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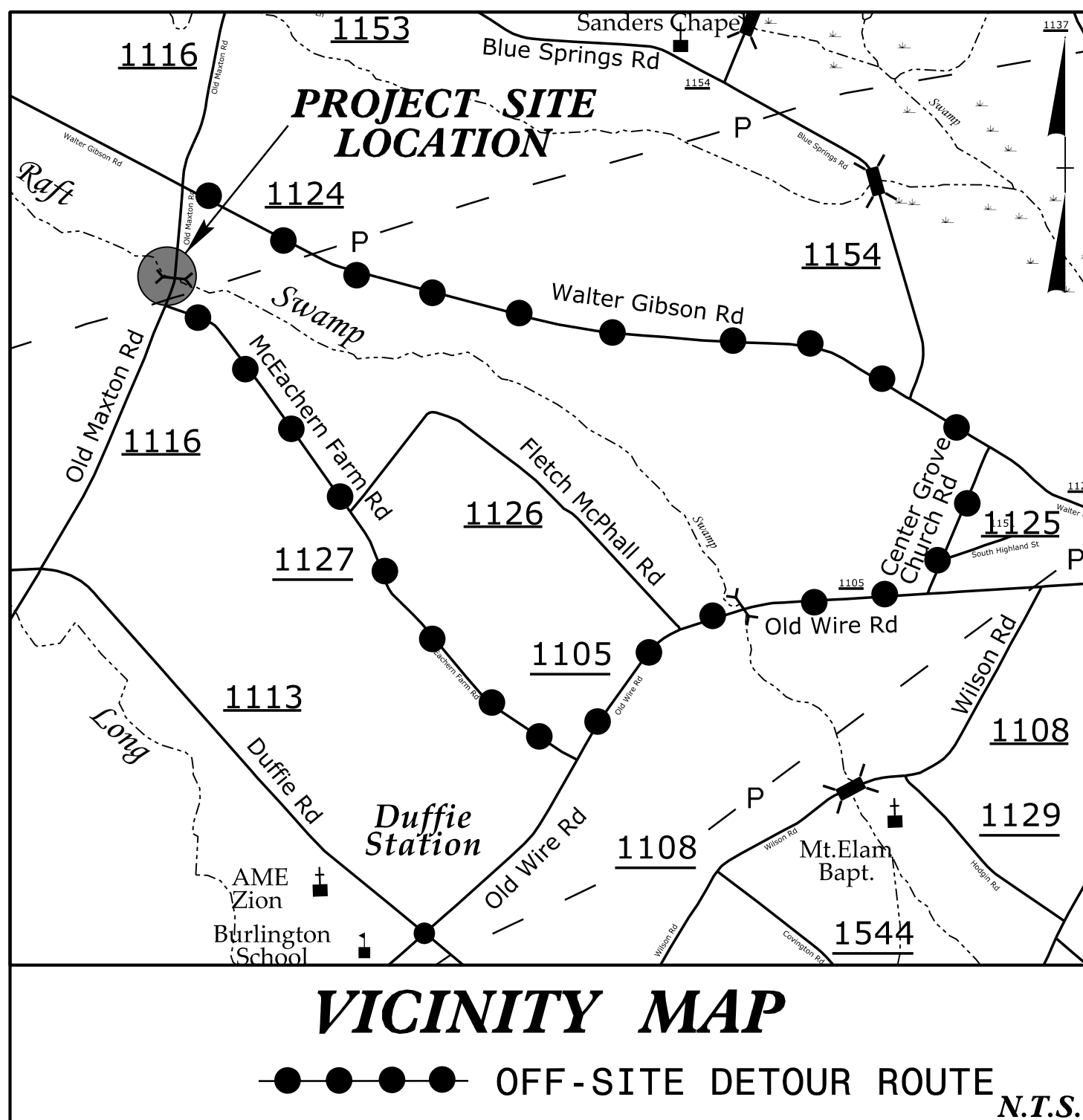
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09/08/09

See Sheet 1A For Index of Sheets

PROJECT: 17BP.8.R.130



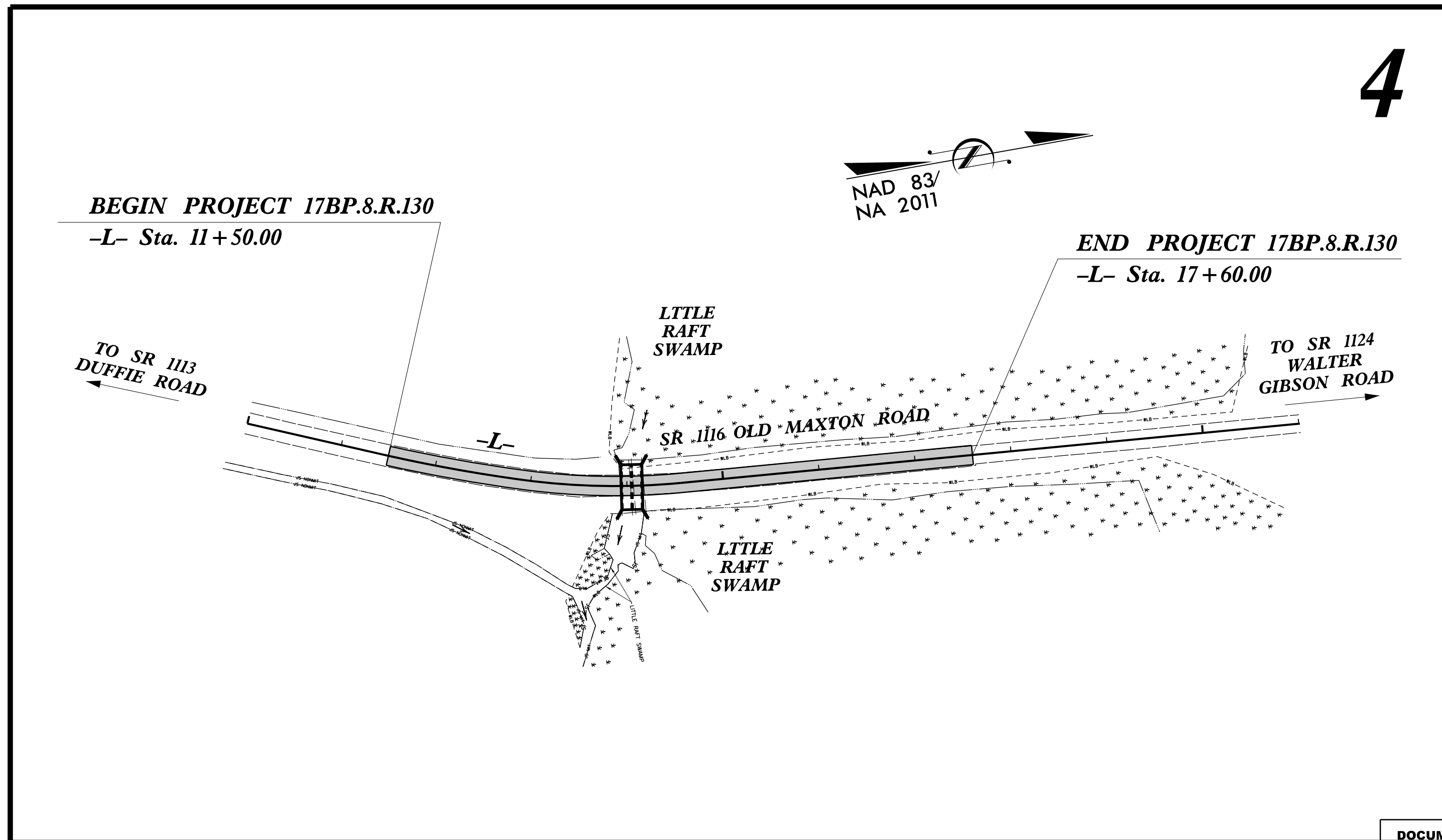
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HOKE COUNTY

**LOCATION: BRIDGE NO. 460014 ON SR 1116 (OLD MAXTON ROAD)
OVER LITTLE RAFT SWAMP**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

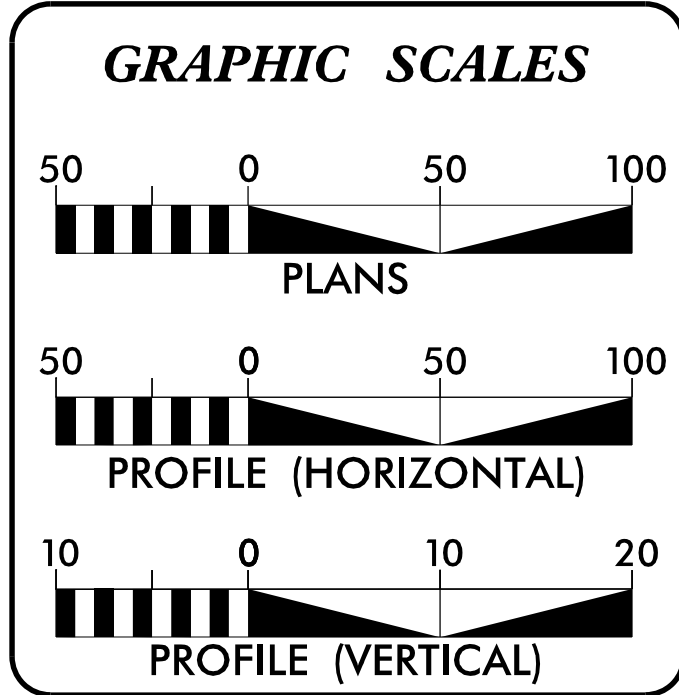
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.130	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.8.R.130		PE / RW UTIL. / CONST.	



4

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UNLESS ALL SIGNATURES COMPLETED

CONTRACT:



DESIGN DATA

ADT 2015 =	640
ADT 2025 =	2000
K =	%
D =	%
T =	6 % *
V =	55 MPH
* TTST =	DUAL
FUNC CLASS =	MINOR COLLECTOR
SUBREGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.8.R.130	=	0.112 mi
LENGTH STRUCTURE PROJECT 17BP.8.R.130	=	0.004 mi
TOTAL LENGTH OF PROJECT 17BP.8.R.130	=	0.116 mi

PLANS PREPARED BY:
CH ENGINEERING
3220 GLEN ROYAL RD, RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0198

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 11, 2017

LETTING DATE:
JUNE 26, 2018

PLANS PREPARED FOR:
**DIVISION OF HIGHWAYS
DIVISION 8**
902 N Sandhills Blvd
Aberdeen, NC 28315

BRIAN A. WILES, PE
PROJECT ENGINEER

TIM WELCH, PE
NCDOT CONTACT
DIV 8 BRIDGE PROGRAM MANAGER

HYDRAULICS ENGINEER
MI ENGINEERING
1011 SCHUBB DRIVE, SUITE 100
RALEIGH, NC 27608
(919) 851-6606
FIRM PE NUMBER: P-0671

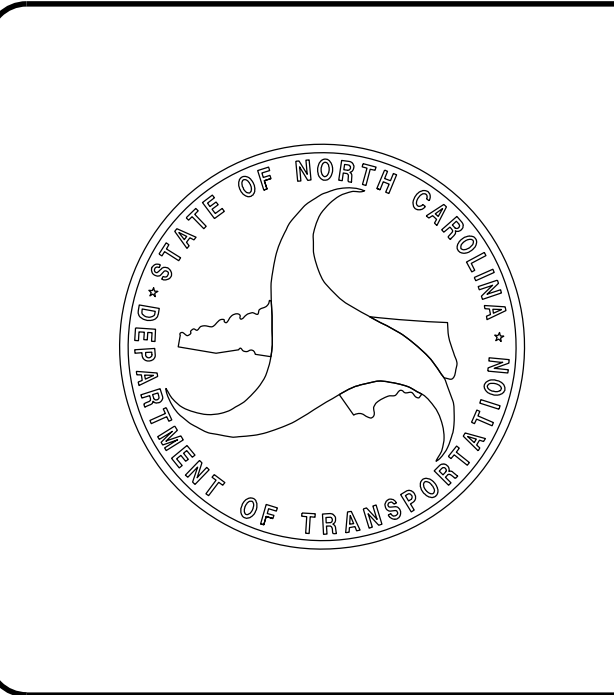
DocuSigned by:
Gregory R. Cols
7E95E9D0A0B4482

GREGORY R. COLS
P.E.

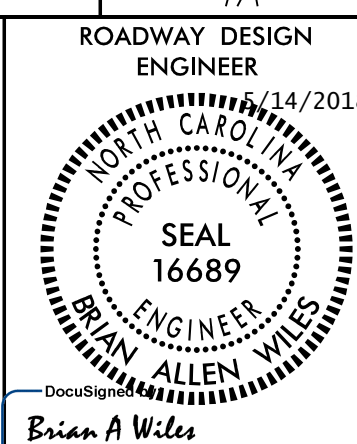
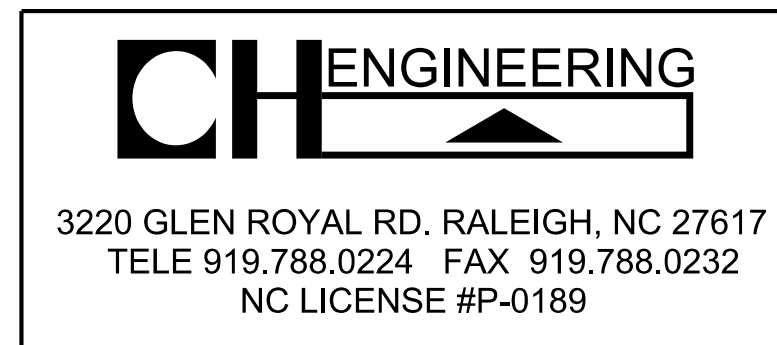
ROADWAY DESIGN ENGINEER
5/15/2018

DocuSigned by:
Brian A Wiles
389009E6A9E348DE

BRIAN A WILES
ENGINEER



5/15/2018
P:\Roadway\Proj\Hoke014_Rdy.-tsh.dgn
-USERNAME-



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SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEETS
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, PAVED SHOULDER AND WEDGING DETAILS
2C-1	GUARDRAIL INSTALLATION
3B-1	SUMMARIES OF EARTHWORK, ASPHALT PAVEMENT REMOVAL AND GUARDRAIL
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UD-1 THRU UD-2	UTILITIES BY OTHERS PLANS
X-1 THRU X-9	CROSS-SECTIONS
C-1 THRU C-5	CULVERT PLANS

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

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

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.

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

UTILITIES: UTILITY OWNERS ON THIS PROJECT ARE Lumbee River Electric Co-op - Power ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

2018 ROADWAY ENGLISH STANDARD DRAWINGS
EFF. 01-16-2018 REV.
The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:
STD.NO. TITLE
DIVISION 2 - EARTHWORK
200.02 Method of Clearing - Method II
225.04 Method of Obtaining Superelevation - Two Lane Pavement
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
806.02 Granite Right-of-Way Marker
862.01 Guardrail Placement
862.02 Guardrail Installation
876.01 Rip Rap in Channels

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	○ EIP
Computed Property Corner	----->
Property Monument	□ ECM
Parcel/Sequence Number	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- NLB
Proposed Wetland Boundary	----- NLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB
Existing Historic Property Boundary	----- HPB
Known Contamination Area: Soil	☠-S-☠
Potential Contamination Area: Soil	??-S-??
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	??-W-??
Contaminated Site: Known or Potential	☠??

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□ †
Building	□
School	□
Church	□
Dam	▬

HYDROLOGY:

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

RAILROADS:

Standard Gauge	----- CSX TRANSPORTATION
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

Note: Not to Scale *S.U.E. = Subsurface Utility Engineering

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Exist Permanent Easement 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	----- (RW)
New Right of Way Line with Pin and Cap	----- (RW) ▲
New Right of Way Line with Concrete or Granite RW Marker	----- (RW) ●
New Control of Access Line with Concrete C/A Marker	----- (CA) ●
Existing Control of Access	----- (CA)
New Control of Access	----- (CA)
Existing Easement Line	----- E
New Temporary Construction Easement	----- E
New Temporary Drainage Easement	----- TDE
New Permanent Drainage Easement	----- PDE
New Permanent Drainage / Utility Easement	----- DUE
New Permanent Utility Easement	----- PUE
New Temporary Utility Easement	----- TUE
New Aerial Utility Easement	----- AUE

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C
Proposed Slope Stakes Fill	----- F
Proposed Curb Ramp	----- (CR)
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	⊗

VEGETATION:

Single Tree	☼
Single Shrub	☼

Hedge	~~~~~
Woods Line	~~~~~
Orchard	☼☼☼☼
Vineyard	□ Vineyard

EXISTING STRUCTURES:

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

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

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.*)	----- T
U/G Telephone Cable LOS C (S.U.E.*)	----- T
U/G Telephone Cable LOS D (S.U.E.*)	----- T
U/G Telephone Conduit LOS B (S.U.E.*)	----- TC
U/G Telephone Conduit LOS C (S.U.E.*)	----- TC
U/G Telephone Conduit LOS D (S.U.E.*)	----- TC
U/G Fiber Optics Cable LOS B (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS C (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS D (S.U.E.*)	----- T FO

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	----- W
U/G Water Line LOS C (S.U.E.*)	----- W
U/G Water Line LOS D (S.U.E.*)	----- W
Above Ground Water Line	----- A/G Water

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	----- TUTL
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.

SURVEY CONTROL SHEET 17BP.8.R.130

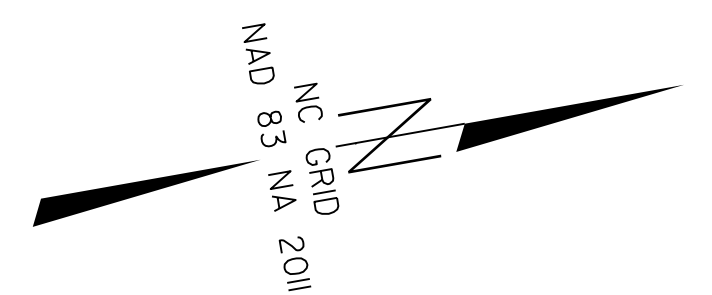
PROJECT REFERENCE NO. 17BP.8.R.130	SHEET NO. 1C-1
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BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	GPS 460014-1	416759.554	1918656.377	239.12	OUTSIDE PROJECT LIMITS	
2	GPS 460014-2	417791.148	1919083.053	235.16	OUTSIDE PROJECT LIMITS	
100	BL-100	418146.893	1919200.481	228.90	13+69.19	17.18 RT
101	BL-101	418484.665	1919234.651	225.82	17+06.74	18.96 RT
102	BL-102	418881.795	1919265.593	229.56	OUTSIDE PROJECT LIMITS	

TYPE	STATION	NORTH	EAST
POT	10+00.00	417804.2411	1919056.8697
PC	11+42.92	417935.9025	1919112.4793
PT	12+92.36	418076.0149	1919164.2857
PC	12+92.36	418076.0149	1919164.2857
PT	14+55.92	418236.1539	1919195.7814
POT	21+01.13	418879.3163	1919247.1621

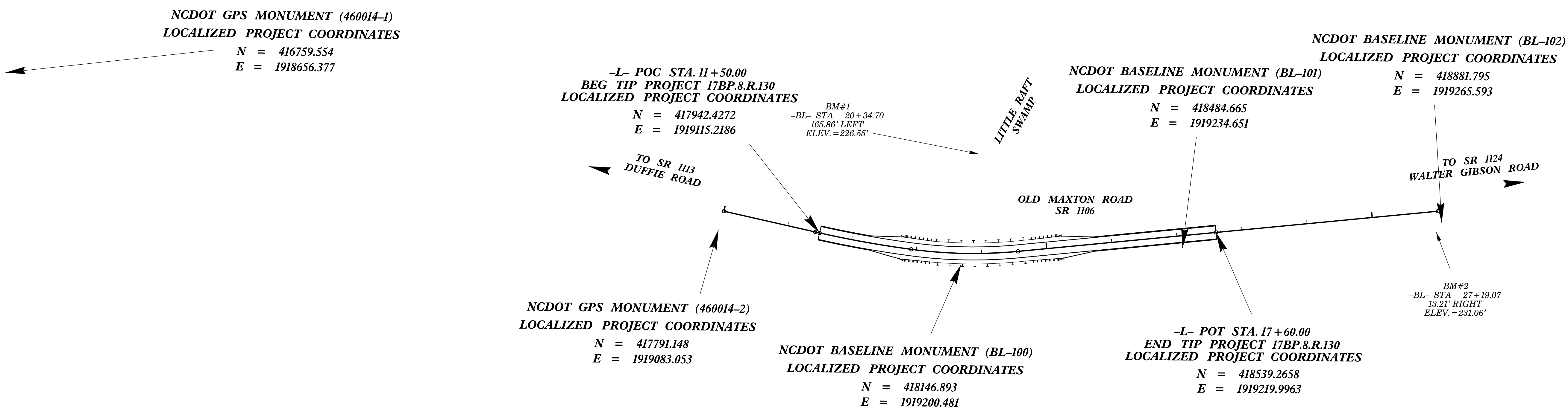
 BM1 ELEVATION = 226.55
 N 418207 E 1919039
 BL STATION 20+34.70 166' LEFT
 NAIL SET IN 24" PINE TREE

 BM2 ELEVATION = 231.06
 N 418871 E 1919278
 BL STATION 27+19.07 13' RIGHT
 NAIL SET IN 18" GUM TREE



ROW MARKER REBAR AND CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
L	13+60.00	-29.02	418147.4980	1919153.3981
L	13+60.00	-40.00	418149.8298	1919142.6682
L	14+50.00	-40.00	418233.7681	1919155.4402
L	14+50.00	-30.10	418232.8981	1919165.3008
L	13+60.00	30.99	418134.7542	1919212.0385
L	13+60.00	45.00	418131.7789	1919225.7294
L	14+50.00	45.00	418226.2971	1919240.1112
L	14+50.00	29.91	418227.6233	1919225.0810

PERMANENT EASEMENT MARKER REBAR AND CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
L	13+76.01	-40.78	418164.7832	1919144.9435
L	13+74.09	-50.74	418164.9319	1919134.8252
L	13+63.53	-48.88	418154.9330	1919134.6783
L	13+65.32	-40.30	418154.8045	1919143.4251



NOTES:

- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.*
 - ◆ INDICATES CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 - INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.*

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "460014-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 417791.148(±) EASTING: 1919083.053(±) ELEVATION: 235.16(±±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999885458

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "460014-2" TO -L- STATION 11+50.00 IS
 N 12° 00' 12.88" E 154.66'

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

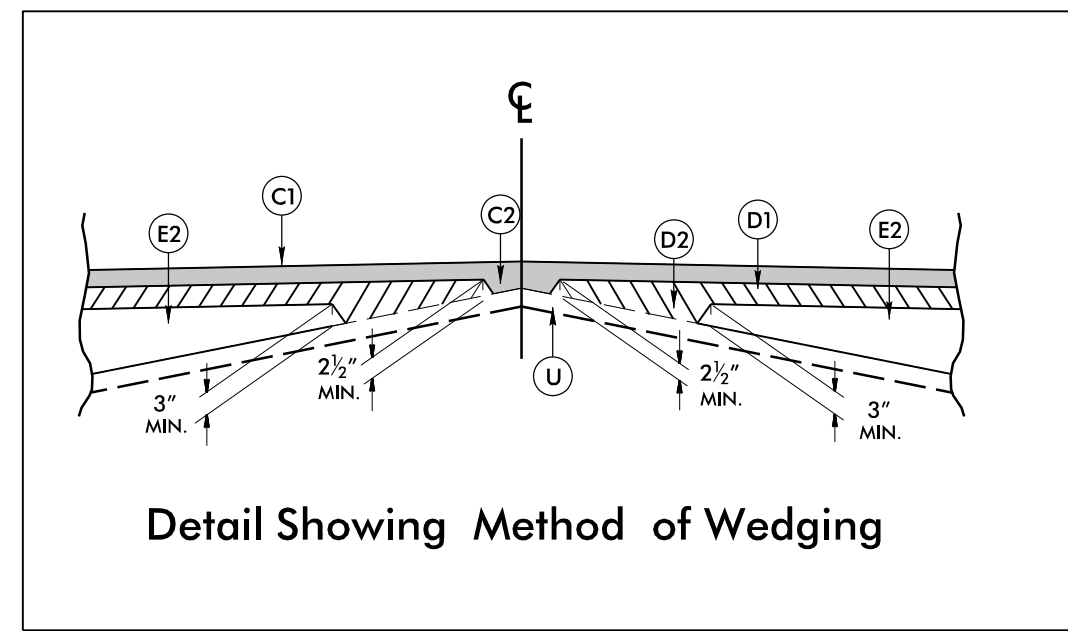
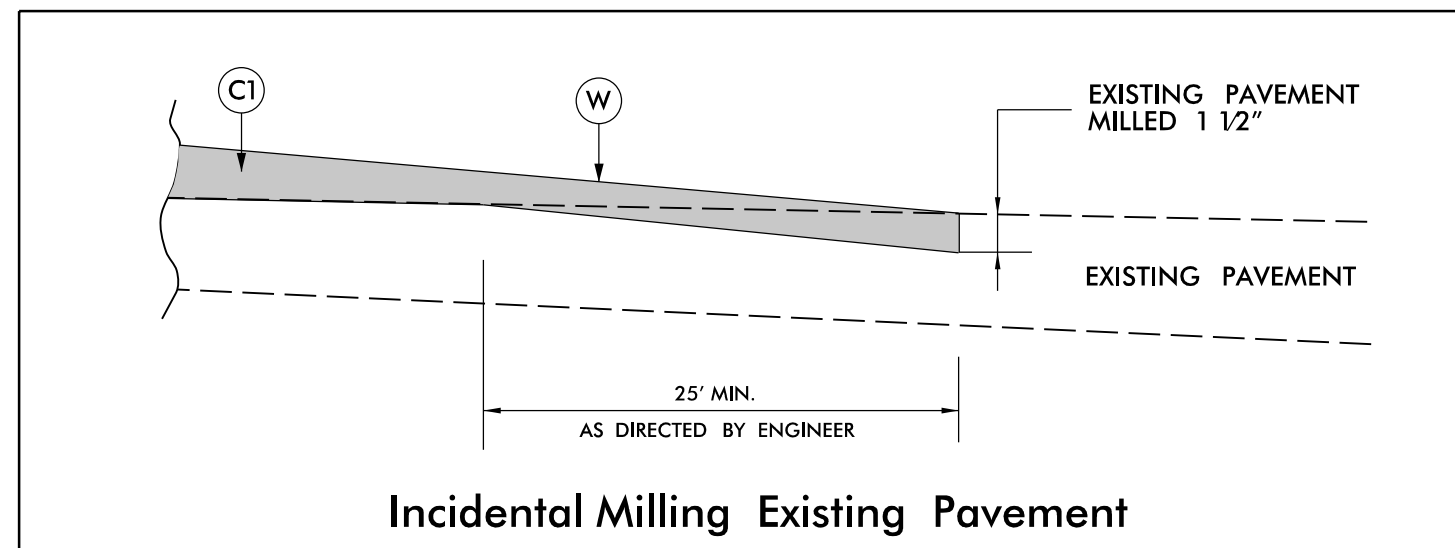
NOTE: DRAWING NOT TO SCALE

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 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)

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



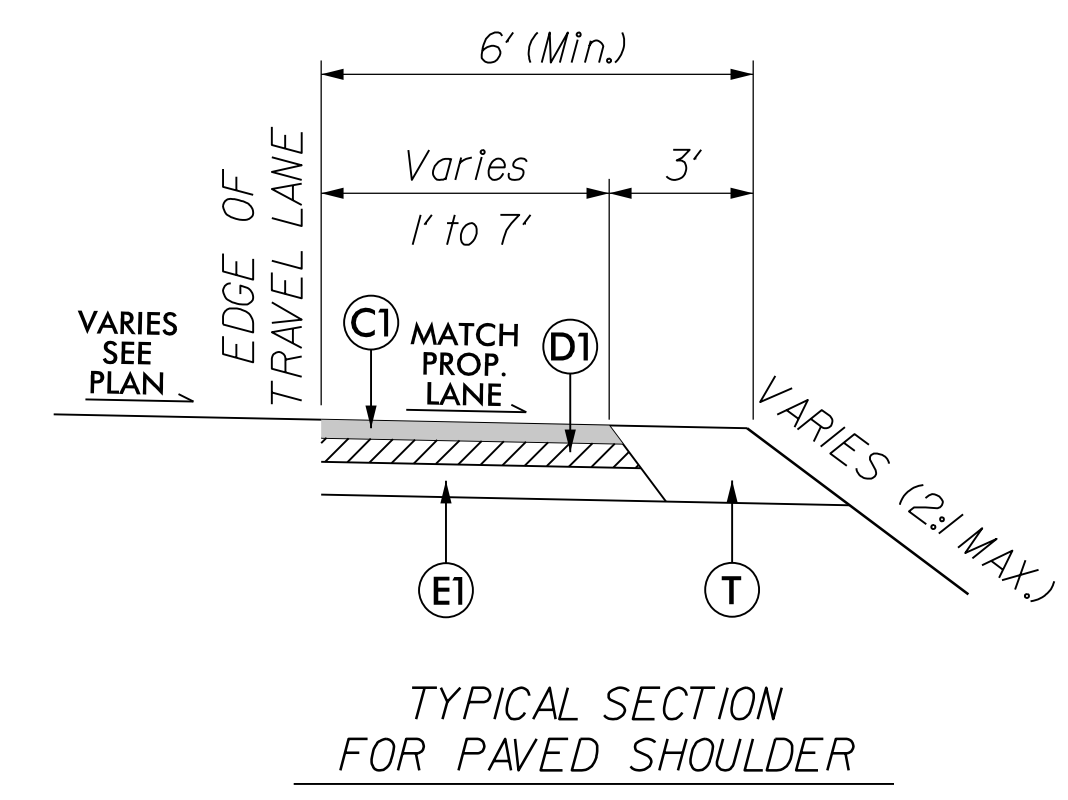
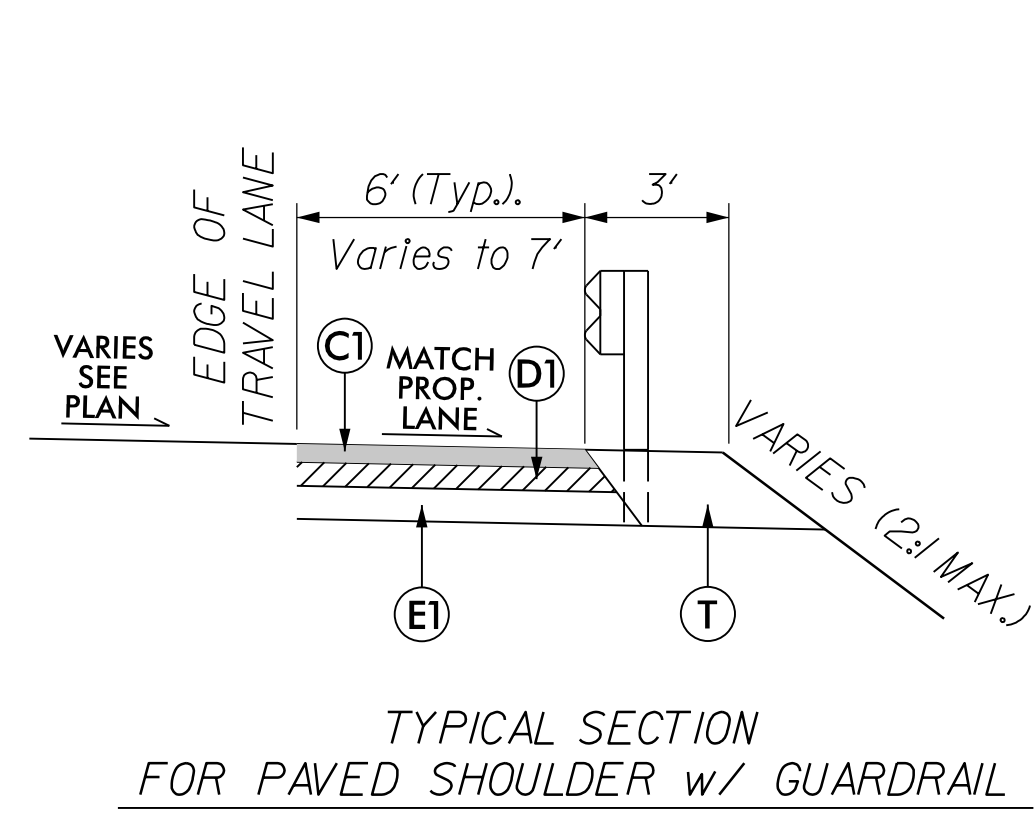
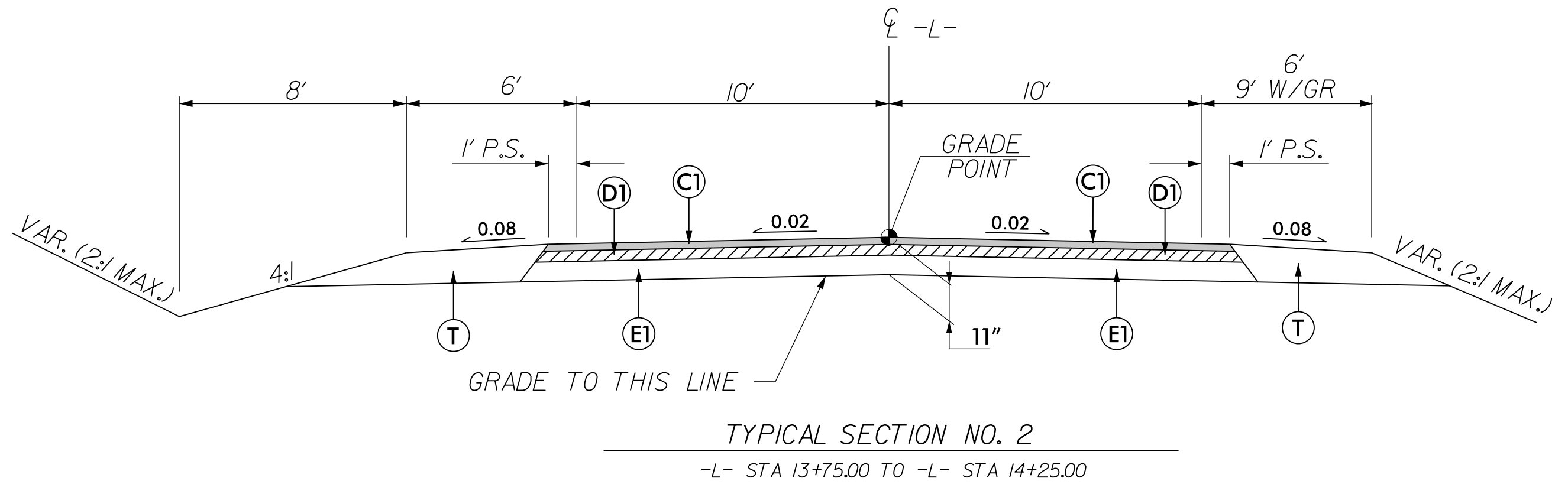
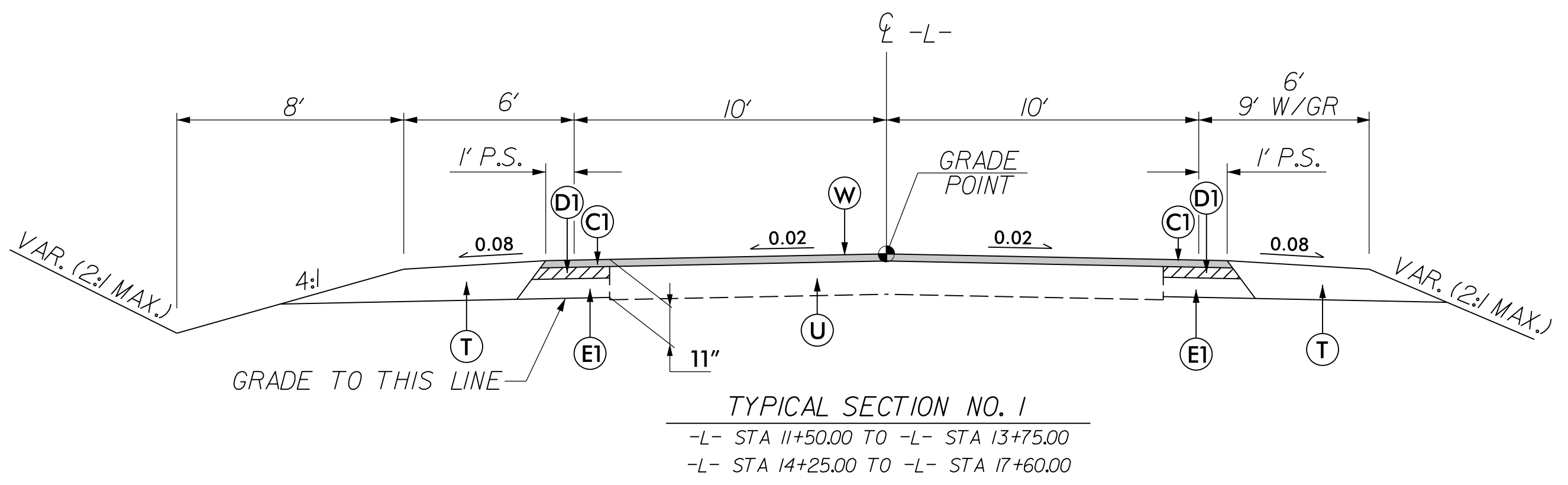
CH ENGINEERING

3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

PROJECT REFERENCE NO. 17BP.8.R.J30	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 5/14/2018	PAVEMENT DESIGN ENGINEER

Professional Engineer Seal: Brian Allen Wiles, License #16689, State of North Carolina, expires 5/14/2018.

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4/27/2018
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

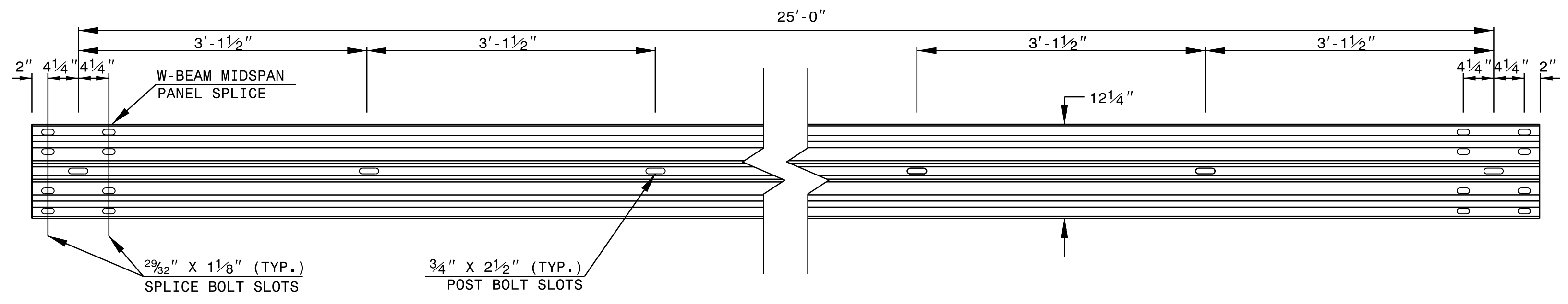
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

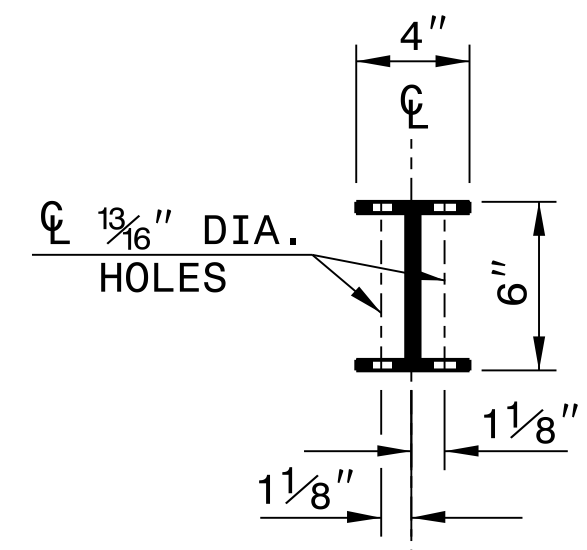
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

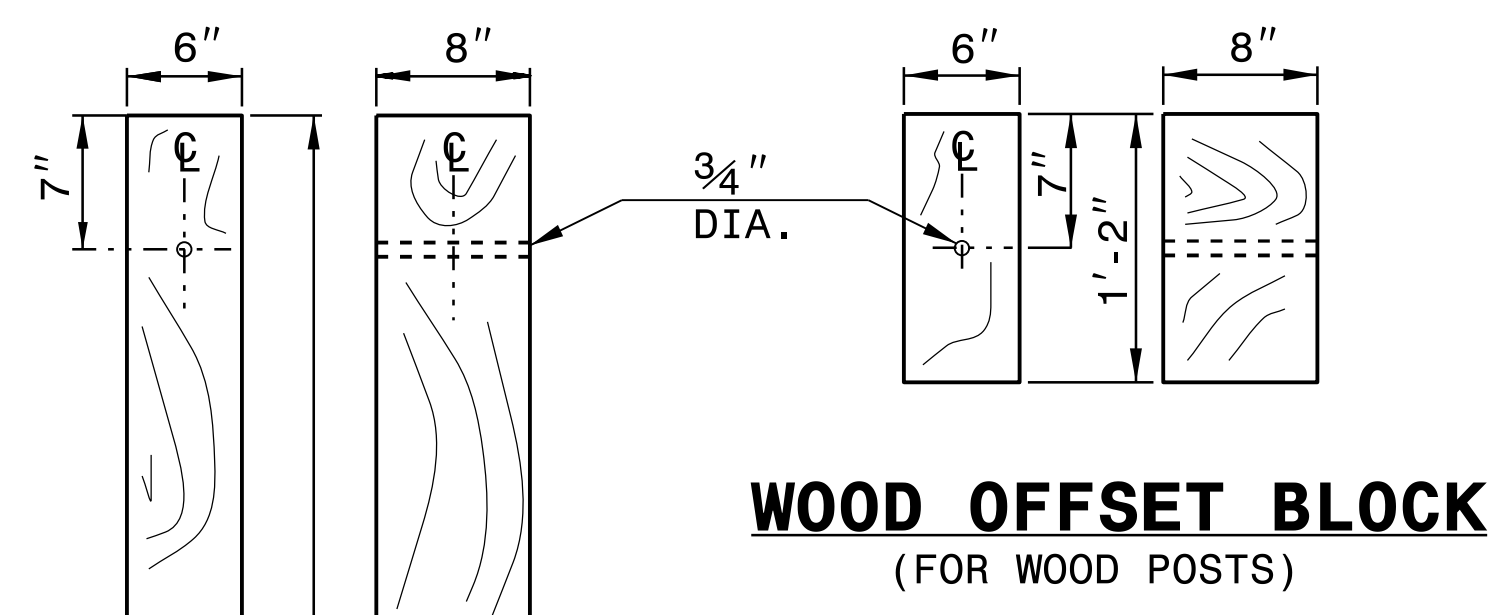
SHEET 6 OF 8
862D02



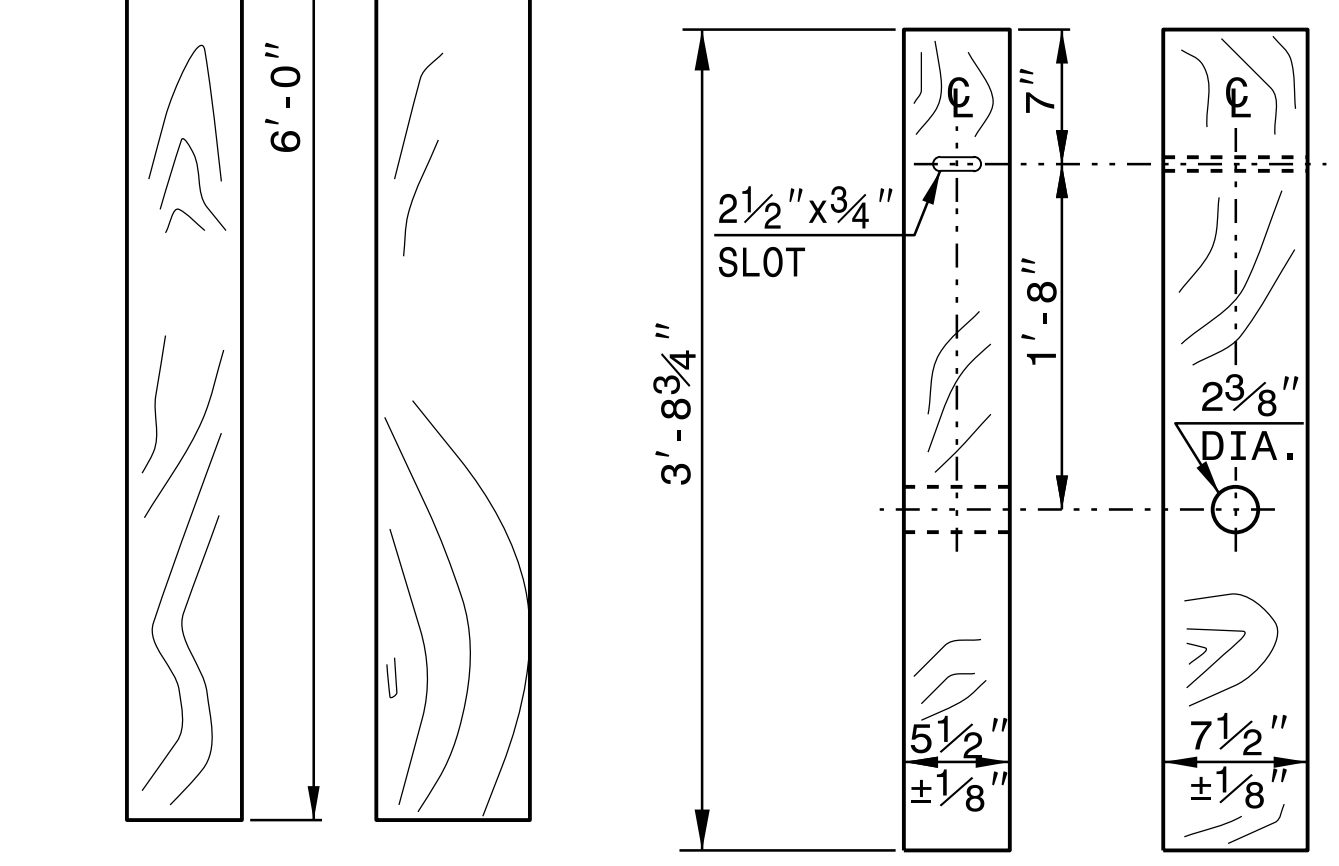
STANDARD W-BEAM GUARDRAIL



PLAN

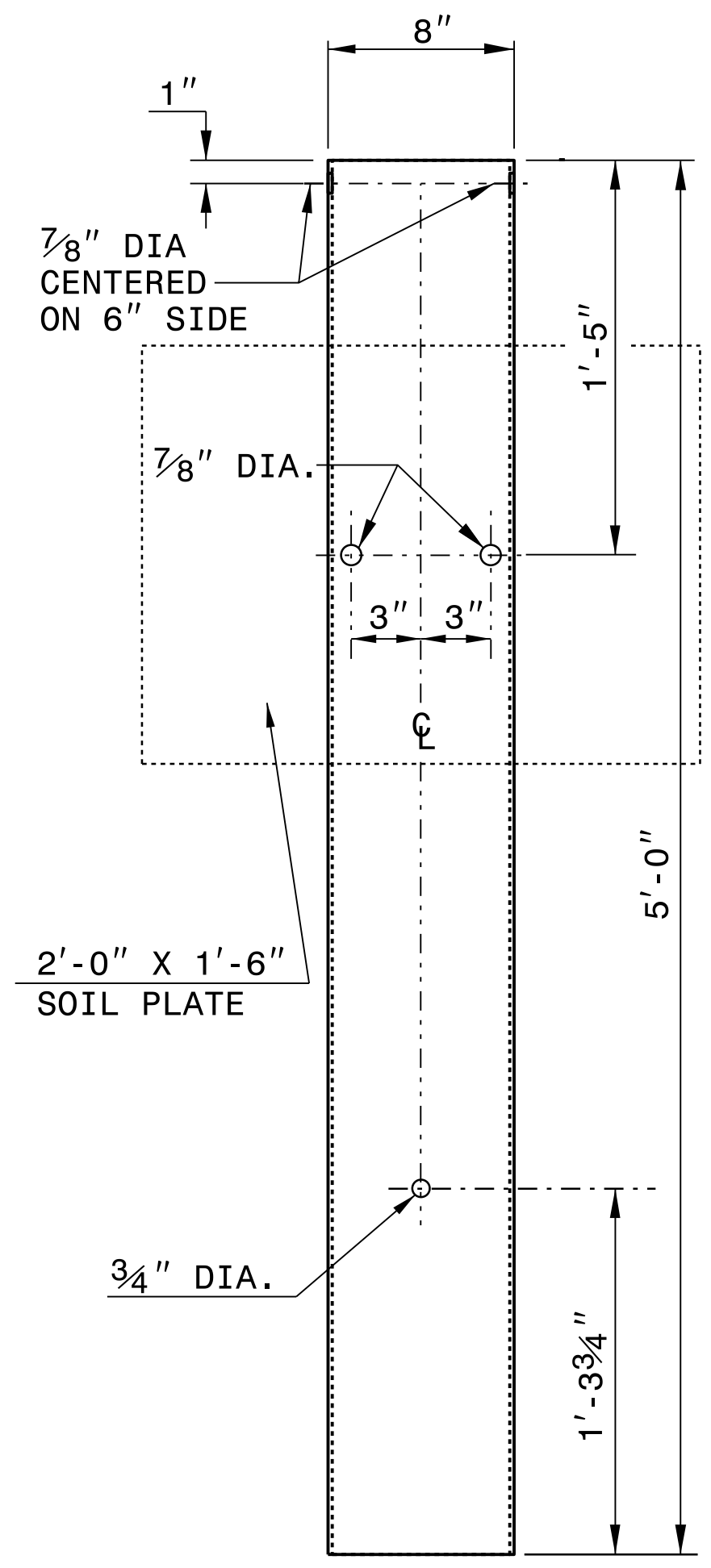


**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

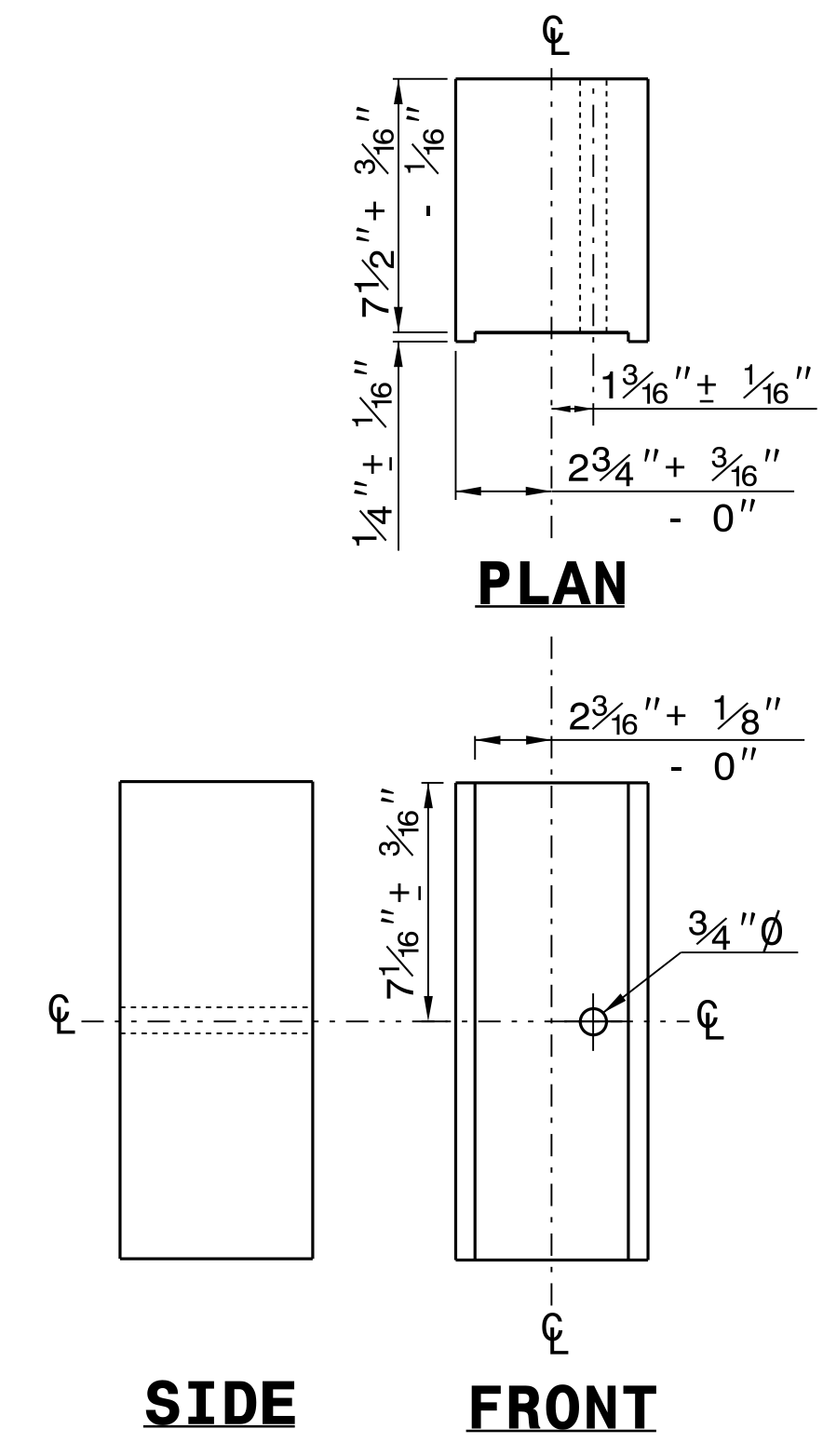


**STANDARD
LINE POST**

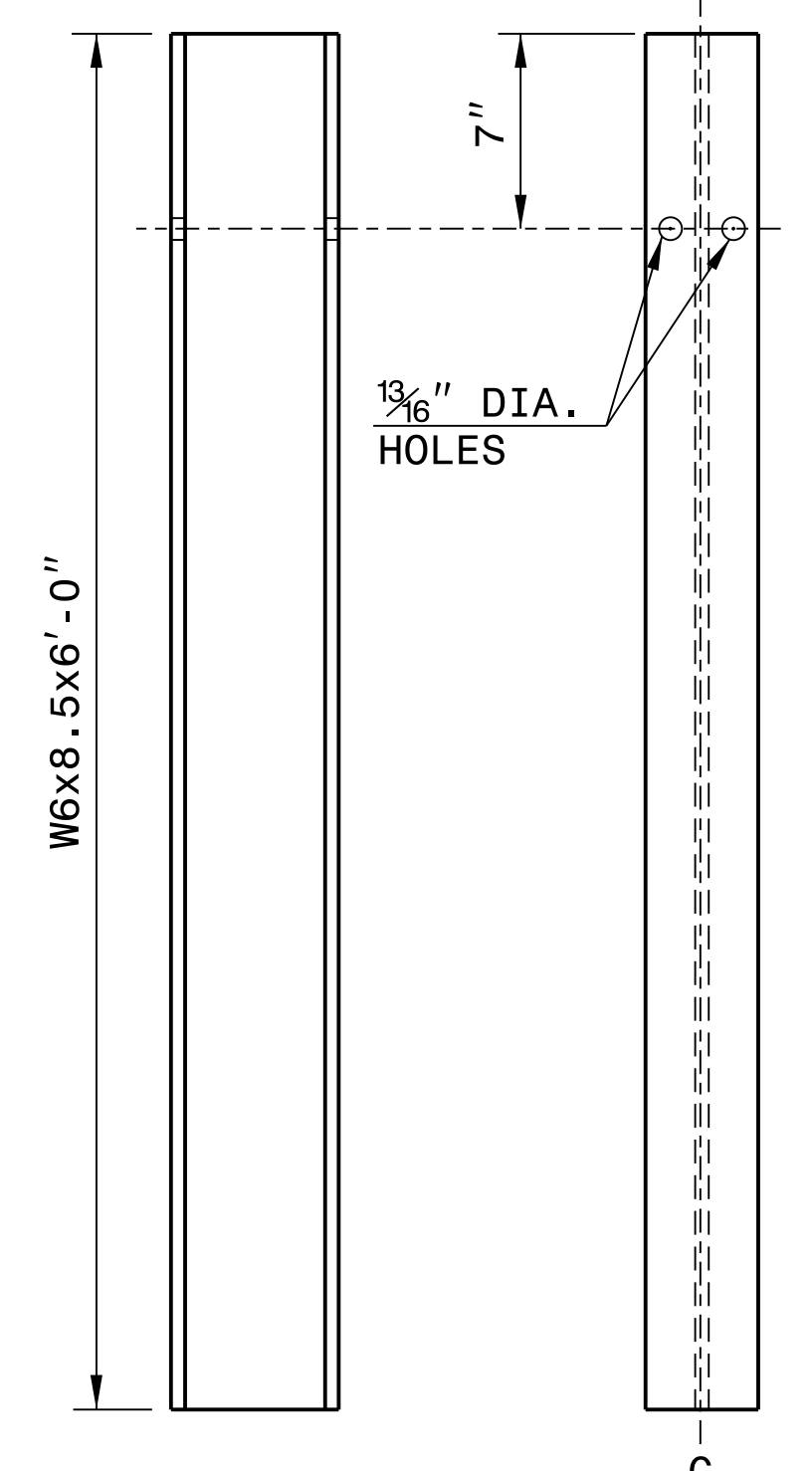
**SHORT WOOD
BREAKAWAY POST**



**STEEL TUBE
TS 6"x8"x0.1875"**

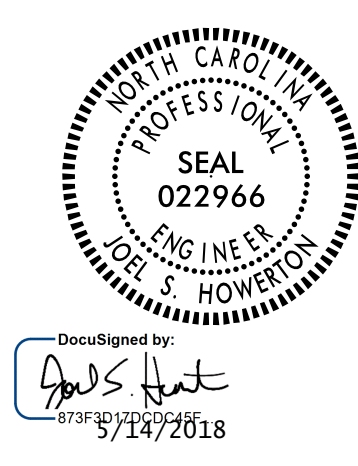


**SIDE
FRONT
ROUTED
OFFSET BLOCK**



**SIDE
FRONT
"W6" STEEL POST**

SYSTEM PARTS

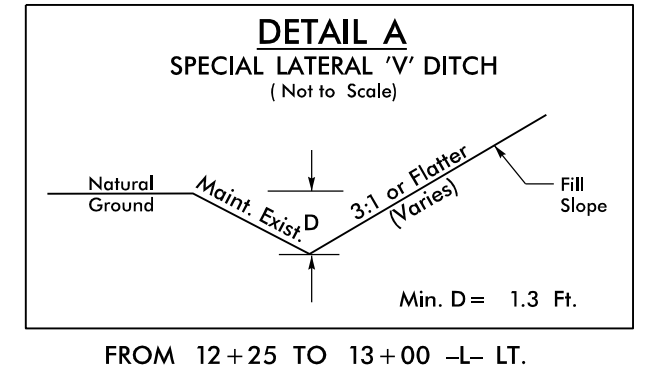


**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

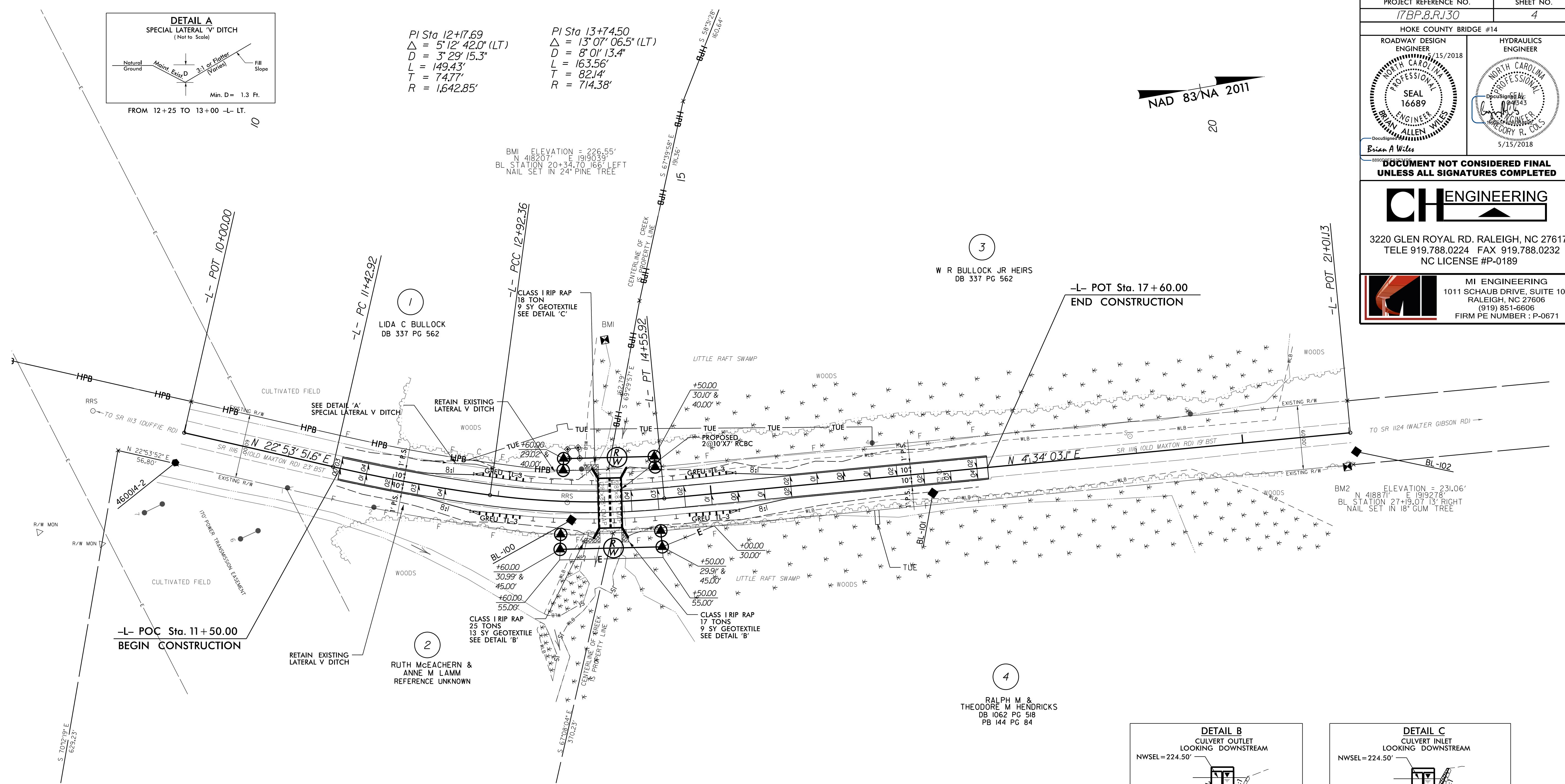
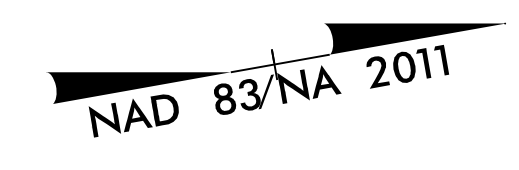
ORIGINAL BY: J. HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO. 17BP.8.RJ30	SHEET NO. 4
HOKE COUNTY BRIDGE #14	
ROADWAY DESIGN ENGINEER SEAL 16689 BRIAN ALLEN WILES 5/15/2018	HYDRAULICS ENGINEER SEAL 16689 JERRY R. OLS 5/15/2018
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p>CH ENGINEERING</p> <p>3220 GLEN ROYAL RD, RALEIGH, NC 27617 TELE 919.788.0224 FAX 919.788.0232 NC LICENSE #P-0189</p>	
<p>MI ENGINEERING</p> <p>1011 SCHAUB DRIVE, SUITE 100 RALEIGH, NC 27606 (919) 851-6606 FIRM PE NUMBER : P-0671</p>	



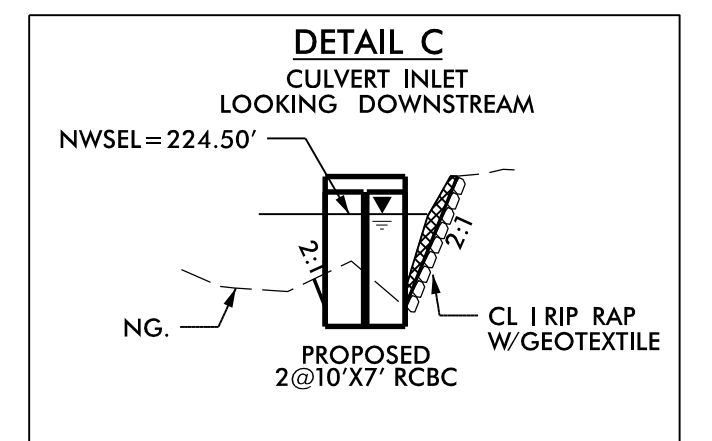
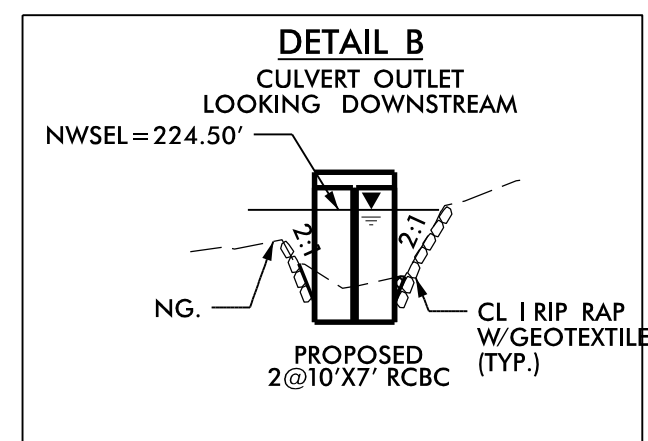
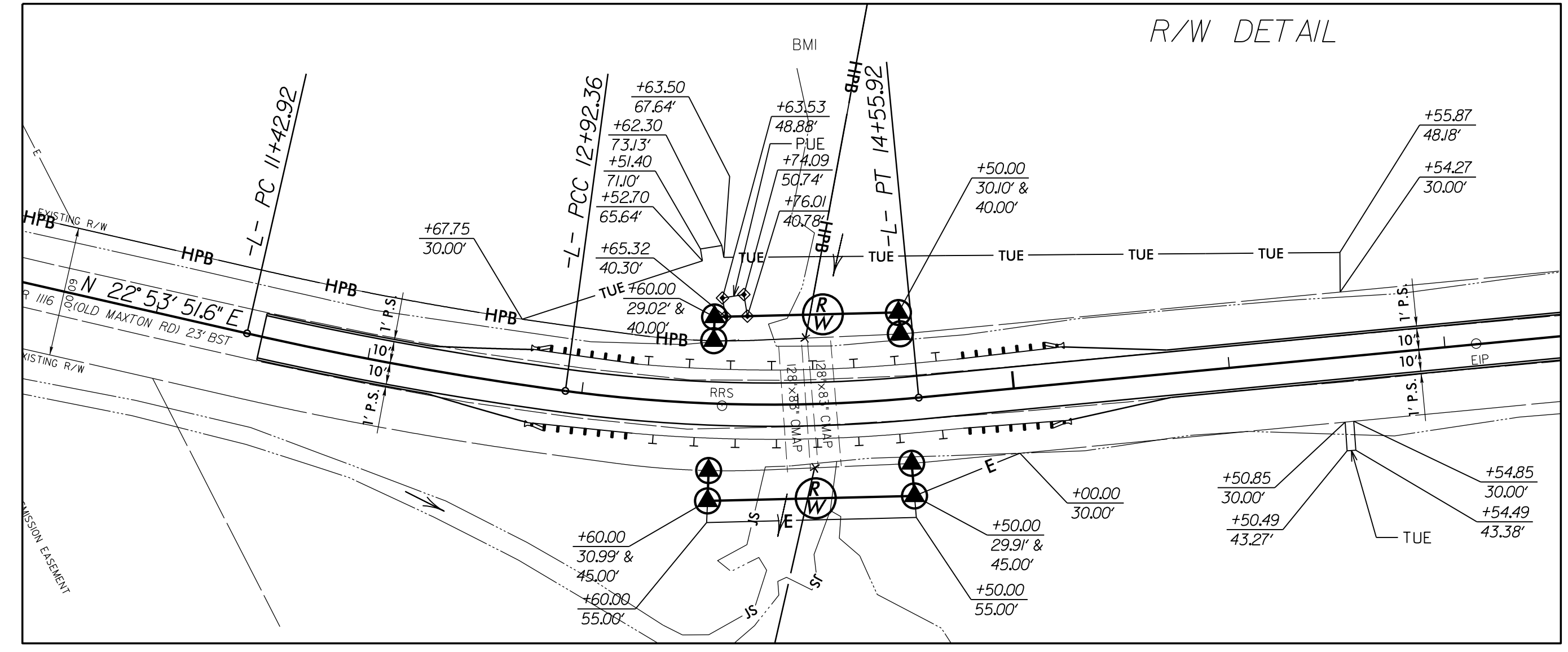
PI Sta 12+17.69
 $\Delta = 5'12'42.0''$ (LT)
 $D = 3'29'15.3''$
 $L = 149.43'$
 $T = 74.77'$
 $R = 1,642.85'$

PI Sta 13+74.50
 $\Delta = 13'07'06.5''$ (LT)
 $D = 8'01'13.4''$
 $L = 163.56'$
 $T = 82.14'$
 $R = 714.38'$



-L- POC Sta. 11+50.00
BEGIN CONSTRUCTION

-L- POT Sta. 17+60.00
END CONSTRUCTION



FOR PROFILE, SEE SHEET 5

REVISIONS

8/17/09

4/27/2018
 H:\Projects\17BP.8.RJ30\17BP.8.RJ30.dgn

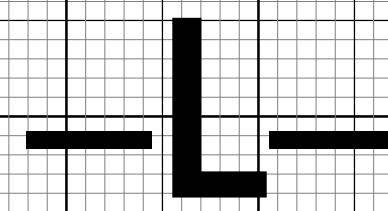
5/14/19

CH ENGINEERING
 3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

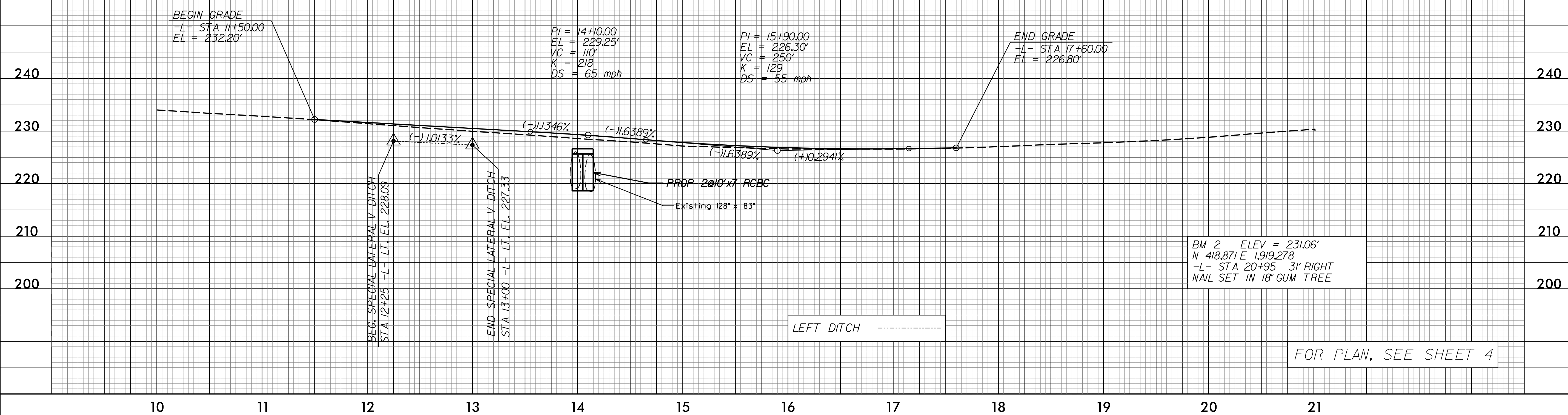
PROJECT REFERENCE NO. 17BP.8.R.130	SHEET NO. 5
ROADWAY DESIGN ENGINEER 5/15/2018	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 450	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 226.2	FT
BASE DISCHARGE	= 1,300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 227.7	FT
OVERTOPPING DISCHARGE	= 630	CFS
OVERTOPPING FREQUENCY	= 10	YRS
OVERTOPPING ELEVATION	= 226.8	FT

BM 1 ELEV = 226.55'
 N 418.207 E 1.919.039
 -L- STA 14+03 152' LEFT
 NAIL SET IN 24" PINE TREE



FOR PLAN, SEE SHEET 4

4/27/2018
 P:\Projects\17BP.8.R.130\17BP.8.R.130.dgn

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - 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.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - TYPES AND MOUNTING
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

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 TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTEN 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.

PAVEMENT MARKINGS AND MARKERS

- F) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE.

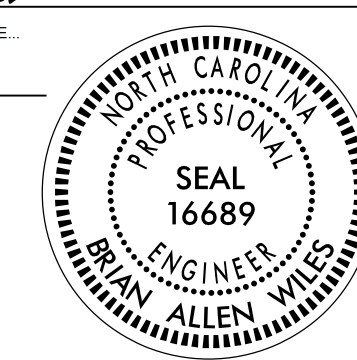
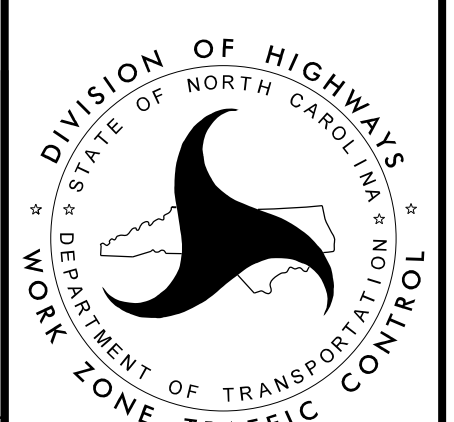
PHASING

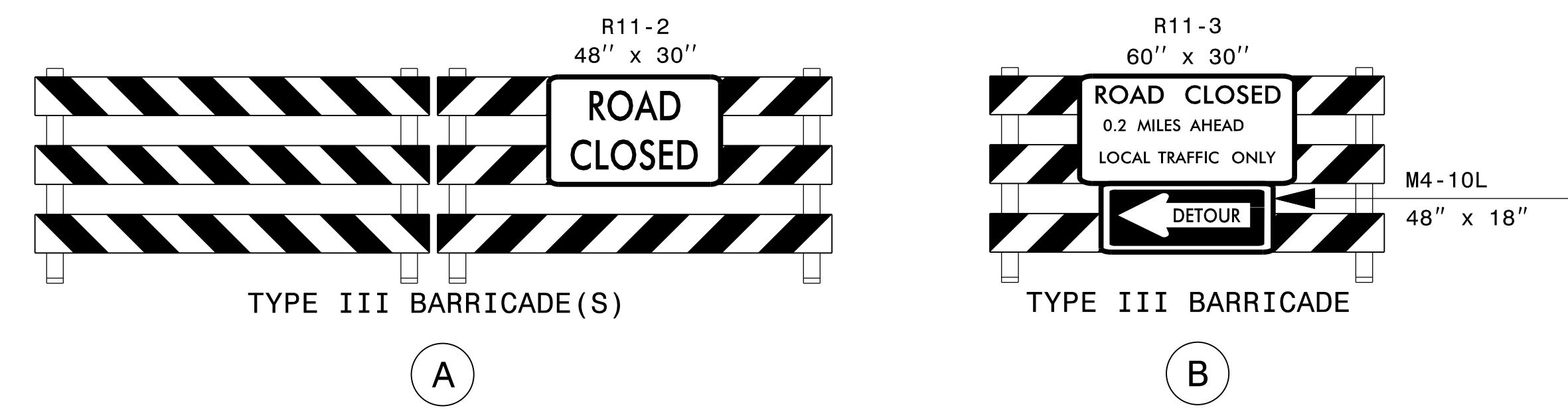
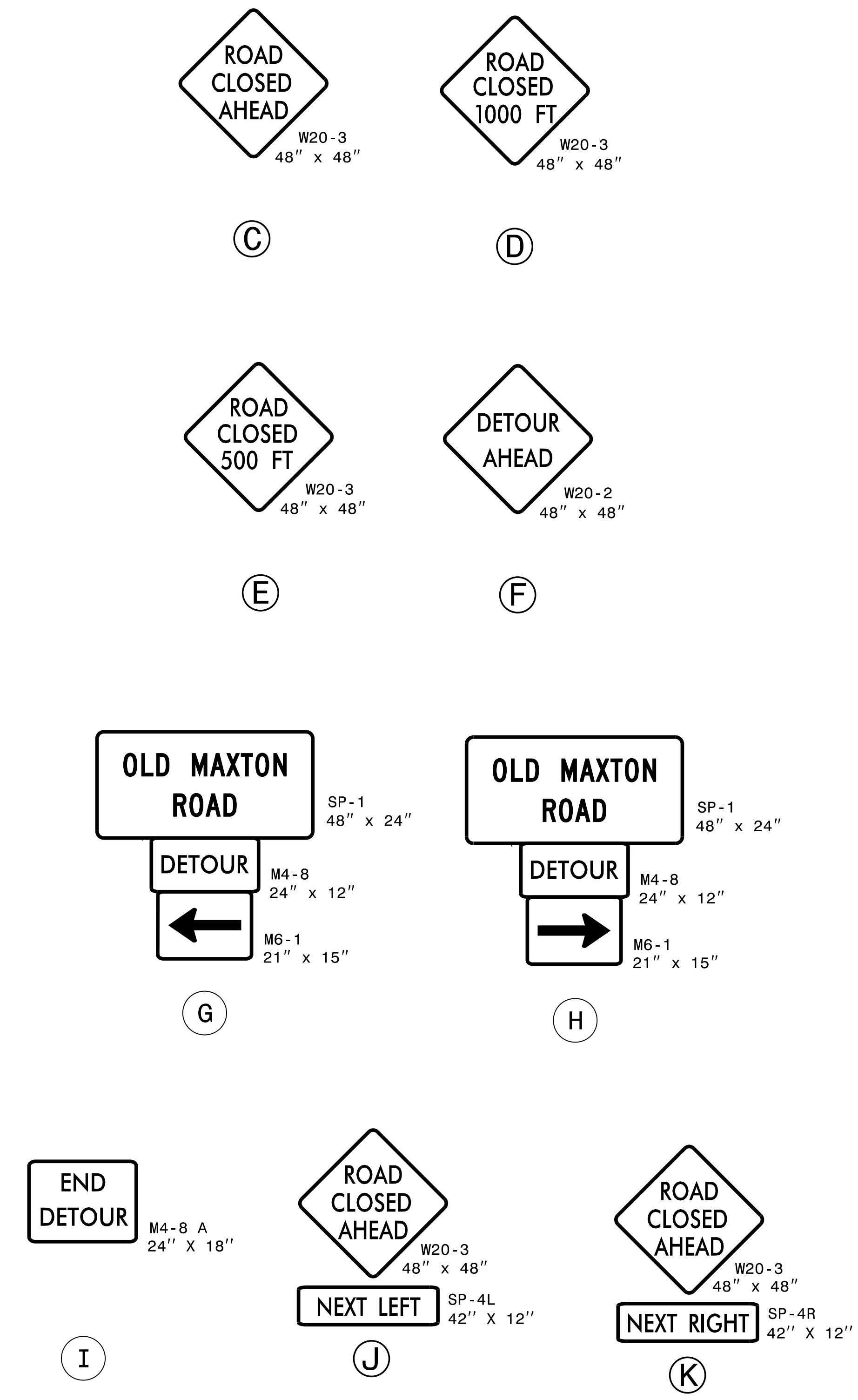
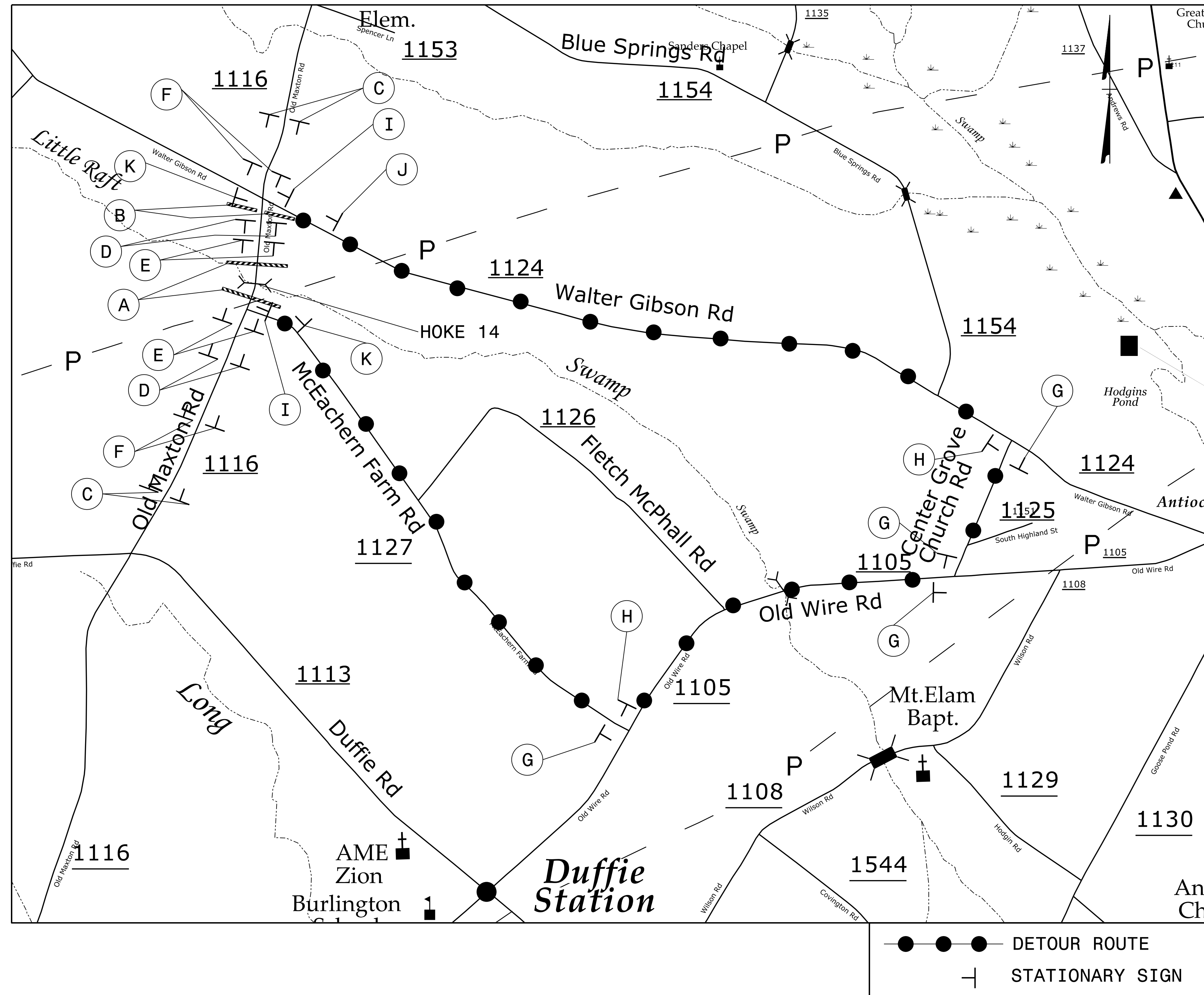
- STEP 1: USING ROADWAY STANDARD DRAWING NUMBER 1101.03, SHEET 1 OF 9, AND TMP-2, PERFORM THE FOLLOWING:
 - INSTALL ALL ROAD CLOSURE AND DETOUR SIGNING INCLUDING BARRICADES
 - CLOSE SR 1116 (OLD MAXTON ROAD)
 - PLACE TRAFFIC ONTO OFF-SITE DETOUR
- STEP 2: REMOVE EXISTING BRIDGE #014 AND CONSTRUCT THE PROPOSED BRIDGE AND APPROACHES AS SHOWN IN THE CONSTRUCTION PLANS.
- STEP 3: INSTALL FINAL PAVEMENT MARKINGS.
- STEP 4: REMOVE ALL TRAFFIC CONTROL SIGNING AND DEVICES AND RE-OPEN SR 1116 (OLD MAXTON ROAD) TO THE FINAL TRAFFIC PATTERN.

PAVEMENT MARKING

THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS) 1220 LF
 THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS) 1220 LF

PERMANENT RAISED PAVEMENT MARKERS 10 EACH

APPROVED: <u>Brian A Wiles</u> <small>DocuSigned by: 199000FEA2E3ADE...</small> DATE: 5/14/2018 SEAL 		<h2>TRANSPORTATION OPERATIONS PLAN</h2>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



APPROVED: <i>Brian A Wiles</i> DATE: 5/14/2018 SEAL DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			DETOUR ROUTE AND SIGNS
---	--	--	-------------------------------

4/27/2018
 R:\TrafficControl\TCP\Hoke014_TC_TMP.dgn
 USER: BAWILES

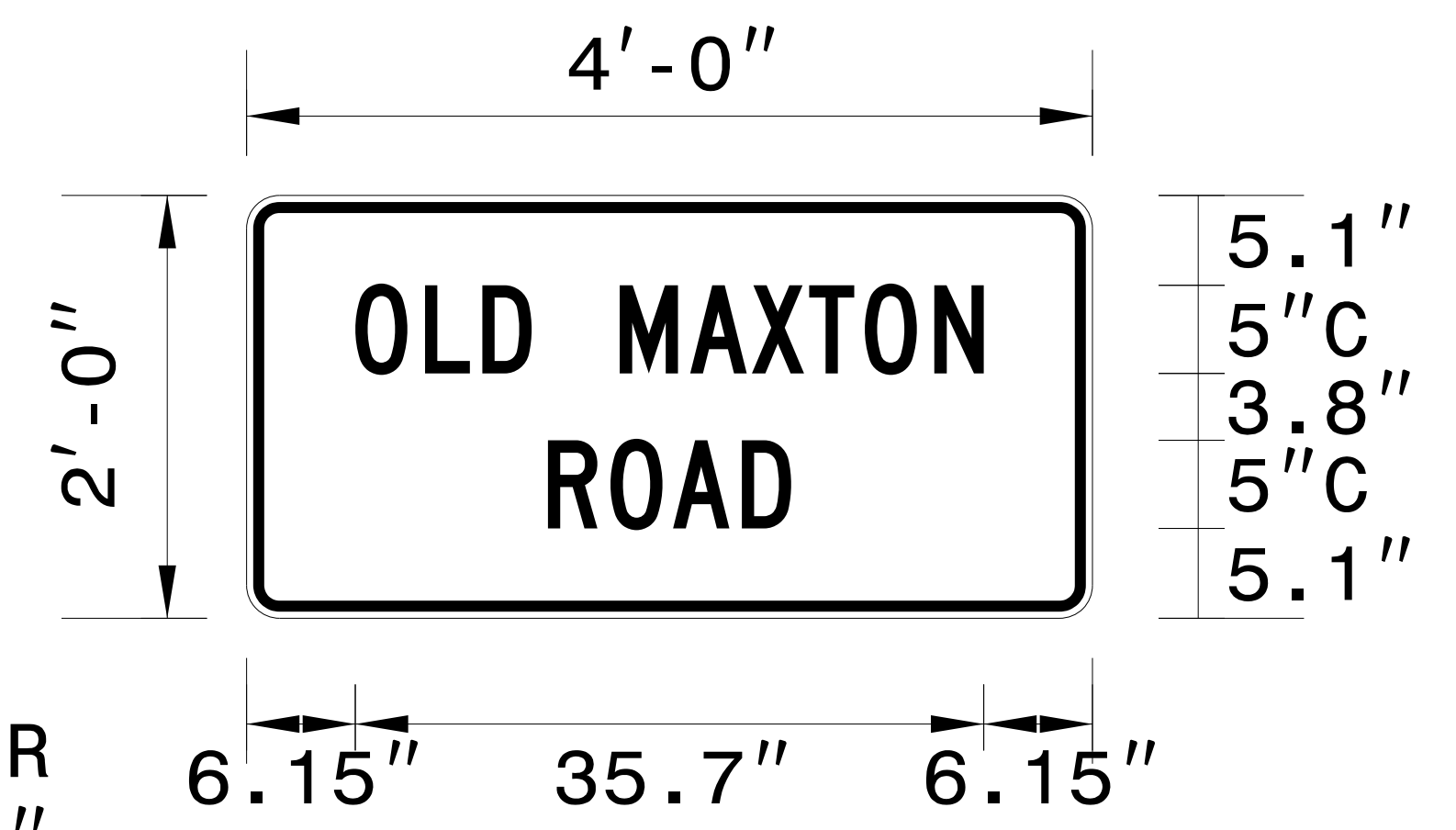
SIGN NUMBER: SP-1
 TYPE: STATIONARY
 QUANTITY: SEE PLANS
 SIGN WIDTH: 4'-0"
 HEIGHT: 2'-0"
 TOTAL AREA: 8.0 Sq.Ft.
 BORDER TYPE: INSET
 RECESS: 0.38"
 WIDTH: 0.63"
 RADII: 1.5"
 NO. Z BARS:
 LENGTH:

BACKG COLOR: Fluorescent Orange
 COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: none
 PROJECT ID: ID
 CHECKED BY: Mar 20, 2018
 LOCATION: DIV: 8



USE NOTES: 1,2

- Legend and border shall be direct applied black non-reflective sheeting.
- Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

BORDER
 R=1.5"
 TH=0.63"
 IN=0.38"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter													Series/Size										
													Text Length										
	O	L	D		M	A	X	T	O	N												C 2000	
6.2	4	3.3	2.8	5	4	3.5	3.2	3.1	4	2.8	6.2											35.7	
	R	O	A	D																			C 2000
17.1	3.6	3.6	3.9	2.8	17.1																		13.8

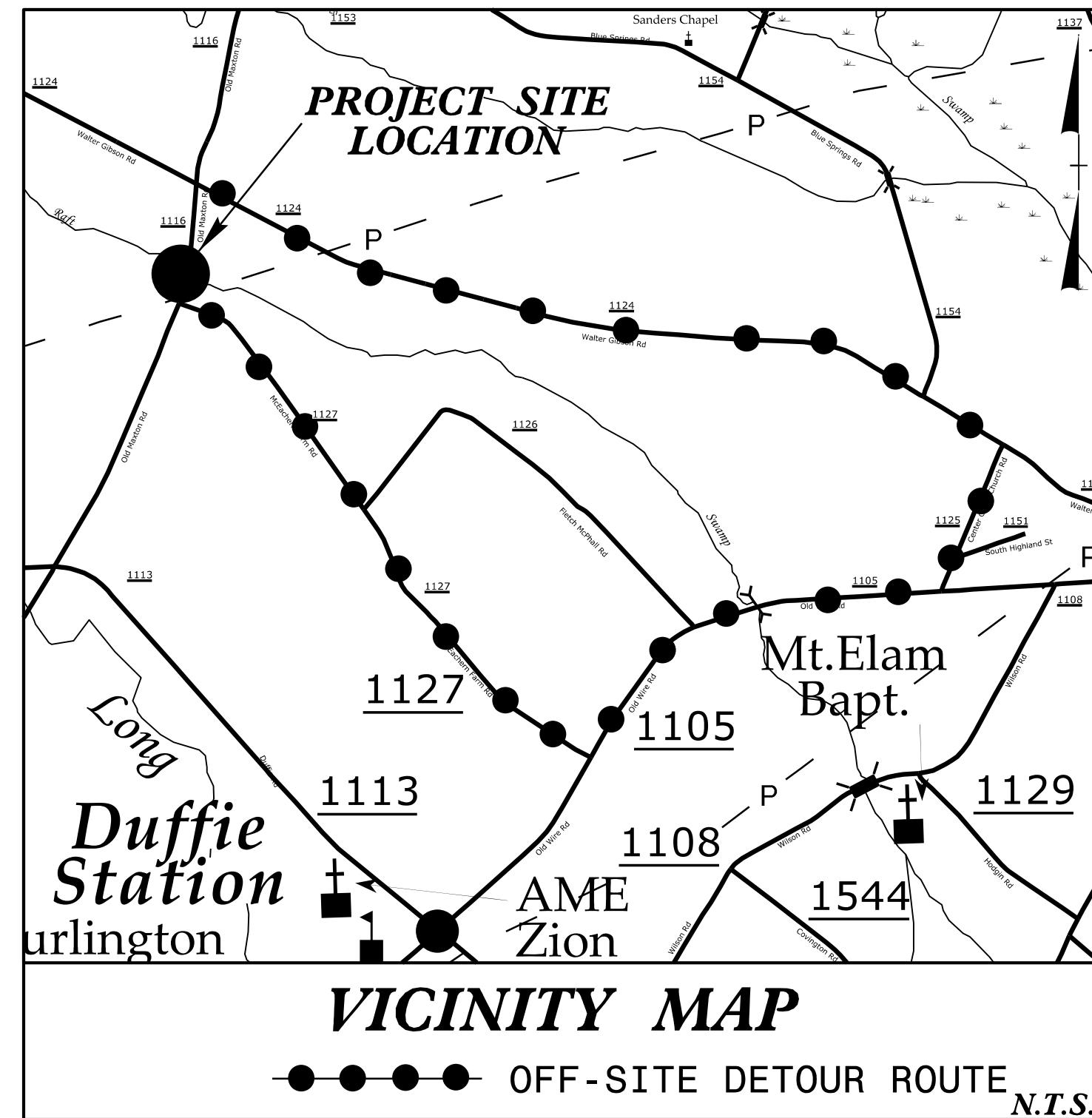
FILENAME: old maxton road

NORTH CAROLINA D.O.T. SIGN DETAIL

4/27/2018 R:\TrafficControl\TCP\Hoke04_TC_specialsign.dgn USERNAME

APPROVED: <u>Brian A. Wiles</u> DATE: 5/14/2018 SEAL 		SIGN DESIGN
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

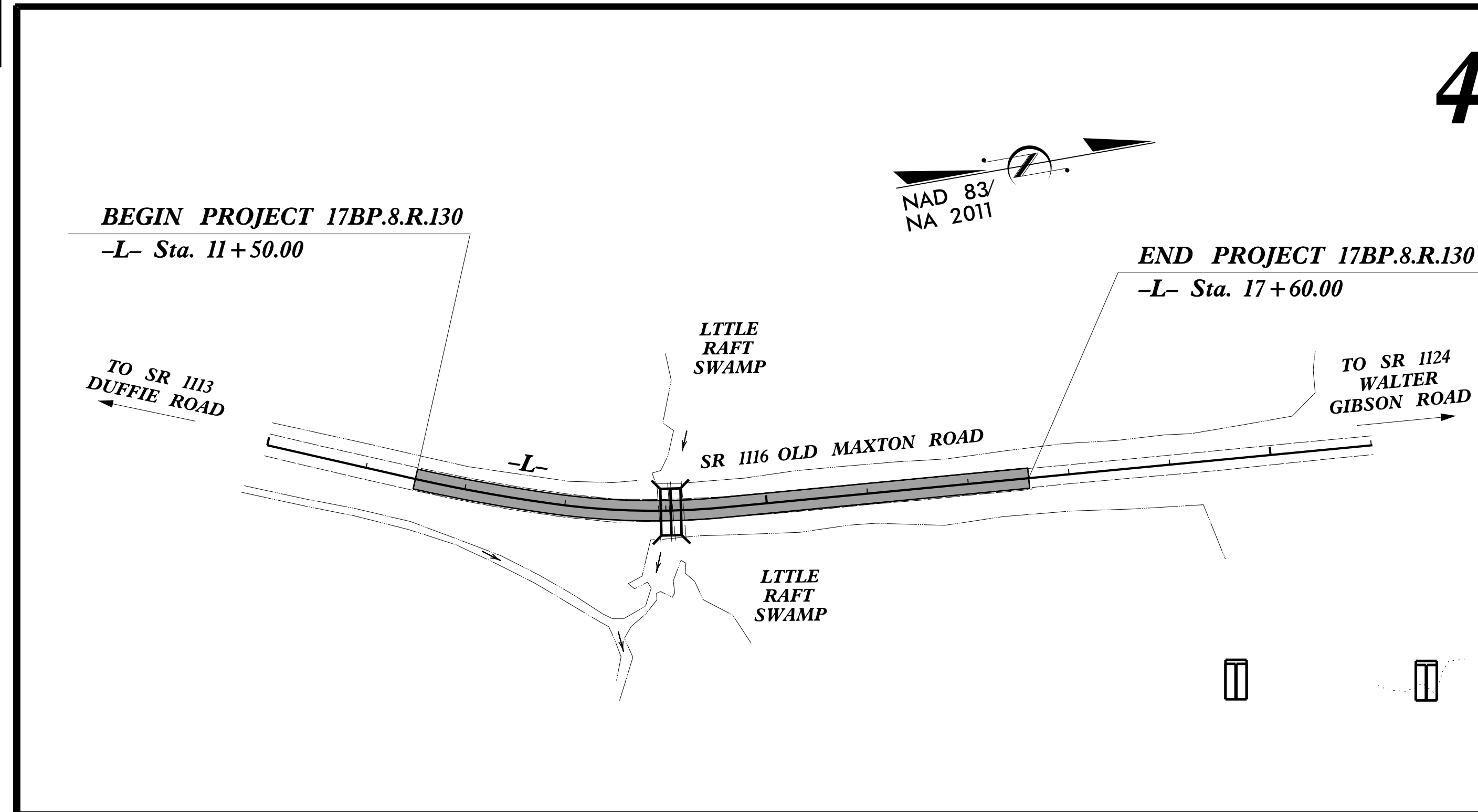
TIP PROJECT: 17BP.8.R.130



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

**LOCATION: BRIDGE NO. 460014 ON SR 1116 (OLD MAXTON ROAD)
 OVER LITTLE RAFT SWAMP**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



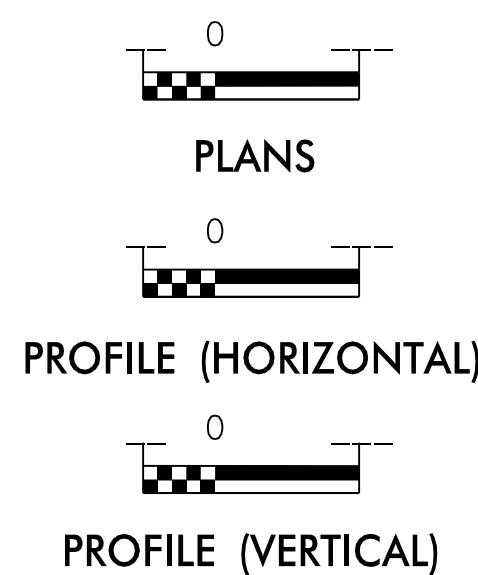
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.130	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.8.R.130		P.E.	

EROSION AND SEDIMENT CONTROL MEASURES

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

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

GRAPHIC SCALE



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

Prepared in the Office of:
MI ENGINEERING, PLLC
 1011 SCHAUB DR SUITE 100
 RALEIGH NC 27606

Designed by:
GREGORY COLS 3187
 NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:
ROADSIDE ENVIRONMENTAL UNIT
 1 South Wilmington St.
 Raleigh, NC 27611
2018 STANDARD SPECIFICATIONS

Reviewed by:
AARON HARPER

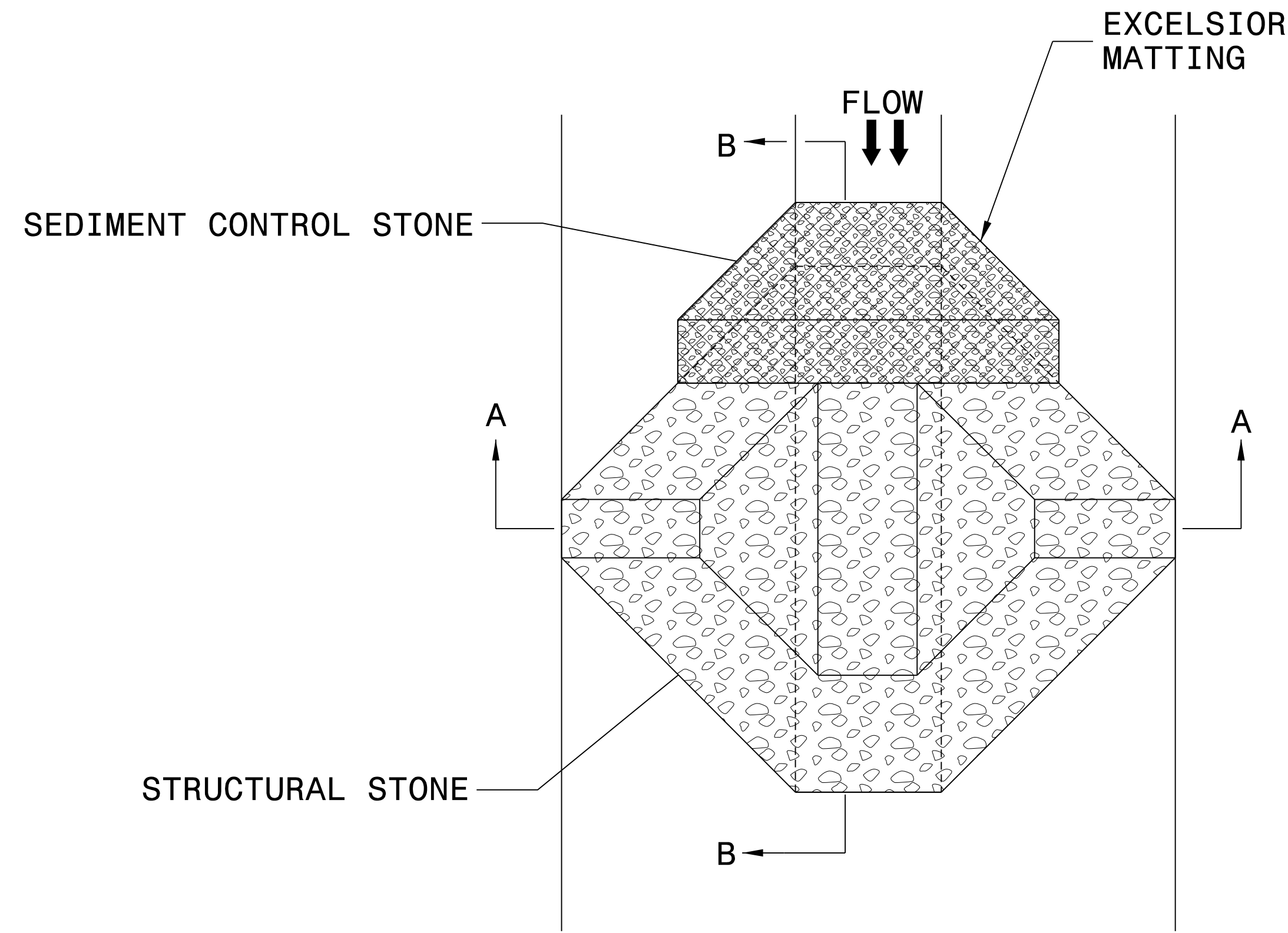
Roadway Standard Drawings

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

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1633.03 Temporary Rock Silt Check Type C
1630.02 Silt Basin Type 1	1634.01 Temporary Rock Sediment Dam Type A
1630.03 Temporary Silt Ditch	1634.02 Temporary Rock Sediment Dam Type B
1630.04 Stilling Basin	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.05 Temporary Diversion	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.06 Special Stilling Basin	1640.01 Coir Fiber Wattle
1631.01 Matting Installation	1645.01 Temporary Stream Crossing

PROJECT REFERENCE NO. 17BP.8.R.I30	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN

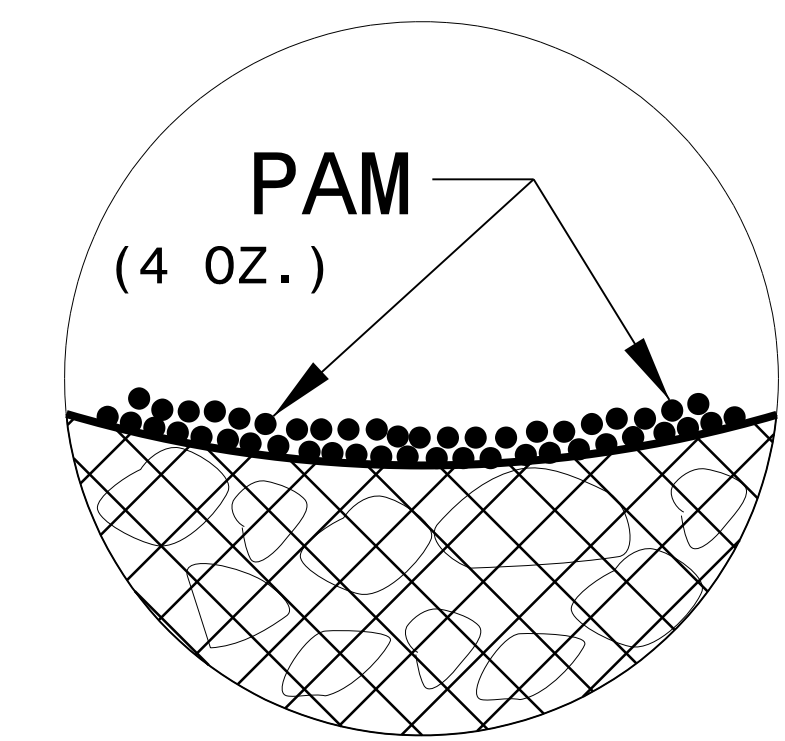
NOTES:

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

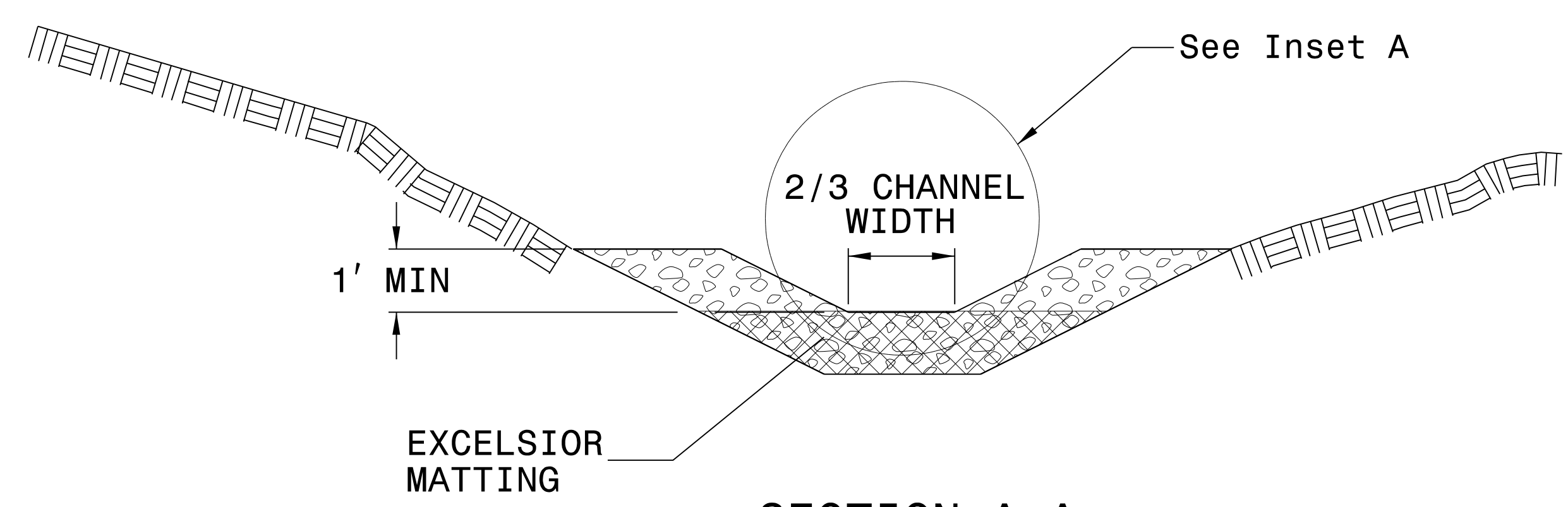
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

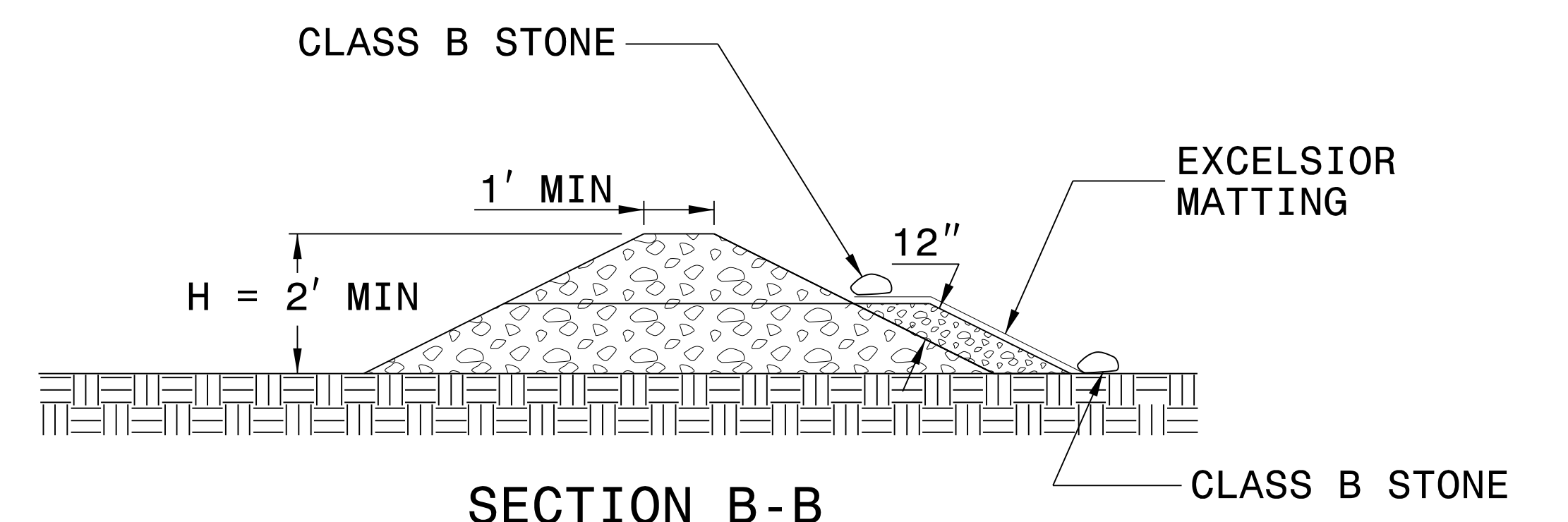
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

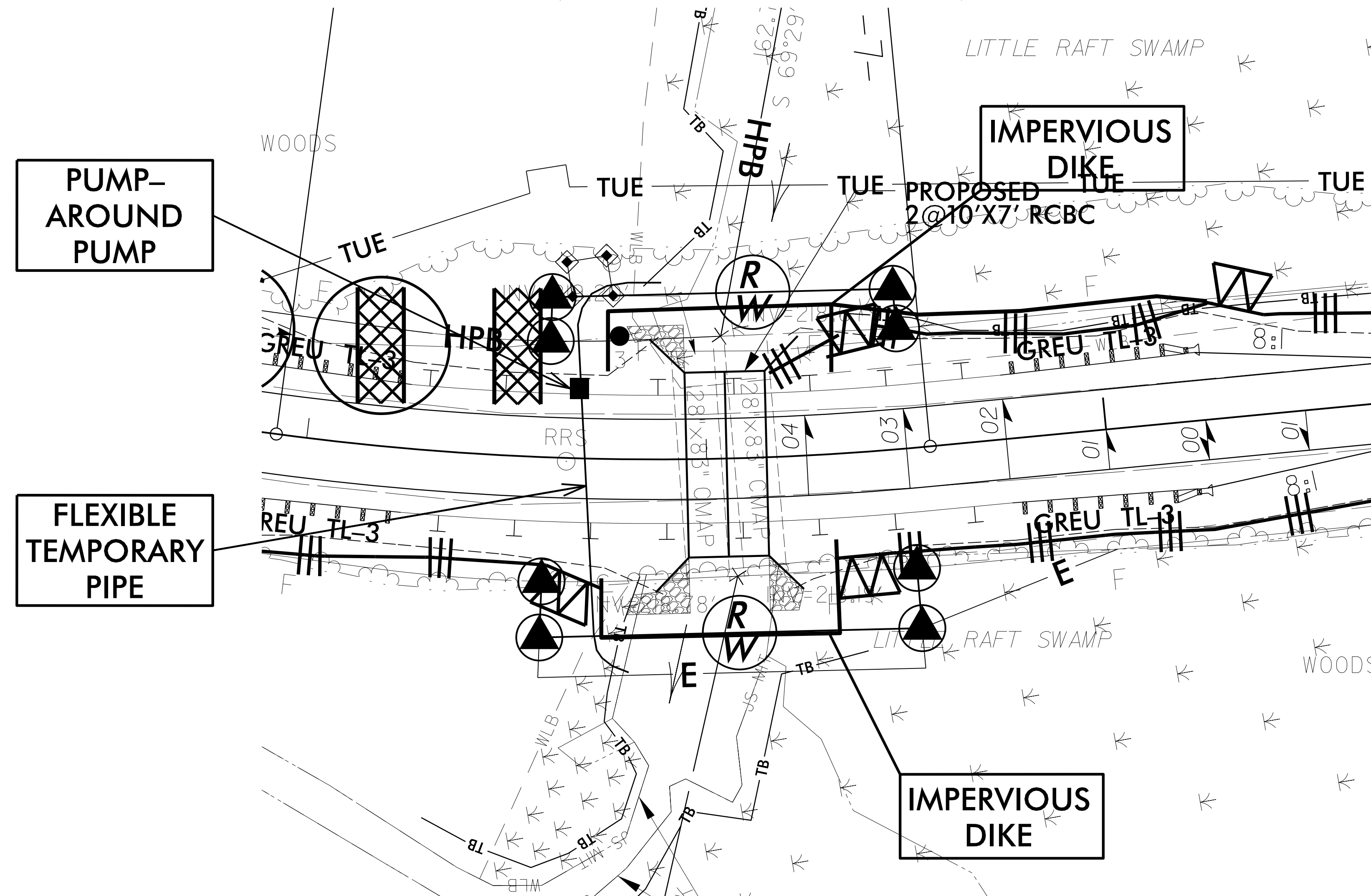
PROJECT REFERENCE NO.	SHEET NO.
17BP.8.RJ30	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

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

5/14/99

CULVERT CONSTRUCTION SEQUENCE (NOT TO SCALE)



NOTES:

CULVERT CONSTRUCTION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.

IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.

MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES DIVERSION PIPES, PUMPS AND HOSES.

PUMPS AND HOSES SHALL BE SUFFICIENT SIZE TO DEWATER THE WORK AREA.

THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO STREAM. FOR DEWATERING OF CULVERT SITES, THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH STILLING BASIN AND/OR SPECIAL STILLING BASIN.

UTILIZE A STABILIZED OUTLET INSTEAD OF A SPECIAL STILLING BASIN IF PUMPING CLEAN WATER.

- SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA**
1. INSTALL SPECIAL STILLING BASINS AND OTHER C&G EROSION CONTROL MEASURES.
 2. INSTALL PUMP-AROUND PIPE AND PUMP AND IMPERVIOUS DIKES TO ISOLATE EXISTING CULVERT.
 3. DEWATER BEHIND DIKES.
 4. REMOVE EXISTING CULVERT PER CONTRACT STRUCTURE PLANS.
 5. CONSTRUCT PROPOSED CULVERT.
 6. BACKFILL CULVERT AND STABILIZE APPROACH FILLS AND SHOULDERS.
 7. REMOVE PUMP, SPECIAL STILLING BASIN, TEMP. PIPES, AND IMP. DIKE.
 8. REMOVE PUMP-AROUND PUMP AND TEMPORARY PIPE.
 9. PERMANENTLY STABILIZE AREA.

PROJECT REFERENCE NO. 17BP.8.R.J.30	SHEET NO. EC-04A/CONST.4
HOKE COUNTY BRIDGE #14	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

5/14/99

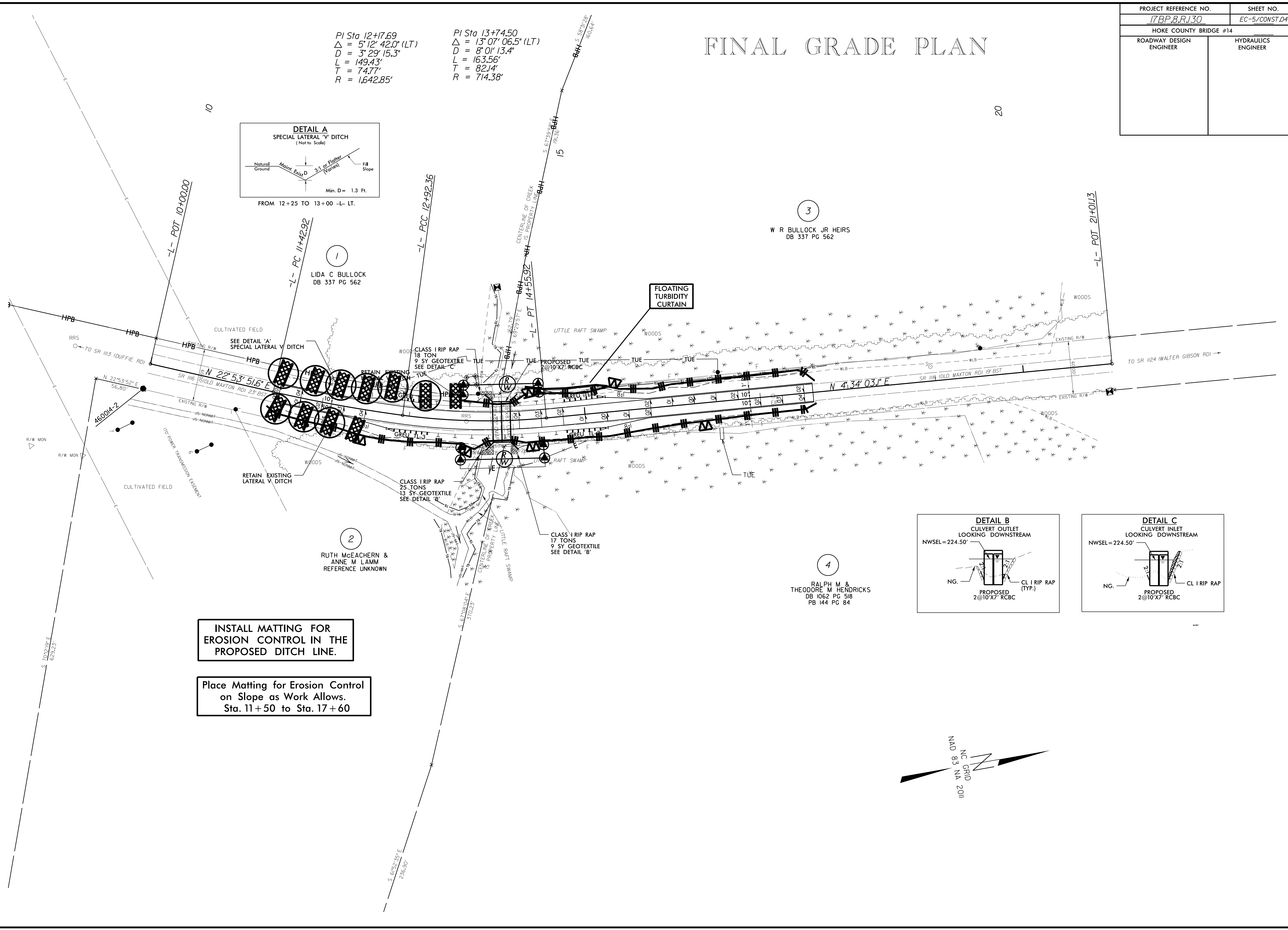
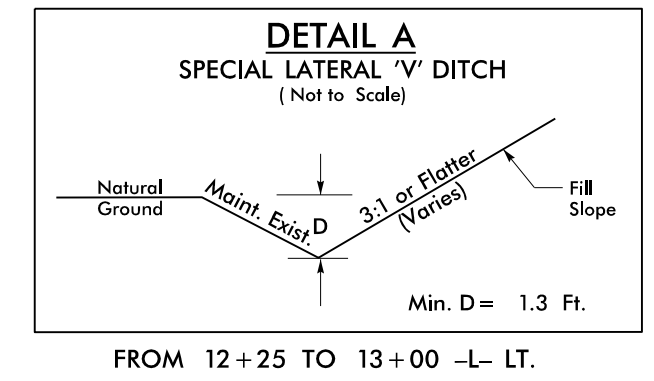
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.130	EC-5/CONST.04
HOKE COUNTY BRIDGE #14	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

FINAL GRADE PLAN

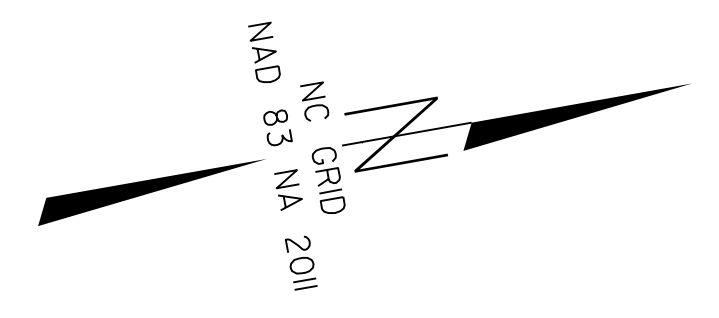
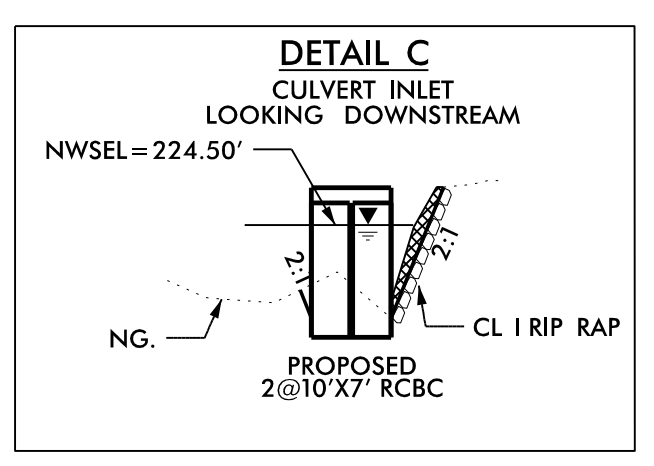
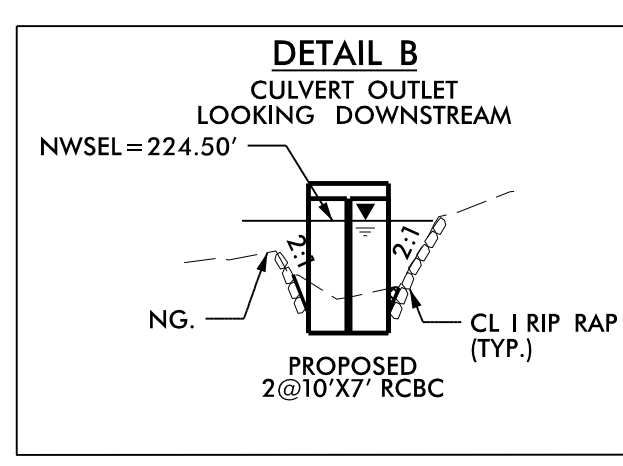
PI Sta 12+74.69
 $\Delta = 5' 12' 42.0''$ (LT)
 $D = 3' 29' 15.3''$
 $L = 149.43'$
 $T = 74.77'$
 $R = 1642.85'$

PI Sta 13+74.50
 $\Delta = 13' 07' 06.5''$ (LT)
 $D = 8' 01' 13.4''$
 $L = 163.56'$
 $T = 82.14'$
 $R = 714.38'$



INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

Place Matting for Erosion Control on Slope as Work Allows. Sta. 11+50 to Sta. 17+60



T.I.P. NO.	SHEET NO.
17BP.8.R.130	UO-1

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

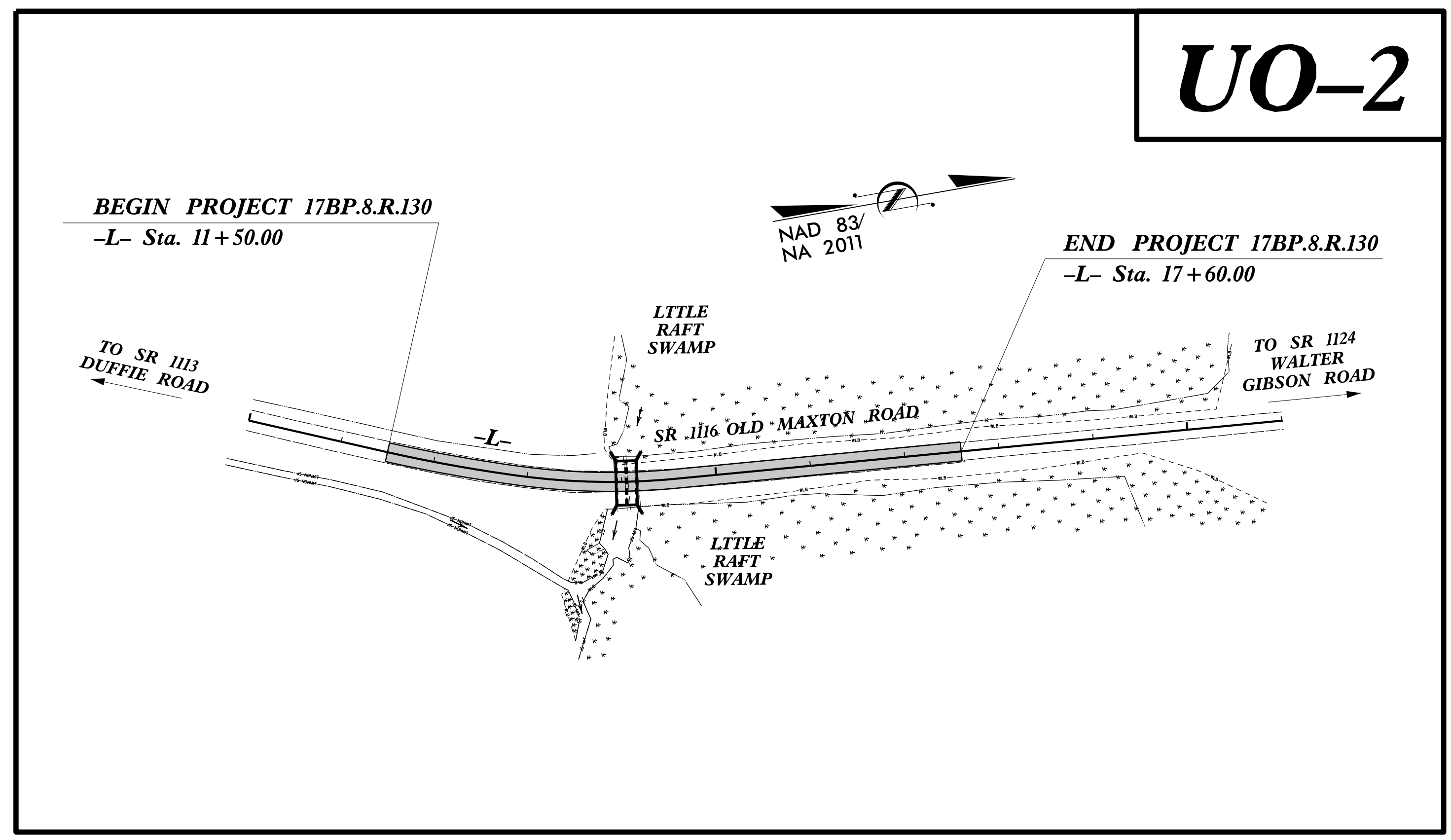
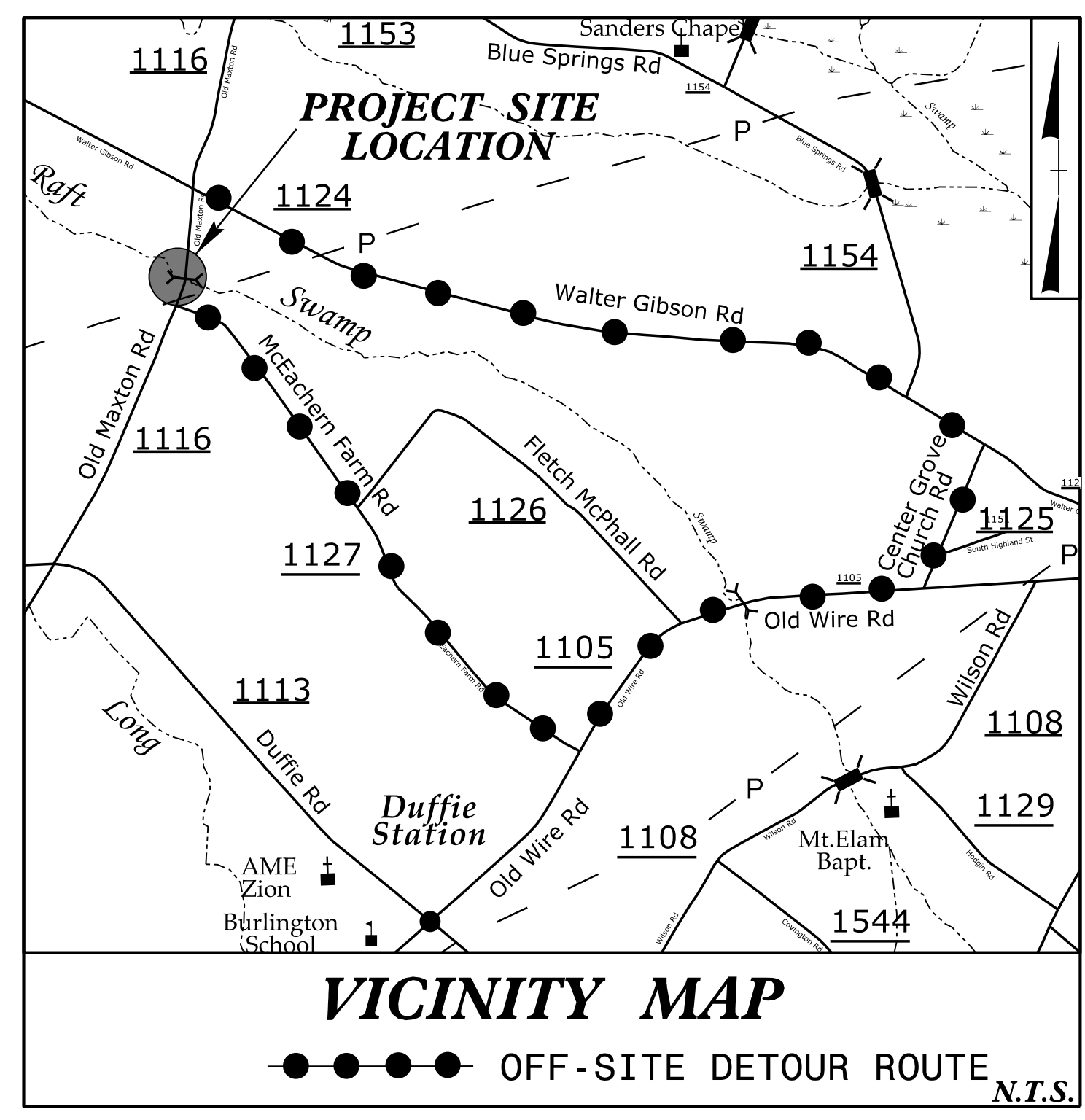
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS
 HOKE COUNTY**

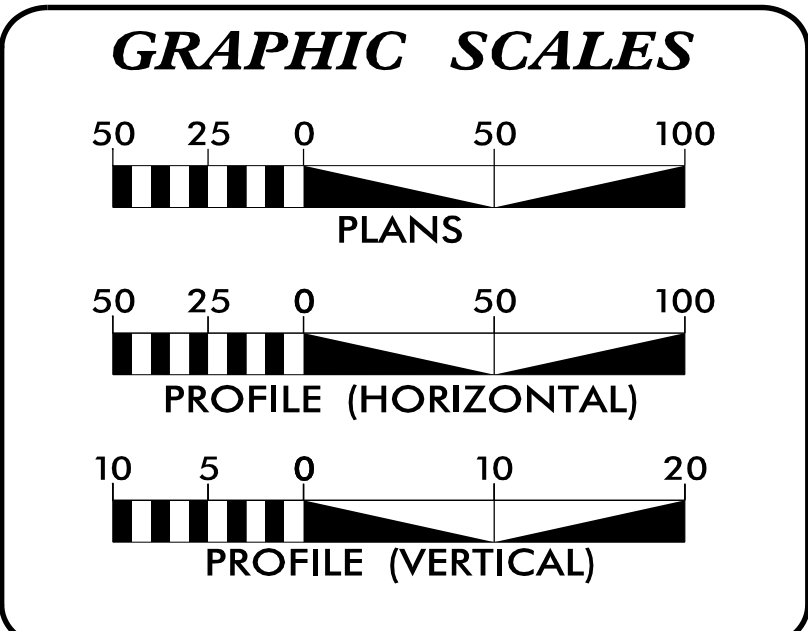
**LOCATION: BRIDGE NO. 460014 ON SR 1116 (OLD MAXTON ROAD)
 OVER LITTLE RAFT SWAMP**

TYPE OF WORK: POWER DISTRIBUTION RELOCATION

TIP PROJECT: 17BP.8.R.130



UO-2



INDEX OF SHEETS

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

UTILITY OWNERS WITH CONFLICTS

(A) POWER DISTRIBUTION - LUMBEE RIVER EMC

PREPARED IN THE OFFICE OF:

CH ENGINEERING

3220 GLEN ROYAL RD. RALEIGH, NC 27617
 TELE 919.788.0224 FAX 919.788.0232
 NC LICENSE #P-0189

UTILITIES PROJECT ENGINEER
 Mary Jo Lee, P.E.

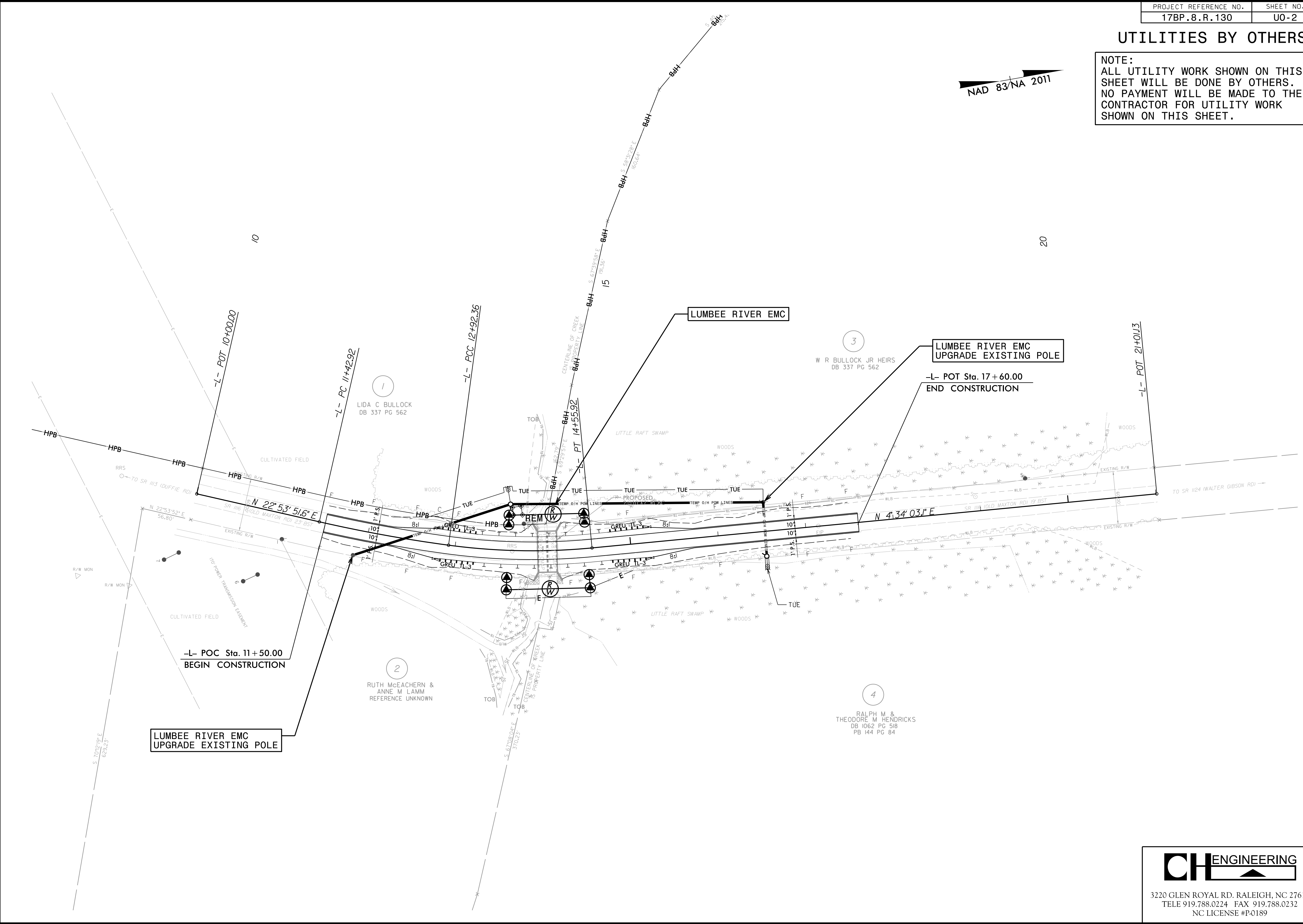
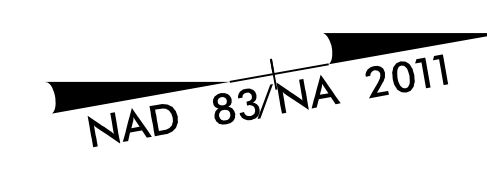
**DIVISION OF HIGHWAYS
 DIVISION 8**

902 NORTH SANDHILLS BOULEVARD
 ABERDEEN, NC 28315

JAMIE YOW DIVISION CONTACT #1
 TIM WELCH, PE DIVISION CONTACT #2
 TRAVIS MORGAN, PE DIVISION CONTACT #3

UTILITIES BY OTHERS

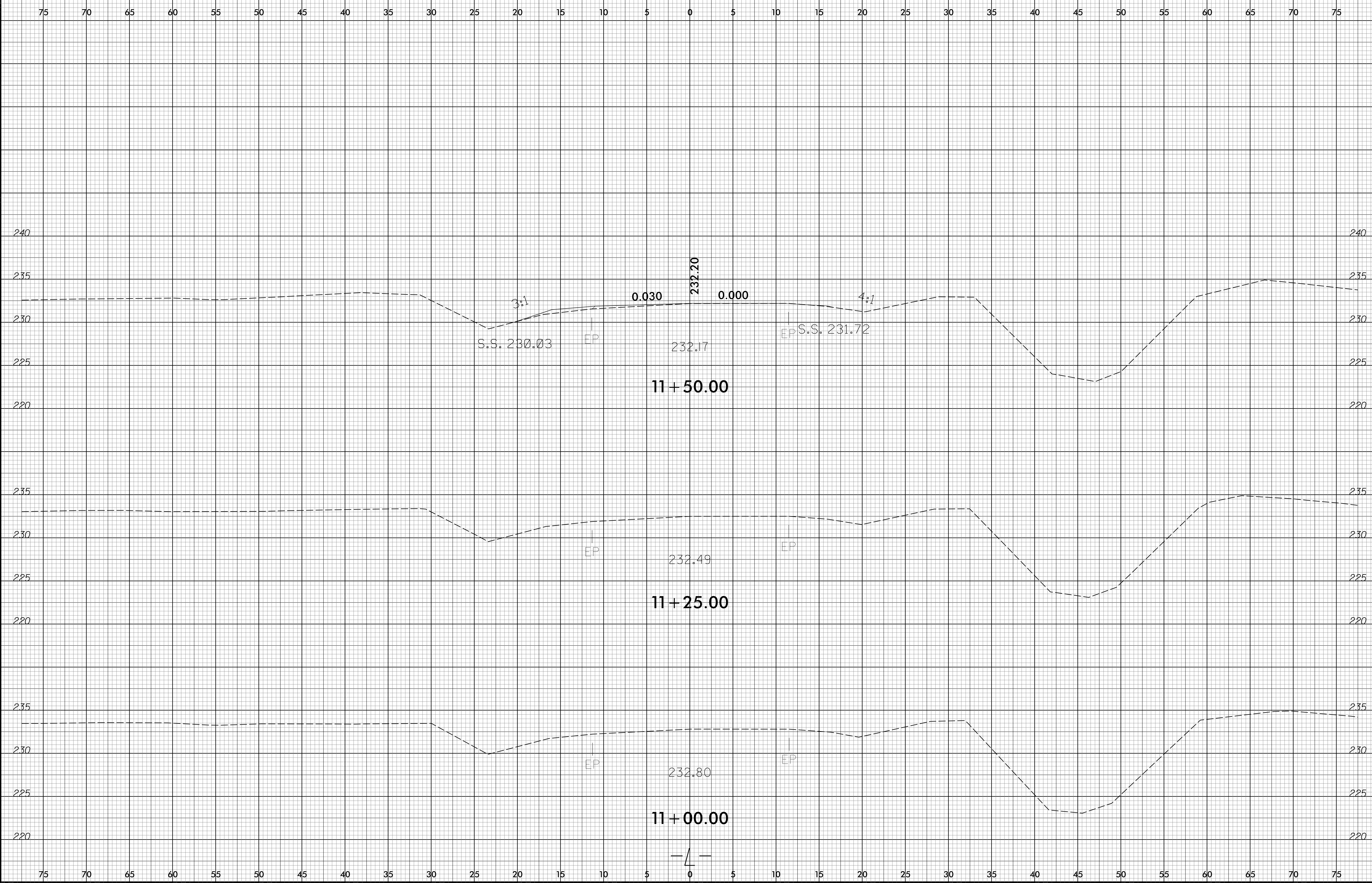
NOTE:
 ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.



5/14/99
 5/15/2018
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6/23/16

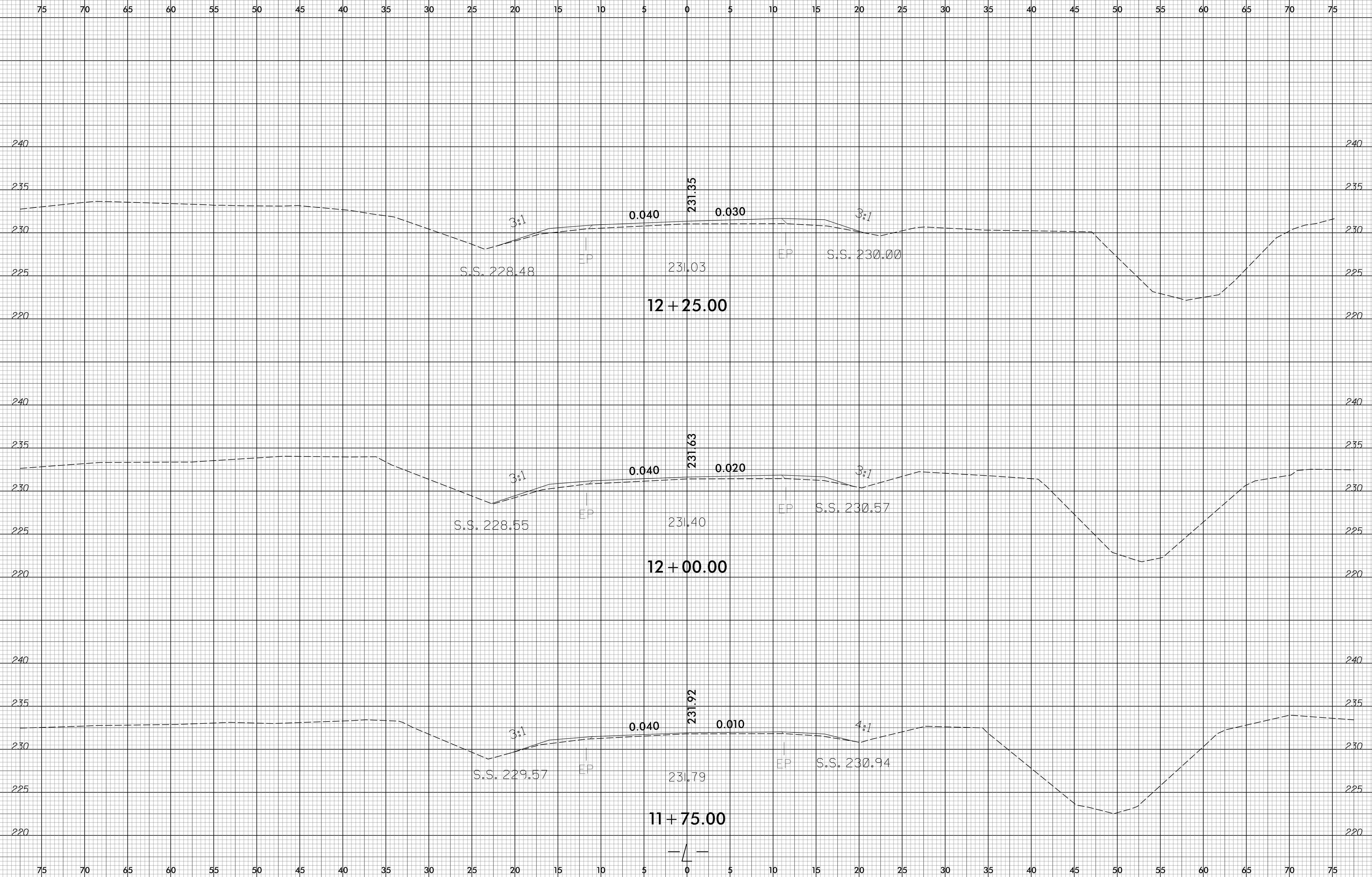
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6/23/16

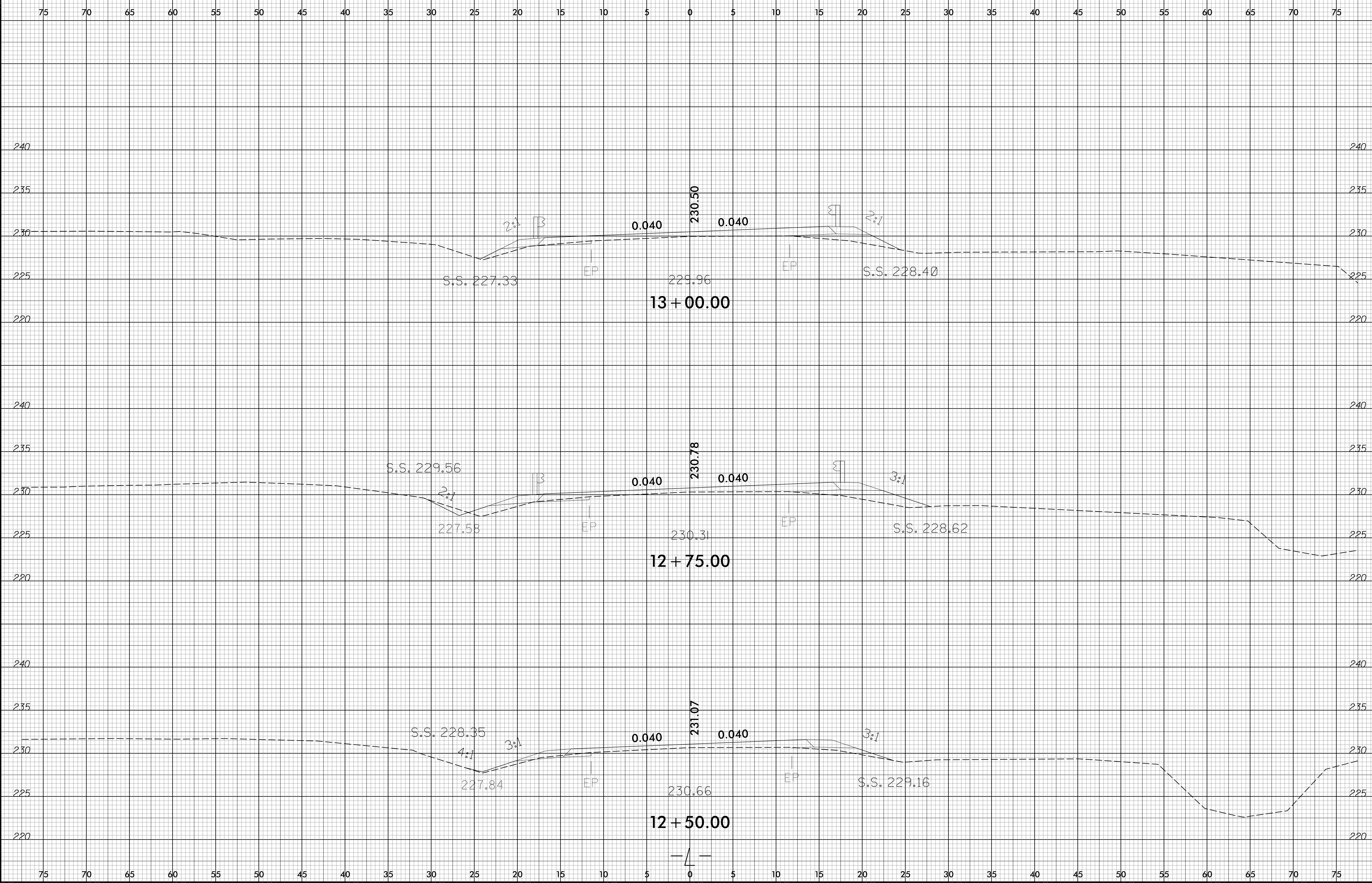
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6/23/16

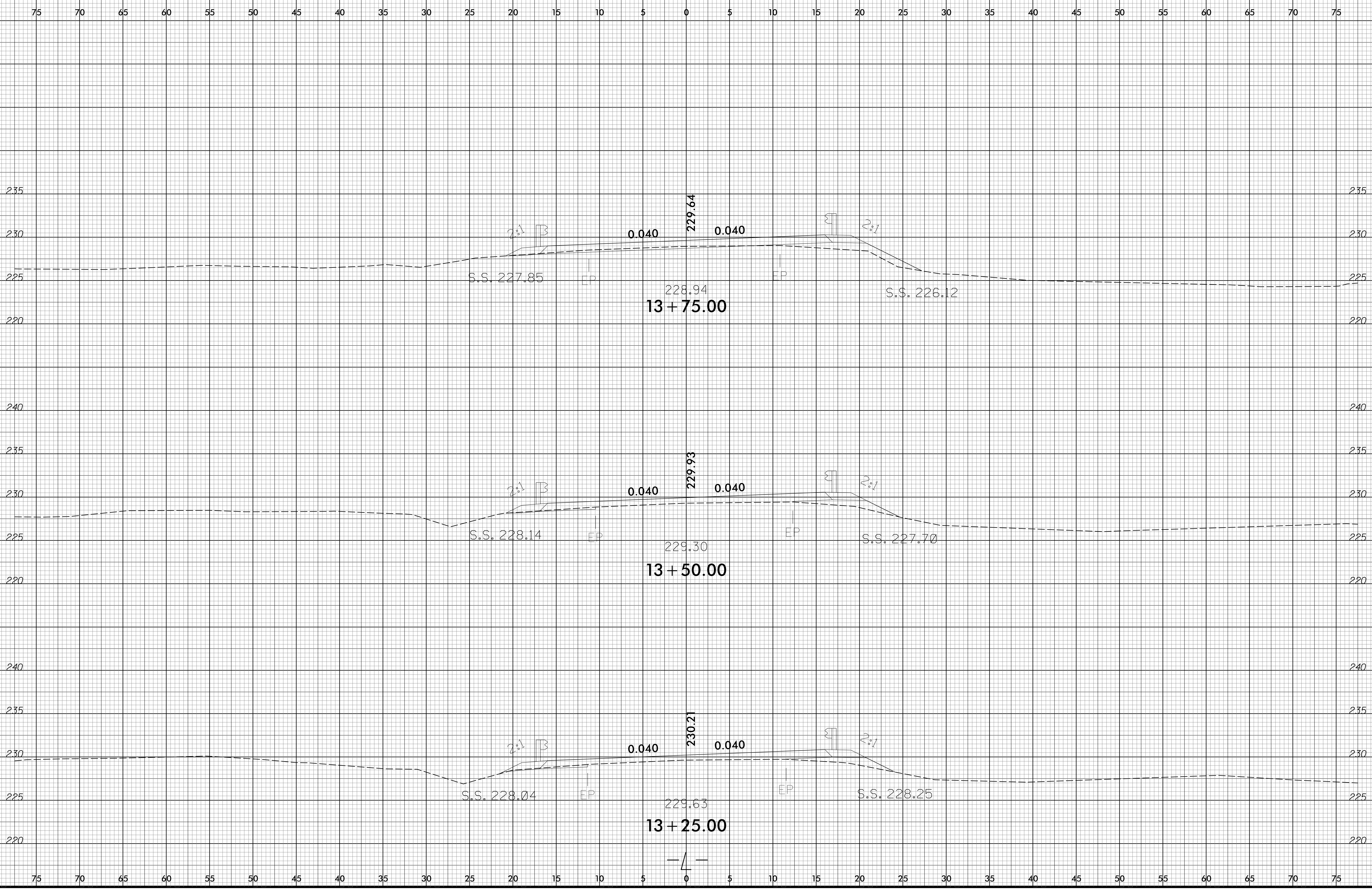
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6/23/16

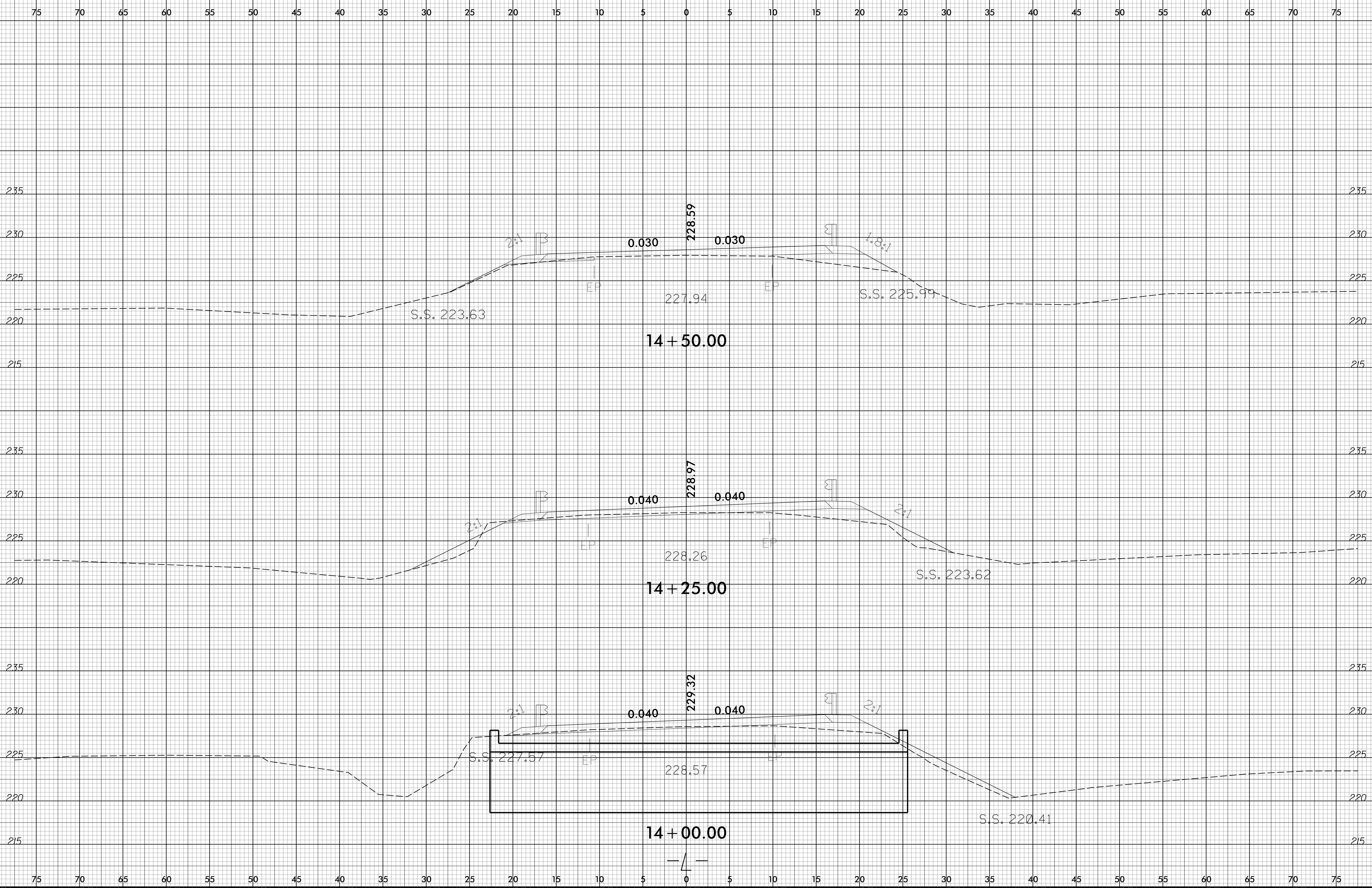
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6/23/16

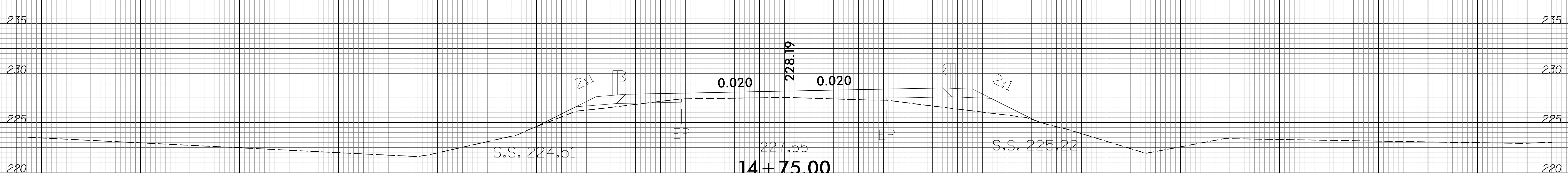
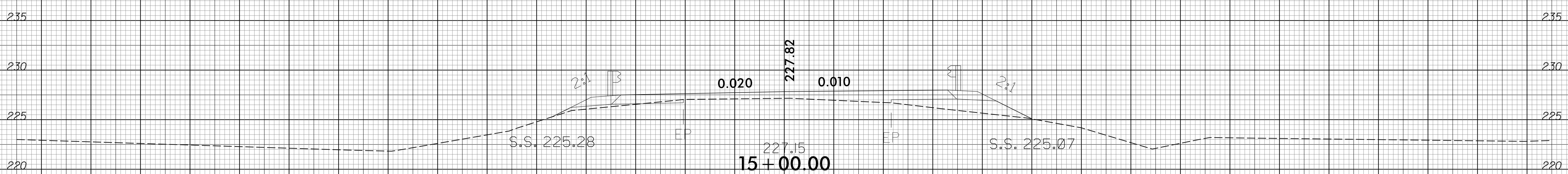
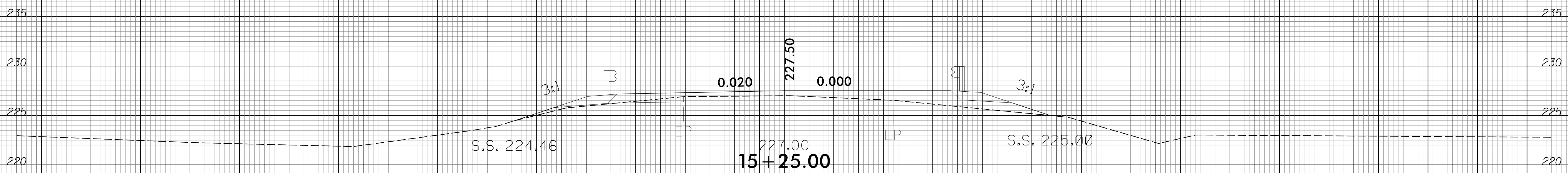
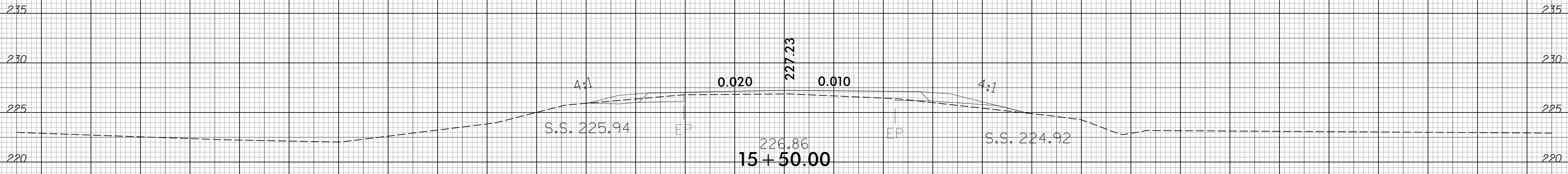
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6/23/16

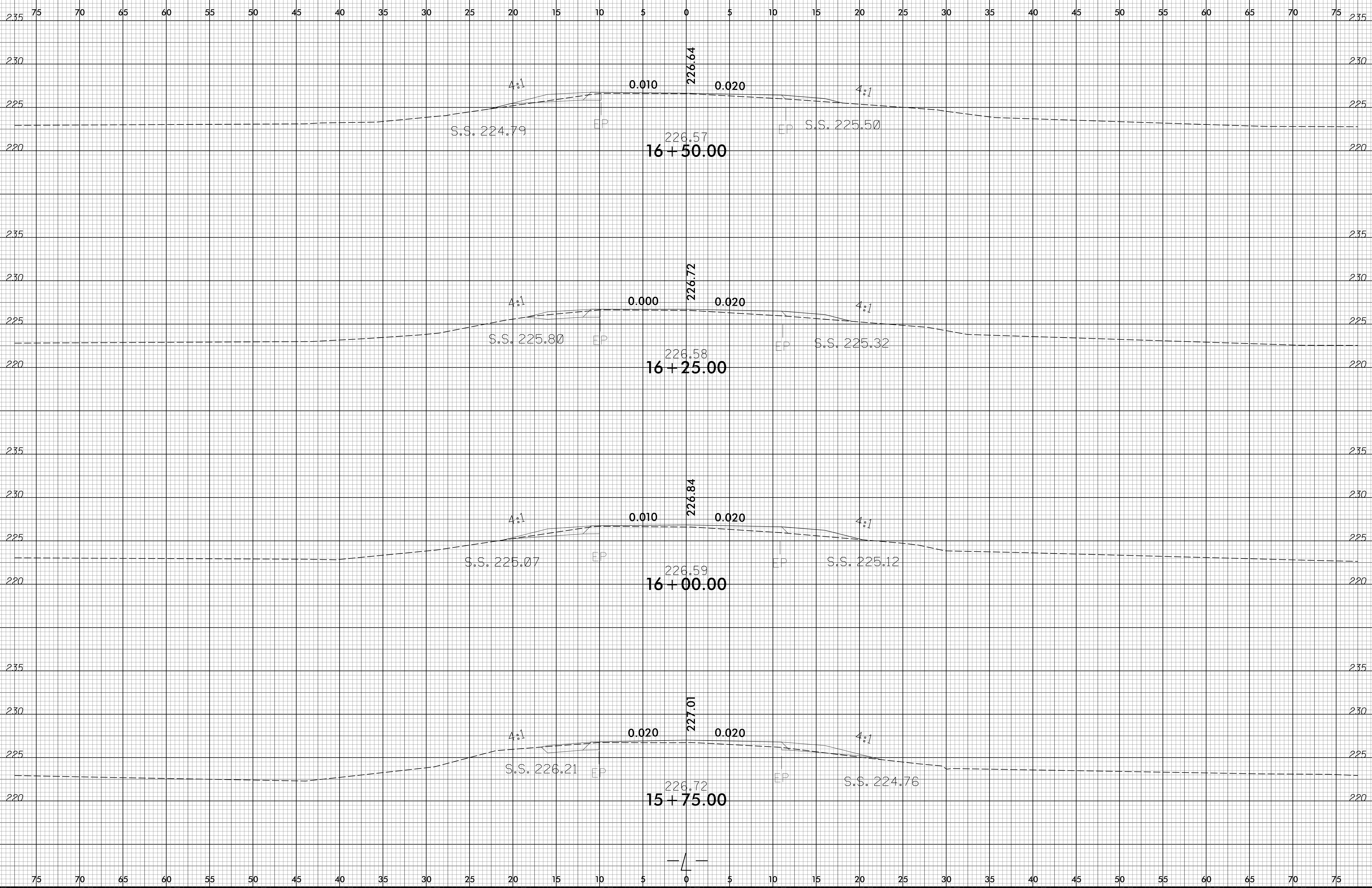
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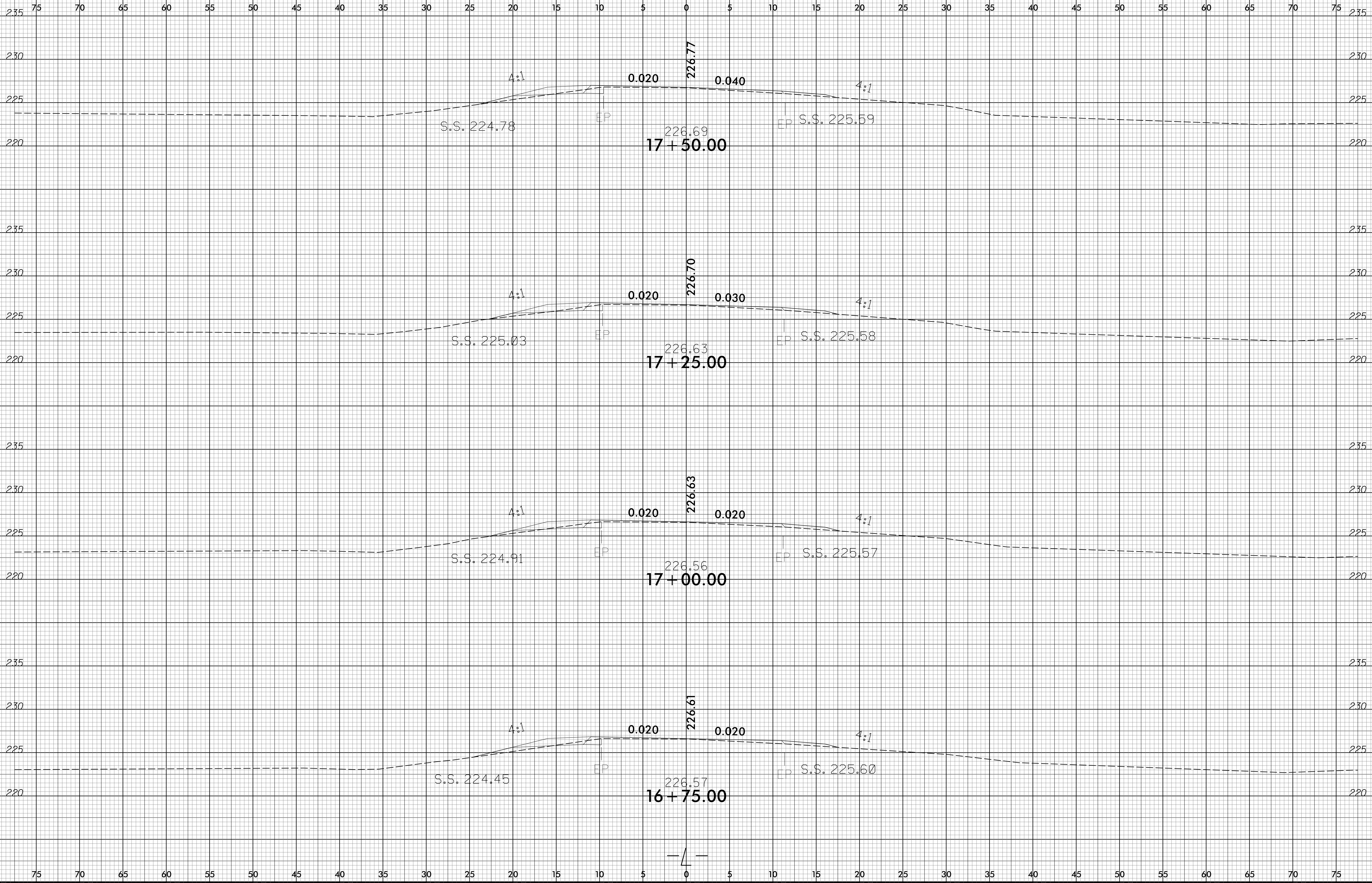
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6/23/16



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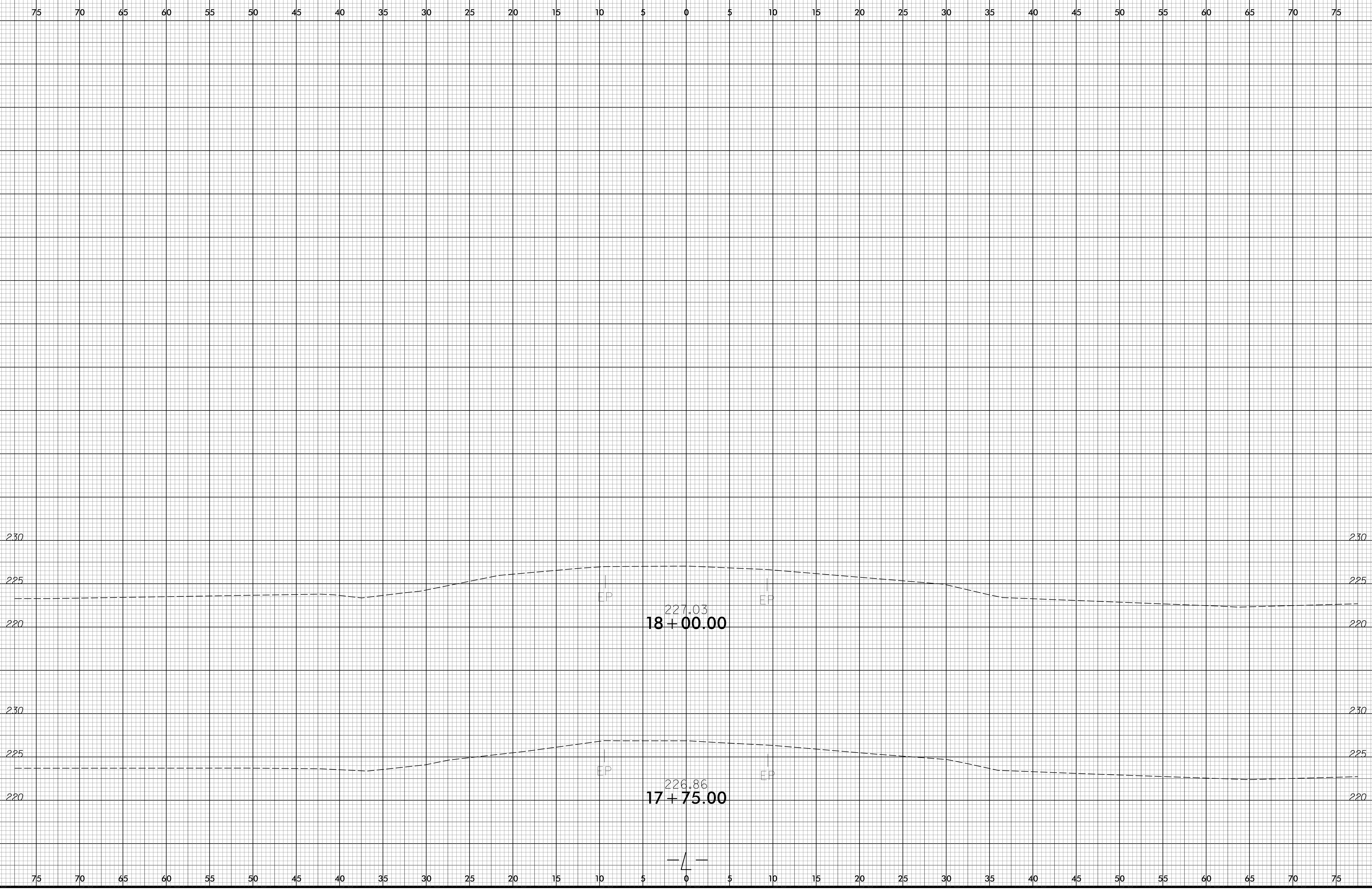
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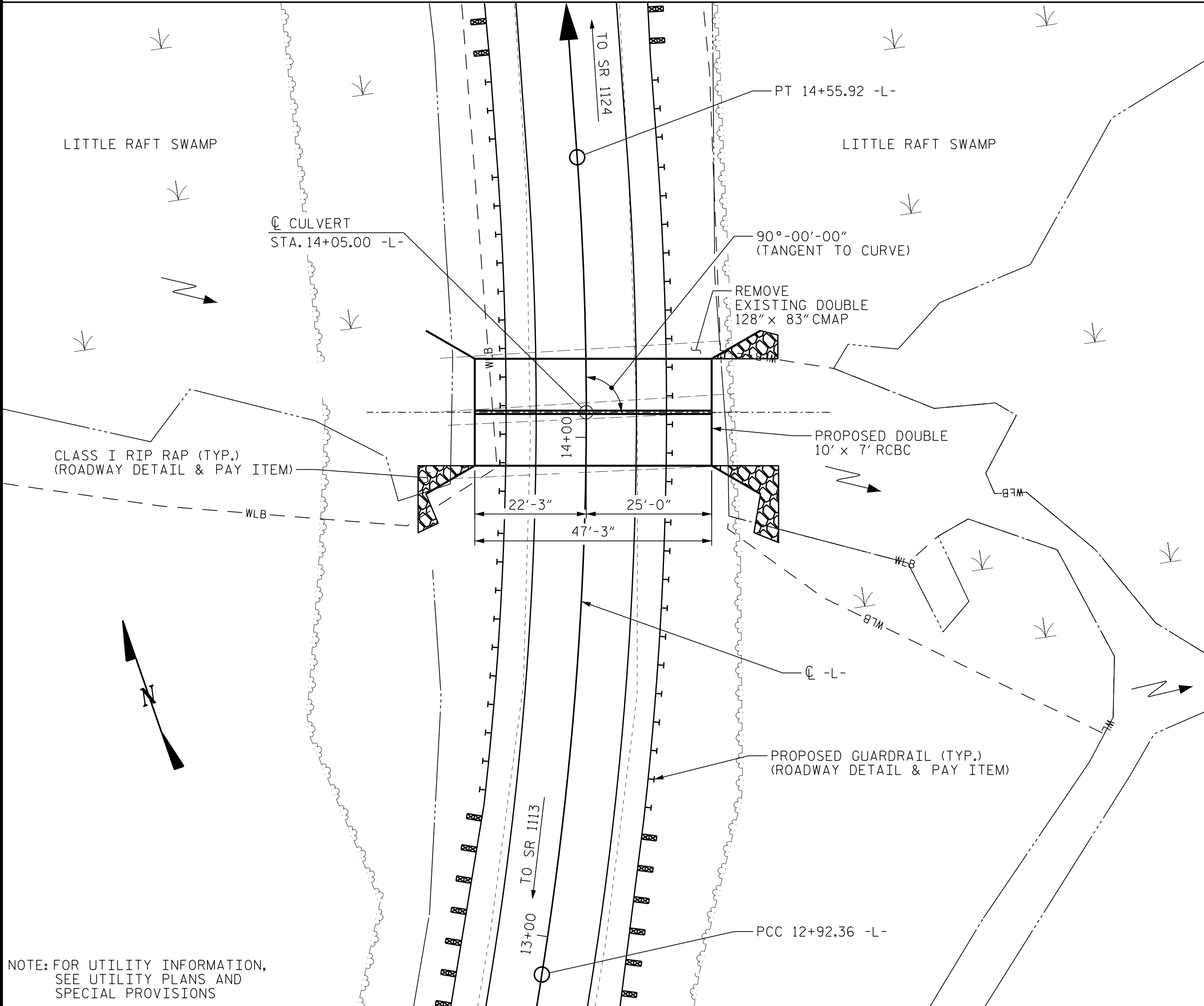
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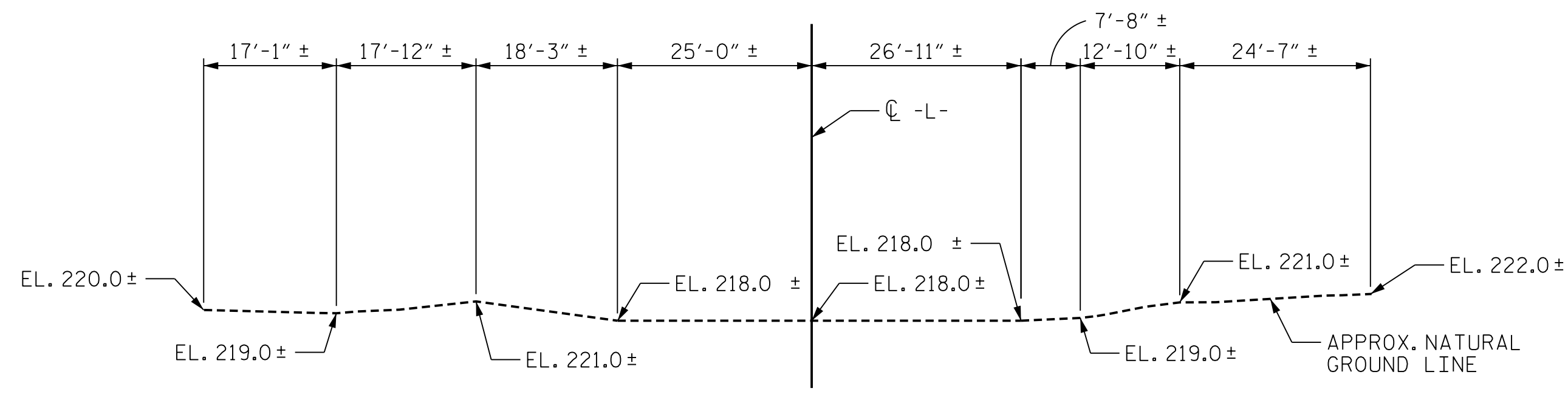
BM #1: NAIL SET IN 24" PINE TREE, 151.59' LT. OF STA. 14+03.32 -L-, EL. 226.55



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

LOCATION SKETCH

GRADE POINT ELEVATION @ 14+05.00 -L- = 229.25
 BED ELEVATION @ 14+05.00 -L- = 218.65
 ROADWAY SLOPES = 2:1



PROFILE ALONG CULVERT

ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING.
 DESIGN FILL-----1.40 FT.
 FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET.
 CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
 1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
 2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
 THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
 DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.
 STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
 AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
 AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

HYDROGRAPHIC DATA

DESIGN DISCHARGE = 450 CFS
 FREQUENCY OF DESIGN FLOOD = 5 YRS.
 DESIGN HIGH WATER ELEVATION = 226.2 FT.
 DRAINAGE AREA = 8.03 SQ. MI.
 BASE DISCHARGE (Q100) = 1300 CFS
 BASE HIGH WATER ELEVATION = 227.7 FT.

OVERTOPPING FLOOD DATA

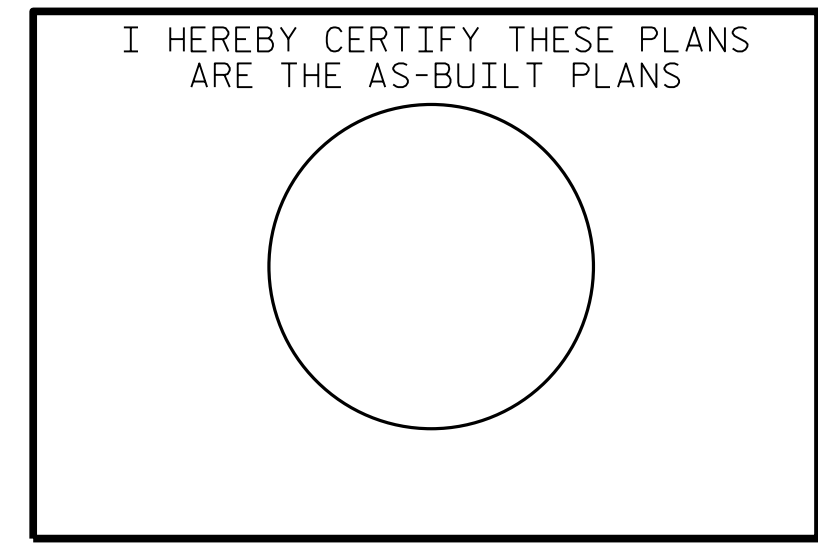
OVERTOPPING DISCHARGE = 630 CFS
 FREQUENCY OF OVERTOPPING FLOOD = 10 YRS.
 OVERTOPPING FLOOD ELEVATION = 226.8 FT.

-L- PROFILE DATA

PVI STA. 14+10.00 -L-
 PVI EL. = 229.25
 VC = 110.00
 g1 = -1.1346%
 g2 = -1.6389%

NOTES

THE EXISTING STRUCTURE CONSISTING OF 2 LINES OF 128" x 83" CM PIPE ARCH LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED.
 FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
 A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
 EXCAVATE 1 FT. BELOW CULVERT AND FOOTINGS AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH SECTION 414 OF THE STANDARD SPECIFICATIONS.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 NO WORK SHALL BE DONE ON THE CULVERT AT STA. 14+05.00 -L- UNTIL THE AREA OF THE BOX CULVERT HAS BEEN UNDERCUT UP TO 2 FEET AND UNSUITABLE MATERIAL REPLACED WITH SUITABLE MATERIAL, PROPERLY COMPACTED TO THE ELEVATION OF THE BOTTOM OF THE PROPOSED FLOOR SLAB. THE LIMITS OF THIS UNDERCUT EXCAVATION SHALL BE AT LEAST THE LIMITS OF THE BOX CULVERT INCLUDING THE WINGS. NO SEPARATE PAYMENT WILL BE MADE FOR ANY TEMPORARY SHEETING, UNDERCUT, OR UNSUITABLE MATERIAL REPLACEMENT AS REQUIRED TO CONSTRUCT THE PROPOSED CULVERT. PAYMENT IS INCLUDED IN THE LUMP SUM PRICE FOR CULVERT EXCAVATION AND THE FOUNDATION CONDITIONING MATERIAL PAY ITEM.

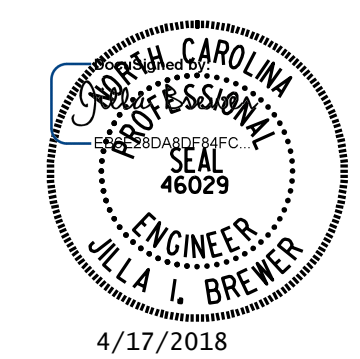


PROJECT NO. 17BP.8.R.130
HOKE COUNTY
 STATION: 14+05.00 -L-

SHEET 1 OF 5 REPLACES CULVERT NO. 14

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**BARREL STANDARD
 DOUBLE 10 FT. W X 7 FT. H
 CONCRETE BOX CULVERT
 90° SKEW**

TOTAL STRUCTURE QUANTITIES		
CLASS A CONCRETE		
BARREL @ 2.43 CY/FT	114.8	C.Y.
WING ETC.	21.6	C.Y.
TOTAL	136.4	C.Y.
REINFORCING STEEL		
BARREL	20,034	LBS.
WINGS ETC.	1,151	LBS.
TOTAL	21,185	LBS.
CULVERT EXCAVATION	LUMP SUM	
FOUNDATION CONDITIONING MATERIAL	74	TONS
REMOVAL OF EXISTING STRUCTURE	LUMP SUM	



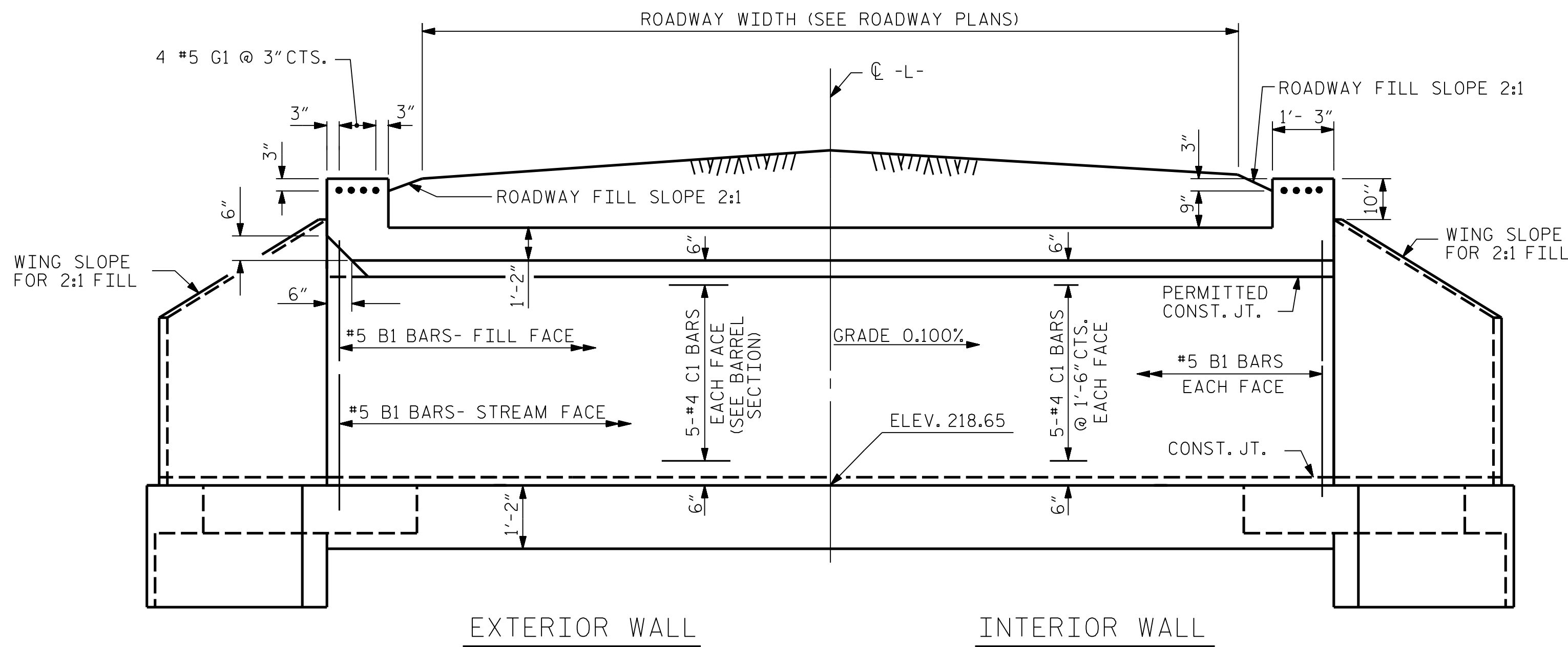
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 UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

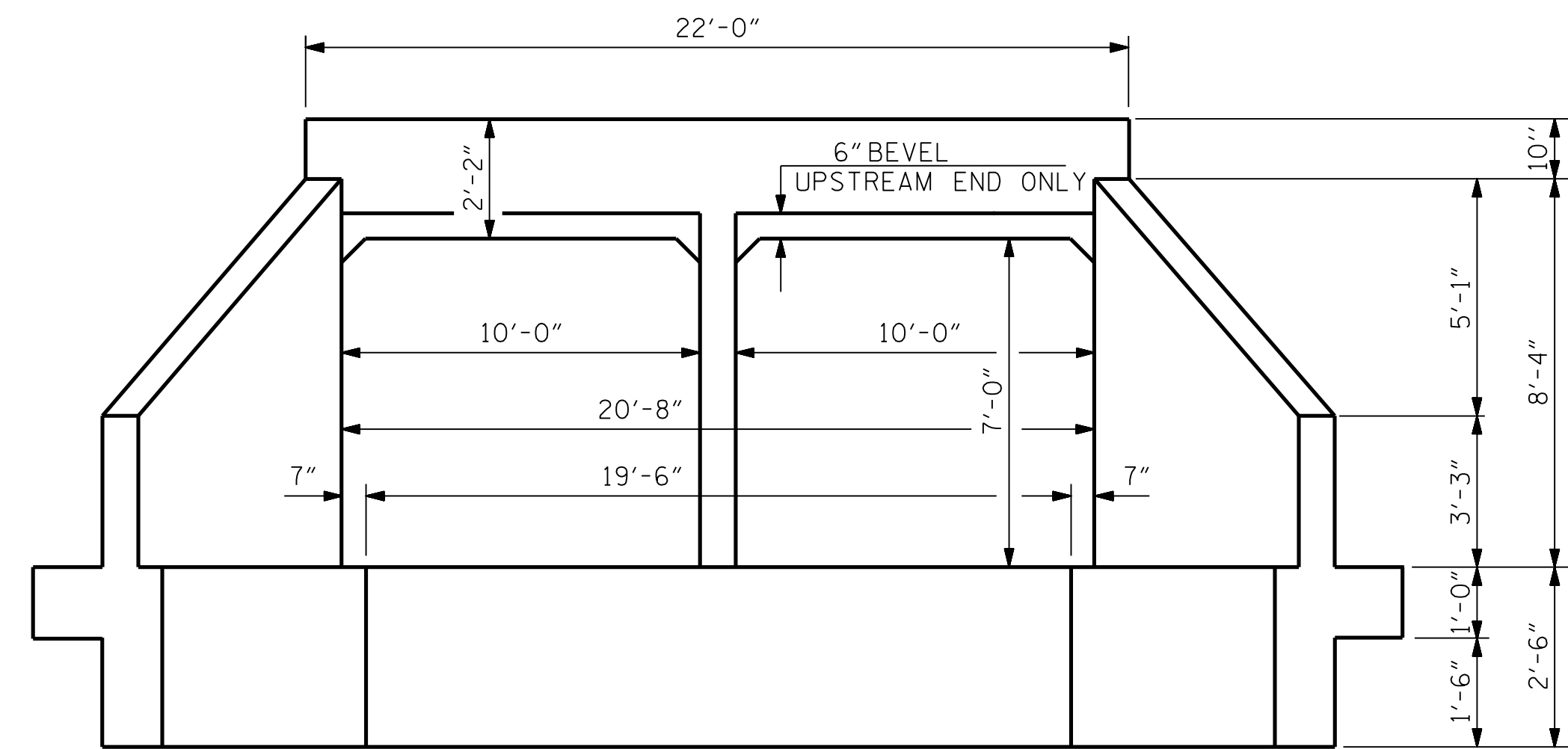
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2			4			5

DRAWN BY : J.I. BREWER DATE : 12/17
 CHECKED BY : B.E. ATKINSON DATE : 01/18
 DESIGN ENGINEER OF RECORD : J.I. BREWER DATE : 01/18

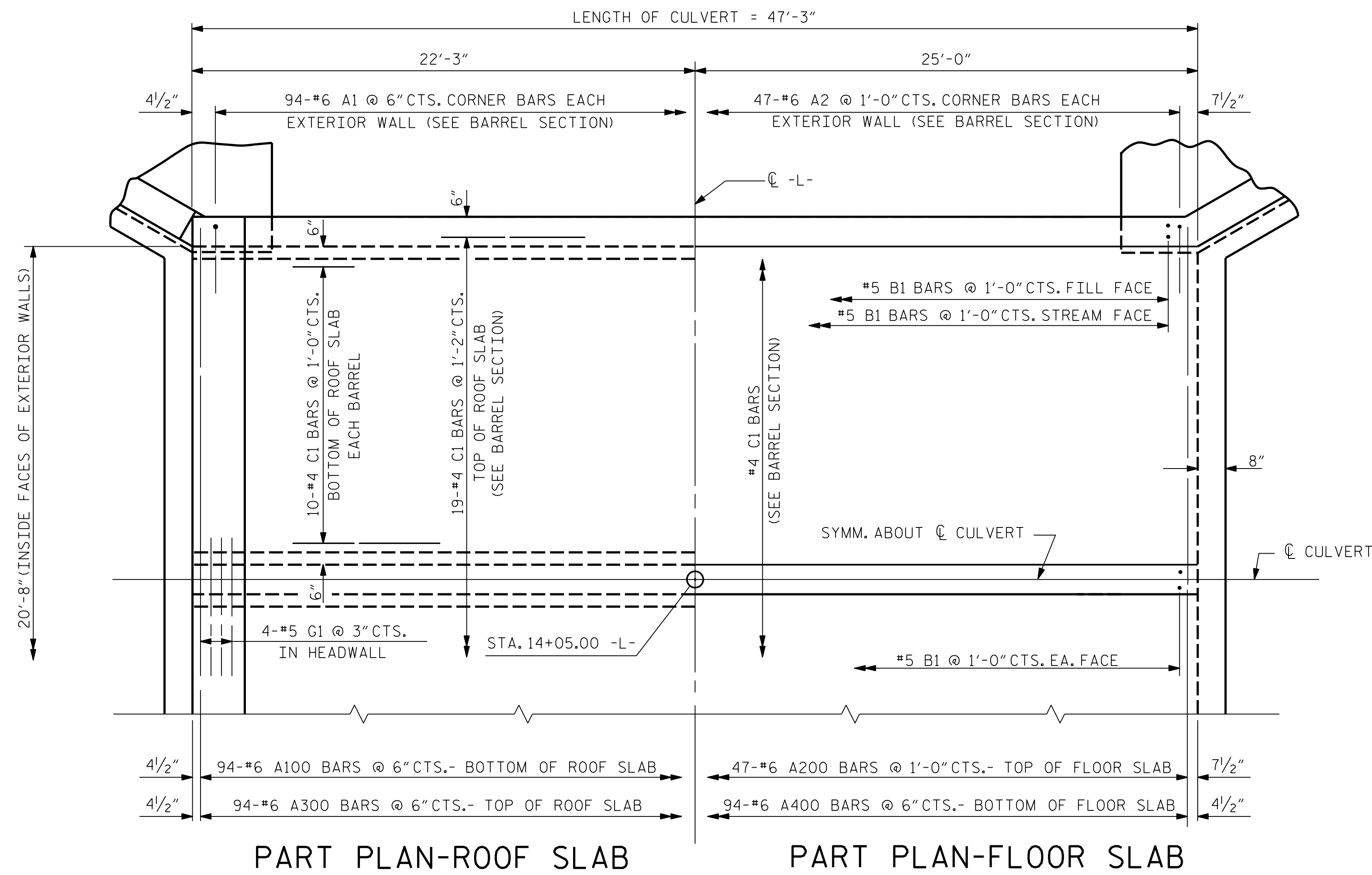
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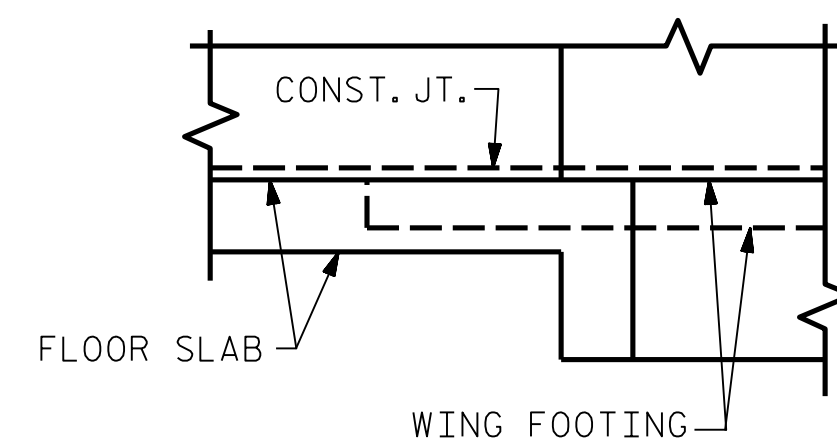
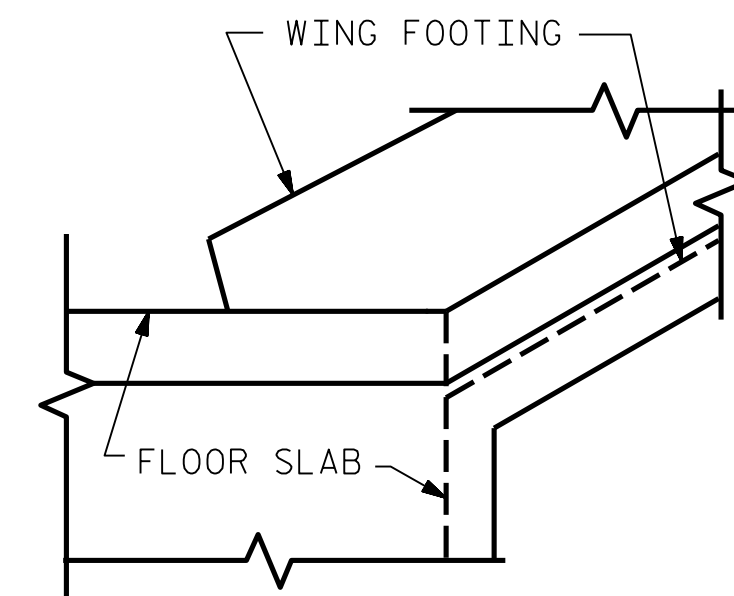
EXTERIOR WALL INTERIOR WALL
CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION



PART PLAN-ROOF SLAB PART PLAN-FLOOR SLAB



DETAIL CONNECTION OF WING FOOTING AND FLOOR SLAB WHEN SLAB IS THICKER THAN FOOTING

PROJECT NO. 17BP.8.R.130
HOKE COUNTY
 STATION: 14+05.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**BARREL STANDARD
 DOUBLE 10 FT. X 7 FT.
 CONCRETE BOX CULVERT
 90° SKEW**



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

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
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4/17/2018 2:02:01 PM

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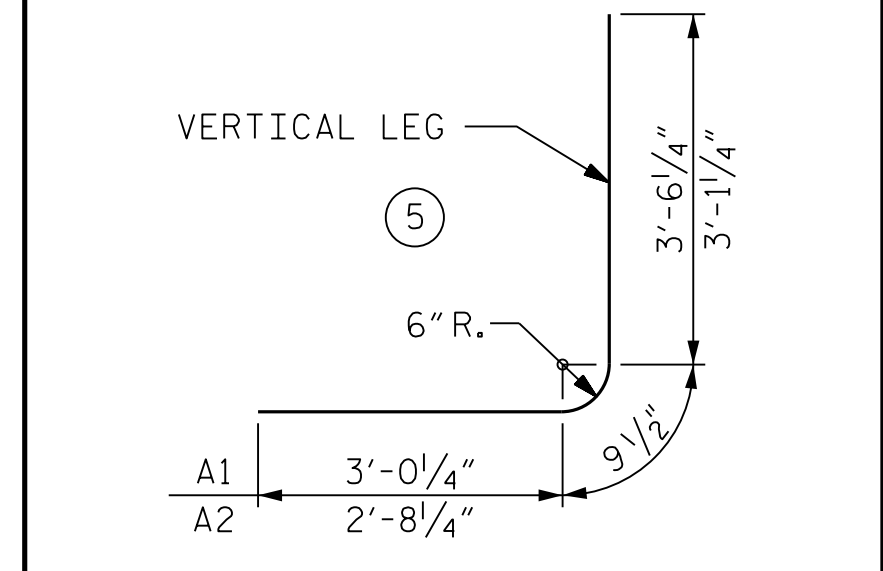
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ASSEMBLED BY: J.L. BREWER DATE: 12/17
 CHECKED BY: P.A. de PAOLI DATE: 01/18
 DESIGN ENGINEER OF RECORD: J.L. BREWER DATE: 01/18
 DRAWN BY: RALPH D. UNDERWOOD DATE: MAY 1971
 CHECKED BY: JOEL A. JOHNSON DATE: JULY 1971

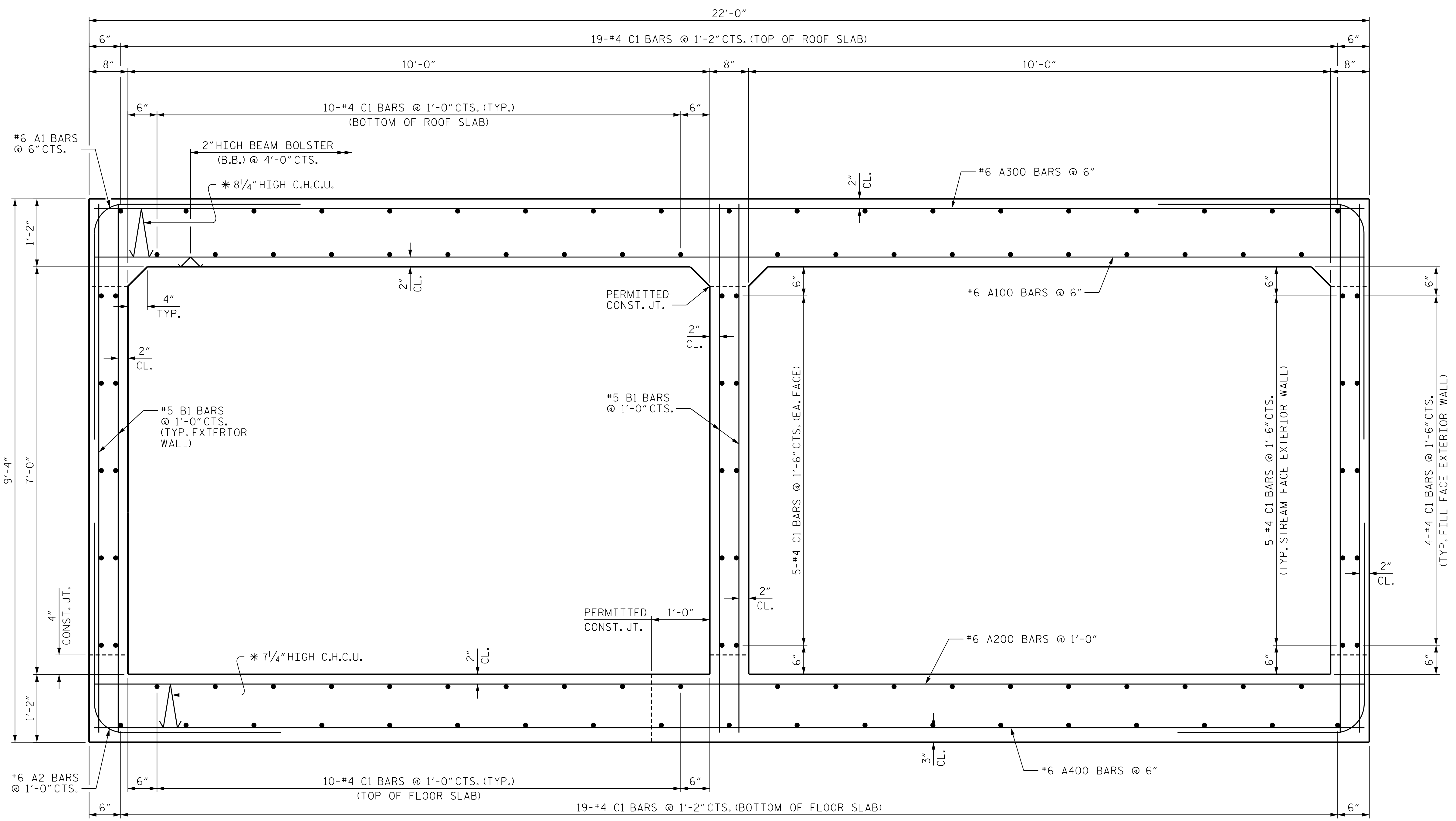
SPECIAL
STANDARD

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	188	#6	5	7'-4"	2071
A2	94	#6	5	6'-7"	929
A100	94	#6	STR	21'-8"	3059
A200	47	#6	STR	21'-8"	1530
A300	94	#6	STR	21'-8"	3059
A400	94	#6	STR	21'-8"	3059
B1	282	#5	STR	8'-11"	2623
C1	216	#4	STR	24'-5"	3523
G1	8	#5	STR	21'-8"	181
REINFORCING STEEL				20,034 LBS.	

BAR TYPES
ALL BAR DIMENSIONS ARE OUT TO OUT.



SPlice LENGTH CHART		
BAR	SIZE	SPlice LENGTH
C1	#4	1'-11"



RIGHT ANGLE SECTION OF BARREL

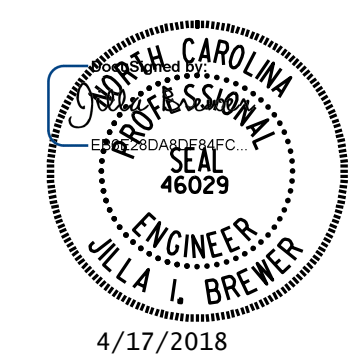
THERE ARE 108 "C" BARS IN SECTION OF BARREL.
* ALL CONTINUOUS HIGH CHAIR UPPERS (C.H.C.U.) @ 3'-0" CTS.

PROJECT NO. 17BP.8.R.130
HOKE COUNTY
STATION: 14+05.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**TYPICAL SECTION
DOUBLE 10 FT. X 7 FT.
CONCRETE BOX CULVERT**



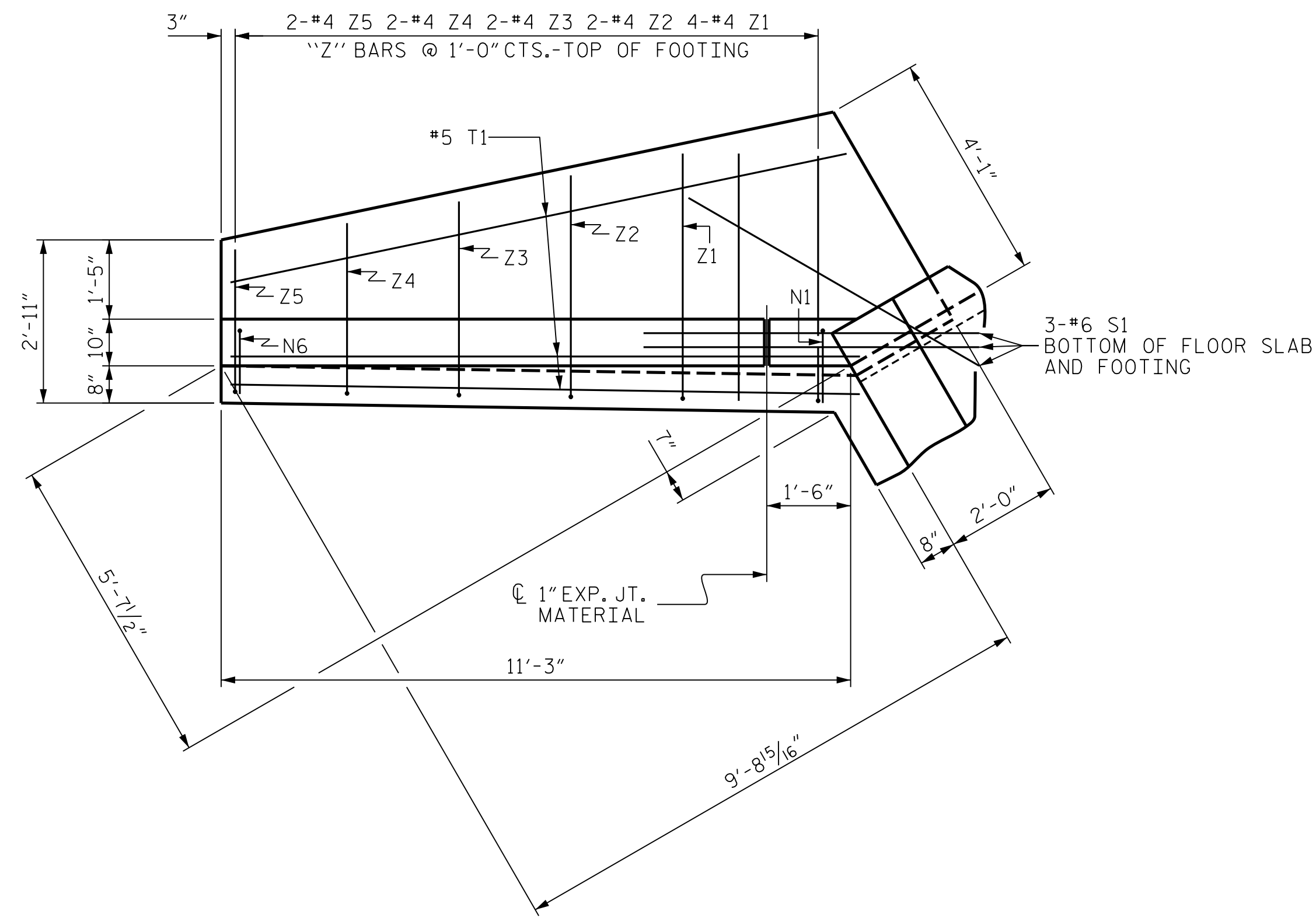
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UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

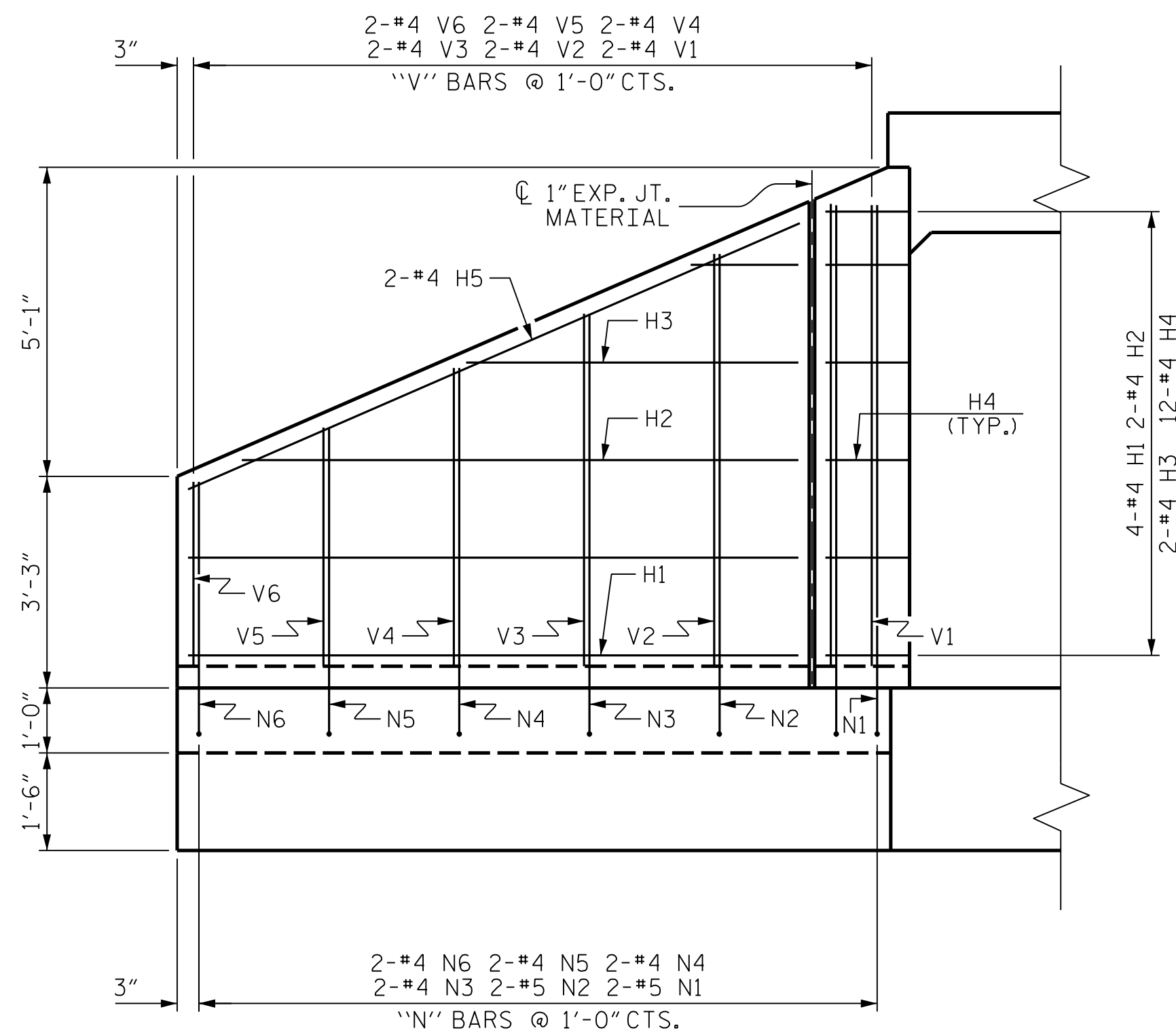
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DRAWN BY : J.I. BREWER	DATE : 12/17
CHECKED BY : P.A. de PAOLI	DATE : 01/18
DESIGN ENGINEER OF RECORD : J.I. BREWER	DATE : 01/18

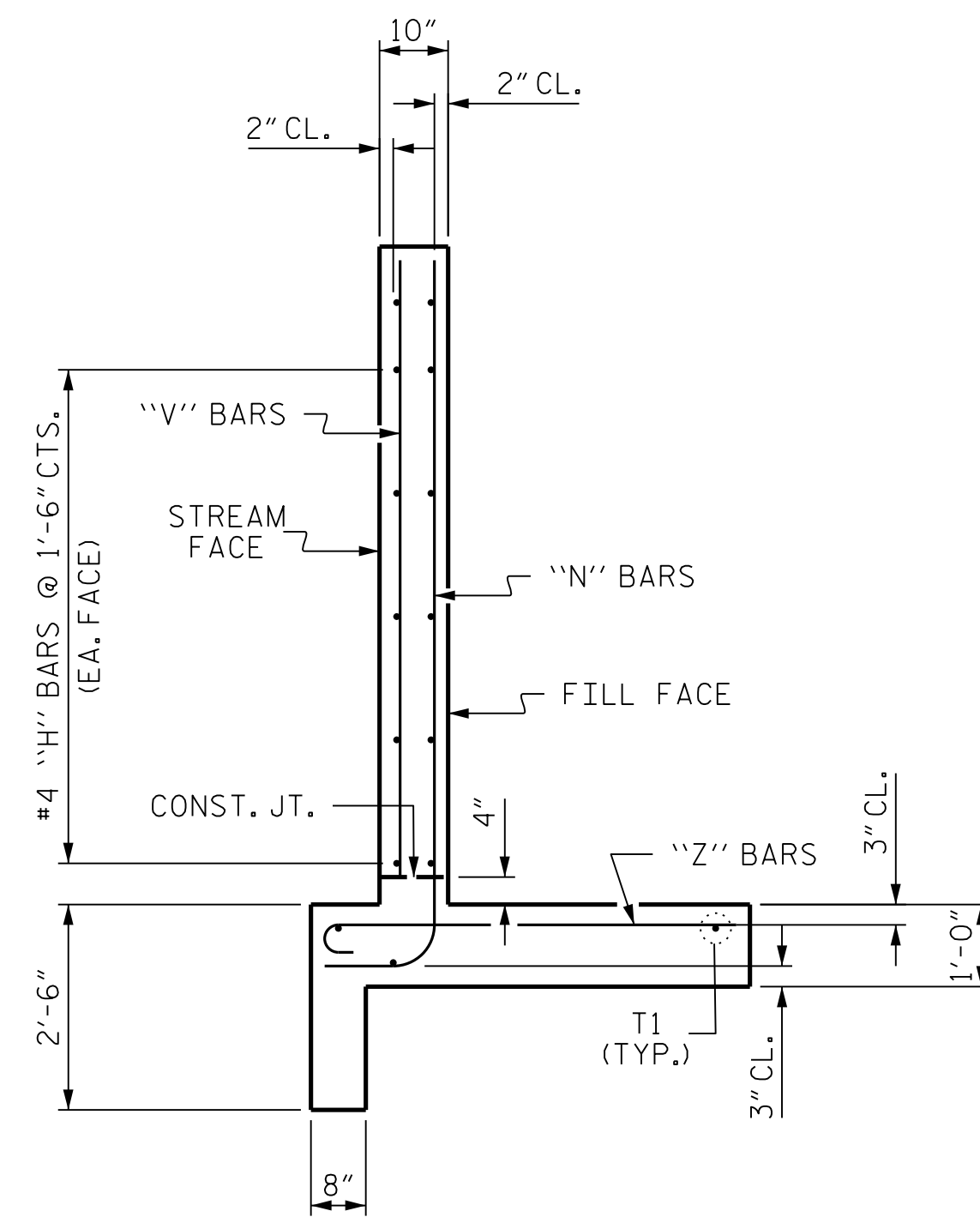
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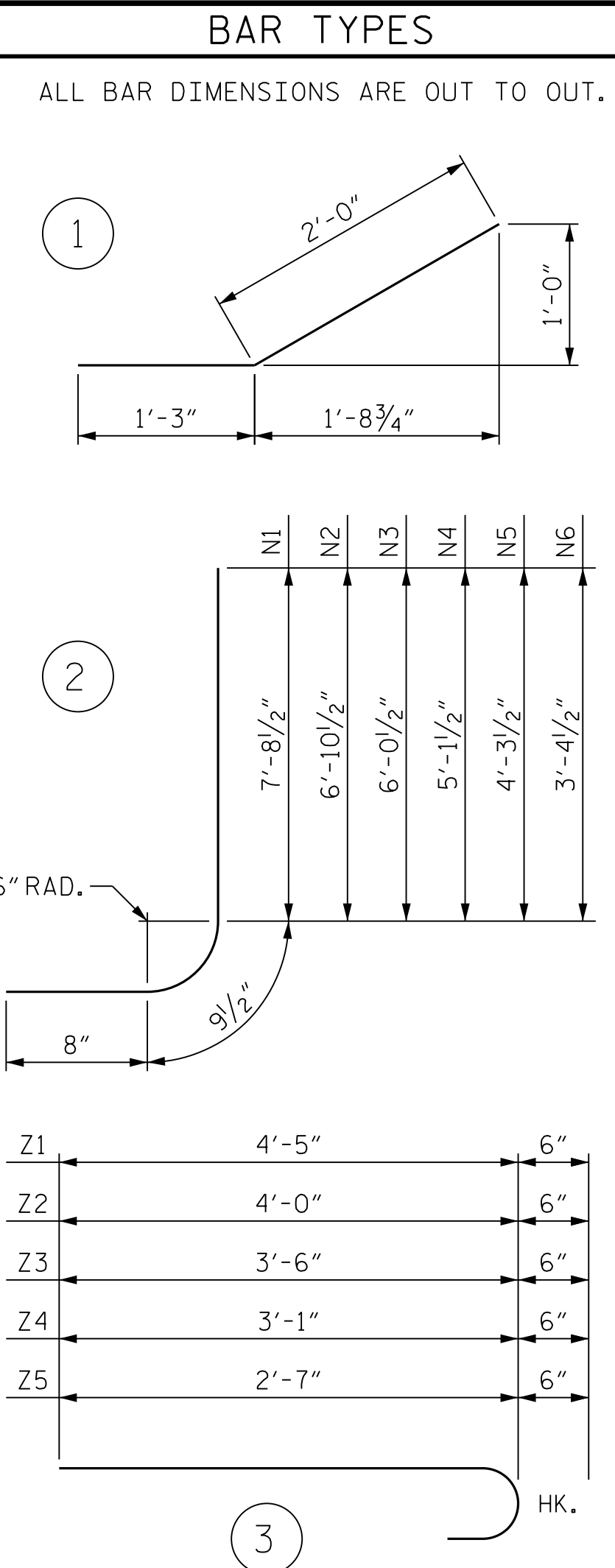
PLAN



ELEVATION



TYPICAL WING SECTION



BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	16	#4	STR	9'-4"	100
H2	8	#4	STR	8'-6"	45
H3	8	#4	STR	5'-1"	27
H4	48	#4	1	3'-3"	104
H5	8	#4	STR	10'-3"	55
N1	8	#5	2	9'-2"	76
N2	8	#5	2	8'-4"	70
N3	8	#4	2	7'-6"	40
N4	8	#4	2	6'-7"	35
N5	8	#4	2	5'-9"	31
N6	8	#4	2	4'-10"	26
S1	12	#6	STR	6'-0"	108
T1	12	#5	STR	11'-3"	141
V1	8	#4	STR	7'-1"	38
V2	8	#4	STR	6'-4"	34
V3	8	#4	STR	5'-5"	29
V4	8	#4	STR	4'-7"	24
V5	8	#4	STR	3'-8"	20
V6	8	#4	STR	2'-10"	15
Z1	16	#4	3	4'-11"	53
Z2	8	#4	3	4'-6"	24
Z3	8	#4	3	4'-0"	21
Z4	8	#4	3	3'-7"	19
Z5	8	#4	3	3'-1"	16

TOTAL REINFORCING STEEL FOR 4 WINGS 1151 LBS

CLASS A CONCRETE
 4 WINGS 17.1 CY
 2 HEADWALLS 2.1 CY
 2 END CURTAIN WALLS 2.4 CY
 TOTAL 21.6 CY

PROJECT NO. 17BP.8.R.130
 HOKE COUNTY
 STATION: 14+05.00 -L-

SHEET 4 OF 5



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-4
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STD. NO. CW9007

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 CHECKED BY: B.E. ATKINSON DATE: 01/18
 DESIGN ENGINEER OF RECORD: J.I. BREWER DATE: 01/18
 DRAWN BY: CCJ 10/99
 CHECKED BY: RWJ 03/00

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER		
						LIVE-LOAD FACTORS (LL)	MOMENT				SHEAR					
							RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (FT)	RATING FACTOR	BOX NO.	ELEMENT TYPE		DISTANCE FROM LEFT END OF ELEMENT (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.21	--	1.75	1.21	2	BOTTOM SLAB	10.00	1.65	1	TOP SLAB	10.00		
	HL-93 (OPERATING)	N/A		1.57	--	1.35	1.57	2	BOTTOM SLAB	10.00	2.14	1	TOP SLAB	10.00		
	HS-20 (INVENTORY)	36.000	②	1.21	43.56	1.75	1.21	2	BOTTOM SLAB	10.00	1.65	1	TOP SLAB	10.00		
	HS-20 (OPERATING)	36.000		1.57	56.52	1.35	1.57	2	BOTTOM SLAB	10.00	2.14	1	TOP SLAB	10.00		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		4.90	66.15	1.40	4.90	2	BOTTOM SLAB	10.00	5.57	1	TOP SLAB	10.00	
		SNGARBS2	20.000		3.50	70.00	1.40	3.50	2	BOTTOM SLAB	10.00	4.99	1	TOP SLAB	10.00	
		SNAGRIS2	22.000		3.24	71.28	1.40	3.24	2	BOTTOM SLAB	10.00	5.35	1	TOP SLAB	10.00	
		SNCOTTS3	27.250		2.38	64.86	1.40	2.43	2	BOTTOM SLAB	10.00	2.38	1	TOP SLAB	10.00	
		SNAGGRS4	34.925		2.02	70.55	1.40	2.02	2	BOTTOM SLAB	10.00	2.97	1	TOP SLAB	10.00	
		SNS5A	35.550		2.21	78.57	1.40	2.21	2	BOTTOM SLAB	10.00	2.78	2	TOP SLAB	0.00	
		SNS6A	39.950		2.09	83.50	1.40	2.09	2	BOTTOM SLAB	10.00	2.67	2	TOP SLAB	0.00	
		SNS7B	42.000		1.96	82.32	1.40	1.96	2	BOTTOM SLAB	10.00	2.66	1	TOP SLAB	10.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.24	73.92	1.40	2.24	2	BOTTOM SLAB	10.00	4.04	1	BOTTOM SLAB	0.00	
		TNT4A	33.075		2.55	84.34	1.40	2.55	2	BOTTOM SLAB	10.00	2.94	1	TOP SLAB	10.00	
		TNT6A	41.600		2.22	92.35	1.40	2.22	2	BOTTOM SLAB	10.00	2.76	2	TOP SLAB	0.00	
		TNT7A	42.000		1.99	83.58	1.40	1.99	2	BOTTOM SLAB	10.00	2.82	2	TOP SLAB	0.00	
		TNT7B	42.000		2.07	86.94	1.40	2.07	2	BOTTOM SLAB	10.00	2.80	1	TOP SLAB	10.00	
		TNAGRIT4	43.000		2.22	95.46	1.40	2.22	2	BOTTOM SLAB	10.00	2.84	1	TOP SLAB	10.00	
		TNAGT5A	45.000		2.09	94.05	1.40	2.09	2	BOTTOM SLAB	10.00	2.78	2	TOP SLAB	0.00	
TNAGT5B	45.000		③	1.73	77.85	1.40	1.73	2	BOTTOM SLAB	10.00	2.72	1	TOP SLAB	10.00		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

NOTE:

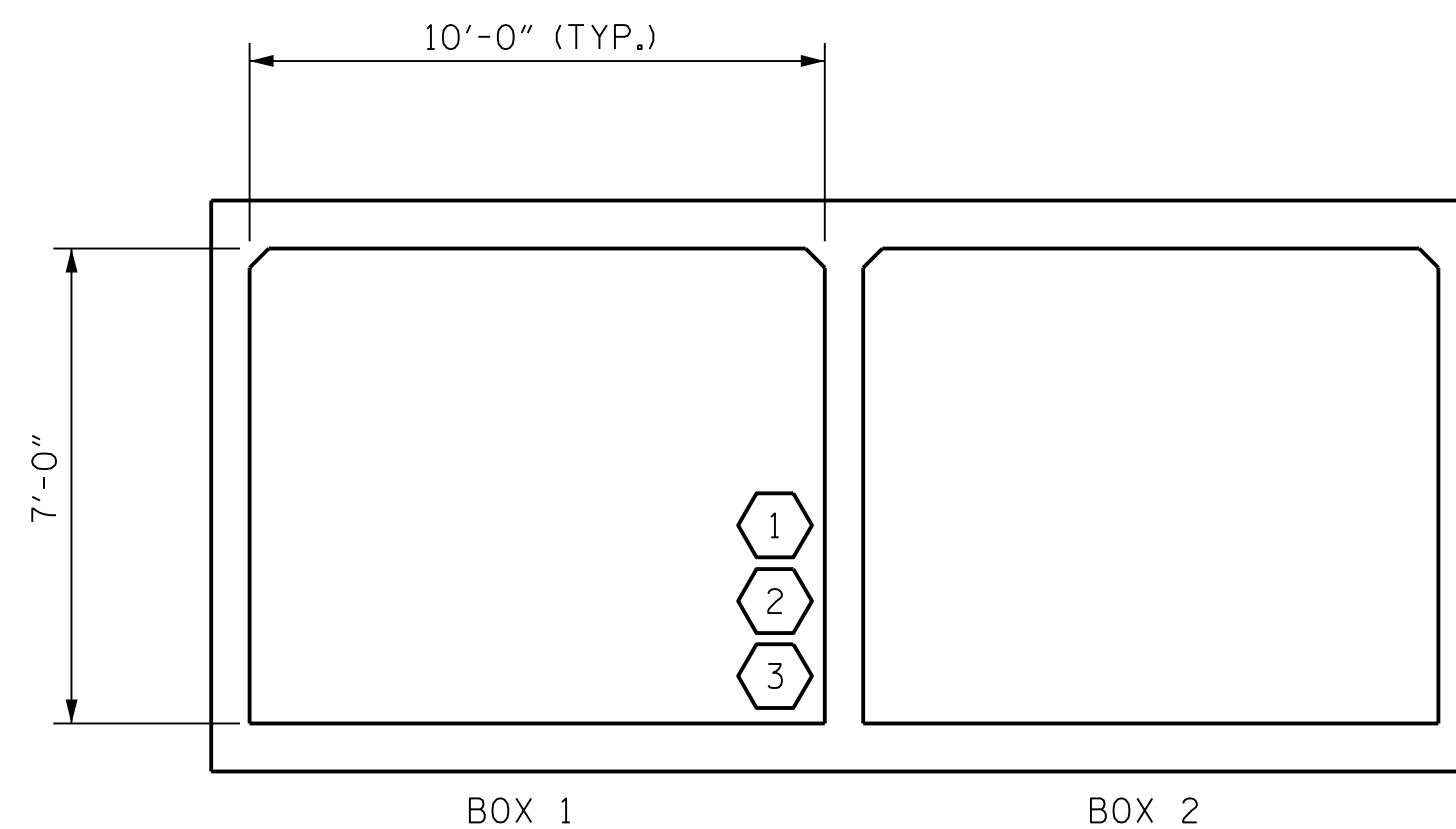
RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

THE LIVE LOAD RATING FOR VEHICLES ON -L- WERE COMPUTED WITH A DESIGN FILL DEPTH OF 1.40 FT.

COMMENTS:

1. VERTICAL ELEMENTS ARE REFERENCED STARTING AT THE BOTTOM.

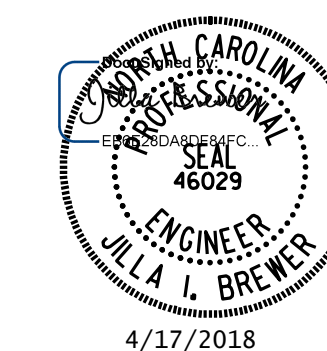
#	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
	** SEE CHART FOR VEHICLE TYPE



LRFR SUMMARY
(LOOKING DOWNSTREAM)

PROJECT NO. 17BP.8.R.130
HOKE COUNTY
 STATION: 14+05.00 -L-

SHEET 5 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 REINFORCED CONCRETE
 BOX CULVERTS
 (NON-INTERSTATE TRAFFIC)

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

MI ENGINEERING
 1011 SCHAUUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

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

4/17/2018 2:02:07 PM

User: blanning

Filename: P:\NC Bridges\MI6006.CH Eng.Div. 8 Br. Repl. US Bridges\MI6006.01.Hoke 14\17BP8R130\Structures\17BP8R130_SD_C05_14.dgn

ASSEMBLED BY : J.I. BREWER	DATE: 12/17
CHECKED BY : P.A. de PAOLI	DATE: 01/18
DESIGN ENGINEER OF RECORD: J.I. BREWER	DATE: 01/18
DRAWN BY : WMC 7/II	REV. 10/1/II MMA/GM
CHECKED BY : GM 7/II	

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 $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " 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 $\frac{1}{4}$ " 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 $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset 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 $\frac{3}{16}$ " 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 $\frac{1}{16}$ " 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.

ENGLISH

JANUARY, 1990

STD. NO. SN