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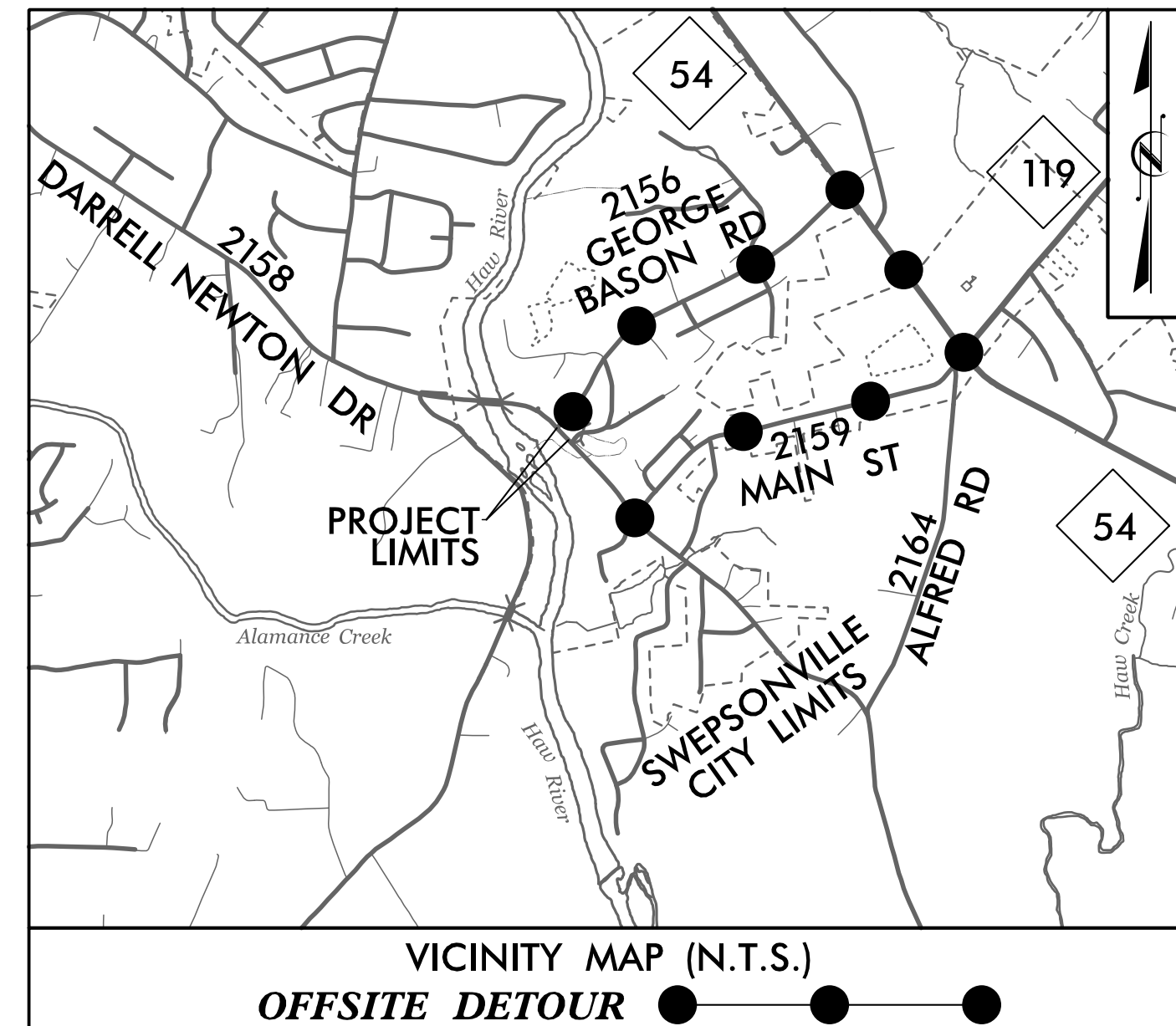
**This file or an individual page
shall not be considered a certified document.**

09_08/2019

WBS PROJECT: 17BP.7.C.18

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet

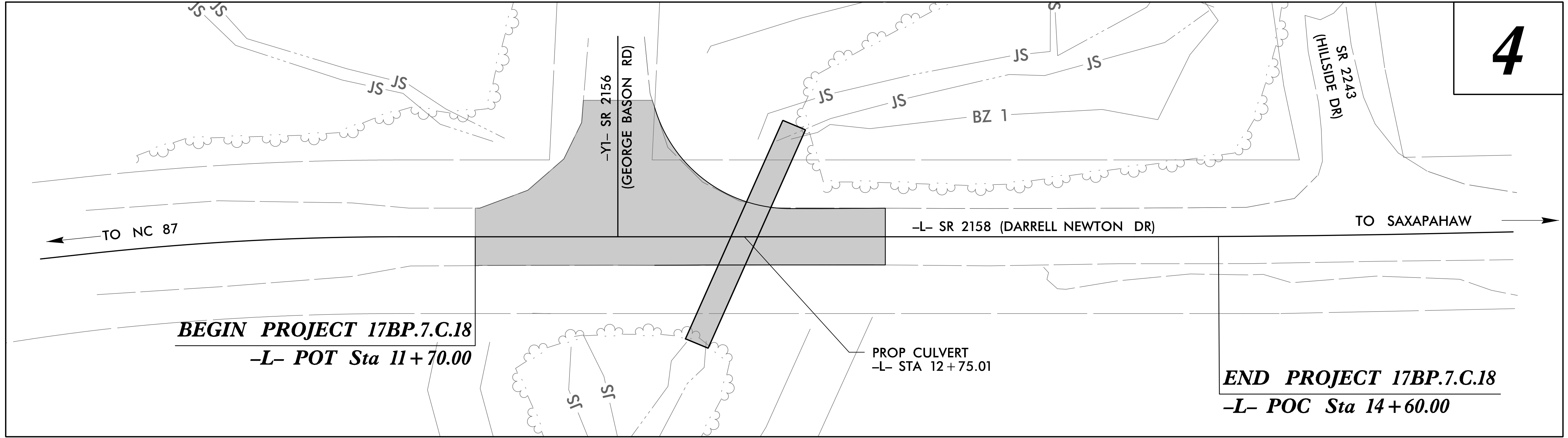
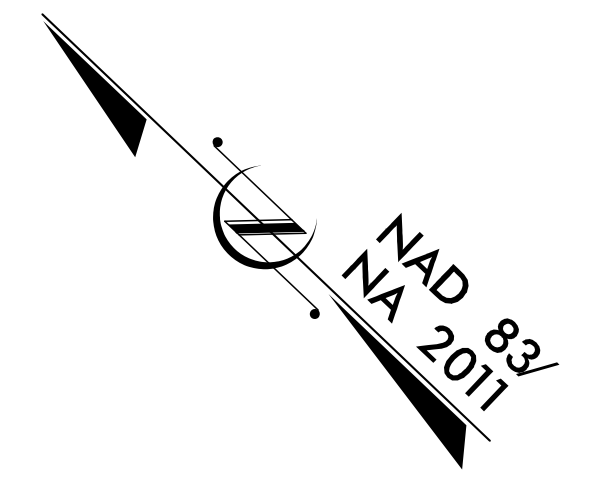


100% PLANS - 08/25/2023

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ALAMANCE COUNTY

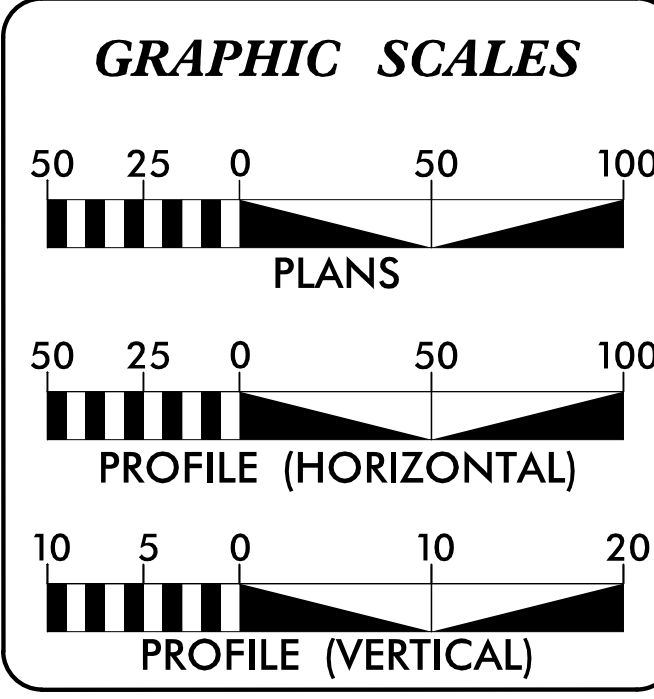
LOCATION: CULVERT IMPROVEMENTS ON SR 2158 (DARRELL NEWTON DR)
TYPE OF WORK: GRADING, DRAINAGE, AND CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.C.18	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.7.PE.18		PE	
17BP.7.ROW.18		RW/UTIL	
17BP.7.C.18		CONSTRUCTION	



4

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2022 = 4,420
ADT 2042 = 3,000
V = 40 MPH
FUNC CLASS = MAJOR COLLECTOR SUBREGIONAL TIER

PROJECT LENGTH
TOTAL LENGTH WBS PROJECT 17BP.7.C.18 = 0.055 MI

Prepared In the Office of:

HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 2, 2022	BRIAN P. BLACKWELL, PE PROJECT ENGINEER
LETTING DATE: OCTOBER 19, 2023	JAMES YATES, PE NCDOT CONTACT

HYDRAULICS ENGINEER

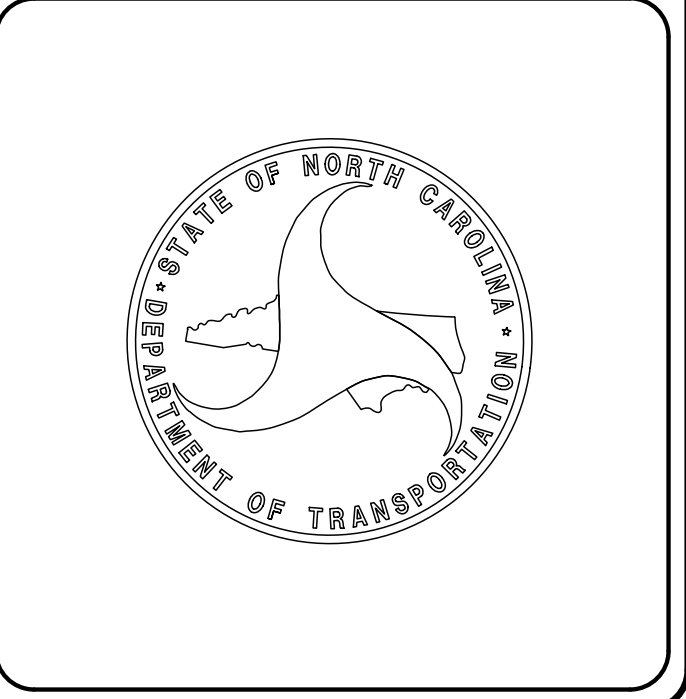
8/25/2023

DocuSigned by:
Galen Cail
06P007D904114D5...

ROADWAY DESIGN ENGINEER

8/25/2023

DocuSigned by:
Brian Blackwell
0C4D738E1E8D4B7...



25-AUG-2023 10:22
N:\Roadway\Proj\17BP7PE18_rdy_TSH.dgn
HN1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin (EIP)	○
Computed Property Corner	×
Existing Concrete Monument (ECM)	□
Parcel/Sequence Number	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB
Existing Historic Property Boundary	HPB
Known Contamination Area: Soil	☒
Potential Contamination Area: Soil	☒
Known Contamination Area: Water	☒
Potential Contamination Area: Water	☒
Contaminated Site: Known or Potential	☠

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	×
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	□

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	JS
Buffer Zone 1	BZ 1
Buffer Zone 2	BZ 2
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	WLB
Proposed Lateral, Tail, Head Ditch	-----
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Secondary Horiz and Vert Control Point	◆
Vertical Benchmark	⊕
Existing Right of Way Monument	△
Proposed Right of Way Monument (Rebar and Cap)	▲
Proposed Right of Way Monument (Concrete)	▲
Existing Permanent Easement Monument	◇
Proposed Permanent Easement Monument (Rebar and Cap)	◆
Existing C/A Monument	△
Proposed C/A Monument (Rebar and Cap)	▲
Proposed C/A Monument (Concrete)	▲
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Existing Control of Access Line	-----
Proposed Control of Access Line	-----
Proposed ROW and CA Line	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage/Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	-----
VEGETATION:	
Single Tree	○
Single Shrub	○
Hedge	-----

Woods Line	-----
Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	-----
Storm Sewer	-----

UTILITIES:

* SUE - Subsurface Utility Engineering
LOS - Level of Service - A, B, C or D (Accuracy)

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊕
Power Transformer	⊕
U/G Power Cable Hand Hole	⊕
H-Frame Pole	●
U/G Power Line Test Hole (SUE - LOS A)*	⊕
U/G Power Line (SUE - LOS B)*	-----
U/G Power Line (SUE - LOS C)*	-----
U/G Power Line (SUE - LOS D)*	-----

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	⊕
U/G Telephone Test Hole (SUE - LOS A)*	⊕
U/G Telephone Cable (SUE - LOS B)*	-----
U/G Telephone Cable (SUE - LOS C)*	-----
U/G Telephone Cable (SUE - LOS D)*	-----
U/G Telephone Conduit (SUE - LOS B)*	-----
U/G Telephone Conduit (SUE - LOS C)*	-----
U/G Telephone Conduit (SUE - LOS D)*	-----
U/G Fiber Optics Cable (SUE - LOS B)*	-----
U/G Fiber Optics Cable (SUE - LOS C)*	-----
U/G Fiber Optics Cable (SUE - LOS D)*	-----

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line Test Hole (SUE - LOS A)*	⊕
U/G Water Line (SUE - LOS B)*	-----
U/G Water Line (SUE - LOS C)*	-----
U/G Water Line (SUE - LOS D)*	-----
Above Ground Water Line	-----

TV:

TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	⊕
U/G TV Test Hole (SUE - LOS A)*	⊕
U/G TV Cable (SUE - LOS B)*	-----
U/G TV Cable (SUE - LOS C)*	-----
U/G TV Cable (SUE - LOS D)*	-----
U/G Fiber Optic Cable (SUE - LOS B)*	-----
U/G Fiber Optic Cable (SUE - LOS C)*	-----
U/G Fiber Optic Cable (SUE - LOS D)*	-----

GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line Test Hole (SUE - LOS A)*	⊕
U/G Gas Line (SUE - LOS B)*	-----
U/G Gas Line (SUE - LOS C)*	-----
U/G Gas Line (SUE - LOS D)*	-----
Above Ground Gas Line	-----

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
SS Force Main Line Test Hole (SUE - LOS A)*	⊕
SS Force Main Line (SUE - LOS B)*	-----
SS Force Main Line (SUE - LOS C)*	-----
SS Force Main Line (SUE - LOS D)*	-----

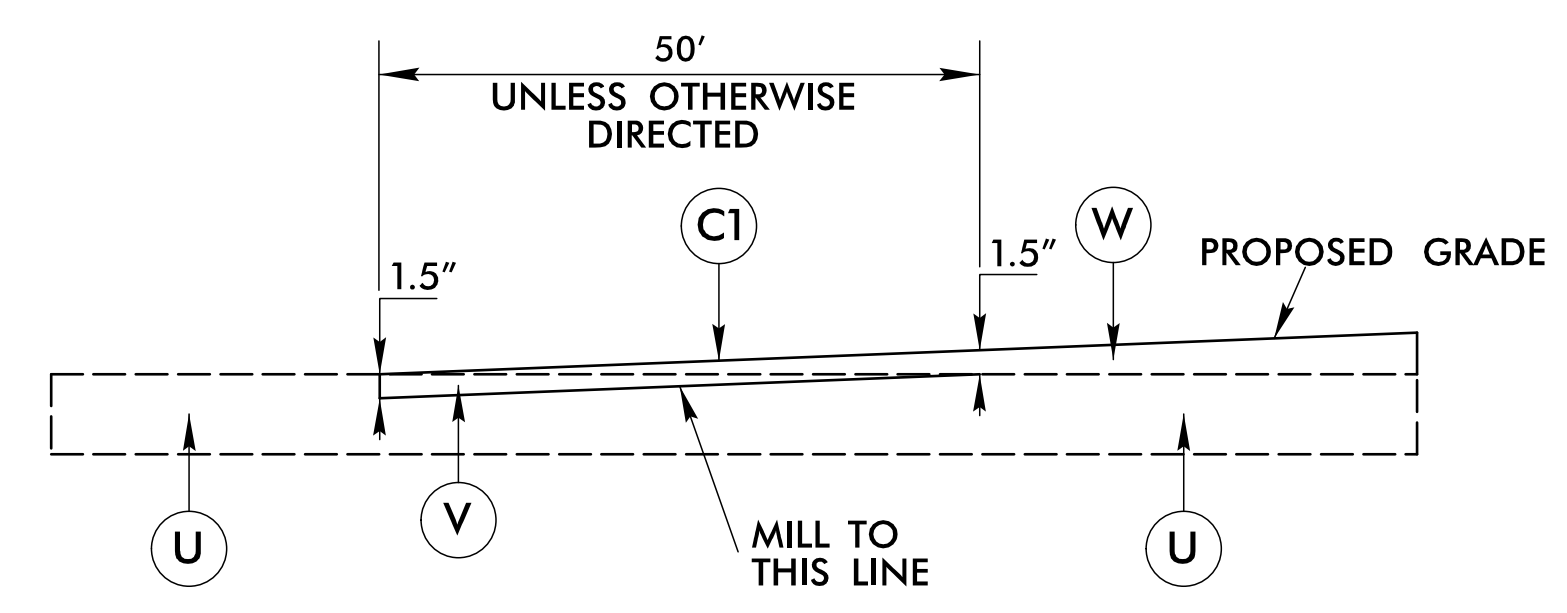
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line (SUE - LOS B)*	-----
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

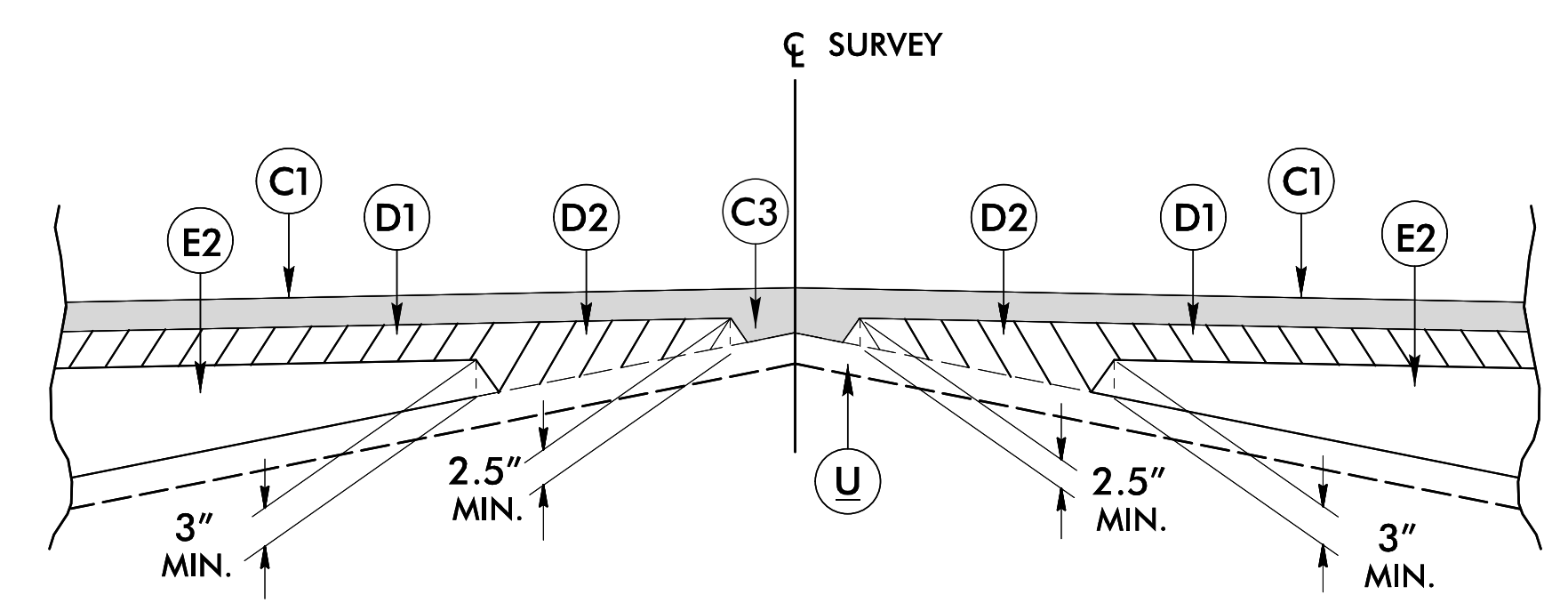
6/2/2019

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
C3	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD PER INCH. DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
D2	PROP. VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER INCH. DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YARD.
E2	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER INCH. DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL, THIS SHEET)

ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



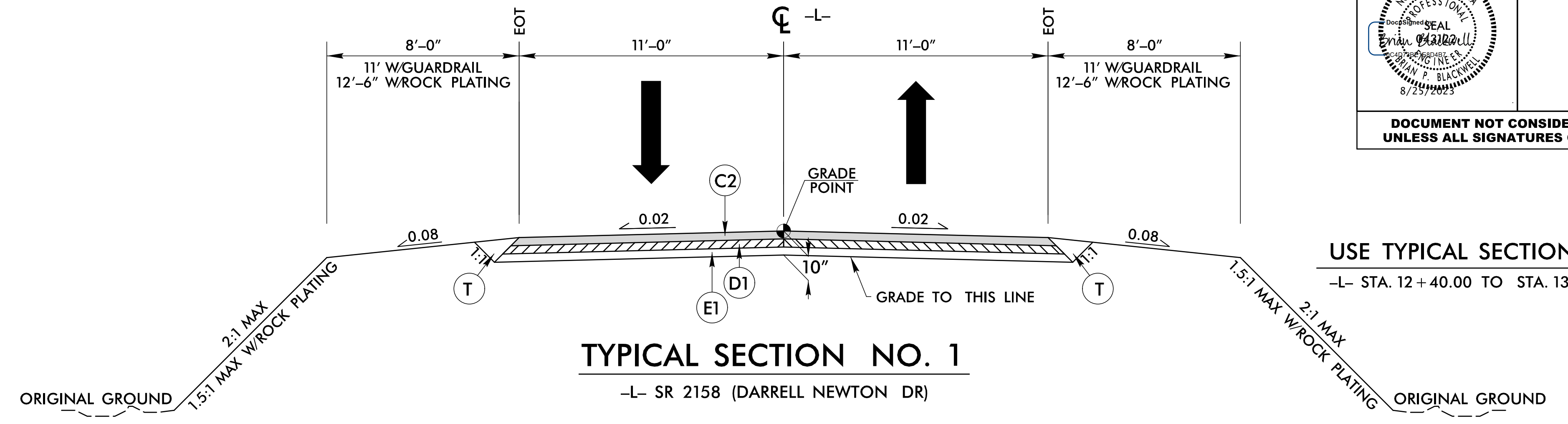
DETAIL FOR INCIDENTAL MILLING



Detail Showing Method of Wedging

HNTB HNTB NORTH CAROLINA, P.C.
 343 E. Six Forks Road, Suite 200
 Raleigh, North Carolina 27609
 NC License No: C-1554

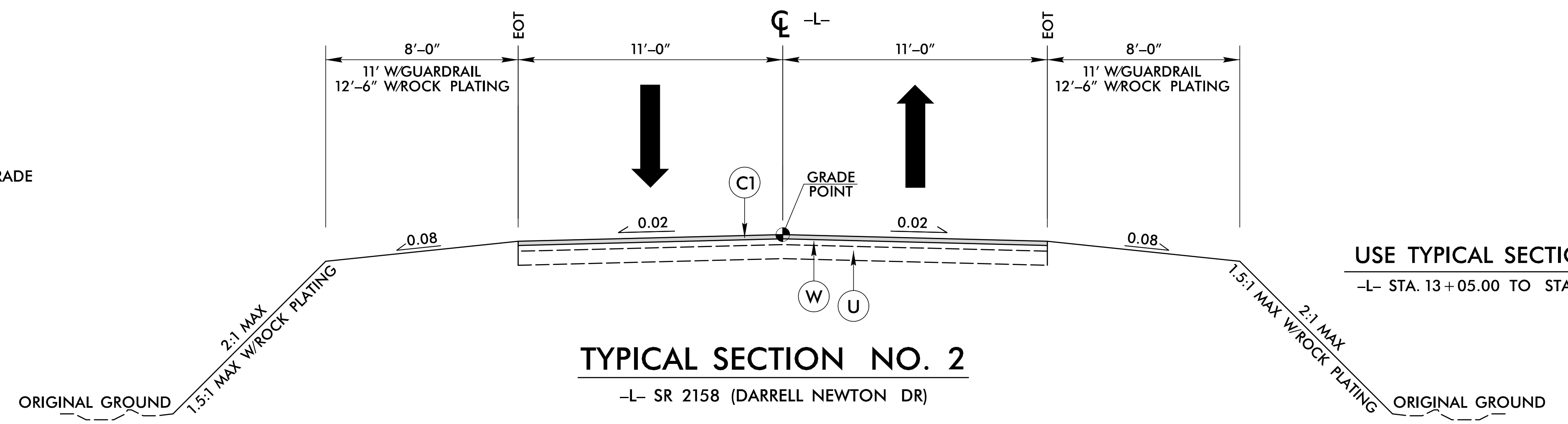
PROJECT REFERENCE NO. 17BP.7.C.18	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER <i>Engr. Darrell Newton</i> 8/25/2023	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



TYPICAL SECTION NO. 1

-L- SR 2158 (DARRELL NEWTON DR)

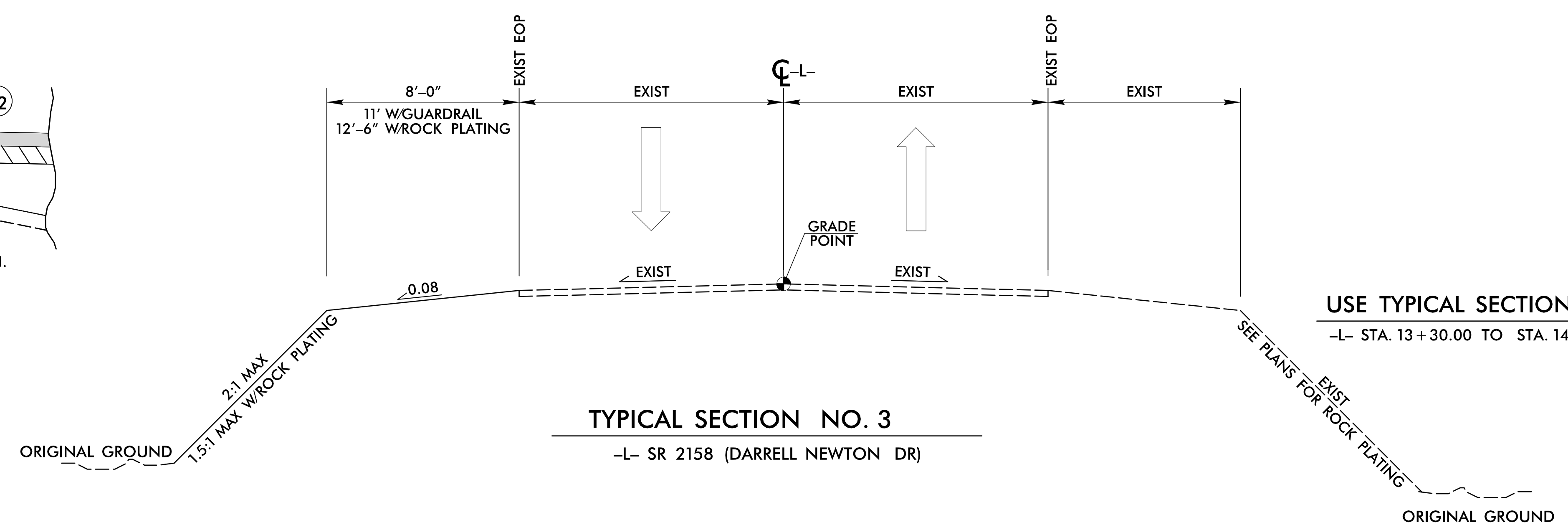
USE TYPICAL SECTION NO. 1
 -L- STA. 12+40.00 TO STA. 13+05.00



TYPICAL SECTION NO. 2

-L- SR 2158 (DARRELL NEWTON DR)

USE TYPICAL SECTION NO. 2
 -L- STA. 13+05.00 TO STA. 13+30.00



TYPICAL SECTION NO. 3

-L- SR 2158 (DARRELL NEWTON DR)

USE TYPICAL SECTION NO. 3
 -L- STA. 13+30.00 TO STA. 14+60.00

25-AUG-2023 10:22
 C:\p06\17BP.7.C.18\17BP7E18.r.dwg_TYP.dgn
 HNTB

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

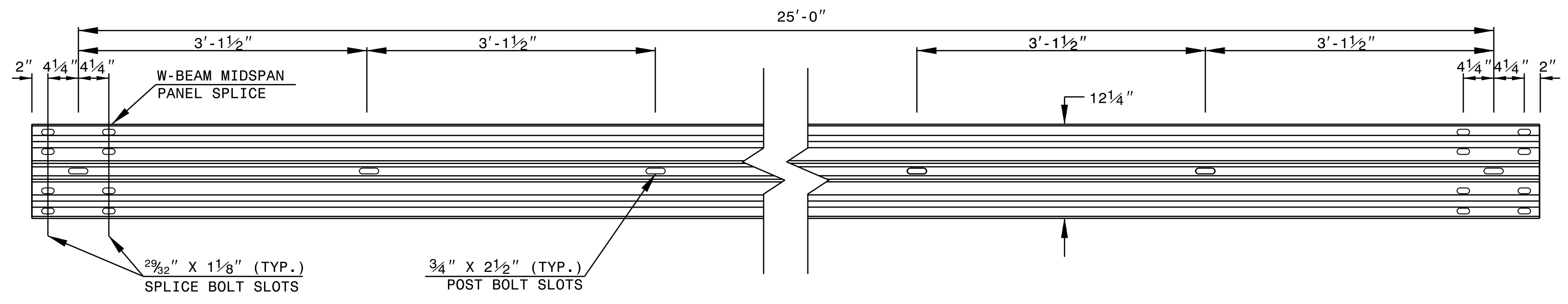
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

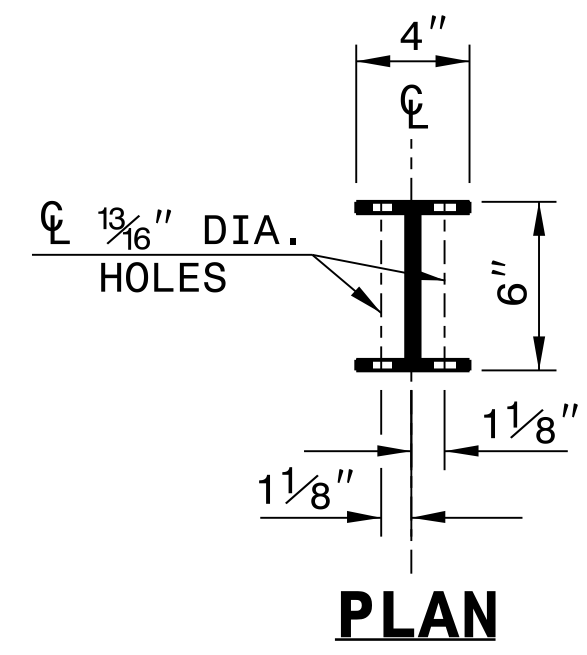
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

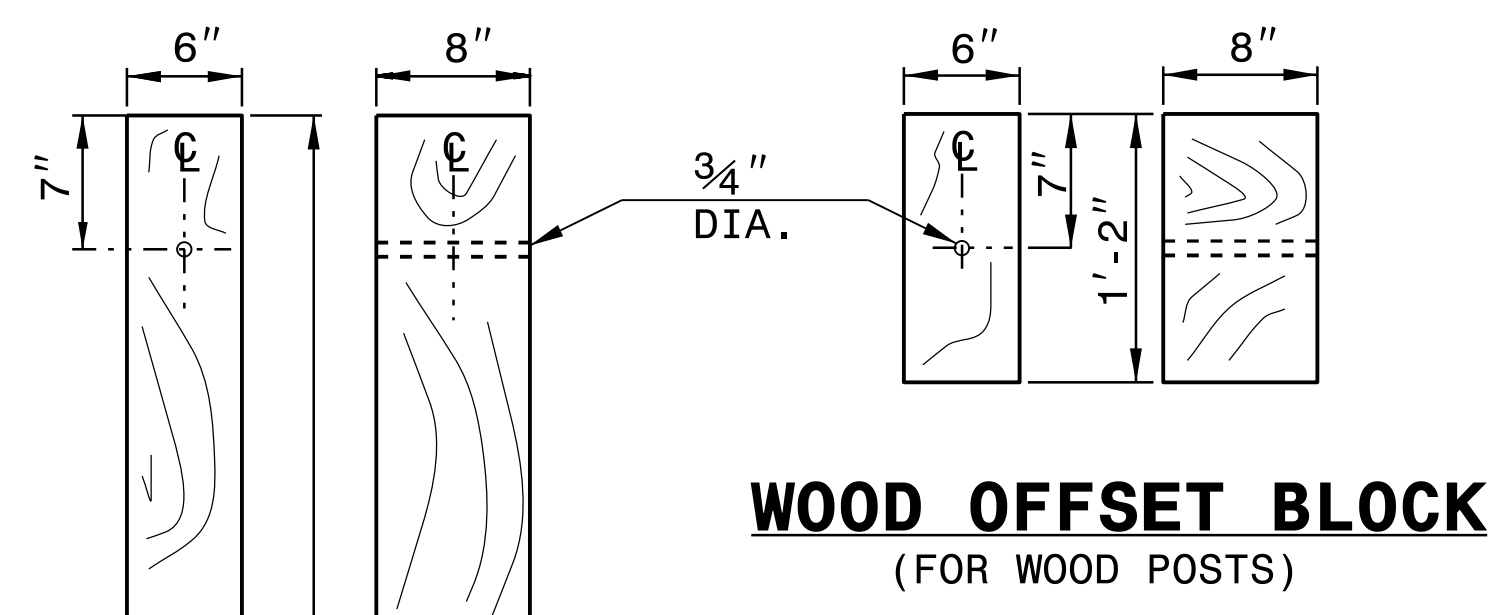
SHEET 6 OF 8
862D02



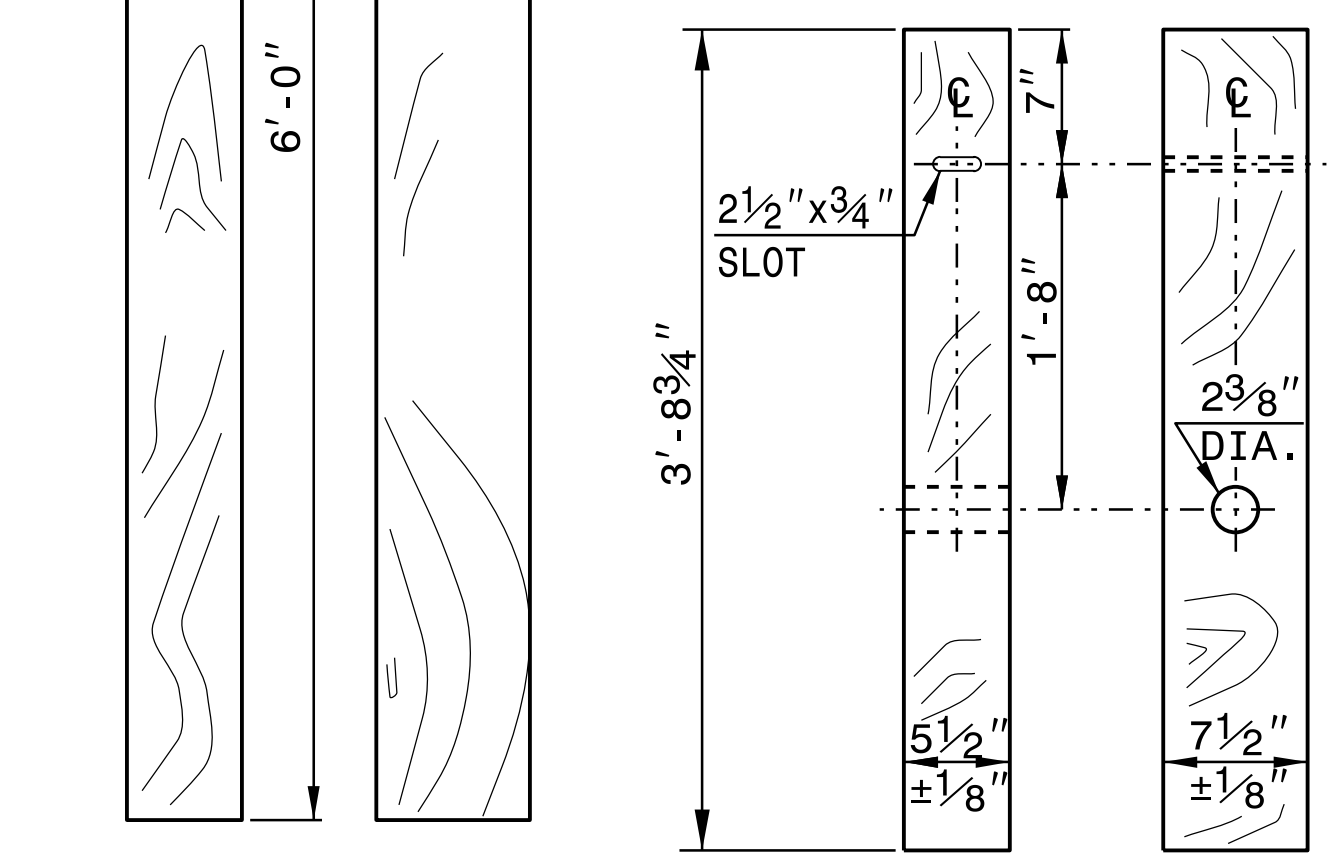
STANDARD W-BEAM GUARDRAIL



PLAN

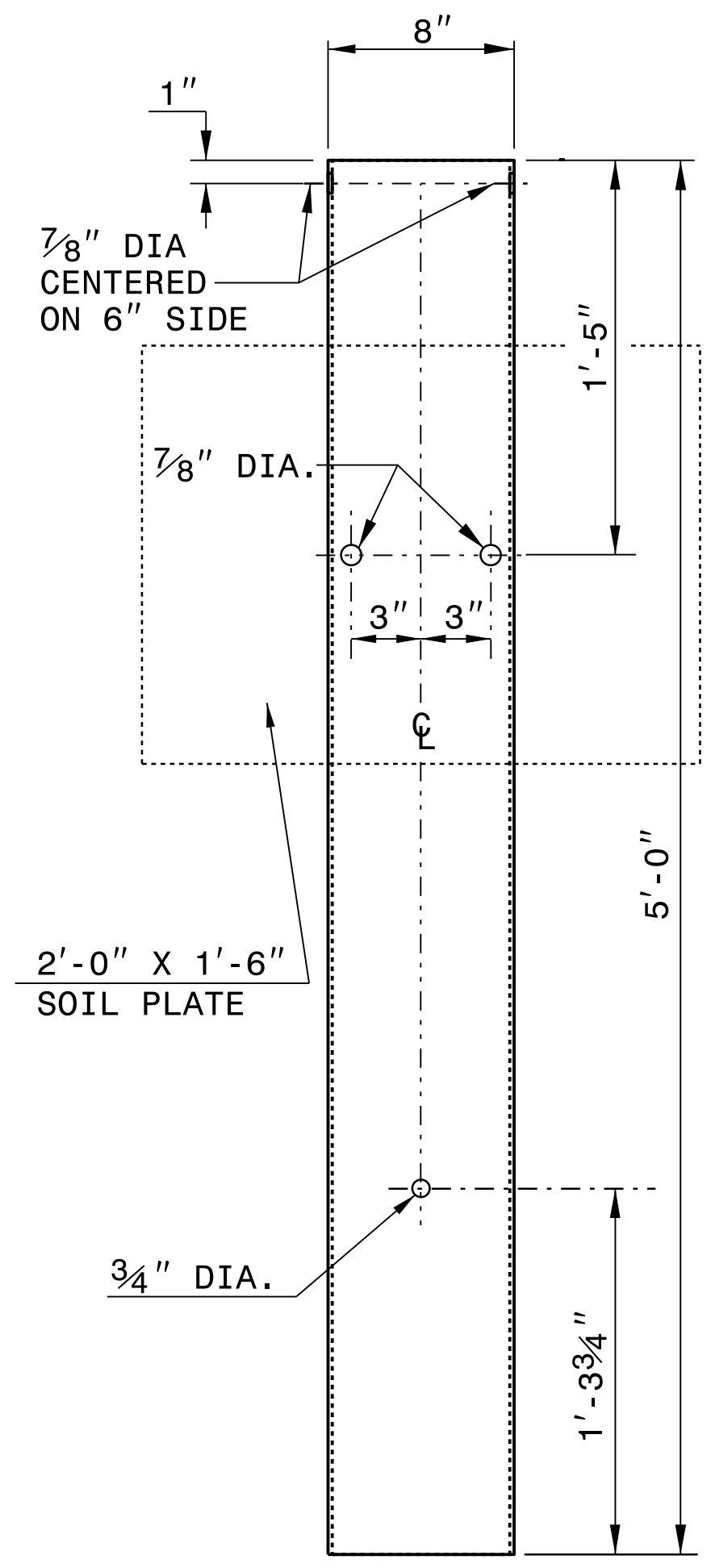


WOOD OFFSET BLOCK
(FOR WOOD POSTS)

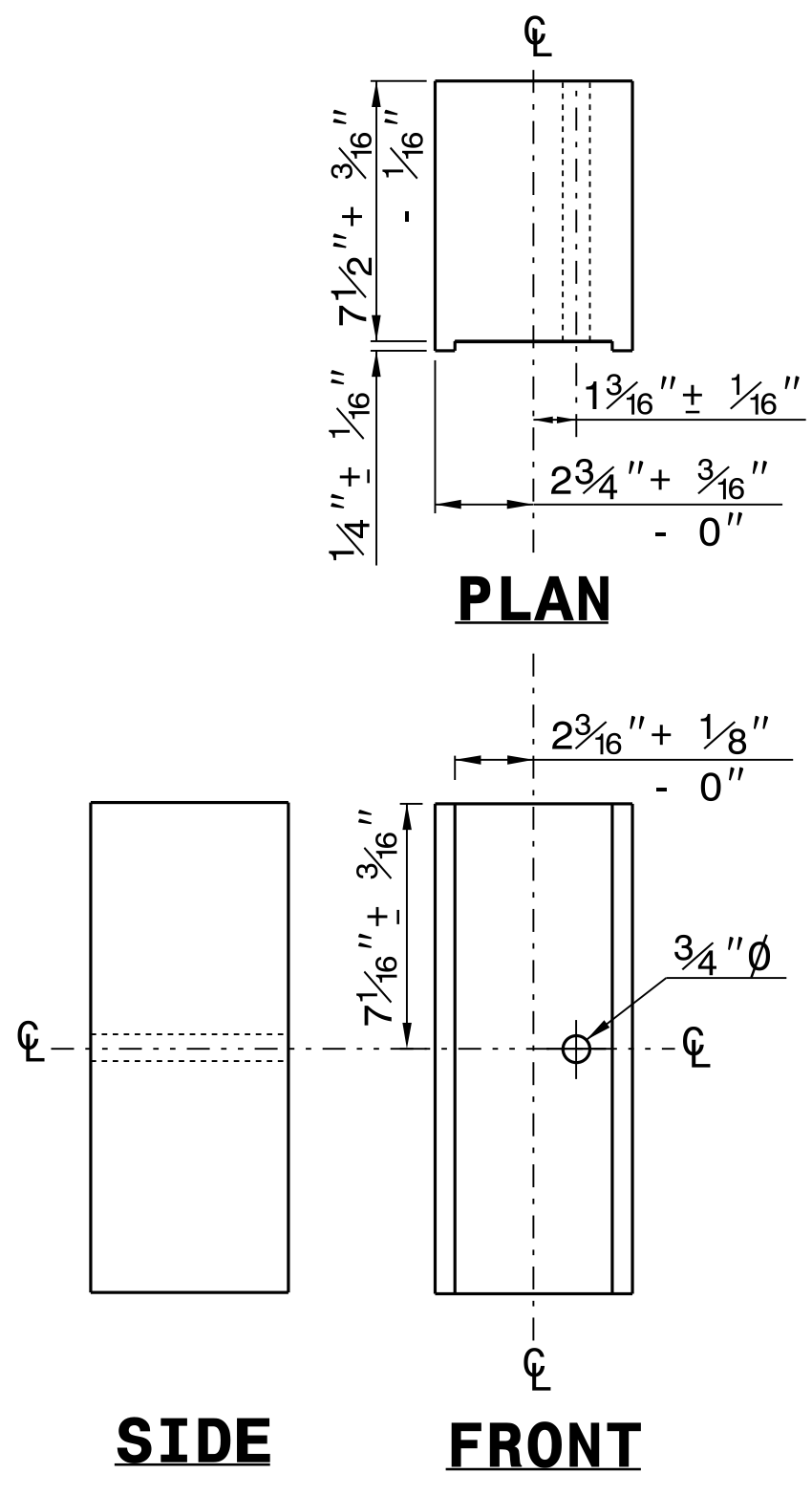


STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



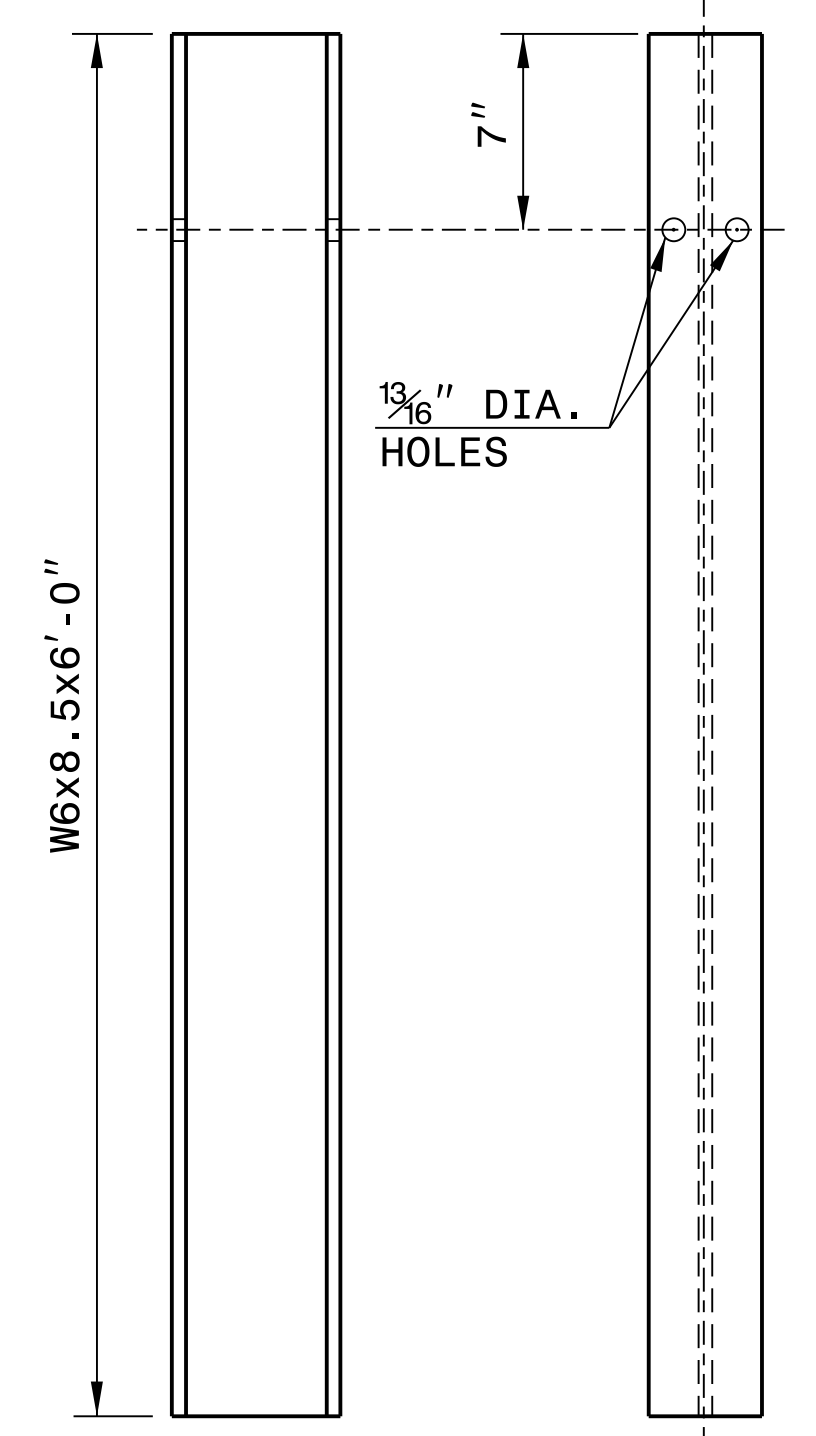
STEEL TUBE
TS 6"x8"x0.1875"



SIDE

FRONT

ROUTED OFFSET BLOCK

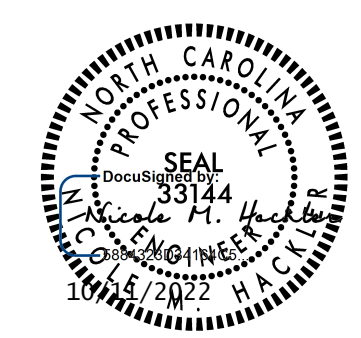


SIDE

FRONT

"W6" STEEL POST

SYSTEM PARTS

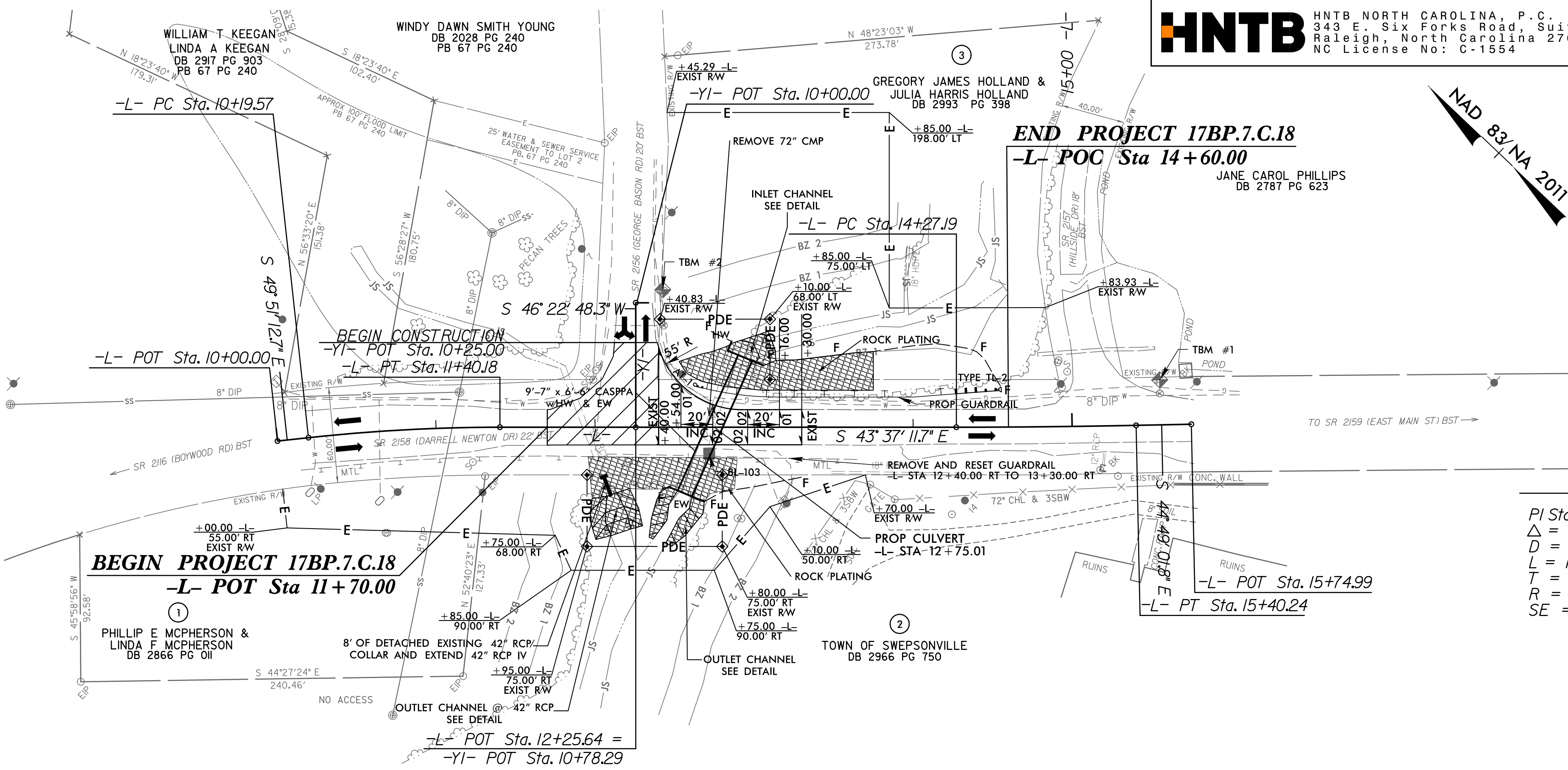
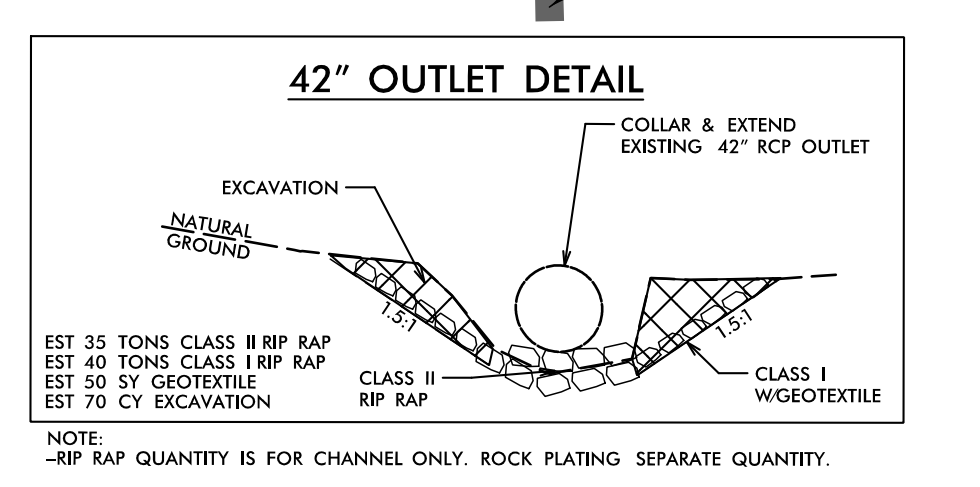
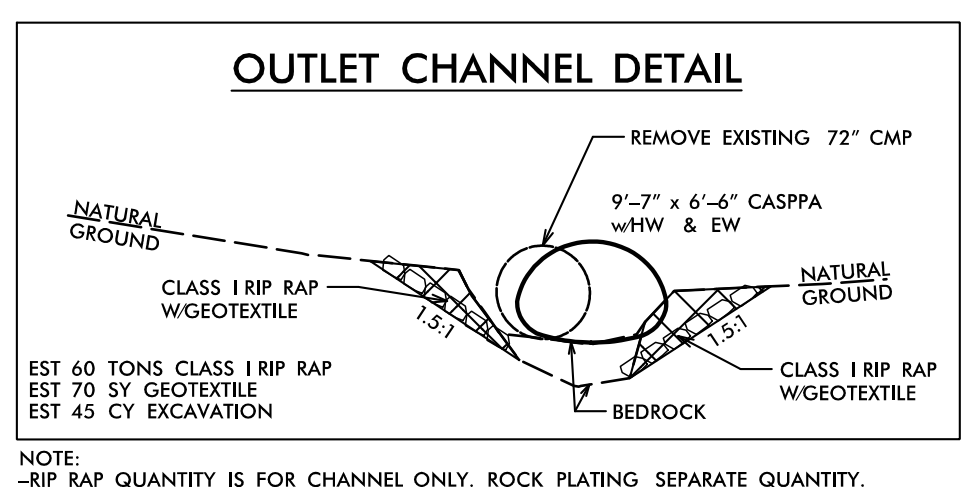
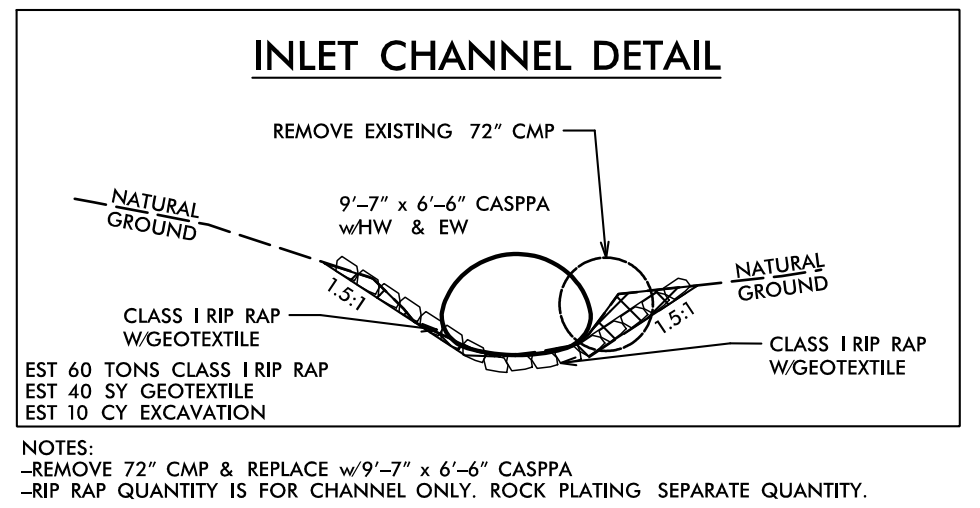


CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

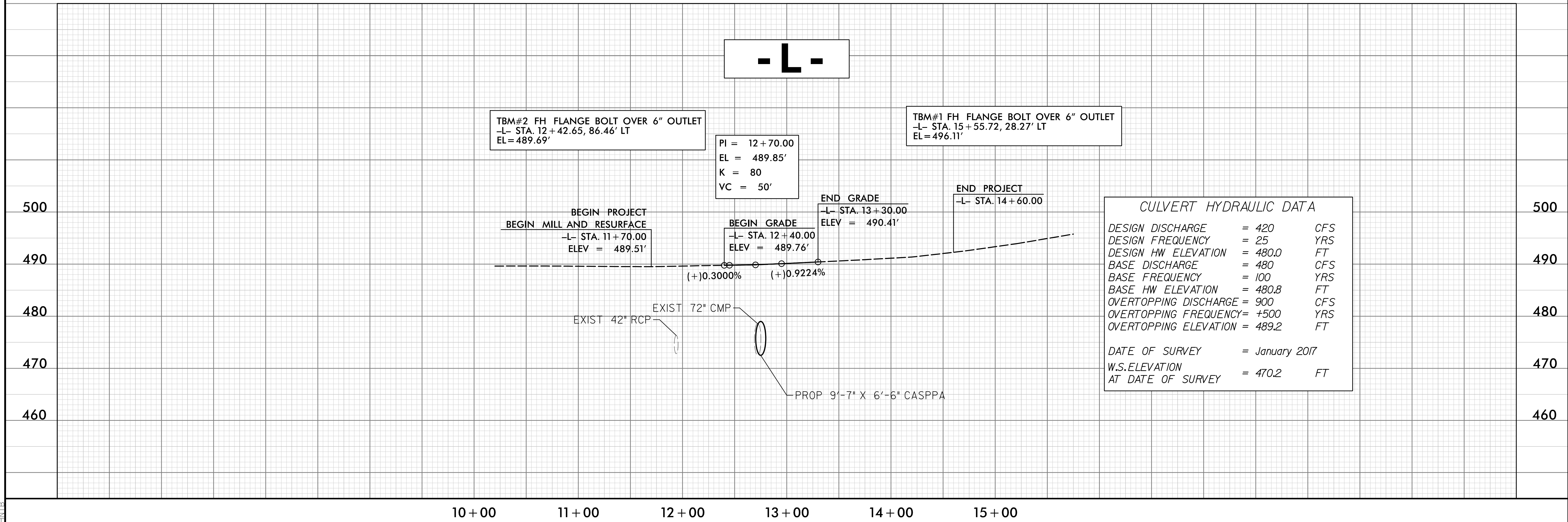
ORIGINAL BY: J. HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO. 17BP.7.C.18	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



PI Sta 10+79.93 Δ = 6' 14" 00.9" (RT) D = 5' 10" 07.0" L = 120.60' T = 60.36' R = 1,08.53' SE = EXIST	PI Sta 14+83.72 Δ = 1' 11" 50.1" (LT) D = 1' 03" 32.7" L = 113.05' T = 56.53' R = 5,410.00' SE = EXIST
---	--

MILL 1.5" AND RESURFACE WITH 1.5" S9.5C



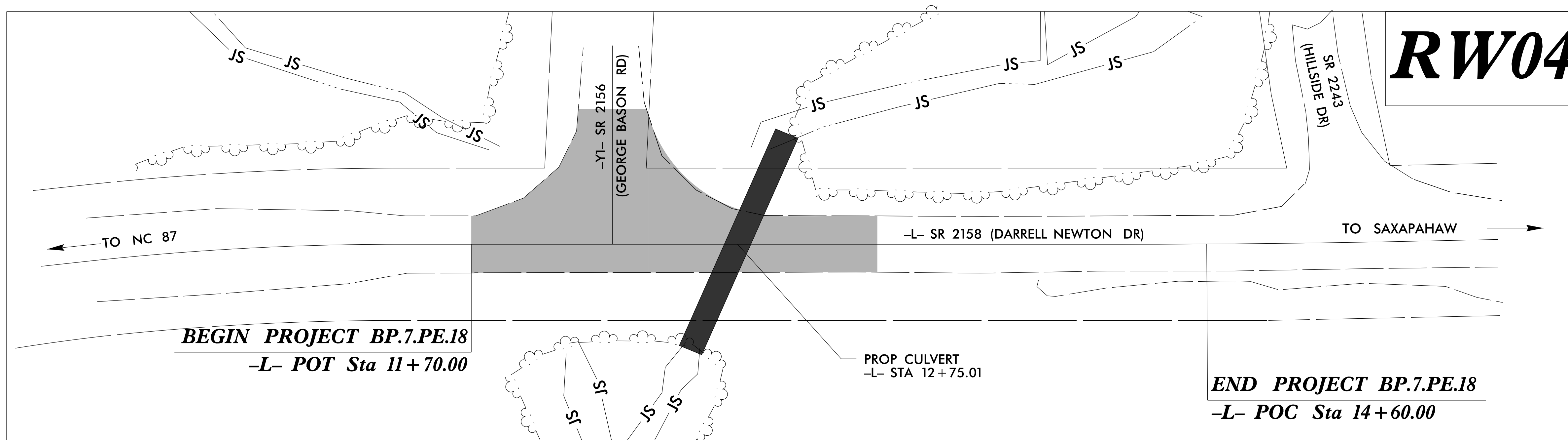
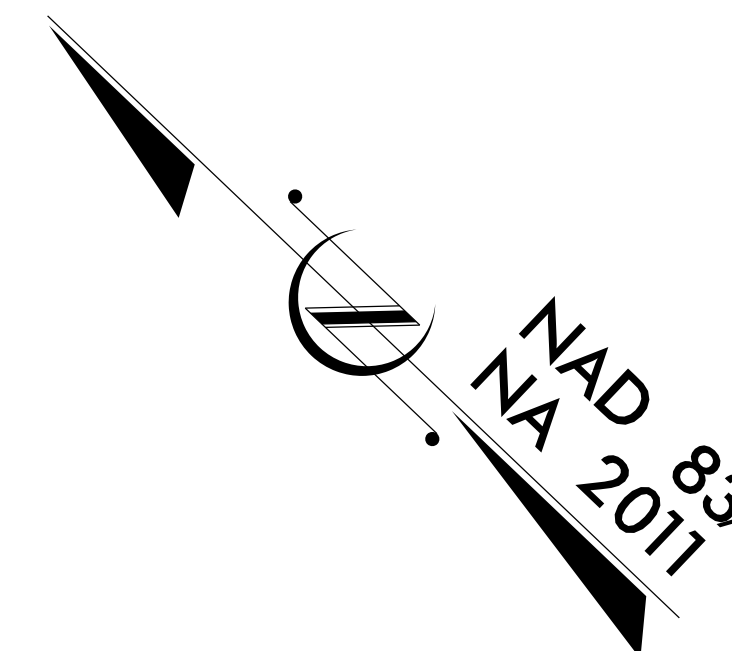
TIP PROJECT: BP.7.PE.18

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP.7.PE.18	RW01	7

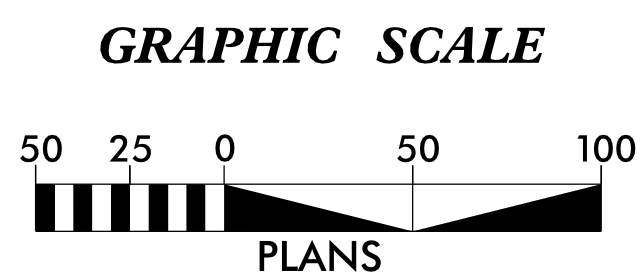
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES,
 RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

ALAMANCE COUNTY



18-AUG-2023 10:24
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 lmoore AT LS-328615L



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY CH ENGINEERING FOR MONUMENT "BL-101" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 828505.204(ft) EASTING: 1891703.121(ft) ELEVATION: 487.53'(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999945158

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-101" TO -L- STATION 11+75.00 IS S 48-35°35.0" E 471.69(ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

GEL Engineering of NC, Inc. DBA

GEL SOLUTIONS

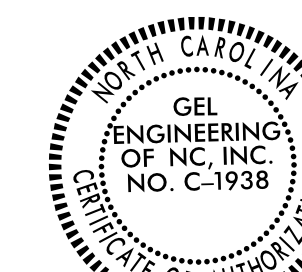
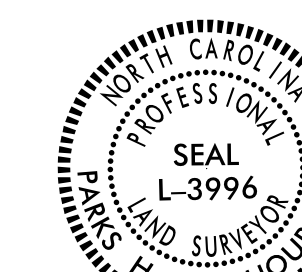
an Affiliate of THE GEL GROUP, INC.
 111 CREEK RIDGE ROAD
 SUITE C
 GREENSBORO, NC 27406
 (336) 516-9840
 WWW.GEL-SOLUTIONS.COM

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
06/02/2022

LETTING DATE:
10/19/2023

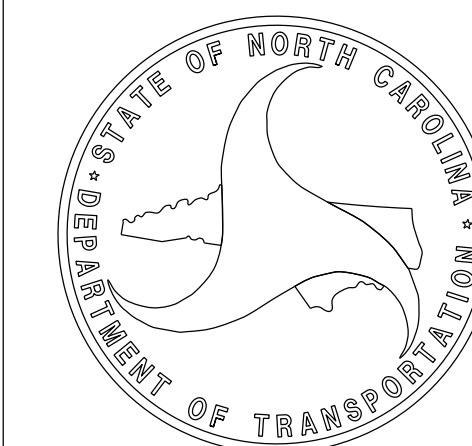
PROFESSIONAL LAND SURVEYOR



Digitally signed by
 Parks Icenhour
 Date: 2023.08.21
 07:48:08 -04'00'


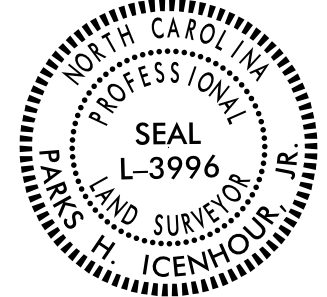
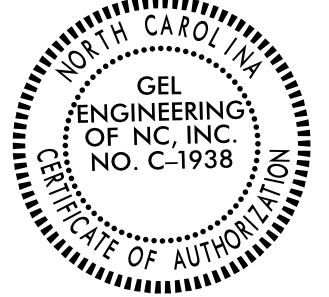
SIGNATURE:

Date:



SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

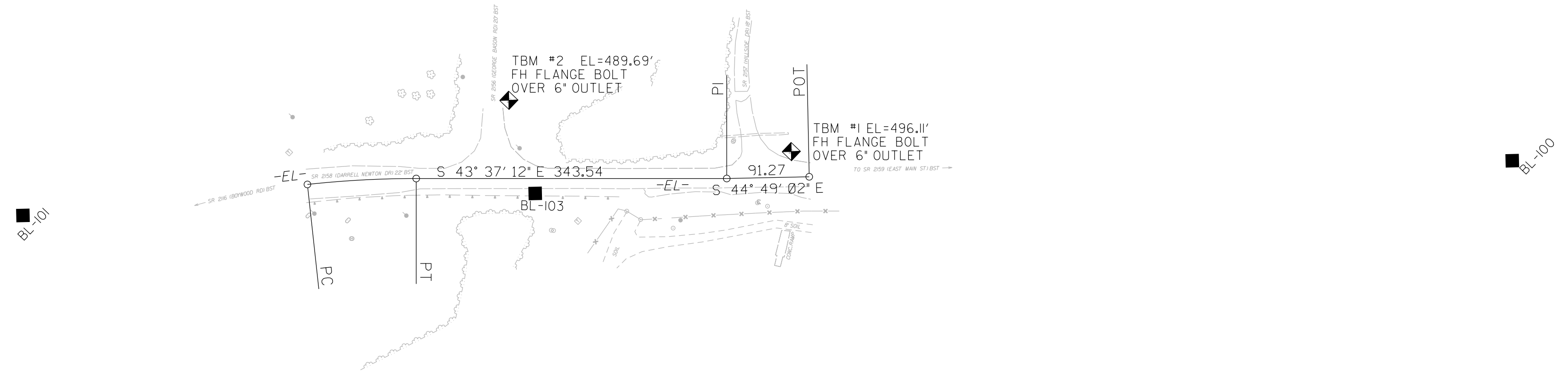
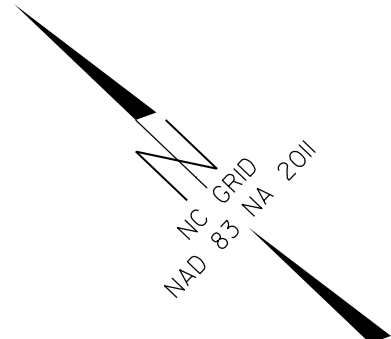
PROJECT REFERENCE NO.	SHEET NO.
BP7.FE18	RWO2C-1
Location and Surveys	
 GEL SOLUTIONS <small>an Affiliate of THE GEL GROUP, INC.</small> 111 CREEK RIDGE ROAD SUITE C GREENSBORO, NC 27406 (336) 516-9840 WWW.GEL-SOLUTIONS.COM	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Parks H Icenhour Jr, PLS, certify that the Project Control was performed by others from an actual GPS survey made by others and the following information was used to perform the survey:

Class of survey: **AA**
 Type of GPS field procedure:
 Dates of survey: Unknown
 Datum/Epoch: NAD83/NA2011
 Published/Fixed-control use: N/A
 Localized around: BL-101
 Northing: 828505.204
 Easting: 1891703.121
 Combined grid factor: 0.999945158
 Geoid model: 12BNC
 Units: FEET

This 22nd day of September, 2022.

Date: 2022.09.22
 15:19:43 -04'00'
 Professional Land Surveyor L-3996



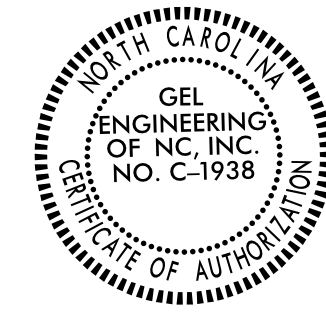


NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BP7.PE18	RW02C-2
Location and Surveys	
 GEL SOLUTIONS <small>an Affiliate of THE GEL GROUP, INC.</small> 111 CREEK RIDGE ROAD SUITE C GREENSBORO, NC 27406 (336) 516-9840 WWW.GEL-SOLUTIONS.COM	
PROJECT SURVEYOR	
 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

BL	POINT	DESC.	NORTH	EAST	ELEVATION
BL101		BL-101	828505.2040	1891703.1210	487.53
BL103		BL-103	828111.7266	1892111.6964	489.10
BL100		BL-100	827354.1694	1892883.5553	529.08

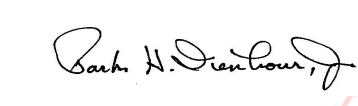
 TBM1 ELEVATION = 496.11
 N 827939 E 1892341
 FH FLANGE BOLT OVER 6" OUTLET

 TBM2 ELEVATION = 489.69
 N 828204 E 1892166
 FH FLANGE BOLT OVER 6" OUTLET

I, Parks H Icenhour Jr, PLS, certify that the Project Control was performed by others from an actual GPS survey made by others and the following information was used to perform the survey:

Class of survey: **AA**
 Type of GPS field procedure:
 Dates of survey: Unknown
 Datum/Epoch: NAD83/NA2011
 Published/Fixed-control use: N/A
 Localized around: BL-101
 Northing: 828505.204
 Easting: 1891703.121
 Combined grid factor: 0.999945158
 Geoid model: 12BNC
 Units: FEET

This 22nd day of September, 2022.

 **Date: 2022.09.22**
15:20:04 -04'00'
 Professional Land Surveyor L-3996


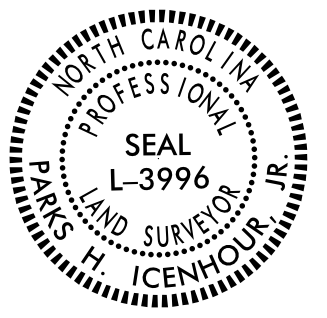
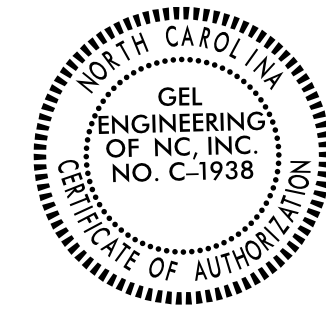
REVISIONS

NOTES:

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2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

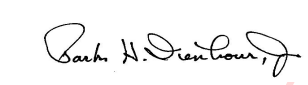
PROJECT REFERENCE NO. BP7.PE18	SHEET NO. RW02C-2
Location and Surveys	
 GEL SOLUTIONS <small>an Affiliate of THE GEL GROUP, INC. 111 CREEK RIDGE ROAD SUITE C GREENSBORO, NC 27406 (336) 516-9840 WWW.GEL-SOLUTIONS.COM</small>	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

EL	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC		828301.055	1891945.094							
CURVE				S 46°44'12.2" E	120.55	06°14'00.9"(RT)	05°10'07.0"	120.60	60.36	1108.53
PT		828218.439	1892032.877							
LINE				S 43°37'11.7" E	343.54					
POT		827969.738	1892269.877							
LINE				S 44°49'01.8" E	91.27					
POT		827904.992	1892334.210							

I, Parks H Icenhour Jr, PLS, certify that the Project Control was performed by others from an actual GPS survey made by others and the following information was used to perform the survey:

Class of survey: **AA**
 Type of GPS field procedure:
 Dates of survey: Unknown
 Datum/Epoch: NAD83/NA2011
 Published/Fixed-control use: N/A
 Localized around: BL-101
 Northing: 828505.204
 Easting: 1891703.121
 Combined grid factor: 0.999945158
 Geoid model: 12BNC
 Units: FEET

This 22nd day of September, 2022.



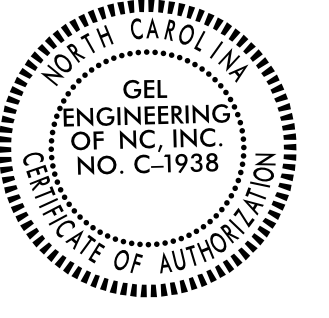
Date: **2022.09.22**

 15:18:22 -04'00'
 Professional Land Surveyor L-3996

REVISIONS

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP7.PE18	RW02D-1
Location and Surveys	
 GEL SOLUTIONS <small>an Affiliate of THE GEL GROUP, INC.</small> 111 CREEK RIDGE ROAD SUITE C GREENSBORO NC 27406 (336) 516-9840 WWW.GEL-SOLUTIONS.COM	
PROJECT SURVEYOR	
 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	828313.6739	1891930.1333
PC	10+19.57	828301.0547	1891945.0944
PT	11+40.18	828218.4389	1892032.8768
PC	14+27.19	828010.6581	1892230.8817
PT	15+40.24	827929.6412	1892309.7182
POT	15+74.99	827904.9924	1892334.2102

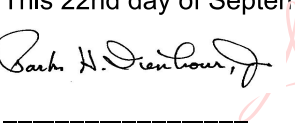
Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	828210.5833	1892148.5105
POT	10+78.29	828156.5722	1892091.8327

Y2

TYPE	STATION	NORTH	EAST
POT	10+00.00	828075.8895	1892412.0077
PC	10+15.88	828066.6514	1892399.0937
PT	11+14.92	827995.8347	1892330.6369
POT	11+77.64	827943.6086	1892295.8900

I, Parks H Icenhour Jr, PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.



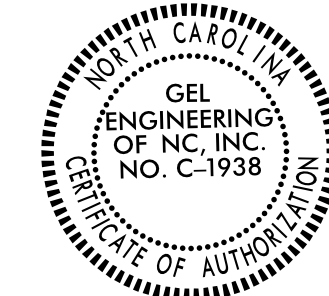
This 22nd day of September, 2022.
 Date: 2022.09.22
 15:20:26 -04'00'
 Professional Land Surveyor L-3996

REVISIONS

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.


RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
BP7.PE18	RW03E-1
Location and Surveys	
 GEL SOLUTIONS <i>an Affiliate of THE GEL GROUP, INC.</i> 111 CREEK RIDGE ROAD SUITE C GREENSBORO, NC 27406 (336) 516-9840 WWW.GEL-SOLUTIONS.COM	
PROJECT SURVEYOR	
 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+95.00	30.00	828158.0546	1892048.9797
L	11+95.00	75.00	828127.0104	1892016.4028
L	12+40.83	-68.00	828192.4848	1892151.5413
L	12+80.00	75.00	828065.4762	1892075.0418
L	12+80.00	30.00	828096.5204	1892107.6188
L	13+10.00	-30.00	828116.1947	1892171.7508
L	13+10.00	-68.00	828142.4099	1892199.2602

I, Parks H Icenhour Jr. certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 9/13/2022 to 9/21/2022, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 22nd day of September, 2022.
 **Date: 2022.09.22**
15:20:50 -04'00'
 Professional Land Surveyor L-3996



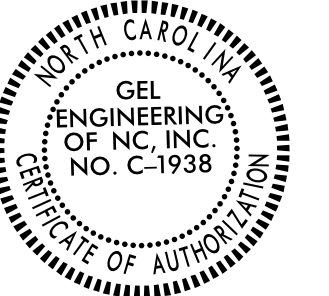
REVISIONS

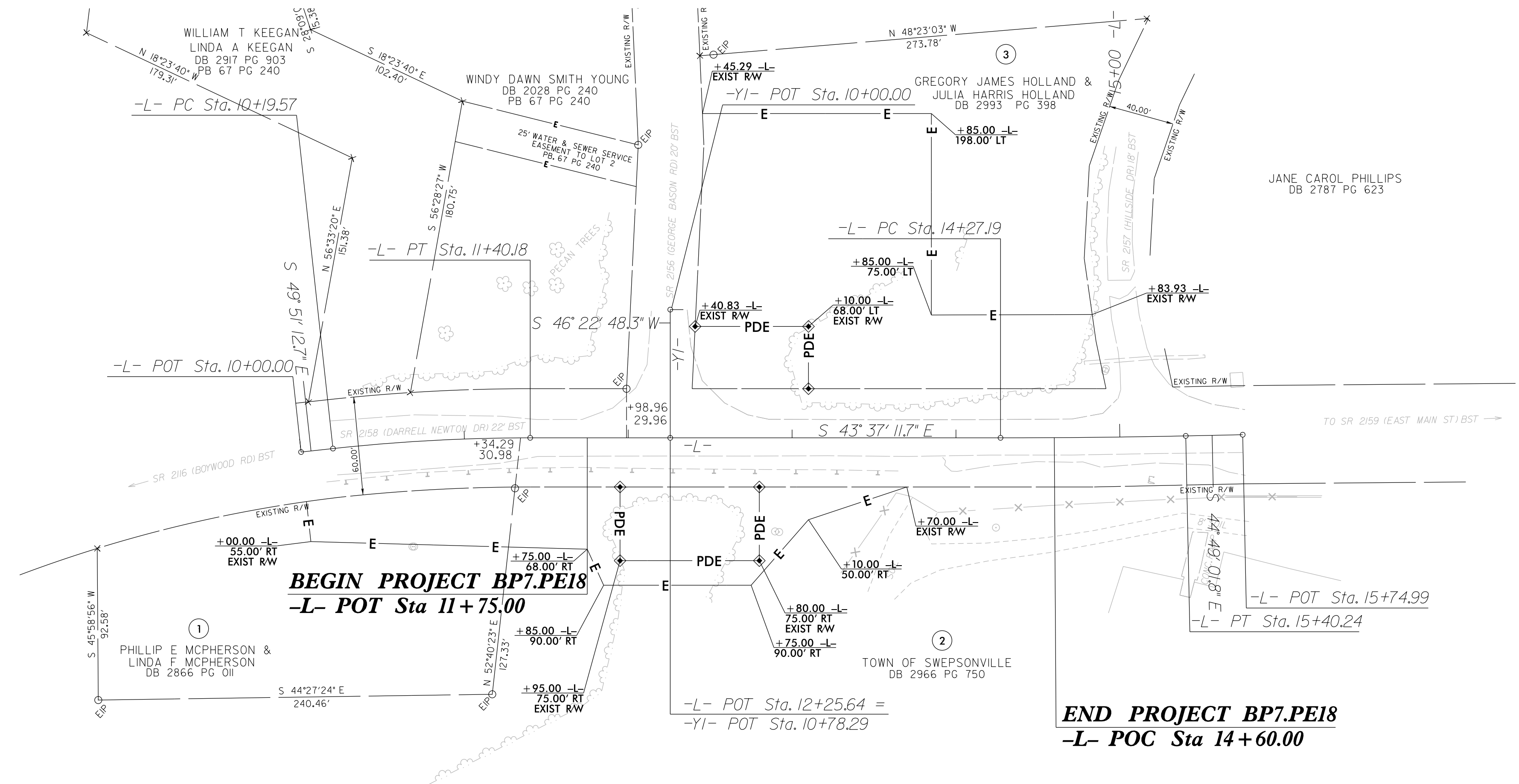
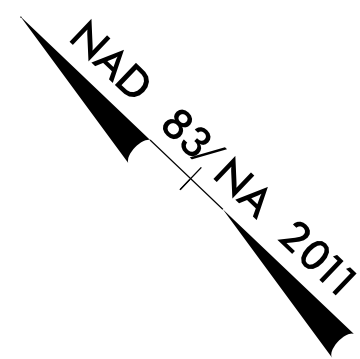
NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 9/13/2022 TO 9/21/2022 .

REVISIONS

REVISIONS

PROJECT REFERENCE NO. BP7.PE18	SHEET NO. RW04
Location and Surveys	
 GEL SOLUTIONS <small>an Affiliate of THE GEL GROUP, INC.</small> 111 CREEK RIDGE ROAD SUITE C GREENSBORO, NC 27406 (336) 516-9840 WWW.GEL-SOLUTIONS.COM	
PROJECT SURVEYOR	
 PARKS H. ICENHOUR SEAL L-3996 PROFESSIONAL LAND SURVEYOR NORTH CAROLINA	 GEL ENGINEERING OF NC, INC. NO. C-1938 NORTH CAROLINA CERTIFICATE OF AUTHORITY
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



I, Parks H Icenhour, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 9/13/2022 to 9/21/2022, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 22nd day of September, 2022,
Parks H. Icenhour Date: 2022.09.22
 15:18:53 -04'00'
 Professional Land Surveyor L-3996

-L- PI Sta 10+79.93 Δ = 6'14' 00.9" (RT) D = 5'10' 07.0" L = 120.60' T = 60.36' R = 1,108.53' SE = EXIST	-L- PI Sta 14+83.72 Δ = 1'11' 50.1" (LT) D = 1'03' 32.7" L = 113.05' T = 56.53' R = 5,410.00' SE = EXIST
--	--

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 9/13/2022 TO 9/21/2022 .

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN THE DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATIONS MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
SR 2158 (-L-)	MONDAY THRU FRIDAY 6:00 AM - 5:00 PM
	SATURDAY AND SUNDAY 7:00 AM - 6:00 PM

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

TRAFFIC PATTERN ALTERATIONS

- C) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- D) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- E) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.
- F) PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN ON THIS SHEET.
- G) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

- H) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

TRAFFIC BARRIER

- I) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW, BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW, BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

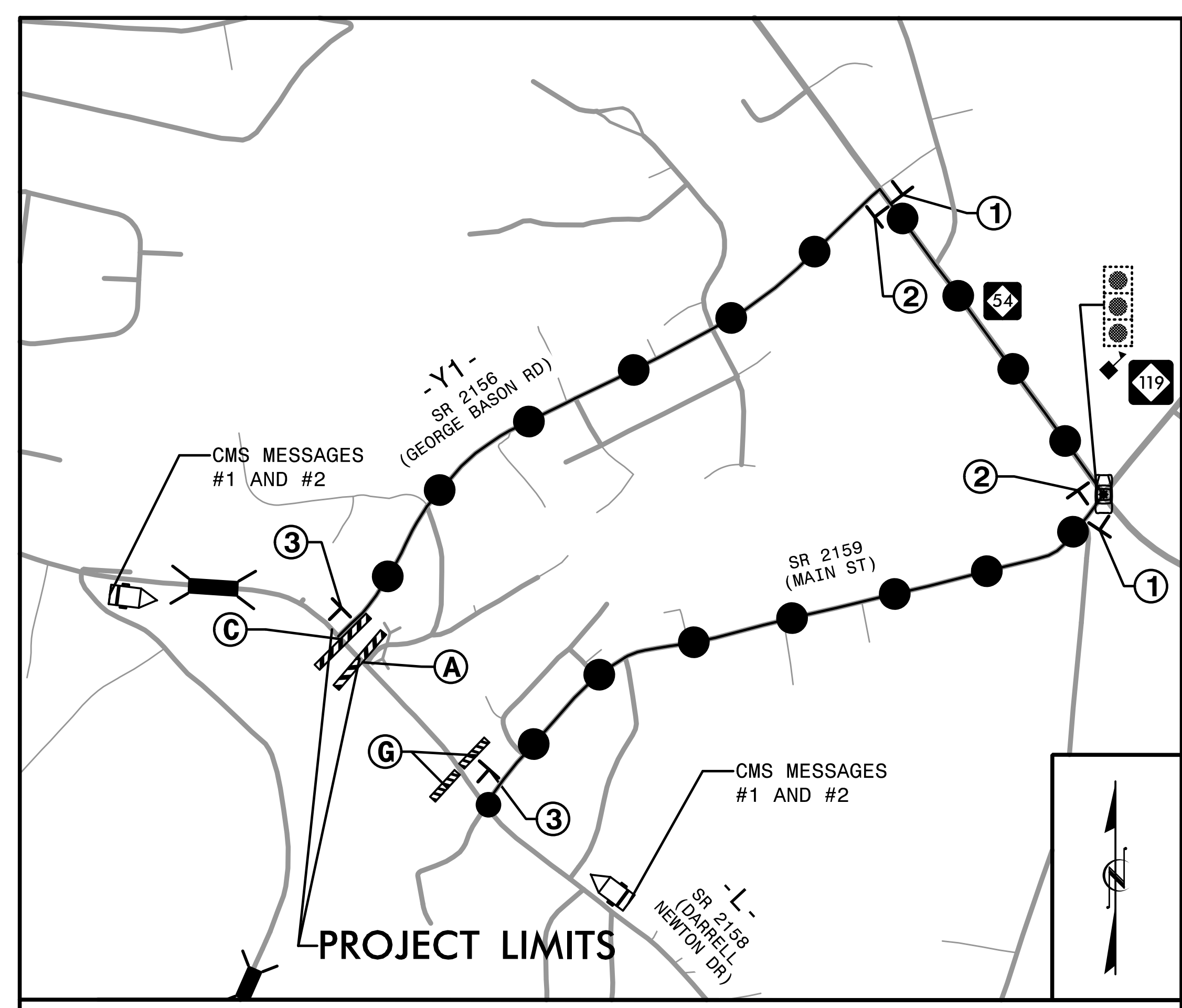
- J) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS:

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

PAVEMENT MARKING AND MARKERS

- K) INSTALL PAVEMENT MARKINGS ON THE INTERIM SURFACE AS FOLLOWS:
- | ROAD NAME | MARKING | MARKERS |
|-----------------------------|---------|---------|
| (SR 2158) DARRELL NEWTON DR | PAINT | RAISED |
- L) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:
- | ROAD NAME | MARKING | MARKERS |
|-----------------------------|---------|---------|
| (SR 2158) DARRELL NEWTON DR | THERMO | RAISED |
- M) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- N) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS.
- O) PASSING ZONE WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.



VICINITY MAP ● — ● — ● — ● **OFFSITE DETOUR**

SEE RSD 1101.03 (SHEETS 1 AND 2 OF 9) FOR ADDITIONAL TRAFFIC CONTROL DEVICES.

1 DETOUR M4-8 24" X 12"

2 DETOUR M4-8 24" X 12"

DARRELL NEWTON DRIVE SP-1 36" X 36"

M6-1 L 21" X 15"

M6-1 21" X 15"

3 END DETOUR M4-8 A 24" X 18"

CMS MESSAGE #1 (TO BE DISPLAYED 2 WEEKS IN ADVANCE OF CLOSURE)

MESSAGE NO. 1	MESSAGE NO. 2
DARRELL NEWTON DR TO CLOSED	XX/XX/XX TO XX/XX/XX

CHANGEABLE MESSAGE SIGN

CMS MESSAGE #2 (TO BE DISPLAYED DURING CLOSURE)

MESSAGE NO. 1	MESSAGE NO. 2
DARRELL NEWTON DR CLOSED	FOLLOW DETOUR ROUTE

CHANGEABLE MESSAGE SIGN

A R11-2 48" x 30" ROAD CLOSED TYPE III BARRICADE

C R11-2 48" x 30" ROAD CLOSED M4-10L 48" x 18" TYPE III BARRICADE

G R11-4 60" x 30" ROAD CLOSED TO THRU TRAFFIC M4-10R 48" x 18" TYPE III BARRICADE

5:58:41 PM
\\17BP.7.PE\18_tc_TMP-02_DETOUTR.dgn
8/10/2023

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

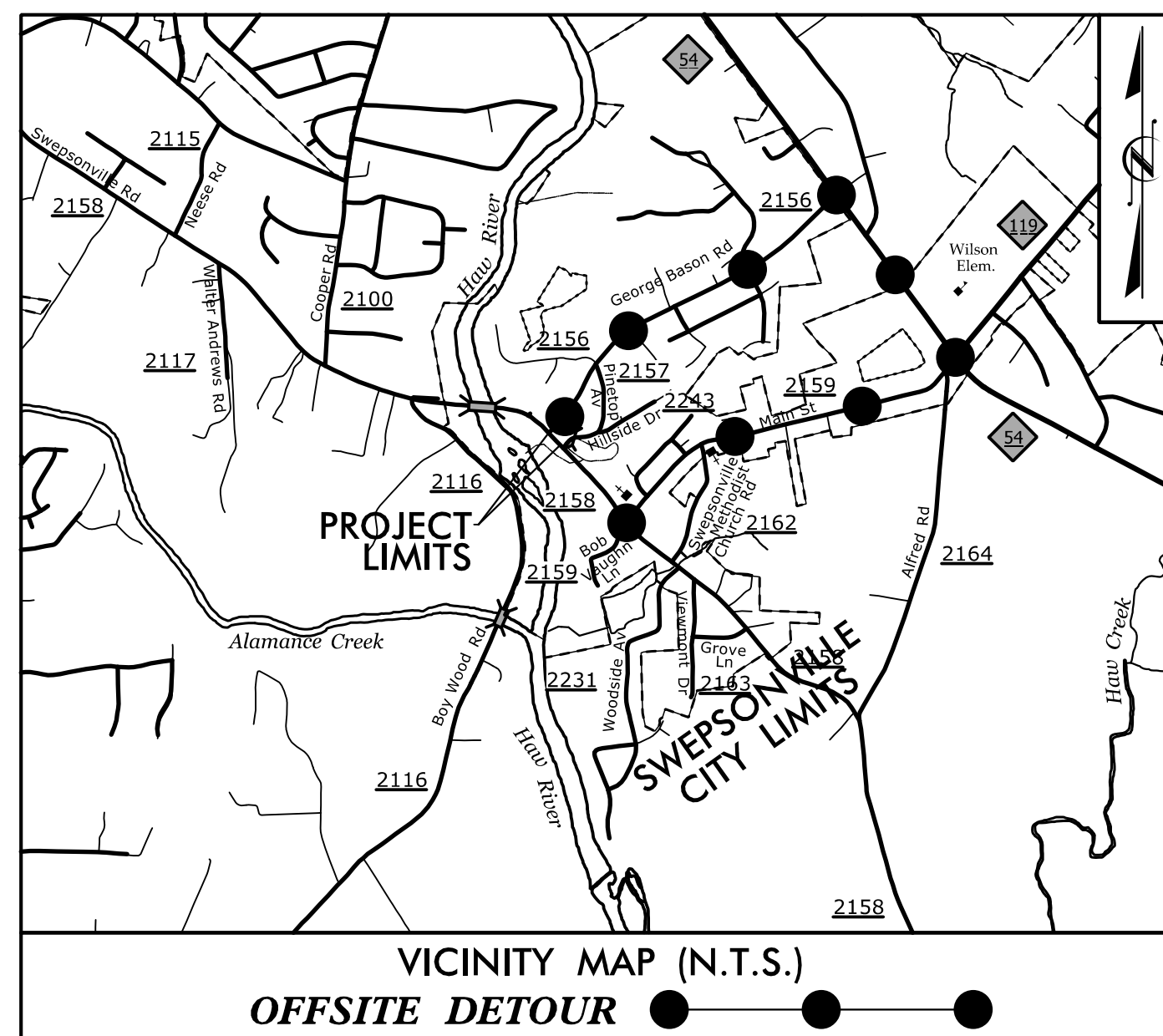
APPROVED: *Helen Shyu*
8/23/2023

SEAL 042517
HELEN SHYU

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
WORK ZONE TRAFFIC CONTROL

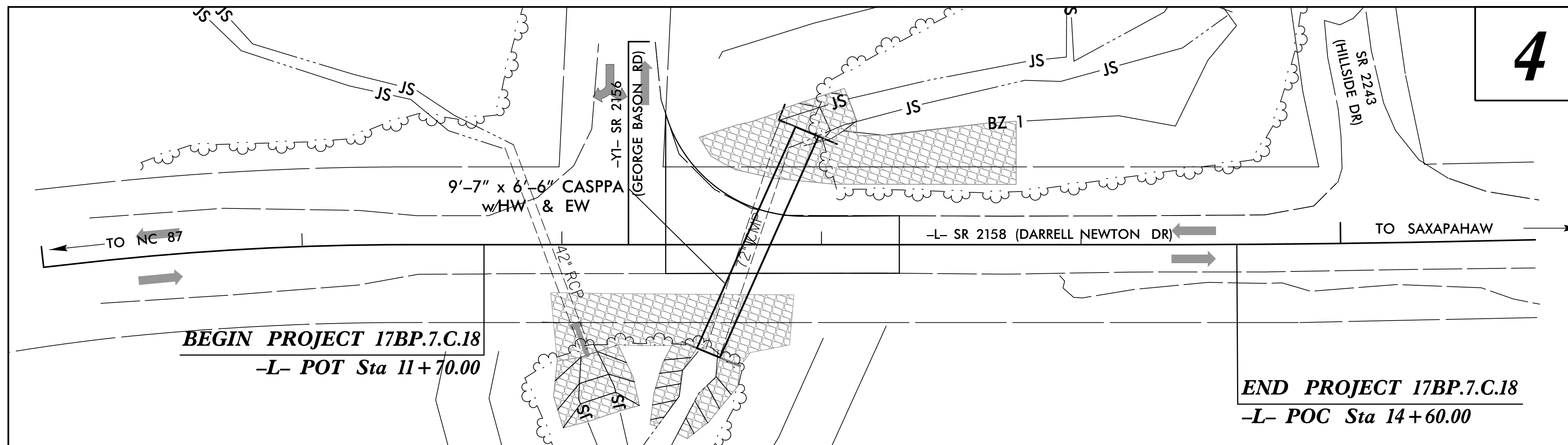
TRANSPORTATION MANAGEMENT PLAN
GENERAL NOTES AND DETOUR

WBS PROJECT: 17BP.7.C.18



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
ALAMANCE COUNTY

LOCATION: CULVERT IMPROVEMENTS ON SR 2158 (DARRELL NEWTON DR)
TYPE OF WORK: GRADING, DRAINAGE, AND CULVERT



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.C.18	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

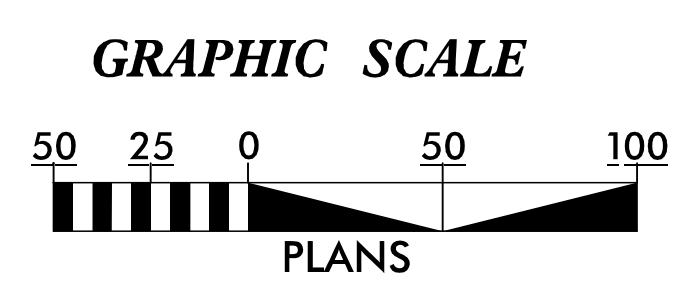
EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	△△△
1622.01	Temporary Berms and Slope Drains	→
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	▩
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▩
1633.02	Temporary Rock Silt Check Type-B	▩
	Wattle/Coir Fiber Wattle	→
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	→
1634.01	Temporary Rock Sediment Dam Type-A	▩
1634.02	Temporary Rock Sediment Dam Type-B	▩
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⊓
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⊓
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	▭
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT
Refer To E. C. Special Provisions for Special Considerations.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

Prepared In the Office of:
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

Designed by:
NATALIE CHAN, P.E. **3444**
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

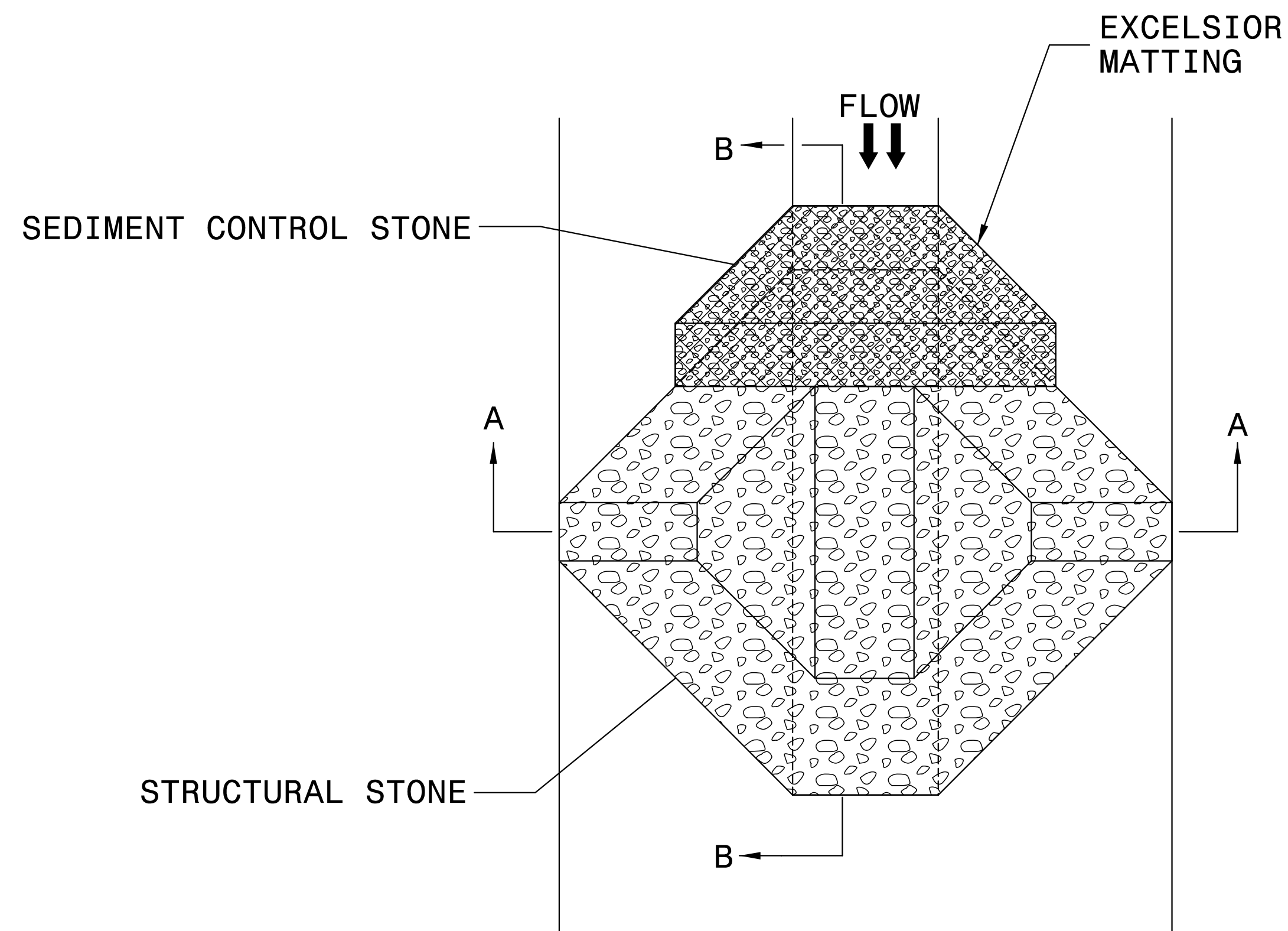
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1633.01 Temporary Rock Silt Check Type A
1630.02 Silt Basin Type B	1634.01 Temporary Rock Sediment Dam Type A
1630.03 Temporary Silt Ditch	1634.02 Temporary Rock Sediment Dam Type B
1630.04 Stilling Basin	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.05 Temporary Diversion	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.06 Special Stilling Basin	1640.01 Coir Fiber Baffle
1631.01 Matting Installation	1645.01 Temporary Stream Crossing

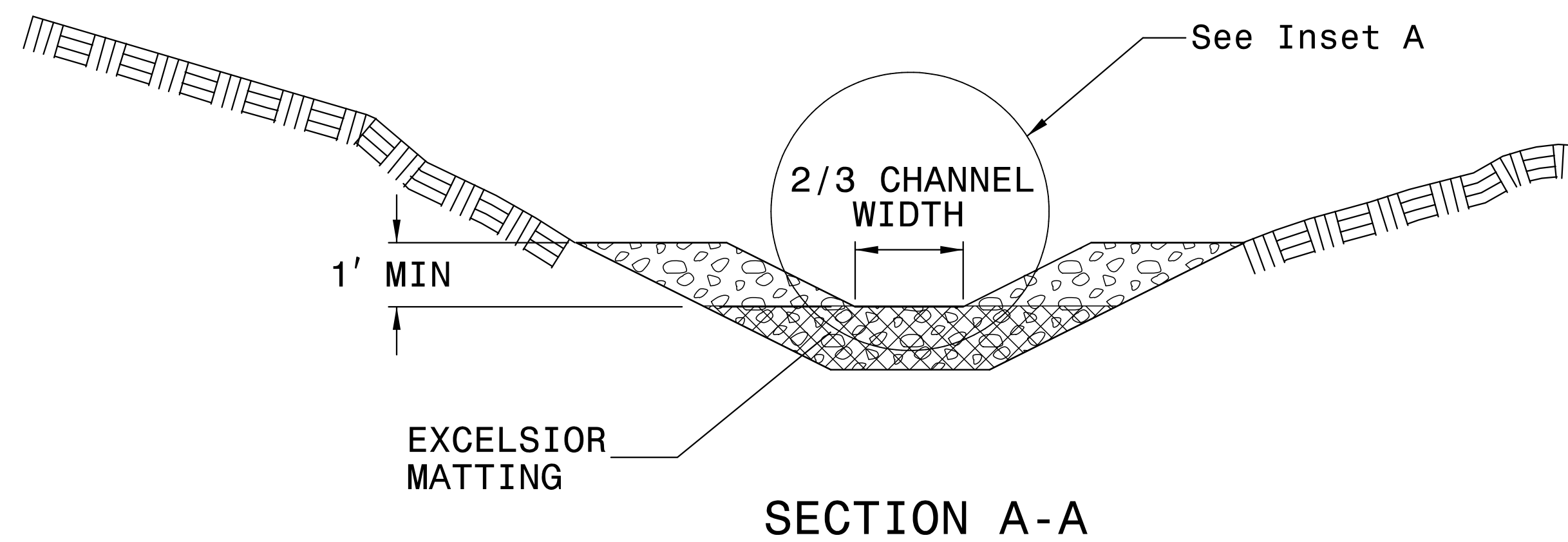
8/16/2023 17BP.7.C.18.EC.TSH.dgn

PROJECT REFERENCE NO. 17BP.7.C.18	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



SECTION A-A

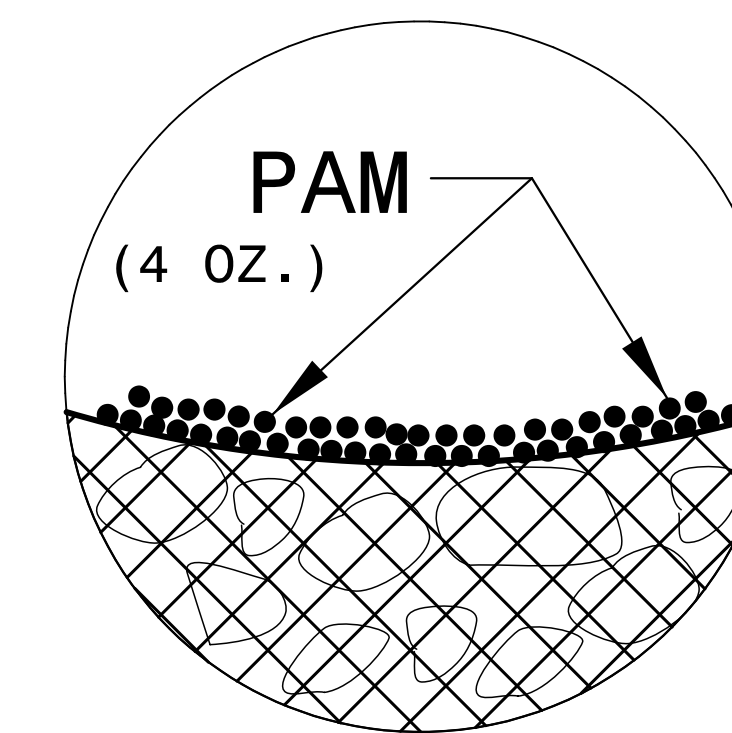
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

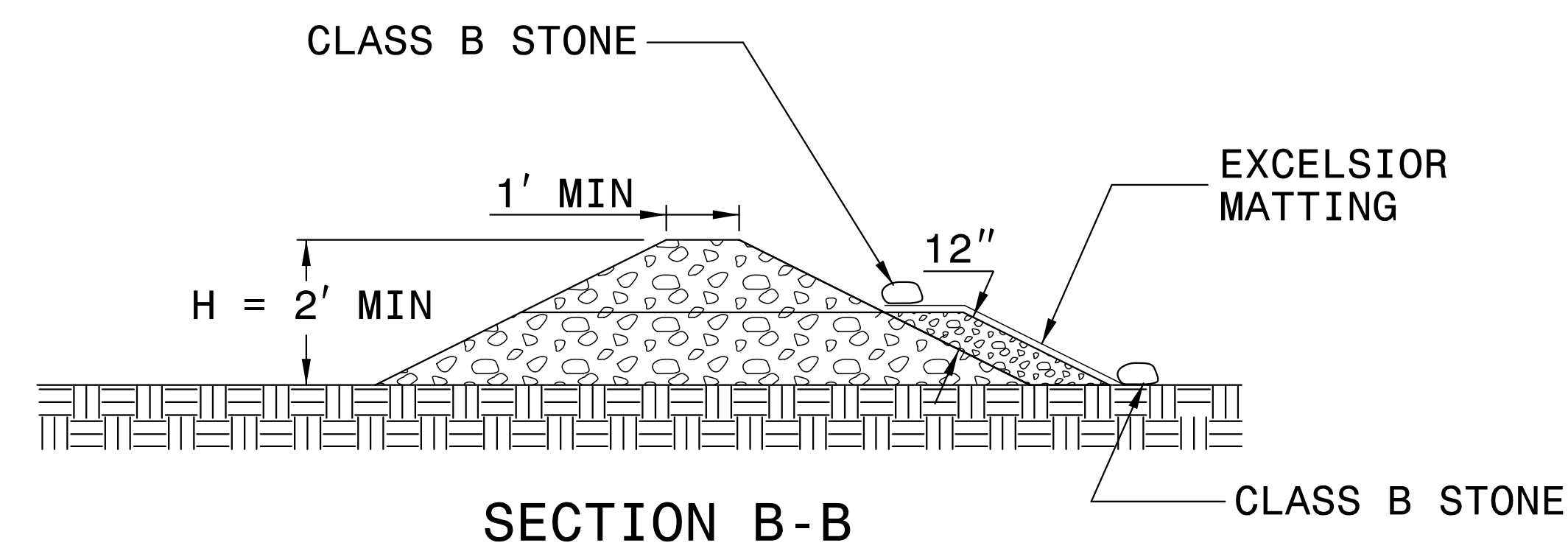
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

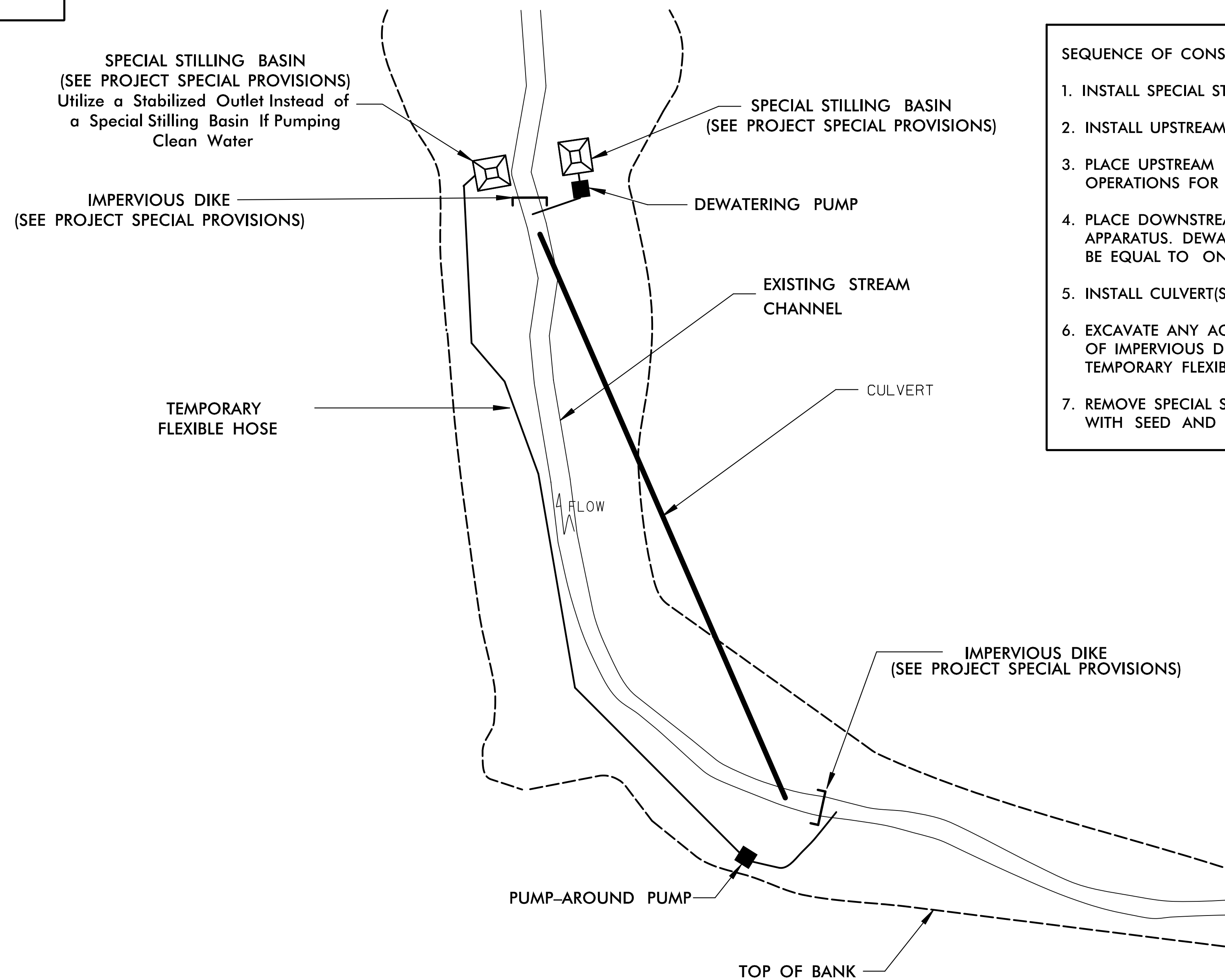
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.18	EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EXAMPLE OF PUMP-AROUND OPERATION

NOTES:

- 1) All excavation shall be performed in only dry or isolated areas of the work zone.
- 2) Impervious dikes are to be used to isolate work from stream flow when necessary.
- 3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
- 4) Pumps and hoses shall be of sufficient size to dewater the work area.



SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

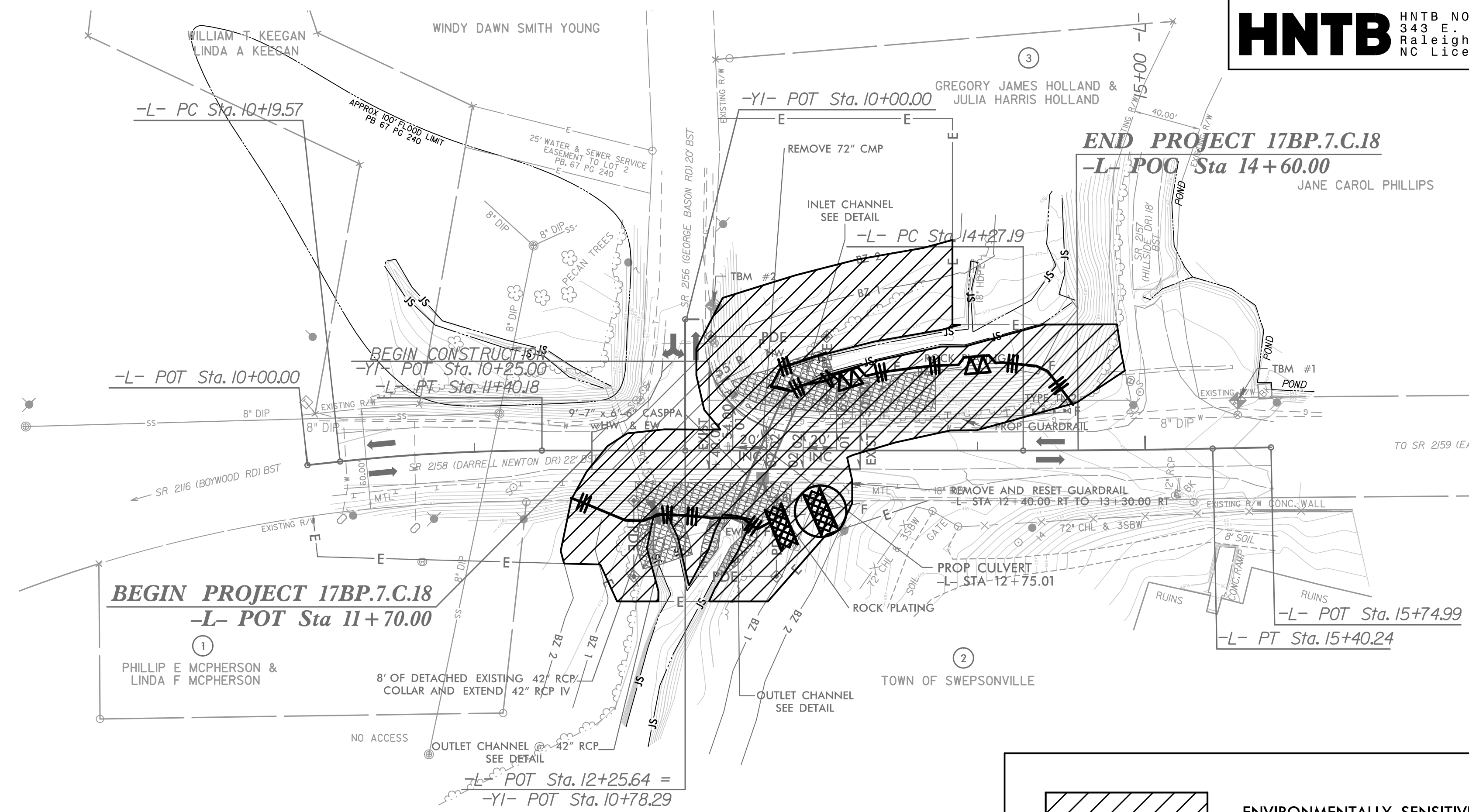
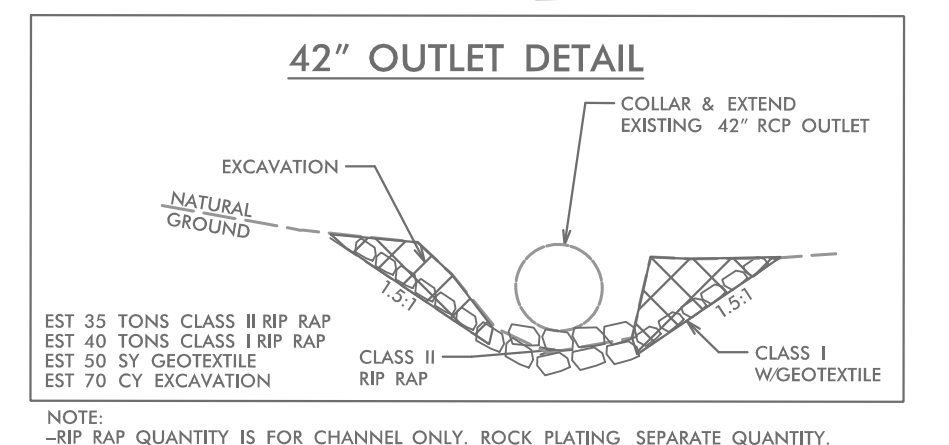
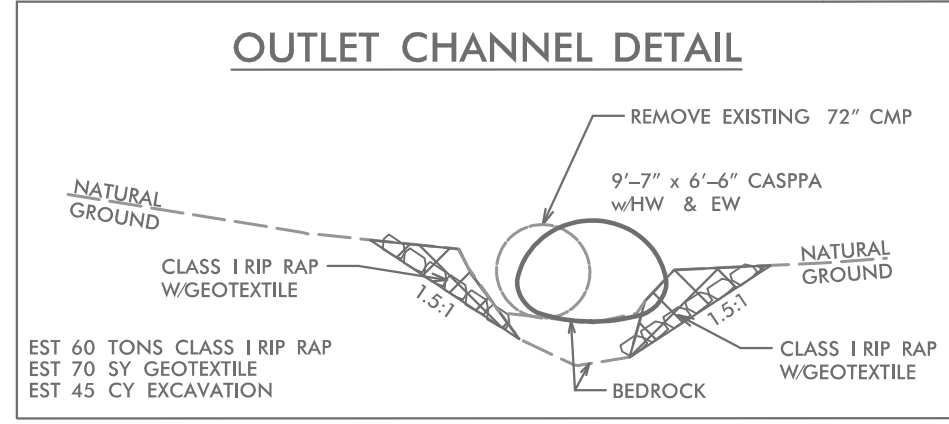
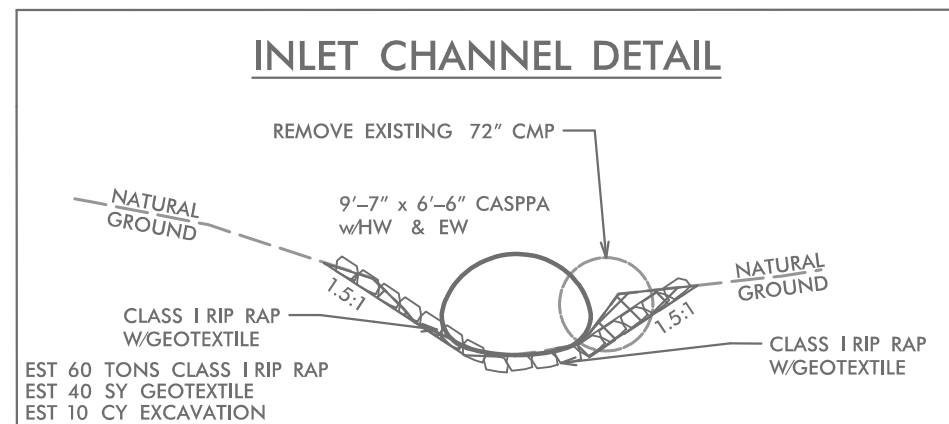
PROJECT REFERENCE NO.	SHEET NO.
17BP.7.CJ8	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

8/17/09

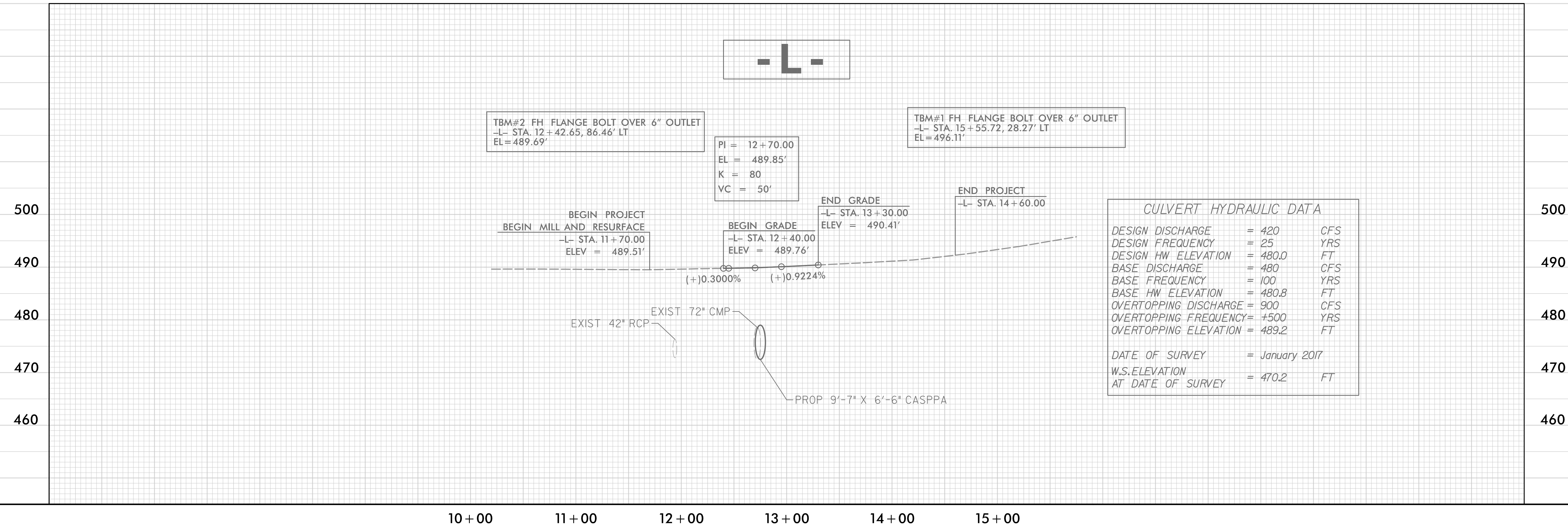
PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.18	EC-4/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PI Sta 10+79.93 Δ = 6' 14" 00.9" (RT) D = 5' 10" 07.0" L = 120.60' T = 60.36' R = 1,08.53' SE = EXIST	PI Sta 14+83.72 Δ = 1' 11" 50.1" (LT) D = 1' 03" 32.7" L = 113.05' T = 56.53' R = 5,410.00' SE = EXIST
---	--

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.



8/23/2023
C:\design\17BP7PE18_EC_PSH_4.dgn
HNTB

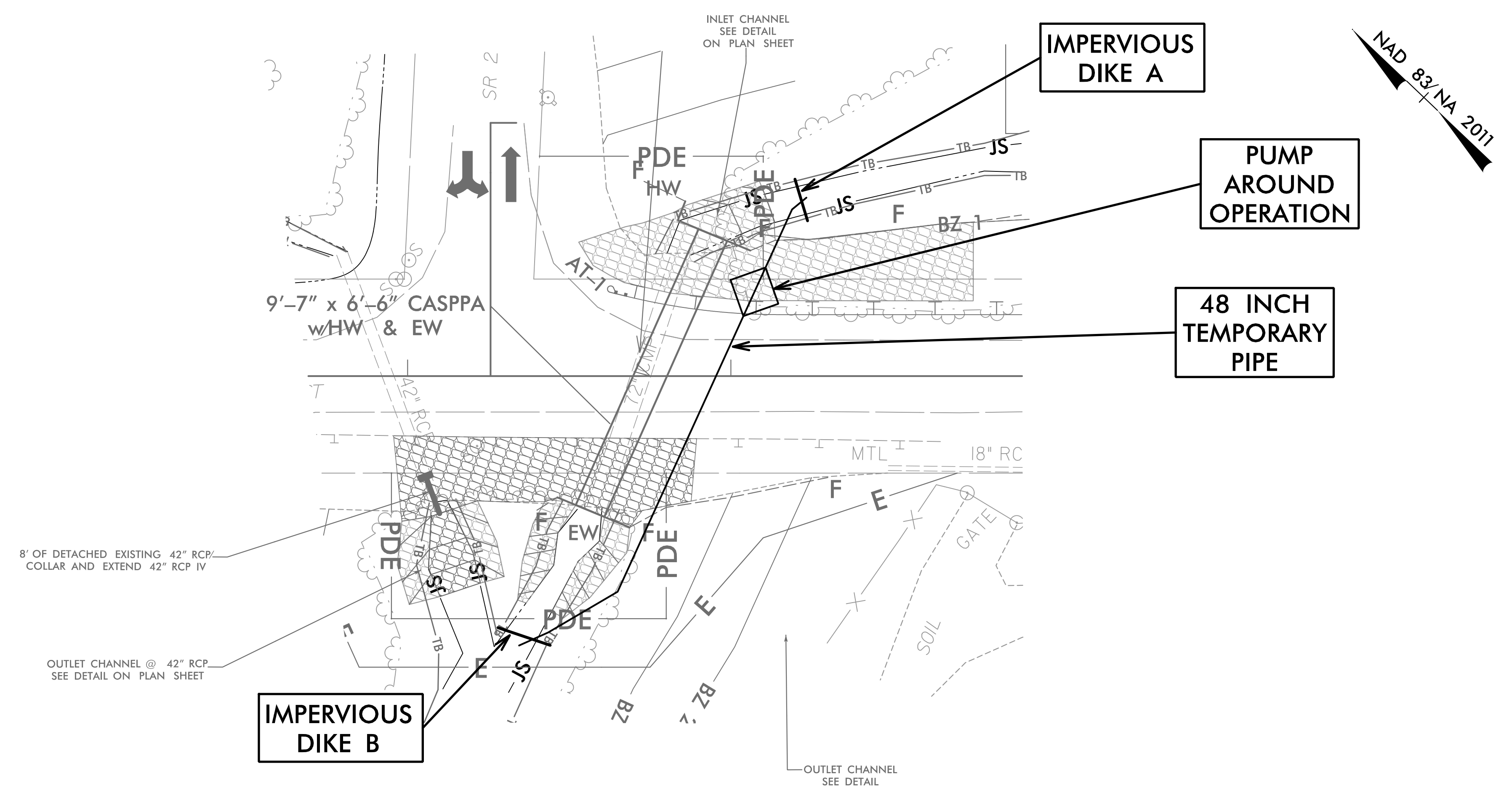
PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.18	EC-4A/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 12+75 -L-

PHASE I

1. UTILITZIE SPECIAL STILLING BASIN(S) AS NEEDED DURING CULVERT CONSTRUCTION.
2. CLOSE SR 2116 FOR TRAFFIC AND SET UP DETOUR ACCORDING TO TRAFFIC CONTROL PLAN.
3. INSTALL IMPERIVOUS DIKES A AND B.
4. INSTALL PUMP AROUND OPERATION WITH 48" TEMPORARY PIPE.
5. DEWATER WORK AREA WITH SPECIAL STILLING BASIN(S) AS NEEDED.
6. REMOVE EXISTING 72" CMP.
7. INSTALL 9'-7" X 6'-6" CASPPA WITH HW AND EW.
8. INSTALL ROCK PLATING, INLET AND OUTLET CHANNELS.
9. REMOVE IMPERIVOUS DIKES A AND B.
10. REMOVE PUMP AROUND OPERATION, TEMPORARY PIPE AND ANY REMAINING SPECIAL STILLING BASIN(S).
11. COMPLETE ROADWAY.

NOTE:
 INSTALL /EXTEND 42" RCP WITH COLLAR IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL. SEE EC-2A FOR PUMP AROUND OPERATION DETAIL.



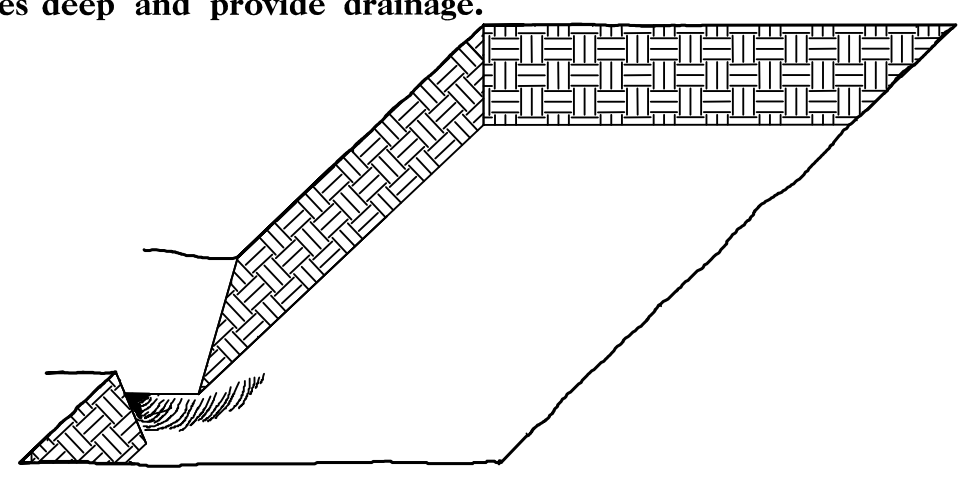
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.C.18	RF-1	
STATE PROJ.NO.	F.A.PROJ.NO.	DESCRIPTION	

PLANTING DETAILS

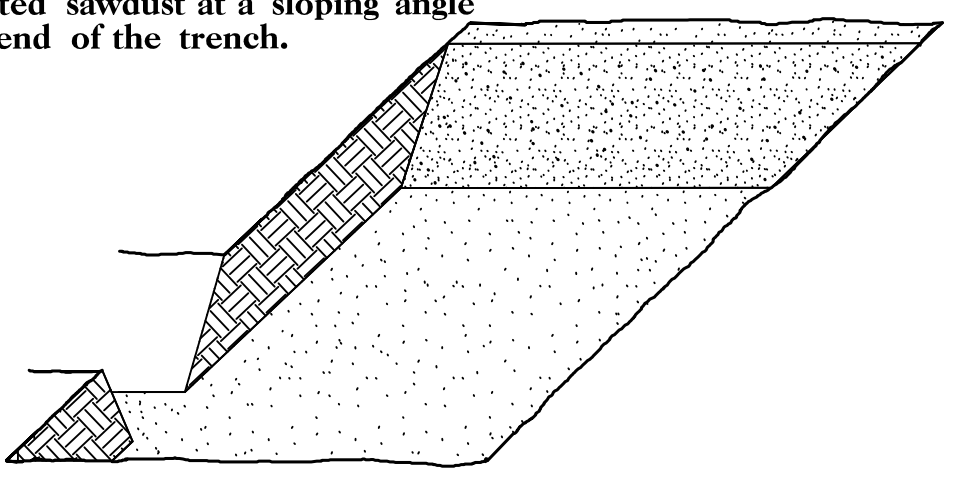
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

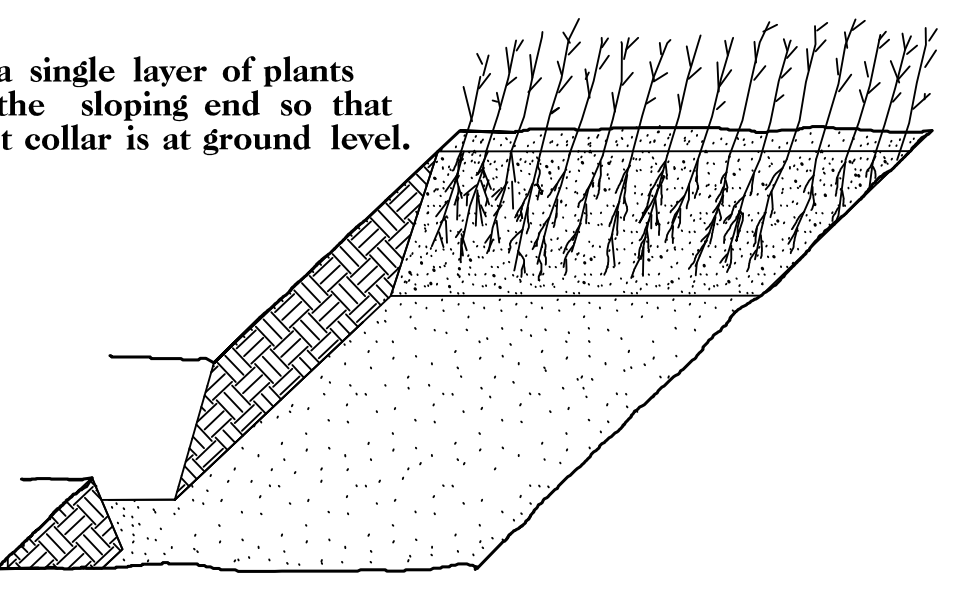
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



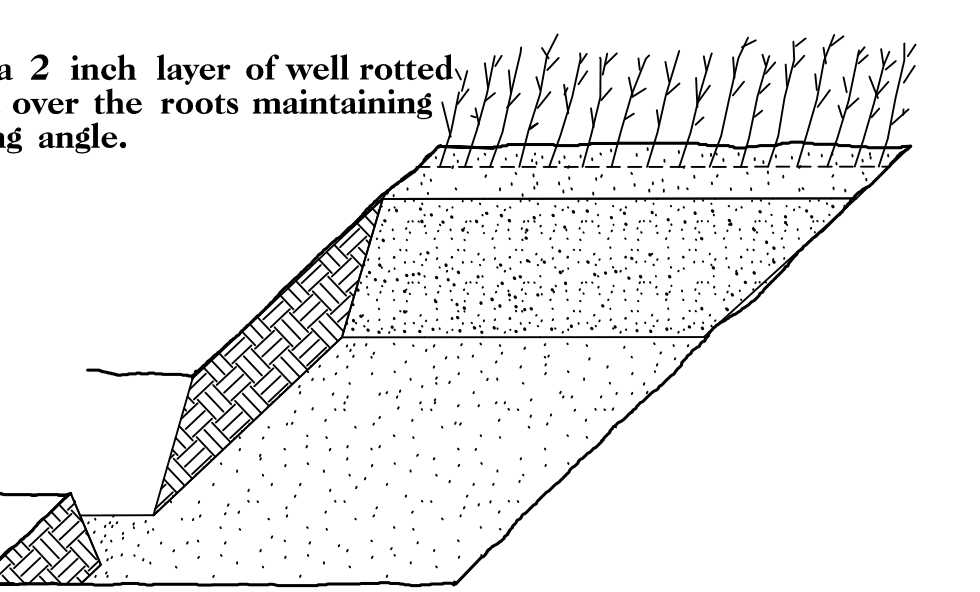
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

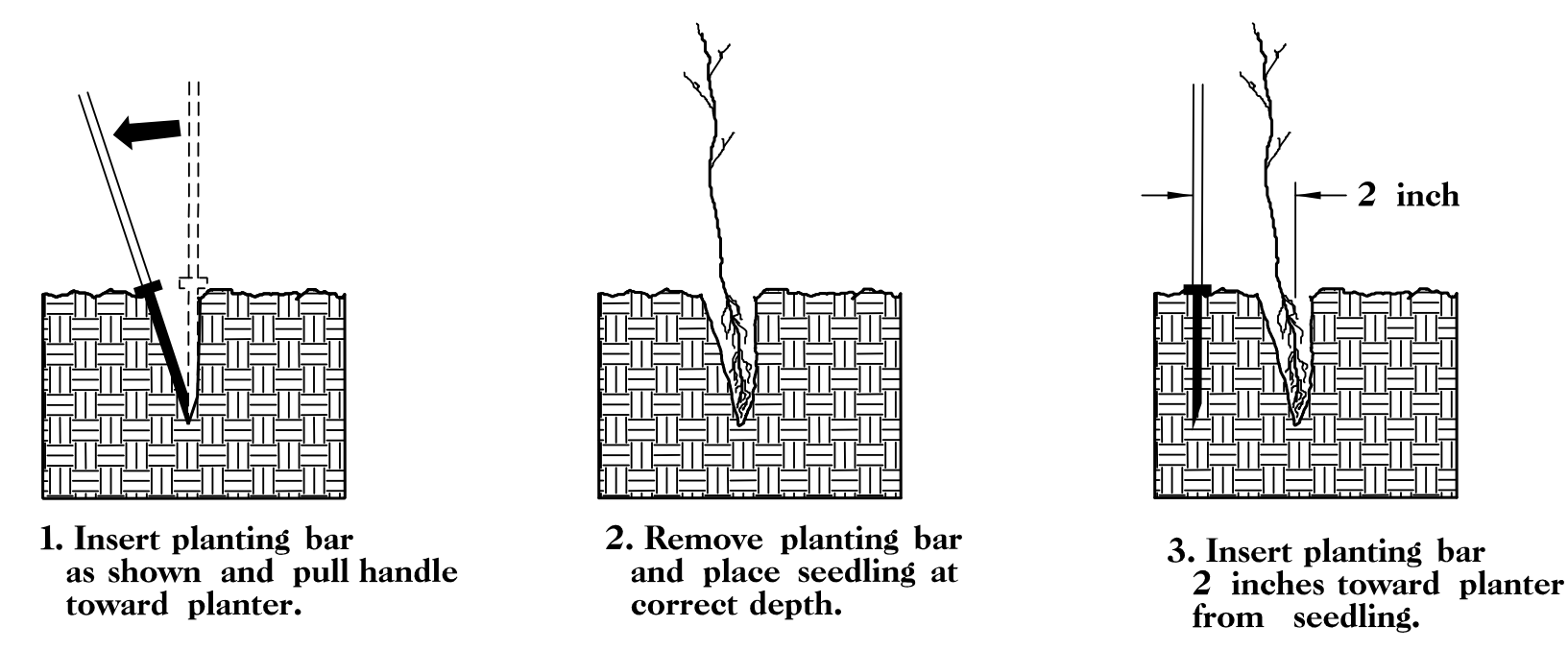


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

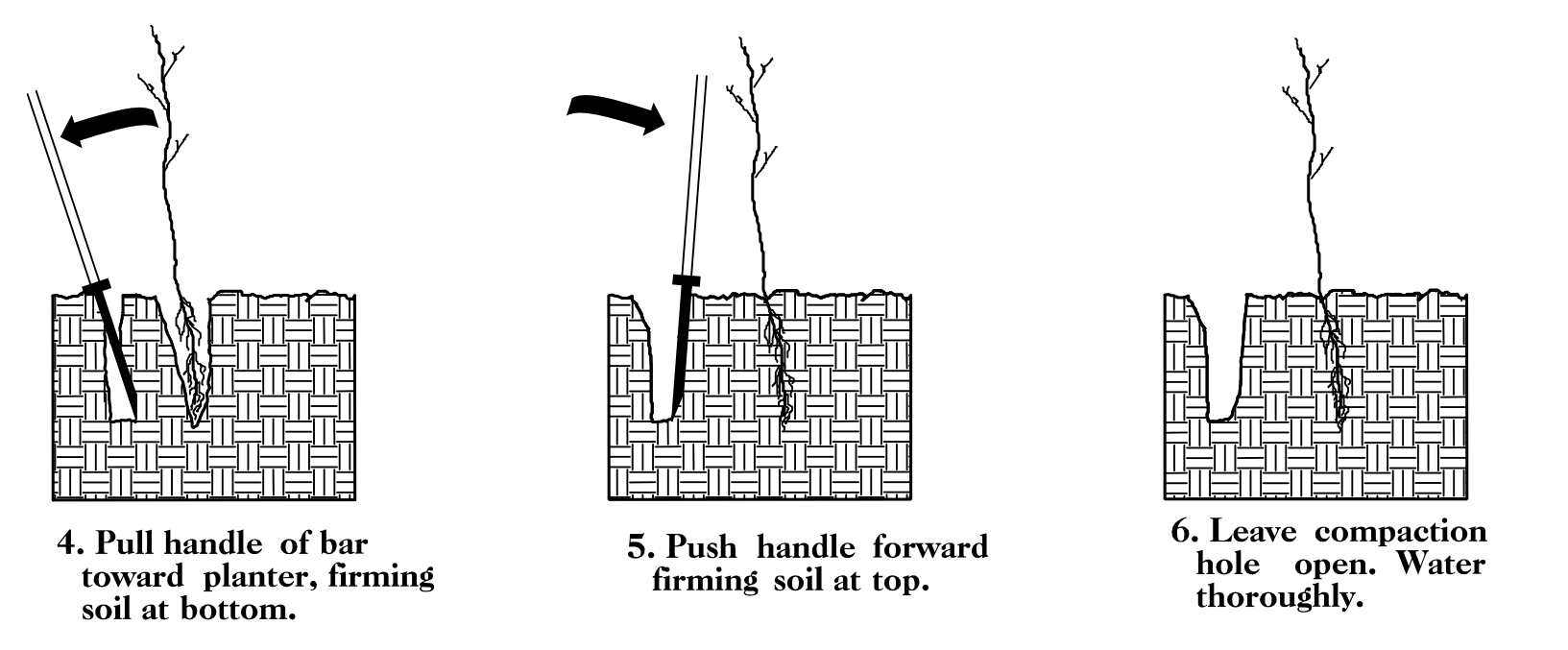


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



1. Insert planting bar as shown and pull handle toward planter.
2. Remove planting bar and place seedling at correct depth.
3. Insert planting bar 2 inches toward planter from seedling.



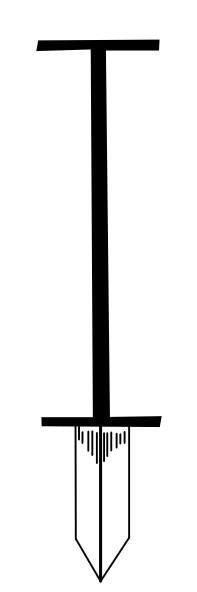
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

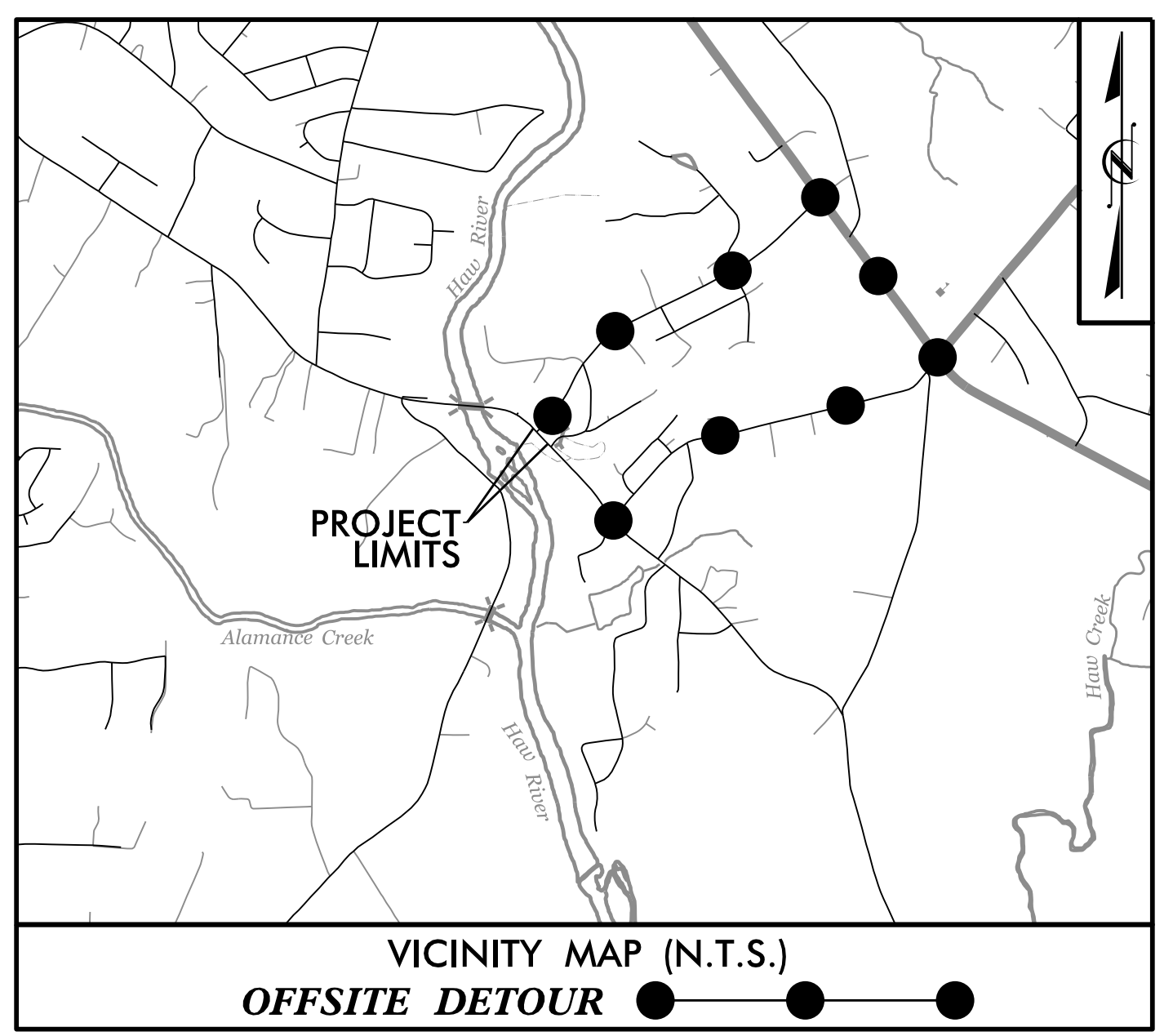
30%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
30%	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
40%	BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

09_08/2019
8/16/2023 9:16:03 AM
\\wse03\jocad\WSE\Projects\NC\HNTB\Division 7\17BP7C18_Swepsonville Road\Utilities\Engineering\UC\Proj\17BP7C18_ut_UC-01_t-sh.dgn

TIP PROJECT: 17BP.7.C.18



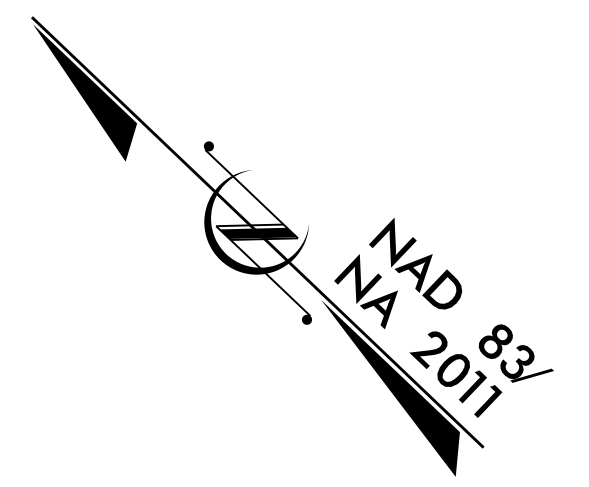
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITY CONSTRUCTION PLANS
ALAMANCE COUNTY**

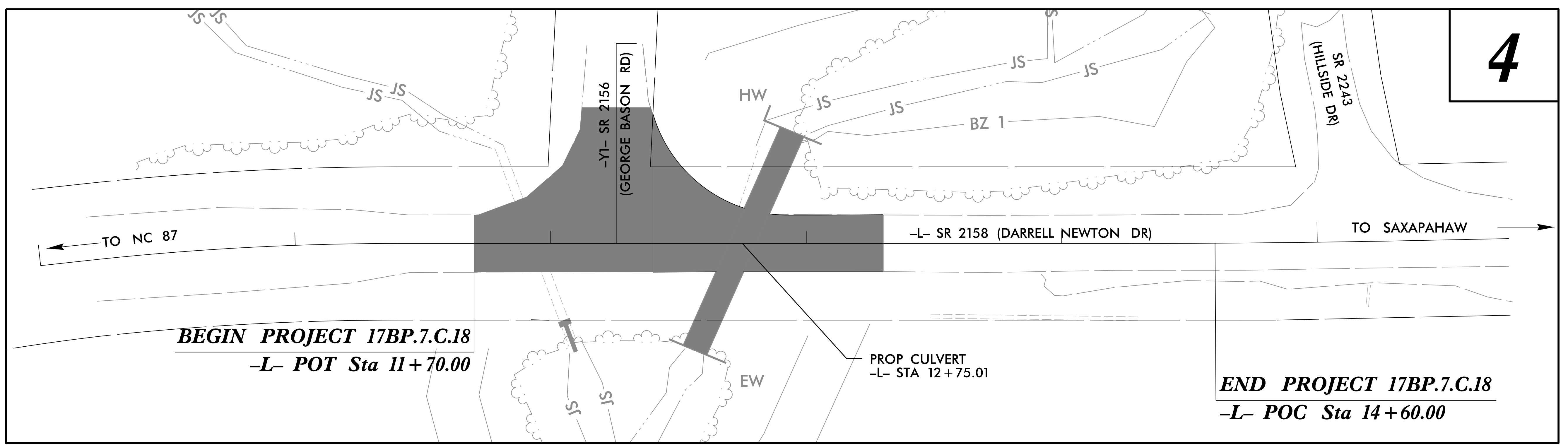
LOCATION: CULVERT IMPROVEMENTS ON SR 2158 (DARREL NEWTON DR)

TYPE OF WORK: WATER LINE RELOCATION

T.I.P. NO.	SHEET NO.
17BP.7.C.18	UC-1

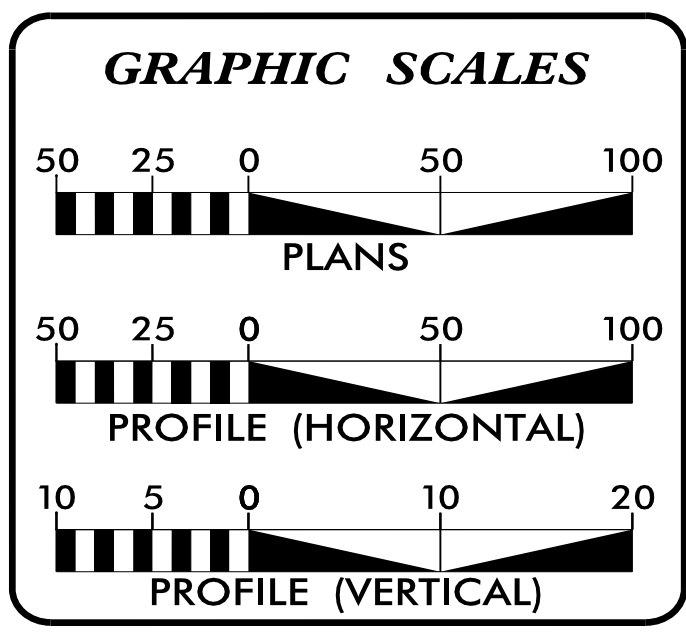


UC-4



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF SWEPSONVILLE

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED



SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A	DETAILS
UC-4	UC PLAN /PROFILE SHEET

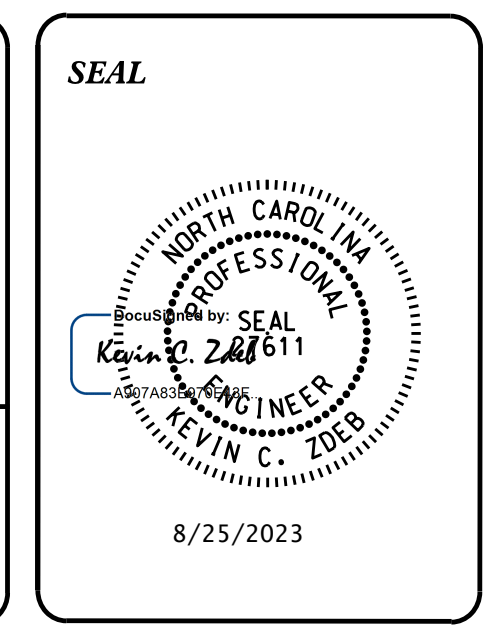
WATER AND SEWER OWNERS ON PROJECT

(A) WATER - TOWN OF SWEPSONVILLE
(B) SANITARY SEWER - TOWN OF SWEPSONVILLE

PREPARED IN THE OFFICE OF
Weston & Sampson
2052 Energy Drive
Apex, NC 27502
Phone: 919.297.0220
WSE of North Carolina, PC
NC License: C-4847

FOR
HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

KEVIN C. ZDEB, PE PROJECT ENGINEER
AARON COLLINS UTILITY DESIGNER



**DIVISION OF HIGHWAYS
HIGHWAY DIVISION 7**

P.O. BOX 14996
1584 YANCEYVILLE STREET
GREENSBORO NC 27415-4996
PHONE (336) 487-0000
FAX (336) 334-3637

JAMES B. YATES, PE ASSISTANT DESIGN ENGINEER
WRIGHT R. ARCHER, III, PE DIVISION ENGINEER
PATTY P. EASON, PE DIVISION CONST. ENGINEER
N/A DIVISION UTILITY COORDINATOR

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11¼ Degree Bend	
22½ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	REM FH
Water Meter	
Relocate Water Meter	
Remove Water Meter	REM WM
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

NOTE
PAY ITEM

EXISTING UTILITIES SYMBOLS

Power Pole		*Underground Power Line	
Telephone Pole		*Underground Telephone Cable	
Joint Use Pole		*Underground Telephone Conduit	
Utility Pole		*Underground Fiber Optics Telephone Cable	
Utility Pole with Base		*Underground TV Cable	
H-Frame Pole		*Underground Fiber Optics TV Cable	
Power Transmission Line Tower		*Underground Gas Pipeline	
Water Manhole		Aboveground Gas Pipeline	
Power Manhole		*Underground Water Line	
Telephone Manhole		Aboveground Water Line	
Sanitary Sewer Manhole		*Underground Gravity Sanitary Sewer Line	
Hand Hole for Cable		Aboveground Gravity Sanitary Sewer Line	
Power Transformer		*Underground SS Forced Main Line	
Telephone Pedestal		Underground Unknown Utility Line	
CATV Pedestal		SUE Test Hole	
Gas Valve		Water Meter	
Gas Meter		Water Valve	
Located Miscellaneous Utility Object		Fire Hydrant	
Abandoned According to Utility Records	AATUR	Sanitary Sewer Cleanout	
End of Information	E.O.I.		

*For Existing Utilities
Utility Line Drawn from Record (Type as Shown)
Designated Utility Line (Type as Shown)

5/14/99
6/20/2022
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3\17BP7C18\1022453.dgn
Road\Utilities\Engineering\UC\Proj\17BP7C18.ut.juc-02.sym.dgn

5/14/19

8/16/2023 10:16:43 AM
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Weston & Sampson
 WSE of North Carolina, PC
 2062 Energy Drive
 Phone: 919.287.0220

NC License: C-4847
 Apex, NC 27602
 westonandsampson.com

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.18	UC-3
DESIGNED BY: KCZ	
DRAWN BY: KCZ	
CHECKED BY: KSH	
APPROVED BY: KCZ	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	8/25/2023
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.
2. THE EXISTING WATER LINE AND SANITARY SEWER UTILITIES BELONG TO THE TOWN OF SWEPSONVILLE.

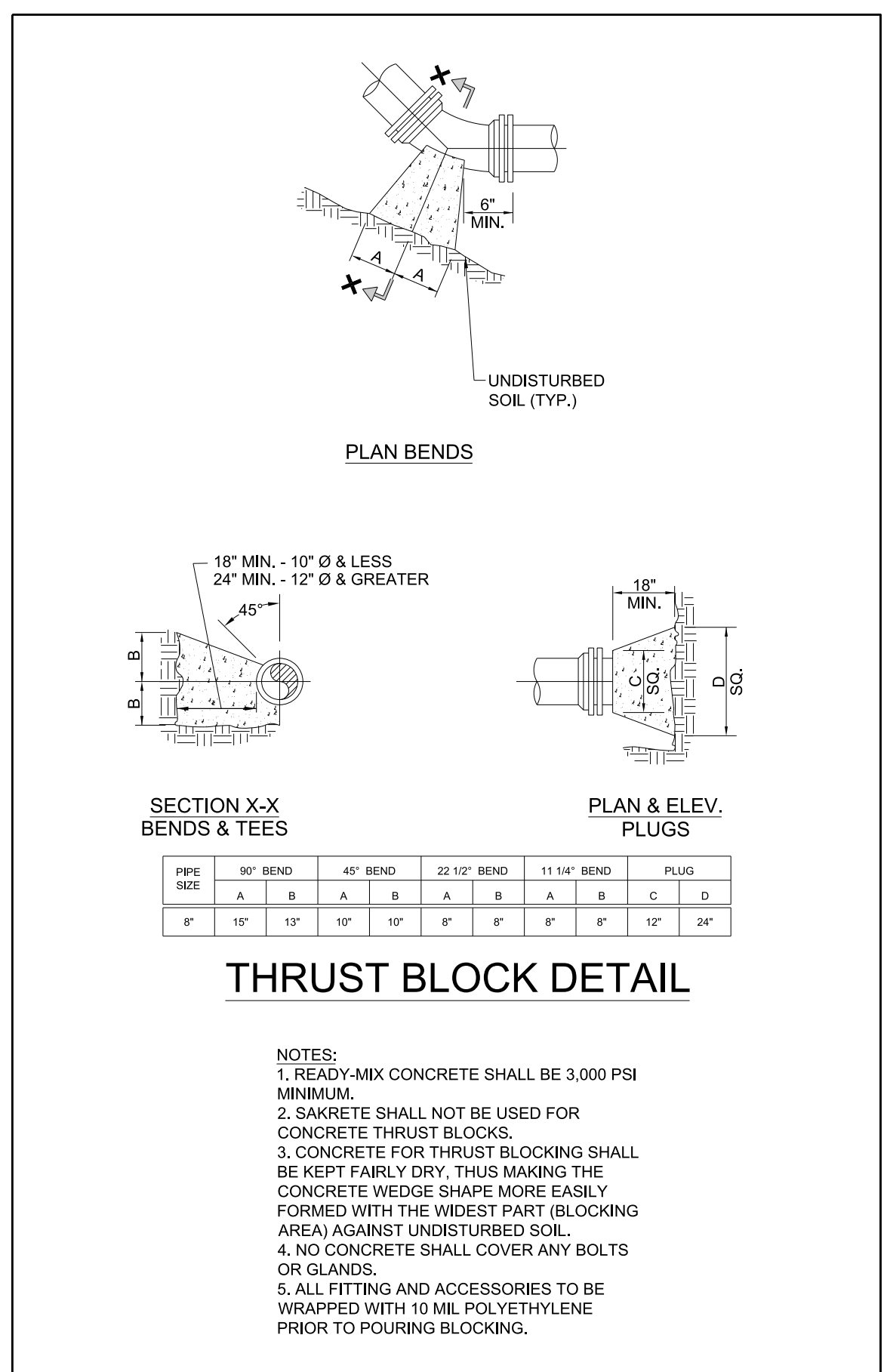
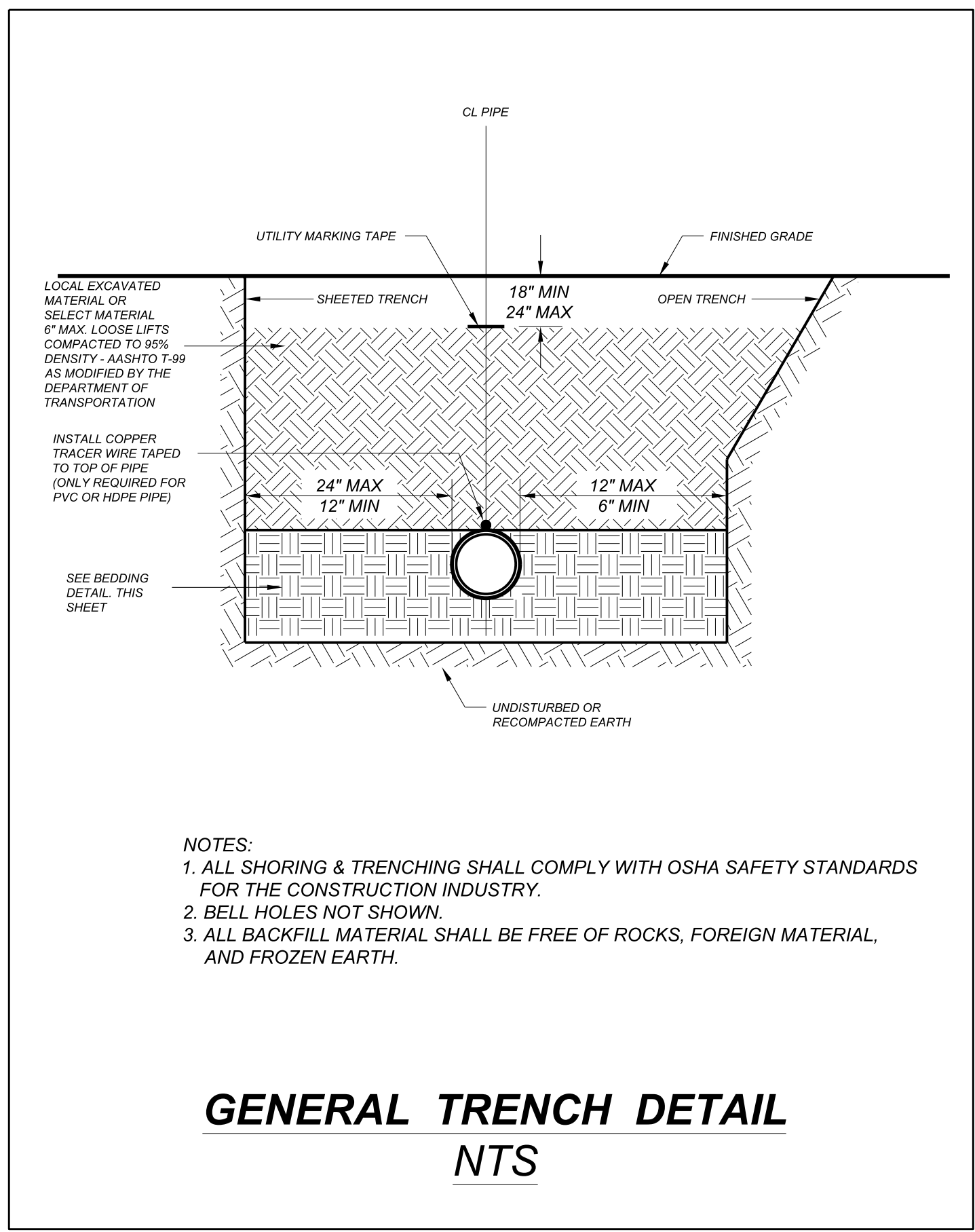
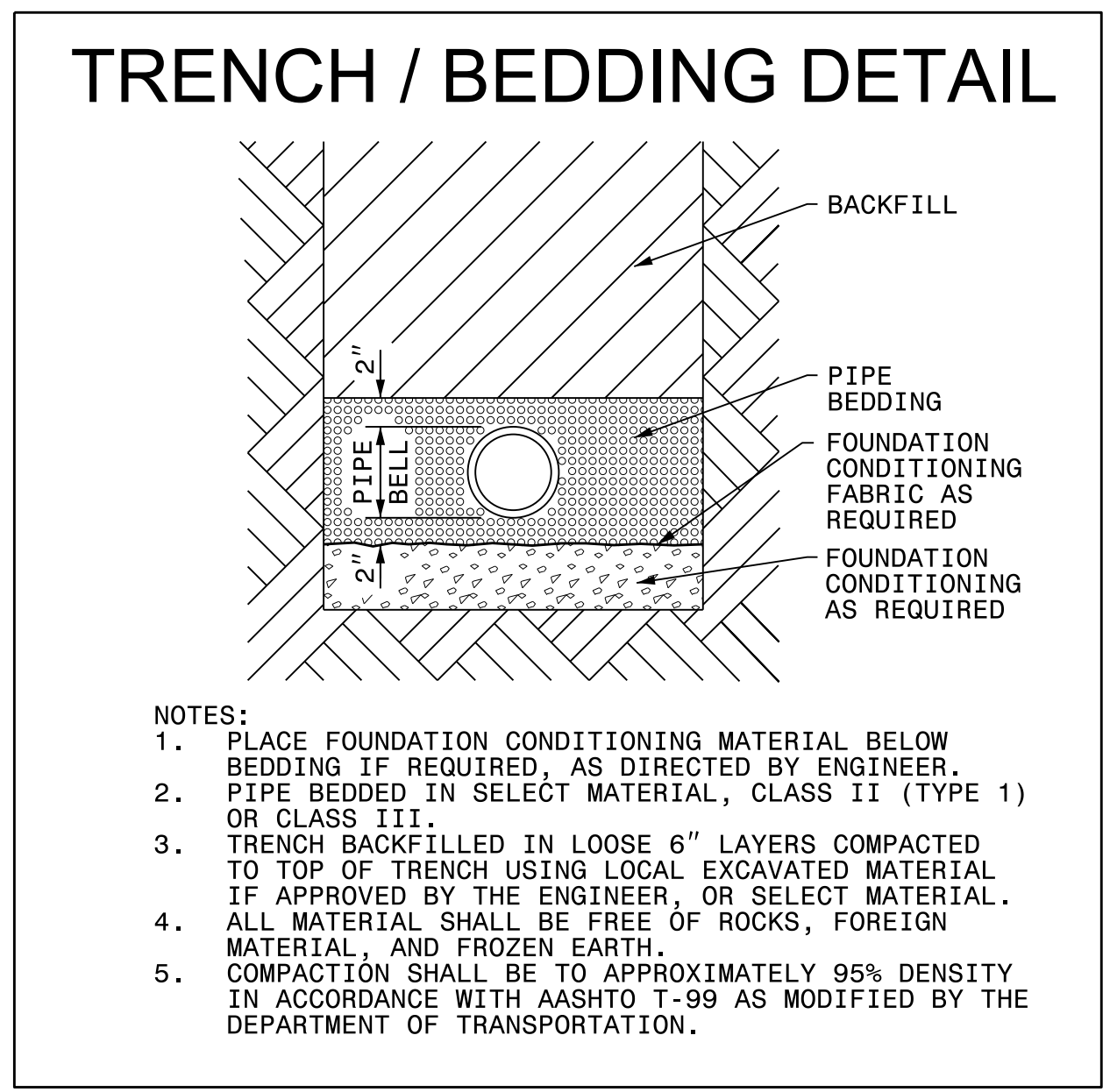
CONTACT: BRAD BULLIS
PHONE: 336-578-5644 EXT 101
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

1. THERE ARE NO KNOWN WATER SERVICE LINES OR SEWER SERVICE LINES WITHIN THE DISTURBED AREA OF THE PROJECT LIMITS.
2. IN THE EVENT THAT EXCESSIVE GROUNDWATER OR SPRINGS ARE ENCOUNTERED DURING PIPE CONSTRUCTION, THE CONTRACTOR SHALL EMPLOY ALL METHODS NECESSARY TO KEEP THE TRENCHES DRY AS DIRECTED BY THE RESIDENT ENGINEER.
3. PROPOSED WATER LINE SHALL BE 8" DUCTILE IRON PIPE, CLASS 350, RESTRAINED JOINT PIPE.
4. ALL WATER LINE FITTINGS, 4-INCHES THROUGH 12-INCHES IN DIAMETER, SHALL BE DUCTILE IRON.
5. ALL PROPOSED FITTINGS (BENDS, TEES, CROSSES, REDUCERS, PLUGS, ETC.) SHALL BE DUAL RESTRAINED BY THE USE OF RESTRAINED JOINT CONSTRUCTION AND CAST IN PLACE CONCRETE THRUST RESTRAINTS AS DETAILED ON THESE DRAWINGS, OR AS DIRECTED BY THE ENGINEER.
6. FINAL CONNECTIONS TO THE EXISTING FACILITIES SHALL BE WITNESSED BY THE UTILITY OWNER'S REPRESENTATIVE.
7. ANY HYDRANTS TAKEN OUT OF SERVICE DUE TO THIS CONSTRUCTION WORK SHALL BE BAGGED UNTIL SERVICE IS RESTORED.
8. ALL WATER LINE REMOVED AS PART OF THIS WORK SHALL BECOME CONTRACTOR'S PROPERTY AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL AND STATE REQUIREMENTS. REMOVED PIPE SHALL NOT BE USED AS PIPE FOR NEW CONSTRUCTION.
9. THE EXISTING WATER LINE IN CONFLICT WITH THE PROPOSED CULVERT WORK SHALL BE REMOVED. CONTRACTOR SHALL FIRST COORDINATE WITH THE UTILITY OWNER TO CLOSE THE NECESSARY VALVES BEFORE EXCAVATING AND REMOVING THE WATER LINE. WATER LINE REMOVAL SHALL BE TO THE CLOSEST JOINTS TO THE LIMITS SHOWN ON THE PLANS AS NOTED BY THE PROPOSED PLUGS. ONCE THE WATER LINE HAS BEEN REMOVED THE CONTRACTOR SHALL INSTALL A TEMPORARY PLUG INTO THE END OF EACH PIPE TO REMAIN FOR THE DURATION OF THE CULVERT WORK. WATER LINE SHALL BE BACKFILLED AS NEEDED. VALVES SHALL REMAIN CLOSED FOR THE DURATION OF THE CULVERT CONSTRUCTION. ONCE THE CULVERT CONSTRUCTION IS COMPLETED AND BACKFILL REACHES THE APPROPRIATE GRADE, AS DETERMINED BY THE ENGINEER, THEN THE ENDS OF THE EXISTING WATER LINE CAN BE EXCAVATED AND REMOVE THE TEMPORARY PLUGS. THE NEW WATER LINE SHALL THEN BE CONSTRUCTED, BACKFILLED, AND TESTED. UPON SUCCESSFUL TESTING AND APPROVAL BY THE UTILITY OWNER, THE WATER LINE SHALL BE PLACED BACK INTO SERVICE BY OPENING THE VALVES, AS COORDINATED WITH THE UTILITY OWNER.

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.18	UC-3A
DESIGNED BY: KCZ	
DRAWN BY: KCZ	
CHECKED BY: KSH	
APPROVED BY: KCZ	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
UTILITY CONSTRUCTION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



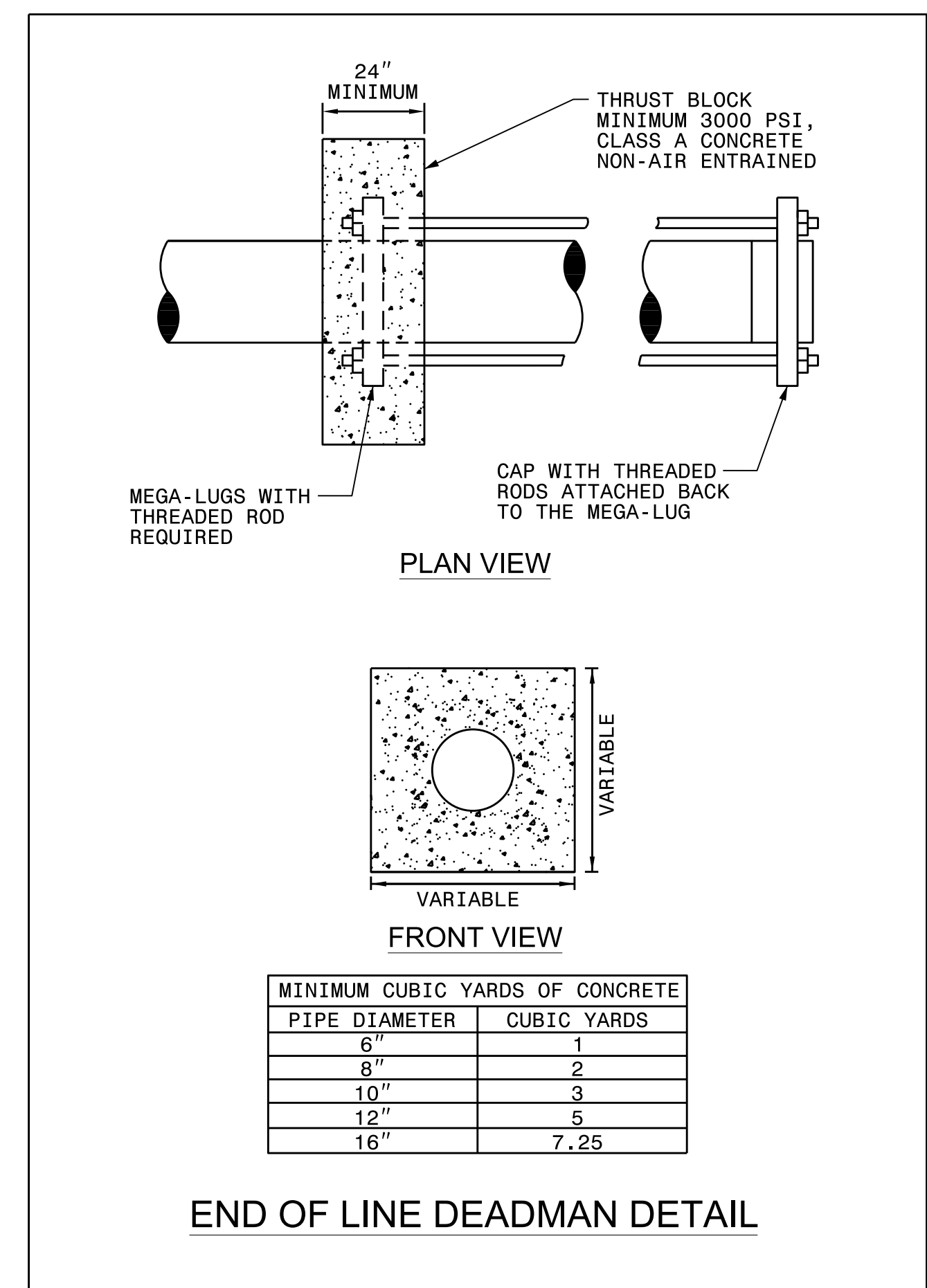
RESTRAINED JOINT DESIGN TABLE FOR DUCTILE IRON PIPE

FITTING	REQUIRED RESTRAINED LENGTH (FT) OF D.I. PIPE BY DEPTH OF COVER							
	3FT	4FT	5FT	6FT	7FT	8FT	9FT	10FT
HORIZONTAL BENDS								
8 INCH - 11.25 DEG	3	3	2	2	2	2	2	2
8 INCH - 22.5 DEG	5	5	4	4	4	3	3	3
8 INCH - 45 DEG	11	9	8	8	7	6	6	5
8 INCH - PLUG	41	37	33	31	28	26	25	23

ASSUMPTIONS:
 SAFETY FACTOR = 1.5
 DESIGN PRESSURE = 200 PSI (TEST PRESSURE)
 LAYING CONDITION = TYPE 4
 SOIL DESIGNATION: CL (BROWN CLAY)

NOTES:

- RESTRAINED LENGTH IS MEASURED FROM THE CENTER OF THE BEND AS FOLLOWS:
 - HORIZONTAL AND VERTICAL BENDS: ALONG EACH SIDE OF THE BEND.
 - HORIZONTAL AND VERTICAL BENDS - OFFSET OR COMBINED: ALONG THE OUTER SIDE OF EACH BEND. ALL PIPE BETWEEN THE TWO BENDS SHALL BE RESTRAINED JOINT WHEN:
 - THE DISTANCE BETWEEN THEM IS EQUAL THE REQUIRED LENGTH
 - THE DISTANCE BETWEEN THEM LESS THAN THE REQUIRED LENGTH
 - AS NOTED ON THE PLANS
 - AS DIRECTED BY THE ENGINEER



8.17.17/19

Weston & Sampson
 WSE of North Carolina, PC
 2052 Energy Drive
 Phone: 919.297.0220

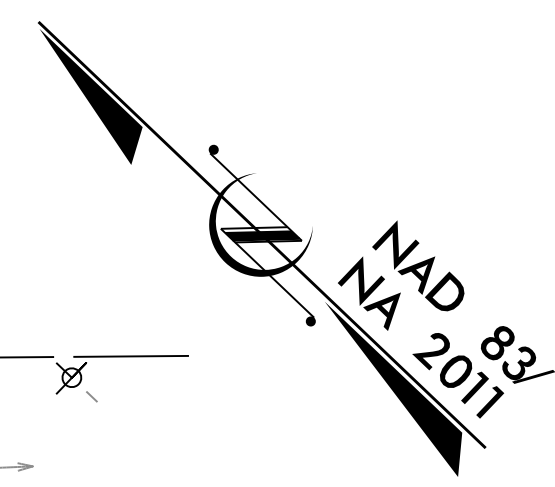
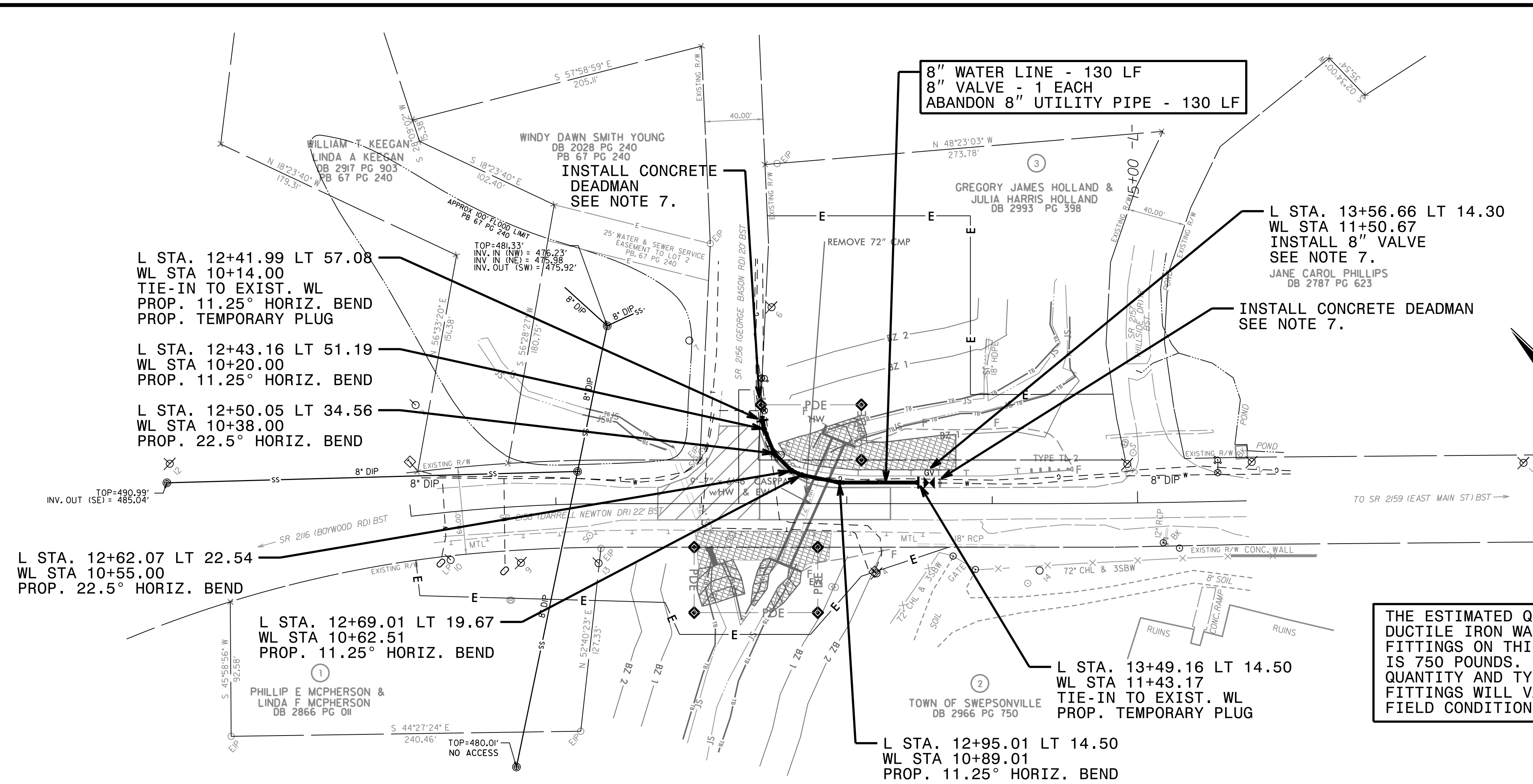
NC License: C-4847
 Apex, NC 27502
 westonandsampson.com

PROJECT REFERENCE NO. 17BP.7.C.18	SHEET NO. UC-4
DESIGNED BY: KCZ	
DRAWN BY: KCZ	
CHECKED BY: KSH	
APPROVED BY: KCZ	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY

WATER / SANITARY SEWER
 UTILITY OWNERS ON THIS SHEET:

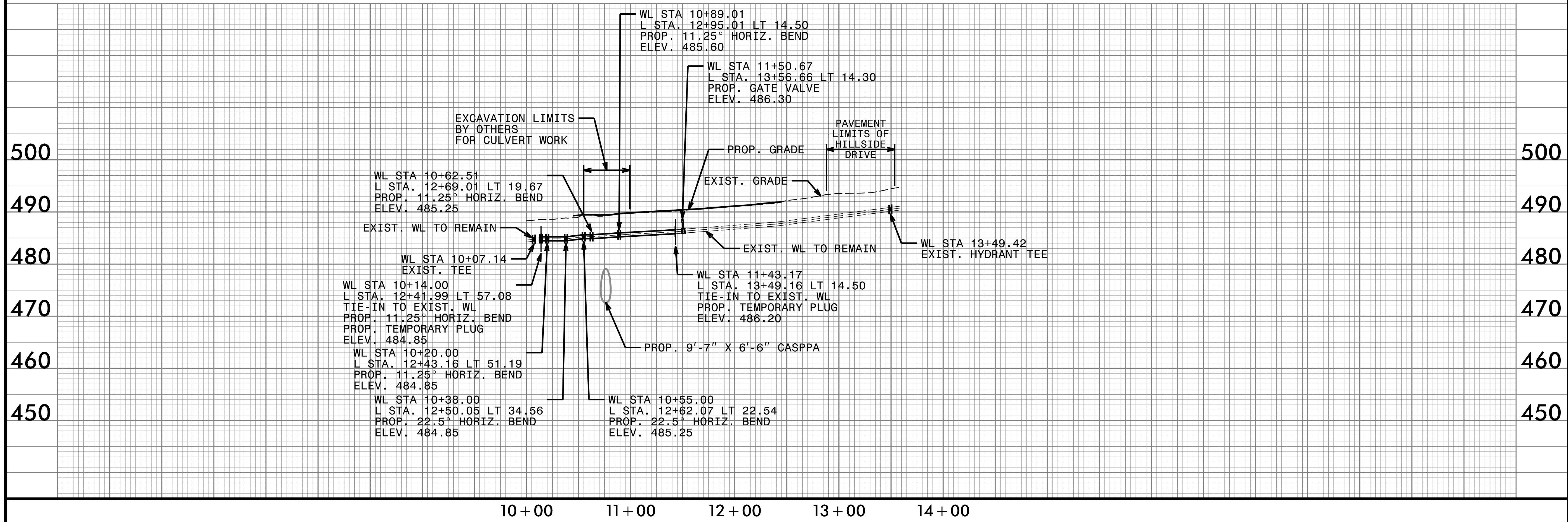
TOWN OF SWEPSONVILLE
 WATER LINE: 8"
 GRAVITY SEWER: 8"
 CONTACT: BRAD BULLIS
 PHONE: (336) 578-5644 EXT 101

UTILITY CONSTRUCTION
 DOCUMENT NOT CONSIDERED FINAL
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THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 750 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

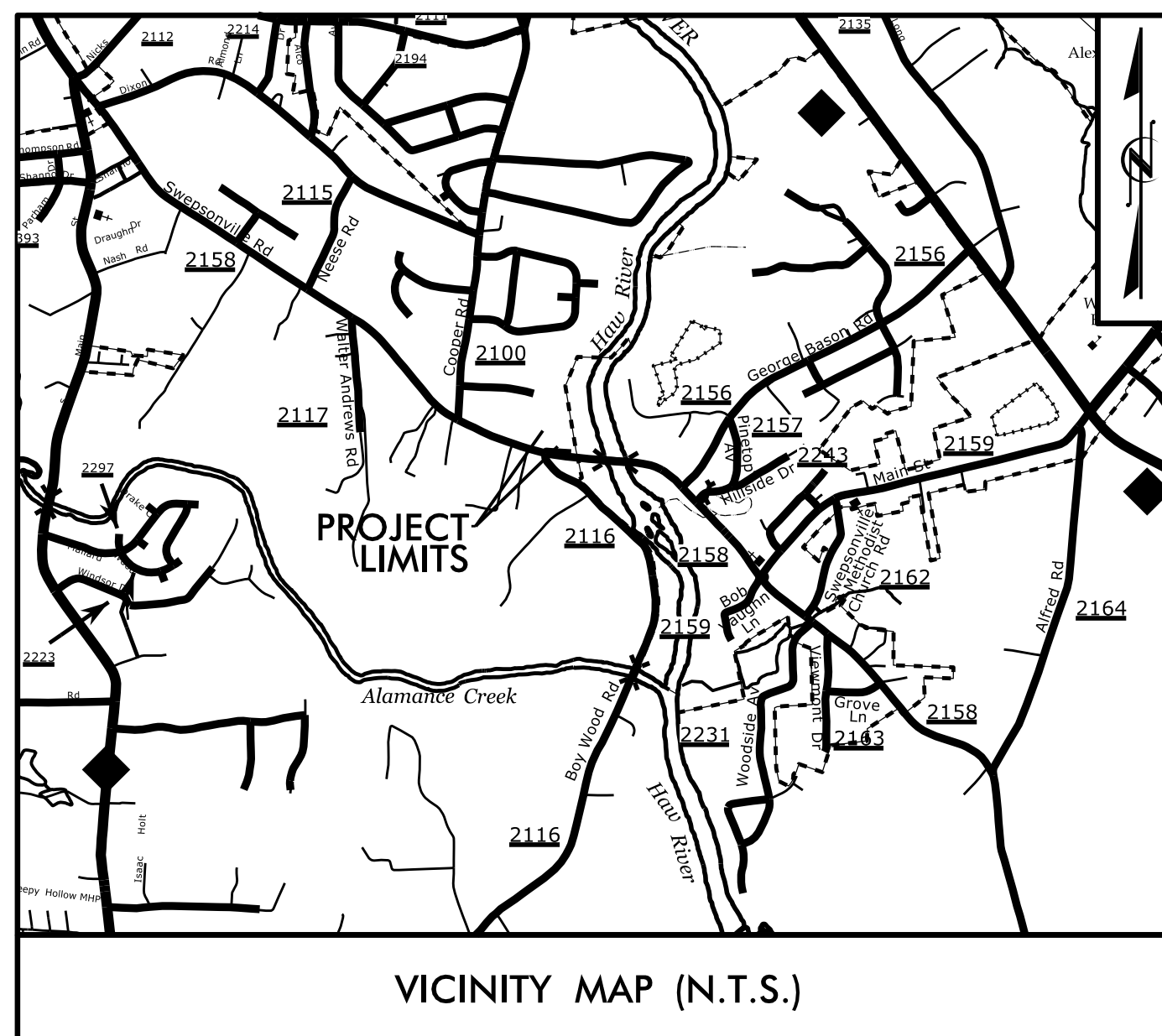
- NOTES:
- REFER TO PROJECT SPECIFIC NOTES ON SHEET UC-3.
 - EXISTING WATER LINE SHALL BE REMOVED TO CONDUCT CULVERT WORK. TEMPORARY PLUGS TO BE INSTALLED IN ENDS OF WL TO REMAIN OUTSIDE OF PROPOSED EXCAVATION LIMITS FOR CULVERT WORK.
 - WATER LINE SHALL BE INSTALLED WITH 3 FEET MINIMUM COVER FROM FINAL GRADE TO TOP OF PIPE.
 - ALL PROPOSED PIPE ELEVATIONS IN PROFILE REFER TO CENTER OF PIPE.
 - EXISTING PIPE AT TIE-IN LOCATIONS IS ESTIMATED TO HAVE 3 FEET MINIMUM COVER. CONTRACTOR SHALL VERIFY PIPE LOCATION BEFORE STARTING WORK.
 - ALL OPEN TRENCH PIPE SHALL BE RESTRAINED BETWEEN ALL FITTINGS AND VALVES.
 - CONTRACTOR SHALL INSTALL A CONCRETE DEADMAN IN THE LOCATIONS SHOWN A MINIMUM OF 24 HOURS PRIOR TO TEMPORARY SHUT OFF OF WATER LINE. DURING TEMPORARY SHUT DOWN, INSTALL ONE (1) 8" GATE VALVE (WHERE SHOWN) AND A PLUG AT THE END OF EACH WATER LINE TO REMAIN. ROD THE PLUG TO DEADMAN TO PROVIDE RESTRAINT. SEE DETAIL ON SHEET UC-03A.
 - CONTRACTOR SHALL INSTALL A CORPORATION STOP AT EACH END OF THE NEW WATER LINE FOR PRESSURE TESTING AND CHLORINATION. CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER TO SCHEDULE THE PRESSURE TEST AND CHLORINATION.



10+00 11+00 12+00 13+00 14+00

09, 08/99

TIP PROJECT: 17BP.7.C.18



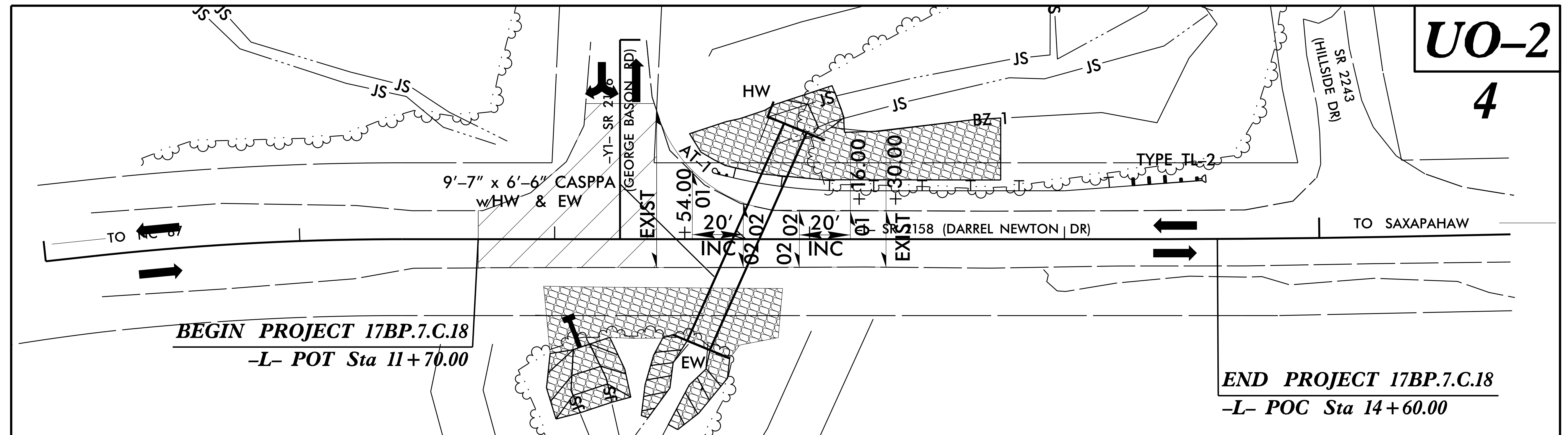
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS
ALAMANCE COUNTY**

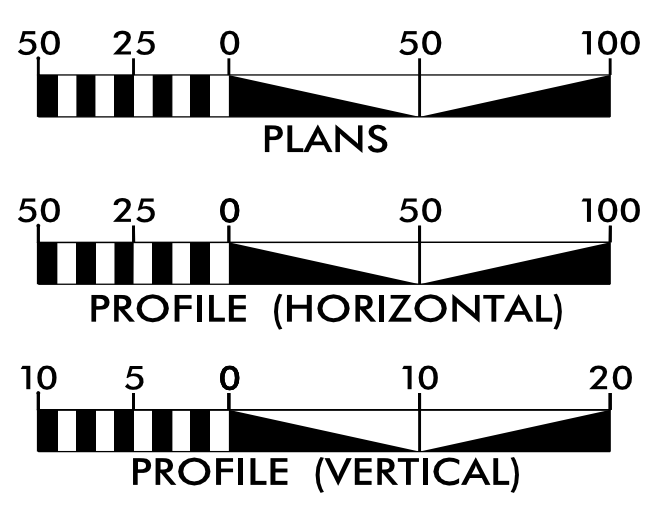
LOCATION: REPLACE EXISTING CULVERT ON SR 2158 (DARREL NEWTON DR)
TYPE OF WORK: COMMUNICATIONS AND ABANDON GAS FACILITIES

T.I.P. NO.	SHEET NO.
17BP.7.C.18	UO-1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS.
NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-2	UBO PLAN SHEET

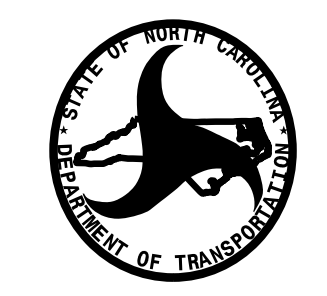
UTILITY OWNERS WITH CONFLICTS

- (A) GAS - DOMINION ENERGY
- (B) COMMUNICATIONS - AT&T

PREPARED IN THE OFFICE OF:

SAIMTM
2641 Sumner Boulevard
Suite 116
Raleigh, NC 27616
(919) 878-7466

Freddie Bunn UTILITY PROJECT MANAGER
Matthew Ward PROJECT UTILITY COORDINATOR



DIVISION OF HIGHWAYS
DIVISION 7
PO BOX 14996
1584 YANCEYVILLE STREET
GREENSBORO, NC 27415-4996

James B. Yates, PE DIVISION BRIDGE PROGRAM MANAGER
Patty Eason, PE DIVISION CONSTRUCTION ENGINEER

\$\$\$\$\$ SYSTEM \$\$\$\$\$\$
\$\$\$\$\$ DGN \$\$\$\$\$\$
\$\$\$\$\$ USER NAME \$\$\$\$\$\$

