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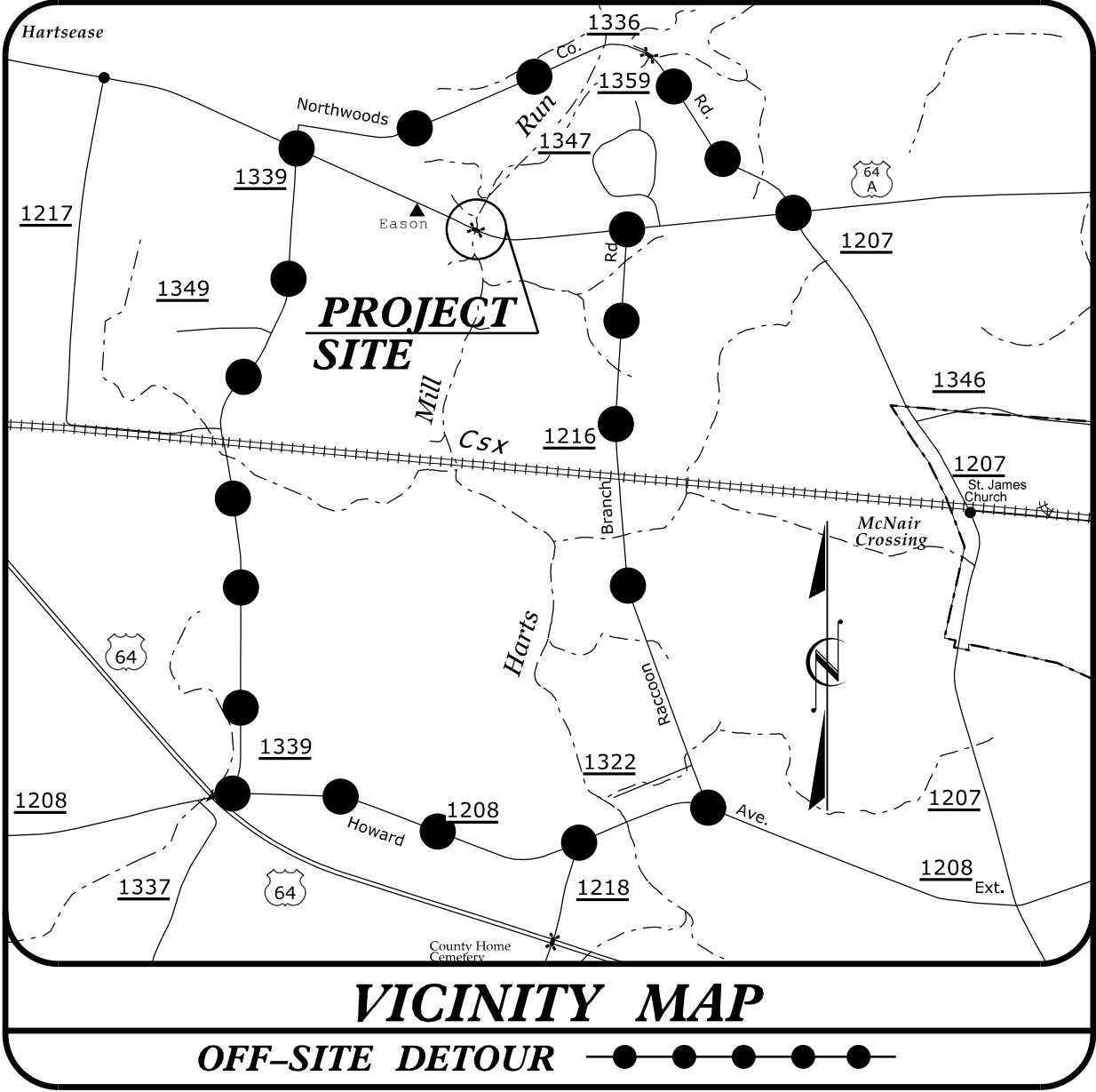
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09.08/2019

PROJECT: 17BP.4.R.77

CONTRACT: DD000263

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols
See Sheet 1D-1 TO 1E-1 For Survey Control Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
EDGECOMBE COUNTY

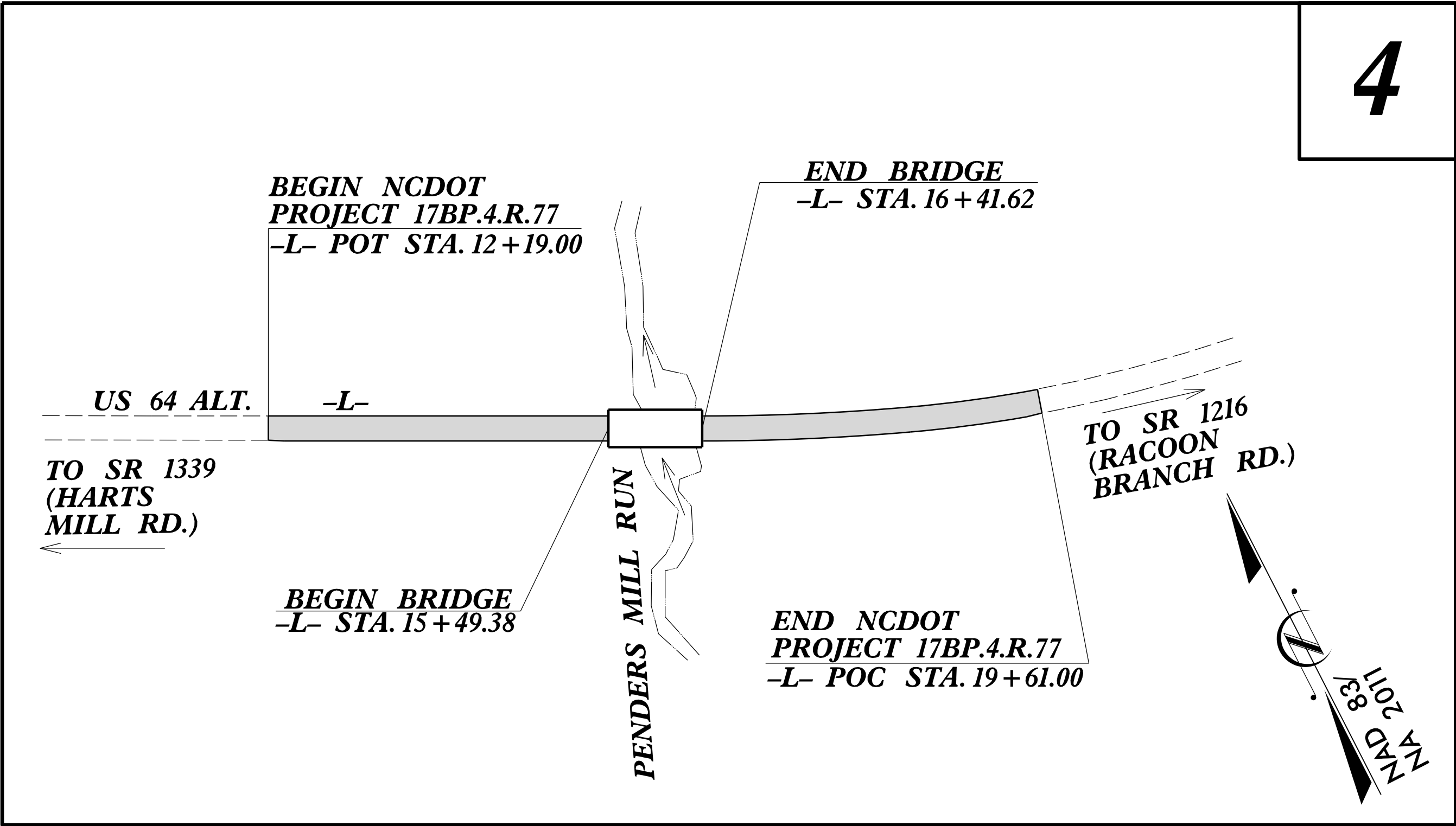
LOCATION: **BRIDGE NO. 86 OVER PENDERS MILL RUN
ON US 64 ALT.**

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

STATE	STATE PROJECT REFERENCE NO.		SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.77		1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION		
17BP.4.R.77		PE, UTIL., RW		
17BP.4.R.77		CONST.		
				1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION				

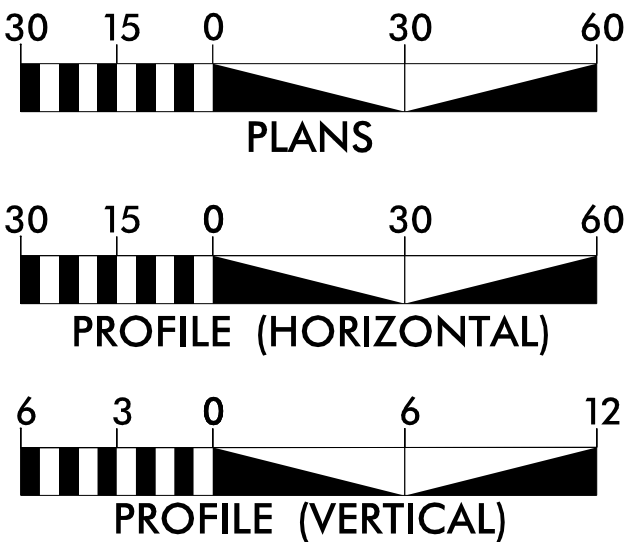
BRIDGE #320086

FINAL PLANS



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 4600

T = 6 % *
V = 55 MPH

* (TTST = 3% + DUAL = 3%)
FUNC CLASS =
RURAL MAJOR COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.4.R.77 =	0.123 MILES
LENGTH STRUCTURE PROJECT 17BP.4.R.77 =	0.017 MILES
TOTAL LENGTH PROJECT 17BP.4.R.77 =	0.140 MILES

NCDOT CONTACT: RACHEL C. EVANS, PE
DIVISION 4 PROJECT ENGINEER

Prepared for:
**DIVISION OF HIGHWAYS
DIVISION FOUR**
509 Ward Boulevard, Wilson NC, 27895

2018 STANDARD SPECIFICATIONS

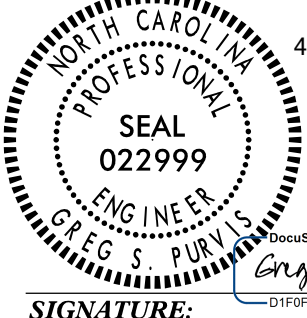
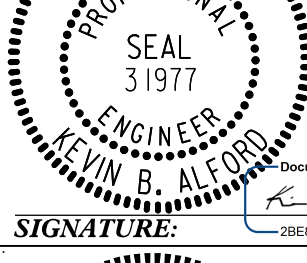
RIGHT OF WAY DATE:
DECEMBER 8, 2017

LETTING DATE:
JUNE 26, 2018

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

GREG S. PURVIS, PE
PROJECT DESIGN ENGINEER

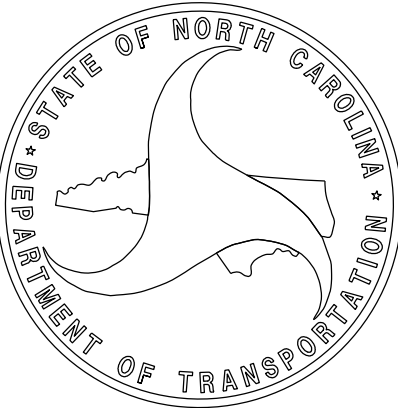
HYDRAULICS ENGINEER
4/24/2018



SIGNATURE: Edward G. Wetherill P.E.

ROADWAY DESIGN ENGINEER
4/24/2018

SIGNATURE: Greg S. Purvis P.E.



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

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Computed 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	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Exist Permanent Easment Pin and Cap	
New Permanent Easement Pin and Cap	
Vertical Benchmark	
Existing Right of Way Marker	
Existing Right of Way Line	
New Right of Way Line	
New Right of Way Line with Pin and Cap	
New Right of Way Line with Concrete or Granite R/W Marker	
New Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
New Control of Access	
Existing Easement Line	
New Temporary Construction Easement	
New Temporary Drainage Easement	
New Permanent Drainage Easement	
New Permanent Drainage /Utility Easement	
New Permanent Utility Easement	
New Temporary Utility Easement	
New Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

Single Tree	
Single Shrub	

*S.U.E. = Subsurface Utility Engineering

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	
U/G Power Line LOS B (S.U.E.*)	
U/G Power Line LOS C (S.U.E.*)	
U/G Power Line LOS D (S.U.E.*)	

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Cable LOS B (S.U.E.*)	
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line LOS B (S.U.E*)	
U/G Water Line LOS C (S.U.E*)	
U/G Water Line LOS D (S.U.E*)	
Above Ground Water Line	

TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Cable LOS B (S.U.E.*)	
U/G TV Cable LOS C (S.U.E.*)	
U/G TV Cable LOS D (S.U.E.*)	
U/G Fiber Optic Cable LOS B (S.U.E.*)	
U/G Fiber Optic Cable LOS C (S.U.E.*)	
U/G Fiber Optic Cable LOS D (S.U.E.*)	

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line LOS B (S.U.E.*)	
U/G Gas Line LOS C (S.U.E.*)	
U/G Gas Line LOS D (S.U.E.*)	
Above Ground Gas Line	

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Forced Main Line LOS B (S.U.E.*)	
SS Forced Main Line LOS C (S.U.E.*)	
SS Forced Main Line LOS D (S.U.E.*)	

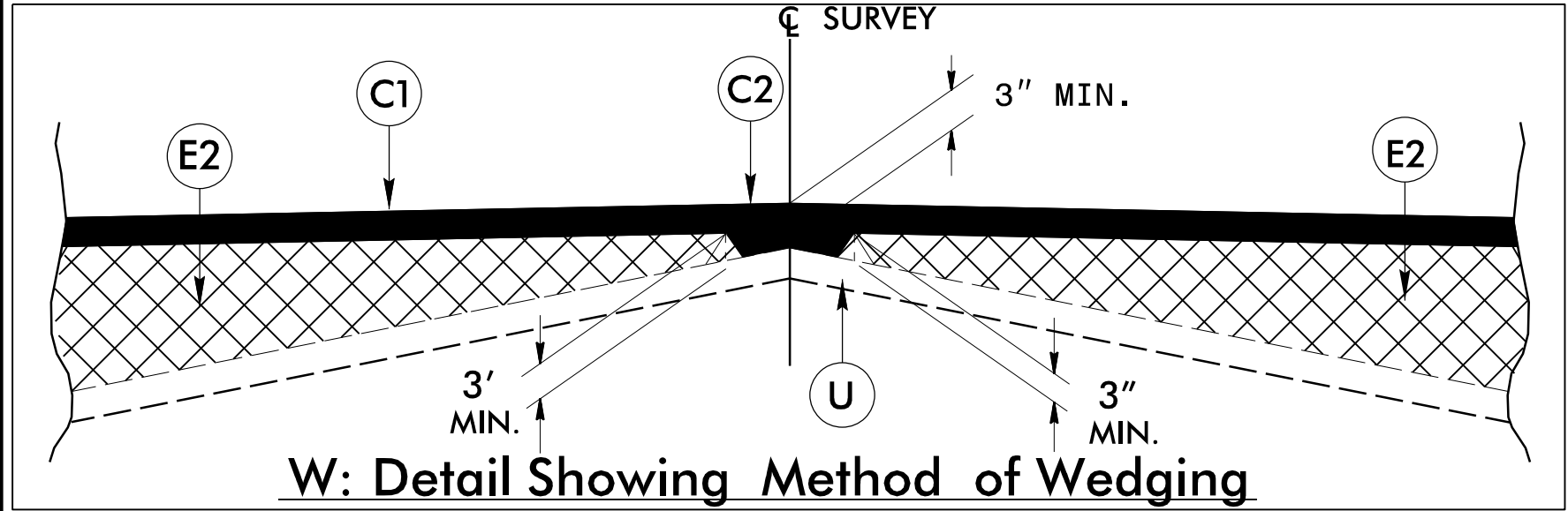
MISCELLANEOUS:

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

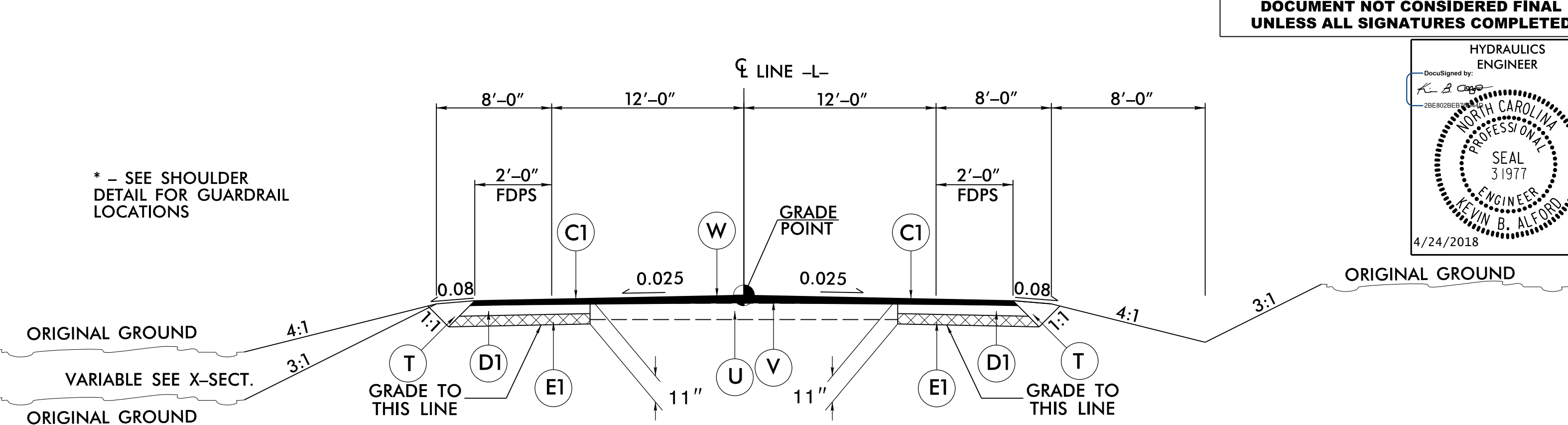
6/2/99

PAVEMENT SCHEDULE	
C1	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.
C2	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 1½" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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 5½" IN DEPTH.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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



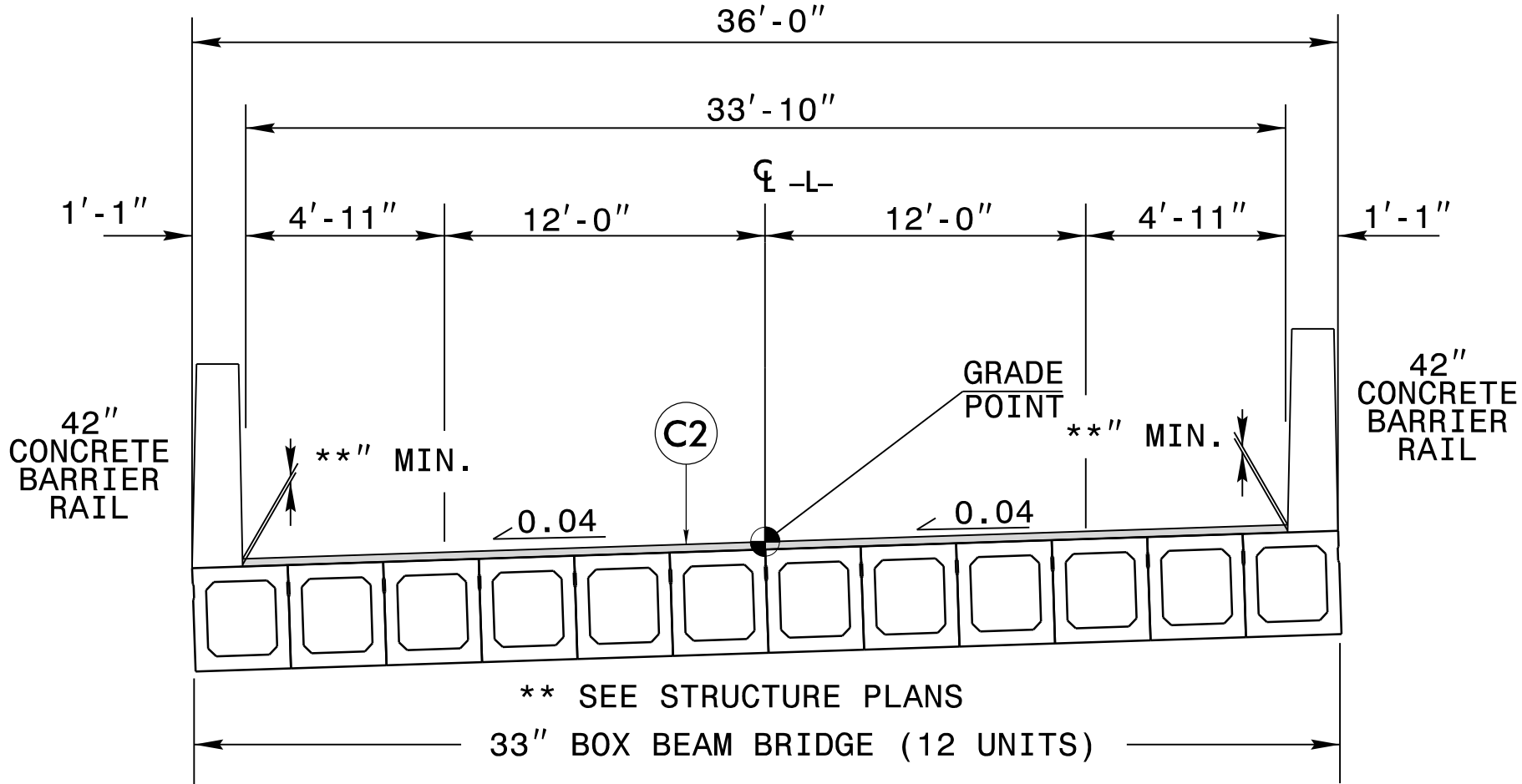
PAVED SHOULDER TOTAL SHOULDER WIDTH TABLE					
STATION	PAVED SHOULDER	TOTAL SHOULDER	STATION	PAVED SHOULDER	TOTAL SHOULDER
STA. 12+19 RT.	1.5'	EX.	STA. 12+34 RT.	2'	8'
STA. 12+34 RT.	2'	8'	STA. 12+93.13 RT.	9'	12'
STA. 12+93.13 RT.	9'	12'	STA. 15+30.63 RT.	4'-11"	7'-11"
STA. 15+30.63 RT.	4'-11"	7'-11"	STA. 15+49.38 RT.	4'-11"	7'-11"
STA. 16+41.62 RT.	4'-11"	7'-11"	STA. 16+60.37 RT.	4'-11"	7'-11"
STA. 16+60.37 RT.	4'-11"	7'-11"	STA. 17+04.12 RT.	5'-10"	8'-10"
STA. 17+04.12 RT.	5'-10"	8'-10"	STA. 17+54.12 RT.	6'-10"	9'-10"
STA. 17+54.12 RT.	6'-10"	9'-10"	STA. 17+91 RT.	2'	8'
STA. 17+85 RT.	2'	8'	STA. 19+46 RT.	2'	8'
STA. 19+46 RT.	2'	8'	STA. 19+61 RT.	2'	EX.
STA. 12+19 LT.	1.5'	EX.	STA. 12+34 LT.	2'	8'
STA. 12+34 LT.	2'	8'	STA. 14+00 LT.	2'	8'
STA. 14+00 LT.	2'	8'	STA. 14+36.88 LT.	6'-10"	9'-10"
STA. 14+36.88 LT.	6'-10"	9'-10"	STA. 14+86.88 LT.	5'-10"	8'-10"
STA. 14+86.88 LT.	5'-10"	8'-10"	STA. 15+30.63 LT.	4'-11"	7'-11"
STA. 15+30.63 LT.	4'-11"	7'-11"	STA. 15+49.38 LT.	4'-11"	7'-11"
STA. 16+41.62 LT.	4'-11"	7'-11"	STA. 16+60.37 LT.	4'-11"	7'-11"
STA. 16+60.37 LT.	4'-11"	7'-11"	STA. 18+47.87 LT.	8'	11'
STA. 18+47.87 LT.	8'	11'	STA. 18+97.87 LT.	9'	12'
STA. 18+97.87 LT.	9'	12'	STA. 19+61 LT.	2'	EX.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:

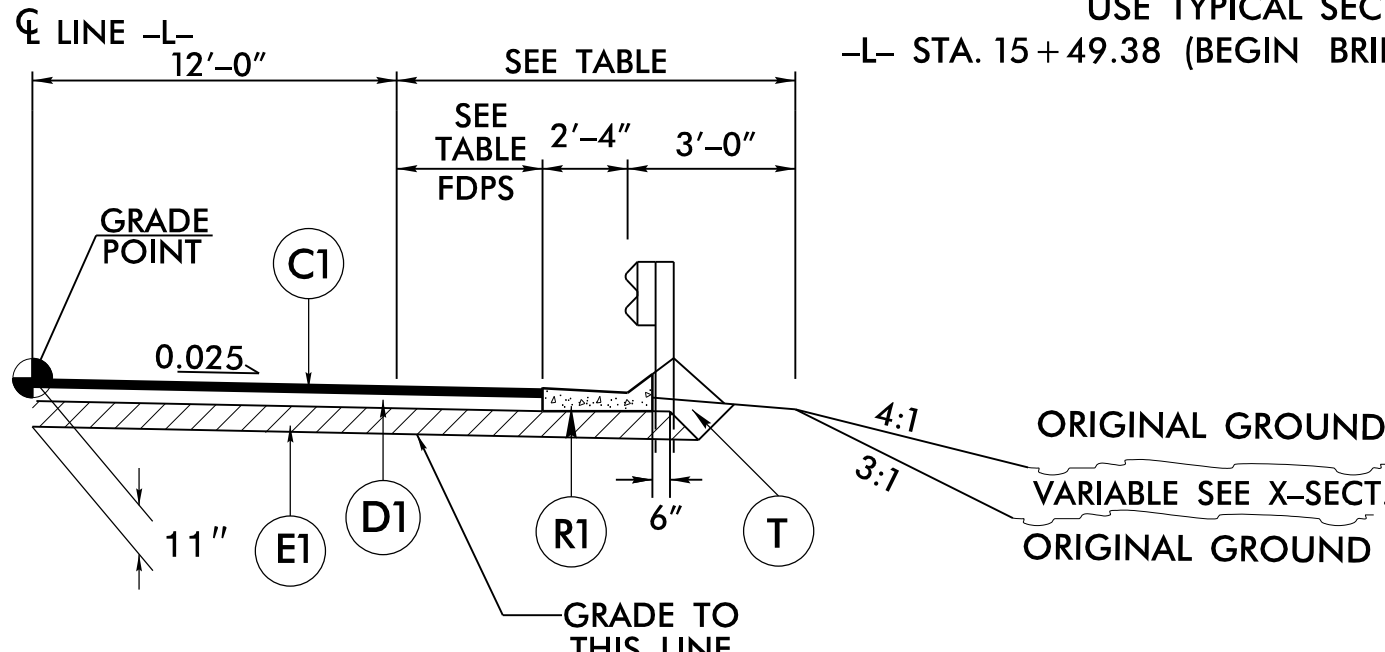
-L- STA. 12+19.00 TO -L- STA. 15+15.00
-L- STA. 16+66.00 TO -L- STA. 19+61.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:

-L- STA. 15+49.38 (BEGIN BRIDGE) TO -L- STA. 16+41.62 (END BRIDGE)

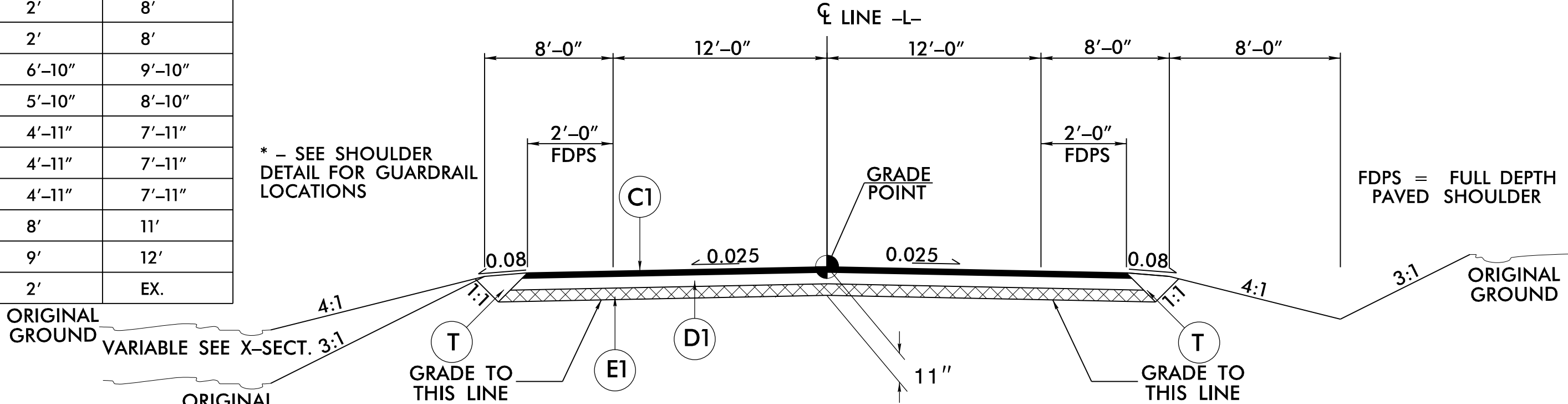


SHOULDER BERM GUTTER DETAIL

USE SHOULDER DETAIL IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 & 2:

-L- STA. 14+97.00 TO -L- STA. 15+38.50 LT.

* - SEE SHOULDER DETAIL FOR GUARDRAIL LOCATIONS



TYPICAL SECTION NO. 2

-L- STA. 15+15.00 TO -L- STA. 15+49.38 (BEGIN BRIDGE)
-L- STA. 16+41.62 (END BRIDGE) TO -L- STA. 16+66.00

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

HYDRAULICS ENGINEER
DocuSigned by:
K. B. Cline
NORTH CAROLINA PROFESSIONAL SEAL
31977
ENGINEER
KEVIN B. ALFORD
4/24/2018

PROJECT REFERENCE NO.
17BP.4R.77

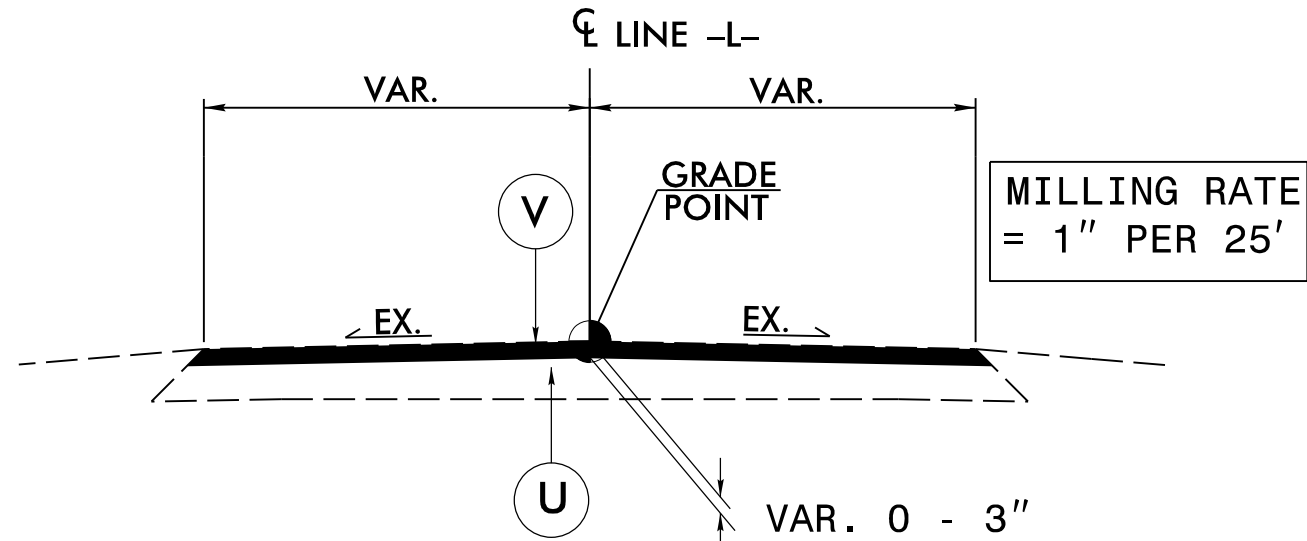
ROADWAY DESIGN ENGINEER
5/1/2018
NORTH CAROLINA PROFESSIONAL SEAL
022999
ENGINEER
GARY S. PUNIS
4/24/2018

SHEET NO.
2A-1

PAVEMENT DESIGN ENGINEER
4/24/2018
NORTH CAROLINA PROFESSIONAL SEAL
32142
ENGINEER
COREY D. McLANE
4/24/2018

ETHERILL ENGINEERING
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

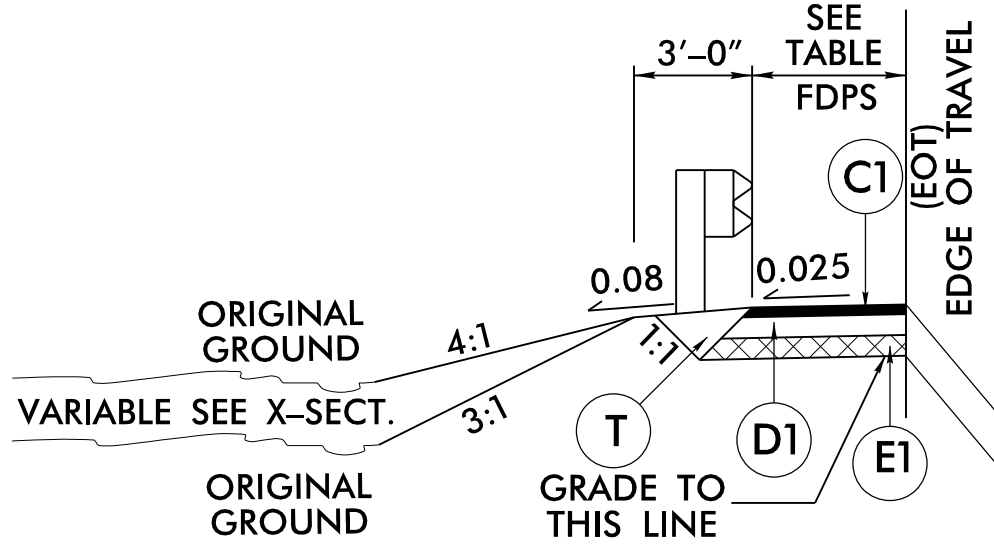
BRIDGE #320086



V: MILLING DETAIL

USE MILLING DETAIL AS FOLLOWS:

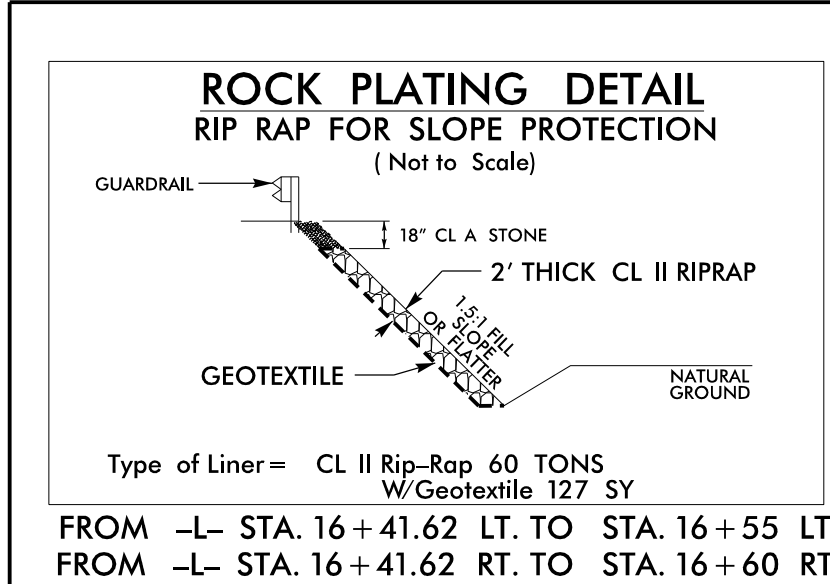
-L- STA. 12+19.00 TO -L- STA. 12+87.00
-L- STA. 18+73.00 TO -L- STA. 19+61.00



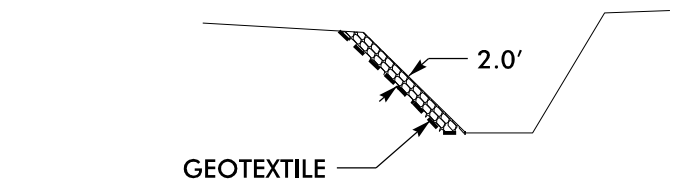
SHOULDER DETAIL

USE SHOULDER DETAIL IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 & 2:

-L- STA. 14+36.88 TO -L- STA. 15+49.38 LT.
-L- STA. 12+93.13 TO -L- STA. 15+49.38 RT.
-L- STA. 16+41.62 TO -L- STA. 18+97.87 LT.
-L- STA. 16+41.62 TO -L- STA. 17+54.12 RT.

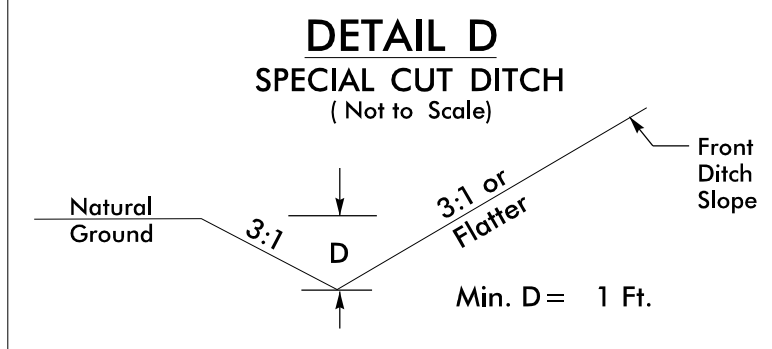


DETAIL C BANK STABILIZATION (Not to Scale)

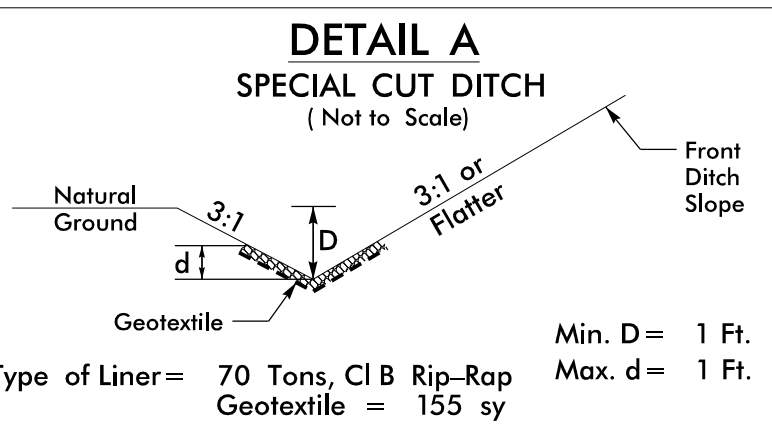


Type of Liner = 75 TONS, CL II Rip-Rap
Geotextile = 80 sy

FROM -L- STA. 15+95 TO STA. 16+35 LT.
FROM -L- STA. 16+12 TO STA. 16+38 RT.

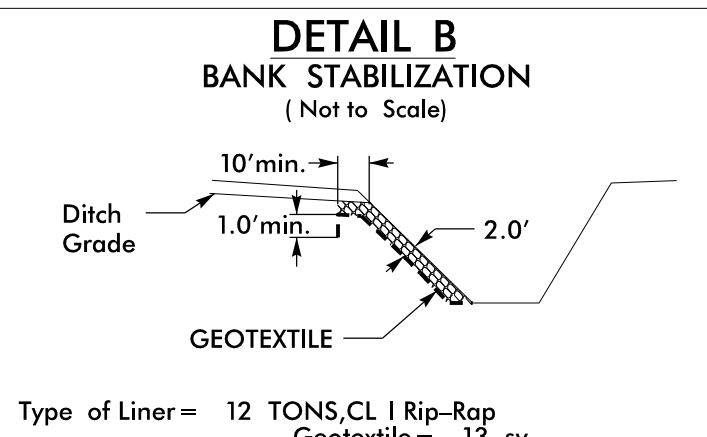


FROM -L- STA. 18+00 TO STA. 19+46 RT.



Type of Liner = 70 Tons, CL B Rip-Rap
Geotextile = 155 sy

FROM -L- STA. 13+50 TO STA. 15+61 RT.



Type of Liner = 12 TONS, CL I Rip-Rap
Geotextile = 13 sy

FROM -L- STA. 15+61 TO STA. 15+81 RT.

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1:15:38 PM
ETHERILL ENGINEERING

6/2/99

REVISIONS

3/26/2008
\\SF\Bakenedu\320086-1c2.dgn

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.77	1C-2
Location and Surveys	

SURVEY CONTROL SHEET 32-0086

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BASELINE DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION
101		BL - 101	794751.1880	2407474.2760	74.74
102		BL - 102	794472.0760	2408076.7790	64.35
103		BL - 103	794334.1300	2408554.9080	77.28

BENCHMARK DATA

BM1 ELEVATION = 57.15
N 794238 E 2408022
BENCHTIE NAIL SET IN 10" BIRCH TREE

BM2 ELEVATION = 81.73
N 794304 E 2408633
BENCHTIE NAIL SET IN 34" PINE TREE

OFFSITE PRIMARY CONTROL

PRIMARY	POINT	DESC.	NORTH	EAST	ELEVATION
1		320086-GPS1	795556.5680	2405700.1030	105.27
2		320086-GPS2	795132.8970	2406632.3430	102.34

ALIGNMENT DATA

EL	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT		794766.039	2407481.108							
LINE				S 65°10'28.2" E	636.90					
PC		794498.630	2408059.157							
CURVE				S 67°39'16.5" E	197.42	04°57'36.7"(LT)	02°30'42.2"	197.48	98.80	2281.14
PCC		794423.573	2408241.753							
CURVE				S 77°14'07.2" E	317.08	14°12'04.8"(LT)	04°28'02.6"	317.89	159.76	1282.54
PT		794353.516	2408550.993							
LINE				S 84°20'09.6" E	35.09					
PC		794350.053	2408585.913							
CURVE				S 89°44'00.9" E	243.18	10°47'42.5"(LT)	04°25'57.1"	243.54	122.13	1292.62
PT		794348.922	2408829.094							
LINE				N 84°52'07.9" E	102.82					
POT		794358.118	2408931.500							

- NOTES:
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

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

3. NOTE: DRAWING NOT TO SCALE.

6/2/99

REVISIONS

3/26/2018
17BP.4.R.77
17BP.4.R.77

RIGHT OF WAY CONTROL SHEET 32-0086

PROJECT REFERENCE NO.
17BP.4.R.77

SHEET NO.
1E-1

Location and Surveys

PROJECT SURVEYOR

ROW MARKER CONCRETE OR GRANITE-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	13+40.00	-30.00	794650.5154	2407802.2845
L	13+40.00	40.00	794586.9841	2407772.8946
L	13+40.00	30.00	794596.0600	2407777.0931
L	14+25.00	-52.00	794634.7946	2407888.6665
L	16+36.90	-52.00	794545.8250	2408080.9895
L	16+36.90	60.00	794444.1749	2408033.9656
L	16+60.00	-52.00	794536.4533	2408101.5202
L	16+60.00	-45.00	794530.0708	2408098.6456
L	18+34.39	-45.00	794465.8954	2408257.0442
L	19+25.00	-45.00	794439.1129	2408340.2559
L	19+50.00	-30.00	794418.2554	2408359.7214
L	19+50.00	39.53	794351.0009	2408342.0770
L	19+50.00	30.00	794360.2194	2408344.4955

ROW MARKER PERMANENT EASEMENT-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	12+04.17	-30.00	794707.5436	2407679.0085
L	12+04.17	-55.45	794730.6393	2407689.6927
L	12+13.58	39.94	794640.1198	2407658.1784
L	12+13.58	30.00	794649.1402	2407662.3513
L	12+24.17	-30.00	794699.1464	2407697.1603
L	12+24.17	-55.45	794722.2422	2407707.8445
L	14+86.08	65.67	794502.3543	2407894.6979
L	15+90.00	-52.00	794565.5184	2408038.4190
L	15+90.00	-67.00	794579.1322	2408044.7169
L	16+36.90	-67.00	794559.4389	2408087.2874
L	17+26.47	66.50	794401.2237	2408115.6367
L	17+28.95	82.41	794385.5548	2408111.9000
L	17+46.06	65.93	794394.0989	2408134.4985
L	17+48.25	80.80	794379.4678	2408131.0092
L	19+38.41	39.14	794354.4611	2408330.6346
L	19+38.41	60.92	794333.4427	2408324.9169

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.

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS



TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

1223 Jones Franklin Rd
Raleigh, N.C. 27601
License No. F-0377
Bus: 919 851 8071
Fax: 919 851 8101

PROJECT REFERENCE NO.

17BP.4.R.77

SHEET NO.

3B-1

BRIDGE #320113

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. + %	BORROW	WASTE
-L- 12 +19.00	-L- 15 +49.38 (BEGIN BRIDGE)	40	735	695	
SUBTOTALS:		40	735	695	
-L- 16 + 41.62 (END BRIDGE)	-L- 19 + 61.00	94	653	559	
SUBTOTALS:		94	653	559	
PROJECT SUBTOTALS:		134	1388	1254	
LOSS DUE TO CLEARING & GRUBBING				63	
GRAND TOTALS:		134	1388	1317	
SAY:		160		1350	

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION L7/R7/CL	YD
-L-	15 + 15	15 + 74.49	CL	185
-L-	16 + 31.71	16 + 66	CL	1041
TOTAL:				1226
SAY:				1226

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L- LT.	14 + 97.00	15 + 38.50	41.50'
TOTAL:			41.50'
SAY:			42'

***SUB-REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)***

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

[illegible]

"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

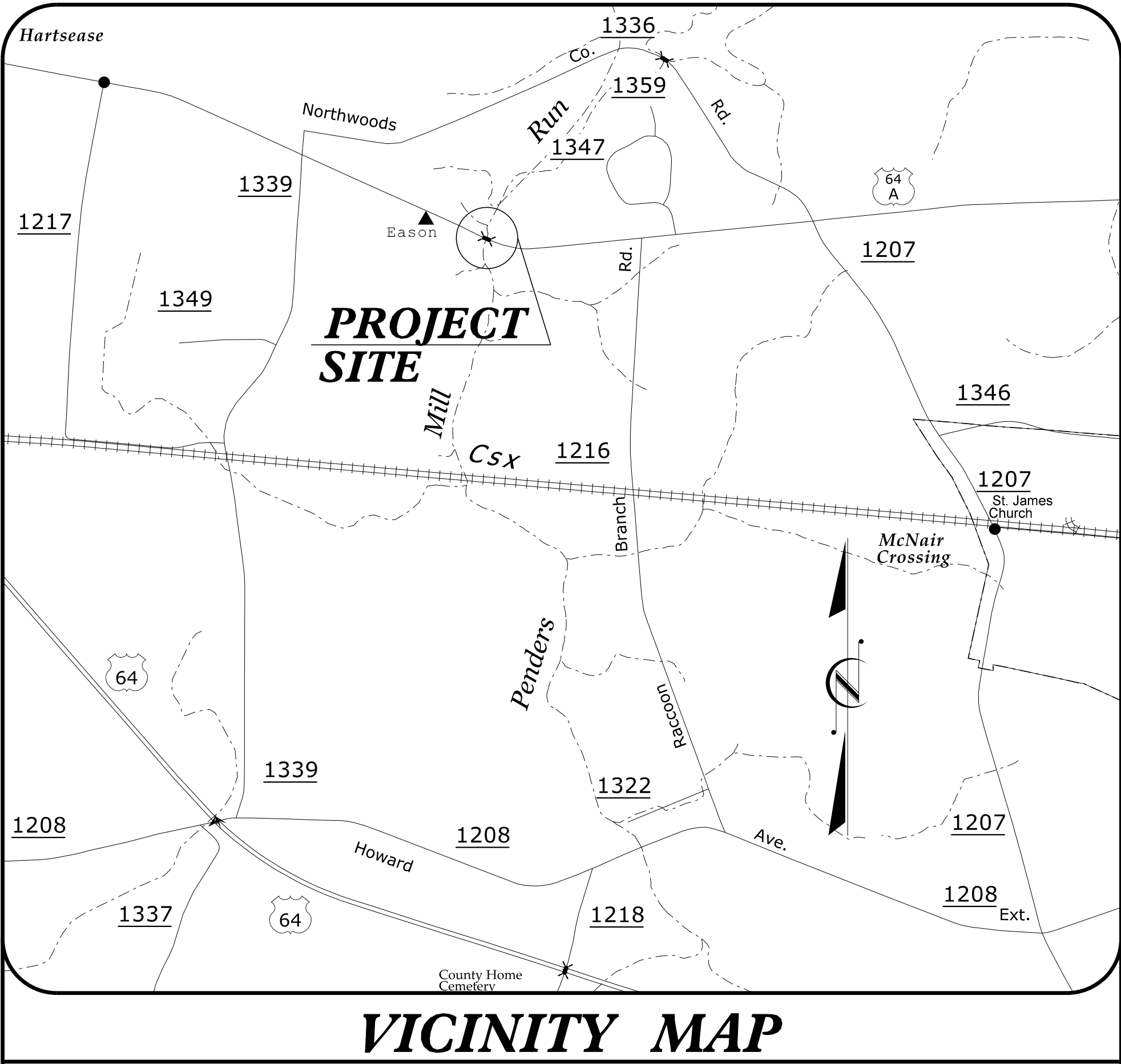
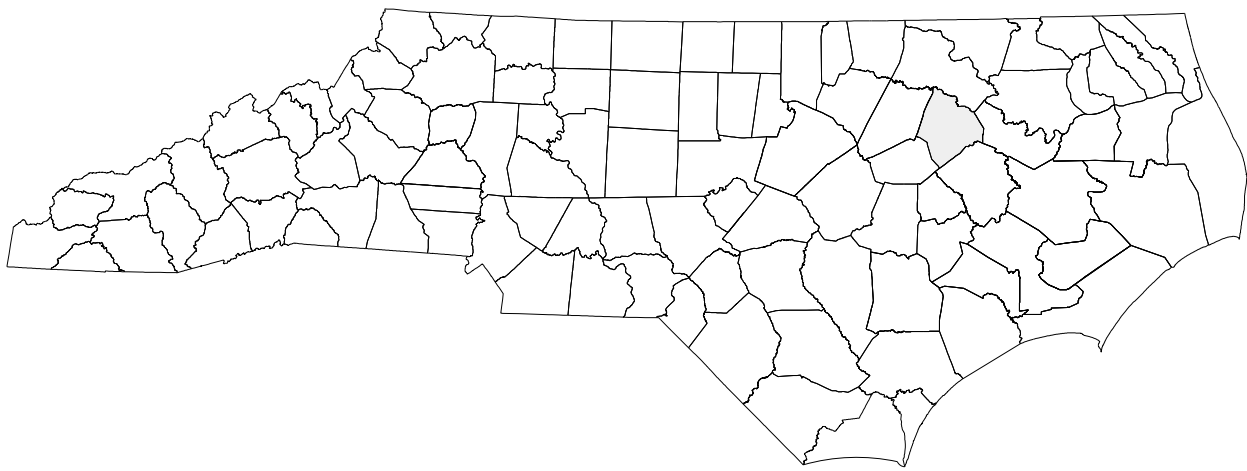
GUARDRAIL SUMMARY

[illegible]

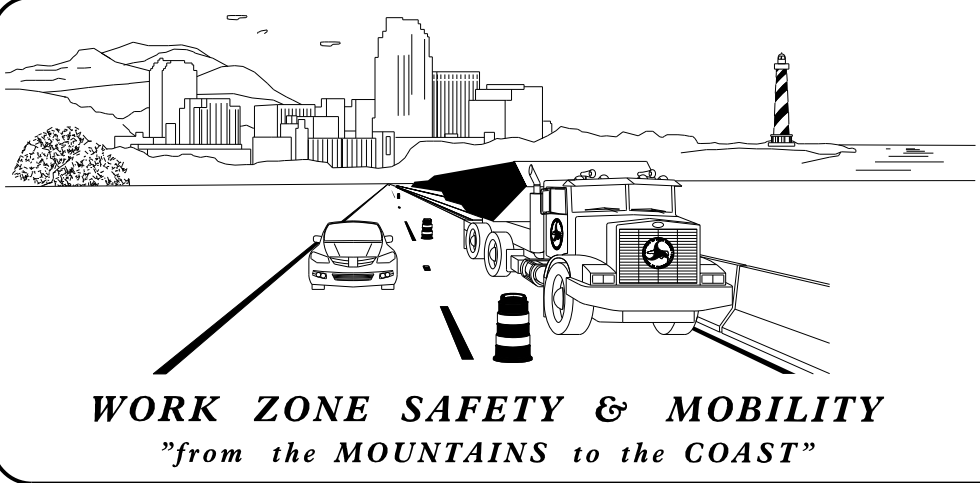
DATE OF SURVEY = 6-1-2017
W.S.ELEVATION
AT DATE OF SURVEY = 52.9

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN
EDGECOMBE COUNTY



LOCATION: BRIDGE NO. 86 OVER PENDERS MILL RUN ON US 64 ALT. TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL 1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561 750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY) PHONE: (919) 773-2800 FAX: (919) 771-2745	
J. E. HUMMER, P.E.	STATE TRAFFIC MANAGEMENT ENGINEER
J. S. KITE, P.E.	TRAFFIC CONTROL PROJECT ENGINEER
MATT SPRINGER, P.E.	TRAFFIC CONTROL PROJECT DESIGN ENGINEER
S. B. JENNINGS	TRAFFIC CONTROL DESIGN ENGINEER



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, GENERAL NOTES AND PHASING
TMP-2	DETOUR US 64 ALT (-L-)

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PLAN PREPARED FOR NCDOT BY:

GREG S. PURVIS, P.E.

JESSE W. GILSTRAP

SCOTT L. KENNEDY

PROJECT ENGINEER

TRAFFIC CONTROL ENGINEER

TRAFFIC CONTROL ENGINEER

1223 Jones Forks Road
Raleigh, NC 27605
Phone: 919-771-2800
Fax: 919-771-2745

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GROUPS - CONSTRUCTION OBSERVATION

Seal of the North Carolina Professional Engineer, Greg S. Purvis, No. 22999.

APPROVED: Greg S. Purvis

DATE: 4/24/2018

SEAL

3/23/2018
R:\Traffic\TrafficControl\TCP\320086_TC_TMP_PSH_01.dgn
User:skennedy

SHEET NO.

TMP-1

17BP.4.R.77

TIP PROJECT:

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
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

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

SIGNING

- B) 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.

- C) 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.

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

TRAFFIC CONTROL DEVICES

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

LEGEND

GENERAL

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

WORK AREA

REMOVAL

ON GOING CONSTRUCTION

TEMPORARY PAVEMENT

PAVEMENT WEDGING

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

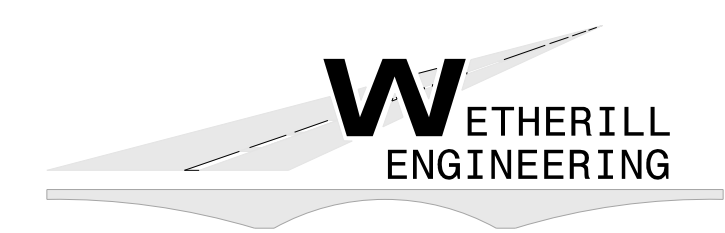
- PAVEMENT MARKING SYMBOLS

PHASING

PHASE I

- STEP 1: - USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9 AND SHEET TMP-2 CLOSE US 64 ALTERNATE (-L-) TO TRAFFIC.
- STEP 2: - REMOVE EXISTING BRIDGE AND CONSTRUCT PROPOSED BRIDGE & APPROACHES, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE, AND PLACE FINAL PAVEMENT MARKINGS (SEE ROADWAY PLANS AND FINAL PAVEMENT MARKING PLANS).
- STEP 3: - OPEN US 64 ALTERNATE (-L-) TO THE FINAL TRAFFIC PATTERN AND REMOVE ALL TRAFFIC CONTROL DEVICES FROM THE PROJECT.

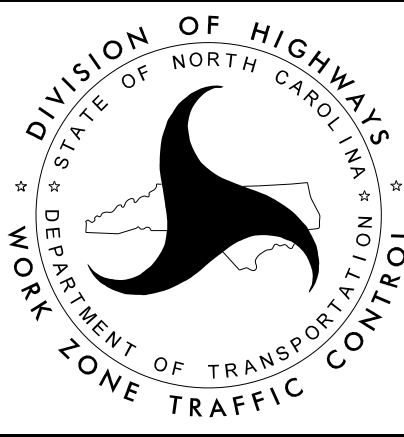
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



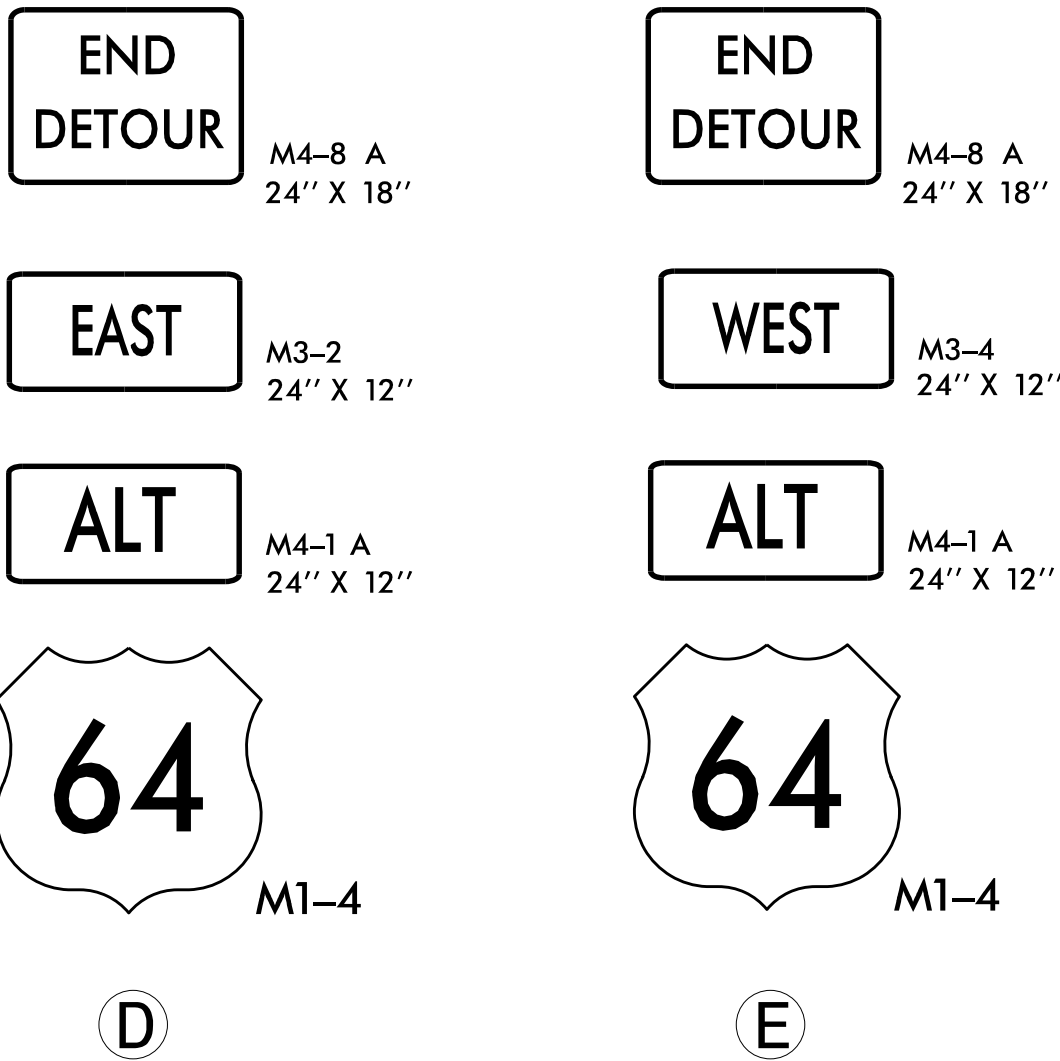
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

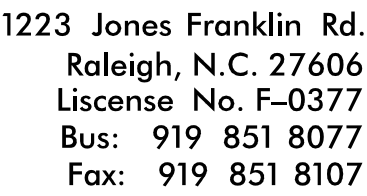
APPROVED: Greg S. Purvis DATE: 4/24/2018



ROADWAY STANDARD
DRAWINGS, LEGEND,
GENERAL NOTES AND
PHASING



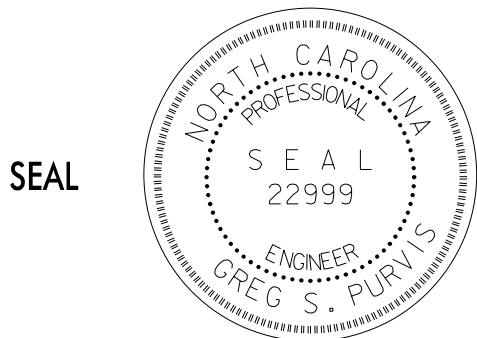
DETOUR ROUTE 



CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

APPROVED Greg S. Purvis DATE: 4/24/2018



DETOUR
ALT US 64
(- L -)

3/23/2018
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t:\Etkennedy

PROJECT: 17BP.4.R.77

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
EDGECOMBE COUNTY

LOCATION: BRIDGE NO.86 OVER PENDERS MILL RUN
ON US 64 ALT.

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES

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

- A) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:
- | ROAD NAME | MARKING | MARKER |
|----------------------|---------------|------------------|
| US 64 ALT AND BRIDGE | THERMOPLASTIC | PERMANENT RAISED |
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS.
- D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

PAVEMENT
MARKING SCHEDULE

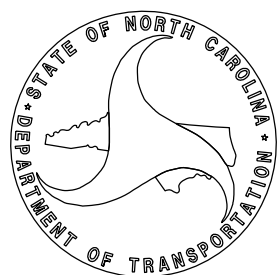
SYMBOL	DESCRIPTION	FINAL PAVEMENT MARKINGS
TA	WHITE EDGELINE	THERMOPLASTIC (4", 90 MILS)
TI	YELLOW DOUBLE CENTER	THERMOPLASTIC (4", 120 MILS)
MA	YELLOW & YELLOW	PERMANENT RAISED PAVEMENT MARKERS

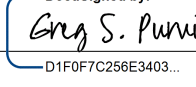
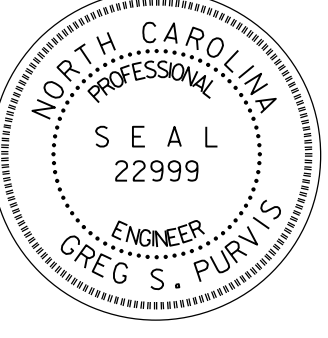
INDEX

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

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

A.I. ALQUDWAH, PE SIGNING & DELINEATION REGIONAL ENGINEER
TBD SIGNING & DELINEATION PROJECT DESIGN ENGINEER/TECHNICIAN



PROJECT NO. 17BP.4.R.77	SHEET NO. PMP - 1
APPROVED:  01/07/20063403.	
DATE: 4/24/2018	
SEAL 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PLAN PREPARED
FOR NCDOT BY:

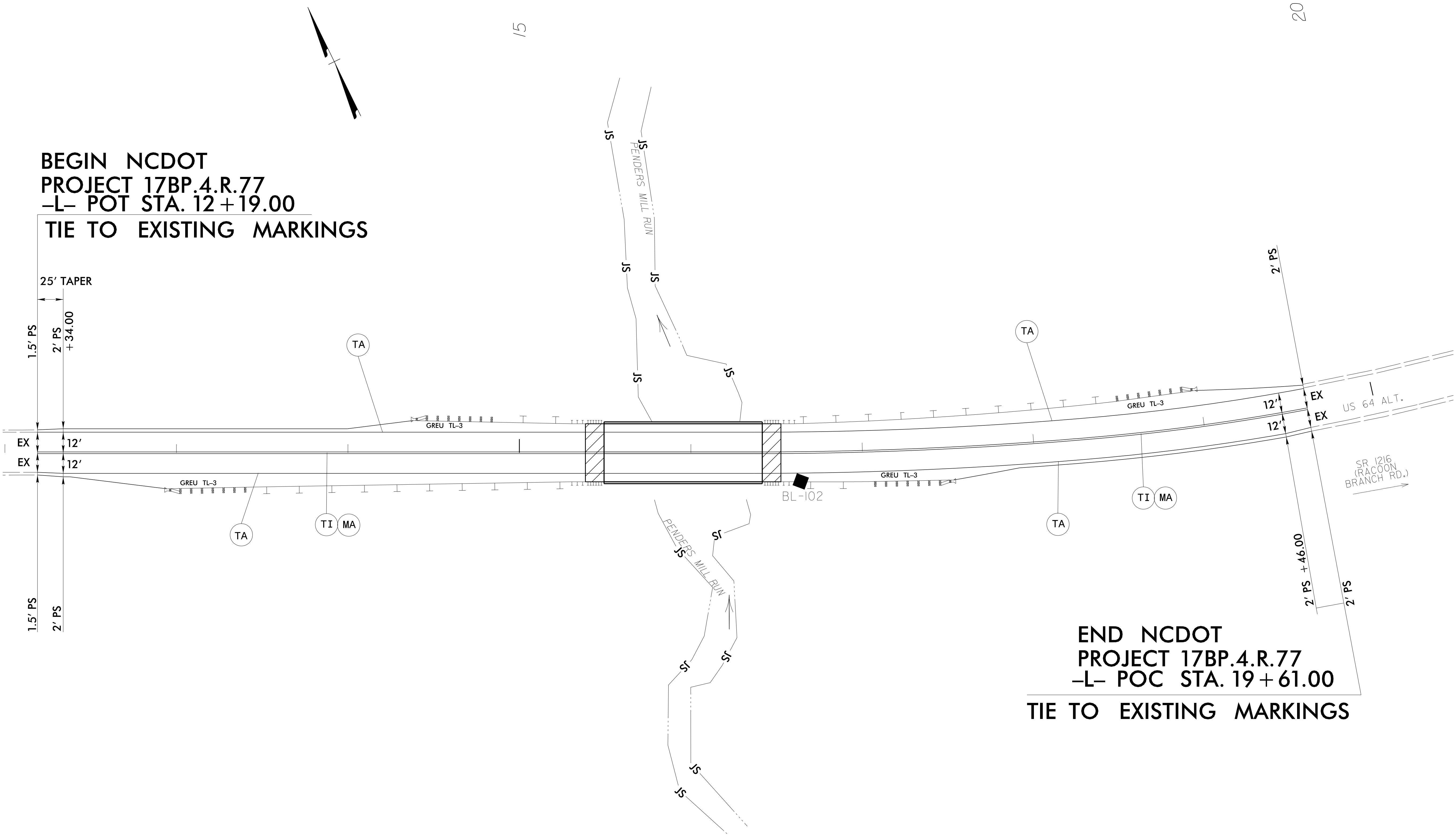


1223 Jones Franklin Rd.
Raleigh, N.C. 27606
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Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

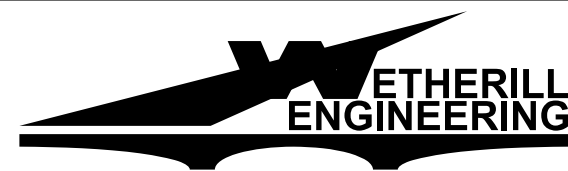
GREG S. PURVIS, P.E.	PROJECT ENGINEER
JESSE W. GILSTRAP	TRAFFIC CONTROL ENGINEER
SCOTT L. KENNEDY	TRAFFIC CONTROL ENGINEER

PROJECT NO.	SHEET NO.
17BP.4.R.77	PMP-2



BEGIN NCDOT
PROJECT 17BP.4.R.77
-L- POT STA. 12+19.00
TIE TO EXISTING MARKINGS

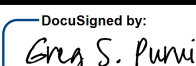
END NCDOT
PROJECT 17BP.4.R.77
-L- POC STA. 19+61.00
TIE TO EXISTING MARKINGS



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Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

APPROVED: 
D:\F07C256E3403

DATE: 4/24/2018

SEAL

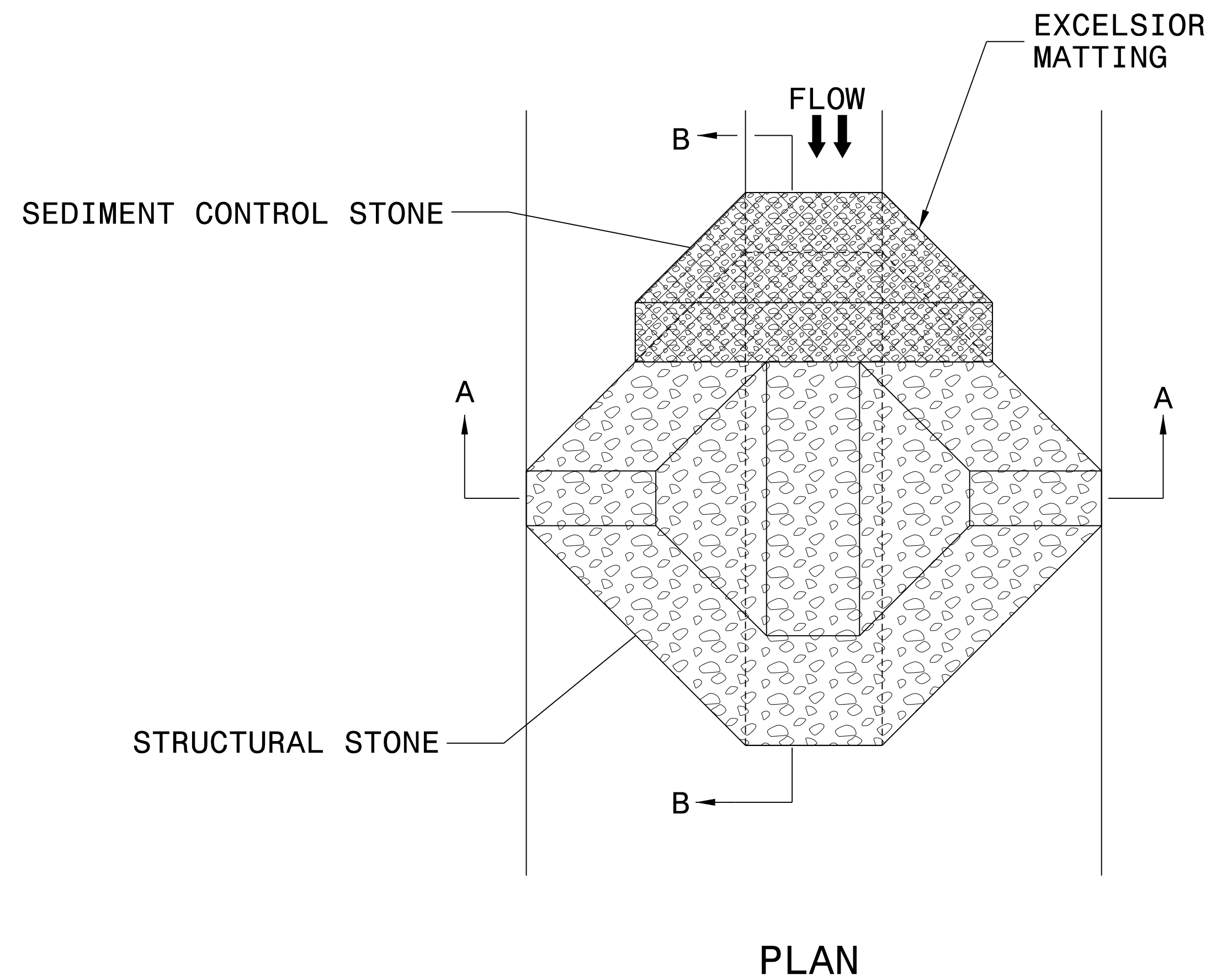


PAVEMENT MARKING
DETAIL

3/27/2018
...Design\320086-EC-tsh.dgn
USER:skennedy

***Refer To E. C. Special Provisions
for Special Considerations.***

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



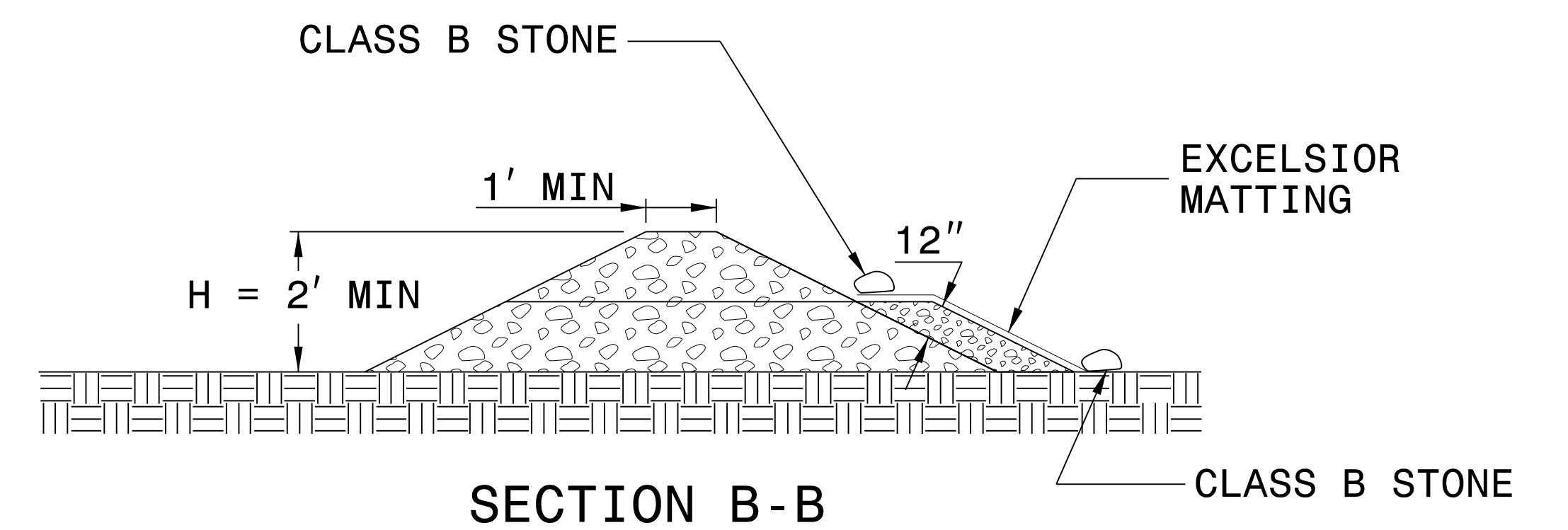
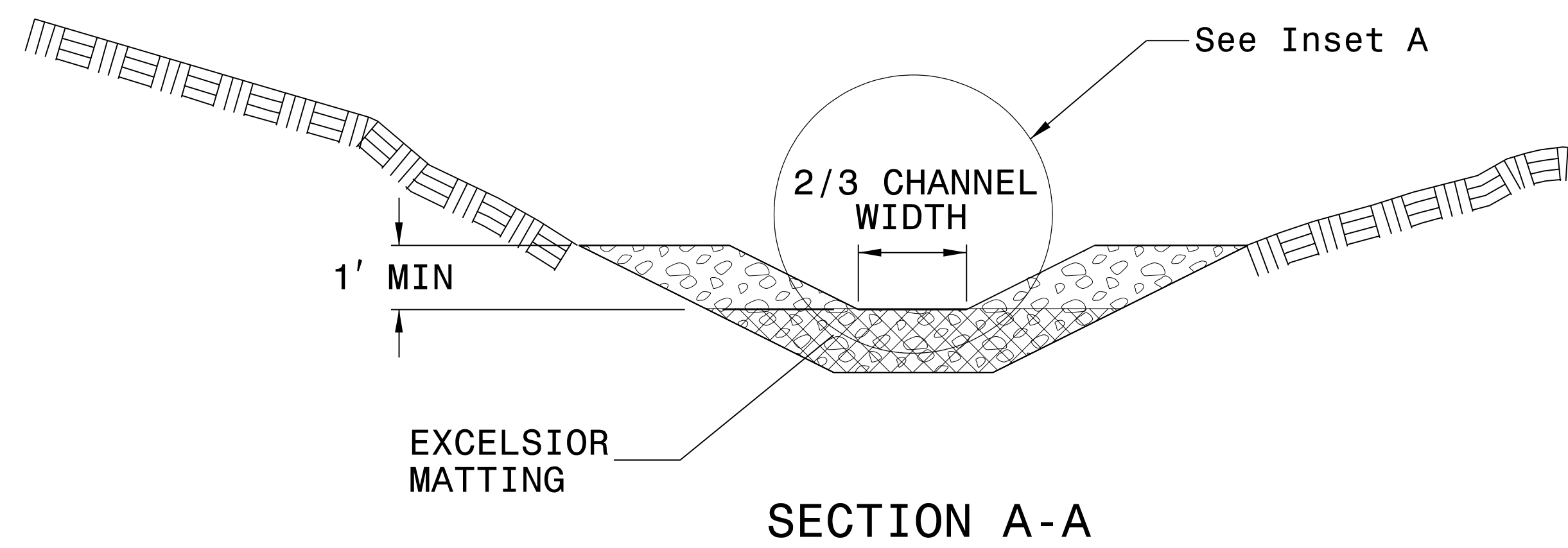
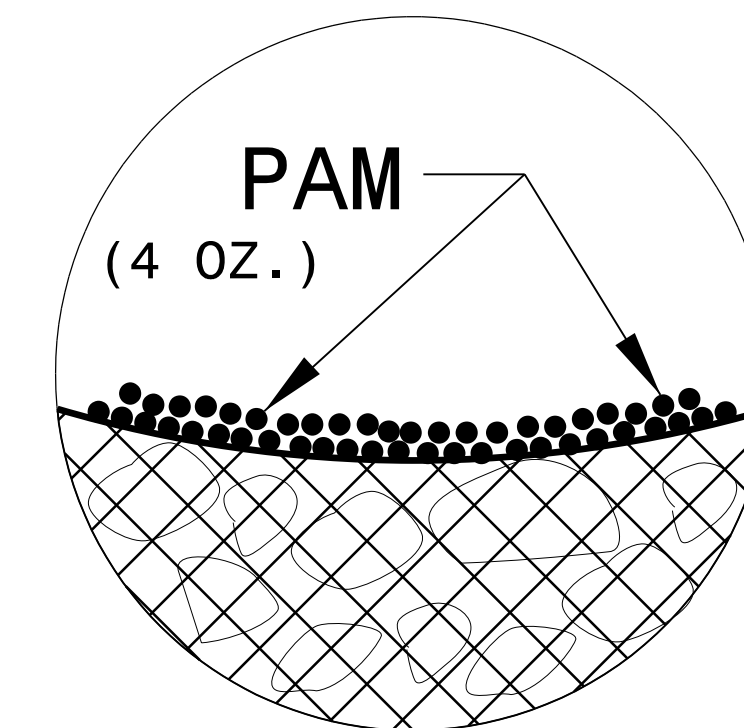
NOTES:

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.

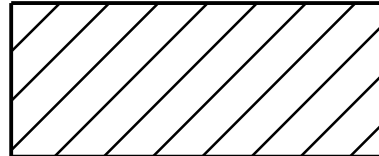


NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

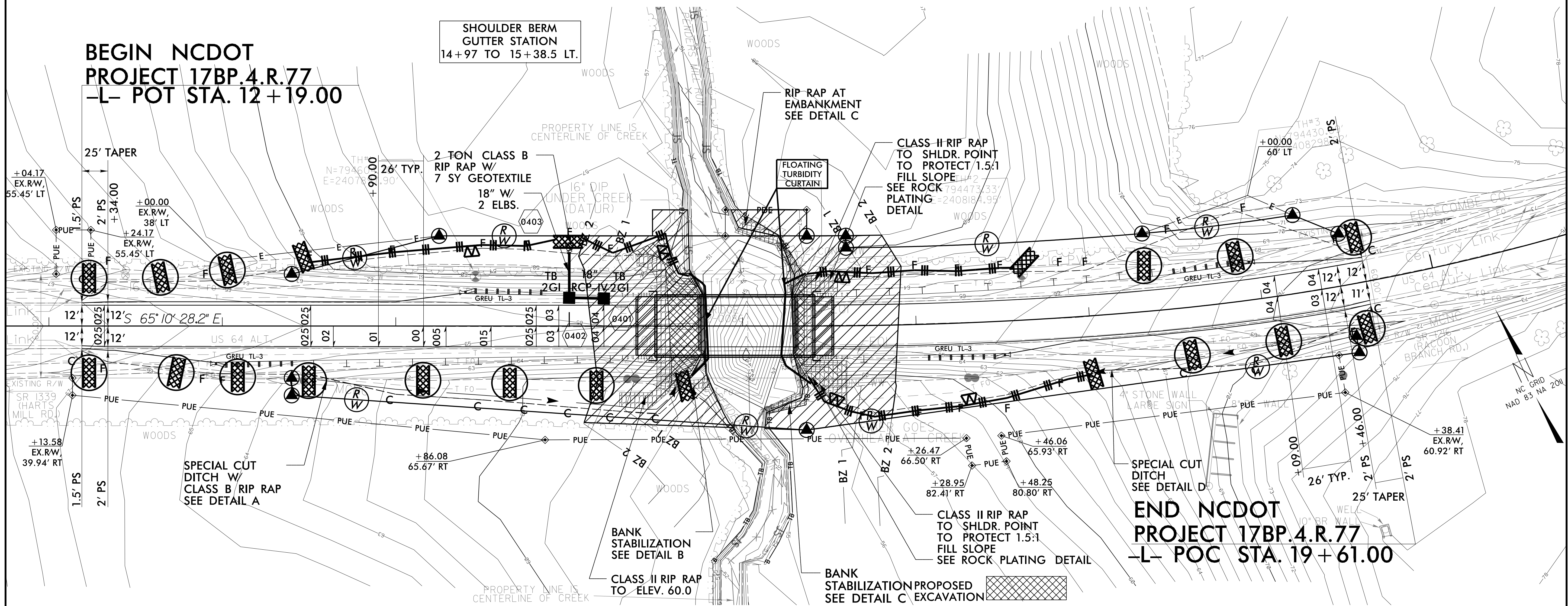
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS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

 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

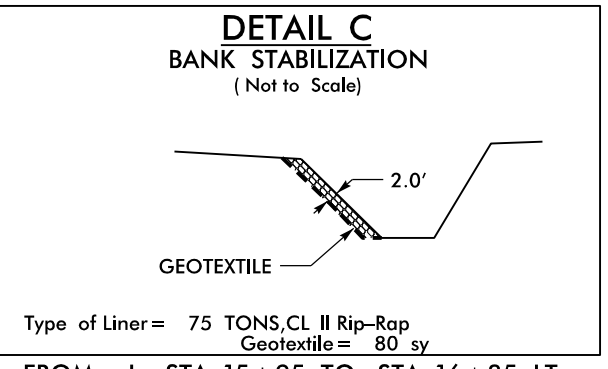
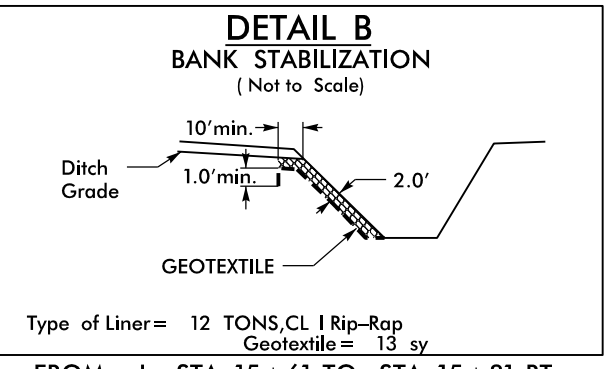
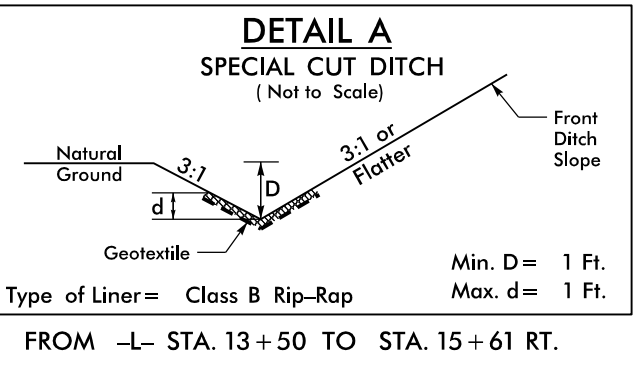
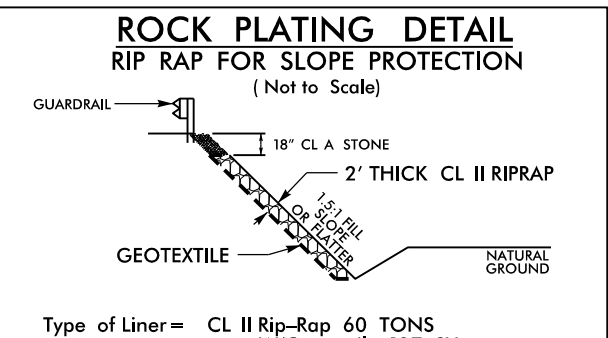
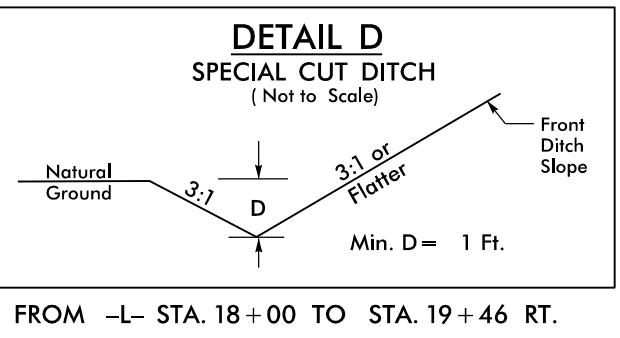
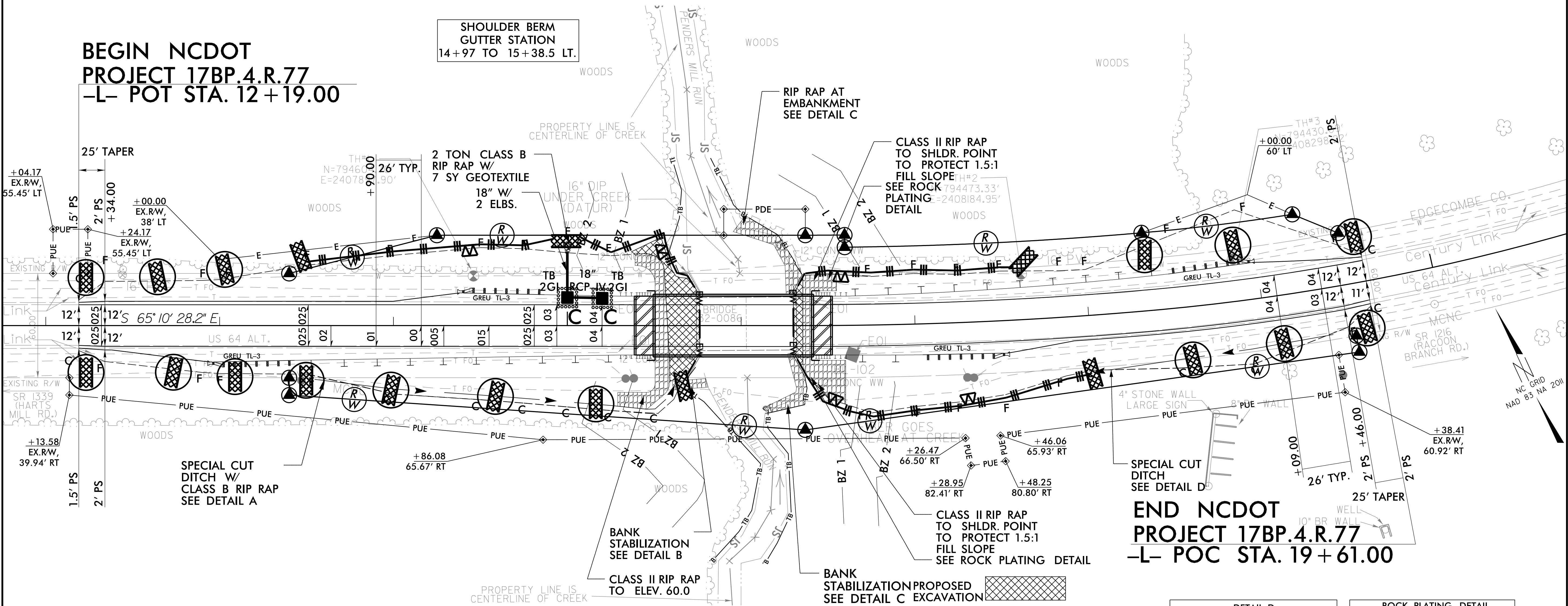
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.



BEGIN NCDOT
PROJECT 17BP.4.R.77
-L- POT STA. 12+19.00

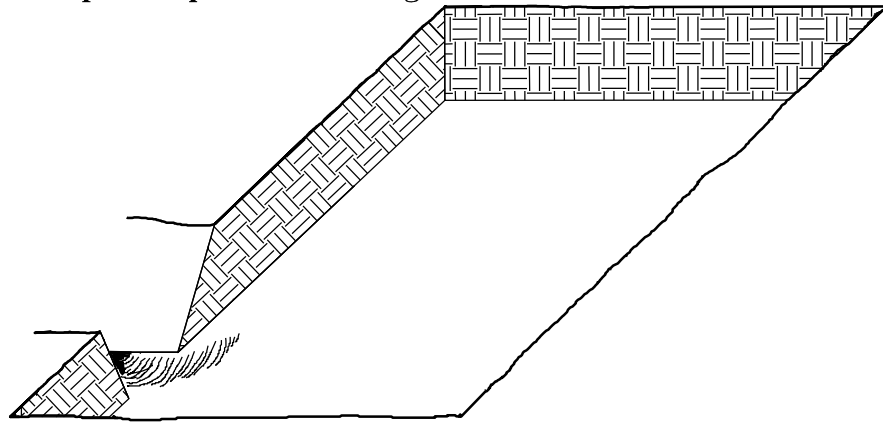
SHOULDER BERM
GUTTER STATION
14+97 TO 15+38.5 LT.



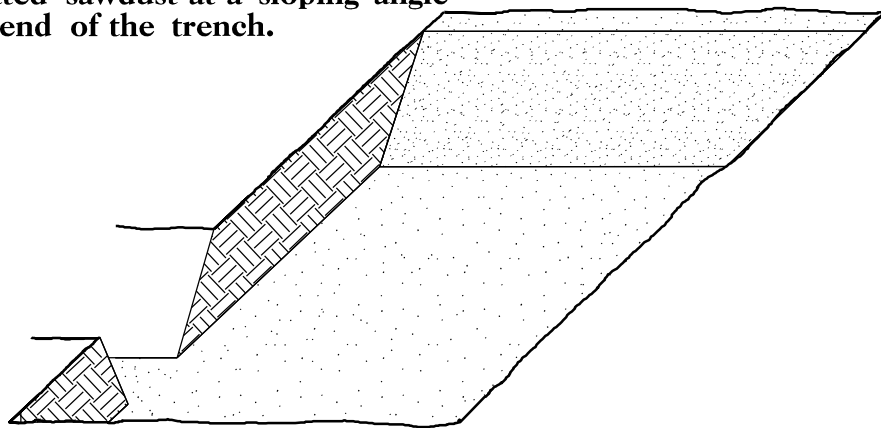
PLANTING DETAILS
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

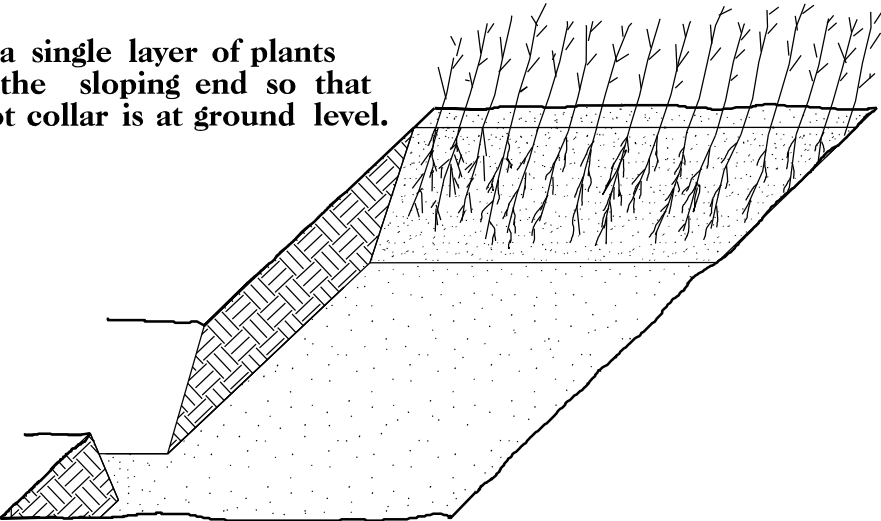
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



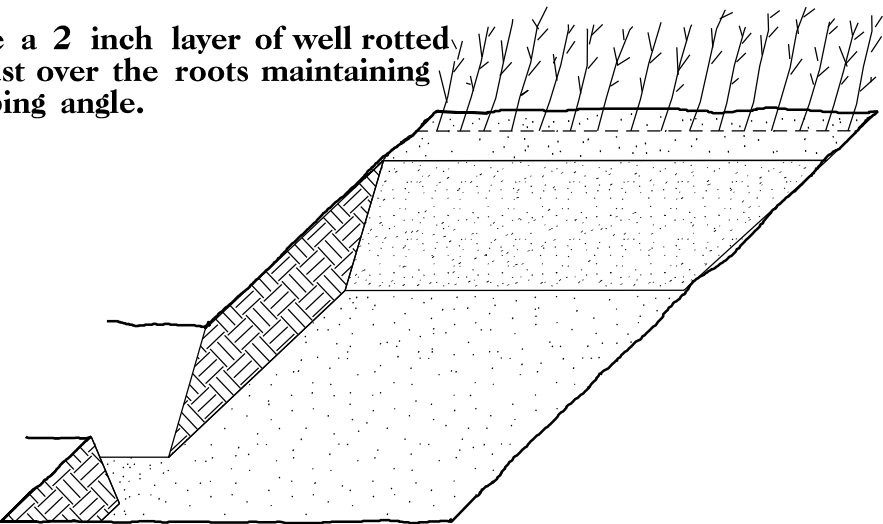
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

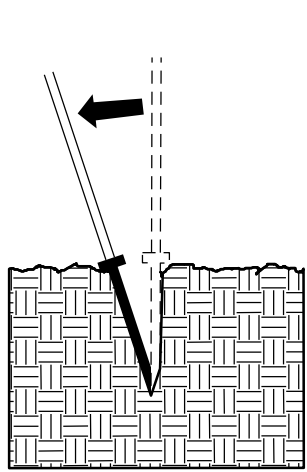


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

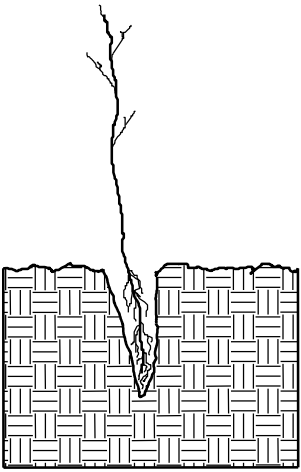


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

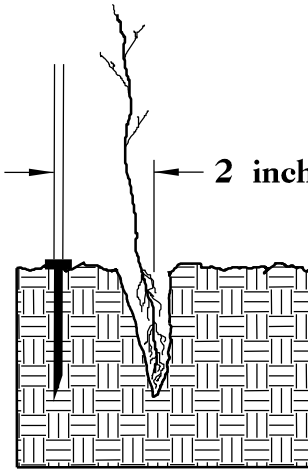
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



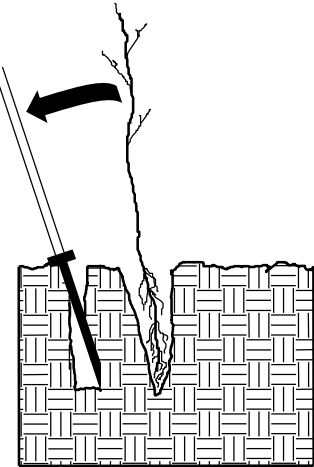
1. Insert planting bar as shown and pull handle toward planter.



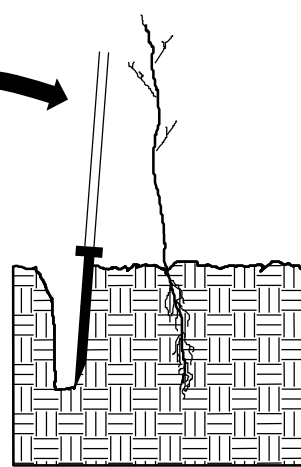
2. Remove planting bar and place seedling at correct depth.



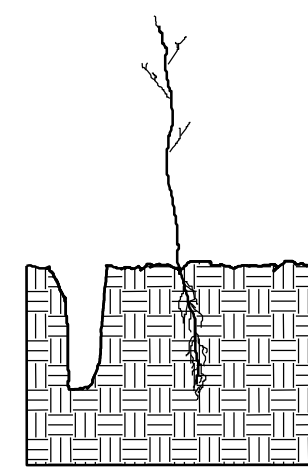
3. Insert planting bar 2 inches toward planter from seedling.



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



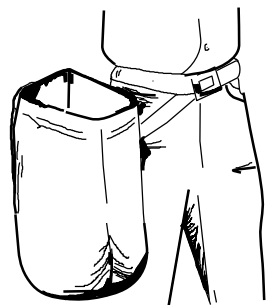
5. Push handle forward firming soil at top.



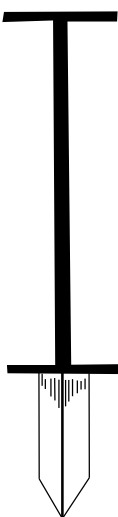
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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



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



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

REFORESTATION

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

REFORESTATION

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

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

REFORESTATION DETAIL SHEET

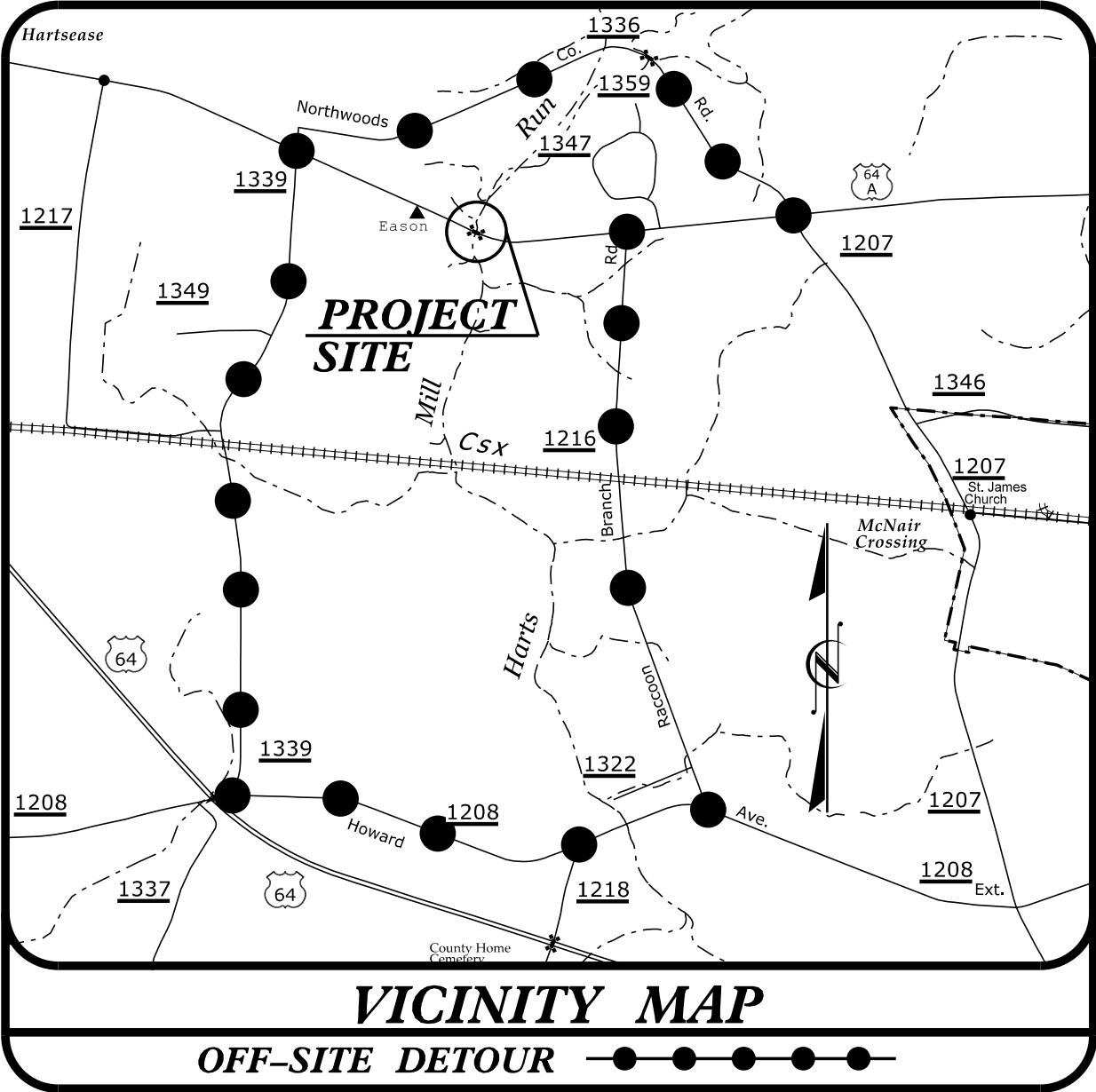
N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

09.08/99

PROJECT: 17BP.4.R.77

CONTRACT:

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
EDGECOMBE COUNTY

LOCATION: BRIDGE NO. 86 OVER PENDERS MILL RUN
ON US 64 ALT.

TYPE OF WORK: WATER LINE CONSTRUCTION

T.I.P. NO.
17BP.4.R.77

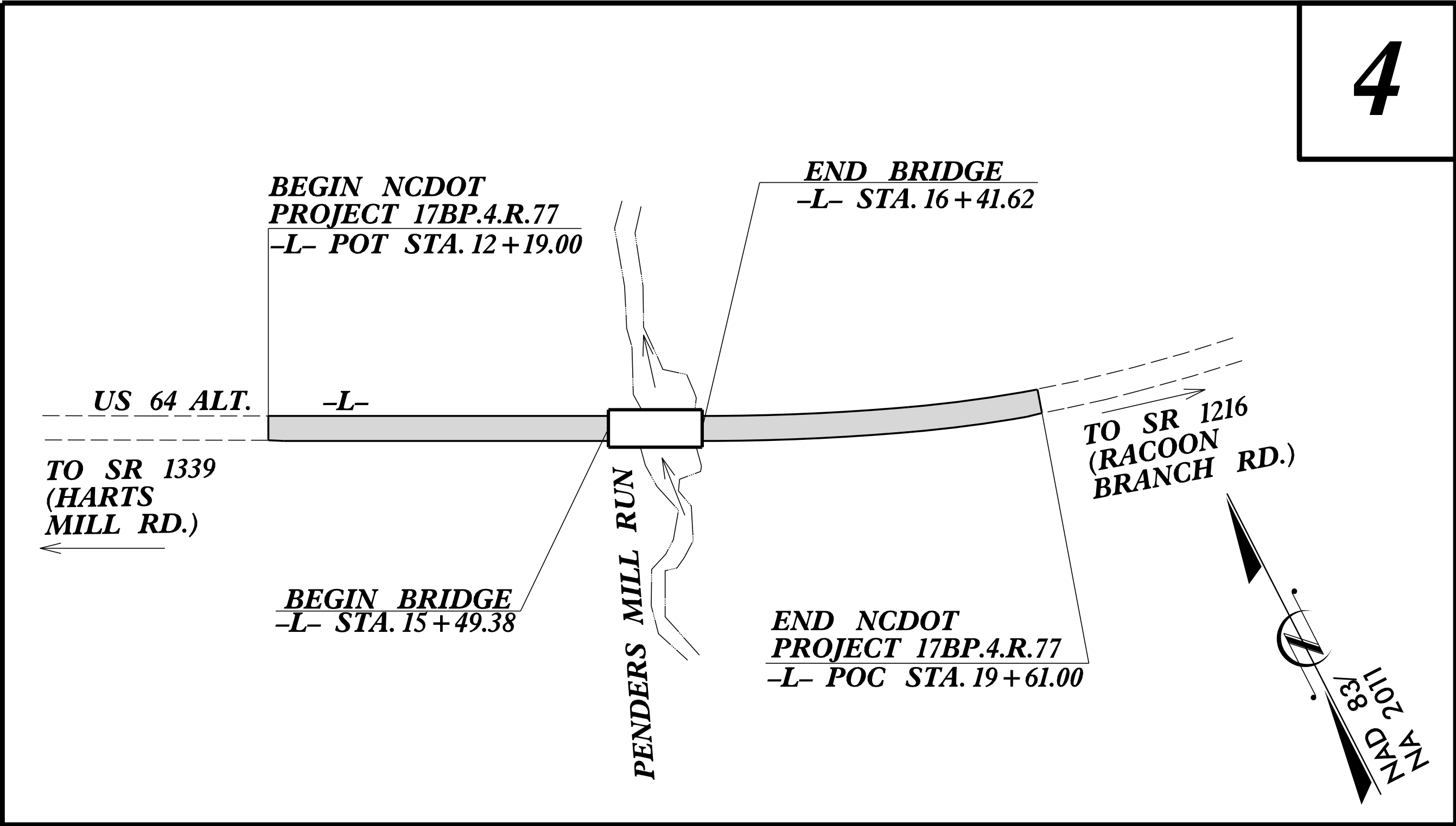
SHEET NO.
UC-1

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

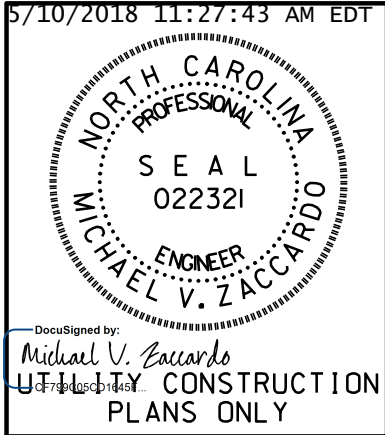
BRIDGE #320086

FINAL DESIGN
RELEASE
FOR CONSTRUCTION

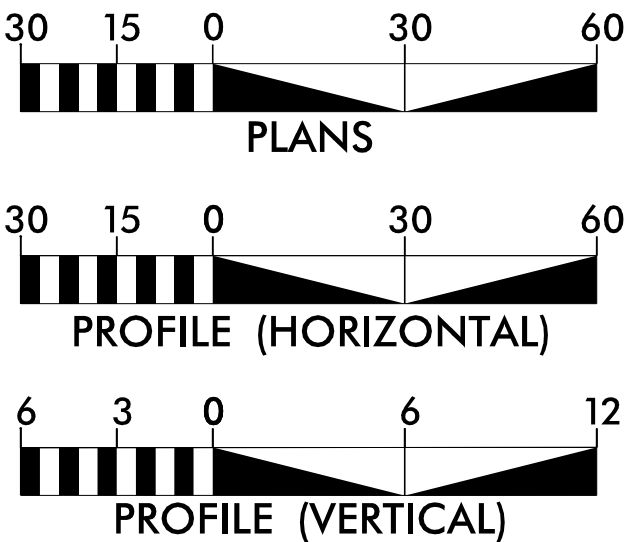


CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



GRAPHIC SCALES



INDEX OF SHEETS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
UC-1	TITLE SHEET
UC-2	SYMBOLGY SHEET
UC-3	GENERAL NOTES SHEET
UC-3A	DETAIL SHEET
UC-4	PLAN & PROFILE SHEET

WATER AND SEWER OWNERS ON PROJECT

(1) EDGECOMBE COUNTY PUBLIC UTILITIES (WATER)



Prepared for: DIVISION OF HIGHWAYS
DIVISION FOUR
in the Office of:

1223 JONES FRANKLIN ROAD
RALEIGH, N.C. 27606
BUS: 919 851 8077
FAX: 919 851 8107

2018 STANDARD SPECIFICATIONS

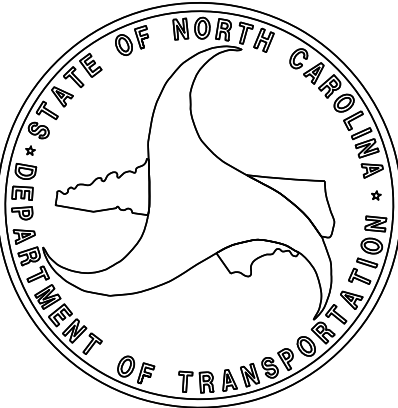
RIGHT OF WAY DATE:

LETTING DATE:

NCDOT CONTACT:

EDWARD G. WETHERILL, PE
PROJECT ENGINEER
GREG S. PURVIS, PE
PROJECT DESIGN ENGINEER
MICHAEL V. ZACCARDO, PE
UTILITY DESIGN ENGINEER

COREY MCLAMB, PE
DIVISION 4 CONSTRUCTION ENGINEER



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

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

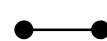
PROPOSED SEWER SYMBOLS

Gravity Sewer Line 12" SS
(Sized as Shown)
Force Main Sewer Line 12" FSS
(Sized as Shown)
Manhole ●
(Sized per Note)
Sewer Pump Station [PS(SS)]

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	 PROP O/H POW LINES
Trenchless Installation	 12" TL INSTALL
Encasement by Open Cut	 24" ENCAS BY OC
Encasement	 24" ENCASEMENT

EXISTING UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

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

*Underground Power Line	P
*Underground Telephone Cable	T
*Underground Telephone Conduit	TC
*Underground Fiber Optics Telephone Cable	T FO
*Underground TV Cable	TV
*Underground Fiber Optics TV Cable	TV FO
*Underground Gas Pipeline	G
Aboveground Gas Pipeline	A/G Gas
*Underground Water Line	W
Aboveground Water Line	A/G Water
*Underground Gravity Sanitary Sewer Line	SS
Aboveground Gravity Sanitary Sewer Line	A/G Sanitary Sewer
*Underground SS Forced Main Line	FSS
Underground Unknown Utility Line	?UTL
SUE Test Hole	⊗
Water Meter	⊐
Water Valve	⊗
Fire Hydrant	⊕
Sanitary Sewer Cleanout	⊕

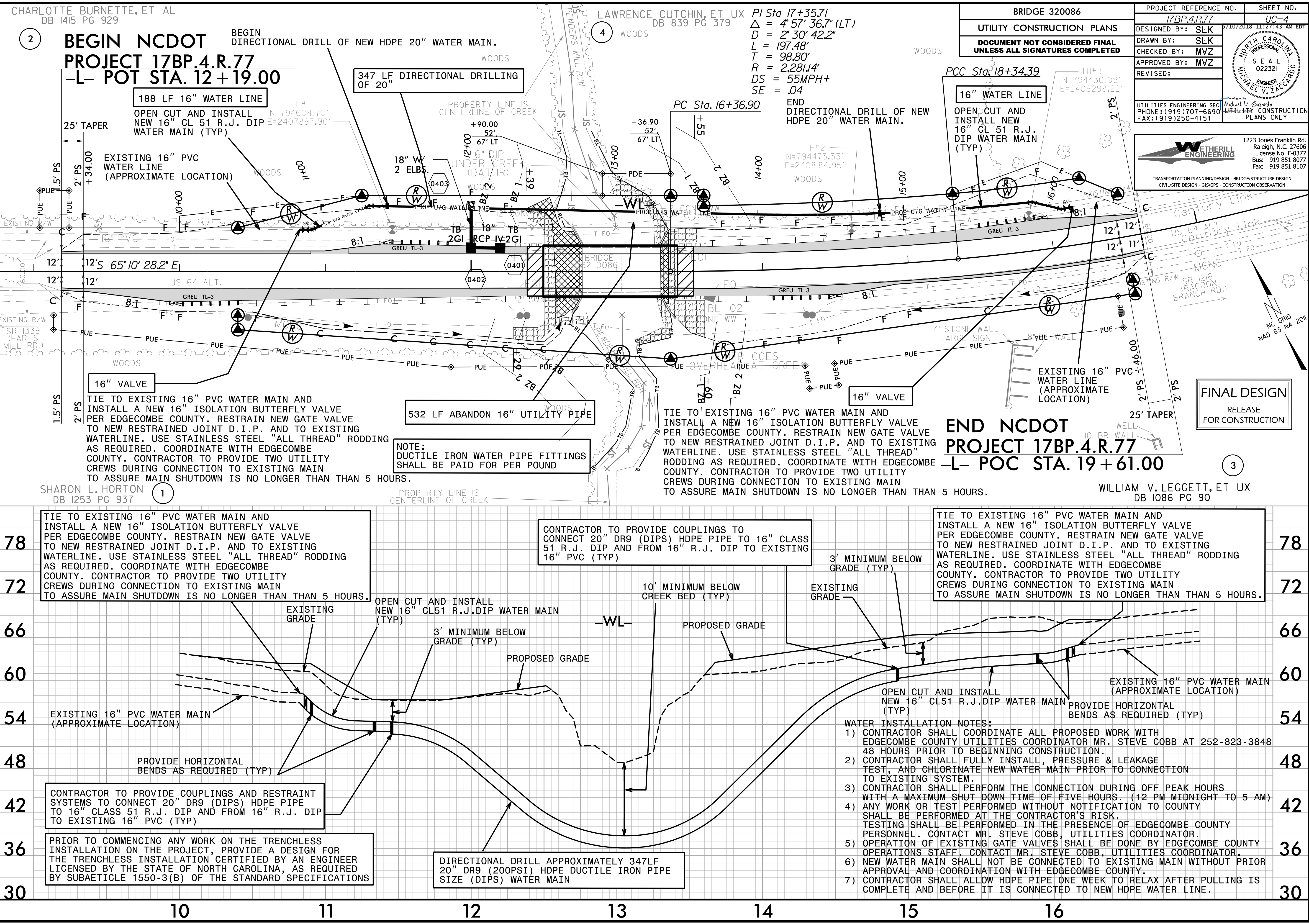
*For Existing Utilities

Utility Line Drawn from Record
(Type as Shown)
Designated Utility Line
(Type as Shown)

FINAL DESIGN
RELEASE
FOR CONSTRUCTION



8/17/99
5/10/2008
15:58:33
UC4_psh.dgn
USER:SKENNY



12/06/07

3/26/2018
17BP.4.R.77
JST:skenned

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE
BACKFILL FOR UNDERCUT.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BRIDGE #320067

PROJECT REFERENCE NO.

17BP.4.R.77

SHEET NO.

X-1

CROSS -SECTION SUMMARY

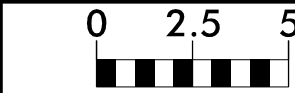
STATION	Uncl. Exc.	Embt.
-L-	(CU. YD.)	(CU. YD.)
12 + 19.00	0	0
12 + 34.00	2	1
12 + 90.00	8	12
13 + 00.00	1	3
13 + 50.00	5	23
14 + 00.00	6	56
14 + 50.00	6	119
14 + 75.00	3	83
15 + 00.00	3	91
15 + 25.00	3	100
15 + 49.38	3	100
STATION	Uncl. Exc.	Embt.
-L-	(CU. YD.)	(CU. YD.)
16 + 41.62	0	0
16 + 50.00	0	17
16 + 75.00	0	78
17 + 00.00	0	103
17 + 25.00	0	87
17 + 50.00	0	72
17 + 85.00	0	67
18 + 00.00	0	16
18 + 50.00	16	40
18 + 91.00	37	23
19 + 46.00	38	18
19 + 61.00	3	1

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

CROSS SECTION INDEX

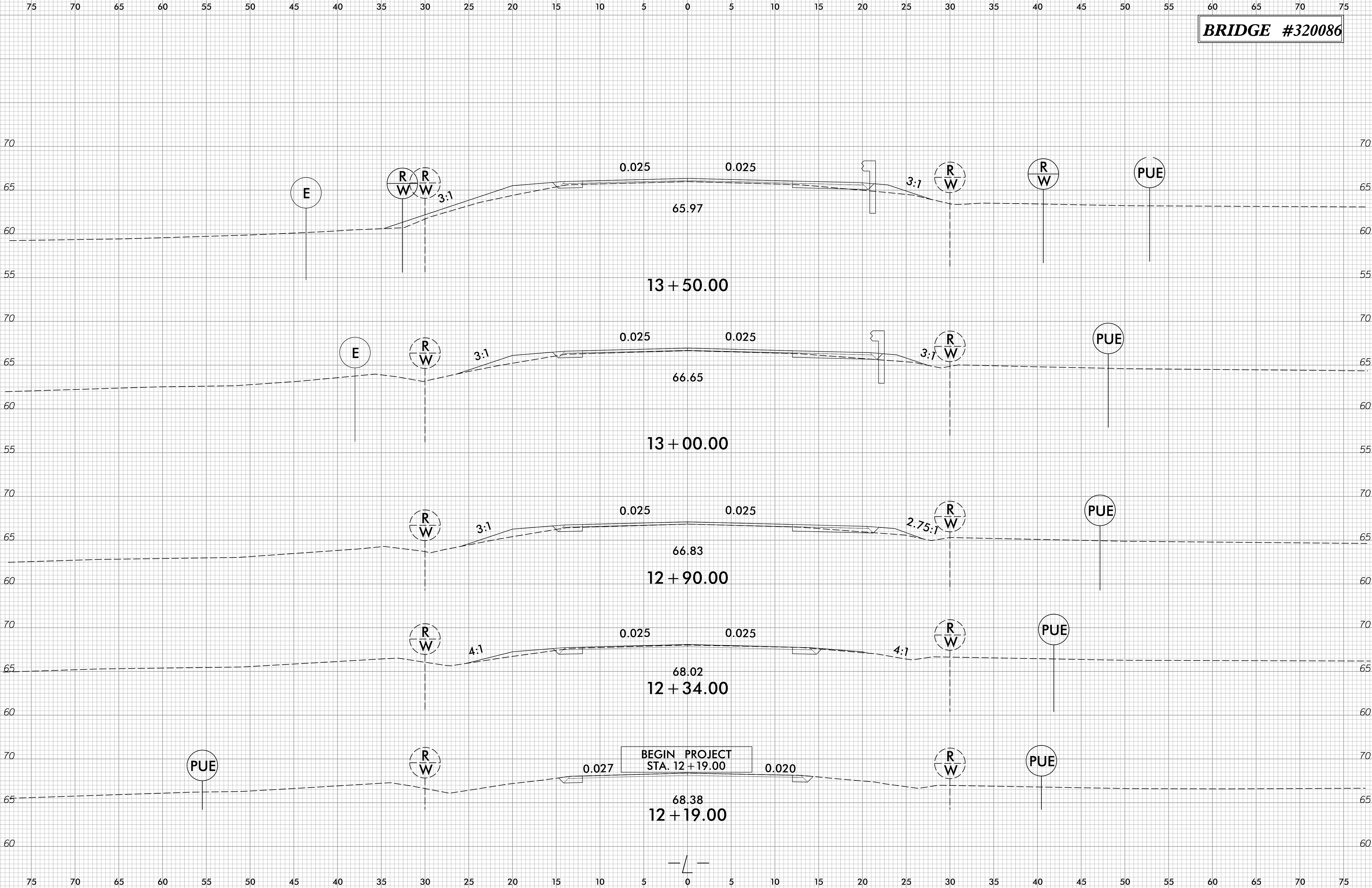
SHEET	LINE	STATION	STATION
X-2	-L-	12 + 19.00	13 + 50.00
X-3	-L-	14 + 00.00	15 + 00.00
X-4	-L-	15 + 25.00	15 + 49.38
X-5	-L-	16 + 00.00	16 + 41.64
X-6	-L-	16 + 50.00	17 + 25.00
X-7	-L-	17 + 50.00	18 + 50.00
X-8	-L-	18 + 91.00	19 + 61.00

6/23/16



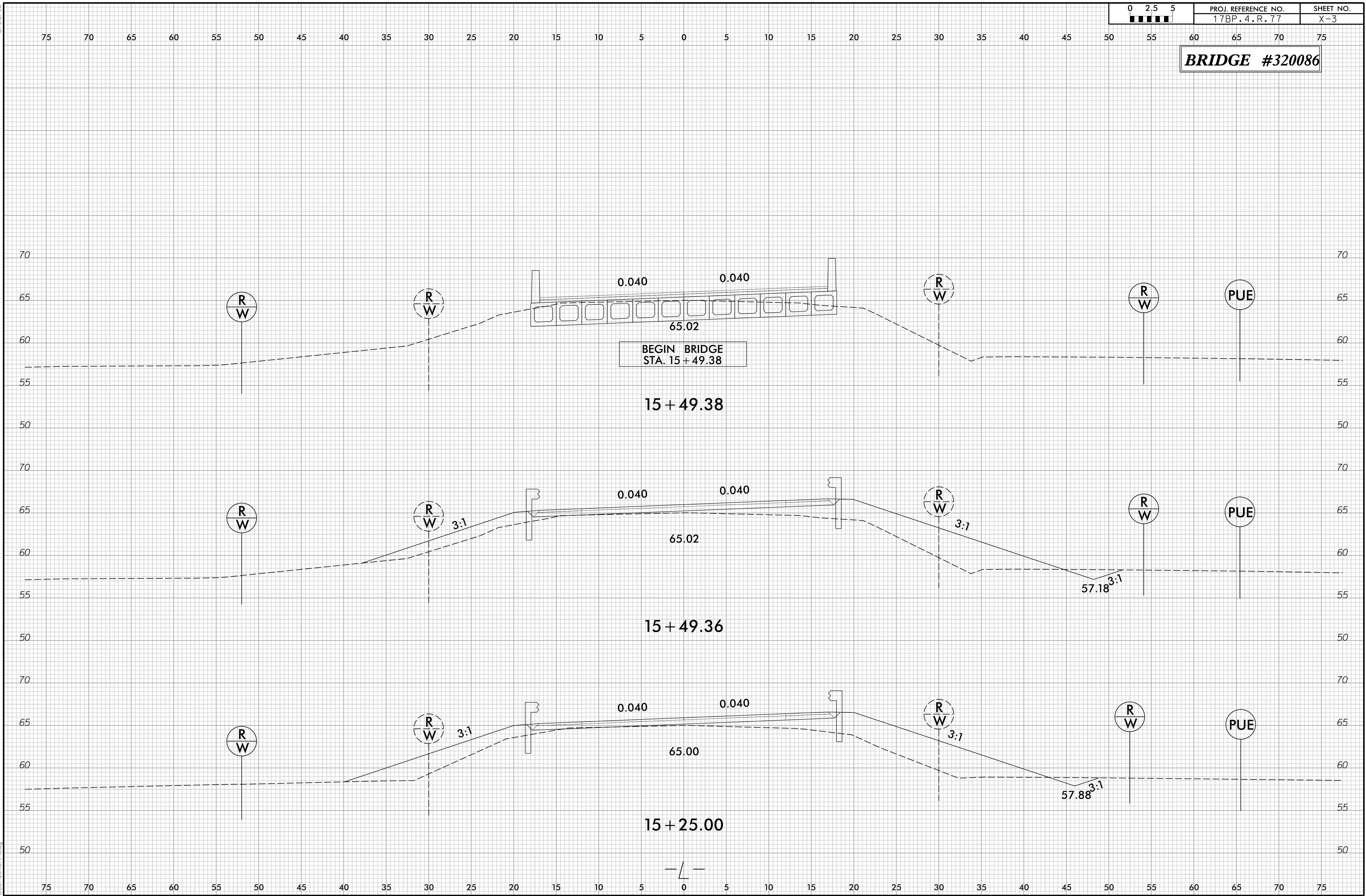
PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.77	X-1

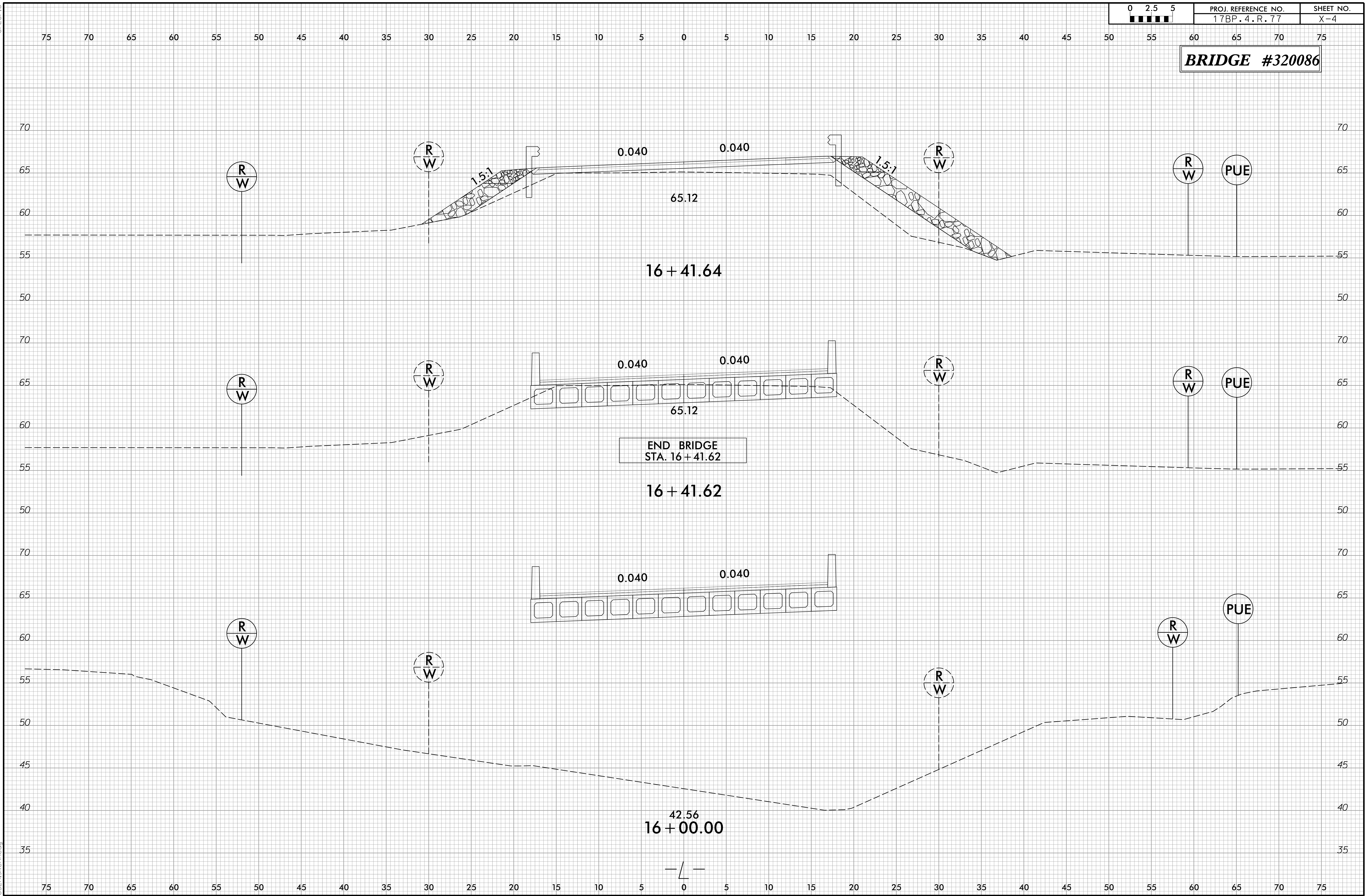
BRIDGE #320086



3/26/2018
17BP.4.R.77
17BP.4.R.77







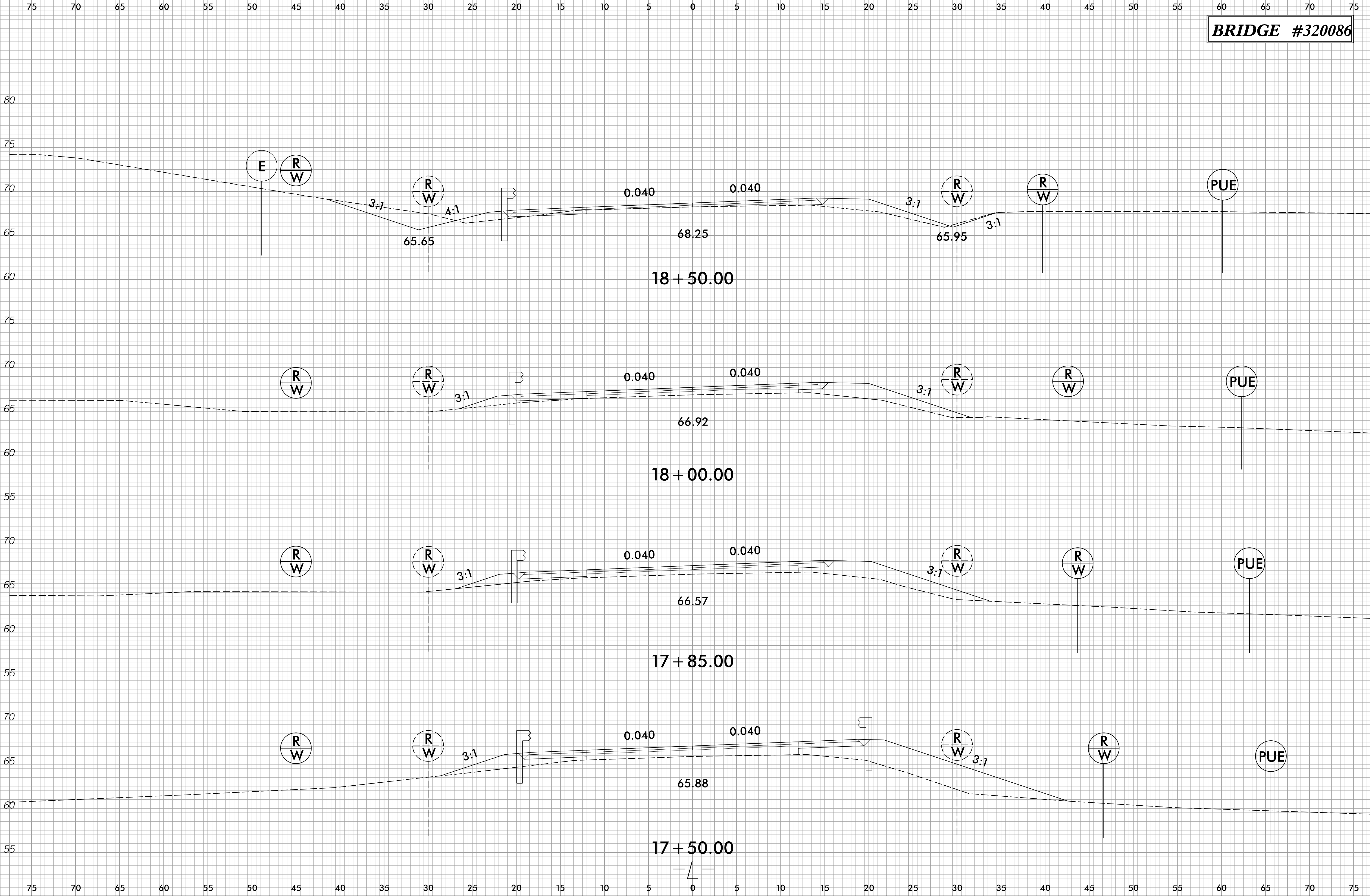


6/23/16

3/26/2018
17BP.4.R.77
17BP.4.R.77

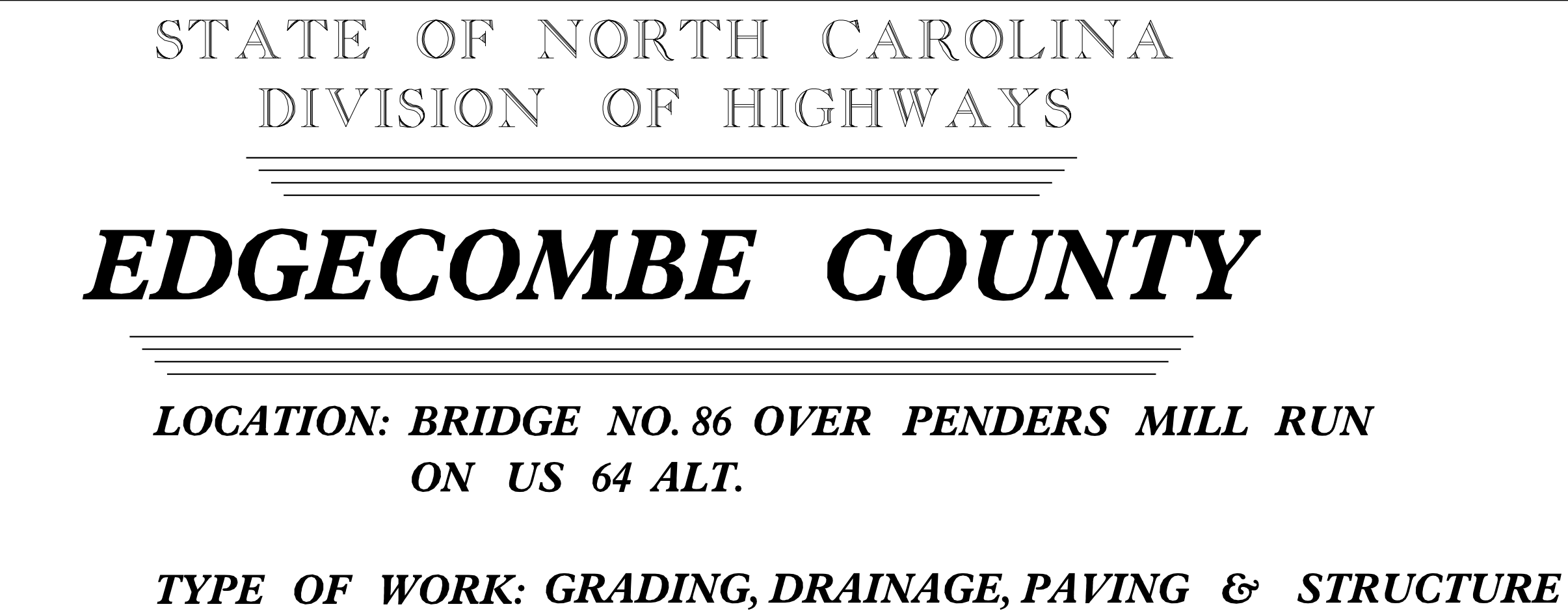
0 2.5 5 [Scale Bar]	PROJ. REFERENCE NO.	SHEET NO.
	17BP.4.R.77	X-6

BRIDGE #320086





CONTRACT: DD00263



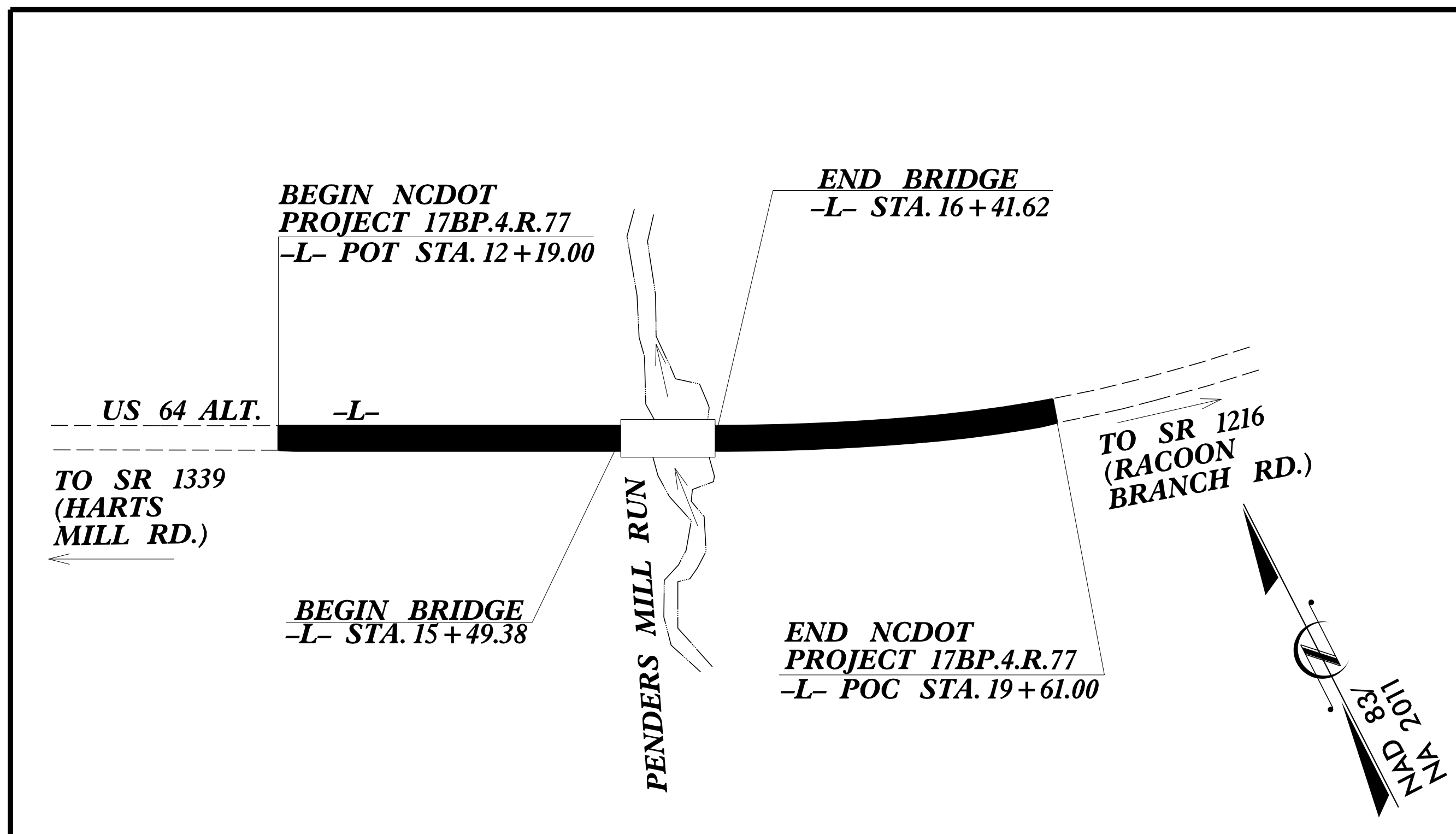
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.77		
STATE PROJ.NO.	F.A.PROJ.NO.	DESCRIPTION	
17BP.4.R.77		PE, UTIL., R/W	
17BP.4.R.77		CONST.	

**ETHERILL
ENGINEERING**

1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 License No. F-0377
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 Fax: 919 851 8107

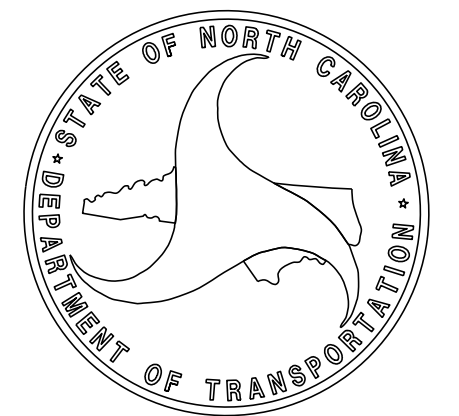
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

BRIDGE #320086

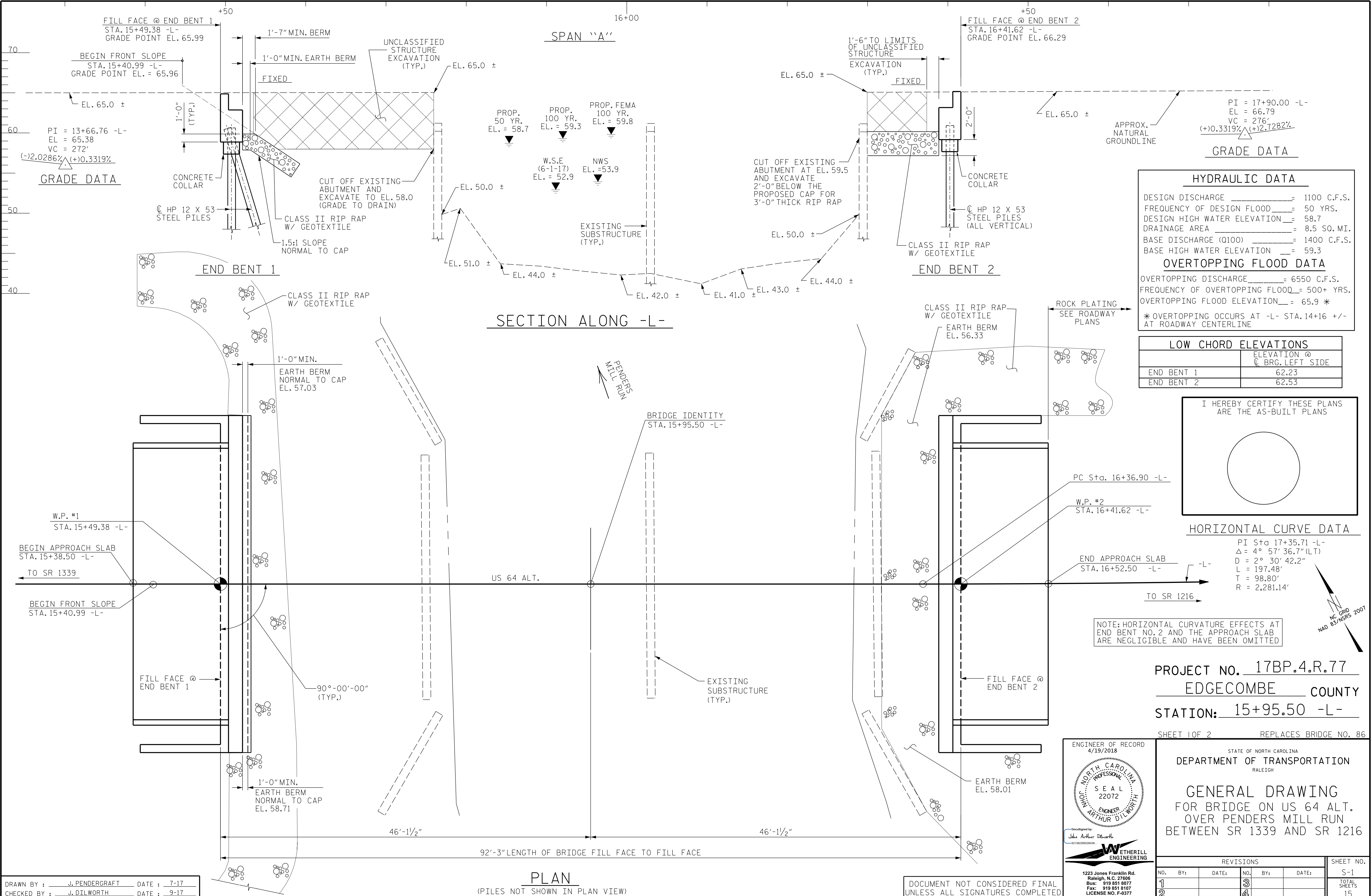


**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

DESIGN DATA ADT 2017 = 4600 T = 6 % * V = 55 MPH * (TTST = 3% + DUAL = 3%) FUNC CLASS = RURAL MAJOR COLLECTOR REGIONAL TIER	PROJECT LENGTH LENGTH ROADWAY PROJECT 17BP.4.R.77 = 0.123 MILES LENGTH STRUCTURE PROJECT 17BP.4.R.77 = 0.017 MILES TOTAL LENGTH PROJECT 17BP.4.R.77 = 0.140 MILES NCDOT CONTACT: <u>RACHEL EVANS, PE</u> DIVISION 4 BRIDGE PROGRAM MANAGER	Prepared for: DIVISION OF HIGHWAYS DIVISION FOUR 509 Ward Boulevard, Wilson NC, 27895		
		2018 STANDARD SPECIFICATIONS	<u>EDWARD G. WETHERILL, PE</u> PROJECT ENGINEER <u>JOHN A. DILWORTH, PE</u> PROJECT DESIGN ENGINEER	
		LETTING DATE: <u>JUNE 26, 2018</u>		



P:\2017\17138.01_EDGEcombe_86Structures\DWG\EDGEcombe_320086_STR_G0.dgn
3/29/2018 12:31:25 PM



DRAWN BY : J. PENDERGRAFT DATE : 7-17
CHECKED BY : J. DILWORTH DATE : 9-17

PLAN
(PILES NOT SHOWN IN PLAN VIEW)

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

HYDRAULIC DATA	
DESIGN DISCHARGE	= 1100 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 50 YRS.
DESIGN HIGH WATER ELEVATION	= 58.7
DRAINAGE AREA	= 8.5 SQ. MI.
BASE DISCHARGE (Q100)	= 1400 C.F.S.
BASE HIGH WATER ELEVATION	= 59.3
OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	= 6550 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YRS.
OVERTOPPING FLOOD ELEVATION	= 65.9 *
* OVERTOPPING OCCURS AT -L- STA. 14+16 +/- AT ROADWAY CENTERLINE	

LOW CHORD ELEVATIONS	
	ELEVATION @
	BRG. LEFT SIDE
END BENT 1	62.23
END BENT 2	62.53

I HEREBY CERTIFY THESE PLANS
ARE THE AS-BUILT PLANS

HORIZONTAL CURVE DATA

PI Sta. 17+35.71 -L-
Δ = 4° 57' 36.7" (LT)
D = 2° 30' 42.2"
L = 197.48'
T = 98.80'
R = 2,281.14'

NOTE: HORIZONTAL CURVATURE EFFECTS AT
END BENT NO. 2 AND THE APPROACH SLAB
ARE NEGLIGIBLE AND HAVE BEEN OMITTED

PROJECT NO. 17BP.4.R.77
EDGEcombe COUNTY
STATION: 15+95.50 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 86

ENGINEER OF RECORD
4/19/2018

NORTH CAROLINA
PROFESSIONAL
SEAL
22072

JOHN ARTHUR DILWORTH
ENGINEER

DocuSigned by
John Arthur Dilworth
421382200208438

ETHERILL
ENGINEERING

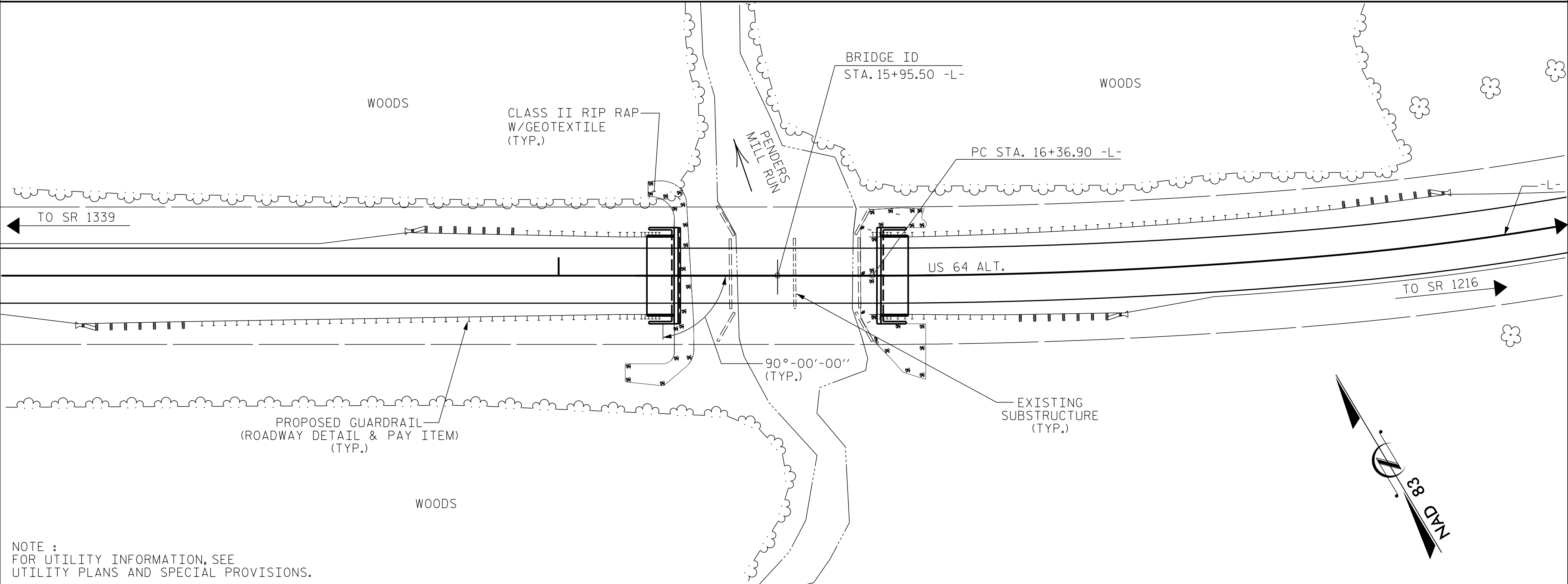
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON US 64 ALT.
OVER PENDERS MILL RUN
BETWEEN SR 1339 AND SR 1216

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

BM-1 (BENCH TIE NAIL SET IN 10" BIRCH TREE); -L- STA. 17+05.51, 253.35' RT., EL. 57.15; N 794238, S 2408022



NOTE :
FOR UTILITY INFORMATION, SEE
UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

FOUNDATION 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 120 TONS PER PILE.

DRIVE PILES AT END BENT No. 1 AND END BENT No. 2 TO A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE.

INSTALL PILES AT END BENT NO. 2 TO A TIP ELEVATION NO HIGHER THAN 20.0.

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 SECTIONS 450 OF THE STANDARD SPECIFICATIONS.

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 SETOP FOR HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	RIP RAP CLASS II (3'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAMS	
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	NO.	LIN. FT.	EACH	LIN. FT.	TONS	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE						LUMP SUM						180.00				LUMP SUM	12	1080.00
END BENT No. 1					26.9		3795	7	7	490	4		100		115			
END BENT No. 2					26.9		3795	7	7	560	4		75	55	120			
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	53.8	LUMP SUM	7590	14	14	1050	8	180.00	175	55	235	LUMP SUM	12	1080.00

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS @ 27'-0" WITH A REINFORCED CONCRETE DECK GIRDER SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 30.1' ON A SUBSTRUCTURE CONSISTING OF FULL HEIGHT REINFORCED CONCRETE ABUTMENTS AND A REINFORCED CONCRETE POST AND WEB BENT WITH STEEL CRUTCH BENTS AND LOCATED AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED. THE BRIDGE IS CURRENTLY POSTED FOR LOAD LIMIT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE 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.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

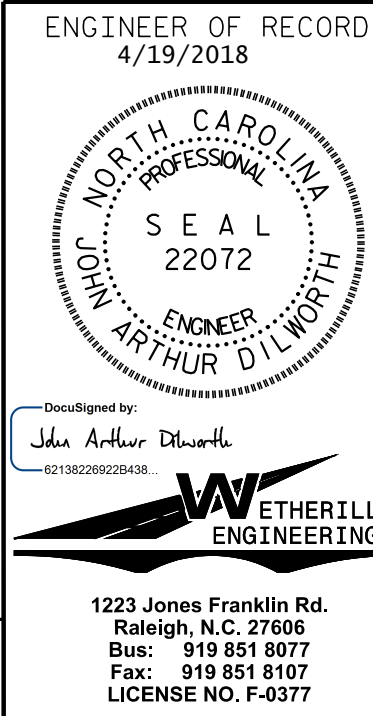
INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 15+95.50 -L-".

PROJECT NO. 17BP.4.R.77

EDGEcombe COUNTY

STATION: 15+95.50 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON US 64 ALT.
OVER PENDERS MILL RUN
BETWEEN SR 1339 AND SR 1216

REVISIONS

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

SHEET NO.

S-2

TOTAL

SHEETS

15

DRAWN BY : J. PENDERGRAFT DATE : 10-17
CHECKED BY : J. DILWORTH DATE : 10-17

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

+

P:\2017\17138.01_EDGECOMBE_86Structures\DWG\EDGECOMBE_320086_STR_LRF.dgn
3/29/2018 12:50:34 PM

+

DRAWN BY : J. PENDERGRAFT

DATE : 7-17

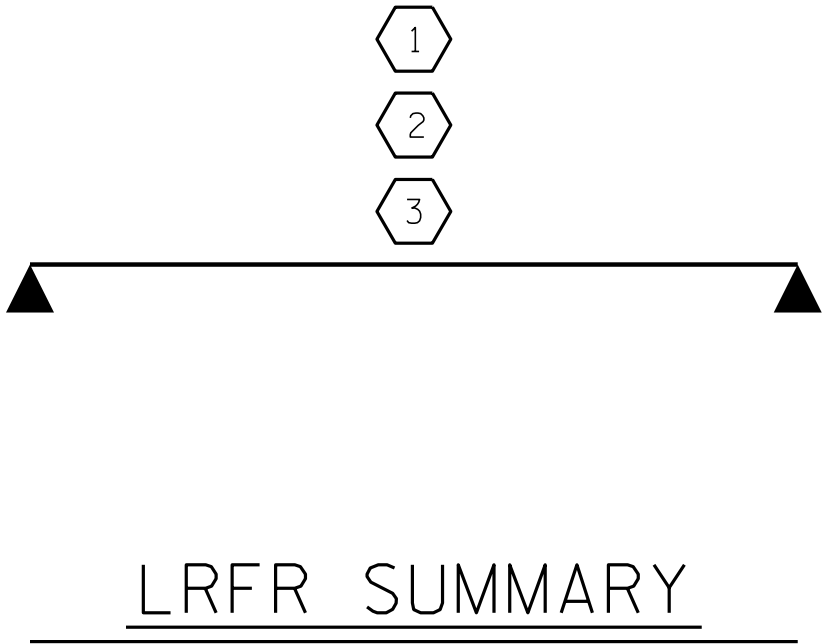
CHECKED BY : J. DILWORTH

DATE : 10-17

DOCUMENT NOT CONSIDERED FINAL

UNLESS ALL SIGNATURES COMPLETED

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
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	
							LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT					
								DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.109	--	1.75	0.272	1.47	A	EL	44.25	0.493	1.26	A	EL	4.425	0.80	0.272	1.11	A	EL	44.25	
		HL-93(0pr)	N/A	--	1.633	--	1.35	0.272	1.9	A	EL	44.25	0.493	1.63	A	EL	4.425	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.507	54.255	1.75	0.272	1.99	A	EL	44.25	0.493	1.65	A	EL	4.425	0.80	0.272	1.51	A	EL	44.25	
		HS-20(0pr)	36.000	--	2.14	77.039	1.35	0.272	2.59	A	EL	44.25	0.493	2.14	A	EL	4.425	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.519	47.501	1.4	0.272	5.82	A	EL	44.25	0.493	5.05	A	EL	4.425	0.80	0.272	3.52	A	EL	44.25	
		SNGARBS2	20.000	--	2.572	51.43	1.4	0.272	4.25	A	EL	44.25	0.493	3.55	A	EL	4.425	0.80	0.272	2.57	A	EL	44.25	
		SNAGRIS2	22.000	--	2.415	53.122	1.4	0.272	4	A	EL	44.25	0.493	3.27	A	EL	4.425	0.80	0.272	2.41	A	EL	44.25	
		SNCOTTS3	27.250	--	1.749	47.674	1.4	0.272	2.89	A	EL	44.25	0.493	2.52	A	EL	4.425	0.80	0.272	1.75	A	EL	44.25	
		SNAGGRS4	34.925	--	1.443	50.381	1.4	0.272	2.39	A	EL	44.25	0.493	2.06	A	EL	4.425	0.80	0.272	1.44	A	EL	44.25	
		SNS5A	35.550	--	1.412	50.195	1.4	0.272	2.34	A	EL	44.25	0.493	2.07	A	EL	4.425	0.80	0.272	1.41	A	EL	44.25	
		SNS6A	39.950	--	1.287	51.435	1.4	0.272	2.13	A	EL	44.25	0.493	1.88	A	EL	4.425	0.80	0.272	1.29	A	EL	44.25	
		SNS7B	42.000	--	1.226	51.483	1.4	0.272	2.03	A	EL	44.25	0.493	1.83	A	EL	4.425	0.80	0.272	1.23	A	EL	44.25	
	TTST	TNAGRIT3	33.000	--	1.568	51.733	1.4	0.272	2.59	A	EL	44.25	0.493	2.24	A	EL	4.425	0.80	0.272	1.57	A	EL	44.25	
		TNT4A	33.075	--	1.572	52.007	1.4	0.272	2.6	A	EL	44.25	0.493	2.2	A	EL	4.425	0.80	0.272	1.57	A	EL	44.25	
		TNT6A	41.600	--	1.278	53.17	1.4	0.272	2.11	A	EL	44.25	0.493	1.92	A	EL	4.425	0.80	0.272	1.28	A	EL	44.25	
		TNT7A	42.000	--	1.281	53.782	1.4	0.272	2.12	A	EL	44.25	0.493	1.89	A	EL	4.425	0.80	0.272	1.28	A	EL	44.25	
		TNT7B	42.000	--	1.315	55.229	1.4	0.272	2.18	A	EL	44.25	0.493	1.79	A	EL	4.425	0.80	0.272	1.31	A	EL	44.25	
		TNAGRIT4	43.000	--	1.258	54.101	1.4	0.272	2.08	A	EL	44.25	0.493	1.74	A	EL	4.425	0.80	0.272	1.26	A	EL	44.25	
		TNAGT5A	45.000	--	1.19	53.537	1.4	0.272	1.97	A	EL	44.25	0.493	1.71	A	EL	4.425	0.80	0.272	1.19	A	EL	44.25	
		TNAGT5B	45.000	3	1.178	53.027	1.4	0.272	1.95	A	EL	44.25	0.493	1.66	A	EL	4.425	0.80	0.272	1.18	A	EL	44.25	



LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

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

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

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.77

EDGEcombe COUNTY

STATION: 15+95.50 -L-

ENGINEER OF RECORD
4/19/2018

NORTH CAROLINA
PROFESSIONAL
SEAL
22072
JOHN ARTHUR DILWORTH
ENGINEER

DocuSigned by:
John Arthur Dilworth
1382265220438

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LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
90' BOX BEAM UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS

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

SHEET NO.
S-3

TOTAL SHEETS
15

STD. NO. 33LRFR1_90S_90L

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 BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM 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.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.

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

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL 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 VERTICAL 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.

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

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.77
EDGEcombe COUNTY
STATION: 15+95.50 -L-

SHEET 1 OF 5

ENGINEER OF RECORD
4/19/2018

NORTH CAROLINA
PROFESSIONAL
SEAL
22072

JOHN ARTHUR DILWORTH
ENGINEER

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621382262228436

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LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STD. NO. STD.33PCBB-36-90S

TYPICAL SECTION

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

FIXED END

SECTION AT END BENT

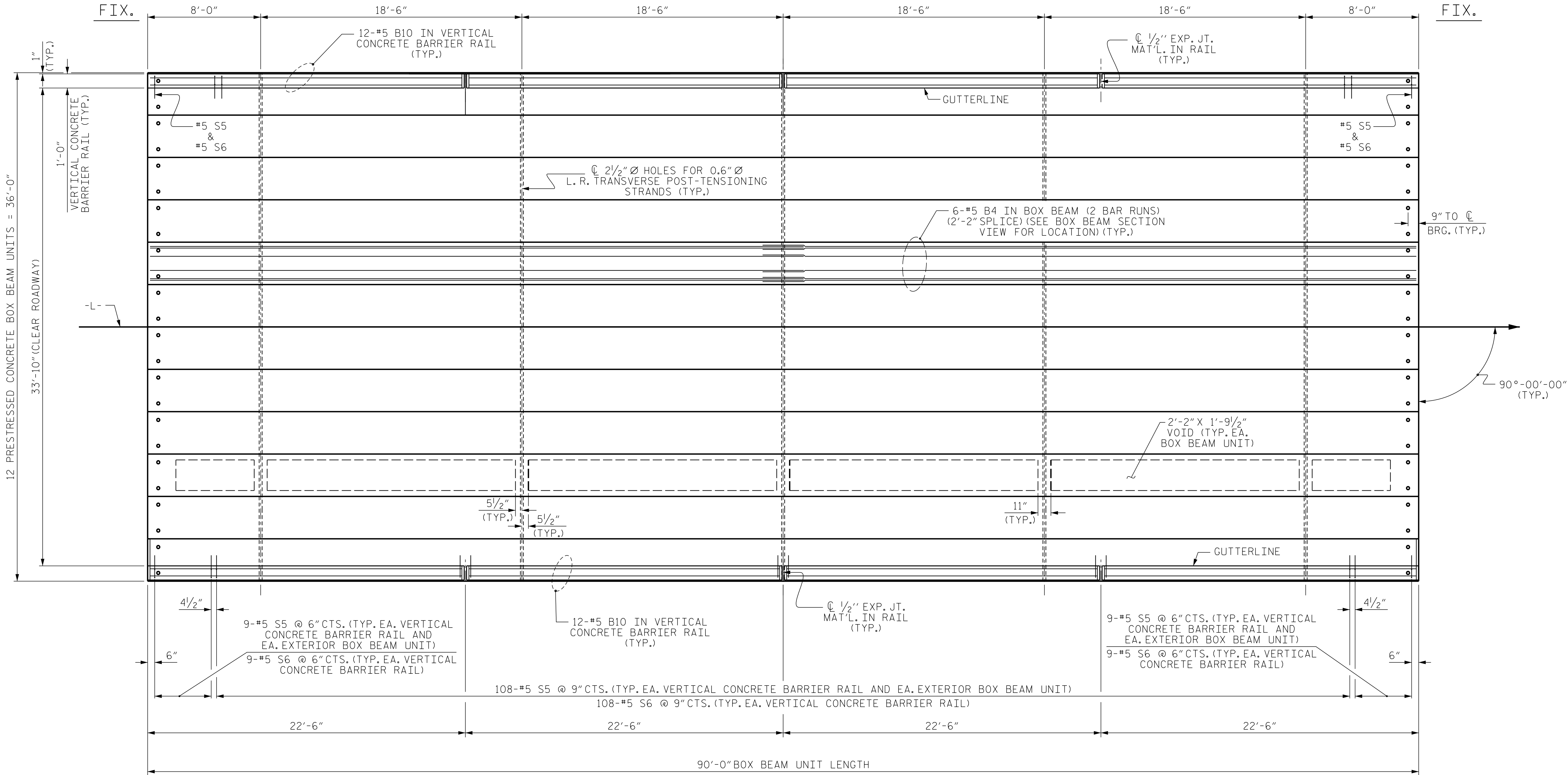
PERMITTED THREADED INSERT
CAST IN OUTSIDE FACE OF
EXTERIOR UNIT AND
RECESSED 3/8". SIZE TO BE
DETERMINED
BY CONTRACTOR.

THREADED INSERT DETAIL

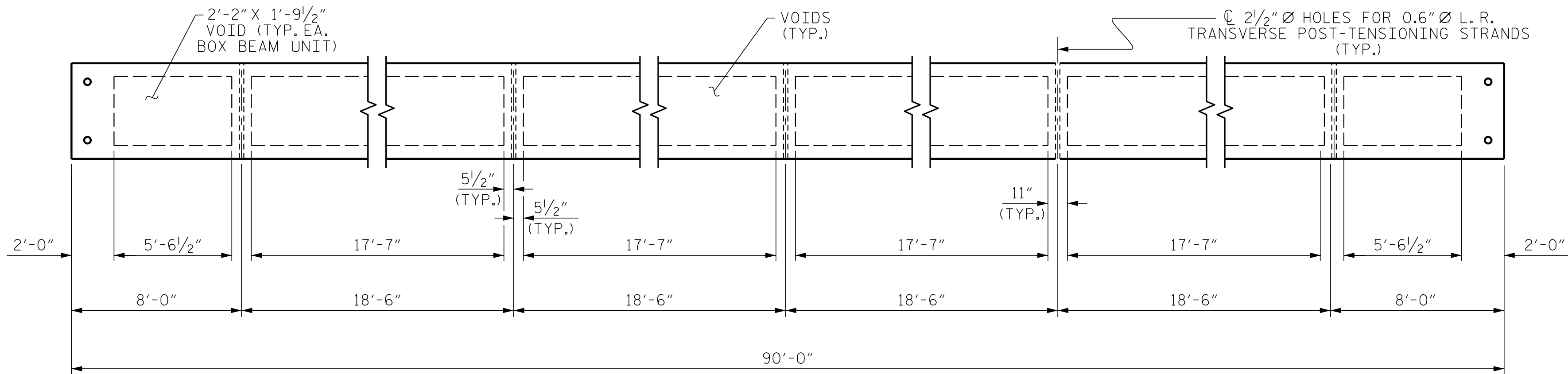
ASSEMBLED BY : J. PENDERGRAFT	DATE : 7-17
CHECKED BY : J. DILWORTH	DATE : 10-17
DRAWN BY : DCE 8/II	REV. 9/14 MAA/TMG
CHECKED BY : TMG II/II	

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PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

PROJECT NO. 17BP.4.R.77

EDGEcombe COUNTY

STATION: 15+95.50 -L-

SHEET 2 OF 5

ENGINEER OF RECORD
4/19/2018

NORTH CAROLINA
PROFESSIONAL
SEAL
22072
JOHN ARTHUR DILWORTH
ENGINEER

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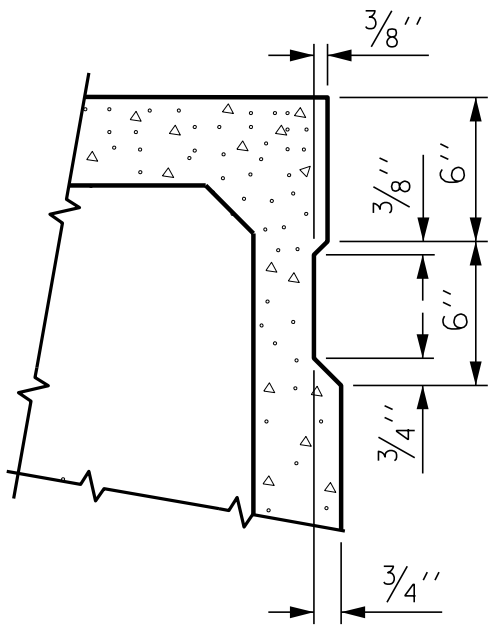
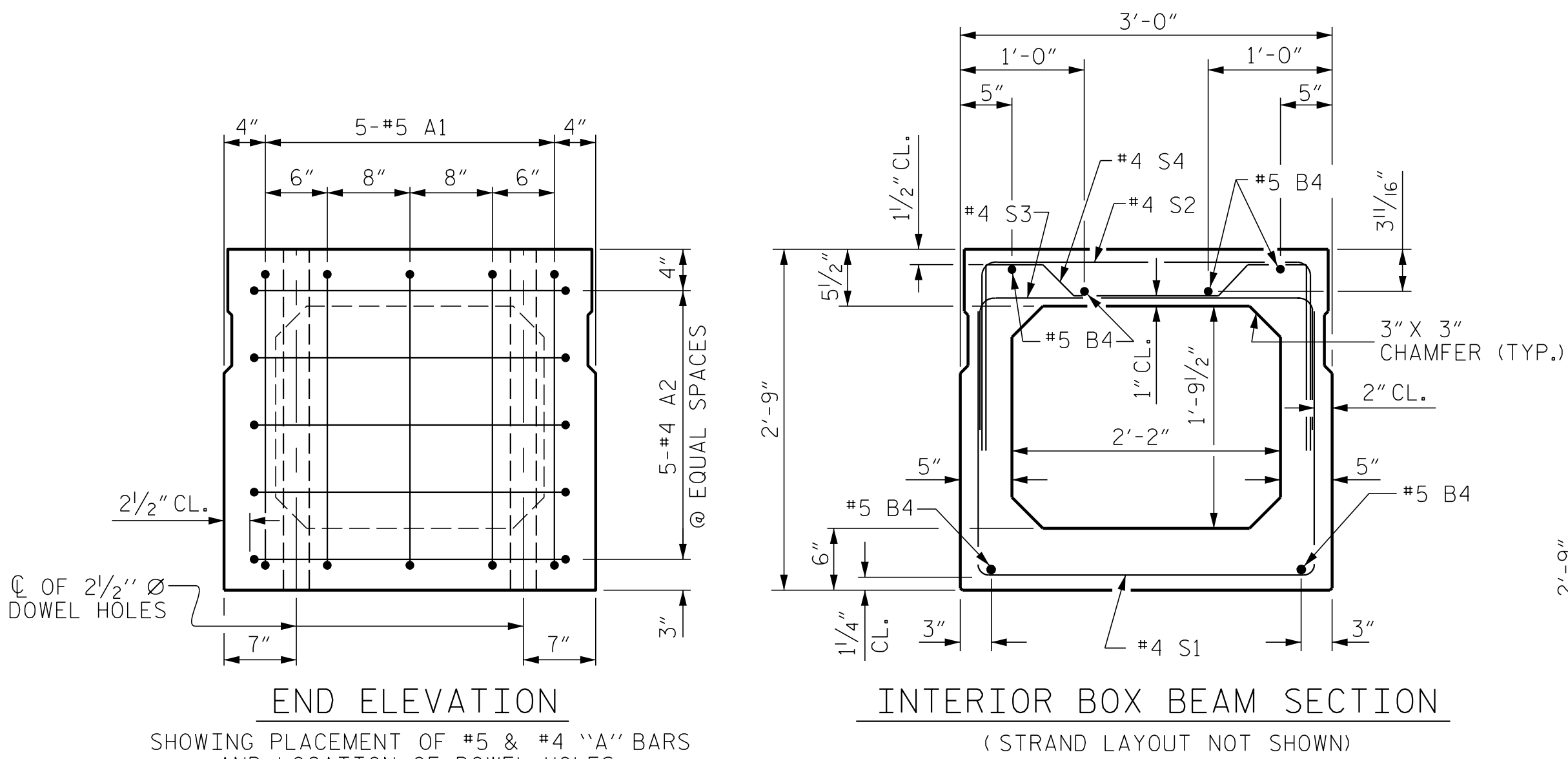
WETHERILL
ENGINEERING

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5	
1			3			TOTAL SHEETS	
2			4			16	

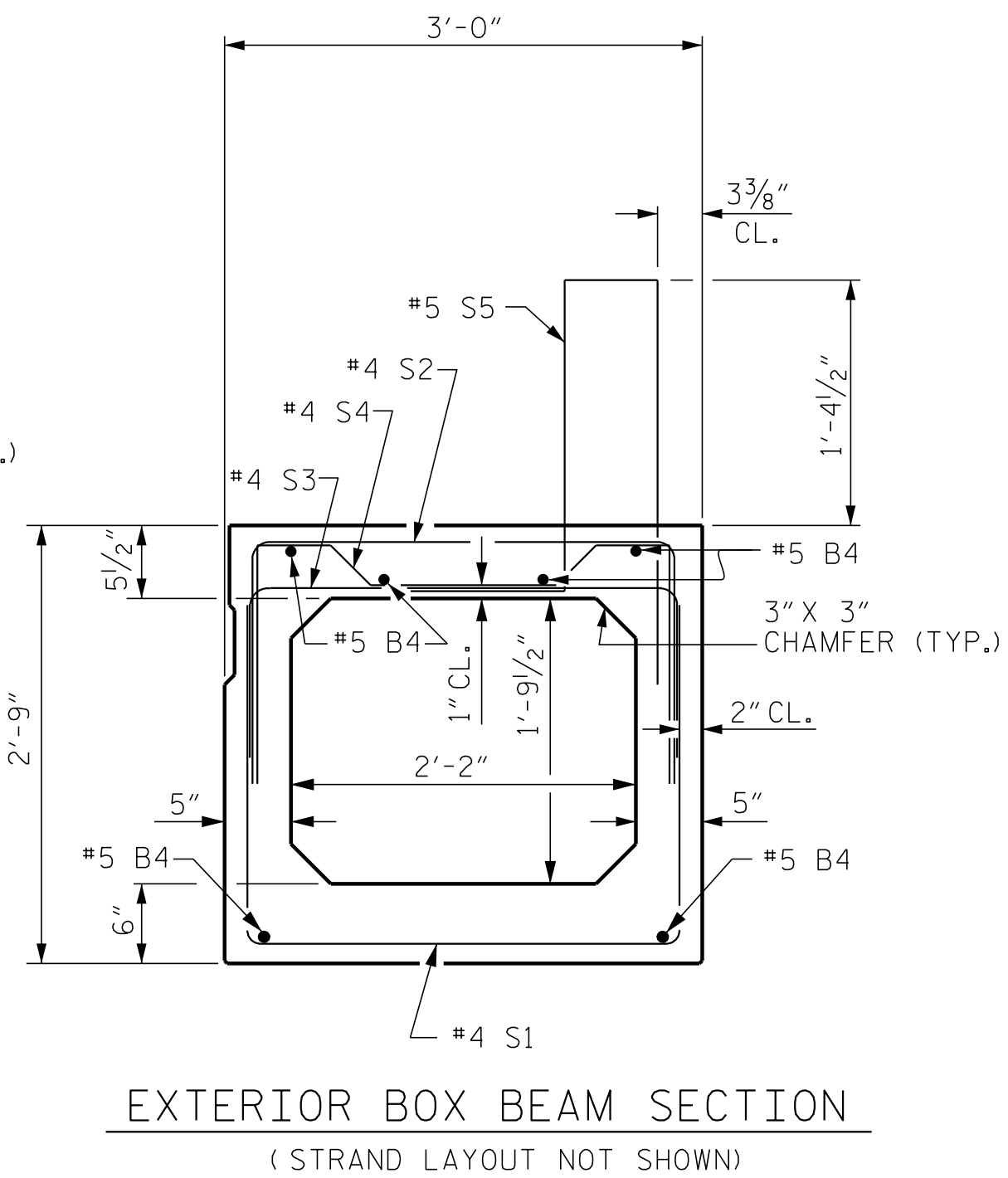
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UNLESS ALL SIGNATURES COMPLETED

STD.NO.33PCBB-36-90S-90L

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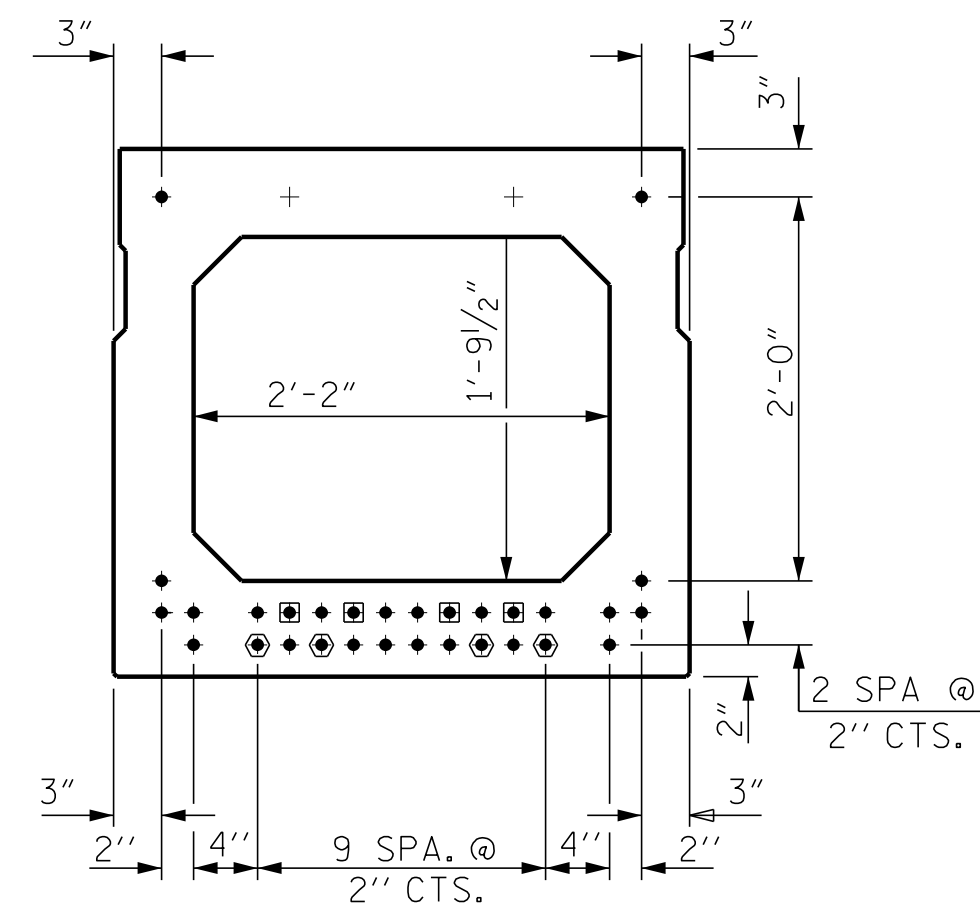


NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.



GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.6" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

0.6" Ø LOW RELAXATION STRAND LAYOUT

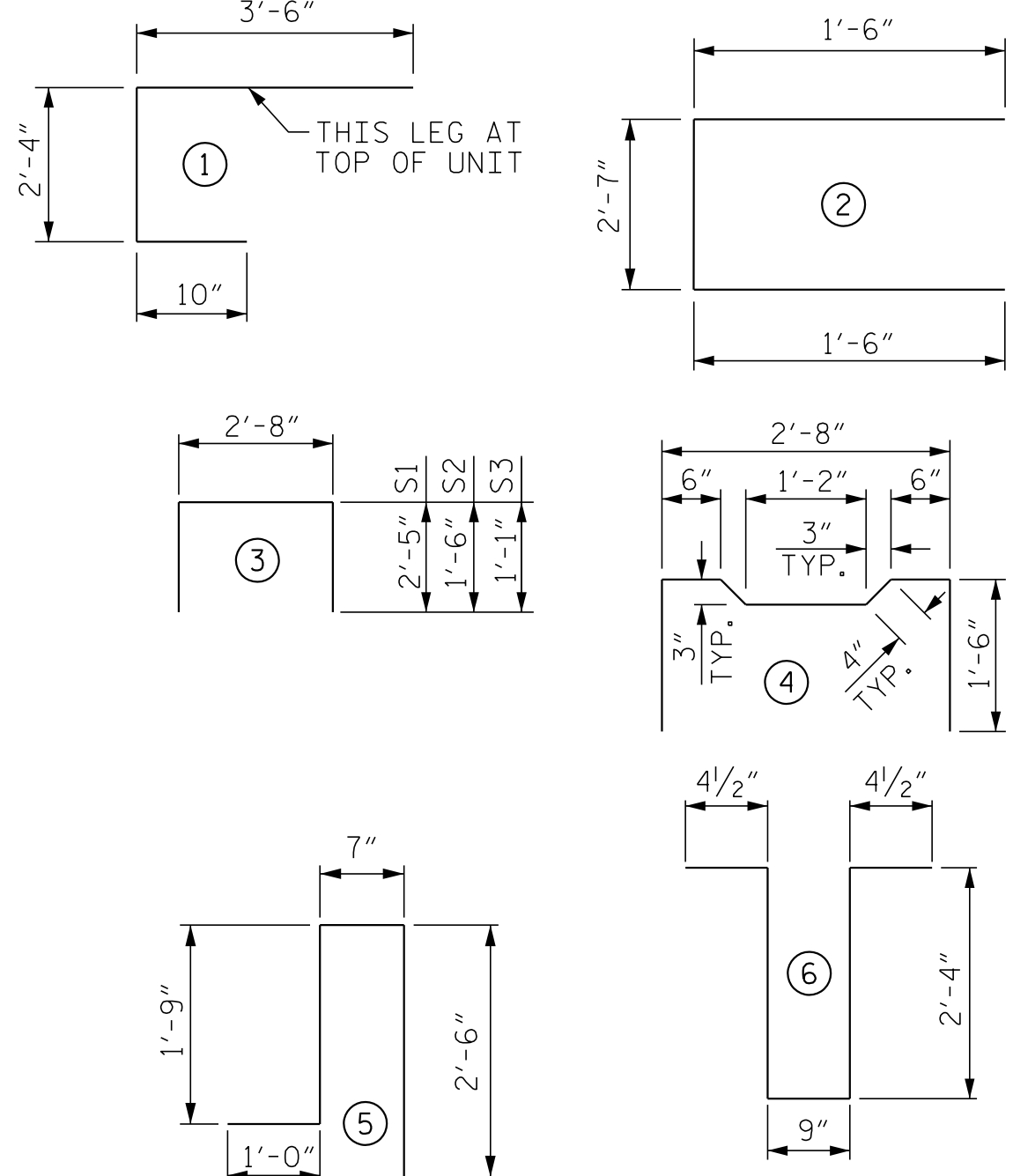


DEBONDING LEGEND

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

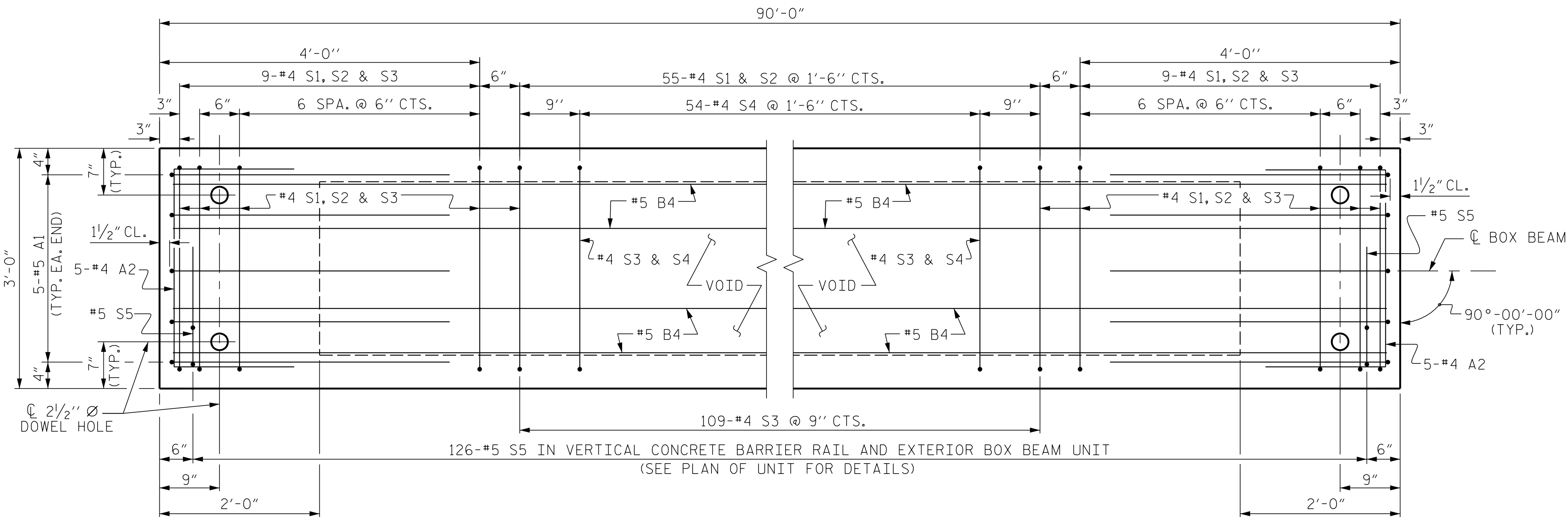
BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

BAR TYPES



BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	40	#4	2	5'-7"	149	5'-7"	149
B4	12	#5	STR	45'-11"	575	45'-11"	575
K1	15	#4	6	6'-2"	62	6'-2"	62
K2	10	#4	STR	2'-7"	17	2'-7"	17
S1	73	#4	3	7'-6"	366	7'-6"	366
S2	73	#4	3	5'-8"	276	5'-8"	276
S3	127	#4	3	4'-10"	410	4'-10"	410
S4	54	#4	4	5'-10"	210	5'-10"	210
* S5	126	#5	5	5'-10"	767	--	--
REINFORCING STEEL				2135	LBS.	2135	LBS.
* EPOXY COATED REINF. STEEL				767	LBS.		
8000 P.S.I. CONCRETE				16.0	CU. YDS.	15.9	CU. YDS.
0.6" Ø L.R. STRANDS				No. 30		No. 30	



EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE "PLAN OF UNIT". FOR THREADED INSERTS, SEE "THREADED INSERT DETAIL". FOR REINFORCING STEEL IN DIAPHRAGMS, SEE "DOUBLE DIAPHRAGM DETAILS".

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 17BP.4.R.77

EDGEcombe COUNTY

STATION: 15+95.50 -L-

SHEET 3 OF 5

ENGINEER OF RECORD
4/19/2018

Drawn/Designed by

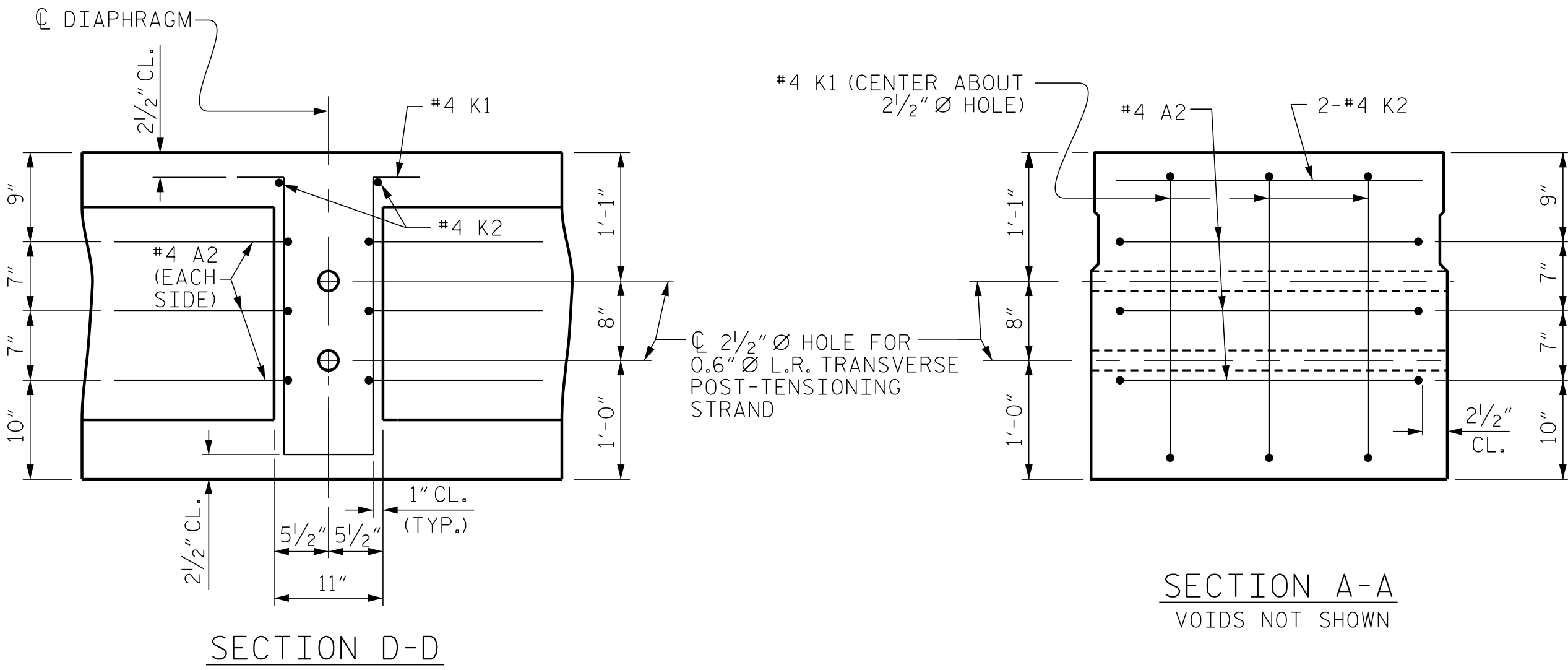
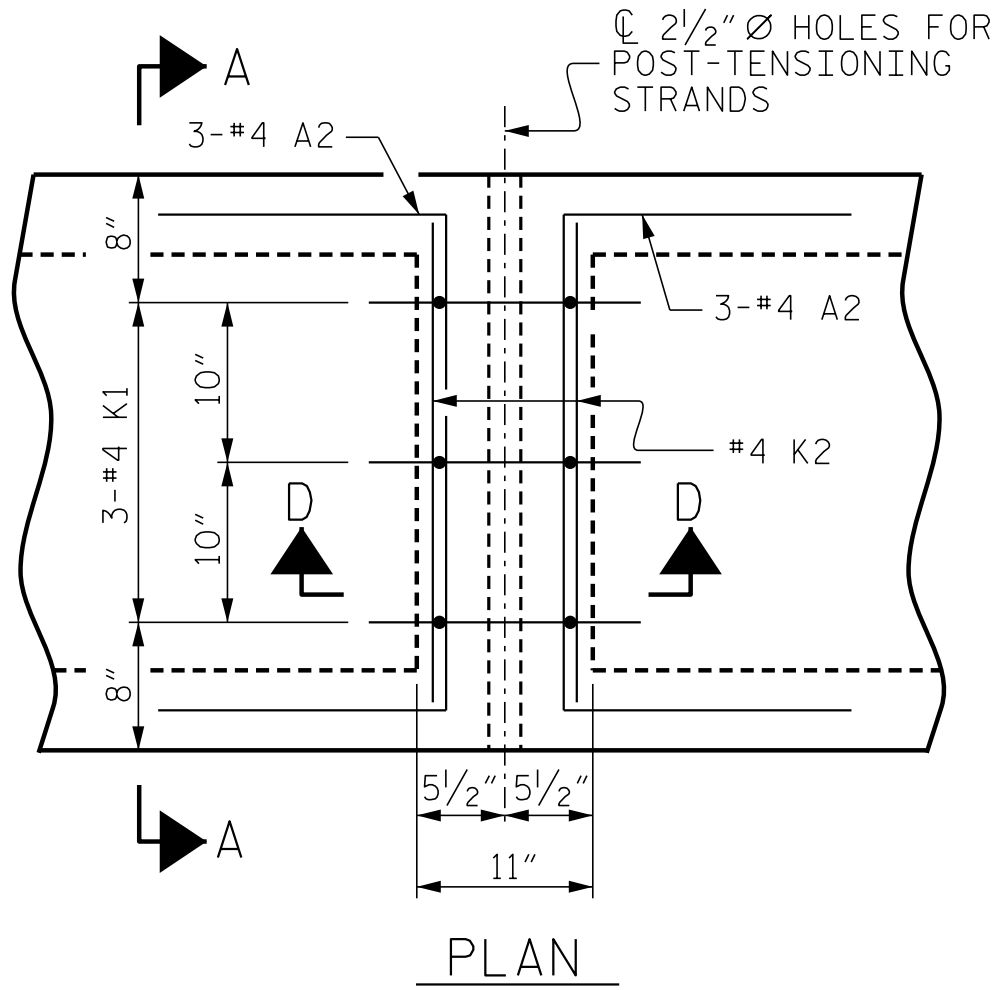
J. Arthur Dilworth
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-6 TOTAL SHEETS 15
2			4			

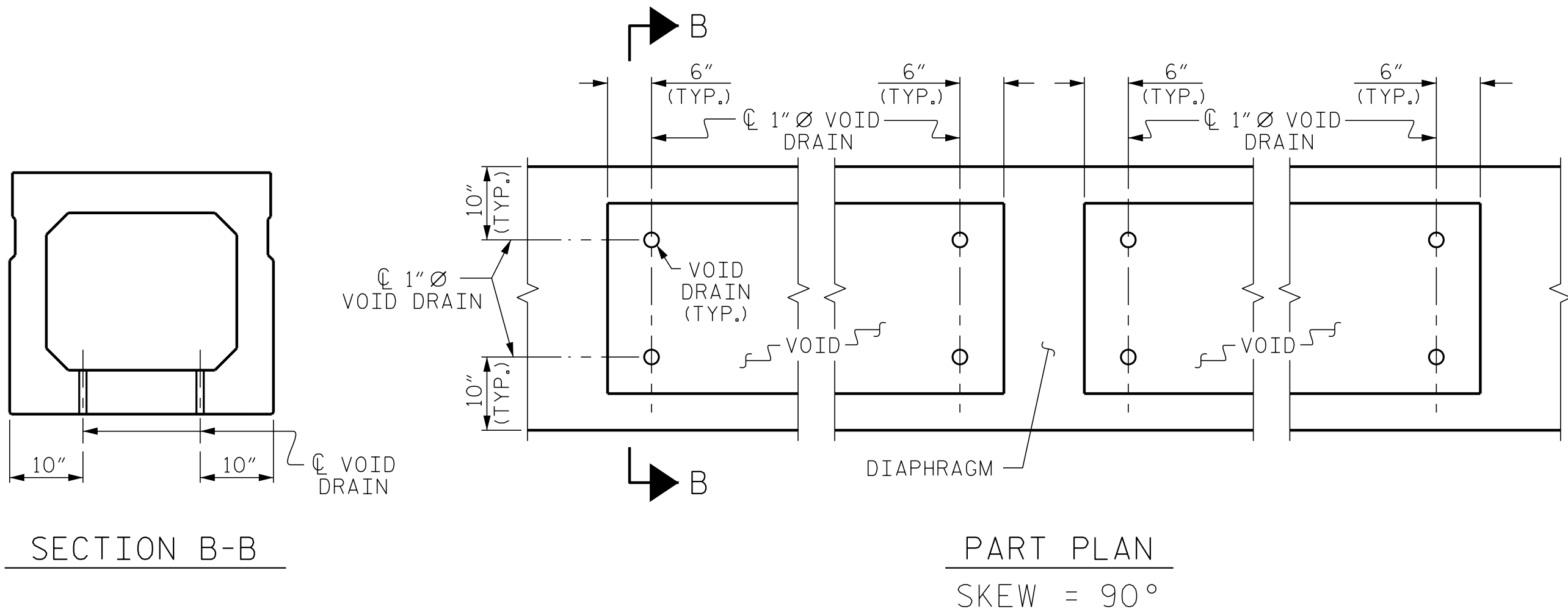
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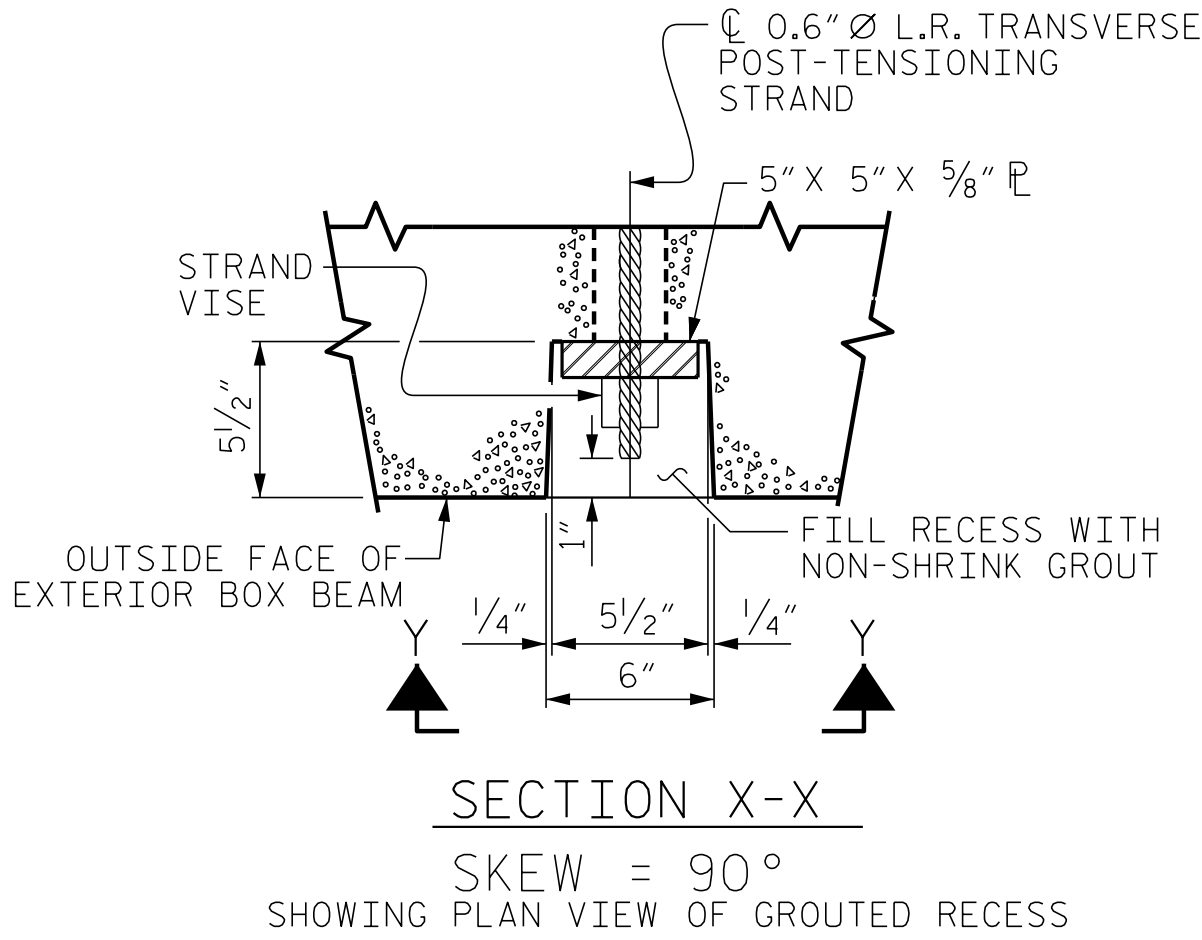
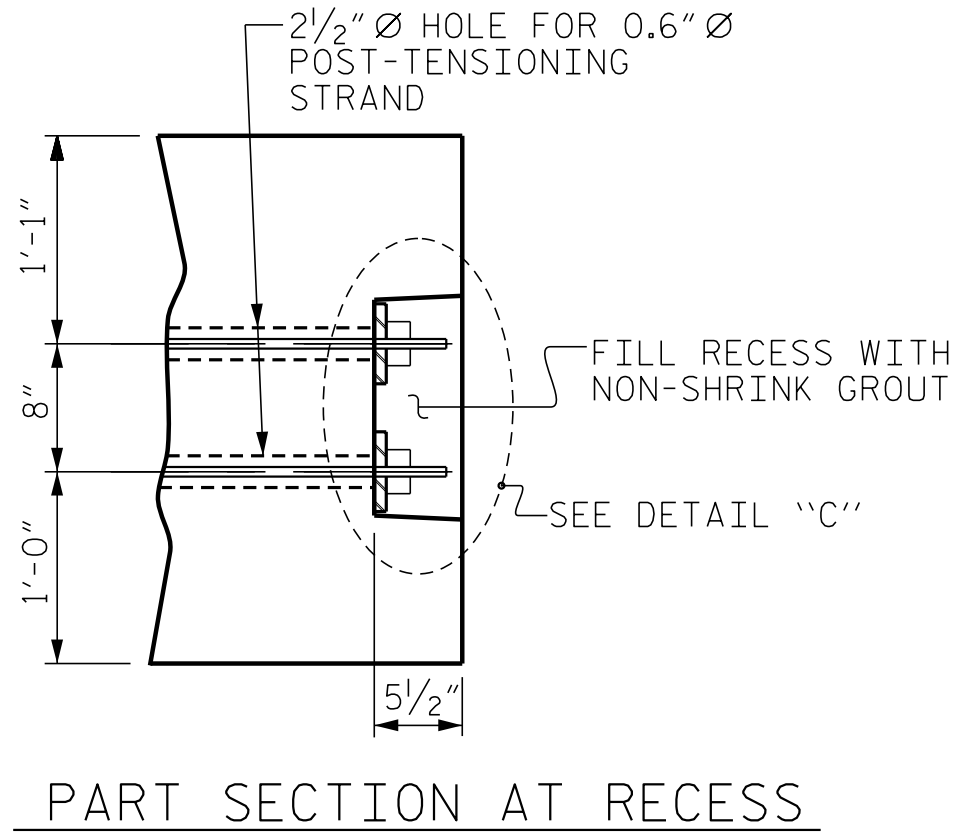
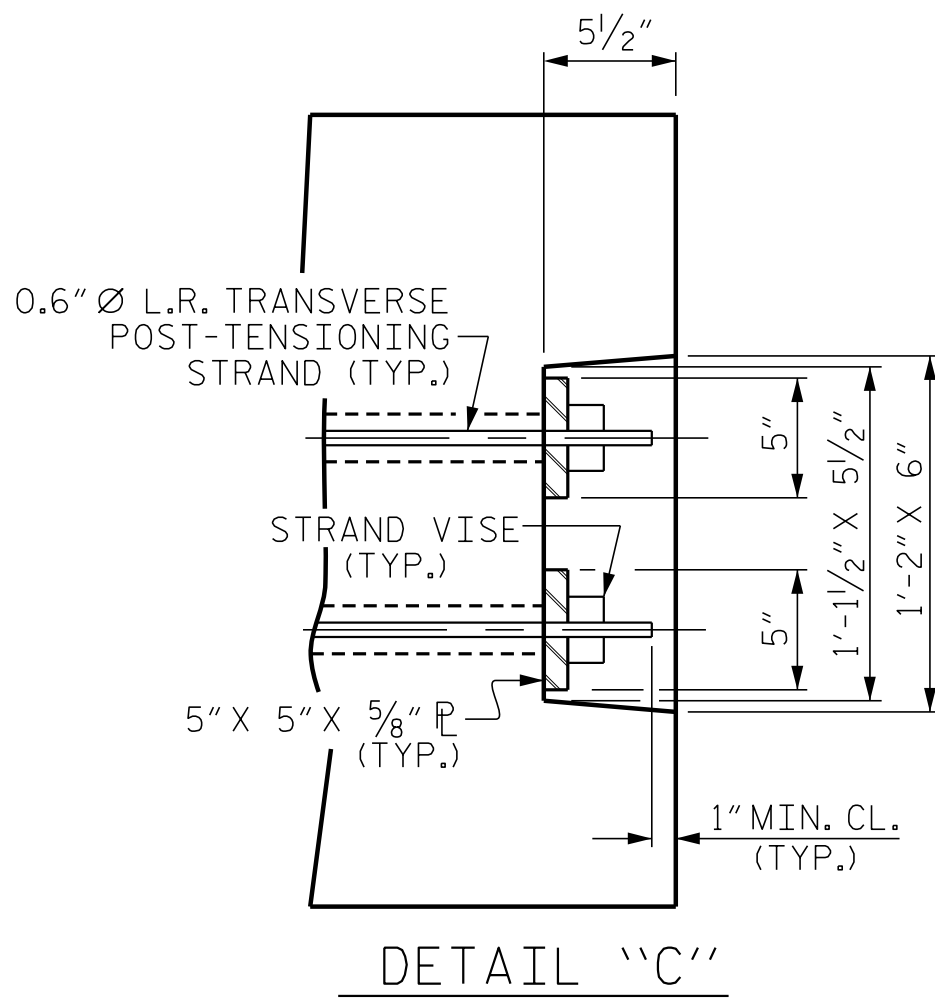
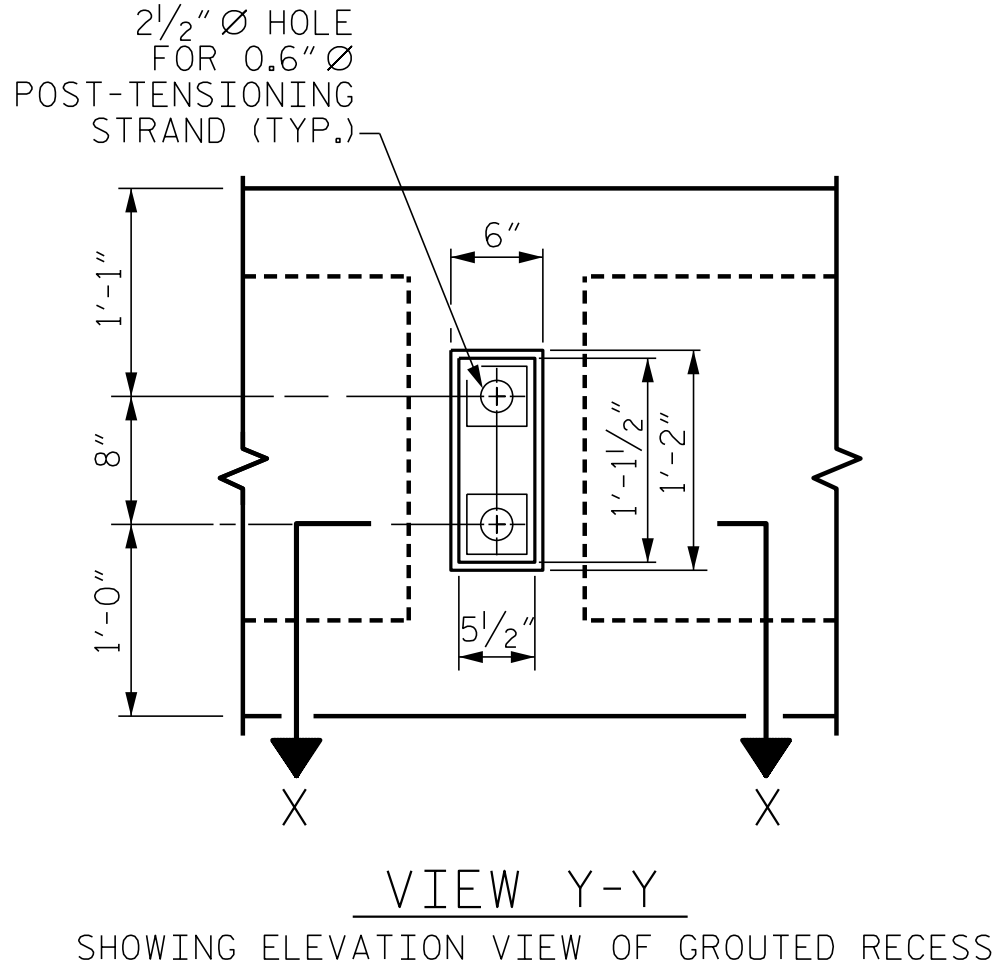
DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.



VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)



GROUTED RECESS DETAIL AT
END OF POST-TENSIONED STRANDS
OF EXTERIOR BOX BEAM

DEAD LOAD DEFLECTION AND CAMBER	
90' BOX BEAM UNIT SE	3'-0" x 2'-9"
CAMBER (SLAB ALONE IN PLACE)	0.6" Ø L.R. STRAND
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	2 3/4" ↑
FINAL CAMBER	3/4" ↓

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. 17BP.4.R.77
EDGEcombe COUNTY
STATION: 15+95.50 -L-

SHEET 4 OF 5

ENGINEER OF RECORD
4/19/2018

NORTH CAROLINA
PROFESSIONAL
SEAL
22072
JOHN ARTHUR DILWORTH
ENGINEER

Designed by
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

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

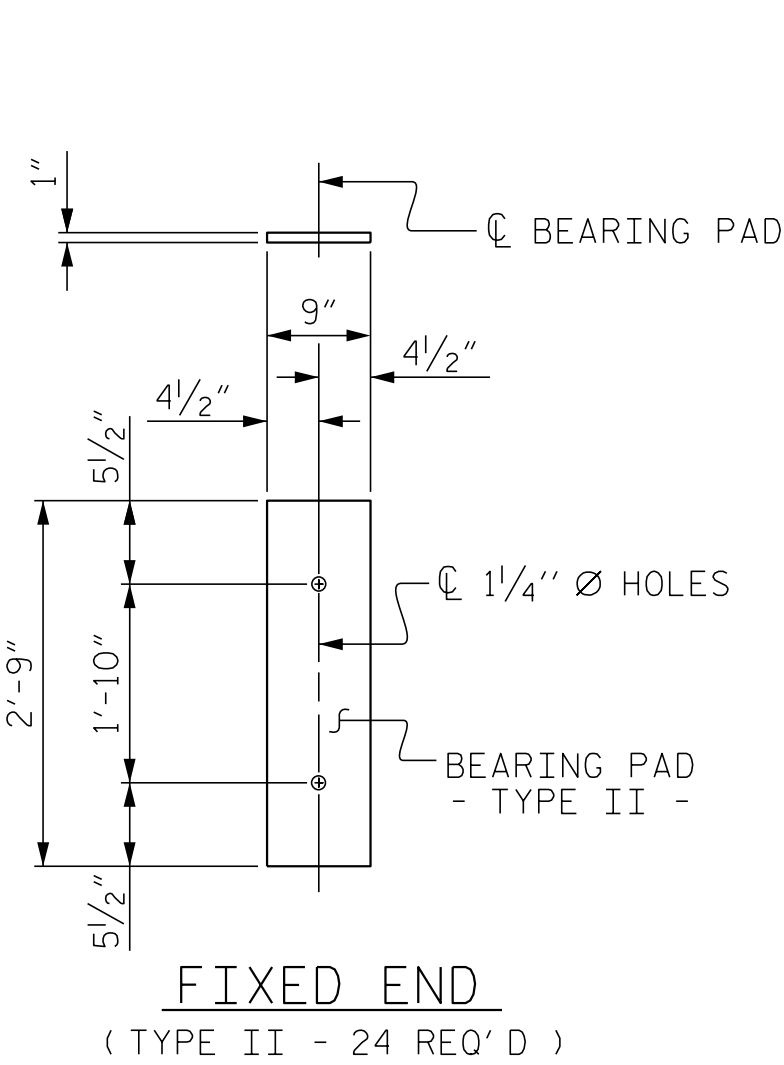
SHEET NO.
S-7
TOTAL SHEETS
15

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STD.NO.33PCBB5_90S

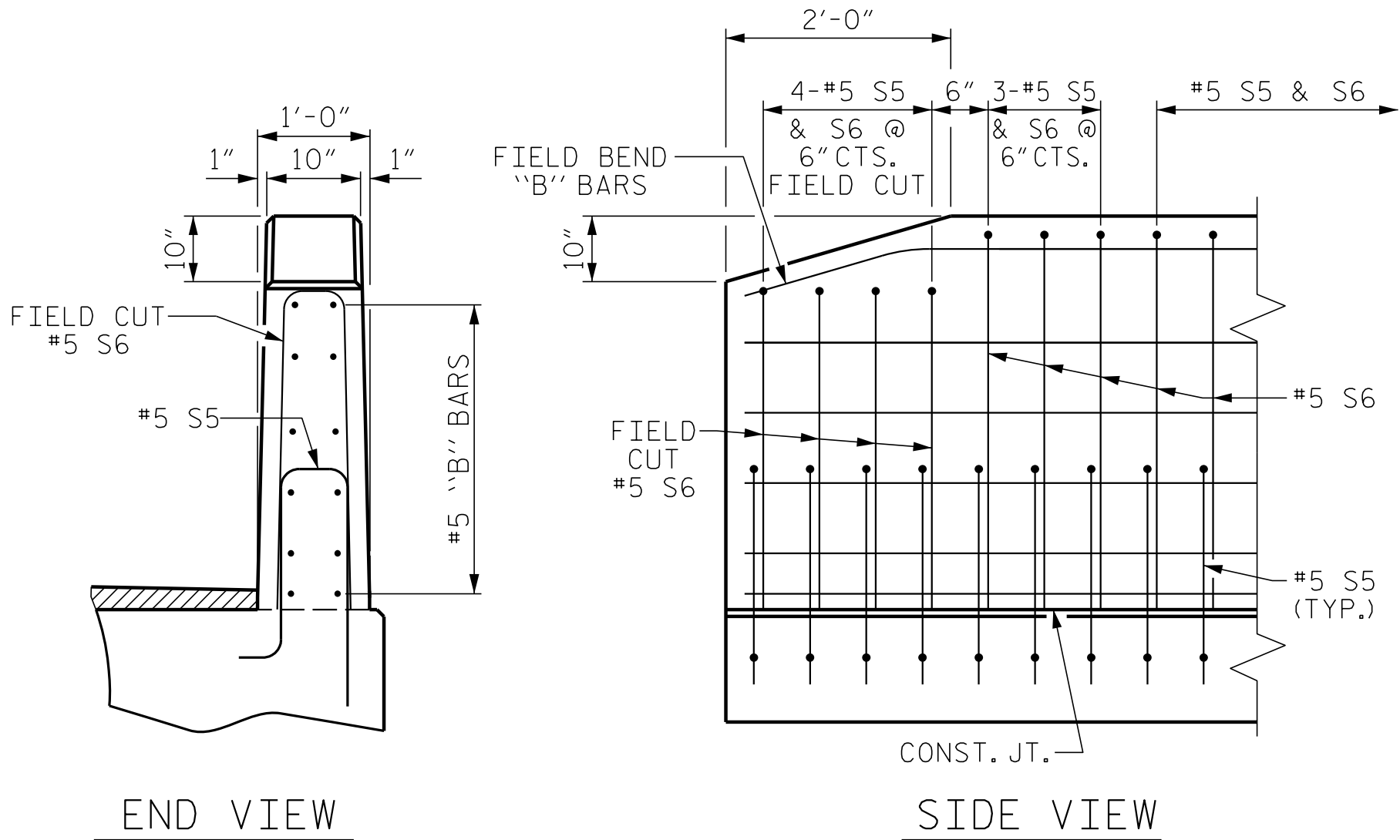
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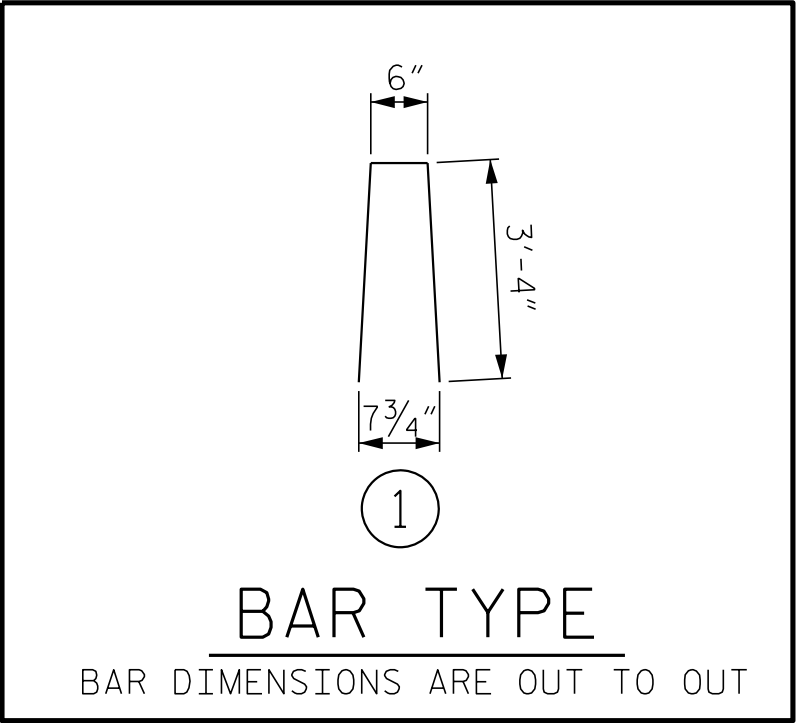


ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



END OF RAIL DETAILS



BOX BEAM UNITS REQUIRED

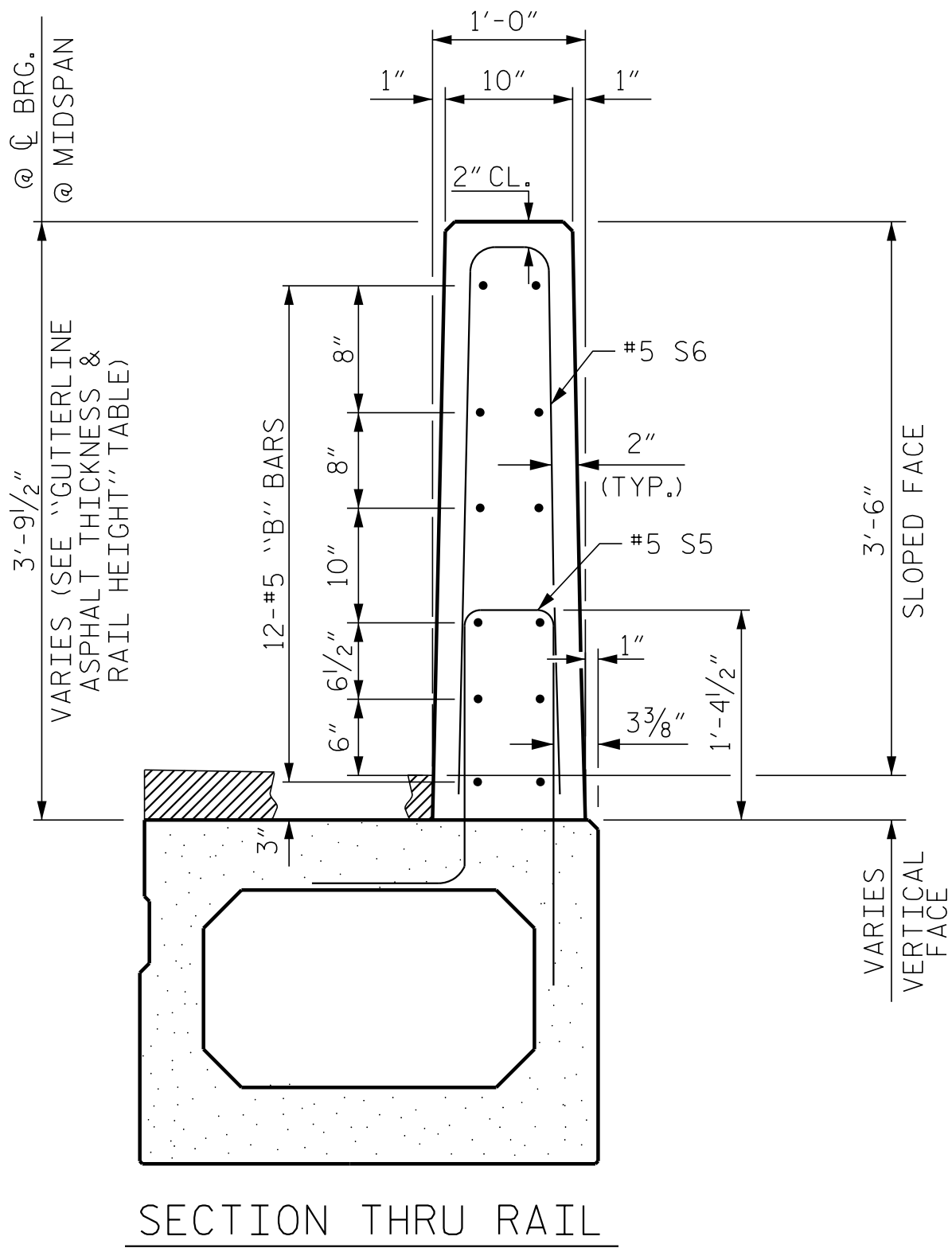
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	90'-0"	180'-0"
INTERIOR B.B.	10	90'-0"	900'-0"
TOTAL	12		1080'-0"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

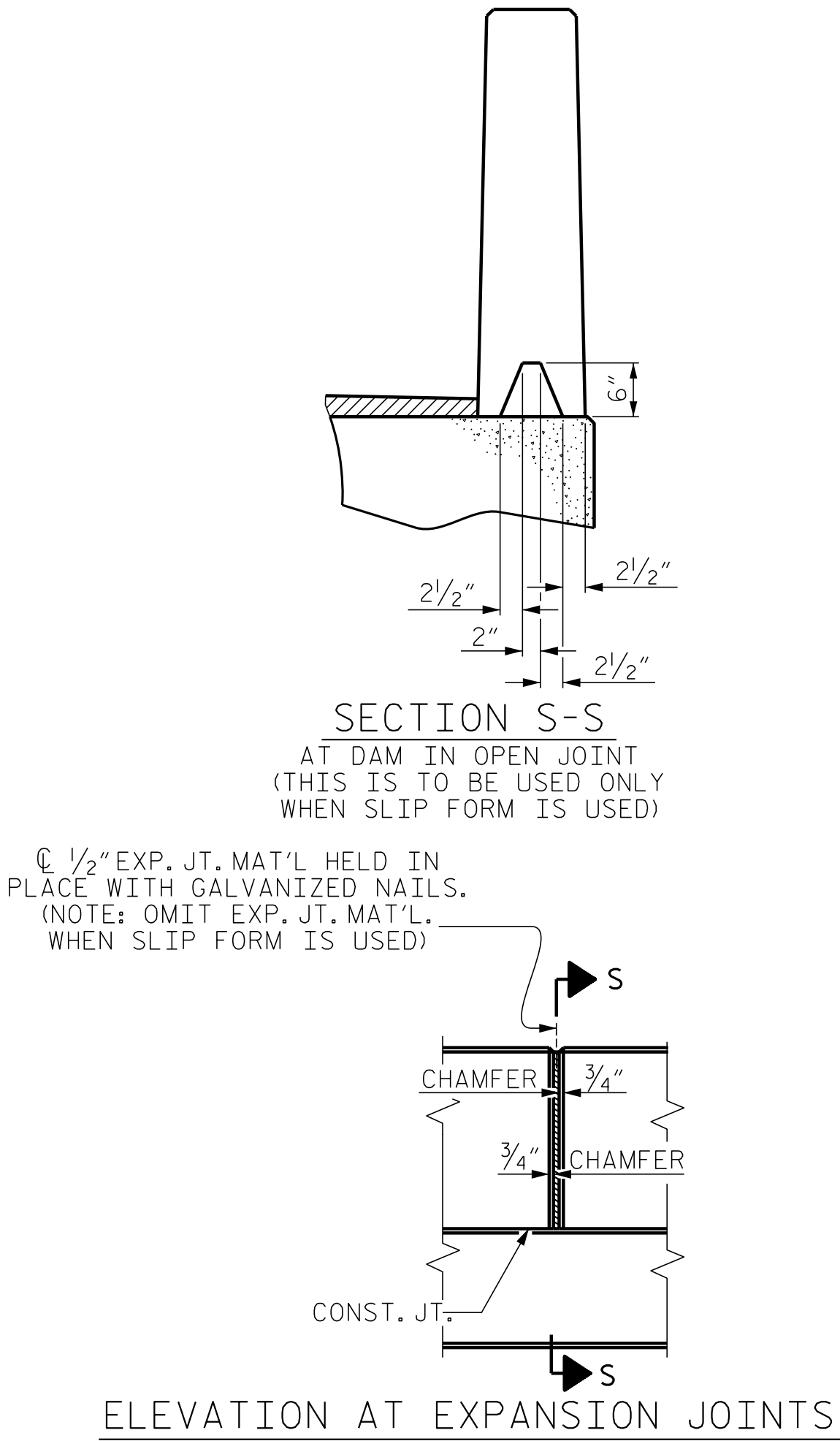
BAR	BARS PER PAIR OF EXTERIOR UNITS 90' UNIT	SIZE	TYPE	LENGTH	WEIGHT
*B10	96	#5	STR	22'-1"	2211
* S6	252	#5	1	7'-2"	1884
* EPOXY COATED REINFORCING STEEL				LBS.	4095
CLASS AA CONCRETE				CU.YDS.	23.3
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN.FT.	180.0

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

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



VERTICAL CONCRETE BARRIER RAIL DETAILS

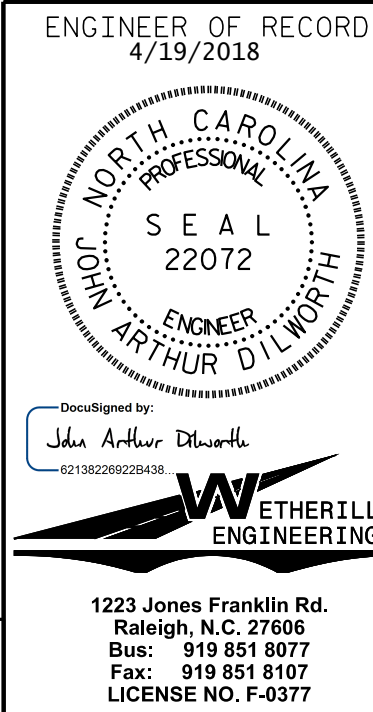


PROJECT NO. 17BP.4.R.77

EDGEcombe COUNTY

STATION: 15+95.50 -L-

SHEET 5 OF 5

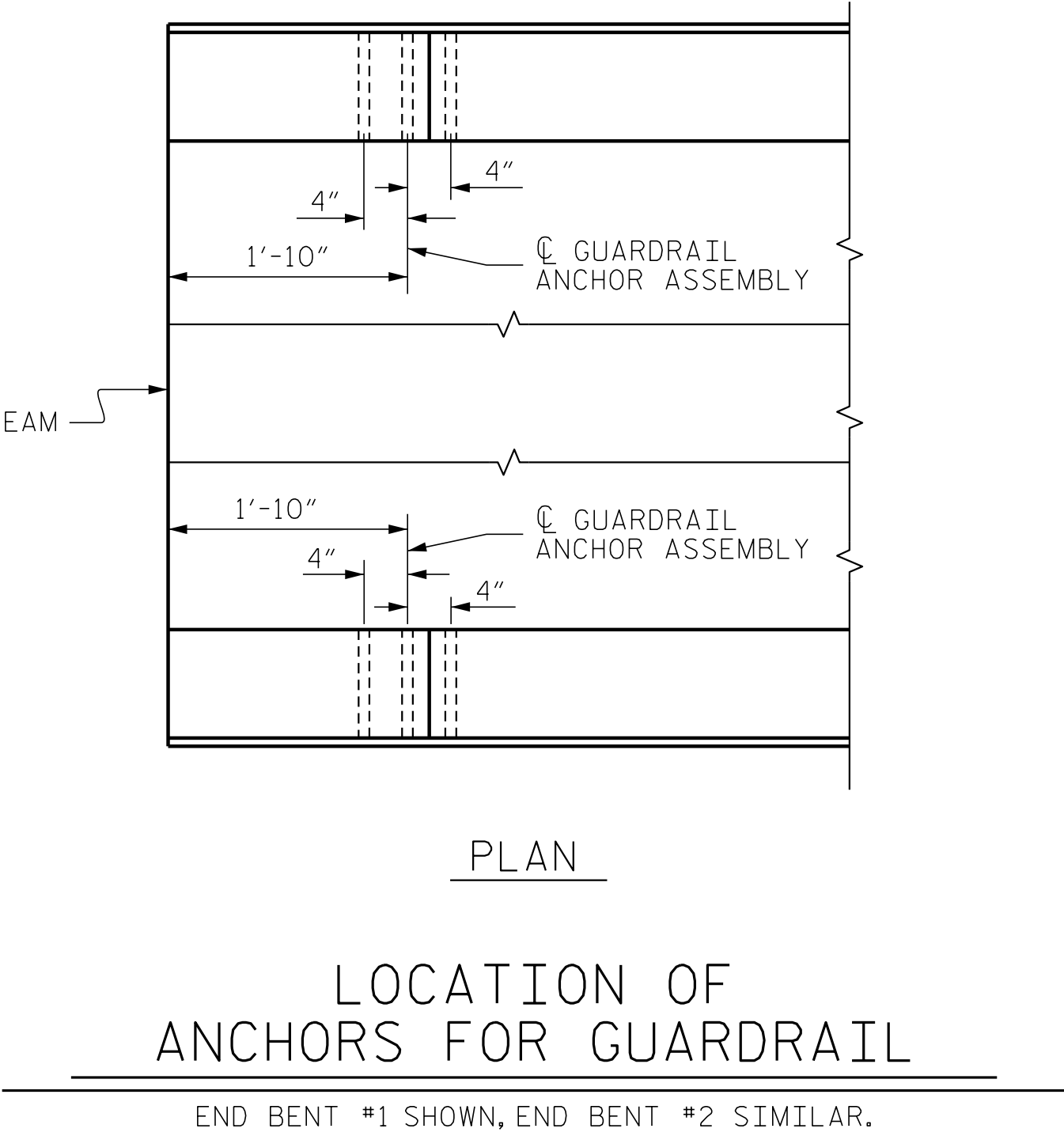
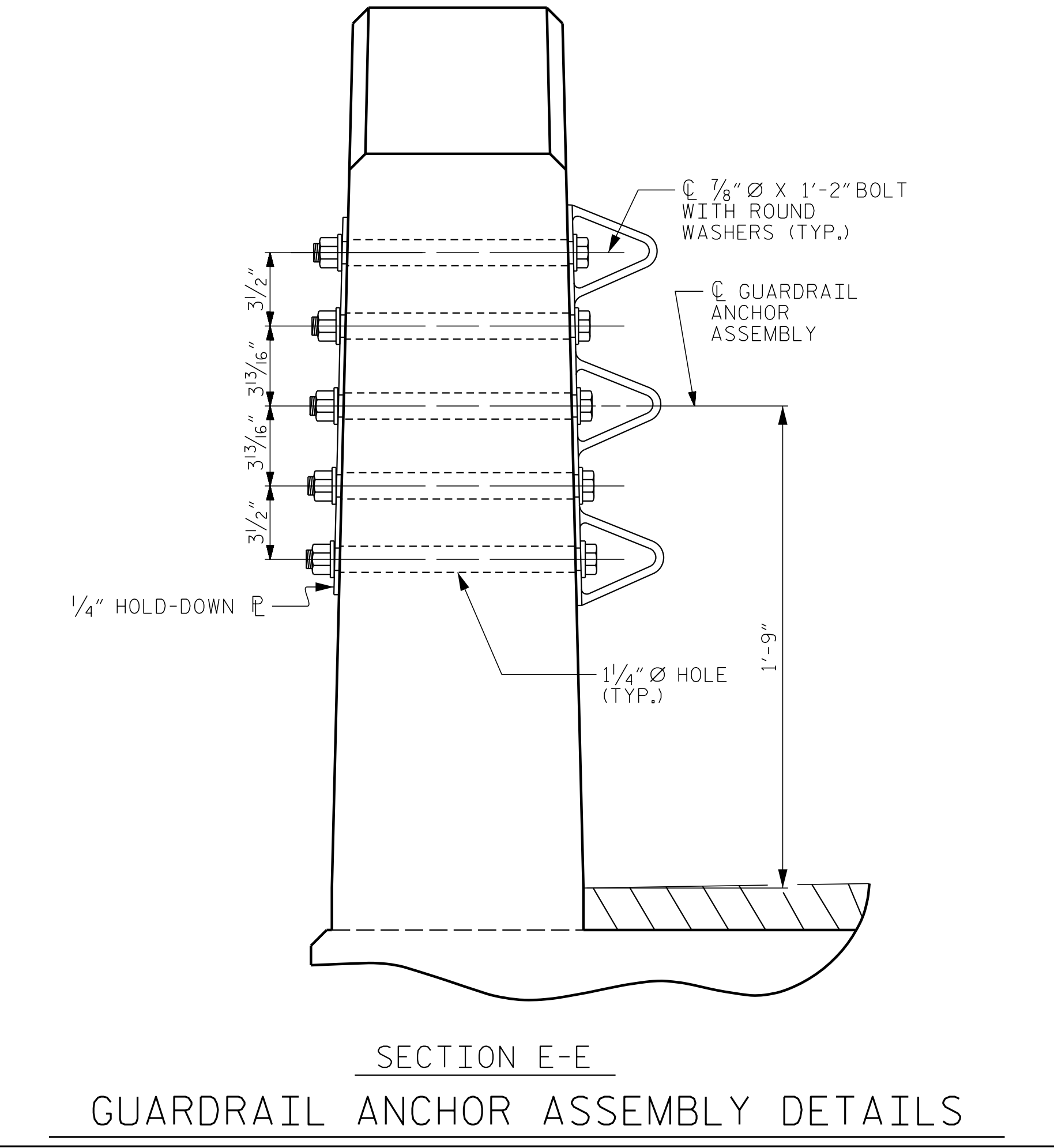
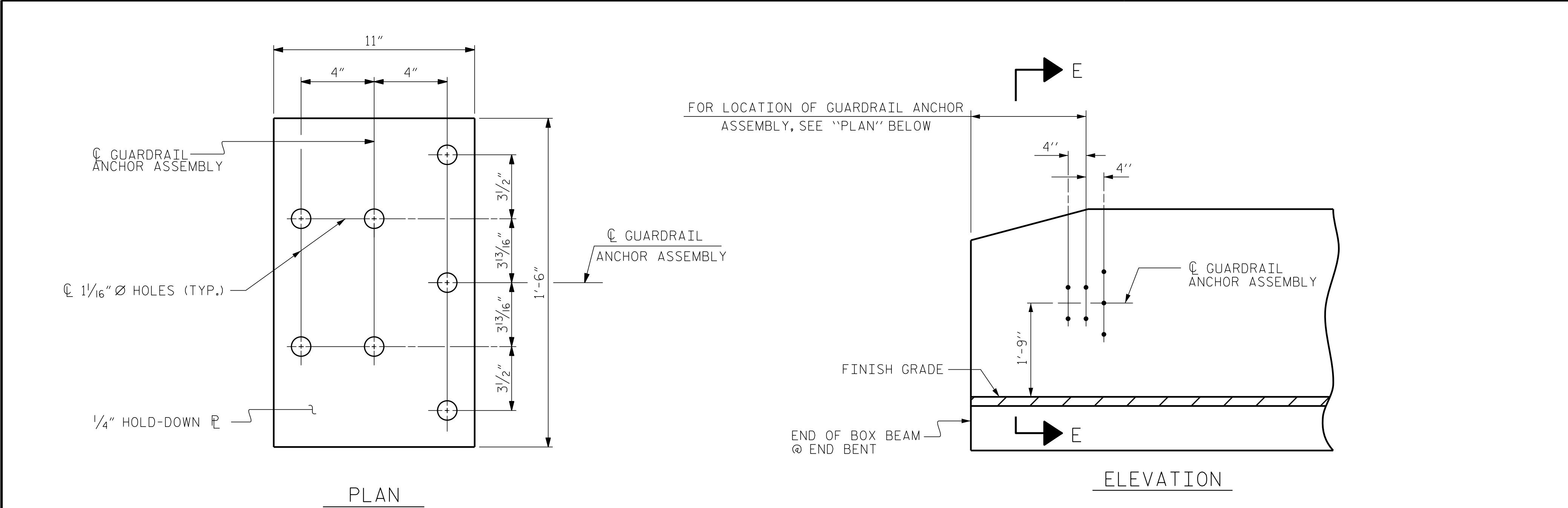


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			15

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STD. NO. 33PCBB8_90S

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NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" 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 7/8" 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.



PROJECT NO. 17BP.4.R.77
EDGEcombe COUNTY
STATION: 15+95.50 -L-

ASSEMBLED BY : J. PENDERGRAFT	DATE : 7-17
CHECKED BY : J. DILWORTH	DATE : 10-17
DRAWN BY : MAA 5/10	REV. 12/5/11 MAA/GM
CHECKED BY : GM 5/10	REV. 6/13 MAA/GM
	REV. 1/15 MAA/TMG

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UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD
4/19/2018

NORTH CAROLINA
PROFESSIONAL
SEAL
22072
JOHN ARTHUR DILWORTH
ENGINEER

Designed by:
John Arthur Dilworth
62138228928438

ETHERILL
ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE
DETAILS
FOR VERTICAL CONCRETE
BARRIER RAIL

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

(SHT 1) STD. NO. GRA3

NOTES

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

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

FOR PILE SPlice DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS	
①	60.09
②	60.35
③	60.61
④	60.87
⑤	61.13
⑥	61.39
⑦	61.65

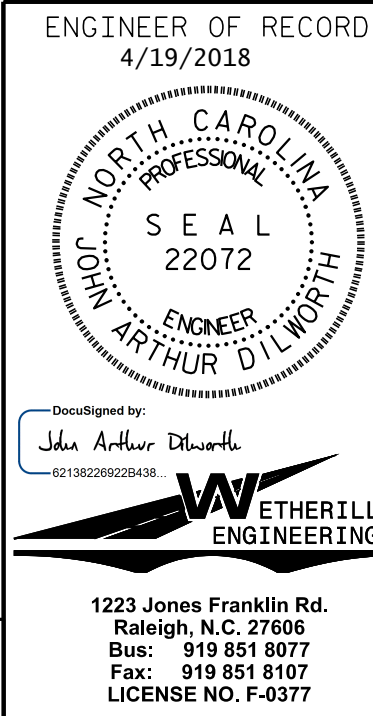
PROJECT NO. 17BP.4.R.77
EDGEcombe COUNTY
STATION: 15+95.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1

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

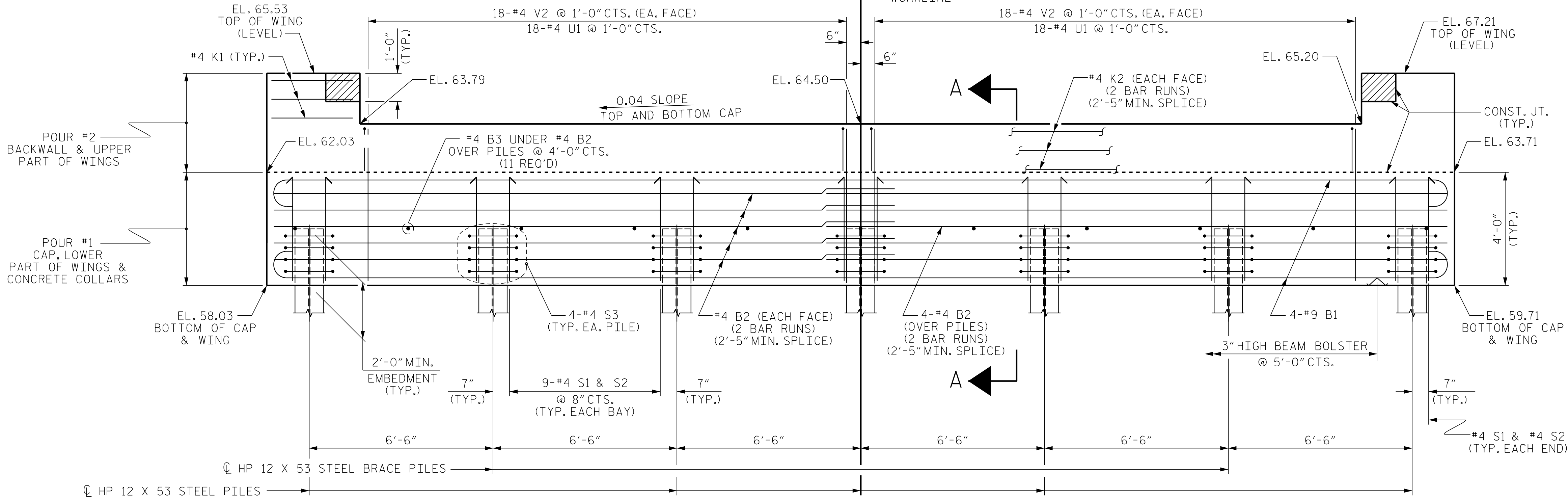


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PLAN

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.

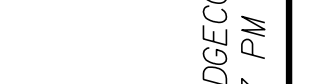


ASSEMBLED BY : J. PENDERGRAFT	DATE : 7-17
CHECKED BY : J. DILWORTH	DATE : 10-17
DRAWN BY : WJH 12/II	REV. 4/15 MAA/TMG
CHECKED BY : AAC 12/II	

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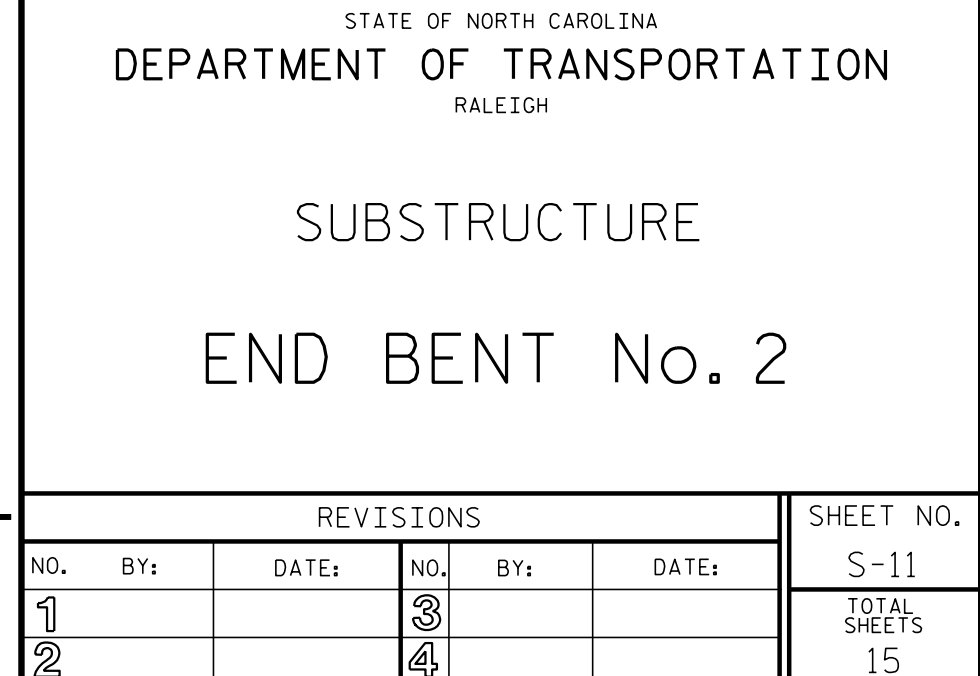
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STIRRUPS IN CAP MAY BE SHIFTED AS
NECESSARY TO CLEAR DOWELS.

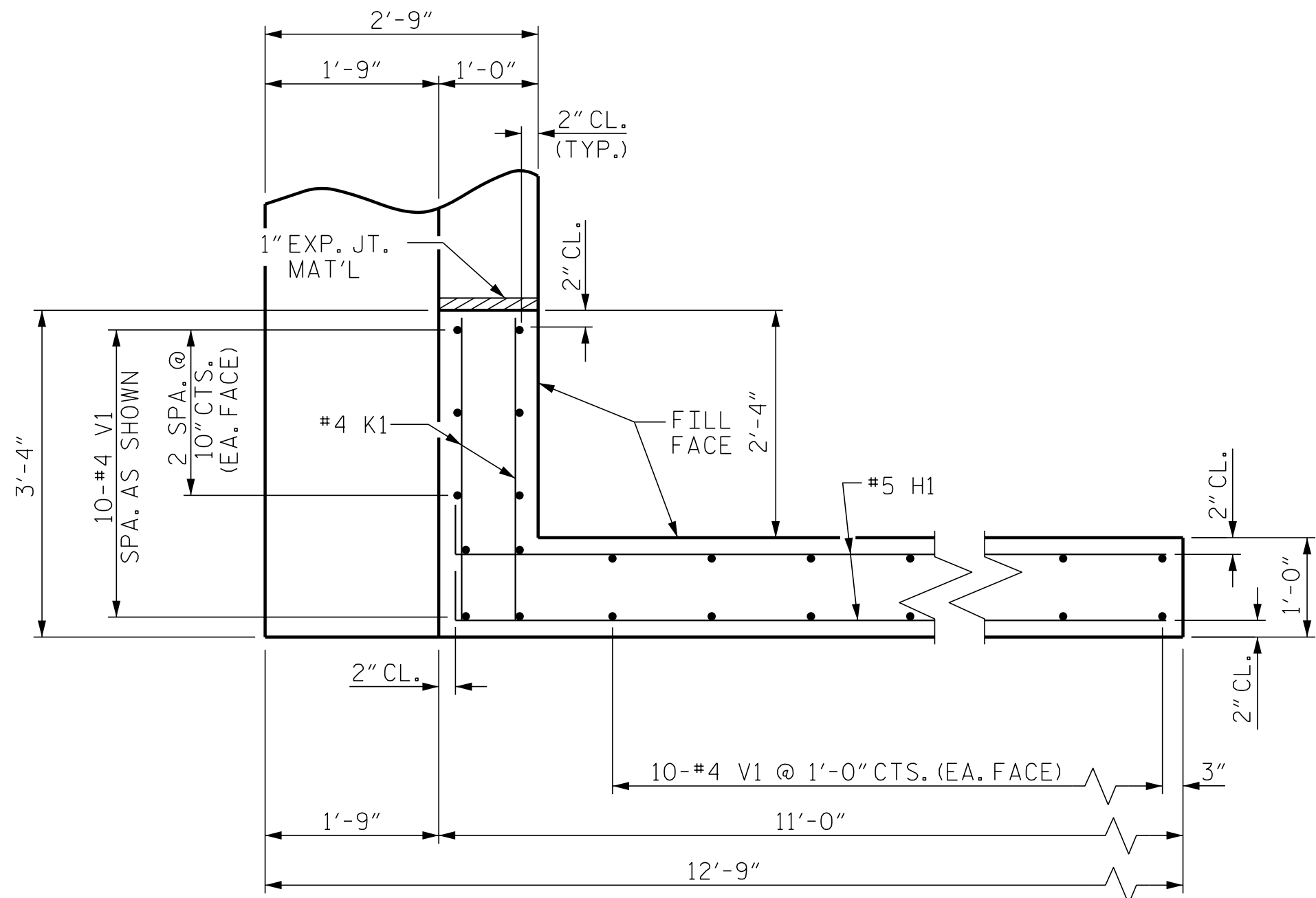
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

PROJECT NO. 17BP.4.R.77
EDGEcombe COUNTY
 STATION: 15+95.50 -L-

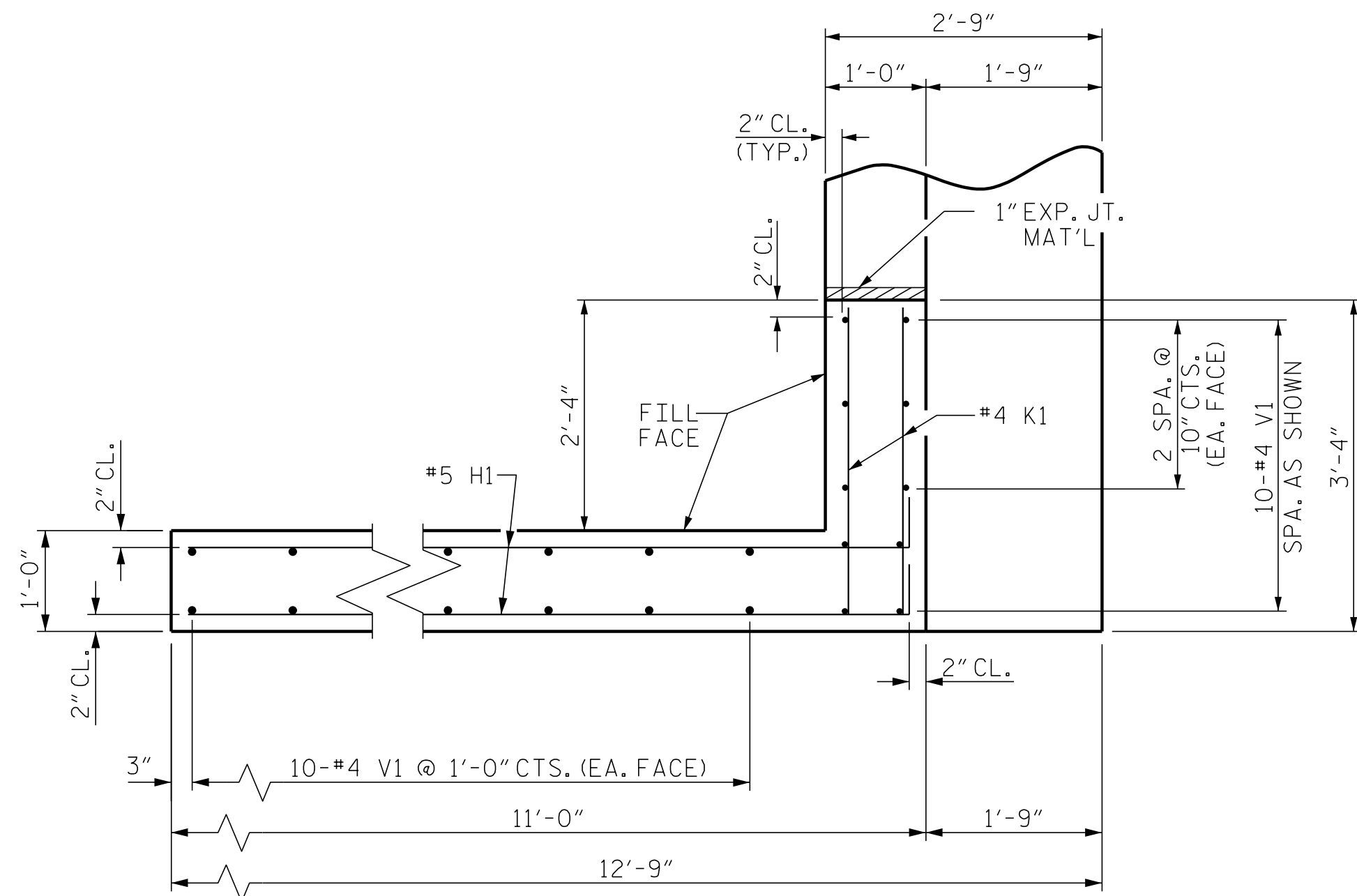
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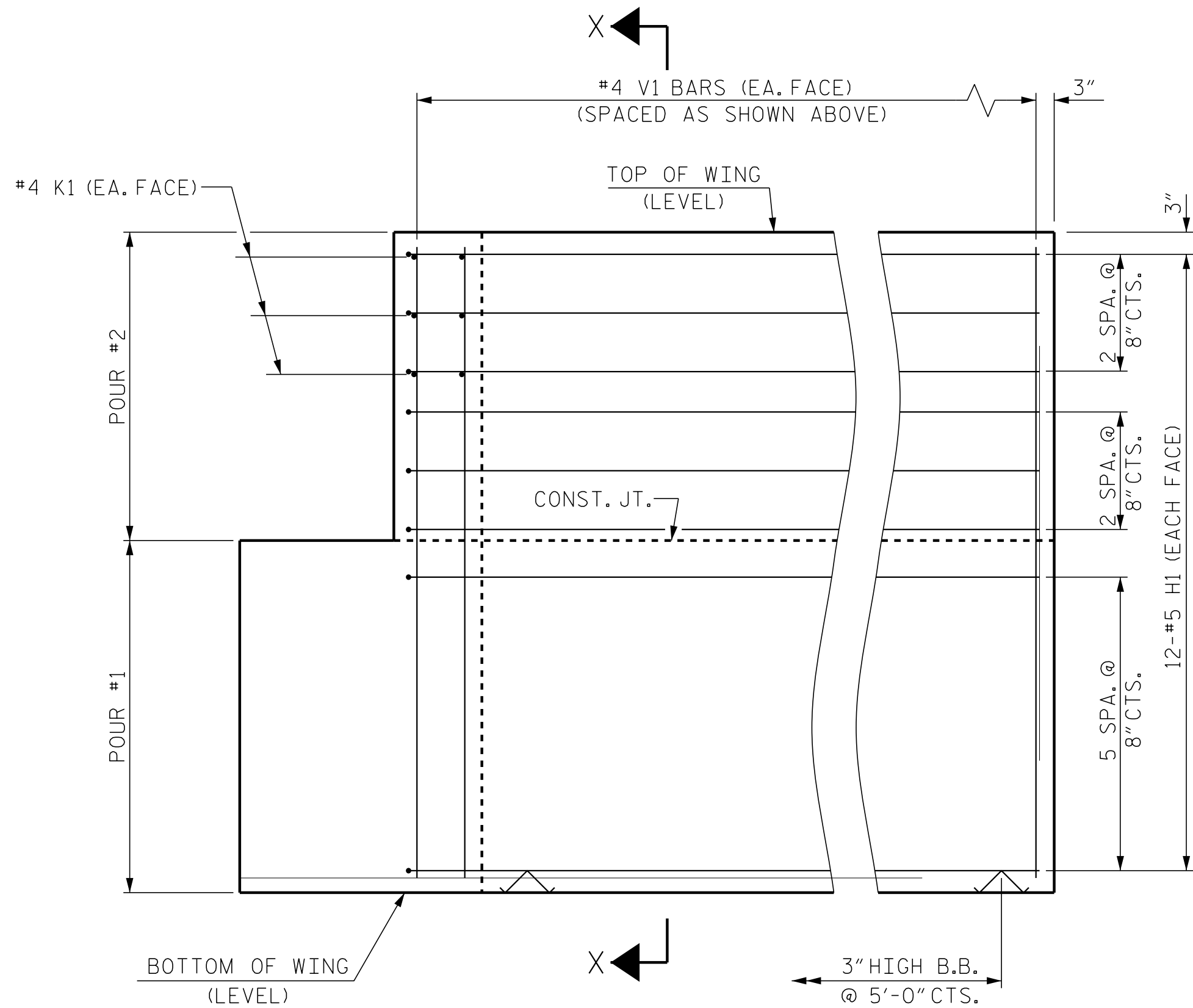
STD. NO. EB_36_90S4_33BB



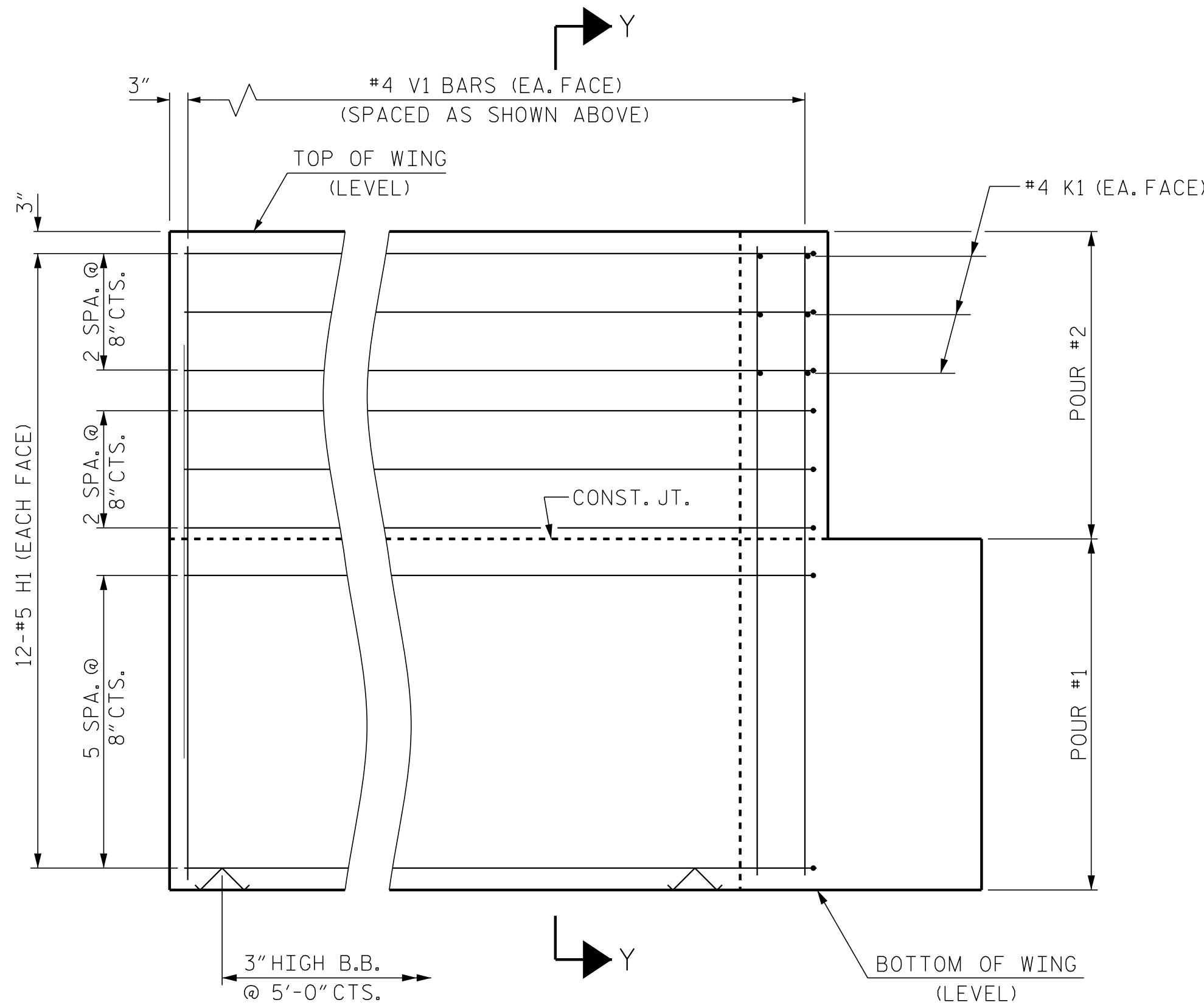
PLAN OF WING (W1)



PLAN OF WING (W2)

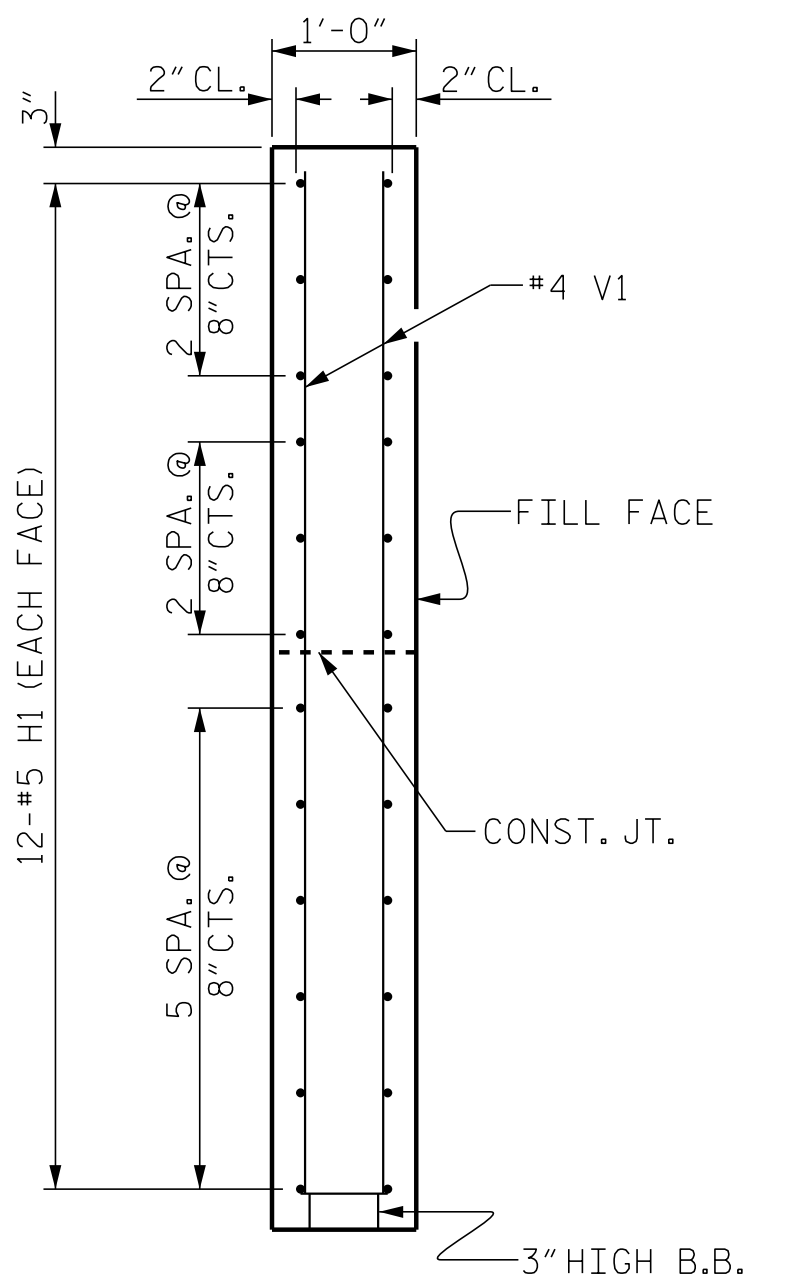


ELEVATION OF WING (W1)

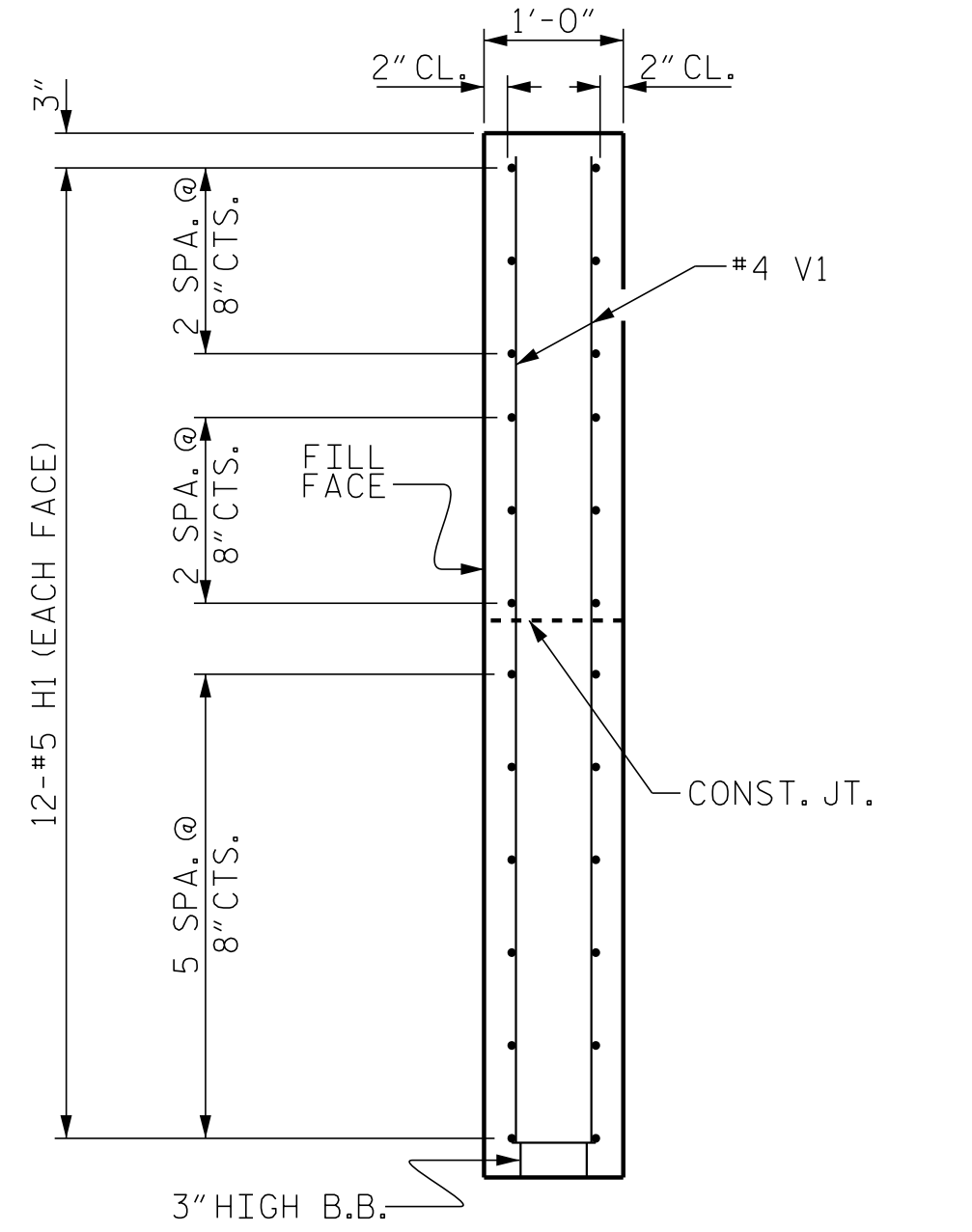


ELEVATION OF WING (W2)

WING DETAILS



SECTION X-X



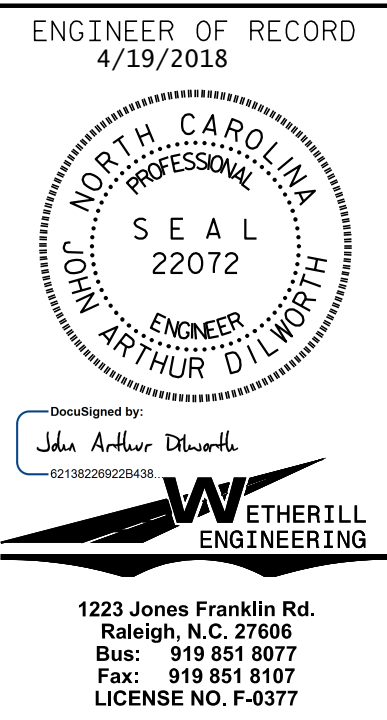
SECTION Y-Y

PROJECT NO. 17BP.4.R.77
EDGEcombe COUNTY
STATION: 15+95.50 -L-

SHEET 3 OF 4

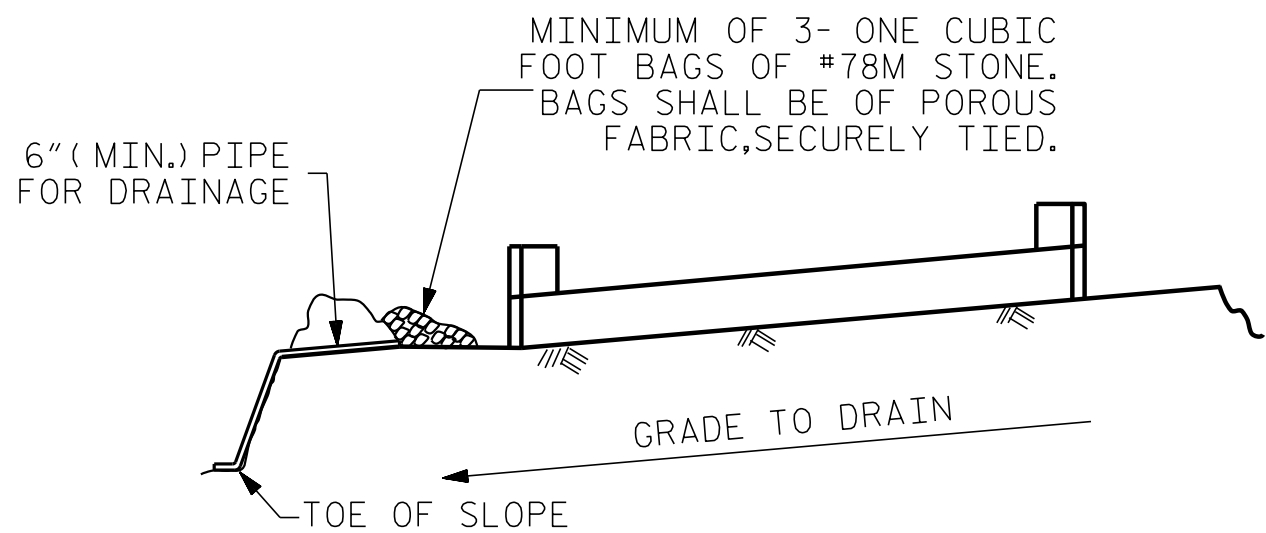
ASSEMBLED BY : J. PENDERGRAFT	DATE : 7-17
CHECKED BY : J. DILWORTH	DATE : 10-17
DRAWN BY : WJH 12/11	REV. 4/15
CHECKED BY : AAC 12/11	MAA/TMG

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1			3			TOTAL SHEETS	
2			4			15	

STD. NO. EB-36-90S4-33BB

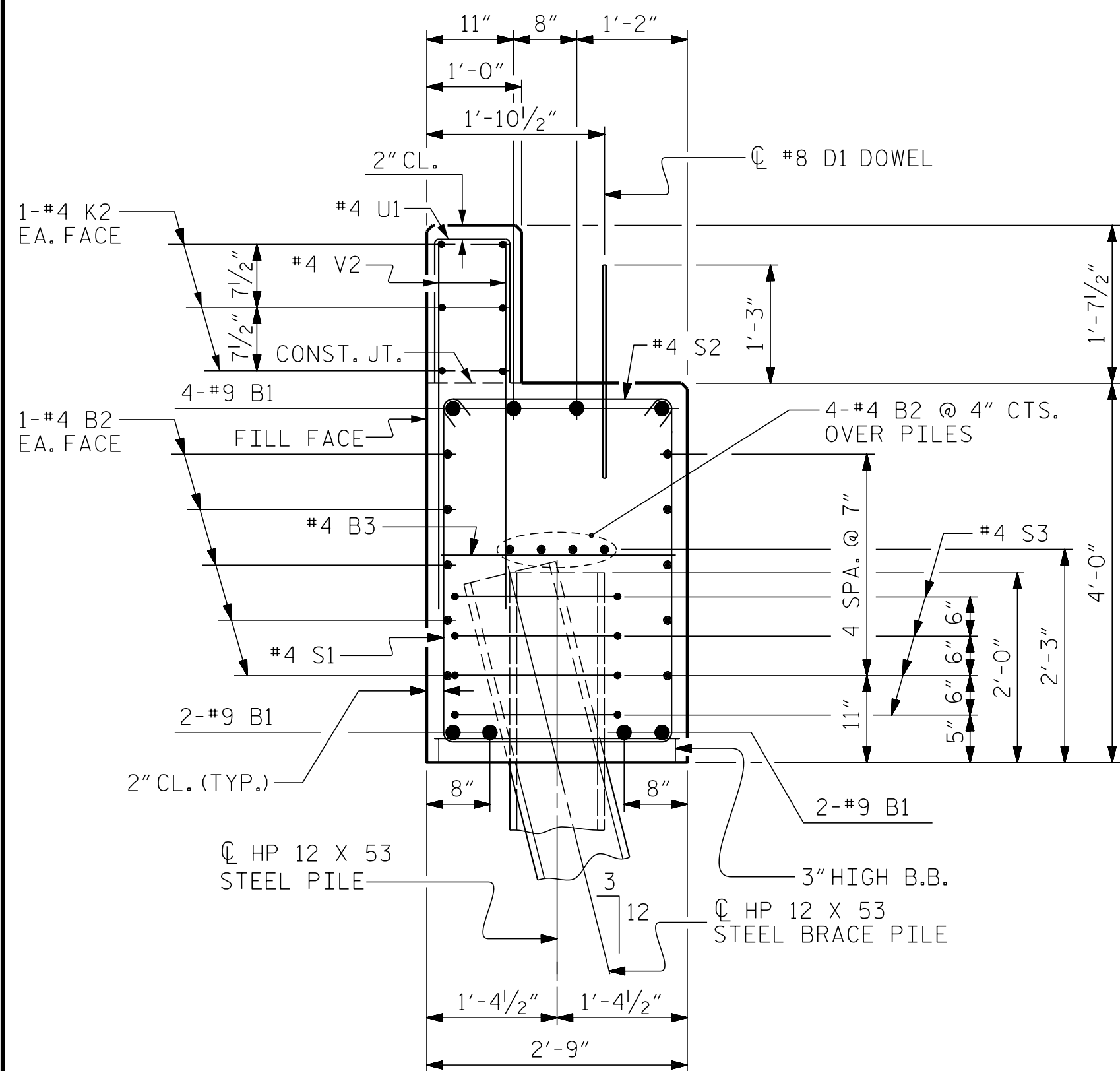


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

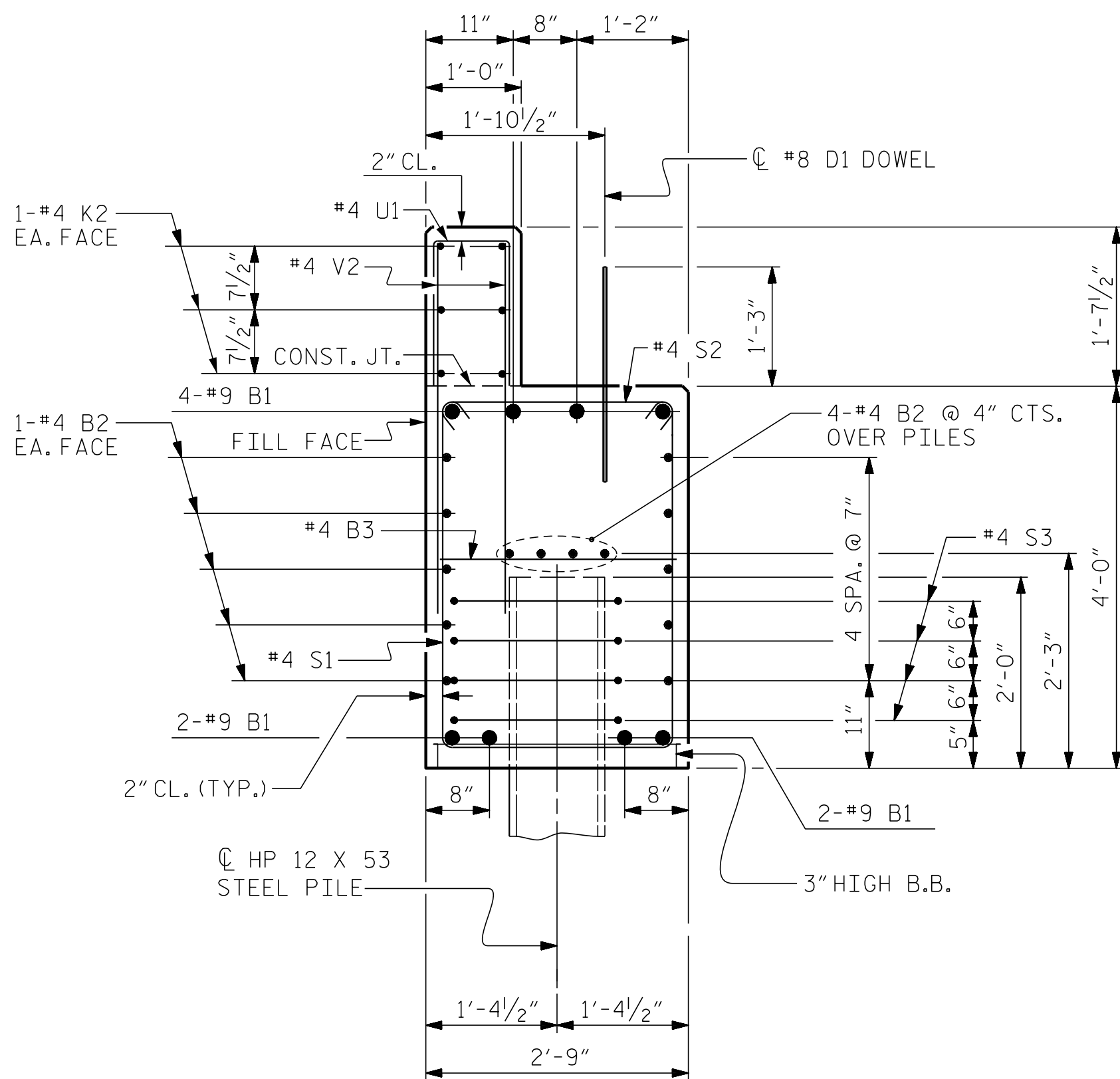
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

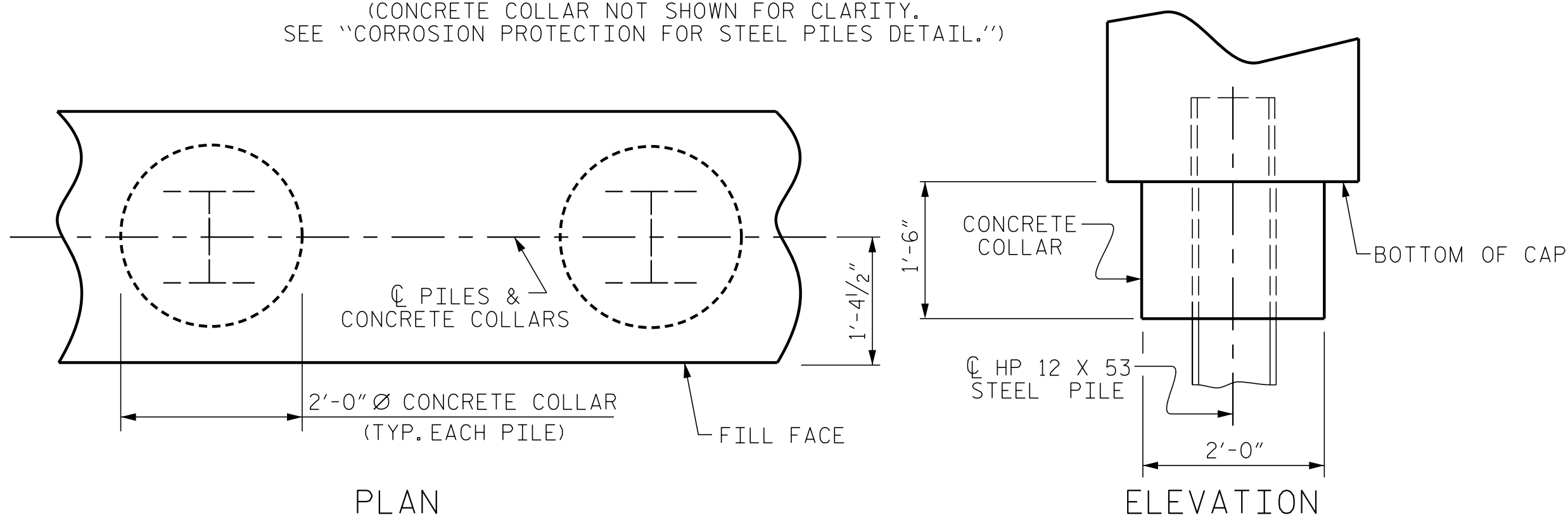
TEMPORARY DRAINAGE AT END BENT



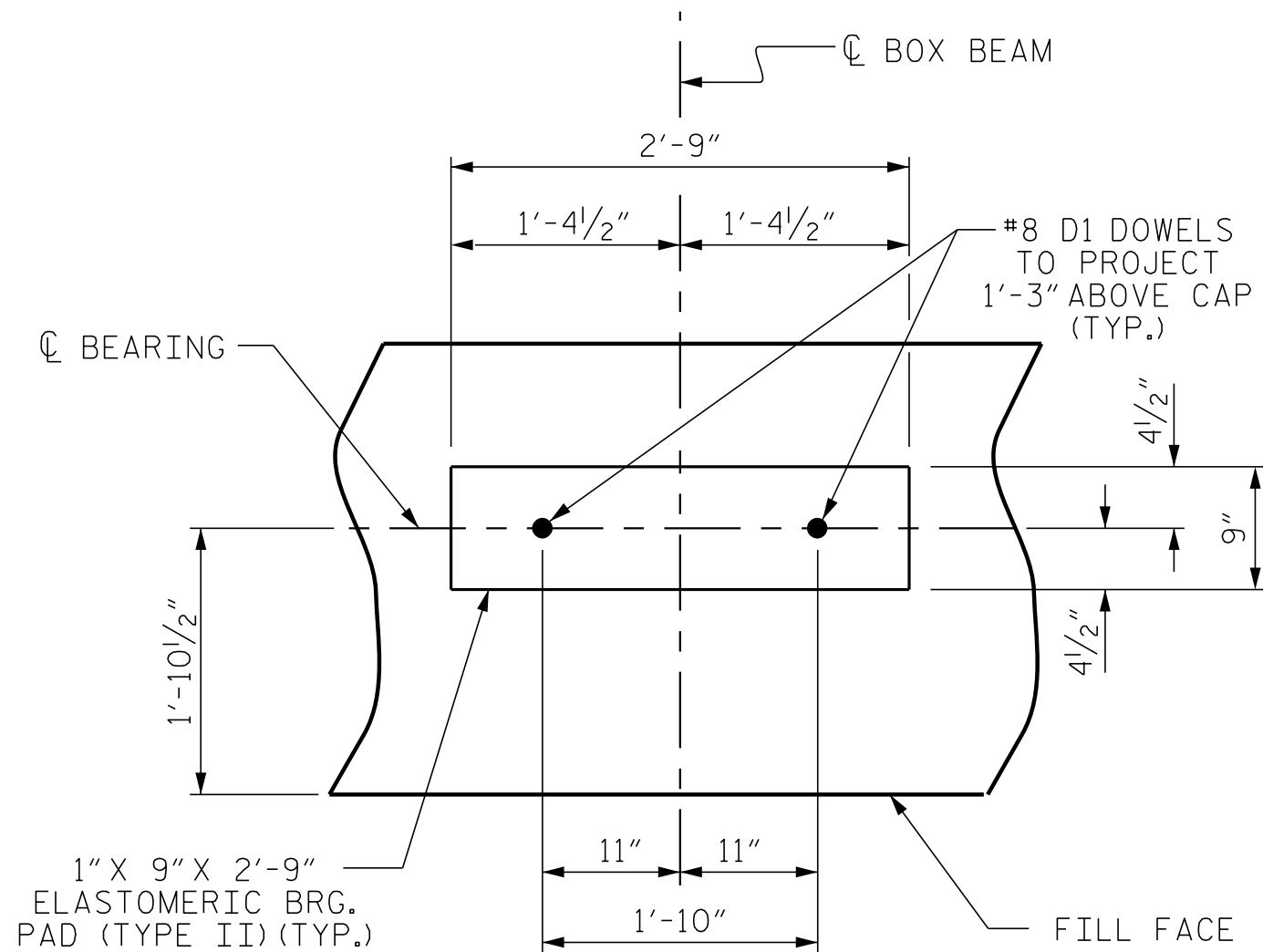
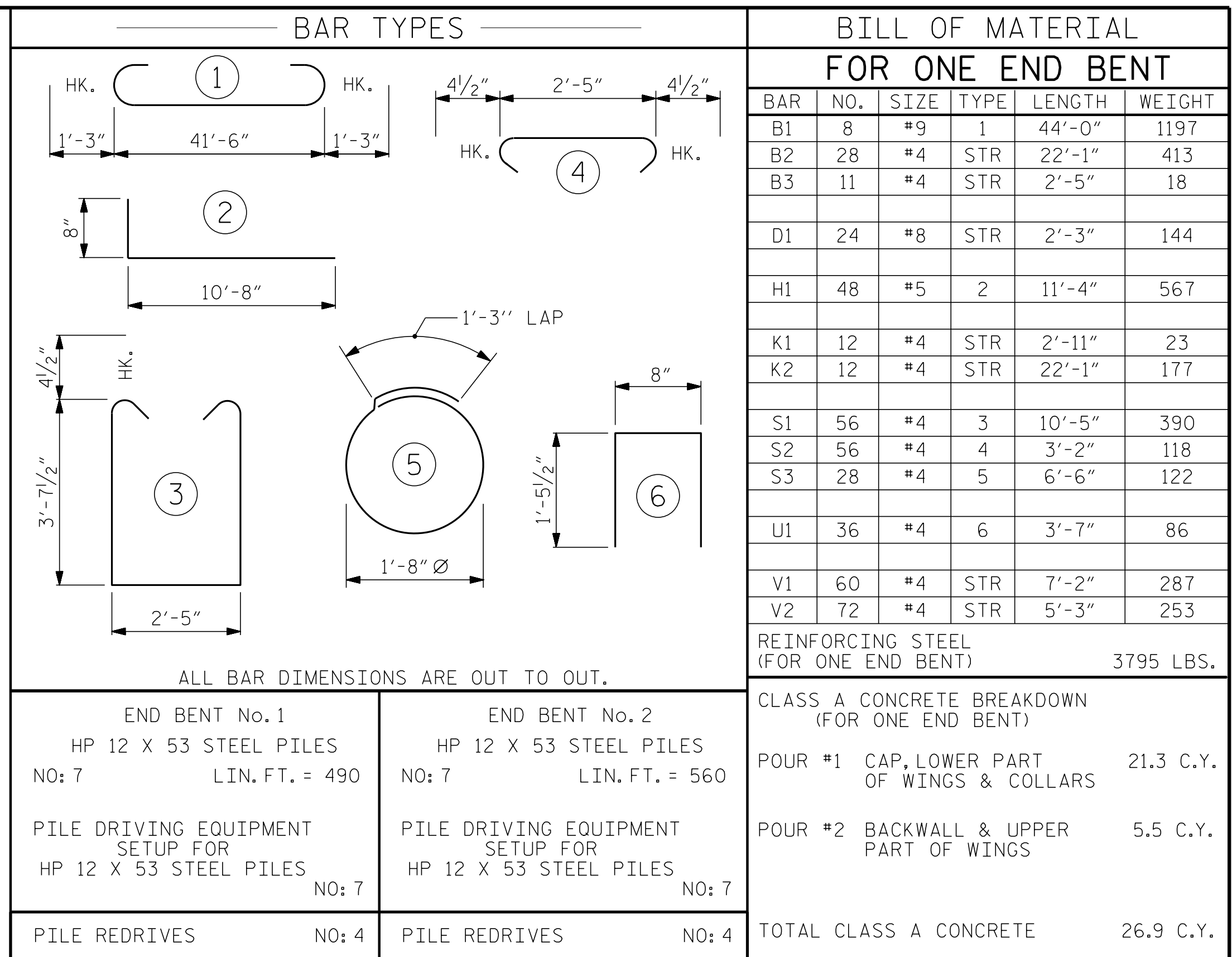
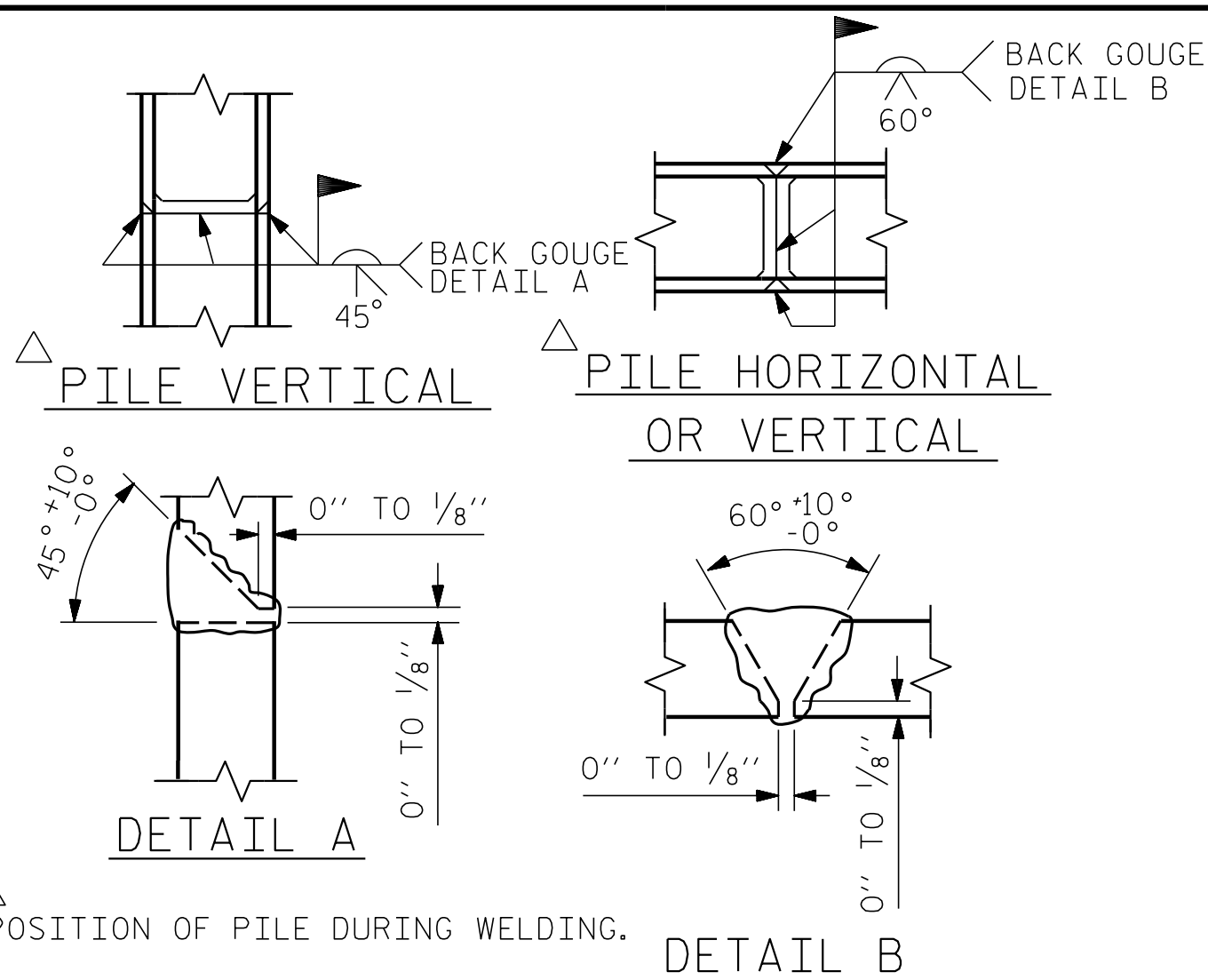
(CONCRETE COLLAR NOT SHOWN FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



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



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



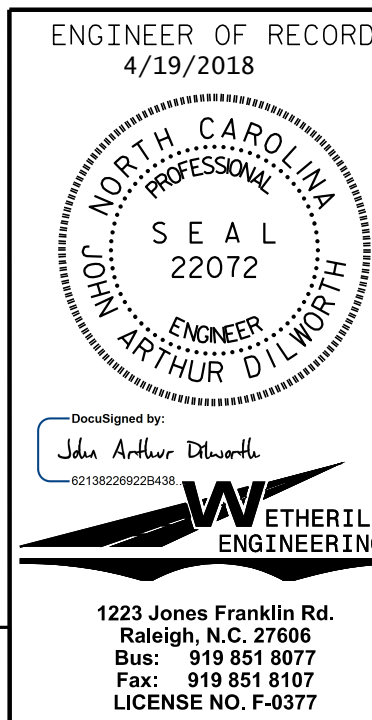
(END BENT No.1 SHOWN, END BENT No.2 SIMILAR BY ROTATION)

PROJECT NO. 17BP.4.R.77

EDGECOMBE COUNTY

STATION: 15+95.50 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

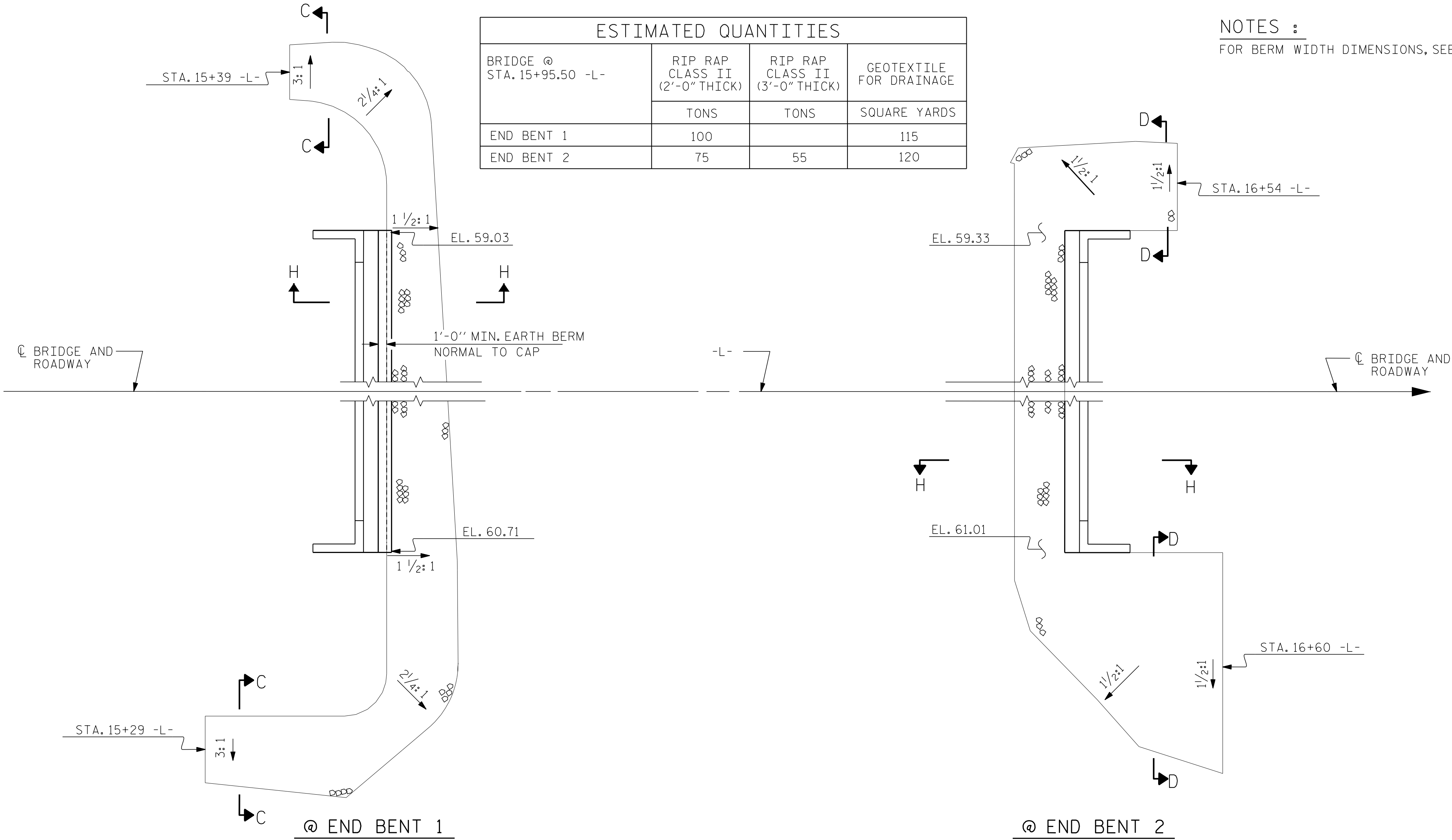
SUBSTRUCTURE
END BENT No. 1 & 2
DETAILS

END BENT No. 1 & 2
DETAILS

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

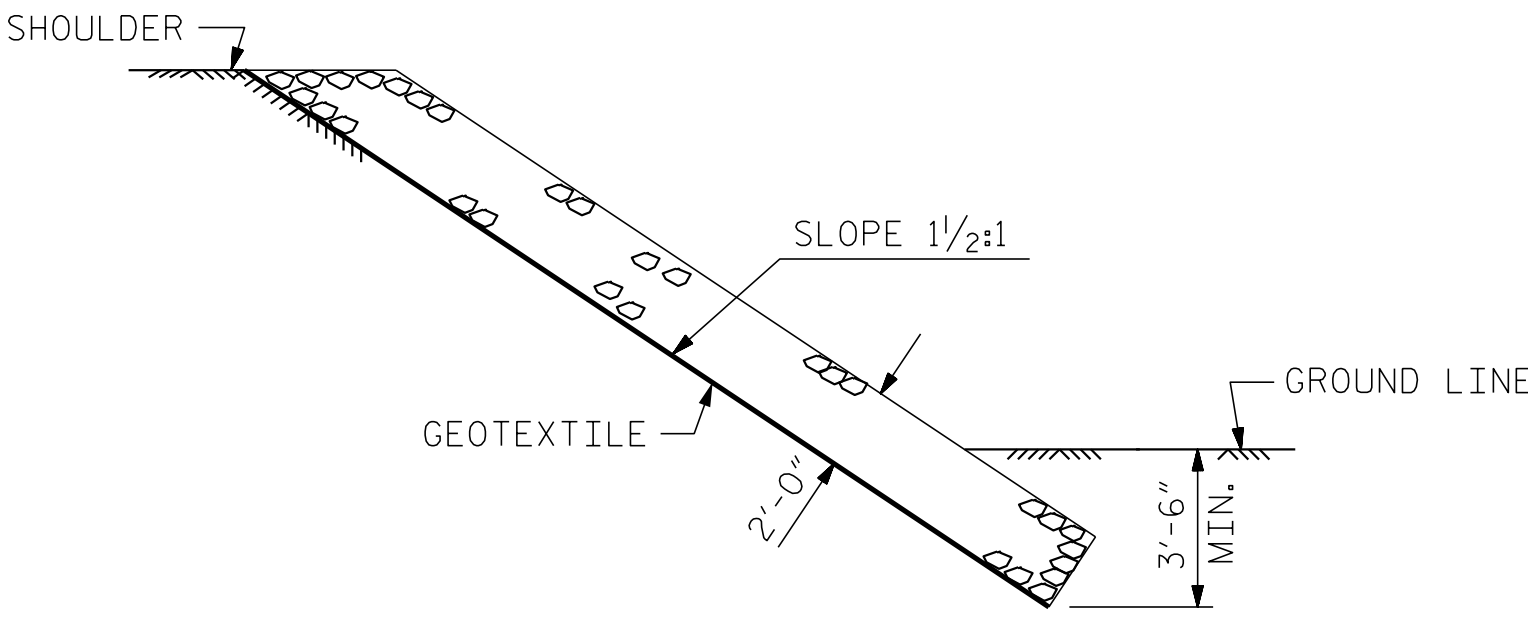
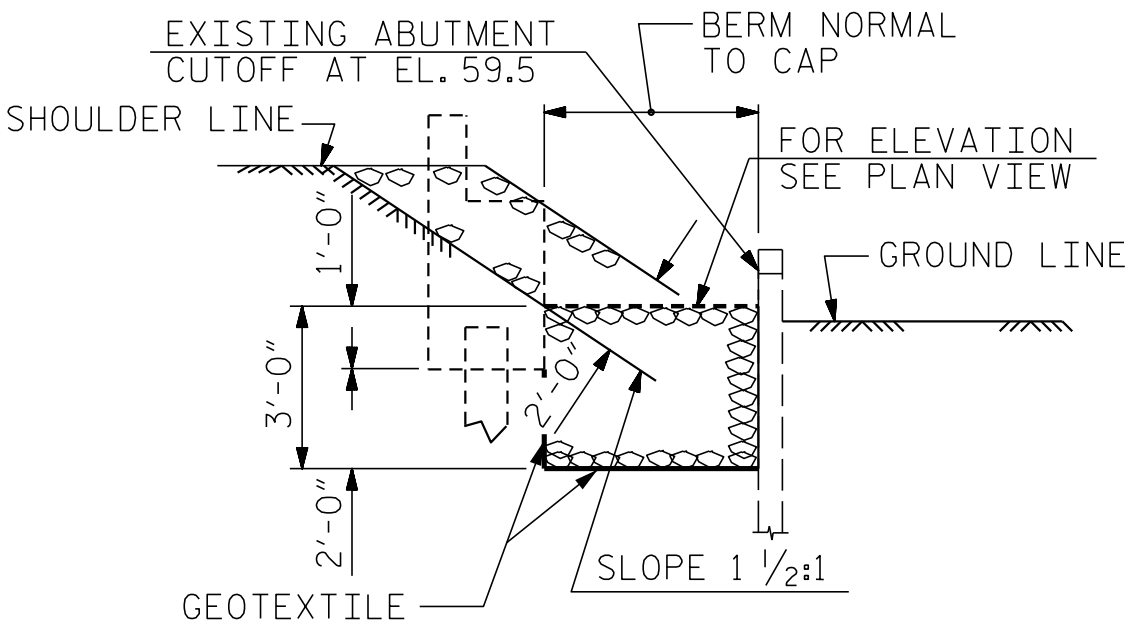
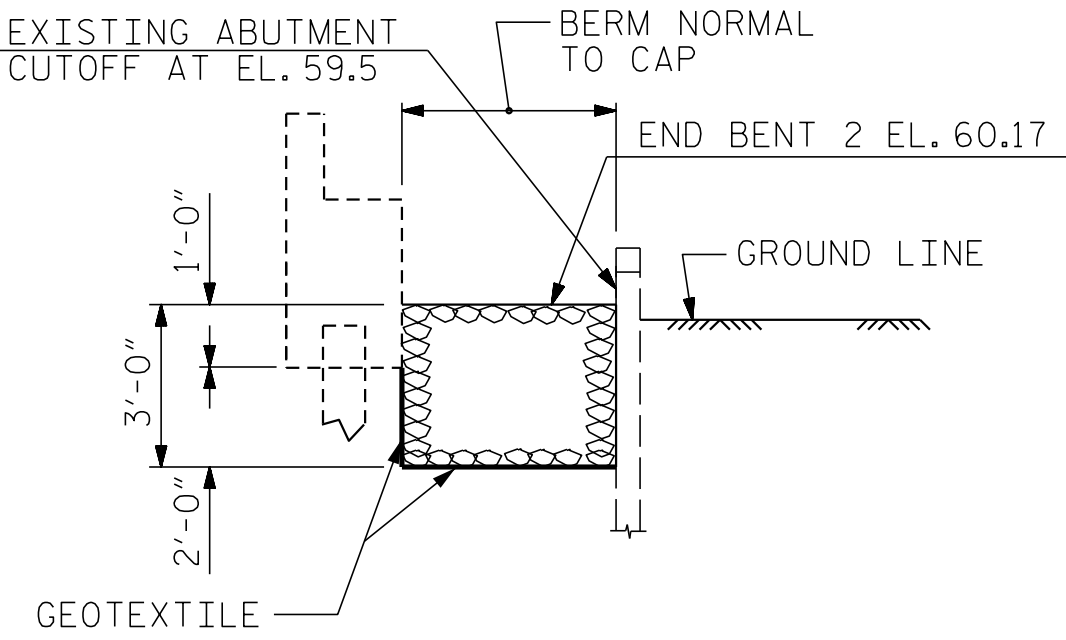
DOCUMENT NOT CONSIDERED FINAL
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STD. NO. EB_36_90S4_33BB



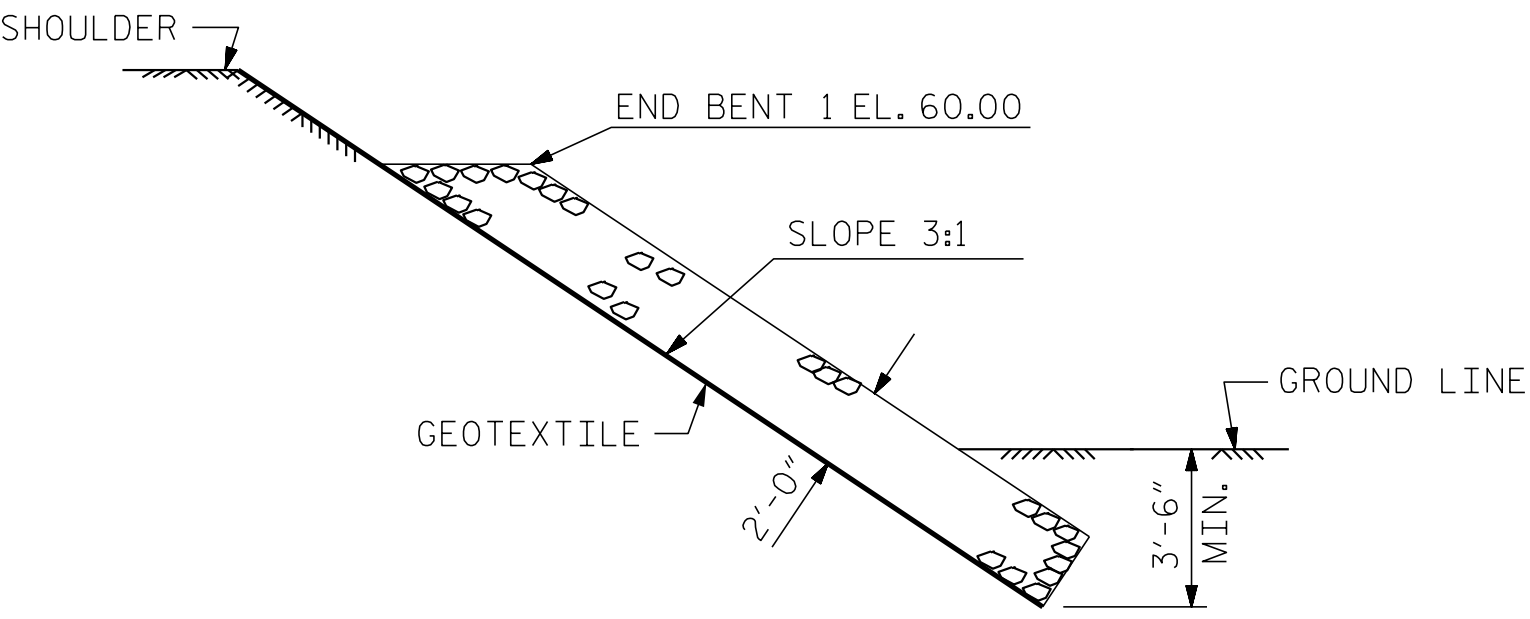
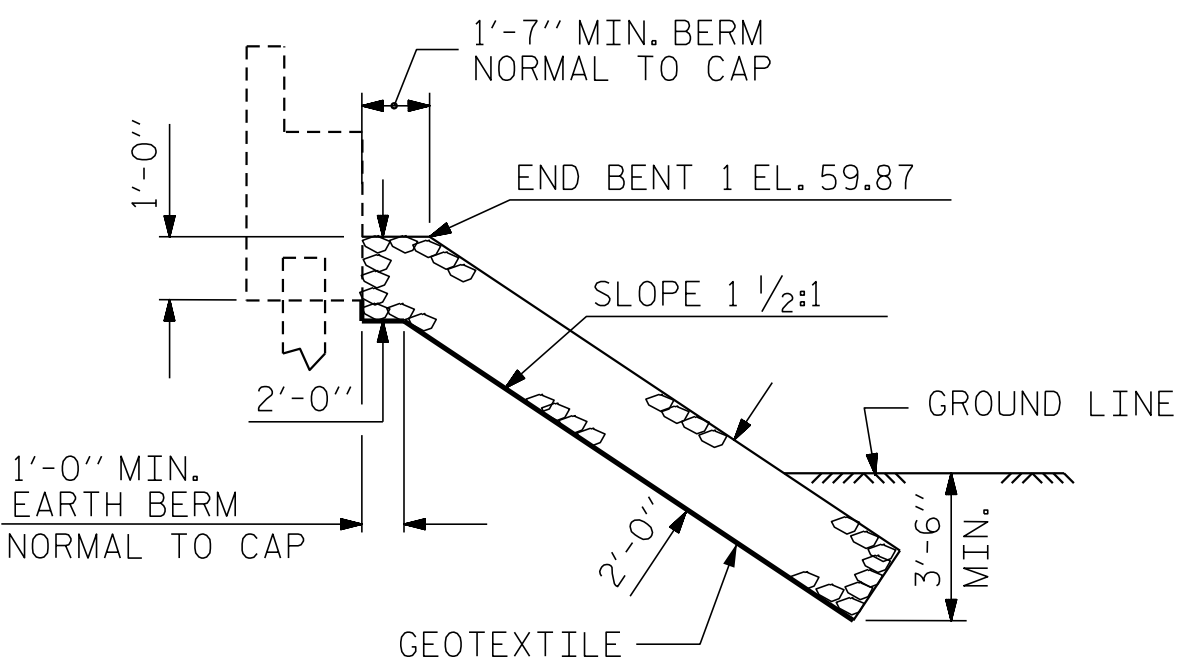
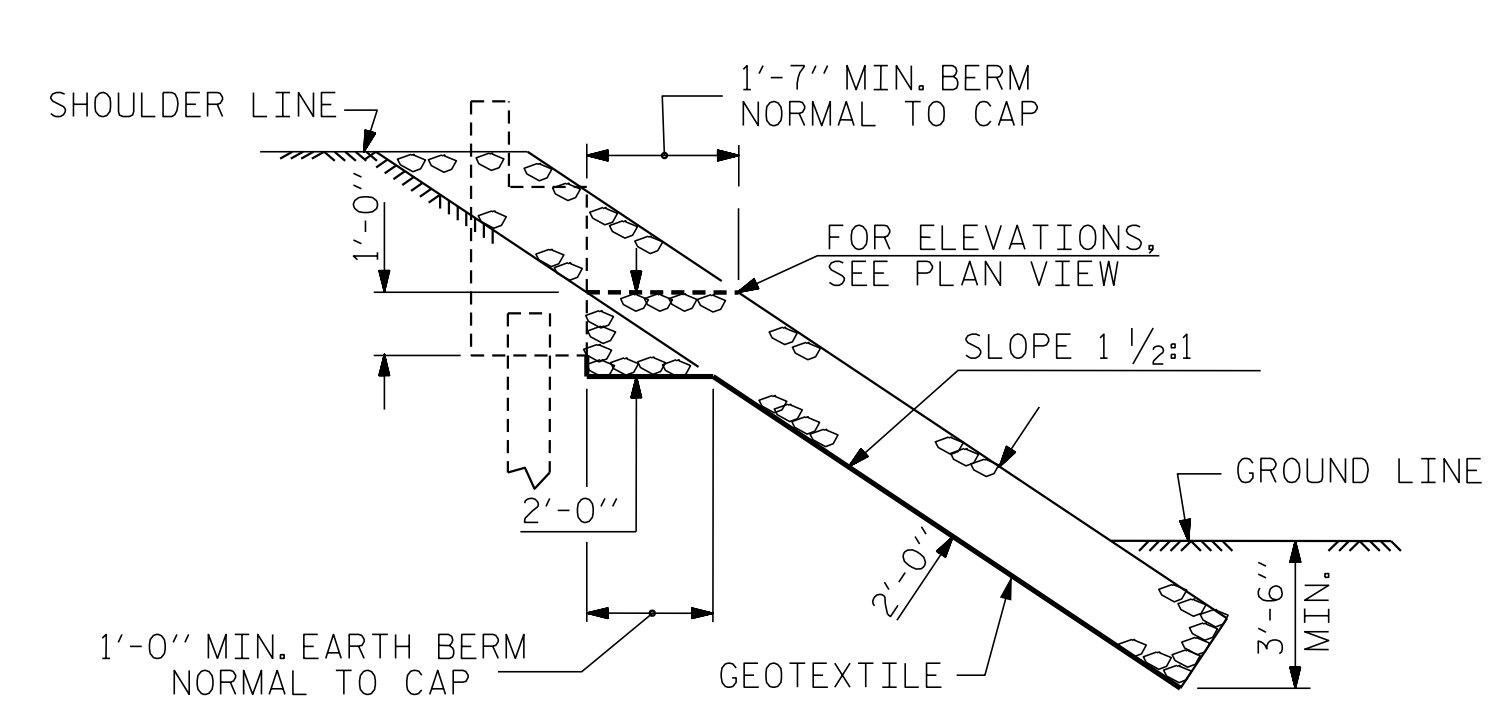
NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

ESTIMATED QUANTITIES			
BRIDGE @ STA. 15+95.50 -L-	RIP RAP CLASS II (2'-0" THICK)	RIP RAP CLASS II (3'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	TONS	SQUARE YARDS
END BENT 1	100		115
END BENT 2	75	55	120



SECTIONS AT END BENT 2

PROJECT NO. 17BP.4.R.77
EDGEcombe COUNTY
STATION: 15+95.50 -L-



SECTIONS AT END BENT 1

DRAWN BY : M. SPARTZ DATE : 10-17
CHECKED BY : J. DILWORTH DATE : 10-17

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ENGINEER OF RECORD
4/19/2018

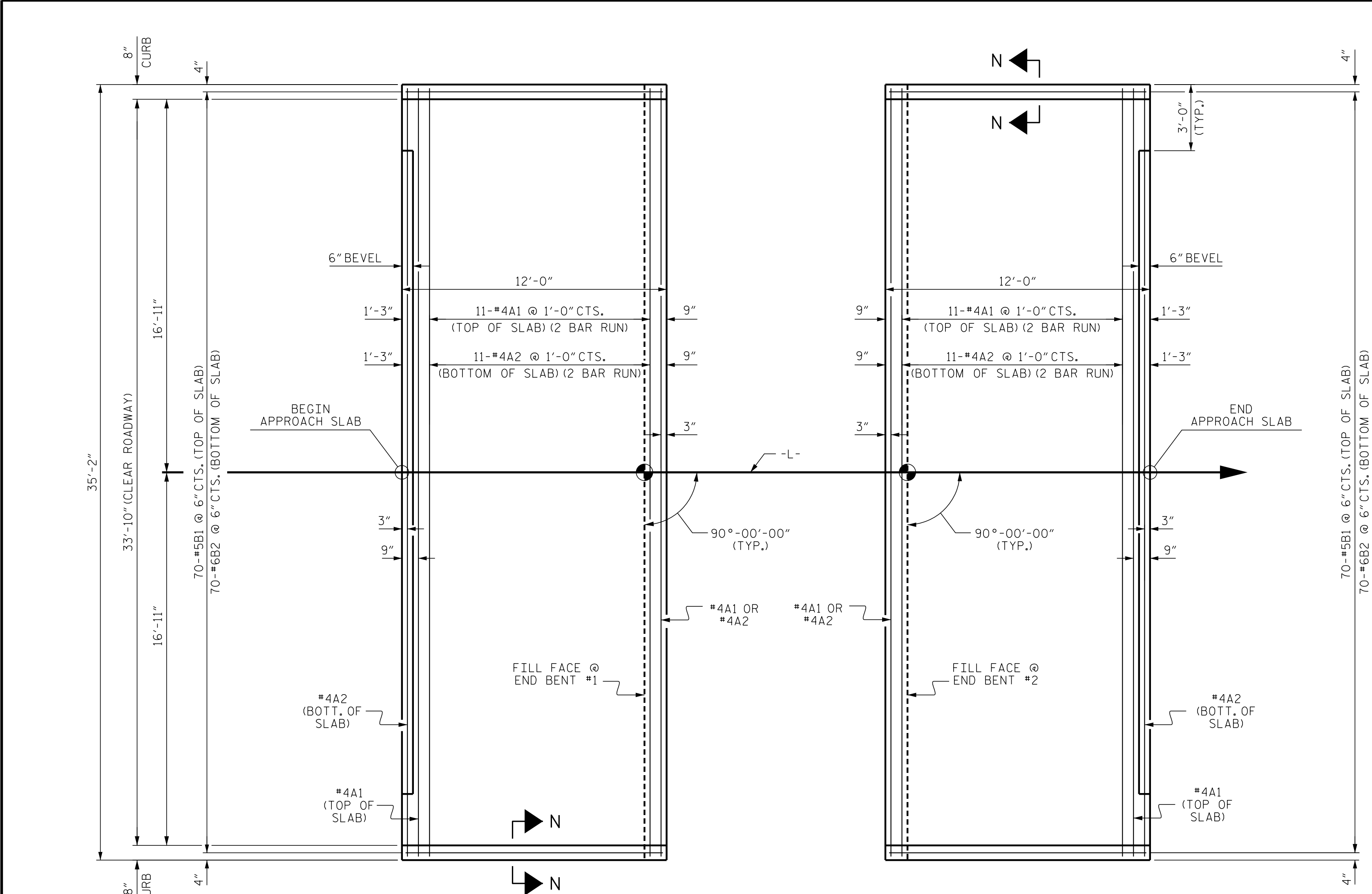
DecoSigned by:
John Arthur Dilworth
02198209228438

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

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

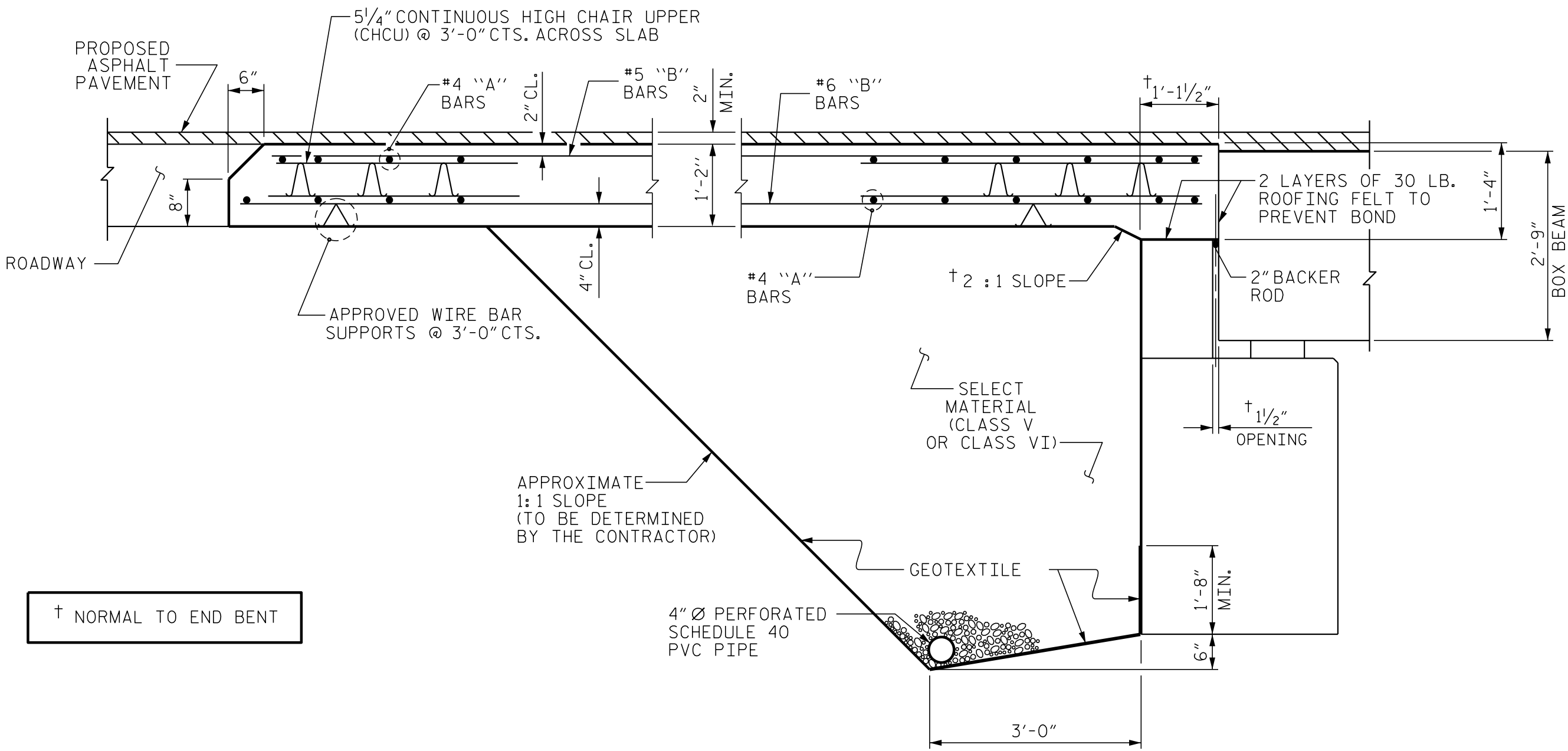
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			15

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PLAN @ END BENT #1 PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)

ASSEMBLED BY : J. PENDERGRAFT	DATE : 7-17
CHECKED BY : J. DILWORTH	DATE : 10-17
DRAWN BY : MAA	11/11
CHECKED BY : AAC	11/11
REV. 9-15	MAA/TMG

NOTES

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

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

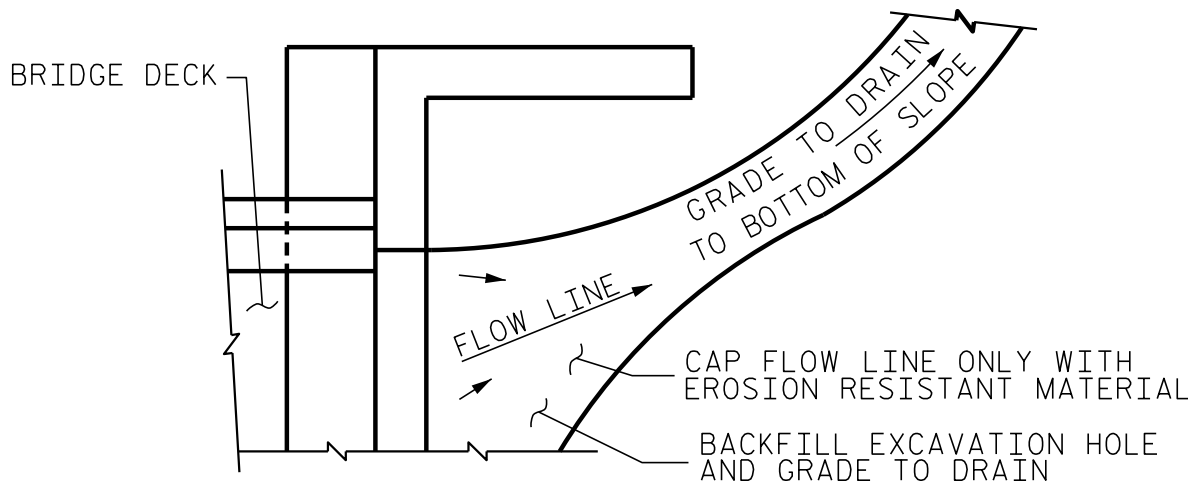
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

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

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.

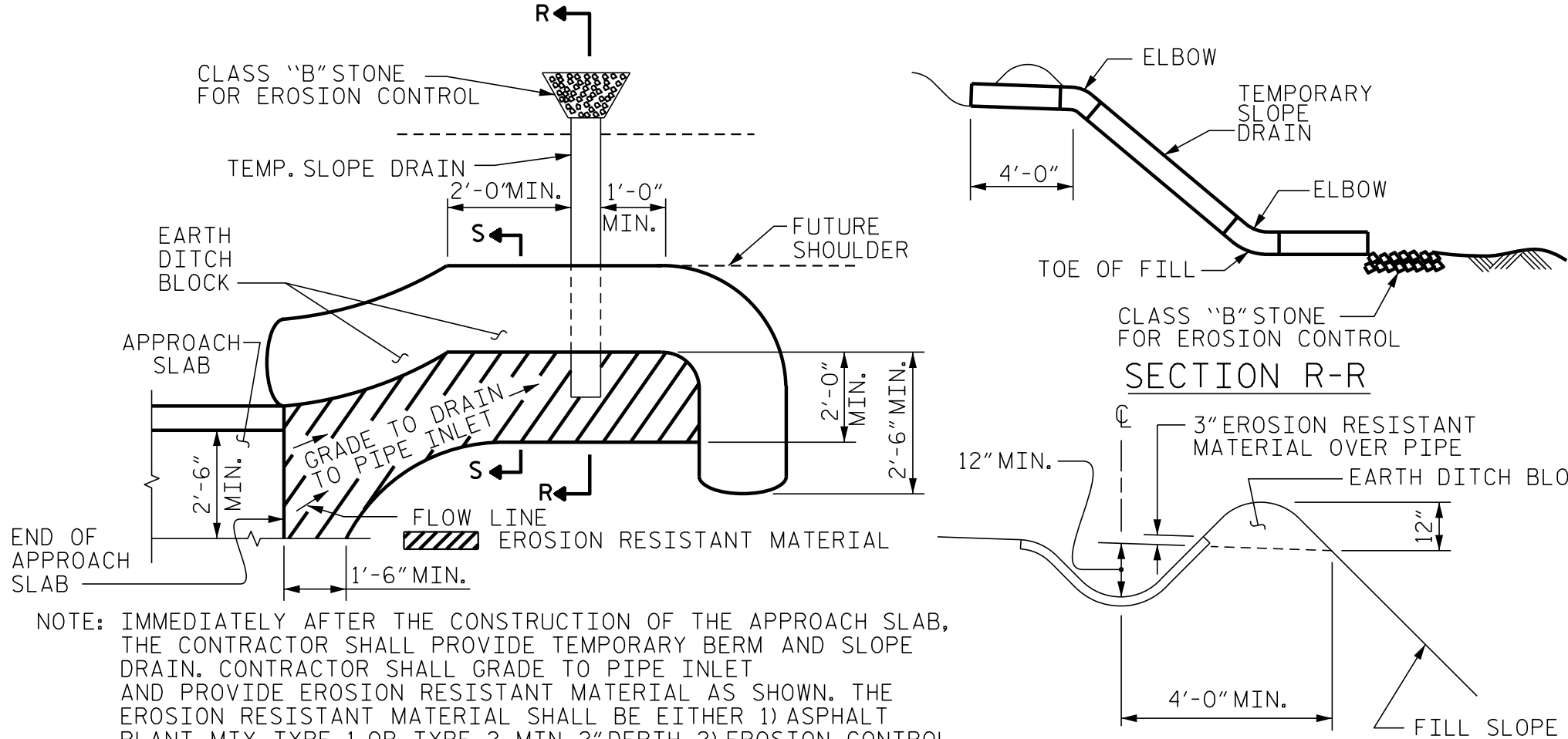
FOR THE 4"Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

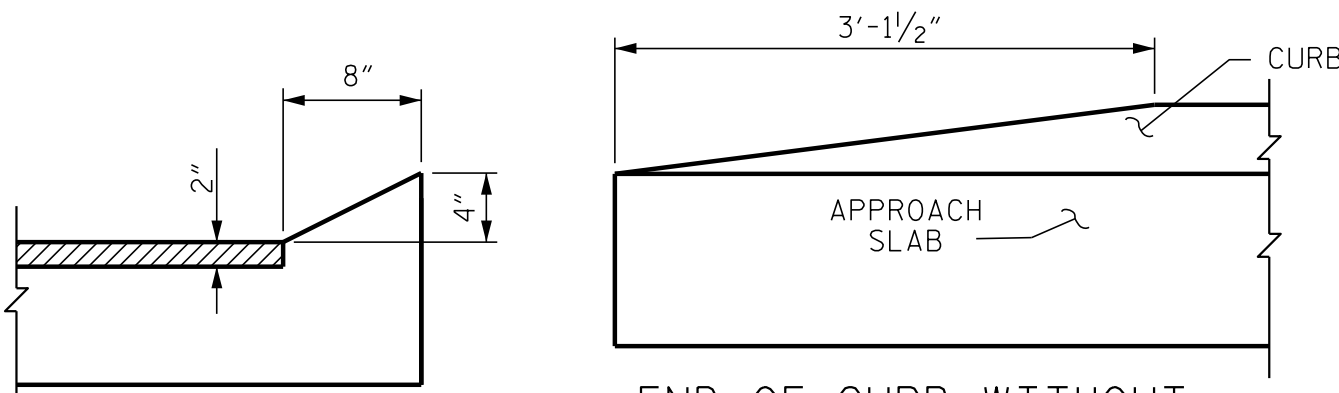


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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)



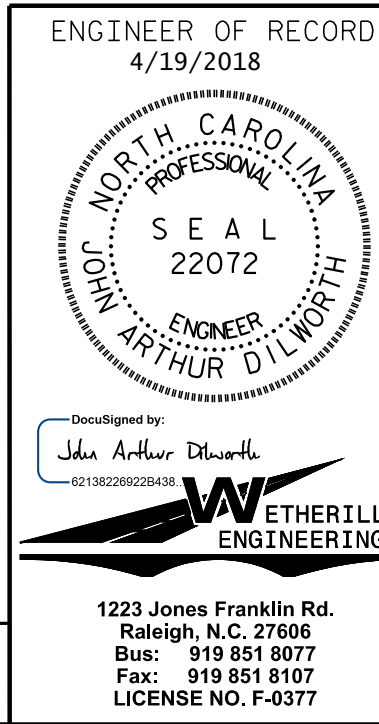
SECTION N-N

END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

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

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PROJECT NO. 17BP.4.R.77
EDGEcombe COUNTY
STATION: 15+95.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
BOX BEAM UNIT
(SUB-REGIONAL TIER)
90° SKEW

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

STD. NO. BAS_BB.36.90S

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 3/16" 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 REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

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