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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.86	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.4.R.86	N/A	PE	
17BP.4.R.86	N/A	RW, UTIL	
17BP.4.R.86	N/A	CONST.	

See Sheet 1A For Index of Sheets  
 See Sheet 1B For Conventional Plan Sheet Symbols  
 See Sheet 1C-1 For Survey Control Sheets

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

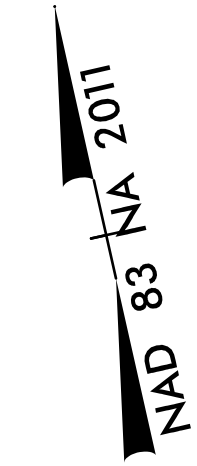
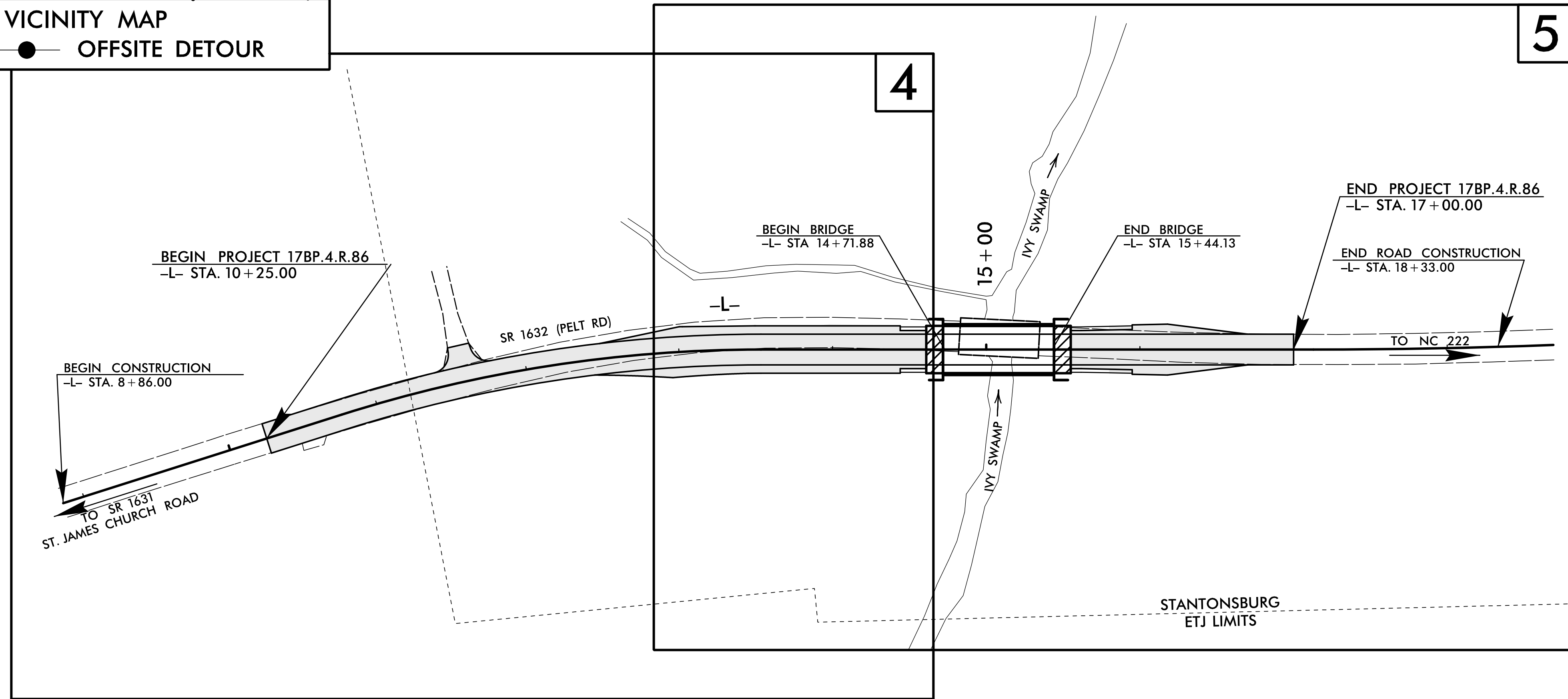
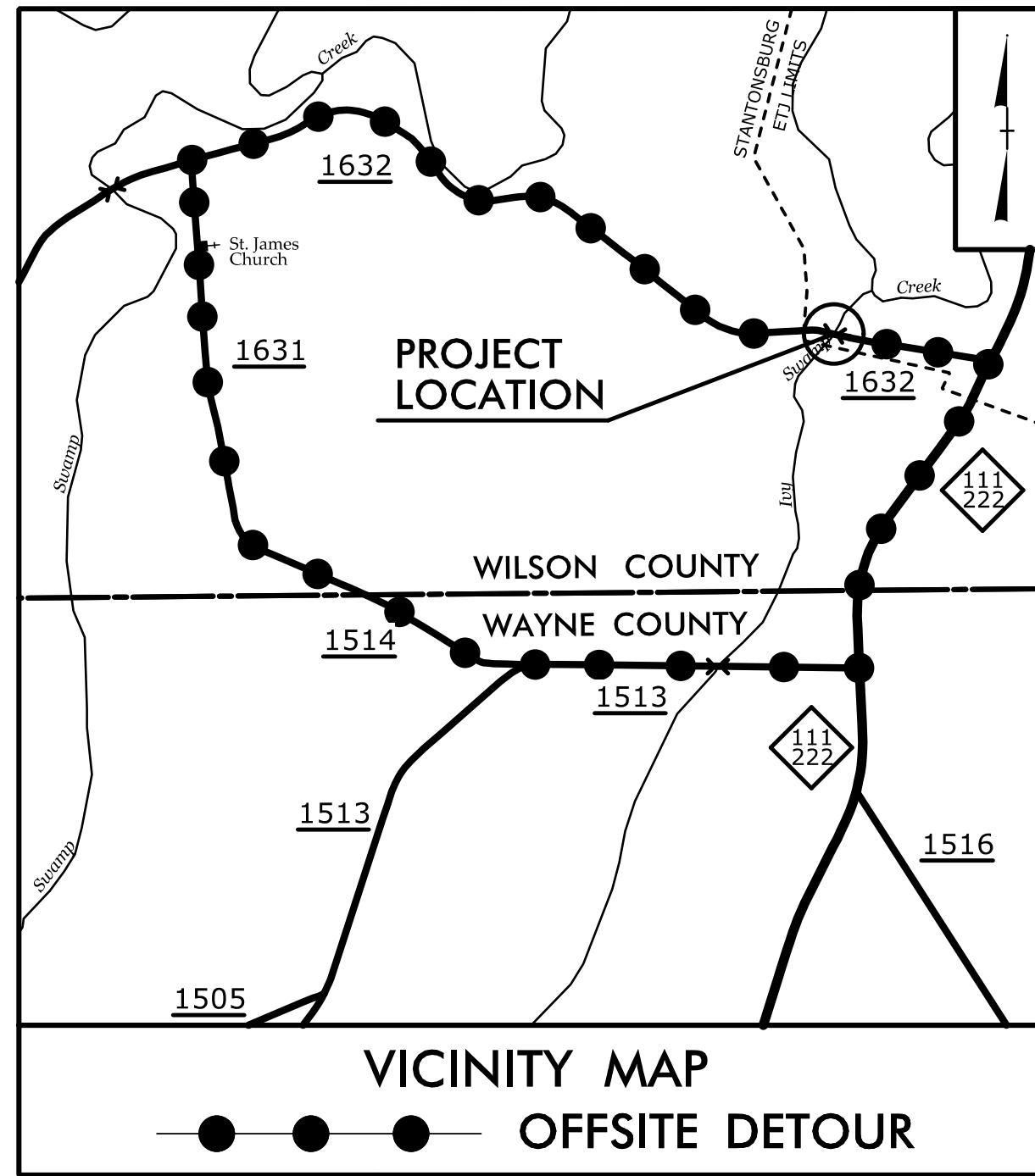
**WILSON COUNTY**

LOCATION: BRIDGE NO. 16 ON SR 1632 (PELT ROAD)  
 OVER IVY SWAMP

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

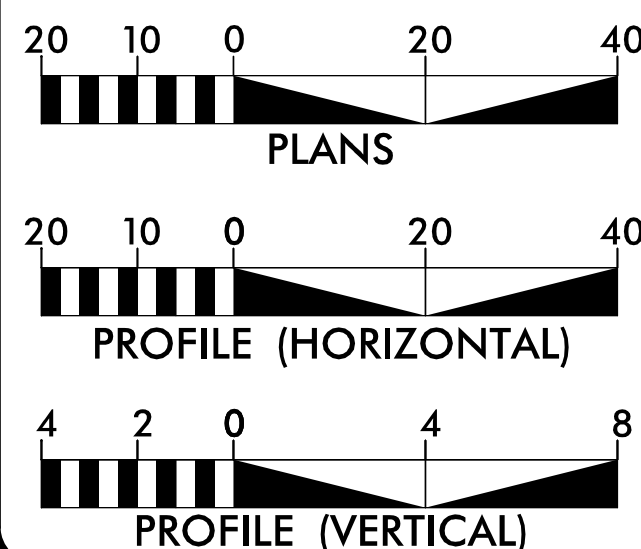
TIP PROJECT: 17BP.4.R.86

CONTRACT: DD00250



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2016 = 310  
 T = 6 %  
 V = 55 MPH

FUNC CLASS =  
 LOCAL-RURAL  
 SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT 17BP.4.R.86 = 0.114 mile  
 LENGTH STRUCTURES TIP PROJECT 17BP.4.R.86 = 0.014 mile  
 TOTAL LENGTH TIP PROJECT 17BP.4.R.86 = 0.128 mile

Prepared For:  
**DIVISION OF HIGHWAYS**  
 1000 Birch Ridge Dr., Raleigh NC, 27610

TGS ENGINEERS  
 706 HILLSBOROUGH ST  
 SUITE 200  
 RALEIGH, NC 27603

PH (919) 773-8887  
 CORP. LICENSE NO.: C-0275

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
 JANUARY 30, 2018

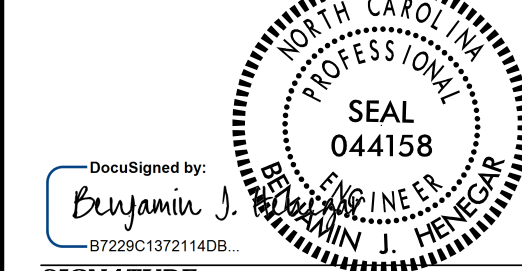
LETTING DATE:  
 MAY 22, 2018

NYA K. BOAYUE, PE  
 PROJECT ENGINEER

PAUL SCHULKEN, EI  
 PROJECT DESIGN ENGINEER

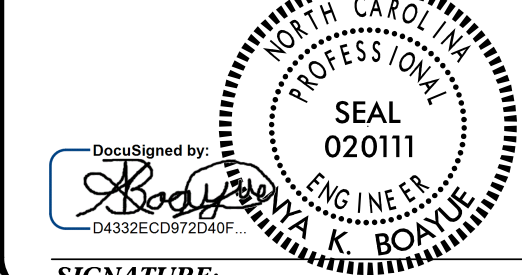
RACHEL EVANS, PE  
 PROJECT ENGINEER  
 NCDOT DIVISION 4

HYDRAULICS ENGINEER

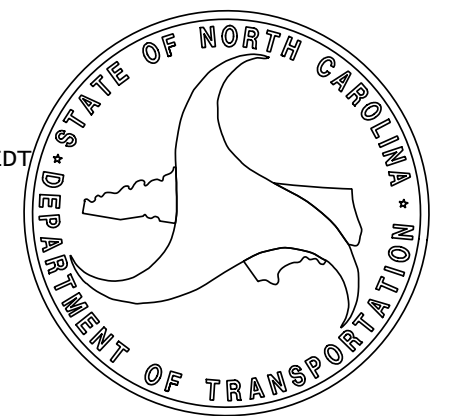


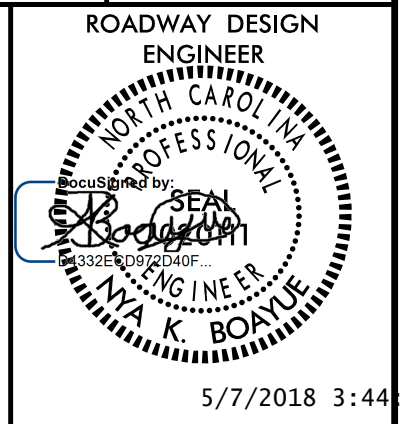
SIGNATURE: Benjamin J. Hefner P.E. 5/7/2018 5:05:07 PM EDT

ROADWAY DESIGN ENGINEER



SIGNATURE: NYA K. BOAYUE P.E. 5/7/2018 3:44:37 PM EDT





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

**TGS ENGINEERS**  
706 HILLSBOROUGH ST. SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275

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
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEO TECHNICAL SUMMARIES
4 THRU 6	PLAN AND PROFILE SHEET
RW01 THRU RW05	RIGHT OF WAY SHEETS
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UD-1 THRU UD-4	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-5	CROSS-SECTIONS
S-1 THRU S-15	STRUCTURE PLANS

2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2018  
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

- | STD.NO.   | TITLE   |
|---|---|
| <b>DIVISION 2 - EARTHWORK</b>                     |   |
| 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  |
| <b>DIVISION 3 - PIPE CULVERTS</b>                 |   |
| 300.01  | Method of Pipe Installation   |
| <b>DIVISION 4 - MAJOR STRUCTURES</b>              |   |
| 422.02  | Bridge Approach Fills - Type II Modified Approach Fill                        |
| <b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b> |   |
| 560.01  | Method of Shoulder Construction - High Side of Superelevated Curve - Method I |
| <b>DIVISION 8 - INCIDENTALS</b>                   |   |
| 815.03  | Pipe Underdrain and Blind Drain   |
| 840.29  | Frames and Narrow Slot Flat Grates  |
| 840.35  | Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates     |
| 846.04  | Drop Inlet Installation in Shoulder Berm Gutter                               |
| 848.02  | Driveway Turnout - Radius Type  |
| 862.01  | Guardrail Placement   |
| 862.02  | Guardrail Installation  |
| 862.03  | Structure Anchor Units  |
| 876.01  | Rip Rap in Channels   |
| 876.02  | Guide for Rip Rap at Pipe Outlets   |

**GENERAL NOTES:** 2018 SPECIFICATIONS  
EFFECTIVE: 01-16-2018  
REVISED:

**GRADE LINE:  
GRADING AND SURFACING:**

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

**GRADING:**

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED OR FUTURE SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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.

**GENERAL NOTES Cont'd:** 2018 SPECIFICATIONS  
EFFECTIVE: 01-16-2018  
REVISED:

**SUBSURFACE DRAINS:**

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

**UNDERDRAINS:**

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

**DRIVEWAYS:**

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS 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.

**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

CENTURYLINK

STANTONSBURG POWER

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

**RIGHT-OF-WAY MARKERS:**

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.


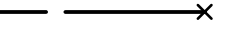


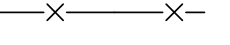



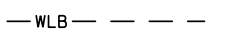

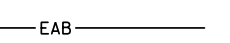
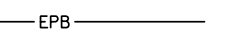


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

Note: Not to Scale





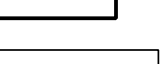
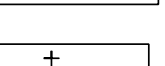
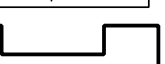


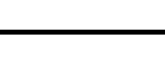

\*S.U.E. = Subsurface Utility Engineering

# CONVENTIONAL PLAN SHEET SYMBOLS

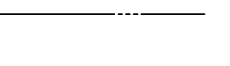
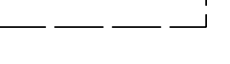

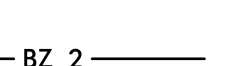
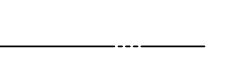
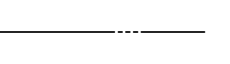





## BOUNDARIES AND PROPERTY:

- State Line \_\_\_\_\_
- County Line \_\_\_\_\_
- Township Line \_\_\_\_\_
- City Line \_\_\_\_\_
- Reservation Line \_\_\_\_\_
- Property Line \_\_\_\_\_
- Existing Iron Pin \_\_\_\_\_ 
- Property Corner \_\_\_\_\_ 
- Property Monument \_\_\_\_\_ 
- 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 \_\_\_\_\_ 
- Known Soil Contamination: Area or Site \_\_\_\_\_ 
- Potential Soil Contamination: Area or Site \_\_\_\_\_ 

## BUILDINGS AND OTHER CULTURE:

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



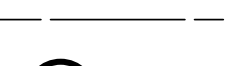
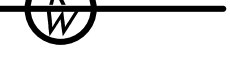



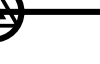
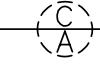

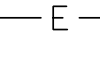
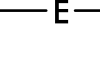

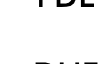




## HYDROLOGY:

- 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 \_\_\_\_\_ 

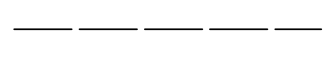
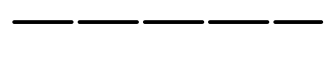
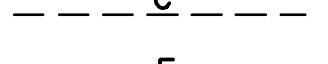
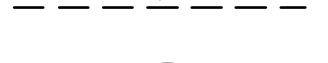



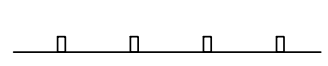

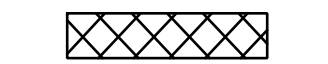



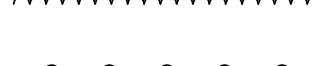

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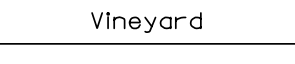
- Standard Gauge \_\_\_\_\_ 
- RR Signal Milepost \_\_\_\_\_ 
- Switch \_\_\_\_\_ 
- RR Abandoned \_\_\_\_\_ 
- RR Dismantled \_\_\_\_\_ 

## RIGHT OF WAY:

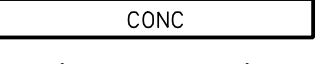
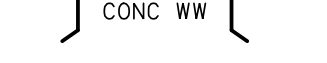

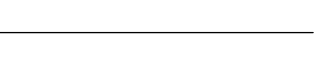


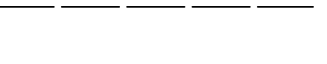


- Baseline Control Point \_\_\_\_\_ 
- Existing Right of Way Marker \_\_\_\_\_ 
- Existing Right of Way Line \_\_\_\_\_ 
- Proposed Right of Way Line \_\_\_\_\_ 
- Proposed Right of Way Line with Iron Pin and Cap Marker \_\_\_\_\_ 
- Proposed Right of Way Line with Concrete or Granite RW Marker \_\_\_\_\_ 
- Proposed Control of Access Line with Concrete CA Marker \_\_\_\_\_ 
- Existing Control of Access \_\_\_\_\_ 
- Proposed Control of Access \_\_\_\_\_ 
- 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 \_\_\_\_\_ 
- Proposed Permanent Easement with Iron Pin and Cap Marker \_\_\_\_\_ 

## 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 \_\_\_\_\_ 












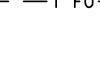

## EXISTING STRUCTURES:

- 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 \_\_\_\_\_ 


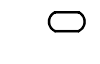



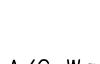
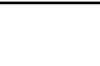
## UTILITIES:

- 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 \_\_\_\_\_ 
  - Recorded U/G Power Line \_\_\_\_\_ 
  - Designated U/G Power Line (S.U.E.\*) \_\_\_\_\_ 




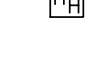

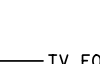
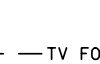

## TELEPHONE:

- Existing Telephone Pole \_\_\_\_\_ 
- Proposed Telephone Pole \_\_\_\_\_ 
- Telephone Manhole \_\_\_\_\_ 
- Telephone Booth \_\_\_\_\_ 
- Telephone Pedestal \_\_\_\_\_ 
- Telephone Cell Tower \_\_\_\_\_ 
- U/G Telephone Cable Hand Hole \_\_\_\_\_ 
- Recorded U/G Telephone Cable \_\_\_\_\_ 
- Designated U/G Telephone Cable (S.U.E.\*) \_\_\_\_\_ 
- Recorded U/G Telephone Conduit \_\_\_\_\_ 
- Designated U/G Telephone Conduit (S.U.E.\*) \_\_\_\_\_ 
- Recorded U/G Fiber Optics Cable \_\_\_\_\_ 
- Designated U/G Fiber Optics Cable (S.U.E.\*) \_\_\_\_\_ 



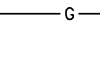
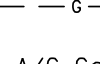

## WATER:

- Water Manhole \_\_\_\_\_ 
- Water Meter \_\_\_\_\_ 
- Water Valve \_\_\_\_\_ 
- Water Hydrant \_\_\_\_\_ 
- Recorded U/G Water Line \_\_\_\_\_ 
- Designated U/G Water Line (S.U.E.\*) \_\_\_\_\_ 
- Above Ground Water Line \_\_\_\_\_ 



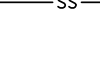
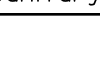
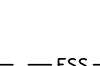

## TV:

- TV Satellite Dish \_\_\_\_\_ 
- TV Pedestal \_\_\_\_\_ 
- TV Tower \_\_\_\_\_ 
- U/G TV Cable Hand Hole \_\_\_\_\_ 
- Recorded U/G TV Cable \_\_\_\_\_ 
- Designated U/G TV Cable (S.U.E.\*) \_\_\_\_\_ 
- Recorded U/G Fiber Optic Cable \_\_\_\_\_ 
- Designated U/G Fiber Optic Cable (S.U.E.\*) \_\_\_\_\_ 


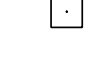

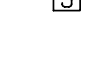
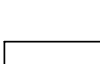

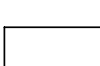





## GAS:

- Gas Valve \_\_\_\_\_ 
- Gas Meter \_\_\_\_\_ 
- Recorded U/G Gas Line \_\_\_\_\_ 
- Designated U/G Gas Line (S.U.E.\*) \_\_\_\_\_ 
- Above Ground Gas Line \_\_\_\_\_ 

## SANITARY SEWER:

- Sanitary Sewer Manhole \_\_\_\_\_ 
- Sanitary Sewer Cleanout \_\_\_\_\_ 
- U/G Sanitary Sewer Line \_\_\_\_\_ 
- Above Ground Sanitary Sewer \_\_\_\_\_ 
- Recorded SS Forced Main Line \_\_\_\_\_ 
- Designated SS Forced Main Line (S.U.E.\*) \_\_\_\_\_ 

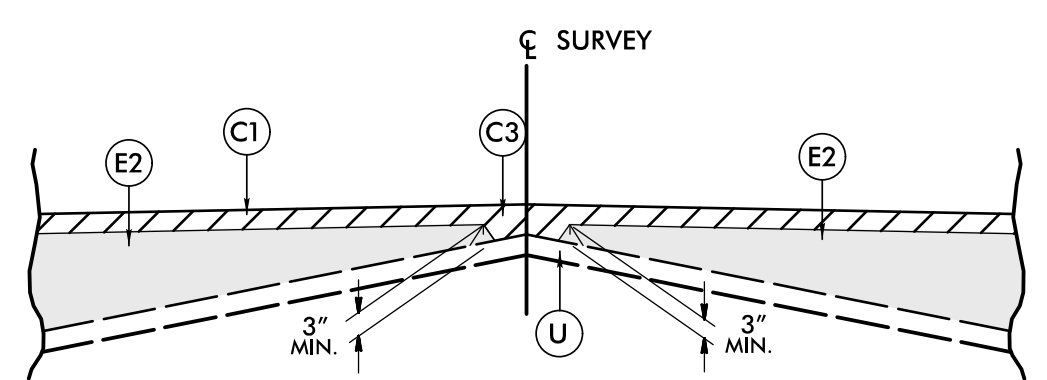
## MISCELLANEOUS:

- Utility Pole \_\_\_\_\_ 
- Utility Pole with Base \_\_\_\_\_ 
- Utility Located Object \_\_\_\_\_ 
- Utility Traffic Signal Box \_\_\_\_\_ 
- Utility Unknown U/G Line \_\_\_\_\_ 
- U/G Tank; Water, Gas, Oil \_\_\_\_\_ 
- Underground Storage Tank, Approx. Loc. \_\_\_\_\_ 
- A/G Tank; Water, Gas, Oil \_\_\_\_\_ 
- Geoenvironmental Boring \_\_\_\_\_ 
- U/G Test Hole (S.U.E.\*) \_\_\_\_\_ 
- Abandoned According to Utility Records \_\_\_\_\_ 
- End of Information \_\_\_\_\_ 

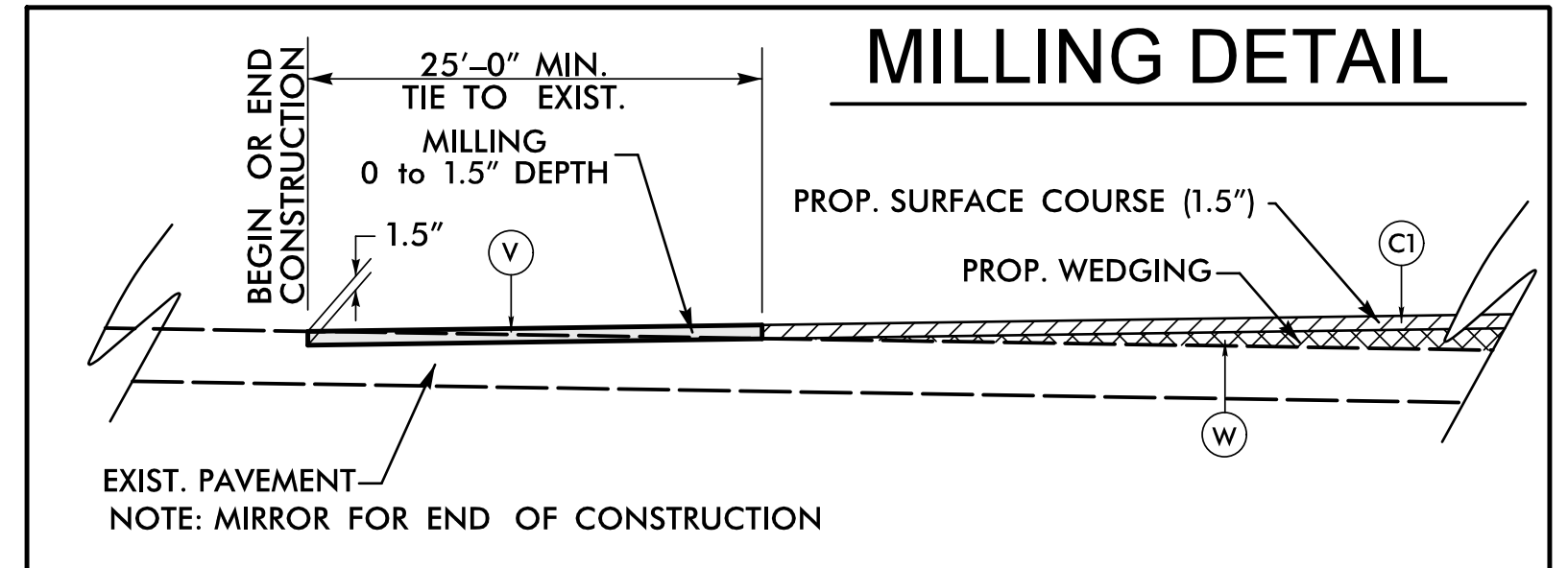
6/2/2018

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	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.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT (SEE MILLING DETAILS THIS SHEET)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS THIS SHEET)

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

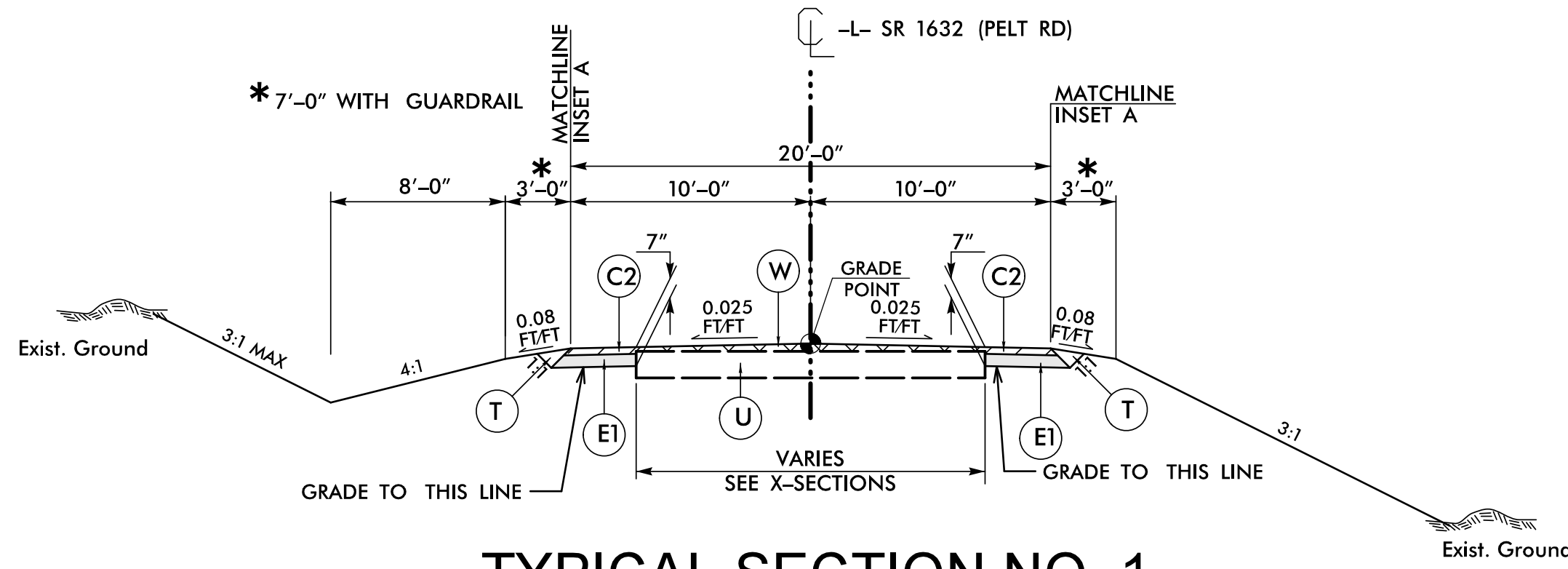


Detail Showing Method of Wedging



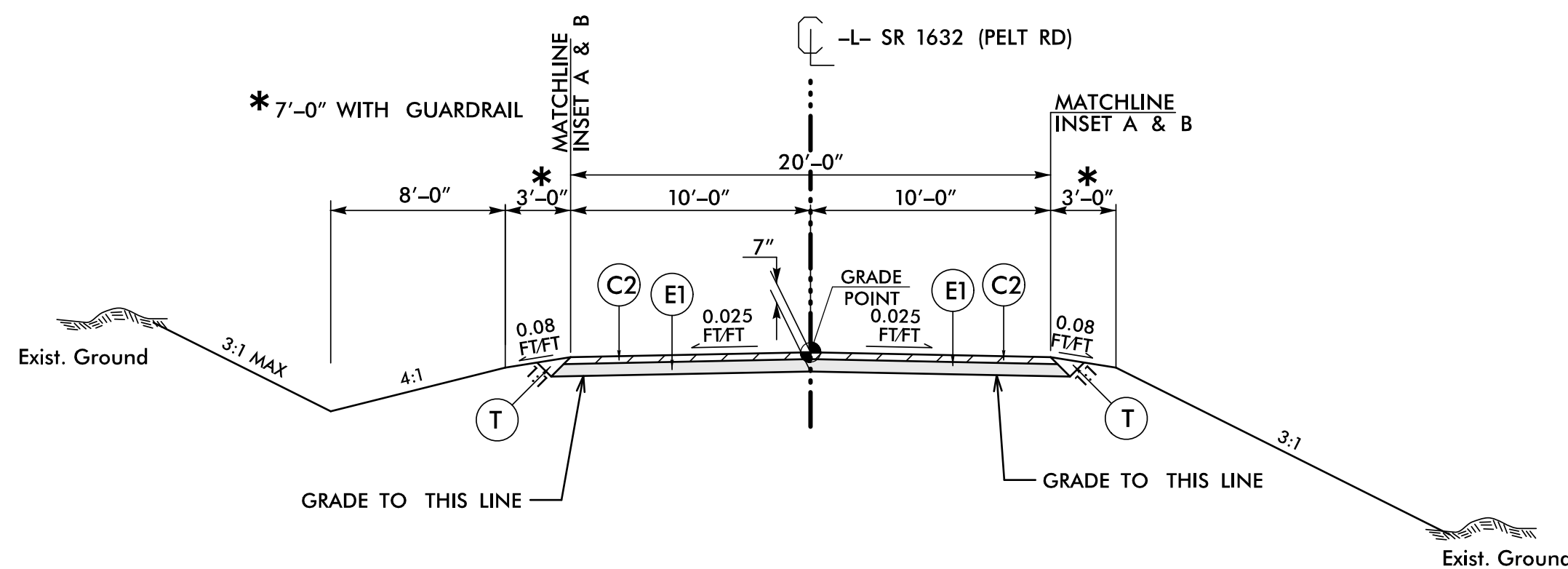
USE MILLING DETAIL AS FOLLOWS:

- MILLING AND RESURFACING AT TIE-INS:
- L- STA. 10+25.00 TO -L- STA. 10+50.00
- L- STA. 16+75.00 TO -L- STA. 17+00.00



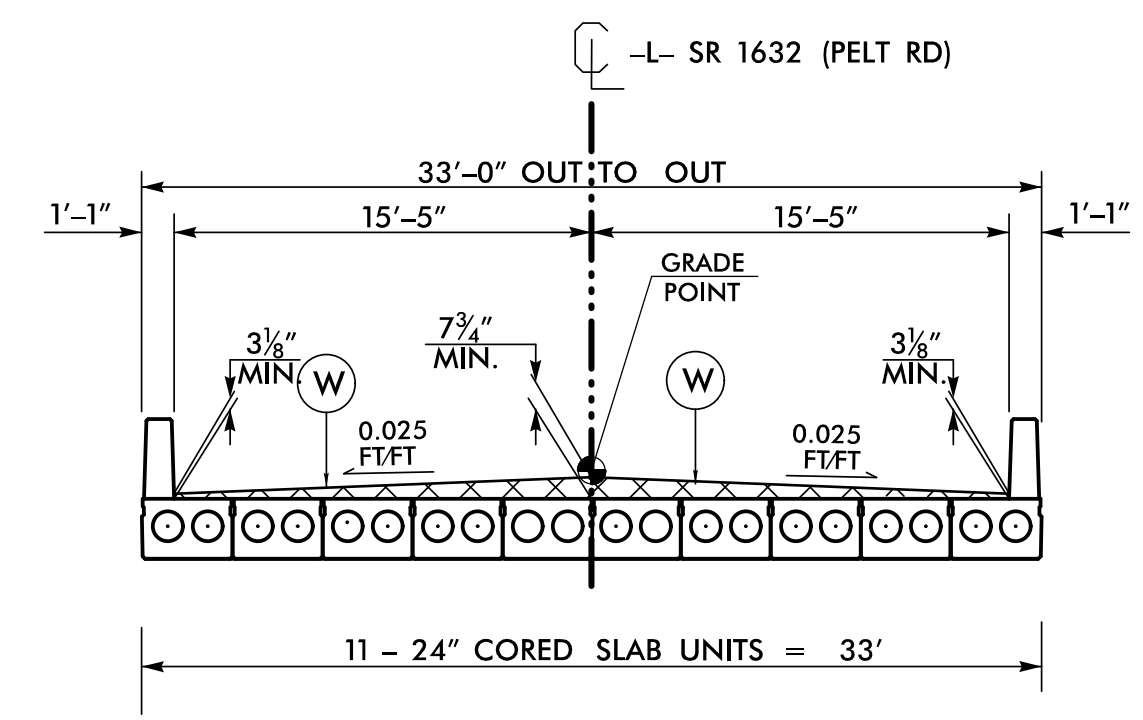
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1  
 -L- STA. 10+25.00 TO -L- STA. 11+60.00  
 -L- STA. 16+00.00 TO -L- STA. 17+00.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2  
 -L- STA. 11+60.00 TO -L- STA. 14+71.88 (BEGIN BRIDGE)  
 -L- STA. 15+44.13 (END BRIDGE) TO -L- STA. 16+00.00

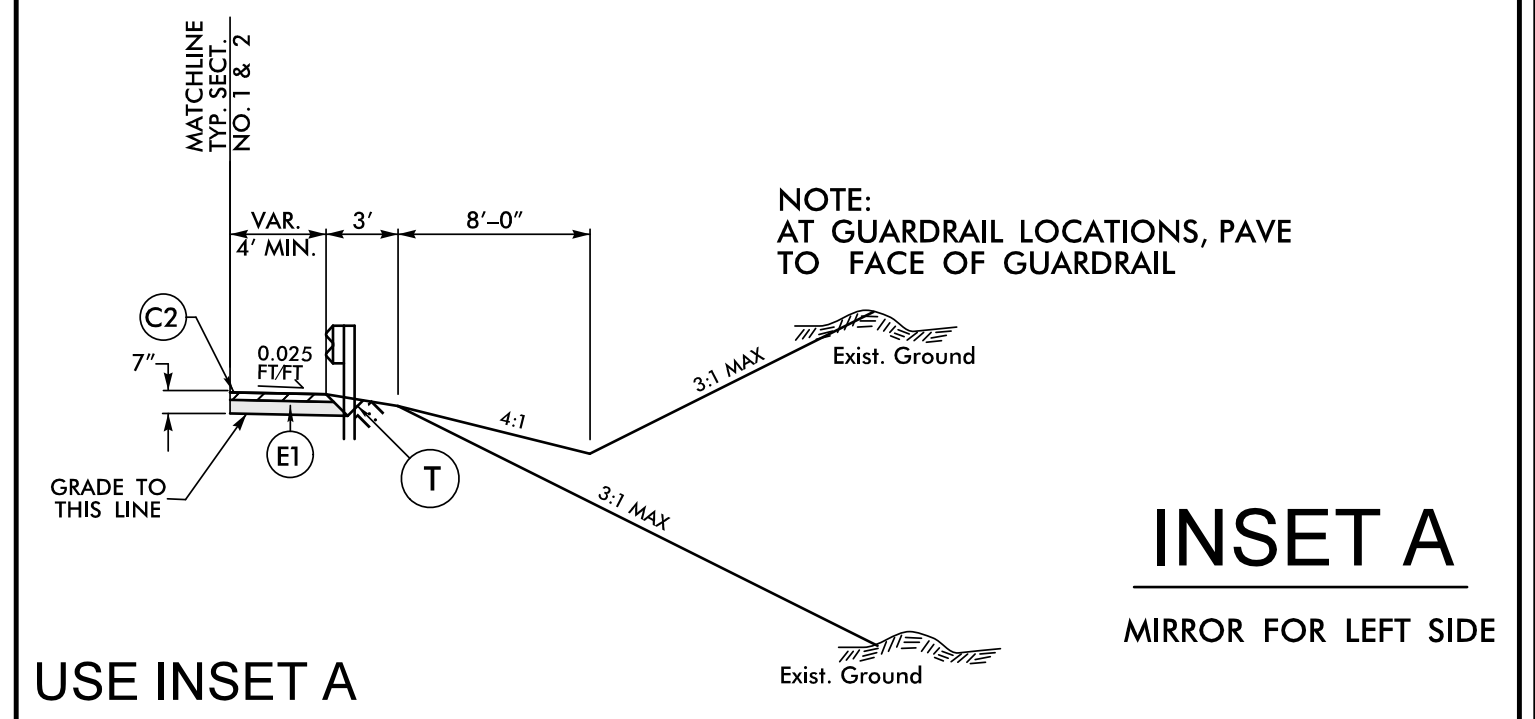


TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3  
 -L- STA. 14+71.88 TO -L- STA. 15+44.13

PROJECT REFERENCE NO. 17BP.4.R.86	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER SEAL 020111 K. BORLIE	PAVEMENT DESIGN ENGINEER SEAL 32142 C. D. MCLANE
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

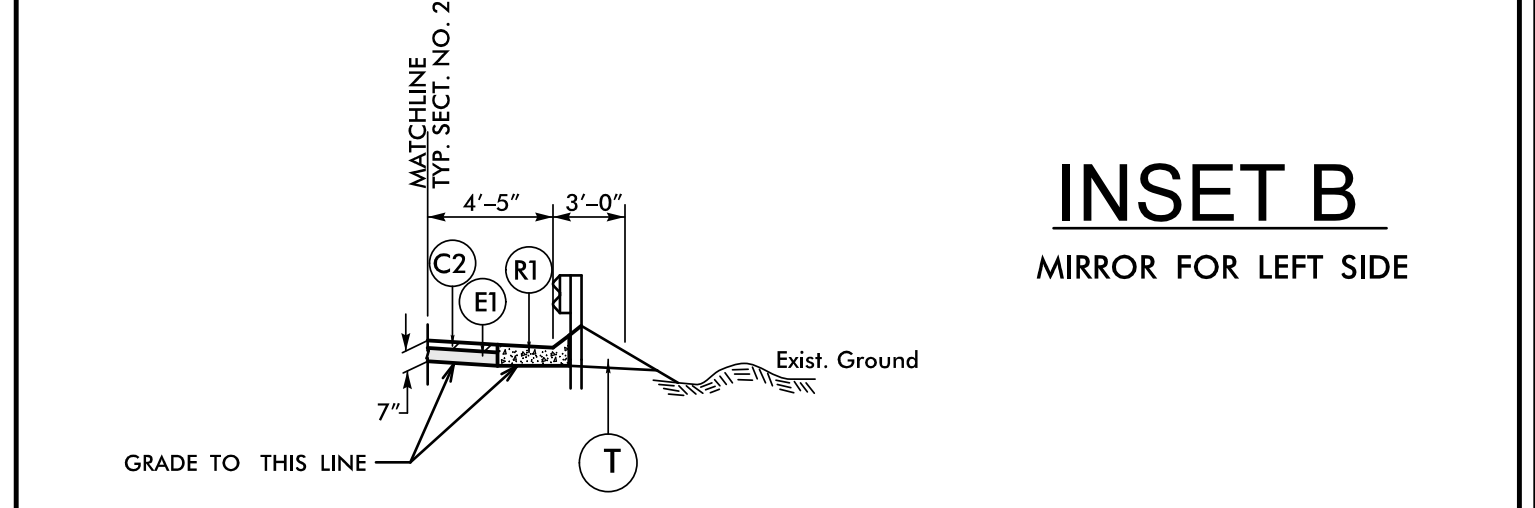
FULL DEPTH PAVED SHOULDER



INSET A

USE INSET A  
 -L- STA. 12+49.25 TO -L- STA. 14+44.00 LT (BEGIN SHOULDER BERM GUTTER)  
 -L- STA. 15+95.00 (END SHOULDER BERM GUTTER) TO -L- STA. 16+70.33 LT  
 -L- STA. 12+43.72 TO -L- STA. 14+44.00 RT (BEGIN SHOULDER BERM GUTTER)  
 -L- STA. 15+95.00 (END SHOULDER BERM GUTTER) TO -L- STA. 16+70.33 RT

SHOULDER BERM GUTTER



INSET B

USE INSET B  
 -L- STA. 14+44.00 TO -L- STA. 14+61.00 (BEGIN APPROACH SLAB) (LT/RT)  
 -L- STA. 15+55.00 (END APPROACH SLAB) TO -L- STA. 15+95.00 (LT/RT)

4/30/2018 Division 4 Wilson #16\Roadway\Proj\B970016\_rdy\_tjup.dgn  
 User: bboaine

12/06/07

COMPUTED BY: PAS DATE: 21 NOV 2017  
 CHECKED BY: NKB DATE: 3 MAR 2018

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. 17BP.4R.86 SHEET NO. 3B-1  
 TGS ENGINEERS  
 706 HILLSBOROUGH ST. SUITE 200  
 RALEIGH, NC 27603  
 PH (919) 773-8887  
 CORP. LICENSE NO.: C-0275

SUMMARY OF EARTHWORK  
 IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT +25%	BORROW	WASTE
-L- 10+25.00 TO 14+71.88 (BEGIN BRIDGE)	1		2089	2088	
-L- 15+44.13 (END BRIDGE) TO 17+00.00	63		210	210	
SUBTOTAL	64		2299	2298	
MATERIAL FOR SHOULDER CONSTRUCTION					
PROJECT TOTAL	64		2299	2298	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				115	
GRAND TOTAL	64		2299	2413	
SAY	70			2540	

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.

Approximate quantities only. Clearing and Grubbing, Unclassified Excavation, Borrow Excavation, Fine Grading, and Removal of Existing Asphalt Pavement will be paid for at the contract lump sum price for "Grading".

PER "GEOTECHNICAL REPORT - DESIGN AND CONSTRUCTION RECOMMENDATIONS" DATED FEBRUARY 22, 2018.

ESTIMATED UNDERCUT = 400 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)  
 SELECT GRANULAR MATERIAL = 450 CY (CONTINGENCY, TO BE USED AS UNDERCUT AREAS BACKFILL)  
 DDE = 530 CY

PAVEMENT REMOVAL SUMMARY  
 IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-	11+60.00	14+81.71	LT	714.07
-L-	15+33.98	16+00.00	RT	139.24
TOTAL:				853.31
SAY:				860

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LOCATION	LENGTH (LF)
-L-	14+44.00	14+61.00	LT	17.00'
-L-	15+55.00	15+95.00	LT	40.00'
-L-	14+44.00	14+61.00	RT	17.00'
-L-	15+55.00	15+95.00	RT	40.00'
TOTAL:				114.00'
SAY:				114.00'

"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 GREU, TL-3	CAT-1	AT-1	TYPE III	B-77	EA	G	NG																					
-L-	12+99.98	14+73.00	LT	175.00'				12+99.98	5.42'	6.42'		50'		1'				1																									
-L-	15+43.00	16+17.99	LT	75.00'				16+17.99	5.42'	6.42'	50'		1'					1																									
-L-	12+94.04	14+73.00	RT	187.50'				12+94.04	5.42'	6.42'	50'		1'					1																									
-L-	15+43.00	16+17.99	RT	75.00'				16+17.99	5.42'	6.42'		50'		1'				1																									
SUBTOTAL (LF)				512.50'														4			4																						
LESS ANCHORS (LF)				275.00'																																							
TOTAL GUARDRAIL (LF)				237.50'																																							
SAY GUARDRAIL (LF)				237.50'																																							
ADDITIONAL GUARDRAIL POSTS: SAY 5 EA																																											
TOTAL ANCHORS OR ATTENUATORS (EA)																																											
ANCHOR UNIT LENGTH (LF)											50'	6.25'	6.25'	18.75'	18.75'																												
DEDUCTION PER TYPE (LF)											200'			75'																													
TOTAL DEDUCTION (LF)																																											

4/30/2018 Division 4 Wilson #16\Roadway\Proj\B970016\_rdy\_psh\_3b-1.dgn



COMPUTED BY: Tyler C. Bottoms DATE: 2/13/18  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

**(1-16-18)**

PROJECT NO.	SHEET NO.
17BP.4.R.86	3G-1

**STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS**

**SUMMARY OF SUBSURFACE DRAINAGE**

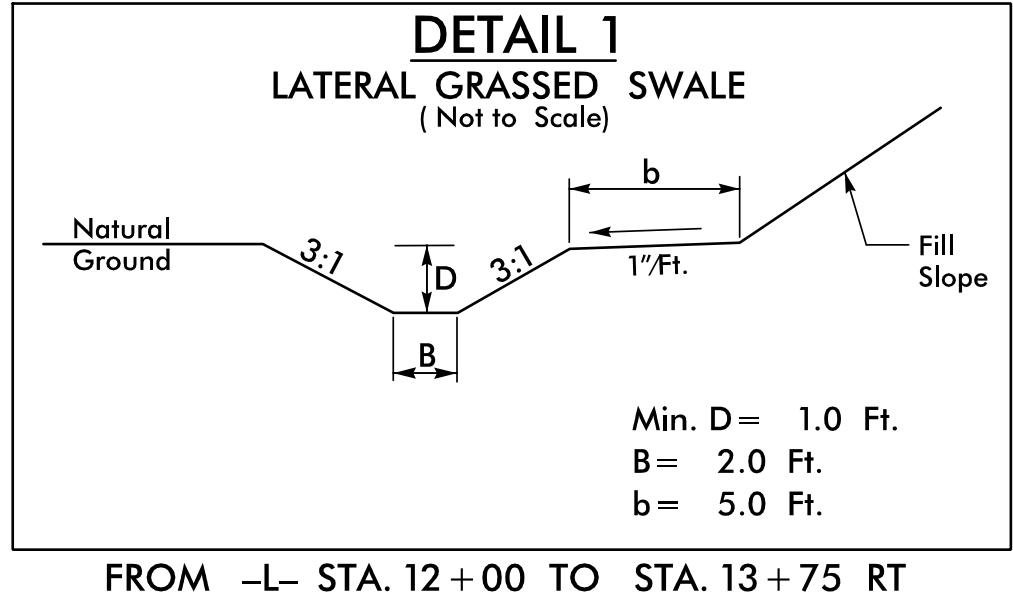
LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				<b>TOTAL LF:</b>	200

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



8.17.19

PROJECT REFERENCE NO. <b>17BP.4.R.86</b>	SHEET NO. <b>4</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 020111 <i>Boady</i>	HYDRAULICS ENGINEER SEAL 044158 <i>Benjamin J. Henegar</i>
<b>DOCUMENT NOT CONSIDERED FINAL</b> <b>UNLESS ALL SIGNATURES COMPLETED</b>	
<b>TGS ENGINEERS</b> 706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



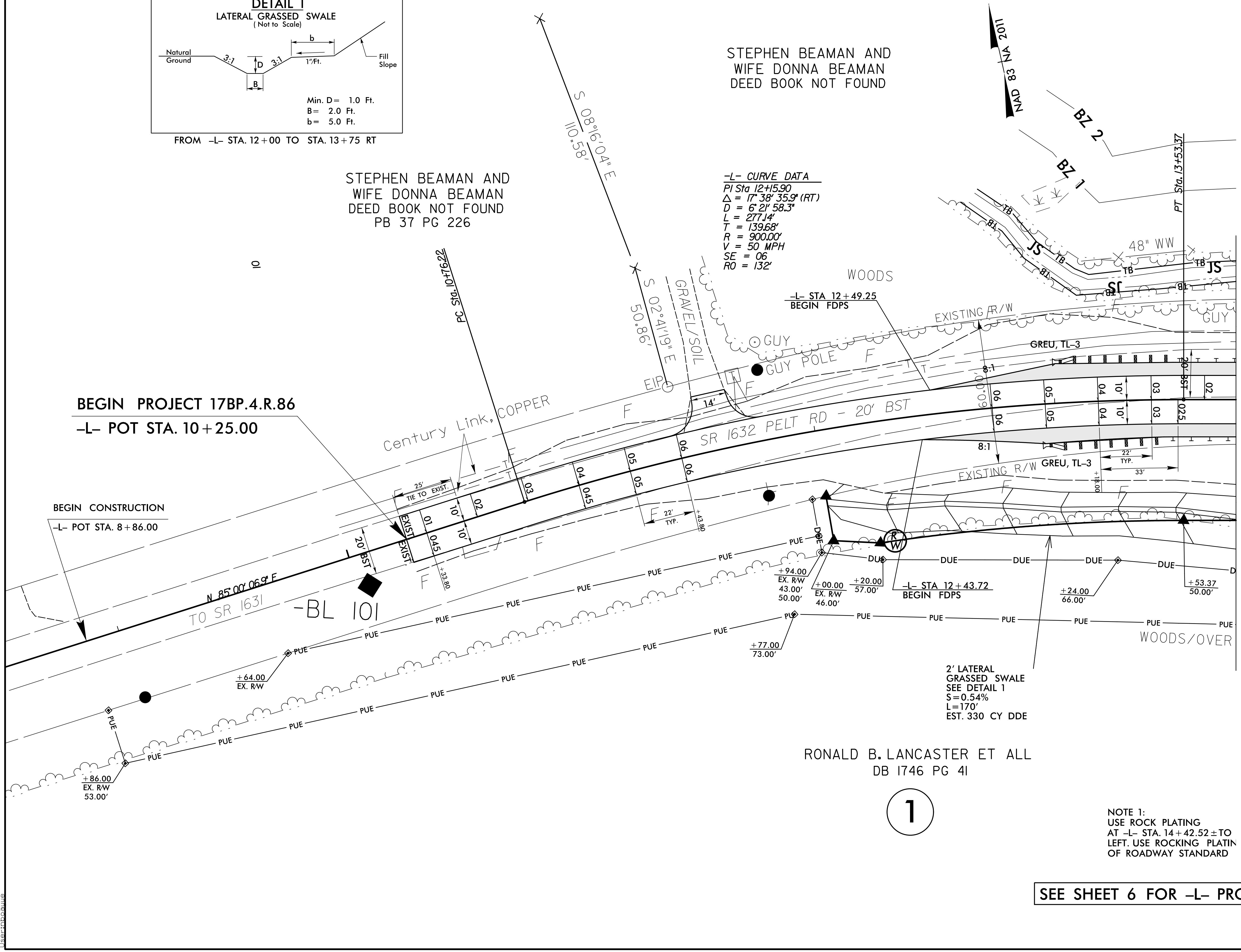
STEPHEN BEAMAN AND WIFE DONNA BEAMAN DEED BOOK NOT FOUND

STEPHEN BEAMAN AND WIFE DONNA BEAMAN DEED BOOK NOT FOUND PB 37 PG 226

-L- CURVE DATA  
 PI Sta 12+15.90  
 $\Delta = 17^\circ 38' 35.9''$  (RT)  
 $D = 6' 21' 58.3''$   
 $L = 277.14'$   
 $T = 139.68'$   
 $R = 900.00'$   
 $V = 50$  MPH  
 $SE = 06$   
 $RO = 132'$

BEGIN PROJECT 17BP.4.R.86  
 -L- POT STA. 10+25.00

BEGIN CONSTRUCTION  
 -L- POT STA. 8+86.00



MATCHLINE -L- STA 13+75.00  
 SEE SHEET 5

RONALD B. LANCASTER ET ALL  
 DB I746 PG 4I

1

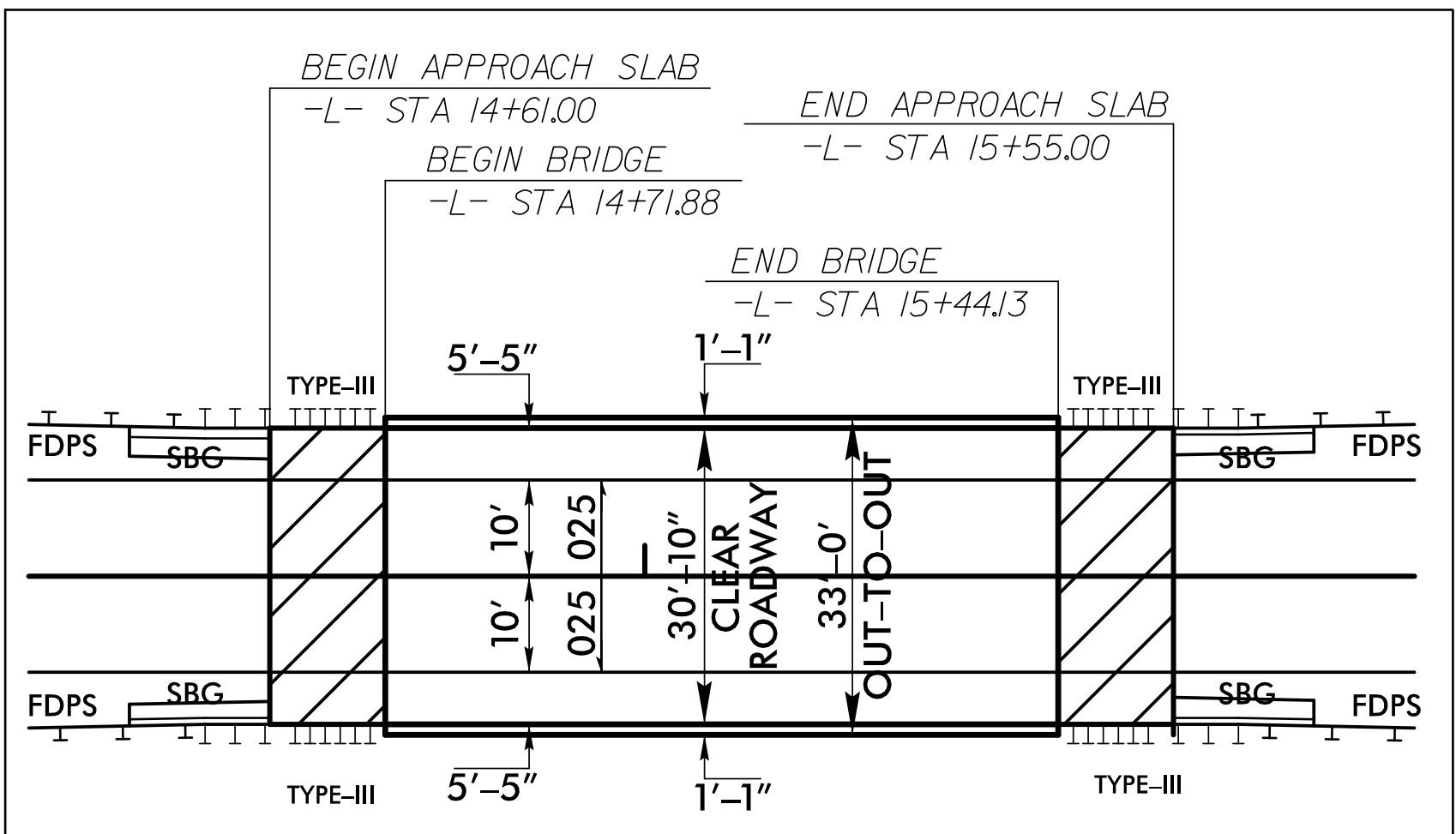
NOTE 1:  
 USE ROCK PLATING  
 AT -L- STA. 14+42.52 ± TO  
 LEFT. USE ROCKING PLATING  
 OF ROADWAY STANDARD

SEE SHEET 6 FOR -L- PROFILE

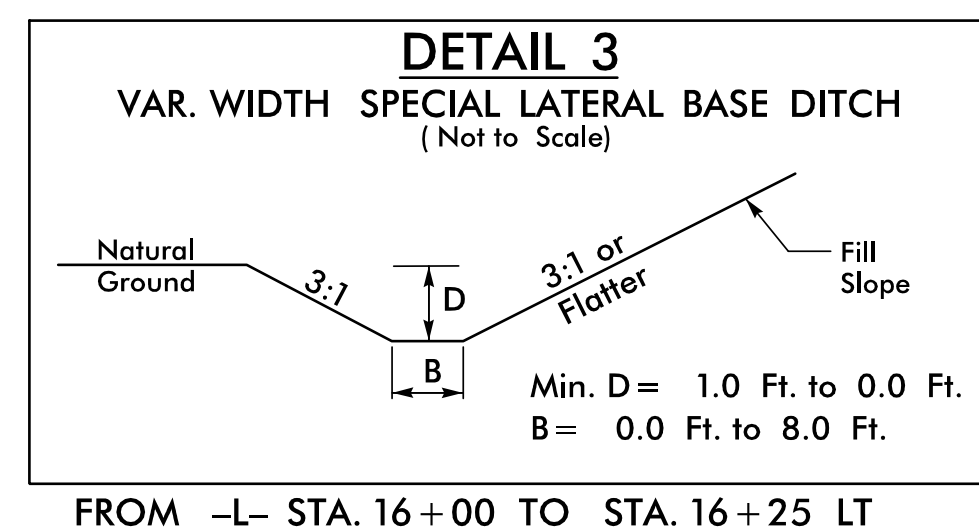
4/30/2018 Division 4 Wilson #16\Roadway\Proj\B970016\_rdy\_psh\_04.dgn  
 11:28:00 AM  
 11/28/2018

8/17/99

PROJECT REFERENCE NO. 17BP.4.R.86	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 020111 K. BOALUE	HYDRAULICS ENGINEER SEAL 044158 B. LANCASTER
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
<p>TGS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275</p>	

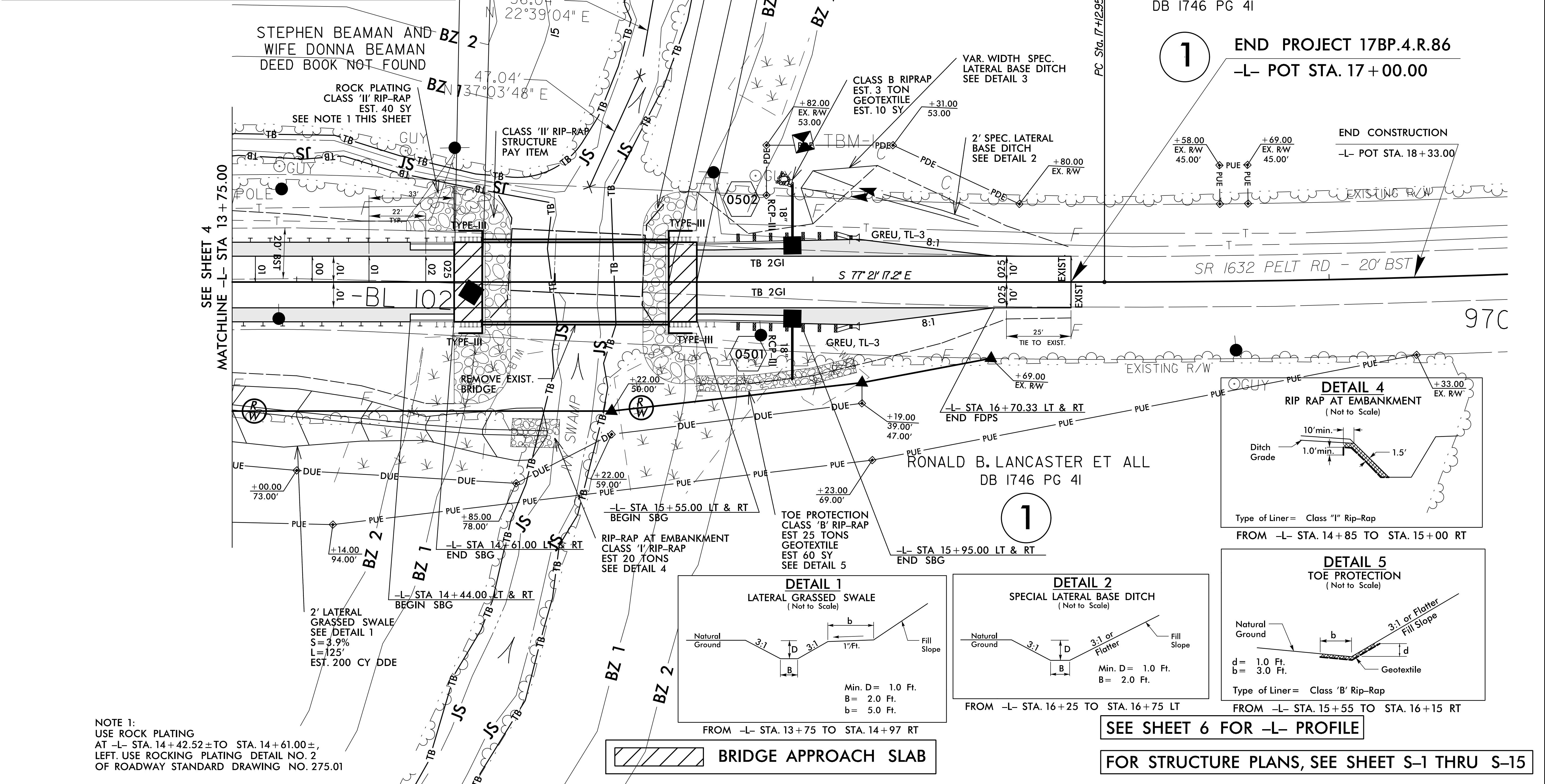


### BRIDGE/ROADWAY RELATIONSHIP



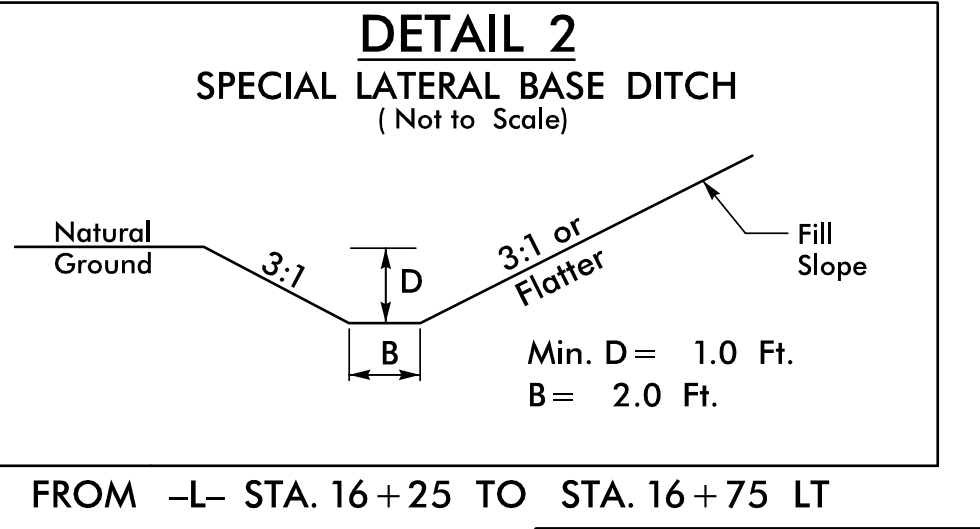
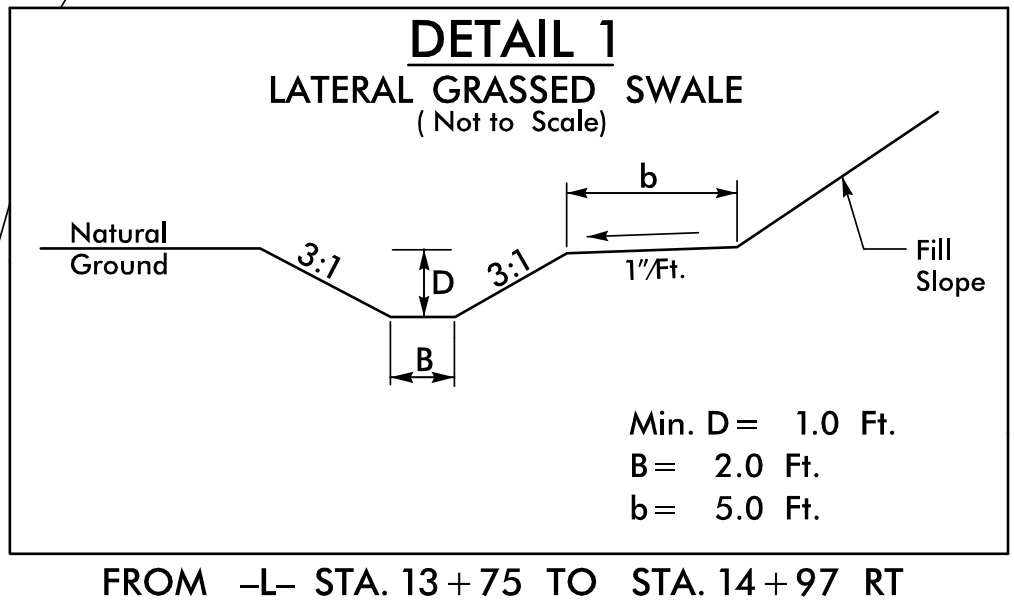
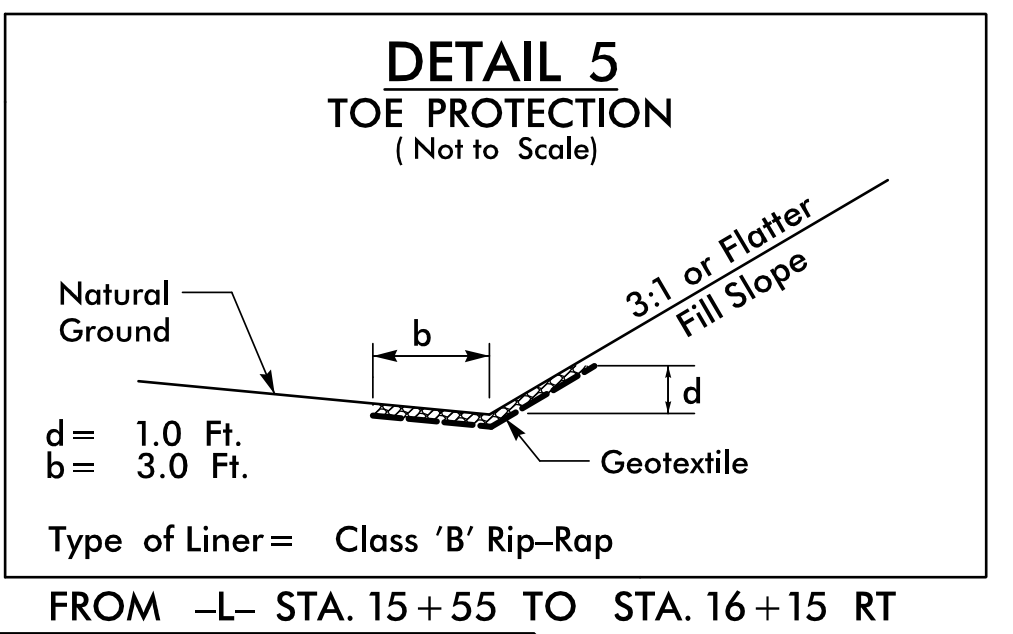
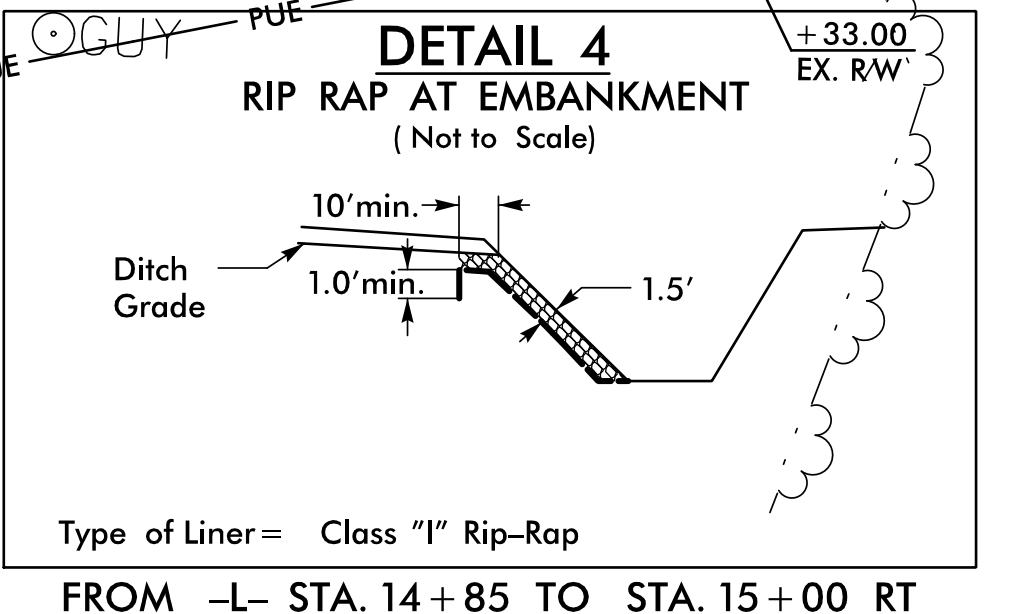
**-L- CURVE DATA**  
 PI Sta 18+24.08  
 $\Delta = 3^{\circ} 09' 10.2''$  (LT)  
 D = 125' 08.1"  
 L = 222.20'  
 T = 111.33'  
 R = 4,038.00'

RONALD B. LANCASTER ET ALL  
 DB 1746 PG 41



**1** END PROJECT 17BP.4.R.86  
 -L- POT STA. 17+00.00

END CONSTRUCTION  
 -L- POT STA. 18+33.00



SEE SHEET 6 FOR -L- PROFILE

FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-15

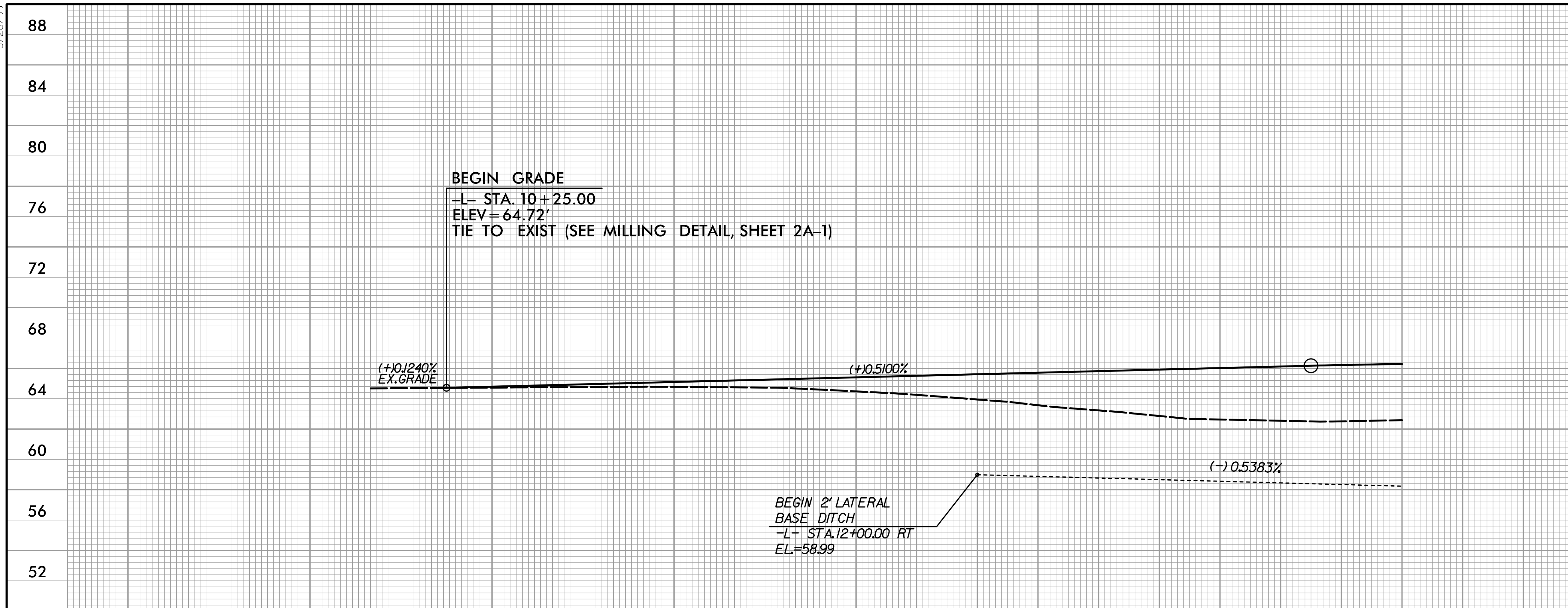
NOTE 1:  
 USE ROCK PLATING  
 AT -L- STA. 14+42.52 TO STA. 14+61.00 ±,  
 LEFT. USE ROCKING PLATING DETAIL NO. 2  
 OF ROADWAY STANDARD DRAWING NO. 275.01

BRIDGE APPROACH SLAB

4/30/2018 X:\Roadway\Division 4\Wilson\16\Roadway\Proc\17BP4R86\17BP4R86.dwg 05.dgn

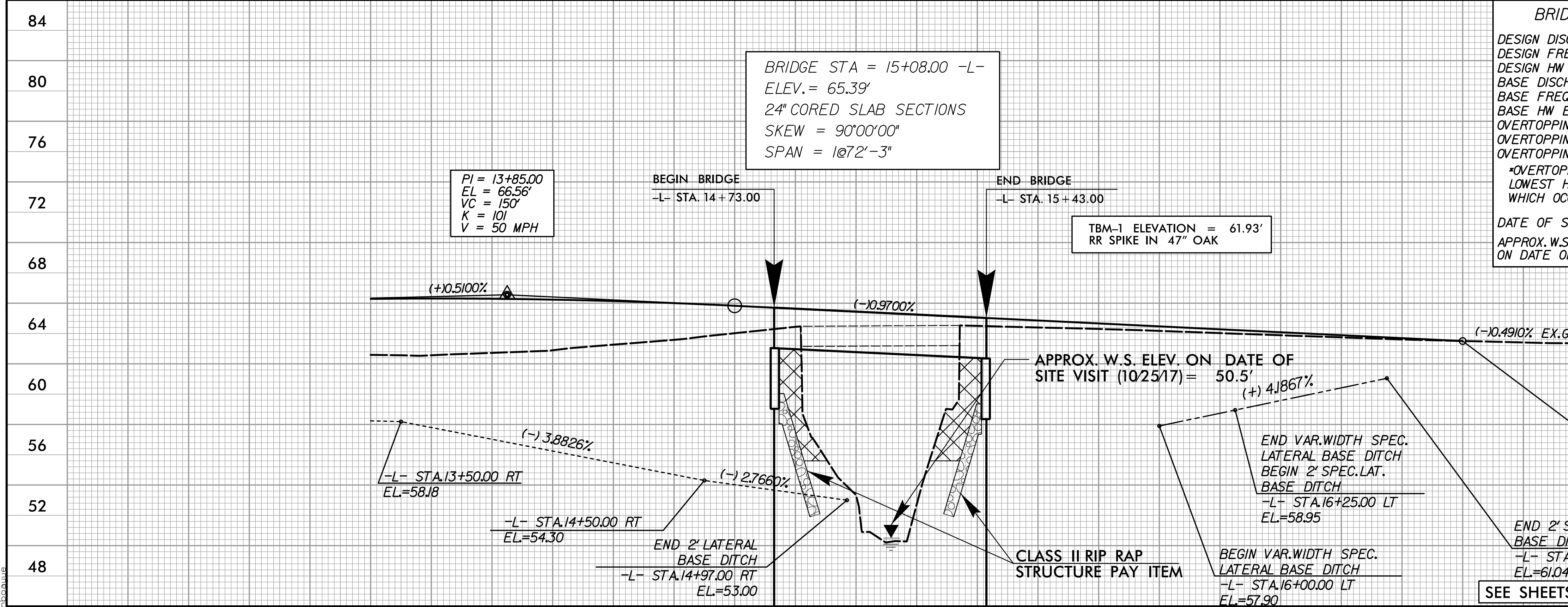
5/28/19

PROJECT REFERENCE NO. <b>17BP.4.R.86</b>	SHEET NO. <b>06</b>
ROADWAY DESIGN ENGINEER SEAL 020111 NORTH CAROLINA PROFESSIONAL ENGINEER BOB K. BOYLE 5/7/2018 3:44:57 PM EDT	HYDRAULICS ENGINEER SEAL 044158 NORTH CAROLINA PROFESSIONAL ENGINEER BENJAMIN J. HEWITT 5/7/2018 5:01:07 PM EDT
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



10 11 12 13 14

BRIDGE HYDRAULIC DATA	
DESIGN DISCHARGE	= 550 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 56.5 FT
BASE DISCHARGE	= 850 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 57.5 FT
OVERTOPPING DISCHARGE	= N/A
OVERTOPPING FREQUENCY	= >500(+) YRS
OVERTOPPING ELEVATION	= 63.3 FT*
*OVERTOPPING ELEVATION REPRESENTS LOWEST HIGH POINT ON DECK/ROADWAY WHICH OCCURS AT SAG @ -L- STA. 17+76	
DATE OF SITE VISIT	= 10/25/2017
APPROX. W.S. ELEVATION ON DATE OF SITE VISIT	= 50.5 FT



13 14 15 16 17

SEE SHEETS 4 & 5 FOR -L- PLAN

4/30/2018 Division 4 Wilson #16\Roadway\Proj\B970016\_rdy\_pfl\_06.dgn  
 User: bboyle

09/08/99

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	97-0016	RW01	8

TIP PROJECT: 97-0016

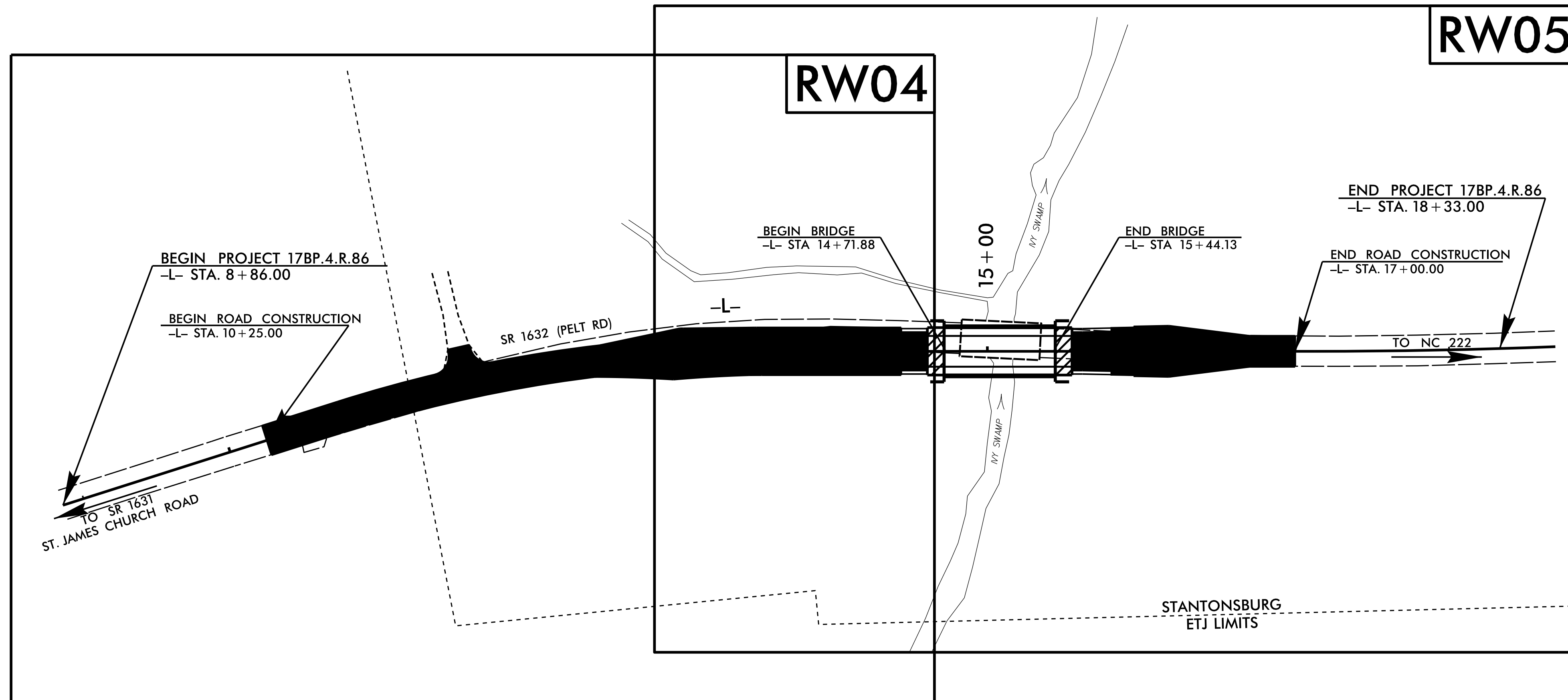
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

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

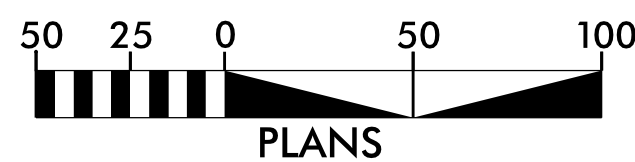
**WILSON COUNTY**

LOCATION: BRIDGE NO. 16 ON SR 1632 (PELT ROAD) OVER IVY SWAMP  
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

NAD 83 NA 2011



GRAPHIC SCALE



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "970016-1" WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 673,063.916(ft) EASTING: 2,344,586.866(ft) ELEVATION: 62.883(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989284 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "970016-1" TO -L- STATION 8+32.00 IS N 83°25'27" W 1005.17'(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

**DIVISION OF HIGHWAYS**

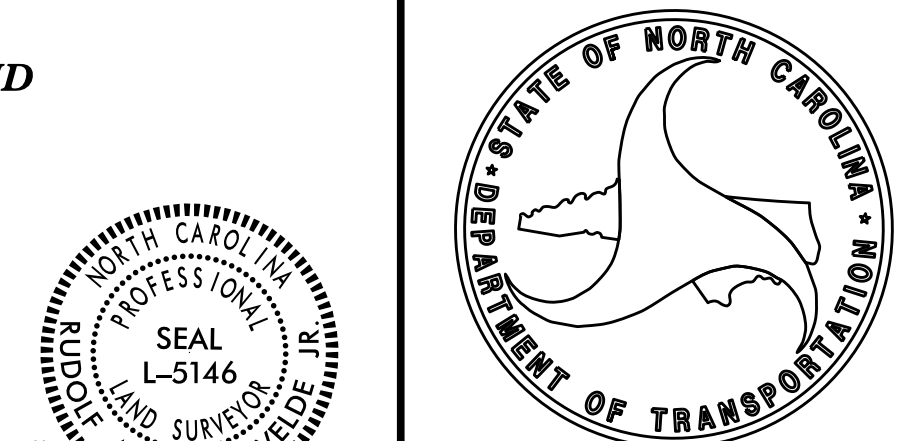
1000 Birch Ridge Dr., Raleigh NC, 27610

2017 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
XXXXX X, 2018

LETTING DATE:  
MAY 22, 2018

PROFESSIONAL LAND SURVEYOR



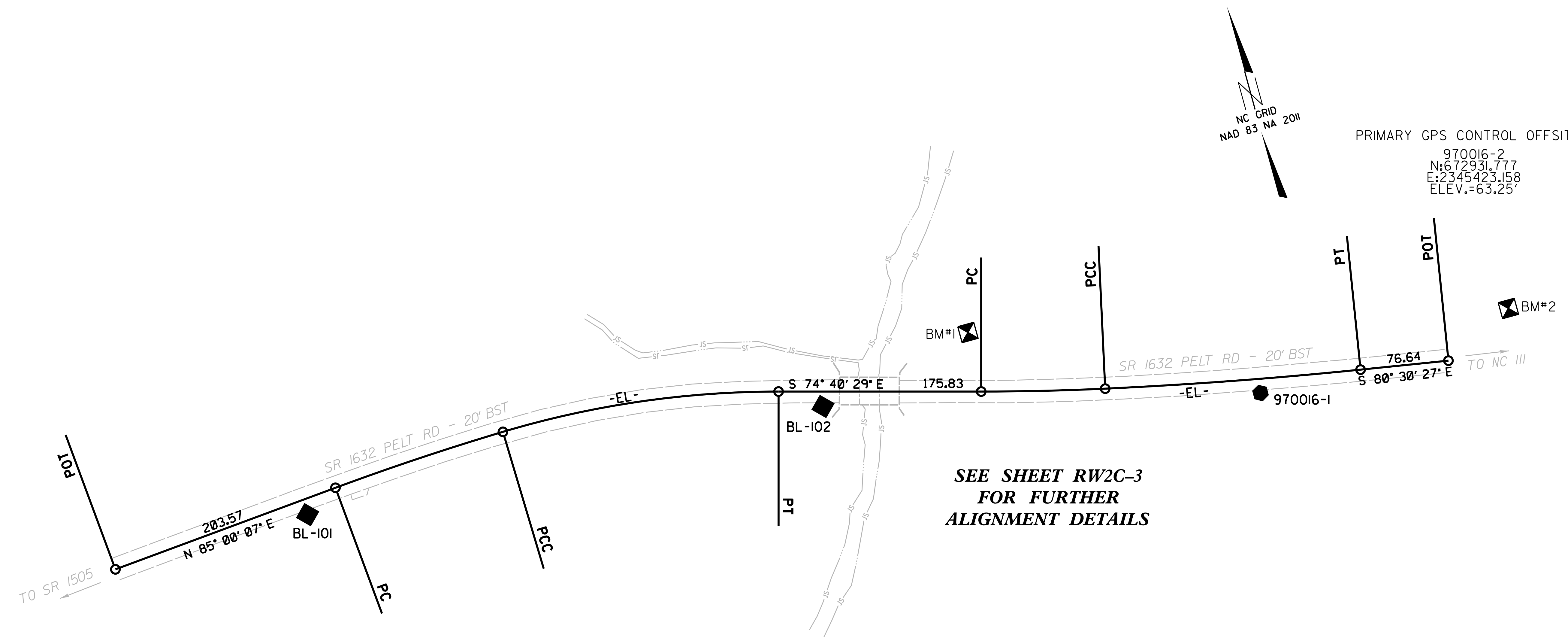
SIGNATURE:

DocuSigned by:  
Rudolf Van der Meulen  
201805221440:2 PM EDT

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DCN\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$

# SURVEY CONTROL SHEET

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



SEE SHEET RW2C-3 FOR FURTHER ALIGNMENT DETAILS

### NOTES:

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

05-APR-2018 07:45 C:\Users\jforde\OneDrive\Documents\Projects\970016-1s-rw2c1.dgn

6/2/95

# SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BL	POINT	DESC.	NORTH	EAST	ELEVATION
	101	BL - 101	673180.6290	2343761.6040	63.80
	102	BL - 102	673152.9370	2344217.6330	63.64
	1	970016 - 1	673063.9160	2344586.8660	62.88

\*\*\*\*\*  
 BM1         ELEVATION = 61.93  
 N 673182         E 2344356  
 RAILROAD SPIKE IN BASE OF 47" OAK  
 \*\*\*\*\*

\*\*\*\*\*  
 BM2         ELEVATION = 65.96  
 N 673078         E 2344814  
 RAILROAD SPIKE IN BASE OF 15" PINE  
 \*\*\*\*\*

REVISIONS

6/2/99

### NOTES:

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

# SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

REVISIONS

EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	673179.025	2343588.307							
LINE			N 85°00'06.9" E	203.57					
PC	673196.760	2343791.102							
CURVE			N 86°51'14.7" E	153.19	03°42'15.6"(RT)	02°25'03.7"	153.22	76.64	2369.86
PCC	673205.168	2343944.063							
CURVE			S 82°59'03.0" E	241.67	16°37'09.0"(RT)	06°51'09.5"	242.52	122.12	836.11
PT	673175.649	2344183.926							
LINE			S 74°40'28.5" E	175.83					
PC	673129.177	2344353.504							
CURVE			S 76°00'52.9" E	107.59	02°40'48.7"(LT)	02°29'27.5"	107.60	53.81	2300.14
PCC	673103.176	2344457.901							
CURVE			S 78°55'52.3" E	222.17	03°09'10.2"(LT)	01°25'08.3"	222.19	111.12	4037.86
PT	673060.523	2344675.934							
LINE			S 80°30'27.4" E	76.64					
POT	673047.883	2344751.525							

**NOTES:**

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

6/2/19

# PROPOSED ALIGNMENT CONTROL SHEET

REVISIONS

6/2/97

6/2/97

L			
TYPE	STATION	NORTH	EAST
POT	8+32.00	673179.0250	2343588.3070
PC	10+76.22	673200.3025	2343831.6031
PT	13+53.37	673181.8945	2344107.0354
PC	17+12.95	673103.1766	2344457.8982
PT	19+35.15	673060.5223	2344675.9371
POT	20+11.79	673047.8835	2344751.5255

**NOTES:**

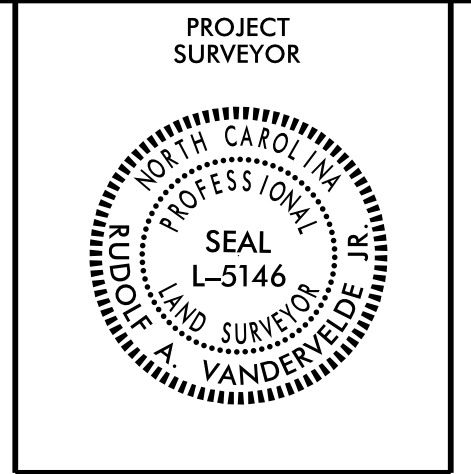
1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATINO REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.



6/2/18

# RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO. 97-0016	SHEET NO. RW03E-1
Location and Surveys	



I, Rudolf A. VanderVelde Jr., a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further 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.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 5th day of April, 2018.

DocuSigned by:  
**Rudolf A. VanderVelde Jr.**  
 Professional Land Surveyor L-5146  
 4/5/2018 PLS # Seal

## ROW MARKER IRON PIN AND CAP - E

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+00.00	46.00	673156.6448	2343952.9472
L	12+00.00	27.29	673175.3298	2343953.8878
L	12+20.00	50.00	673151.4907	2343971.5990
L	13+53.37	50.00	673133.1073	2344096.0898
L	15+22.00	50.00	673096.1909	2344260.6343
L	16+19.00	39.00	673085.6895	2344357.6895
L	16+69.00	29.59	673083.9300	2344408.5377

### NOTES:

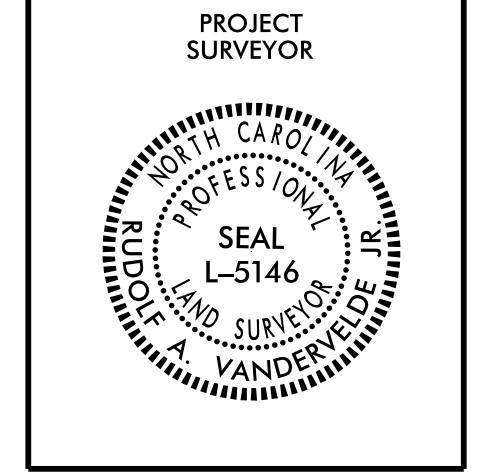
- IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS

6/2/18

6/2/18

PROJECT REFERENCE NO. 97-0016	SHEET NO. RW03E-2
<b>Location and Surveys</b>	



# PERMANENT EASEMENT CONTROL SHEET

I, Rudolf A. VanderVelde Jr., a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further 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.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 5th day of April, 2018.

DocuSigned by:  
**Rudolf A. VanderVelde Jr.**  
Professional Land Surveyor  
4/5/2018

L-5146  
PLS #

Seal

### ROW MARKER PERMANENT EASEMENT - E

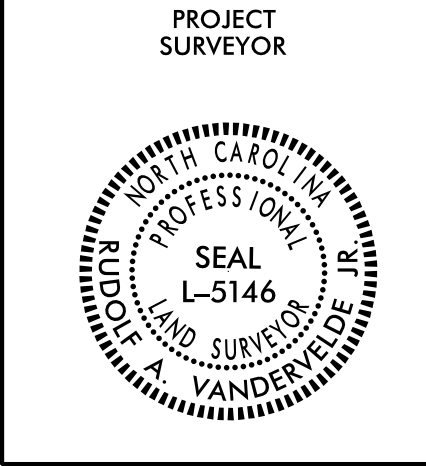
ALIGN	STATION	OFFSET	NORTH	EAST
L	8+86.00	30.00	673153.8437	2343644.7154
L	8+86.00	53.00	673130.9312	2343646.7192
L	9+64.00	30.00	673160.6393	2343722.4188
L	11+77.00	73.00	673130.4716	2343930.4708
L	11+94.00	27.65	673175.2433	2343948.0604
L	11+94.00	50.00	673152.9158	2343947.0857
L	11+94.00	43.00	673159.9092	2343947.3910
L	12+20.00	57.00	673144.5091	2343971.0918
L	13+24.00	66.00	673123.0182	2344065.9430
L	14+00.00	73.00	673100.4562	2344136.5584
L	14+14.00	94.00	673076.9008	2344145.6217
L	14+85.00	78.00	673076.9698	2344218.4021
L	15+22.00	59.00	673087.4092	2344258.6640
L	15+82.00	-53.00	673183.5577	2344341.7270
L	15+82.00	-33.64	673164.6714	2344337.4897
L	16+19.00	47.00	673077.8835	2344355.9382
L	16+23.00	69.00	673055.5415	2344355.0251
L	16+31.00	-53.00	673172.8310	2344389.5385
L	16+80.00	-30.24	673139.8955	2344432.3673
L	17+58.00	-45.00	673137.5756	2344511.2703
L	17+58.00	-30.00	673122.9037	2344508.1501
L	17+69.00	-45.00	673135.3274	2344521.9129
L	17+69.00	-30.00	673120.6470	2344518.8326
L	18+33.00	30.00	673049.1863	2344569.7154

**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.

REVISIONS

6/2/18



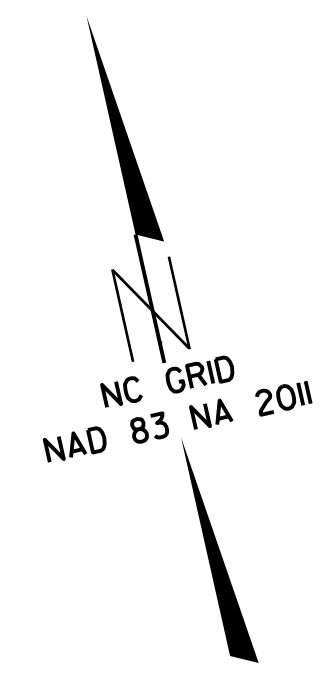
I, Rudolf A. VanderVelde Jr., a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work items (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further 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.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others that the depicted property data shown herein were surveyed by others and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 5th day of April, 2018.

DocuSigned by:  
**Rudolf A. VanderVelde Jr.**  
 Professional Land Surveyor  
 L-5146  
 PLS \*  
 Seal  
 4/5/2018



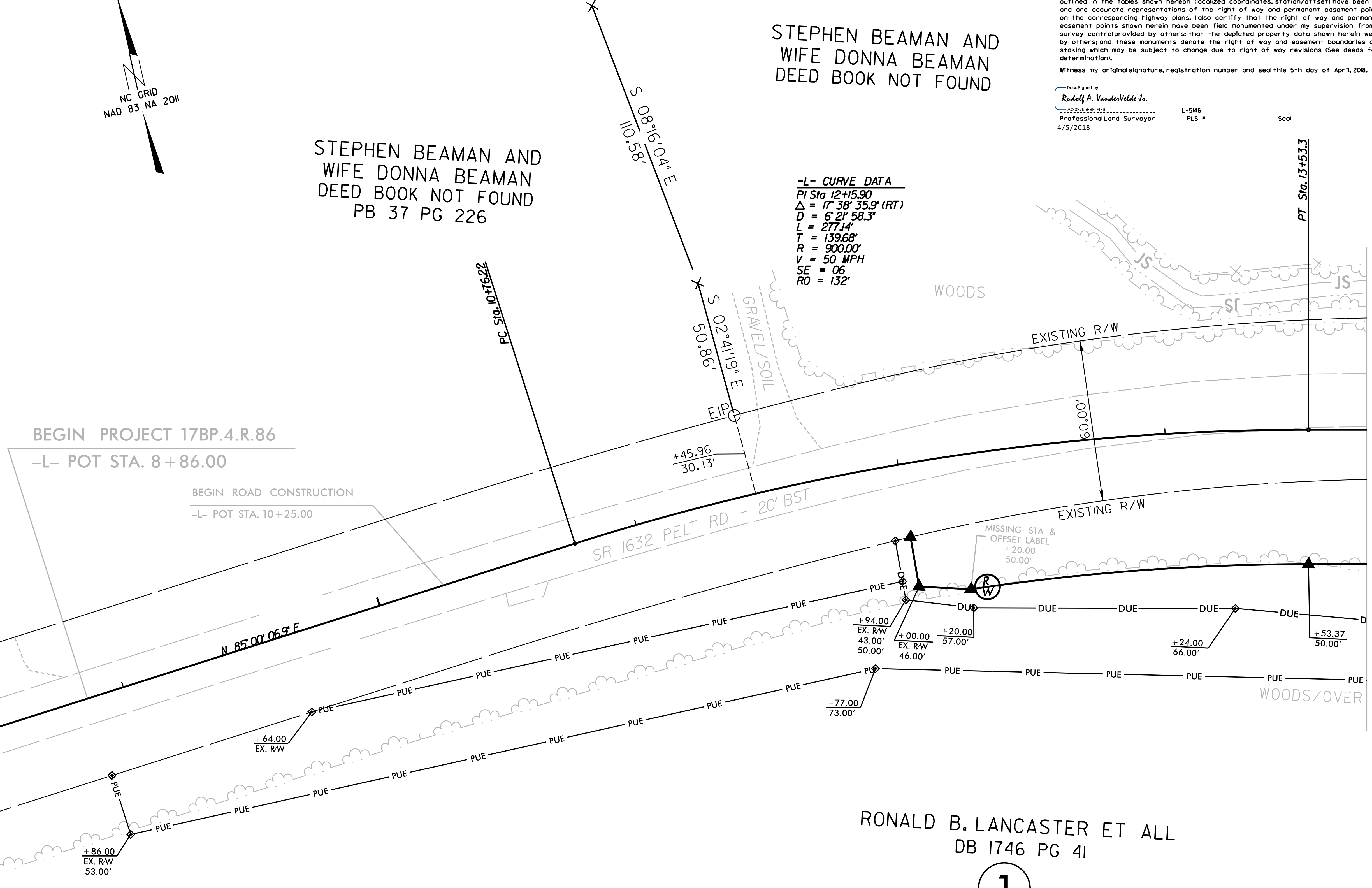
STEPHEN BEAMAN AND WIFE DONNA BEAMAN  
 DEED BOOK NOT FOUND

STEPHEN BEAMAN AND WIFE DONNA BEAMAN  
 DEED BOOK NOT FOUND  
 PB 37 PG 226

**-L- CURVE DATA**  
 PI Sta 12+15.90  
 $\Delta = 17^{\circ} 38' 35.9''$  (RT)  
 D = 6' 2" 58.3"  
 L = 277.14'  
 T = 139.68'  
 R = 900.00'  
 V = 50 MPH  
 SE = 06  
 RO = 132'

REVISIONS

05\_APR-2018\_07:36 C:\Users\rvande\OneDrive\Documents\Projects\970016\1s\_rw04.dgn LOCAL\RIGHT OF WAY SHEETS\RW\_Series\970016\_1s\_rw04.dgn

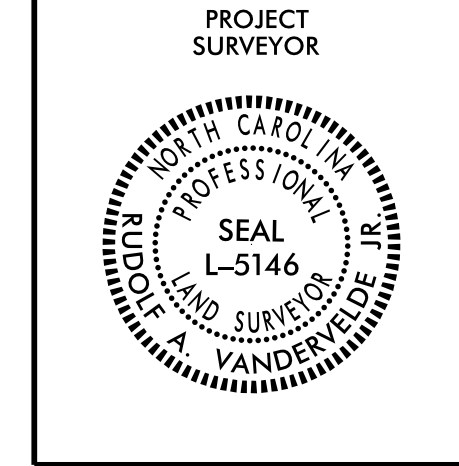


RONALD B. LANCASTER ET ALL  
 DB 1746 PG 41

1

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.



I, Rudolf A. VanderVelde Jr., a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work items (Base map Completion, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

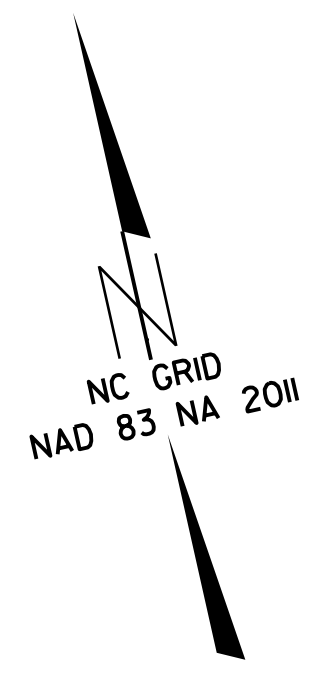
I further certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (see deeds for final determination).

Witness my original signature, registration number and seal this 5th day of April, 2018.

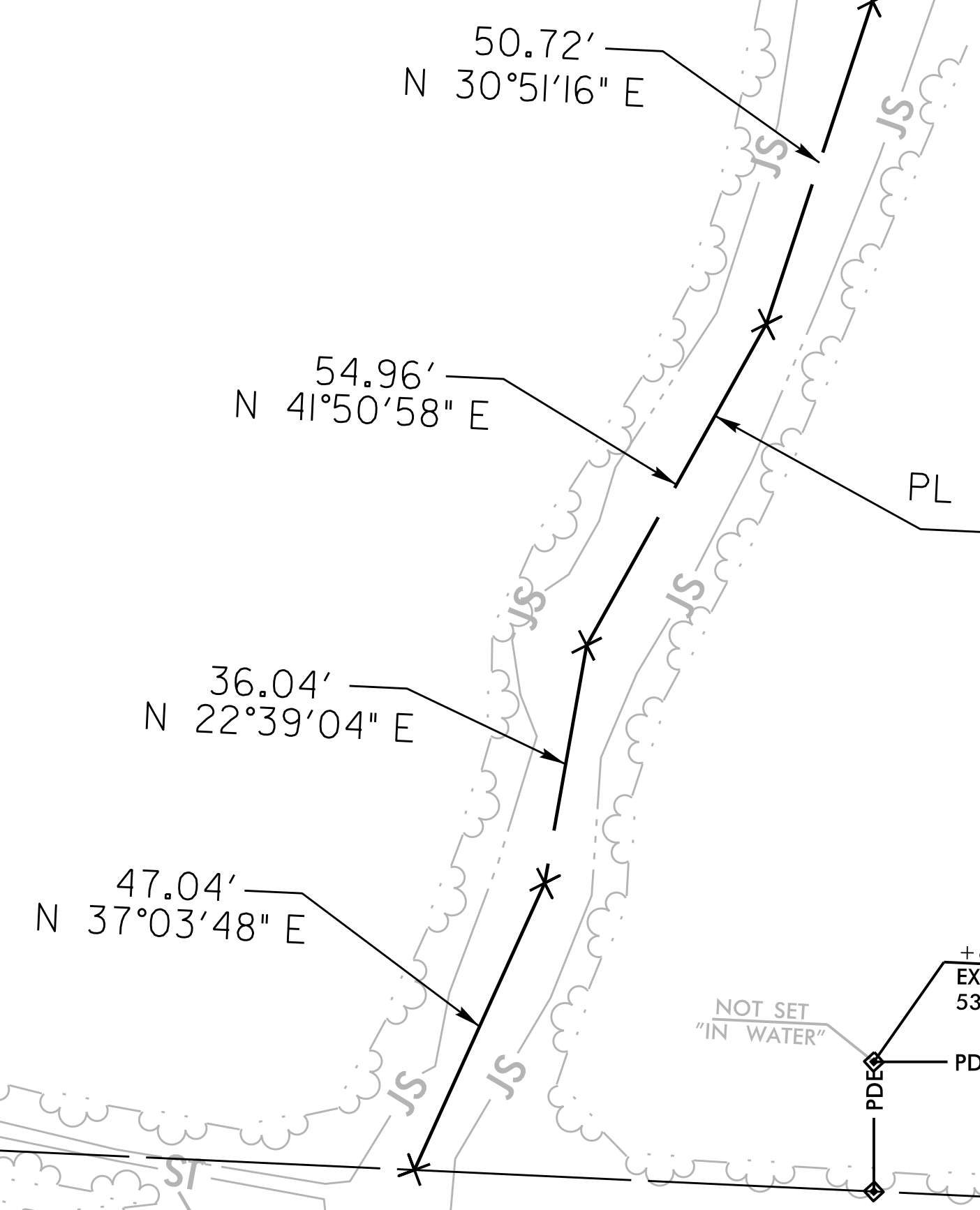
DocuSigned by:  
**Rudolf A. VanderVelde Jr.**  
 Professional Land Surveyor  
 L-5146  
 PLS #  
 4/5/2018

**-L- CURVE DATA**  
 PI Sta 18+24.08  
 $\Delta = 3^{\circ}09'10.2''$  (LT)  
 D = 125'08.1"  
 L = 222.20'  
 T = 111.33'  
 R = 4038.00'

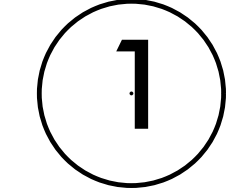


STEPHEN BEAMAN AND WIFE DONNA BEAMAN DEED BOOK NOT FOUND

WOODS

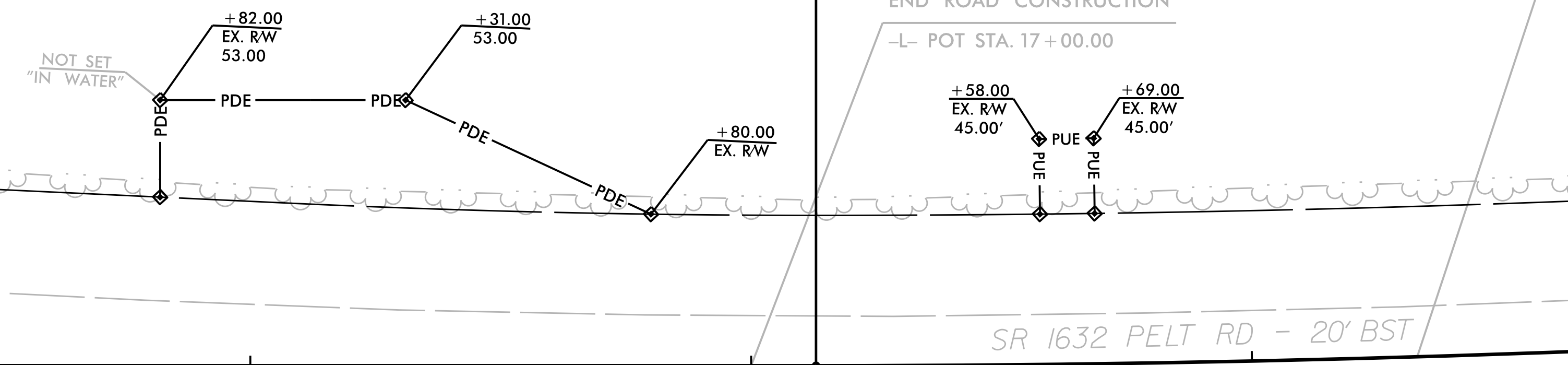


RONALD B. LANCASTER ET ALL  
 DB 1746 PG 41

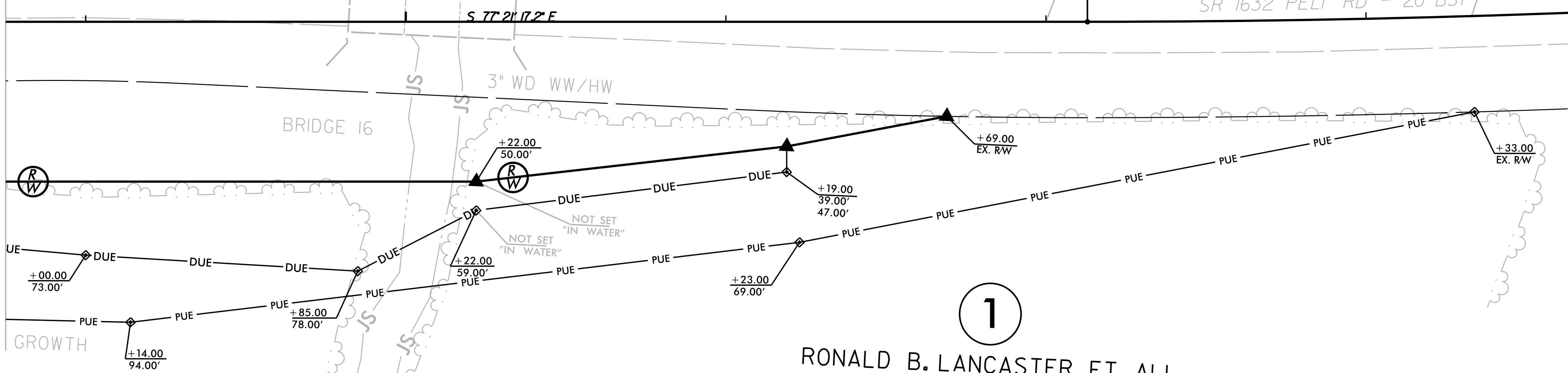


END PROJECT 17BP.4.R.86  
 -L- POT STA. 18+33.00

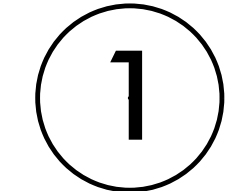
END ROAD CONSTRUCTION  
 -L- POT STA. 17+00.00



SEE SHEET 4  
 MATCHLINE -L- STA 13+75.00



RONALD B. LANCASTER ET ALL  
 DB 1746 PG 41



**NOTES:**

- IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

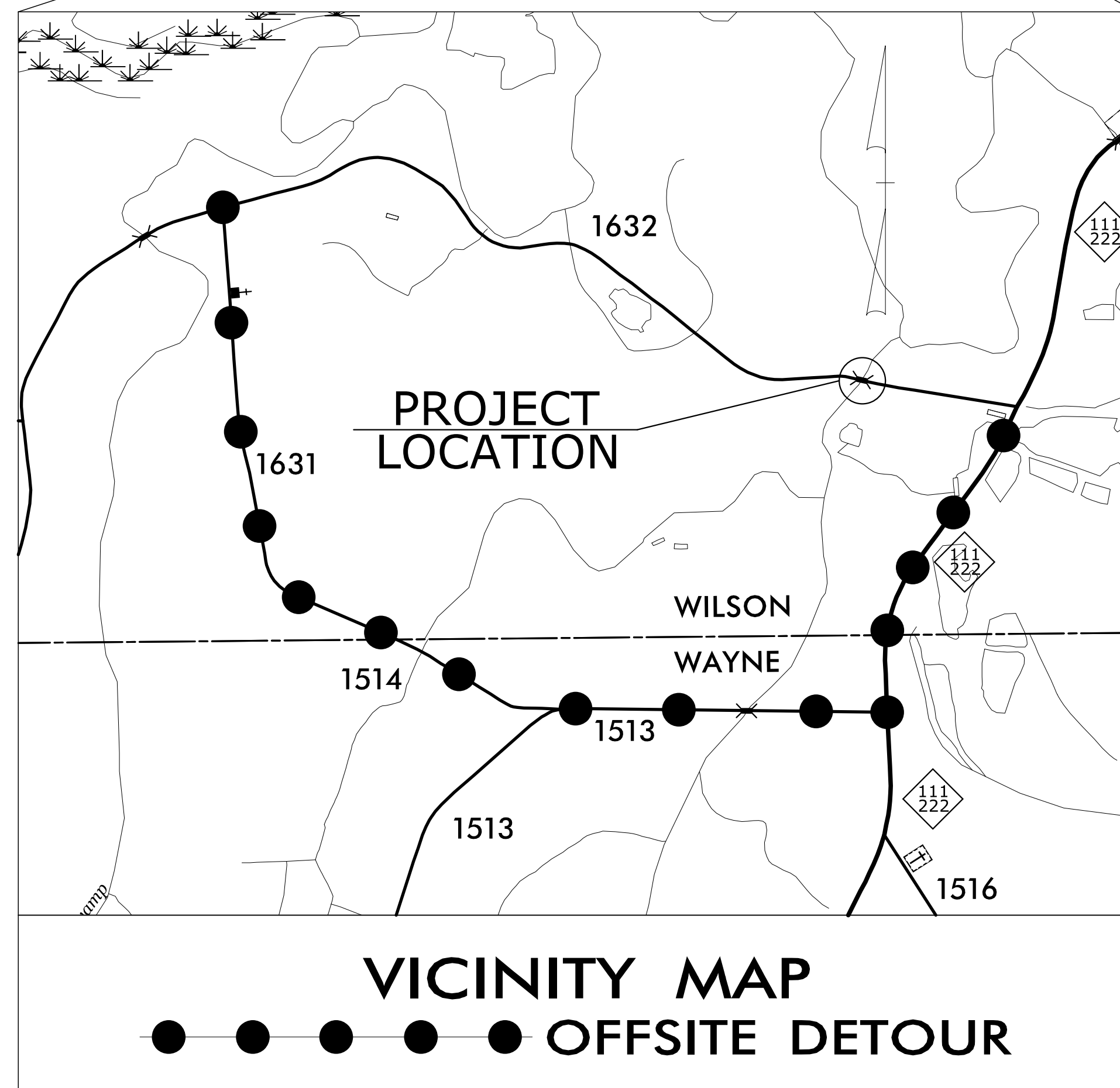
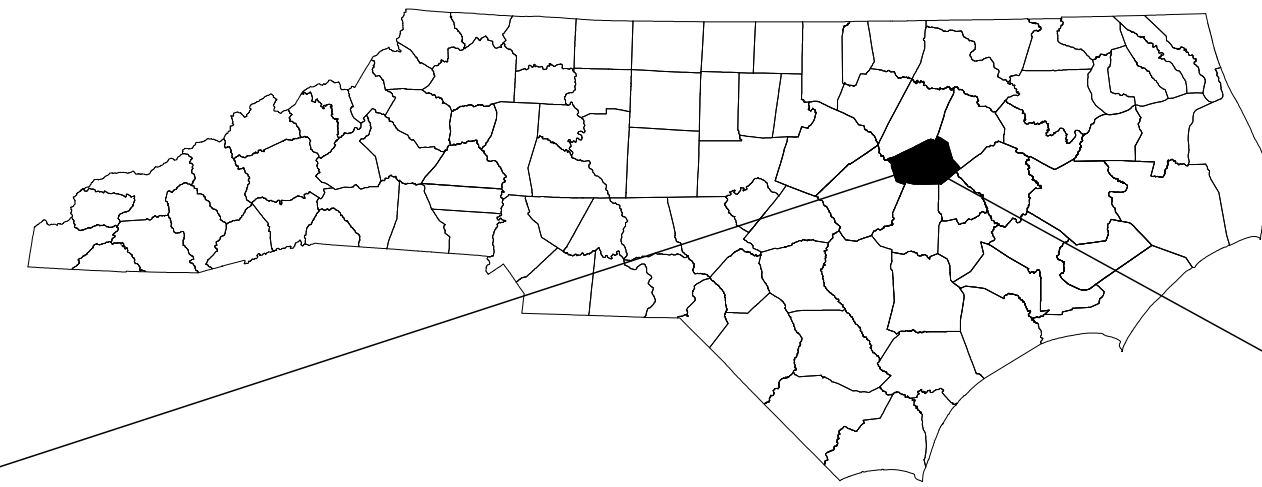
REVISIONS

05-APR-2018 07:37 C:\Users\rvande\OneDrive\Documents\Projects\970016\1s\_rw05.dgn

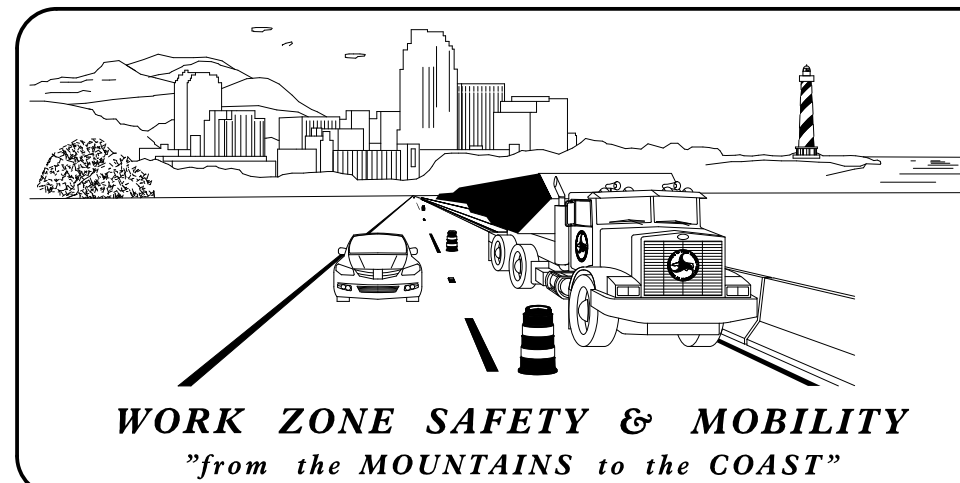
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

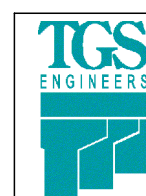
**WILSON COUNTY**  
**BRIDGE #970016**



**NCDOT CONTACT INFORMATION:**  
Phone: 252 640 6434 Fax: 252 234 6174  
**RACHEL EVANS, PE**  
Project Manager

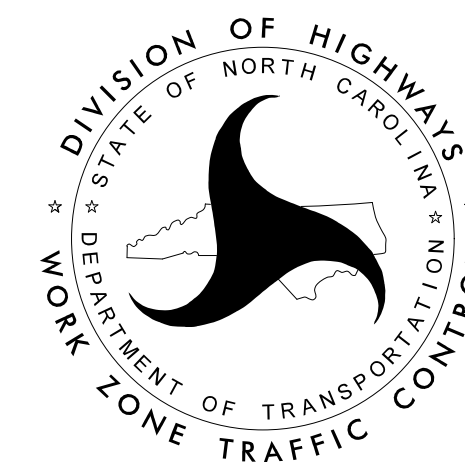


PLAN PREPARED FOR N.C.D.O.T. BY:



**TGS ENGINEERS**  
804-C N. LAFAYETTE ST  
SHELBY, NC 28150  
PH (704) 476-0003  
CORP. LICENSE NO.: C-0275

NYA K. BOAYUE, PE PROJECT ENGINEER  
PAUL SCHULKEN, EI DESIGN ENGINEER



SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND LOCAL NOTES)
TMP-1C	SPECIAL SIGN DESIGN
TMP-2	OVERVIEW AND PHASING
TMP-3	OFFSITE DETOUR LOCATION AND BARRICADE PLACEMENT
PMP-1	FINAL PAVEMENT MARKING PLAN AND SCHEDULE

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

APPROVED: \_\_\_\_\_  
DATE: \_\_\_\_\_



DocuSigned by:  
NYA K. BOAYUE  
5/7/2018 3:44:57 PM EDT

# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

# LEGEND

## GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)



## SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

## PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

## TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

## TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

## PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

## PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

4/30/2018 X:\NC001\Division 4 Wilson #16\Traffic\TrafficControl\TCP\970016\_TC\_TMP\_01A\STA & Legend.dgn User:tbodyue

APPROVED: _____			<h2>ROADWAY STANDARD DRAWINGS &amp; LEGEND</h2>
DATE: _____			
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>			

## GENERAL NOTES

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

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

### TRAFFIC PATTERN ALTERATIONS

- A) THE CONTRACTOR SHALL PROVIDE ONE MONTH NOTICE TO THE ENGINEER, COUNTY EMS AND COUNTY SCHOOL OFFICIALS PRIOR TO ROAD CLOSURES.

### SIGNING

- B) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

- D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

- E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

### TRAFFIC BARRIERS

- F) INSTALL TEMPORARY TRAFFIC BARRIER SYSTEM A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE THE TEMPORARY TRAFFIC BARRIER SYSTEM IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION.

### TRAFFIC CONTROL DEVICES

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

## GENERAL NOTES

### PAVEMENT MARKINGS AND MARKERS

- H) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS SHOWN IN THE PAVEMENT MARKING PLAN. (SEE NOTE ON PASSING ZONES, SHEET PMP-1)
- I) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- J) REMOVE ANY CONFLICTING MARKINGS OR MARKERS BEFORE SHIFTING TRAFFIC TO A NEW PATTERN.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- K) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- L) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

## MANAGEMENT STRATEGIES

DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, SR 1632 (PELT ROAD) WILL BE CLOSED TO THROUGH TRAFFIC. SR 1632 (PELT ROAD) TRAFFIC WILL BE MAINTAINED ON THE FOLLOWING DETOUR: FROM SR 1631 (ST. JAMES CHURCH ROAD) TO SR 1514 (ST. JAMES CHURCH ROAD) TO SR 1513 (RED HILL ROAD) TO NC 111 / NC 222.

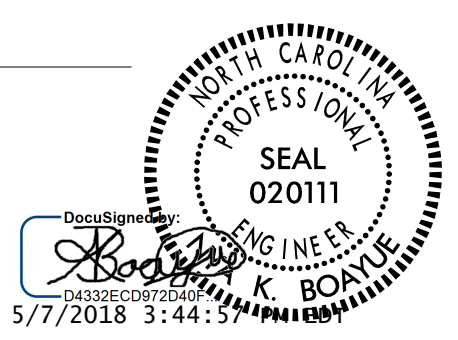

COORDINATE CONSTRUCTION ACTIVITIES OF THIS PROJECT WITH 17BP.4.R.85 SO THAT BRIDGE NO. 950040 AND BRIDGE NO. 970016 ARE NOT CLOSED TO TRAFFIC AT THE SAME TIME.

## LOCAL NOTES

ACCESS TO ALL DRIVEWAYS MUST BE PROVIDED AT ALL TIMES WITHIN THE PROJECT LIMITS.

THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON BUS TURNAROUNDS AND PROVIDE BUS TURNAROUNDS WITH ABC AS APPLICABLE.

4/30/2018 X:\NC001\Division 4 Wilson #16\Traffic\TrafficControl\TCP\970016\_TC\_TMP\_01B(TOP).dgn User:tbodyue

APPROVED: _____  DATE: _____		
TRANSPORTATION OPERATIONS PLAN		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

PROJ. REFERENCE NO. 17BP.4.R.86	SHEET NO. TMP-1C
<small>TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275</small>	

<b>SIGN NUMBER:</b> DET-1 <b>TYPE:</b> D <b>QUANTITY:</b> SEE PLANS  <b>SIGN WIDTH:</b> 3'-6" <b>HEIGHT:</b> 2'-6" <b>TOTAL AREA:</b> 8.8 Sq.Ft.  <b>BORDER TYPE:</b> FLUSH <b>RECESS:</b> 0.38" <b>WIDTH:</b> 0.5" <b>RADII:</b> 1.5"  <b>NO. Z BARS:</b> <b>LENGTH:</b>	<b>BACKG COLOR:</b> Orange <b>COPY COLOR:</b> Black <table border="1" style="margin-top: 10px;"> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <b>MAT'L:</b> 0.125" (3.2 mm) ALUMINUM	SYMBOL	X	Y	WID	HT																																				<b>DESIGN BY:</b> SGM <b>PROJECT ID:</b> 17BP.4.R.86  <b>CHECKED BY:</b> <b>LOCATION:</b> WILSON COUNTY  <b>DATE:</b> Dec 19, 2017 <b>DIV:</b> 4
SYMBOL	X	Y	WID	HT																																						

BORDER  
R=1.5"  
TH=0.5"  
IN=0.38"

Panel Style: Traffic Control.ssi  
M.U.T.C.D.: 2009 Edition  
Spacing Factor is 1 unless specified otherwise

**USE NOTES: 1,2**

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

**LETTER POSITIONS**

Letter locations are panel edge to lower left corner

	P	E	L	T																		Series/Size Text Length
	12.2	17.2	22	26																		D 2000
																						17.5
	11	15.9	21	27																		D 2000
																						20.1

FILENAME: 970016\_TC\_TMP\_01C(SD) NORTH CAROLINA D.O.T. SIGN DETAIL

4/30/2018 X:\NC001\Division 4 Wilson #16\TrafficControl\TCP\970016\_TC\_TMP\_01C(SD).dgn User:nbodyue

APPROVED: _____ DATE: _____		
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>		
<h2 style="margin: 0;">SPECIAL SIGN DESIGN</h2>		

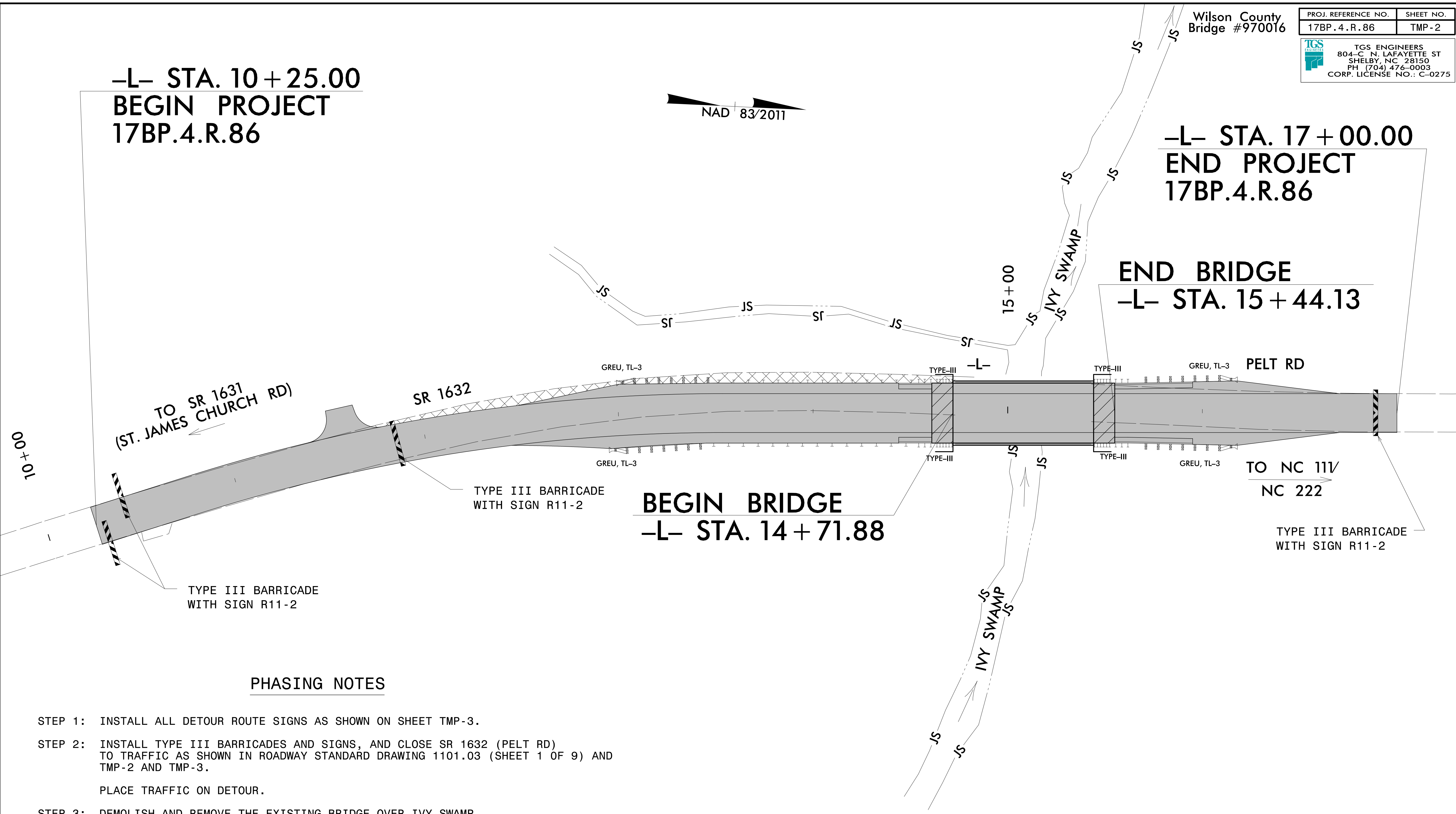


**-L- STA. 10 + 25.00  
BEGIN PROJECT  
17BP.4.R.86**

**-L- STA. 17 + 00.00  
END PROJECT  
17BP.4.R.86**

**END BRIDGE  
-L- STA. 15 + 44.13**

**BEGIN BRIDGE  
-L- STA. 14 + 71.88**



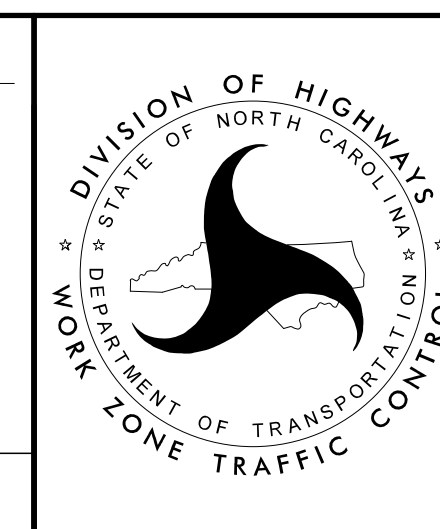
**PHASING NOTES**

- STEP 1: INSTALL ALL DETOUR ROUTE SIGNS AS SHOWN ON SHEET TMP-3.
- STEP 2: INSTALL TYPE III BARRICADES AND SIGNS, AND CLOSE SR 1632 (PELT RD) TO TRAFFIC AS SHOWN IN ROADWAY STANDARD DRAWING 1101.03 (SHEET 1 OF 9) AND TMP-2 AND TMP-3.  
  
PLACE TRAFFIC ON DETOUR.
- STEP 3: DEMOLISH AND REMOVE THE EXISTING BRIDGE OVER IVY SWAMP.  
  
CONSTRUCT THE NEW BRIDGE OVER IVY SWAMP FROM -L- STA. 14+73.00 TO 15+43.00.  
  
CONSTRUCT THE ROADWAY ON SR 1632 (PELT RD) FROM -L- STA. 10+25.00 TO -L- STA. 14+73.00 (BEGIN BRIDGE) AND FROM -L- STA. 15+43.00 (END BRIDGE) TO 17+00.00 UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE.
- STEP 4: REFERRING TO SHEET PMP-1, PLACE PERMANENT PAVEMENT MARKINGS ON THE FOLLOWING: SR 1632 (PELT RD) FROM STA. 10+25.00 TO STA. 17+00.00.
- STEP 5: REMOVE BARRICADES, SIGNS, AND ALL OTHER TRAFFIC CONTROL DEVICES AND OPEN SR 1632 (PELT RD) TO TRAFFIC IN FINAL PATTERN.

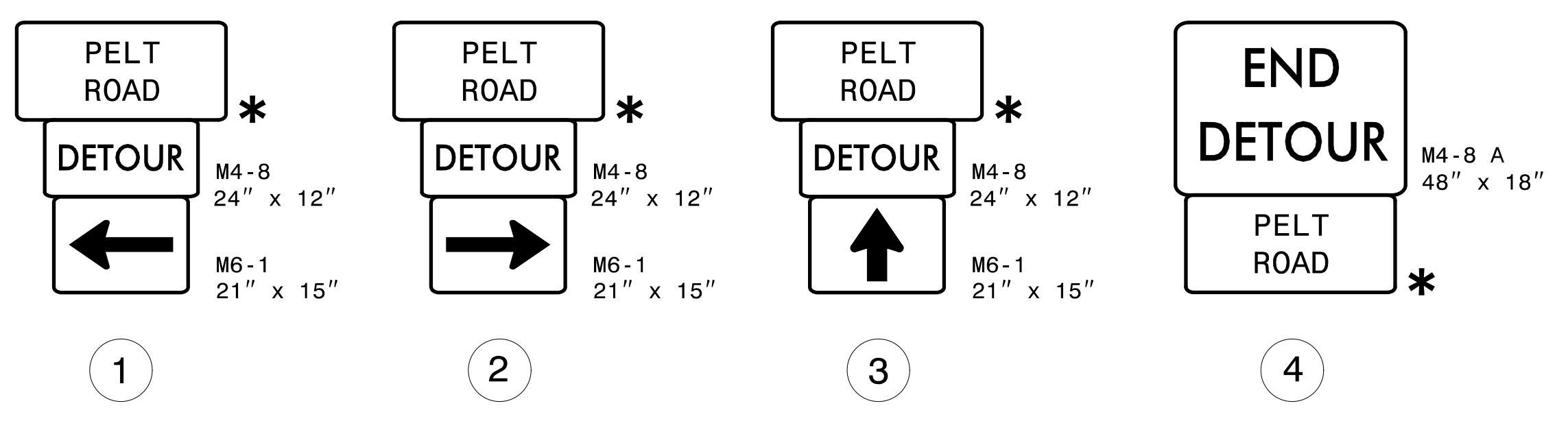
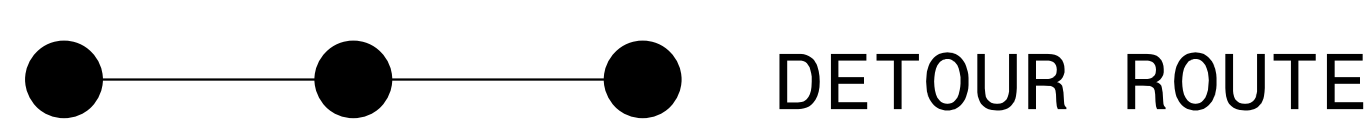
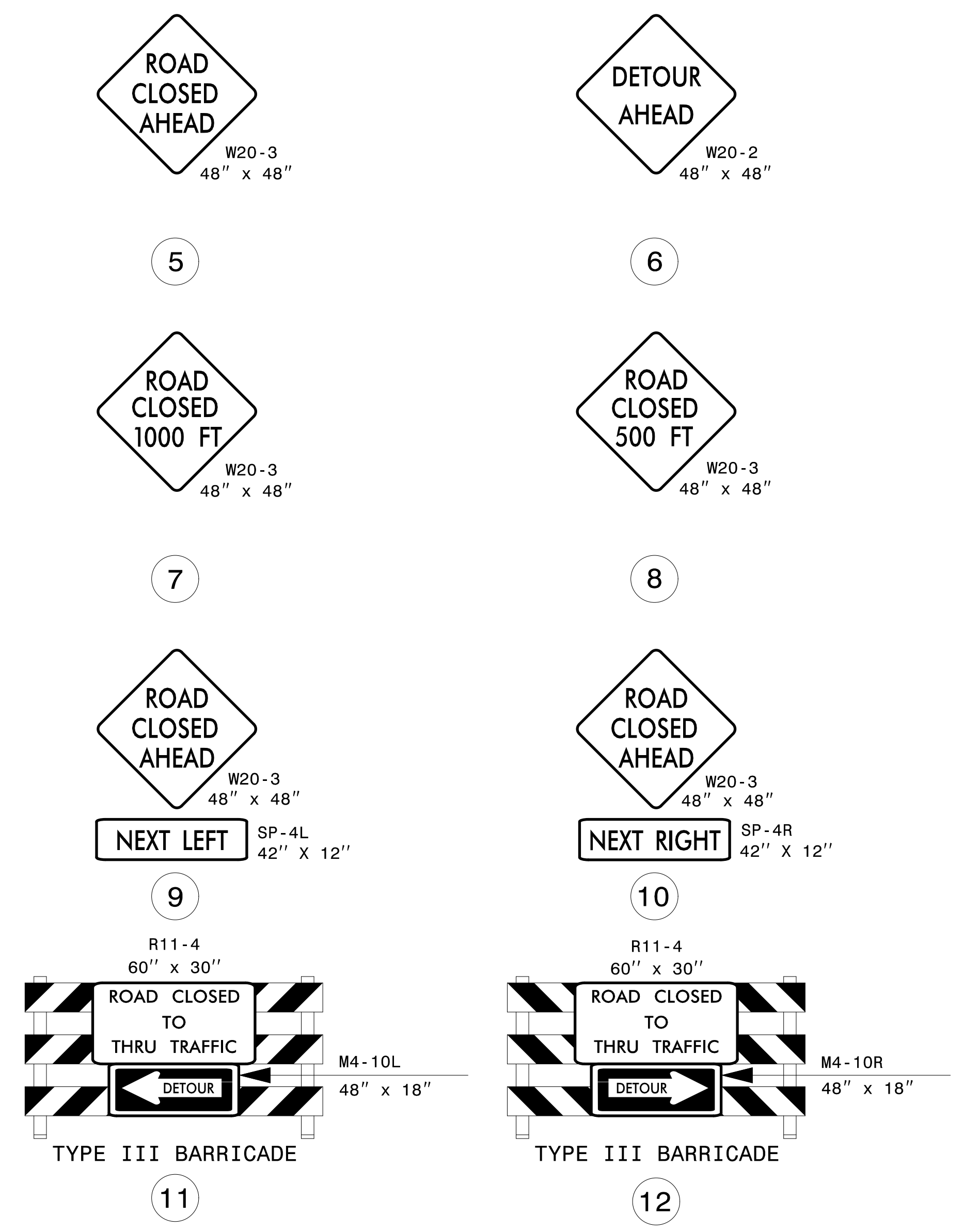
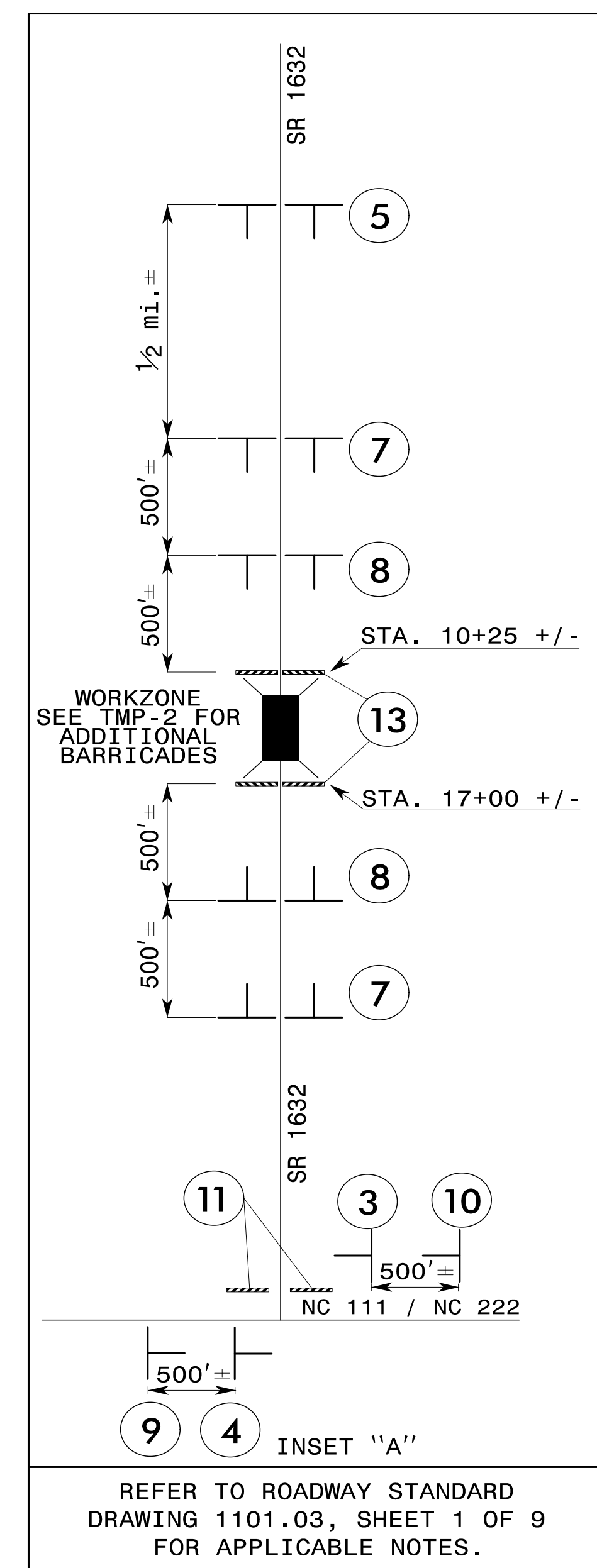
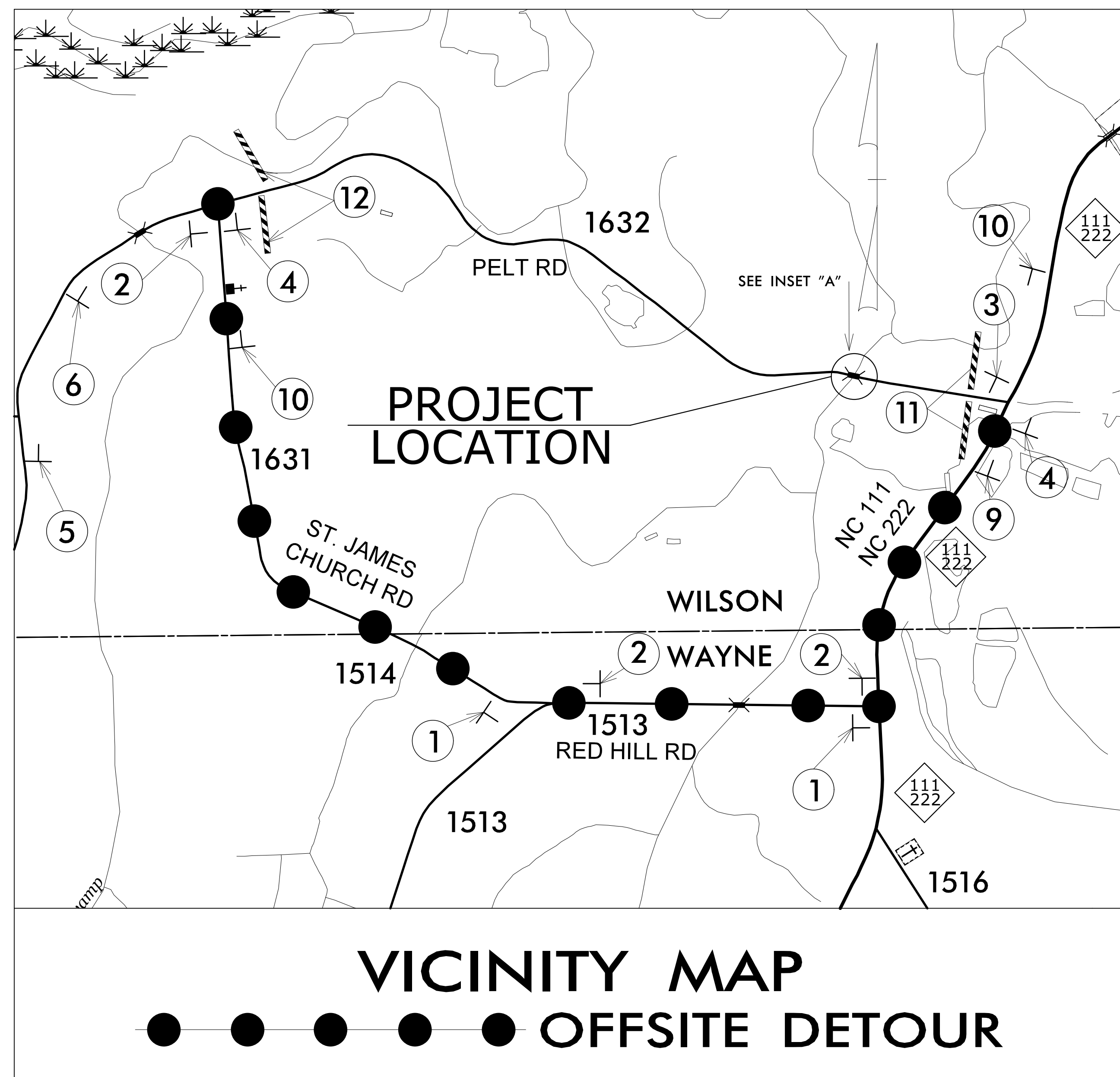
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APPROVED: \_\_\_\_\_  
DATE: \_\_\_\_\_

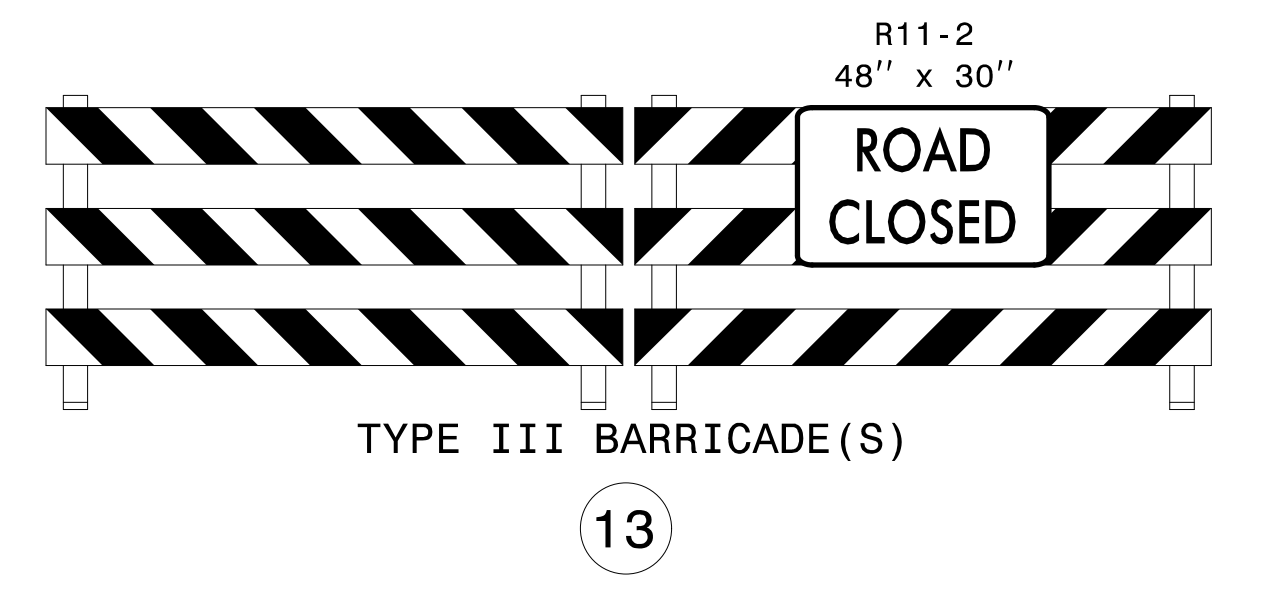
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**



**OVERVIEW  
AND PHASING**



\* SEE SHEET TMP-1C FOR SIGN DESIGN



4/30/2018 X:\NCDOT\Division 4 Wilson #16\TrafficControl\TCP\970016\_TC\_TMP\_03\DETOUR.dgn User:nbayue

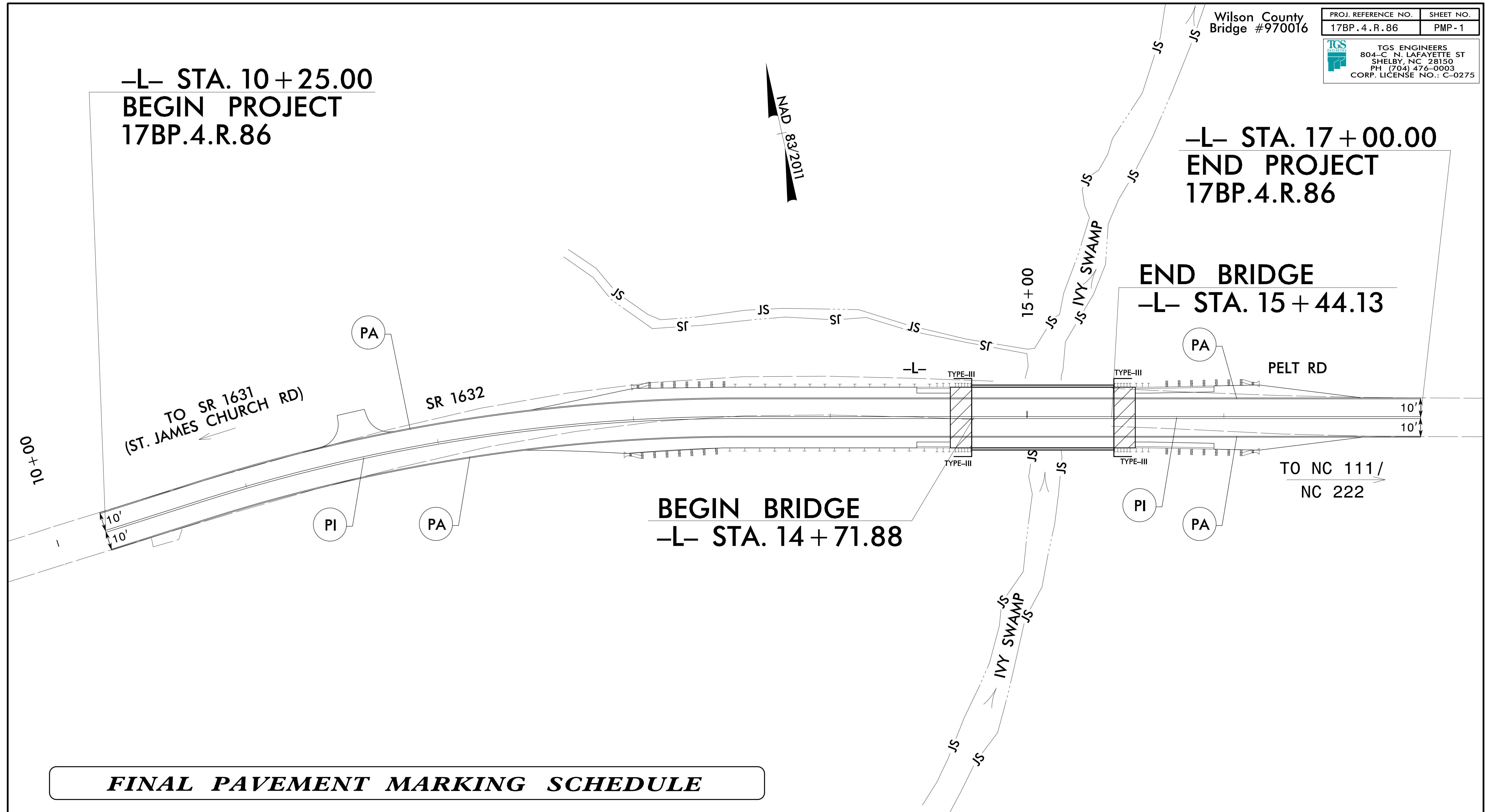
APPROVED: _____ DATE: _____			<p>OFFSITE DETOUR ROUTE AND BARRICADE PLACEMENT</p>
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>			

**-L- STA. 10 + 25.00  
BEGIN PROJECT  
17BP.4.R.86**

**-L- STA. 17 + 00.00  
END PROJECT  
17BP.4.R.86**

**END BRIDGE  
-L- STA. 15 + 44.13**

**BEGIN BRIDGE  
-L- STA. 14 + 71.88**



**FINAL PAVEMENT MARKING SCHEDULE**

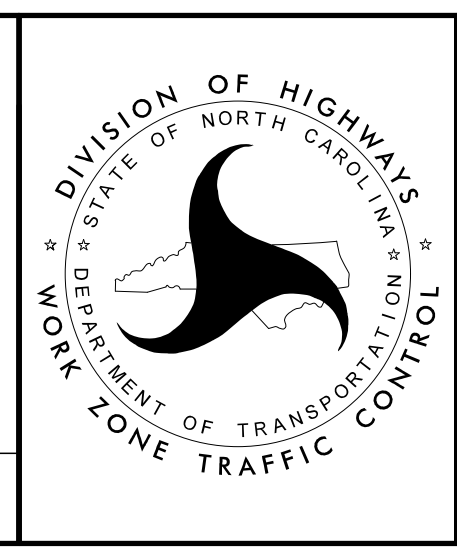
SYMBOL	DESCRIPTION	PAY ITEM	TOTAL QUANTITY
PA	WHITE EDGELINE (2X)	PAINT PAVEMENT MARKING LINES (4")	2700 LF
PI	YELLOW DOUBLE CENTER (2X)	PAINT PAVEMENT MARKING LINES (4")	2700 LF
<b>TOTAL</b>			<b>5400 LF</b>

NOTE: FOR EACH PAINT PAVEMENT MARKING ITEM, 1X IMPLIES A SINGLE APPLICATION AND 2X IMPLIES TWO APPLICATIONS.

NOTE: PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

APPROVED: \_\_\_\_\_  
DATE: \_\_\_\_\_

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



**FINAL PAVEMENT  
MARKING PLAN  
AND SCHEDULE**

4/30/2018 X:\NC001\Division 4 Wilson #16\TrafficControl\TCP\970016\_TC\_PMP\_01.dgn User:tbodyue

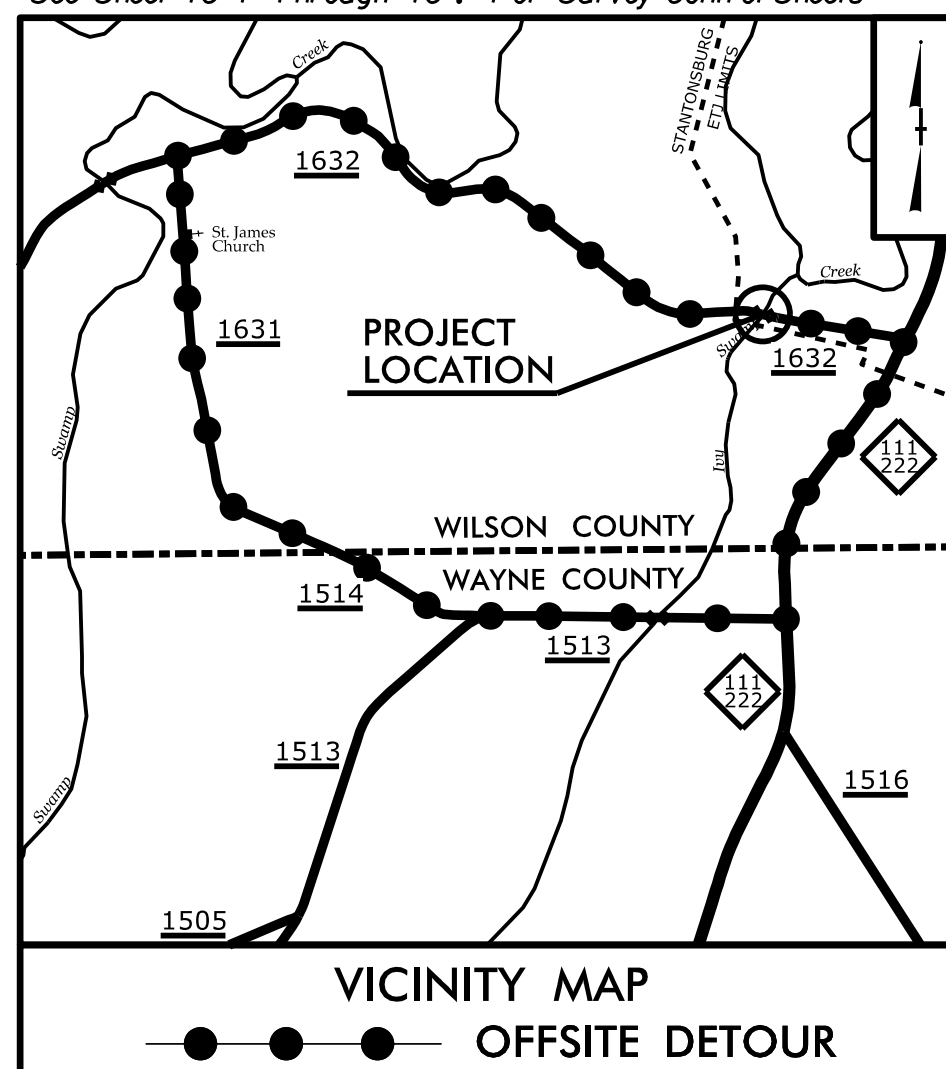
**TIP PROJECT: 17BP.4.R.86**

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

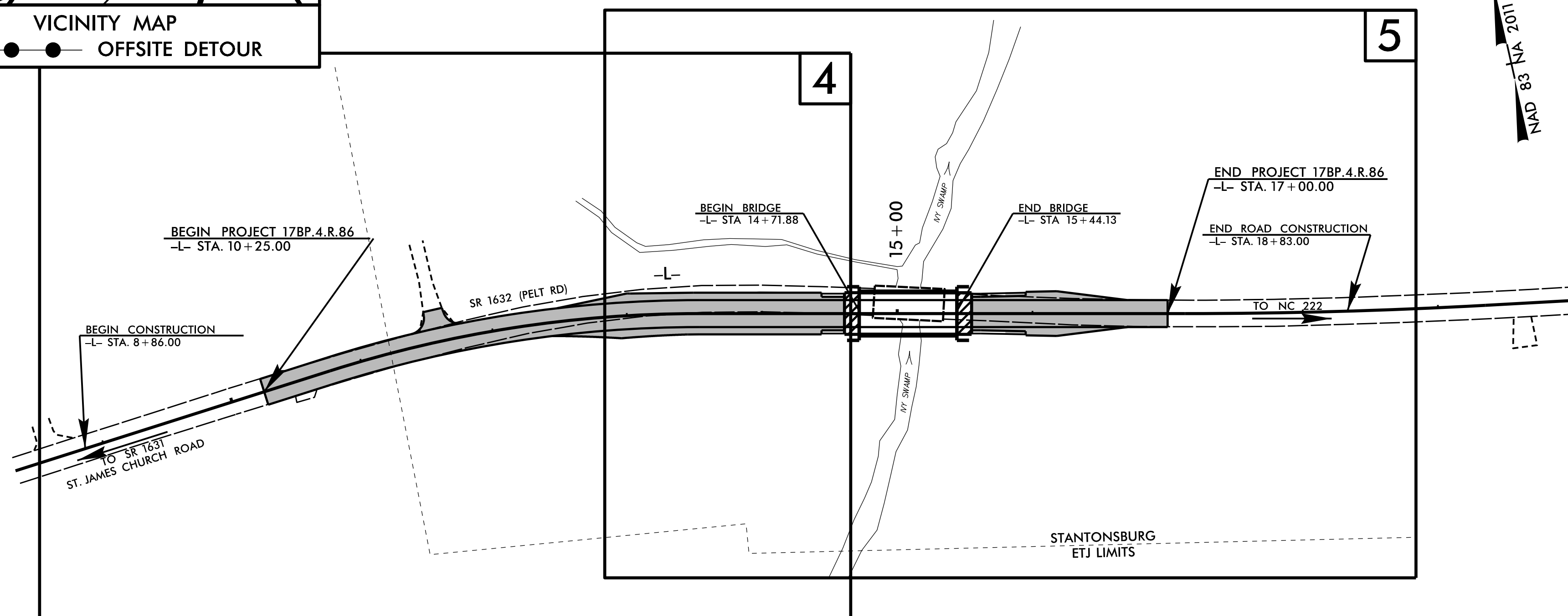
LOCATION: BRIDGE NO. 16 ON SR 1632 (PELT ROAD)  
 OVER IVY SWAMP

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

See Sheet 1A For Index of Sheets  
 See Sheet 1B For Conventional Plan Sheet Symbols  
 See Sheet 1C-1 Through 1C-7 For Survey Control Sheets



VICINITY MAP  
 ● OFFSITE DETOUR



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY MODIFIED METHOD II.  
 THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.86	EC-1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
17BP.4.R.86	N/A	PE	
17BP.4.R.86	N/A	R/W, UTIL	

**EROSION AND SEDIMENT CONTROL MEASURES**

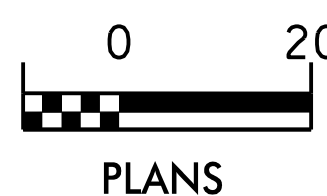
Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	---
1630.05	Temporary Diversion	--->---
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	---X---
1622.01	Temporary Berms and Slope Drains	--->---
1630.02	Silt Basin Type B	▭
1633.01	Temporary Rock Silt Check Type-A	▭
	Temporary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

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

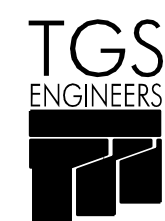
THIS PROJECT HAS  
 BEEN DESIGNED TO  
 SENSITIVE WATERSHED  
 STANDARDS.

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

**GRAPHIC SCALE**



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.



TGS ENGINEERS  
 706 HILLSBOROUGH ST  
 SUITE 200  
 RALEIGH, NC 27603

PH (919) 773-8887  
 CORP. LICENSE NO.:  
 C-0275

Designed by:

**BEN HENEGAR, PE**  
 NAME

**3564**  
 LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

**ROADSIDE ENVIRONMENTAL UNIT**

1425 Rock Quarry Rd, Suite 106  
 Raleigh, NC 27610

**2018 STANDARD SPECIFICATIONS**

Reviewed by:

**DONALD R. PEARSON, JR. EI, CPESC**

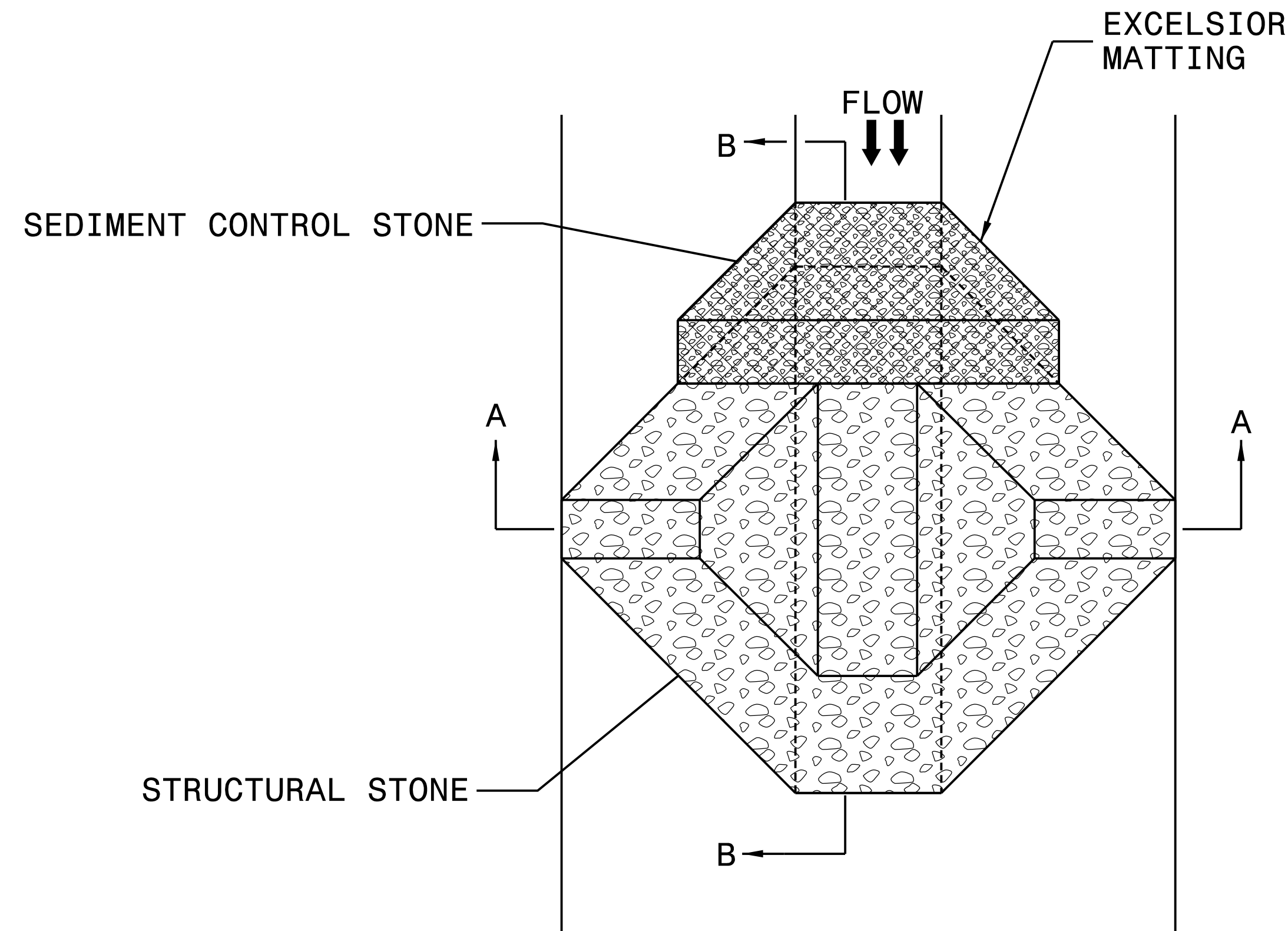
Roadway Standard Drawings

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

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type 3
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type 3
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type 3	1634.02 Temporary Rock Sediment Dam Type 3
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type 3
1630.05 Temporary Diversion	1640.01 Coir Fiber Wattle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

PROJECT REFERENCE NO. 17BP.4.R.86	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN

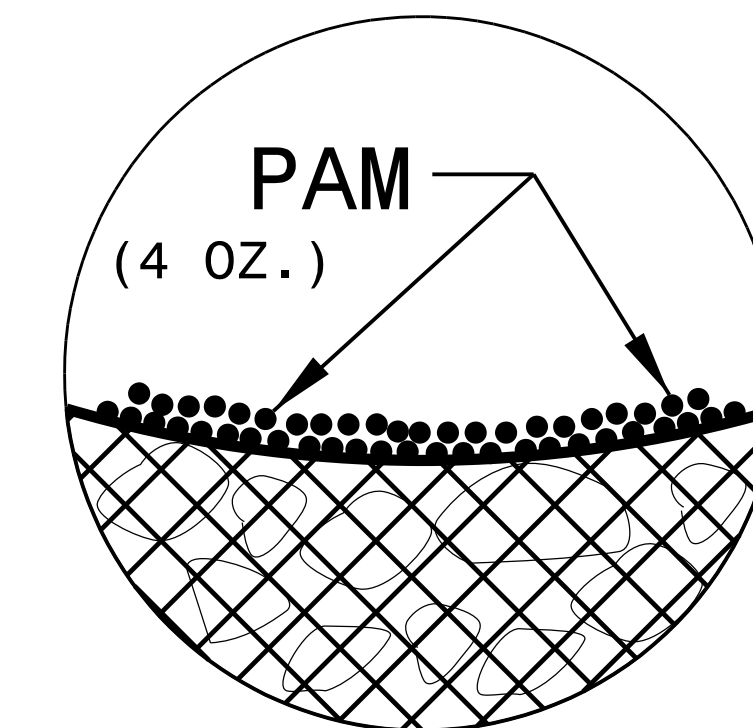
NOTES:

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

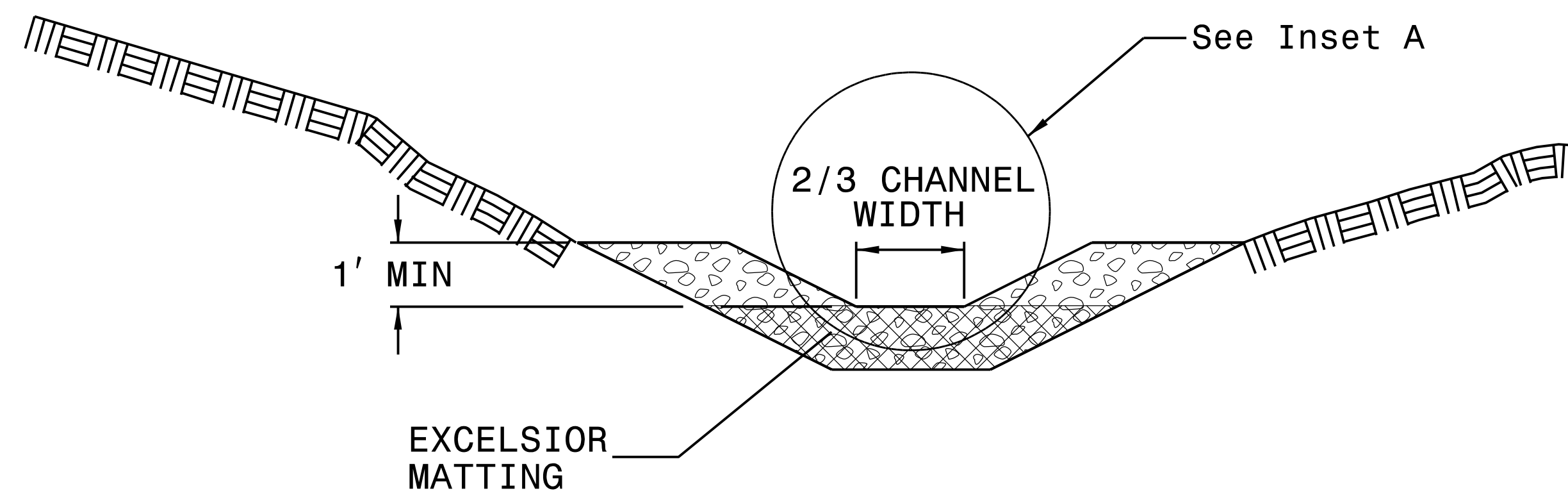
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

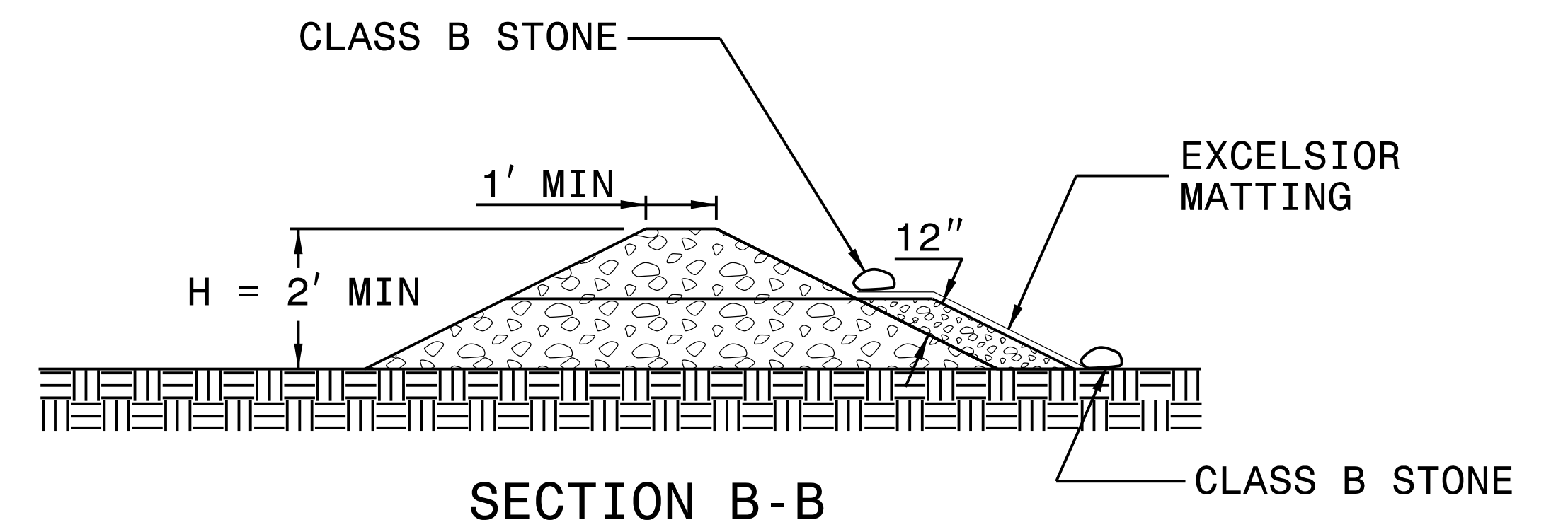
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A

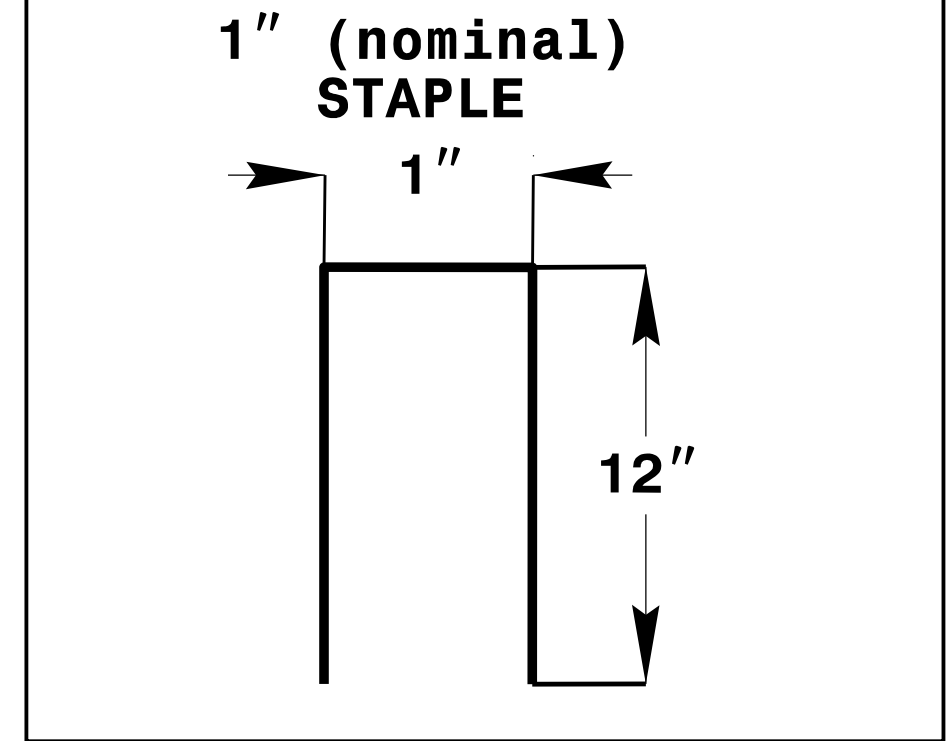
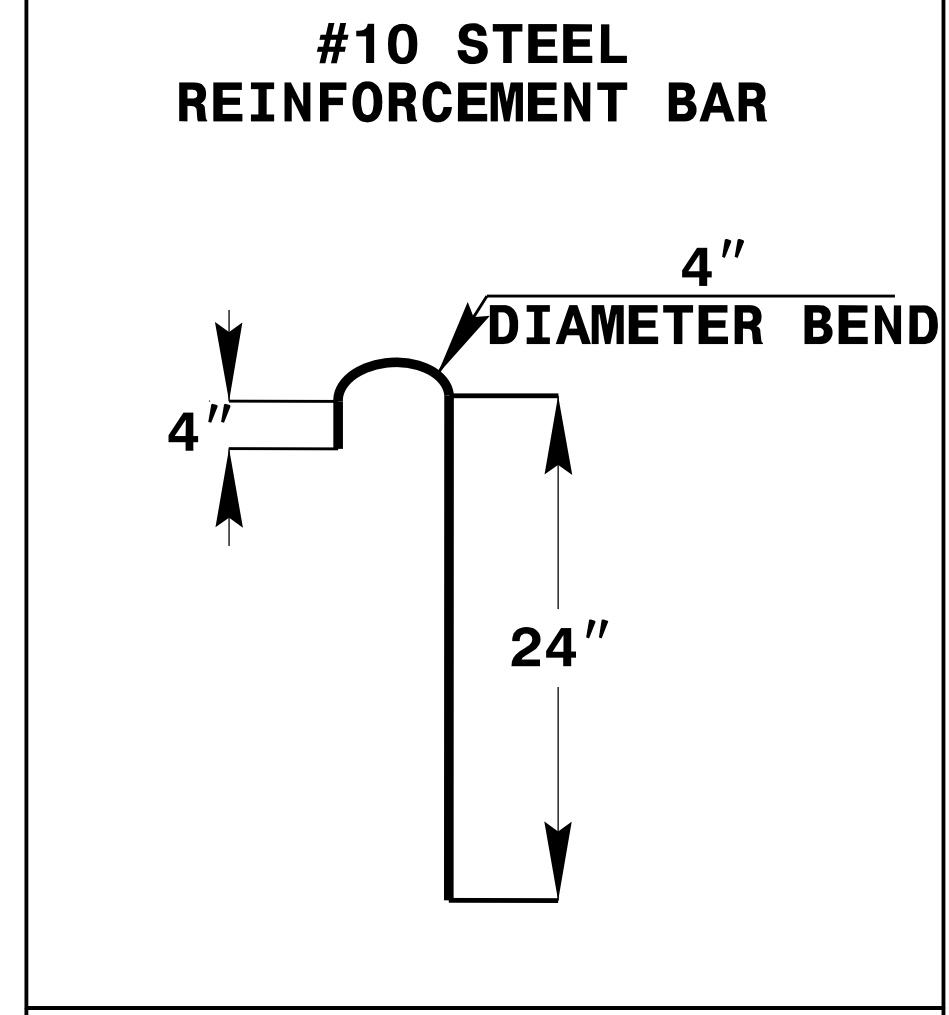
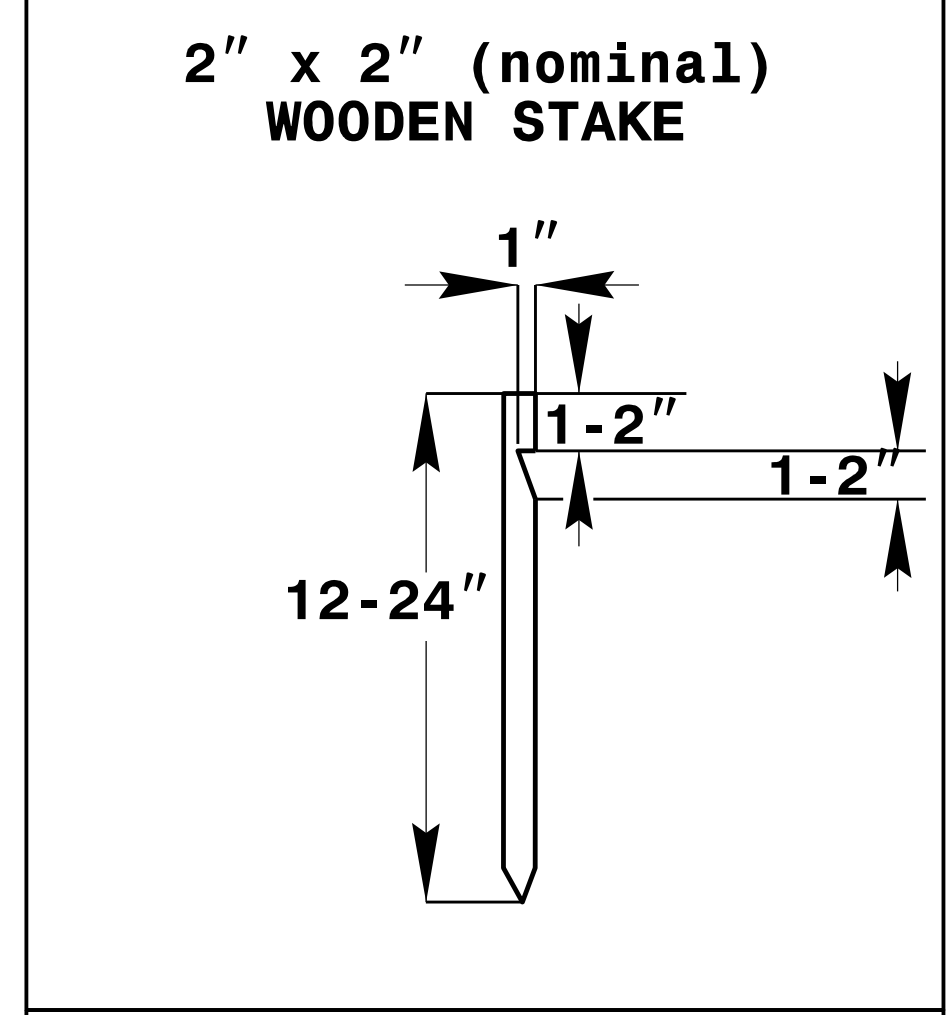
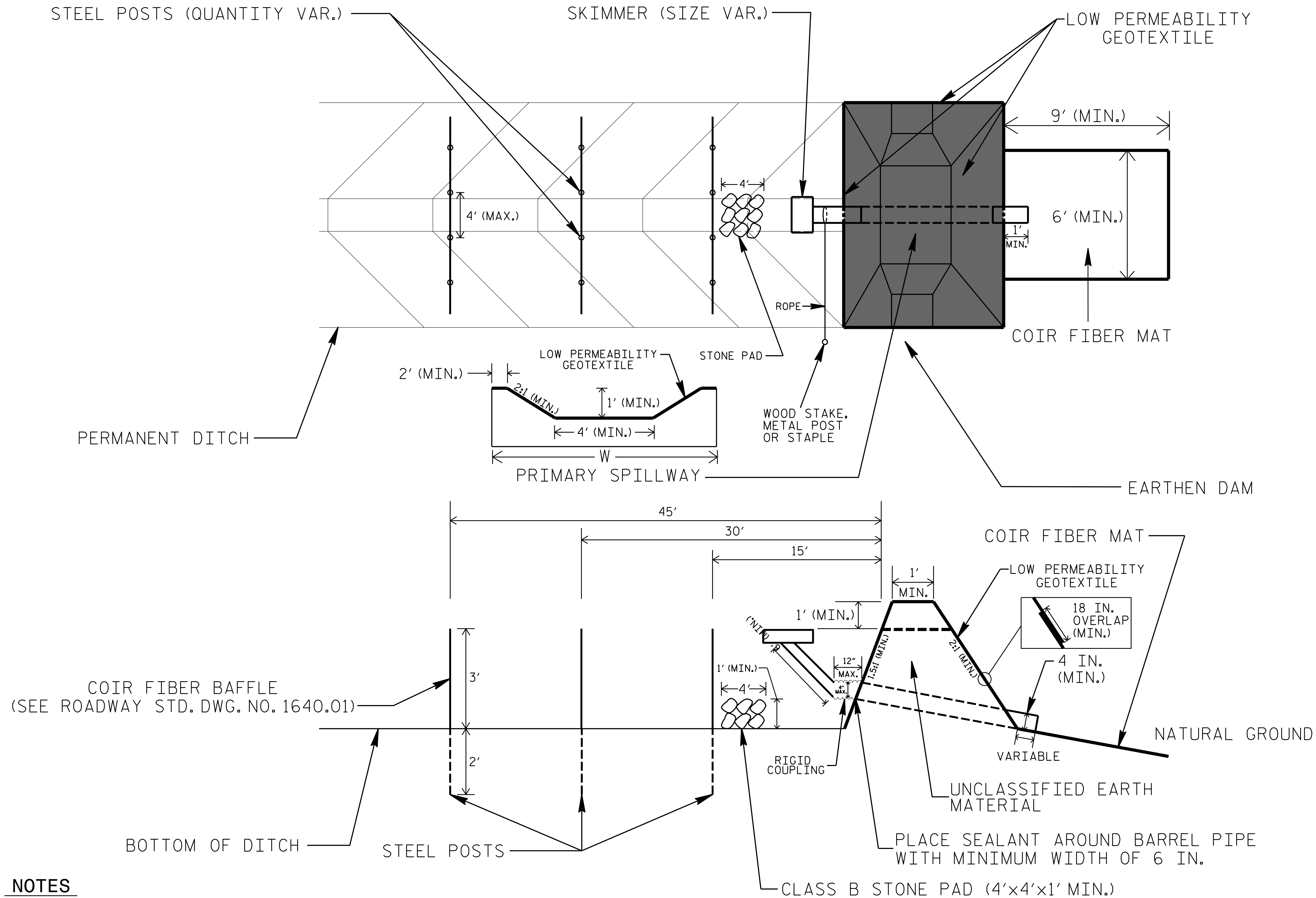


SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO. <i>17BP4R86</i>	SHEET NO. <i>EC-2A</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# EARTHEN DAM WITH SKIMMER DETAIL (EAST)



## COIR FIBER MAT ANCHOR OPTIONS

### NOTES

1. LIMIT EARTHEN DAM HEIGHT TO 5 FT.
2. DETERMINE PRIMARY SPILLWAY LENGTH (FT.) USING  $Q/0.8$ , WHERE Q IS FLOW RATE (CFS) INTO BASIN.
3. LOW PERMEABILITY GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

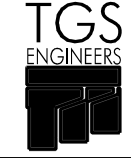
PROJECT REFERENCE NO. <i>17BP.4R.86</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

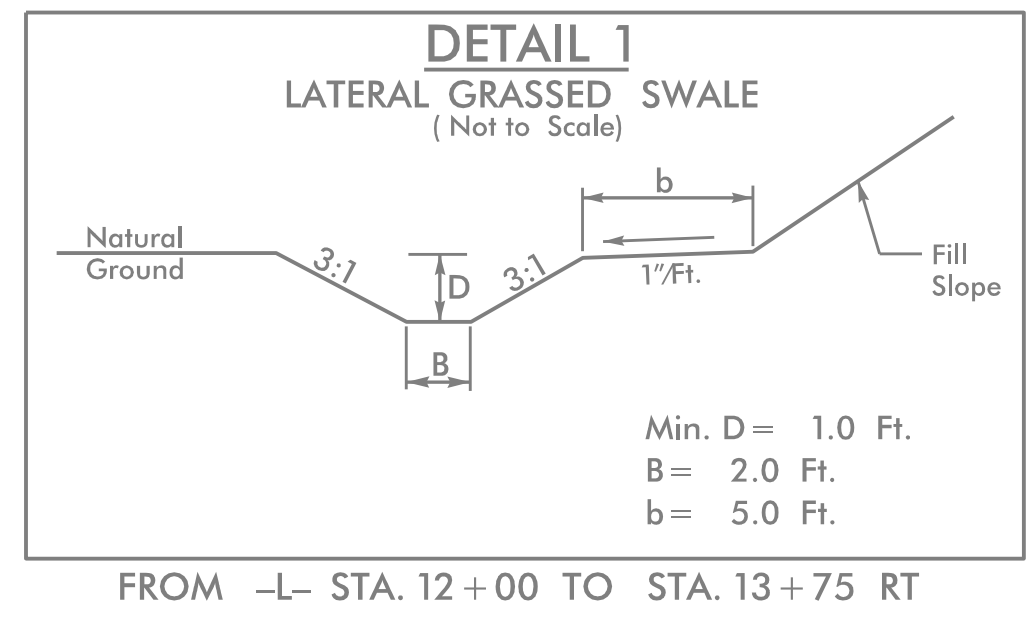
## SOIL STABILIZATION TIMEFRAMES

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

### MATTING FOR EROSION CONTROL

<i>CONST SHEET NO.</i>	<i>LINE</i>	<i>FROM STATION</i>	<i>TO STATION</i>	<i>SIDE</i>	<i>ESTIMATE (SY)</i>
4	L SLOPE	13+00	13+75	RT	180
5	L SLOPE	13+75	14+60	RT	230
5	L DITCH	13+50	15+00	RT	355
5	L DITCH	16+00	16+75	LT	125
5	L SLOPE	15+55	16+75	RT	210
SUBTOTAL					1100
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1530
TOTAL					2630
SAY					2630

PROJECT REFERENCE NO. <b>17BP.4.R.86</b>	SHEET NO. <b>EC-4</b>
RW SHEET NO. <b>4</b>	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



**-L- CURVE DATA**  
 PI Sta 12+15.90  
 $\Delta = 17^{\circ}38'35.9"$  (RT)  
 $D = 6'21"58.3"$   
 $L = 277.14'$   
 $R = 900.00'$   
 $V = 50$  MRH  
 $SE = 06^{\circ}$   
 $RO = 132'$

**BEGIN PROJECT 17BP.4.R.86**  
**-L- POT STA. 10+25.00**

**BEGIN CONSTRUCTION**  
**-L- POT STA. 8+86.00**

MATCHLINE -L- STA 13+75.00  
SEE SHEET 5

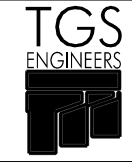
2' LATERAL GRASSED SWALE  
 SEE DETAIL 1  
 $S = 0.54\%$   
 $L = 170'$   
 EST. 330 CY DDE

NOTE:  
 PLACE TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 04

3/28/2018 4:15:00 PM C:\Users\wilson\OneDrive\Documents\16\Environmental\Design\B970016\_C&G\_04.dgn

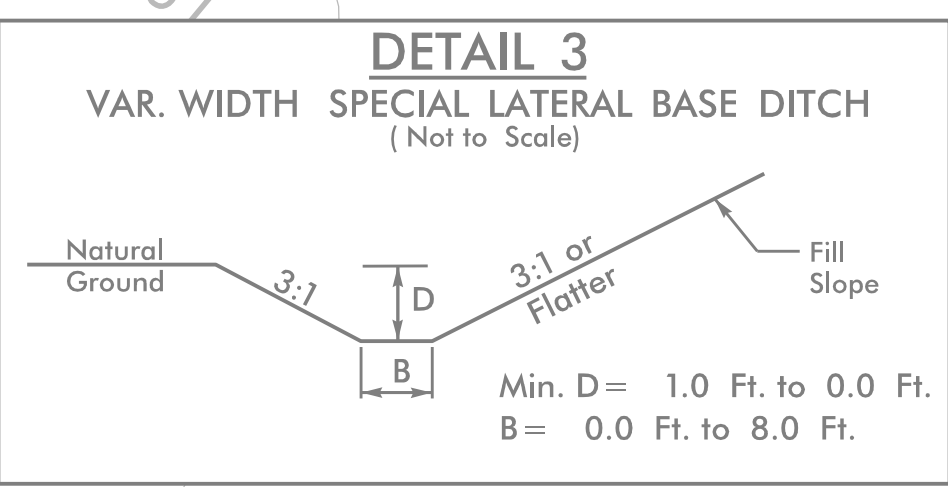


PROJECT REFERENCE NO. <b>17BP.4.R.86</b>	SHEET NO. <b>EC-5</b>
RW SHEET NO. <b>5</b>	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

 ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

NOTE:  
PLACE TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 05



**-L- CURVE DATA**  
 PI Sta 18+24.08  
 $\Delta = 3^{\circ}09'10.2"$  (LT)  
 $D = 125'08.1"$   
 $L = 222.20'$   
 $T = 111.13'$   
 $R = 4038.00'$

RONALD B. LANCASTER ET ALL  
DB 1746 PG 41

**1** END PROJECT 17BP.4.R.86  
-L- POT STA. 17+00.00

END CONSTRUCTION  
-L- POT STA. 18+33.00

SEE SHEET 4  
MATCHLINE -L- STA 13+75.00

STEPHEN BEAMAN AND WIFE DONNA BEAMAN  
DEED BOOK NOT FOUND

ROCK PLATING  
CLASS 'II' RIP-RAP  
EST. 40 SY  
SEE NOTE 1 THIS SHEET

CLASS 'II' RIP-RAP  
STRUCTURE  
PAY ITEM

CLASS 'B' RIP-RAP  
EST. 3 TONS  
GEOTEXTILE  
EST. 10 SY

2' SPEC. LATERAL  
BASE DITCH  
SEE DETAIL 2

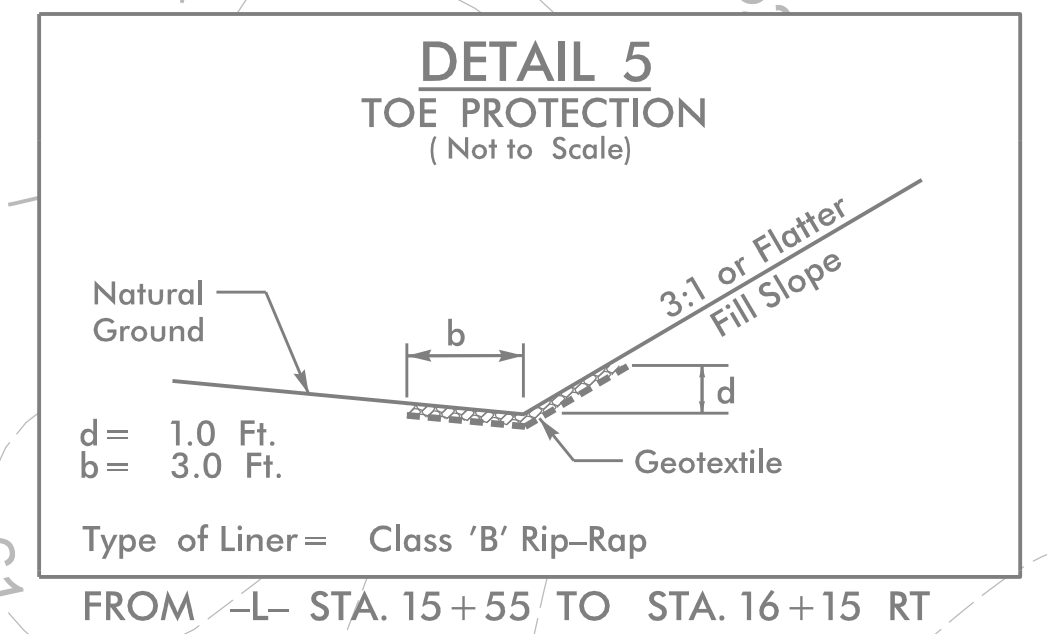
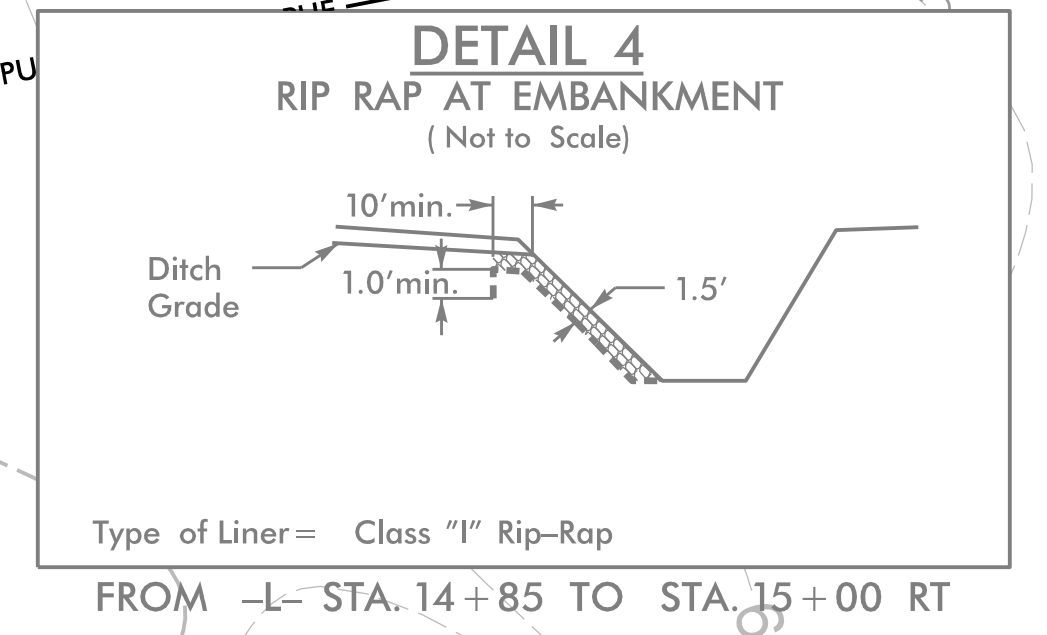
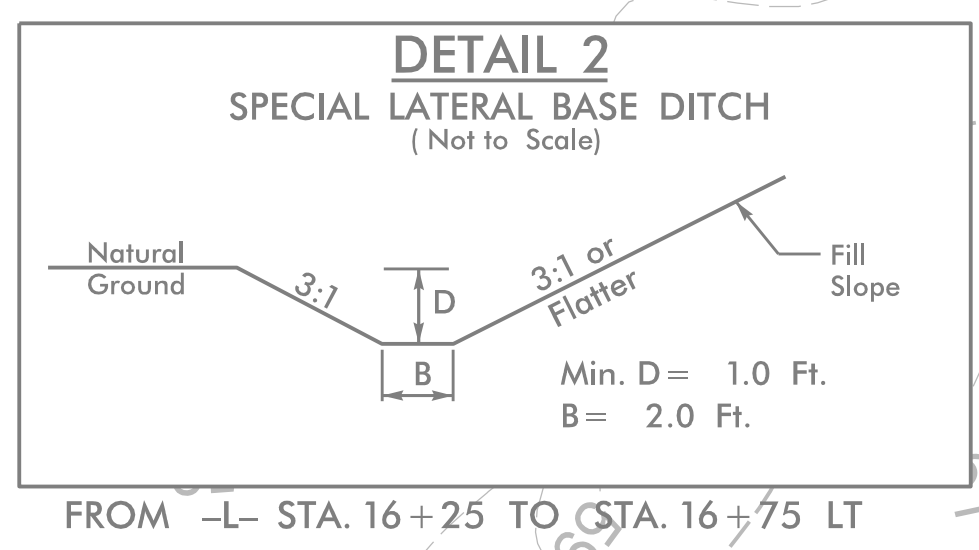
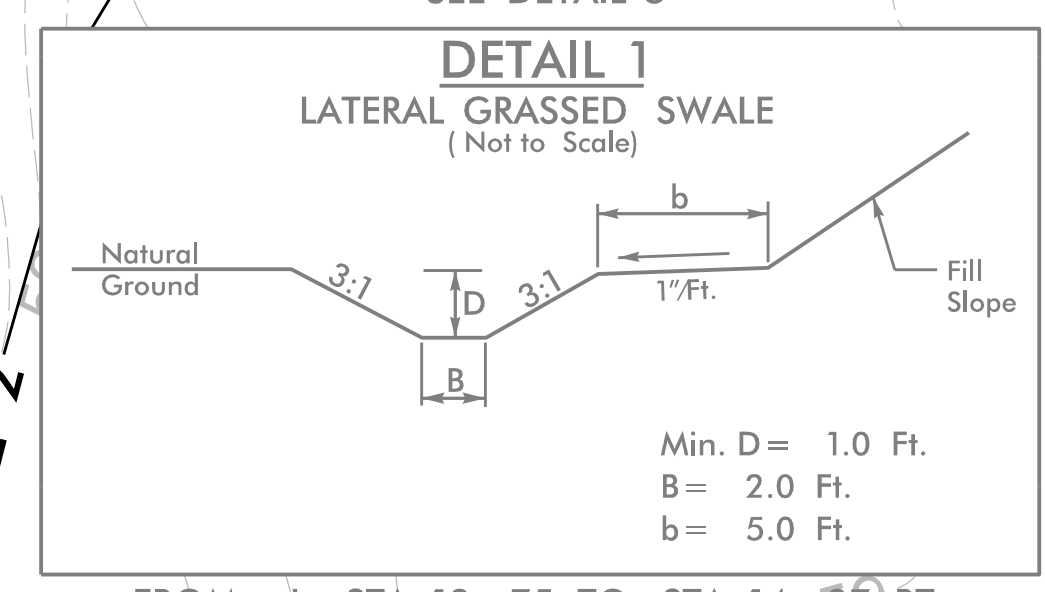
RONALD B. LANCASTER ET ALL  
DB 1746 PG 41

RIP-RAP AT EMBANKMENT  
CLASS 'I' RIP-RAP  
EST. 20 TONS  
SEE DETAIL 4

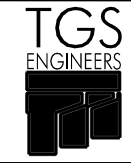
TOE PROTECTION  
CLASS 'B' RIP-RAP  
EST. 23 TONS  
GEOTEXTILE  
EST. 60 SY  
SEE DETAIL 5

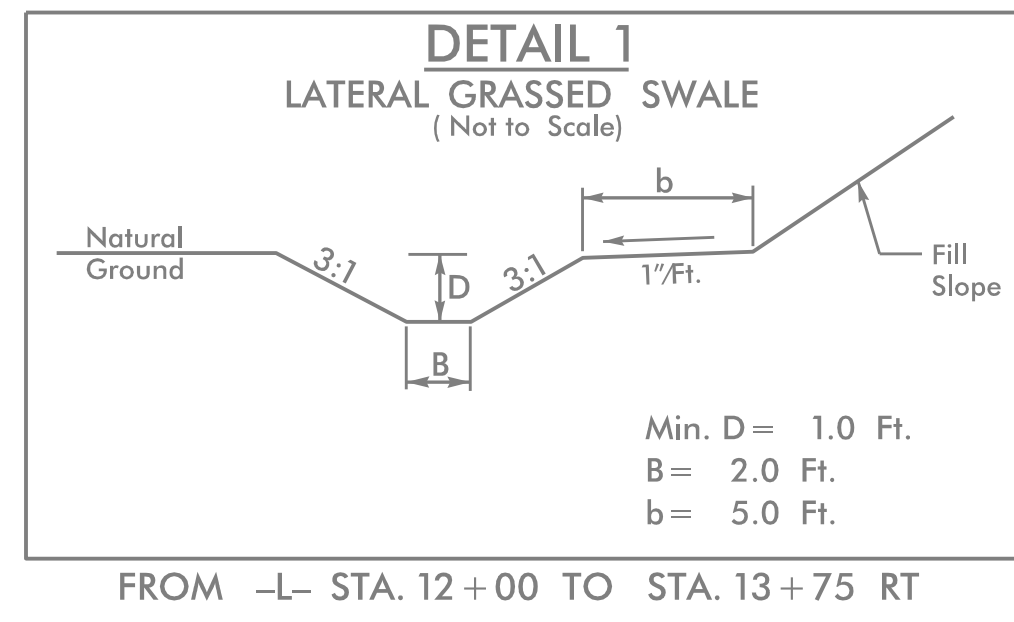
1.5 inch Skimmer  
with 0.500 inch  
Orifice Diameter  
4 ft. weir width  
2.5 ft. weir height  
ID 5.1  
(See Earthen Dam  
with Skimmer Detail)

2' LATERAL  
GRASSED SWALE  
SEE DETAIL 1  
S = 3.9%  
L = 125'  
EST. 200 CY DDE



3/28/2018 Division 4 Wilson #16\Environmental\Design\B970016\_C&G\_05.dgn

PROJECT REFERENCE NO. <b>17BP.4.R.86</b>	SHEET NO. <b>EC-6</b>
R/W SHEET NO. <b>4</b>	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



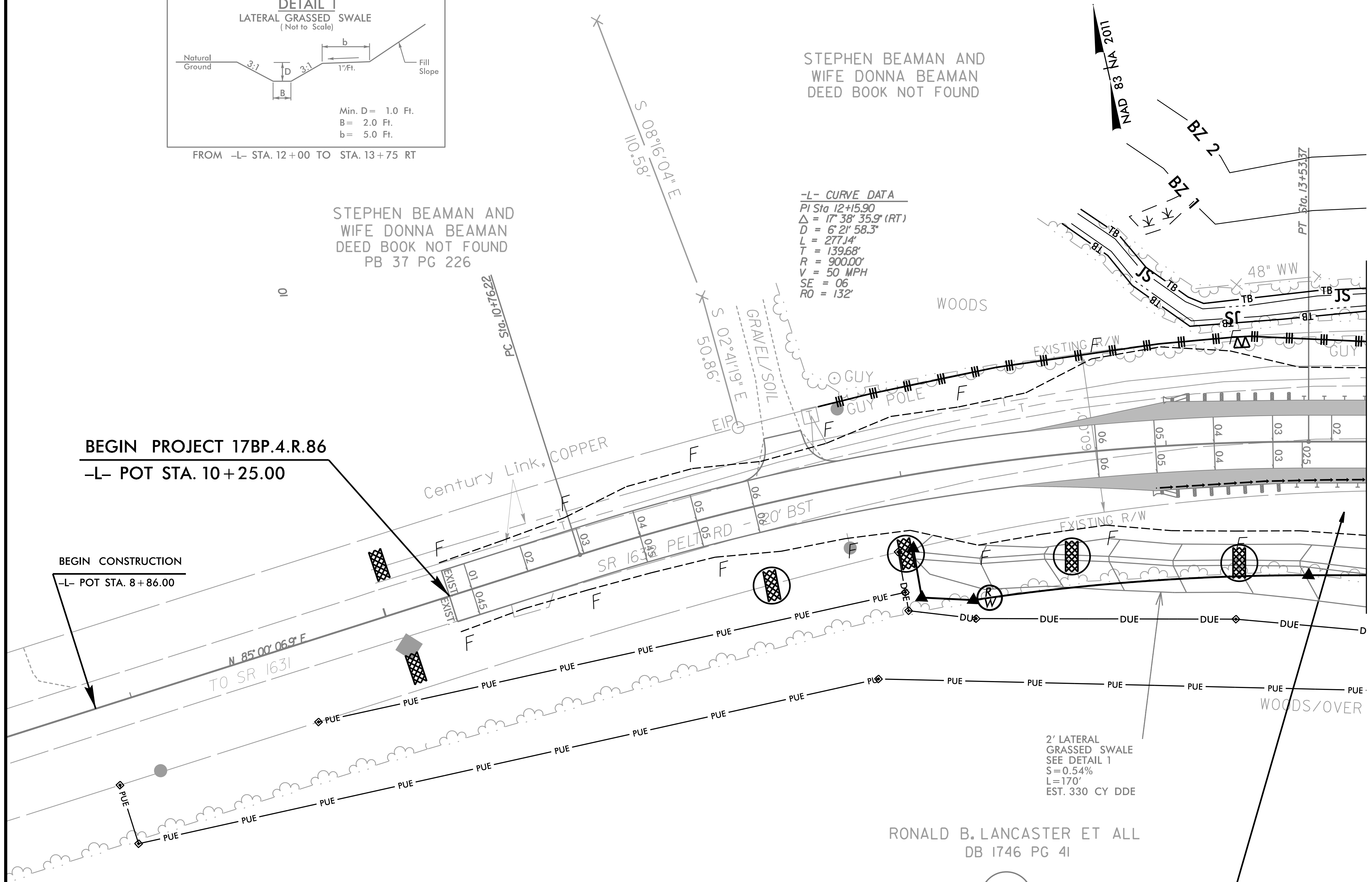
STEPHEN BEAMAN AND WIFE DONNA BEAMAN  
DEED BOOK NOT FOUND

STEPHEN BEAMAN AND WIFE DONNA BEAMAN  
DEED BOOK NOT FOUND  
PB 37 PG 226

**-L- CURVE DATA**  
 PI Sta 12+15.90  
 $\Delta = 17^{\circ}38'35.9"$  (RT)  
 D = 6'21"58.3"  
 L = 277.14'  
 T = 139.68'  
 R = 900.00'  
 V = 50 MPH  
 SE = 06  
 RO = 132'

**BEGIN PROJECT 17BP.4.R.86**  
-L- POT STA. 10+25.00

**BEGIN CONSTRUCTION**  
-L- POT STA. 8+86.00



2' LATERAL GRASSED SWALE  
SEE DETAIL 1  
S = 0.54%  
L = 170'  
EST. 330 CY DDE

RONALD B. LANCASTER ET ALL  
DB 1746 PG 4I

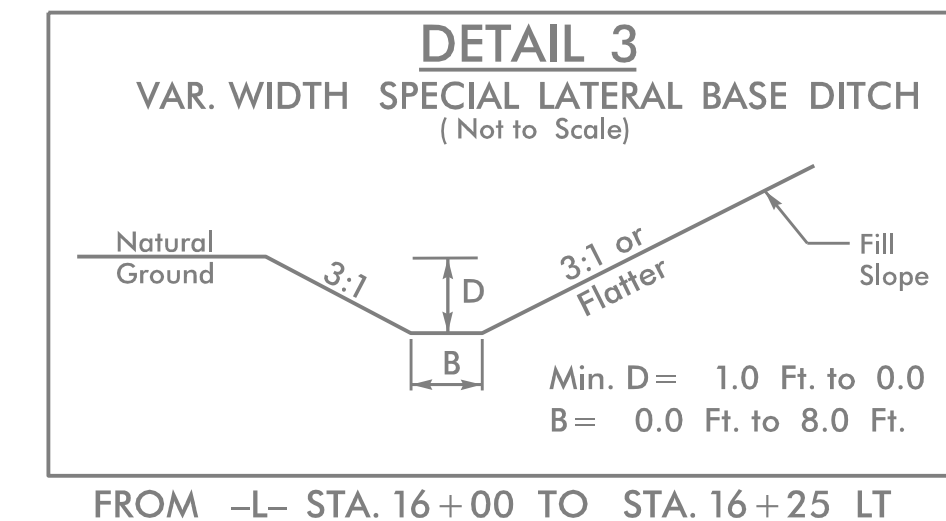
1

Place Matting for Erosion Control  
on Slope as Work Allows from  
-L- Sta. 13+00 to Sta. 13+75 RT

MATCHLINE -L- STA 13+75.00  
SEE SHEET 5

3/20/2018 16:00:00 Division 4 Wilson #16\Environmental\Design\B970016\_EC\_04.dgn  
 8.17/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.86	EC-7
RW SHEET NO.	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
TGS ENGINEERS	TGS ENGINEERS
	706 HILLSBOROUGH ST., SUITE 200
	RALEIGH, NC 27603
	PH (919) 773-8887
	CORP. LICENSE NO.: C-0275



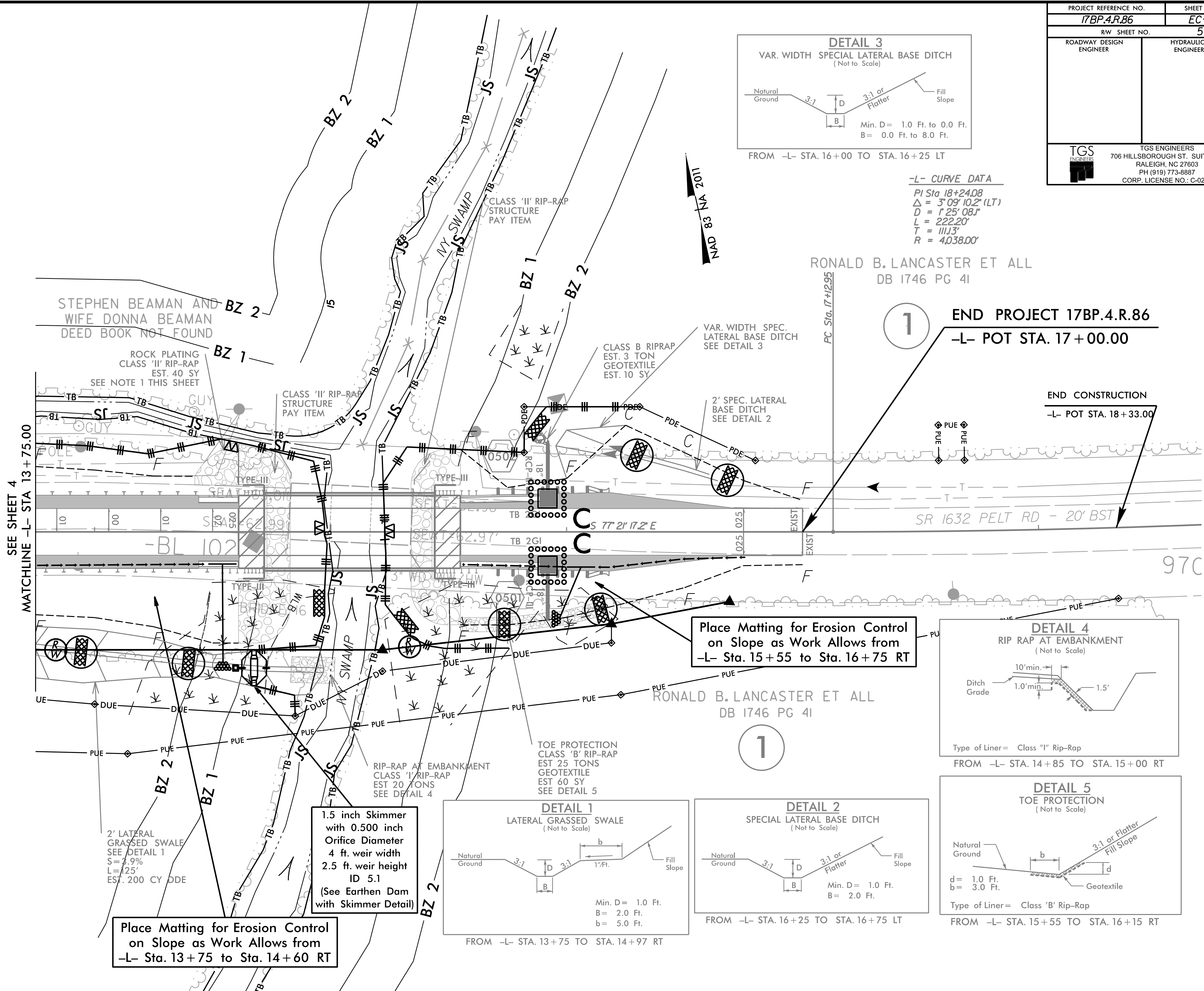
FROM -L- STA. 16+00 TO STA. 16+25 LT

**-L- CURVE DATA**  
 PI Sta 18+24.08  
 $\Delta = 3^{\circ} 09' 10.2"$  (LT)  
 $D = 125' 08.1"$   
 $L = 222.20'$   
 $T = 111.13'$   
 $R = 4038.00'$

RONALD B. LANCASTER ET ALL  
 DB 1746 PG 41

**1** END PROJECT 17BP.4.R.86  
 -L- POT STA. 17+00.00

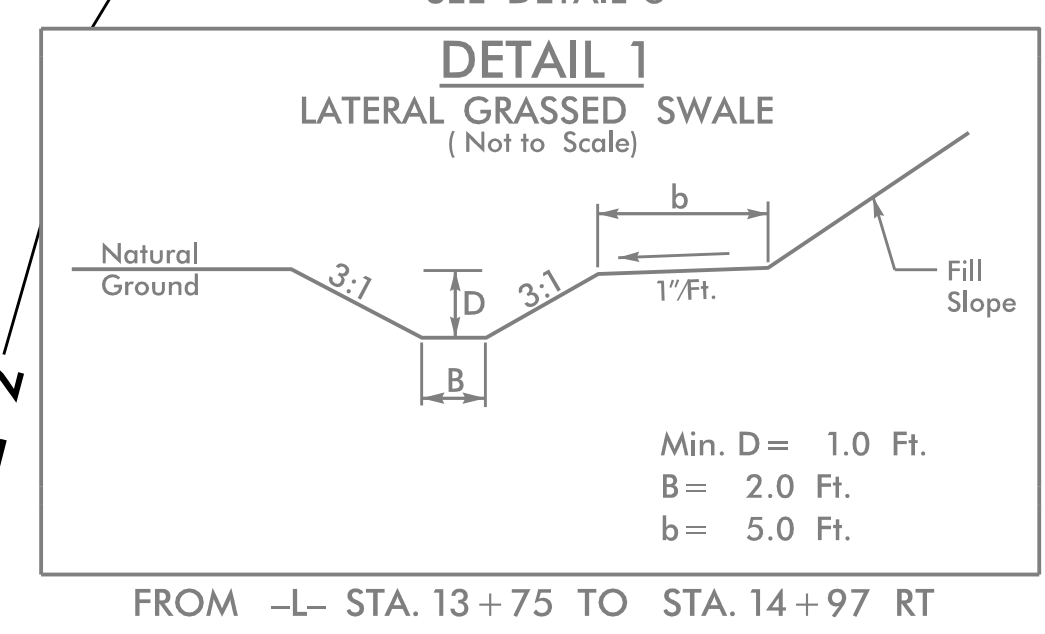
END CONSTRUCTION  
 -L- POT STA. 18+33.00



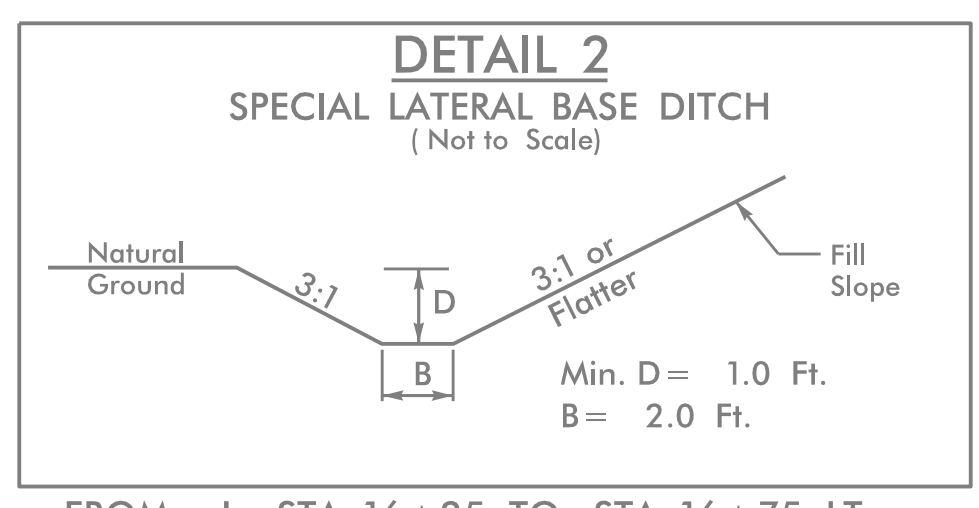
Place Matting for Erosion Control on Slope as Work Allows from -L- Sta. 15+55 to Sta. 16+75 RT

Place Matting for Erosion Control on Slope as Work Allows from -L- Sta. 13+75 to Sta. 14+60 RT

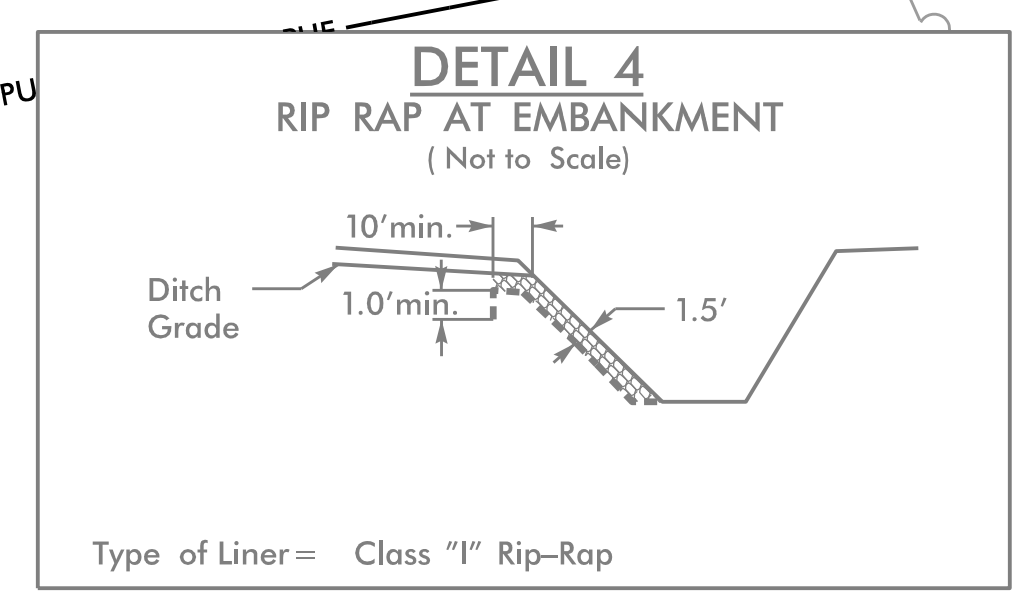
1.5 inch Skimmer with 0.500 inch Orifice Diameter  
 4 ft. weir width  
 2.5 ft. weir height  
 ID 5.1  
 (See Earthen Dam with Skimmer Detail)



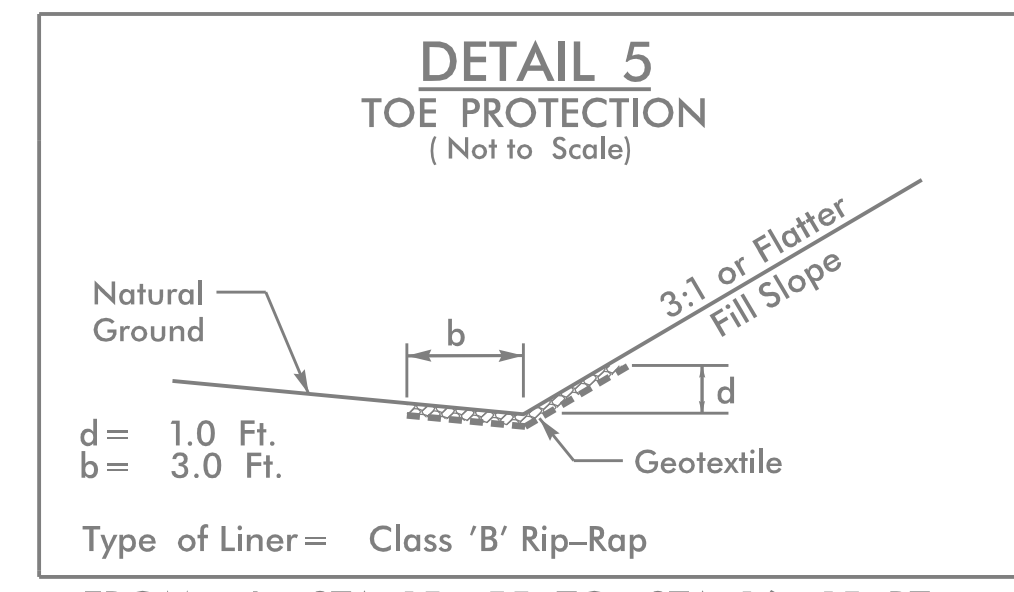
FROM -L- STA. 13+75 TO STA. 14+97 RT



FROM -L- STA. 16+25 TO STA. 16+75 LT



Type of Liner = Class "I" Rip-Rap  
 FROM -L- STA. 14+85 TO STA. 15+00 RT



Type of Liner = Class 'B' Rip-Rap  
 FROM -L- STA. 15+55 TO STA. 16+15 RT

SEE SHEET 4  
 MATCHLINE -L- STA 13+75.00

STEPHEN BEAMAN AND WIFE DONNA BEAMAN DEED BOOK NOT FOUND

ROCK PLATING CLASS 'II' RIP-RAP EST. 40 SY SEE NOTE 1 THIS SHEET

CLASS 'II' RIP-RAP STRUCTURE PAY ITEM

CLASS B RIPRAP EST. 3 TON GEOTEXTILE EST. 10 SY

2' SPEC. LATERAL BASE DITCH SEE DETAIL 2

TOE PROTECTION CLASS 'B' RIP-RAP EST 25 TONS GEOTEXTILE EST 60 SY SEE DETAIL 5

RIP-RAP AT EMBANKMENT CLASS 'I' RIP-RAP EST 20 TONS SEE DETAIL 4

2' LATERAL GRASSED SWALE SEE DETAIL 1 S = 3.9% L = 125' EST. 200 CY DDE

97C

RONALD B. LANCASTER ET ALL  
 DB 1746 PG 41

1

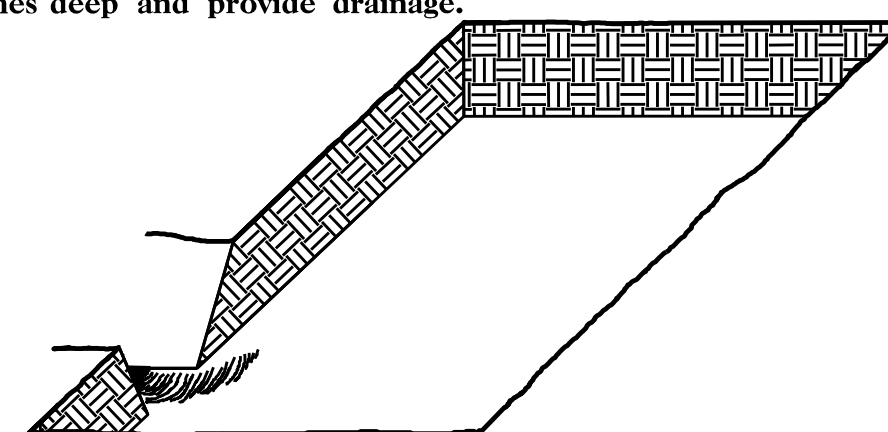
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.86	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

# PLANTING DETAILS

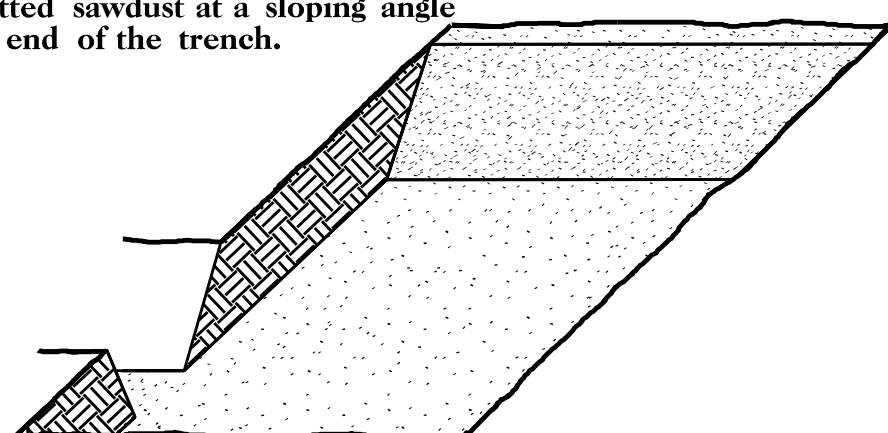
## SEEDLING / LINER BAREROOT PLANTING DETAIL

### HEALING IN

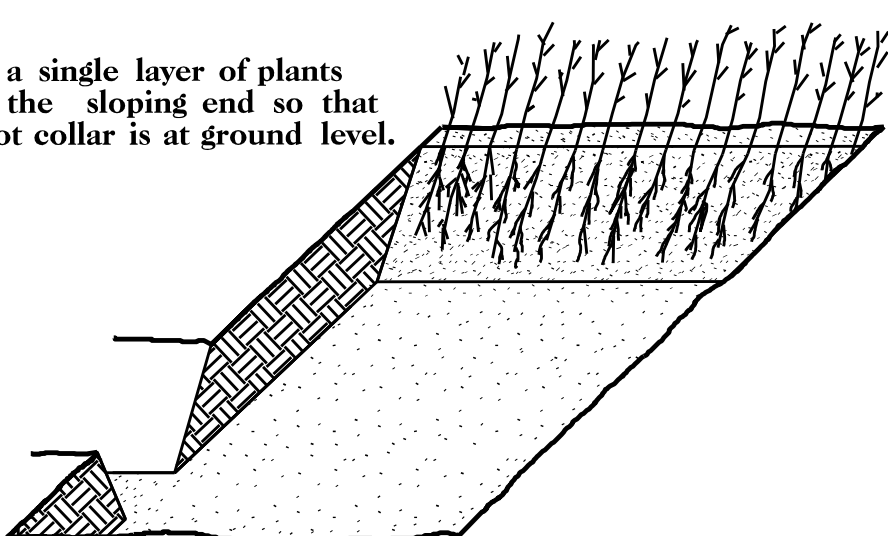
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



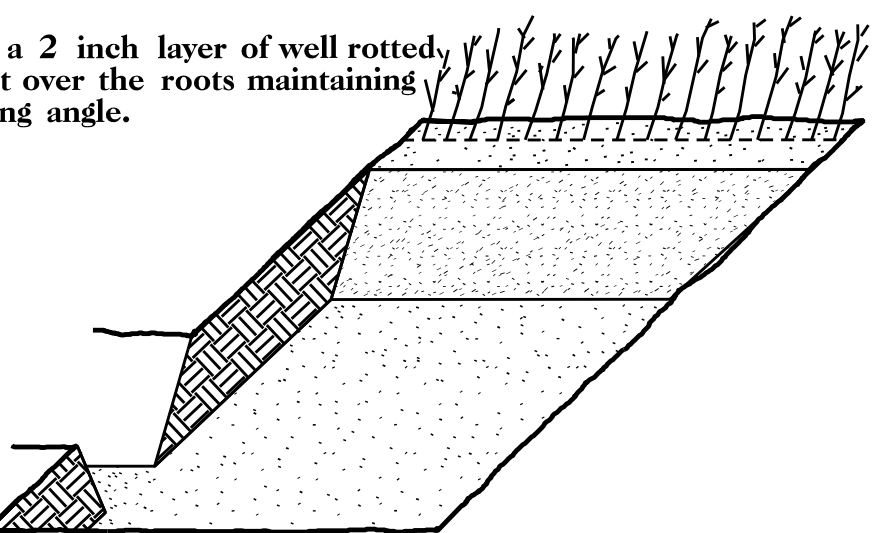
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

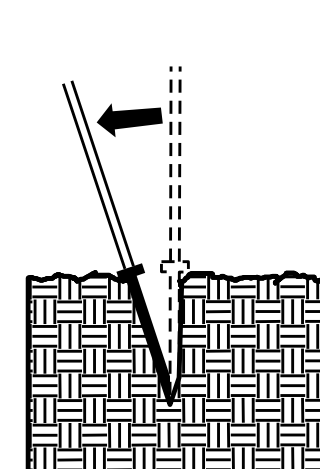


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

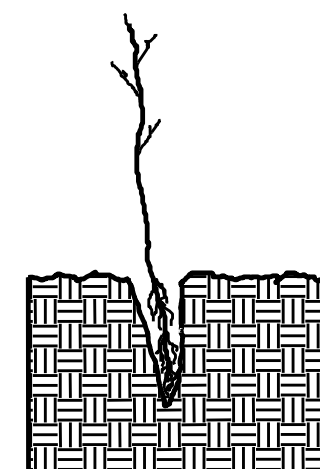


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

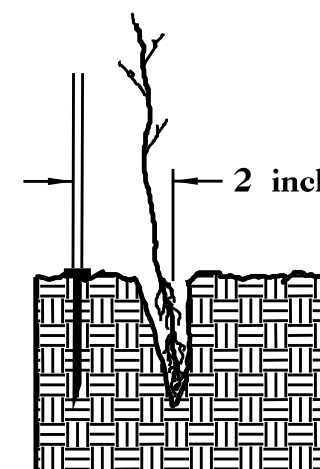
### DOUBLE PLANTING METHOD USING THE K3C PLANTING BAR



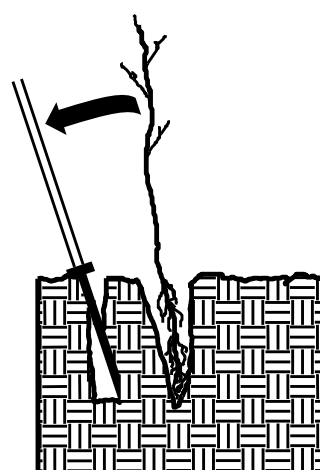
1. Insert planting bar as shown and pull handle toward planter.



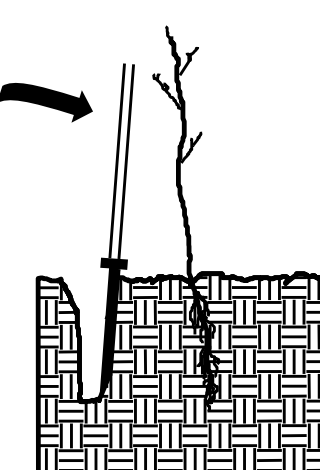
2. Remove planting bar and place seedling at correct depth.



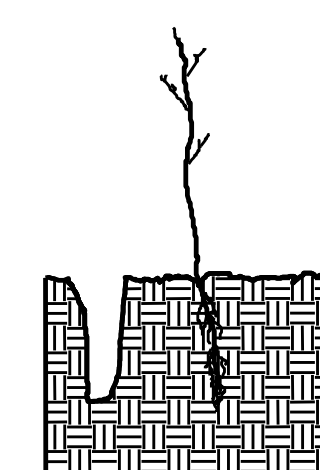
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



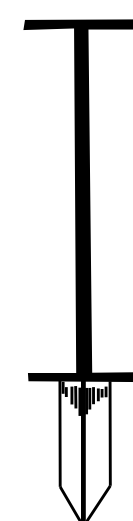
6. Leave compaction hole open. Water thoroughly.

### PLANTING NOTES:

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



**K3C PLANTING BAR**  
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



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

## REFORESTATION

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

### REFORESTATION

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

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in 3R
25% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in 3R
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in 3R
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in 3R

## REFORESTATION DETAIL SHEET

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

09/28/99

5/1/2018 X:\NCDOT\Division 4 Wilson #16\Utilities\Coordination\Utility\_Relocations\Plans\B970016\_UBO\_1.dgn User:bevans

**TIP PROJECT: 17BP.4.R.86**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

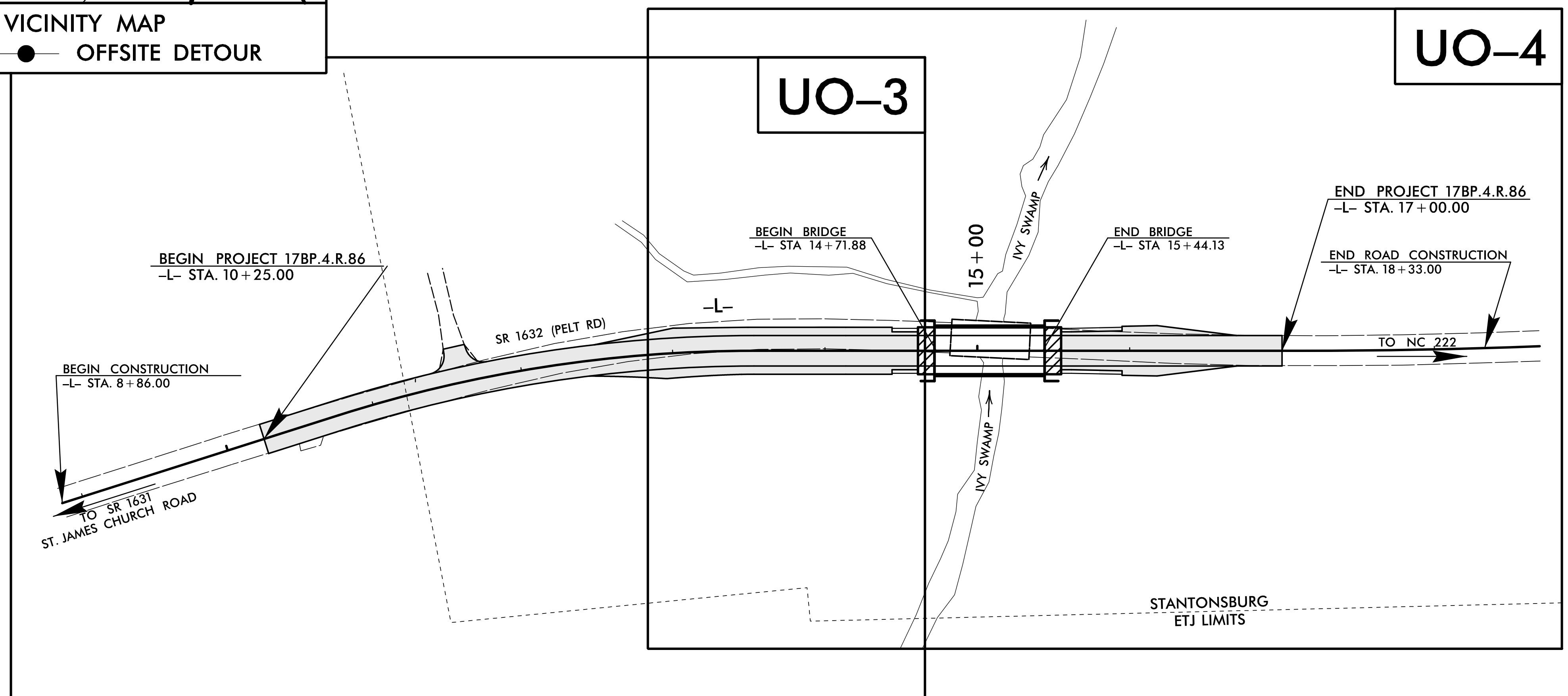
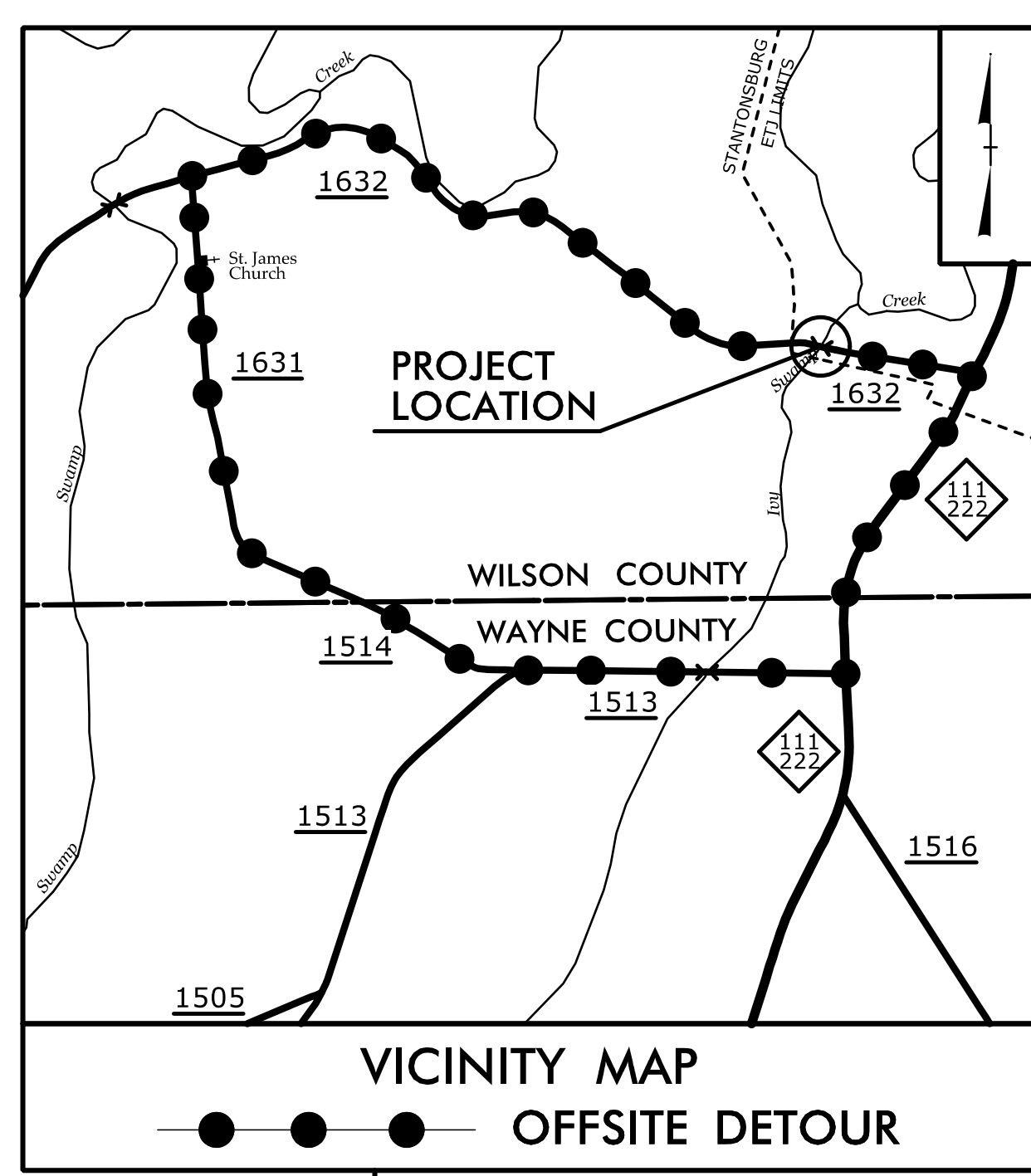
**UTILITIES BY OTHERS PLANS  
WILSON COUNTY**

**LOCATION: BRIDGE NO. 16 ON SR 1632 (PELT ROAD)  
OVER IVY SWAMP**

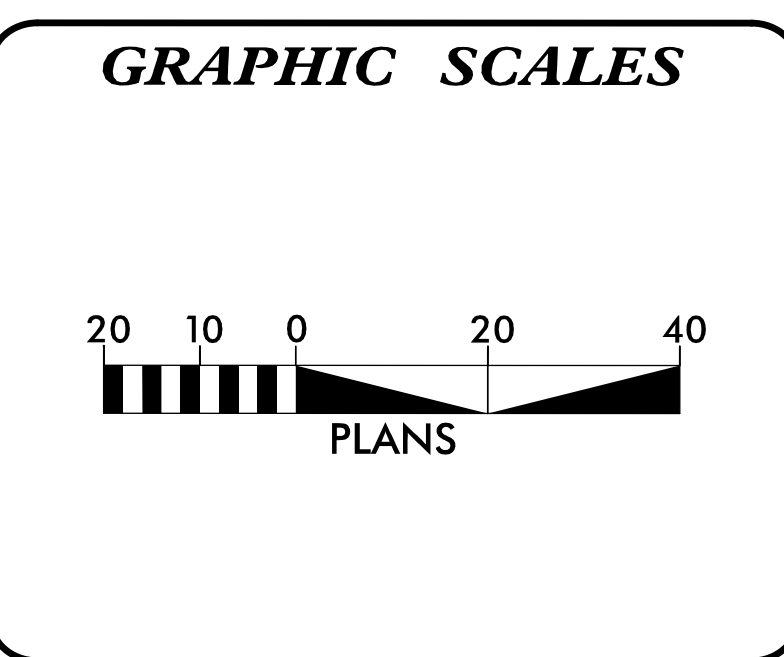
**TYPE OF WORK: POWER & COMMUNICATION**

T.I.P. NO.	SHEET NO.
17BP.4.R.86	UO-1

**NOTE:**  
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



**INDEX OF SHEETS**

SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-2	UBO SYMBOLOGY SHEET
UO-3	UBO PLAN SHEET

**UTILITY OWNERS WITH CONFLICTS**

(A) POWER - STANTONSBURG POWER  
(B) COMMUNICATION - CENTURYLINK

PREPARED IN THE OFFICE OF:

**TGS ENGINEERS**  
706 HILLSBOROUGH ST. SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275

UTILITY PROJECT MANAGER  
PROJECT UTILITY COORDINATOR  
PROJECT UTILITY XXXX

**DIVISION OF HIGHWAYS  
UTILITIES UNIT**  
1555 MAIL SERVICES CENTER  
RALEIGH, NC 27699-1555  
PHONE (919) 707-6690  
FAX (919) 250-4151

UTILITIES REGIONAL ENGINEER  
**DAVID BEAMAN** DIV. UTILITIES COORDINATOR  
UTILITIES AREA COORDINATOR  
UTILITIES COORDINATOR

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## UTILITIES PLAN SHEET SYMBOLS

### PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

### PROPOSED SEWER SYMBOLS

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

### PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

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

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

### EXISTING UTILITIES SYMBOLS

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

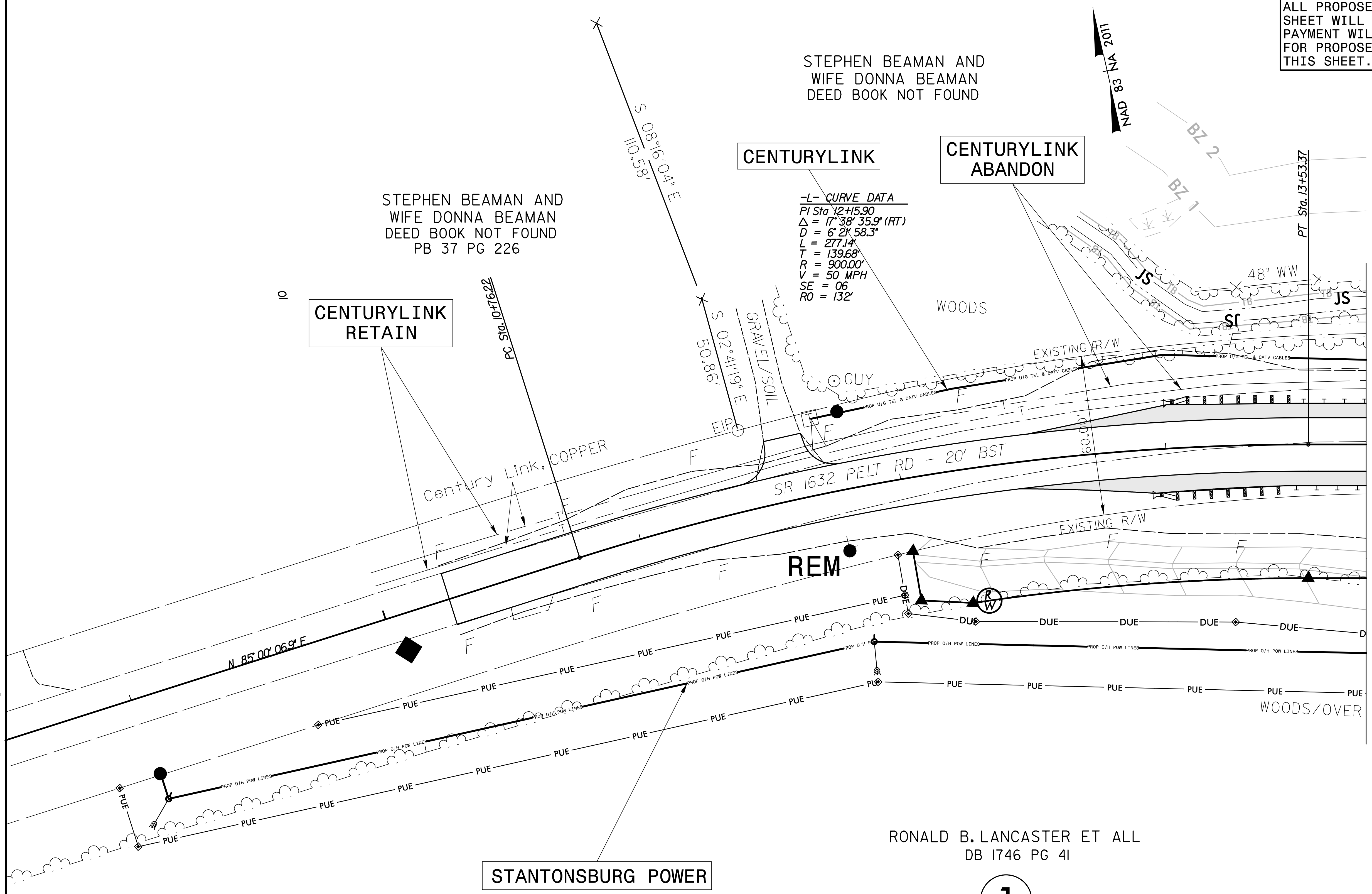
\*For Existing Utilities  
Utility Line Drawn from Record \_\_\_\_\_  
(Type as Shown)  
Designated Utility Line \_\_\_\_\_  
(Type as Shown)

5/14/99  
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REV: 2/1/2012

**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.

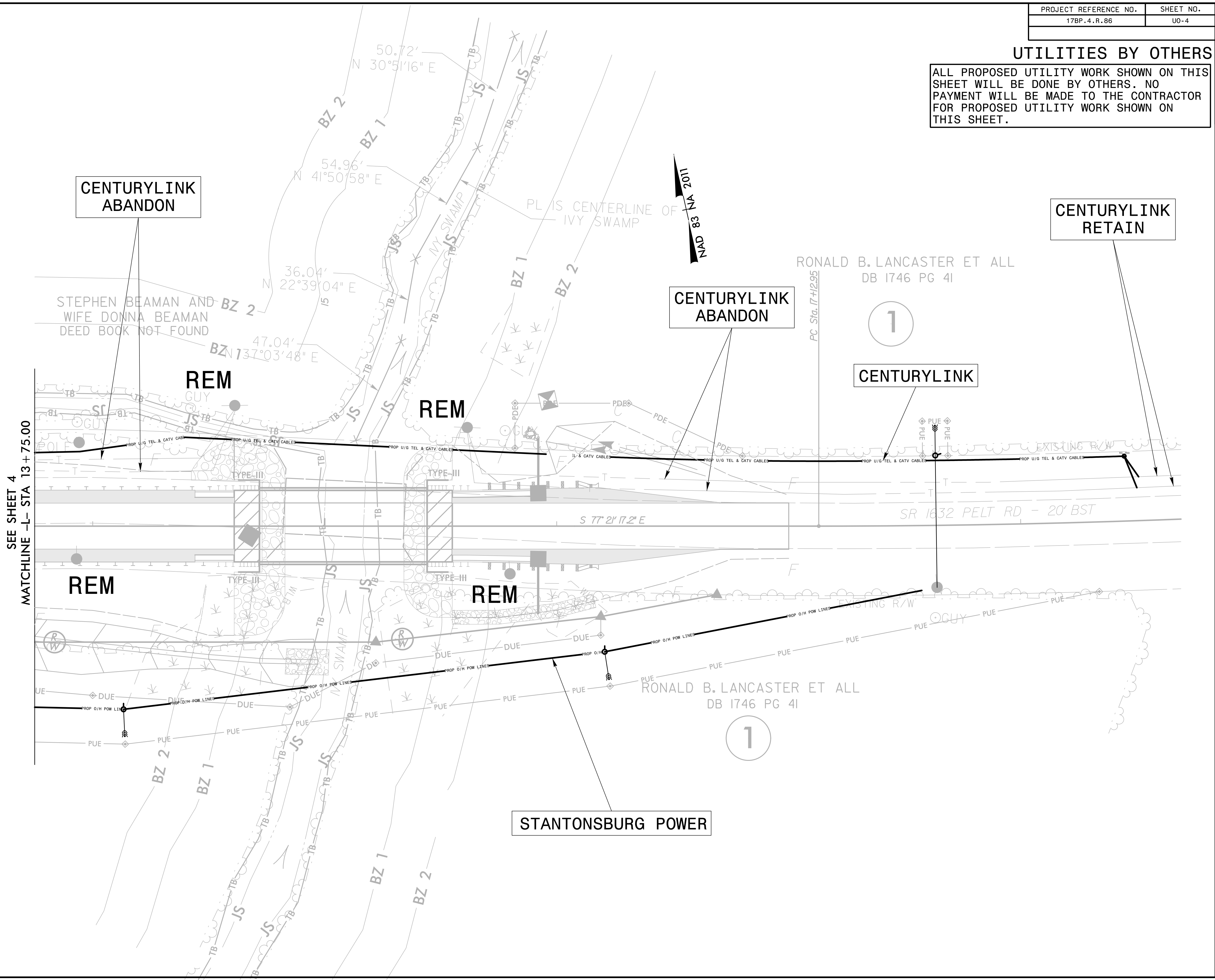
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Lester



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**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.



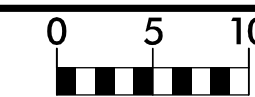
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 5/14/2018  
 J. S. BAYARD





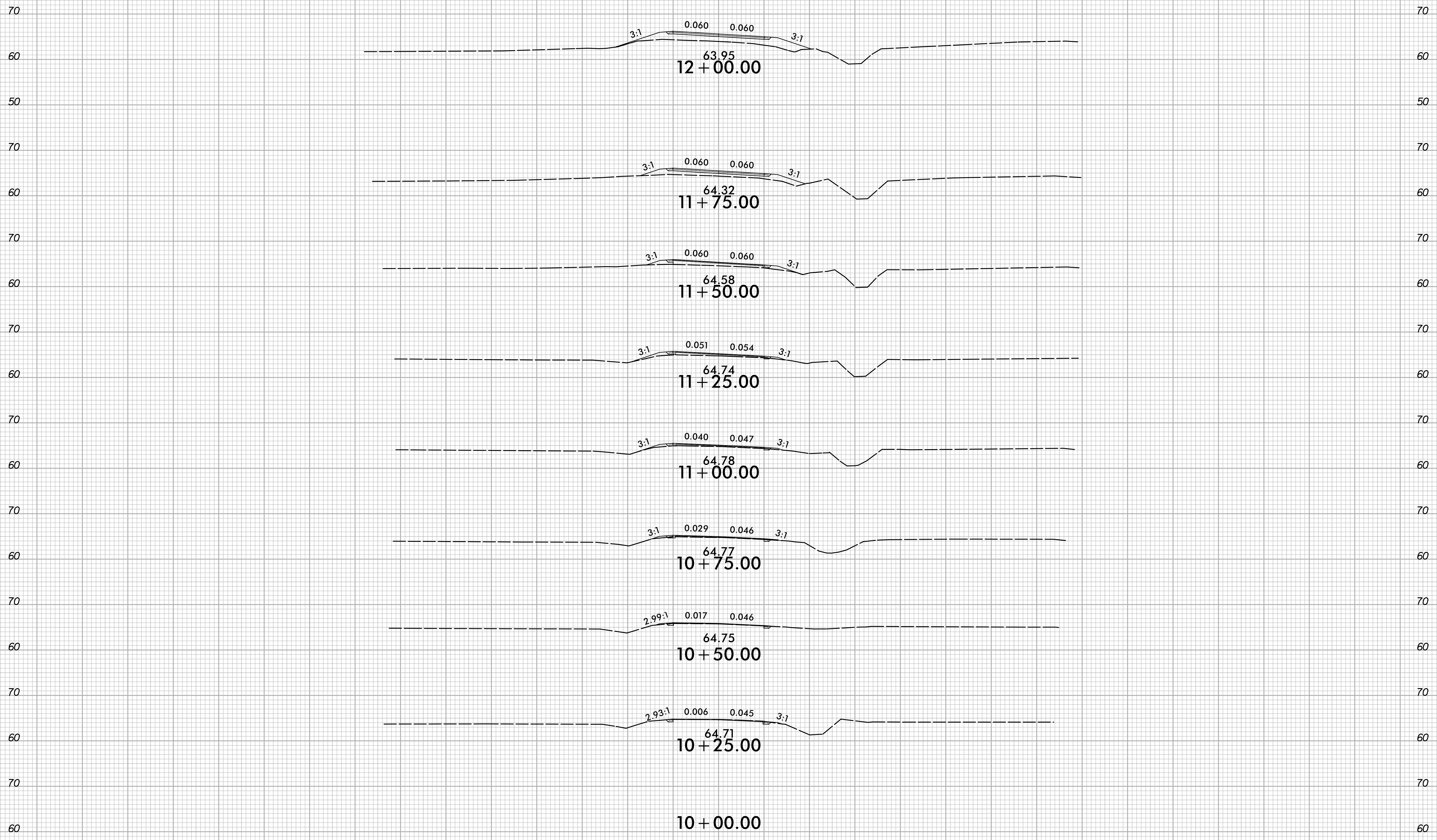
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PROJ. REFERENCE NO.  
17BP.4.R.86

SHEET NO.  
X-1

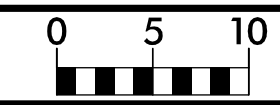
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4/30/2018  
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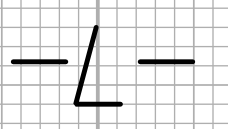
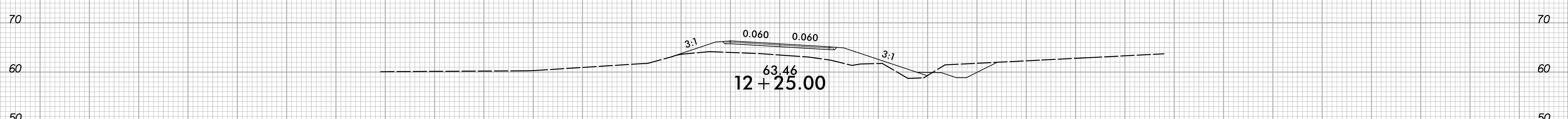
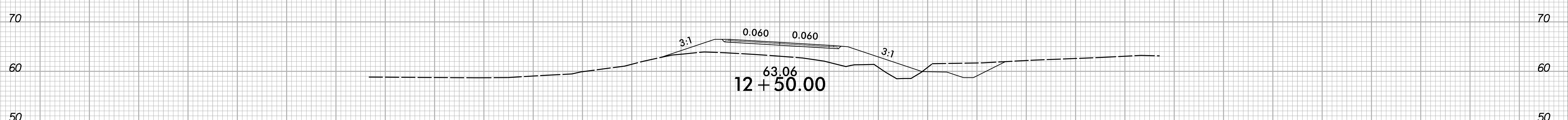
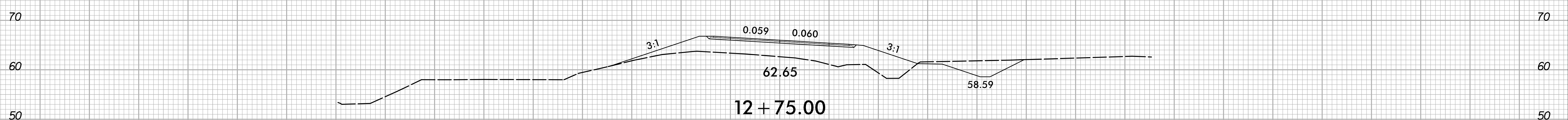
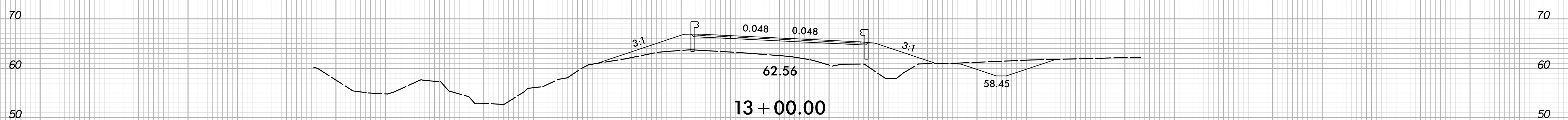
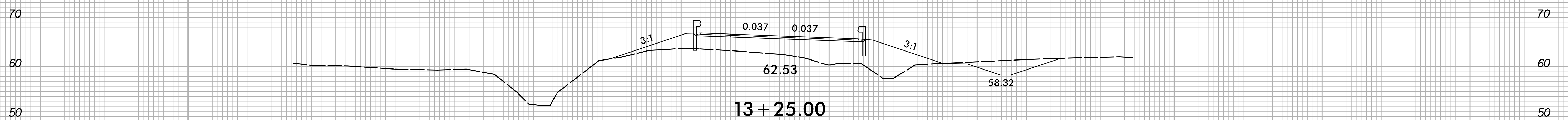
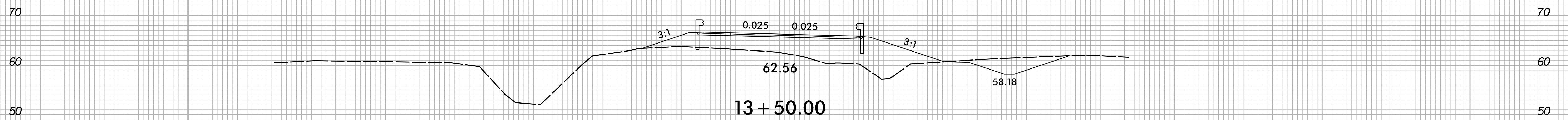
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.86	X-2

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.86	X-2

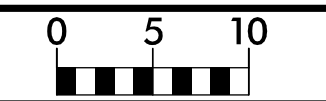
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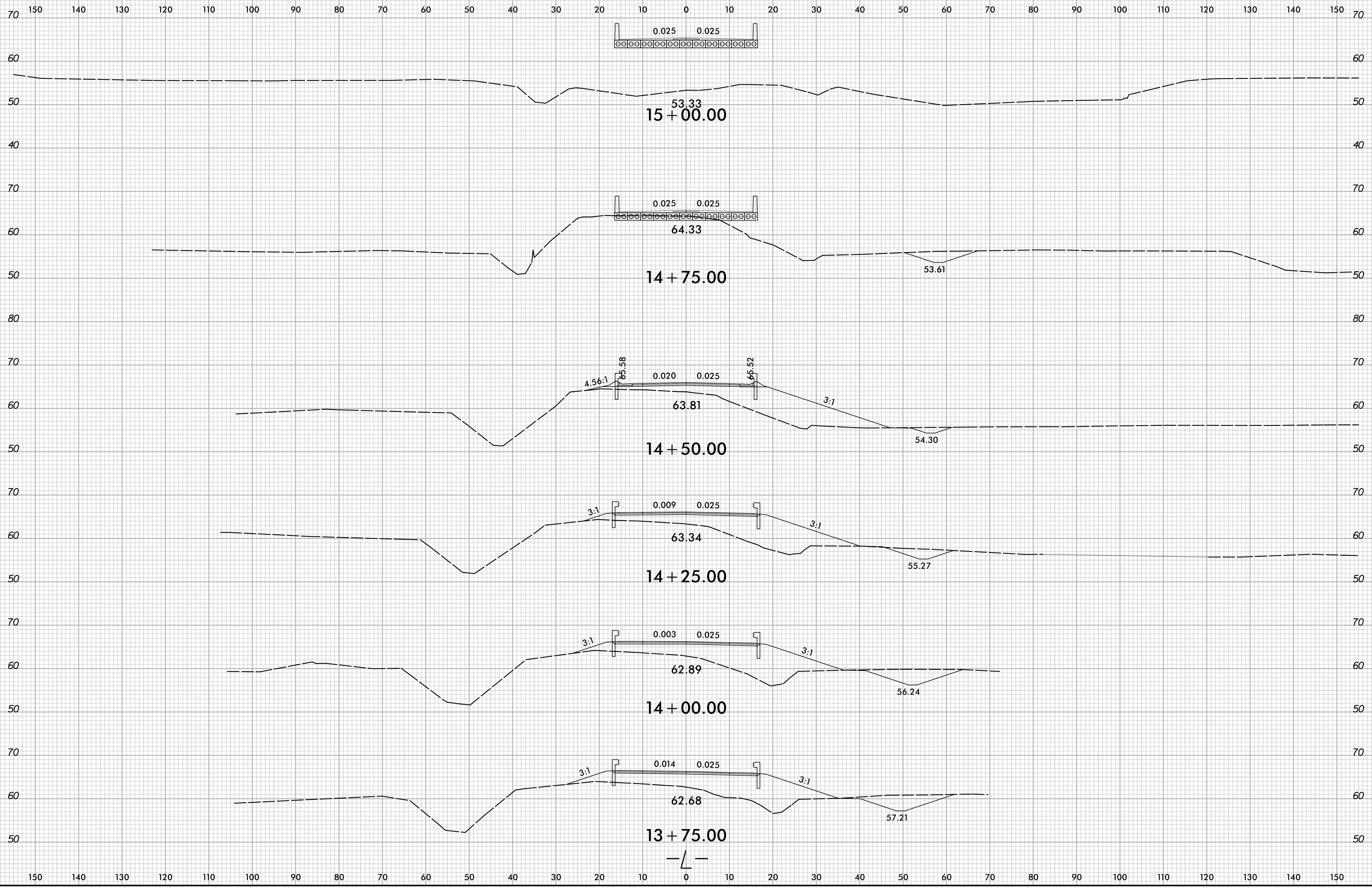
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 User:rbcajue

6/23/16



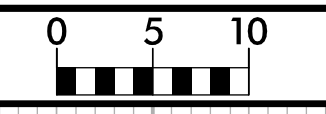
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17BP.4.R.86

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X-3

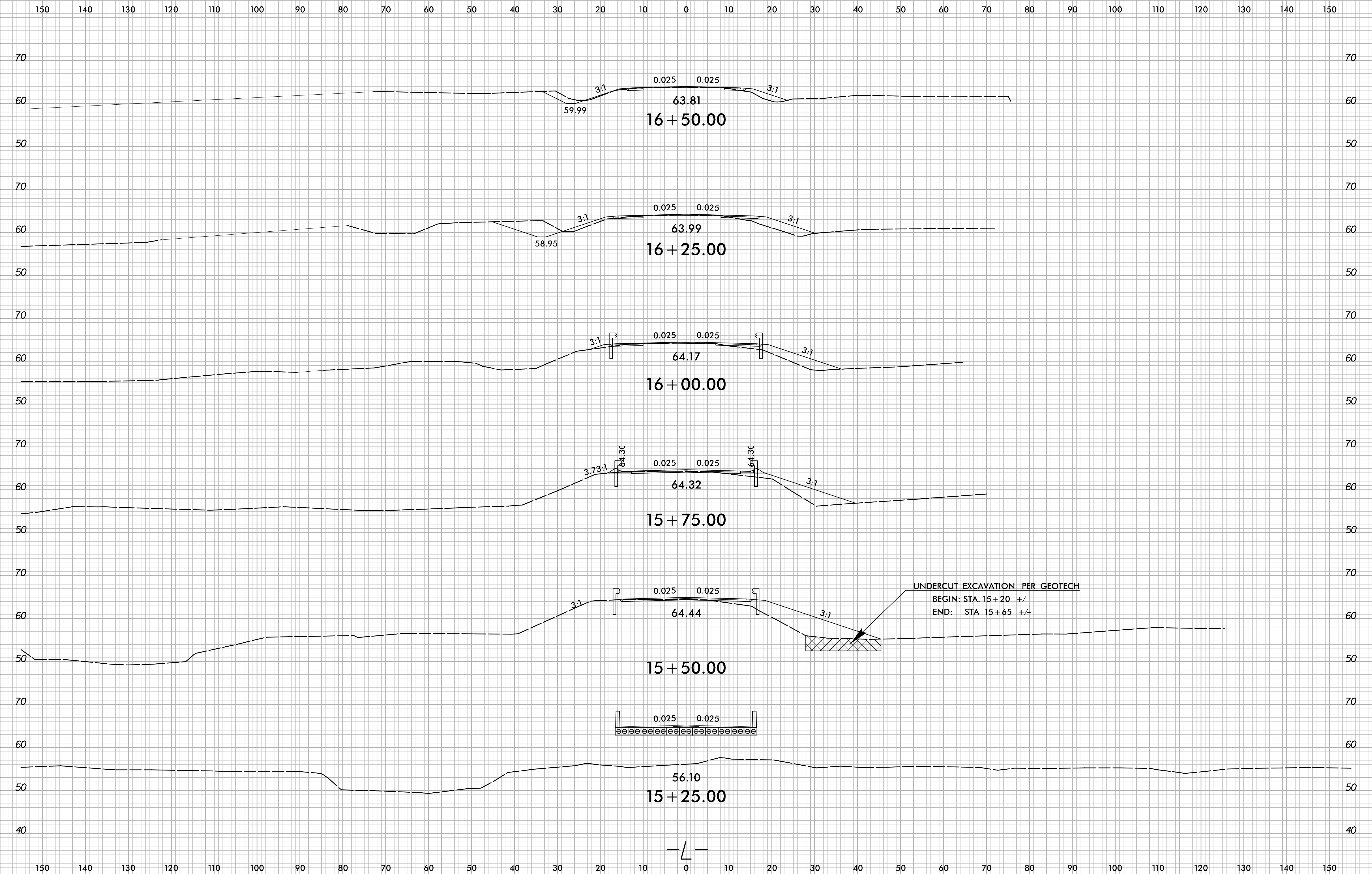


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6/23/16

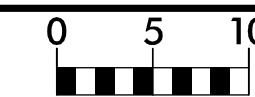


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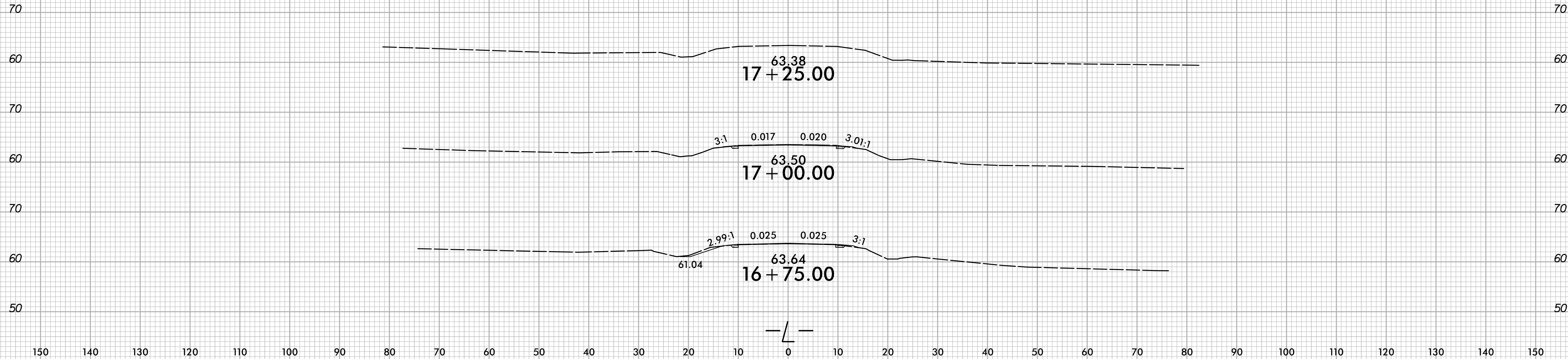
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PROJ. REFERENCE NO.  
17BP.4.R.86

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User:rbcajue

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09/08/19

**TIP PROJECT: 17BP.4.R.86**

**CONTRACT: DD00250**

**STRUCTURE**

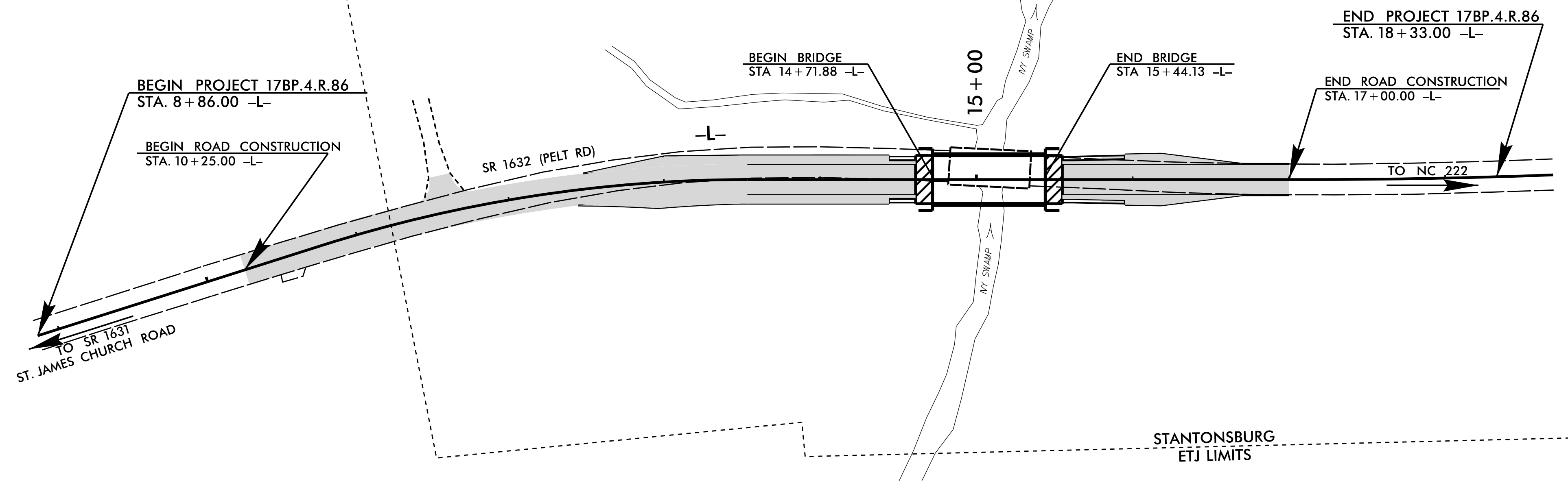
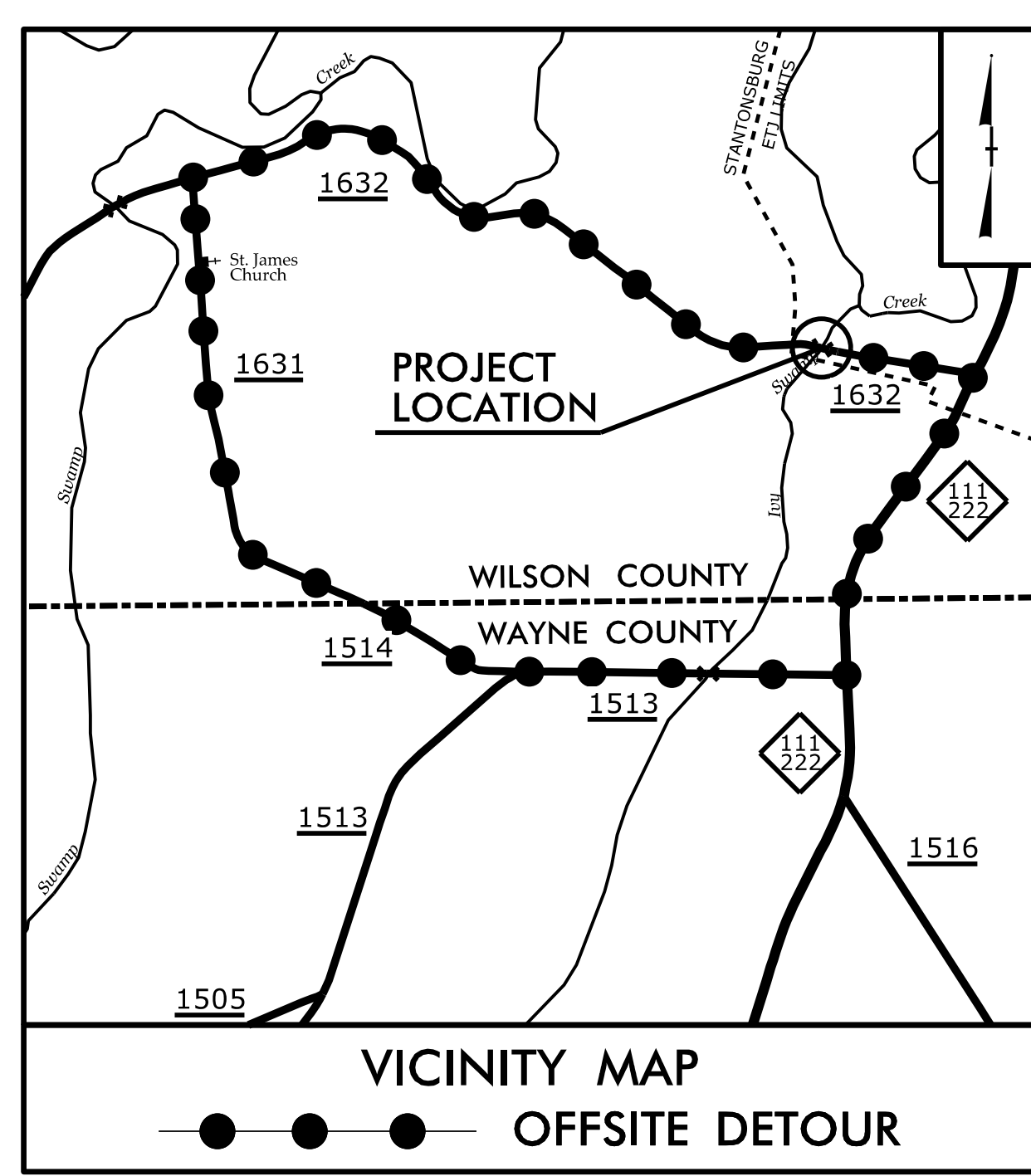
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**WILSON COUNTY**

**LOCATION: BRIDGE NO. 16 ON SR 1632 (PELT ROAD)  
OVER IVY SWAMP**

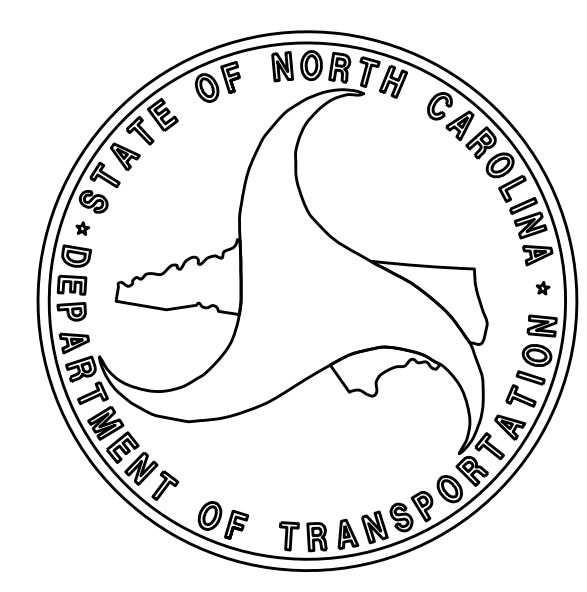
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.86		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.4.R.86	N/A	PE	
17BP.4.R.86	N/A	RW, UTIL	



NAD 83 N/A 2011

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



**DESIGN DATA**  
 ADT 2016 = 310  
 T = 6 %  
 V = 55 MPH  
  
 FUNC CLASS =  
 LOCAL-RURAL  
 SUBREGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT 17BP.4.R.86	=	0.114 mile
LENGTH STRUCTURES PROJECT 17BP.4.R.86	=	0.014 mile
<b>TOTAL LENGTH PROJECT 17BP.4.R.86</b>	<b>=</b>	<b>0.128 mile</b>

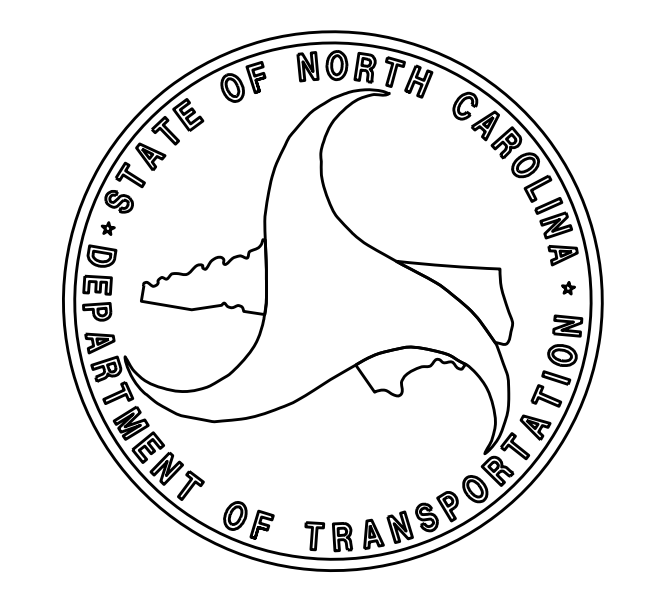
PLANS PREPARED BY:  
**TGS ENGINEERS**  
 706 HILLSBOROUGH ST  
 SUITE 200  
 RALEIGH, NC 27603  
  
 2018 STANDARD SPECIFICATIONS

LETTING DATE:  
 MAY 22, 2018

PLANS PREPARED BY:  
 NCDOT DIVISION 4  
  
**MARC CHEEK, PE**  
 STRUCTURES DESIGN ENGINEER

**STRUCTURES DESIGN ENGINEER**

Marshall G. Cheek Jr.  
 3/29/2018

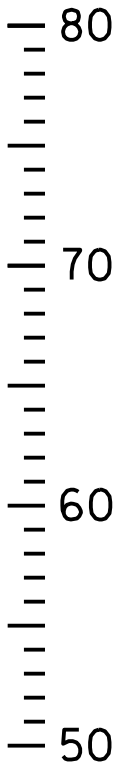


3/23/2018 X:\NCDOT\Division 4\Wilson #16\Structures\90%\DGN\S-00\_Wilson\_0016\_tsh.dgn User:ftenn

**VERTICAL CURVE DATA**

PI = 13+85.00-L-  
 EL = 66.56'  
 VC = 150'

(+0.5100%    (-)0.9700%

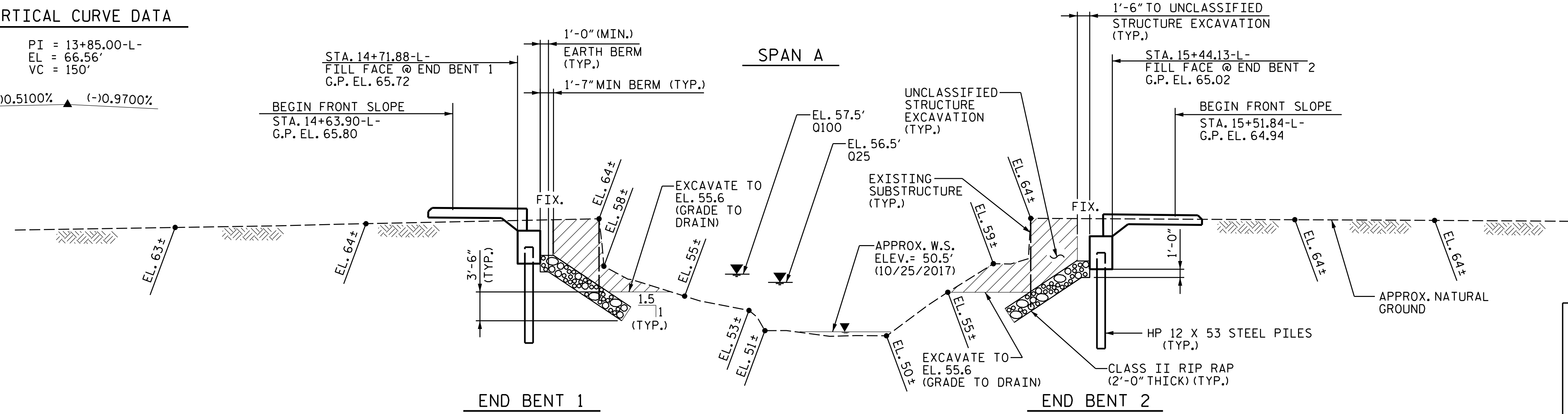


14+50

15+00

15+50

16+00



**SECTION ALONG -L-**

HYDRAULIC DATA:	
DESIGN DISCHARGE	550 CFS
FREQUENCY OF DESIGN DISCHARGE	25 YRS.
DESIGN HIGH WATER ELEVATION	56.5'
DRAINAGE AREA	3.80 SQ. MI.
BASE DISCHARGE	850 CFS
FREQUENCY OF BASE DISCHARGE	100 YRS.
BASE HIGH WATER ELEVATION	57.5'

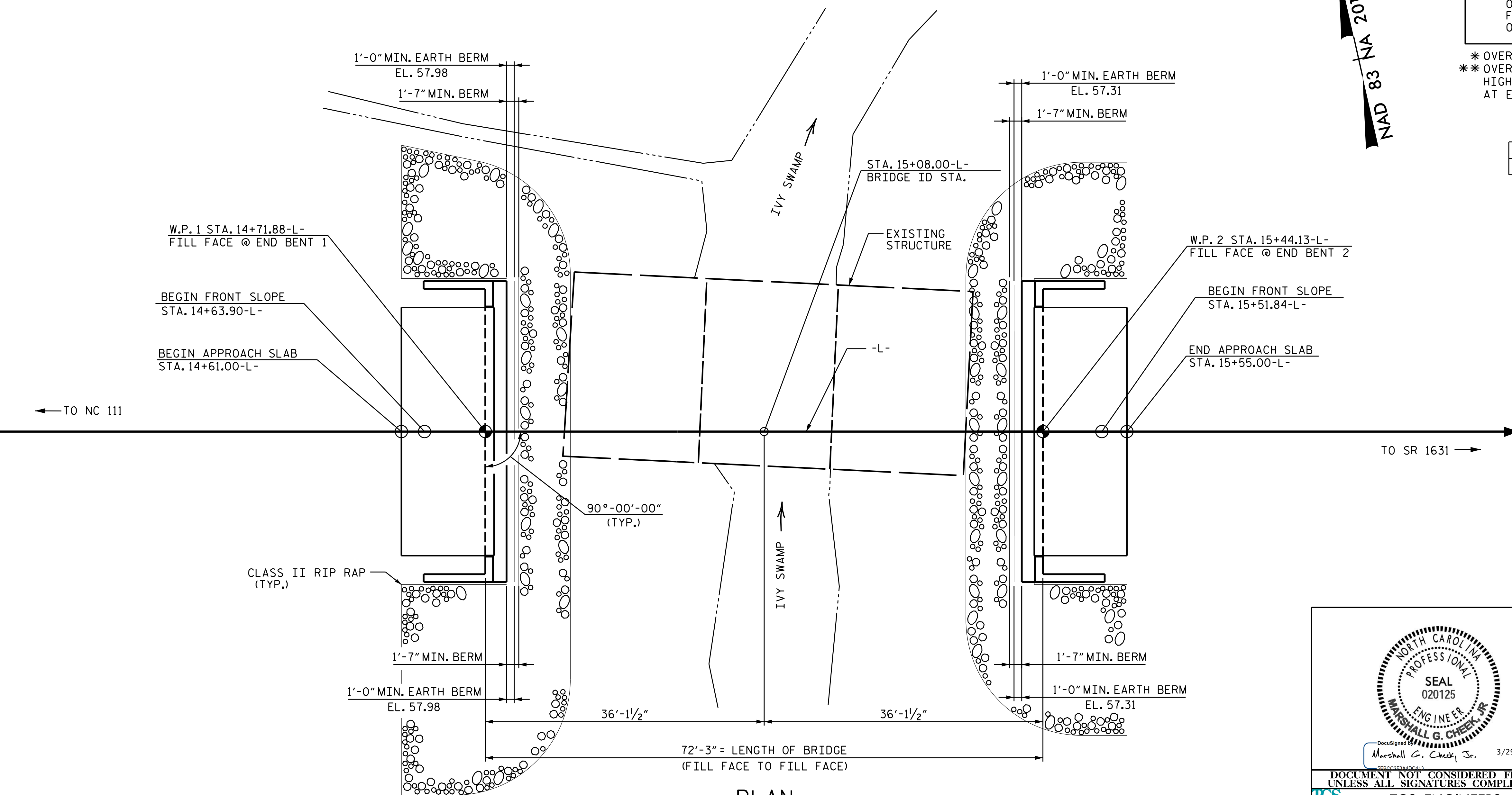
  

OVERTOPPING FLOOD DATA:	
OVERTOPPING DISCHARGE	- * CFS
FREQUENCY OF OVERTOPPING FLOOD	>500+ YRS.
OVERTOPPING FLOOD ELEVATION	63.3' **

\* OVERTOPPING EXCEEDS 500 YR. FLOOD EVENT  
 \*\* OVERTOPPING ELEVATION REPRESENTS LOWEST HIGH POINT ON DECK/ROADWAY WHICH OCCURS AT EXISTING SAG @ STA. 17+76.00-L-

LOW CHORD ELEVATION		
EB1	63.06	EB2 62.39

NAD 83 NA 2011



**PLAN**

PILES NOT SHOWN IN PLAN VIEW FOR CLARITY.

PROJECT NO. 17BP.4.R.86  
 WILSON COUNTY  
 STATION: 15+08.00 -L-  
 SHEET 1 OF 3 REPLACES BRIDGE NO. 0016

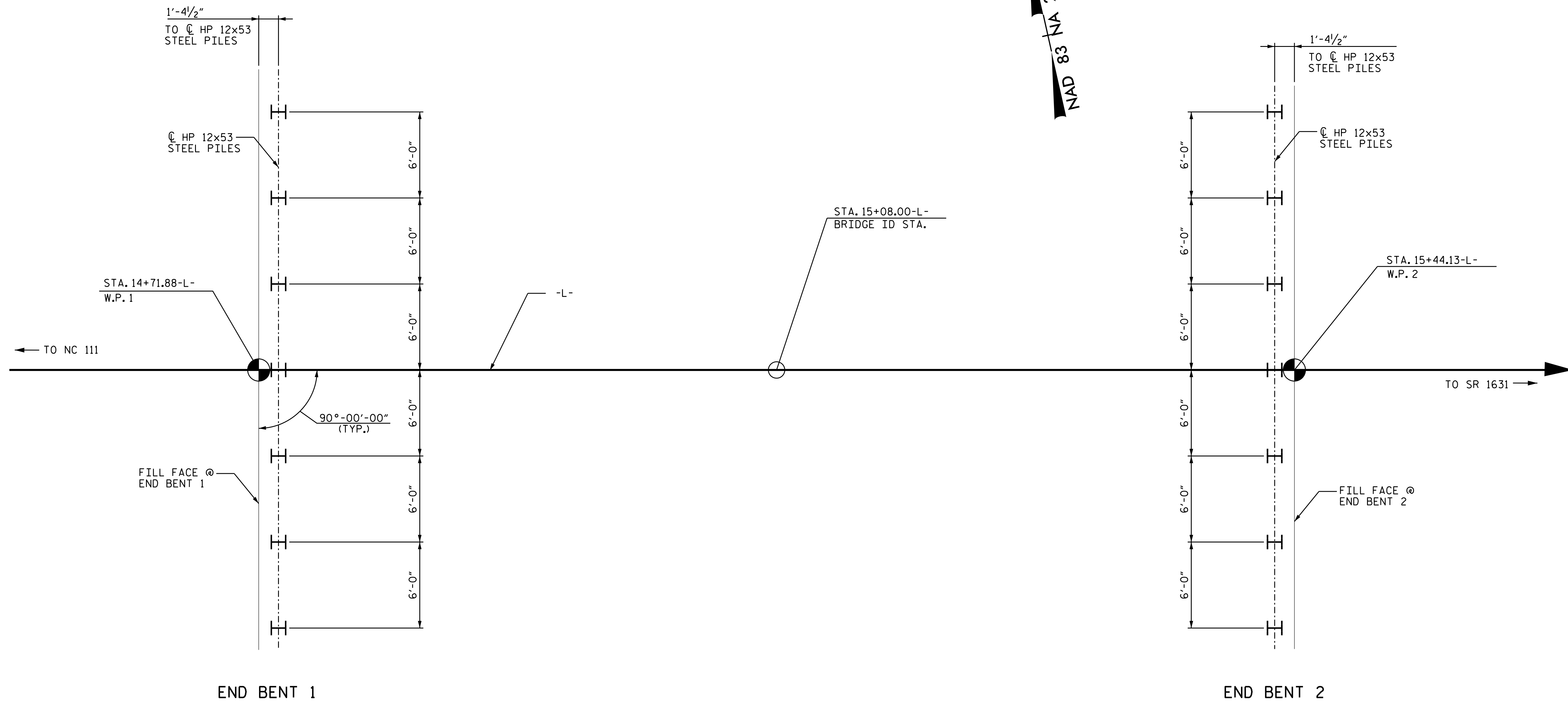
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS  
 804-C N. LAFAYETTE ST  
 SHELBY, NC 28150  
 PH (704) 476-0003  
 CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : TBE    DATE : 1/18  
 CHECKED BY : MGC    DATE : 2/18





**FOUNDATION LAYOUT PLAN**

ALL END BENT PILES ARE HP 12x53 STEEL PILES. DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES. ORIENT PILES AS SHOWN.

**FOUNDATION RECOMMENDATION NOTES**

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.  
 PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.  
 DRIVE PILES AT END BENT NO.1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.  
 TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. 17BP.4.R.86

WILSON COUNTY

STATION: 15+08.00 -L-

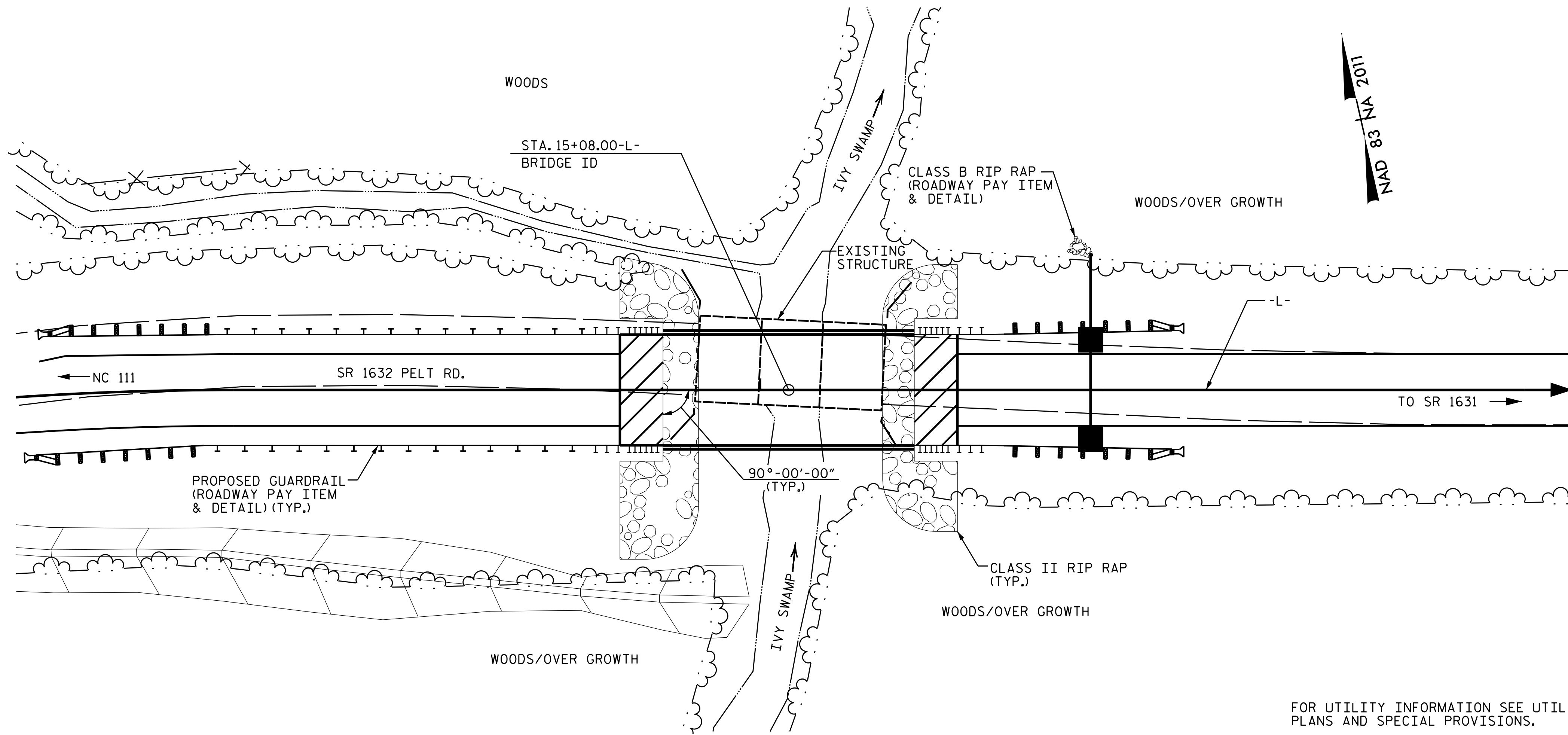
SHEET 2 OF 3

		STATE OF NORTH CAROLINA		SHEET NO. S-2	
		DEPARTMENT OF TRANSPORTATION RALEIGH			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		GENERAL DRAWING FOR BRIDGE ON SR 1632 OVER IVY SWAMP BETWEEN NC 111 AND SR 1631			
		REVISIONS			TOTAL SHEETS 15
NO.	BY:	DATE:	NO.	BY:	
1			3		
2			4		

DRAWN BY : NMW DATE : 1/18  
 CHECKED BY : RDE DATE : 2/18

TGS ENGINEERS  
 804-C N. LAFAYETTE ST  
 SHELBY, NC 28150  
 PH (704) 476-0003  
 CORP. LICENSE NO.: C-0275

BENCH MARK #1: RR SPIKE IN 47" OAK, 54.23' LT. OF STA. 15+96.27-L-, ELEV.= 61.93' (NAVD 88)



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.  
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN (S-15).  
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.  
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.  
 THE EXISTING STRUCTURE CONSISTING OF 3 SPANS (1 @ 18', 1 @ 17', 1 @ 18') REINFORCED CONCRETE FLOOR/TIMBER JOISTS, ON TIMBER CAPS/TIMBER PILES. INT. BENTS & END BENTS SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.  
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.  
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 35 FT (LT) AND 25 FT (RT) AT END BENT 1 AND A DISTANCE OF 35 FT (LT) AND 30 FT (RT) AT END BENT 2 EACH SIDE OF THE CENTERLINE OF THE BRIDGE 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. THIS 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 DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.  
 ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITIES ON ROADWAY PLANS.  
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES".  
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.  
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.  
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.  
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.  
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.  
 FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.  
 AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS "A" CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	HP 12x53 STEEL PILES	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THK.)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-0" PRESTRESSED CONCRETE CORED SLABS
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	C.Y.	LUMP SUM	LBS.	EACH	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SO. YDS.	LUMP SUM
															NO.
															LIN. FT.
SUPERSTRUCTURE												140.00			11
END BENT 1					21.8		2,636	7	7	385	4	250	280		
END BENT 2					21.8		2,636	7	7	385	4	240	265		
TOTALS	LUMP SUM	LUMP SUM	1	LUMP SUM	43.6	LUMP SUM	5,272	14	14	770	8	140.00	490	545	LUMP SUM
															11
															770.00

PROJECT NO. 17BP.4.R.86  
 WILSON COUNTY  
 STATION: 15+08.00 -L-

SHEET 3 OF 3

Marshall G. Cheek Jr. 3/29/2018

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE ON SR 1632  
 OVER IVY SWAMP  
 BETWEEN NC 111 AND SR 1631

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-3
2			4			TOTAL SHEETS 15

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS  
 804-C N. LAFAYETTE ST  
 SHELBY, NC 28150  
 PH (704) 476-0003  
 CORP. LICENSE NO.: C-0275

DRAWN BY : TBE DATE : 1/18  
 CHECKED BY : MGC DATE : 2/18

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

LEVEL	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			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	①	1.006	--	1.75	0.273	1.03	70'	EL	34.5	0.507	1.32	70'	EL	6.9	0.80	0.273	<b>1.01</b>	70'	EL	<b>34.5</b>		
	HL-93(0pr)	N/A	--	1.341	--	1.35	0.273	1.34	70'	EL	34.5	0.507	1.72	70'	EL	6.9	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	②	1.306	47.02	1.75	0.273	1.34	70'	EL	34.5	0.507	1.65	70'	EL	6.9	0.80	0.273	<b>1.31</b>	70'	EL	<b>34.5</b>		
	HS-20(0pr)	36.000	--	1.74	62.64	1.35	0.273	1.74	70'	EL	34.5	0.507	2.14	70'	EL	6.9	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13,500	--	2.917	39.379	1.4	0.273	3.75	70'	EL	34.5	0.507	4.87	70'	EL	6.9	0.80	0.273	2.92	70'	EL	34.5	
		SNGARBS2	20,000	--	2.187	43.741	1.4	0.273	2.81	70'	EL	34.5	0.507	3.47	70'	EL	6.9	0.80	0.273	2.19	70'	EL	34.5	
		SNAGRIS2	22,000	--	2.077	45.69	1.4	0.273	2.67	70'	EL	34.5	0.507	3.23	70'	EL	6.9	0.80	0.273	2.08	70'	EL	34.5	
		SNCOTTS3	27,250	--	1.452	39.565	1.4	0.273	1.87	70'	EL	34.5	0.507	2.43	70'	EL	6.9	0.80	0.273	1.45	70'	EL	34.5	
		SNAGGRS4	34,925	--	1.218	42.554	1.4	0.273	1.57	70'	EL	34.5	0.507	2.03	70'	EL	6.9	0.80	0.273	1.22	70'	EL	34.5	
		SNS5A	35,550	--	1.191	42.346	1.4	0.273	1.53	70'	EL	34.5	0.507	2.06	70'	EL	6.9	0.80	0.273	1.19	70'	EL	34.5	
		SNS6A	39,950	--	1.095	43.747	1.4	0.273	1.41	70'	EL	34.5	0.507	1.88	70'	EL	6.9	0.80	0.273	1.10	70'	EL	34.5	
	SNS7B	42,000	--	1.043	43.801	1.4	0.273	1.34	70'	EL	34.5	0.507	1.85	70'	EL	6.9	0.80	0.273	1.04	70'	EL	34.5		
	TTST	TNAGRIT3	33,000	--	1.336	44.087	1.4	0.273	1.72	70'	EL	34.5	0.507	2.23	70'	EL	6.9	0.80	0.273	1.34	70'	EL	34.5	
		TNT4A	33,075	--	1.342	44.401	1.4	0.273	1.72	70'	EL	34.5	0.507	2.17	70'	EL	6.9	0.80	0.273	1.34	70'	EL	34.5	
		TNT6A	41,600	--	1.1	45.746	1.4	0.273	1.41	70'	EL	34.5	0.507	1.98	70'	EL	6.9	0.80	0.273	1.10	70'	EL	34.5	
		TNT7A	42,000	--	1.106	46.462	1.4	0.273	1.42	70'	EL	34.5	0.507	1.94	70'	EL	6.9	0.80	0.273	1.11	70'	EL	34.5	
		TNT7B	42,000	--	1.147	48.18	1.4	0.273	1.47	70'	EL	34.5	0.507	1.8	70'	EL	6.9	0.80	0.273	1.15	70'	EL	34.5	
		TNAGRIT4	43,000	--	1.089	46.838	1.4	0.273	1.4	70'	EL	34.5	0.507	1.74	70'	EL	6.9	0.80	0.273	1.09	70'	EL	34.5	
TNAGT5A		45,000	--	1.026	46.175	1.4	0.273	1.32	70'	EL	34.5	0.507	1.74	70'	EL	6.9	0.80	0.273	1.03	70'	EL	34.5		
TNAGT5B	45,000	--	③	1.013	45.579	1.4	0.273	1.3	70'	EL	34.5	0.507	1.66	70'	EL	6.9	0.80	0.273	<b>1.01</b>	70'	EL	<b>34.5</b>		

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.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

⊞ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

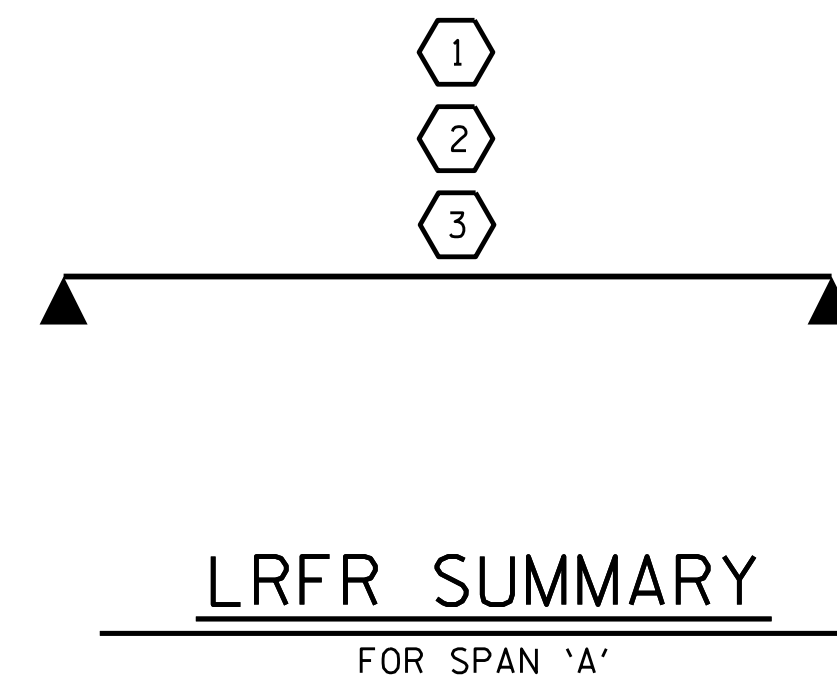
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



PROJECT NO. 17BP.4.R.86  
WILSON COUNTY  
 STATION: 15+08.00 -L-

3/29/2018

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

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

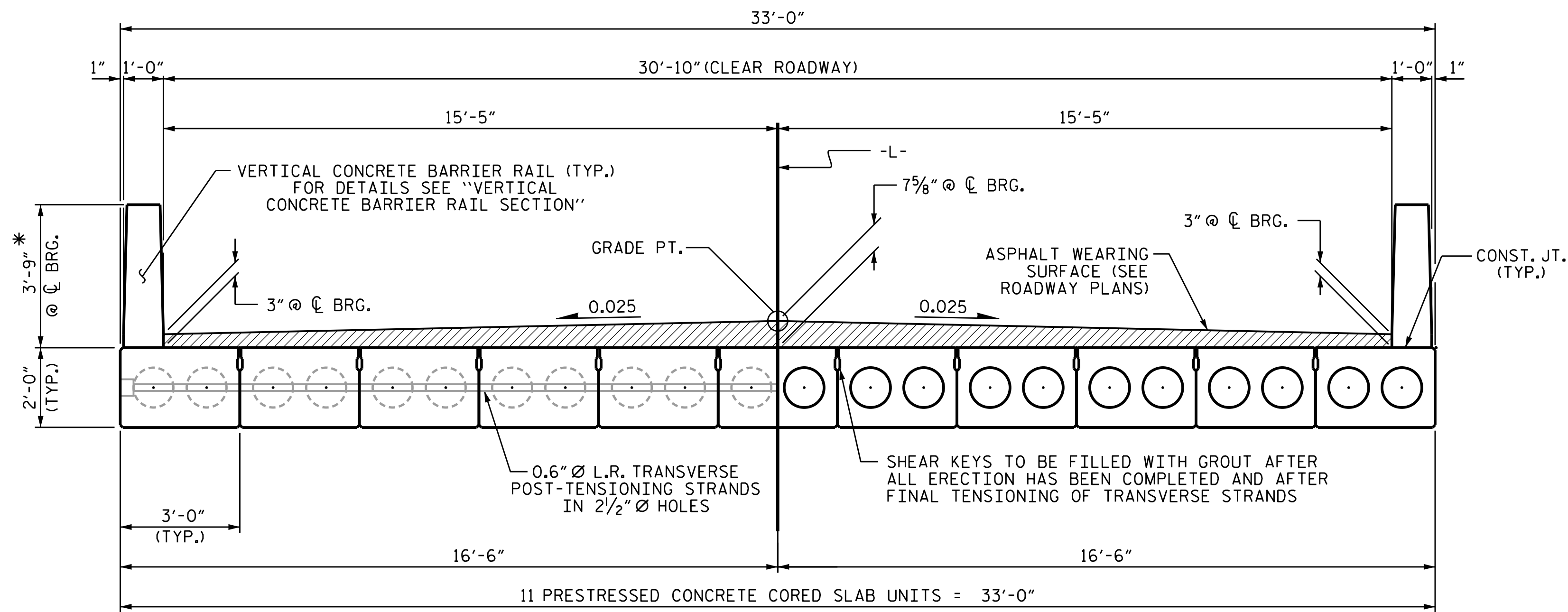
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 PH (704) 476-0003  
 CORP. LICENSE NO.: C-0275

SHEET NO.  
S-4

TOTAL SHEETS  
15

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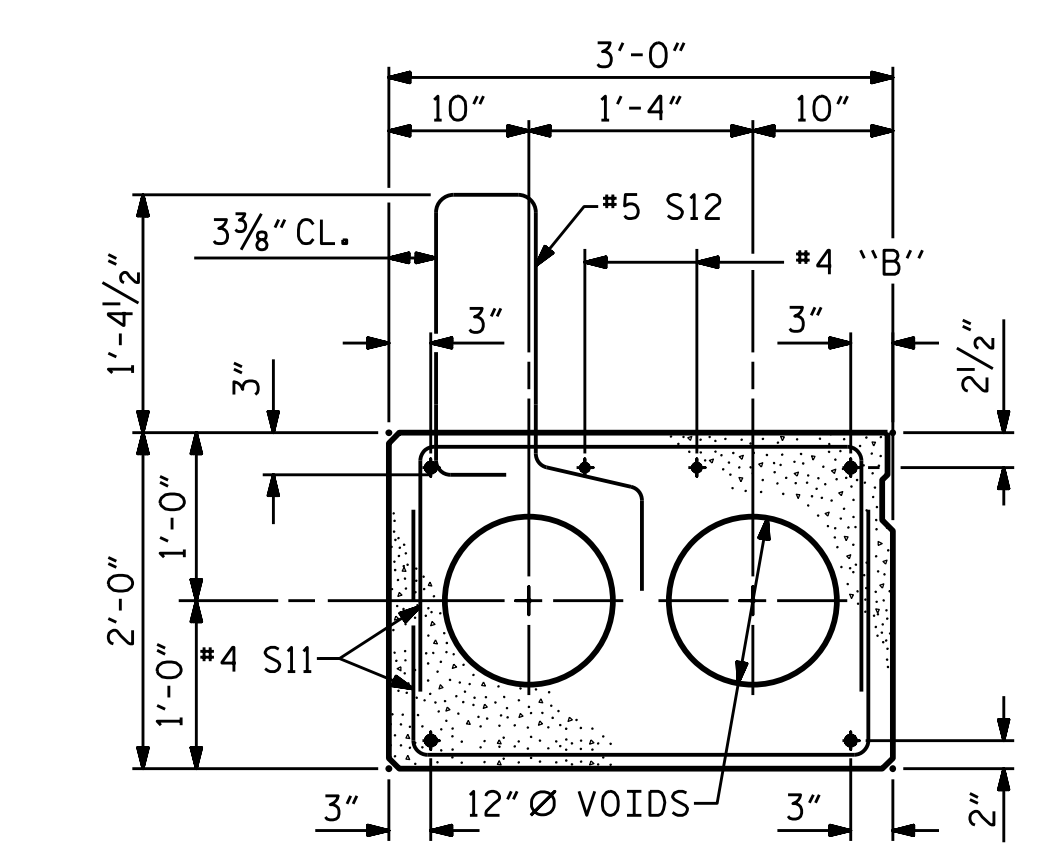


HALF SECTION  
AT INTERMEDIATE DIAPHRAGMS

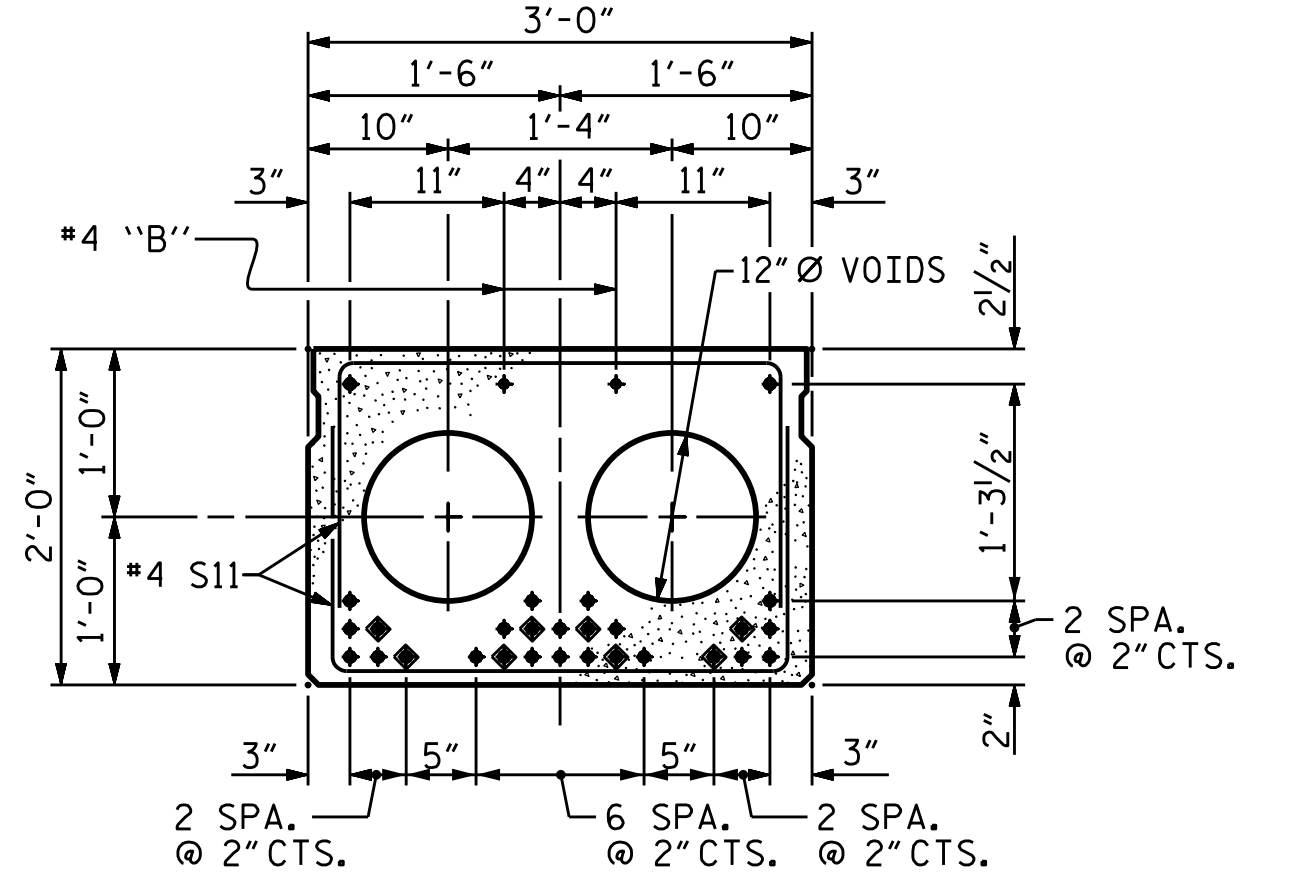
TYPICAL SECTION

HALF SECTION  
THROUGH VOIDS

\* - 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 DETAILS", SHEET 3 OF 3.

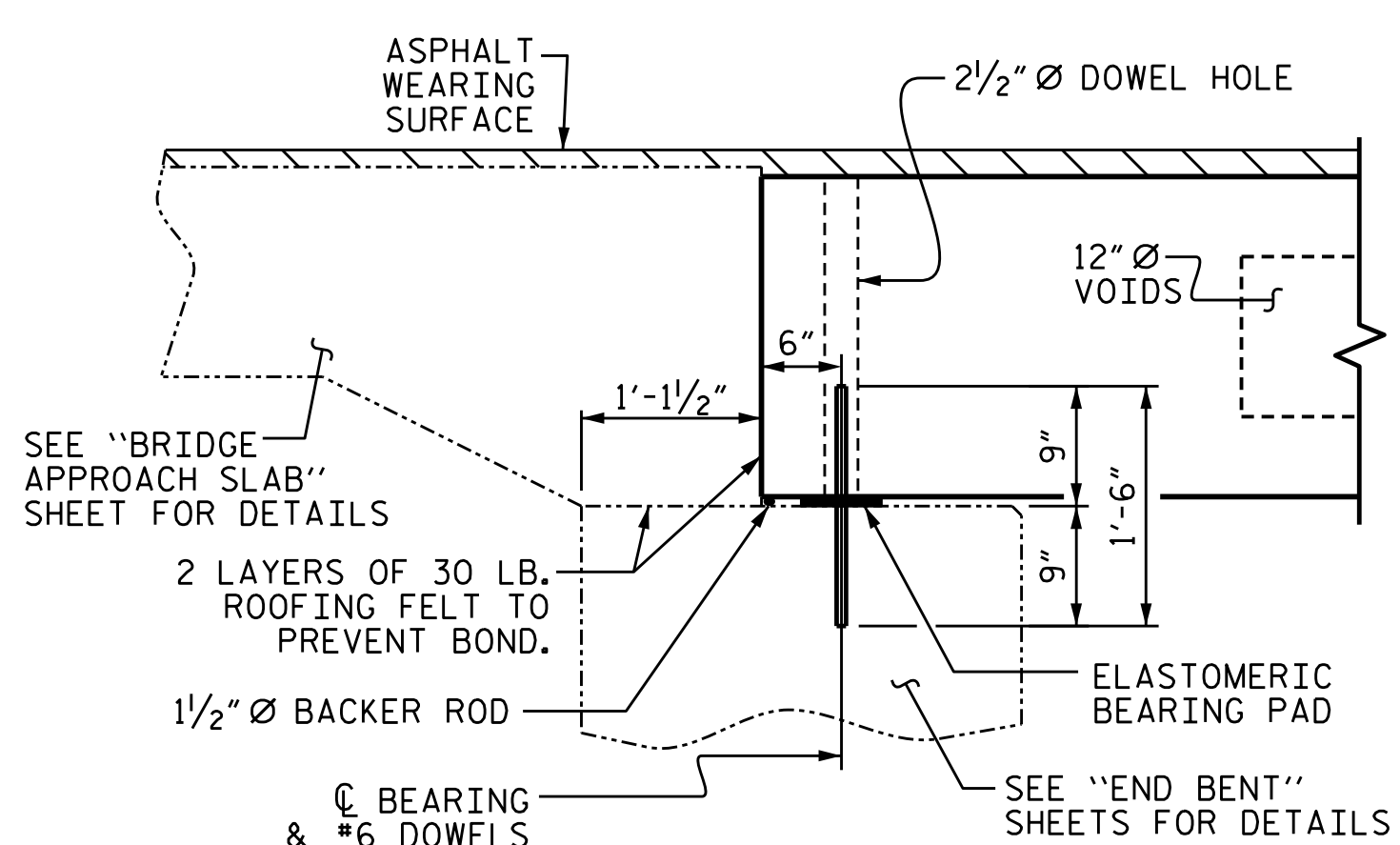


EXTERIOR SLAB SECTION  
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

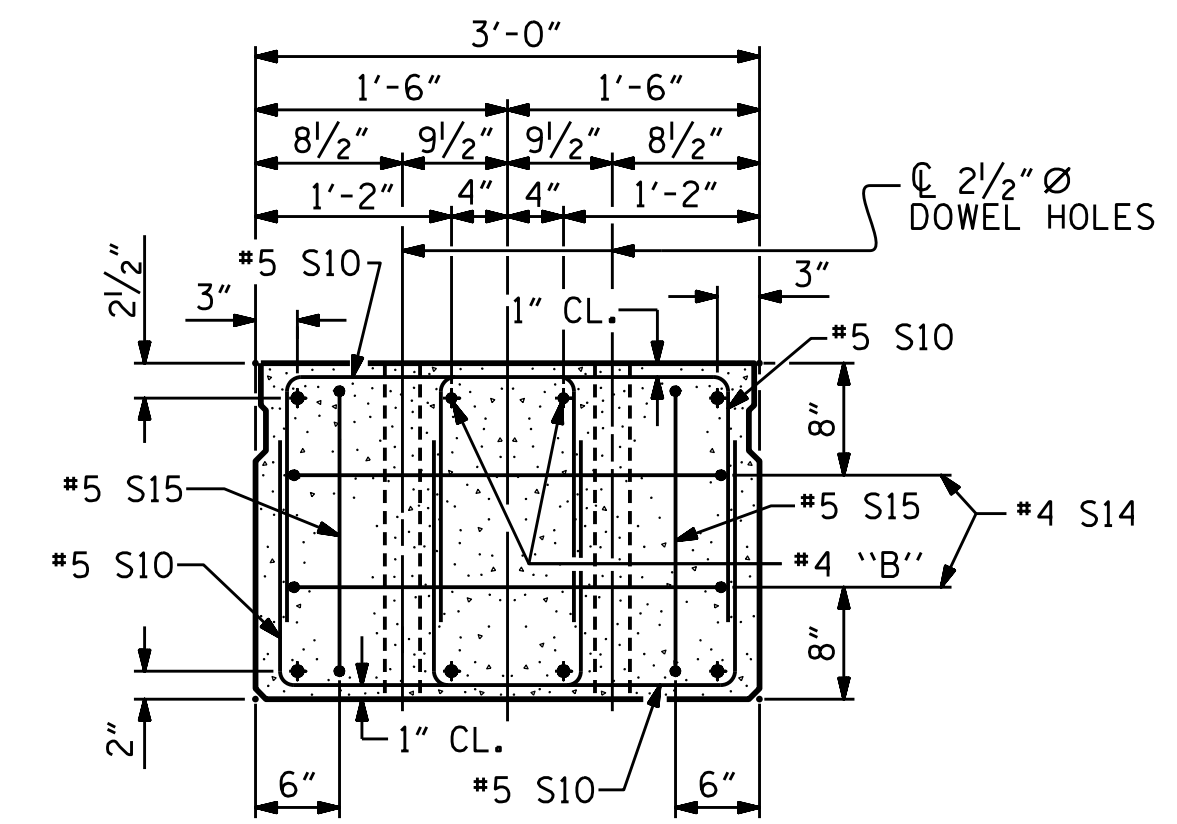


INTERIOR SLAB SECTION (70' UNIT)  
(28 STRANDS REQUIRED)

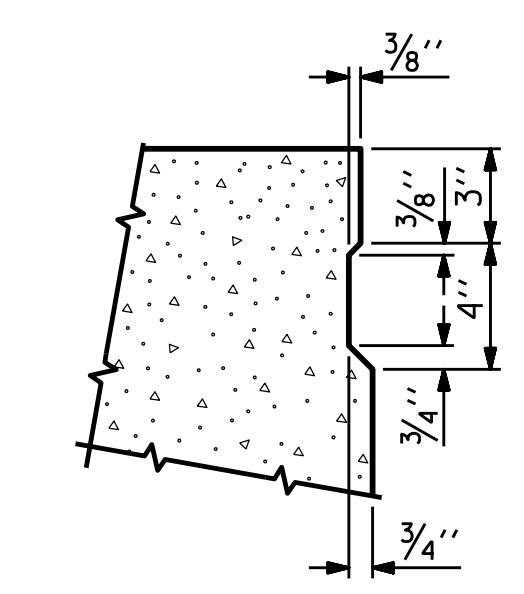
FIXED END



SECTION AT END BENT



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.



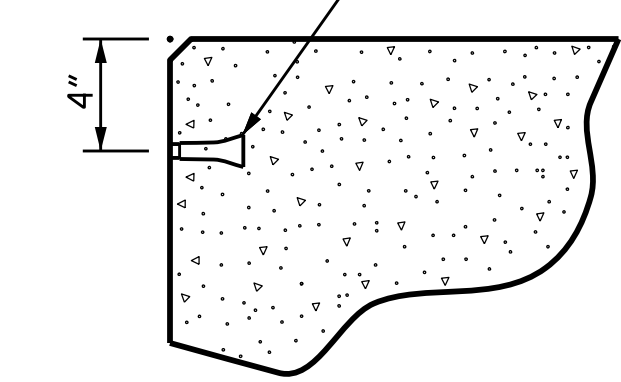
SHEAR KEY DETAIL  
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

0.6" Ø LOW RELAXATION STRAND LAYOUT

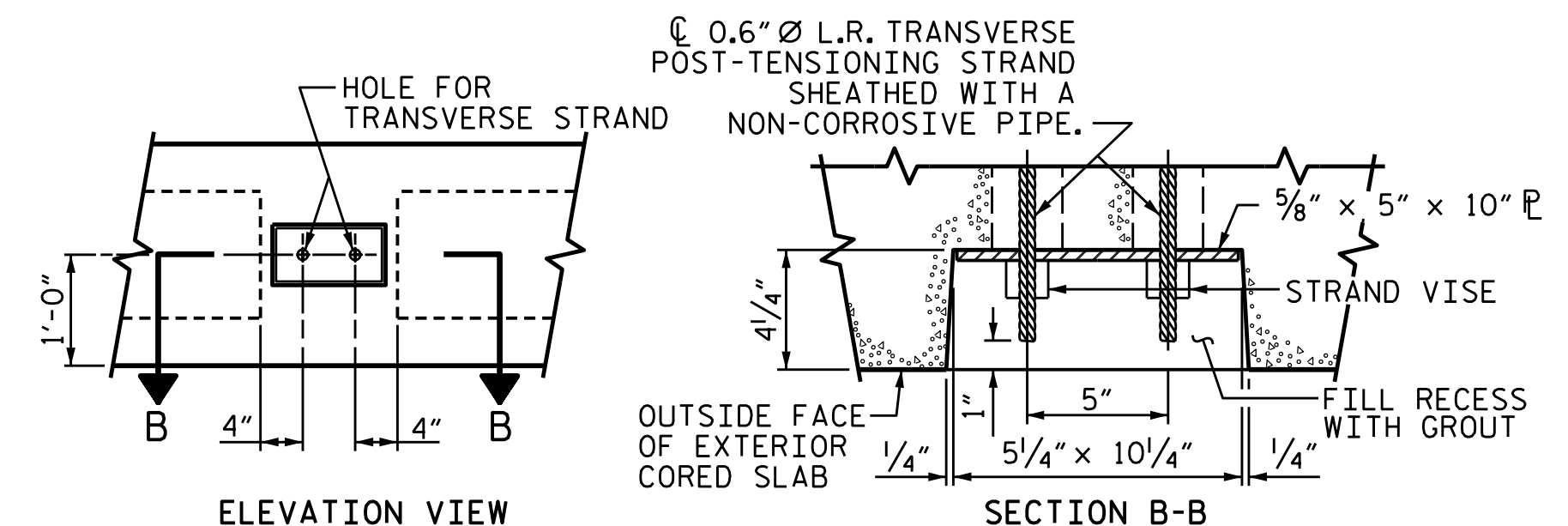
- ◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS 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



GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

PROJECT NO. 17BP.4.R.86  
WILSON COUNTY  
STATION: 15+08.00 -L-  
SHEET 1 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3'-0" X 2'-0"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT

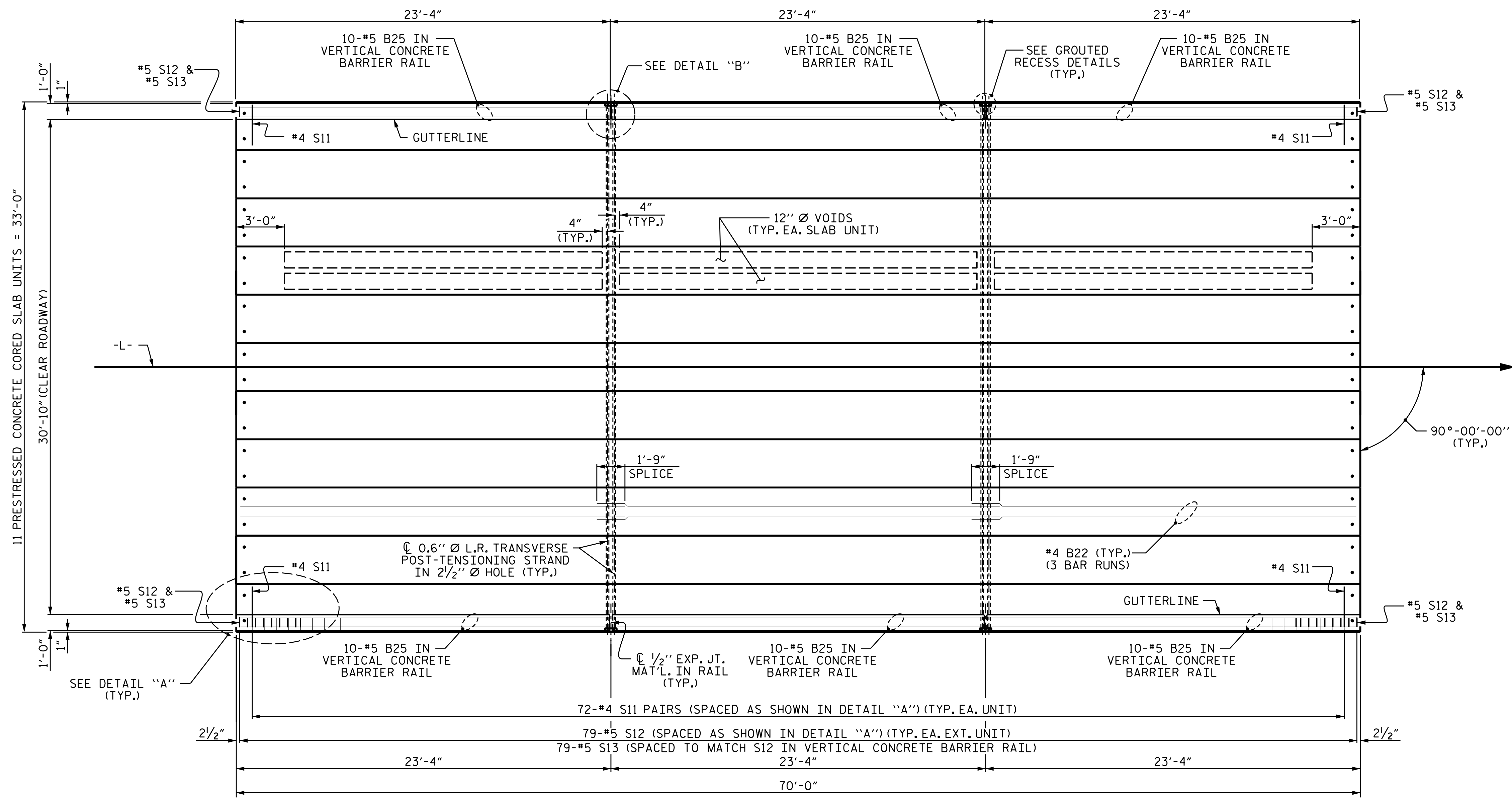
Seal of Marshall G. Cheek, Jr., Professional Engineer, No. 020125, dated 3/29/2018.

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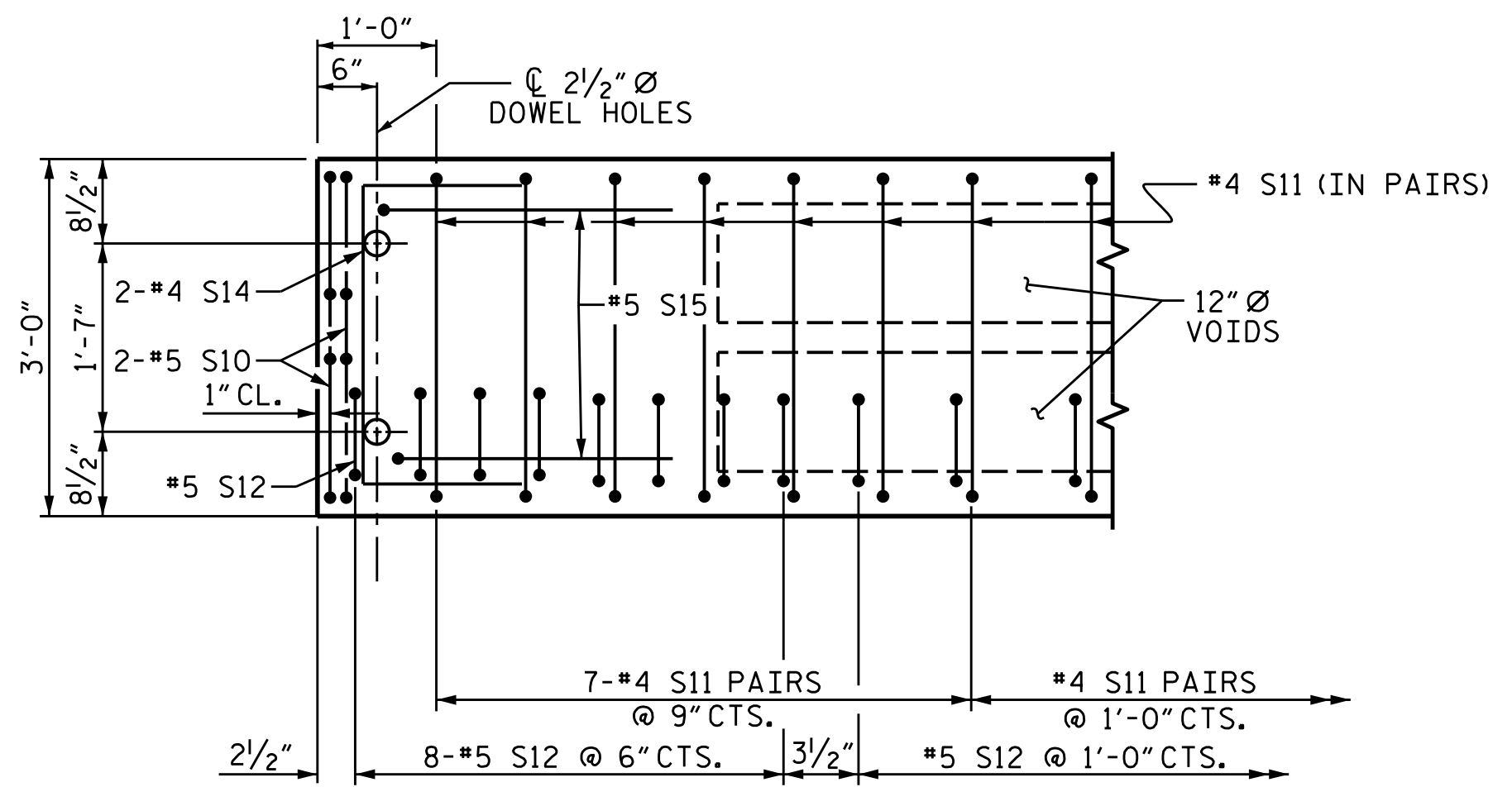
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CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			15

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CHECKED BY: MGC DATE: 2/18

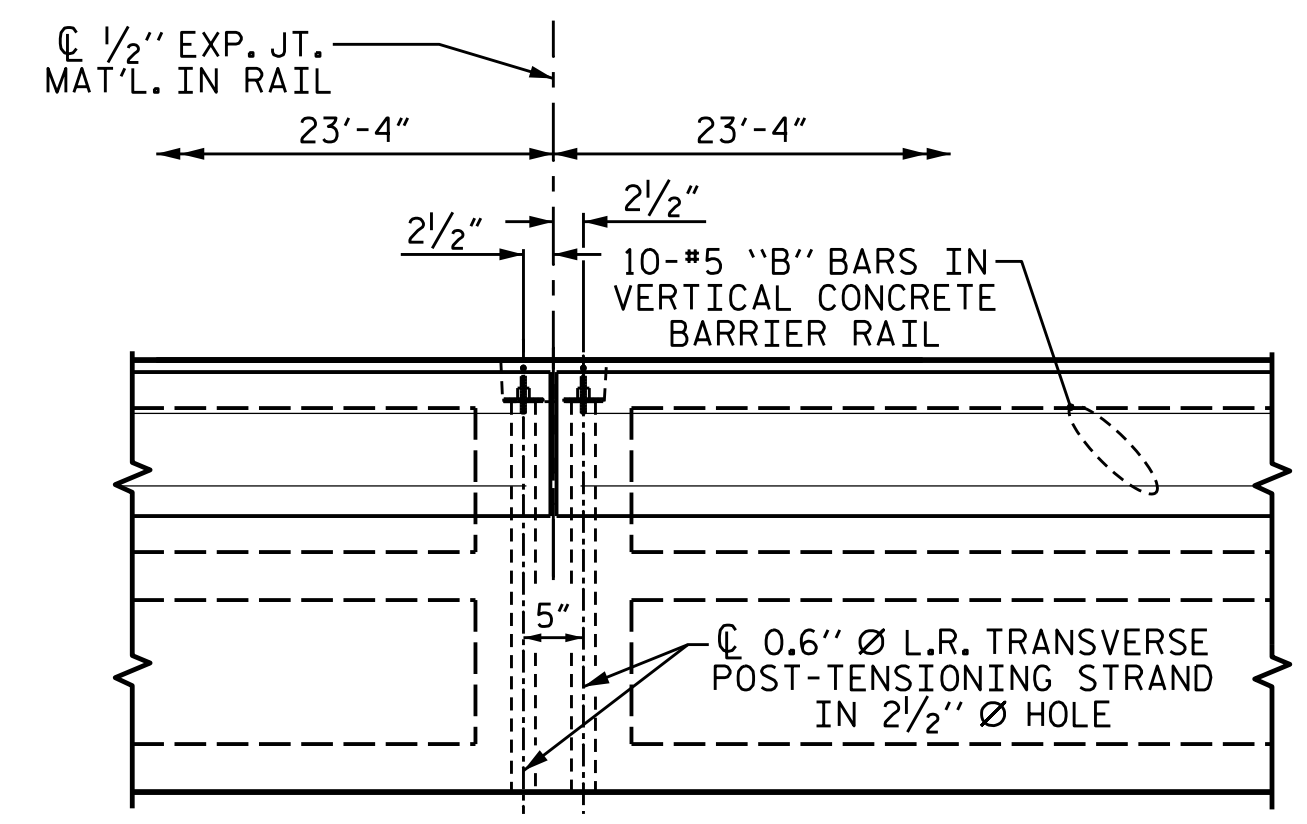


PLAN OF UNIT



DETAIL "A"

(TYPICAL EACH END OF UNIT)  
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR  
 UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY  
 TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND  
 2-1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. 17BP.4.R.86  
WILSON COUNTY  
 STATION: 15+08.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF 70' UNIT  
 30'-10" CLEAR ROADWAY  
 90° SKEW

Seal of Marshall G. Cheek, Jr., Engineer, No. 020125, State of North Carolina.

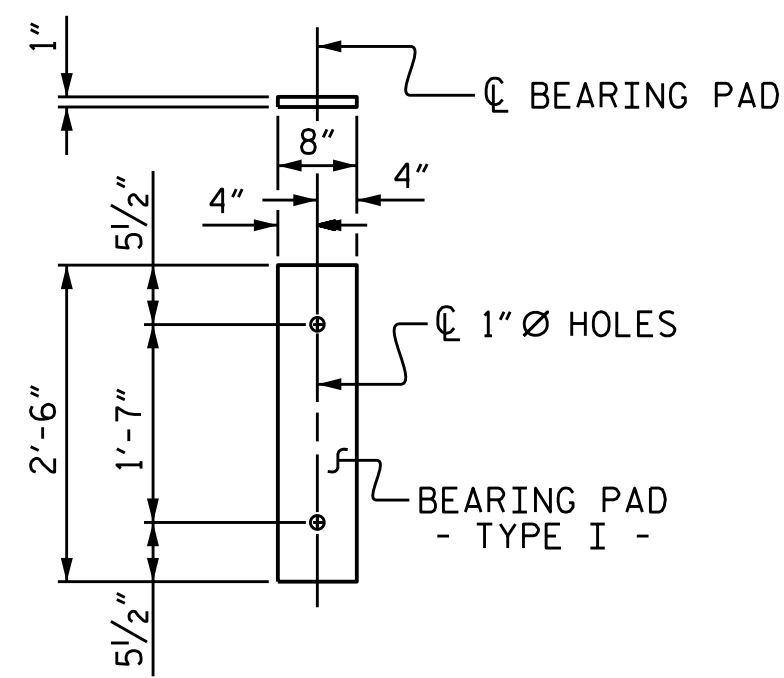
DocuSigned by:  
 Marshall G. Cheek, Jr.  
 3/29/2018

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2			4			15

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FIXED END  
(TYPE I - 22 REO'D)

**ELASTOMERIC BEARING DETAILS**

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

**DEAD LOAD DEFLECTION AND CAMBER**

	3'-0" x 2'-0"
70' CORED SLAB UNIT	0.6" ∅ L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2 1/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/4" ↓
FINAL CAMBER	1 1/2" ↑

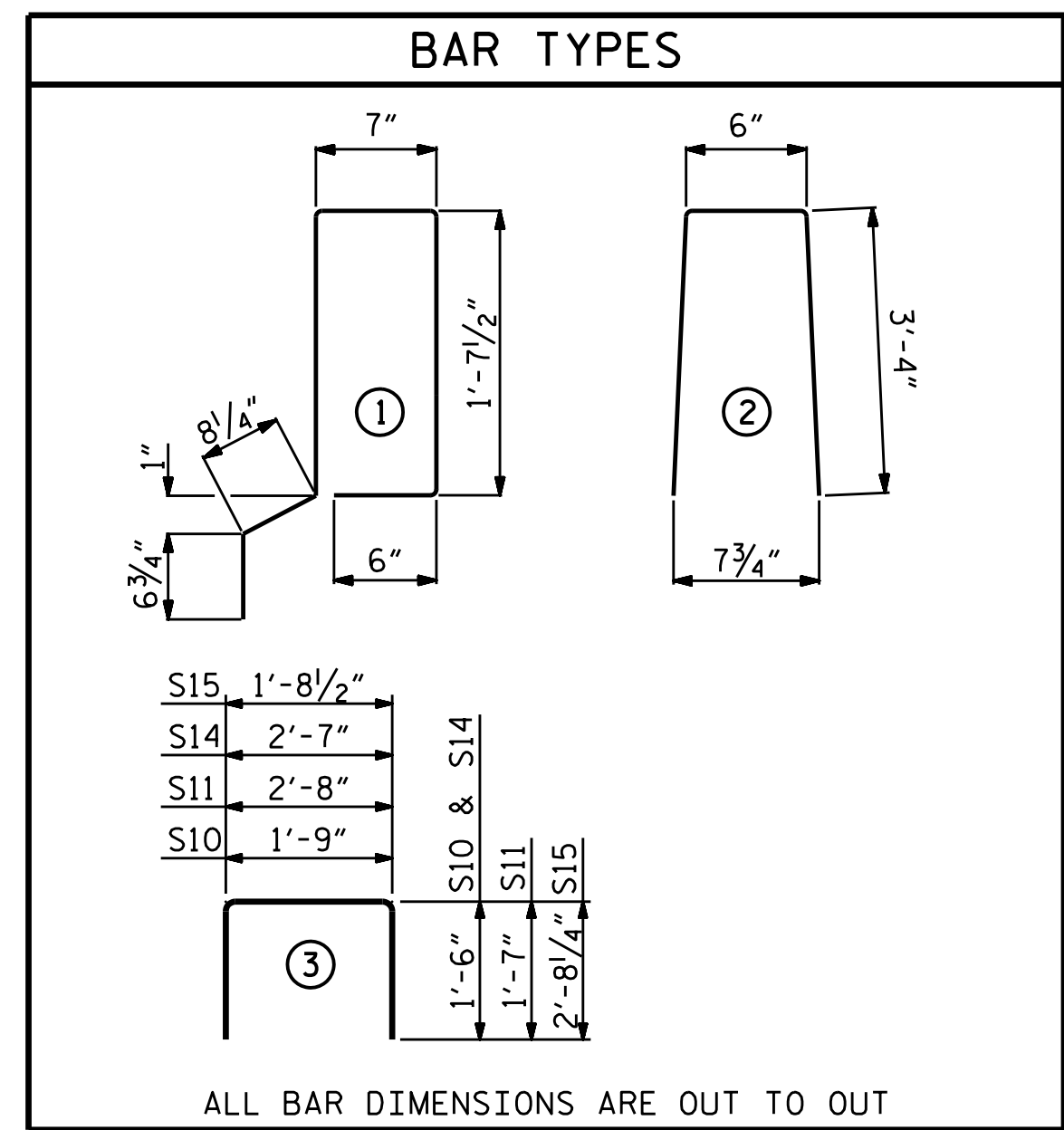
\*\* INCLUDES FUTURE WEARING SURFACE

**BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT**

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	144	#4	3	5'-10"	561	5'-10"	561
*S12	79	#5	1	5'-7"	460		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL				LBS.	744		744
* EPOXY COATED REINFORCING STEEL				LBS.	460		
7000 P.S.I. CONCRETE				CU. YDS.	11.8		11.8
0.6" ∅ L.R. STRANDS				No.	28		28

**GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT**

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
70' UNITS	1 1/2"	3'-7 1/2"



**BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL**

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
70' UNIT						
*B25	60	60	#5	STR	22'-11"	1434
*S13	158	158	#5	2	7'-2"	1181
* EPOXY COATED REINFORCING STEEL					LBS.	2615
CLASS AA CONCRETE					CU. YDS.	18.1
TOTAL VERTICAL CONCRETE BARRIER RAIL					LN. FT.	140.00

**GRADE 270 STRANDS**

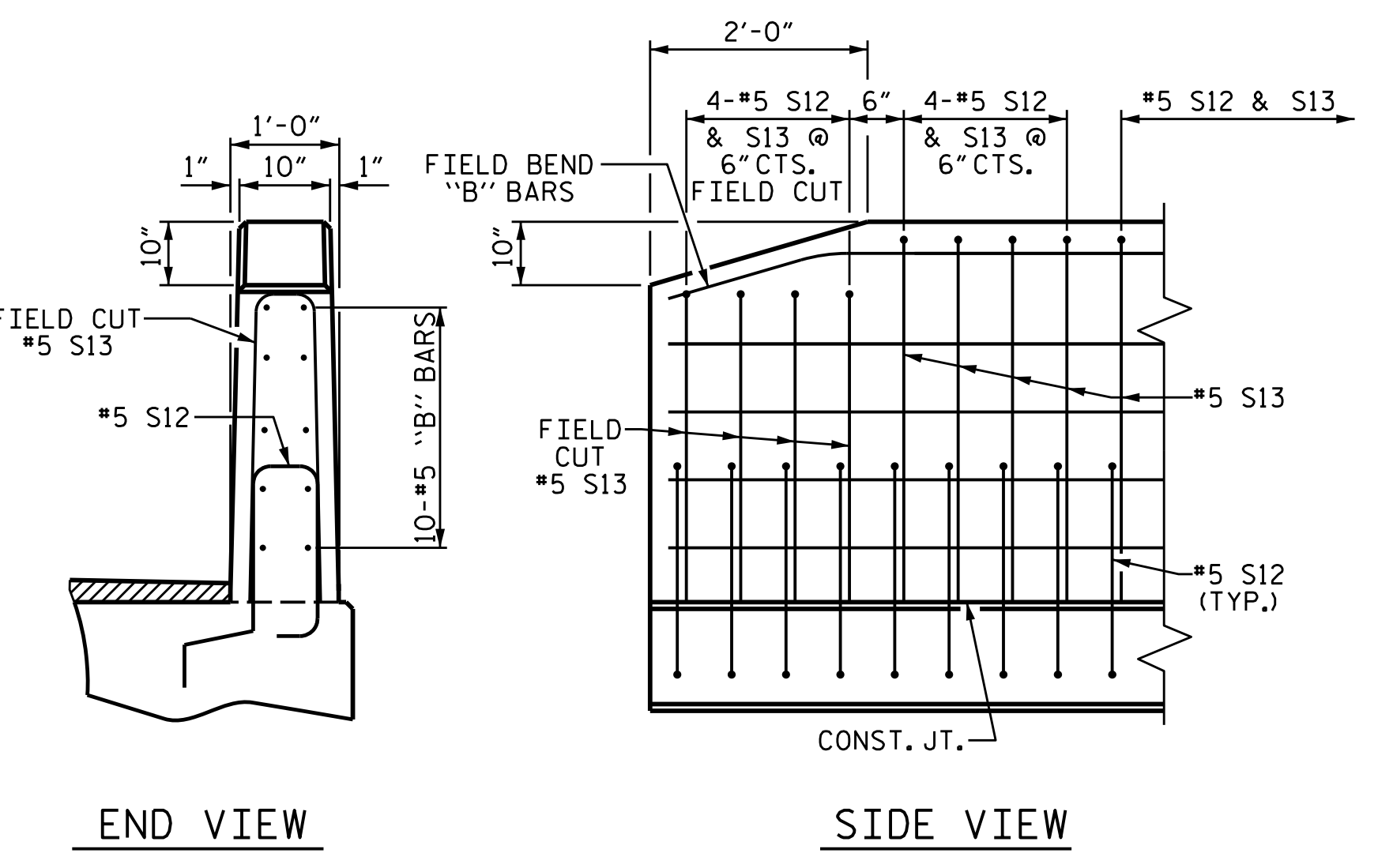
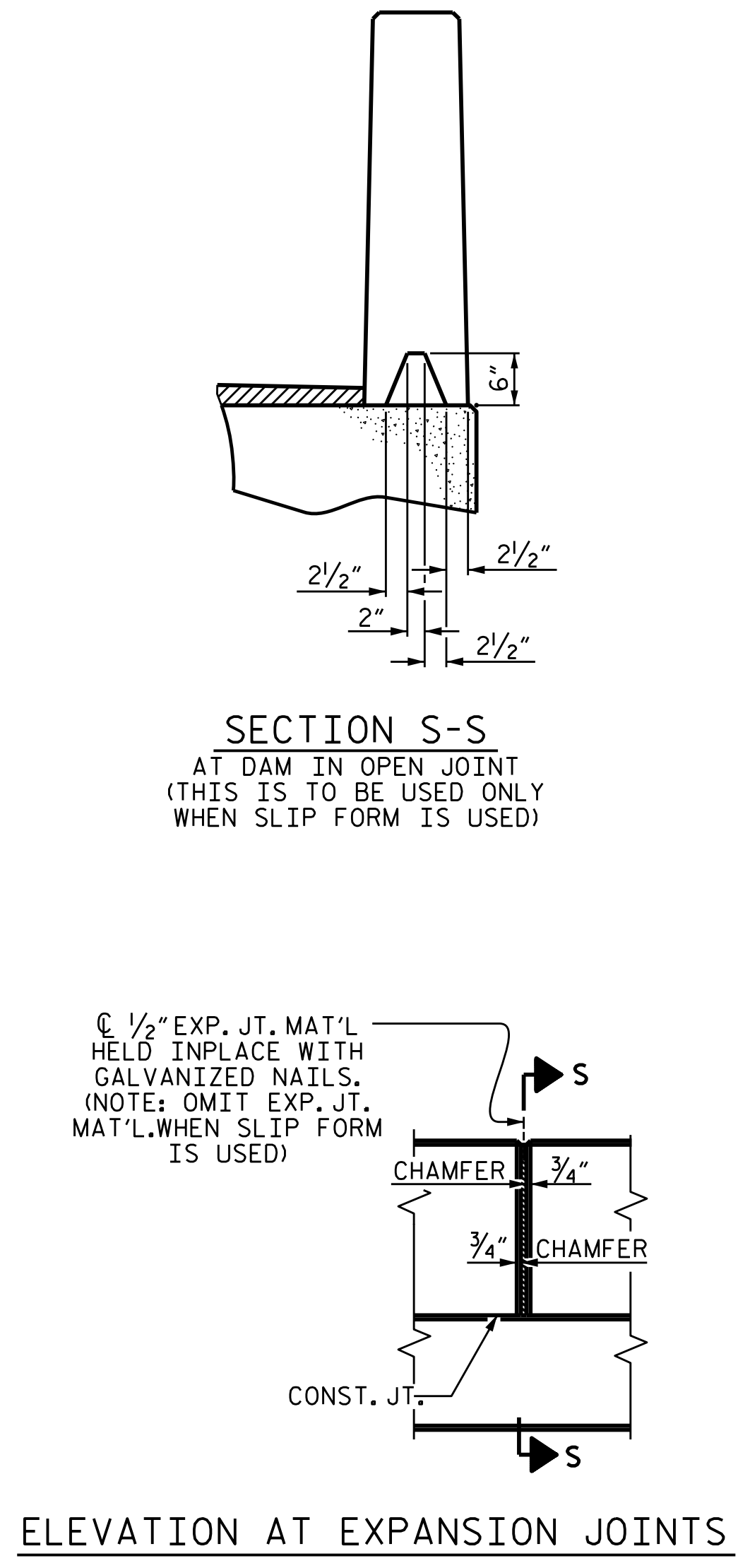
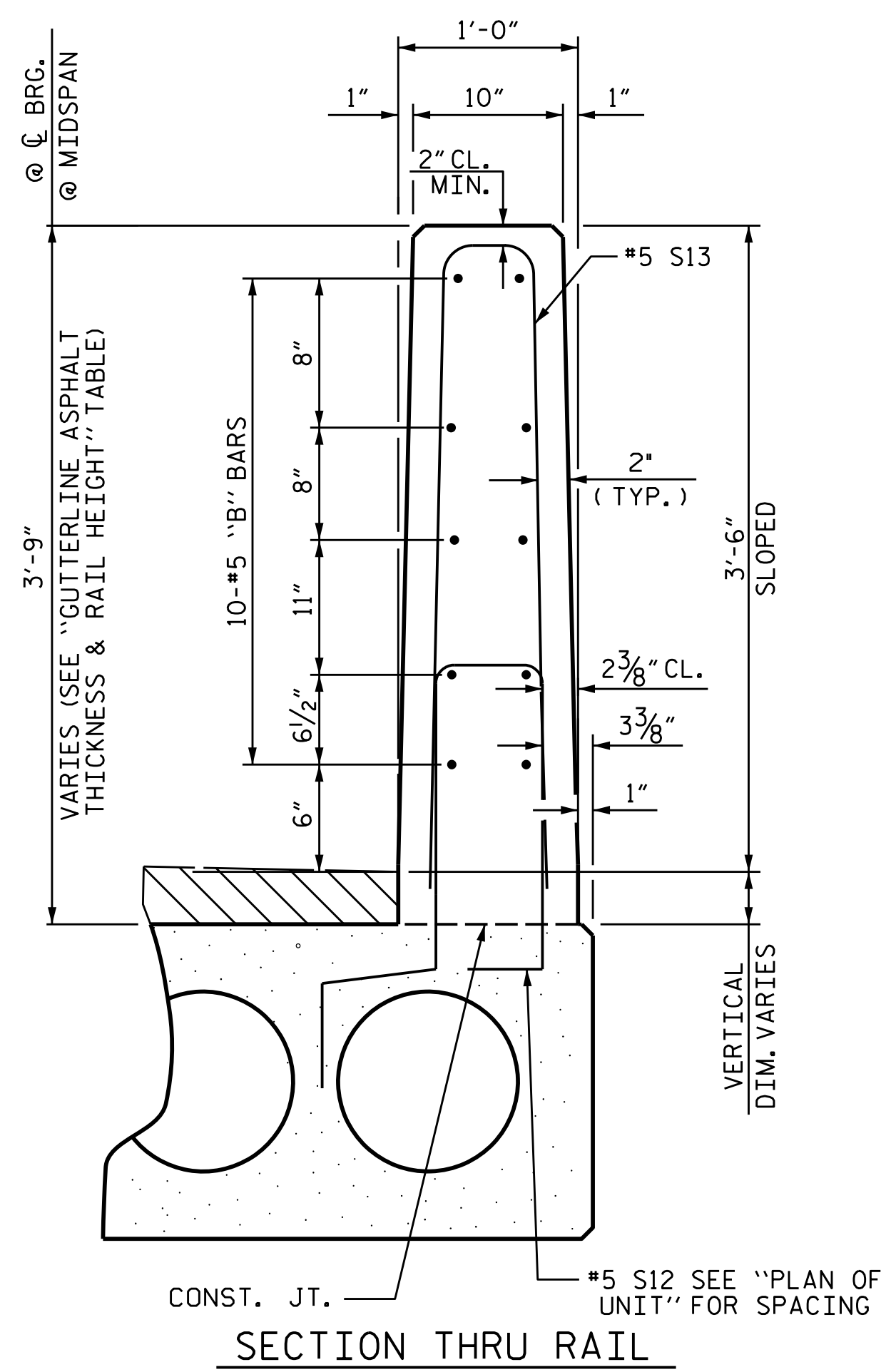
	0.6" ∅ L.R.
AREA ( SQUARE INCHES )	0.217
ULTIMATE STRENGTH ( LBS. PER STRAND )	58,600
APPLIED PRESTRESS ( LBS. PER STRAND )	43,950

**CORED SLABS REQUIRED**

70' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	70'-0"	140'-0"
INTERIOR C.S.	9	70'-0"	630'-0"
TOTAL	11		770'-0"

**CONCRETE RELEASE STRENGTH**

UNIT	PSI
70' UNITS	5500



**VERTICAL CONCRETE BARRIER RAIL DETAILS**

**NOTES**

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" ∅ DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

PROJECT NO. 17BP.4.R.86  
WILSON COUNTY  
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SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3'-0" X 2'-0"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT

SEAL  
020125  
ENGINEER  
MARSHALL G. CHEEK, JR.  
Marshall G. Cheek Jr. 4/19/2018

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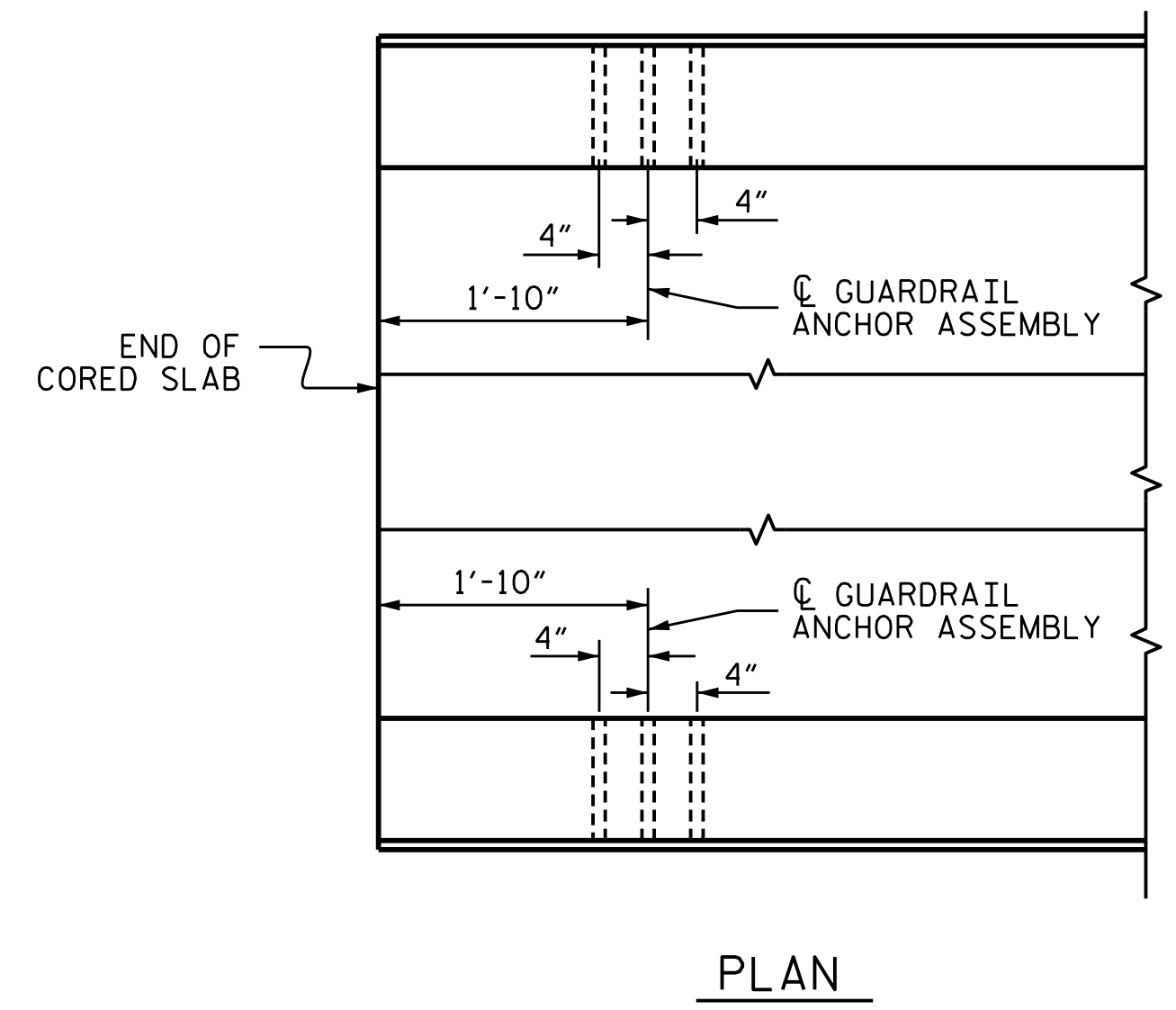
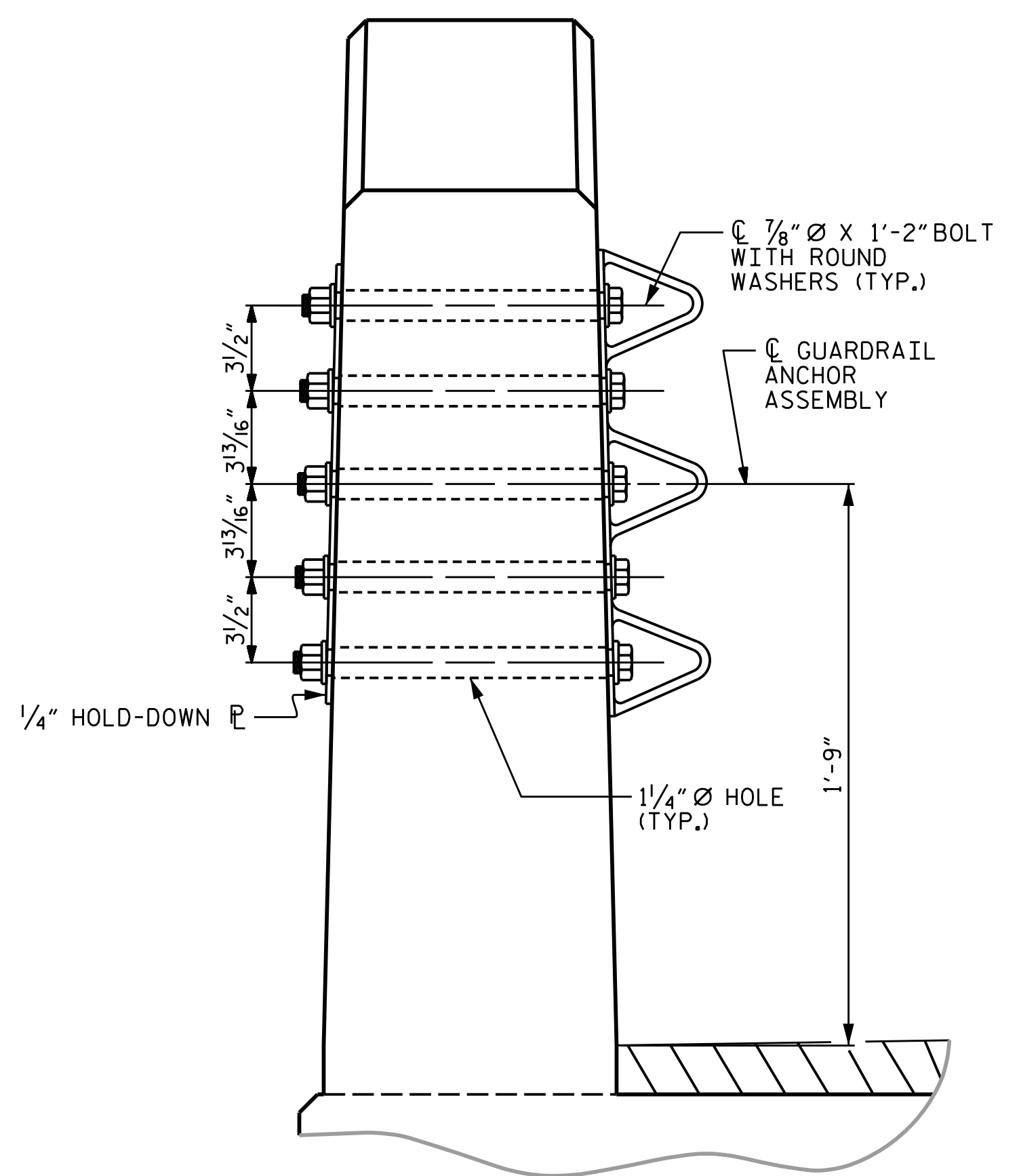
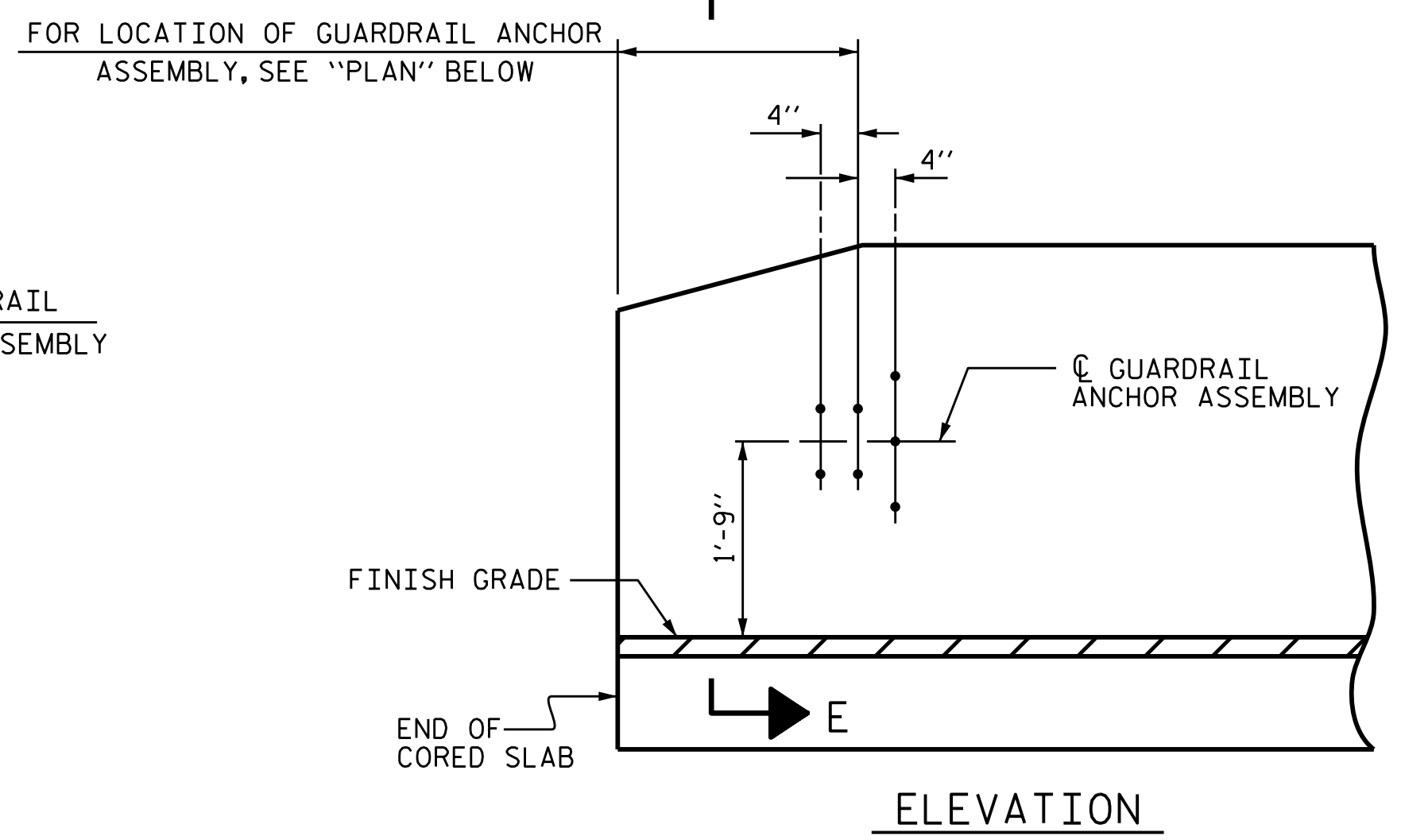
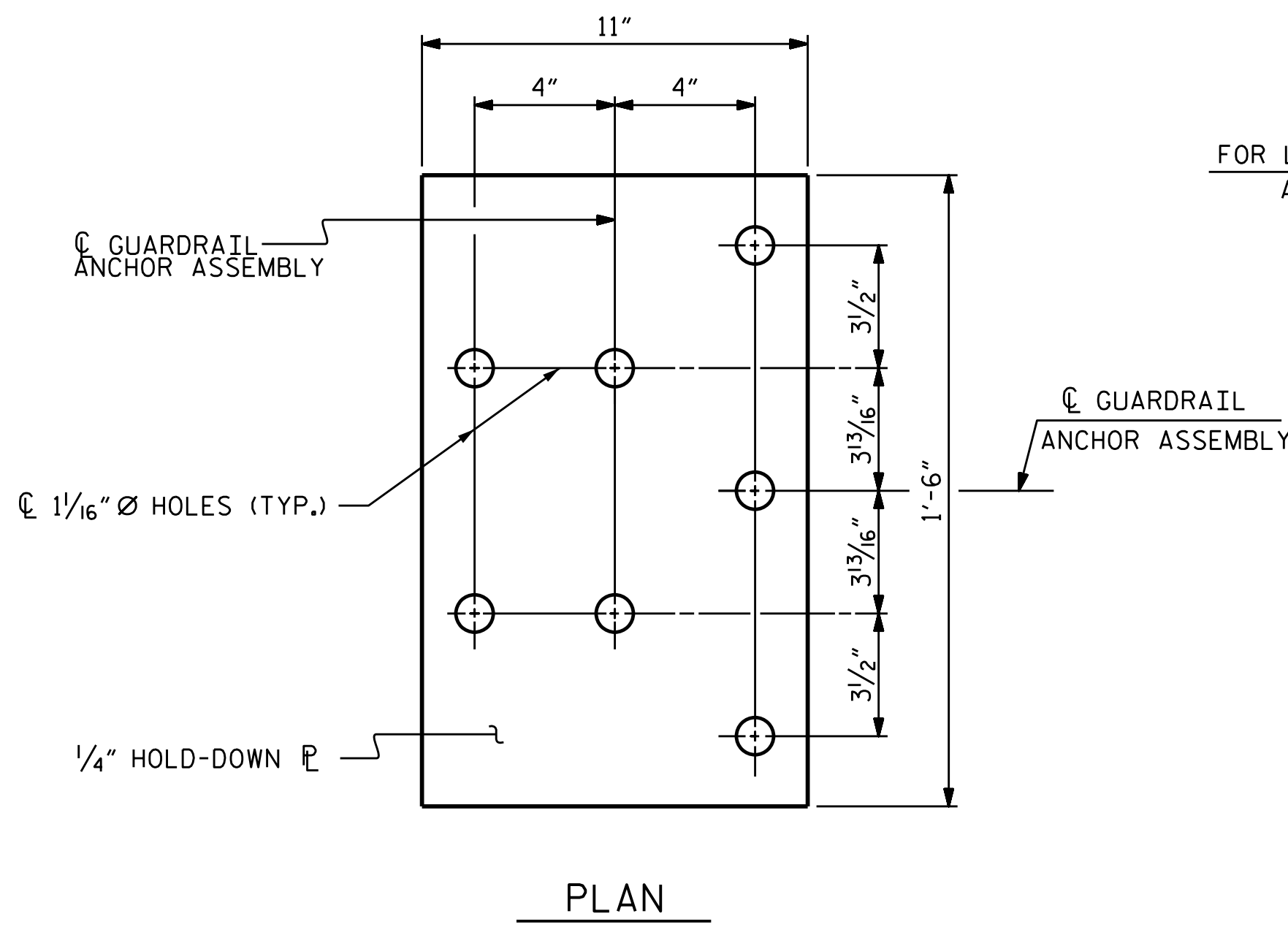
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1			3			TOTAL SHEETS
2			4			15

DRAWN BY : TBE DATE : 1/18  
CHECKED BY : MGC DATE : 2/18

**NOTES**

- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 1/8" Ø BOLTS WITH NUTS AND WASHERS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.
- AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.
- THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.
- THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.
- THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



LOCATION OF ANCHORS FOR GUARDRAIL  
END BENT #1 SHOWN, END BENT #2 SIMILAR.



PROJECT NO. 17BP.4.R.86  
WILSON COUNTY  
STATION: 15+08.00 -L-

Professional Engineer Seal for Marshall G. Cheek, Jr., License No. 37292, State of North Carolina. Date: 3/29/2018.

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TGS ENGINEERS  
804-C N. LAFAYETTE ST  
SHELBY, NC 28150  
PH (704) 476-0003  
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL						S-8
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	15
1			3			
2			4			

DRAWN BY: TBE DATE: 1/18  
CHECKED BY: MGC DATE: 2/18

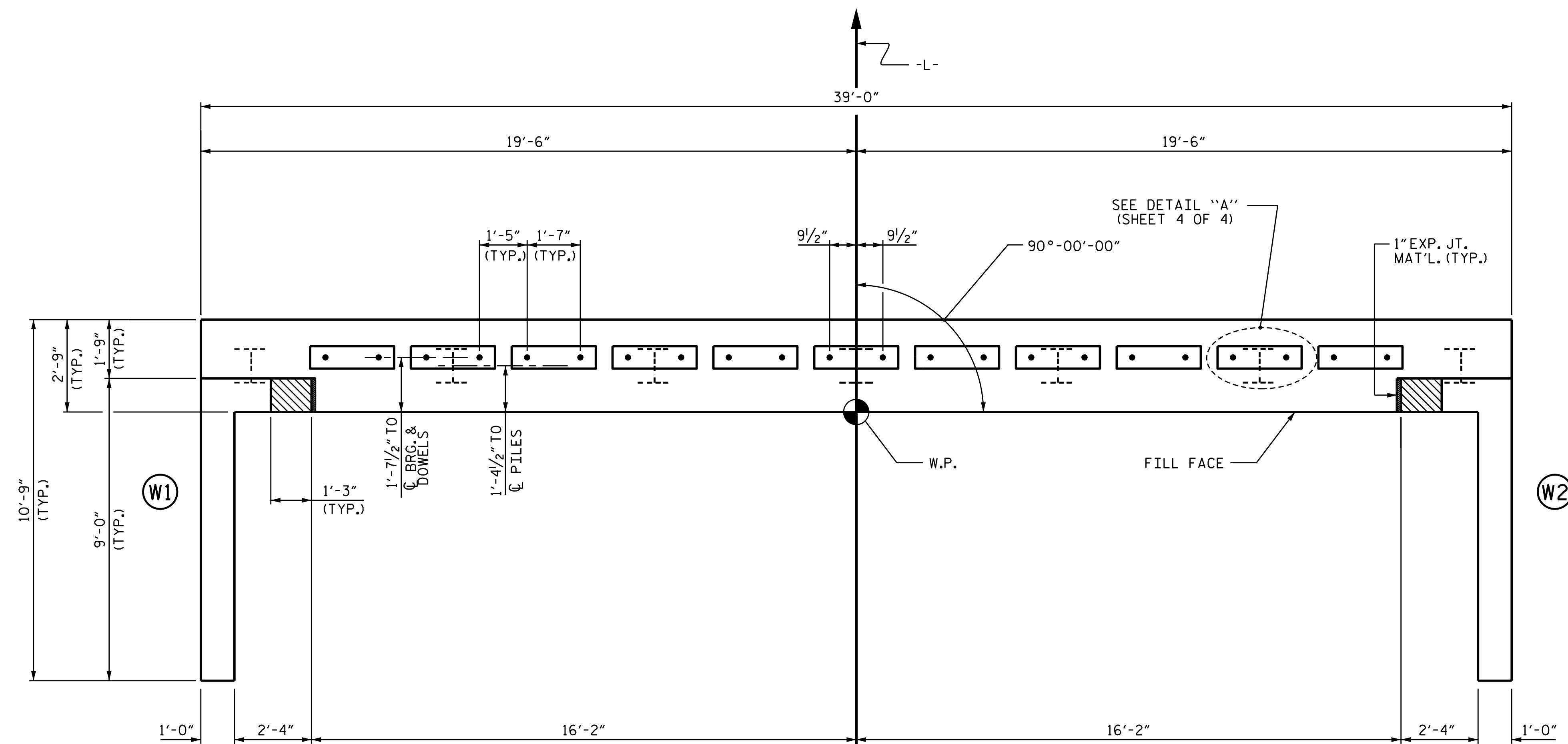
**NOTES**

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

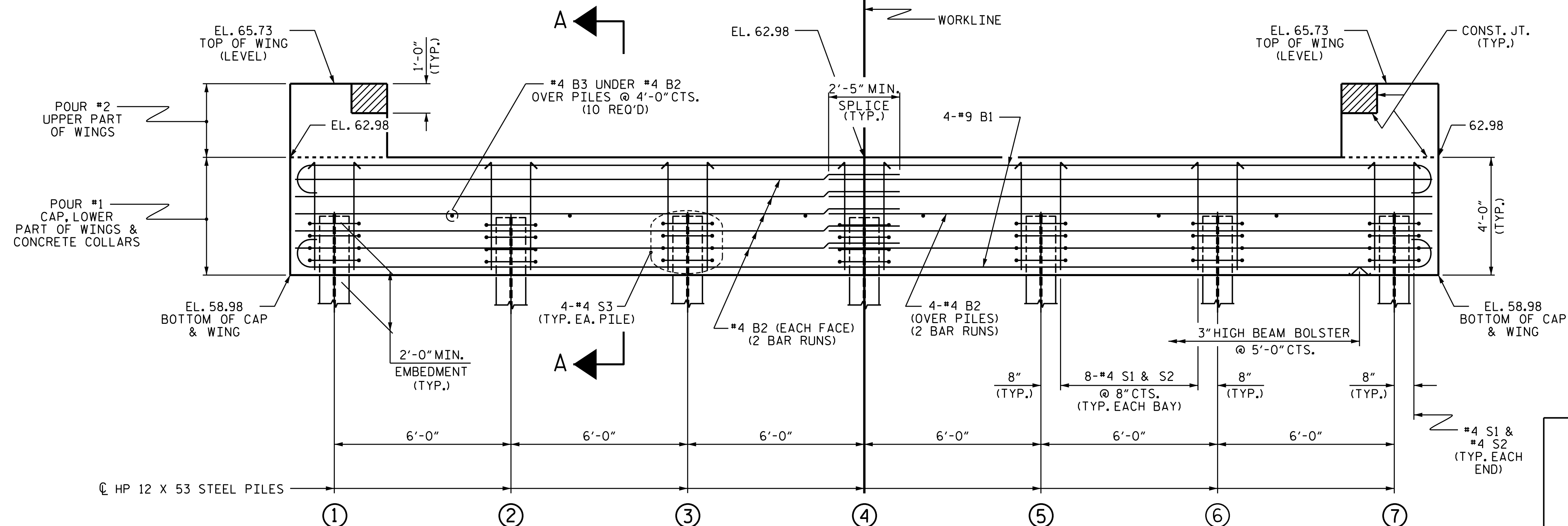
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



**PLAN**



**ELEVATION**

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.

PROJECT NO. 17BP.4.R.86

WILSON COUNTY

STATION: 15+08.00 -L-

SHEET 1 OF 4



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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT No. 1

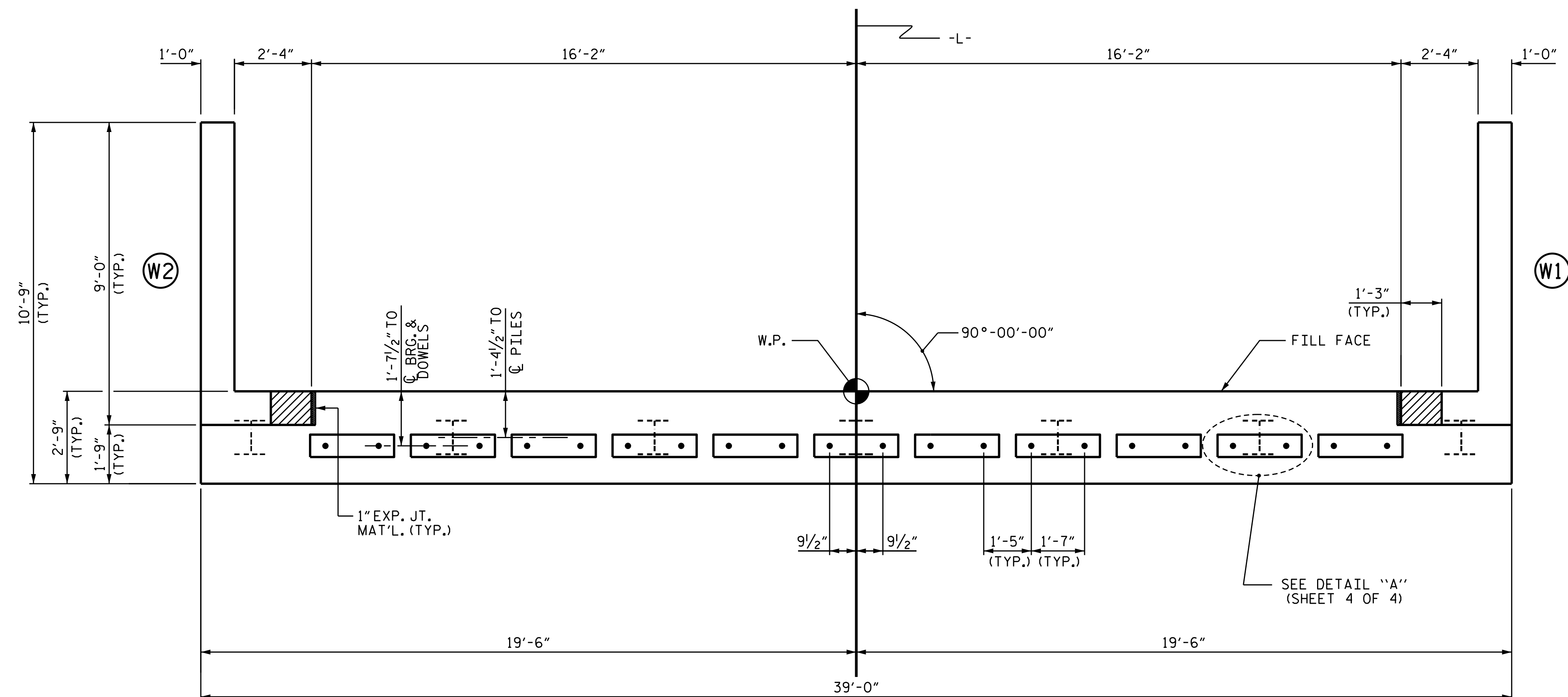
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : TBE DATE : 1/18  
CHECKED BY : MGC DATE : 2/18

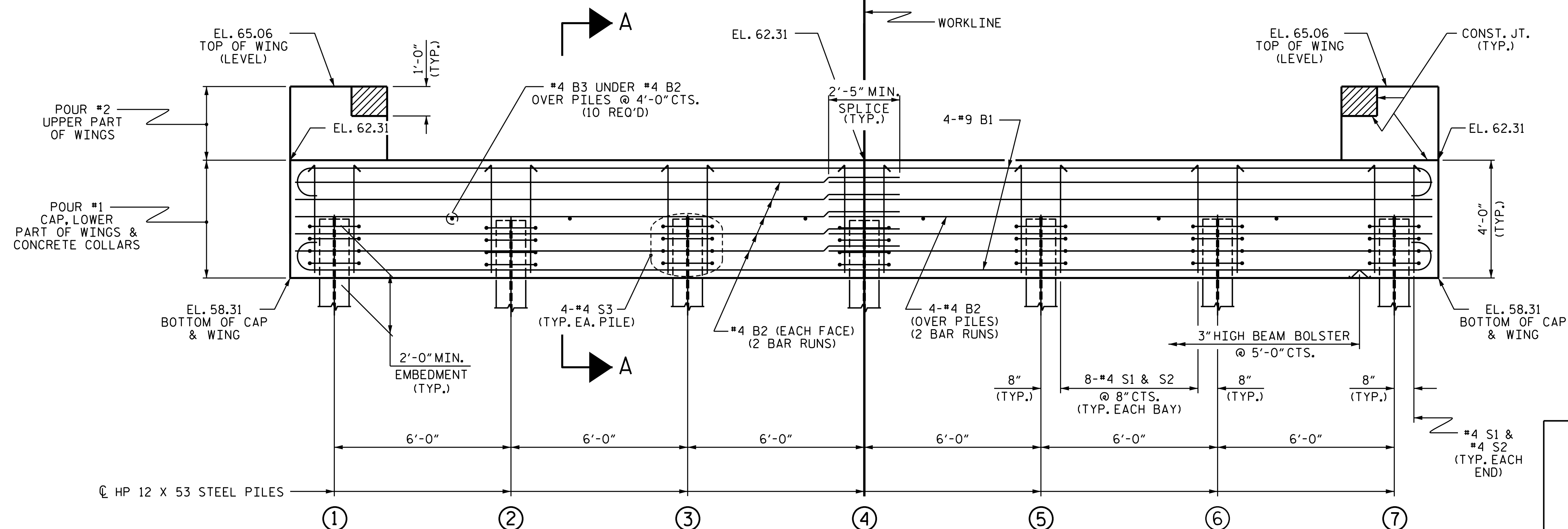


**NOTES**

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**

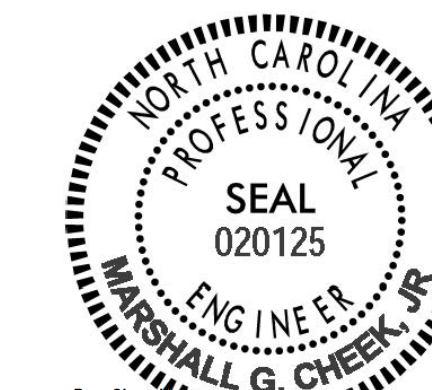
WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A, SEE SHEET 4 OF 4.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. 17BP.4.R.86

WILSON COUNTY

STATION: 15+08.00 -L-

SHEET 2 OF 4



3/29/2018

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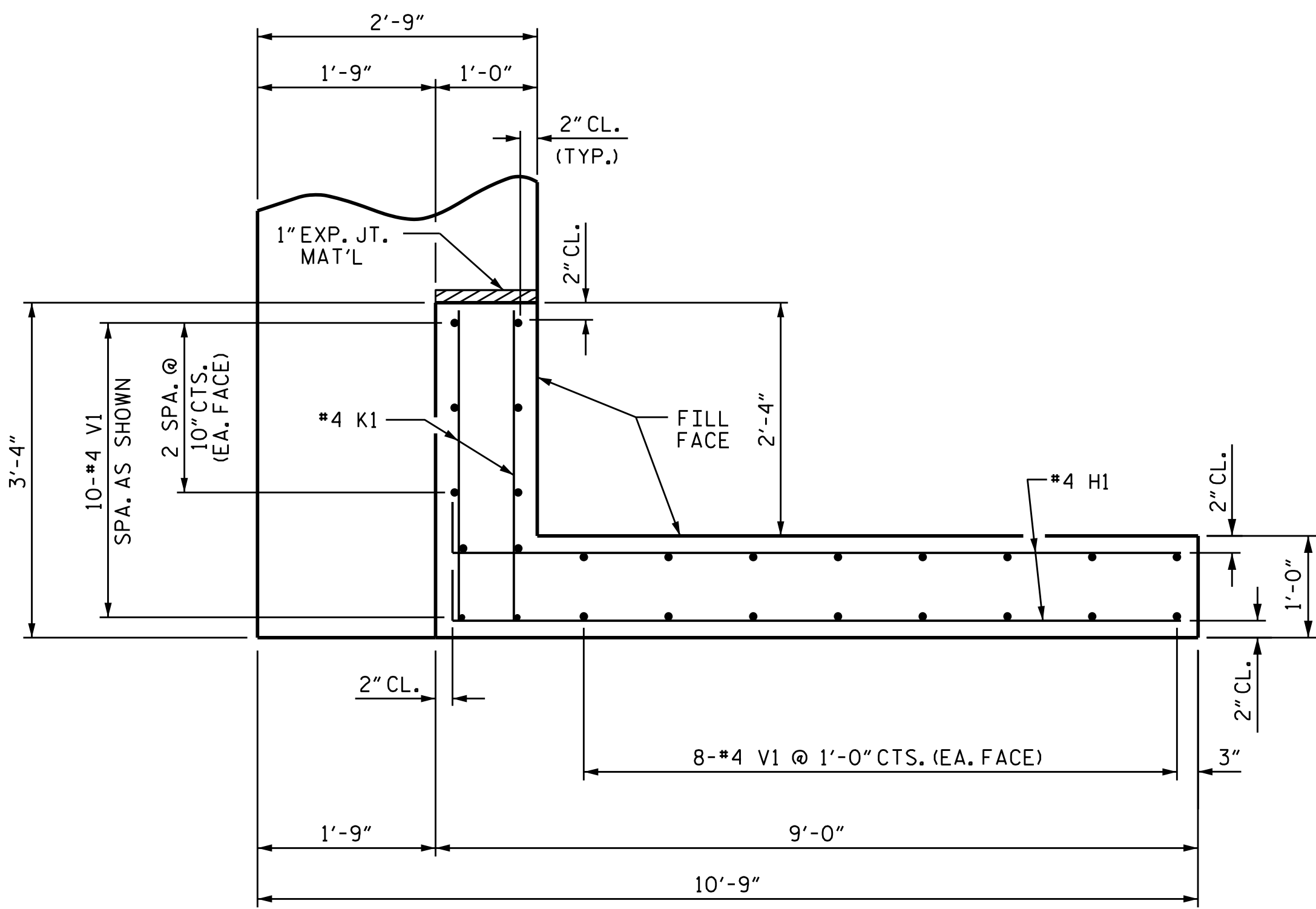
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STATE OF NORTH CAROLINA  
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 RALEIGH

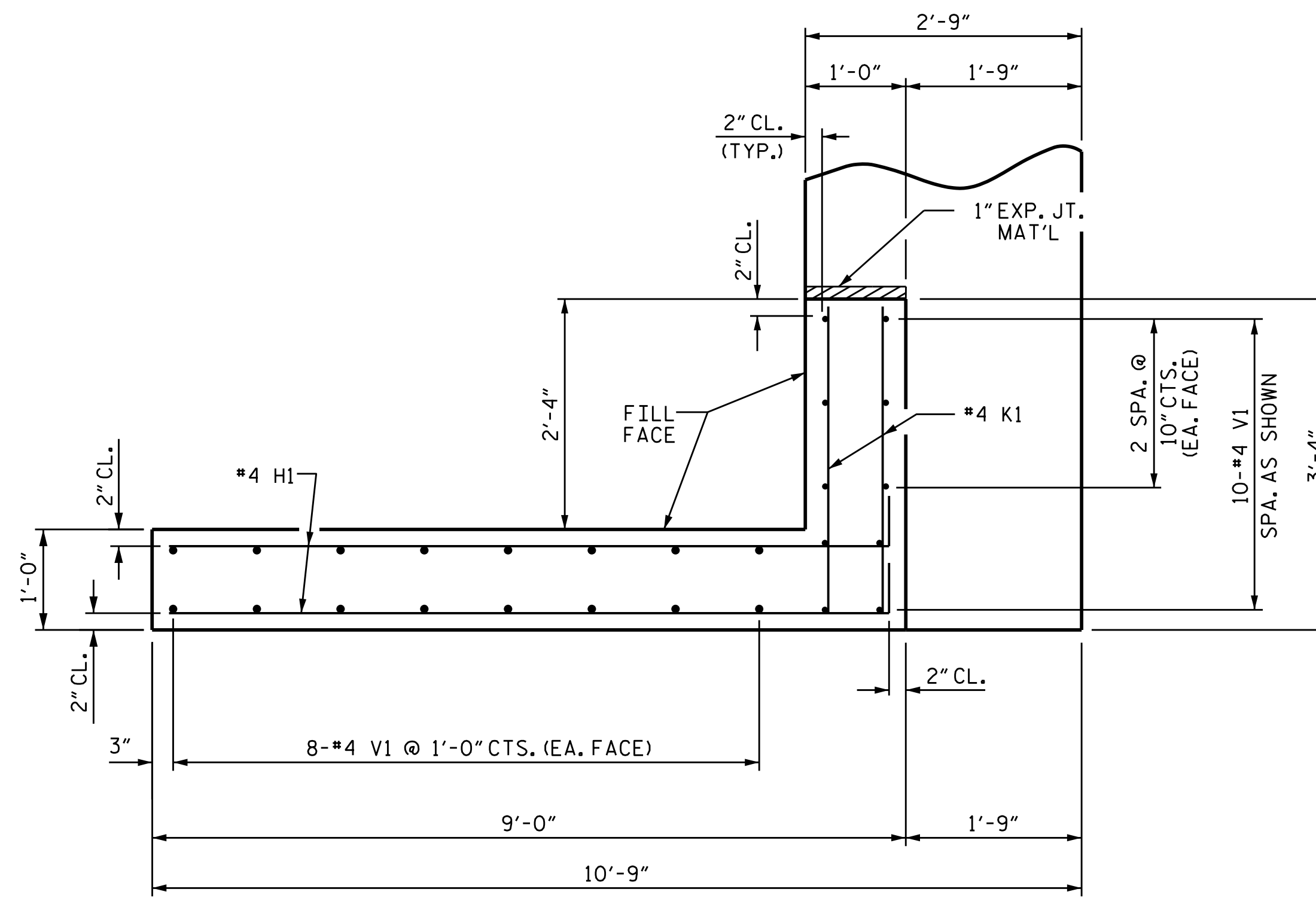
SUBSTRUCTURE  
 END BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			15

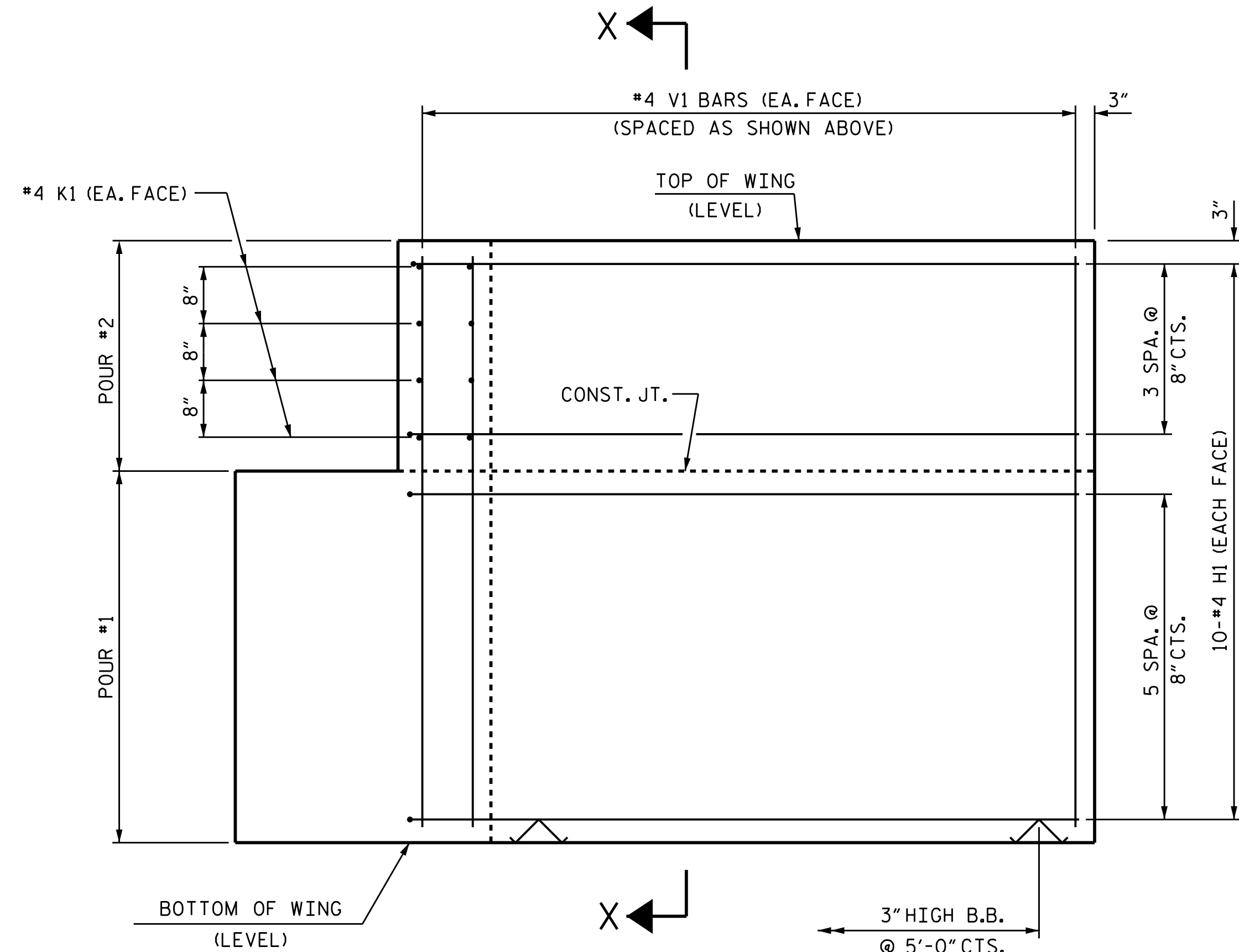
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 CHECKED BY : MGC DATE : 2/18



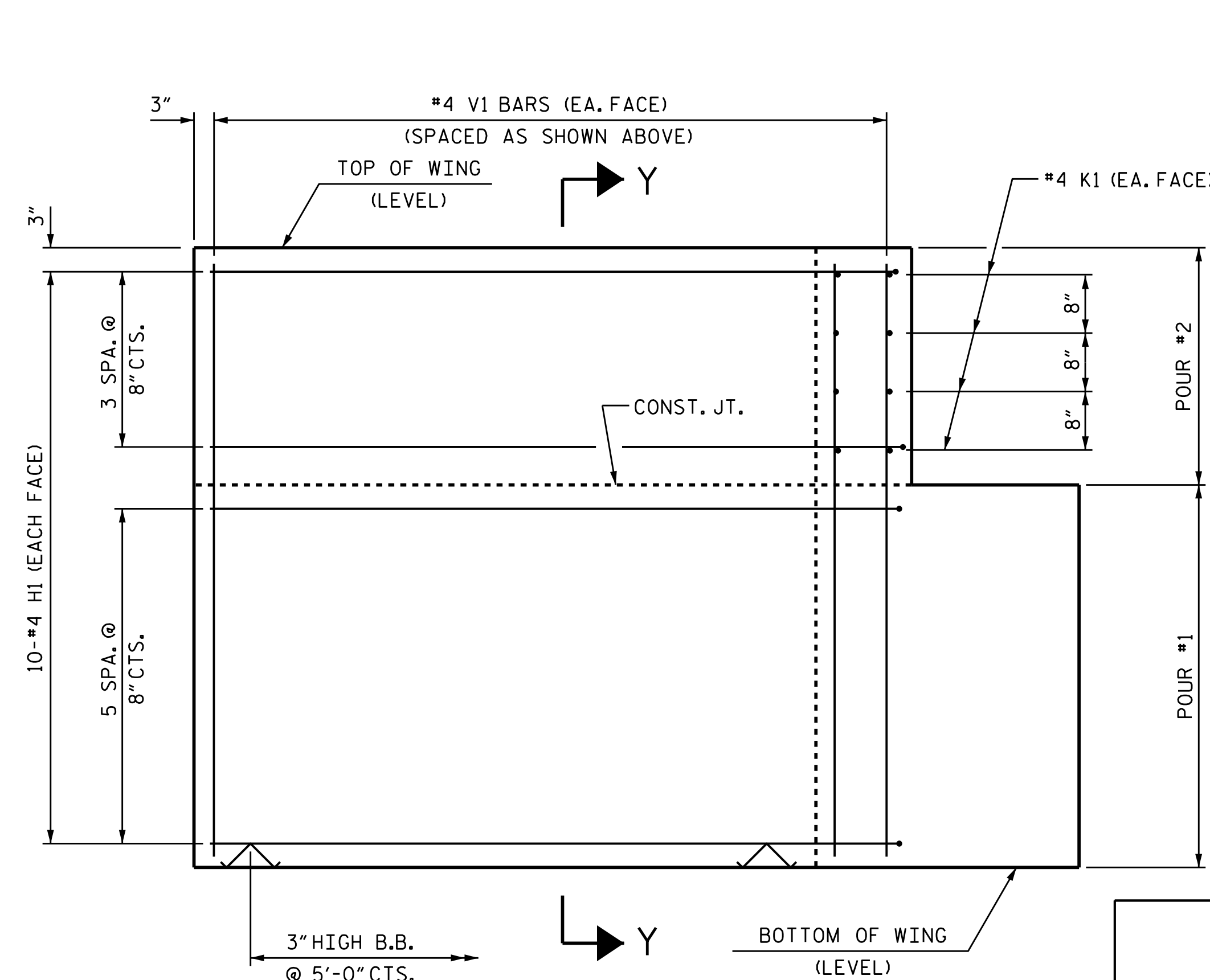
PLAN OF WING (W1)



PLAN OF WING (W2)

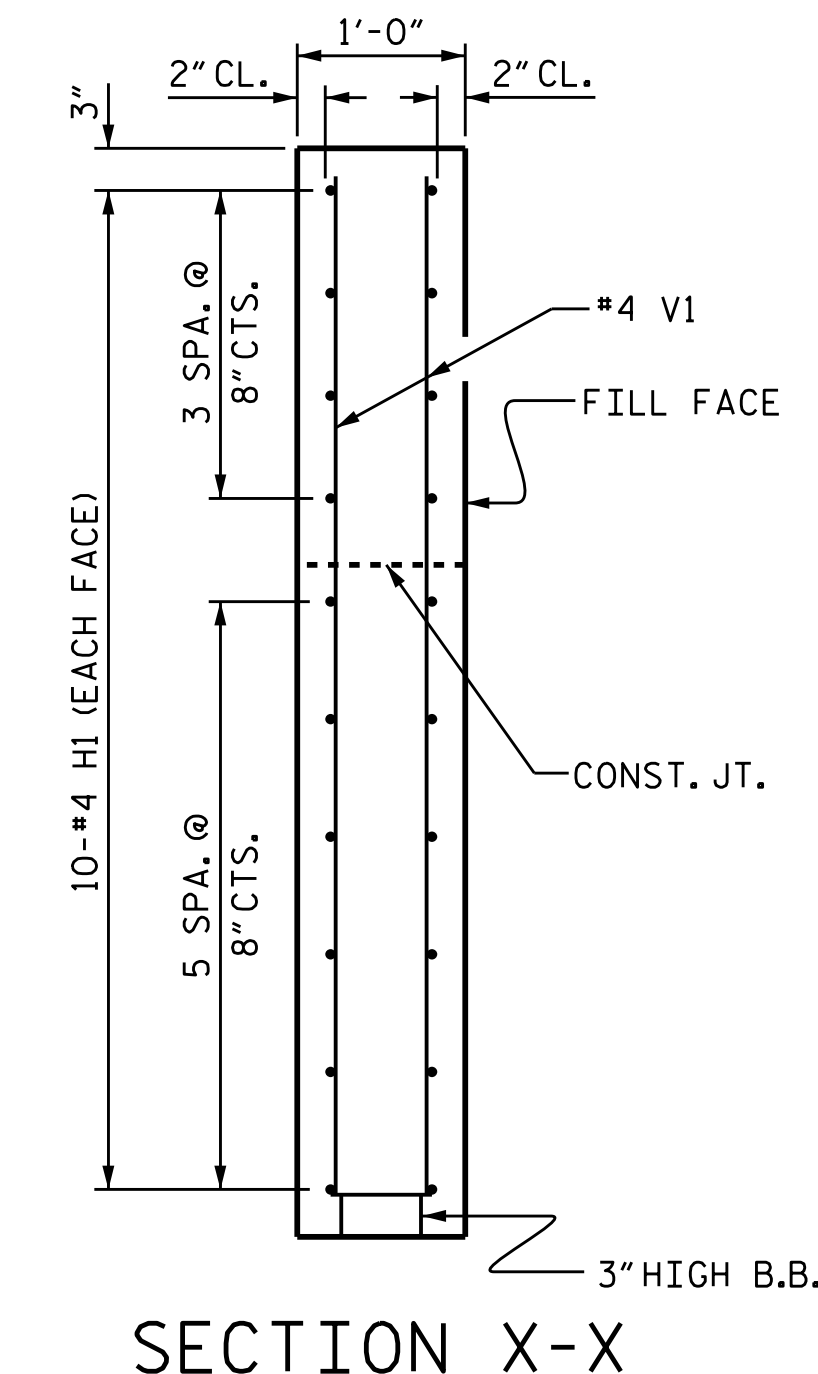


ELEVATION OF WING (W1)

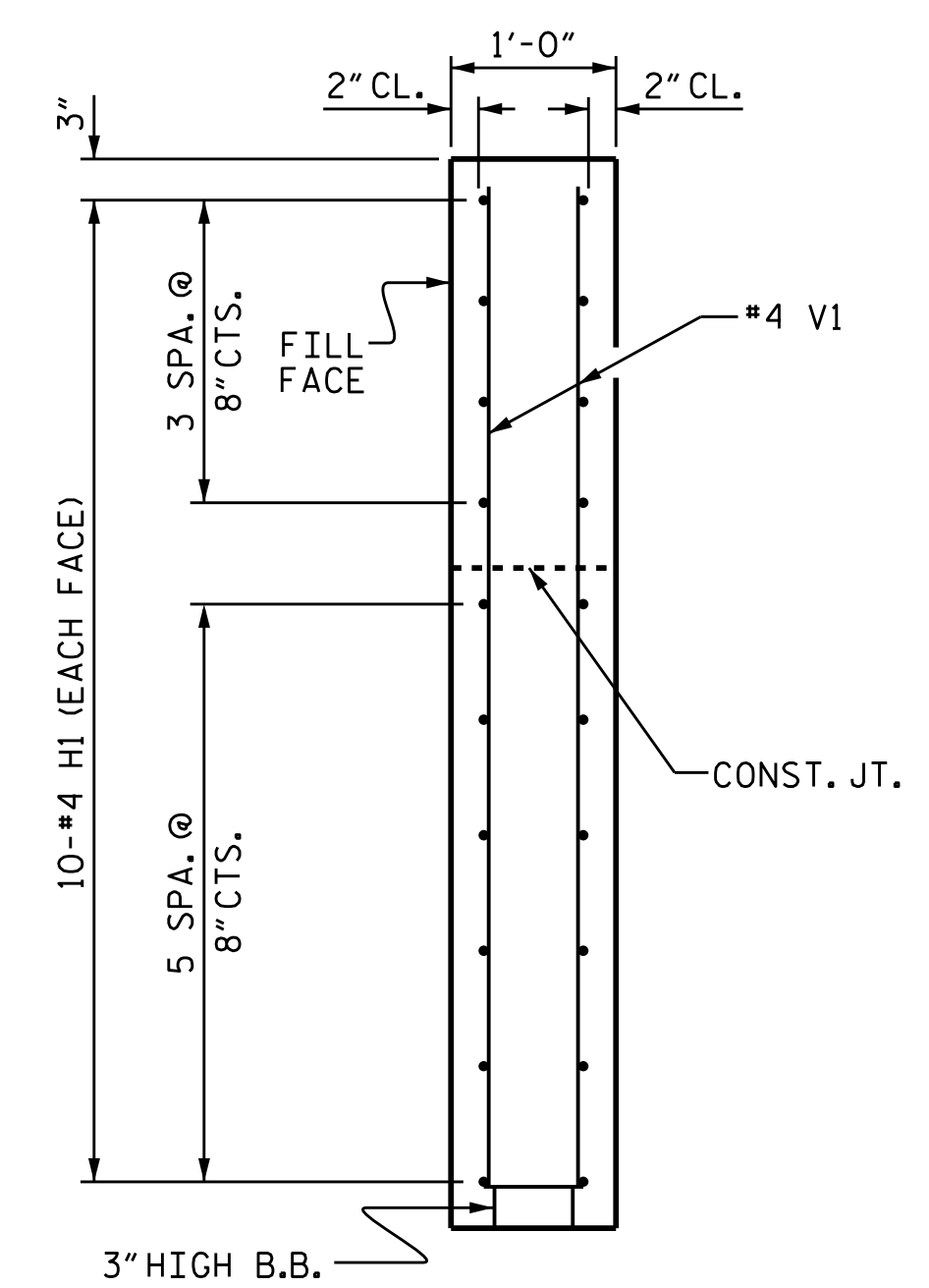


ELEVATION OF WING (W2)

WING DETAILS



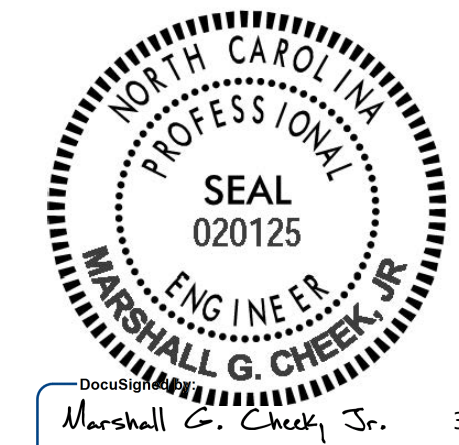
SECTION X-X



SECTION Y-Y

PROJECT NO. 17BP.4.R.86  
 WILSON COUNTY  
 STATION: 15+08.00 -L-

SHEET 3 OF 4



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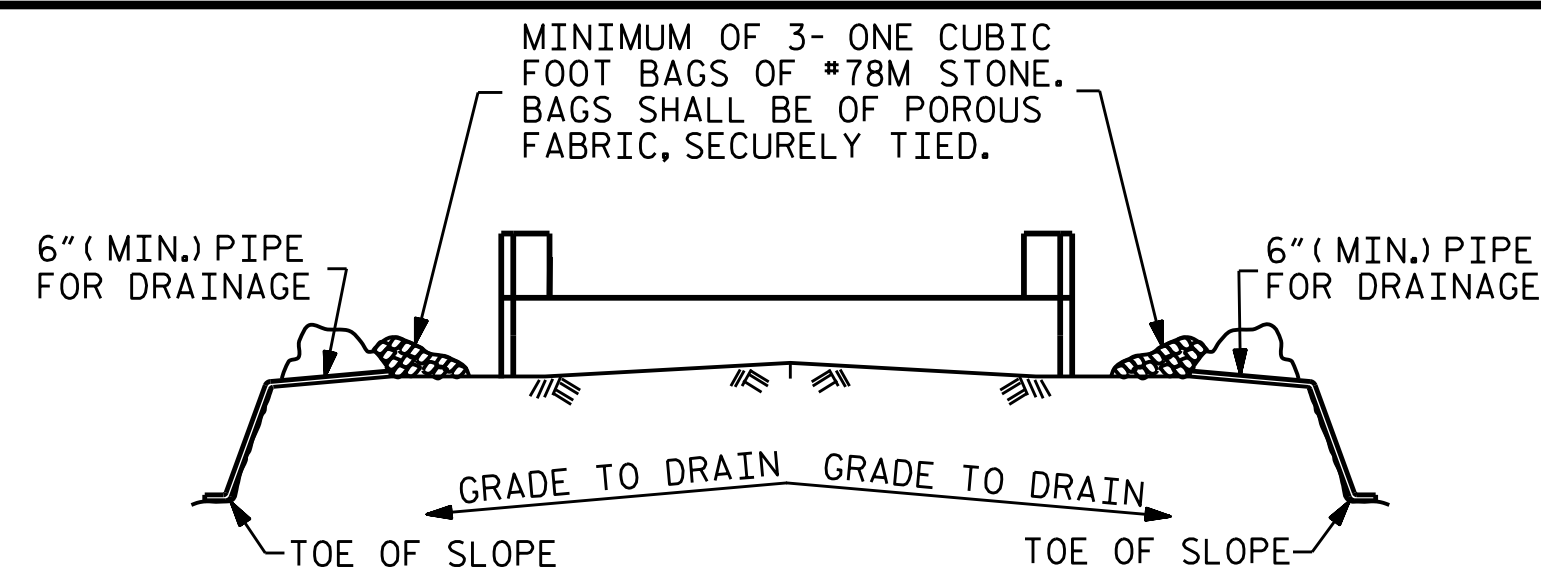
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

END BENT  
 WING DETAILS

DRAWN BY : TBE DATE : 1/18  
 CHECKED BY : MGC DATE : 2/18

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			15

STD. NO. EB\_33\_90S4

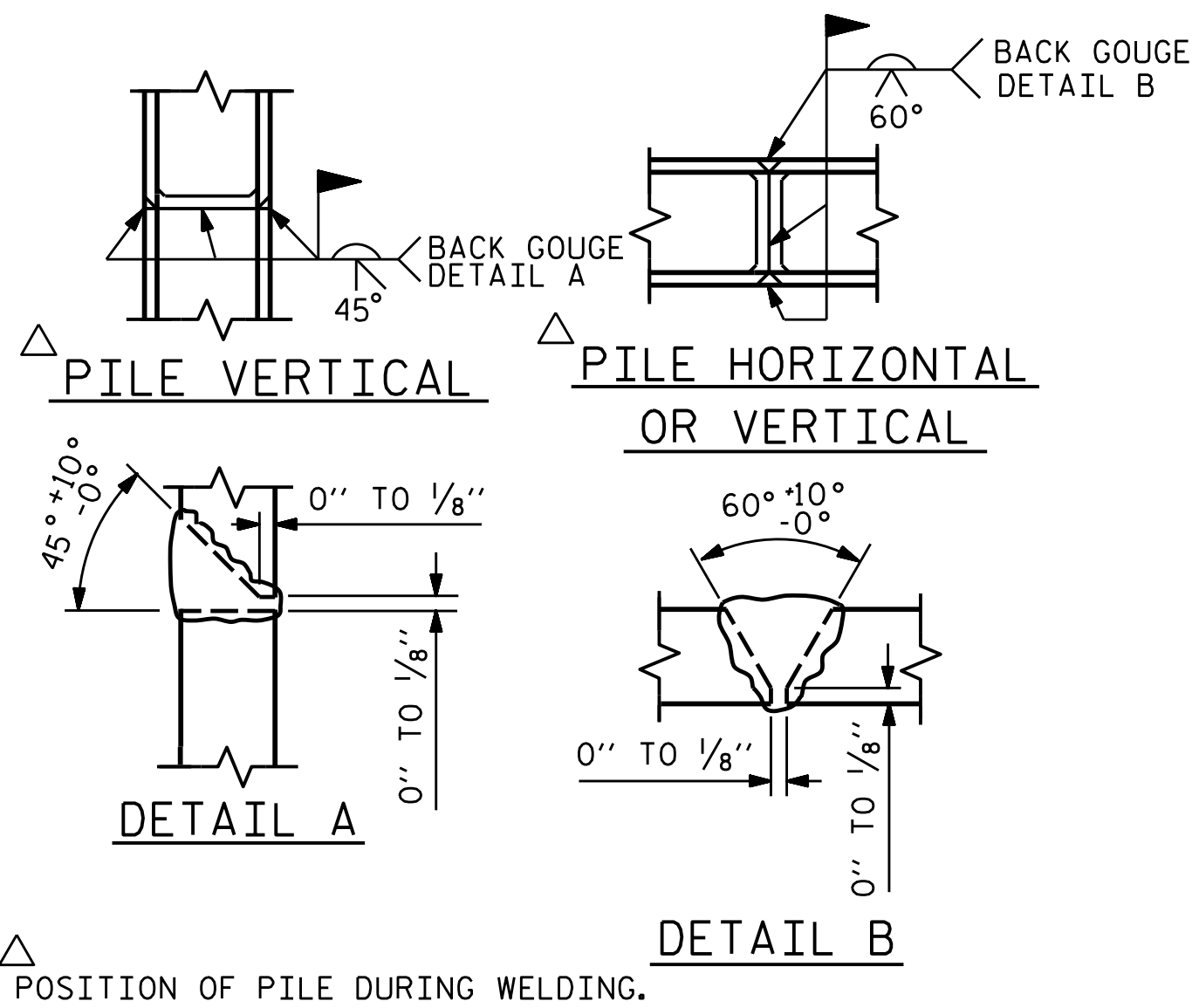


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

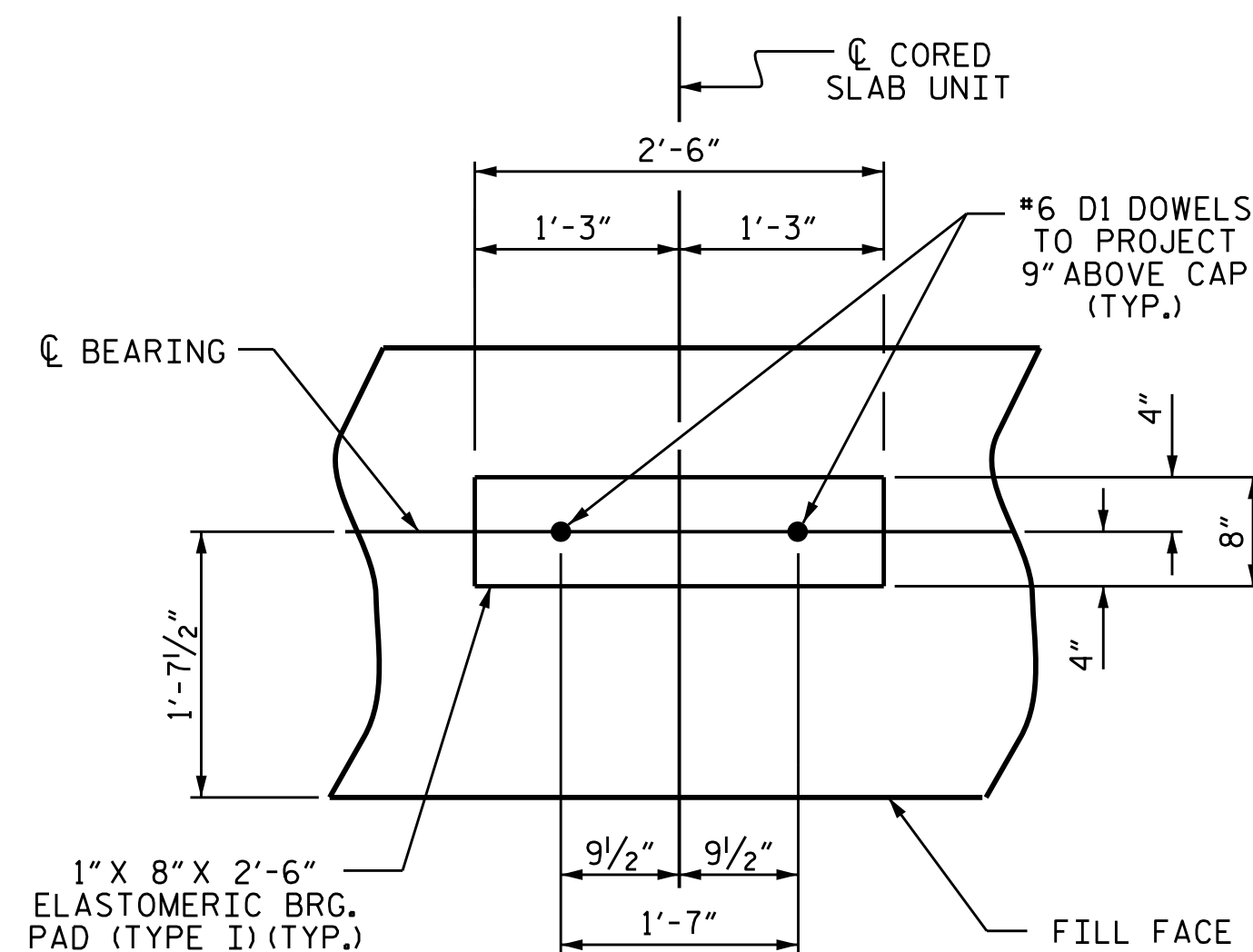
### TEMPORARY DRAINAGE AT END BENT



### PILE SPLICE DETAILS

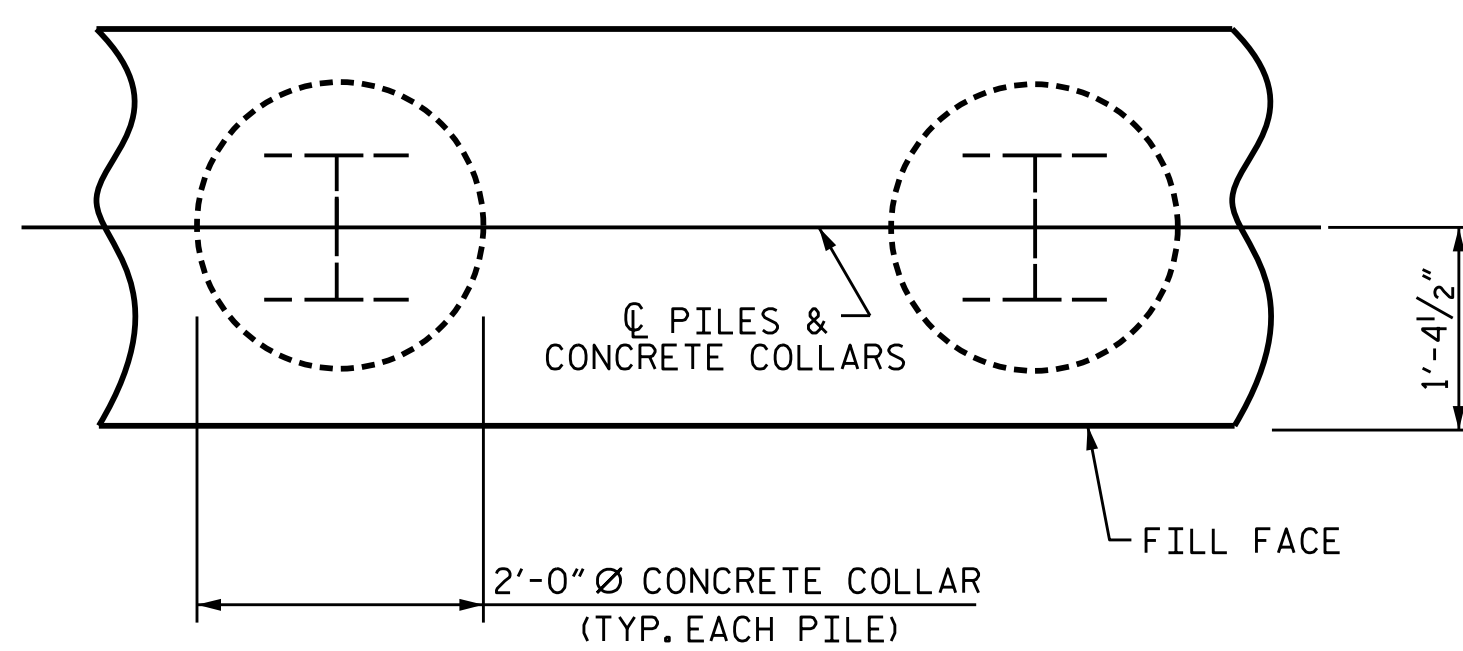
BAR TYPES	
ALL BAR DIMENSIONS ARE OUT TO OUT.	
END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 385	HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 385
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES EACH 7	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES EACH 7
PILE REDRIVES EACH 4	PILE REDRIVES EACH 4

BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		41'-0"	1115
B2	28	#4	STR	20'-7"	385
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	40	#4		9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	50	#4		10'-5"	348
S2	50	#4		3'-2"	106
S3	28	#4		6'-6"	122
V1	52	#4	STR	6'-2"	214
REINFORCING STEEL (FOR ONE END BENT)					2636 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					19.5 C.Y.
POUR #2 UPPER PART OF WINGS					2.3 C.Y.
TOTAL CLASS A CONCRETE					21.8 C.Y.



### DETAIL "A"

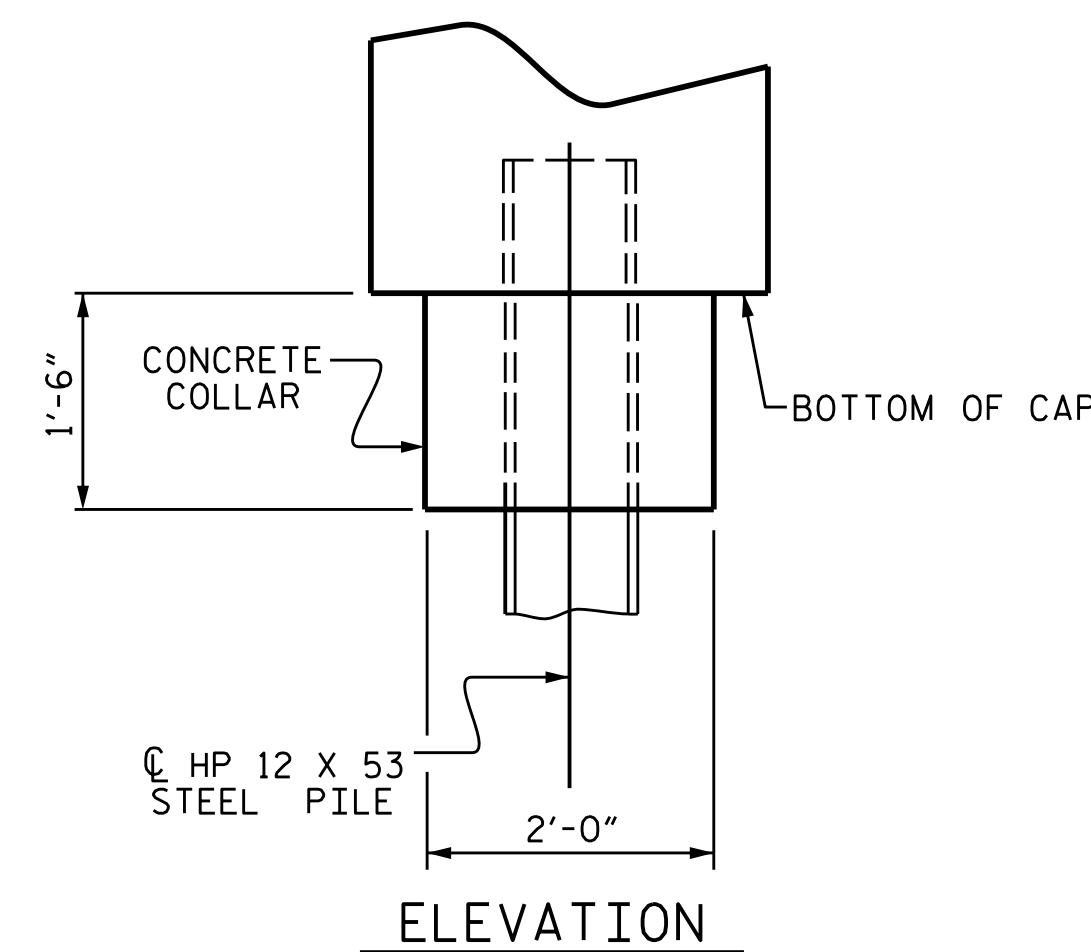
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



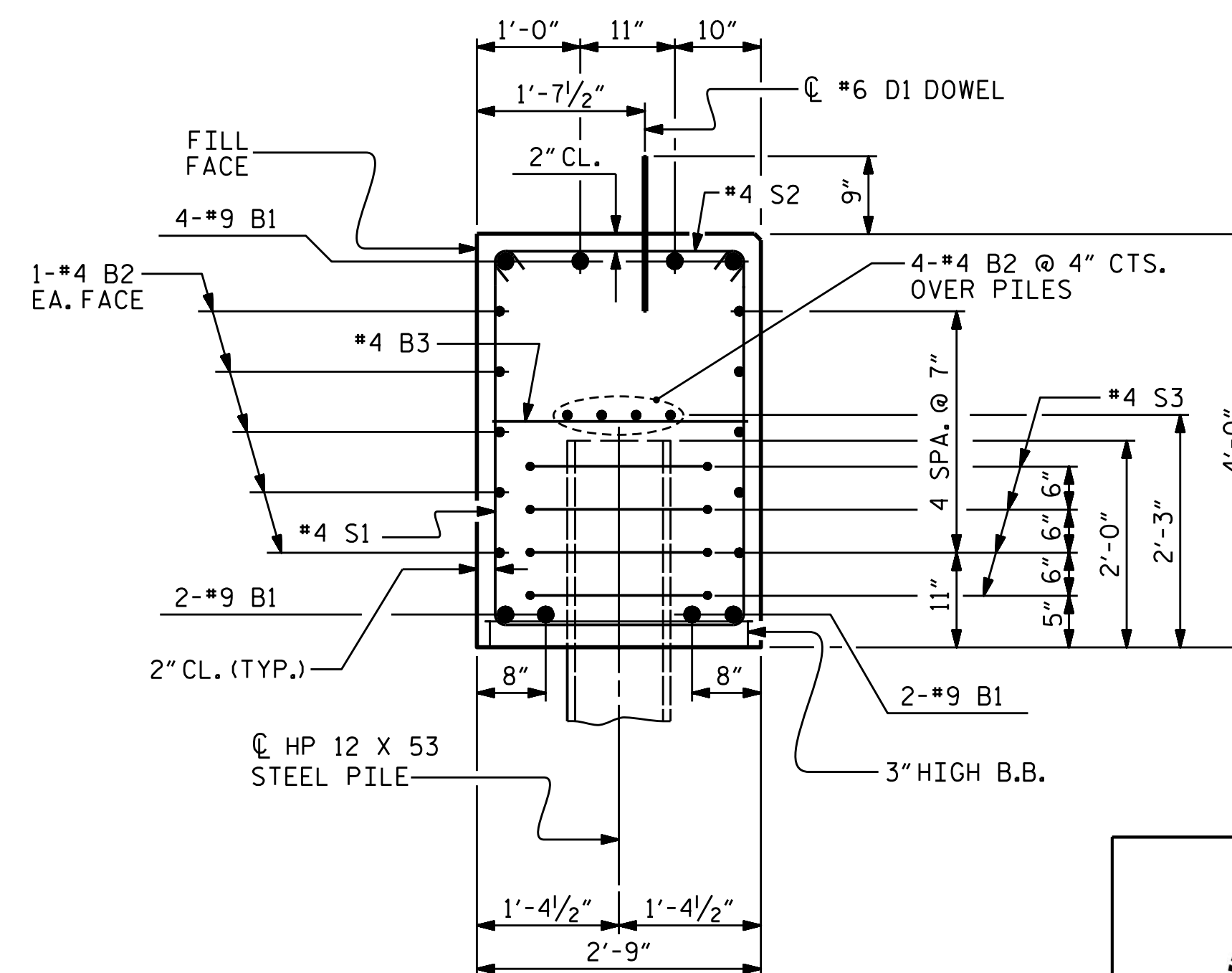
### PLAN

### CORROSION PROTECTION FOR STEEL PILES DETAIL

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



### ELEVATION



### SECTION A-A

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

PROJECT NO. 17BP.4.R.86

WILSON COUNTY

STATION: 15+08.00 -L-

SHEET 4 OF 4



3/29/2018

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804-C N. LAFAYETTE ST  
SHELBY, NC 28150  
PH (704) 476-0003  
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2  
DETAILS

### REVISIONS

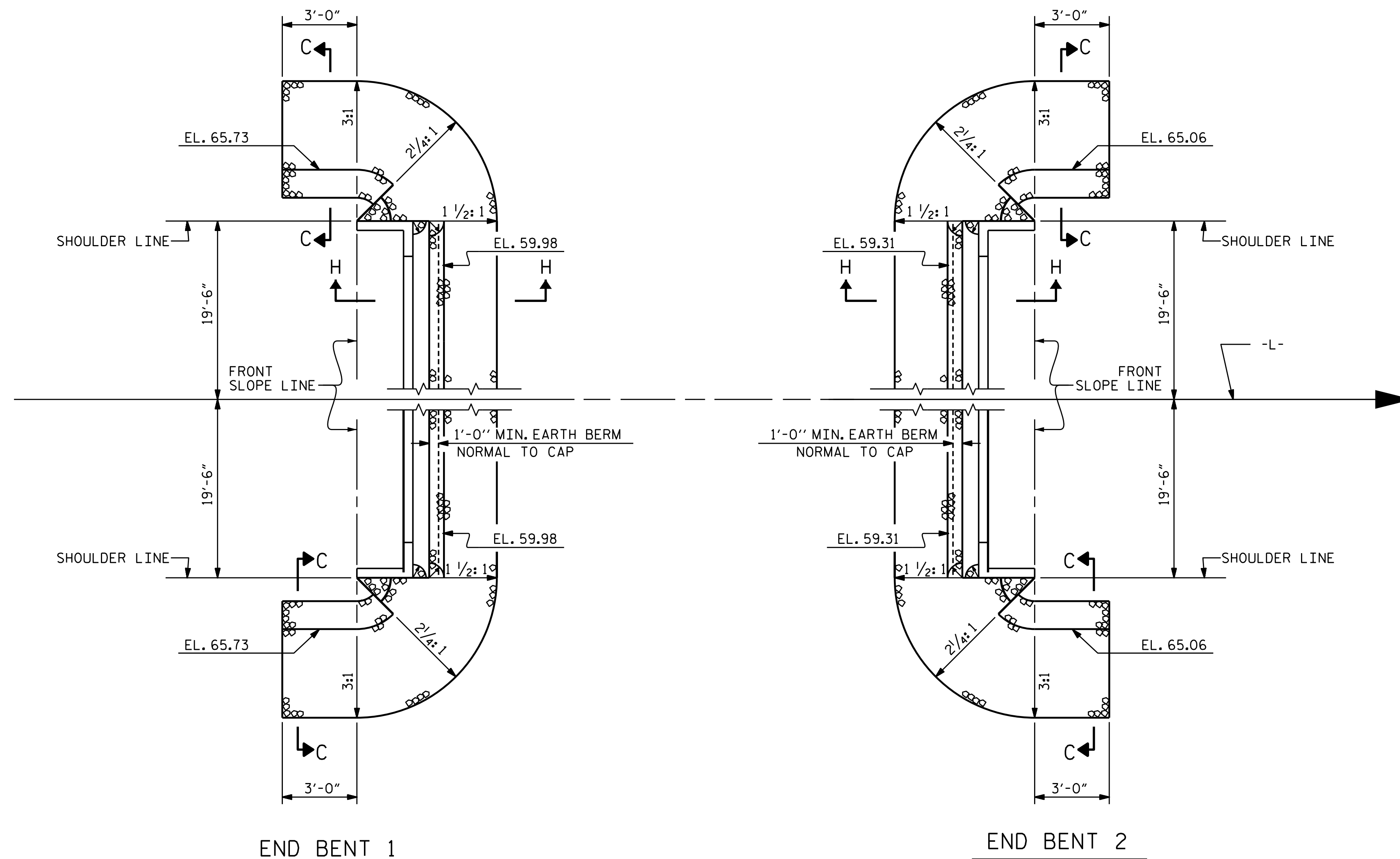
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-12

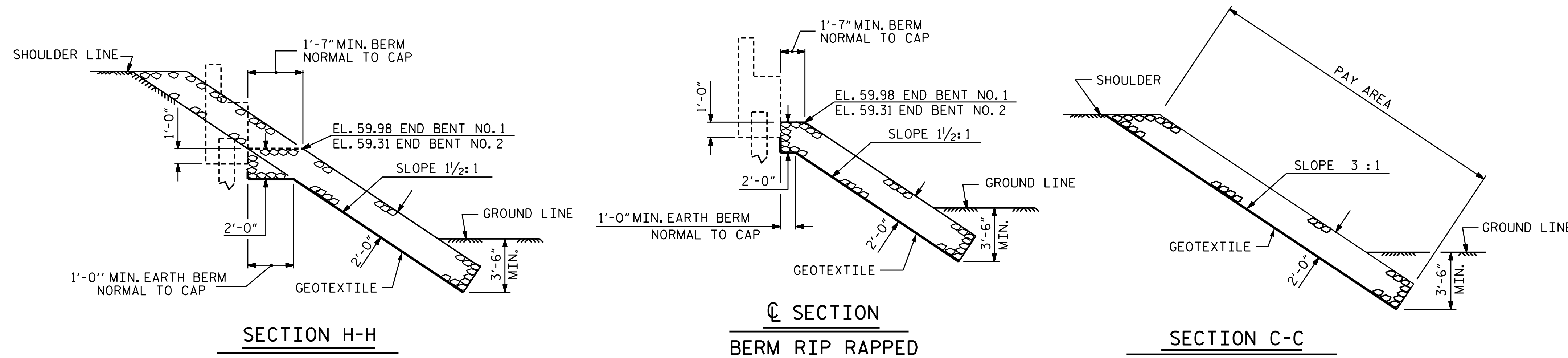
TOTAL SHEETS 15

DRAWN BY : TBE DATE : 1/18  
CHECKED BY : MGC DATE : 2/18

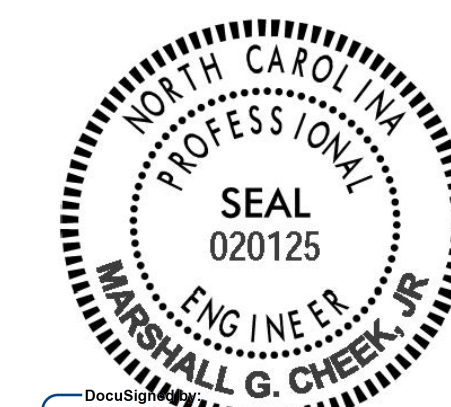
NOTES :  
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+08.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	250	280
END BENT 2	240	265



PROJECT NO. 17BP.4.R.86  
WILSON COUNTY  
STATION: 15+08.00 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
= RIP RAP DETAILS =

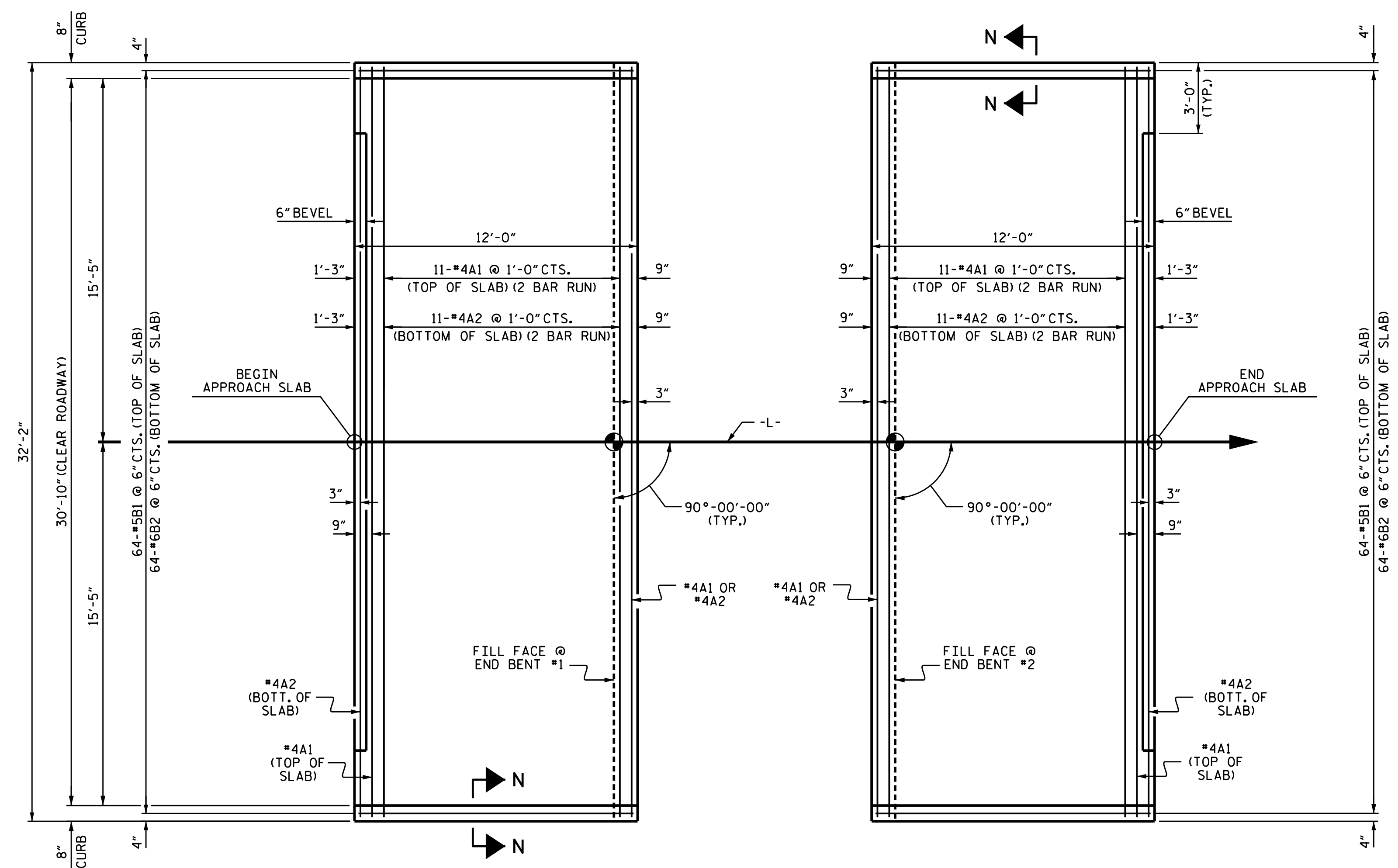
DRAWN BY : TBE DATE : 1/18  
CHECKED BY : MGC DATE : 2/18

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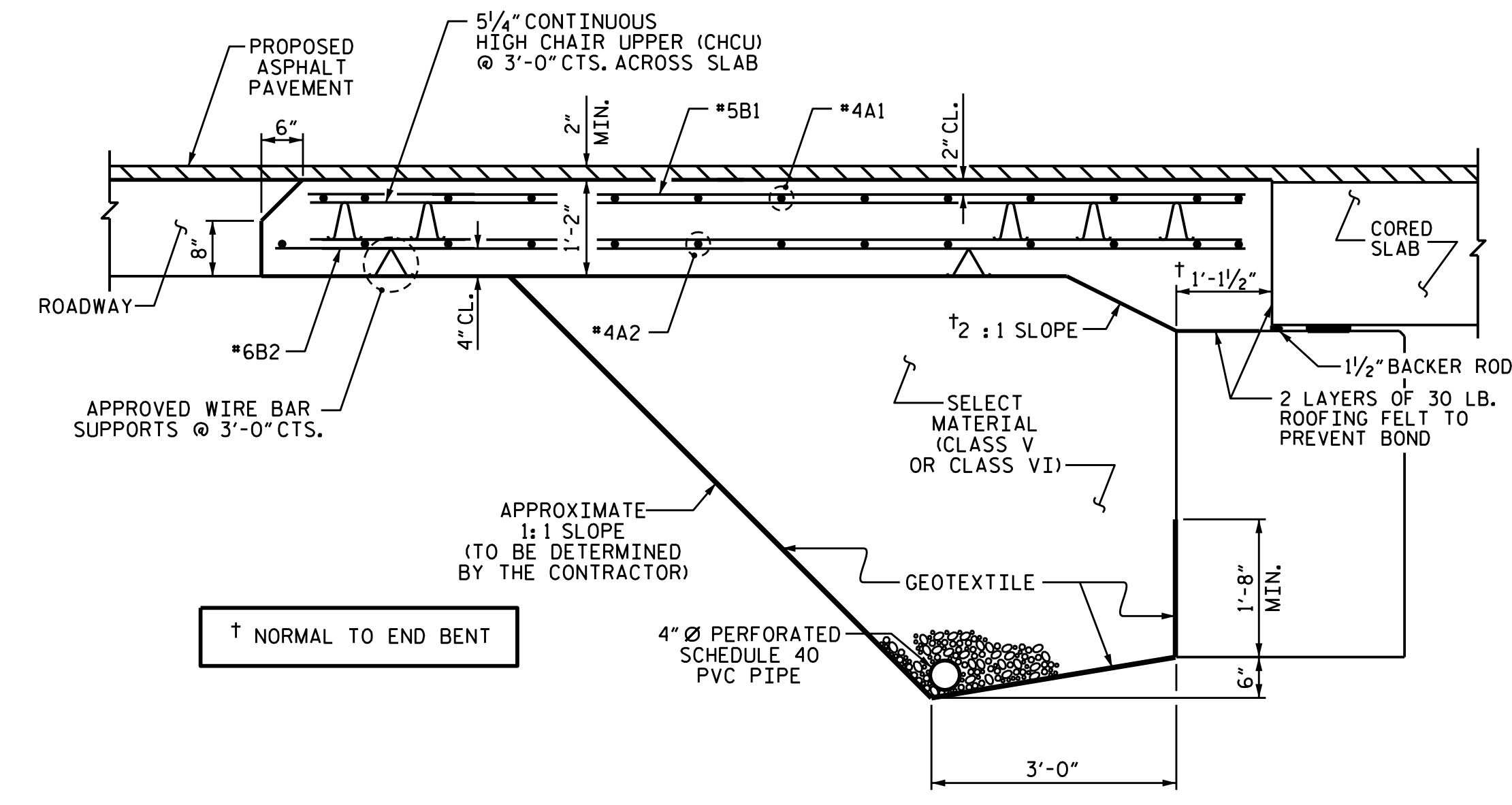
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			15

STD. NO. RR1

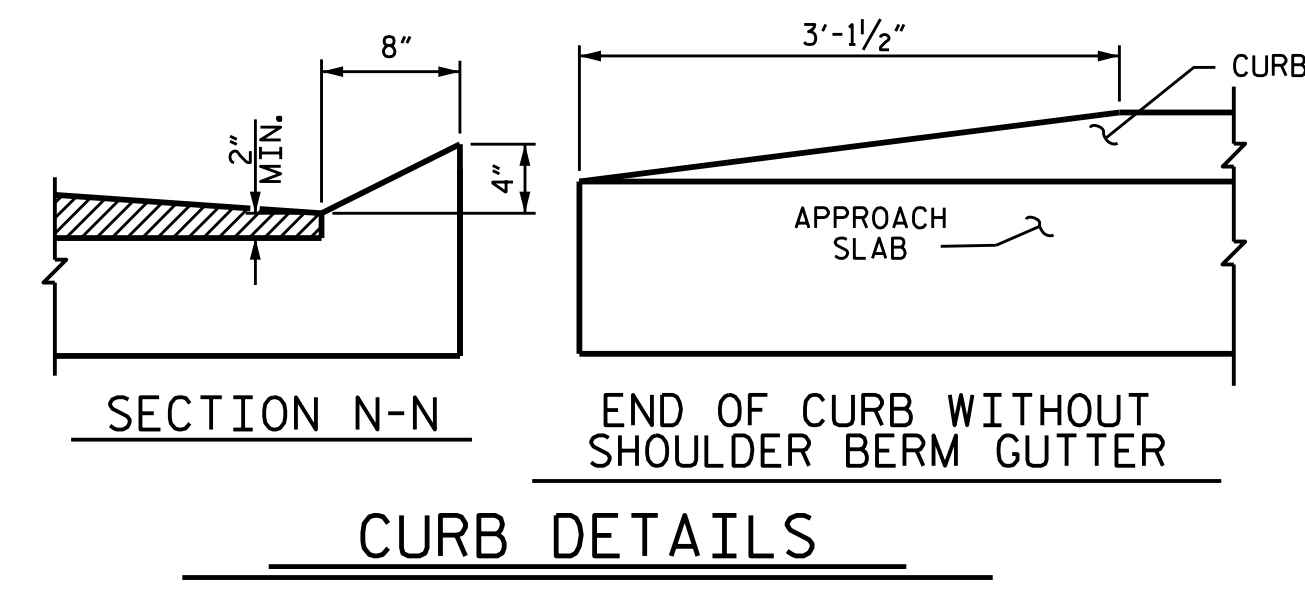


PLAN @ END BENT #1  
 PLAN @ END BENT #2  
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



SECTION THRU SLAB  
 (TYPE II - MODIFIED APPROACH FILL)



SECTION N-N  
 END OF CURB WITHOUT SHOULDER BERM GUTTER  
 CURB DETAILS

**NOTES**

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE I IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

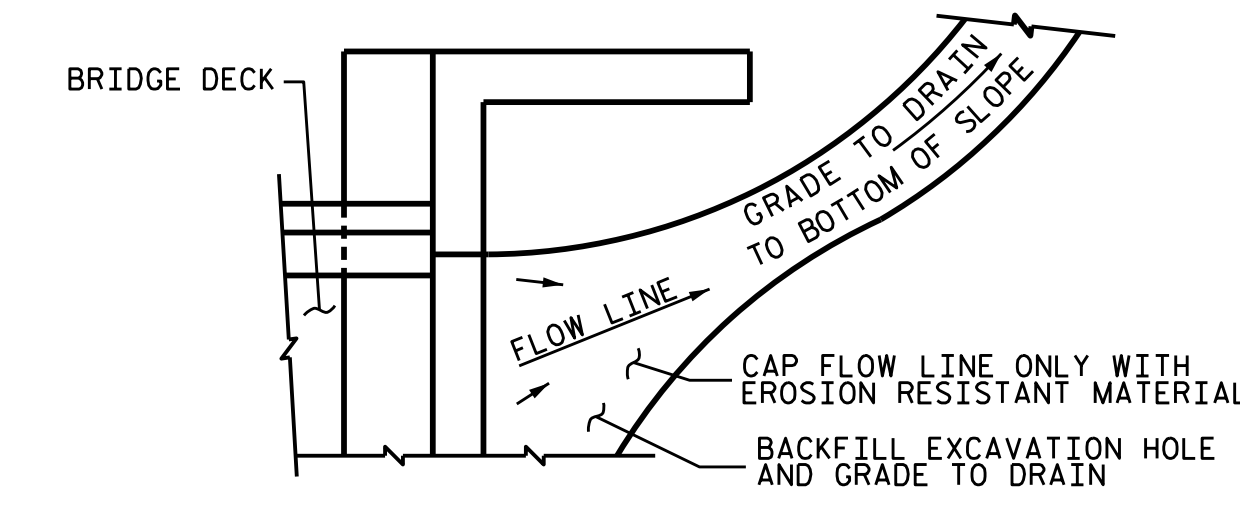
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

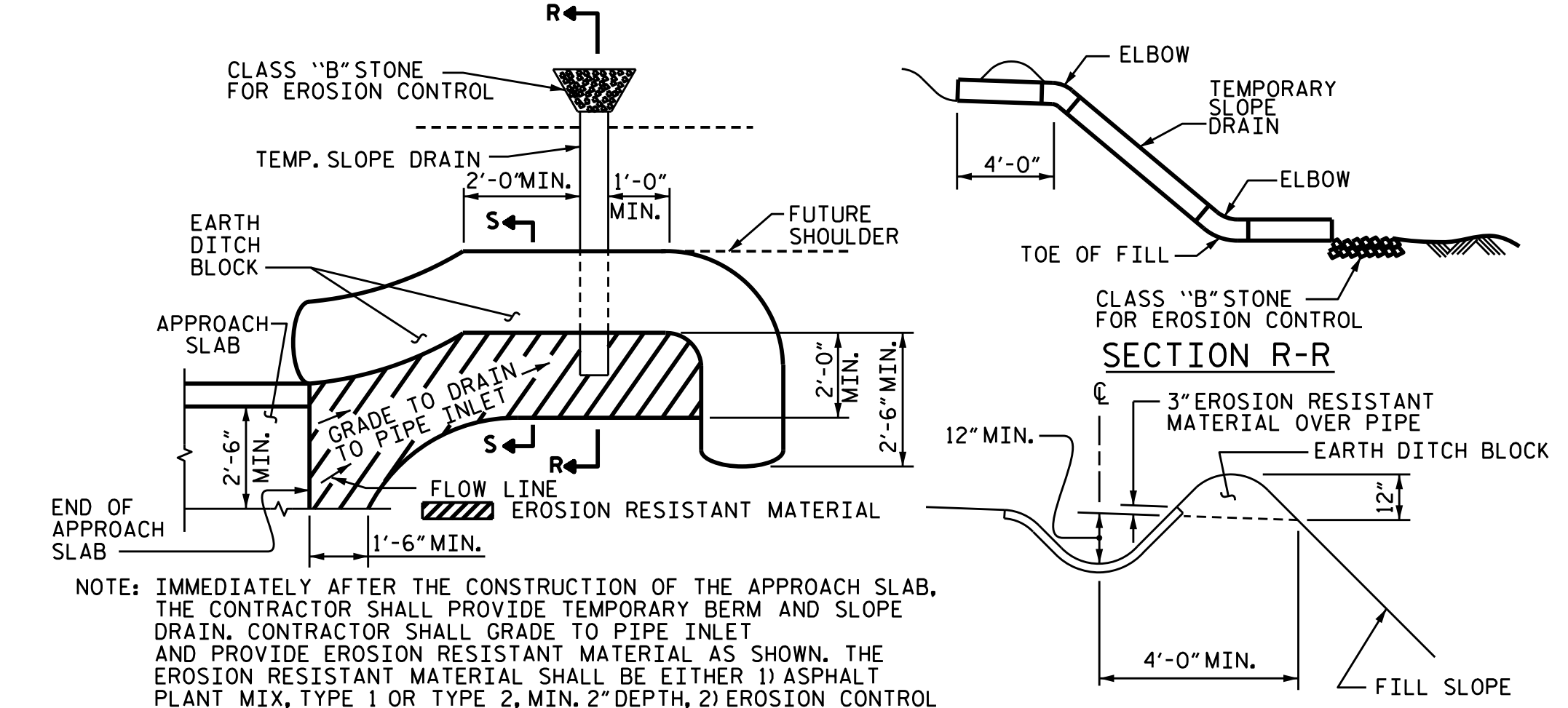
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW  
 TEMPORARY BERM AND SLOPE DRAIN DETAILS  
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	16'-11"	294	
A2	26	#4	STR	16'-9"	291	
*B1	64	#5	STR	11'-2"	745	
B2	64	#6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1412
* EPOXY COATED REINFORCING STEEL					LBS.	1039
CLASS AA CONCRETE					C. Y.	19.5
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	16'-11"	294	
A2	26	#4	STR	16'-9"	291	
*B1	64	#5	STR	11'-2"	745	
B2	64	#6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1412
* EPOXY COATED REINFORCING STEEL					LBS.	1039
CLASS AA CONCRETE					C. Y.	19.5

ASSEMBLED BY : TBE	DATE : 1/18
CHECKED BY : MGC	DATE : 2/18
DRAWN BY : SHS/MAA 5-09	REV. 12-17
CHECKED BY : BCH 5-09	MAA/THC

Professional Engineer Seal for Marshall G. Cheek, Jr., License No. 020125, dated 3/29/2018.

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PROJECT NO. 17BP.4.R.86  
 WILSON COUNTY  
 STATION: 15+08.00 -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					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-14  
 TOTAL SHEETS 15

## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
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 A.A.S.H.T.O.
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 2018 "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 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" 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 1/4" 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 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" 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 5/16" 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 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

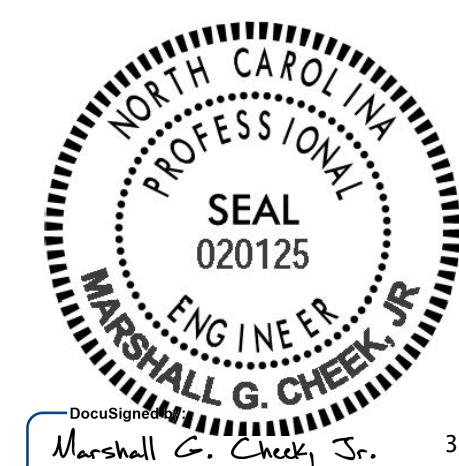

### HANDRAILS AND POSTS:

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 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.

PROJECT NO. 17BP.4.R.86  
WILSON COUNTY  
STATION: 15+08.00 -L-

 <small>DocuSign Marshall G. Cheek, Jr. 3/29/2018</small>		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH  <b>STANDARD NOTES</b>			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					
 <b>TGS ENGINEERS</b> 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275		REVISIONS			
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
			SHEET NO.		
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			TOTAL SHEETS		
			15		

DRAWN BY :	TBE	DATE :	1/18
CHECKED BY :	MGC	DATE :	2/18