
- There is an existing pond in the middle of the site, which will be removed.
- There is a riparian stream buffer at the east edge of the property.

Description of Stormwater Management:

- This project includes one proposed wet detention pond in the northeast corner of the property as shown. Stormwater discharges towards the northeast.
- Offsite stormwater enters the property from the north, west, and south.
- This project will retain the pre-existing drainage patterns.

NOTE:
SEE SHEET L1.02 FOR STREET TREE LOCATIONS.

MUNICIPAL WATER ALLOCATION POINTS SUMMARY (PROPOSED)	
MAJOR SUBDIVISION:	15 POINTS
CONSTRUCT FOUNTAIN IN STORMWATER BMP:	4 POINTS
ON-STREET PUBLIC PARKING:	4 POINTS
ARCHITECTURAL STANDARDS:	15 POINTS
2 PICKLEBALL COURTS:	5 POINTS
ENHANCED ROADSIDE LANDSCAPING:	2 POINTS
IPEMA CERTIFIED PLAYGROUND EQUIPMENT:	4 POINTS
1,000 LF OF 10-FT WIDE PATH:	1 POINT
TOTAL:	50 POINTS

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

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Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493
STEPHEN J. BALLENTINE

Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

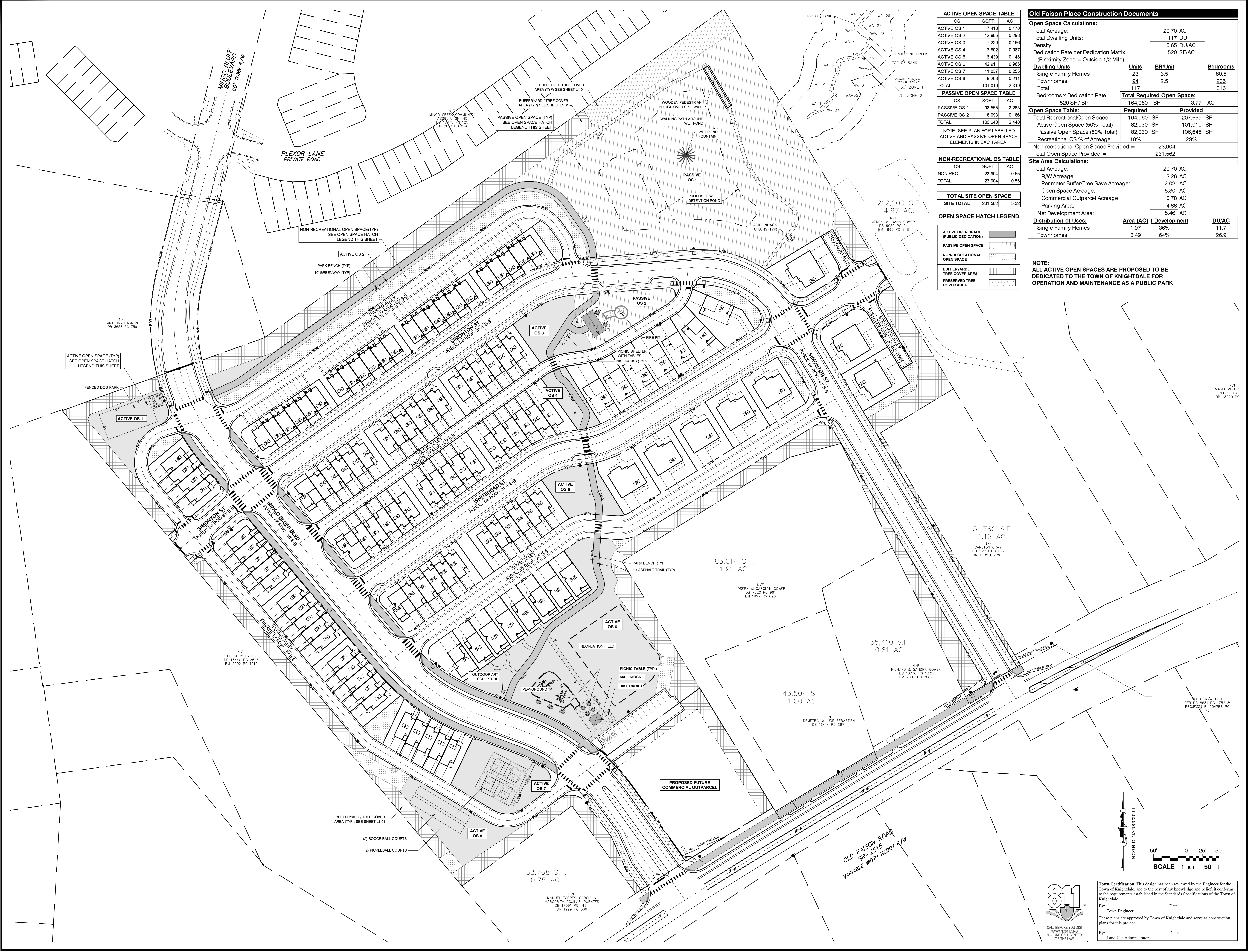
SITE PLAN

DATE:	
DESIGNED BY:	CHK
DRAWN BY:	TAH/CHK
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN

SHEET No.
C2.01

R:\LANDDEV\GLENWOOD_HOMES-OLD_FAISON_PLACE-2022113\CADD_DWG\SHEETS - CD SET\C2.01 SITE PLAN.DWG - MASTER - 7/2/2026 9:44:29 AM - EDWIN NANCE

Do Not Use for Construction - PRELIMINARY


MINGO BLUFF BOULEVARD
60' TOWN R/W
PLEXOR LANE
PRIVATE ROAD
N/F
MINGO CREEK COMMUNITY
ASSOCIATION INC
DB 16375 PG 125
BM 2013 PG 874
PRESERVED TREE COVER AREA (TYP) SEE SHEET L1.01
BUFFERYARD / TREE COVER AREA (TYP) SEE SHEET L1.01
PASSIVE OPEN SPACE (TYP) SEE OPEN SPACE HATCH LEGEND THIS SHEET
NON-RECREATIONAL OPEN SPACE(TYP) SEE OPEN SPACE HATCH LEGEND THIS SHEET
ACTIVE OS 2
PARK BENCH (TYP)
10' GREENWAY (TYP)
N/F
ANTHONY NARRON
DB 3658 PG 759
ACTIVE OPEN SPACE (TYP) SEE OPEN SPACE HATCH LEGEND THIS SHEET
FENCED DOG PARK
ACTIVE OS 1
TRUMAN ALLEY
PRIVATE 20' ROW - 20' B-B
SIMONTON ST
PUBLIC 54' ROW - 31.5' B-B
ACTIVE OS 3
ACTIVE OS 4
EATON ALLEY
PRIVATE 20' ROW - 20' B-B
WOODEN PEDESTRIAN BRIDGE OVER SPILLWAY
WALKING PATH AROUND WET POND
WET POND FOUNTAIN
PASSIVE OS 1
PROPOSED WET DETENTION POND
ADIRONDACK CHAIRS (TYP)
PASSIVE OS 2
FIRE PIT
PICNIC SHELTER WITH TABLES
BIKE RACKS (TYP)
TOP OF BANK
CENTERLINE CREEK
NEUSE RIPARIAN STREAM BUFFER
30' ZONE 1
20' ZONE 2
WA-1
WA-2
WA-3
WA-4
WA-5
WA-6
WA-26
WA-27
WA-28
WA-29
WA-30
WA-31
WA-32
WA-33
212,200 S.F.
4.87 AC.
N/F
JERRY & JOANN GOWER
DB 6032 PG 24
BM 1999 PG 848
SOUTHARD ALLEY
PUBLIC 20' ROW - 20' B-B (TYP)
N/F
MARIA MEJOR
PEDRO AGU
DB 13220 PG
SIMONTON ST
PUBLIC 54' ROW - 31' B-B
MINGO BLUFF BLVD
PUBLIC 72' ROW - 38' B-B
WHITEHEAD ST
PUBLIC 54' ROW - 31.5' B-B
ACTIVE OS 5
DUVAL ALLEY
PUBLIC 36' ROW - 20' B-B
PARK BENCH (TYP)
10' ASPHALT TRAIL (TYP)
83,014 S.F.
1.91 AC.
N/F
JOSEPH & CAROLYN GOWER
DB 7620 PG 961
BM 1997 PG 690
51,760 S.F.
1.19 AC.
N/F
CARLTON GRAY
DB 13219 PG 163
BM 1995 PG 802
ACTIVE OS 6
RECREATION FIELD
OUTDOOR ART SCULPTURE
PLAYGROUND
PICNIC TABLE (TYP.)
MAIL KIOSK
BIKE RACKS
35,410 S.F.
0.81 AC.
N/F
RICHARD & SANDRA GOWER
DB 10776 PG 1331
BM 2003 PG 2089
43,504 S.F.
1.00 AC.
N/F
DEMETRA & JUDE SEBASTIEN
DB 16414 PG 2671
N/F
GREGORY PYLES
DB 18440 PG 2543
BM 2002 PG 1510
TRUMAN ALLEY
PRIVATE 20' ROW - 20' B-B
ACTIVE OS 7
ACTIVE OS 8
BUFFERYARD / TREE COVER AREA (TYP). SEE SHEET L1.01
(2) BOCCE BALL COURTS
(2) PICKLEBALL COURTS
PROPOSED FUTURE COMMERCIAL OUTPARCEL
10'x70' SIGHT TRIANGLE
4:1 TAPER TO BOC
NCDOT R/W TAKE PER DB 8681 PG 1752 & PROJECT# R-2547BB PG 73
32,768 S.F.
0.75 AC.
N/F
MANUEL TORRES-GARCIA &
MARGARITA AGUILAR-PUENTES
DB 17091 PG 1484
BM 1999 PG 566
OLD FAISON ROAD
SR-2515
VARIABLE WIDTH NCDOT R/W
NCGRID NAD83/2011
R/W

ACTIVE OPEN SPACE TABLE		
OS	SQFT	AC
ACTIVE OS 1	7,418	0.170
ACTIVE OS 2	12,965	0.298
ACTIVE OS 3	7,229	0.166
ACTIVE OS 4	3,802	0.087
ACTIVE OS 5	6,439	0.148
ACTIVE OS 6	42,911	0.985
ACTIVE OS 7	11,037	0.253
ACTIVE OS 8	9,208	0.211
TOTAL	101,010	2.319

PASSIVE OPEN SPACE TABLE		
OS	SQFT	AC
PASSIVE OS 1	98,555	2.263
PASSIVE OS 2	8,093	0.186
TOTAL	106,648	2.448

NOTE: SEE PLAN FOR LABELLED ACTIVE AND PASSIVE OPEN SPACE ELEMENTS IN EACH AREA.

NON-RECREATIONAL OS TABLE		
OS	SQFT	AC
NON-REC	23,904	0.55
TOTAL	23,904	0.55

TOTAL SITE OPEN SPACE		
SITE TOTAL	231,562	5.32

OPEN SPACE HATCH LEGEND

ACTIVE OPEN SPACE (PUBLIC DEDICATION)	▒
PASSIVE OPEN SPACE	▨
NON-RECREATIONAL OPEN SPACE	░
BUFFERYARD / TREE COVER AREA	▦
PRESERVED TREE COVER AREA	▨

Old Faison Place Construction Documents

Open Space Calculations:

Total Acreage:	20.70 AC		
Total Dwelling Units:	117 DU		
Density:	5.65 DU/AC		
Dedication Rate per Dedication Matrix:	520 SF/AC		
(Proximity Zone = Outside 1/2 Mile)			
Dwelling Units	**Units**	**BR/Unit**	**Bedrooms**
Single Family Homes	23	3.5	80.5
Townhomes	94	2.5	235
Total	117		316

Bedrooms x Dedication Rate =
520 SF / BR

Total Required Open Space:
164,060 SF 3.77 AC

Open Space Table:	**Required**	**Provided**
Total RecreationalOpen Space	164,060 SF	207,659 SF
Active Open Space (50% Total)	82,030 SF	101,010 SF
Passive Open Space (50% Total)	82,030 SF	106,648 SF
Recreational OS % of Acreage	18%	23%

Non-recreational Open Space Provided = 23,904
Total Open Space Provided = 231,562

Site Area Calculations:

Total Acreage:	20.70 AC
R/W Acreage:	2.26 AC
Perimeter Buffer/Tree Save Acreage:	2.02 AC
Open Space Acreage:	5.30 AC
Commercial Outparcel Acreage:	0.78 AC
Parking Area:	4.88 AC
Net Development Area:	5.46 AC

Distribution of Uses:	**Area (AC)**	**f Development**	**DU/AC**
Single Family Homes	1.97	36%	11.7
Townhomes	3.49	64%	26.9

NOTE:
ALL ACTIVE OPEN SPACES ARE PROPOSED TO BE DEDICATED TO THE TOWN OF KNIGHTDALE FOR OPERATION AND MAINTENANCE AS A PUBLIC PARK

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493
STEPHEN J. BALLENTINE

Stephen Ballentine
Digitally signed by Stephen Ballentine
DN: C=US, E=sballentine@riversandassociates.com, O=Rivers and Associates, OU=Rivers and Associates, CN=Stephen Ballentine
Date: 2026.07.07 11:37:01-04'00'

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

OPEN SPACE PLAN

50' 0 25' 50'
SCALE 1 inch = **50** ft

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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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

DATE:	
DESIGNED BY:	CHK
DRAWN BY:	TAH/CHK
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	**C2.11**

Do Not Use for Construction - PRELIMINARY

MINIMUM PAVEMENT DESIGN:

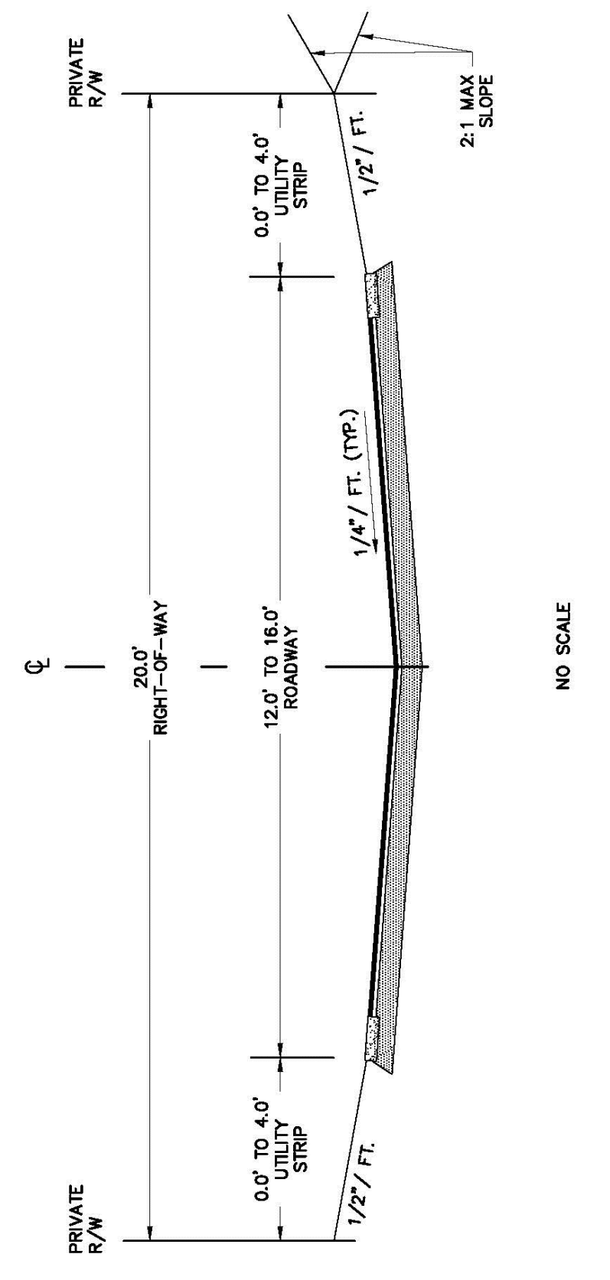
BITUMINOUS SURFACE COURSE: 2-½" S 9.5A
BASE COURSE: 8" ABC

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

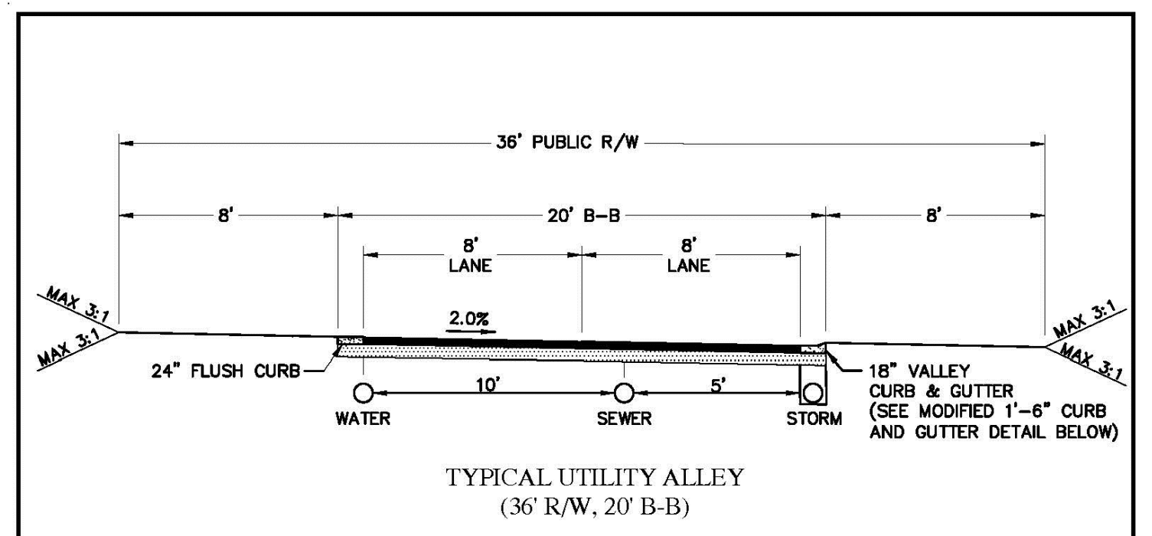

PRIVATE R/W
0.0' TO 4.0' UTILITY STRIP
1/2"/ FT.
2:1 MAX SLOPE
1/4"/ FT. (TYP.)
℄
20.0' RIGHT-OF-WAY
12.0' TO 16.0' ROADWAY
NO SCALE
0.0' TO 4.0' UTILITY STRIP
1/2"/ FT.
PRIVATE R/W

REVISIONS	
DATE	DESCRIPTION

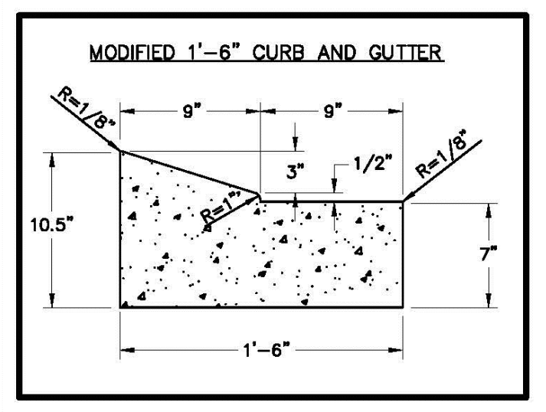
TOWN OF KNIGHTDALE
STANDARD DETAILS

ALLEY SECTION

STD. NO. 3.01-1


36' PUBLIC R/W
8'
20' B-B
8'
8' LANE
8' LANE
MAX 3:1
MAX 3:1
2.0%
24" FLUSH CURB
10'
5'
WATER
SEWER
STORM
18" VALLEY CURB & GUTTER (SEE MODIFIED 1'-6" CURB AND GUTTER DETAIL BELOW)
MAX 3:1
MAX 3:1

TYPICAL UTILITY ALLEY
(36' R/W, 20' B-B)


MODIFIED 1'-6" CURB AND GUTTER
R=1/8"
9"
9"
3"
1/2"
R=1/8"
R=1"
10.5"
7"
1'-6"

MINIMUM PAVEMENT DESIGN:

BITUMINOUS SURFACE COURSE: 1 1/2" S9.5B
INTERMEDIATE COURSE: 2 1/2" I 19.0B
BASE COURSE: 8" ABC

STREET FEATURES:

STREET WIDTH 16 FT. MINIMUM
REQUIRES 36 FT. OF RIGHT-OF-WAY
AVERAGE SPEED 10 MPH

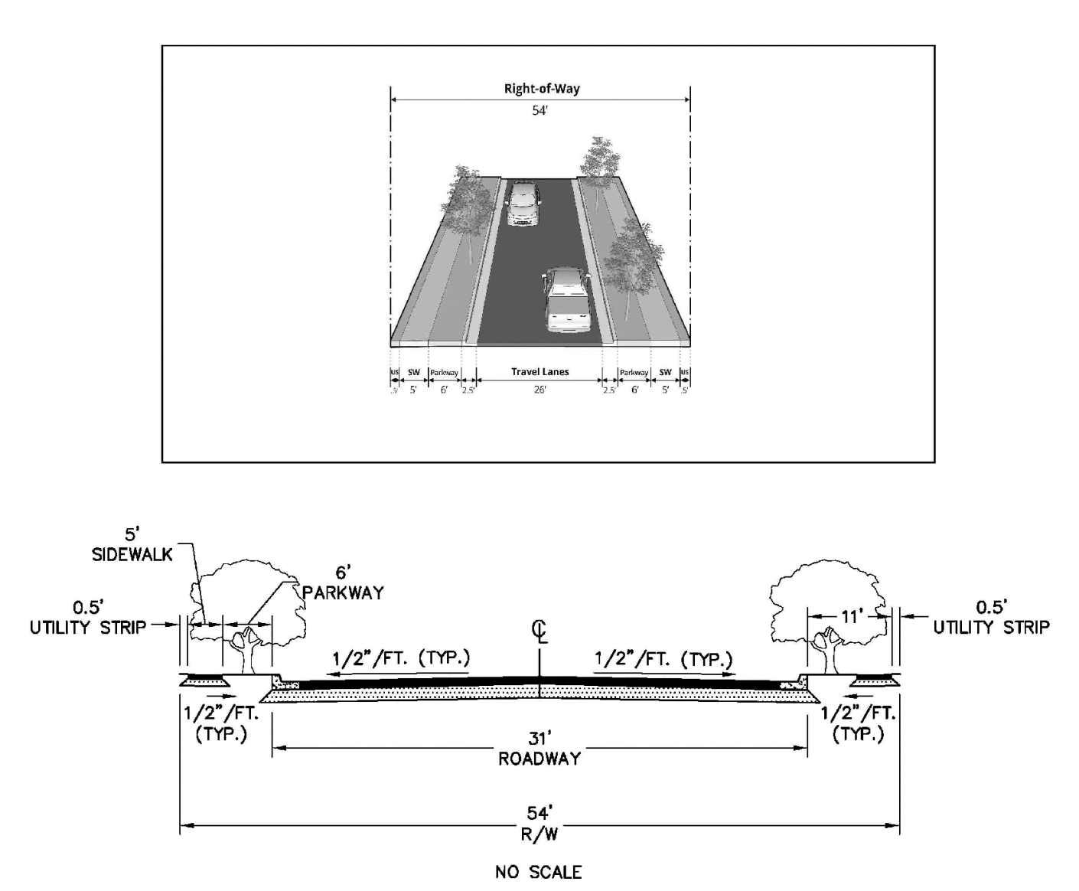
REVISIONS	
DATE	DESCRIPTION

1 of 1

TOWN OF KNIGHTDALE
STANDARD DETAILS

PUBLIC ALLEY SECTION

STD. NO. 3.01-2


Right-of-Way
5' SIDEWALK
6' PARKWAY
0.5' UTILITY STRIP
11'
0.5' UTILITY STRIP
℄
1/2"/FT. (TYP.)
1/2"/FT. (TYP.)
1/2"/FT. (TYP.)
1/2"/FT. (TYP.)
31' ROADWAY
54' R/W
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:

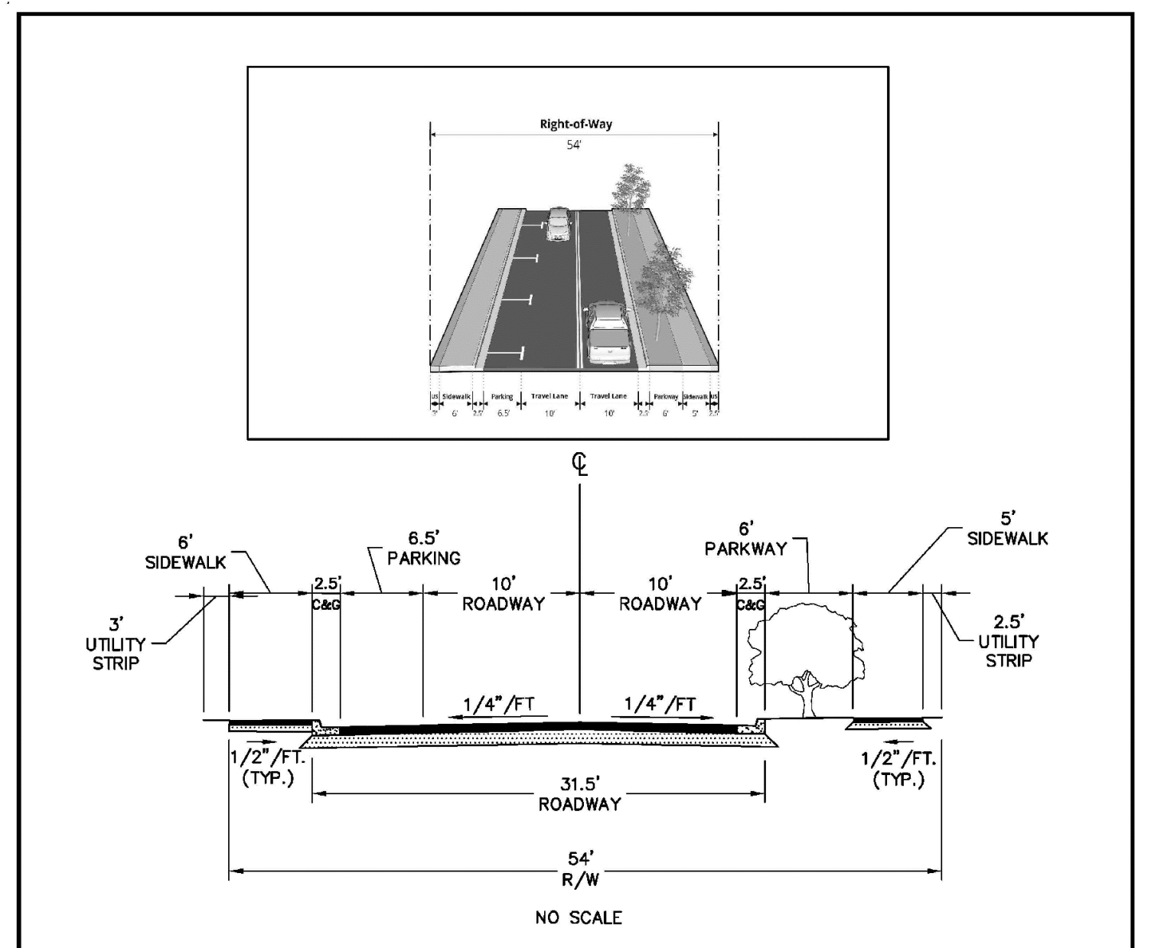
FLEXIBLE STREET DESIGN
COORDINATE STREET DESIGN ELEMENTS WITH TOWN STAFF
STREET WIDTH OF 20 FT. FOR ONE-WAY
STREET WIDTH OF 31 FT. FOR TWO-WAY
CURB & GUTTER
INFORMAL PARKING – ONE SIDE ONLY
PARKWAY – 6 FT. ON EACH SIDE
SIDEWALK – 5 FT. ON EACH SIDE
UTILITY STRIP – 0.5 FT. ON EACH SIDE
REQUIRES 47 FT. 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

TOWN OF KNIGHTDALE
STANDARD DETAILS

LOCAL STREET - 2 LANES
SIDEWALKS

STD. NO. 3.02-1


Right-of-Way
5' SIDEWALK
6.5' PARKING
3' UTILITY STRIP
10' ROADWAY
10' ROADWAY
6' PARKWAY
5' SIDEWALK
2.5' UTILITY STRIP
℄
1/4"/FT
1/4"/FT
1/2"/FT. (TYP.)
1/2"/FT. (TYP.)
31.5' ROADWAY
54' R/W
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:

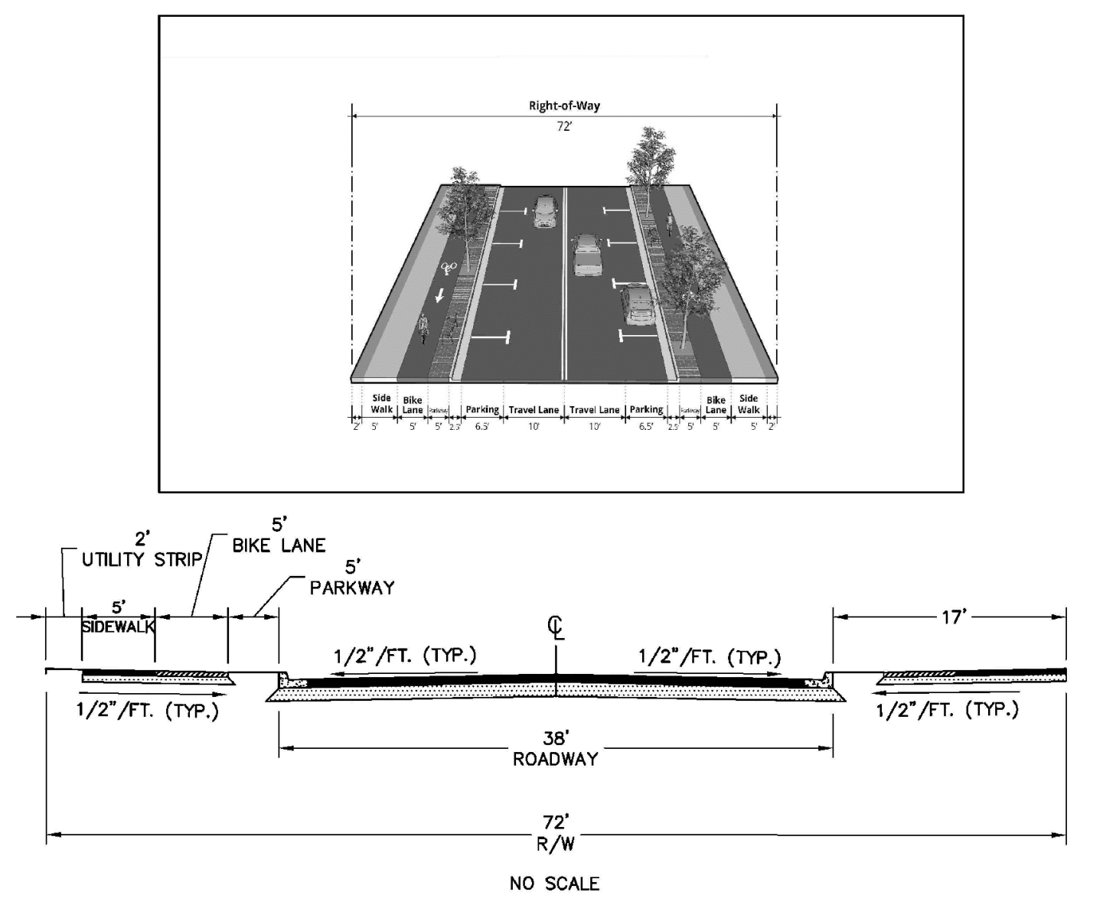
FLEXIBLE STREET DESIGN
COORDINATE STREET DESIGN ELEMENTS WITH TOWN STAFF
TRAVEL LANES OF 10 FT.
CURB & GUTTER
STRIPED PARALLEL PARKING – ONE SIDE ONLY
PARKWAY – 6 FT. ON ONE SIDE
SIDEWALK – 6 FT. ON PARKING SIDE; 5 FT. ON OPPOSING SIDE
REQUIRES 54 FT. OF RIGHT-OF-WAY
UTILITY LOCATION UNDERGROUND
AVERAGE 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


Right-of-Way
2' UTILITY STRIP
5' BIKE LANE
5' PARKWAY
SIDEWALK
17'
℄
1/2"/FT. (TYP.)
1/2"/FT. (TYP.)
1/2"/FT. (TYP.)
1/2"/FT. (TYP.)
38' ROADWAY
72' R/W
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:

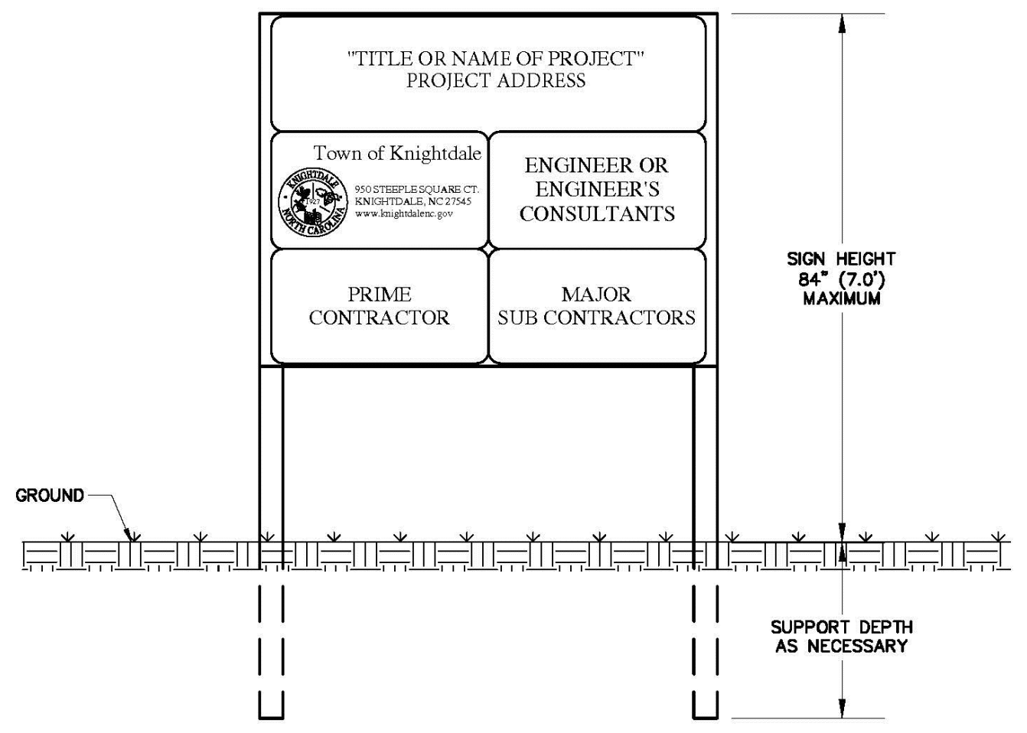
TRAVEL LANES OF 10 FT.
CURB & GUTTER
STRIPED PARALLEL PARKING
PARKWAY – 5 FT. ON EACH SIDE
SIDEWALKS – 5 FT. ON EACH SIDE
UTILITY LOCATION UNDERGROUND OR ALLEY
STREET TREES LOCATED IN PARKWAY
UTILITY LOCATION BEHIND CURB ON NCDOT FACILITIES
BICYCLE FACILITY PAVEMENT MARKINGS SHALL ADHERE TO MUTCD STANDARDS
AVERAGE SPEED 20–25 MPH
PROVIDE ELEMENTS PER URBAN STREETSCAPE DESIGN FEATURES DETAIL

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE
STANDARD DETAILS

URBAN MAIN STREET - 2 LANES
SEPARATED BIKE LANES (ABOVE THE CURB)

STD. NO. 3.04-1


"TITLE OR NAME OF PROJECT"
PROJECT ADDRESS
Town of Knightdale
950 STEEPLE SQUARE CT.
KNIGHTDALE, NC 27545
www.knightdalenc.gov
ENGINEER OR ENGINEER'S CONSULTANTS
PRIME CONTRACTOR
MAJOR SUB CONTRACTORS
SIGN HEIGHT 84" (7.0') MAXIMUM
GROUND
SUPPORT DEPTH AS NECESSARY

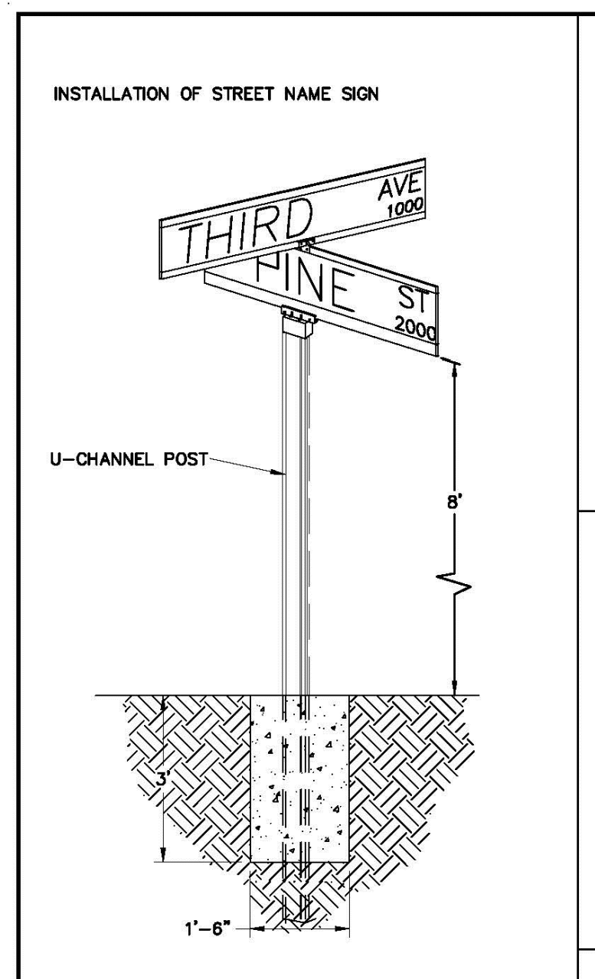
* TOTAL SIGN AREA = 32 SF/SIDE (MAXIMUM)

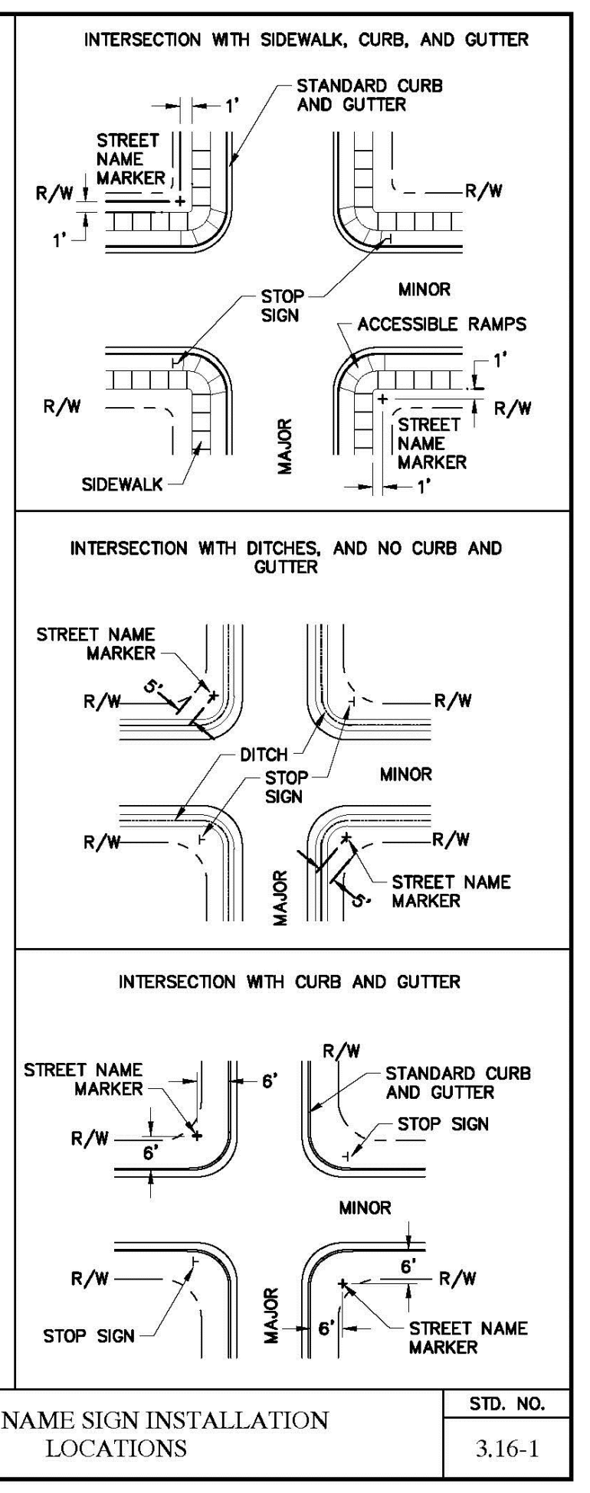
REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE
STANDARD DETAILS

PROJECT IDENTIFICATION SIGN

STD. NO. 2.01


INSTALLATION OF STREET NAME SIGN
THIRD AVE 1000
PINE ST 2000
U-CHANNEL POST
3'
1'-6"


INTERSECTION WITH SIDEWALK, CURB, AND GUTTER
STANDARD CURB AND GUTTER
1'
STREET NAME MARKER
R/W
R/W
STOP SIGN
ACCESSIBLE RAMPS
R/W
R/W
SIDEWALK
MAJOR
STREET NAME MARKER
MINOR
INTERSECTION WITH DITCHES, AND NO CURB AND GUTTER
STREET NAME MARKER
R/W
R/W
DITCH
STOP SIGN
MINOR
R/W
R/W
MAJOR
STREET NAME MARKER
INTERSECTION WITH CURB AND GUTTER
STREET NAME MARKER
R/W
6'
6'
R/W
STANDARD CURB AND GUTTER
STOP SIGN
MINOR
R/W
STOP SIGN
MAJOR
6'
6'
R/W
STREET NAME MARKER

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	
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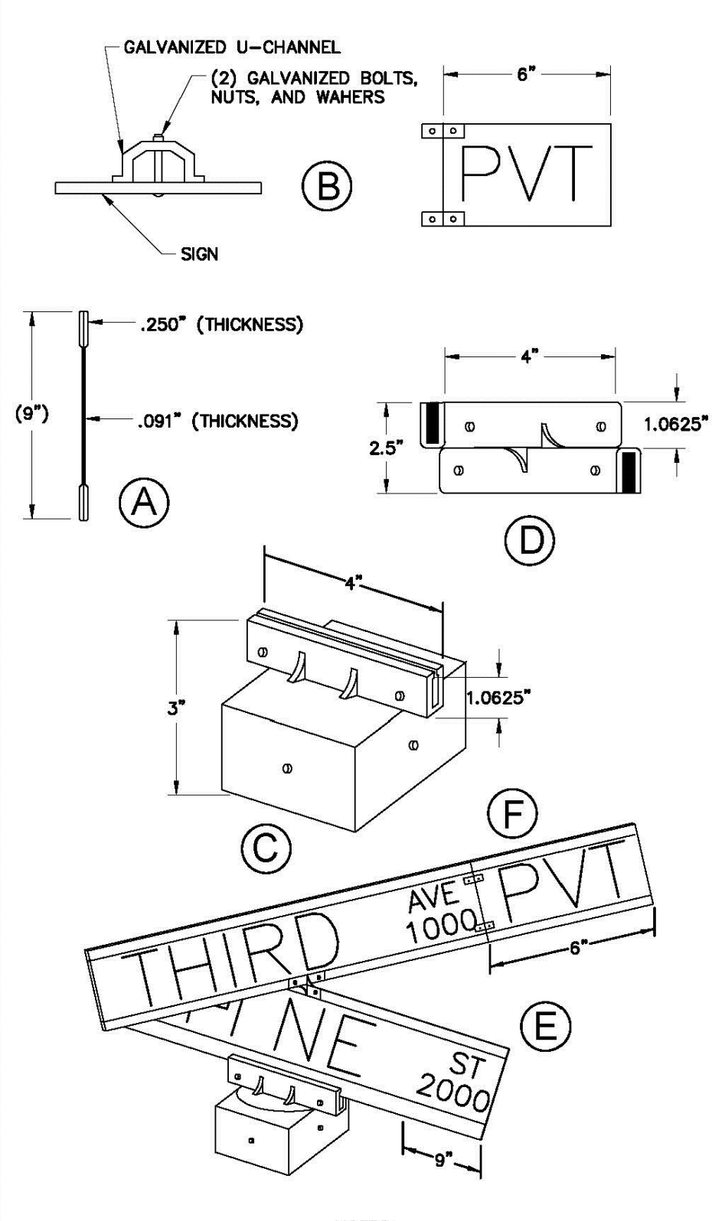
TOWN OF KNIGHTDALE
STANDARD DETAILS

STREET NAME SIGN INSTALLATION
LOCATIONS

STD. NO. 3.16-1


GALVANIZED U-CHANNEL
(2) GALVANIZED BOLTS, NUTS, AND WASHERS
6"
B
PVT
.250" (THICKNESS)
.091" (THICKNESS)
(9")
4"
2.5"
1.0625"
A
D
3"
1.0625"
C
F
THIRD AVE 1000
PVT
6"
E
PINE ST 2000
9"

NOTES:

1. BLADES SHALL BE EXTRUDED ALUMINUM 6063T5 OR 6063T6 ALLOY .080" THICK. POST SHALL BE 10'–0" IN LENGTH, 3 LB. STEEL U-CHANNEL SUPPORTS PER NCDOT STD. 1094–1(B).
2. CAP TO BE ALUMINUM #380 ALLOY OR EQUAL SLOTTED FOR .25" EXTRUDED BLADE; 2.375" 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 #2290 WHITE DIE CUT LETTERS WITH REVERSED SCREENED #708 TRANSPARENT GREEN. THE PRIMARY LETTERS SHALL BE 5" HIGH UPPER CASE, FHWA SERIES B AND PREFIX/SUFFIX LETTERS SHALL BE 2–1/2" HIGH, UPPER CASE, FHWA SERIES C. BLOCK NUMBERS SHALL BE PLACED IN THE LOWER RIGHT CORNER AND SHALL BE 2–1/2" HIGH, FHWA SERIES C. ALL MATERIALS TO BE VACUUM AND HEAT APPLIED TO A 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 YELLOW SHEETING MAY BE USED. 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 OF A BREAKAWAY DESIGN THAT COMPLIES WITH THE LATEST EDITION OF AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)AND NCHRP REPORT 350.

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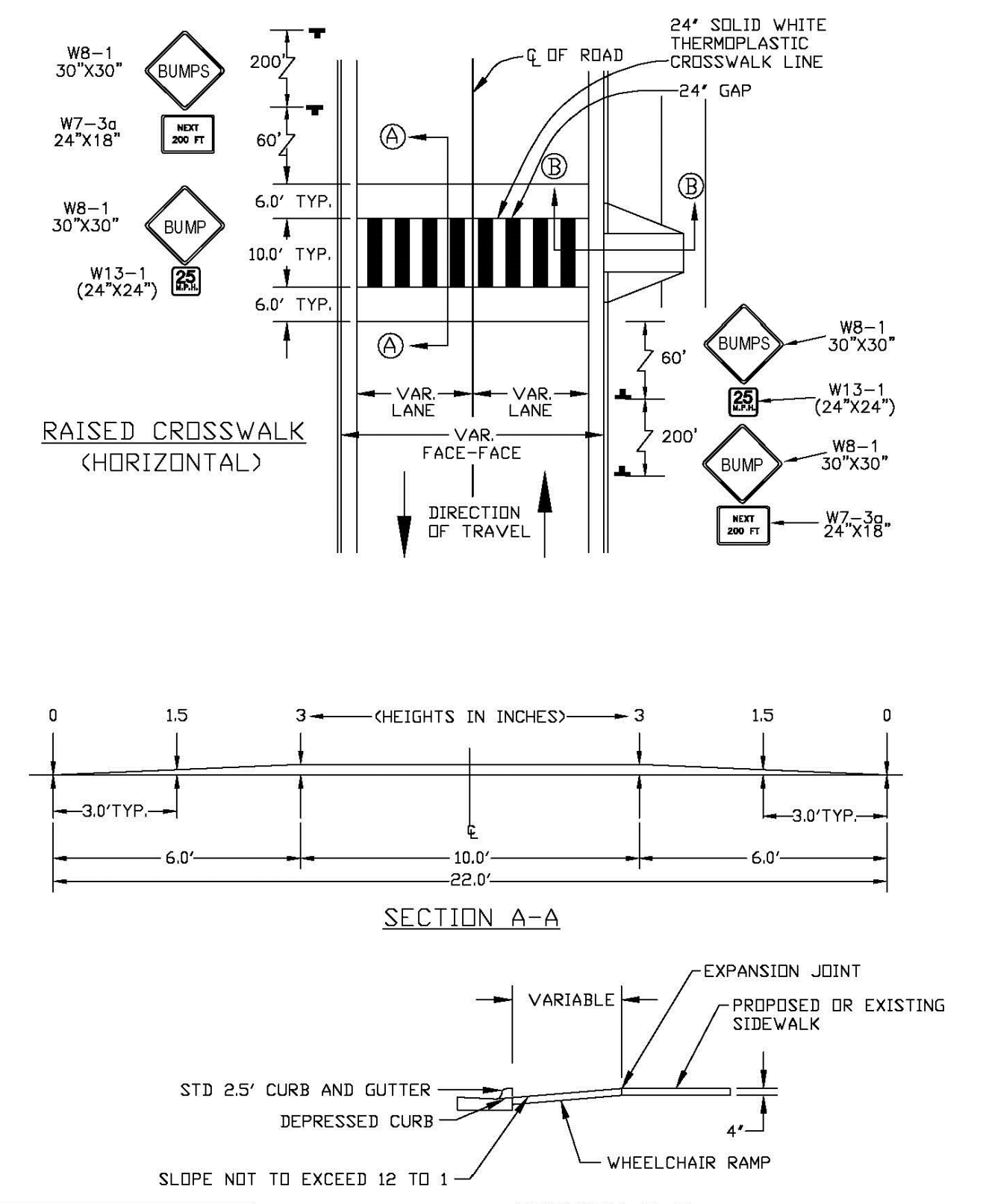
TOWN OF KNIGHTDALE
STANDARD DETAILS

STREET NAME SIGN

STD. NO. 3.16-2


W8–1 30"X30"
BUMPS
W7–3a 24"X18"
NEXT 200 FT
W8–1 30"X30"
BUMP
W13–1 (24"X24")
25 M.P.H.
200'
60'
6.0' TYP.
10.0' TYP.
6.0' TYP.
℄ OF ROAD
24' SOLID WHITE THERMOPLASTIC CROSSWALK LINE
24' GAP
A
A
B
B
VAR. LANE
VAR. LANE
VAR. FACE-FACE
DIRECTION OF TRAVEL
60'
200'
BUMPS
W8–1 30"X30"
W13–1 (24"X24")
BUMP
W8–1 30"X30"
W7–3a 24"X18"
RAISED CROSSWALK (HORIZONTAL)
0
1.5
3
(HEIGHTS IN INCHES)
3
1.5
0
3.0'TYP.
3.0'TYP.
℄
6.0'
10.0'
6.0'
22.0'
SECTION A-A
VARIABLE
EXPANSION JOINT
PROPOSED OR EXISTING SIDEWALK
STD 2.5' CURB AND GUTTER
DEPRESSED CURB
4"
WHEELCHAIR RAMP
SLOPE NOT TO EXCEED 12 TO 1
SECTION B-B

REVISIONS	
DATE	DESCRIPTION

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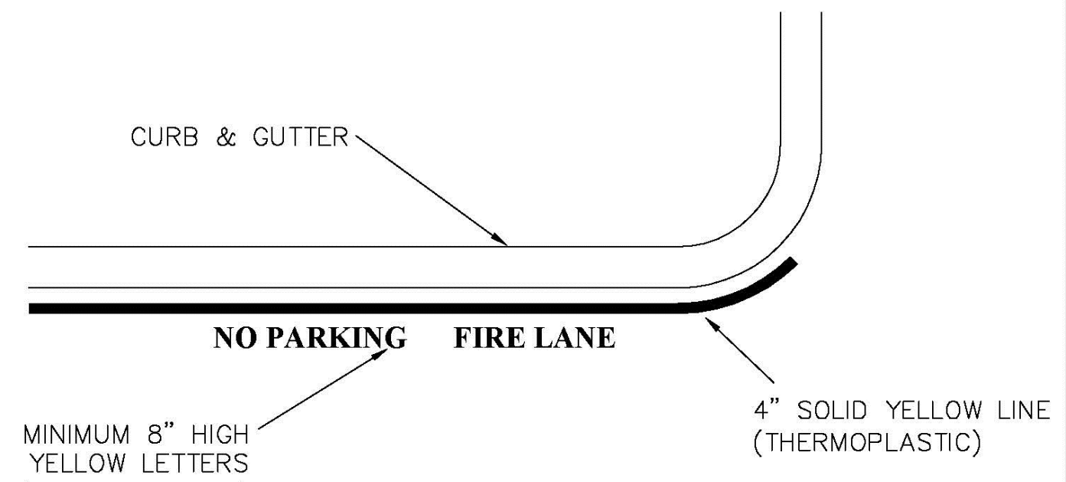
TOWN OF KNIGHTDALE
STANDARD DETAILS

STANDARD PAVEMENT UNDULATION
(RAISED PEDESTRIAN CROSSING)

STD. NO. 3.28


CURB & GUTTER
NO PARKING
FIRE LANE
MINIMUM 8" HIGH YELLOW LETTERS (THERMOPLASTIC)
4" SOLID YELLOW LINE (THERMOPLASTIC)

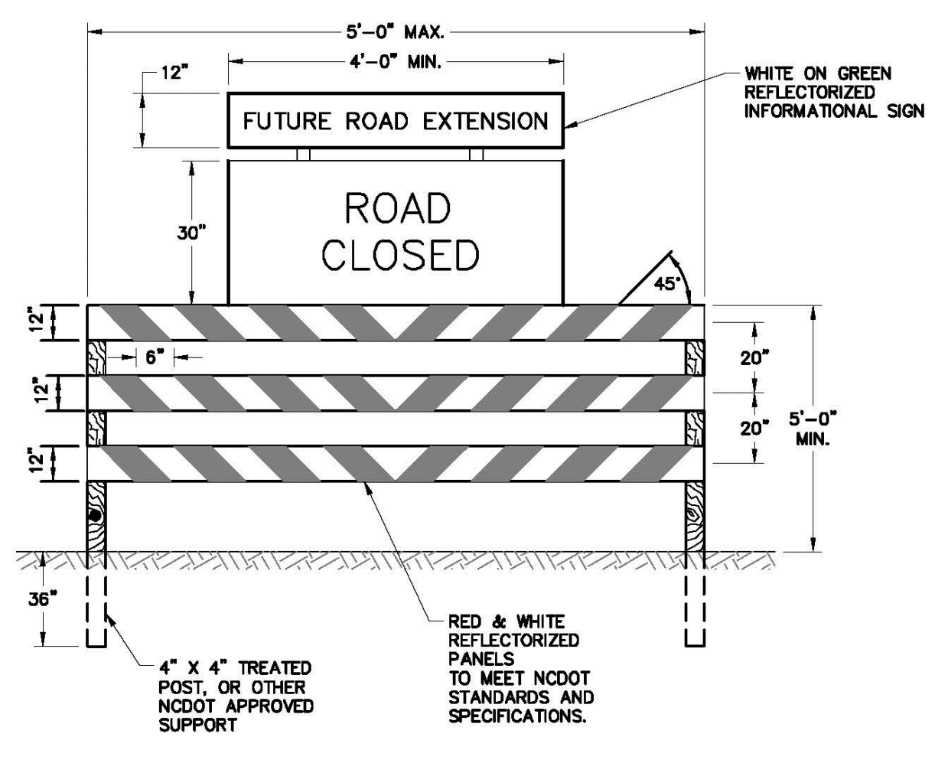
TYPICAL FIRE LANE PAVEMENT MARKING DETAIL

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE
STANDARD DETAILS

FIRE LANE PAVEMENT MARKING

STD. NO. 3.31


5'–0" MAX.
4'–0" MIN.
12"
FUTURE ROAD EXTENSION
WHITE ON GREEN REFLECTORIZED INFORMATIONAL SIGN
30"
ROAD CLOSED
45°
12"
6"
12"
12"
20"
20"
5'–0" MIN.
36"
4" X 4" TREATED POST, OR OTHER NCDOT APPROVED SUPPORT
RED & WHITE REFLECTORIZED PANELS TO MEET NCDOT STANDARDS AND SPECIFICATIONS.

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.

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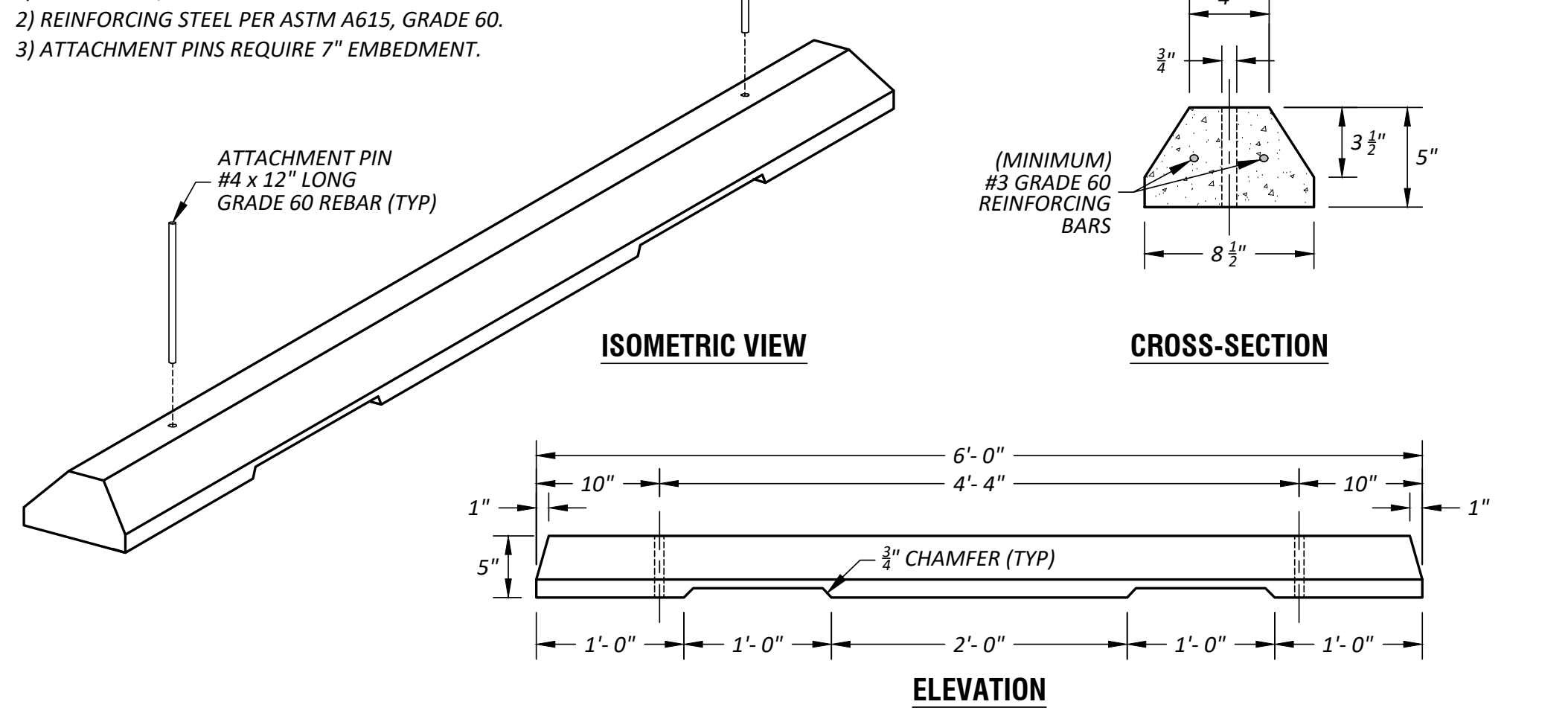
TOWN OF KNIGHTDALE
STANDARD DETAILS

TEMPORARY BARRICADE FOR DEAD END ROADS

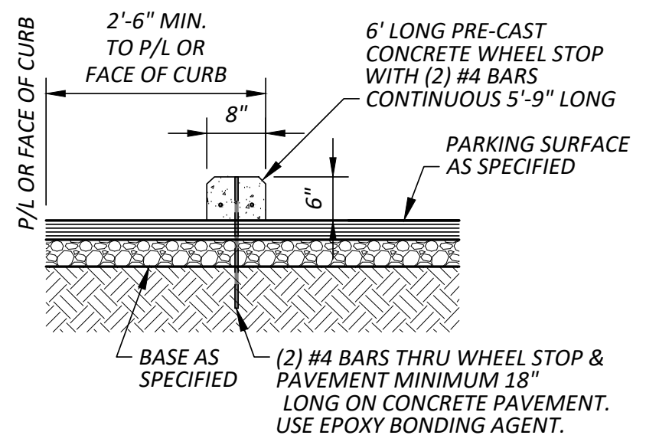
STD. NO. 3.18

NOTES:
1) MINIMUM 3,000 PSI.
2) REINFORCING STEEL PER ASTM A615, GRADE 60.
3) ATTACHMENT PINS REQUIRE 7" EMBEDMENT.


ATTACHMENT PIN #4 x 12" LONG GRADE 60 REBAR (TYP)
ISOMETRIC VIEW
4"
3/4"
(MINIMUM) #3 GRADE 60 REINFORCING BARS
3 1/2"
5"
8 1/2"
CROSS-SECTION
6'- 0"
10"
4'- 4"
10"
1"
1"
5"
3/4" CHAMFER (TYP)
1'- 0"
1'- 0"
2'- 0"
1'- 0"
1'- 0"
ELEVATION

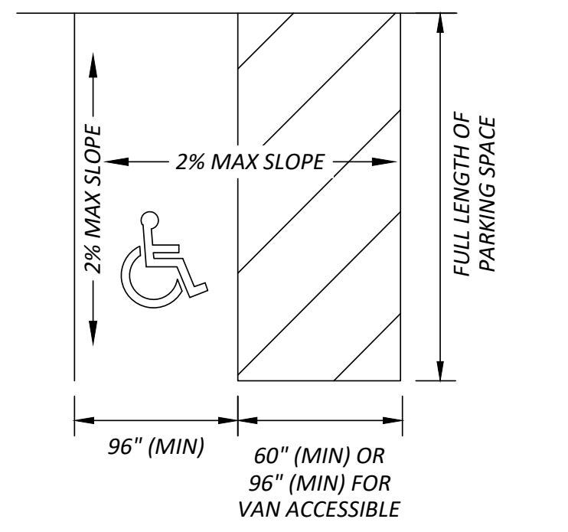
PRECAST REINFORCED CONCRETE WHEEL-STOP

N.T.S.
PVMT-51 MOD


P/L OR FACE OF CURB
2'-6" MIN. TO P/L OR FACE OF CURB
8"
6' LONG PRE-CAST CONCRETE WHEEL STOP WITH (2) #4 BARS CONTINUOUS 5'-9" LONG
PARKING SURFACE AS SPECIFIED
6"
BASE AS SPECIFIED
(2) #4 BARS THRU WHEEL STOP & PAVEMENT MINIMUM 18" LONG ON CONCRETE PAVEMENT. USE EPOXY BONDING AGENT.

CONCRETE WHEEL STOP

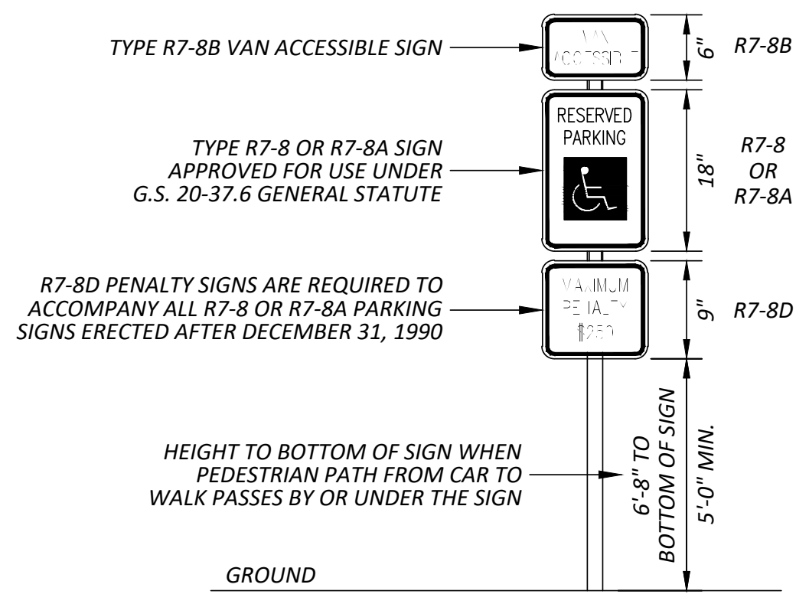
N.T.S.
PVMT-33 MOD


2% MAX SLOPE
2% MAX SLOPE
FULL LENGTH OF PARKING SPACE
96" (MIN)
60" (MIN) OR 96" (MIN) FOR VAN ACCESSIBLE

NOTES:
1. *HANDICAPPED PARKING SPACE SHALL CONFORM WITH CURRENT STATE AND LOCAL CODES AND REGULATIONS.*
2. *VAN ACCESSIBLE SPACES AND ACCESS AISLES SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 98"*
3. *REFERENCE ANSI/ICC A117.1.2009*

HANDICAPPED PARKING

N.T.S.
PVMT-41K MOD


TYPE R7-8B VAN ACCESSIBLE SIGN
6"
R7-8B
TYPE R7-8 OR R7-8A SIGN APPROVED FOR USE UNDER G.S. 20-37.6 GENERAL STATUTE
RESERVED PARKING
18"
R7-8 OR R7-8A
R7-8D PENALTY SIGNS ARE REQUIRED TO ACCOMPANY ALL R7-8 OR R7-8A PARKING SIGNS ERECTED AFTER DECEMBER 31, 1990
9"
R7-8D
HEIGHT TO BOTTOM OF SIGN WHEN PEDESTRIAN PATH FROM CAR TO WALK PASSES BY OR UNDER THE SIGN
6'-8" TO BOTTOM OF SIGN
5'-0" MIN.
GROUND

HANDICAPPED PARKING SIGN

N.T.S.
PVMT-06C MOD

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

NORTH CAROLINA PROFESSIONAL SEAL 26493 ENGINEER STEPHEN J. BALLENTINE

Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1ST	CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

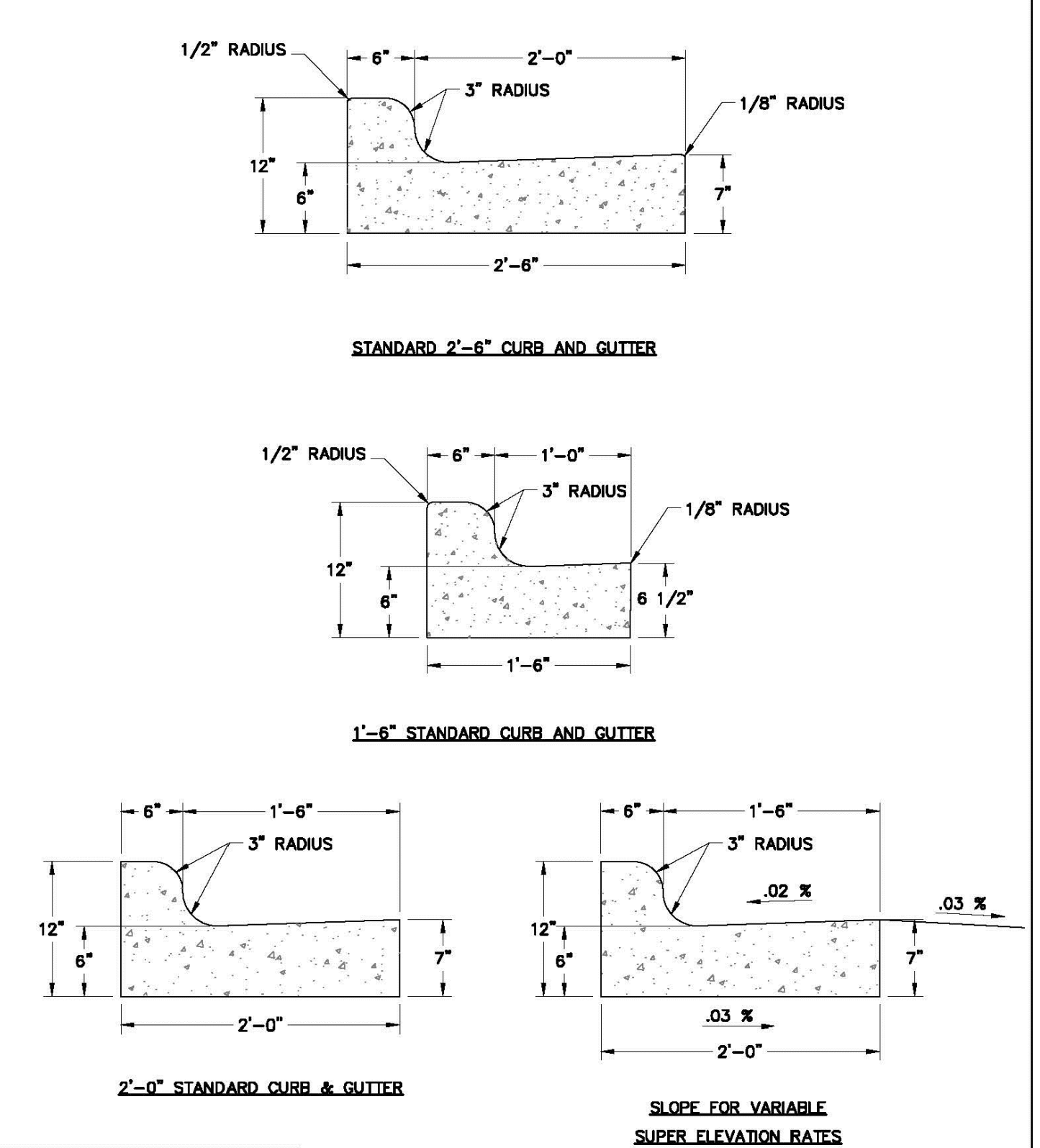
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

SITE DETAILS

DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH/EDN
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN

SHEET No.
C2.51

Do Not Use for Construction - PRELIMINARY


1/2" RADIUS
6"
2'-0"
3" RADIUS
1/8" RADIUS
12"
6"
7"
2'-6"
STANDARD 2'-6" CURB AND GUTTER
1'-0"
6 1/2"
1'-6"
1'-6" STANDARD CURB AND GUTTER
2'-0" STANDARD CURB & GUTTER
.02 %
.03 %
SLOPE FOR VARIABLE SUPER ELEVATION RATES

REVISIONS	
DATE	DESCRIPTION

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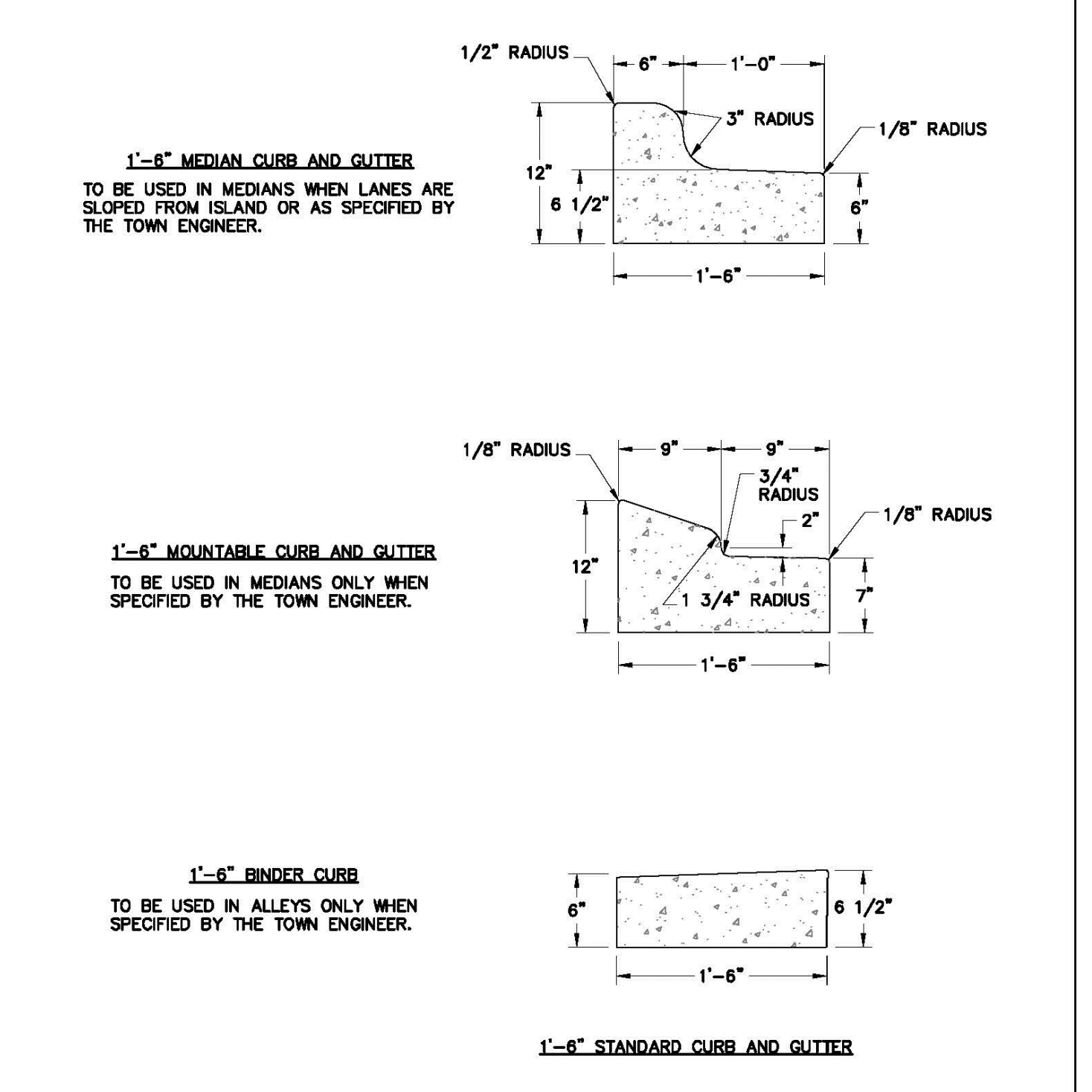
TOWN OF KNIGHTDALE
STANDARD DETAILS

CURB AND GUTTER

STD. NO. 4.01


1/2" RADIUS
6"
1'-0"
3" RADIUS
1/8" RADIUS
12"
6 1/2"
6"
1'-6"
1'-6" MEDIAN CURB AND GUTTER
1/8" RADIUS
9"
9"
3/4" RADIUS
2"
1 3/4" RADIUS
7"
1'-6" MOUNTABLE CURB AND GUTTER
1'-6" BINDER CURB
1'-6" STANDARD CURB AND GUTTER

1'-6" MEDIAN CURB AND GUTTER
TO BE USED IN MEDIANS WHEN LANES ARE SLOPED FROM ISLAND OR AS SPECIFIED BY THE TOWN ENGINEER.

1'-6" MOUNTABLE CURB AND GUTTER
TO BE USED IN MEDIANS ONLY WHEN SPECIFIED BY THE TOWN ENGINEER.

1'-6" BINDER CURB
TO BE USED IN ALLEYS ONLY WHEN SPECIFIED BY THE TOWN ENGINEER.

REVISIONS	
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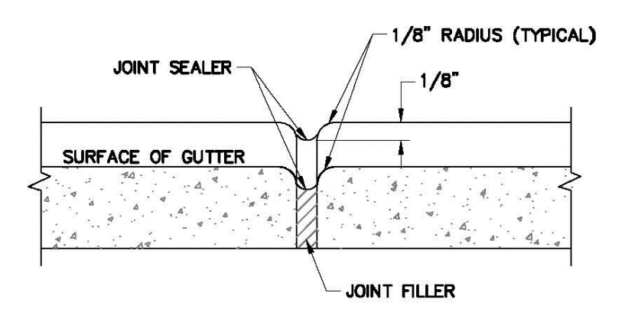
TOWN OF KNIGHTDALE
STANDARD DETAILS

CURB AND GUTTER

STD. NO. 4.01


JOINT SEALER
1/8" RADIUS (TYPICAL)
1/8"
SURFACE OF GUTTER
JOINT FILLER

TRANSVERSE EXPANSION JOINT

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 90-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 6" OF SUBGRADE BENEATH THE CURB AND GUTTER SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.

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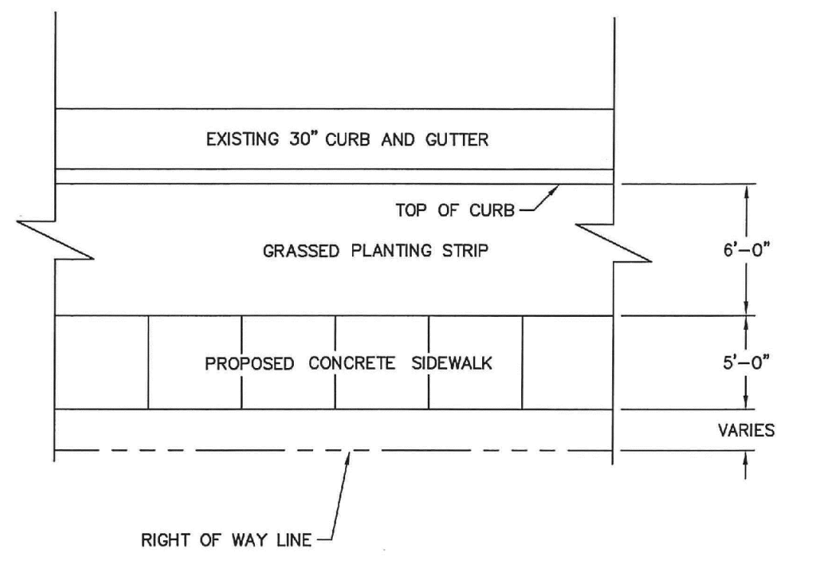
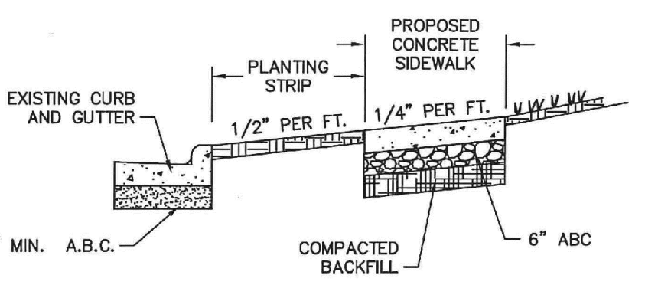
TOWN OF KNIGHTDALE
STANDARD DETAILS

CURB AND GUTTER

STD. NO. 4.01


EXISTING 30" CURB AND GUTTER
TOP OF CURB
GRASSED PLANTING STRIP
PROPOSED CONCRETE SIDEWALK
6'-0"
5'-0"
VARIES
RIGHT OF WAY LINE

PLAN VIEW


PROPOSED CONCRETE SIDEWALK
PLANTING STRIP
EXISTING CURB AND GUTTER
1/2" PER FT.
1/4" PER FT.
4" MIN. A.B.C.
COMPACTED BACKFILL
6" ABC

TYPICAL SECTION

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	
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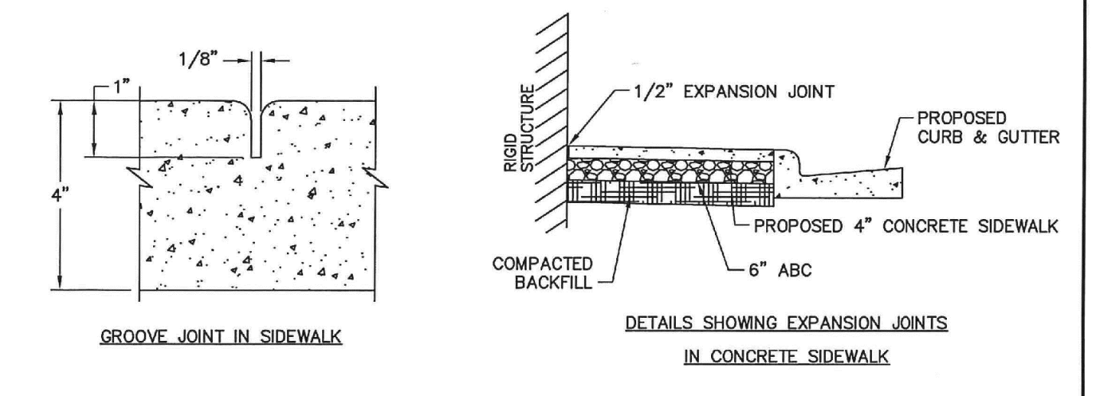
TOWN OF KNIGHTDALE
STANDARD DETAILS

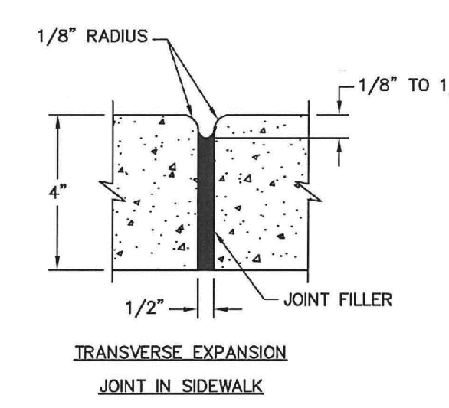
CONCRETE SIDEWALKS

STD. NO. 4.04-1


1/8"
1/2" EXPANSION JOINT
PROPOSED CURB & GUTTER
PROPOSED 4" CONCRETE SIDEWALK
6" ABC
COMPACTED BACKFILL

GROOVE JOINT IN SIDEWALK

DETAILS SHOWING EXPANSION JOINTS IN CONCRETE SIDEWALK


1/8" RADIUS
1/8" TO 1/4"
4"
1/2"
JOINT FILLER

TRANSVERSE EXPANSION JOINT IN SIDEWALK

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 6' 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

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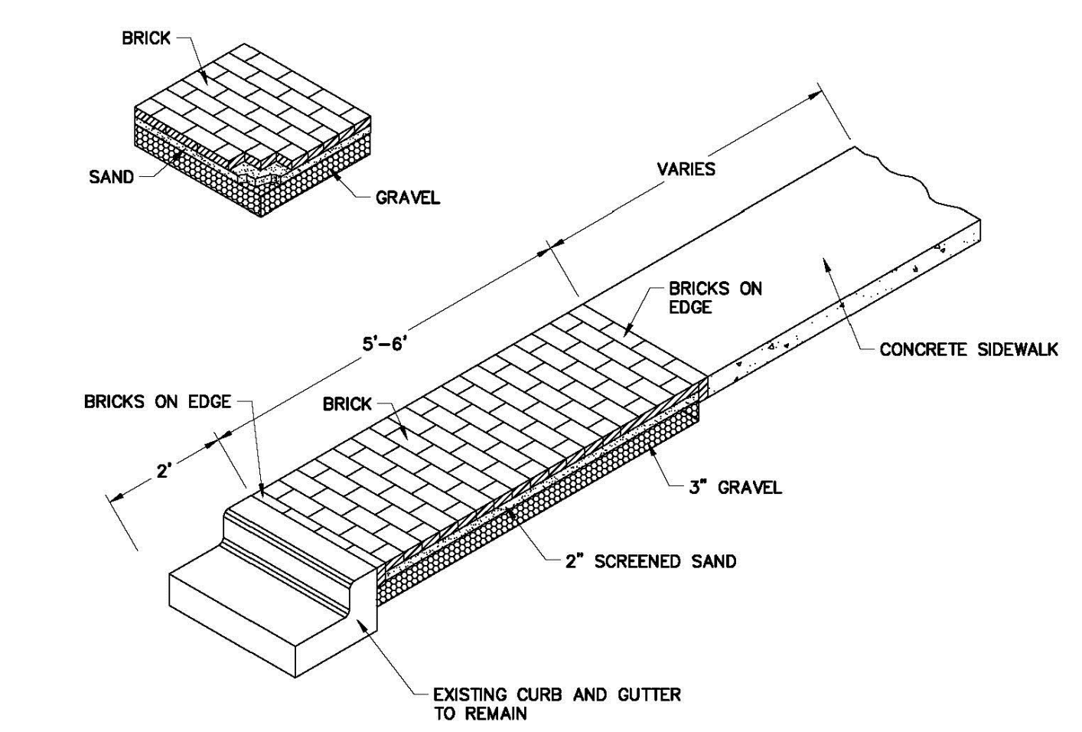
TOWN OF KNIGHTDALE
STANDARD DETAILS

CONCRETE SIDEWALKS

STD. NO. 4.04-2


BRICK
SAND
GRAVEL
VARIES
BRICKS ON EDGE
CONCRETE SIDEWALK
5'-6'
BRICKS ON EDGE
BRICK
2'
3" GRAVEL
2" SCREENED SAND
EXISTING CURB AND GUTTER TO REMAIN

NOTES:

1. STAMPED CONCRETE OR ASPHALT MAY BE USED IN LIEU OF BRICK PAVERS WITH PRIOR REVIEW AND APPROVAL FROM THE TOWN OF KNIGHTDALE.
2. TO BE USED ON URBAN MAIN STREET AND URBAN AVENUE CROSS SECTIONS WHERE SIDEWALKS AND TREE PLANTINGS ARE COMBINED.
3. FOR ILLUSTRATIVE PURPOSES. FOLLOW DESIGN DETAIL FOR SPECIFIC CROSS SECTION.
4. PAVERS SHALL BE HANOVER PREST BRICK OR EQUIVALENT.
5. PATTERN IS RUNNING BOND.
6. PRIOR TO INSTALLATION, CONTRACTOR TO SUBMIT PLAN OF LAYOUT INCLUDING COLOR AND SIZE FOR TOWN APPROVAL.

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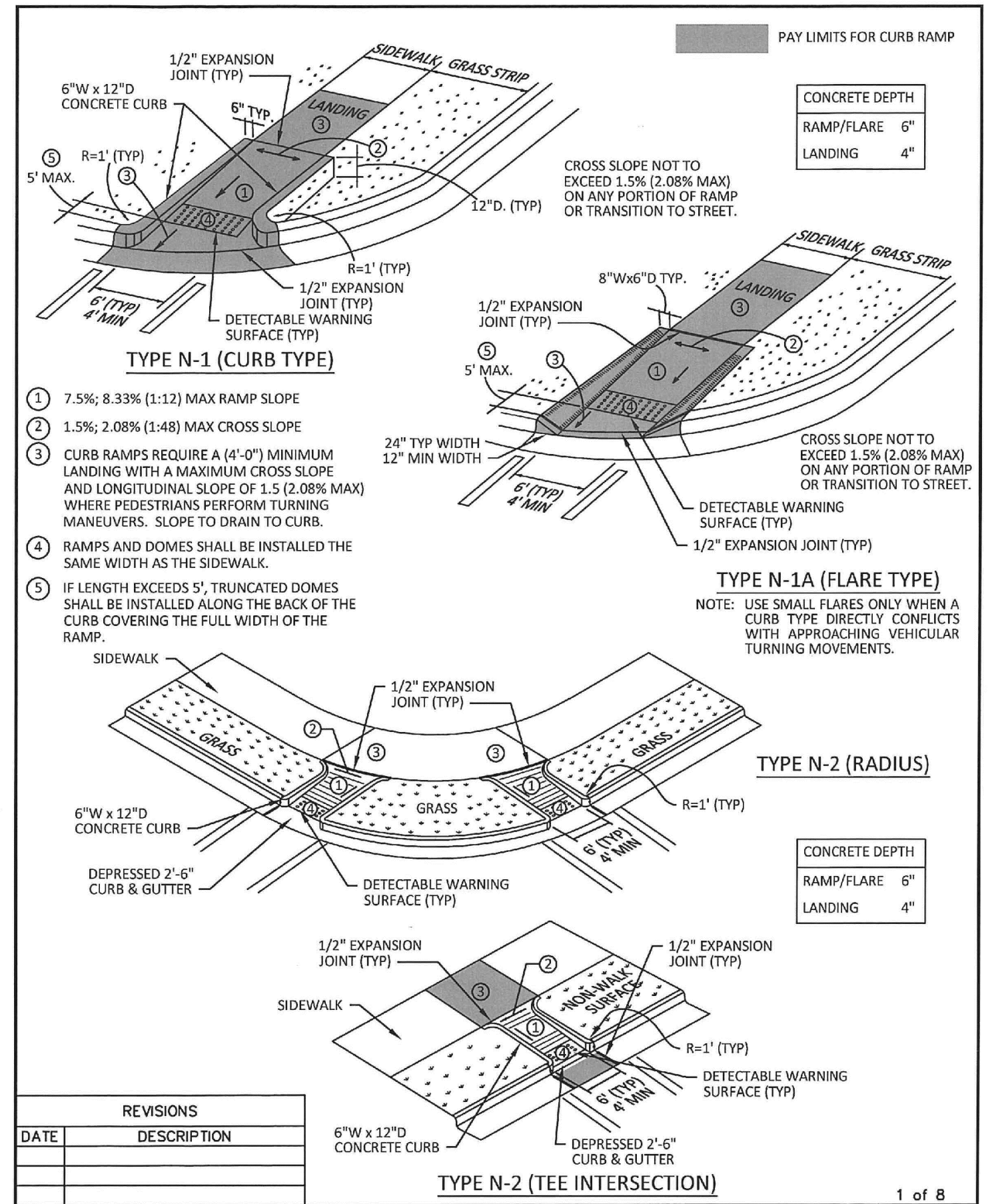
TOWN OF KNIGHTDALE
STANDARD DETAILS

BRICK PAVER SIDEWALK

STD. NO. 4.05


PAY LIMITS FOR CURB RAMP
1/2" EXPANSION JOINT (TYP)
6"W x 12"D CONCRETE CURB
6" TYP.
SIDEWALK
GRASS STRIP
LANDING
R=1' (TYP)
5' MAX.
12"D. (TYP)
6' (TYP) 4' MIN
DETECTABLE WARNING SURFACE (TYP)
TYPE N-1 (CURB TYPE)
CONCRETE DEPTH
RAMP/FLARE 6"
LANDING 4"
CROSS SLOPE NOT TO EXCEED 1.5% (2.08% MAX) ON ANY PORTION OF RAMP OR TRANSITION TO STREET.
8"Wx6"D TYP.
24" TYP WIDTH
12" MIN WIDTH
TYPE N-1A (FLARE TYPE)
SIDEWALK
GRASS
6"W x 12"D CONCRETE CURB
DEPRESSED 2'-6" CURB & GUTTER
TYPE N-2 (RADIUS)
TYPE N-2 (TEE INTERSECTION)

① 7.5%; 8.33% (1:12) MAX RAMP SLOPE
② 1.5%; 2.08% (1:48) MAX CROSS SLOPE
③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 1.5 (2.08% MAX) WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.
④ RAMPS AND DOMES SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK.
⑤ IF LENGTH EXCEEDS 5', TRUNCATED DOMES SHALL BE INSTALLED ALONG THE BACK OF THE CURB COVERING THE FULL WIDTH OF THE RAMP.

NOTE: USE SMALL FLARES ONLY WHEN A CURB TYPE DIRECTLY CONFLICTS WITH APPROACHING VEHICULAR TURNING MOVEMENTS.

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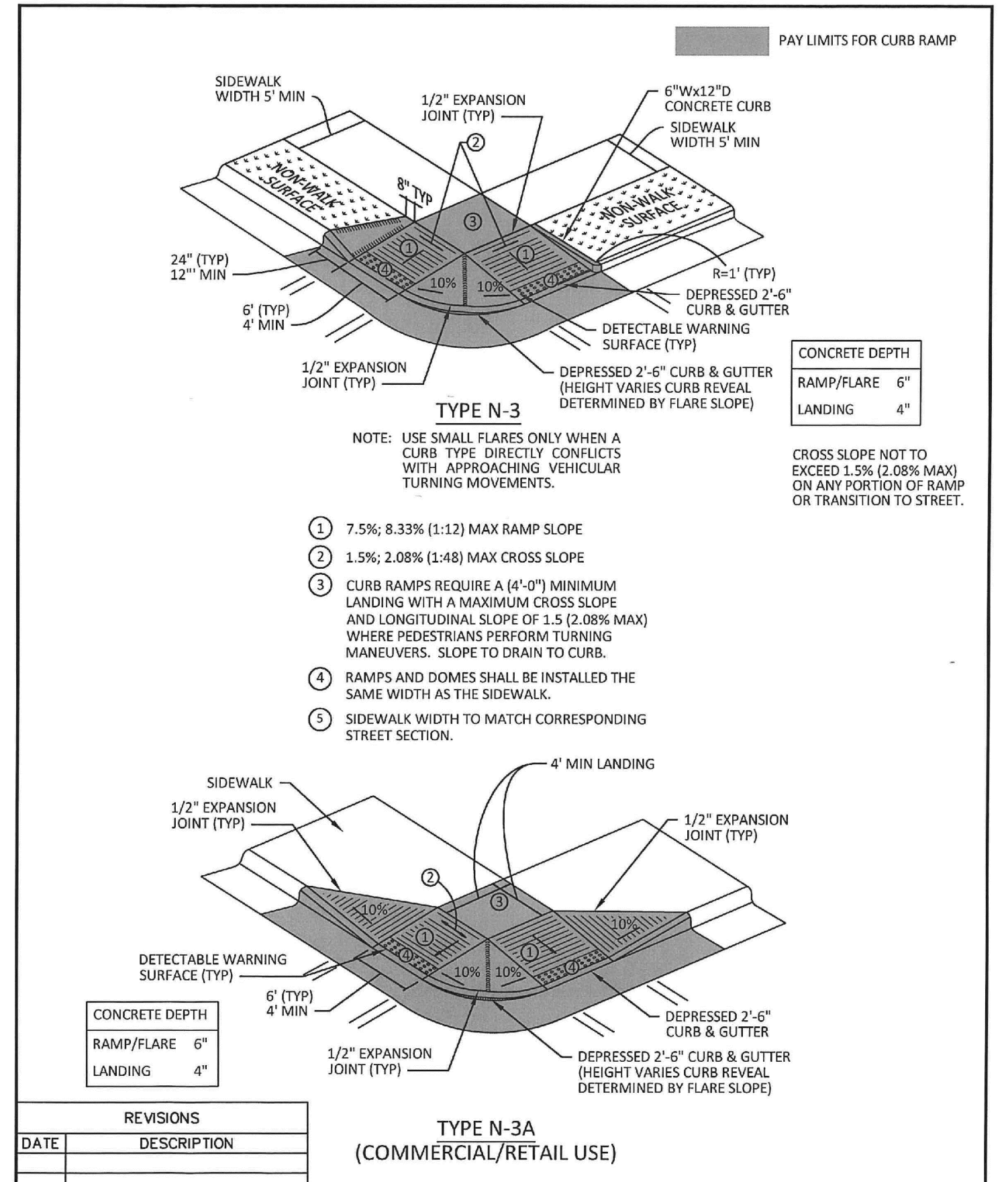
TOWN OF KNIGHTDALE
STANDARD DETAILS

WHEELCHAIR CURB RAMPS
(NEW DEVELOPMENT)

STD. NO. 4.06-1


PAY LIMITS FOR CURB RAMP
SIDEWALK WIDTH 5' MIN
1/2" EXPANSION JOINT (TYP)
6"Wx12"D CONCRETE CURB
SIDEWALK WIDTH 5' MIN
TYPE N-3
DEPRESSED 2'-6" CURB & GUTTER
CONCRETE DEPTH
RAMP/FLARE 6"
LANDING 4"
CROSS SLOPE NOT TO EXCEED 1.5% (2.08% MAX) ON ANY PORTION OF RAMP OR TRANSITION TO STREET.
DETECTABLE WARNING SURFACE (TYP)
4' MIN LANDING
TYPE N-3A (COMMERCIAL/RETAIL USE)

① 7.5%; 8.33% (1:12) MAX RAMP SLOPE
② 1.5%; 2.08% (1:48) MAX CROSS SLOPE
③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 1.5 (2.08% MAX) WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.
④ RAMPS AND DOMES SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK.
⑤ SIDEWALK WIDTH TO MATCH CORRESPONDING STREET SECTION.

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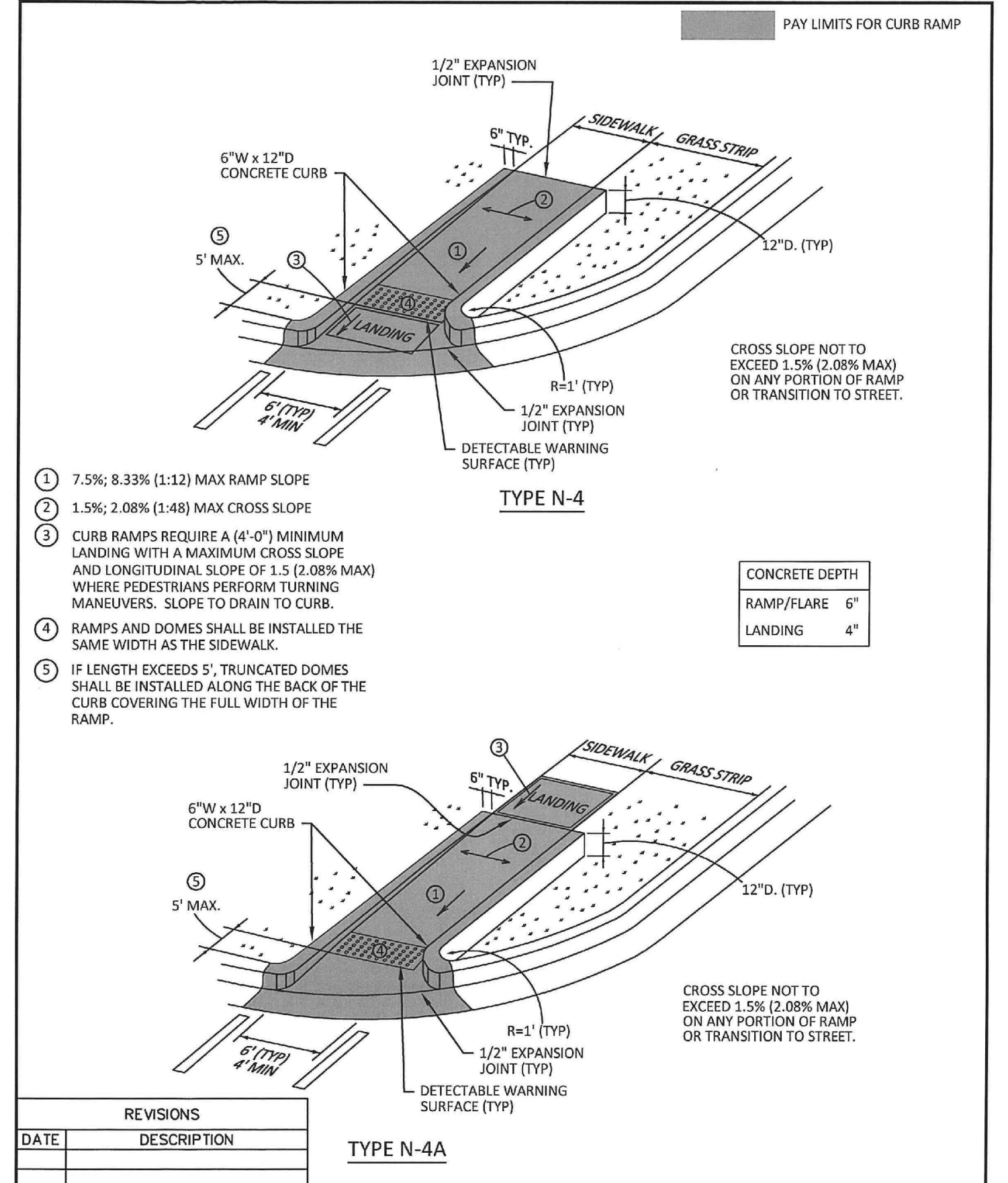
TOWN OF KNIGHTDALE
STANDARD DETAILS

WHEELCHAIR CURB RAMPS
(NEW DEVELOPMENT)

STD. NO. 4.06-2


PAY LIMITS FOR CURB RAMP
1/2" EXPANSION JOINT (TYP)
6"W x 12"D CONCRETE CURB
SIDEWALK
GRASS STRIP
5' MAX.
12"D. (TYP)
CROSS SLOPE NOT TO EXCEED 1.5% (2.08% MAX) ON ANY PORTION OF RAMP OR TRANSITION TO STREET.
DETECTABLE WARNING SURFACE (TYP)
TYPE N-4
CONCRETE DEPTH
RAMP/FLARE 6"
LANDING 4"
TYPE N-4A

① 7.5%; 8.33% (1:12) MAX RAMP SLOPE
② 1.5%; 2.08% (1:48) MAX CROSS SLOPE
③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 1.5 (2.08% MAX) WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.
④ RAMPS AND DOMES SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK.
⑤ IF LENGTH EXCEEDS 5', TRUNCATED DOMES SHALL BE INSTALLED ALONG THE BACK OF THE CURB COVERING THE FULL WIDTH OF THE RAMP.

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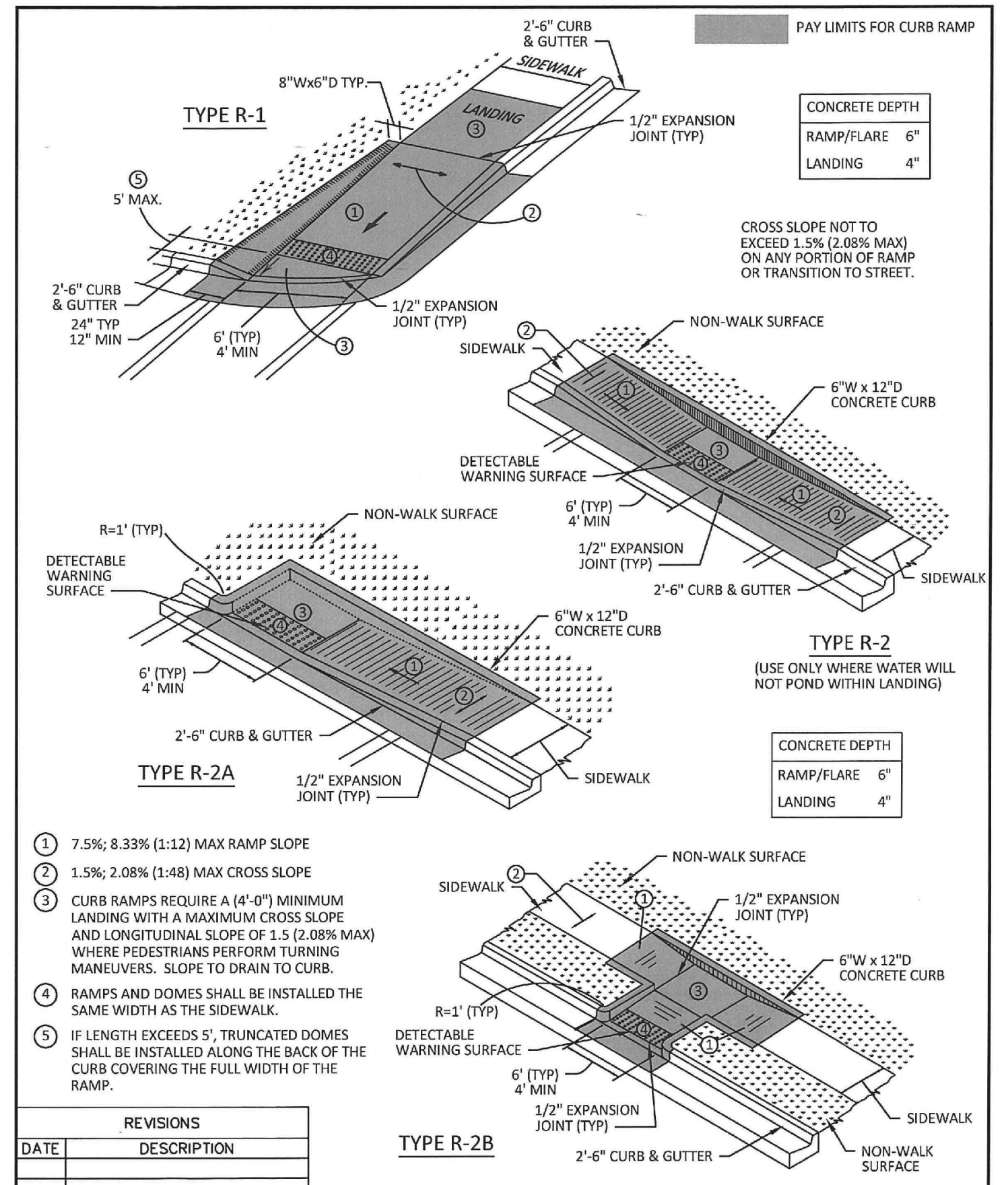
TOWN OF KNIGHTDALE
STANDARD DETAILS

WHEELCHAIR CURB RAMPS
(NEW DEVELOPMENT)

STD. NO. 4.06-3


PAY LIMITS FOR CURB RAMP
TYPE R-1
2'-6" CURB & GUTTER
SIDEWALK
LANDING
8"Wx6"D TYP.
1/2" EXPANSION JOINT (TYP)
CONCRETE DEPTH
RAMP/FLARE 6"
LANDING 4"
CROSS SLOPE NOT TO EXCEED 1.5% (2.08% MAX) ON ANY PORTION OF RAMP OR TRANSITION TO STREET.
NON-WALK SURFACE
DETECTABLE WARNING SURFACE
TYPE R-2
TYPE R-2A
TYPE R-2B

① 7.5%; 8.33% (1:12) MAX RAMP SLOPE
② 1.5%; 2.08% (1:48) MAX CROSS SLOPE
③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 1.5 (2.08% MAX) WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.
④ RAMPS AND DOMES SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK.
⑤ IF LENGTH EXCEEDS 5', TRUNCATED DOMES SHALL BE INSTALLED ALONG THE BACK OF THE CURB COVERING THE FULL WIDTH OF THE RAMP.

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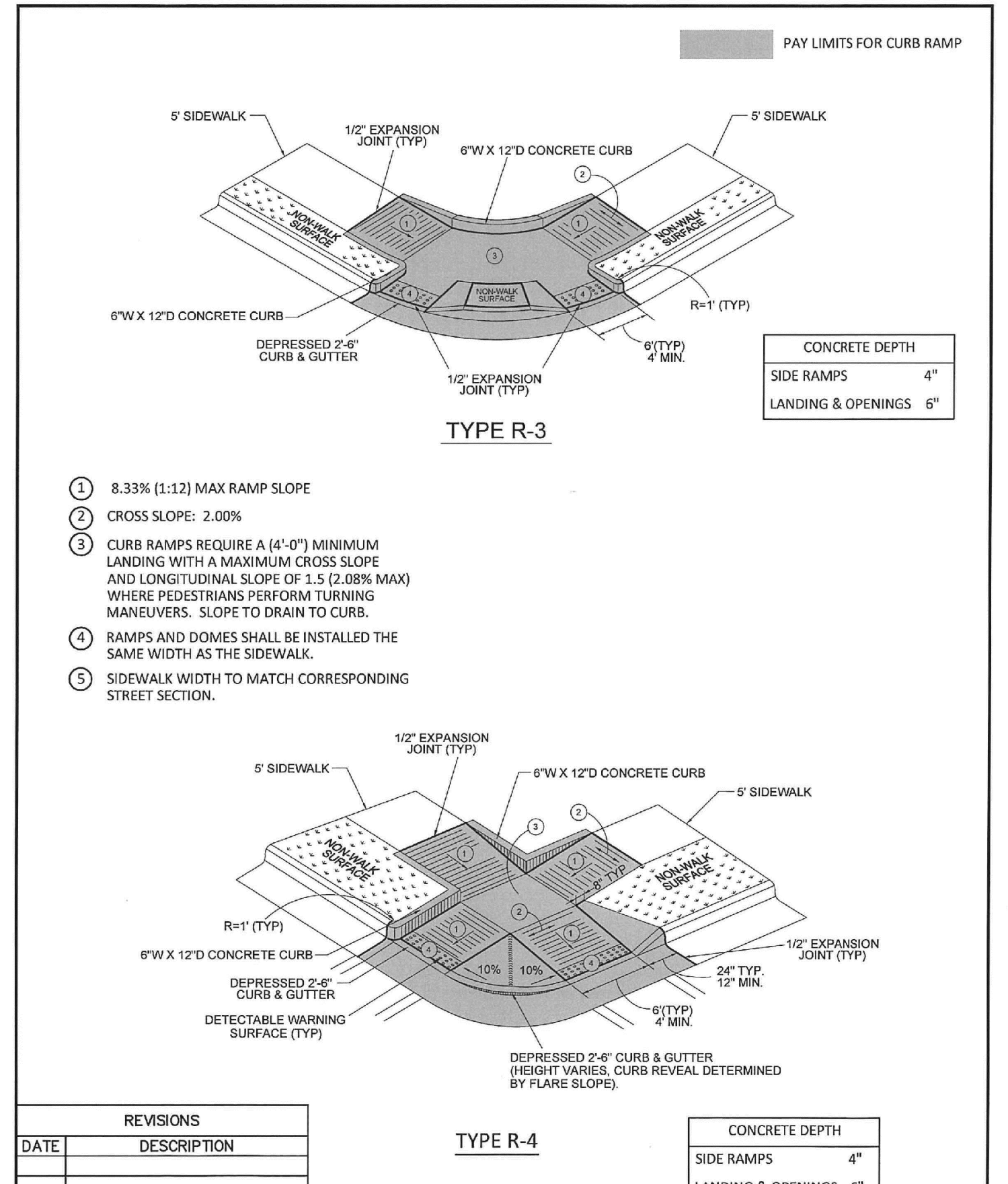
TOWN OF KNIGHTDALE
STANDARD DETAILS

WHEELCHAIR CURB RAMPS
(NEW DEVELOPMENT)

STD. NO. 4.06-4


PAY LIMITS FOR CURB RAMP
5' SIDEWALK
1/2" EXPANSION JOINT (TYP)
6"W X 12"D CONCRETE CURB
5' SIDEWALK
TYPE R-3
CONCRETE DEPTH
SIDE RAMPS 4"
LANDING & OPENINGS 6"
TYPE R-4

① 8.33% (1:12) MAX RAMP SLOPE
② CROSS SLOPE: 2.08%
③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 1.5 (2.08% MAX) WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.
④ RAMPS AND DOMES SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK.
⑤ SIDEWALK WIDTH TO MATCH CORRESPONDING STREET SECTION.

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TOWN OF KNIGHTDALE
STANDARD DETAILS

WHEELCHAIR CURB RAMPS
(NEW DEVELOPMENT)

STD. NO. 4.06-5

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1. KNIGHTDALE STANDARD CURB RAMPS HAVE BEEN DEVELOPED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHT OF WAY ACCESS GUIDELINES (PROWAG).
2. CURB RAMPS SHALL BE PROVIDED AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. SIDEWALK ACCESS RAMPS SHALL BE LOCATED AS INDICATED IN THE DETAIL, HOWEVER, THE LOCATION MAY BE ADJUSTED IN COORDINATION WITH THE TOWN OF KNIGHTDALE WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT.
3. DOUBLE WHEELCHAIR RAMPS ARE TO BE INSTALLED AT ALL PUBLIC STREET INTERSECTIONS WHERE SIDEWALK IS REQUIRED.
4. THE WALKING SURFACE SHALL BE SLIP RESISTANT. THE COLOR FOR THE DETECTABLE WARNING AREA SHALL BE YELLOW FOR CONTRAST.
5. NO SLOPE ON THE SIDEWALK ACCESS RAMP SHALL EXCEED 1"/FT (12:1) IN RELATIONSHIP TO THE GRADE OF THE STREET.
6. ALL RAMPS SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK. IN NO CASE SHALL THE WIDTH OF THE SIDEWALK ACCESS RAMP BE LESS THAN 48".
7. USE CLASS A (3000 PSI) CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NONSKID SURFACE.
8. A 1/2" EXPANSION JOINT INSTALLED FULL DEPTH WILL BE REQUIRED WHERE THE CONCRETE SIDEWALK ACCESS RAMP JOINS THE CURB AND ALSO WHERE NEW CONCRETE ABUTS EXISTING CONCRETE.
9. CURB RAMPS SHOULD BE PLACED PARALLEL TO THE DIRECTION OF TRAVEL.

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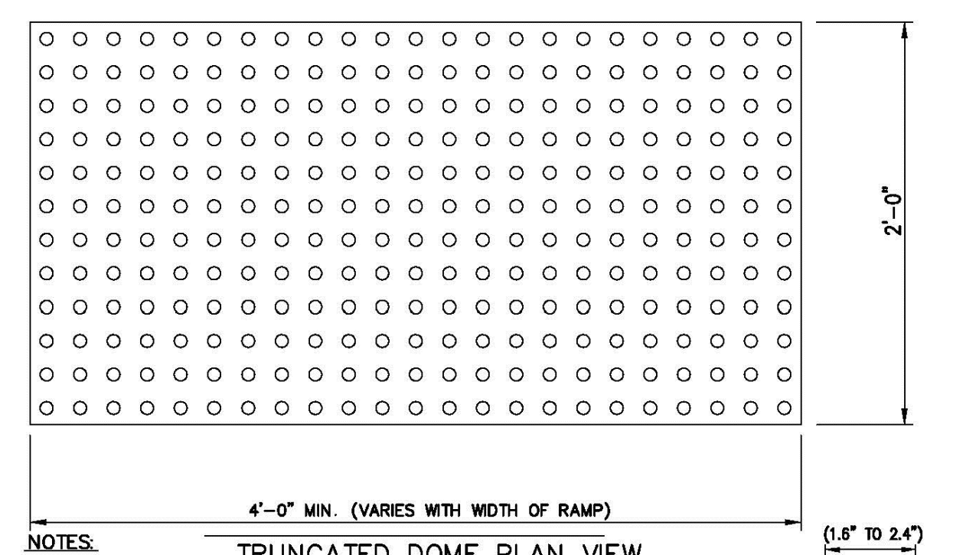
TOWN OF KNIGHTDALE
STANDARD DETAILS

WHEELCHAIR CURB RAMP NOTES

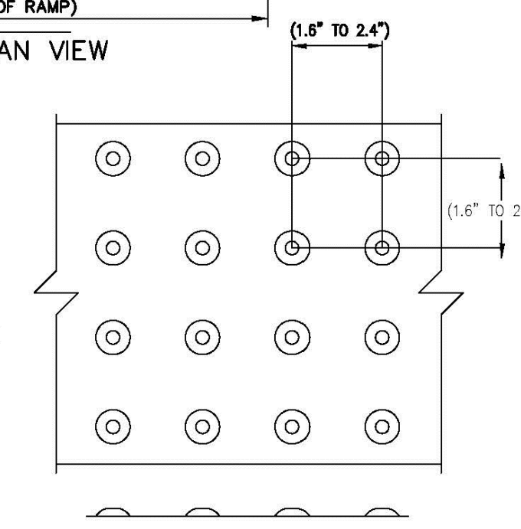
STD. NO. 4.06-7


2'-0"
4'-0" MIN. (VARIES WITH WIDTH OF RAMP)

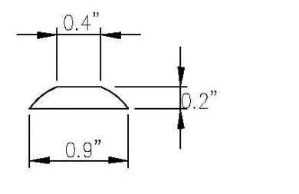
TRUNCATED DOME PLAN VIEW

NOTES:

1. ALL MATS SHALL BE REPLACEABLE MATS. PLASTIC MATS CAN BE EITHER SURFACE APPLIED OR WET-SET FRAMES THAT ACCEPT THE PLASTIC MATS. (NO PRE-CAST PAVERS, ETC.)
2. WIDTH OF DETECTABLE WARNING AREA SHALL BE A MINIMUM OF 4 FEET AND VARY WITH WIDTH OF RAMP.
3. LENGTH OF DETECTABLE WARNING AREA SHALL BE 2 FEET REGARDLESS OF SECTION WIDTH.
4. DETECTABLE WARNING AREA CAN BE SQUARE WHERE USED IN A CURB RADIUS.
5. DETECTABLE WARNING DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
6. DETECTABLE WARNING AREA SHALL BE COLORED YELLOW IN ALL LOCATIONS.


(1.6" TO 2.4")
(1.6" TO 2.4")

TRUNCATED DOME SPACING



TRUNCATED DOME SECTION

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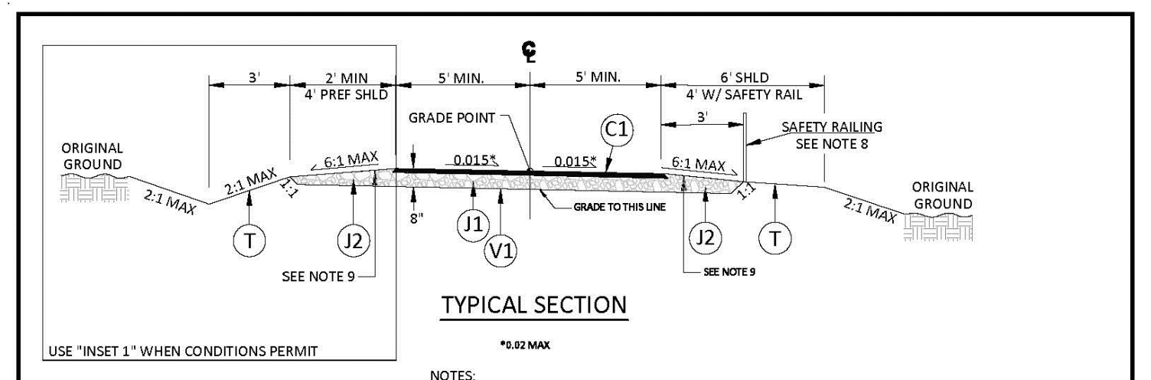
TOWN OF KNIGHTDALE
STANDARD DETAILS

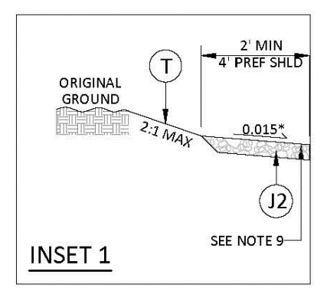
TRUNCATED DOMES
PLAN AND CROSS SECTION

STD. NO. 4.07


2' MIN 4' PREF SHLD
5' MIN.
5' MIN.
6' SHLD 4' W/ SAFETY RAIL
GRADE POINT
SAFETY RAILING SEE NOTE 8
6:1 MAX
0.015*
0.015*
6:1 MAX
3'
1:1
8"
GRADE TO THIS LINE
2:1 MAX
ORIGINAL GROUND
C1
J1
J2
V1
T
SEE NOTE 9
USE "INSET 1" WHEN CONDITIONS PERMIT

TYPICAL SECTION

*0.02 MAX


T
ORIGINAL GROUND
2' MIN 4' PREF SHLD
2:1 MAX
0.015*
J2
SEE NOTE 9

INSET 1

PAVEMENT SCHEDULE	
C1	2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 220 LBS. PER SQ. YD. OR 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
J1	6" AGGREGATE BASE COURSE
J2	VARIABLE DEPTH AGGREGATE BASE COURSE
T	EARTH MATERIAL
V1	GEOTEXTILE FOR PAVEMENT STABILIZATION

TABLE 1 - MAXIMUM RUNNING SLOPE AND TRAIL SEGMENT LENGTH

RUNNING SLOPE	MAX LENGTH OF SEGMENT
1:20 (5%)	200 FT
1:12(8.33%)	30 FT

NOTES:

1. TRAIL WIDTH TO BE DETERMINED BY THE TOWN OF KNIGHTDALE
2. WHEN CONDITIONS PERMIT, USE 6' 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 2' SHOULDER OF UNPLANTED AGGREGATE BASE COURSE.
4. TRAILS OR TRAIL SEGMENTS OF ANY LENGTH MAY BE CONSTRUCTED WITH RUNNING SLOPES/VERTICAL GRADES UP TO 1:20 (5%). 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 (5%). 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 7.5% (8.33% OR 1:12 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 1.5% (2.08% OR 1:48 MAX). CROSS SLOPE DIRECTION VARIES. SLOPE SHOULDERS 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 SIDE 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 4'; 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: 1)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 1:1 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 4' FROM THE EDGE OF TRAIL.

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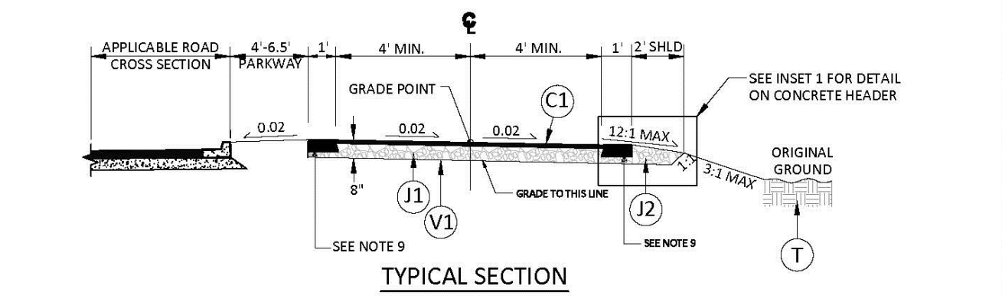
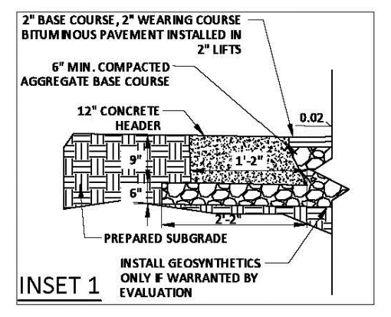
TOWN OF KNIGHTDALE
STANDARD DETAILS

ASPHALT TYPICAL GREENWAY SECTION
VARIABLE WIDTH (10' MIN)

STD. NO. 4.09-1


APPLICABLE ROAD CROSS SECTION
4'-6.5' PARKWAY
1'
4' MIN.
4' MIN.
1'
2' SHLD
GRADE POINT
C1
SEE INSET 1 FOR DETAIL ON CONCRETE HEADER
0.02
0.02
0.02
12:1 MAX
3:1 MAX
1:1
ORIGINAL GROUND
8"
J1
V1
J2
T
GRADE TO THIS LINE
SEE NOTE 9

TYPICAL SECTION


2" BASE COURSE / BITUMINOUS PAVEMENT INSTALLED IN 2" LIFTS
6" MIN. COMPACTED AGGREGATE BASE COURSE
12" CONCRETE HEADER
0.02
1'-2"
2'-2"
PREPARED SUBGRADE
INSTALL GEOSYNTHETICS ONLY IF WARRANTED BY EVALUATION

INSET 1

PAVEMENT SCHEDULE	
C1	2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 220 LBS. PER SQ. YD. OR 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
J1	6" AGGREGATE BASE COURSE
J2	VARIABLE DEPTH AGGREGATE BASE COURSE
T	EARTH MATERIAL
V1	GEOTEXTILE FOR PAVEMENT STABILIZATION

TABLE 1 - MAXIMUM RUNNING SLOPE AND TRAIL SEGMENT LENGTH

RUNNING SLOPE	MAX LENGTH OF SEGMENT
1:20 (5%)	200 FT
1:12(8.33%)	30 FT

NOTES:

1. TRAIL WIDTH TO BE DETERMINED BY THE TOWN OF KNIGHTDALE
2. PROVIDE MINIMUM 2' SHOULDER OF UNPLANTED AGGREGATE BASE COURSE.
3. TRAILS OR TRAIL SEGMENTS OF ANY LENGTH MAY BE CONSTRUCTED WITH RUNNING SLOPES/VERTICAL GRADES UP TO 1:20 (5%). 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 (5%). 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 7.5% (8.33% OR 1:12 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% (2.08% OR 1:48 MAX). CROSS SLOPE DIRECTION VARIES. SLOPE SHOULDERS 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 SIDE 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: 1)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 1:1 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 4' FROM THE EDGE OF TRAIL.
12. DO NOT PLANT TREES WITHIN 2'-0" SHOULDER, RECOMMENDED 6'-0" DISTANCE FROM TRAIL EDGE OR GREATER IF SWALE OR SCM IS PRESENT.

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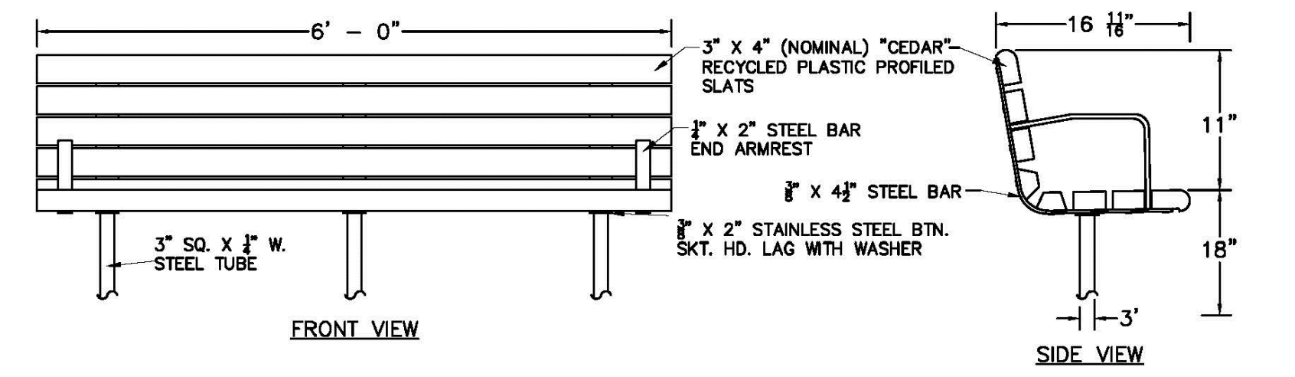
TOWN OF KNIGHTDALE
STANDARD DETAILS

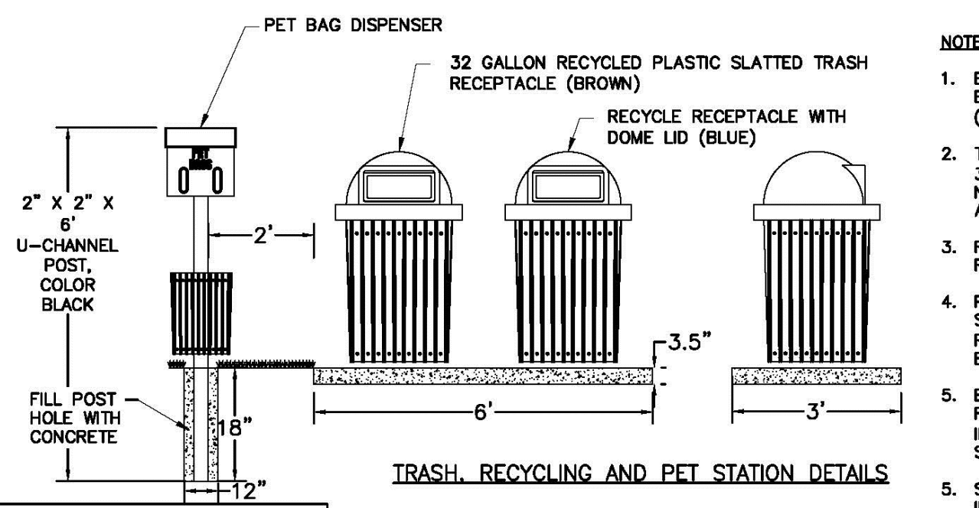
ASPHALT TYPICAL SIDEPATH

STD. NO. 4.09-3


6' - 0"
3" x 4" (NOMINAL) "CEDAR" RECYCLED PLASTIC PROFILED SLATS
1/4" X 2" STEEL BAR END ARMREST
3/8" X 4 1/2" STEEL BAR
3/8" X 2" STAINLESS STEEL BTN. SKT. HD. LAG WITH WASHER
3" SQ. X 1/4" W. STEEL TUBE
16 7/8"
11"
18"
3'

FRONT VIEW

SIDE VIEW


PET BAG DISPENSER
32 GALLON RECYCLED PLASTIC SLATTED TRASH RECEPTACLE (BROWN)
RECYCLE RECEPTACLE WITH DOME LID (BLUE)
2" X 2" X 6' U-CHANNEL POST, COLOR BLACK
2'
FILL POST HOLE WITH CONCRETE
18"
12"
3.5"
6'
3'

TRASH, RECYCLING AND PET STATION DETAILS

NOTES:

1. BENCHES SHALL BE KAY PARK RECREATION CONTOUR BENCH WITH BACK, 6 FT., RECYCLED PLASTIC (BROWN), OR APPROVED EQUIVALENT.
2. TRASH RECEPTACLE SHALL BE TREE TOP PRODUCTS 32 GALLON, SLATTED, RECYCLED PLASTIC (BROWN), NO. 4ZK5003 WITH DOME LID AND PUSH DOOR, OR APPROVED EQUIVALENT.
3. RECYCLING RECEPTACLE SHALL MATCH TRASH RECEPTACLE, WITH USE OF BLUE DOME LID.
4. PET WASTE STATION SHALL BE TREE TOP PRODUCTS STANDARD ROUND PET WASTE STATION, 10 GALLON, RECYCLED PLASTIC (BROWN), OR APPROVED EQUIVALENT.
5. BENCHES, DOG STATION, TRASH AND RECYCLE RECEPTACLES TO BE INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND DETAILS.
5. SURFACE OR INGROUND MOUNT OF FIXTURES TO BE INDICATED AND APPROVED IN PLAN REVIEW.
6. AMENITIES TO BE PLACED IN ACCORDANCE WITH UDO AND APPROVED CONSTRUCTION PLANS.

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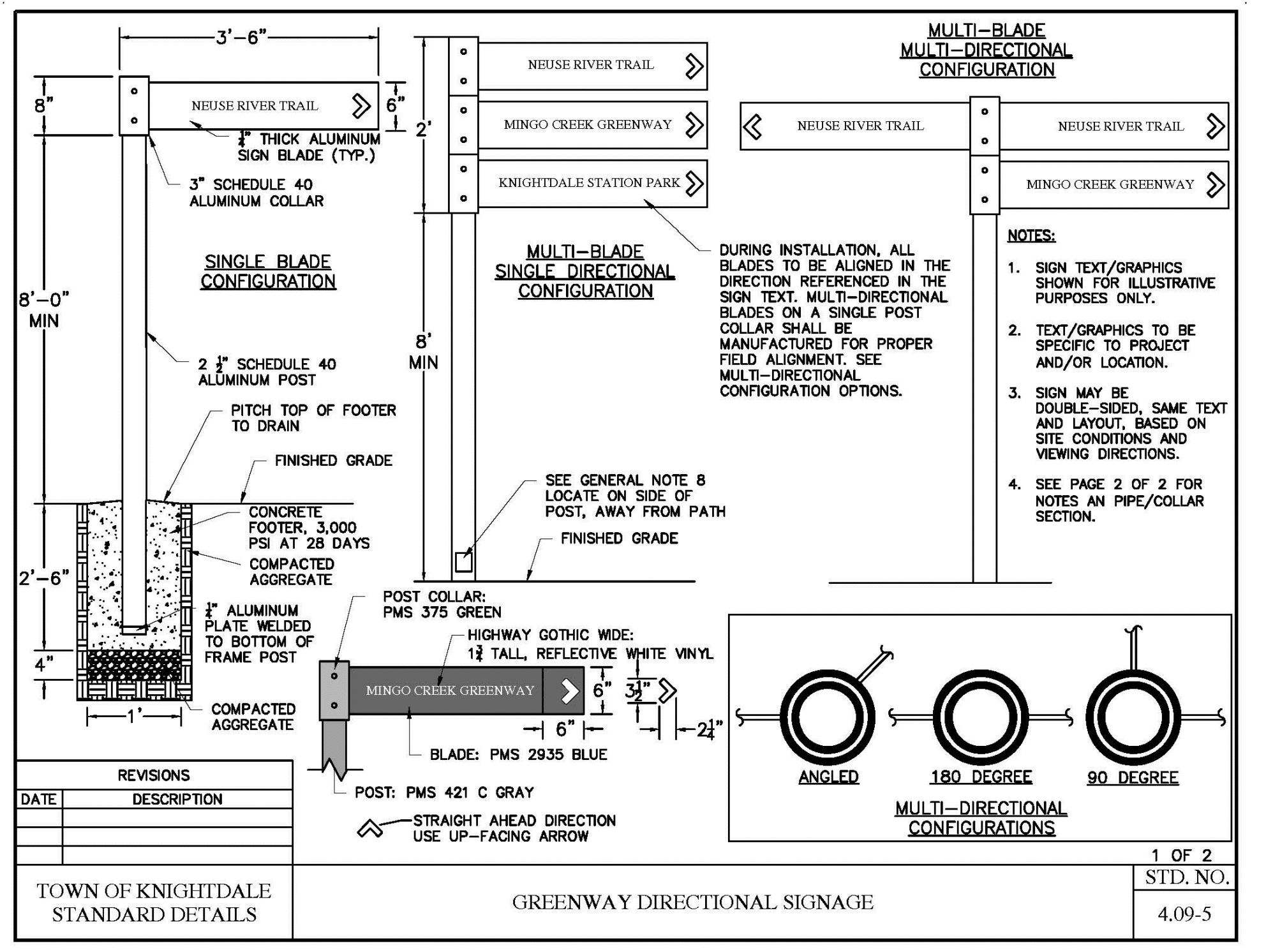
TOWN OF KNIGHTDALE
STANDARD DETAILS

PUBLIC GREENWAY AMENITIES
(BENCH, TRASH, RECYCLING, PET STATION)

STD. NO. 4.09-4


3'-6"
8"
NEUSE RIVER TRAIL
6"
1/4" THICK ALUMINUM SIGN BLADE (TYP.)
3" SCHEDULE 40 ALUMINUM COLLAR
SINGLE BLADE CONFIGURATION
8'-0" MIN
2 1/2" SCHEDULE 40 ALUMINUM POST
PITCH TOP OF FOOTER TO DRAIN
FINISHED GRADE
CONCRETE FOOTER, 3,000 PSI AT 28 DAYS
COMPACTED AGGREGATE
1/4" ALUMINUM PLATE WELDED TO BOTTOM OF FRAME POST
2'-6"
4"
1'
COMPACTED AGGREGATE
NEUSE RIVER TRAIL
MINGO CREEK GREENWAY
KNIGHTDALE STATION PARK
2'
8' MIN
MULTI-BLADE SINGLE DIRECTIONAL CONFIGURATION
SEE GENERAL NOTE 8 LOCATE ON SIDE OF POST, AWAY FROM PATH
FINISHED GRADE
MULTI-BLADE MULTI-DIRECTIONAL CONFIGURATION
NEUSE RIVER TRAIL
NEUSE RIVER TRAIL
MINGO CREEK GREENWAY
POST COLLAR: PMS 375 GREEN
HIGHWAY GOTHIC WIDE: 1 3/4 TALL, REFLECTIVE WHITE VINYL
MINGO CREEK GREENWAY
6"
3 1/2"
6"
2 1/4"
BLADE: PMS 2935 BLUE
POST: PMS 421 C GRAY
STRAIGHT AHEAD DIRECTION USE UP-FACING ARROW
ANGLED
180 DEGREE
90 DEGREE
MULTI-DIRECTIONAL CONFIGURATIONS

DURING INSTALLATION, ALL BLADES TO BE ALIGNED IN THE DIRECTION REFERENCED IN THE SIGN TEXT. MULTI-DIRECTIONAL BLADES ON A SINGLE POST COLLAR SHALL BE MANUFACTURED FOR PROPER FIELD ALIGNMENT. SEE MULTI-DIRECTIONAL CONFIGURATION OPTIONS.

NOTES:

1. SIGN TEXT/GRAPHICS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. TEXT/GRAPHICS TO BE SPECIFIC TO PROJECT AND/OR LOCATION.
3. SIGN MAY BE DOUBLE-SIDED, SAME TEXT AND LAYOUT, BASED ON SITE CONDITIONS AND VIEWING DIRECTIONS.
4. SEE PAGE 2 OF 2 FOR NOTES AN PIPE/COLLAR SECTION.

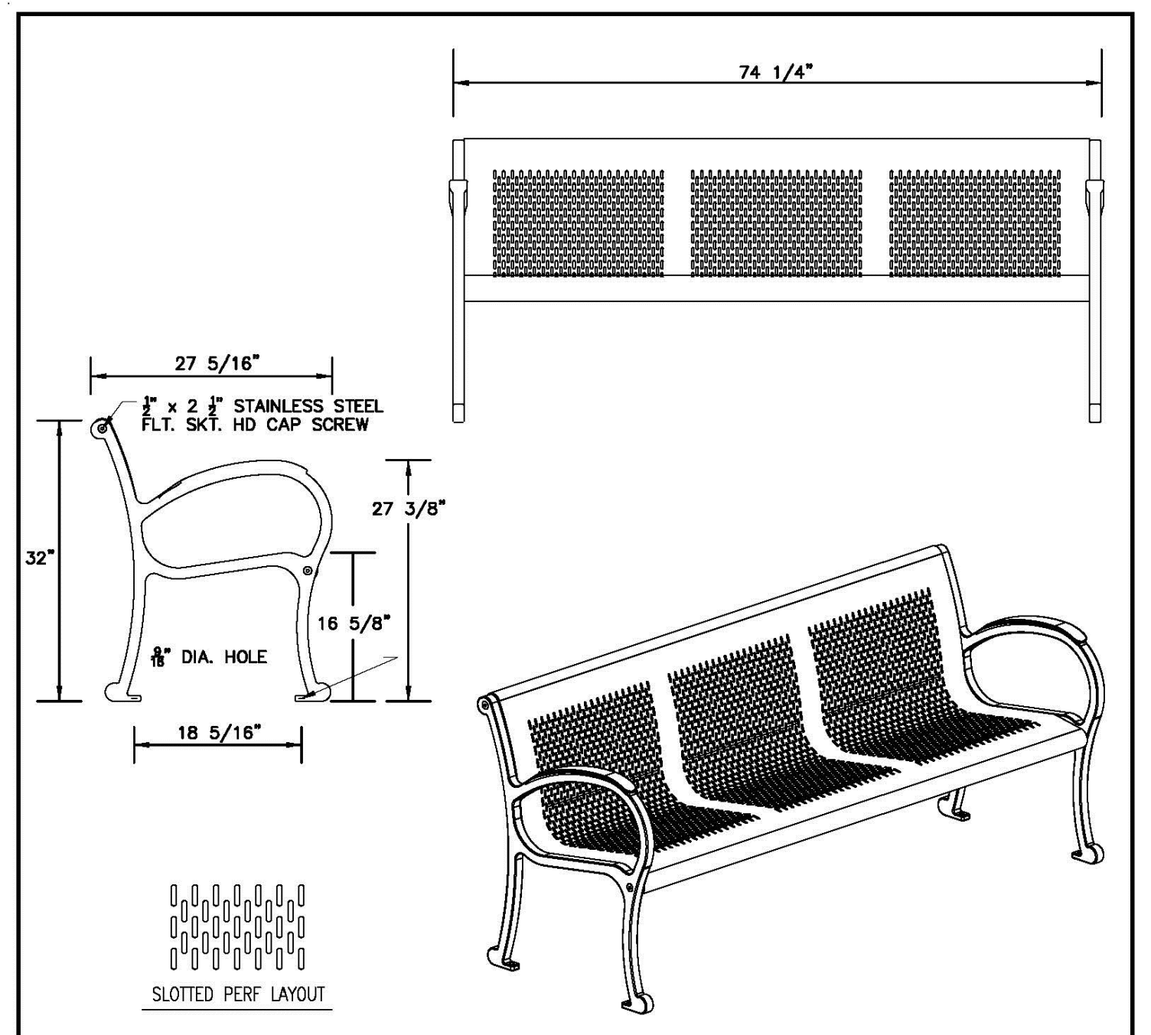
REVISIONS	
DATE	DESCRIPTION

1 OF 2

TOWN OF KNIGHTDALE
STANDARD DETAILS

GREENWAY DIRECTIONAL SIGNAGE

STD. NO. 4.09-5


74 1/4"
27 5/16"
1/2" x 2" STAINLESS STEEL FLT. SKT. HD CAP SCREW
32"
27 3/8"
15 5/8"
3/8" DIA. HOLE
18 5/16"
SLOTTED PERF LAYOUT

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 COATING THEN POLYESTER POWDER COATED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE
STANDARD DETAILS

TYPICAL BENCH

STD. NO. 4.14

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493
STEPHEN J. BALLENTINE

Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

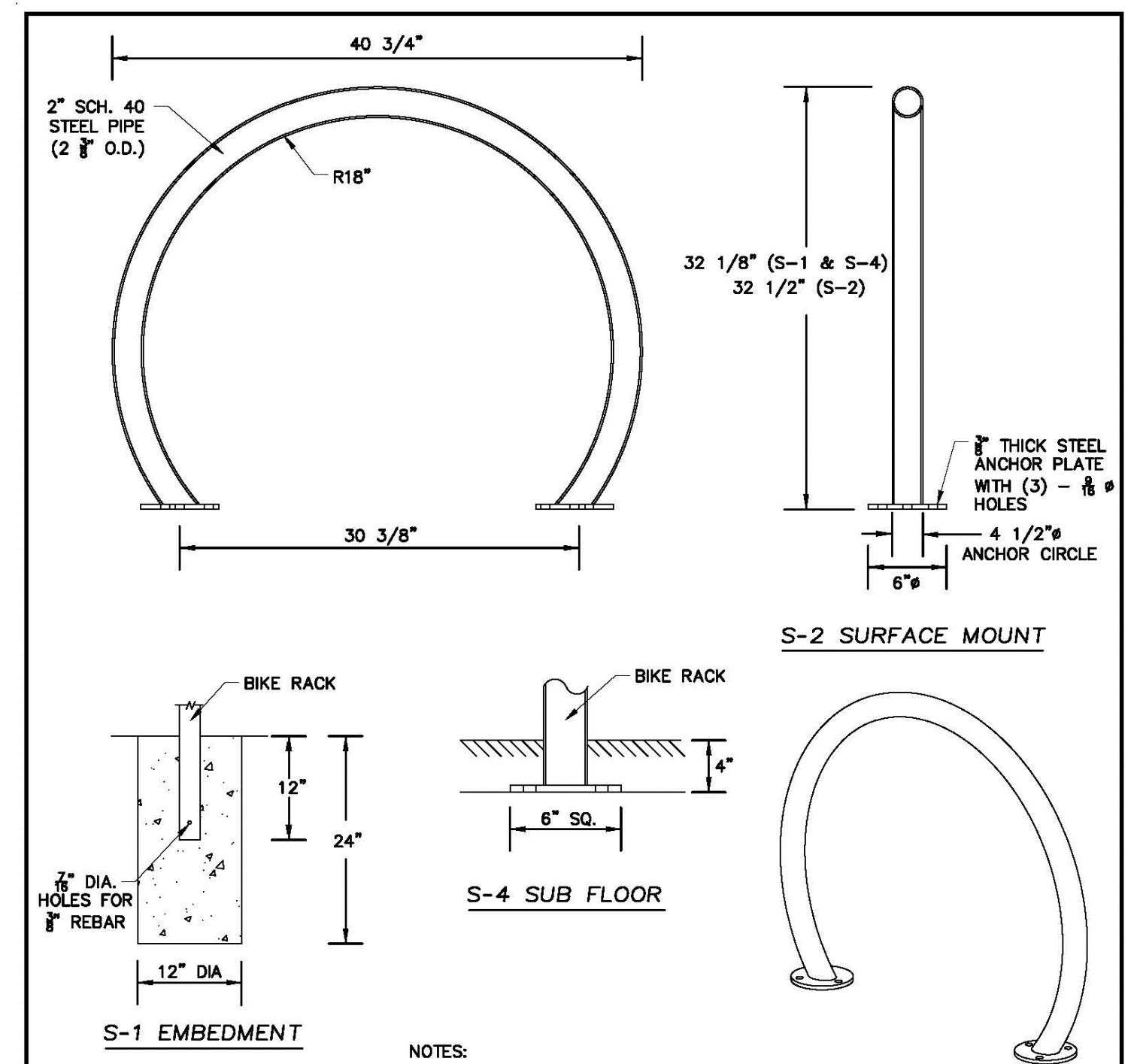
OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

SITE DETAILS

DATE:
DESIGNED BY: CS
DRAWN BY: TAH/EDN
CHECKED BY: SJB
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No. C2.52

Do Not Use for Construction - PRELIMINARY

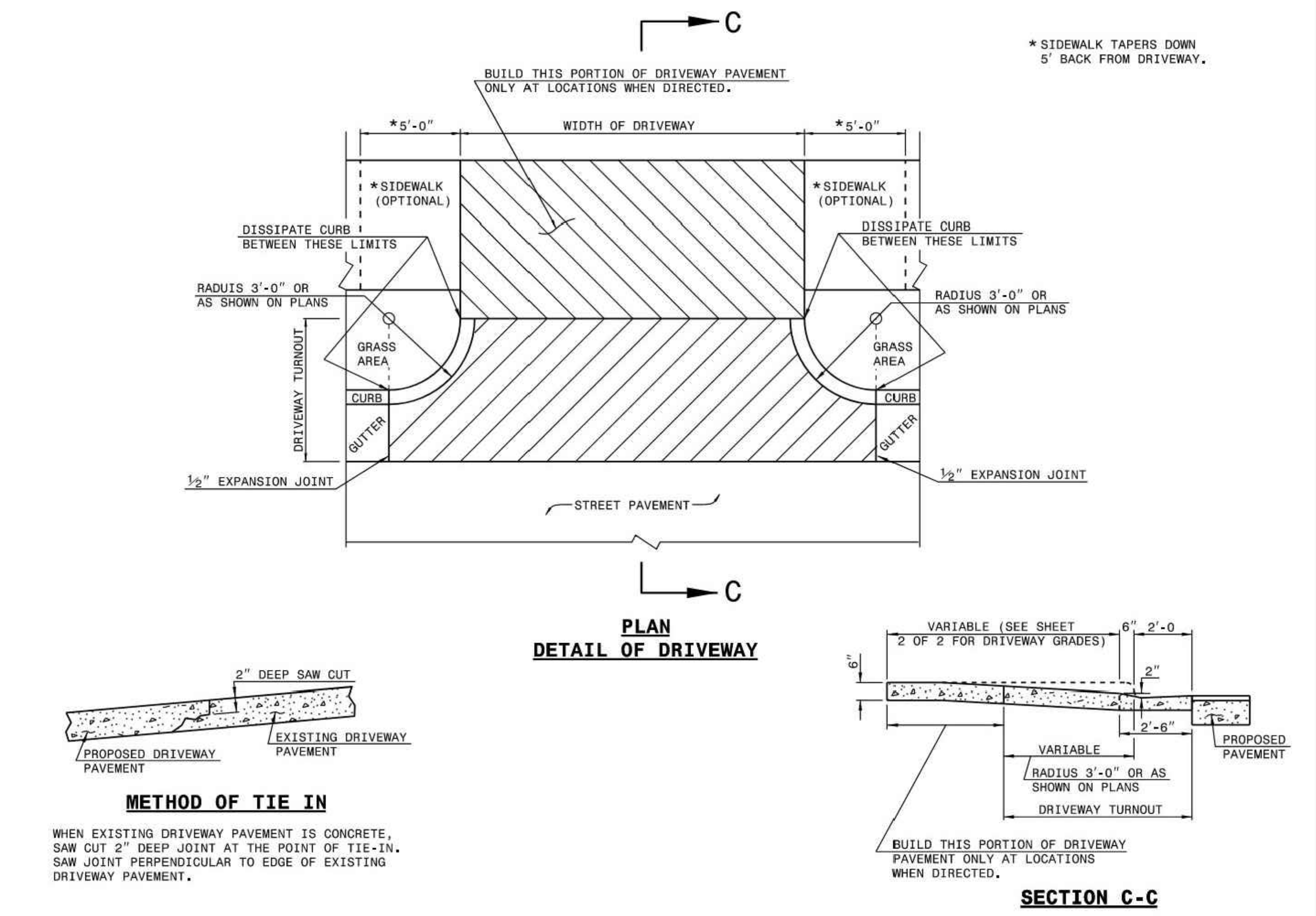

40 3/4"
2" SCH. 40 STEEL PIPE (2 3/8" O.D.)
R18"
32 1/8" (S-1 & S-4)
32 1/2" (S-2)
3/8" THICK STEEL ANCHOR PLATE WITH (3) – 9/16 ø HOLES
4 1/2"ø ANCHOR CIRCLE
6"ø
30 3/8"
S-2 SURFACE MOUNT
BIKE RACK
12"
24"
7/16" DIA. HOLES FOR 3/8" REBAR
12" DIA
S-1 EMBEDMENT
BIKE RACK
4"
6" SQ.
S-4 SUB FLOOR

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. 1/2" X 3 3/4" 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


C
* SIDEWALK TAPERS DOWN 5' BACK FROM DRIVEWAY.
BUILD THIS PORTION OF DRIVEWAY PAVEMENT ONLY AT LOCATIONS WHEN DIRECTED.
*5'-0"
WIDTH OF DRIVEWAY
*5'-0"
*SIDEWALK (OPTIONAL)
*SIDEWALK (OPTIONAL)
DISSIPATE CURB BETWEEN THESE LIMITS
DISSIPATE CURB BETWEEN THESE LIMITS
RADUIS 3'-0" OR AS SHOWN ON PLANS
RADIUS 3'-0" OR AS SHOWN ON PLANS
GRASS AREA
GRASS AREA
DRIVEWAY TURNOUT
CURB
CURB
GUTTER
GUTTER
1/2" EXPANSION JOINT
1/2" EXPANSION JOINT
STREET PAVEMENT
C
2" DEEP SAW CUT
PROPOSED DRIVEWAY PAVEMENT
EXISTING DRIVEWAY PAVEMENT
VARIABLE (SEE SHEET 2 OF 2 FOR DRIVEWAY GRADES)
6"
2'-0
6"
2"
2'-6"
VARIABLE
RADIUS 3'-0" OR AS SHOWN ON PLANS
DRIVEWAY TURNOUT
PROPOSED PAVEMENT
BUILD THIS PORTION OF DRIVEWAY PAVEMENT ONLY AT LOCATIONS WHEN DIRECTED.

PLAN
DETAIL OF DRIVEWAY

METHOD OF TIE IN

WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE, SAW CUT 2" DEEP JOINT AT THE POINT OF TIE-IN. SAW JOINT PERPENDICULAR TO EDGE OF EXISTING DRIVEWAY PAVEMENT.

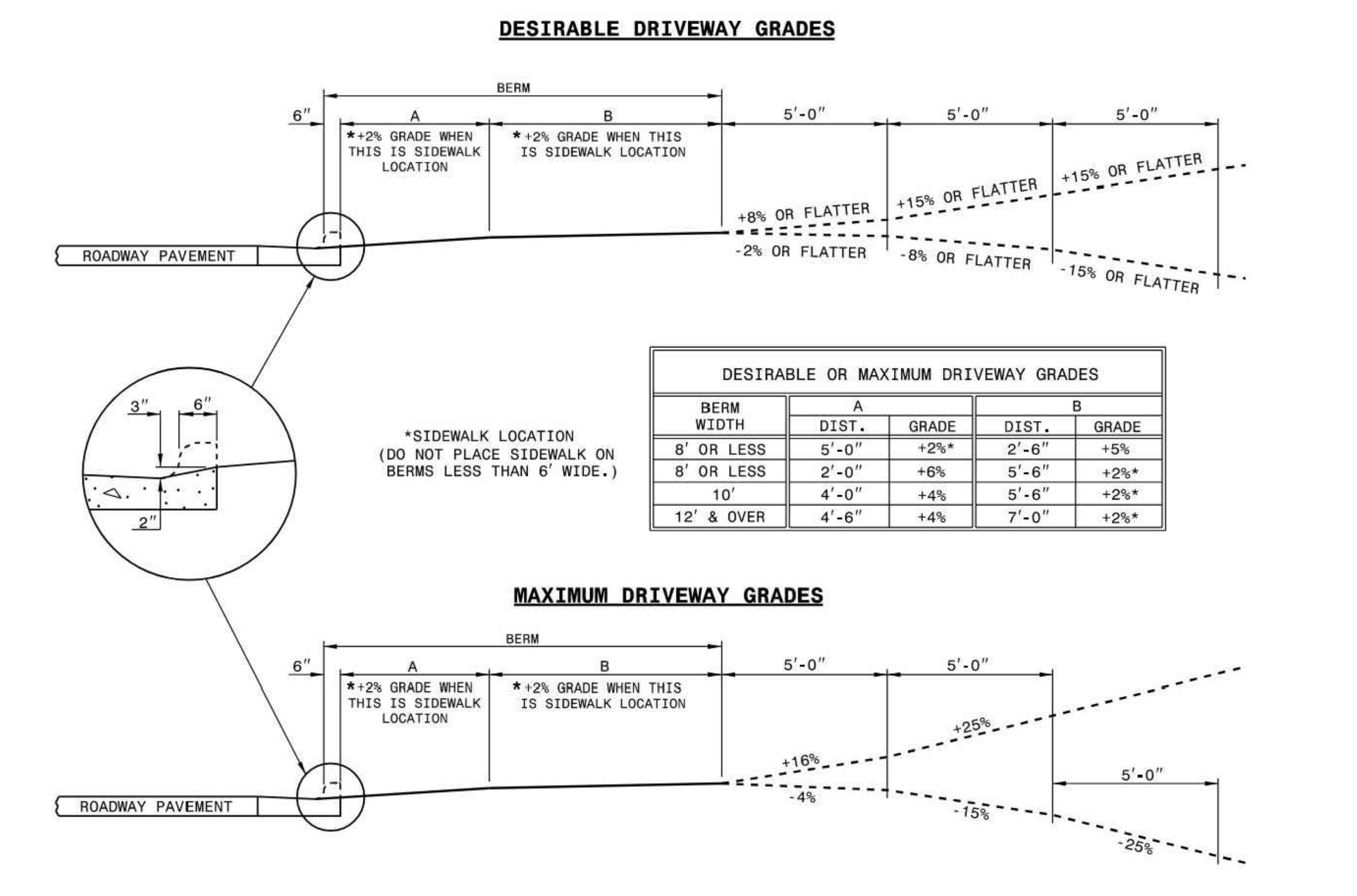
SECTION C-C

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-24

ROADWAY STANDARD DRAWING FOR
DRIVEWAY TURNOUT
RADIUS TYPE

SHEET 1 OF 2
848.02

DESIRABLE DRIVEWAY GRADES


BERM
6"
A
B
5'-0"
5'-0"
5'-0"
*+2% GRADE WHEN THIS IS SIDEWALK LOCATION
*+2% GRADE WHEN THIS IS SIDEWALK LOCATION
+8% OR FLATTER
+15% OR FLATTER
+15% OR FLATTER
-2% OR FLATTER
-8% OR FLATTER
-15% OR FLATTER
ROADWAY PAVEMENT
3"
6"
2"
BERM
6"
A
B
5'-0"
5'-0"
5'-0"
*+2% GRADE WHEN THIS IS SIDEWALK LOCATION
*+2% GRADE WHEN THIS IS SIDEWALK LOCATION
+16%
+25%
-4%
-15%
-25%
ROADWAY PAVEMENT

*SIDEWALK LOCATION
(DO NOT PLACE SIDEWALK ON BERMS LESS THAN 6' WIDE.)

DESIRABLE OR MAXIMUM DRIVEWAY GRADES

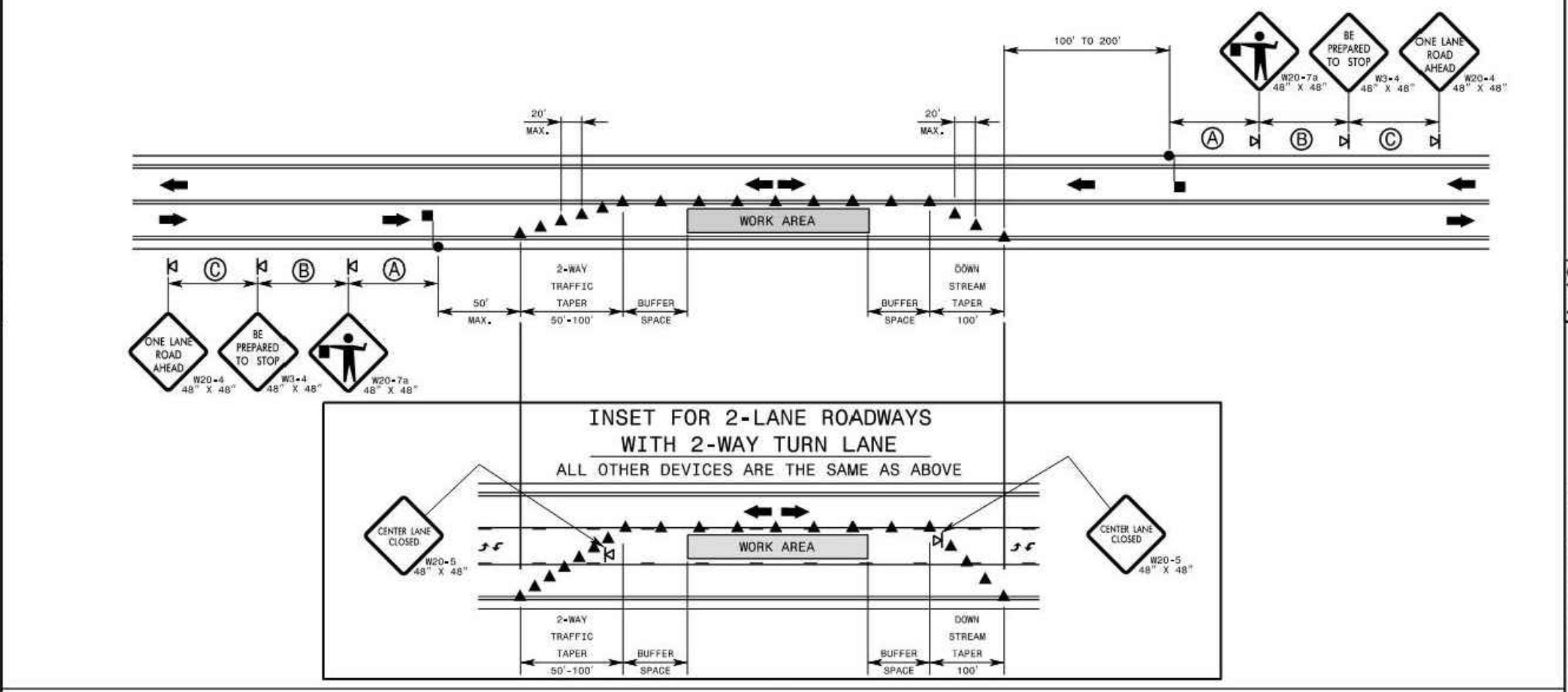
BERM WIDTH	A		B	
	DIST.	GRADE	DIST.	GRADE
8' OR LESS	5'-0"	+2%*	2'-6"	+5%
8' OR LESS	2'-0"	+6%	5'-6"	+2%*
10'	4'-0"	+4%	5'-6"	+2%*
12' & OVER	4'-6"	+4%	7'-0"	+2%*

MAXIMUM DRIVEWAY GRADES

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-24

ROADWAY STANDARD DRAWING FOR
DRIVEWAY TURNOUT
DRIVEWAY GRADES

SHEET 2 OF 2
848.02


100' TO 200'
BE PREPARED TO STOP
ONE LANE ROAD AHEAD
W20-7a 48" X 48"
W3-4 48" X 48"
W20-4 48" X 48"
20' MAX.
20' MAX.
Ⓐ
Ⓑ
Ⓒ
WORK AREA
50' MAX.
2-WAY TRAFFIC TAPER 50'-100'
BUFFER SPACE
BUFFER SPACE
DOWN STREAM TAPER 100'
INSET FOR 2-LANE ROADWAYS WITH 2-WAY TURN LANE
ALL OTHER DEVICES ARE THE SAME AS ABOVE
CENTER LANE CLOSED
W20-5 48" X 48"
WORK AREA

GENERAL NOTES FOR FLAGGING OPERATIONS

1- REFER TO RSD. 1101.11, SHEETS 1 & 4, FOR "L" DISTANCE AND SIGN SPACING.
2- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC.
3- REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
4- PLACE CONES THRU THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.
5- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE FLAGGER (REFER TO RSD. 1101.11, SHEET 2).
6- DO NOT STOP TRAFFIC IN ANY ONE DIRECTION FOR MORE THAN 5 MINUTES AT A TIME.
7- DRUMS OR SKINNY DRUMS MAY BE USED IN LIEU OF CONES. REFER TO RSD. 1180.01 FOR SKINNY DRUM REQUIREMENTS.
8- USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FT. IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS PLACE SIGNALS IN THE FLASH MODE AND USE LAW ENFORCEMENT.
9- REFER TO THE CURRENT MUTCD FOR FLAGGER CONTROL, REQUIREMENTS, AND PROCEDURES.
10- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.
11- IF VEHICLE QUEUES WILL REACH WITHIN 15' OF EITHER SIDE OF ACTIVE RAILROAD TRACKS, PROVIDE A UNIFORMED LAW ENFORCEMENT OFFICER OR FLAGGER TO PREVENT VEHICLES FROM STOPPING WITHIN THE GRADE CROSSING. PROVIDE OFFICER OR FLAGGER EVEN IF AUTOMATIC WARNING MEASURES ALREADY EXIST.

GENERAL NOTES FOR PILOT CAR OPERATIONS

1- USE PILOT CARS WHEN DIRECTED BY THE ENGINEER.
2- IF ROADWAY WIDTH IS LESS THAN 22 FEET (EOP TO EOP), CONES MAY NOT BE REQUIRED ALONG WORK AREA, AND AT THE DISCRETION OF THE ENGINEER, CONES MAY BE OMITTED ALONG THE WORK AREA IF USING A PILOT CAR.
3- CONES ARE ALWAYS REQUIRED IN THE UPSTREAM AND DOWNSTREAM TAPERS.
4- MOUNT SIGN G20-4 "PILOT CAR FOLLOW ME" AT A CONSPICUOUS POSITION ON THE REAR OF THE PILOT VEHICLE.
5- DO NOT INSTALL MORE THAN ONE (1) MILE OF LANE CLOSURE, MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.
6- ADVISE RESIDENTS AND BUSINESSES WITHIN THE LANE CLOSURE LIMITS ABOUT METHODS OF SAFE EGRESS AND INGRESS FROM DRIVEWAYS DURING FLAGGING AND PILOT CAR OPERATIONS.

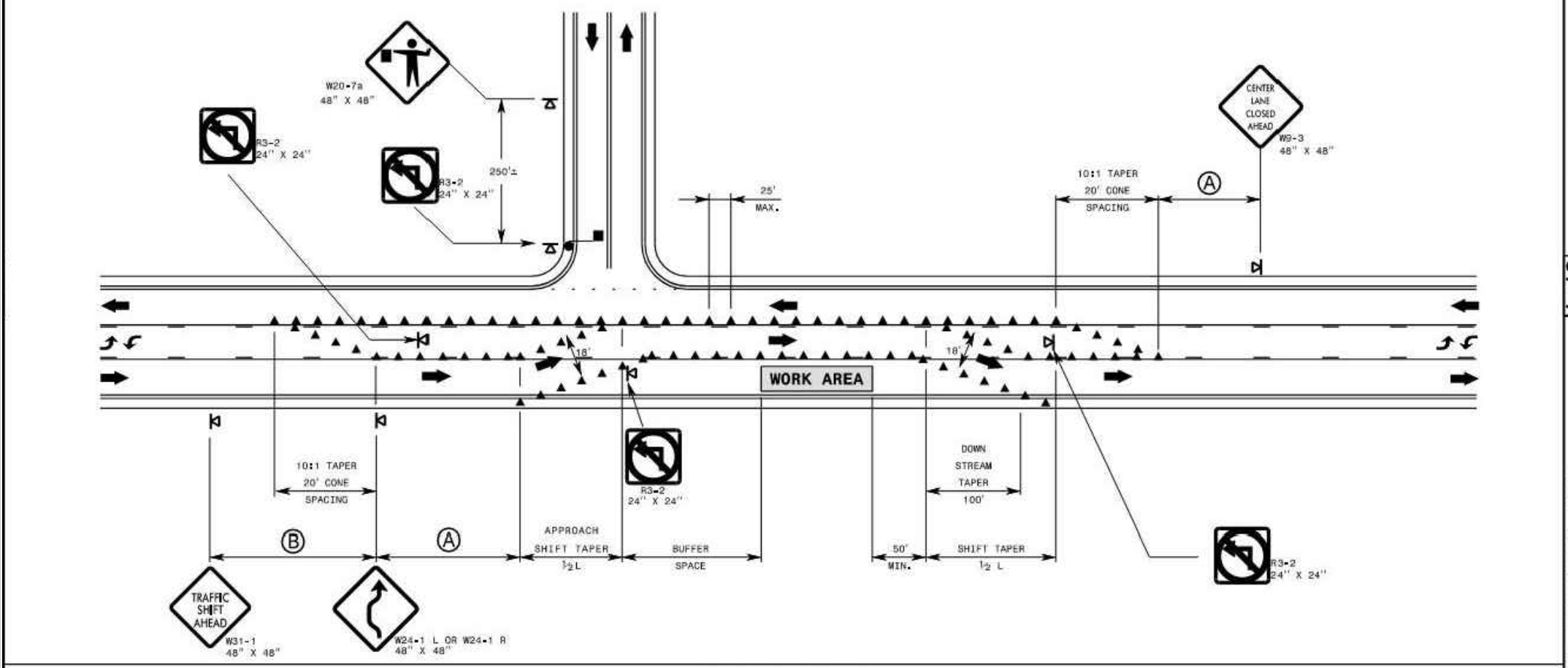
LEGEND

■–●	FLAGGER
▲	CONE
◁	PORTABLE SIGN
◀	DIRECTION OF TRAFFIC FLOW

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-18

ROADWAY STANDARD DRAWING FOR
TEMPORARY LANE CLOSURES
2-LANE, 2-WAY ROADWAY-1 LANE CLOSED

SHEET 1 OF 14
1101.02


10:1 TAPER 20' CONE SPACING
Ⓑ
Ⓐ
APPROACH SHIFT TAPER 1/2 L
BUFFER SPACE
R3-2 24" X 24"
DOWN STREAM TAPER 100'
50' MIN.
SHIFT TAPER 1/2 L
R3-2 24" X 24"
TRAFFIC SHIFT AHEAD
W31-1 48" X 48"
W24-1 L OR W24-1 R 48" X 48"
WORK AREA

GENERAL NOTES

1- REFER TO RSD. 1101.11, SHEETS 1 & 4, FOR "L" DISTANCE AND SIGN SPACING.
2- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
3- PLACE CONES ADJACENT TO THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT. PLACE CONES SEPARATING OPPOSING TRAFFIC AT THE MAXIMUM SPACING OF 25 FEET.
4- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE BEGINNING OF THE APPROACH SHIFT TAPER (REFER TO RSD. 1101.11, SHEET 2).
5- TMAs ARE REQUIRED WHEN ADEQUATE BUFFER SPACE CANNOT BE ATTAINED. POSITION TMAs TO MAINTAIN A ROLL-AHEAD DISTANCE AS RECOMMENDED BY THE MANUFACTURER.
6- DRUMS OR SKINNY DRUMS MAY BE USED IN LIEU OF CONES. REFER TO RSD. 1180.01 FOR SKINNY DRUM REQUIREMENTS.
7- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.
8- USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FT. IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS, PLACE SIGNALS IN THE FLASH MODE AND USE LAW ENFORCEMENT.

LEGEND

■–●	FLAGGER
▲	CONE
◁	PORTABLE SIGN
◀	DIRECTION OF TRAFFIC FLOW

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
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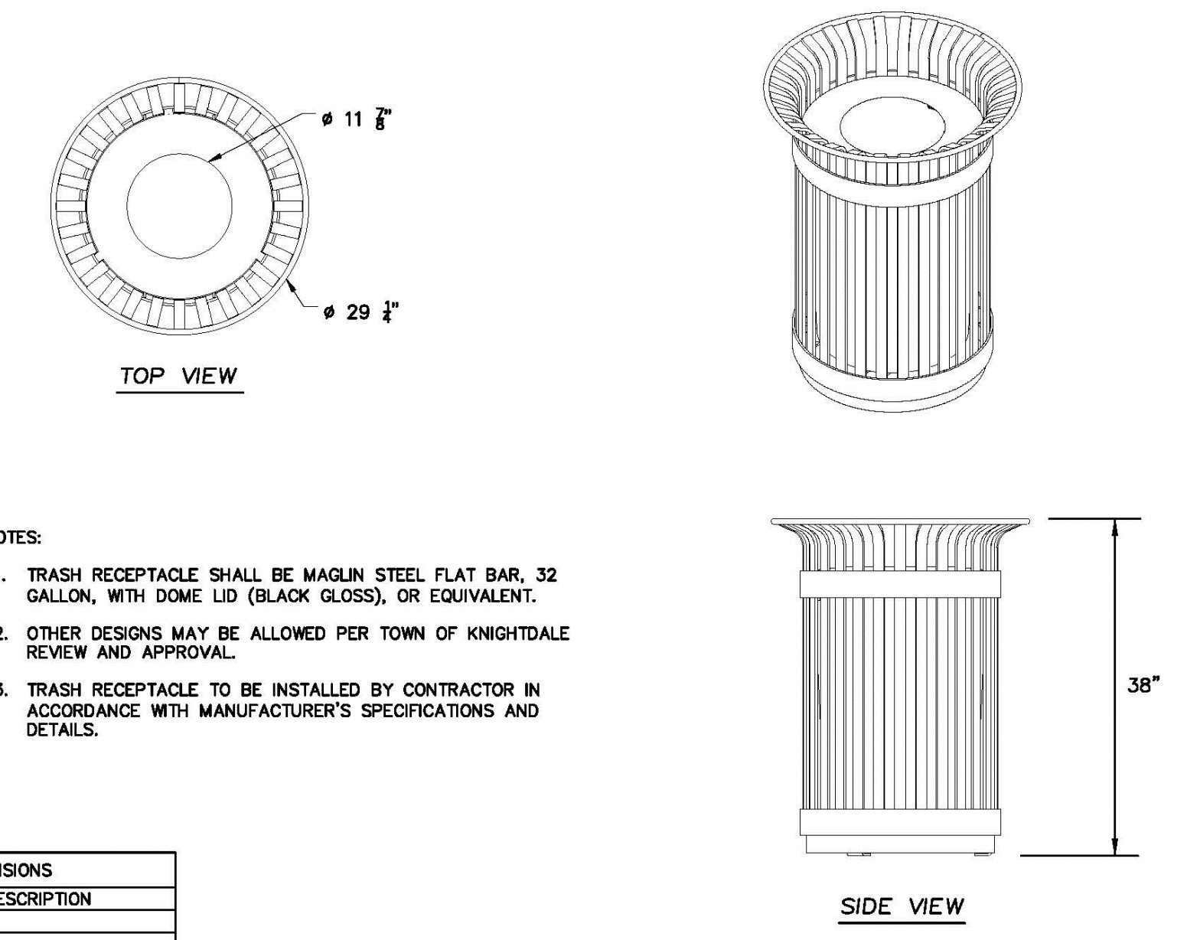
ROADWAY STANDARD DRAWING FOR
TEMPORARY LANE CLOSURES
2-LANE, 2-WAY ROADWAY WITH 2-WAY TURN LANE
1 THRU LANE CLOSED

SHEET 2 OF 14
1101.02

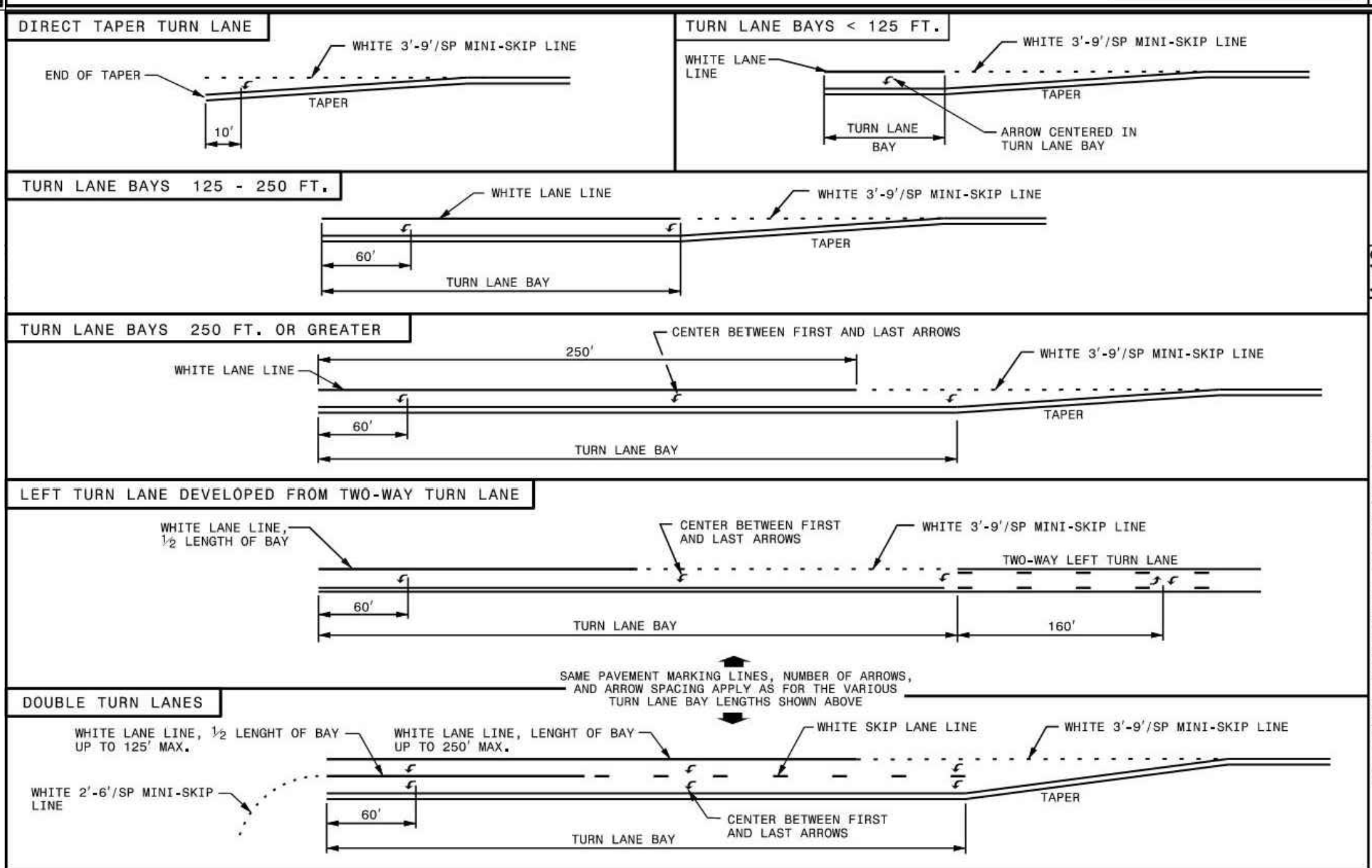

ø 11 7/8"
ø 29 1/4"
TOP VIEW
38"
SIDE VIEW

NOTES:

1. TRASH RECEPTACLE SHALL BE MAGLIN STEEL FLAT BAR, 32 GALLON, WITH DOME LID (BLACK GLOSS), OR EQUIVALENT.
2. OTHER DESIGNS MAY BE ALLOWED PER TOWN OF KNIGHTDALE REVIEW AND APPROVAL.
3. TRASH RECEPTACLE TO BE INSTALLED BY CONTRACTOR IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND DETAILS.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TYPICAL TRASH RECEPTACLE	STD. NO. 4.16


DIRECT TAPER TURN LANE
END OF TAPER
WHITE 3'-9'/SP MINI-SKIP LINE
TAPER
10'
TURN LANE BAYS < 125 FT.
WHITE LANE LINE
WHITE 3'-9'/SP MINI-SKIP LINE
TAPER
TURN LANE BAY
ARROW CENTERED IN TURN LANE BAY
TURN LANE BAYS 125 - 250 FT.
WHITE LANE LINE
WHITE 3'-9'/SP MINI-SKIP LINE
TAPER
60'
TURN LANE BAY
TURN LANE BAYS 250 FT. OR GREATER
CENTER BETWEEN FIRST AND LAST ARROWS
250'
WHITE LANE LINE
WHITE 3'-9'/SP MINI-SKIP LINE
TAPER
60'
TURN LANE BAY
LEFT TURN LANE DEVELOPED FROM TWO-WAY TURN LANE
WHITE LANE LINE, 1/2 LENGTH OF BAY
CENTER BETWEEN FIRST AND LAST ARROWS
WHITE 3'-9'/SP MINI-SKIP LINE
TWO-WAY LEFT TURN LANE
60'
TURN LANE BAY
160'
SAME PAVEMENT MARKING LINES, NUMBER OF ARROWS, AND ARROW SPACING APPLY AS FOR THE VARIOUS TURN LANE BAY LENGTHS SHOWN ABOVE
DOUBLE TURN LANES
WHITE LANE LINE, 1/2 LENGHT OF BAY UP TO 125' MAX.
WHITE LANE LINE, LENGHT OF BAY UP TO 250' MAX.
WHITE SKIP LANE LINE
WHITE 3'-9'/SP MINI-SKIP LINE
WHITE 2'-6'/SP MINI-SKIP LINE
TAPER
60'
CENTER BETWEEN FIRST AND LAST ARROWS
TURN LANE BAY

GENERAL NOTES:

1- USE THE GUIDANCE SHOWN ABOVE IN CONJUNCTION WITH THE INTERSECTION GUIDANCE SHOWN ON ROADWAY STANDARD DRAWING 1205.04.
2- THE NUMBER OF ARROWS SHOWN IS THE MINIMUM REQUIRED. USE ADDITIONAL ARROWS AS DIRECTED BY THE ENGINEER.

LEGEND
↰ PAVEMENT MARKING SYMBOL

STATE OF NORTH CAROLINA
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RALEIGH, N.C.
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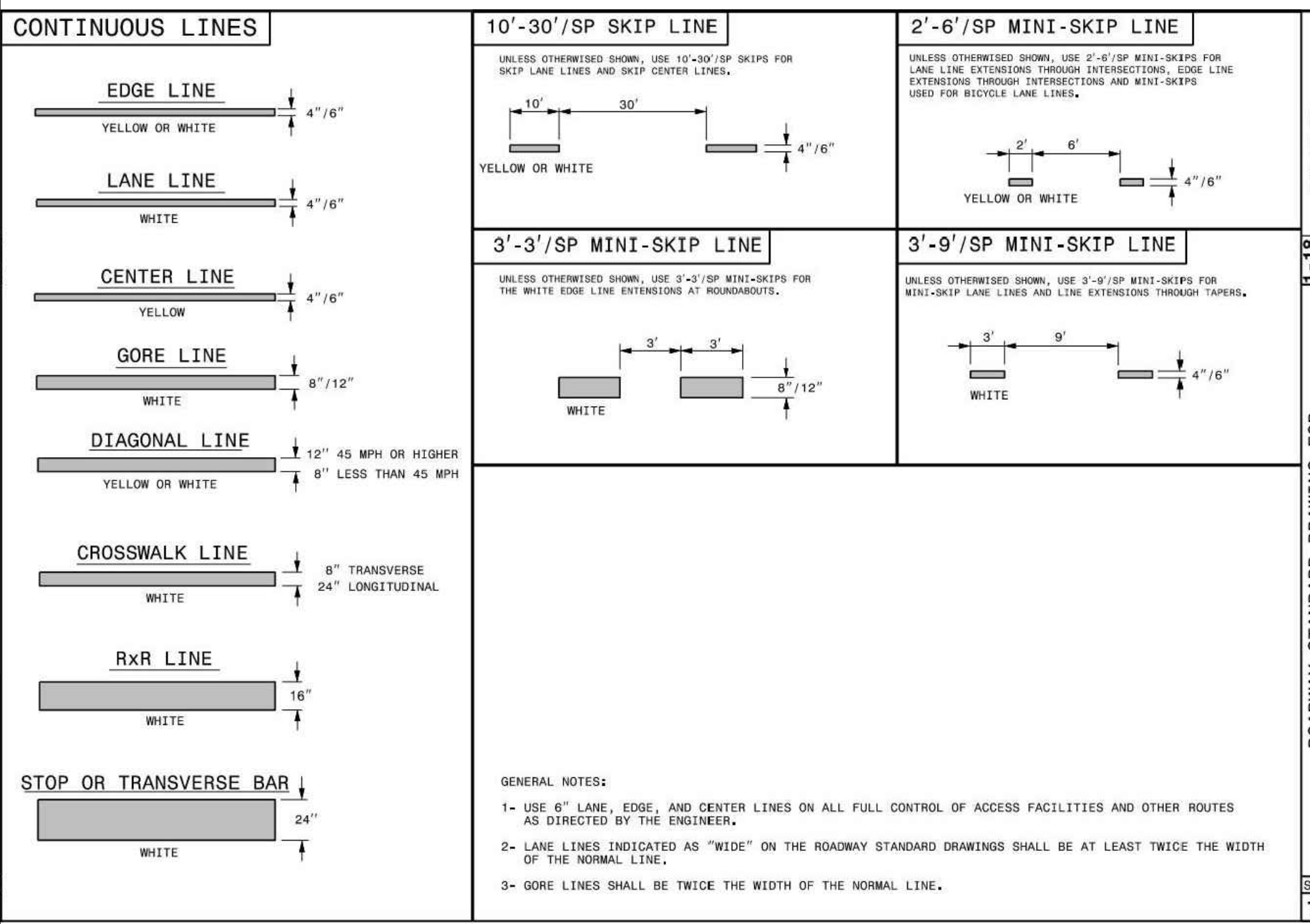
ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
TURN LANES

SHEET 1 OF 1
1205.05


CONTINUOUS LINES
EDGE LINE
YELLOW OR WHITE
4"/6"
LANE LINE
WHITE
4"/6"
CENTER LINE
YELLOW
4"/6"
GORE LINE
WHITE
8"/12"
DIAGONAL LINE
YELLOW OR WHITE
12" 45 MPH OR HIGHER
8" LESS THAN 45 MPH
CROSSWALK LINE
WHITE
8" TRANSVERSE
24" LONGITUDINAL
RxR LINE
WHITE
16"
STOP OR TRANSVERSE BAR
WHITE
24"
10'-30'/SP SKIP LINE
UNLESS OTHERWISED SHOWN, USE 10'-30'/SP SKIPS FOR SKIP LANE LINES AND SKIP CENTER LINES.
10'
30'
YELLOW OR WHITE
4"/6"
2'-6'/SP MINI-SKIP LINE
UNLESS OTHERWISED SHOWN, USE 2'-6'/SP MINI-SKIPS FOR LANE LINE EXTENSIONS THROUGH INTERSECTIONS, EDGE LINE EXTENSIONS THROUGH INTERSECTIONS AND MINI-SKIPS USED FOR BICYCLE LANE LINES.
2'
6'
YELLOW OR WHITE
4"/6"
3'-3'/SP MINI-SKIP LINE
UNLESS OTHERWISED SHOWN, USE 3'-3'/SP MINI-SKIPS FOR THE WHITE EDGE LINE ENTENSIONS AT ROUNDABOUTS.
3'
3'
WHITE
8"/12"
3'-9'/SP MINI-SKIP LINE
UNLESS OTHERWISED SHOWN, USE 3'-9'/SP MINI-SKIPS FOR MINI-SKIP LANE LINES AND LINE EXTENSIONS THROUGH TAPERS.
3'
9'
WHITE
4"/6"

GENERAL NOTES:

1- USE 6" LANE, EDGE, AND CENTER LINES ON ALL FULL CONTROL OF ACCESS FACILITIES AND OTHER ROUTES AS DIRECTED BY THE ENGINEER.
2- LANE LINES INDICATED AS "WIDE" ON THE ROADWAY STANDARD DRAWINGS SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE.
3- GORE LINES SHALL BE TWICE THE WIDTH OF THE NORMAL LINE.

STATE OF NORTH CAROLINA
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RALEIGH, N.C.
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ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
LINE TYPES AND OFFSETS

SHEET 1 OF 2
1205.01

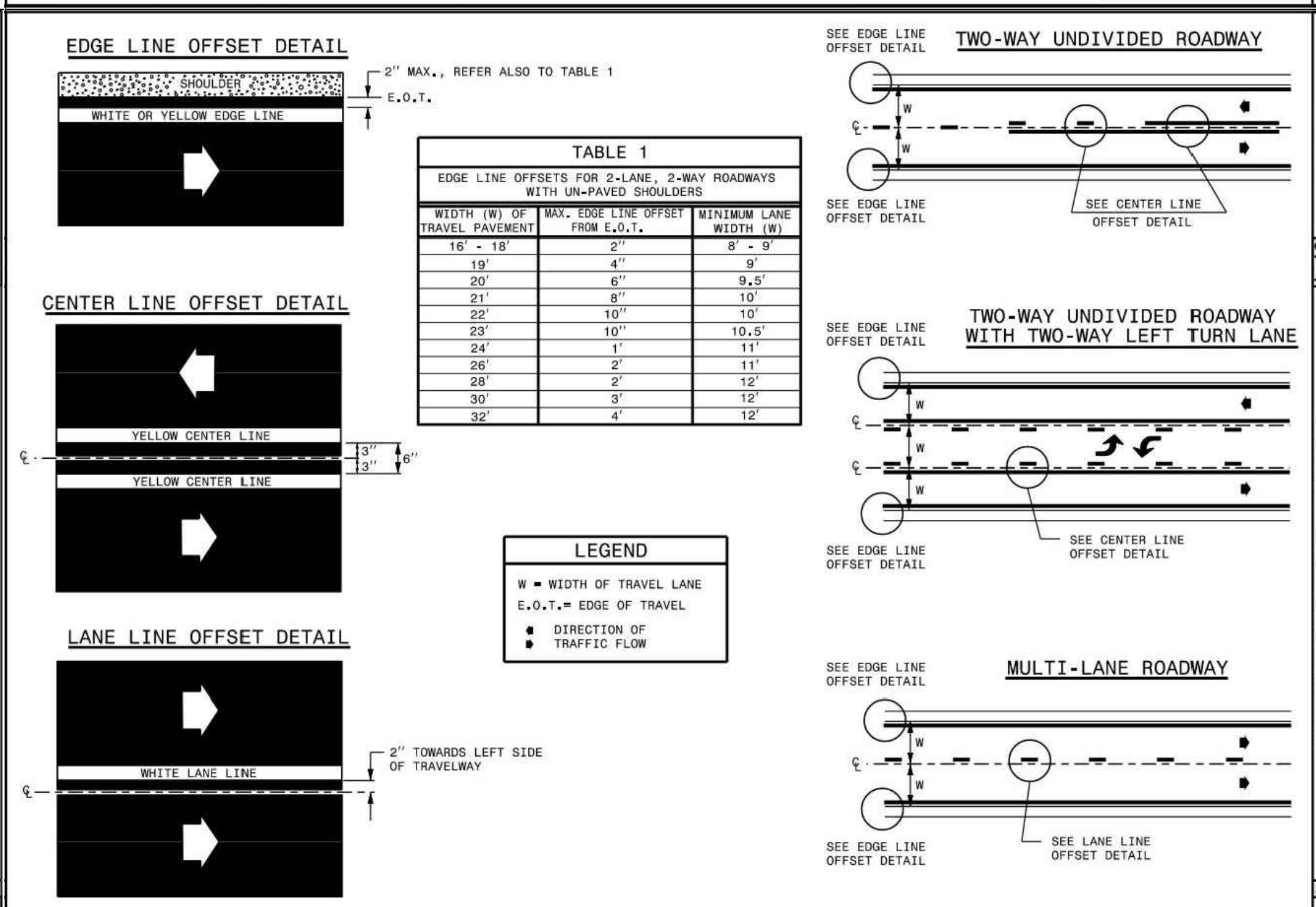
EDGE LINE OFFSET DETAIL
SHOULDER
WHITE OR YELLOW EDGE LINE
2" MAX., REFER ALSO TO TABLE 1
E.O.T.
CENTER LINE OFFSET DETAIL
YELLOW CENTER LINE
YELLOW CENTER LINE
3"
3"
6"
LANE LINE OFFSET DETAIL
WHITE LANE LINE
2" TOWARDS LEFT SIDE OF TRAVELWAY
TWO-WAY UNDIVIDED ROADWAY
SEE EDGE LINE OFFSET DETAIL
SEE CENTER LINE OFFSET DETAIL
W
TWO-WAY UNDIVIDED ROADWAY WITH TWO-WAY LEFT TURN LANE
MULTI-LANE ROADWAY
SEE LANE LINE OFFSET DETAIL

TABLE 1

EDGE LINE OFFSETS FOR 2-LANE, 2-WAY ROADWAYS WITH UN-PAVED SHOULDERS

WIDTH (W) OF TRAVEL PAVEMENT	MAX. EDGE LINE OFFSET FROM E.O.T.	MINIMUM LANE WIDTH (W)
16' - 18'	2"	8' - 9'
19'	4"	9'
20'	6"	9.5'
21'	8"	10'
22'	10"	10'
23'	10"	10.5'
24'	1'	11'
26'	2'	11'
28'	2'	12'
30'	3'	12'
32'	4'	12'

LEGEND
W = WIDTH OF TRAVEL LANE
E.O.T.= EDGE OF TRAVEL
◀ ▶ DIRECTION OF TRAFFIC FLOW

STATE OF NORTH CAROLINA
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DIVISION OF HIGHWAYS
RALEIGH, N.C.
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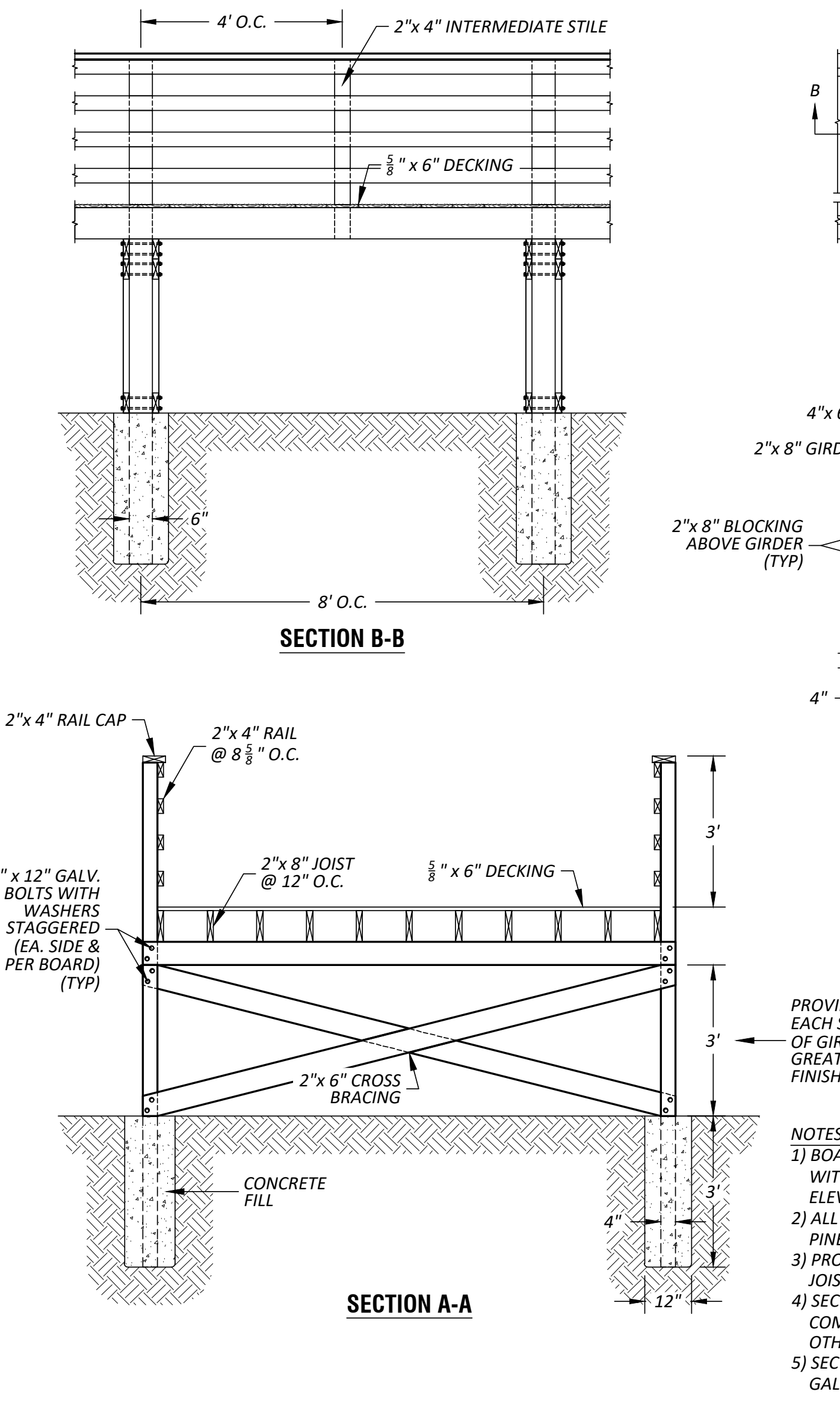
ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
LINE TYPES AND OFFSETS

SHEET 2 OF 2
1205.01

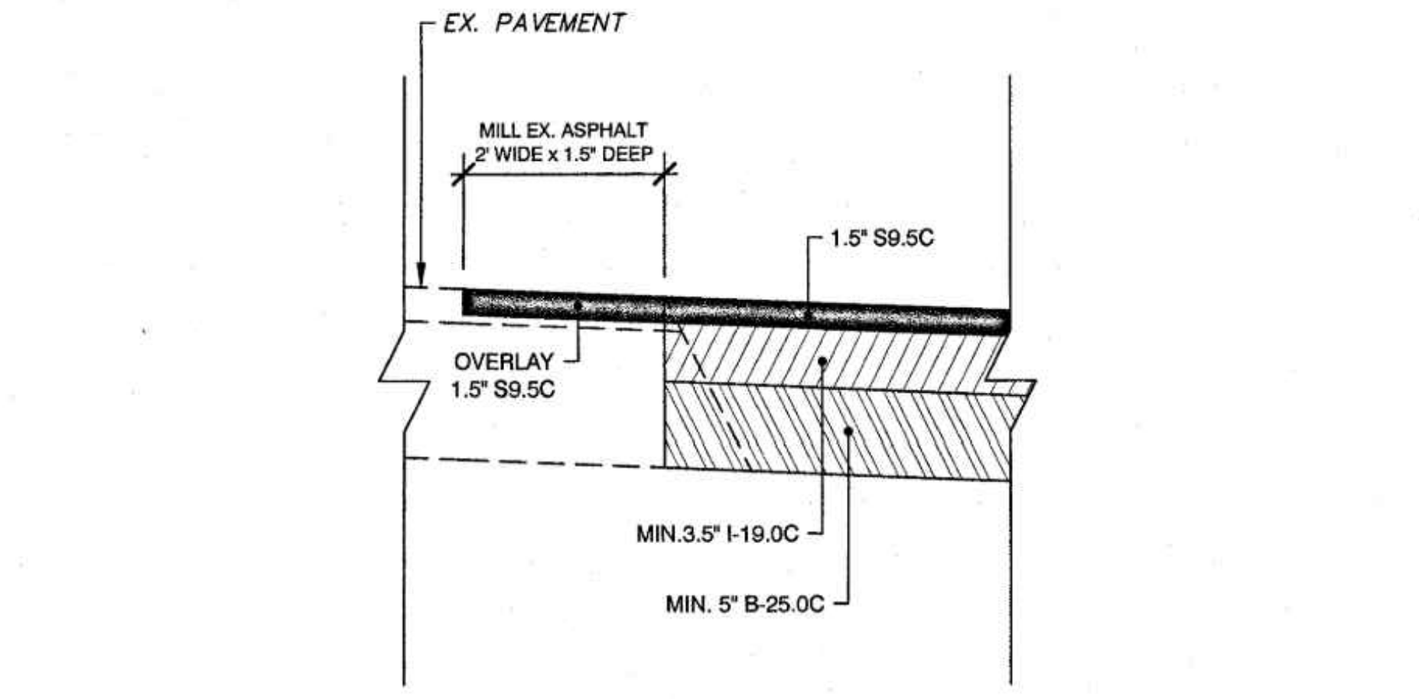

4' O.C.
2"x 4" INTERMEDIATE STILE
5/8" x 6" DECKING
6"
8' O.C.
SECTION B-B
A
B
B
A
PLAN
4"x 6" POST
2"x 8" GIRDER
2"x 8" GIRDER
2"x 8" JOIST
2"x 8" BLOCKING ABOVE GIRDER (TYP)
10' (NTS)
BOLTS
4"x 6" POST
4"
6"
JOIST
2"x 4" RAIL CAP
2"x 4" RAIL @ 8 5/8" O.C.
2"x 8" JOIST @ 12" O.C.
5/8" x 6" DECKING
5/8" x 12" GALV. BOLTS WITH WASHERS STAGGERED (EA. SIDE & 2 PER BOARD) (TYP)
3'
3'
2"x 6" CROSS BRACING
CONCRETE FILL
4"
3'
12"
SECTION A-A

PROVIDE 2"x 6" BRACE (ONE EACH SIDE) WHEN HEIGHT OF GIRDER IS EQUAL TO OR GREATER THAN 36" ABOVE FINISH GRADE

NOTES:
1) BOARD WALK SHALL BEGIN & END FLUSH WITH GROUND / SIDEWALK AT THE ELEVATION REQUIRED.
2) ALL LUMBER TO BE PRESSURE TREATED PINE.
3) PROVIDE 2"x 8" HEADER AT EXPOSED JOIST ENDS.
4) SECURE ALL LUMBER WITH # 16d COMMON GALVANIZED NAILS UNLESS OTHERWISE INDICATED.
5) SECURE DECKING WITH 3" # 10 GALVANIZED WOOD SCREWS.

BOARDWALK BRIDGE OVER POND SPILLWAY

N.T.S.
LSCP-05


EX. PAVEMENT
MILL EX. ASPHALT 2' WIDE x 1.5" DEEP
1.5" S9.5C
OVERLAY 1.5" S9.5C
MIN.3.5" I-19.0C
MIN. 5" B-25.0C

NOTE: THE FINAL PAVEMENT SECTION SHALL BE DETERMINED BY THE OWNER'S GEOTECHNICAL ENGINEER AND APPROVED BY NCDOT PRIOR TO CONSTRUCTION.

2' WIDE MILL STRIP
& NCDOT ROAD WIDENING TYPICAL PAVEMENT SECTION

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

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Engineers
Planners
Surveyors
Landscape Architects

NORTH CAROLINA PROFESSIONAL SEAL 26493 ENGINEER
STEPHEN J. BALLENTINE

REVISIONS:

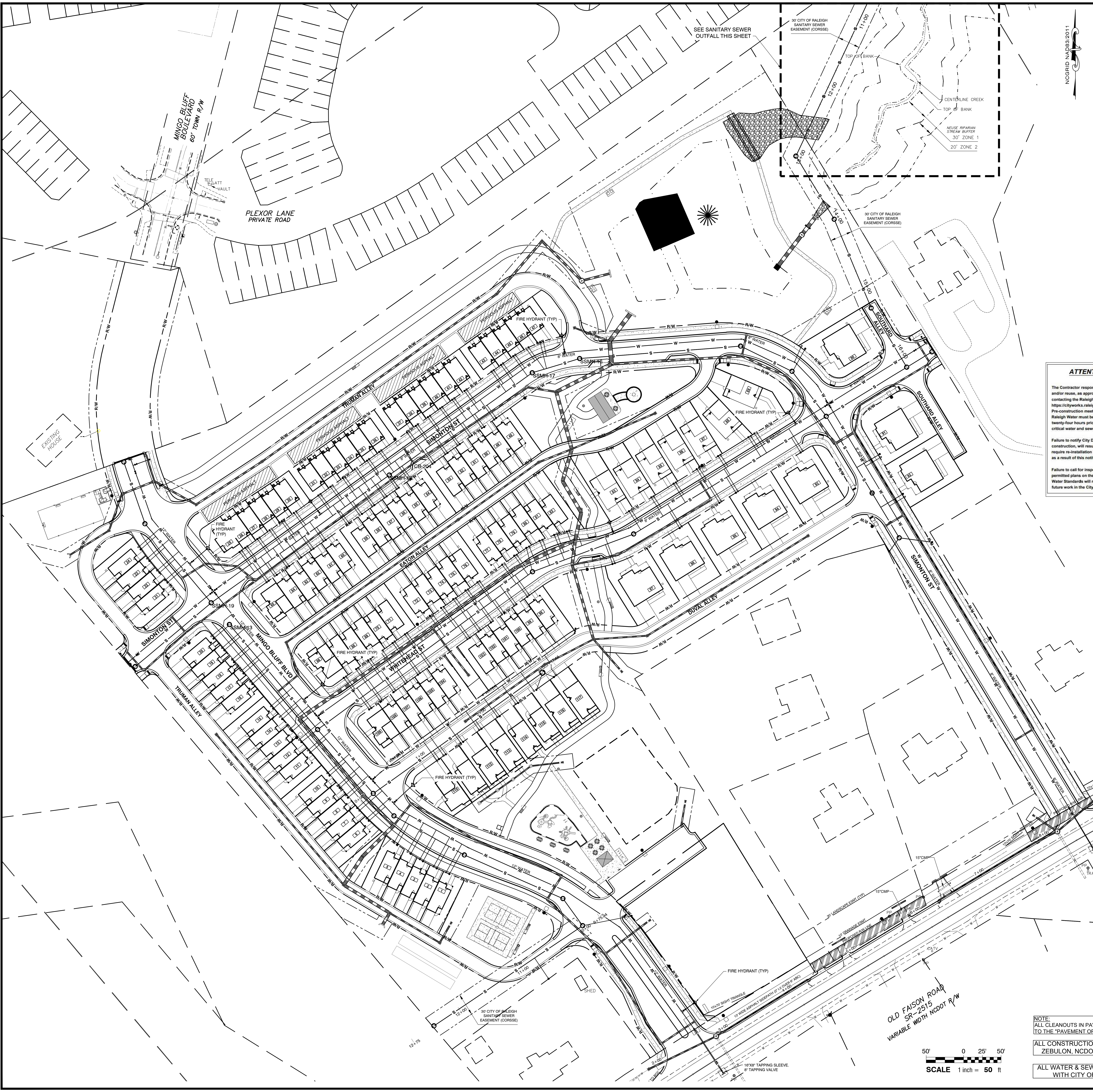
NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

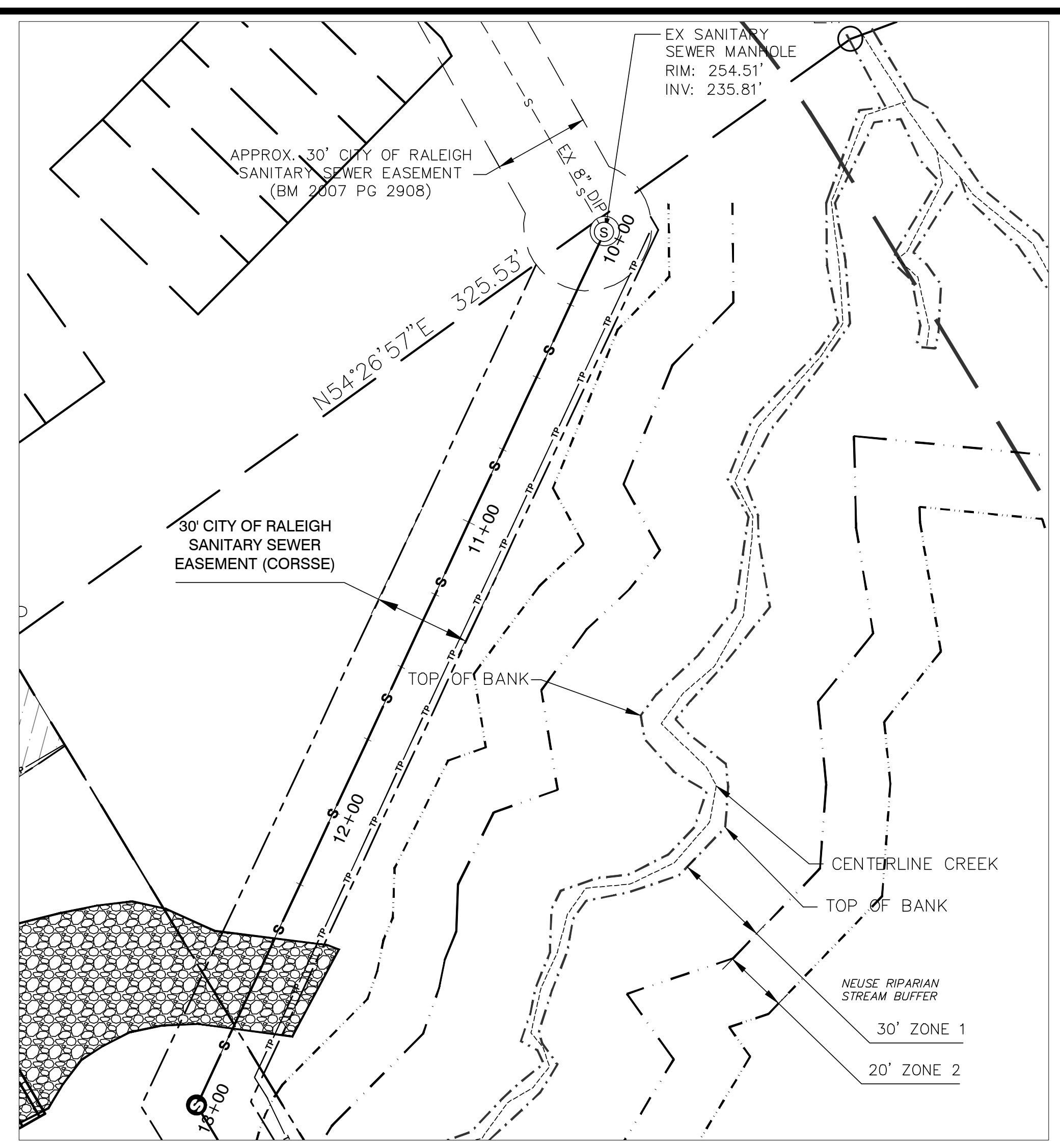
SITE DETAILS

DATE:
DESIGNED BY: CS
DRAWN BY: TAH/EDN
CHECKED BY: SJB
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.
C2.53

Do Not Use for Construction - PRELIMINARY



50' 0 25' 50'
SCALE 1 inch = **50** ft


EX SANITARY SEWER MANHOLE RIM: 254.51' INV: 235.81'
APPROX. 30' CITY OF RALEIGH SANITARY SEWER EASEMENT (BM 2007 PG 2908)
N54°26'57"E 325.53'
30' CITY OF RALEIGH SANITARY SEWER EASEMENT (CORSSE)
TOP OF BANK
CENTERLINE CREEK
NEUSE RIPARIAN STREAM BUFFER
30' ZONE 1
20' ZONE 2

SANITARY SEWER OUTFALL INSET

40' 0 20' 40'
SCALE 1 inch = **40** ft

JAN2025M

ATTENTION CONTRACTORS

The Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Raleigh Water Inspector at 919-996-3245 or https://cityworks.raleighnc.gov/pucontractors and schedule a Pre-construction meeting prior to beginning any construction. Raleigh Water must be contacted at (919) 996-4540 at least twenty-four hours prior to beginning any work activity around critical water and sewer infrastructure.

Failure to notify City Departments in advance of beginning construction, will result in the issuance of monetary fines, and require re-installation 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 Raleigh Water Standards will result in a fine and possible exclusion from future work in the City of Raleigh.

CITY OF RALEIGH STANDARD UTILITY NOTES (as applicable):

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH RALEIGH WATER DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: RALEIGH WATER HANDBOOK, CURRENT EDITION)

2. UTILITY SEPARATION REQUIREMENTS:
   a) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
   b) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER
   c) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
   d) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
   e) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
   f) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED

3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY RALEIGH WATER PRIOR TO CONSTRUCTION

4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY

5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO RALEIGH WATER

6. SEWER BYPASS PUMPING - A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE RALEIGH WATER HANDBOOK.

7. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS

8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE

9. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE

10. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT

11. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER

12. ANY WATER OR SEWER SERVICES ON PRIVATE PROPERTY THAT WILL BE INSTALLED UNDER CONSTRUCTION DRAWINGS MAY REQUIRE A PLUMBING UTILITY PERMIT IN THE CITY OF RALEIGH

13. INSTALL SEWER SERVICES WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED PER THE CURRENT NC PLUMBING CODE

14. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE

15. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.

16. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION

17. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.

18. CROSS-CONNECTION REQUIREMENTS:
   a) CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTHC AROLINA
   b) THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST
   c) THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA
   d) THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH, INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION

19. NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN $250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS

20. PRIVATE SUB-METERING - NO RESALE OF WATER SHALL OCCUR WITHOUT APPROVAL OF THE NORTH CAROLINA UTILITY COMMISSION. SUB-METERING SHALL BE IN ACCORDANCE WITH SECTION 1400 OF THE "SAFE DRINKING WATER ACT"

UTILITY PLAN LEGEND

EXISTING **PROPOSED**

- FIRE HYDRANT
- FDC
- WATER VALVE
- WATER FITTING
- WATER TEE
- WATER CROSS
- WATER REDUCER
- PLUG
- WATER METER
- CLEANOUT
- SANITARY SEWER MANHOLE
- CATCH BASIN
- STORM SEWER MANHOLE
- DROP INLET
- OUTLET CONTROL STRUCTURE
- FLARED END SECTION
- END WALL
- WATER LINE
- SANITARY SEWER
- STORM SEWER

CALL BEFORE YOU DIG!
WWW.NC811.ORG
N.C. ONE-CALL CENTER
IT'S THE LAW!

NOTE:
ALL CLEANOUTS IN PAVED AREA SHALL BE TRAFFIC RATED CLEANOUTS. REFER TO THE "PAVEMENT OPTION" CLEANOUT ON CITY STANDARD DETAILS S-30B

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL TOWN OF ZEBULON, NCDOT AND NCDEQ STANDARDS & SPECIFICATIONS.

ALL WATER & SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS & 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 Standards Specifications of the Town of Knightdale.

By: ____________________ Date: ______________
Town Engineer

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

By: ____________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
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919.594.1626

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Planners
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NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 26493
STEPHEN J. BALLENTINE

Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

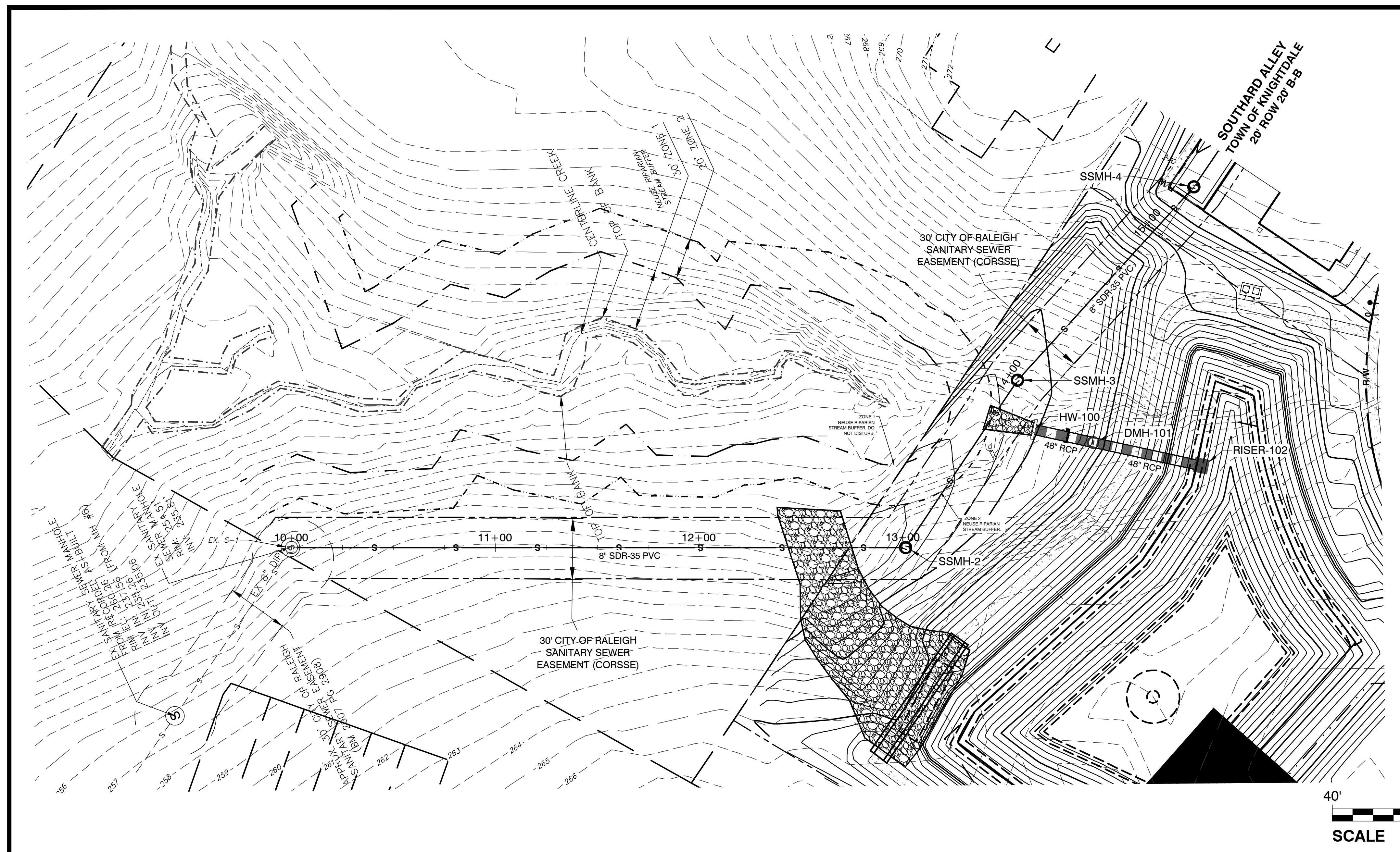
OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

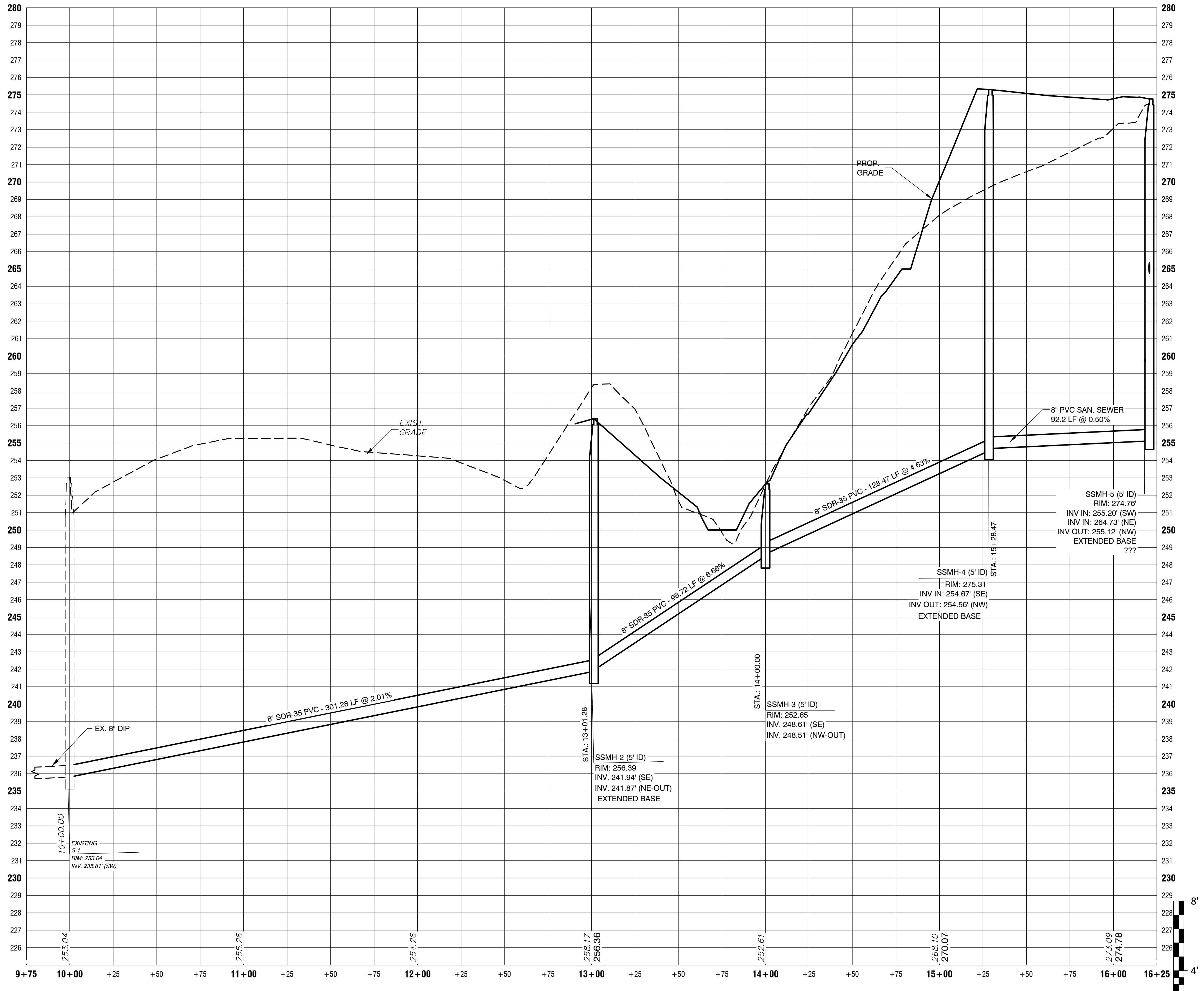
UTILITY PLAN

DATE:
DESIGNED BY: CS
DRAWN BY: TAH
CHECKED BY: SJB
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.
C3.01

Do Not Use for Construction - PRELIMINARY



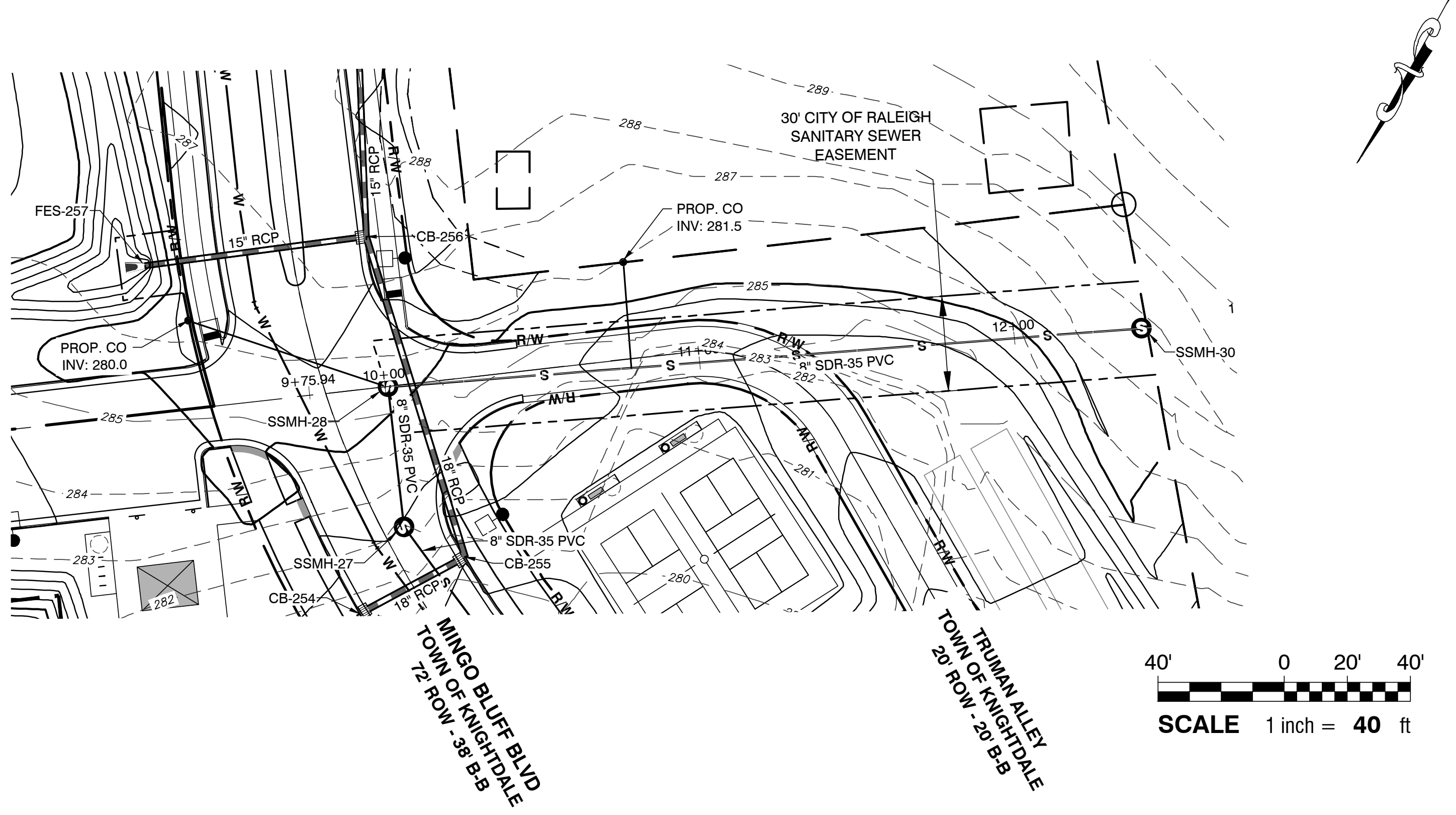
SOUTHARD ALLEY
TOWN OF KNIGHTDALE
20' ROW 20' B-B
SSMH-4
30' CITY OF RALEIGH
SANITARY SEWER
EASEMENT (CORSSE)
SSMH-3
HW-100
DMH-101
48" RCP
RISER-102
10+00
11+00
12+00
13+00
8" SDR-35 PVC
SSMH-2
30' CITY OF RALEIGH
SANITARY SEWER
EASEMENT (CORSSE)
40'
0
20'
40'
SCALE 1 inch = 40 ft



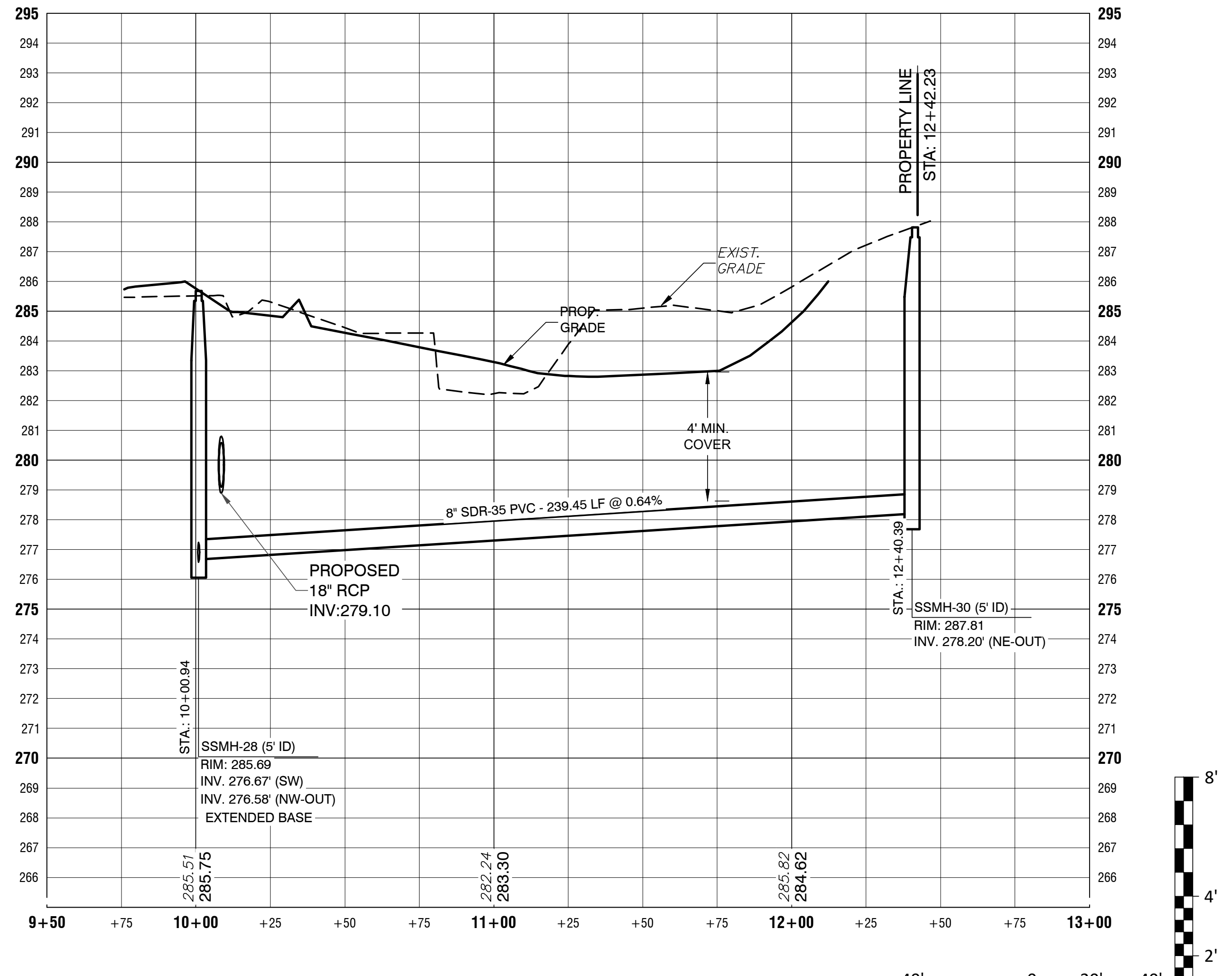
PROP.
GRADE
EXIST.
GRADE
EX. 8" DIP
8" SDR-35 PVC - 301.28 LF @ 2.01%
8" SDR-35 PVC - 98.72 LF @ 6.66%
8" SDR-35 PVC - 128.47 LF @ 4.63%
8" PVC SAN. SEWER
92.2 LF @ 0.50%
10+00.00
EXISTING
S-1
RIM: 253.04
INV. 235.81' (SW)
STA.: 13+01.28
SSMH-2 (5' ID)
RIM: 256.39
INV. 241.94' (SE)
INV. 241.87' (NE-OUT)
EXTENDED BASE
STA.: 14+00.00
SSMH-3 (5' ID)
RIM: 252.65
INV. 248.61' (SE)
INV. 248.51' (NW-OUT)
STA.: 15+28.47
SSMH-4 (5' ID)
RIM: 275.31'
INV IN: 254.67' (SE)
INV OUT: 254.56' (NW)
EXTENDED BASE
SSMH-5 (5' ID)
RIM: 274.76'
INV IN: 255.20' (SW)
INV IN: 264.73' (NE)
INV OUT: 255.12' (NW)
EXTENDED BASE
???
253.04
255.26
254.26
258.17
256.36
252.61
268.10
270.07
273.09
274.78
9+75
10+00
11+00
12+00
13+00
14+00
15+00
16+00
16+25

EX. SSMH TO SSMH 4

40' 0 20' 40'
HORZ. SCALE 1 inch = 40 ft
VERT. SCALE 1 inch = 4 ft



30' CITY OF RALEIGH
SANITARY SEWER
EASEMENT
FES-257
15" RCP
CB-256
PROP. CO
INV: 281.5
PROP. CO
INV: 280.0
9+75.94
10+00
SSMH-28
8" SDR-35 PVC
SSMH-27
CB-255
CB-254
11+00
12+00
SSMH-30
MINGO BLUFF BLVD
TOWN OF KNIGHTDALE
72' ROW - 58' B-B
TRUMAN ALLEY
TOWN OF KNIGHTDALE
20' ROW - 20' B-B
40'
0
20'
40'
SCALE 1 inch = 40 ft



PROPERTY LINE
STA: 12+42.23
EXIST.
GRADE
PROP.
GRADE
4' MIN.
COVER
8" SDR-35 PVC - 239.45 LF @ 0.64%
PROPOSED
18" RCP
INV:279.10
STA.: 10+00.94
SSMH-28 (5' ID)
RIM: 285.69
INV. 276.67' (SW)
INV. 276.58' (NW-OUT)
EXTENDED BASE
STA.: 12+40.39
SSMH-30 (5' ID)
RIM: 287.81
INV. 278.20' (NE-OUT)
285.51
285.75
282.24
283.30
285.82
284.62
9+50
10+00
11+00
12+00
13+00

SSMH 28 TO SSMH 30

40' 0 20' 40'
HORZ. SCALE 1 inch = 40 ft
VERT. SCALE 1 inch = 4 ft

RESIDENTIAL
WATER & SEWER SERVICES
SCHEMATIC

- ● 4" PVC (OR AS NOTED) SANITARY SEWER SERVICE LATERALS @ 1.1% MIN (TYP)
- ○ 1" POLY TUBING WITH 5/8" DOMESTIC METER (OR AS NOTED) WATER SERVICE LATERAL (TYP)

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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NORTH CAROLINA PROFESSIONAL SEAL 26493 ENGINEER STEPHEN J. BALLENTINE

Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

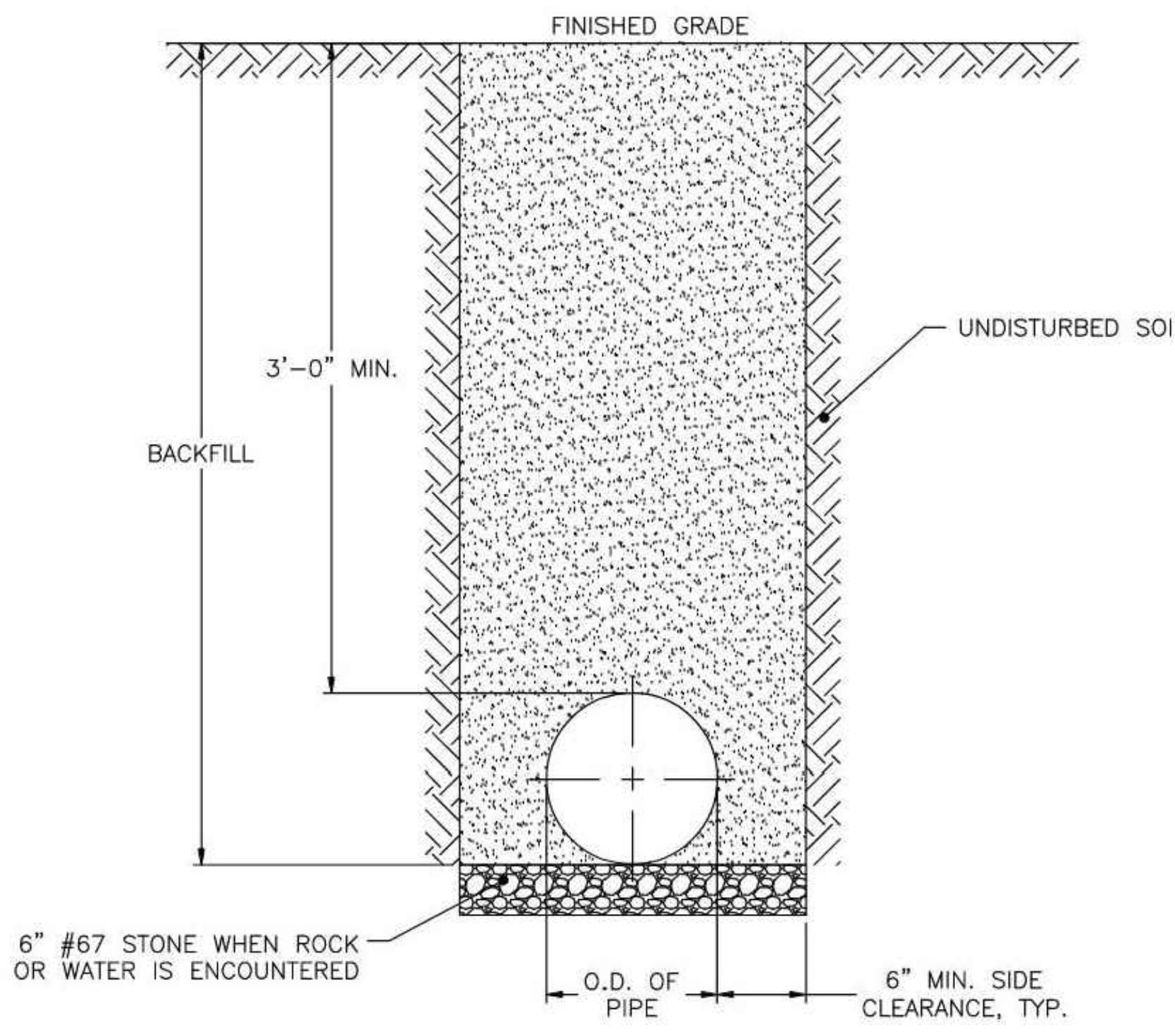
OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

SANITARY SEWER OUTFALL

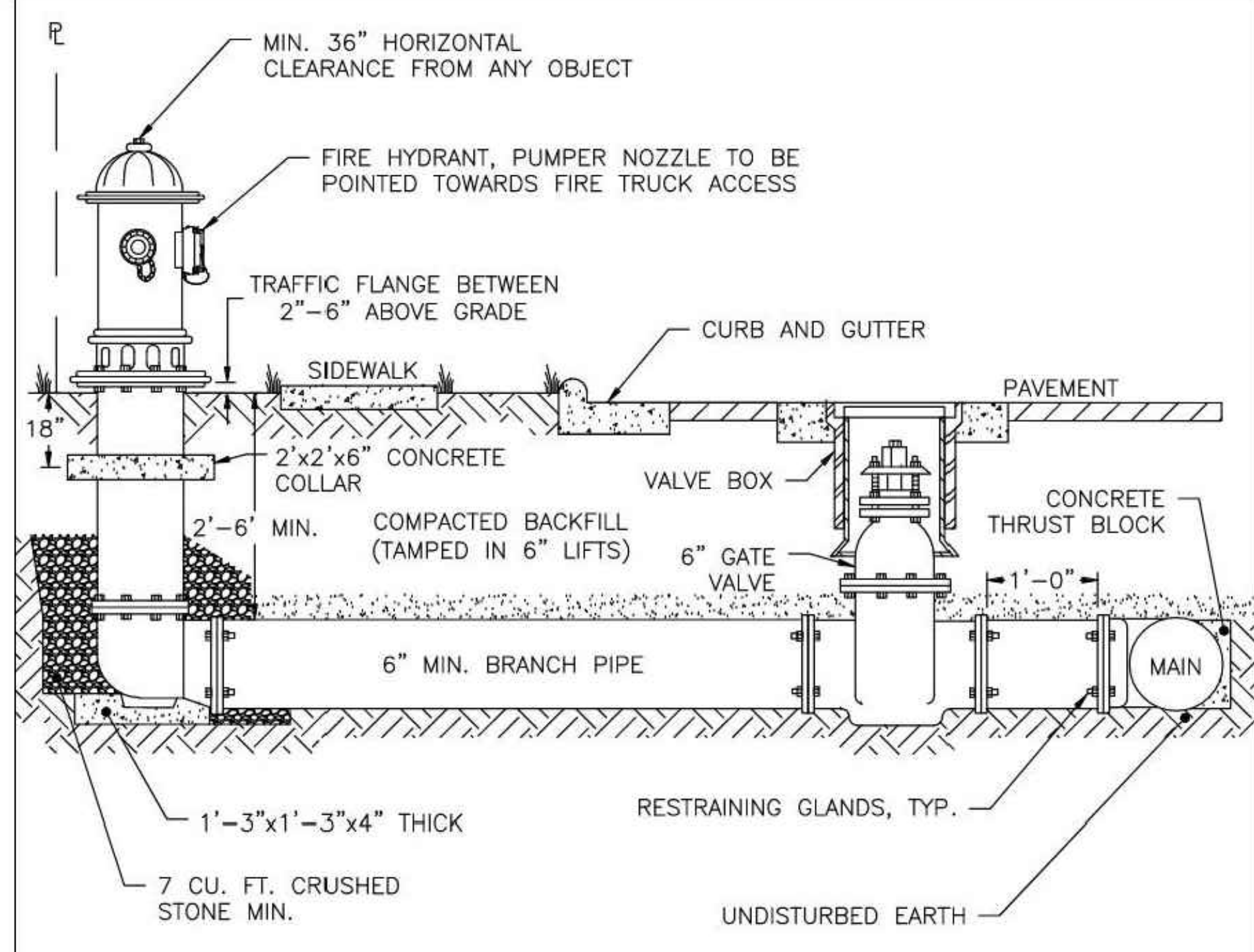
DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C3.02

Do Not Use for Construction - PRELIMINARY


FINISHED GRADE
UNDISTURBED SOIL
3'–0" MIN.
BACKFILL
6" #67 STONE WHEN ROCK OR WATER IS ENCOUNTERED
O.D. OF PIPE
6" MIN. SIDE CLEARANCE, TYP.

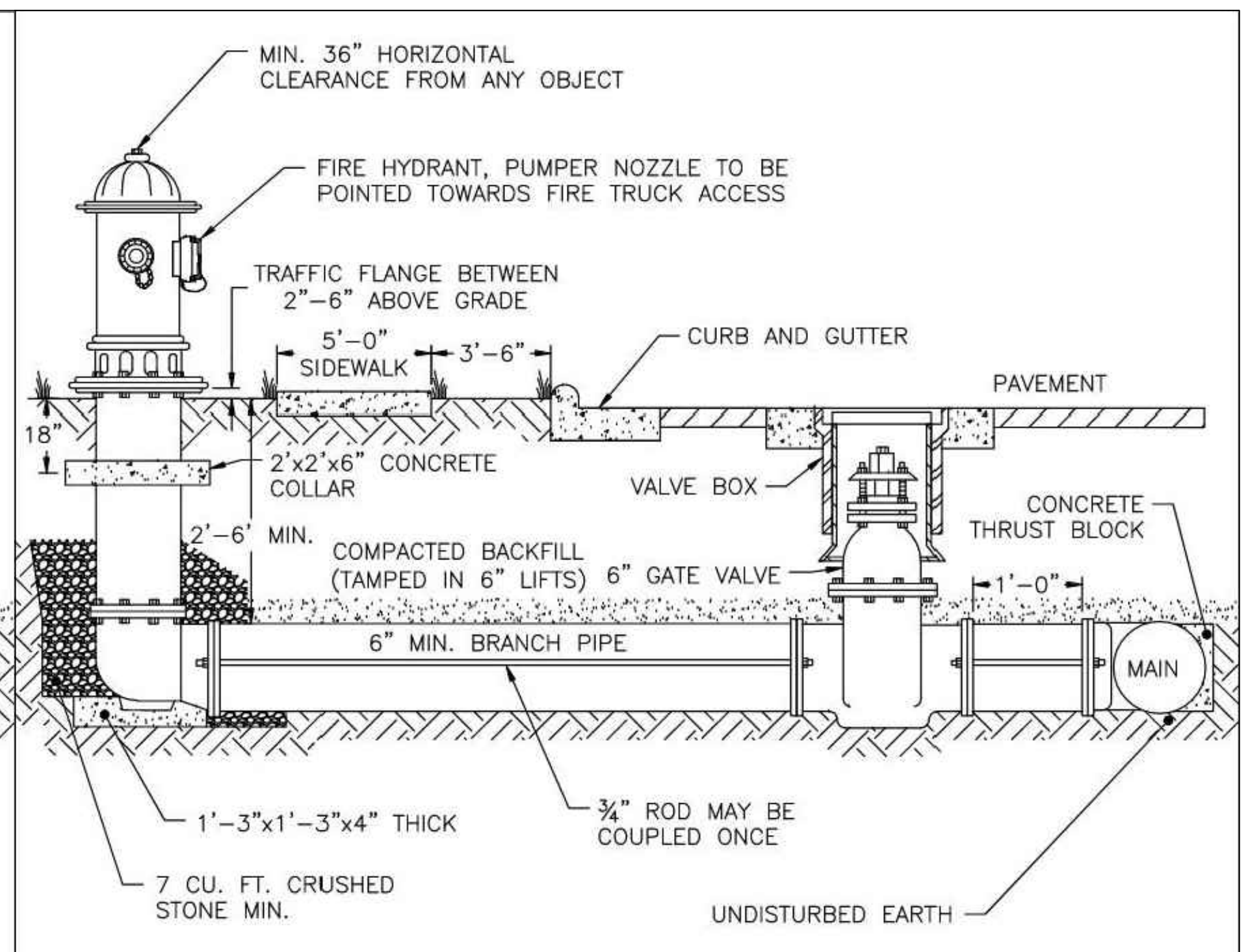
NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR DUCTILE IRON
W-3


℗
MIN. 36" HORIZONTAL CLEARANCE FROM ANY OBJECT
FIRE HYDRANT, PUMPER NOZZLE TO BE POINTED TOWARDS FIRE TRUCK ACCESS
TRAFFIC FLANGE BETWEEN 2"–6" ABOVE GRADE
CURB AND GUTTER
SIDEWALK
PAVEMENT
18"
2'x2'x6" CONCRETE COLLAR
VALVE BOX
CONCRETE THRUST BLOCK
2'–6' MIN.
COMPACTED BACKFILL (TAMPED IN 6" LIFTS)
6" GATE VALVE
1'–0"
6" MIN. BRANCH PIPE
MAIN
1'–3"x1'–3"x4" THICK
RESTRAINING GLANDS, TYP.
7 CU. FT. CRUSHED STONE MIN.
UNDISTURBED EARTH

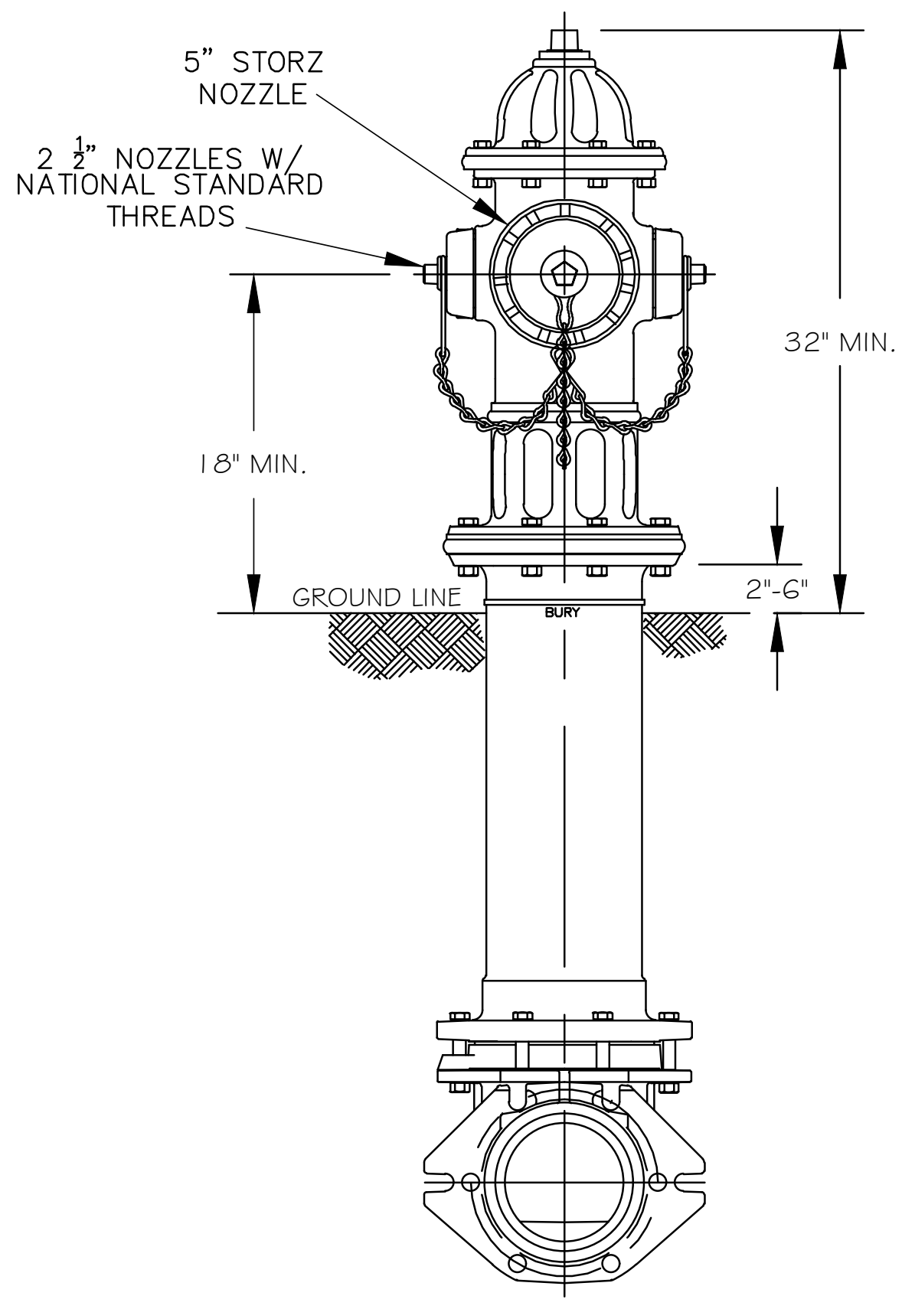
NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY OR CLOW.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150.
3. 6" GATE VALVE SHALL BE AWWA C500 OPEN LEFT.
4. RODS AND BOLTS SHALL BE ¾" 316 STAINLESS STEEL.
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
6. 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.
7. FIRE HYDRANTS TO BE LOCATED IN ROW OR 2.5 FOOT EASEMENT (ON ALL SIDES OF HYDRANT) FOOT EASEMENT ADJACENT TO ROW.
8. ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THE WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
STANDARD FIRE HYDRANT INSTALLATION (RESTRAINT GLANDS)
W-4


MIN. 36" HORIZONTAL CLEARANCE FROM ANY OBJECT
FIRE HYDRANT, PUMPER NOZZLE TO BE POINTED TOWARDS FIRE TRUCK ACCESS
TRAFFIC FLANGE BETWEEN 2"–6" ABOVE GRADE
5'–0" SIDEWALK
3'–6"
CURB AND GUTTER
PAVEMENT
18"
2'x2'x6" CONCRETE COLLAR
VALVE BOX
CONCRETE THRUST BLOCK
2'–6' MIN.
COMPACTED BACKFILL (TAMPED IN 6" LIFTS)
6" GATE VALVE
1'–0"
6" MIN. BRANCH PIPE
MAIN
1'–3"x1'–3"x4" THICK
¾" ROD MAY BE COUPLED ONCE
7 CU. FT. CRUSHED STONE MIN.
UNDISTURBED EARTH

NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY OR CLOW.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150.
3. 6" GATE VALVE SHALL BE AWWA C500 OPEN LEFT.
4. RODS AND BOLTS SHALL BE ¾" 316 STAINLESS STEEL.
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
6. 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.
7. FIRE HYDRANTS TO BE LOCATED IN ROW OR 2.5 FOOT EASEMENT (ON ALL SIDES OF HYDRANT) FOOT EASEMENT ADJACENT TO ROW.
8. ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THE WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
STANDARD FIRE HYDRANT INSTALLATION (RESTRAINT RODS)
W-4A

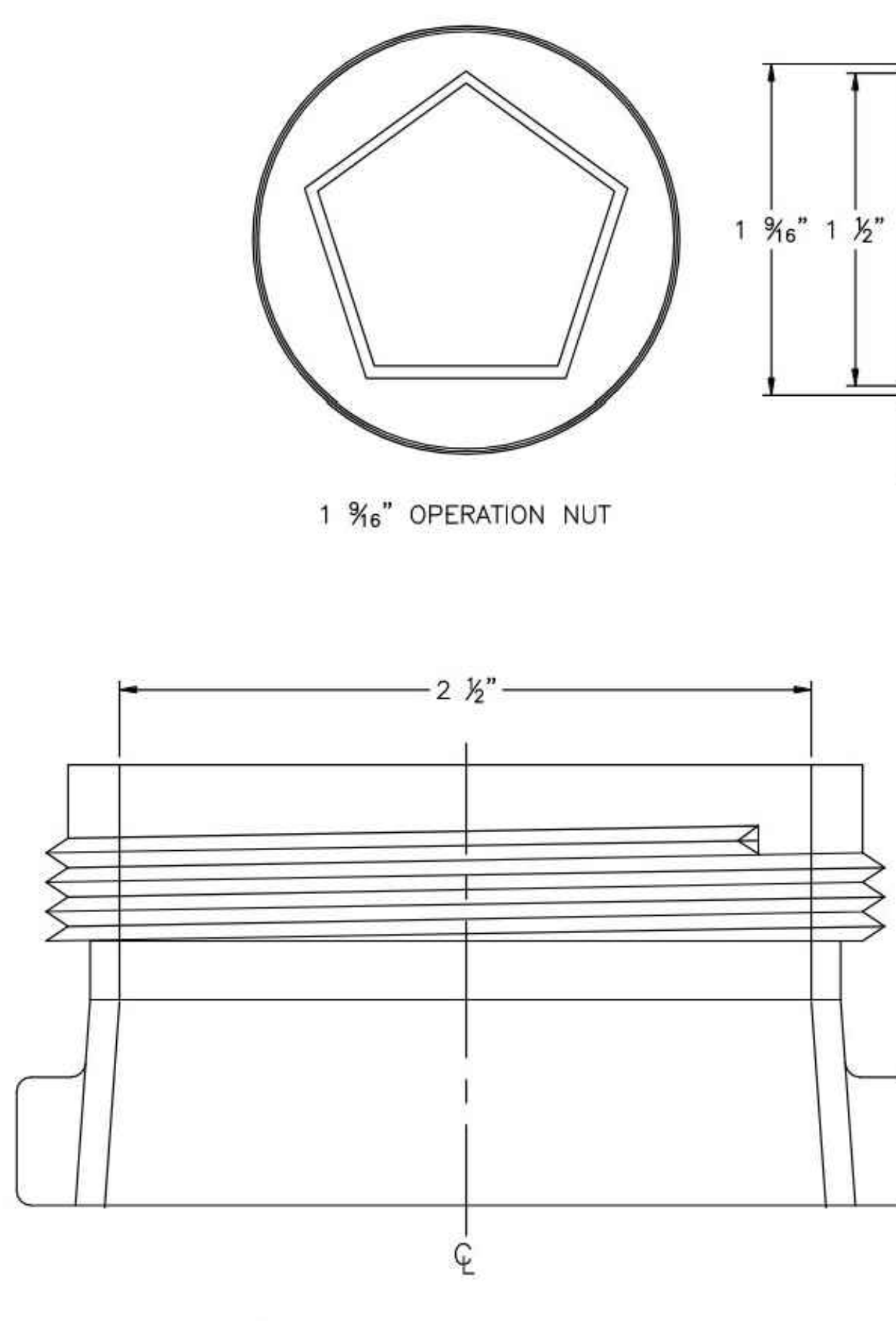

5" STORZ NOZZLE
2 ½" NOZZLES W/ NATIONAL STANDARD THREADS
32" MIN.
18" MIN.
GROUND LINE
BURY
2"-6"

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.

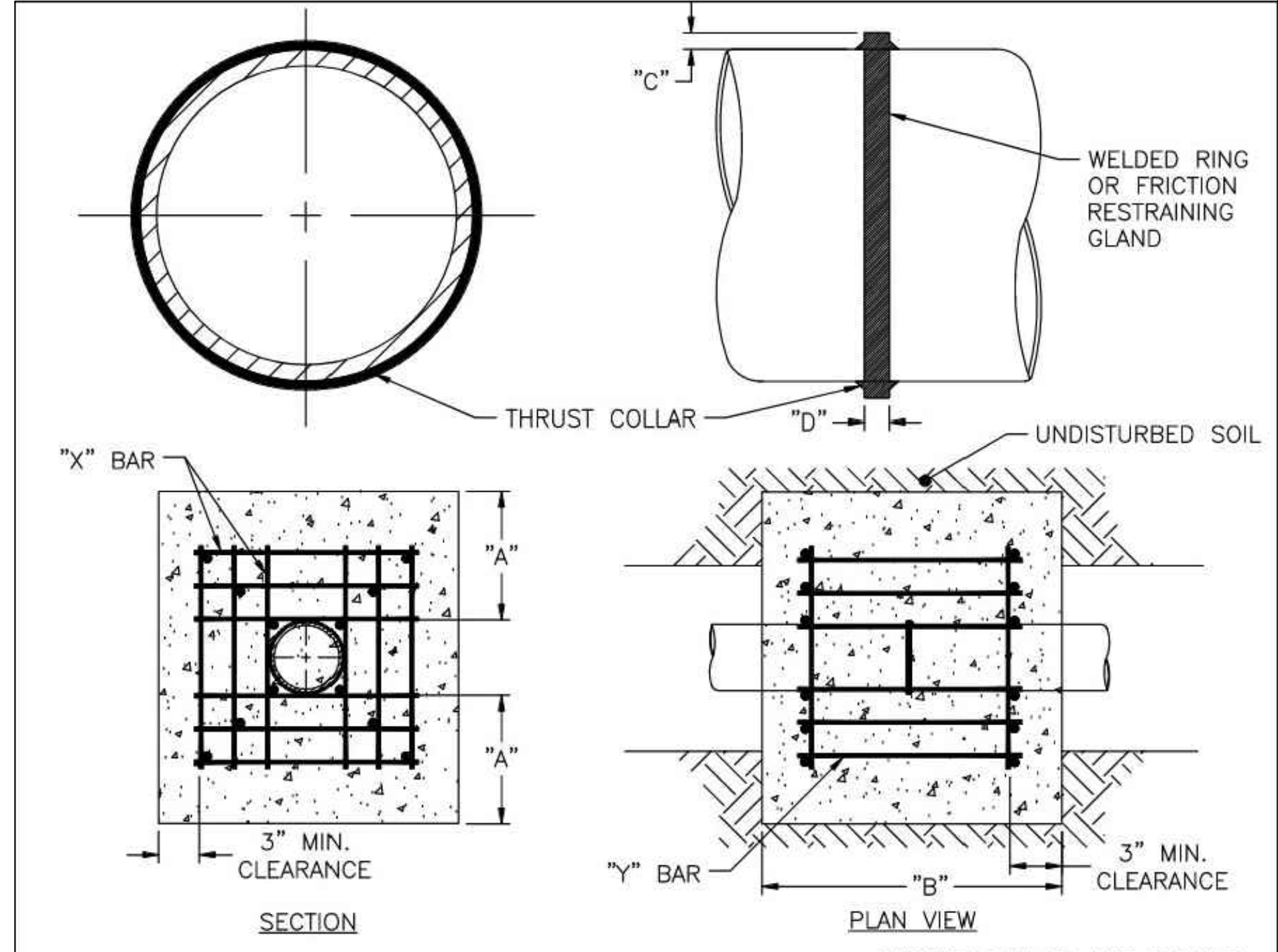
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
RALEIGH, GARNER, KNIGHTDALE, ROLESVILLE, WAKE FOREST, WENDELL & ZEBULON

STANDARD FIRE HYDRANT WITH 5" STORZ PUMPER NOZZLE

DWG.	REVISIONS	DATE	REVISIONS	DATE
NO. W–5	MAB	6–30–16		
	KAT	9–15–17		


1 ⁹⁄₁₆"
1 ½"
1 ⅛"
1 ⁹⁄₁₆" OPERATION NUT
2 ½"
℄
2 ½" NATIONAL STANDARD OUTLET THREADS

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
HYDRANT OPERATING NUT AND 2 ½" OUTLET THREADS
W-6


"C"
WELDED RING OR FRICTION RESTRAINING GLAND
THRUST COLLAR
"D"
UNDISTURBED SOIL
"X" BAR
"A"
"A"
3" MIN. CLEARANCE
"Y" BAR
"B"
3" MIN. CLEARANCE
SECTION
PLAN VIEW

REINFORCING REQUIREMENTS

I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6"–36"	#5	2'–2"+ O.D. PIPE	1.043 LBS/FT	1'–1"	1.1 LBS. EACH	X–24 Y–12
≥48"	#6	3'–0"+ O.D. PIPE	1.502 LBS/FT	1'–3"	1.9 LBS. EACH	X–24 Y–12

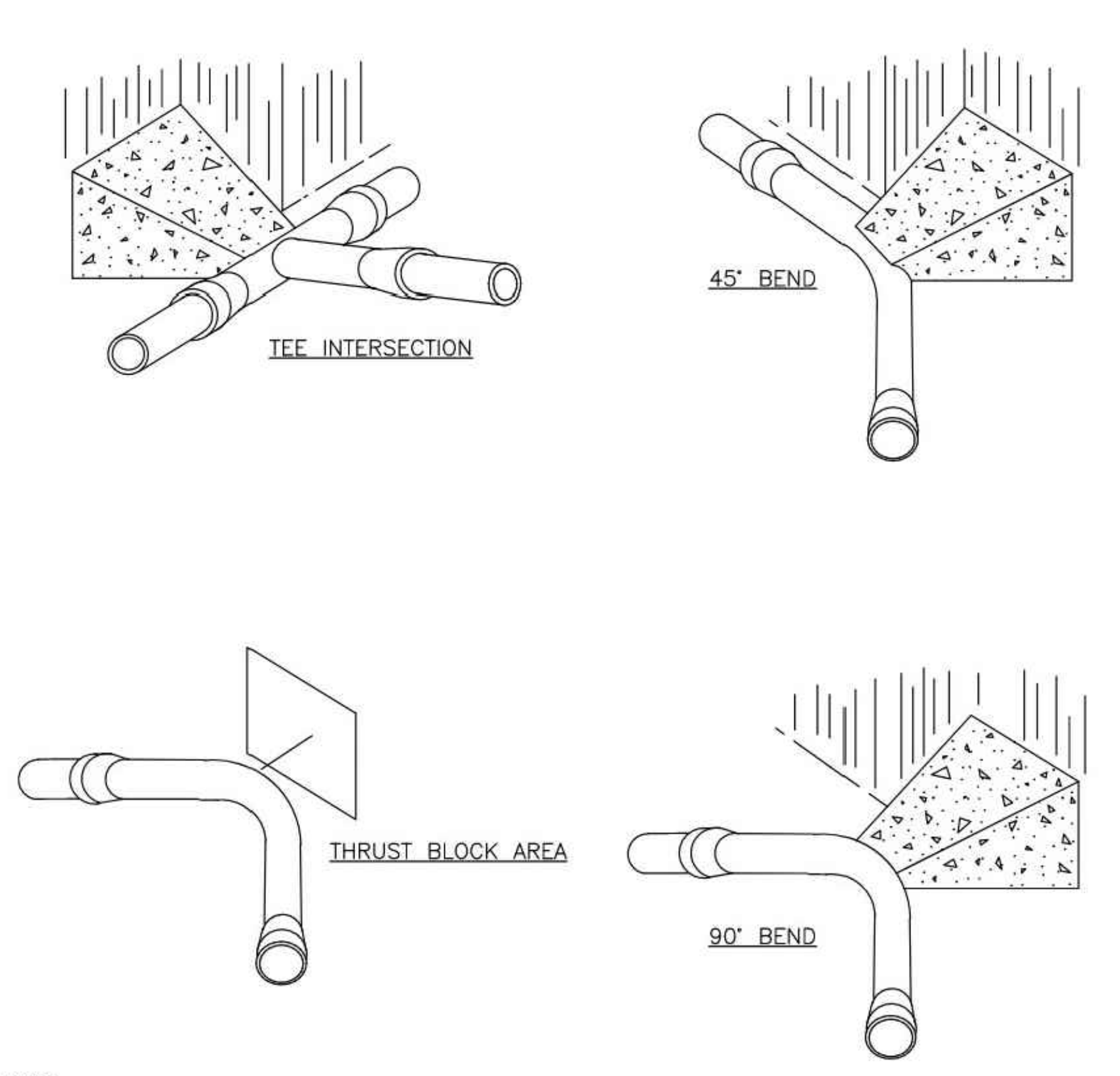
THRUST COLLAR AND THRUST SCHEDULE

I.D. PIPE	"A"	"B"	"C"	"D"
6"–16"	1'–4"	1'–7"	2"	⅜"
20"–24"	1'–4"	1'–7"	3"	½"
30"–36"	1'–4"	1'–7"	4"	⅝"
≥48"	1'–8"	1'–9"	6"	⅞"

NOTES:
1. SEE DETAIL W–9 FOR THRUST BLOCK LOCATIONS.
2. CONCRETE SHALL BE 3,000 PSI AND TRANSIT MIXED.
3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON DETAIL W–3.
5. BACKFILL TAMPED IN 6" LIFTS, SEE DETAIL W–3.
6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
THRUST BLOCKING DESIGN DATA FOR WATER MAINS
W-7

THRUST BLOCKING


TEE INTERSECTION
45° BEND
THRUST BLOCK AREA
90° BEND

NOTES:
1. CONCRETE SHALL BE 3,000 PSI.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. TRENCHES SHALL CONFORM TO DETAIL W–3.
4. SEE DETAIL W–10 & W–11 (THRUST BLOCK TABLES) FOR AREA OF CONCRETE REQUIRED.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
THRUST BLOCKING VIEWS
W-9

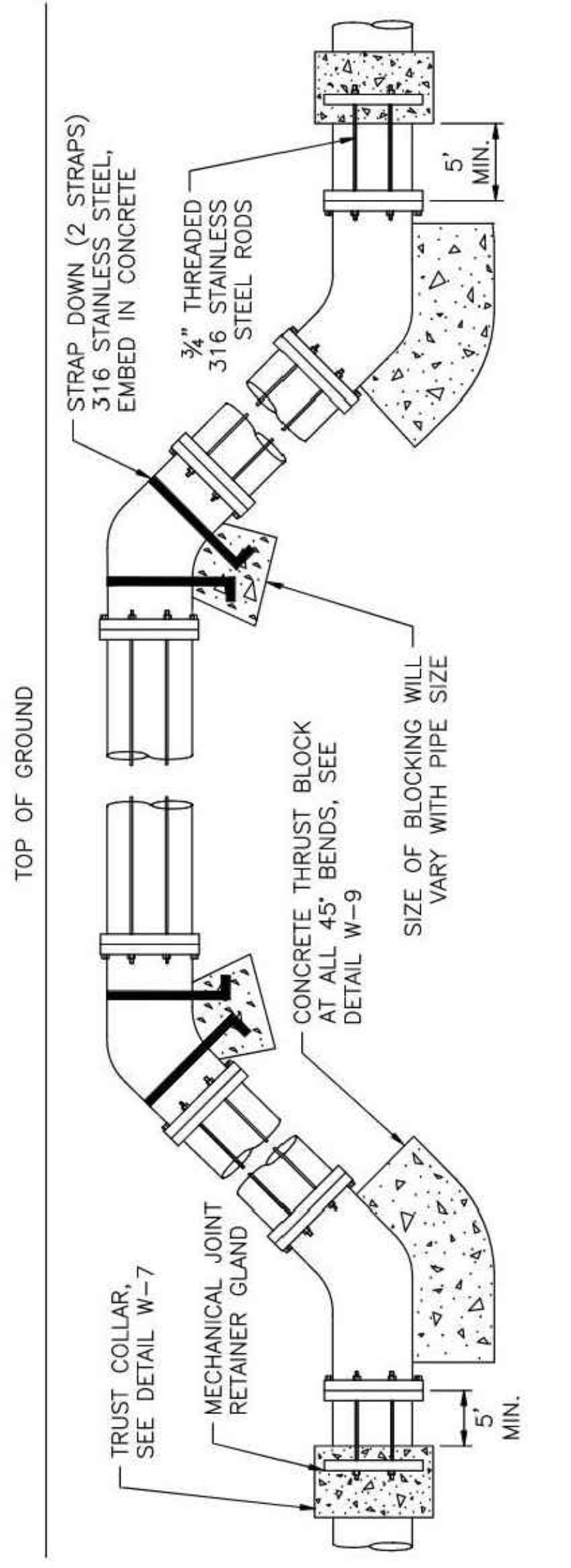
REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS BASED ON TEST PRESSURE OF 200 PSI

ALL AREAS GIVEN IN SQUARE FEET

SIZE OF BEND	DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 4,000 LBS/FT²	SOFT CLAY 2,000 LBS/FT²	1,600 LBS/FT² GRAVEL/ COARSE SAND	8,000 LBS/FT² DRY CLAY (ALWAYS DRY)	SAND, COMPACT FIRM 8,000 LBS/FT²	SAND– CLEAN DRY 4,000 LBS/FT²	SOIL 1,000 LBS/FT² QUICKSAND (VERY POOR)	ROCK– POOR 10,000 LBS/FT²
6"	11 ¼°	1,108	1	1	1	1	1	1	2	1
	22 ½°	2,207	1	2	2	1	1	1	3	1
	45°	4,328	2	3	3	1	1	2	5	1
	90°	7,996	2	4	5	1	1	2	8	1
	PLUG	5,655	2	3	4	1	1	2	6	1
8"	11 ¼°	1,970	1	1	2	1	1	1	2	1
	22 ½°	3,922	1	2	3	1	1	1	4	1
	45°	7,694	2	4	5	1	1	2	8	1
	90°	14,215	4	8	9	2	2	4	15	2
	PLUG	10,053	3	5	6	2	2	3	10	1
12"	11 ¼°	4,433	2	3	3	1	1	2	5	1
	22 ½°	8,826	3	5	6	2	2	3	9	1
	45°	17,312	5	9	11	3	3	5	18	2
	90°	31,983	8	16	19	4	4	8	32	4
	PLUG	22,619	6	12	14	3	3	6	23	3
16"	11 ¼°	7,881	2	4	5	1	1	2	8	1
	22 ½°	15,691	4	8	10	2	2	4	16	2
	45°	30,779	8	16	19	4	4	8	31	4
	90°	56,861	15	29	35	8	8	15	57	6
	PLUG	40,213	10	21	25	5	5	10	41	5

NOTES:
1. REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.
2. USE 6" 90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
THRUST BLOCKING DESIGN QUANTITY TABLE
W-10


TOP OF GROUND
STRAP DOWN (2 STRAPS) 316 STAINLESS STEEL, EMBED IN CONCRETE
¾" THREADED 316 STAINLESS STEEL RODS
5' MIN.
CONCRETE THRUST BLOCK AT ALL 45° BENDS, SEE DETAIL W–9
SIZE OF BLOCKING WILL VARY WITH PIPE SIZE
TRUST COLLAR, SEE DETAIL W–7
MECHANICAL JOINT RETAINER GLAND
5' MIN.

ROD REQUIREMENTS

SIZE OF 45° BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

STRAP REQUIREMENTS

STRAP WIDTH	STRAP THICKNESS
1"	³⁄₁₆"
1.5"	³⁄₁₆"
2"	¼"
2"	½"
4"	½"

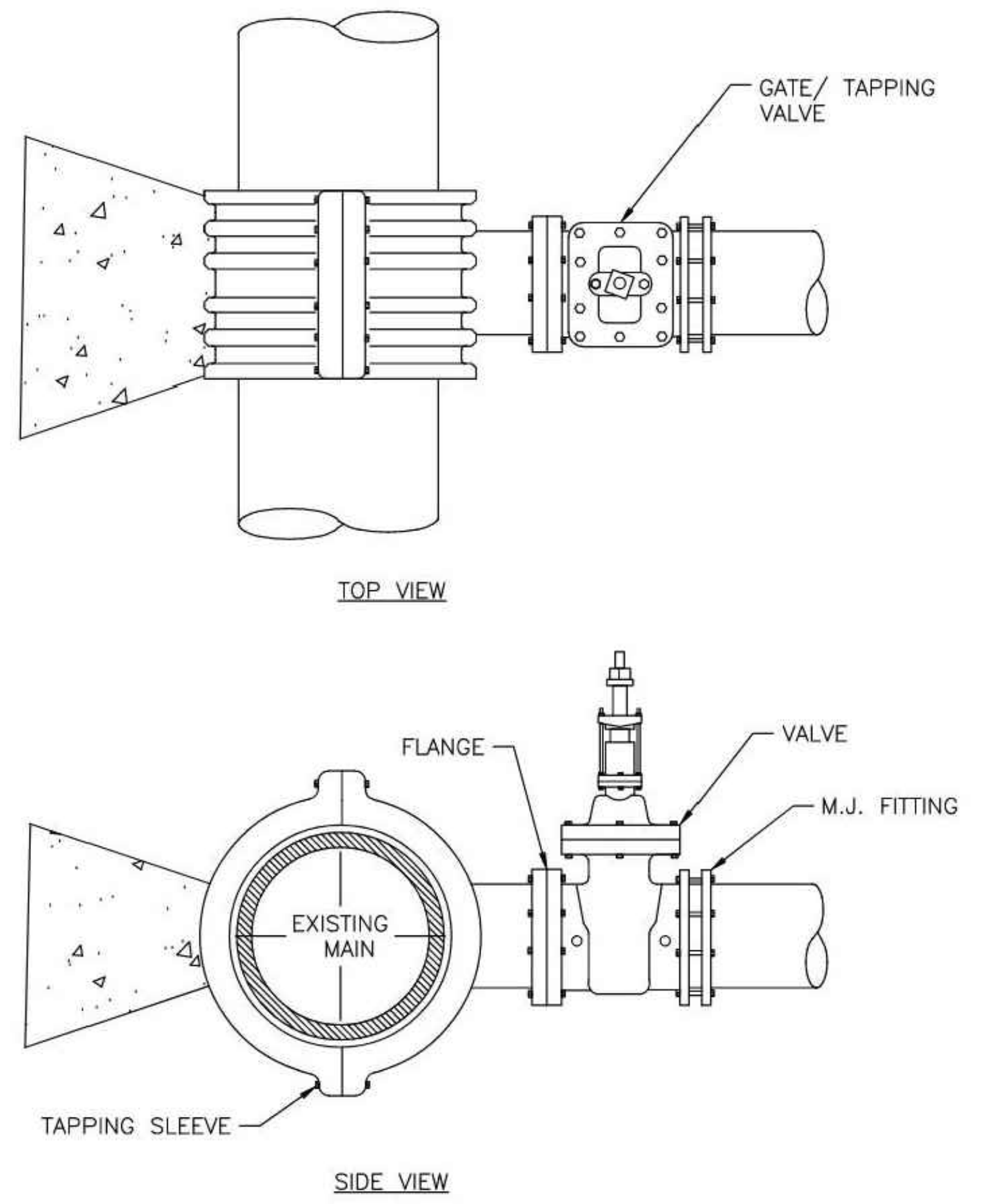
RESTRAINT REQUIREMENTS

PIPE DIA	RODDING	RJ GLANDS	THRUST COLLAR	THRUST BLOCKING
<12"	X	X	X	
≥12"	X	X	X	X

"X" DENOTES REQUIRED RESTRAINT.

NOTES:
1. STEEL RODS AND BOLTS SHALL BE ¾" 316 STAINLESS STEEL.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
5. 3' MINIMUM COVER MUST BE MAINTAINED.
6. EXTERNAL RESTRAINT REQUIRED. INTEGRAL BELL RESTRAINT REQUIRES DIRECTOR'S APPROVAL.

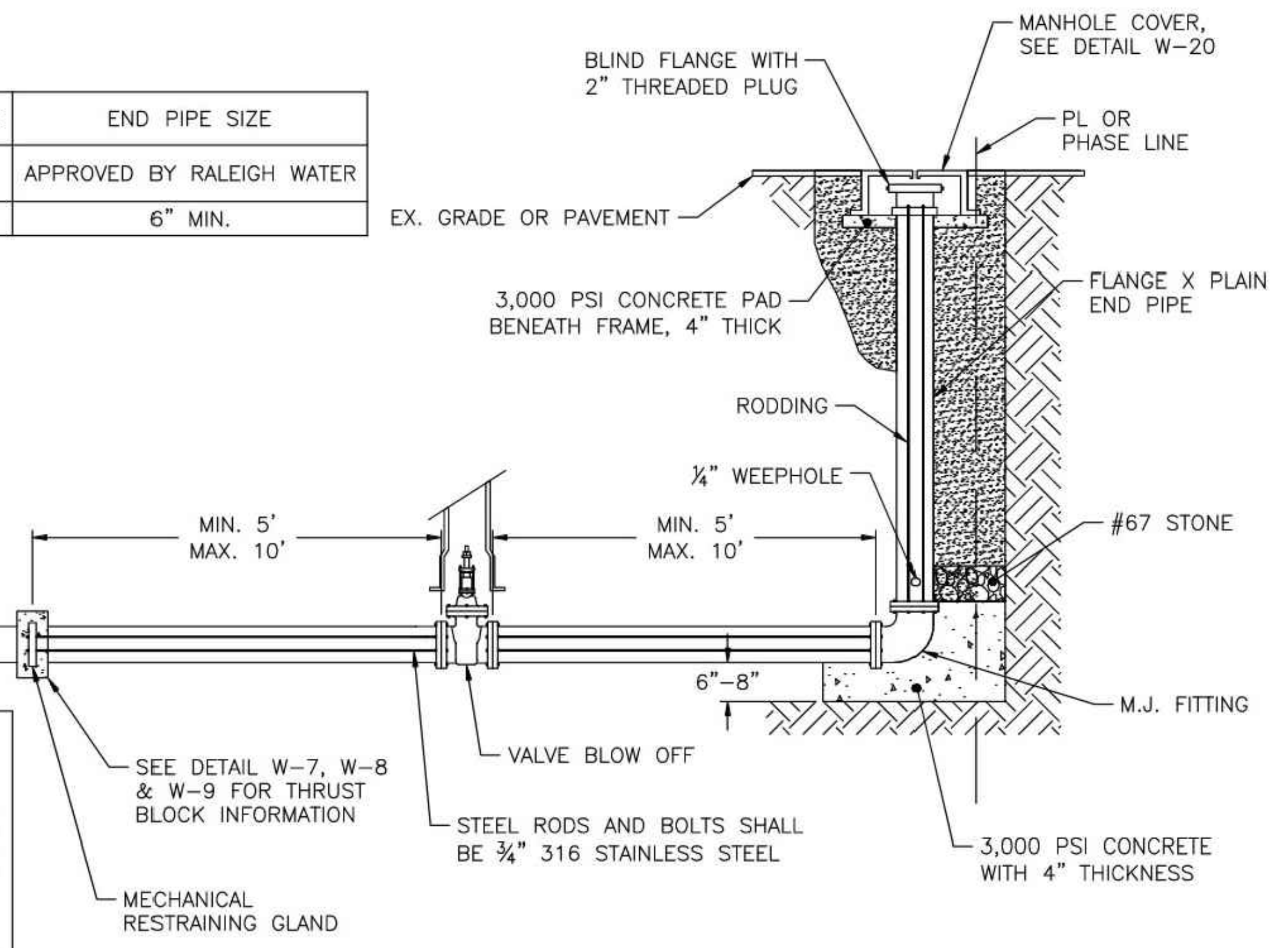
CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
STANDARD VERTICAL BEND
W-12


GATE/ TAPPING VALVE
TOP VIEW
FLANGE
VALVE
M.J. FITTING
EXISTING MAIN
TAPPING SLEEVE
SIDE VIEW

NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. SEE DETAIL W–10 & W–11 (REACTION BLOCK TABLES) FOR AREA OF CONCRETE REQUIRED.
3. 3,000 PSI SOLID CONCRETE SHALL BE USED AS FOOTING FOR DUCTILE IRON PIPE.
4. FULL CIRCUMFERENCE SLEEVE, STAINLESS STEEL MATERIAL REQUIRED.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
4"–24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY
W-14

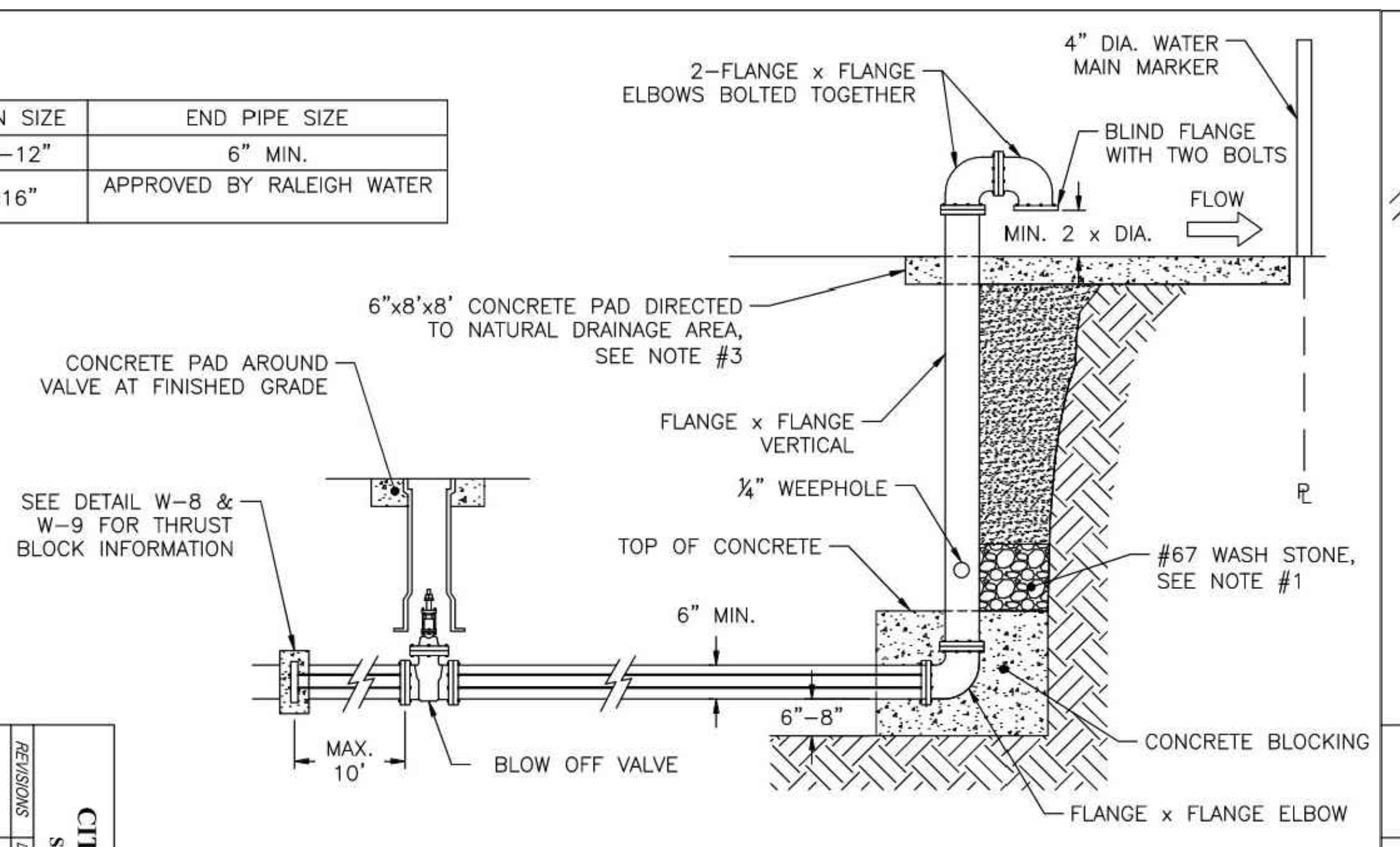
MAIN SIZE	END PIPE SIZE
6"–12"	APPROVED BY RALEIGH WATER
≥16"	6" MIN.


BLIND FLANGE WITH 2" THREADED PLUG
MANHOLE COVER, SEE DETAIL W–20
PL OR PHASE LINE
EX. GRADE OR PAVEMENT
3,000 PSI CONCRETE PAD BENEATH FRAME, 4" THICK
FLANGE X PLAIN END PIPE
RODDING
¼" WEEPHOLE
MIN. 5' MAX. 10'
MIN. 5' MAX. 10'
#67 STONE
6"–8"
M.J. FITTING
SEE DETAIL W–7, W–8 & W–9 FOR THRUST BLOCK INFORMATION
VALVE BLOW OFF
STEEL RODS AND BOLTS SHALL BE ¾" 316 STAINLESS STEEL
3,000 PSI CONCRETE WITH 4" THICKNESS
MECHANICAL RESTRAINING GLAND

NOTE:
NO ROD COUPLINGS ALLOWED.

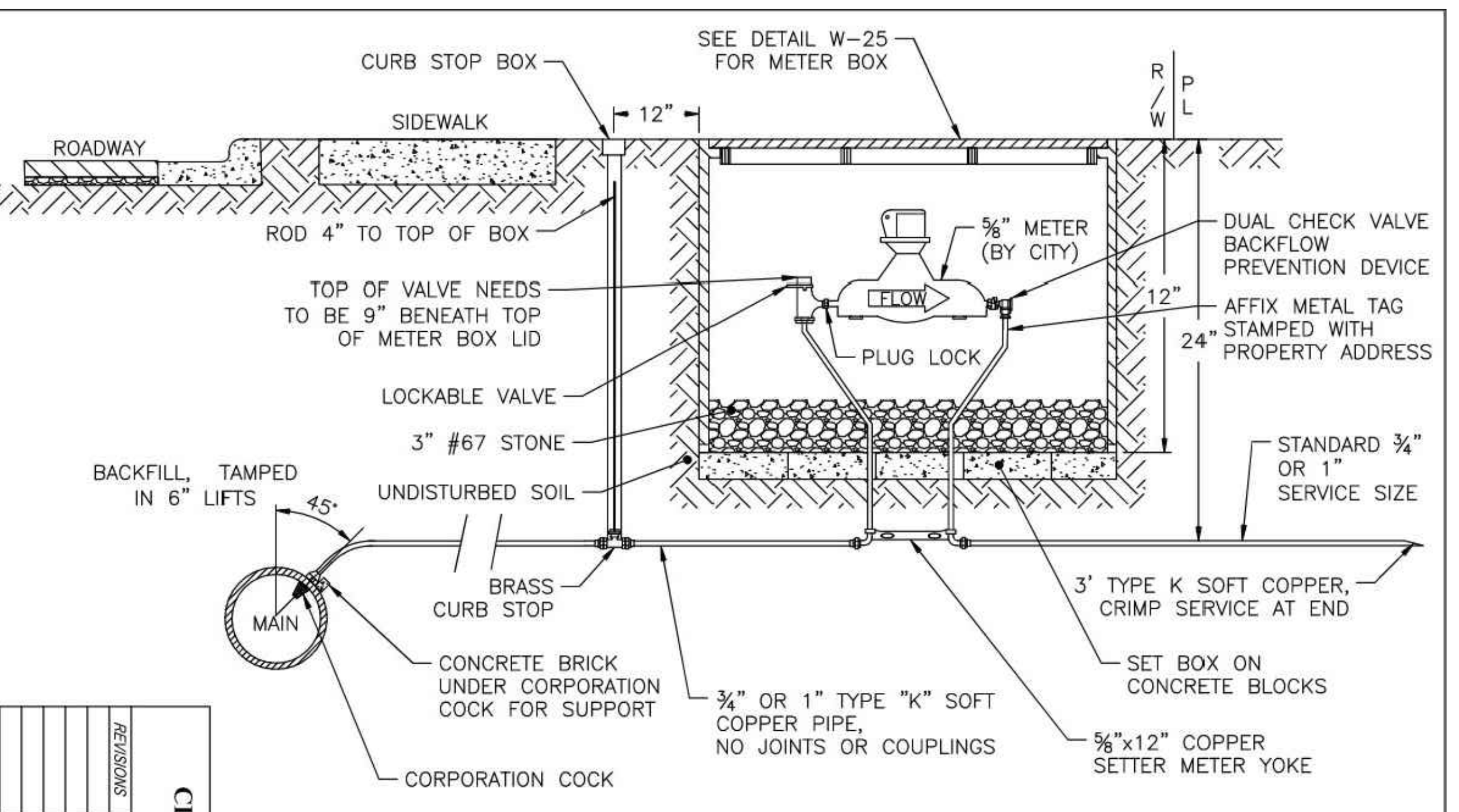
CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
TEMPORARY WATER MAIN BLOW OFF ASSEMBLY
W-21

MAIN SIZE	END PIPE SIZE
6"–12"	6" MIN.
≥16"	APPROVED BY RALEIGH WATER


2–FLANGE x FLANGE ELBOWS BOLTED TOGETHER
4" DIA. WATER MAIN MARKER
BLIND FLANGE WITH TWO BOLTS
FLOW
MIN. 2 x DIA.
6"x8'x8' CONCRETE PAD DIRECTED TO NATURAL DRAINAGE AREA, SEE NOTE #3
CONCRETE PAD AROUND VALVE AT FINISHED GRADE
FLANGE x FLANGE VERTICAL
¼" WEEPHOLE
℗
SEE DETAIL W–8 & W–9 FOR THRUST BLOCK INFORMATION
TOP OF CONCRETE
#67 WASH STONE, SEE NOTE #1
6" MIN.
6"–8"
MAX. 10'
BLOW OFF VALVE
CONCRETE BLOCKING
FLANGE x FLANGE ELBOW

NOTES:
1. DRILL ¼" WEEP HOLE FOR STACK DRAINAGE INTO STONE.
2. DOUBLE ¾" BRIDLE RODS ON BOTH SIDES.
3. A RIP–RAP SWALE FROM FROM CONCRETE SPLASH PAD TO POSITIVE DRAINAGE AREA IS REQUIRED.
4. BOTTOM 90° ELBOW SHALL HAVE BLIND FLANGE ATTACHED WITH TWO BOLTS.
5. INSTALL WATER MAIN MARKER AT R/W OR P/L TO LOCATE MAIN.
6. BURIED ¾" RODS AND BOLTS TO BE 316 STAINLESS STEEL.
7. END PIPE SIZE 6" MIN. OR AS APPROVED BY PUBLIC UTILITIES.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
PERMANENT WATER MAIN BLOW OFF ASSEMBLY
W-22


CURB STOP BOX
SEE DETAIL W–25 FOR METER BOX
R/W
PL
12"
SIDEWALK
ROADWAY
ROD 4" TO TOP OF BOX
⅝" METER (BY CITY)
FLOW
DUAL CHECK VALVE BACKFLOW PREVENTION DEVICE
TOP OF VALVE NEEDS TO BE 9" BENEATH TOP OF METER BOX LID
12"
AFFIX METAL TAG STAMPED WITH PROPERTY ADDRESS
24"
PLUG LOCK
LOCKABLE VALVE
3" #67 STONE
STANDARD ¾" OR 1" SERVICE SIZE
BACKFILL, TAMPED IN 6" LIFTS
45°
UNDISTURBED SOIL
MAIN
BRASS CURB STOP
3' TYPE K SOFT COPPER, CRIMP SERVICE AT END
CONCRETE BRICK UNDER CORPORATION COCK FOR SUPPORT
SET BOX ON CONCRETE BLOCKS
¾" OR 1" TYPE "K" SOFT COPPER PIPE, NO JOINTS OR COUPLINGS
⅝"x12" COPPER SETTER METER YOKE
CORPORATION COCK

NOTES:
1. METER TO BE PROVIDED BY RALEIGH WATER.
2. DIRECT TAP ALLOWED ON MAINS NO LARGER THAN 16" LINE,
3. METER BOX TO BE LOCATED IN R/W ADJACENT TO PROPERTY OR IN APPROVED EASEMENT ADJACENT TO R/W.
4. WHEN THE GRADE CHANGES ON EXISTING SERVICES, A COPPER RESETTER CAN BE USED TO ADJUST TO GRADE. COPPER RESETTERS ARE PROHIBITED ON NEW SERVICES.
5. CURB STOP BOX SHALL HAVE PLUG STYLE LID WITH PENTAGON BOLT, 1–¼" STEEL UPPER SECTION, AND ARCH STYLE BASE. STEEL STATIONARY ROD TO BE PROVIDED FOR CURB STOP OPERATION.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
STANDARD ¾" & 1" WATER SERVICE INSTALLATION
W-23

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

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Engineers
Planners
Surveyors
Landscape Architects

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26493 STEPHEN J. BALLENTINE

Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

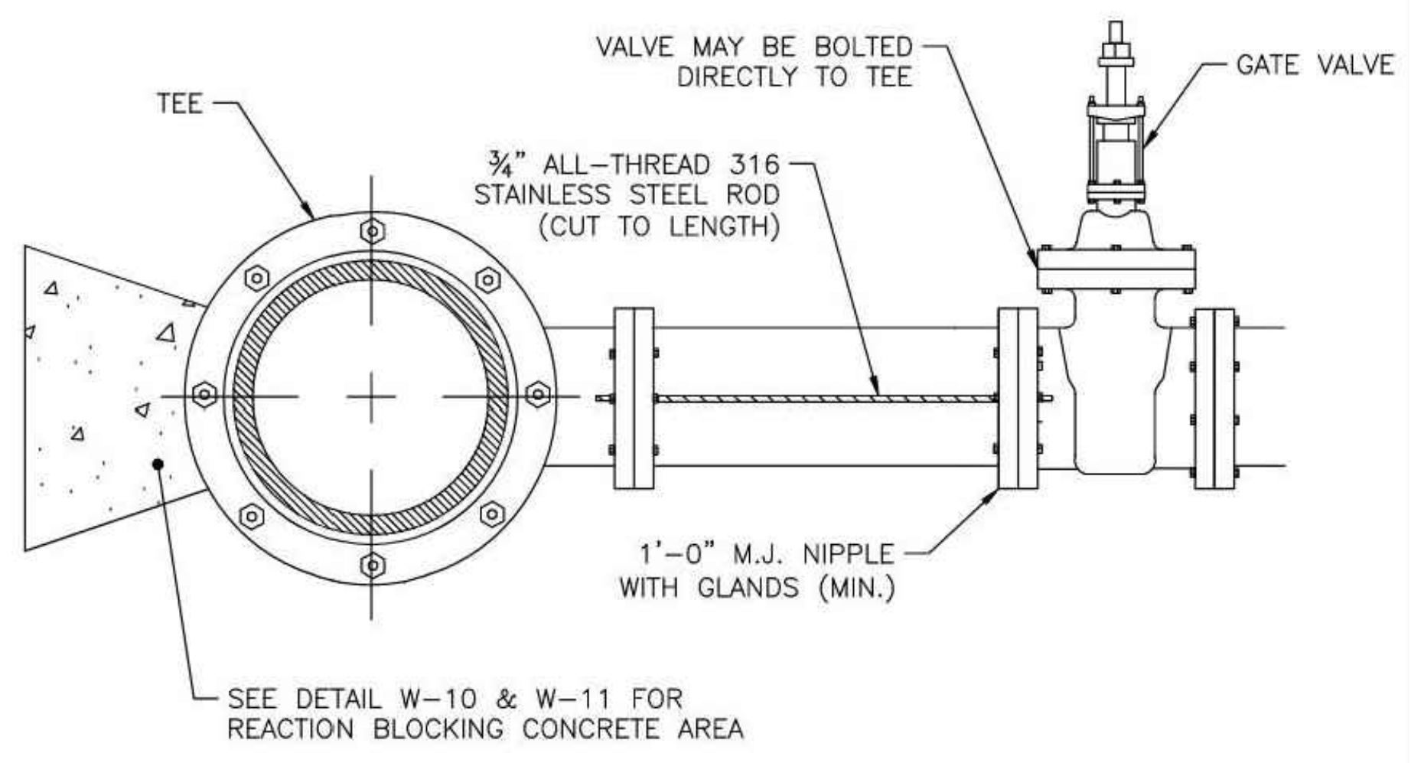
OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

WATER DETAILS

DATE:
DESIGNED BY: CS
DRAWN BY: TAH/EDN
CHECKED BY: SJB
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.
C3.41

Do Not Use for Construction - PRELIMINARY

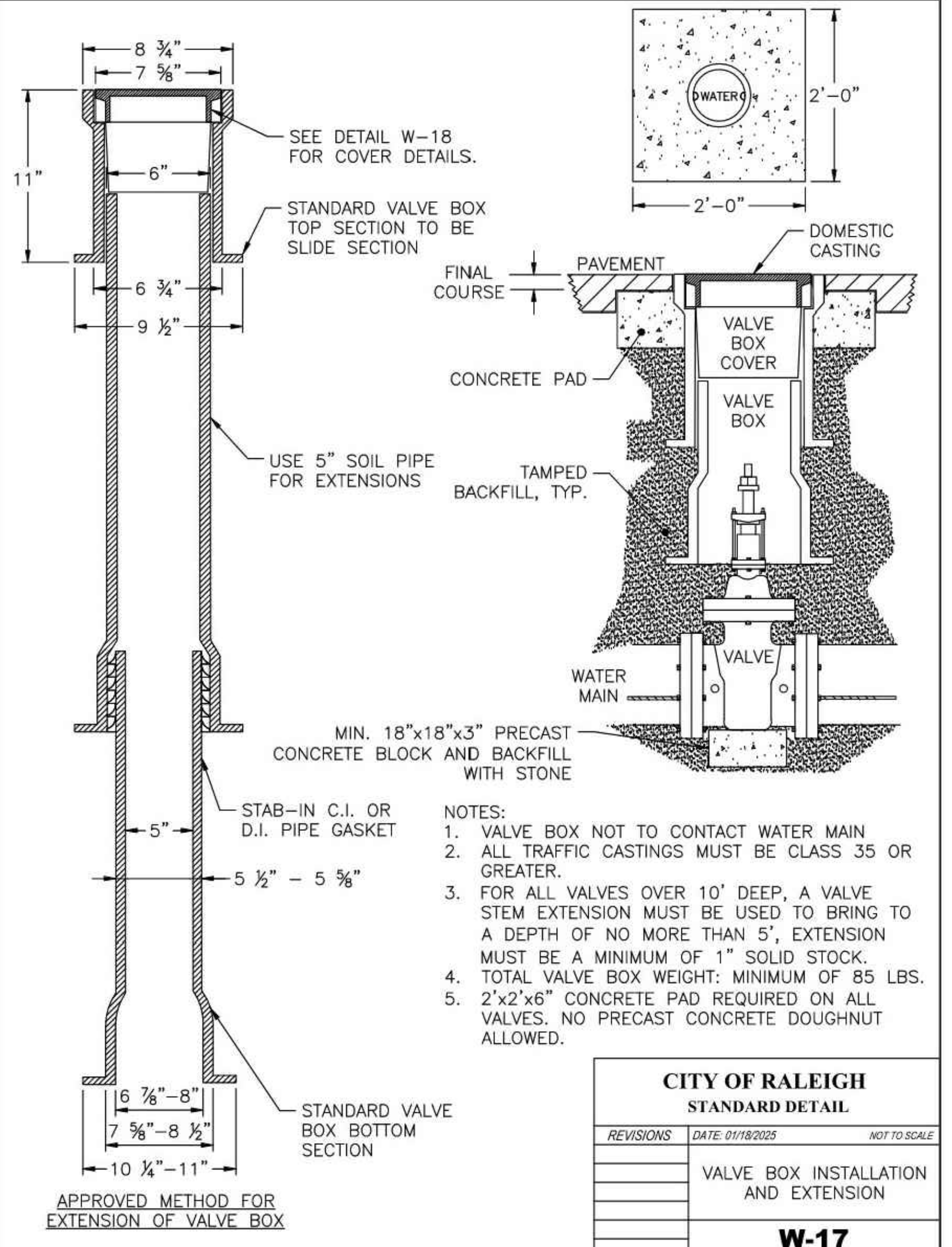

VALVE MAY BE BOLTED DIRECTLY TO TEE
GATE VALVE
TEE
¾" ALL-THREAD 316 STAINLESS STEEL ROD (CUT TO LENGTH)
1'-0" M.J. NIPPLE WITH GLANDS (MIN.)
SEE DETAIL W-10 & W-11 FOR REACTION BLOCKING CONCRETE AREA

ROD REQUIREMENTS

BRANCH SIZE	NO. OF RODS
4"	2
6"	2
8"	4
12"	4
16"	6
24"	6
30"	8
36"	8

NOTES:
1. STEEL RODS AND BOLTS SHALL BE ¾" 316 STAINLESS STEEL.
2. SEE DETAIL W-10 AND W-11 (THRUST BLOCK TABLES) FOR CONCRETE.
3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
4. THIS RODDING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

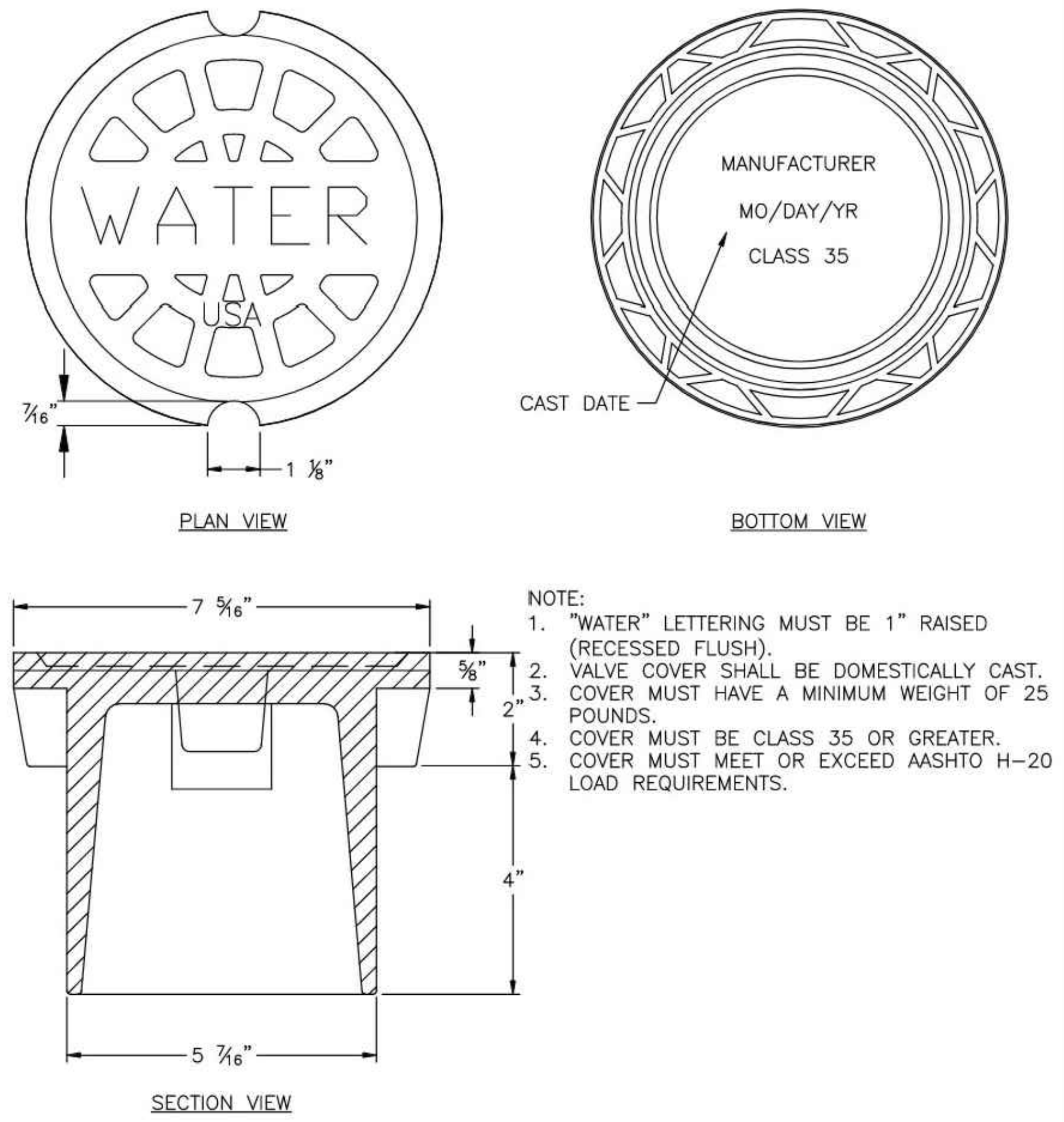
CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
VALVE RESTRAINT AT TEES AND CROSSES FOR LINES (4"–24")
W-15


8 ¾"
7 ⅝"
11"
6"
SEE DETAIL W-18 FOR COVER DETAILS.
STANDARD VALVE BOX TOP SECTION TO BE SLIDE SECTION
6 ¾"
9 ½"
USE 5" SOIL PIPE FOR EXTENSIONS
STAB-IN C.I. OR D.I. PIPE GASKET
5"
5 ½" – 5 ⅝"
6 ⅞"–8"
7 ⅝"–8 ½"
10 ¼"–11"
STANDARD VALVE BOX BOTTOM SECTION
WATER
2'-0"
2'-0"
DOMESTIC CASTING
PAVEMENT
FINAL COURSE
VALVE BOX COVER
VALVE BOX
CONCRETE PAD
TAMPED BACKFILL, TYP.
VALVE
WATER MAIN
MIN. 18"x18"x3" PRECAST CONCRETE BLOCK AND BACKFILL WITH STONE

APPROVED METHOD FOR EXTENSION OF VALVE BOX

NOTES:
1. VALVE BOX NOT TO CONTACT WATER MAIN
2. ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER.
3. FOR ALL VALVES OVER 10' DEEP, A VALVE STEM EXTENSION MUST BE USED TO BRING TO A DEPTH OF NO MORE THAN 5', EXTENSION MUST BE A MINIMUM OF 1" SOLID STOCK.
4. TOTAL VALVE BOX WEIGHT: MINIMUM OF 85 LBS.
5. 2'x2'x6" CONCRETE PAD REQUIRED ON ALL VALVES. NO PRECAST CONCRETE DOUGHNUT ALLOWED.

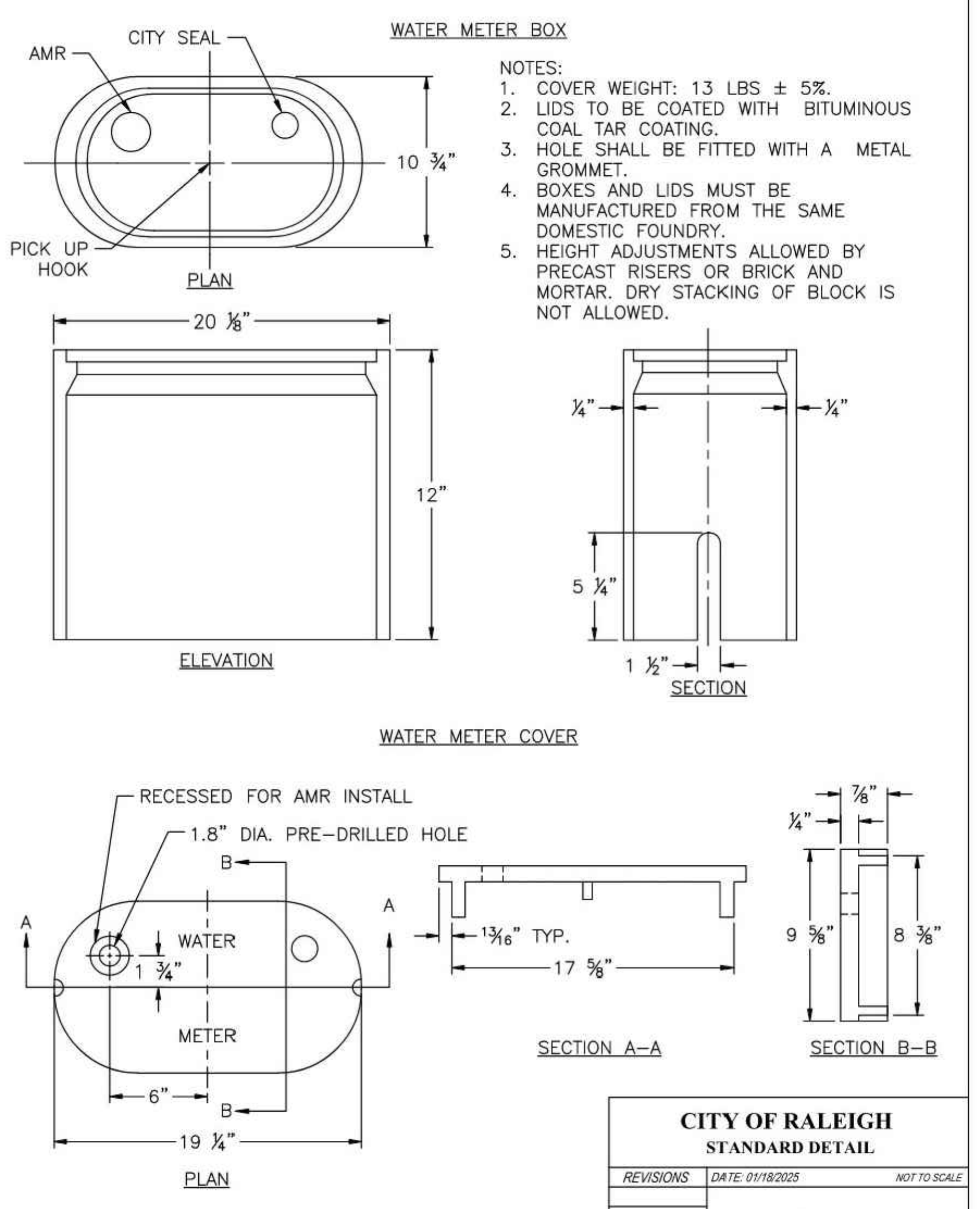
CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
VALVE BOX INSTALLATION AND EXTENSION
W-17


WATER
USA
7⁄16"
1 ⅛"
PLAN VIEW
MANUFACTURER
MO/DAY/YR
CLASS 35
CAST DATE
BOTTOM VIEW
7 5⁄16"
⅝"
2"
4"
5 7⁄16"
SECTION VIEW

NOTE:
1. "WATER" LETTERING MUST BE 1" RAISED (RECESSED FLUSH).
2. VALVE COVER SHALL BE DOMESTICALLY CAST.
3. COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
4. COVER MUST BE CLASS 35 OR GREATER.
5. COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

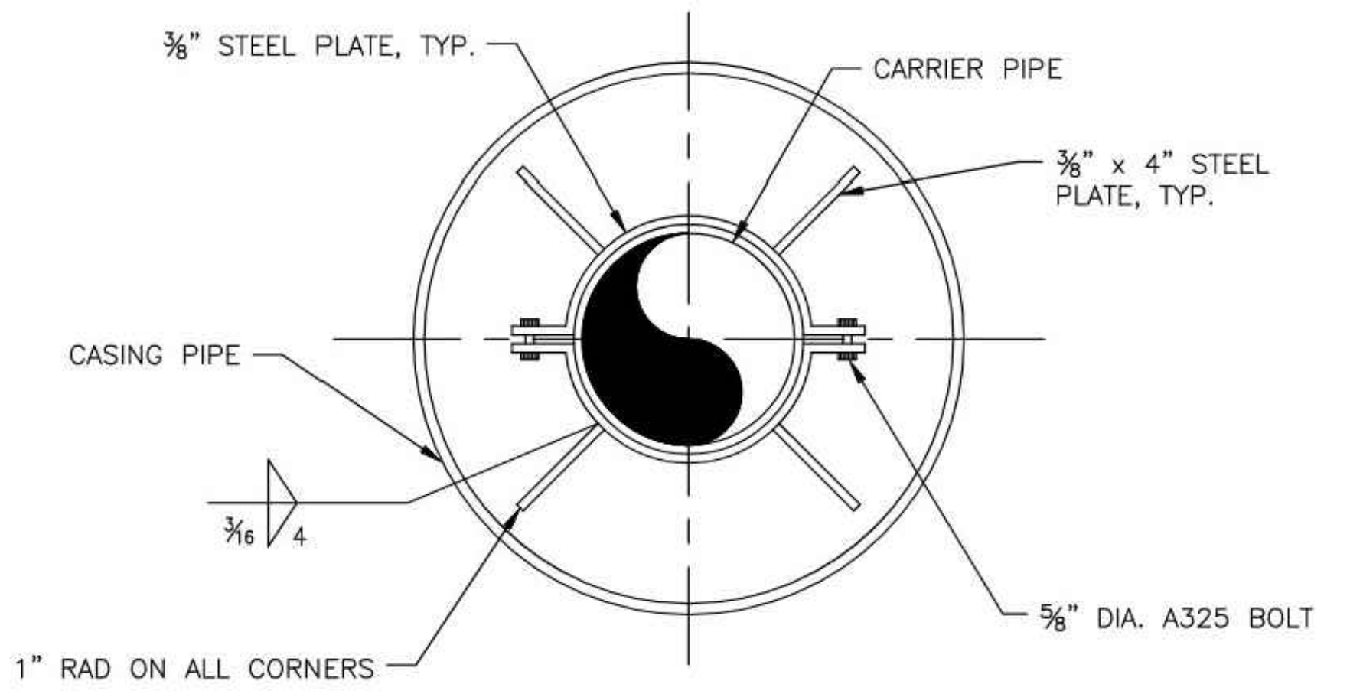
CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
5 ¼" VALVE BOX DROP LID WITH 4" SKIRT
W-18

WATER METER BOX


AMR
CITY SEAL
PICK UP HOOK
10 ¾"
PLAN
20 ⅛"
12"
ELEVATION
¼"
¼"
5 ¼"
1 ½"
SECTION
WATER METER COVER
RECESSED FOR AMR INSTALL
1.8" DIA. PRE-DRILLED HOLE
B
A
WATER
1 ¾"
METER
6"
B
19 ¼"
PLAN
13⁄16" TYP.
17 ⅝"
SECTION A–A
⅞"
¼"
9 ⅝"
8 ⅜"
SECTION B–B

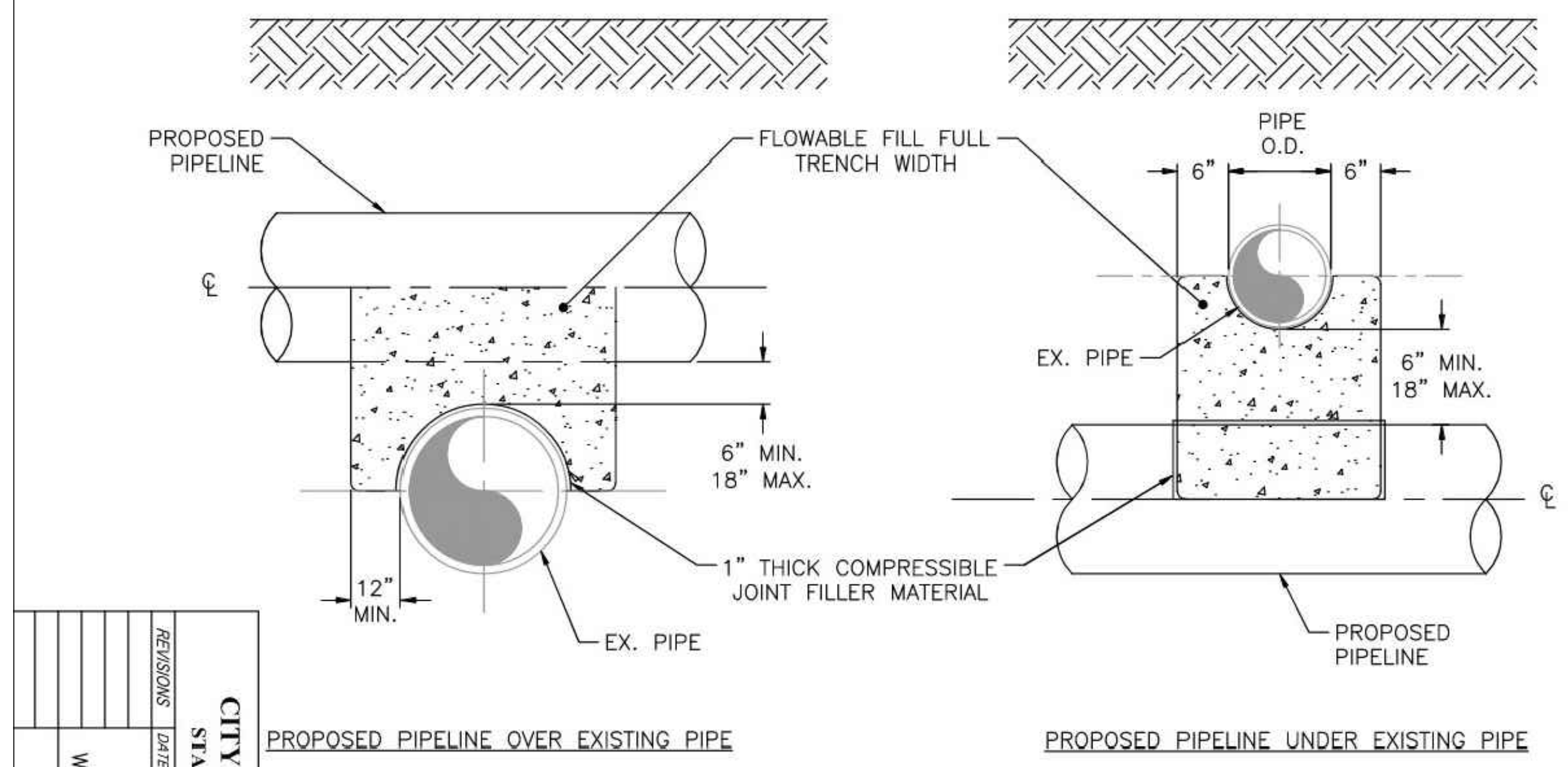
NOTES:
1. COVER WEIGHT: 13 LBS ± 5%.
2. LIDS TO BE COATED WITH BITUMINOUS COAL TAR COATING.
3. HOLE SHALL BE FITTED WITH A METAL GROMMET.
4. BOXES AND LIDS MUST BE MANUFACTURED FROM THE SAME DOMESTIC FOUNDRY.
5. HEIGHT ADJUSTMENTS ALLOWED BY PRECAST RISERS OR BRICK AND MORTAR. DRY STACKING OF BLOCK IS NOT ALLOWED.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
WATER METER BOX
W-25


⅜" STEEL PLATE, TYP.
CARRIER PIPE
⅜" x 4" STEEL PLATE, TYP.
CASING PIPE
3⁄16
4
5⁄8" DIA. A325 BOLT
1" RAD ON ALL CORNERS

NOTE:
USE A MINIMUM OF TWO SPIDERS PER PIPE JOINT ONE FOURTH OF THE PIPE JOINT LENGTH IN FROM BOTH THE BELL AND SPIGOT ENDS.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
PIPE ALIGNMENT GUIDE
W-40

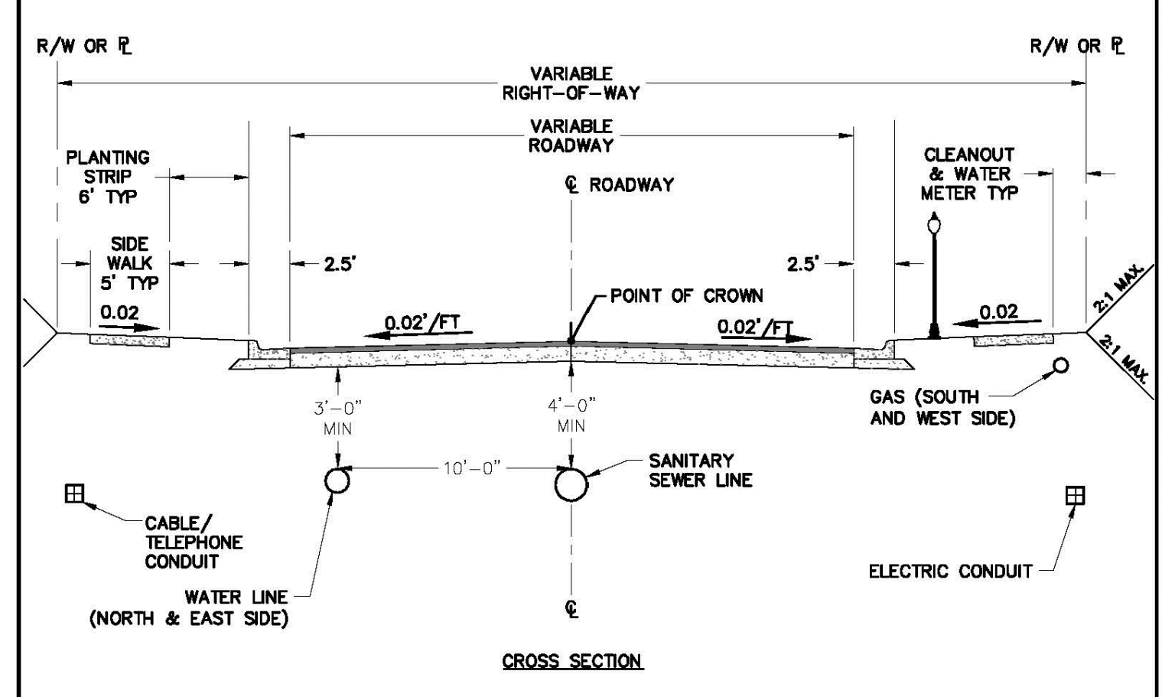

PROPOSED PIPELINE
FLOWABLE FILL FULL TRENCH WIDTH
℄
6" MIN.
18" MAX.
12" MIN.
EX. PIPE
1" THICK COMPRESSIBLE JOINT FILLER MATERIAL
PIPE O.D.
6"
6"
EX. PIPE
6" MIN.
18" MAX.
℄
PROPOSED PIPELINE

PROPOSED PIPELINE OVER EXISTING PIPE

PROPOSED PIPELINE UNDER EXISTING PIPE

NOTE:
NO ENCASEMENT REQUIRED FOR SPACE GREATER THAN 18" FOR WATER LINES.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 01/18/2025 | NOT TO SCALE
CONCRETE CRADLE PROTECTION FOR WATER LINE CROSSINGS
W-41

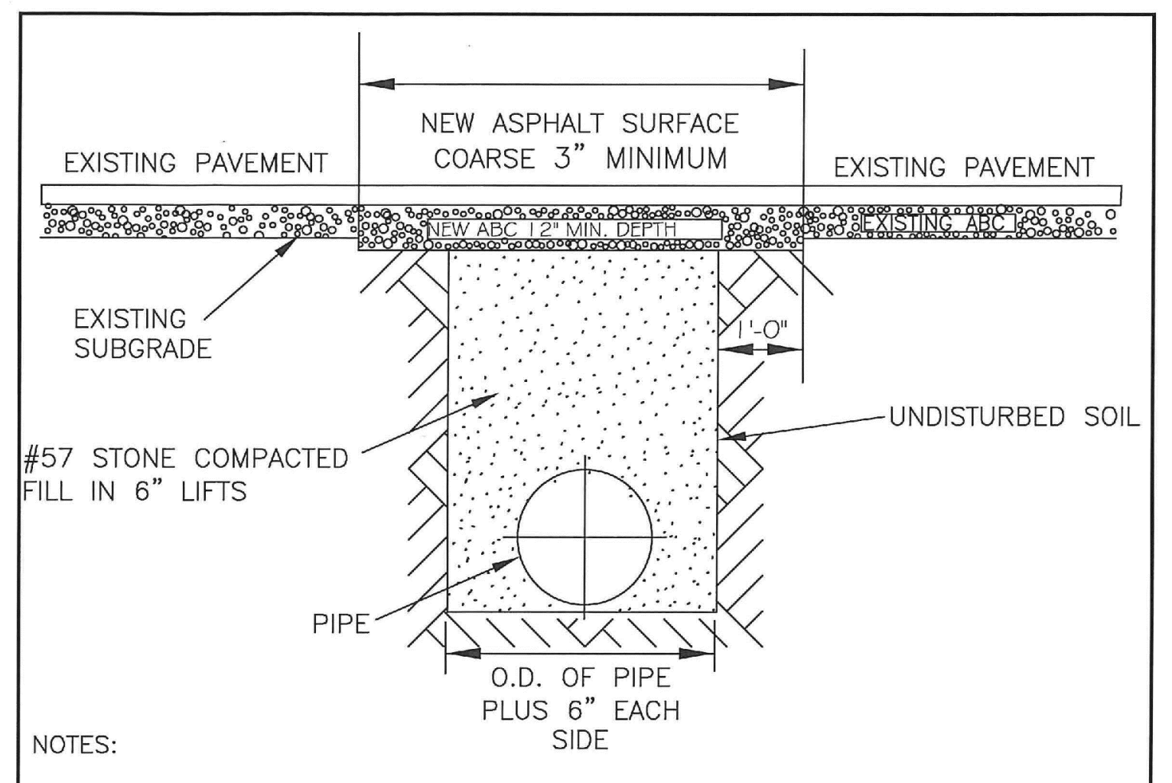

R/W OR ℙ
R/W OR ℙ
VARIABLE RIGHT-OF-WAY
VARIABLE ROADWAY
℄ ROADWAY
PLANTING STRIP 6' TYP
SIDE WALK 5' TYP
0.02
2.5'
0.02'/FT
POINT OF CROWN
0.02'/FT
2.5'
CLEANOUT & WATER METER TYP
0.02
2:1 MAX.
2:1 MAX.
GAS (SOUTH AND WEST SIDE)
3'-0" MIN
4'-0" MIN
10'-0"
SANITARY SEWER LINE
CABLE/ TELEPHONE CONDUIT
WATER LINE (NORTH & EAST SIDE)
℄
ELECTRIC CONDUIT

CROSS SECTION

NOTES:
1. THERE SHALL BE AN 18-INCH VERTICAL SEPARATION BETWEEN WATER AND SEWER LINES.
2. WATER AND/OR SANITARY SEWER LINES SHALL BE A MINIMUM OF TWO (2) FEET FROM THE EDGE OF THE CURB AND GUTTER.
3. ENCROACHMENT ONTO TOWN MAINTAINED RIGHT OF WAY SHALL FOLLOW CONDITIONS OF THE APPLICABLE ENCROACHMENT AGREEMENT OR FRANCHISE AGREEMENT.
4. STREET LAMPS SHALL BE PLACED SUCH THAT THERE ARE NO CONFLICTS WITH STREET TREES.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS | STANDARD UTILITY LOCATION IN STREET | STD. NO. 3.13


EXISTING PAVEMENT
NEW ASPHALT SURFACE COARSE 3" MINIMUM
EXISTING PAVEMENT
NEW ABC 12" MIN. DEPTH
EXISTING ABC
EXISTING SUBGRADE
1'-0"
UNDISTURBED SOIL
#57 STONE COMPACTED FILL IN 6" LIFTS
PIPE
O.D. OF PIPE PLUS 6" EACH SIDE

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-80 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

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

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Engineers
Planners
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NORTH CAROLINA PROFESSIONAL SEAL 26493 ENGINEER

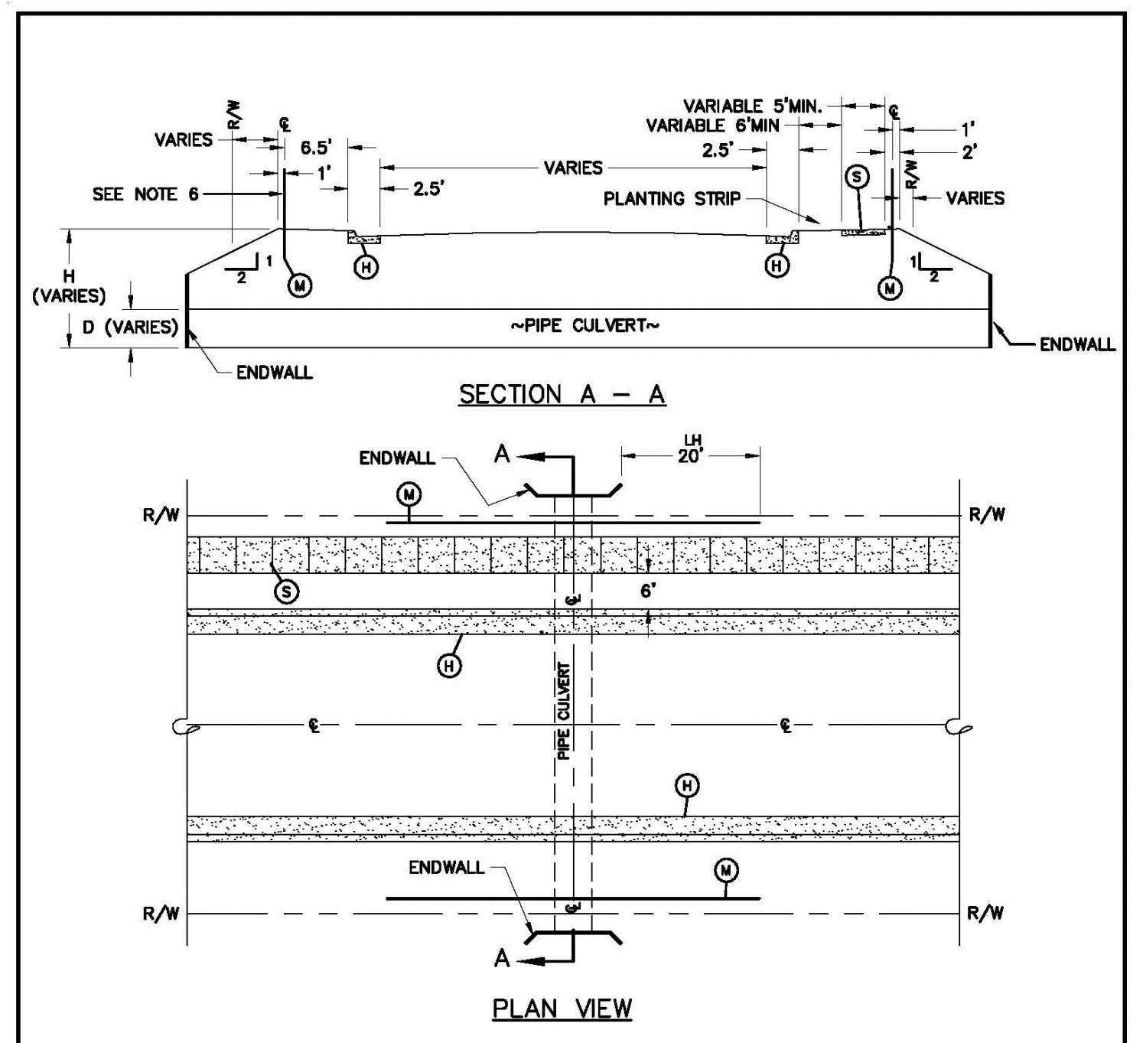
REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE – WAKE COUNTY – NORTH CAROLINA
WATER DETAILS

DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH/EDN
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C3.42

Do Not Use for Construction - PRELIMINARY


SECTION A – A
PLAN VIEW
VARIES
SEE NOTE 6
H (VARIES)
D (VARIES)
PLANTING STRIP
~PIPE CULVERT~
ENDWALL
R/W

LH = DISTANCE FROM END OF WINGWALL TO END OF HANDRAIL.

- (H) 2'–6" CURB AND GUTTER, STANDARD DETAIL 4.01
- (M) HANDRAIL, STANDARD DETAIL 4.13
- (S) 5'–0" SIDEWALK, MINIMUM STANDARD DETAIL 4.04

REVISIONS

DATE	DESCRIPTION

1 of 2

TOWN OF KNIGHTDALE STANDARD DETAILS — CULVERT CROSSING ON RESIDENTIAL AND COMMERCIAL STREETS — STD. NO. 5.01

NOTES:

1. UNLESS OTHERWISE DETERMINED BY THE TOWN ENGINEER, THE MEASURES ILLUSTRATED SHALL BE USED WHEN CULVERT DIAMETER, D, IS 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, LH SHALL BE MEASURED FROM THE OUTSIDE OF THE NEAREST 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 EXCEPT WHEN A 15–FOOT PEDESTRIAN CLEAR ZONE IS PROVIDED 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

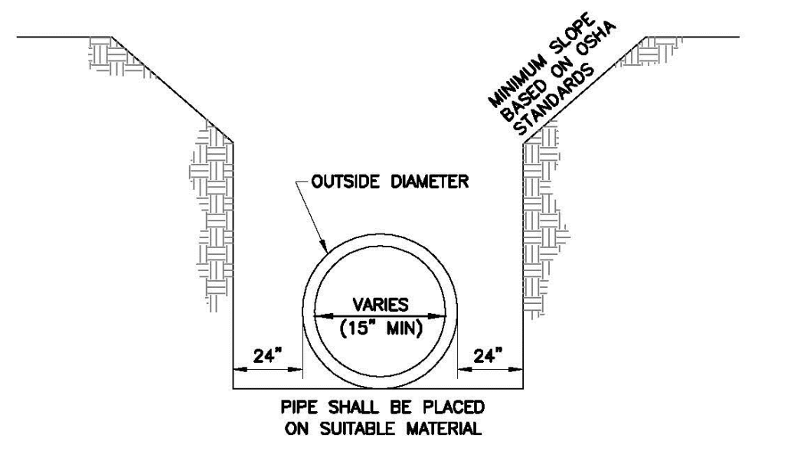
DATE	DESCRIPTION

2 of 2

TOWN OF KNIGHTDALE STANDARD DETAILS — CULVERT CROSSING ON RESIDENTIAL AND COMMERCIAL STREETS — STD. NO. 5.01

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 ONLY. EACH AND EVERY LAYER OF 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.

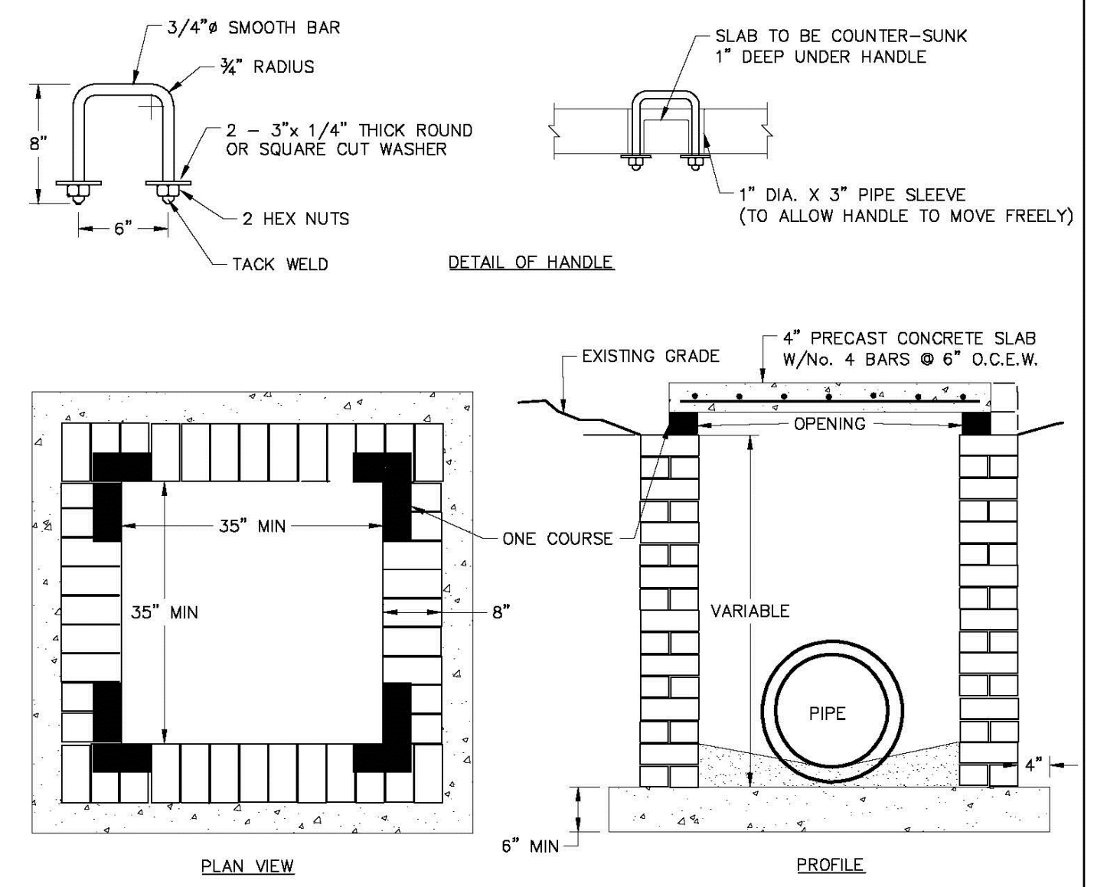

MINIMUM SLOPE BASED ON OSHA STANDARDS
OUTSIDE DIAMETER
VARIES (15" MIN)
24"
24"

PIPE SHALL BE PLACED ON SUITABLE MATERIAL

REVISIONS

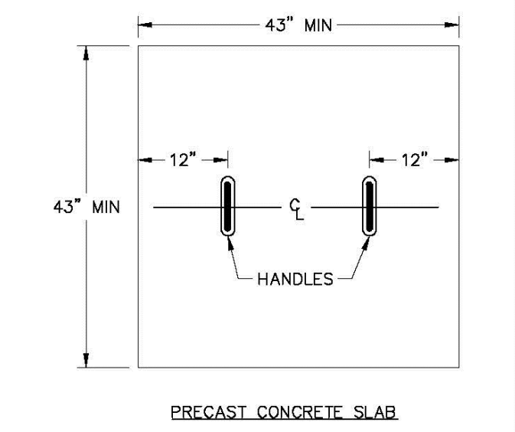
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — TRENCH FOR STORM DRAIN PIPES — STD. NO. 5.02


3/4"ø SMOOTH BAR
¾" RADIUS
2 – 3"x 1/4" THICK ROUND OR SQUARE CUT WASHER
2 HEX NUTS
TACK WELD
DETAIL OF HANDLE
SLAB TO BE COUNTER–SUNK 1" DEEP UNDER HANDLE
1" DIA. X 3" PIPE SLEEVE (TO ALLOW HANDLE TO MOVE FREELY)
EXISTING GRADE
4" PRECAST CONCRETE SLAB W/No. 4 BARS @ 6" O.C.E.W.
OPENING
ONE COURSE
35" MIN
VARIABLE
PIPE
4"
6" MIN
PLAN VIEW
PROFILE

NOTES:

1. EITHER SOLID BRICK, SOLID BLOCK OR PRECAST CONRETE MAY BE USED.
2. PRECAST CONCRETE WALLS SHALL BE 6" THICK MINIMUM.
3. ALL CONCRETE SHALL BE 3000 P.S.I.
4. FOR 24" PIPE AND LARGER USE PIPE DIA. PLUS 12" AS INSDE DIMENSIONS.

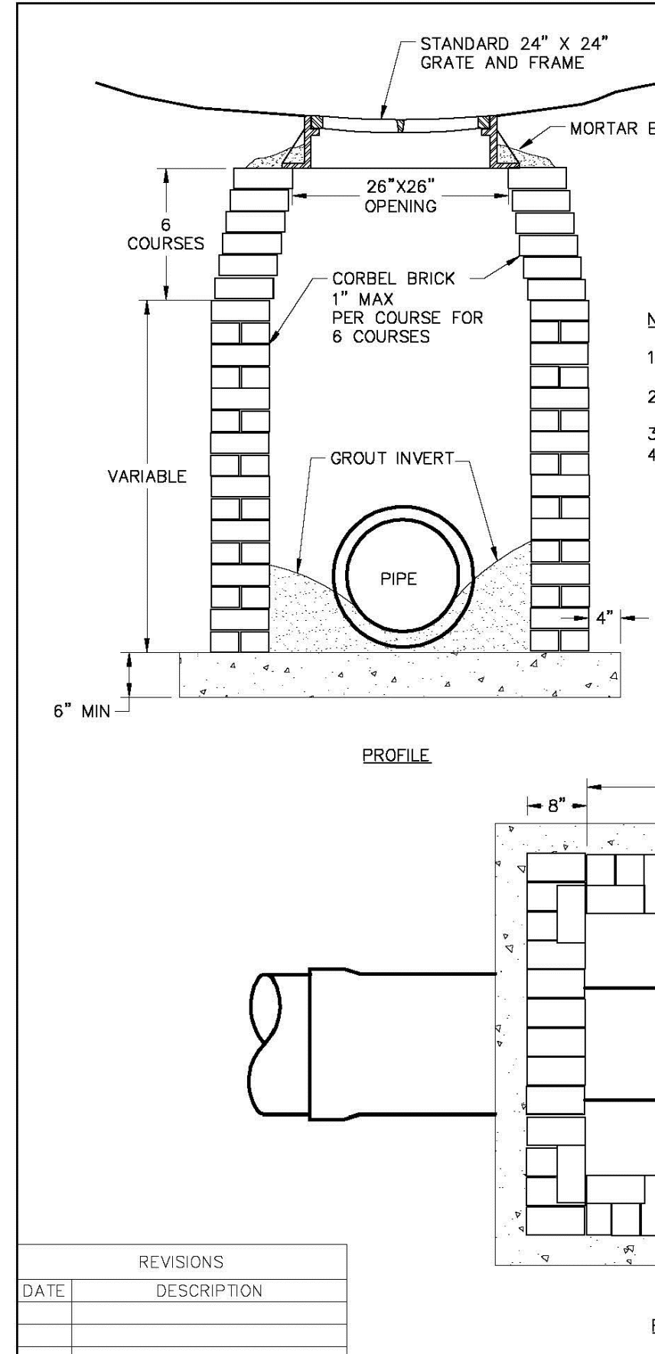

43" MIN
43" MIN
12"
12"
HANDLES

PRECAST CONCRETE SLAB

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD YARD INLET WITH CONCRETE SLAB — STD. NO. 5.03


STANDARD 24" X 24" GRATE AND FRAME
MORTAR BED (TYP.)
6 COURSES
26"X26" OPENING
CORBEL BRICK 1" MAX PER COURSE FOR 6 COURSES
VARIABLE
GROUT INVERT
PIPE
6" MIN
4"
PROFILE
35" MIN
8"
GROUT
PLAN VIEW

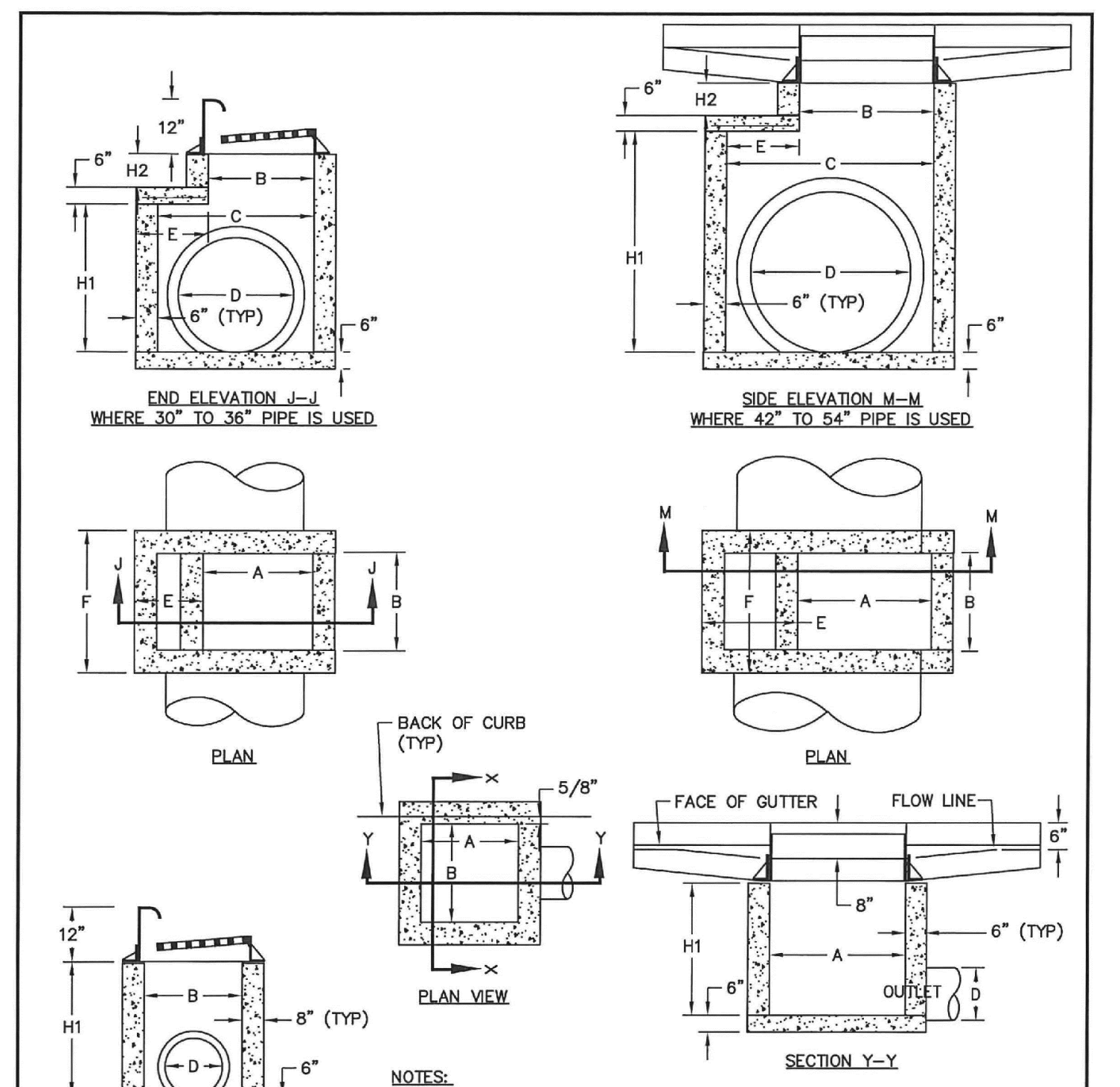
NOTES:

1. EITHER SOLID BRICK, SOLID BLOCK, OR PRECAST CONRETE MAY BE USED.
2. PRECAST CONCRETE WALLS SHALL BE 6" THICK MINIMUM.
3. ALL CONCRETE SHALL BE 3000 P.S.I.
4. FOR 24" PIPE AND LARGER USE PIPE DIA. PLUS 12" AS INSDE DIMENSIONS.

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD DROP INLET WITH GRATE AND FRAME — STD. NO. 5.04


END ELEVATION J–J
WHERE 30" TO 36" PIPE IS USED
SIDE ELEVATION M–M
WHERE 42" TO 54" PIPE IS USED
PLAN
BACK OF CURB (TYP)
FACE OF GUTTER
FLOW LINE
OUTLET
6" (TYP)
8" (TYP)
PLAN VIEW
SECTION X–X
SECTION Y–Y
H1
H2
A
B
D
5/8"

NOTES:

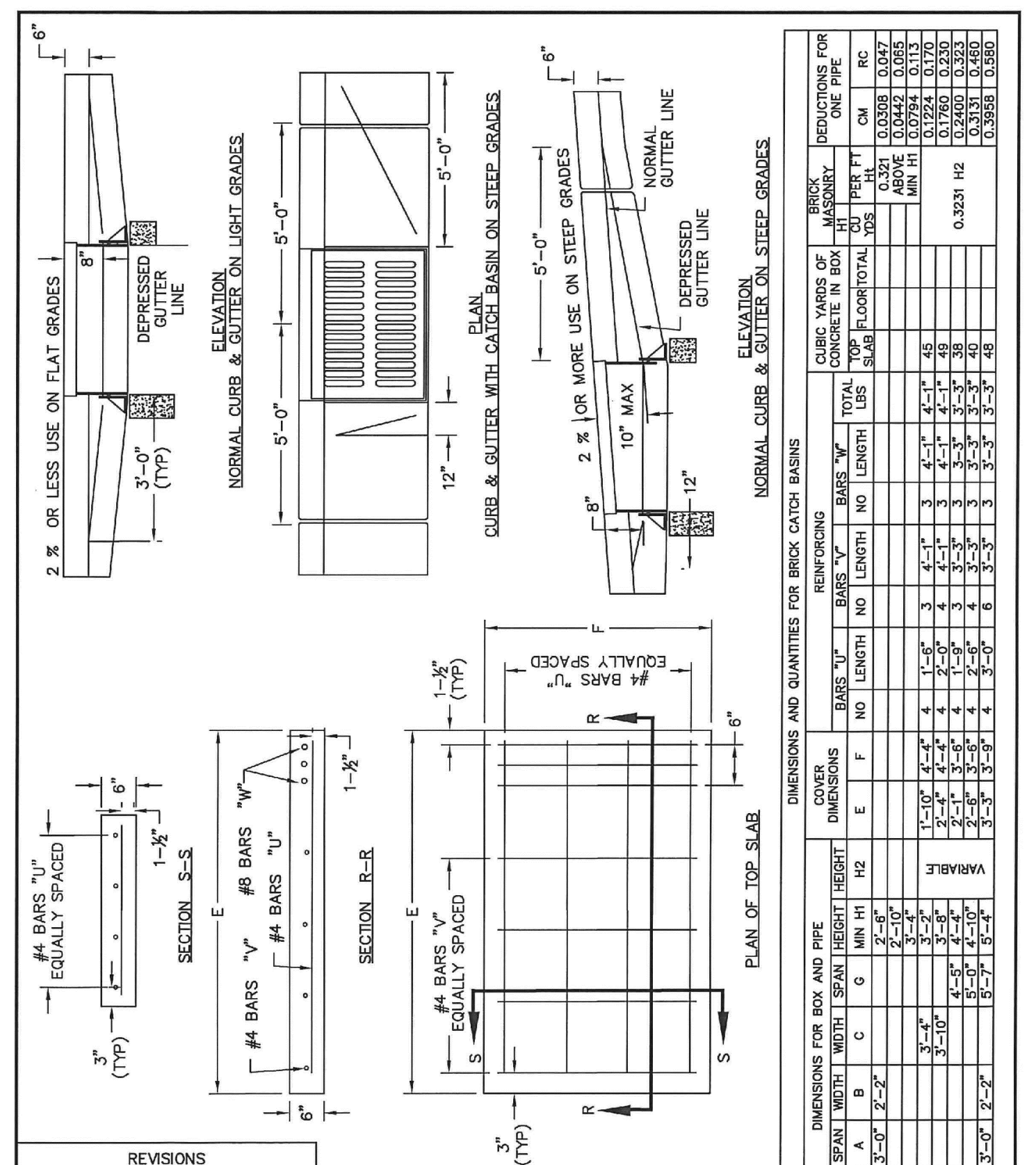
1. ALL CONCRETE SHALL BE 3000 P.S.I.
2. BASE SLABS SHALL BE FORMED PRIOR TO PLACING OF CONCRETE.
3. USE TYPE "A" GRATE AT SAG POINTS, OTHERWISE USE TYPE "B" OR "C" FOR THE APPROPRIATE FLOW DIRECTION.
4. ALL WALLS GREATER THAN 6' IN DEPTH SHALL BE CONSTRUCTED 12" THICK.
5. WAFFLE BOXES ARE NOT ALLOWED WITHOUT PRIOR APPROVAL FROM THE TOWN OF KNIGHTDALE

REVISIONS

DATE	DESCRIPTION

3 of 4

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD CURB INLET PRECAST CONCRETE BOX — STD. NO. 5.05-3

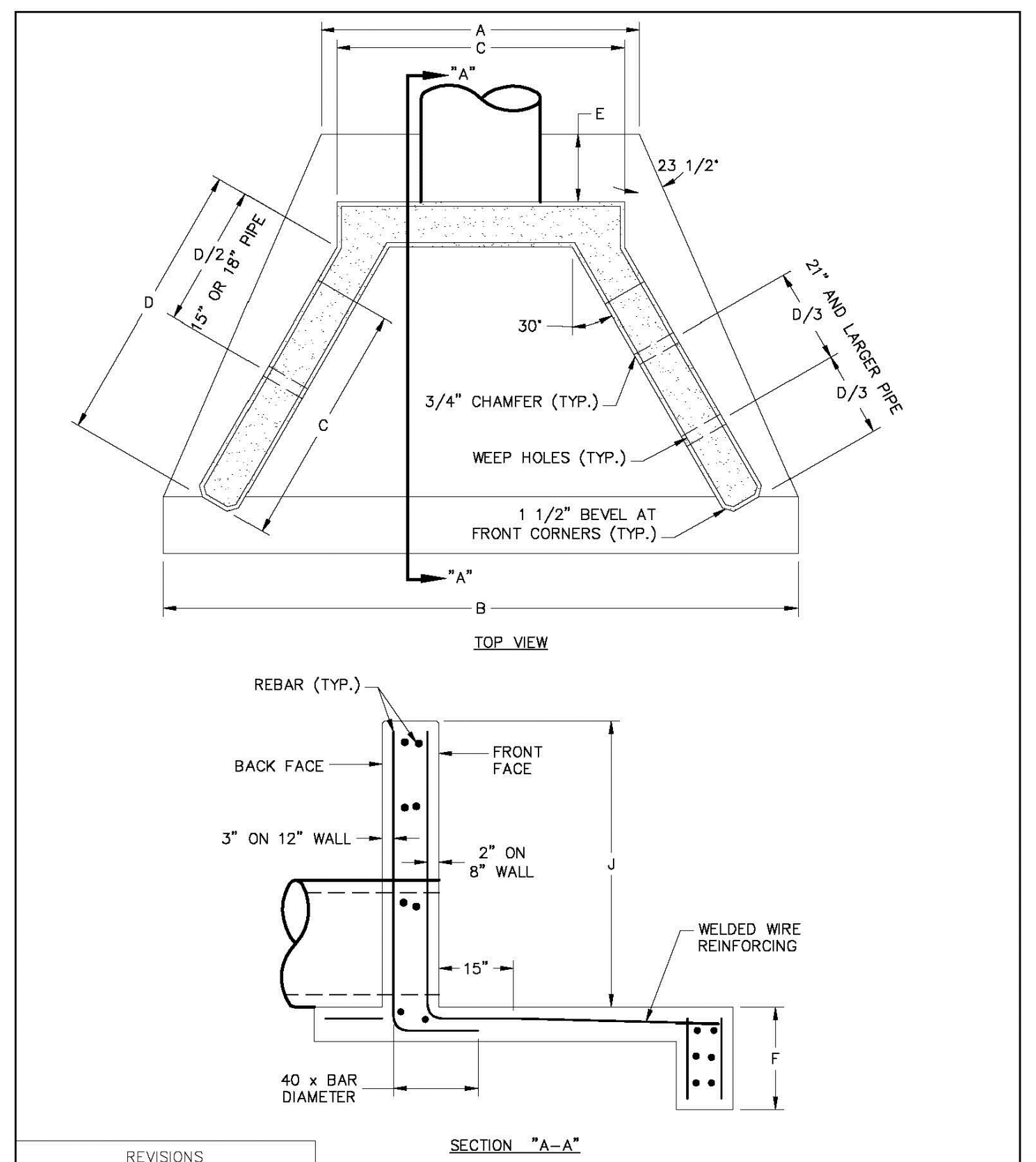

NORMAL CURB GRADES
CURB & GUTTER WITH CATCH BASIN ON STEEP GRADES
PLAN OF TOP SLAB
SECTION A–A
SECTION B–B
DIMENSIONS AND QUANTITIES FOR BRICK CATCH BASIN
DEDUCTIONS FOR ONE PIPE

REVISIONS

DATE	DESCRIPTION

4 of 4

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD CURB INLET PRECAST CONCRETE BOX — STD. NO. 5.05-4

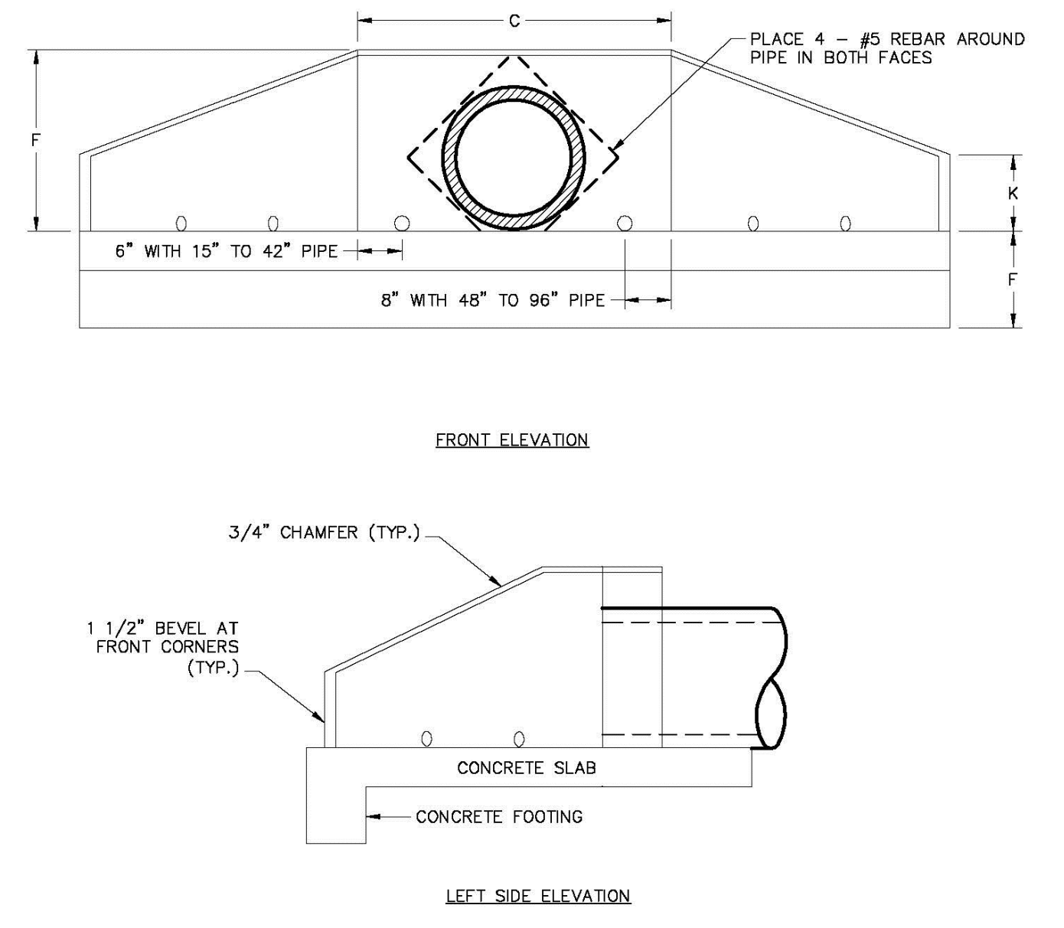

TOP VIEW
23 1/2"
30°
3/4" CHAMFER (TYP.)
WEEP HOLES (TYP.)
1 1/2" BEVEL AT FRONT CORNERS (TYP.)
REBAR (TYP.)
BACK FACE
FRONT FACE
3" ON 12" WALL
2" ON 8" WALL
15"
WELDED WIRE REINFORCING
40 x BAR DIAMETER
SECTION "A–A"

REVISIONS

DATE	DESCRIPTION

1 of 2

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD REINFORCED CONCRETE HEADWALL WITH WINGWALLS — STD. NO. 5.06


PLACE 4 – #5 REBAR AROUND PIPE IN BOTH FACES
6" WITH 15" TO 42" PIPE
8" WITH 48" TO 96" PIPE
FRONT ELEVATION
3/4" CHAMFER (TYP.)
1 1/2" BEVEL AT FRONT CORNERS (TYP.)
CONCRETE SLAB
CONCRETE FOOTING
LEFT SIDE ELEVATION

NOTES:

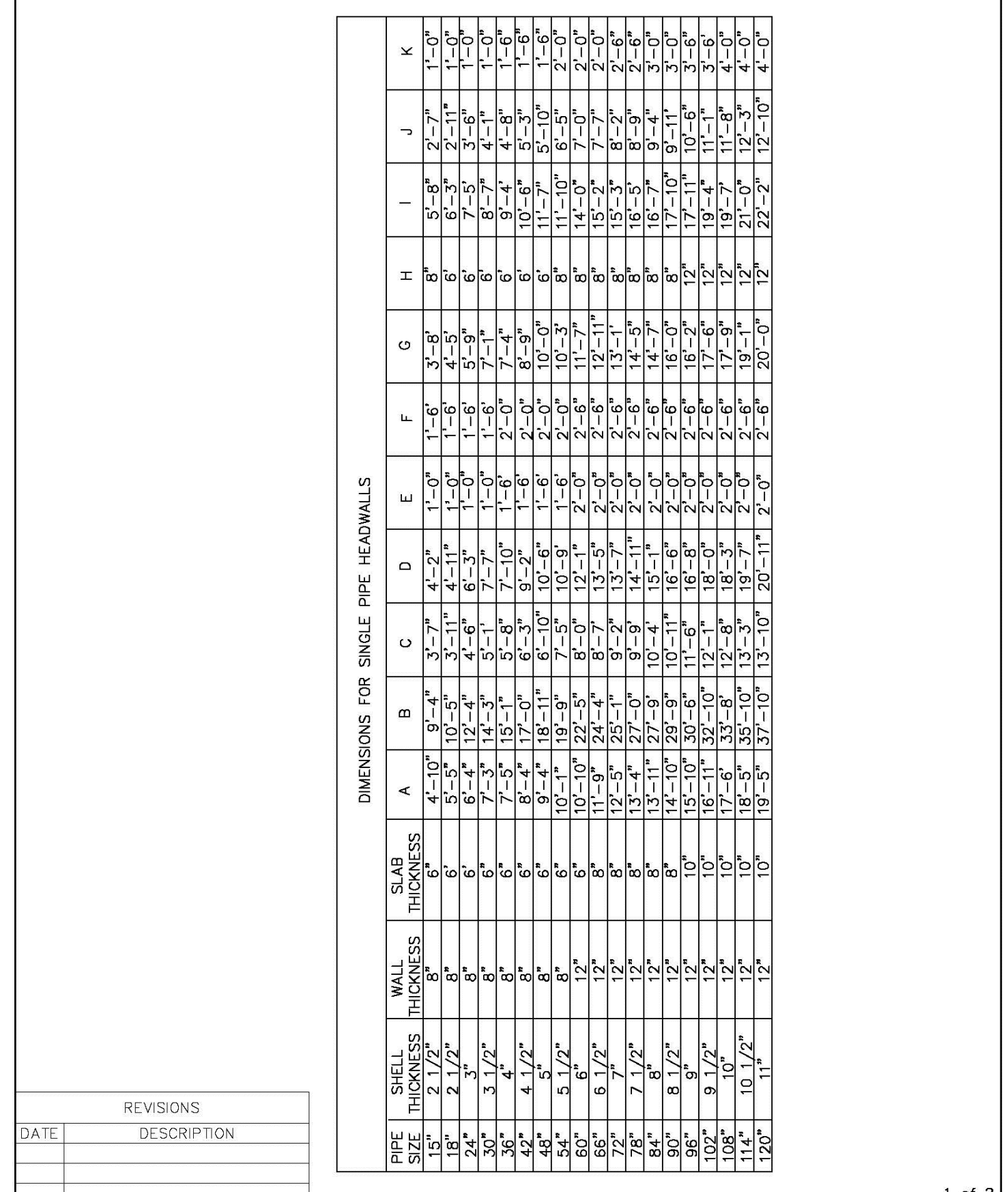
1. SEE STANDARD DETAIL 5.09 FOR DIMENSIONS.
2. PLACE 1 CUBIC FOOT OF WASHED STONE BEHIND EACH WEEP HOLE.

REVISIONS

DATE	DESCRIPTION

2 of 2

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD REINFORCED CONCRETE HEADWALL WITH WINGWALLS — STD. NO. 5.06

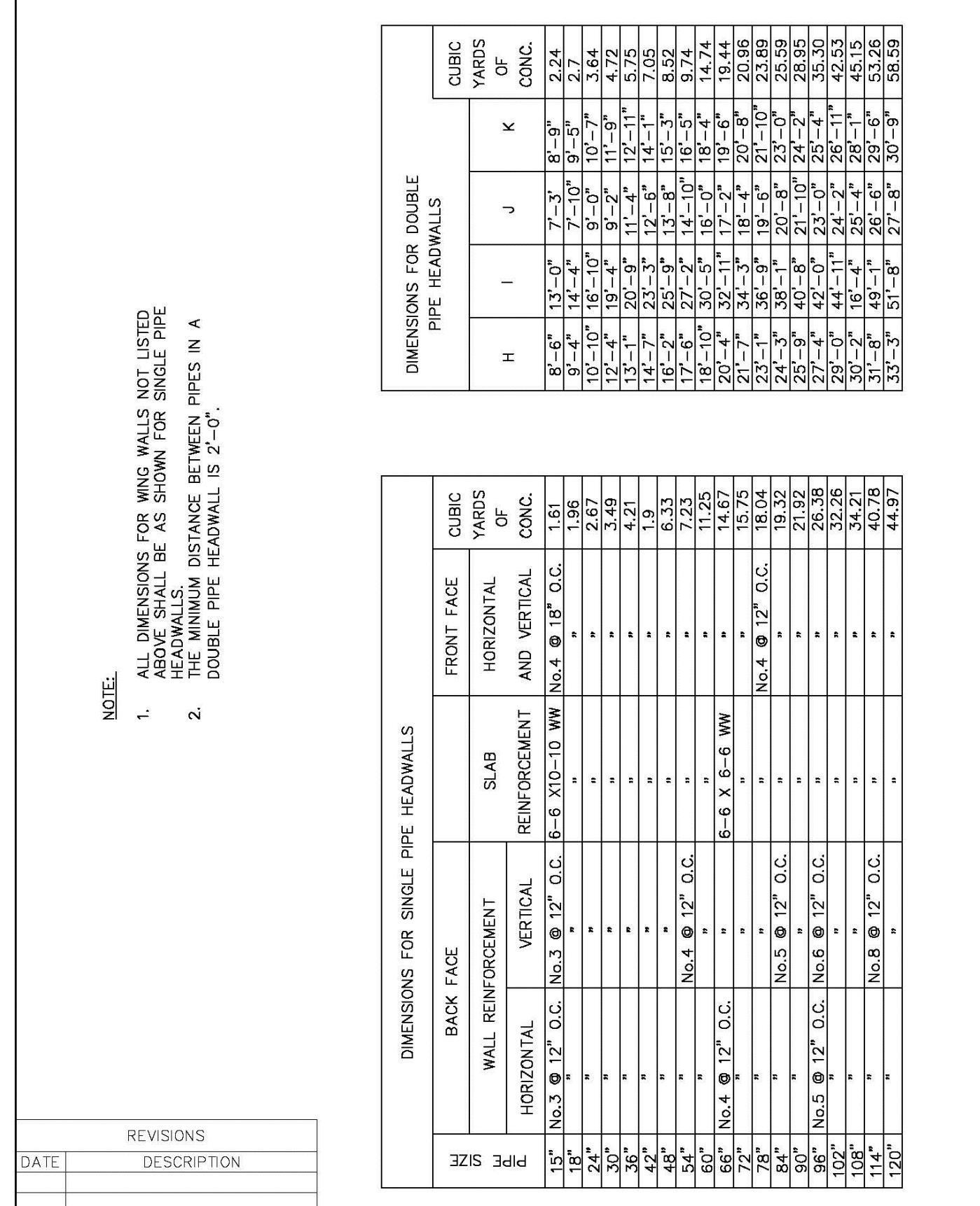

DIMENSIONS FOR SINGLE PIPE HEADWALLS

REVISIONS

DATE	DESCRIPTION

1 of 2

TOWN OF KNIGHTDALE STANDARD DETAILS — DIMENSIONS FOR HEADWALL WITH WINGWALLS — STD. NO. 5.09


DIMENSIONS FOR DOUBLE PIPE HEADWALLS
DIMENSIONS FOR SINGLE PIPE HEADWALLS

NOTE:

1. ALL DIMENSIONS FOR WING WALLS NOT LISTED ABOVE SHALL BE AS SHOWN FOR SINGLE PIPE HEADWALLS.
2. THE MINIMUM DISTANCE BETWEEN PIPES IN A DOUBLE PIPE HEADWALL IS 2'–0".

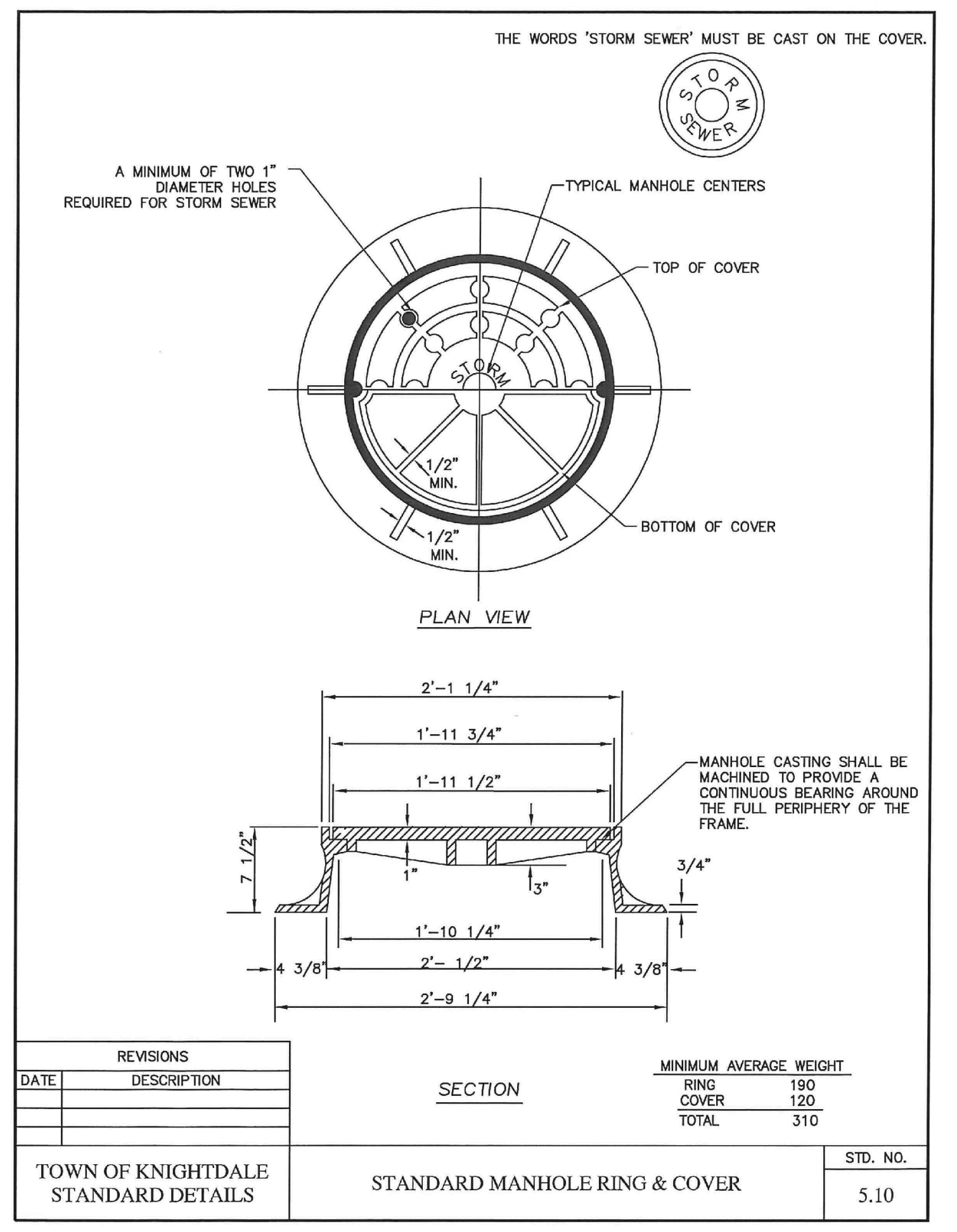
REVISIONS

DATE	DESCRIPTION

2 of 2

TOWN OF KNIGHTDALE STANDARD DETAILS — DIMENSIONS FOR HEADWALL WITH WINGWALLS — STD. NO. 5.09

THE WORDS 'STORM SEWER' MUST BE CAST ON THE COVER.

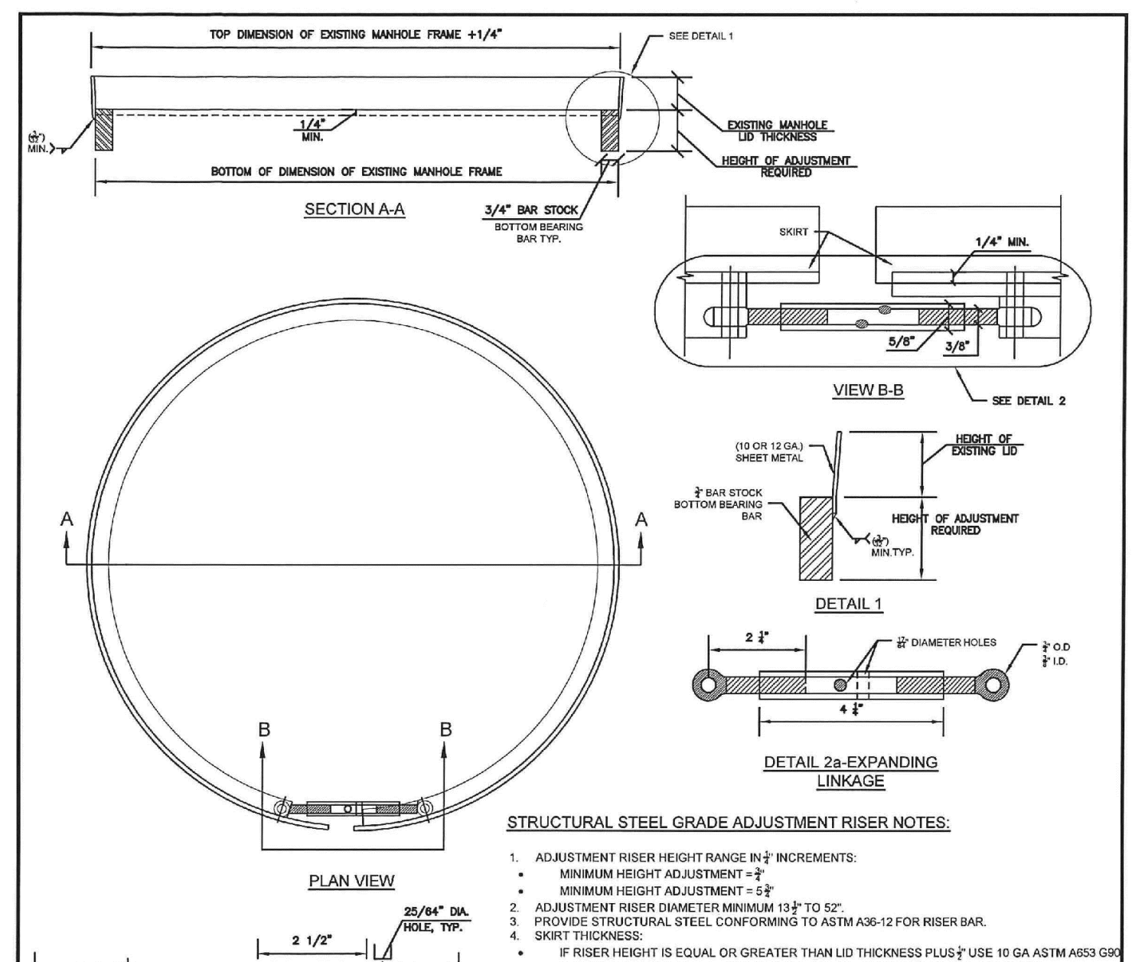

STORM SEWER
A MINIMUM OF TWO 1" DIAMETER HOLES REQUIRED FOR STORM SEWER
TYPICAL MANHOLE CENTERS
TOP OF COVER
BOTTOM OF COVER
1/2" MIN.
PLAN VIEW
2'–1 1/4"
1'–11 3/4"
1'–11 1/2"
MANHOLE CASTING SHALL BE MACHINED TO PROVIDE A CONTINUOUS BEARING AROUND THE FULL PERIPHERY OF THE FRAME.
1'–10 1/4"
2'–1/2"
2'–9 1/4"
SECTION

MINIMUM AVERAGE WEIGHT	
RING	190
COVER	120
TOTAL	310

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — STANDARD MANHOLE RING & COVER — STD. NO. 5.10


TOP DIMENSION OF EXISTING MANHOLE FRAME +/-1/8"
BOTTOM OF DIMENSION OF EXISTING MANHOLE FRAME
SECTION A-A
VIEW B-B
DETAIL 1
BOTTOM BEARING BAR
HEIGHT OF ADJUSTMENT REQUIRED
DETAIL 2a-EXPANDING LINKAGE
DIAMETER HOLES
PLAN VIEW
25/64" DIA. HOLE, TYP.
3/8" TYP.
DETAIL 2b-EXPANDING LINKAGE
STRUCTURAL STEEL GRADE ADJUSTMENT RISERS - TYPE 1

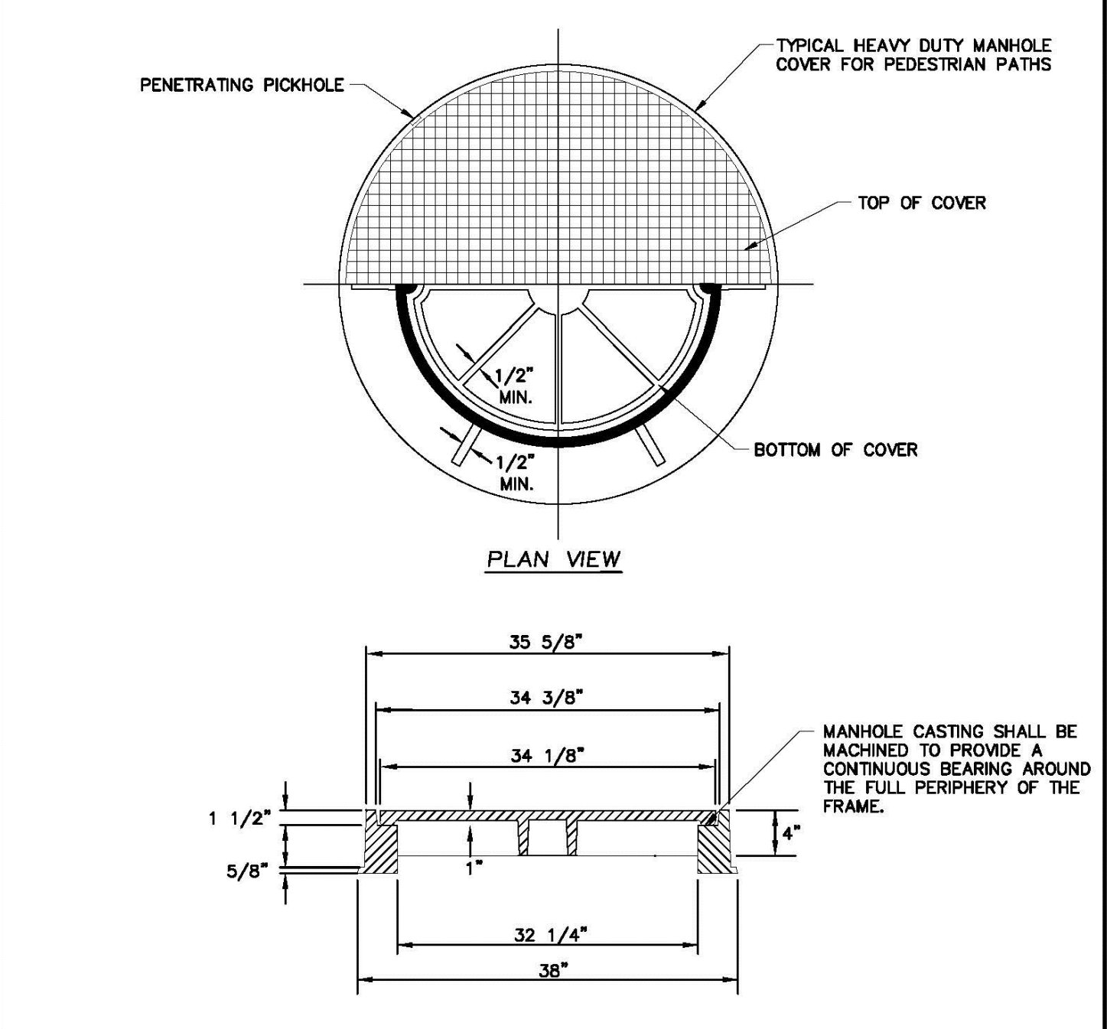
STRUCTURAL STEEL GRADE ADJUSTMENT RISER NOTES:

1. ADJUSTMENT RISER HEIGHT RANGE IN ¼" INCREMENTS:
   - MINIMUM HEIGHT ADJUSTMENT = ¾"
   - MINIMUM HEIGHT ADJUSTMENT = 5¾"
2. ADJUSTMENT RISER DIAMETER MINIMUM 13½" TO 52".
3. PROVIDE STRUCTURAL STEEL CONFORMING TO ASTM A36-12 FOR RISER BAR.
4. SKIRT THICKNESS:
   - IF RISER HEIGHT IS EQUAL OR GREATER THAN LID THICKNESS PLUS ½" USE 10 GA ASTM A653 G90 SHEET METAL FOR SKIRT. ENDS OF SKIRT SHOULD OVERLAP ¾" AT MEAN DIAMETER.
   - IF RISER HEIGHT IS LESS THEN LID THICKNESS PLUS ½" USE 12 GA ASTM A653 G90 SHEET METAL FOR SKIRT. ENDS OF SKIRT SHOULD TOUCH AT MINIMUM DIAMETER.
5. PIVOTED LINKAGE SHOULD EXPAND AND CONTRACT THE RISER PLUS AND MINUS ½" DIAMETER GIVING A FULL ONE INCH DIAMETER VARIATION WITHOUT BINDING. ATTACHMENT OF LINKAGE SHALL PIVOT ON ⅜" 304 STAINLESS STEEL ROLL PINS (14,000 LB DOUBLE SHEER STRENGTH).
6. TURNBUCKLE MATERIAL IS A.I.S.I. 12L 14 STEEL COLD DRAWN ZINC PLATED WITH YELLOW DICHROMATE FINISH DIPPED IN LINEBACKER RUST INHIBITOR.
7. RIGHT & LEFT ROD ENDS SHALEE BE FORGING A.I.S.I. C-1030 STEEL HEAT TREATED BHN 240, AND ZINC PLATED WITH DICHROMATE FINISH (3/8-16).
8. WELD STRUCTURAL STEEL IN ACCORDANCE AWS D1.3-2008 STRUCTURAL WELDING CODE - SHEET STEEL AND AWS D1.1-2000 STRUCTURAL WELDING CODE - STEEL.
9. PROVIDE ADJUSTMENT RISERS WHICH EXPAND TO THE FULL CIRCUMFERENCE OF THE ORIGINAL FRAME AND ALLOWS NO MOVEMENT.
10. CUSTOM FABRICATE EACH ADJUSTMENT RISER TO FIT THE EXISTING DIMENSIONS OF EACH MANHOLE. CAREFULLY MEASURE TOP AND BOTTOM DIAMETER OF HOLE, LID DIAMETER, LID THICKNESS, AND HEIGHT OF EACH EXISITNG LID AND PROVIDE THIS INFORMATION TO THE FABRICATOR. CLEARLY MARK EACH ADJUSTMENT RISER FOR PLACEMENT LOCATION. UPON DELIVERY OF ADJUSTMENT RISERS, VERIFY ALL DIMENSIONS AND LOCATION BEFORE INSTALLATION BEGINS.
11. FABRICATION TOLERANCES:
    - BOTTOM OUTSIDE DIMENSION +/-1/8"
    - TOP INSIDE DIMENSION +/-1/8"
    - LID THICKNESS +/-1/16"
12. MANHOLE FRAME MUST BE CLEANED. REMOVE ALL DEBRIS ON ALL SURFACES THE RISER TOUCHES. INSTALL THE STEEL ADJUSTMENT RISERS SECURELY TO THE EXISTING FRAME BY EXPANDING THE PIVOTED TURNBUCKLE USING A SCREWDRIVER AS A LEVER.
13. CHECK FOR FULL BEARING OF LOWER RISER BAR SECTION ON EXISTING FRAMES DURING INSTALLATION.

REVISIONS

DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS — MANHOLE GRADE ADJUSTMENT RINGS — STD. NO. 5.11


PENETRATING PICKHOLE
TYPICAL HEAVY DUTY MANHOLE COVER FOR PEDESTRIAN PATHS
TOP OF COVER
BOTTOM OF COVER
1/2" MIN.
PLAN VIEW
35 5/8"
34 3/8"
34 1/8"
MANHOLE CASTING SHALL BE MACHINED TO PROVIDE A CONTINUOUS BEARING AROUND THE FULL PERIPHERY OF THE FRAME.
1 1/2"
5/8"
1"
4"
32 1/4"
38"
SECTION

MINIMUM AVERAGE WEIGHT	
RING	240
COVER	260
TOTAL	500

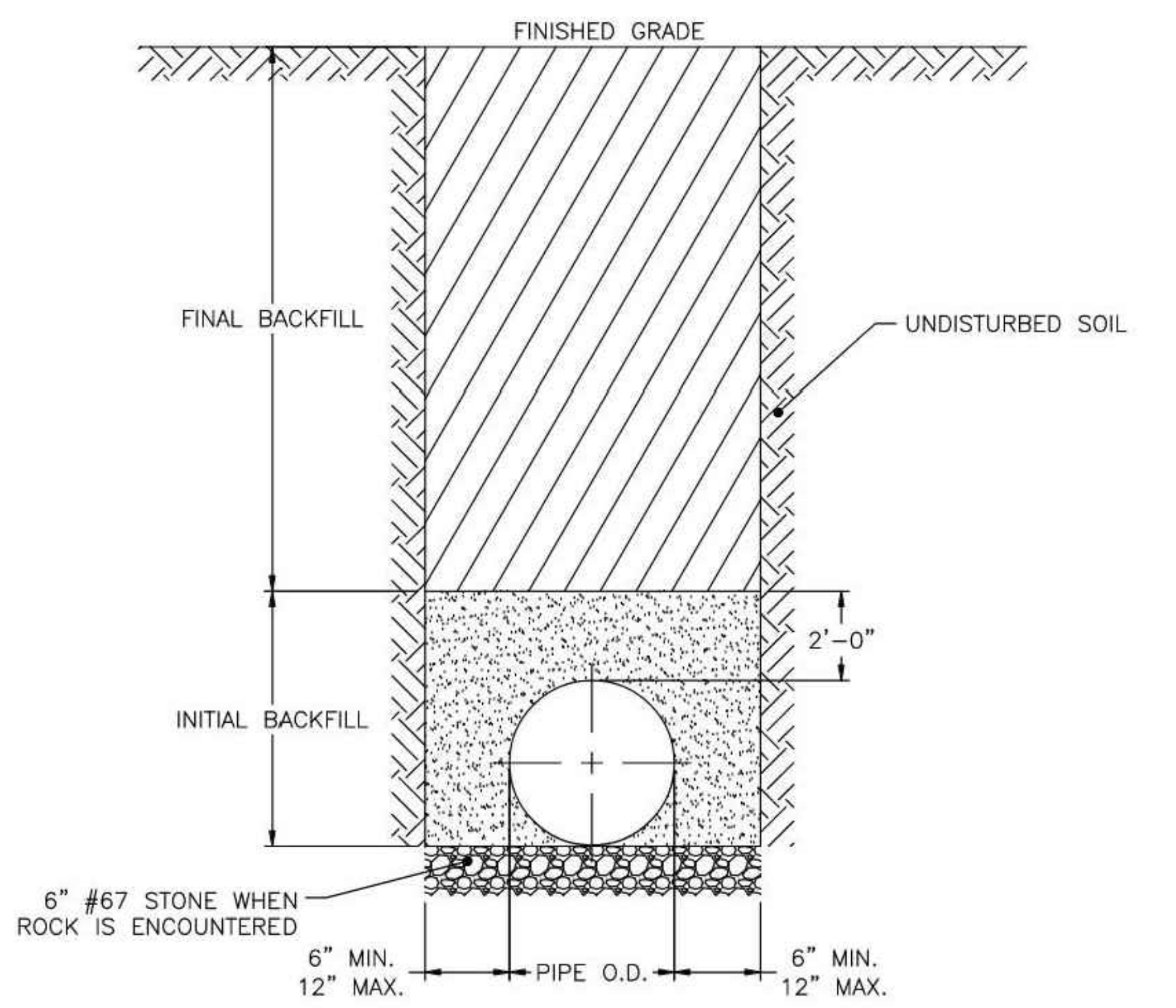
NOTES:

1. APPLICABLE TO STORM SEWER ONLY
2. WHEN ABLE, MANHOLES SHOULD BE AVOIDED IN PEDESTRIAN PATHS
3. IF UNAVOIDABLE, USE FLUSH, HEAVY DUTY RATED COVER
4. CHANGE DIMENSIONS, AS APPLICABLE
5. MANHOLE COVER TO BE US FOUNDRY TYPE AC OR APPROVED EQUIVALENT

REVISIONS

DATE	DESCRIPTION

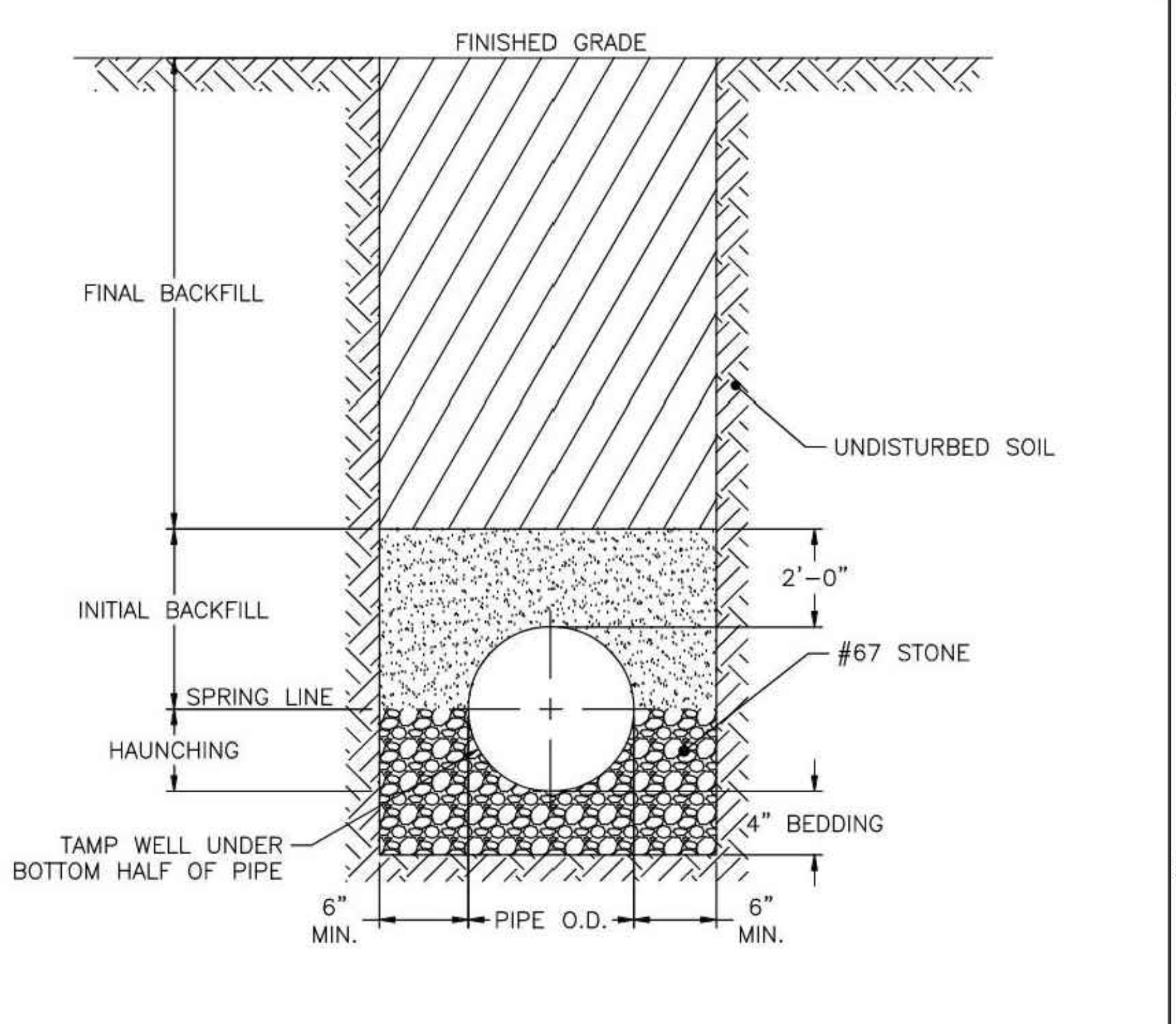
TOWN OF KNIGHTDALE STANDARD DETAILS — MANHOLE COVER - PEDESTRIAN PATH — STD. NO. 5.12


FINISHED GRADE
FINAL BACKFILL
UNDISTURBED SOIL
INITIAL BACKFILL
2'–0"
6" #67 STONE WHEN ROCK IS ENCOUNTERED
6" MIN. 12" MAX.
PIPE O.D.
6" MIN. 12" MAX.

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.
5. ACHIEVE 80% COMPACTION IN NON–TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
6. IF IN EASEMENT, 4" TOPSOIL AND 12" CLEAN SELECT FILL MAY BE REQUIRED.
7. NO BOULDERS 8" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS — DATE: 01/18/2025 — NOT TO SCALE
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON
S-4

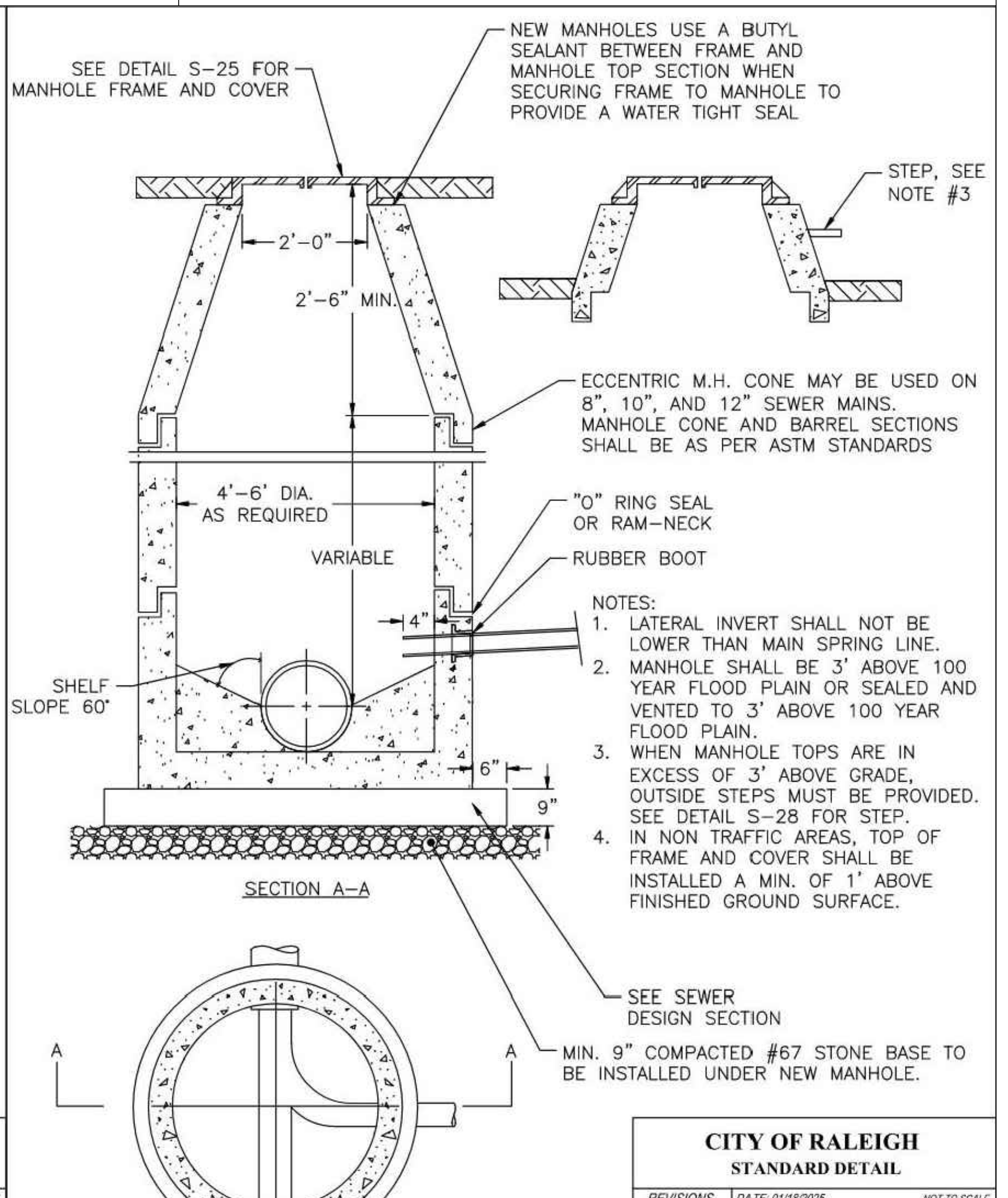

FINISHED GRADE
FINAL BACKFILL
UNDISTURBED SOIL
INITIAL BACKFILL
2'–0"
#67 STONE
SPRING LINE
HAUNCHING
TAMP WELL UNDER BOTTOM HALF OF PIPE
4" BEDDING
6" MIN.
PIPE O.D.
6" MIN.

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
STANDARD DETAIL
REVISIONS — DATE: 01/18/2025 — NOT TO SCALE
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN
S-5


SEE DETAIL S–25 FOR MANHOLE FRAME AND COVER
NEW MANHOLES USE A BUTYL SEALANT BETWEEN FRAME AND MANHOLE TOP SECTION WHEN SECURING FRAME TO MANHOLE TO PROVIDE A WATER TIGHT SEAL
STEP, SEE NOTE #3
2'–0"
2'–6" MIN.
ECCENTRIC M.H. CONE MAY BE USED ON 8", 10", AND 12" SEWER MAINS. MANHOLE CONE AND BARREL SECTIONS SHALL BE AS PER ASTM STANDARDS
4'–6' DIA. AS REQUIRED
VARIABLE
"O" RING SEAL OR RAM–NECK
RUBBER BOOT
4"
SHELF SLOPE 60'
6"
9"
SECTION A–A
SEE SEWER DESIGN SECTION
MIN. 9" COMPACTED #67 STONE BASE TO BE INSTALLED UNDER NEW MANHOLE.
A
A

NOTES:

1. LATERAL INVERT SHALL NOT BE LOWER THAN MAIN SPRING LINE.
2. MANHOLE SHALL BE 3' ABOVE 100 YEAR FLOOD PLAIN OR SEALED AND VENTED TO 3' ABOVE 100 YEAR FLOOD PLAIN.
3. WHEN MANHOLE TOPS ARE IN EXCESS OF 3' ABOVE GRADE, OUTSIDE STEPS MUST BE PROVIDED. SEE DETAIL S–28 FOR STEP.
4. IN NON TRAFFIC AREAS, TOP OF FRAME AND COVER SHALL BE INSTALLED A MIN. OF 1' ABOVE FINISHED GROUND SURFACE.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS — DATE: 01/18/2025 — NOT TO SCALE
STANDARD PRECAST SANITARY SEWER MANHOLE
S-20

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 Standards Specifications of the Town of Knightdale.

By: ____________________ Date: ______________
Town Engineer

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

By: ____________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
Since 1918
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Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493
STEPHEN J. BALLENTINE

Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

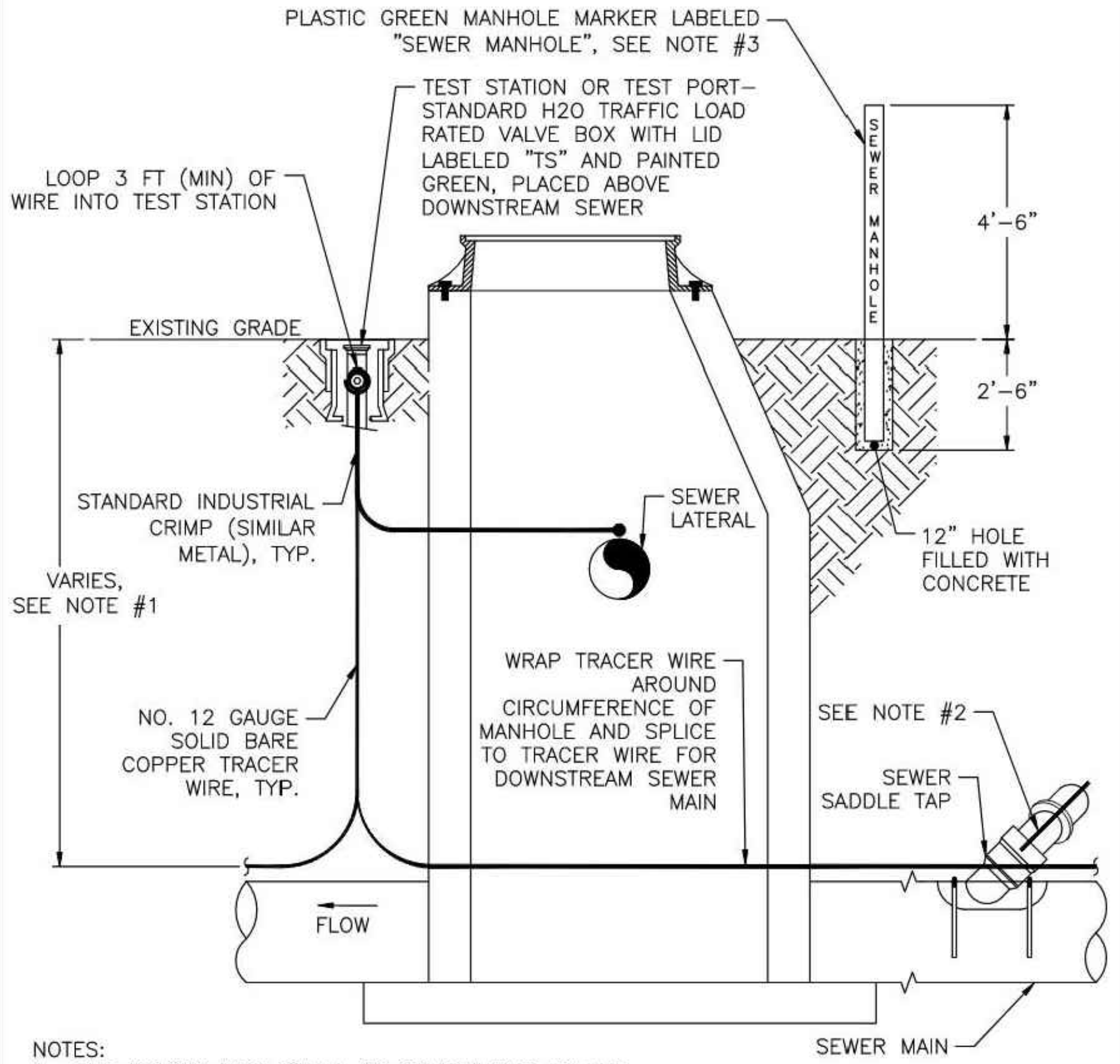
OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

SANITARY SEWER DETAILS

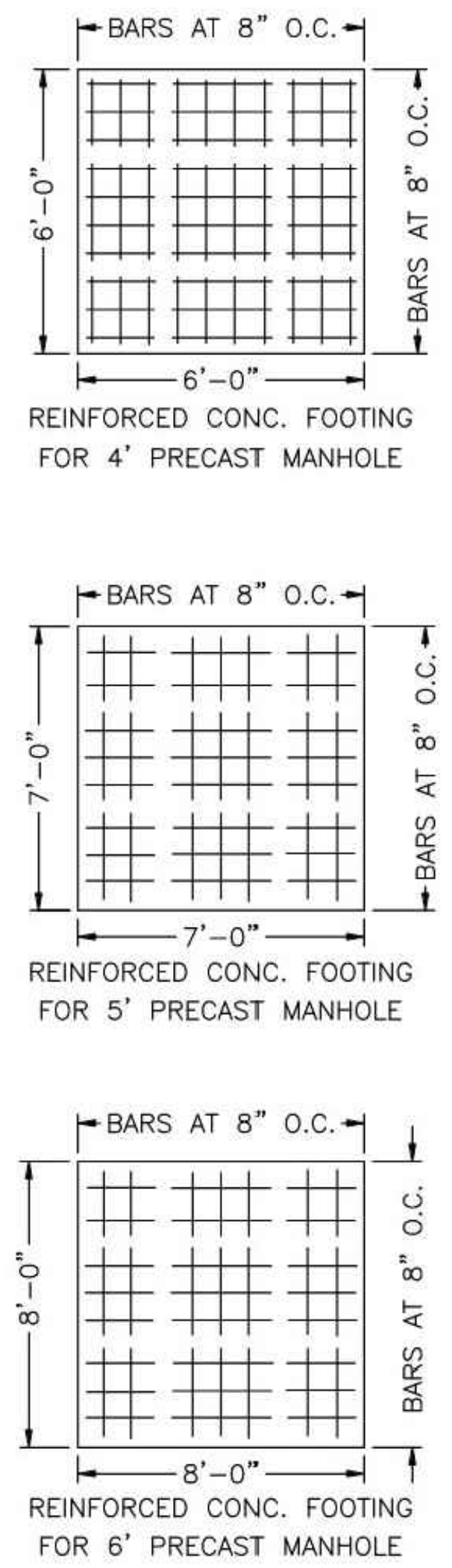
DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH/EDN
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C3.51

Do Not Use for Construction - PRELIMINARY


PLASTIC GREEN MANHOLE MARKER LABELED "SEWER MANHOLE", SEE NOTE #3
TEST STATION OR TEST PORT– STANDARD H20 TRAFFIC LOAD RATED VALVE BOX WITH LID LABELED "TS" AND PAINTED GREEN, PLACED ABOVE DOWNSTREAM SEWER
LOOP 3 FT (MIN) OF WIRE INTO TEST STATION
SEWER MANHOLE
4'–6"
2'–6"
EXISTING GRADE
STANDARD INDUSTRIAL CRIMP (SIMILAR METAL), TYP.
SEWER LATERAL
12" HOLE FILLED WITH CONCRETE
VARIES, SEE NOTE #1
WRAP TRACER WIRE AROUND CIRCUMFERENCE OF MANHOLE AND SPLICE TO TRACER WIRE FOR DOWNSTREAM SEWER MAIN
NO. 12 GAUGE SOLID BARE COPPER TRACER WIRE, TYP.
SEE NOTE #2
SEWER SADDLE TAP
FLOW
SEWER MAIN

NOTES:
1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE LAID FLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 8 FT, THE TRACING WIRE SHALL BE INSTALLED AT A DEPTH OF 7–8 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORK. NO BREAKS OF CUTS IN THE TRACER WIRE SHALL BE PERMITTED.
2. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO TO BE PLACED BETWEEN THE SADDLE AND MAIN.
3. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNER'S REPRESENTATIVE.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 01/18/2025 NOT TO SCALE
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER
S-20A


BARS AT 8" O.C.
6'–0"
BARS AT 8" O.C.
6'–0"
REINFORCED CONC. FOOTING FOR 4' PRECAST MANHOLE
BARS AT 8" O.C.
7'–0"
BARS AT 8" O.C.
7'–0"
REINFORCED CONC. FOOTING FOR 5' PRECAST MANHOLE
BARS AT 8" O.C.
8'–0"
BARS AT 8" O.C.
8'–0"
REINFORCED CONC. FOOTING FOR 6' PRECAST MANHOLE

BILL OF MATERIAL FOR 4' MANHOLE BASE

BAR SIZE	BAR LENGTH	NO. OF BARS	BAR WT. (LBS.)
#5	5'–6"	18	103
CL. "A" CONCRETE TOTAL CU. YDS.			1.0

BILL OF MATERIAL FOR 5' MANHOLE BASE

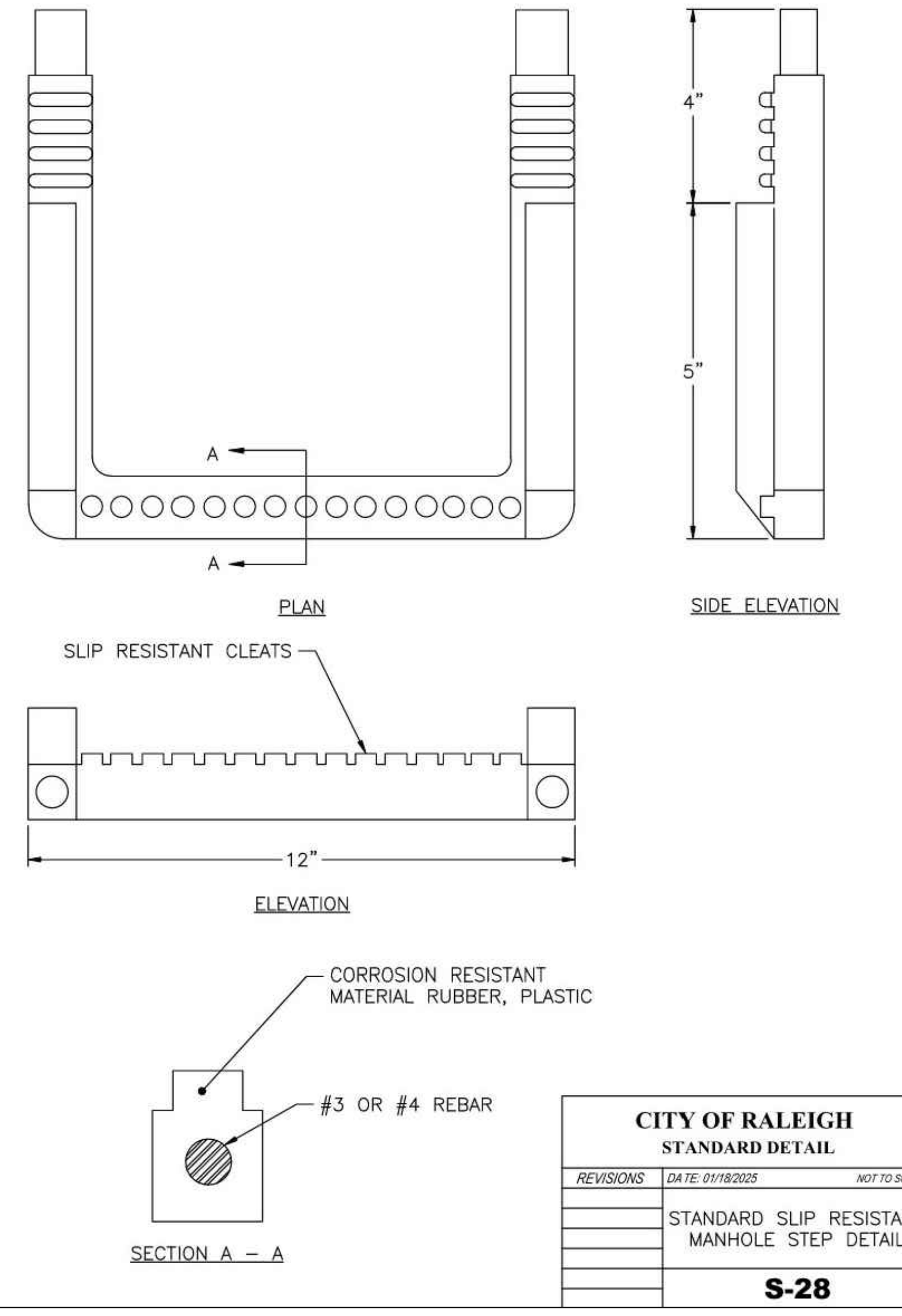
BAR SIZE	BAR LENGTH	NO. OF BARS	BAR WT. (LBS.)
#5	6'–6"	20	136
CL. "A" CONCRETE TOTAL CU. YDS.			1.4

BILL OF MATERIAL FOR 6' MANHOLE BASE

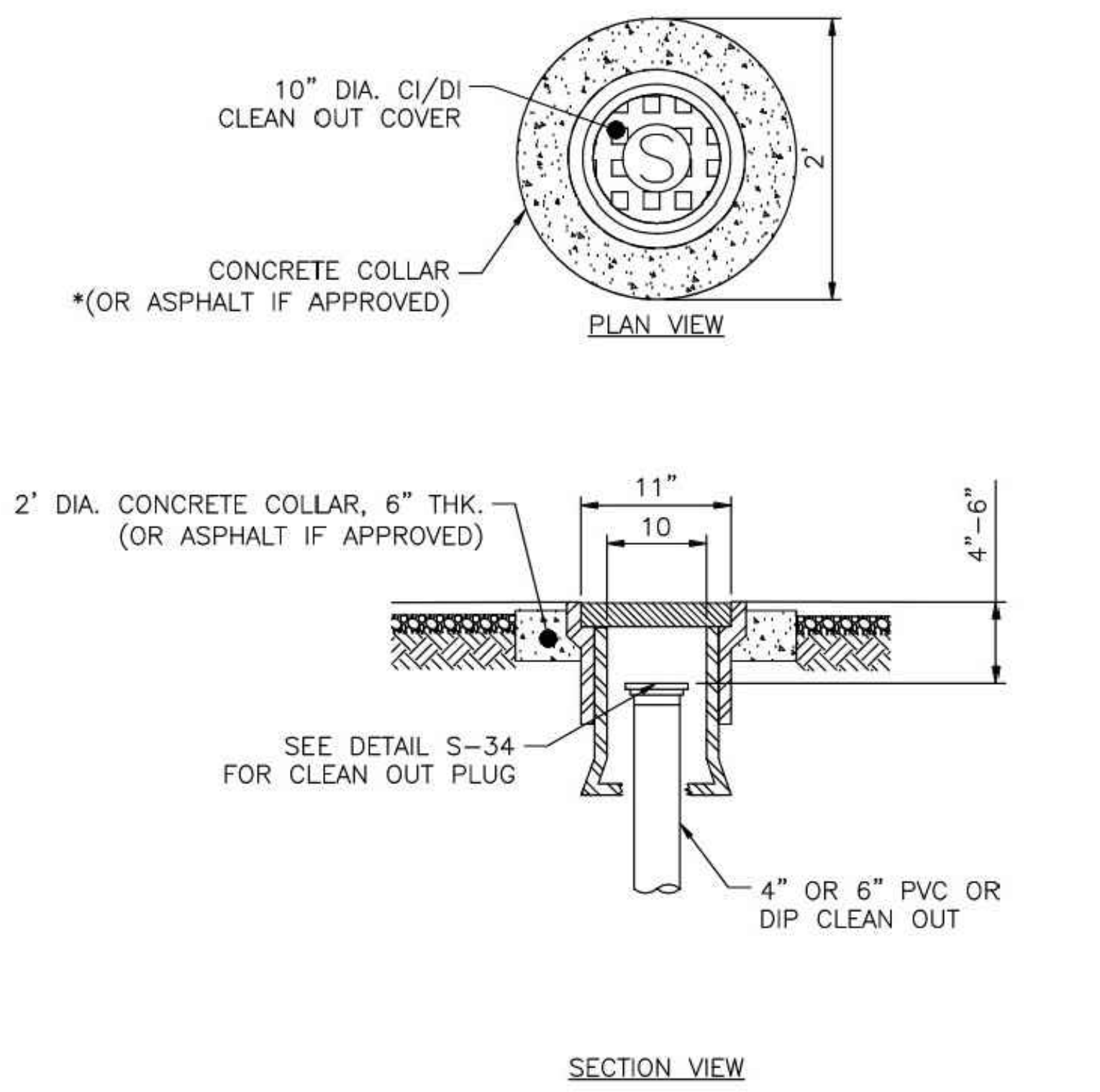
BAR SIZE	BAR LENGTH	NO. OF BARS	BAR WT. (LBS.)
#5	7'–6"	24	165
CL. "A" CONCRETE TOTAL CU. YDS.			1.8

* ALL BASES ARE MINIMUM 9" THICK

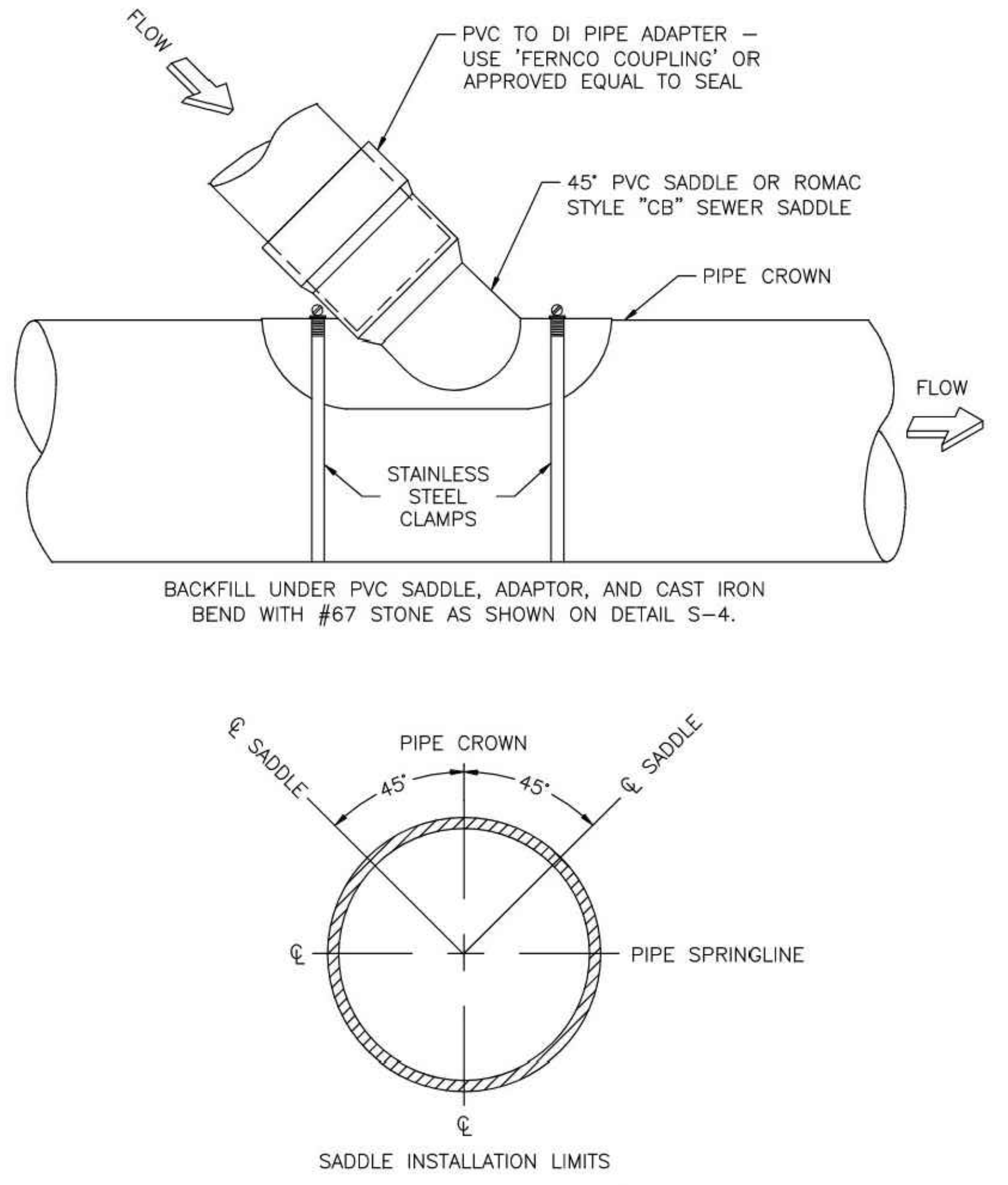
CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 01/18/2025 NOT TO SCALE
EXTENDED BASE OR CAST–IN–PLACE REINFORCED CONCRETE BASE
S-21


4"
5"
A
A
PLAN
SIDE ELEVATION
SLIP RESISTANT CLEATS
12"
ELEVATION
CORROSION RESISTANT MATERIAL RUBBER, PLASTIC
#3 OR #4 REBAR
SECTION A – A

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 01/18/2025 NOT TO SCALE
STANDARD SLIP RESISTANT MANHOLE STEP DETAIL
S-28


10" DIA. CI/DI CLEAN OUT COVER
2'
CONCRETE COLLAR *(OR ASPHALT IF APPROVED)
PLAN VIEW
2' DIA. CONCRETE COLLAR, 6" THK. (OR ASPHALT IF APPROVED)
11"
10
4"–6"
SEE DETAIL S–34 FOR CLEAN OUT PLUG
4" OR 6" PVC OR DIP CLEAN OUT
SECTION VIEW

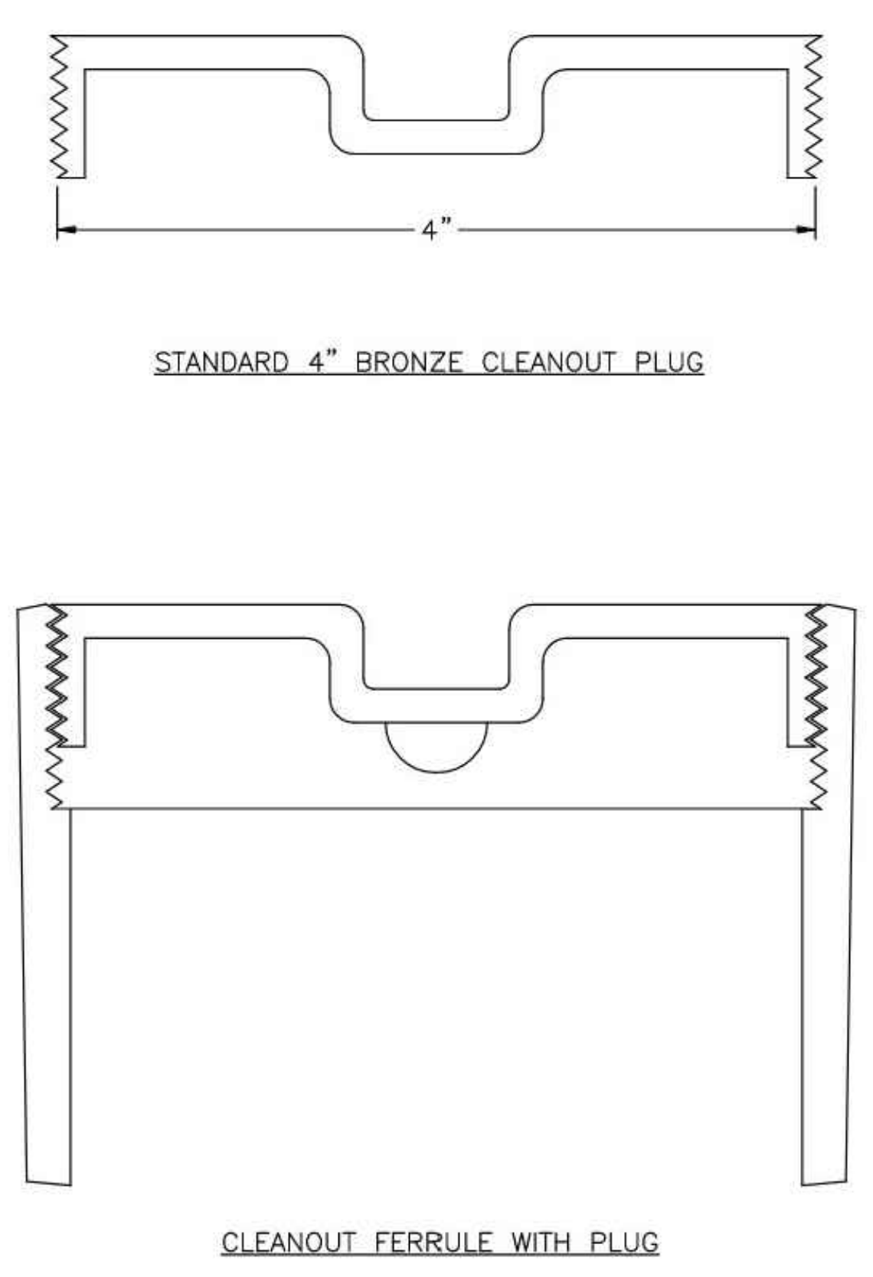
CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 01/18/2025 NOT TO SCALE
TRAFFIC RATED CLEAN OUT STRUCTURE
S-30B


FLOW
PVC TO DI PIPE ADAPTER – USE 'FERNCO COUPLING' OR APPROVED EQUAL TO SEAL
45° PVC SADDLE OR ROMAC STYLE "CB" SEWER SADDLE
PIPE CROWN
FLOW
STAINLESS STEEL CLAMPS
PIPE CROWN
℄ SADDLE
45°
45°
℄ SADDLE
℄
PIPE SPRINGLINE
℄

BACKFILL UNDER PVC SADDLE, ADAPTOR, AND CAST IRON BEND WITH #67 STONE AS SHOWN ON DETAIL S–4.

SADDLE INSTALLATION LIMITS

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 01/18/2025 NOT TO SCALE
LATERAL SADDLE INSTALLATION DETAIL FOR PVC PIPE
S-31

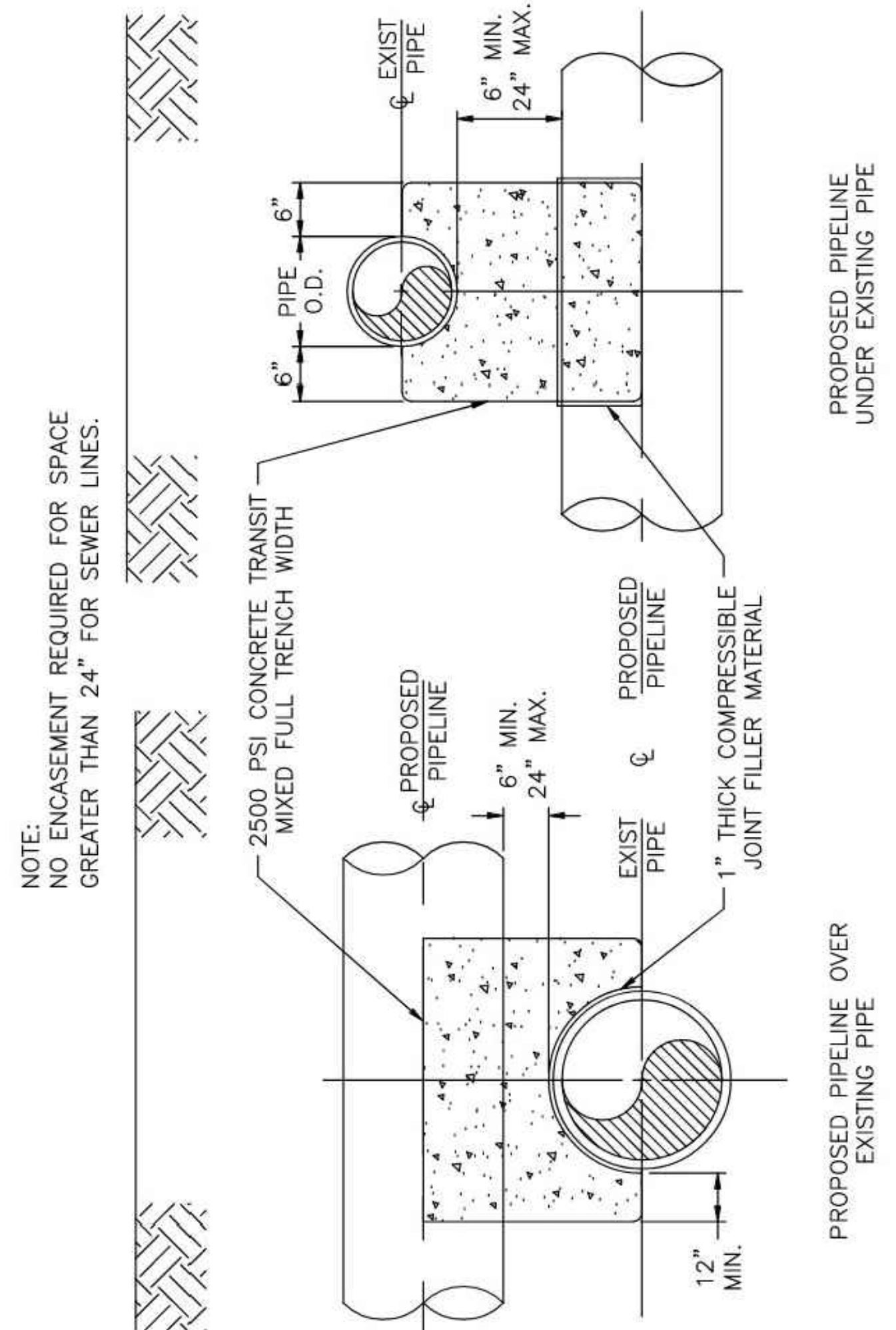


STANDARD 4" BRONZE CLEANOUT PLUG

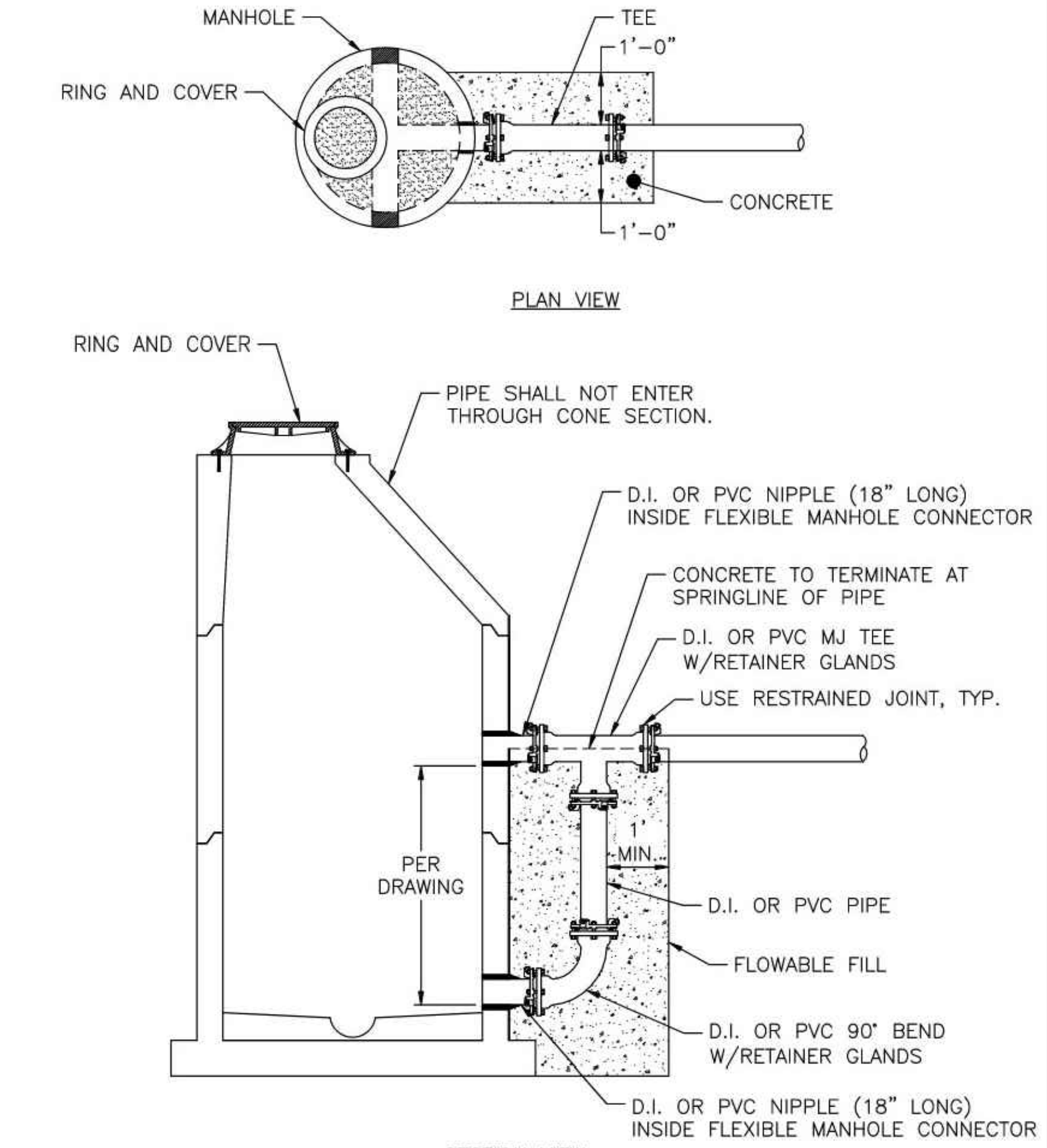
CLEANOUT FERRULE WITH PLUG

STYLES ACCEPTED:
INVERTED NUT
RAISED NUT

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 01/18/2025 NOT TO SCALE
4" CLEANOUT PLUG
S-34


NOTE: NO ENCASEMENT REQUIRED FOR SPACE GREATER THAN 24" FOR SEWER LINES.
℄ EXIST PIPE
6" MIN. 24" MAX.
6"
PIPE O.D.
6"
PROPOSED PIPELINE UNDER EXISTING PIPE
2500 PSI CONCRETE TRANSIT MIXED FULL TRENCH WIDTH
℄ PROPOSED PIPELINE
6" MIN. 24" MAX.
℄ PROPOSED PIPELINE
EXIST PIPE
1" THICK COMPRESSIBLE JOINT FILLER MATERIAL
PROPOSED PIPELINE OVER EXISTING PIPE
12" MIN.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 01/18/2025 NOT TO SCALE
CONCRETE CRADLE PROTECTION FOR SEWER LINE CROSSINGS
S-49


MANHOLE
TEE
1'–0"
RING AND COVER
CONCRETE
1'–0"
PLAN VIEW
RING AND COVER
PIPE SHALL NOT ENTER THROUGH CONE SECTION.
D.I. OR PVC NIPPLE (18" LONG) INSIDE FLEXIBLE MANHOLE CONNECTOR
CONCRETE TO TERMINATE AT SPRINGLINE OF PIPE
D.I. OR PVC MJ TEE W/RETAINER GLANDS
USE RESTRAINED JOINT, TYP.
PER DRAWING
1' MIN.
D.I. OR PVC PIPE
FLOWABLE FILL
D.I. OR PVC 90° BEND W/RETAINER GLANDS
D.I. OR PVC NIPPLE (18" LONG) INSIDE FLEXIBLE MANHOLE CONNECTOR
SECTION VIEW

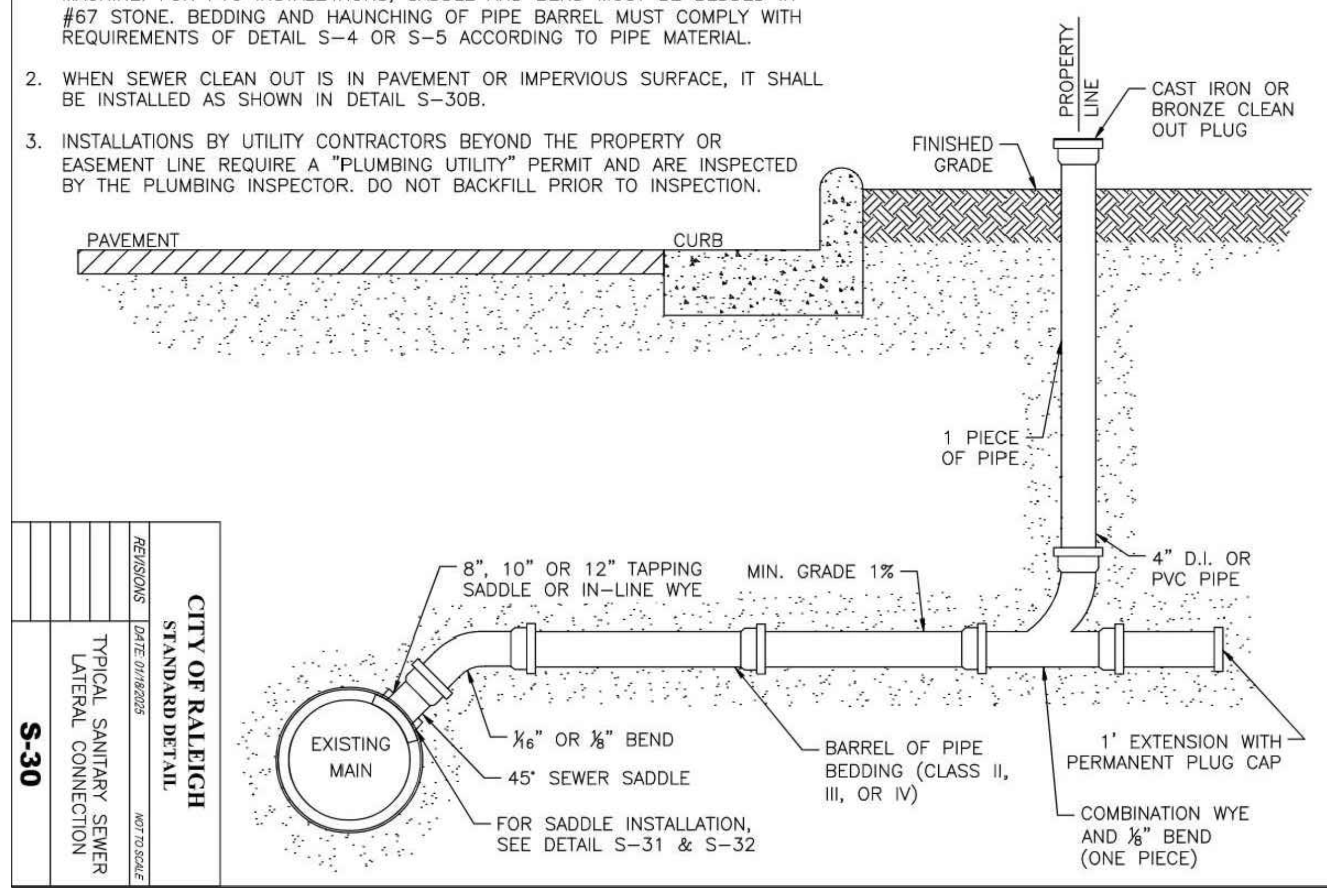
NOTES:
1. ENCASE ENTIRE DROP ASSEMBLY IN CONCRETE. 1' MINIMUM CONC. COVER ON EACH SIDE AND BOTTOM.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 01/18/2025 NOT TO SCALE
OUTSIDE DROP MANHOLE
S-54

NOTES:

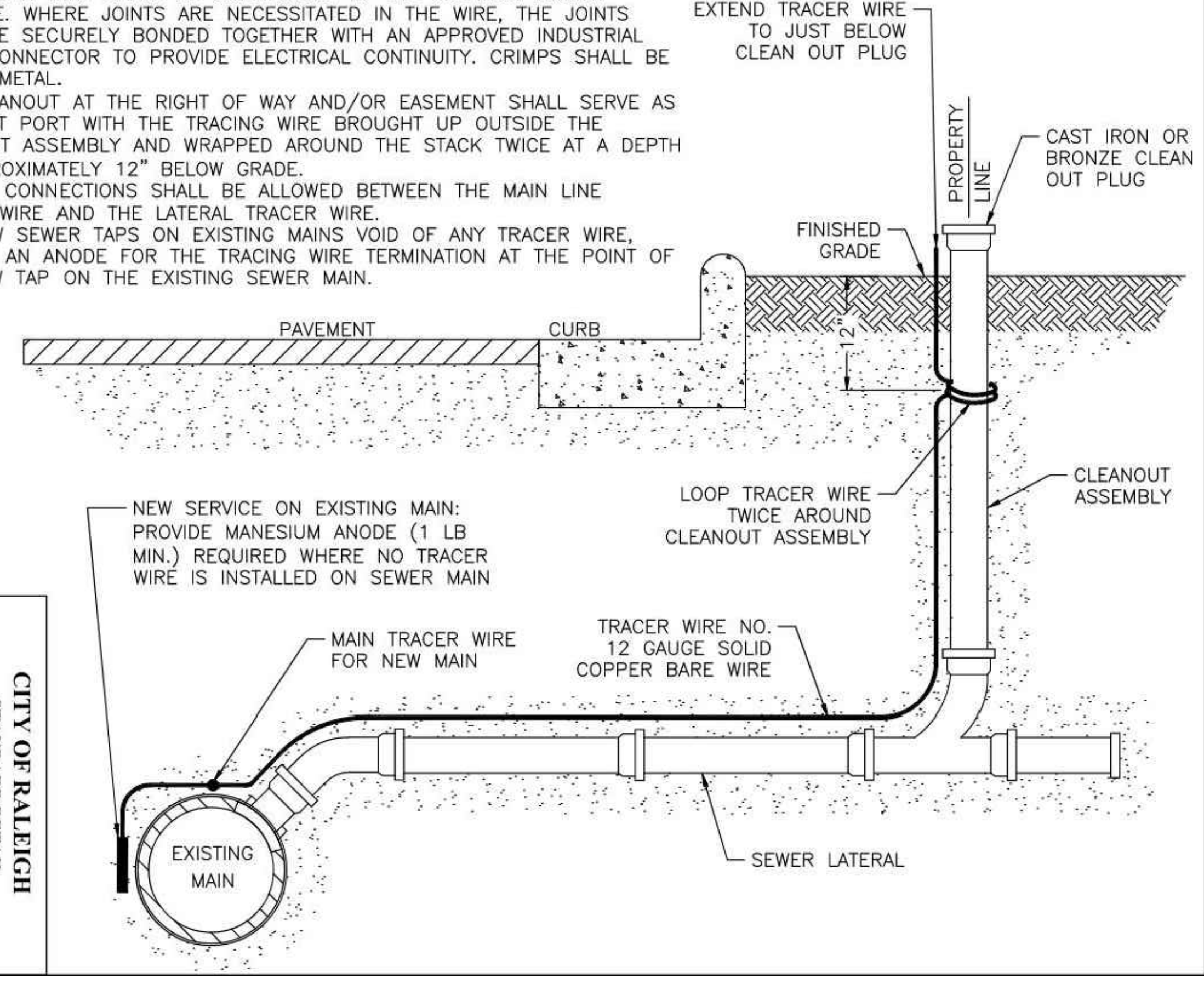
1. THE FULL LENGTH OF THE SERVICE DITCH SHALL BE COMPACTED IN 6" LIFTS WITH MECHANICAL TAMP. ALL TAPS WILL BE MADE USING MECHANICAL TAPPING MACHINE. FOR PVC INSTALLATIONS, SADDLE AND BEND MUST BE BEDDED IN #67 STONE. BEDDING AND HAUNCHING OF PIPE BARREL MUST COMPLY WITH REQUIREMENTS OF DETAIL S–4 OR S–5 ACCORDING TO PIPE MATERIAL.
2. WHEN SEWER CLEAN OUT IS IN PAVEMENT OR IMPERVIOUS SURFACE, IT SHALL BE INSTALLED AS SHOWN IN DETAIL S–30B.
3. INSTALLATIONS BY UTILITY CONTRACTORS BEYOND THE PROPERTY OR EASEMENT LINE REQUIRE A "PLUMBING UTILITY" PERMIT AND ARE INSPECTED BY THE PLUMBING INSPECTOR. DO NOT BACKFILL PRIOR TO INSPECTION.

* SERVICE LATERAL MATERIAL AS REQUIRED

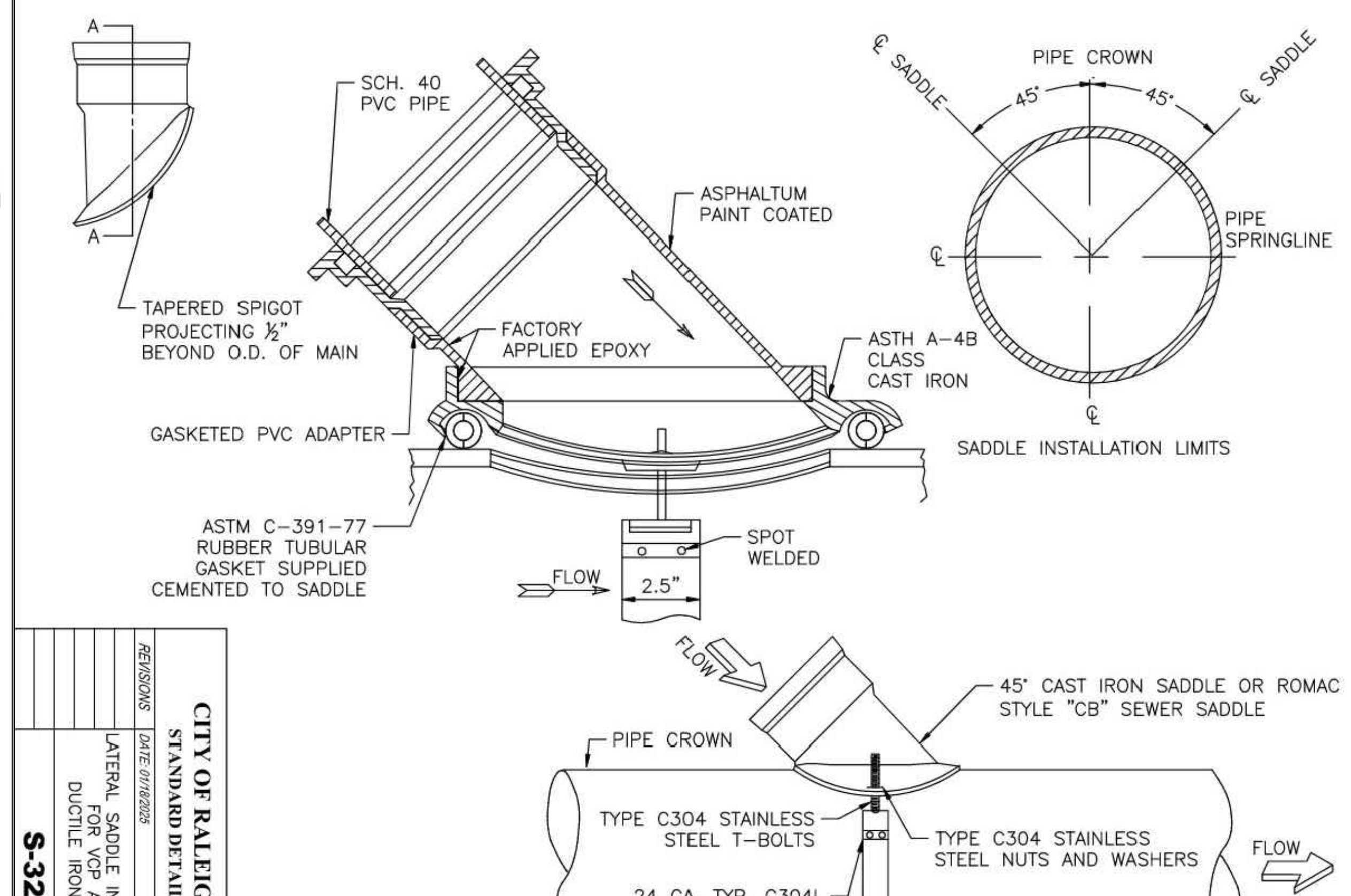

PROPERTY LINE
CAST IRON OR BRONZE CLEAN OUT PLUG
FINISHED GRADE
PAVEMENT
CURB
1 PIECE OF PIPE
8", 10" OR 12" TAPPING SADDLE OR IN–LINE WYE
MIN. GRADE 1%
4" D.I. OR PVC PIPE
EXISTING MAIN
1/16" OR 1/8" BEND
45° SEWER SADDLE
FOR SADDLE INSTALLATION, SEE DETAIL S–31 & S–32
BARREL OF PIPE BEDDING (CLASS II, III, OR IV)
1' EXTENSION WITH PERMANENT PLUG CAP
COMBINATION WYE AND 1/8" BEND (ONE PIECE)

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 01/18/2025 NOT TO SCALE
TYPICAL SANITARY SEWER LATERAL CONNECTION
S-30

NOTES:
1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. WHERE JOINTS ARE NECESSITATED IN THE WIRE, THE JOINTS SHALL BE SECURELY BONDED TOGETHER WITH AN APPROVED INDUSTRIAL CRIMP CONNECTOR TO PROVIDE ELECTRICAL CONTINUITY. CRIMPS SHALL BE SIMILAR METAL.
2. THE CLEANOUT AT THE RIGHT OF WAY AND/OR EASEMENT SHALL SERVE AS THE TEST PORT WITH THE TRACING WIRE BROUGHT UP OUTSIDE THE CLEANOUT ASSEMBLY AND WRAPPED AROUND THE STACK TWICE AT A DEPTH OF APPROXIMATELY 12" BELOW GRADE.
3. SPLICED CONNECTIONS SHALL BE ALLOWED BETWEEN THE MAIN LINE TRACER WIRE AND THE LATERAL TRACER WIRE.
4. FOR NEW SEWER TAPS ON EXISTING MAINS VOID OF ANY TRACER WIRE, PROVIDE AN ANODE FOR THE TRACING WIRE TERMINATION AT THE POINT OF THE NEW TAP ON THE EXISTING SEWER MAIN.


EXTEND TRACER WIRE TO JUST BELOW CLEAN OUT PLUG
PROPERTY LINE
CAST IRON OR BRONZE CLEAN OUT PLUG
FINISHED GRADE
PAVEMENT
CURB
12"
CLEANOUT ASSEMBLY
LOOP TRACER WIRE TWICE AROUND CLEANOUT ASSEMBLY
NEW SERVICE ON EXISTING MAIN: PROVIDE MANESIUM ANODE (1 LB MIN.) REQUIRED WHERE NO TRACER WIRE IS INSTALLED ON SEWER MAIN
MAIN TRACER WIRE FOR NEW MAIN
TRACER WIRE NO. 12 GAUGE SOLID COPPER BARE WIRE
EXISTING MAIN
SEWER LATERAL

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 01/18/2025 NOT TO SCALE
TYPICAL SANITARY SEWER LATERAL TRACER WIRE
S-30A


A
A
SCH. 40 PVC PIPE
ASPHALTUM PAINT COATED
TAPERED SPIGOT PROJECTING 1/2" BEYOND O.D. OF MAIN
FACTORY APPLIED EPOXY
ASTH A–4B CLASS CAST IRON
GASKETED PVC ADAPTER
ASTM C–391–77 RUBBER TUBULAR GASKET SUPPLIED CEMENTED TO SADDLE
SPOT WELDED
FLOW
2.5"
℄ SADDLE
PIPE CROWN
45°
45°
℄ SADDLE
℄
PIPE SPRINGLINE
℄
SADDLE INSTALLATION LIMITS
FLOW
45° CAST IRON SADDLE OR ROMAC STYLE "CB" SEWER SADDLE
PIPE CROWN
TYPE C304 STAINLESS STEEL T–BOLTS
TYPE C304 STAINLESS STEEL NUTS AND WASHERS
24 GA. TYP. C304L STAINLESS STEEL STRAP
FLOW

NOTE:
SADDLE TO BE GENECO E40 OR EQUAL.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 01/18/2025 NOT TO SCALE
LATERAL SADDLE INSTALLATION FOR VCP AND DUCTILE IRON PIPE
S-32

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
Since 1918
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Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

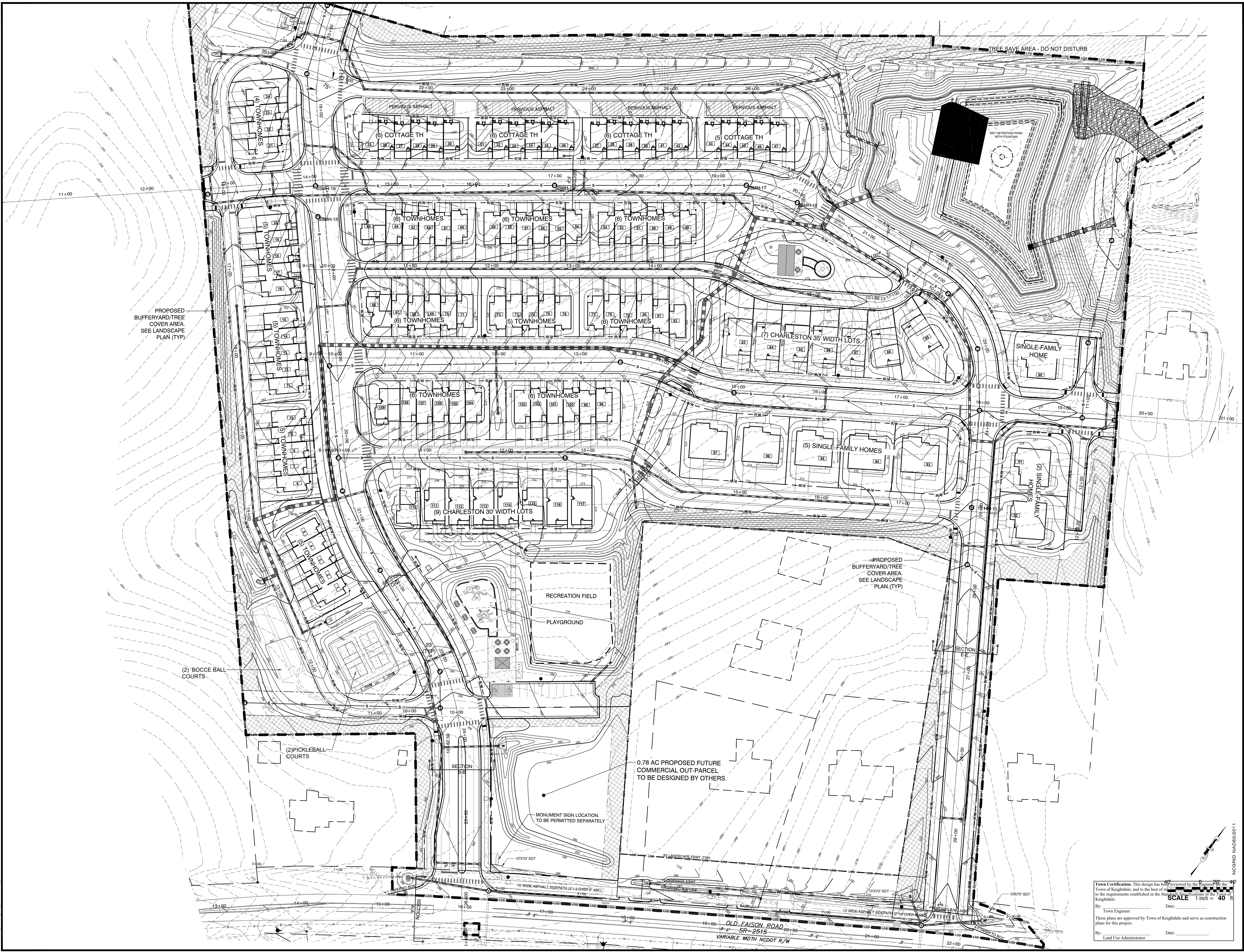
OLD FAISON PLACE

TOWN OF KNIGHTDALE – WAKE COUNTY – NORTH CAROLINA

SANITARY SEWER DETAILS

DATE:
DESIGNED BY: CS
DRAWN BY: TAH/EDN
CHECKED BY: SJB
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.
C3.52

Do Not Use for Construction - PRELIMINARY


TREE SAVE AREA - DO NOT DISTURB
PERVIOUS ASPHALT
(4) TOWNHOMES
(6) COTTAGE TH
(5) COTTAGE TH
WET DETENTION POND WITH FOUNTAIN
MAIN POOL
FOREBAY
SSMH-13
SSMH-16
SSMH-17
SSMH-18
SSMH-19
(5) TOWNHOMES
(6) TOWNHOMES
(7) CHARLESTON 35' WIDTH LOTS
SINGLE-FAMILY HOME
(5) SINGLE-FAMILY HOMES
(2) SINGLE-FAMILY HOMES
(9) CHARLESTON 30' WIDTH LOTS
PROPOSED BUFFERYARD/TREE COVER AREA. SEE LANDSCAPE PLAN (TYP)
RECREATION FIELD
PLAYGROUND
(2) BOCCE BALL COURTS
(2)PICKLEBALL COURTS
SECTION
23' (TYP)
0.78 AC PROPOSED FUTURE COMMERCIAL OUT-PARCEL TO BE DESIGNED BY OTHERS.
MONUMENT SIGN LOCATION. TO BE PERMITTED SEPARATELY
10'X70' SDT
10' WIDE ASPHALT SIDEPATH (2" I-2 OVER 6" ABC)
30' LANDSCAPE ESMT (TYP)
10' DRAINAGE ESMT
PROPOSED R/W LINE
OLD FAISON ROAD
SR-2515
VARIABLE WIDTH NCDOT R/W
NCGRID NAD83/2011
40' 0 20' 40'

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 Standards Specifications of the Town of Knightdale.

By: ____________________ Date: ______________
Town Engineer

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

By: ____________________ Date: ______________
Land Use Administrator

SCALE 1 inch = **40** ft

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NO.	DESCRIPTION	DATE	BY
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ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

GRADING PLAN

DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN

SHEET No.

C4.01

Do Not Use for Construction - PRELIMINARY

STRUCTURE TABLE

NAME	RIM	PIPES IN	PIPES OUT
CB-201	268.32'	P-201-202 - 54" RCP - 259.27' P-201-201A - 15" RCP - 262.72'	P-200-201 - 54" RCP - 259.22'
CB-202	267.90'	P-202A-202 - 42" RCP - 259.99' P-202-214 - 24" RCP - 262.68'	P-201-202 - 54" RCP - 259.44'
CB-203	270.93'	P204-203 - 18" RCP - 266.29'	P-203-202A - 18" RCP - 266.14'
CB-204	276.06'	P-206-204 - 15" RCP - 270.00' P-205-204 - 15" RCP - 268.75'	P204-203 - 18" RCP - 268.58'
CB-205	276.05'		P-205-204 - 15" RCP - 268.88'
CB-206	280.97'	P-210-206 - 15" RCP - 274.50' P-207-206 - 15" RCP - 274.38'	P-206-204 - 15" RCP - 273.57'
CB-207	281.24'	P-208-207 - 15" RCP - 275.02'	P-207-206 - 15" RCP - 274.55'
CB-208	283.66'	P-209-208 - 15" RCP - 276.28'	P-208-207 - 15" RCP - 276.18'
CB-209	283.29'		P-209-208 - 15" RCP - 276.48'
CB-210	283.96'	P-212-210 - 15" RCP - 278.60' P-211-210 - 15" RCP - 276.69'	P-210-206 - 15" RCP - 275.90'
CB-211	284.03'		P-211-210 - 15" RCP - 277.00'
CB-212	287.40'	P-213-212 - 15" RCP - 280.50'	P-212-210 - 15" RCP - 280.40'
CB-213	287.42'		P-213-212 - 15" RCP - 280.67'
CB-214	272.49'	P-214B-214 - 24" RCP - 264.48' P-214A-214 - 15" RCP - 265.03'	P-202-214 - 24" RCP - 264.33'
CB-214A	272.52'		P-214A-214 - 15" RCP - 265.17'
CB-214B	273.54'	P-215-214 - 24" RCP - 265.53'	P-214B-214 - 24" RCP - 265.48'
CB-215	276.42'	P-216-215 - 24" RCP - 266.33'	P-215-214 - 24" RCP - 266.13'
CB-216	276.42'	P-220-216 - 18" RCP - 269.02' P-217-216 - 15" RCP - 266.89'	P-216-215 - 24" RCP - 266.49'
CB-217	274.85'	P-218-217 - 15" RCP - 267.14'	P-217-216 - 15" RCP - 267.09'
CB-218	274.25'	P-219-218 - 15" RCP - 267.73'	P-218-217 - 15" RCP - 267.68'
CB-219	274.25'		P-219-218 - 15" RCP - 267.90'
CB-220	282.80'	P-220-222 - 18" RCP - 270.66' P-221-220 - 15" RCP - 271.33'	P-220-216 - 18" RCP - 270.60'
CB-221	282.80'		P-221-220 - 15" RCP - 271.64'
CB-222	279.29'	P-222A-222 - 15" RCP - 272.40'	P-220-222 - 18" RCP - 272.29'
CB-222A	279.29'	P-223-222A - 15" RCP - 272.49'	P-222A-222 - 15" RCP - 272.44'

STRUCTURE TABLE

NAME	RIM	PIPES IN	PIPES OUT
CB-223	279.29'		P-223-222A - 15" RCP - 272.69'
CB-229	280.77'	P-230-229 - 15" RCP - 273.66'	P-229-228 - 15" RCP - 273.61'
CB-230	281.40'		P-230-229 - 15" RCP - 273.85'
CB-233	270.12'	P-243-233 - 42" RCP - 263.84' P-244-233 - 36" RCP - 264.05'	P-232-233 - 42" RCP - 263.79'
CB-234	270.14'	P-238-234 - 30" RCP - 264.70' P-234-235 - 15" RCP - 265.08'	P-244-233 - 36" RCP - 264.21'
CB-235	270.49'	P-235-236 - 15" RCP - 265.39'	P-234-235 - 15" RCP - 265.39'
CB-236	272.78'	P-236-237 - 15" RCP - 266.11'	P-235-236 - 15" RCP - 266.11'
CB-237	272.78'		P-236-237 - 15" RCP - 266.26'
CB-243	271.19'	P-244-243 - 42" RCP - 264.78'	P-243-233 - 42" RCP - 264.73'
CB-244	273.85'	P-248-244 - 42" RCP - 267.12' P-244-245 - 15" RCP - 268.08'	P-244-243 - 42" RCP - 267.02'
CB-245	274.00'	P-245-246 - 15" RCP - 268.29'	P-244-245 - 15" RCP - 268.24'
CB-248	280.00'	P-249-248 - 42" RCP - 271.47'	P-248-244 - 42" RCP - 271.37'
CB-249	278.76'	P-249-250 - 42" RCP - 272.23'	P-249-248 - 42" RCP - 272.13'
CB-250	279.40'	P-250-251 - 18" RCP - 274.57' P-250-260 - 42" RCP - 272.39'	P-249-250 - 42" RCP - 272.57'
CB-251	278.68'	P-251-252 - 18" RCP - 275.05'	P-250-251 - 18" RCP - 274.76'
CB-252	279.89'	P-252-254 - 18" RCP - 275.61'	P-251-252 - 18" RCP - 275.56'
CB-254	283.30'	P-254-255 - 18" RCP - 276.28'	P-252-254 - 18" RCP - 276.22'
CB-255	283.24'	P-255-256 - 18" RCP - 278.82'	P-254-255 - 18" RCP - 276.48'
CB-256	286.32'	P-256-257 - 15" RCP - 279.69' P-256-258 - 15" RCP - 280.75'	P-255-256 - 18" RCP - 279.34'
CB-258	285.61'	P-258-259 - 15" RCP - 281.56'	P-256-258 - 15" RCP - 281.46'
CB-259	285.92'		P-258-259 - 15" RCP - 281.85'
CB-305	288.38'	P-306-305 - 18" RCP - 279.54' P-305A-305 - 15" RCP - 283.39'	P-305-304 - 18" RCP - 279.49'
CB-305A	290.54'		P-305A-305 - 15" RCP - 285.63'
CB-306	288.37'	P-307-306 - 15" RCP - 282.35'	P-306-305 - 18" RCP - 280.01'
CB-601	283.00'		P-600-601 - 15" RCP - 278.20'

STRUCTURE TABLE

NAME	RIM	PIPES IN	PIPES OUT
DB-701	275.99'	P-702-701 - 15" HP - 272.49'	P-701-700 - 15" HP - 272.41'
DB-702	276.00'	P-703-702 - 15" HP - 272.67'	P-702-701 - 15" HP - 272.62'
DB-703	276.00'	P-704-703 - 15" HP - 272.83'	P-703-702 - 15" HP - 272.78'
DB-704	277.00'		P-704-703 - 15" HP - 272.99'
DI-224	268.46'	P-224-231 - 42" RCP - 262.57' P-225-224 - 18" RCP - 264.67' P-224A-224 - 15" RCP - 264.62'	P-224-203A - 42" RCP - 262.48'
DI-224A	269.41'		P-224A-224 - 15" RCP - 265.32'
DI-225	269.31'	P-225-226 - 15" RCP - 265.36'	P-225-224 - 18" RCP - 265.06'
DI-226	272.13'	P-227-226 - 15" RCP - 268.00'	P-225-226 - 15" RCP - 267.90'
DI-227	275.19'	P-228-227 - 15" RCP - 270.45'	P-227-226 - 15" RCP - 270.35'
DI-228	280.56'	P-229-228 - 15" RCP - 273.37'	P-228-227 - 15" RCP - 273.32'
DI-239	271.11'	P-241-239 - 15" RCP - 267.01' P-240-239 - 15" RCP - 266.76' P-247-239 - 15" RCP - 267.21'	P-238-239 - 30" RCP - 265.27'
DI-241	271.71'	P-242-241 - 15" RCP - 267.78'	P-241-239 - 15" RCP - 267.73'
DI-242	272.88'	P-243-242 - 15" RCP - 268.90'	P-242-241 - 15" RCP - 268.80'
DI-243	275.69'		P-243-242 - 15" RCP - 270.30'
DI-247	271.81'	P-247A-247 - 15" RCP - 268.01'	P-247-239 - 15" RCP - 267.83'
DI-247A	273.11'		P-247A-247 - 15" RCP - 269.46'
DI-261	280.17'	P-261-262 - 36" RCP - 273.47' P-261-267 - 15" RCP - 275.62'	P-260-261 - 42" RCP - 273.08'
DI-262	279.25'	P-262-264 - 15" RCP - 275.58' P-262-263 - 36" RCP - 274.00'	P-261-262 - 36" RCP - 273.90'
DI-264	280.57'	P-264-266 - 15" RCP - 276.70'	P-262-264 - 15" RCP - 276.50'
DI-267	282.24'	P-267-269 - 15" RCP - 278.22'	P-261-267 - 15" RCP - 278.12'
DI-269	283.99'		P-267-269 - 15" RCP - 280.03'
DI-301A	271.34'	P-302-301A - 18" RCP - 267.46'	P-301A-301 - 24" RCP - 266.86'
DI-302	275.75'	P-302A-302 - 18" RCP - 272.56'	P-302-301A - 18" RCP - 272.46'
DI-302A	279.33'	P-303-302A - 18" RCP - 275.12'	P-302A-302 - 18" RCP - 275.02'
DI-303	282.33'	P-304-303 - 18" RCP - 277.08'	P-303-302A - 18" RCP - 276.98'

STRUCTURE TABLE

NAME	RIM	PIPES IN	PIPES OUT
DI-304	284.50'	P-305-304 - 18" RCP - 278.60'	P-304-303 - 18" RCP - 278.50'
DI-307	286.49'	P-308-307 - 15" RCP - 282.79'	P-307-306 - 15" RCP - 282.94'
DMH-300A	271.89'	P-301-300A - 24" RCP - 265.20'	P-300A-300 - 24" RCP - 260.33'
FES-240	269.85'		P-240-239 - 15" RCP - 268.33'
FES-257	281.52'		P-256-257 - 15" RCP - 280.00'
FES-266	280.22'		P-264-266 - 15" RCP - 278.70'
FES-600	279.52'	P-600-601 - 15" RCP - 278.00'	
FES-700	273.66'	P-701-700 - 15" HP - 272.30'	
HW-200	264.85'	P-200-201 - 54" RCP - 259.00'	
HW-263	277.92'		P-262-263 - 36" RCP - 274.50'
HW-300	264.40'	P-300A-300 - 24" RCP - 260.00'	
HW-308	286.71'		P-308-307 - 15" RCP - 283.44'
RTYI-301	274.90'	P-301A-301 - 24" RCP - 266.30'	P-301-300A - 24" RCP - 266.26'
YI-201A	268.54'		P-201-201A - 15" RCP - 264.53'
YI-202A	269.84'	P-224-203A - 42" RCP - 261.89' P-203-202A - 18" RCP - 264.98'	P-202A-202 - 42" RCP - 261.74'
YI-231	270.00'	P-231-232 - 42" RCP - 263.02'	P-224-231 - 42" RCP - 262.92'
YI-232	270.18'	P-232-233 - 42" RCP - 263.50'	P-231-232 - 42" RCP - 263.40'
YI-238	270.00'	P-238-239 - 30" RCP - 264.92'	P-238-234 - 30" RCP - 264.87'
YI-246	273.00'		P-245-246 - 15" RCP - 269.00'
YI-260	279.00'	P-260-261 - 42" RCP - 272.86'	P-250-260 - 42" RCP - 272.76'

STRUCTURE TABLE

NAME	RIM	PIPES IN	PIPES OUT
DMH-101	264.00'	P-69 - 48" RCP - 256.00'	P-70 - 48" RCP - 250.15'
HW-100	251.25'	P-70 - 48" RCP - 250.00'	
RISER-102	264.00'		P-69 - 48" RCP - 257.00'

STRUCTURE TABLE

NAME	RIM	PIPES IN	PIPES OUT
DMH-401	281.39'	P-401A-400 - 15" RCP - 275.76' P-402-401 - 15" RCP - 276.20' P-401-403 - 15" RCP - 277.25'	
FES-401A	278.22'		P-401A-400 - 15" RCP - 276.70'
FES-402	278.02'		P-402-401 - 15" RCP - 276.50'

STRUCTURE TABLE

NAME	RIM	PIPES IN	PIPES OUT
CB-403	281.63'	P-403-404 - 15" RCP - 277.50'	P-401-403 - 15" RCP - 277.50'
CB-404	283.26'		P-403-404 - 15" RCP - 279.00'
CB-503	285.27'		P-501-503 - 15" RCP - 281.89'
DI-502	285.00'		P-501-502 - 15" RCP - 281.56'
DMH-501	285.96'	P-501-502 - 15" RCP - 281.04' P-501-503 - 15" RCP - 281.17'	

PIPE TABLE

PIPE NAME	SIZE	MATERIAL	LENGTH	SLOPE	START	END	START INV	END INV
P-200-201	54"	RCP	42.81'	0.47%	CB-201	HW-200	259.22'	258.999'
P-201-201A	15"	RCP	45.03'	3.61%	YI-201A	CB-201	264.53'	262.719'
P-201-202	54"	RCP	25.01'	0.56%	CB-202	CB-201	259.44'	259.269'
P-202-214	24"	RCP	169.30'	0.95%	CB-214	CB-202	264.33'	262.679'
P-202A-202	42"	RCP	78.54'	2.11%	YI-202A	CB-202	261.74'	259.989'
P-203-202A	18"	RCP	33.69'	2.99%	CB-203	YI-202A	266.14'	264.979'
P-205-204	15"	RCP	21.26'	0.50%	CB-205	CB-204	268.88'	268.749'
P-206-204	15"	RCP	257.84'	1.36%	CB-206	CB-204	273.57'	270.000'
P-207-206	15"	RCP	26.70'	0.55%	CB-207	CB-206	274.55'	274.377'
P-208-207	15"	RCP	36.38'	2.75%	CB-208	CB-207	276.18'	275.019'
P-209-208	15"	RCP	34.41'	0.52%	CB-209	CB-208	276.48'	276.275'
P-210-206	15"	RCP	110.77'	1.26%	CB-210	CB-206	275.90'	274.500'
P-211-210	15"	RCP	27.02'	1.00%	CB-211	CB-210	277.00'	276.689'
P-212-210	15"	RCP	71.34'	2.38%	CB-212	CB-210	280.40'	278.599'
P-213-212	15"	RCP	31.59'	0.47%	CB-213	CB-212	280.67'	280.499'
P-214A-214	15"	RCP	27.02'	0.45%	CB-214A	CB-214	265.17'	265.029'
P-214B-214	24"	RCP	60.90'	1.54%	CB-214B	CB-214	265.48'	264.479'
P-215-214	24"	RCP	107.14'	0.54%	CB-215	CB-214B	266.13'	265.529'
P-216-215	24"	RCP	27.12'	0.51%	CB-216	CB-215	266.49'	266.329'
P-217-216	15"	RCP	31.49'	0.54%	CB-217	CB-216	267.09'	266.889'

PIPE TABLE

PIPE NAME	SIZE	MATERIAL	LENGTH	SLOPE	START	END	START INV	END INV
P-218-217	15"	RCP	104.42'	0.50%	CB-218	CB-217	267.68'	267.139'
P-219-218	15"	RCP	30.45'	0.49%	CB-219	CB-218	267.90'	267.729'
P-220-216	18"	RCP	124.68'	1.23%	CB-220	CB-216	270.60'	269.021'
P-220-222	18"	RCP	324.42'	0.50%	CB-222	CB-220	272.29'	270.659'
P-221-220	15"	RCP	27.02'	1.00%	CB-221	CB-220	271.64'	271.329'
P-222A-222	15"	RCP	1.96'	0.67%	CB-222A	CB-222	272.44'	272.399'
P-223-222A	15"	RCP	27.02'	0.65%	CB-223	CB-222A	272.69'	272.489'
P-224-203A	42"	RCP	75.21'	0.75%	DI-224	YI-202A	262.48'	261.889'
P-224-231	42"	RCP	40.01'	0.79%	YI-231	DI-224	262.92'	262.569'
P-224A-224	15"	RCP	117.20'	0.58%	DI-224A	DI-224	265.32'	264.619'
P-225-224	18"	RCP	43.66'	0.82%	DI-225	DI-224	265.06'	264.669'
P-225-226	15"	RCP	127.72'	1.93%	DI-226	DI-225	267.90'	265.359'
P-227-226	15"	RCP	138.49'	1.65%	DI-227	DI-226	270.35'	267.999'
P-228-227	15"	RCP	136.05'	2.05%	DI-228	DI-227	273.32'	270.449'
P-229-228	15"	RCP	41.69'	0.52%	CB-229	DI-228	273.61'	273.369'
P-230-229	15"	RCP	34.01'	0.50%	CB-230	CB-229	273.85'	273.659'
P-231-232	42"	RCP	43.91'	0.78%	YI-232	YI-231	263.40'	263.019'
P-232-233	42"	RCP	33.81'	0.76%	CB-233	YI-232	263.79'	263.499'
P-234-235	15"	RCP	58.16'	0.50%	CB-235	CB-234	265.39'	265.079'
P-235-236	15"	RCP	141.22'	0.50%	CB-236	CB-235	266.11'	265.389'

PIPE TABLE

PIPE NAME	SIZE	MATERIAL	LENGTH	SLOPE	START	END	START INV	END INV
P-236-237	15"	RCP	27.51'	0.48%	CB-237	CB-236	266.26'	266.109'
P-238-234	30"	RCP	29.80'	0.50%	YI-238	CB-234	264.87'	264.699'
P-238-239	30"	RCP	65.38'	0.50%	DI-239	YI-238	265.27'	264.919'
P-240-239	15"	RCP	50.21'	2.98%	FES-240	DI-239	268.33'	266.759'
P-241-239	15"	RCP	67.80'	1.00%	DI-241	DI-239	267.73'	267.009'
P-242-241	15"	RCP	112.83'	0.87%	DI-242	DI-241	268.80'	267.779'
P-243-233	42"	RCP	84.85'	1.00%	CB-243	CB-233	264.73'	263.839'
P-243-242	15"	RCP	132.10'	1.03%	DI-243	DI-242	270.30'	268.899'
P-244-233	36"	RCP	29.01'	0.48%	CB-234	CB-233	264.21'	264.049'
P-244-243	42"	RCP	131.61'	1.65%	CB-244	CB-243	267.02'	264.779'
P-244-245	15"	RCP	27.52'	0.51%	CB-245	CB-244	268.24'	268.079'
P-245-246	15"	RCP	44.59'	1.46%	YI-246	CB-245	269.00'	268.289'
P-247-239	15"	RCP	69.15'	0.85%	DI-247	DI-239	267.83'	267.209'
P-247A-247	15"	RCP	126.21'	1.11%	DI-247A	DI-247	269.46'	268.009'
P-248-244	42"	RCP	212.10'	1.97%	CB-248	CB-244	271.37'	267.119'
P-249-248	42"	RCP	128.59'	0.50%	CB-249	CB-248	272.13'	271.469'
P-249-250	42"	RCP	53.83'	0.59%	CB-250	CB-249	272.57'	272.229'
P-250-251	18"	RCP	34.13'	0.50%	CB-251	CB-250	274.76'	274.569'
P-250-260	42"	RCP	54.59'	0.63%	YI-260	CB-250	272.76'	272.389'
P-251-252	18"	RCP	96.22'	0.51%	CB-252	CB-251	275.56'	275.049'

PIPE TABLE

PIPE NAME	SIZE	MATERIAL	LENGTH	SLOPE	START	END	START INV	END INV
P-252-254	18"	RCP	119.26'	0.49%	CB-254	CB-252	276.22'	275.609'
P-254-255	18"	RCP	33.96'	0.53%	CB-255	CB-254	276.48'	276.279'
P-255-256	18"	RCP	102.06'	0.49%	CB-256	CB-255	279.34'	278.819'
P-256-257	15"	RCP	68.67'	0.44%	FES-257	CB-256	280.00'	279.689'
P-256-258	15"	RCP	137.44'	0.50%	CB-258	CB-256	281.46'	280.749'
P-258-259	15"	RCP	53.42'	0.51%	CB-259	CB-258	281.85'	281.559'
P-260-261	42"	RCP	41.69'	0.48%	DI-261	YI-260	273.08'	272.859'
P-261-262	36"	RCP	67.86'	0.60%	DI-262	DI-261	273.90'	273.469'
P-261-267	15"	RCP	138.89'	1.75%	DI-267	DI-261	278.12'	275.619'
P-262-263	36"	RCP	16.22'	2.71%	HW-263	DI-262	274.50'	273.999'
P-262-264	15"	RCP	73.87'	1.18%	DI-264	DI-262	276.50'	275.579'
P-264-266	15"	RCP	24.09'	7.70%	FES-266	DI-264	278.70'	276.699'
P-267-269	15"	RCP	116.47'	1.50%	DI-269	DI-267	280.03'	278.221'
P-300A-300	24"	RCP	36.50'	0.85%	DMH-300A	HW-300	260.33'	259.999'
P-301-300A	24"	RCP	70.87'	1.41%	RTYI-301	DMH-300A	266.26'	265.199'
P-301A-301	24"	RCP	88.93'	0.60%	DI-301A	RTYI-301	266.86'	266.299'
P-302-301A	18"	RCP	143.92'	3.38%	DI-302	DI-301A	272.46'	267.459'
P-302A-302	18"	RCP	114.68'	2.07%	DI-302A	DI-302	275.02'	272.559'
P-303-302A	18"	RCP	114.71'	1.57%	DI-303	DI-302A	276.98'	275.119'
P-304-303	18"	RCP	101.18'	1.35%	DI-304	DI-303	278.50'	277.079'

PIPE TABLE

PIPE NAME	SIZE	MATERIAL	LENGTH	SLOPE	START	END	START INV	END INV
P-305-304	18"	RCP	58.86'	1.39%	CB-305	DI-304	279.49'	278.599'
P-305A-305	15"	RCP	32.61'	6.13%	CB-305A	CB-305	285.63'	283.389'
P-306-305	18"	RCP	43.04'	1.00%	CB-306	CB-305	280.01'	279.539'
P-307-306	15"	RCP	45.95'	1.15%	DI-307	CB-306	282.94'	282.349'
P-308-307	15"	RCP	59.27'	1.05%	HW-308	DI-307	283.44'	282.789'
P-600-601	15"	RCP	24.88'	0.73%	CB-601	FES-600	278.20'	277.999'
P-701-700	15"	HP	35.93'	0.29%	DB-701	FES-700	272.41'	272.299'
P-702-701	15"	HP	25.77'	0.44%	DB-702	DB-701	272.62'	272.489'
P-703-702	15"	HP	21.34'	0.43%	DB-703	DB-702	272.78'	272.669'
P-704-703	15"	HP	25.70'	0.54%	DB-704	DB-703	272.99'	272.829'
P204-203	18"	RCP	178.66'	1.25%	CB-204	CB-203	268.58'	266.289'

PIPE TABLE

PIPE NAME	SIZE	MATERIAL	LENGTH	SLOPE	START	END	START INV	END INV
P-401A-400	15"	RCP	71.97'	1.27%	FES-401A	DMH-401	276.70'	275.758'
P-402-401	15"	RCP	31.69'	0.89%	FES-402	DMH-401	276.50'	276.200'

PIPE TABLE

PIPE NAME	SIZE	MATERIAL	LENGTH	SLOPE	START	END	START INV	END INV
P-401-403	15"	RCP	25.86'	0.90%	CB-403	DMH-401	277.50'	277.250'
P-403-404	15"	RCP	149.88'	0.99%	CB-404	CB-403	279.00'	277.500'
P-501-502	15"	RCP	96.07'	0.52%	DI-502	DMH-501	281.56'	281.036'
P-501-503	15"	RCP	139.89'	0.50%	CB-503	DMH-501	281.89'	281.172'

PIPE TABLE

PIPE NAME	SIZE	MATERIAL	LENGTH	SLOPE	START	END	START INV	END INV
P-69	48"	RCP	48.34'	1.84%	RISER-102	DMH-101	257.00'	256.000'
P-70	48"	RCP	26.73'	0.50%	DMH-101	HW-100	250.15'	250.000'

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

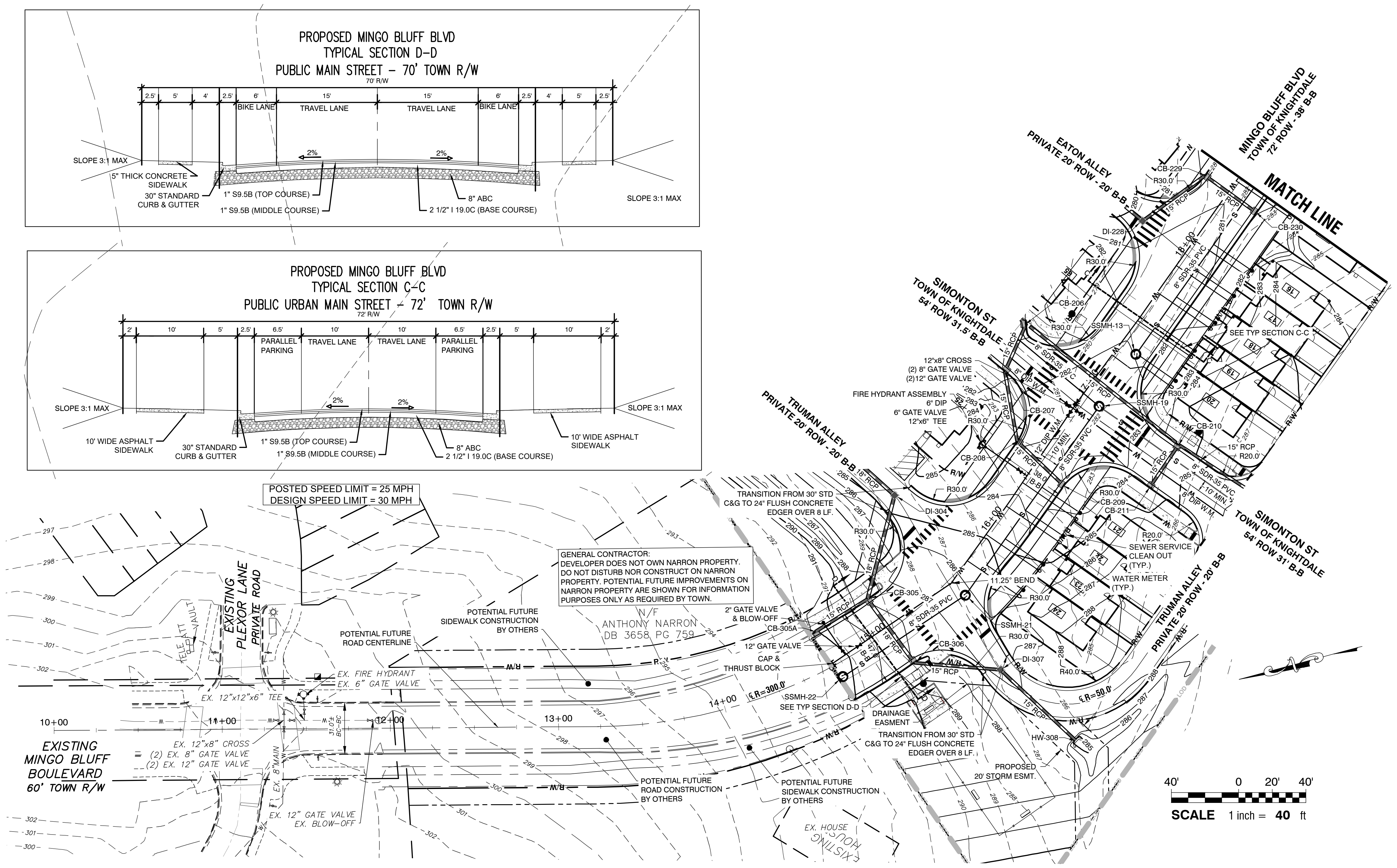
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

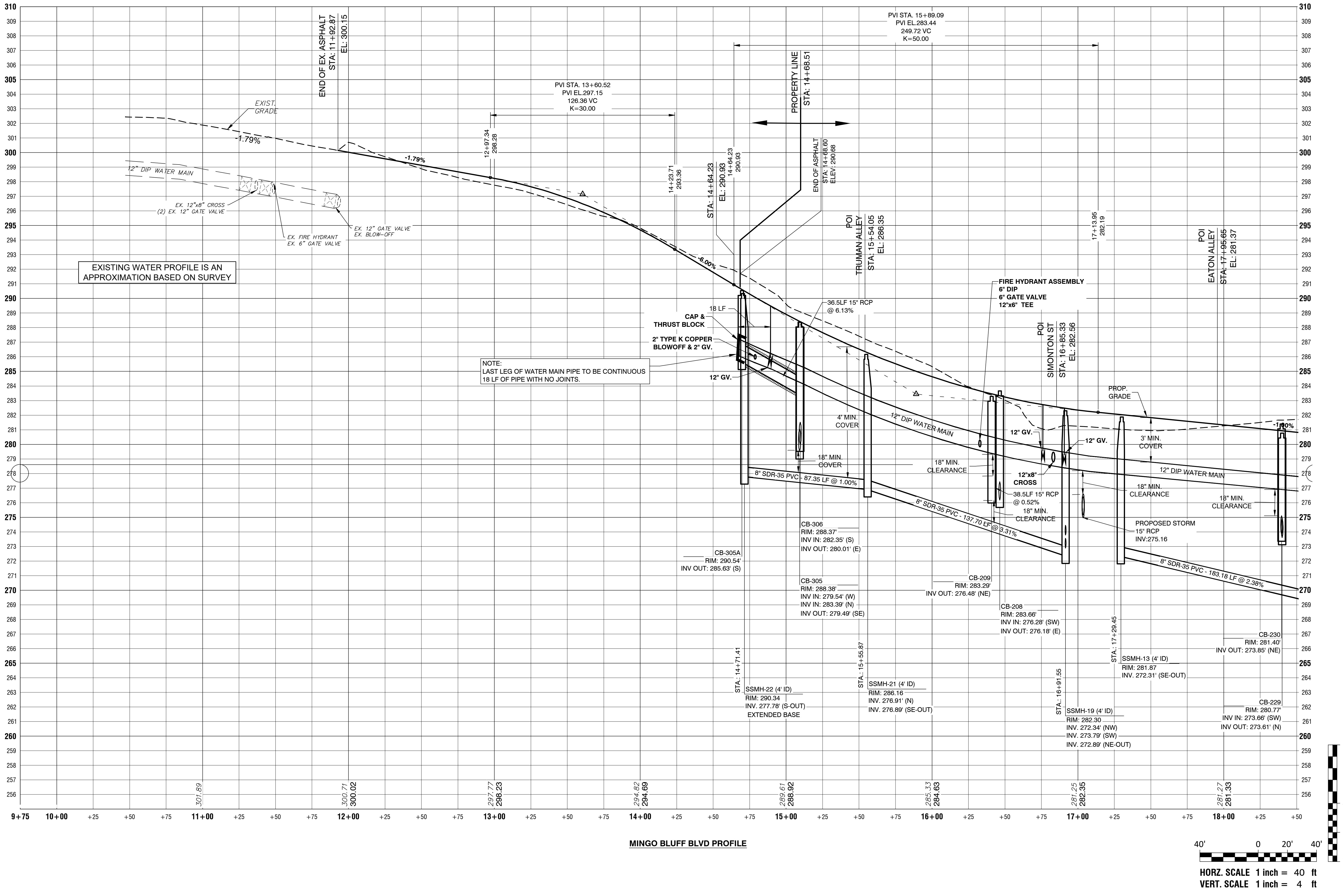
GRADING PLAN

DATE:
DESIGNED BY: CS
DRAWN BY: TAH
CHECKED BY: SJB
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.

C4.01A

Do Not Use for Construction - PRELIMINARY


PROPOSED MINGO BLUFF BLVD
TYPICAL SECTION D-D
PUBLIC MAIN STREET – 70' TOWN R/W
70' R/W
2.5' 5' 4' 2.5' 6' 15' 15' 6' 2.5' 4' 5' 2.5'
BIKE LANE
TRAVEL LANE
TRAVEL LANE
BIKE LANE
2%
2%
SLOPE 3:1 MAX
5" THICK CONCRETE SIDEWALK
30" STANDARD CURB & GUTTER
1" S9.5B (TOP COURSE)
1" S9.5B (MIDDLE COURSE)
8" ABC
2 1/2" I 19.0C (BASE COURSE)
SLOPE 3:1 MAX
PROPOSED MINGO BLUFF BLVD
TYPICAL SECTION C-C
PUBLIC URBAN MAIN STREET – 72' TOWN R/W
72' R/W
2' 10' 5' 2.5' 6.5' 10' 10' 6.5' 2.5' 5' 10' 2'
PARALLEL PARKING
TRAVEL LANE
TRAVEL LANE
PARALLEL PARKING
2%
2%
SLOPE 3:1 MAX
10' WIDE ASPHALT SIDEWALK
30" STANDARD CURB & GUTTER
1" S9.5B (TOP COURSE)
1" S9.5B (MIDDLE COURSE)
8" ABC
2 1/2" I 19.0C (BASE COURSE)
10' WIDE ASPHALT SIDEWALK
SLOPE 3:1 MAX
POSTED SPEED LIMIT = 25 MPH
DESIGN SPEED LIMIT = 30 MPH
MINGO BLUFF BLVD TOWN OF KNIGHTDALE 72' ROW - 38' B-B
MATCH LINE
EATON ALLEY PRIVATE 20' ROW - 20' B-B
SIMONTON ST TOWN OF KNIGHTDALE 54' ROW 31.5' B-B
TRUMAN ALLEY PRIVATE 20' ROW - 20' B-B
SIMONTON ST TOWN OF KNIGHTDALE 54' ROW 31' B-B
TRUMAN ALLEY PRIVATE 20' ROW - 20' B-B
CB-229
CB-230
DI-228
CB-206
SSMH-13
SEE TYP SECTION C-C
12"x8" CROSS
(2) 8" GATE VALVE
(2)12" GATE VALVE
FIRE HYDRANT ASSEMBLY
6" DIP
6" GATE VALVE
12"x6" TEE
CB-207
SSMH-19
CB-210
CB-208
15" RCP
R20.0'
R30.0'
8" SDR-35 PVC
8" DIP W.M.
12" DIP W.M.
10' MIN.
38.0' B-B
TRANSITION FROM 30" STD C&G TO 24" FLUSH CONCRETE EDGER OVER 8 LF.
DI-304
CB-209
CB-211
SEWER SERVICE CLEAN OUT (TYP.)
WATER METER (TYP.)
11.25° BEND
CB-305
CB-305A
2" GATE VALVE & BLOW-OFF
12" GATE VALVE
CAP & THRUST BLOCK
SSMH-22
SEE TYP SECTION D-D
SSMH-21
CB-306
DI-307
R40.0'
℄ R=50.0'
℄ R=300.0'
47.0' B-B
18" RCP
DRAINAGE EASEMENT
TRANSITION FROM 30" STD C&G TO 24" FLUSH CONCRETE EDGER OVER 8 LF.
HW-308
PROPOSED 20' STORM ESMT.
GENERAL CONTRACTOR:
DEVELOPER DOES NOT OWN NARRON PROPERTY. DO NOT DISTURB NOR CONSTRUCT ON NARRON PROPERTY. POTENTIAL FUTURE IMPROVEMENTS ON NARRON PROPERTY ARE SHOWN FOR INFORMATION PURPOSES ONLY AS REQUIRED BY TOWN.
N/F ANTHONY NARRON DB 3658 PG 759
POTENTIAL FUTURE SIDEWALK CONSTRUCTION BY OTHERS
POTENTIAL FUTURE ROAD CENTERLINE
POTENTIAL FUTURE ROAD CONSTRUCTION BY OTHERS
POTENTIAL FUTURE SIDEWALK CONSTRUCTION BY OTHERS
EXISTING PLEXOR LANE PRIVATE ROAD
TELE VAULT
EX. FIRE HYDRANT
EX. 6" GATE VALVE
EX. 12"x12"x6" TEE
EX. 12"x8" CROSS
(2) EX. 8" GATE VALVE
(2) EX. 12" GATE VALVE
EX. 8" MAIN
EX. 12" GATE VALVE
EX. BLOW-OFF
31.0'± BC-BC
EXISTING MINGO BLUFF BOULEVARD 60' TOWN R/W
10+00
11+00
12+00
13+00
14+00
15+00
16+00
18+00
EX. HOUSE
EXISTING HOUSE
R/W
40' 0 20' 40'
SCALE 1 inch = 40 ft


EXIST. GRADE
-1.79%
-1.79%
-6.00%
-1.00%
12" DIP WATER MAIN
EX. 12"x8" CROSS
(2) EX. 12" GATE VALVE
EX. FIRE HYDRANT
EX. 6" GATE VALVE
EX. 12" GATE VALVE
EX. BLOW-OFF
EXISTING WATER PROFILE IS AN APPROXIMATION BASED ON SURVEY
END OF EX. ASPHALT STA: 11+92.87 EL: 300.15
12+97.34 298.28
PVI STA. 13+60.52
PVI EL.297.15
126.36 VC
K=30.00
14+23.71 293.36
STA: 14+64.23 EL: 290.93
14+64.23 290.93
PROPERTY LINE STA: 14+68.51
END OF ASPHALT STA: 14+68.60 ELEV: 290.68
PVI STA. 15+89.09
PVI EL.283.44
249.72 VC
K=50.00
POI TRUMAN ALLEY STA: 15+54.05 EL: 286.35
17+13.95 282.19
POI SIMONTON ST STA: 16+85.33 EL: 282.56
POI EATON ALLEY STA: 17+95.65 EL: 281.37
18 LF
CAP & THRUST BLOCK
2" TYPE K COPPER BLOWOFF & 2" GV.
12" GV.
NOTE:
LAST LEG OF WATER MAIN PIPE TO BE CONTINUOUS 18 LF OF PIPE WITH NO JOINTS.
36.5LF 15" RCP @ 6.13%
4' MIN. COVER
18" MIN. COVER
12" DIP WATER MAIN
18" MIN. CLEARANCE
FIRE HYDRANT ASSEMBLY
6" DIP
6" GATE VALVE
12"x6" TEE
12" GV.
12" GV.
12"x8" CROSS
38.5LF 15" RCP @ 0.52%
18" MIN. CLEARANCE
PROP. GRADE
3' MIN. COVER
12" DIP WATER MAIN
18" MIN. CLEARANCE
18" MIN. CLEARANCE
PROPOSED STORM 15" RCP INV:275.16
8" SDR-35 PVC - 87.35 LF @ 1.00%
8" SDR-35 PVC - 137.70 LF @ 3.31%
8" SDR-35 PVC - 183.18 LF @ 2.38%
CB-305A RIM: 290.54' INV OUT: 285.63' (S)
CB-306 RIM: 288.37' INV IN: 282.35' (S) INV OUT: 280.01' (E)
CB-305 RIM: 288.38' INV IN: 279.54' (W) INV IN: 283.39' (N) INV OUT: 279.49' (SE)
CB-209 RIM: 283.29' INV OUT: 276.48' (NE)
CB-208 RIM: 283.66' INV IN: 276.28' (SW) INV OUT: 276.18' (E)
CB-230 RIM: 281.40' INV OUT: 273.85' (NE)
CB-229 RIM: 280.77' INV IN: 273.66' (SW) INV OUT: 273.61' (N)
STA.: 14+71.41 SSMH-22 (4' ID) RIM: 290.34 INV. 277.78' (S-OUT) EXTENDED BASE
STA.: 15+55.87 SSMH-21 (4' ID) RIM: 286.16 INV. 276.91' (N) INV. 276.89' (SE-OUT)
STA.: 16+91.55 SSMH-19 (4' ID) RIM: 282.30 INV. 272.34' (NW) INV. 273.79' (SW) INV. 272.89' (NE-OUT)
STA.: 17+29.45 SSMH-13 (4' ID) RIM: 281.87 INV. 272.31' (SE-OUT)
310 305 300 295 290 285 280 275 270 265 260
301.89
300.71 300.02
297.77 298.23
294.82 294.69
289.61 288.92
285.33 284.63
281.25 282.35
281.27 281.33
9+75 10+00 +25 +50 +75 11+00 +25 +50 +75 12+00 +25 +50 +75 13+00 +25 +50 +75 14+00 +25 +50 +75 15+00 +25 +50 +75 16+00 +25 +50 +75 17+00 +25 +50 +75 18+00 +25 +50
8' 4' 2' 0
40' 0 20' 40'
HORZ. SCALE 1 inch = 40 ft
VERT. SCALE 1 inch = 4 ft

MINGO BLUFF BLVD PROFILE

CITY OF RALEIGH STANDARD UTILITY NOTES (as applicable):

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH RALEIGH WATER DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: RALEIGH WATER HANDBOOK, CURRENT EDITION
2. UTILITY SEPARATION REQUIREMENTS:
   a. A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
   b. WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR.ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER
   c. WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
   d. 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
   e. MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
   f. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY RALEIGH WATER PRIOR TO CONSTRUCTION
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO RALEIGH WATER
6. SEWER BYPASS PUMPING - A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE RALEIGH WATER HANDBOOK.
7. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE
9. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
10. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT
11. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER
12. ANY WATER OR SEWER SERVICES ON PRIVATE PROPERTY THAT WILL BE INSTALLED UNDER CONSTRUCTION DRAWINGS MAY REQUIRE A PLUMBING UTILITY PERMIT IN THE CITY OF RALEIGH
13. INSTALL SEWER SERVICES WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED PER THE CURRENT NC PLUMBING CODE
14. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
15. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
16. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION
17. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.
18. CROSS-CONNECTION REQUIREMENTS:
   a. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTHC AROLINA
   b. THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST
   c. THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA
   d. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH, INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION
19. NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN $250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS
20. PRIVATE SUB-METERING - NO RESALE OF WATER SHALL OCCUR WITHOUT APPROVAL OF THE NORTH CAROLINA UTILITY COMMISSION. SUB-METERING SHALL BE IN ACCORDANCE WITH SECTION 1400 OF THE "SAFE DRINKING WATER ACT"

RESIDENTIAL WATER & SEWER SERVICES SCHEMATIC

- ◉ 4" PVC (OR AS NOTED) SANITARY SEWER SERVICE LATERALS @ 1.1% MIN (TYP)
- o 1" POLY TUBING WITH 5/8" DOMESTIC METER (OR AS NOTED) WATER SERVICE LATERAL (TYP)

SEE SURVEY SHEET FOR TBM
DRAWING FILE NO: FAISON-RECOM.DWG
DATE: OCTOBER 22, 2024

GENERAL CONTRACTOR

PRIOR TO BEGINNING ANY CONSTRUCTION, FIELD SURVEY VERIFY LOCATION, DEPTH, TYPE, SIZE, MATERIAL AND CONDITION OF ALL EXISTING UTILITIES IN THE WORK AREA. IN CASE OF DISCREPANCY OR CONFLICT, THEN NOTIFY ENGINEER.

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers
& ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26493

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

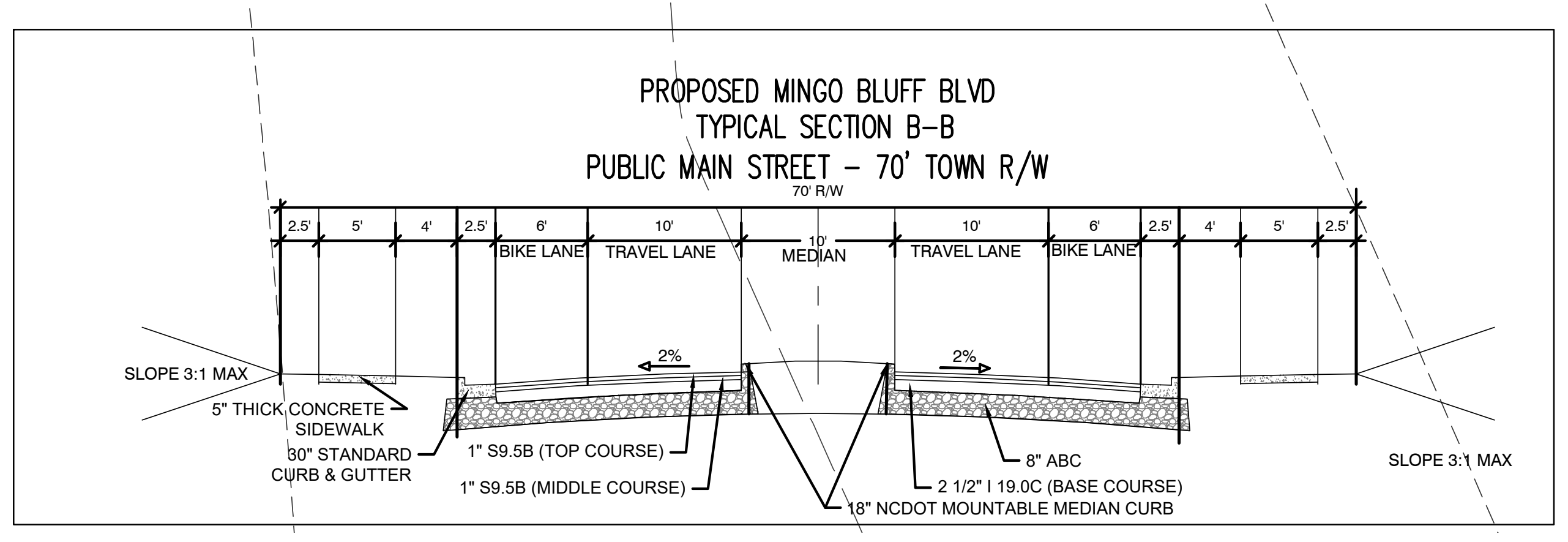
TOWN OF KNIGHTDALE – WAKE COUNTY – NORTH CAROLINA

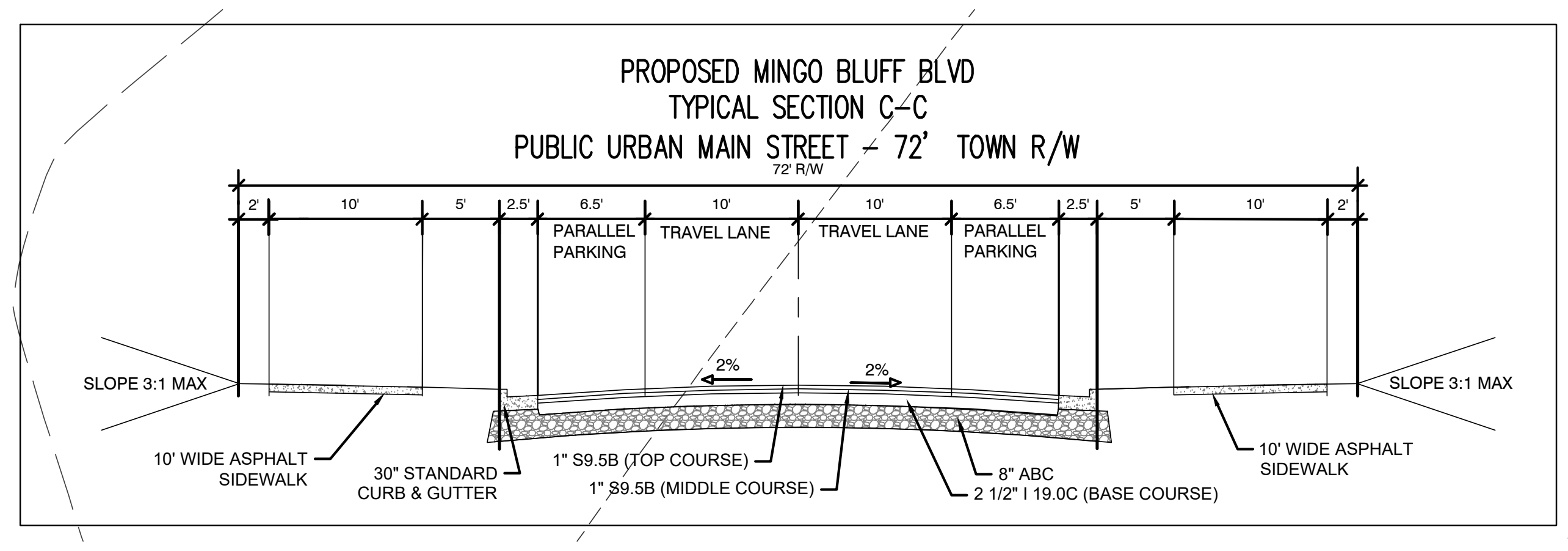
MINGO BLUFF BLVD PLAN AND PROFILE

DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN

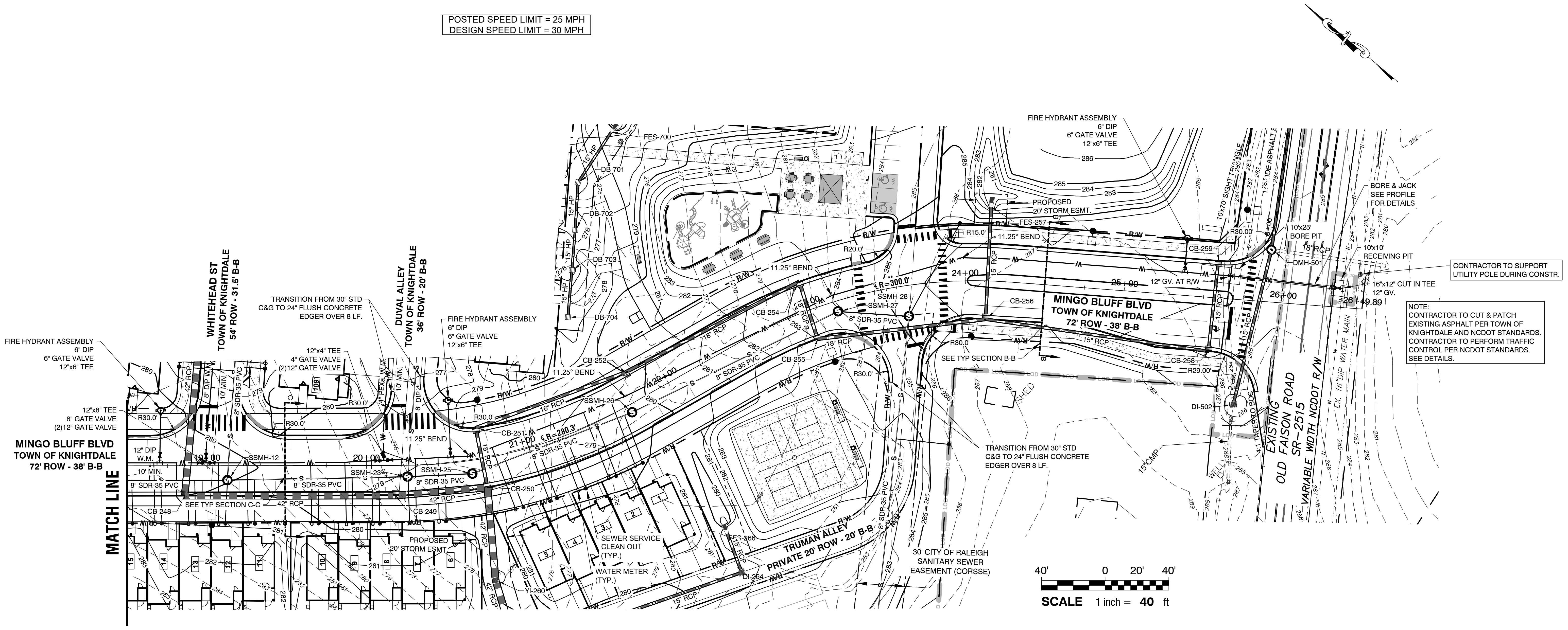
SHEET No.
C4.02

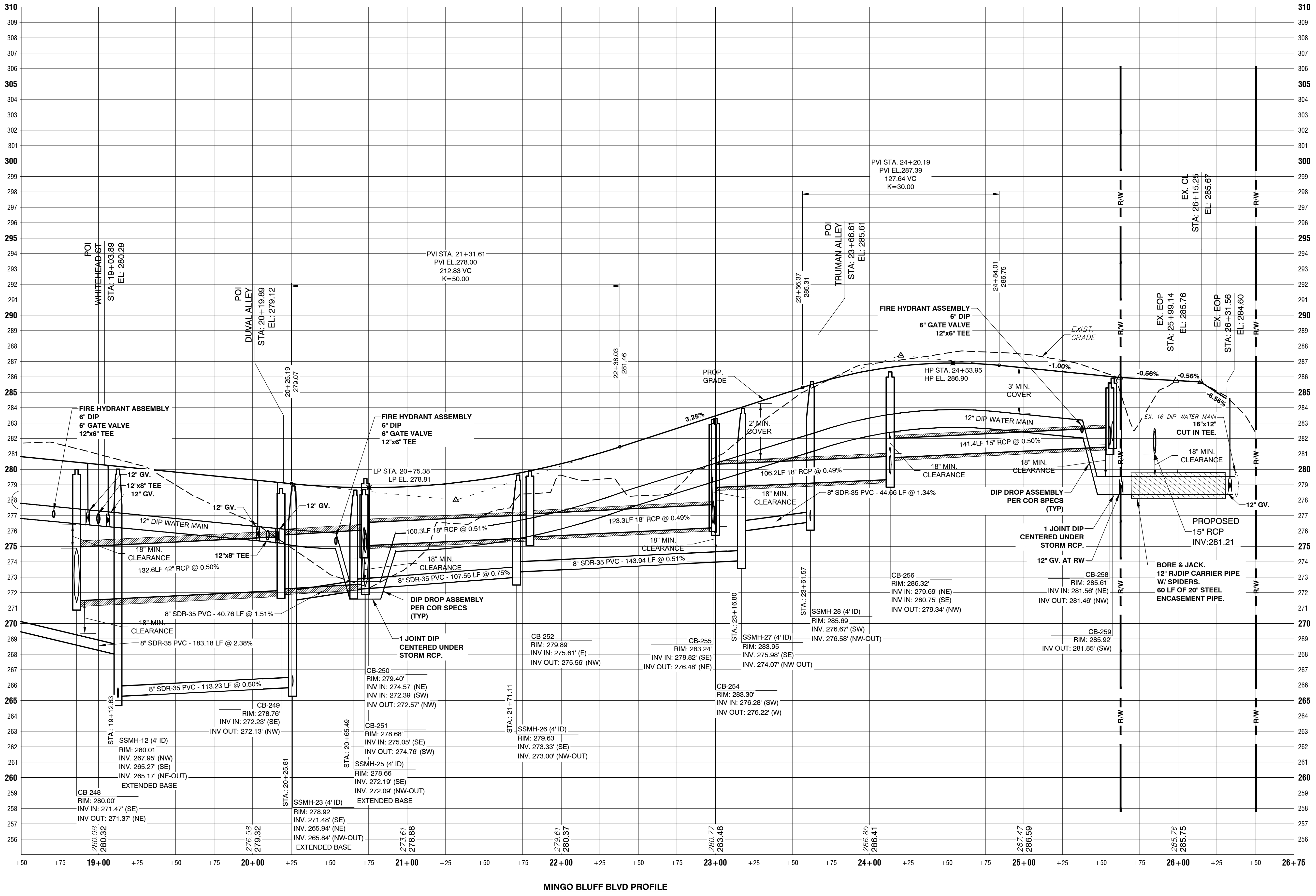
Do Not Use for Construction - PRELIMINARY


PROPOSED MINGO BLUFF BLVD
TYPICAL SECTION B-B
PUBLIC MAIN STREET – 70' TOWN R/W
70' R/W
2.5'
5'
4'
2.5'
6'
10'
10'
10'
6'
2.5'
4'
5'
2.5'
BIKE LANE
TRAVEL LANE
MEDIAN
TRAVEL LANE
BIKE LANE
2%
2%
SLOPE 3:1 MAX
5" THICK CONCRETE SIDEWALK
30" STANDARD CURB & GUTTER
1" S9.5B (TOP COURSE)
1" S9.5B (MIDDLE COURSE)
18" NCDOT MOUNTABLE MEDIAN CURB
8" ABC
2 1/2" I 19.0C (BASE COURSE)
SLOPE 3:1 MAX


PROPOSED MINGO BLUFF BLVD
TYPICAL SECTION C-C
PUBLIC URBAN MAIN STREET – 72' TOWN R/W
72' R/W
2'
10'
5'
2.5'
6.5'
10'
10'
6.5'
2.5'
5'
10'
2'
PARALLEL PARKING
TRAVEL LANE
TRAVEL LANE
PARALLEL PARKING
2%
2%
SLOPE 3:1 MAX
SLOPE 3:1 MAX
10' WIDE ASPHALT SIDEWALK
30" STANDARD CURB & GUTTER
1" S9.5B (TOP COURSE)
1" S9.5B (MIDDLE COURSE)
8" ABC
2 1/2" I 19.0C (BASE COURSE)
10' WIDE ASPHALT SIDEWALK

POSTED SPEED LIMIT = 25 MPH
DESIGN SPEED LIMIT = 30 MPH


MATCH LINE
MINGO BLUFF BLVD
TOWN OF KNIGHTDALE
72' ROW - 38' B-B
WHITEHEAD ST
TOWN OF KNIGHTDALE
54' ROW - 31.5' B-B
DUVAL ALLEY
TOWN OF KNIGHTDALE
36' ROW - 20' B-B
TRUMAN ALLEY
PRIVATE 20' ROW - 20' B-B
EXISTING OLD FAISON ROAD SR-2515
VARIABLE WIDTH NCDOT R/W
EX. 16" DIP WATER MAIN
FIRE HYDRANT ASSEMBLY
6" DIP
6" GATE VALVE
12"x6" TEE
12"x8" TEE
8" GATE VALVE
(2)12" GATE VALVE
12"x4" TEE
4" GATE VALVE
(2)12" GATE VALVE
TRANSITION FROM 30" STD C&G TO 24" FLUSH CONCRETE EDGER OVER 8 LF.
12" DIP W.M.
10' MIN.
8" SDR-35 PVC
SSMH-12
SSMH-23
SSMH-25
SSMH-26
SSMH-27
SSMH-28
CB-248
CB-249
CB-250
CB-251
CB-252
CB-254
CB-255
CB-256
CB-258
CB-259
DB-701
DB-702
DB-703
DB-704
FES-700
FES-257
FES-266
DI-264
DI-502
DMH-501
YI-260
SEE TYP SECTION C-C
SEE TYP SECTION B-B
42" RCP
18" RCP
15" RCP
15" HP
15" CMP
11.25° BEND
R=280.3'
R=300.0'
R30.0'
R20.0'
R15.0'
R30.00'
R29.00'
19+00
20+00
21+00
22+00
24+00
25+00
26+00
26+49.89
PROPOSED 20' STORM ESMT
SEWER SERVICE CLEAN OUT (TYP.)
WATER METER (TYP.)
30' CITY OF RALEIGH SANITARY SEWER EASEMENT (CORSSE)
10'x70' SIGHT TRIANGLE
10'x25' BORE PIT
10'x10' RECEIVING PIT
BORE & JACK SEE PROFILE FOR DETAILS
12" GV. AT R/W
16"x12" CUT IN TEE
12" GV.
4:1 TAPER TO BOC
SHED
WELL
CONTRACTOR TO SUPPORT UTILITY POLE DURING CONSTR.
NOTE:
CONTRACTOR TO CUT & PATCH EXISTING ASPHALT PER TOWN OF KNIGHTDALE AND NCDOT STANDARDS. CONTRACTOR TO PERFORM TRAFFIC CONTROL PER NCDOT STANDARDS. SEE DETAILS.
40' 0 20' 40'
SCALE 1 inch = 40 ft



MINGO BLUFF BLVD PROFILE

CITY OF RALEIGH STANDARD UTILITY NOTES (as applicable):

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH RALEIGH WATER DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: RALEIGH WATER HANDBOOK, CURRENT EDITION
2. UTILITY SEPARATION REQUIREMENTS:
   a. A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
   b. WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR.ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER
   c. WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
   d. 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
   e. MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
   f. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY RALEIGH WATER PRIOR TO CONSTRUCTION
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO RALEIGH WATER
6. SEWER BYPASS PUMPING - A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE RALEIGH WATER HANDBOOK.
7. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE
9. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
10. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT
11. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER
12. ANY WATER OR SEWER SERVICES ON PRIVATE PROPERTY THAT WILL BE INSTALLED UNDER CONSTRUCTION DRAWINGS MAY REQUIRE A PLUMBING UTILITY PERMIT IN THE CITY OF RALEIGH
13. INSTALL SEWER SERVICES WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED PER THE CURRENT NC PLUMBING CODE
14. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
15. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
16. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION
17. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.
18. CROSS-CONNECTION REQUIREMENTS:
   a. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTHC AROLINA
   b. THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST
   c. THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA
   d. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH, INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION
19. NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN $250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS
20. PRIVATE SUB-METERING - NO RESALE OF WATER SHALL OCCUR WITHOUT APPROVAL OF THE NORTH CAROLINA UTILITY COMMISSION. SUB-METERING SHALL BE IN ACCORDANCE WITH SECTION 1400 OF THE "SAFE DRINKING WATER ACT"

RESIDENTIAL WATER & SEWER SERVICES SCHEMATIC

●	4" PVC (OR AS NOTED) SANITARY SEWER SERVICE LATERALS @ 1.1% MIN (TYP)
○	1" POLY TUBING WITH 5/8" DOMESTIC METER (OR AS NOTED) WATER SERVICE LATERAL (TYP)

SEE SURVEY SHEET FOR TBM
DRAWING FILE NO: FAISON-RECOM.DWG
DATE: OCTOBER 22, 2024

GENERAL CONTRACTOR

PRIOR TO BEGINNING ANY CONSTRUCTION, FIELD SURVEY VERIFY LOCATION, DEPTH, TYPE, SIZE, MATERIAL AND CONDITION OF ALL EXISTING UTILITIES IN THE WORK AREA. IN CASE OF DISCREPANCY OR CONFLICT, THEN NOTIFY ENGINEER.

40' 0 20' 40'
HORZ. SCALE 1 inch = 40 ft
VERT. SCALE 1 inch = 4 ft
8' 4' 2' 0

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493
STEPHEN J. BALLENTINE

Stephen Ballentine
Digitally signed by Stephen Ballentine
DN: C=US, E=sballentine@riversandassociates.com, O=Rivers and Associates, OU=Rivers and Associates, CN=Stephen Ballentine
Date: 2026.07.07 11:37:13-04'00'

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

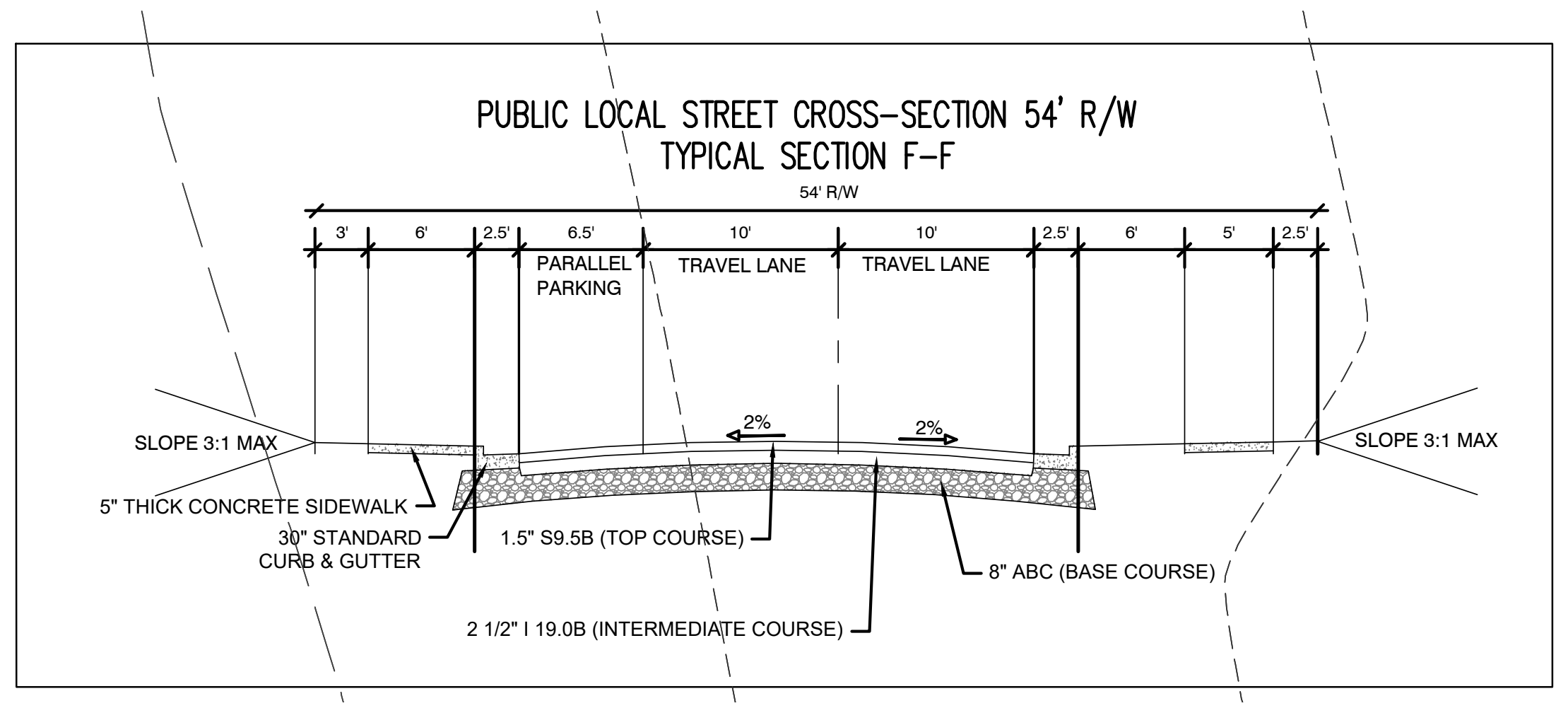
OLD FAISON PLACE

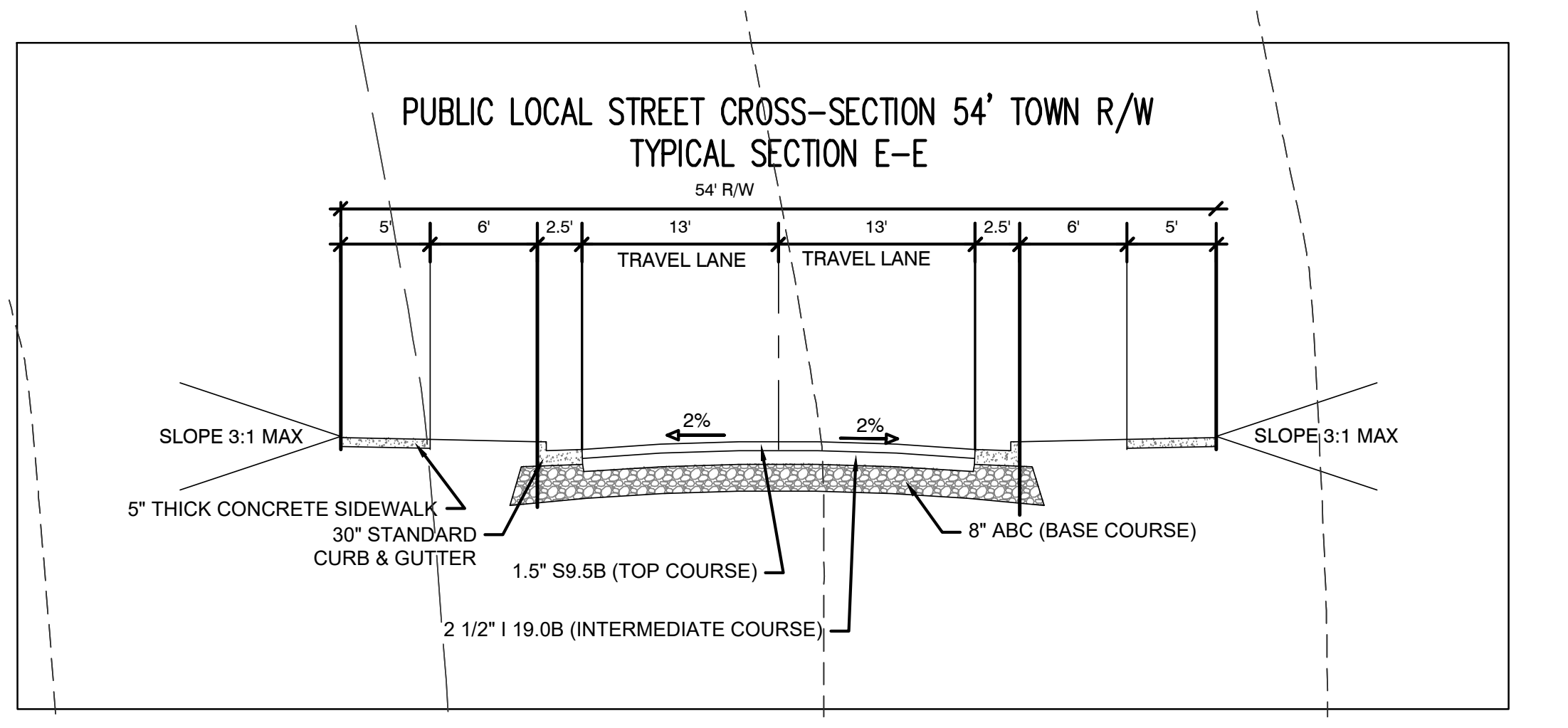
TOWN OF KNIGHTDALE – WAKE COUNTY – NORTH CAROLINA

MINGO BLUFF BLVD PLAN AND PROFILE

DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C4.03

Do Not Use for Construction - PRELIMINARY


PUBLIC LOCAL STREET CROSS-SECTION 54' R/W
TYPICAL SECTION F-F
54' R/W
3'
6'
2.5'
6.5'
10'
10'
2.5'
6'
5'
2.5'
PARALLEL PARKING
TRAVEL LANE
TRAVEL LANE
2%
2%
SLOPE 3:1 MAX
SLOPE 3:1 MAX
5" THICK CONCRETE SIDEWALK
30" STANDARD CURB & GUTTER
1.5" S9.5B (TOP COURSE)
8" ABC (BASE COURSE)
2 1/2" I 19.0B (INTERMEDIATE COURSE)


PUBLIC LOCAL STREET CROSS-SECTION 54' TOWN R/W
TYPICAL SECTION E-E
54' R/W
5'
6'
2.5'
13'
13'
2.5'
6'
5'
TRAVEL LANE
TRAVEL LANE
2%
2%
SLOPE 3:1 MAX
SLOPE 3:1 MAX
5" THICK CONCRETE SIDEWALK
30" STANDARD CURB & GUTTER
1.5" S9.5B (TOP COURSE)
8" ABC (BASE COURSE)
2 1/2" I 19.0B (INTERMEDIATE COURSE)

POSTED SPEED LIMIT = 20 MPH
DESIGN SPEED LIMIT = 25 MPH

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GENERAL CONTRACTOR
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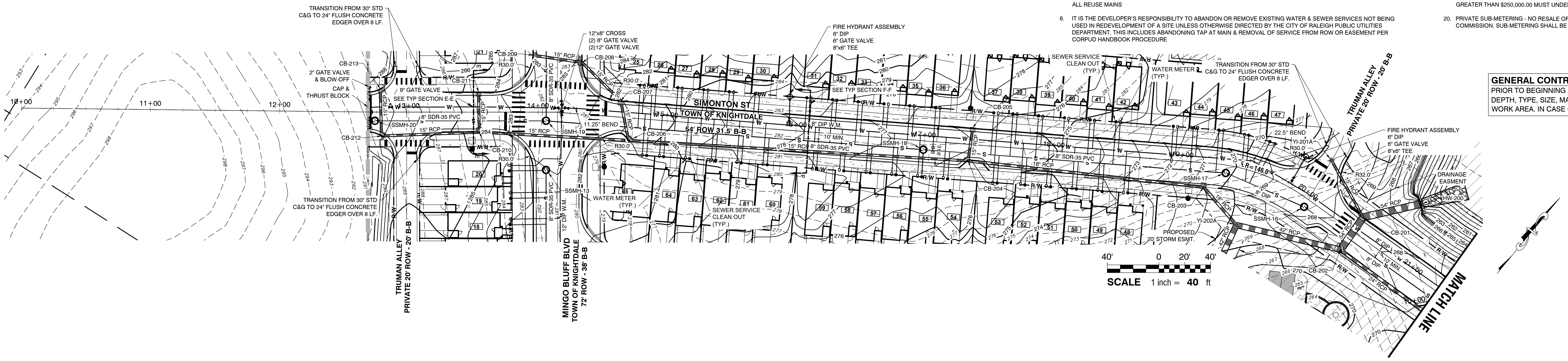
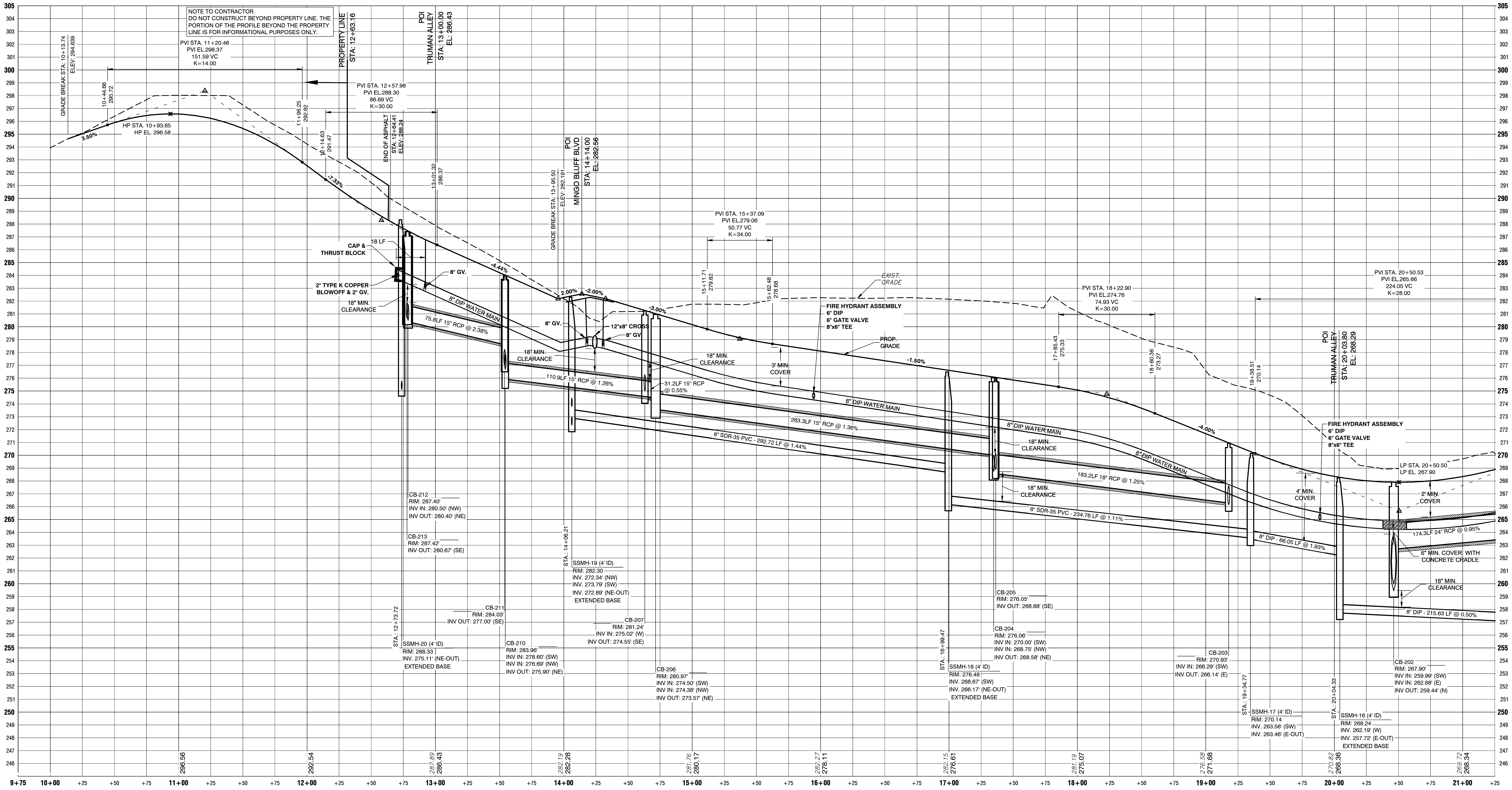
SEE SURVEY SHEET FOR TBM
DRAWING FILE NO: FAISON-RECOM.DWG
DATE: OCTOBER 22, 2024

RESIDENTIAL WATER & SEWER SERVICES SCHEMATIC

◉	4" PVC (OR AS NOTED) SANITARY SEWER SERVICE LATERALS @ 1.1% MIN (TYP)
o	1" POLY TUBING WITH 5/8" DOMESTIC METER (OR AS NOTED) WATER SERVICE LATERAL (TYP)


TRANSITION FROM 30" STD C&G TO 24" FLUSH CONCRETE EDGER OVER 8 LF.
CB-213
2" GATE VALVE & BLOW-OFF
CAP & THRUST BLOCK
CB-212
11+00
12+00
13+00
14+00
8" GATE VALVE
SEE TYP SECTION E-E
8" SDR-35 PVC
SSMH-20
15" RCP
CB-211
CB-210
CB-209
R30.0'
15" RCP
12"x8" CROSS
(2) 8" GATE VALVE
(2)12" GATE VALVE
CB-208
CB-207
CB-206
11.25° BEND
SSMH-19
SSMH-13
SIMONTON ST
TOWN OF KNIGHTDALE
54' ROW 31.5' B-B
WATER METER (TYP)
SEWER SERVICE CLEAN OUT (TYP.)
FIRE HYDRANT ASSEMBLY
6" DIP
6" GATE VALVE
8"x6" TEE
SEE TYP SECTION F-F
8" DIP W.M.
10' MIN.
8" SDR-35 PVC
18" RCP
SSMH-18
CB-205
CB-204
CB-203
PROPOSED 20' STORM ESMT.
SEWER SERVICE CLEAN OUT (TYP.)
WATER METER (TYP.)
TRANSITION FROM 30" STD C&G TO 24" FLUSH CONCRETE EDGER OVER 8 LF.
22.5° BEND
YI-201A
YI-202A
SSMH-17
SSMH-16
CB-202
CB-201
DRAINAGE EASMENT
FIRE HYDRANT ASSEMBLY
6" DIP
6" GATE VALVE
8"x6" TEE
TRUMAN ALLEY PRIVATE 20' ROW - 20' B-B
MINGO BLUFF BLVD TOWN OF KNIGHTDALE 72' ROW - 38' B-B
TRUMAN ALLEY PRIVATE 20' ROW - 20' B-B
MATCH LINE
40'
0
20'
40'
SCALE 1 inch = 40 ft


NOTE TO CONTRACTOR.
DO NOT CONSTRUCT BEYOND PROPERTY LINE. THE PORTION OF THE PROFILE BEYOND THE PROPERTY LINE IS FOR INFORMATIONAL PURPOSES ONLY.
GRADE BREAK STA: 10+13.74 ELEV: 294.639
PVI STA. 11+20.46 PVI EL.298.37 151.59 VC K=14.00
HP STA. 10+93.65 HP EL. 296.58
3.50%
-7.33%
PROPERTY LINE STA: 12+63.16
PVI STA. 12+57.98 PVI EL.288.30 86.69 VC K=30.00
END OF ASPHALT STA: 12+64.41 ELEV: 288.24
POI TRUMAN ALLEY STA: 13+00.00 EL: 286.43
CAP & THRUST BLOCK
18 LF
2" TYPE K COPPER BLOWOFF & 2" GV.
18" MIN. CLEARANCE
8" GV.
8" DIP WATER MAIN
75.8LF 15" RCP @ 2.38%
-4.44%
GRADE BREAK STA: 13+95.50 ELEV: 282.191
POI MINGO BLUFF BLVD STA: 14+14.00 EL: 282.56
2.00%
-2.00%
12"x8" CROSS
8" GV
110.9LF 15" RCP @ 1.26%
31.2LF 15" RCP @ 0.55%
-3.00%
PVI STA. 15+37.09 PVI EL.279.06 50.77 VC K=34.00
3' MIN. COVER
FIRE HYDRANT ASSEMBLY 6" DIP 6" GATE VALVE 8"x6" TEE
EXIST. GRADE
PROP. GRADE
-1.50%
263.3LF 15" RCP @ 1.36%
8" SDR-35 PVC - 292.72 LF @ 1.44%
PVI STA. 18+22.90 PVI EL.274.76 74.93 VC K=30.00
183.2LF 18" RCP @ 1.25%
8" SDR-35 PVC - 234.76 LF @ 1.11%
-4.00%
POI TRUMAN ALLEY STA: 20+03.80 EL: 268.29
PVI STA. 20+50.53 PVI EL.265.66 224.05 VC K=28.00
LP STA. 20+50.50 LP EL. 267.90
4' MIN. COVER
2' MIN. COVER
8" DIP - 66.05 LF @ 1.93%
174.3LF 24" RCP @ 0.95%
6" MIN. COVER WITH CONCRETE CRADLE
8" DIP - 215.63 LF @ 0.50%
CB-212 RIM: 287.40' INV IN: 280.50' (NW) INV OUT: 280.40' (NE)
CB-213 RIM: 287.42' INV OUT: 280.67' (SE)
SSMH-20 (4' ID) RIM: 288.33 INV. 275.11' (NE-OUT) EXTENDED BASE
CB-211 RIM: 284.03' INV OUT: 277.00' (SE)
CB-210 RIM: 283.96' INV IN: 278.60' (SW) INV IN: 276.69' (NW) INV OUT: 275.90' (NE)
SSMH-19 (4' ID) RIM: 282.30 INV. 272.34' (NW) INV. 273.79' (SW) INV. 272.89' (NE-OUT) EXTENDED BASE
CB-207 RIM: 281.24' INV IN: 275.02' (W) INV OUT: 274.55' (SE)
CB-206 RIM: 280.97' INV IN: 274.50' (SW) INV IN: 274.38' (NW) INV OUT: 273.57' (NE)
SSMH-18 (4' ID) RIM: 276.48 INV. 268.67' (SW) INV. 266.17' (NE-OUT) EXTENDED BASE
CB-205 RIM: 276.05' INV OUT: 268.88' (SE)
CB-204 RIM: 276.06' INV IN: 270.00' (SW) INV IN: 268.75' (NW) INV OUT: 268.58' (NE)
CB-203 RIM: 270.93' INV IN: 266.29' (SW) INV OUT: 266.14' (E)
SSMH-17 (4' ID) RIM: 270.14 INV. 263.56' (SW) INV. 263.46' (E-OUT)
SSMH-16 (4' ID) RIM: 268.24 INV. 262.19' (W) INV. 257.72' (E-OUT) EXTENDED BASE
CB-202 RIM: 267.90' INV IN: 259.99' (SW) INV IN: 262.68' (E) INV OUT: 259.44' (N)
9+75
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
305
300
295
290
285
280
275
270
265
260
255
250
246

SIMONTON ST PROFILE

40' 0 20' 40'
HORZ. SCALE 1 inch = 40 ft
VERT. SCALE 1 inch = 4 ft

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493
STEPHEN J. BALLENTINE

Stephen Ballentine
Digitally signed by Stephen Ballentine
DN: C=US, E=sballentine@riversandassociates.com, O=Rivers and Associates, OU=Rivers and Associates, CN=Stephen Ballentine
Date: 2026.07.07 11:37:14-04'00'

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

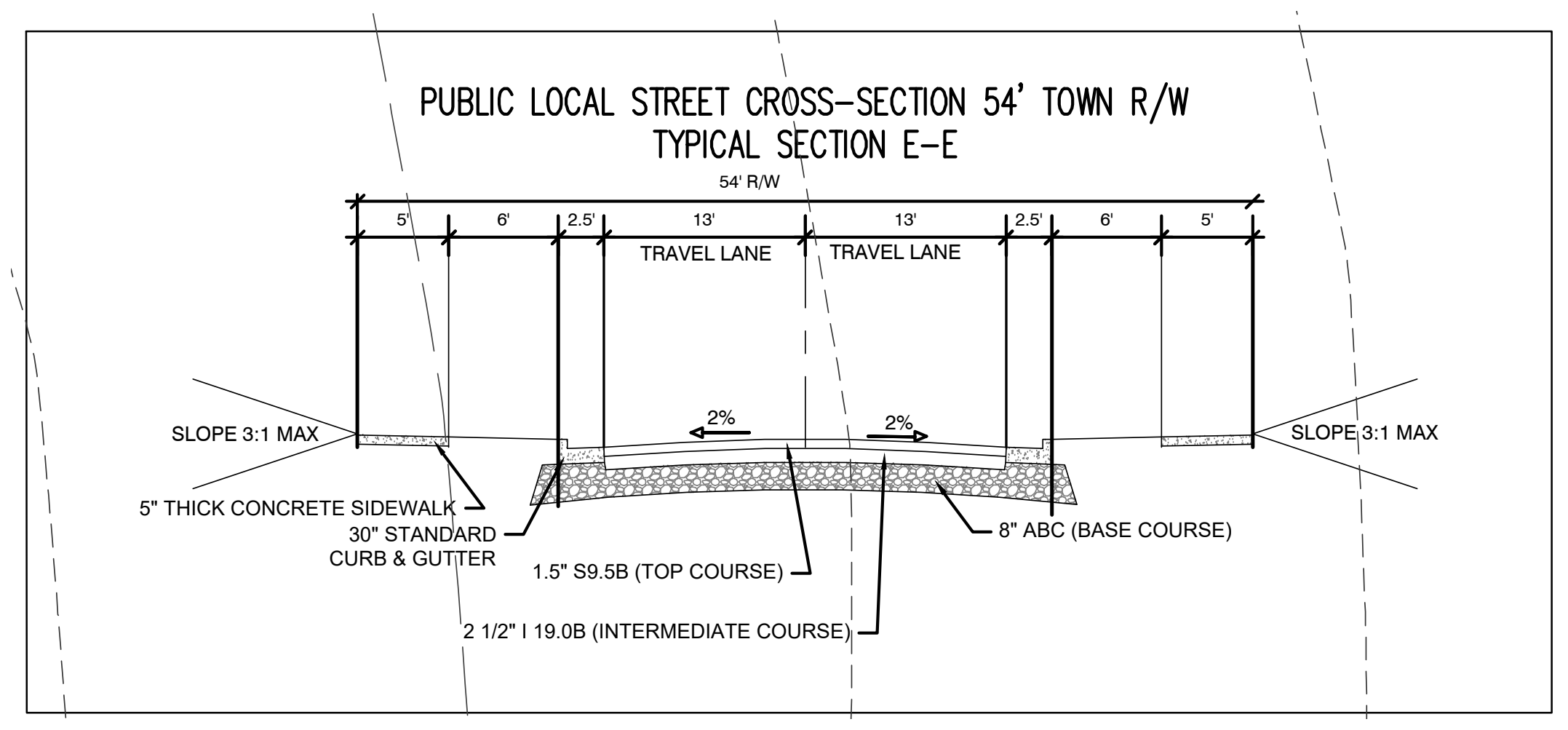
ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE – WAKE COUNTY – NORTH CAROLINA
SIMONTON ST PLAN AND PROFILE

DATE:

DESIGNED BY:	CS
DRAWN BY:	TAH
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN

SHEET No.
C4.04

Do Not Use for Construction - PRELIMINARY


PUBLIC LOCAL STREET CROSS-SECTION 54' TOWN R/W
TYPICAL SECTION E-E
54' R/W
5'
6'
2.5'
13'
13'
2.5'
6'
5'
TRAVEL LANE
TRAVEL LANE
2%
2%
SLOPE 3:1 MAX
SLOPE 3:1 MAX
5" THICK CONCRETE SIDEWALK
30" STANDARD CURB & GUTTER
1.5" S9.5B (TOP COURSE)
2 1/2" I 19.0B (INTERMEDIATE COURSE)
8" ABC (BASE COURSE)

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CITY OF RALEIGH STANDARD UTILITY NOTES (AS APPLICABLE):

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH RALEIGH WATER DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: RALEIGH WATER HANDBOOK, CURRENT EDITION

2. UTILITY SEPARATION REQUIREMENTS:
   a. A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
   b. WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR.ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER
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   e. MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
   f. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED

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6. SEWER BYPASS PUMPING - A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE RALEIGH WATER HANDBOOK.

7. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS

8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE

9. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE

10. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT

11. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER

12. ANY WATER OR SEWER SERVICES ON PRIVATE PROPERTY THAT WILL BE INSTALLED UNDER CONSTRUCTION DRAWINGS MAY REQUIRE A PLUMBING UTILITY PERMIT IN THE CITY OF RALEIGH

13. INSTALL SEWER SERVICES WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED PER THE CURRENT NC PLUMBING CODE

14. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE

15. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.

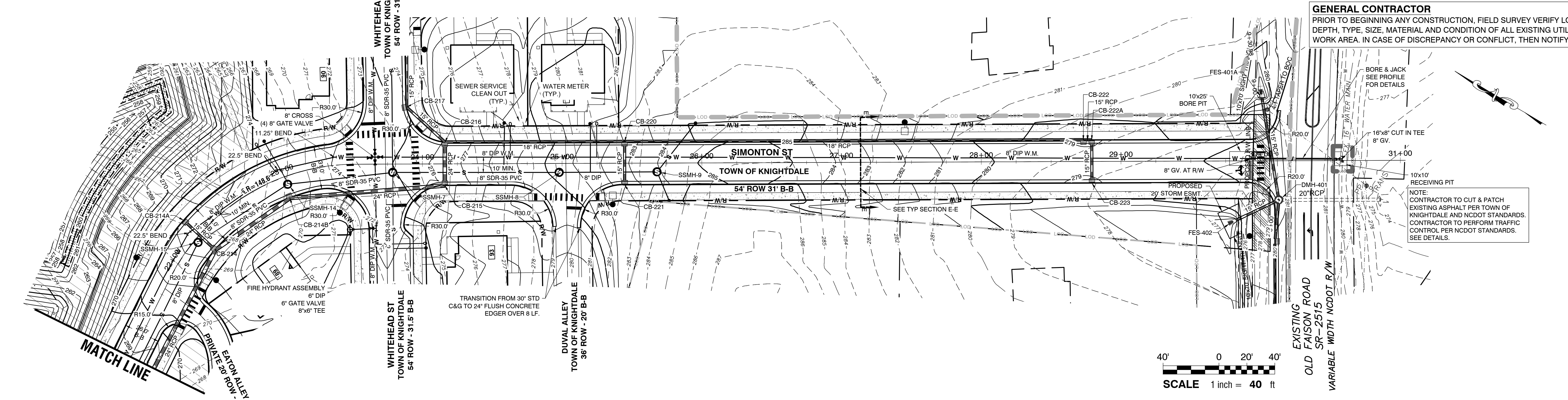
16. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION

17. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.

18. CROSS-CONNECTION REQUIREMENTS:
   a. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTHC AROLINA
   b. THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST
   c. THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA
   d. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH, INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION

19. NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN $250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS

20. PRIVATE SUB-METERING - NO RESALE OF WATER SHALL OCCUR WITHOUT APPROVAL OF THE NORTH CAROLINA UTILITY COMMISSION. SUB-METERING SHALL BE IN ACCORDANCE WITH SECTION 1400 OF THE "SAFE DRINKING WATER ACT"


WHITEHEAD ST
TOWN OF KNIGHTDALE
54' ROW - 31' B-B
WHITEHEAD ST
TOWN OF KNIGHTDALE
54' ROW - 31.5' B-B
DUVAL ALLEY
TOWN OF KNIGHTDALE
36' ROW - 20' B-B
PRIVATE EATON ALLEY
20' ROW - 20' B-B
MATCH LINE
SIMONTON ST
TOWN OF KNIGHTDALE
54' ROW 31' B-B
EXISTING OLD FAISON ROAD SR-2515
VARIABLE WIDTH NCDOT R/W
8" CROSS
(4) 8" GATE VALVE
11.25° BEND
22.5° BEND
22.5° BEND
R30.0'
R20.0'
R15.0'
R=148.6
8" DIP W.M.
8" SDR-35 PVC
10' MIN.
15" RCP
18" RCP
24" RCP
CB-214
CB-214A
CB-214B
CB-215
CB-216
CB-217
CB-220
CB-221
CB-222
CB-222A
CB-223
SSMH-7
SSMH-8
SSMH-9
SSMH-14
SSMH-15
SEWER SERVICE CLEAN OUT (TYP.)
WATER METER (TYP.)
FIRE HYDRANT ASSEMBLY
6" DIP
6" GATE VALVE
8"x6" TEE
TRANSITION FROM 30" STD C&G TO 24" FLUSH CONCRETE EDGER OVER 8 LF.
SEE TYP SECTION E-E
22+00
23+00
24+00
25+00
26+00
27+00
28+00
29+00
31+00
8" GV. AT R/W
PROPOSED 20' STORM ESMT.
FES-401A
FES-402
DMH-401
20"RCP
10'x25' BORE PIT
BORE & JACK SEE PROFILE FOR DETAILS
16"x8" CUT IN TEE
8" GV.
10'x10' RECEIVING PIT
EX. 16" WATER MAIN
10'x70' SIGHT TRIANGLE
TAPER TO BOC
LOD
R/W

NOTE:
CONTRACTOR TO CUT & PATCH EXISTING ASPHALT PER TOWN OF KNIGHTDALE AND NCDOT STANDARDS.
CONTRACTOR TO PERFORM TRAFFIC CONTROL PER NCDOT STANDARDS.
SEE DETAILS.

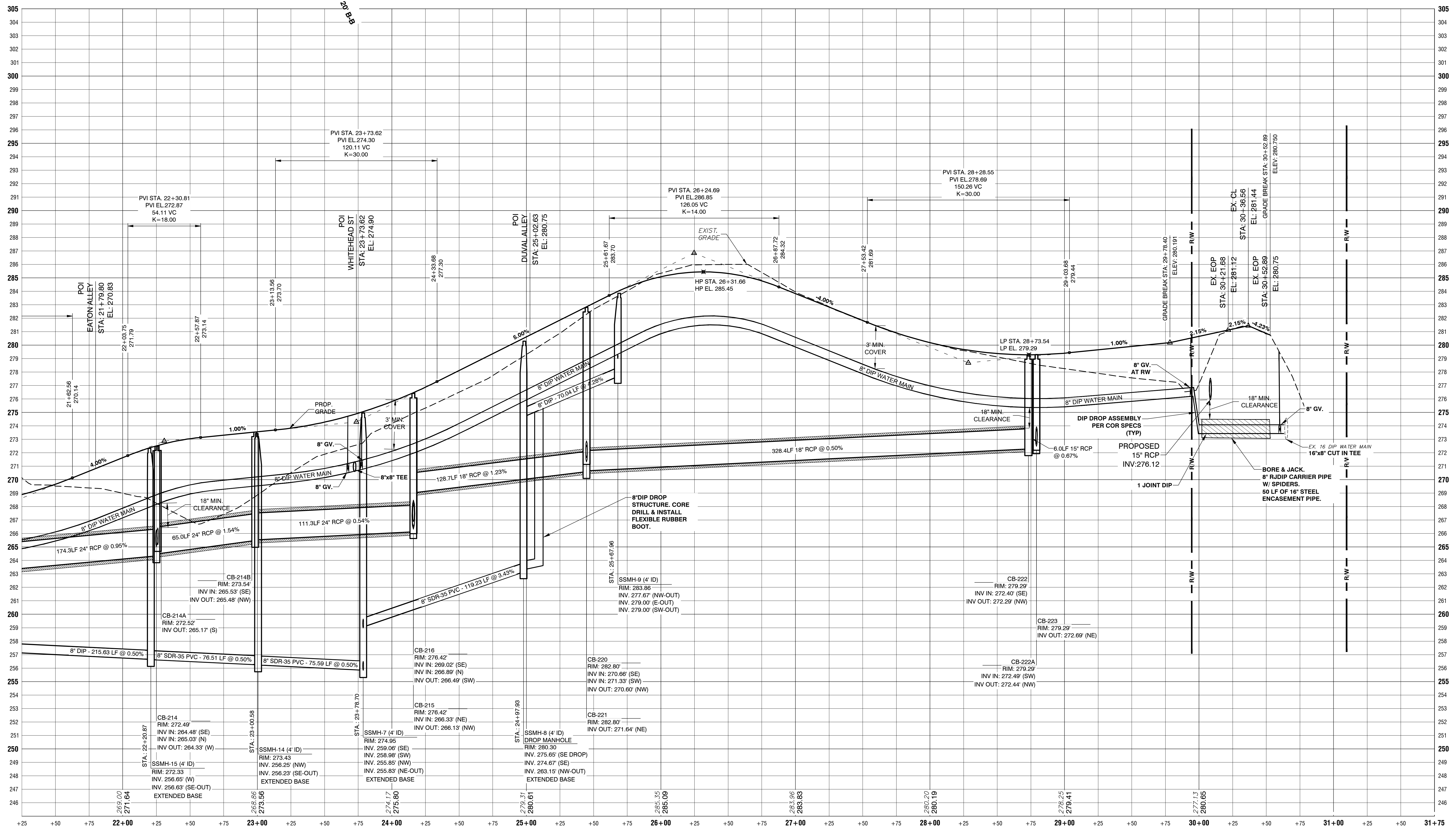
GENERAL CONTRACTOR
PRIOR TO BEGINNING ANY CONSTRUCTION, FIELD SURVEY VERIFY LOCATION, DEPTH, TYPE, SIZE, MATERIAL AND CONDITION OF ALL EXISTING UTILITIES IN THE WORK AREA. IN CASE OF DISCREPANCY OR CONFLICT, THEN NOTIFY ENGINEER.

RESIDENTIAL WATER & SEWER SERVICES SCHEMATIC

◉	4" PVC (OR AS NOTED) SANITARY SEWER SERVICE LATERALS @ 1.1% MIN (TYP)
o	1" POLY TUBING WITH 5/8" DOMESTIC METER (OR AS NOTED) WATER SERVICE LATERAL (TYP)

SEE SURVEY SHEET FOR TBM
DRAWING FILE NO: FAISON-RECOM.DWG
DATE: OCTOBER 22, 2024

40' 0 20' 40'
SCALE 1 inch = **40** ft


305
300
295
290
285
280
275
270
265
260
255
250
246
POI
EATON ALLEY
STA: 21+79.80
EL: 270.83
PVI STA. 22+30.81
PVI EL.272.87
54.11 VC
K=18.00
PVI STA. 23+73.62
PVI EL.274.30
120.11 VC
K=30.00
POI
WHITEHEAD ST
STA: 23+73.62
EL: 274.90
POI
DUVAL ALLEY
STA: 25+02.63
EL: 280.75
PVI STA. 26+24.69
PVI EL.286.85
126.05 VC
K=14.00
HP STA. 26+31.66
HP EL. 285.45
EXIST. GRADE
PROP. GRADE
PVI STA. 28+28.55
PVI EL.278.69
150.26 VC
K=30.00
LP STA. 28+73.54
LP EL. 279.29
GRADE BREAK STA: 29+78.40
ELEV: 280.191
EX. EOP
STA: 30+21.68
EL: 281.12
EX. CL
STA: 30+36.56
EL: 281.44
EX. EOP
STA: 30+52.89
EL: 280.75
GRADE BREAK STA: 30+52.89
ELEV: 280.750
4.00%
1.00%
5.00%
-4.00%
1.00%
2.15%
2.15%
-4.23%
3' MIN. COVER
18" MIN. CLEARANCE
8" GV.
8"x8" TEE
8" DIP WATER MAIN
8" DIP - 70.04 LF @ 4.28%
174.3LF 24" RCP @ 0.95%
65.0LF 24" RCP @ 1.54%
111.3LF 24" RCP @ 0.54%
128.7LF 18" RCP @ 1.23%
328.4LF 18" RCP @ 0.50%
6.0LF 15" RCP @ 0.67%
8" DIP - 215.63 LF @ 0.50%
8" SDR-35 PVC - 76.51 LF @ 0.50%
8" SDR-35 PVC - 75.59 LF @ 0.50%
8" SDR-35 PVC - 119.23 LF @ 3.43%
8"DIP DROP STRUCTURE. CORE DRILL & INSTALL FLEXIBLE RUBBER BOOT.
8" GV. AT RW
DIP DROP ASSEMBLY PER COR SPECS (TYP)
PROPOSED 15" RCP INV:276.12
1 JOINT DIP
BORE & JACK. 8" RJDIP CARRIER PIPE W/ SPIDERS. 50 LF OF 16" STEEL ENCASEMENT PIPE.
EX. 16 DIP WATER MAIN
16"x8" CUT IN TEE
R/W
CB-214B RIM: 273.54' INV IN: 265.53' (SE) INV OUT: 265.48' (NW)
CB-214A RIM: 272.52' INV OUT: 265.17' (S)
CB-214 RIM: 272.49' INV IN: 264.48' (SE) INV IN: 265.03' (N) INV OUT: 264.33' (W)
SSMH-15 (4' ID) RIM: 272.33 INV. 256.65' (W) INV. 256.63' (SE-OUT) EXTENDED BASE
SSMH-14 (4' ID) RIM: 273.43 INV. 256.25' (NW) INV. 256.23' (SE-OUT) EXTENDED BASE
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CB-216 RIM: 276.42' INV IN: 269.02' (SE) INV IN: 266.89' (N) INV OUT: 266.49' (SW)
CB-215 RIM: 276.42' INV IN: 266.33' (NE) INV OUT: 266.13' (NW)
SSMH-8 (4' ID) DROP MANHOLE RIM: 280.30 INV. 275.65' (SE DROP) INV. 274.67' (SE) INV. 263.15' (NW-OUT) EXTENDED BASE
CB-220 RIM: 282.80' INV IN: 270.66' (SE) INV IN: 271.33' (SW) INV OUT: 270.60' (NW)
CB-221 RIM: 282.80' INV OUT: 271.64' (NE)
SSMH-9 (4' ID) RIM: 283.86 INV. 277.67' (NW-OUT) INV. 279.00' (E-OUT) INV. 279.00' (SW-OUT)
CB-222 RIM: 279.29' INV IN: 272.40' (SE) INV OUT: 272.29' (NW)
CB-223 RIM: 279.29' INV OUT: 272.69' (NE)
CB-222A RIM: 279.29' INV IN: 272.49' (SW) INV OUT: 272.44' (NW)
STA.: 22+20.87
STA.: 23+00.58
STA.: 23+78.70
STA.: 24+97.93
STA.: 25+67.96
21+62.56 270.14
22+03.75 271.79
22+57.87 273.14
23+13.56 273.70
24+33.68 277.30
25+61.67 283.70
26+87.72 284.32
27+53.42 281.69
29+03.68 279.44
269.00 271.64
268.86 273.56
274.17 275.80
279.31 280.61
285.35 285.09
283.96 283.83
280.20 280.19
278.25 279.41
277.13 280.65
+25
22+00
23+00
24+00
25+00
26+00
27+00
28+00
29+00
30+00
31+00
31+75

SIMONTON ST PROFILE

40' 0 20' 40'
0 2' 4' 8'
HORZ. SCALE 1 inch = 40 ft
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Since 1918
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Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE – WAKE COUNTY – NORTH CAROLINA

SIMONTON ST PLAN AND PROFILE

DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN

SHEET No.
C4.05

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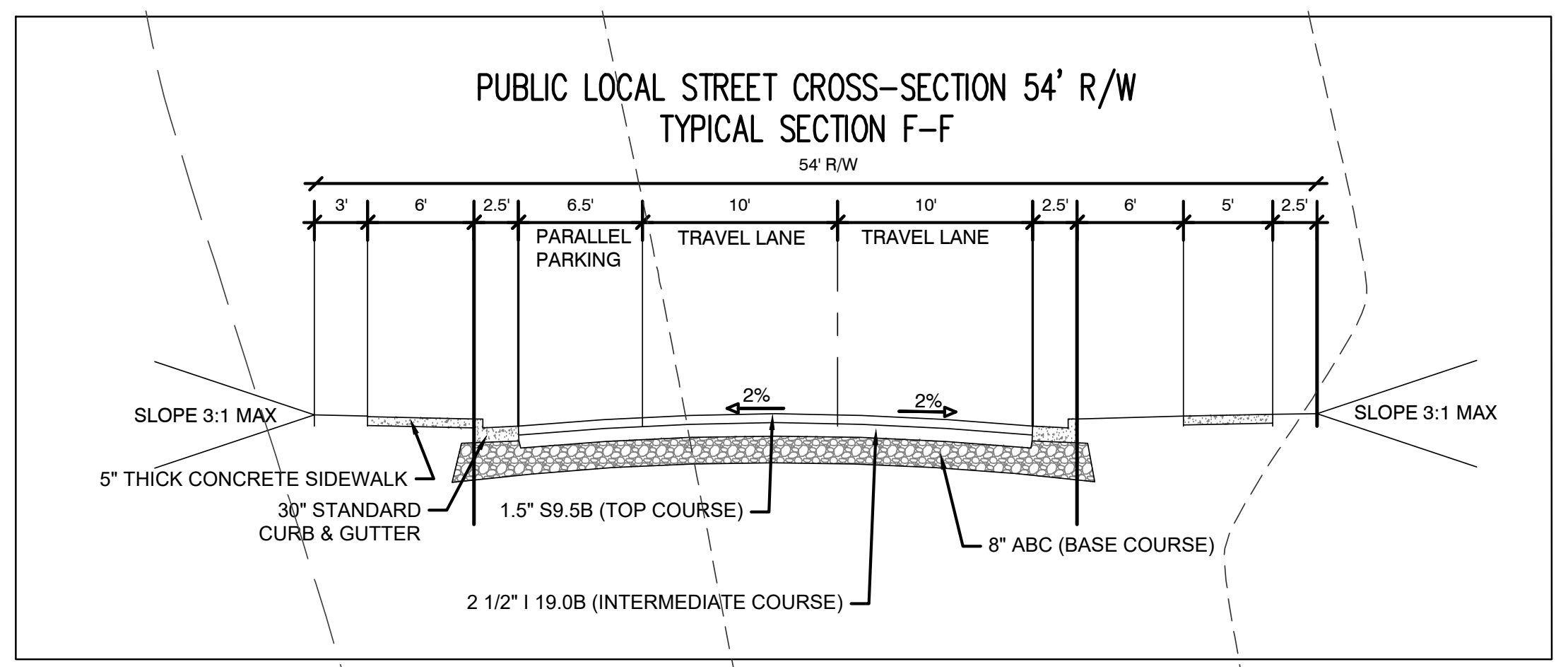
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TYPICAL SECTION F-F
54' R/W
3'
6'
2.5'
6.5'
10'
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PARALLEL PARKING
TRAVEL LANE
TRAVEL LANE
2%
2%
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5" THICK CONCRETE SIDEWALK
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5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO RALEIGH WATER

6. SEWER BYPASS PUMPING - A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE RALEIGH WATER HANDBOOK.

7. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS

8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE

9. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE

10. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT

11. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER

12. ANY WATER OR SEWER SERVICES ON PRIVATE PROPERTY THAT WILL BE INSTALLED UNDER CONSTRUCTION DRAWINGS MAY REQUIRE A PLUMBING UTILITY PERMIT IN THE CITY OF RALEIGH

13. INSTALL SEWER SERVICES WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED PER THE CURRENT NC PLUMBING CODE

14. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE

15. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.

16. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION

17. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.

18. CROSS-CONNECTION REQUIREMENTS:
   a. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTHC AROLINA
   b. THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST
   c. THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA
   d. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH, INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION

19. NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN $250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS

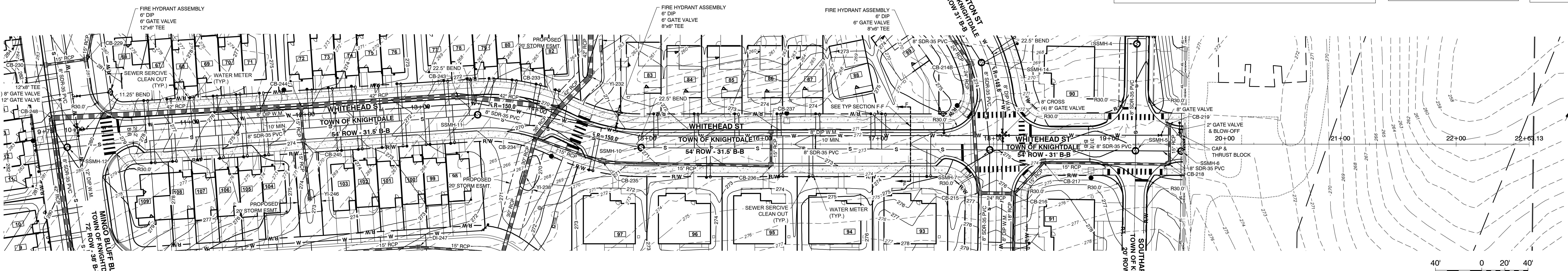
20. PRIVATE SUB-METERING - NO RESALE OF WATER SHALL OCCUR WITHOUT APPROVAL OF THE NORTH CAROLINA UTILITY COMMISSION. SUB-METERING SHALL BE IN ACCORDANCE WITH SECTION 1400 OF THE "SAFE DRINKING WATER ACT"

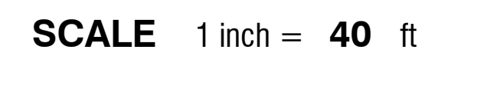
RESIDENTIAL WATER & SEWER SERVICES SCHEMATIC

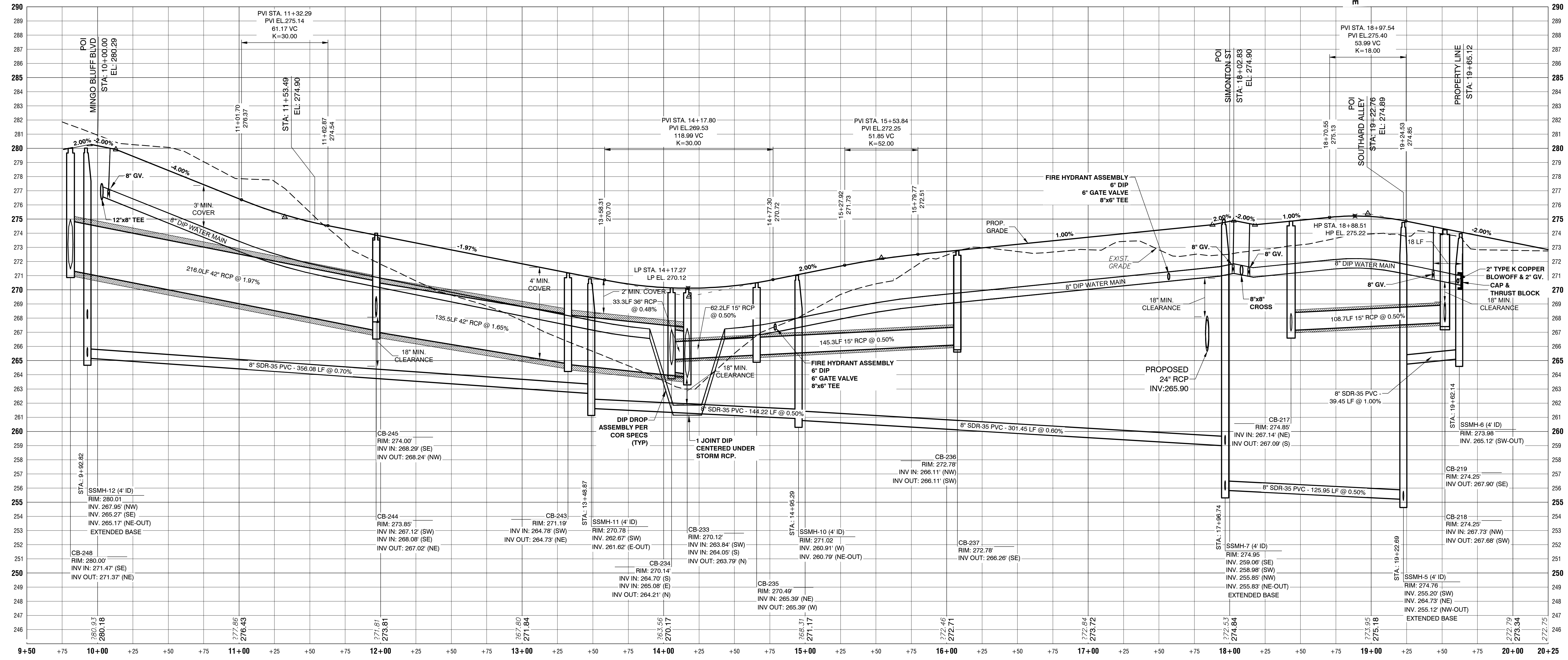
- ● 4" PVC (OR AS NOTED) SANITARY SEWER SERVICE LATERALS @ 1.1% MIN (TYP)
- ○ 1" POLY TUBING WITH 5/8" DOMESTIC METER (OR AS NOTED) WATER SERVICE LATERAL (TYP)

GENERAL CONTRACTOR
PRIOR TO BEGINNING ANY CONSTRUCTION, FIELD SURVEY VERIFY LOCATION, DEPTH, TYPE, SIZE, MATERIAL AND CONDITION OF ALL EXISTING UTILITIES IN THE WORK AREA. IN CASE OF DISCREPANCY OR CONFLICT, THEN NOTIFY ENGINEER.

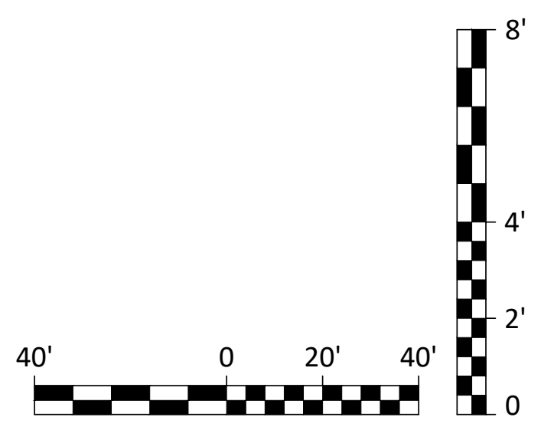
SEE SURVEY SHEET FOR TBM
DRAWING FILE NO: FAISON-RECOM.DWG
DATE: OCTOBER 22, 2024


WHITEHEAD ST
TOWN OF KNIGHTDALE
54' ROW - 31.5' B-B
SIMONTON ST
TOWN OF KNIGHTDALE
54' ROW 31' B-B
MINGO BLUFF BLVD
TOWN OF KNIGHTDALE
72' ROW - 38' B-B
SOUTHARD ALLEY
TOWN OF KNIGHTDALE
20' ROW 20' B-B
FIRE HYDRANT ASSEMBLY
6" DIP
6" GATE VALVE
12"x6" TEE
FIRE HYDRANT ASSEMBLY
6" DIP
6" GATE VALVE
8"x6" TEE
SEWER SERVICE CLEAN OUT (TYP.)
WATER METER (TYP.)
PROPOSED 20' STORM ESMT.
SEE TYP SECTION F-F
8" DIP W.M.
8" SDR-35 PVC
10' MIN.
22.5" BEND
11.25" BEND
(1) 8" GATE VALVE
(2) 12" GATE VALVE
12"x8" TEE
(4) 8" GATE VALVE
8" CROSS
2" GATE VALVE & BLOW-OFF
CAP & THRUST BLOCK
SSMH-4
SSMH-5
SSMH-6
SSMH-7
SSMH-10
SSMH-11
SSMH-12
SSMH-14
CB-215
CB-216
CB-217
CB-218
CB-219
CB-229
CB-230
CB-233
CB-234
CB-235
CB-236
CB-237
CB-243
CB-244
CB-245
CB-248
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
22+63.13


40'
0
20'
40'
SCALE 1 inch = 40 ft


POI
MINGO BLUFF BLVD
STA. 10+00.00
EL. 280.29
PVI STA. 11+32.29
PVI EL 275.14
61.17 VC
K=30.00
STA. 11+53.49
EL. 274.90
PVI STA. 14+17.80
PVI EL 269.53
118.99 VC
K=30.00
LP STA. 14+17.27
LP EL. 270.12
PVI STA. 15+53.84
PVI EL 272.25
51.85 VC
K=52.00
POI
SIMONTON ST
STA. 18+02.83
EL. 274.90
PVI STA. 18+97.54
PVI EL 275.40
53.99 VC
K=18.00
HP STA. 18+88.51
HP EL. 275.22
POI
SOUTHARD ALLEY
STA. 19+22.76
EL. 274.89
PROPERTY LINE
STA. 19+65.12
2.00%
-2.00%
-4.00%
-1.97%
2.00%
1.00%
-2.00%
8" GV.
12"x8" TEE
3' MIN. COVER
8" DIP WATER MAIN
216.0LF 42" RCP @ 1.97%
135.5LF 42" RCP @ 1.65%
4' MIN. COVER
2' MIN. COVER
33.3LF 36" RCP @ 0.48%
62.2LF 15" RCP @ 0.50%
145.3LF 15" RCP @ 0.50%
18" MIN. CLEARANCE
8" SDR-35 PVC - 356.08 LF @ 0.70%
8" SDR-35 PVC - 148.22 LF @ 0.50%
8" SDR-35 PVC - 301.45 LF @ 0.60%
8" SDR-35 PVC - 125.95 LF @ 0.50%
8" SDR-35 PVC - 39.45 LF @ 1.00%
108.7LF 15" RCP @ 0.50%
DIP DROP ASSEMBLY PER COR SPECS (TYP)
1 JOINT DIP CENTERED UNDER STORM RCP.
FIRE HYDRANT ASSEMBLY
6" DIP
6" GATE VALVE
8"x6" TEE
PROP. GRADE
EXIST. GRADE
PROPOSED 24" RCP INV:265.90
8"x8" CROSS
2" TYPE K COPPER BLOWOFF & 2" GV.
CAP & THRUST BLOCK
18 LF
CB-248 RIM: 280.00 INV IN: 271.47 (SE) INV OUT: 271.37' (NE)
SSMH-12 (4' ID) RIM: 280.01 INV IN: 267.95' (NW) INV. 265.27' (SE) INV. 265.17' (NE-OUT) EXTENDED BASE
CB-245 RIM: 274.00' INV IN: 268.29' (SE) INV OUT: 268.24' (NW)
CB-244 RIM: 273.85' INV IN: 267.12' (SW) INV IN: 268.08' (SE) INV OUT: 267.02' (NE)
CB-243 RIM: 271.19' INV IN: 264.78' (SW) INV OUT: 264.73' (NE)
SSMH-11 (4' ID) RIM: 270.78 INV IN: 262.67' (SW) INV. 261.62' (E-OUT)
CB-234 RIM: 270.14' INV IN: 264.70' (S) INV IN: 265.08' (E) INV OUT: 264.21' (N)
CB-233 RIM: 270.12' INV IN: 263.84' (SW) INV IN: 264.05' (S) INV OUT: 263.79' (N)
CB-235 RIM: 270.49' INV IN: 265.39' (SW) INV OUT: 265.39' (W)
SSMH-10 (4' ID) RIM: 271.02 INV IN: 260.91' (W) INV. 260.79' (NE-OUT)
CB-236 RIM: 272.78' INV IN: 266.11' (NW) INV OUT: 266.11' (SW)
CB-237 RIM: 272.78' INV OUT: 266.26' (SE)
CB-217 RIM: 274.85' INV IN: 267.14' (NE) INV OUT: 267.09' (S)
SSMH-7 (4' ID) RIM: 274.95 INV IN: 259.06' (SE) INV. 258.98' (SW) INV. 255.85' (NW) INV. 255.83' (NE-OUT) EXTENDED BASE
SSMH-6 (4' ID) RIM: 273.98 INV. 265.12' (SW-OUT)
CB-219 RIM: 274.25' INV OUT: 267.90' (SE)
CB-218 RIM: 274.25' INV IN: 267.73' (NW) INV OUT: 267.68' (SW)
SSMH-5 (4' ID) RIM: 274.76 INV. 255.20' (SW) INV. 264.73' (NE) INV. 255.12' (NW-OUT) EXTENDED BASE
9+50
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
20+25

WHITEHEAD ST PROFILE


8'
4'
2'
0
40'
0
20'
40'

HORZ. SCALE 1 inch = 40 ft
VERT. SCALE 1 inch = 4 ft

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 Standards Specifications of the Town of Knightdale.

By: ________________________ Date: ______________
Town Engineer

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

By: ________________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers
& ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

WHITEHEAD ST PLAN AND PROFILE

DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C4.06

Do Not Use for Construction - PRELIMINARY

CITY OF RALEIGH STANDARD UTILITY NOTES (AS APPLICABLE):

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH RALEIGH WATER DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: RALEIGH WATER HANDBOOK, CURRENT EDITION
2. UTILITY SEPARATION REQUIREMENTS:
    a. A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
    b. WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR.ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER
    c. WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
    d. 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
    e. MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
    f. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY RALEIGH WATER PRIOR TO CONSTRUCTION
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO RALEIGH WATER
6. SEWER BYPASS PUMPING - A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE RALEIGH WATER HANDBOOK.
7. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE
9. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
10. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT
11. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER
12. ANY WATER OR SEWER SERVICES ON PRIVATE PROPERTY THAT WILL BE INSTALLED UNDER CONSTRUCTION DRAWINGS MAY REQUIRE A PLUMBING UTILITY PERMIT IN THE CITY OF RALEIGH
13. INSTALL SEWER SERVICES WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED PER THE CURRENT NC PLUMBING CODE
14. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
15. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
16. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION
17. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.
18. CROSS-CONNECTION REQUIREMENTS:
    a. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTHC AROLINA
    b. THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST
    c. THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA
    d. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH, INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION
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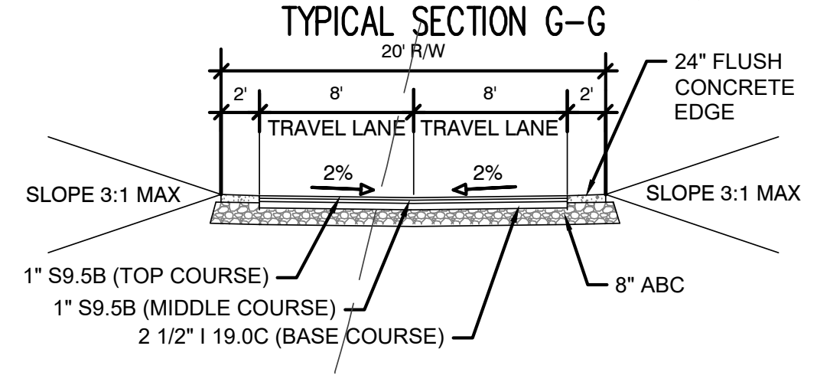
20. PRIVATE SUB-METERING - NO RESALE OF WATER SHALL OCCUR WITHOUT APPROVAL OF THE NORTH CAROLINA UTILITY COMMISSION. SUB-METERING SHALL BE IN ACCORDANCE WITH SECTION 1400 OF THE "SAFE DRINKING WATER ACT"

PRIVATE ALLEY CROSS-SECTION 20' R/W
TYPICAL SECTION G-G



POSTED SPEED LIMIT = 10 MPH
DESIGN SPEED LIMIT = 15 MPH

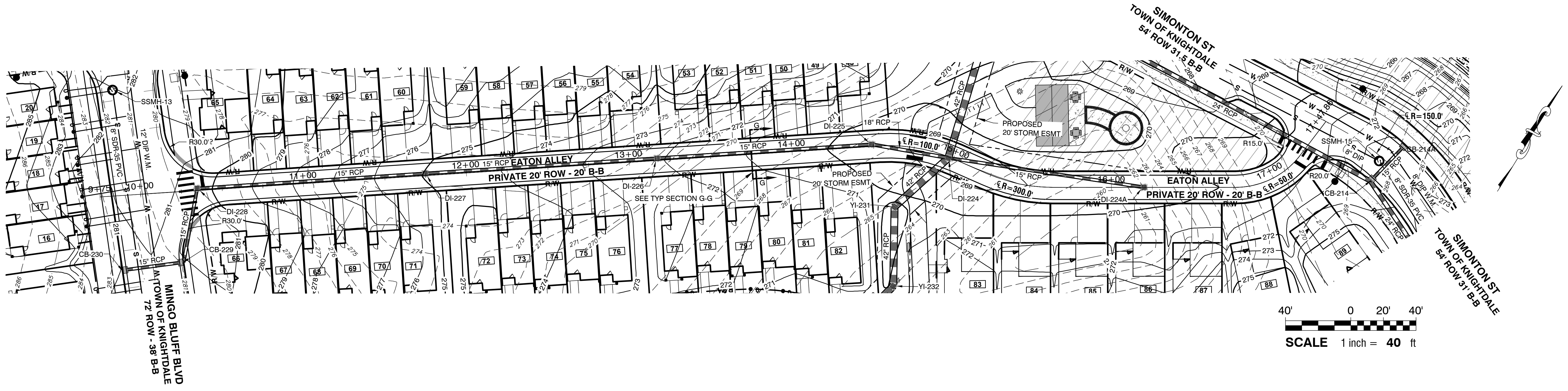
RESIDENTIAL WATER & SEWER SERVICES SCHEMATIC

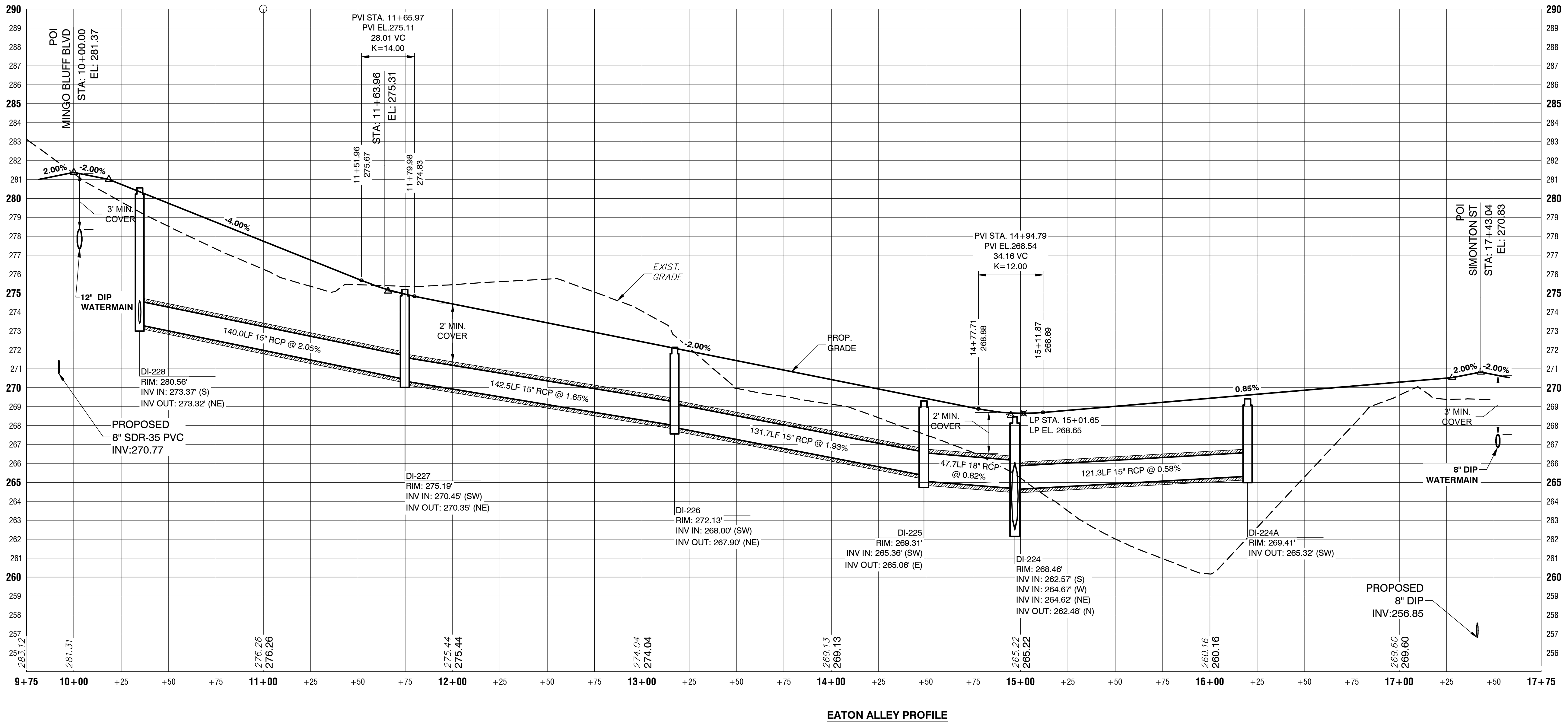
- ◉ 4" PVC (OR AS NOTED) SANITARY SEWER SERVICE LATERALS @ 1.1% MIN (TYP)
- o 1" POLY TUBING WITH 5/8" DOMESTIC METER (OR AS NOTED) WATER SERVICE LATERAL (TYP)

SEE SURVEY SHEET FOR TBM
DRAWING FILE NO: FAISON-RECOM.DWG
DATE: OCTOBER 22, 2024

GENERAL CONTRACTOR

PRIOR TO BEGINNING ANY CONSTRUCTION, FIELD SURVEY VERIFY LOCATION, DEPTH, TYPE, SIZE, MATERIAL AND CONDITION OF ALL EXISTING UTILITIES IN THE WORK AREA. IN CASE OF DISCREPANCY OR CONFLICT, THEN NOTIFY ENGINEER.





EATON ALLEY PROFILE

40' 0 20' 40'
8' 4' 2' 0
HORZ. SCALE 1 inch = 40 ft
VERT. SCALE 1 inch = 4 ft

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Rivers
& ASSOCIATES, INC.
Since 1918
riversandassociates.com
Engineers
Planners
Surveyors
Landscape Architects

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

SEAL 26493
STEPHEN J. BALLENTINE

Stephen Ballentine
Digitally signed by Stephen Ballentine
DN: C=US, E=sballentine@riversandassociates.com, O=Rivers and Associates, OU=Rivers and Associates, CN=Stephen Ballentine
Date: 2026.07.07 11:37:16-04'00'

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

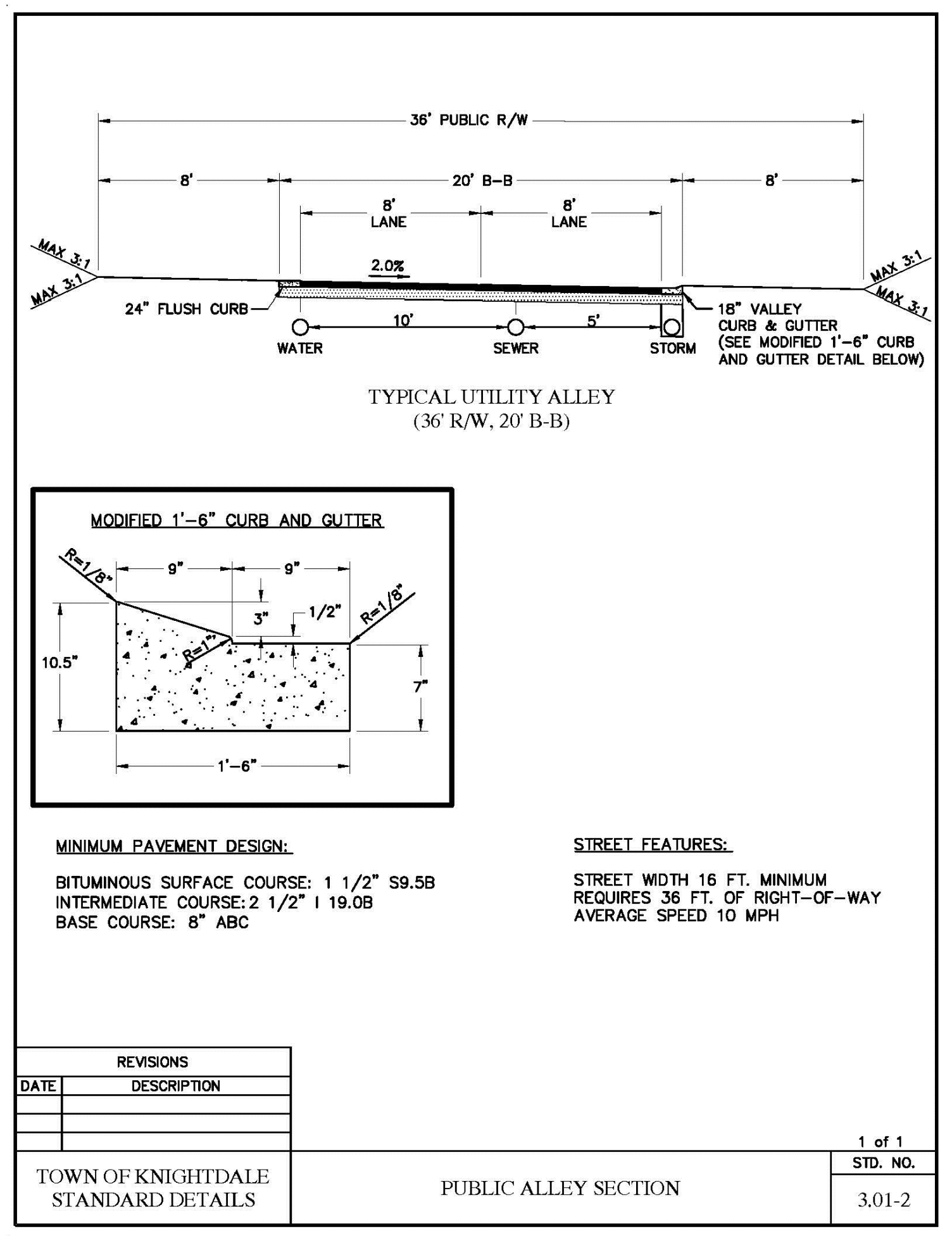
ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

EATON ALLEY PLAN AND PROFILE

DATE:
DESIGNED BY: CS
DRAWN BY: TAH
CHECKED BY: SJB
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.
C4.07

R:\LANDDEV\GLENWOOD_HOMES-OLD_FAISON_PLACE-2022113\CADD_DWG\SHEETS - CD SET\C4.07 EATON ALLEY PLAN AND PROFILE.DWG - EATON ALLEY PLAN AND PROFILE - 7/2/2026 9:44:34 AM - EDWIN NANCE

Do Not Use for Construction - PRELIMINARY


36' PUBLIC R/W
8'
20' B-B
8'
8' LANE
8' LANE
2.0%
MAX 3:1
24" FLUSH CURB
10'
5'
WATER
SEWER
STORM
18" VALLEY CURB & GUTTER (SEE MODIFIED 1'-6" CURB AND GUTTER DETAIL BELOW)
MODIFIED 1'-6" CURB AND GUTTER
R=1/8"
9"
3"
1/2"
R=1"
10.5"
7"
1'-6"
REVISIONS
DATE
DESCRIPTION
1 of 1
STD. NO.
3.01-2

TYPICAL UTILITY ALLEY
(36' R/W, 20' B-B)

MINIMUM PAVEMENT DESIGN:

BITUMINOUS SURFACE COURSE: 1 1/2" S9.5B
INTERMEDIATE COURSE: 2 1/2" I 19.0B
BASE COURSE: 8" ABC

STREET FEATURES:

STREET WIDTH 16 FT. MINIMUM
REQUIRES 36 FT. OF RIGHT-OF-WAY
AVERAGE SPEED 10 MPH

TOWN OF KNIGHTDALE STANDARD DETAILS
PUBLIC ALLEY SECTION

POSTED SPEED LIMIT = 10 MPH
DESIGN SPEED LIMIT = 15 MPH

CITY OF RALEIGH STANDARD UTILITY NOTES (AS APPLICABLE):

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH RALEIGH WATER DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: RALEIGH WATER HANDBOOK, CURRENT EDITION
2. UTILITY SEPARATION REQUIREMENTS:
   a. A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
   b. WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR.ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER
   c. WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
   d. 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
   e. MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
   f. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY RALEIGH WATER PRIOR TO CONSTRUCTION
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO RALEIGH WATER
6. SEWER BYPASS PUMPING - A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE RALEIGH WATER HANDBOOK.
7. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE
9. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
10. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT
11. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER
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15. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
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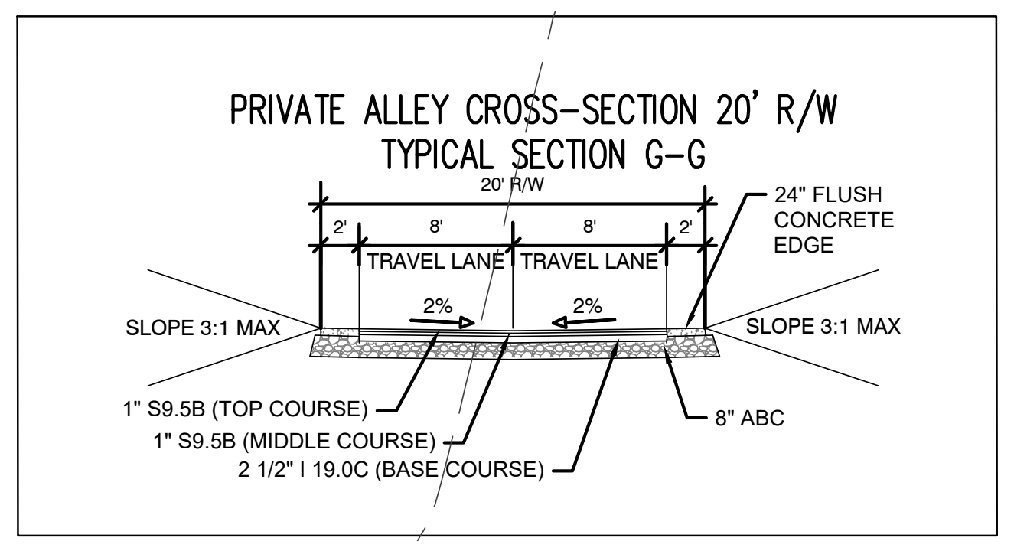
17. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.
18. CROSS-CONNECTION REQUIREMENTS:
   a. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTHC AROLINA
   b. THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST
   c. THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA
   d. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH, INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION
19. NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN $250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS
20. PRIVATE SUB-METERING - NO RESALE OF WATER SHALL OCCUR WITHOUT APPROVAL OF THE NORTH CAROLINA UTILITY COMMISSION. SUB-METERING SHALL BE IN ACCORDANCE WITH SECTION 1400 OF THE "SAFE DRINKING WATER ACT"


PRIVATE ALLEY CROSS-SECTION 20' R/W
TYPICAL SECTION G-G
20' R/W
2'
8'
8'
2'
TRAVEL LANE
TRAVEL LANE
2%
2%
SLOPE 3:1 MAX
SLOPE 3:1 MAX
24" FLUSH CONCRETE EDGE
1" S9.5B (TOP COURSE)
1" S9.5B (MIDDLE COURSE)
2 1/2" I 19.0C (BASE COURSE)
8" ABC

NOTE: ALLEY CROSS SLOPES SHALL DEVIATE AS NEEDED TO DRAIN INTO DROP INLETS WHERE SHOWN.

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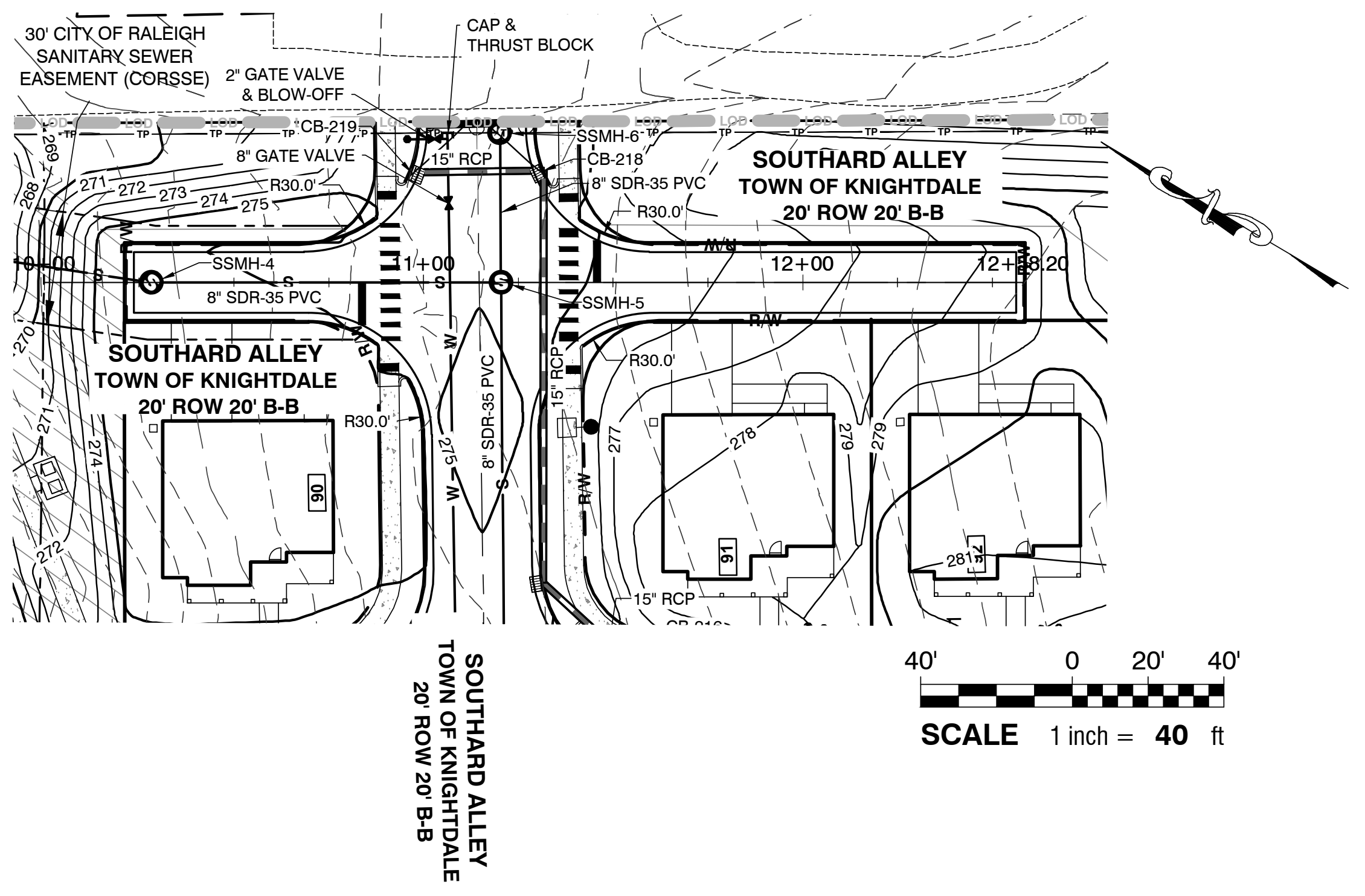
DESIGN SPEED LIMIT = 15 MPH

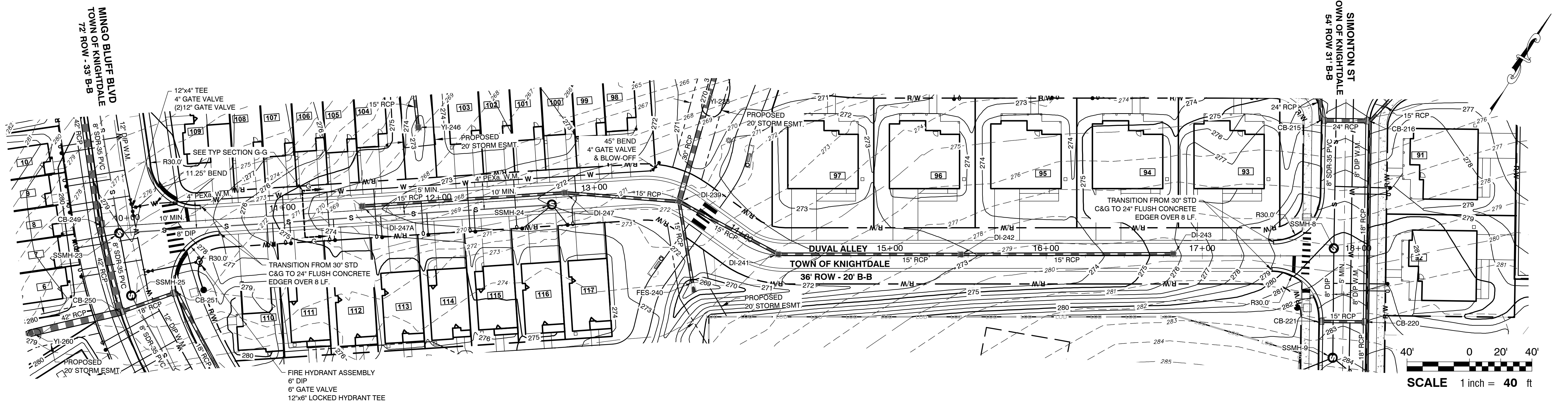
RESIDENTIAL WATER & SEWER SERVICES SCHEMATIC

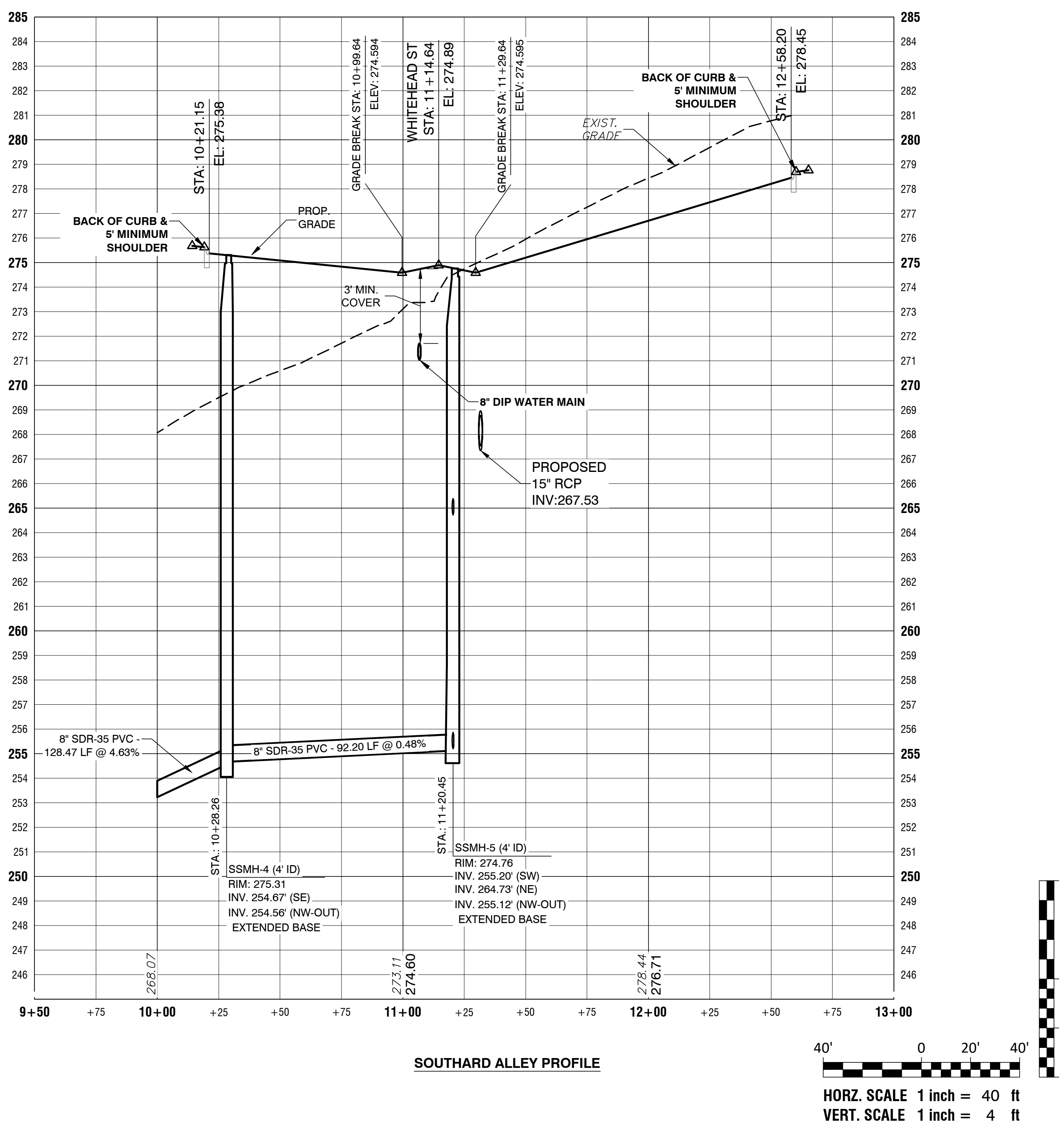
◉	4" PVC (OR AS NOTED) SANITARY SEWER SERVICE LATERALS @ 1.1% MIN (TYP)
o	1" POLY TUBING WITH 5/8" DOMESTIC METER (OR AS NOTED) WATER SERVICE LATERAL (TYP)

SEE SURVEY SHEET FOR TBM
DRAWING FILE NO: FAISON-RECOM.DWG
DATE: OCTOBER 22, 2024

GENERAL CONTRACTOR
PRIOR TO BEGINNING ANY CONSTRUCTION, FIELD SURVEY VERIFY LOCATION, DEPTH, TYPE, SIZE, MATERIAL AND CONDITION OF ALL EXISTING UTILITIES IN THE WORK AREA. IN CASE OF DISCREPANCY OR CONFLICT, THEN NOTIFY ENGINEER.

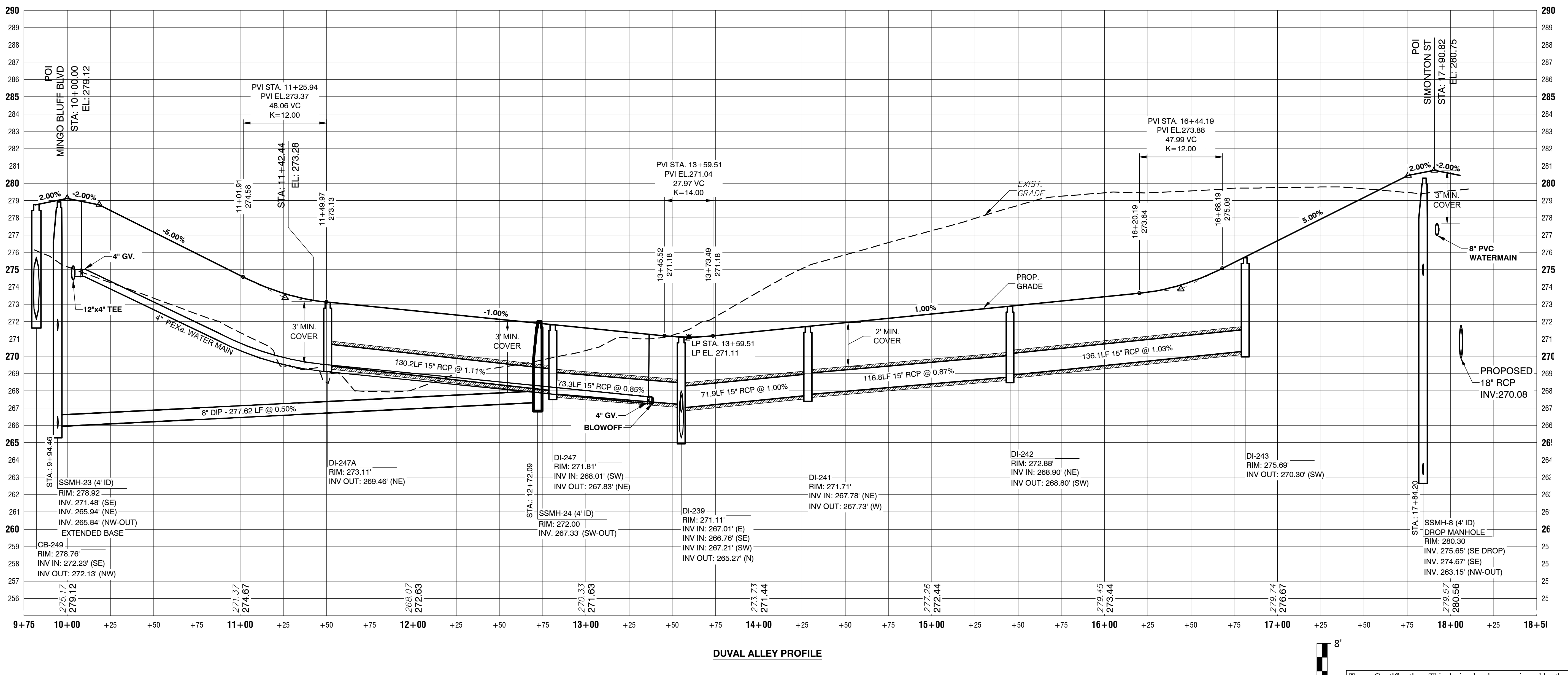

30' CITY OF RALEIGH SANITARY SEWER EASEMENT (CORSSE)
2" GATE VALVE & BLOW-OFF
CAP & THRUST BLOCK
6" GATE VALVE
CB-219
CB-218
SSMH-6
8" SDR-35 PVC
SSMH-4
SSMH-5
15" RCP
R30.0'
SOUTHARD ALLEY TOWN OF KNIGHTDALE 20' ROW 20' B-B
11+00
12+00
12+58.20
8" SDR-35 PVC
SOUTHARD ALLEY TOWN OF KNIGHTDALE 20' ROW 20' B-B
40' 0 20' 40'
SCALE 1 inch = 40 ft


MINGO BLUFF BLVD TOWN OF KNIGHTDALE 72' ROW - 53' B-B
SIMONTON ST TOWN OF KNIGHTDALE 54' ROW 31' B-B
12"x4" TEE
4" GATE VALVE
(2)12" GATE VALVE
SEE TYP SECTION G-G
11.25° BEND
4" PEXa
10' MIN.
5' MIN.
PROPOSED 20' STORM ESMT
45° BEND
4" GATE VALVE & BLOW-OFF
12+00
13+00
15+00
16+00
17+00
SSMH-24
SSMH-23
SSMH-25
SSMH-8
DI-247A
DI-247
DI-239
DI-241
DI-242
DI-243
CB-249
CB-250
CB-251
CB-215
CB-216
CB-220
CB-221
FES-240
Y-246
TRANSITION FROM 30" STD C&G TO 24" FLUSH CONCRETE EDGER OVER 8 LF.
DUVAL ALLEY TOWN OF KNIGHTDALE 36' ROW - 20' B-B
FIRE HYDRANT ASSEMBLY
6" DIP
6" GATE VALVE
12"x6" LOCKED HYDRANT TEE
15" RCP
18" RCP
24" RCP
R30.0'
40' 0 20' 40'
SCALE 1 inch = 40 ft


STA. 10+21.15
EL: 275.38
GRADE BREAK STA: 10+99.64 ELEV: 274.694
WHITEHEAD ST STA: 11+14.64 EL: 274.89
GRADE BREAK STA: 11+29.64 ELEV: 274.595
STA: 12+58.20 EL: 278.45
BACK OF CURB & 5' MINIMUM SHOULDER
BACK OF CURB & 5' MINIMUM SHOULDER
PROP. GRADE
EXIST. GRADE
3' MIN. COVER
8" DIP WATER MAIN
PROPOSED 15" RCP INV:267.53
8" SDR-35 PVC - 128.47 LF @ 4.63%
8" SDR-35 PVC - 92.20 LF @ 0.48%
STA. 10+28.26
SSMH-4 (4' ID)
RIM: 275.31
INV. 254.67' (SE)
INV. 254.56' (NW-OUT)
EXTENDED BASE
STA. 11+20.45
SSMH-5 (4' ID)
RIM: 274.76
INV. 255.20' (SW)
INV. 264.73' (NE)
INV. 255.12' (NW-OUT)
EXTENDED BASE
9+50
10+00
11+00
12+00
13+00
40' 0 20' 40'
8'
4'
2'
0

SOUTHARD ALLEY PROFILE

HORZ. SCALE 1 inch = 40 ft
VERT. SCALE 1 inch = 4 ft


POI MINGO BLUFF BLVD STA: 10+00.00 EL: 278.12
2.00%
-2.00%
-5.00%
4" GV.
12"x4" TEE
4" PEXa WATER MAIN
PVI STA. 11+25.94 PVI EL.273.37 48.06 VC K=12.00
STA. 11+42.44 EL: 273.28
3' MIN. COVER
130.2LF 15" RCP @ 1.11%
8" DIP - 277.62 LF @ 0.50%
-1.00%
73.3LF 15" RCP @ 0.85%
4" GV. BLOWOFF
PVI STA. 13+59.51 PVI EL.271.04 27.97 VC K=14.00
LP STA. 13+59.51 LP EL: 271.11
71.9LF 15" RCP @ 1.00%
1.00%
116.8LF 15" RCP @ 0.87%
2' MIN. COVER
PVI STA. 16+44.19 PVI EL.273.88 47.99 VC K=12.00
EXIST. GRADE
PROP. GRADE
5.00%
136.1LF 15" RCP @ 1.03%
POI SIMONTON ST STA: 17+90.82 EL: 280.75
2.00%
-2.00%
3' MIN. COVER
8" PVC WATERMAIN
PROPOSED 18" RCP INV:270.08
CB-249 RIM: 276.76' INV IN: 272.23' (SE) INV OUT: 272.13' (NW)
SSMH-23 (4' ID) RIM: 278.92 INV. 271.48' (SE) INV. 265.94' (NE) INV. 265.84' (NW-OUT) EXTENDED BASE
DI-247A RIM: 273.11' INV OUT: 269.46' (NE)
DI-247 RIM: 271.81' INV IN: 268.01' (SW) INV OUT: 267.83' (NE)
SSMH-24 (4' ID) RIM: 272.00 INV. 267.33' (SW-OUT)
DI-239 RIM: 271.11' INV IN: 267.01' (E) INV IN: 266.76' (SE) INV IN: 267.21' (SW) INV OUT: 265.27' (N)
DI-241 RIM: 271.71' INV IN: 267.78' (NE) INV OUT: 267.73' (W)
DI-242 RIM: 272.88' INV IN: 268.90' (NE) INV OUT: 268.80' (SW)
DI-243 RIM: 275.69' INV OUT: 270.30' (SW)
SSMH-8 (4' ID) DROP MANHOLE RIM: 280.30 INV. 275.65' (SE DROP) INV. 274.67' (SE) INV. 263.15' (NW-OUT)
9+75
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
18+50

DUVAL ALLEY PROFILE

8'
4'
2'
0
40' 0 20' 40'
HORZ. SCALE 1 inch = 40 ft
VERT. SCALE 1 inch = 4 ft

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC. Since 1918
riversandassociates.com
Engineers Planners Surveyors Landscape Architects

SEAL 26493
STEPHEN J. BALLENTINE
Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

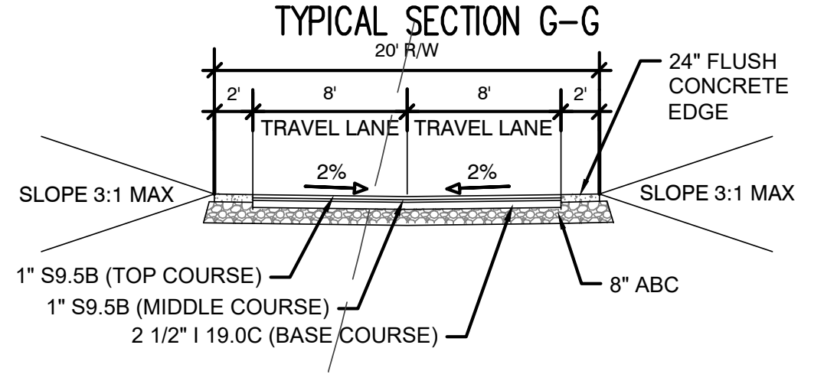
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

DUVAL ALLEY & SOUTHARD ALLEY PLAN AND PROFILE

DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C4.08

Do Not Use for Construction - PRELIMINARY

PRIVATE ALLEY CROSS-SECTION 20' R/W
TYPICAL SECTION G-G


20' R/W
2'
8'
8'
2'
TRAVEL LANE
TRAVEL LANE
2%
2%
24" FLUSH CONCRETE EDGE
SLOPE 3:1 MAX
SLOPE 3:1 MAX
1" S9.5B (TOP COURSE)
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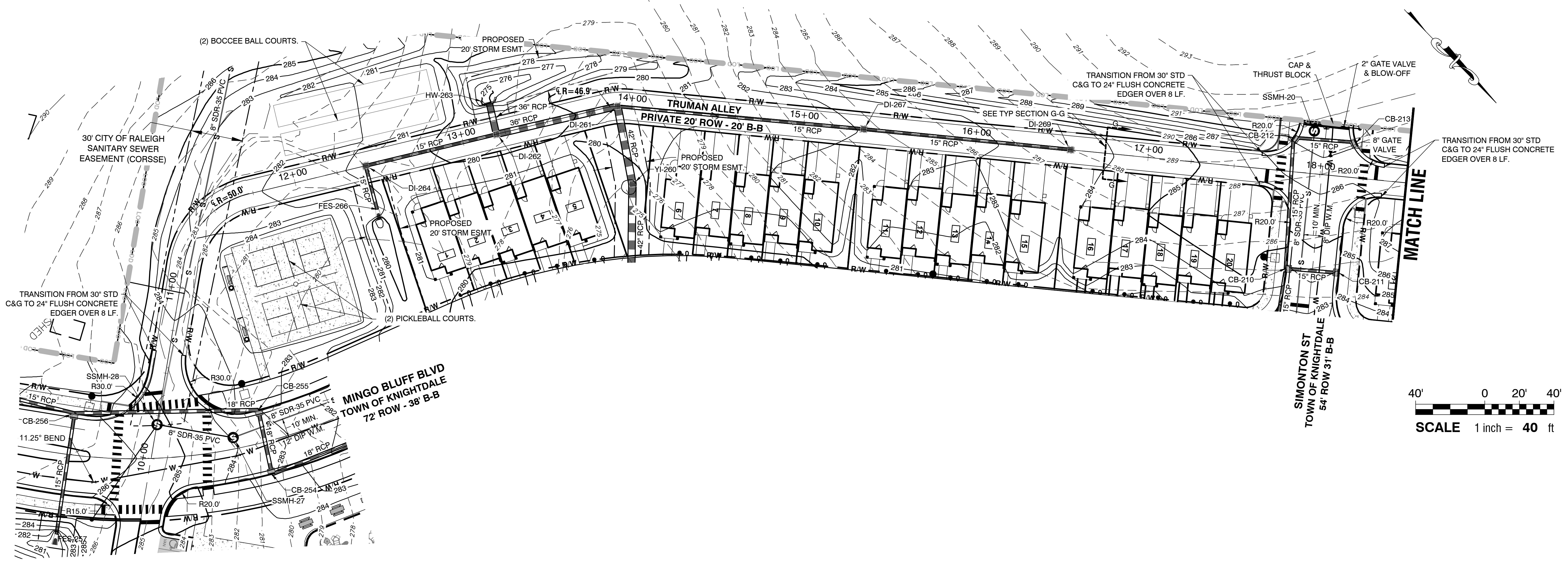

(2) BOCCEE BALL COURTS.
PROPOSED 20' STORM ESMT.
30' CITY OF RALEIGH SANITARY SEWER EASEMENT (CORSSE)
TRUMAN ALLEY
PRIVATE 20' ROW - 20' B-B
PROPOSED 20' STORM ESMT.
PROPOSED 20' STORM ESMT.
SEE TYP SECTION G-G
TRANSITION FROM 30' STD C&G TO 24" FLUSH CONCRETE EDGER OVER 8 LF.
CAP & THRUST BLOCK
2" GATE VALVE & BLOW-OFF
SSMH-20
CB-213
8" GATE VALVE
TRANSITION FROM 30' STD C&G TO 24" FLUSH CONCRETE EDGER OVER 8 LF.
MATCH LINE
(2) PICKLEBALL COURTS.
TRANSITION FROM 30' STD C&G TO 24" FLUSH CONCRETE EDGER OVER 8 LF.
SSMH-28
CB-256
11.25° BEND
CB-255
8" SDR-35 PVC
MINGO BLUFF BLVD
TOWN OF KNIGHTDALE
72' ROW - 38' B-B
CB-254
SSMH-27
SIMONTON ST
TOWN OF KNIGHTDALE
54' ROW 31' B-B
12+00
13+00
14+00
15+00
16+00
17+00
18+00
DI-264
DI-262
DI-261
DI-267
DI-269
CB-212
CB-210
CB-211
40'
0
20'
40'
SCALE 1 inch = 40 ft

RESIDENTIAL WATER & SEWER SERVICES SCHEMATIC

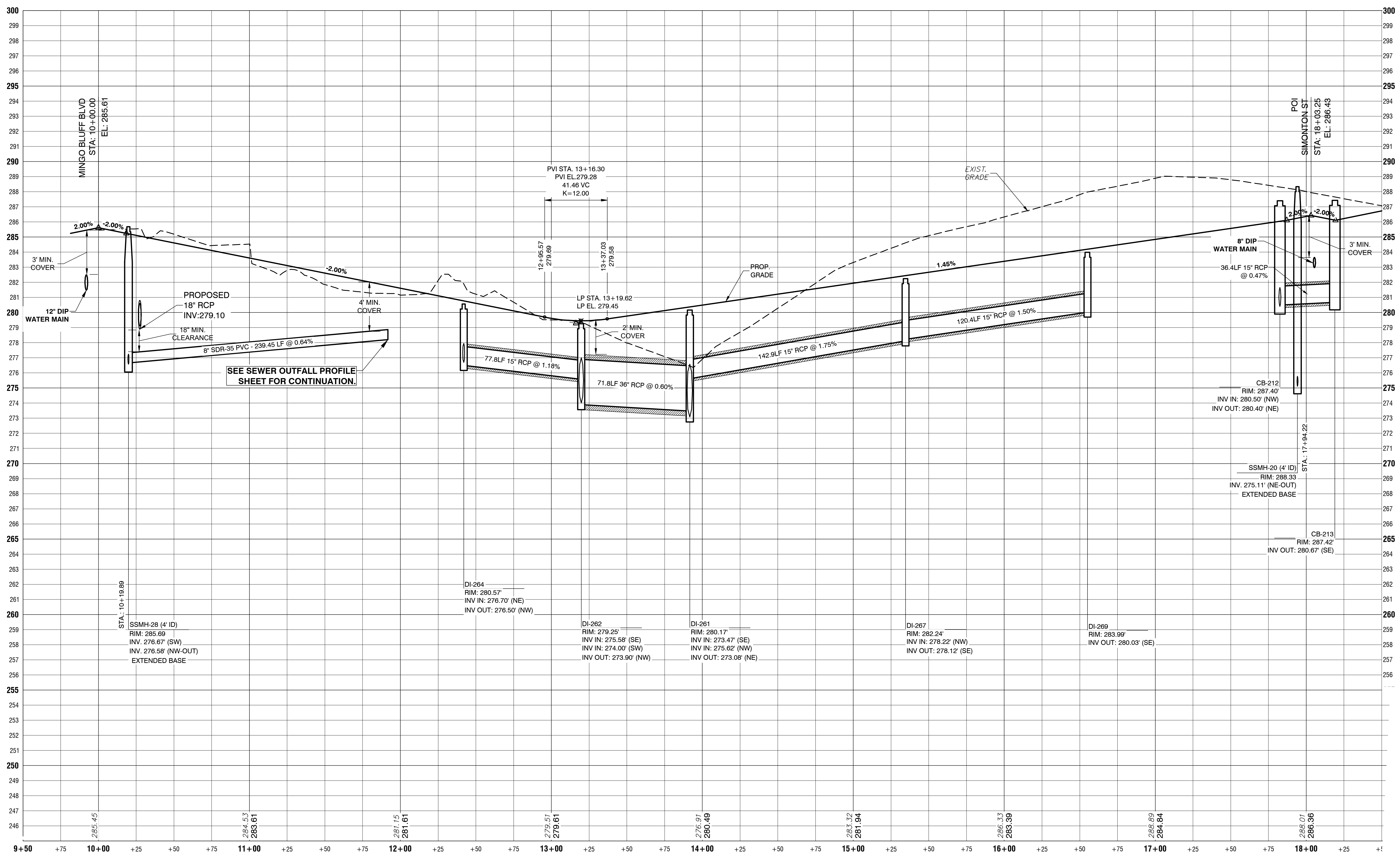
◉ 4" PVC (OR AS NOTED) SANITARY SEWER SERVICE LATERALS @ 1.1% MIN (TYP)

o 1" POLY TUBING WITH 5/8" DOMESTIC METER (OR AS NOTED) WATER SERVICE LATERAL (TYP)

SEE SURVEY SHEET FOR TBM
DRAWING FILE NO: FAISON-RECOM.DWG
DATE: OCTOBER 22, 2024

GENERAL CONTRACTOR

PRIOR TO BEGINNING ANY CONSTRUCTION, FIELD SURVEY VERIFY LOCATION, DEPTH, TYPE, SIZE, MATERIAL AND CONDITION OF ALL EXISTING UTILITIES IN THE WORK AREA. IN CASE OF DISCREPANCY OR CONFLICT, THEN NOTIFY ENGINEER.



TRUMAN ALLEY PROFILE

40' 0 20' 40'
8' 4' 2' 0
HORZ. SCALE 1 inch = 40 ft
VERT. SCALE 1 inch = 4 ft

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC. Since 1918
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Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493

REVISIONS:

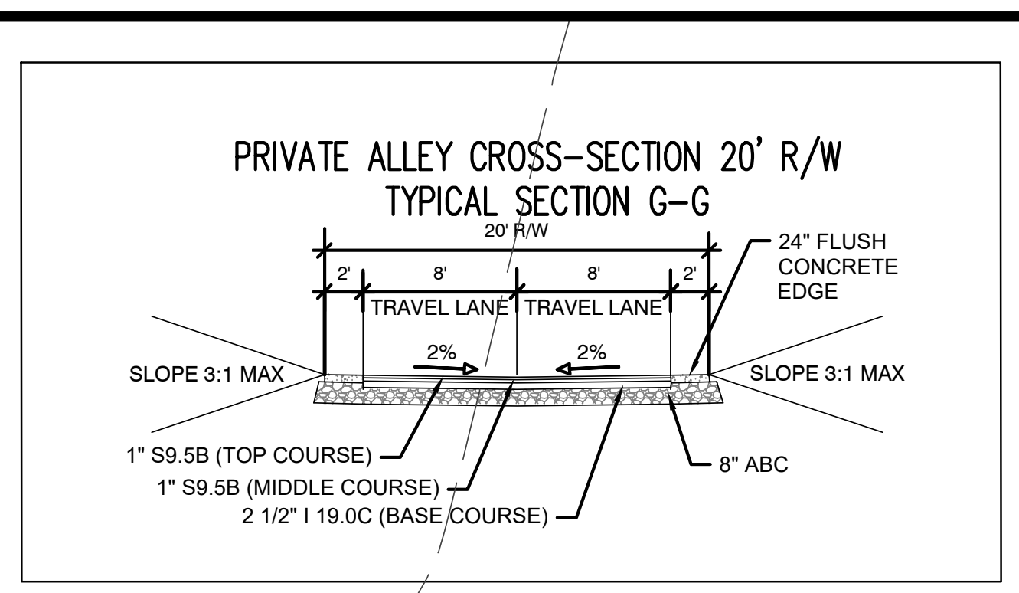
NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

TRUMAN ALLEY PLAN AND PROFILE

DATE:
DESIGNED BY: CS
DRAWN BY: TAH
CHECKED BY: SJB
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.
C4.09

Do Not Use for Construction - PRELIMINARY



POSTED SPEED LIMIT = 10 MPH
DESIGN SPEED LIMIT = 15 MPH

CITY OF RALEIGH STANDARD UTILITY NOTES (AS APPLICABLE):

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH RALEIGH WATER DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: RALEIGH WATER HANDBOOK, CURRENT EDITION
2. UTILITY SEPARATION REQUIREMENTS:
   a. A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
   b. WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR.ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER
   c. WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
   d. 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
   e. MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
   f. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY RALEIGH WATER PRIOR TO CONSTRUCTION
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO RALEIGH WATER
6. SEWER BYPASS PUMPING - A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE RALEIGH WATER HANDBOOK.
7. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE
9. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
10. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT
11. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER
12. ANY WATER OR SEWER SERVICES ON PRIVATE PROPERTY THAT WILL BE INSTALLED UNDER CONSTRUCTION DRAWINGS MAY REQUIRE A PLUMBING UTILITY PERMIT IN THE CITY OF RALEIGH
13. INSTALL SEWER SERVICES WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED PER THE CURRENT NC PLUMBING CODE
14. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
15. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
16. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION
17. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.
18. CROSS-CONNECTION REQUIREMENTS:
   a. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTHC AROLINA
   b. THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST
   c. THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA
   d. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH, INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION
19. NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN $250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS
20. PRIVATE SUB-METERING - NO RESALE OF WATER SHALL OCCUR WITHOUT APPROVAL OF THE NORTH CAROLINA UTILITY COMMISSION. SUB-METERING SHALL BE IN ACCORDANCE WITH SECTION 1400 OF THE "SAFE DRINKING WATER ACT"

RESIDENTIAL WATER & SEWER SERVICES SCHEMATIC

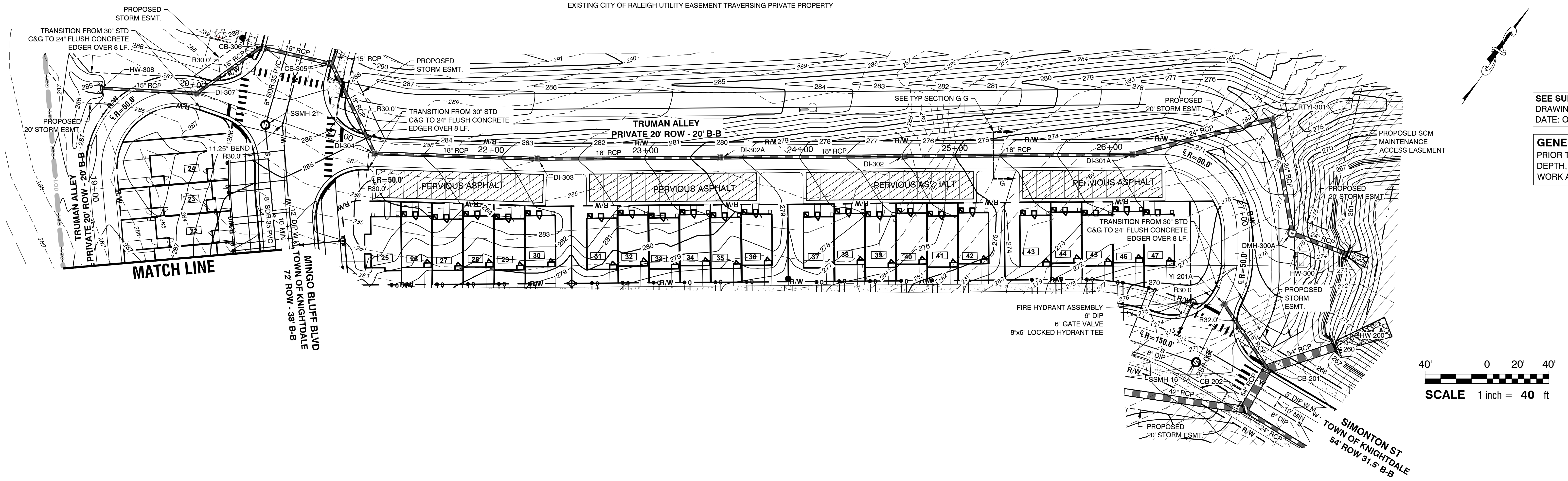
◉ 4" PVC (OR AS NOTED) SANITARY SEWER SERVICE LATERALS @ 1.1% MIN (TYP)

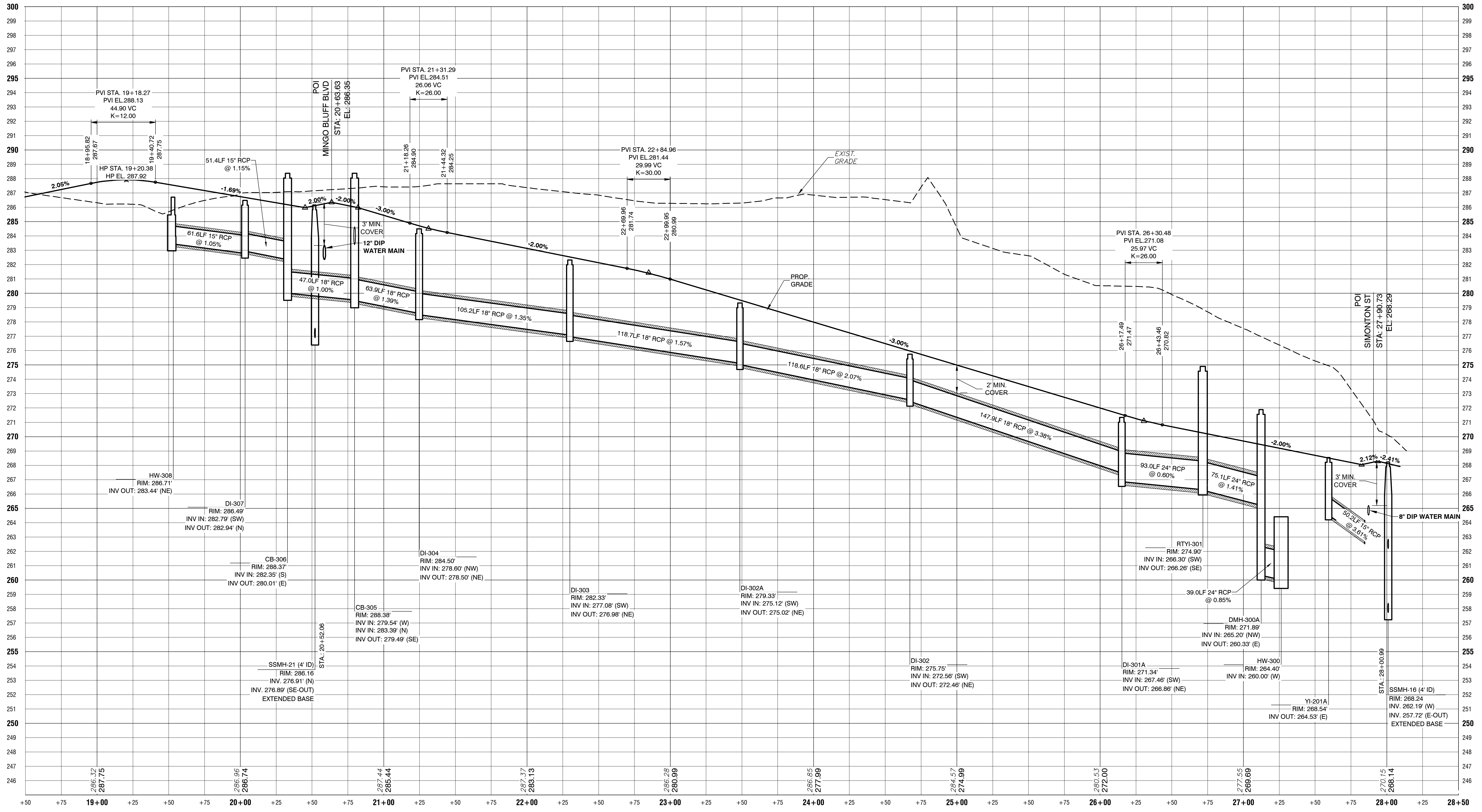
o 1" POLY TUBING WITH 5/8" DOMESTIC METER (OR AS NOTED) WATER SERVICE LATERAL (TYP)

SEE SURVEY SHEET FOR TBM
DRAWING FILE NO: FAISON-RECOM.DWG
DATE: OCTOBER 22, 2024

GENERAL CONTRACTOR

PRIOR TO BEGINNING ANY CONSTRUCTION, FIELD SURVEY VERIFY LOCATION, DEPTH, TYPE, SIZE, MATERIAL AND CONDITION OF ALL EXISTING UTILITIES IN THE WORK AREA. IN CASE OF DISCREPANCY OR CONFLICT, THEN NOTIFY ENGINEER.





TRUMAN ALLEY PROFILE

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 Standards Specifications of the Town of Knightdale.

By: ________________________ Date: _______________
Town Engineer

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

By: ________________________ Date: _______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

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& ASSOCIATES, INC.
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Engineers
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SEAL 26493

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

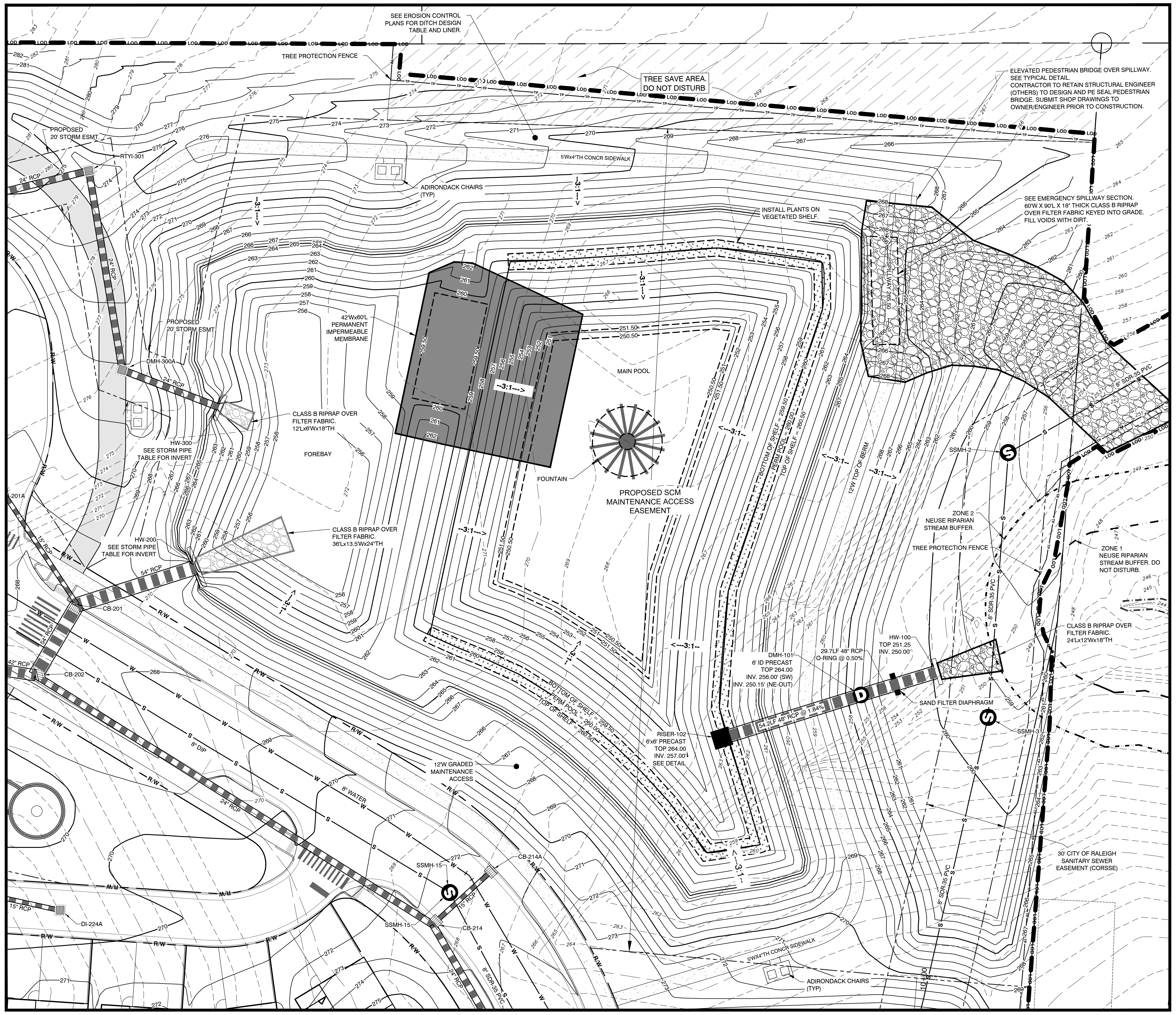
OLD FAISON PLACE

TOWN OF KNIGHTDALE – WAKE COUNTY – NORTH CAROLINA

TRUMAN ALLEY PLAN AND PROFILE

DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C4.10

Do Not Use for Construction - PRELIMINARY

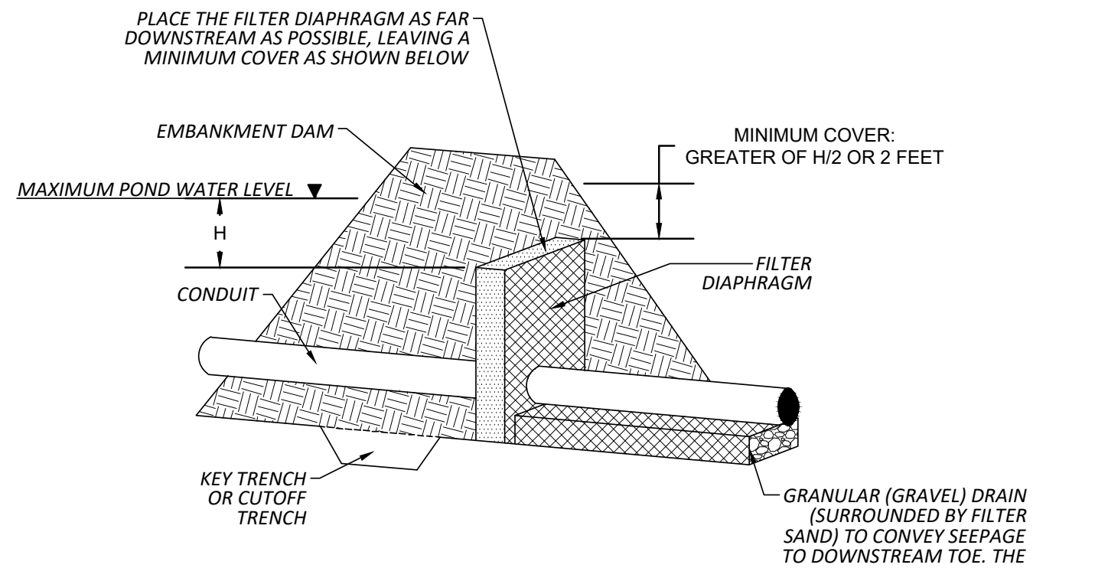

SEE EROSION CONTROL PLANS FOR DITCH DESIGN TABLE AND LINER.
TREE PROTECTION FENCE
TREE SAVE AREA. DO NOT DISTURB
ELEVATED PEDESTRIAN BRIDGE OVER SPILLWAY. SEE TYPICAL DETAIL. CONTRACTOR TO RETAIN STRUCTURAL ENGINEER (OTHERS) TO DESIGN AND PE SEAL PEDESTRIAN BRIDGE. SUBMIT SHOP DRAWINGS TO OWNER/ENGINEER PRIOR TO CONSTRUCTION.
PROPOSED 20' STORM ESMT
RTYI-301
5'Wx4"TH CONC SIDEWALK
ADIRONDACK CHAIRS (TYP)
SEE EMERGENCY SPILLWAY SECTION. 60'W X 90'L X 18" THICK CLASS B RIPRAP OVER FILTER FABRIC KEYED INTO GRADE. FILL VOIDS WITH DIRT.
INSTALL PLANTS ON VEGETATED SHELF.
PROPOSED 20' STORM ESMT
42"Wx80'L PERMANENT IMPERMEABLE MEMBRANE
DMH-300A
MAIN POOL
CLASS B RIPRAP OVER FILTER FABRIC. 12'Lx6'Wx18"TH
HW-300
SEE STORM PIPE TABLE FOR INVERT
FOREBAY
FOUNTAIN
PROPOSED SCM MAINTENANCE ACCESS EASEMENT
CLASS B RIPRAP OVER FILTER FABRIC. 36'Lx13.5'Wx24"TH
HW-200
SEE STORM PIPE TABLE FOR INVERT
ZONE 2 NEUSE RIPARIAN STREAM BUFFER.
ZONE 1 NEUSE RIPARIAN STREAM BUFFER. DO NOT DISTURB.
TREE PROTECTION FENCE
SSMH-2
CB-201
CB-202
HW-100 TOP 251.25 INV. 250.00'
CLASS B RIPRAP OVER FILTER FABRIC. 24'Lx12'Wx18"TH
DMH-101 6' ID PRECAST TOP 264.00 INV. 256.00' (SW) INV. 250.15' (NE OUT)
29.7LF 48" RCP O-RING @ 0.50%
SAND FILTER DIAPHRAGM
RISER-102 6'x6' PRECAST TOP 264.00 INV. 257.00' SEE DETAIL
12'W GRADED MAINTENANCE ACCESS
BOTTOM OF SHELF
TOP OF SHELF
30' CITY OF RALEIGH SANITARY SEWER EASEMENT (CORSSE)
SSMH-15
CB-214A
CB-214
SSMH-1S
DI-224A
15" RCP
8" SDR-35 PVC
24" RCP
8" WATER
8" DIP
3:1
R/W
LOD

WET DETENTION POND PLAN

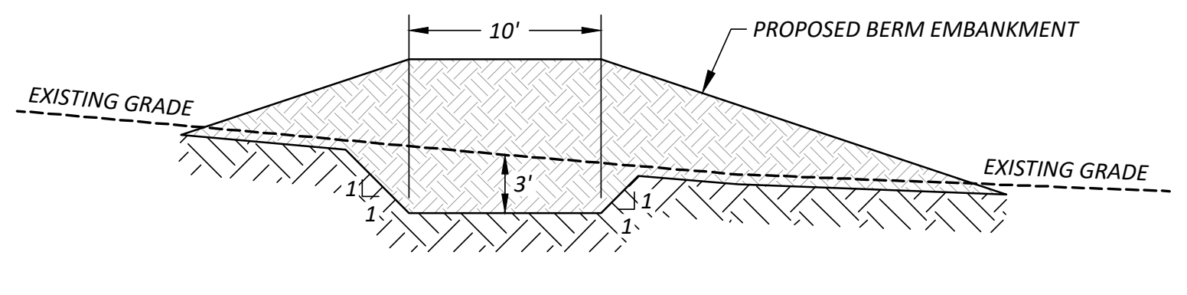
SEE EROSION CONTROL PLAN FOR CONSTRUCTION SEQUENCE, RIPRAP DATA AND CONVERSION FROM TEMPORARY RISER/SKIMMER BASIN TO PERMANENT WET POND

SEE GRADING PLAN FOR ALL STORM PIPE AND STRUCTURE DATA

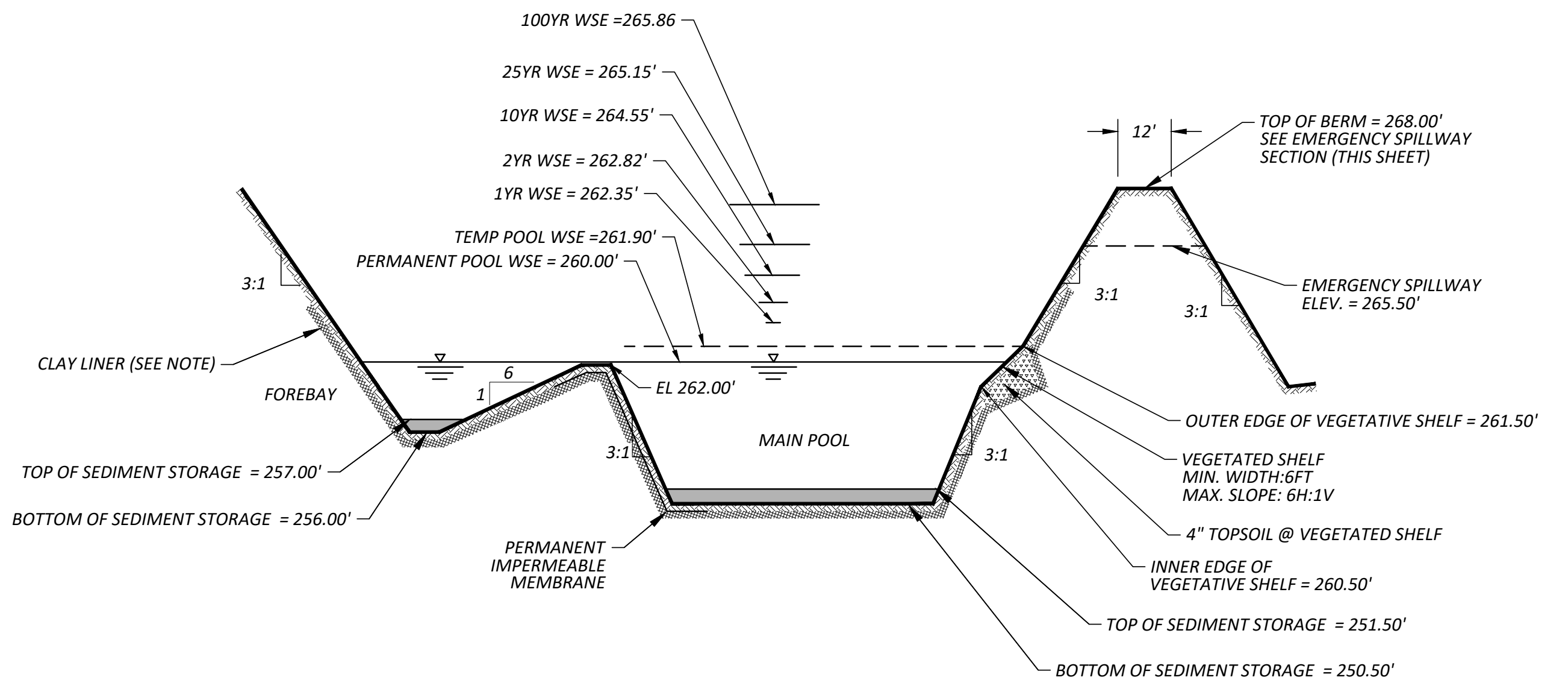
SCALE 1 inch = 20 ft


PLACE THE FILTER DIAPHRAGM AS FAR DOWNSTREAM AS POSSIBLE, LEAVING A MINIMUM COVER AS SHOWN BELOW
EMBANKMENT DAM
MINIMUM COVER: GREATER OF H/2 OR 2 FEET
MAXIMUM POND WATER LEVEL
H
CONDUIT
FILTER DIAPHRAGM
KEY TRENCH OR CUTOFF TRENCH
GRANULAR (GRAVEL) DRAIN (SURROUNDED BY FILTER SAND) TO CONVEY SEEPAGE TO DOWNSTREAM TOE. THE EXIT DETAILS ARE NOT SHOWN

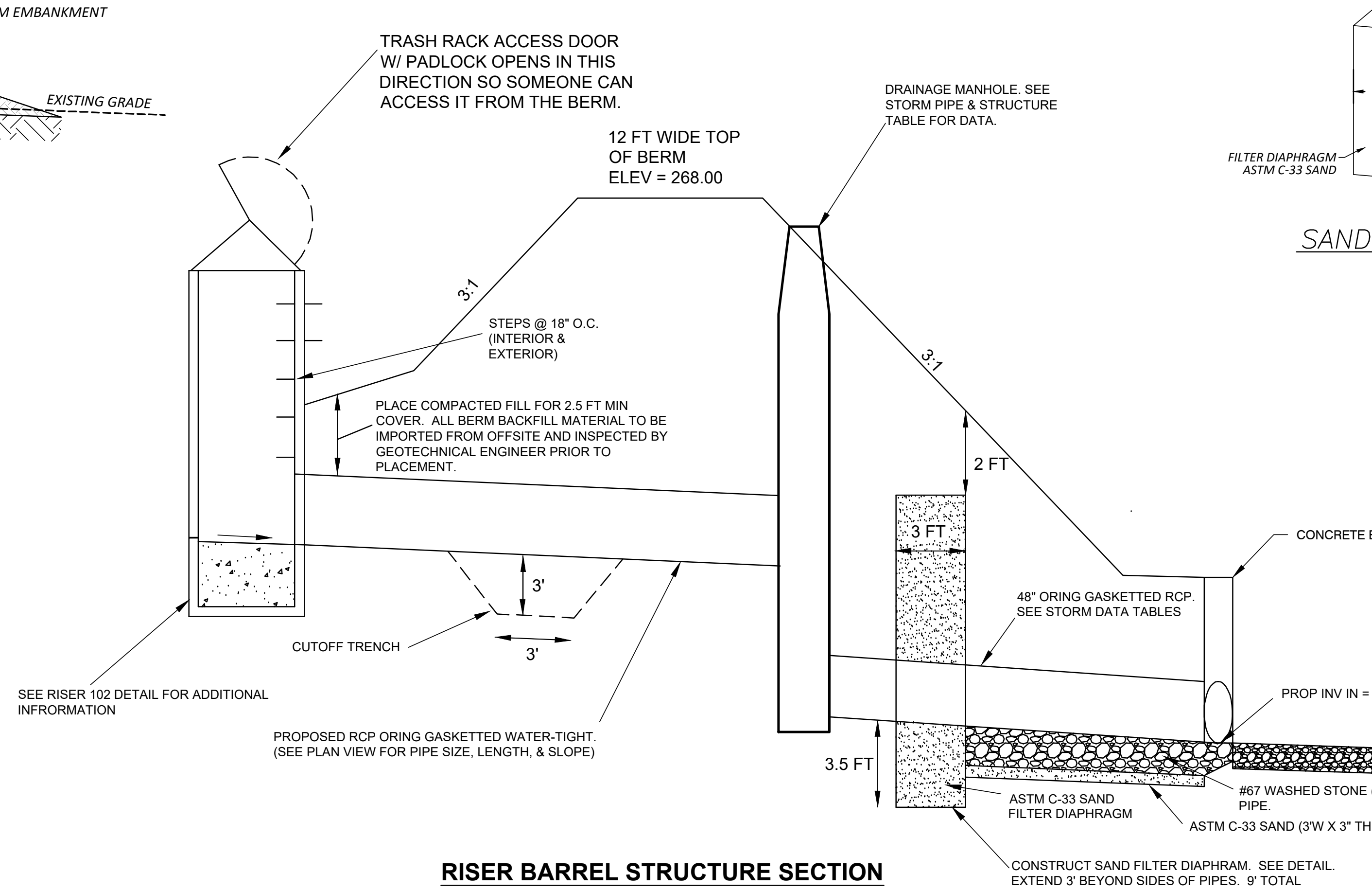
SAND FILTER DIAPHRAGM
NOT TO SCALE


10'
PROPOSED BERM EMBANKMENT
EXISTING GRADE
EXISTING GRADE
3'
1
1

CUT–OFF TRENCH DETAIL
NOT TO SCALE


100YR WSE =265.86
25YR WSE = 265.15'
10YR WSE = 264.55'
2YR WSE = 262.82'
1YR WSE = 262.35'
TEMP POOL WSE =261.90'
PERMANENT POOL WSE = 260.00'
12'
TOP OF BERM = 268.00' SEE EMERGENCY SPILLWAY SECTION (THIS SHEET)
EMERGENCY SPILLWAY ELEV. = 265.50'
3:1
CLAY LINER (SEE NOTE)
FOREBAY
6
1
EL 262.00'
MAIN POOL
OUTER EDGE OF VEGETATIVE SHELF = 261.50'
VEGETATED SHELF MIN. WIDTH:6FT MAX. SLOPE: 6H:1V
4" TOPSOIL @ VEGETATED SHELF
INNER EDGE OF VEGETATIVE SHELF = 260.50'
TOP OF SEDIMENT STORAGE = 257.00'
BOTTOM OF SEDIMENT STORAGE = 256.00'
PERMANENT IMPERMEABLE MEMBRANE
TOP OF SEDIMENT STORAGE = 251.50'
BOTTOM OF SEDIMENT STORAGE = 250.50'

WET DETENTION POND SECTION
NOT TO SCALE


TRASH RACK ACCESS DOOR W/ PADLOCK OPENS IN THIS DIRECTION SO SOMEONE CAN ACCESS IT FROM THE BERM.
12 FT WIDE TOP OF BERM ELEV = 268.00
DRAINAGE MANHOLE. SEE STORM PIPE & STRUCTURE TABLE FOR DATA.
3:1
3:1
STEPS @ 18" O.C. (INTERIOR & EXTERIOR)
PLACE COMPACTED FILL FOR 2.5 FT MIN COVER. ALL BERM BACKFILL MATERIAL TO BE IMPORTED FROM OFFSITE AND INSPECTED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
2 FT
3 FT
CONCRETE ENDWALL
3'
3'
CUTOFF TRENCH
48" ORING GASKETTED RCP. SEE STORM DATA TABLES
SEE RISER 102 DETAIL FOR ADDITIONAL INFRORMATION
PROP INV IN = 250.15
RIPRAP OVER FILTER FABRIC SEE EROSION CONTROL PLAN
PROPOSED RCP ORING GASKETTED WATER-TIGHT. (SEE PLAN VIEW FOR PIPE SIZE, LENGTH, & SLOPE)
3.5 FT
#67 WASHED STONE (3' W X 12" TH) BELOW PIPE.
ASTM C-33 SAND FILTER DIAPHRAGM
ASTM C-33 SAND (3'W X 3" THICK)
CONSTRUCT SAND FILTER DIAPHRAM. SEE DETAIL. EXTEND 3' BEYOND SIDES OF PIPES. 9' TOTAL WIDTH.

RISER BARREL STRUCTURE SECTION
NOT TO SCALE

POND NOTES

1. TOP OF BERM AND ALL SIDE SLOPES SHALL BE EITHER SODDED OR HYDROSEEDED TO ESTABLISH A DENSE STAND OF NON CLUMPING TURF GRASS
2. NO TREES SHRUBS OR WOODY VEGETATION IS ALLOWED ON THE TOP OF BERM OR SLOPES.
3. NO RIP RAP OR STONE IS ALLOWED IN THE BERM EMBANKMENT.
4. UNLESS DETERMINED OTHERWISE IN WRITTING BY THE CONTRACTOR'S GEOTECHNICAL ENGINEER, THE CONTRACTOR SHALL INSTALL A CLAY LINER IN THE POND UP TO THE ELEVATION NOTED
5. CONTRACTOR TO WATER PLANTINGS AND GRASS AS NEEDED
6. CONTRACTOR SHALL NOT BE RELEASED UNTIL AFTER THE POND HAS BEEN ASBUILT SURVEYED, PE CERTIFIED AND ACCEPTED BY NDENR.

STORMWATER WET POND PLANTING SPECIFICATIONS

1. ALL HERBACEOUS PLANTS WITHIN THE WET POND PROPER SHALL BE INSTALLED BETWEEN MARCH 15 AND JULY 31.
2. UNLESS OTHERWISE DESIGNATED, PLANTS SHOULD BE INSTALLED AS LARGE DRIFTS (I.E., MASSES OF A SINGLE SPECIES) WITHIN THEIR RESPECTIVE PLANTING AREAS.
3. INSTALL A SLOW RELEASE FERTILIZER TABLET NEXT TO EACH PLANT WITHIN THE WET POND PROPER. FOR HERBACEOUS SPECIES USE AG SAFE AQUATIC-TABS 20-10-5, 90 DAY CONTINUOUS FEEDING, 5 GRAMS, OR EQUIVALENT.
4. ALL PLANTS SHALL BE DIRECTLY DESCENDED FROM INDIVIDUALS GROWING WILD WITHIN 200 MILES OF THE PROJECT SITE. IF SUITABLE STOCK CANNOT BE OBTAINED, PLANTS OF OTHER GENETIC PROVENANCES MAY BE UTILIZED WITH THE APPROVAL OF THE OWNER OR OWNER'S REPRESENTATIVE.
5. PLANT MATERIAL SHOULD CONFORM TO AMERICAN STANDARD NURSERY STOCK, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
6. ALL PLANT MATERIAL TO BE CONTAINER GROWN PLANTS OF AT LEAST 4.0 CUBIC INCHES CAPACITY.
7. A MINIMUM OF THREE(3) DIFFERENT SPECIES.

VEGETATIVE SHELF PLANTS:	(50 PLANTS PER 200 SF) 3,000 SF = 750 PLANTS

STORMWATER WET POND PLANTING TABLE

BOTANICAL NAME	COMMON NAME	QUANTITY
ASCLEPIAS INCARNATA	SWAMP MILKWEED	125
EUPATORIADELPHUS DUBIUS	DWARF JOE PYE WEED	125
CAREX TENERA	QUILL SEDGE	125
HIBISCUS LAEVIS	SCARLET ROSE MALLOW	125
RHYNCHOSPORA COLORATA	STARRUSH WHITETOP	125
LOBELIA ELONGATA	LONGLEAF LOBELIA	125

MELLOW MARSH FARMS (919) 742 1200

EMBANKMENT COMPACTION

1. ALL FILL MATERIAL FOR THE EMBANKMENT SHOULD BE PLACED IN LAYERS (OR LIFTS) NO GREATER THAN 6" THICK.
2. THE LARGEST SIZE PARTICLE SHOULD NOT BE GREATER THAN ⅓rd THE HEIGHT OF THE LIFT THAT IS 2".
3. EACH LAYER SHOULD BE THOROUGHLY COMPACTED BEFORE THE NEXT LAYER IS PLACED.
4. THE COMPACTION EFFORT ACHIEVED SHOULD BE ON AVERAGE 98% STANDARD PROCTOR ASTM D698.
5. THE MINIMUM COMPACTION EFFORT SHOULD BE 95% STANDARD PROCTOR ASTM D698.
6. THE MATERIAL FORMING THE EMBANKMENT SHOULD BE PLACED WITH SUFFICIENT MOISTURE TO ENSURE PROPER COMPACTION. THE MOISTURE CONTENT SHOULD BE IN THE RANGE OF -1% TO +3% OF OPTIMUM MOISTURE CONTENT (OMC).
7. BEFORE EACH ADDITIONAL 6" LIFT IS ADDED TO THE EMBANKMENT, THE PRECEDING LIFT SHOULD BE SCARIFIED TO ENSURE THAT THE TWO LIFTS ARE PROPERLY JOINED.
8. A WHEELED SCRAPER OR TRUCK SHOULD BE USED FOR PLACING THE CLAY ON THE DAM SITE. THE CLAY SHOULD THEN BE SPREAD BY THE USE OF THE BLADE ON A TAMPER FOOT ROLLER FROM A BULLDOZER TOWING A TAMPER FOOT ROLLER (SHEEPSFOOT ROLLER).

NOTE

THERE ARE NO EXISTING ONSITE SURFACE WATERS, WETLANDS, PROTECTED VEGETATED SETBACKS, NOR PROTECTED RIPARIAN BUFFERS ON THIS PROPERTY.

BASIN DEWATERING DURING CONSTRUCTION:

THE CONTRACTOR SHALL ARRANGE FOR THE GEOTECHNICAL ENGINEER TO PROVIDE FIELD GUIDANCE ON POND DEWATERING MEASURES DURING THE POND GRADING OPERATION.

SLOPE STABILITY:

AFTER THE POND HAS BEEN EXCAVATED, THEN THE CONTRACTOR SHALL ARRANGE FOR THE GEOTECHNICAL ENGINEER TO VISIT THE SITE TO EVALUATE THE EARTHEN SIDESLOPES STABILITY OF THE POND'S NATIVE SOILS. IF THE SLOPES ARE UNSTABLE, THEN THE CONTRACTOR SHALL UNDERCUT AND REMOVE NATIVE SOIL, AND IMPORT SUITABLE, STABLE CLAY SOILS FROM OFFSITE TO GRADE & COMPACT STABLE POND SIDESLOPES UNDER THE GEOTECHNICAL ENGINEER'S DIRECTION.

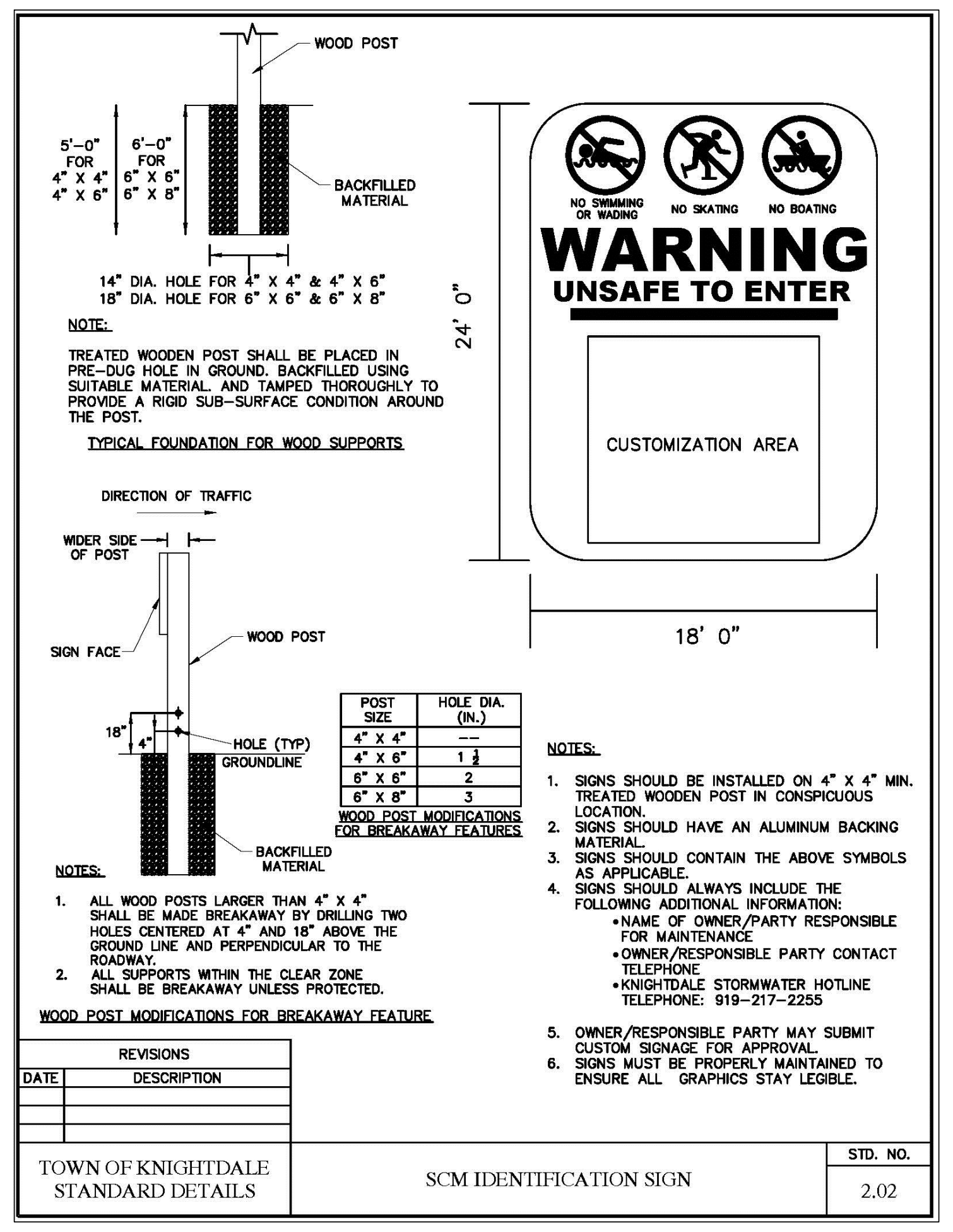
BENTONITE CLAY LINER:

IN ORDER TO ENSURE THAT THE POND CAN MAINTAIN A PERMANENT POOL OF WATER, THE CONTRACTOR SHALL INSTALL A BENTONITE CLAY LINER BELOW THE FINISHED GRADE OF THE MAIN POOL, FOREBAY, SLOPES, AND VEGETATED SHELF OF THE POND, EXTENDING UP TO ELEVATION 264.00 ALL THE WAY AROUND THE POND. THE LINER SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS. CONTRACTOR TO SUBMIT PRODUCT CUT SHEET AND SPEC TO OWNER/ENGINEER.

IF THE CONTRACTOR'S GEOTECHNICAL ENGINEER DETERMINES A CLAY LINER IS NOT NEEDED TO MAINTAIN THE PERMANENT POOL OF WATER FOR A MINIMUM OF 2 WEEKS OF DRY WEATHER, THEN THE CONTRACTOR MAY SUBMIT A LETTER IN WRITING WITH THEIR GEOTECHNICAL ENGINEER'S NCPE SEAL STATING THAT A CLAY LINER IS NOT NEEDED TO MAINTAIN THE PERMANENT POOL OF WATER.

OPTIONAL SAFETY FENCE:

THE CONTRACTOR SHALL ASK THE OWNER IF THEY WANT A SAFETY FENCE CONSTRUCTED AROUND THE POND PERIMETER. IF YES, THEN THE CONTRACTOR SHALL CONSTRUCT THE SAFETY FENCE AROUND THE UPPER PERIMETER OF THE POND AND TOP OF BERM. THE FENCE MAY BE 42" HIGH GREEN OR BLACK VINYL COATED CHAIN LINK FENCE. 12' WIDE GATES FOR MAINTENANCE SHALL BE INSTALLED ADJACENT TO THE FOREBAY AND ANOTHER NEAR THE OUTLET CONTROL STRUCTURE.


WOOD POST
5'–0" FOR 4" X 4" 4" X 6"
6'–0" FOR 6" X 6" 6" X 8"
BACKFILLED MATERIAL
14" DIA. HOLE FOR 4" X 4" & 4" X 6"
18" DIA. HOLE FOR 6" X 6" & 6" X 8"
NO SWIMMING OR WADING
NO SKATING
NO BOATING
WARNING
UNSAFE TO ENTER
CUSTOMIZATION AREA
24' 0"
18' 0"
DIRECTION OF TRAFFIC
WIDER SIDE OF POST
SIGN FACE
WOOD POST
18"
4"
HOLE (TYP)
GROUNDLINE
BACKFILLED MATERIAL

NOTE:

TREATED WOODEN POST SHALL BE PLACED IN PRE–DUG HOLE IN GROUND. BACKFILLED USING SUITABLE MATERIAL. AND TAMPED THOROUGHLY TO PROVIDE A RIGID SUB–SURFACE CONDITION AROUND THE POST.

TYPICAL FOUNDATION FOR WOOD SUPPORTS

POST SIZE	HOLE DIA. (IN.)
4" X 4"	––
4" X 6"	1 ½
6" X 6"	2
6" X 8"	3

WOOD POST MODIFICATIONS FOR BREAKAWAY FEATURES

NOTES:

1. ALL WOOD POSTS LARGER THAN 4" X 4" SHALL BE MADE BREAKAWAY BY DRILLING TWO HOLES CENTERED AT 4" AND 18" ABOVE THE GROUND LINE AND PERPENDICULAR TO THE ROADWAY.
2. ALL SUPPORTS WITHIN THE CLEAR ZONE SHALL BE BREAKAWAY UNLESS PROTECTED.

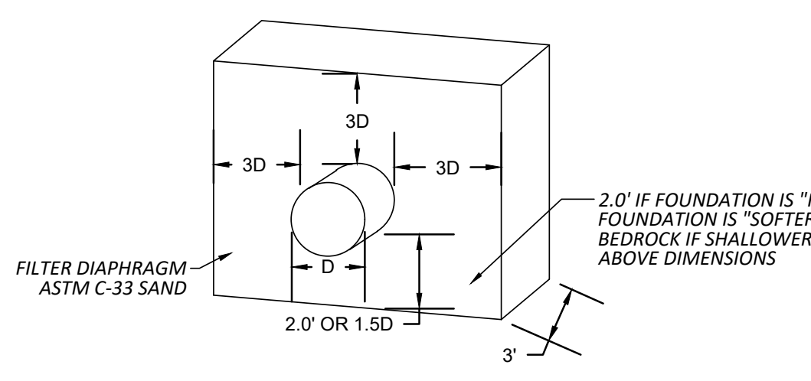
WOOD POST MODIFICATIONS FOR BREAKAWAY FEATURE

NOTES:

1. SIGNS SHOULD BE INSTALLED ON 4" X 4" MIN. TREATED WOODEN POST IN CONSPICUOUS LOCATION.
2. SIGNS SHOULD HAVE AN ALUMINUM BACKING MATERIAL.
3. SIGNS SHOULD CONTAIN THE ABOVE SYMBOLS AS APPLICABLE.
4. SIGNS SHOULD ALWAYS INCLUDE THE FOLLOWING ADDITIONAL INFORMATION:
   - NAME OF OWNER/PARTY RESPONSIBLE FOR MAINTENANCE
   - OWNER/RESPONSIBLE PARTY CONTACT TELEPHONE
   - KNIGHTDALE STORMWATER HOTLINE TELEPHONE: 919–217–2255
5. OWNER/RESPONSIBLE PARTY MAY SUBMIT CUSTOM SIGNAGE FOR APPROVAL.
6. SIGNS MUST BE PROPERLY MAINTAINED TO ENSURE ALL GRAPHICS STAY LEGIBLE.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	SCM IDENTIFICATION SIGN	STD. NO. 2.02


3D
3D
3D
D
FILTER DIAPHRAGM ASTM C-33 SAND
2.0' OR 1.5D
2.0' IF FOUNDATION IS "FIRM"; 1.5D IF FOUNDATION IS "SOFTER"; OR TO BEDROCK IF SHALLOWER THAN THE ABOVE DIMENSIONS

SAND FILTER DIAPHRAGM
NOT TO SCALE

MAINTENANCE

INSPECTION ACTIVITIES - (FREQUENCY)

WHERE MAINTENANCE REQUIRES DEWATERING, DO SO BY MEANS OF DEWATERING PUMP.

AFTER CONSTRUCTION

INSPECT AFTER SEVERAL STORM EVENTS FOR BANK STABILITY, VEGETATION GROWTH, DRAINAGE SYSTEM FUNCTIONING, AND STRUCTURAL DAMAGE.

SEMI-ANNUAL INSPECTION

INSPECT FOR INVASIVE VEGETATION, DIFFERENTIAL SETTLEMENT, CRACKING; EROSION, LEAKAGE, OR TREE GROWTH ON THE EMBANKMENT; THE CONDITION OF THE RIPRAP IN THE INLET, OUTLET, AND PILOT CHANNELS; SEDIMENT ACCUMULATION IN THE BASIN; CLOGGING OF OUTLET; AND THE VIGOR AND DENSITY OF THE VEGETATION ON THE BASIN SIDE SLOPES AND FLOOR. CORRECT OBSERVED PROBLEMS AS NECESSARY.

NOTE SIGNS OF HYDROCARBON BUILDUP SUCH AS FLOATING OIL ON WATER SURFACE. - INSPECT FOR DAMAGE TO THE EMBANKMENT AND INLET/OUTLET STRUCTURES. REPAIR AS NECESSARY. -MONITOR FOR SEDIMENT ACCUMULATION IN THE FACILITY AND FOREBAY. EXAMINE INLET AND OUTLET DEVICES TO ENSURE THEY ARE FREE OF DEBRIS AND ARE OPERATIONAL.

MAINTENANCE ACTIVITIES - (FREQUENCY)

ONE TIME
- REPLACE WET POND VEGETATION TO MAINTAIN AT LEAST 50% OF SURFACE AREA COVERAGE IN WET POND PLANTS AFTER THE SECOND GROWING SEASON.

AS NEEDED
- REPAIR UNDERCUT AREAS, EROSION TO BANKS, AND BOTTOM AS REQUIRED. WHERE PERMITTED BY THE DEPARTMENT OF FISH AND GAME OR OTHER AGENCY REGULATIONS, STOCK CONSTRUCTED WET PONDS REGULARLY WITH MOSQUITO FISH (GAMBUSIA SPP.) TO ENHANCE NATURAL MOSQUITO AND MIDGE CONTROL.

3 TO 4 TIMES PER YEAR
- CLEAN AND REMOVE DEBRIS FROM INLET AND OUTLET STRUCTURES.
- MOW SIDE SLOPES AND REMOVE GRASS CLIPPINGS. REMOVE LITTER AND DEBRIS FROM BANKS, BASIN BOTTOM, TRASH RACKS, OUTLET STRUCTURES, AND VALVES AS REQUIRED.

ANNUAL (IF NEEDED)
- -SUPPLEMENT WET POND PLANTS IF A SIGNIFICANT PORTION HAVE NOT ESTABLISHED (AT LEAST 50% OF THE SURFACE AREA).
- -REMOVE NUISANCE PLANT SPECIES.
- -CLEAN FOREBAY TO AVOID ACCUMULATION IN MAIN WET POND AREA TO MINIMIZE WHEN THE MAIN WET POND AREA NEEDS TO BE CLEANED.
- -HARVEST PLANT SPECIES IF VEGETATION BECOMES TOO THICK CAUSING FLOW BACKUP AND FLOODING. MORE FREQUENT PLANT HARVESTING MAY BE REQUIRED BY LOCAL VECTOR CONTROL AGENCIES.
- -FERTILIZE NEW VEGETATION ONE TIME ONLY. THE OWNER SHALL NOT FERTILIZE VEGETATION AFTER THE INITIAL OCCURRENCE.
- -MONITOR SEDIMENT ACCUMULATIONS, AND REMOVE SEDIMENT WHEN THE ACCUMULATED SEDIMENT VOLUME EXCEEDS 10-20% OF THE BASIN VOLUME, PLANTS ARE "CHOKED" WITH SEDIMENT, OR THE WET POND BECOMES EUTROPHIC. IT IS SUGGESTED THAT THE MAIN AREA BE CLEANED ONE HALF AT A TIME WITH AT LEAST ONE GROWING SEASON IN BETWEEN CLEANINGS. THIS WILL HELP TO PRESERVE THE VEGETATION AND ENABLE THE WET POND TO RECOVER MORE QUICKLY FROM THE CLEANING.

PERMANENT SEEDING SPECIFICATIONS

SEEDING MIXTURE

SPECIES	RATE (LB/ACRES)
PREMIUM BERMUDA	60

NURSE PLANTS
BETWEEN APR. 15 AND AUG. 15, ADD 10 LB/ACRE GERMAN MILLET OR 15 LB/ACRE SUDAN GRASS PRIOR TO MAY 1 OR AFTER AUG 15, ADD 25 LB/ACRE RYE (GRAIN)

SEEDING DATES

	BEST	POSSIBLE
EARLY SPRING:	FEB. 15-MAR. 20	FEB. 15-APR. 30
FALL:	SEPT. 1-SEPT. 30	SEPT. 1-OCT. 31

SOIL AMENDMENTS
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TEST IS NOT AVAILABLE APPLY 2 TONS/ACRE AGRICULTURAL GRADE LIMESTONE AND 1,000LBS/ACRE OF 10-10-10 FERTILIZER, OR APPLY 3,000-5,000 LB/ACRE SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 25 LB/ACRE RYE (GRASS)

MULCH
APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DICK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
IF GROWTH IS LESS THAN FULL ADEQUATE, REFERTILIZE THE SECOND YEAR. ACCORDING TO SOIL TESTS OR TOPDRESS WITH 500 LB/ACRE 10-10-10 FERTILIZER. MOW AS NEEDED. RESEED, FERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

AS-BUILT SURVEY:

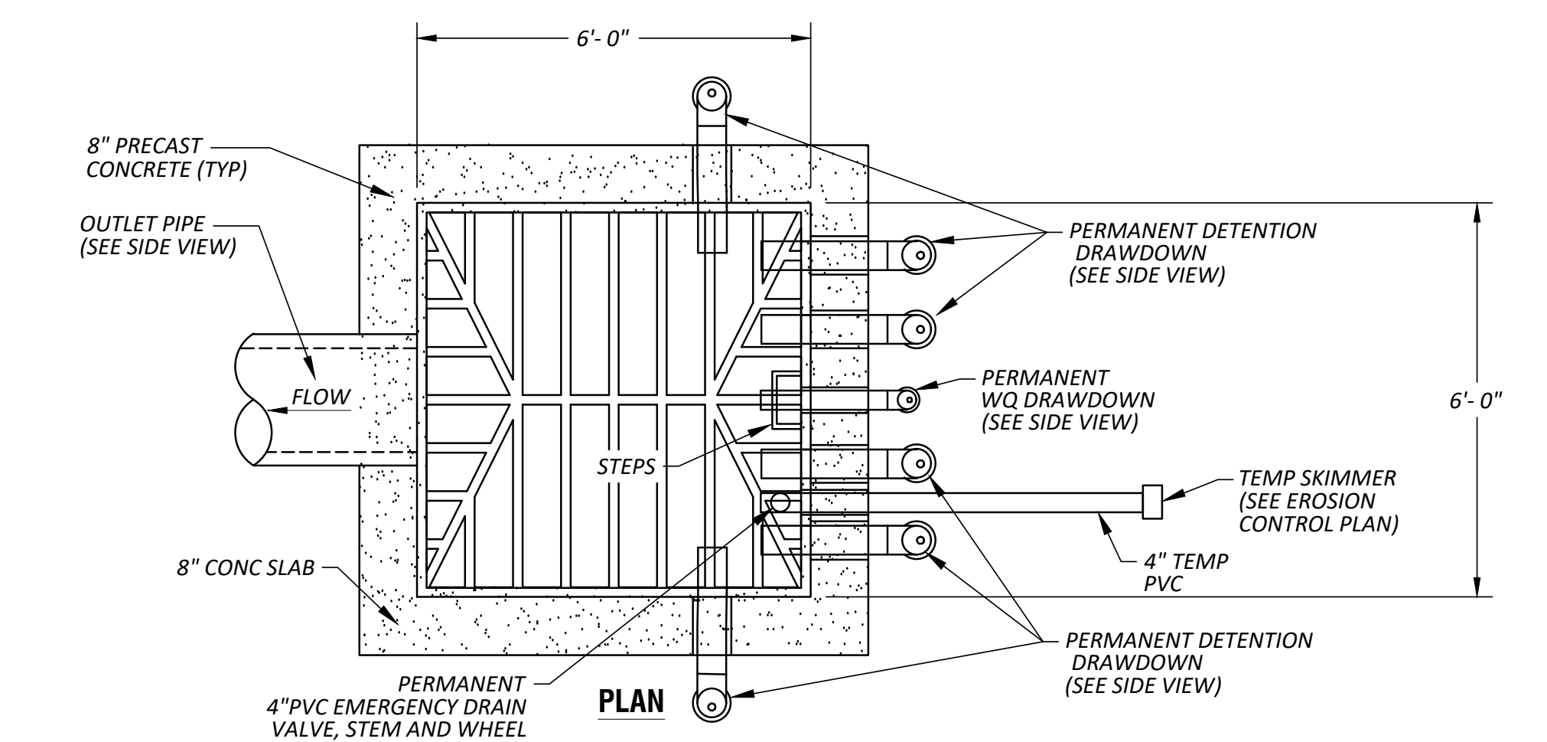
UPON COMPLETION, CONTRACTOR TO SUBMIT NCRLS SEALED ASBUILT SURVEY OF POND, INCLUDING AUTOCAD POINTS TO OWNER/ENGINEER, INCLUDING BERM, SPILLWAY, SLOPES, MAIN POOL, FOREBAY, PIPES, INVERTS, RISER, RISER TOP ELEV, ORIFICE INVERTS, VEGETATIVE SHELF, ORIFICE DIAMETERS, ETC. TO OWNER/ENGINEER. ALL FEATURES SHALL BE WITHIN +/- 0.2 FT VERTICAL TOLERANCE OF THE DESIGN

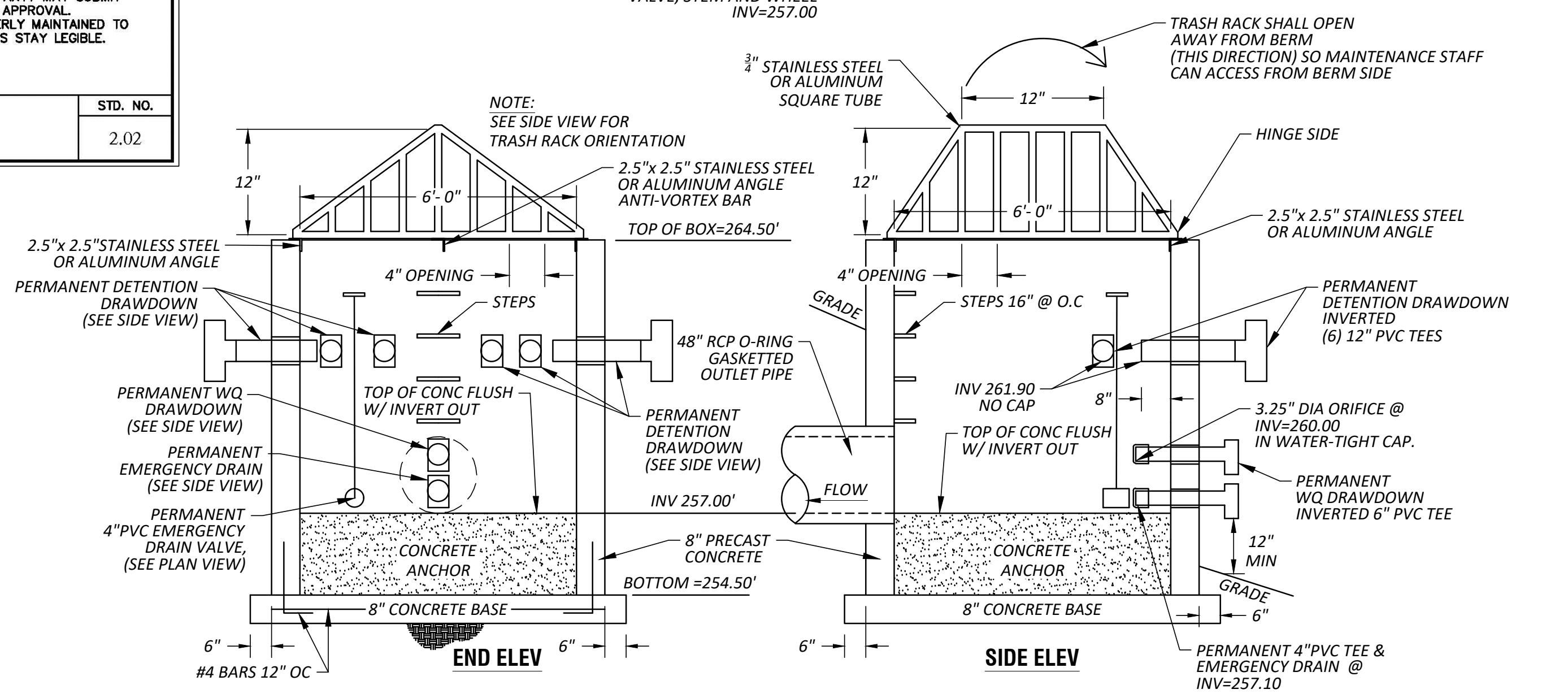
GEOTECHNICAL CERTIFICATION:

THE CONTRACTOR SHALL RETAIN A LICENSED NCPE GEOTECHNICAL ENGINEER TO OBSERVE POND BERM GRADING, CUT OFF TRENCH, ANTI-SEEP COLLAR, OUTLET PIPE INSTALLATION AND BERM COMPACTION. UPON COMPLETION, SUBMIT A SIGNED PE SEALED GEOTECH CERTIFICATION STATEMENT TO THE OWNER/ENGINEER.

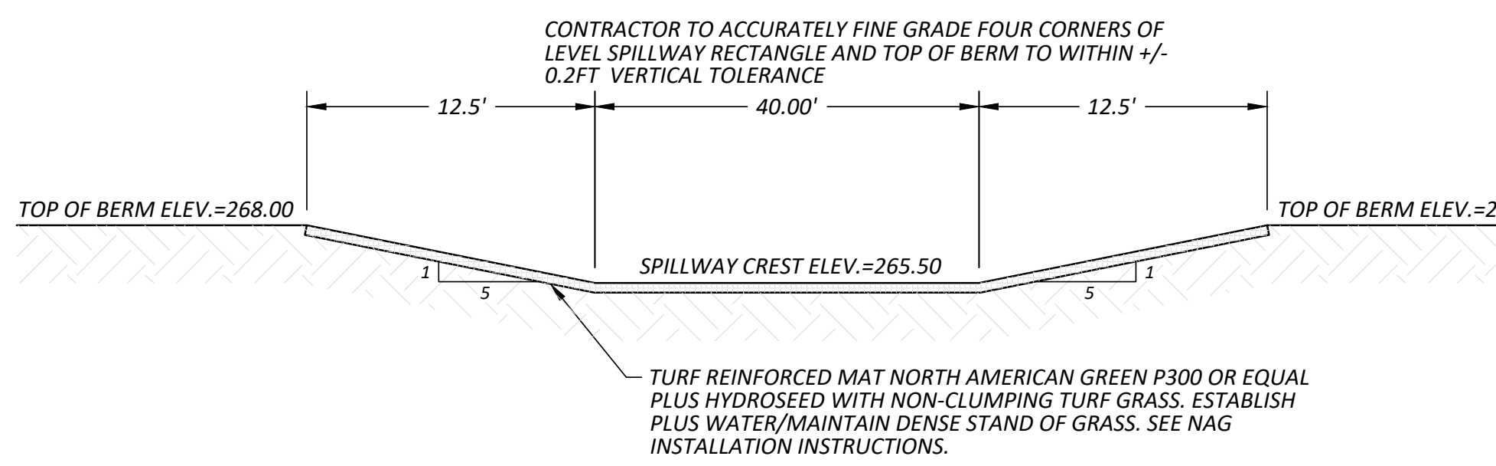
OUTLET CONTROL STRUCTURE NOTES

1. STRUCTURE SHALL BE PRECAST CONCRETE
2. PRECASTER SHALL DESIGN AND FURNISH ALL STEEL REINFORCING, WALL THICKNESS AND HARDWARE.
3. MANUFACTURE ENTIRE CONCRETE AS ONE SECTION WITH NO JOINTS IF PRACTICAL.
4. ANY JOINTS SHALL BE WATER TIGHT AND BE CONSTRUCTED FOR ANTI-FLOTATION. THEY SHALL HAVE (4) STAINLESS STEEL OR ALUMINUM PLATES 12" X 12" X ¼", ONE PER SIDE. EACH PLATE SHALL HAVE (4) STAINLESS STEEL OR ALUMINUM BOLTS (¼" DIA X 8" L MIN), FOR ANTI-FLOTATION.
5. THROUGHOUT GRADING OPERATION, TEMPORARY SKIMMER SHALL BE IN PLACE AND DRAIN VALVE OPEN. INSTALL TEMPORARY PLUG IN DETENTION DRAWDOWN AND WQ DRAWDOWN.
6. AT END OF PROJECT, AFTER SITE IS STABLE, REMOVED TEMPORARY PLUGS AND SKIMMER AND CLOSE VALVE.


6'- 0"
8" PRECAST CONCRETE (TYP)
OUTLET PIPE (SEE SIDE VIEW)
FLOW
STEPS
8" CONC SLAB
PERMANENT DETENTION DRAWDOWN (SEE SIDE VIEW)
PERMANENT WQ DRAWDOWN (SEE SIDE VIEW)
TEMP SKIMMER (SEE EROSION CONTROL PLAN)
4" TEMP PVC
PERMANENT DETENTION DRAWDOWN (SEE SIDE VIEW)
6'- 0"
PERMANENT 4"PVC EMERGENCY DRAIN VALVE, STEM AND WHEEL INV=257.00
PLAN


¾" STAINLESS STEEL OR ALUMINUM SQUARE TUBE
TRASH RACK SHALL OPEN AWAY FROM BERM (THIS DIRECTION) SO MAINTENANCE STAFF CAN ACCESS FROM BERM SIDE
NOTE: SEE SIDE VIEW FOR TRASH RACK ORIENTATION
12"
6'- 0"
2.5"x 2.5" STAINLESS STEEL OR ALUMINUM ANGLE ANTI-VORTEX BAR
TOP OF BOX=264.50'
HINGE SIDE
2.5"x 2.5" STAINLESS STEEL OR ALUMINUM ANGLE
2.5"x 2.5"STAINLESS STEEL OR ALUMINUM ANGLE
PERMANENT DETENTION DRAWDOWN (SEE SIDE VIEW)
4" OPENING
STEPS
STEPS 16" @ O.C
GRADE
48" RCP O-RING GASKETTED OUTLET PIPE
PERMANENT DETENTION DRAWDOWN INVERTED (6) 12" PVC TEES
PERMANENT WQ DRAWDOWN (SEE SIDE VIEW)
TOP OF CONC FLUSH W/ INVERT OUT
PERMANENT EMERGENCY DRAIN (SEE SIDE VIEW)
PERMANENT DETENTION DRAWDOWN (SEE SIDE VIEW)
INV 261.90 NO CAP
8"
3.25" DIA ORIFICE @ INV=260.00 IN WATER-TIGHT CAP.
PERMANENT 4"PVC EMERGENCY DRAIN VALVE, (SEE PLAN VIEW)
INV 257.00'
FLOW
PERMANENT WQ DRAWDOWN INVERTED 6" PVC TEE
CONCRETE ANCHOR
8" PRECAST CONCRETE
BOTTOM =254.50'
12" MIN
8" CONCRETE BASE
6"
#4 BARS 12" OC
END ELEV
SIDE ELEV
PERMANENT 4"PVC TEE & EMERGENCY DRAIN @ INV=257.10

RISER 102 DETAIL
NOT TO SCALE


CONTRACTOR TO ACCURATELY FINE GRADE FOUR CORNERS OF LEVEL SPILLWAY RECTANGLE AND TOP OF BERM TO WITHIN +/- 0.2FT VERTICAL TOLERANCE
12.5'
40.00'
12.5'
TOP OF BERM ELEV.=268.00
TOP OF BERM ELEV.=268.00
SPILLWAY CREST ELEV.=265.50
1
5
5
1
TURF REINFORCED MAT NORTH AMERICAN GREEN P300 OR EQUAL PLUS HYDROSEED WITH NON-CLUMPING TURF GRASS. ESTABLISH PLUS WATER/MAINTAIN DENSE STAND OF GRASS. SEE NAG INSTALLATION INSTRUCTIONS.

EMERGENCY SPILLWAY SECTION
NOT TO SCALE

CALL BEFORE YOU DIG!
WWW.NC811.ORG
N.C. ONE-CALL CENTER
IT'S THE LAW!

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
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riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE – WAKE COUNTY – NORTH CAROLINA

WET POND AND STORMWATER MANAGEMENT PLAN

DATE:	
DESIGNED BY:	CS
DRAWN BY:	EDN
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C4.31

Do Not Use for Construction - PRELIMINARY

R:\LANDDEV\GLENWOOD_HOMES-OLD_FAISON_PLACE 2022113\CADD_DWG\SHEETS - CD SET\C4.31 WET POND DETAILS.DWG - LAYOUT1 - 7/2/2026 1:55:51 PM - EDWIN NANCE

EROSION CONTROL LEGEND:

LIMITS OF DISTURBANCE	▬ LOD ▬ LOD ▬
SILT FENCE	—SF—
TREE PROTECTION FENCE	—TP—
COMBINATION SILT AND TREE PROTECTION FENCE	—TPF–SF—
SILT FENCE OUTLET	▨—SF—
TEMP DIVERSION DITCH	—>—>—
EXISTING CONTOURS	- - 9 - - - - 10 - -
PROPOSED CONTOURS	— 9 — — 10 —
CONSTRUCTION ENTRANCE	▦
CONCRETE WASHOUT	▣
TEMP INLET PROTECTION. SEE DETAILS.	□
TEMPORARY WATTLE	⌒

EROSION CONTROL SEQUENCE – STAGE 1

1. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN AND READ ALL PERMITS/APPROVALS NECESSARY TO COMPLETE THE CONSTRUCTION, INCLUDING BUT NOT LIMITED TO SITE PLAN APPROVAL, LAND DISTURBANCE PERMIT, NPDES PERMIT, CONSTRUCTION DRAWINGS APPROVAL, NCDOT DRIVEWAY PERMIT, NCDOT ENCROACHMENT AGREEMENTS, WATER PERMIT, SEWER PERMIT, ETC. CONTRACTOR TO RETAIN COPIES OF ALL PERMIT DOCUMENTS AND APPROVED PLANS ON THE JOBSITE THROUGHOUT CONSTRUCTION. READ AND COMPLY WITH ALL CONDITIONS OF ALL PERMITS. PERMIT DOCUMENTS SHALL BE CONSIDERED A PART OF THESE CONSTRUCTION DRAWINGS.
2. PRIOR TO BEGINNING ANY CONSTRUCTION, CONTRACTOR TO HOLD ONSITE PRECONSTRUCTION CONFERENCE WITH EROSION CONTROL INSPECTOR, CITY/TOWN/COUNTY INSPECTORS, NCDOT INSPECTOR AND OWNER/DEVELOPER AS REQUIRED.
3. INSTALL TEMPORARY SILT FENCE, AND HAVE IT INSPECTED BY THE CITY/TOWN INSPECTOR IF REQUIRED.
4. INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT AND TEMPORARY DRIVEWAY PIPE (IF ANY).
5. CLEAR ONLY THE MINIMUM NEEDED TO INSTALL THE STAGE 1 EROSION CONTROL MEASURES. INSTALL ALL EROSION CONTROL MEASURES SHOWN ON THE STAGE 1 EROSION CONTROL PLAN INCLUDING TEMPORARY SILT FENCE, STONE OUTLETS, TREE PROTECTION FENCE, DIVERSION BERMS/DITCHES, SKIMMER BASINS, ETC. PROMPTLY INSTALL DITCH LINERS, SPILLWAY LINER, AND SEED BASIN BERM, BASIN SLOPES, AND ALL DITCHES.
6. THE SKIMMER BASIN BERM SHALL BE ACCURATELY GRADED TO FUNCTION FOR THE PERMANENT WET DETENTION POND, INCLUDING THE CUTOFF TRENCH AND ANTI-SEEP COLLAR. THE RISER AND O-RING GASKETTED RCP OUTLET PIPE SHALL BE ACCURATELY CONSTRUCTED AS PERMANENT STRUCTURES. REFER TO THE SCM PLAN/DETAILS SHEET FOR ADDITIONAL INFORMATION. THE PROJECT GEOTECHNICAL ENGINEER SHALL OVERSEE THE CONSTRUCTION OF THESE FEATURES AT THE TIME OF INITIAL SKIMMER BASIN CONSTRUCTION.
7. INSTALL TEMPORARY PORTABLE PUMP GENERATOR ON TOP OF BERM. CONNECT INTAKE HOSE TO SKIMMER AND RUN DISCHARGE HOSE TO BASIN OUTLET. WATER IS TO BE DISCHARGED THROUGH STANDARD SILT BAG. SILT BAG WILL BE MONITORED BY CONTRACTOR CONTINUOUSLY WHILE IN USE.
8. CONTACT EROSION CONTROL INSPECTOR TO REQUEST ONSITE INSPECTION OF STAGE 1 EROSION CONTROL MEASURES AND OBTAIN APPROVAL.
9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT ALL EROSION CONTROL MEASURES AFTER EACH RAINFALL EVENT, AND MAKE IMMEDIATE REPAIRS AS NEEDED. ALL SEDIMENT SHALL BE RETAINED ON THE JOBSITE THROUGHOUT CONSTRUCTION. ALL ADJACENT STREETS AND SIDEWALKS SHALL BE KEPT BROOM CLEAN.
   REFER TO THE NPDES PERMIT, WHICH REQUIRES THE CONTRACTOR TO PERFORM SELF-INSPECTIONS, KEEP AN ONSITE RAIN GAUGE, AND KEEP ONSITE INSPECTION RECORDS.
10. PROCEED TO THE STAGE 2 EROSION CONTROL SEQUENCE.

LIMITS OF DISTURBANCE STAKEOUT:

PRIOR TO CONSTRUCTION, CONTRACTOR SHALL STAKE/FLAG LIMITS OF DISTURBANCE AT 50.0' INTERVALS. ERECT TEMPORARY SILT FENCE AND TEMPORARY TREE PROTECTION FENCE WHERE SHOWN.

TEMPORARY INLET PROTECTION:

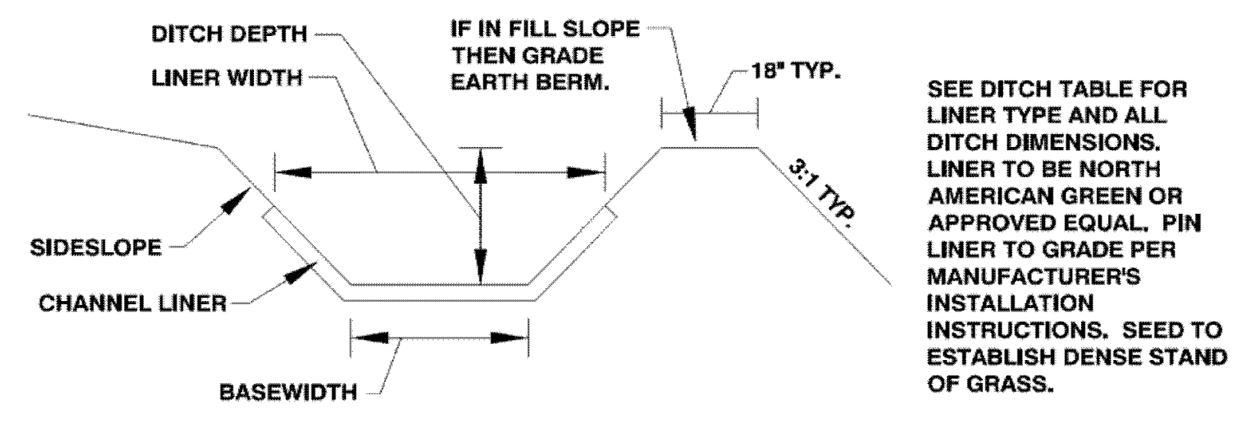
- DO NOT INSTALL ANY PLYWOOD INLET PROTECTION INSIDE OF THE NCDOT R/W. TEMPORARY PLYWOOD INLET PROTECTION SHALL ONLY BE INSTALLED ON PRIVATE PROPERTY. REMOVE PLYWOOD INLET PROTECTION WHEN PERMANENT STORM STRUCTURES ARE INSTALLED.
- INSTALL TEMPORARY SILT FENCE INLET PROTECTION AT ALL PROPOSED STORM STRUCTURES. SILT FENCE INLET PROTECTION SHALL BE REMOVED PRIOR TO THE OPENING OF ROADS TO TRAFFIC, AND PRIOR TO THE PLACEMENT OF THE FINAL LIFT OF ASPHALT.
- AFTER THE ENTIRE SITE IS STABILIZED WITH PERMANENT GROUND COVER, THEN ALL TEMPORARY INLET PROTECTION SHALL BE REMOVED. STABILIZE ANY REMAINING BARE AREAS WITH PERMANENT GROUND COVER (GRASS).

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND NCDEQ STANDARDS & SPECIFICATIONS.

REVIEW DRAWING - THESE PLANS SHALL NOT BE USED FOR CONSTRUCTION UNTIL AFTER THEY ARE APPROVED BY ALL MUNICIPALITIES AND ISSUED FOR CONSTRUCTION BY THE ENGINEER.

TEMPORARY DITCH TABLE

DITCH NUMBER:	TD 1
CHANNEL BASEWIDTH (FEET):	6.0
CHANNEL SIDESLOPES:	3:1
MIN. CHANNEL DEPTH (FEET):	2.0
CHANNEL LINER TYPE:	NAG C125
MIN. CHANNEL LINER WIDTH (FEET):	16.0

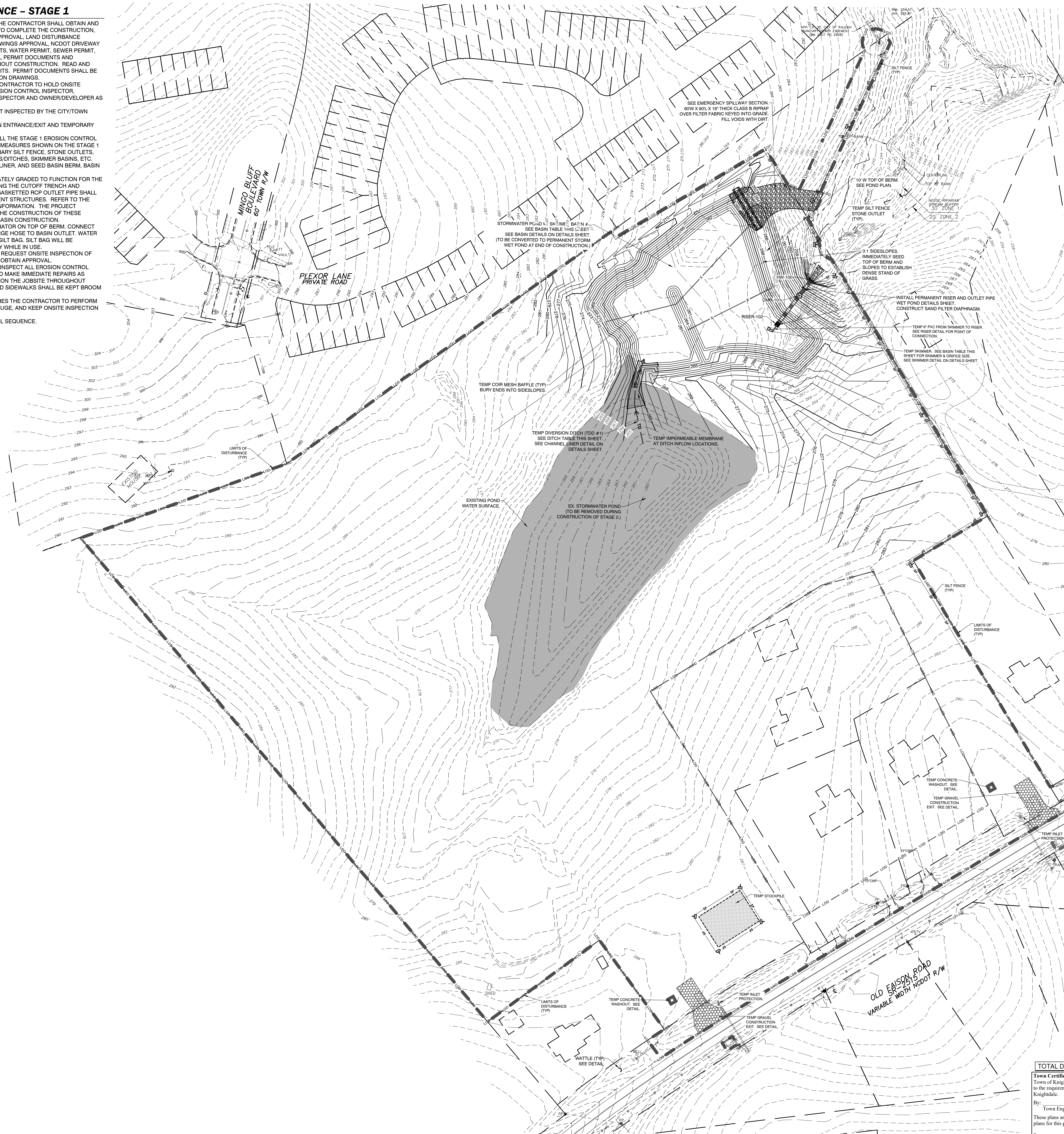

DITCH DEPTH
LINER WIDTH
IF IN FILL SLOPE THEN GRADE EARTH BERM.
18" TYP.
3:1 TYP.
SIDESLOPE
CHANNEL LINER
BASEWIDTH

SEE DITCH TABLE FOR LINER TYPE AND ALL DITCH DIMENSIONS. LINER TO BE NORTH AMERICAN GREEN OR APPROVED EQUAL. PIN LINER TO GRADE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. SEED TO ESTABLISH DENSE STAND OF GRASS.

DITCH TYPICAL SECTION

TEMPORARY RISER - BARREL BASIN W/ SKIMMER TABLE

BASIN #	1
BASIN TYPE	RISER/SKIMMER BASIN
TOTAL DRAINAGE AREA =	36.31 AC
DISTURBED DRAINAGE AREA =	19.69 AC
C =	0.39
Tc =	20 MIN
I (10) =	4.46
Q (10) =	63.16 CFS
MIN REQ VOLUME = 1,800 CF/DIST ACRE =	35442 CF
MIN REQ SURF AREA = 435 SF/Q(10) =	27475 SF
BASIN FLOOR DIMENSIONS =	350'L X 75'W X 4.5'D
VOLUME PROVIDED =	167362 CF
SURFACE AREA PROVIDED =	43591 SF
TOP OF BERM ELEV =	268.0
SPILLWAY ELEV =	265.50
FLOOR ELEV =	260.0
10-YR WSE =	266.2
FREEBOARD =	1.9 FT
SPILLWAY WIDTH =	40 FT
SKIMMER SIZE =	4.00 INCHES
ORIFICE SIZE =	4.00 INCHES
DEWATERING TIME =	3.0 DAYS


MINGO BLUFF BOULEVARD 60' TOWN R/W
PLEXOR LANE PRIVATE ROAD
TELE
ATT
VAULT
EXISTING HOUSE
EX. WELL
LIMITS OF DISTURBANCE (TYP)
SANITARY SEWER EASEMENT (BM 2007 PG 2908)
SILT FENCE (TYP)
SEE EMERGENCY SPILLWAY SECTION. 60'W X 90'L X 18" THICK CLASS B RIPRAP OVER FILTER FABRIC KEYED INTO GRADE. FILL VOIDS WITH DIRT.
TOP OF BANK
CENTERLINE
10' W TOP OF BERM. SEE POND PLAN.
NEUSE RIPARIAN STREAM BUFFER
30' ZONE 1
20' ZONE 2
TEMP SILT FENCE STONE OUTLET (TYP).
STORMWATER POND W/ SKIMMER BASIN #1 SEE BASIN TABLE THIS SHEET SEE BASIN DETAILS ON DETAILS SHEET. (TO BE CONVERTED TO PERMANENT STORM WET POND AT END OF CONSTRUCTION.)
3:1 SIDESLOPES. IMMEDIATELY SEED TOP OF BERM AND SLOPES TO ESTABLISH DENSE STAND OF GRASS.
HW-100
DMH-101
RISER-102
INSTALL PERMANENT RISER AND OUTLET PIPE WET POND DETAILS SHEET. CONSTRUCT SAND FILTER DIAPHRAGM.
TEMP 6" PVC FROM SKIMMER TO RISER. SEE RISER DETAIL FOR POINT OF CONNECTION.
TEMP SKIMMER. SEE BASIN TABLE THIS SHEET FOR SKIMMER & ORIFICE SIZE. SEE SKIMMER DETAIL ON DETAILS SHEET.
TEMP COIR MESH BAFFLE (TYP) BURY ENDS INTO SIDESLOPES.
TEMP DIVERSION DITCH (TDD #1) SEE DITCH TABLE THIS SHEET. SEE CHANNEL LINER DETAIL ON DETAILS SHEET.
TEMP IMPERMEABLE MEMBRANE AT DITCH INFLOW LOCATIONS.
TD
EXISTING POND WATER SURFACE.
EX. STORMWATER POND (TO BE REMOVED DURING CONSTRUCTION OF STAGE 2.)
SILT FENCE (TYP)
LIMITS OF DISTURBANCE (TYP)
TEMP CONCRETE WASHOUT. SEE DETAIL.
TEMP GRAVEL CONSTRUCTION EXIT. SEE DETAIL.
TEMP INLET PROTECTION.
15"CMP
PP
CATV
TRANS
TEMP STOCKPILE.
SF
LOD
TP
SHED
WELL
WATTLE (TYP) SEE DETAIL.
OLD FAISON ROAD SR-2515 VARIABLE WIDTH NCDOT R/W
NCGRID NAD83/2011

811
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N.C. ONE-CALL CENTER
IT'S THE LAW!

60' 0 30' 60'

SCALE 1 inch = 60 ft

TOTAL DISTURBED AREA = 942,751 SF = 21.65 AC

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers
& ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

EROSION CONTROL PLAN - STAGE 1

DATE:	
DESIGNED BY:	CS
DRAWN BY:	EDN
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C5.01

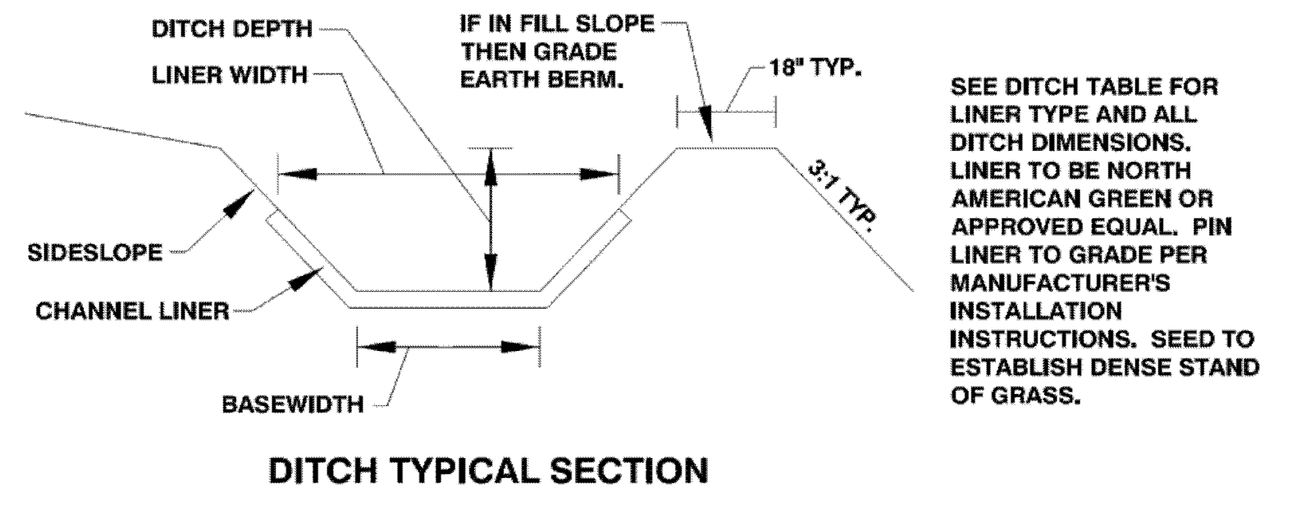
Do Not Use for Construction - PRELIMINARY

EROSION CONTROL LEGEND:

LIMITS OF DISTURBANCE	▬ LOD ▬ LOD ▬
SILT FENCE	—— SF ——
TREE PROTECTION FENCE	—— TP ——
COMBINATION SILT AND TREE PROTECTION FENCE	—— TPF – SF ——
SILT FENCE OUTLET	▨ SF ——
TEMP DIVERSION DITCH	—>—>—
EXISTING CONTOURS	9 10
PROPOSED CONTOURS	9 10
CONSTRUCTION ENTRANCE	▩
CONCRETE WASHOUT	▣
TEMP INLET PROTECTION. SEE DETAILS.	☐
TEMPORARY WATTLE	◠

PERMANENT DITCH TABLE

DITCH NUMBER:	PD 1	PD 2	PD 3	PD 4	PD 5	PD 6	PD 7	PD 8	PD 9	PD 10	PD 11	PD 11A	PD 12	PD 13	PD 14	PD 15
CHANNEL BASEWIDTH (FEET):	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CHANNEL SIDESLOPES:	3:1	3:1	3:1	3:1	3:1	3:1	3:1	3:1	3:1	3:1	3:1	3:1	3:1	3:1	3:1	3:1
MIN. CHANNEL DEPTH (FEET):	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	1.10	1.00	1.00	1.10	1.00	1.00	1.00	1.00
CHANNEL LINER TYPE:	NAG DS75	NAG DS75	NAG DS75	NAG C125	NAG DS75	NAG DS75	NAG DS75	NAG DS75	NAG DS75	NAG DS75	NAG DS75	NAG DS75	NAG DS75	NAG C350	NAG DS75	NAG DS75
MIN. CHANNEL LINER WIDTH (FEET):	5.00	5.00	5.00	7.00	5.00	5.00	8.00	5.00	7.00	5.00	6.00	7.00	6.00	7.00	6.00	5.00


DITCH DEPTH
LINER WIDTH
IF IN FILL SLOPE THEN GRADE EARTH BERM.
18" TYP.
3:1 TYP.
SIDESLOPE
CHANNEL LINER
BASEWIDTH

DITCH TYPICAL SECTION

SEE DITCH TABLE FOR LINER TYPE AND ALL DITCH DIMENSIONS. LINER TO BE NORTH AMERICAN GREEN OR APPROVED EQUAL. PIN LINER TO GRADE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. SEED TO ESTABLISH DENSE STAND OF GRASS.

EROSION CONTROL SEQUENCE – STAGE 2

1. DO NOT BEGIN STAGE 2 UNTIL ALL STAGE 1 MEASURES ARE IN PLACE. CONTRACTOR TO INSPECT AND REFURBISH ALL STAGE 1 EROSION CONTROL MEASURES AS NEEDED.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT ALL EROSION CONTROL MEASURES AFTER EACH RAINFALL EVENT, AND MAKE IMMEDIATE REPAIRS AS NEEDED. ALL SEDIMENT SHALL BE RETAINED ON THE JOBSITE THROUGHOUT CONSTRUCTION. ALL ADJACENT STREETS AND SIDEWALKS SHALL BE KEPT BROOM CLEAN.
3. REFER TO THE NPDES PERMIT, WHICH REQUIRES THE CONTRACTOR TO PERFORM SELF-INSPECTIONS, KEEP AN ONSITE RAIN GAUGE, AND KEEP ONSITE INSPECTION RECORDS.
4. PERFORM DEMOLITION, THEN CLEAR AND GRUB THE SITE UP TO THE DISTURBANCE LIMITS SHOWN ON THE PLAN.
5. BEGIN SITE GRADING. PROVIDE TEMPORARY SEEDING IN ACCORDANCE WITH THE STABILIZATION TIME FRAMES SHOWN ON THE NPDES DETAILS.
6. INSTALL STORM PIPE SYSTEM AND TEMPORARY INLET PROTECTION. GRADE ALL PERMANENT SWALES/DITCHES, AND INSTALL DITCH LINERS. INSTALL PROPOSED UTILITIES.
7. ALL GRADING, COMPACTION, POND/BERM CONSTRUCTION, BUILDING PADS AND PROOFROLL SHALL BE OBSERVED BY THE PROJECT GEOTECHNICAL ENGINEER. SUBMIT GEOTECHNICAL CERTIFICATION OF POND BERM CONSTRUCTION TO OWNER/CIVIL ENGINEER.

LIMITS OF DISTURBANCE STAKEOUT:

PRIOR TO CONSTRUCTION, CONTRACTOR SHALL STAKE/FLAG LIMITS OF DISTURBANCE AT 50.0' INTERVALS. ERECT TEMPORARY SILT FENCE AND TEMPORARY TREE PROTECTION FENCE WHERE SHOWN.

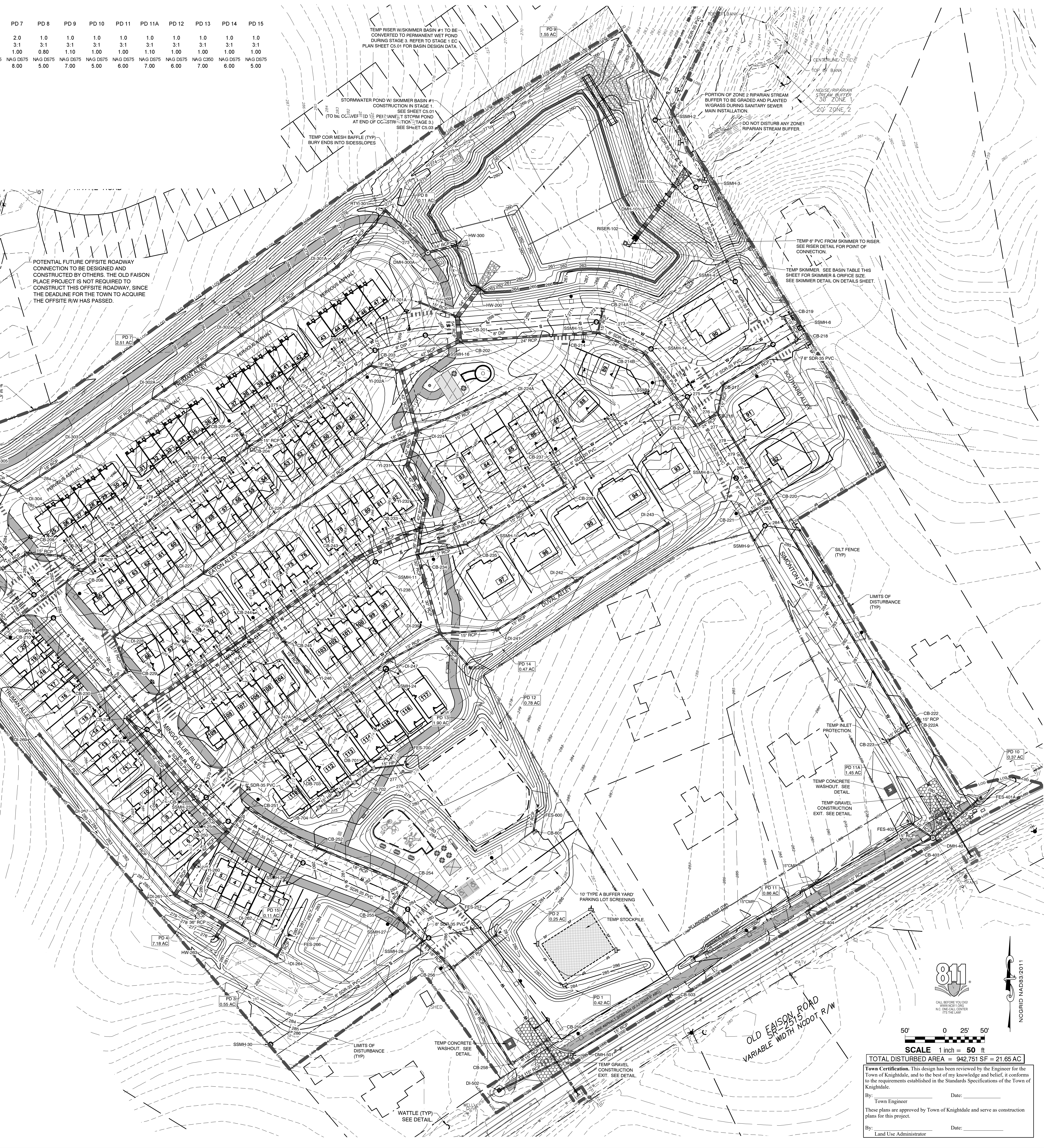
TEMPORARY INLET PROTECTION:

- DO NOT INSTALL ANY PLYWOOD INLET PROTECTION INSIDE OF THE NCDOT R/W. TEMPORARY PLYWOOD INLET PROTECTION SHALL ONLY BE INSTALLED ON PRIVATE PROPERTY. REMOVE PLYWOOD INLET PROTECTION WHEN PERMANENT STORM STRUCTURES ARE INSTALLED.
- INSTALL TEMPORARY SILT FENCE INLET PROTECTION AT ALL PROPOSED STORM STRUCTURES. SILT FENCE INLET PROTECTION SHALL BE REMOVED PRIOR TO THE OPENING OF ROADS TO TRAFFIC, AND PRIOR TO THE PLACEMENT OF THE FINAL LIFT OF ASPHALT.
- AFTER THE ENTIRE SITE IS STABILIZED WITH PERMANENT GROUND COVER, THEN ALL TEMPORARY INLET PROTECTION SHALL BE REMOVED. STABILIZE ANY REMAINING BARE AREAS WITH PERMANENT GROUND COVER (GRASS).

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND NCDEQ STANDARDS & SPECIFICATIONS.

REVIEW DRAWING - THESE PLANS SHALL NOT BE USED FOR CONSTRUCTION UNTIL AFTER THEY ARE APPROVED BY ALL MUNICIPALITIES AND ISSUED FOR CONSTRUCTION BY THE ENGINEER.

REFER TO SHEET C4.01A FOR STORM PIPES AND STRUCTURES TABLES.


TEMP RISER W/SKIMMER BASIN #1 TO BE CONVERTED TO PERMANENT WET POND DURING STAGE 3. REFER TO STAGE 1 EC PLAN SHEET C5.01 FOR BASIN DESIGN DATA.
STORMWATER POND W/ SKIMMER BASIN #1 CONSTRUCTION IN STAGE 1. SEE SHEET C5.01 (TO BE CONVERTED TO PERMANENT STORM POND AT END OF CONSTRUCTION STAGE 3) SEE SHEET C5.03
TEMP COIR MESH BAFFLE (TYP) BURY ENDS INTO SIDESLOPES
PORTION OF ZONE 2 RIPARIAN STREAM BUFFER TO BE GRADED AND PLANTED W/GRASS DURING SANITARY SEWER MAIN INSTALLATION.
DO NOT DISTURB ANY ZONE1 RIPARIAN STREAM BUFFER.
NEUSE RIPARIAN STREAM BUFFER
30' ZONE 1
20' ZONE 2
TEMP 6" PVC FROM SKIMMER TO RISER. SEE RISER DETAIL FOR POINT OF CONNECTION.
TEMP SKIMMER. SEE BASIN TABLE THIS SHEET FOR SKIMMER & ORIFICE SIZE. SEE SKIMMER DETAIL ON DETAILS SHEET.
POTENTIAL FUTURE OFFSITE ROADWAY CONNECTION TO BE DESIGNED AND CONSTRUCTED BY OTHERS. THE OLD FAISON PLACE PROJECT IS NOT REQUIRED TO CONSTRUCT THIS OFFSITE ROADWAY, SINCE THE DEADLINE FOR THE TOWN TO ACQUIRE THE OFFSITE R/W HAS PASSED.
LIMITS OF DISTURBANCE (TYP)
SILT FENCE (TYP)
TEMP INLET PROTECTION (TYP).
TEMP INLET PROTECTION.
TEMP CONCRETE WASHOUT. SEE DETAIL.
TEMP GRAVEL CONSTRUCTION EXIT. SEE DETAIL.
10' TYPE A BUFFER YARD PARKING LOT SCREENING
TEMP STOCKPILE
WATTLE (TYP) SEE DETAIL
TRUMAN ALLEY
MINGO BLUFF BLVD
EATON ALLEY
SIMONTON ST
SOUTHARD ALLEY
DUVAL ALLEY
PERVIOUS ASPHALT
EXISTING HOUSE
OLD FAISON ROAD SR 2515 VARIABLE WIDTH NCDOT R/W
PD 1 0.42 AC
PD 2 0.25 AC
PD 3 0.55 AC
PD 4 7.18 AC
PD 5 0.62 AC
PD 6 0.98 AC
PD 7 2.51 AC
PD 8 0.11 AC
PD 9 1.55 AC
PD 10 0.37 AC
PD 11 0.86 AC
PD 11A 1.45 AC
PD 12 0.78 AC
PD 13 1.90 AC
PD 14 0.47 AC
PD 15 0.11 AC
NCGRID NAD83/2011

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50' 0 25' 50'

SCALE 1 inch = **50** ft

TOTAL DISTURBED AREA = 942,751 SF = 21.65 AC

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

DATE:	
DESIGNED BY:	CS
DRAWN BY:	EDN
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C5.02

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

EROSION CONTROL PLAN - STAGE 2

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

SEAL 26493 STEPHEN J. BALLENTINE

Engineers
Planners
Surveyors
Landscape Architects

Rivers
& ASSOCIATES, INC.
Since 1918
riversandassociates.com

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

EROSION CONTROL LEGEND:

LIMITS OF DISTURBANCE	▬ LOD ▬ LOD ▬
SILT FENCE	—SF—
TREE PROTECTION FENCE	—TP—
COMBINATION SILT AND TREE PROTECTION FENCE	—TPF—SF—
SILT FENCE OUTLET	▨—SF—
TEMP DIVERSION DITCH	—>—>—
EXISTING CONTOURS	9 10
PROPOSED CONTOURS	9 10
CONSTRUCTION ENTRANCE	▦
CONCRETE WASHOUT	▣
TEMP INLET PROTECTION. SEE DETAILS.	☐
TEMPORARY WATTLE	⌒

EROSION CONTROL SEQUENCE – STAGE 3

1. AFTER GRADING IS COMPLETE, THEN ESTABLISH PERMANENT GROUND COVER ON ALL DISTURBED AREAS, INCLUDING PAVING, LANDSCAPING,MULCH, AND ESTABLISH A DENSE STAND OF GRASS. ANY BARE SPOTS, EROSIVE RILLS OR EROSIVE SLOPES SHALL BE PERMANENTLY STABILIZED WITH AN EROSION CONTOL BLANKET AND GRASS (SEED, HYDROSEED OR SOD AS NEEDED). THE CONTRACTOR SHALL WATER ALL VEGETATION AS NEEDED FOR HEALTHY PLANTS AND GRASS UNTIL CONSTRUCTION IS COMPLETE AND APPROVED BY MUNICIPALITIES.
2. AFTER ALL AREAS ARE STABILIZED AND A DENSE STAND OF GRASS IS ESTABLISHED, THEN CONTACT EROSION CONTROL INSPECTOR FOR ONSITE INSPECTION. OBTAIN APPROVAL AND REQUEST PERMISSION TO CONVERT THE TEMPORARY SKIMMER BASIN INTO A PERMANENT WET DETENTION POND.
3. INSALL TEMPORARY PORTABLE PUMP GENERATOR ON TOP OF BERM. CONNECT INTAKE HOSE TO TEMPORARY SKIMMER AND RUN DISCHARGE HOSE TO RIPRAP OUTLET. WATER IS TO BE DISCHARGED THROUGH STANDARD SILT BAG. SILT BAG WILL BE MONITORED CONTINUOUSLY WHILE AND USE AND SILT BAG WASTE IS TO BE DISPOSED OF REGULARLY IN AN APPROVED LOCATION.
4. FOLLOWING APPROVAL, THEN REMOVE ALL REMAINING TEMPORARY EROSION CONTROL MEASURES (SILT FENCE, INLET PROTECTION, TEMPORARY DIVERSION DITCHES ETC.). REFER TO POND DETAIL SHEET.

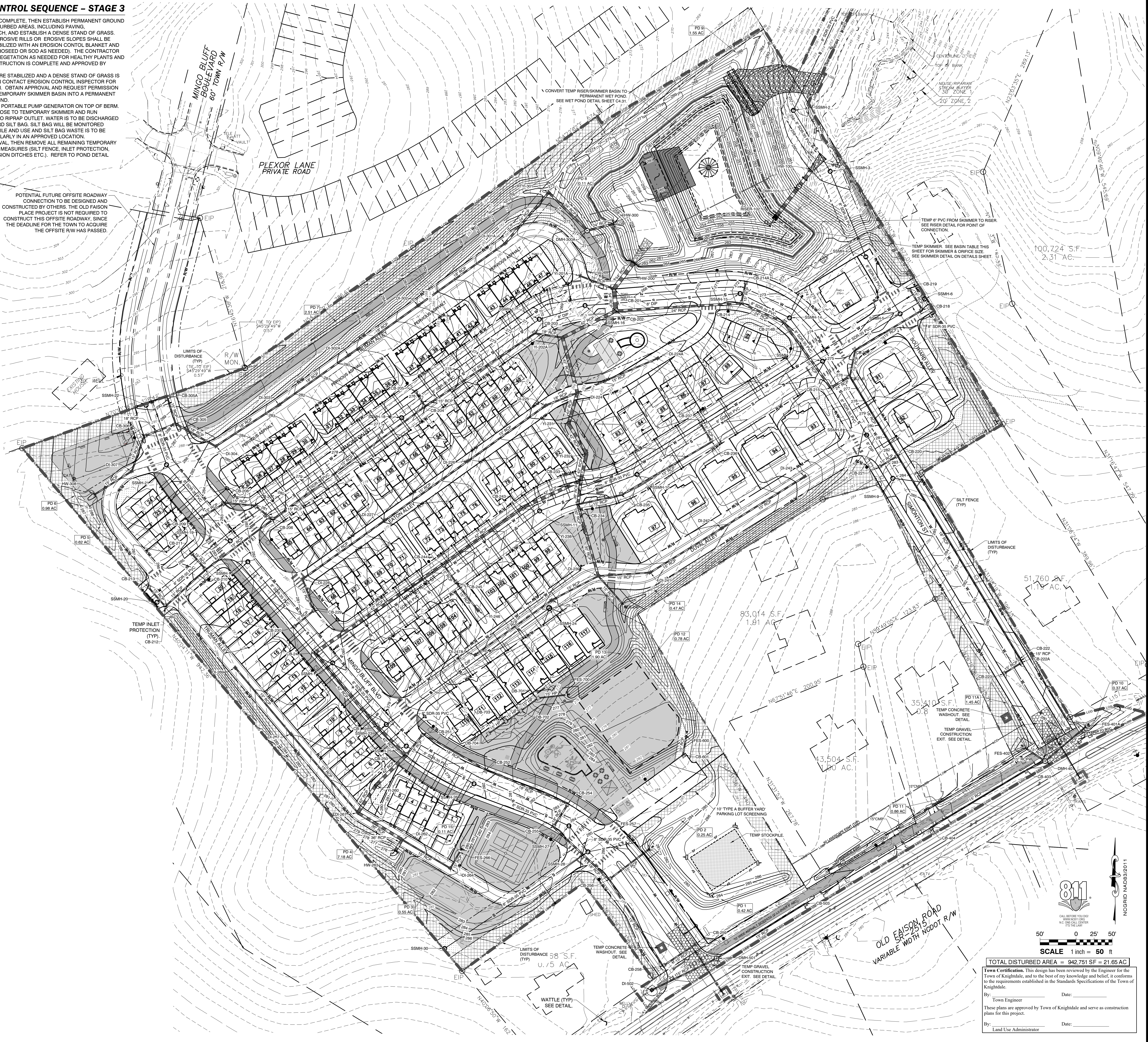
ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, NCDOT AND NCDEQ STANDARDS & SPECIFICATIONS.

REVIEW DRAWING - THESE PLANS SHALL NOT BE USED FOR CONSTRUCTION UNTIL AFTER THEY ARE APPROVED BY ALL MUNICIPALITIES AND ISSUED FOR CONSTRUCTION BY THE ENGINEER.

POND CONVERSION SEQUENCE:

- PRIOR TO CONVERSION, SITE SHALL BE AT LEST 80% STABILIZED WITH GRASS, PAVEMENT, BUILDINGS. CONTACT ENGINEER AND INSPECTORS TO REQUEST PERMISSION TO BEGIN CONVERSION.
- REMOVE BAFFLES AND TEMP SKIMMER. REMOVE SEDIMENT AND MUCK OUT POND. FINE GRADE POND PER PLAN.
- INSTALL BENTONITE CLAY LINER. CONTRACTOR TO SUBMIT ASBUILT SURVEY TO ENGINEER.

REFER TO SHEET C4.01A FOR STORM PIPES AND STRUCTURES TABLES.


POTENTIAL FUTURE OFFSITE ROADWAY CONNECTION TO BE DESIGNED AND CONSTRUCTED BY OTHERS. THE OLD FAISON PLACE PROJECT IS NOT REQUIRED TO CONSTRUCT THIS OFFSITE ROADWAY, SINCE THE DEADLINE FOR THE TOWN TO ACQUIRE THE OFFSITE R/W HAS PASSED.
MINGO BLUFF BOULEVARD 60' TOWN R/W
PLEXOR LANE PRIVATE ROAD
CONVERT TEMP RISER/SKIMMER BASIN TO PERMANENT WET POND. SEE WET POND DETAIL SHEET C4.31.
TEMP 6" PVC FROM SKIMMER TO RISER. SEE RISER DETAIL FOR POINT OF CONNECTION.
TEMP SKIMMER. SEE BASIN TABLE THIS SHEET FOR SKIMMER & ORIFICE SIZE. SEE SKIMMER DETAIL ON DETAILS SHEET.
100,724 S.F. 2.31 AC.
SILT FENCE (TYP)
LIMITS OF DISTURBANCE (TYP)
51,760 S.F. 1.19 AC.
83,014 S.F. 1.91 AC.
35,410 S.F. 0.8
43,504 S.F. 1.00 AC.
TEMP CONCRETE WASHOUT. SEE DETAIL.
TEMP GRAVEL CONSTRUCTION EXIT. SEE DETAIL.
10' TYPE A BUFFER YARD PARKING LOT SCREENING
TEMP STOCKPILE.
TEMP INLET PROTECTION (TYP)
LIMITS OF DISTURBANCE (TYP)
WATTLE (TYP) SEE DETAIL.
OLD FAISON ROAD SR-2515 VARIABLE WIDTH NCDOT R/W
MINGO BLUFF BLVD
NCGRID NAD83/2011

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50' 0 25' 50'
SCALE 1 inch = **50** ft

TOTAL DISTURBED AREA = 942,751 SF = 21.65 AC

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 Standards Specifications of the Town of Knightdale.

By: ____________________ Date: ______________
Town Engineer

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

By: ____________________ Date: ______________
Land Use Administrator

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SEAL 26493
STEPHEN J. BALLENTINE
Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

EROSION CONTROL PLAN - STAGE 3

DATE:	
DESIGNED BY:	CS
DRAWN BY:	EDN
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN

SHEET No.
C5.03

Do Not Use for Construction - PRELIMINARY

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 on holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (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 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 record of the following shall be made: 1) Actions taken to clean up or stabilize sediment that has left the site limits 2) Description, Evidence and date of corrective actions taken 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 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 2)Records of 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 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	Document 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 will be 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 (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 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, he 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 Timeframe (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 caused, 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(I)(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(I)(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 time 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.

NORTH CAROLINA
Department of Environmental Quality

INSPECTION, RECORD KEEPING AND REPORTING

Effective:
April 1, 2024

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: 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 10 feet 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 and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, 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, 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 ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers. • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting (PRSM) • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

Note: The use of techniques listed above which promote and assist in establishment of vegetation does not consitute permanet stabilization prior to the establishment of permanent vegetation.

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the NC DWR List of Approved PAMS/Flocculants
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the NC DWR List of Approved PAMS/Flocculants and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate 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. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

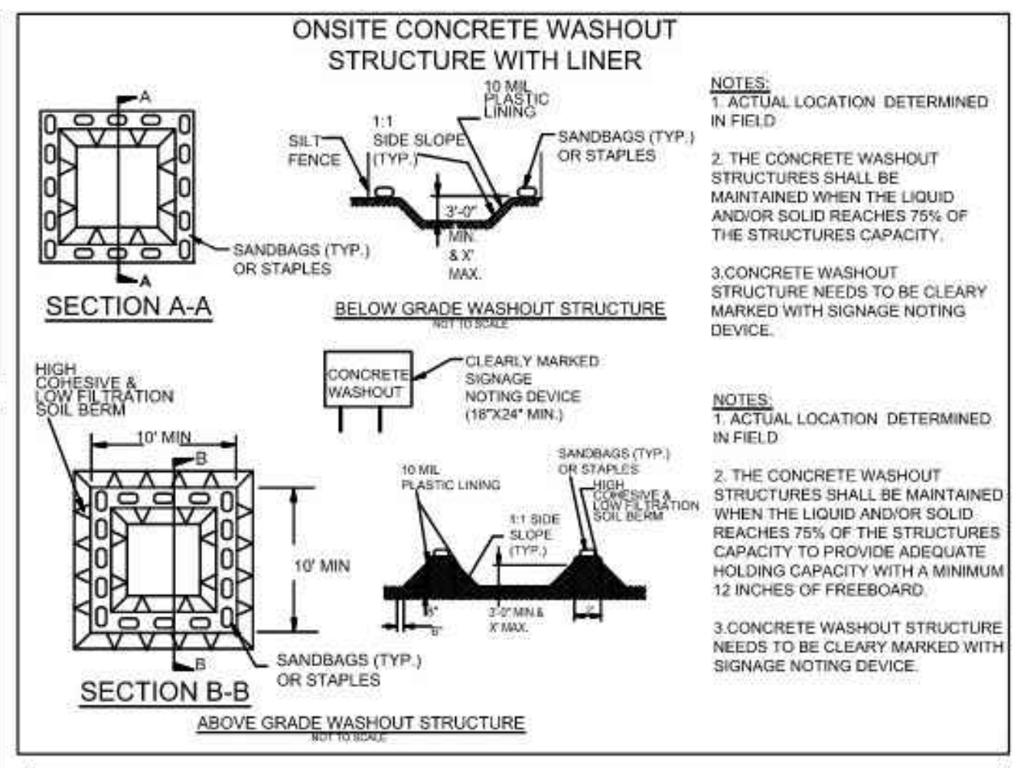
EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets and surface waters unless it can be shown no other alternatives are reasonably available. It is recommended to locate stockpile areas at least 50 feet away from skimmer basins and anywhere stormwater flow is concentrated.
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 stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
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.

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER


SECTION A-A
SANDBAGS (TYP.) OR STAPLES
BELOW GRADE WASHOUT STRUCTURE
SECTION B-B
HIGH COHESIVE & LOW FILTRATION SOIL BERM
10' MIN
PLASTIC LINING
1:1 SIDE SLOPE (TYP.)
SANDBAGS (TYP.) OR STAPLES
ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE
CLEARLY MARKED SIGNAGE NOTING DEVICE
CONCRETE WASHOUT

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.
3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

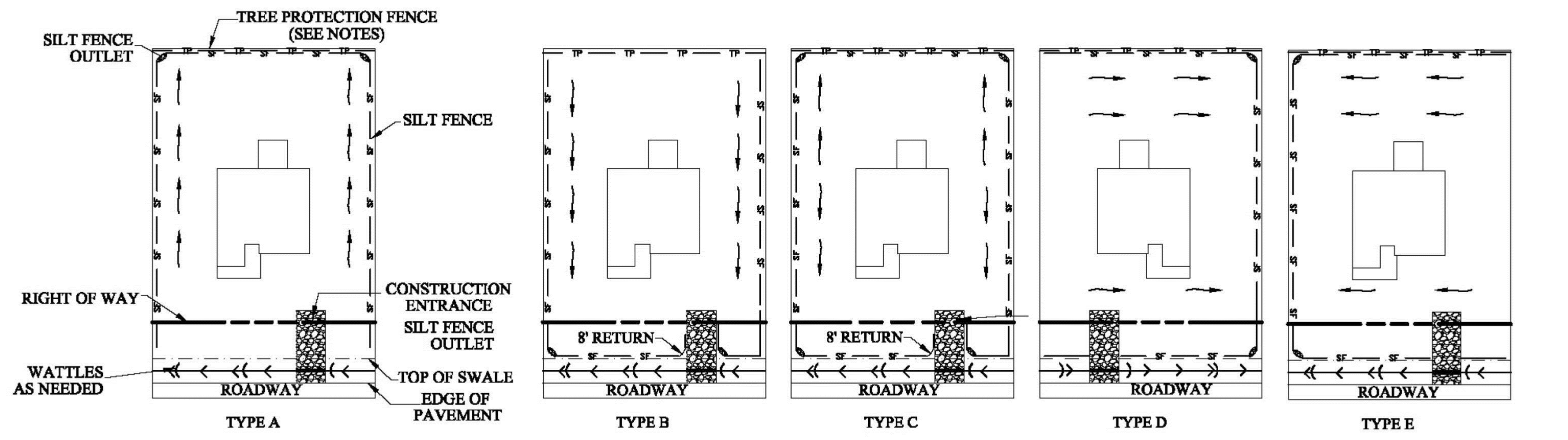
HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
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 poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

NORTH CAROLINA
Department of Environmental Quality

GROUND COVER & MATERIALS HANDLING

Effective:
April 1, 2024



LEGENDS

→	FLOW DIRECTION
— SF —	SILT FENCE
→—→	DIVERSION DITCH
(	WATTLES
— TP —	TREE PROTECTION FENCE
⬭	SILT FENCE OUTLET
(	WATTLES
━━	DRAINAGE PIPE
▨	CONSTRUCTION ENTRANCE

NOTES:

1. Tree protection fencing should be installed along the rear of the property line when adjacent to riparian buffer zones, wetlands and/or 25ft. Tree and Vegetation Protection Zone.
2. Install silt fence on low elevation sides of each lot and install silt fence outlets should on schematic diagram and as needed.
3. Install silt fence within 10 feet of property line on all sides of lot to avoid conflict with septic system. It is the responsibility of the builder to avoid septic system conflict with silt fence installation.
4. Construction entrance should be installed for each lot and filed located.
5. These details are only for lots with disturbed acre less than one acre.
6. If the disturbed acre is greater than one acre, a custom erosion control plan should be submitted for the 30-day review cycle. The plan should address berms/diversions and sediment traps and basins.
7. If multiple lots share silt fence with none installed between the lots, a revised plan will be required and a Notice of Violation (NOV) will be issued.
8. Inlets downstream of disturbances should be protected, streets should be swept as needed when sediment is present, and erosion control measures removed or damaged by sub-contractors or utilities shall be re-installed at the end of the workday.
9. Details for silt fence, silt fence outlet, construction entrance and other measures are provided on other sheets.
10. Erosion control details are not drawn to scale.
11. Verify the land disturbance does not impact septic field or repair field as this may void on-site wastewater permit validity.
12. If lots are contiguous and have different landowners, lots cannot share silt fences. Each lot should have individual silt fences.

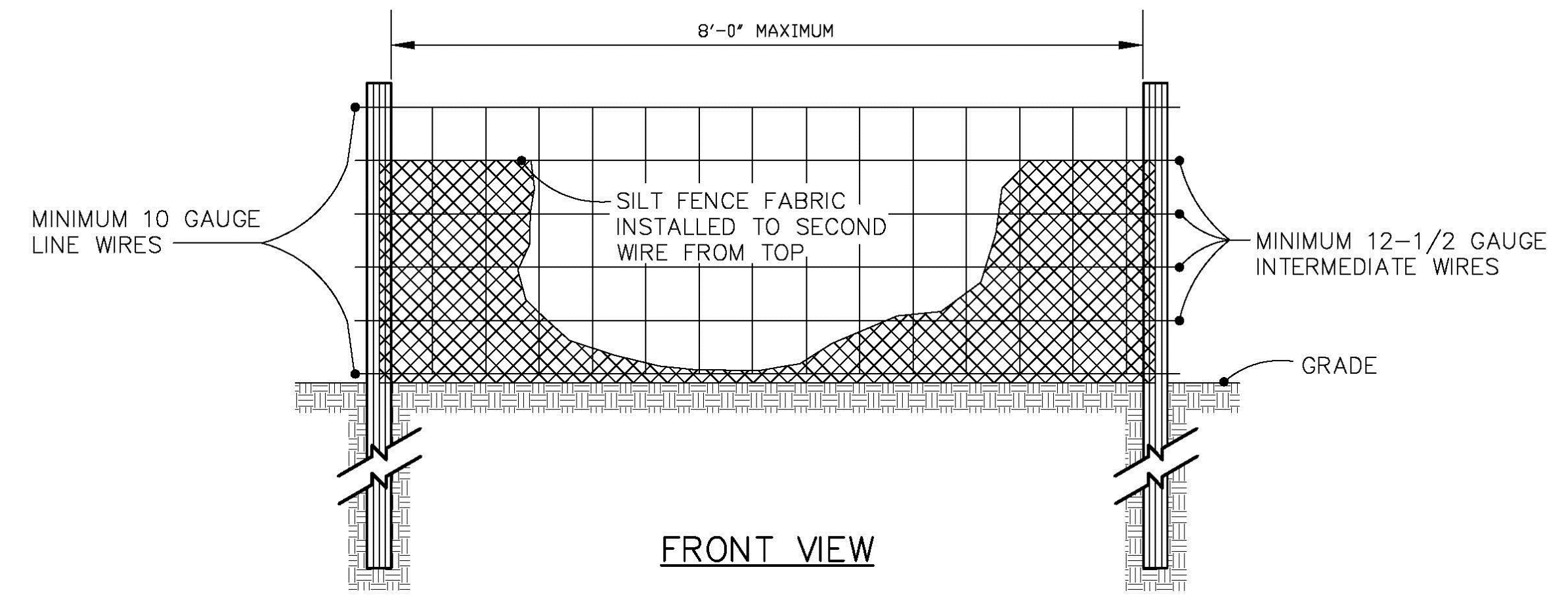
Standard erosion control plan does not cover the following:
- a) Basement lots
- b) Lots with greater than 5 feet elevation between the tow of slope and/or lots with greater than 10 feet elevation of the disturbed area from front to back.
- c) Lots with concentrated flow/swales between them
- d) Lots with Stormwater Control Measures (SCMs) for the individual lot
- e) Lots receiving offsite concentrated stormwater

KNIGHTDALE
stormwater

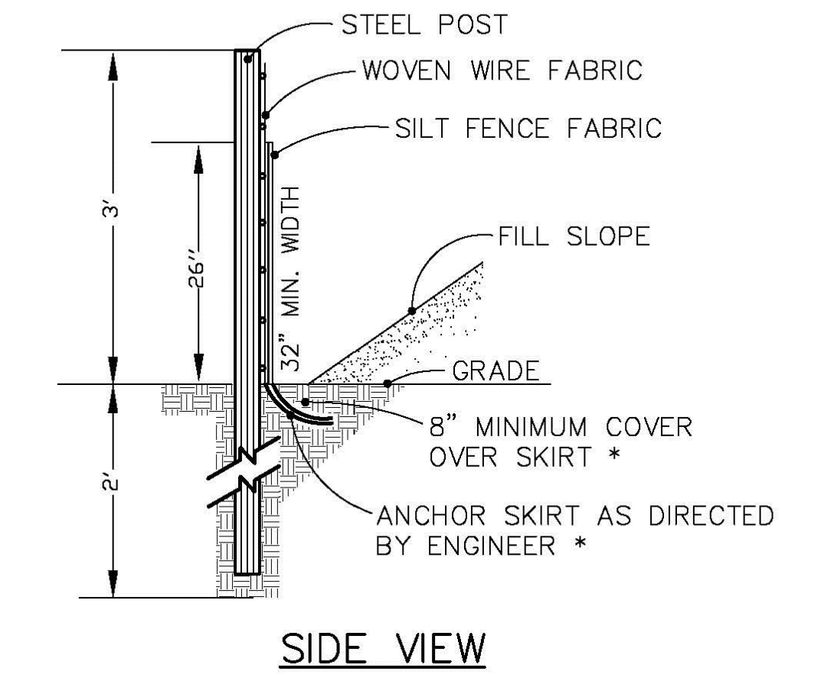
EFFECTIVE: 05/16/2022

TYPICAL INDIVIDUAL LOT SEDIMENT & EROSION CONTROL MEASURES DETAIL

A-2


8'-0" MAXIMUM
MINIMUM 10 GAUGE LINE WIRES
SILT FENCE FABRIC INSTALLED TO SECOND WIRE FROM TOP
MINIMUM 12-1/2 GAUGE INTERMEDIATE WIRES
GRADE

FRONT VIEW



SIDE VIEW

NOTES:

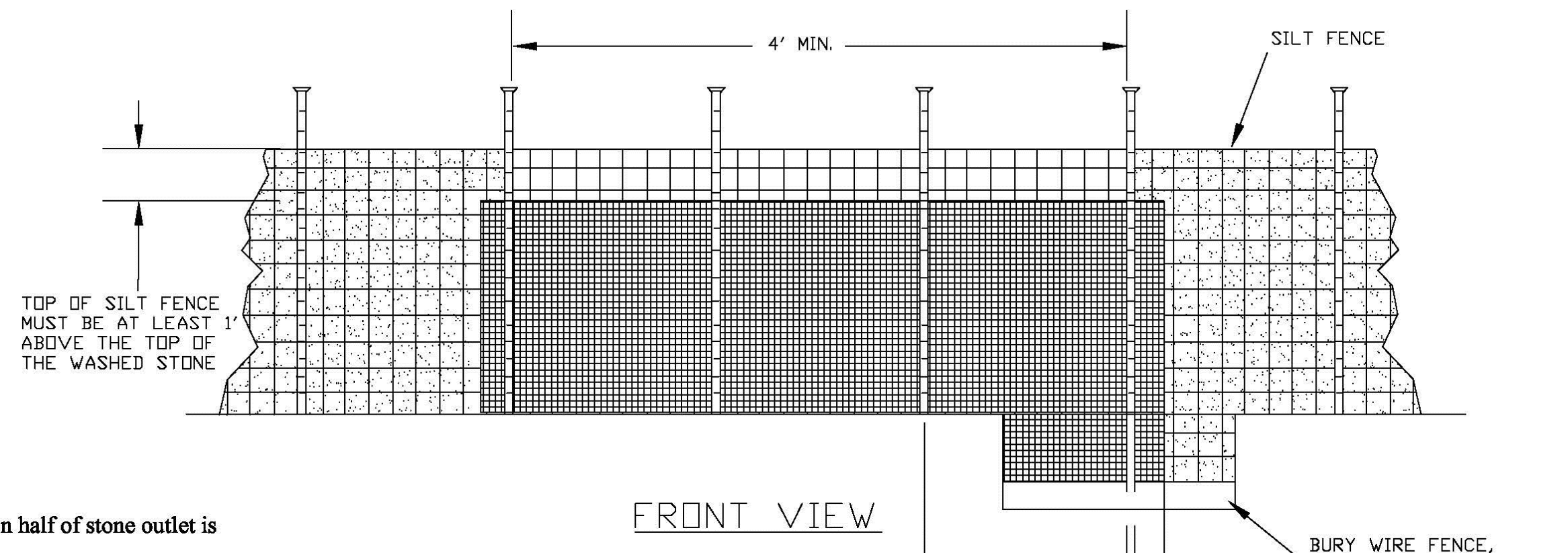
1. Use silt fence only when drainage area does not exceed 1/4 acre and never in areas of concentrated flow.
2. Remove deposited sediment when 50% capacity is reached and as needed to provide storage volume for the next rain event and to remove hydraulic pressure on the silt fence.
3. Inspect silt fence weekly and after each 1" rain event.

WAKE COUNTY
NORTH CAROLINA

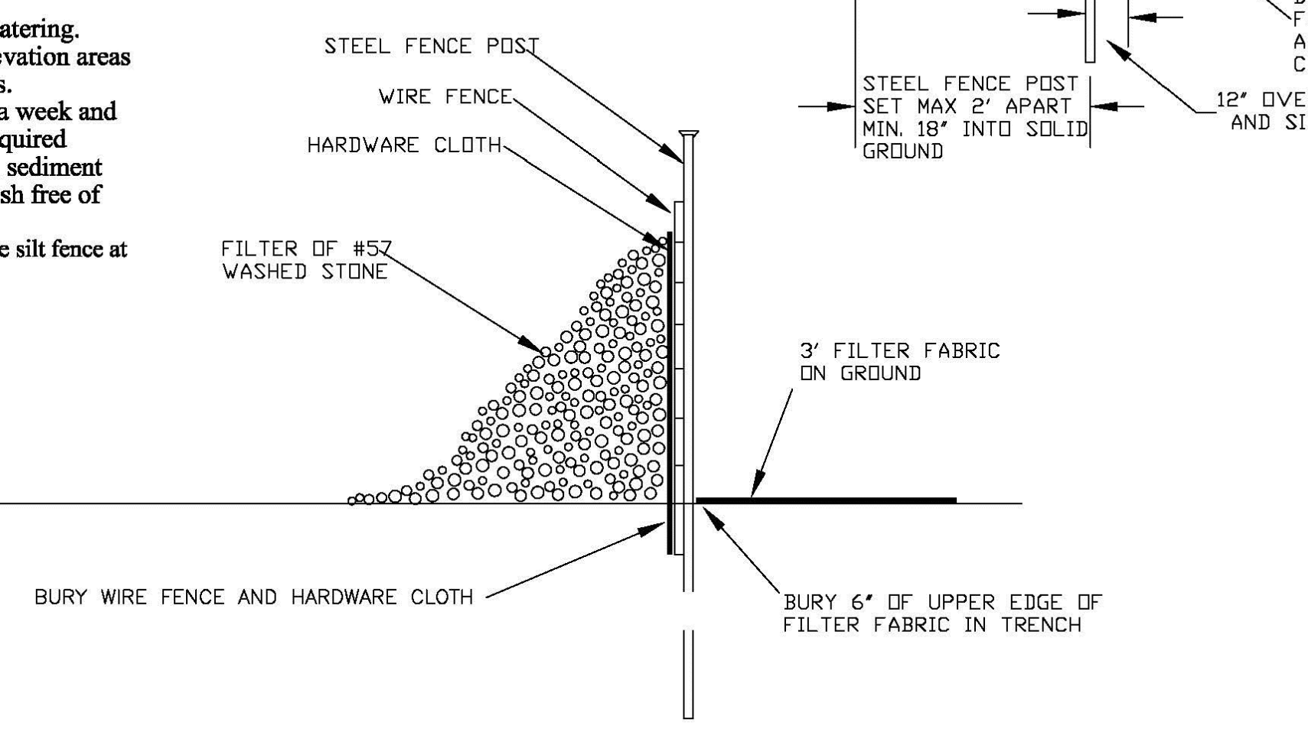
EFFECTIVE: 4/15/19

STANDARD TEMPORARY SILT FENCE DETAIL

A-4


4' MIN.
SILT FENCE
TOP OF SILT FENCE MUST BE AT LEAST 1' ABOVE THE TOP OF THE WASHED STONE

FRONT VIEW


STEEL FENCE POST
WIRE FENCE
HARDWARE CLOTH
STEEL FENCE POST SET MAX 2' APART MIN. 18" INTO SOLID GROUND
BURY WIRE FENCE, FILTER FABRIC, AND HARDWARE CLOTH IN TRENCH
12" OVERLAP #57 STONE AND SILT FENCE
FILTER OF #57 WASHED STONE
3' FILTER FABRIC ON GROUND
BURY WIRE FENCE AND HARDWARE CLOTH
BURY 6" OF UPPER EDGE OF FILTER FABRIC IN TRENCH

SECTION VIEW

NOTES:

1. Remove sediment when half of stone outlet is covered.
2. Replace stone as needed to facilitate dewatering.
3. Stone outlets should be placed on low elevation areas of silt fence and based on field conditions.
4. Per NCG-01, inspect outlet at least once a week and after each 1" rain event. Complete any required repairs immediately. Freshen stone when sediment accumulation exceeds 6 inches. Keep mesh free of debris to provide adequate flow.
5. Hardware cloth and gravel should overlap the silt fence at least 12 inches.

WAKE COUNTY
NORTH CAROLINA

EFFECTIVE: 4/15/19

STANDARD TEMPORARY SILT FENCE OUTLET DETAIL

A-5

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
Since 1918
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Engineers
Planners
Surveyors
Landscape Architects

NORTH CAROLINA PROFESSIONAL SEAL 26493 ENGINEER

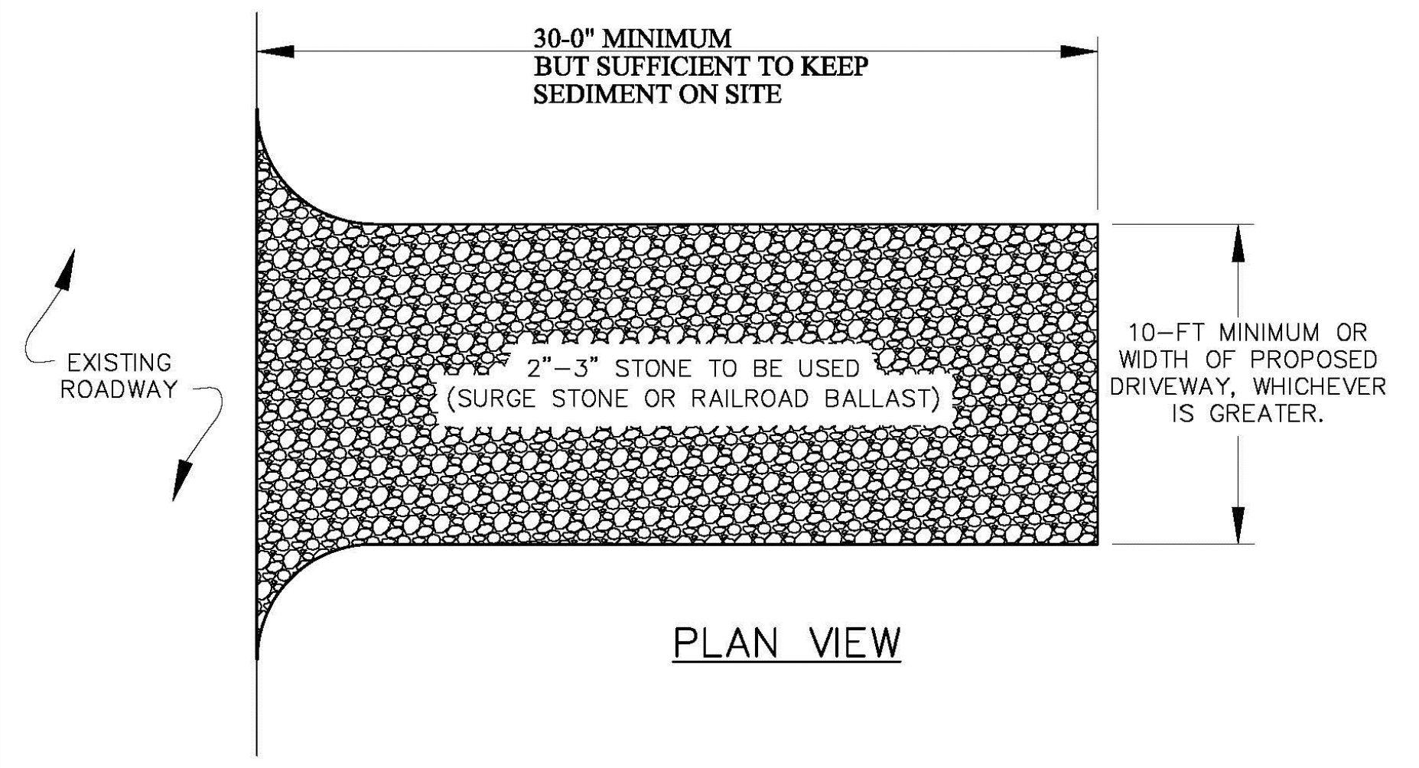
REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	1ST CONSTRUCTION DRAWING SUBMITTAL	06/26/25	

ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE — WAKE COUNTY — NORTH CAROLINA
EROSION CONTROL DETAILS

DATE:	
DESIGNED BY:	CS
DRAWN BY:	EDN
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C5.21

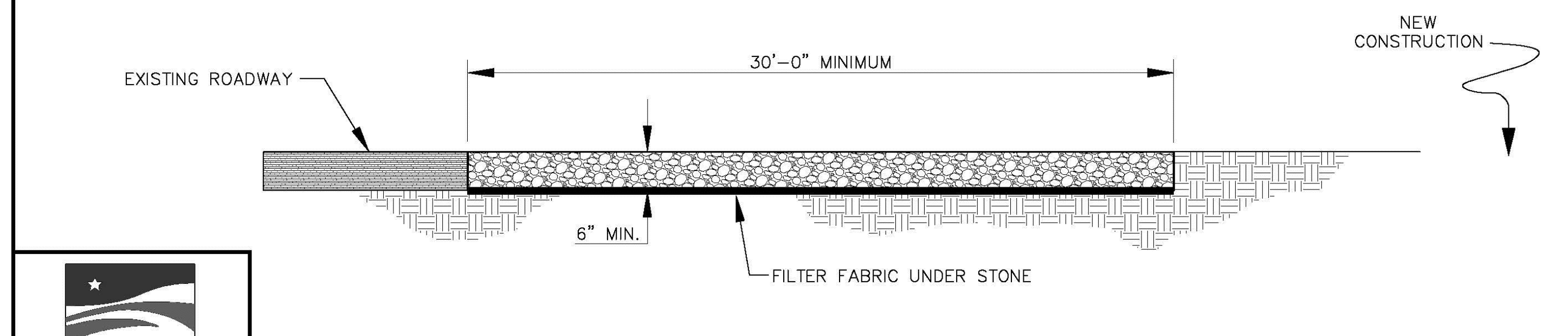
Do Not Use for Construction - PRELIMINARY


30'-0" MINIMUM BUT SUFFICIENT TO KEEP SEDIMENT ON SITE
EXISTING ROADWAY
2"-3" STONE TO BE USED (SURGE STONE OR RAILROAD BALLAST)
10-FT MINIMUM OR WIDTH OF PROPOSED DRIVEWAY, WHICHEVER IS GREATER.

PLAN VIEW

NOTES:

1. Install silt fence or tree protection fence adjacent to construction entrance to direct vehicles to drive on stone.
2. If mud is not removed from the vehicles traveling over the stone, then the tires of the vehicles should be washed before entering the public road or the construction entrance must be lengthened. Sweep streets immediately if mud is tracked offsite onto public roads.
3. Maintain construction entrance in a condition to prevent mud or sediment from leaving the site. Entrance will require periodic removal of sediment-laden stone and replacement with fresh stone. Immediately remove all mud/sediment/rock tracked off the lot.


EXISTING ROADWAY
30'-0" MINIMUM
NEW CONSTRUCTION
6" MIN.
FILTER FABRIC UNDER STONE

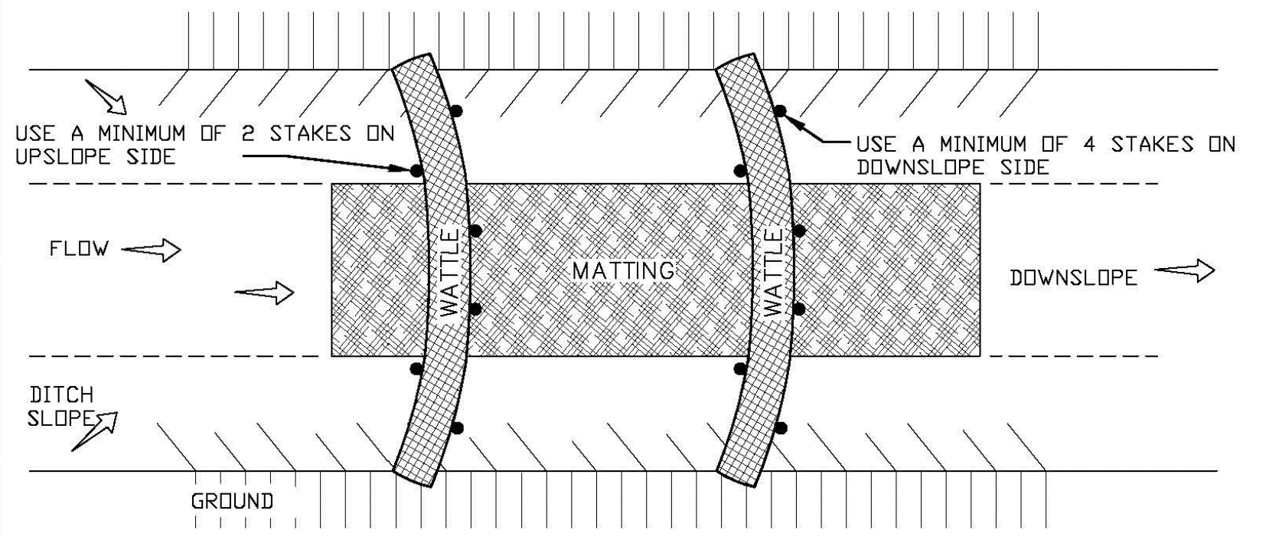
CROSS SECTION

WAKE COUNTY NORTH CAROLINA

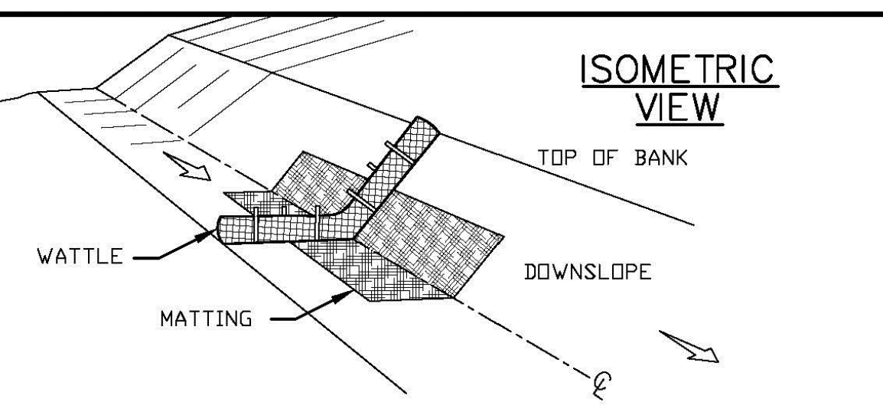
EFFECTIVE: 4/15/19

STANDARD RESIDENTIAL CONSTRUCTION ENTRANCE DETAIL

A-6


USE A MINIMUM OF 2 STAKES ON UPSLOPE SIDE
USE A MINIMUM OF 4 STAKES ON DOWNSLOPE SIDE
FLOW
WATTLE
MATTING
WATTLE
DOWNSLOPE
DITCH SLOPE
GROUND

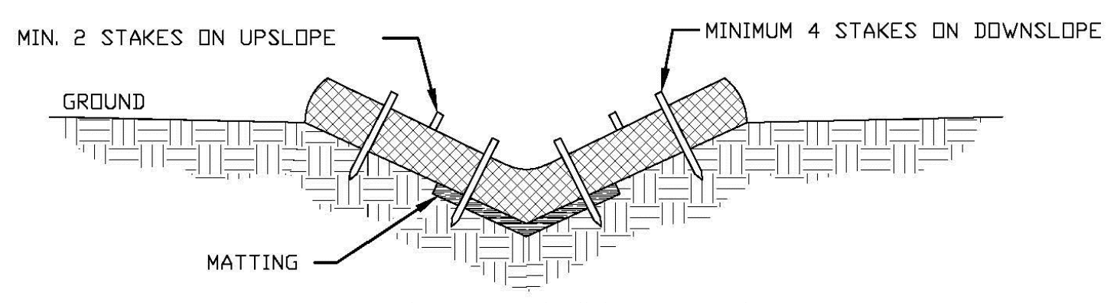
PLAN VIEW


TOP OF BANK
WATTLE
MATTING
DOWNSLOPE

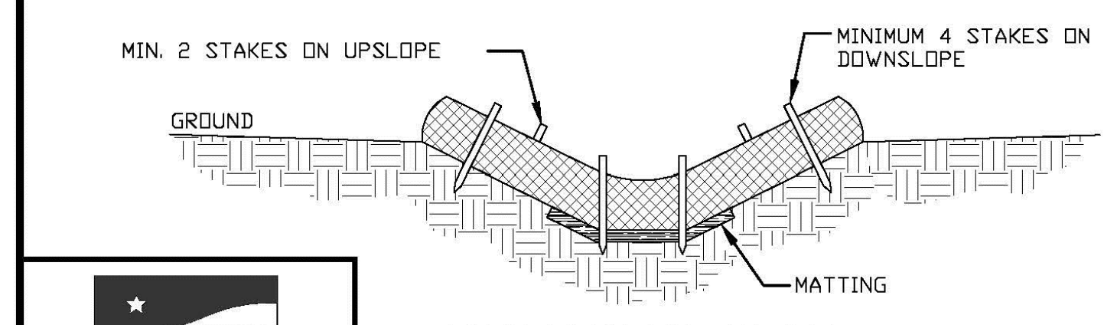
ISOMETRIC VIEW

NOTES:

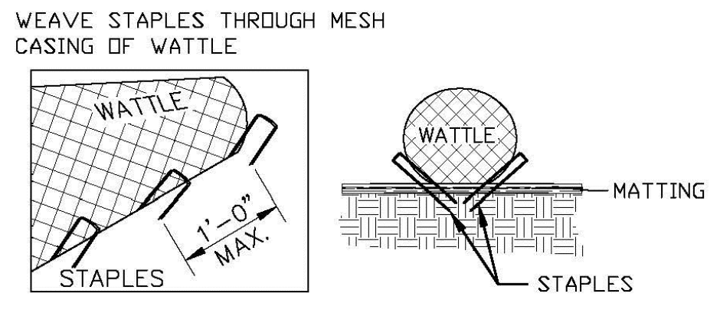
1. Use a minimum 12-inch diameter excelsior wattle.
2. Use 24-inch long wooden stakes with a 2"x2" nominal cross section.
3. Install wattle(s) to a height on slope so flow will not wash around wattle and scour slopes, or as directed.
4. Install a minimum of two upslope stakes and four downslope stakes at an angle to wedge wattle to ground at bottom of ditch.
5. Provide staples made of 0.125-inch diameter steel wire formed into a u-shape not less than 12 inches in length.
6. Install staples approximately every 1 linear foot on both sides of wattles and at each end to secure it to the soil.
7. After installation of staples, check any gaps between wattles and ground with matting.


MIN. 2 STAKES ON UPSLOPE
MINIMUM 4 STAKES ON DOWNSLOPE
GROUND
MATTING

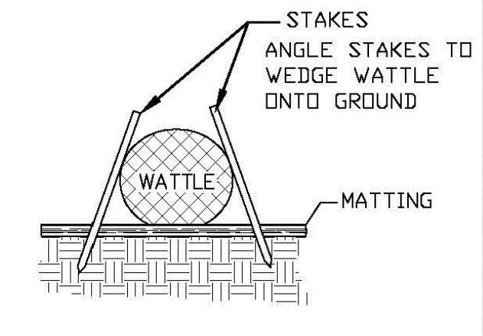
V-DITCH SECTION VIEW


MIN. 2 STAKES ON UPSLOPE
MINIMUM 4 STAKES ON DOWNSLOPE
GROUND
MATTING

TRAPEZOIDAL DITCH SECTION VIEW


WEAVE STAPLES THROUGH MESH CASING OF WATTLE
WATTLE
1'-0" MAX.
STAPLES
WATTLE
MATTING
STAPLES

STAPLE INSTALLMENT SECTIONS


STAKES
ANGLE STAKES TO WEDGE WATTLE ONTO GROUND
WATTLE
MATTING

STAKE INSTALLMENT CROSS SECTION

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 4/15/19

STANDARD WATTLE DETAIL

A-9

Temporary seeding recommendations for late Winter/Early Spring

Seeding Mixture

Species	Rate (Lb/acre)
Rye (green)	120
Annual lespedeza (Kobe in Piedmont and Costal Plain, Korean in Mountains)	50

Omit annual lespedeza when duration of temporary cover is not to extend beyond June.

Seeding dates:
Mountains- Above 2,500 feet: Feb 15- may 15
Below 2,500 feet: Feb 1-May 1

Soil Amendments:
Follow recommendations of soil tests or apply 2 ton/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer.

Mulch:
Apply 4,000/lb/acre straw. Anchor straw by asphalt tack, netting or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulching anchoring tool.

Maintenance:
Re-fertilize if growth is not fully adequate. Reseed, re-fertilize and mulch immediately following erosion and other damage.

Temporary seeding recommendations for Summer

Seeding Mixture

Species	Rate (Lb/acre)
German millet	40

Seeding dates:
Mountains- May 15-Aug 15
Piedmont- May 1 -Aug 1
Costal Plain- April 15- Aug 15

Soil Amendments:
Follow recommendations of soil tests or apply 2 ton/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer.

Mulch:
Apply 4,000/lb/acre straw. Anchor straw by asphalt tack, netting or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulching anchoring tool.

Maintenance:
Re-fertilize if growth is not fully adequate. Reseed, re-fertilize and mulch immediately following erosion and other damage.

Temporary seeding recommendations for Fall

Seeding Mixture

Species	Rate (Lb/acre)
Rye	120

Seeding dates:
Mountains- Aug 15 - Dec 15
Piedmont- Aug 15 - Dec 30
Costal Plain- Aug 15 - Dec 15

Soil Amendments:
Follow recommendations of soil tests or apply 2 ton/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer.

Mulch:
Apply 4,000/lb/acre straw. Anchor straw by asphalt tack, netting or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulching anchoring tool.

Maintenance:
Repair and maintain damaged areas immediately. Topdress with 50 lb/acre of nitrogen in March. If it is necessary to extend temporary cover beyond June 15, overseed with 50 lb/acre Kobe (Piedmont and Costal Plain) or Korean (Mountains) lespedeza in late February or early March.

PERMANENT SEEDING REQUIREMENTS FOR SHOULDERS, SIDE DITCHES, SLOPES (MAX. 3:1)

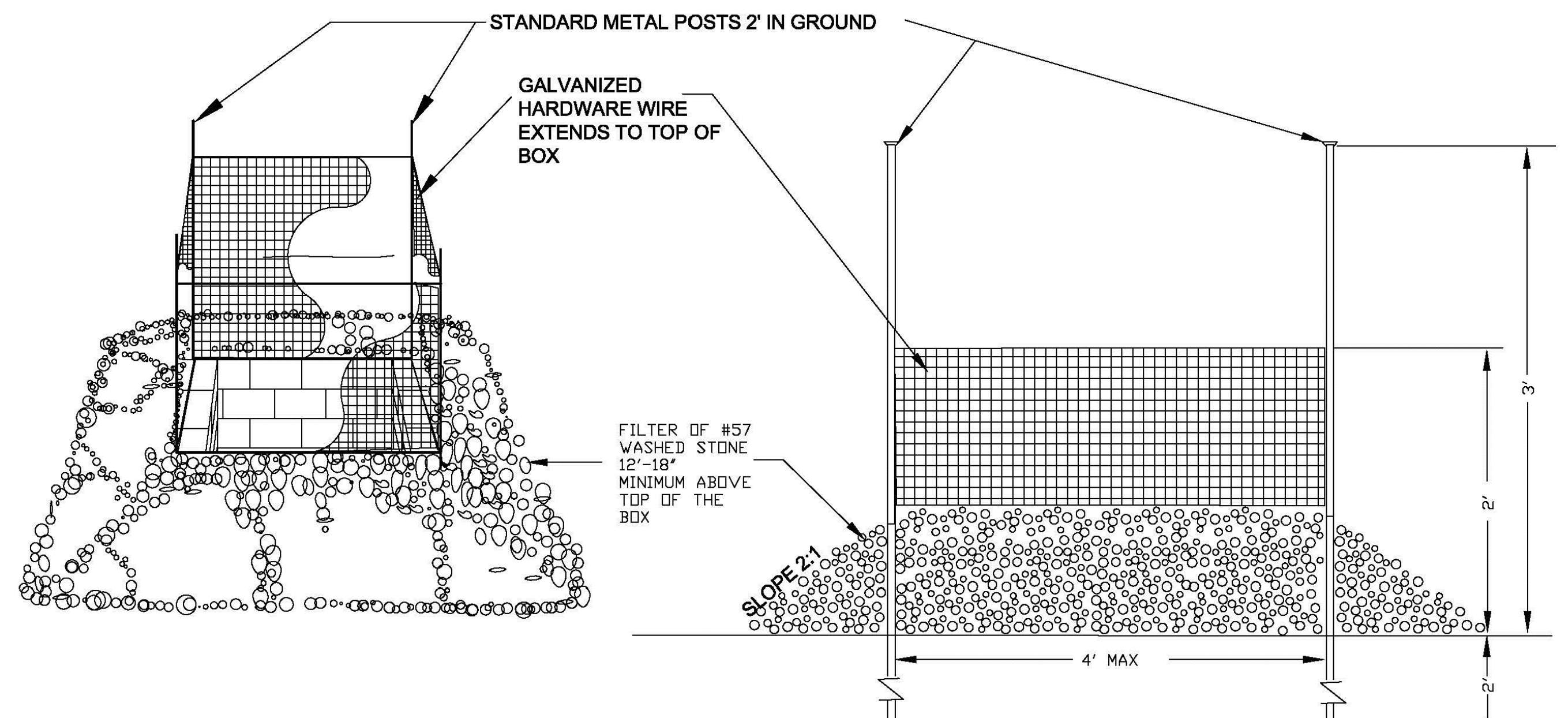
Date	Type	Planting Rate
Aug 15 - Nov 1	Tall Fescue	300 lbs/acre
Nov 1 - Mar 1	Tall Fescue & Abruzzi Rye	300 lbs/acre
Mar 1 - Apr 15	Tall Fescue	300 lbs/acre
Apr 15 - Jun 30	Hulled Common Bermudagrass	25 lbs/acre
Jul 1 - Aug 15	Tall Fescue AND Browntop Millet or Sorghum-Sudan Hybrids***	125 lbs/acre (Tall Fescue); 35 lbs/acre Browntop Millet); 30 lbs/acre (Sorghum-Sudan Hybrids)

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 4/15/19

SEEDING REQUIREMENTS

A-14


STANDARD METAL POSTS 2' IN GROUND
GALVANIZED HARDWARE WIRE EXTENDS TO TOP OF BOX
FILTER OF #57 WASHED STONE 12"-18" MINIMUM ABOVE TOP OF THE BOX
SLOPE 2:1
3'
2'
4' MAX
2'

PLAN VIEW

SECTION VIEW

NOTES:

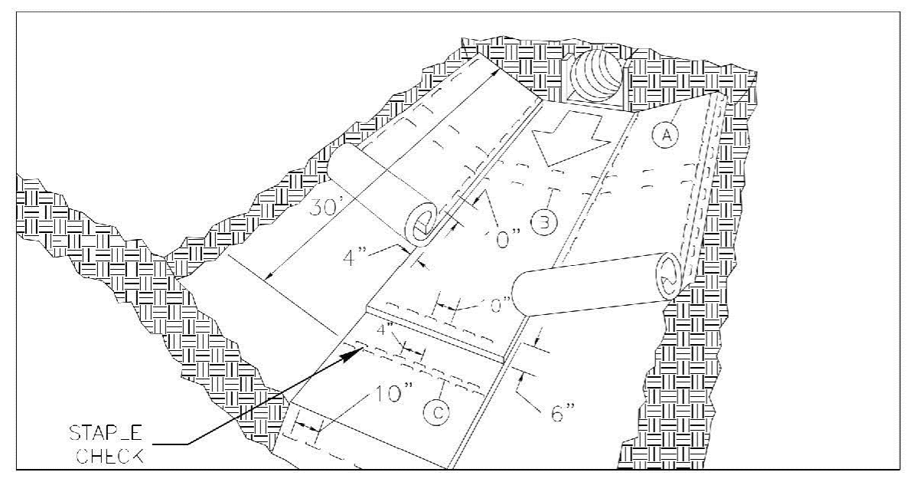
Inlet protection will require periodic removal of sediment-laden stone and replacement with fresh stone. Inspect periodically and replace stone as needed. keep mesh free of debris to provide adequate flow.

WAKE COUNTY NORTH CAROLINA

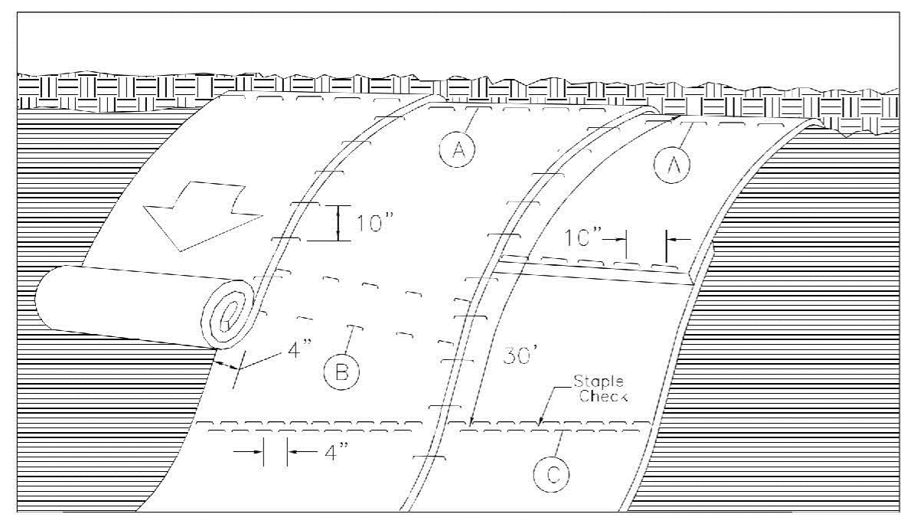
EFFECTIVE: 4/15/19

STANDARD INLET PROTECTION DETAIL

A-7


STAPLE CHECK

MATTING IN DITCHES


10'
10'
4'
A
B
C
30'
Staple Check

MATTING ON SLOPES

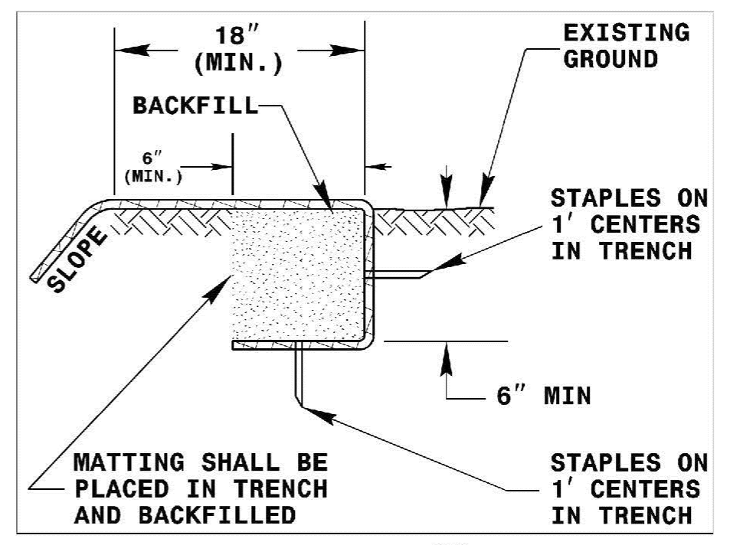

18" (MIN.)
EXISTING GROUND
BACKFILL
6" (MIN.)
SLOPE
STAPLES ON 1' CENTERS IN TRENCH
6" MIN
MATTING SHALL BE PLACED IN TRENCH AND BACKFILLED
STAPLES ON 1' CENTERS IN TRENCH

DIAGRAM (A)

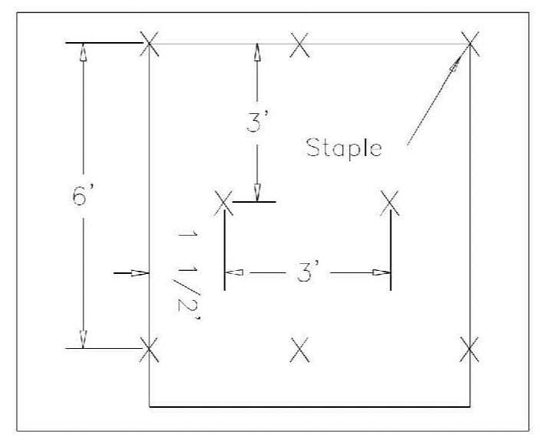

3'
Staple
6'
3'
3'

DIAGRAM (B)

Staple Check Pattern

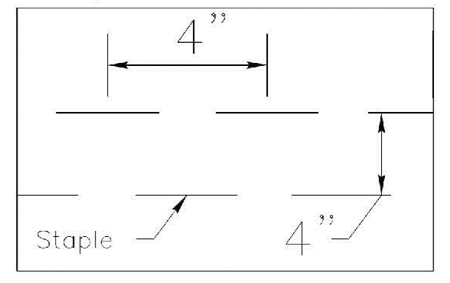


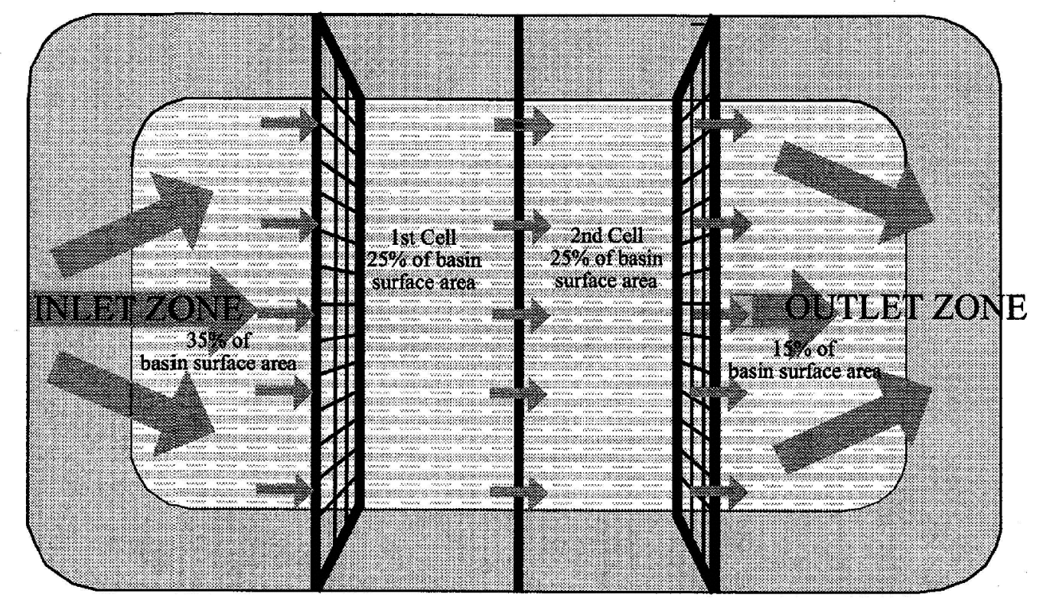
DIAGRAM (C)

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 4/15/19

ROLLED EROSION CONTROL PRODUCT INSTALLATION DETAIL

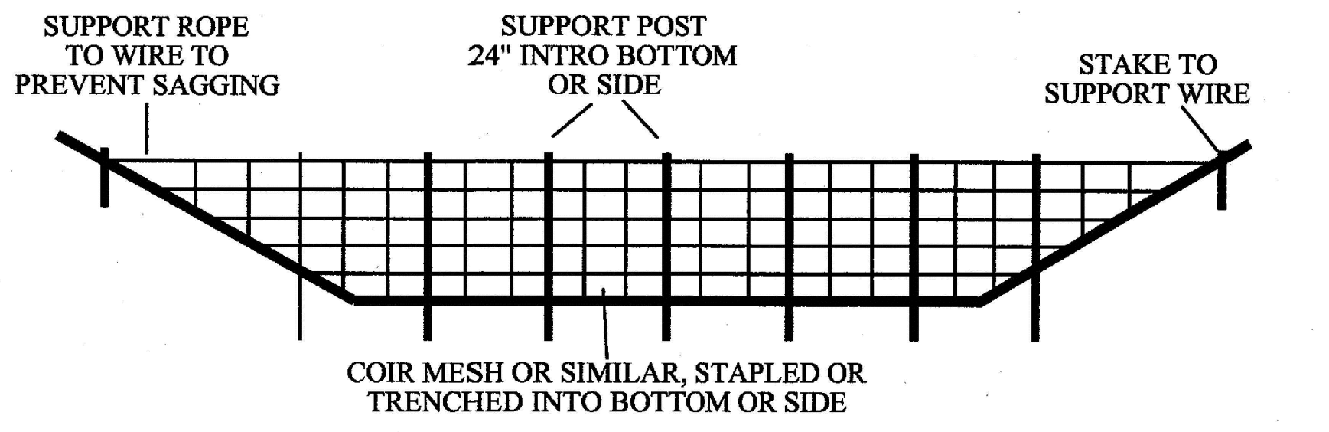
A-10

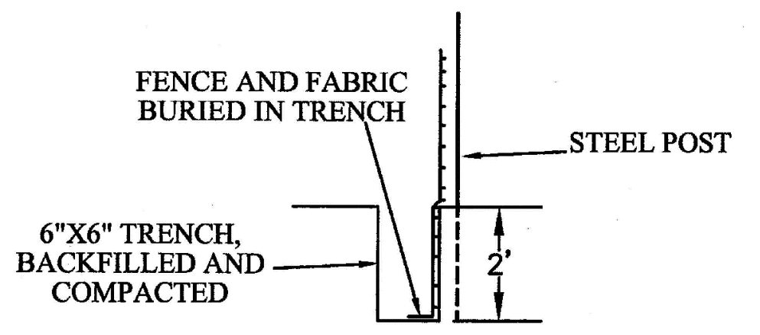

INLET ZONE
35% of basin surface area
1st Cell 25% of basin surface area
2nd Cell 25% of basin surface area
OUTLET ZONE
15% of basin surface area

PLAN VIEW

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

CROSS SECTION


SUPPORT ROPE TO WIRE TO PREVENT SAGGING
SUPPORT POST 24" INTRO BOTTOM OR SIDE
STAKE TO SUPPORT WIRE
COIR MESH OR SIMILAR, STAPLED OR TRENCHED INTO BOTTOM OR SIDE

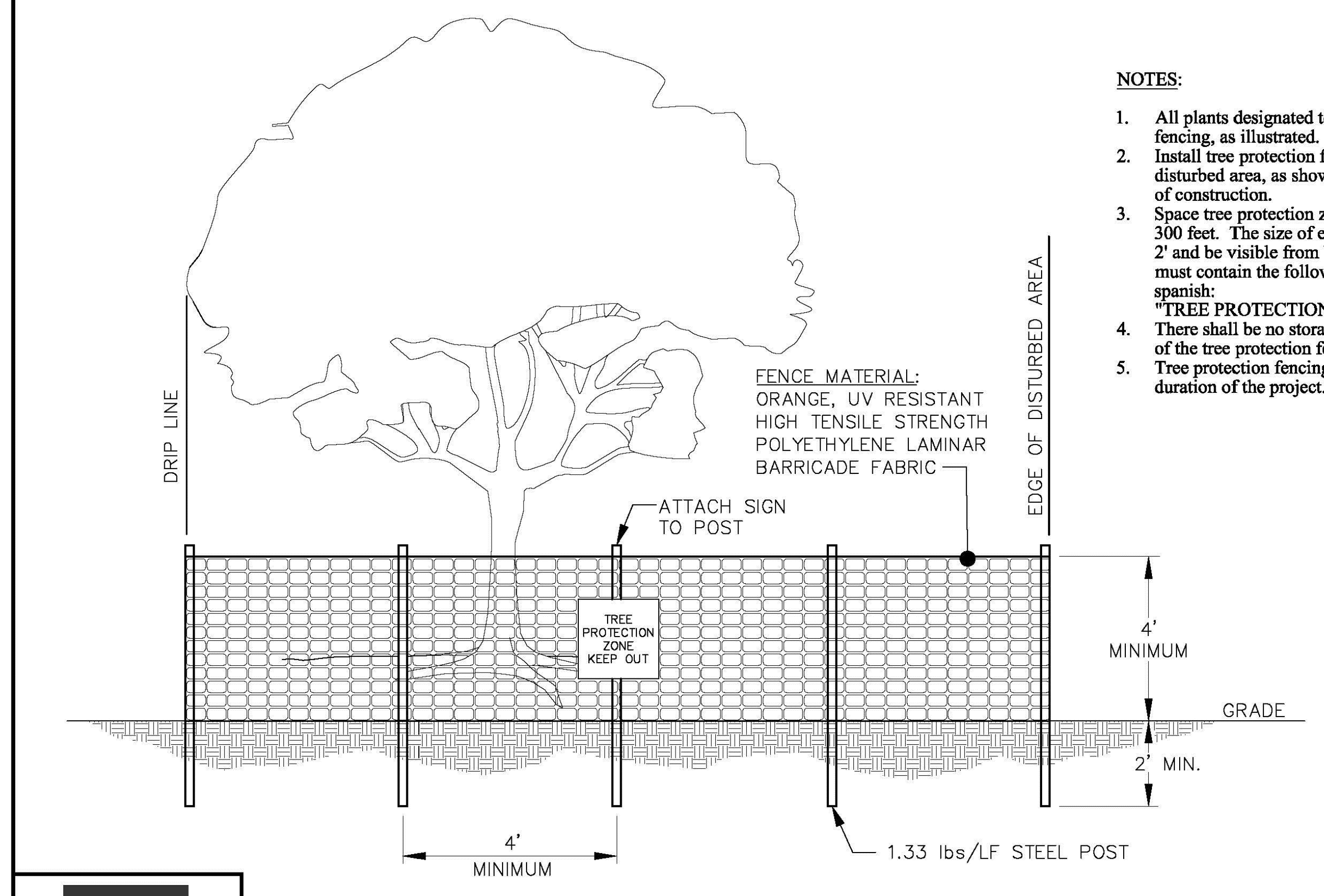

FENCE AND FABRIC BURIED IN TRENCH
STEEL POST
6"X6" TRENCH, BACKFILLED AND COMPACTED
2'

SECTION VIEW AT OPENING

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD BAFFLES DETAIL


DRIP LINE
EDGE OF DISTURBED AREA
FENCE MATERIAL: ORANGE, UV RESISTANT HIGH TENSILE STRENGTH POLYETHYLENE LAMINAR BARRICADE FABRIC
ATTACH SIGN TO POST
TREE PROTECTION ZONE KEEP OUT
4' MINIMUM
GRADE
2' MIN.
4' MINIMUM
1.33 lbs/LF STEEL POST

NOTES:

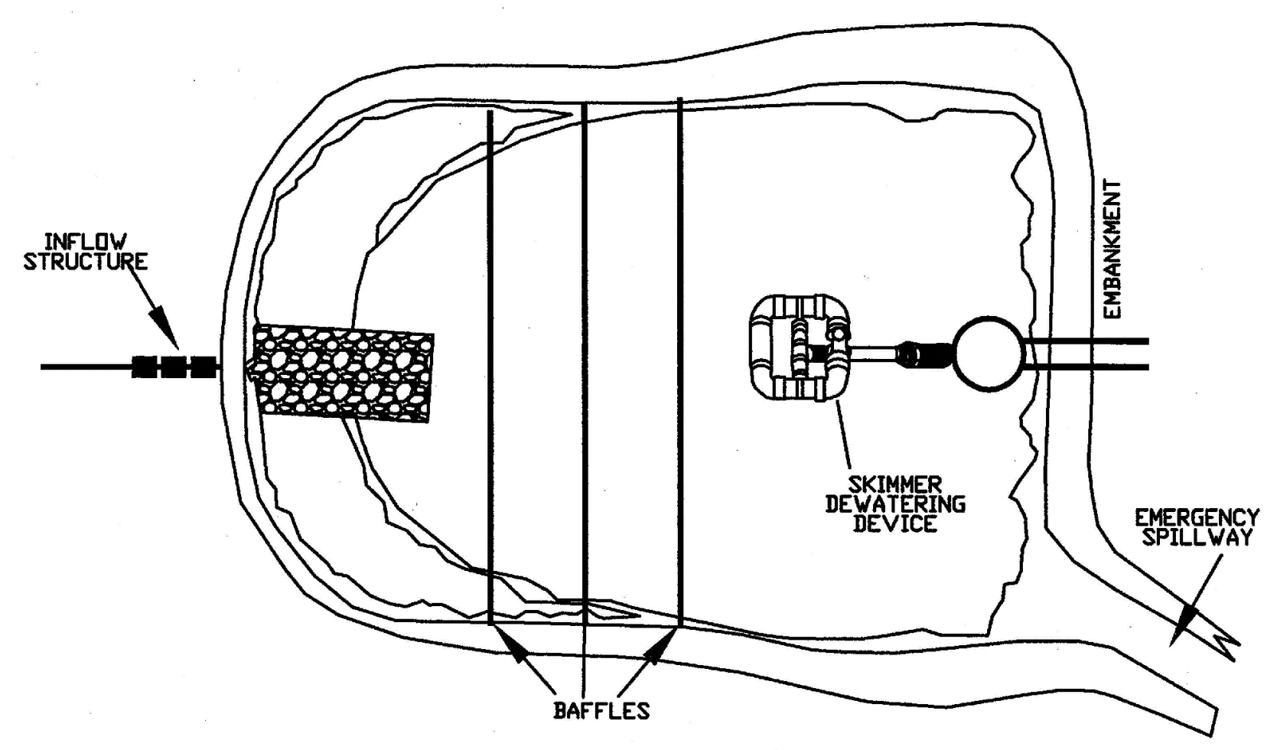
1. All plants designated to be saved shall be protected by fencing, as illustrated.
2. Install tree protection fence at tree drip line or at edge of disturbed area, as shown on plans, prior to commencement of construction.
3. Space tree protection zone signs a minimum of one every 300 feet. The size of each sign must be a minimum of 2' x 2' and be visible from both sides of the fence. The sign must contain the following language in both english & spanish:
"TREE PROTECTION ZONE, KEEP OUT".
4. There shall be no storage of material within the boundaries of the tree protection fencing.
5. Tree protection fencing shall be maintained throughout the duration of the project.

WAKE COUNTY NORTH CAROLINA

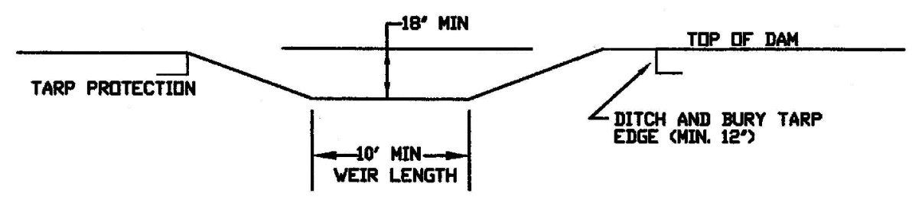
EFFECTIVE: 4/15/19

STANDARD TREE PROTECTION FENCE DETAIL

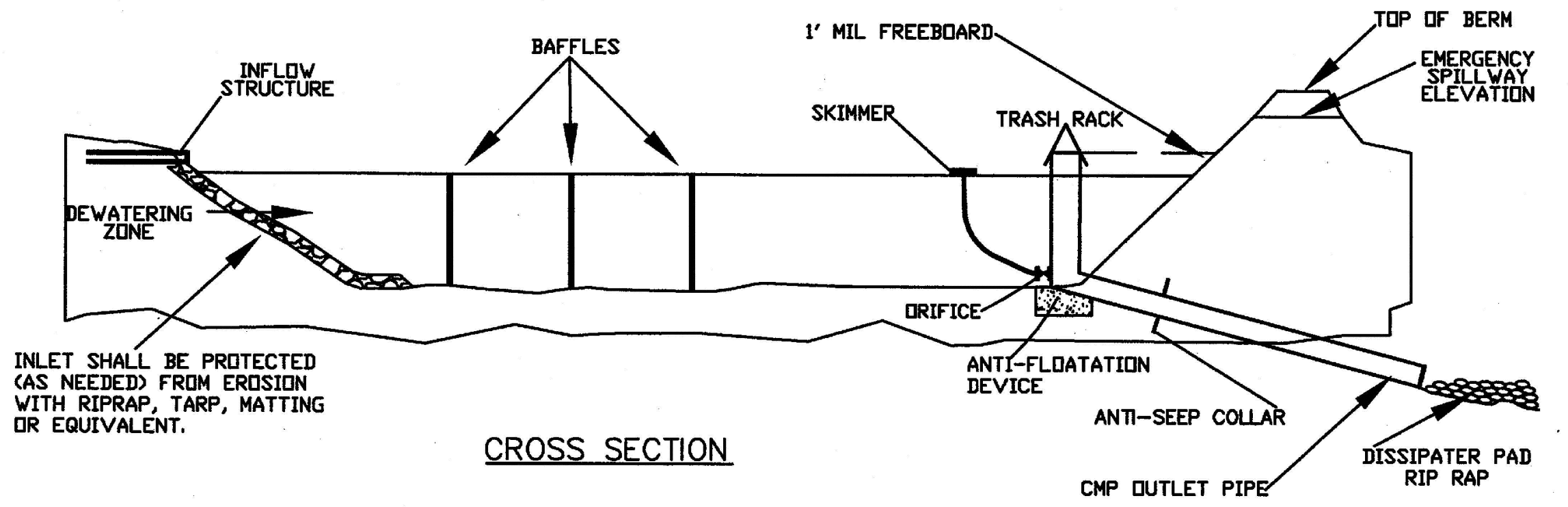
A-11


INFLOW STRUCTURE
EMBANKMENT
SKIMMER DEWATERING DEVICE
EMERGENCY SPILLWAY
BAFFLES

PLAN VIEW


TARP PROTECTION
10' MIN
TOP OF DAM
10' MIN WEIR LENGTH
DITCH AND BURY TARP EDGE (MIN. 12")

SECTION THRU WEIR


INFLOW STRUCTURE
BAFFLES
1' MIL FREEBOARD
TOP OF BERM
EMERGENCY SPILLWAY ELEVATION
SKIMMER
TRASH RACK
DEWATERING ZONE
ORIFICE
ANTI-FLOATATION DEVICE
ANTI-SEEP COLLAR
CMP OUTLET PIPE
DISSIPATER PAD RIP RAP
INLET SHALL BE PROTECTED (AS NEEDED) FROM EROSION WITH RIPRAP, TARP, MATTING OR EQUIVALENT.

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.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD SKIMMER ATTACHED TO PERMANENT RISER

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 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 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: TOWN OF KNIGHTDALE, TOK 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 PREPARATION, 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.

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

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Landscape Architects

STEPHEN J. BALLENTINE
SEAL 26493

Stephen Ballentine
Digitally signed by Stephen Ballentine
DN: C=US, E=sballentine@riversandassociates.com, O=Rivers and Associates, OU=Rivers and Associates, CN=Stephen Ballentine
Date: 2026.07.07 11:37:24-04'00'

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

EROSION CONTROL DETAILS

DATE:	
DESIGNED BY:	CS
DRAWN BY:	EDN
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C5.22

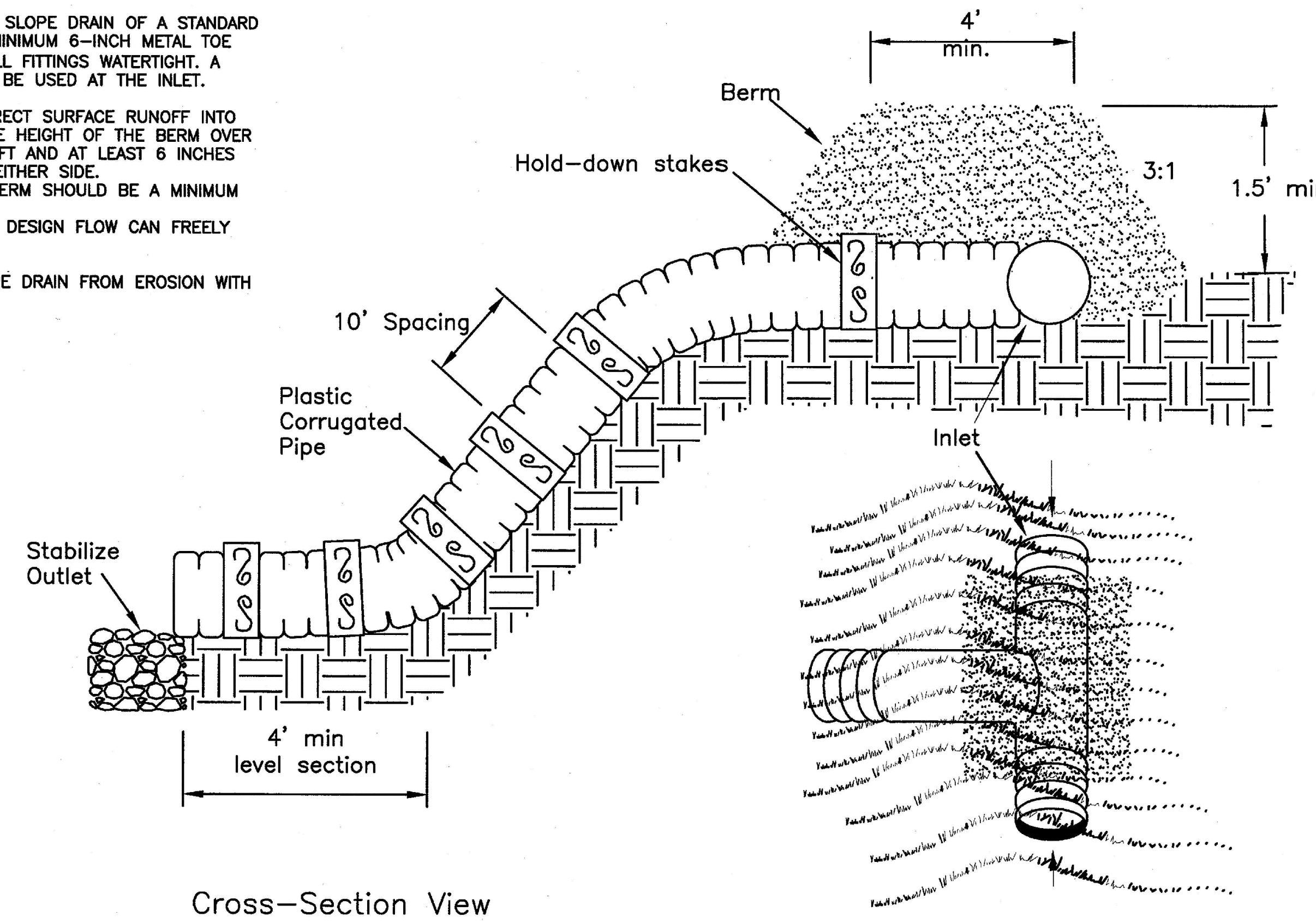
Do Not Use for Construction - PRELIMINARY

NOTES:

1. CONSTRUCT THE ENTRANCE TO THE SLOPE DRAIN OF A STANDARD FLARED-END SECTION OF PIPE WITH A MINIMUM 6-INCH METAL TOE PLATE (CROSS-SECTION VIEW). MAKE ALL FITTINGS WATERTIGHT. A STANDARD T-SECTION FITTING MAY ALSO BE USED AT THE INLET.

2. USE AN EARTHEN DIVERSION TO DIRECT SURFACE RUNOFF INTO THE TEMPORARY SLOPE DRAIN. MAKE THE HEIGHT OF THE BERM OVER THE DRAIN CONDUIT A MINIMUM OF 1.5 FT AND AT LEAST 6 INCHES HIGHER THAN THE ADJOINING BERM ON EITHER SIDE.
THE LOWEST POINT OF THE DIVERSION BERM SHOULD BE A MINIMUM OF 1 FT
ABOVE THE TOP OF THE DRAIN SO THAT DESIGN FLOW CAN FREELY ENTER THE PIPE.

3. PROTECT THE OUTLET OF THE SLOPE DRAIN FROM EROSION WITH RIPRAP DISSIPATOR.

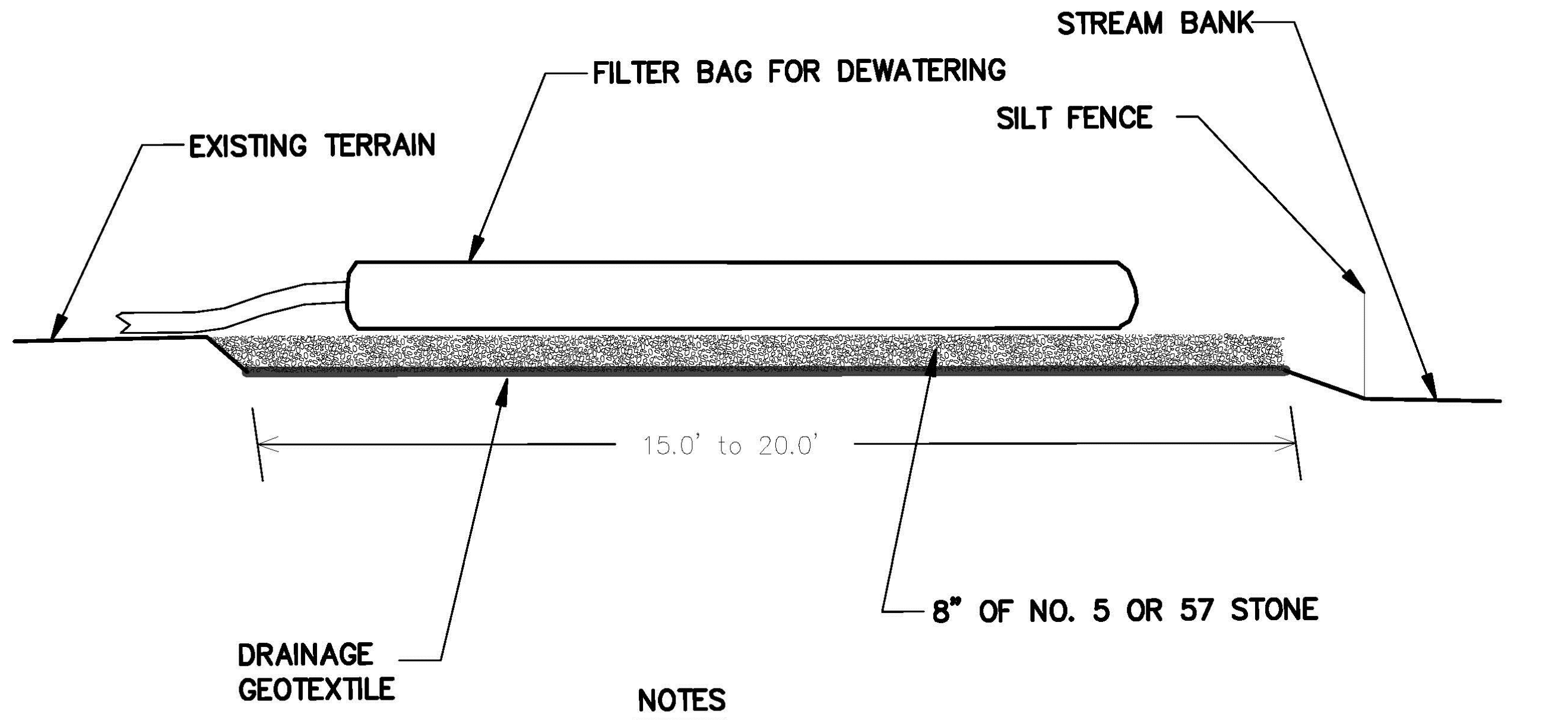

4' min.
Berm
Hold-down stakes
3:1
1.5' min
10' Spacing
Plastic Corrugated Pipe
Inlet
Stabilize Outlet
4' min level section

Cross-Section View

Plan View
Standard T-section

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD TEMPORARY SLOPE DRAIN


STREAM BANK
FILTER BAG FOR DEWATERING
SILT FENCE
EXISTING TERRAIN
15.0' to 20.0'
8" OF NO. 5 OR 57 STONE
DRAINAGE GEOTEXTILE

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.

NOT TO SCALE

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD FILTER BAG FOR DEWATERING ACTIVITIES

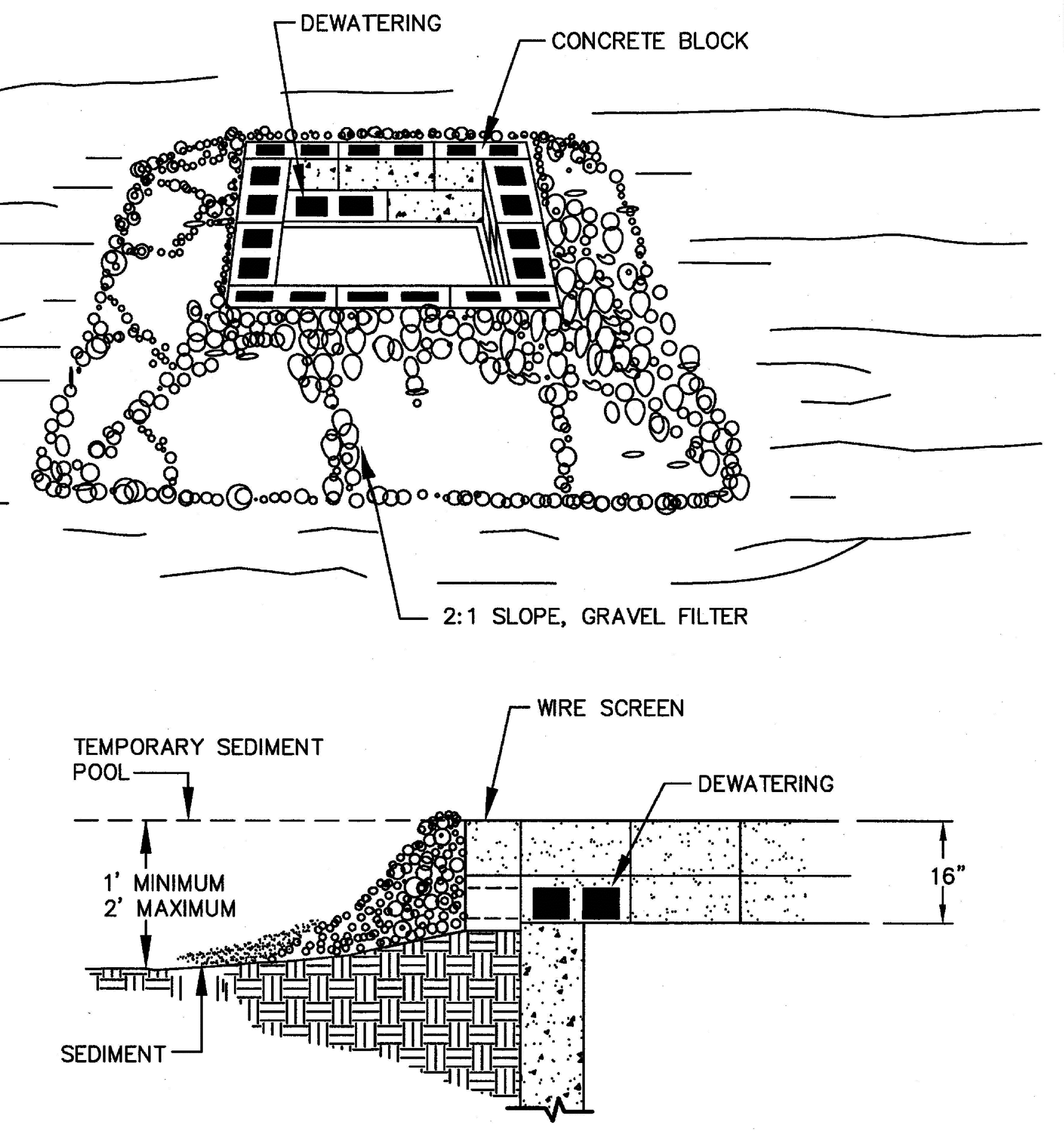
CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE IN THE BOTTOM ROW TO ALLOW POOL DRAINAGE. THE FOUNDATION SHOULD BE EXCAVATED AT LEAST 2 INCHES BELOW THE CREST OF THE STORM DRAIN. PLACE THE BOTTOM ROW OF BLOCKS AGAINST THE EDGE OF THE STORM DRAIN FOR LATERAL SUPPORT AND TO AVOID WASHOUTS WHEN OVERFLOW OCCURS. IF NEEDED, GIVE LATERAL SUPPORT TO SUBSEQUENT ROWS BY PLACING 2x4 WOOD STUDS THROUGH BLOCK OPENINGS.

2. CAREFULLY FIT HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2 INCH OPENINGS OVER ALL BLOCK OPENINGS TO HOLD GRAVEL IN PLACE.

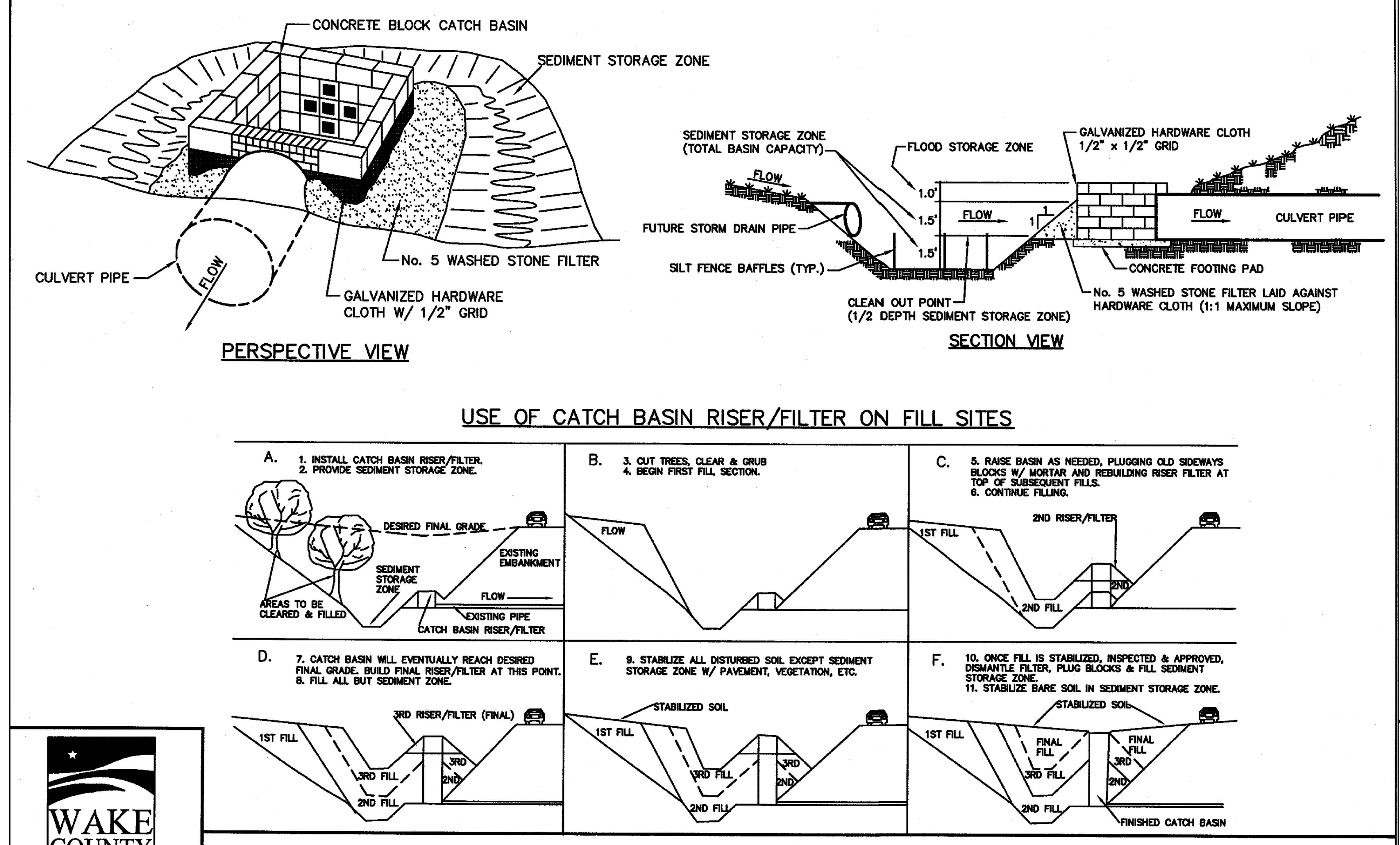
3. USE CLEAN GRAVEL, 3/4 TO 1/2 INCH IN DIAMETER, PLACED 2 INCHES BELOW THE TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER AND SMOOTH IT TO AN EVEN GRADE. DOT #57 WASHED STONE IS RECOMMENDED.

MAINTENANCE: INSPECT INLET PROTECTION AND REMOVE SEDIMENT AFTER EACH RAIN EVENT. GRAVEL SHOULD BE REPLACED AND REPAIRS MADE AS NEEDED.


DEWATERING
CONCRETE BLOCK
2:1 SLOPE, GRAVEL FILTER
WIRE SCREEN
TEMPORARY SEDIMENT POOL
DEWATERING
1' MINIMUM
2' MAXIMUM
16"
SEDIMENT

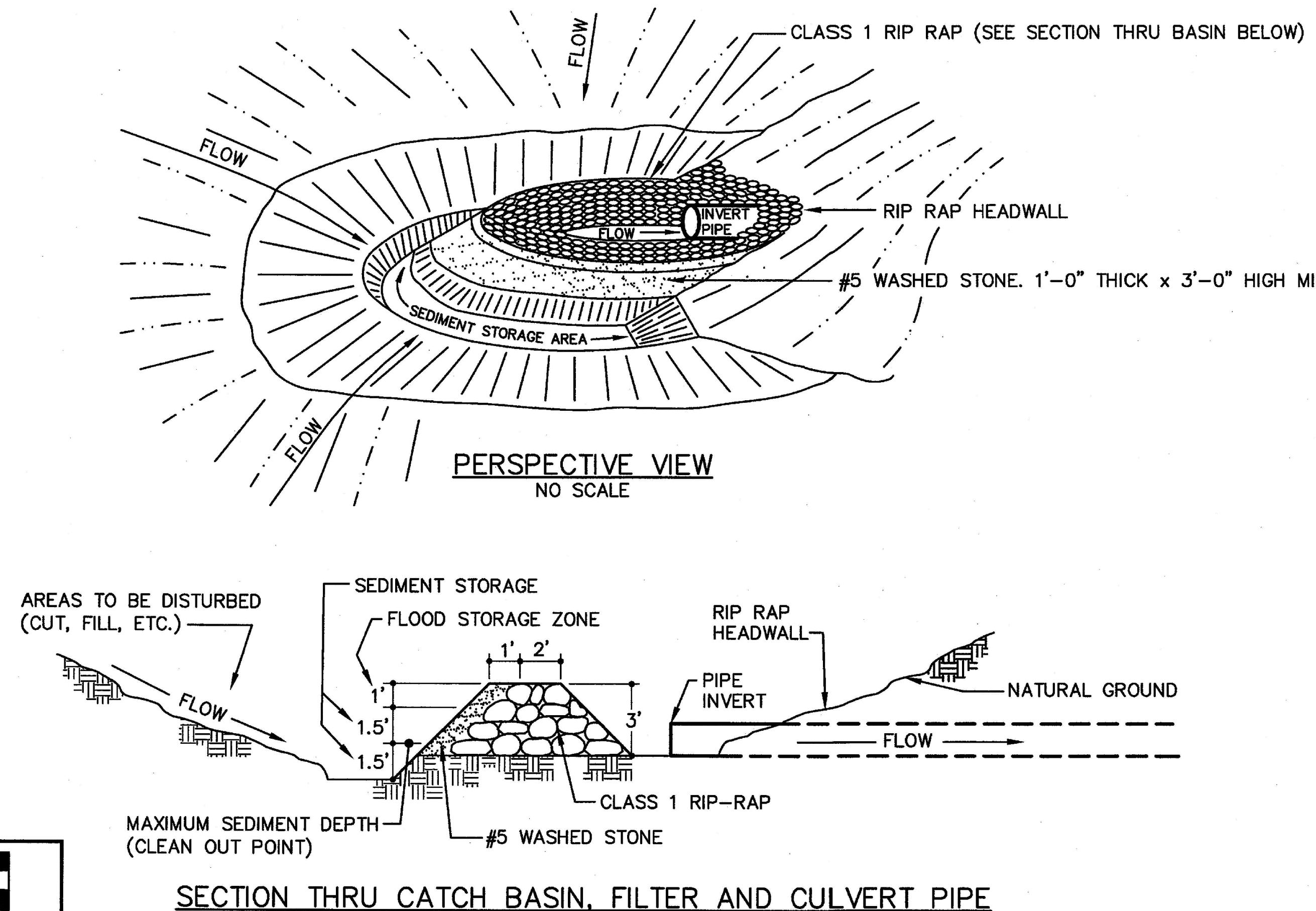
WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD BLOCK & GRAVEL DROP INLET PROTECTION


CONCRETE BLOCK CATCH BASIN
SEDIMENT STORAGE ZONE
CULVERT PIPE
FLOW
No. 5 WASHED STONE FILTER
GALVANIZED HARDWARE CLOTH W/ 1/2" GRID
PERSPECTIVE VIEW
SEDIMENT STORAGE ZONE (TOTAL BASIN CAPACITY)
FLOOD STORAGE ZONE
GALVANIZED HARDWARE CLOTH 1/2" x 1/2" GRID
FLOW
1.0'
1.5'
1.5'
1
1
FLOW
CULVERT PIPE
FUTURE STORM DRAIN PIPE
SILT FENCE BAFFLES (TYP.)
CONCRETE FOOTING PAD
CLEAN OUT POINT (1/2 DEPTH SEDIMENT STORAGE ZONE)
No. 5 WASHED STONE FILTER LAID AGAINST HARDWARE CLOTH (1:1 MAXIMUM SLOPE)
SECTION VIEW
USE OF CATCH BASIN RISER/FILTER ON FILL SITES
A. 1. INSTALL CATCH BASIN RISER/FILTER. 2. PROVIDE SEDIMENT STORAGE ZONE.
DESIRED FINAL GRADE
EXISTING EMBANKMENT
SEDIMENT STORAGE ZONE
FLOW
AREAS TO BE CLEARED & FILLED
EXISTING PIPE
CATCH BASIN RISER/FILTER
B. 3. CUT TREES, CLEAR & GRUB 4. BEGIN FIRST FILL SECTION.
FLOW
C. 5. RAISE BASIN AS NEEDED, PLUGGING OLD SIDEWAYS BLOCKS W/ MORTAR AND REBUILDING RISER FILTER AT TOP OF SUBSEQUENT FILLS. 6. CONTINUE FILLING.
2ND RISER/FILTER
1ST FILL
2ND FILL
2ND
D. 7. CATCH BASIN WILL EVENTUALLY REACH DESIRED FINAL GRADE. BUILD FINAL RISER/FILTER AT THIS POINT. 8. FILL ALL BUT SEDIMENT ZONE.
3RD RISER/FILTER (FINAL)
1ST FILL
3RD FILL
2ND FILL
3RD
2ND
E. 9. STABILIZE ALL DISTURBED SOIL EXCEPT SEDIMENT STORAGE ZONE W/ PAVEMENT, VEGETATION, ETC.
STABILIZED SOIL
1ST FILL
3RD FILL
2ND FILL
3RD
2ND
F. 10. ONCE FILL IS STABILIZED, INSPECTED & APPROVED, DISMANTLE FILTER, PLUG BLOCKS & FILL SEDIMENT STORAGE ZONE. 11. STABILIZE BARE SOIL IN SEDIMENT STORAGE ZONE.
STABILIZED SOIL
1ST FILL
FINAL FILL
3RD FILL
2ND FILL
FINAL FILL
3RD
2ND
FINISHED CATCH BASIN

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD CATCH BASIN RISER/FILTER


FLOW
CLASS 1 RIP RAP (SEE SECTION THRU BASIN BELOW)
FLOW
INVERT PIPE
FLOW
RIP RAP HEADWALL
#5 WASHED STONE. 1'-0" THICK x 3'-0" HIGH MINIMUM
SEDIMENT STORAGE AREA
FLOW
PERSPECTIVE VIEW
NO SCALE
AREAS TO BE DISTURBED (CUT, FILL, ETC.)
SEDIMENT STORAGE
FLOOD STORAGE ZONE
1' 2'
RIP RAP HEADWALL
PIPE INVERT
NATURAL GROUND
FLOW
1'
1.5'
1.5'
3'
FLOW
CLASS 1 RIP-RAP
MAXIMUM SEDIMENT DEPTH (CLEAN OUT POINT)
#5 WASHED STONE

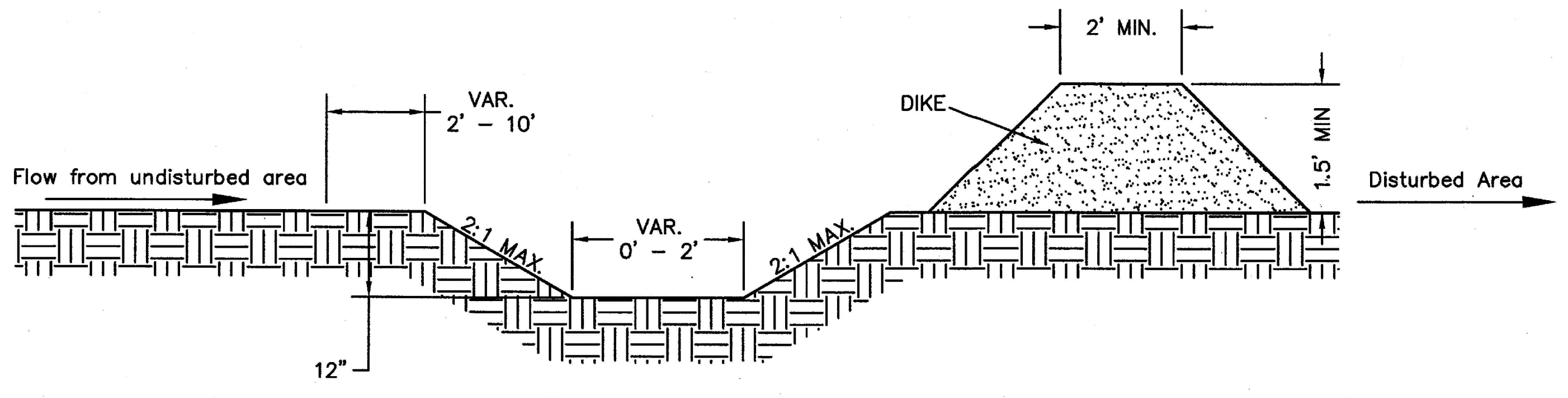
SECTION THRU CATCH BASIN, FILTER AND CULVERT PIPE
NO SCALE

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD HORSESHOE INLET PROTECTION

NOTES:

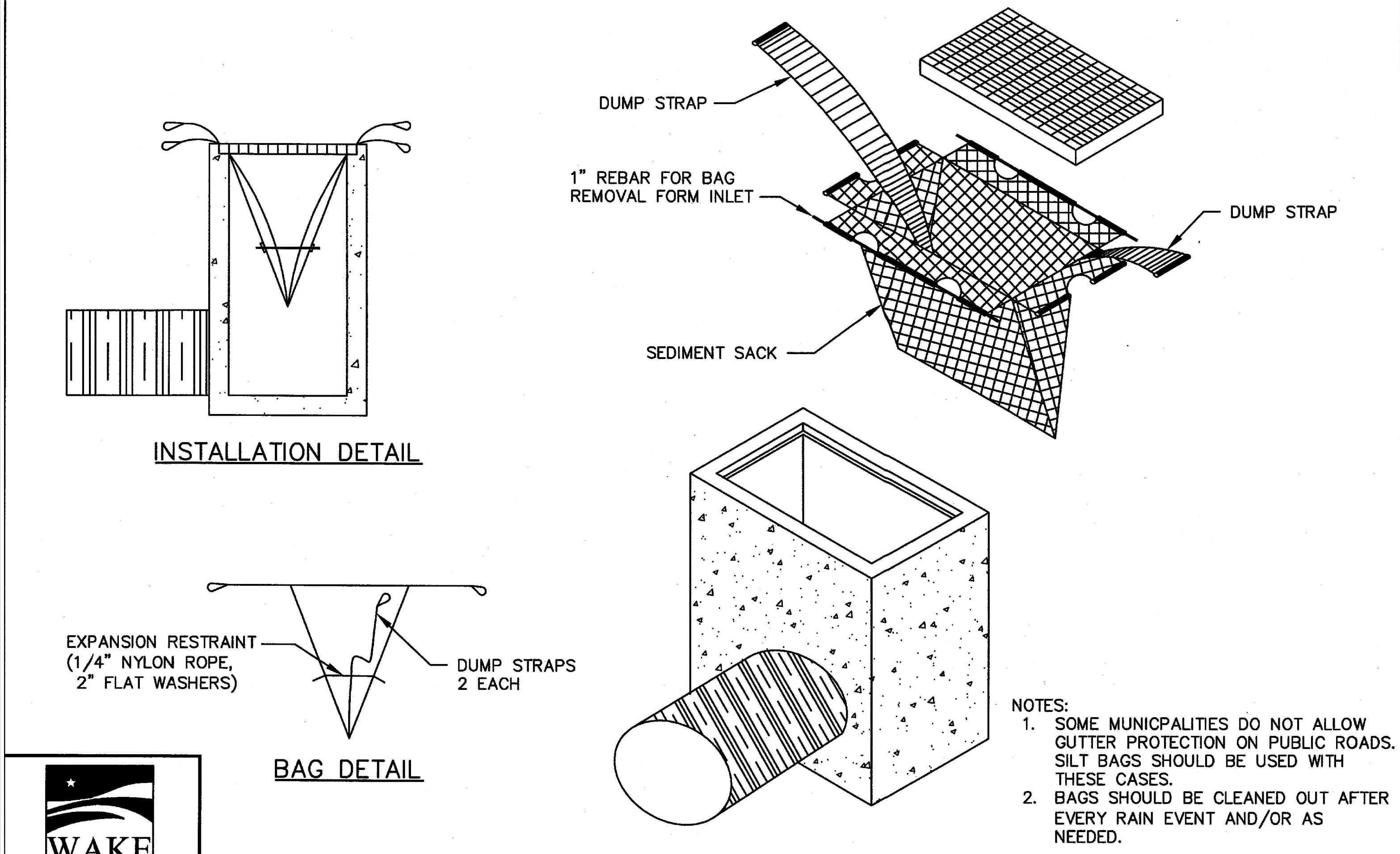
1. DIVERSION TO BE USED UPSLOPE OF A CONSTRUCTION SITE TO PREVENT STORM RUNOFF FROM ENTERING THE DISTURBED AREA.
2. IMMEDIATELY LINE AND STABILIZE BEFORE ANY DOWNSLOPE GRADING BEGINS (STABILIZATION MUST OCCUR BEFORE ISSUANCE OF A CERTIFICATE OF COMPLIANCE). STABILIZATION METHOD IS BASED ON VELOCITY OF OFFSITE DRAINAGE.
3. DIVERSIONS SHOULD ONLY BE USED FOR DRAINAGES 5 ACRES OR LESS.
4. ANY SEDIMENT LADEN WATER PRIOR TO STABILIZATION OF THE DIVERSION MUST BE DIVERTED INTO AN APPROVED EROSION AND SEDIMENT CONTROL BMP. CLEAN WATER SHOULD EMPTY INTO AN APPROVED OUTLET DEVICE.


2' MIN.
VAR. 2' – 10'
DIKE
1.5' MIN
Flow from undisturbed area
Disturbed Area
2:1 MAX.
VAR. 0' – 2'
2:1 MAX.
12"

CROSS SECTIONAL VIEW

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD CLEAN WATER DIVERSION


DUMP STRAP
1" REBAR FOR BAG REMOVAL FORM INLET
DUMP STRAP
SEDIMENT SACK
INSTALLATION DETAIL
EXPANSION RESTRAINT (1/4" NYLON ROPE, 2" FLAT WASHERS)
DUMP STRAPS 2 EACH
BAG DETAIL

NOTES:
1. SOME MUNICPALITIES DO NOT ALLOW GUTTER PROTECTION ON PUBLIC ROADS. SILT BAGS SHOULD BE USED WITH THESE CASES.
2. BAGS SHOULD BE CLEANED OUT AFTER EVERY RAIN EVENT AND/OR AS NEEDED.

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08

STANDARD SILT BAG - INLET SEDIMENT CONTROL DEVICE

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

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& ASSOCIATES, INC.
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Surveyors
Landscape Architects

SEAL 26493
STEPHEN J. BALLENTINE
Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE - WAKE COUNTY - NORTH CAROLINA

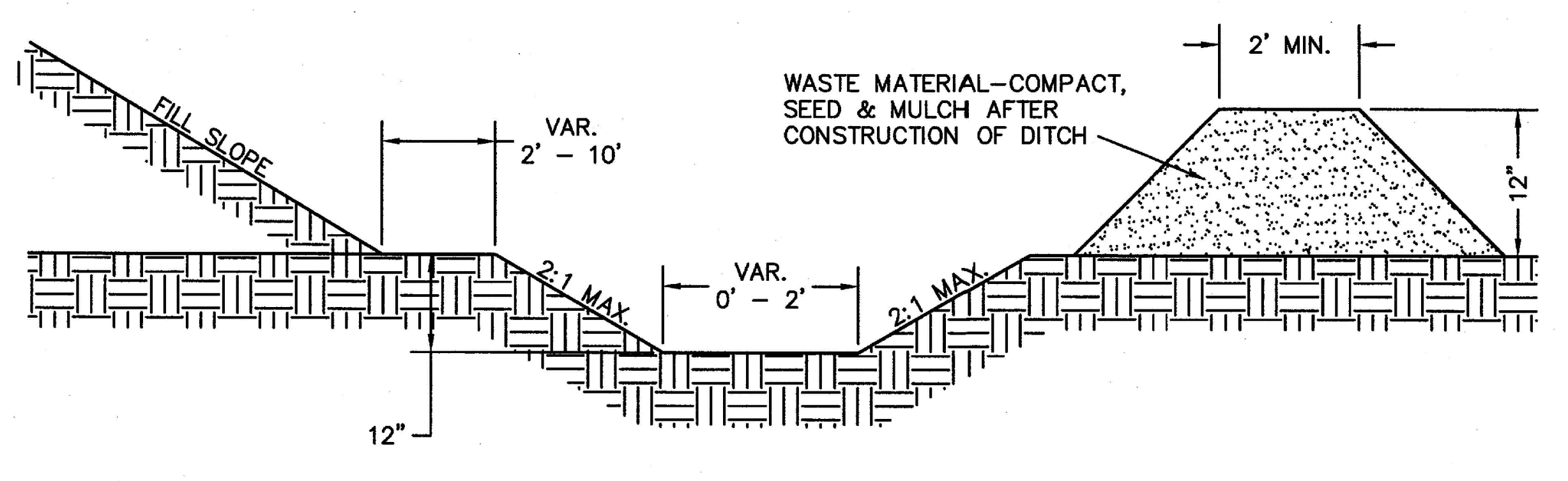
EROSION CONTROL DETAILS

DATE:
DESIGNED BY: CS
DRAWN BY: EDN
CHECKED BY: SJB
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.
C5.23

Do Not Use for Construction - PRELIMINARY

NOTES:

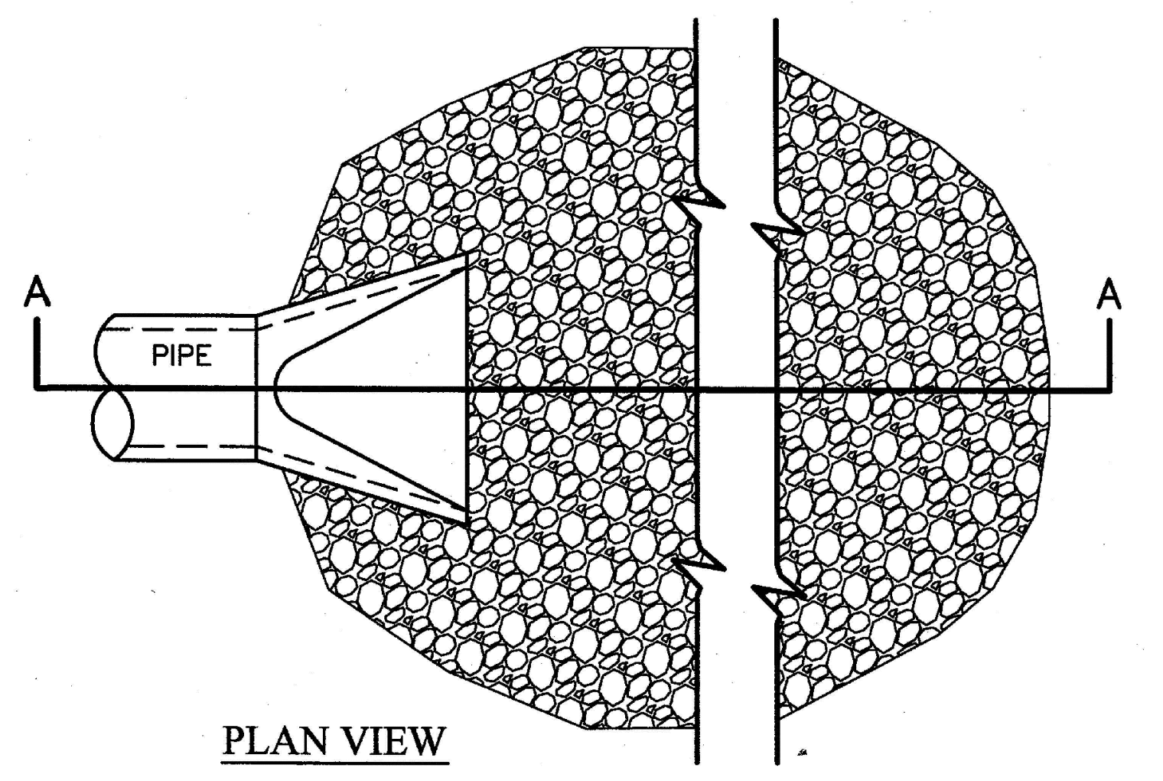
1. TEMPORARY DIVERSION DITCH TO BE USED TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE OR BMP.
2. SILT SHALL BE REMOVED WHEN DITCH IS ONE-HALF FULL.
3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.
4. STABILIZE DIVERSION DITCH BERM WITH TEMPORARY SEEDING, MULCH WITH TAC, AND/OR EROSION CONTROL NETTING.


FILL SLOPE
VAR. 2' – 10'
2:1 MAX.
VAR. 0' – 2'
2:1 MAX.
12"
WASTE MATERIAL–COMPACT, SEED & MULCH AFTER CONSTRUCTION OF DITCH
2' MIN.
12"

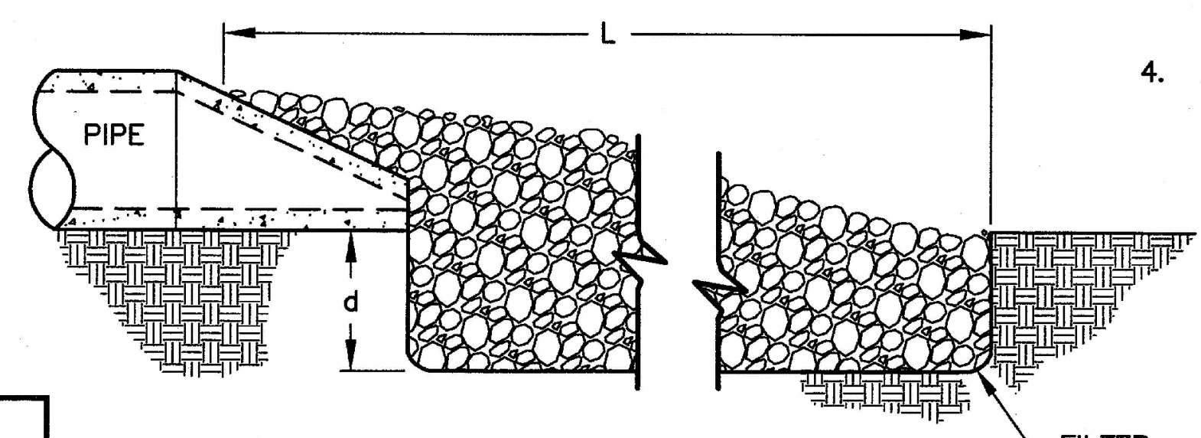
CROSS SECTIONAL VIEW

EFFECTIVE: 01/31/08

STANDARD TEMPORARY DIVERSION DITCH



PLAN VIEW


L
PIPE
d
FILTER FABRIC

SECTION 'A-A'

NOTES:

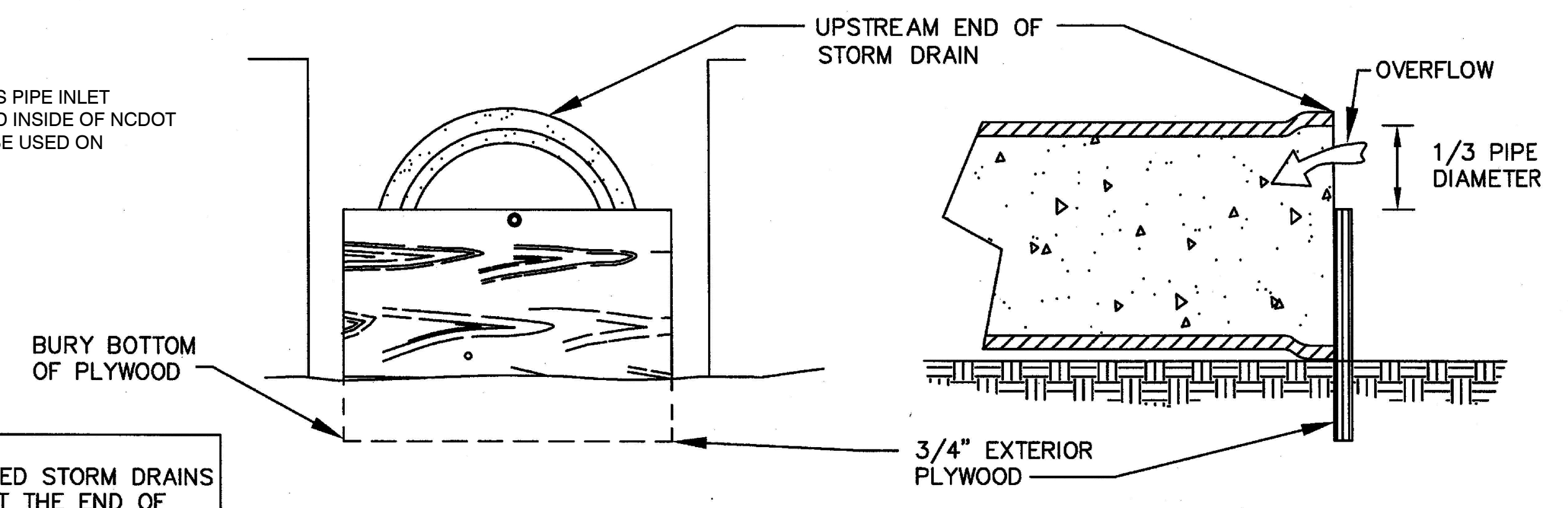
1. L = THE LENGTH OF THE RIPRAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (INCHES).
3. IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" (INCHES) ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

EFFECTIVE: 01/31/08

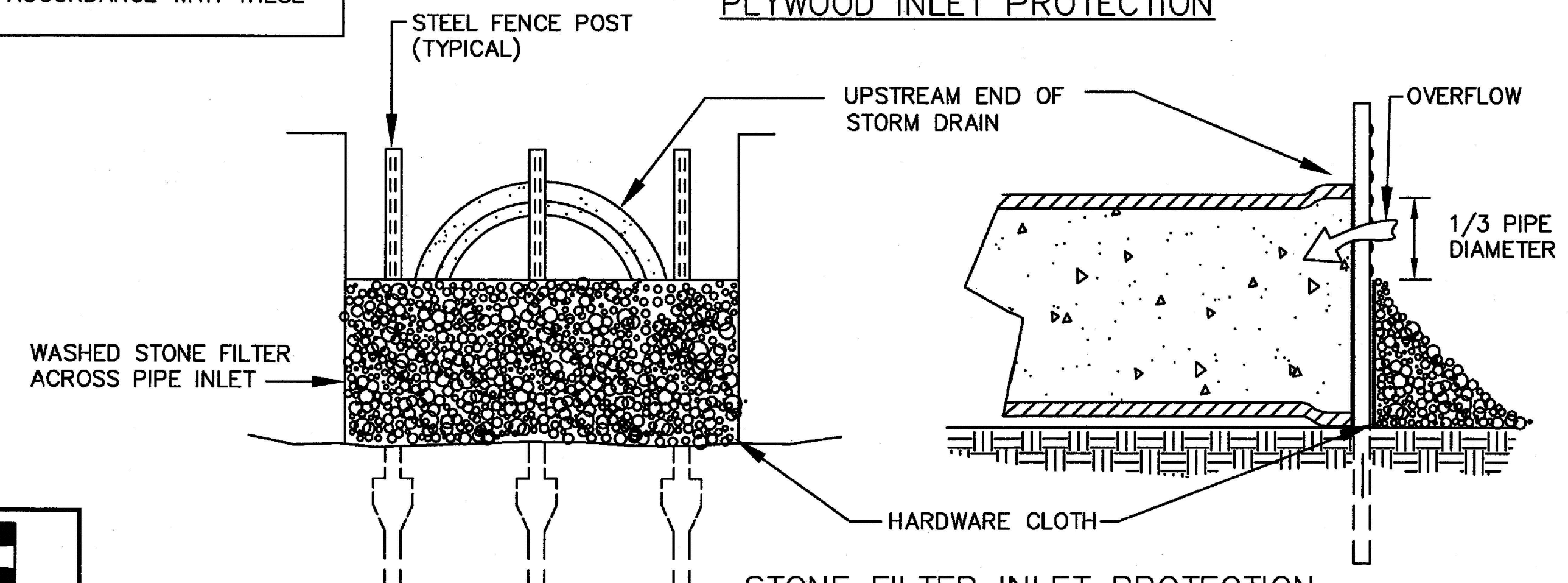
STANDARD PIPE OUTLET TO WELL-DEFINED CHANNEL

NCDOT DOES NOT ALLOW THIS PIPE INLET PROTECTION TO BE INSTALLED INSIDE OF NCDOT R/W. THIS DETAIL MAY ONLY BE USED ON PRIVATE PROPERTY.

NOTE:
ALL PARTIALLY COMPLETED STORM DRAINS SHALL BE PROTECTED AT THE END OF EACH DAY IN ACCORDANCE WITH THESE DETAILS.


UPSTREAM END OF STORM DRAIN
OVERFLOW
1/3 PIPE DIAMETER
BURY BOTTOM OF PLYWOOD
3/4" EXTERIOR PLYWOOD

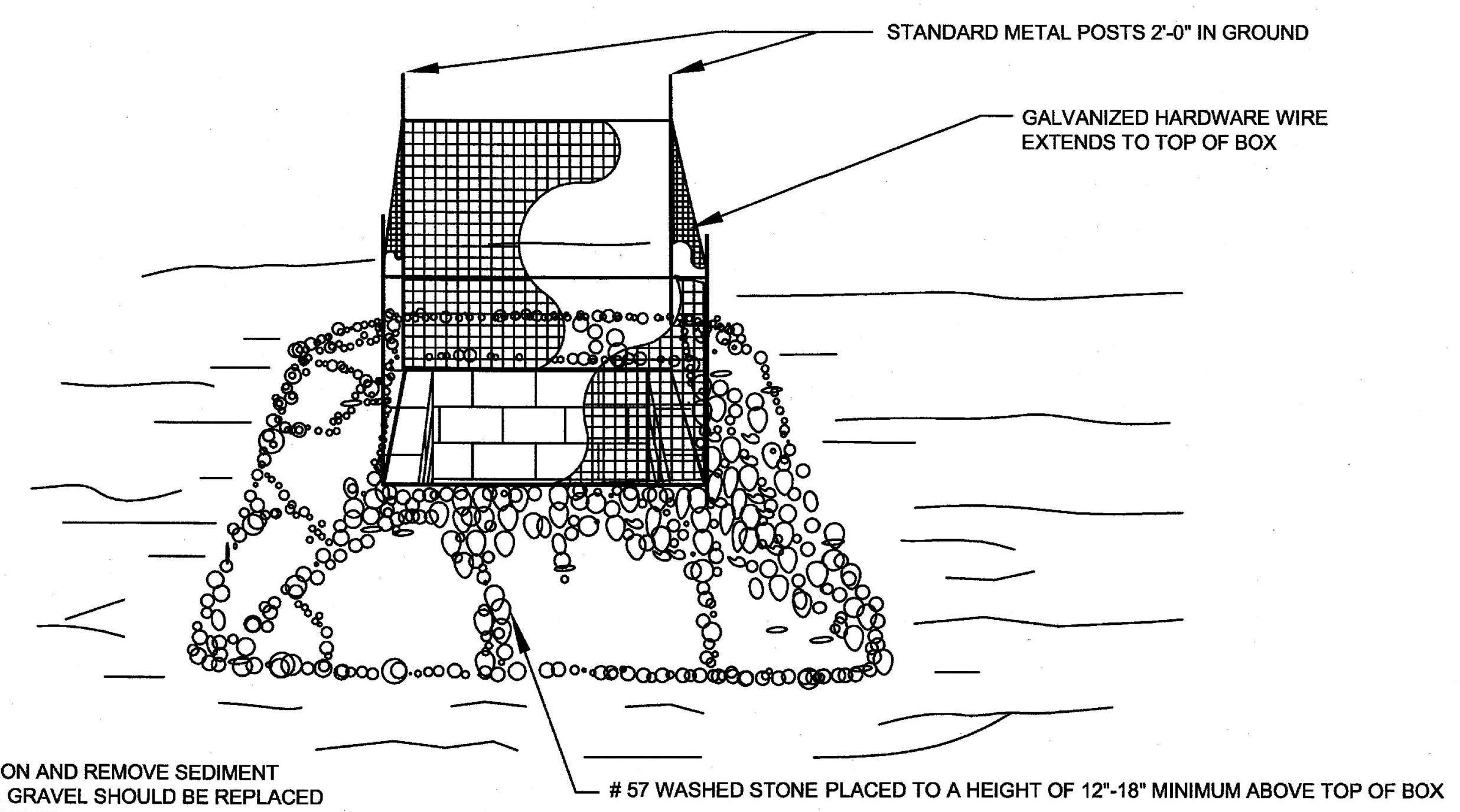
PLYWOOD INLET PROTECTION


STEEL FENCE POST (TYPICAL)
UPSTREAM END OF STORM DRAIN
OVERFLOW
1/3 PIPE DIAMETER
WASHED STONE FILTER ACROSS PIPE INLET
HARDWARE CLOTH

STONE FILTER INLET PROTECTION

EFFECTIVE: 01/31/08

STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)

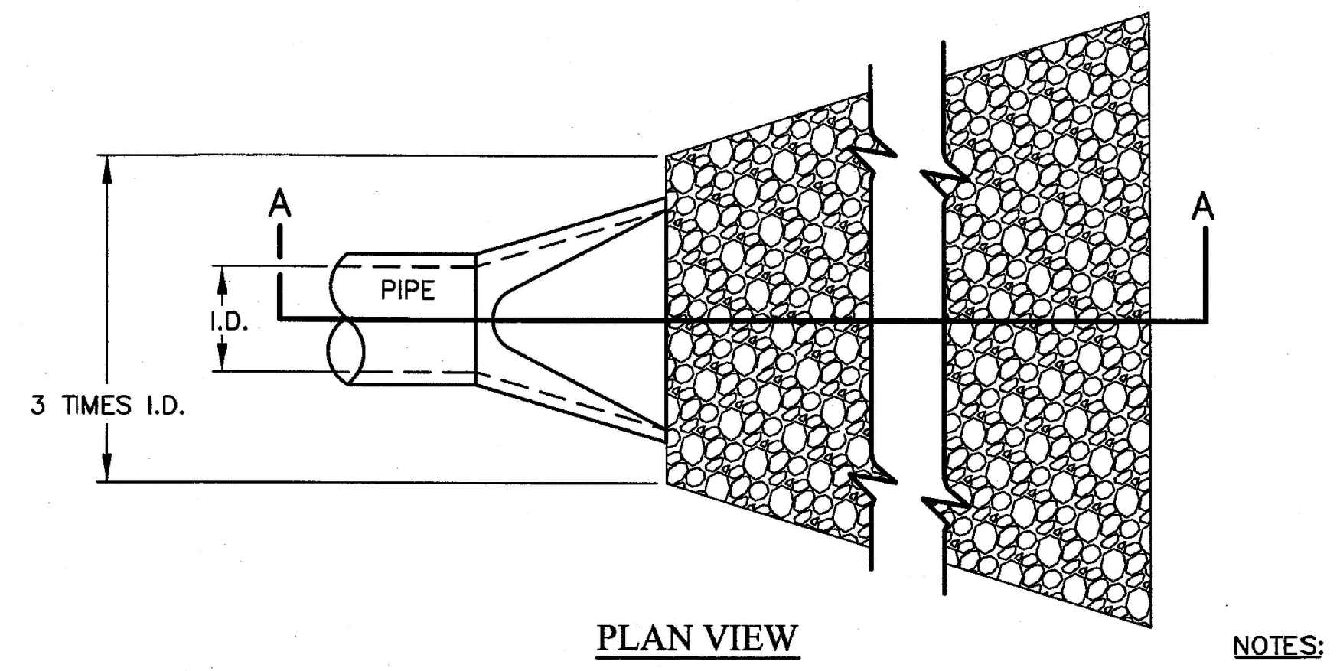

STANDARD METAL POSTS 2'-0" IN GROUND
GALVANIZED HARDWARE WIRE EXTENDS TO TOP OF BOX
# 57 WASHED STONE PLACED TO A HEIGHT OF 12"-18" MINIMUM ABOVE TOP OF BOX

NOTE:

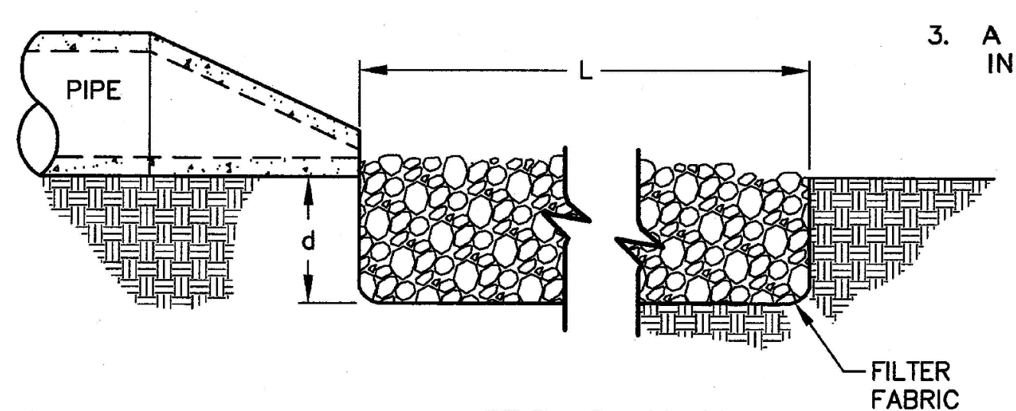
1. INSPECT INLET PROTECTION AND REMOVE SEDIMENT AFTER EACH RAIN EVENT. GRAVEL SHOULD BE REPLACED AND REPAIRS MADE AS NEEDED.

EFFECTIVE: 01/31/08

STANDARD GRAVEL YARD INLET PROTECTION


A
PIPE
I.D.
3 TIMES I.D.
A

PLAN VIEW


PIPE
L
d
FILTER FABRIC

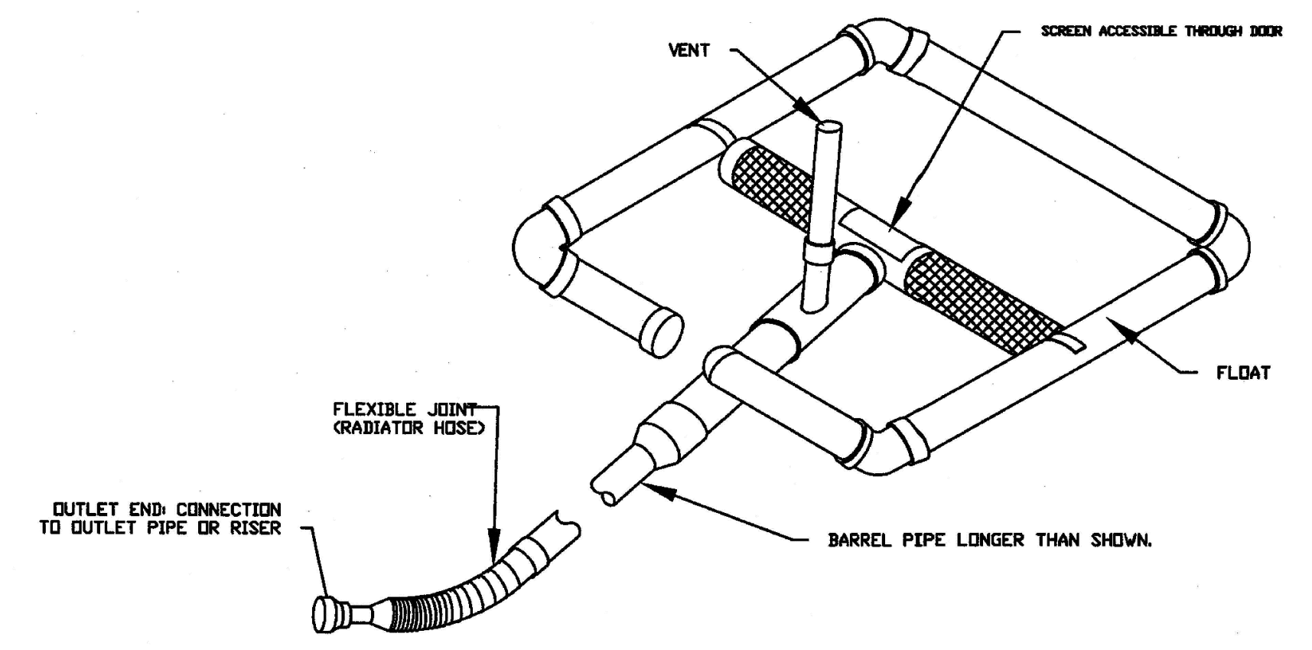
SECTION 'A-A'

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.

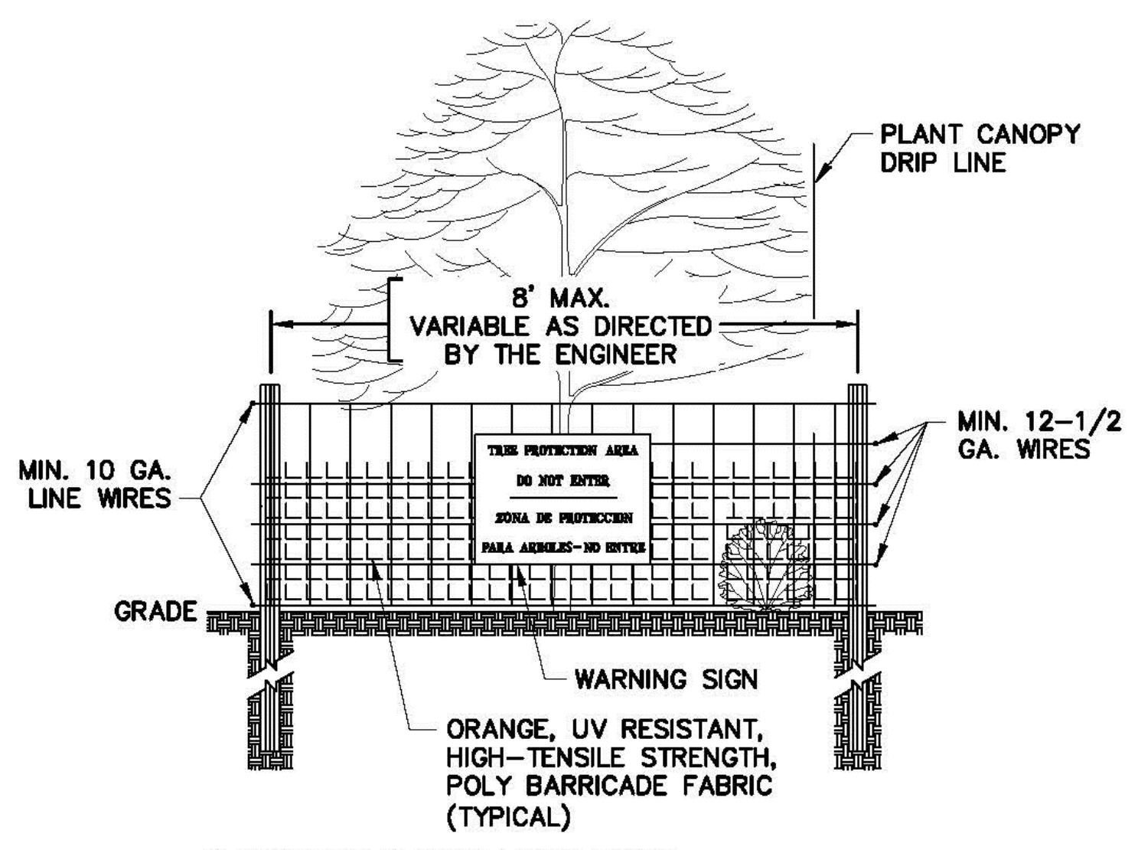
EFFECTIVE: 01/31/08

STANDARD PIPE OUTLET TO FLAT AREA NO WELL-DEFINED CHANNEL


VENT
SCREEN ACCESSIBLE THROUGH DOOR
FLOAT
FLEXIBLE JOINT (RADIATOR HOSE)
OUTLET END: CONNECTION TO OUTLET PIPE OR RISER
BARREL PIPE LONGER THAN SHOWN.

EFFECTIVE: 01/31/08

STANDARD SKIMMER DETAIL


PLANT CANOPY DRIP LINE
8' MAX. VARIABLE AS DIRECTED BY THE ENGINEER
MIN. 10 GA. LINE WIRES
MIN. 12–1/2 GA. WIRES
TREE PROTECTION AREA
DO NOT ENTER
ZONA DE PROTECCION
PARA ARBOLES–NO ENTRE
GRADE
WARNING SIGN
ORANGE, UV RESISTANT, HIGH–TENSILE STRENGTH, POLY BARRICADE FABRIC (TYPICAL)

PERFORATED PLASTIC FENCE DETAIL

40"

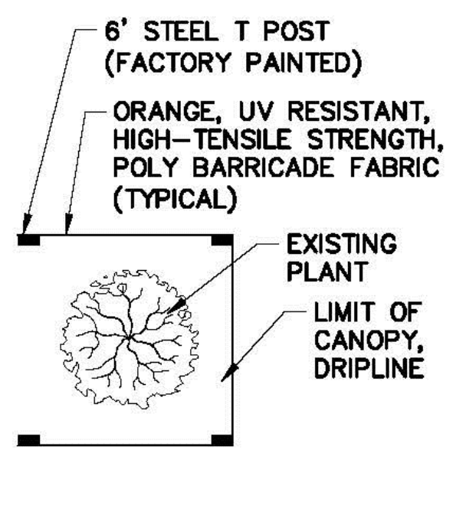
TREE PROTECTION AREA
DO NOT ENTER
ZONA DE PROTECCION
PARA ARBOLES–NO ENTRE

18"

WARNING SIGN DETAIL

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. CONTRACTOR SHALL CALL FOR INSPECTION AND APPROVAL OF PROTECTIVE FENCING PRIOR TO BEGINNING ANY CONSTRUCTION OR GRADING.
6. PROTECTIVE FENCING SHALL BE LOCATED 5' OUTSIDE DRIPLINE OF TREES AND 1' MINIMUM OUTSIDE SHRUBS OR OTHER PLANTS.


6' STEEL T POST (FACTORY PAINTED)
ORANGE, UV RESISTANT, HIGH–TENSILE STRENGTH, POLY BARRICADE FABRIC (TYPICAL)
EXISTING PLANT
LIMIT OF CANOPY, DRIPLINE

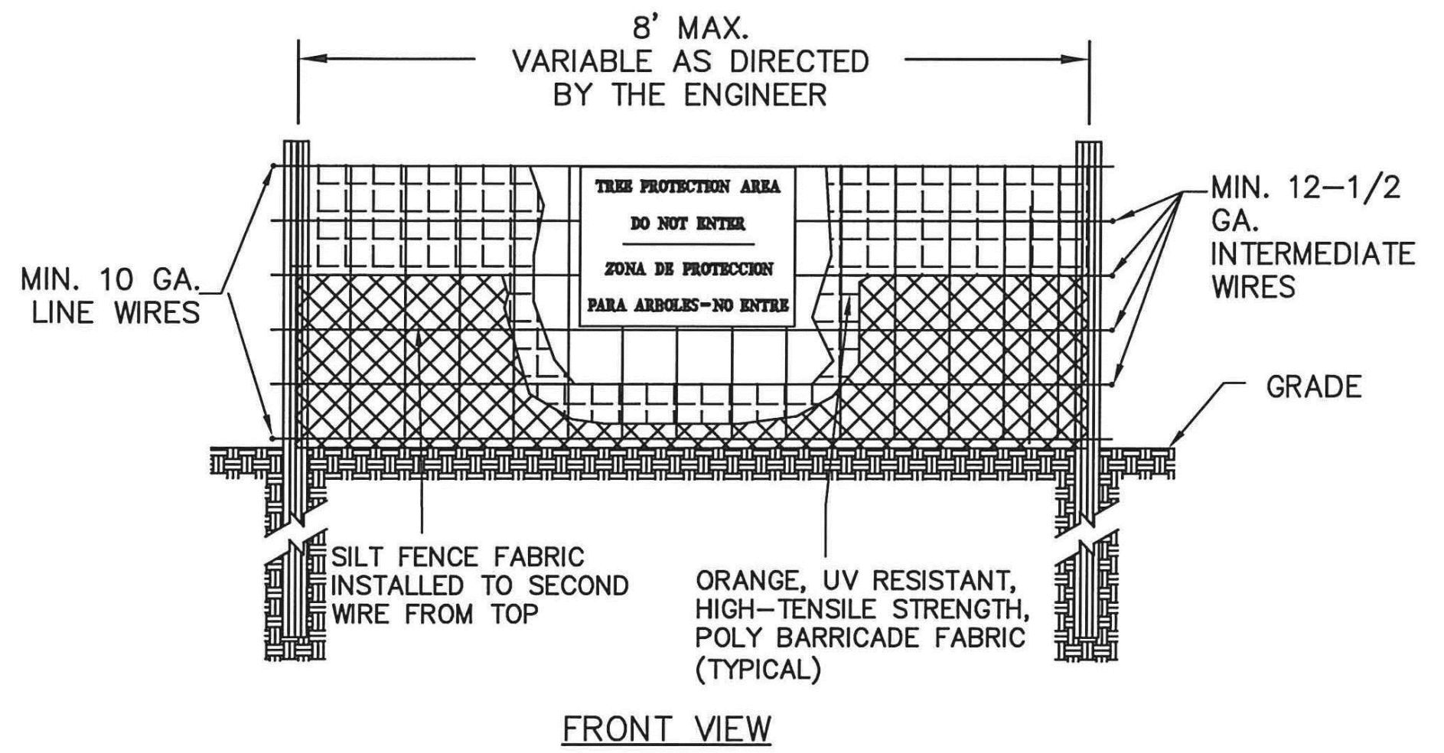
PLAN VIEW OF PROTECTIVE FENCING
AROUND SINGLE TREE– EXPAND AS NECESSARY

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE
STANDARD DETAILS

PLANT PROTECTIVE FENCING

STD. NO.
2.10-1


8' MAX. VARIABLE AS DIRECTED BY THE ENGINEER
MIN. 10 GA. LINE WIRES
TREE PROTECTION AREA
DO NOT ENTER
ZONA DE PROTECCION
PARA ARBOLES–NO ENTRE
MIN. 12–1/2 GA. INTERMEDIATE WIRES
GRADE
SILT FENCE FABRIC INSTALLED TO SECOND WIRE FROM TOP
ORANGE, UV RESISTANT, HIGH–TENSILE STRENGTH, POLY BARRICADE FABRIC (TYPICAL)

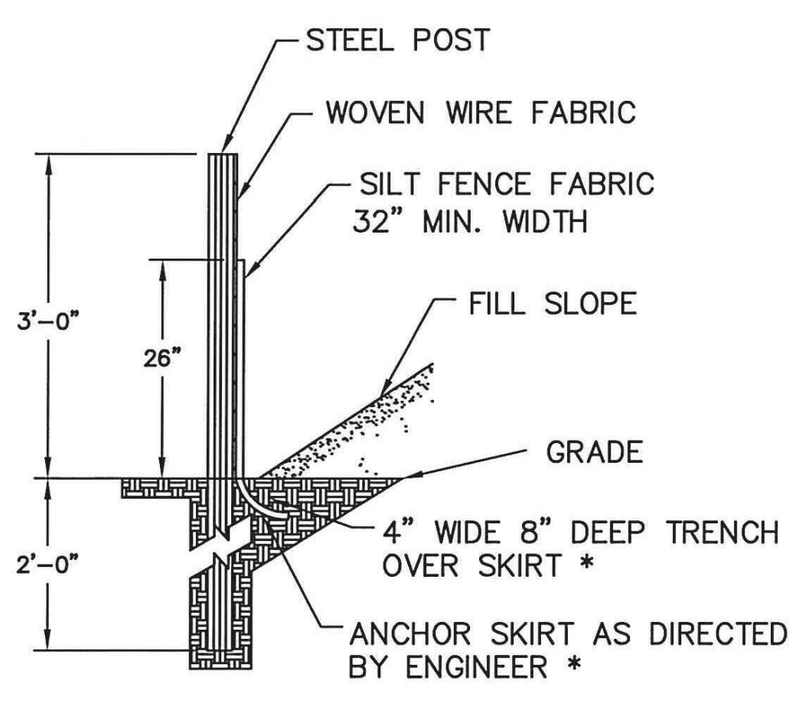
FRONT VIEW

40"

TREE PROTECTION AREA
DO NOT ENTER
ZONA DE PROTECCION
PARA ARBOLES–NO ENTRE

18"

WARNING SIGN DETAIL


STEEL POST
WOVEN WIRE FABRIC
SILT FENCE FABRIC 32" MIN. WIDTH
FILL SLOPE
3'–0"
26"
GRADE
2'–0"
4" WIDE 8" DEEP TRENCH OVER SKIRT *
ANCHOR SKIRT AS DIRECTED BY ENGINEER *

SIDE VIEW

* FOR REPAIR OF SILT FENCE FAILURES, USE NO. 57 WASHED STONE

NOTES:

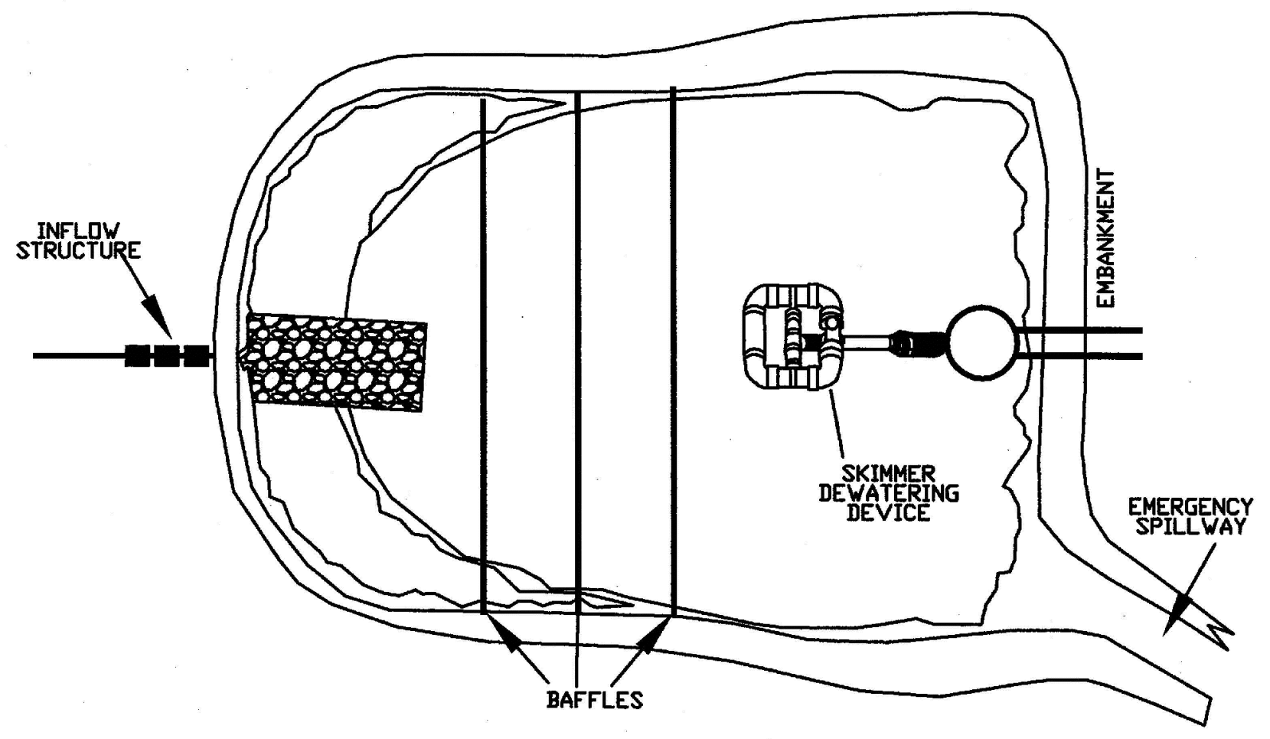
1. ORANGE SILT FENCE REQUIRED.
2. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.
3. ORANGE, UV RESISTANT, HIGH–TENSIL STRENGTH, POLY BARRICADE FABRIC MUST BE USED.
4. END OF SILT FENCE MUST BE TURNED UPHILL.
5. WARNING SIGNS ARE TO BE MADE OF 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. ATTACH SIGNS SECURELY 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

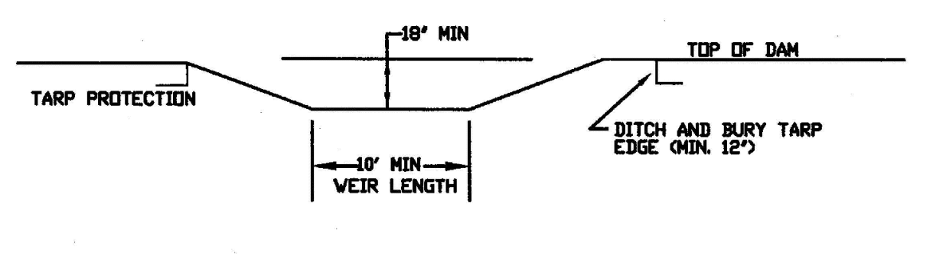
TOWN OF KNIGHTDALE
STANDARD DETAILS

STANDARD TEMPORARY SILT/TREE PROTECTION FENCE

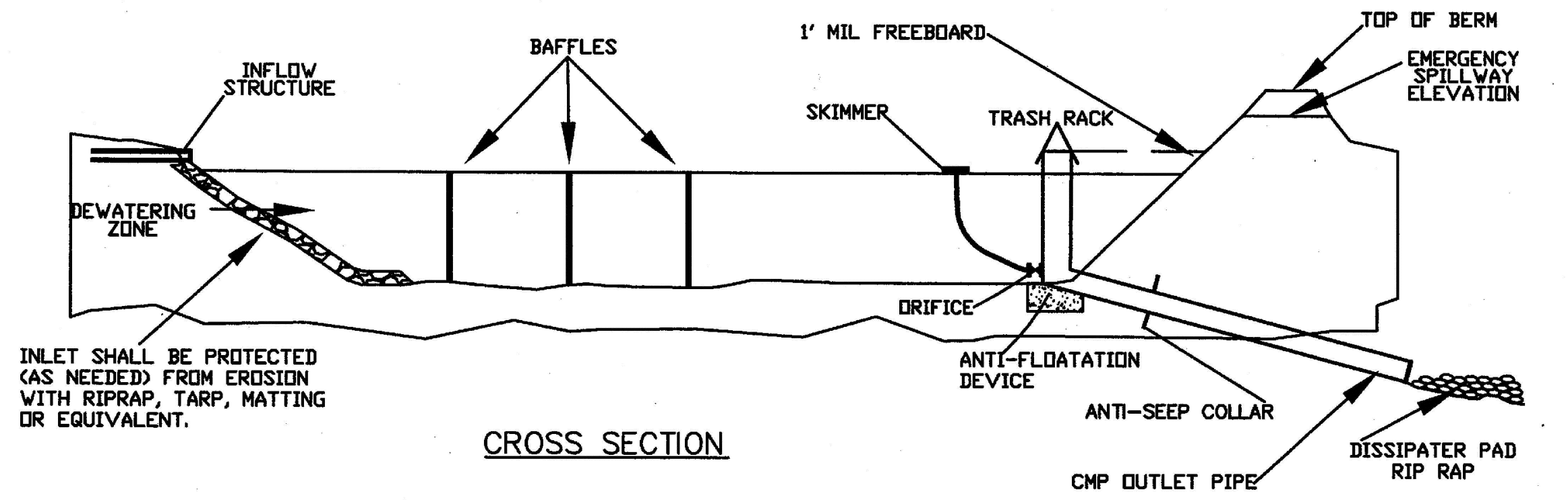
STD. NO.
2.10-2


INFLOW STRUCTURE
EMBANKMENT
SKIMMER DEWATERING DEVICE
EMERGENCY SPILLWAY
BAFFLES

PLAN VIEW


18' MIN
TOP OF DAM
TARP PROTECTION
10' MIN WEIR LENGTH
DITCH AND BURY TARP EDGE (MIN. 12")

SECTION THRU WEIR


INFLOW STRUCTURE
BAFFLES
1' MIL FREEBOARD
TOP OF BERM
EMERGENCY SPILLWAY ELEVATION
SKIMMER
TRASH RACK
DEWATERING ZONE
ORIFICE
ANTI-FLOATATION DEVICE
ANTI-SEEP COLLAR
INLET SHALL BE PROTECTED (AS NEEDED) FROM EROSION WITH RIPRAP, TARP, MATTING OR EQUIVALENT.
CMP OUTLET PIPE
DISSIPATER PAD RIP RAP

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.

EFFECTIVE: 01/31/08

STANDARD SKIMMER ATTACHED TO PERMANENT RISER

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ____________
Town Engineer

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

By: ______________________ Date: ____________
Land Use Administrator

Engineers
Planners
Surveyors
Landscape Architects

Rivers
& ASSOCIATES, INC.
Since 1918
riversandassociates.com

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

SEAL 26493
STEPHEN J. BALLENTINE

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

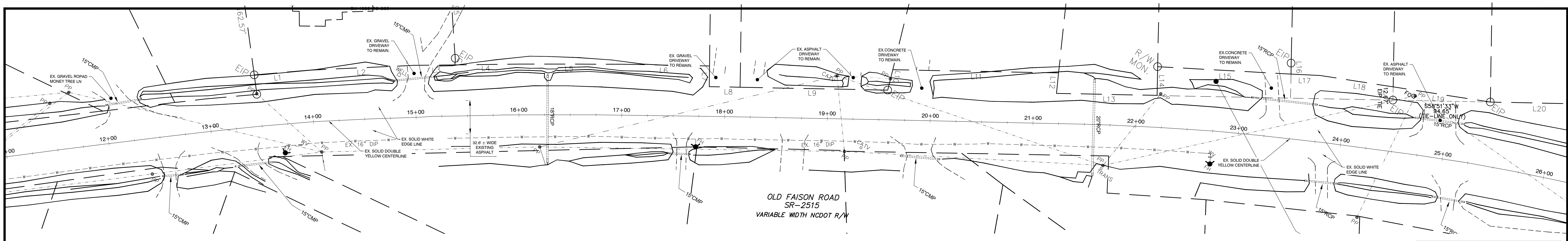
EROSION CONTROL DETAILS

DATE:
DESIGNED BY: CS
DRAWN BY: EDN
CHECKED BY: SJB
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.

C5.24

Do Not Use for Construction - PRELIMINARY

R:\LANDDEV\GLENWOOD_HOMES-OLD_FAISON_PLACE-2022113\CADD_DWG\SHEETS - CD SET\C5.21 EROSION NOTES.DWG - LAYOUT4 - 7/2/2026 9:44:24 AM - EDWIN NANCE


EX. GRAVEL ROPAD MONEY TREE LN
15"CMP
EIP
L1
L2
L3
L4
L5
L6
L8
L9
L10
L11
L12
L13
L14
L15
L16
L17
L18
L19
L20
62.57'
EX. GRAVEL DRIVEWAY TO REMAIN.
WELL
EX. ASPHALT DRIVEWAY TO REMAIN.
EX.CONCRETE DRIVEWAY TO REMAIN.
R/W MON.
15"RCP
18"RCP
20"RCP
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
EX. SOLID WHITE EDGE LINE
EX. SOLID DOUBLE YELLOW CENTERLINE
EX. 16" DIP
32.6' ± WIDE EXISTING ASPHALT
PP
FH
CATV
TRANS
12.67' EIP TIE
S58°51'33"W 94.65' (TIE-LINE ONLY)
OLD FAISON ROAD SR-2515 VARIABLE WIDTH NCDOT R/W

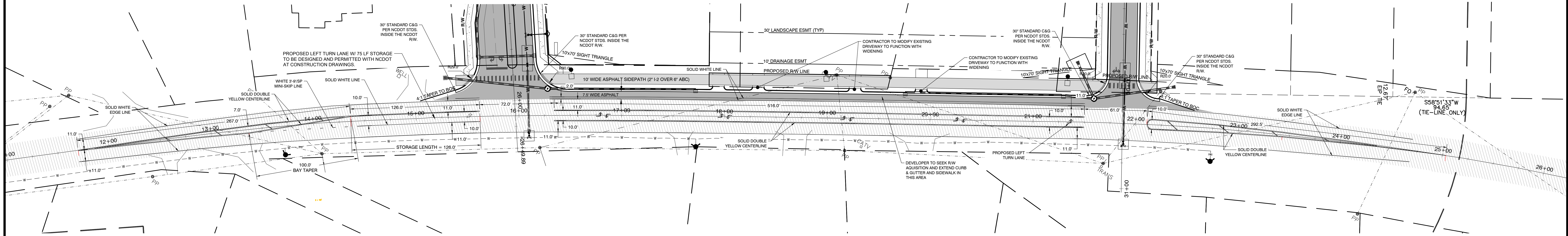
OLD FAISON ROAD
EXISTING CONDTIONS PLAN

SCALE: 1: = 40'

POSTED SPEED LIMIT = 45 MPH
DESIGN SPEED LIMIT = 50 MPH

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL TOWN OF LILLINGTON, HARNETT REGIONAL WATER, NCDOT AND NCDEQ STANDARDS & SPECIFICATIONS.

CONTRACTOR SHALL ACQUIRE TEMPORARY CONSTRUCTION EASEMENT FOR WORK COMPLETED OUTSIDE OF EXISTING/PROPOSED RIGHT OF WAY.


30" STANDARD C&G PER NCDOT STDS. INSIDE THE NCDOT R/W.
PROPOSED LEFT TURN LANE W/ 75 LF STORAGE TO BE DESIGNED AND PERMITTED WITH NCDOT AT CONSTRUCTION DRAWINGS.
WHITE 3'-9'/SP MINI-SKIP LINE
SOLID WHITE LINE
SOLID DOUBLE YELLOW CENTERLINE
SOLID WHITE EDGE LINE
4:1 TAPER TO BOC
10'x70' SIGHT TRIANGLE
R29.0'
R30.0'
R20.0'
30' LANDSCAPE ESMT (TYP)
10' DRAINAGE ESMT
PROPOSED R/W LINE
10' WIDE ASPHALT SIDEPATH (2" I-2 OVER 6" ABC)
7.5' WIDE ASPHALT
2.0'
7.0'
10.0'
11.0'
72.0'
61.0'
126.0'
267.0'
516.0'
292.5'
STORAGE LENGTH = 126.0'
100.0' BAY TAPER
26+00
26+49.89
31+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
CONTRACTOR TO MODIFY EXISTING DRIVEWAY TO FUNCTION WITH WIDENING
DEVELOPER TO SEEK R/W AQUISITION AND EXTEND CURB & GUTTER AND SIDEWALK IN THIS AREA
PROPOSED LEFT TURN LANE
12.67' EIP TIE
S58°51'33"W 94.65' (TIE-LINE ONLY)
R/W
PP
WELL
CATV
TRANS

OLD FAISON ROAD
SITE AND STRIPING PLAN

SCALE: 1: = 40'

⬚	MULTI-USE ASPHALT PATH
▨	EXISTING PAVEMENT
■	PROPOSED PAVEMENT

CONTRACTOR TO FIELD VERIFY AND RELOCATE ALL EXISTING ROAD SIGNAGE IMPACTED BY THE WIDENING INTO THE NEW SHOULDER.

ALL DISTURBED AREAS SHALL BE SEEDED AND STABILIZED. ALL DITCHES SHALL BE LINED. REFER TO EROSION CONTROL PLANS.

PRIOR TO BEGINNING ANY CONSTRUCTION, CONTRACTOR TO OBTAIN & READ ALL NCDOT PERMITS, INCLUDING DRIVEWAY PERMIT AND ALL ENCROACHMENT AGREEMENTS. COMPLY WITH ALL CONDITIONS WITHIN. NCDOT PERMITS SHALL BE CONSIDERED A PART OF THIS PLAN SET.

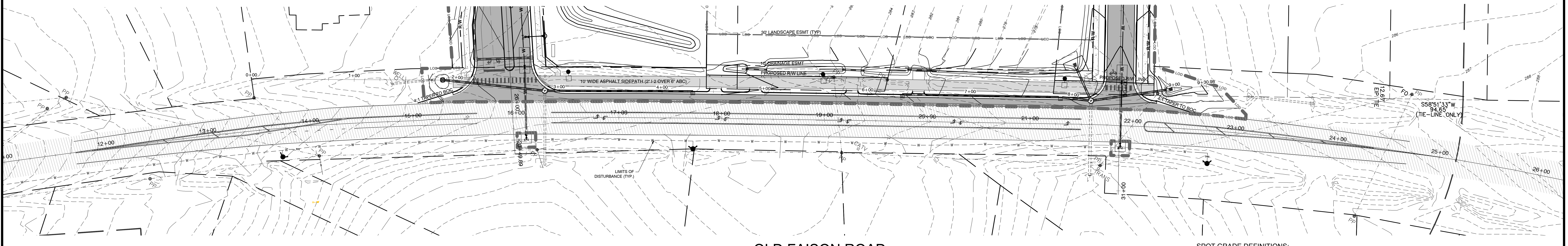
ALL GRADING, PAVING, COMPACTION, PROOFROLLING & ASPHALT CORE SAMPLES TO BE OBSERVED BY CONTRACTORS GEOTECHNICAL ENGINEER. CONTRACTOR TO OBTAIN NCDOT ACCEPTANCE LETTER FOR ALL ROAD WORK AND PROVIDE TO OWNER & ENGINEER.

GENERAL CONTRACTOR TO ADJUST ALL EXISTING APPURTENANCES TO MATCH FINISHED GRADE. RELOCATE ALL APPURTENANCES OUTSIDE OF PROPOSED DITCH LINE.

GENERAL CONTRACTOR TO PERFORM TRAFFIC CONTROL PER NCDOT STANDARDS. MAINTAIN AT LEAST ONE LANE OF TRAFFIC AT ALL TIMES. MAINTAIN DRIVEWAY ACCESS TO ALL PROPERTIES AT ALL TIMES.

CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
CONTRACTOR SHALL NOTIFY UTILITY COMPANY OWNERS PRIOR TO CONSTRUCTION.
CONTRACTOR SHALL NOTIFY UTILITY COMPANY OWNERS THE PROPOSED.
SEQUENCE OF CONSTRUCTION/GRADING AND AMOUNT OF COVER DURING CONSTRUCTION AND EXCAVATION.
CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES ANY UTILITY RELOCATION PRIOR TO CONSTRUCTION.

GENERAL CONTRACTOR:
PRIOR TO BEGINNING ANY CONSTRUCTION, FIELD SURVEY & VERIFY LOCATION, DEPTH, SIZE, MATERIAL, TYPE, & CONDITION OF ALL EXISTING UTILITIES. IN CASE OF DISCREPANCY OR CONFLICT THEN NOTIFY ENGINEER.


30' LANDSCAPE ESMT (TYP)
10' DRAINAGE ESMT
PROPOSED R/W LINE
10' WIDE ASPHALT SIDEPATH (2" I-2 OVER 6" ABC)
4:1 TAPER TO BOC
LIMITS OF DISTURBANCE (TYP.)
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+30.96
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
31+00
12.67' EIP TIE
S58°51'33"W 94.65' (TIE-LINE ONLY)

OLD FAISON ROAD
GRADING/EROSION CONTROL PLAN

SCALE: 1: = 40'

SPOT GRADE DEFINITIONS:
- BC = BACK OF CURB
- TW = TOP OF WALK
- CL = CENTER LINE (OF DITCH)
- EP = EDGE OF PAVEMENT

40' 0 20' 40'
SCALE 1 inch = **40** ft

CALL BEFORE YOU DIG!
WWW.NC811.ORG
N.C. ONE-CALL CENTER
IT'S THE LAW!

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

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& ASSOCIATES, INC.
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Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493
STEPHEN BALLENTINE

REVISIONS:

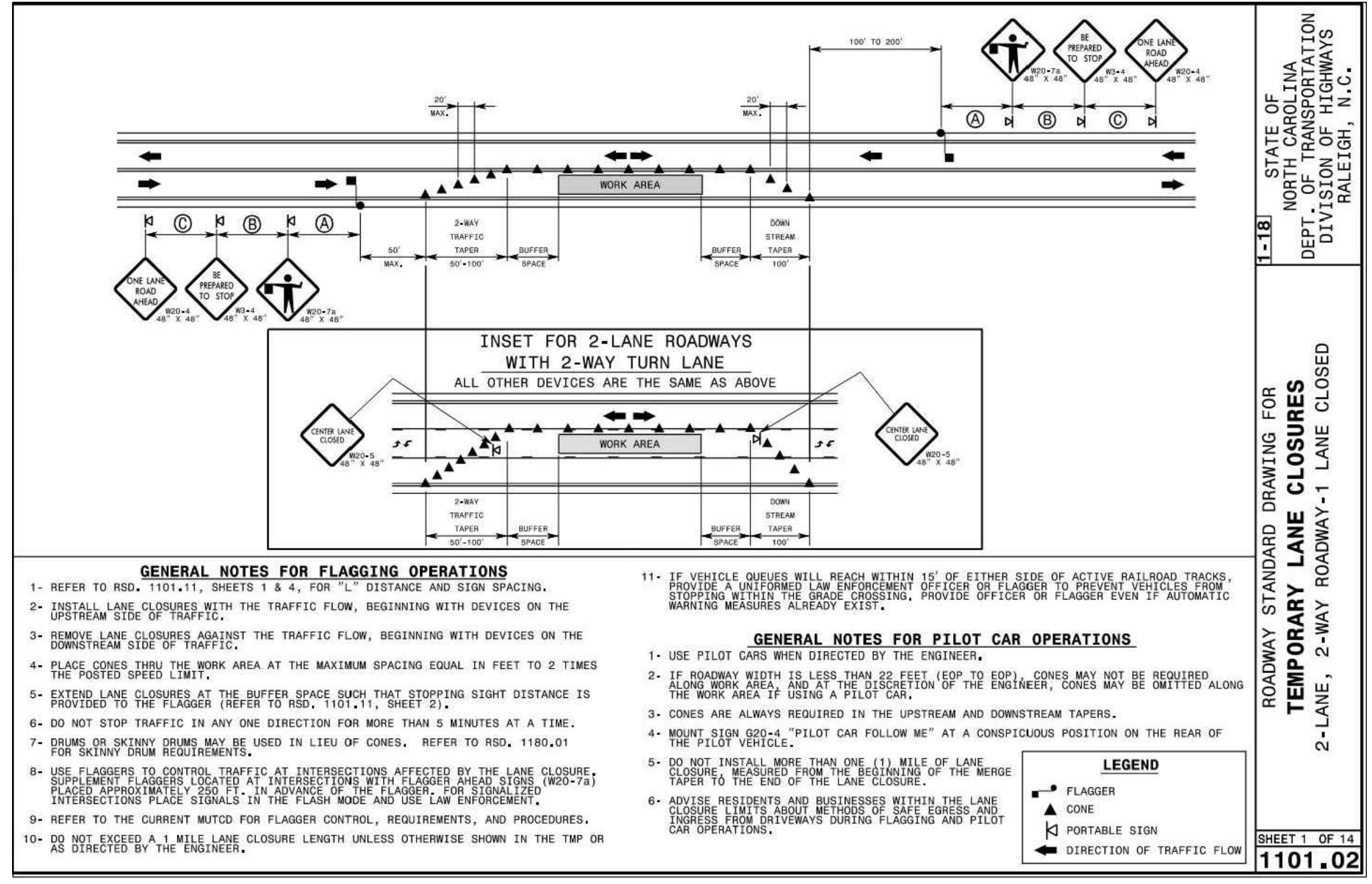
NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE – WAKE COUNTY – NORTH CAROLINA
OLD FAISON ROAD WIDENING PLAN

DATE:	
DESIGNED BY:	CS
DRAWN BY:	EDN
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN

SHEET No.
C6.01

Do Not Use for Construction - PRELIMINARY


INSET FOR 2-LANE ROADWAYS
WITH 2-WAY TURN LANE
ALL OTHER DEVICES ARE THE SAME AS ABOVE
WORK AREA
CENTER LANE CLOSED
W20-5
48" X 48"
2-WAY TRAFFIC TAPER 50'-100'
BUFFER SPACE
DOWN STREAM TAPER 100'
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR
TEMPORARY LANE CLOSURES
2-LANE, 2-WAY ROADWAY-1 LANE CLOSED
SHEET 1 OF 14
1101.02

GENERAL NOTES FOR FLAGGING OPERATIONS

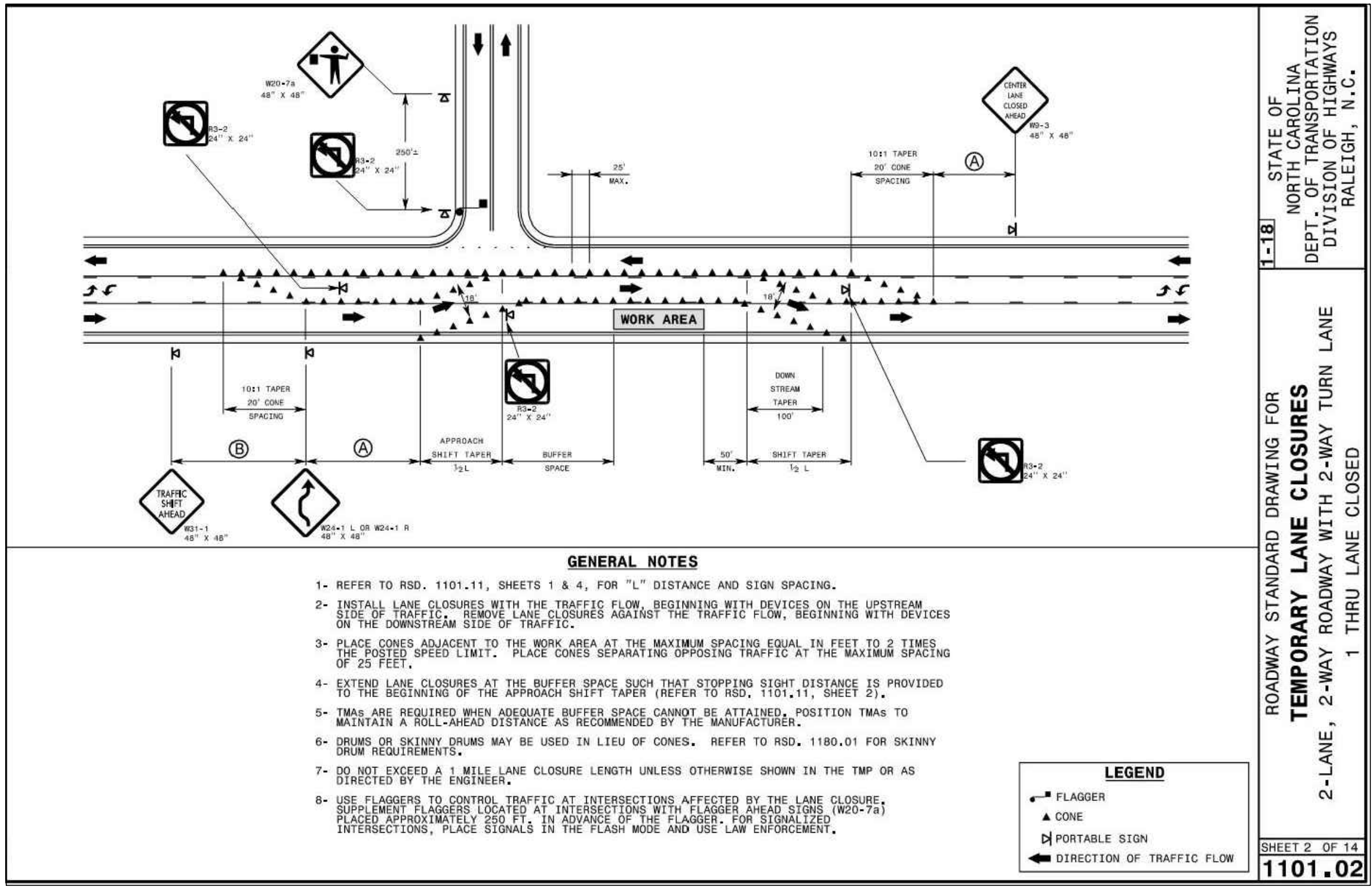
1- REFER TO RSD. 1101.11, SHEETS 1 & 4, FOR "L" DISTANCE AND SIGN SPACING.
2- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC.
3- REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
4- PLACE CONES THRU THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.
5- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE FLAGGER (REFER TO RSD. 1101.11, SHEET 2).
6- DO NOT STOP TRAFFIC IN ANY ONE DIRECTION FOR MORE THAN 5 MINUTES AT A TIME.
7- DRUMS OR SKINNY DRUMS MAY BE USED IN LIEU OF CONES. REFER TO RSD. 1180.01 FOR SKINNY DRUM REQUIREMENTS.
8- USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FT. IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS PLACE SIGNALS IN THE FLASH MODE AND USE LAW ENFORCEMENT.
9- REFER TO THE CURRENT MUTCD FOR FLAGGER CONTROL, REQUIREMENTS, AND PROCEDURES.
10- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.
11- IF VEHICLE QUEUES WILL REACH WITHIN 15' OF EITHER SIDE OF ACTIVE RAILROAD TRACKS, PROVIDE A UNIFORMED LAW ENFORCEMENT OFFICER OR FLAGGER TO PREVENT VEHICLES FROM STOPPING WITHIN THE GRADE CROSSING. PROVIDE OFFICER OR FLAGGER EVEN IF AUTOMATIC WARNING MEASURES ALREADY EXIST.

GENERAL NOTES FOR PILOT CAR OPERATIONS

1- USE PILOT CARS WHEN DIRECTED BY THE ENGINEER.
2- IF ROADWAY WIDTH IS LESS THAN 22 FEET (EOP TO EOP), CONES MAY NOT BE REQUIRED ALONG WORK AREA, AND AT THE DISCRETION OF THE ENGINEER, CONES MAY BE OMITTED ALONG THE WORK AREA IF USING A PILOT CAR.
3- CONES ARE ALWAYS REQUIRED IN THE UPSTREAM AND DOWNSTREAM TAPERS.
4- MOUNT SIGN G20-4 "PILOT CAR FOLLOW ME" AT A CONSPICUOUS POSITION ON THE REAR OF THE PILOT VEHICLE.
5- DO NOT INSTALL MORE THAN ONE (1) MILE OF LANE CLOSURE, MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.
6- ADVISE RESIDENTS AND BUSINESSES WITHIN THE LANE CLOSURE LIMITS ABOUT METHODS OF SAFE EGRESS AND INGRESS FROM DRIVEWAYS DURING FLAGGING AND PILOT CAR OPERATIONS.

LEGEND

- FLAGGER
- ▲ CONE
- PORTABLE SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

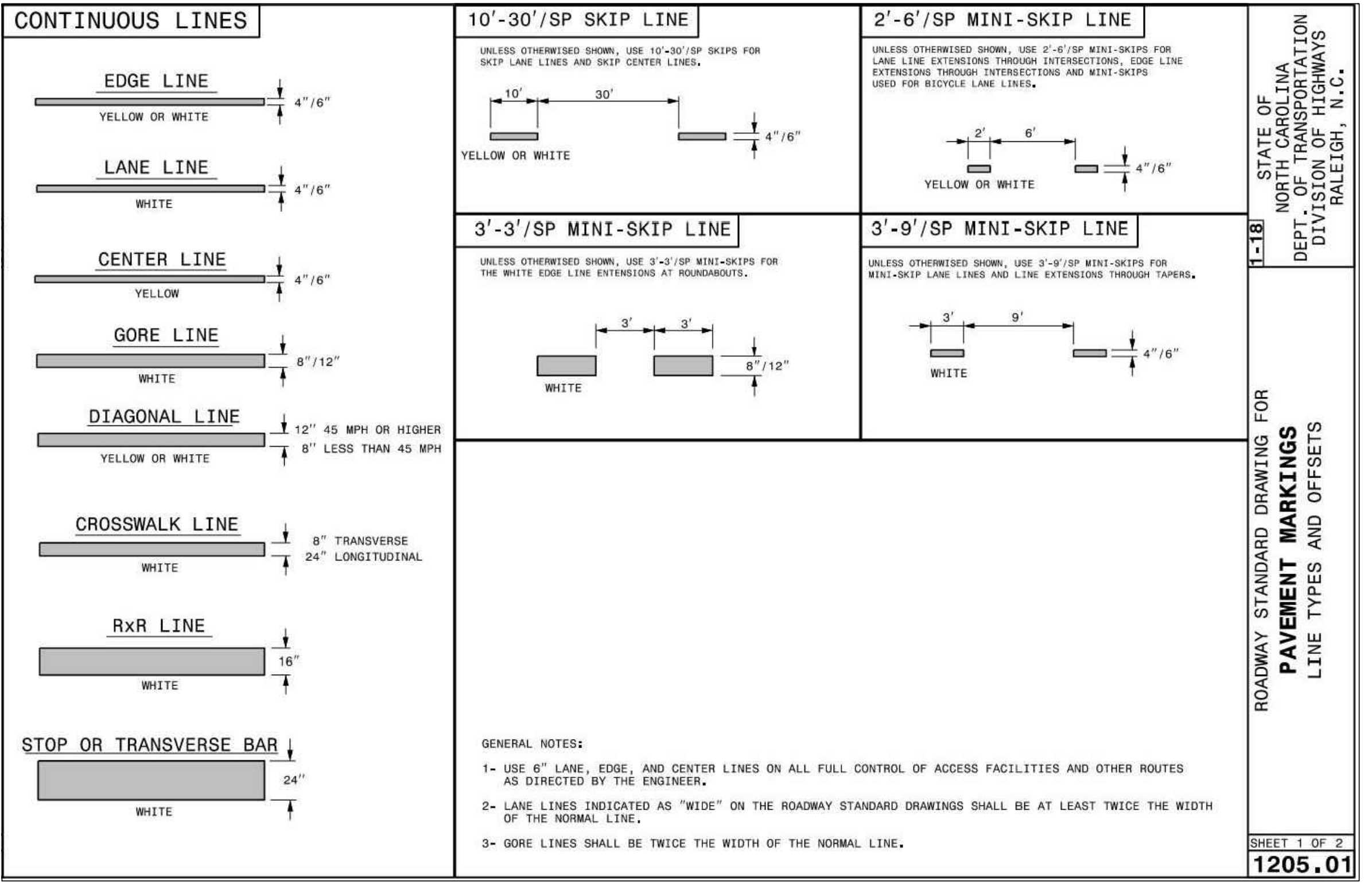

WORK AREA
10:1 TAPER 20' CONE SPACING
APPROACH SHIFT TAPER ½L
BUFFER SPACE
50' MIN.
SHIFT TAPER ½ L
DOWN STREAM TAPER 100'
R3-2 24" X 24"
W31-1 48" X 48"
W24-1 L OR W24-1 R 48" X 48"
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR
TEMPORARY LANE CLOSURES
2-LANE, 2-WAY ROADWAY WITH 2-WAY TURN LANE
1 THRU LANE CLOSED
SHEET 2 OF 14
1101.02

GENERAL NOTES

1- REFER TO RSD. 1101.11, SHEETS 1 & 4, FOR "L" DISTANCE AND SIGN SPACING.
2- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
3- PLACE CONES ADJACENT TO THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT. PLACE CONES SEPARATING OPPOSING TRAFFIC AT THE MAXIMUM SPACING OF 25 FEET.
4- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE BEGINNING OF THE APPROACH SHIFT TAPER (REFER TO RSD. 1101.11, SHEET 2).
5- TMAs ARE REQUIRED WHEN ADEQUATE BUFFER SPACE CANNOT BE ATTAINED. POSITION TMAs TO MAINTAIN A ROLL-AHEAD DISTANCE AS RECOMMENDED BY THE MANUFACTURER.
6- DRUMS OR SKINNY DRUMS MAY BE USED IN LIEU OF CONES. REFER TO RSD. 1180.01 FOR SKINNY DRUM REQUIREMENTS.
7- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.
8- USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FT. IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS, PLACE SIGNALS IN THE FLASH MODE AND USE LAW ENFORCEMENT.

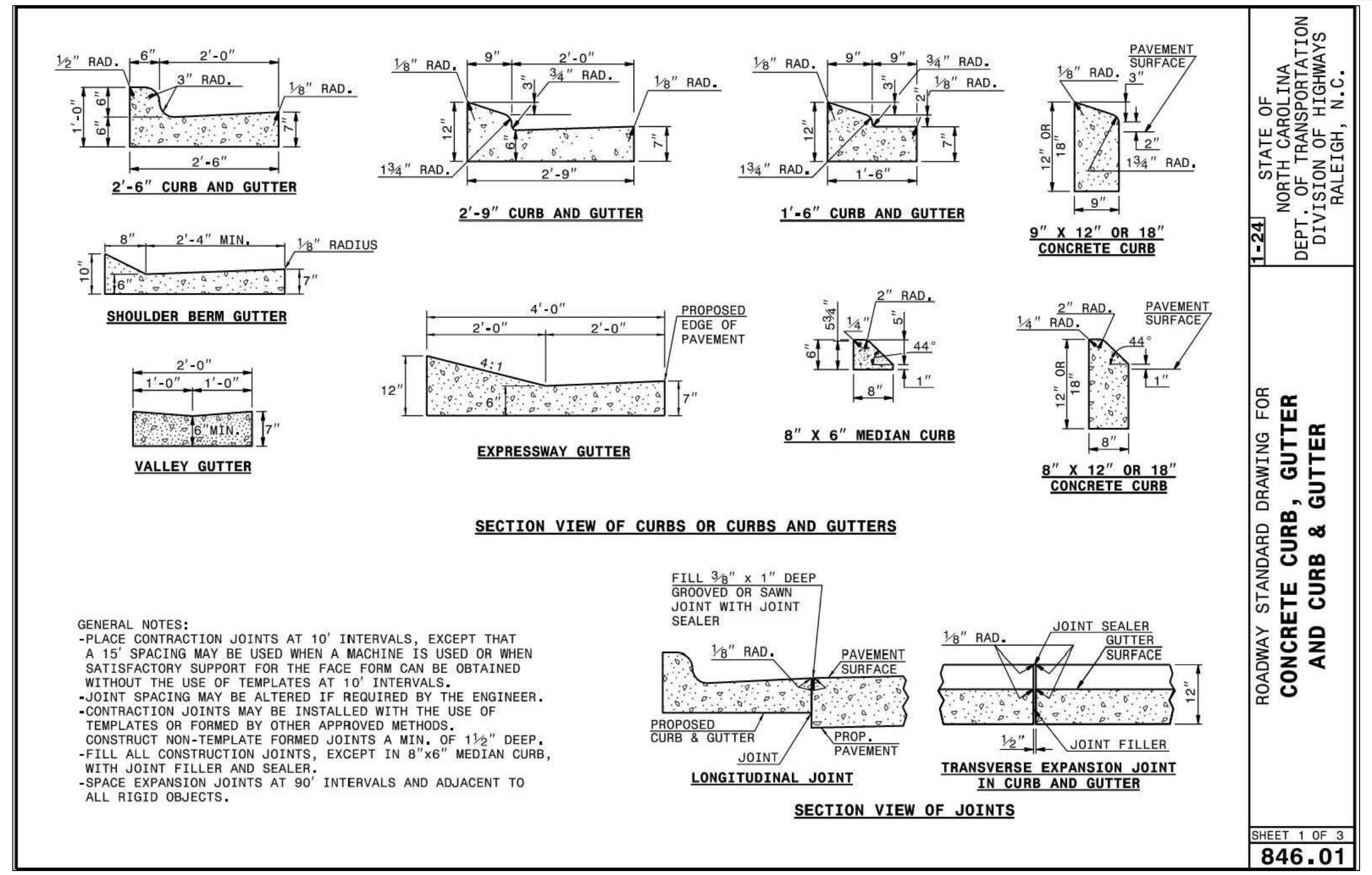
LEGEND

- FLAGGER
- ▲ CONE
- PORTABLE SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

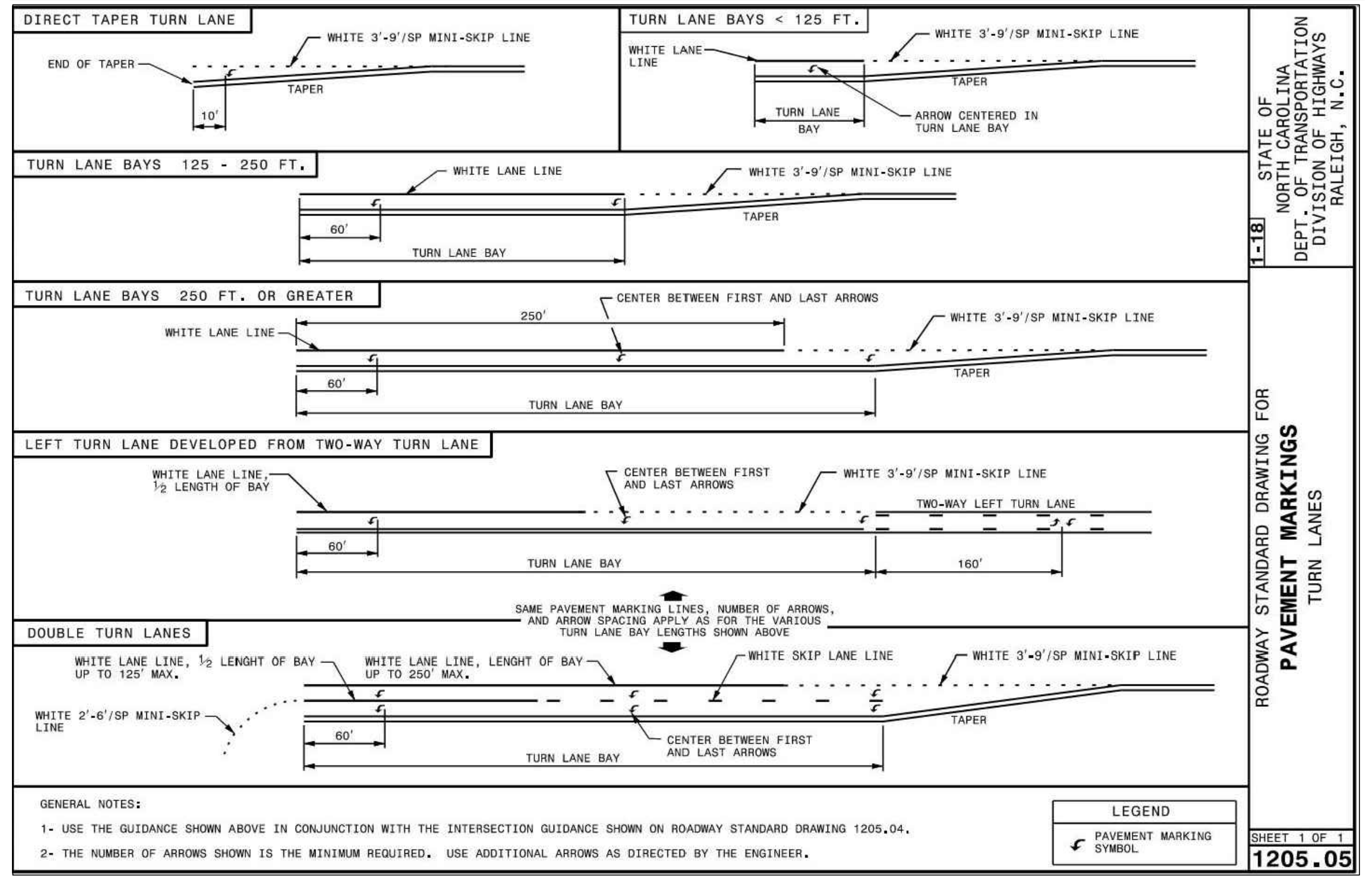

CONTINUOUS LINES
EDGE LINE
YELLOW OR WHITE
4"/6"
LANE LINE
WHITE
4"/6"
CENTER LINE
YELLOW
4"/6"
GORE LINE
WHITE
8"/12"
DIAGONAL LINE
YELLOW OR WHITE
12" 45 MPH OR HIGHER
8" LESS THAN 45 MPH
CROSSWALK LINE
WHITE
8" TRANSVERSE
24" LONGITUDINAL
RxR LINE
WHITE
16"
STOP OR TRANSVERSE BAR
WHITE
24"
10'-30'/SP SKIP LINE
UNLESS OTHERWISED SHOWN, USE 10'-30'/SP SKIPS FOR SKIP LANE LINES AND SKIP CENTER LINES.
10'
30'
YELLOW OR WHITE
4"/6"
2'-6'/SP MINI-SKIP LINE
UNLESS OTHERWISED SHOWN, USE 2'-6'/SP MINI-SKIPS FOR LANE LINE EXTENSIONS THROUGH INTERSECTIONS, EDGE LINE EXTENSIONS THROUGH INTERSECTIONS AND MINI-SKIPS USED FOR BICYCLE LANE LINES.
2'
6'
YELLOW OR WHITE
4"/6"
3'-3'/SP MINI-SKIP LINE
UNLESS OTHERWISED SHOWN, USE 3'-3'/SP MINI-SKIPS FOR THE WHITE EDGE LINE ENTENSIONS AT ROUNDABOUTS.
3'
3'
WHITE
8"/12"
3'-9'/SP MINI-SKIP LINE
UNLESS OTHERWISED SHOWN, USE 3'-9'/SP MINI-SKIPS FOR MINI-SKIP LANE LINES AND LINE EXTENSIONS THROUGH TAPERS.
3'
9'
WHITE
4"/6"
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
LINE TYPES AND OFFSETS
SHEET 1 OF 2
1205.01

GENERAL NOTES:

1- USE 6" LANE, EDGE, AND CENTER LINES ON ALL FULL CONTROL OF ACCESS FACILITIES AND OTHER ROUTES AS DIRECTED BY THE ENGINEER.
2- LANE LINES INDICATED AS "WIDE" ON THE ROADWAY STANDARD DRAWINGS SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE.
3- GORE LINES SHALL BE TWICE THE WIDTH OF THE NORMAL LINE.


2'-6" CURB AND GUTTER
2'-9" CURB AND GUTTER
1'-6" CURB AND GUTTER
9" X 12" OR 18" CONCRETE CURB
SHOULDER BERM GUTTER
VALLEY GUTTER
EXPRESSWAY GUTTER
8" X 6" MEDIAN CURB
8" X 12" OR 18" CONCRETE CURB
SECTION VIEW OF CURBS OR CURBS AND GUTTERS
FILL ⅜" x 1" DEEP GROOVED OR SAWN JOINT WITH JOINT SEALER
PAVEMENT SURFACE
PROPOSED CURB & GUTTER
JOINT
PROP. PAVEMENT
LONGITUDINAL JOINT
JOINT SEALER
GUTTER SURFACE
JOINT FILLER
TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER
SECTION VIEW OF JOINTS
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR
CONCRETE CURB, GUTTER AND CURB & GUTTER
SHEET 1 OF 3
846.01

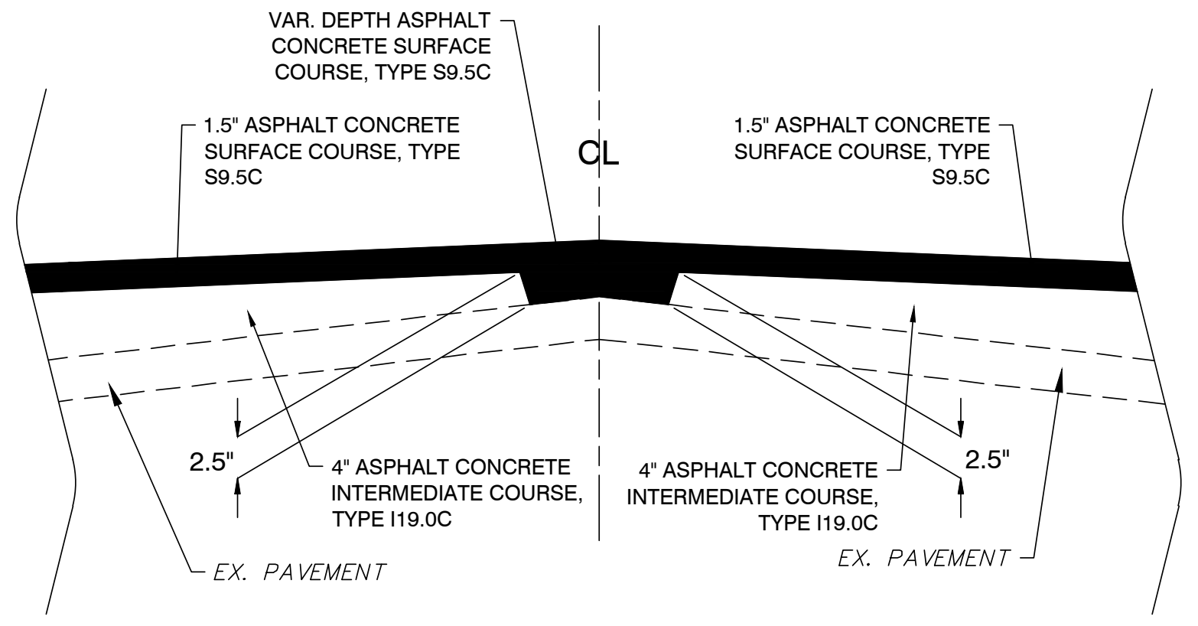
GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
- JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
- CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
- FILL ALL CONSTRUCTION JOINTS, EXCEPT IN 8"x6" MEDIAN CURB, WITH JOINT FILLER AND SEALER.
- SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.


DIRECT TAPER TURN LANE
END OF TAPER
WHITE 3'-9'/SP MINI-SKIP LINE
TAPER
10'
TURN LANE BAYS < 125 FT.
WHITE LANE LINE
TURN LANE BAY
ARROW CENTERED IN TURN LANE BAY
TURN LANE BAYS 125 - 250 FT.
TURN LANE BAYS 250 FT. OR GREATER
CENTER BETWEEN FIRST AND LAST ARROWS
LEFT TURN LANE DEVELOPED FROM TWO-WAY TURN LANE
TWO-WAY LEFT TURN LANE
SAME PAVEMENT MARKING LINES, NUMBER OF ARROWS, AND ARROW SPACING APPLY AS FOR THE VARIOUS TURN LANE BAY LENGTHS SHOWN ABOVE
DOUBLE TURN LANES
WHITE LANE LINE, ½ LENGHT OF BAY UP TO 125' MAX.
WHITE LANE LINE, LENGHT OF BAY UP TO 250' MAX.
WHITE SKIP LANE LINE
WHITE 2'-6'/SP MINI-SKIP LINE
60'
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
TURN LANES
SHEET 1 OF 1
1205.05

GENERAL NOTES:

1- USE THE GUIDANCE SHOWN ABOVE IN CONJUNCTION WITH THE INTERSECTION GUIDANCE SHOWN ON ROADWAY STANDARD DRAWING 1205.04.
2- THE NUMBER OF ARROWS SHOWN IS THE MINIMUM REQUIRED. USE ADDITIONAL ARROWS AS DIRECTED BY THE ENGINEER.

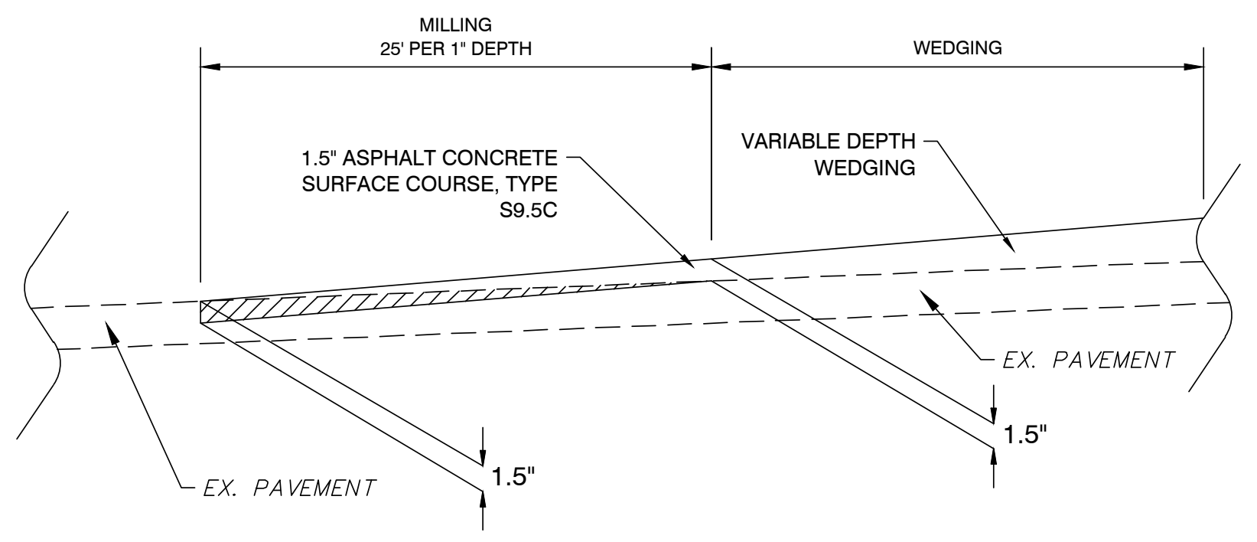
LEGEND: PAVEMENT MARKING SYMBOL


VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C
1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C
CL
1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C
2.5"
4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C
4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C
2.5"
EX. PAVEMENT
EX. PAVEMENT

NOTE: WHENEVER THE PROPOSED GRADE IS HIGHER THAN THE EXISTING PAVEMENT BY LESS THAN THE THICKNESS OF THE PROPOSED PAVEMENT, WEDGING IS NEEDED. WHENEVER THE PROPOSED GRADE IS HIGHER THAN THE EXISTING PAVEMENT BY MORE THEN THE THICKNESS OF THE PROPOSED PAVEMENT, THE DECISION TO WEDGE OR NOT IS A COORDINATED DECISION BETWEEN THE RESIDENT AND DIVISION CONSTRUCTION ENGINEER, ROADWAY DESIGNER AND THE ROADWAY CONSTRUCTION ENGINEER.

WEDGING DETAIL

NOT TO SCALE


MILLING
25' PER 1" DEPTH
WEDGING
1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C
VARIABLE DEPTH WEDGING
EX. PAVEMENT
EX. PAVEMENT
1.5"
1.5"

ASPHALT MILLING TIE IN DETAIL

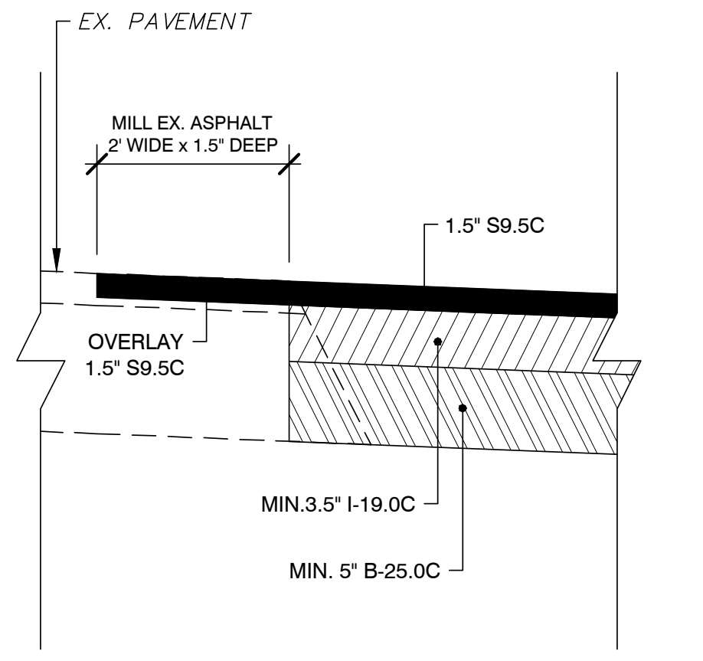
NOT TO SCALE

IMPERVIOUS TABLE

WEST SIDE OF NC 55 BYPASS	1,270,403 SF (29.19 AC)
IMPERVIOUS AREA IN SINGLE FAMILY LOTS (2,150 SF PER LOT)	178,450 SF
IMPERVIOUS AREA IN TOWNHOME LOTS (1,100 SF PER LOT, 40 LOTS)	44,000 SF
ROADWAY IMPERVIOUS AREA MAIL	180,485 SF
KIOSK IMPERVIOUS AREA	2,500 SF
TOTAL SITE IMPERVIOUS AREA	405,435 SF (9.31 AC) 31.9%
EAST SIDE OF NC 55 BYPASS	1,755,509 SF (40.30 AC)
IMPERVIOUS AREA IN TOWNHOME LOTS (1,700 SF PER LOT, 103 LOTS)	175,100 SF
IMPERVIOUS AREA IN MULTI-FAMILY LOT	300,000 SF
IMPERVIOUS AREA IN THREE COMMERCIAL LOTS	320,000 SF
ROADWAY IMPERVIOUS AREA MAIL	340,000 SF
KIOSK IMPERVIOUS AREA	2,500 SF
TOTAL SITE IMPERVIOUS AREA	1,137,600 SF (26.12 AC) 64.8%

GENERAL NOTES

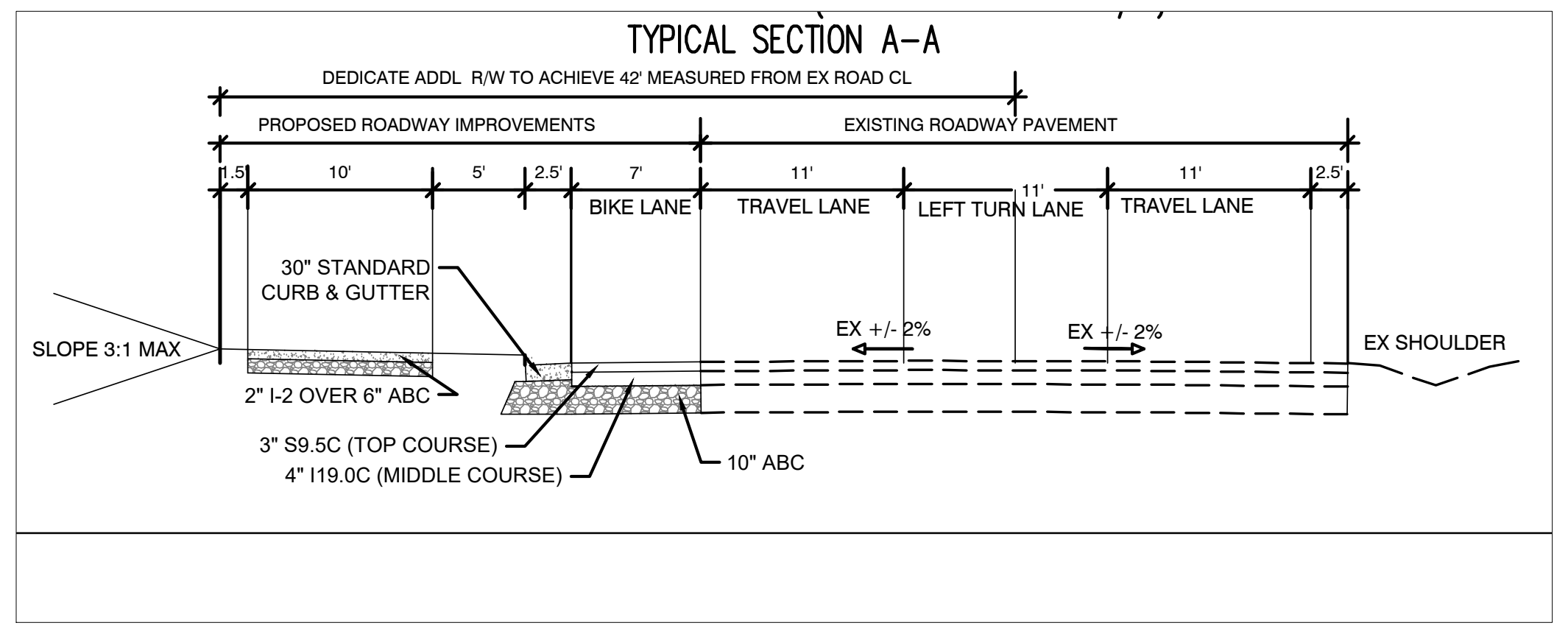
1. BOUNDARY TAKEN FROM SURVEY BY BENTON W. DEWAR DATED JULY 16, 2021.
2. TOPOGRAPHIC DATA TAKEN FROM SURVEY BY BENTON W. DEWAR DATED JULY 16, 2021.
3. ADJOINER PROPERTY INFORMATION AND ADDITIONAL TOPOGRAPHIC DATA SHOWN HAVE BEEN COMPILED FROM HARNETT COUNTY GIS.
4. PROJECT PROPERTY DOES NOT LIE WITHIN A FEMA SPECIAL FLOOD HAZARD AREA PER FEMA FIRM MAP PANEL NO. 3720067400K DATED OCTOBER 3, 2006.
5. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH TOWN OF ANGIER AND NCDOT STANDARDS AND SPECIFICATIONS.
6. ALL STREETS SHALL BE PUBLIC.
7. ALL UTILITIES SHALL BE UNDERGROUND.
8. EACH LOT WILL BE SERVED BY TOWN OF ANGIER PUBLIC WATER.
9. EACH LOT WILL BE SERVED BY TOWN OF ANGIER PUBLIC SEWER.
10. AN EROSION CONTROL PERMIT WILL BE REQUIRED.
11. EROSION CONTROL REGULATIONS WILL BE COMPLIED WITH.
12. CONSTRUCTION DRAWINGS MUST BE APPROVED PRIOR TO CONSTRUCTION.
13. SIGNAGE SHALL BE APPROVED PRIOR TO INSTALLATION OF ANY SIGNAGE.
14. NCDOT DRIVEWAY PERMIT WILL BE REQUIRED PRIOR TO CONSTRUCTION DRAWING APPROVAL.
15. ALL DEDICATED OPEN SPACE AND ACTIVE OPEN SPACE AREAS SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
16. SITE IS LOCATED WITHIN THE WS-IV PROTECTED WATERSHED. DENSITY AND BUILT UPON AREAS ARE LIMITED DEPENDING ON DEVELOPMENT TYPE AND LOW OR HIGH DENSITY OPTIONS UTILIZED.
17. SITE IS WITHIN 1 MILE OF AGRICULTURE DISTRICT.
18. TEMPORARY TURNAROUNDS OUTSIDE OF THE R/W WILL BE HOA MAINTAINED.


EX. PAVEMENT
MILL EX. ASPHALT
2' WIDE x 1.5" DEEP
1.5" S9.5C
OVERLAY
1.5" S9.5C
MIN.3.5" I-19.0C
MIN. 5" B-25.0C

NOTE: THE FINAL PAVEMENT SECTION SHALL BE DETERMINED BY THE OWNER'S GEOTECHNICAL ENGINEER AND APPROVED BY NCDOT PRIOR TO CONSTRUCTION.

2' WIDE MILL STRIP & NCDOT ROAD WIDENING TYPICAL PAVEMENT SECTION

TYPICAL SECTION A–A


DEDICATE ADDL R/W TO ACHIEVE 42' MEASURED FROM EX ROAD CL
PROPOSED ROADWAY IMPROVEMENTS
EXISTING ROADWAY PAVEMENT
1.5'
10'
5'
2.5'
7'
11'
11'
11'
2.5'
BIKE LANE
TRAVEL LANE
LEFT TURN LANE
TRAVEL LANE
30" STANDARD CURB & GUTTER
SLOPE 3:1 MAX
2" I-2 OVER 6" ABC
3" S9.5C (TOP COURSE)
4" I19.0C (MIDDLE COURSE)
10" ABC
EX +/- 2%
EX +/- 2%
EX SHOULDER

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IT'S THE LAW!

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: _____________
Town Engineer

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

By: ______________________ Date: _____________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers & ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493
STEPHEN J. BALLENTINE

Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

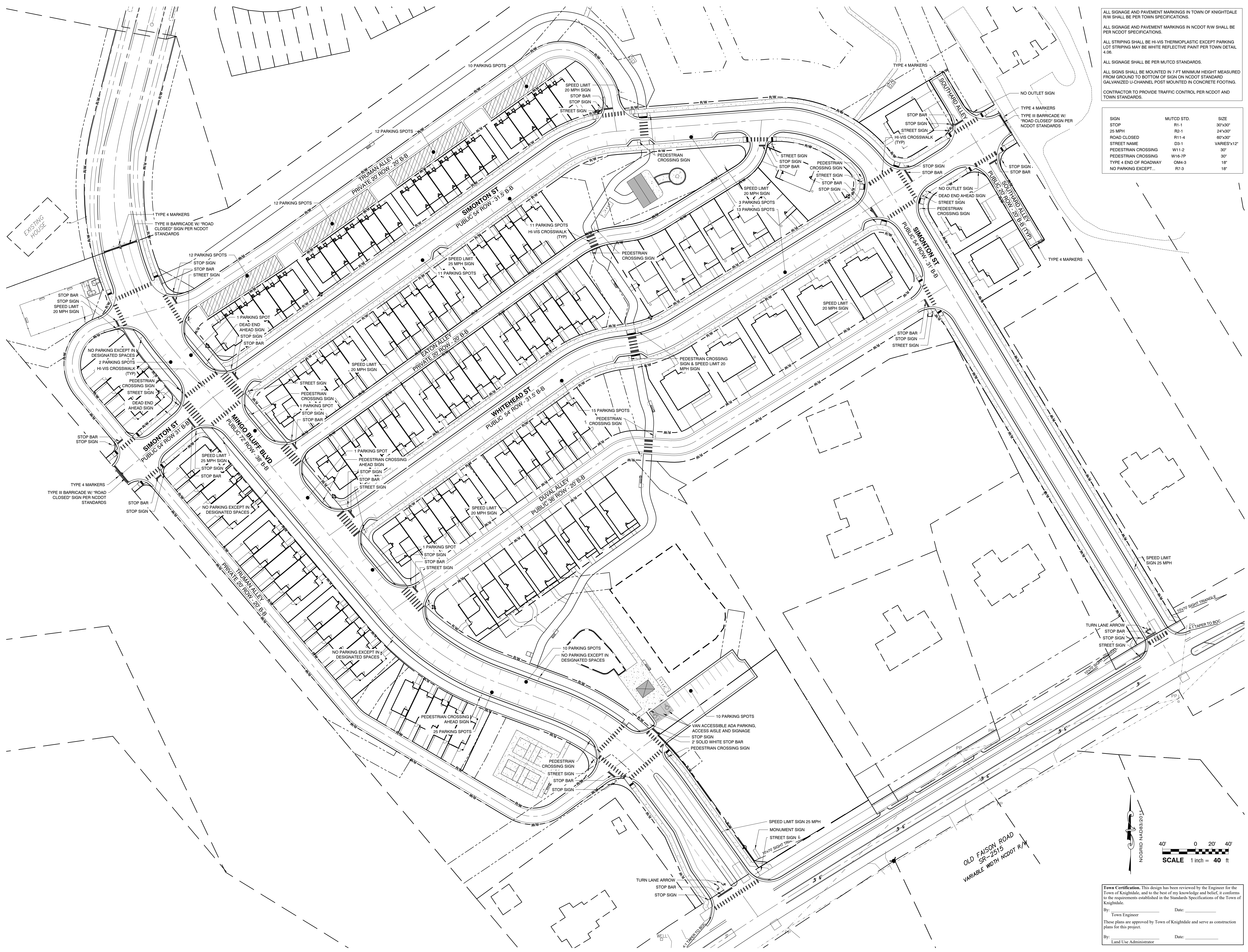
OLD FAISON ROAD WIDENING DETAILS

DATE:	
DESIGNED BY:	CS
DRAWN BY:	TAH
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN

SHEET No.

C6.02

Do Not Use for Construction - PRELIMINARY


EXISTING HOUSE
TRUMAN ALLEY
PRIVATE 20' ROW - 20' B-B
SIMONTON ST
PUBLIC 54' ROW - 31.5' B-B
EATON ALLEY
PRIVATE 20' ROW - 20' B-B
WHITEHEAD ST
PUBLIC 54' ROW - 31.5' B-B
DUVAL ALLEY
PUBLIC 36' ROW - 20' B-B
MINGO BLUFF BLVD
PUBLIC 72' ROW - 38' B-B
SOUTHARD ALLEY
PUBLIC 20' ROW - 20' B-B (TYP)
SIMONTON ST
PUBLIC 54' ROW - 31' B-B
10 PARKING SPOTS
12 PARKING SPOTS
12 PARKING SPOTS
12 PARKING SPOTS
11 PARKING SPOTS
13 PARKING SPOTS
3 PARKING SPOTS
15 PARKING SPOTS
25 PARKING SPOTS
2 PARKING SPOTS
1 PARKING SPOT
SPEED LIMIT 20 MPH SIGN
SPEED LIMIT 25 MPH SIGN
SPEED LIMIT SIGN 25 MPH
STOP BAR
STOP SIGN
STREET SIGN
DEAD END AHEAD SIGN
NO OUTLET SIGN
TYPE 4 MARKERS
TYPE III BARRICADE W/ "ROAD CLOSED" SIGN PER NCDOT STANDARDS
PEDESTRIAN CROSSING SIGN
PEDESTRIAN CROSSING SIGN & SPEED LIMIT 20 MPH SIGN
PEDESTRIAN CROSSING AHEAD SIGN
HI-VIS CROSSWALK (TYP)
NO PARKING EXCEPT IN DESIGNATED SPACES
VAN ACCESSIBLE ADA PARKING, ACCESS AISLE AND SIGNAGE
2' SOLID WHITE STOP BAR
MONUMENT SIGN
TURN LANE ARROW
10'x70' SIGHT TRIANGLE
TAPER TO BOC
OLD FAISON ROAD
SR-2515
VARIABLE WIDTH NCDOT R/W
R/W
PP
WELL
NCGRID NAD83/2011
40'
0
20'
40'
SCALE 1 inch = 40 ft

ALL SIGNAGE AND PAVEMENT MARKINGS IN TOWN OF KNIGHTDALE R/W SHALL BE PER TOWN SPECIFICATIONS.

ALL SIGNAGE AND PAVEMENT MARKINGS IN NCDOT R/W SHALL BE PER NCDOT SPECIFICATIONS.

ALL STRIPING SHALL BE HI-VIS THERMOPLASTIC EXCEPT PARKING LOT STRIPING MAY BE WHITE REFLECTIVE PAINT PER TOWN DETAIL 4.06.

ALL SIGNAGE SHALL BE PER MUTCD STANDARDS.

ALL SIGNS SHALL BE MOUNTED IN 7-FT MINIMUM HEIGHT MEASURED FROM GROUND TO BOTTOM OF SIGN ON NCDOT STANDARD GALVANIZED U-CHANNEL POST MOUNTED IN CONCRETE FOOTING.

CONTRACTOR TO PROVIDE TRAFFIC CONTROL PER NCDOT AND TOWN STANDARDS.

SIGN	MUTCD STD.	SIZE
STOP	R1-1	30"x30"
25 MPH	R2-1	24"x30"
ROAD CLOSED	R11-4	60"x30"
STREET NAME	D3-1	VARIES"x12"
PEDESTRIAN CROSSING	W11-2	30"
PEDESTRIAN CROSSING	W16-7P	30"
TYPE 4 END OF ROADWAY	OM4-3	18"
NO PARKING EXCEPT...	R7-3	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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
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Surveyors
Landscape Architects

NORTH CAROLINA PROFESSIONAL SEAL 26493 ENGINEER STEPHEN ... VALENTINE

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

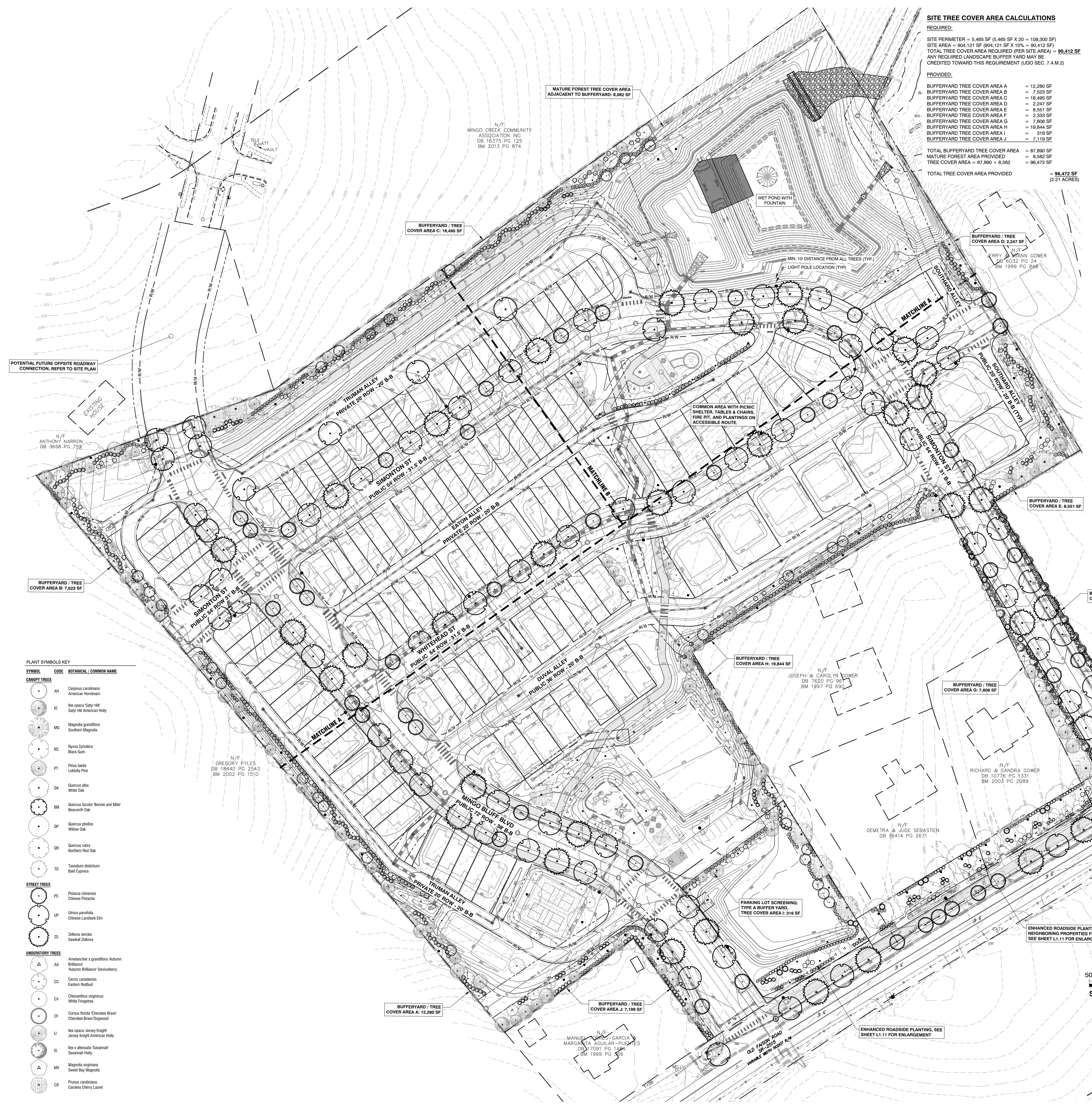
OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

SIGNS & PAVEMENT MARKING PLAN

DATE:	
DESIGNED BY:	CHK
DRAWN BY:	TAH/CHK
CHECKED BY:	SJB
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	C6.31

Do Not Use for Construction - PRELIMINARY


MATURE FOREST TREE COVER AREA ADJACENT TO BUFFERYARD: 8,582 SF
N/F MINGO CREEK COMMUNITY ASSOCIATION INC DB 16375 PG 125 BM 2013 PG 874
WET POND WITH FOUNTAIN
BUFFERYARD / TREE COVER AREA C: 18,495 SF
BUFFERYARD / TREE COVER AREA D: 2,247 SF
MIN. 10' DISTANCE FROM ALL TREES (TYP.)
LIGHT POLE LOCATION (TYP)
POTENTIAL FUTURE OFFSITE ROADWAY CONNECTION, REFER TO SITE PLAN
EXISTING HOUSE
N/F ANTHONY NARRON DB 3658 PG 759
TRUMAN ALLEY PRIVATE 20' ROW - 20' B-B
SIMONTON ST PUBLIC 54' ROW - 31' B-B
EATON ALLEY PRIVATE 20' ROW - 20' B-B
WHITEHEAD ST PUBLIC 54' ROW - 31.5' B-B
DUVAL ALLEY PUBLIC 36' ROW - 20' B-B
MINGO BLUFF BLVD PUBLIC 72' ROW - 38' B-B
SOUTHARD ALLEY PUBLIC 24' ROW 20' B-B (TYP)
MATCHLINE A
MATCHLINE B
COMMON AREA WITH PICNIC SHELTER, TABLES & CHAIRS, FIRE PIT, AND PLANTINGS ON ACCESSIBLE ROUTE.
BUFFERYARD / TREE COVER AREA E: 8,551 SF
BUFFERYARD / TREE COVER AREA B: 7,523 SF
BUFFERYARD / TREE COVER AREA F: 2,333 SF
N/F CARLTON GRAY DB 13219 PG 163 BM 1995 PG 802
BUFFERYARD / TREE COVER AREA H: 19,844 SF
N/F JOSEPH & CAROLYN GOWER DB 7620 PG 961 BM 1997 PG 690
BUFFERYARD / TREE COVER AREA G: 7,606 SF
N/F GREGORY PYLES DB 18440 PG 2543 BM 2002 PG 1510
N/F RICHARD & SANDRA GOWER DB 10776 PG 1331 BM 2003 PG 2089
N/F DEMETRA & JUDE SEBASTIEN DB 16414 PG 2671
PARKING LOT SCREENING: TYPE A BUFFER YARD, TREE COVER AREA I: 316 SF
ENHANCED ROADSIDE PLANTING AT NEIGHBORING PROPERTIES FRONTAGE, SEE SHEET L1.11 FOR ENLARGEMENT
BUFFERYARD / TREE COVER AREA A: 12,280 SF
BUFFERYARD / TREE COVER AREA J: 7,199 SF
MARGARITA AGUILAR-PUENTES
ENHANCED ROADSIDE PLANTING, SEE SHEET L1.11 FOR ENLARGEMENT
OLD FAISON ROAD
NCGRID NAD83/2011
50' 0 25' 50'
SCALE 1 inch = 50 ft

PLANT SYMBOLS KEY

SYMBOL	CODE	BOTANICAL / COMMON NAME
CANOPY TREES		
	AH	Carpinus caroliniana American Hornbeam
	IO	Ilex opaca 'Satyr Hill' Satyr Hill American Holly
	MG	Magnolia grandiflora Southern Magnolia
	NS	Nyssa Sylvatica Black Gum
	PT	Pinus taeda Loblolly Pine
	QA	Quercus alba White Oak
	BM	Quercus bicolor 'Bonnie and Mike' Beacon® Oak
	QP	Quercus phellos Willow Oak
	QR	Quercus rubra Northern Red Oak
	TD	Taxodium distichum Bald Cypress
STREET TREES		
	PC	Pistacia chinensis Chinese Pistache
	UP	Ulmus parvifolia Chinese Lacebark Elm
	ZS	Zelkova serrata Sawleaf Zelkova
UNDERSTORY TREES		
	AA	Amelanchier x grandiflora 'Autumn Brilliance' 'Autumn Brilliance' Serviceberry
	CC	Cercis canadensis Eastern Redbud
	CV	Chionanthus virginicus White Fringetree
	CF	Cornus florida 'Cherokee Brave' Cherokee Brave Dogwood
	IJ	Ilex opaca 'Jersey Knight' Jersey Knight American Holly
	IS	Ilex x attenuata 'Savannah' Savannah Holly
	MV	Magnolia virginiana Sweet Bay Magnolia
	CR	Prunus caroliniana Carolina Cherry Laurel

SITE TREE COVER AREA CALCULATIONS

REQUIRED:

SITE PERIMETER = 5,465 SF (5,465 SF X 20 = 109,300 SF)
SITE AREA = 904,121 SF (904,121 SF X 10% = 90,412 SF)
TOTAL TREE COVER AREA REQUIRED (PER SITE AREA) = **90,412 SF**
ANY REQUIRED LANDSCAPE BUFFER YARD MAY BE CREDITED TOWARD THIS REQUIREMENT (UDO SEC. 7.4.M.2)

PROVIDED:

BUFFERYARD TREE COVER AREA A	= 12,280 SF
BUFFERYARD TREE COVER AREA B	= 7,523 SF
BUFFERYARD TREE COVER AREA C	= 18,495 SF
BUFFERYARD TREE COVER AREA D	= 2,247 SF
BUFFERYARD TREE COVER AREA E	= 8,551 SF
BUFFERYARD TREE COVER AREA F	= 2,333 SF
BUFFERYARD TREE COVER AREA G	= 7,606 SF
BUFFERYARD TREE COVER AREA H	= 19,844 SF
BUFFERYARD TREE COVER AREA I	= 316 SF
BUFFERYARD TREE COVER AREA J	= 7,119 SF
TOTAL BUFFERYARD TREE COVER AREA	= 87,890 SF
MATURE FOREST AREA PROVIDED	= 8,582 SF
TREE COVER AREA = 87,890 + 8,582	= 96,472 SF

TOTAL TREE COVER AREA PROVIDED = **96,472 SF**
(2.21 ACRES)

STREET TREE CALCULATIONS

OLD FAISON ROAD STREET TREE CALCULATION - 592 LF

CANOPY TREES	
REQUIRED:	15 (1/40 LF)
PROVIDED	15

MINGO BLUFF BOULEVARD STREET TREE CALCULATION - 1,096 LF

CANOPY TREES	
REQUIRED:	27 (1/40 LF)
PROVIDED	44

WHITEHEAD ST STREET TREE CALCULATION - 927 LF

CANOPY TREES	
REQUIRED:	23 (1/40 LF)
PROVIDED	26

SIMONTON STREET TREE CALCULATION - 1,725 LF

CANOPY TREES	
REQUIRED:	43 (1/40 LF)
PROVIDED	60

STREET TREE PLANTING SCHEDULES

PLANT SCHEDULE OLD FAISON ROAD

SYMBOL	CODE	BOTANICAL / COMMON NAME	CONTAINER	CALIPER	SIZE	QTY
STREET TREES						
	PC	Pistacia chinensis Chinese Pistache	B & B	3" CAL. MIN.	14'-16' HT.	6
	UP	Ulmus parvifolia Chinese Lacebark Elm	B & B	3" CAL. MIN.	14'-16' HT.	5
	ZS	Zelkova serrata Sawleaf Zelkova	B & B	3" CAL. MIN.	14'-16' HT.	4

PLANT SCHEDULE MINGO BLUFF BOULEVARD

SYMBOL	CODE	BOTANICAL / COMMON NAME	CONTAINER	CALIPER	SIZE	QTY
STREET TREES						
	PC	Pistacia chinensis Chinese Pistache	B & B	3" CAL. MIN.	14'-16' HT.	14
	UP	Ulmus parvifolia Chinese Lacebark Elm	B & B	3" CAL. MIN.	14'-16' HT.	20
	ZS	Zelkova serrata Sawleaf Zelkova	B & B	3" CAL. MIN.	14'-16' HT.	10

PLANT SCHEDULE WHITEHEAD STREET

SYMBOL	CODE	BOTANICAL / COMMON NAME	CONTAINER	CALIPER	SIZE	QTY
STREET TREES						
	PC	Pistacia chinensis Chinese Pistache	B & B	3" CAL. MIN.	14'-16' HT.	8
	UP	Ulmus parvifolia Chinese Lacebark Elm	B & B	3" CAL. MIN.	14'-16' HT.	12
	ZS	Zelkova serrata Sawleaf Zelkova	B & B	3" CAL. MIN.	14'-16' HT.	6

PLANT SCHEDULE SIMONTON STREET

SYMBOL	CODE	BOTANICAL / COMMON NAME	CONTAINER	CALIPER	SIZE	QTY
STREET TREES						
	PC	Pistacia chinensis Chinese Pistache	B & B	3" CAL. MIN.	14'-16' HT.	16
	UP	Ulmus parvifolia Chinese Lacebark Elm	B & B	3" CAL. MIN.	14'-16' HT.	29
	ZS	Zelkova serrata Sawleaf Zelkova	B & B	3" CAL. MIN.	14'-16' HT.	15

BUFFER YARD PLANT MATERIAL CALCULATIONS

BUFFER YARD / TREE COVER AREA **A** PLANT MATERIAL CALCULATIONS

BUFFER YARD TYPE B			
PERIMETER DISTANCE =		581 LF	
PLANT MATERIAL MULTIPLICATION FACTOR =		5.81	
			EVERGREEN
CANOPY TREES REQUIRED =	3 X 5.81 =	17	7-10
UNDERSTORY TREES REQUIRED =	5 X 5.81 =	29	12-17
SHRUBS REQUIRED =	20 X 5.81 =	116	93
CANOPY TREES PROVIDED AT 3 PER 100 LF =		17	7
UNDERSTORY TREES PROVIDED AT 5 PER 100 LF=		29	12
SHRUBS PROVIDED AT 20 PER 100 LF=		118	93

BUFFER YARD / TREE COVER AREA **B** PLANT MATERIAL CALCULATIONS

BUFFER YARD TYPE B			
PERIMETER DISTANCE =		384 LF	
PLANT MATERIAL MULTIPLICATION FACTOR =		3.84	
			EVERGREEN
CANOPY TREES REQUIRED =	3 X 3.84 =	12	5-7
UNDERSTORY TREES REQUIRED =	5 X 3.84 =	19	8-11
SHRUBS REQUIRED =	20 X 3.84 =	77	62
CANOPY TREES PROVIDED AT 3 PER 100 LF =		12	5
UNDERSTORY TREES PROVIDED AT 5 PER 100 LF=		19	8
SHRUBS PROVIDED AT 20 PER 100 LF=		77	62

BUFFER YARD / TREE COVER AREA **C** PLANT MATERIAL CALCULATIONS

BUFFER YARD TYPE B			
PERIMETER DISTANCE =		699 LF	
PLANT MATERIAL MULTIPLICATION FACTOR =		6.99	
			EVERGREEN
CANOPY TREES REQUIRED =	3 X 6.99 =	21	8-13
UNDERSTORY TREES REQUIRED =	5 X 6.99 =	35	14-21
SHRUBS REQUIRED =	20 X 6.99 =	140	112
CANOPY TREES PROVIDED AT 3 PER 100 LF =		21	8
UNDERSTORY TREES PROVIDED AT 5 PER 100 LF=		35	14
SHRUBS PROVIDED AT 20 PER 100 LF=		171	112

BUFFER YARD / TREE COVER AREA **D** PLANT MATERIAL CALCULATIONS

BUFFER YARD TYPE B			
PERIMETER DISTANCE =		87 LF	
PLANT MATERIAL MULTIPLICATION FACTOR =		0.87	
			EVERGREEN
CANOPY TREES REQUIRED =	3 X 0.87 =	3	1-2
UNDERSTORY TREES REQUIRED =	5 X 0.87 =	4	2
SHRUBS REQUIRED =	20 X 0.87 =	17	14
CANOPY TREES PROVIDED AT 3 PER 100 LF =		3	1
UNDERSTORY TREES PROVIDED AT 5 PER 100 LF=		4	2
SHRUBS PROVIDED AT 20 PER 100 LF=		20	20

BUFFER YARD / TREE COVER AREA **E** PLANT MATERIAL CALCULATIONS

BUFFER YARD TYPE B			
PERIMETER DISTANCE =		294 LF	
PLANT MATERIAL MULTIPLICATION FACTOR =		2.94	
			EVERGREEN
CANOPY TREES REQUIRED =	3 X 2.94 =	9	4-5
UNDERSTORY TREES REQUIRED =	5 X 2.94 =	15	6-9
SHRUBS REQUIRED =	20 X 2.94 =	59	47
CANOPY TREES PROVIDED AT 3 PER 100 LF =		10	4
UNDERSTORY TREES PROVIDED AT 5 PER 100 LF=		15	6
SHRUBS PROVIDED AT 20 PER 100 LF=		59	47

BUFFER YARD / TREE COVER AREA **F** PLANT MATERIAL CALCULATIONS

BUFFER YARD TYPE B			
PERIMETER DISTANCE =		396 LF	
PLANT MATERIAL MULTIPLICATION FACTOR =		3.96	
			EVERGREEN
CANOPY TREES REQUIRED =	3 X 3.96 =	12	5-7
UNDERSTORY TREES REQUIRED =	5 X 3.96 =	20	8-12
SHRUBS REQUIRED =	20 X 3.96 =	79	63

NOTE: LIMITED WIDTH BETWEEN RIGHT-OF-WAY AND NEIGHBORING PROPERTY DOES NOT MEET THE 20' MIN. FOR BUFFER YARD TYPE B. SHRUBS AND UNDERSTORY TREES ARE PROVIDED TO FULLEST PRACTICAL EXTENT. CANOPY STREET TREES IN THE R/W ARE PROVIDED WITHIN 20' OF BOUNDARY LINE.

CANOPY TREES PROVIDED AT 3 PER 100 LF =	0	0
UNDERSTORY TREES PROVIDED AT 5 PER 100 LF=	13	13
SHRUBS PROVIDED AT 20 PER 100 LF=	65	65

BUFFER YARD / TREE COVER AREA **G** PLANT MATERIAL CALCULATIONS

BUFFER YARD TYPE B			
PERIMETER DISTANCE =		390 LF	
PLANT MATERIAL MULTIPLICATION FACTOR =		3.90	
			EVERGREEN
CANOPY TREES REQUIRED =	3 X 3.90 =	12	5-7
UNDERSTORY TREES REQUIRED =	5 X 3.90 =	20	8-12
SHRUBS REQUIRED =	20 X 3.90 =	78	62

NOTE: LIMITED WIDTH BETWEEN RIGHT-OF-WAY AND NEIGHBORING PROPERTY DOES NOT MEET THE 20' MIN. FOR BUFFER YARD TYPE B. SHRUBS AND UNDERSTORY TREES ARE PROVIDED TO FULLEST PRACTICAL EXTENT. CANOPY STREET TREES IN THE R/W ARE PROVIDED WITHIN 20' OF BOUNDARY LINE. COLUMNAR VARIETIES OF CANOPY TREES PROVIDED WHERE PERMISSIBLE BY BUFFER YARD WIDTH.

CANOPY TREES PROVIDED AT 3 PER 100 LF =	11	6
UNDERSTORY TREES PROVIDED AT 5 PER 100 LF=	18	11
SHRUBS PROVIDED AT 20 PER 100 LF=	62	51

BUFFER YARD / TREE COVER AREA **H** PLANT MATERIAL CALCULATIONS

BUFFER YARD TYPE B			
PERIMETER DISTANCE =		789 LF	
PLANT MATERIAL MULTIPLICATION FACTOR =		7.89	
			EVERGREEN
CANOPY TREES REQUIRED =	3 X 7.89 =	24	10-14
UNDERSTORY TREES REQUIRED =	5 X 7.89 =	39	16-23
SHRUBS REQUIRED =	20 X 7.89 =	158	126
CANOPY TREES PROVIDED AT 3 PER 100 LF =		25	10
UNDERSTORY TREES PROVIDED AT 5 PER 100 LF=		42	16
SHRUBS PROVIDED AT 20 PER 100 LF=		158	126

BUFFER YARD / TREE COVER AREA **I** PLANT MATERIAL CALCULATIONS

BUFFER YARD TYPE A			
PERIMETER DISTANCE =		136 LF	
PLANT MATERIAL MULTIPLICATION FACTOR =		1.36	
			EVERGREEN
CANOPY TREES REQUIRED =	3 X 1.36 =	4	2
UNDERSTORY TREES REQUIRED =	2 X 1.36 =	3	1-2
SHRUBS REQUIRED =	20 X 1.36 =	27	22
CANOPY TREES PROVIDED AT 3 PER 100 LF =		4	2
UNDERSTORY TREES PROVIDED AT 5 PER 100 LF=		4	1
SHRUBS PROVIDED AT 20 PER 100 LF=		27	22

BUFFER YARD / TREE COVER AREA **J** PLANT MATERIAL CALCULATIONS

BUFFER YARD TYPE B			
PERIMETER DISTANCE =		340 LF	
PLANT MATERIAL MULTIPLICATION FACTOR =		3.40	
			EVERGREEN
CANOPY TREES REQUIRED =	3 X 3.40 =	10	4-6
UNDERSTORY TREES REQUIRED =	5 X 3.40 =	17	7-10
SHRUBS REQUIRED =	20 X 3.40 =	68	54
CANOPY TREES PROVIDED AT 3 PER 100 LF =		11	4
UNDERSTORY TREES PROVIDED AT 5 PER 100 LF=		17	8
SHRUBS PROVIDED AT 20 PER 100 LF=		75	54

NOTE: REFER TO SHEET L2.21 FOR PLANTING SCHEDULE OF BUFFER YARD MATERIALS.

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 Standards Specifications of the Town of Knightdale.

By: ____________________ Date: ______________
Town Engineer

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

By: ____________________ Date: ______________
Land Use Administrator

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

Rivers
& ASSOCIATES, INC.
Since 1918
riversandassociates.com

Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE – WAKE COUNTY – NORTH CAROLINA

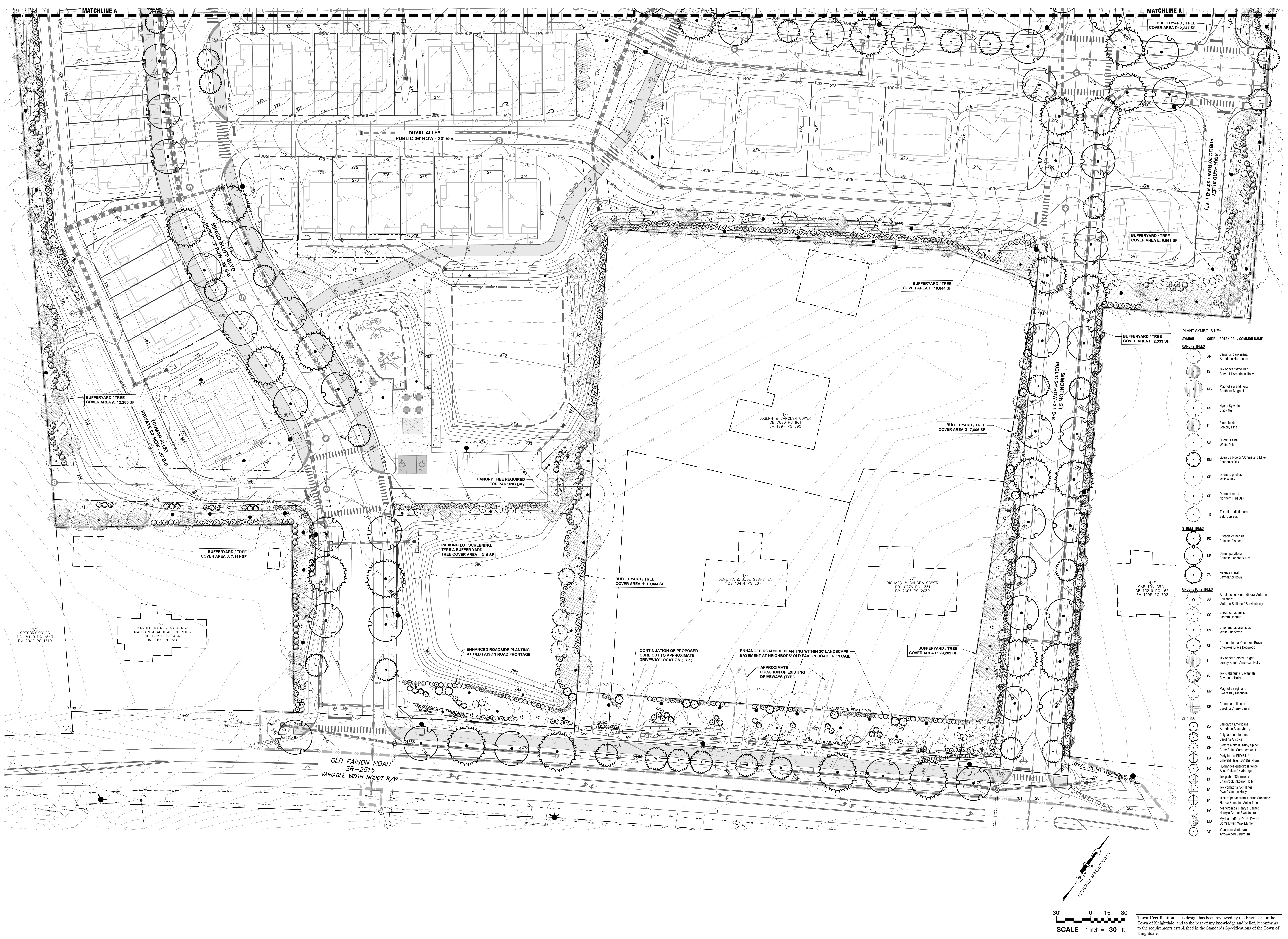
LANDSCAPE PLAN

DATE:	
DESIGNED BY:	SBF
DRAWN BY:	SBF
CHECKED BY:	
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN

SHEET No.
L1.01

R:\LANDDEV\GLENWOOD_HOMES-OLD_FAISON_PLACE-2022113\CADD_DWG\SHEETS - CD SET\C7.01 LANDSCAPE PLAN.DWG - L1.01 LANDSCAPE PLAN - 7/2/2026 9:44:09 AM - EDWIN NANCE

Do Not Use for Construction - PRELIMINARY


MATCHLINE A
MATCHLINE A
BUFFERYARD / TREE COVER AREA D: 2,247 SF
DUVAL ALLEY PUBLIC 36' ROW - 20' B-B
SOUTHARD ALLEY PUBLIC 20' ROW - 20' B-B (TYP)
BUFFERYARD / TREE COVER AREA E: 8,551 SF
MINGO BLUFF BLVD PUBLIC 72' ROW - 38' B-B
BUFFERYARD / TREE COVER AREA H: 19,844 SF
BUFFERYARD / TREE COVER AREA F: 2,333 SF
SIMONTON ST PUBLIC 54' ROW - 31' B-B
BUFFERYARD / TREE COVER AREA A: 12,280 SF
TRUMAN ALLEY PRIVATE 20' ROW - 20' B-B
N/F JOSEPH & CAROLYN GOWER DB 7620 PG 961 BM 1997 PG 690
BUFFERYARD / TREE COVER AREA G: 7,606 SF
CANOPY TREE REQUIRED FOR PARKING BAY
PARKING LOT SCREENING: TYPE A BUFFER YARD, TREE COVER AREA I: 316 SF
BUFFERYARD / TREE COVER AREA J: 7,199 SF
BUFFERYARD / TREE COVER AREA H: 19,844 SF
N/F DEMETRA & JUDE SEBASTIEN DB 16414 PG 2671
N/F RICHARD & SANDRA GOWER DB 10776 PG 1331 BM 2003 PG 2089
N/F CARLTON GRAY DB 13219 PG 163 BM 1995 PG 802
N/F GREGORY PYLES DB 18440 PG 2543 BM 2002 PG 1510
N/F MANUEL TORRES-GARCIA & MARGARITA AGUILAR-PUENTES DB 17091 PG 1484 BM 1999 PG 566
ENHANCED ROADSIDE PLANTING AT OLD FAISON ROAD FRONTAGE
CONTINUATION OF PROPOSED CURB CUT TO APPROXIMATE DRIVEWAY LOCATION (TYP.)
ENHANCED ROADSIDE PLANTING WITHIN 30' LANDSCAPE EASEMENT AT NEIGHBORS' OLD FAISON ROAD FRONTAGE
APPROXIMATE LOCATION OF EXISTING DRIVEWAYS (TYP.)
BUFFERYARD / TREE COVER AREA F: 29,262 SF
10'x70' SIGHT TRIANGLE
10'x70' SIGHT TRIANGLE
10'x70' SIGHT TRIANGLE
30' LANDSCAPE ESMT (TYP)
10' DRAINAGE ESMT
DWY
4:1 TAPER TO BOC
4:1 TAPER TO BOC
OLD FAISON ROAD SR-2515 VARIABLE WIDTH NCDOT R/W
NCGRID NAD83/2011
30' 0 15' 30'
SCALE 1 inch = 30 ft

PLANT SYMBOLS KEY

SYMBOL	CODE	BOTANICAL / COMMON NAME
CANOPY TREES		
	AH	Carpinus caroliniana American Hornbeam
	IO	Ilex opaca 'Satyr Hill' Satyr Hill American Holly
	MG	Magnolia grandiflora Southern Magnolia
	NS	Nyssa Sylvatica Black Gum
	PT	Pinus taeda Loblolly Pine
	QA	Quercus alba White Oak
	BM	Quercus bicolor 'Bonnie and Mike' Beacon® Oak
	QP	Quercus phellos Willow Oak
	QR	Quercus rubra Northern Red Oak
	TD	Taxodium distichum Bald Cypress
STREET TREES		
	PC	Pistacia chinensis Chinese Pistache
	UP	Ulmus parvifolia Chinese Lacebark Elm
	ZS	Zelkova serrata Sawleaf Zelkova
UNDERSTORY TREES		
	AA	Amelanchier x grandiflora 'Autumn Brilliance' 'Autumn Brilliance' Serviceberry
	CC	Cercis canadensis Eastern Redbud
	CV	Chionanthus virginicus White Fringetree
	CF	Cornus florida 'Cherokee Brave' Cherokee Brave Dogwood
	IJ	Ilex opaca 'Jersey Knight' Jersey Knight American Holly
	IS	Ilex x attenuata 'Savannah' Savannah Holly
	MV	Magnolia virginiana Sweet Bay Magnolia
	CR	Prunus caroliniana Carolina Cherry Laurel
SHRUBS		
	CA	Callicarpa americana American Beautyberry
	CL	Calycanthus floridus Carolina Allspice
	CH	Clethra alnifolia 'Ruby Spice' Ruby Spice Summersweet
	DA	Distylium x 'PIIDIST-I' Emerald Heights® Distylium
	HQ	Hydrangea quercifolia 'Alice' Alice Oakleaf Hydrangea
	IG	Ilex glabra 'Shamrock' Shamrock Inkberry Holly
	IV	Ilex vomitoria 'Schillings' Dwarf Yaupon Holly
	IP	Illicium parviflorum 'Florida Sunshine' Florida Sunshine Anise Tree
	HG	Itea virginica 'Henry's Garnet' Henry's Garnet Sweetspire
	MD	Myrica cerifera 'Don's Dwarf' Don's Dwarf Wax Myrtle
	VD	Viburnum dentatum Arrowwood Viburnum

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 Standards Specifications of the Town of Knightdale.

By: ____________________ Date: ____________
Town Engineer

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

By: ____________________ Date: ____________
Land Use Administrator

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Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

SEAL 26493
STEPHEN J. BALLENTINE

Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

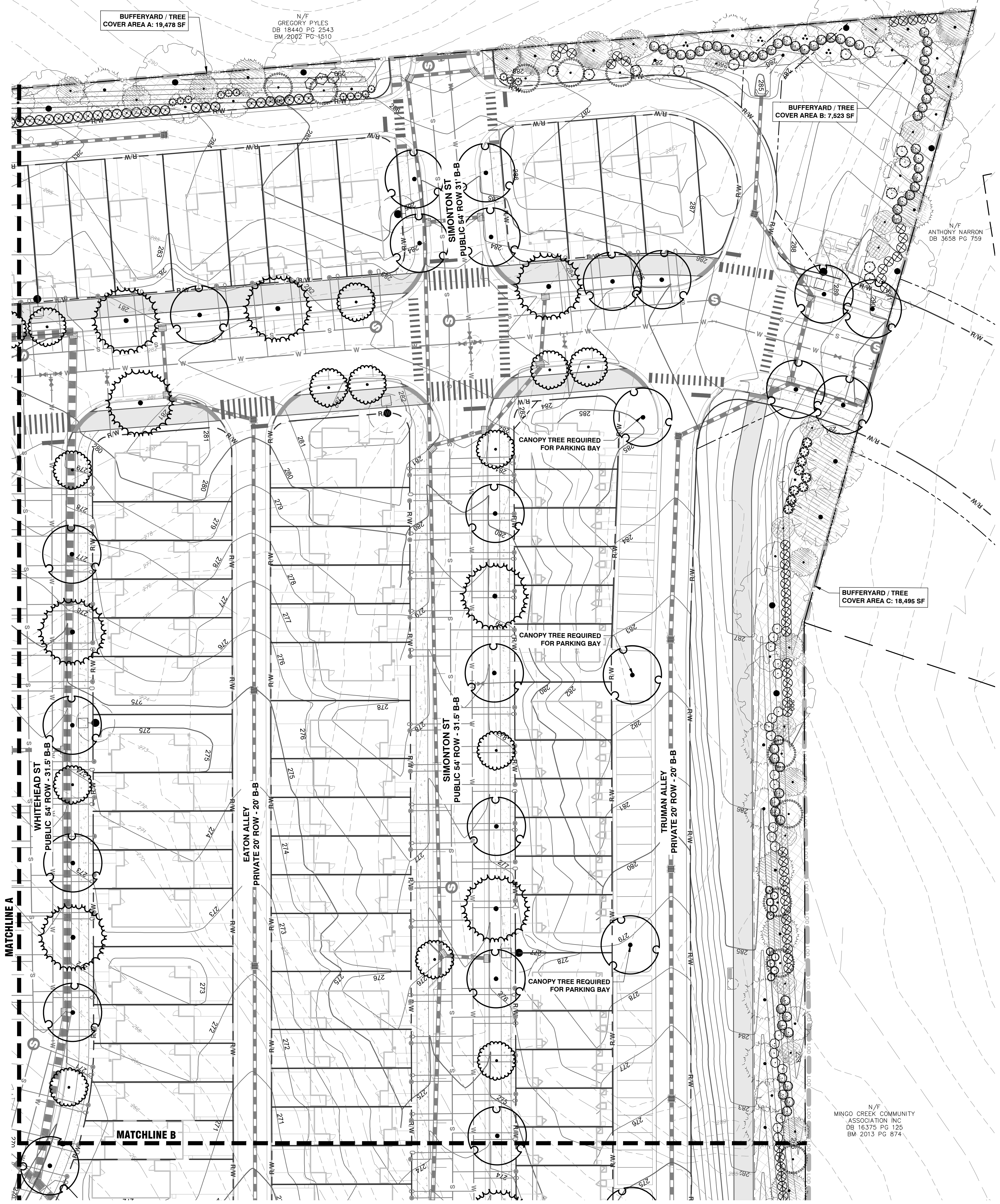
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

LANDSCAPE PLAN
SOUTHEAST ENLARGEMENT

DATE:
DESIGNED BY: SBF
DRAWN BY: SBF
CHECKED BY:
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.

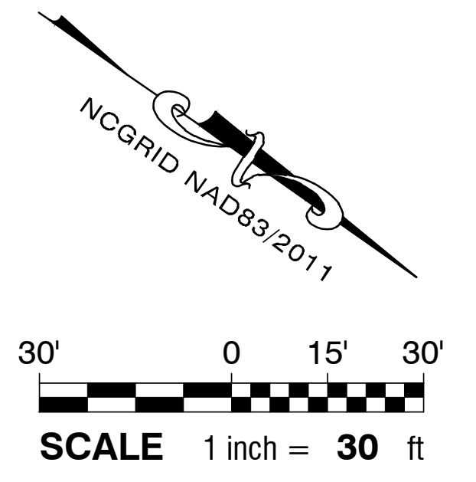
L1.11

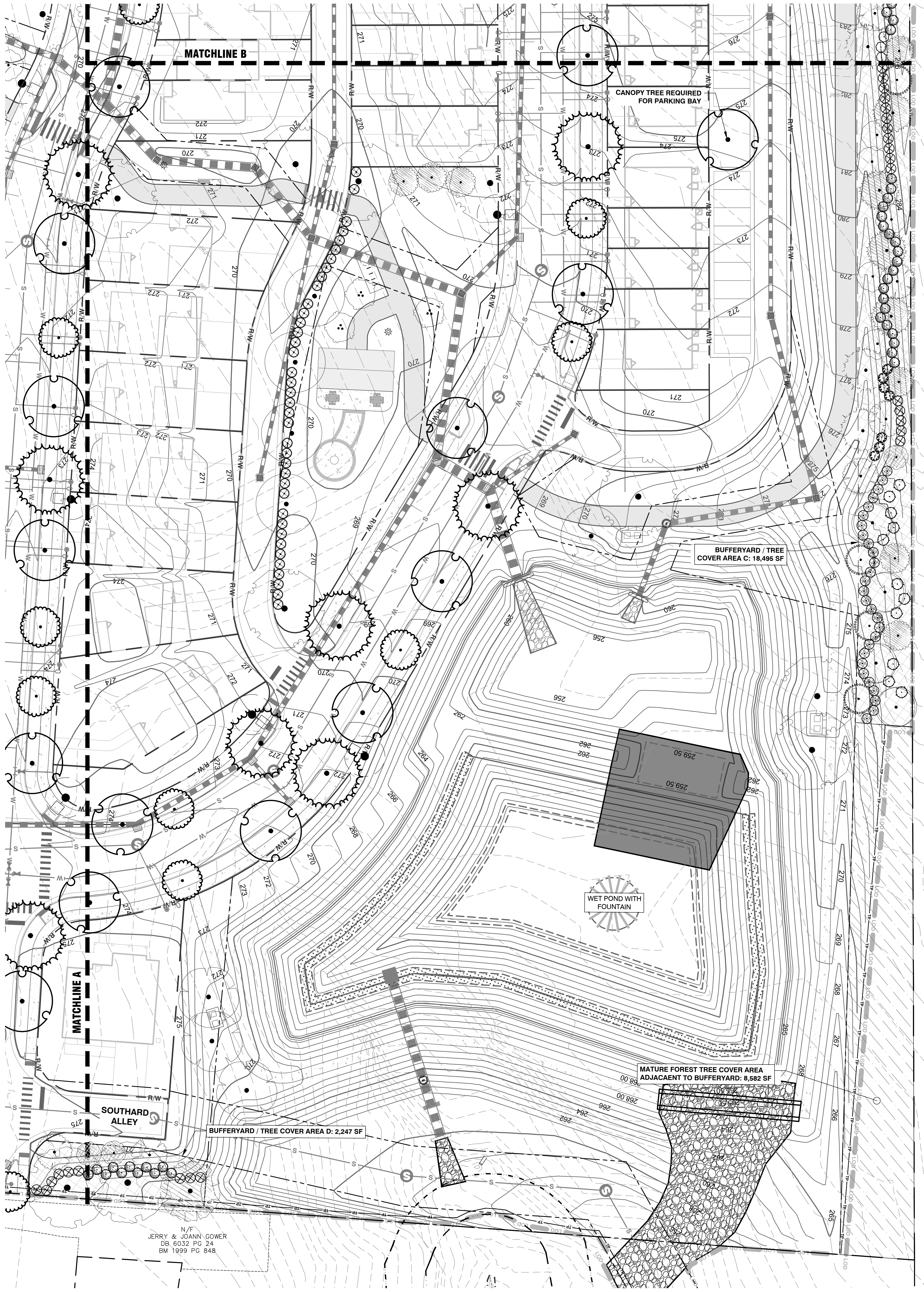
Do Not Use for Construction - PRELIMINARY


BUFFERYARD / TREE COVER AREA A: 19,478 SF
N/F GREGORY PYLES DB 18440 PG 2543 BM 2002 PG 1510
BUFFERYARD / TREE COVER AREA B: 7,523 SF
N/F ANTHONY NARRON DB 3658 PG 759
SIMONTON ST PUBLIC 54' ROW 31' B-B
CANOPY TREE REQUIRED FOR PARKING BAY
BUFFERYARD / TREE COVER AREA C: 18,495 SF
CANOPY TREE REQUIRED FOR PARKING BAY
WHITEHEAD ST PUBLIC 54' ROW - 31.5' B-B
EATON ALLEY PRIVATE 20' ROW - 20' B-B
SIMONTON ST PUBLIC 54' ROW - 31.5' B-B
TRUMAN ALLEY PRIVATE 20' ROW - 20' B-B
CANOPY TREE REQUIRED FOR PARKING BAY
MATCHLINE A
MATCHLINE B
N/F MINGO CREEK COMMUNITY ASSOCIATION INC DB 16375 PG 125 BM 2013 PG 874

PLANT SYMBOLS KEY

SYMBOL	CODE	BOTANICAL / COMMON NAME
CANOPY TREES		
○	AH	Carpinus caroliniana American Hornbeam
○	IO	Ilex opaca 'Satyr Hill' Satyr Hill American Holly
○	MG	Magnolia grandiflora Southern Magnolia
○	NS	Nyssa Sylvatica Black Gum
○	PT	Pinus taeda Loblolly Pine
○	QA	Quercus alba White Oak
○	BM	Quercus bicolor 'Bonnie and Mike' Beacon® Oak
○	QP	Quercus phellos Willow Oak
○	QR	Quercus rubra Northern Red Oak
○	TD	Taxodium distichum Bald Cypress
STREET TREES		
○	PC	Pistacia chinensis Chinese Pistache
○	UP	Ulmus parvifolia Chinese Lacebark Elm
○	ZS	Zelkova serrata Sawleaf Zelkova
UNDERSTORY TREES		
○	AA	Amelanchier x grandiflora 'Autumn Brilliance' 'Autumn Brilliance' Serviceberry
○	CC	Cercis canadensis Eastern Redbud
○	CV	Chionanthus virginicus White Fringetree
○	CF	Cornus florida 'Cherokee Brave' Cherokee Brave Dogwood
○	IJ	Ilex opaca 'Jersey Knight' Jersey Knight American Holly
○	IS	Ilex x attenuata 'Savannah' Savannah Holly
○	MV	Magnolia virginiana Sweet Bay Magnolia
○	CR	Prunus caroliniana Carolina Cherry Laurel
SHRUBS		
○	CA	Callicarpa americana American Beautyberry
○	CL	Calycanthus floridus Carolina Allspice
○	CH	Clethra alnifolia 'Ruby Spice' Ruby Spice Summersweet
⊕	DA	Distylium x 'PIIDIST-I' Emerald Heights® Distylium
⬡	HQ	Hydrangea quercifolia 'Alice' Alice Oakleaf Hydrangea
⊞	IG	Ilex glabra 'Shamrock' Shamrock Inkberry Holly
⊞	IV	Ilex vomitoria 'Schillings' Dwarf Yaupon Holly
⊕	IP	Illicium parviflorum 'Florida Sunshine' Florida Sunshine Anise Tree
○	HG	Itea virginica 'Henry's Garnet' Henry's Garnet Sweetspire
○	MD	Myrica cerifera 'Don's Dwarf' Don's Dwarf Wax Myrtle
○	VD	Viburnum dentatum Arrowwood Viburnum


NCGRID NAD83/2011
30'
0
15'
30'
SCALE 1 inch = 30 ft


MATCHLINE B
N/F MINGO CREEK COMMUNITY ASSOCIATION INC DB 16375 PG 125 BM 2013 PG 874
CANOPY TREE REQUIRED FOR PARKING BAY
BUFFERYARD / TREE COVER AREA C: 18,495 SF
WET POND WITH FOUNTAIN
MATCHLINE A
SOUTHARD ALLEY
BUFFERYARD / TREE COVER AREA D: 2,247 SF
MATURE FOREST TREE COVER AREA ADJACAENT TO BUFFERYARD: 8,582 SF
N/F MINGO CREEK COMMUNITY ASSOCIATION INC DB 16375 PG 125 BM 2013 PG 874
N/F JERRY & JOANN GOWER DB 6032 PG 24 BM 1999 PG 848

Six Forks Place III Ste. 230
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Raleigh, NC 27609
919.594.1626

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& ASSOCIATES, INC.
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Engineers
Planners
Surveyors
Landscape Architects

SEAL 26493
STEPHEN J. BALLENTINE
Stephen Ballentine

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC
OLD FAISON PLACE
TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

LANDSCAPE PLAN
NORTHWEST ENLARGEMENTS

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 Standards Specifications of the Town of Knightdale.

By: ____________________ Date: ______________
Town Engineer

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

By: ____________________ Date: ______________
Land Use Administrator

DATE:	
DESIGNED BY:	SBF
DRAWN BY:	SBF
CHECKED BY:	
PROJECT No.	2022113
DRAWING No.	W-4104
SCALE:	AS SHOWN
SHEET No.	**L1.12**

R:\LANDDEV\GLENWOOD_HOMES-OLD_FAISON_PLACE-2022113\CADD_DWG\SHEETS - CD SET\C7.01 LANDSCAPE PLAN.DWG - L1.12 LANDSCAPE PLAN NORTHWEST ENLARGEMENTS - 7/2/2026 9:44:09 AM - EDWIN NANCE

Do Not Use for Construction - PRELIMINARY

PLANT SCHEDULE - ENTIRE SITE

SYMBOL	CODE	BOTANICAL / COMMON NAME	CONTAINER	CALIPER	SIZE	QTY	REMARKS
CANOPY TREES							
	AH	Carpinus caroliniana American Hornbeam	B & B	*2" CAL. MIN.	8' MIN. HT.	11	Deciduous
	IO	Ilex opaca 'Satyr Hill' Satyr Hill American Holly	B & B	*2" CAL. MIN.	8' MIN. HT.	12	Evergreen Female
	MG	Magnolia grandiflora Southern Magnolia	B & B	2" CAL. MIN.	9'-11' HT.	12	Evergreen
	NS	Nyssa Sylvatica Black Gum	B & B	2" CAL. MIN.	9'-11' HT.	17	Deciduous
	PT	Pinus taeda Loblolly Pine	B & B	*2" CAL. MIN.	8' MIN. HT.	24	Evergreen
	QA	Quercus alba White Oak	B & B	2" CAL. MIN.	9'-11' HT.	28	Deciduous
	BM	Quercus bicolor 'Bonnie and Mike' Beacon® Oak	25 gal	2" CAL. MIN.	9'-11' HT.	15	Deciduous Columnar variety
	QP	Quercus phellos Willow Oak	B & B	2" CAL. MIN.	12'-14' HT.	17	Deciduous
	QR	Quercus rubra Northern Red Oak	B & B	2" CAL. MIN.	9'-11' HT.	21	Deciduous
	TD	Taxodium distichum Bald Cypress	B & B	2" CAL. MIN.	12'-14' HT.	22	Deciduous
STREET TREES							
	PC	Pistacia chinensis Chinese Pistache	B & B	3" CAL. MIN.	14'-16' HT.	44	Non-native
	UP	Ulmus parvifolia Chinese Lacebark Elm	B & B	3" CAL. MIN.	14'-16' HT.	70	Non-native Strong Central Leader
	ZS	Zelkova serrata Sawleaf Zelkova	B & B	3" CAL. MIN.	14'-16' HT.	35	Non-native Strong Central Leader
UNDERSTORY TREES							
	AA	Amelanchier x grandiflora 'Autumn Brilliance' 'Autumn Brilliance' Serviceberry	20 GAL.	MULTI-TRUNK	8' MIN. HT.	22	Deciduous
	CC	Cercis canadensis Eastern Redbud	10 GAL.	1.25" CAL. MIN.	**6' MIN. HT.	34	Deciduous
	CV	Chionanthus virginicus White Fringetree	10 GAL.	1.25" CAL. MIN.	**6' MIN. HT.	26	Deciduous
	CF	Cornus florida 'Cherokee Brave' Cherokee Brave Dogwood	10 GAL.	1.25" CAL. MIN.	**6' MIN. HT.	28	Deciduous
	IJ	Ilex opaca 'Jersey Knight' Jersey Knight American Holly	15 GAL.	1.25" CAL. MIN.	6' HT. MIN.	39	Evergreen Male
	IS	Ilex x attenuata 'Savannah' Savannah Holly	B & B	1.25" CAL. MIN.	6' HT. MIN.	24	Evergreen Female Native Hybrid
	MV	Magnolia virginiana Sweet Bay Magnolia	20 GAL.	MULTI-TRUNK	8' MIN. HT.	31	Semi-evergreen
	CR	Prunus caroliniana Carolina Cherry Laurel	10 GAL.	1.25" CAL. MIN.	**6' MIN. HT.	35	Evergreen

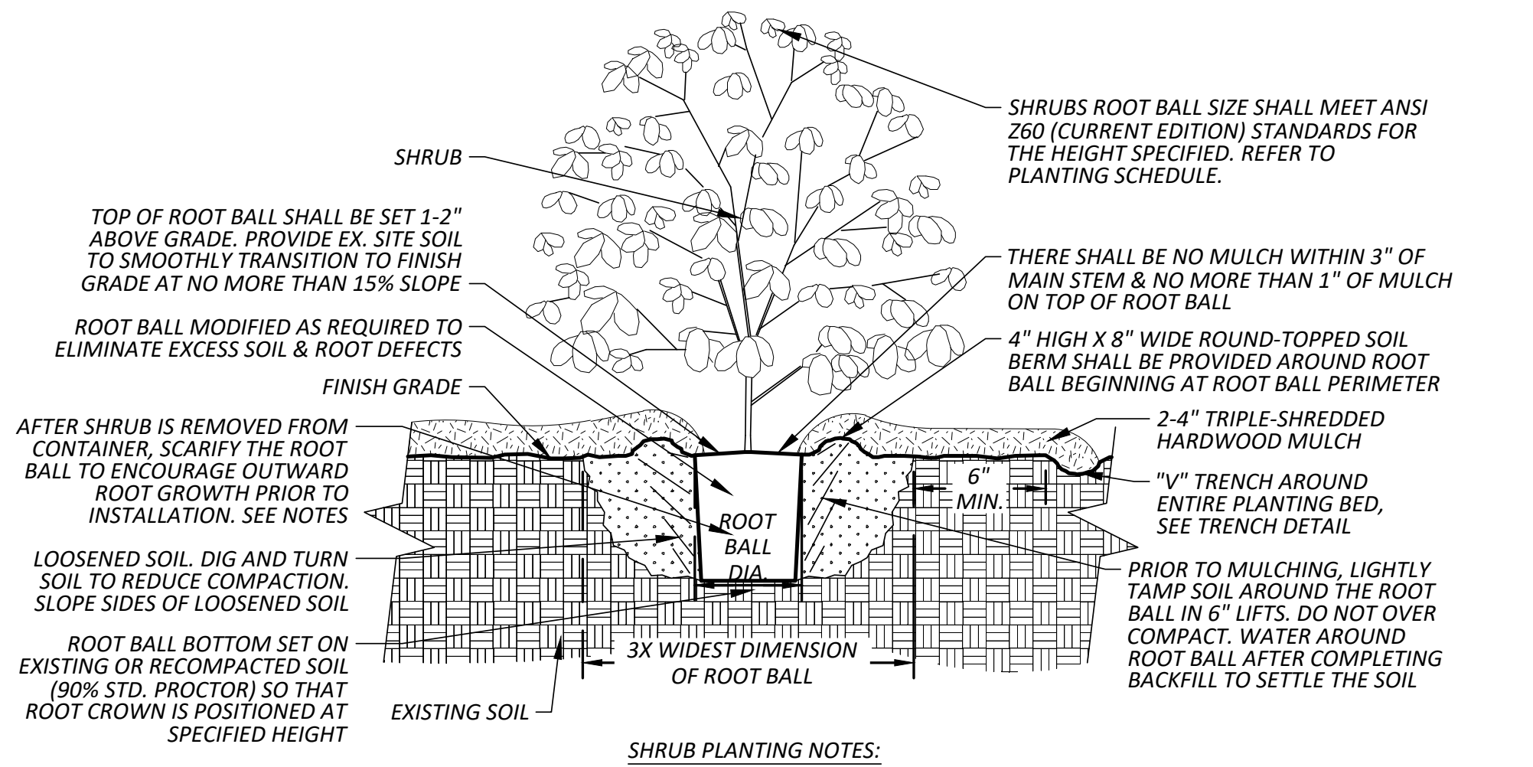
SYMBOL	CODE	BOTANICAL / COMMON NAME	CONTAINER	SPACING	SIZE	QTY	REMARKS
SHRUBS							
	CA	Callicarpa americana American Beautyberry	3 GAL. MIN.	SEE PLAN	18" MIN. HT, 12" MIN. W	59	Deciduous
	CL	Calycanthus floridus Carolina Allspice	3 GAL. MIN.	SEE PLAN	18" MIN. HT, 12" MIN. W	59	Deciduous
	CH	Clethra alnifolia 'Ruby Spice' Ruby Spice Summersweet	3 GAL. MIN.	SEE PLAN	18" MIN. HT, 12" MIN. W	79	Deciduous
	DA	Distylium x 'PIIDIST-I' Emerald Heights® Distylium	3 GAL. MIN.	SEE PLAN	18" MIN. HT, 12" MIN. W	197	Evergreen Non-native
	HQ	Hydrangea quercifolia 'Alice' Alice Oakleaf Hydrangea	3 GAL. MIN.	SEE PLAN	18" MIN. HT, 12" MIN. W	42	Deciduous
	IG	Ilex glabra 'Shamrock' Shamrock Inkberry Holly	3 GAL. MIN.	SEE PLAN	18" MIN. HT, 12" MIN. W	64	Evergreen
	IV	Ilex vomitoria 'Schillings' Dwarf Yaupon Holly	3 GAL. MIN.	SEE PLAN	18" MIN. HT, 12" MIN. W	109	Evergreen
	IP	Illicium parviflorum 'Florida Sunshine' Florida Sunshine Anise Tree	3 GAL. MIN.	SEE PLAN	18" MIN. HT, 12" MIN. W	163	Evergreen
	HG	Itea virginica 'Henry's Garnet' Henry's Garnet Sweetspire	3 GAL. MIN.	SEE PLAN	18" MIN. HT, 12" MIN. W	22	Deciduous
	MD	Myrica cerifera 'Don's Dwarf' Don's Dwarf Wax Myrtle	3 GAL. MIN.	SEE PLAN	18" MIN. HT, 12" MIN. W	206	Evergreen
	VD	Viburnum dentatum Arrowwood Viburnum	3 GAL. MIN.	SEE PLAN	18" MIN. HT, 12" MIN. W	37	Deciduous

*NOTE: TREES CLASSIFIED AS TYPE 3 OR TYPE 4 FOR WHICH A SPECIFIED HEIGHT IS NOT PROVIDED PER ANSI Z60.1-2014 SHALL CONFORM TO THE STANDARDS FOR ROOT BALL SIZE NECESSARY TO MEET THE MINIMUM HEIGHT REQUIREMENT PER TOWN OF KNIGHTDALE UDO STANDARDS.
**NOTE: CONIFEROUS TREES FOR WHICH A SPECIFIED CALIPER IS NOT PROVIDED PER ANSI Z60.1-2014 SHALL CONFORM TO THE STANDARDS FOR ROOT BALL SIZE NECESSARY TO MEET THE MINIMUM CALIPER REQUIREMENT PER TOWN OF KNIGHTDALE UDO STANDARDS.

DIVERSITY REQUIREMENTS FOR ON-SITE LANDSCAPE FEATURES PER UDO SEC. 7.4.G.1.b.iv:

TOTAL PLANT QUANTITY:	1,037 TREES & SHRUBS
MAXIMUM QUANTITY OF SINGLE SPECIES (20%):	207 TREES &/OR SHRUBS
MAXIMUM QUANTITY OF SINGLE GENUS (25%):	259 TREES &/OR SHRUBS
MAXIMUM NON-NATIVE & NON-DROUGHT TOLERANT QUANTITY (25%):	259 TREES &/OR SHRUBS

NOTE: PLANTS ARE NATIVE & DROUGHT RESILIENT UNLESS OTHERWISE INDICATED IN PLANT SCHEDULE


SHRUB
TOP OF ROOT BALL SHALL BE SET 1-2" ABOVE GRADE. PROVIDE EX. SITE SOIL TO SMOOTHLY TRANSITION TO FINISH GRADE AT NO MORE THAN 15% SLOPE
ROOT BALL MODIFIED AS REQUIRED TO ELIMINATE EXCESS SOIL & ROOT DEFECTS
FINISH GRADE
AFTER SHRUB IS REMOVED FROM CONTAINER, SCARIFY THE ROOT BALL TO ENCOURAGE OUTWARD ROOT GROWTH PRIOR TO INSTALLATION. SEE NOTES
LOOSENED SOIL. DIG AND TURN SOIL TO REDUCE COMPACTION. SLOPE SIDES OF LOOSENED SOIL
ROOT BALL BOTTOM SET ON EXISTING OR RECOMPACTED SOIL (90% STD. PROCTOR) SO THAT ROOT CROWN IS POSITIONED AT SPECIFIED HEIGHT
EXISTING SOIL
SHRUBS ROOT BALL SIZE SHALL MEET ANSI Z60 (CURRENT EDITION) STANDARDS FOR THE HEIGHT SPECIFIED. REFER TO PLANTING SCHEDULE.
THERE SHALL BE NO MULCH WITHIN 3" OF MAIN STEM & NO MORE THAN 1" OF MULCH ON TOP OF ROOT BALL
4" HIGH X 8" WIDE ROUND-TOPPED SOIL BERM SHALL BE PROVIDED AROUND ROOT BALL BEGINNING AT ROOT BALL PERIMETER
2-4" TRIPLE-SHREDDED HARDWOOD MULCH
"V" TRENCH AROUND ENTIRE PLANTING BED, SEE TRENCH DETAIL
6" MIN.
ROOT BALL DIA.
PRIOR TO MULCHING, LIGHTLY TAMP SOIL AROUND THE ROOT BALL IN 6" LIFTS. DO NOT OVER COMPACT. WATER AROUND ROOT BALL AFTER COMPLETING BACKFILL TO SETTLE THE SOIL
3X WIDEST DIMENSION OF ROOT BALL

SHRUB PLANTING NOTES:
1. *THE ROOT MASS OF CONTAINERIZED PLANT MATERIAL SHALL BE SCARIFIED TO ENCOURAGE OUTWARD GROWTH BY SHAVING THE ROOT BALL PERIPHERY, INCLUDING THE BASE OF THE ROOT BALL, SHAVED TO 1-1.5" DEPTH.*
2. *INSTALL CONTAINERIZED PLANTS 1" - 2" ABOVE FINISHED GRADE.*
3. *REMOVE ANY PRESENT INORGANIC/SYNTHETIC MATERIAL.*
4. *TAMP PLANTING MIX FIRMLY AS PIT IS FILLED AROUND EACH PLANT BALL.*
5. *OMIT COLLAR AROUND EACH SHRUB WHEN IRRIGATION SYSTEM IS PRESENT.*
6. *SOAK EACH PLANT BALL AND PIT IMMEDIATELY AFTER INSTALLATION.*

1 SHRUB PLANTING
N.T.S.
LSCP-02

PLANT SCHEDULE BUFFER YARD / TREE COVER AREA A

CODE	BOTANICAL / COMMON NAME	QTY
CANOPY TREES		
PT	Pinus taeda / Loblolly Pine	7
QR	Quercus rubra / Northern Red Oak	6
TD	Taxodium distichum / Bald Cypress	4
UNDERSTORY TREES		
CC	Cercis canadensis / Eastern Redbud	10
CF	Cornus florida 'Cherokee Brave' / Cherokee Brave Dogwood	7
IJ	Ilex opaca 'Jersey Knight' / Jersey Knight American Holly	7
CR	Prunus caroliniana / Carolina Cherry Laurel	5
SHRUBS		
CH	Clethra alnifolia 'Ruby Spice' / Ruby Spice Summersweet	14
DA	Distylium x 'PIIDIST-I' / Emerald Heights® Distylium	53
HQ	Hydrangea quercifolia 'Alice' / Alice Oakleaf Hydrangea	11
MD	Myrica cerifera 'Don's Dwarf' / Don's Dwarf Wax Myrtle	40

PLANT SCHEDULE BUFFER YARD / TREE COVER AREA B

CODE	BOTANICAL / COMMON NAME	QTY
CANOPY TREES		
IO	Ilex opaca 'Satyr Hill' / Satyr Hill American Holly	3
PT	Pinus taeda / Loblolly Pine	2
QR	Quercus rubra / Northern Red Oak	3
TD	Taxodium distichum / Bald Cypress	3
UNDERSTORY TREES		
CC	Cercis canadensis / Eastern Redbud	4
CF	Cornus florida 'Cherokee Brave' / Cherokee Brave Dogwood	3
IJ	Ilex opaca 'Jersey Knight' / Jersey Knight American Holly	4
MV	Magnolia virginiana / Sweet Bay Magnolia	4
CR	Prunus caroliniana / Carolina Cherry Laurel	4
SHRUBS		
CH	Clethra alnifolia 'Ruby Spice' / Ruby Spice Summersweet	3
IP	Illicium parviflorum 'Florida Sunshine' / Florida Sunshine Anise Tree	19
MD	Myrica cerifera 'Don's Dwarf' / Don's Dwarf Wax Myrtle	43
VD	Viburnum dentatum / Arrowwood Viburnum	12

PLANT SCHEDULE BUFFER YARD / TREE COVER AREA C

CODE	BOTANICAL / COMMON NAME	QTY
CANOPY TREES		
AH	Carpinus caroliniana / American Hornbeam	4
MG	Magnolia grandiflora / Southern Magnolia	2
PT	Pinus taeda / Loblolly Pine	6
QR	Quercus rubra / Northern Red Oak	2
TD	Taxodium distichum / Bald Cypress	7
UNDERSTORY TREES		
CC	Cercis canadensis / Eastern Redbud	6
CV	Chionanthus virginicus / White Fringetree	7
CF	Cornus florida 'Cherokee Brave' / Cherokee Brave Dogwood	8
IJ	Ilex opaca 'Jersey Knight' / Jersey Knight American Holly	7
CR	Prunus caroliniana / Carolina Cherry Laurel	7
SHRUBS		
CA	Callicarpa americana / American Beautyberry	10
CL	Calycanthus floridus / Carolina Allspice	16
IV	Ilex vomitoria 'Schillings' / Dwarf Yaupon Holly	28
IP	Illicium parviflorum 'Florida Sunshine' / Florida Sunshine Anise Tree	45
HG	Itea virginica 'Henry's Garnet' / Henry's Garnet Sweetspire	22
MD	Myrica cerifera 'Don's Dwarf' / Don's Dwarf Wax Myrtle	39
VD	Viburnum dentatum / Arrowwood Viburnum	11

PLANT SCHEDULE BUFFER YARD / TREE COVER AREA D

CODE	BOTANICAL / COMMON NAME	QTY
CANOPY TREES		
MG	Magnolia grandiflora / Southern Magnolia	1
QR	Quercus rubra / Northern Red Oak	2
UNDERSTORY TREES		
CC	Cercis canadensis / Eastern Redbud	2
CR	Prunus caroliniana / Carolina Cherry Laurel	2
SHRUBS		
IP	Illicium parviflorum 'Florida Sunshine' / Florida Sunshine Anise Tree	9
MD	Myrica cerifera 'Don's Dwarf' / Don's Dwarf Wax Myrtle	11

PLANT SCHEDULE BUFFER YARD / TREE COVER AREA E

CODE	BOTANICAL / COMMON NAME	QTY
CANOPY TREES		
IO	Ilex opaca 'Satyr Hill' / Satyr Hill American Holly	1
MG	Magnolia grandiflora / Southern Magnolia	3
QA	Quercus alba / White Oak	2
QR	Quercus rubra / Northern Red Oak	3
UNDERSTORY TREES		
AA	Amelanchier x grandiflora 'Autumn Brilliance' / 'Autumn Brilliance' Serviceberry	4
CC	Cercis canadensis / Eastern Redbud	1
MV	Magnolia virginiana / Sweet Bay Magnolia	4
CR	Prunus caroliniana / Carolina Cherry Laurel	6
SHRUBS		
DA	Distylium x 'PIIDIST-I' / Emerald Heights® Distylium	8
HQ	Hydrangea quercifolia 'Alice' / Alice Oakleaf Hydrangea	12
IV	Ilex vomitoria 'Schillings' / Dwarf Yaupon Holly	7
MD	Myrica cerifera 'Don's Dwarf' / Don's Dwarf Wax Myrtle	32

PLANT SCHEDULE OPEN SPACE

CODE	BOTANICAL / COMMON NAME	QTY
CANOPY TREES		
AH	Carpinus caroliniana / American Hornbeam	5
MG	Magnolia grandiflora / Southern Magnolia	1
NS	Nyssa Sylvatica / Black Gum	6
QA	Quercus alba / White Oak	12
QP	Quercus phellos / Willow Oak	10
TD	Taxodium distichum / Bald Cypress	2
UNDERSTORY TREES		
AA	Amelanchier x grandiflora 'Autumn Brilliance' / 'Autumn Brilliance' Serviceberry	4
CC	Cercis canadensis / Eastern Redbud	6
CV	Chionanthus virginicus / White Fringetree	6
IJ	Ilex opaca 'Jersey Knight' / Jersey Knight American Holly	7
MV	Magnolia virginiana / Sweet Bay Magnolia	3
SHRUBS		
DA	Distylium x 'PIIDIST-I' / Emerald Heights® Distylium	38

PLANT SCHEDULE BUFFER YARD / TREE COVER AREA F

CODE	BOTANICAL / COMMON NAME	QTY
UNDERSTORY TREES		
IS	Ilex x attenuata 'Savannah' / Savannah Holly	13
SHRUBS		
DA	Distylium x 'PIIDIST-I' / Emerald Heights® Distylium	38
IV	Ilex vomitoria 'Schillings' / Dwarf Yaupon Holly	27

PLANT SCHEDULE BUFFER YARD / TREE COVER AREA G

CODE	BOTANICAL / COMMON NAME	QTY
CANOPY TREES		
MG	Magnolia grandiflora / Southern Magnolia	1
PT	Pinus taeda / Loblolly Pine	5
BM	Quercus bicolor 'Bonnie and Mike' / Beacon® Oak	4
QP	Quercus phellos / Willow Oak	1
UNDERSTORY TREES		
IS	Ilex x attenuata 'Savannah' / Savannah Holly	11
MV	Magnolia virginiana / Sweet Bay Magnolia	7
SHRUBS		
CH	Clethra alnifolia 'Ruby Spice' / Ruby Spice Summersweet	4
DA	Distylium x 'PIIDIST-I' / Emerald Heights® Distylium	26
HQ	Hydrangea quercifolia 'Alice' / Alice Oakleaf Hydrangea	7
IV	Ilex vomitoria 'Schillings' / Dwarf Yaupon Holly	25

PLANT SCHEDULE BUFFER YARD / TREE COVER AREA H

CODE	BOTANICAL / COMMON NAME	QTY
CANOPY TREES		
AH	Carpinus caroliniana / American Hornbeam	2
IO	Ilex opaca 'Satyr Hill' / Satyr Hill American Holly	5
MG	Magnolia grandiflora / Southern Magnolia	4
NS	Nyssa Sylvatica / Black Gum	3
PT	Pinus taeda / Loblolly Pine	1
QA	Quercus alba / White Oak	3
QP	Quercus phellos / Willow Oak	1
QR	Quercus rubra / Northern Red Oak	2
TD	Taxodium distichum / Bald Cypress	4
UNDERSTORY TREES		
AA	Amelanchier x grandiflora 'Autumn Brilliance' / 'Autumn Brilliance' Serviceberry	6
CC	Cercis canadensis / Eastern Redbud	2
CV	Chionanthus virginicus / White Fringetree	6
CF	Cornus florida 'Cherokee Brave' / Cherokee Brave Dogwood	10
IJ	Ilex opaca 'Jersey Knight' / Jersey Knight American Holly	6
MV	Magnolia virginiana / Sweet Bay Magnolia	2
CR	Prunus caroliniana / Carolina Cherry Laurel	10
SHRUBS		
CL	Calycanthus floridus / Carolina Allspice	5
CH	Clethra alnifolia 'Ruby Spice' / Ruby Spice Summersweet	19
DA	Distylium x 'PIIDIST-I' / Emerald Heights® Distylium	34
HQ	Hydrangea quercifolia 'Alice' / Alice Oakleaf Hydrangea	3
IP	Illicium parviflorum 'Florida Sunshine' / Florida Sunshine Anise Tree	73
MD	Myrica cerifera 'Don's Dwarf' / Don's Dwarf Wax Myrtle	19
VD	Viburnum dentatum / Arrowwood Viburnum	5

PLANT SCHEDULE BUFFER YARD / TREE COVER AREA I

CODE	BOTANICAL / COMMON NAME	QTY
CANOPY TREES		
PT	Pinus taeda / Loblolly Pine	2
QP	Quercus phellos / Willow Oak	2
UNDERSTORY TREES		
AA	Amelanchier x grandiflora 'Autumn Brilliance' / 'Autumn Brilliance' Serviceberry	3
CR	Prunus caroliniana / Carolina Cherry Laurel	1
SHRUBS		
HQ	Hydrangea quercifolia 'Alice' / Alice Oakleaf Hydrangea	5
IV	Ilex vomitoria 'Schillings' / Dwarf Yaupon Holly	22

PLANT SCHEDULE BUFFER YARD / TREE COVER AREA J

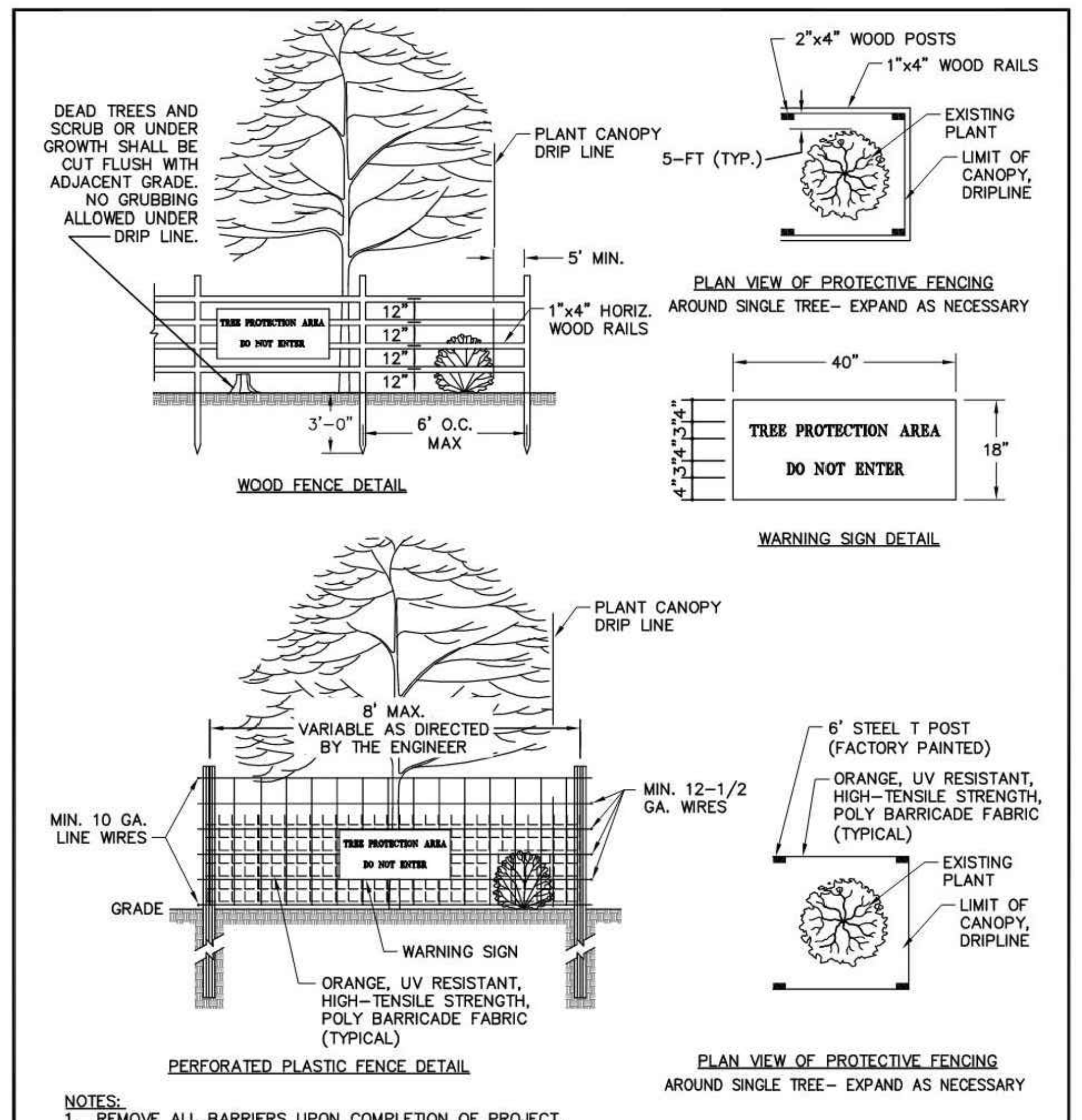
CODE	BOTANICAL / COMMON NAME	QTY
CANOPY TREES		
IO	Ilex opaca 'Satyr Hill' / Satyr Hill American Holly	3
PT	Pinus taeda / Loblolly Pine	1
QA	Quercus alba / White Oak	4
QR	Quercus rubra / Northern Red Oak	3
UNDERSTORY TREES		
CC	Cercis canadensis / Eastern Redbud	1
CV	Chionanthus virginicus / White Fringetree	4
IJ	Ilex opaca 'Jersey Knight' / Jersey Knight American Holly	8
MV	Magnolia virginiana / Sweet Bay Magnolia	5
SHRUBS		
CA	Callicarpa americana / American Beautyberry	3
CL	Calycanthus floridus / Carolina Allspice	15
CH	Clethra alnifolia 'Ruby Spice' / Ruby Spice Summersweet	3
IG	Ilex glabra 'Shamrock' / Shamrock Inkberry Holly	15
IP	Illicium parviflorum 'Florida Sunshine' / Florida Sunshine Anise Tree	17
MD	Myrica cerifera 'Don's Dwarf' / Don's Dwarf Wax Myrtle	22

PLANT SCHEDULE ENHANCED ROADSIDE PLANTING

CODE	BOTANICAL / COMMON NAME	QTY
CANOPY TREES		
NS	Nyssa Sylvatica / Black Gum	8
QA	Quercus alba / White Oak	7
BM	Quercus bicolor 'Bonnie and Mike' / Beacon® Oak	11
QP	Quercus phellos / Willow Oak	3
UNDERSTORY TREES		
AA	Amelanchier x grandiflora 'Autumn Brilliance' / 'Autumn Brilliance' Serviceberry	5
CC	Cercis canadensis / Eastern Redbud	2
CV	Chionanthus virginicus / White Fringetree	3
MV	Magnolia virginiana / Sweet Bay Magnolia	6
SHRUBS		
CA	Callicarpa americana / American Beautyberry	46
CL	Calycanthus floridus / Carolina Allspice	23
CH	Clethra alnifolia 'Ruby Spice' / Ruby Spice Summersweet	35
HQ	Hydrangea quercifolia 'Alice' / Alice Oakleaf Hydrangea	4
IG	Ilex glabra 'Shamrock' / Shamrock Inkberry Holly	49
VD	Viburnum dentatum / Arrowwood Viburnum	9

PLANTING NOTES:

1. ALL PLANTINGS SHALL COMPLY WITH CURRENT LOCAL ORDINANCES AND GUIDELINES.
2. THIS PLAN IS FOR PLANTING LOCATIONS ONLY AND ALL PLANT MATERIAL SHALL BE SPACED AND LOCATED PER SCHEDULE. HOWEVER, CONTRACTOR TO SLIGHTLY ADJUST PLANT LOCATIONS IN THE FIELD AS NECESSARY TO BE CLEAR OF DRAINAGE SWALES AND UTILITIES. IF FOUND CONDITIONS VARY FROM THIS PLAN, CONTRACTOR SHALL CONTACT OWNER AND LANDSCAPE ARCHITECT FOR RESOLUTION. FAILURE TO DO SO WILL RESULT IN CONTRACTOR'S LIABILITY TO REPLACE PLANT MATERIALS.
3. REFER TO PLANTING DETAILS FOR ADDITIONAL PLANTING INFORMATION.
4. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL PLANT WATERING AND MAINTENANCE, INCLUDING SHRUBS AND GROUNDCOVER, AND SHALL MAINTAIN AREA IN A WEED AND DEBRIS FREE CONDITION, THROUGHOUT GUARANTEE PERIOD.
5. CONTRACTOR TO VERIFY PLANT LIST TOTALS WITH QUANTITIES SHOWN ON PLAN.
6. ALL SIZES SPECIFIED IN THE PLANT LIST ARE MINIMUM SIZES TO WHICH THE PLANTS ARE TO BE JUDGED. FAILURE TO MEET MINIMUM SIZE ON ANY PLANT WILL RESULT IN REJECTION OF THAT PLANT.
7. PLANTING SIZE DETERMINATION:
   - 7.1. TREES: HEIGHT SHALL BE MEASURED FROM THE CROWN OF THE ROOT BALL TO THE TOP OF MATURE GROWTH. SPREAD SHALL BE MEASURED TO THE END OF BRANCHING EQUALLY AROUND THE CROWN FROM THE CENTER OF THE TRUNK. MEASUREMENTS ARE NOT TO INCLUDE ANY TERMINAL GROWTH. SINGLE TRUNK TREES SHALL BE FREE OF "V" CROTCHES THAT COULD BE POINTS OF WEAK LIMB STRUCTURE OR DISEASE INFESTATION.
   - 7.2. ALL PLANTS SHALL BE FRESHLY DUG OR IN GROW POTS, SOUND, HEALTHY, VIGOROUS, WELL BRANCHED, FREE OF DISEASE, INSECT EGGS, AND LARVAE, AND SHALL BE WELL ROOTED.
8. FINISHED PLANTING BEDS SHALL BE GRADED SO AS TO NOT IMPEDE DRAINAGE AWAY FROM BUILDINGS. IF SIGNIFICANT RELOCATIONS ARE REQUIRED, CONTRACTOR SHALL CONTACT LANDSCAPE ARCHITECT FOR RESOLUTION. FAILURE TO MAKE SUCH RELOCATIONS KNOWN TO THE OWNER AND LANDSCAPE ARCHITECT WILL RESULT IN CONTRACTOR'S LIABILITY FOR PLANT MATERIALS AND STORMWATER DAMAGE.
9. FIELD LOCATE AND VERIFY UNDERGROUND UTILITIES LOCATIONS PRIOR TO PLANTING. FINAL TREE LOCATIONS TO BE FIELD ADJUSTED TO AVOID CONFLICTS WITH UTILITIES, LIGHTING AND DRIVEWAY LOCATIONS WHERE POSSIBLE. CONTACT LANDSCAPE ARCHITECT FOR A COORDINATED SOLUTION FOR ANY UTILITY CONFLICTS. CONTRACTOR SHALL BE LIABLE FOR DAMAGE TO ANY AND ALL PUBLIC OR PRIVATE UTILITIES.
10. TREES SHALL BE STAKED WITH AN AT GRADE TREE STAKING SYSTEM. STAKING MUST BE REMOVED AS SOON AS POSSIBLE OR WITHIN ONE (1) YEAR OF PLANTING. MULCH SHALL BE APPLIED IN AN EVEN THREE INCH (3") TO TO FOUR INCH (4") LAYER AROUND THE TREE PIT IN ACCORDANCE WITH ACCEPTED PRACTICES IN THE LANDSCAPE INDUSTRY.
11. CONTRACTOR SHALL NOT PLACE MULCH IN CONTACT WITH THE TRUNKS OF TREES OR SHRUBS.
12. ALL TREE PITS, SHRUB BEDS AND PREPARED PLANTING BEDS ARE TO BE COMPLETELY EXCAVATED IN ACCORDANCE WITH THE PLANTING DETAILS.
13. THE ROOT CROWN SHALL BE 1 INCH (1") TO 2 INCHES (2") ABOVE FINISHED GRADE (AFTER SETTLING) FOR SHRUBS AND TWO INCHES (2") TO FOUR INCHES (4") ABOVE FINISHED GRADE (AFTER SETTLING) FOR TREES.
14. ALL SUBSTITUTIONS OF PLANT MATERIAL ARE TO BE REQUESTED IN WRITING TO THE LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE OWNER PRIOR TO INSTALLATION. FAILURE TO OBTAIN SUBSTITUTION APPROVAL IN WRITING MAY RESULT IN LIABILITY TO THE CONTRACTOR.
15. DEAD PLANTS ARE TO BE REMOVED FROM THE JOB BY THE CONTRACTOR WEEKLY. CONTRACTOR SHALL MAINTAIN AN UPDATED, COMPREHENSIVE LIST OF ALL DEAD MATERIALS REMOVED AND PRESENT A COPY OF THE LIST TO THE OWNER AND THE LANDSCAPE ARCHITECT AT THE END OF EVERY MONTH DURING THE CONTRACT PERIOD.
16. TOPSOIL REQUIRED FOR SOIL MIXES AND SPECIAL SEEDING AREAS SHALL BE PROVIDED BY THE CONTRACTOR. CONTRACTOR MUST LOAD, HAUL, MIX, AND SPREAD ALL TOPSOIL AND OTHER SOIL ADDITIVES AS REQUIRED.
17. THE PROPERTY OWNER AND/OR LESSEE SHALL, UPON COMPLETION OF THE GUARANTEE PERIOD AND FINAL ACCEPTANCE OF THE LANDSCAPE MATERIALS, MAINTAIN ALL LANDSCAPE MATERIALS AND LANDSCAPE AREAS IN ACCORDANCE WITH THE APPROVED LANDSCAPE PLAN. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, MOWING, FERTILIZING, TREATING PESTS, MULCHING, PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED TREES AND SHRUBS. MAINTENANCE SHALL BE PERFORMED ON A REGULAR BASIS IN ORDER TO MAINTAIN PLANT VIGOR AND STABILITY AND TO PRESENT A NEAT AND WELL-KEPT APPEARANCE AT ALL TIMES.
18. CONTRACTOR SHALL GUARANTEE ALL LANDSCAPE IMPROVEMENTS, INCLUDING SEEDING, AS REQUIRED BY THE SPECIFICATIONS. CONTRACTOR MUST CONTACT THE OWNER AND THE LANDSCAPE ARCHITECT AT LEAST 10 WORKING DAYS IN ADVANCE TO SCHEDULE ACCEPTANCE INSPECTION(S). CONTRACTOR MUST REPLACE ALL DEAD OR UNACCEPTABLE PLANTS DURING THE FOLLOWING RECOMMENDED PLANTING SEASON.
19. ALL TREES AND SHRUBS SHALL MEET THE NORMAL REQUIREMENTS FOR THE AMERICAN STANDARD FOR NURSERY STOCK, LATEST EDITION, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMAN (AAN) OR AMERICAN HORT, ANSI Z60.1.
20. MULCH SHALL BE FREE OF DEBRIS AND WOOD CHIPS. IT SHALL CONSIST OF AGED TRIPLE-SHREDDED HARDWOOD MULCH, FREE OF EXCESS TANNIC ACID OR OTHER MULCH AS SPECIFIED ON THE PLANS. SAMPLES OF MULCH SHALL BE PROVIDED FOR THE THE LANDSCAPE ARCHITECT'S APPROVAL PRIOR TO DELIVERING THE MULCH. THE OWNER RESERVES THE RIGHT TO REJECT ANY MULCH WHICH IS CONSIDERED TO BE UNSUITABLE. ALL MULCHES SHALL BE FREE OF ANY FOREIGN MATERIALS, PIECES LARGER THAN 6 INCHES, AND/OR GREEN WOOD.
21. ALL STRAPPING AND TOP 2/3 OF WIRE BASKET MUST BE CUT AWAY AND REMOVED FROM ROOT BALL PRIOR TO BACKFILLING PLANTING PIT. REMOVE TOP 1/3 OF THE BURLAP FROM THE ROOT BALL. REMOVE ALL SYNTHETIC MATERIALS: BURLAP, STRAPPING CORDAGE, ETC. PRIOR TO BACKFILLING ALL PLANT MATERIALS.
22. NO PLANTING IDENTIFIED AS REACHING A MATURE HEIGHT OF MORE THAN TWENTY FEET (20') SHALL BE PLACED WITHIN A TRANSMISSION POWER LINE RIGHT-OF-WAY OR WITHIN TEN FEET (10') OF AN OVERHEAD UTILITY LINE.
23. TREES WHICH OVERHANG THE PEDESTRIAN CIRCULATION ROUTES AT THE STREETS, SIDEWALKS OR WITHIN OPEN SPACE AREAS SHALL NOT EXTEND GREATER THAN FOUR INCHES INTO THE CIRCULATION ROUTE AT A HEIGHT LESS THAN 80 INCHES ABOVE THE ADJACENT GRADE. ALL TREES SHALL BE LIMBED TO PROVIDE 80 INCHES OF CLEARANCE AT WALKWAYS TO MEET A.D.A AND ANSI Z60.1 REQUIREMENTS.
24. CONTRACTOR SHALL FIELD VERIFY LOCATION, SIZE, AND MATERIAL OF EXISTING SITE AND VICINITY FEATURES AND UTILITIES PRIOR TO BEGINNING DEMOLITION AND CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEER AND LANDSCAPE ARCHITECT OF ANY DISCREPANCIES THAT ARE FOUND BETWEEN THE EXISTING FIELD CONDITIONS AND THE SITE PLANS OR CONSTRUCTION DRAWINGS, WHENEVER THEY ARE FOUND, DURING ALL PHASES OF SITE WORK.
25. THE PRUNING OF SCREENING SHRUBS SHALL ALLOW FOR LATERAL GROWTH OF BRANCHES SO AS TO FORM A HEDGE.
26. ALL LANDSCAPE ISLANDS, BEDS AND LAWNS SHALL BE GRADED FOR POSITIVE DRAINAGE WITH NO LOW SPOTS ALLOWING WATER TO BE TRAPPED.
27. CONTRACTOR SHALL PLANT TREES AND SHRUBS 5 FEET FROM BACK OF CURB WHEN PLANTED PERPENDICULAR FROM PARKING SPACES.
28. WHEEL STOPS ARE REQUIRED IF LANDSCAPING CANNOT BE SET BACK 5 FEET.
29. CONTRACTOR SHALL INSTALL ALL SHRUBS IN MULCHED BEDS.
30. CONTRACTOR SHALL INSTALL ALL TREES IN MINIMUM 4'-6' DIA. MULCHED BEDS.
31. WHERE TREES AND SHRUBS ARE LOCATED TOGETHER IN LANDSCAPE BUFFERS, THE CONTRACTOR SHALL MULCH THE FULL WIDTH AND LENGTH OF THE BUFFER.
32. ALL UN-MULCHED AREAS OF THE SITE SHALL BE SEEDED WITH LAWN GRASS. GRASS SEED SELECTION SHALL BE SUBMITTED TO AND APPROVED BY THE LANDSCAPE ARCHITECT, PRIOR TO PURCHASE AND INSTALLATION.


DEAD TREES AND SCRUB OR UNDER GROWTH SHALL BE CUT FLUSH WITH ADJACENT GRADE. NO GRUBBING ALLOWED UNDER DRIP LINE.
PLANT CANOPY DRIP LINE
5' MIN.
TREE PROTECTION AREA
DO NOT ENTER
12"
12"
12"
12"
1"x4" HORIZ. WOOD RAILS
3'-0"
6' O.C. MAX
WOOD FENCE DETAIL
2"x4" WOOD POSTS
1"x4" WOOD RAILS
5-FT (TYP.)
EXISTING PLANT
LIMIT OF CANOPY, DRIPLINE
PLAN VIEW OF PROTECTIVE FENCING
AROUND SINGLE TREE- EXPAND AS NECESSARY
40"
4"
3"
4"
3"
4"
TREE PROTECTION AREA
DO NOT ENTER
18"
WARNING SIGN DETAIL
PLANT CANOPY DRIP LINE
8' MAX. VARIABLE AS DIRECTED BY THE ENGINEER
MIN. 10 GA. LINE WIRES
MIN. 12-1/2 GA. WIRES
GRADE
WARNING SIGN
ORANGE, UV RESISTANT, HIGH-TENSILE STRENGTH, POLY BARRICADE FABRIC (TYPICAL)
PERFORATED PLASTIC FENCE DETAIL
6' STEEL T POST (FACTORY PAINTED)
ORANGE, UV RESISTANT, HIGH-TENSILE STRENGTH, POLY BARRICADE FABRIC (TYPICAL)
EXISTING PLANT
LIMIT OF CANOPY, DRIPLINE
PLAN VIEW OF PROTECTIVE FENCING
AROUND SINGLE TREE- EXPAND AS NECESSARY

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. CONTRACTOR SHALL CALL FOR INSPECTION AND APPROVAL OF PROTECTIVE FENCING PRIOR TO BEGINNING ANY CONSTRUCTION OR GRADING.
6. PROTECTIVE FENCING SHALL BE LOCATED 5' OUTSIDE DRIPLINE OF TREES AND 1' MINIMUM OUTSIDE SHRUBS OR OTHER PLANTS.

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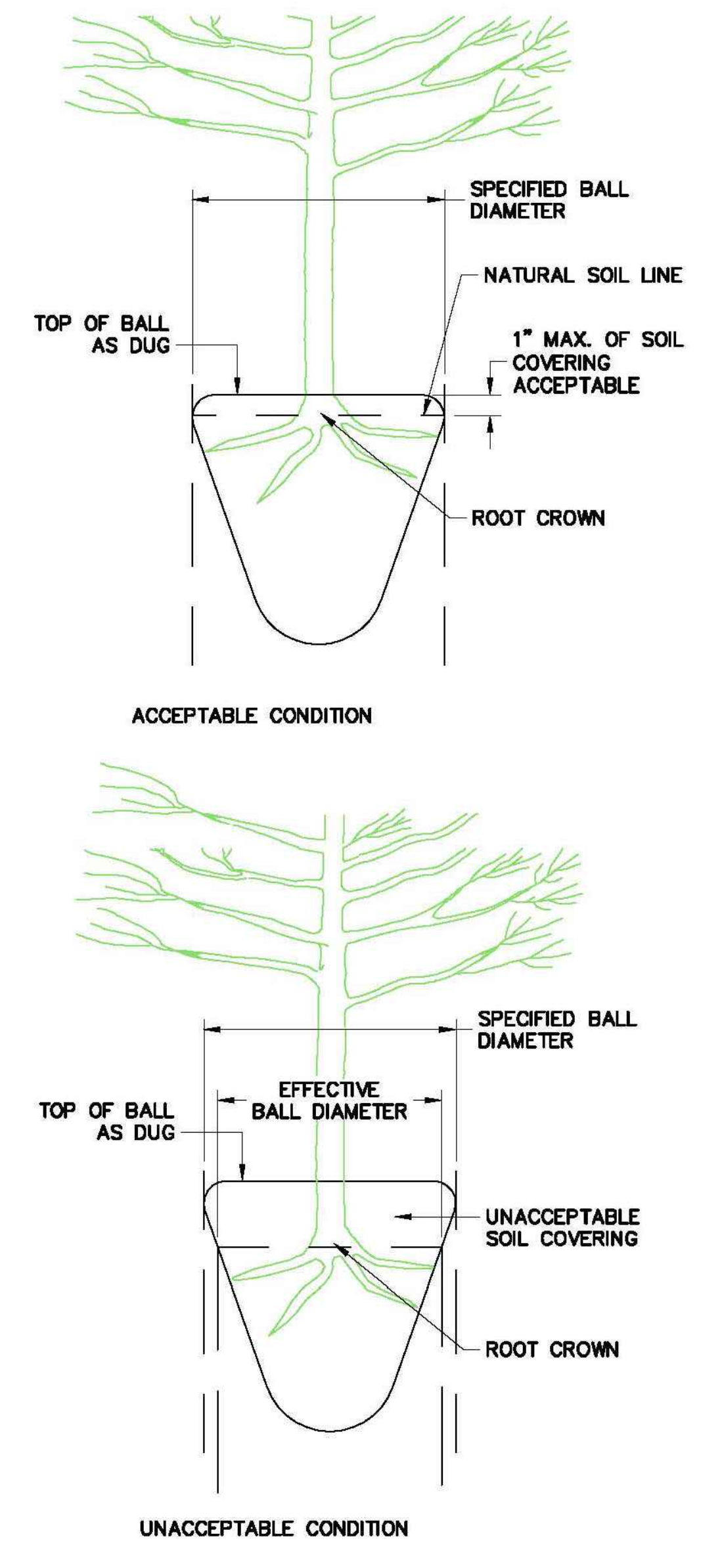
DATE	DESCRIPTION

TOWN OF KNIGHTDALE
STANDARD DETAILS

PLANT PROTECTIVE FENCING

STD. NO.
2.10


SPECIFIED BALL DIAMETER
NATURAL SOIL LINE
TOP OF BALL AS DUG
1" MAX. OF SOIL COVERING ACCEPTABLE
ROOT CROWN
ACCEPTABLE CONDITION
SPECIFIED BALL DIAMETER
EFFECTIVE BALL DIAMETER
TOP OF BALL AS DUG
UNACCEPTABLE SOIL COVERING
ROOT CROWN
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.

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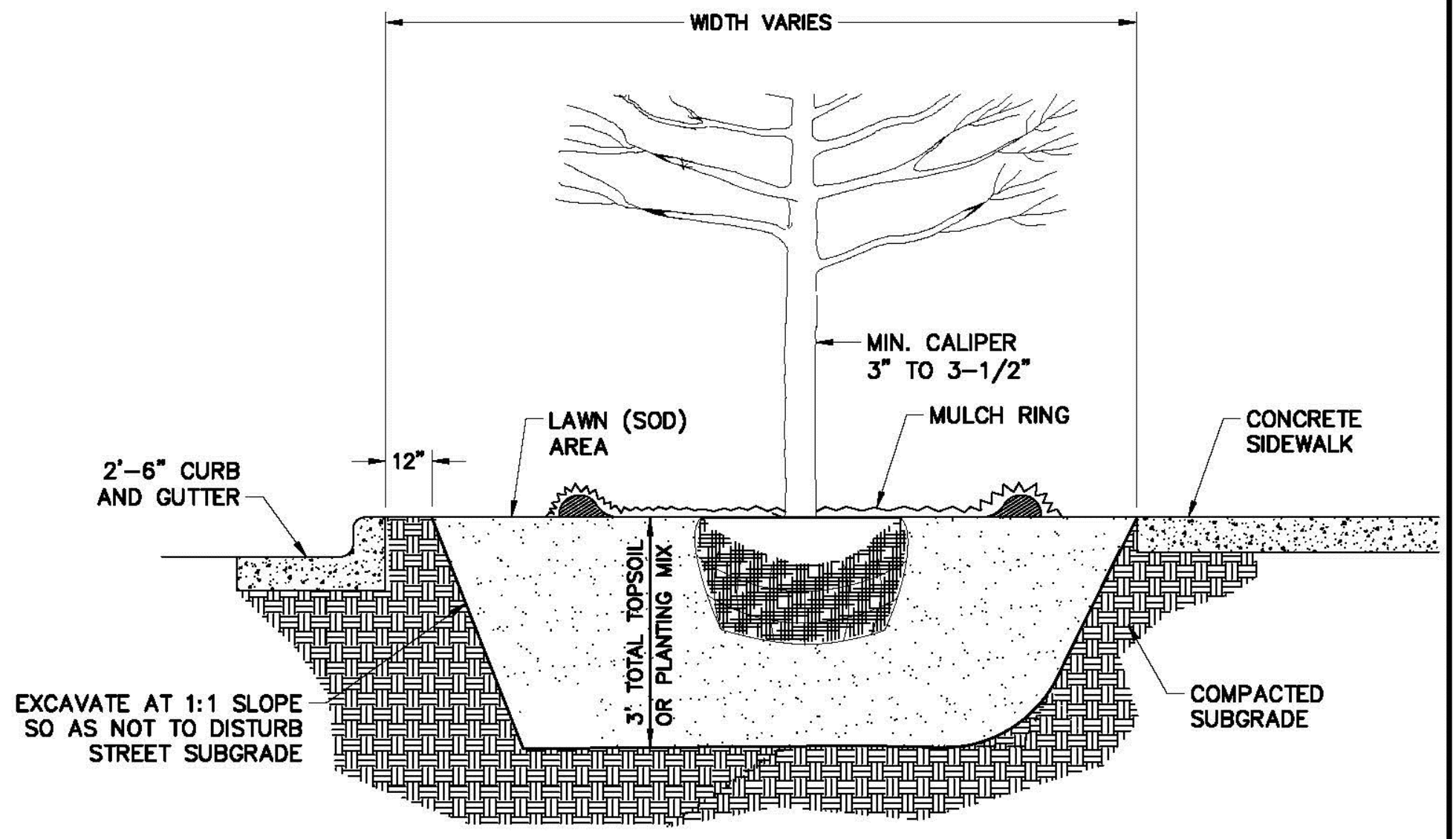
TOWN OF KNIGHTDALE
STANDARD DETAILS

ROOT CROWN DEPTHS

STD. NO.
3.21

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.


WIDTH VARIES
MIN. CALIPER 3" TO 3-1/2"
LAWN (SOD) AREA
MULCH RING
CONCRETE SIDEWALK
12"
2'-6" CURB AND GUTTER
3' TOTAL TOPSOIL OR PLANTING MIX
EXCAVATE AT 1:1 SLOPE SO AS NOT TO DISTURB STREET SUBGRADE
COMPACTED SUBGRADE

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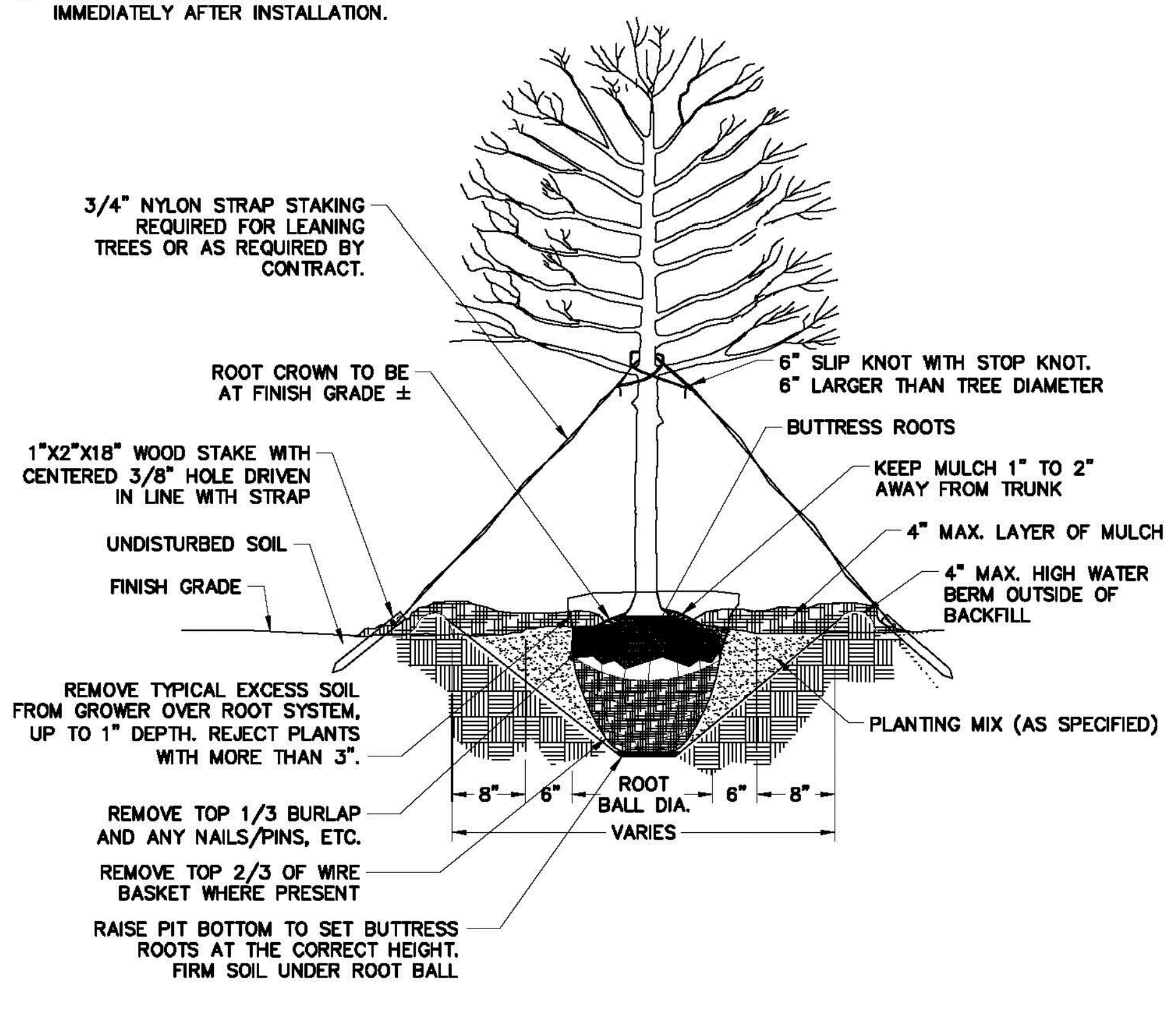
DATE	DESCRIPTION
	07.01.2024

TOWN OF KNIGHTDALE
STANDARD DETAILS

STREET TREE PLANTING

STD. NO.
3.26

NOTES:
1. REMOVE WIRE OR NYLON TWINE FROM BALL.
2. SOAK ROOT BALL AND PLANT PIT IMMEDIATELY AFTER INSTALLATION.


3/4" NYLON STRAP STAKING REQUIRED FOR LEANING TREES OR AS REQUIRED BY CONTRACT.
ROOT CROWN TO BE AT FINISH GRADE ±
1"X2"X18" WOOD STAKE WITH CENTERED 3/8" HOLE DRIVEN IN LINE WITH STRAP
UNDISTURBED SOIL
FINISH GRADE
REMOVE TYPICAL EXCESS SOIL FROM GROWER OVER ROOT SYSTEM, UP TO 1" DEPTH. REJECT PLANTS WITH MORE THAN 3".
REMOVE TOP 1/3 BURLAP AND ANY NAILS/PINS, ETC.
REMOVE TOP 2/3 OF WIRE BASKET WHERE PRESENT
RAISE PIT BOTTOM TO SET BUTTRESS ROOTS AT THE CORRECT HEIGHT. FIRM SOIL UNDER ROOT BALL
6" SLIP KNOT WITH STOP KNOT. 6" LARGER THAN TREE DIAMETER
BUTTRESS ROOTS
KEEP MULCH 1" TO 2" AWAY FROM TRUNK
4" MAX. LAYER OF MULCH
4" MAX. HIGH WATER BERM OUTSIDE OF BACKFILL
PLANTING MIX (AS SPECIFIED)
8"
6"
ROOT BALL DIA.
6"
8"
VARIES

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'	[illegible]	[illegible]	[illegible]

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 Standards Specifications of the Town of Knightdale.

By: ______________________ Date: ______________
Town Engineer

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

By: ______________________ Date: ______________
Land Use Administrator

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE
STANDARD DETAILS

(FOR SIN

Six Forks Place III Ste. 230
353 E. Six Forks Road
Raleigh, NC 27609
919.594.1626

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SEAL 26493
STEPHEN J. BALLENTINE

REVISIONS:

NO.	DESCRIPTION	DATE	BY
	1ST CONSTRUCTION DRAWING SUBMITTAL	06/25/26	

ASHBURY & THE HOLDING COMPANY, LLC

OLD FAISON PLACE

TOWN OF KNIGHTDALE ~ WAKE COUNTY ~ NORTH CAROLINA

LANDSCAPE DETAILS & NOTES

DATE:
DESIGNED BY: SBF
DRAWN BY: SBF
CHECKED BY:
PROJECT No. 2022113
DRAWING No. W-4104
SCALE: AS SHOWN
SHEET No.
L2.21

Do Not Use for Construction - PRELIMINARY