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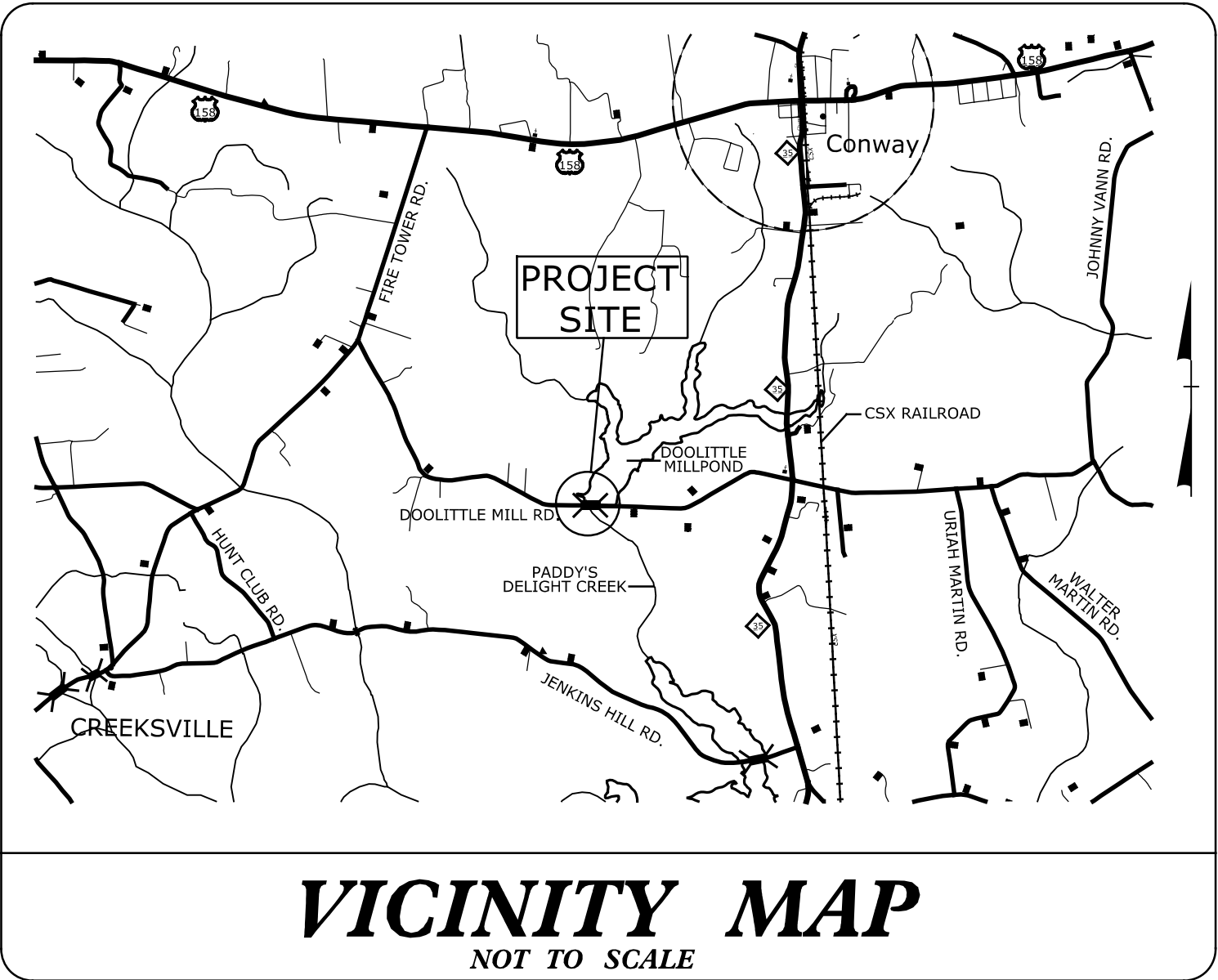
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09/08/2019

TIP PROJECT: BP1-R018

CONTRACT: DA00680

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



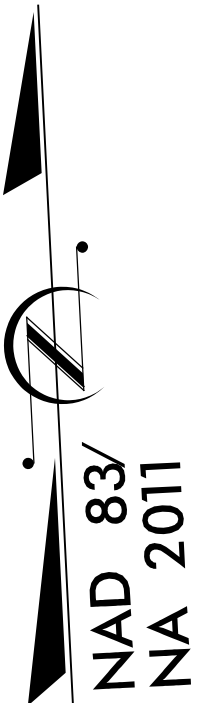
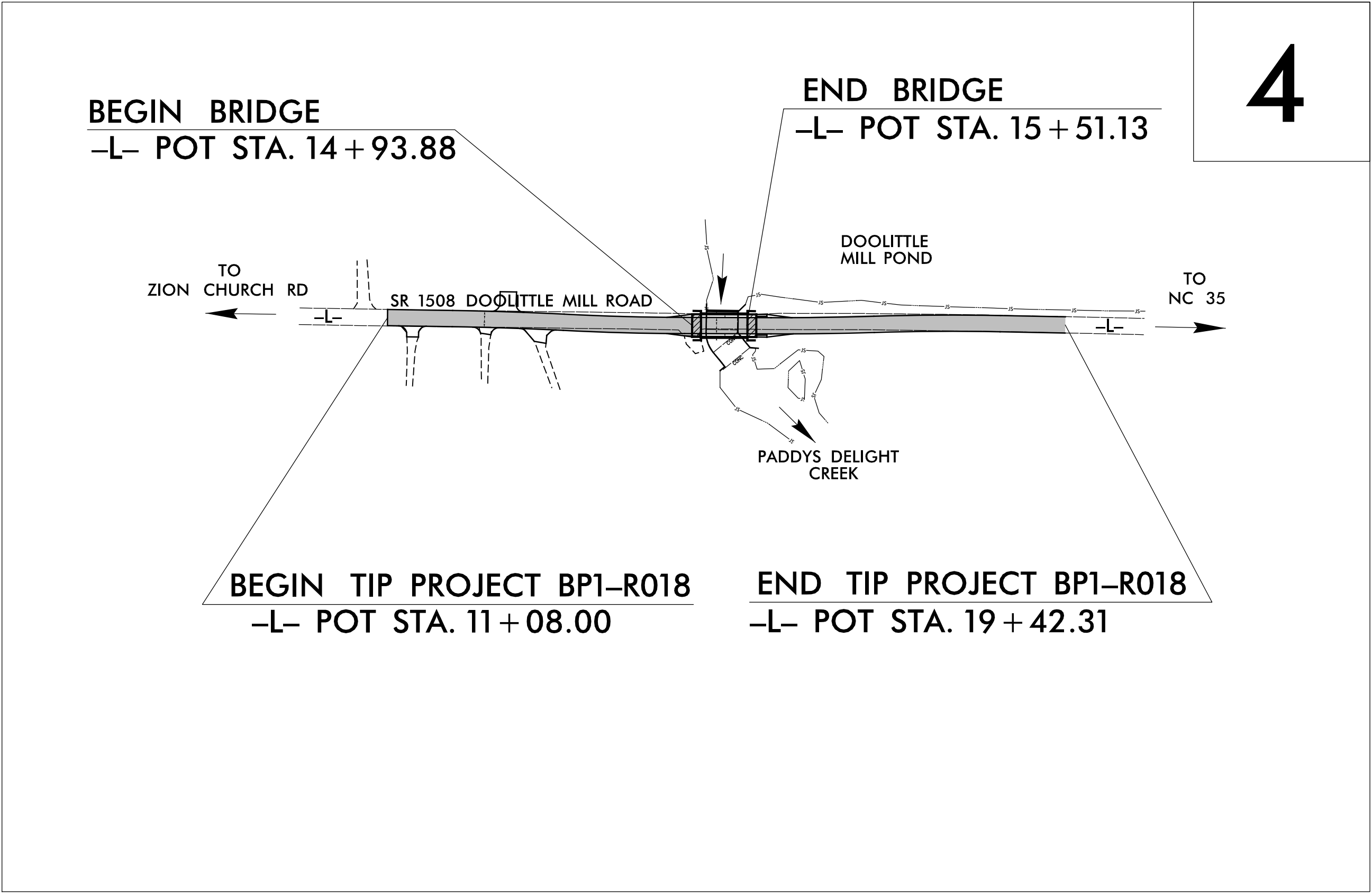
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NORTHAMPTON

**LOCATION: BRIDGE NO. 650017 OVER PADDYS DELIGHT CREEK
ON DOOLITTLE MILL ROAD (SR 1508)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1-R018	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
BP1.R018.1	STATE FUNDED	PE	
BP1.R018.2	STATE FUNDED	RW	
BP1.R018.3	STATE FUNDED	CONSTRUCTION	



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UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

AADT 2022 = 500
ADT 2022 = N/A
K = N/A %
D = N/A %
T = N/A % *
V = 50 MPH

FUNC CLASS = LOCAL
SUBREGIONAL TIER
DESIGN GUIDELINES

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BP1-R018 = 0.147 MI.
LENGTH STRUCTURE TIP PROJECT BP1-R018 = 0.011 MI.
TOTAL LENGTH OF TIP PROJECT BP1-R018 = 0.158 MI.

Prepared for the North Carolina Department of Transportation
In the Office of:



940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

AUGUST 28, 2025

LETTING DATE:

MAY 20, 2026

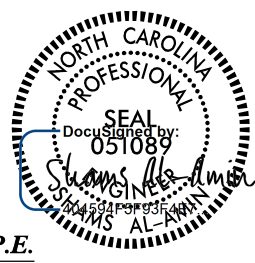
NCDOT CONTACT

TIM GOINS, PE
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

RYAN L. SHOOK
PROJECT ENGINEER-ROADWAY DESIGN

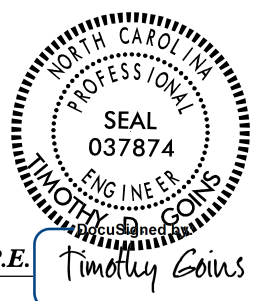
HYDRAULICS ENGINEER 3/25/2026



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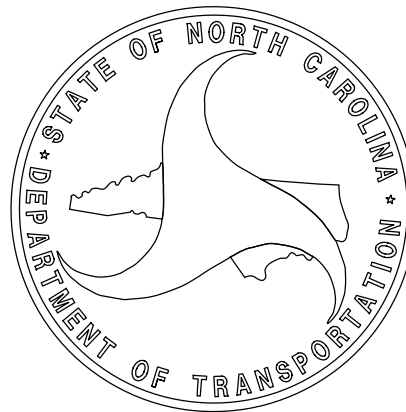
ROADWAY DESIGN
ENGINEER

3/25/2026



SIGNATURE:

Timothy Goins
P.E.



PROJECT REFERENCE NO.
BPI-RO18

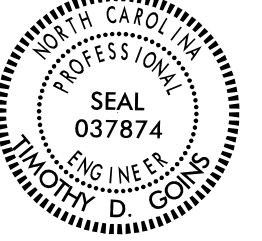
SHEET NO.
1A

Prepared by


940 Main Campus Drive, Suite 500
Raleigh, NC 27608
NC License No. C-3705

ROADWAY DESIGN ENGINEER

1/25/2026


SEAL
037874
ENGINEER
TIMOTHY D. GOINS
DDOC7811F8E94F1

DOCUMENT NOT CONSIDERED FINAL
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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1 THRU 2C-4	SPECIAL DETAILS
3B-1	SUMMARY OF EARTHWORK, REMOVAL OF EXISTING ASPHALT PAVEMENT, AND GUARDRAIL
3D-1	SUMMARY OF DRAINAGE
4	PLAN AND PROFILE SHEET
RW-01, RW02C-1, RW02C-2 RW02D-1,RW03E-1,RW04	SURVEY CONTROL SHEETS
TMP-1	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIGN-1	SIGNING PLANS
UC-1 THRU UC-3	UTILITY CONSTRUCTION PLANS
UO-1	UTILITIES BY OTHERS PLANS
X-1	EARTHWORK VOLUME SUMMARY
X-2 THRU X-10	CROSS-SECTIONS
S-1 THRU S-20	STRUCTURE PLANS
STRUCTURE STANDARD NOTES	

2024 ROADWAY ENGLISH STANDARD DRAWINGS
EFF: 01-16-2024
REV:

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans.

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
275.01	Rock Plating
DIVISION 3 - PIPE CULVERTS	
310.10	Drive Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type I Standard Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb and Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)
862.02	Guardrail Installation (Use Details in Lieu of Standards for Sheet 5 of 9)
862.03	Structure Anchor Units (Use Detail in Lieu of Standards for Sheets 6 and 8 of 9)
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

2024 SPECIFICATIONS
EFFECTIVE: 01-16-2024
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD.NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

Brightspeed; Northampton County

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

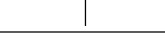
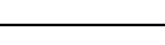
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

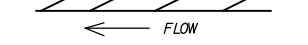
BOUNDARIES AND PROPERTY:

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	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

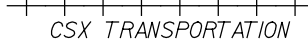
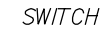
BUILDINGS AND OTHER CULTURE:

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

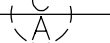
HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

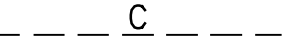
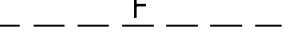
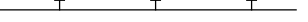
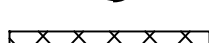
RAILROADS:

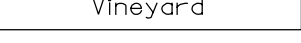
Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

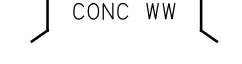
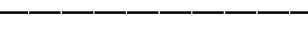
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent 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)*	

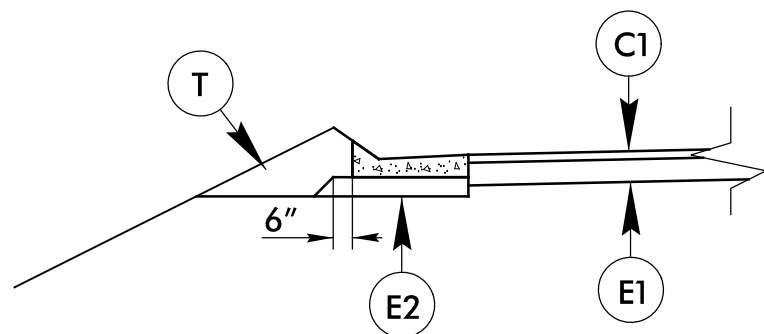
MISCELLANEOUS:

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	
End of Information	

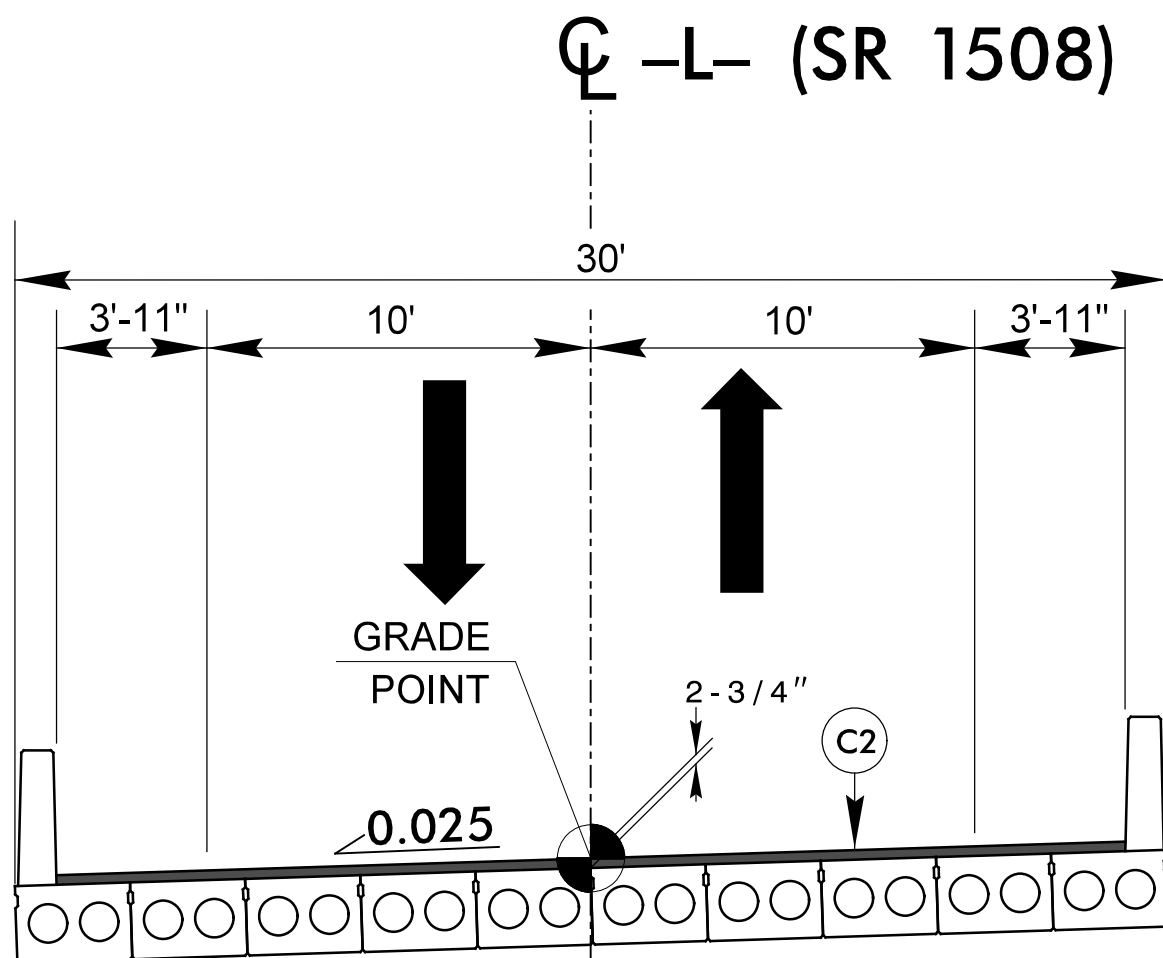
FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1-1/2" IN DEPTH.
E1	PROP. APPROX. 5-1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING ASPHALT PAVEMENT 1.5" DEPTH
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

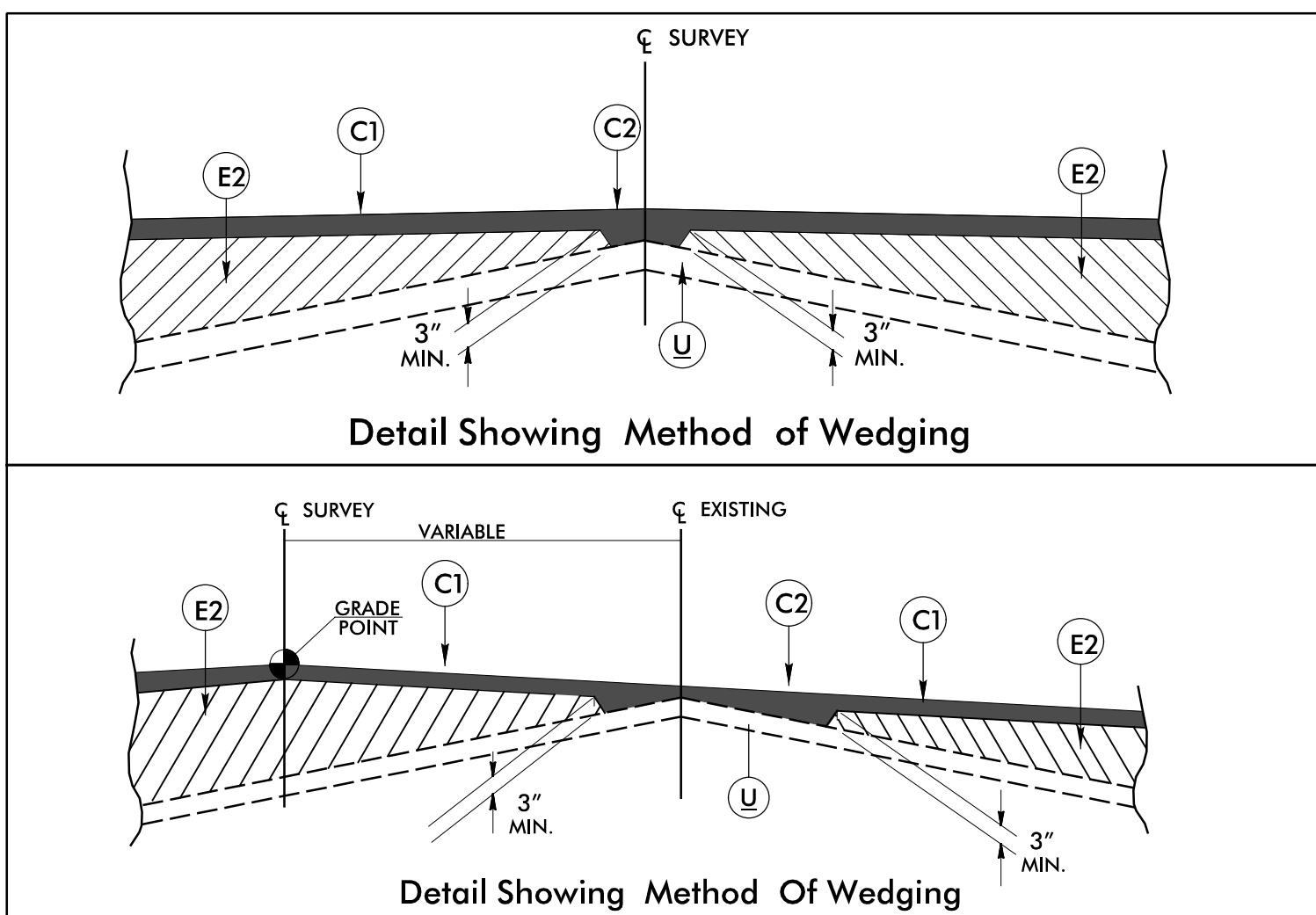


DETAIL OF PAVEMENT EDGE TREATMENT WITH SHOULDER BERM GUTTER
USE IN CONJUNCTION WITH
TYPICAL SECTION NO. 2
SEE PLANS FOR LOCATIONS
OF SHOULDER BERM GUTTER



10 UNITS @ 3' EACH
TYPICAL SECTION NO. 3

-L- Sta. 14+93.88 to Sta. 15+51.13



Detail Showing Method of Wedging

Detail Showing Method Of Wedging

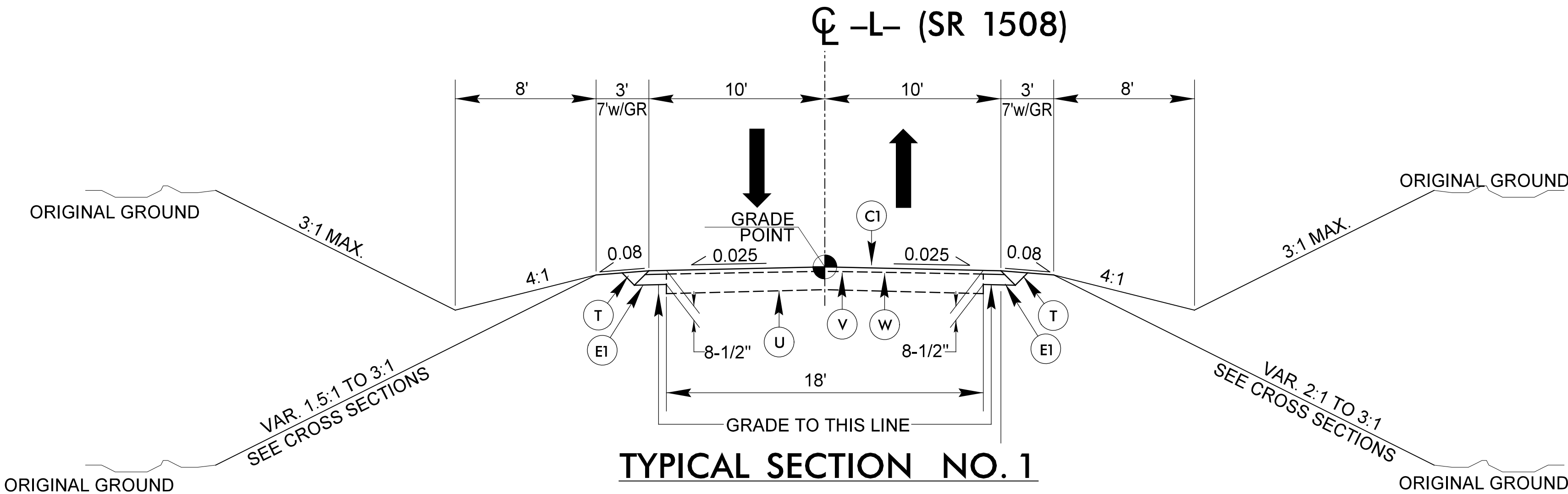
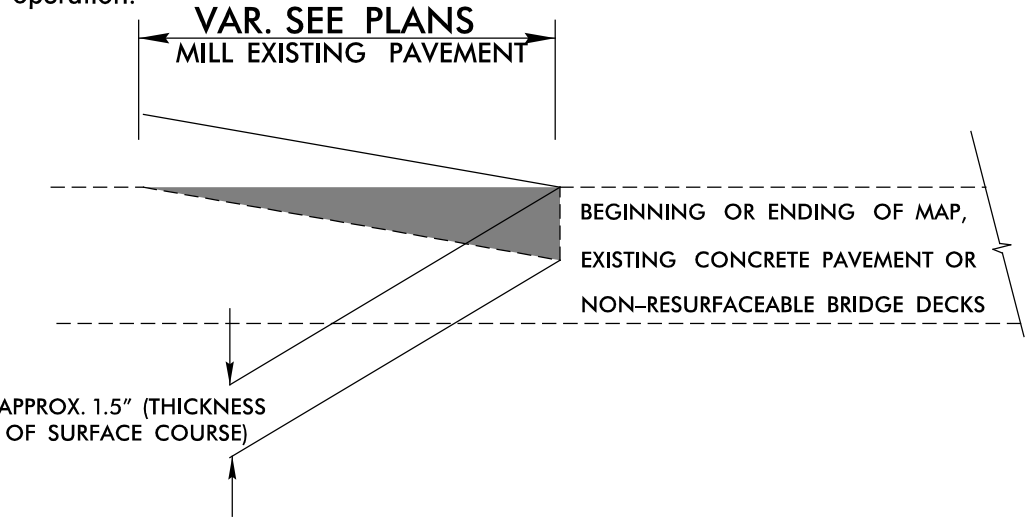
MILLING AT PAVEMENT TIE-INS

NOTES TO CONTRACTOR

For surface mixes over 1" in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.

Locations shall include ties into existing concrete pavement, at bridge approaches where the bridge will not be resurfaced, and at the beginning and ending point of each resurfacing map.

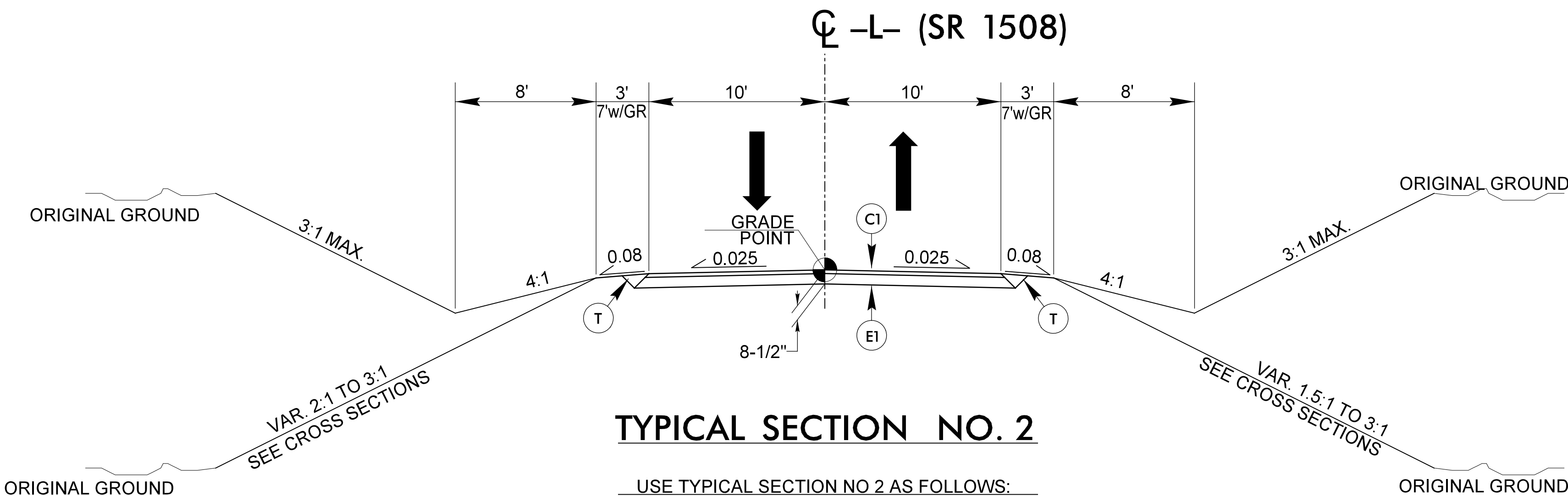
Perform the work in accordance with Section 607 of the January 2012 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO 1 AS FOLLOWS:

- L- Sta. 11+08.00 to Sta. 14+45.00
- L- Sta. 16+00.00 to Sta. 19+42.31



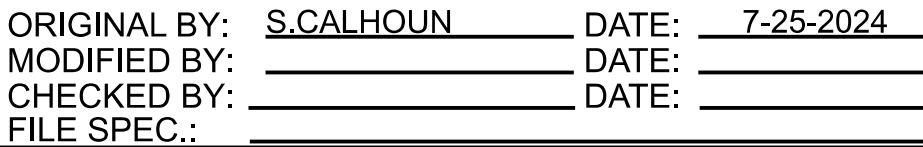
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO 2 AS FOLLOWS:

- L- Sta. 14+45.00 to Sta. 14+93.88.00 (BEG. BRIDGE)
- L- Sta. 15+51.13 (END BRIDGE) to Sta. 16+00.00

NOTE: ROCK PLATING ON 1.5:1 SLOPES. SEE ROCK PLATING DETAIL SHEET 2G-1 FOR LIMITS.

PROJECT REFERENCE NO. <i>BPI-RO18</i>	SHEET NO. <i>2A-1</i>
ROADWAY DESIGN ENGINEER 8/25/2026 	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared by  940 Main Campus Drive, Suite 500 Raleigh, NC 27606 NC License No. C-2105	



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

ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 2
300.01

Diagram showing a pipe in a trench with normal earth foundation. The pipe is surrounded by compacted backfill. Labels include: TOP OF FILL, GROUND LINE, H (fill height), I.D. /6 MIN. NOT LESS THAN 6", O.D. + 3', and COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL.

NORMAL EARTH FOUNDATION

Diagram showing a pipe in a trench with a rock foundation. The pipe sits on a layer of rock. Labels include: TOP OF FILL, GROUND LINE, H, I.D. /6 MIN. NOT LESS THAN 6", O.D. + 3', COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL, ROCK, TYPE 4a GEOTEXTILE, I.D. /6 MIN. NOT LESS THAN 6", 1/2" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24" AS DIRECTED BY ENGR., and EARTH.

**ROCK FOUNDATION
PIPE IN TRENCH**

Diagram showing a pipe in a trench with an unsuitable material foundation. The pipe sits on a layer of unsuitable material. Labels include: TOP OF FILL, GROUND LINE, H, I.D. /6 MIN. NOT LESS THAN 6", O.D. + 3', COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL, TYPE 4a GEOTEXTILE, I.D. /6 MIN. NOT LESS THAN 6", 1/2" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24" AS DIRECTED BY ENGR., and EARTH.

UNSUITABLE MATERIAL FOUNDATION

Diagram showing a pipe above ground with normal earth foundation. The pipe is surrounded by compacted backfill. Labels include: TOP OF FILL, GROUND LINE, MIN. O.D., I.D. /6 MIN. NOT LESS THAN 6", O.D. + 2', COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL, and I.D. /6 MIN. NOT LESS THAN 6".

NORMAL EARTH FOUNDATION

Diagram showing a pipe above ground with a rock foundation. The pipe sits on a layer of rock. Labels include: TOP OF FILL, GROUND LINE, MIN. O.D., I.D. /6 MIN. NOT LESS THAN 6", O.D. + 2', COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL, ROCK, TYPE 4a GEOTEXTILE, I.D. /6 MIN. NOT LESS THAN 6", 1/2" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24" AS DIRECTED BY ENGINEER, and MIN. O.D.

**ROCK FOUNDATION
PIPE ABOVE GROUND**

Diagram showing a pipe above ground with an unsuitable material foundation. The pipe sits on a layer of unsuitable material. Labels include: TOP OF FILL, GROUND LINE, MIN. O.D., I.D. /6 MIN. NOT LESS THAN 6", O.D. + 2', COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL, TYPE 4a GEOTEXTILE, I.D. /6 MIN. NOT LESS THAN 6", 1/2" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24" AS DIRECTED BY ENGINEER, and MIN. O.D.

UNSUITABLE MATERIAL FOUNDATION

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

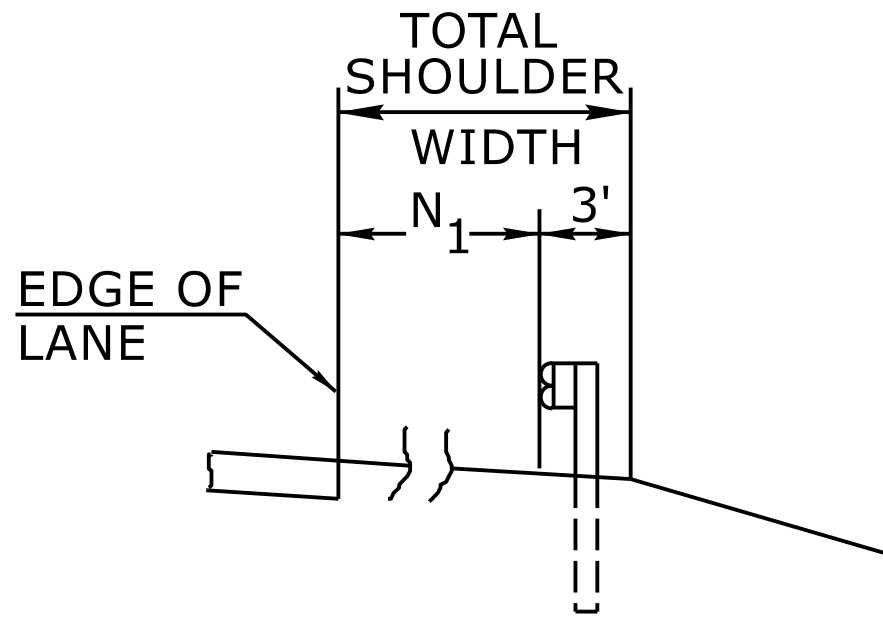
Signed by:
Nicole M. Hackler
3/25/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

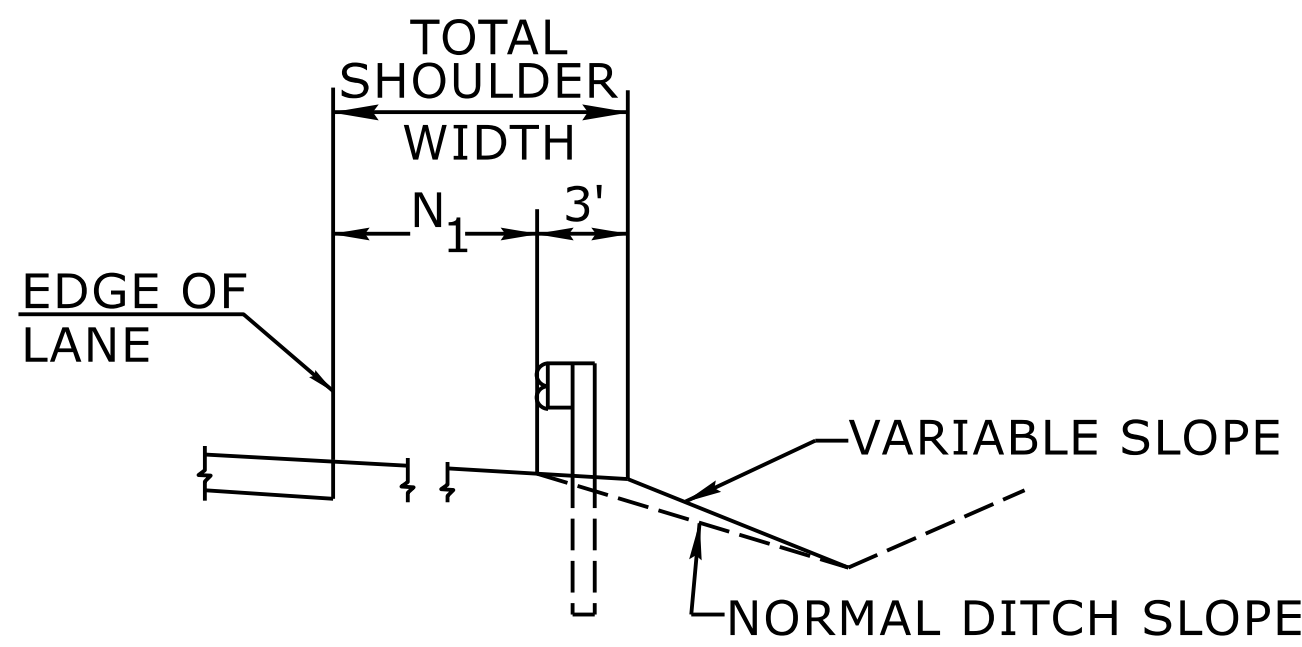
CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:

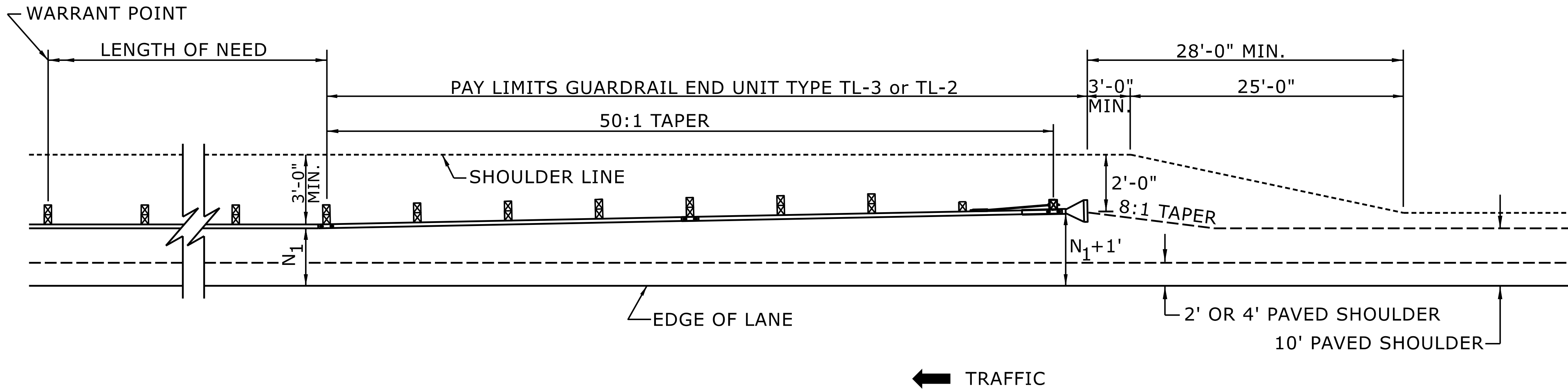


FILL SECTION



CUT SECTION

"N₁"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT



Signed by:
Nicole M. Hackler
3/25/2026

SHEET 6 OF 15
862D01

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:

USE FLARE RATE AS THE CONTROL IF THE "N₁" DISTANCE IS NOT OBTAINED.
("N₁" IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

FOR POSTED SPEEDS ≥ 45MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45MPH USE GREU TYPE TL-2

GUARDRAIL LENGTH OF NEED (X) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

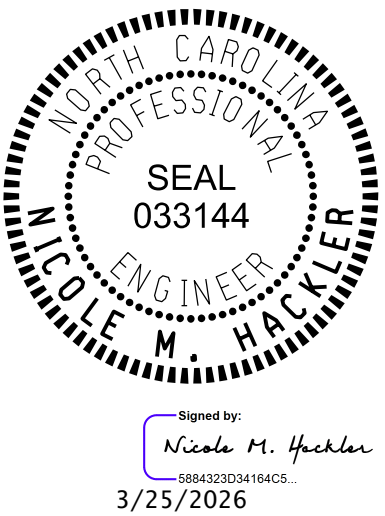
LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

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

ROADWAY DETAIL DRAWING FOR GUARDRAIL PLACEMENT

SHEET 4 OF 15

862D01



**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

CONTRACTS STANDARDS AND DEVELOPMENT UNIT

Office 919-707-6950

FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

12/06/2024

COMPUTED BY: MRH
CHECKED BY:

DATE: 12/18/2024
DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.
BPI-R018

SHEET NO.
3B-1

SUMMARY OF EARTHWORK

STATION	STATION	UNCL EXCAV.	EMBANK. + %	BORROW	WASTE
-L- 11+08.00	14+93.88	531	800	269	
-L- 15+51.13	19+42.31	98	1046	948	
SUBTOTALS:		629	1843	1217	
PROJECT TOTAL		629	1843	1217	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				61	
GRAND TOTALS:		629		1278	
SAY:		640		1290	

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-L-	14+45.00	15+00.99	LTCL	141
-L-	15+38.66	16+00.00	LTCL	129
TOTAL:				270
SAY:				270

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH (FT)
-L- (RT)	15+62.00	15+75.00	13
-L- (LT)	15+62.00	15+75.00	13
TOTAL:			26
SAY:			26

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE III	GREU TL-3											EA				
-L-	14+12.63	14+93.88	LT	81.25'				14+93.88	3'-11"	7'	50'		1'		1	1															
-L-	14+12.63	14+93.88	RT	81.25'			14+93.88		3'-11"	7'	50'		1'		1	1															
-L-	15+51.13	16+32.38	LT	81.25'			15+51.13		3'-11"	7'		50'	1'		1	1															
-L-	15+51.13	17+82.38	RT	231.25'				15+51.13	3'-11"	7'		50'	1'		1	1															
TOTAL				475'											4	4															
DEDUCTION FOR ANCHORS:																															
TYPE		QTY	LENGTH EA																												
GREU TL-3		4	50'	-200'																											
TYPE III		4	18.75'	-75'																											
PROJECT TOTAL				200'											4	4															
SAY				200'											4	4															
ADDITIONAL GUARDRAIL POST				5 EA																											

12/06/2024

13B1-R018-rdy-sum-3B-1.dgn

blussau

12/06/07

COMPUTED BY: Tyler Bottoms	DATE: 03-13-2025
CHECKED BY: Thein Tun Zan	DATE: 19-09-2025

PROJECT REFERENCE NO.	SHEET NO.
BPI-R018	36-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

	STATION	STATION	LOCATION LT/RT/CL	Drain Type UDBDSD	LF
				SD	
CONTINGENCY					200
TOTAL LF:					200

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF ROCK PLATING

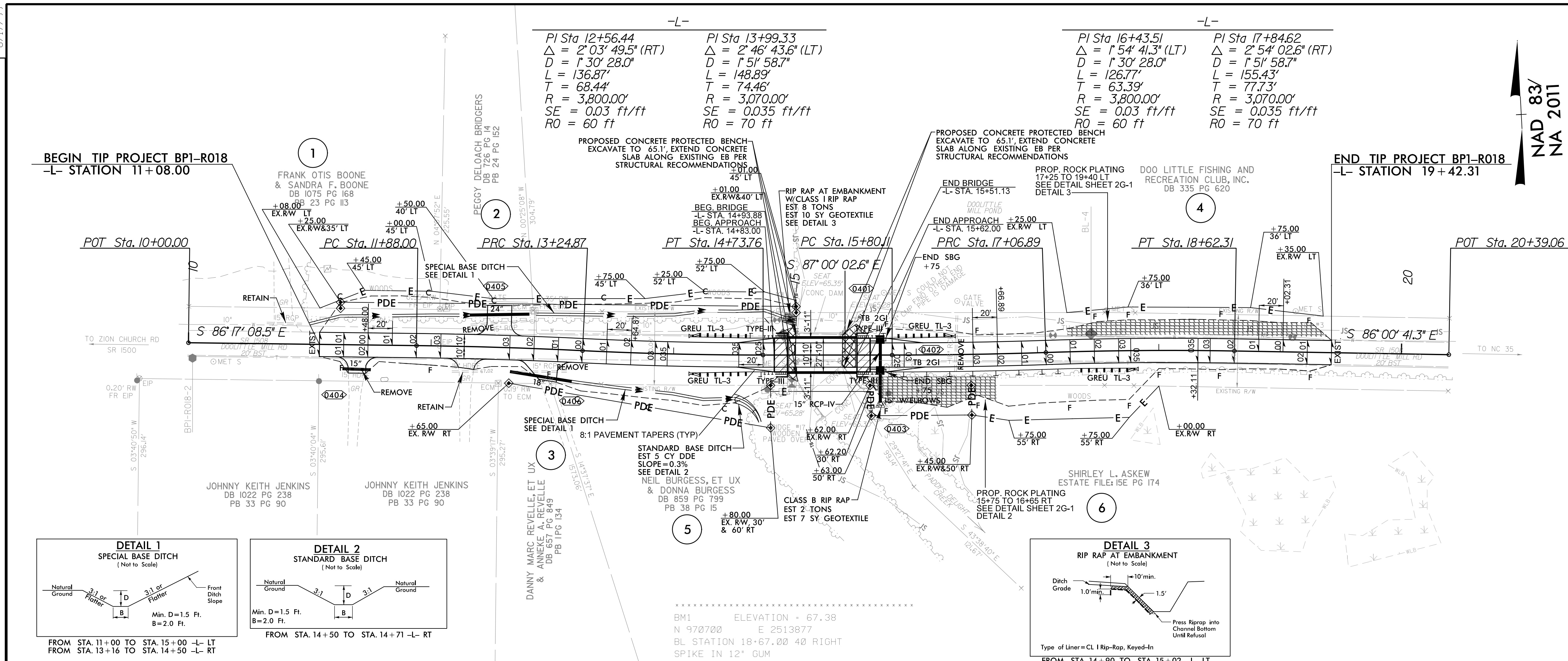
LINE	BEGINNING SLOPE (H:V)	APPROX. STATION	END SLOPE (H:V)	APPROX. STATION	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/8	Rock Plating SY
-L-	1.5:1	15 + 25	2.5:1	16 + 65	RT	2	*	290
-L-	2:1	17 + 25	2:1	19 + 74	LT	3	*	280
TOTAL SY:								570

*Use Class 1, 2 or 8 riprap if riprap class is not shown for rock plating location.

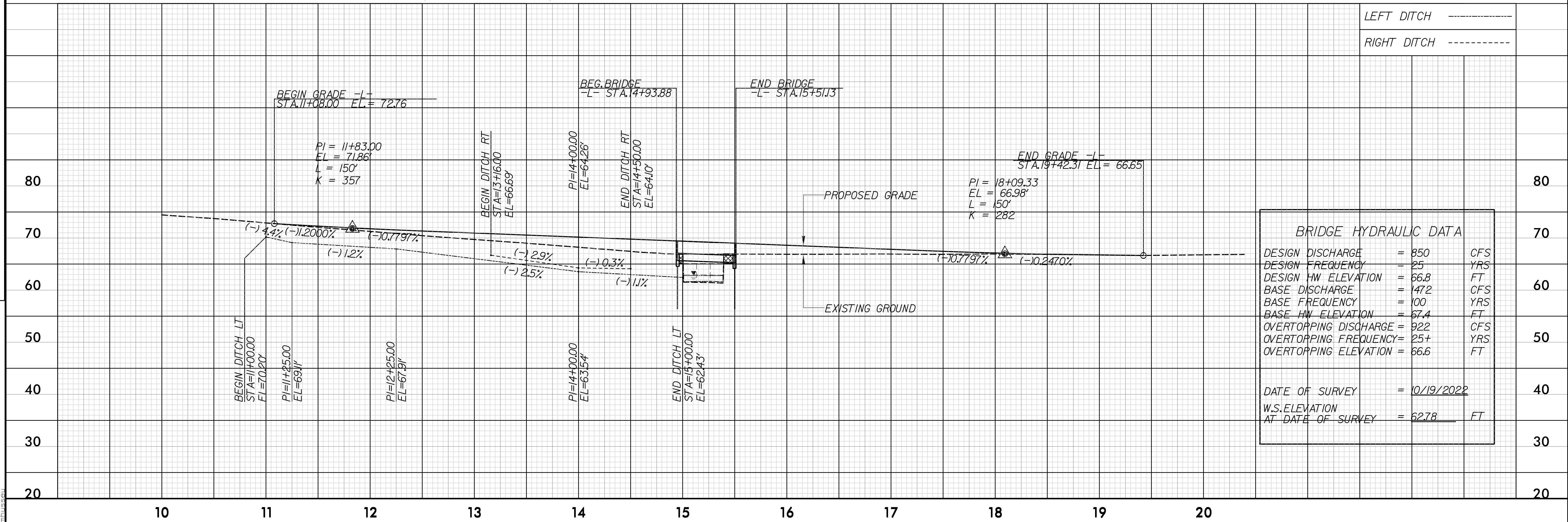
8/17/99

REVISIONS

3/23/2026
BPI-R018.dwg
BPI-R018.dwg



PROJECT REFERENCE NO. BPI-R018		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER / 25/2026		HYDRAULICS ENGINEER / 25/2026	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



TIP PROJECT: BP1-R018

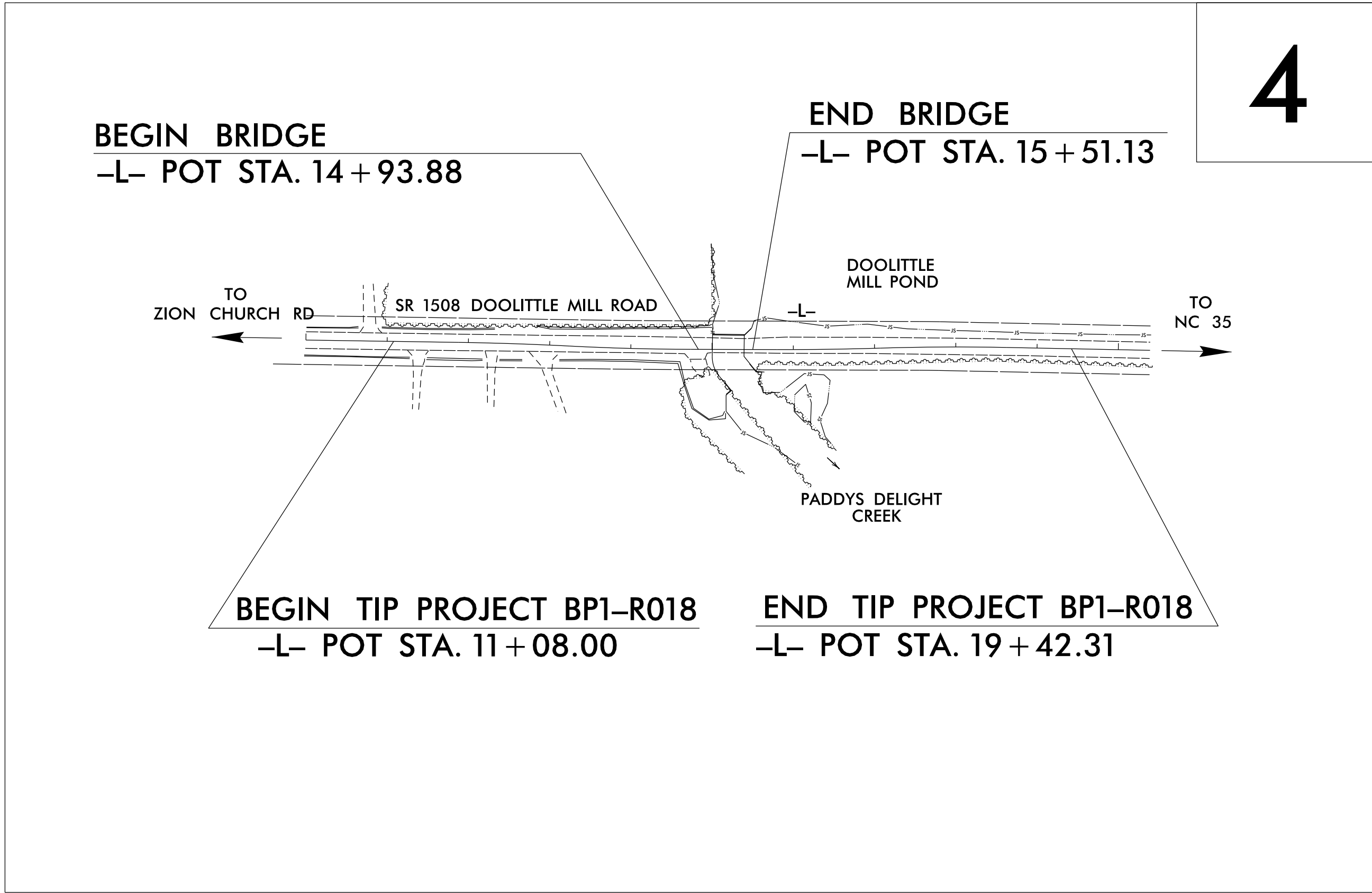
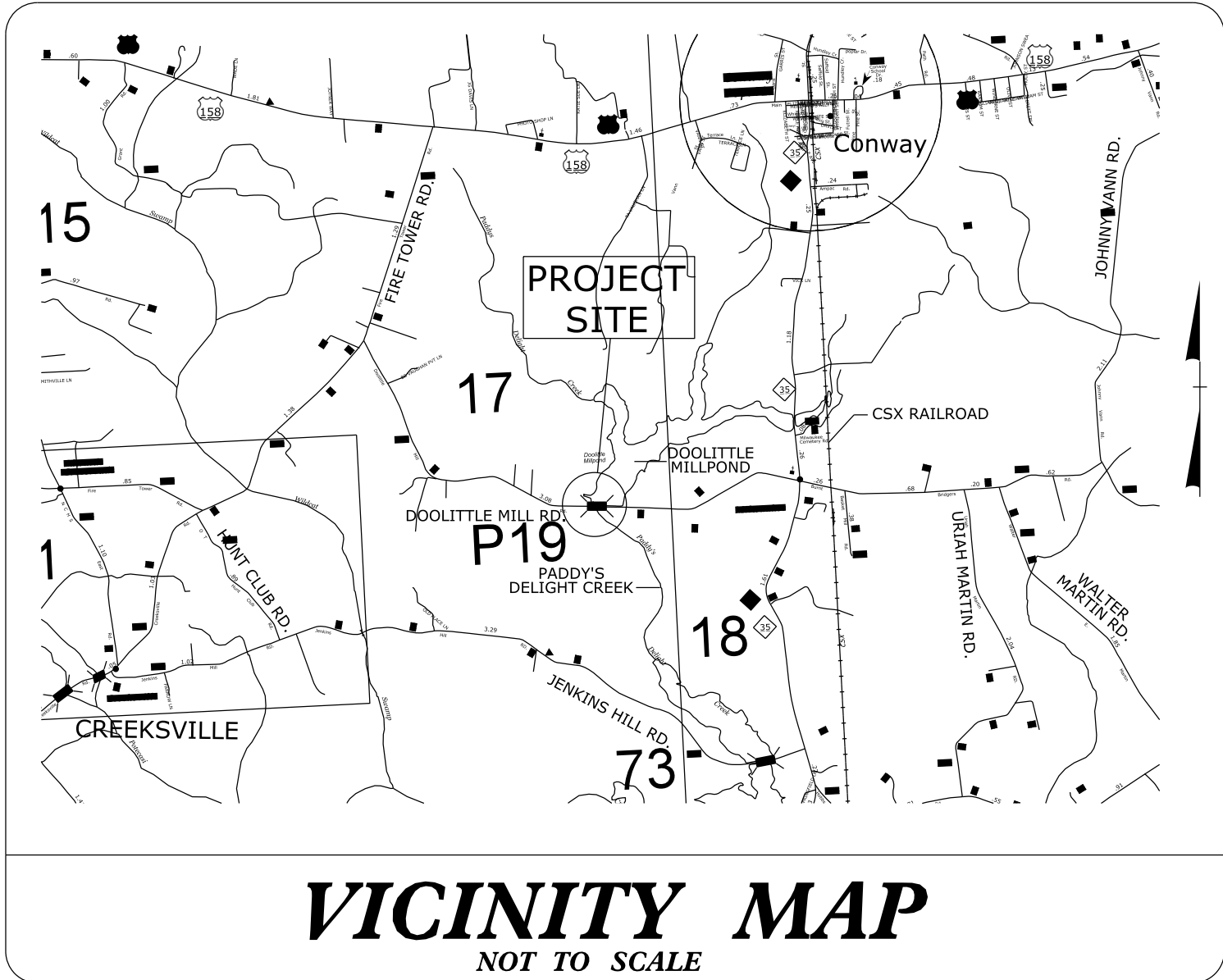
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1-R018	RW01	06

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

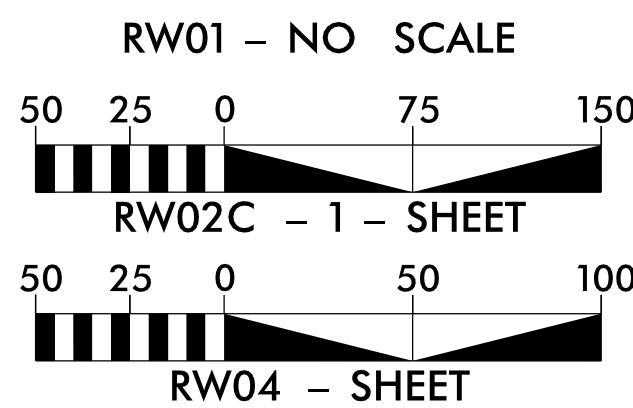
SURVEY CONTROL, EXISTING CENTERLINES,
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

NORTHAMPTON COUNTY

LOCATION: BRIDGE NO. 650017 OVER PADDYS DELIGHT CREEK
ON DOOLITTLE MILL ROAD (SR 1508)



GRAPHIC SCALE



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
JMT FOR MONUMENT "CENTROID"
WITH NC STATE PLANE GRID COORDINATES OF
NORTHING: 970730.000(ft) EASTING: 2513900.0000(ft)
ELEVATION: 66.000(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 1.0000770629
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

LOCATION & SURVEYS
DIVISION 1
1300 US HWY 64 W
PLYMOUTH, NC 27962

PROFESSIONAL LAND
SURVEYOR

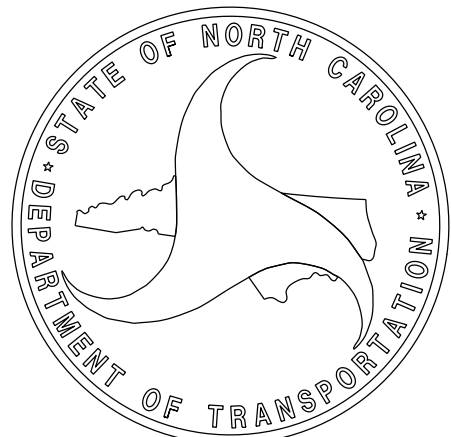


Signature of
Wood T. Downs III

Date: 12/11/2025

SIGNATURE:

Date:



I, Michael W. Zmuda , PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: AA
Type of GPS field procedure: RTN
Dates of survey: February 21, 2022
Datum/Epoch: NAD83/2011
Published/Fixed-control use: N/A
Localized around: CENTROID
Northing:970730.000
Easting:2513900.000
Combined grid factor:1.0000770629
Geoid model: 18
Units: US Survey Feet

I also certify that the Baseline Control for this project 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 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from February 21, 2022 to March 11, 2022 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 18th day of March, 2022.

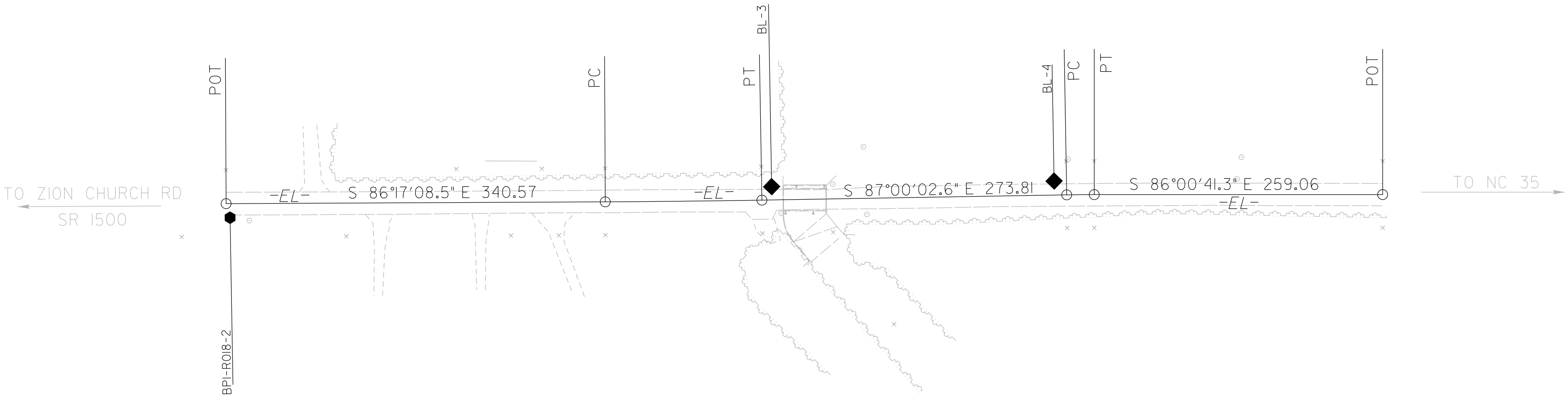
DocuSigned by:
Michael W. Zmuda
018CC338971543A
Professional Land Surveyor L-5205

BPL-R018-1

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

SEE SHEET RW02C-2
FOR FURTHER
ALIGNMENT DETAILS



NOTES:

- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
- 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.

REVISIONS

SURVEY CONTROL SHEET

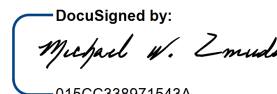
W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

I, Michael W. Zmuda , PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: AA
Type of GPS field procedure: RTN
Dates of survey: February 21, 2022
Datum/Epoch: NAD83/2011
Published/Fixed-control use: N/A
Localized around: CENTROID
Northing:970730.000
Easting:2513900.000
Combined grid factor:1.0000770629
Geoid model: 18
Units: US Survey Feet

I also certify that the Baseline Control for this project 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 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from February 21, 2022 to March 11, 2022 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 16th day of March, 2022.

DocuSigned by:

015CC338971543A...
Professional Land Surveyor L-5205

BL	POINT	DESC.	NORTH	EAST	ELEVATION
R0181		BP1-R018-1	970870.3760	2512521.2710	83.53
R0182		BP1-R018-2	970746.2070	2513384.8550	73.99
BL3		BL-3	970740.2060	2513872.0610	66.63
BL4		BL-4	970727.5930	2514125.4990	66.22

BM1 ELEVATION = 67.38
N 970700 E 2513877
BL STATION 18+67.00 40 RIGHT
SPIKE IN 12" GUM

PROJECT REFERENCE NO.
BP1-R018

SHEET NO.
RW02C-2

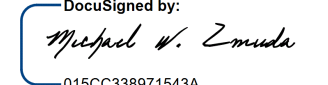
Location and Surveys

Johnson, Mirmiran & Thompson, Inc.
9201 Arboretum Parkway, Suite 310
Richmond, VA 23236

PROJECT SURVEYOR



DocuSigned by:



015CC338971543A...

EL	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	970759.030	2513382.173	S 86°17'08.5" E	340.57					
LINE									
PC	970736.967	2513722.030	S 86°38'35.5" E	140.72	00°42'54.1"(LT)	00°30'29.2"	140.72	70.36	11276.40
CURVE									
PT	970728.727	2513862.512	S 87°00'02.6" E	273.01					
LINE									
PC	970714.401	2514135.948	S 86°30'21.9" E	24.74	00°59'21.3"(RT)	03°59'53.4"	24.74	12.37	1433.05
CURVE									
PT	970712.893	2514160.645	S 86°00'41.3" E	259.06					
LINE									
POT	970694.873	2514419.076							

NOTES:

- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
- 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.
BPI-R018

SHEET NO.
RW02D-1

Location and Surveys

LOCATION & SURVEYS
DIVISION 1
1300 US HWY 64 W
PLYMOUTH, NC 27962

PROJECT SURVEYOR

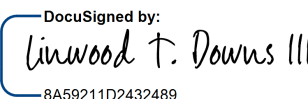


DocuSigned by:
Linwood T. Downs III
8459211D2432499

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

I, Linwood T. Downs III, 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 2nd day of December, 2025.

DocuSigned by:


Professional Land Surveyor L-5327



	L									
POINT	N	E	BEARING	DIST	DELTA	D	L	T	R	
POT	970759.030	2513382.173	S 86°17'08.5" E	188.00						
LINE										
PC	970746.851	2513569.778	S 85°15'13.7" E	136.87	02°03'49.5"(RT)	01°30'28.0"	136.87	68.44	3800.00	
CURVE										
PCC	970735.527	2513706.174	S 85°36'40.8" E	148.88	02°46'43.6"(LT)	01°51'58.7"	148.89	74.46	3070.00	
CURVE										
PT	970724.134	2513854.614	S 87°00'02.6" E	106.35						
LINE										
PC	970718.570	2513960.818	S 87°57'23.2" E	126.77	01°54'41.3"(LT)	01°30'28.0"	126.77	63.39	3800.00	
CURVE										
PCC	970714.049	2514087.506	S 87°27'42.6" E	155.41	02°54'02.6"(RT)	01°51'58.7"	155.43	77.73	3070.00	
CURVE										
PT	970707.167	2514242.763	S 86°00'41.3" E	176.74						
LINE										
POT	970694.873	2514419.076								

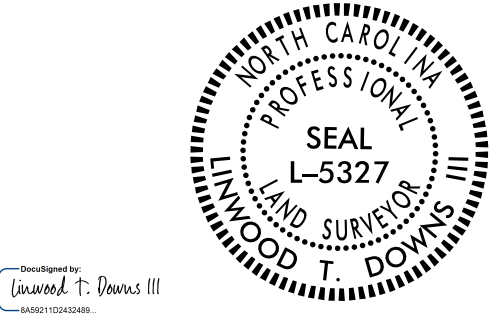
NOTES:

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.

REVISIONS

6/2/99

RIGHT OF WAY CONTROL SHEET

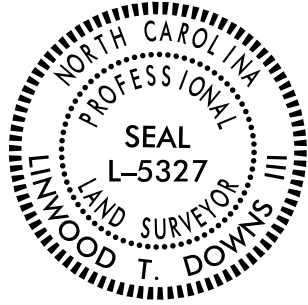
PROJECT REFERENCE NO.	SHEET NO.
BPI-R018	RW03E-1
Location and Surveys	
LOCATION & SURVEYS DIVISION 1 FIELD 1300 US HWY 64 W PLYMOUTH, NC 27962	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Linwood T. Downs III, 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 on October 21, 2025, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 2nd day of December, 2025.


Linwood T. Downs III

Professional Land Surveyor L-5327

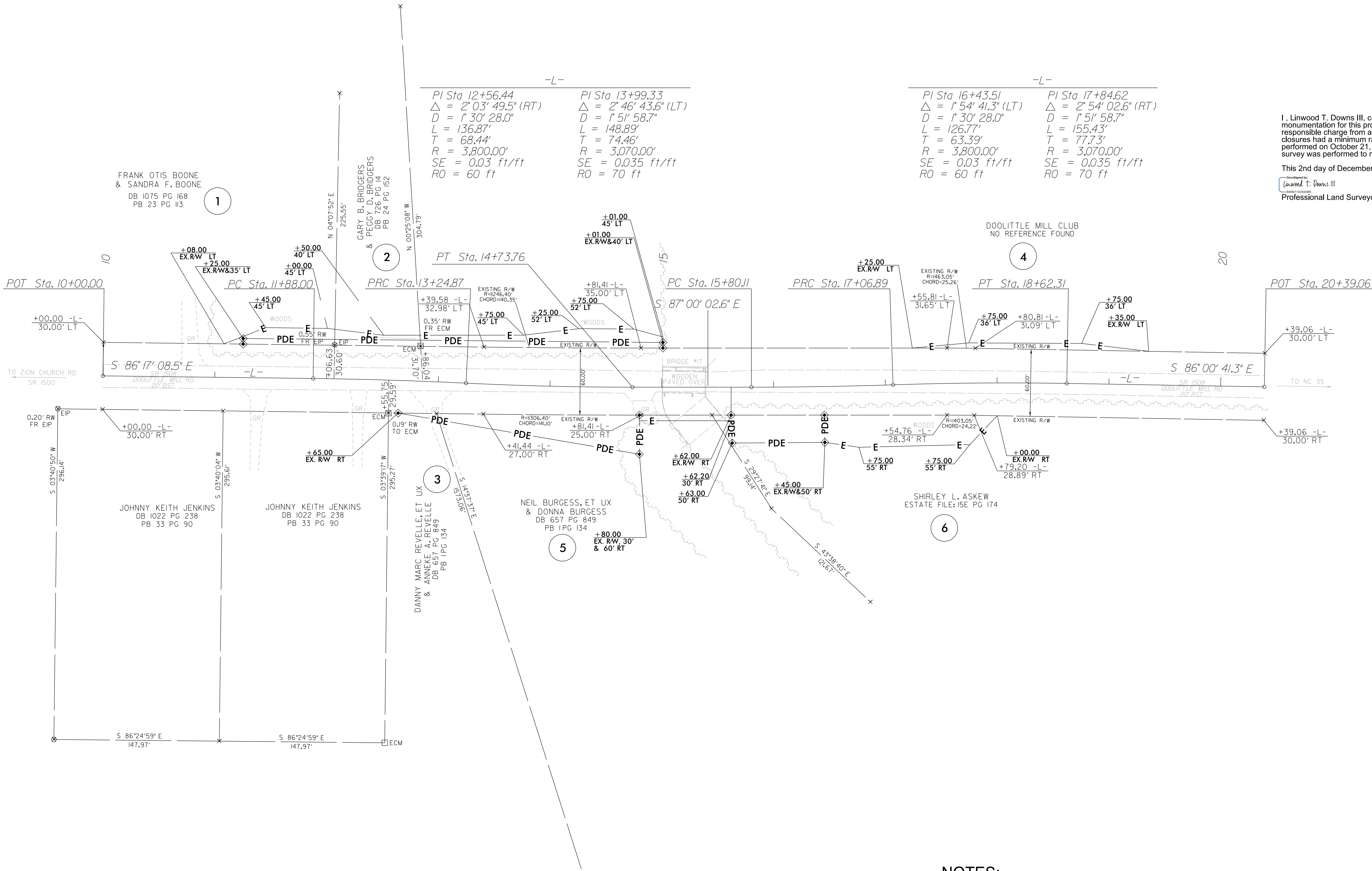


ROW MARKER PERMANENT EASEMENT-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	11+25.00	-30.00	970780.8692	2513508.8539
L	11+25.00	-35.00	970785.8587	2513509.1778
L	12+65.00	29.23	970711.9645	2513644.0767
L	14+80.00	60.00	970663.8901	2513857.7023
L	14+80.00	25.00	970698.8422	2513859.5336
L	15+01.00	-40.00	970762.6543	2513883.9059
L	15+01.00	-35.00	970757.6612	2513883.6443
L	15+62.00	25.00	970694.5516	2513941.4213
L	15+63.00	50.00	970669.5336	2513941.1119
L	16+45.00	50.00	970665.7590	2514023.8783
L	16+45.00	25.56	970690.1861	2514024.7403

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 ON 12/02/2025.

REVISIONS



PROJECT REFERENCE NO.	SHEET NO.
BPI-R018	RW04
Location and Surveys	
LOCATION & SURVEYS DIVISION 1 1300 US HWY 64 W PLYMOUTH, NC 27962	
PROJECT SURVEYOR  Seal L-5327 Linwood T. Downs III	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Linwood T. Downs III, 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 on October 21, 2025, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 2nd day of December, 2025.

Linwood T. Downs III
Professional Land Surveyor L-5327

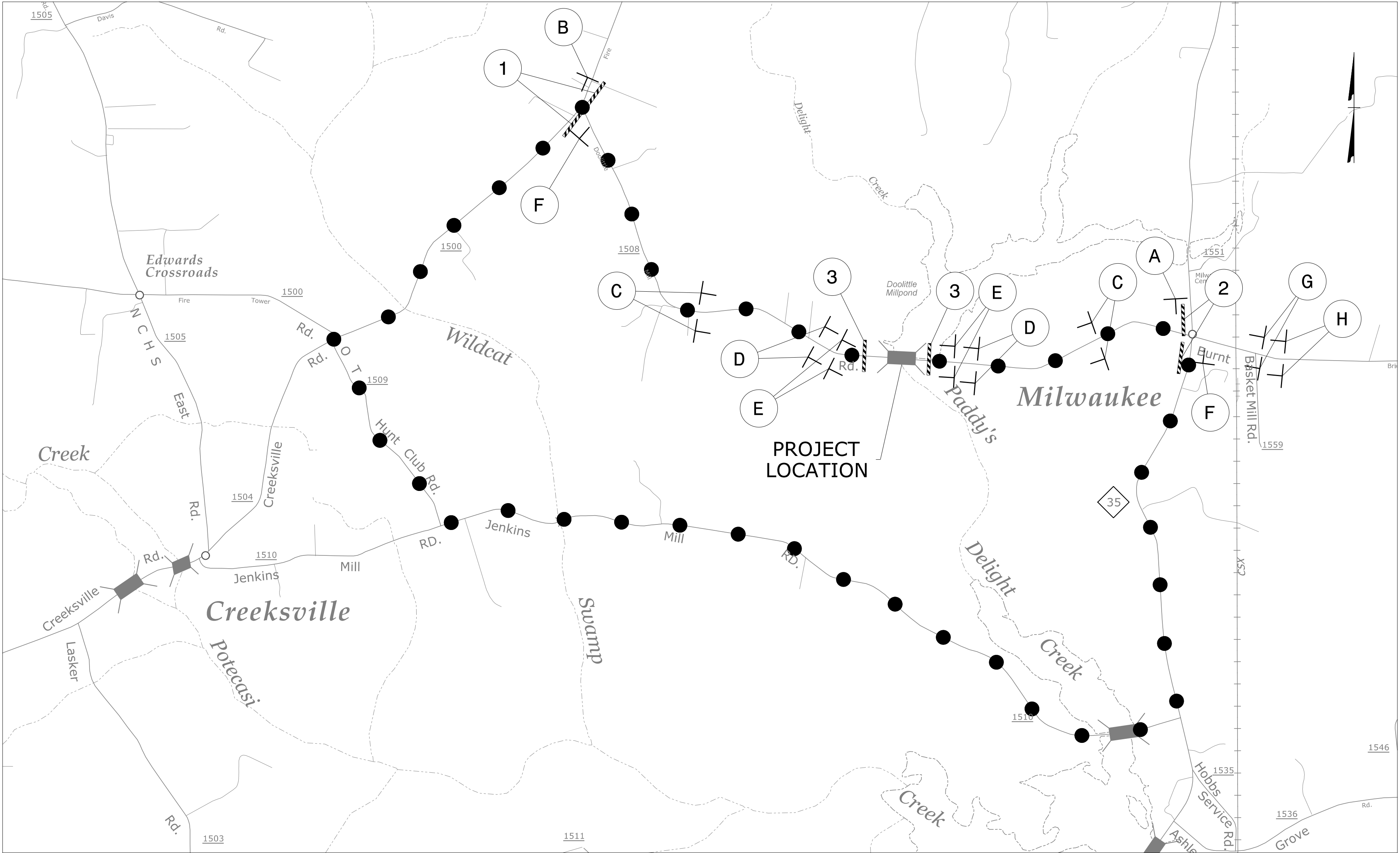


NOTES:

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 ON 12/02/2025.

TRAFFIC CONTROL FOR TEMPORARY ROAD CLOSURE

PROJ. REFERENCE NO.	SHEET NO.
BP1 -R018	TMP - 1



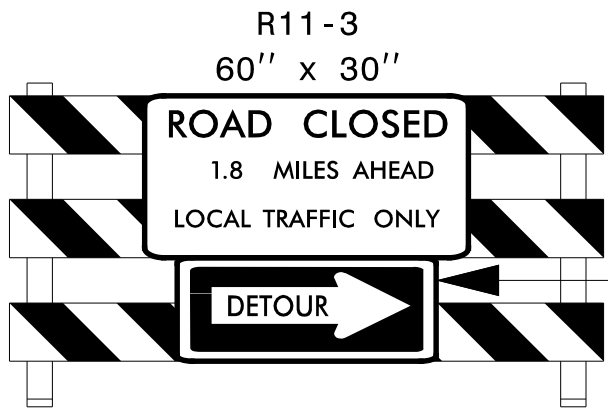
VICINITY MAP
(NOT TO SCALE)



DETOUR ROUTE (APPROX. LENGTH = 9.9 MILES)

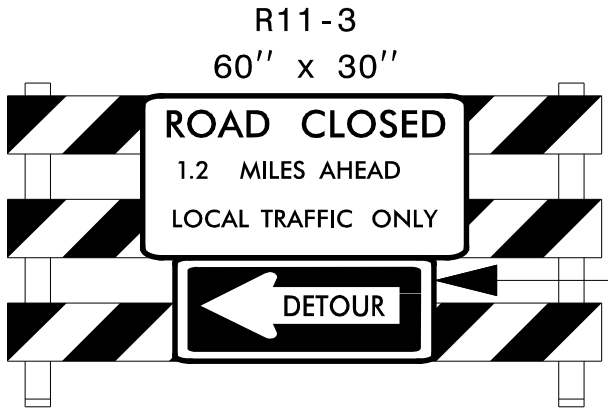


STATIONARY SIGN



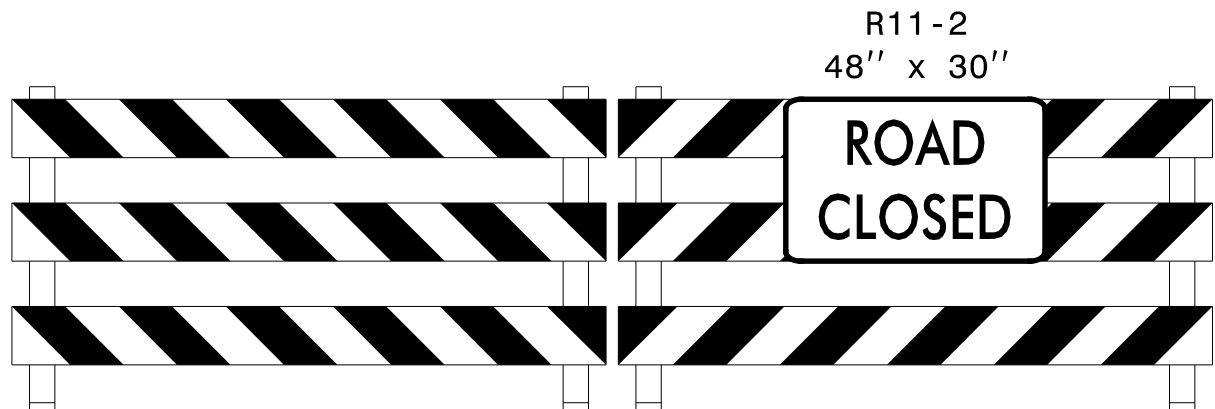
TYPE III BARRICADE

1



TYPE III BARRICADE

2



TYPE III BARRICADE(S)

3



NEXT RIGHT

A



NEXT LEFT

B



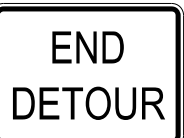
C



D



E



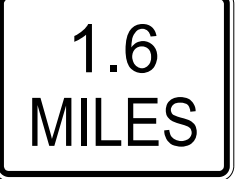
F



G



H



GENERAL NOTES

- 1- INSTALLATION OF DETOUR ROUTING PANELS, TEMPORARY ROUTE MARKERS, DESTINATION SIGNS, AND ANY NECESSARY MODIFICATIONS TO EXISTING OR PROPOSED REGULATORY OR WARNING SIGNS WILL BE MADE BY OTHERS (STATE OR CITY FORCES) UNLESS OTHERWISE DESIGNATED IN THE PLANS. PROVIDE A MINIMUM 30 CALENDAR DAY NOTICE TO STATE FORCES BEFORE A ROADWAY IS CLOSED TO TRAFFIC SUCH THAT THE NECESSARY PROVISIONS CAN BE MADE TO INSTALL DETOUR ROUTE SIGNS, INFORM LOCAL EMERGENCY AND LAW ENFORCEMENT PERSONNEL, SCHOOLS, OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.
- 2- INSTALL SIGNS BEFORE THE BARRICADES WHEN CLOSING THE ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING THE ROADWAY TO TRAFFIC. INSTALL/REMOVE SIGNS AND BARRICADES WITHIN THE SAME CALENDAR DAY.
- 3- USE ADDITIONAL TYPE III BARRICADES IN STAGGERED LOCATIONS SUPPLEMENTED WITH SIGN R11-3 IN THE EVENT THAT TRAFFIC MUST BE MAINTAINED BEYOND THE DETOUR POINT.
- 4- POSITION WING BARRICADES ON THE SHOULDERS AND SLOPE THE STRIPES DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING.
- 5- USE PORTABLE SIGNS IF ROAD CLOSURE IS TO BE IMPLEMENTED FOR LESS THAN THREE DAYS, OR FOR EMERGENCIES.

APPROVED: _____

DATE: _____

SEAL

031533

JOHN G. TOWNSEND

3/24/2020

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



TRANSPORTATION
MANAGEMENT
PLAN

T.I.P.: BPI-R018

CONTRACT: DA00680

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
NORTHAMPTON COUNTY

LOCATION: BRIDGE NO. 650018 OVER PADDYS
DELIGHT CREEK ON DOOLITTLE MILL
ROAD (SR 1508)

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE SHEET
PMP-2	PAVEMENT MARKING DETAIL

GENERAL NOTES

- 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.
- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:
- | | | |
|---------------------------|---------------|--------|
| ROAD NAME | MARKING | MARKER |
| -L- (DOOLITTLE MILL ROAD) | THERMOPLASTIC | NONE |
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

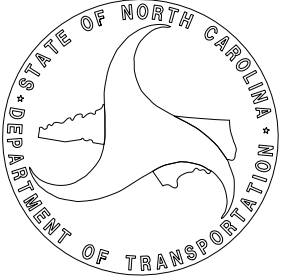
STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES

PAVEMENT
MARKING SCHEDULE

SYMBOL	DESCRIPTION
THERMOPLASTIC	
T1	WHITE EDGELINE (4", 90 MIL)
T13	YELLOW DOUBLE CENTER (4", 90 MIL)

PLAN SUBMITTED TO:

Ryan Shook; Project Engineer



PLAN PREPARED BY: VHB Engineering NC, P.C.

John Townsend, PE Project Engineer



940 Main Campus Drive, Suite 500 Raleigh, NC 27606
NC License No. C-3705

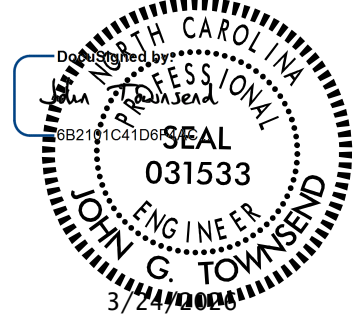
TIP NO.
BP1-R018

SHEET NO.
PMP-1

APPROVED: _____
DATE: _____

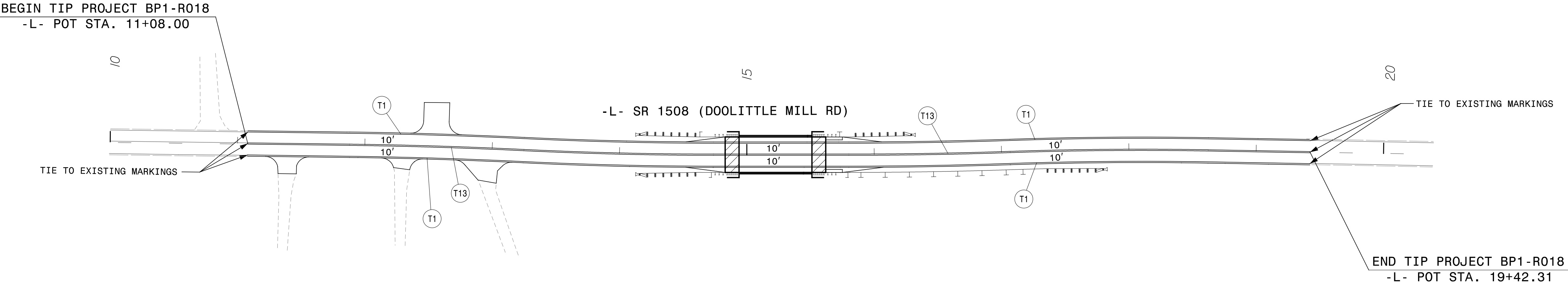
SEAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TIP NO.	SHEET NO.
BP1-R018	PMP-2
APPROVED: _____	
DATE: _____	
SEAL	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

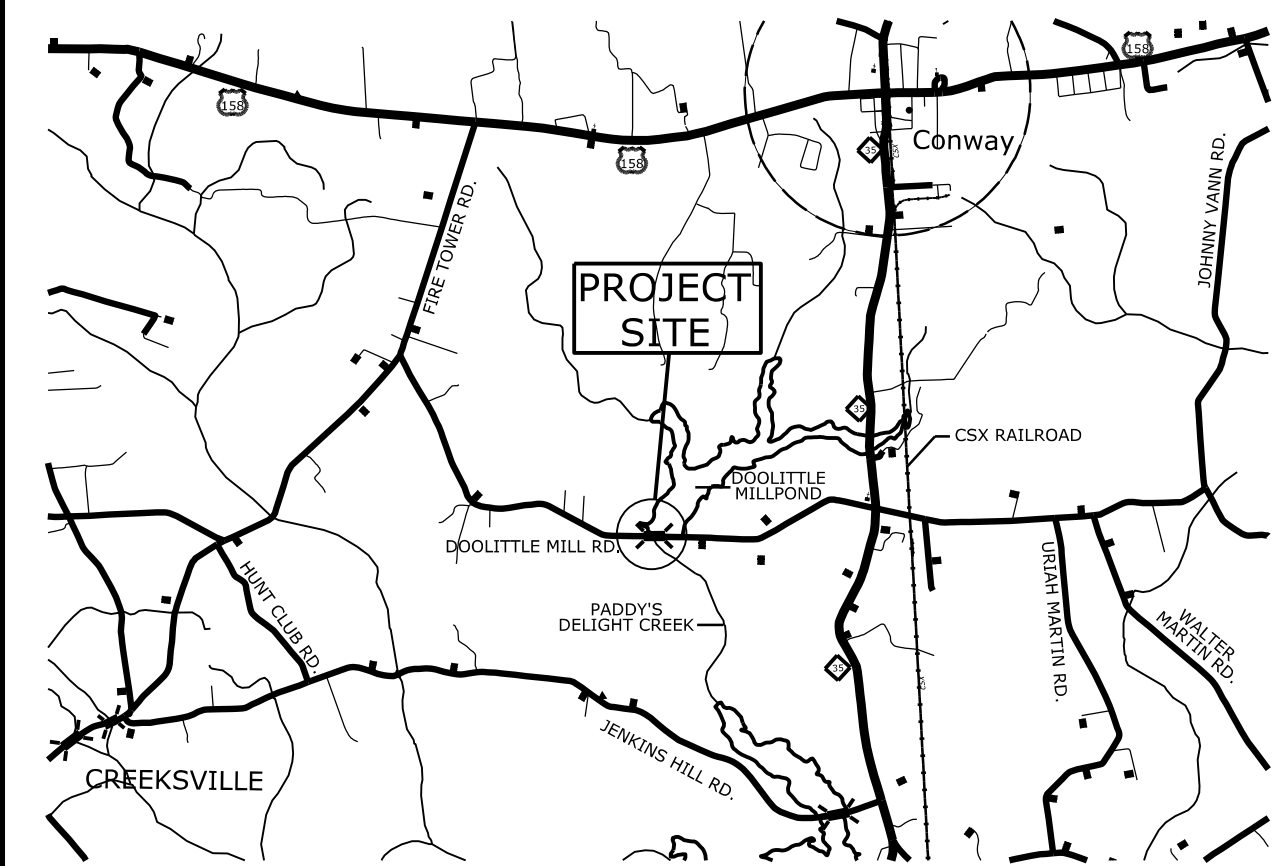


PAVEMENT MARKING SCHEDULE	
SYMBOL	DESCRIPTION
THERMOPLASTIC	
T1	WHITE EDGE LINE (4", 90 MIL)
T13	YELLOW DOUBLE CENTER (4", 90 MIL)



PAVEMENT MARKING DETAIL

TIP PROJECT: BPI.R018



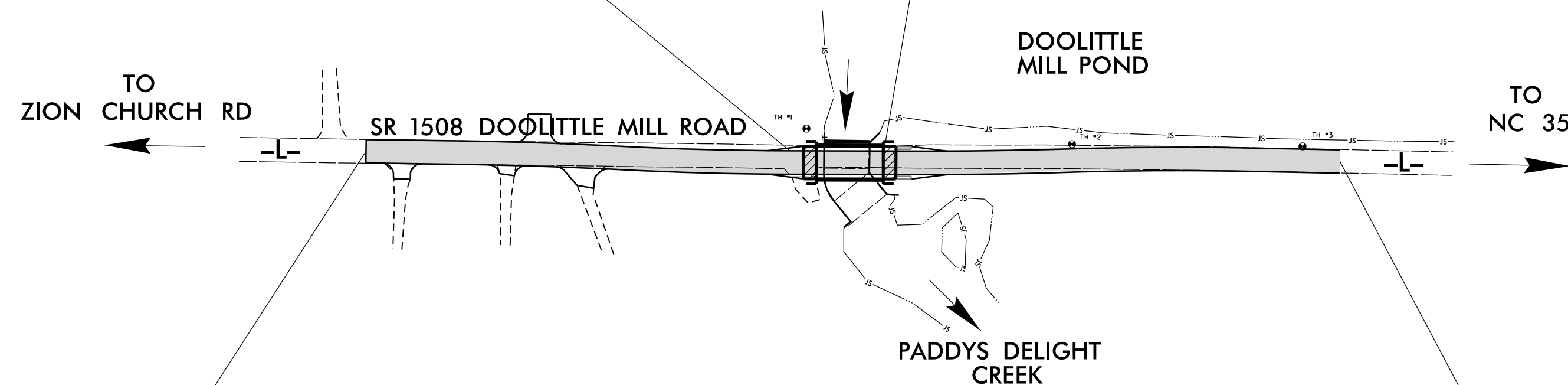
VICINITY MAP
NOT TO SCALE

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

LOCATION: BRIDGE NO. 650017 OVER PADDYS DELIGHT CREEK
ON DOOLITTLE MILL ROAD (SR 1508)
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

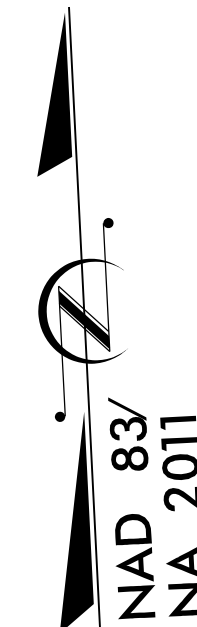
BEGIN BRIDGE
-L- POT STA. 14 + 93.88

END BRIDGE
-L- POT STA. 15 + 51.13

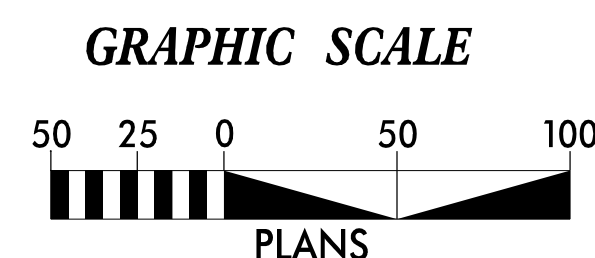


BEGIN TIP PROJECT BP1-R018
-L- POT STA. 11 + 08.00

END TIP PROJECT BP1-R018
-L- POT STA. 19 + 42.31



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



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY
WITH THE REGULATIONS SET FORTH BY THE
NCG-010000 GENERAL CONSTRUCTION PERMIT
ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES DIVISION OF WATER QUALITY.



Prepared In the Office of:
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

2024 STANDARD SPECIFICATIONS

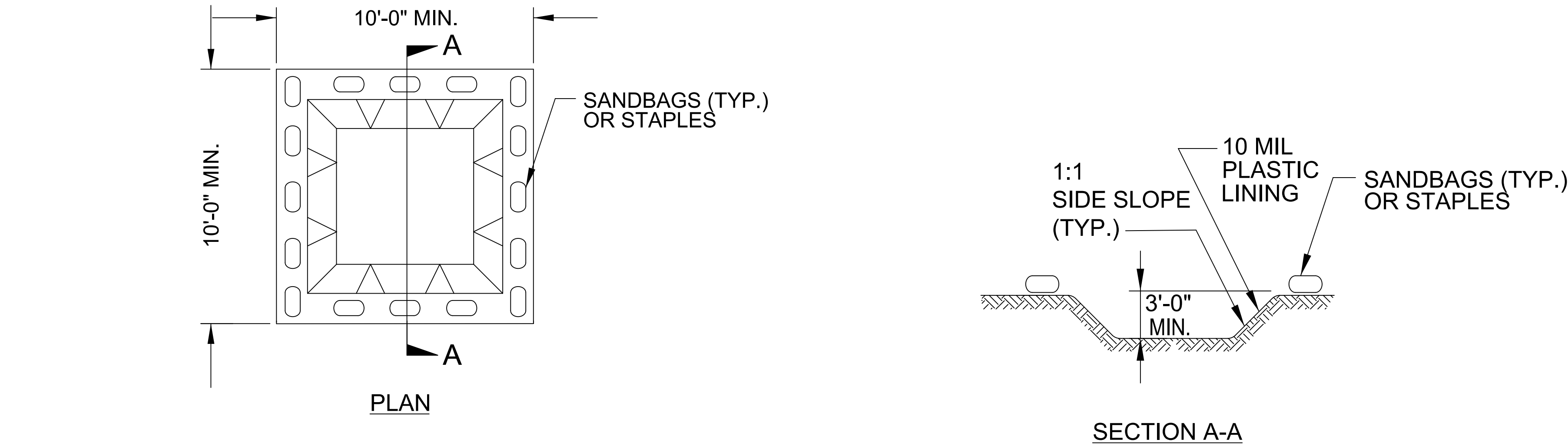
Designed by:
Brandon Barham 3368
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C.
Department of Transportation - Raleigh, N. C., dated January 2024
and the latest revision thereto are applicable to this project and by
reference hereby are considered a part of these plans.

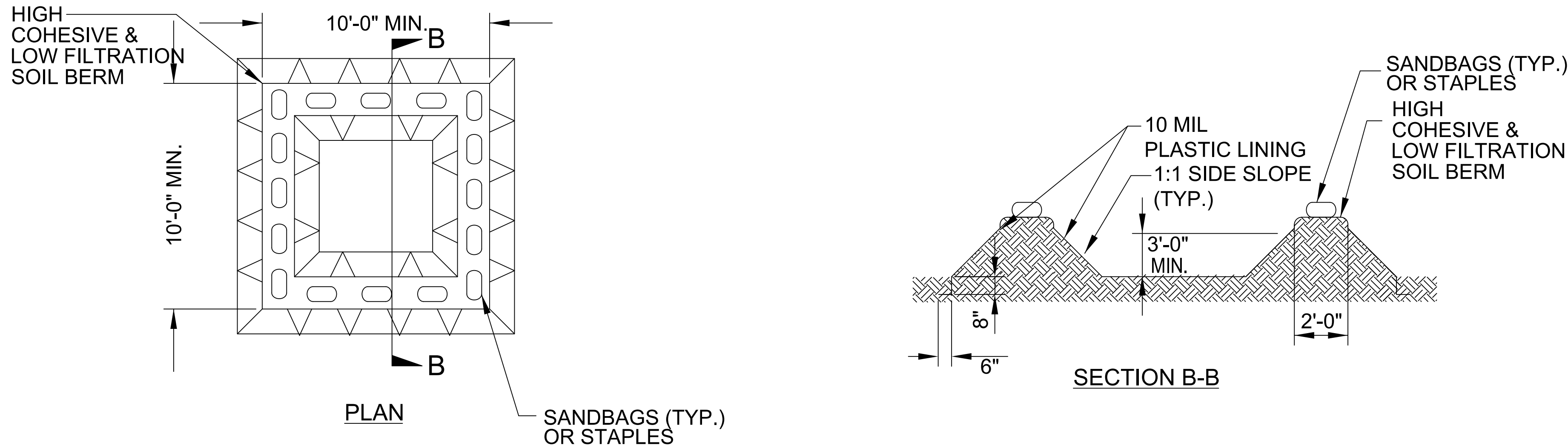
ONSITE CONCRETE WASHOUT
STRUCTURE WITH LINER

PROJECT REFERENCE NO.	SHEET NO.
<i>BPI-ROIB</i>	<i>EC-2A</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



- 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.

BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

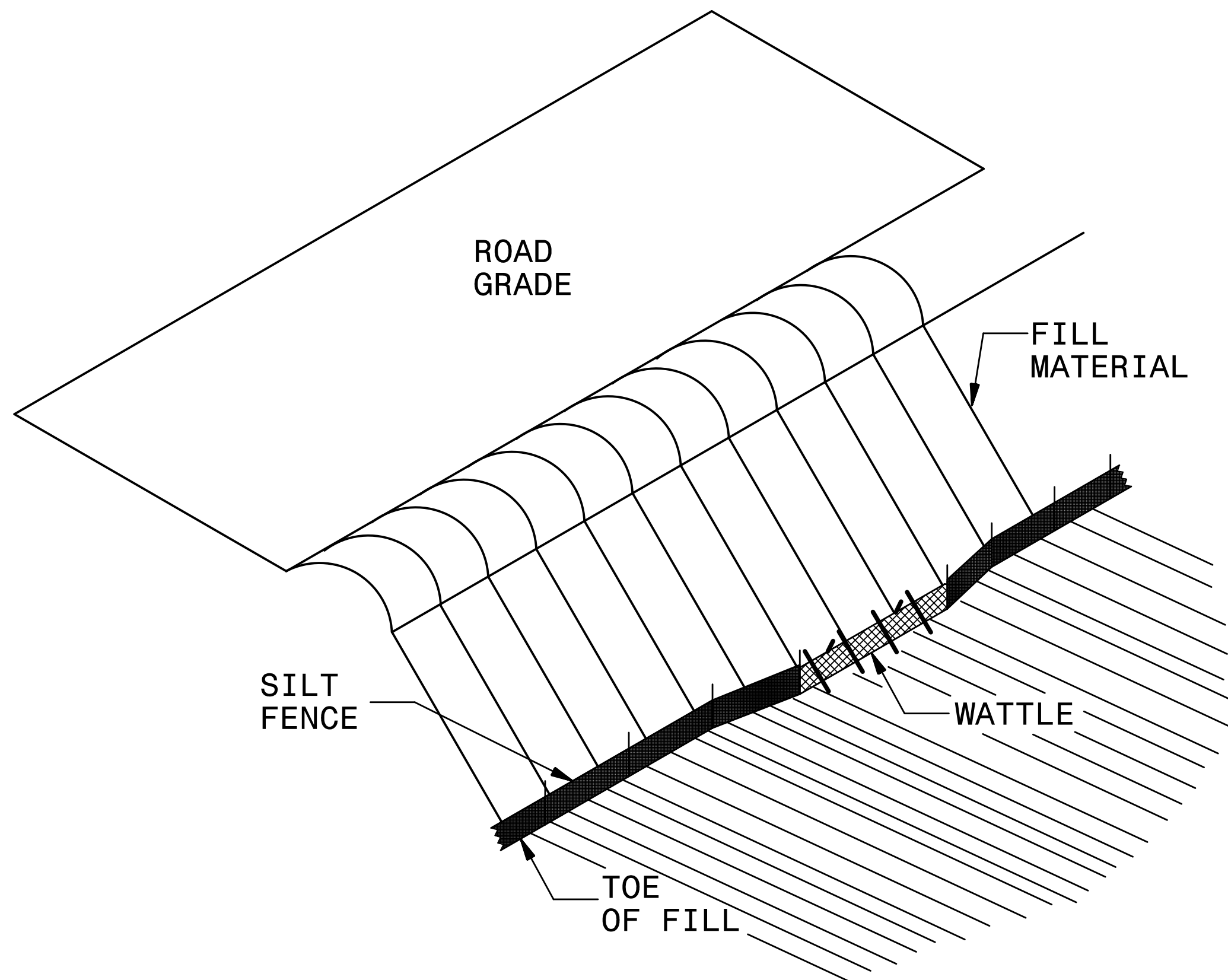


- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED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

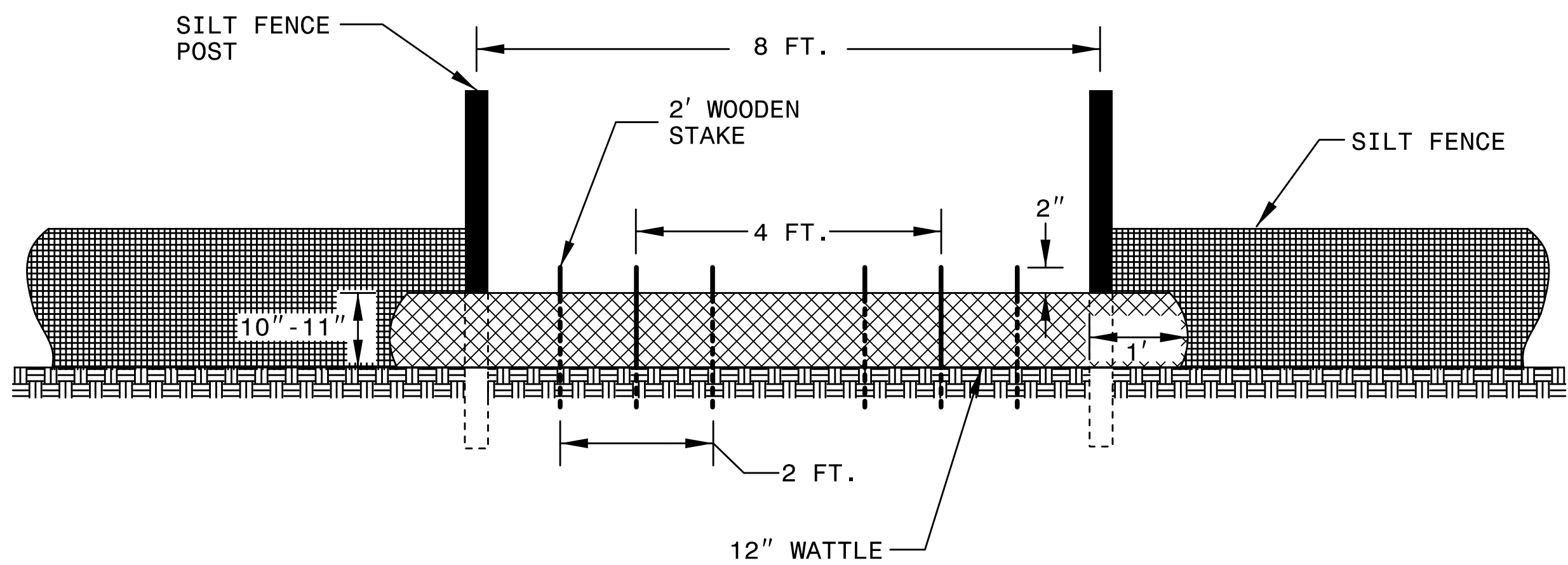
ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO.	SHEET NO.
<i>BPI-R018</i>	<i>EC-2B</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

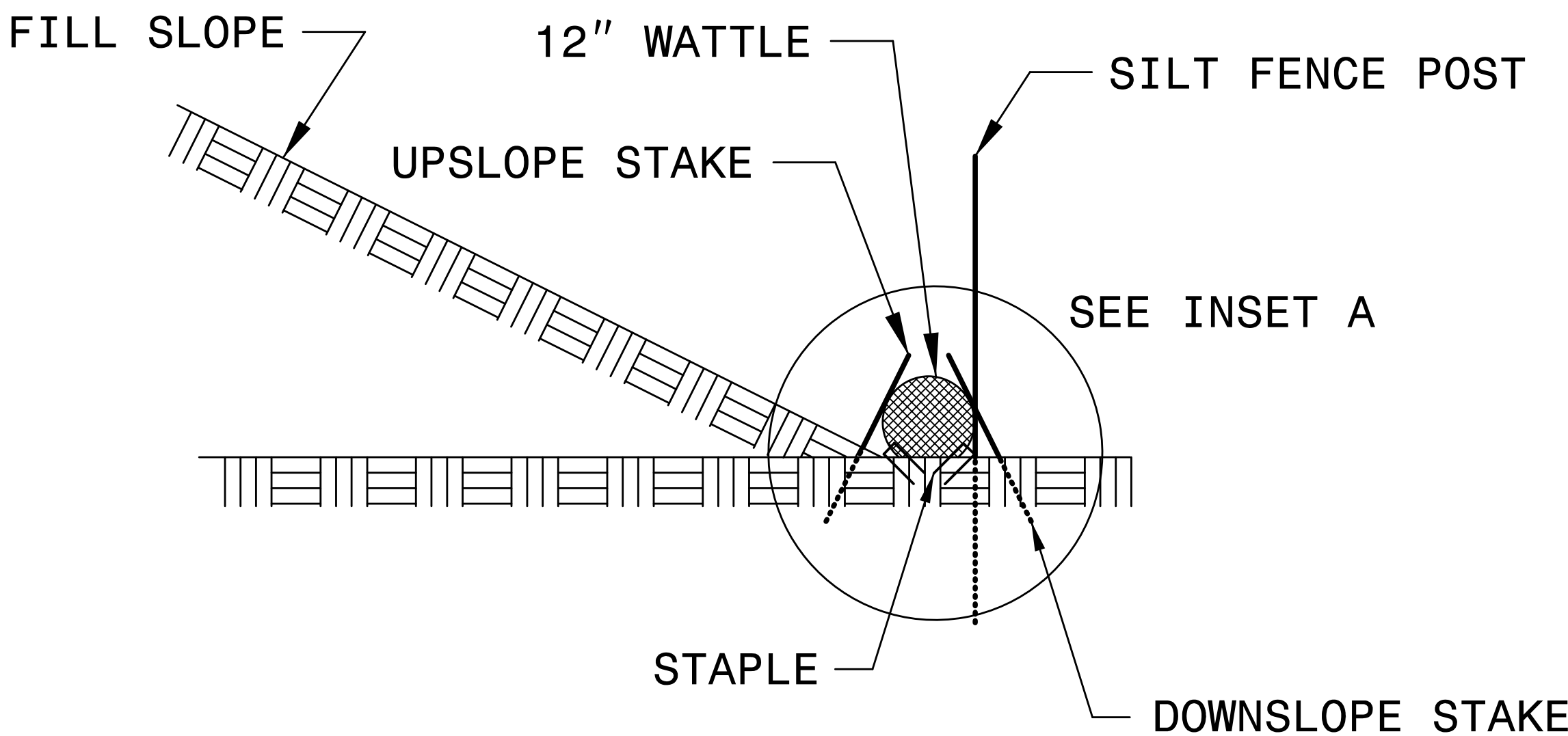
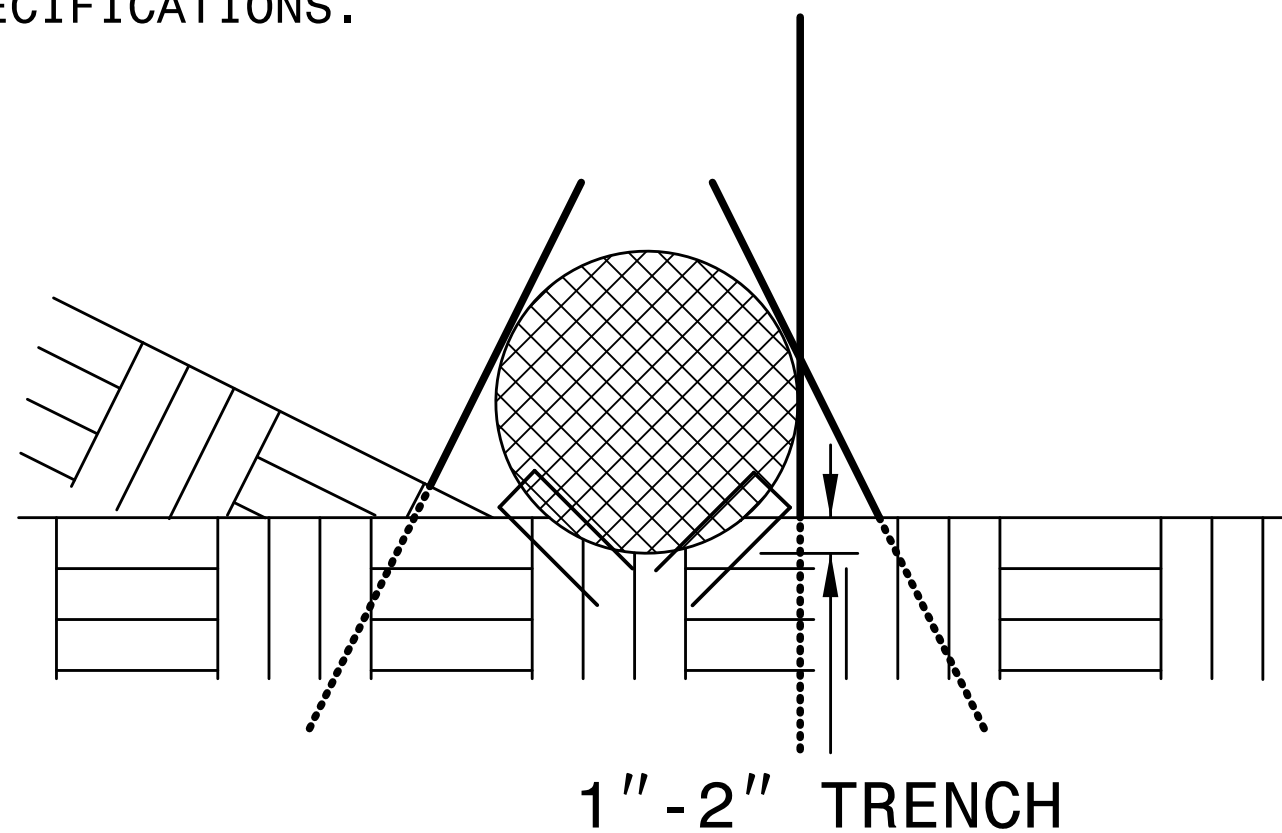
PROVIDE STAPLES MADE OF 11 GAUGE STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 6" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A



SIDE VIEW

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
<i>BPI-R018</i>	<i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

STRAW MATTING FOR EROSION CONTROL

[illegible]

MATTING FOR EROSION CONTROL

[illegible]

PROJECT REFERENCE NO.	SHEET NO.
BP1.R018	EC-3B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

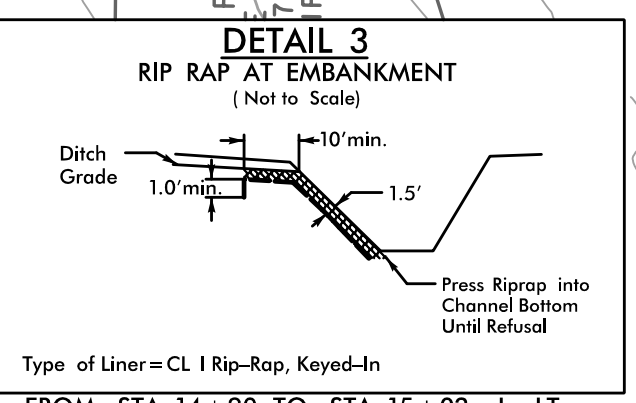
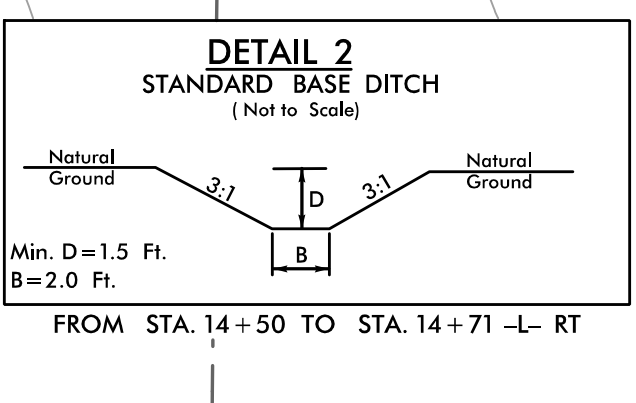
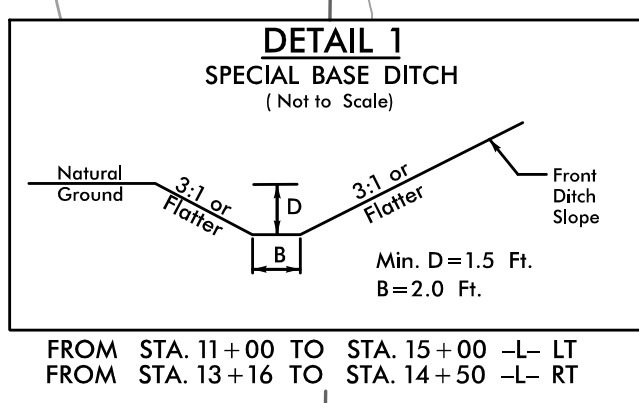
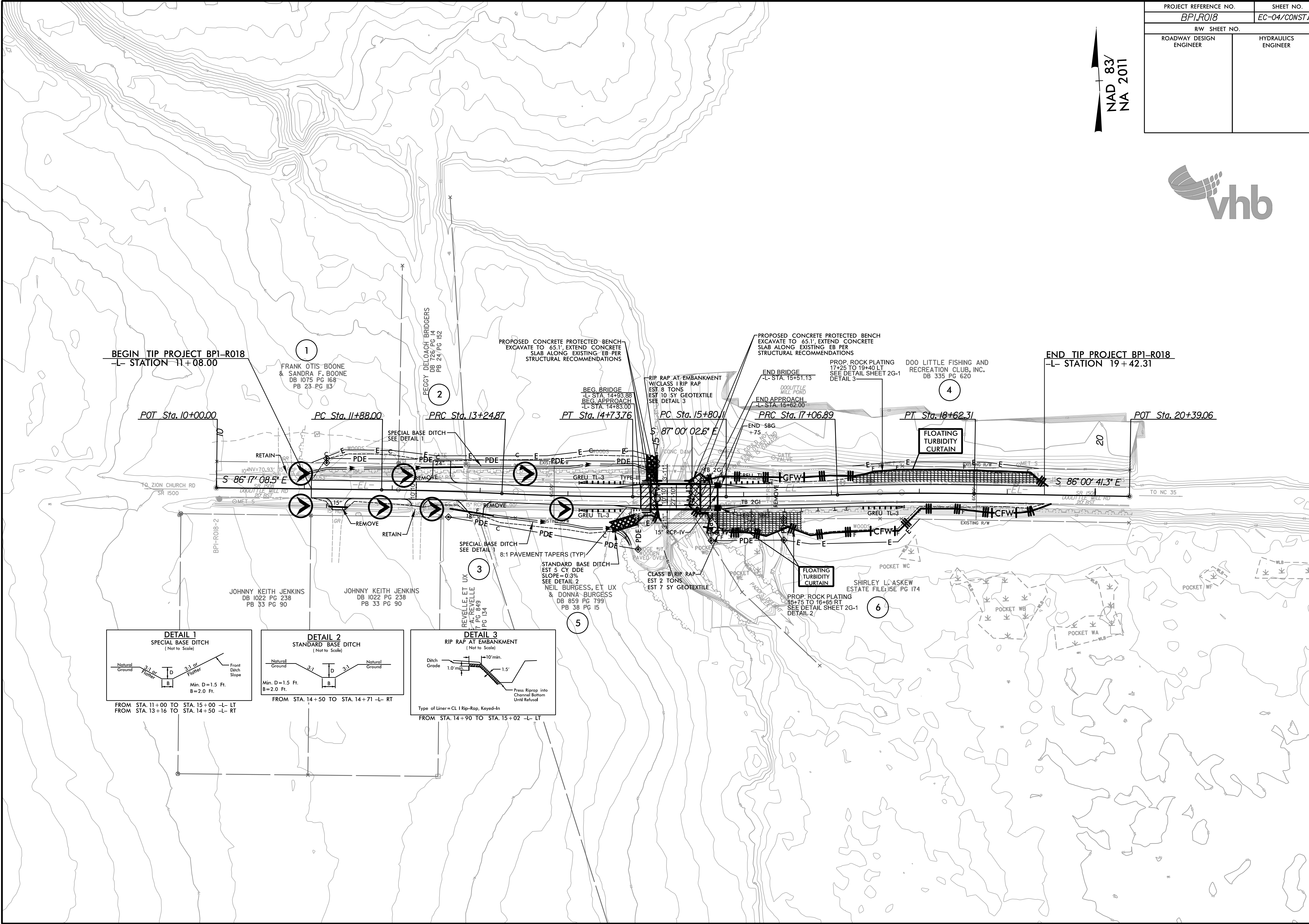
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 TO 4:1	14 DAYS	7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

PROJECT REFERENCE NO.	SHEET NO.
BPI-R018	EC-04/CONST.04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/
NA 2011

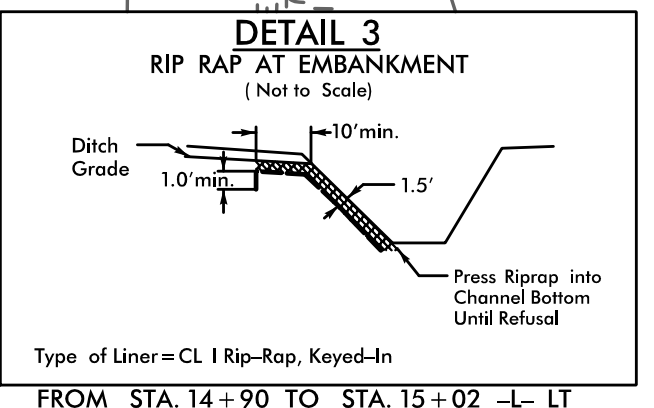
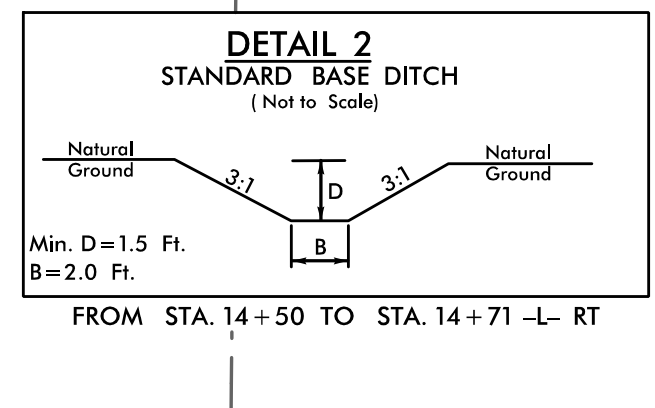
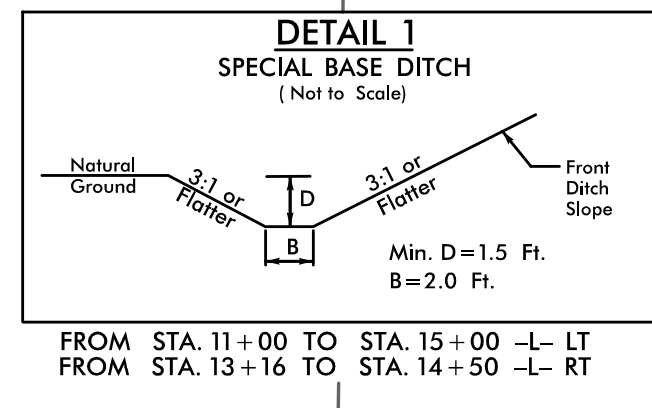
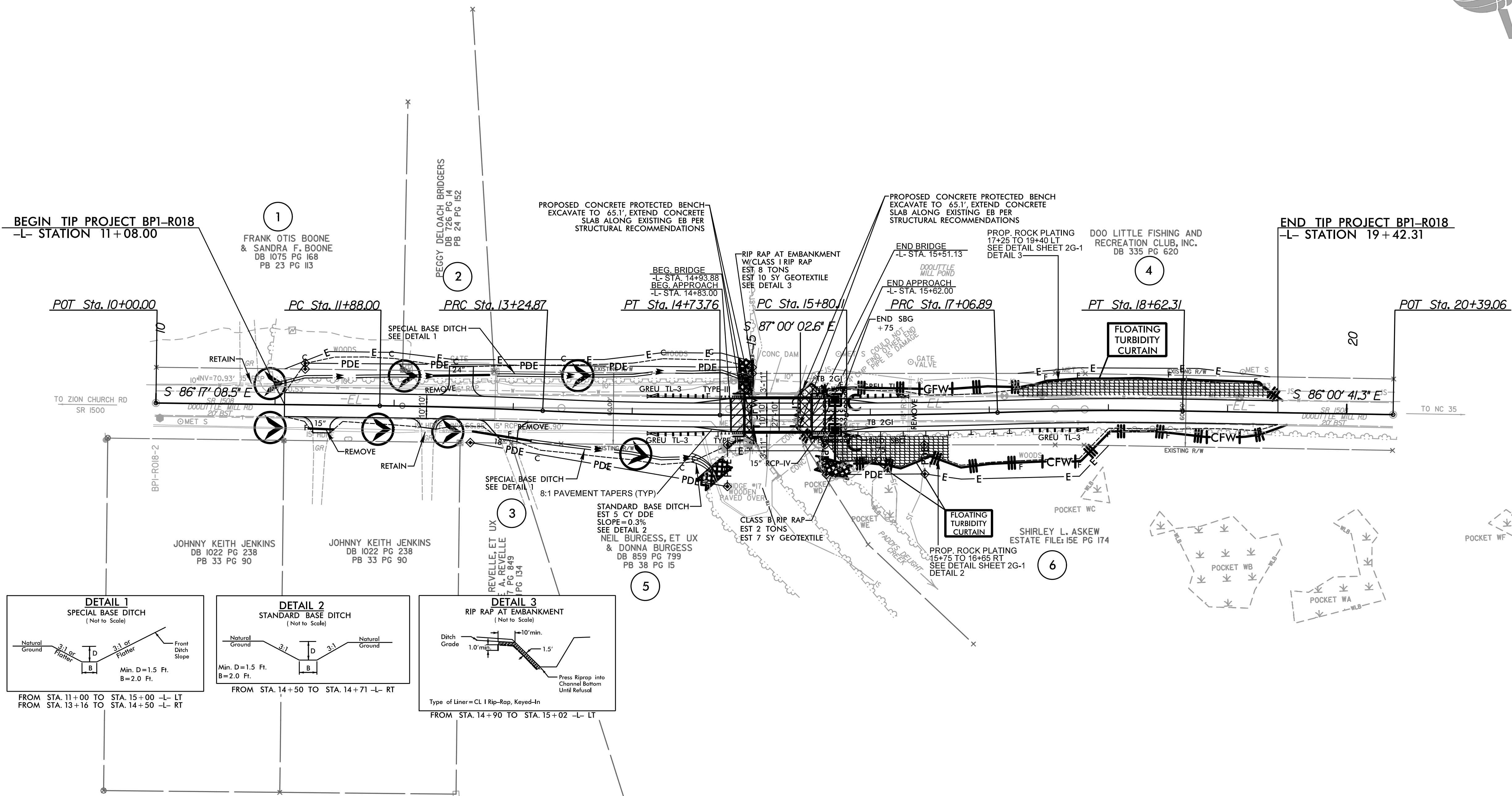


REVISIONS



PROJECT REFERENCE NO.	SHEET NO.
BPI-R018	EC-05/CONST.04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/
NA 2011



CONTRACT: DA00680

T.I.P.: BP1-R018

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

SIGNING PLAN

NORTHAMPTON COUNTY

LOCATION: BRIDGE NO.650018 OVER PADDYS

DELIGHT CREEK ON DOOLITTLE MILL

ROAD (SR 1508)

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	40	L.F.
4116100000	904	SIGN ERECTION, RELOCATE SIGN TYPE E	3	EA.
4141000000	907	DISPOSAL OF SUPPORT, WOOD	1	EA.
4158000000	907	DISPOSAL OF SIGN SYSTEM, WOOD	2	EA.
4192000000	907	DISPOSAL OF SUPPORT, U-CHANNEL	2	EA.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

GENERAL NOTES

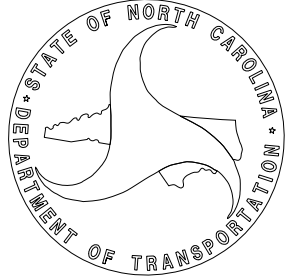
- . SIGNS FURNISHED BY STATE.
- . CONFIRM IN WRITING AT LEAST 4 MONTHS IN ADVANCE, THE ACTUAL DATE THE DEPARTMENT FURNISHED SIGNS WILL BE REQUIRED.
- . ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- . IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- . WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER.
- . ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- . WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- . THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- . SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-2	EXISTING AND PROPOSED SIGNS

PLAN SUBMITTED TO:

Ryan Shook; Project Engineer



PLAN PREPARED BY: VHB Engineering NC, P.C.

John Townsend, PE Project Engineer



940 Main Campus Drive, Suite 500 Raleigh, NC 27606
NC License No. C-3705

TIP NO.
BP1-R018

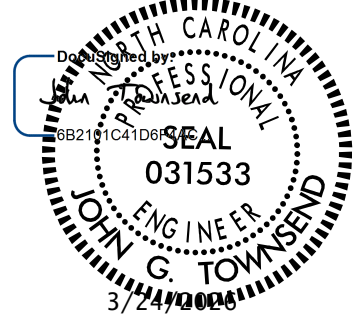
SHEET NO.
SIGN-1

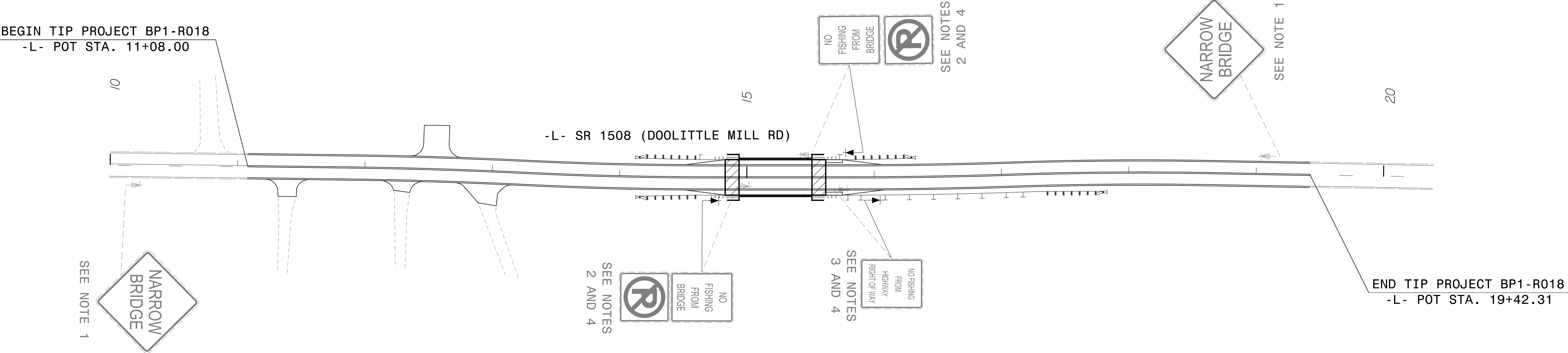
APPROVED: _____

DATE: _____

SEAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TIP NO.	SHEET NO.
BP1-R018	SIGN-2
APPROVED: _____	
DATE: _____	
SEAL 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



- PROJECT NOTES
1. DISPOSAL OF SIGN SYSTEM, WOOD
 2. DISPOSAL OF SUPPORT, U-CHANNEL
 3. DISPOSAL OF SUPPORT, WOOD
 4. RELOCATE SIGN, TYPE D

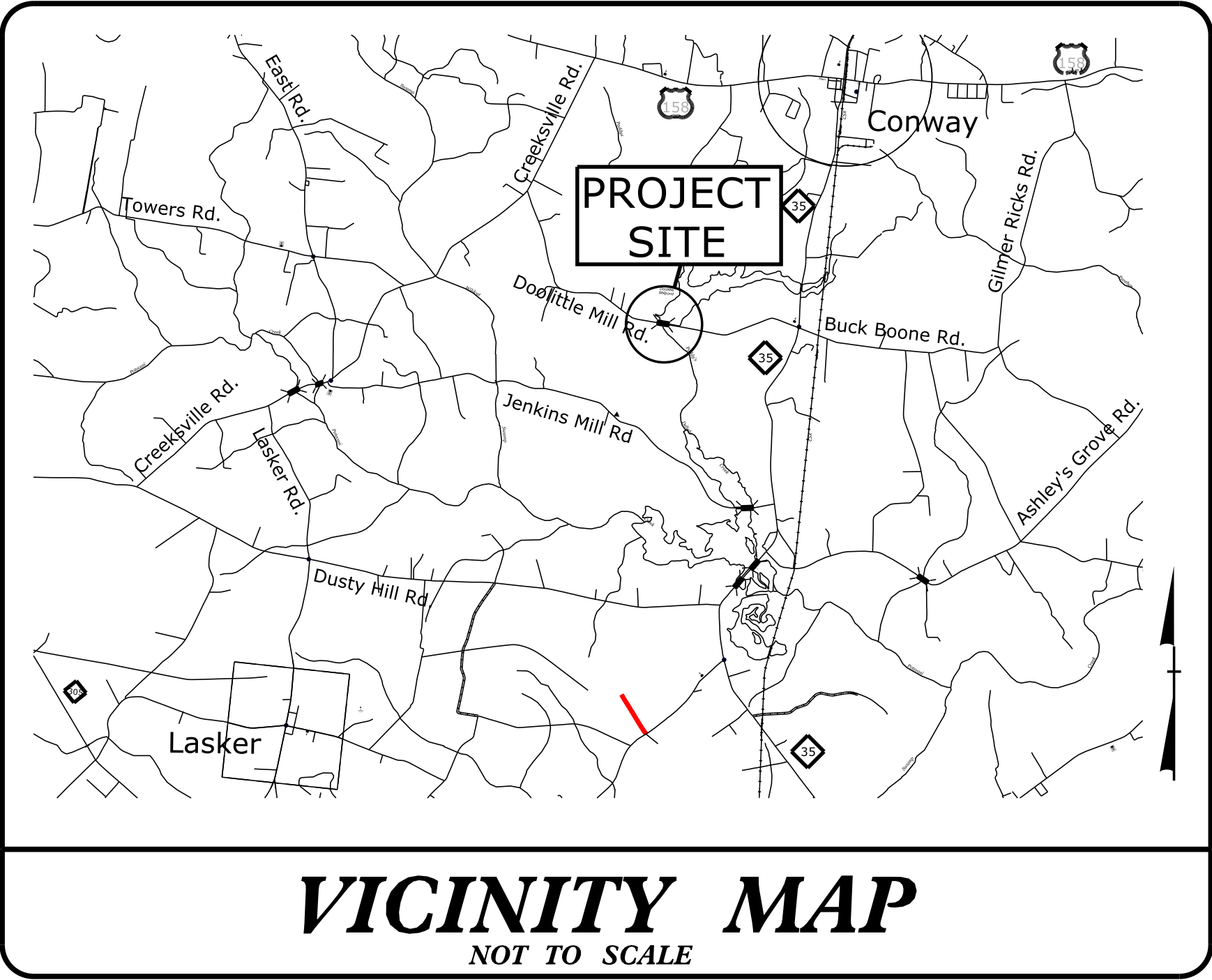
EXISTING AND PROPOSED SIGNS

09.08/25

4/1/2026
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VHB/gotkins

TIP PROJECT: BP1-R018

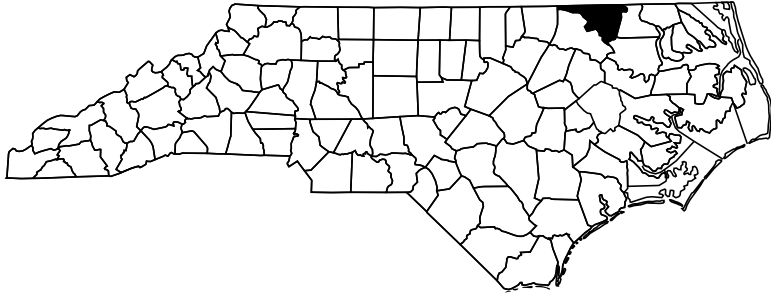
CONTRACT:



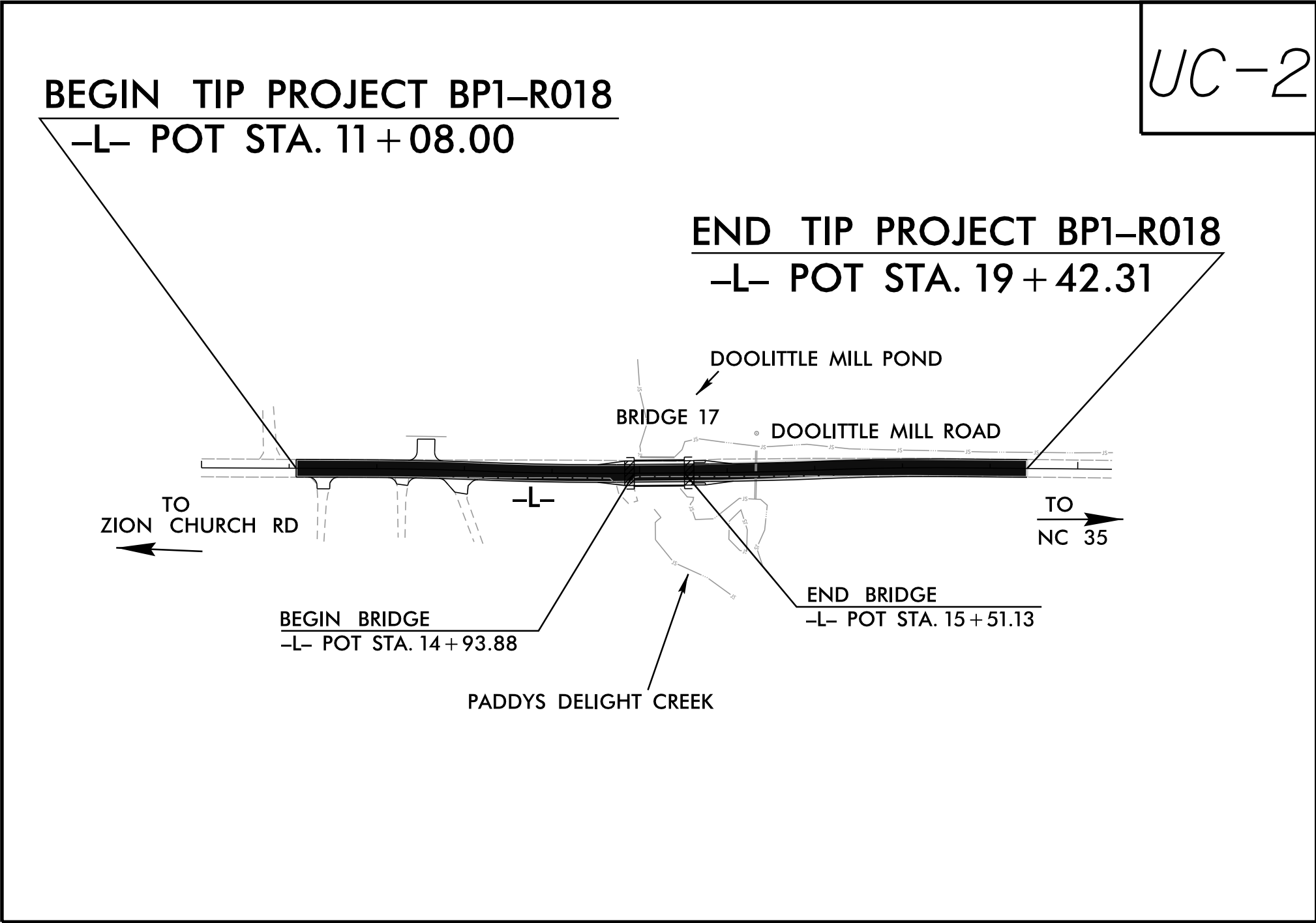
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
NORTHAMPTON COUNTY

**LOCATION: BRIDGE NO. 650017 OVER PADDYS DELIGHT CREEK
ON JENKINS MILL ROAD (SR 1508)**
TYPE OF WORK: WATER MAIN RELOCATION

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1-R018	UC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP1-R018.1	STATE FUNDED	PE	
BP1-R018.2	STATE FUNDED	RW&UTIL.	
BP1-R018.3	STATE FUNDED	CONSTRUCTION	



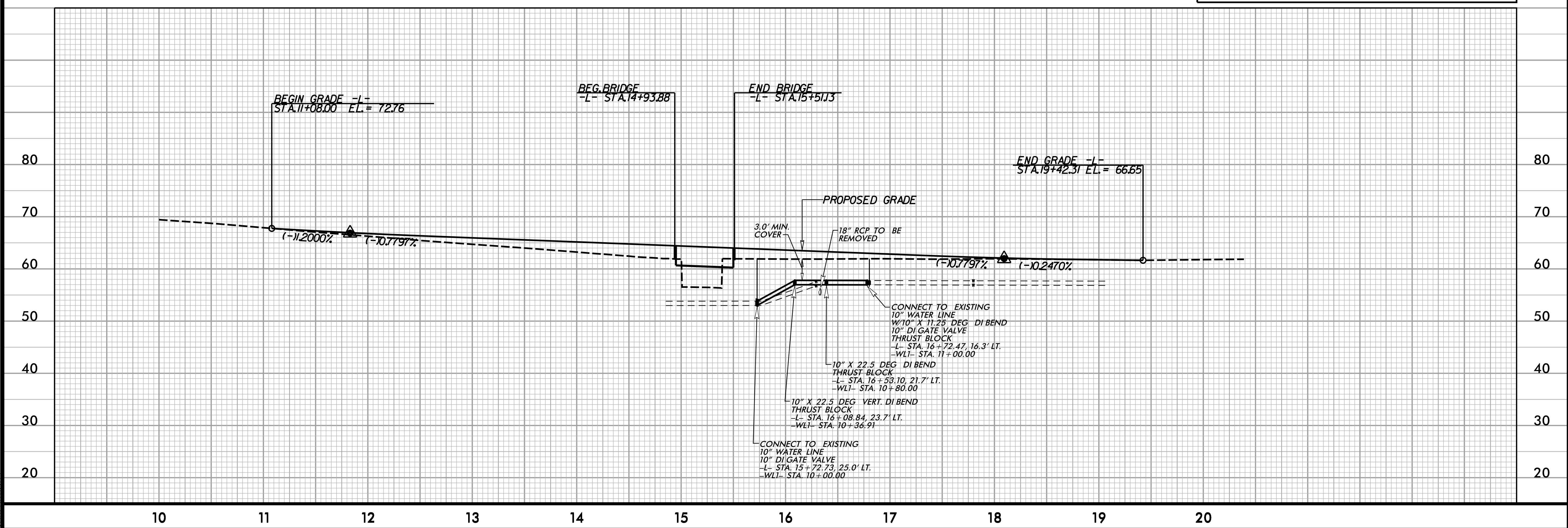
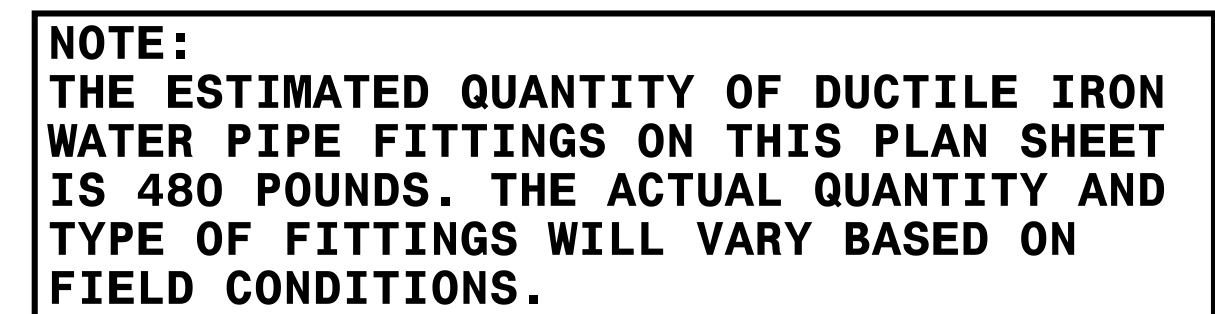
INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY CONSTRUCTION PLAN AND PROFILE
UC-3	CONSTRUCTION DETAILS AND NOTES



ALL WORK ASSOCIATED WITH THE INSTALLATION OF WATER MAINS
SHALL BE IN ACCORDANCE WITH THE NCDOT STANDARD
SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES 50 25 0 50 100 PLANS 50 25 0 50 100 PROFILE (HORIZONTAL) 10 5 0 10 20 PROFILE (VERTICAL)	DESIGN DATA AADT 2022 = 500 ADT 2022 = N/A K = N/A % D = N/A % T = N/A % * V = 50 MPH FUNC CLASS = LOCAL SUBREGIONAL TIER DESIGN GUIDELINES	WATER AND SEWER OWNERS ON PROJECT NORTHAMPTON COUNTY PUBLIC WORKS DEPARTMENT LENGTH OF WATER MAINS ON PROJECT 10" WATER MAIN – 100 LF	Prepared for the North Carolina Department of Transportation In the Office of: vhb 940 Main Campus Drive, Suite 500 Raleigh, NC 27606 NC License No. C-3705 2024 STANDARD SPECIFICATIONS RIGHT OF WAY DATE: August 28, 2025 LETTING DATE: May 20, 2026 NCDOT CONTACT	UTILITIES DESIGN ENGINEER 4/1/2026 GREGORY K. ATKINS, PE UTILITIES PROJECT ENGINEER JOHN M. KAMPRATH, PE UTILITIES PROJECT DESIGN ENGINEER RYAN L. SHOOK PROJECT ENGINEER-ROADWAY DESIGN	UTILITIES DESIGN ENGINEER 4/1/2026 GREGORY K. ATKINS P.E.	DIVISION OF HIGHWAYS DIVISION 1 113 AIRPORT DRIVE SUITE 100 EDENTON, NC 27932 STEPHEN G. SEALY – DIVISION UTILITIES ENGINEER DANIEL MERRITT – DIVISION UTILITIES COORDINATOR
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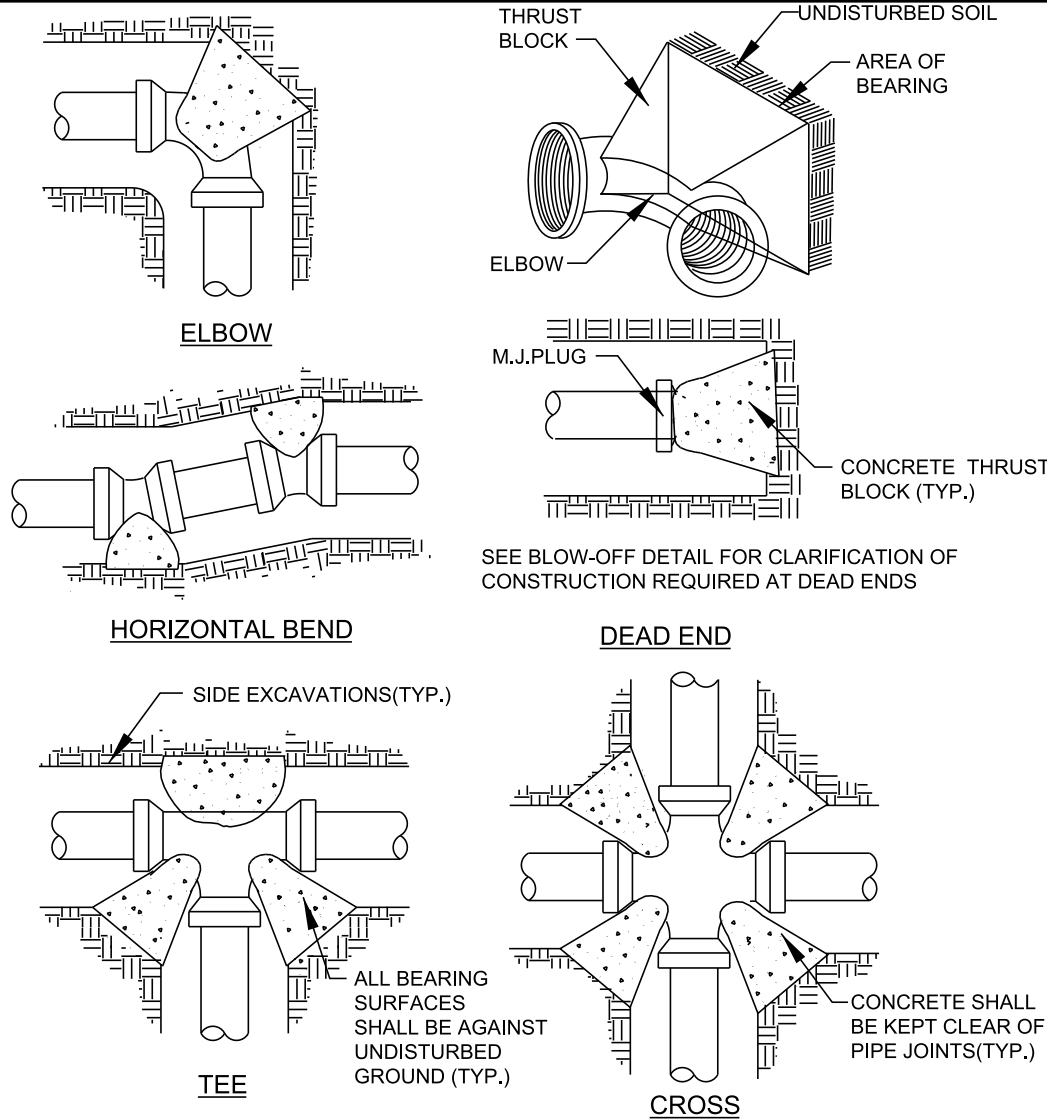


8/17/99

REVISIONS

NOTES

1. ALL WORK ASSOCIATED WITH THE RELOCATION OF WATER MAINS SHALL BE COMPLETED IN ACCORDANCE WITH THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, LATEST EDITION, SUPPLEMENTED AS REQUIRED WITH THE FACILITY'S OWNER STANDARDS AS DESCRIBED IN THE PROJECT SPECIFIC SPECIAL PROVISIONS.
2. ALL WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 36 INCHES OF COVER.
3. VERIFY ALL UTILITY CROSSINGS PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF CONFLICTS ARE ENCOUNTERED.
4. CONTRACTOR SHALL COORDINATE UTILITY RELOCATION WITH LOCAL UTILITY COMPANIES AS REQUIRED.
5. ALL CONNECTIONS TO EXISTING WATER MAINS SHALL BE MADE WITH THRUST COLLAR IN ACCORDANCE WITH THE DETAIL OF THESE PLANS.
6. FILL LINE WITH WATER AND ALLOW TO SIT IN PLACE FOR 24 HOURS BEFORE TIE IN TO EXISTING LINE.

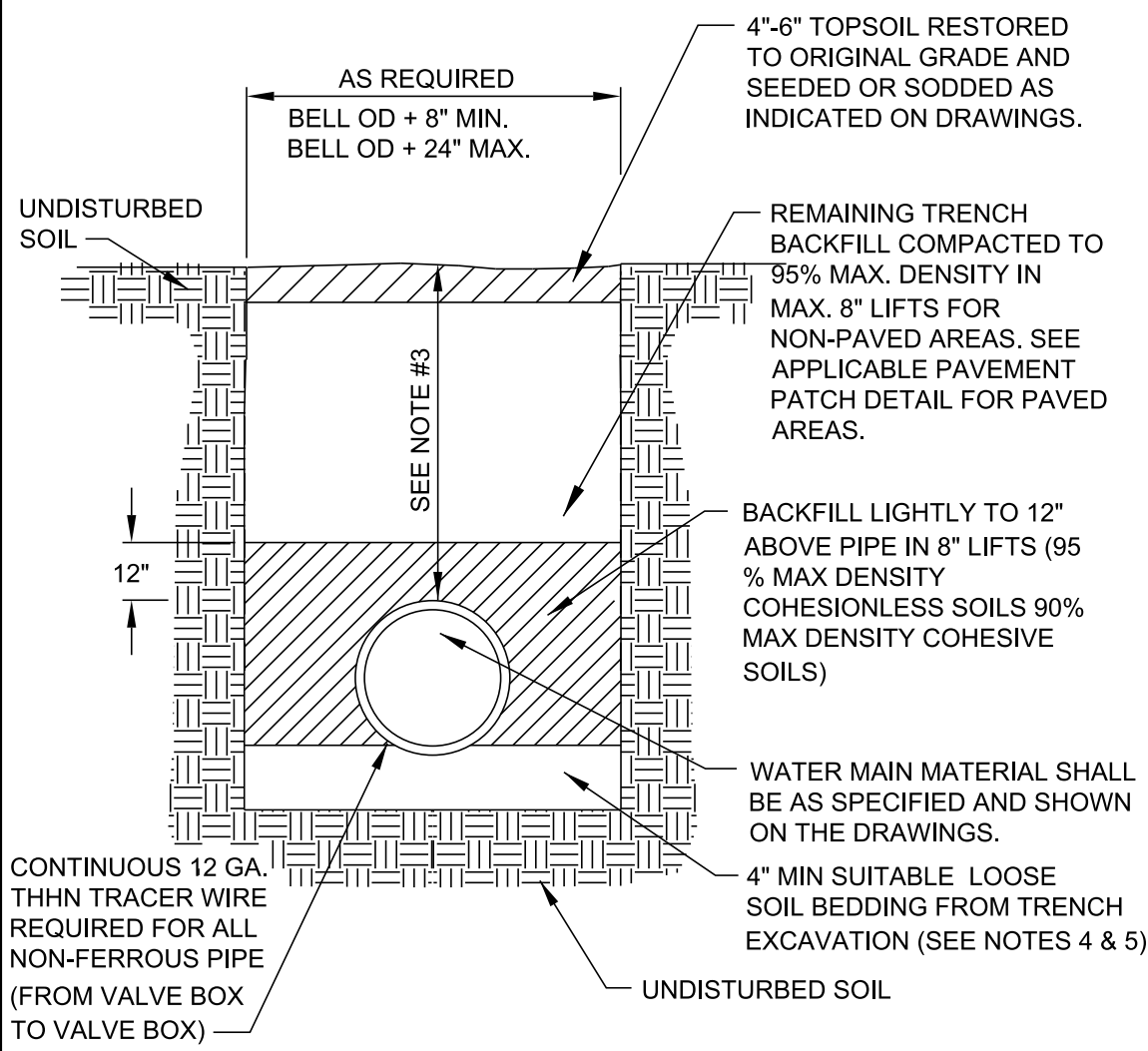


MINIMUM CONCRETE BLOCKING (C.Y.) *					
NOM. PIPE DIA. IN.	TEES & DEAD ENDS	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND
4	1/3	1/3	1/3	1/3	1/3
6	1/3	1/3	1/3	1/3	1/3
8	1/3	1/2	1/3	1/3	1/3
10	2/3	3/4	1/2	1/3	1/3
12	3/4	1.0	2/3	1/3	1/3
14	1.0	1-1/2	3/4	1/2	1/3
16	1-1/3	2.0	1.0	1/2	1/3
18	1-2/3	2-1/3	1-1/3	2/3	1/3
20	2.0	3.0	1-2/3	3/4	1/2
24	3.0	4-1/3	2-1/3	1-1/3	2/3

NOTES

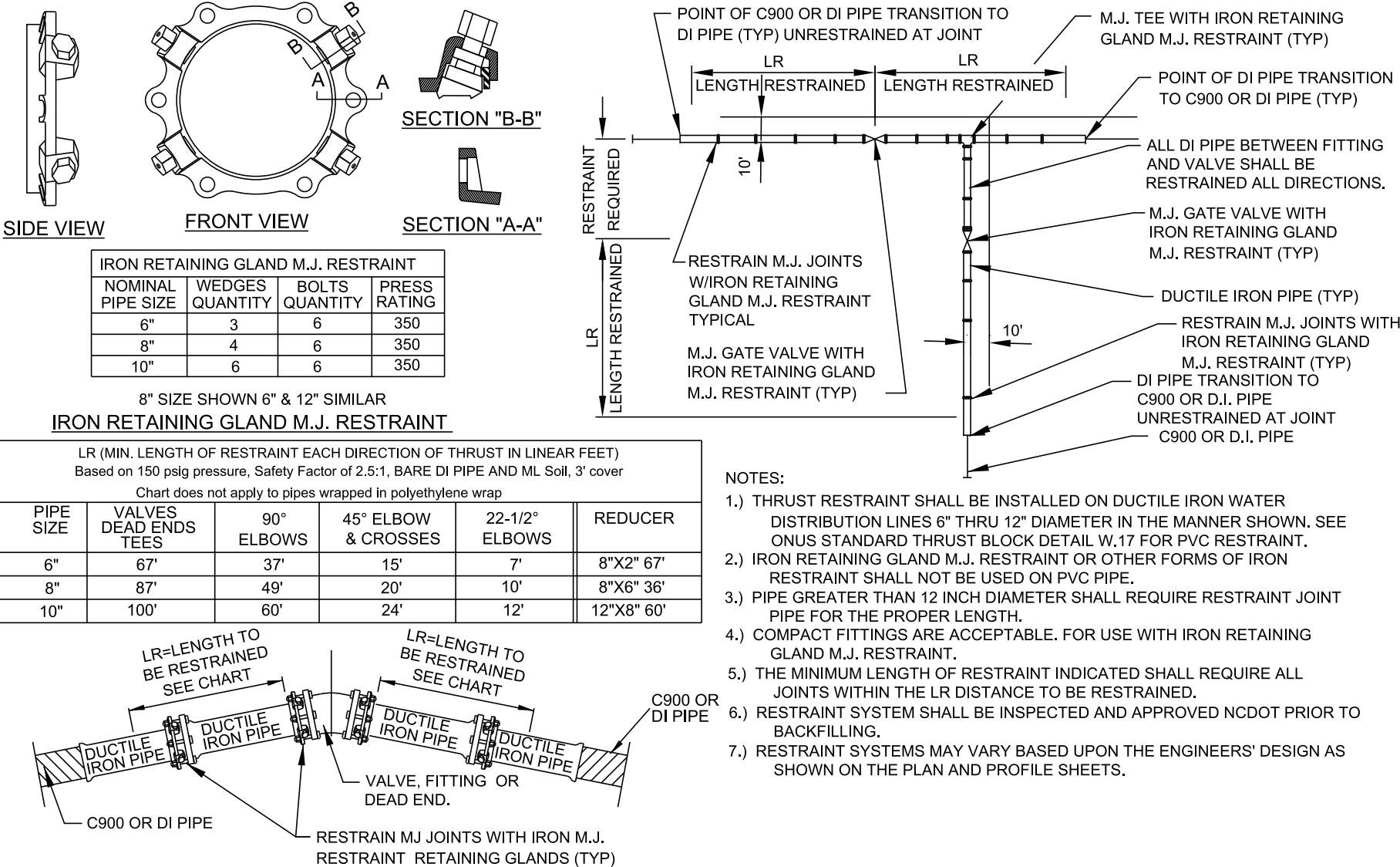
- 1.) THRUST BLOCKS SHALL BE INSTALLED ON WATER DISTRIBUTION LINES 6" THRU 12" DIA. IN THE MANNER SHOWN.
- 2.) PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINED JOINT PIPE FOR THE PROPER LENGTH.
- 3.) COMPACT FITTINGS ARE NOT ACCEPTABLE. STANDARD FITTINGS SHALL BE USED WITH CONCRETE THRUST BLOCKING.
- 4.) THRUST BLOCKS SHALL BE INSTALLED ON SEWER FORCE MAIN IN THE MANNER SHOWN.
- 5.) IF SAC-CRETE IS USED, MIXING MUST BE ON SITE UTILIZING A MECHANICAL MIXER.
- 6.) NO CONCRETE SHALL BE PLACED ON BOLTS, WRAP JOINT FITTINGS WITH PLASTIC.
- 7.) CONCRETE SHALL BE A MINIMUM 3,000 psi.
- 8.) ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL AND SHALL BE APPROVED BY NORTHAMPTON COUNTY PUBLIC WORKS DEPT. COORDINATOR PRIOR TO PLACEMENT OF CONCRETE.
- 9.) USE OF RESTRAINED JOINT DUCTILE IRON WILL BE REQUIRED IF SOIL CONDITIONS DO NOT ALLOW THE USE OF THRUST BLOCKS
- 10.) ALL VERTICAL BENDS SHALL BE RESTRAINED USING RESTRAINED JOINT DUCTILE IRON PIPE.

THRUST BLOCK DETAILS



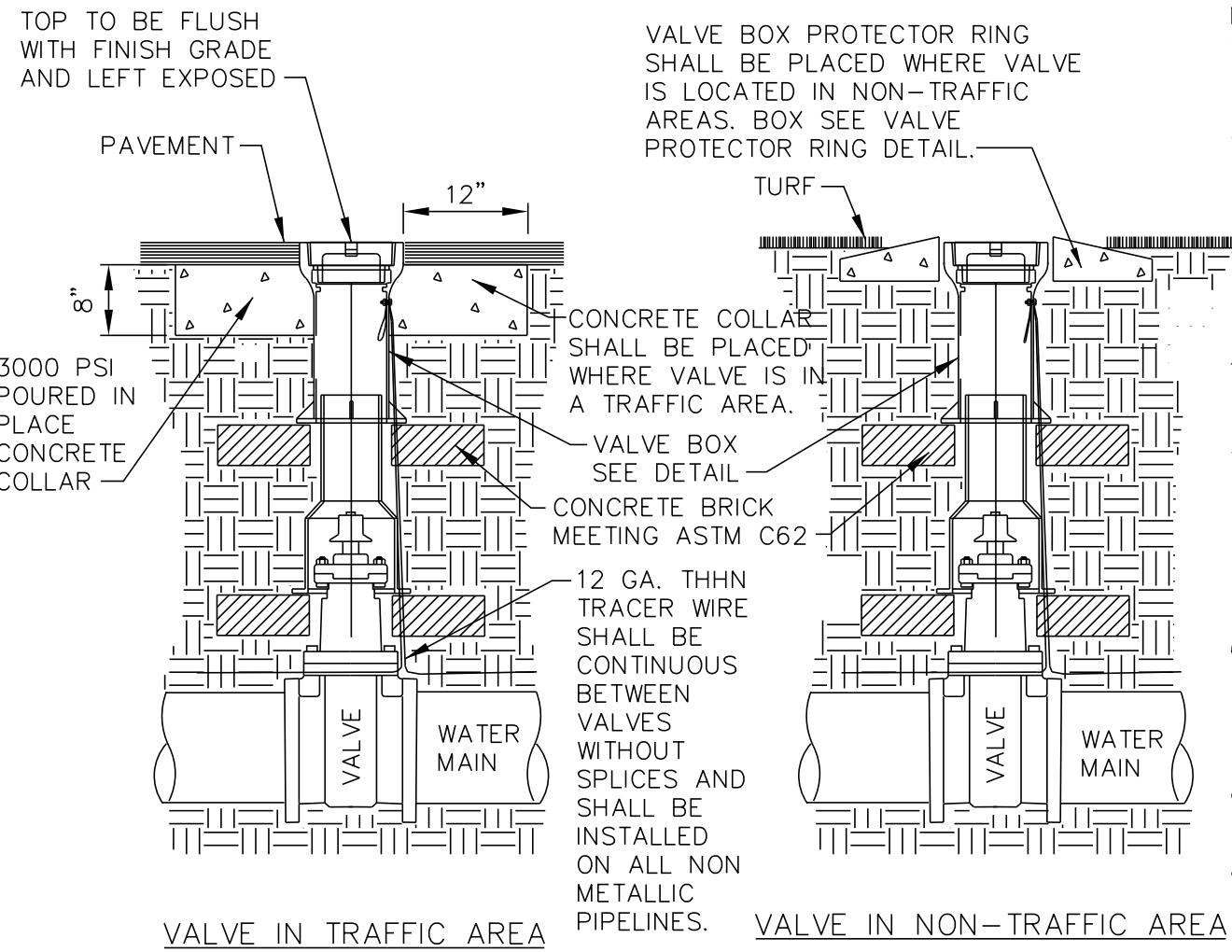
NOTES:

1. ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", CHAPTER XV11 OF TITLE 29, CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON SITE AT ALL TIMES DURING EXCAVATION AND BACKFILLING.
2. CONTRACTOR SHALL USE TRENCH BOX SHORING IN ALL OPEN CUTS IN PAVED AREAS. TRENCH WIDTH SHALL BE MAINTAINED AT THE MINIMUM PRACTICAL WIDTH.
3. TYPE 3 TRENCH CONDITIONS AND A MINIMUM OF 4' OF COVER MUST BE MAINTAINED WHERE RESTRAINT JOINT PIPE IS SPECIFIED AND 3.5' OF COVER IN ALL OTHER LOCATIONS UNLESS SHOWN OTHERWISE ON THE PLAN PROFILE.
4. LOOSE SOIL OR SELECT MATERIAL IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
5. BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS AND TRENCH BOTTOM. BEDDING MATERIAL WILL NOT BE PAID FOR UNLESS SPECIFICALLY APPROVED BY THE PROJECT REPRESENTATIVE AND ONLY FOR THE AUTHORIZED QUANTITY. & BEDDING MATERIAL SHALL BE PROPERLY RODDED AND COMPACTED AROUND THE PIPE HAUNCHES. TEST FOR DENSITY OF COMPACTION MAY BE MADE AT THE OPTION OF THE ENGINEER AND DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO NCDOT. THE ENGINEER MAY HAVE COMPACTION TEST PERFORMED AFTER THE BACKFILL IS COMPLETE. CONTRACTOR SHALL BE REQUIRED TO EXCAVATE TO VARIOUS ELEVATIONS FOR DENSITY TESTING EXCAVATION, BACKFILL AND RECOMPACTION SHALL BE PERFORMED AT NO ADDITIONAL COSTS TO NCDOT.



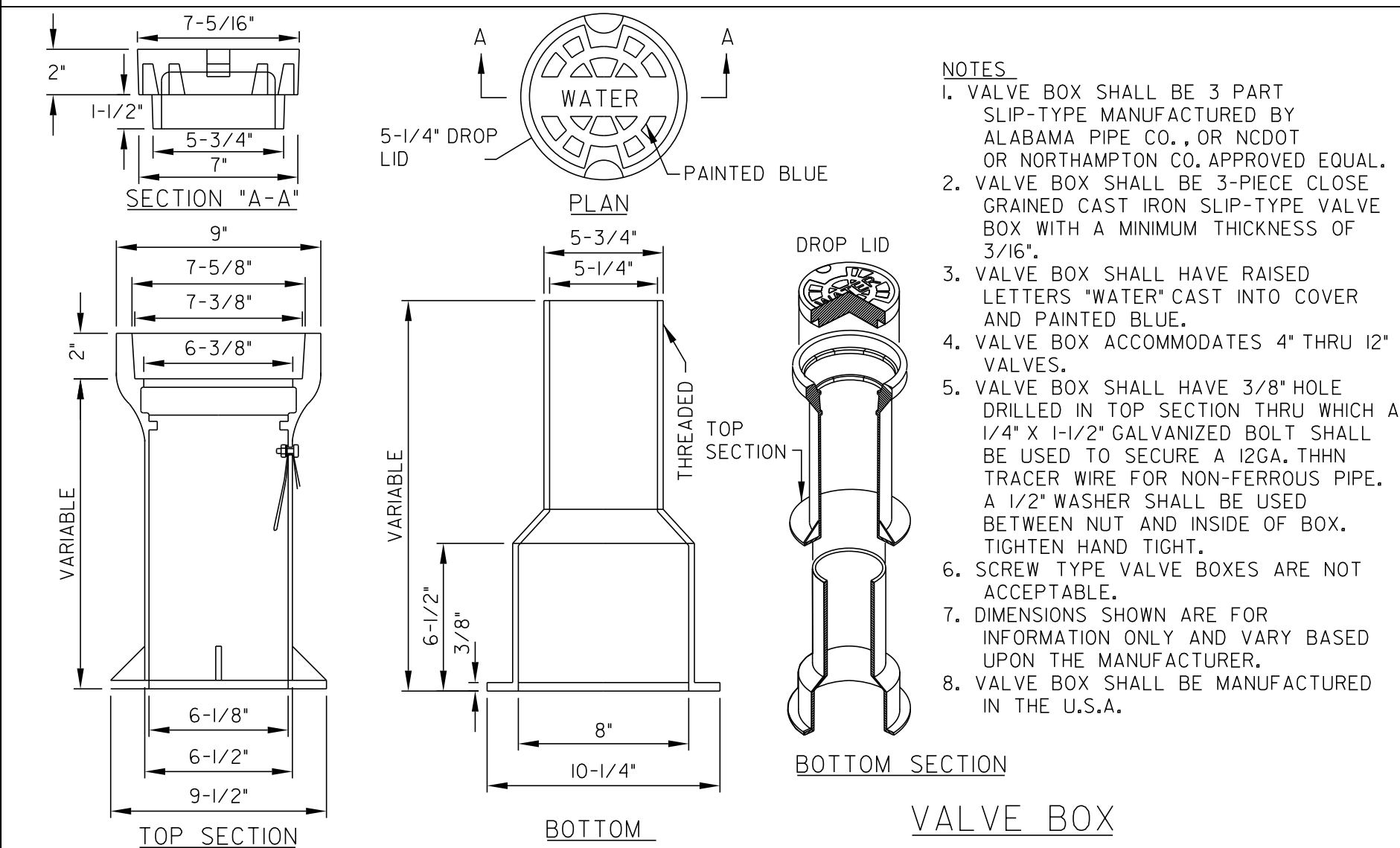
NOTES:

- 1.) THRUST RESTRAINT SHALL BE INSTALLED ON DUCTILE IRON WATER DISTRIBUTION LINES 6" THRU 12" DIAMETER IN THE MANNER SHOWN. SEE ONUS STANDARD THRUST BLOCK DETAIL W.17 FOR PVC RESTRAINT.
- 2.) IRON RETAINING GLAND M.J. RESTRAINT OR OTHER FORMS OF IRON RESTRAINT SHALL NOT BE USED ON P.P. PIPE.
- 3.) PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.
- 4.) COMPACT FITTINGS ARE ACCEPTABLE. FOR USE WITH IRON RETAINING GLAND M.J. RESTRAINT.
- 5.) THE MINIMUM LENGTH OF RESTRAINT INDICATED SHALL REQUIRE ALL JOINTS WITHIN THE LR DISTANCE TO BE RESTRAINED.
- 6.) RESTRAINT SYSTEM SHALL BE INSPECTED AND APPROVED NCDOT PRIOR TO BACKFILLING.
- 7.) RESTRAINT SYSTEMS MAY VARY BASED UPON THE ENGINEERS' DESIGN AS SHOWN ON THE PLAN AND PROFILE SHEETS.



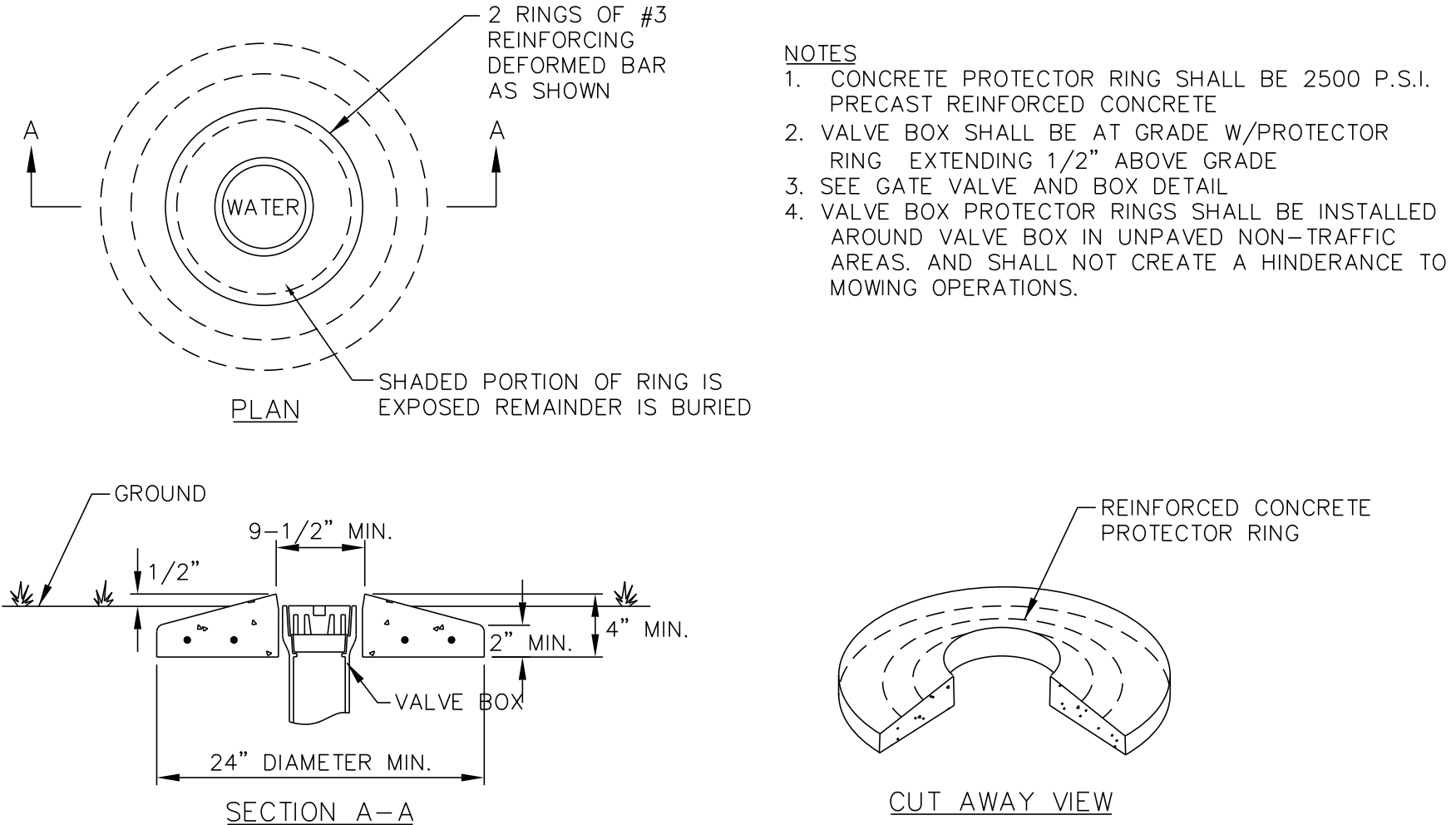
NOTES

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH NCDOT & NORTHAMPTON COUNTY STANDARDS.
2. RESILIENT WEDGE GATE VALVE SHALL BE AS MANUFACTURED BY MUELLER CORP., OR NCDOT OR NORTHAMPTON CO. APPROVED EQUAL.
3. ALL VALVES SHALL HAVE 2" SQUARE OPERATING NUT AND SHALL OPEN COUNTER-CLOCKWISE.
4. VALVE BODY, BONNET & GATE SHALL BE DUCTILE IRON CONFORMING TO ASTM A-536.
5. VALVE BODY AND BONNET SHALL BE COATED ON ALL INTERIOR AND EXTERIOR SURFACES WITH A FUSION BONDED EPOXY IN ACCORDANCE WITH AWWA C-550-90.
6. ALL VALVES 24" AND SMALLER SHALL HAVE A SAFE WORKING PRESSURE OF 250 PSI.
7. SEE VALVE BOX DETAIL FOR ADDITIONAL INFORMATION.
8. SEE VALVE BOX PROTECTOR RING DETAIL FOR ADDITIONAL INFORMATION.
9. CONCRETE COLLAR ONLY TO BE INSTALLED ON STREETS, AND ON VALVES INSTALLED ON EXISTING MAINS (INCLUDING TAPPING SLEEVES AND VALVES) LOCATED IN PAVED AREAS.



NOTES:

1. VALVE BOX SHALL BE 3 PART SLIP-TYPE MANUFACTURED BY ALABAMA PIPE CO., OR NCDOT OR NORTHAMPTON CO. APPROVED EQUAL.
2. VALVE BOX SHALL BE 3-PIECE CLOSE GRAINED CAST IRON SLIP-TYPE VALVE BOX WITH A MINIMUM THICKNESS OF 3/16".
3. VALVE BOX SHALL HAVE RAISED LETTERS "WATER" CAST INTO COVER AND PAINTED BLUE.
4. VALVE BOX ACCOMMODATES 4" THRU 12" VALVES.
5. VALVE BOX SHALL HAVE 3/8" HOLE DRILLED IN TOP SECTION THRU WHICH A 1/4" X 1-1/2" GALVANIZED BOLT SHALL BE USED TO SECURE A 12GA. THHN TRACER WIRE FOR NON-FERROUS PIPE. A 1/2" WASHER SHALL BE USED BETWEEN NUT AND INSIDE OF BOX. TIGHTEN HAND TIGHT.
6. SCREW TYPE VALVE BOXES ARE NOT ACCEPTABLE.
7. DIMENSIONS SHOWN ARE FOR INFORMATION ONLY AND VARY BASED UPON THE MANUFACTURER.
8. VALVE BOX SHALL BE MANUFACTURED IN THE U.S.A.

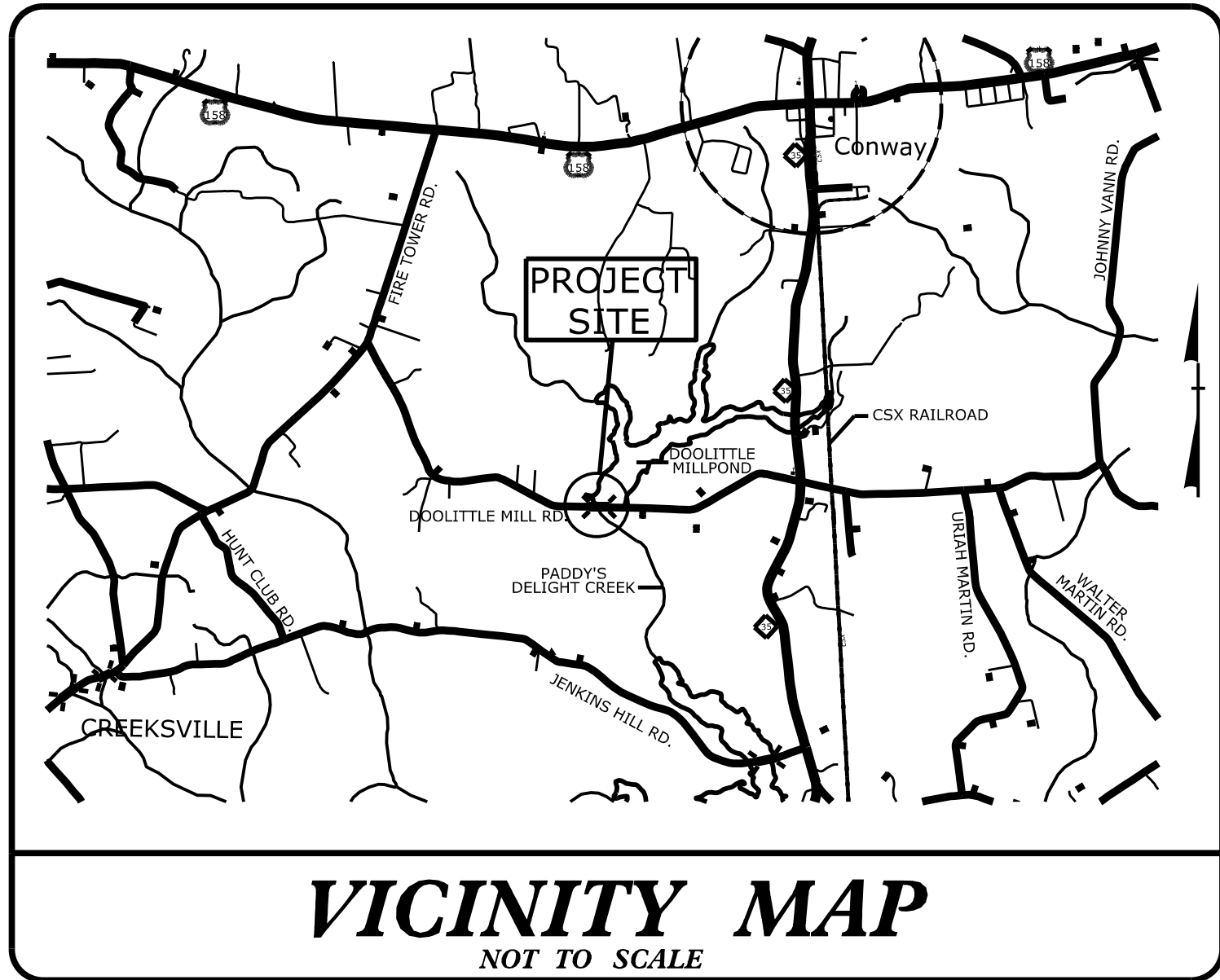


NOTES

1. CONCRETE PROTECTOR RING SHALL BE 2500 P.S.I. PRECAST REINFORCED CONCRETE
2. VALVE BOX SHALL BE AT GRADE W/PROTECTOR RING EXTENDING 1/2" ABOVE GRADE
3. SEE GATE VALVE AND BOX DETAIL
4. VALVE BOX PROTECTOR RINGS SHALL BE INSTALLED AROUND VALVE BOX IN UNPAVED NON-TRAFFIC AREAS. AND SHALL NOT CREATE A HINDERANCE TO MOWING OPERATIONS.

09.08/99

TIP PROJECT: BP1-R018



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

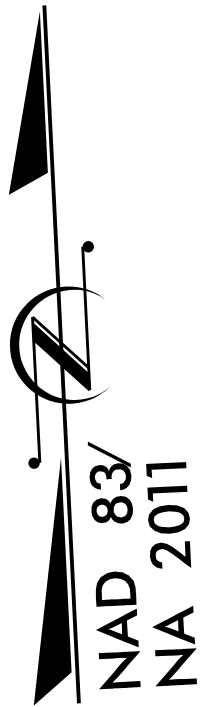
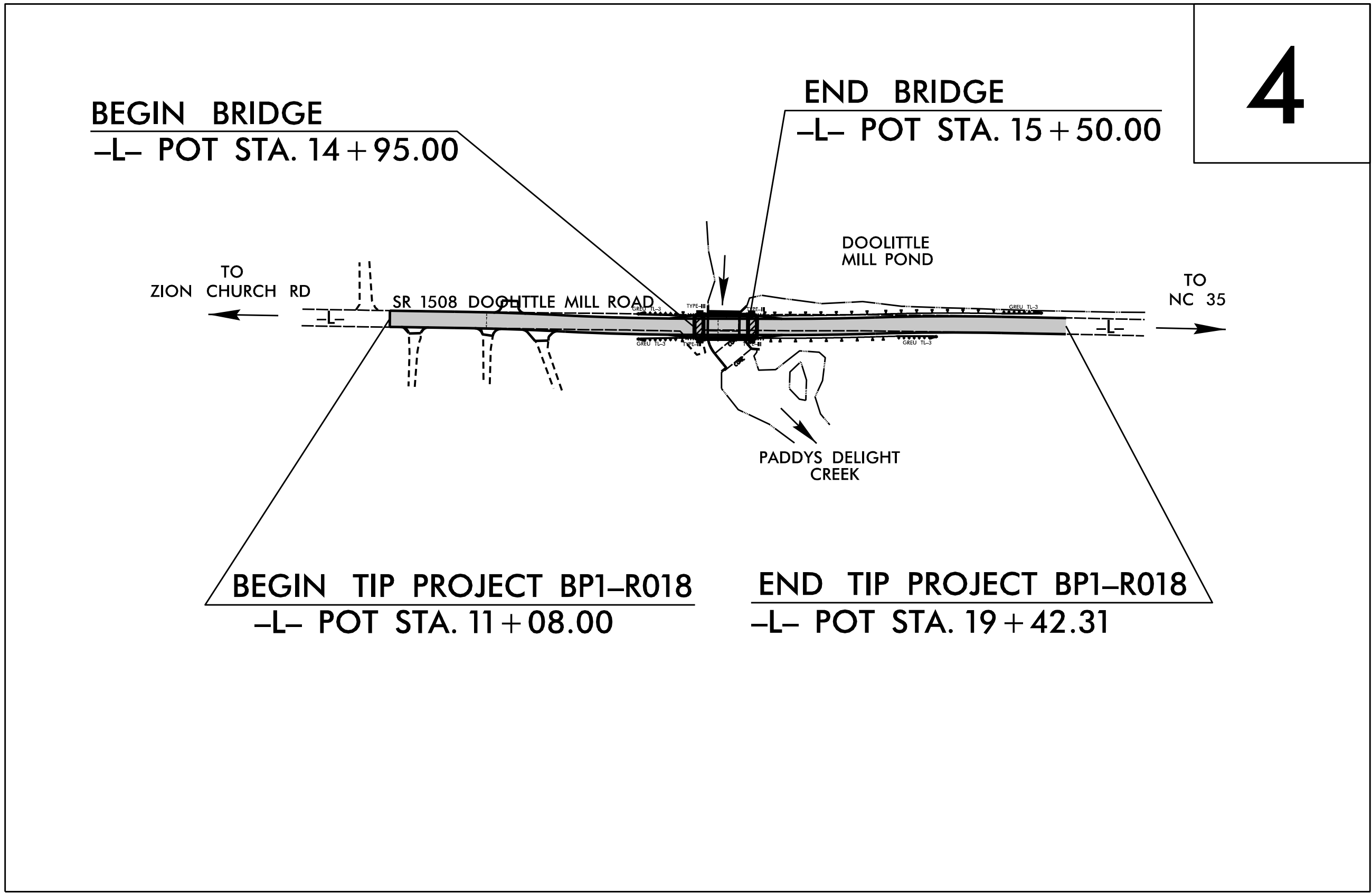
UTILITIES BY OTHERS PLANS
NORTHAMPTON COUNTY

LOCATION: BRIDGE NO. 650017 OVER PADDYS DELIGHT CREEK
ON DOOLITTLE MILL ROAD (SR 1508)

TYPE OF WORK: BRIDGE REPLACEMENT

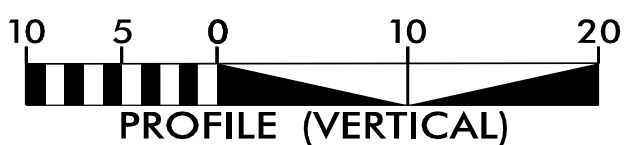
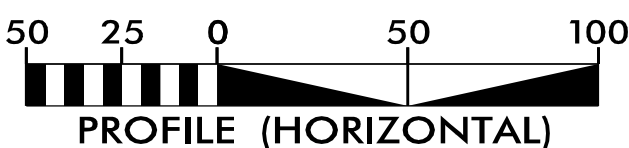
T.I.P. NO.	SHEET NO.
BP1-R018	UO-1

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.



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:

UO-1

UO-2

DESCRIPTION:

TITLE SHEET

UBO PLAN SHEETS

UTILITY OWNERS WITH CONFLICTS

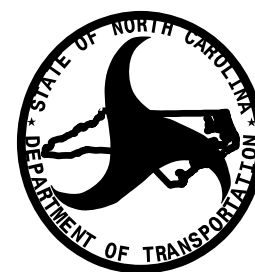
(A) TELECOM -BRIGHTSPEED

PREPARED IN THE OFFICE OF:



2641 SUMNER BOULEVARD
SUITE 116
RALEIGH, NC 27616
(919) 878-7466

Todd Butner UTILITY PROJECT MANAGER
Bill Black PROJECT UTILITY COORDINATOR
PROJECT UTILITY XXXX



DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH, NC 27699-1555
PHONE (919) 707-5690
FAX (919) 250-4151

Tanga Sampson UTILITIES REGIONAL ENGINEER
Ian Armstrong UTILITIES ENGINEER
Bo Hemphill UTILITIES AREA COORDINATOR
Daniel Merritt UTILITIES COORDINATOR

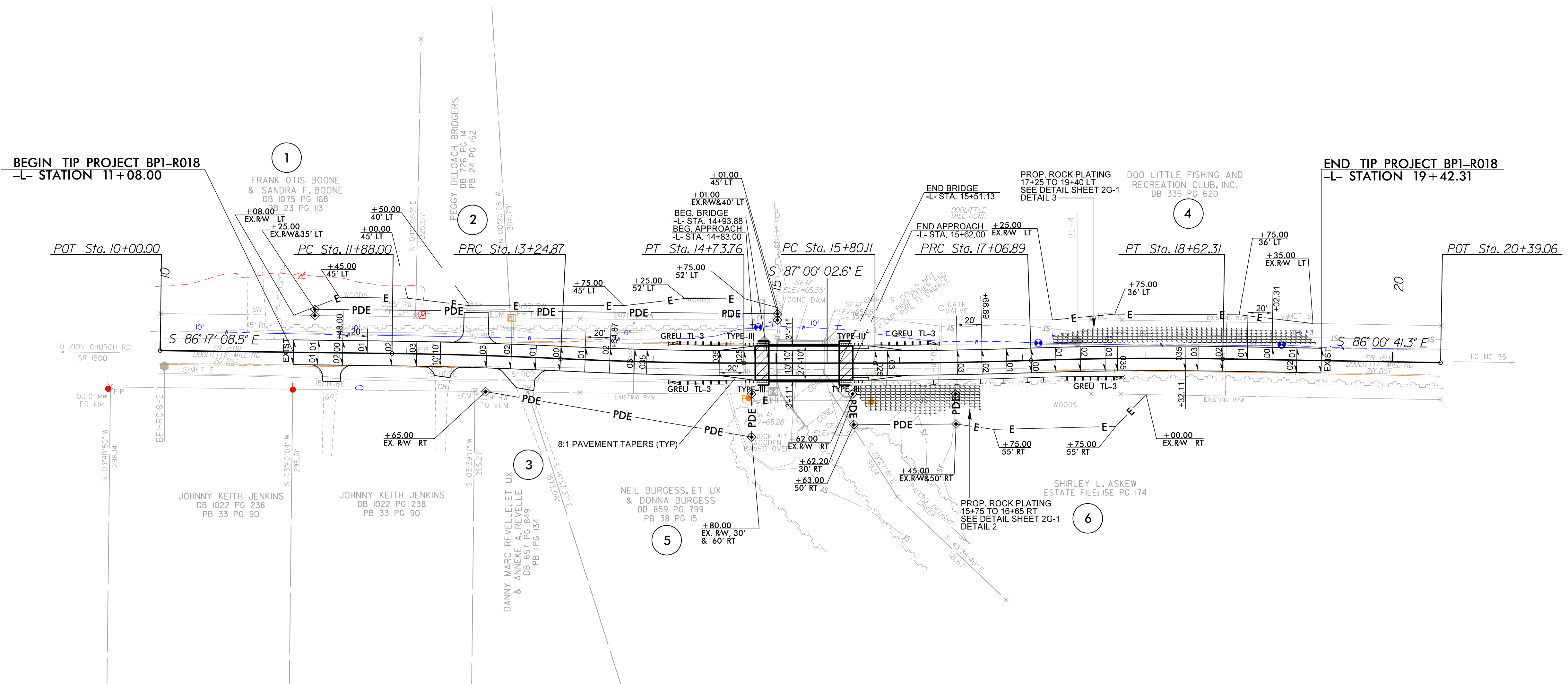
6/24/2025
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PROJECT REFERENCE NO.	SHEET NO.
BPI-R018	UO-2
THIS SHEET CORRESPONDS TO RDY-4	

UTILITIES BY OTHERS

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

NAD 83/
NA 2011



12/06/07

COMPUTED BY: MHUSSEY	DATE: 5/12/2025
CHECKED BY: TGOINS	DATE: 1/12/2026

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
BPI-R018	X-1

CROSS-SECTION SUMMARY

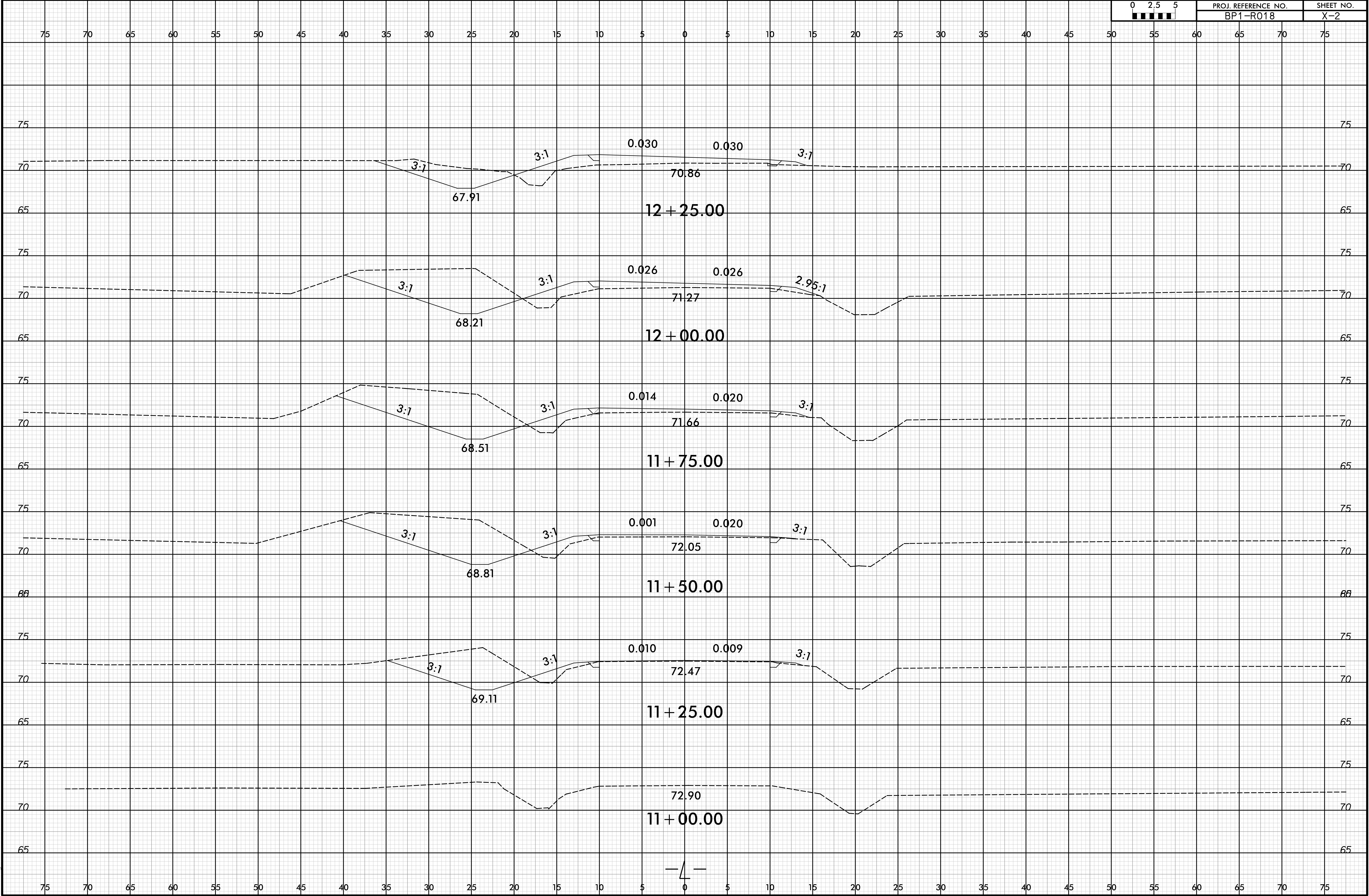
STATION +L-	UNCL. EXC. (cu. yd.)	EMBT.. (cu. yd.)	STATION L	UNCL. EXC. (cu. yd.)	EMBT.. (cu. yd.)
11+08.00	0	0	15+51.13	0	0
11+25.00	14	2	15+75.00	11	101
11+50.00	53	6	16+00.00	11	100
11+75.00	66	8	16+25.00	11	94
12+00.00	63	11	16+50.00	7	75
12+25.00	41	13	16+75.00	1	82
12+50.00	21	11	17+00.00	2	98
12+75.00	31	10	17+25.00	7	85
13+00.00	19	16	17+50.00	9	77
13+25.00	25	31	17+7500	7	69
13+50.00	31	45	18+00.00	7	35
13+75.00	31	53	18+25.00	6	6
14+00.00	34	61	18+50.00	6	5
14+25.00	36	81	18+75.00	6	4
14+50.00	34	109	19+00.00	6	3
14+75.00	27	109	19+25.00	6	2
14+93.88	17	74	19+42.31	2	1

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

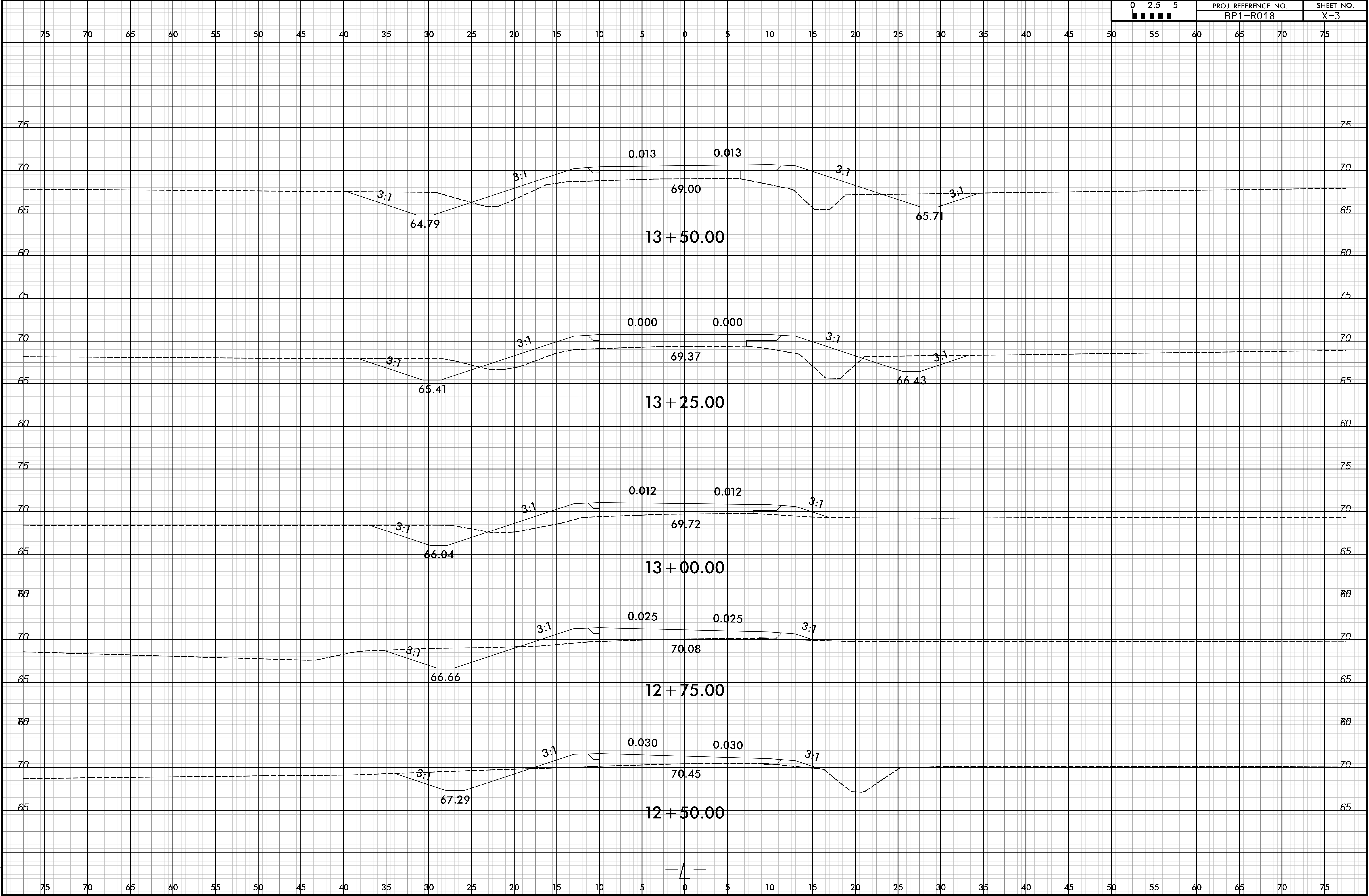
Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

6/23/16



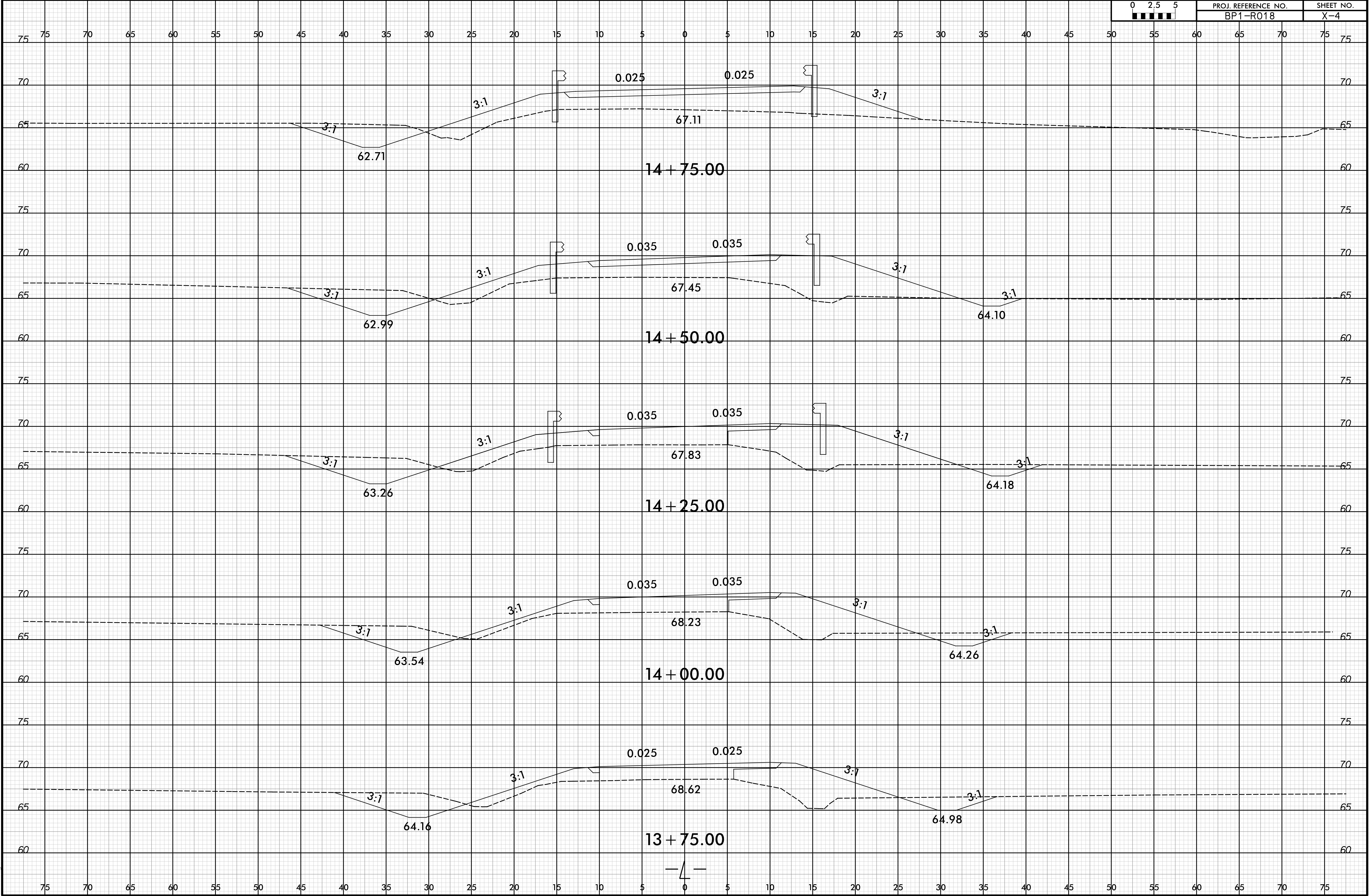
6/23/16

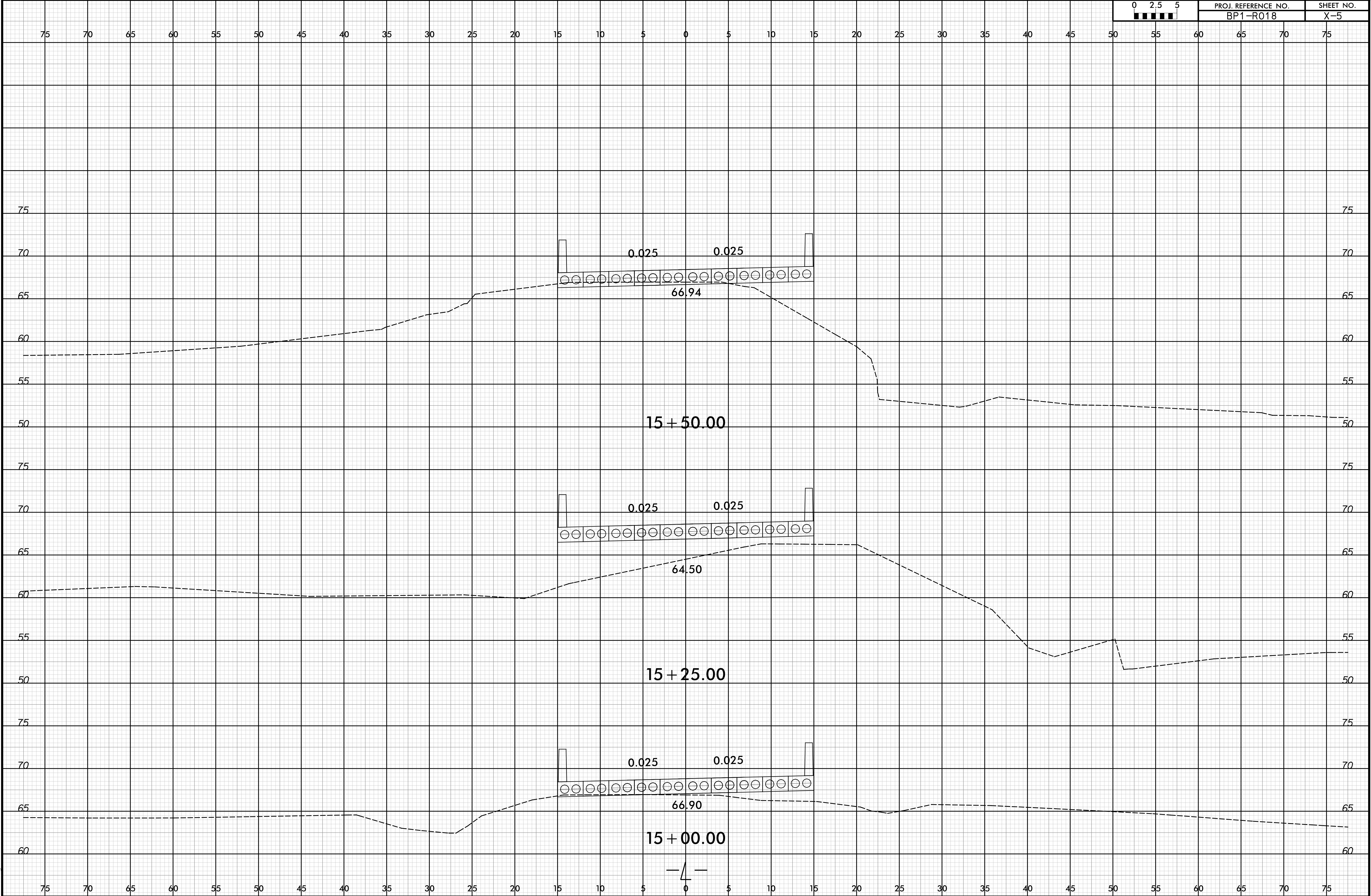
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■	■	■	BP1-R018		X-3	

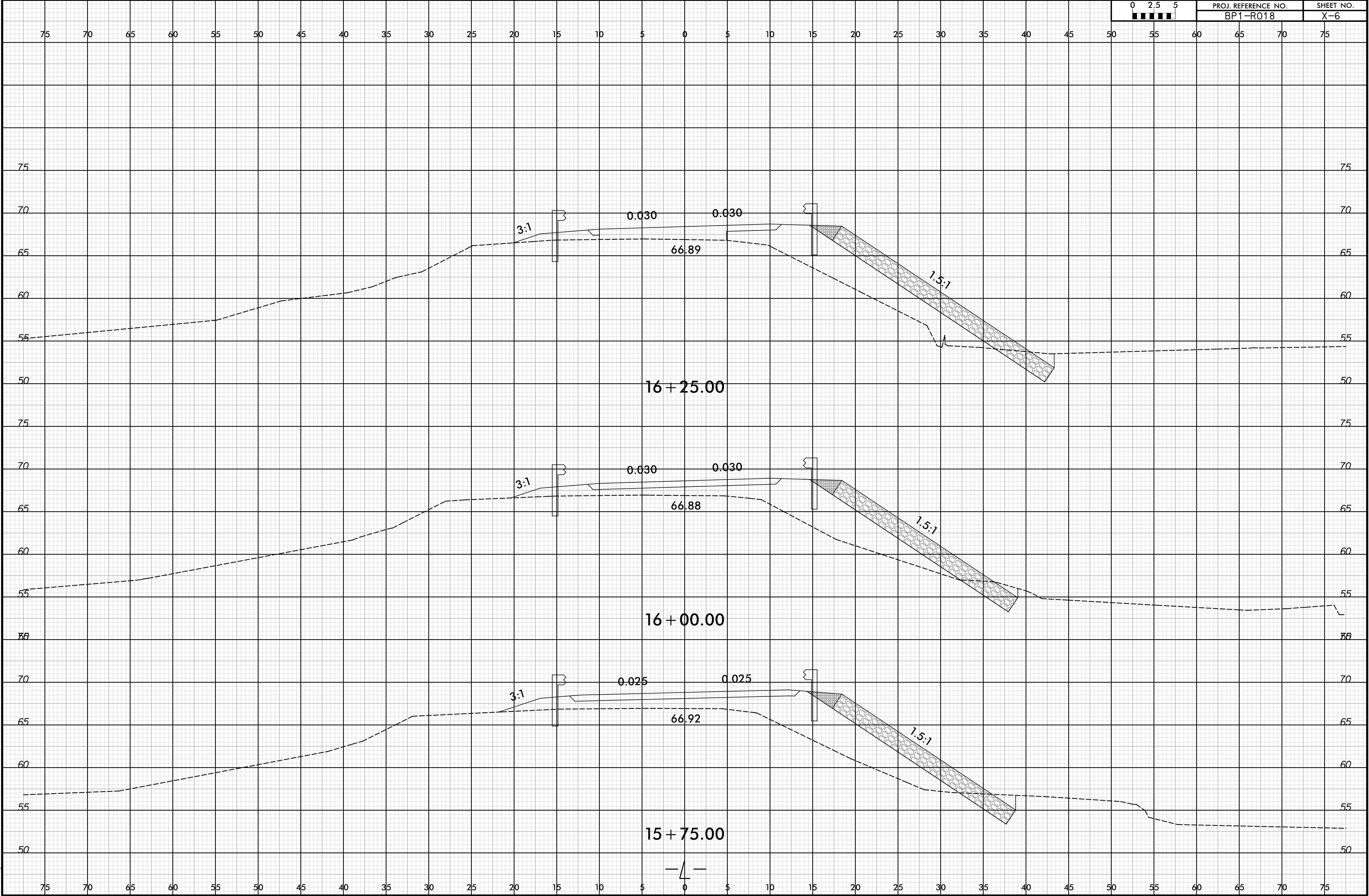


3/26/2026
BP1R018.dwg
mhusseini

6/23/16

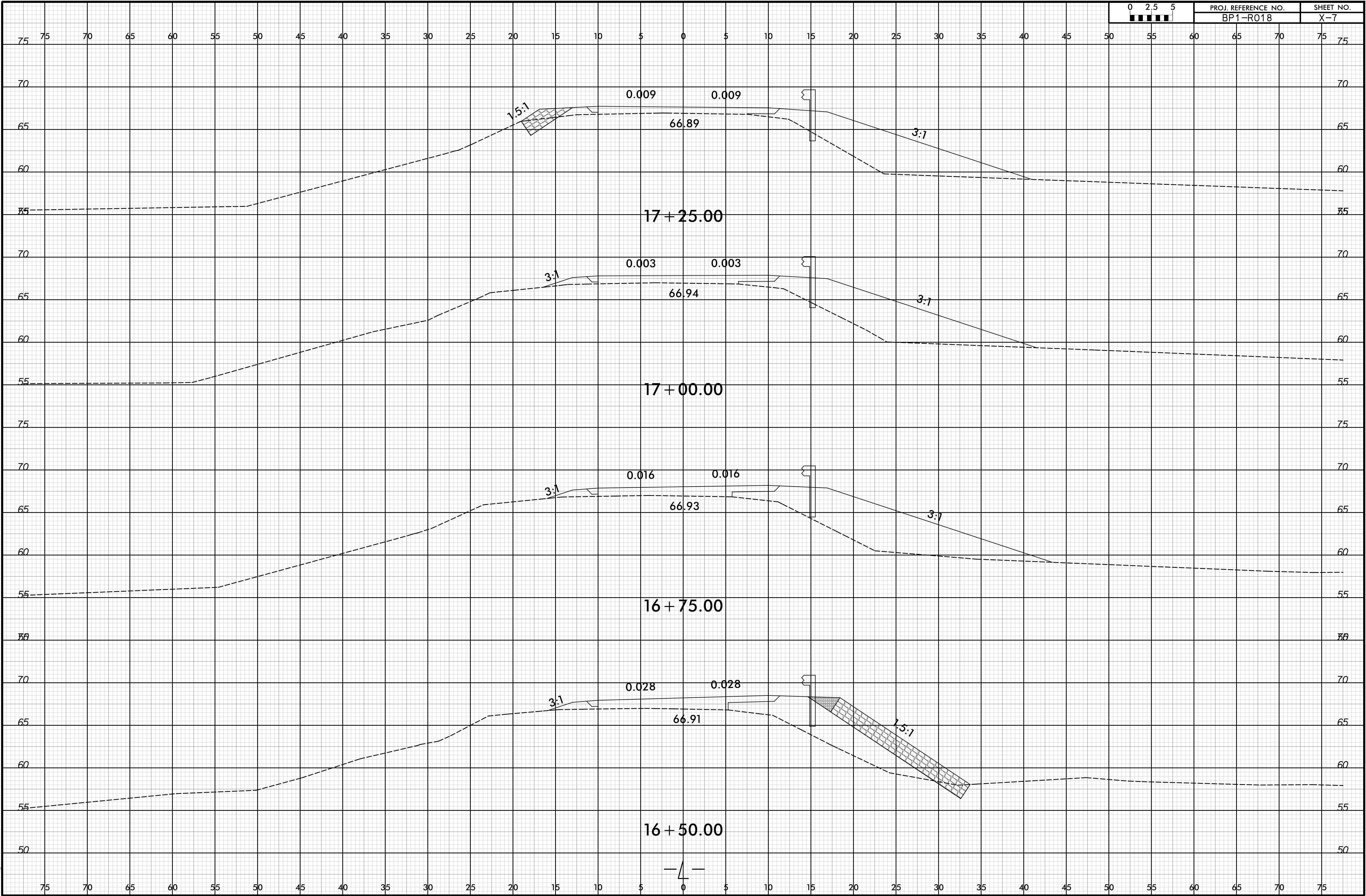






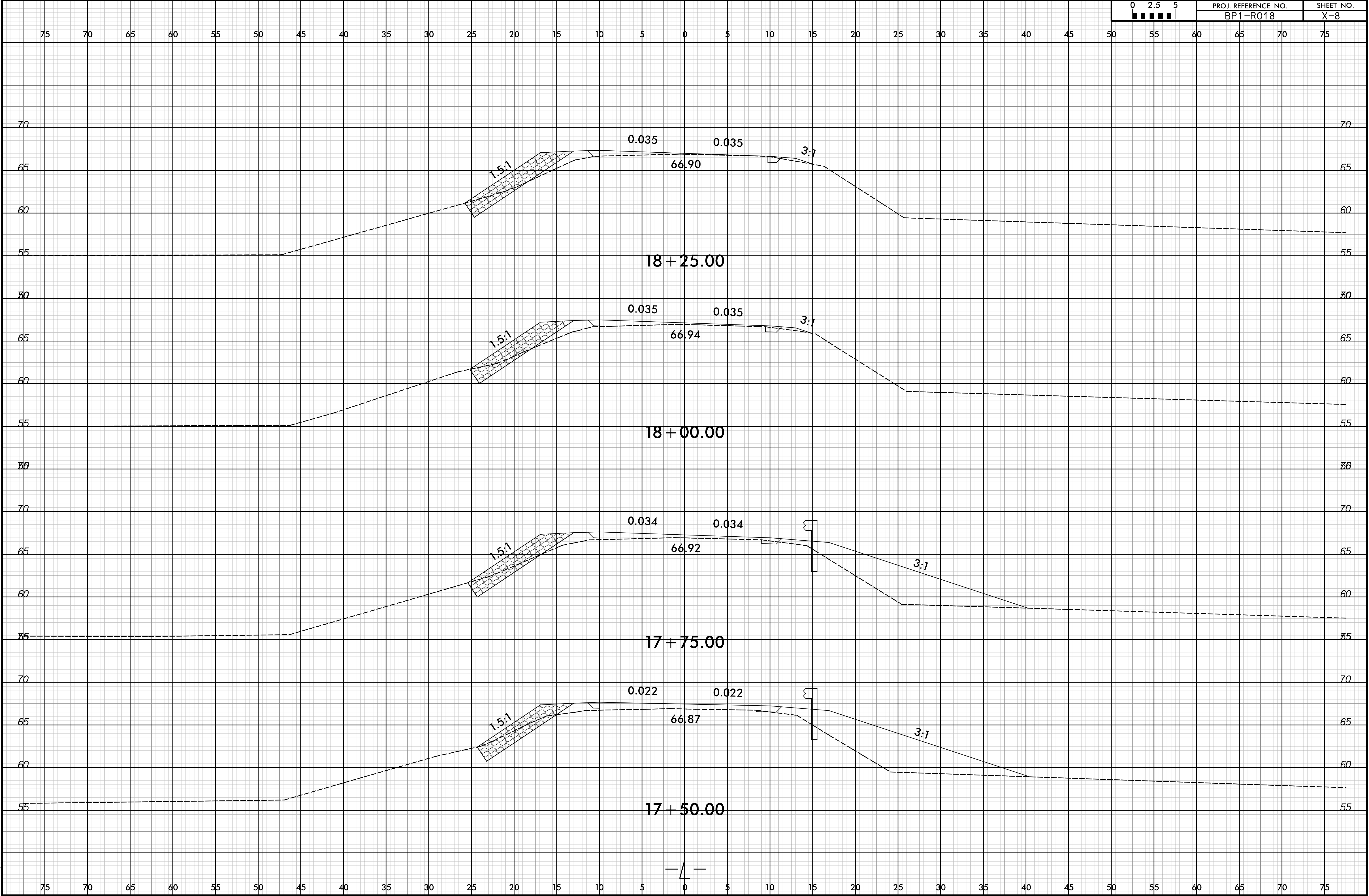
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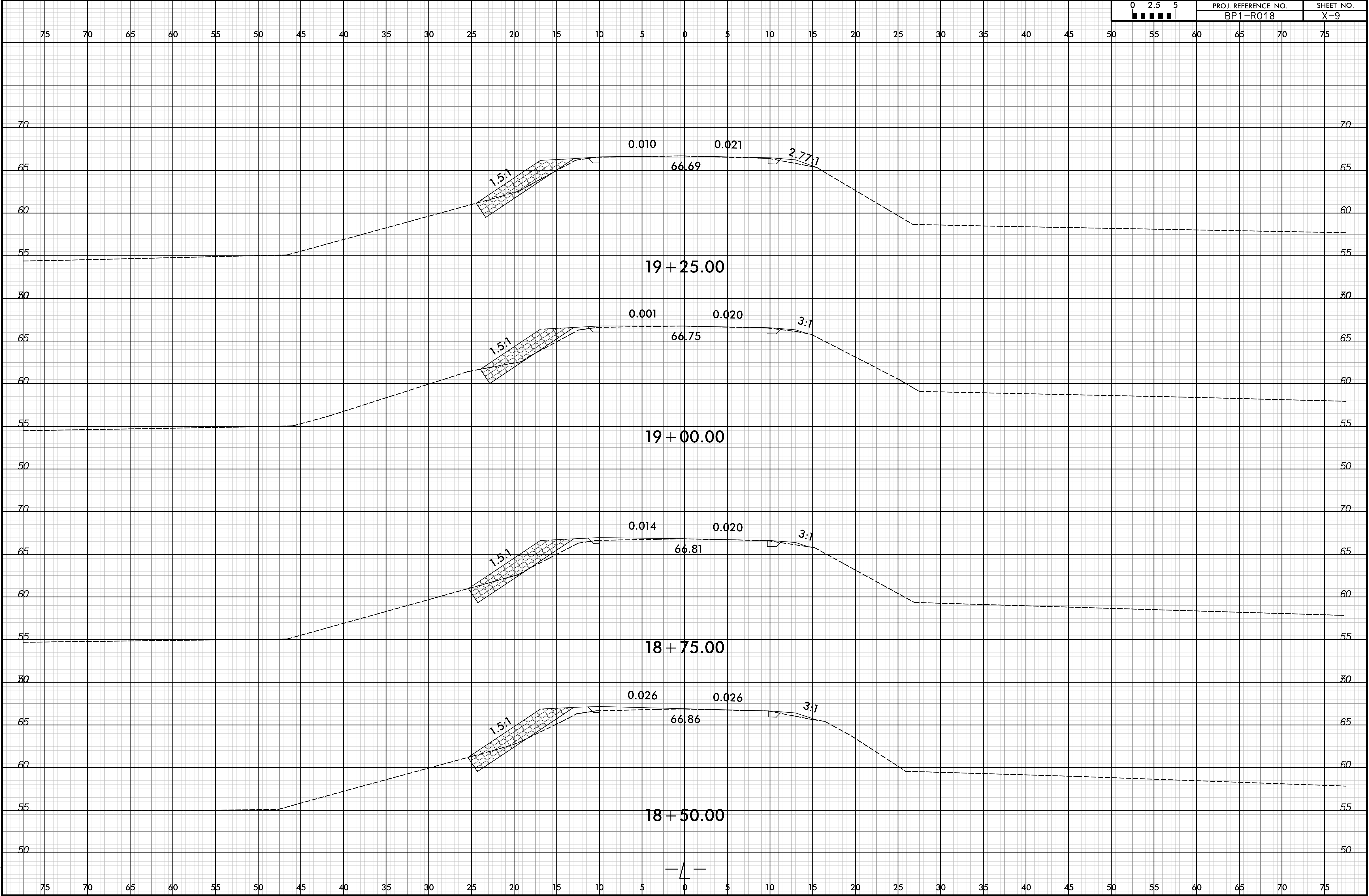
3/26/2026
BP1R018.dwg
mhusseini

6/23/16

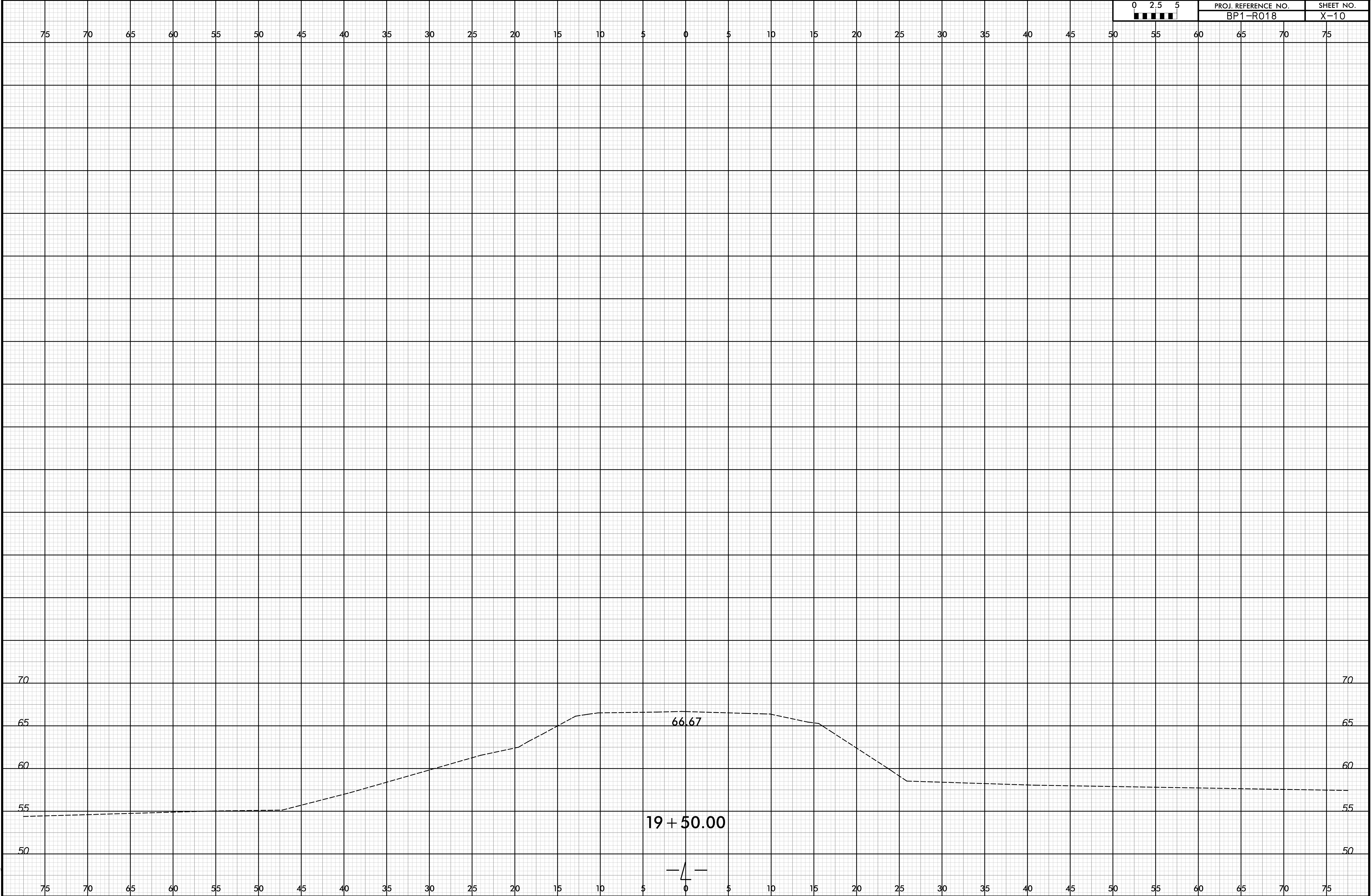


6/23/16

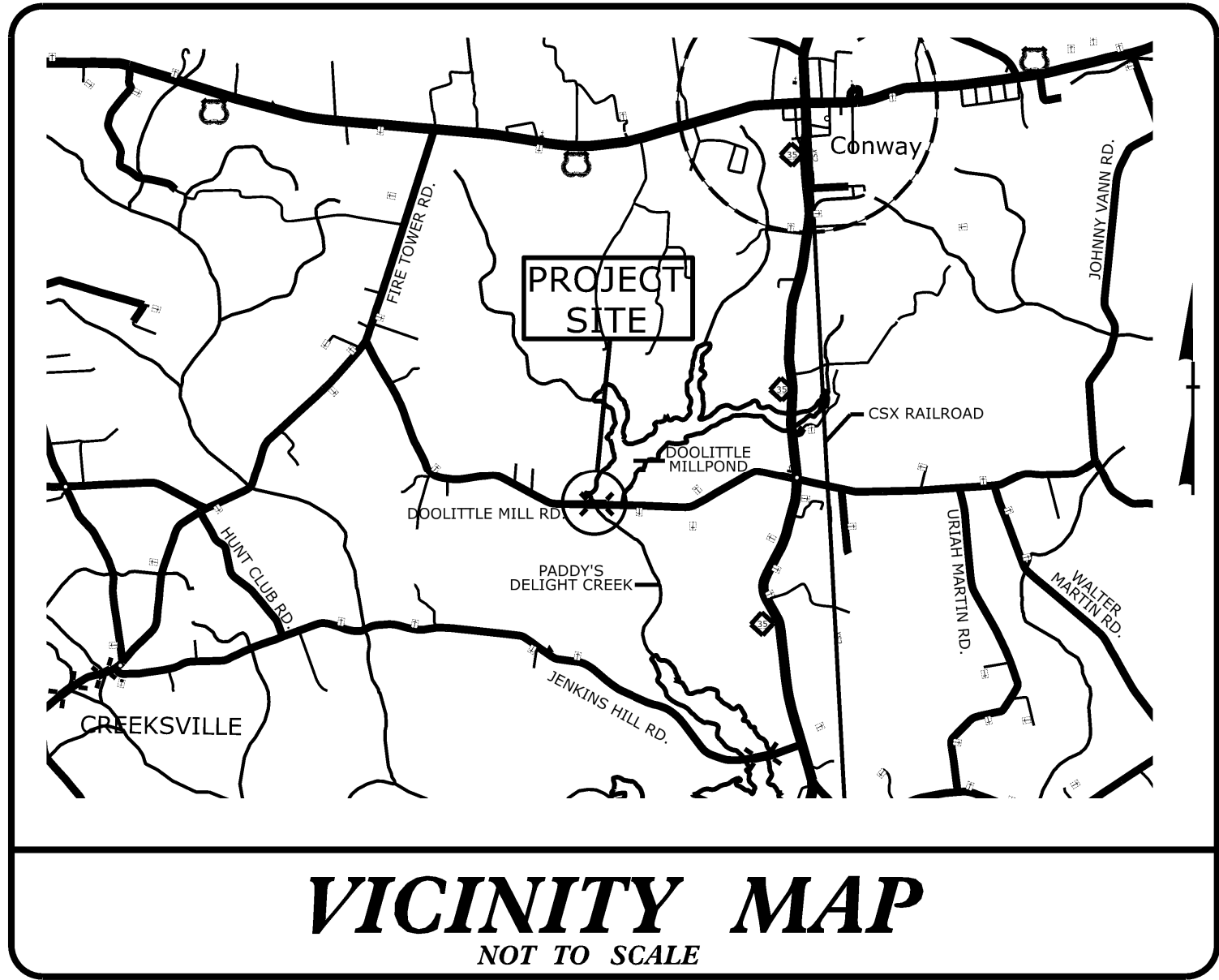
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■	■	■	BP1-R018		X-9	



3/26/2026
BP1R018.dwg
mhusseini



CONTRACT: _____ TIP PROJECT: BP1-R018



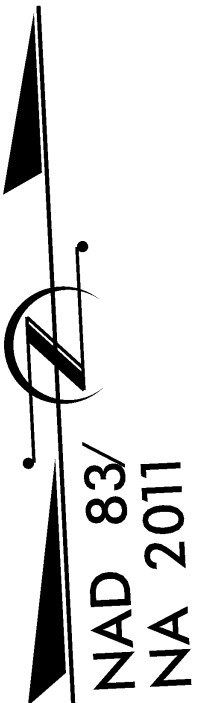
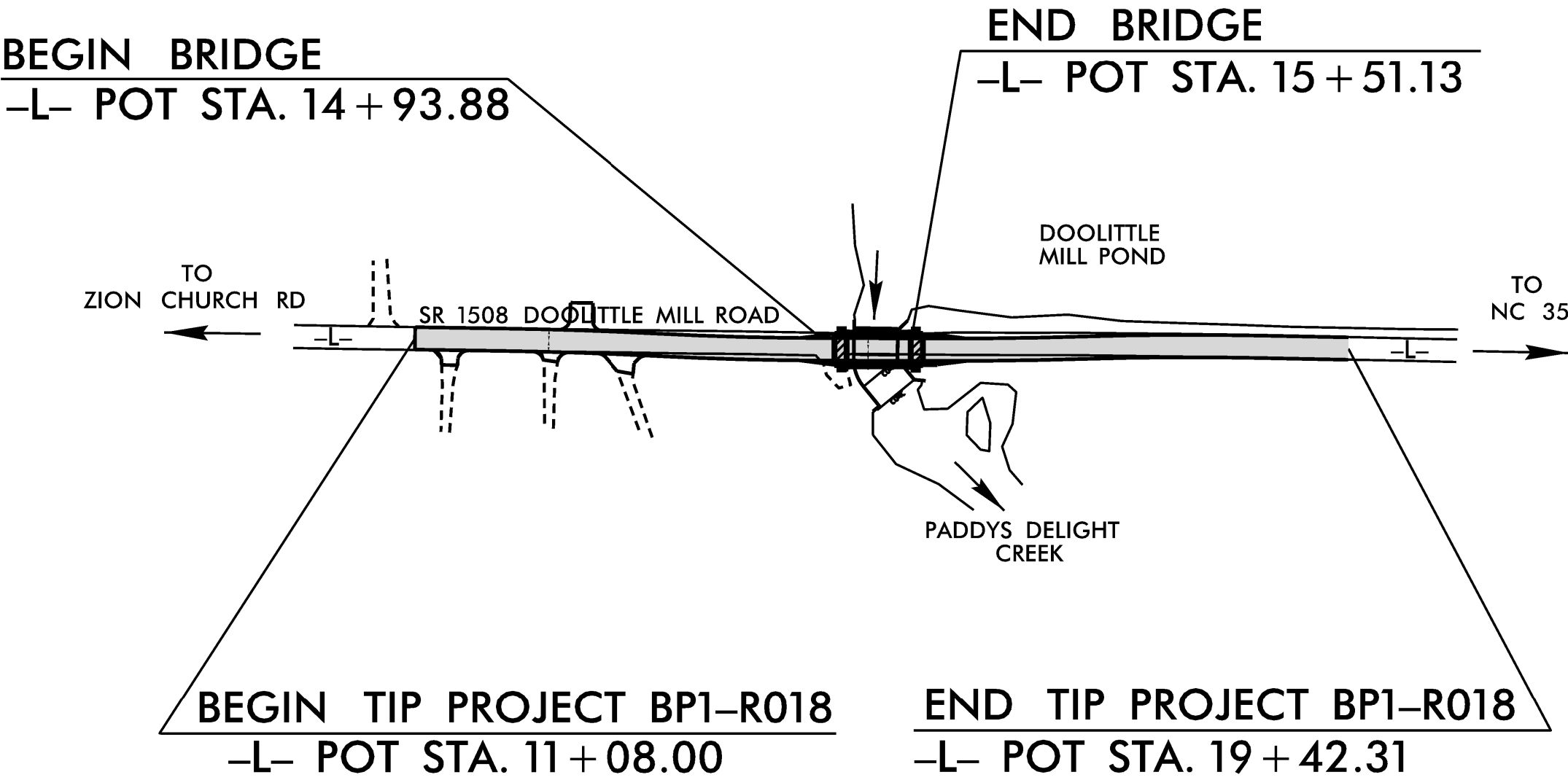
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NORTHAMPTON

**LOCATION: BRIDGE NO. 650017 OVER PADDYS DELIGHT CREEK
ON DOOLITTLE MILL ROAD (SR 1508)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP1-R018		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP1.R018.1	STATE FUNDED	PE	
BP1.R018.2	STATE FUNDED	R/W	
BP1.R018.3	STATE FUNDED	CONSTRUCTION	



STRUCTURE

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA	
AADT 2022 =	500
ADT 2022 =	N/A
K =	N/A %
D =	N/A %
T =	N/A % *
V =	50 MPH

FUNC CLASS = LOCAL
SUBREGIONAL TIER
DESIGN GUIDELINES

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT BP1-R018 =	0.147 MI.
LENGTH STRUCTURE TIP PROJECT BP1-R018 =	0.011 MI.
TOTAL LENGTH OF TIP PROJECT BP1-R018 =	0.158 MI.

Prepared for the North Carolina Department of Transportation
In the Office of:

940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 1, 2025

LETTING DATE:
APRIL 17, 2026

NCDOT CONTACT

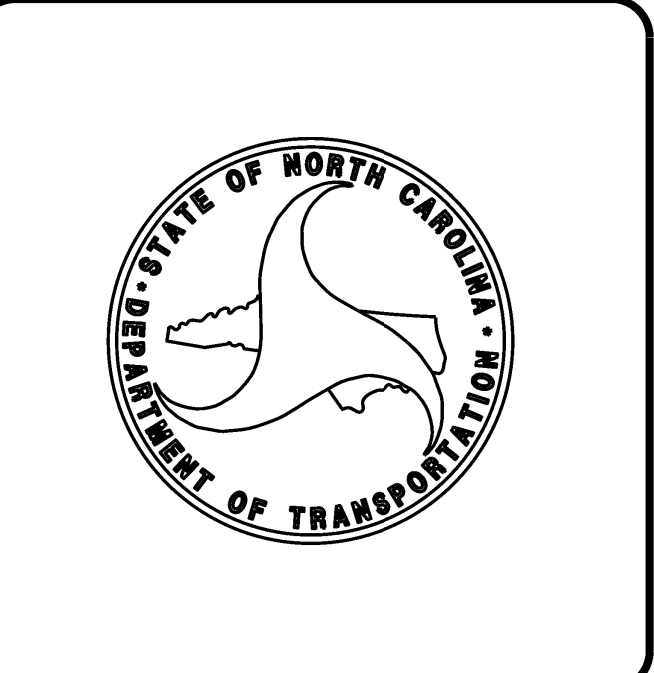
ELIZABETH C. PHELPS, PE
PROJECT DESIGN ENGINEER

RYAN L. SHOOK
PROJECT ENGINEER-ROADWAY DESIGN

DocuSigned by
Elizabeth Phelps
12/16/2025
A304588AD627455...

ELIZABETH C. PHELPS
SIGNATURE:

P.E.



8/26/21

+

+

GRADE DATA -L-

PI = 11+83.00
EL = 71.86'
VC = 150'

(-)1.2000% (-)0.7797%

APPROXIMATE
NATURAL GROUND

FILL FACE AT END BENT 1
STA. 14+93.88 -L-
G.P. EL. 69.44

LOW CHORD
EL. 67.07

TOP OF PROPOSED
CONCRETE BENCH EL. 65.4

END BENT 1

SECTION ALONG -L-

57'-3" (FILL FACE TO FILL FACE)

28'-7½"

BRIDGE I.D.
STA. 15+22.50 -L-

W.P. #1 AT FILL FACE
AT END BENT 1
STA. 14+93.88 -L-

BEGIN APPROACH SLAB
STA. 14+83.00 -L-

TO ZION CHURCH RD
SR 1500

PT STA. 14+73.76 -L-

EXISTING
STRUCTURE
(TYP.)

PROPOSED CONCRETE
BENCH (TYP.)

EXISTING CONCRETE
SPILLWAY (TO REMAIN)

PLAN

(PILES NOT SHOWN FOR CLARITY)

PADDY'S DELIGHT
CREEK

END BENT 2

1'-6" TO LIMITS OF
UNCLASSIFIED STR.
EXCAVATION (TYP.)

FILL FACE AT END BENT 2
STA. 15+51.13 -L-
G.P. EL. 68.99

LOW CHORD
EL. 66.65

100 YR HW
EL. 67.40

25 YR HW
EL. 66.80

EXISTING
SUBSTRUCTURE
(TYP.)

EXISTING PORTION
OF END BENT TO BE
REMOVED TO EL. 65.4

EXISTING PORTION OF END BENT
TO BE REMOVED TO EL. 65.1

HP12x53 STEEL
PILES (TYP.)

TOP OF PROPOSED CONCRETE
BENCH EL. 65.1

UNCLASSIFIED
STRUCTURE EXCAVATION

GRADE DATA -L-

PI = 18+09.33
EL = 66.98'
VC = 150'

(-)0.7797% (-)0.2470%

I HEREBY CERTIFY THESE PLANS
ARE THE AS-BUILT PLANS

HYDRAULIC DATA

DESIGN DISCHARGE	= 850 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 66.8 FT
DRAINAGE AREA	= 7.6 SQ. MI.
BASIC DISCHARGE (Q100)	= 1472 C.F.S.
BASIC HIGH WATER ELEVATION	= 67.4 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 922 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 25+ YRS.
OVERTOPPING FLOOD ELEVATION	= 66.6 FT*
* LOCATION OF OVERTOPPING -L- 20+39.06	

WS EL. Taken @ River Station 13580

HORIZONTAL CURVE DATA -L-

PI = 16+43.51
Δ = 1°54'41.3" (LT)
D = 1°30'28.0"
L = 126.77'
T = 63.39'
R = 3800.00'

TO NC 35

HORIZONTAL CURVE DATA -L-

PI = 13+99.33
Δ = 2°46'43.6" (LT)
D = 1°51'58.7"
L = 148.89'
T = 74.46'
R = 3070.00'

W.P. #1 AT FILL FACE
AT END BENT 1
STA. 14+93.88 -L-

BEGIN APPROACH SLAB
STA. 14+83.00 -L-

W.P. #2 AT FILL FACE
AT END BENT 2
STA. 15+51.13 -L-

END APPROACH SLAB
STA 15+62.00 -L-

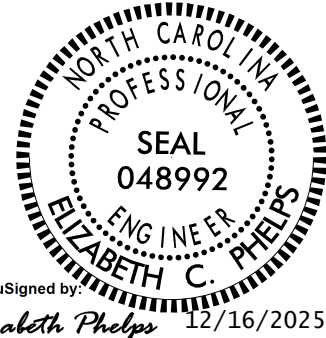
PC STA. 15+80.11 -L-



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DESIGN ENGINEER OF RECORD: E.C. PHELPS	DATE : 09/2025

11/3/2025
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PROJECT NO. **BP1-R018**
NORTHAMPTON COUNTY
STATION: **15+22.50 -L-**

SHEET 1 OF 3 REPLACES BRIDGE NO. 650017

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER PADDY'S
DELIGHT CREEK ON SR 1508
(DOOLITTLE MILL RD)
BETWEEN
SR 1500 (ZION CHURCH RD)
AND NC 35

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					14

S-1

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Number of Piles per Line	Factored Resistance per Pile KIPS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles **			Drilled-In Piles		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent 1, Piles 1-5	5	170	See Substructure Plans	85			285	3						
End Bent 2, Piles 1-5	5	170	See Substructure Plans	85			285	3						
TOTAL QUANTITY:								6						

* $RDR = \frac{Factored\ Resistance + Factored\ Drag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Drag\ Load\ Resistance + Nominal\ Resistance\ from\ Scourable\ Material$

** Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent 1, Piles 1-5	170			0.60		
End Bent 2, Piles 1-5	170			0.60		

* Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
End Bent 1, Piles 1-5	90	1
End Bent 2, Piles 1-5	90	
TOTAL QUANTITY:		1

Pile Order Lengths for Concrete Piles	
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	Pile Order Length Basis* EST or DPT

* EST = Pile order lengths from estimated pile lengths; DPT = Pile order lengths based on Dynamic Pile Testing. For groups of end bents/bents with pile order lengths based on DPT testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the DPT.

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Thein Tun Zan, #030943) on 05-8-2025.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.



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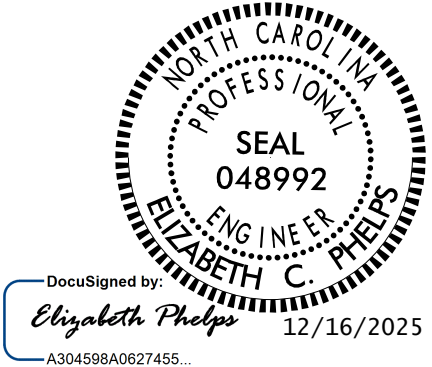
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PROJECT NO. **BP1-R018**

NORTHAMPTON COUNTY

STATION: **15+22.50 -L-**

SHEET 2 OF 3



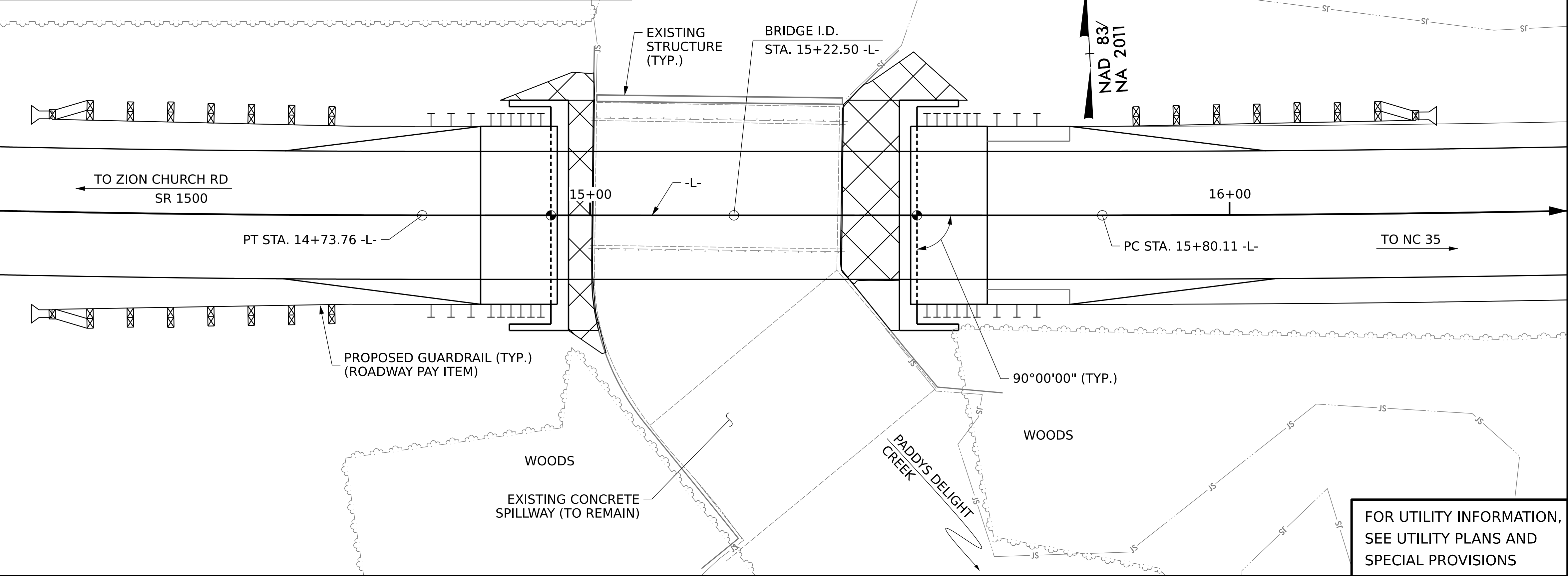
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION
TABLES

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2	
1			3			TOTAL SHEETS	
2			4			14	

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8/26/21
BENCHMARK #1: RAILROAD SPIKE IN 12" GUM; 23' RT OF STA. 14+97 -L- ELEV. 67.38'



- LOCATION SKETCH -

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE @ STA. 15+22.50 -L-	UNCLASSIFIED STRUCTURE EXCAVATION @ STA. 15+22.50 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS @ STA. 15+22.50 -L-	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12x53 STEEL PILES		PILE REDRIVES	DYNAMIC PILE TESTING	VERTICAL CONCRETE BARRIER RAIL	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	NO.	LIN. FT.	EACH	EACH	LIN. FT.	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE											110.25		LUMP SUM	10	550
END BENT NO.1		LUMP SUM	13		1965	5	5	425	3			15.3			
END BENT NO.2		LUMP SUM	13		1965	5	5	425	3			31.7			
TOTAL	LUMP SUM	LUMP SUM	26	LUMP SUM	3930	10	10	850	6	1	110.25	47.0	LUMP SUM	10	550

FOUNDATION NOTES

- FOR PILES, SEE PILES PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.
- IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENGERGY IN THE RANGE OF 30,000 FT-LBS TO 60,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.



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4/1/2026
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ephelps

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CORED SLAB POST TENSIONING, SEE SPECIAL PROVISIONS.

IN AS MUCH AS THE PAINT SYSTEM OF THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COST RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE."

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 22FT ± (LEFT) AND 22FT ± (RIGHT) AT END BENT NO. 1 AND 26FT ± (LEFT) AND 11FT ± (RIGHT) AT END BENT NO. 2 OF THE CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON THE DIFFERENCE BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE BRIDGE IN ACCORDANCE TO ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE #650017 CONSISTING OF THREE (3) TIMBER JOIST SPANS @ 39'-1" WITH A CLEAR ROADWAY WIDTH OF 18'-0", WITH AN ASPHALT WEARING SURFACE AND TIMBER DECK, WITH SUBSTRUCTURES CONSISTING OF VERTICAL CONCRETE ABUTMENTS LOCATED AT THE PROPOSED BRIDGE SHALL BE REMOVED. THE EXISTING BRIDGE IS CURRENTLY POSTED FOR A LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES."

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

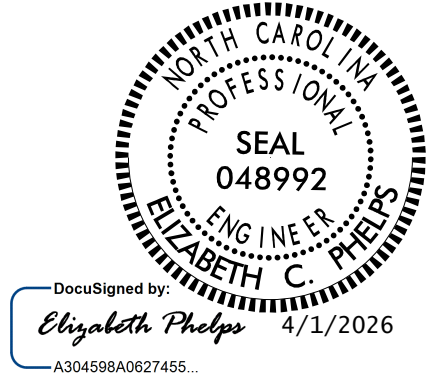
FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

PROJECT NO. BP1-R018

NORTHAMPTON COUNTY

STATION: 15+22.50 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER PADDYS DELIGHT CREEK ON SR 1508 (DOOLITTLE MILL RD) BETWEEN SR 1500 (ZION CHURCH RD) AND NC 35

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			14

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8/26/21

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING Ⓢ	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						LIVE-LOAD FACTORS (γ LL)	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ LL)	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	Ⓢ1	1.055	--	1.75	0.275	1.23	55'	EL	27	0.523	1.23	55'	EL	5.4	0.80	0.275	1.05	55'	EL	27		
	HL-93 (OPERATING)	N/A		1.591	--	1.35	0.275	1.59	55'	EL	27	0.523	1.59	55'	EL	5.4	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	Ⓢ2	1.322	47.585	1.75	0.275	1.54	55'	EL	27	0.523	1.47	55'	EL	5.4	0.80	0.275	1.32	55'	EL	27		
	HS-20 (OPERATING)	36.000		1.900	68.396	1.35	0.275	1.99	55'	EL	27	0.523	1.90	55'	EL	5.4	N/A	--	--	--	--	--		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		2.776	37.476	1.4	0.275	4.04	55'	EL	27	0.523	4.17	55'	EL	5.4	0.80	0.275	2.78	55'	EL	27	
		SNGARBS2	20.000		2.155	43.095	1.4	0.275	3.14	55'	EL	27	0.523	3.02	55'	EL	5.4	0.80	0.275	2.15	55'	EL	27	
		SNAGRIS2	22.000		2.079	45.734	1.4	0.275	3.03	55'	EL	27	0.523	2.83	55'	EL	5.4	0.80	0.275	2.08	55'	EL	27	
		SNCOTTS3	27.250		1.384	37.708	1.4	0.275	2.01	55'	EL	27	0.523	2.09	55'	EL	5.4	0.80	0.275	1.38	55'	EL	27	
		SNAGGRS4	34.925		1.189	41.527	1.4	0.275	1.73	55'	EL	27	0.523	1.77	55'	EL	5.4	0.80	0.275	1.19	55'	EL	27	
		SNS5A	35.550		1.160	41.255	1.4	0.275	1.69	55'	EL	27	0.523	1.82	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		SNS6A	39.950		1.079	43.102	1.4	0.275	1.57	55'	EL	27	0.523	1.68	55'	EL	5.4	0.80	0.275	1.08	55'	EL	27	
		SNS7B	42.000		1.028	43.175	1.4	0.275	1.50	55'	EL	27	0.523	1.67	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.320	43.556	1.4	0.275	1.92	55'	EL	27	0.523	1.98	55'	EL	5.4	0.80	0.275	1.32	55'	EL	27	
		TNT4A	33.075		1.330	43.979	1.4	0.275	1.94	55'	EL	27	0.523	1.91	55'	EL	5.4	0.80	0.275	1.33	55'	EL	27	
		TNT6A	41.600		1.101	45.811	1.4	0.275	1.60	55'	EL	27	0.523	1.83	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
		TNT7A	42.000		1.114	46.804	1.4	0.275	1.62	55'	EL	27	0.523	1.71	55'	EL	5.4	0.80	0.275	1.11	55'	EL	27	
		TNT7B	42.000		1.163	48.848	1.4	0.275	1.69	55'	EL	27	0.523	1.62	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		TNAGRIT4	43.000		1.101	47.330	1.4	0.275	1.60	55'	EL	27	0.523	1.56	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
TNAGT5A		45.000		1.031	46.405	1.4	0.275	1.50	55'	EL	27	0.523	1.58	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27		
TNAGT5B		45.000	Ⓢ3	1.013	45.582	1.4	0.275	1.47	55'	EL	27	0.523	1.48	55'	EL	5.4	0.80	0.275	1.01	55'	EL	27		
EMERGENCY VEHICLE (EV)	EV2	28.750		1.617	46.483	1.3	0.275	2.37	55'	EL	27	0.523	2.27	55'	EL	5.4	0.80	0.275	1.62	55'	EL	27		
	EV3	43.000	Ⓢ4	1.049	45.107	1.3	0.275	1.54	55'	EL	27	0.523	1.53	55'	EL	5.4	0.80	0.275	1.05	55'	EL	27		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γDC	γDW
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

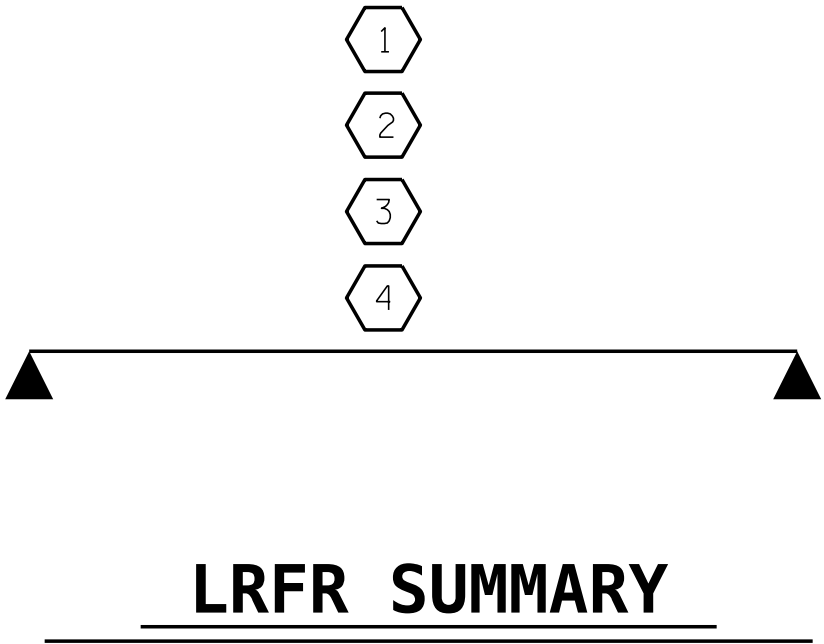
3 LEGAL LOAD RATING **

4 EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



PROJECT NO. **BP1-R018**
NORTHAMPTON COUNTY
STATION: **15+22.50 -L-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
55' CORED SLAB UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

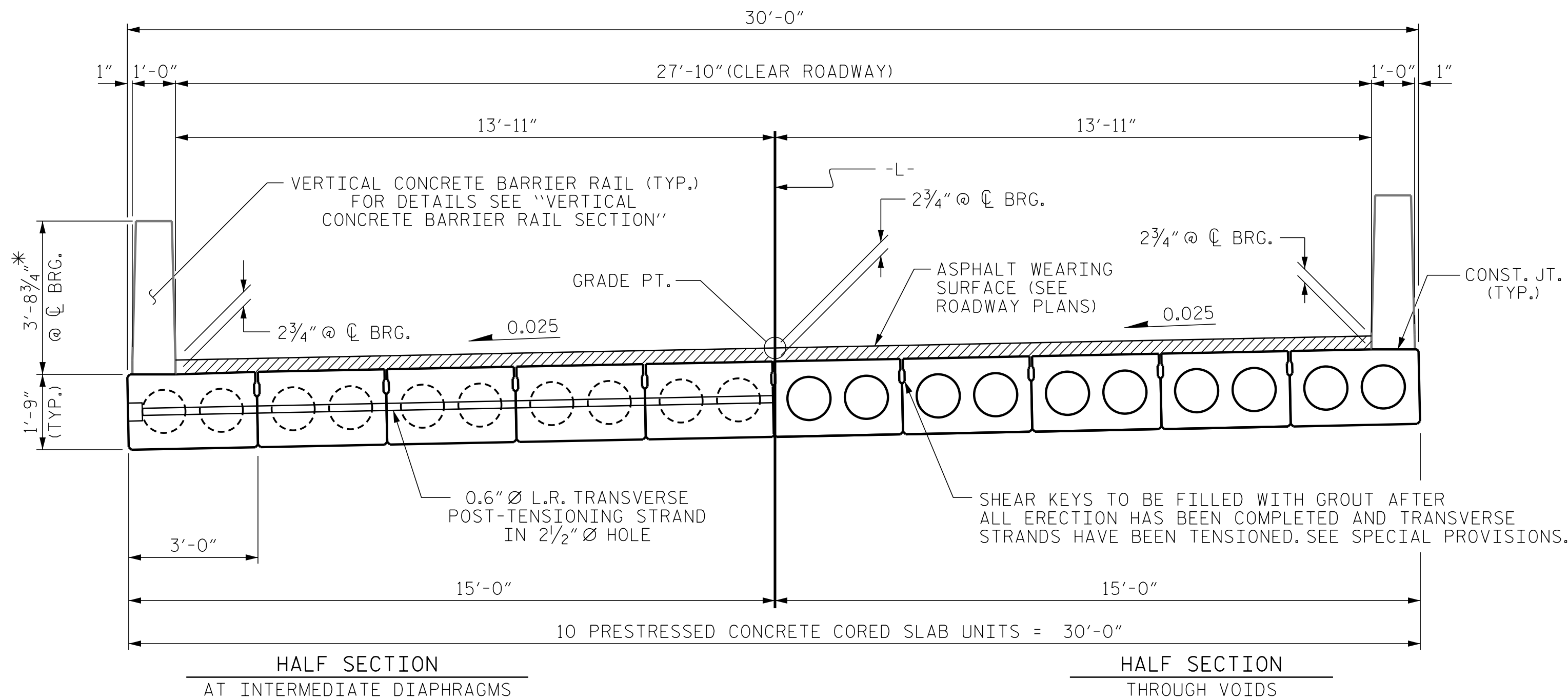
S-4
TOTAL SHEETS
14

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Elizabeth Phelps
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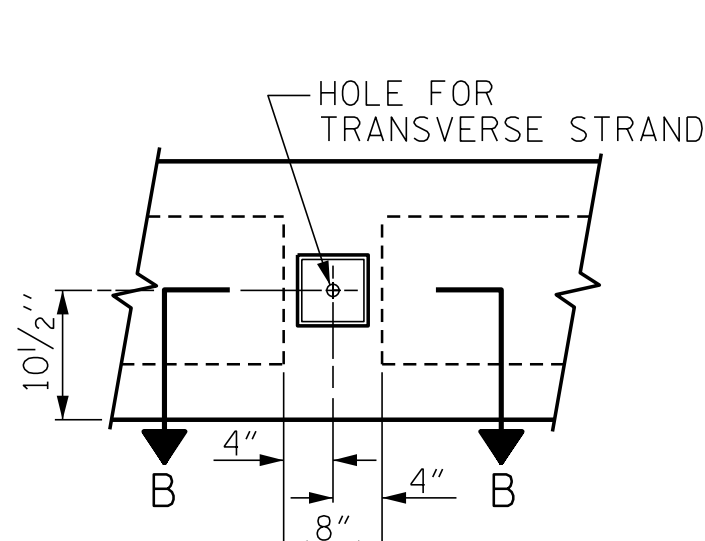
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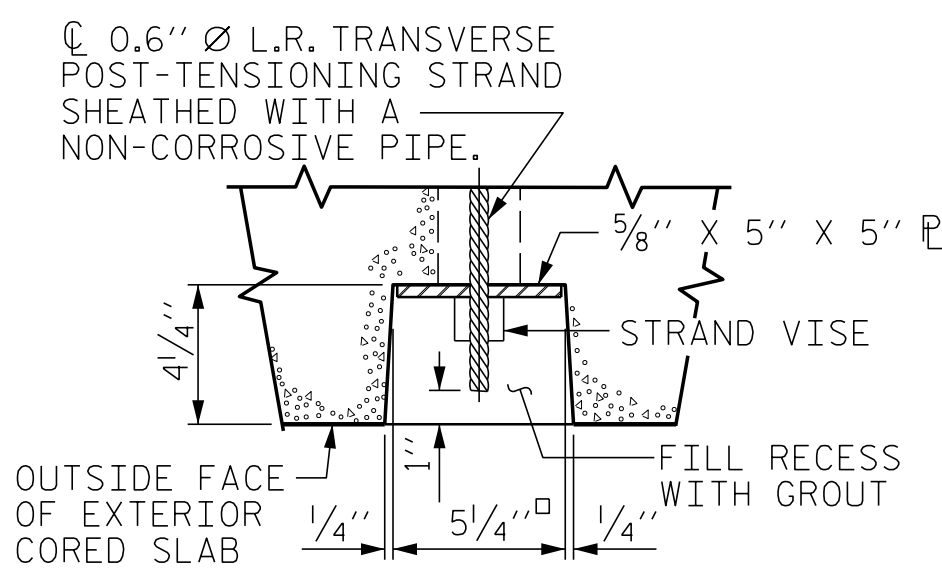


TYPICAL SECTION

* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

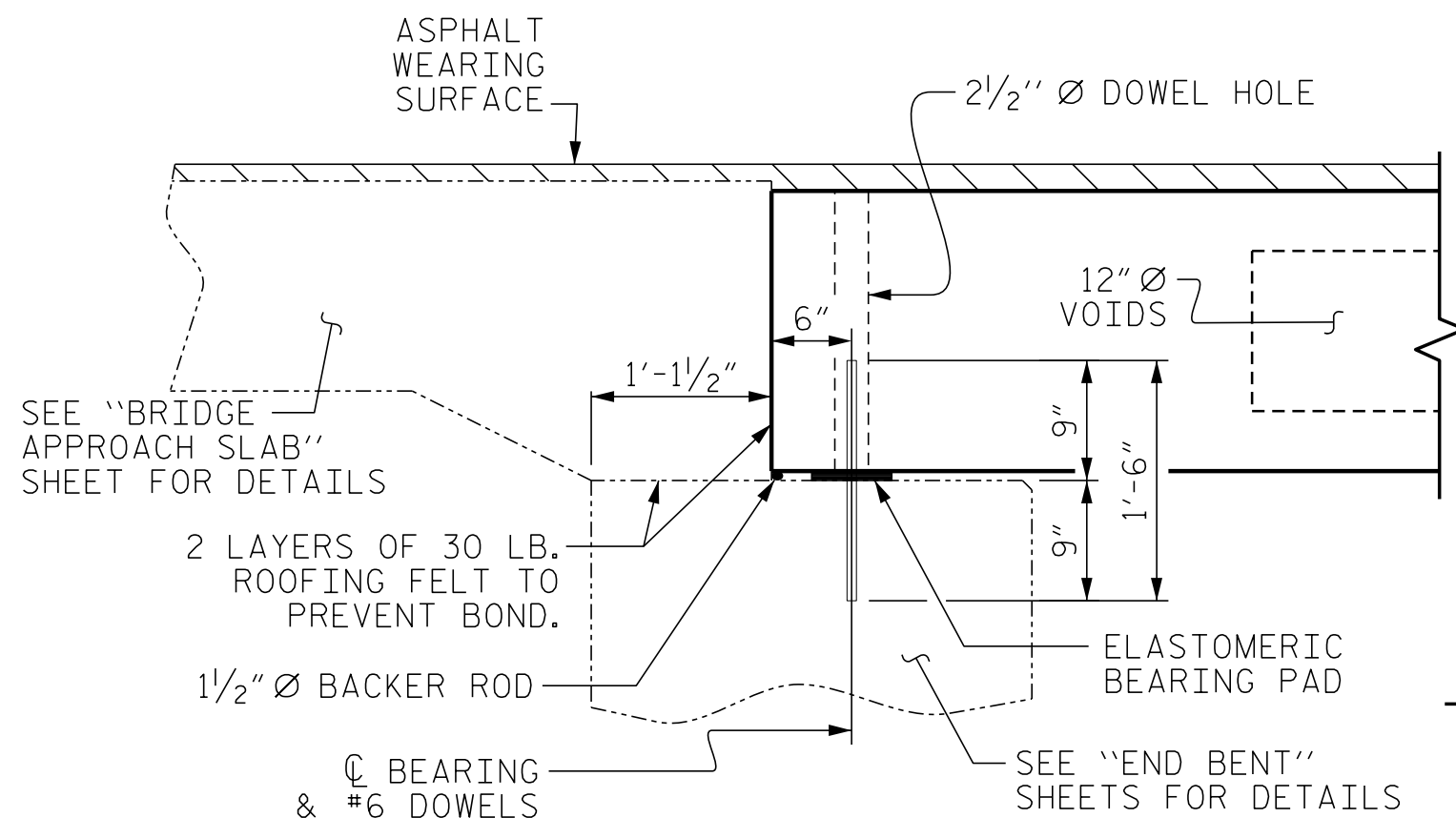


ELEVATION VIEW

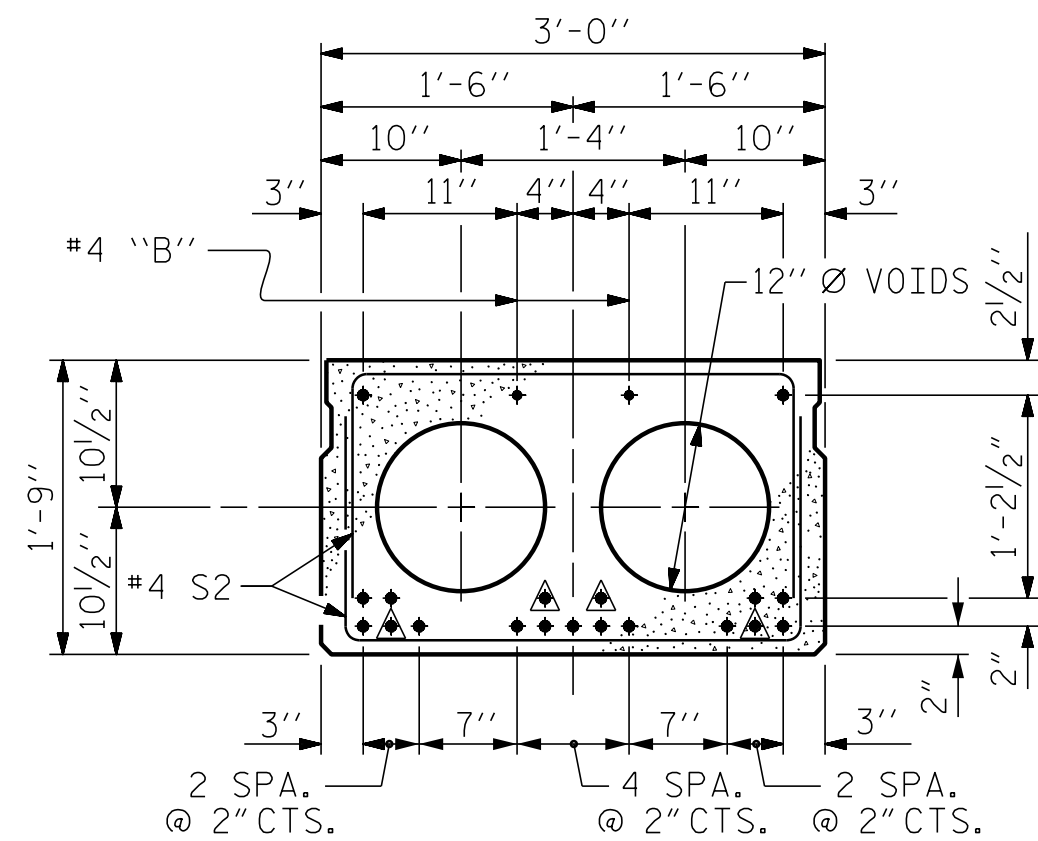


SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS

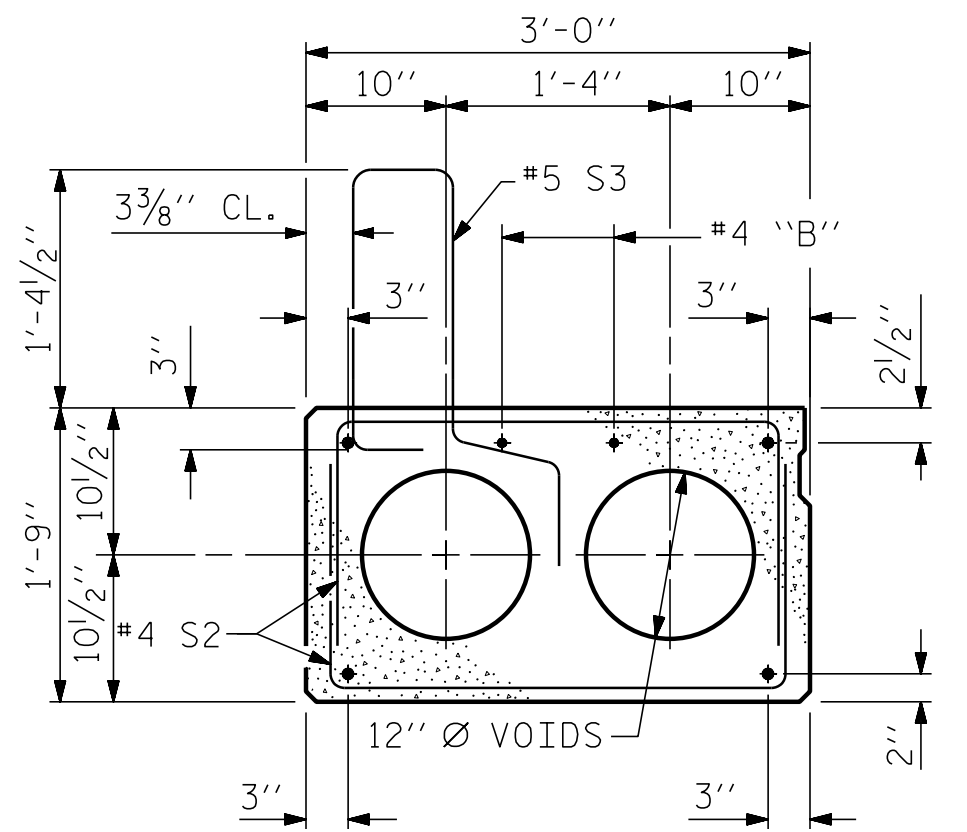


SECTION AT END BENT



INTERIOR SLAB SECTION (55' UNIT)
(19 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT

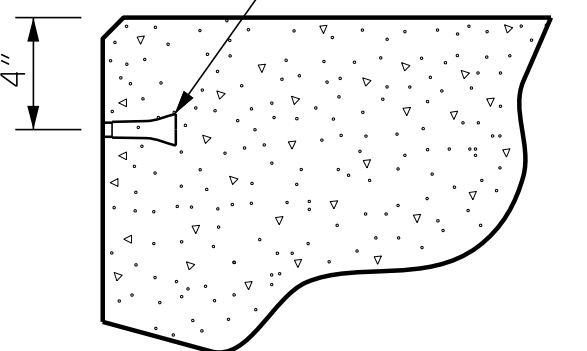


EXT. SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

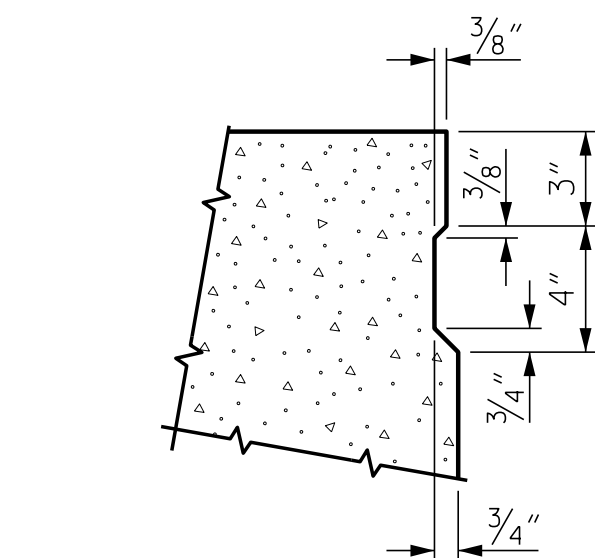
- △ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- ⊠ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- ⊙ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.

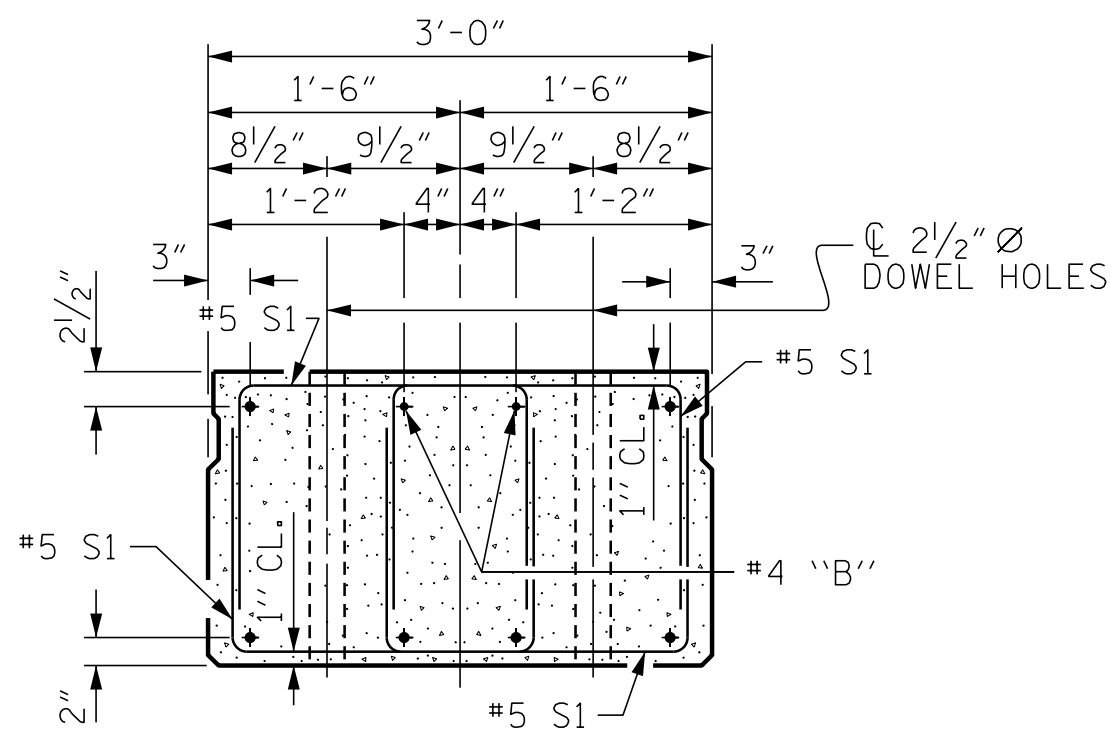


THREADED INSERT DETAIL



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



END ELEVATION

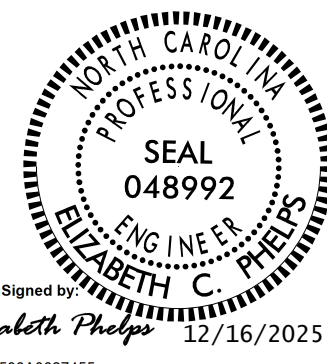
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.)
INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



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Raleigh, NC 27606

DRAWN BY : D.M. SAULS	DATE : 07/2025
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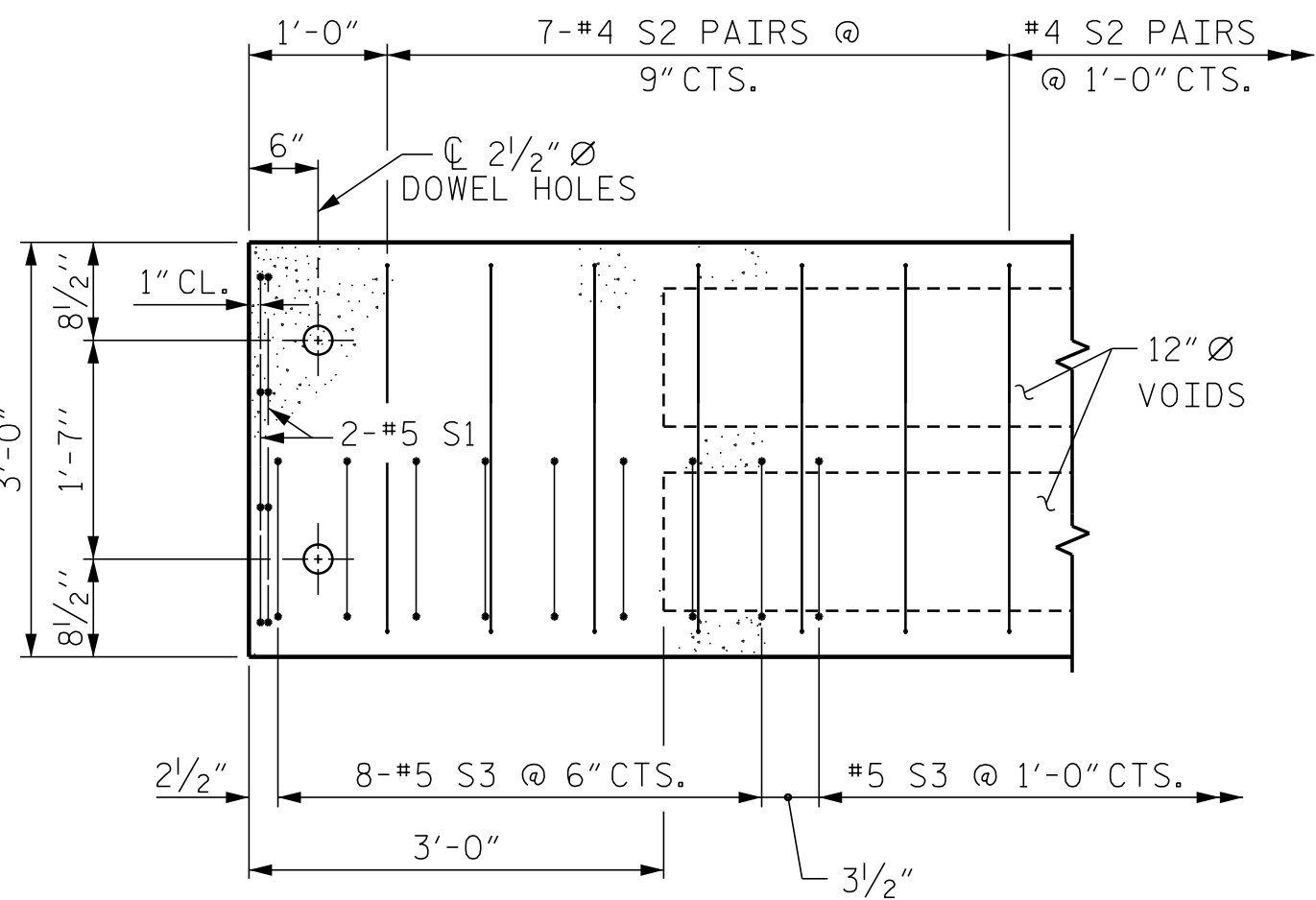
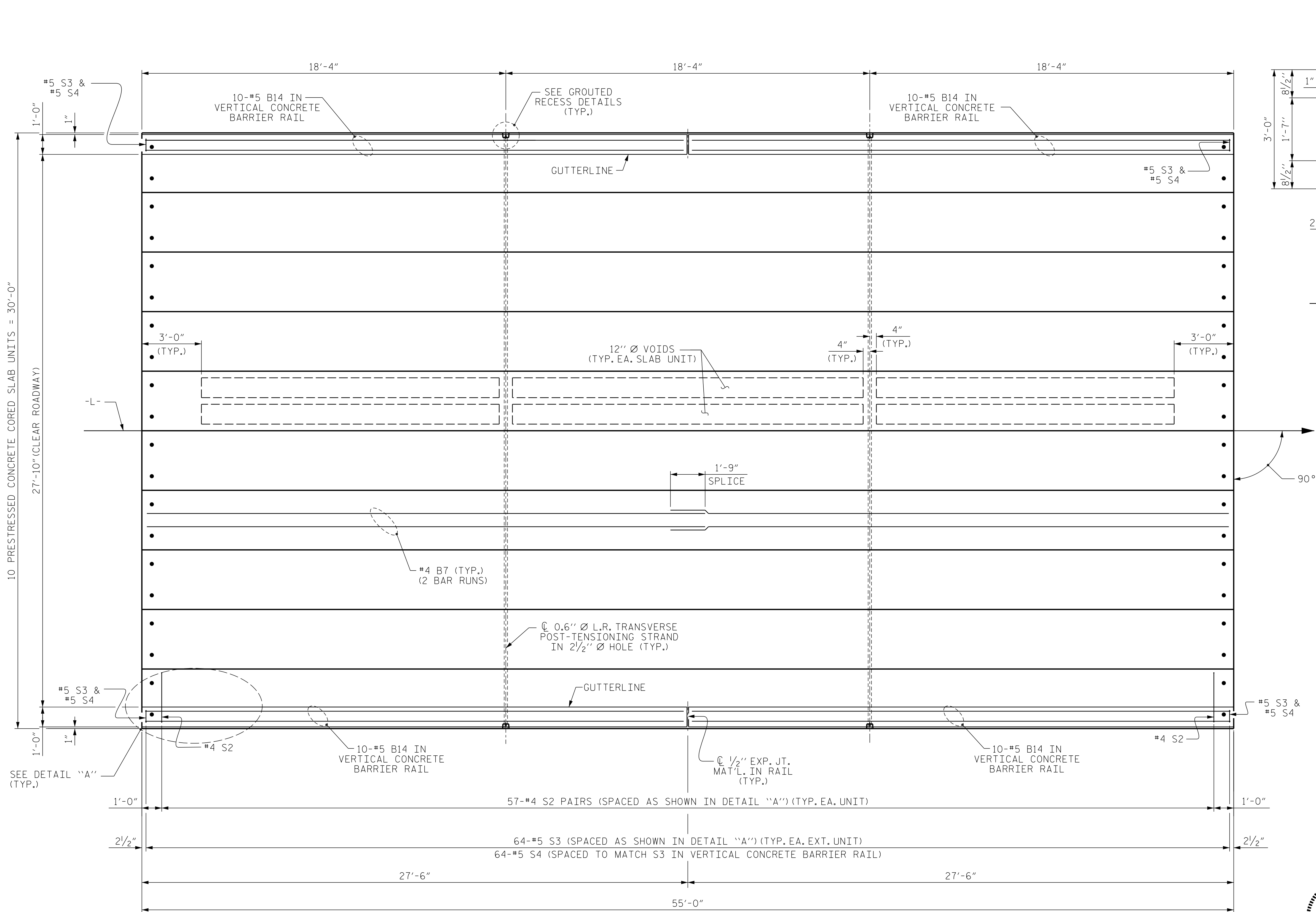


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PROJECT NO. **BP1-R018**
NORTHAMPTON COUNTY
STATION: **15+22.50 -L-**

SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD 3'-0'' X 1'-9'' PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW						SHEET NO. S-5 TOTAL SHEETS 14
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



DETAIL "A"
(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR
UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF UNIT



VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

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NORTHAMPTON COUNTY
STATION: **15+22.50 -L-**

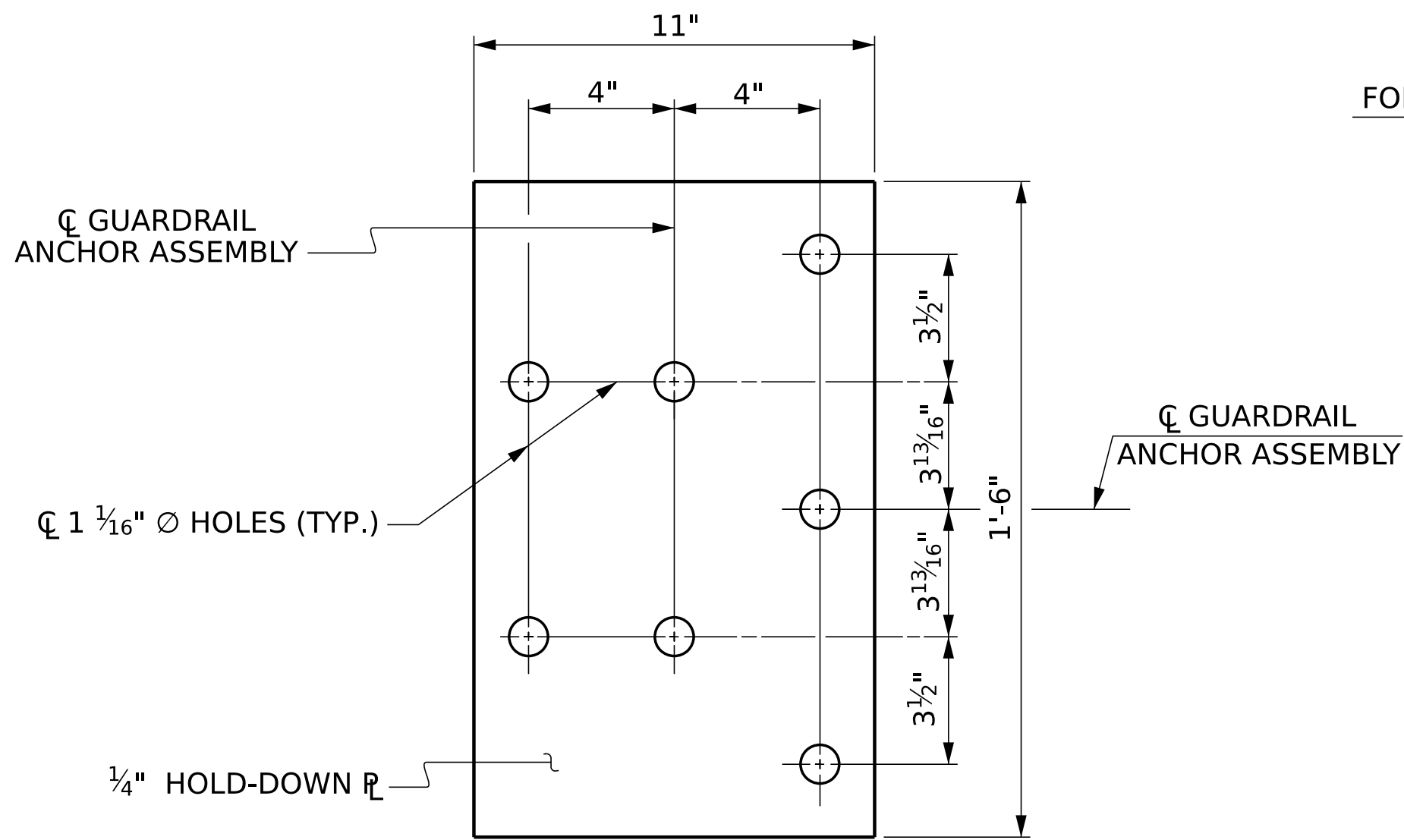
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 55' UNIT
27'-10" CLEAR ROADWAY
90° SKEW

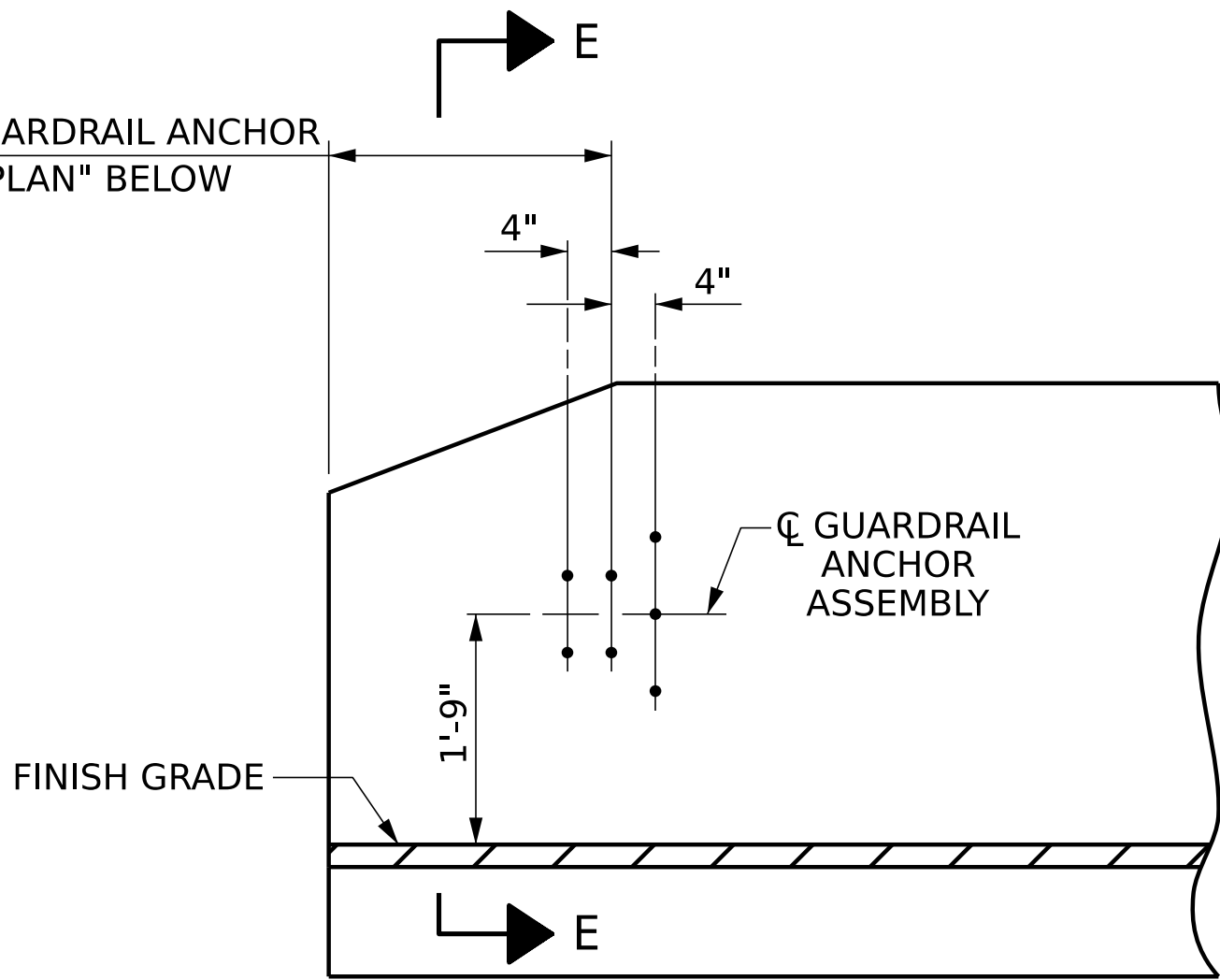
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-6
2			4			TOTAL SHEETS 14

8/26/21

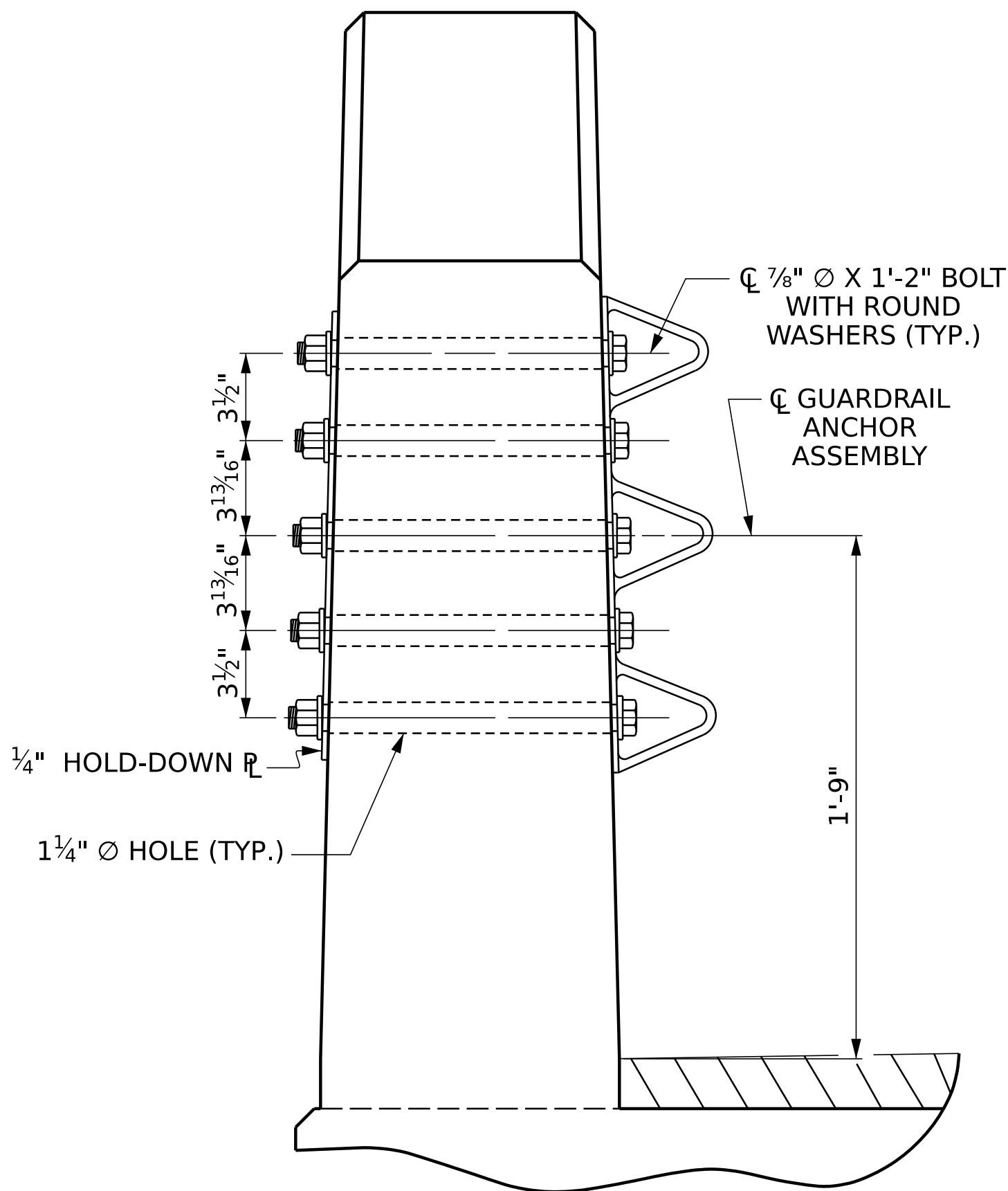


PLAN

FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

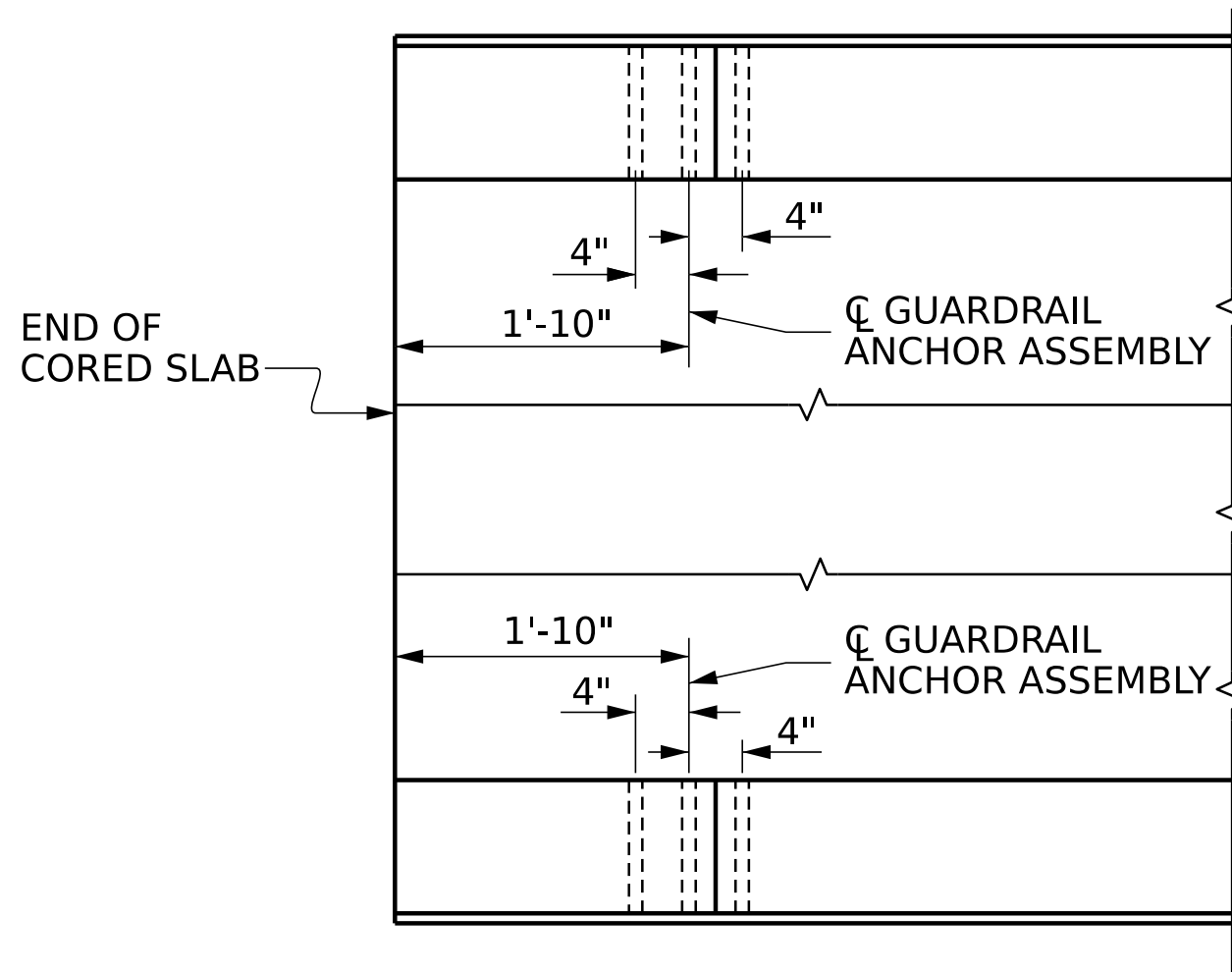


ELEVATION



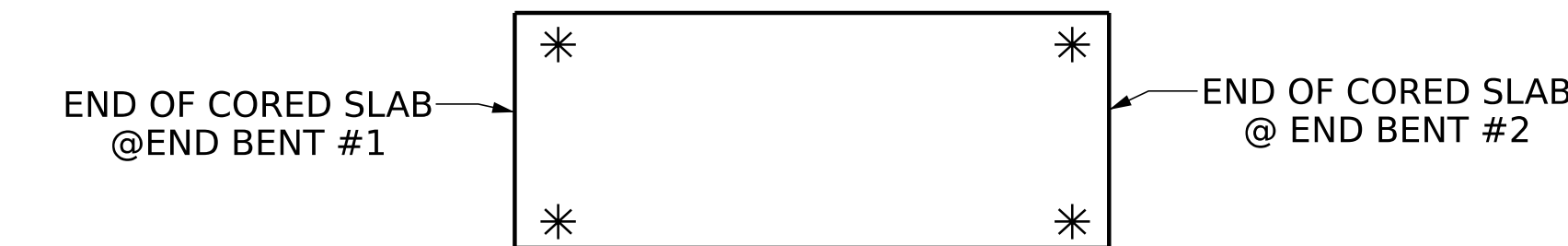
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. **BP1-R018**
NORTHAMPTON COUNTY
STATION: **15+22.50 -L-**



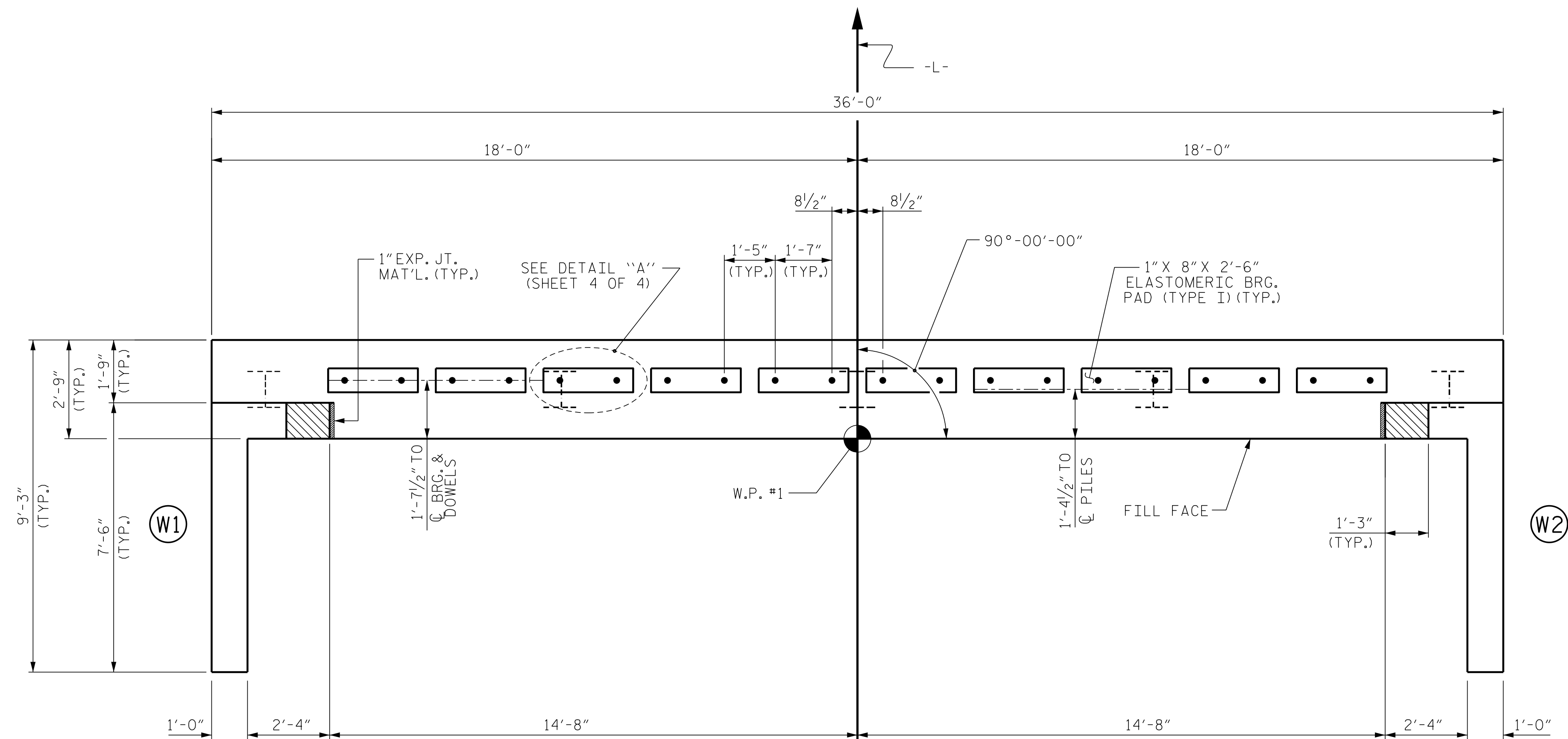
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

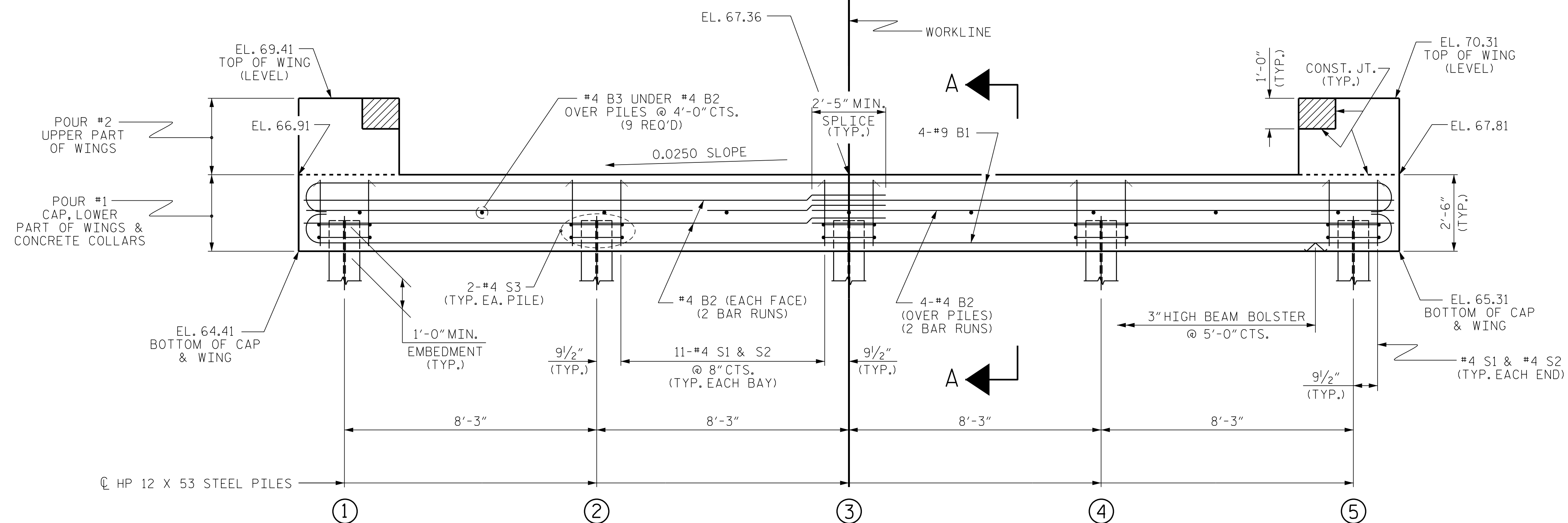
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			14



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS
NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS	
①	65.45
②	65.65
③	65.86
④	66.07
⑤	66.27

PROJECT NO. **BP1-R018**
NORTHAMPTON COUNTY
 STATION: **15+22.50 -L-**

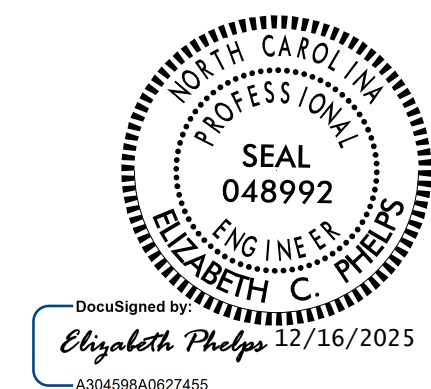
SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1

REVISIONS						SHEET NO. S-9 TOTAL SHEETS 14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

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STD. NO. EB_30_90S

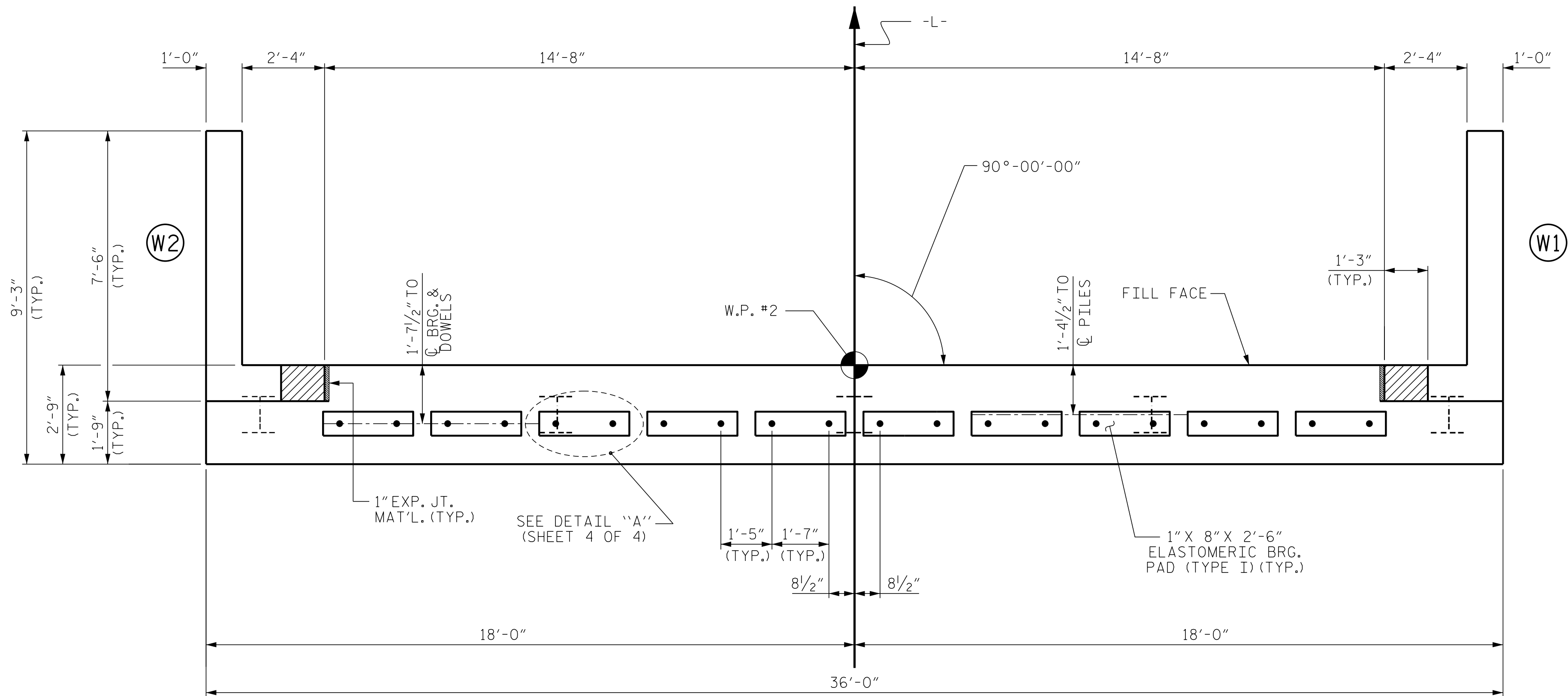
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

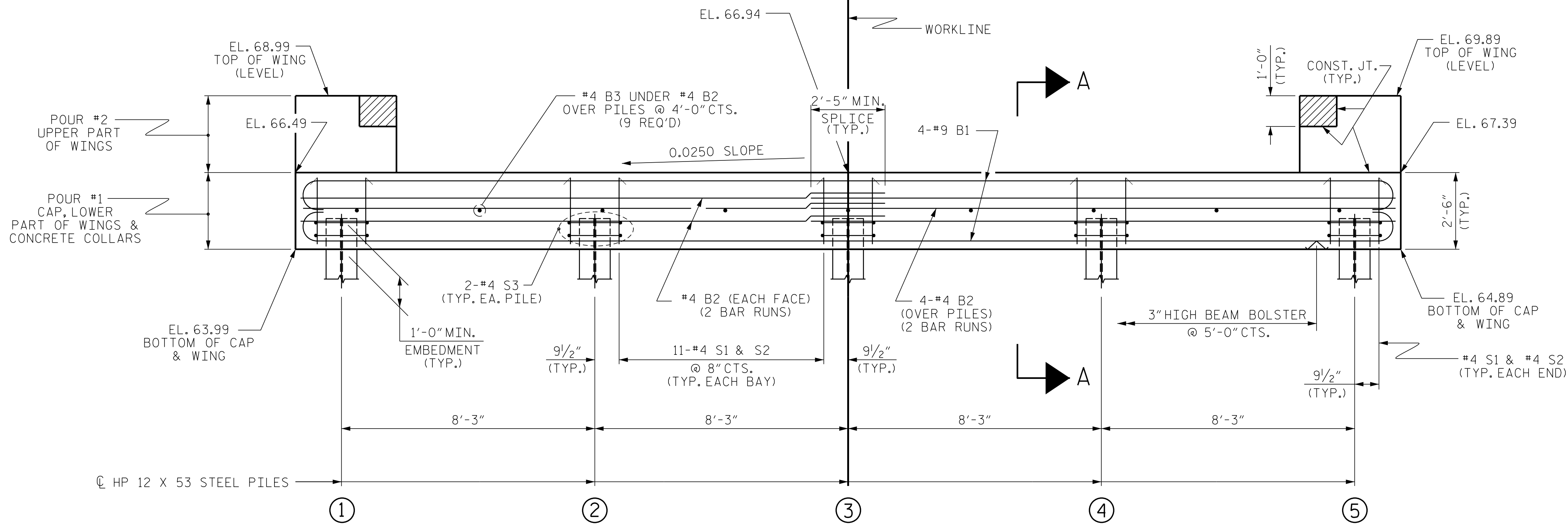
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

TOP OF PILE ELEVATIONS	
①	65.03
②	65.23
③	65.44
④	65.65
⑤	65.85

PROJECT NO. **BP1-R018**
NORTHAMPTON COUNTY
STATION: **15+22.50 -L-**

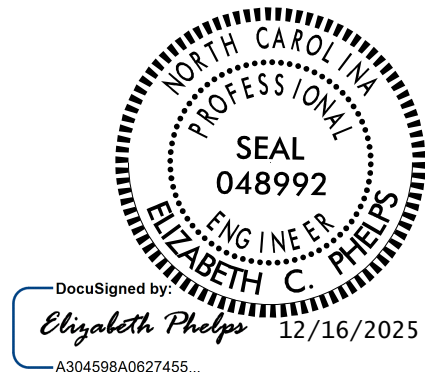
SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	
1			3		S-10
2			4		TOTAL SHEETS 14

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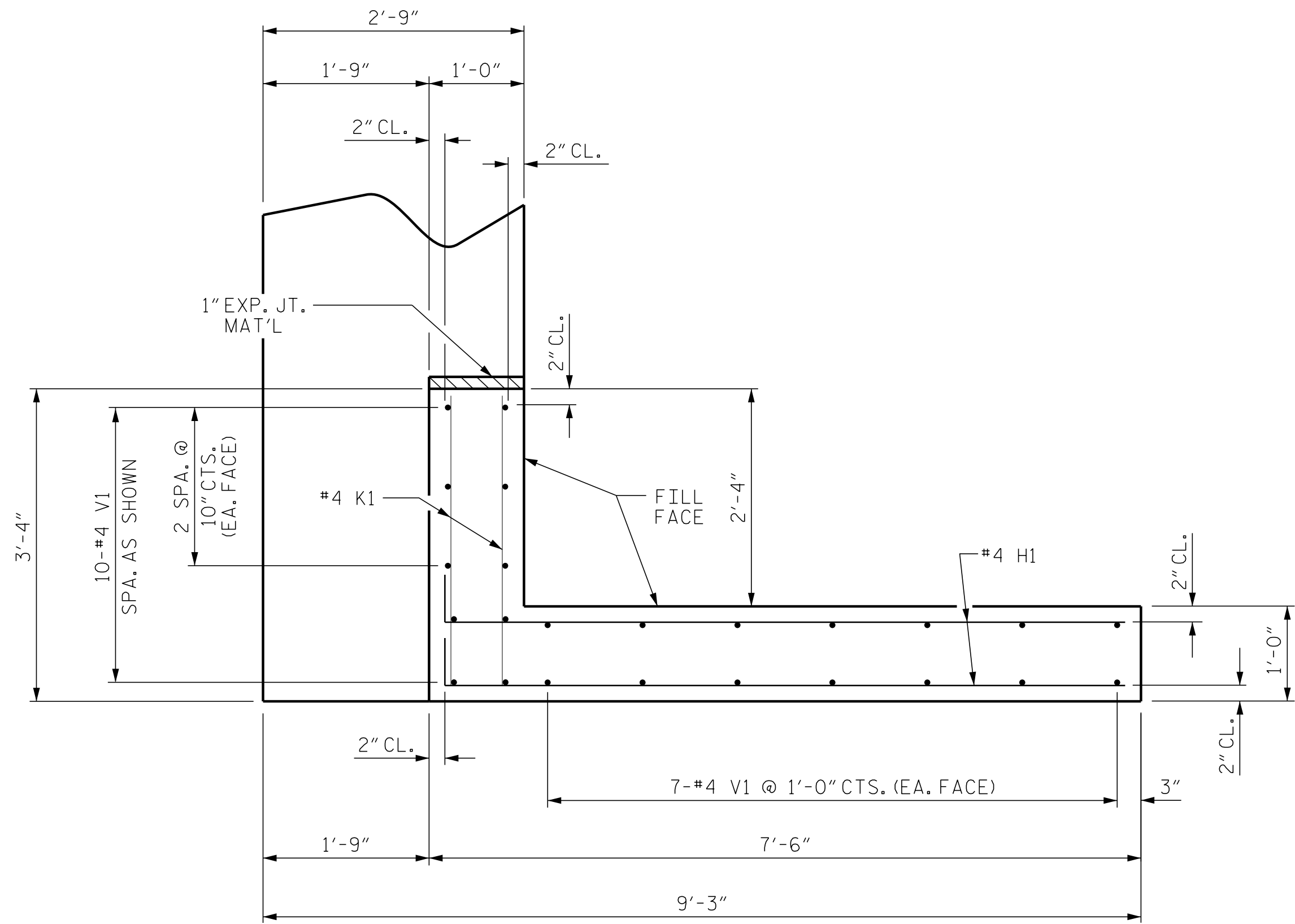


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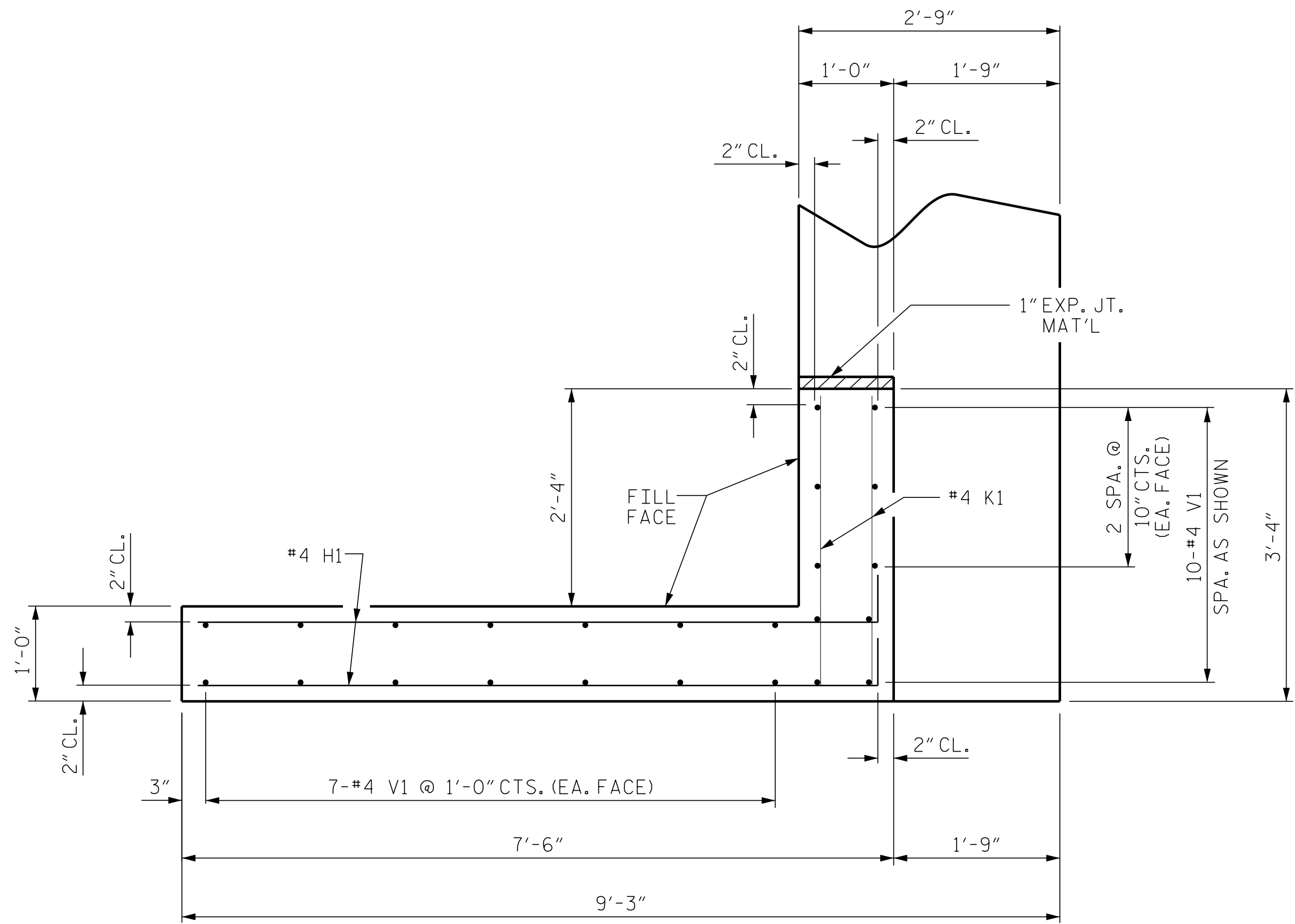
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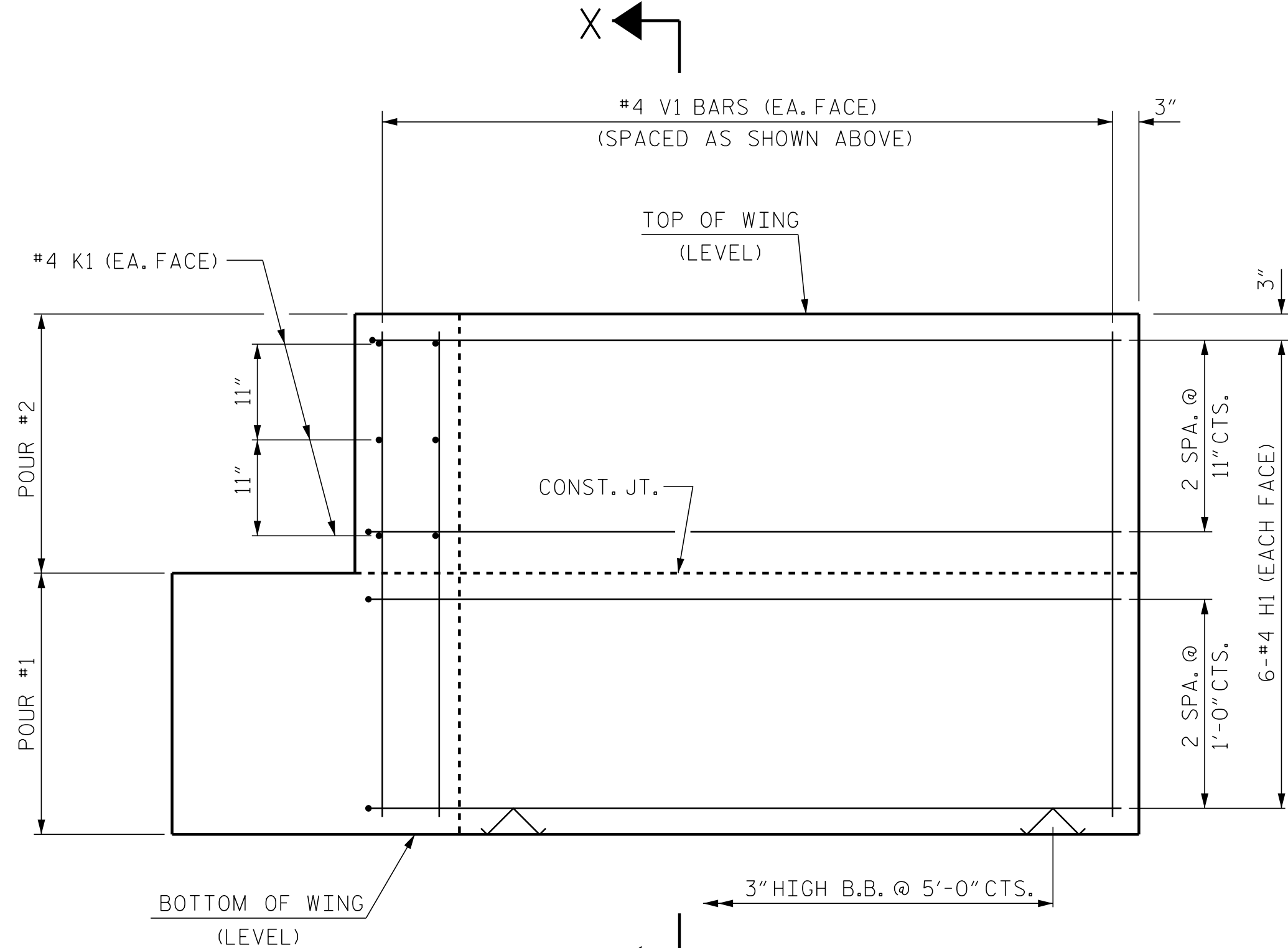
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.



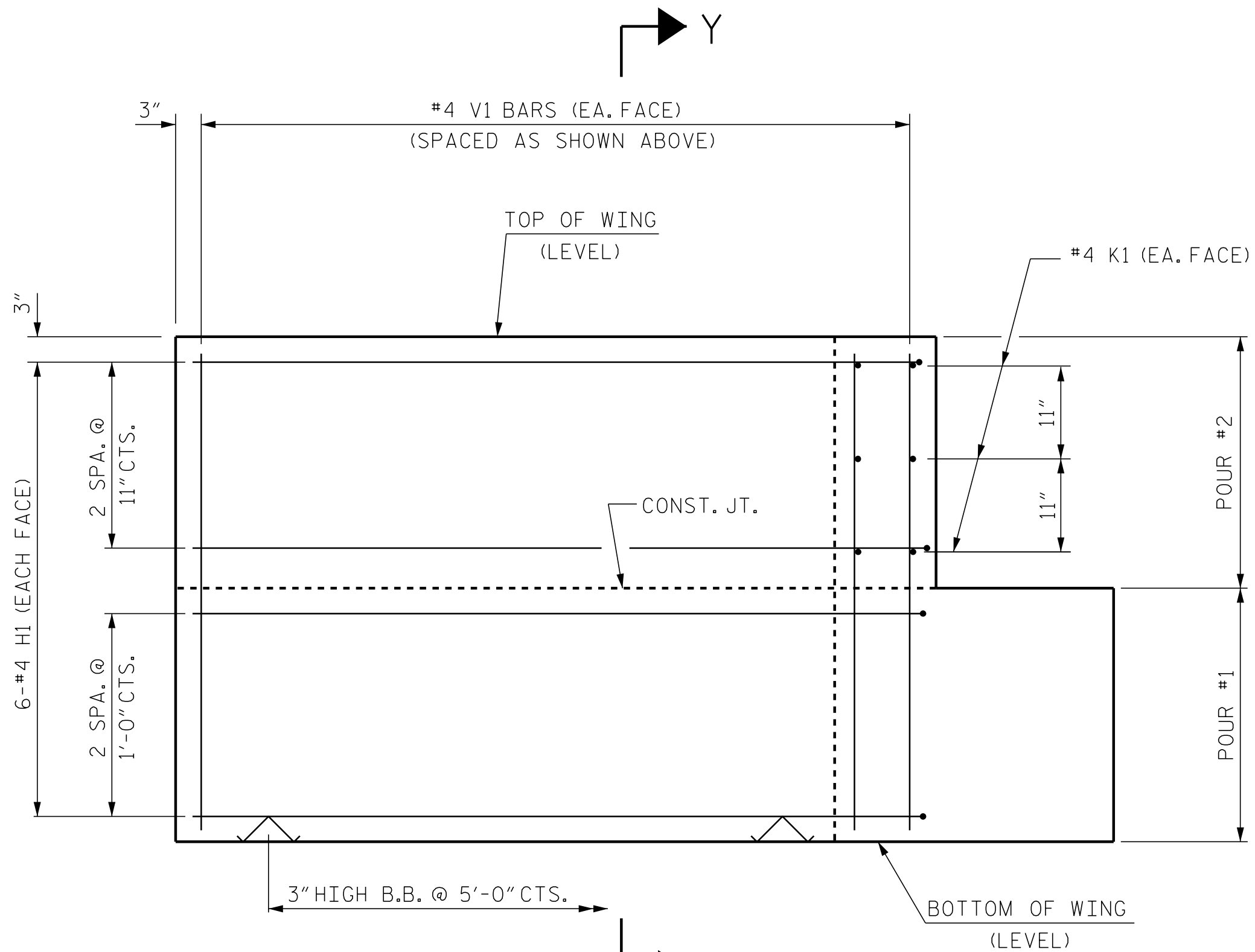
PLAN OF WING (W1)



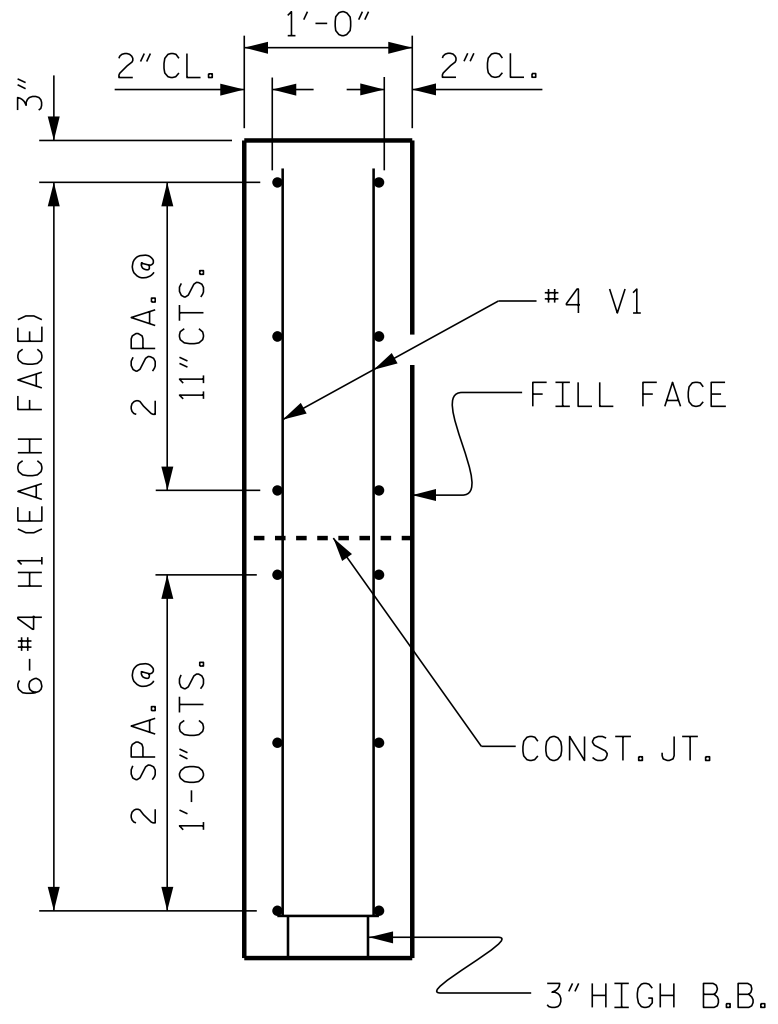
PLAN OF WING (W2)



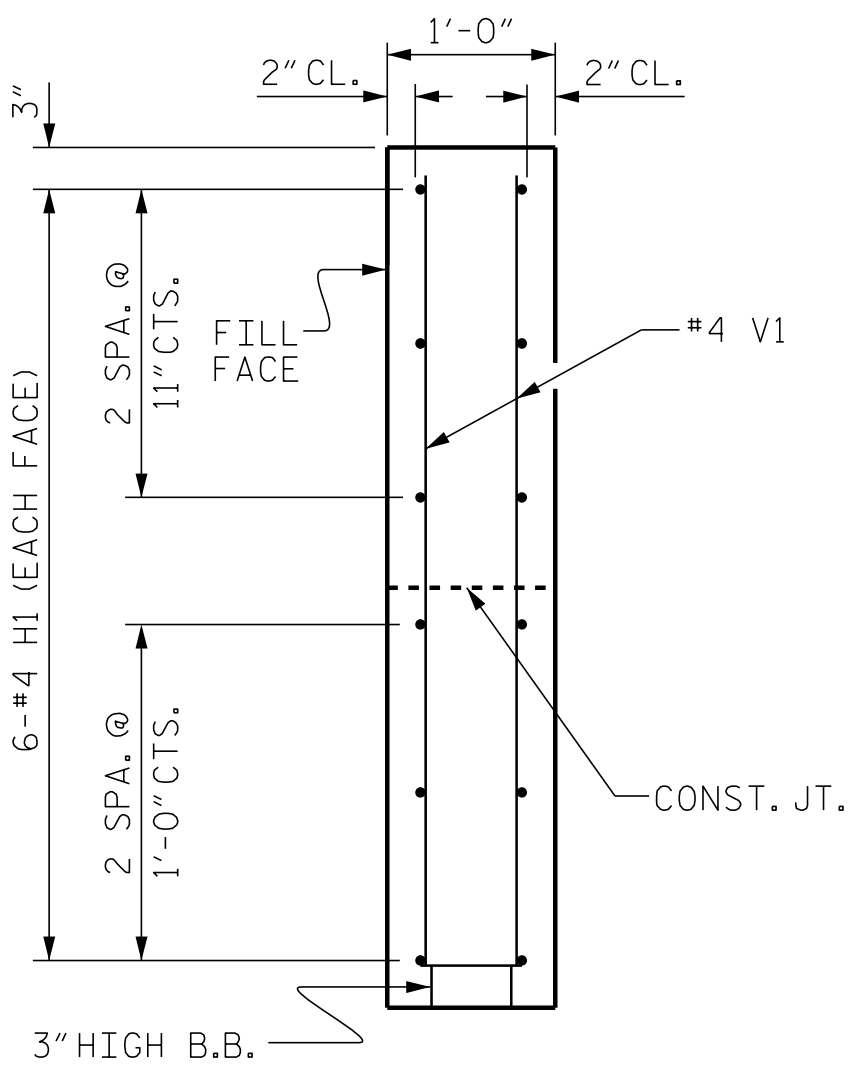
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



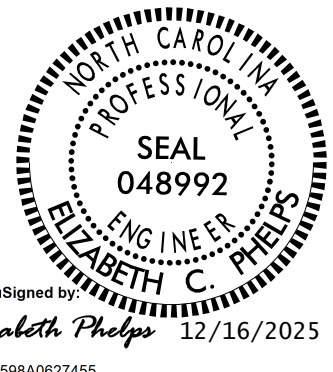
SECTION Y-Y



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NORTHAMPTON COUNTY
STATION: **15+22.50 -L-**

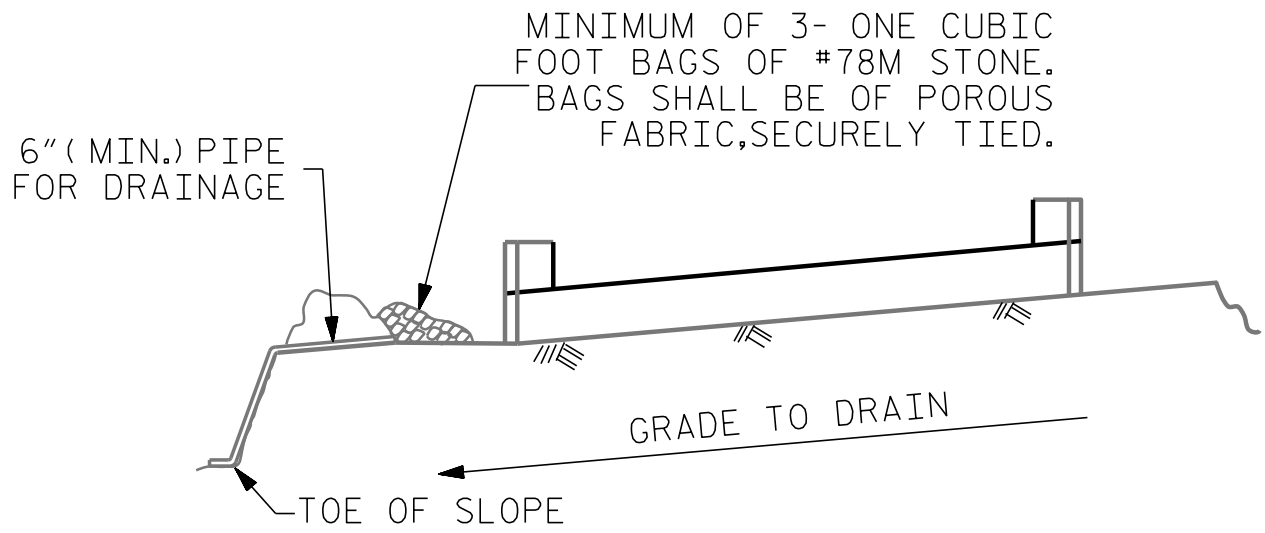
SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	
1			3		S-11
2			4		TOTAL SHEETS 14

STD. NO. EB-30-90S

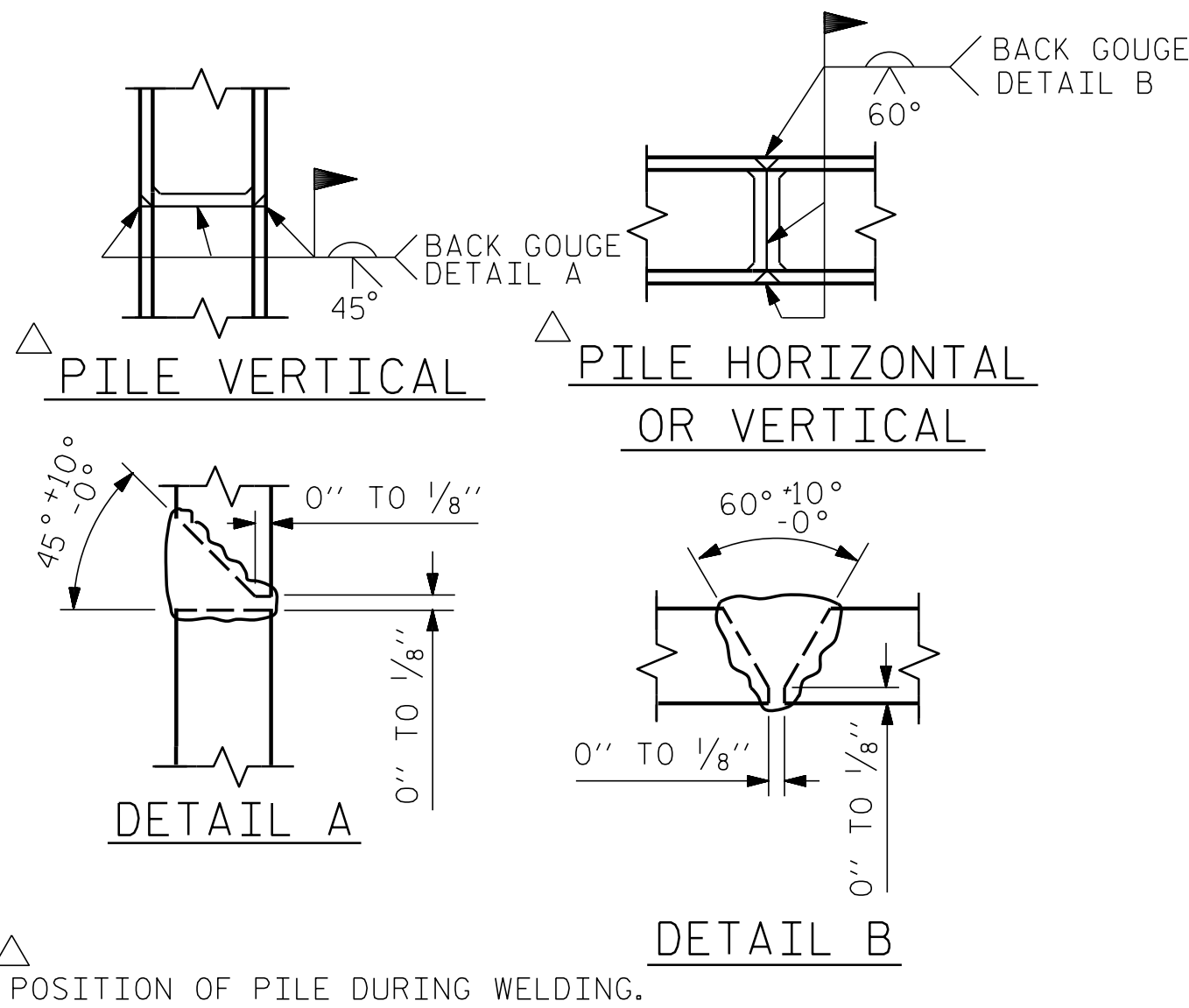


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

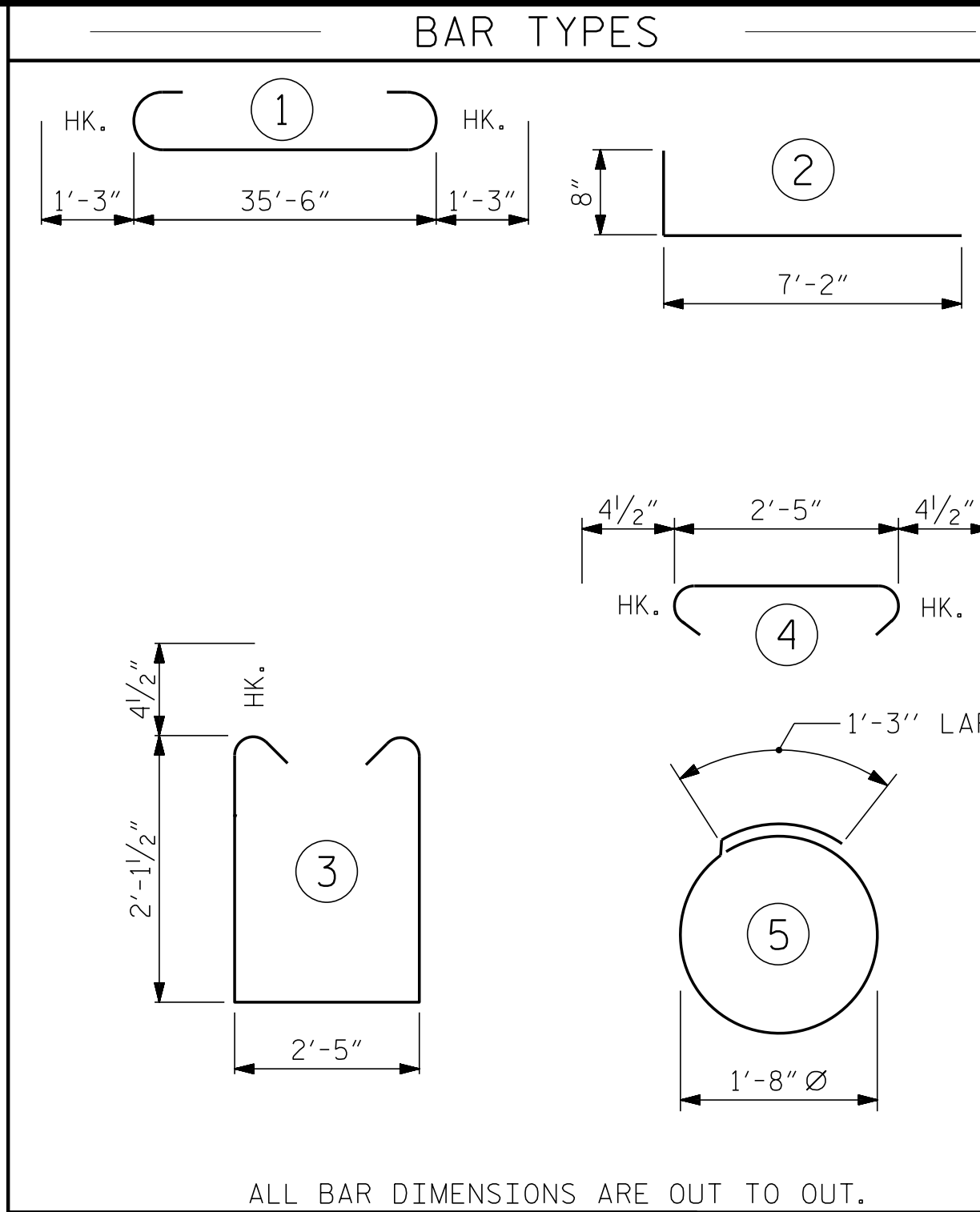
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

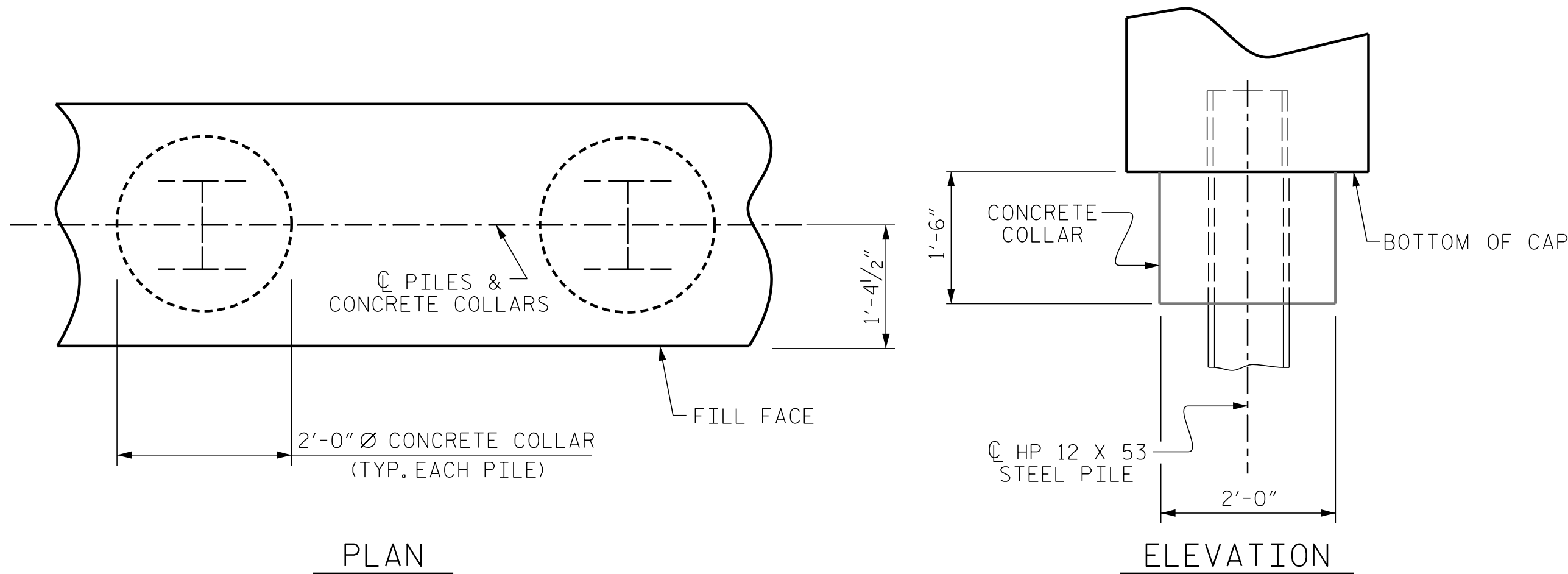
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

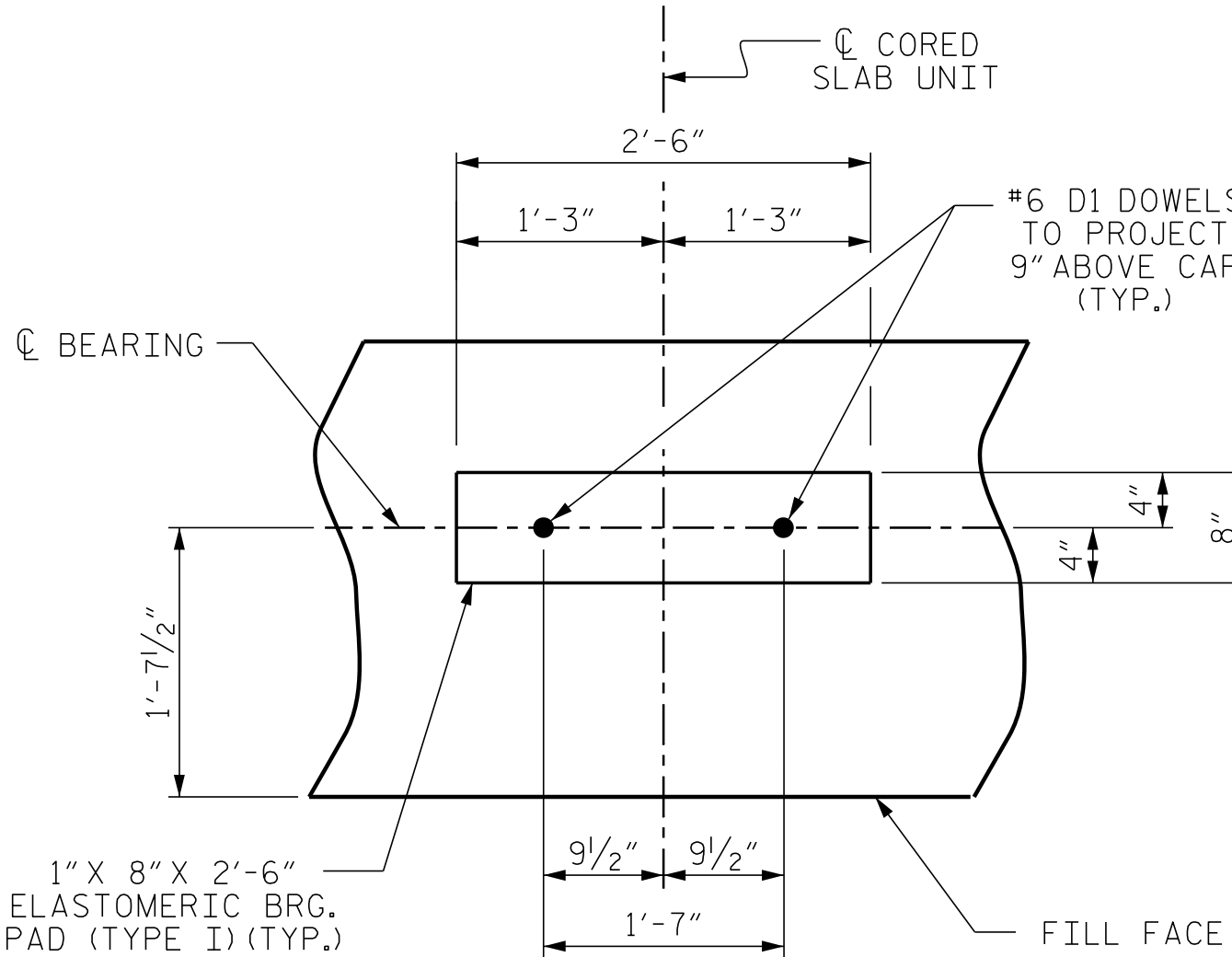


BILL OF MATERIAL					
FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	16	#4	STR	19'-1"	204
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	46	#4	3	7'-5"	228
S2	46	#4	4	3'-2"	97
S3	10	#4	5	6'-6"	43
V1	48	#4	STR	4'-8"	150
REINFORCING STEEL (FOR ONE END BENT)					1965 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS				11.2 C.Y.
POUR #2	UPPER PART OF WINGS				1.8 C.Y.
TOTAL CLASS A CONCRETE					13.0 C.Y.



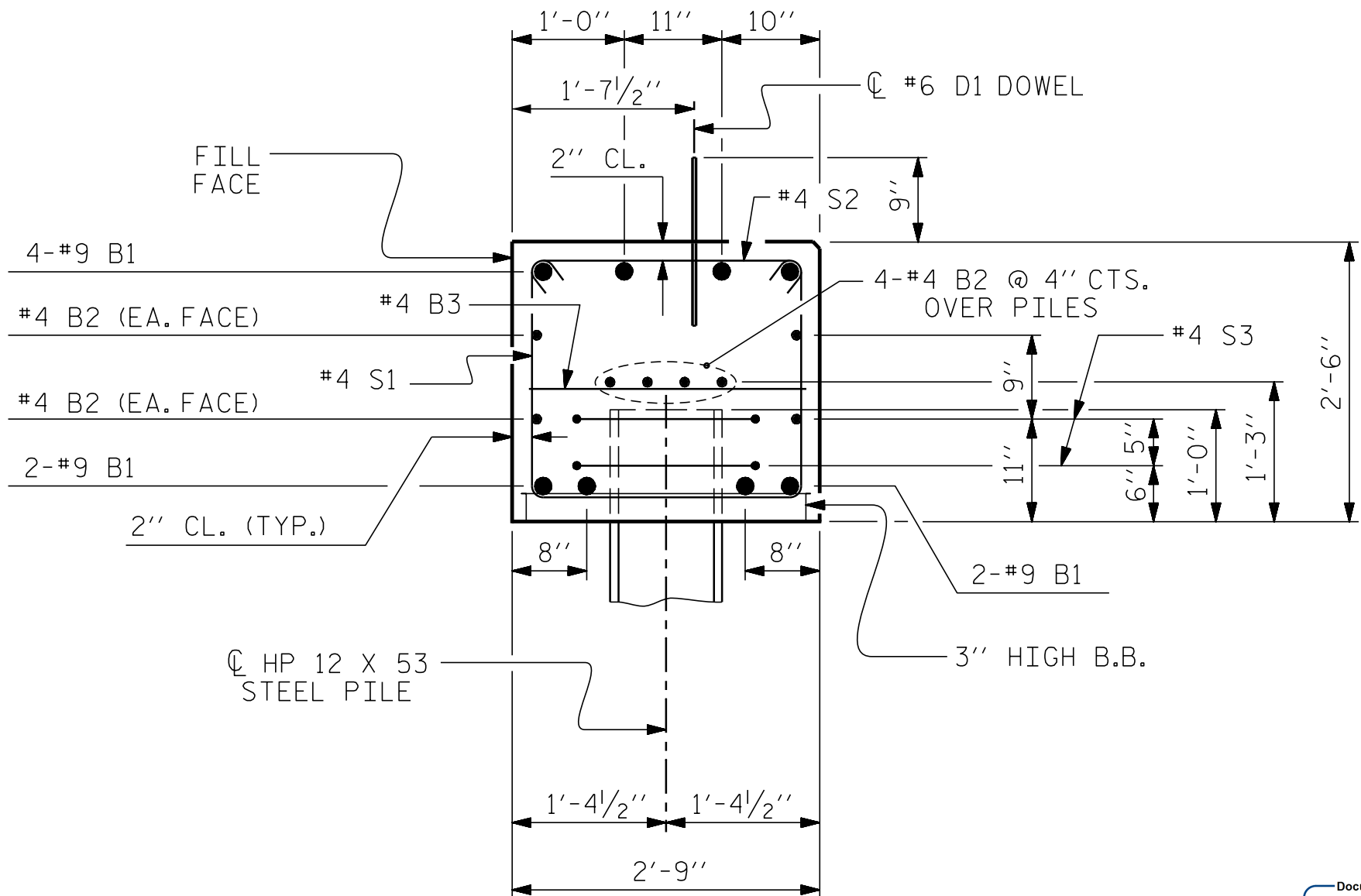
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No.1 SHOWN, END BENT No.2 SIMILAR BY ROTATION)



DETAIL "A"

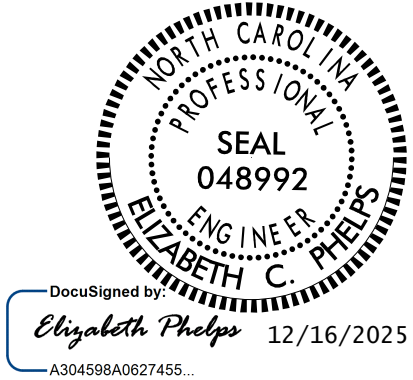
(END BENT No.1 SHOWN, END BENT No.2 SIMILAR BY ROTATION)



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

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PROJECT NO. **BP1-R018**
NORTHAMPTON COUNTY
STATION: **15+22.50 -L-**

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2
DETAILS

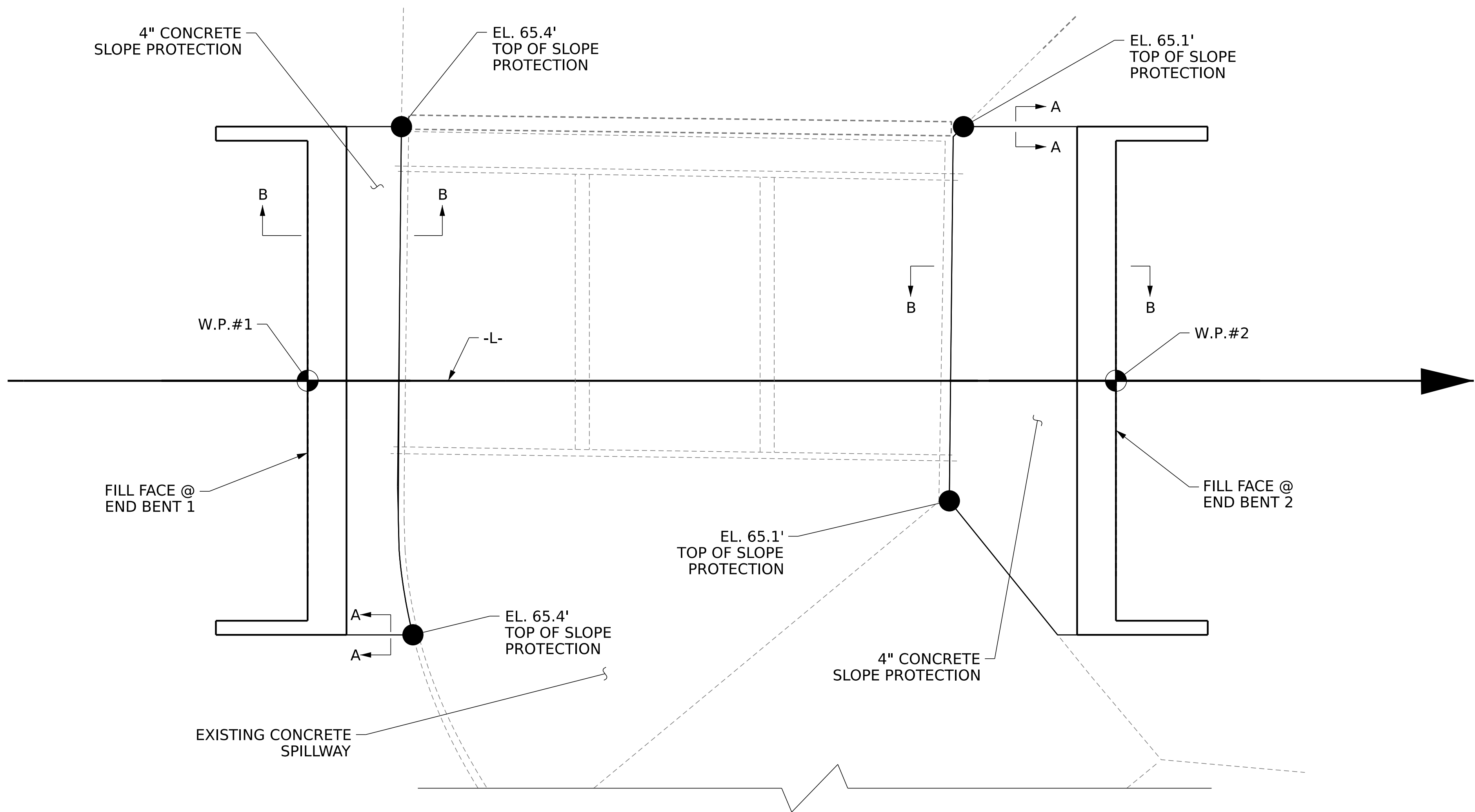
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 14
1			3			
2			4			



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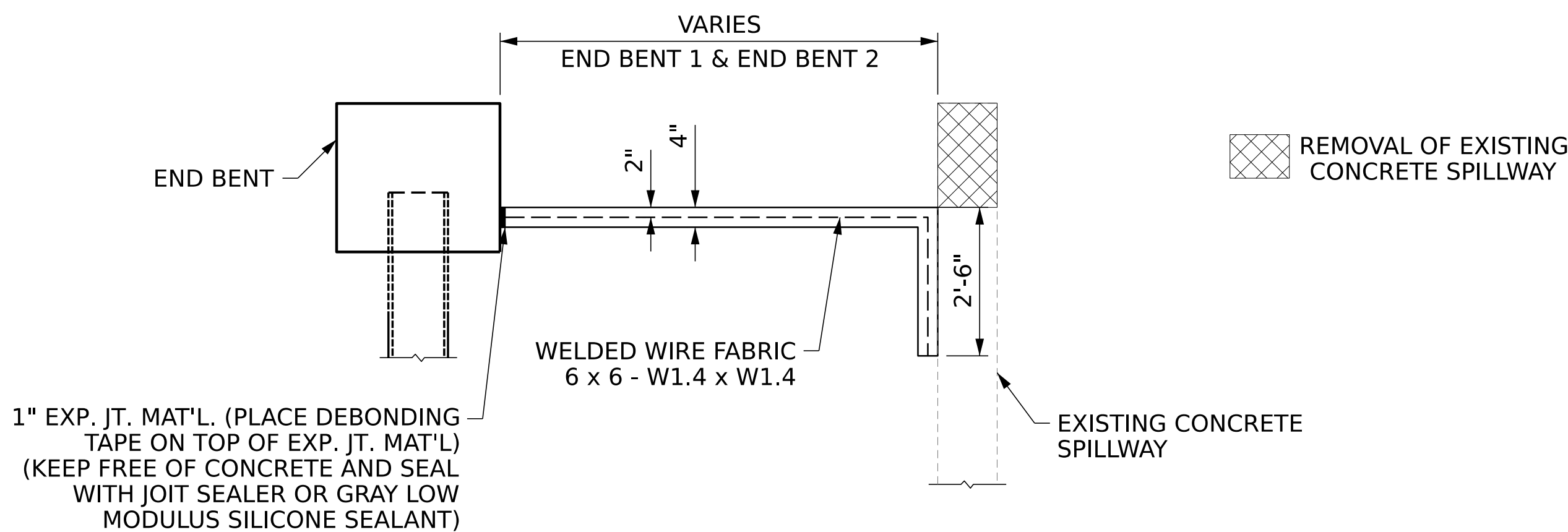
8/26/21



END BENT 1

END BENT 2

PLAN



SECTION B-B

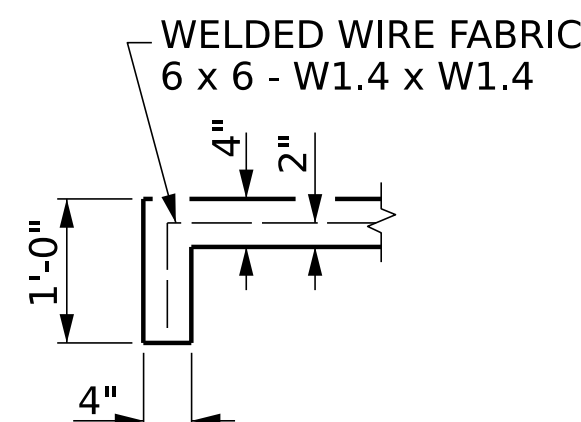
NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.

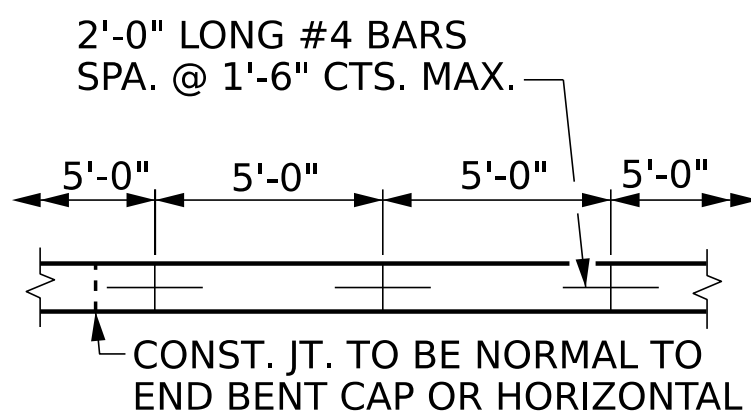
SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE SLOPE PROTECTION AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

BRIDGE @ STA. 15+22.50 -L-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	15.3	51.8
END BENT 2	31.7	82.2

* QUANTITY SHOWN IS BASED ON 5' POURS.

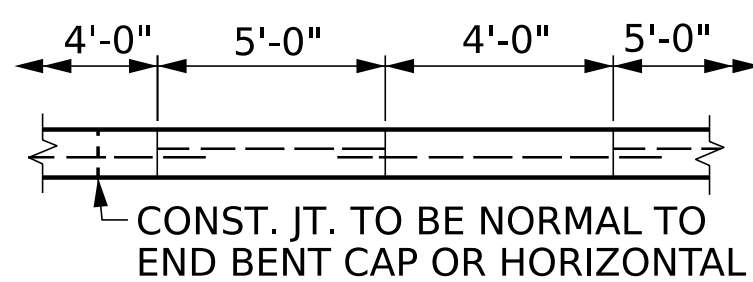


SECTION A-A



STRIP WIDTHS MAY VARY IN CURVED PORTION.

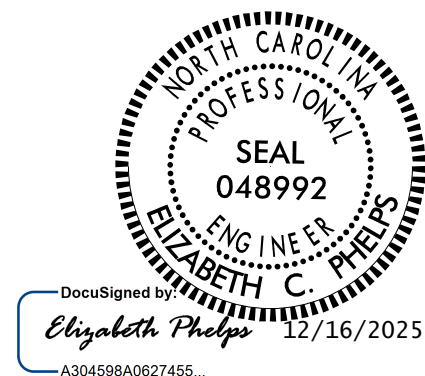
POURING DETAIL



POUR A 4'-0" STRIP FIRST. STRIP WIDTHS MAY VARY IN CURVED PORTION.

OPTIONAL POURING DETAIL

PROJECT NO. **BP1-R018**
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SLOPE PROTECTION
DETAILS

REVISIONS						SHEET S-1 TOTAL SHEET 14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

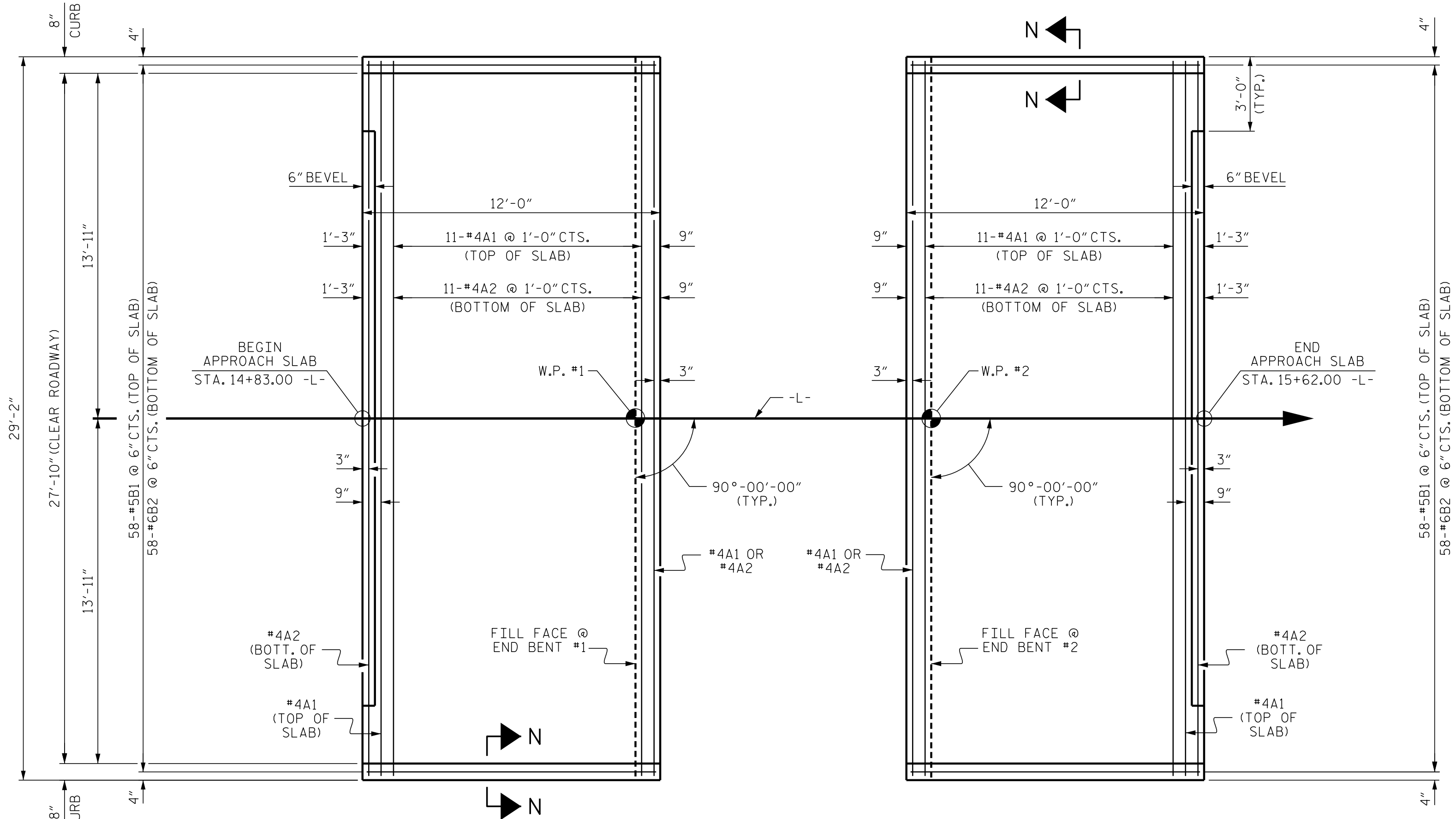
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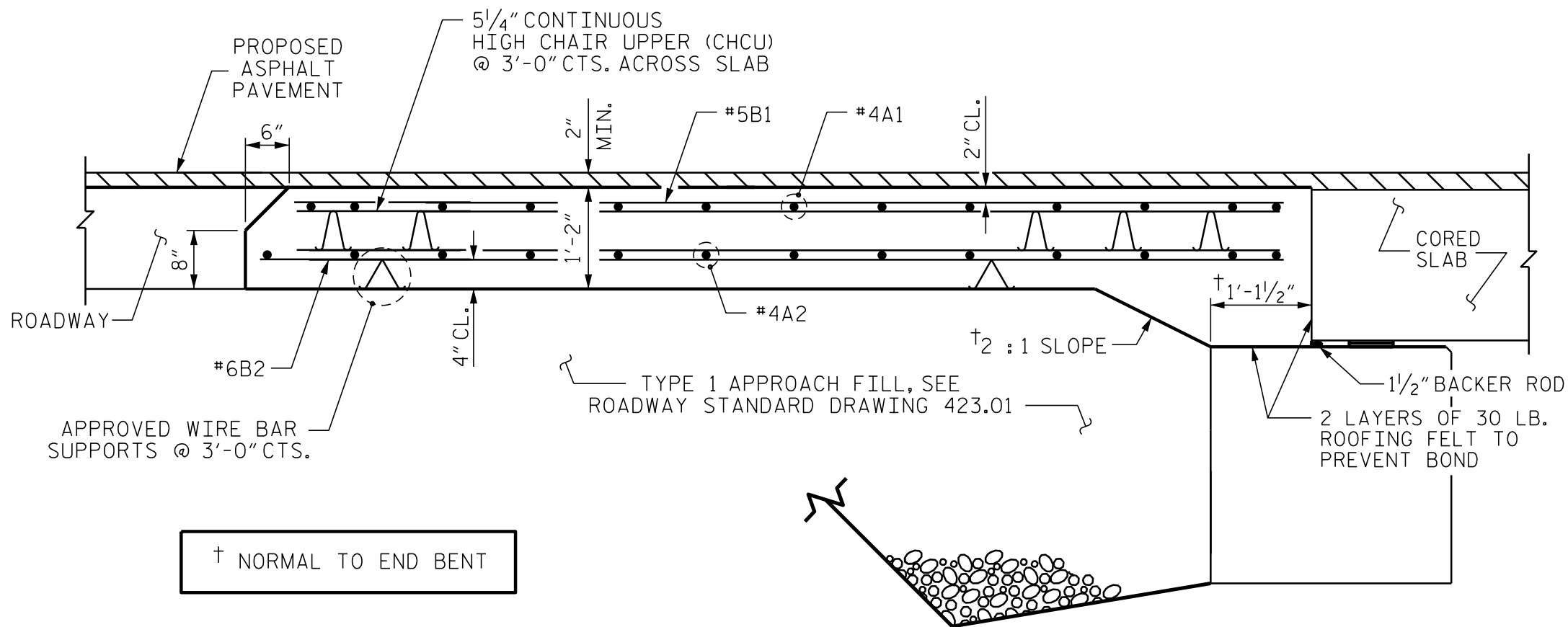
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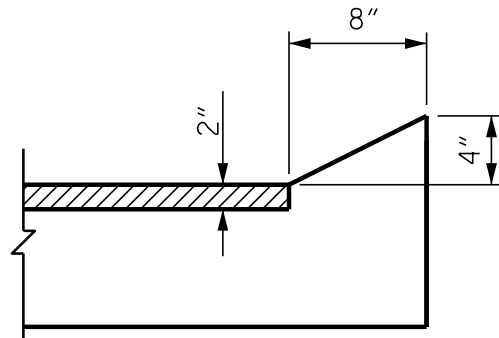
PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB



SECTION N-N

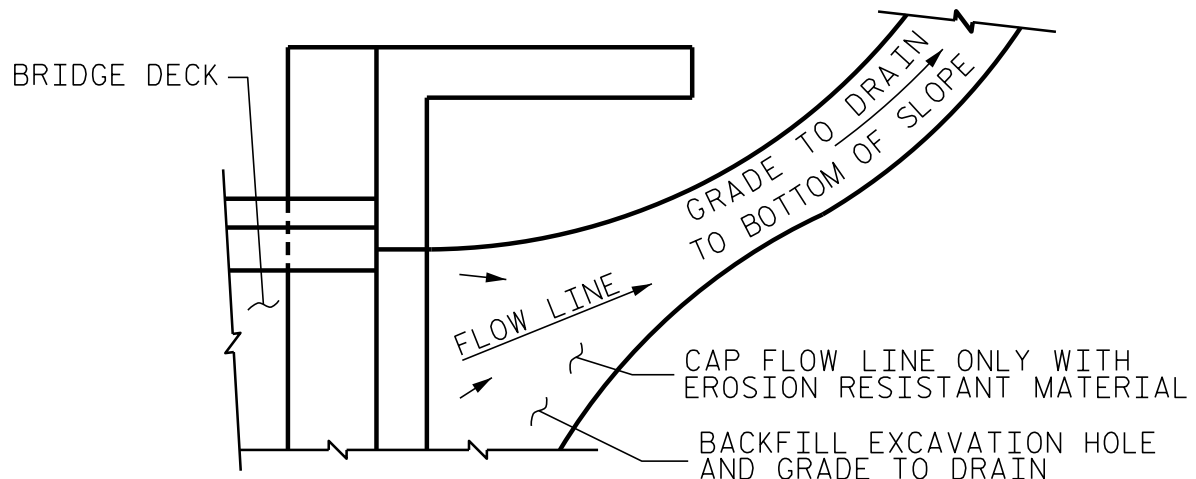
CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

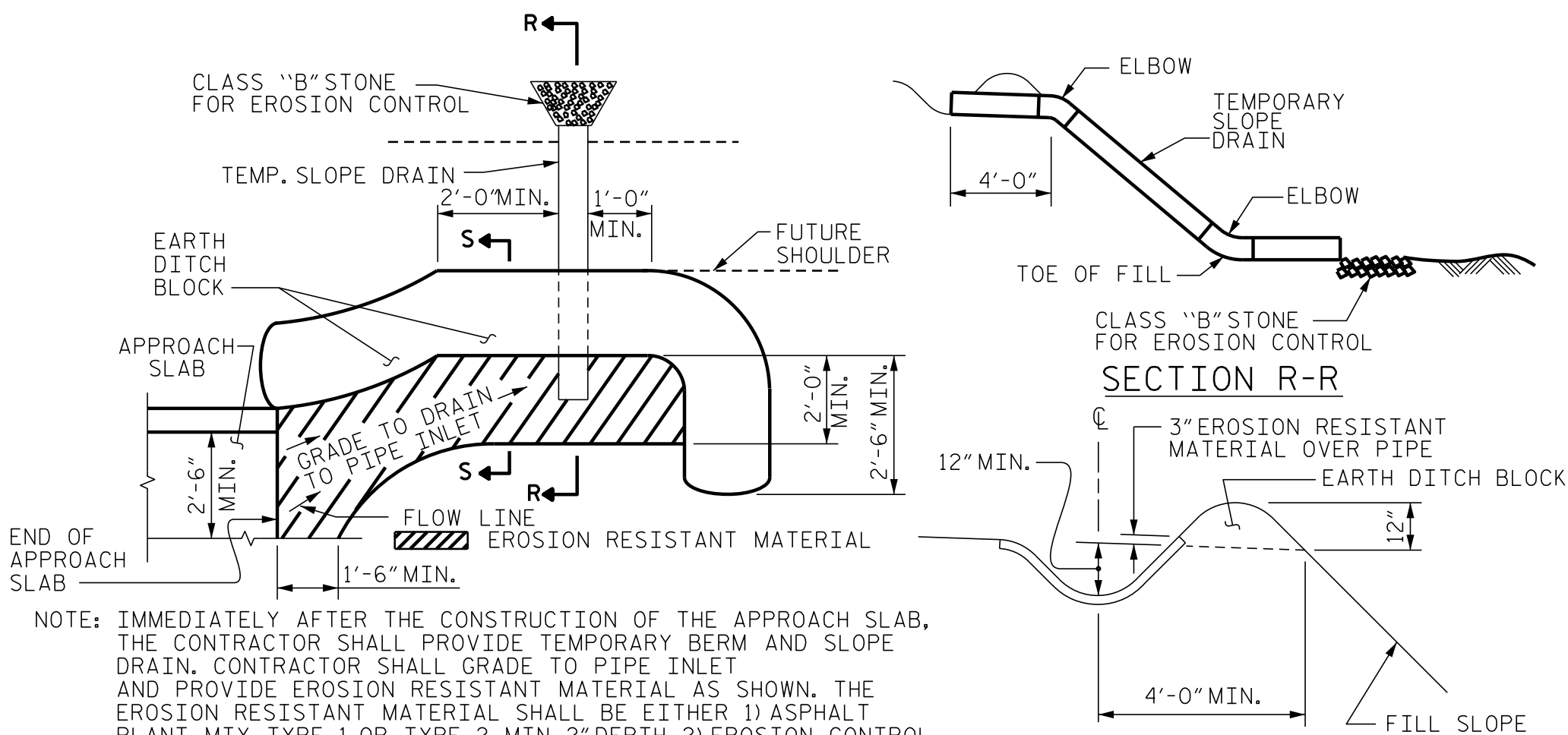
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

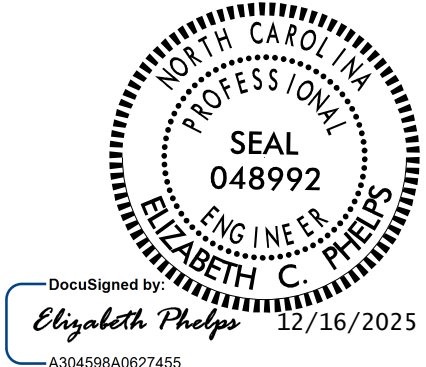
PROJECT NO. **BP1-R018**
NORTHAMPTON COUNTY
STATION: **15+22.50 -L-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
(SUB-REGIONAL TIER)
90° SKEW

REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	
TOTAL SHEETS				14

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"



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DRAWN BY : **D.M. SAULS** DATE : **07/2025**
CHECKED BY : **E.C. PHELPS** DATE : **09/2025**
DESIGN ENGINEER OF RECORD: **E.C. PHELPS** DATE : **09/2025**

11/3/2025
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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞"Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST ⅝" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY ⅛" OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.