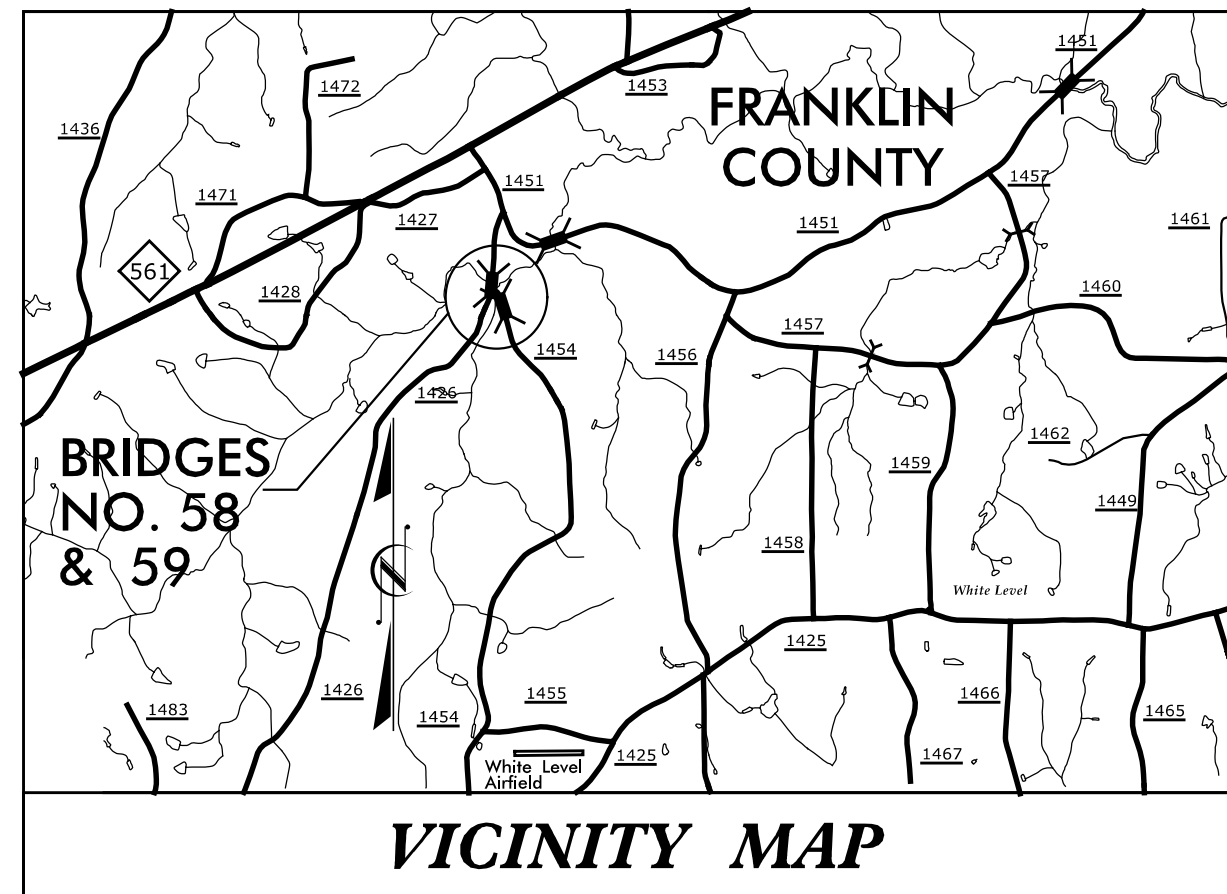


TIP PROJECT:BD-5105T/17BP.5.R.42

See Sheet 1-A For Index of Sheets



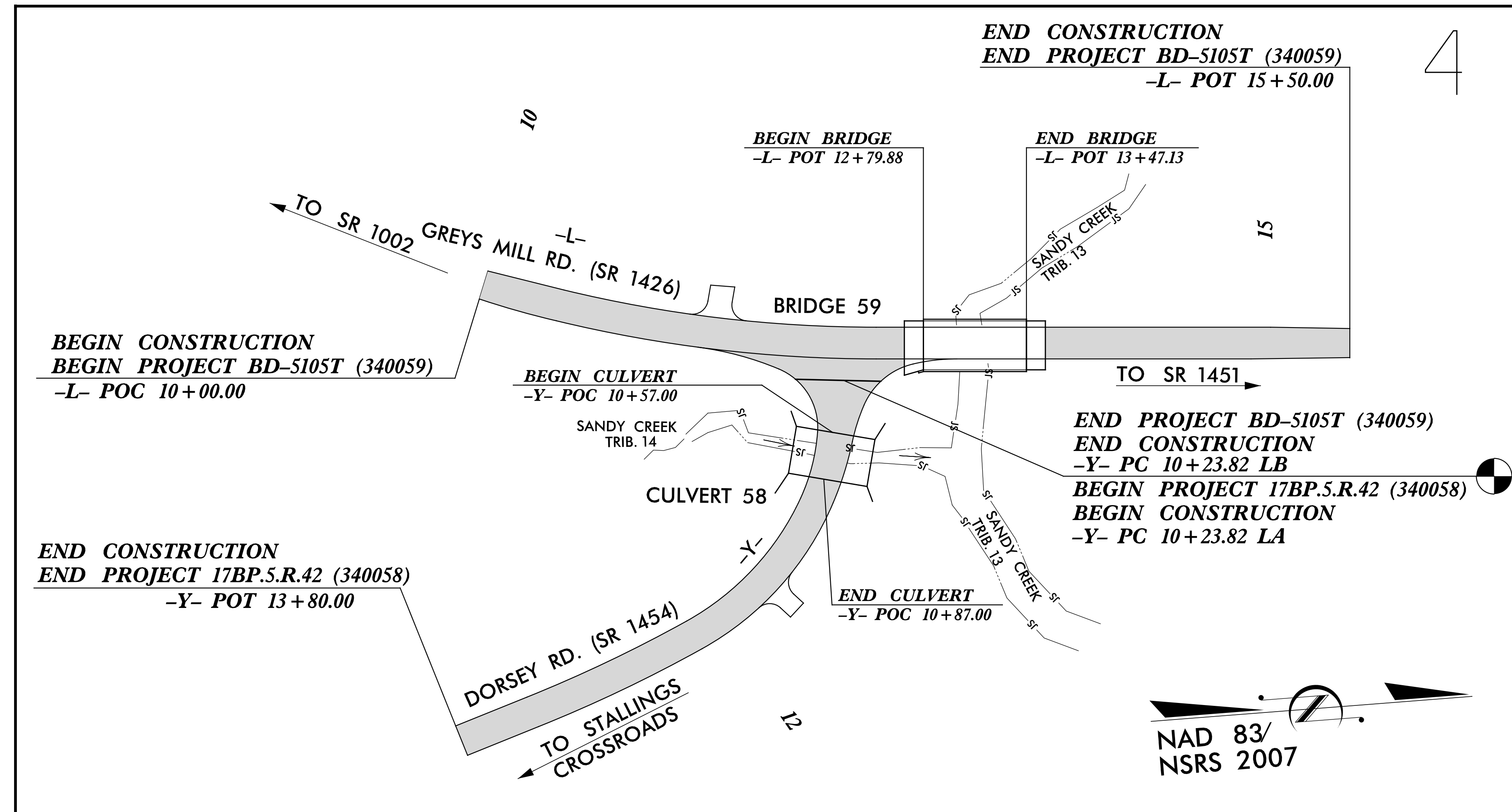
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARY
SEE TCP-2 FOR OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
FRANKLIN COUNTY

**LOCATION: STRUCTURES NO. 58 ON SR 1454 (DORSEY RD.)
OVER TRIBUTARY #14 OF SANDY CREEK
BRIDGE NO. 59 ON SR 1426 (GREYS MILL RD.)
OVER TRIBUTARY #13 OF SANDY CREEK**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURES

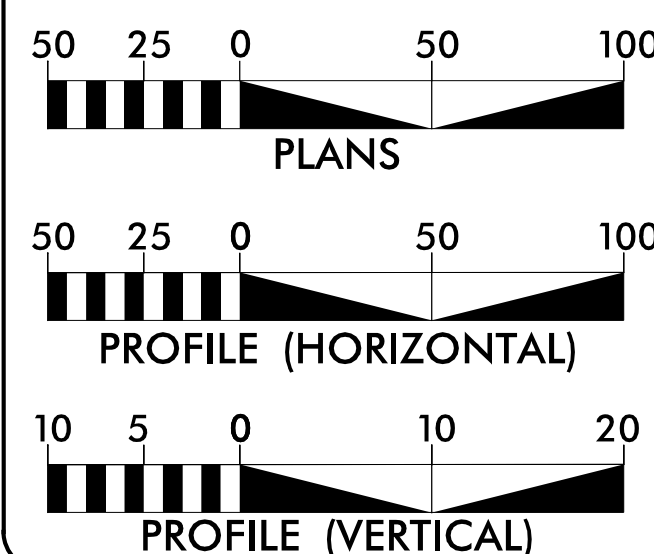
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5105T/17BP.5.R.42	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45351.1.20	BRZ-1426 (4)	P.E.	
45351.2.20	BRZ-1426 (4)	R/W	
45351.3.20	BRZ-1426 (4)	CONST.	
17BP.5.R.42		P.E.	
17BP.5.R.42		R/W	
17BP.5.R.42		CONST.	



DESIGN EXCEPTION REQUIRED
FOR HORIZONTAL CURVE ON BD-5105T

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

GRAPHIC SCALES



DESIGN DATA

ADT 2011 = 110
ADT 2031 = 200
DHV = 10 %
D = 50 %
T = 6 % *
V = 45 MPH
* TTST = N/A DUAL N/A
FUNC CLASS = LOCAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT 340058 = 0.061 MILES
LENGTH STRUCTURES STATE PROJECT 340058 = 0.006 MILES
TOTAL LENGTH STATE PROJECT 340058 = 0.067 MILES
LENGTH ROADWAY STATE PROJECT 340059 = 0.092 MILES
LENGTH STRUCTURES STATE PROJECT 340059 = 0.012 MILES
TOTAL LENGTH STATE PROJECT 340059 = 0.104 MILES

PREPARED FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION IN THE OFFICE OF:
Florence & Hutcheson
An **ICCA** Company
5121 Kingston Way, Raleigh, NC 27607
NC License No: F-40528

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 2012
LETTING DATE: APRIL 2013
DENNIS MORY, PE
PROJECT ENGINEER
HENRY BARE
PROJECT DESIGN ENGINEER

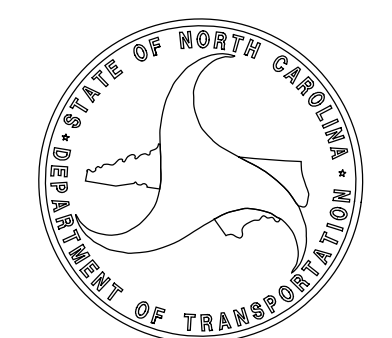
HYDRAULICS ENGINEER

John P. ...
SIGNATURE: P.E. 3/1/13

ROADWAY DESIGN ENGINEER

Dennis Mory
SIGNATURE: P.E. 3/1/13

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**



STATE HIGHWAY DESIGN ENGINEER P.E.

\$\$\$\$\$ SYSTEM \$\$\$\$\$\$ DGN \$\$\$\$\$\$ USER NAME \$\$\$\$\$\$

8/17/99



GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12

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 III.

SHOULDER CONSTRUCTION:

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

DRIVEWAYS:

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

GUARDRAIL:

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

END BENTS:

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

UTILITIES:

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.

ROADWAY STANDARD DRAWINGS

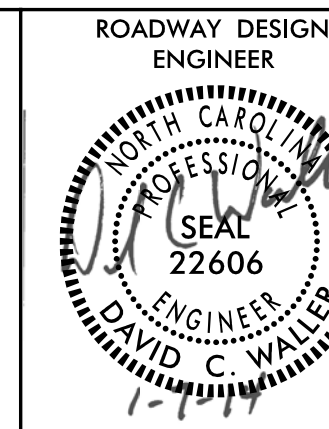
2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
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
310.10	Driveway Pipe Construction
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
840.20	Frames and Wide Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
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

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS GENERAL NOTES LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	TYPICAL SECTIONS
3	BD-5105T - DRAINAGE SUMMARY BD-5105T - GUARDRAIL SUMMARY BD-5105T - SUMMARY OF EARTHWORK BD-5105T - SUMMARY OF PAVEMENT REMOVAL BD-5105T - SUMMARY OF SHOULDER BERM GUTTER
3-A	17BP.5.R.42 - DRAINAGE SUMMARY 17BP.5.R.42 - GUARDRAIL SUMMARY 17BP.5.R.42 - SUMMARY OF EARTHWORK 17BP.5.R.42 - SUMMARY OF PAVEMENT REMOVAL 17BP.5.R.42 - SUMMARY OF SHOULDER BERM GUTTER
4	BD-5105T & 17BP.5.R.42 - ROADWAY PLAN, PARCEL INDEX & DRAINAGE DITCH DETAILS
5	BD-5105T & 17BP.5.R.42 - ROADWAY PROFILE
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
X-1 THRU X-6	CROSS-SECTIONS
C-1 THRU C-3	17BP.5.R.42 - CULVERT PLANS
S-1 THRU S-15	BD-5105T - STRUCTURE PLANS
SN	BD-5105T - STANDARD NOTES



04/16/11

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	- - - - -
Township Line	- · - · -
City Line	- · - · - · -
Reservation Line	- · - · - · - · -
Property Line	-----
Existing Iron Pin	⊙
Property Corner	⊗
Property Monument	⊠
Parcel/Sequence Number	⑫③
Existing Fence Line	- x - x - x -
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	⊠
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	- WLB -
Proposed Wetland Boundary	- WLB -
Existing Endangered Animal Boundary	- EAB -
Existing Endangered Plant Boundary	- EPB -
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	⊠
Jurisdictional Stream	- JS -
Buffer Zone 1	- BZ 1 -
Buffer Zone 2	- BZ 2 -
Flow Arrow	←
Disappearing Stream	➤
Spring	⊙
Wetland	⊠
Proposed Lateral, Tail, Head Ditch	⊠
False Sump	⊠

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	⊙
Switch	⊠
RR Abandoned	- - - - -
RR Dismantled	-----

RIGHT OF WAY:

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 Marker	⊠
Existing Control of Access	⊠
Proposed Control of Access	⊠
Existing Easement Line	- E -
Proposed Temporary Construction Easement	- E -
Proposed Temporary Drainage Easement	- TDE -
Proposed Permanent Drainage Easement	- PDE -
Proposed Permanent Drainage / Utility Easement	- DUE -
Proposed Permanent Utility Easement	- PUE -
Proposed Temporary Utility Easement	- TUE -
Proposed Aerial Utility Easement	- AUE -

ROADS AND RELATED FEATURES:

Proposed Permanent Easement with Iron Pin and Cap Marker	◆
Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	- C -
Proposed Slope Stakes Fill	- F -
Proposed Curb Ramp	⊠
Existing Metal Guardrail	⊠
Proposed Guardrail	⊠
Existing Cable Guiderail	⊠
Proposed Cable Guiderail	⊠
Equality Symbol	⊠
Pavement Removal	⊠

VEGETATION:

Single Tree	⊙
Single Shrub	⊙
Hedge	⊠
Woods Line	⊠

Orchard	⊠
Vineyard	⊠

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	⊠
Bridge Wing Wall, Head Wall and End Wall	⊠
MINOR:	
Head and End Wall	⊠
Pipe Culvert	⊠
Footbridge	⊠
Drainage Box: Catch Basin, DI or JB	⊠
Paved Ditch Gutter	⊠
Storm Sewer Manhole	⊠
Storm Sewer	⊠

UTILITIES:

POWER:	
Existing Power Pole	⊙
Proposed Power Pole	⊙
Existing Joint Use Pole	⊙
Proposed Joint Use Pole	⊙
Power Manhole	⊙
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	⊠
H-Frame Pole	⊙
Recorded U/G Power Line	- P -
Designated U/G Power Line (S.U.E.*)	- P -

TELEPHONE:

Existing Telephone Pole	⊙
Proposed Telephone Pole	⊙
Telephone Manhole	⊙
Telephone Booth	⊠
Telephone Pedestal	⊠
Telephone Cell Tower	⊙
U/G Telephone Cable Hand Hole	⊠
Recorded U/G Telephone Cable	- T -
Designated U/G Telephone Cable (S.U.E.*)	- T -
Recorded U/G Telephone Conduit	- TC -
Designated U/G Telephone Conduit (S.U.E.*)	- TC -
Recorded U/G Fiber Optics Cable	- T FO -
Designated U/G Fiber Optics Cable (S.U.E.*)	- T FO -

WATER:

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

TV:

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

GAS:

Gas Valve	⊙
Gas Meter	⊙
Recorded U/G Gas Line	- G -
Designated U/G Gas Line (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 -
Recorded SS Forced Main Line	- FSS -
Designated SS Forced Main Line (S.U.E.*)	- FSS -

MISCELLANEOUS:

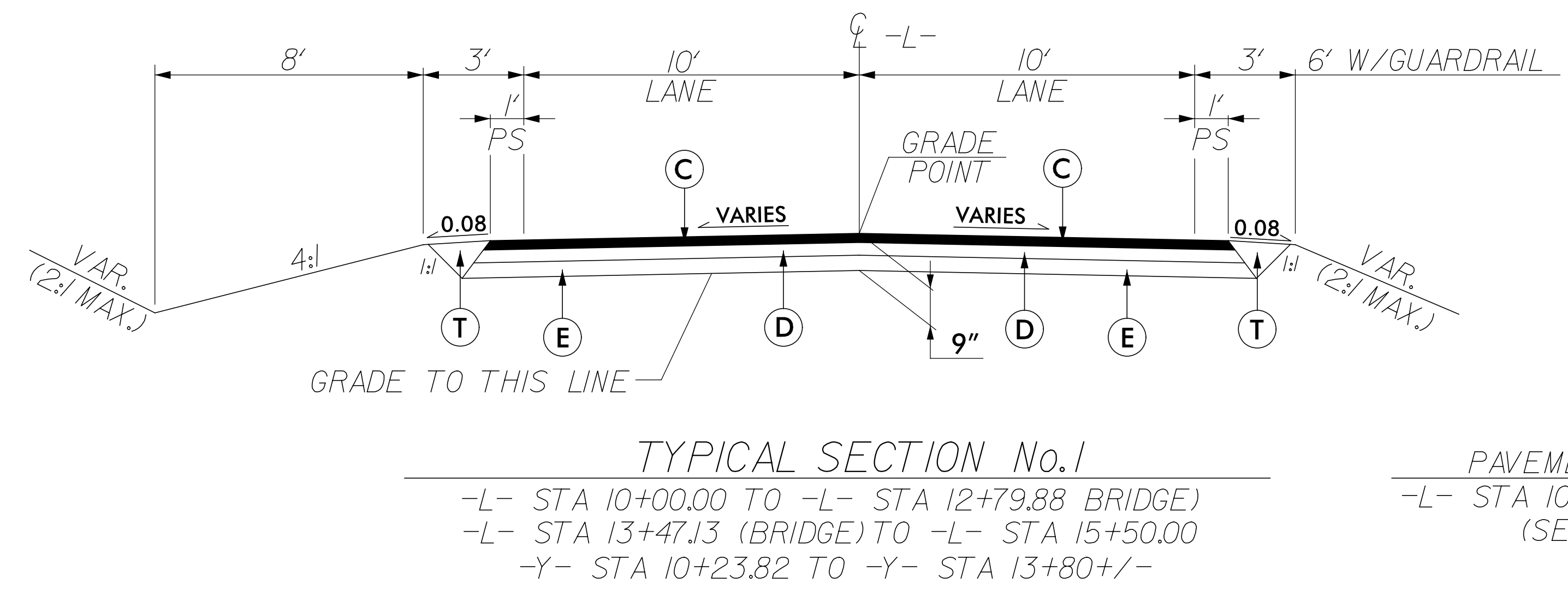
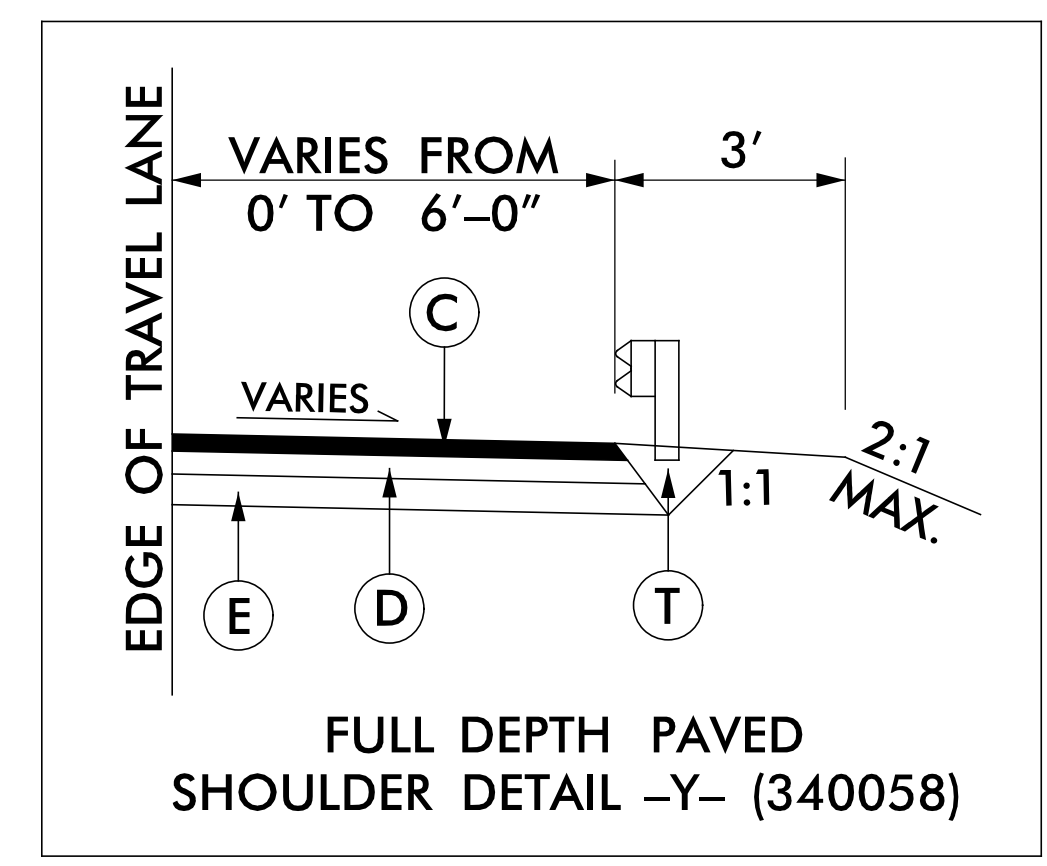
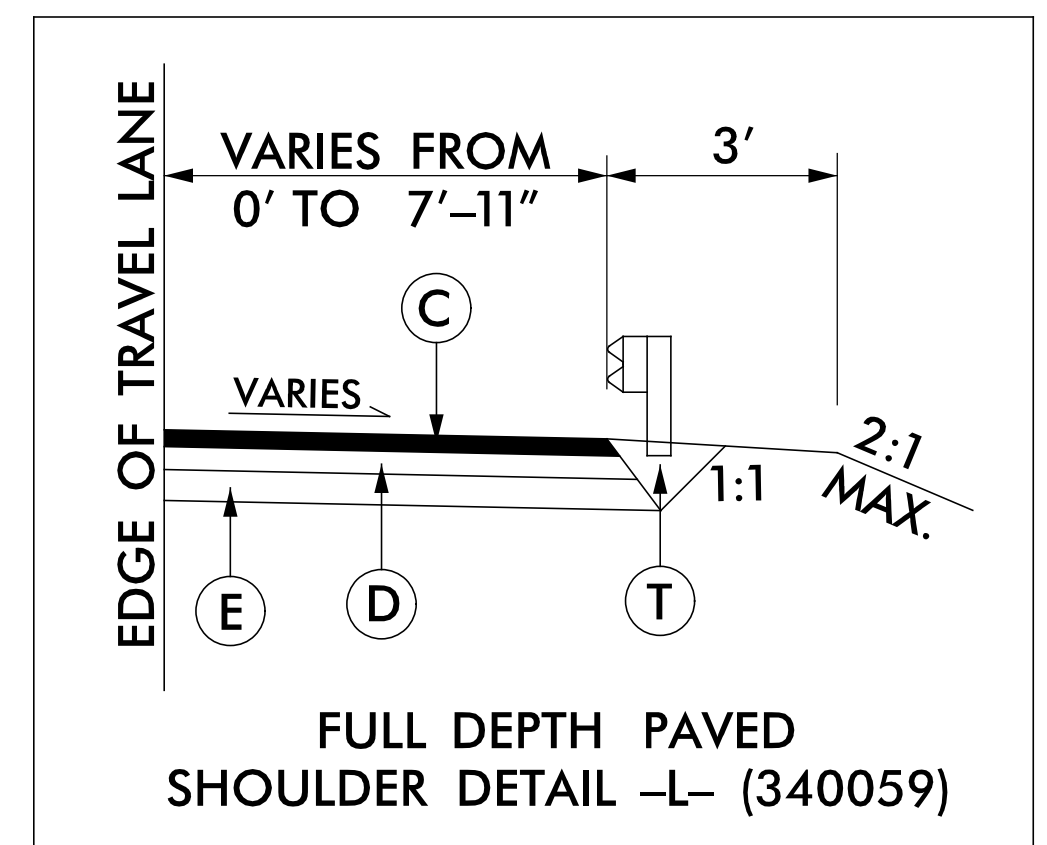
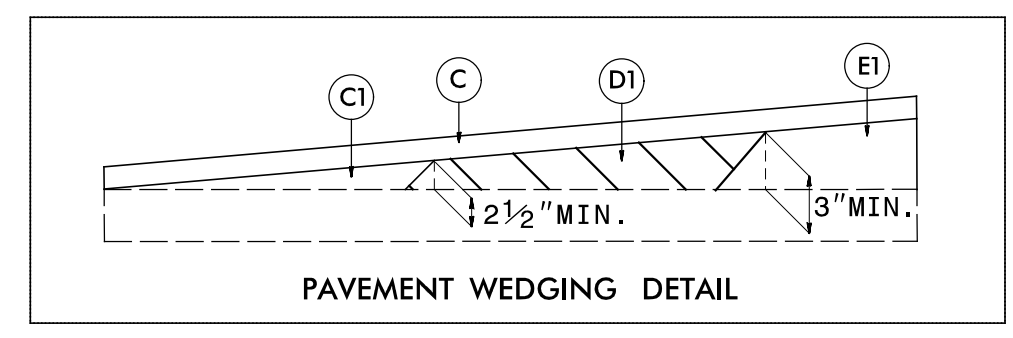
Utility Pole	⊙
Utility Pole with Base	⊠
Utility Located Object	⊙
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line	- 2UTL -
U/G Tank; Water, Gas, Oil	⊠
Underground Storage Tank, Approx. Loc.	⊠
A/G Tank; Water, Gas, Oil	⊠
Geoenvironmental Boring	⊙
U/G Test Hole (S.U.E.*)	⊙
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

5/14/99

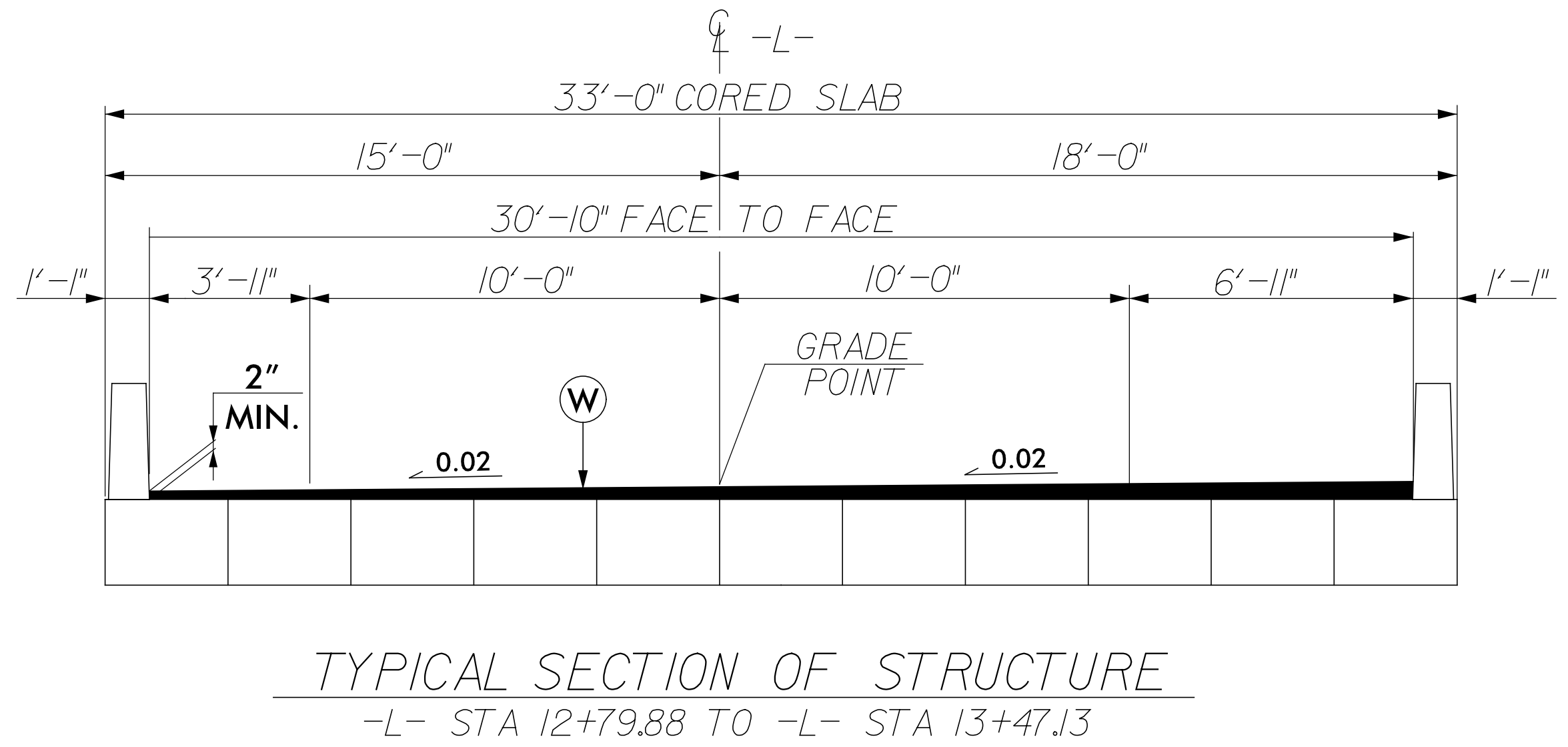
PROJECT REFERENCE NO. BD-5105T/17BP.5.R.42	SHEET NO. 2
ROADWAY DESIGN ENGINEER Dennis James Hoot	HYDRAULICS ENGINEER Dennis James Hoot
3/4/13	3/4/13

PAVEMENT SCHEDULE	
(C)	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
(CI)	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
(D)	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
(DI)	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
(E)	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(EI)	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
(T)	EARTH MATERIAL
(W)	PAVEMENT WEDGING

NOTE: FULL DEPTH PAVED SHOULDER REQUIRED AT GUARDRAIL LOCATIONS (SEE FULL DEPTH PAVED SHOULDER DETAIL)



PAVEMENT MILL & RESURFACE
 -L- STA 10+00.00 TO -L- STA 11+50.00
 (SEE CROSS SECTIONS)



PROJECT NO. 17BP.5.R.42
 COUNTY: FRANKLIN
 STATION: -Y- 10+72.5 (SKEW 84)
 REPLACES BRIDGE NO. 58

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE NO. 58 ON SR 1454
 OVER TRIBUTARY
 OF SANDY CREEK

PROJECT NO. BD-5105T
 COUNTY: FRANKLIN
 STATION: -L- 13+13.5 (SKEW 90)
 REPLACES BRIDGE NO. 59

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE NO. 59 ON SR 1426
 OVER TRIBUTARY
 OF SANDY CREEK

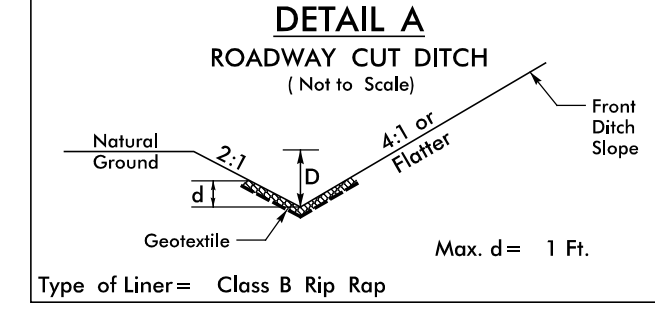
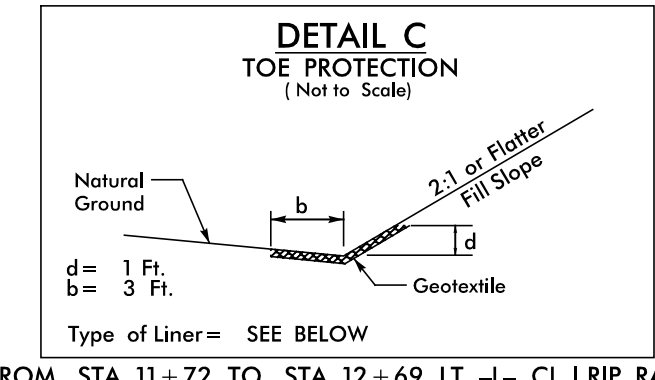
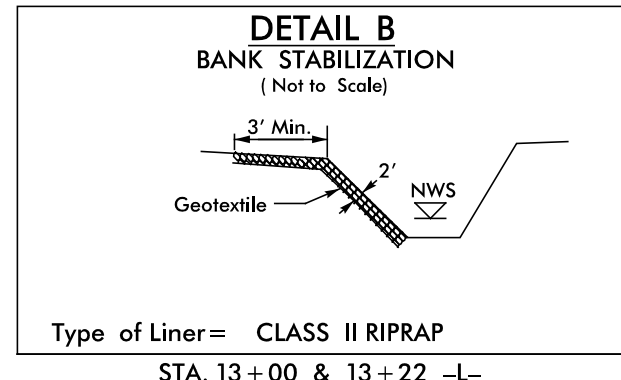
5/14/09

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "BL-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 876064.921(ft) EASTING: 2245999.356(ft) ELEVATION: 243.61(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99999033
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL DISTANCE FROM "BL-1" TO -L- STATION IS
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

TBM #51 (340059)
 -L- STA 11+63.24 81.64' RT
 ELEV. = 229.31'

DESC.	NORTHING	EASTING	ELEVATION	STATION	OFFSET	DESC.	NORTHING	EASTING	ELEVATION	STATION	OFFSET
BL1 (340059)	876064.92	2245999.36	243.61'	-L- 16+14.28	11.70' RT	BL4 (340058)	875689.45'	2245942.78'	232.57'	-L- 12+35.26	15.53' LT
BL2 (340059)	875718.92	2245988.12	232.75'	-L- 12+68.44	27.24' RT	BL5 (340058)	875655.48'	2246089.81'	236.16'	-Y- 11+31.13	15.66' LT
BL3 (340059)	875464.64	2245920.93	234.08'	-L- 10+10.53	14.34' RT	BL6 (340058)	875412.67'	2246177.69'	247.23'	-Y- 13+87.08	14.45' RT



Florence & Hutcheson
 An ICA Company
 5121 Kingdom Way, Raleigh, NC 27607
 NC License No: F-0258

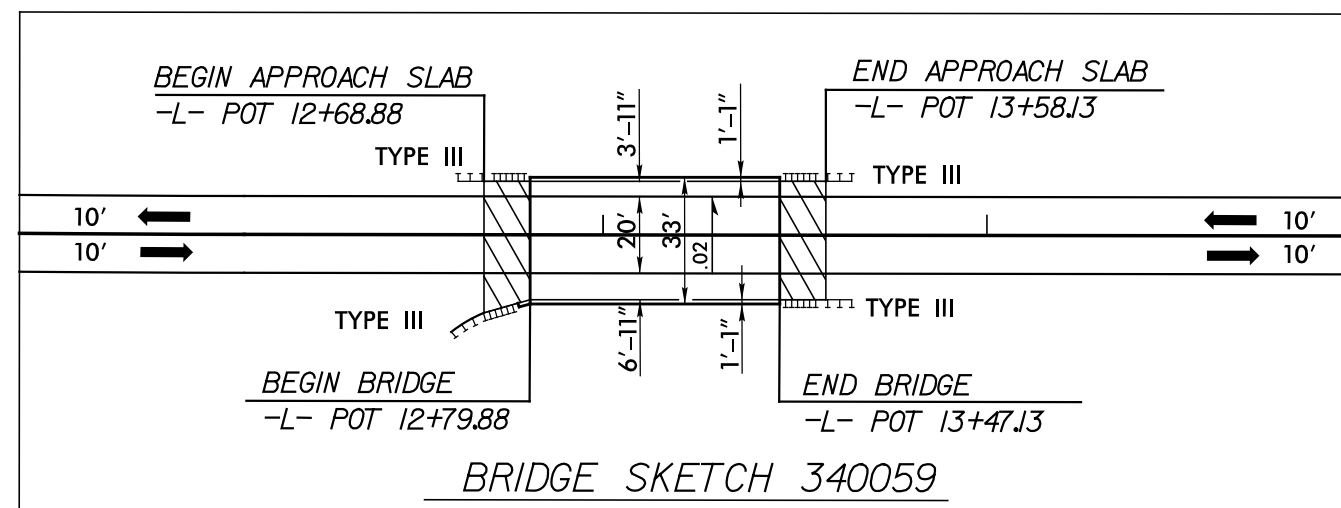
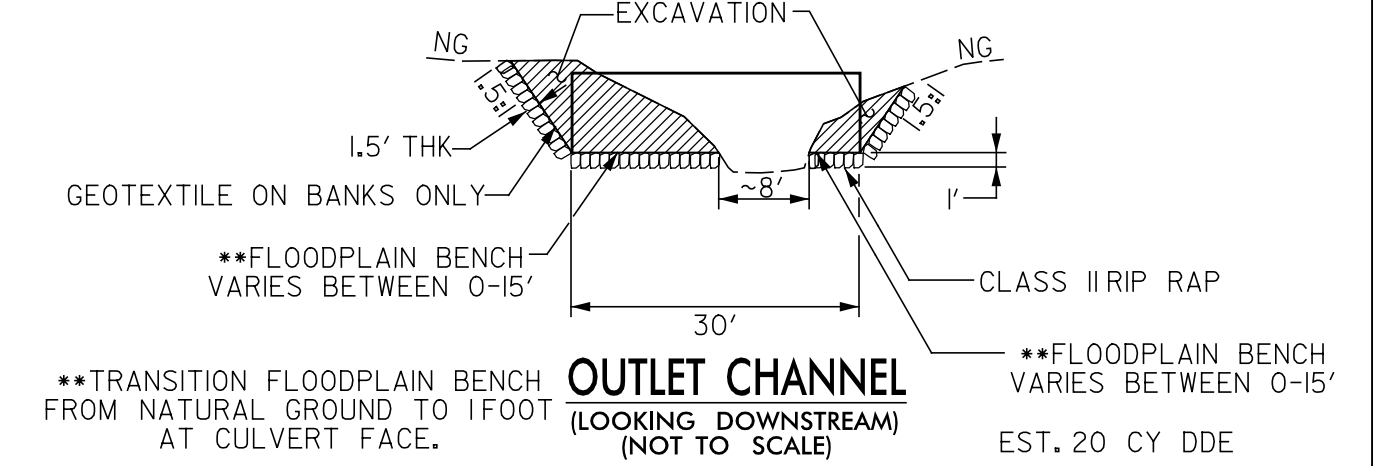
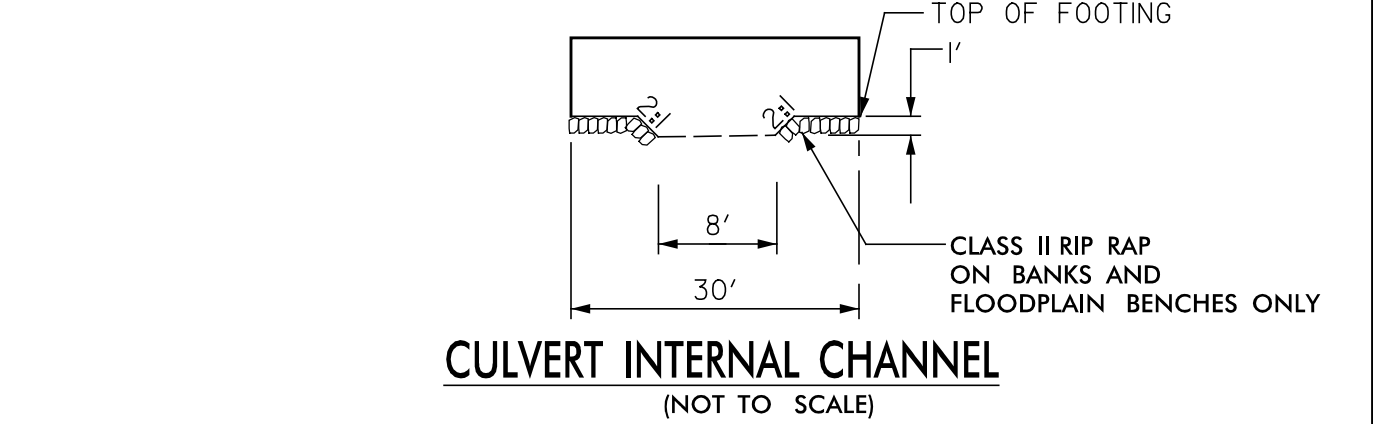
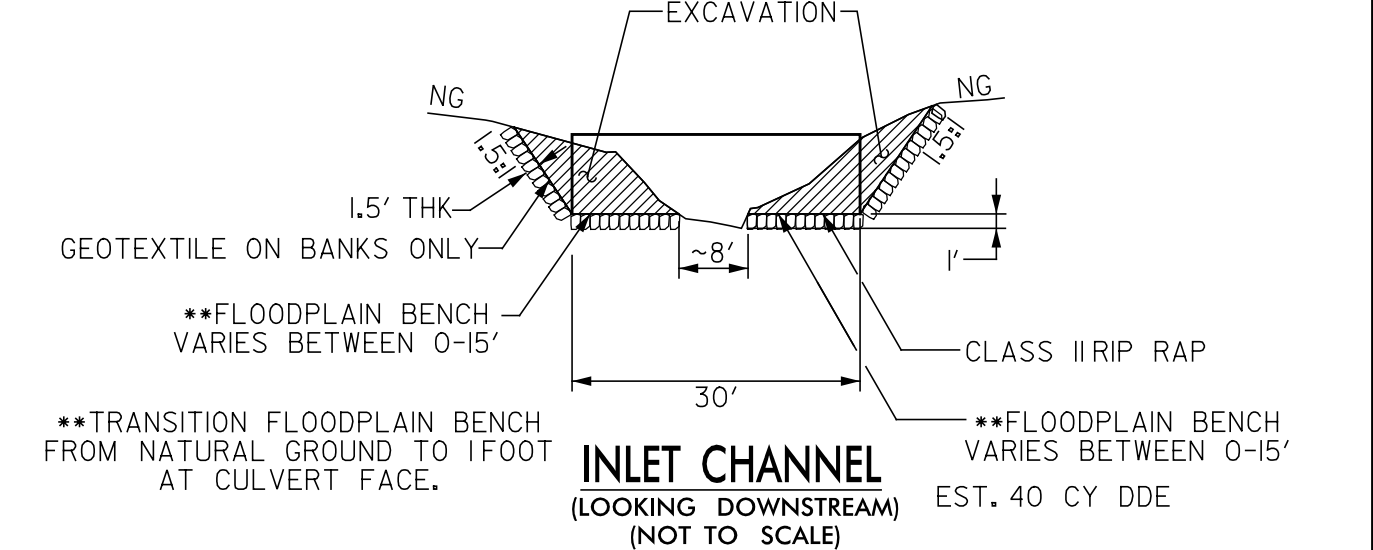
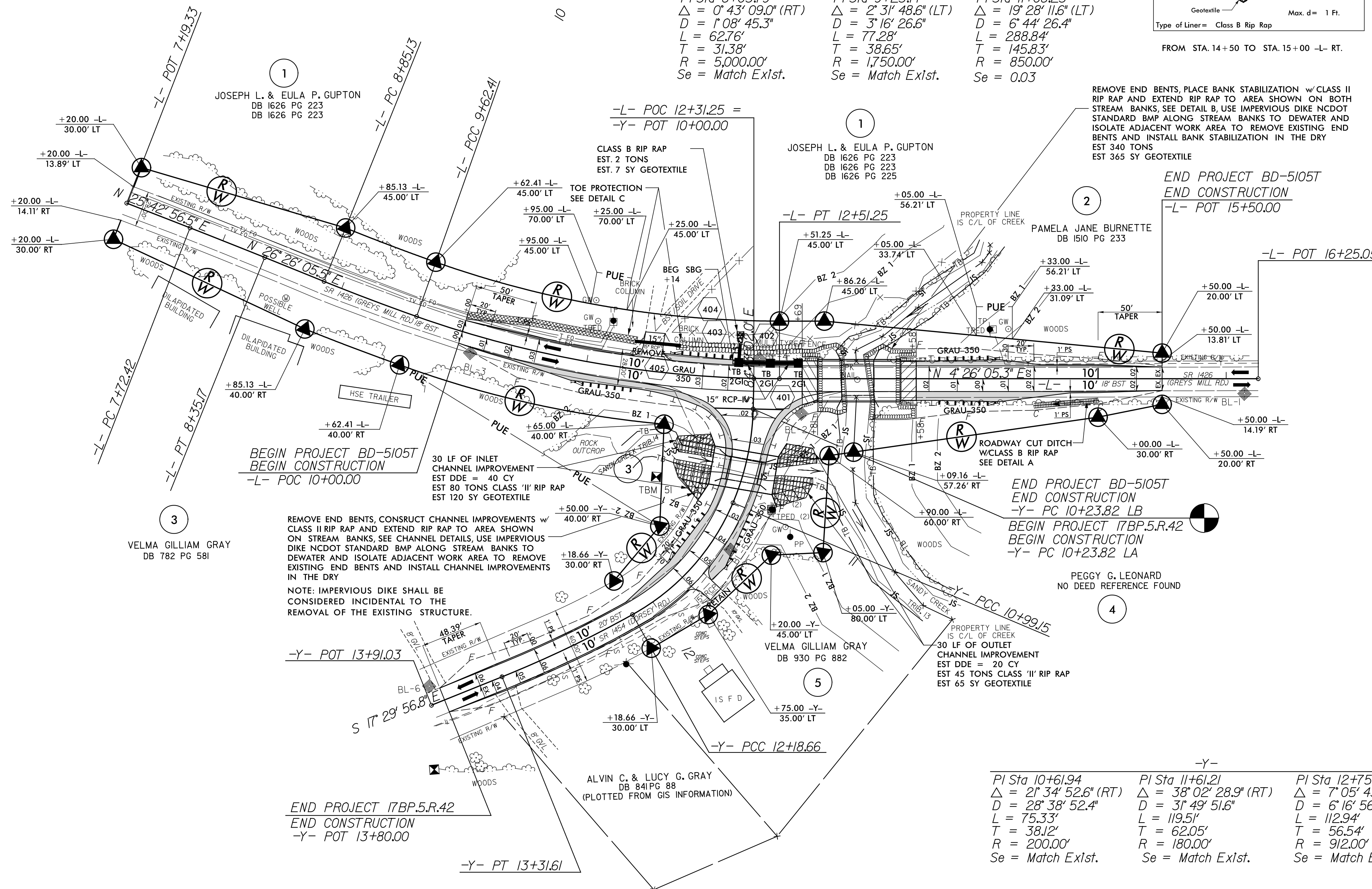
NAD 83/NSRS 2007

PROJECT REFERENCE NO. **BD-5105T / 17BP.5.R.42** SHEET NO. **4**

RW SHEET NO.

ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

Professional Engineer Seal: JAMES M. JAMES, No. 34364, State of North Carolina, expires 3/31/13.



PARCEL INDEX

PROJECT REFERENCE 17BP.5.R.42

PARCEL NO.	PROPERTY OWNER NAME
4	PEGGY G. LEONARD
5	VELMA GILLIAM GRAY

PARCEL INDEX

PROJECT REFERENCE BD-5105T

PARCEL NO.	PROPERTY OWNER NAME
1	JOSEPH L. & EULA P. GUPTON
2	PAMELA JANE BURNETTE
3	VELMA GILLIAM GRAY

-Y-

PI Sta	Δ	D	L	T	R	Se
10+61.94	2° 34' 52.6" (RT)	28° 38' 52.4"	75.33'	38.12'	200.00'	Match Exlst.
11+61.21	38° 02' 28.9" (RT)	31° 49' 51.6"	119.51'	62.05'	180.00'	Match Exlst.
12+75.21	7° 05' 43.7" (RT)	6° 16' 56.8"	112.94'	56.54'	912.00'	Match Exlst.

PROJECT NO. **BD-5105T**
 COUNTY: **FRANKLIN**
 STATION: **-L- 13+13.50 (SKEW 90)**
 REPLACES BRIDGE NO. 59

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE NO. 59 ON SR 1426 OVER TRIBUTARY OF SANDY CREEK

PROJECT NO. **17BP.5.R.42**
 COUNTY: **FRANKLIN**
 STATION: **-Y- 10+72.5 (SKEW 84)**
 REPLACES BRIDGE NO. 58

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CULVERT NO. 58 ON SR 1454 OVER TRIBUTARY OF SANDY CREEK

REVISIONS

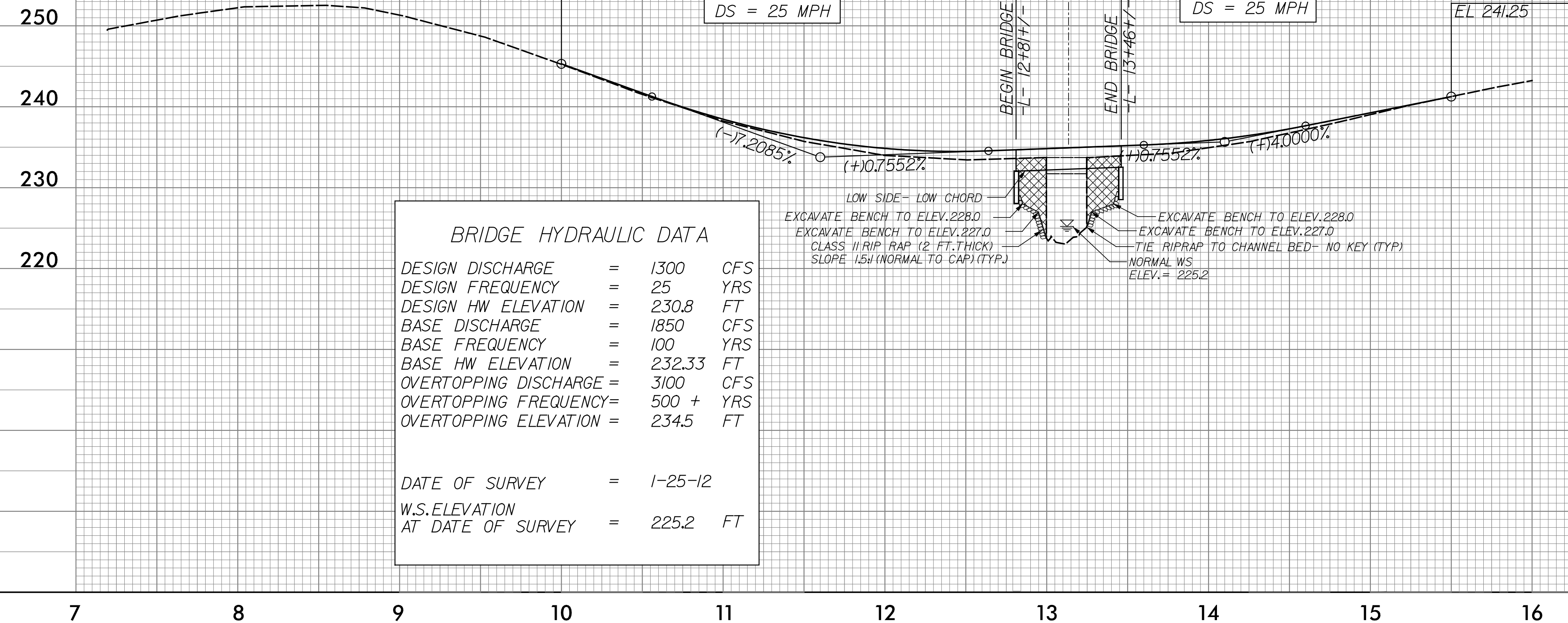
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. **4**
 TOTAL SHEETS

5/28/99

TBM #51 (340059)
-L- STA 11+63.24 81.64' RT
ELEV. = 229.31'

PROJECT REFERENCE NO. BD-5105T/17BP.5.R.42	SHEET NO. 5
ROADWAY DESIGN ENGINEER <i>[Signature]</i> 20031 JAMES JAMES MORT	HYDRAULICS ENGINEER <i>[Signature]</i> 34364 WALTER J. CORNIE
3/4/13	3/4/13



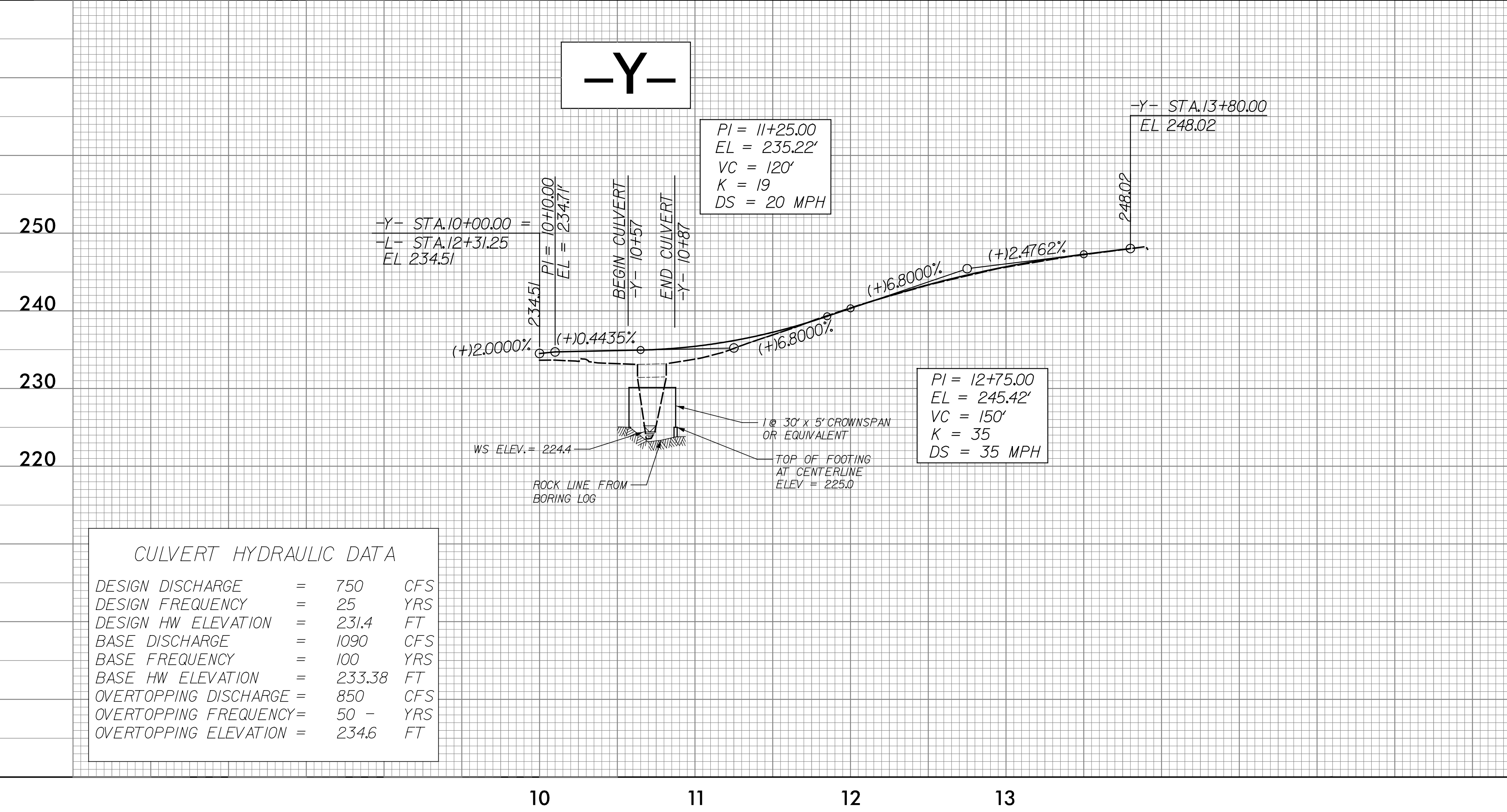
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1300	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	230.8	FT
BASE DISCHARGE	=	1850	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	232.33	FT
OVERTOPPING DISCHARGE	=	3100	CFS
OVERTOPPING FREQUENCY	=	500 +	YRS
OVERTOPPING ELEVATION	=	234.5	FT
DATE OF SURVEY	=	1-25-12	
W.S. ELEVATION AT DATE OF SURVEY	=	225.2	FT

PROJECT NO. BD-5105T
COUNTY: FRANKLIN
STATION: -L- 13+13.5 (SKEW 90)
REPLACES BRIDGE NO. 59

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**BRIDGE NO. 59 ON SR 1426
OVER TRIBUTARY
OF SANDY CREEK**



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	750	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	231.4	FT
BASE DISCHARGE	=	1090	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	233.38	FT
OVERTOPPING DISCHARGE	=	850	CFS
OVERTOPPING FREQUENCY	=	50 -	YRS
OVERTOPPING ELEVATION	=	234.6	FT

PROJECT NO. 340058
COUNTY: FRANKLIN
STATION: -Y- 10+72.5 (SKEW 84)
REPLACES BRIDGE NO. 58

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**BRIDGE NO. 58 ON SR 1454
OVER TRIBUTARY
OF SANDY CREEK**

5/28/99

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 UNDESIRE 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.

LANE AND SHOULDER CLOSURE REQUIREMENTS

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

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

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

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

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKING AND MARKERS

- G) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING
SR 1426 (GREYS MILL RD)	PAINT
SR 1454 (DORSEY RD)	PAINT

- H) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE ACCORDING TO THE ROADWAY STANDARDS.

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

MISCELLANEOUS

- J) MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN THE CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.02	PORTABLE WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

PHASING

STEP 1

USING ROADWAY STANDARD DRAWING NUMBER 1101.04, SHEET 1 OF 1, INSTALL ALL DETOUR SIGNING KEEPING SIGNS COVERED.

STEP 2

PRIOR TO CLOSING SR 1426 (GREYS MILL RD.) AND SR 1454 (DORSEY RD.), UNCOVER ALL DETOUR SIGNING AND OPEN DETOURS TO TRAFFIC.

USING ROADWAY STANDARD DRAWING NUMBER 1101.03, SHEET 1 OF 9, CLOSE SR 1426 (GREYS MILL RD.) AND SR 1454 (DORSEY RD.).

STEP 3

DISMANTLE AND REMOVE EXISTING BRIDGES.

STEP 4

COMPLETE CONSTRUCTION OF PROPOSED STRUCTURES, APPROACH ROADWAY TIE-INS, AND ASSOCIATED ITEMS.

STEP 5

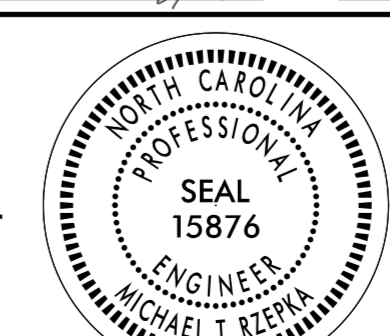

PLACE FINAL PAVEMENT MARKINGS ON SR 1426 (GREYS MILL RD.) AND SR 1454 (DORSEY RD.) AND OPEN TO TRAFFIC.

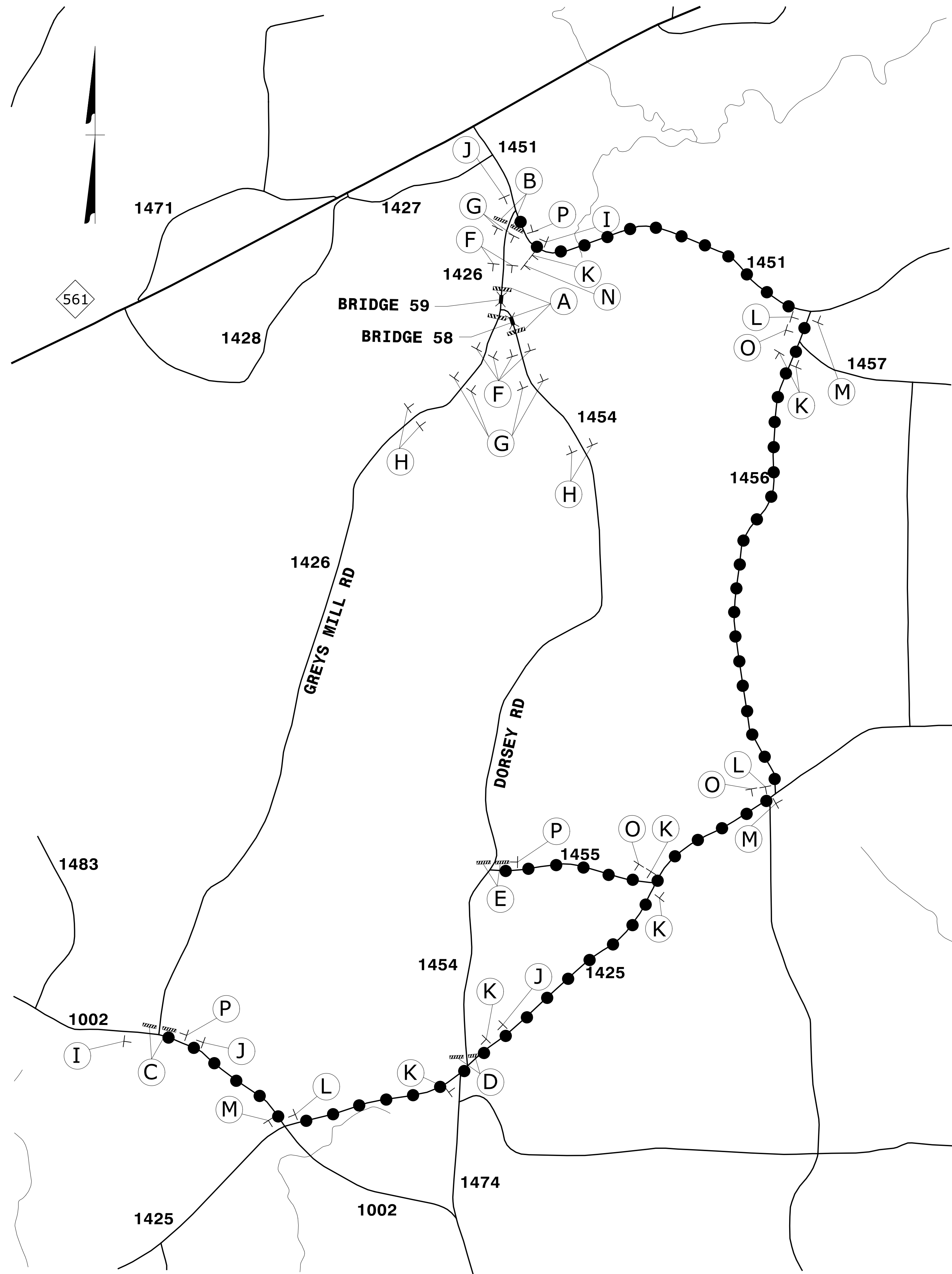
STEP 6

USING ROADWAY STANDARD DRAWING NUMBER 1101.04, SHEET 1 OF 1, REMOVE ALL DETOUR SIGNING AND ALL TRAFFIC CONTROL DEVICES.

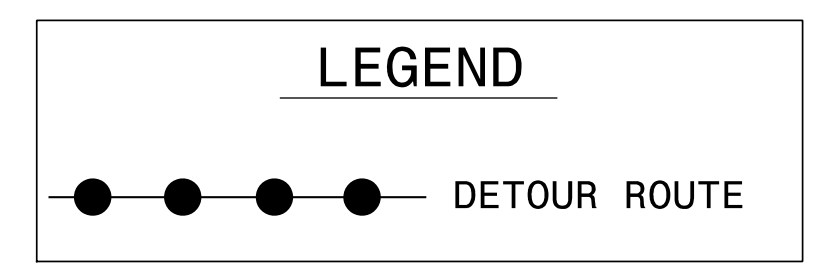
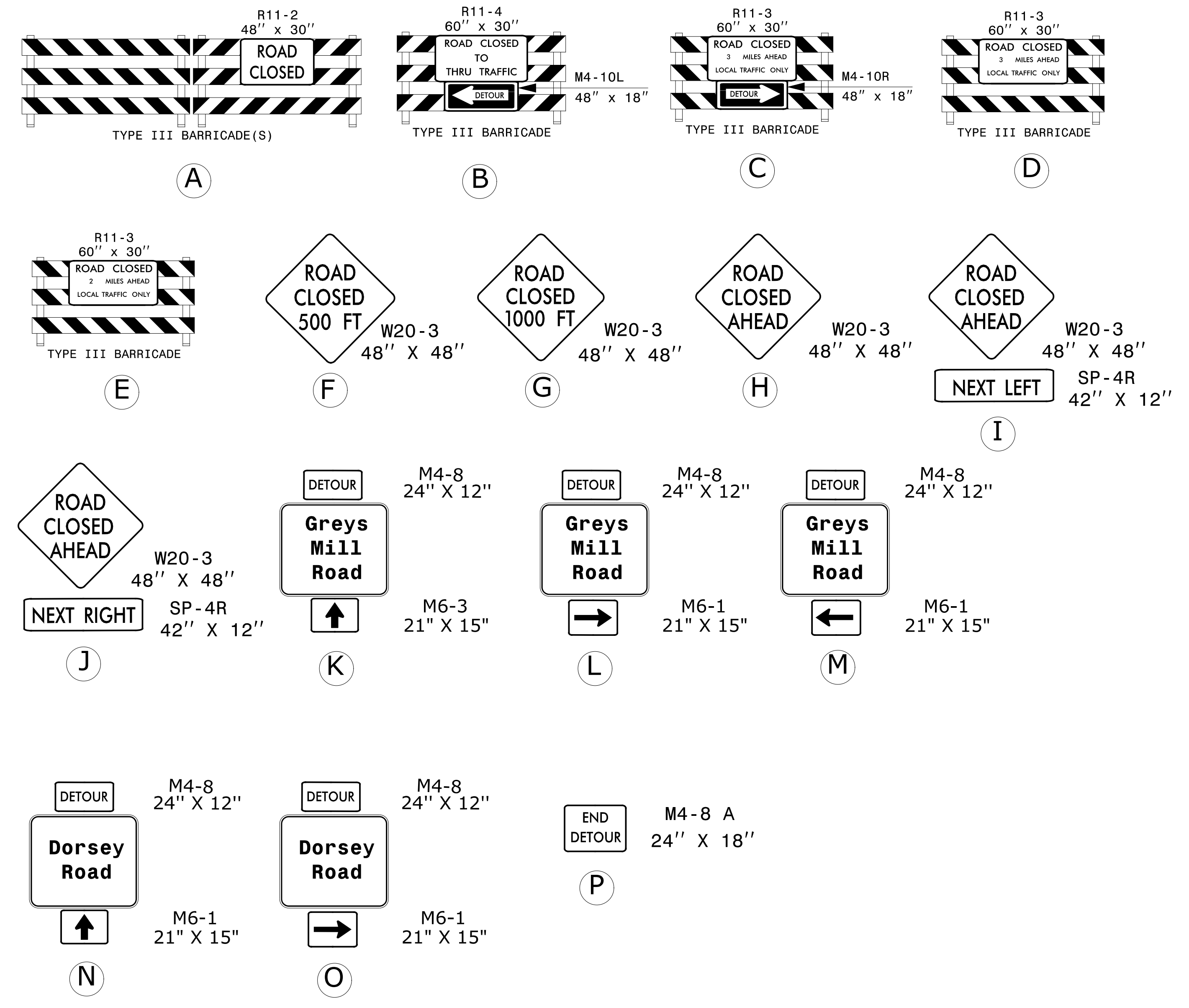
FINAL PAVEMENT MARKING SCHEDULE

DESCRIPTION	PAY ITEM
WHITE EDGELINE (2X)	PAINT (4")
DOUBLE YELLOW CENTER LINE (2X)	PAINT (4")


APPROVED: <i>Michael T. Rzepka</i> DATE: 3-1-13	GENERAL NOTES, PHASING, ROADWAY STANDARD DRAWINGS FINAL PAVEMENT MARKING SCHEDULE	
SEAL 	SCALE: NONE	REVISIONS
	DATE: MAR. '13	
	DWG. BY: YTM	
	DESIGN BY: TAG	
REVIEWED BY: MTR		
		
		CADD FILE



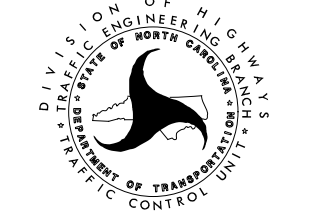
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APPROVED: *Michael T. Rzepka* DATE: 3-7-13

SEAL: 

DETOURS FOR GREYS MILL ROAD AND DORSEY ROAD CLOSURES

SCALE: NONE		REVISIONS
DATE: MAR. '13		
DWG. BY: YTM		
DESIGN BY: TAG		
REVIEWED BY: MTR		

SIGN NUMBER: name TYPE: STATIONARY QUANTITY: SEE PLANS SIGN WIDTH: 3'-0" HEIGHT: 2'-6" TOTAL AREA: 7.5 Sq.Ft.	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: DIV: DIV	DATE: Mar 04, 2013
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BORDER
R=1.5"
TH=0.63"
IN=0.47"

Spacing Factor is 1 unless specified otherwise

Letter positions											Series/Size
Letter spacings are to start of next letter											Text Length
	D	o	r	s	e	y					D 2000
6	5	4.6	2.6	3.4	3.9	4.5	6				24.1
	R	o	a	d							D 2000
9.5	4.7	4.3	4.3	3.6	9.5						17

FILENAME: SIGN_DESIGNS NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: name TYPE: STATIONARY QUANTITY: SEE PLANS SIGN WIDTH: 4'-6" HEIGHT: 2'-6" TOTAL AREA: 11.3 Sq.Ft.	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: DIV: DIV	DATE: Mar 04, 2013
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BORDER
R=1.5"
TH=0.63"
IN=0.47"

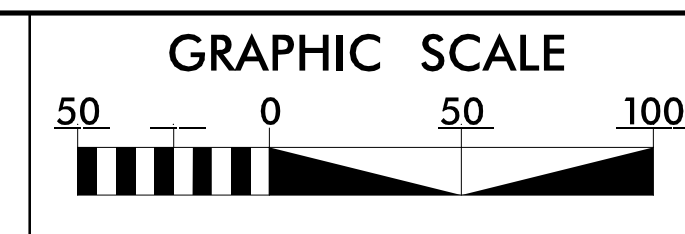
Spacing Factor is 1 unless specified otherwise

Letter positions											Series/Size
Letter spacings are to start of next letter											Text Length
	G	r	e	y	s	M	i	l	l		D 2000
8.6	5.3	2.8	3.9	4.9	2.8	6	6	2.2	2.2	1	36.9
	R	o	a	d							D 2000
18.5	4.7	4.3	4.3	3.6	18.5						17

FILENAME: SIGN_DESIGNS NORTH CAROLINA D.O.T. SIGN DETAIL

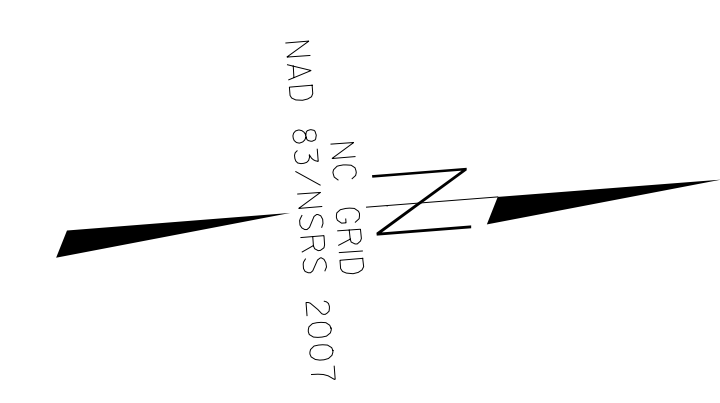
APPROVED: <i>Michael T. Rzepka</i> DATE: 3-1-13	SIGN DESIGNS	
	SCALE: NONE	
	DATE: MAR. '13	
	DESIGN BY: TAG	
	REVIEWED BY: MTR	
		REVISIONS

3/5/2013
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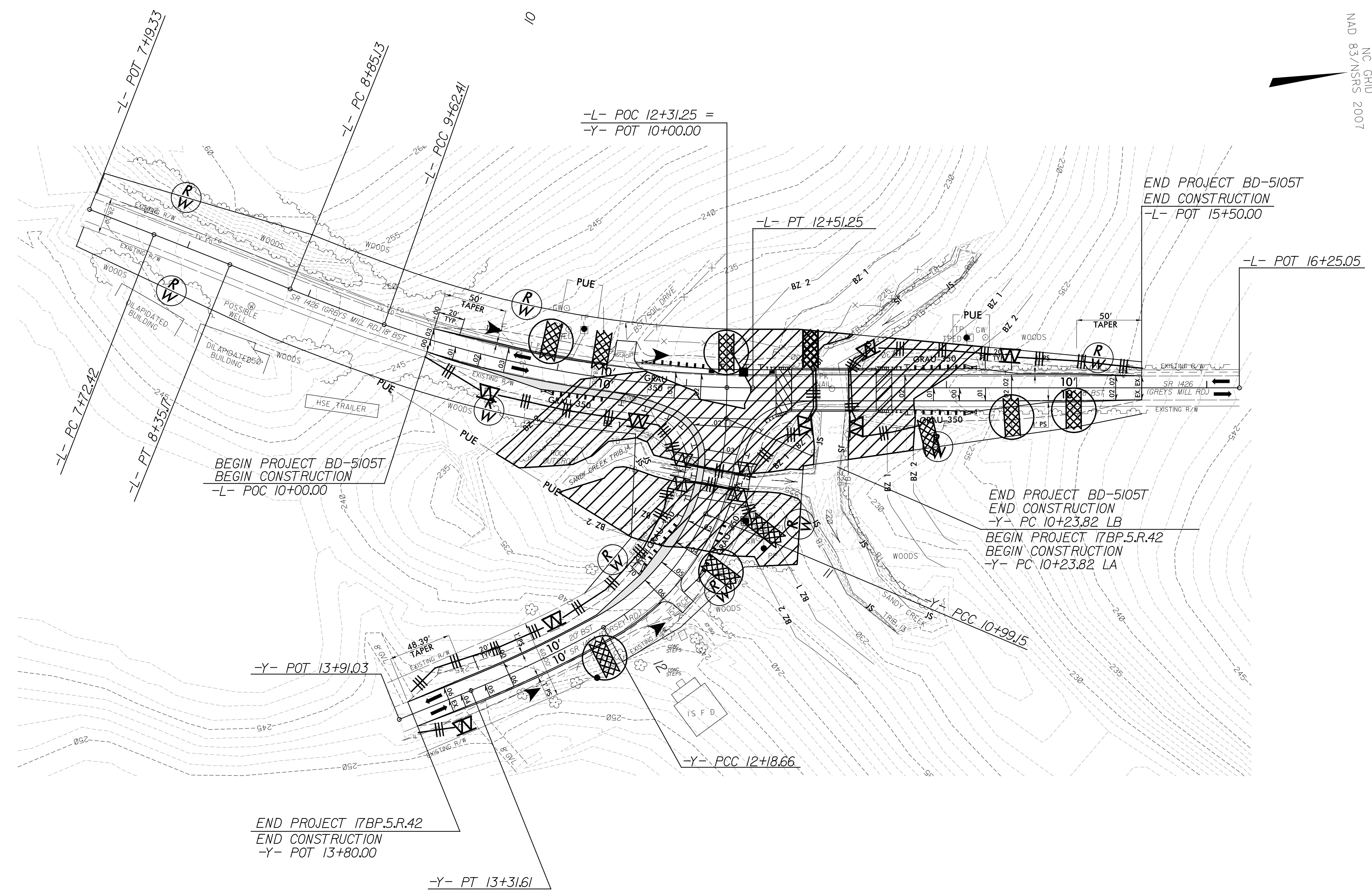


PROJECT REFERENCE NO. **BD-5105T/17.BP.5.R.42** SHEET NO. **EC-1/CONST.4**
 RW SHEET NO. _____
 ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
 ALEXANDER SNIDER, E.I.
 CERTIFICATION NUMBER: 3064
 ISSUED: MARCH 7, 2013



CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 4



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	▤ ▤ ▤ ▤ ▤
1633.01	Temporary Rock Silt Check Type-A	▣ ▣ ▣ ▣ ▣
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▣ ▣ ▣ ▣ ▣

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

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT
 High Quality Water Zone(s) Exist
 From Sta. _____ Begin
 to Sta. _____ End
 Refer To E. C. Special Provisions for Special Considerations.

ALEXANDER SNIDER, E.I.
 ROADSIDE ENVIRONMENTAL ENGINEER
 3064
 LEVEL III CERTIFICATION NUMBER

TRENTON J. CORMIER, P.E.
 ROADSIDE ENVIRONMENTAL PROJECT ENGINEER
 118
 LEVEL III CERTIFICATION NUMBER

 ENVIRONMENTALLY SENSITIVE AREA
 SEE PROJECT SPECIAL PROVISIONS

NOTE:
 ALL EROSION CONTROL DEVICES SHOWN ARE LOCATED WITHIN EXISTING RW OR EASEMENT.

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:
FLORENCE & HUTCHESON
 5121 KINGDOM WAY, SUITE 100
 RALEIGH NC 27607
 NC License No: F-0258

2012 STANDARD SPECIFICATIONS

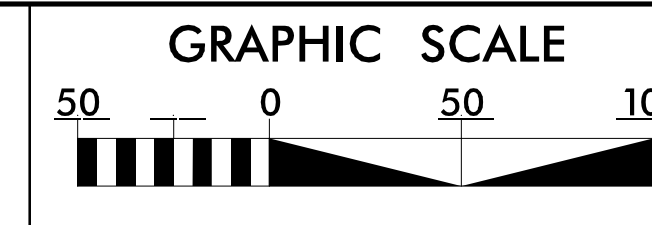
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 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	Cair Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

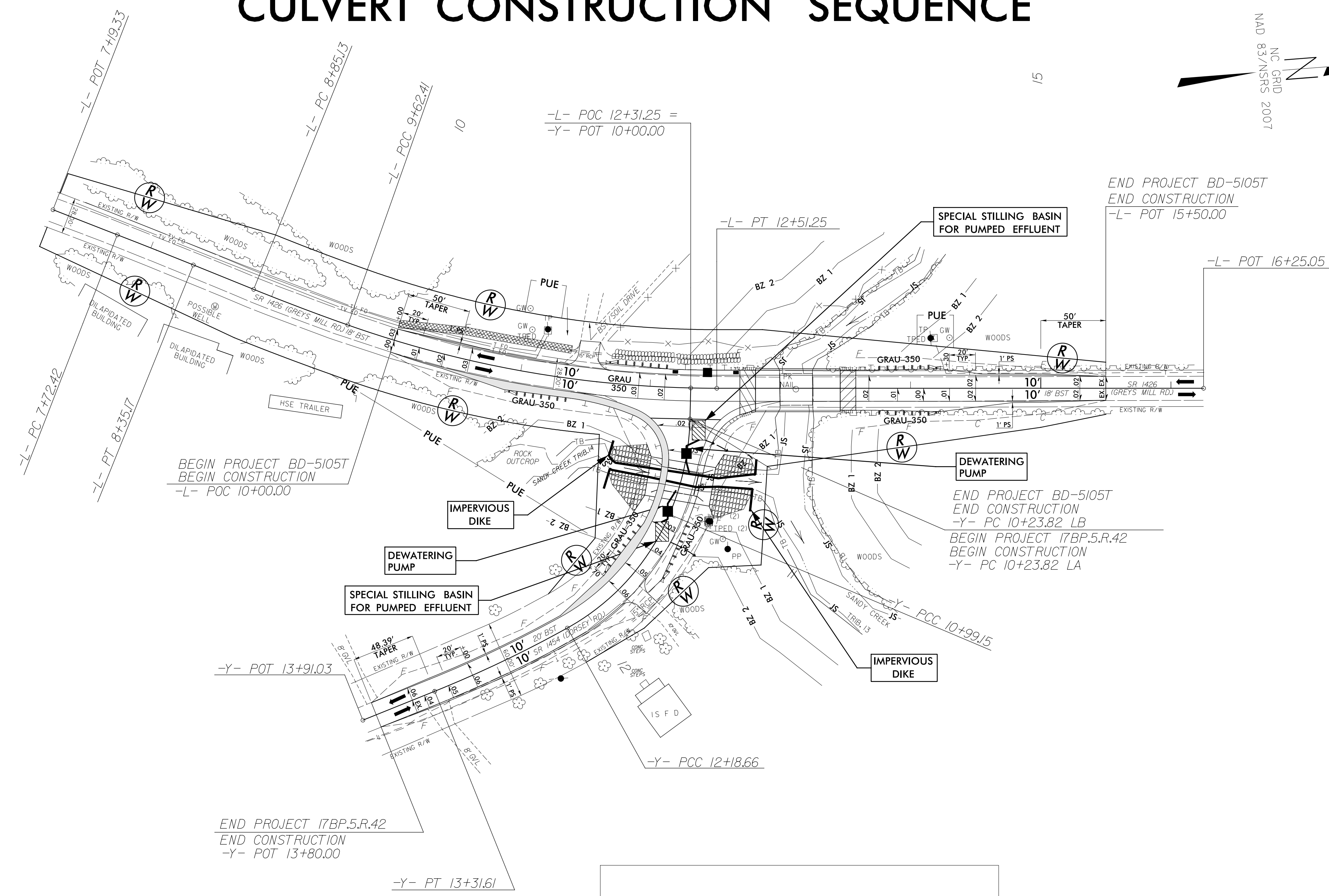


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 K. K. Associates, P.C.



PROJECT REFERENCE NO. BD-5105T/17.BP.5.R.42	SHEET NO. EC-1A/CONST.4
RW SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	
LEVEL III CERTIFIED BY: ALEXANDER SNIDER, E.I. CERTIFICATION NUMBER: 3064 ISSUED: MARCH 7, 2013	

CULVERT CONSTRUCTION SEQUENCE



CONSTRUCTION SEQUENCE (STA. 10+72.50 -Y-)

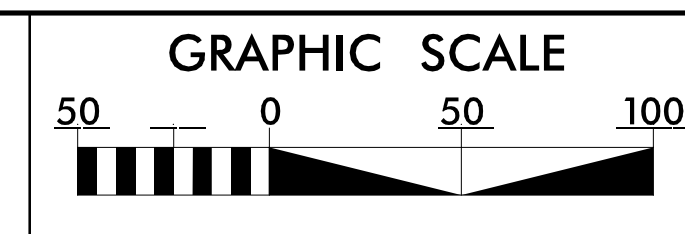
(ROAD CLOSURE - MAINTENANCE OF TRAFFIC VIA OFFSITE DETOUR.)

1. REMOVE EXISTING BRIDGE.
2. INSTALL SPECIAL STILLING BASINS FOR PUMPED EFFLUENT (10' X 15' MIN) FROM DEWATERED SITE.
3. INSTALL IMPERVIOUS DIKES.
4. MAINTAIN CHANNEL FLOW THROUGH CONSTRUCTION SITE VIA EXISTING CHANNEL.
5. INSTALL CULVERT AND HEADWALLS. BACKFILL CULVERT.
6. STABILIZE UPSTREAM GRADED AREAS AND CHANNEL BANKS.
7. REMOVE IMPERVIOUS DIKES, SPECIAL STILLING BASINS, AND BYPASS PUMPS.
8. COMPLETE ROADWAY.

NOTES:

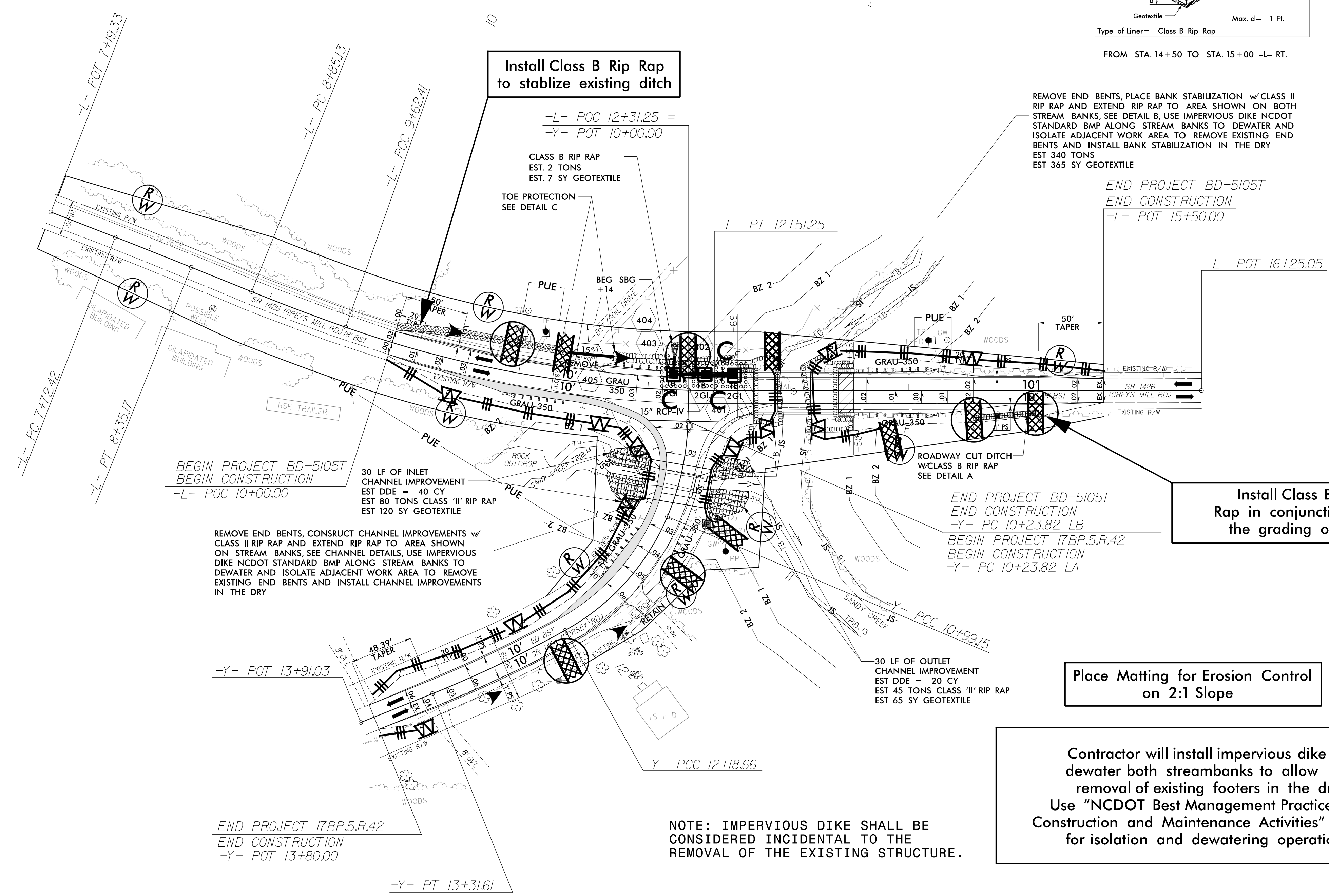
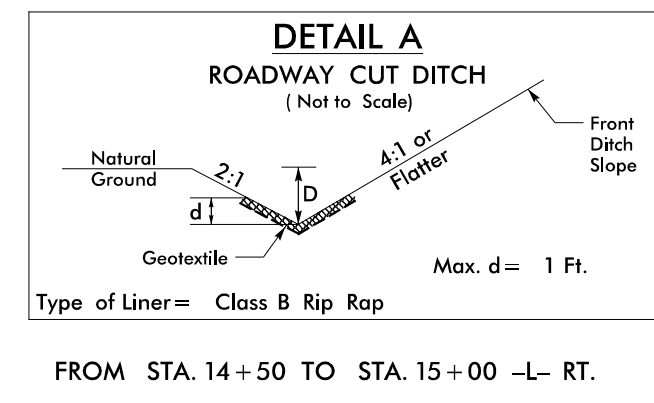
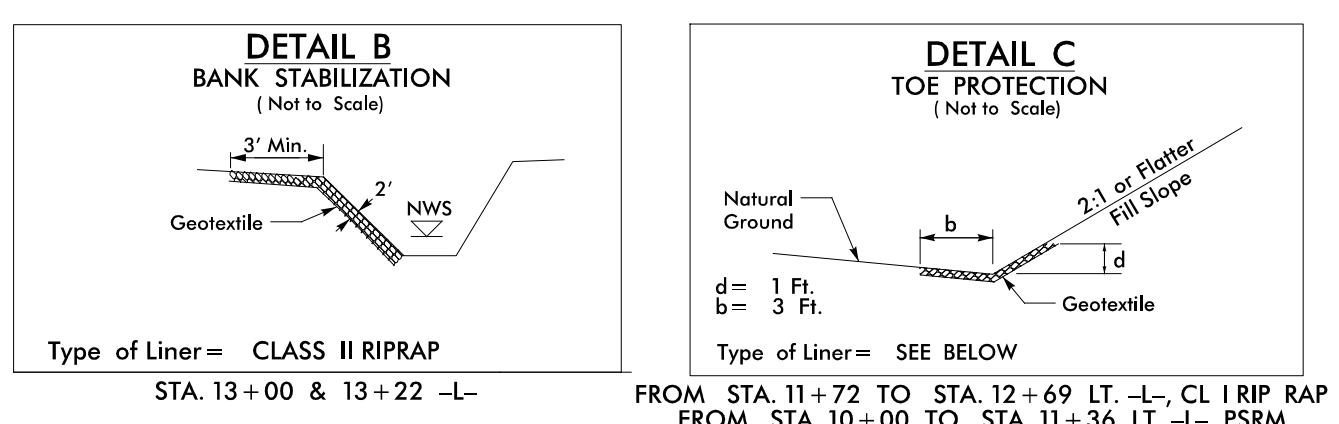
1. CULVERT CONSTRUCTION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.
2. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
3. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES IMPERVIOUS DIKES, DIVERSION PIPES, PUMPS AND HOSES.
5. PUMPS AND HOSES SHALL BE OF SUFFICIENT SIZE TO DEWATER THE WORK AREA.
6. THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO STREAM. FOR DE-WATERING OF CULVERT SITES, THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH SPECIAL STILLING BASIN.

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 Florence & Hutcheson, Inc.



PROJECT REFERENCE NO. **BD-5105T/17BP.5.R.42** SHEET NO. **EC-2/CONST.4**
 RW SHEET NO. _____
 ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
ALEXANDER SNIDER, E.I.
CERTIFICATION NUMBER: 3064
ISSUED: MARCH 7, 2013



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1632.03	Rock Inlet Sediment Trap: Type C	C
1633.01	Temporary Rock Silt Check Type-A	⊗
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	⊗

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT
 High Quality Water Zone(s) Exist From Sta. _____ Begin to Sta. _____ End
 Refer To E. C. Special Provisions for Special Considerations.

Contractor will install impervious dike to dewater both streambanks to allow for removal of existing footers in the dry
 Use "NCDOT Best Management Practices for Construction and Maintenance Activities" manual for isolation and dewatering operations

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:
FLORENCE & HUTCHESON
 5121 KINGDOM WAY, SUITE 100
 RALEIGH NC 27607
 NC License No: F-0258

2012 STANDARD SPECIFICATIONS

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 2012 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	

NOTE: ALL EROSION CONTROL DEVICES SHOWN ARE LOCATED WITHIN EXISTING RW OR EASEMENT.

ALEXANDER SNIDER, E.I.
 ROADSIDE ENVIRONMENTAL ENGINEER
 3064
 LEVEL III CERTIFICATION NUMBER

TRENTON J. CORMIER, P.E.
 ROADSIDE ENVIRONMENTAL PROJECT ENGINEER
 118
 LEVEL III CERTIFICATION NUMBER

Florence & Hutcheson
 CONSULTING ENGINEERS
 5121 Kingdom Way, Suite 100 Raleigh, NC 27607
 NC License No: F-0258

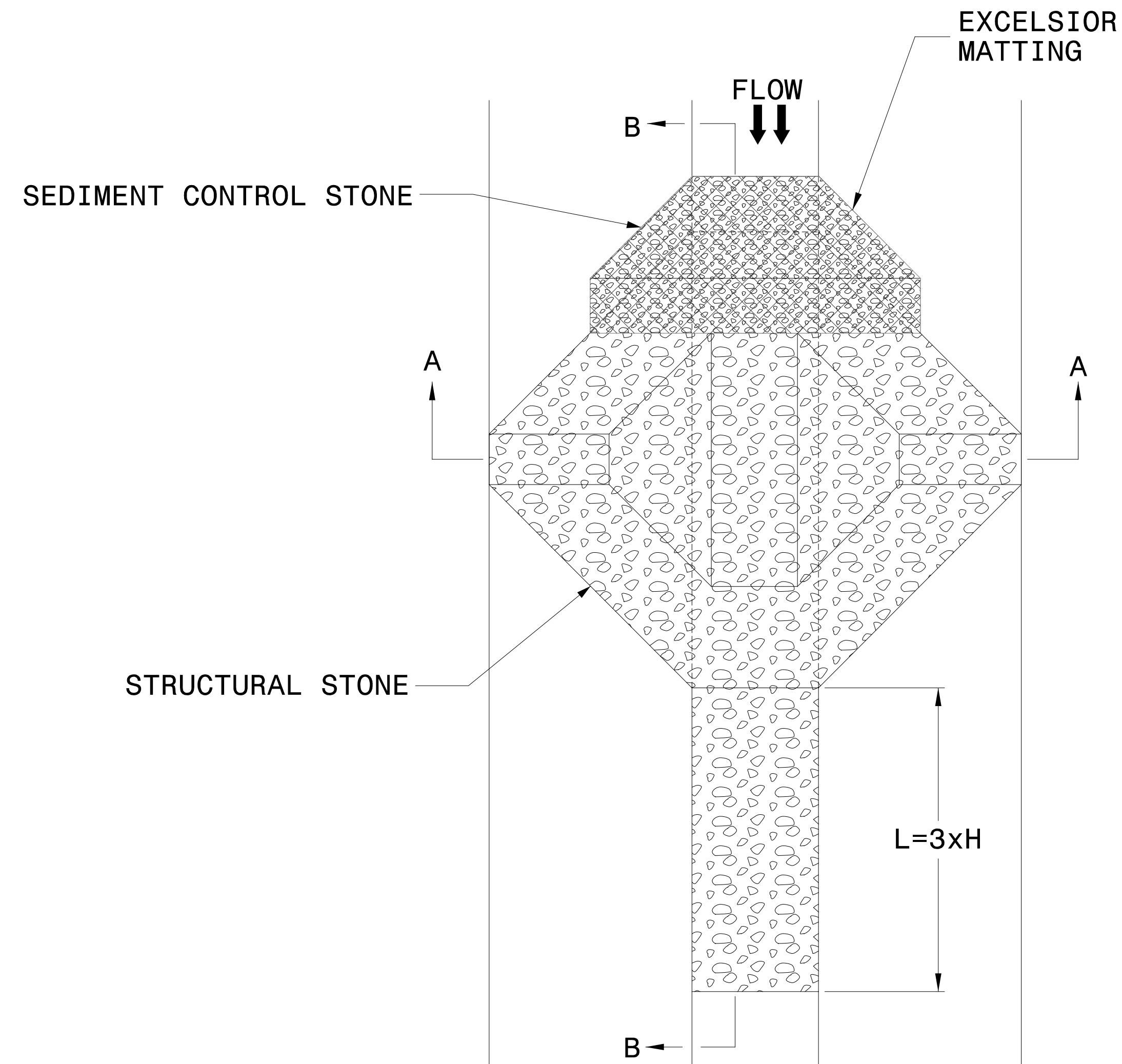
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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.

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



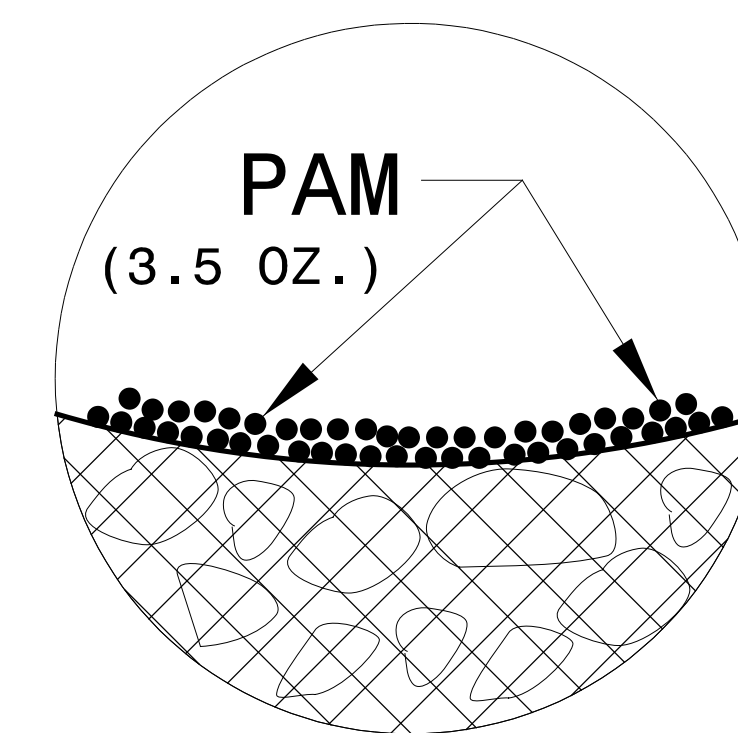
PLAN

NOTES

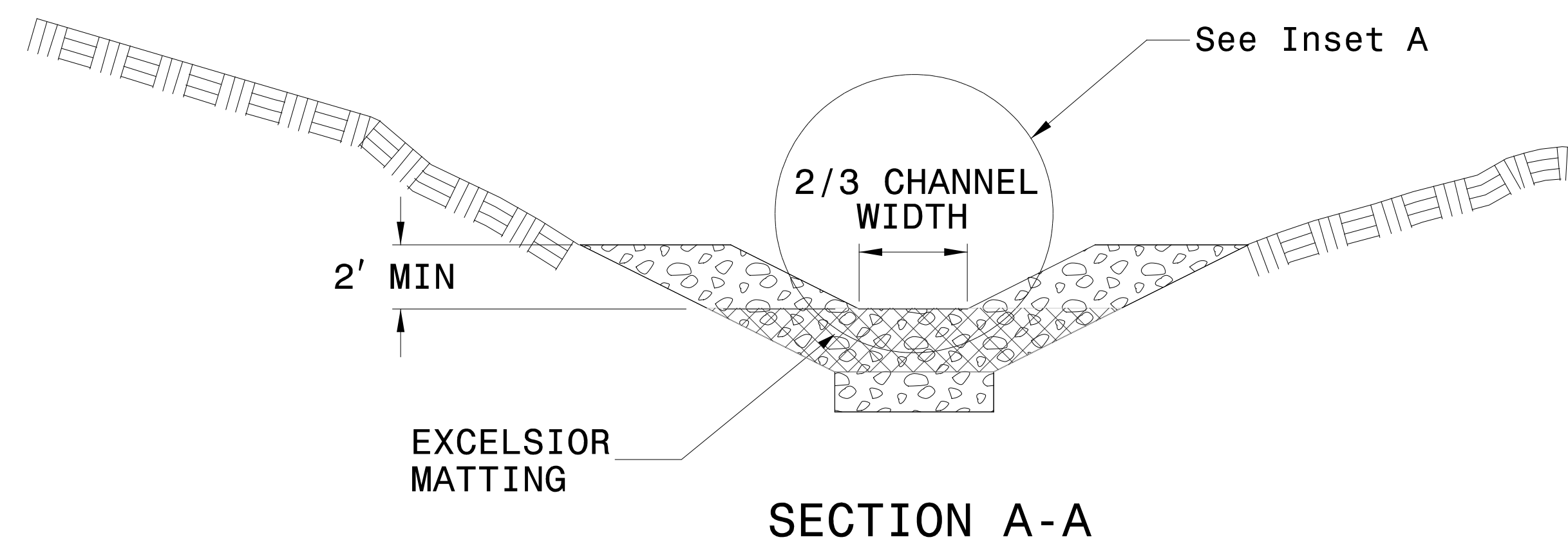
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

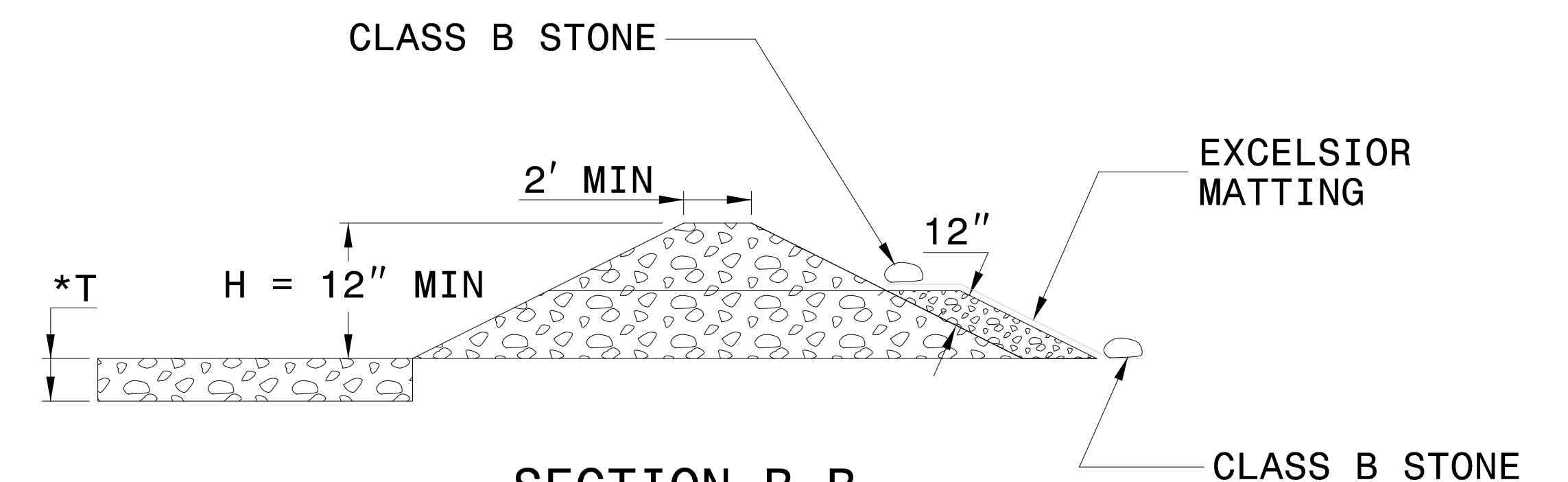
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



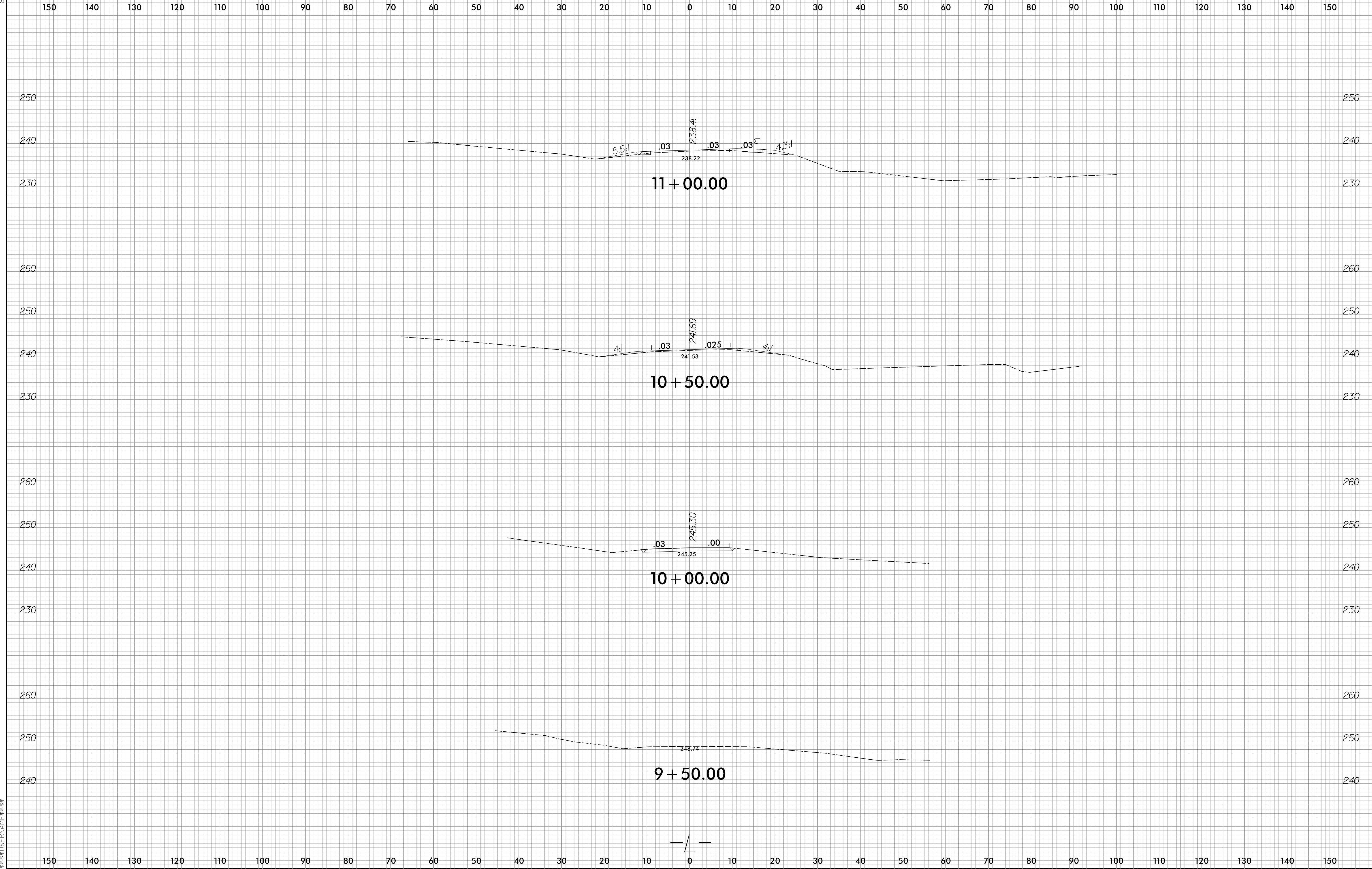
SECTION A-A



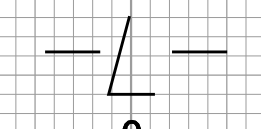
SECTION B-B

*T = 12" MIN., 18" MAX.

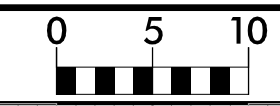
NOT TO SCALE



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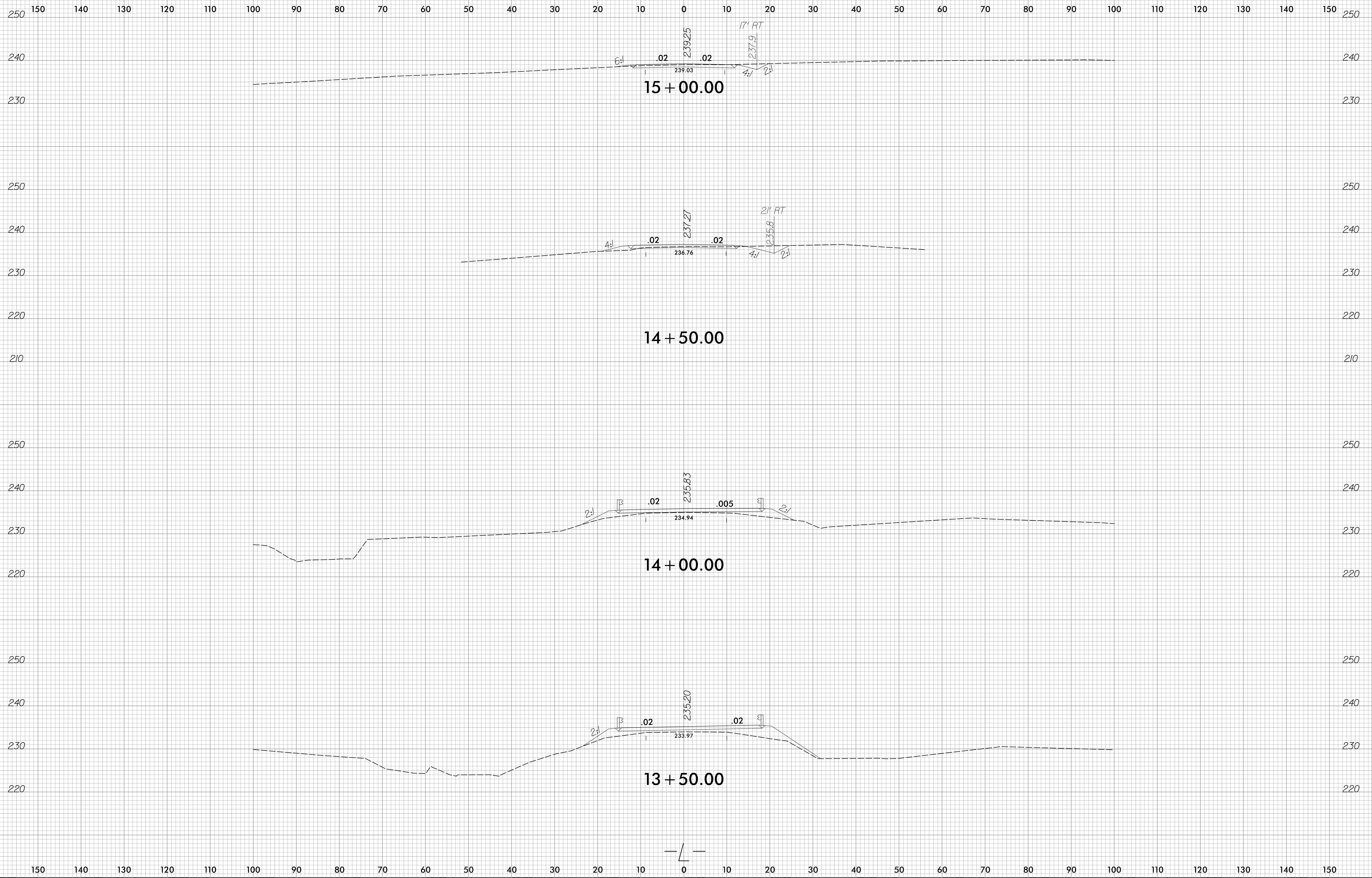


8/23/99



PROJ. REFERENCE NO.
BD-5105T

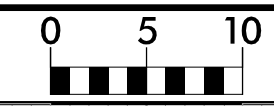
SHEET NO.
X-3



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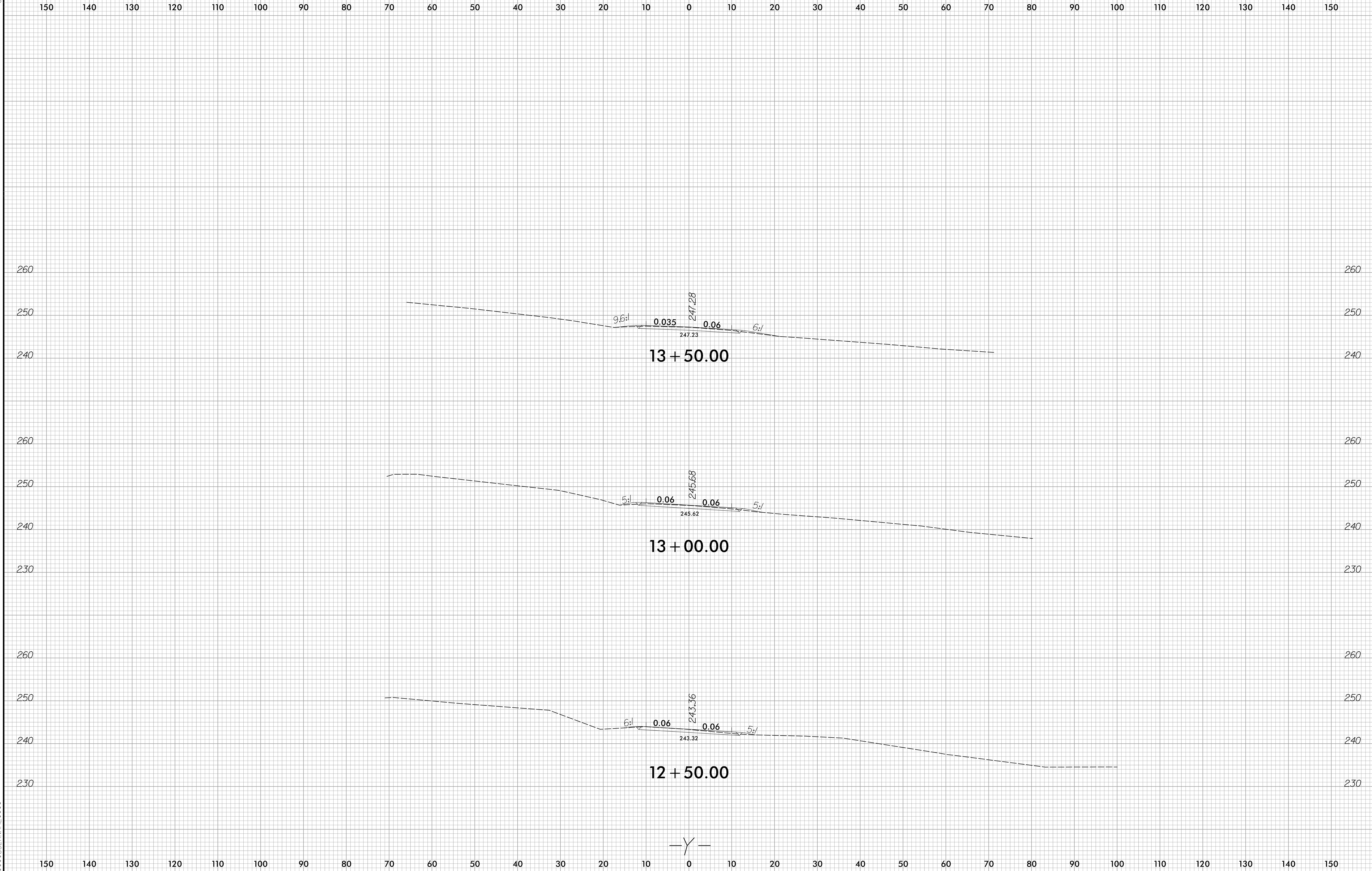
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8/23/99

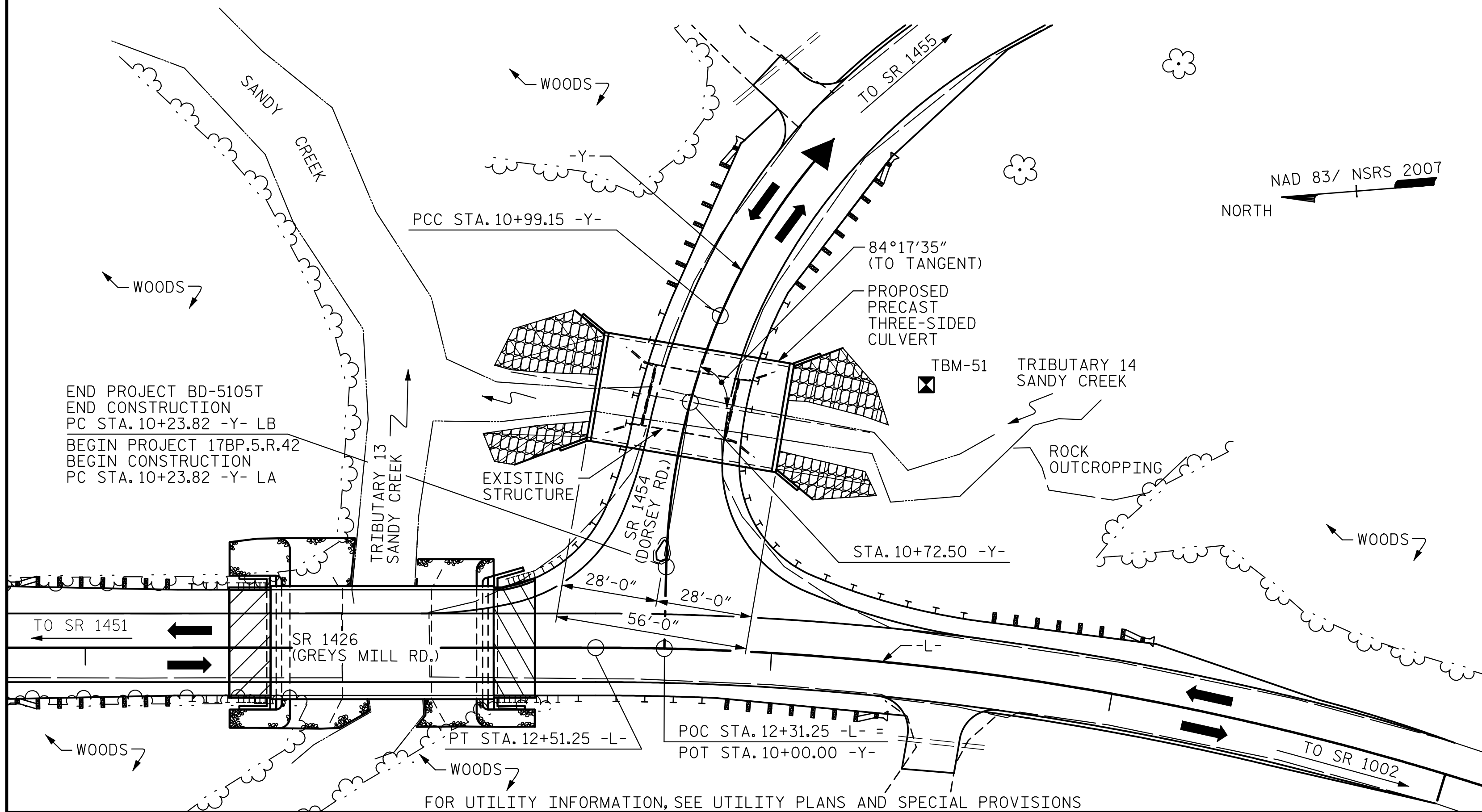


PROJ. REFERENCE NO.
17BP.5.R.42

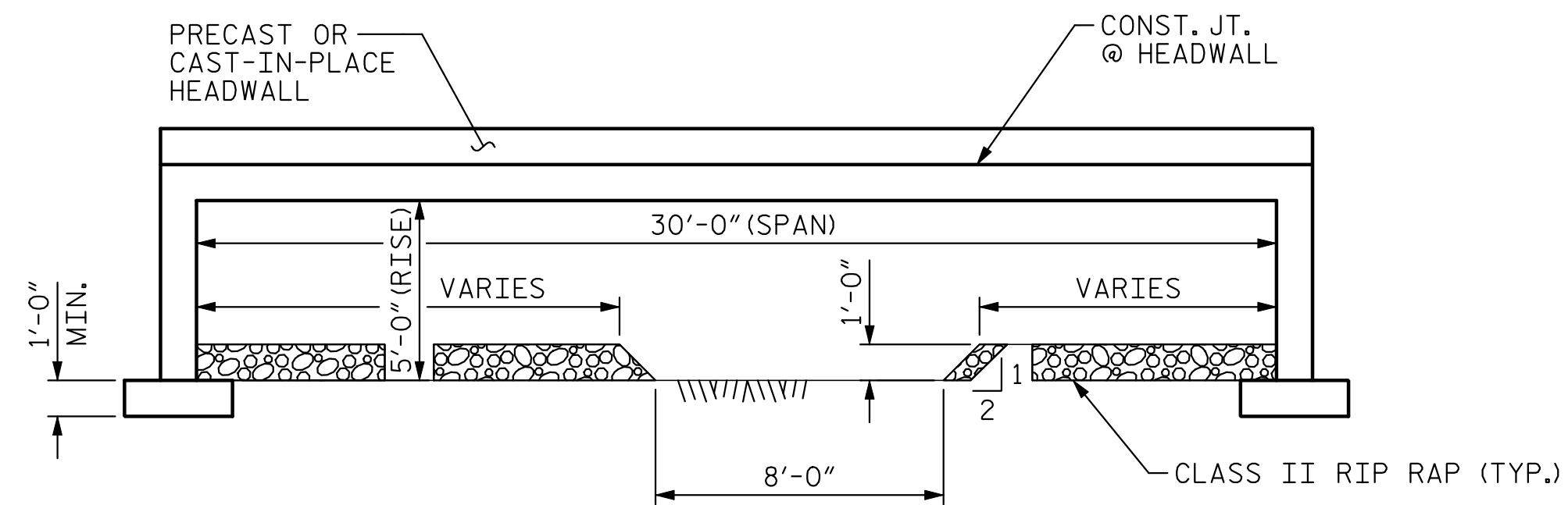
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X-6



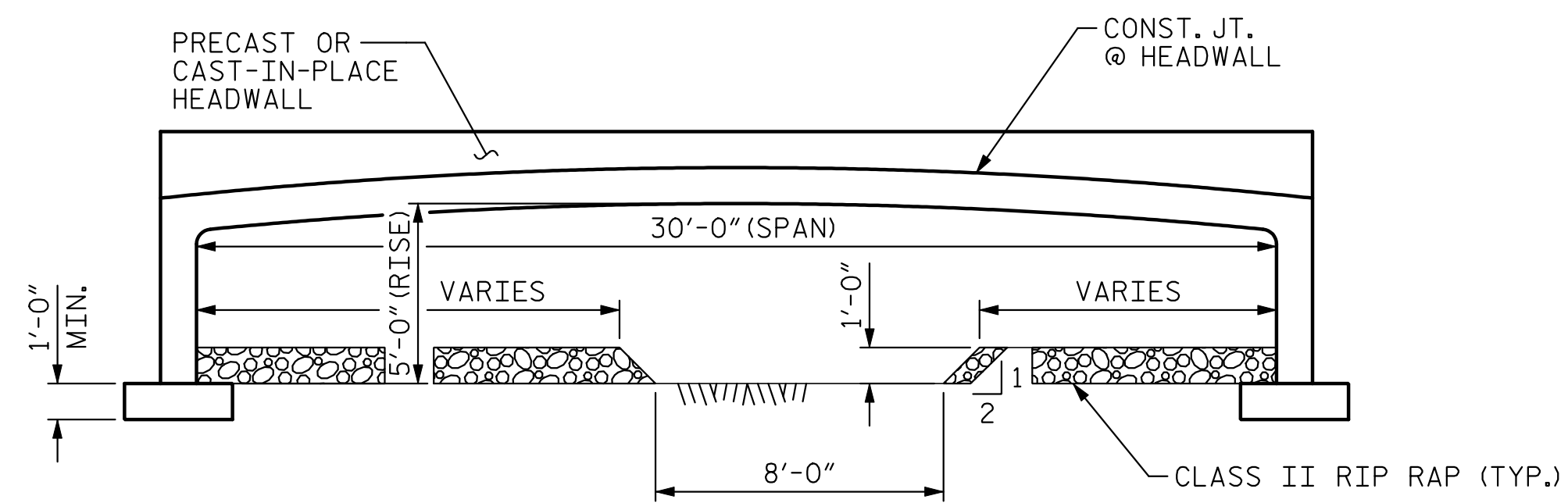
BENCHMARK: TBM #51, STA. 11+07.00 -Y-, 63.00' RT, EL. 229.31



LOCATION SKETCH



FLAT TOPPED ALTERNATE



ARCH ALTERNATE

RIGHT ANGLE SECTION OF PRECAST CONCRETE THREE-SIDED CULVERT

DRAWN BY : D. H. CARTER DATE : 3/13
 CHECKED BY : J. E. MONDOLFI DATE : 3/13

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 MAXIMUM DESIGN FILL-----4.5'
 MINIMUM DESIGN FILL-----3.0'

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

A 3 FOOT STRIP OF GEOTEXTILE SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

THE TOP OF FOOTING ELEVATION IS EL. 225.00.

THE SPREAD FOOTINGS ARE DESIGNED FOR A FACTORED RESISTANCE OF 5 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 10 TSF JUST BEFORE PLACING CONCRETE.

KEY FOOTINGS FOR THE THREE-SIDED CULVERT AT STATION 10+72.50 -L- AT LEAST 12 INCHES INTO ROCK WITH A MINIMUM THICKNESS AS SHOWN.

TO PROVIDE PROTECTION FROM POSSIBLE SCOUR, THE FOOTINGS SHALL NOT BE CONSTRUCTED AT AN ELEVATION HIGHER THAN SHOWN ON THE PLANS.

THE SCOUR CRITICAL ELEVATION IS THE AS BUILT BOTTOM OF FOOTING ELEVATION. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE BOTTOM OF FOOTING ELEVATIONS MAY BE LOWERED IN ORDER TO SATISFY BEARING CAPACITY AND MINIMUM ROCK EMBEDMENT REQUIREMENTS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18 'EVALUATING SCOUR AT BRIDGES', MAY 2001.

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 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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

THE EXISTING STRUCTURE CONSISTING OF ONE 18.5 FOOT LONG TIMBER JOIST SPAN; 24.4' CLEAR ROADWAY; 3 INCH ASPHALT WEARING SURFACE ON TIMBER DECKING ON TIMBER END BENT CAPS ON TIMBER PILES WITH CONCRETE SILLS LOCATED ON THE PROPOSED ALIGNMENT SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.

FOR PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL PLANS, SEE ROADWAY PLANS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PRECAST CULVERT SECTIONS AND WINGS SHALL BE DESIGNED TO HANDLE FULL DEPTH HYDROSTATIC PRESSURE IF WEEP HOLES ARE NOT UTILIZED. IF PROVIDED, WEEP HOLES SHALL BE LOCATED A MINIMUM HEIGHT OF 6 INCHES ABOVE THE NORMAL FLOW LINE AND HAVE A MAXIMUM SPACING OF 10 FEET.

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.

BLASTING MAY BE REQUIRED TO INSTALL FOOTINGS. SEE ROCK BLASTING SPECIAL PROVISION.

HYDRAULIC DATA

DESIGN DISCHARGE	= 750 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 231.5
DRAINAGE AREA	= 1.8 SQ MI
BASE DISCHARGE (Q 100)	= 1,090 CFS
BASE HIGH WATER ELEVATION	= 233.61

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 850 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 50 (-) YR.
OVERTOPPING FLOOD ELEVATION	= 234.6

GRADE DATA

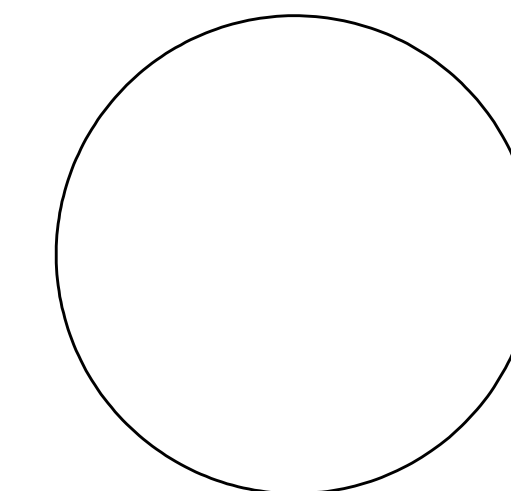
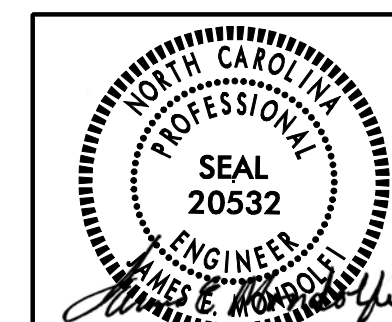
GRADE POINT ELEV. @ STATION 10+72.50	= 234.73
BED ELEV. @ STATION 10+72.50	= 225.00
ROADWAY SLOPES	2:1

TOTAL STRUCTURE QUANTITIES

REMOVAL OF EXISTING STRUCTURE	_____ LUMP SUM
PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT @ STA. 10+72.50 -Y-	_____ LUMP SUM
CLASS A CONCRETE	_____ 19.8 CU. YDS.

PROJECT NO. 17BP.5.R.42
 FRANKLIN COUNTY
 STATION: 10+72.50 -Y-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 58

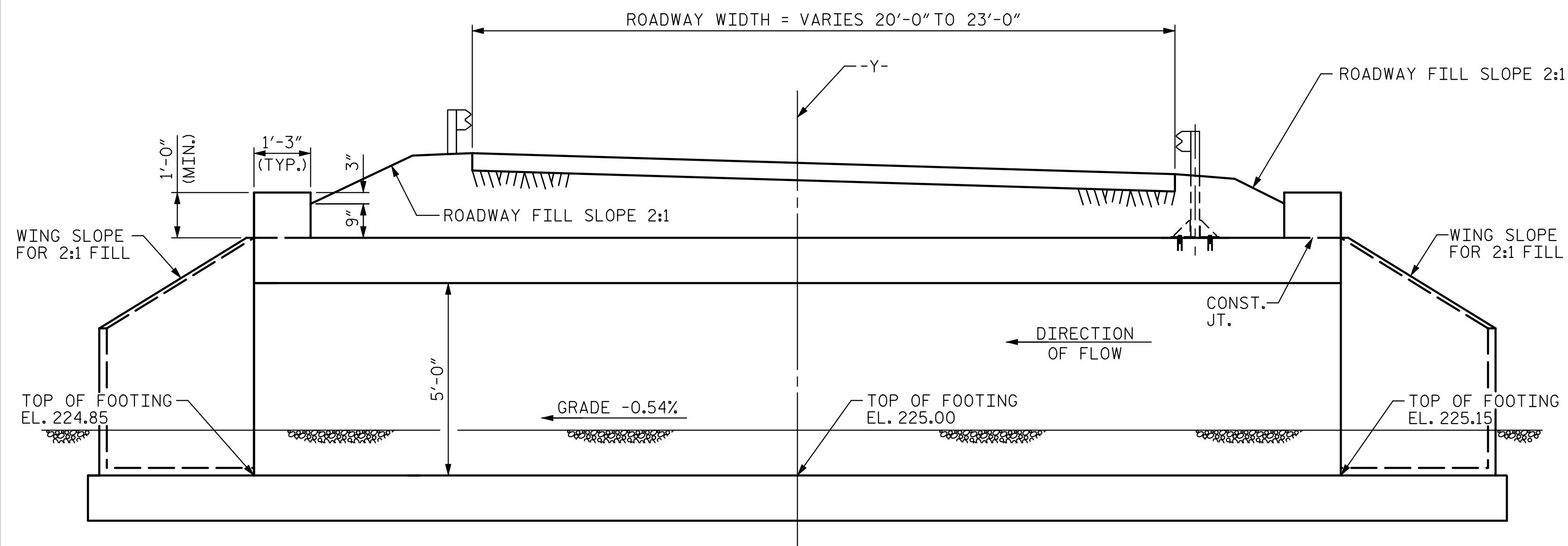
I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



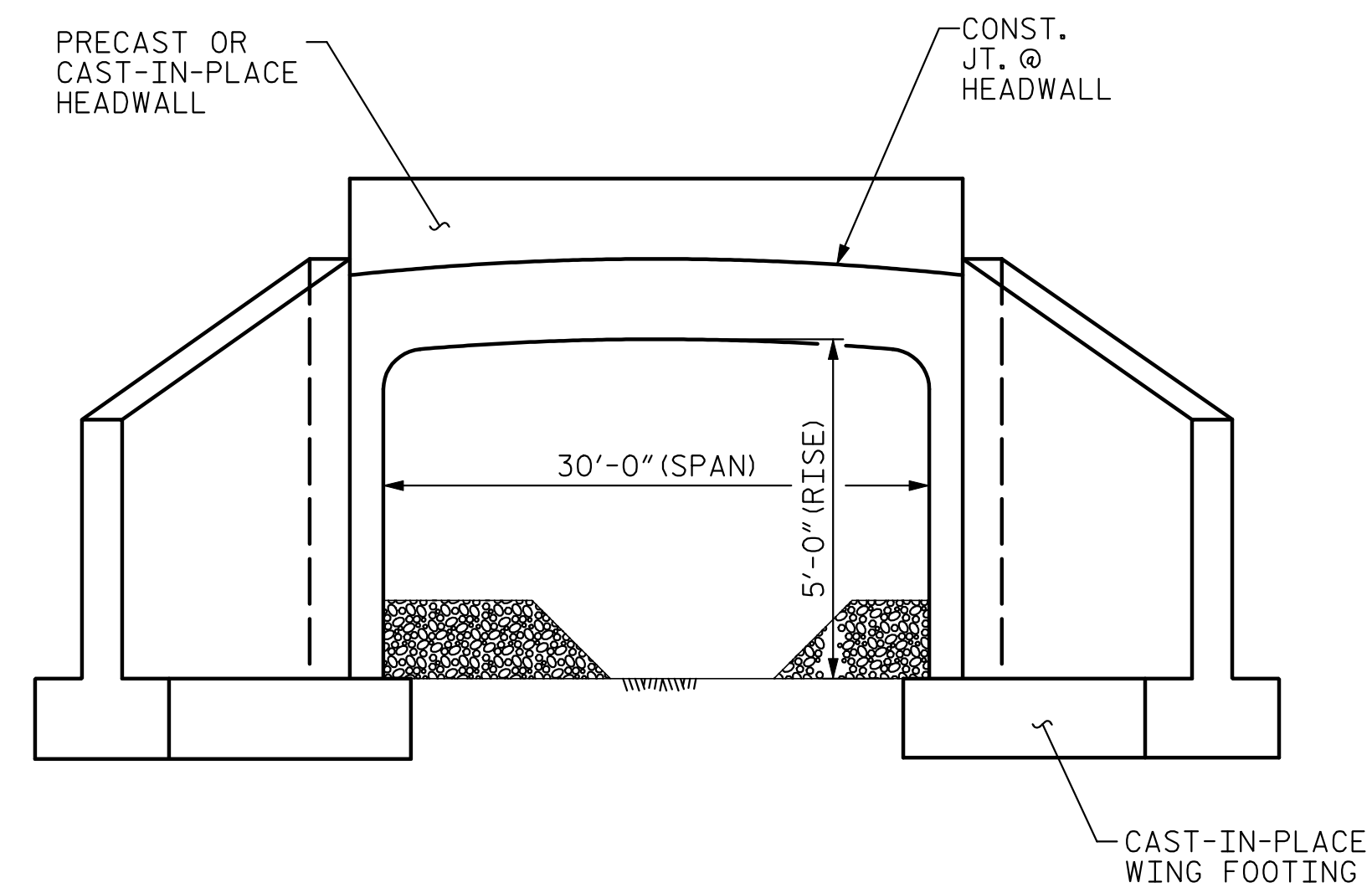
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 5FT X 30FT PRECAST REINFORCED CONCRETE THREE-SIDED CULVERT
 84° SKEW - TRIBUTARY 14 SANDY CREEK

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

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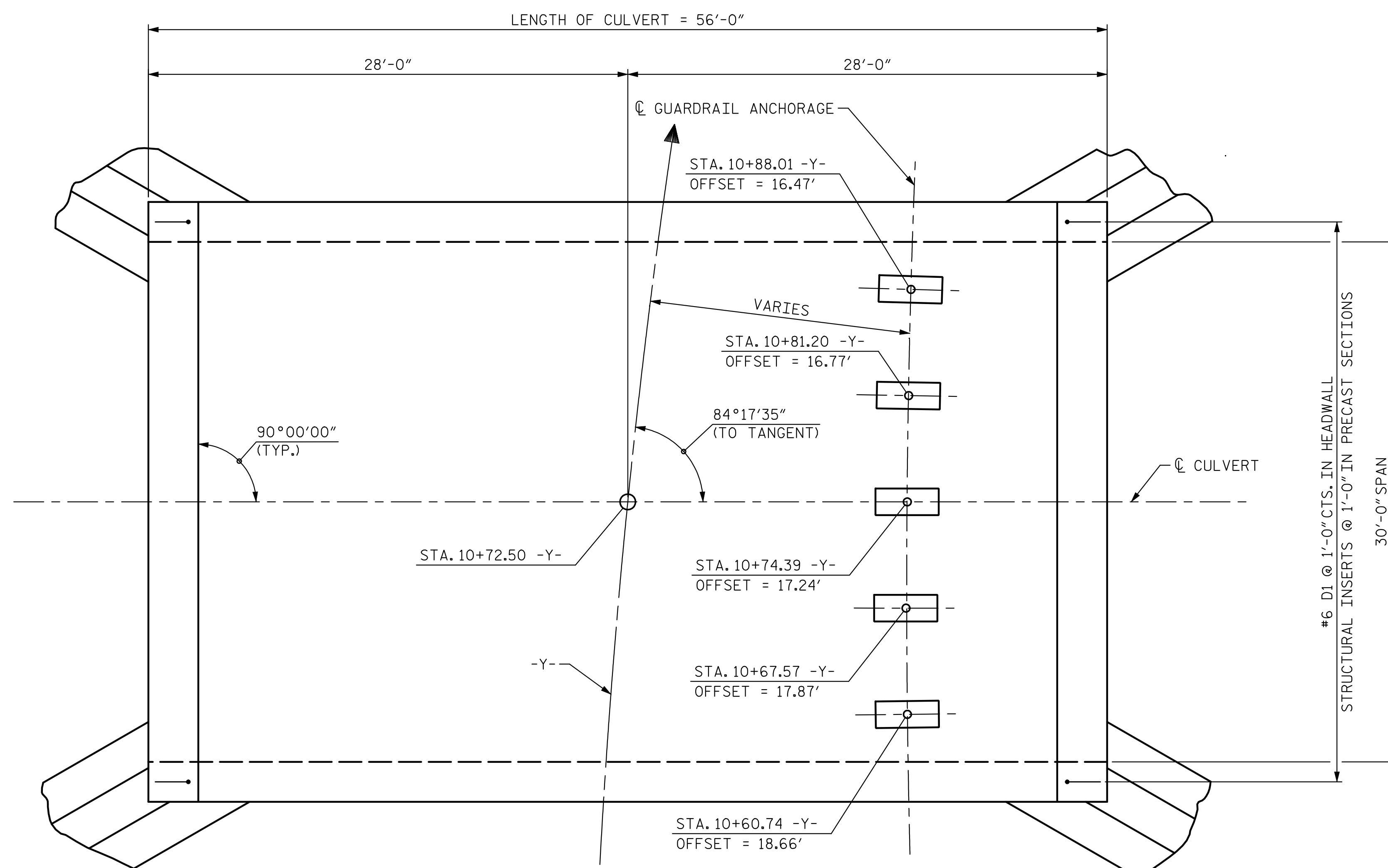
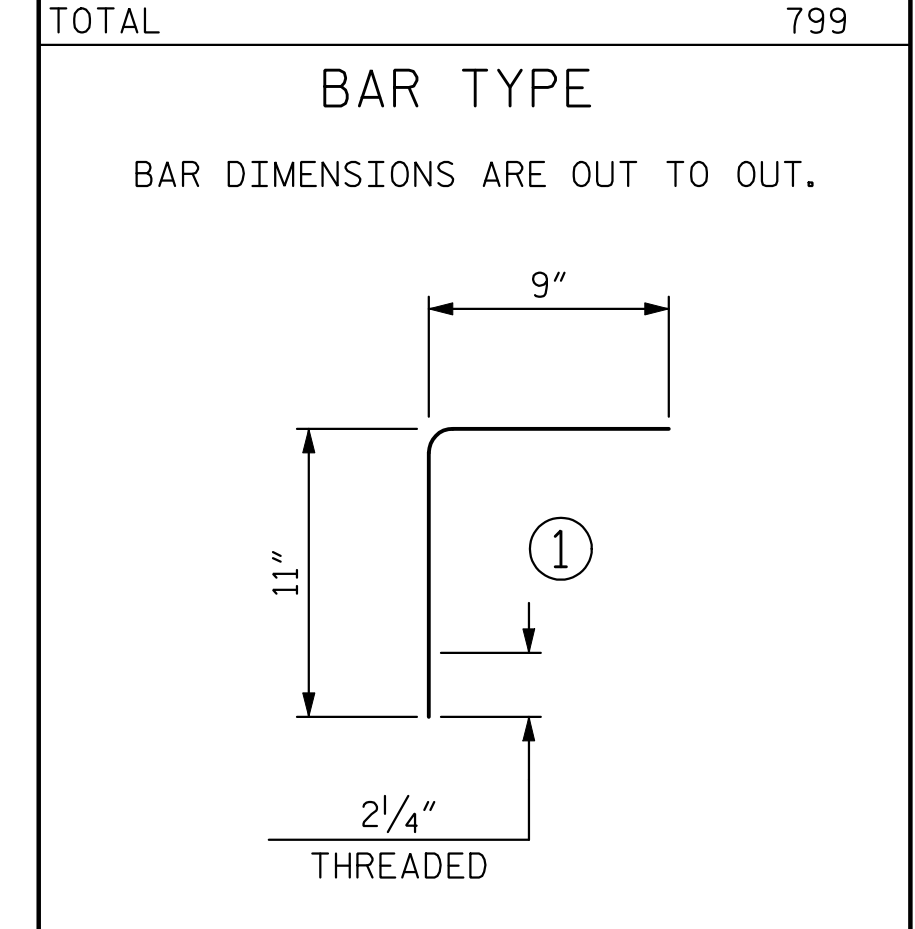


CULVERT SECTION NORMAL TO ROADWAY

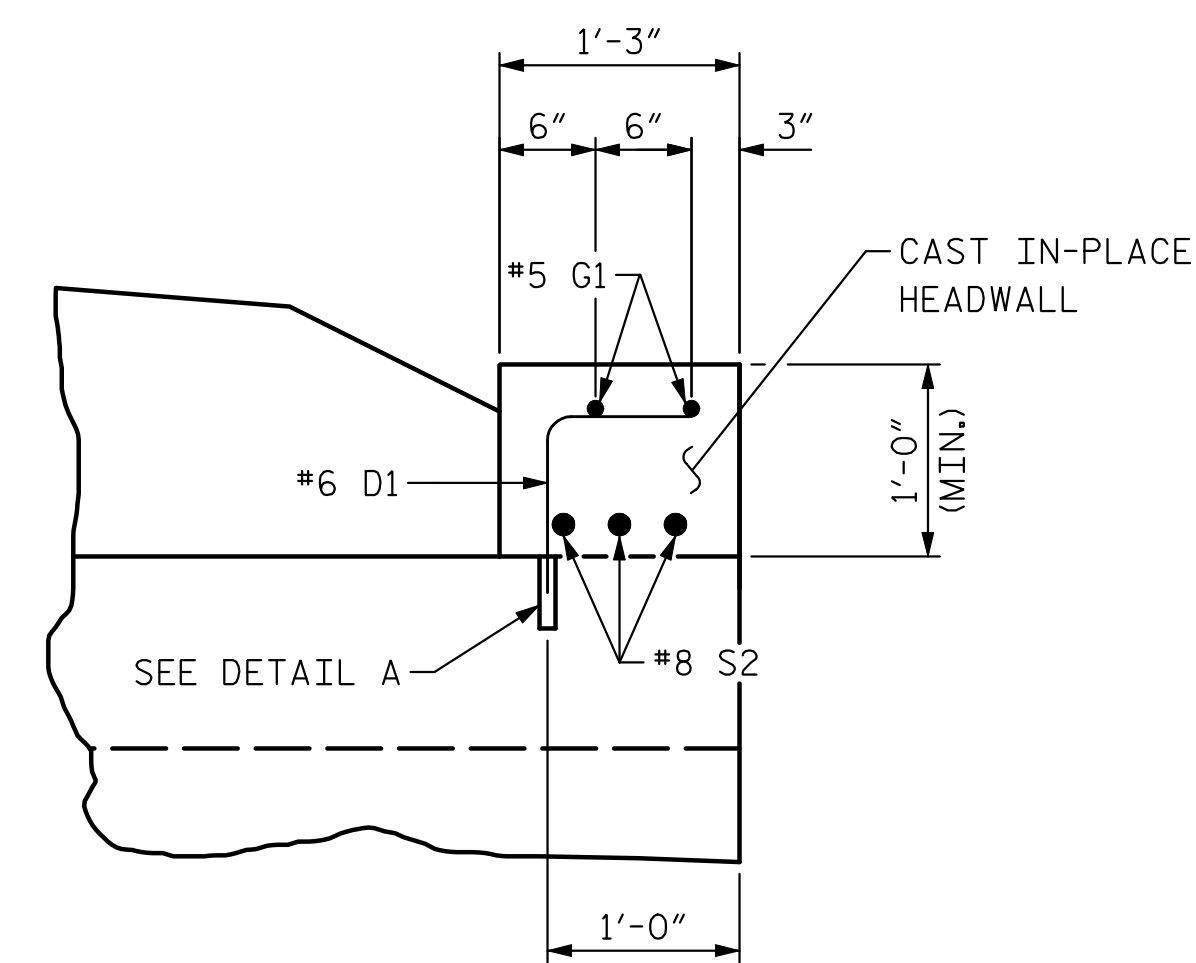


END ELEVATION

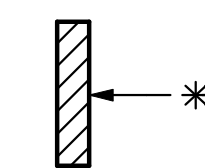
BAR SCHEDULE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	64	#6	1	1'-8"	160
G1	4	#5	STR	31'-8"	132
S2	6	#8	STR	31'-8"	507
TOTAL					799



LENGTH FOR PRECAST THREE-SIDED CULVERT



SECTION THRU HEADWALL



DETAIL A

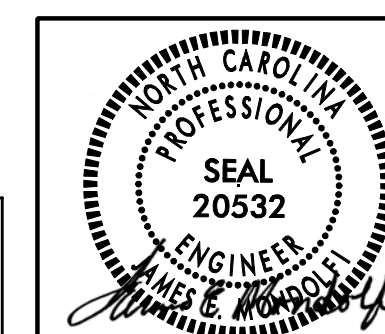
* APPROVED GALVANIZED CONCRETE INSERTS HAVING A MINIMUM WORKING LOAD TENSION CAPACITY OF 2.5 KIPS. DIA. = 3/4" NO. REQUIRED 64

PROJECT NO. 17BP.5.R.42
FRANKLIN COUNTY
STATION: 10+72.50 -Y-
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**PRECAST REINFORCED
CONCRETE THREE-SIDED
CULVERT
84° SKEW**

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

SHEET NO. C-2
TOTAL SHEETS 3

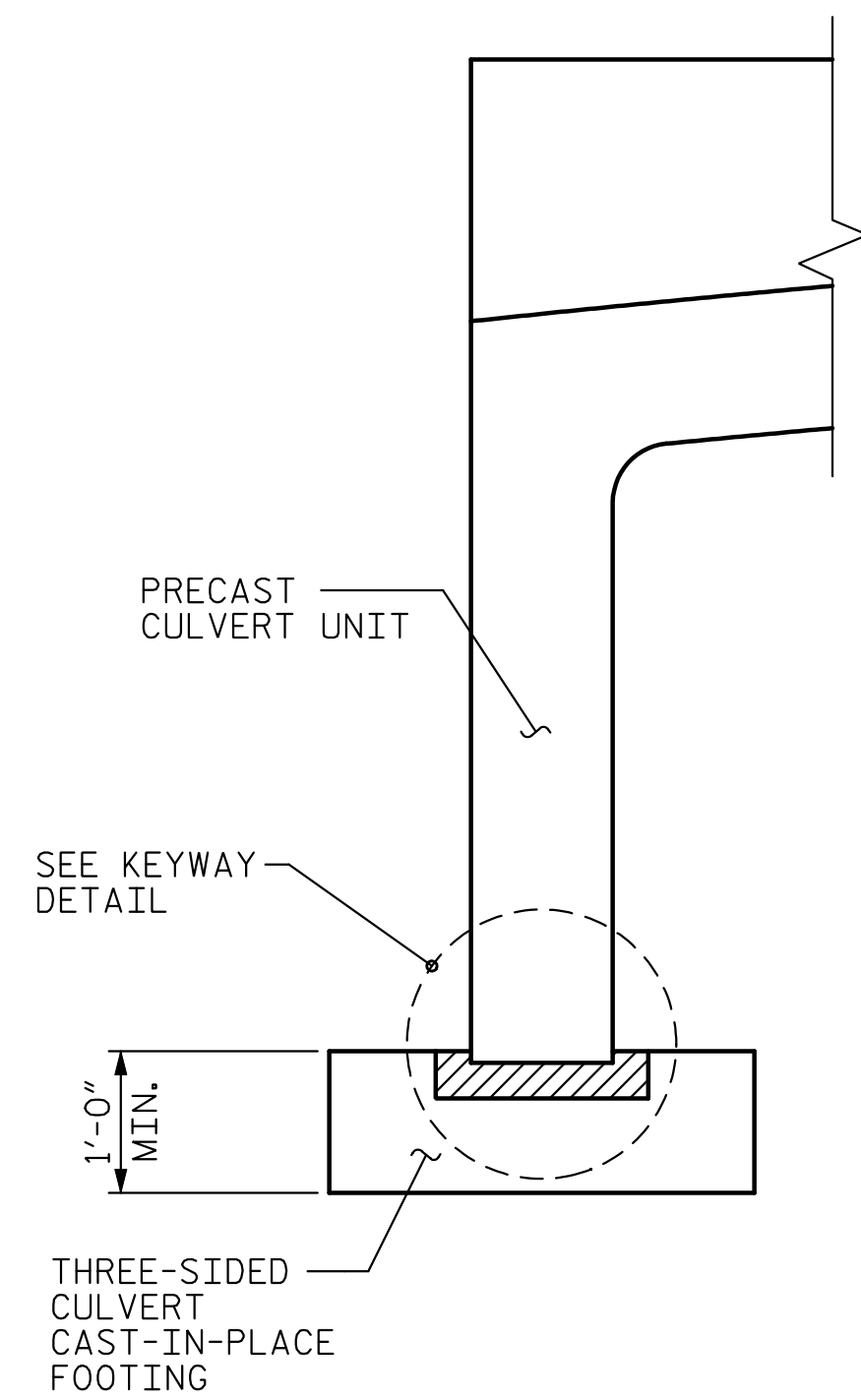


3-4-13

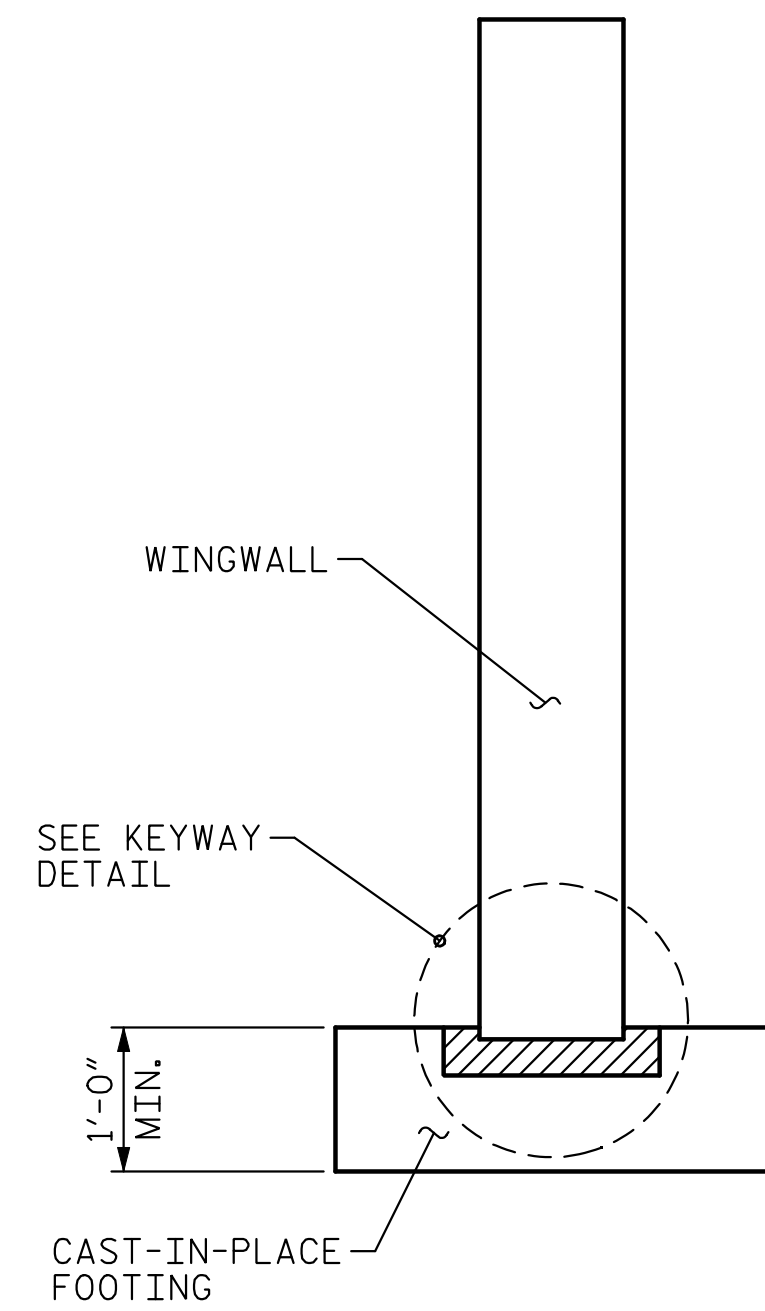
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Florence & Hutcheson - An ICA Company

DRAWN BY: D. H. CARTER DATE: 3/13
CHECKED BY: J. E. MONDOLFI DATE: 3/13

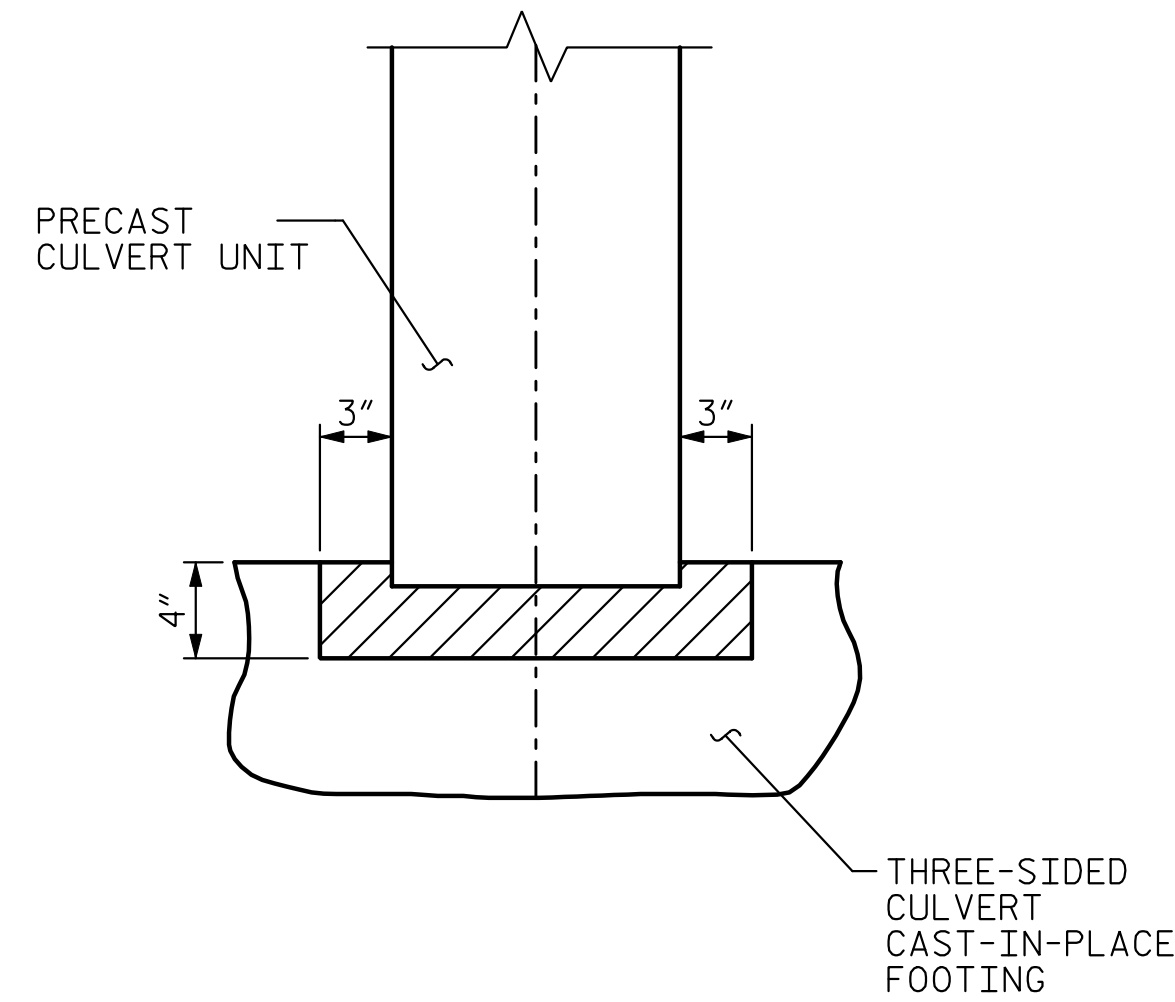
(SEE SHEET 3 OF 3 FOR SECTION B-B)
(FOR GUARDRAIL ANCHORAGE DETAILS, SEE STANDARD DRAWING 862.03)



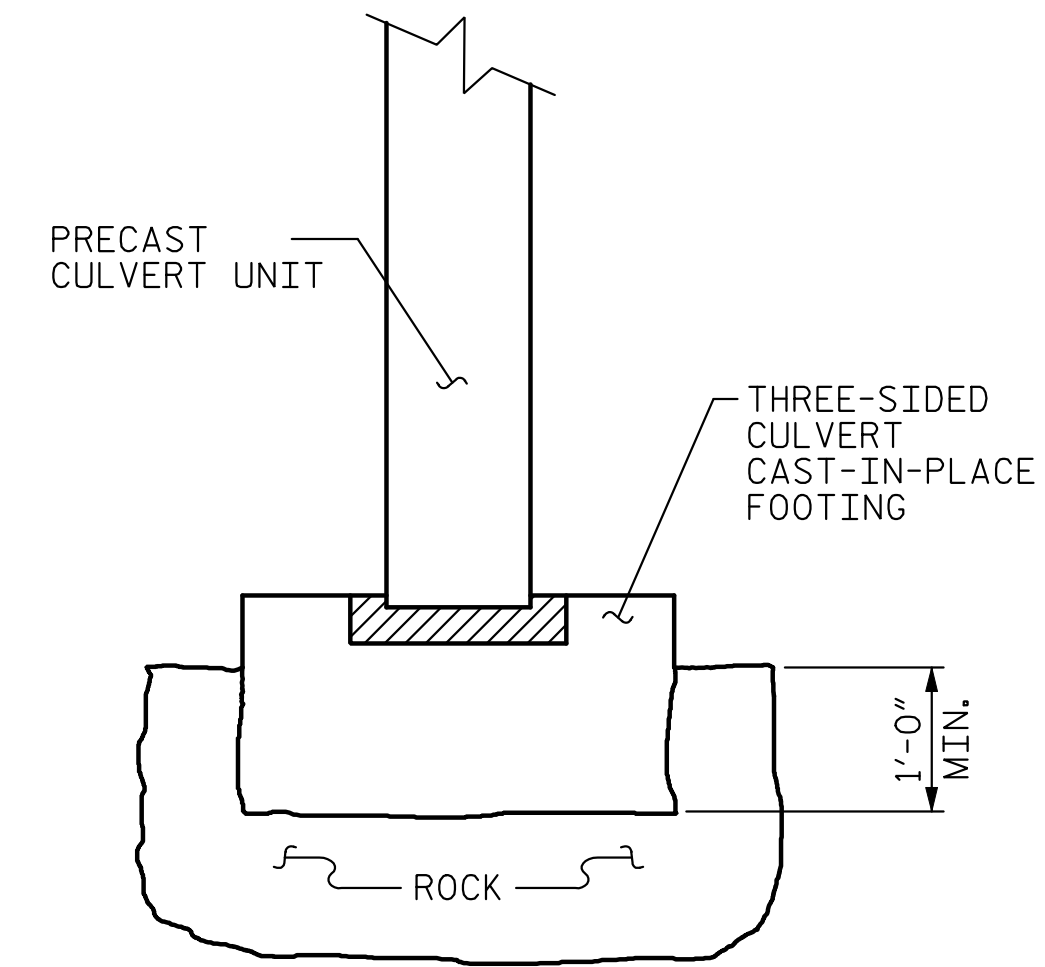
SECTION B-B



SECTION THRU WINGWALL

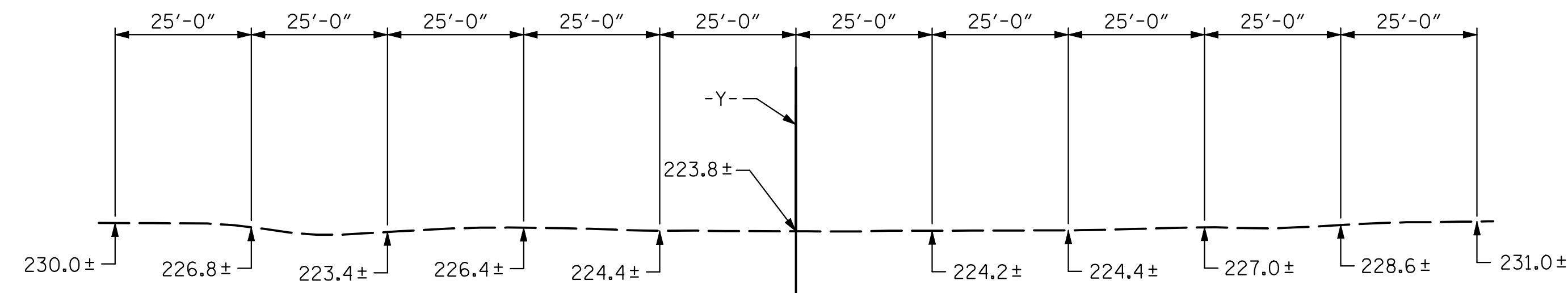


KEYWAY DETAIL



KEYED FOOTING DETAIL

SIDES OF FOOTING SHALL BE IN CONTACT WITH UNDISTURBED MATERIAL FOR MINIMUM DIMENSION SHOWN



PROFILE ALONG CULVERT

PROJECT NO. 17BP.5.R.42

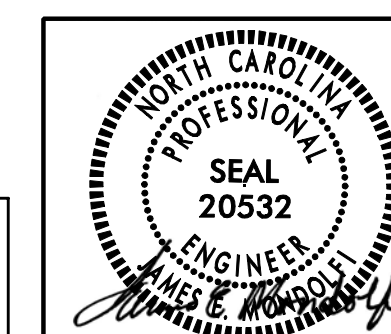
FRANKLIN COUNTY

STATION: 10+72.50 -Y-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**PRECAST REINFORCED
CONCRETE THREE-SIDED
CULVERT
84° SKEW**

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



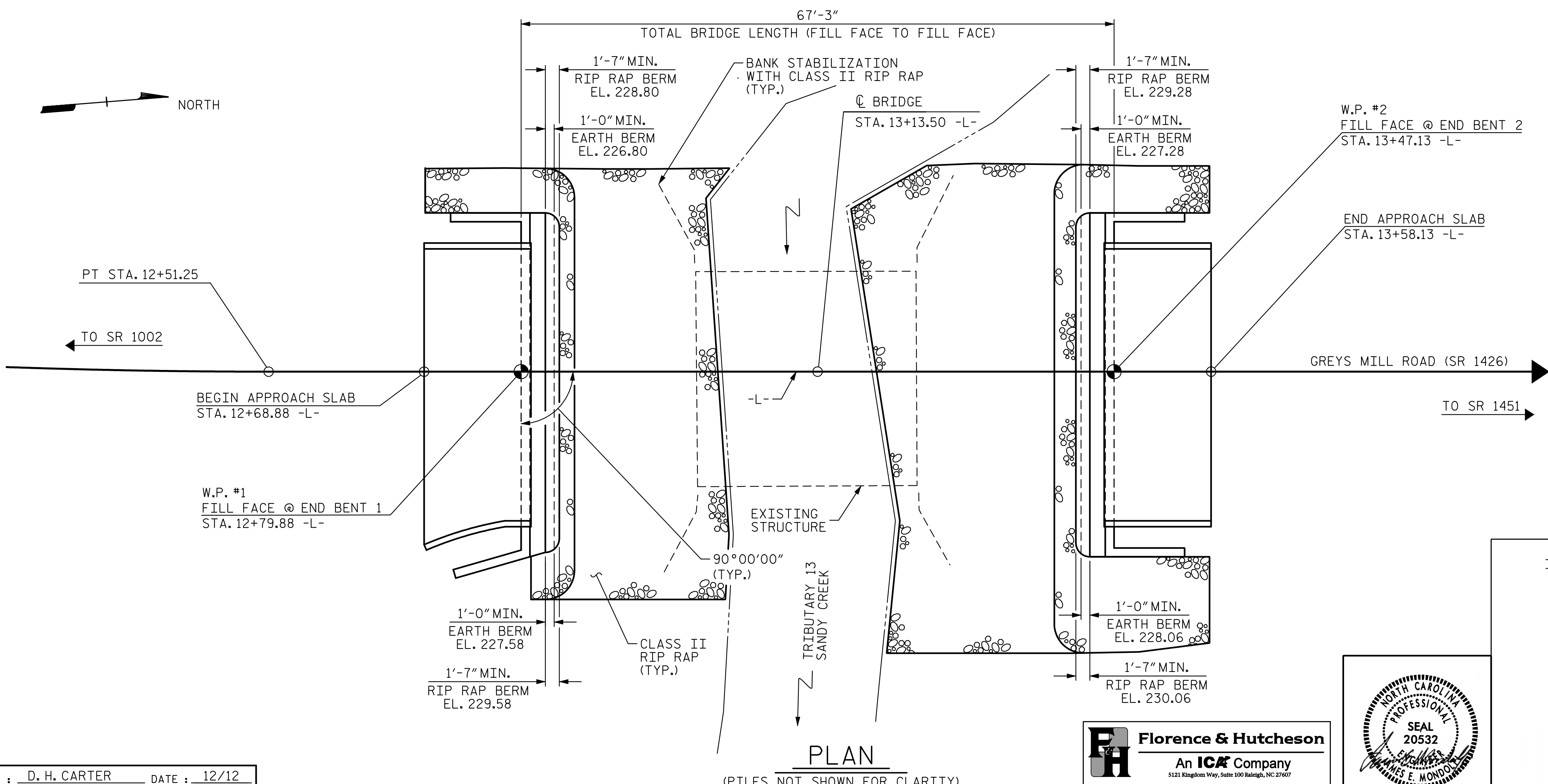
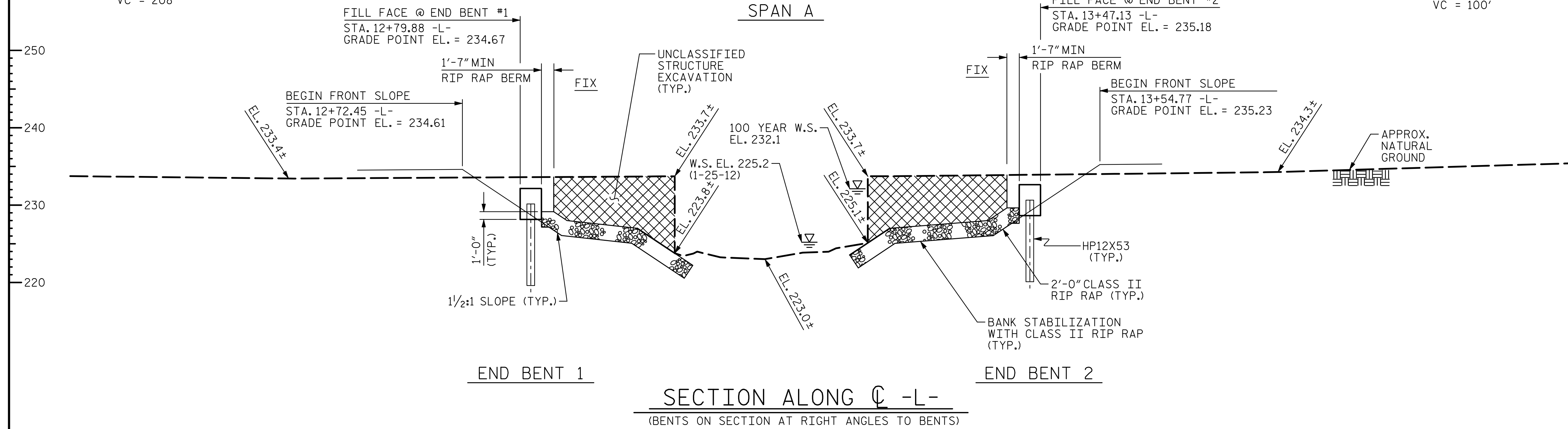
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Florence & Hutcheson - An ICA Company

DRAWN BY : D. H. CARTER DATE : 3/13
CHECKED BY : J. E. MONDOLFI DATE : 3/13

GRADE DATA
 (-)7.2085% (+)0.7552%
 P.I. = 11+60.00
 ELEV. = 233.76
 VC = 208'

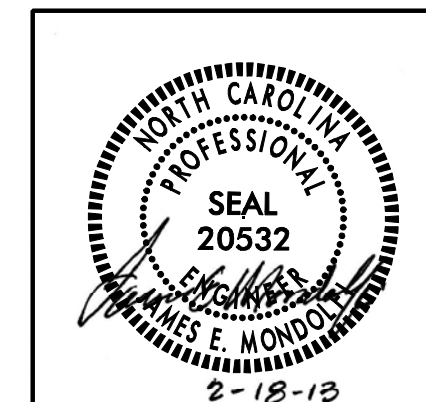
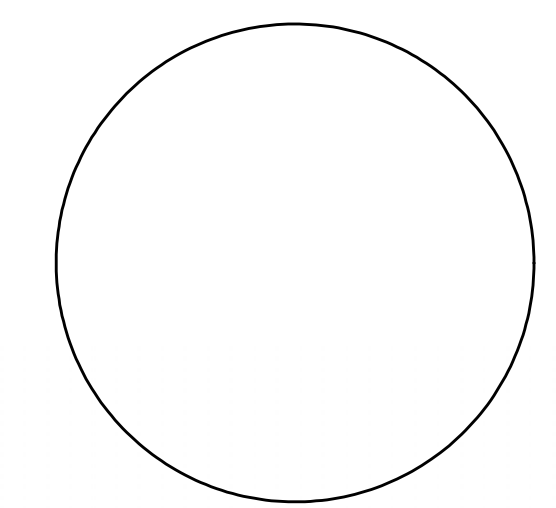
GRADE DATA
 (+)0.7552% (+)4.0000%
 P.I. = 14+10.00
 ELEV. = 235.65
 VC = 100'



PLAN
 (PILES NOT SHOWN FOR CLARITY)

PROJECT NO. BD-5105T
FRANKLIN COUNTY
 STATION: 13+13.50 -L-
 SHEET 1 OF 2 REPLACES BRIDGE NO. 59

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



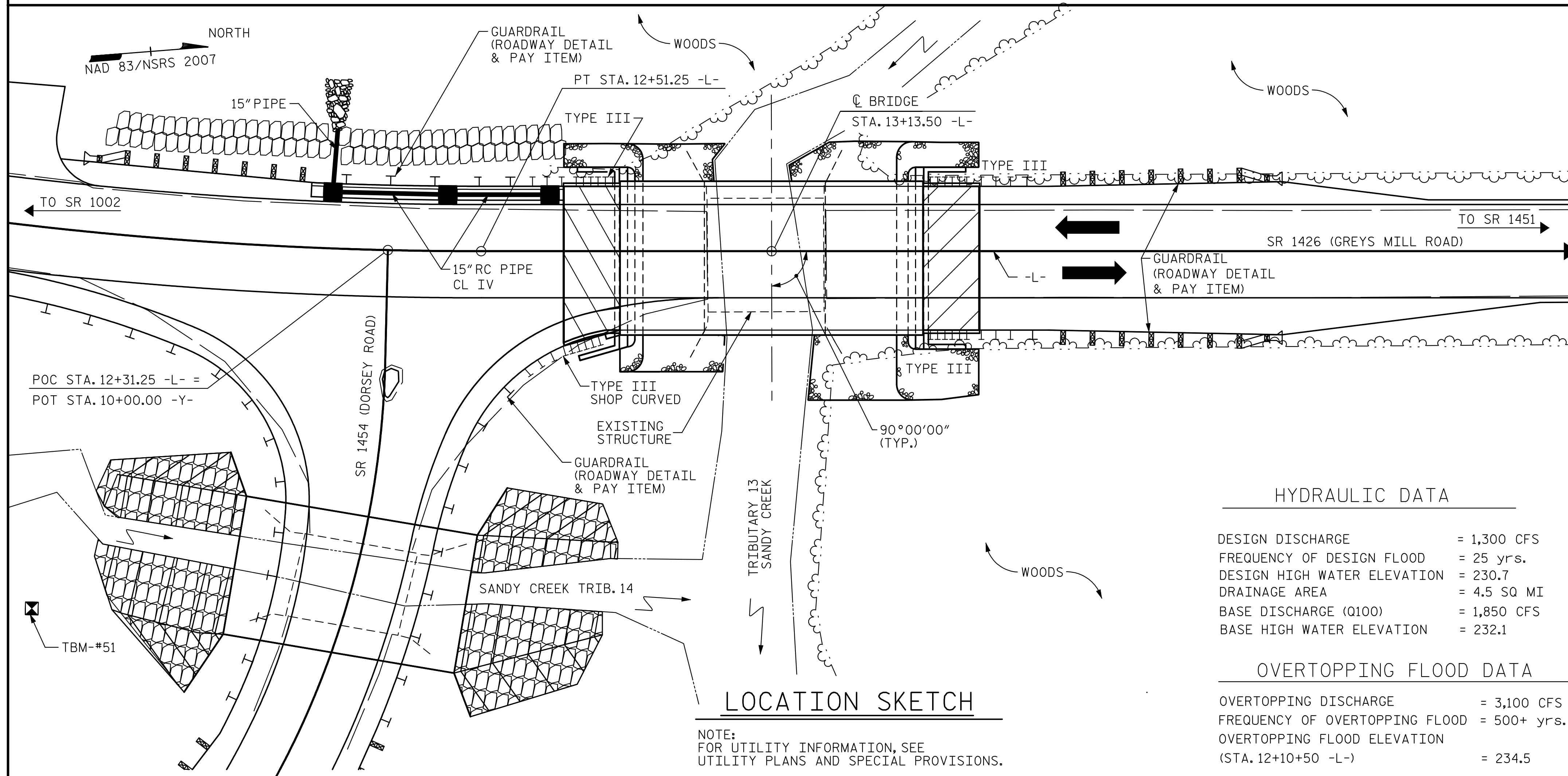
Florence & Hutcheson
 An ICA Company
 5121 Kingdom Way, Suite 100 Raleigh, NC 27607
 NC License No: P-0258

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
BRIDGE ON SR 1426 OVER TRIBUTARY 13 SANDY CREEK					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-1
					TOTAL SHEETS 2

DRAWN BY: D. H. CARTER DATE: 12/12
 CHECKED BY: J. E. MONDOLFI DATE: 12/12

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 3/11/2013 10:56:59 AM C:\Users\jcarter\Documents\Projects\BD-5105T\SR-1426\Drawings\Plan.dwg

BENCH MARK : TBM #51, STA. 11+63.24 -L-, 81.64' RT, EL. 229.31



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

HYDRAULIC DATA

DESIGN DISCHARGE	= 1,300 CFS
FREQUENCY OF DESIGN FLOOD	= 25 yrs.
DESIGN HIGH WATER ELEVATION	= 230.7
DRAINAGE AREA	= 4.5 SQ MI
BASE DISCHARGE (Q100)	= 1,850 CFS
BASE HIGH WATER ELEVATION	= 232.1

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 3,100 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ yrs.
OVERTOPPING FLOOD ELEVATION (STA. 12+10+50 -L-)	= 234.5

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

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

THE MATERIAL IN THE CROSS HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FEET EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AS "UNCLASSIFIED STRUCTURE EXCAVATION", LUMP SUM. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

BOTTOM OF EXCAVATION IS AT APPROXIMATE ELEVATION 228.0.

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

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

THE EXISTING STRUCTURE CONSISTING OF A SINGLE 25.5 ± FEET LONG STEEL BEAM SPAN; TIMBER FLOOR; 24.25 ± FEET CLEAR ROADWAY WITH 4.5" ASPHALT OVERLAY; ON TIMBER CAPS ON TIMBER POST ON CONCRETE SILLS. LOCATED ON THE PROPOSED ALIGNMENT SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 AND END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 78 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO. 1 AND END BENT NO. 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT NO. 1. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 217.8 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT NO. 2. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 218.2 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

CONCRETE OR GROUT IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT END BENT NO. 1 AND END BENT NO. 2.

TOTAL BILL OF MATERIAL

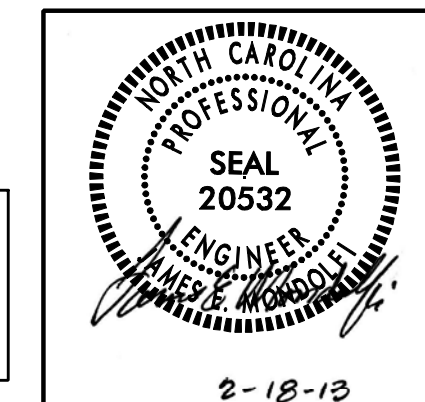
	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	
								NO.	LIN. FT.						NO.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	LIN. FT.	LIN. FT.							LUMP SUM	NO.	LIN. FT.
END BENT NO. 1		LUMP SUM	22.0		2,910	53	17	7	70	7		60	65			
END BENT NO. 2		LUMP SUM	21.8		2,636	21	49	7	70	7		90	100			
TOTAL	LUMP SUM	LUMP SUM	43.8	LUMP SUM	5,546	74	66	14	140	14	130.25	150	165	LUMP SUM	11	715

PROJECT NO. BD-5105T
FRANKLIN COUNTY
STATION: 13+13.50 -L-
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE ON SR 1426 OVER
TRIBUTARY 13 SANDY CREEK

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



DRAWN BY : D. H. CARTER DATE : 12/12
CHECKED BY : J. E. MONDOLFI DATE : 12/12

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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			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.018	--	1.75	0.274	1.05	65'	EL	32	0.513	1.2	65'	EL	6.4	0.80	0.274	1.02	65'	EL	32		
	HL-93(0pr)	N/A	--	1.358	--	1.35	0.274	1.36	65'	EL	32	0.513	1.56	65'	EL	6.4	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.306	47.014	1.75	0.274	1.34	65'	EL	32	0.513	1.48	65'	EL	6.4	0.80	0.274	1.31	65'	EL	32		
	HS-20(0pr)	36.000	--	1.742	62.706	1.35	0.274	1.74	65'	EL	32	0.513	1.92	65'	EL	6.4	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.868	38.725	1.4	0.274	3.69	65'	EL	32	0.513	4.33	65'	EL	6.4	0.80	0.274	2.87	65'	EL	32	
		SNGARBS2	20.000	--	2.171	43.424	1.4	0.274	2.79	65'	EL	32	0.513	3.11	65'	EL	6.4	0.80	0.274	2.17	65'	EL	32	
		SNAGRIS2	22.000	--	2.071	45.552	1.4	0.274	2.66	65'	EL	32	0.513	2.89	65'	EL	6.4	0.80	0.274	2.07	65'	EL	32	
		SNCOTTS3	27.250	--	1.428	38.924	1.4	0.274	1.84	65'	EL	32	0.513	2.17	65'	EL	6.4	0.80	0.274	1.43	65'	EL	32	
		SNAGGRS4	34.925	--	1.206	42.136	1.4	0.274	1.55	65'	EL	32	0.513	1.81	65'	EL	6.4	0.80	0.274	1.21	65'	EL	32	
		SNS5A	35.550	--	1.179	41.911	1.4	0.274	1.52	65'	EL	32	0.513	1.85	65'	EL	6.4	0.80	0.274	1.18	65'	EL	32	
		SNS6A	39.950	--	1.087	43.43	1.4	0.274	1.4	65'	EL	32	0.513	1.69	65'	EL	6.4	0.80	0.274	1.09	65'	EL	32	
	SNS7B	42.000	--	1.035	43.489	1.4	0.274	1.33	65'	EL	32	0.513	1.67	65'	EL	6.4	0.80	0.274	1.04	65'	EL	32		
	TTST	TNAGRIT3	33.000	--	1.327	43.8	1.4	0.274	1.71	65'	EL	32	0.513	2.01	65'	EL	6.4	0.80	0.274	1.33	65'	EL	32	
		TNT4A	33.075	--	1.335	44.142	1.4	0.274	1.72	65'	EL	32	0.513	1.95	65'	EL	6.4	0.80	0.274	1.33	65'	EL	32	
		TNT6A	41.600	--	1.096	45.613	1.4	0.274	1.41	65'	EL	32	0.513	1.8	65'	EL	6.4	0.80	0.274	1.10	65'	EL	32	
		TNT7A	42.000	--	1.105	46.4	1.4	0.274	1.42	65'	EL	32	0.513	1.74	65'	EL	6.4	0.80	0.274	1.10	65'	EL	32	
		TNT7B	42.000	--	1.15	48.298	1.4	0.274	1.48	65'	EL	32	0.513	1.62	65'	EL	6.4	0.80	0.274	1.15	65'	EL	32	
		TNAGRIT4	43.000	--	1.089	46.815	1.4	0.274	1.4	65'	EL	32	0.513	1.57	65'	EL	6.4	0.80	0.274	1.09	65'	EL	32	
TNAGT5A		45.000	--	1.024	46.084	1.4	0.274	1.32	65'	EL	32	0.513	1.57	65'	EL	6.4	0.80	0.274	1.02	65'	EL	32		
TNAGT5B	45.000	3	1.01	45.431	1.4	0.274	1.3	65'	EL	32	0.513	1.49	65'	EL	6.4	0.80	0.274	1.01	65'	EL	32			

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.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

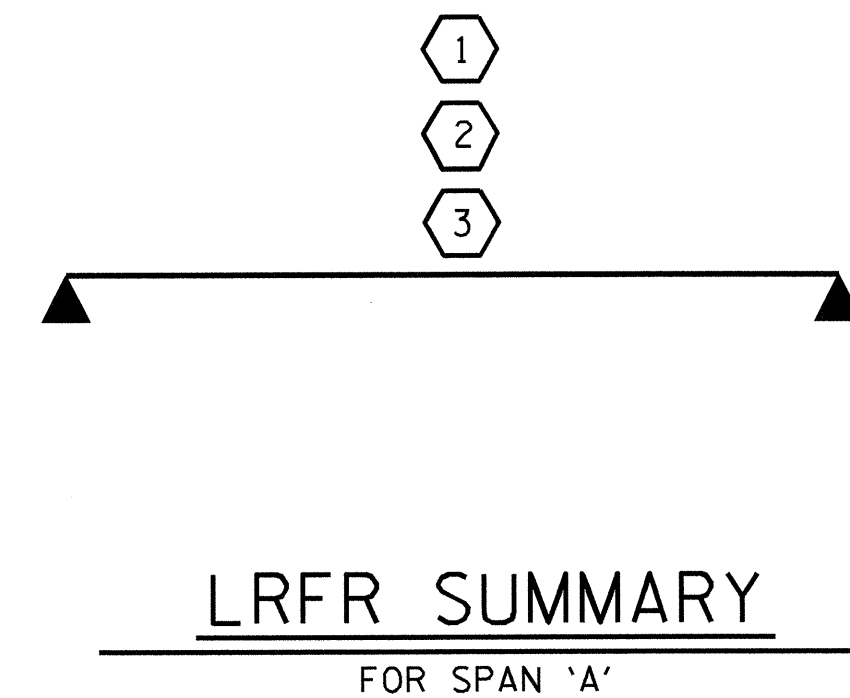
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

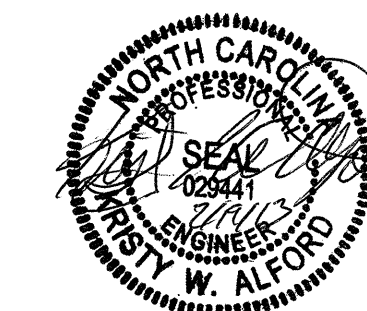
** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



PROJECT NO. BD-5105T
FRANKLIN COUNTY
STATION: 13+13.50 -L-

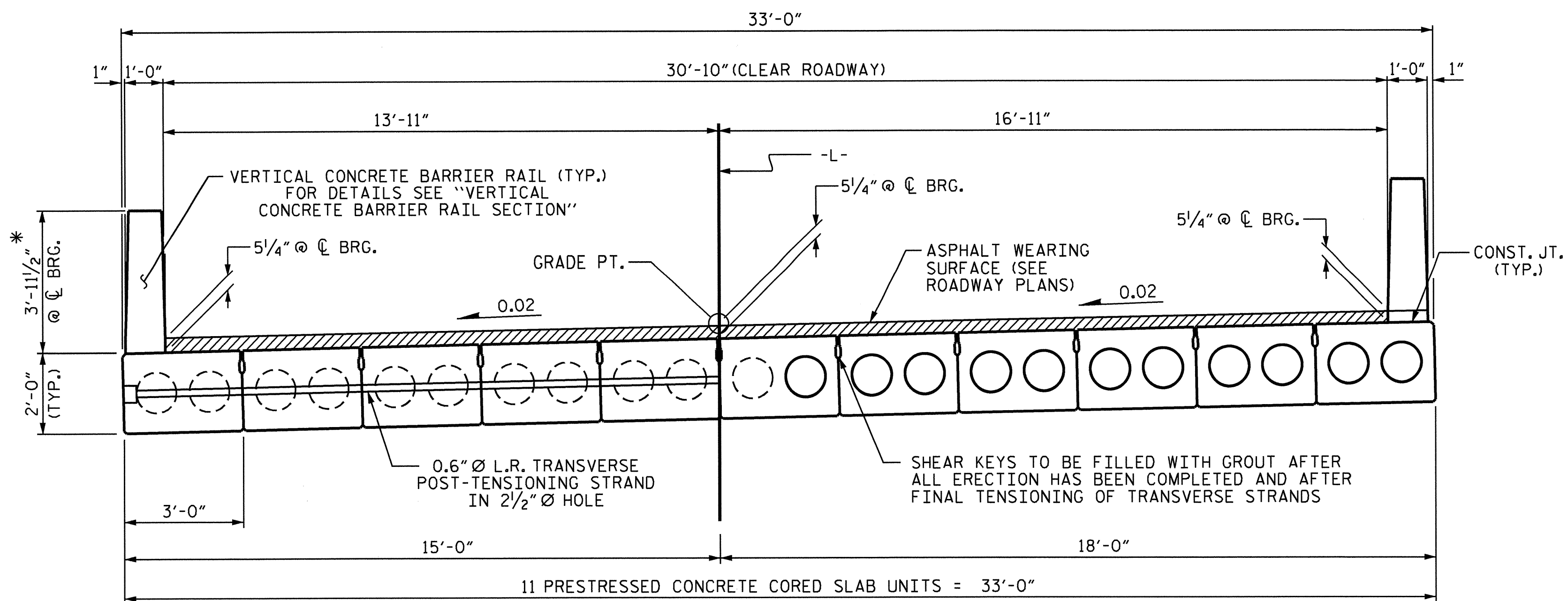


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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

ASSEMBLED BY : Fr. Leo DATE : 1/2013
CHECKED BY : A.C. OUTLAW DATE : 1/25/13
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

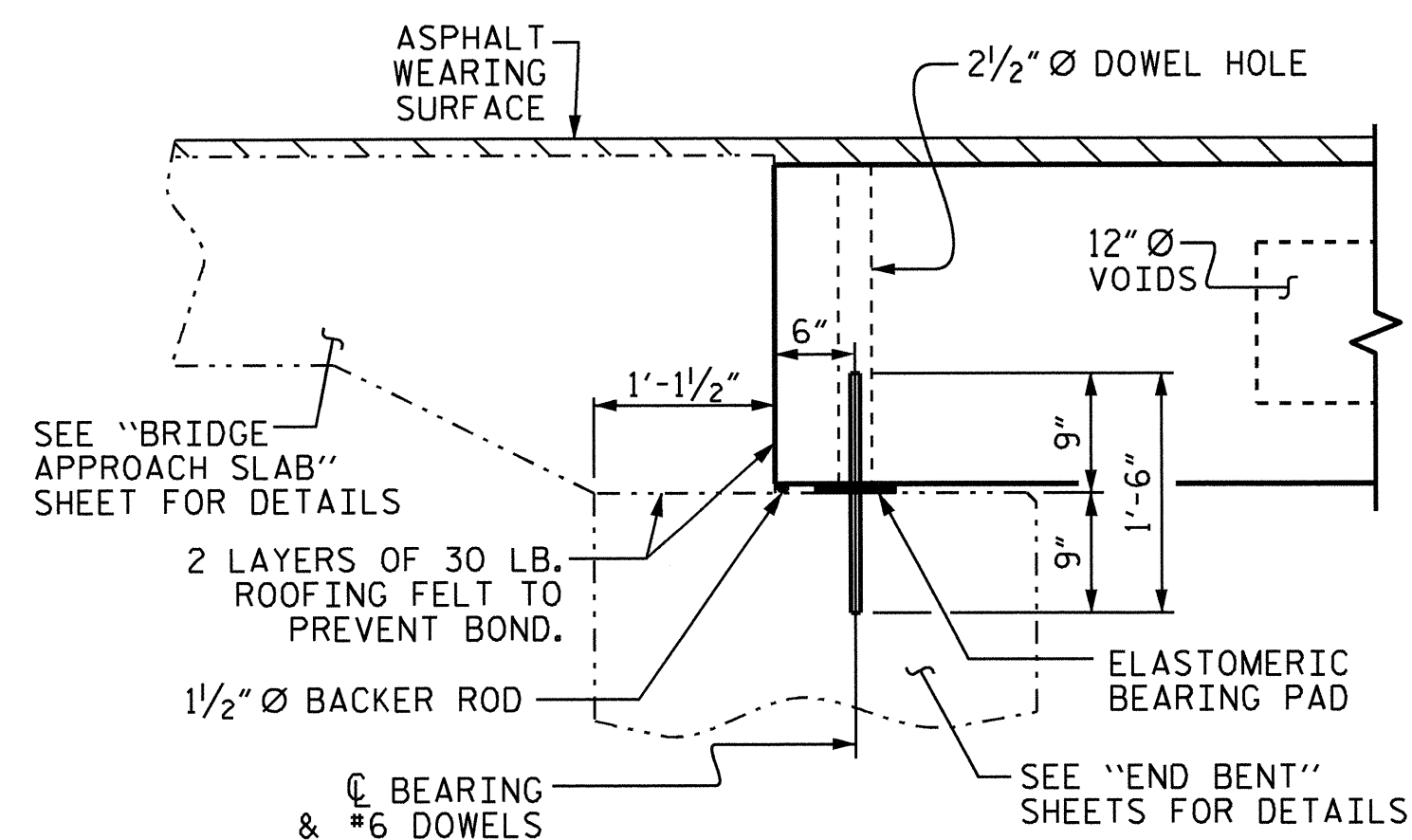


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

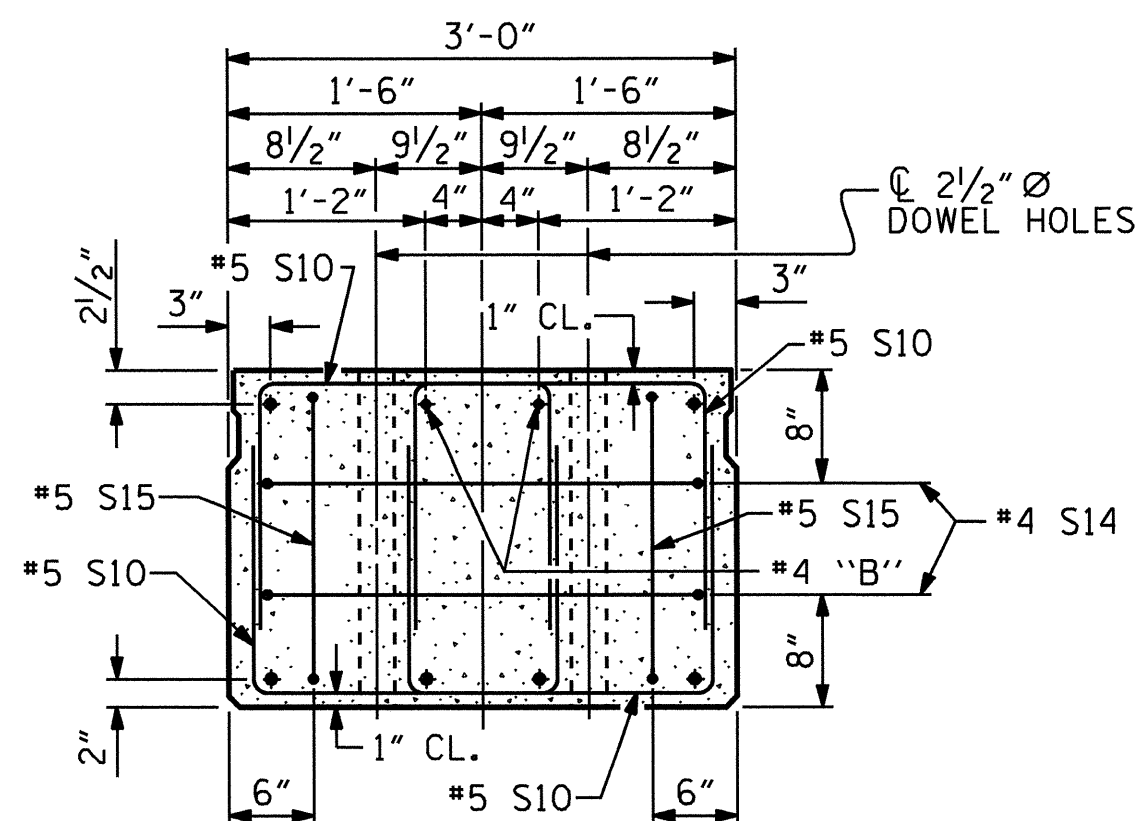
TYPICAL SECTION

HALF SECTION
THROUGH VOIDS

FIXED END

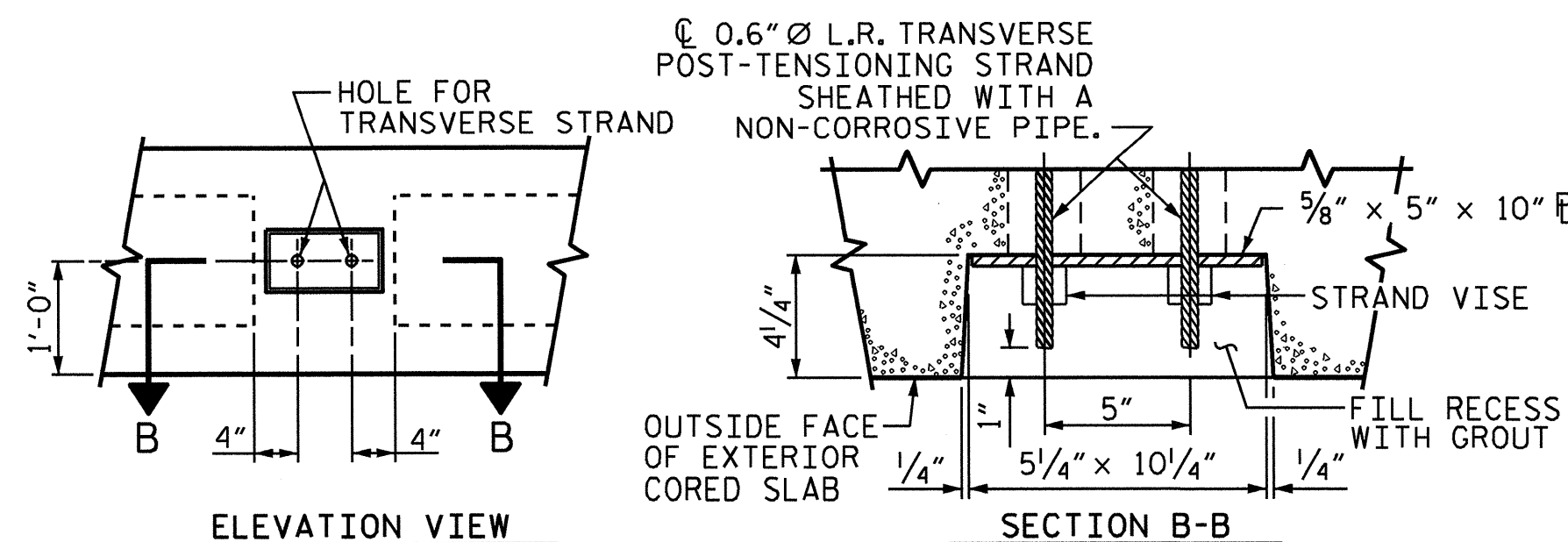


SECTION AT END BENT



END ELEVATION

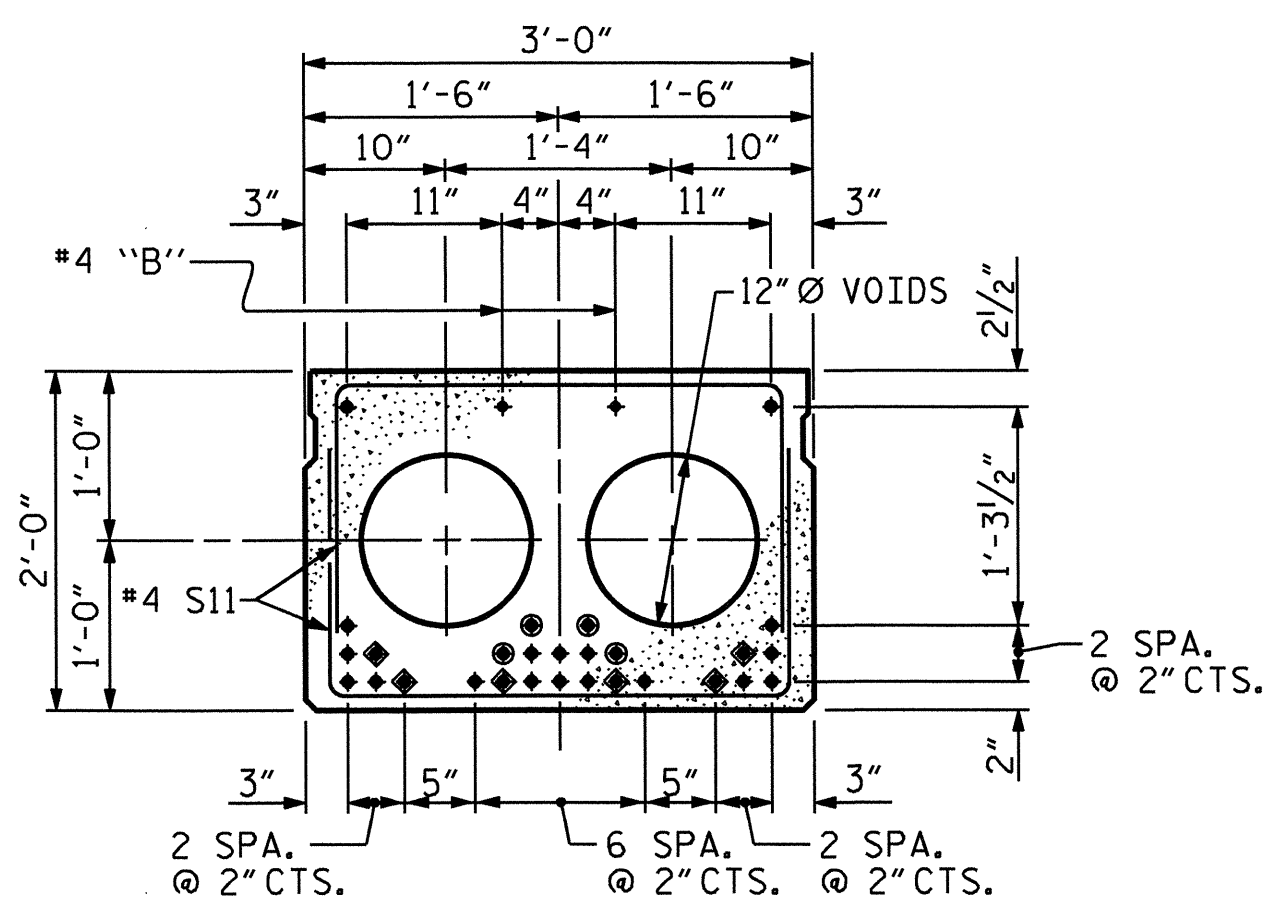
SHOWING PLACEMENT OF DOUBLE STIRRUPS
AND LOCATION OF DOWEL HOLES.
(STRAND LAYOUT NOT SHOWN.)
INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB
UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



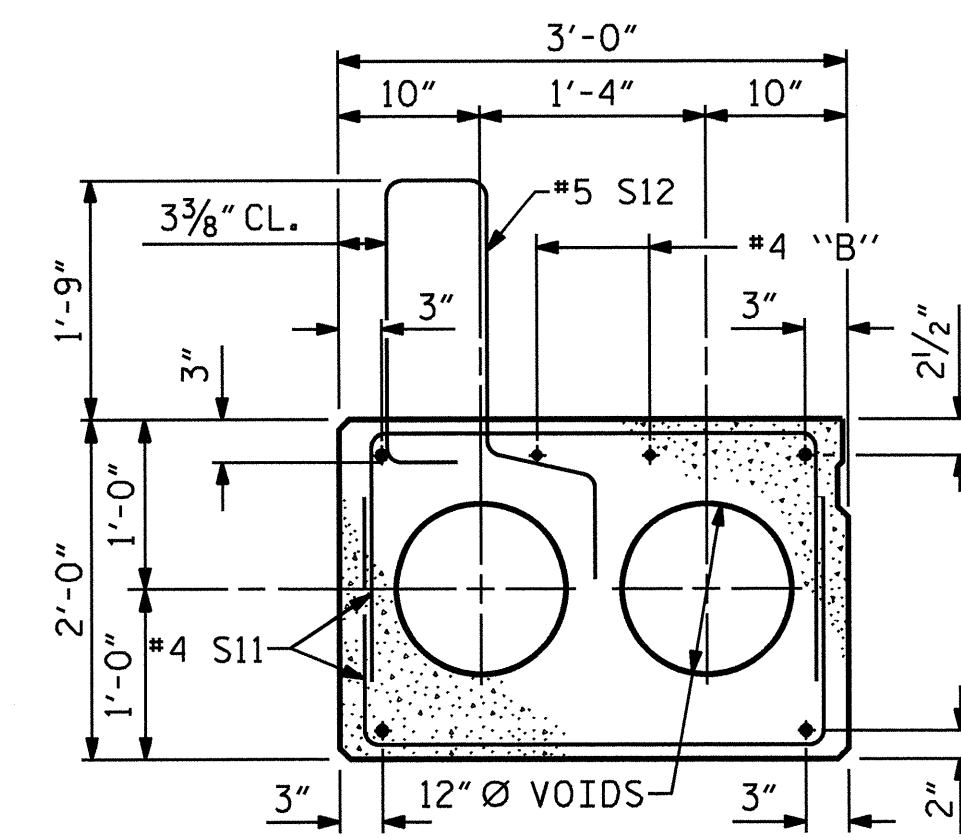
ELEVATION VIEW

SECTION B-B

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



INTERIOR SLAB SECTION (65' UNIT)
(24 STRANDS REQUIRED)



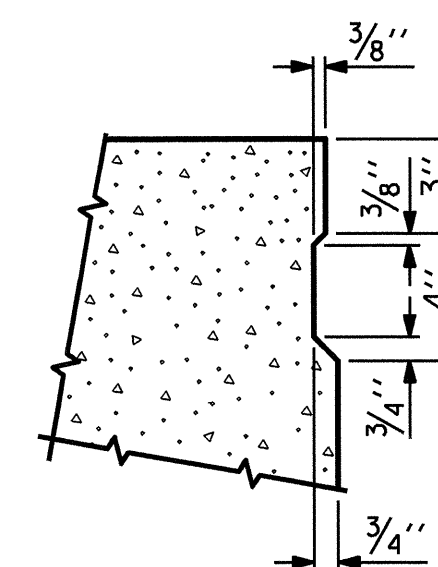
EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE
INTERIOR SLAB SECTION.)

0.6" Ø LOW
RELAXATION STRAND LAYOUT

◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A
DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT.
SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

● OPTIONAL FULL LENGTH DEBONDED STRANDS.
THESE STRANDS ARE NOT REQUIRED, IF THE
FABRICATOR CHOOSES TO INCLUDE THESE STRANDS
IN THE CORED SLAB UNIT, THE STRANDS SHALL
BE DEBONDED FOR THE FULL LENGTH OF THE UNIT
AT NO ADDITIONAL COST. SEE STANDARD
SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



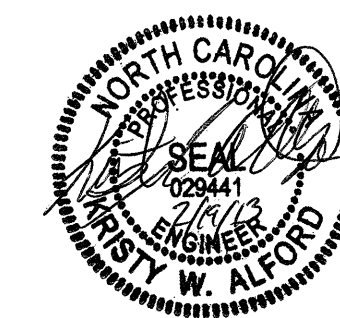
SHEAR KEY DETAIL

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

PROJECT NO. BD-5105T
FRANKLIN COUNTY
STATION: 13+13.50 -L-

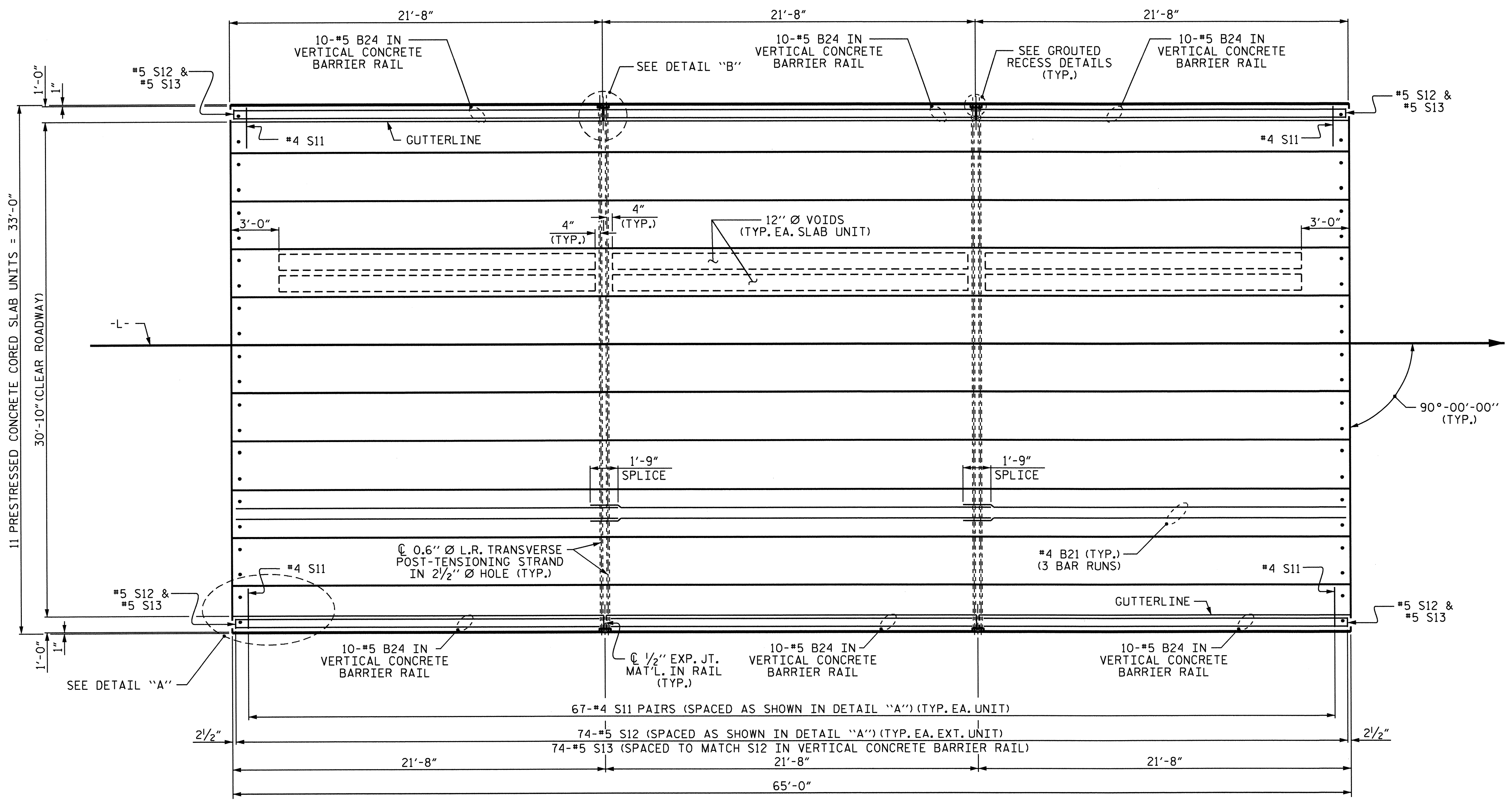
SHEET 1 OF 3

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

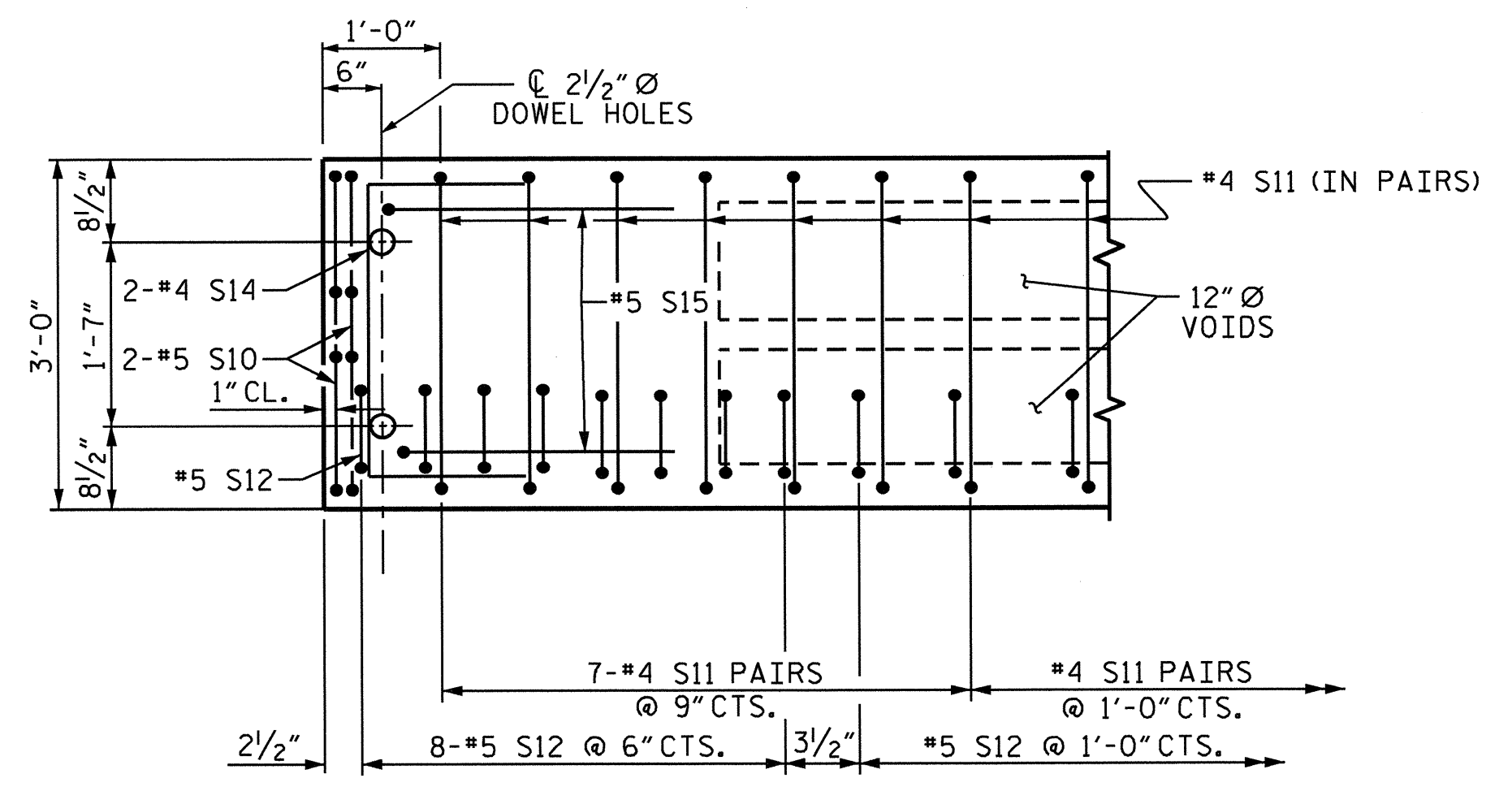


ASSEMBLED BY :	Fr. Leo	DATE :	1/2013
CHECKED BY :	A.C. OUTLAW	DATE :	1/25/13
DRAWN BY :	MAA 6/10	REV. 12/11	MAA/AAC
CHECKED BY :	MKT 7/10		

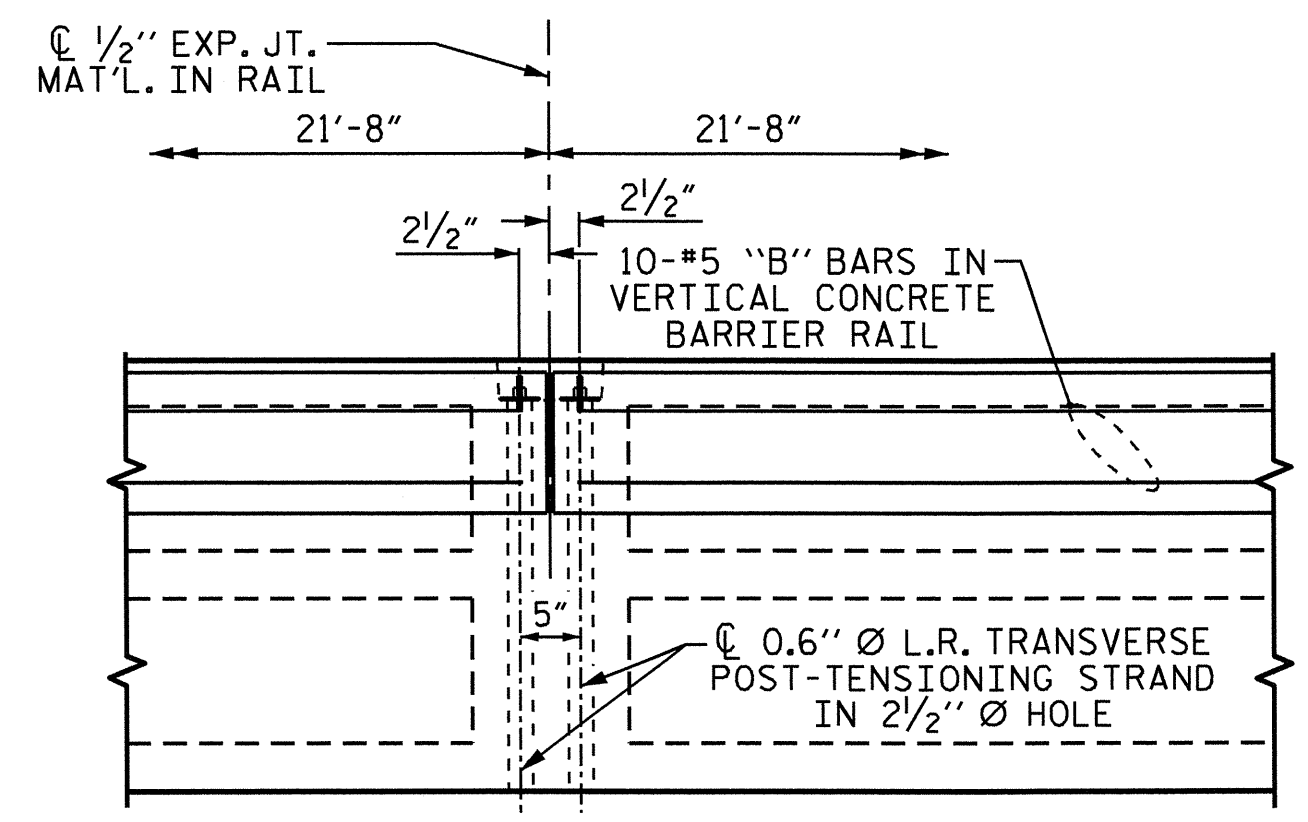
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			15



PLAN OF UNIT



DETAIL "A"



DETAIL "B"

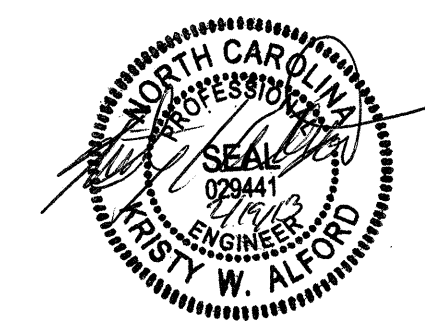
#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.

PROJECT NO. BD-5105T
FRANKLIN COUNTY
 STATION: 13+13.50 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF 65' UNIT
 30'-10" CLEAR ROADWAY
 90° SKEW



ASSEMBLED BY : Fr. Lea DATE : 1/2013
 CHECKED BY : A.C. OUTLAW DATE : 1/25/13
 DRAWN BY : MAA 6/10 REV. 12/5/11 MAA/AAC
 CHECKED BY : MKT 7/10

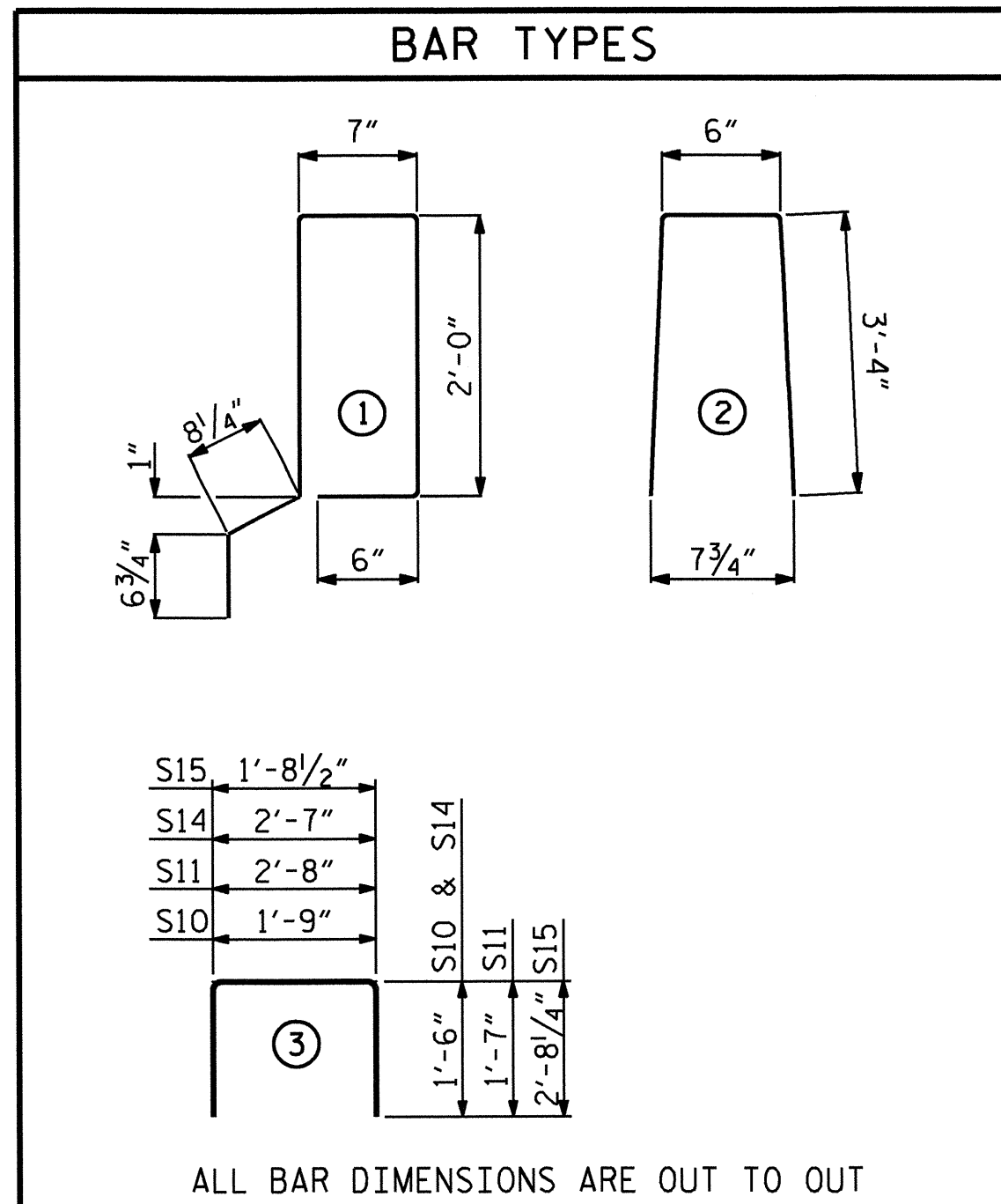
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			15

BILL OF MATERIAL FOR ONE 65' CORED SLAB UNIT							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B21	6	#4	STR	22'-10"	92	22'-10"	92
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	134	#4	3	5'-10"	522	5'-10"	522
*S12	74	#5	1	6'-4"	489		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL				LBS.	699		699
* EPOXY COATED REINFORCING STEEL				LBS.	489		
6000 P.S.I. CONCRETE				CU. YDS.	11.0		11.0
0.6" Ø L.R. STRANDS				No.	24		24

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
65' UNITS	2 3/8"	3'-8 5/8"

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
65' UNIT			
EXTERIOR C.S.	2	65'-0"	130'-0"
INTERIOR C.S.	9	65'-0"	585'-0"
TOTAL			715'-0"

CONCRETE RELEASE STRENGTH	
UNIT	PSI
65' UNITS	4800



NOTES

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

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

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

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

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

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

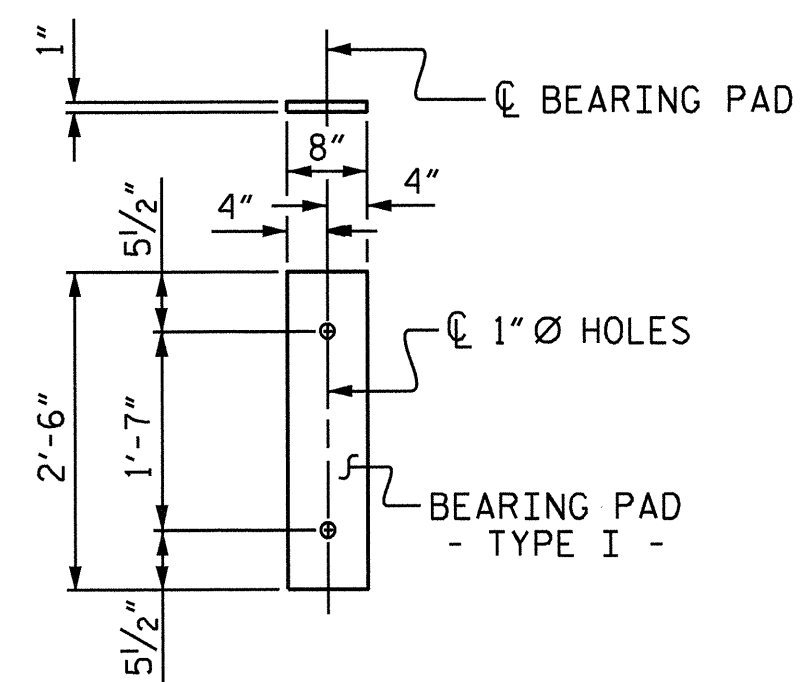
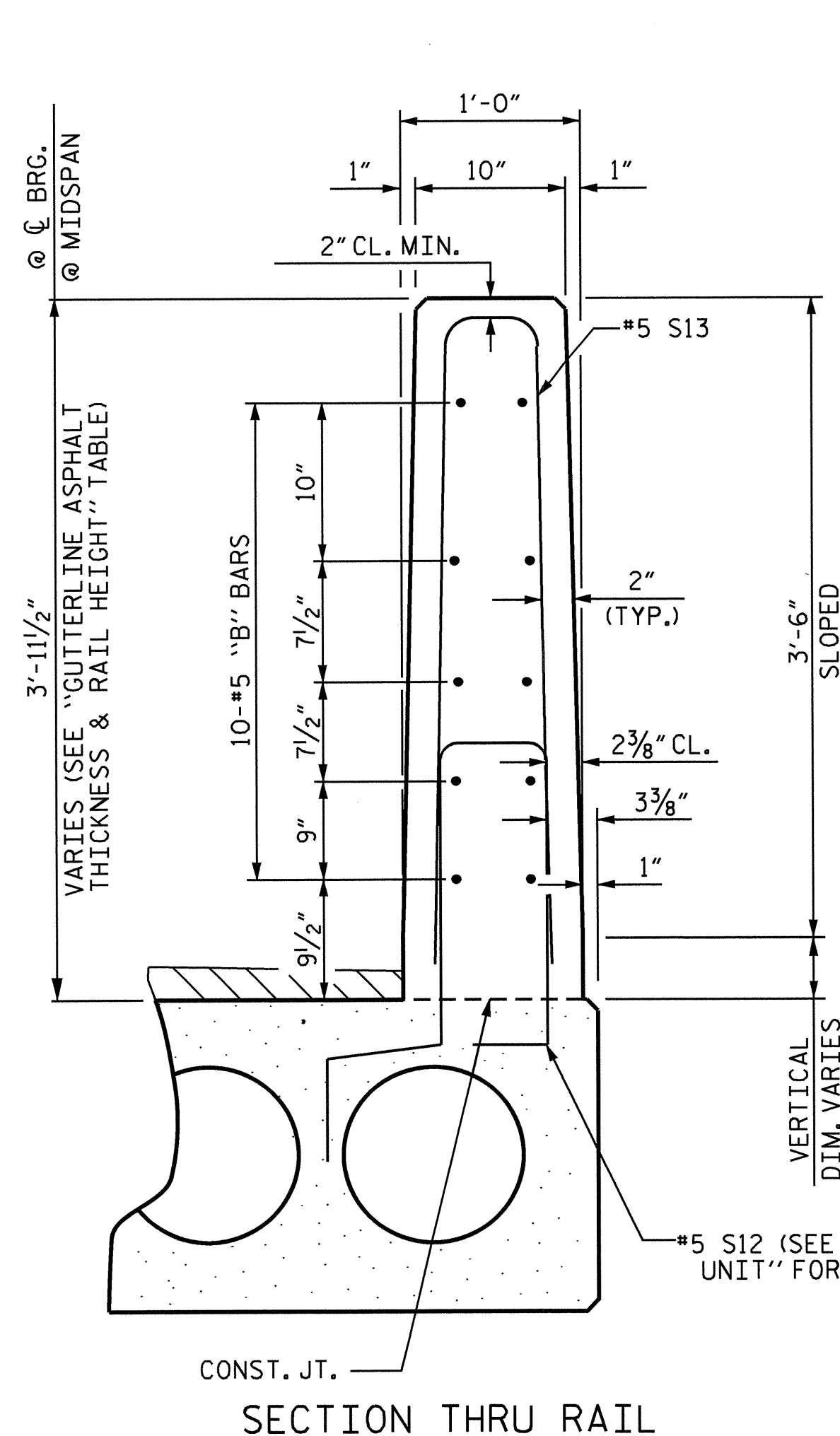
THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 2'-0"
65' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3 3/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/2" ↓
FINAL CAMBER	2 7/8" ↑

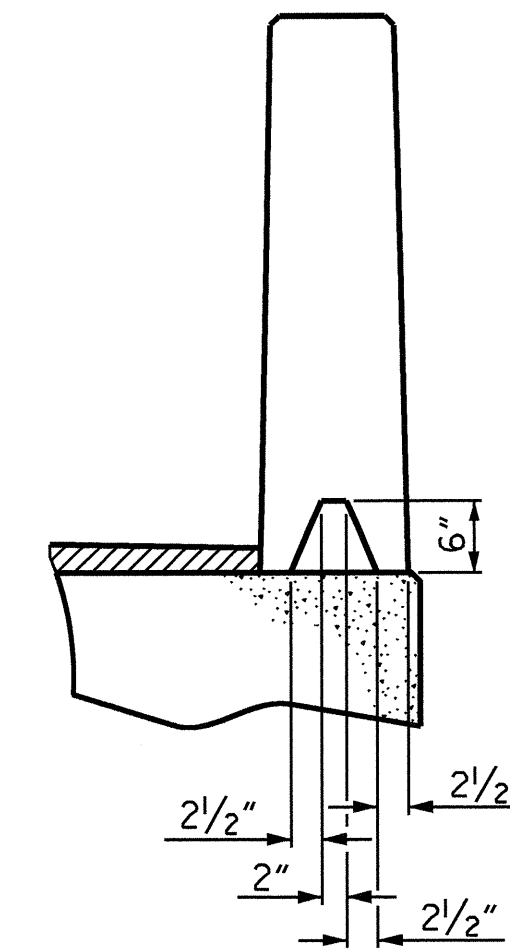
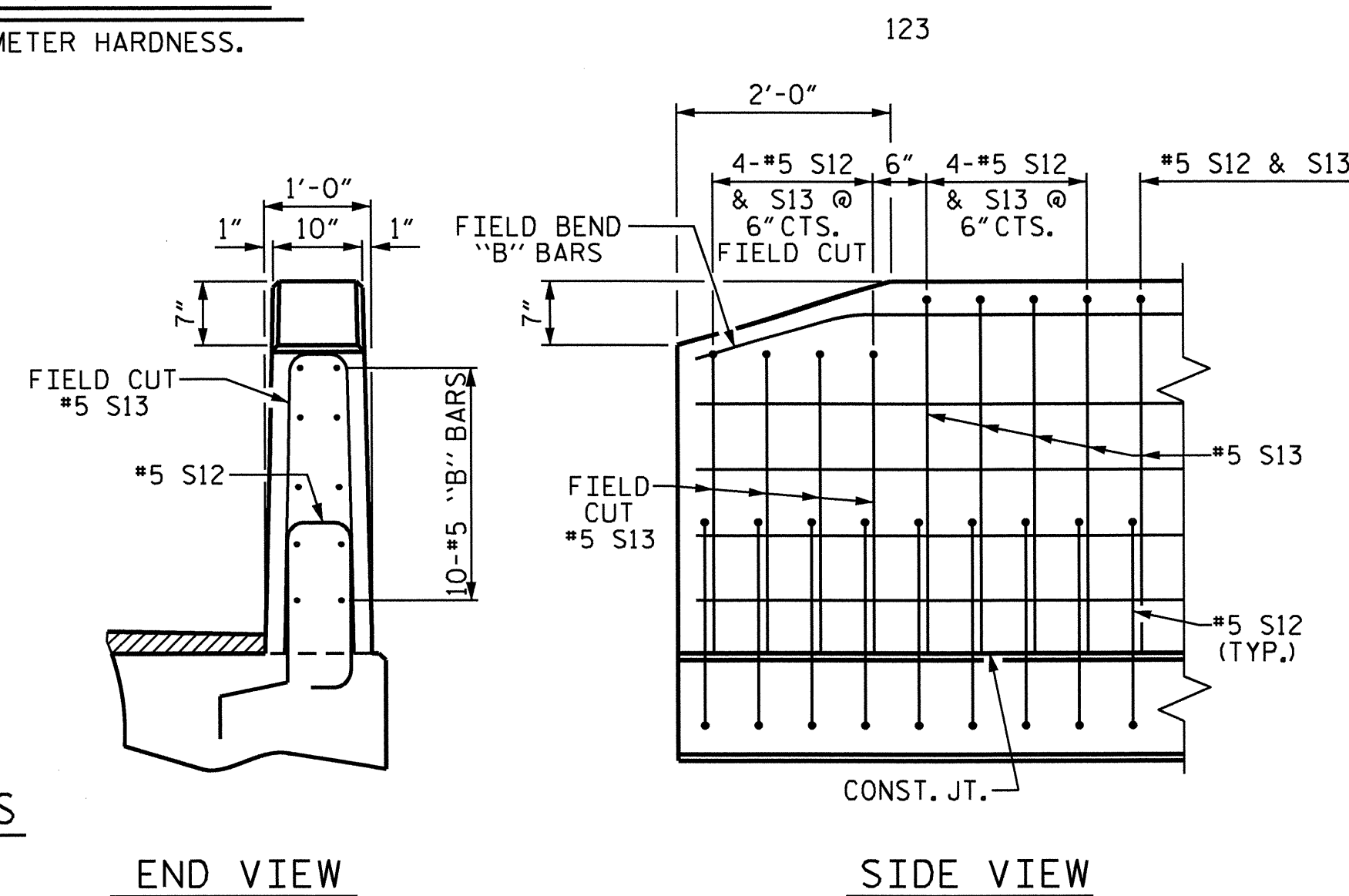
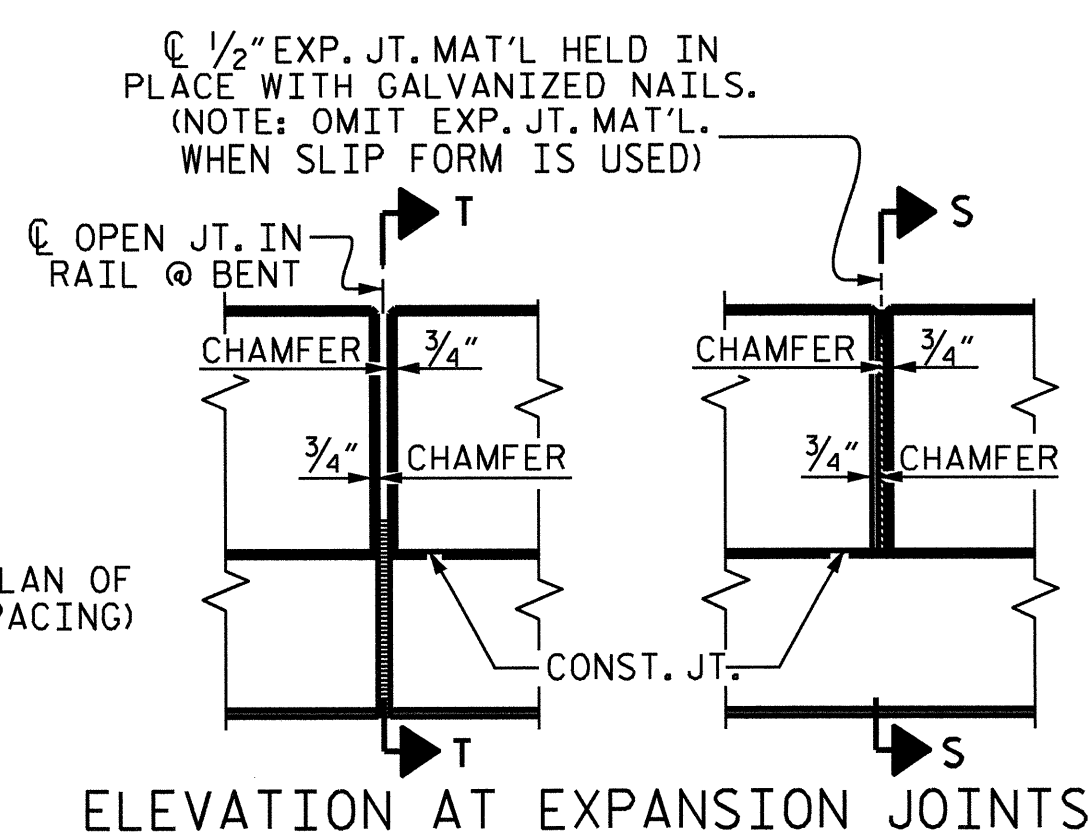
** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
65' UNIT						
*B24	60	60	#5	STR	21'-3"	1330
*S13	148	148	#5	2	7'-2"	1106
* EPOXY COATED REINFORCING STEEL				LBS.		2436
CLASS AA CONCRETE				CU. YDS.		17.6
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		130.25



ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

PROJECT NO. BD-5105T
FRANKLIN COUNTY
 STATION: 13+13.50 -L-

SHEET 3 OF 3

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

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

ASSEMBLED BY :	Fr. Leo	DATE :	1/2013
CHECKED BY :	A.C. OUTLAW	DATE :	1/25/13
DRAWN BY :	MAA 6/10	REV.	12/11
CHECKED BY :	MKT 7/10		MAA/AAC

NOTES

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

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

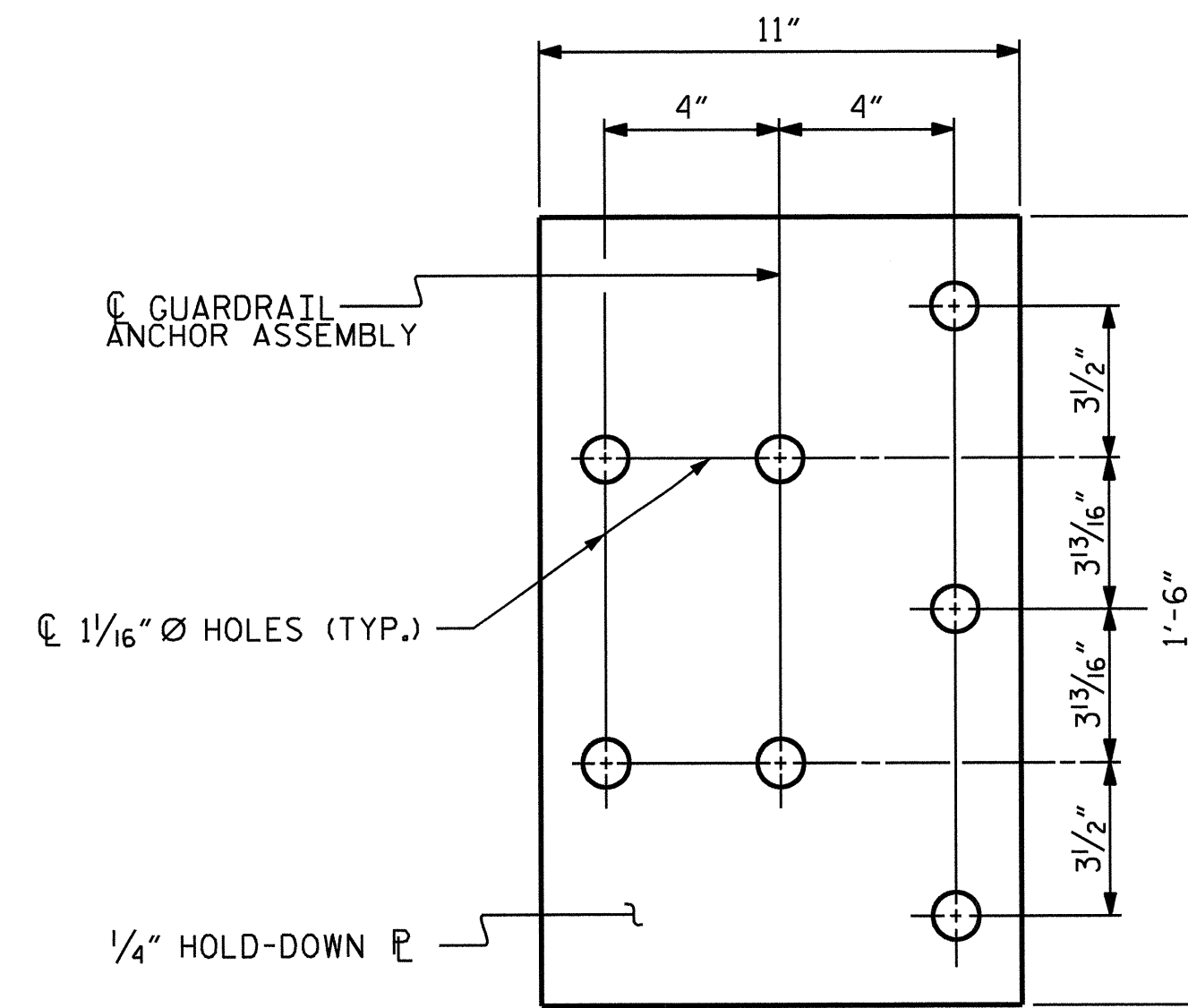
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

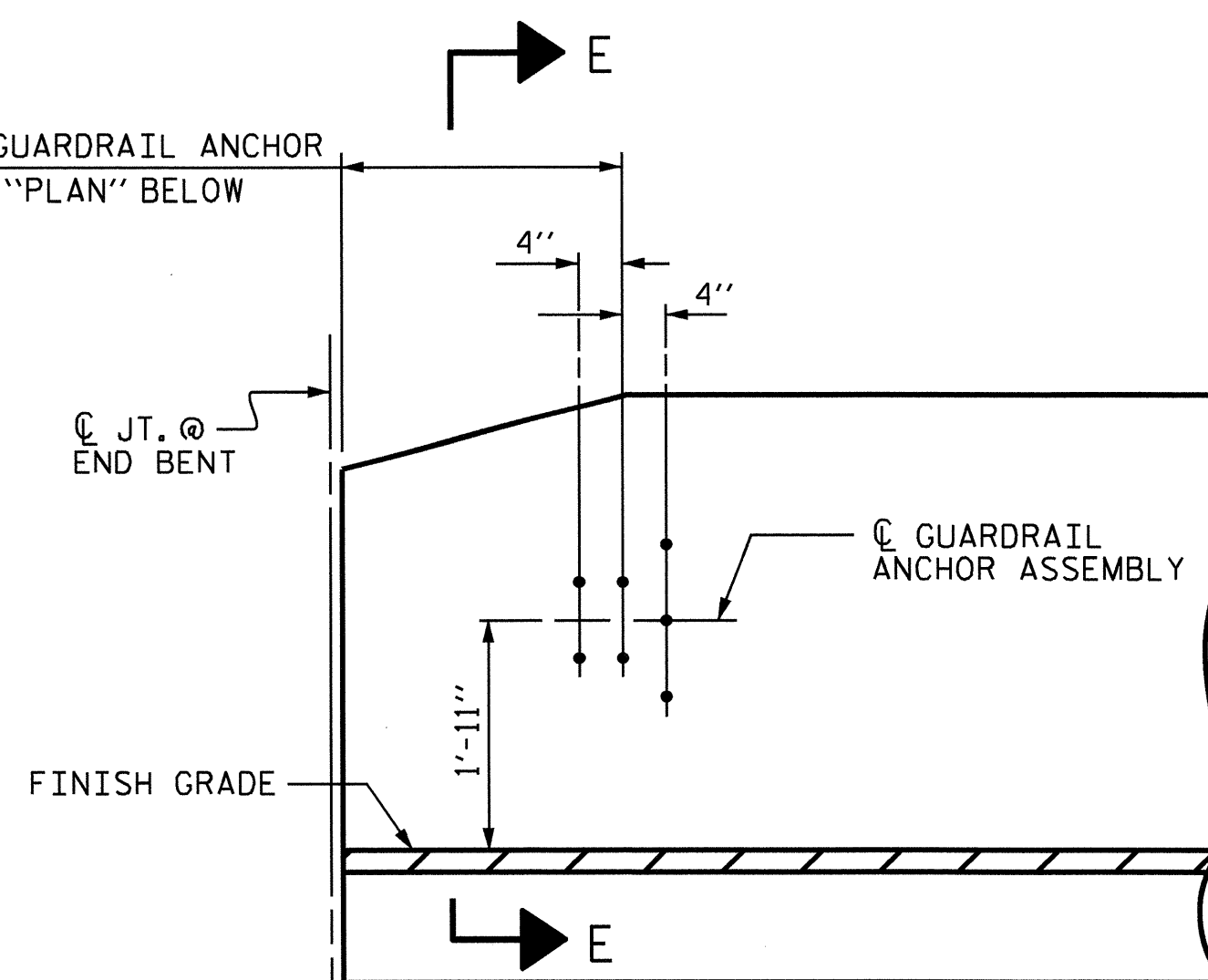
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

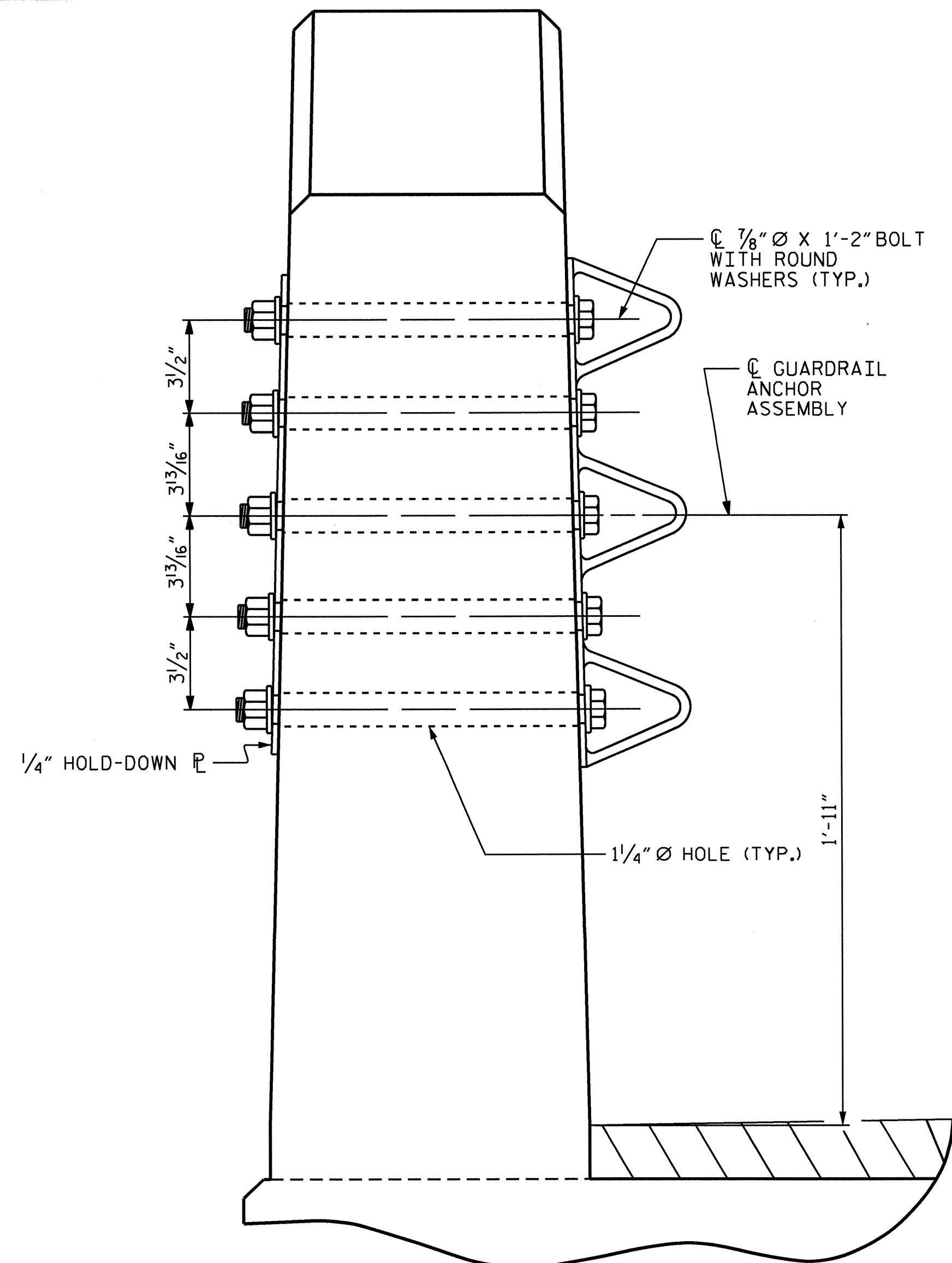


PLAN

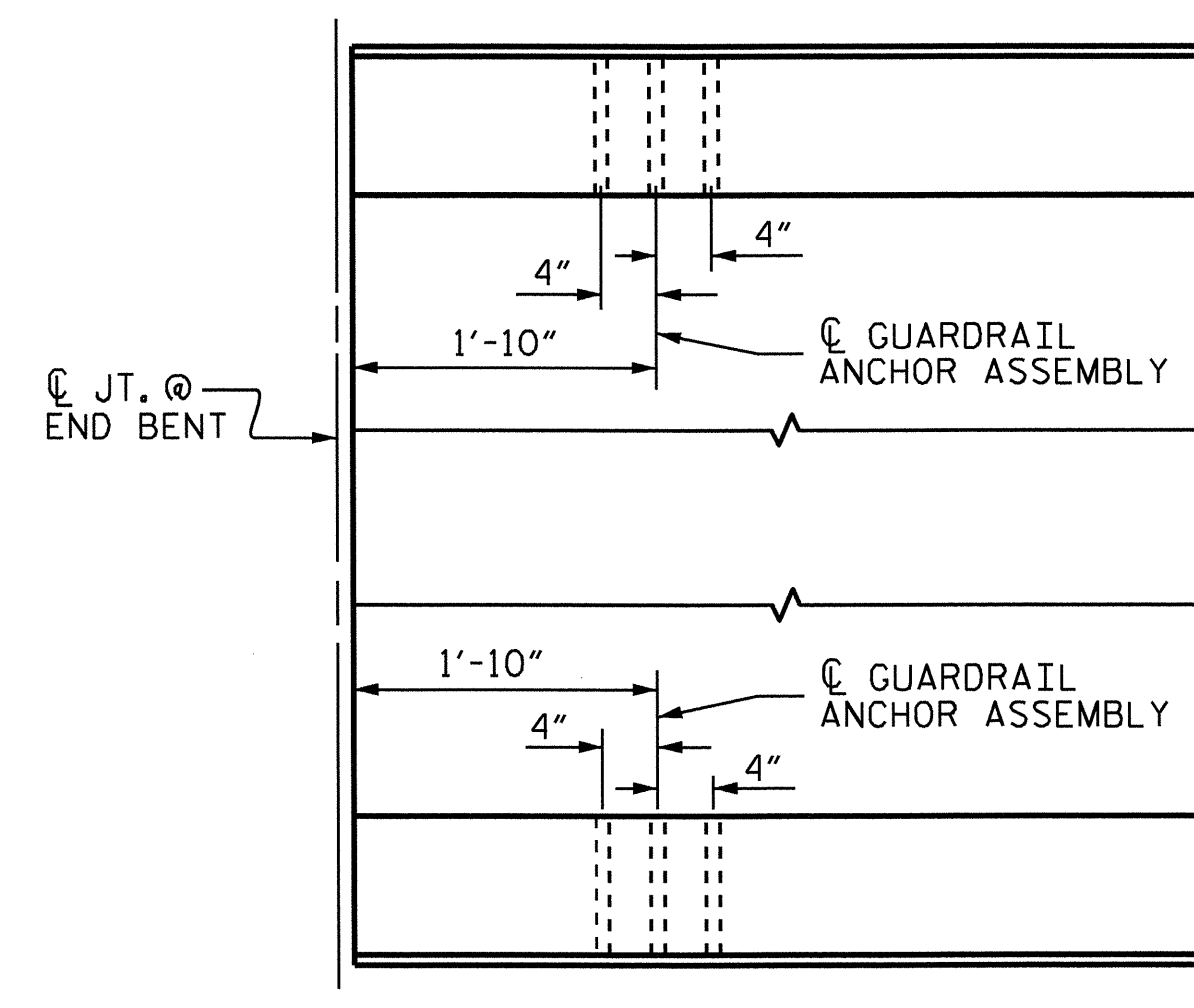
FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



ELEVATION



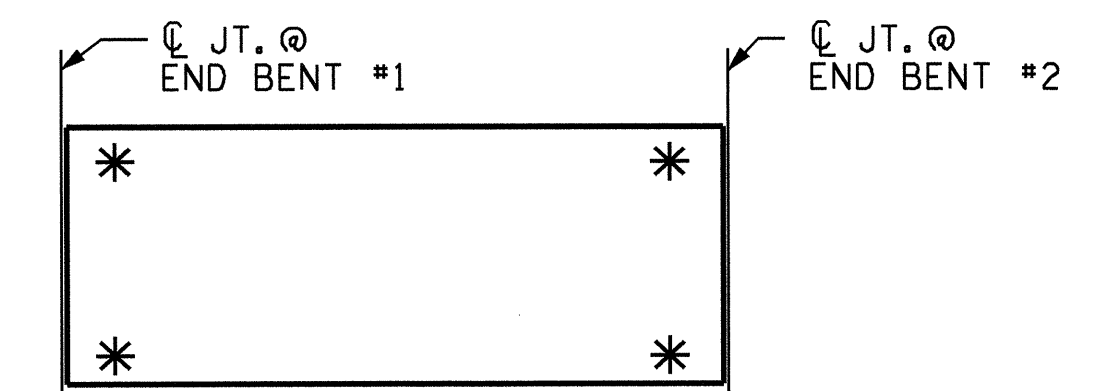
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5105T
FRANKLIN COUNTY
STATION: 13+13.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE
FOR VERTICAL CONCRETE
BARRIER RAIL



ASSEMBLED BY : Fr. Leg	DATE : 1/2013
CHECKED BY : A.C. OUTLAW	DATE : 1/25/13
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11 MAA/GM
	REV. 12/5/11 MAA/GM

19-FEB-2013 13:18
S:\DPC2\KRISTY\DivisionProjects\BD5105T\Misc.draw\BD-5105T_SD.GR.dgn
Kaiford

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-7
2			4			15

STD. NO. GRA3

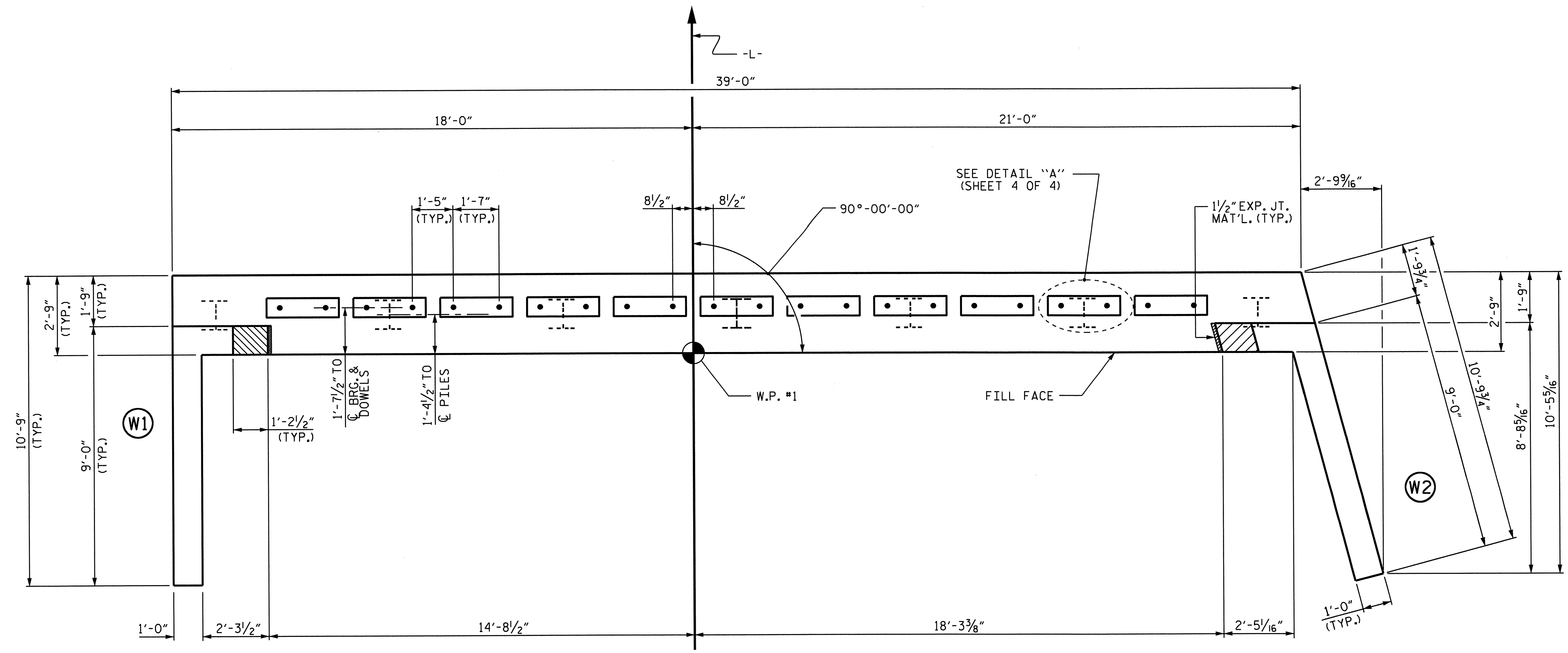
NOTES

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

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

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

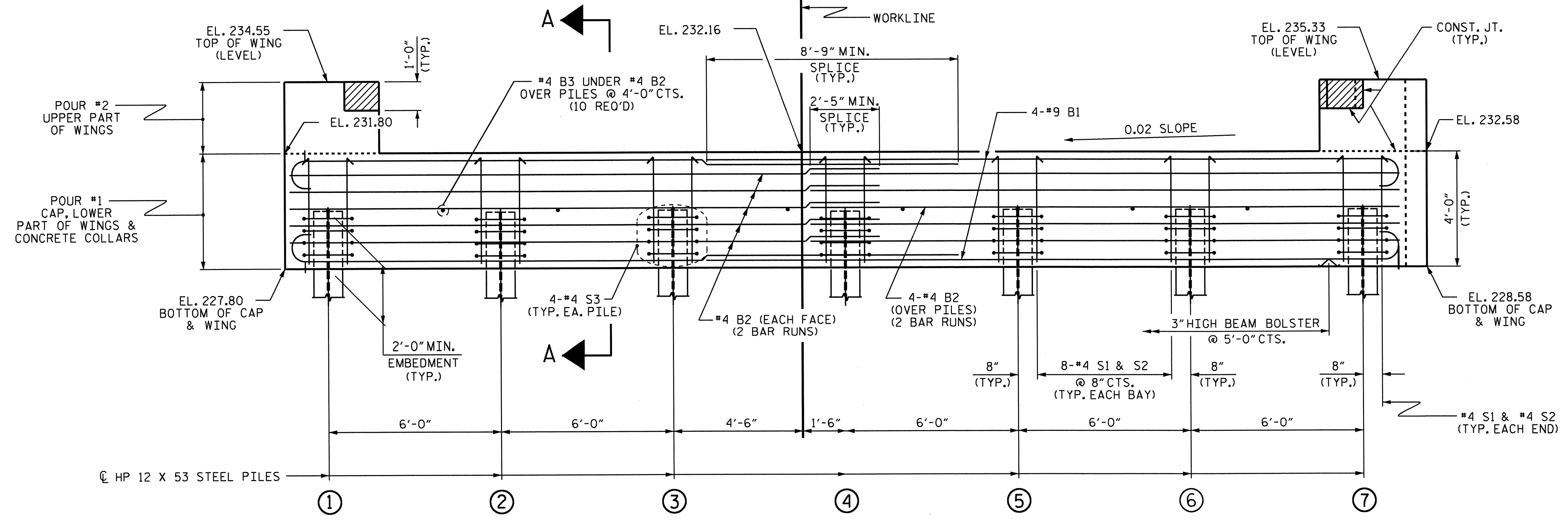
FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

TOP OF PILE ELEVATIONS

①	229.84
②	229.96
③	230.08
④	230.20
⑤	230.32
⑥	230.43
⑦	230.55



ELEVATION

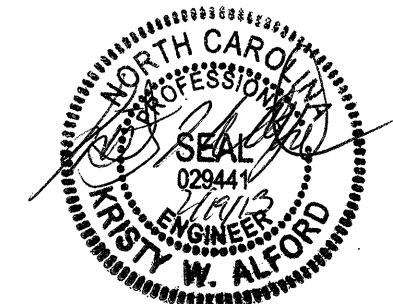
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. BD-5105T
FRANKLIN COUNTY
STATION: 13+13.50 -L-

SHEET 1 OF 3

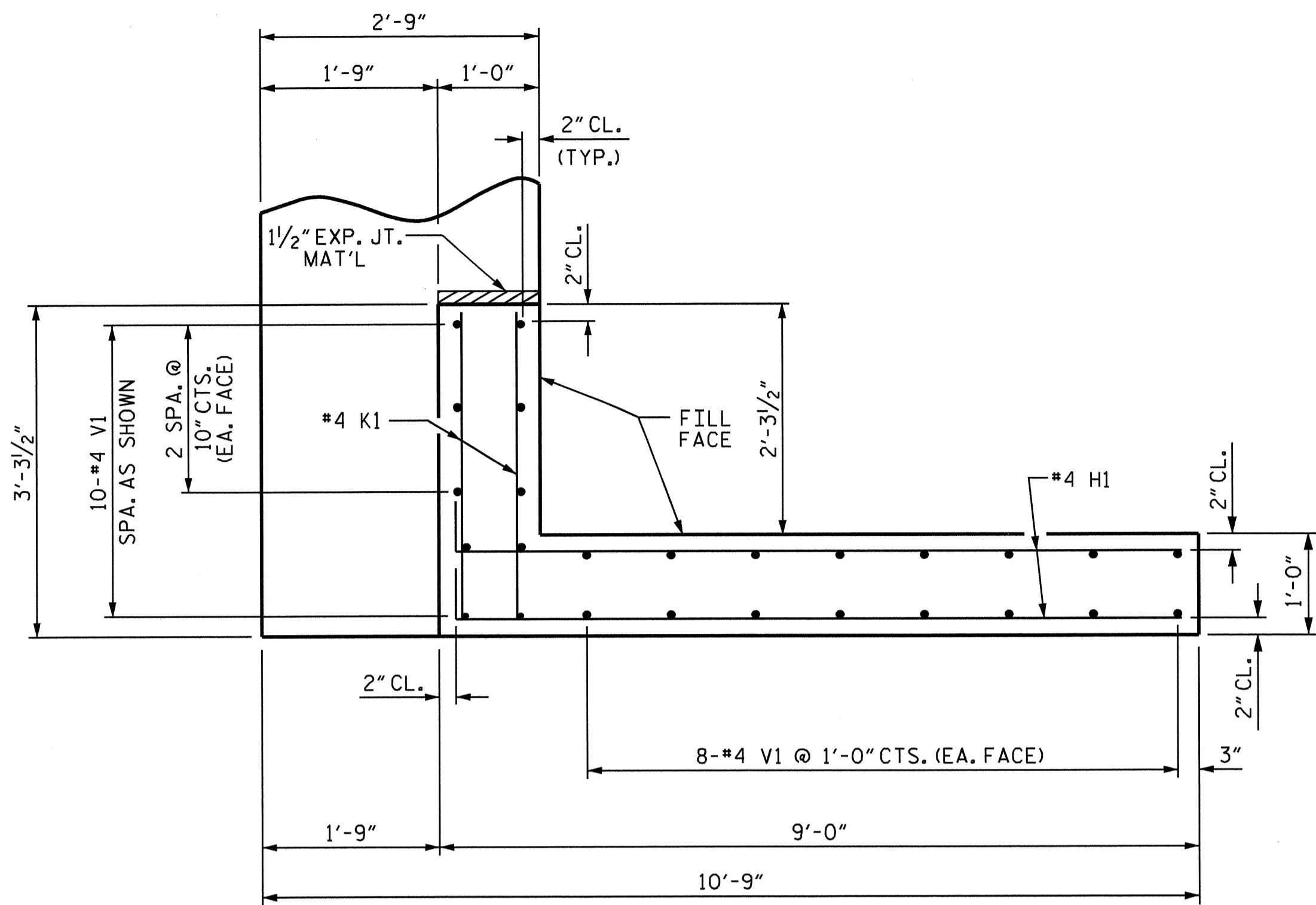
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1

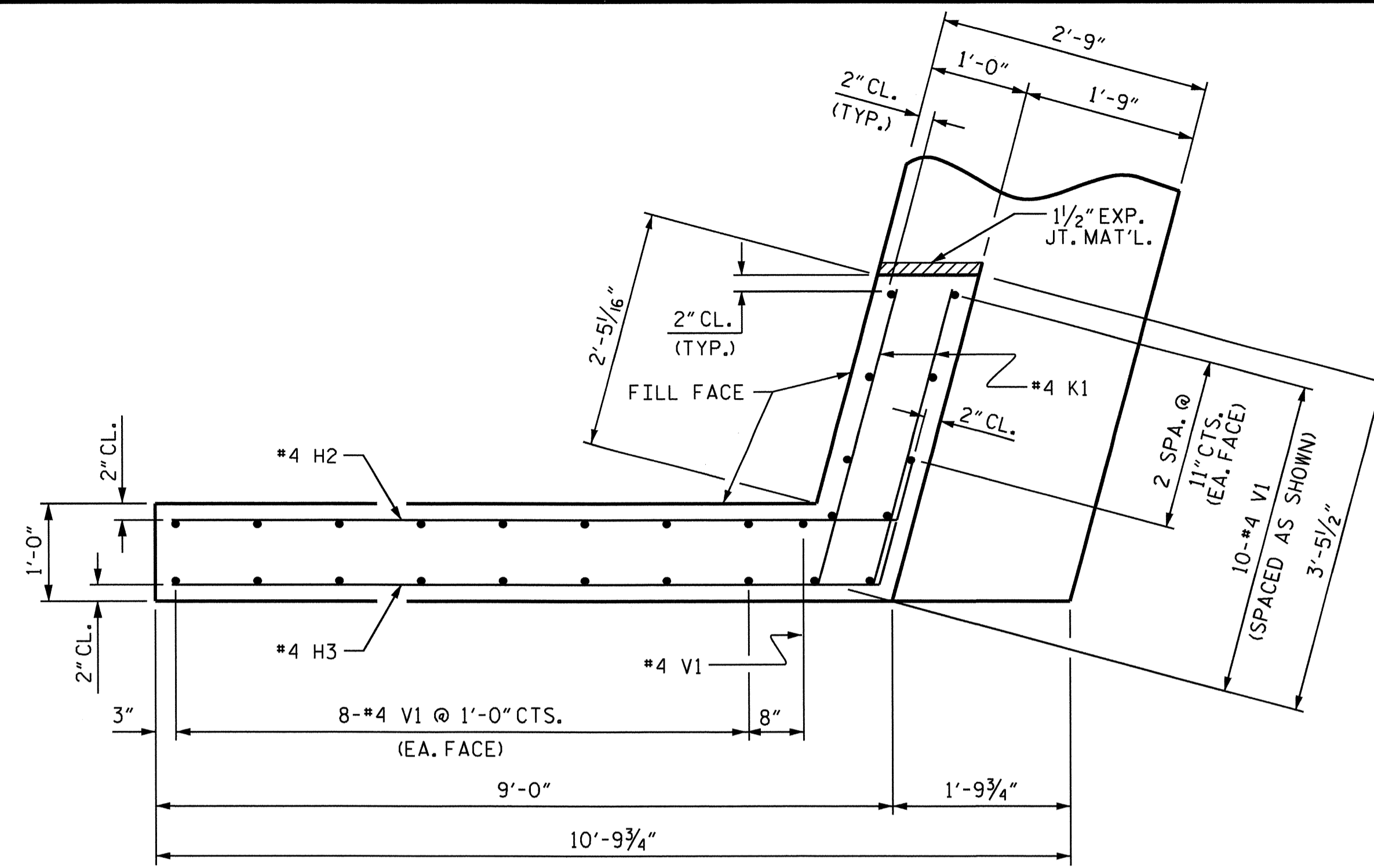


ASSEMBLED BY : Fr. Leg DATE : 1/2013
CHECKED BY : A.C. OUTLAW DATE : 1/25/13
DRAWN BY : WJH 12/11
CHECKED BY : AAC 12/11

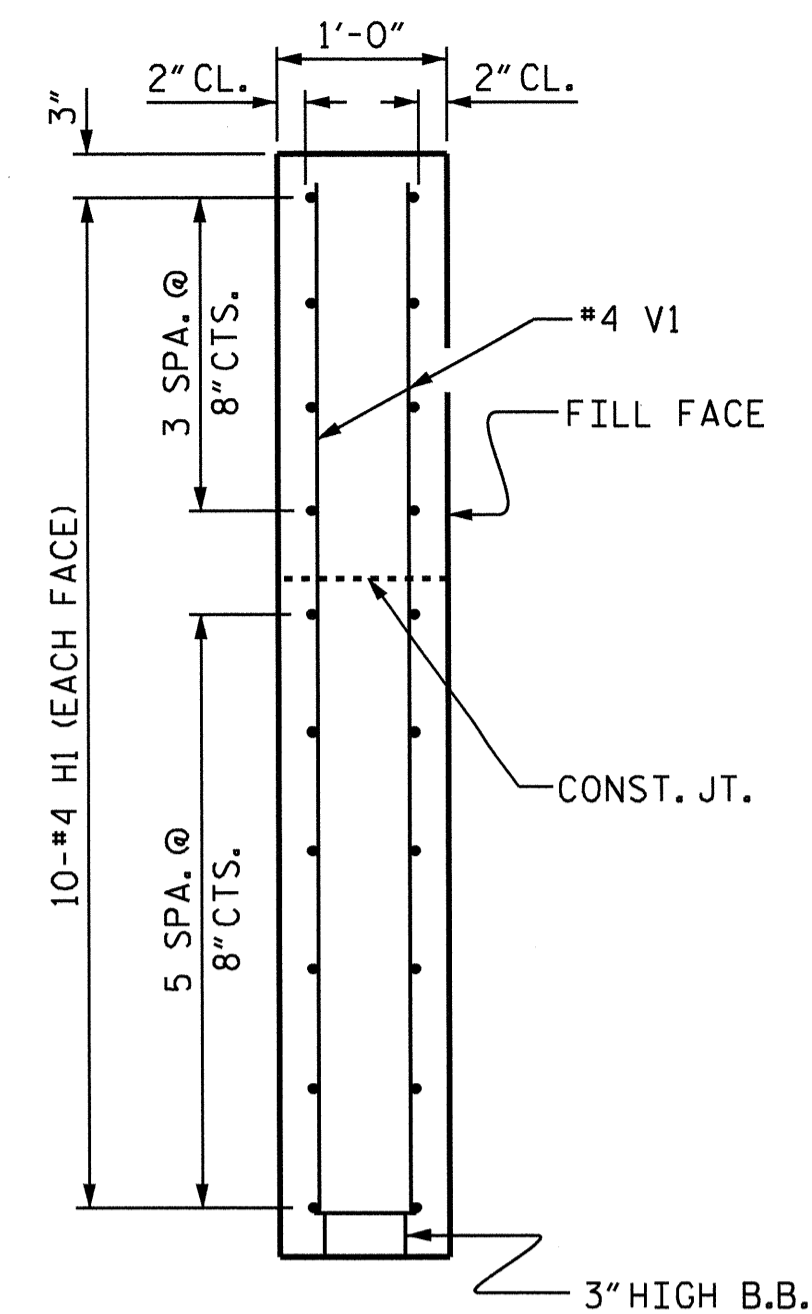
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS	
2			4			15	



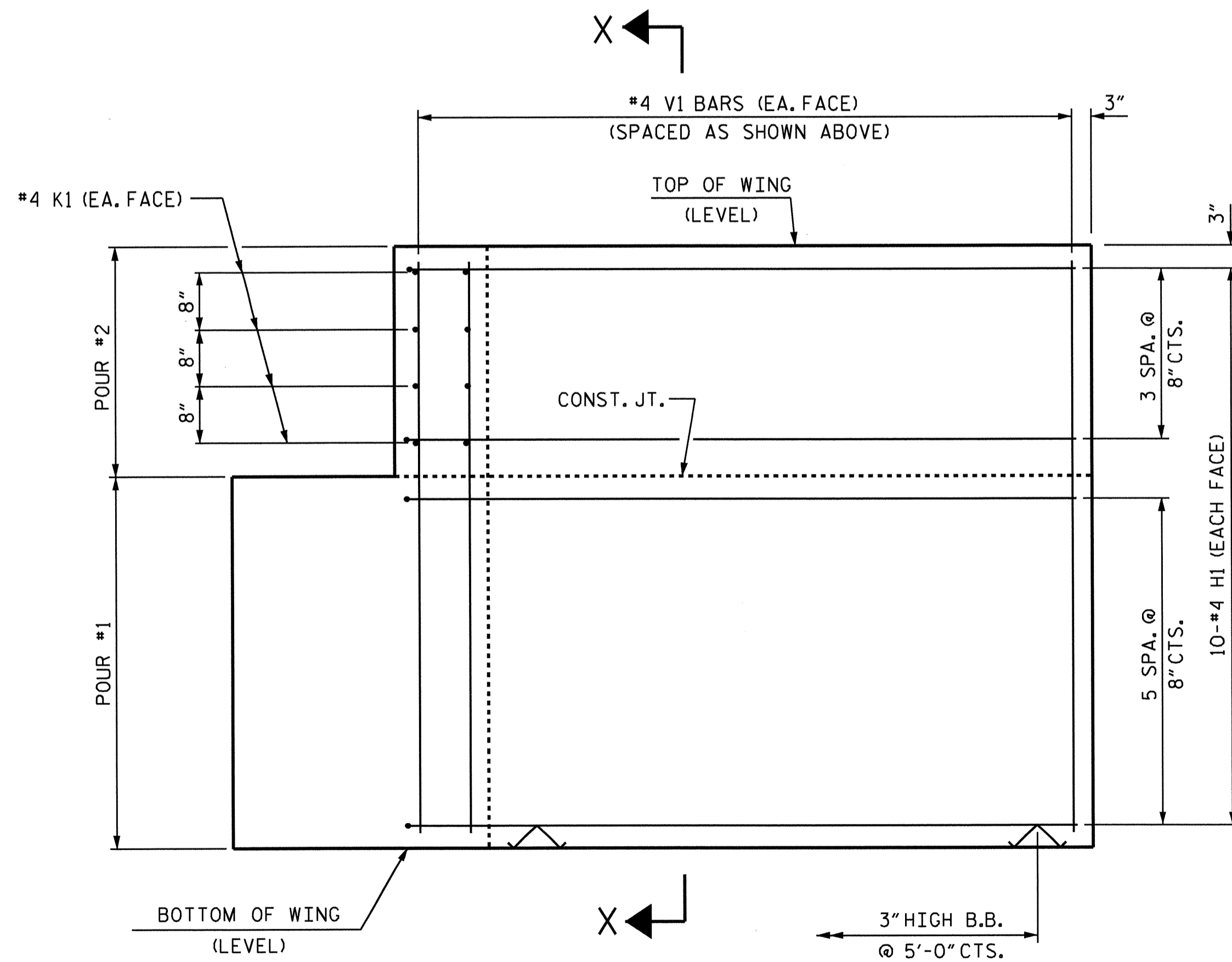
PLAN OF WING (W1)



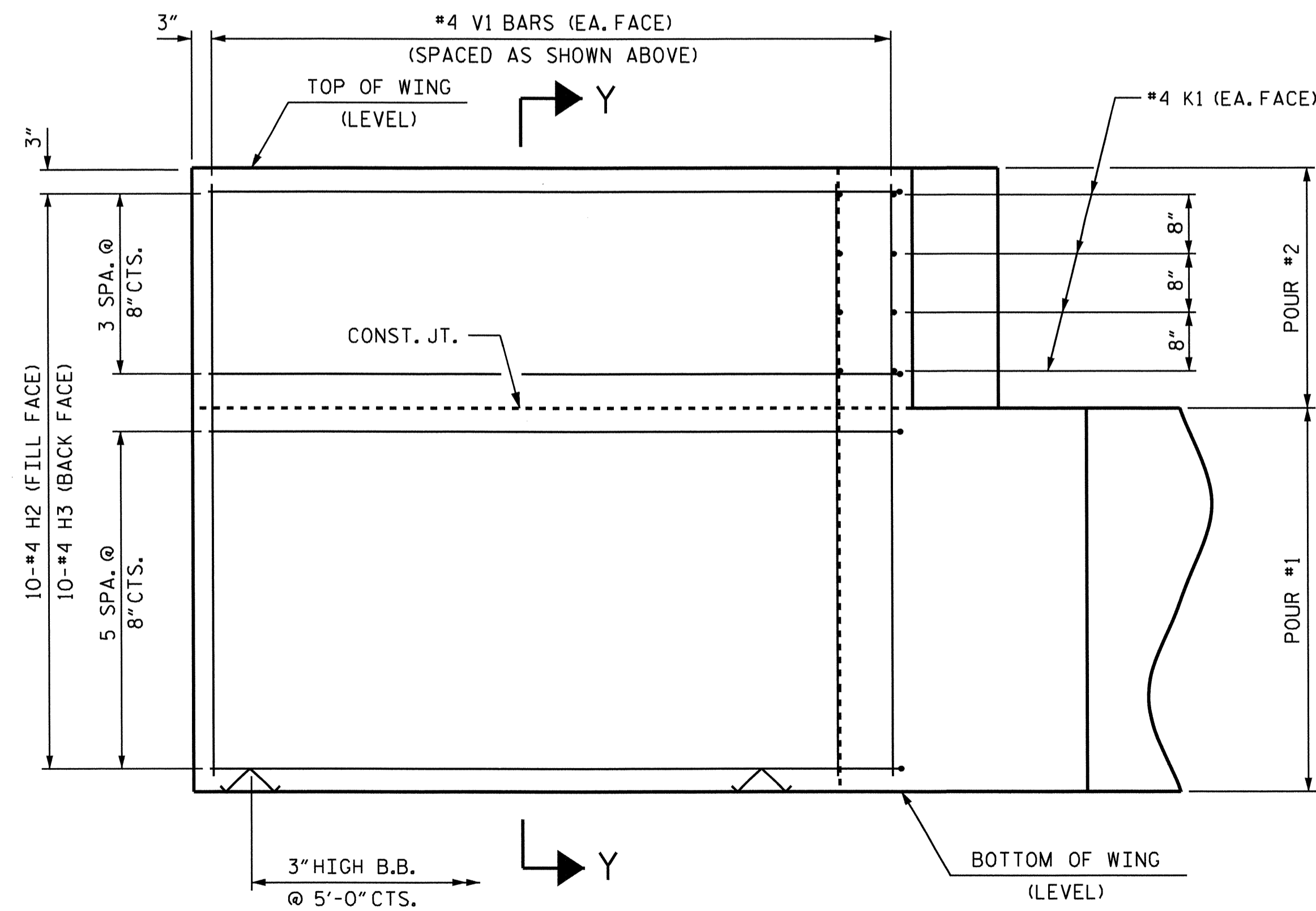
PLAN OF WING (W2)



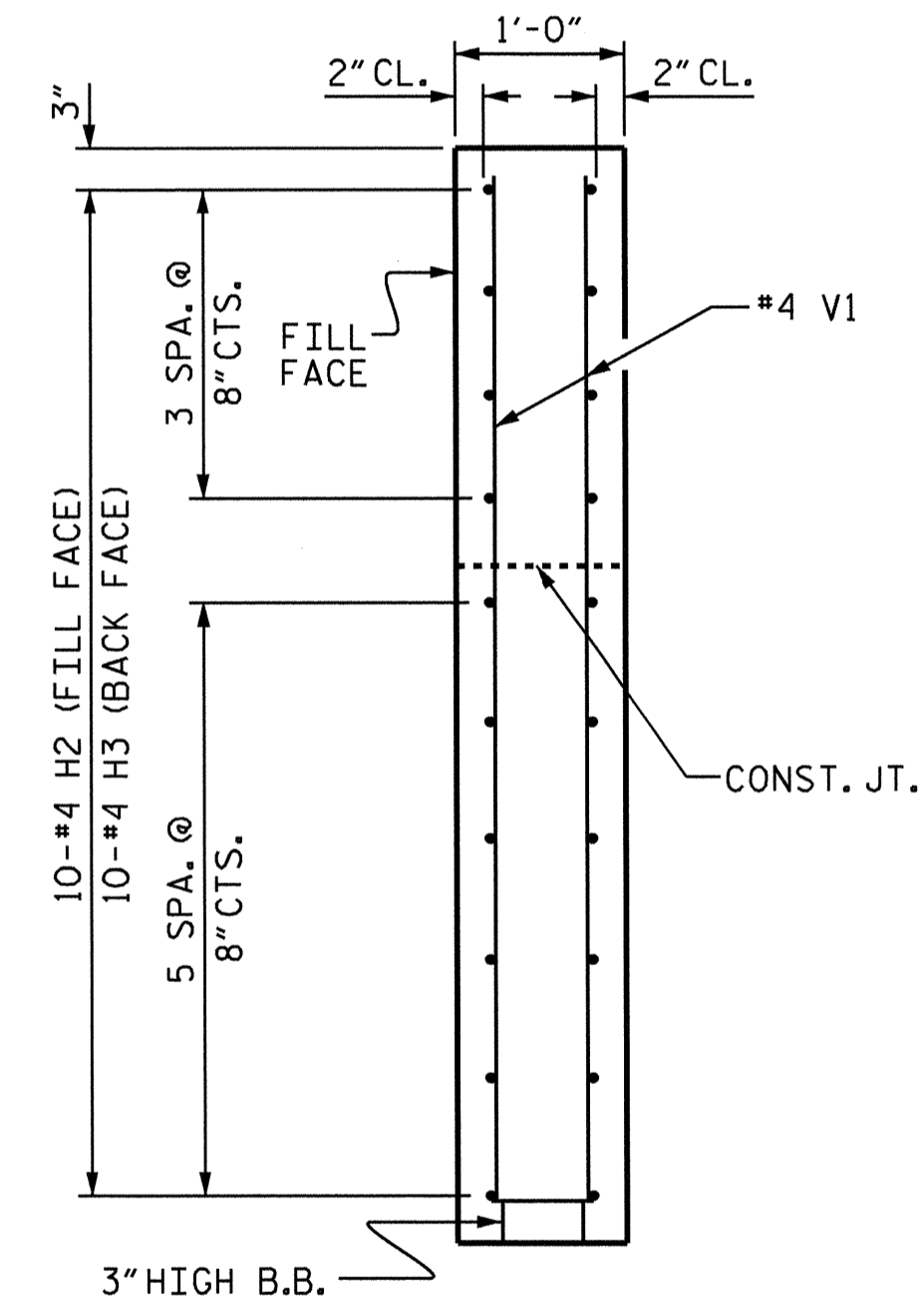
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



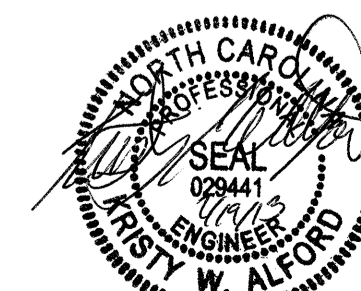
SECTION Y-Y

PROJECT NO. BD-5105T
FRANKLIN COUNTY
 STATION: 13+13.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

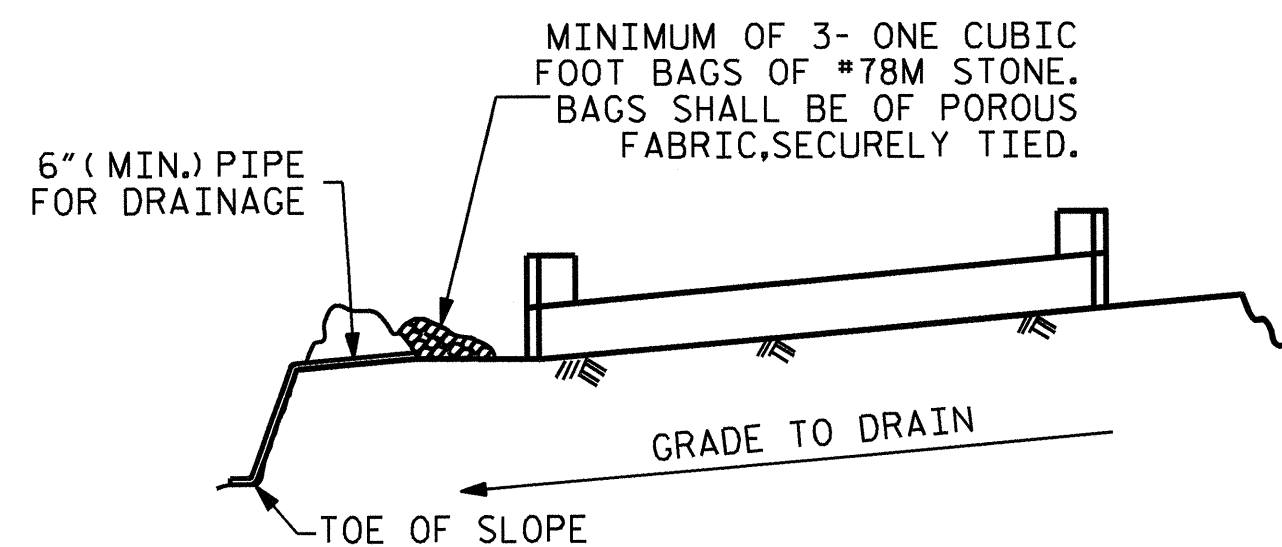
SUBSTRUCTURE
 END BENT No. 1
 WING DETAILS



ASSEMBLED BY: Fr. Leo DATE: 1/2013
 CHECKED BY: A.C. OUTLAW DATE: 1/25/13
 DRAWN BY: WJH 12/11
 CHECKED BY: AAC 12/11

WING DETAILS

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

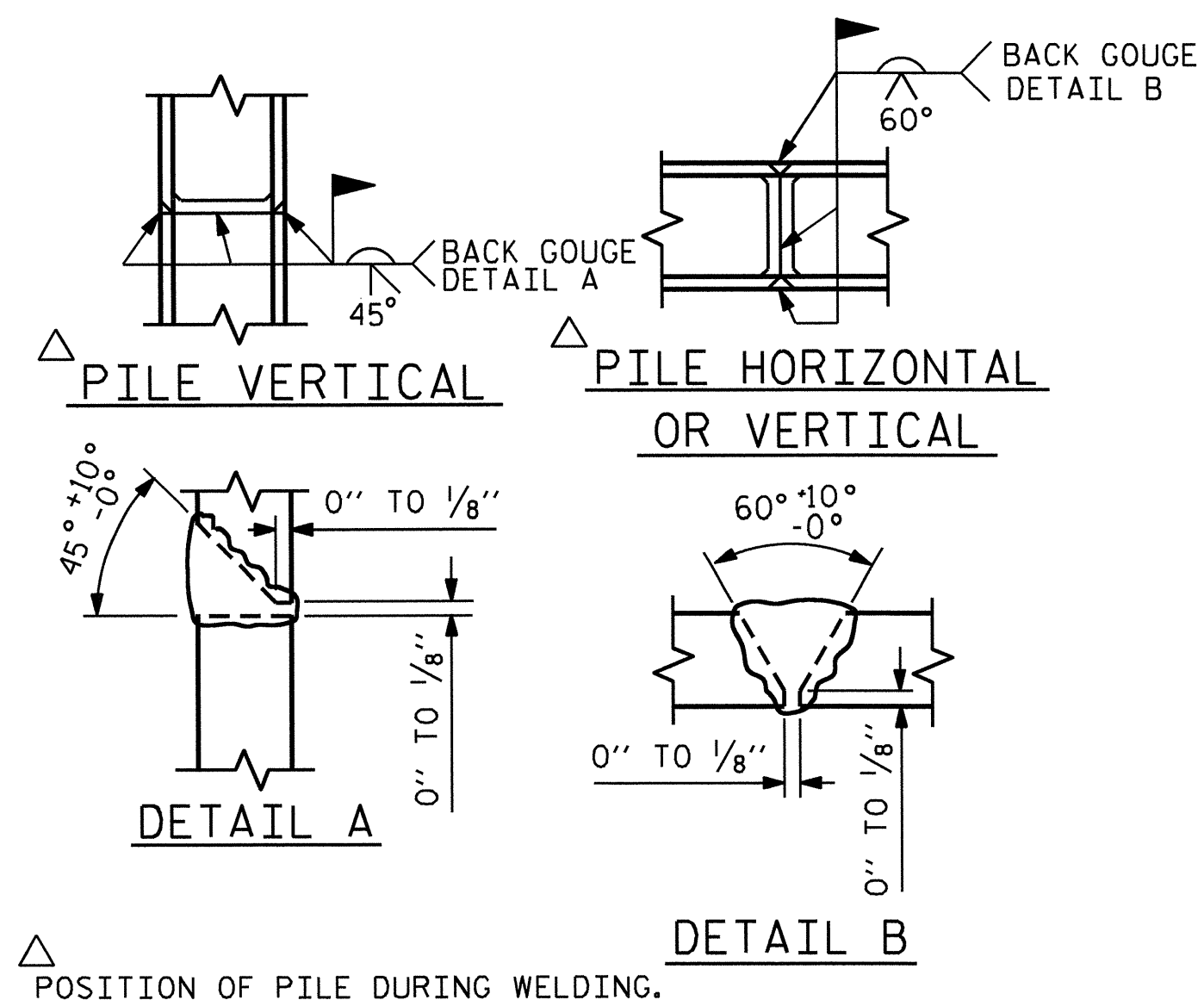


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

TEMPORARY DRAINAGE AT END BENT



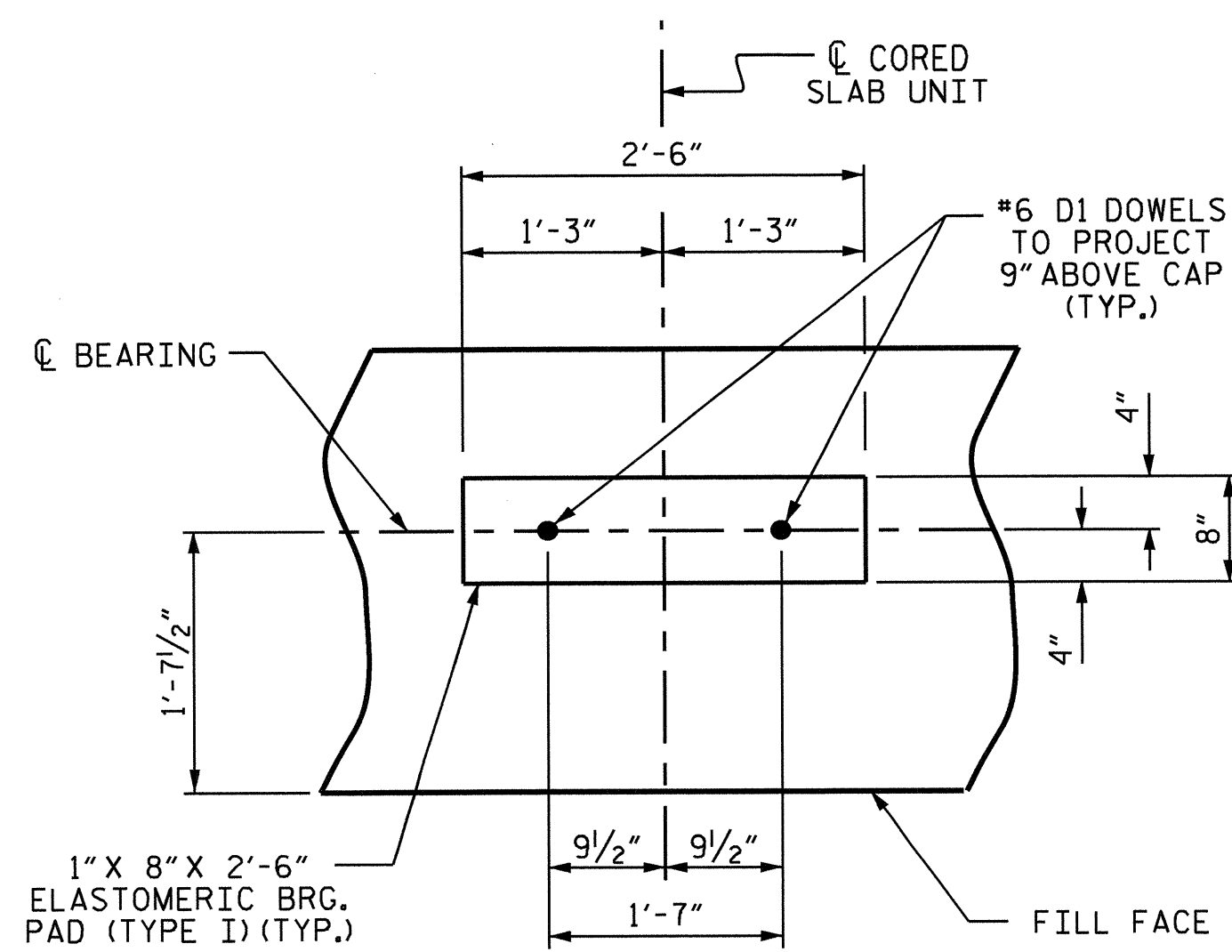
PILE SPLICE DETAILS

BILL OF MATERIAL					
FOR END BENT No. 1					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#9	1	25'-4"	1378
B2	28	#4	STR	20'-11"	391
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	20	#4	2	9'-4"	125
H2	10	#4	6	9'-6"	63
H3	10	#4	6	9'-4"	62
K1	16	#4	STR	2'-11"	31
S1	50	#4	3	10'-5"	348
S2	50	#4	4	3'-2"	106
S3	28	#4	5	6'-6"	122
V1	53	#4	STR	6'-2"	218
REINFORCING STEEL (FOR END BENT No. 1)				2910 LBS.	
CLASS A CONCRETE BREAKDOWN (FOR END BENT No. 1)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				19.7 C.Y.	
POUR #2 UPPER PART OF WINGS				2.3 C.Y.	
TOTAL CLASS A CONCRETE				22.0 C.Y.	

BAR TYPES	

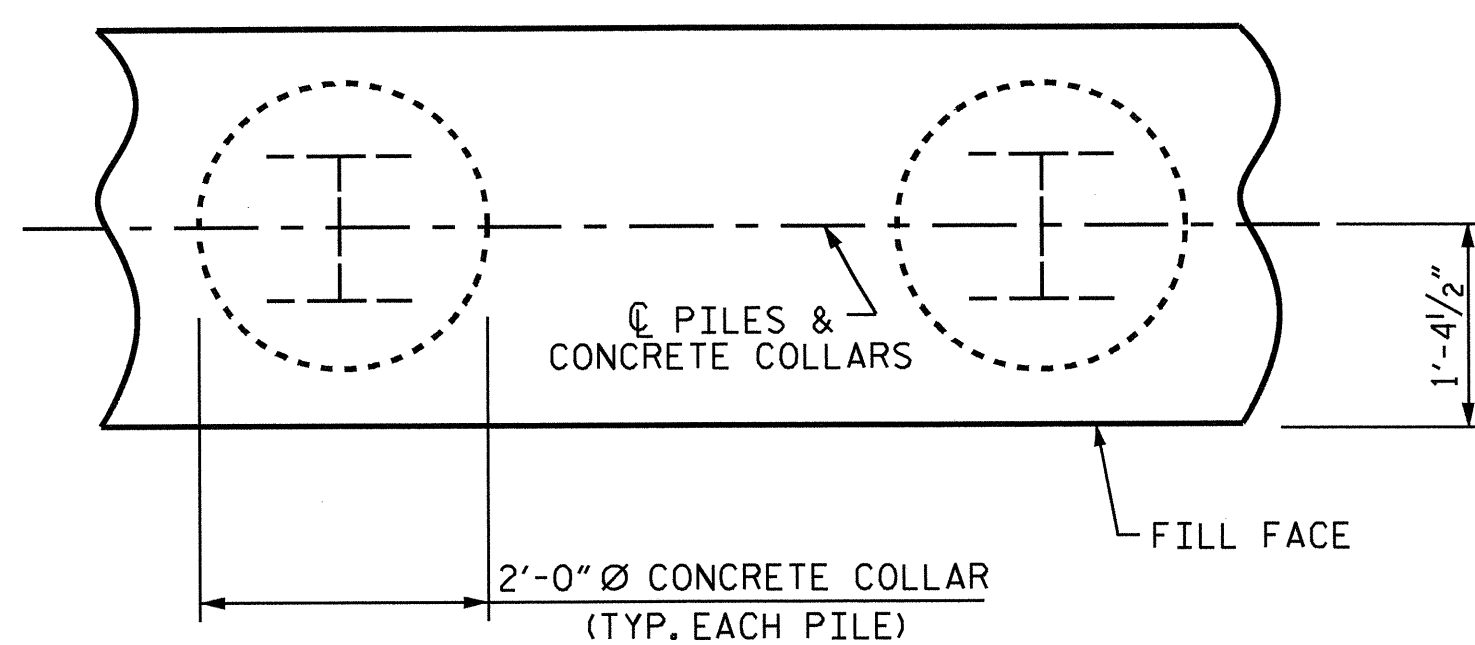
ALL BAR DIMENSIONS ARE OUT TO OUT.

HP 12 X 53 STEEL PILES	
NO: 7	LIN. FT. = 70
STEEL PILE POINTS	EA. = 7
PILE EXCAVATION	
IN SOIL 53 LIN. FT.	NOT IN SOIL 17 LIN. FT.



DETAIL "A"

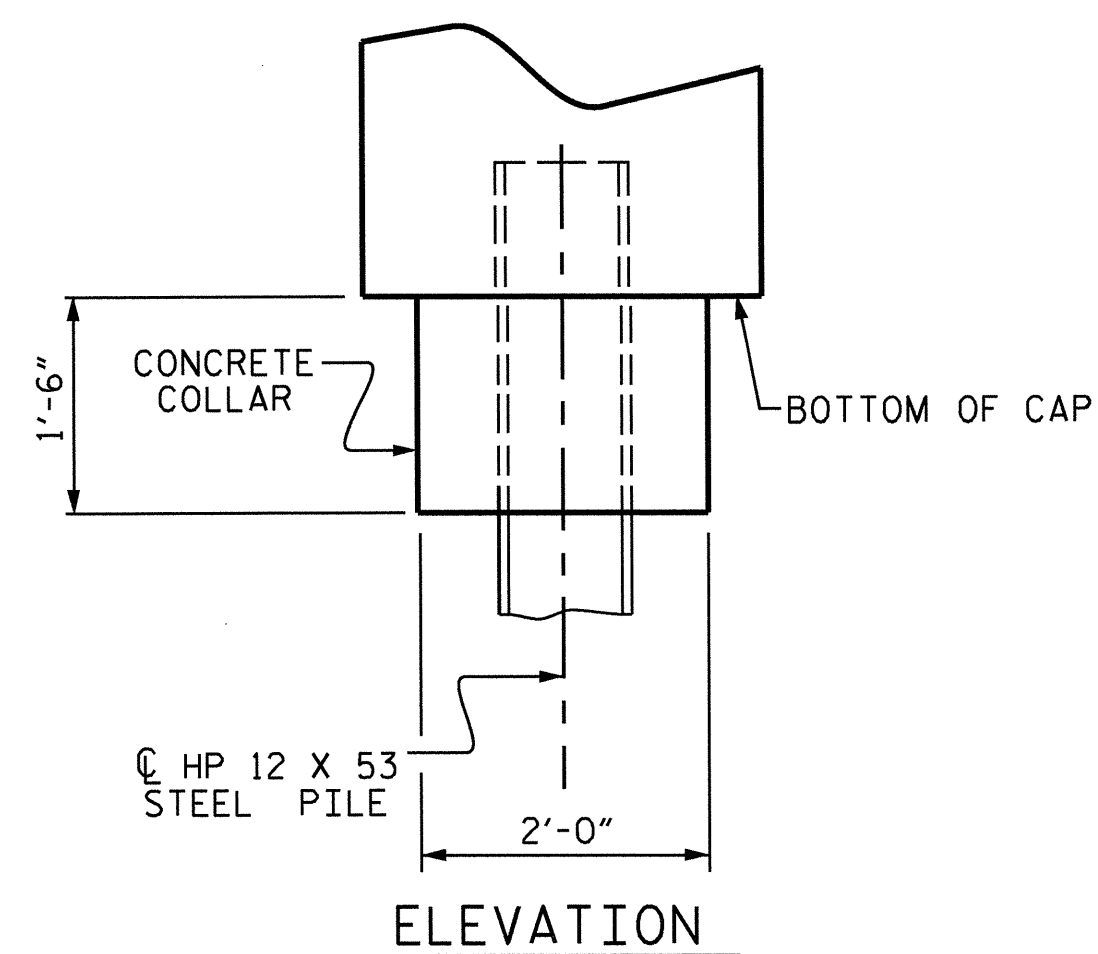
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



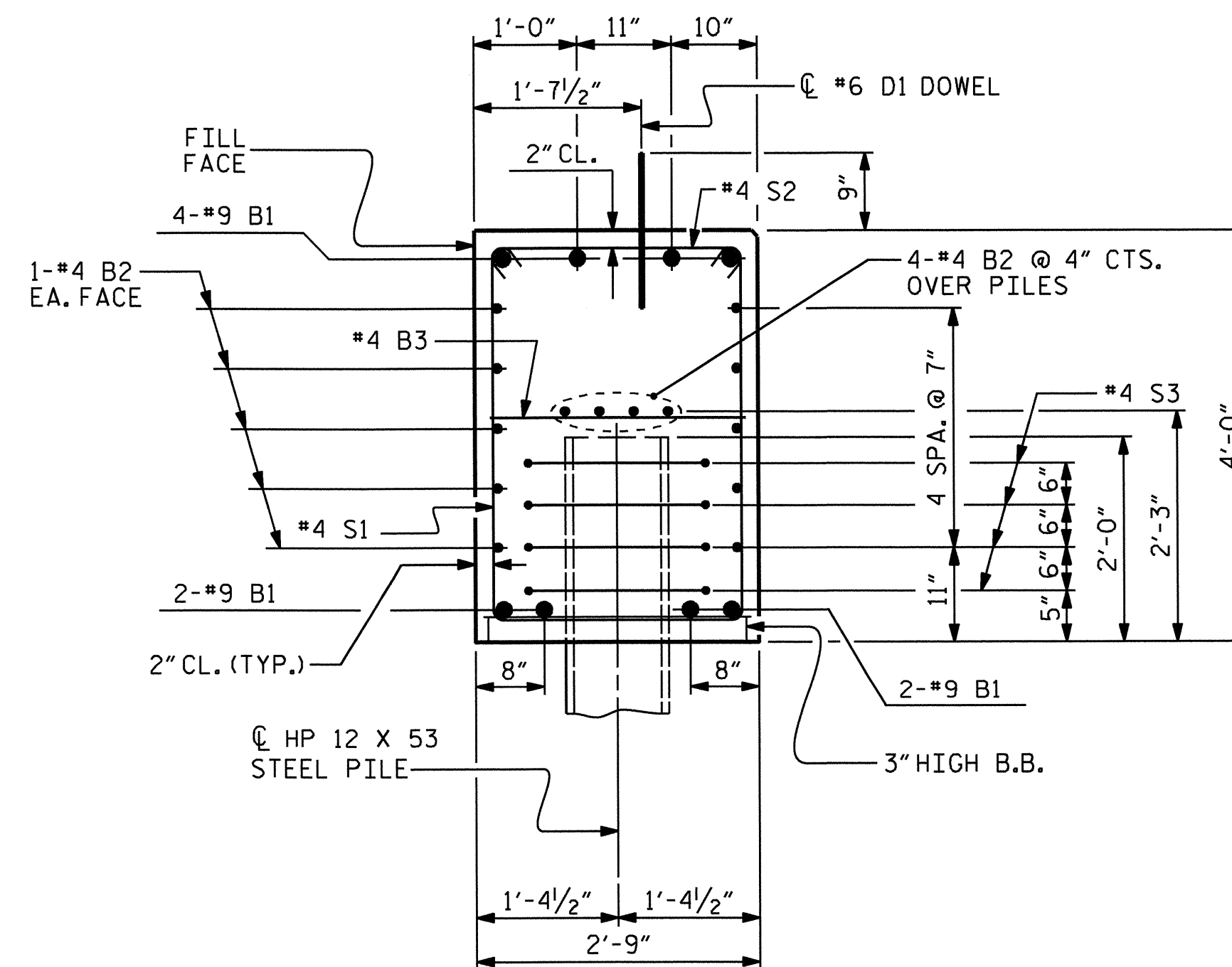
PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

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



ELEVATION



SECTION A-A

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

PROJECT NO. BD-5105T
FRANKLIN COUNTY
 STATION: 13+13.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

END BENT No. 1
 DETAILS



ASSEMBLED BY : Fr. Leo	DATE : 1/2013
CHECKED BY : A.C. OUTLAW	DATE : 1/25/13
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

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

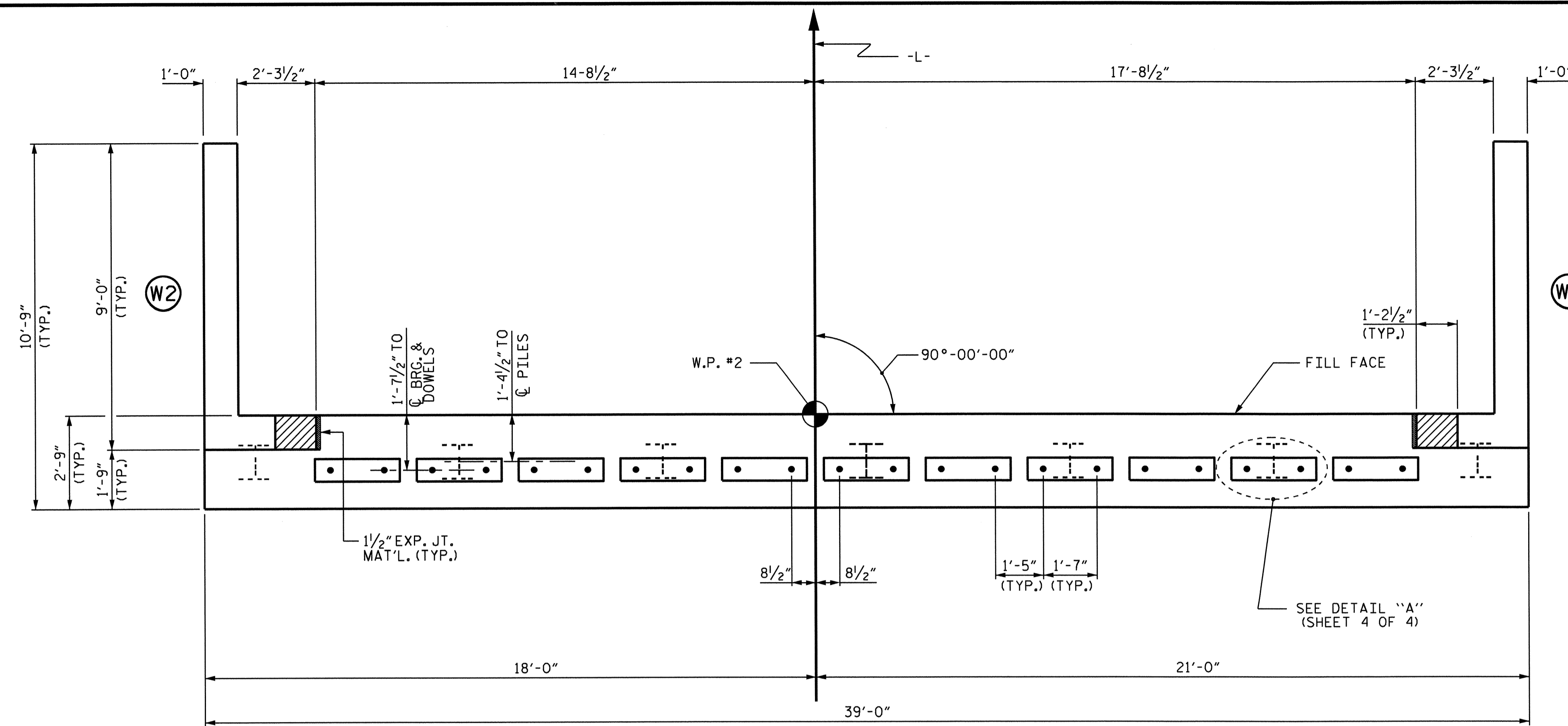
NOTES

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

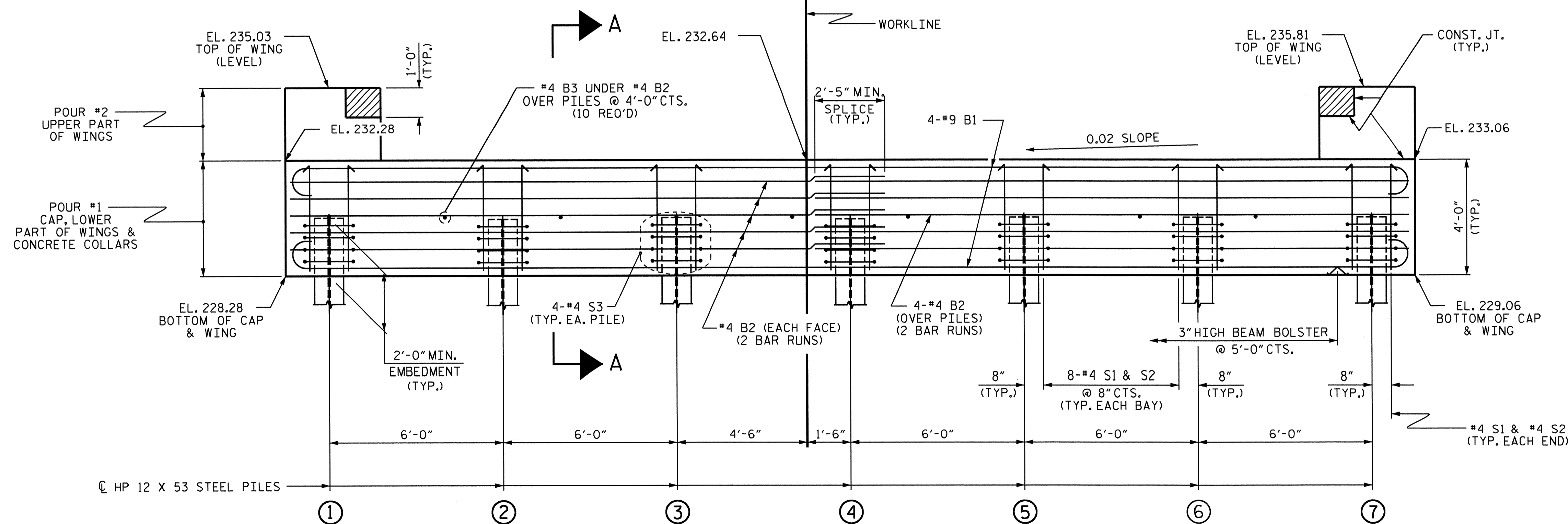
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

TOP OF PILE ELEVATIONS

①	230.32
②	230.44
③	230.56
④	230.68
⑤	230.80
⑥	230.92
⑦	231.04

PROJECT NO. BD-5105T
FRANKLIN COUNTY
 STATION: 13+13.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

END BENT No. 2

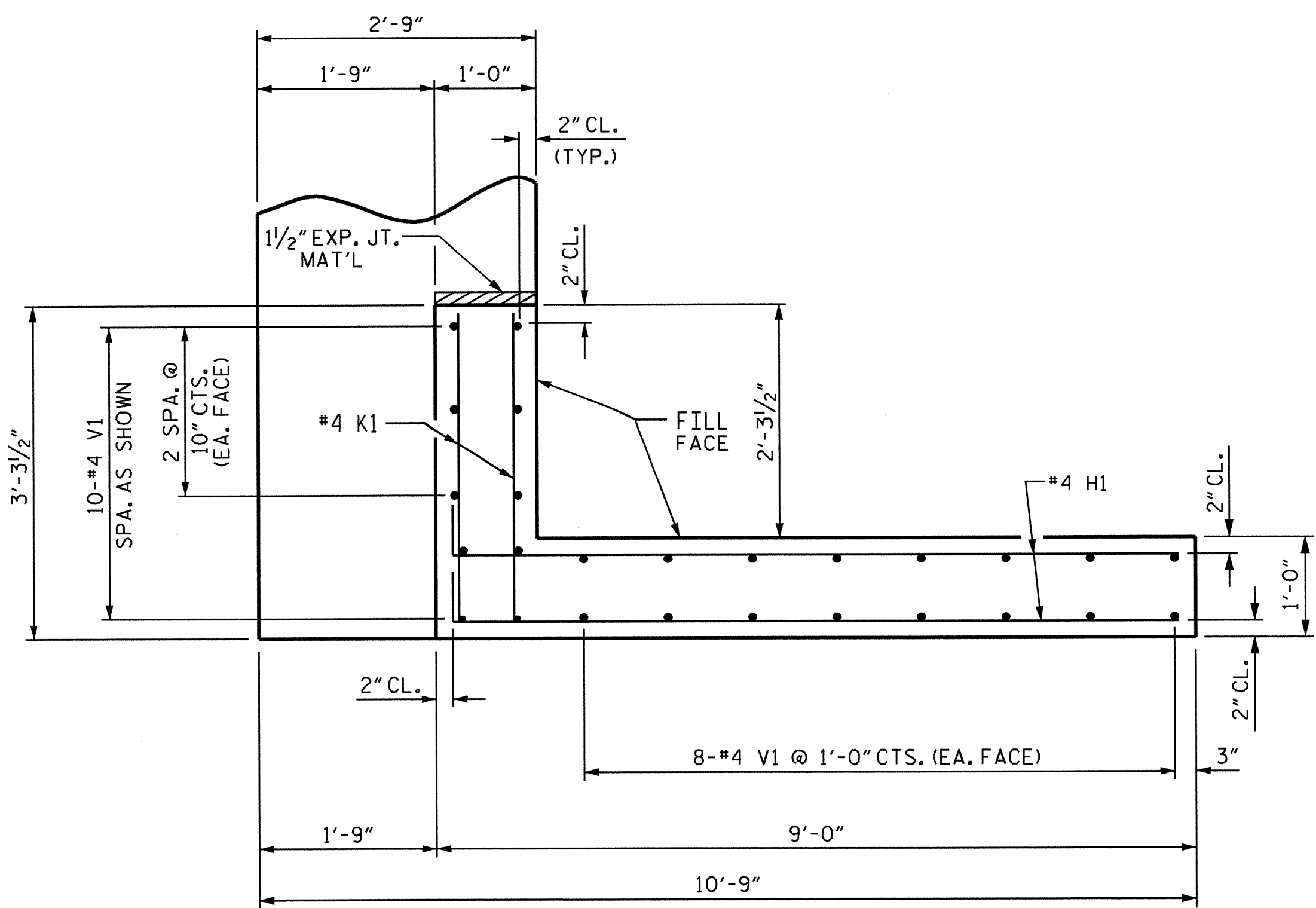


ASSEMBLED BY : Fr. Leo DATE : 1/2013
 CHECKED BY : A.C. OUTLAW DATE : 1/25/13
 DRAWN BY : WJH 12/11
 CHECKED BY : AAC 12/11

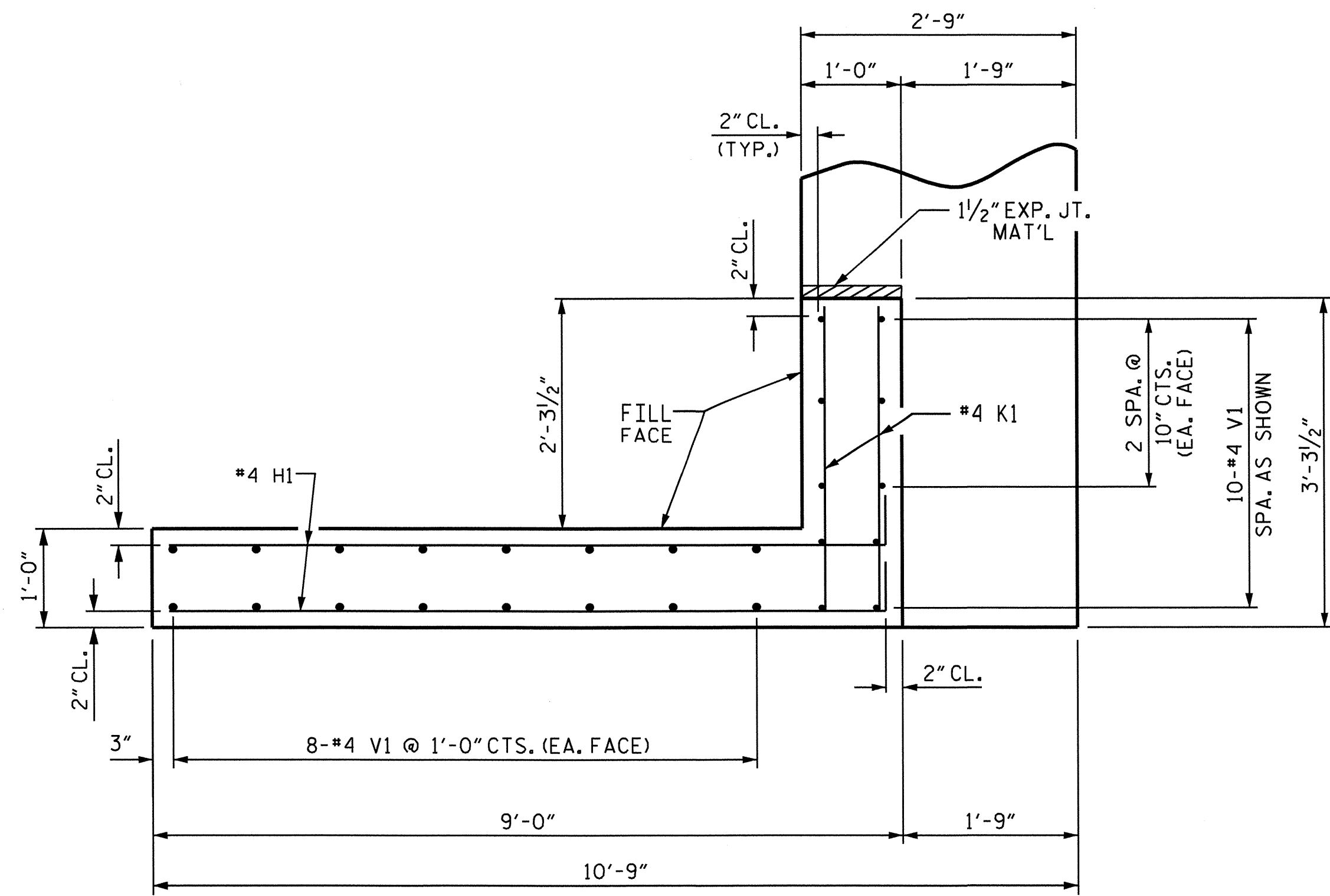
WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE 'CORROSION PROTECTION FOR STEEL PILES DETAIL', SHEET 4 OF 4.

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

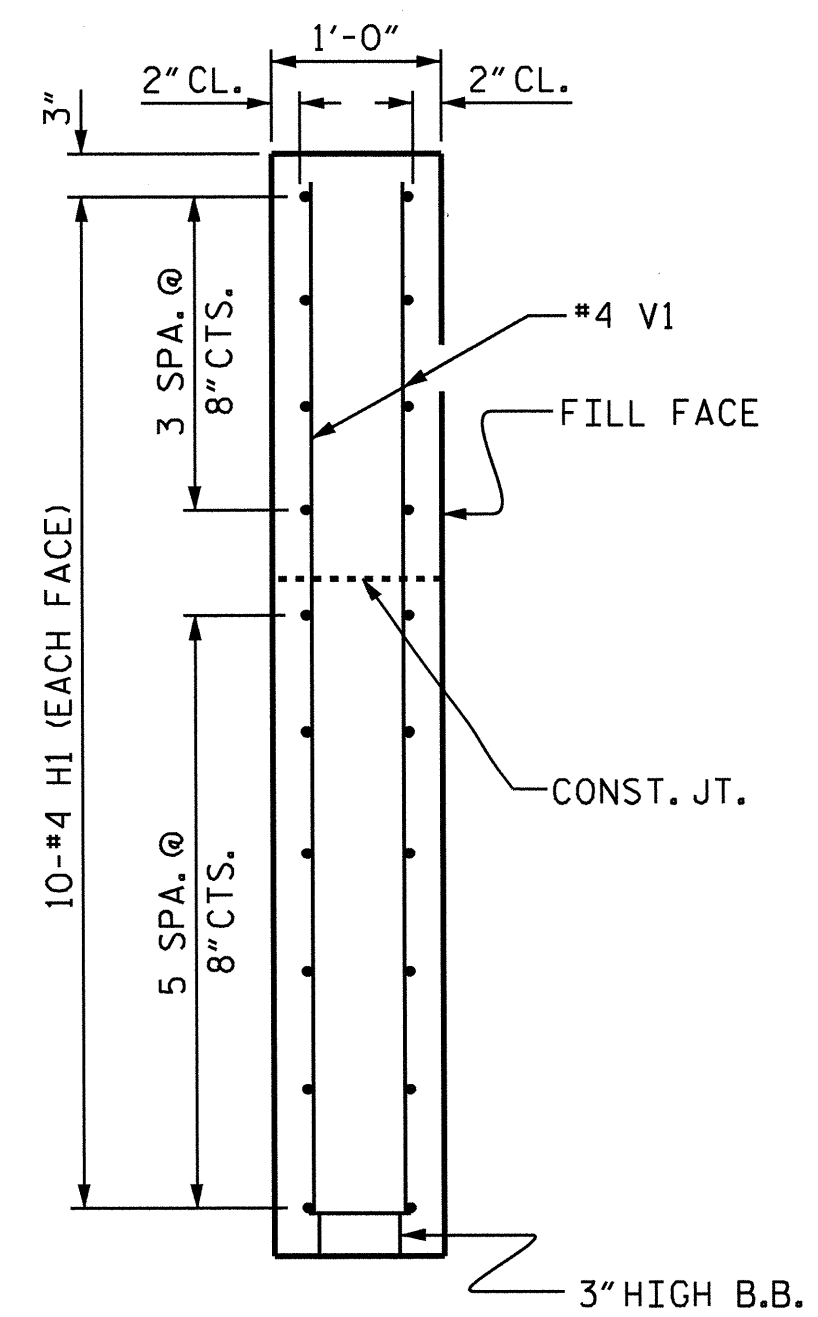
STD. NO. EB_33_90S4



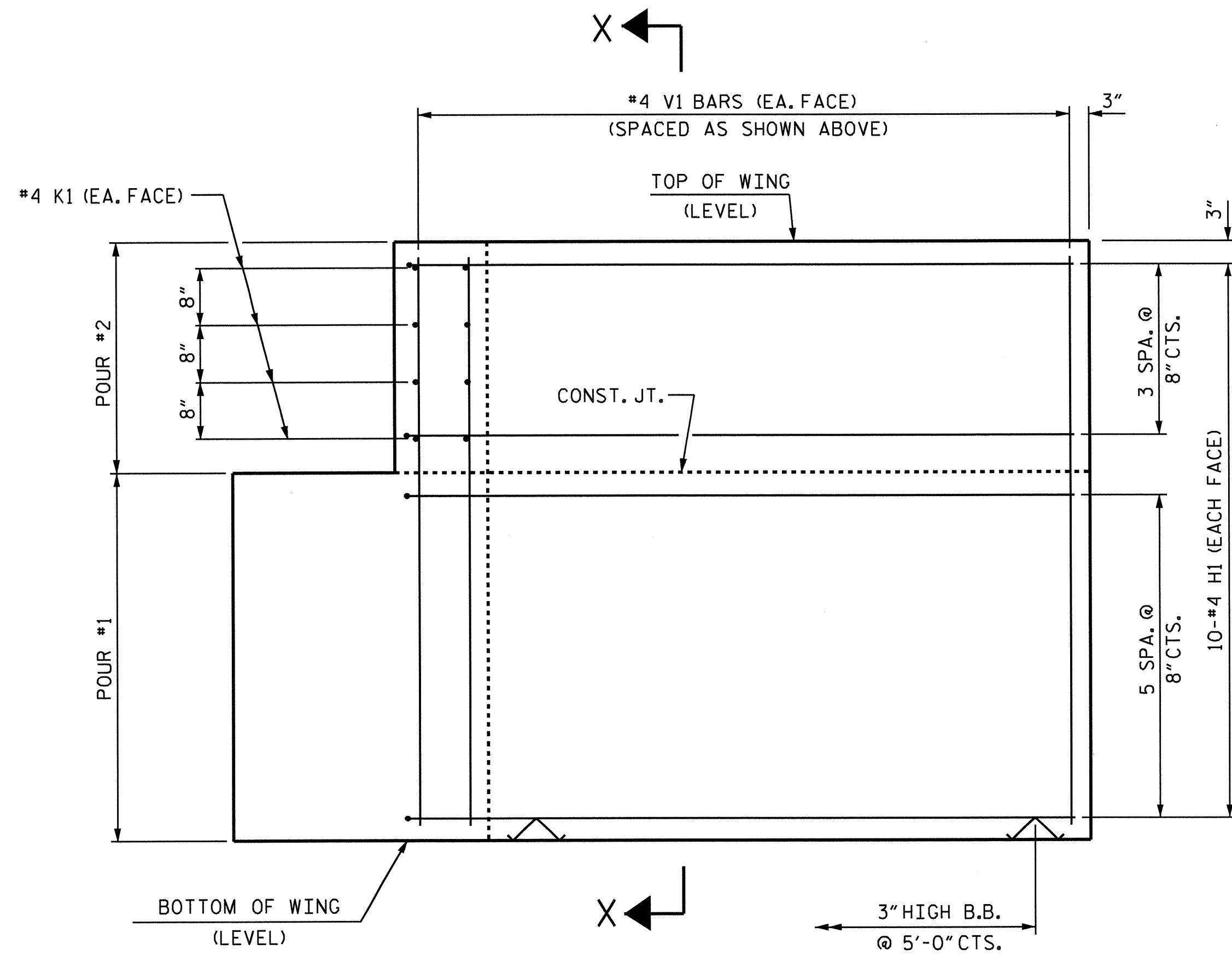
PLAN OF WING (W1)



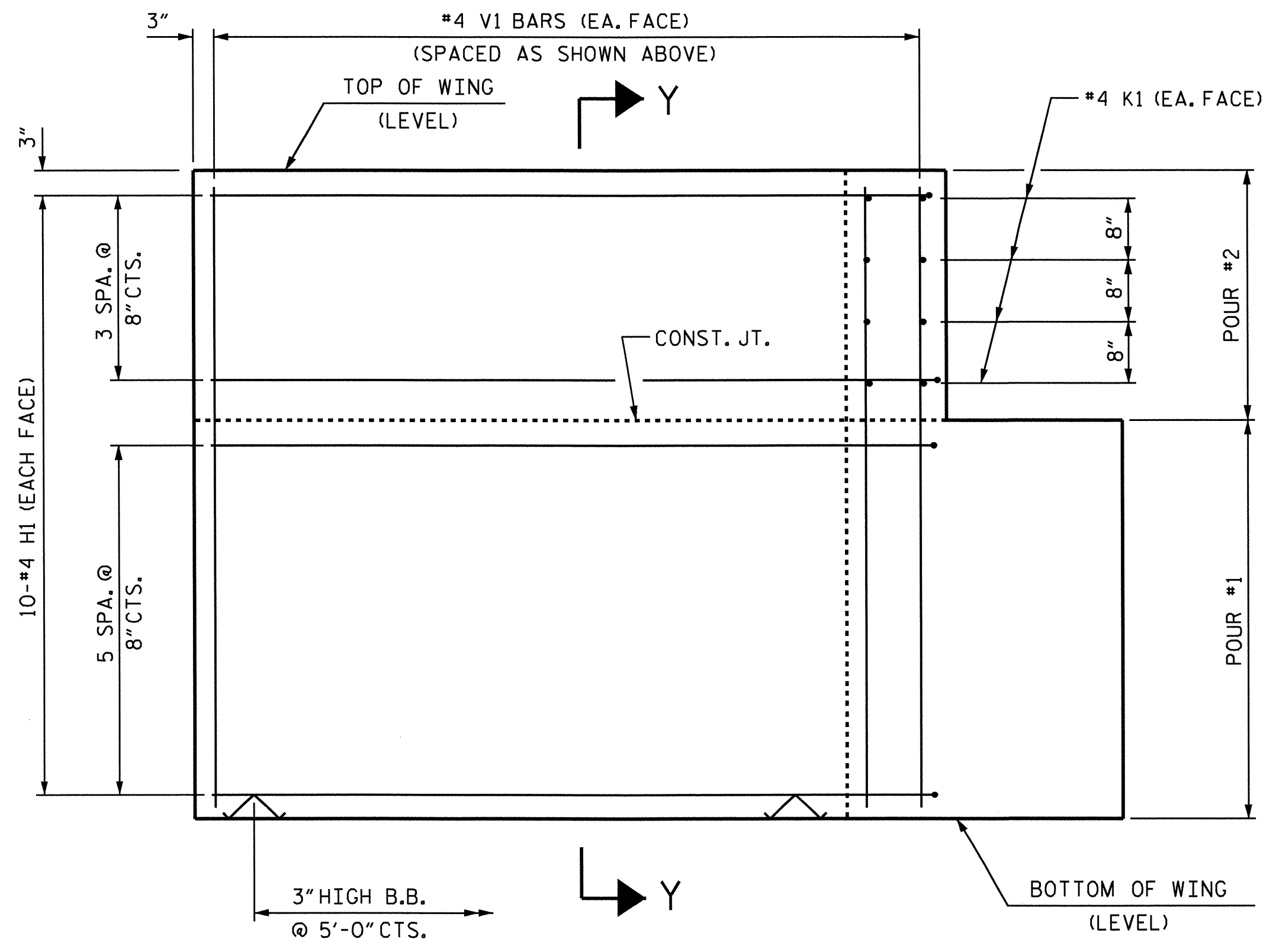
PLAN OF WING (W2)



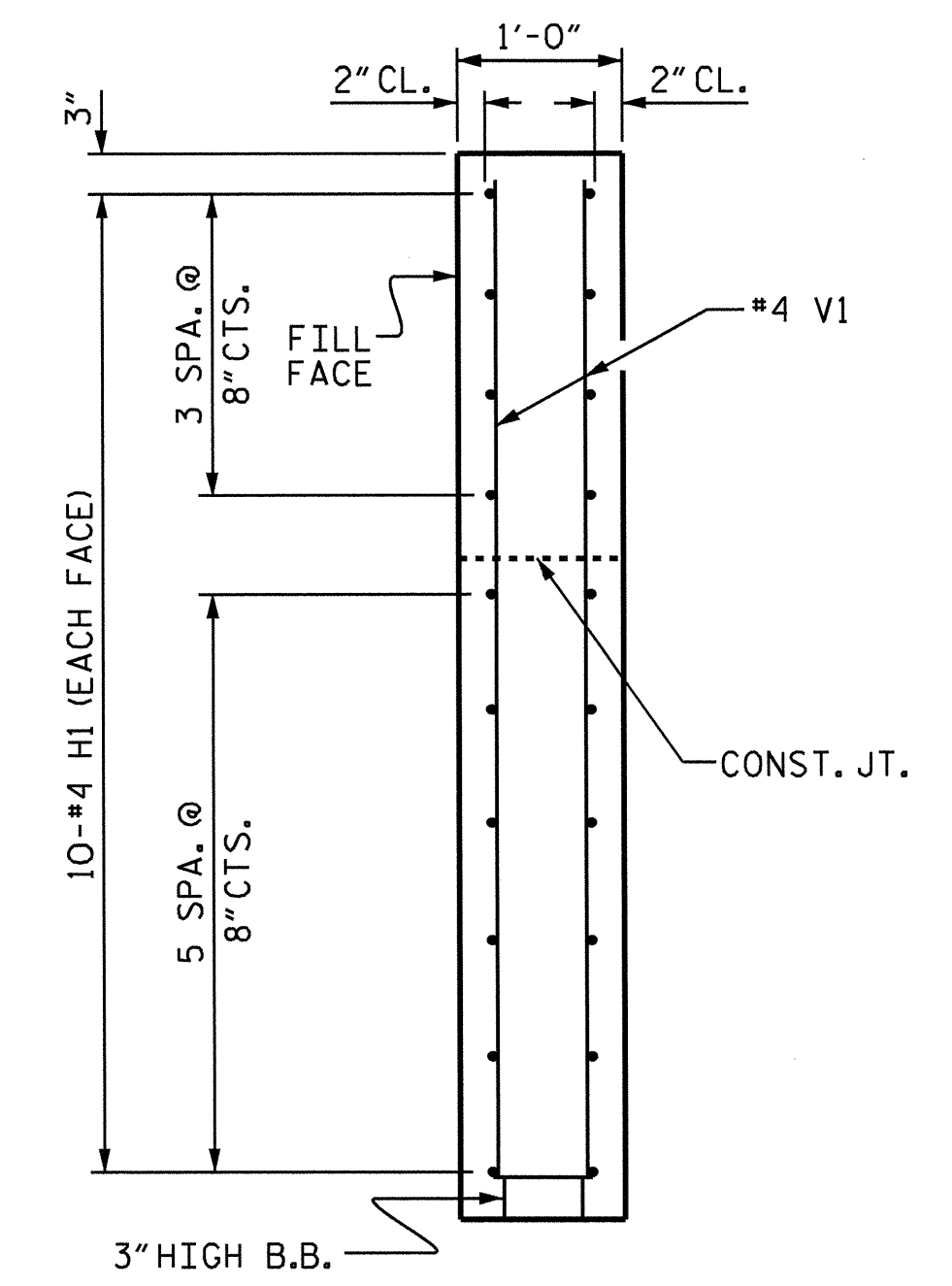
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



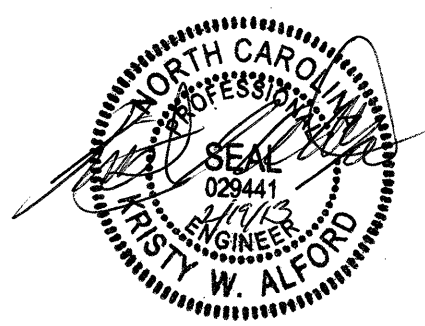
SECTION Y-Y

PROJECT NO. BD-5105T
FRANKLIN COUNTY
 STATION: 13+13.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

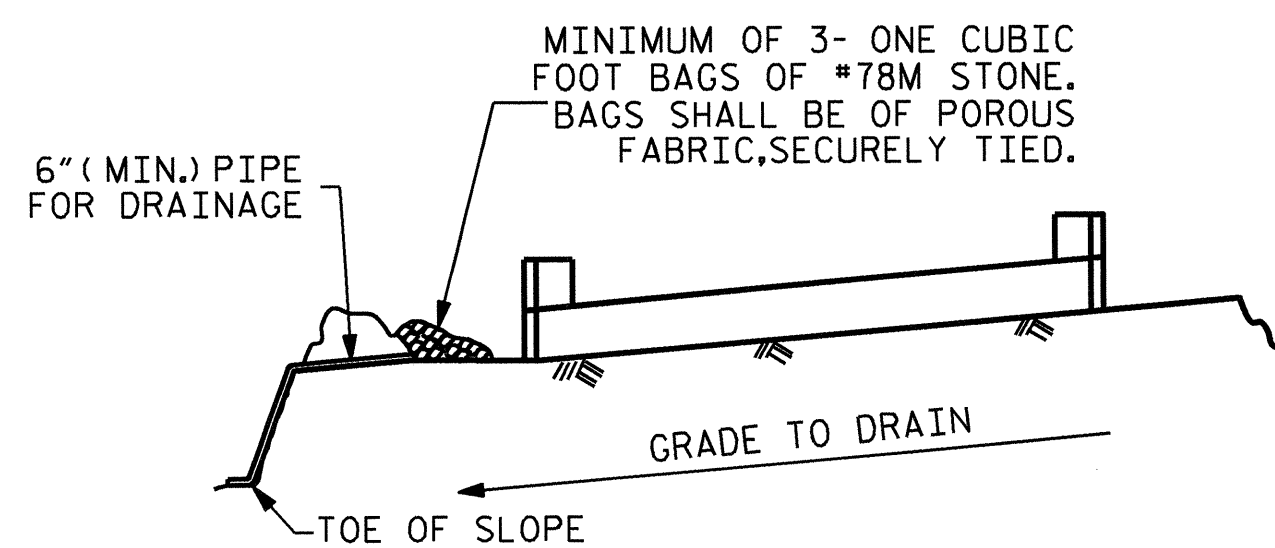
SUBSTRUCTURE
 END BENT No. 2
 WING DETAILS



ASSEMBLED BY : Fr. Lea	DATE : 1/2013
CHECKED BY : A.C. OUTLAW	DATE : 1/25/13
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

WING DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12	
1			3			TOTAL SHEETS	
2			4			15	

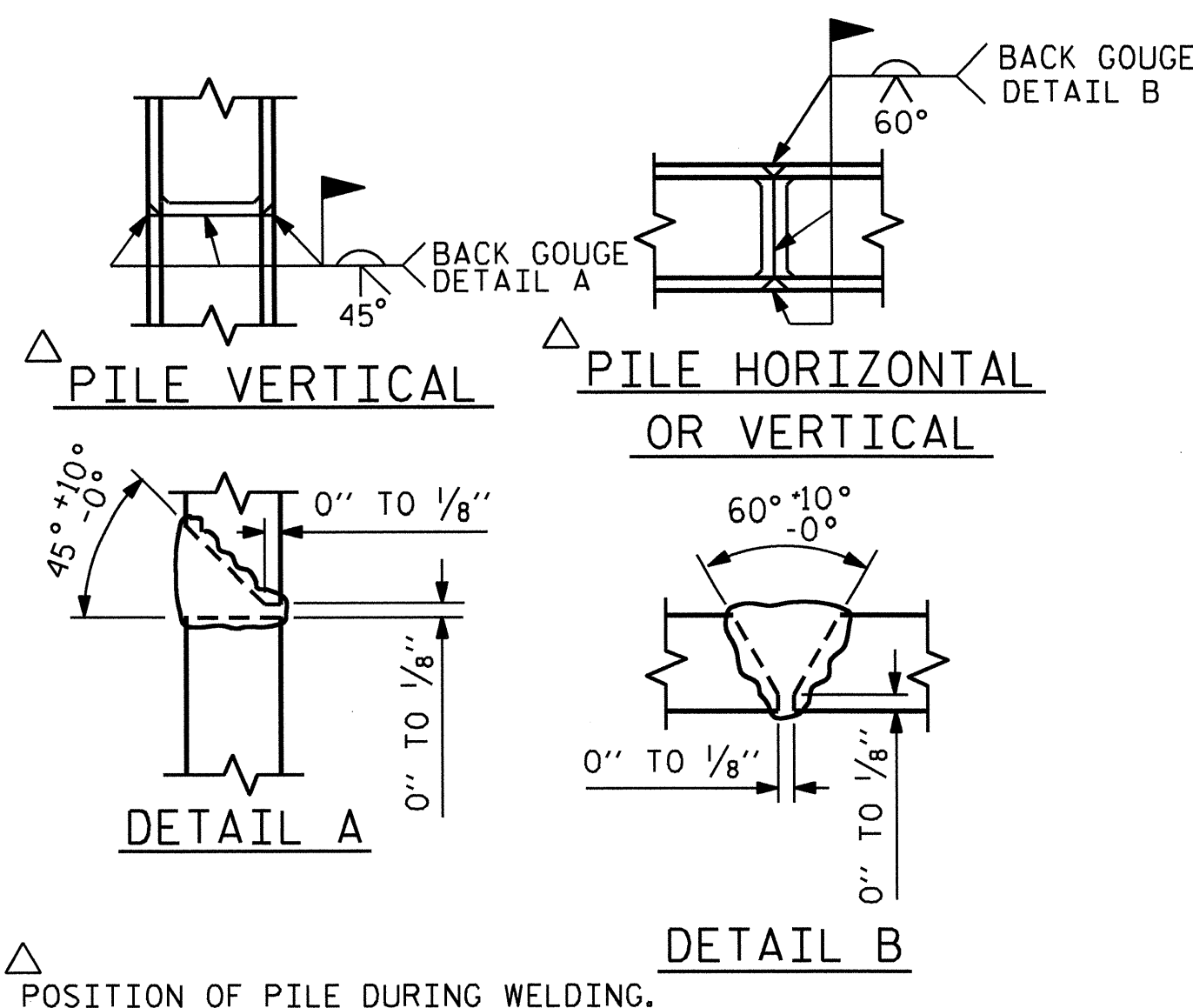


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

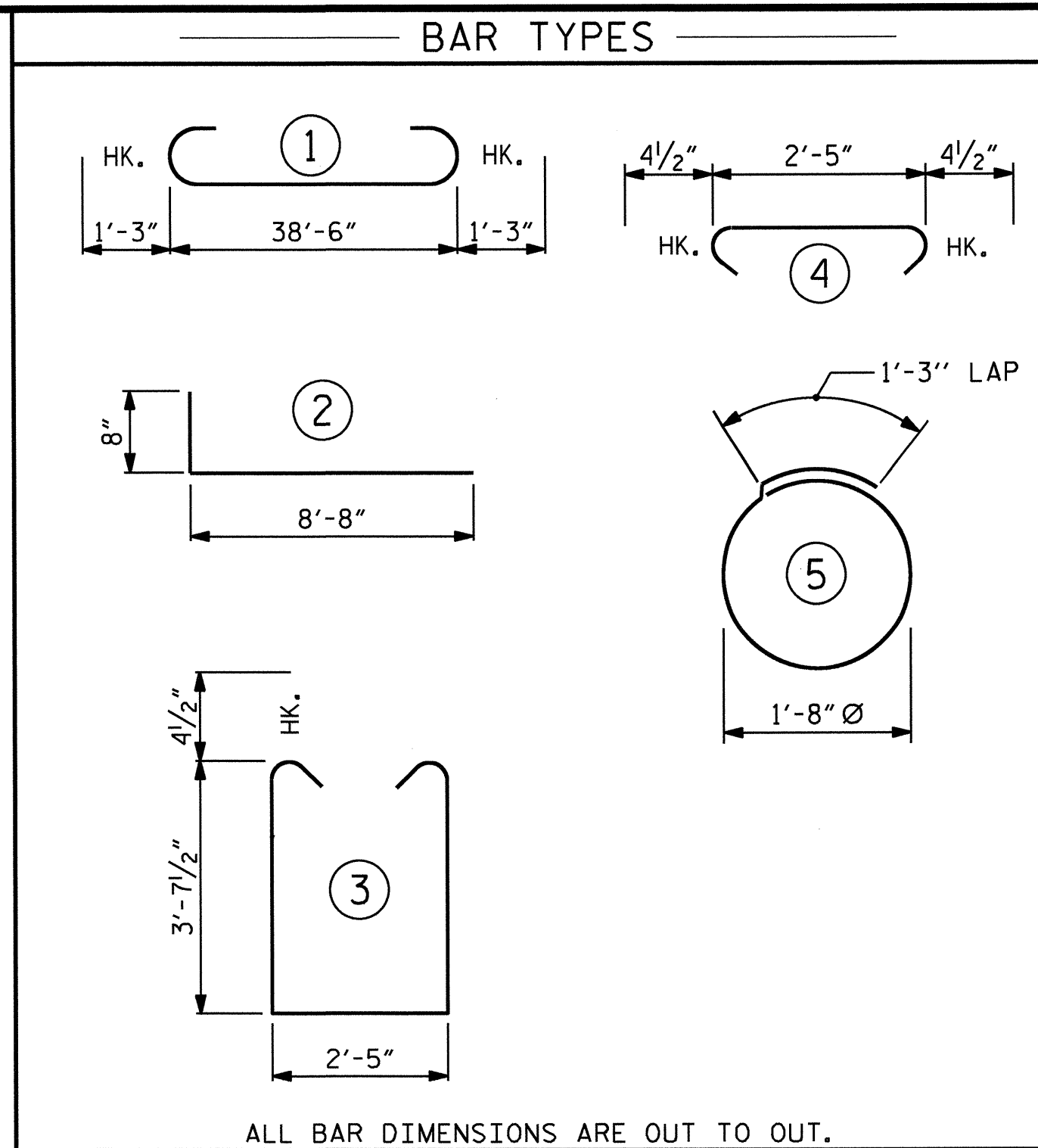
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

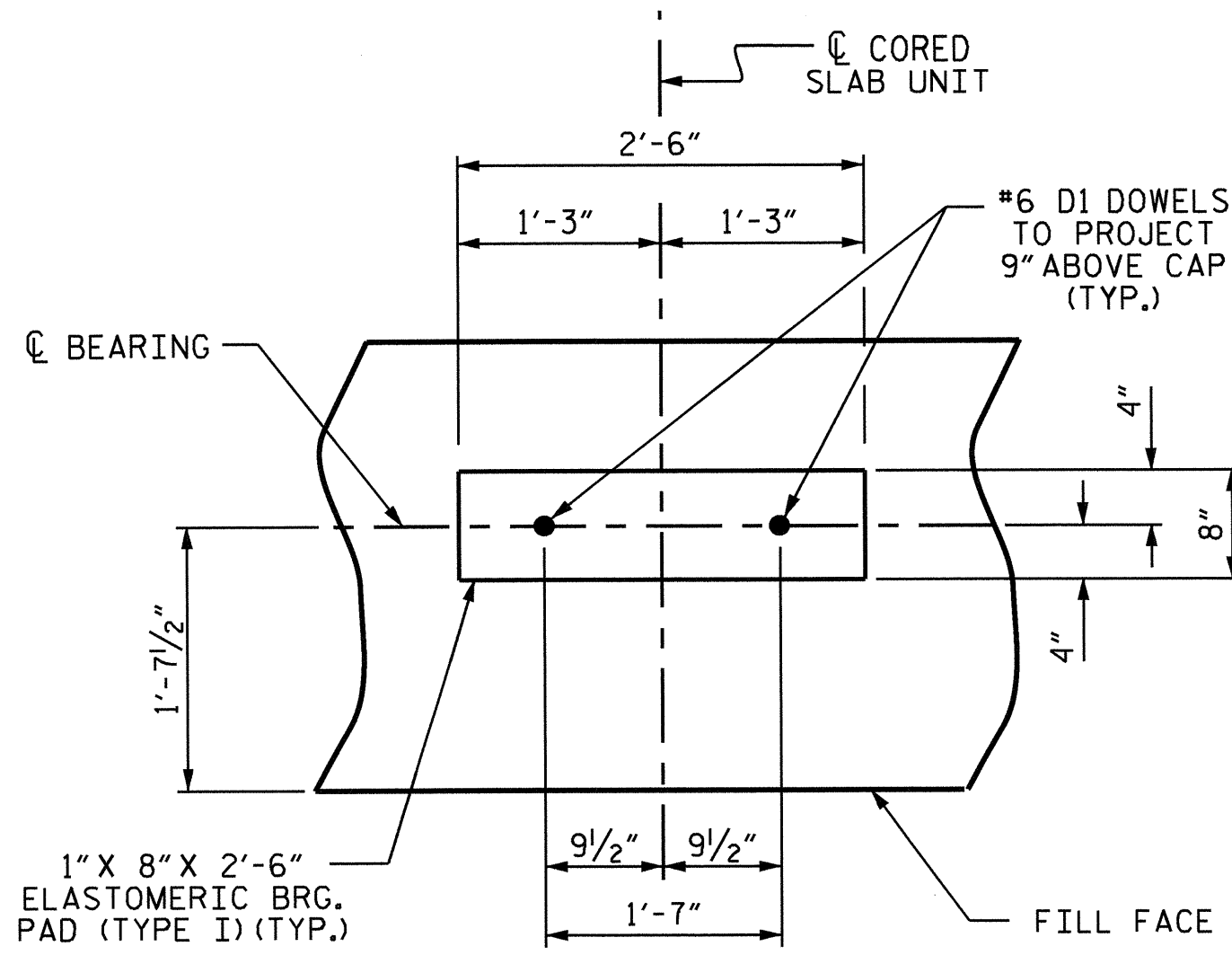


ALL BAR DIMENSIONS ARE OUT TO OUT.

HP 12 X 53 STEEL PILES
NO: 7 LIN. FT. = 70
STEEL PILE POINTS EA. = 7

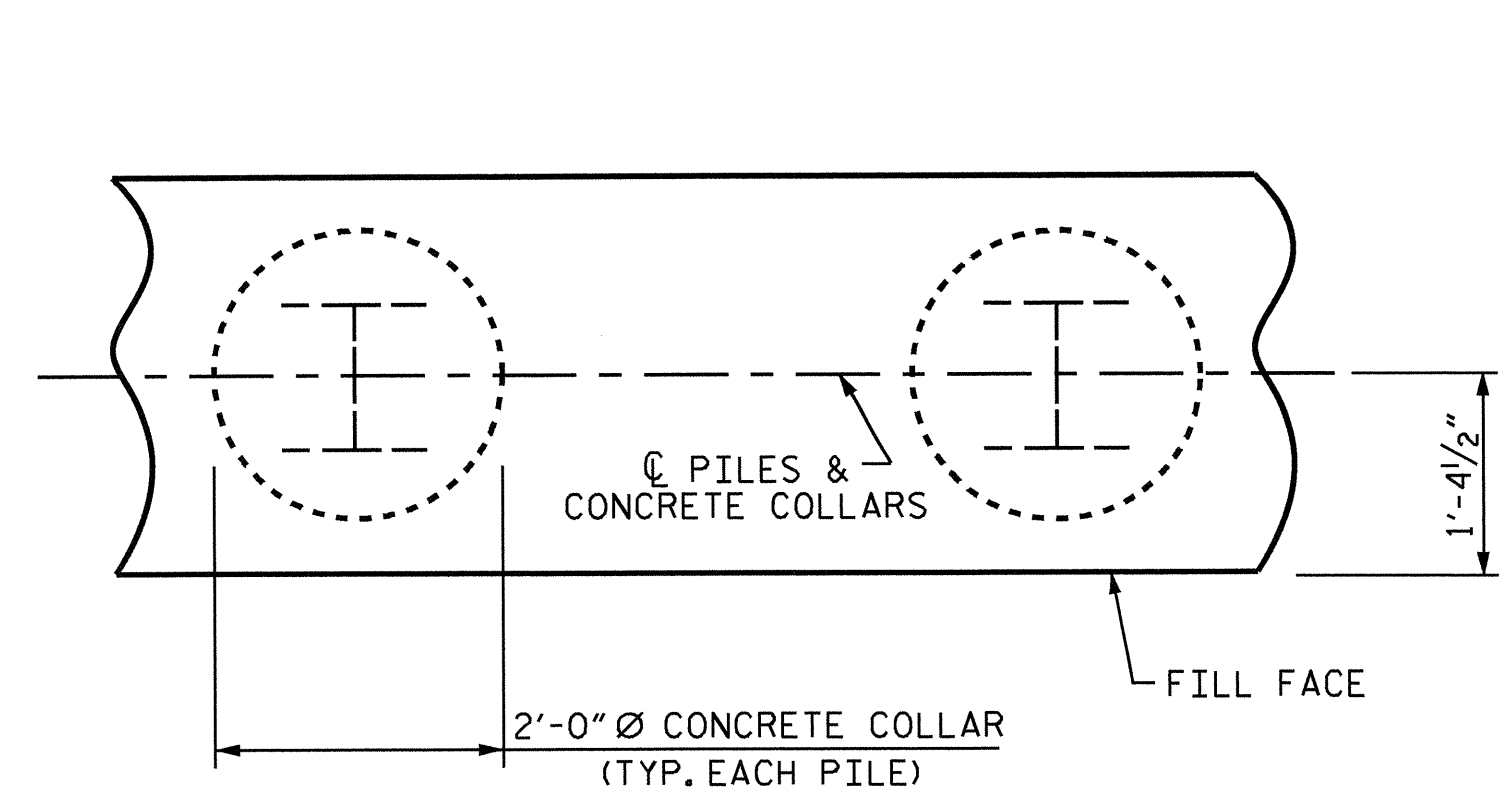
PILE EXCAVATION
IN SOIL 21 LIN. FT. NOT IN SOIL 49 LIN. FT.

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



DETAIL "A"

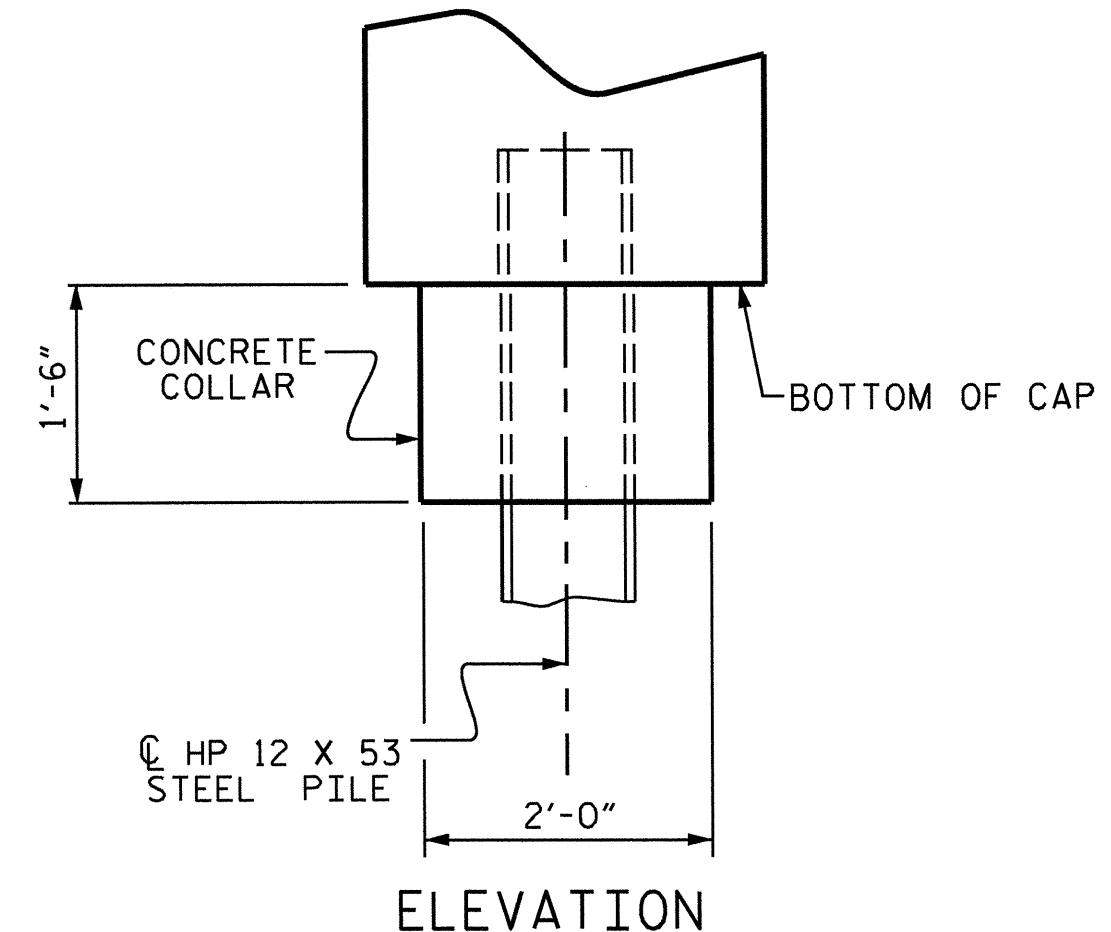
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



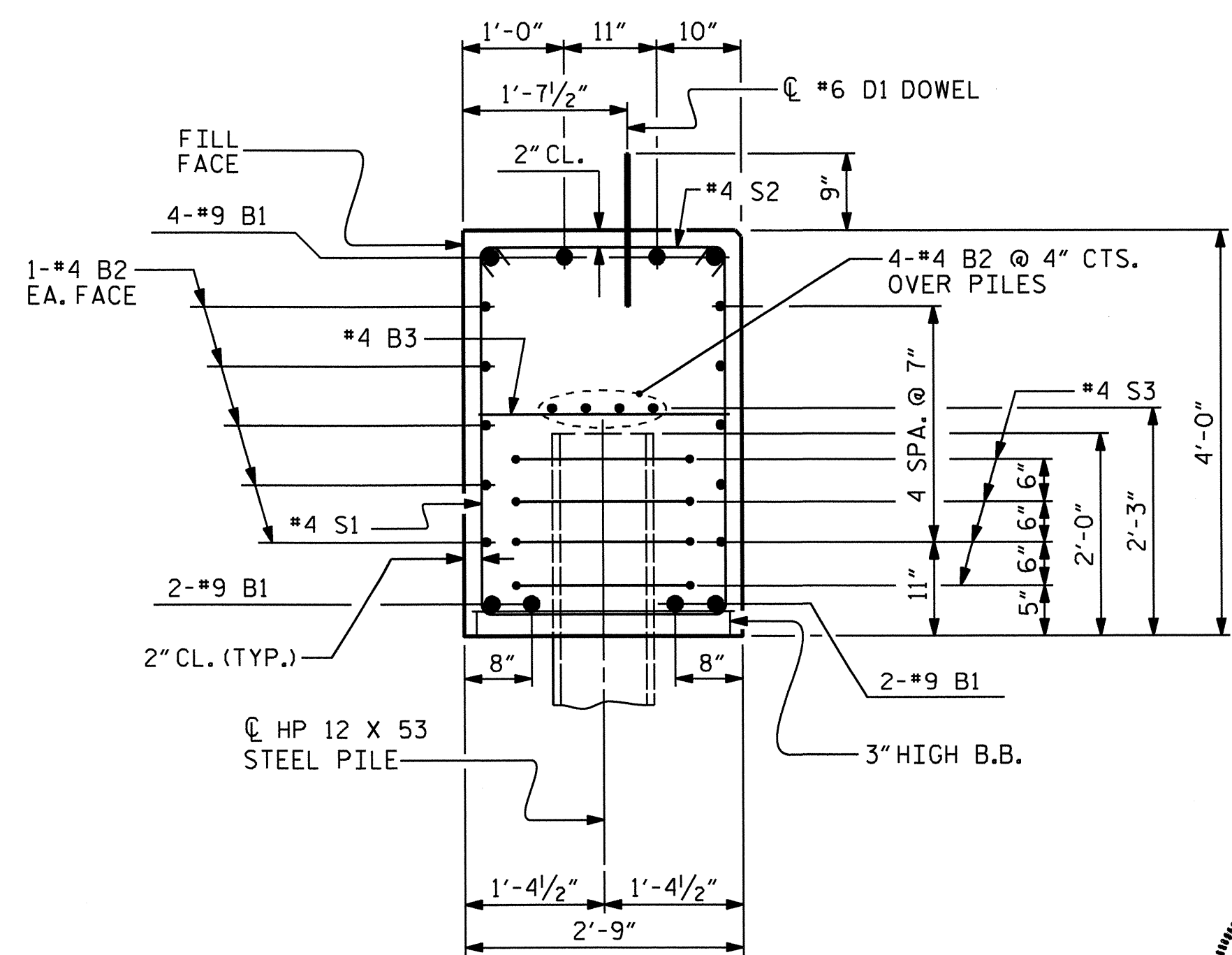
PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

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



ELEVATION



SECTION A-A

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

PROJECT NO. BD-5105T
FRANKLIN COUNTY
STATION: 13+13.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

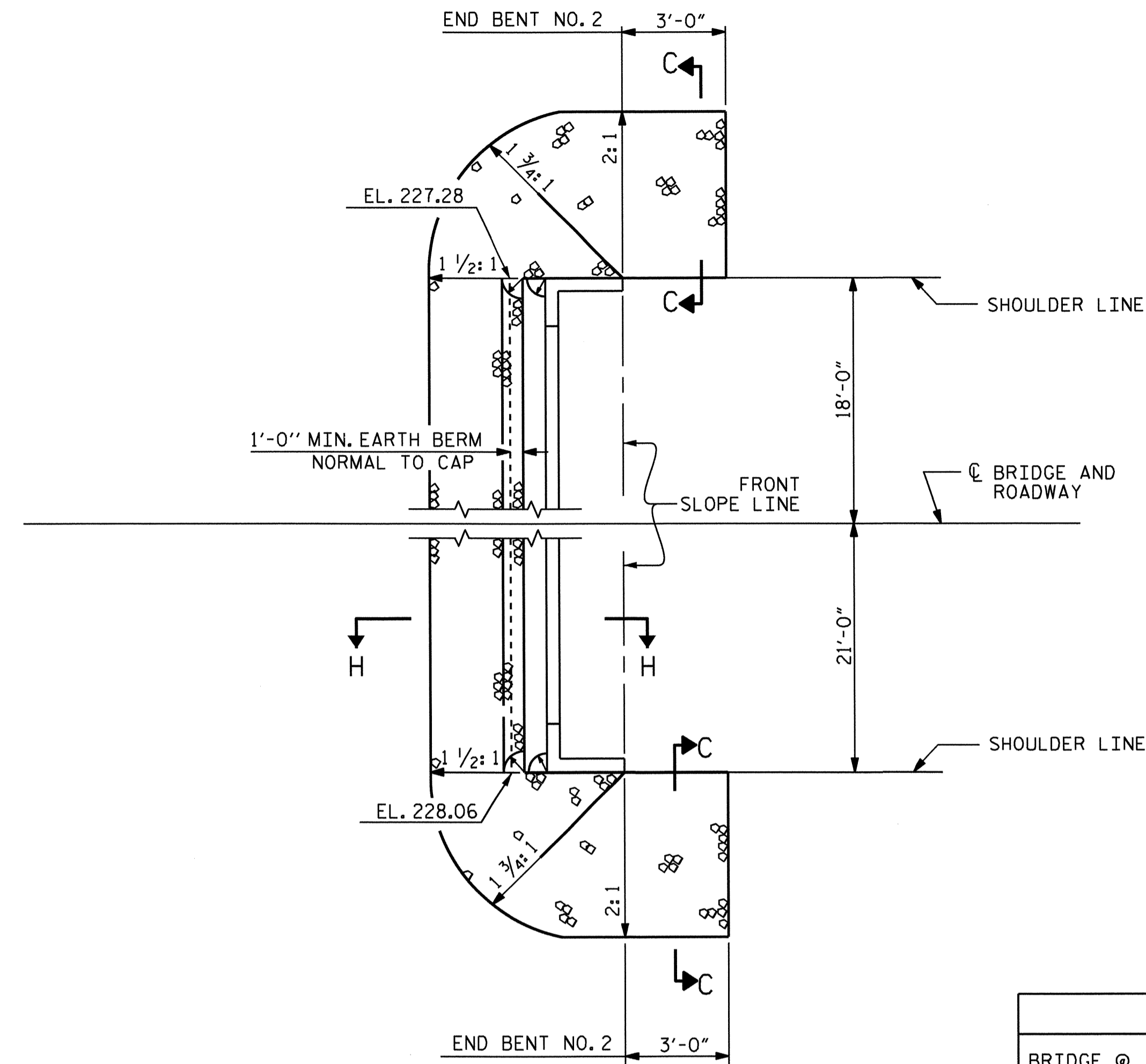
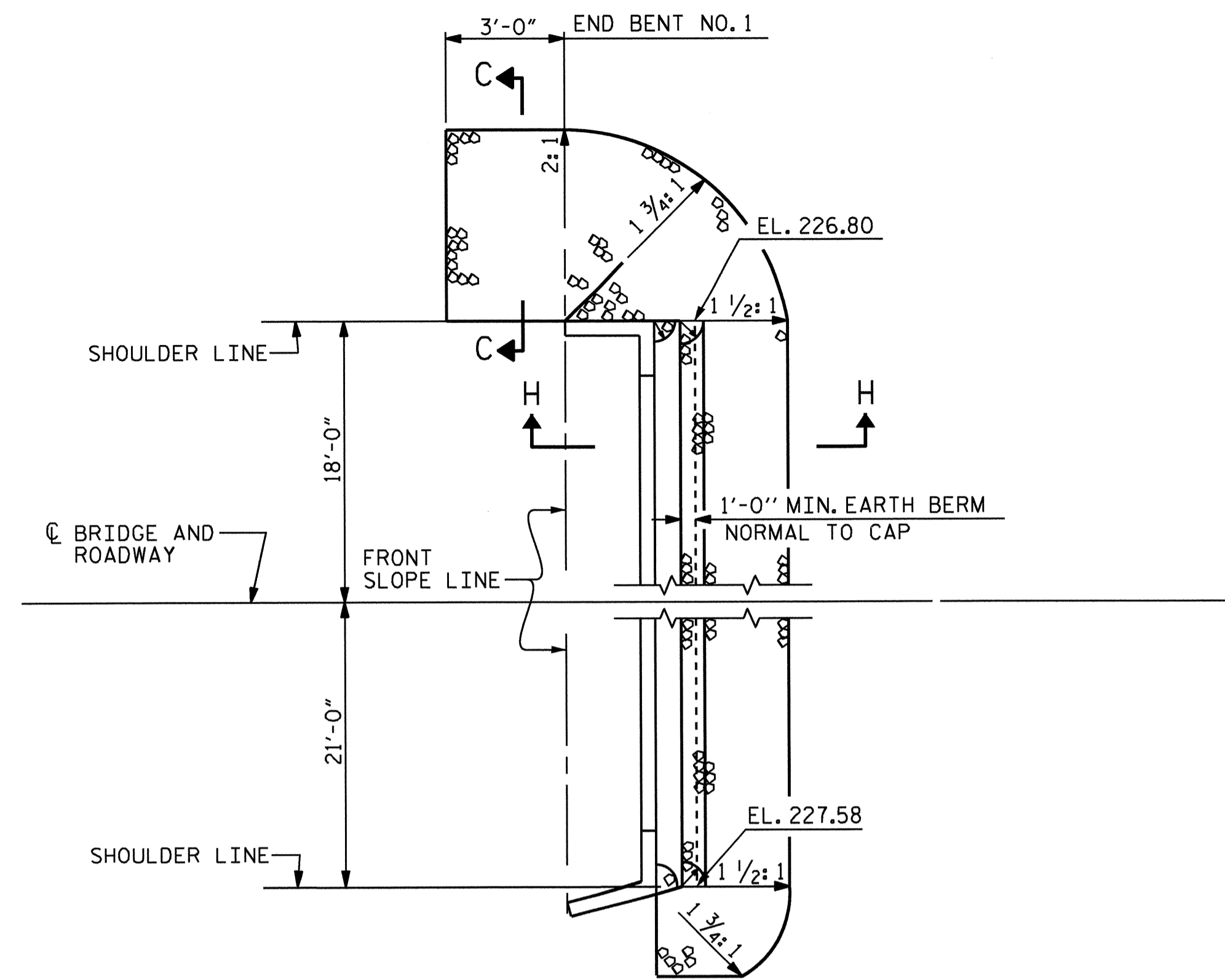
SUBSTRUCTURE
END BENT No. 2
DETAILS



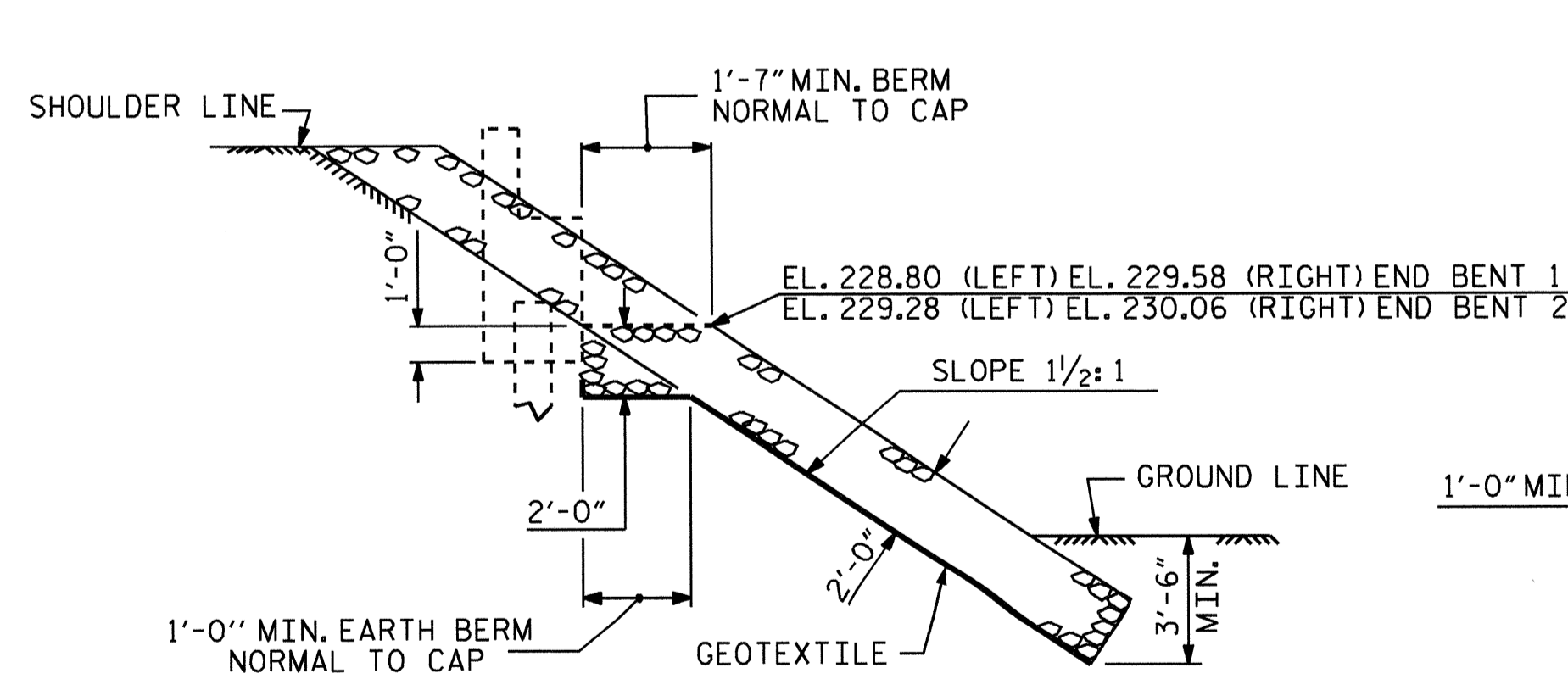
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13	
1			3			TOTAL SHEETS	
2			4			15	

ASSEMBLED BY : Fr. Leo	DATE : 1/2013
CHECKED BY : A.C. OUTLAW	DATE : 1/25/13
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

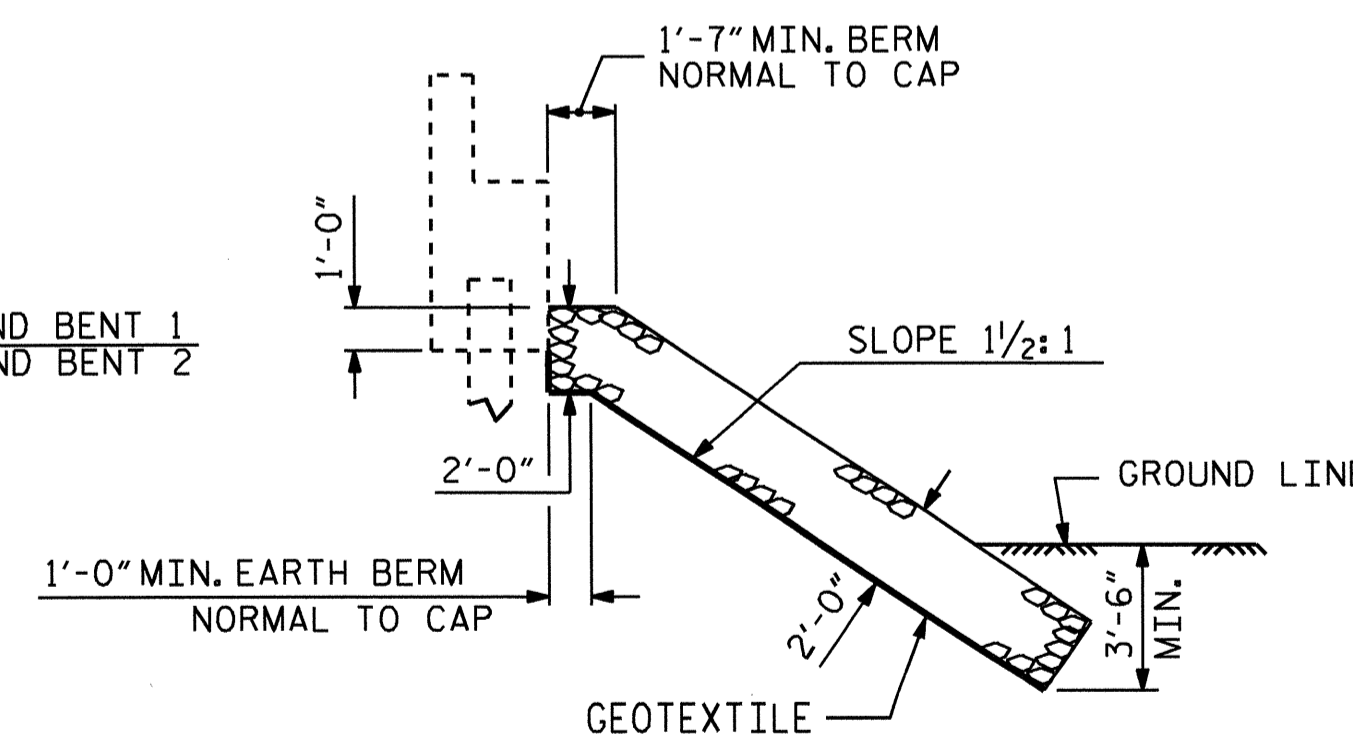
NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



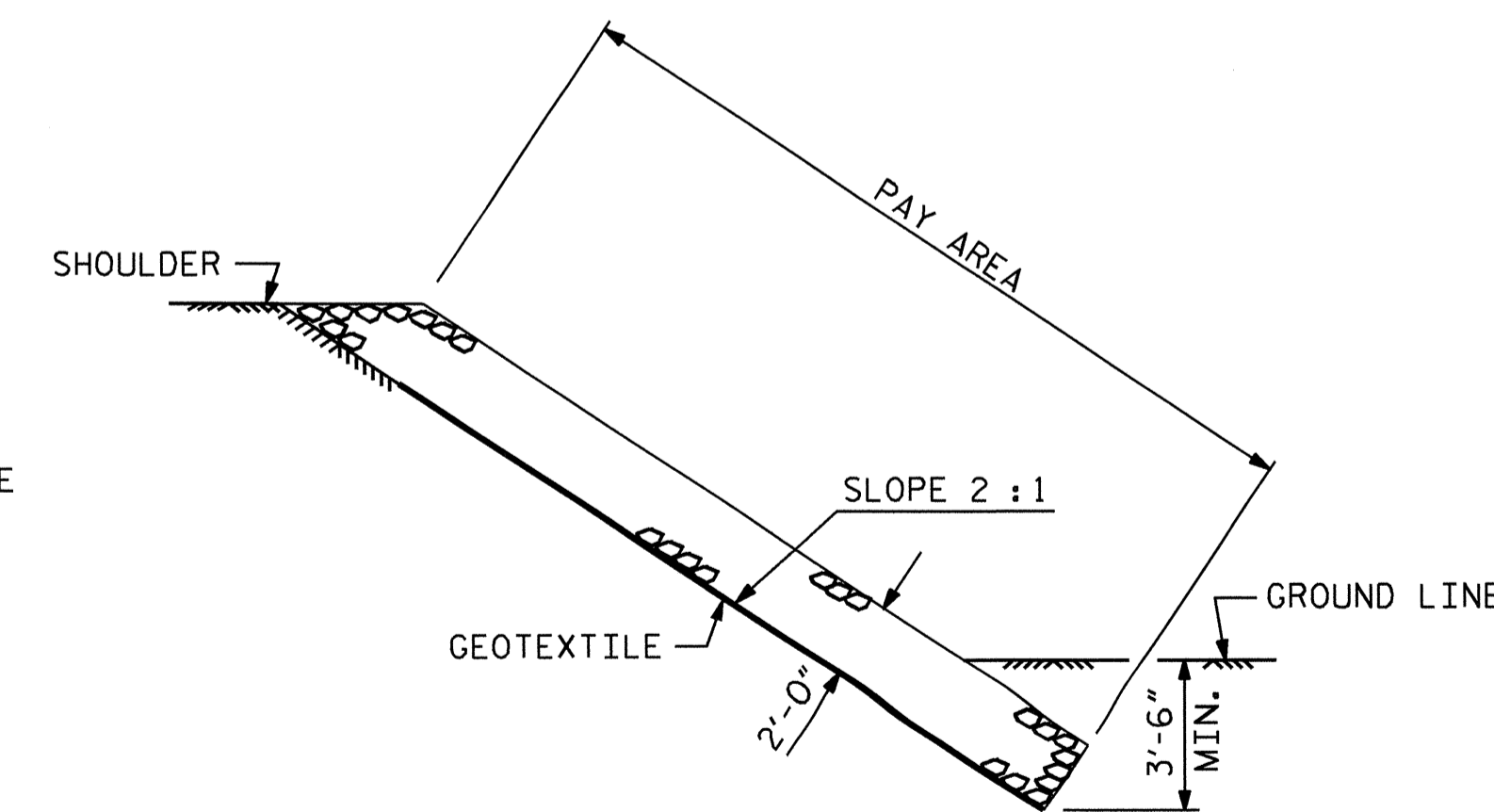
ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+13.50 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	60	65
END BENT 2	90	100



SECTION H-H



SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. BD-5105T
FRANKLIN COUNTY
STATION: 13+13.50 -L-

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



ASSEMBLED BY : Fr, Leg DATE : 1/2013
CHECKED BY : A.C. OUTLAW DATE : 1/25/13
DRAWN BY : REK 1/84 REV. 5/1/06R TLA/GM
CHECKED BY : RDU 1/84 REV. 10/1/11 MAA/GM
REV. 12/2/11 MAA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			15

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4"Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

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

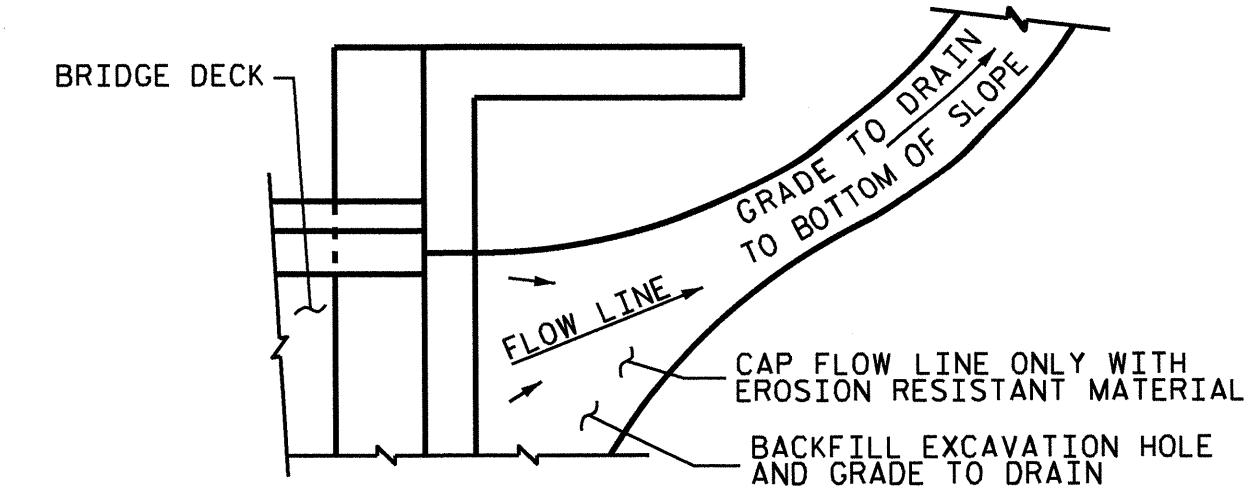
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE 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.

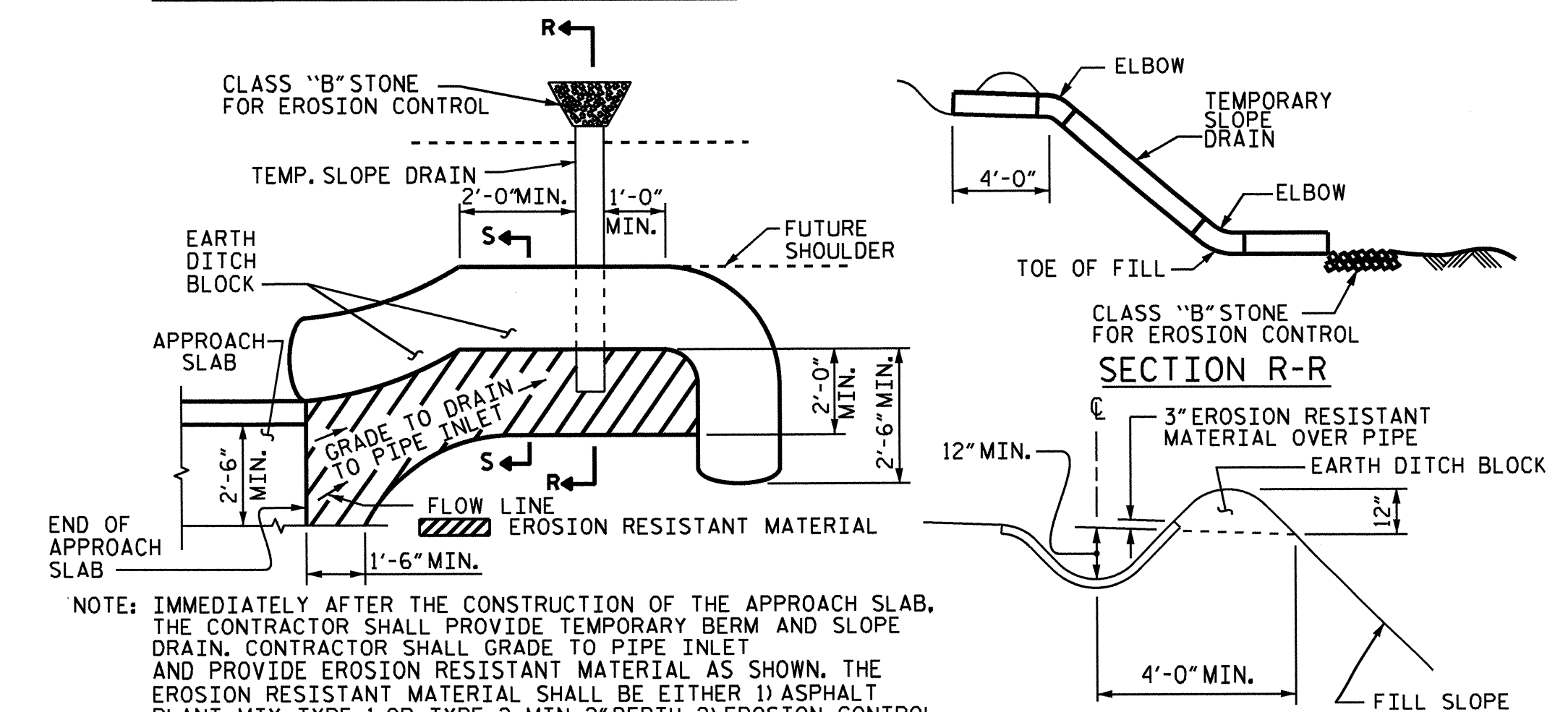
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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. BD-5105T
 FRANKLIN COUNTY
 STATION: 13+13.50 -L-

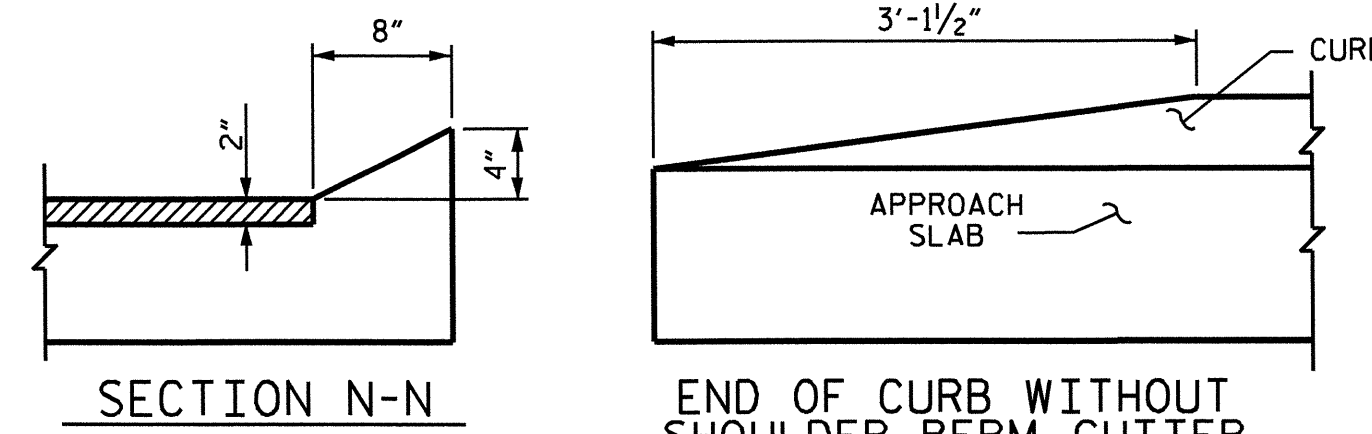
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

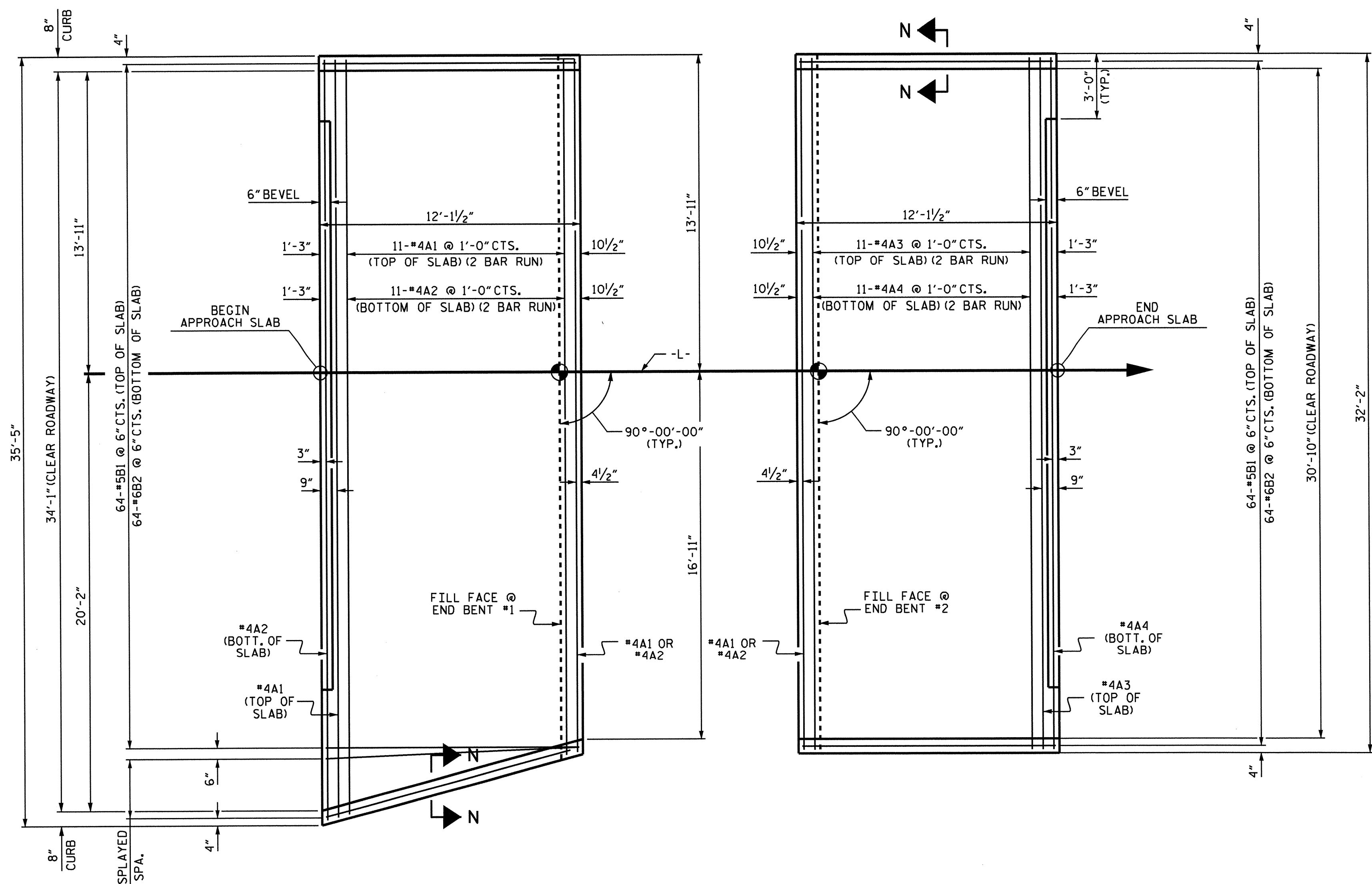


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	
2			4			15	

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

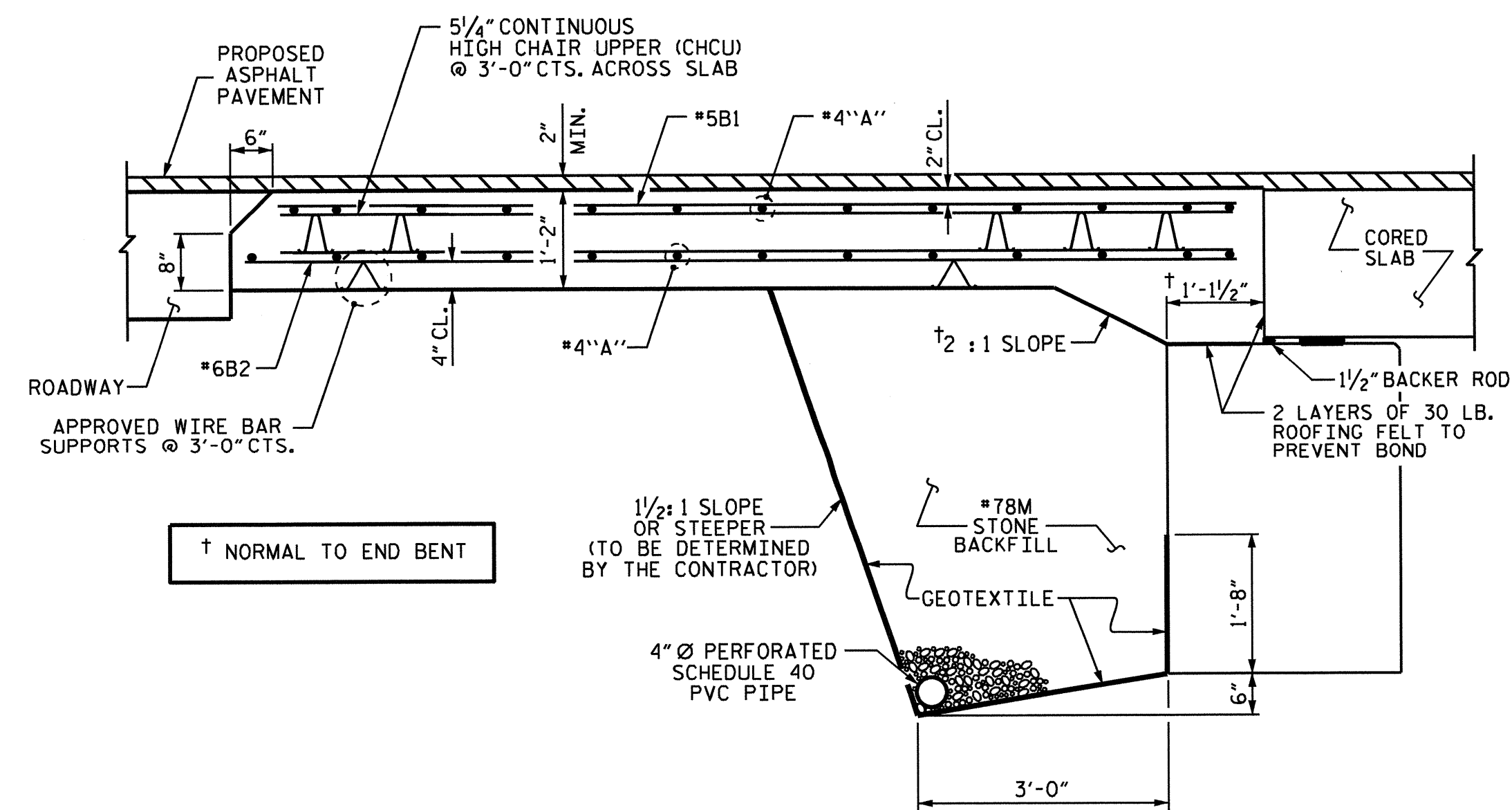


CURB DETAILS



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

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

ASSEMBLED BY: Fr. Lea DATE: 1/2013
 CHECKED BY: A.C. OUTLAW DATE: 1/25/13
 DRAWN BY: SHS/MAA 5-09 REV. 12-11 MAA/AAC
 CHECKED BY: BCH 5-09

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 2012 "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. FINS 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