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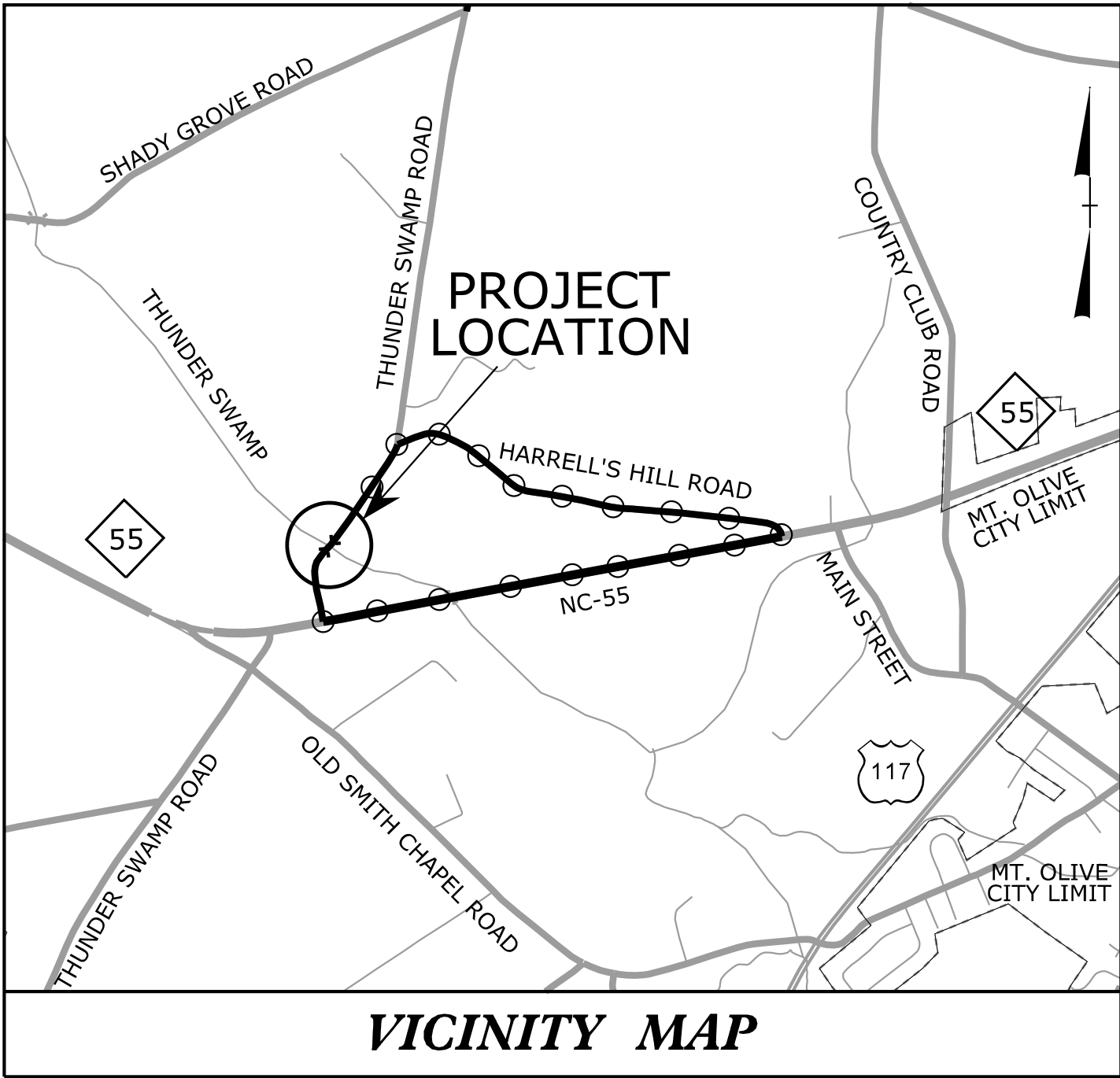
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**This file or an individual page
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TIP PROJECT: 17BP.4.R.91

CONTRACT: DD00293

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet RW2C-1 and RW2C-1 For Survey Control Sheets



VICINITY MAP



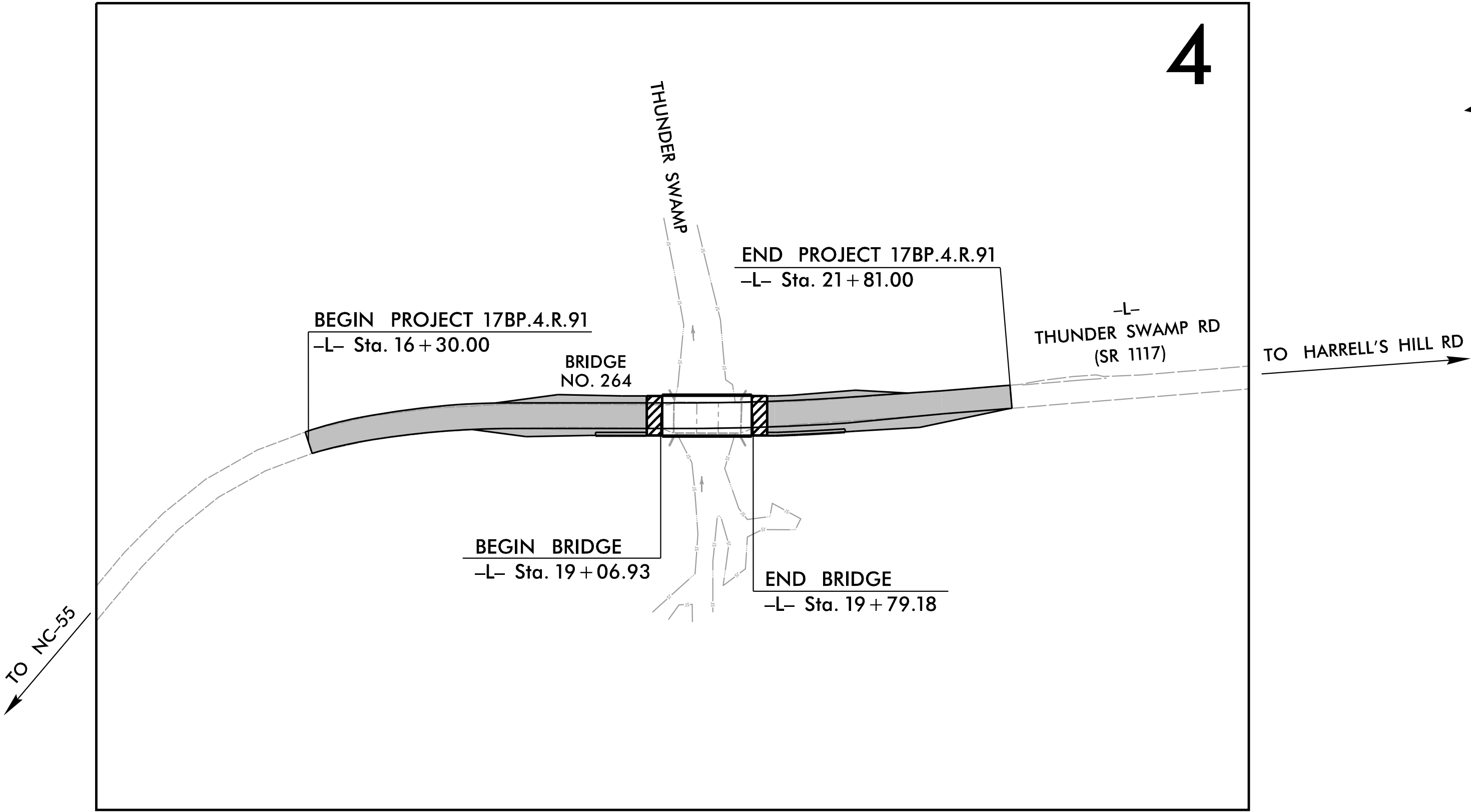
OFF SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

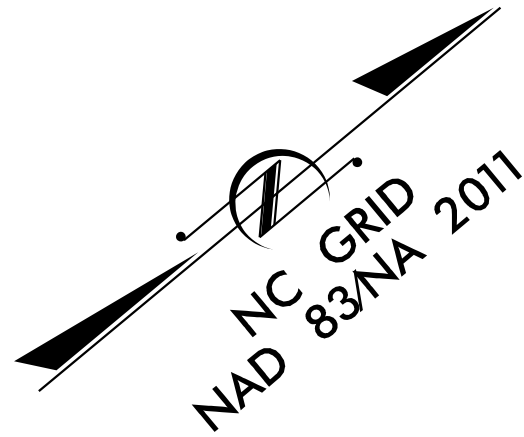
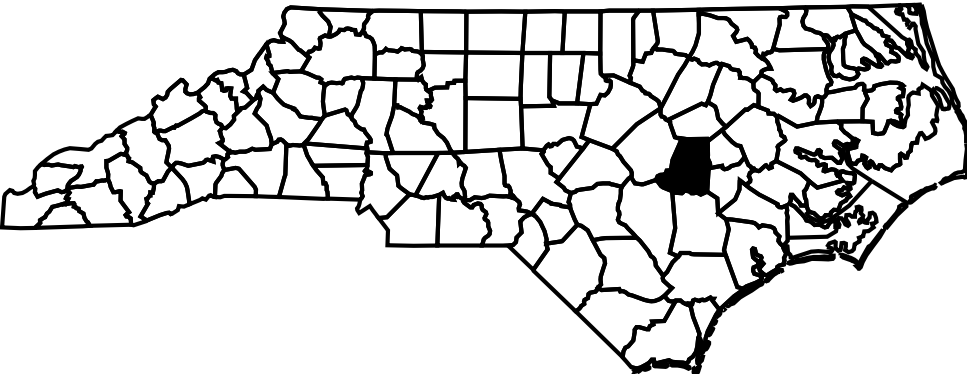
LOCATION: BRIDGE NO. 264 OVER THUNDER SWAMP
ON SR 1117 (THUNDER SWAMP ROAD)

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.91	1	44
WBS ELEMENT NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.4.R.91		P.E.	
17BP.4.R.91		R/W	
17BP.4.R.91		UTILITIES	
17BP.4.R.91		CONSTRUCTION	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



GRAPHIC SCALES



PLANS



PROFILE (HORIZONTAL)



PROFILE (VERTICAL)

DESIGN DATA

ADT 2019 = 540 VPD
ADT 2039 = 780 VPD

T = 6%
V = 40 MPH

FUNC CLASS =
RURAL LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.4.R.91 = 0.090 MILES
LENGTH STRUCTURE PROJECT 17BP.4.R.91 = 0.014 MILES
TOTAL LENGTH PROJECT 17BP.4.R.91 = 0.104 MILES

PLANS PREPARED FOR
THE NCDOT BY:

Kimley »Horn

NO. 18 FORDS RD., SUITE 100
421 FAYETTEVILLE STREET, SUITE 300
RALEIGH, NORTH CAROLINA 27601
PHONE (919) 677-0000 FAX (919) 677-0001

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 15, 2018

LETTING DATE:
JUNE 25, 2019

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

VANCE BLANTON, P.E.
PROJECT DESIGN ENGINEER

RUSSELL E. BROADWELL, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

DocuSigned by:
Vance W. Blanton

97AB9F92B55744EC...

3/8/2019

SIGNATURE:

P.E.

ROADWAY DESIGN ENGINEER

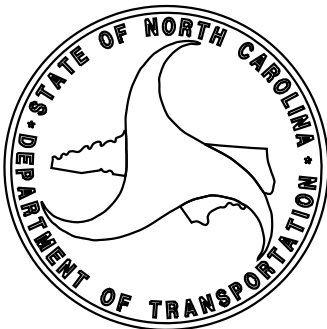
DocuSigned by:
Jeffrey W. Moore

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3/8/2019

SIGNATURE:

P.E.



REVISIONS

12/12/2018 K:\PAL_Roadway\01036459 - B-4840\Roadway\Proj\B4840_Lrdy_1st.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Kimley »Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

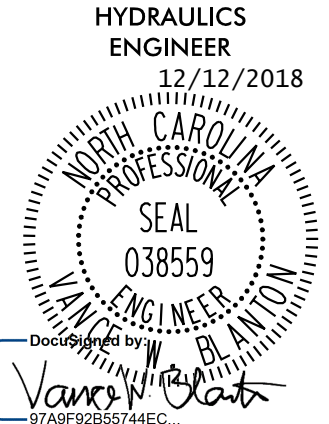
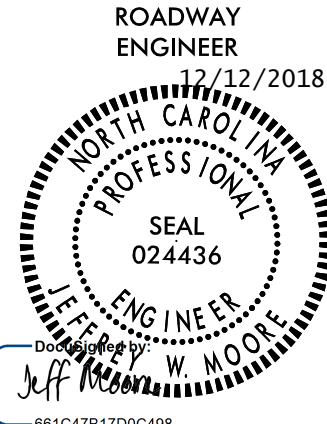
PROJECT REFERENCE NO.

17BP.4R.91

SHEET NO.

1A

RW SHEET NO.



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GENERAL NOTES

2018 SPECIFICATIONS

EFFECTIVE: 01-16-18
REVISED:

EFFECTIVE: 01-16-18
REVISED:

GRADE LINE:
GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

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 CONTRACT.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

DIVISION 2 - EARTHWORK
200.02 Method of Clearing - Method II
225.02 Guide for Grading Subgrade - Secondary and Local
225.04 Method of Obtaining Superelevation - Two Lane Pavement

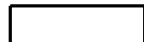
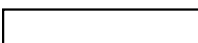
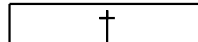
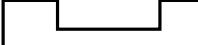
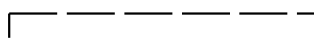
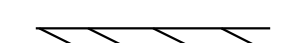
DIVISION 3 - PIPE CULVERTS
300.01 Method of Pipe Installation

DIVISION 4 - MAJOR STRUCTURES
422.01 Bridge Approach Fills - Type I Standard Approach Fill

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS
560.01 Method of Shoulder Construction - High Side of Superelevated Curve - Method I

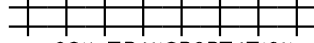
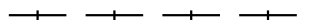
DIVISION 8 - INCIDENTALS
806.01 Concrete Right-of-Way Marker
840.00 Concrete Base Pad for Drainage Structures
840.29 Frames and Narrow Slot Flat Grates
840.35 Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.66 Drainage Structure Steps
846.01 Concrete Curb, Gutter and Curb & Gutter
846.04 Drop Inlet Installation in Shoulder Berm Gutter
862.01 Guardrail Placement
862.02 Guardrail Installation
862.03 Structure Anchor Units
876.02 Guide for Rip Rap at Pipe Outlets
876.04 Drainage Ditches with Class 'B' Rip Rap

BOUNDARIES AND PROPERTY:

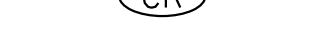
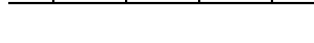
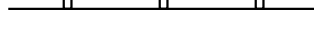
State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
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	
Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	
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	

HYDROLOGY:

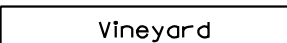
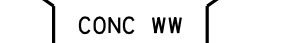
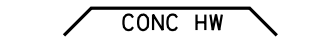
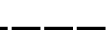
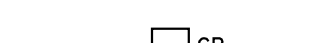
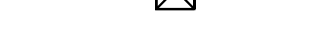
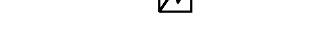
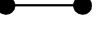
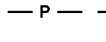
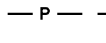
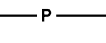
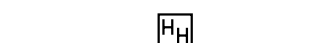
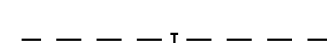
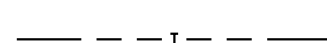
RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	
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 C/A 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	

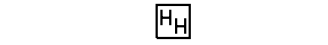
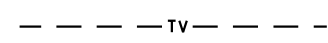
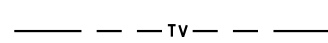
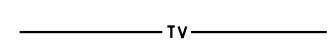
ROADS AND RELATED FEATURES:

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	
Single Tree	
Single Shrub	
Hedge	
Woods Line	

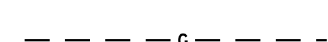
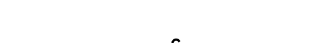
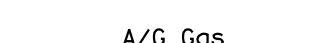
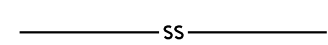
VEGETATION:

Orchard	
Vineyard	
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	
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.*)	

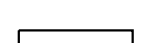
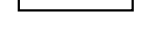
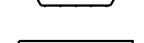
WATER:

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	
End of Information	

AATUR

E.O.I.

09/06/19

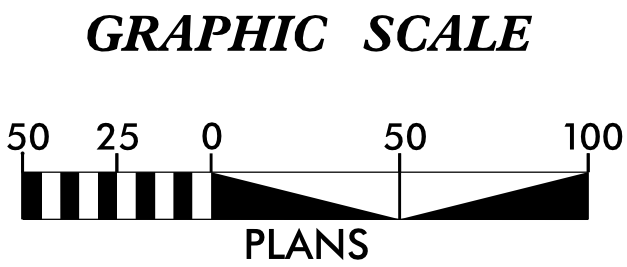
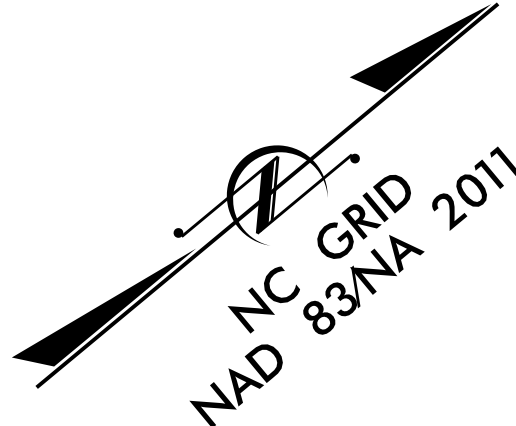
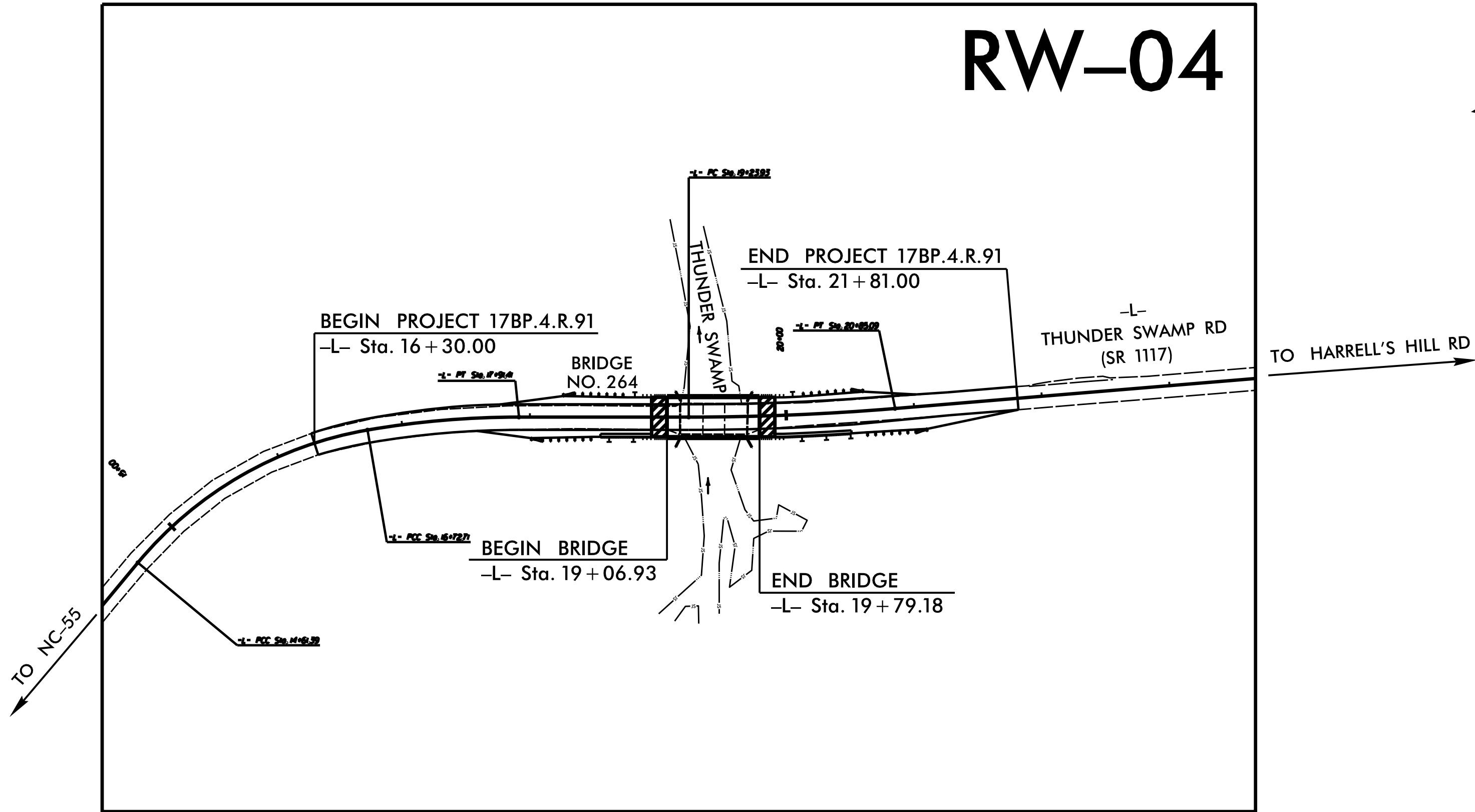
TIP PROJECT: B-4840

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4840	RW01	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

WAYNE COUNTY



DATUM DESCRIPTION

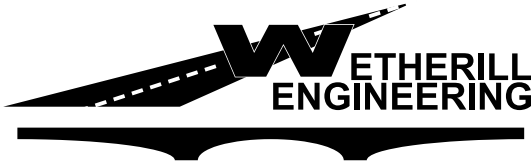
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B-4840-1" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 532,279.549(ft) EASTING: 2,266,527.179(ft) ELEVATION: 122.764(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987213

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4840-1" TO -L- STATION 16+30.00 IS S 37-15'24.3" W 735.21(ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88



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

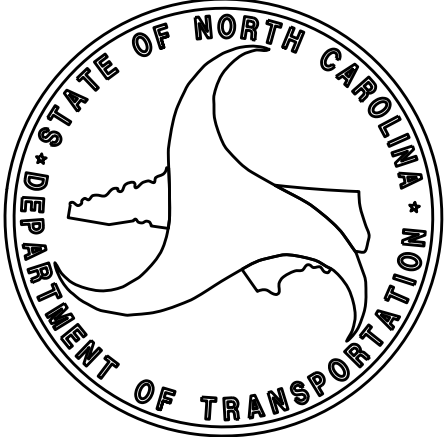
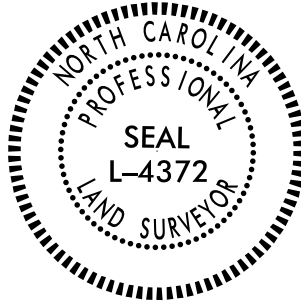
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - SURVEYING - CONSTRUCTION OBSERVATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

PROFESSIONAL LAND
SURVEYOR

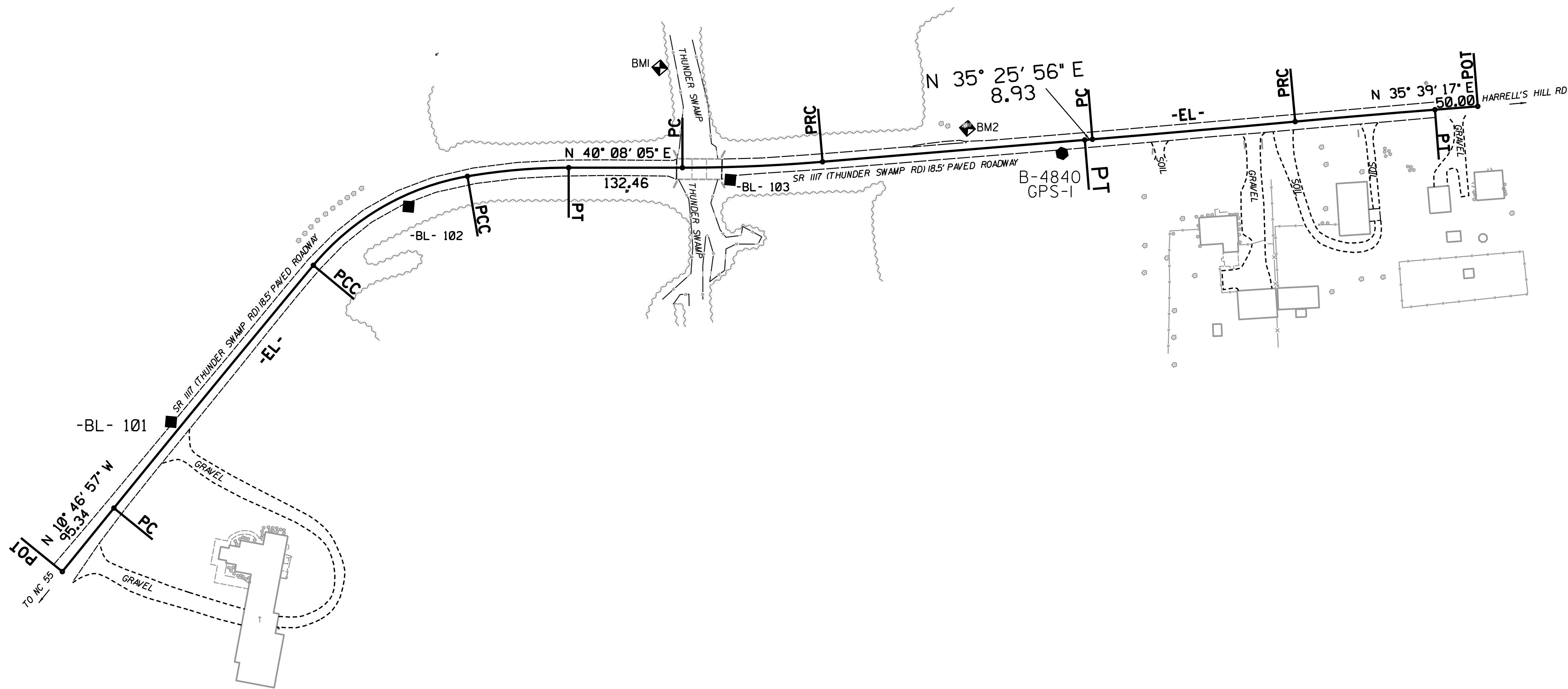


Signature of Anthony E. Alford

Date: 11/29/2018

SURVEY CONTROL SHEET
W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
B-4840	RW02C-1
Location and Surveys	



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

6/2/99

REVISIONS

SY-CUTLINE-UNUSABLE

SURVEY CONTROL SHEET
W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.
B-4840

SHEET NO.
RW02C-2

Location and Surveys

WETHERILL
ENGINEERING

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 - SURVEYING - CONSTRUCTION OBSERVATION

BL	POINT	DESC.	NORTH	EAST	ELEVATION
101		BL - 101	531284.4770	2266097.1580	136.62
102		BL - 102	531657.5820	2266083.8350	124.90
103		BL - 103	531964.2380	2266301.5490	122.60
1		B4840-GPS1	532279.5490	2266527.1790	122.76
2		B4840-GPS2	532988.5900	2266983.5300	137.30

BM1 ELEVATION = 121.22
N 531986 E 2266149
BENCHTIE NAIL SET IN 14" ELM TREE

BM2 ELEVATION = 123.49
N 532214 E 2266434
BENCHTIE NAIL SET IN 24" GUM TREE

EL	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
	POT	531075.282	2266148.900							
	LINE			N 10°46'56.8" W	95.34					
	PC	531168.942	2266131.063							
	CURVE			N 10°27'22.9" W	365.95	00°39'07.7°(RT)	00°10'41.5°	365.95	182.98	32151.24
	PCC	531528.810	2266064.649							
	CURVE			N 10°07'35.3° E	207.24	40°30'48.8°(RT)	19°08'41.1°	211.62	110.45	299.28
	PCC	531732.818	2266101.085							
	CURVE			N 35°15'32.2° E	118.39	09°45'05.0°(RT)	08°13'35.9°	118.53	59.41	696.47
	PT	531829.491	2266169.429							
	LINE			N 40°08'04.7° E	132.46					
	PC	531930.762	2266254.813							
	CURVE			N 37°43'20.3° E	163.39	04°49'28.8°(LT)	02°57'07.4°	163.43	81.77	1940.87
	PCC	532059.998	2266354.778							
	CURVE			N 35°22'16.0° E	306.52	00°07'20.2°(RT)	00°02'23.6°	306.52	153.26	143627.35
	PT	532309.938	2266532.212							
	LINE			N 35°25'56.1° E	8.93					
	PC	532317.218	2266537.391							
	CURVE			N 35°09'11.5° E	237.11	00°33'29.2°(LT)	00°14'07.4°	237.11	118.56	24341.81
	PCC	532511.081	2266673.910							
	CURVE			N 35°15'52.1° E	163.38	00°46'50.4°(RT)	00°28'40.2°	163.38	81.69	11990.88
	PT	532644.479	2266768.236							
	LINE			N 35°39'17.3° E	50.00					
	POT	532685.106	2266797.381							

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

6/2/2018

REVISIONS

6/2/2018

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.
B-4840

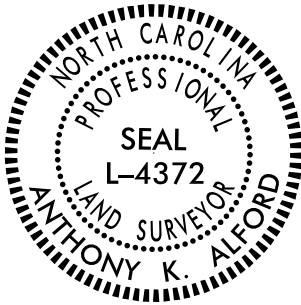
SHEET NO.
RW03E-1



1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. P-6377
Bus: 919 851 8077
Fax: 919 851 8107

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

PROJECT SURVEYOR



I, ANTHONY K. ALFORD, 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 29th day of November, 2018.

DocuSigned by
Anthony K. Alford
Professional Land Surveyor

L-4372
PLS #

Seal

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	17+50.00	-30.00	531814.9621	2266119.6261
L	18+80.00	-45.00	531926.1956	2266192.1031
L	18+80.00	30.00	531877.8516	2266249.4430
L	18+80.00	40.00	531871.4058	2266257.0883
L	19+23.93	40.00	531904.9952	2266285.4079
L	19+70.00	40.00	531941.2962	2266315.2837
L	20+00.00	50.00	531959.1732	2266342.1654
L	20+10.00	-45.00	532025.2392	2266273.1692
L	20+85.00	50.00	532029.1359	2266394.1867
L	21+00.00	-30.01	532087.6871	2266337.6278
L	21+30.00	29.96	532077.4328	2266403.8978

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	16+05.27	-29.98	531680.0954	2266045.1070
L	16+90.00	-55.00	531776.4198	2266063.1542
L	16+90.00	-75.00	531786.9549	2266046.1538
L	17+10.00	-60.00	531797.3525	2266070.6110
L	17+10.00	-75.00	531805.6169	2266058.0930
L	18+48.00	30.00	531853.3866	2266228.8162
L	18+48.00	40.00	531846.9408	2266236.4615
L	24+55.00	-46.00	532386.3716	2266530.0708
L	24+55.00	-30.00	532377.1237	2266543.1274

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.

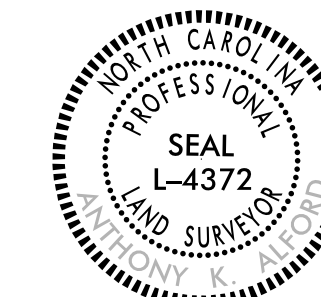
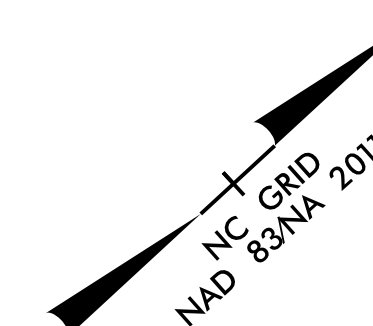
I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway 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 29th day of November, 2018.

PROJECT SURVEYOR



NORTH CAROLINA
PROFESSIONAL
SEAL
L-4372
LAND SURVEYORS
THE STATE OF NORTH CAROLINA



I. IF FURTHER INFORMATION REGARDING PROJECT CONTROL
IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

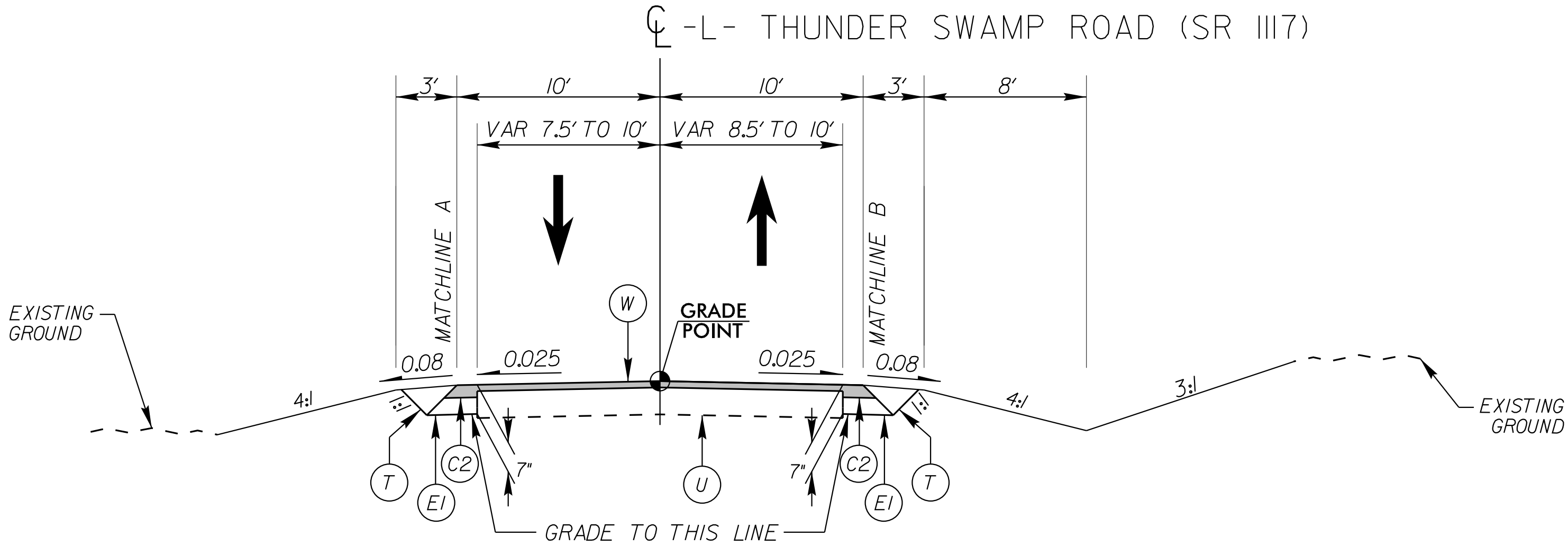
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

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REVISIONS

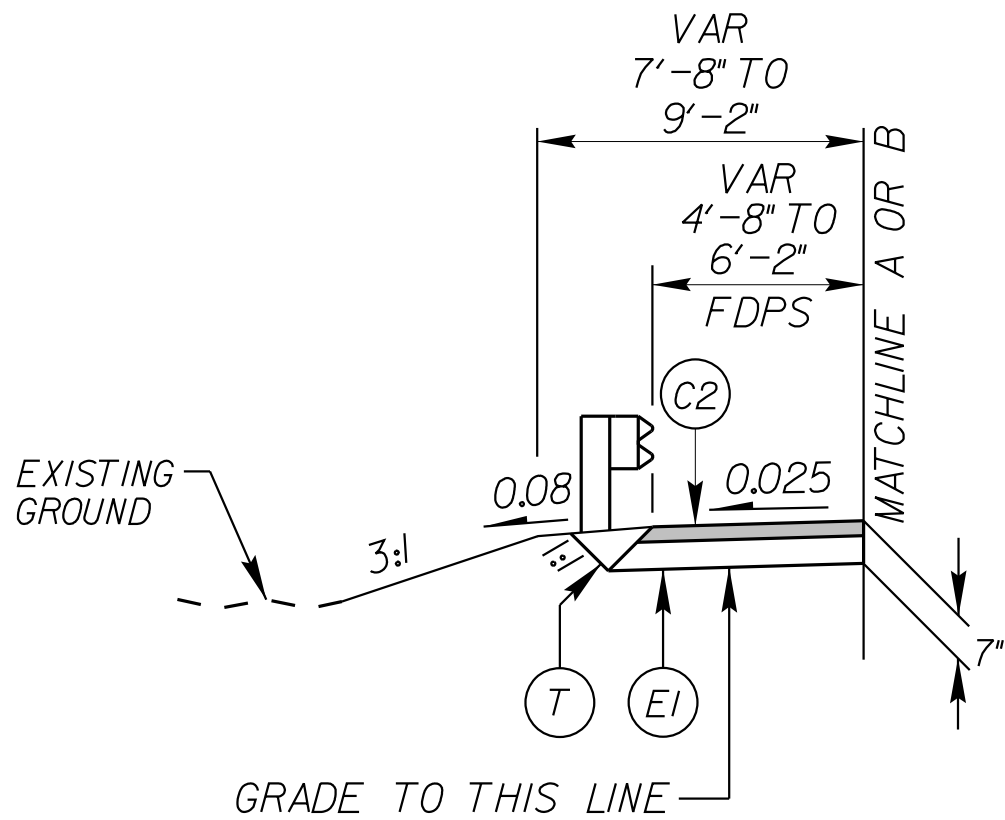
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3/7/2019



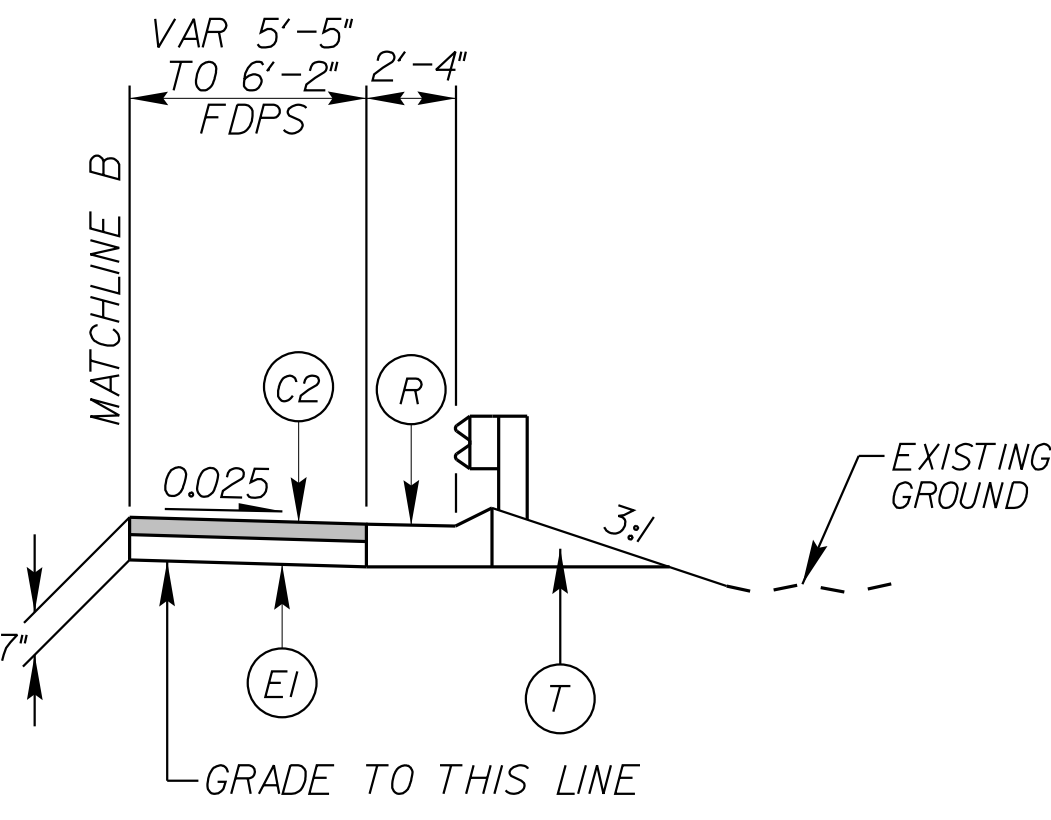
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-L- STA 19+79.18 (END BRIDGE) TO STA 21+27.00



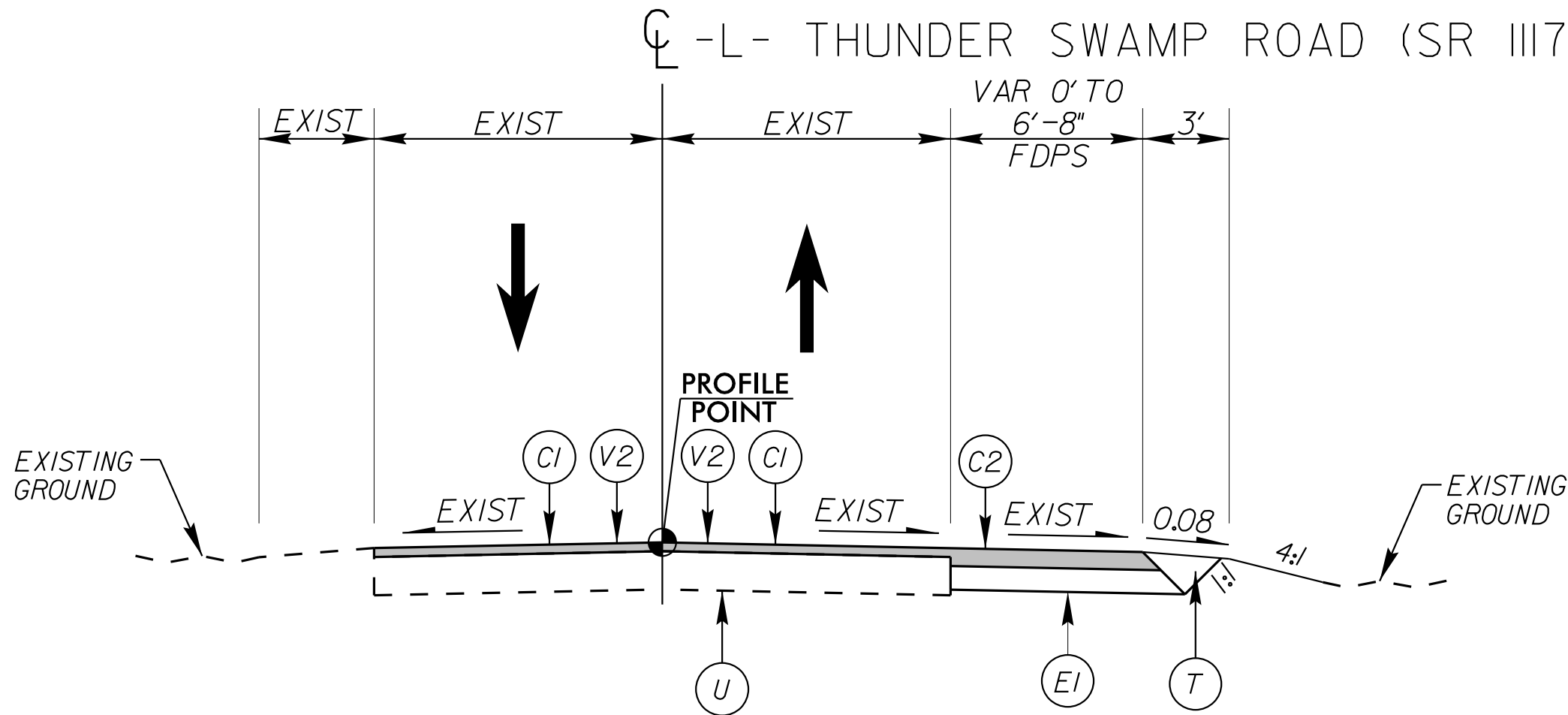
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USE IN CONJUNCTION WITH GUARDRAIL LOCATIONS



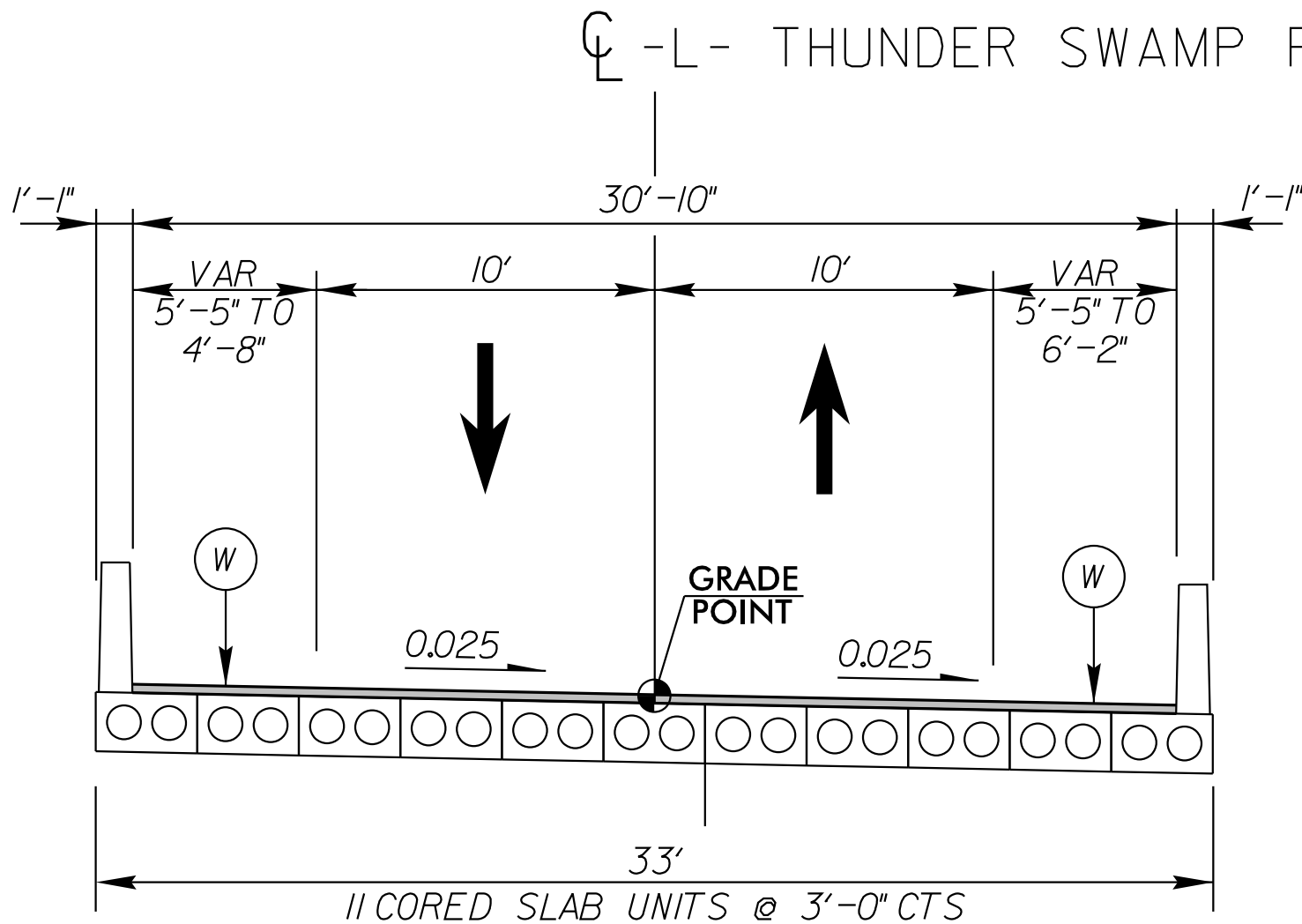
TYPICAL SECTION NO. 1B

-L- STA 18+55.00 TO STA 18+96.05 (RT)
-L- STA 19+90.03 TO STA 20+50.00 (RT)



TYPICAL SECTION NO. 2

-L- STA 21+27.00 TO STA 21+81.00



BRIDGE TYPICAL SECTION NO. 1

-L- STA 19+06.93 TO STA 19+79.18

Kimley » Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

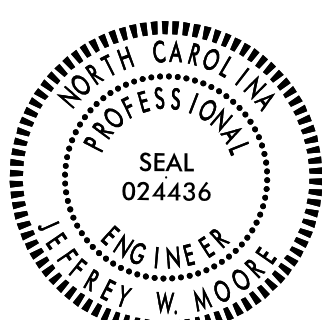
PROJECT REFERENCE NO.

17BP.4.R.91

SHEET NO.

2A-1

ROADWAY DESIGN
ENGINEER



DocuSigned by:

Jeffrey W. Moore

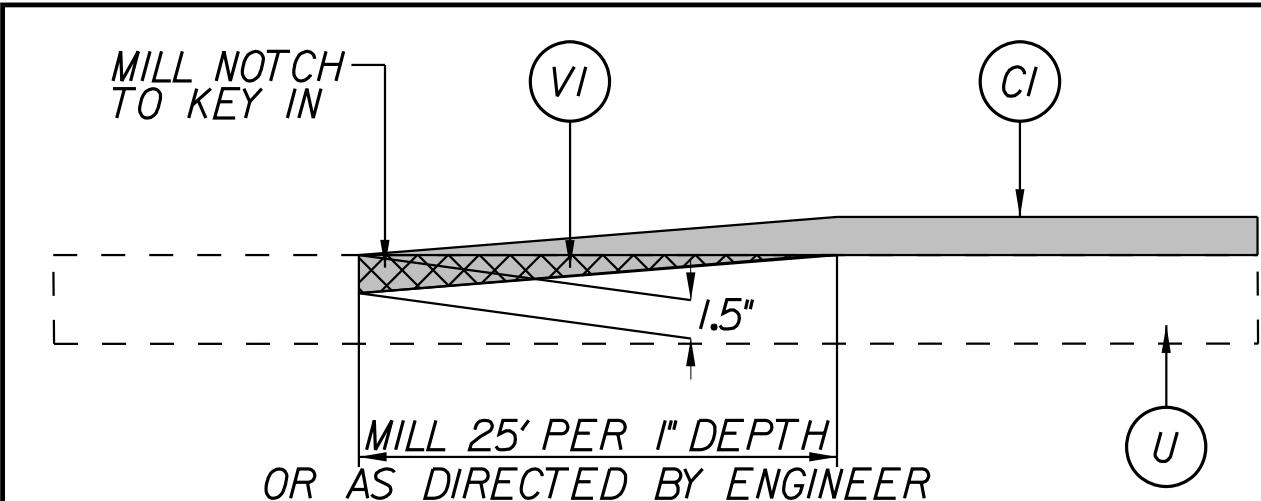
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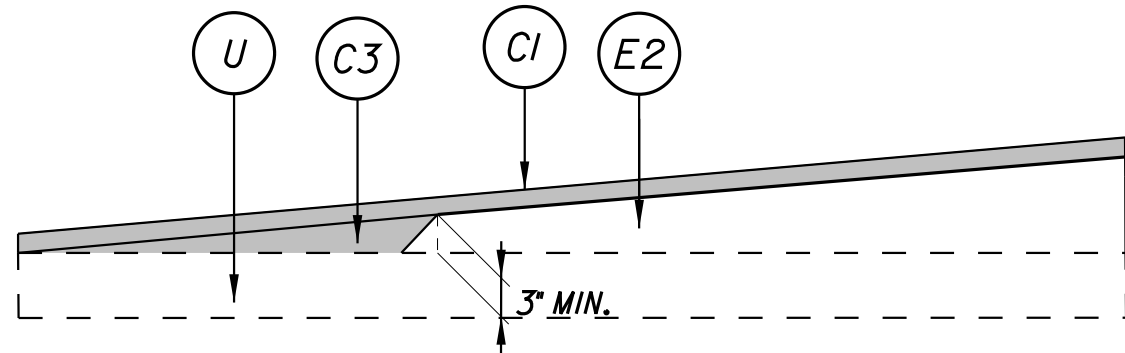
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PAVEMENT DESIGN

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" 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 5.5" IN DEPTH
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING EXISTING PAVEMENT 0' TO 1.5' (SEE DETAIL BELOW)
V2	MILLING EXISTING PAVEMENT 1.5'
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL BELOW)



PROFILE KEY-IN DETAIL



WEDGING DETAIL FOR RESURFACING

NOTES:

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

I4-DEC-2017 10:36
S:\Contracts\Special Details\Howerton\Standard Drawings\Division 8\0862d0301.dgn
Howerton AT CSU-292695

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

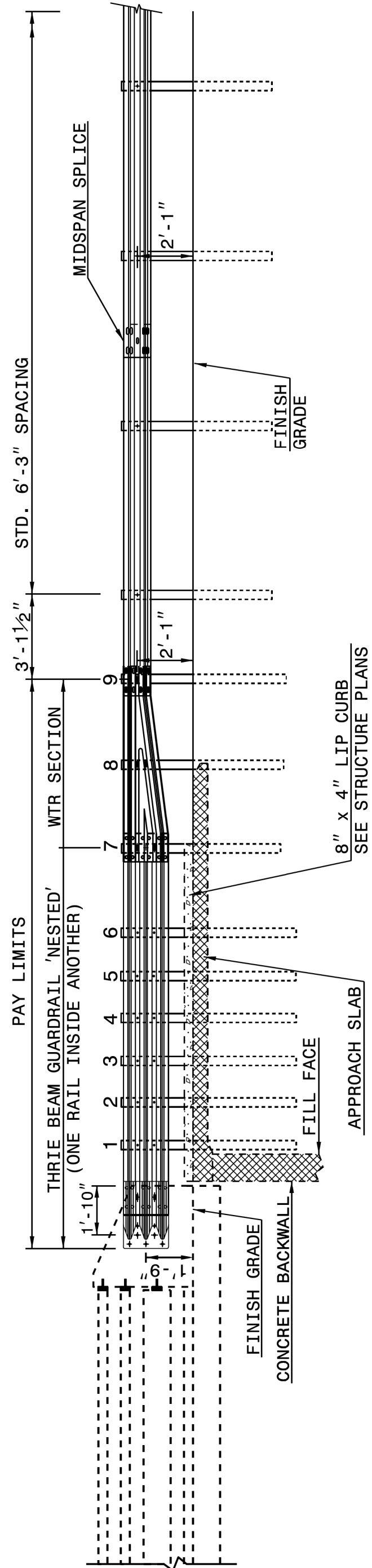
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03

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

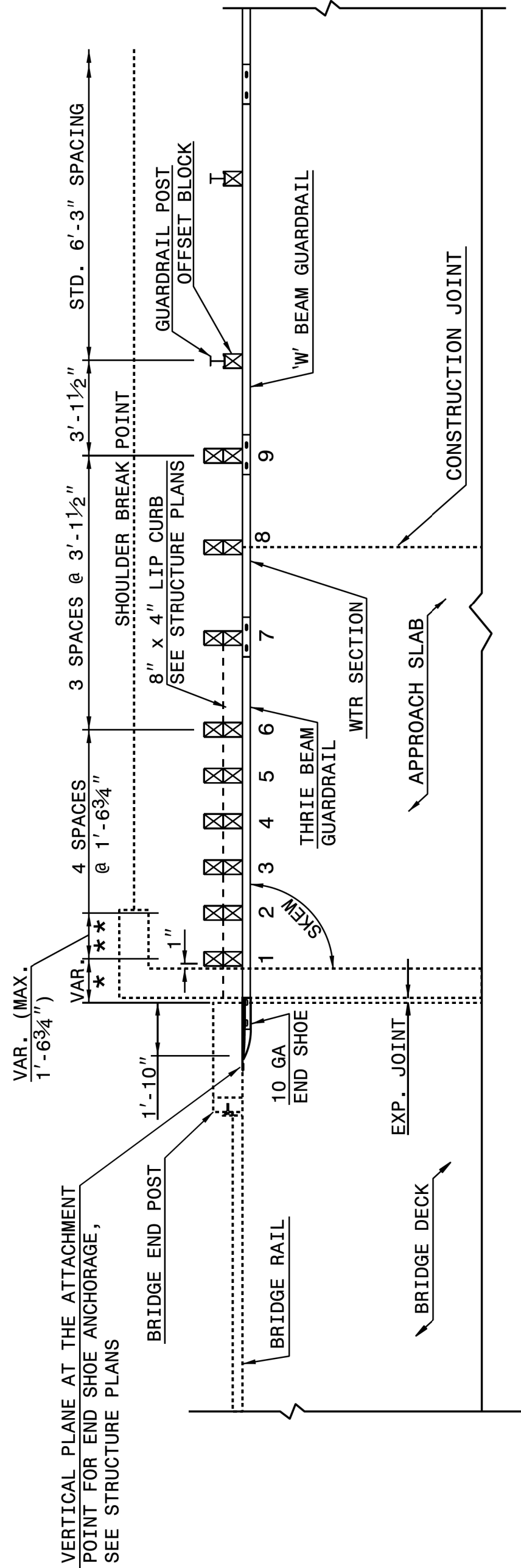
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



**GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE**

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

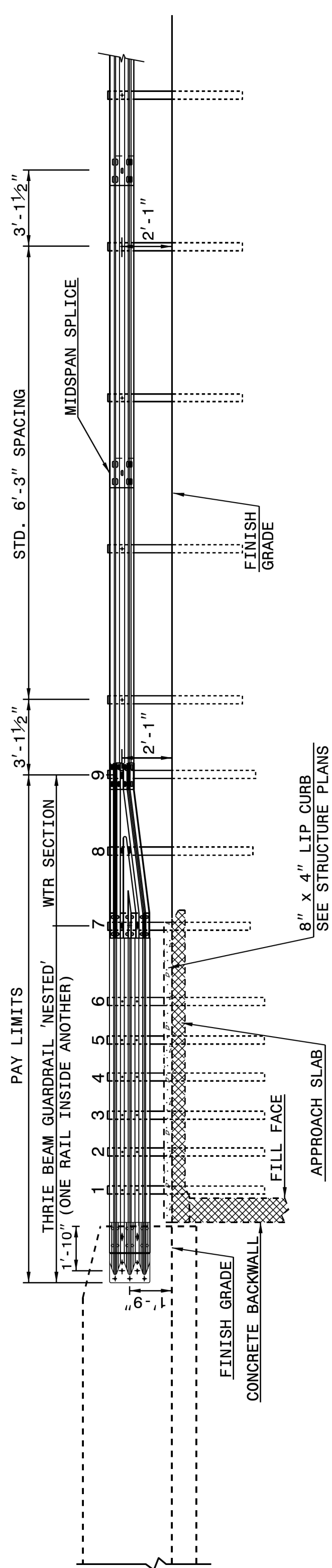
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03

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

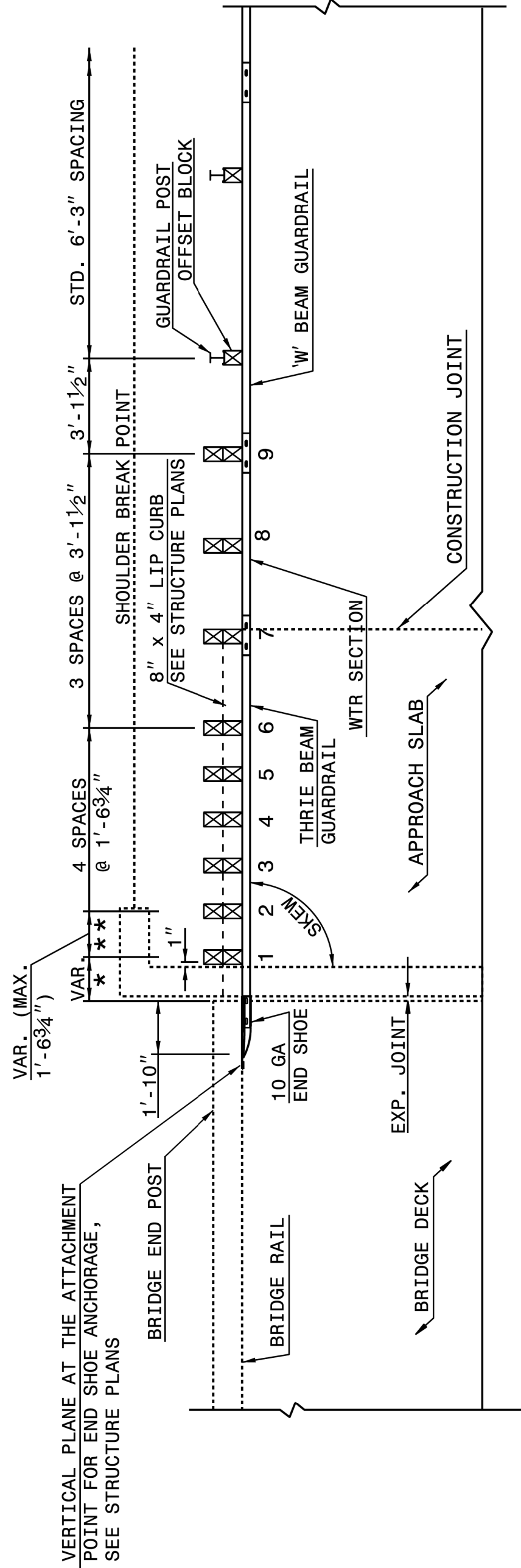
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



**GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER**

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:



COMPUTED BY: _____ TGS _____ DATE: _____ 11/5/18 _____

CHECKED BY: _____ DATE: _____

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK
IN CUBIC YARDS

PROJECT REFERENCE NO.

17BP.4R.9I

SHEET NO.

3B-1

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

STATION	STATION	EXCAVATION		EMBANKMENT	BORROW	WASTE
		TOTAL UNCLASSIFIED	UNDERCUT	EMBANKMENT + 25%		TOTAL
-L- 16 + 30.00	-L- 19 + 06.13	82		338	256	
-L- 19 + 79.17	-L- 21 + 81.00	208		407	199	
SUMMARY TOTAL		290		745	455	
SHOULDER MATERIAL				12	12	
PROJECT TOTALS		290		757	467	
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT					23	
GRAND TOTAL		290			490	
SAY		300			500	

NOTE: 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."

COMPUTED BY: TGS DATE: 11/5/18

CHECKED BY: DATE:

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.

17BP.4.R.9I

SHEET NO.

3B-2

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

"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 GUARDRAIL END UNIT, TYPE TL-3
NG = NON-GATING GUARDRAIL END UNIT, TYPE TL-3

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE 350			TERMINAL SECTIONS	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	GREU TL-3	TEMP GREU TL-3	TYPE III	TEMP TYPE III	EA	G	NG				
-L-	18+26.80	19+08.05	LT	81.25				19+08.05	5'-5"	8'-5"		50		1	1		1								
-L-	18+01.80	19+08.05	RT	106.25			19+08.05		5'-5"	8'-5"	50		1		1		1								
-L-	19+78.05	20+59.30	LT	81.25			19+78.05		4'-8"	7'-8"	50		1		1		1								
-L-	19+78.05	21+09.30	RT	131.25				19+78.05	6'-2"	9'-2"		50		1	1		1								
			SUBTOTAL	400.00																					
	LESS ANCHOR DEDUCTIONS																								
	GREU TL-3	4 @ 50'	=	200.00																					
	TYPE III	4 @ 18.75'	=	75.00																					
			TOTAL	125.00											4		4								
			SAY	125																					
	ADDITIONAL GUARDRAIL POSTS = 5 EA																								

SUMMARY OF SHOULDER BERM GUTTER			
LINE	STATION TO STATION	LOCATION	LENGTH (LF)
-L-	18+55.00 TO 18+96.05	RT	41.05
-L-	19+90.03 TO 20+50.00	RT	59.97
TOTAL			101.02
SAY			110

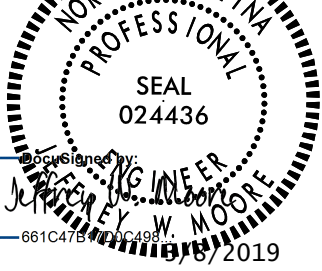
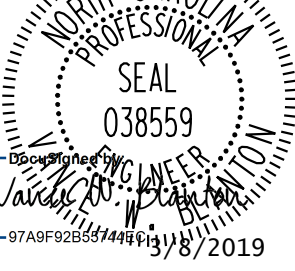
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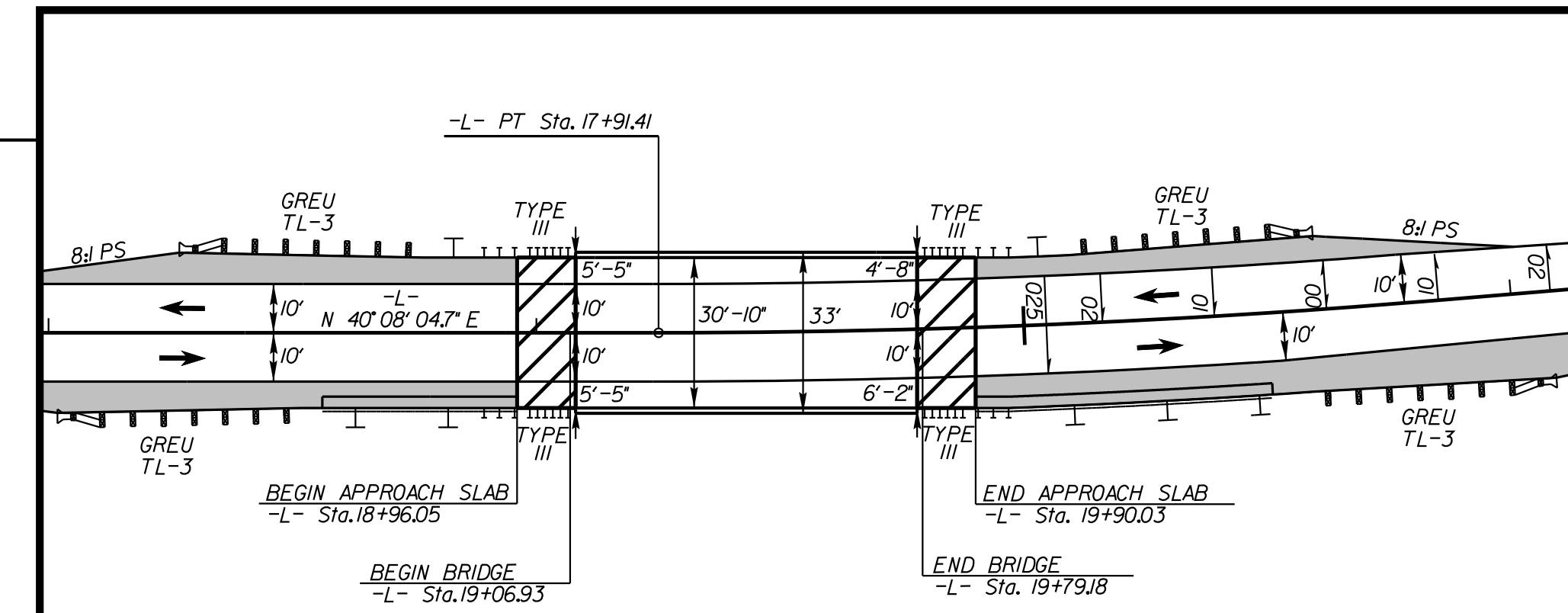
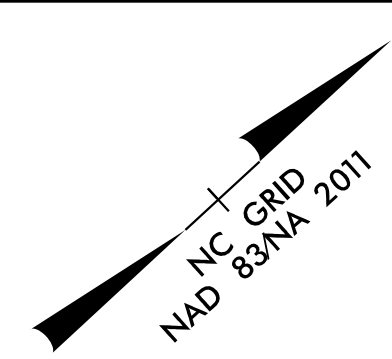
PROJECT TOTALS

Kimley » Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.		SHEET NO.	
17BP.4.R.9I		4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY ENGINEER		HYDRAULICS ENGINEER	
			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



SKETCH SHOWING BRIDGE /PAVEMENT RELATIONSHIP

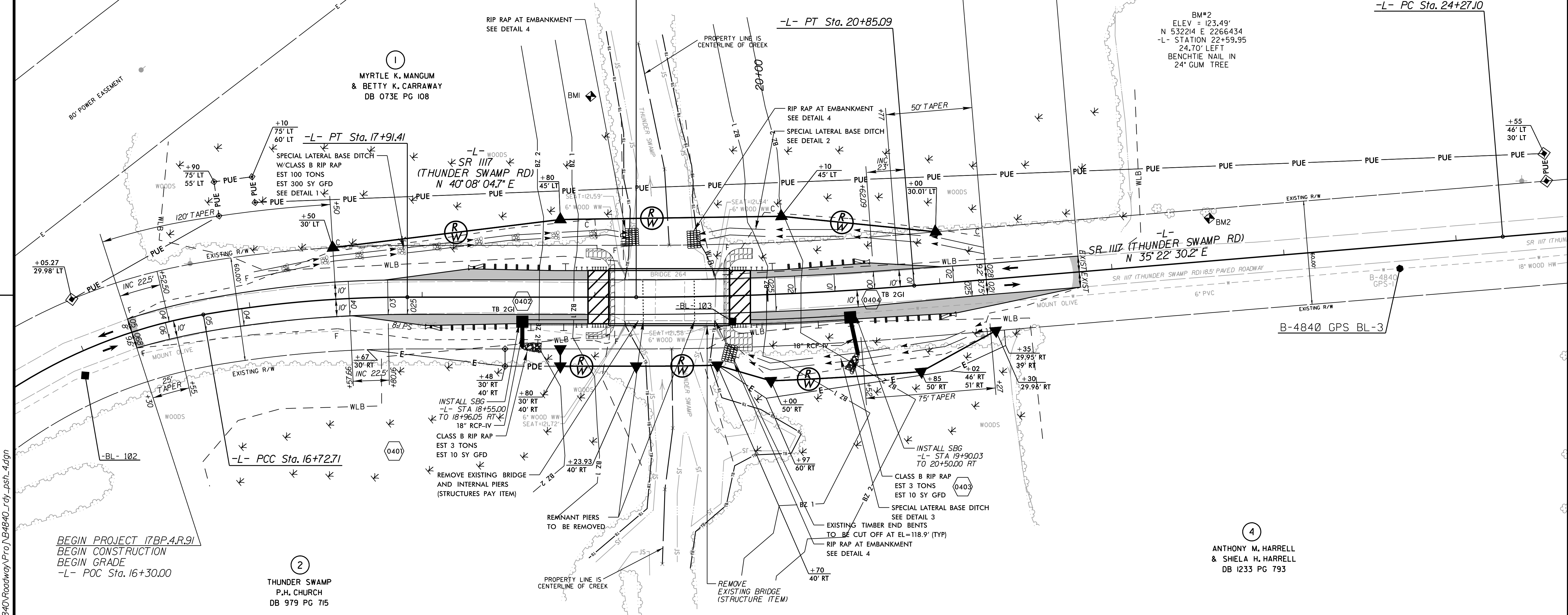
PI Sta 12+78.37	PI Sta 15+71.68	PI Sta 17+32.20	PI Sta 20+04.56
$\Delta = 0^\circ 39' 08.4''$ (RT)	$\Delta = 40^\circ 29' 34.4''$ (RT)	$\Delta = 9^\circ 46' 18.7''$ (RT)	$\Delta = 4^\circ 45' 34.5''$ (LT)
$D = 0^\circ 10' 41.5''$	$D = 19^\circ 09' 44.9''$	$D = 8^\circ 13' 55.7''$	$D = 2^\circ 57' 12.2''$
$L = 366.05'$	$L = 211.31'$	$L = 118.70'$	$L = 161.16'$
$T = 183.03'$	$T = 110.29'$	$T = 59.50'$	$T = 80.62'$
$R = 32,151.24'$	$R = 299.00'$	$R = 696.00'$	$R = 1,940.00'$
	$SE = 0.04$	$SE = 0.04$	$SE = 0.025$
	$RO = 90^\circ$	$RO = 90^\circ$	$RO = 57.50^\circ$
	$DS = 30$ MPH	$DS = 40$ MPH	$DS = 30$ MPH

BM#1
ELEV = 121.22'
N 531986 E 2266149
-L- STATION 18+99.39
108.35' LEFT
BENCHTIE NAIL IN
14\"/>

LEONARD E. CRUMPLER
& ADELAIDE CRUMPLER
DB 1632 PG 287

END MILLING & RESURFACING
END PROJECT 17BP.4.R.9I
END CONSTRUCTION
-L- POT Sta. 21+81.00

END GRADE
BEGIN MILLING & RESURFACING
-L- POT Sta. 21+27.00



BEGIN PROJECT 17BP.4.R.9I
BEGIN CONSTRUCTION
BEGIN GRADE
-L- POC Sta. 16+30.00

THUNDER SWAMP
P.H. CHURCH
DB 979 PG 715

ANTHONY M. HARRELL
& SHIELA H. HARRELL
DB 1233 PG 793

DETAIL 1
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=3 Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 17+00 TO STA. 19+20 -L- LT

DETAIL 2
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Min. D=2.0 Ft.
B=4.0 Ft.

FROM STA. 19+60 TO STA. 21+27 -L- LT

DETAIL 3
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Min. D=1.5 Ft.
B=4.0 Ft.

FROM STA. 19+79 TO STA. 21+25 -L- RT

DETAIL 4
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= 8 TONS, Class B Rip-Rap
Geotextile= 20 SY

FROM STA. 19+20 TO STA. 19+30 -L- LT
FROM STA. 19+50 TO STA. 19+60 -L- LT
FROM STA. 19+69 TO STA. 19+79 -L- RT

SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-12 FOR STRUCTURE PLANS

3/7/2019 K:\PAL_Roadway\01036459 - B-4840\Roadway\Proj\B4840_Lrdy_psh_L.dgn



K:\RAL_Roadway\01036459 - B-4840\Traffic\TrafficControl\CP\B4840_TMP-1.dgn

12/11/2018

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.91	TMP - 1

TRANSPORTATION MANAGEMENT PLAN
WAYNE COUNTY

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, MANAGEMENT STRATEGIES, GENERAL NOTES, PHASING NOTES
TMP-2	OFFSITE DETOUR SHEET

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 JANAUARY 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
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

MANAGEMENT STRATEGIES

CONSTRUCTION SUMMARY:
PROPOSED BRIDGE REPLACEMENT WILL BE CONSTRUCTED AWAY FROM TRAFFIC USING A ROAD CLOSURE AND DETOUR ROUTE.

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.

GENERAL NOTES CONTINUED...

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 PERMANENT SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.
- D) PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTES AS SHOWN IN THE TRAFFIC CONTROL PLANS.
- E) COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
- F) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

- H) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

PHASING

- STEP 1: USING ROADWAY STANDARD DRAWING NUMBER 1101.03, SHEET 1 OF 9, AND SHEET TMP-2, PERFORM THE FOLLOWING:
- INSTALL ALL ROAD CLOSURE AND DETOUR SIGNING, INCLUDING BARRICADES
- IMPLEMENT A TEMPORARY CLOSURE OF SR 1117 (THUNDER SWAMP RD) USING A DETOUR ALONG SR 1140 (HARRELL'S HILL RD), AND NC-55. ALLOW LOCAL TRAFFIC ACCESS ALONG SR 1117 (THUNDER SWAMP RD) TO APPROXIMATELY 0.09 MILES NORTH AND 0.12 MILES SOUTH OF BRIDGE #264 (JUST AFTER THE FINAL DRIVEWAYS PRIOR TO THE BRIDGE.)
- STEP 2: REMOVE EXISTING BRIDGE #264 AND CONSTRUCT THE PROPOSED BRIDGE AND APPROACHES AS SHOWN IN THE CONSTRUCTION PLANS.
- STEP 3: INSTALL ALL FINAL PAVEMENT MARKINGS.
- STEP 4: REMOVE ALL TRAFFIC CONTROL SIGNING AND DEVICES AND OPEN SR 1117 (THUNDER SWAMP RD) TO THE FINAL TRAFFIC PATTERN.

Kimley»Horn

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Raleigh, North Carolina 27601
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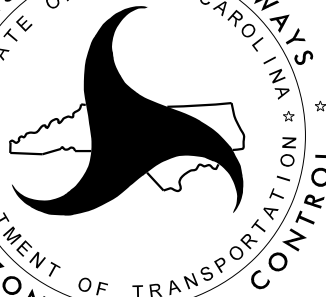
APPROVED: DATE: 12/12/2018

SEAL

DocuSigned by
Jeff Moore

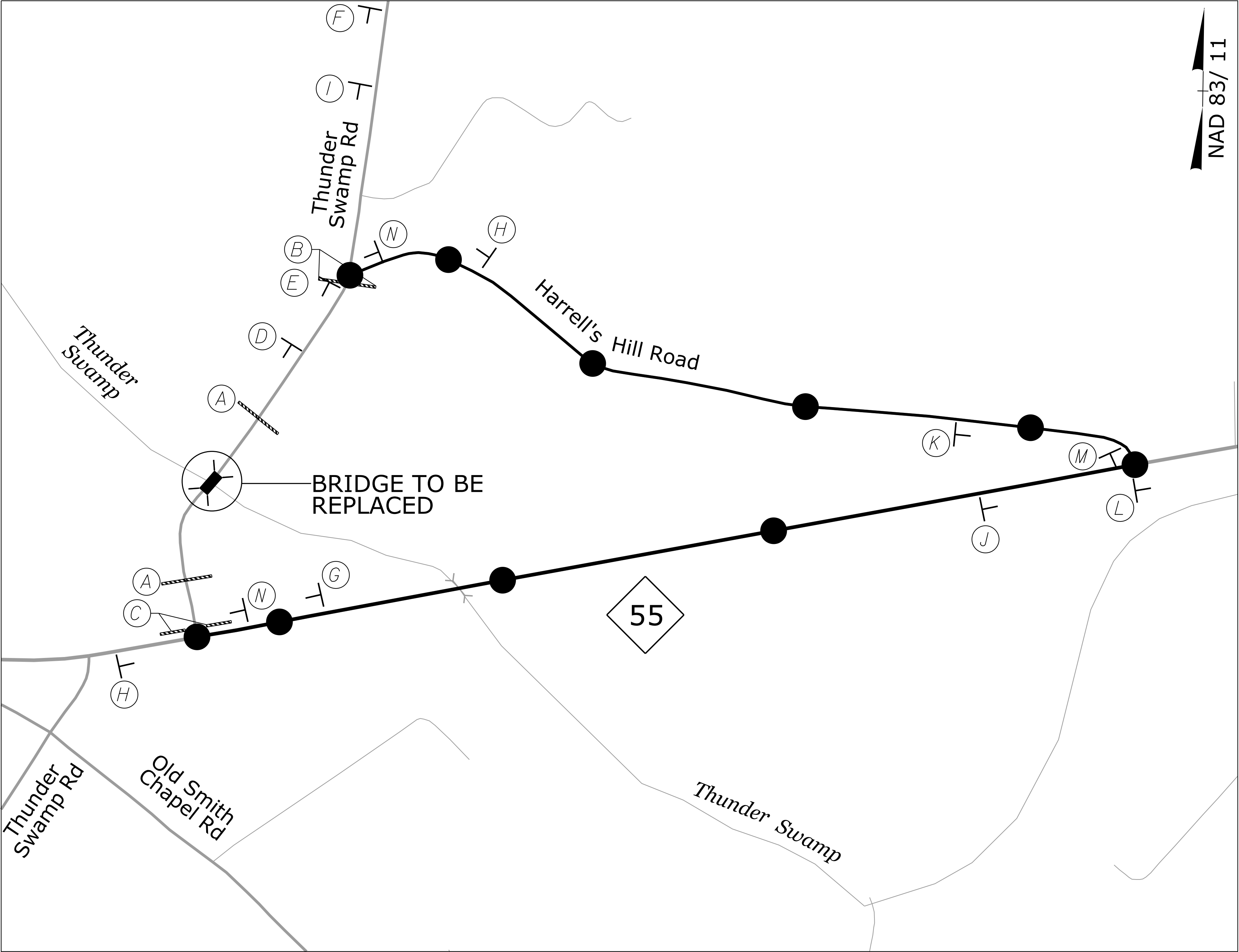
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

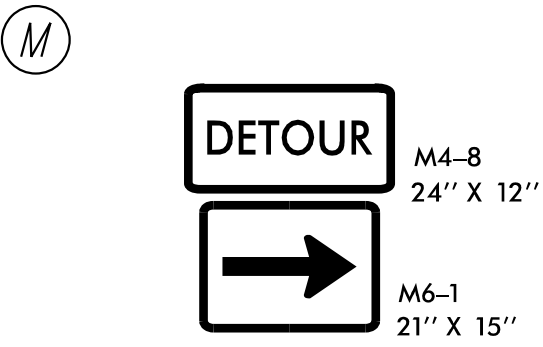
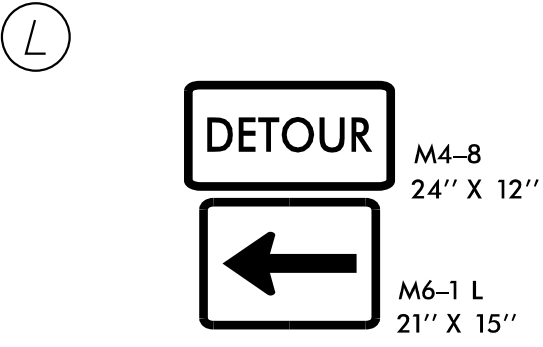
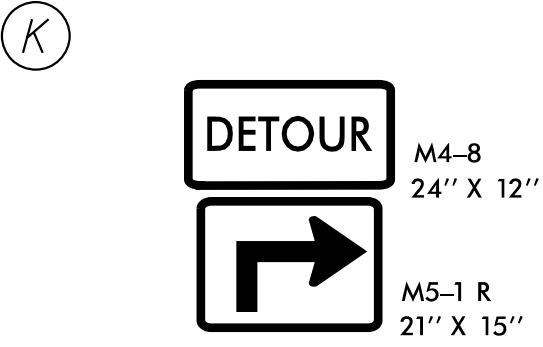
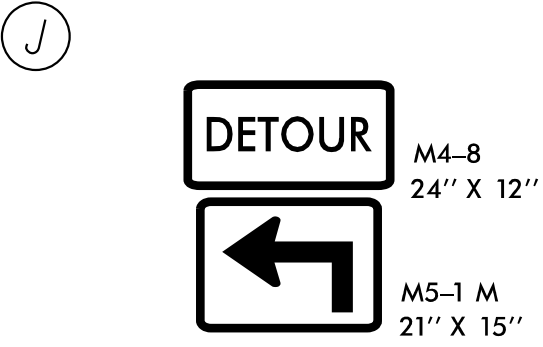
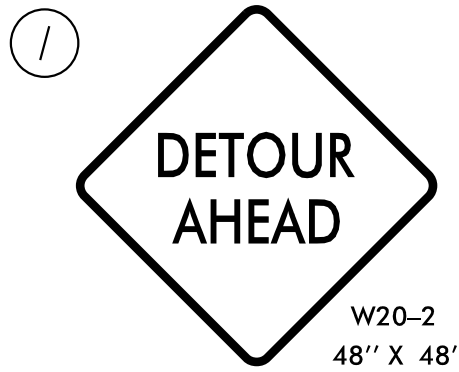
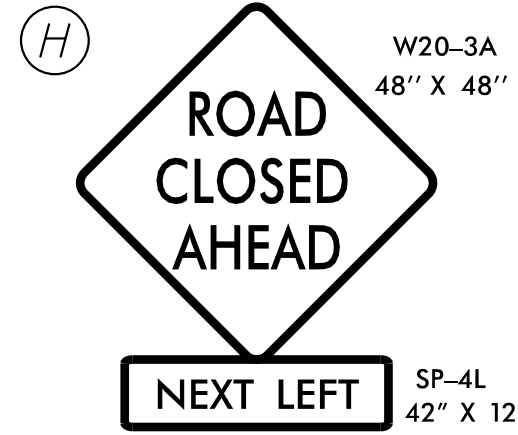
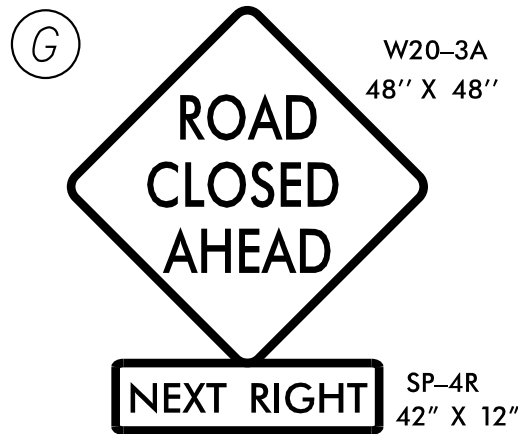
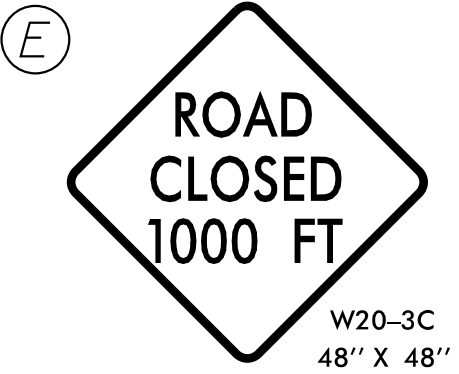
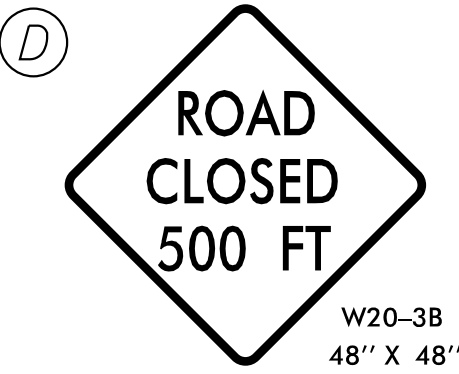
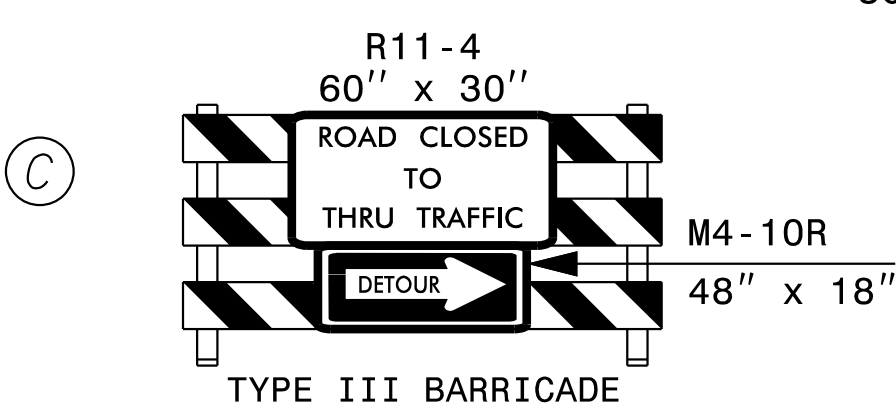
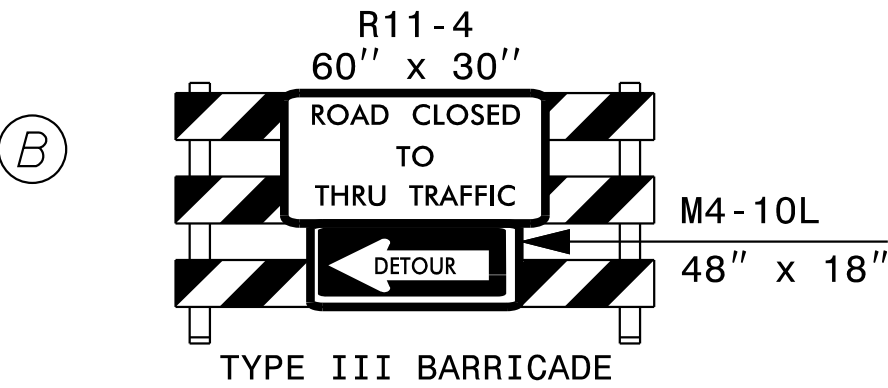
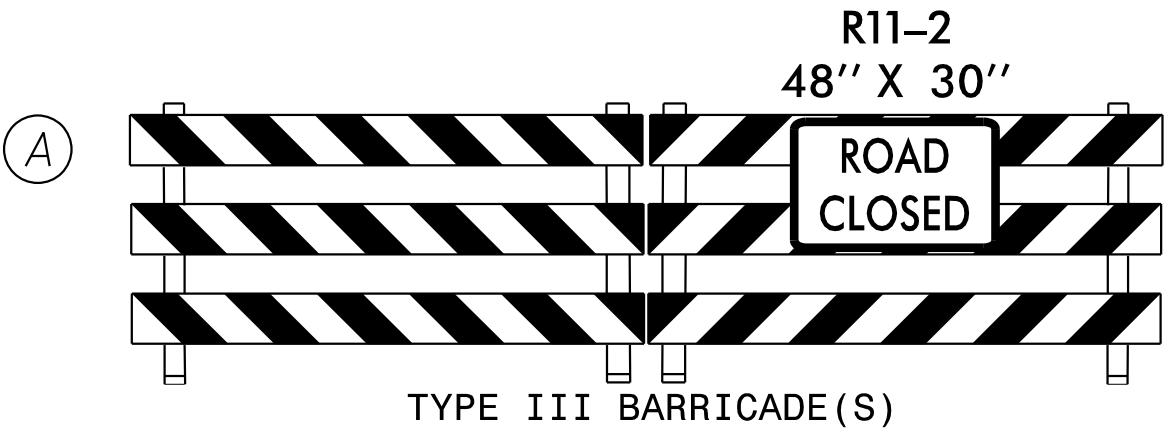


TRANSPORTATION
OPERATIONS
PLAN

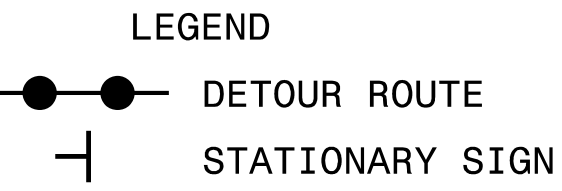
PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.91	TMP - 2



SCALE: 1" = 400'



NOTE:
REFER TO RSD 1101.03 SHEET 1 OF 9
FOR ADVANCE WARNING SIGNAGE
AND BARRICADE PLACEMENT



Kimley»Horn

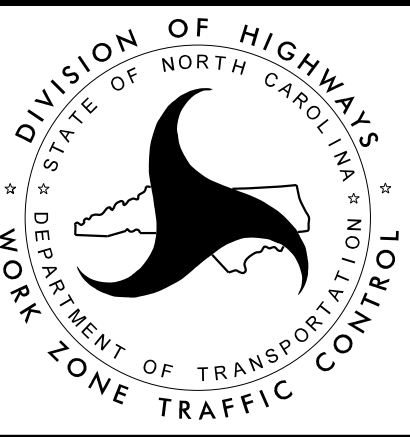
421 Fayetteville Street, Suite 600
Raleigh, North Carolina 27601
© 2018 PE NO. F-0102

APPROVED: _____ DATE: 12/12/2018

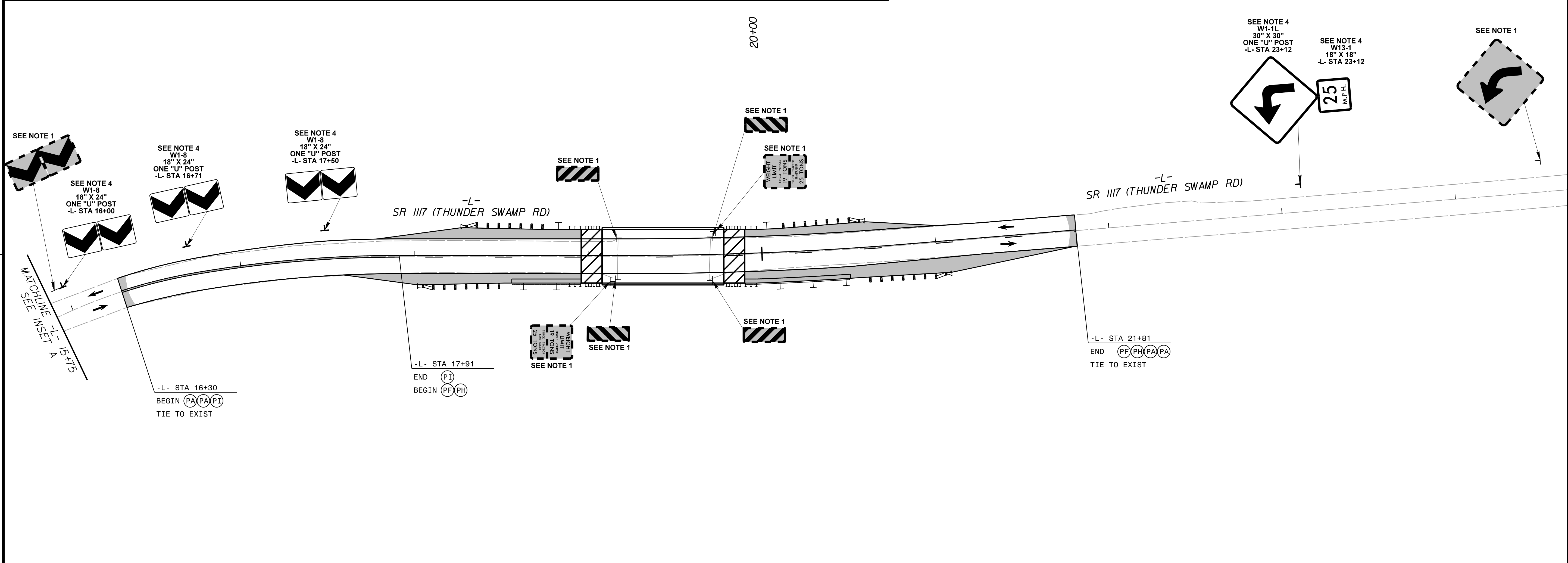
SEAL

DocuSigned by
Jeff Moon
JEFFREY W. MOORE
081CA7B17D0C488

PROFESSIONAL
ENGINEER
SEAL
024436
NORTH CAROLINA



TRANSPORTATION
OPERATIONS
PLAN

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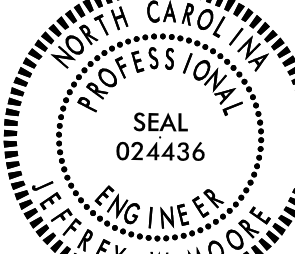
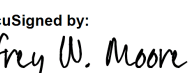
PA - PAINT (4" WHITE, TWO COATS) EDGELINE
PI - PAINT (4" YELLOW, TWO COATS) DOUBLE CENTER
PF - PAINT (4" YELLOW, TWO COATS) 10' SKIP
PH - PAINT (4" YELLOW, TWO COATS) SINGLE CENTER

1. CONTRACTOR TO TIE PROPOSED MARKINGS TO EXISTING MARKINGS AT PROJECT LIMITS.
2. CONTRACTOR SHALL MILL ANY EXISTING MARKINGS OR SYMBOLS IN CONFLICT WITH PROPOSED MARKINGS.
3. PAY ITEM NOTE: PAINT PAVEMENT MARKING LINES (4") - 3900 LF

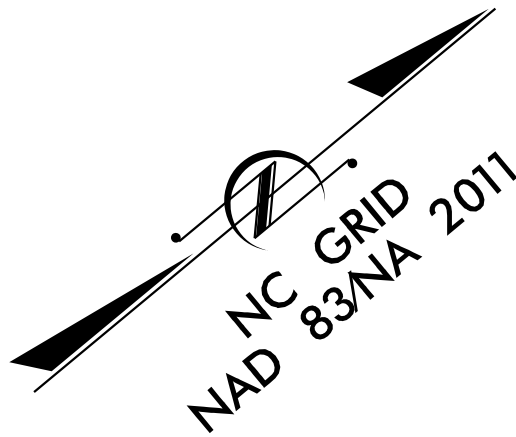
 DENOTES EXISTING SIGN

1. THE BACKGROUND FOR TYPE E SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
2. SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.
3. DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4. SIGN ERECTION, TYPE E

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.91	PMP-1
ROADWAY DESIGN ENGINEER	
	
DocuSigned by:  SA1CF1281770DFA68	
4/11/2019	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

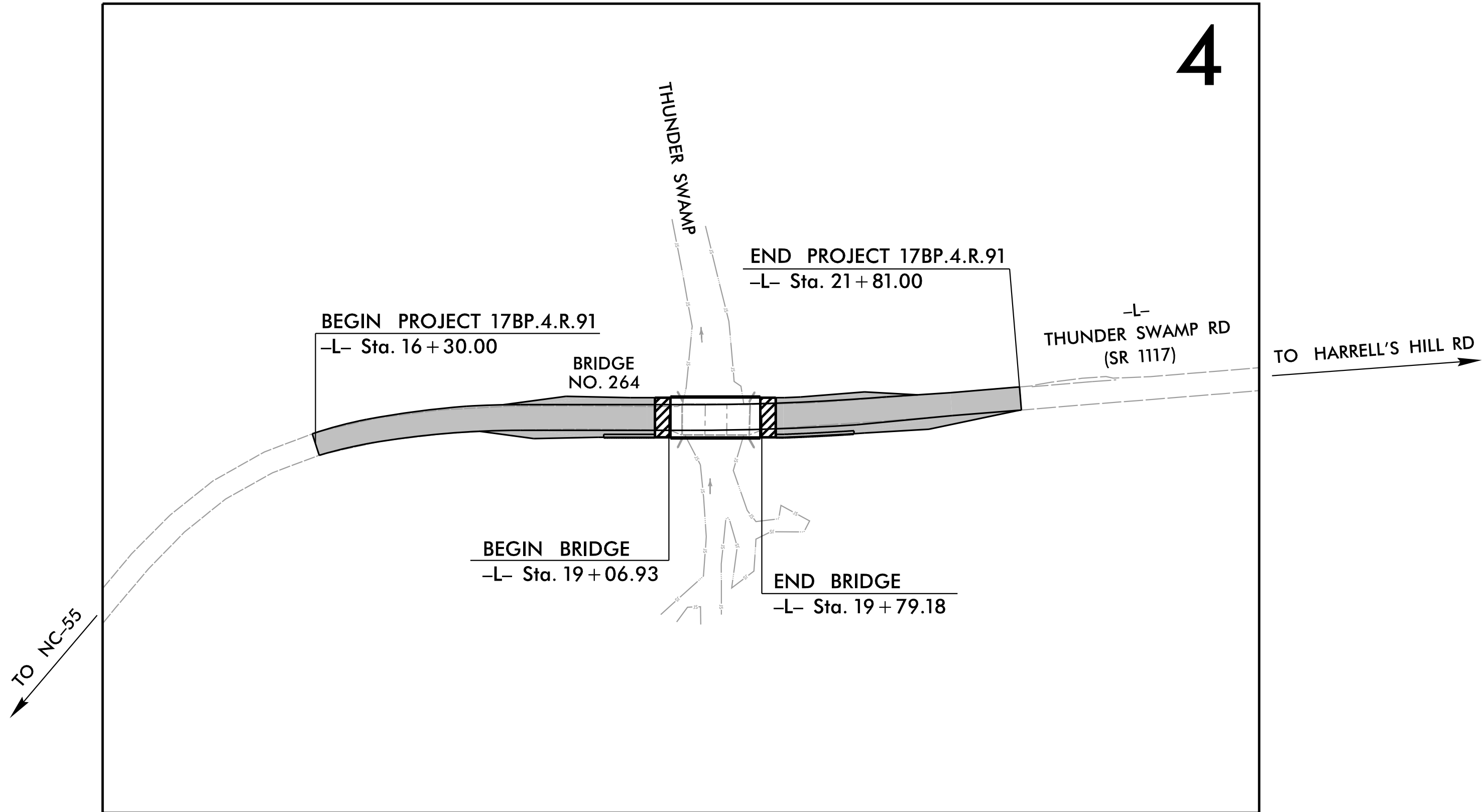
PROJECT: 17BP.4.R.91



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

LOCATION: BRIDGE NO. 264 OVER THUNDER SWAMP
ON SR 1117 (THUNDER SWAMP ROAD)

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.91	EC-1	
STATE PROJ.NO.	F.A. PROJ.NO.	DESCRIPTION	
17BP.4.R.91		P.E.	
17BP.4.R.91		R/W	
17BP.4.R.91		UTILITIES	
17BP.4.R.91		CONSTRUCTION	

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	
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	

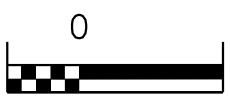
THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.

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.

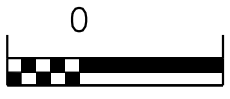
GRAPHIC SCALE



PLANS



PROFILE (HORIZONTAL)



PROFILE (VERTICAL)

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.

Prepared In the Office of:
Kimley»Horn
©2017

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

Designed by:

VANCE BLANTON

NAME

3708

LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:

JEREMY GOODWIN

Roadway Standard Drawings

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

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

PROJECT REFERENCE NO.	SHEET NO.
<i>17BP.4R.91</i>	<i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

[illegible]

MATTING FOR EROSION CONTROL

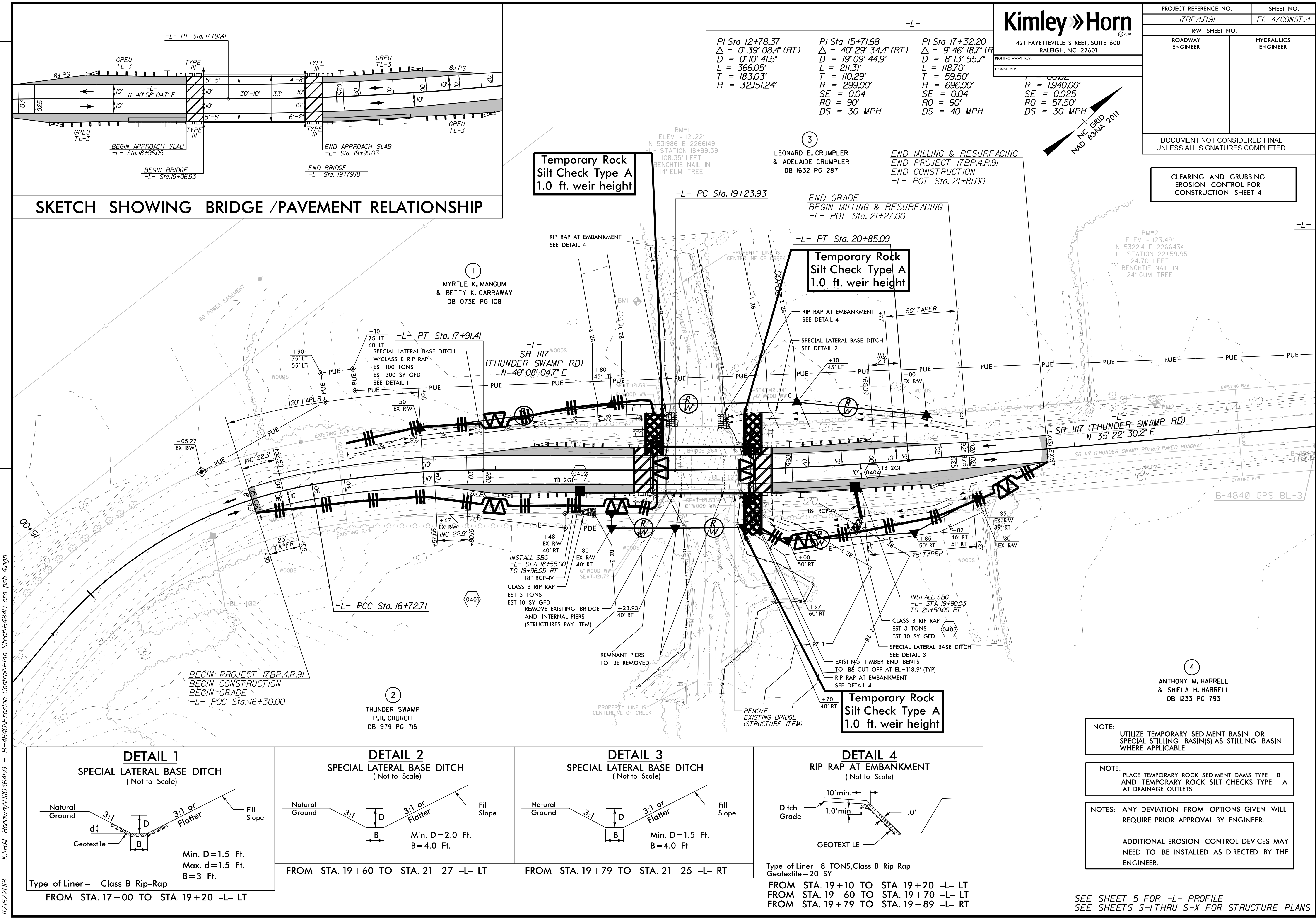
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
17BP4R9I	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQP) 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 HPQ ZONES.



REVISIONS

K:\PAL_Roadway\01036459 - B-4840\Erosion Control\Plan Sheet\B4840_ero_psh.dgn 11/16/2018

Kimley » Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

R = 1,940.00'
SE = 0.025
RO = 57.50'
DS = 30 MPH

NC GRID
NAD 83/NA 2011

PROJECT REFERENCE NO.		SHEET NO.
17BP.4.R.91		EC-4/CONST.4
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY ENGINEER		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

PI Sta 12+78.37 Δ = 0° 39' 08.4" (RT) D = 0° 10' 41.5" L = 366.05' T = 183.03' R = 32151.24'	PI Sta 15+71.68 Δ = 40° 29' 34.4" (RT) D = 19° 09' 44.9" L = 211.31' T = 110.29' R = 299.00' SE = 0.04 RO = 90' DS = 30 MPH	PI Sta 17+32.20 Δ = 9° 46' 18.7" (RT) D = 8° 13' 55.7" L = 118.70' T = 59.50' R = 696.00' SE = 0.04 RO = 90' DS = 40 MPH
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BM#1
ELEV = 121.22'
N 531986 E 2266149
STATION 18+99.39
108.35' LEFT
BENCHMARK NAIL IN
14" ELM TREE

LEONARD E. CRUMPLER
& ADELAIDE CRUMPLER
DB 1632 PG 287

END MILLING & RESURFACING
END PROJECT 17BP.4.R.91
END CONSTRUCTION
-L- POT Sta. 21+81.00

END GRADE
BEGIN MILLING & RESURFACING
-L- POT Sta. 21+27.00

BM#2
ELEV = 123.49'
N 532214 E 2266434
STATION 22+59.95
24.70' LEFT
BENCHMARK NAIL IN
24" GUM TREE

ANTHONY M. HARRELL
& SHIELA H. HARRELL
DB 1233 PG 793



Temporary Rock
Silt Check Type A
1.0 ft. weir height

PI Sta 12+78.37
 $\Delta = 0^\circ 39' 08.4''$ (RT)
 $D = 0^\circ 10' 41.5''$
 $L = 366.05'$
 $T = 183.03'$
 $R = 32151.24'$

PI Sta 15+71.68
 $\Delta = 40^\circ 29' 34.4''$ (RT)
 $D = 19^\circ 09' 44.9''$
 $L = 211.31'$
 $T = 110.29'$
 $R = 299.00'$
 $SE = 0.04$
 $RO = 90'$
 $DS = 30$ MPH

PI Sta 17+32.20
 $\Delta = 9^{\circ} 46' 18.7''$ (R)
 $D = 8^{\circ} 13' 55.7''$
 $L = 118.70'$
 $T = 59.50'$
 $R = 696.00'$
 $SE = 0.04$
 $RO = 90^{\circ}$
 $DS = 40 \text{ MPH}$

Kimley » Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV

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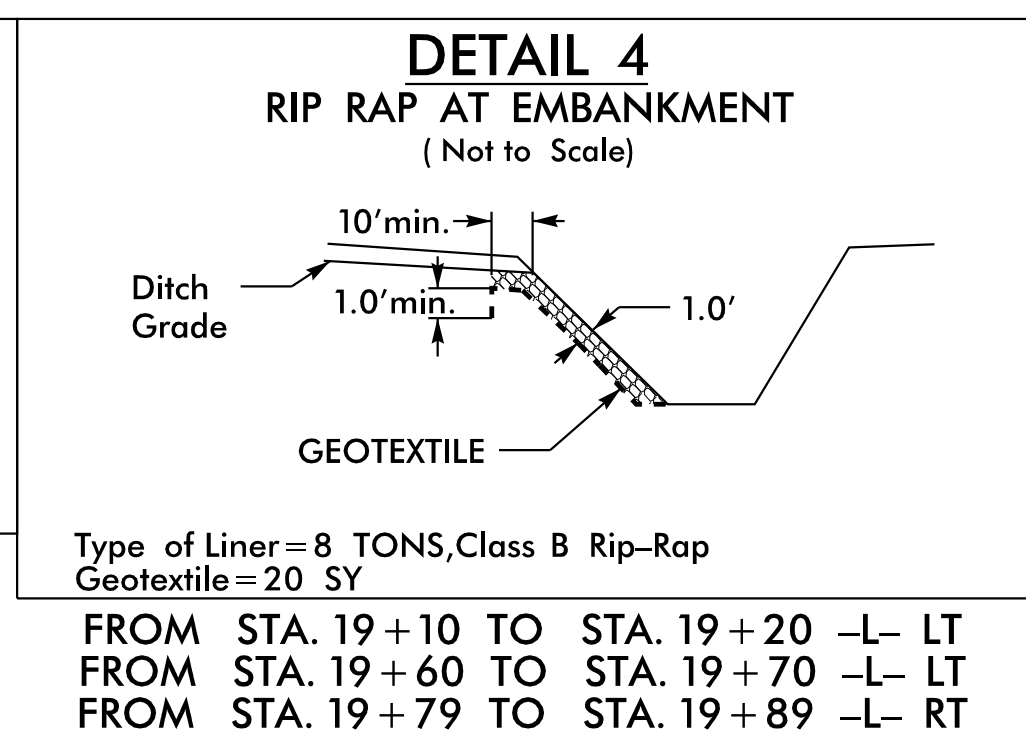
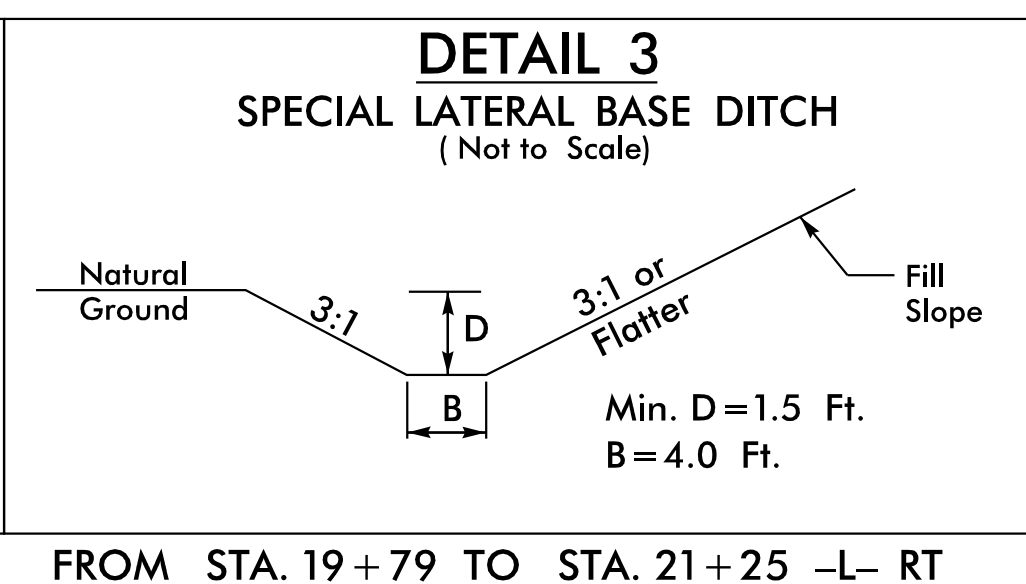
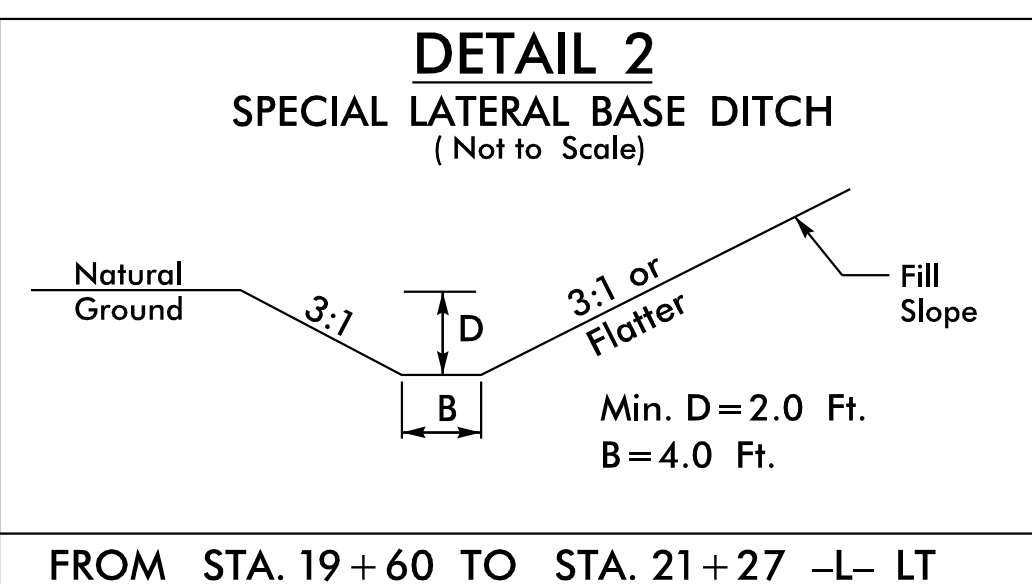
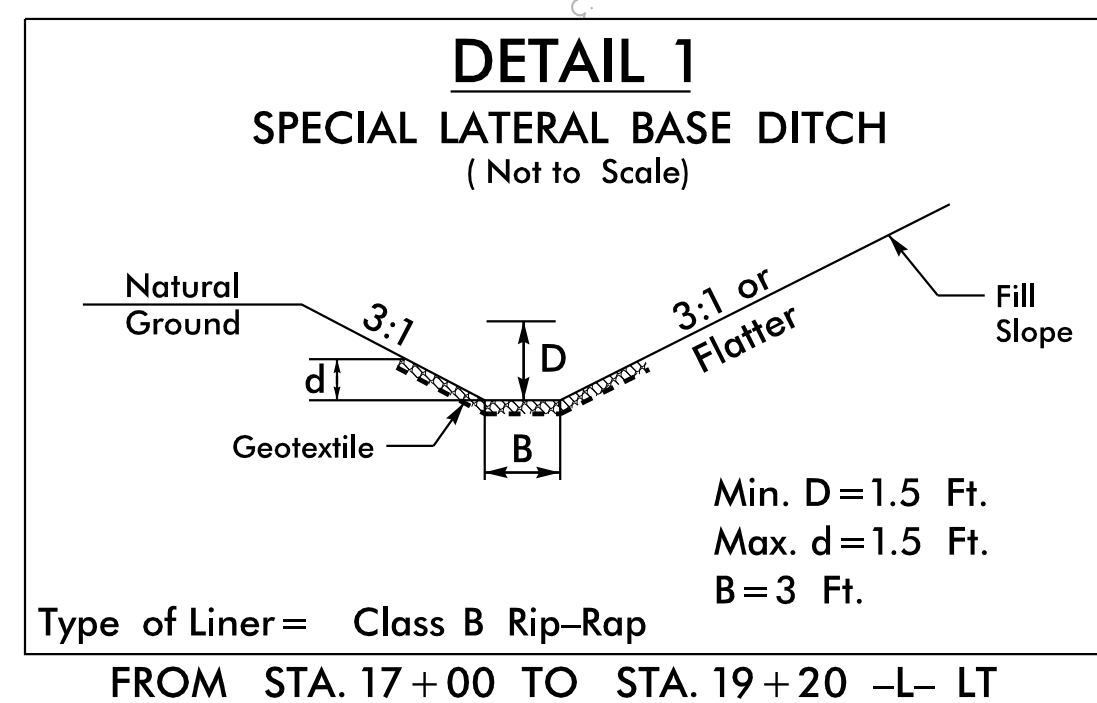
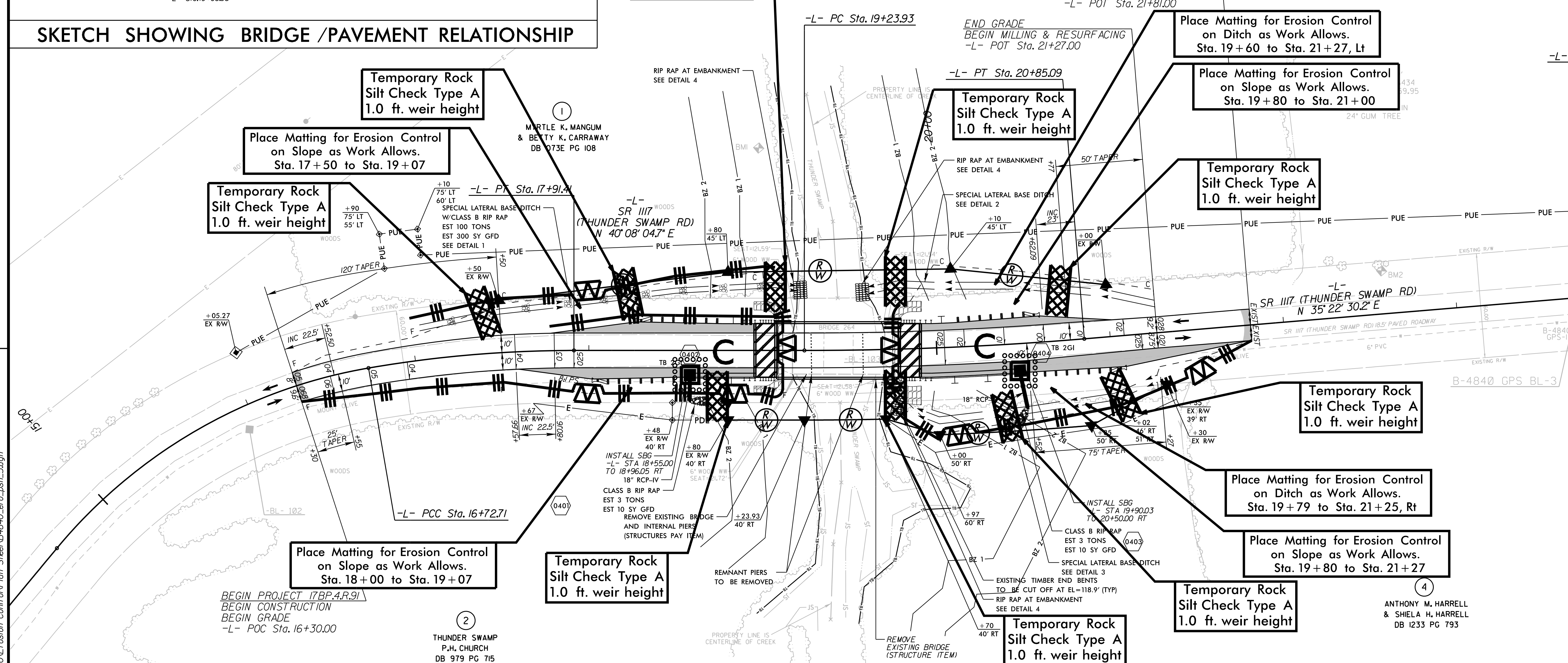
CONST. REV.

$R = 1,940.00'$
 $SE = 0.025$
 $RO = 57.50'$
 $DS = 30 \text{ MPH}$

= 1,940.00'
 = 0.025
 = 57.50'
 = 30 MPH

NC GRID
 NAD 83/NA 2011

PROJECT REFERENCE NO.		SHEET NO.	
17BP.4.R.91		EC-5/CONST. 4	
R/W SHEET NO.			
ROADWAY ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL
REQUIRE PRIOR APPROVAL BY ENGINEER.

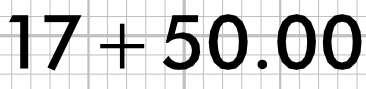
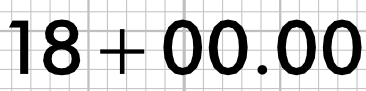
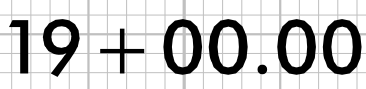
ADDITIONAL EROSION CONTROL DEVICES MAY
NEED TO BE INSTALLED AS DIRECTED BY THE
ENGINEER.

SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-X FOR STRUCTURE PLANS

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.9I	X-1A

17BP.4.R.9I
CROSS SECTION INDEX

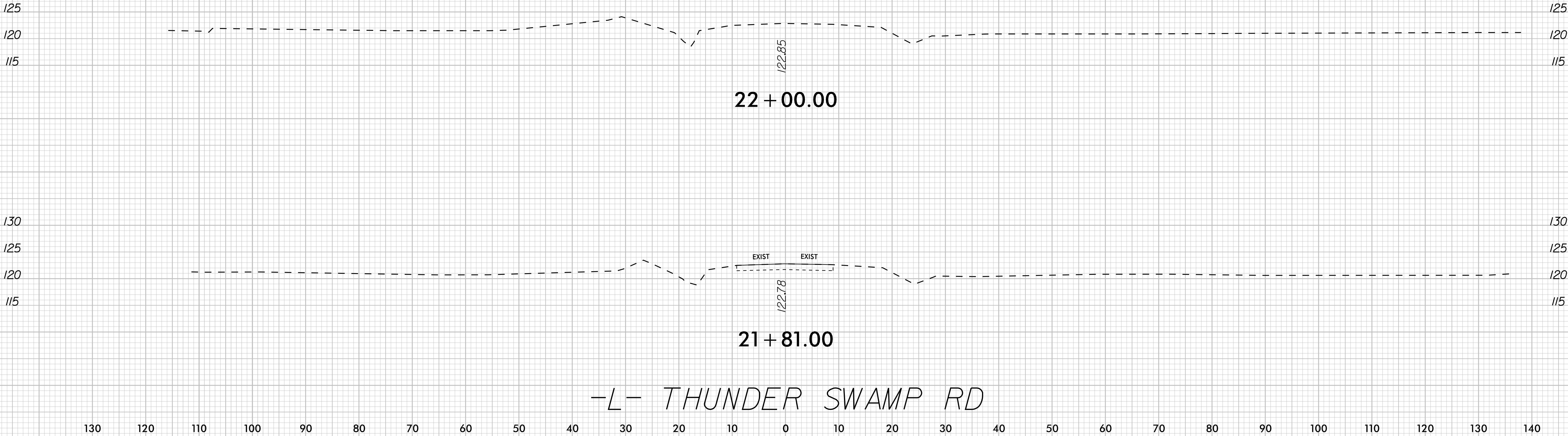
-L- THUNDER SWAMP RD X-1 THRU X-5

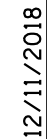


-L- THUNDER SWAMP RD

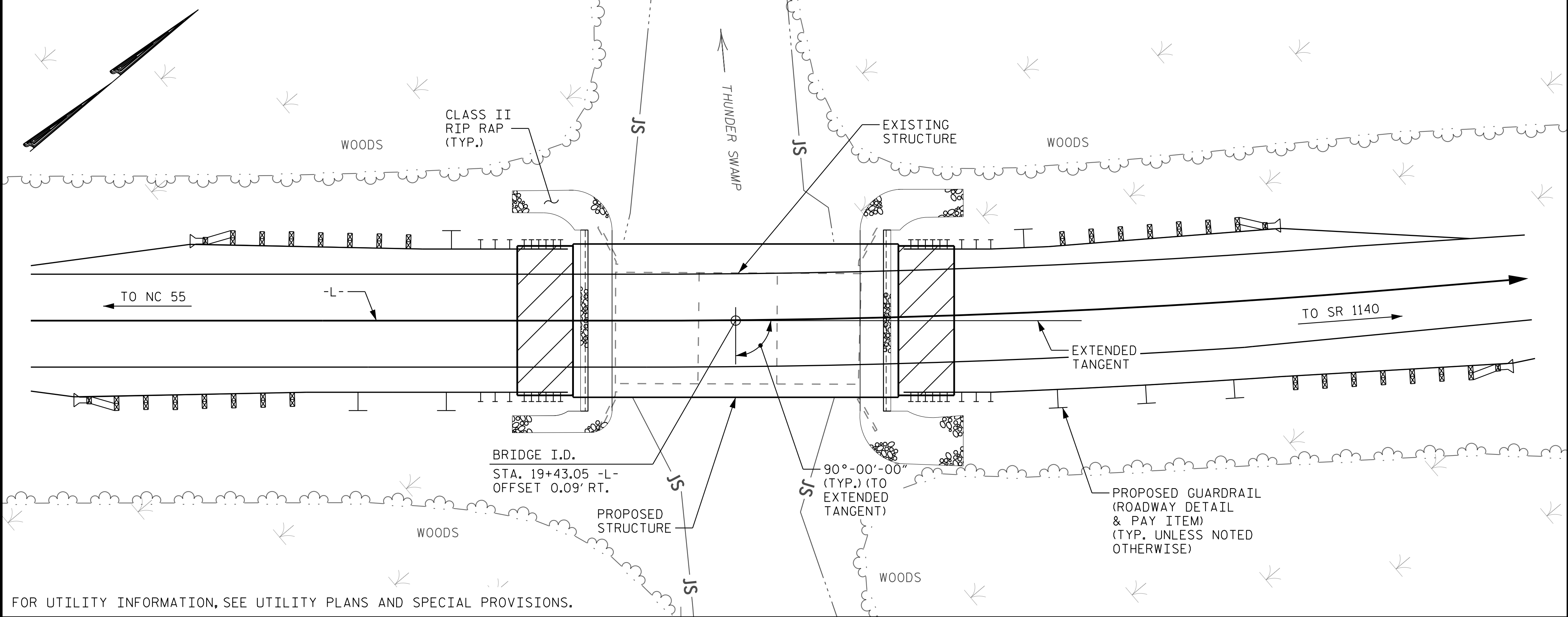
K:\PAL_Roadway\01036459 - B-4840\Roadway\XSC\B4840_rdy_xpl.Ldgn

12/11/2018





BM#1: BENCHTIE RAIL IN 14"ELM TREE,108.35' LT. OF STA.18+99.39 -L-, EL. 121.22'



LOCATION SKETCH

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 EROSION CONTROL MEASURES,SEE EROSION CONTROL PLANS.
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES".
- THE EXISTING STRUCTURE CONSISTING OF 3 SPANS 1 @ 17'-10",1 @ 16'-10"AND 1 @ 17'-11" WITH A CLEAR ROADWAY OF APPROX. 22.9' ON ASPHALT OVERLAY ON CONCRETE DECK ON TIMBER JOISTS WITH TIMBER END BENT AND BENT CAPS AND TIMBER PILES (ENCASED IN CONCRETE) WITH TIMBER VERTICAL ABUTMENTS AND TIMBER WING WALLS AND LOCATED AT THE PROPOSED STRUCTURE,SHALL BE REMOVED. THE EXISTING BRIDGE IS CURRENTLY NOT POSTED.
- REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
- 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 COSTS INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT.EACH SIDE OF @ ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
- FOR CRANE SAFETY,SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK,SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES,SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS,SEE SPECIAL PROVISIONS.
- ASPHALT WEARING COURSE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES,SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP 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)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0"X 2'-0" PRESTRESSED CONCRETE CORED SLABS	ASBESTOS ASSESSMENT
	LUMP SUM	EACH	LUMP SUM	CU.YDS.	LUMP SUM	LBS.	EACH	NO.	LIN.FT.	EACH	LIN.FT.	TON	SQ.YD.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE					LUMP SUM					140.25			LUMP SUM	11 770	
END BENT 1			LUMP SUM	14.4		2,115	7	7	315	3		55	61		
END BENT 2			LUMP SUM	14.4		2,115	7	7	350	3		72	80		
TOTAL	LUMP SUM	1	LUMP SUM	28.8	LUMP SUM	4,230	14	14	665	6	140.25	127	141	LUMP SUM 11 770	LUMP SUM

FOUNDATION NOTES

- FOR PILES,SEE GEOTECHNICAL SPECIAL PROVISIONS AND SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.
- DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 135 TONS PER PILE.
- PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.
- DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 135 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.

HYDRAULIC DATA

DESIGN DISCHARGE ----- 750 C.F.S.
FREQUENCY OF DESIGN FLOOD ----- 25 YRS.
DESIGN HIGH WATER ELEVATION----- 120.6 FT.
DRAINAGE AREA ----- 6.0 SQ. MI.
BASE DISCHARGE (Q100) ----- 1200 C.F.S.
BASE HIGH WATER ELEVATION ----- 121.6 FT.

OVERTOPPING FLOOD DATA

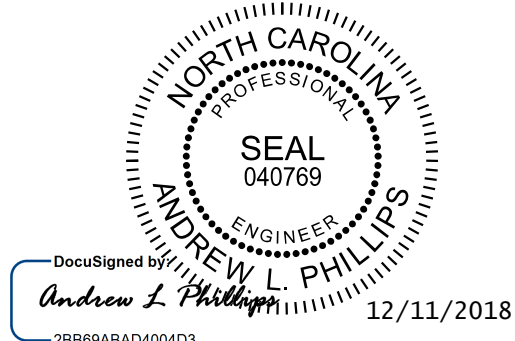
OVERTOPPING DISCHARGE ----- 1900 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD --- >500 YRS.
OVERTOPPING FLOOD ELEVATION ----- 122.8 FT.
OVERTOPPING GRADE 122.8', APPROXIMATE
STA. 21+27.00 -L-

PROJECT NO. 17BP.4.R.91

WAYNE COUNTY

STATION: 19+43.05 -L-

SHEET 2 OF 2



Kimley»Horn

421 Fayetteville Street, Suite 600
Raleigh, NC 27601-1772
Phone (919) 677-2000 NC LICENSE # F-0102

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
THUNDER SWAMP
ON SR 1117 BETWEEN
NC 55 AND SR 1140

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

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.91
WAYNE COUNTY
STATION: 19+43.05 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS

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

SHEET NO.
S-3

TOTAL
SHEETS
13

DocuSigned by:
Andrew L. Phillips
28B69ABAD404D3...

NORTH CAROLINA
PROFESSIONAL
SEAL
040769
ENGINEER
ANDREW L. PHILLIPS

12/11/2018

Kimley»Horn

421 Fayetteville Street, Suite 600
Raleigh, NC 27601-1772
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NC LICENSE #
F-0102

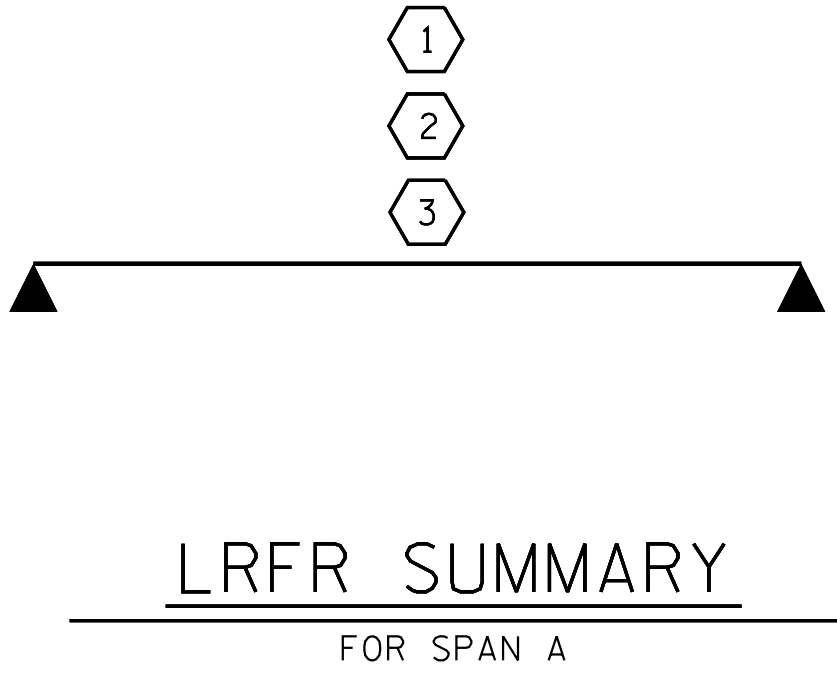
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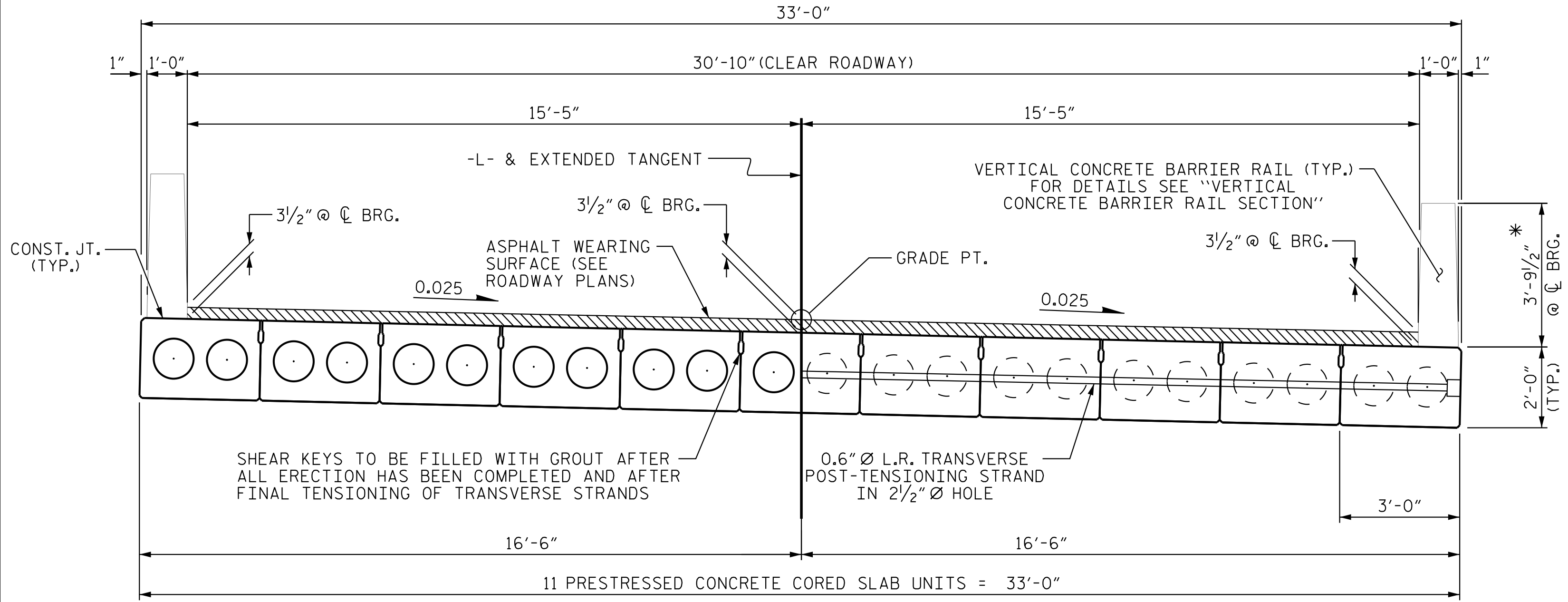
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12/11/2018 K:\RD1_Structures\Bridge\NC\01036459 - Div 4_B-4840\Ccd\Open\7BP.4.R.91_SMU_CD3_950264.dgn

ASSEMBLED BY : D.D. LOWERY	DATE : 12/18
CHECKED BY : M.D. MAGEE	DATE : 12/18
DRAWN BY : CVC 6/10	
CHECKED BY : DNS 6/10	



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	1.006	--	1.75	0.273	1.03	70'	EL	34.5	0.507	1.32	70'	EL	6.9	0.80	0.273	1.01	70'	EL	34.5		
	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	1.31	70'	EL	34.5		
	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	1.01	70'	EL	34.5	



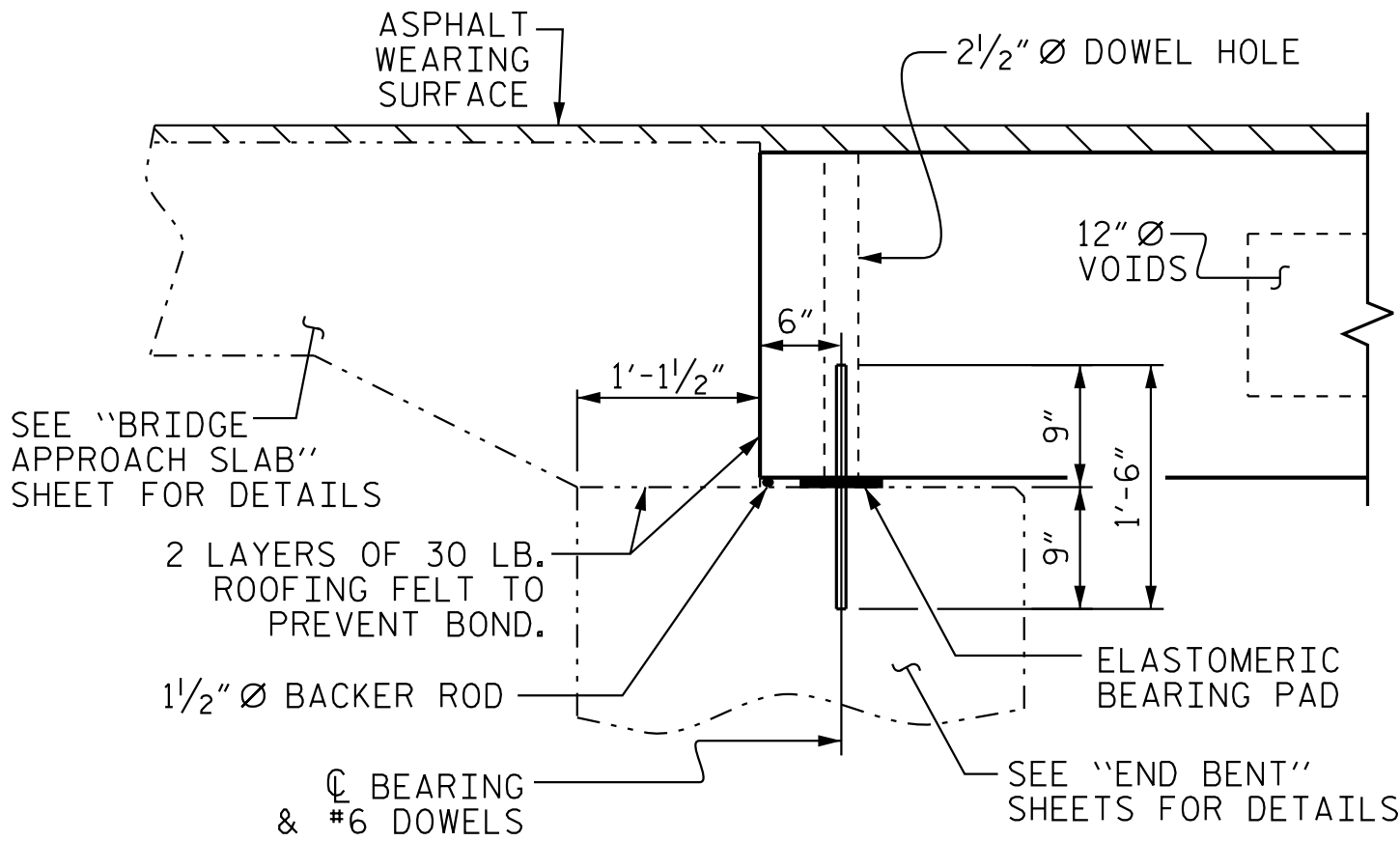
HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

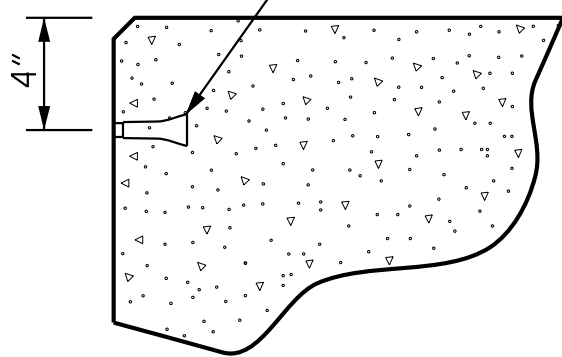
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END

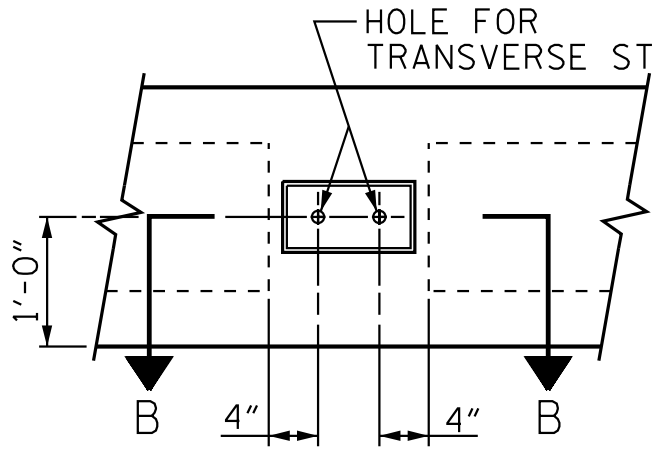


SECTION AT END BENT

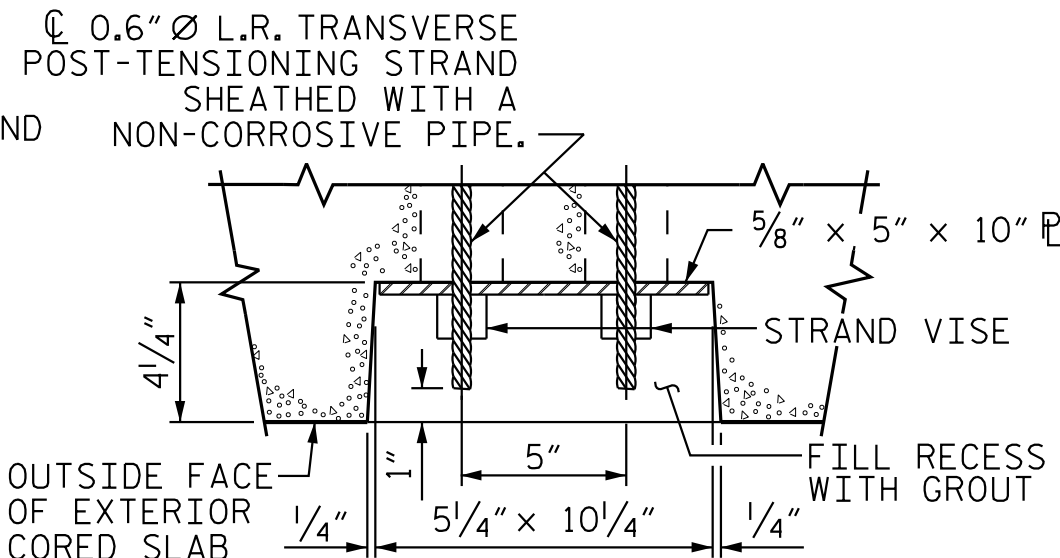
PERMITTED THREADED INSERT
CAST IN OUTSIDE FACE OF
EXTERIOR UNIT AND
RECESSED 3/8" SIZE TO BE
DETERMINED
BY CONTRACTOR.



THREADED INSERT DETAIL

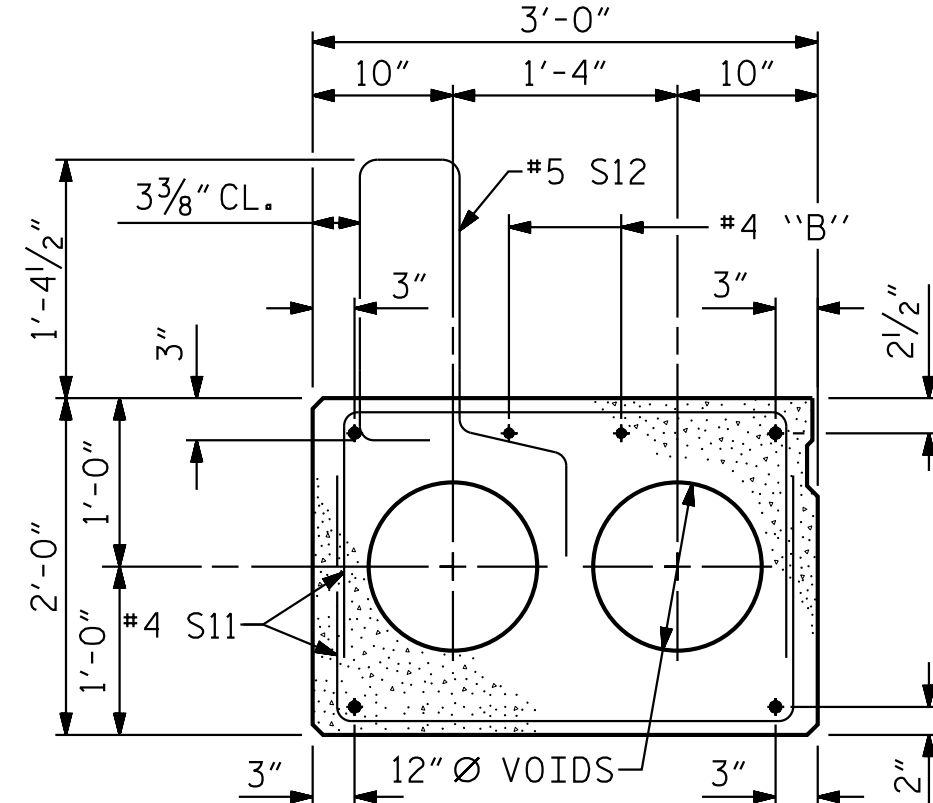


ELEVATION VIEW



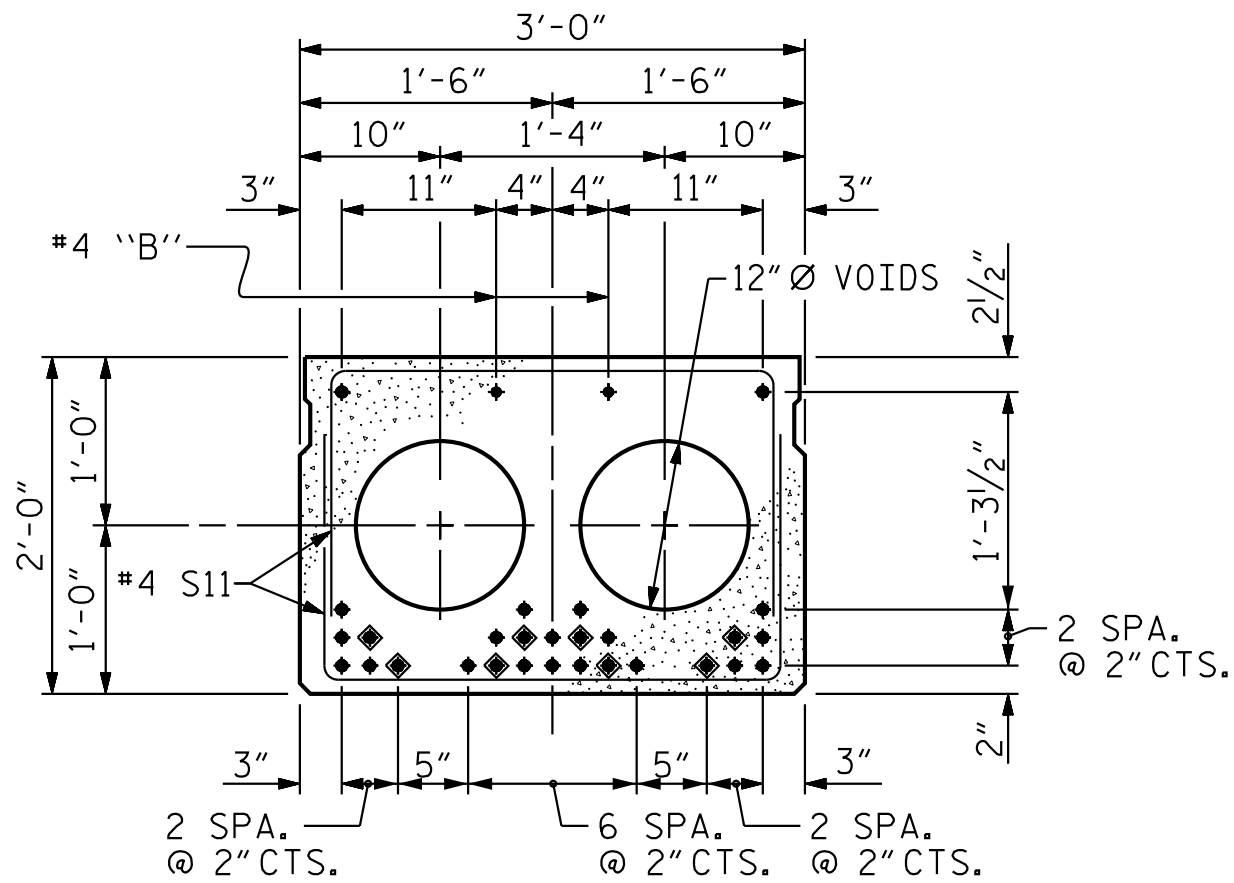
SECTION B-B

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



EXTERIOR SLAB SECTION

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



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

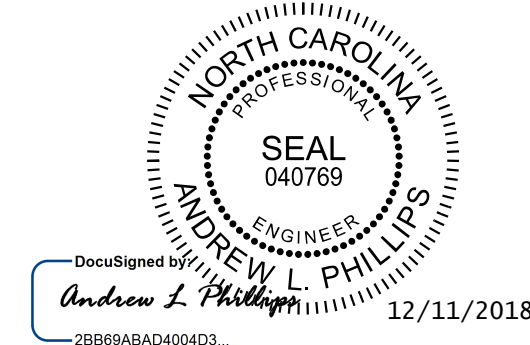
0.6" Ø LOW
RELAXATION STRAND LAYOUT

◆ 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.

DEBONDING LEGEND

PROJECT NO. 17BP.4.R.91
WAYNE COUNTY
STATION: 19+43.05 -L-

SHEET 1 OF 3



Kimley»Horn

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Raleigh, NC 27601-1772
Phone (919) 677-2000 NC LICENSE # F-0102

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

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

**DOCUMENT NOT CONSIDERED FINAL
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DETAIL "B"



DocuSigned by:
Andrew L. Phillips
12/11/2018

REVISIONS						SHEET NO. S-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			

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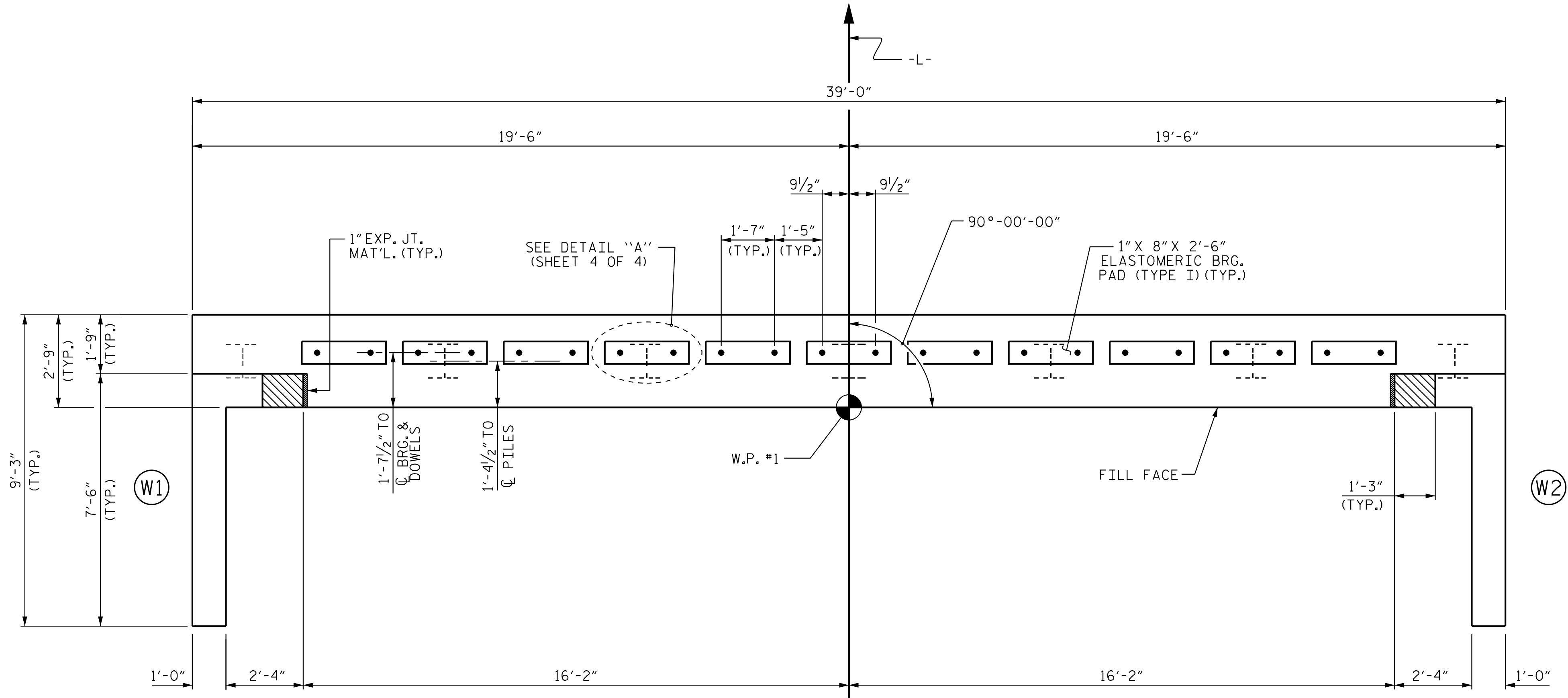
NOTES

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

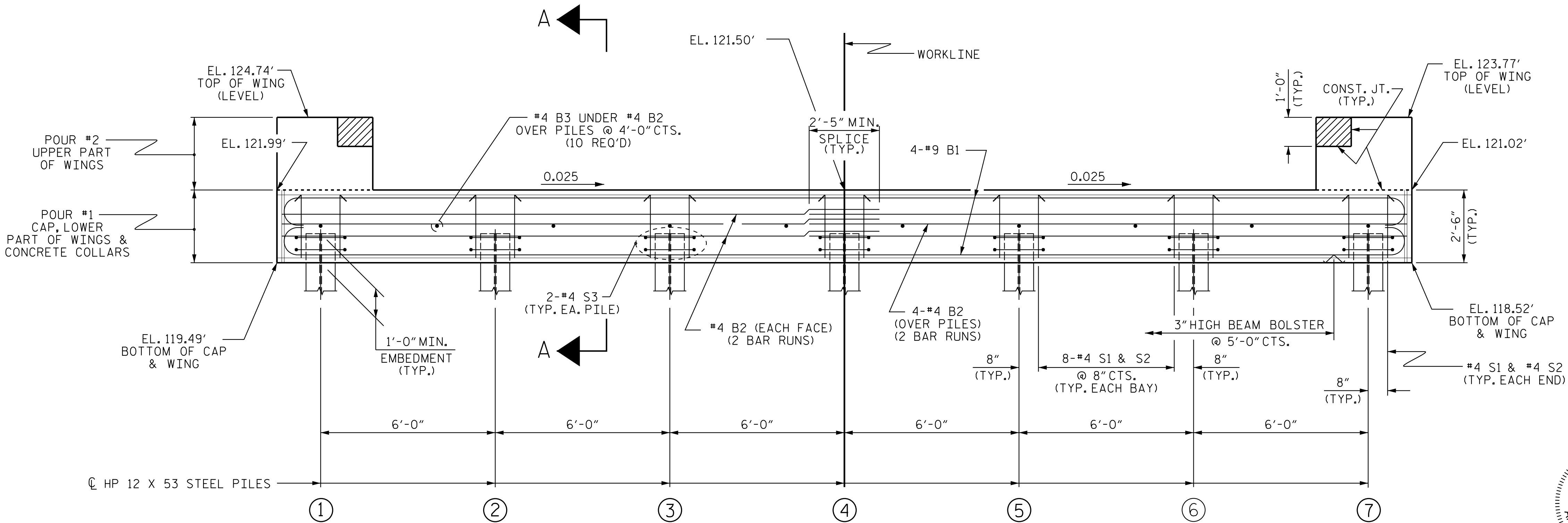
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

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.

TOP OF PILE ELEVATIONS

①	120.45'
②	120.30'
③	120.15'
④	120.01'
⑤	119.86'
⑥	119.71'
⑦	119.56'

PROJECT NO. 17BP.4.R.91

WAYNE COUNTY

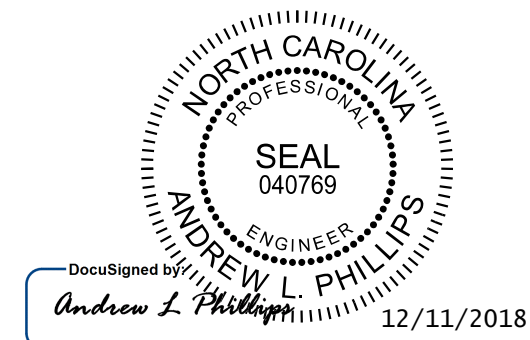
STATION: 19+43.05 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1

REVISIONS						SHEET NO. S-8
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			



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ASSEMBLED BY : D.D. LOWERY CHECKED BY : M.D. MAGEE	DATE : 12/18 DATE : 12/18
DRAWN BY : DGE 01/10 CHECKED BY : MKT 01/10	REV. 4/15 MAA/TMG

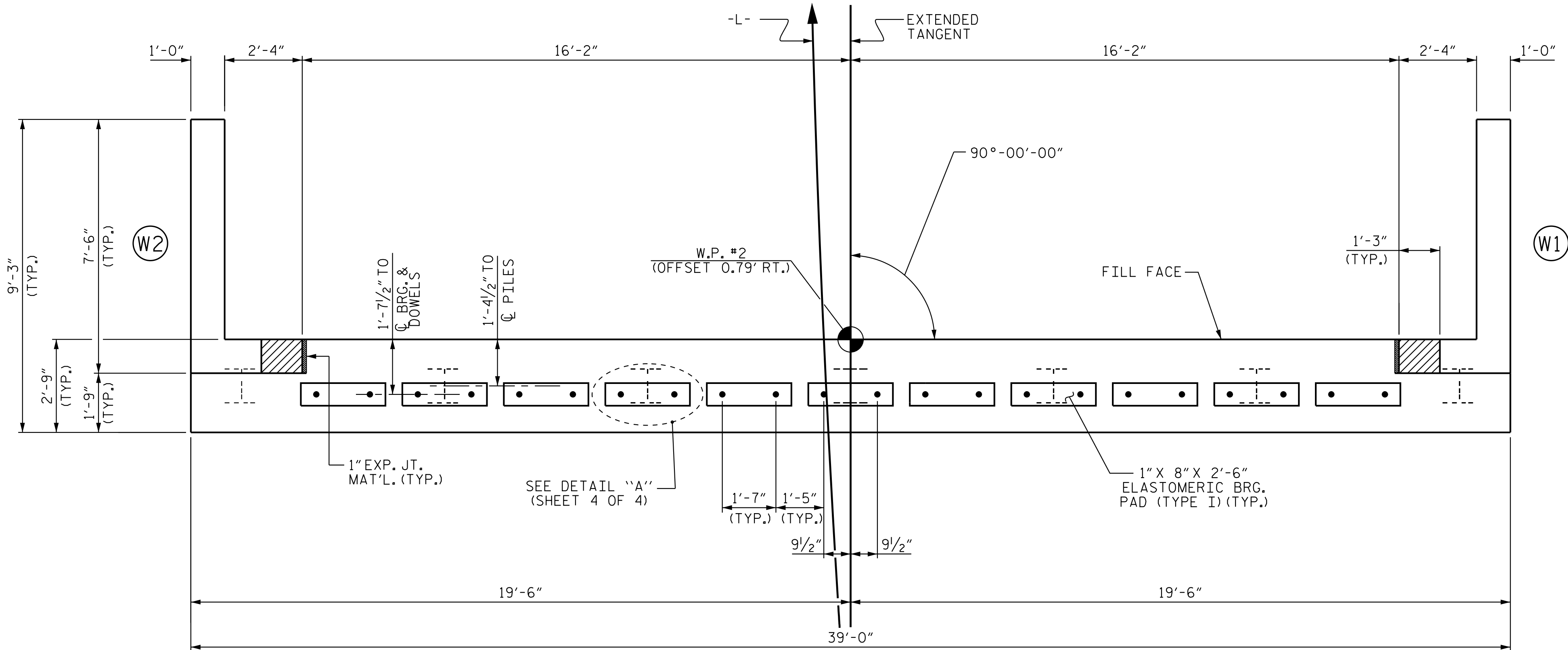
NOTES

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

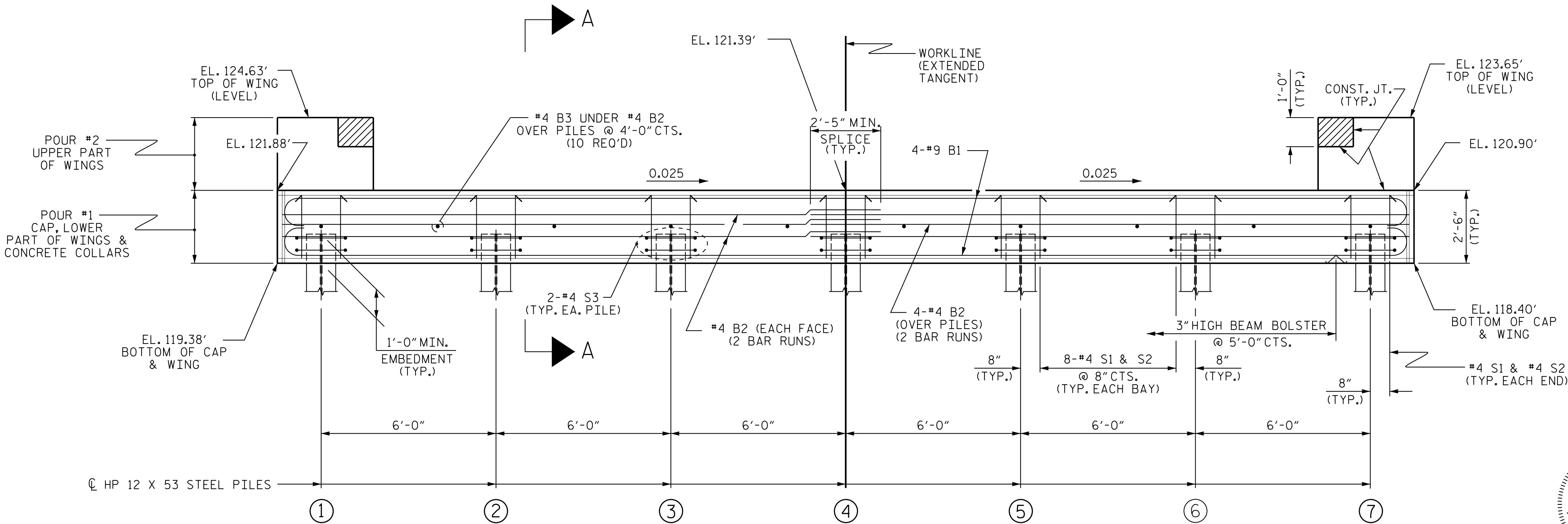
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPlice DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



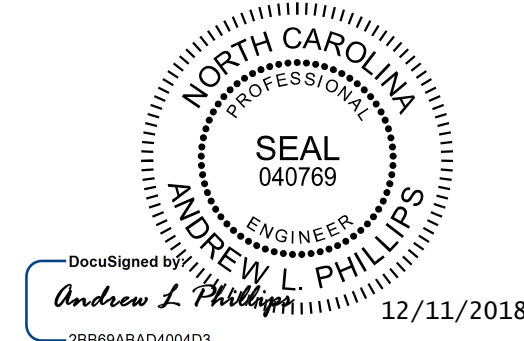
ELEVATION

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.

TOP OF PILE ELEVATIONS	
①	120.34'
②	120.19'
③	120.04'
④	119.89'
⑤	119.74'
⑥	119.59'
⑦	119.44'

PROJECT NO. 17BP.4.R.91
WAYNE COUNTY
STATION: 19+43.05 -L-

SHEET 2 OF 4



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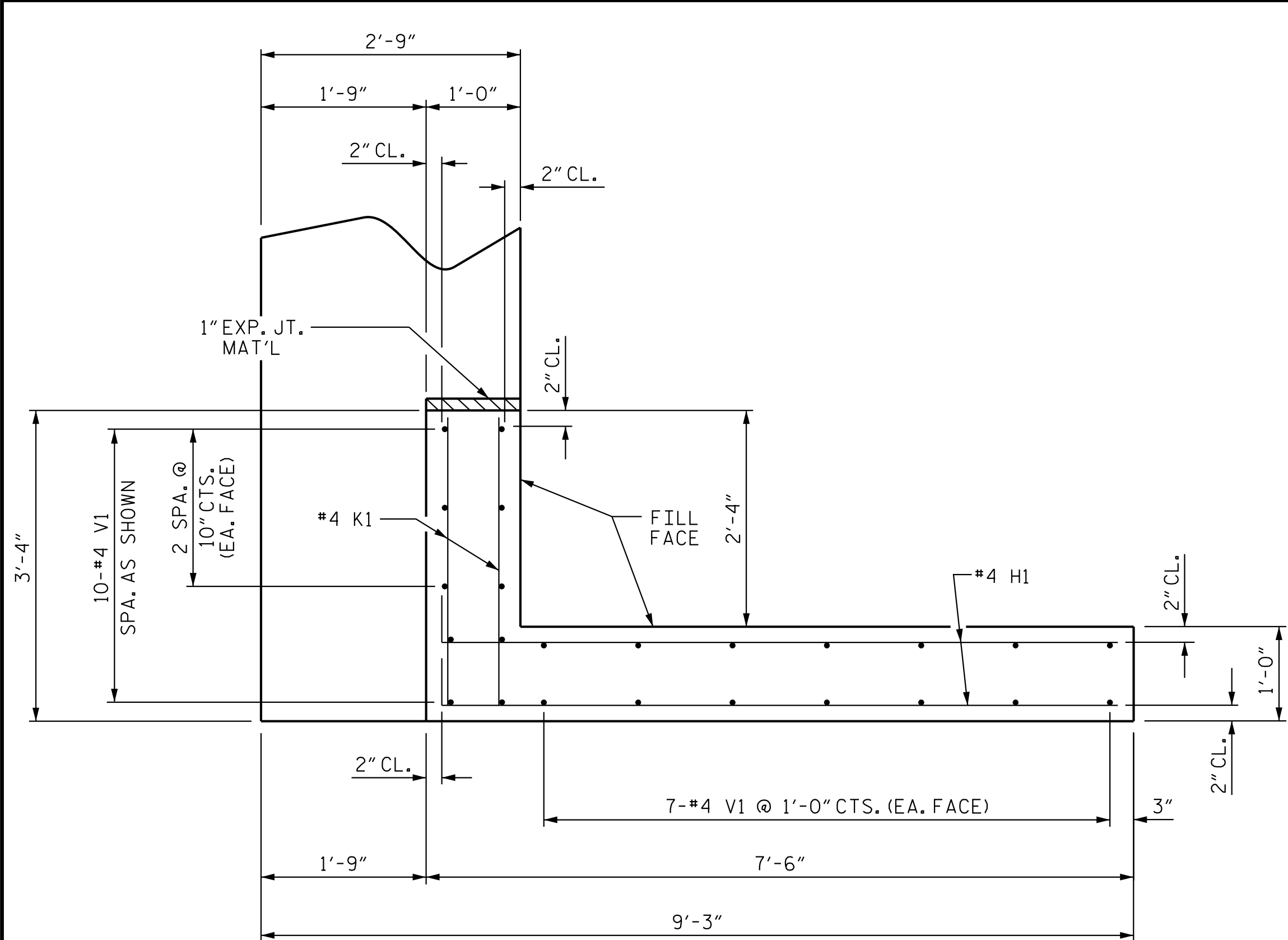
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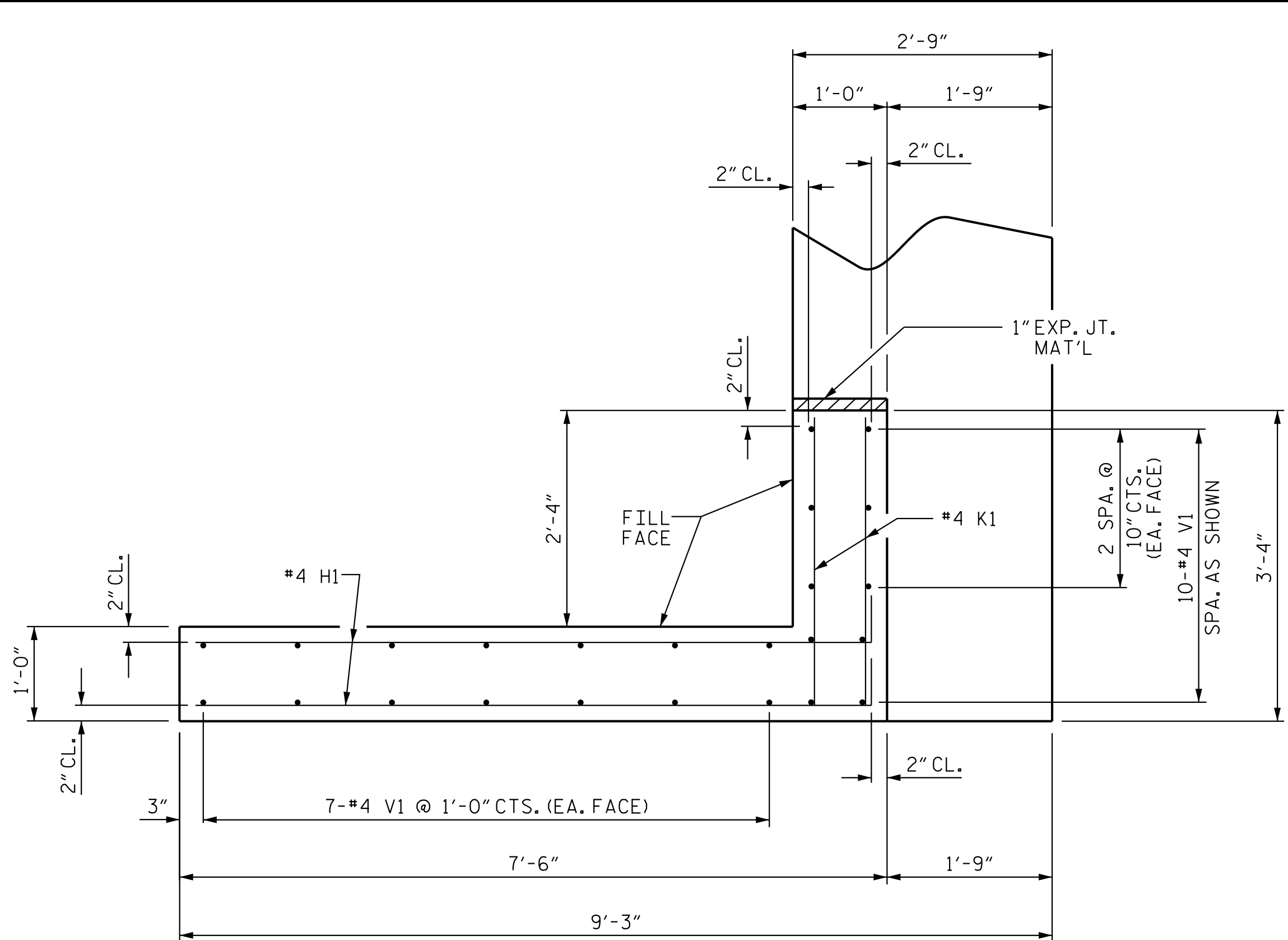
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT No. 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-9					TOTAL SHEETS 13

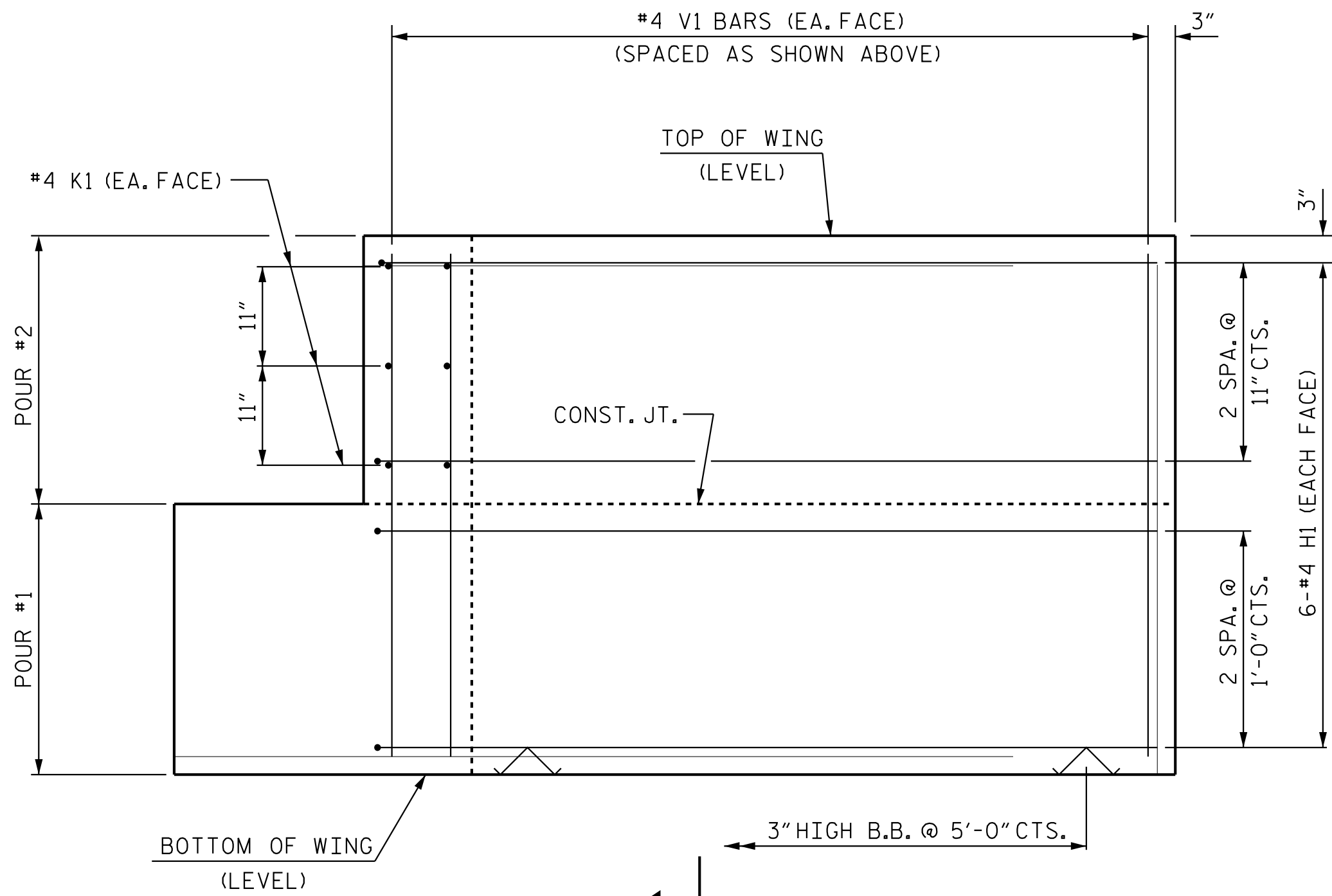
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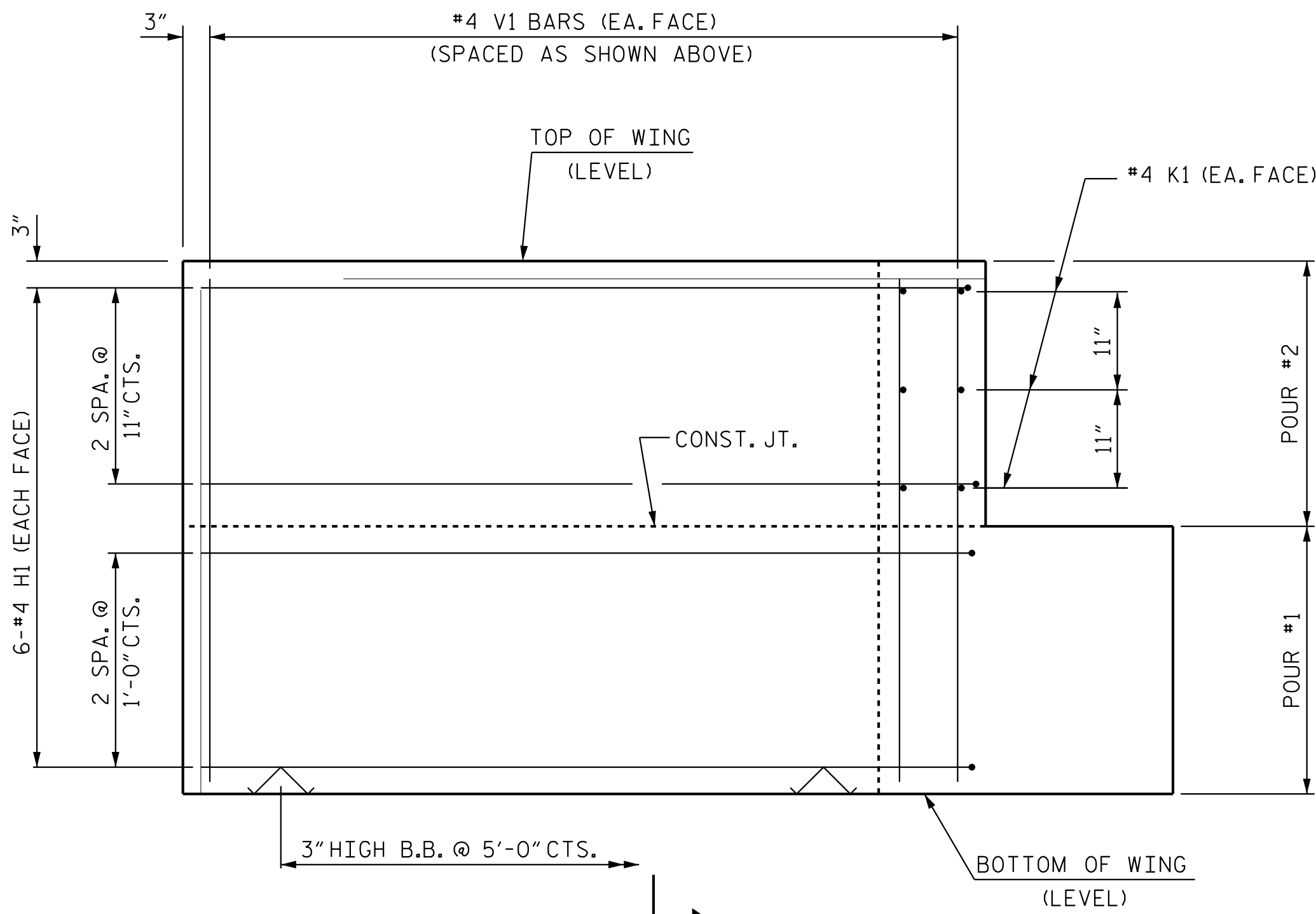
PLAN OF WING (W1)



PLAN OF WING (W2)

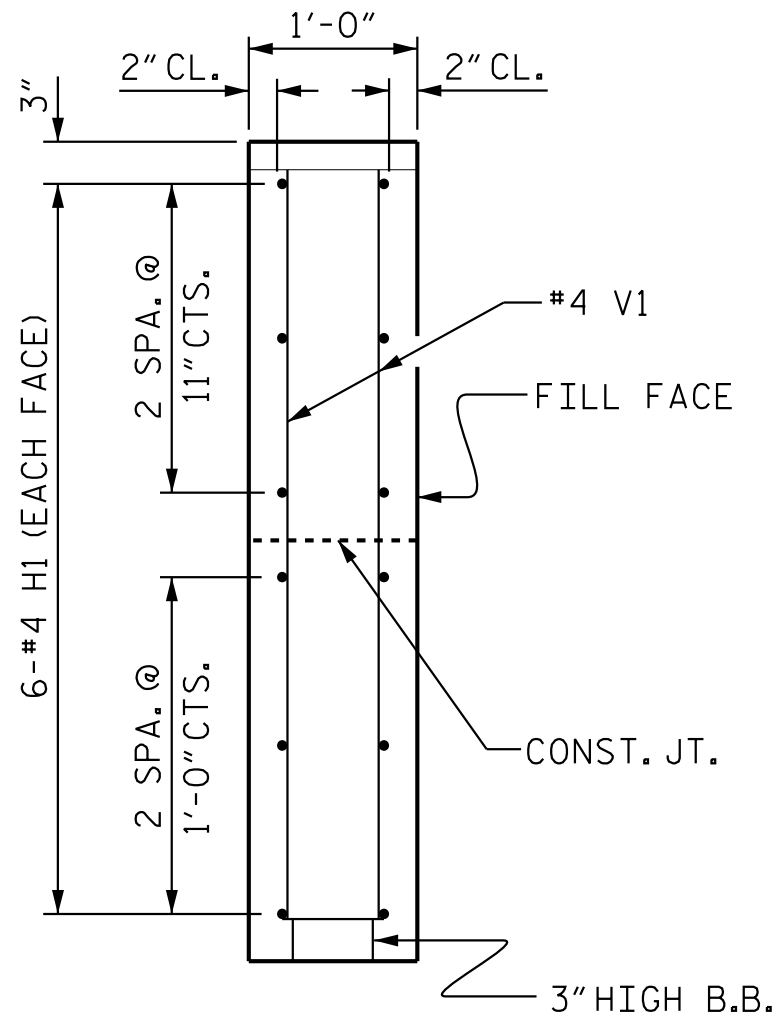


ELEVATION OF WING (W1)

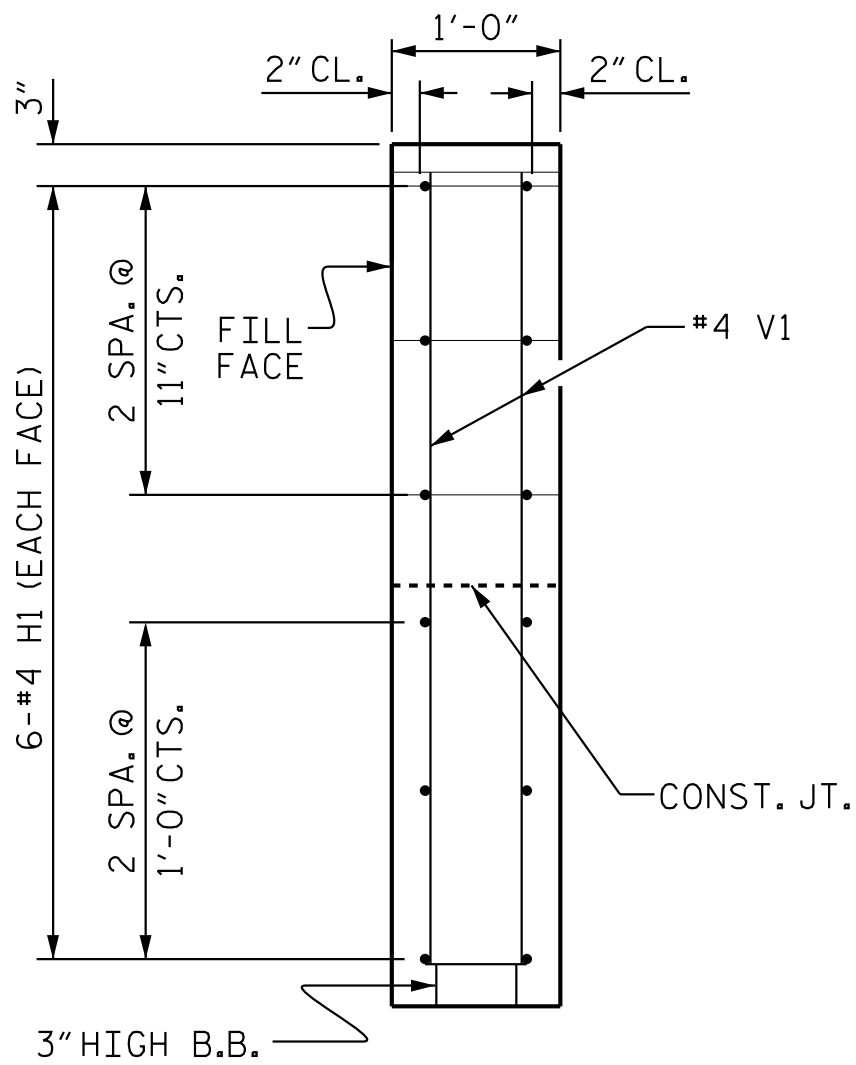


ELEVATION OF WING (W2)

WING DETAILS



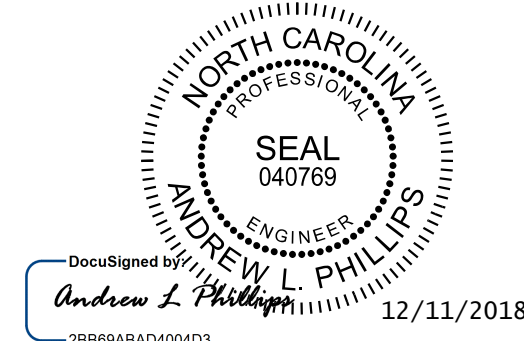
SECTION X-X



SECTION Y-Y

PROJECT NO. 17BP.4.R.91
WAYNE COUNTY
STATION: 19+43.05 -L-

SHEET 3 OF 4



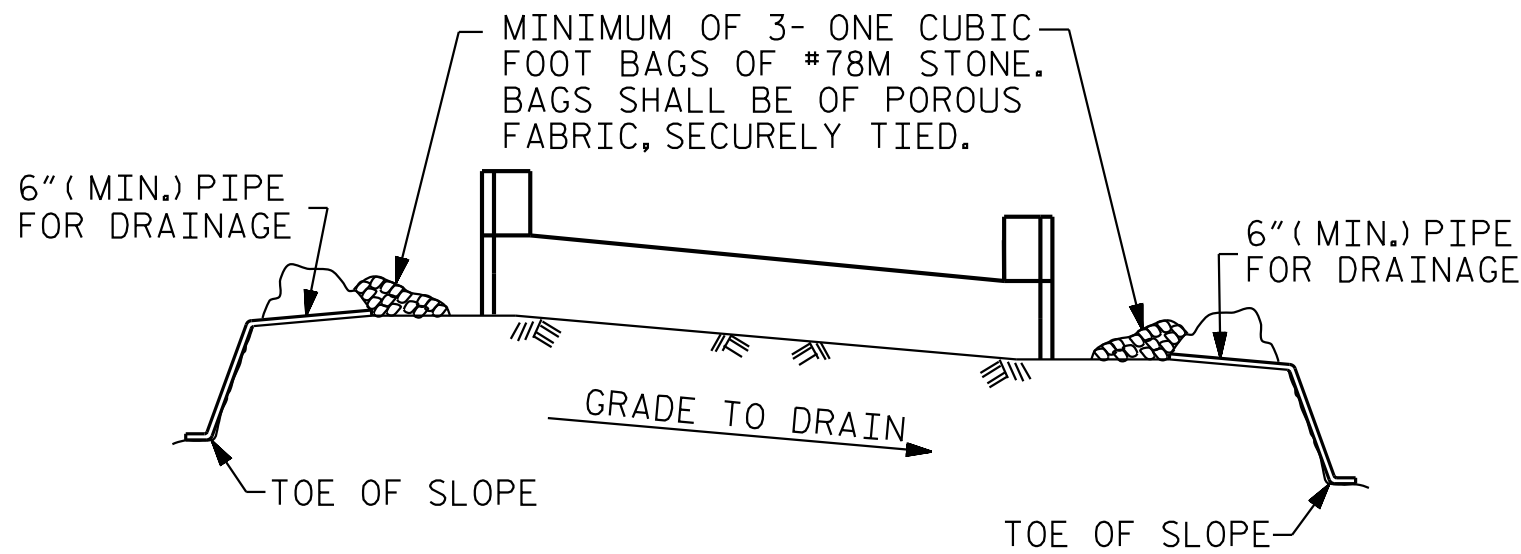
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SUBSTRUCTURE END BENT WING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-10					TOTAL SHEETS 13

STD. NO. EB-33-90S

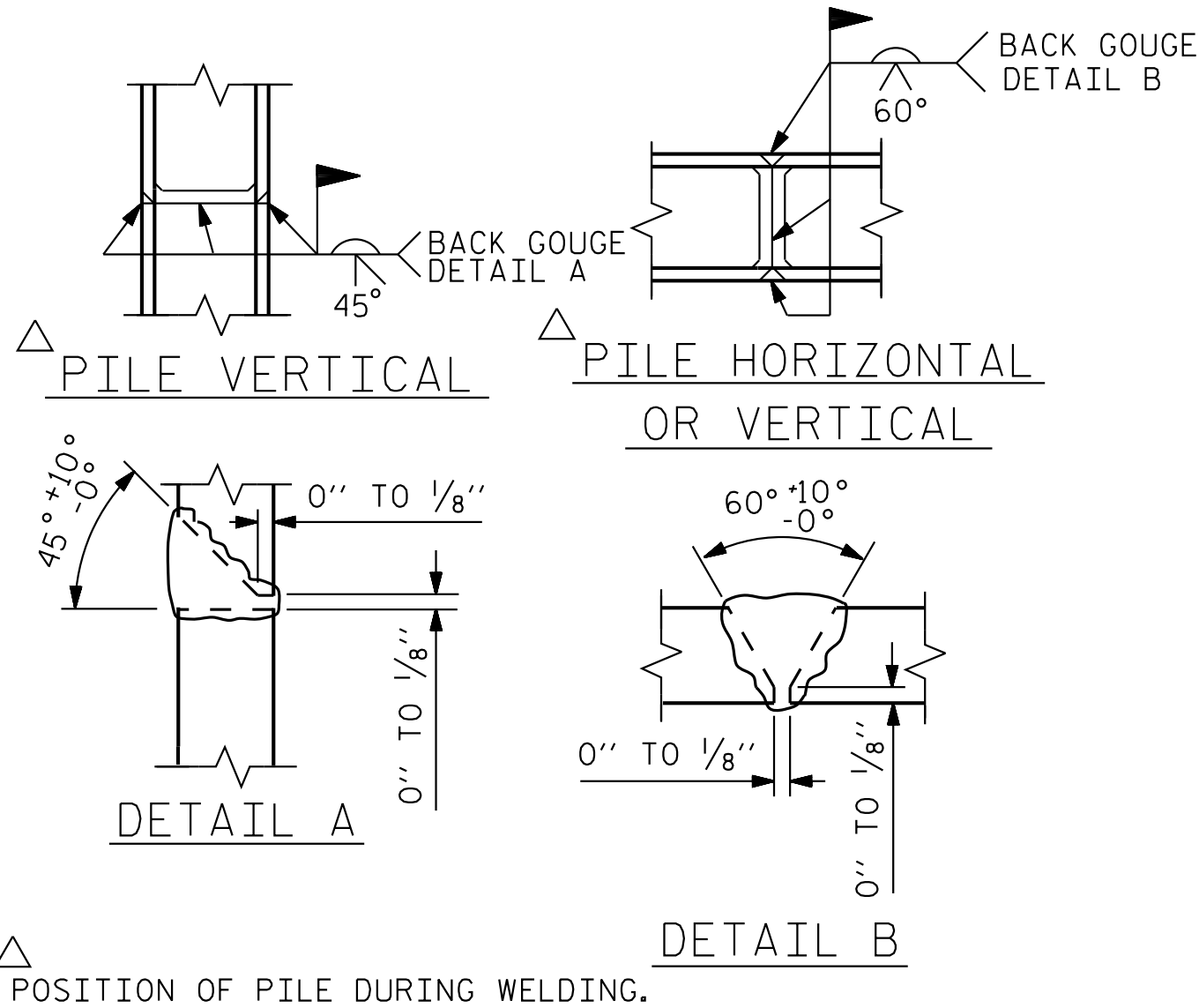


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

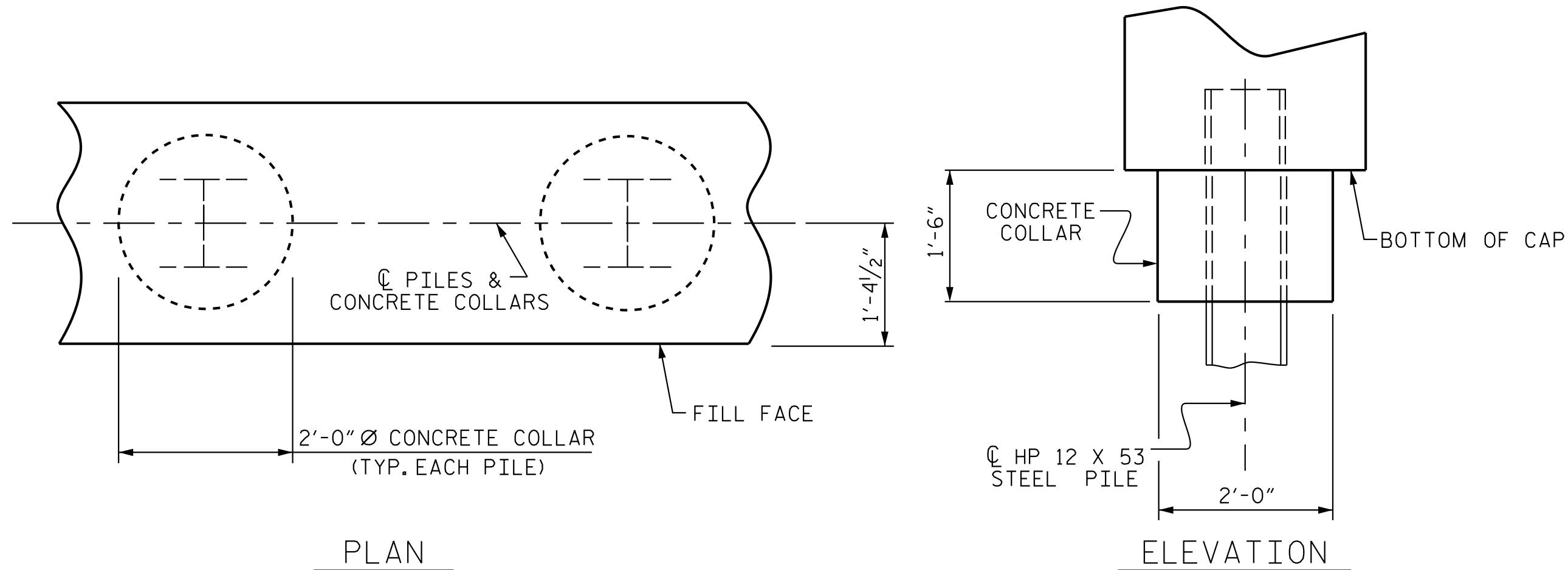
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

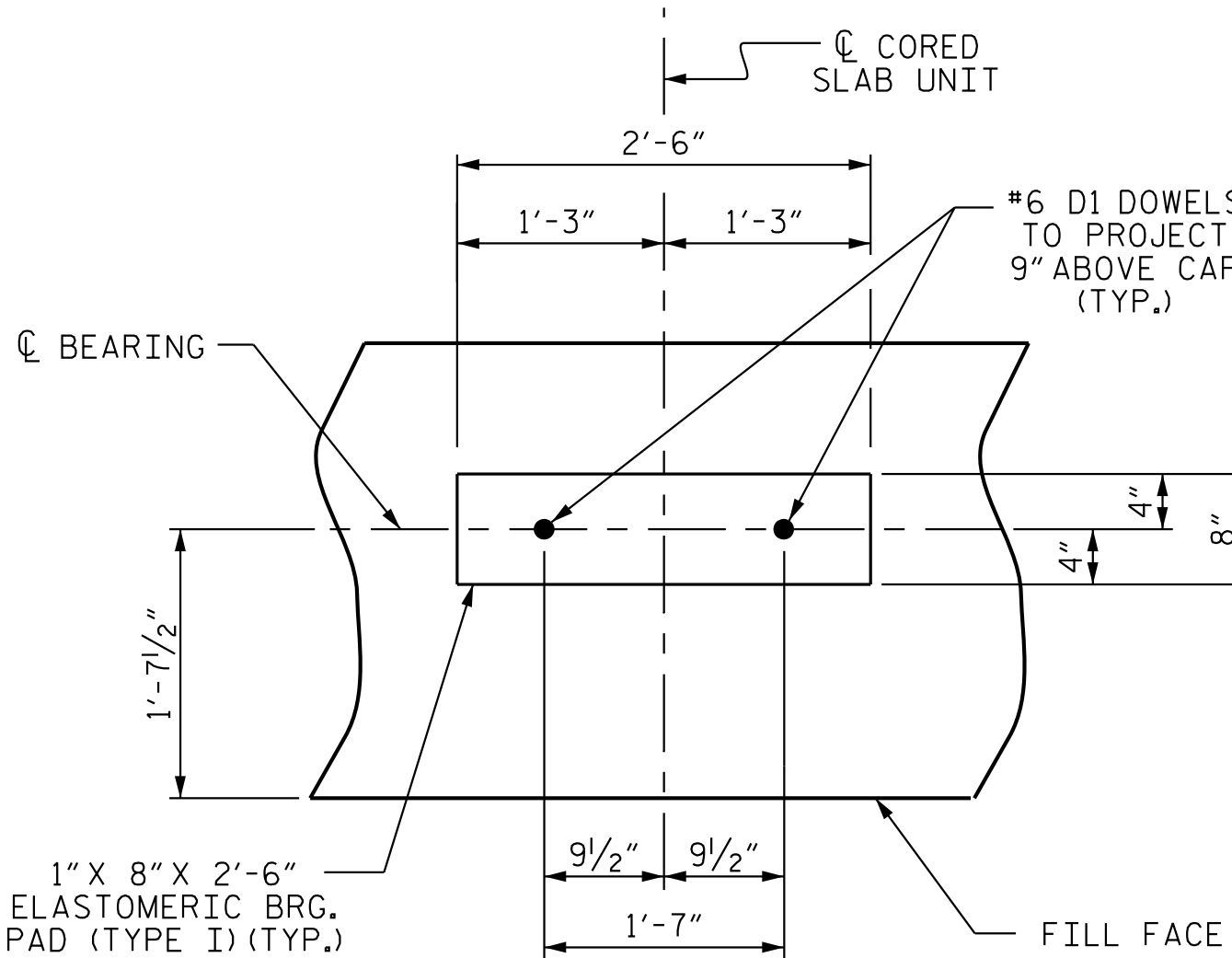
BAR TYPES	
ALL BAR DIMENSIONS ARE OUT TO OUT.	
END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 315	HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 350
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7
PILE REDRIVES NO: 3	PILE REDRIVES NO: 3

BILL OF MATERIAL					
FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	16	#4	STR	20'-7"	220
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	50	#4	3	7'-5"	248
S2	50	#4	4	3'-2"	106
S3	14	#4	5	6'-6"	61
V1	48	#4	STR	4'-8"	150
REINFORCING STEEL (FOR ONE END BENT)					2115 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1		CAP, LOWER PART OF WINGS & COLLARS			12.4 C.Y.
POUR #2		UPPER PART OF WINGS			2.0 C.Y.
TOTAL CLASS A CONCRETE					14.4 C.Y.



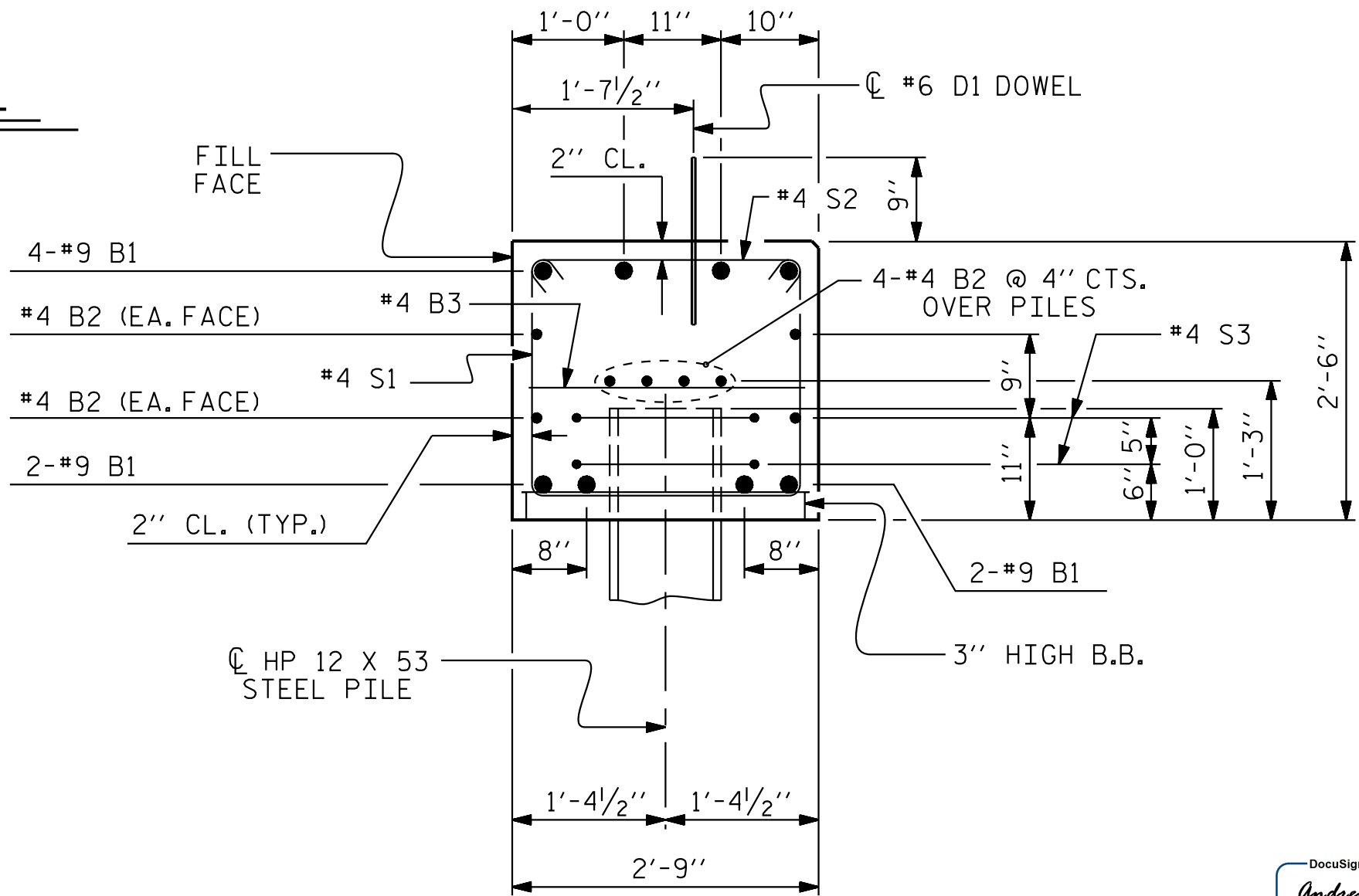
CORROSION PROTECTION FOR STEEL PILES DETAIL

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



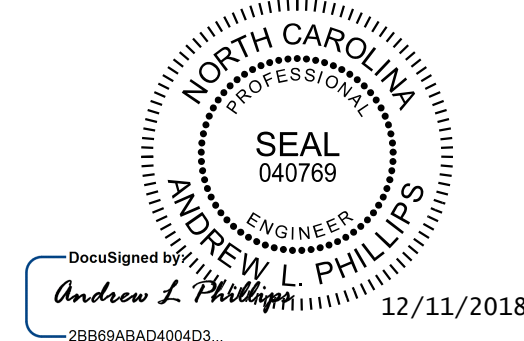
DETAIL "A"

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



SECTION A-A

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



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PROJECT NO. 17BP.4.R.91
WAYNE COUNTY
STATION: 19+43.05 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

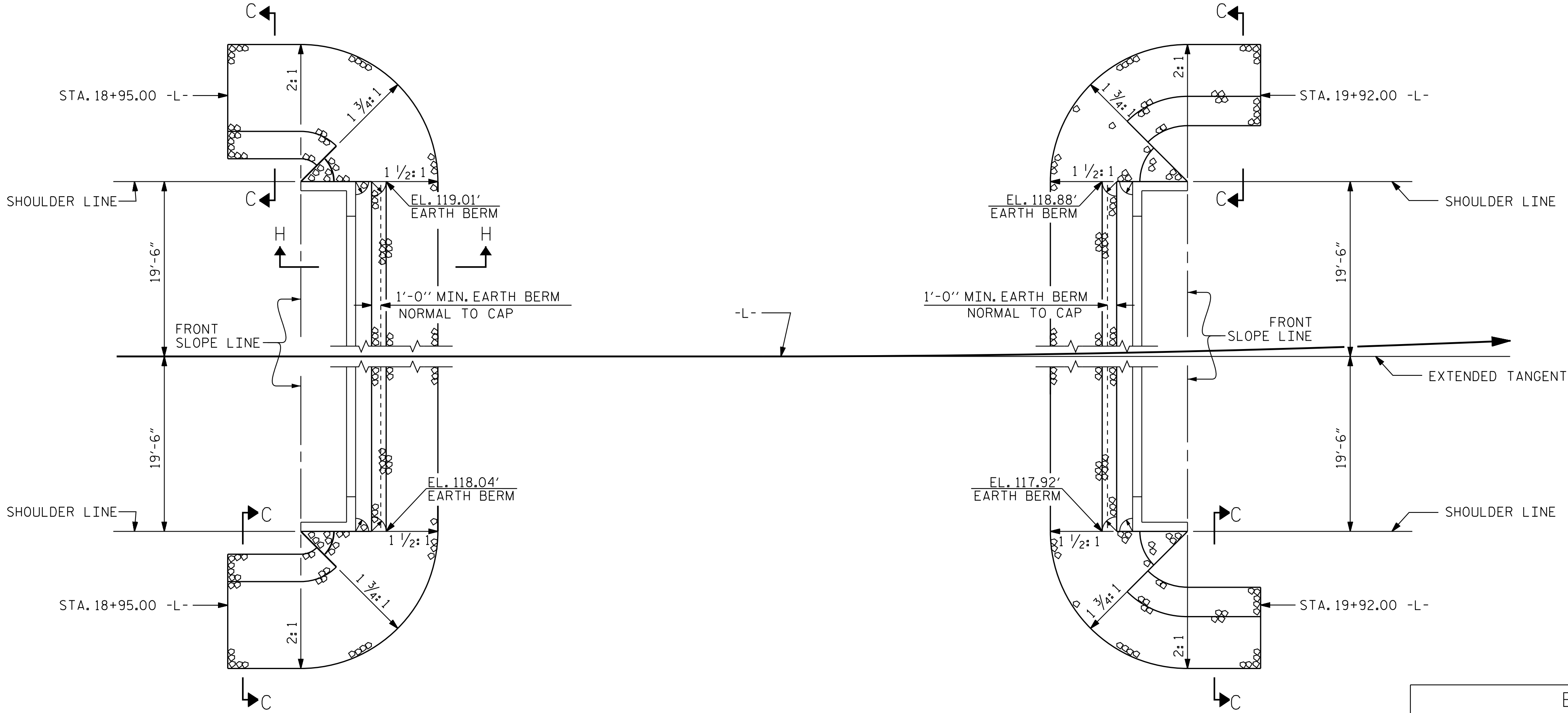
END BENT No. 1 & 2
DETAILS

REVISIONS						SHEET NO. S-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			

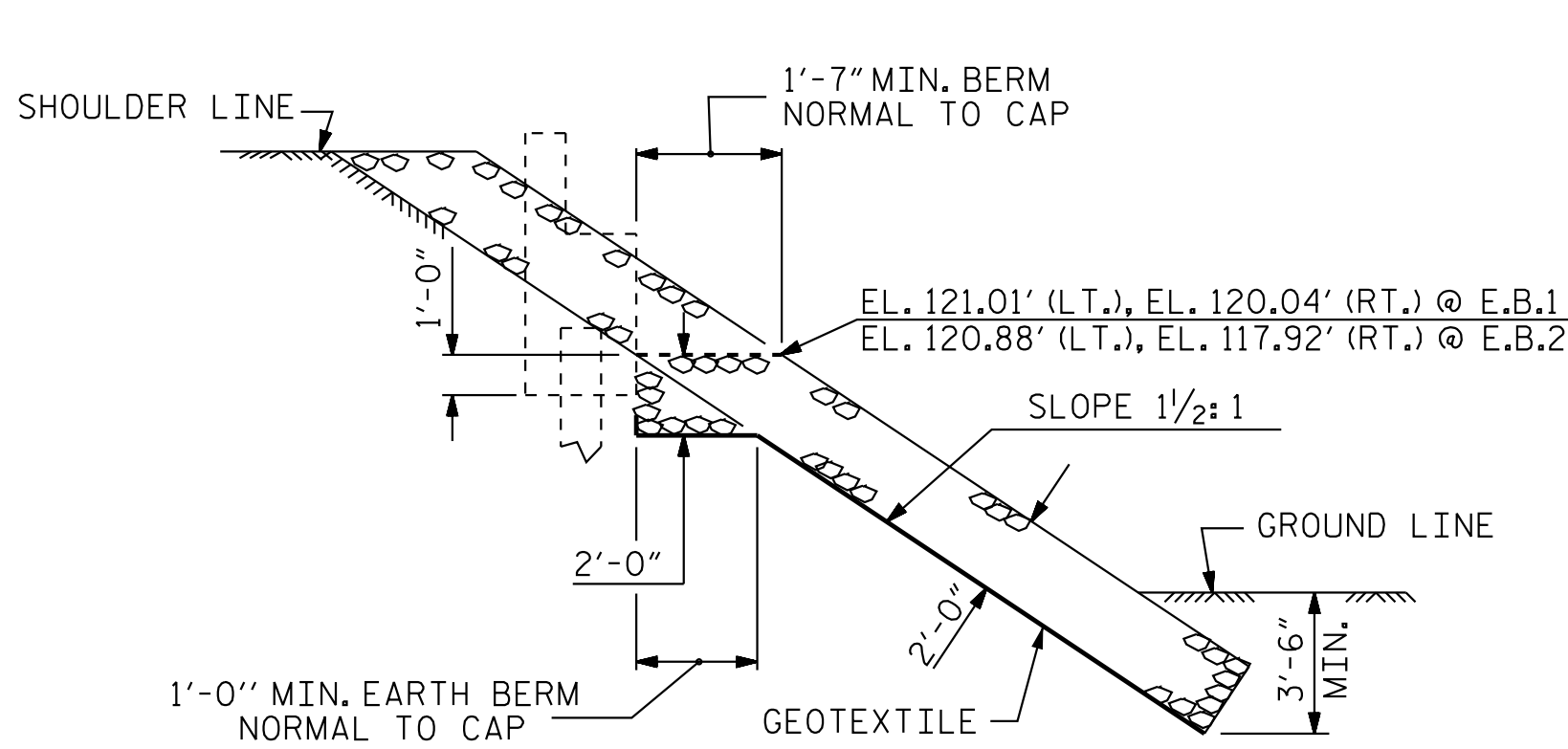
STD. NO. EB_33_90S

ASSEMBLED BY : D.D. LOWERY CHECKED BY : M.D. MAGEE	DATE : 12/18 DATE : 12/18
DRAWN BY : DGE 12/09 CHECKED BY : MKT 01/10	REV. 4/17 MAA/THC

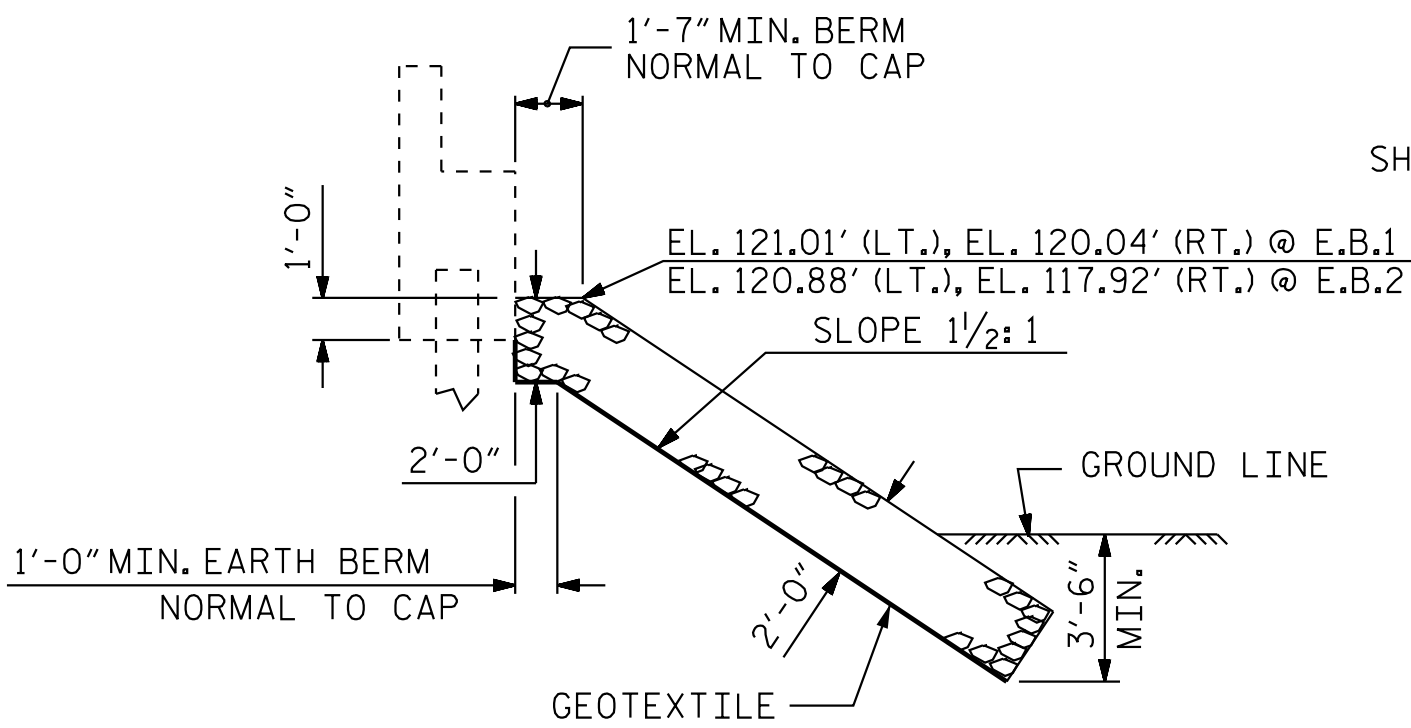
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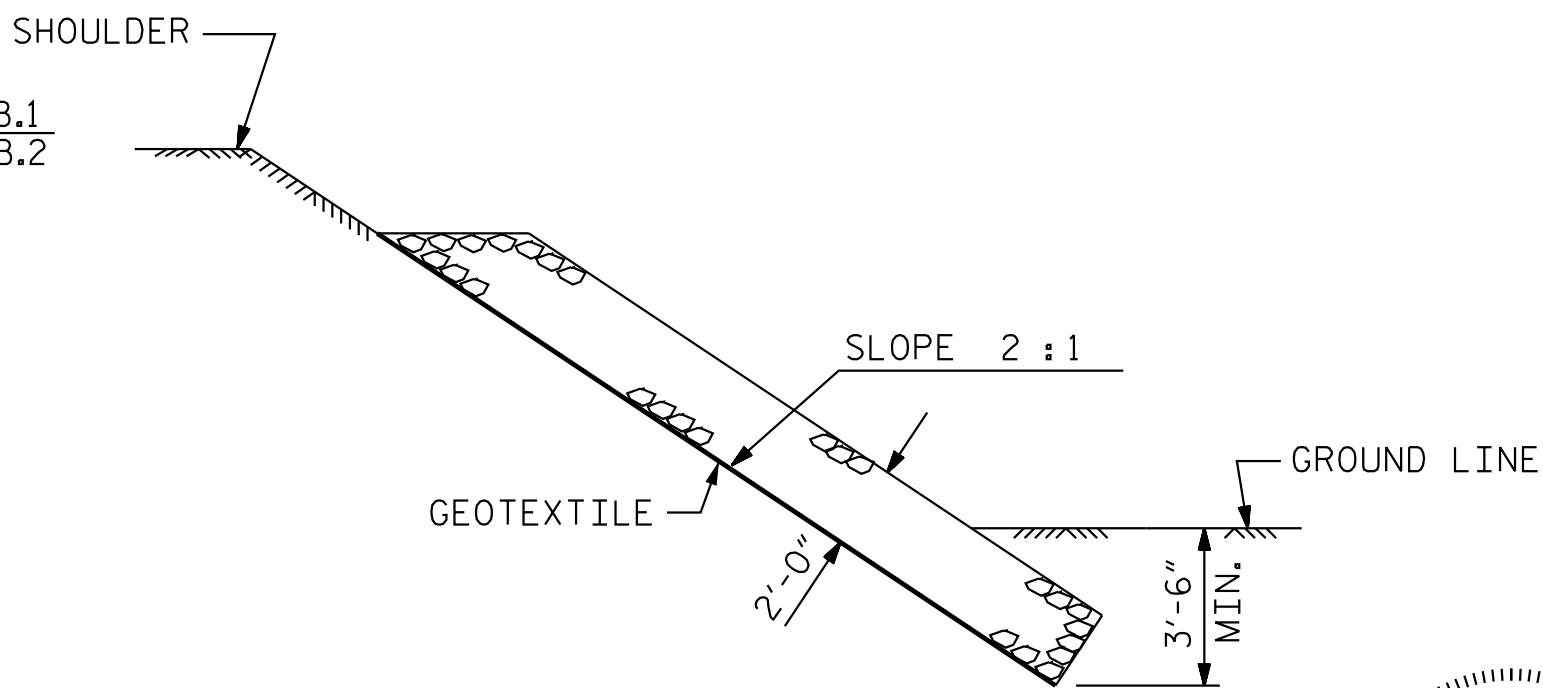
ESTIMATED QUANTITIES		
BRIDGE @ STA. 19+43.05 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	55	61
END BENT 2	72	80



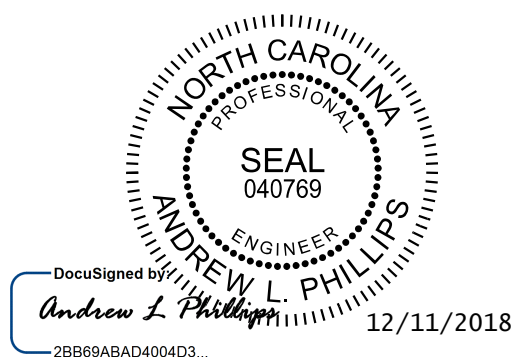
SECTION H-H



SECTION C-C
BERM RIP RAPPED



SECTION C-C



PROJECT NO. 17BP.4.R.91
WAYNE COUNTY
STATION: 19+43.05 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-12					TOTAL SHEETS 13

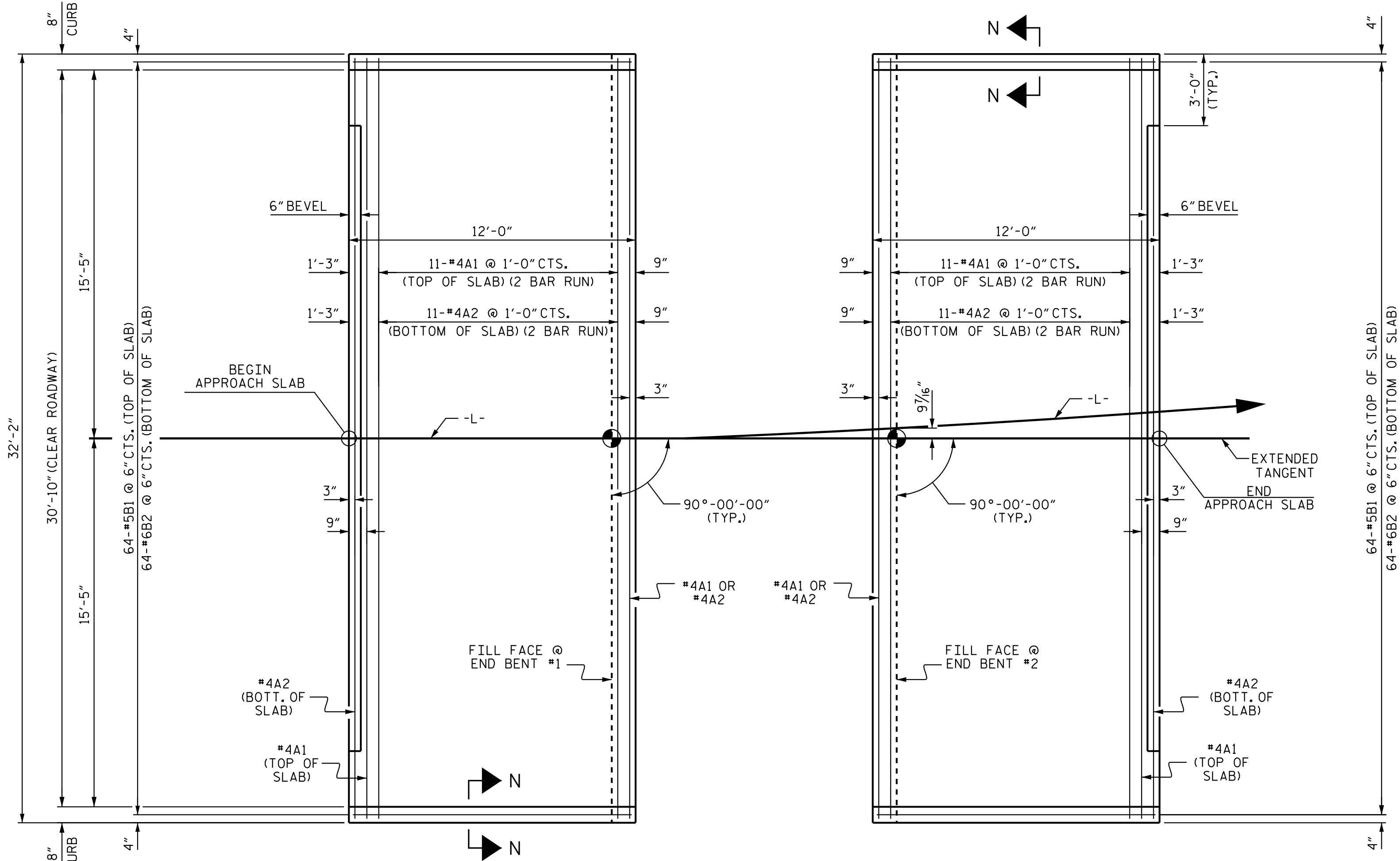
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ASSEMBLED BY : D.D. LOWERY	DATE : 12/18
CHECKED BY : M.D. MAGEE	DATE : 12/18
DRAWN BY : MAA 6/10	REV. 10/17/11 MAA/GM
CHECKED BY : MKT 7/10	REV. 12/21/11 MAA/GM
	REV. 12/17 MAA/THC

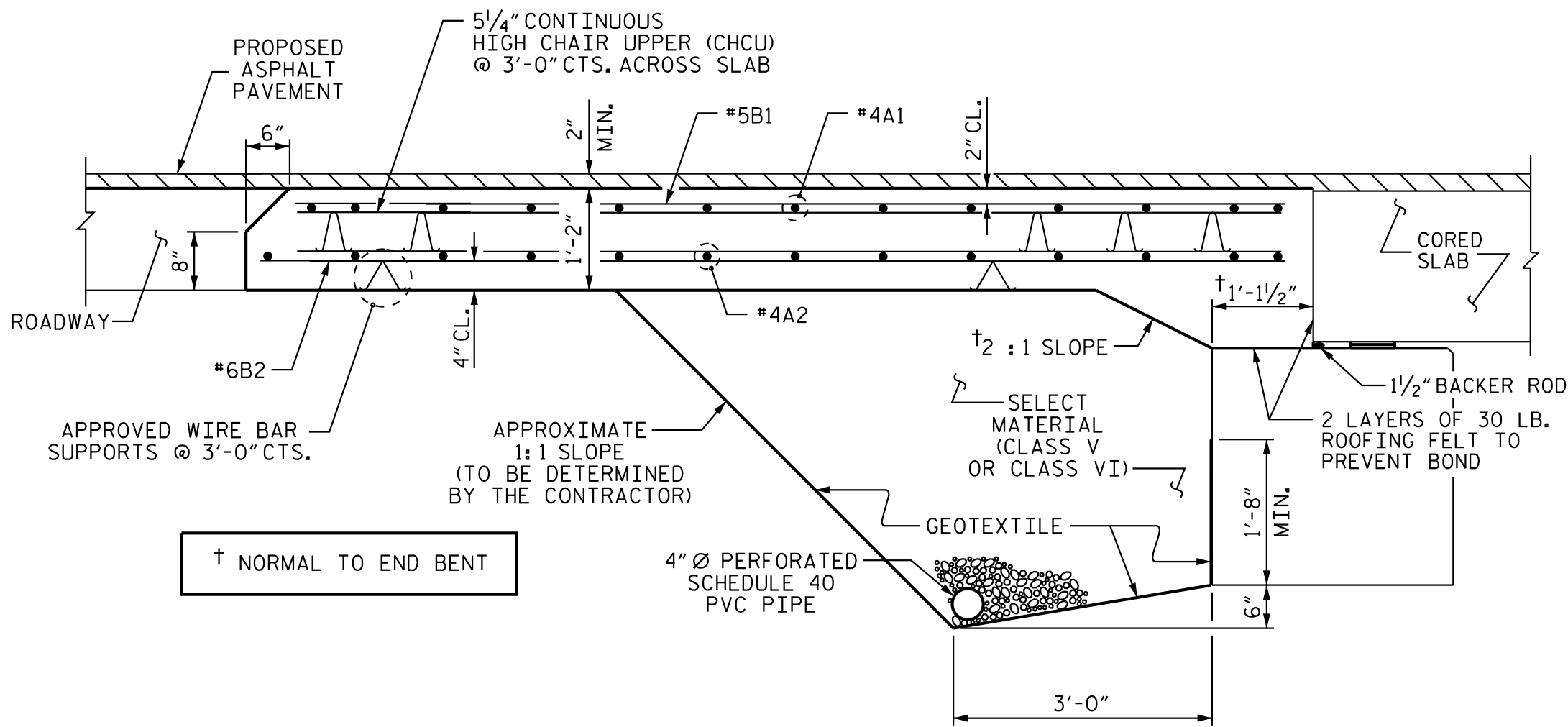
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PLAN @ END BENT #1

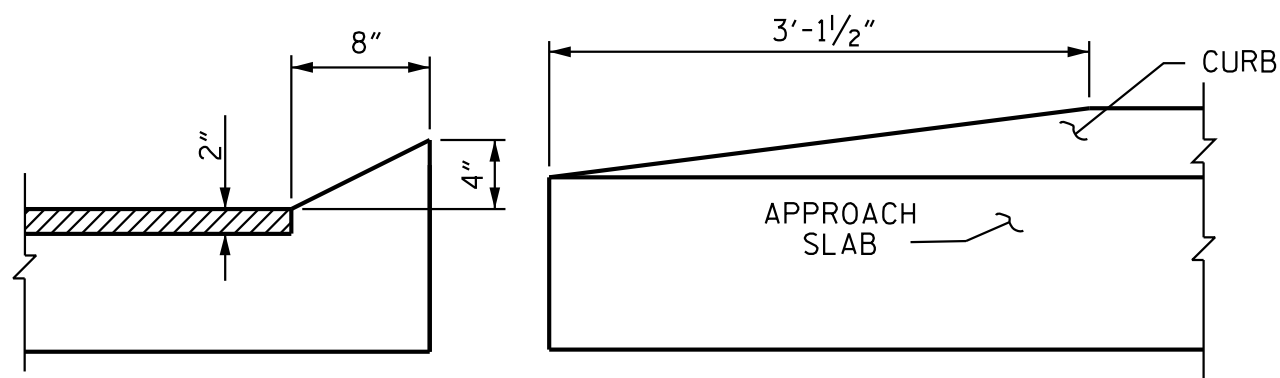
PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)



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"

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.

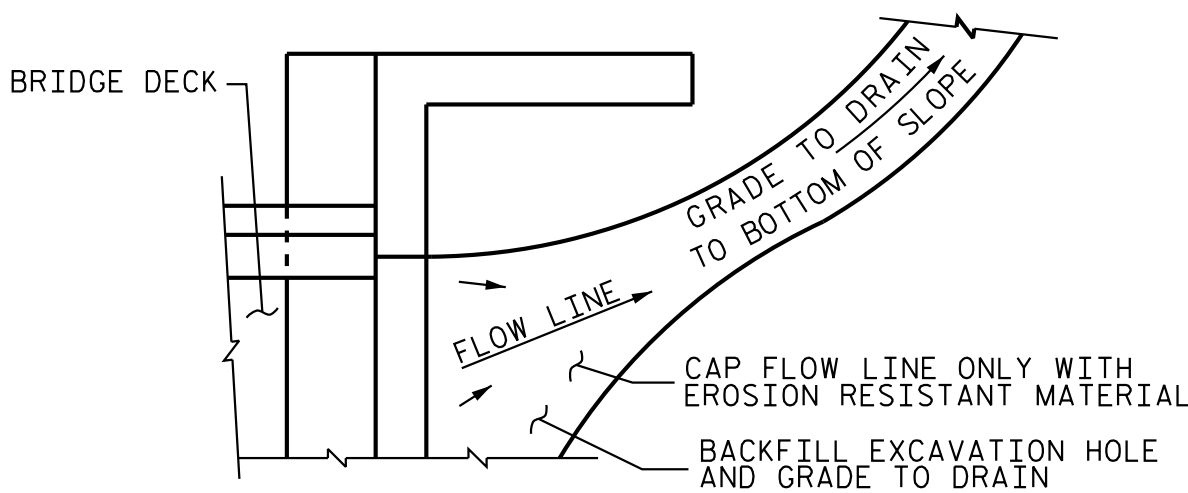
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

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.

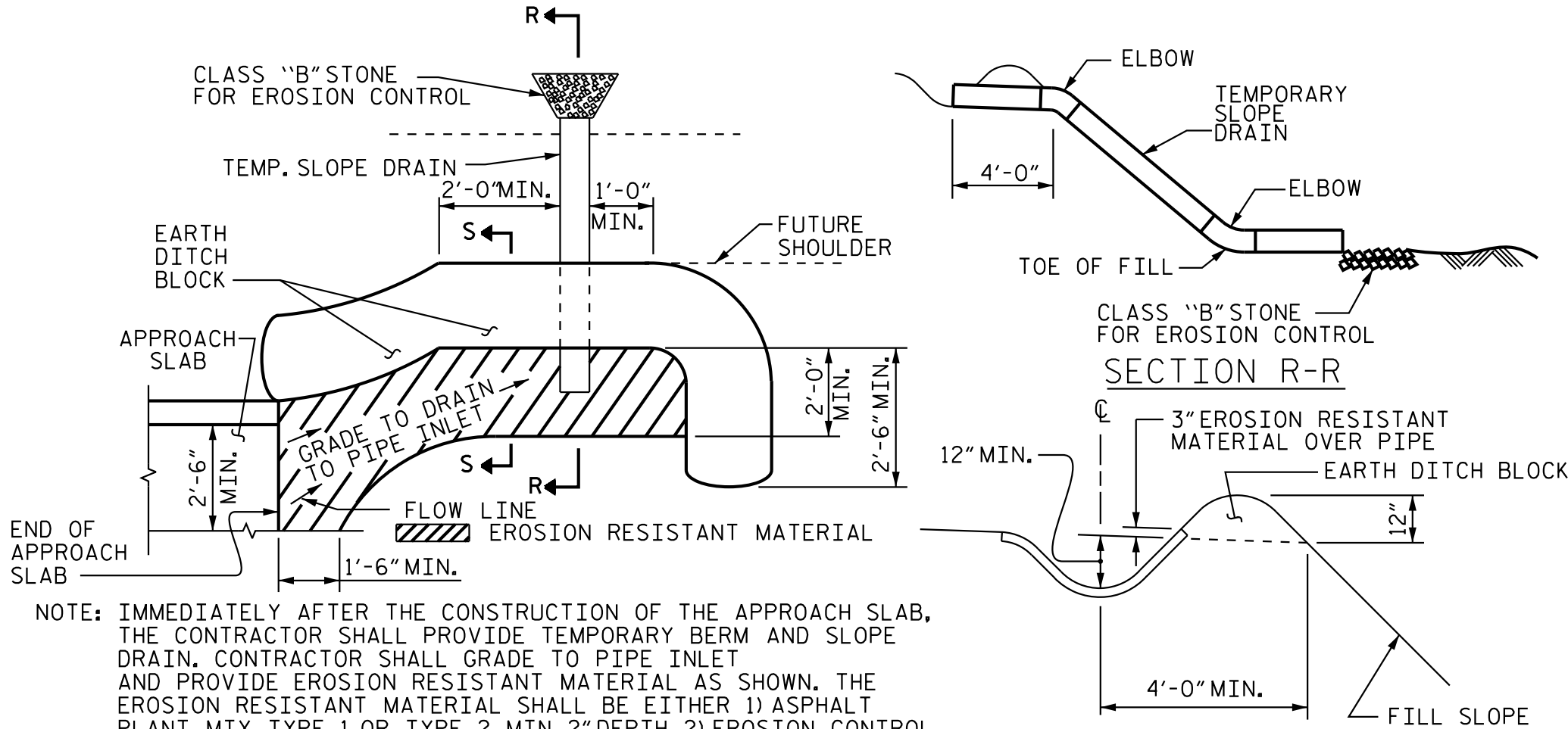
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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

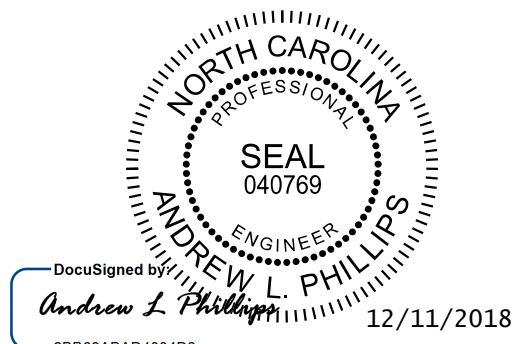
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. 17BP.4.R.91

WAYNE COUNTY

STATION: 19+43.05 -L-



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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

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 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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