

09/28/15

See Sheet 1A For Index of Sheets
See Sheet 1B For Symbology Sheet

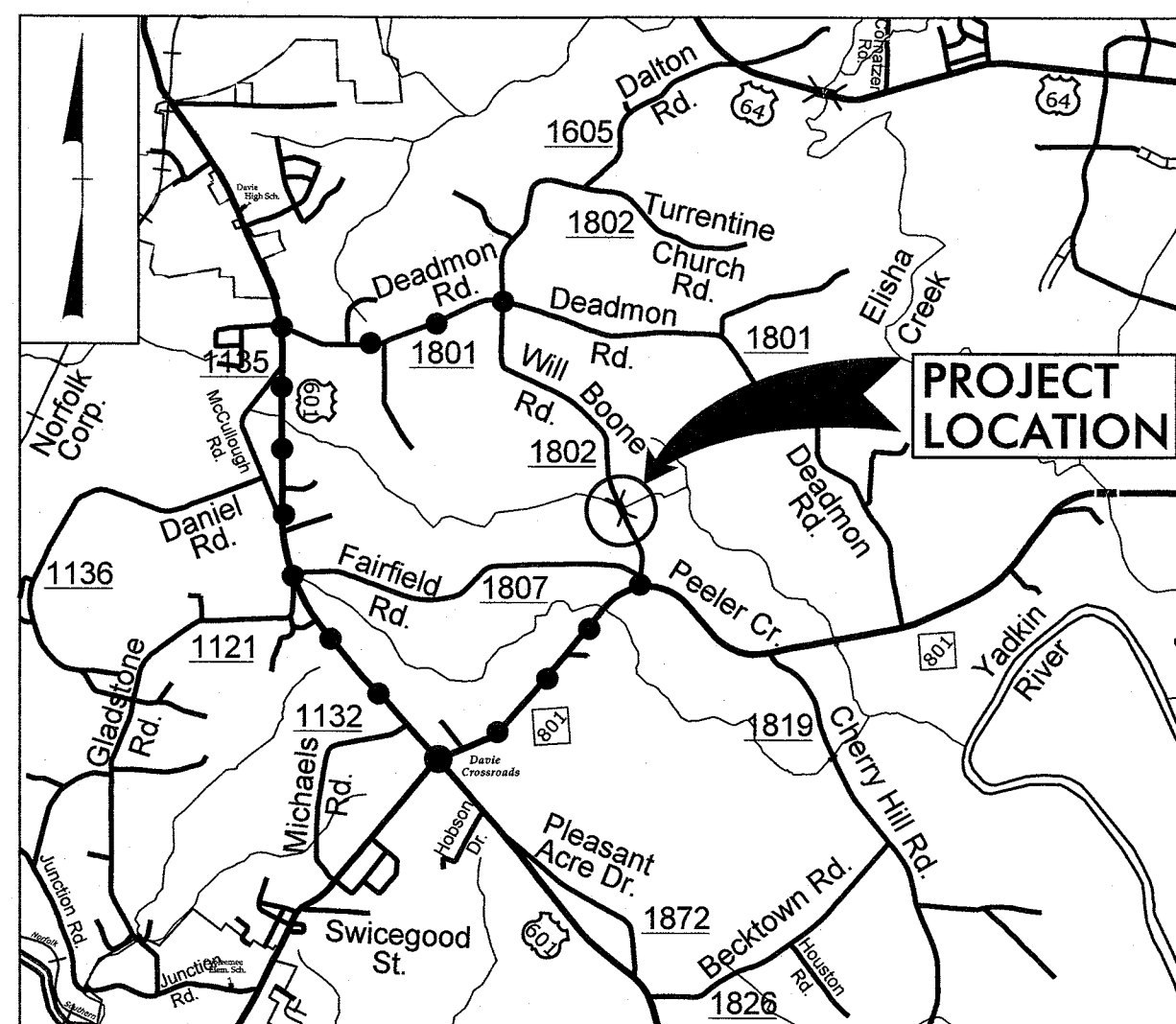
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DAVIE COUNTY

**LOCATION: REPLACE EXISTING BRIDGE NO. 60
SR 1802 - WILL BOONE RD**

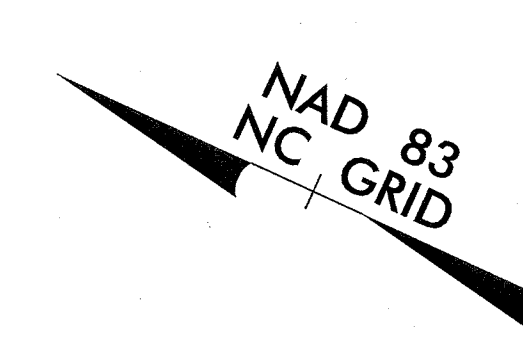
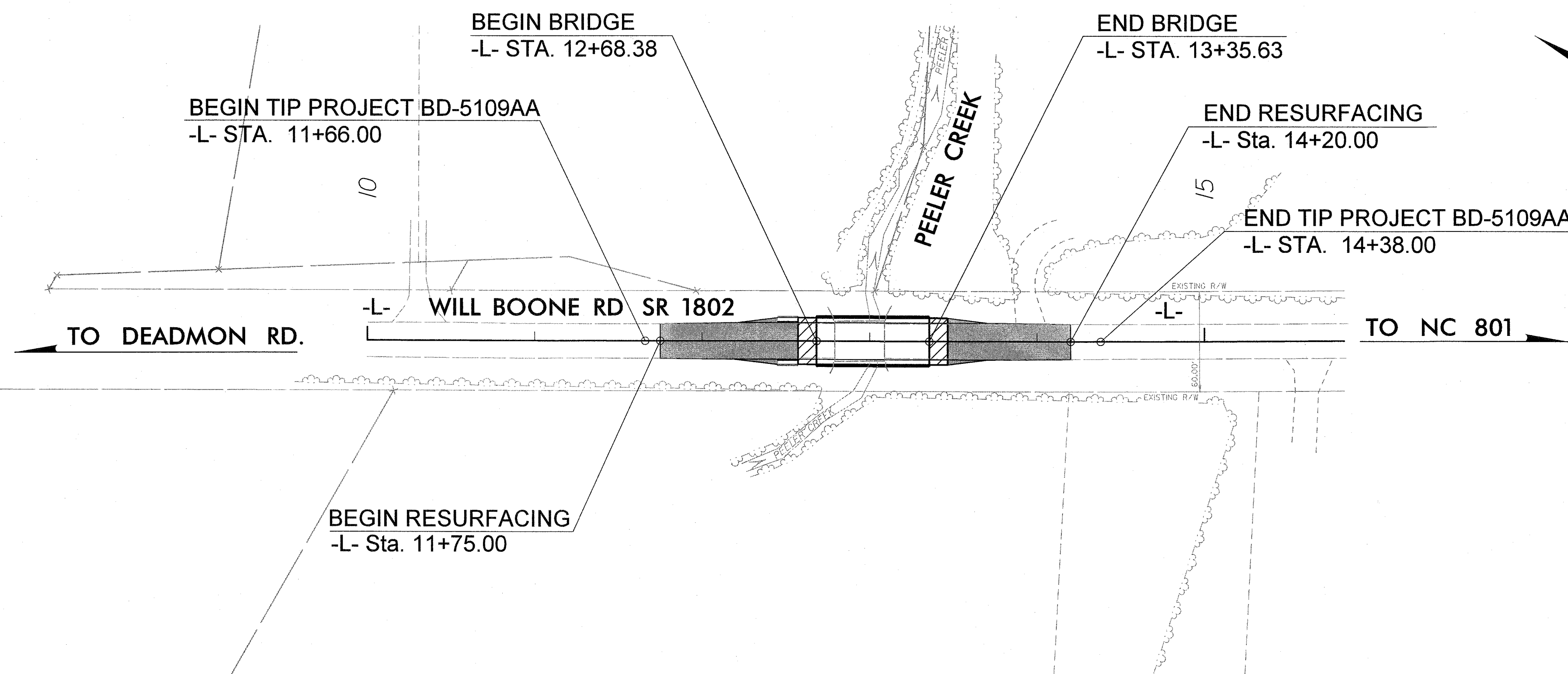
TYPE OF WORK: GRADING, DRAINAGE, WIDENING, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5109AA	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45355.1.27	BRZ-1809(5)	PE	
45355.2.27	BRZ-1809(5)	R/W, UTILITIES	
45355.3.FD27	BRZ-1809(5)	CONSTR.	



VICINITY MAP

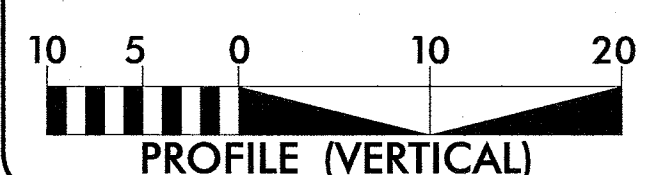
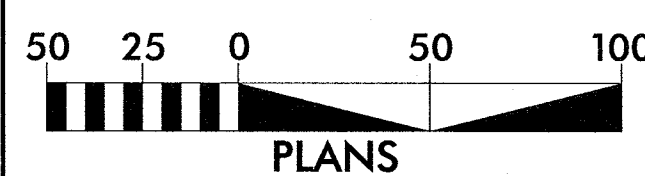
●-●-●-● DETOUR ROUTE



TIP PROJECT: BD-5109AA

CONTRACT: DI00096

GRAPHIC SCALES



DESIGN DATA

ADT 2011 = 2000
V = 55 MPH*

* STATUTORY SPEED LIMIT

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BD-5109AA = 0.039 MI
LENGTH STRUCTURE TIP PROJECT BD-5109AA = 0.013 MI
TOTAL LENGTH TIP PROJECT BD-5109AA = 0.052 MI

PLANS PREPARED BY:

PARSONS BRINCKERHOFF
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
LICENSE NO. F-0165

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 17, 2014

LETTING DATE:
MAY 27, 2015

NCDOT CONTACT:

PLANS PREPARED FOR:

DIVISION OF HIGHWAYS
1000 Birch Ridge Dr.
Raleigh NC, 27610

TIM HAYES, PE
PROJECT ENGINEER

LAUREN WILSON, EI
PROJECT DESIGN ENGINEER

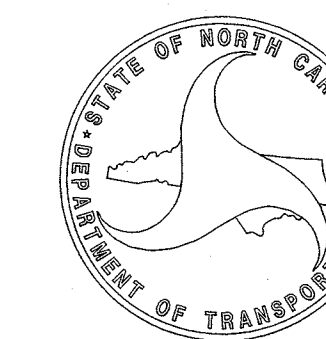
MATT JONES, PE
DIVISION BRIDGE - PROGRAM MANAGER

HYDRAULIC ENGINEER

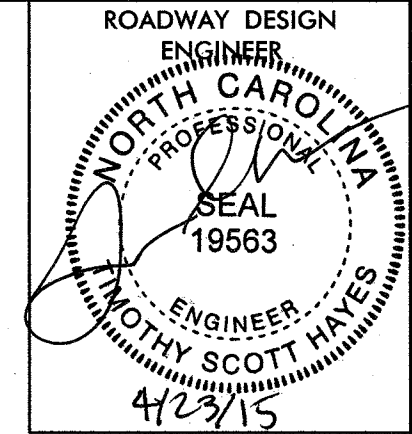
Professional Engineer Seal for James W. Hayes, License No. 032312, State of North Carolina. Signature: JAMES W. HAYES, P.E.

Professional Engineer Seal for Lauren Wilson, License No. 19563, State of North Carolina. Signature: LAUREN WILSON, P.E.

Professional Engineer Seal for Matt Jones, License No. 472315, State of North Carolina. Signature: MATT JONES, P.E.



10:59 PM
BD-5109AA_Rdy_Tsh.dgn
4/20/2015



SHEET NUMBER	INDEX OF SHEETS
SHEET	
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C	SURVEY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2C-1	STRUCTURE ANCHOR UNITS
3B-1	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, ASPHALT PAVEMENT REMOVAL SUMMARY AND SHOULDER BERM GUTTER SUMMARY
3D-1	LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)
4	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC MANAGEMENT
EC-1 THRU EC-3	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS
X-1 THRU X-4	CROSS-SECTIONS
S-1 THRU S-12	STRUCTURE PLANS
SN	STRUCTURE STANDARD NOTES

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
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-Of-Way Marker
806.02	Granite Right-Of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
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

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 10/30/12

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.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS 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-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE: POWER: DUKE ENERGY: PAULA BUTNER, PHONE: 336-917-2525.
POWER: ENERGY UNITED: ALLEN HEGE, PHONE: 336-236-8402.
YADKIN VALLEY TMC: PATRICK GRAY, PHONE: 336-463-5037.
COMMUNICATIONS: TWC: CHRIS SECHRIST, PHONE: 336-231-6211.
WATER: DAVIE COUNTY PUBLIC UTILITIES: JOHNNY LAMBERT, PHONE: 336-753-6090.

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.

02/03/15














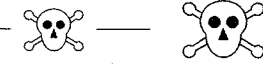
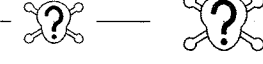
Note: Not to Scale

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS





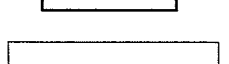
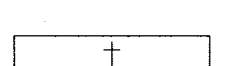
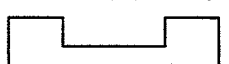
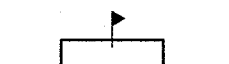
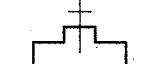
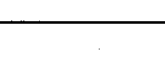

*S.U.E. = *Subsurface Utility Engineering*

CONVENTIONAL PLAN SHEET SYMBOLS

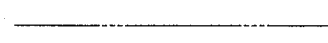
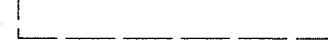
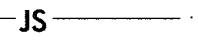
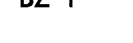




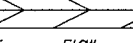
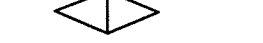

BOUNDARIES AND PROPERTY:

State Line	_____
County Line	_____
Township Line	_____
City Line	_____
Reservation Line	_____
Property Line	_____
Existing Iron Pin	_____ 
Property Corner	_____ 
Property Monument	_____ 
Parcel/Sequence Number	_____ 
Existing Fence Line	_____ 
Proposed Woven Wire Fence	_____ 
Proposed Chain Link Fence	_____ 
Proposed Barbed Wire Fence	_____ 
Existing Wetland Boundary	_____ 
Proposed Wetland Boundary	_____ 
Existing Endangered Animal Boundary	_____ 
Existing Endangered Plant Boundary	_____ 
Existing Historic Property Boundary	_____ 
Known Soil Contamination: Area or Site	_____ 
Potential Soil Contamination: Area or Site	_____ 

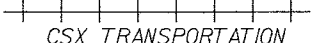
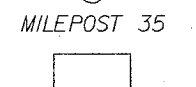
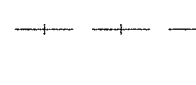


BUILDINGS AND OTHER CULTURE:

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







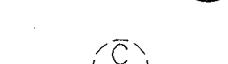











HYDROLOGY:

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


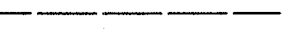



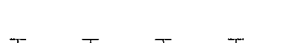

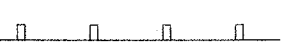



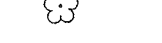



RAILROADS:

Standard Gauge	_____ 
RR Signal Milepost	_____ 
Switch	_____ 
RR Abandoned	_____ 
RR Dismantled	_____ 


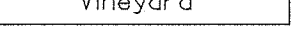
RIGHT OF WAY:

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 R/W Marker	_____ 
Proposed Control of Access Line with Concrete CA Marker	_____ 
Existing Control of Access	_____ 
Proposed Control of Access	_____ 
Existing Easement Line	_____ 
Proposed Temporary Construction Easement	_____ 
Proposed Temporary Drainage Easement	_____ 
Proposed Permanent Drainage Easement	_____ 
Proposed Permanent Drainage / Utility Easement	_____ 
Proposed Permanent Utility Easement	_____ 
Proposed Temporary Utility Easement	_____ 
Proposed Aerial Utility Easement	_____ 
Proposed Permanent Easement with Iron Pin and Cap Marker	_____ 


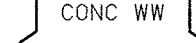
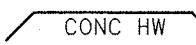

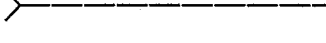
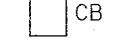
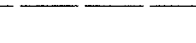


ROADS AND RELATED FEATURES:

Existing Edge of Pavement	_____ 
Existing Curb	_____ 
Proposed Slope Stakes Cut	_____ 
Proposed Slope Stakes Fill	_____ 
Proposed Curb Ramp	_____ 
Existing Metal Guardrail	_____ 
Proposed Guardrail	_____ 
Existing Cable Guiderail	_____ 
Proposed Cable Guiderail	_____ 
Equality Symbol	_____ 
Pavement Removal	_____ 
Single Tree	_____ 
Single Shrub	_____ 
Hedge	_____ 
Woods Line	_____ 






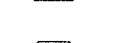


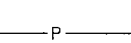
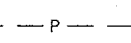

VEGETATION:

Orchard	_____ 
Vineyard	_____ 







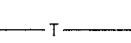
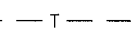
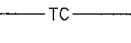
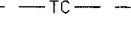
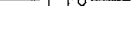


EXISTING STRUCTURES:

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








UTILITIES:

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









TELEPHONE:

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




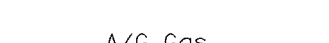

WATER:

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







TV:

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





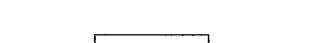
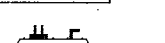
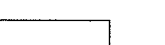





GAS:

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

SANITARY SEWER:

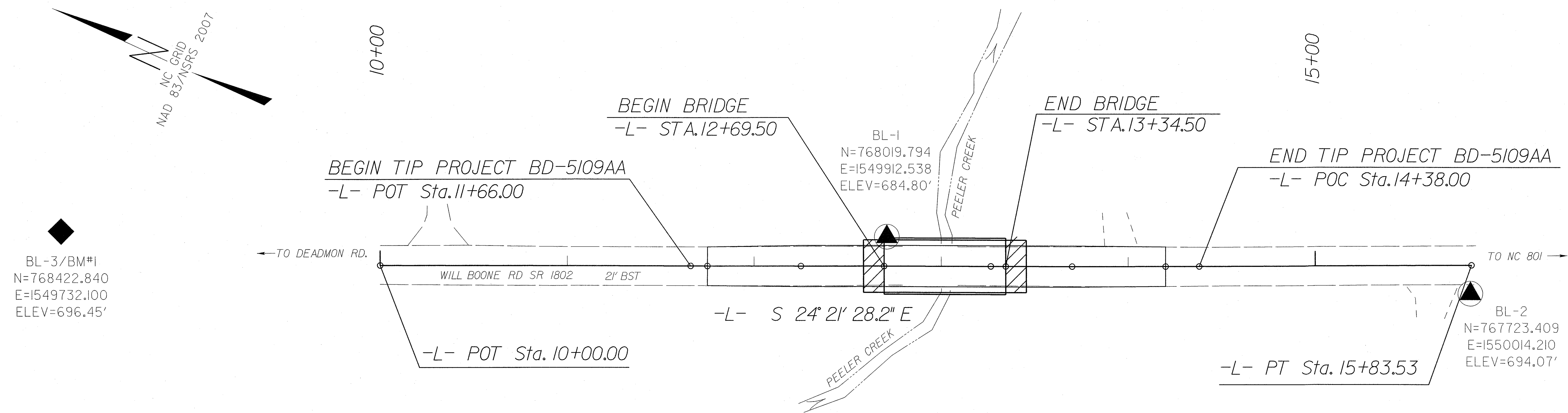
Sanitary Sewer Manhole	_____ 
Sanitary Sewer Cleanout	_____ 
U/G Sanitary Sewer Line	_____ 
Above Ground Sanitary Sewer	_____ 
Recorded SS Forced Main Line	_____ 
Designated SS Forced Main Line (S.U.E.*)	_____ 

MISCELLANEOUS:

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

SURVEY CONTROL SHEET BD5109AA

PROJECT REFERENCE NO.	SHEET NO.
BD5109AA	1C
Division 9 DDC	



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BL-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 768019.794(ft) EASTING: 1549912.538(ft) ELEVATION: 684.80(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989946

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-1" TO -L- STATION 10+00.00 IS
N 27° 40' 21.78" W 271.42'

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

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2		BL-2	767723.4090	1550014.2100	694.07	15+82.77	15.14 RT
1		BL-1	768019.7940	1549912.5380	684.80	12+70.97	15.69 LT
3		BL-3	768422.8400	1549732.1000	696.45	OUTSIDE PROJECT LIMITS	

BENCH MARK (NAVD 88)

 BM1 ELEVATION = 696.45
 N 768423 E 1549732
 FROM -L- STA 10+00 TO BM#3
 N 18° 29' 09" W DIST 171.52'
 IRON PIN WITH ALUMINUM CAP
 STAMPED BL-3 SET FLUSH WITH
 THE GROUND

NOTES:

▲ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

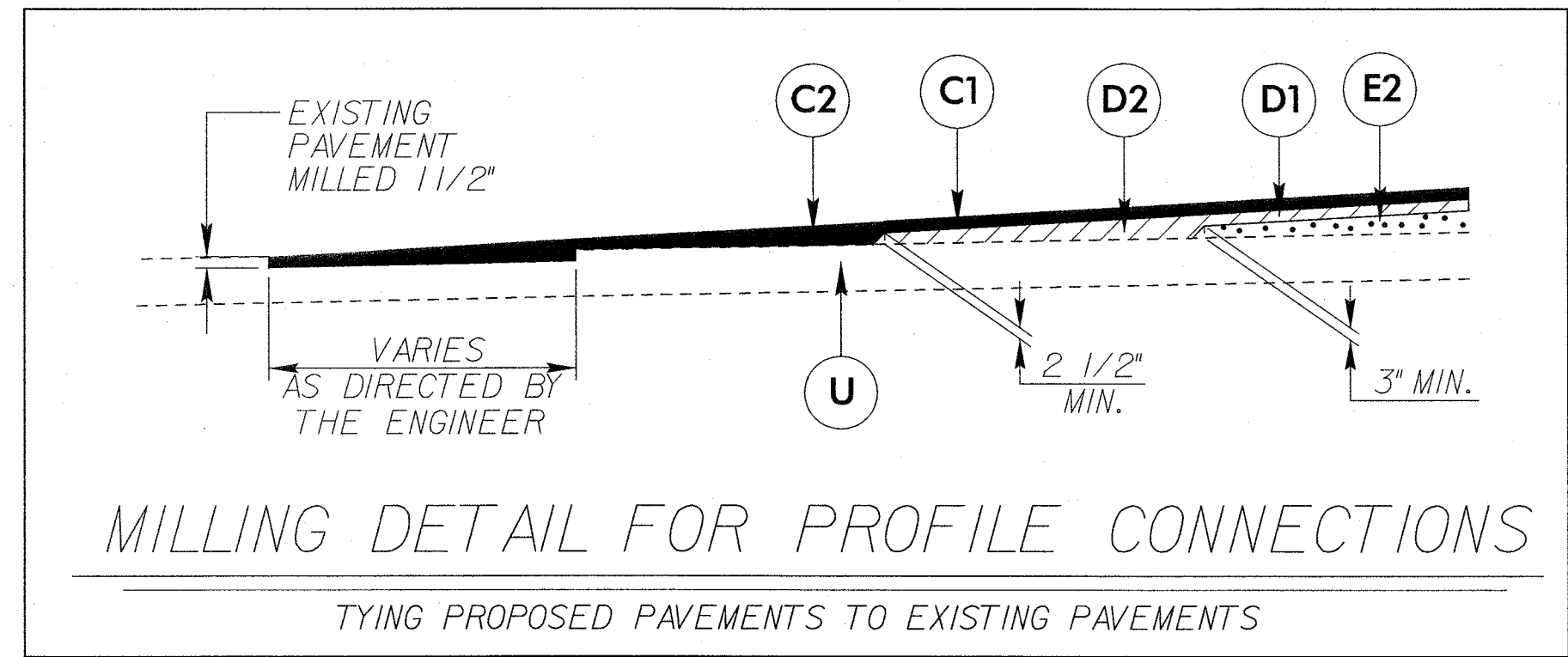
8/23/05 AM 5:10:20 ddc-1c.dgn

6/2/99

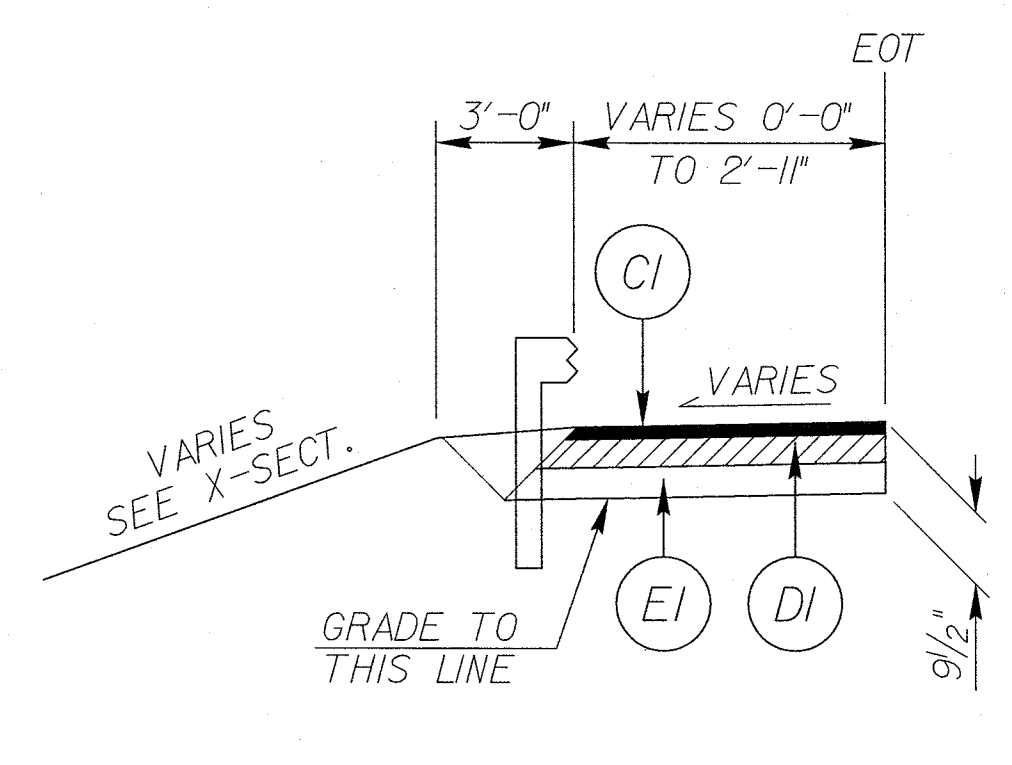
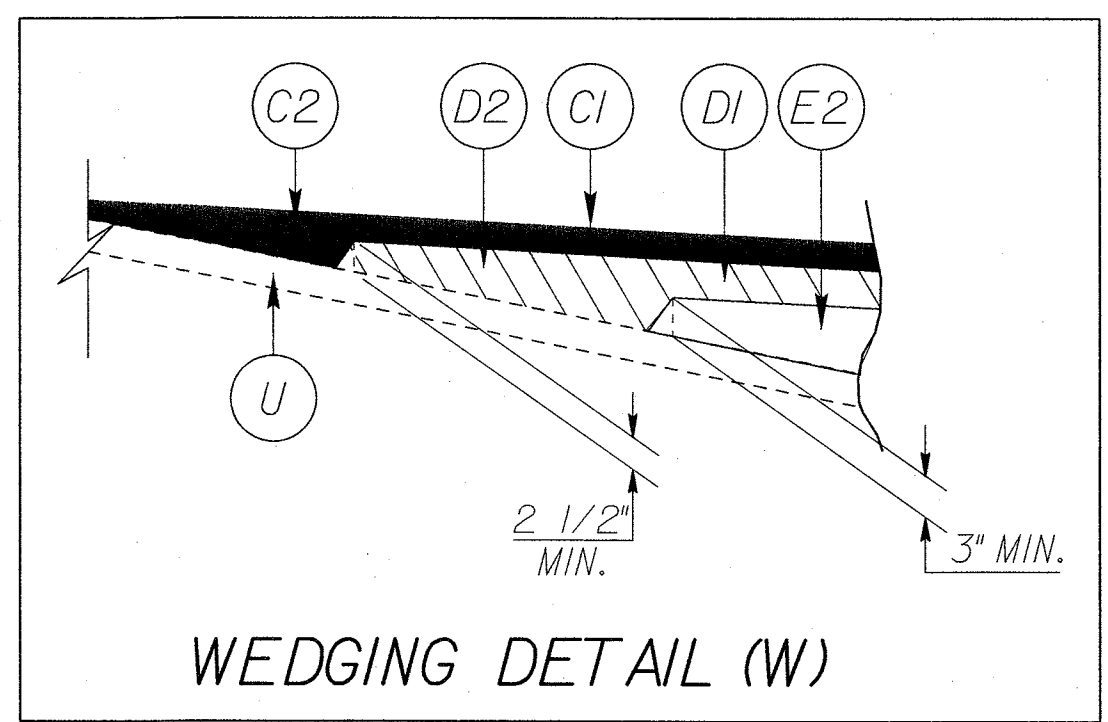
PAVEMENT SCHEDULE

C1	PROPOSED APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD, IN EACH OF TWO LAYERS.
C2	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD, PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" OR GREATER THAN 2" IN DEPTH.
D1	PROPOSED APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YARD.
D2	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD, PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" OR GREATER THAN 4" IN DEPTH.
E1	PROPOSED APPROXIMATE 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
E2	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD, PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5 1/2" IN DEPTH.
RI	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT

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



PROJECT REFERENCE NO. BD-5109AA	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER	
PLANS PREPARED BY: PARSONS BRINCKERHOFF 434 PAYETTEVILLE STREET SUITE 1500 RALEIGH, NC 27601	

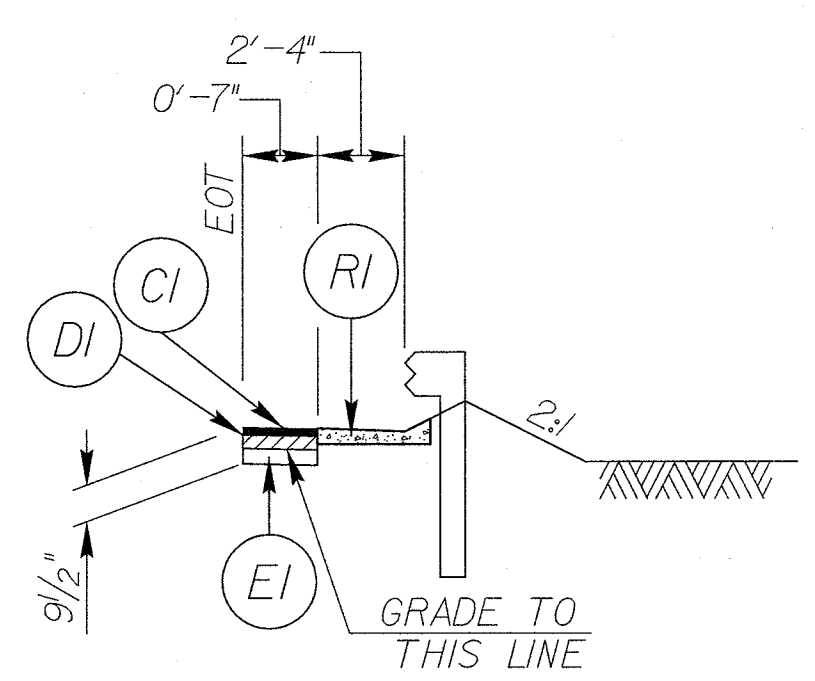


INSET No. 1A

(SEE PLANS FOR PAVED SHOULDER LOCATION)

USE INSET No. 1A IN CONJUNCTION w/TYPICAL SECTION No. 1 AS FOLLOWS:

- FROM -L- STA. 12+21.7 TO 12+45.10 LT
- FROM -L- STA. 12+19.50 TO 12+45.10 RT
- FROM -L- STA. 13+45.50 TO 13+69.68 LT
- FROM -L- STA. 13+45.50 TO 13+69.32 RT

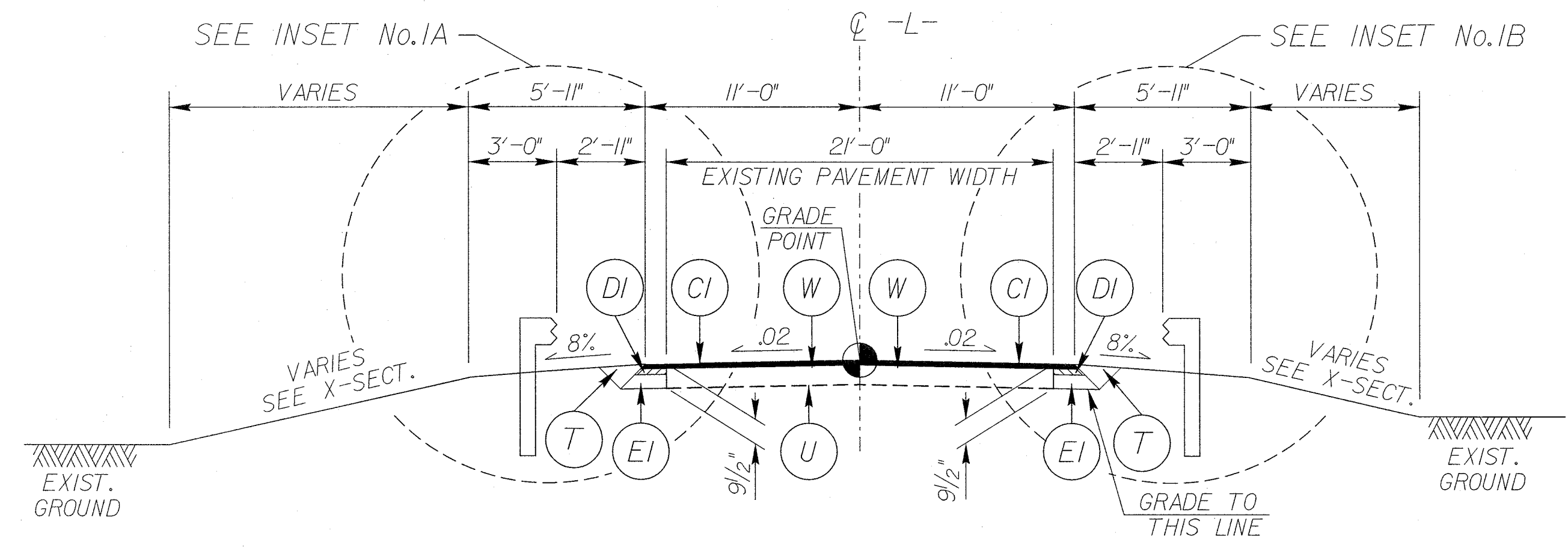


INSET No. 1B

(SEE PLANS FOR PAVED SHOULDER LOCATION)

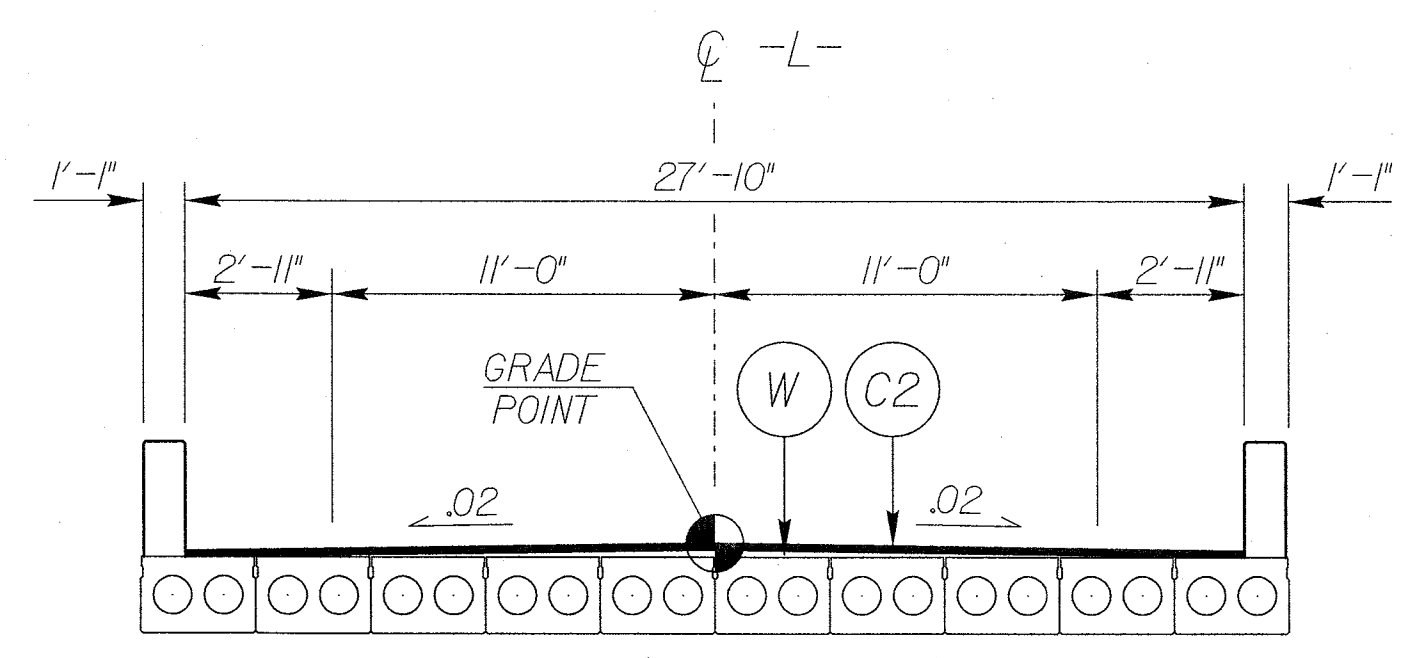
USE INSET No. 1B IN CONJUNCTION w/TYPICAL SECTION No. 1 AS FOLLOWS:

- FROM -L- STA. 12+45.10 TO 12+58.50 LT
- FROM -L- STA. 12+45.10 TO 12+58.50 RT
- FROM -L- STA. 13+45.50 TO 13+69.68 LT
- FROM -L- STA. 13+45.50 TO 13+69.32 RT



TYPICAL SECTION No. 1

TRANSITION FROM EXISTING TO T.S. NO. 1 -L- STA. 11+75.00 TO -L- STA. 12+25.00
 FROM -L- STA. 12+25.00 TO -L- STA. 12+69.50 (BEGIN BRIDGE)
 FROM -L- STA. 13+34.50 (END BRIDGE) TO -L- STA. 13+70.00
 TRANSITION FROM T.S. NO. 1 TO EXISTING -L- STA. 13+70.00 TO -L- STA. 14+20.00



TYPICAL SECTION No. 2

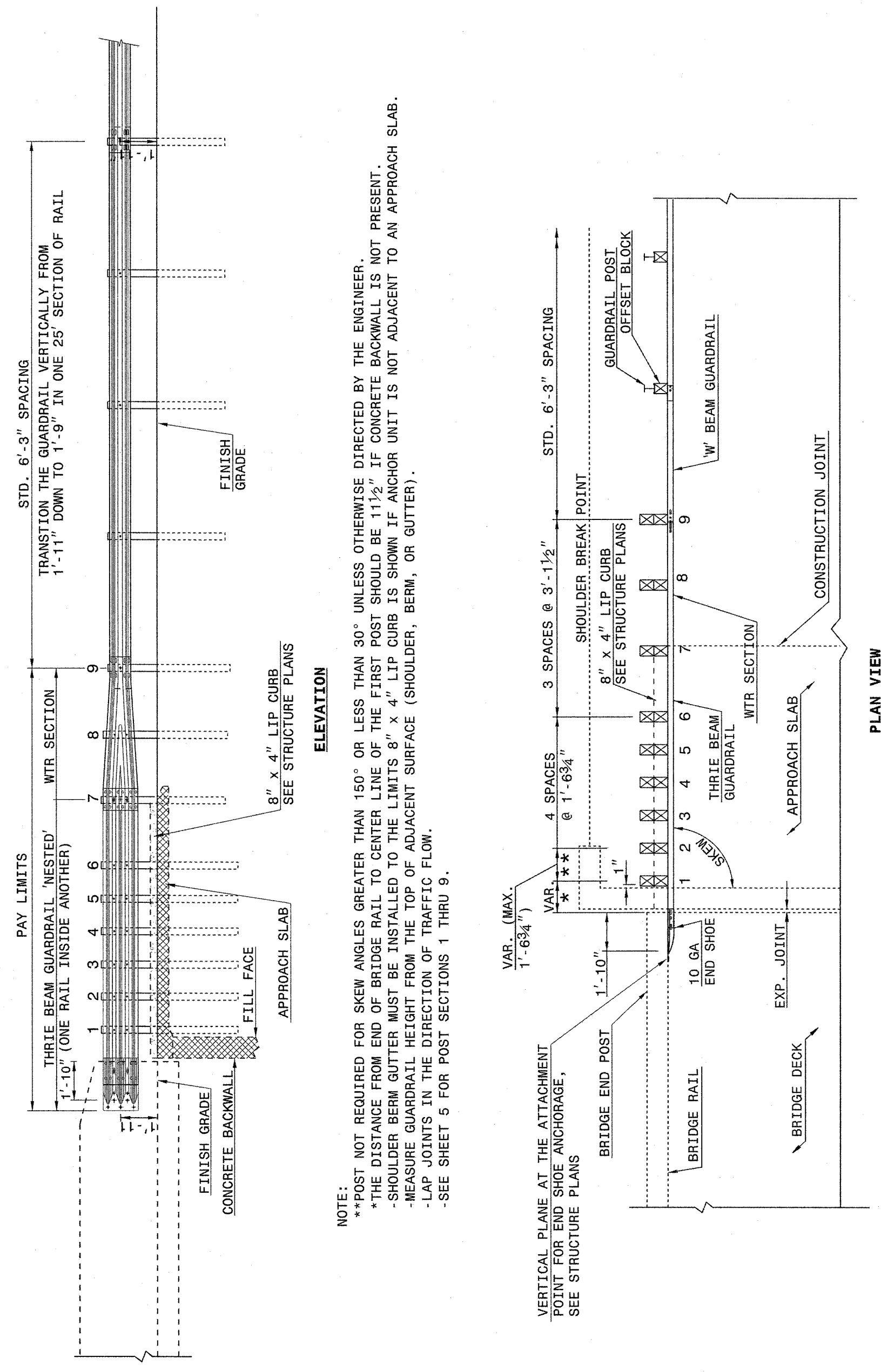
FROM -L- STA. 12+69.50 (BEGIN BRIDGE) TO -L- STA. 13+34.50 (END BRIDGE)

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

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

SHEET 2 OF 7 **862d03**



NOTE:
 **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11 1/2" IF CONCRETE BACKWALL IS NOT PRESENT.
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.

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

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

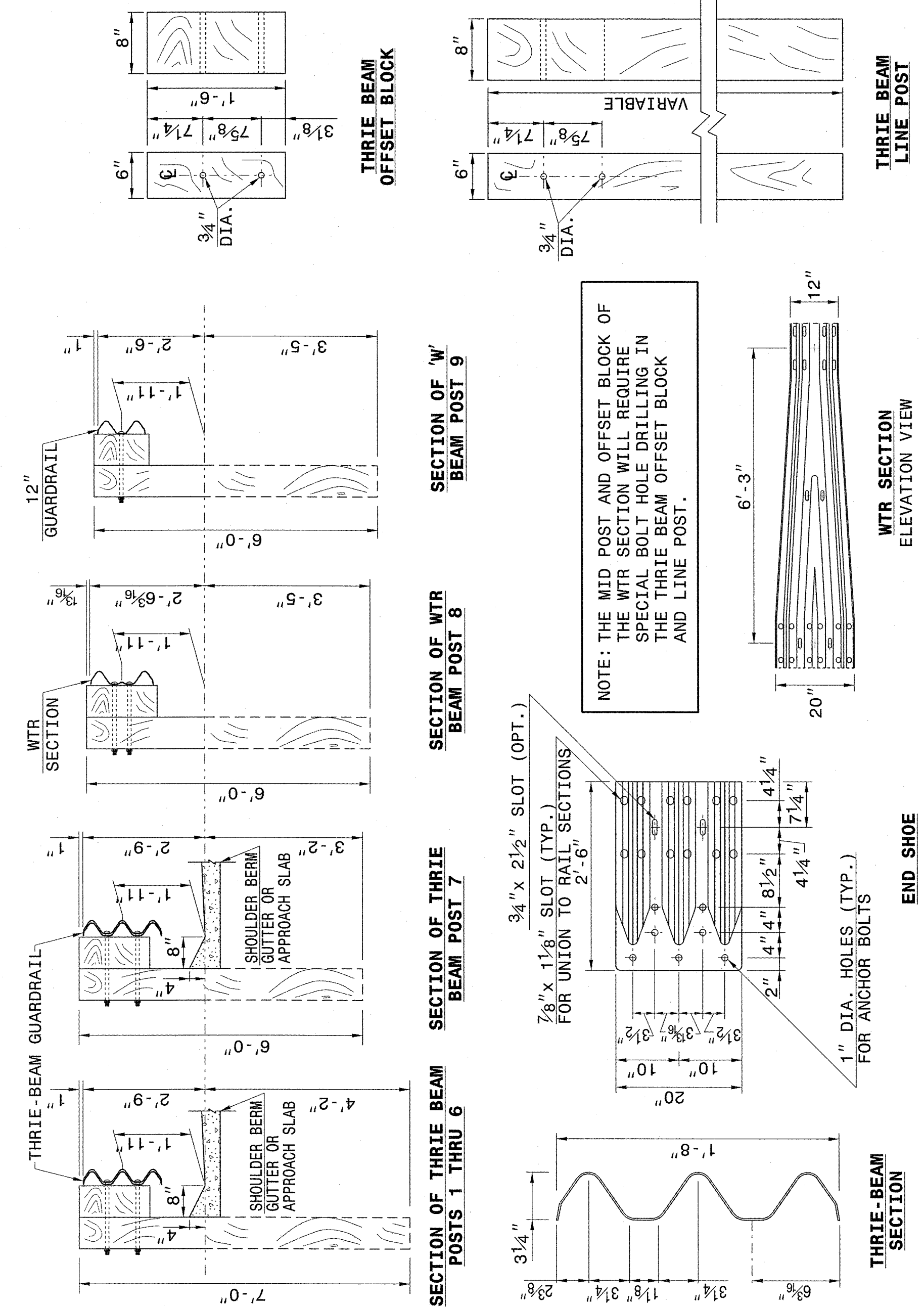
ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7 **862d03**

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

ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7 **862d03**



NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.

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

ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7 **862d03**

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

SEE TITLE BLOCK

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

8/2/09 8:45:59 AM 862d03.dwg 4/21/2015

VA-MCHL-D-002B

COMPUTED BY: JWB DATE: 4/24/2015
CHECKED BY: CWH DATE: 4/24/2015

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. SHEET NO.
BD-5109AA 3 D-1

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

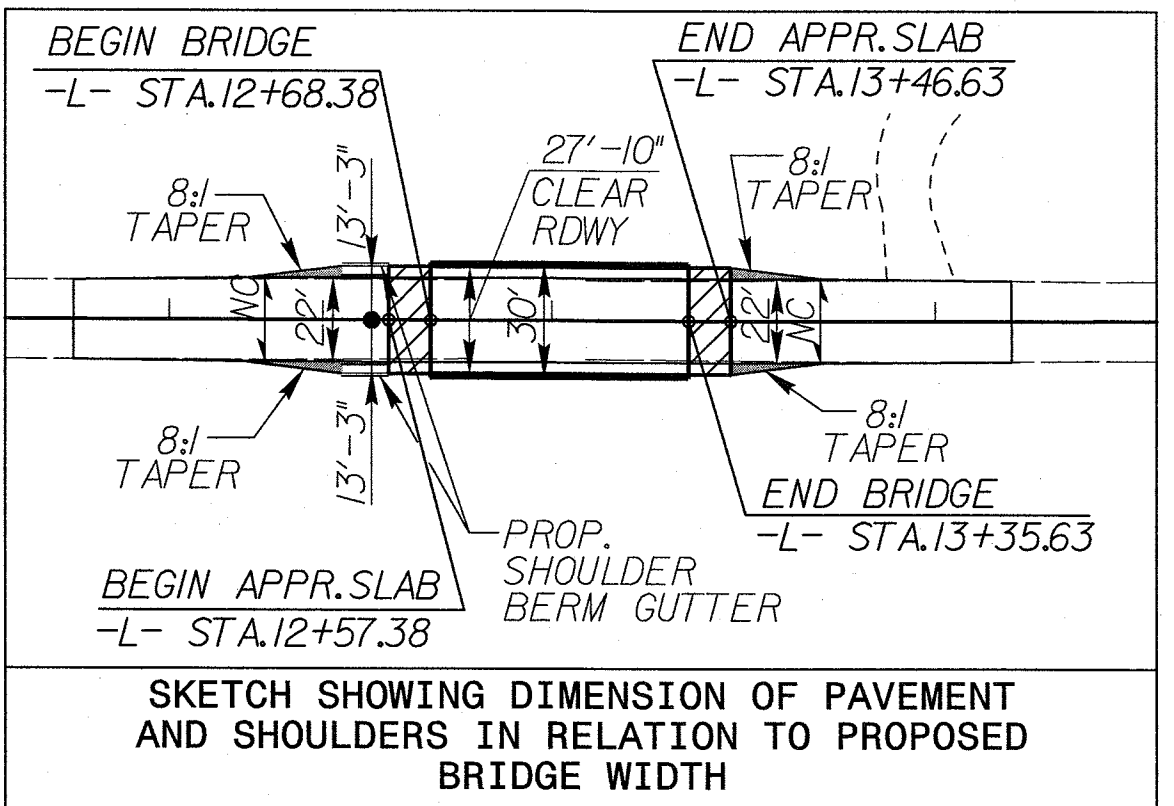
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Table with columns for Line & Station, Structure Number, Pipe Size, Pipe Material, Quantities, and Remarks. Includes sub-headers for Side Drain Pipe, R.C. Pipe, Endwalls, Reinforced Endwalls, Drainage Structure, Frame, Grates, and Hood, and Grate Type.

ABBREVIATIONS
C.A.A. CORRUGATED ALUMINIUM ALLOY
C.B. CATCH BASIN
C.S. CORRUGATED STEEL
D.I. DROP INLET
G.D.I. GRATED DROP INLET
H.D.P.E. HIGH DENSITY POLYETHYLENE
J.B. JUNCTION BOX
M.H. MANHOLE
N.S. NARROW SLOT
P.V.C. POLYVINYL CHLORIDE
R.C. REINFORCED CONCRETE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX
W.S. WIDE SLOT

SHEET TOTALS
PROJECT TOTALS

8.17/99



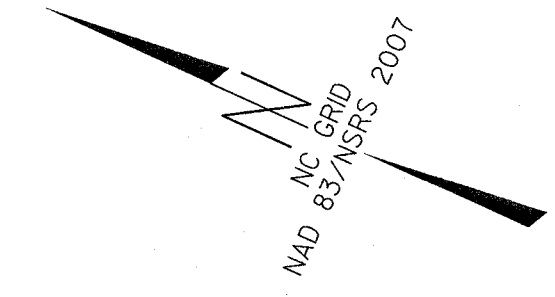
PAVED SHLD.

DAVIE COUNTY LOW IMPACT BRIDGE

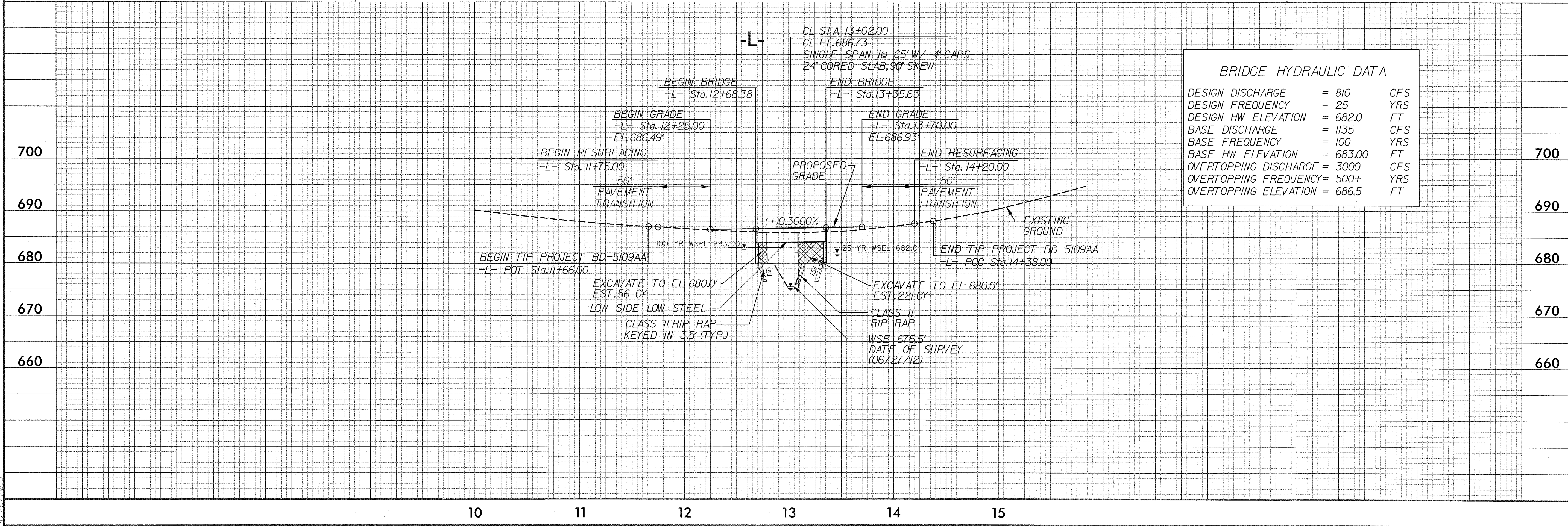
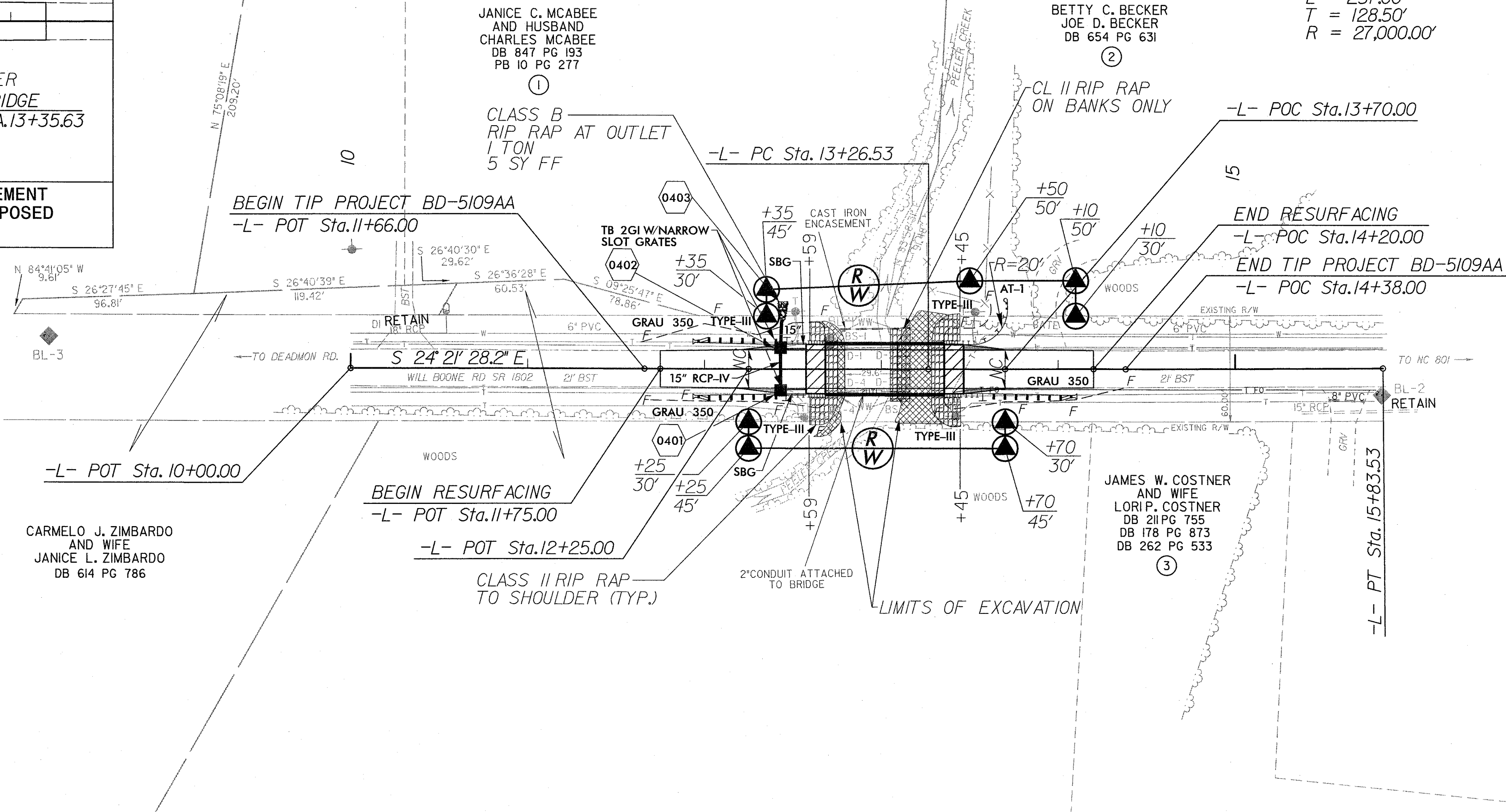
STRUCTURE 290060
LS 09-12-068
WBS 45355.127
TIP BD-5109AA

CURVE DATA

PI Sta 14+55.03
Δ = 0° 32' 43.4" (LT)
D = 0° 12' 43.9"
L = 257.00'
T = 128.50'
R = 27,000.00'



PROJECT REFERENCE NO. BD-5109AA	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER MOTIHY SCOTT	HYDRAULICS ENGINEER CHARLES W. HEARNE
PLANS PREPARED BY: PARSONS BRINCKERHOFF 134 FAUETTEVILLE STREET SUITE 1500 RALEIGH, NC 27601 LICENSE: NO. E-0165	



DESIGN DISCHARGE	= 810	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 682.0	FT
BASE DISCHARGE	= 1135	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 683.00	FT
OVERTOPPING DISCHARGE	= 3000	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 686.5	FT

8:43:50 AM
BD-5109AA-rdy-psh-sheet4.dgn
4/20/2015

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
BD-5109AA	TMP-1

TRAFFIC MANAGEMENT PLANS
DAVIE COUNTY

BD-5109AA

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 JULY 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
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPE
1262.01	GUARDRAIL END DELINEATION

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND AND INDEX OF SHEETS
TMP-2	GENERAL NOTES, PHASING AND DETOUR SIGNING

LEGEND

- GENERAL**
- DIRECTION OF TRAFFIC FLOW
 - NORTH ARROW
 - PROPOSED PVMT. EXIST. PVMT.
 - WORK AREA
 - MILL AND WEDGE
 - REMOVAL OF EXISTING PAVEMENT

TRAFFIC CONTROL DEVICES

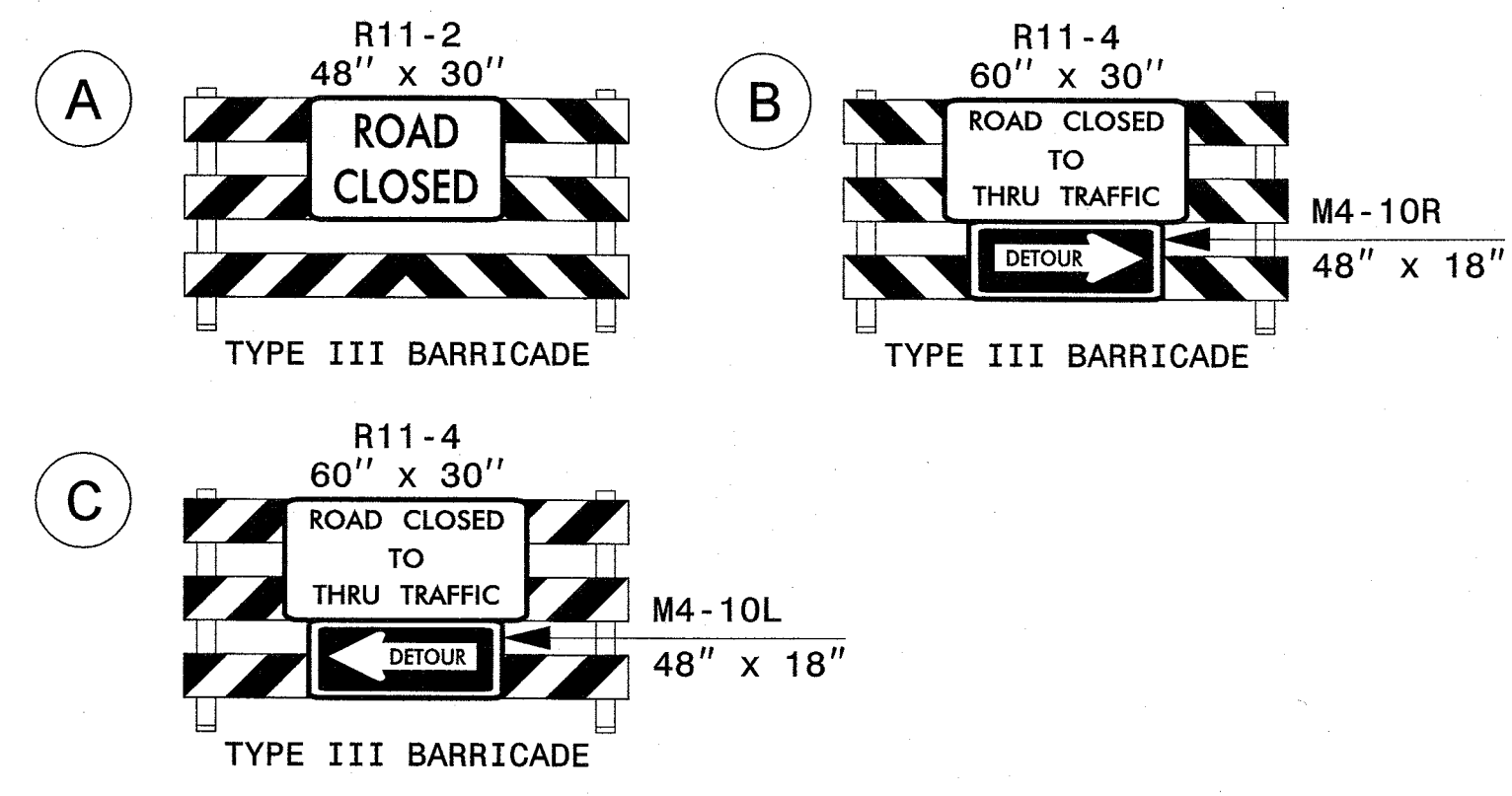
- TYPE I BARRICADE
- TYPE II BARRICADE
- TYPE III BARRICADE
- CONE
- DRUM SKINNY DRUM
- FLASHING ARROW PANEL (TYPE C)
- STATIONARY SIGN
- PORTABLE SIGN
- STATIONARY OR PORTABLE SIGN
- CRASH CUSHION
- CHANGEABLE MESSAGE SIGN
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- POLICE
- FLAGGER

PAVEMENT MARKINGS

- CRYSTAL/CRYSTAL PAVEMENT MARKER
- YELLOW/YELLOW PAVEMENT MARKER
- CRYSTAL/RED PAVEMENT MARKER
- PAVEMENT MARKING SYMBOLS

APPROVED: _____ DATE: 4/23/15	PARSONS BRINCKERHOFF 434 FAYETTEVILLE STREET SUITE 1500 RALEIGH, NC 27601 LICENSE NO. F-0165
SEAL	TIM HAYES, PE PROJECT ENGINEER LAUREN WILSON, EI PROJECT DESIGN

TIP PROJECT:



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 UNDESIRABLE 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) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) 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

- C) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- D) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- E) 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 ON THIS SHEET.

- F) 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.

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING
SR 1802 (WILL BOONE ROAD)	THERMOPLASTIC
- J) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- K) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS.
- L) PASSING ZONE WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

PHASING

PHASE I

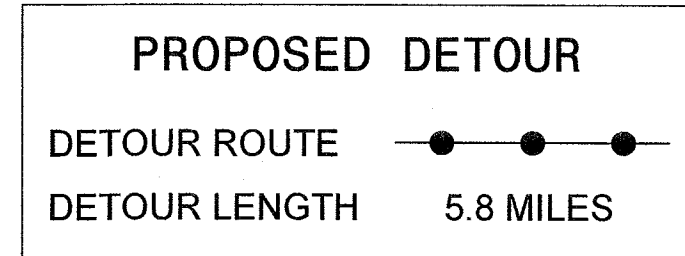
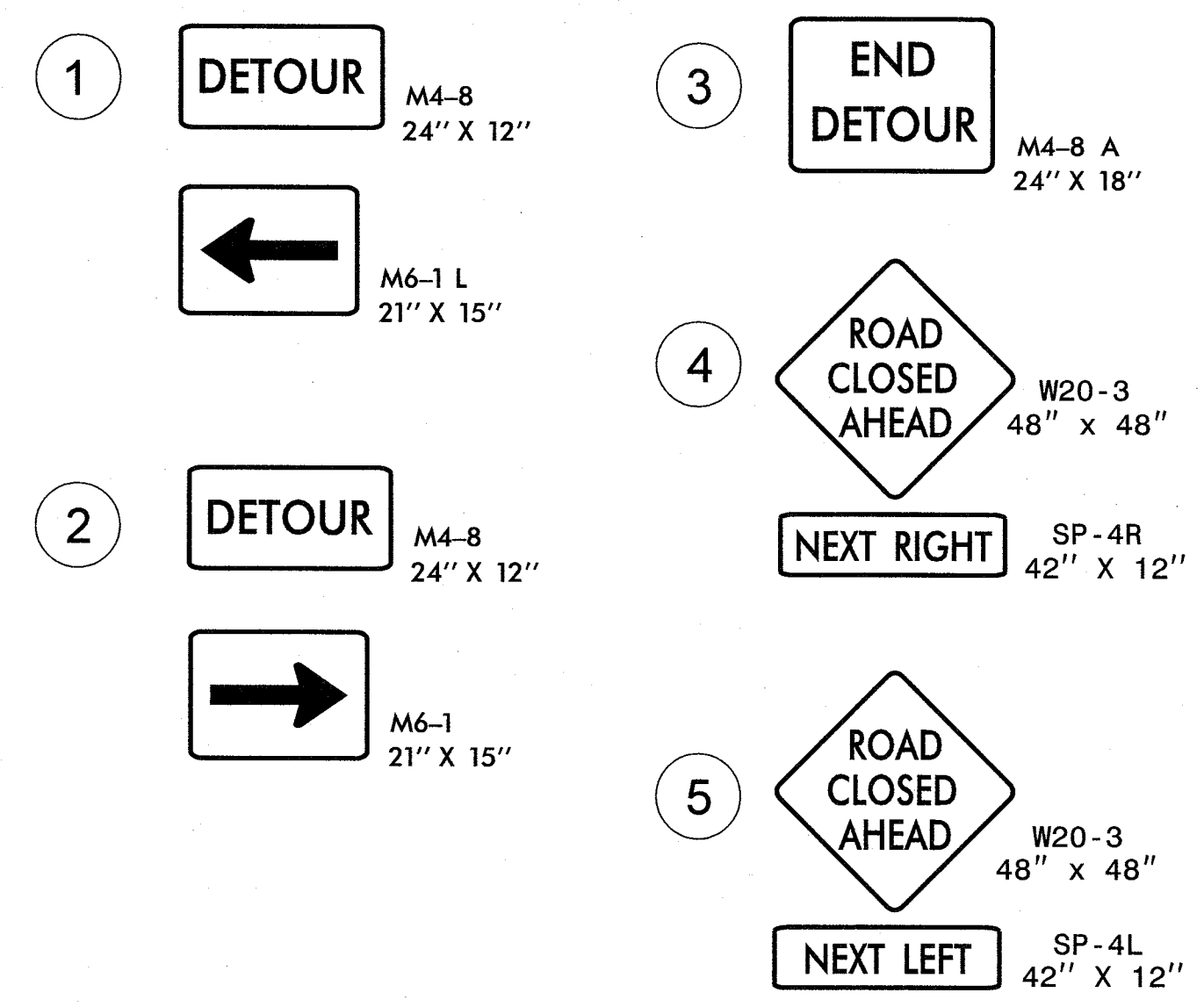
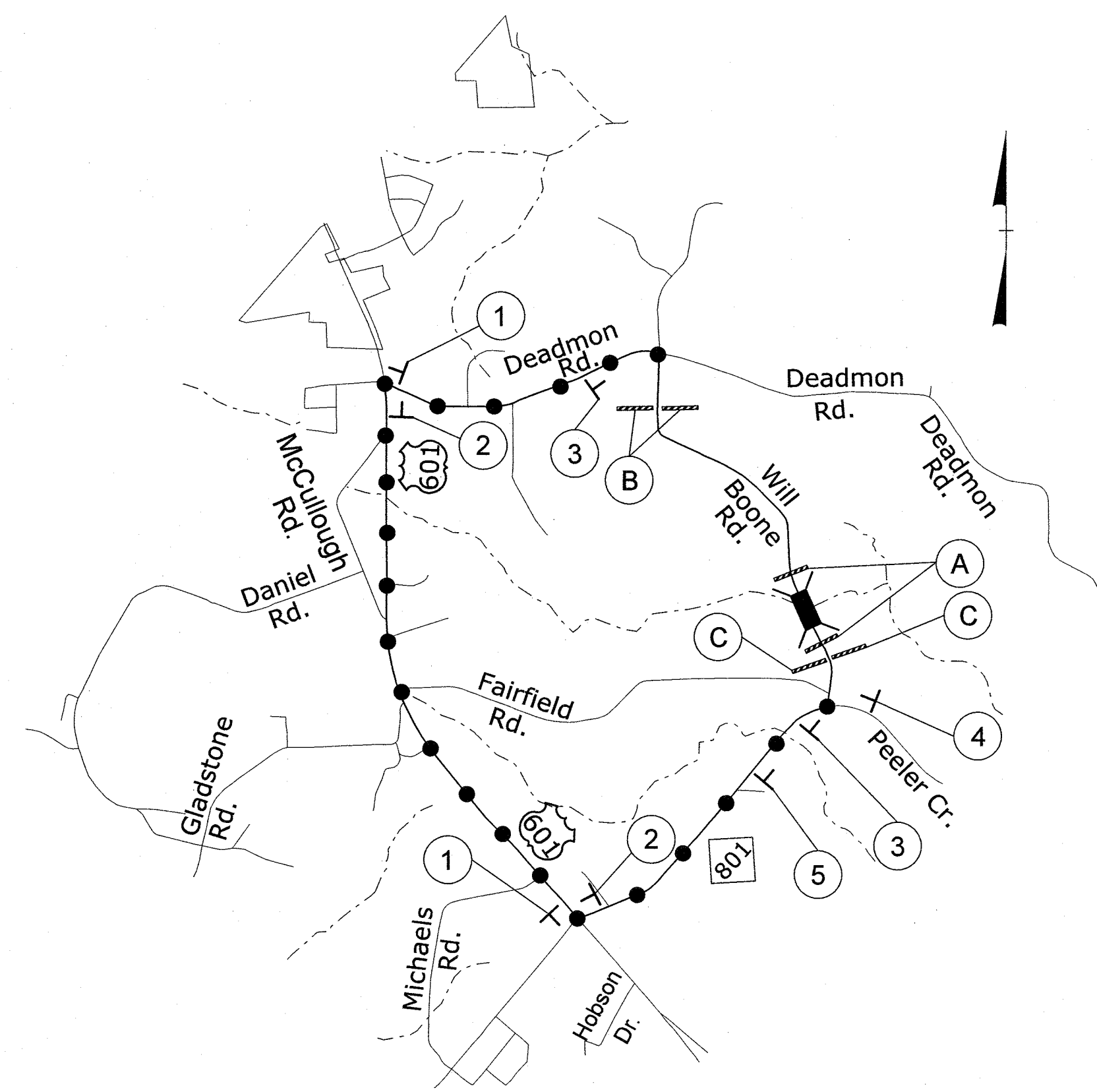
PRIOR TO ANY CONSTRUCTION OPERATIONS, PLACE AND COVER OFF-SITE DETOUR SIGNING AS SHOWN ON TCP-2 AND IN ACCORDANCE WITH RSD 1101.03 (SHEET 1 OF 9). OPTIONAL SIGN USE MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.

PHASE II

USING OFF-SITE DETOUR, UNCOVER DETOUR SIGNS, CLOSE -L- (SR 1802 / WILL BOONE ROAD) TO TRAFFIC, AND EXCAVATE AND CONSTRUCT NEW BRIDGE AND ROADWAY UP TO AND INCLUDING FINAL LAYER OF SURFACE COURSE.

PHASE III

UPON COMPLETION OF BRIDGE AND ROADWAY, PLACE FINAL PAVEMENT MARKING IN ACCORDANCE WITH RSD 1205.01. REMOVE BARRICADES AND DETOUR SIGNS AND OPEN -L- (SR 1802 / WILL BOONE ROAD) TO TRAFFIC.



APPROVED: _____	DATE: 4/23/15	GENERAL NOTES, PHASING AND DETOUR SIGNING	
	SCALE: NONE		
	DATE: 04/03/15		
	DWG. BY: RGK		
	DESIGN BY: LJW		
REVIEWED BY: EDM	REVISIONS		

PROJECT: BD-5109AA

EROSION AND SEDIMENT CONTROL MEASURES

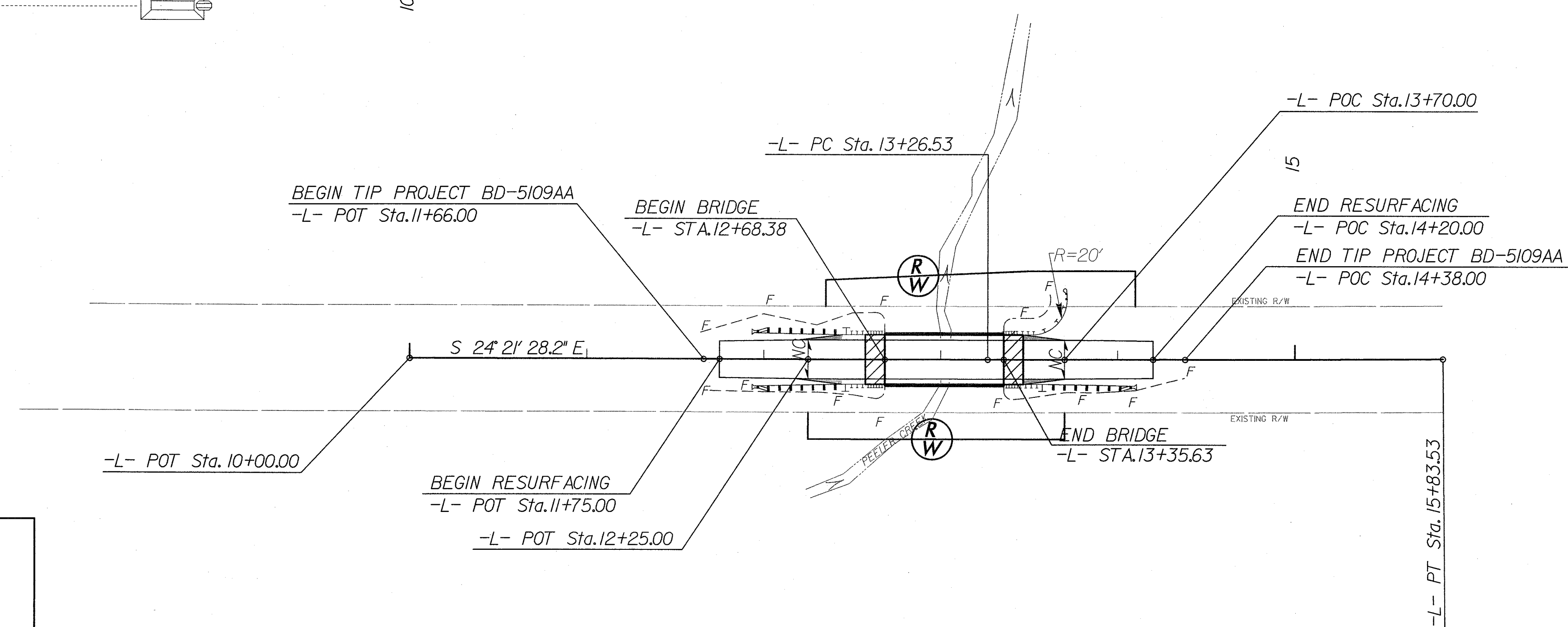
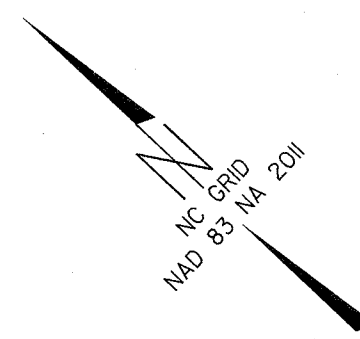
Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	△△△△△
1622.01	Temporary Berms and Slope Drains	T
1630.02	Silt Basin Type B	▨
1635.01	Temporary Rock Silt Check Type-A	⊗
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	⊗
1655.02	Temporary Rock Silt Check Type-B	⊗
	Wattle/Coir Fiber Wattle	⊗
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	⊗
1634.01	Temporary Rock Sediment Dam Type-A	▨
1634.02	Temporary Rock Sediment Dam Type-B	▨
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⊗
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⊗
1630.04	Stilling Basin	▨
1630.06	Special Stilling Basin	▨
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	▨
	Tiered Skimmer Basin	▨
	Infiltration Basin	▨

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

DAVIE COUNTY
LOCATION: REPLACE EXISTING BRIDGE NO. 60
SR 1802 - WILL BOONE RD

TYPE OF WORK: GRADING, DRAINAGE, CORED SLAB BRIDGE,
AND PAVEMENT MARKINGS

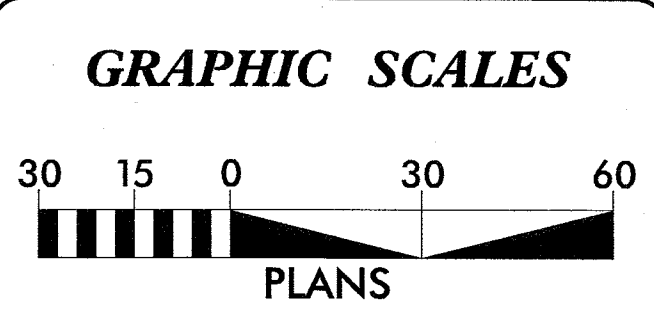
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5109AA	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45355.1.27	BRZ-1809(5)	PE	
45355.2.27	BRZ-1809(5)	R/W, UTILITIES	
45355.3.27	BRZ-1809(5)	CONSTR.	



CHARLES HEAFNER
LEVEL III NAME

3440
LEVEL III CERTIFICATION NO.

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



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.

PLANS PREPARED BY: PARSONS BRINCKERHOFF 434 FAYETTEVILLE STREET SUITE 1500 RALEIGH, NC 27601 LICENSE NO. E-4065	PLANS PREPARED FOR: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr. Raleigh NC, 27610
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	TIM HAYES, PE PROJECT ENGINEER
LETTING DATE:	LAUREN WILSON, EI PROJECT DESIGN ENGINEER
NCDOT CONTACT:	MATTHEW JONES, PE DIVISION BRIDGE - PROGRAM MANAGER

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	

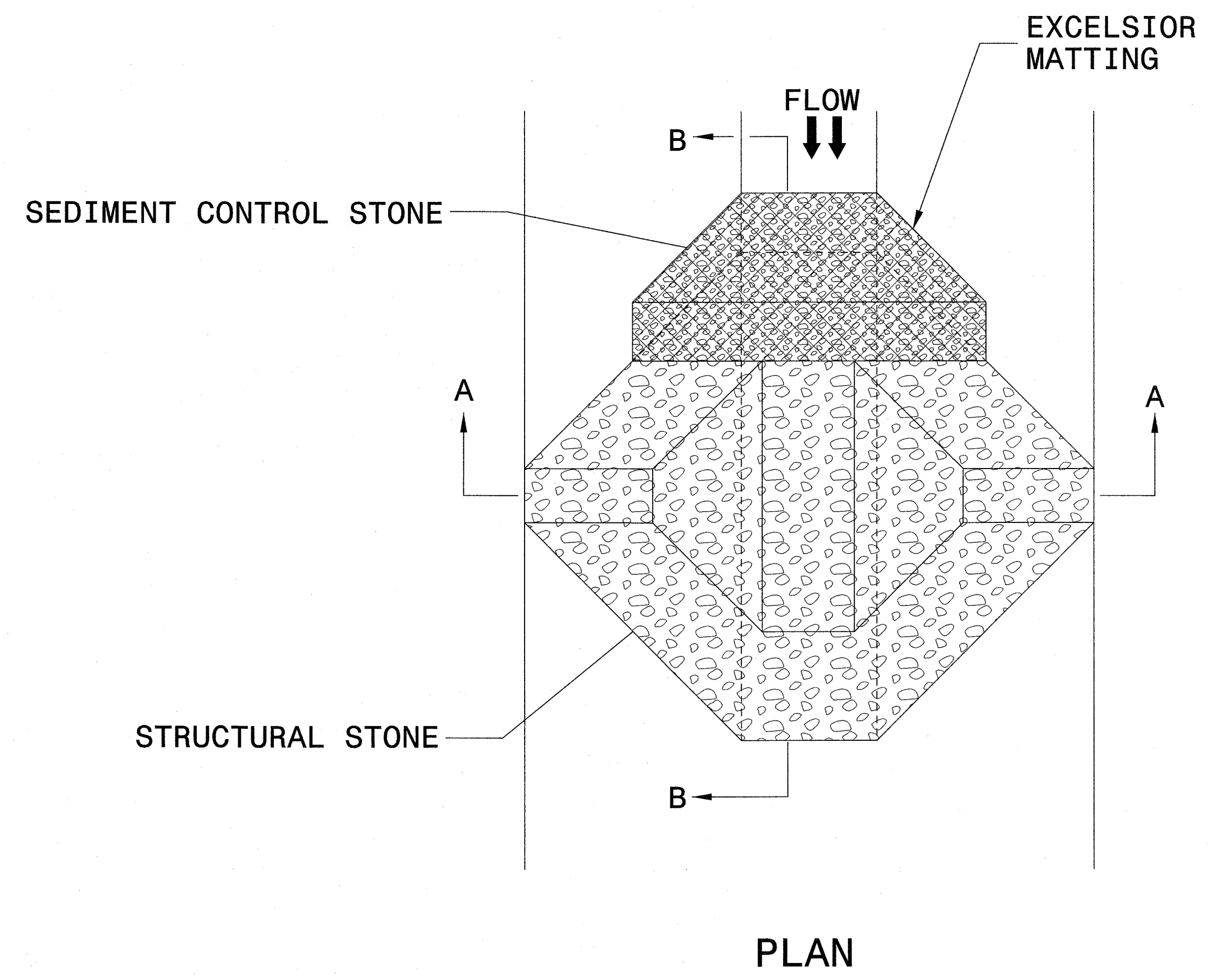
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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.

PROJECT REFERENCE NO. BD-5109AA	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

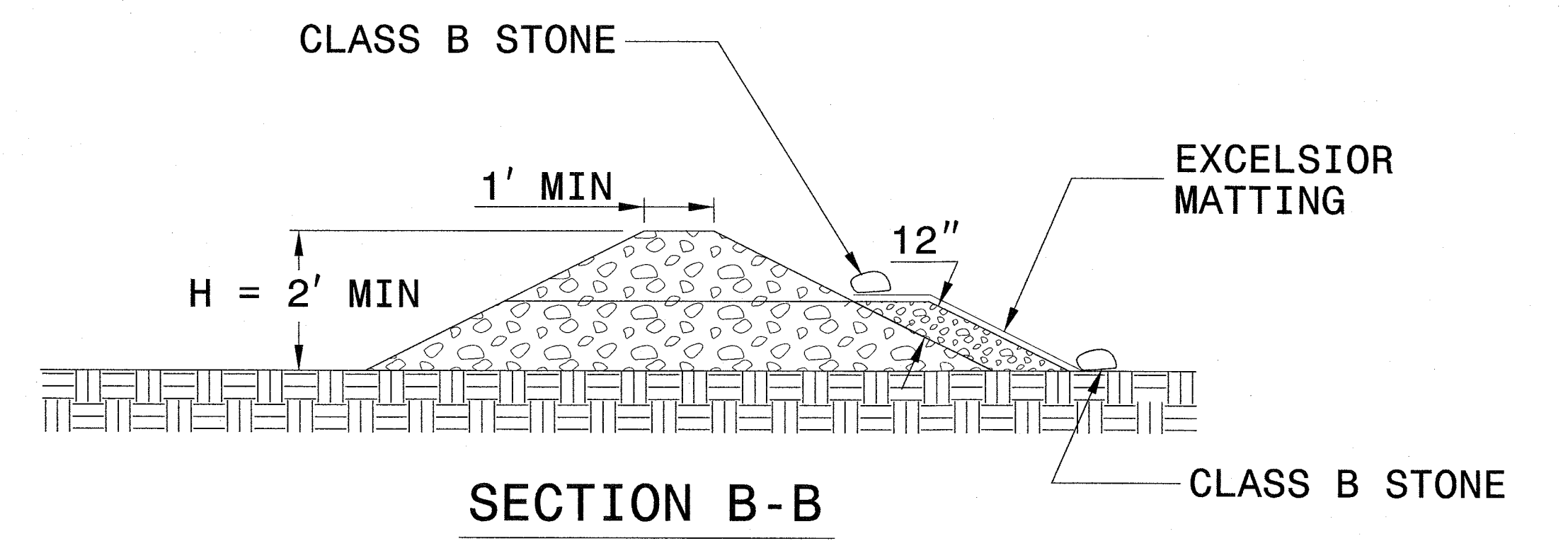
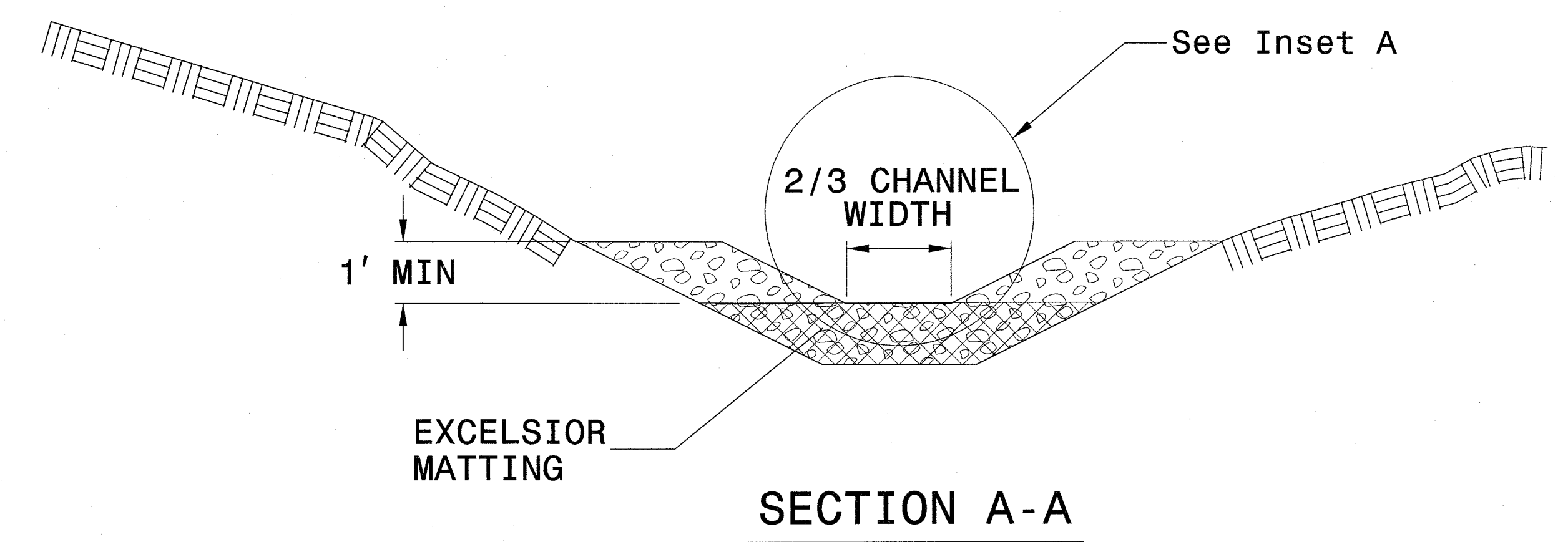
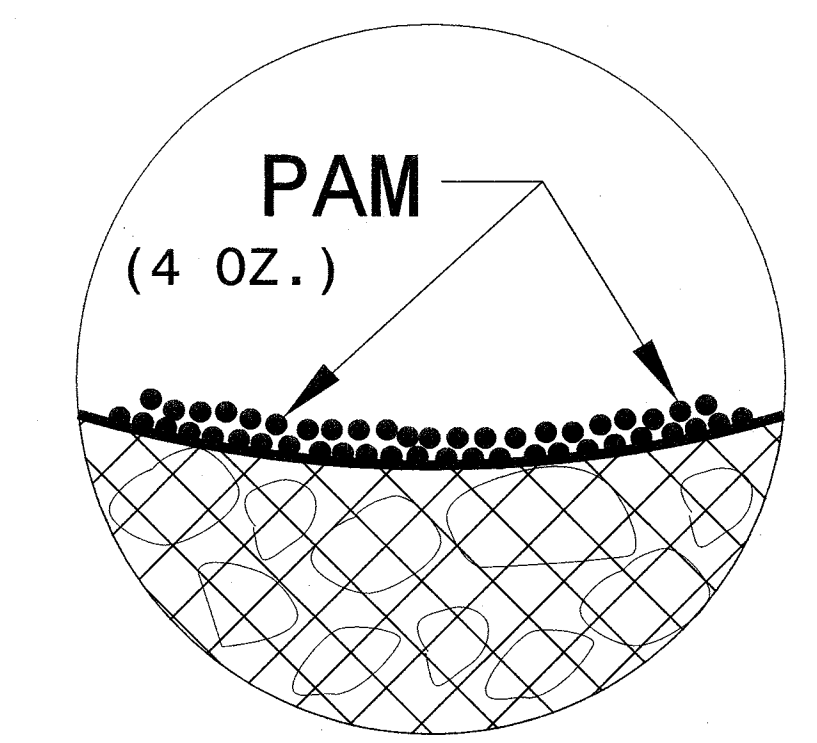


NOTES

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.

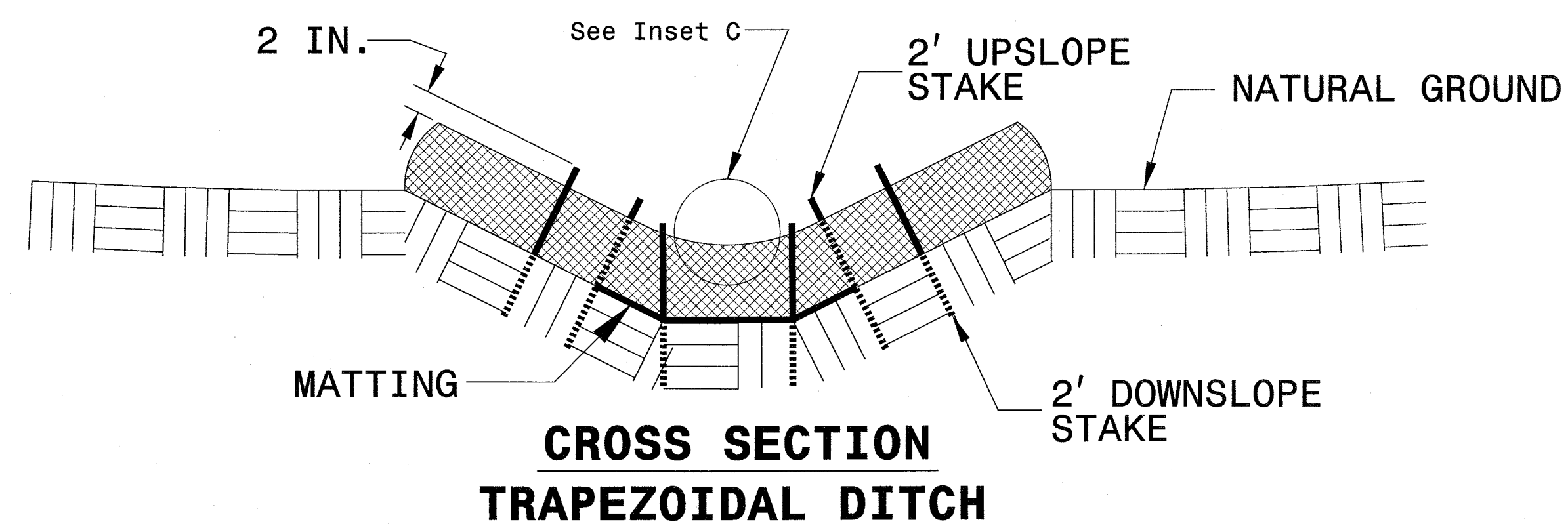
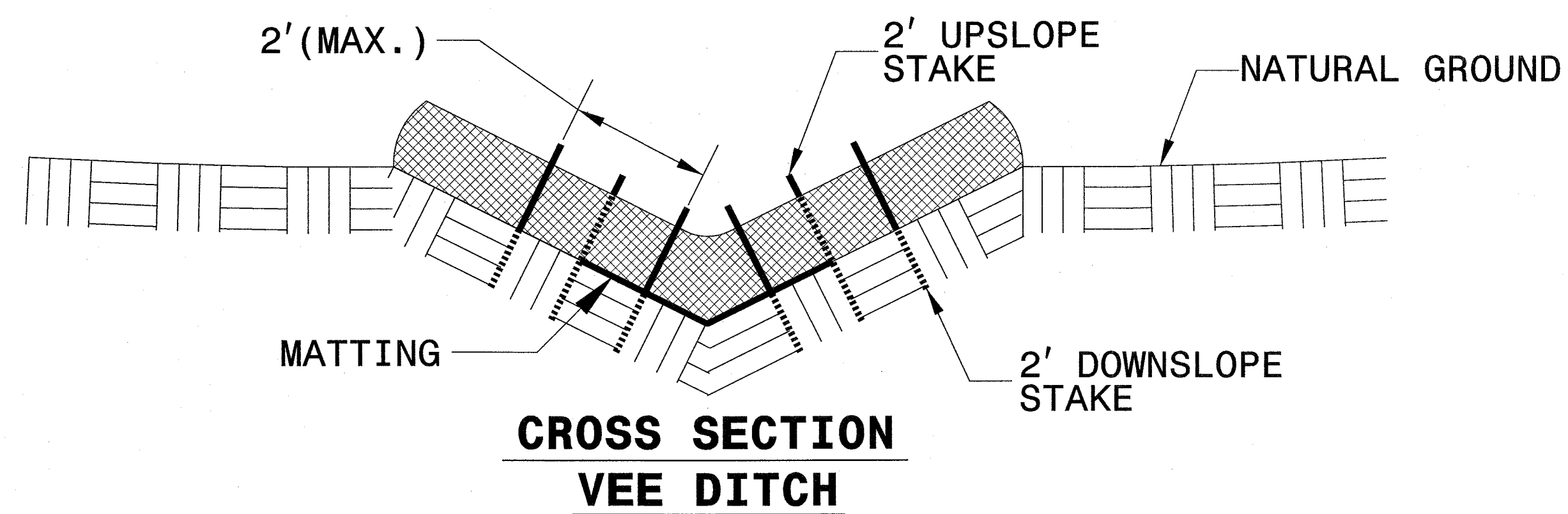
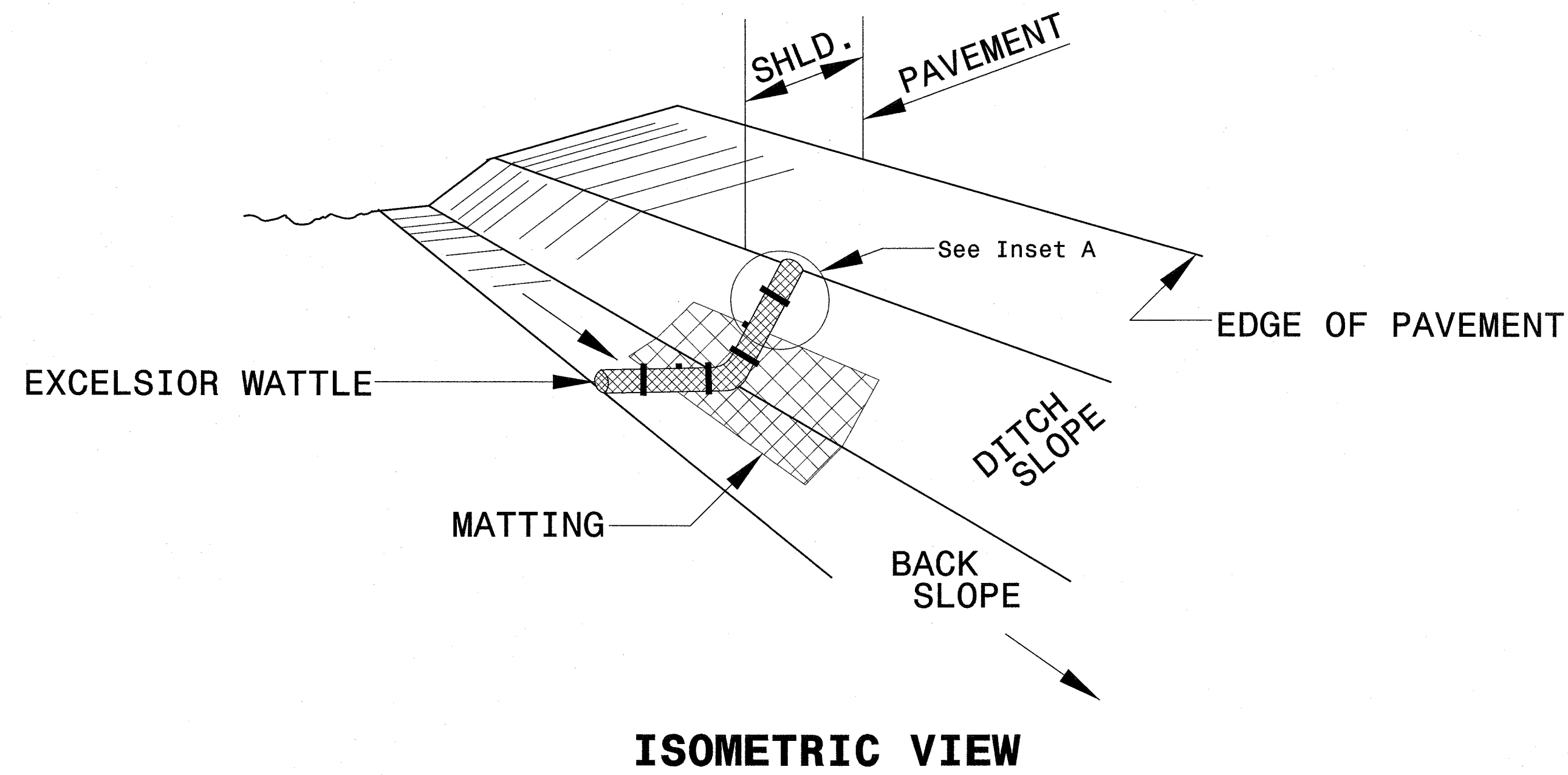
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



NOT TO SCALE

PROJECT REFERENCE NO. BD-5109AA	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

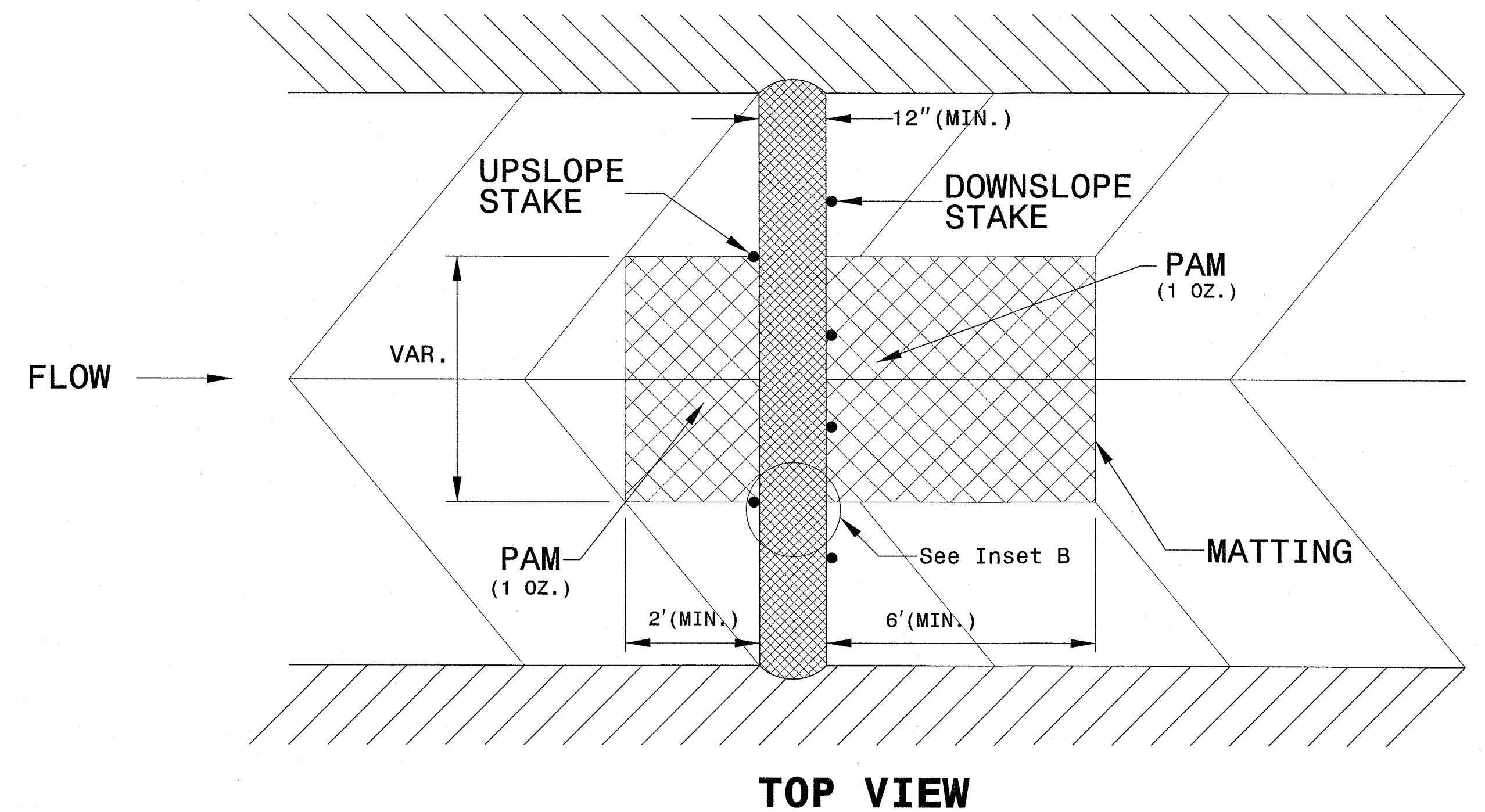
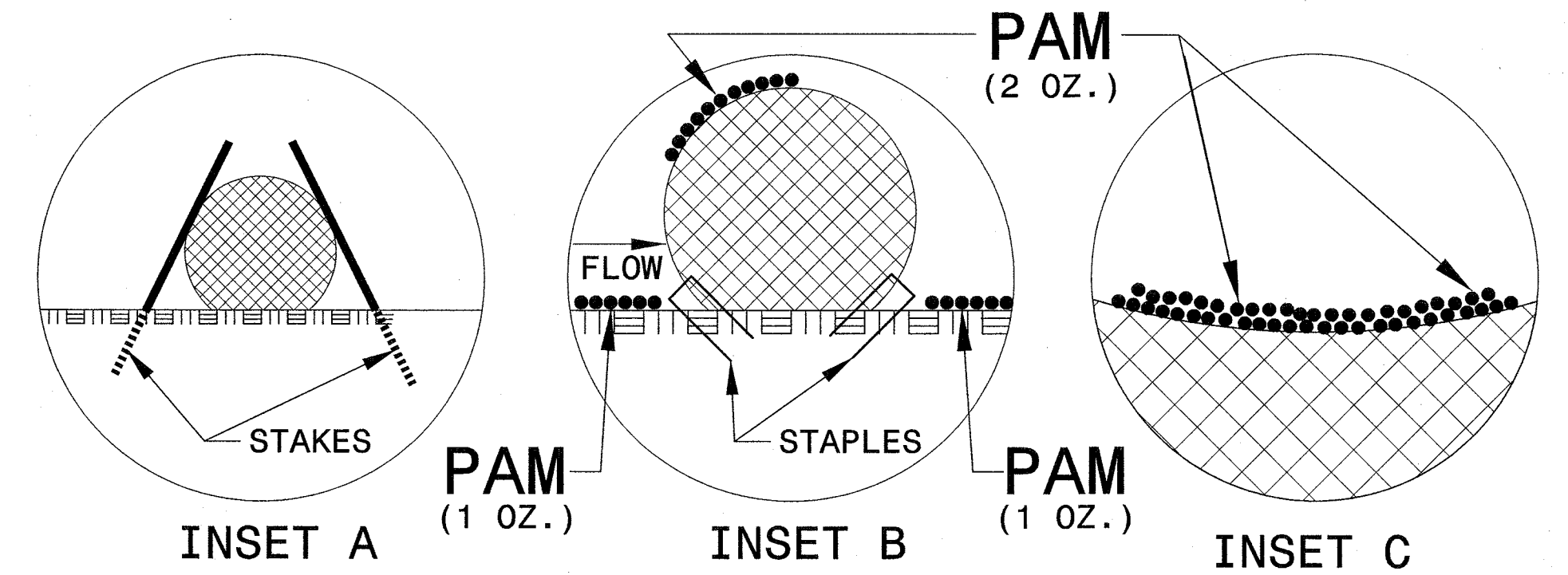
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

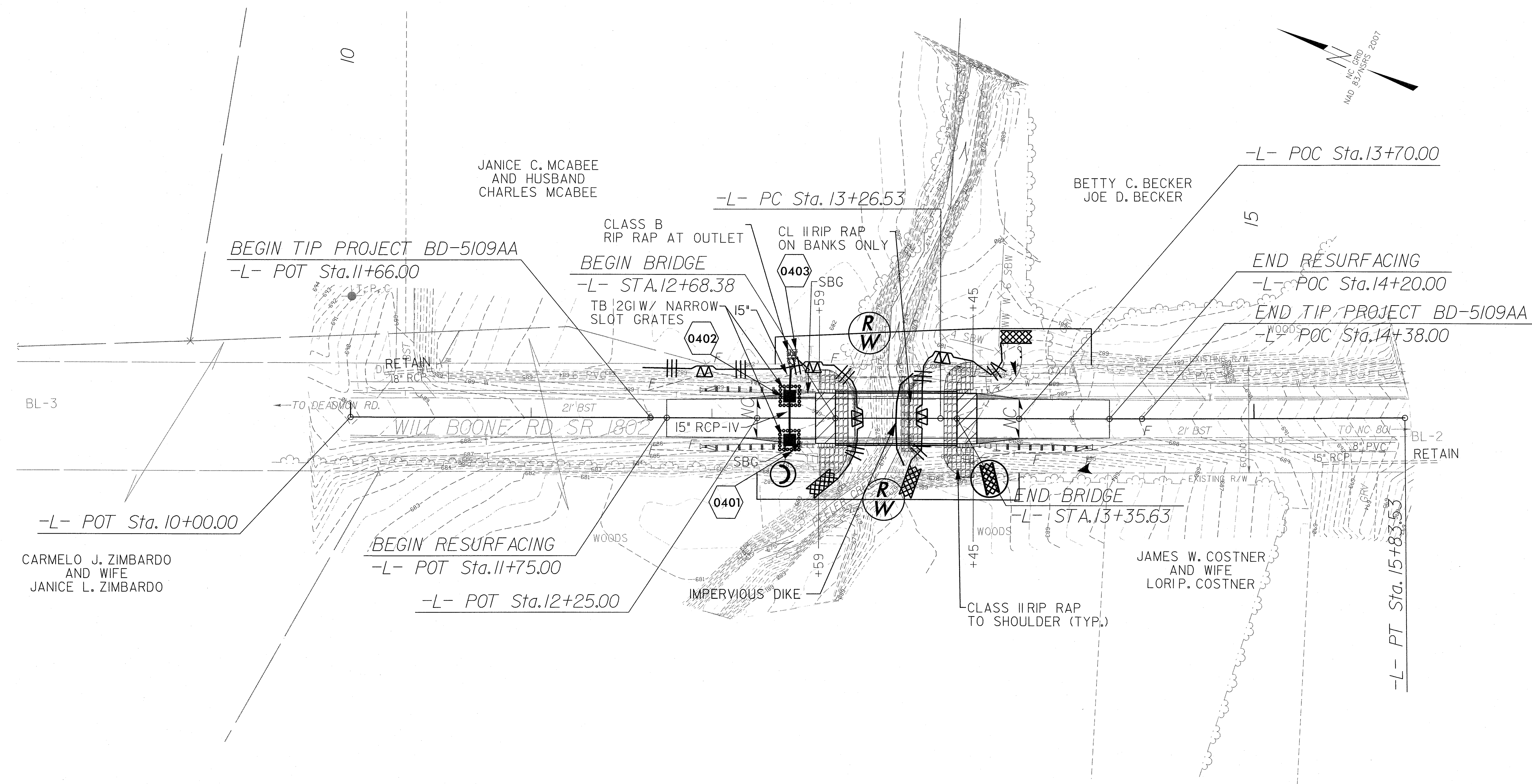
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

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 WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



EROSION CONTROL PLAN



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

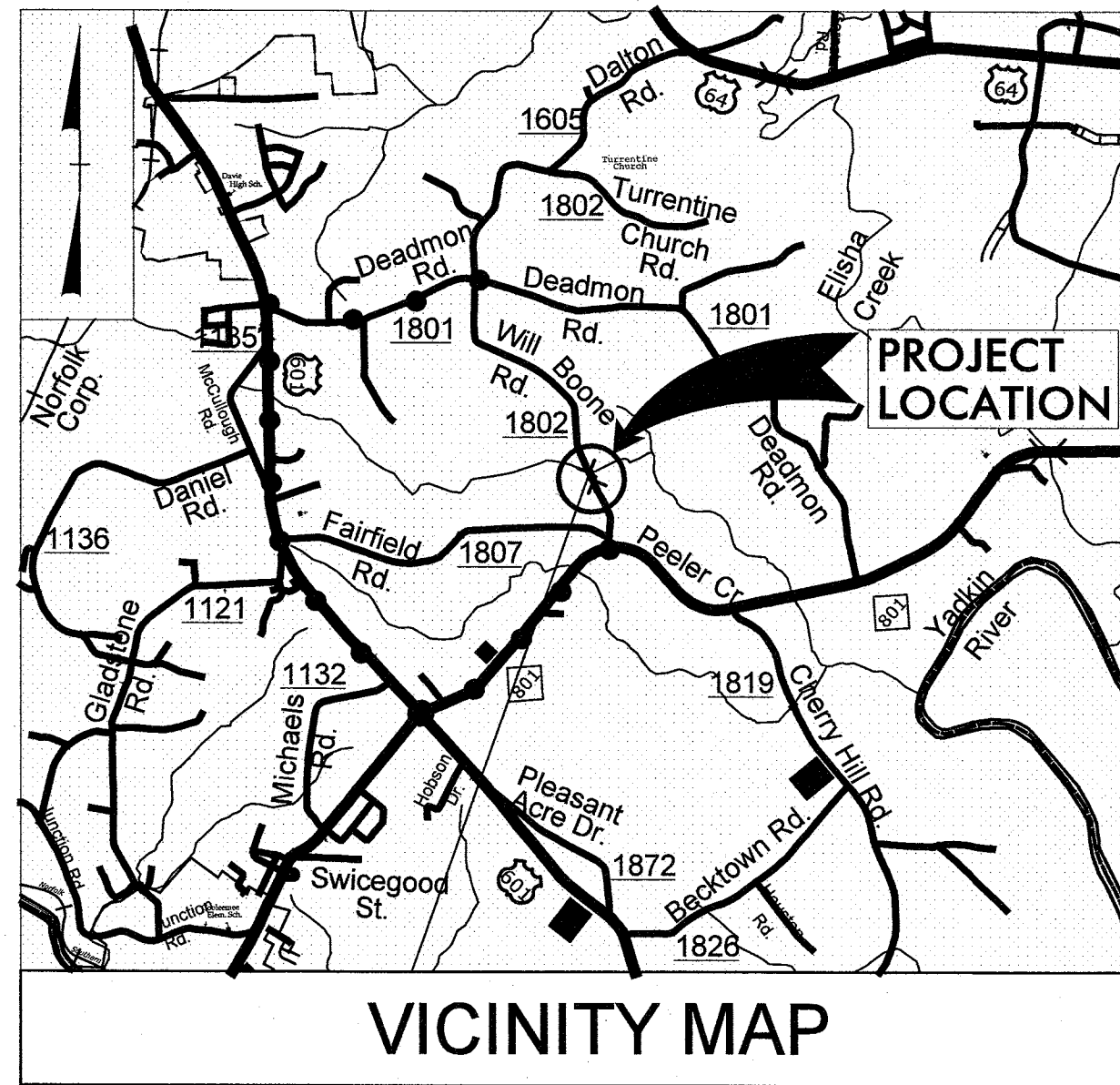
ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS DAVIE COUNTY

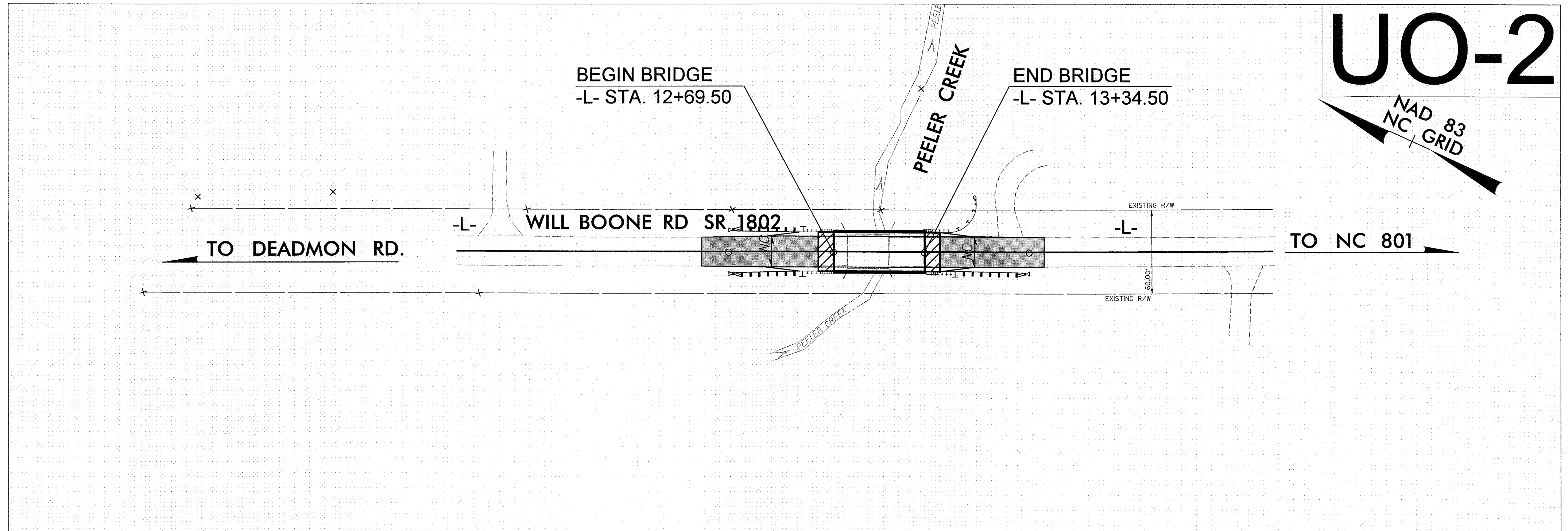
**LOCATION: REPLACE EXISTING BRIDGE NO. 60
WITH CORED SLAB BRIDGE**

TYPE OF WORK: AERIAL AND BURIED UTILITIES



VICINITY MAP

—●—●—●— DETOUR ROUTE



TIP PROJECT: BD-5109AA

CONTRACT:

Y:\Part_sons_PBWor\id\DLIB\2013-Div9\BD5109AA-Davie\Utilities\BD-5109AA_UBO_t.sh.dgn

GRAPHIC SCALES



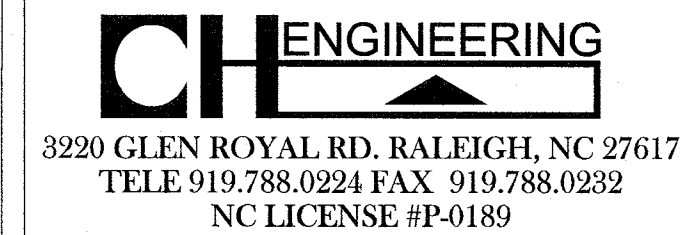
INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITY BY OTHERS PLAN SHEET

UTILITY OWNERS ON PROJECT

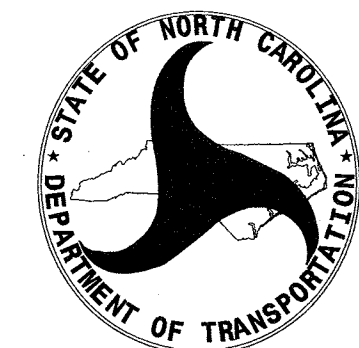
- (A) POWER: DUKE-ENERGY: PAULA BUTNER 336-917-2525
PAULA.BUTNER@DUKE-ENERGY.COM
- (B) POWER: ENERGY UNITED: ALLEN HEGE 336-236-8402
ALLEN.HEGE@ENERGYUNITED.COM
- (C) PHONE: YADKIN VALLEY TMC: PATRICK GRAY
336-463-5037 PGRAY@YADTEL.COM
- (D) COMMUNICATIONS: TWC: CHRIS SECHRIST
336-231-6211 CHRIS.SECHRIST@TWCABLE.COM
- (E) WATER: DAVIE COUNTY PUBLIC UTILITIES:
JOHNNY LAMBERT 336-753-6090 JOHNNY.LAMBERT@CO.DAVIE.NC.US

PLANS PREPARED BY:



UTILITIES PROJECT ENGINEER

Mary Jo Lee, P.E.



PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. UTILITIES SECTION ENGINEER

UTILITIES BY OTHERS

CONTACT INFORMATION FOR UTILITIES

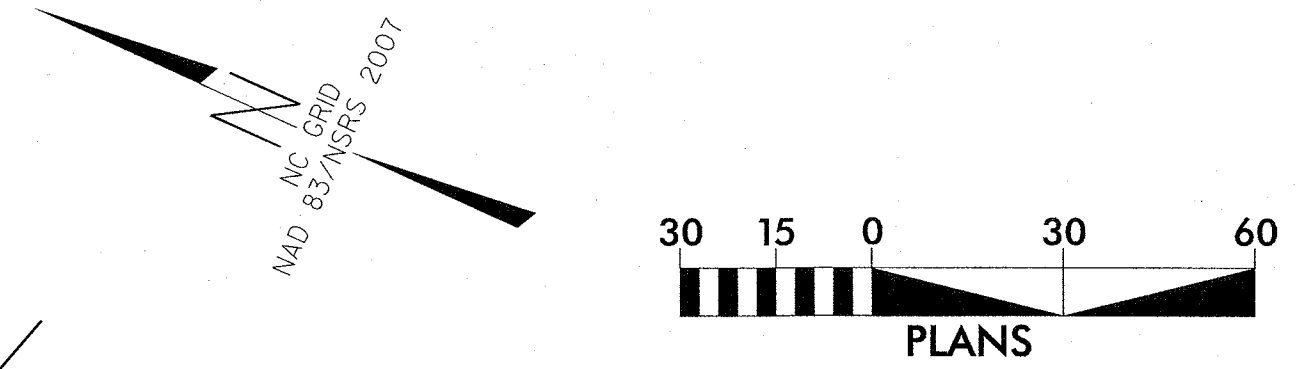
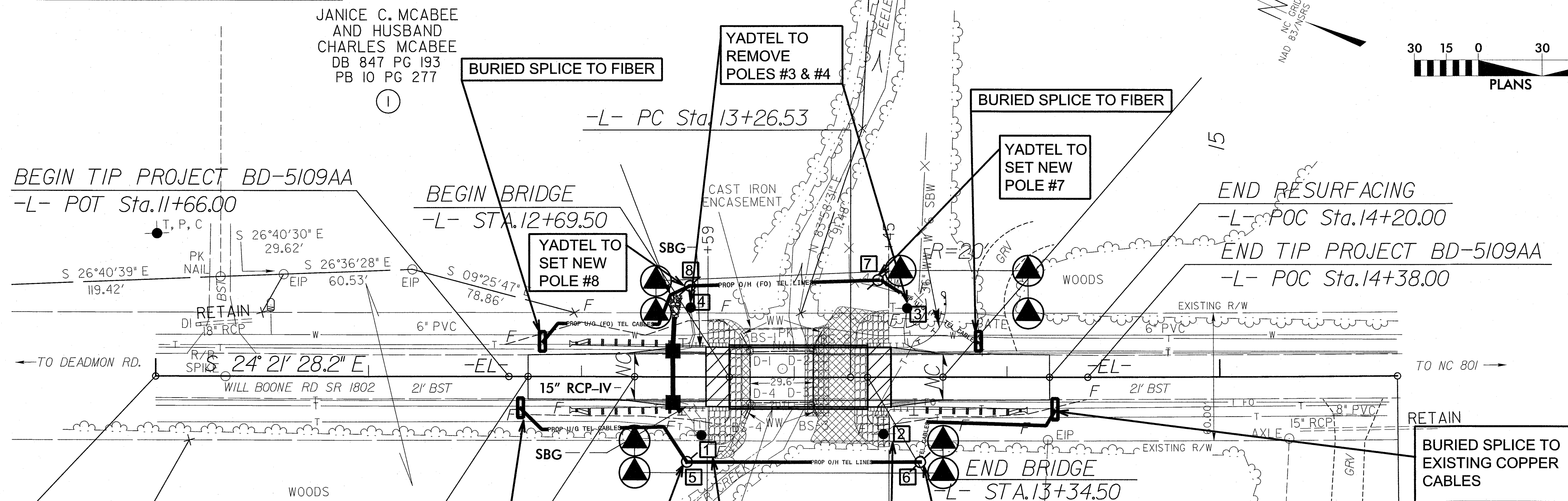
POWER: DUKE ENERGY: PAULA BUTNER 336-917-2525 PAULA.BUTNER@DUKE-ENERGY.COM
 POWER: ENERGY UNITED: ALLEN HEGE 336-236-8402 ALLEN.HEGE@ENERGYUNITED.COM
 PHONE: YADKIN VALLEY TMC: PATRICK GRAY 336-463-5037 PGRAY@YADTEL.COM
 COMMUNICATIONS: TWC: CHRIS SECHRIST 336-231-6211 CHRIS.SECHRIST@TWCABLE.COM
 WATER: DAVIE COUNTY PUBLIC UTILITIES: JOHNNY LAMBERT 336-753-6090
 JOHNNY.LAMBERT@CO.DAVIE.NC.US



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

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

*TWC TO FOLLOW YADKIN VALLEY TMC

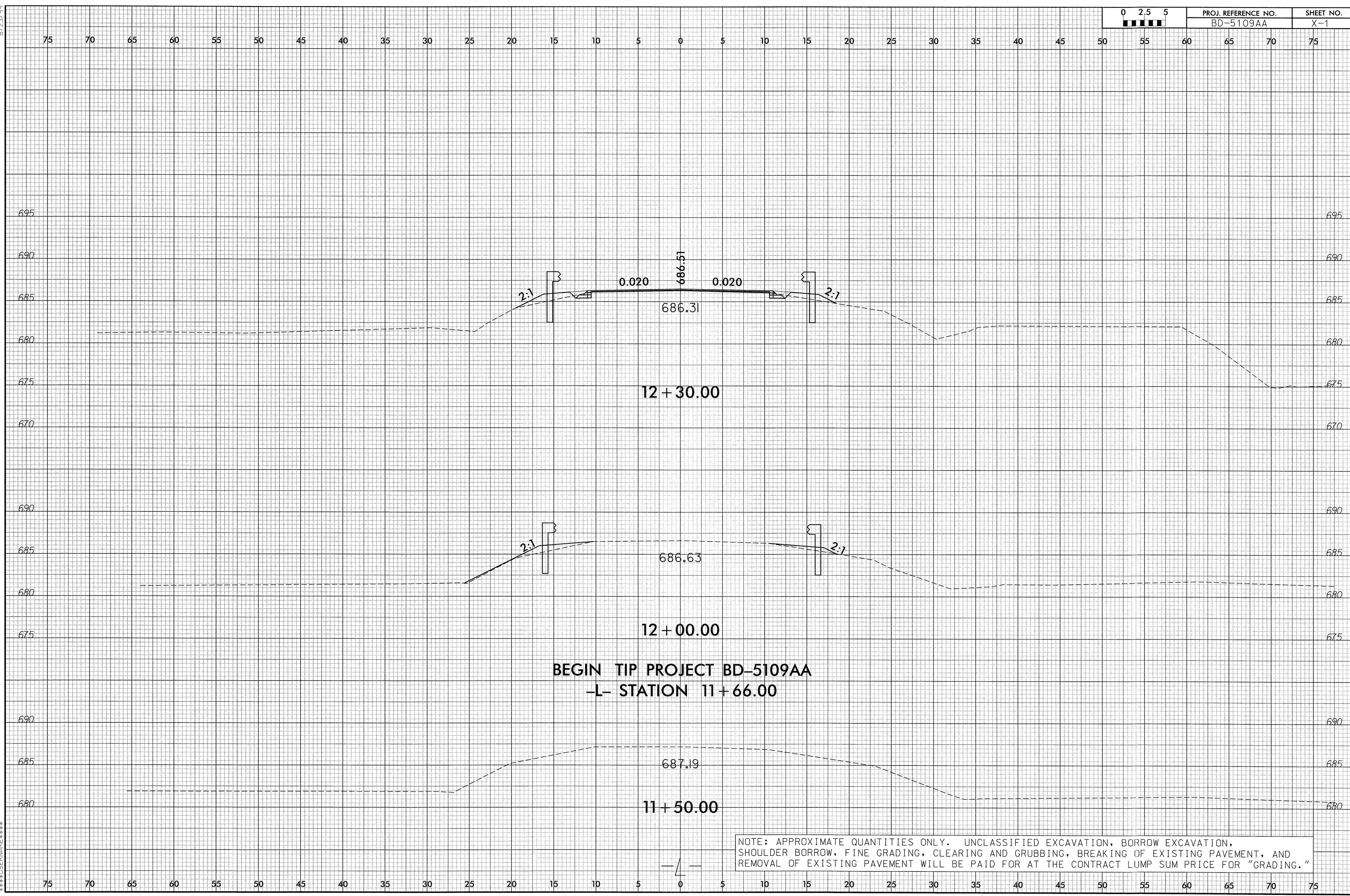


LEGEND

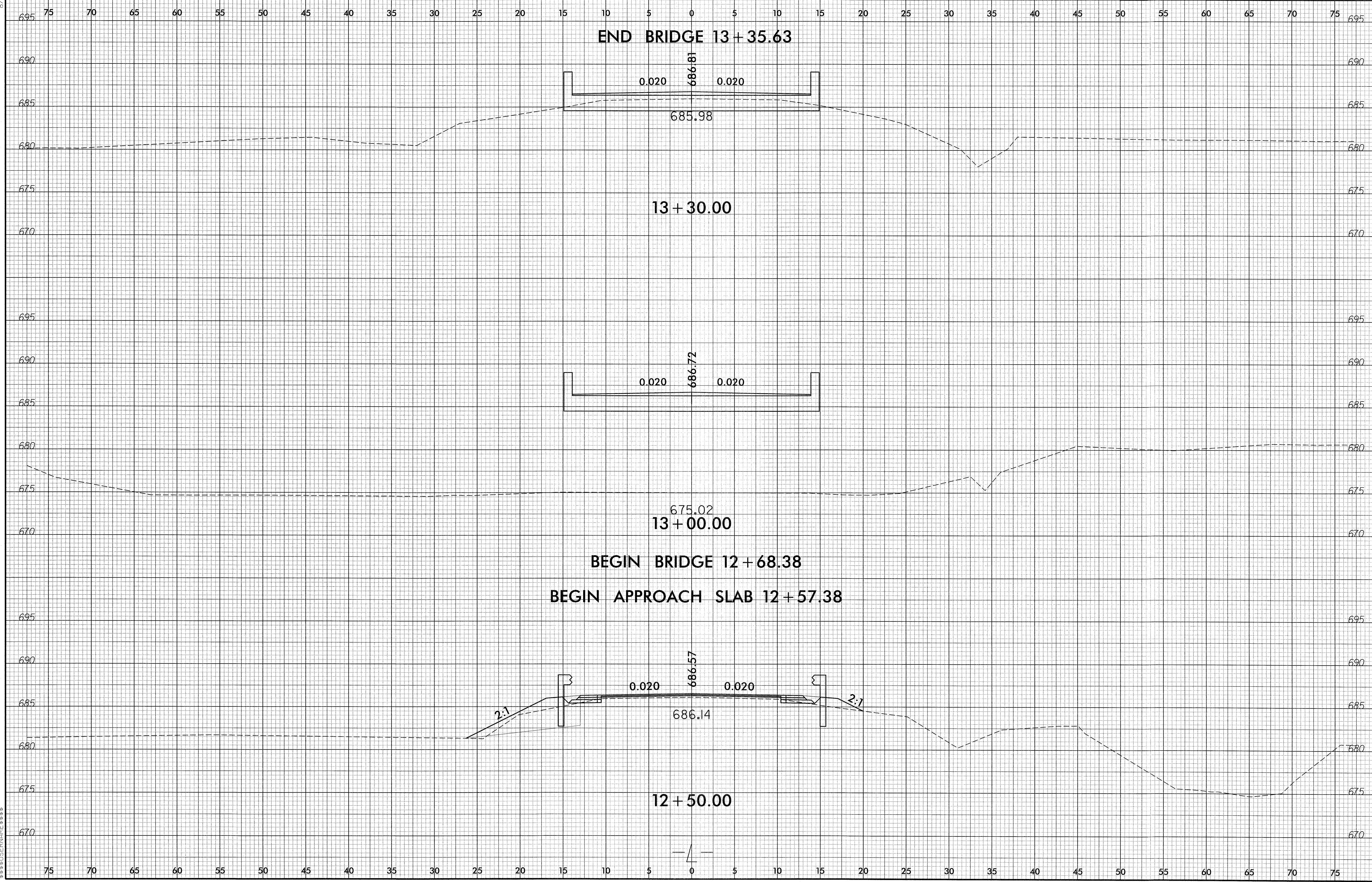
- EXISTING JOINT POWER AND TELEPHONE POLE
- EXISTING POWER POLE
- EXISTING TELEPHONE POLE
- PROPOSED JOINT POWER AND TELEPHONE POLE
- PROPOSED POWER POLE
- PROPOSED TELEPHONE POLE
- EXISTING U/G TELEPHONE LINE
- EXISTING O/H POWER LINE
- PROPOSED U/G (FO) TELEPHONE LINE
- PROPOSED O/H (FO) TELEPHONE LINE
- PROPOSED U/G TELEPHONE LINE
- PROPOSED O/H TELEPHONE LINE

8/17/99
 4/24/2015
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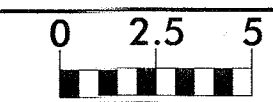
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SHEET NO. X-1
PROJ. REFERENCE NO. BD-5109AA



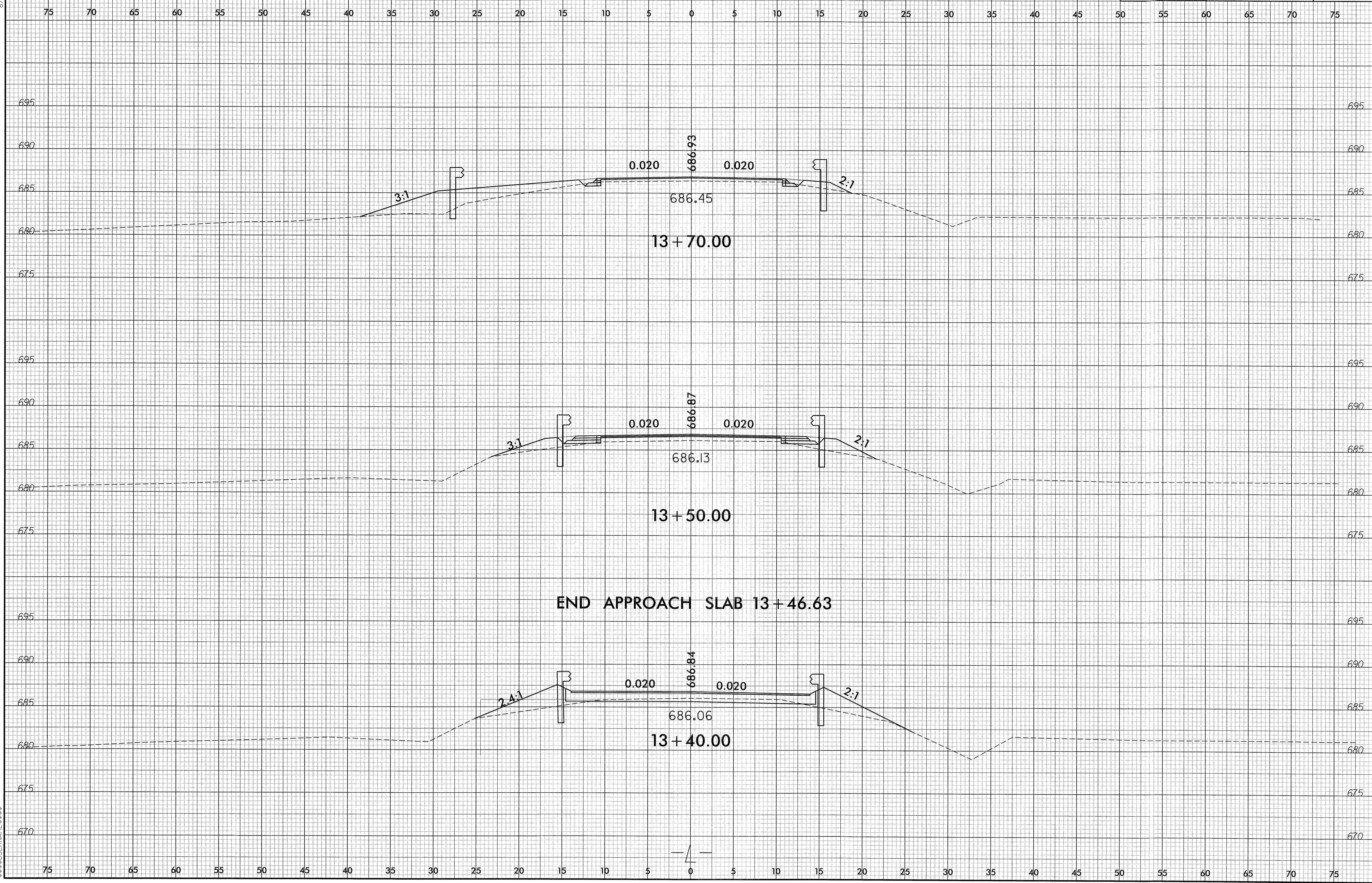
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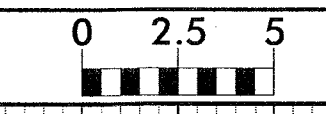


PROJ. REFERENCE NO. BD-5109AA SHEET NO. X-3



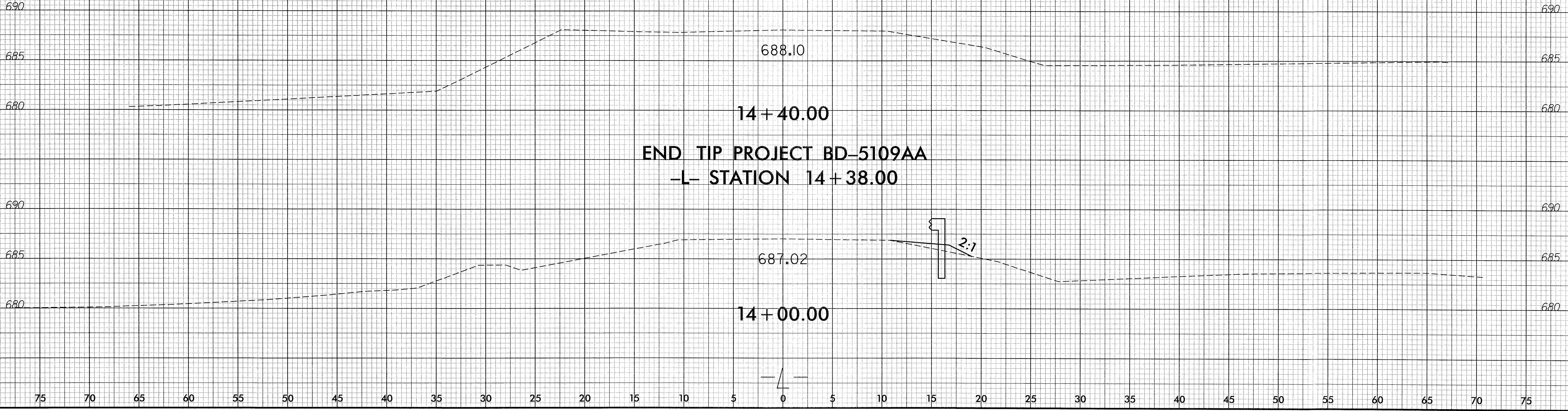
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8/23/99



PROJ. REFERENCE NO. BD-5109AA	SHEET NO. X-4
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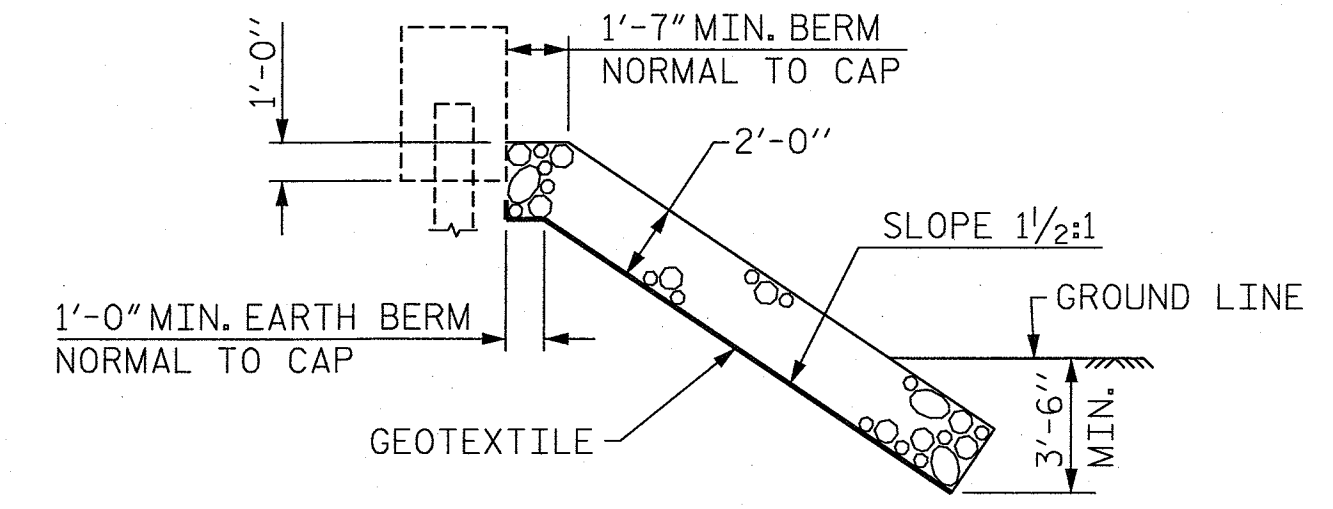
SYSTEMS
BY
DATE
TIME
8/23/99

HYDRAULIC DATA

DESIGN DISCHARGE	810 CFS
FREQUENCY OF DESIGN FLOOD	25 YRS.
DESIGN HIGH WATER ELEVATION	682.0
DRAINAGE AREA	2.0 SQ.MI.
BASE DISCHARGE (Q100)	1135 CFS
BASE HIGH WATER ELEVATION	683.00

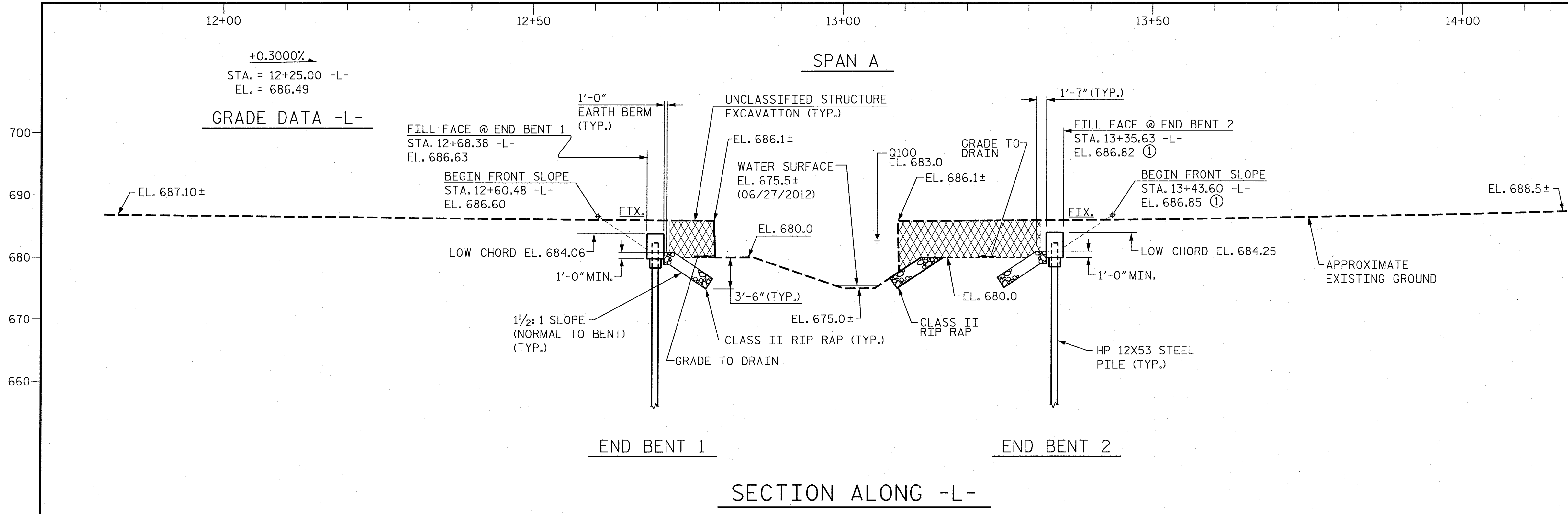
OVERTOPPING FLOOD DATA

OVERTOPPING FLOOD DISCHARGE	3000 CFS
FREQUENCY OF OVERTOPPING FLOOD	500+ YRS.
OVERTOPPING FLOOD ELEVATION	686.5



RIP RAP DETAIL

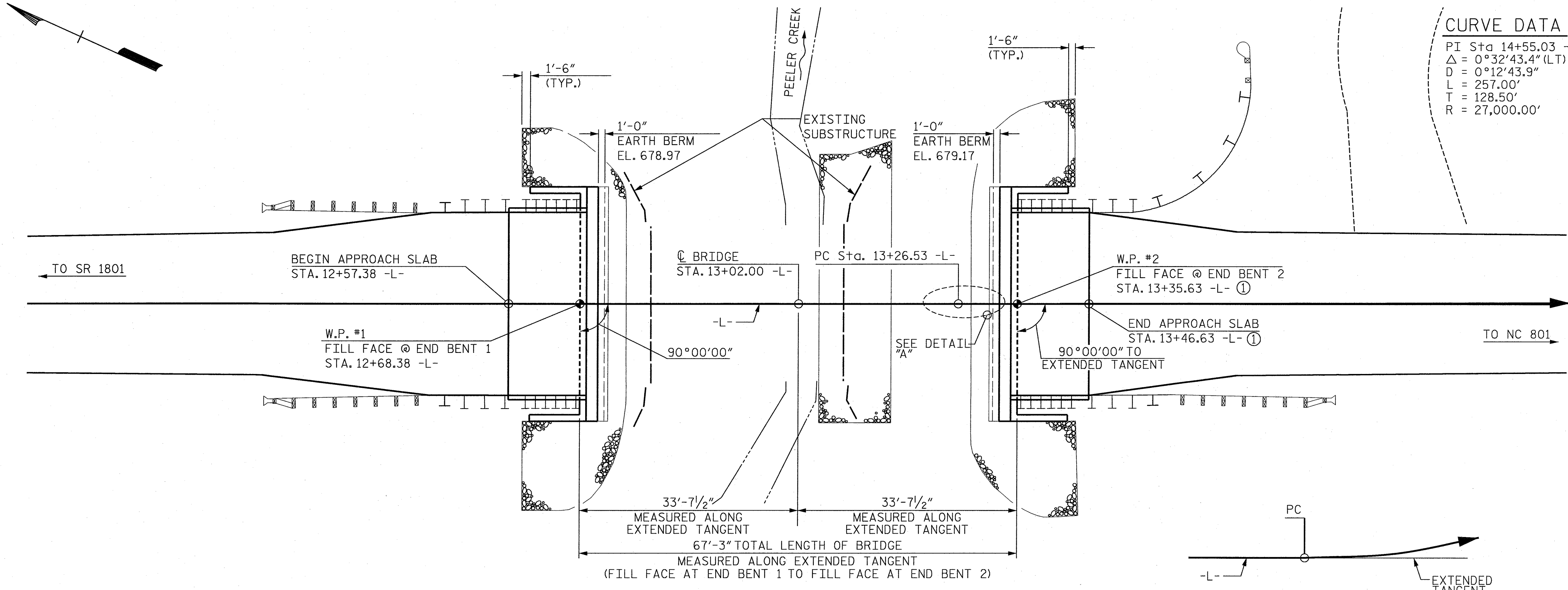
I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



SECTION ALONG -L-

CURVE DATA

PI Sta 14+55.03 -L-
 $\Delta = 0^\circ 32' 43.4''$ (LT)
 $D = 0^\circ 12' 43.9''$
 $L = 257.00'$
 $T = 128.50'$
 $R = 27,000.00'$



PLAN

PILES NOT SHOWN FOR CLARITY

DETAIL "A"

① - STATIONS AND ELEVATIONS TAKEN ON EXTENDED TANGENT

PROJECT NO. BD-5109AA

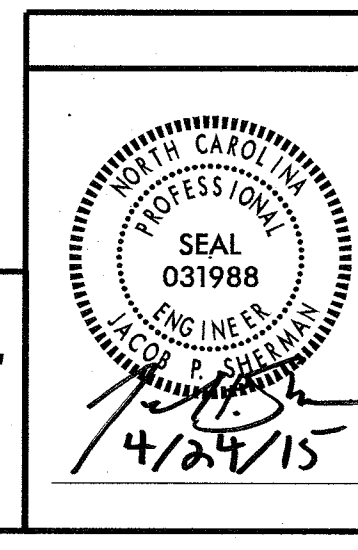
DAVIE COUNTY

STATION: 13+02.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 060

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 1802 OVER
 PEELER CREEK BETWEEN
 SR 1801 AND NC 801

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

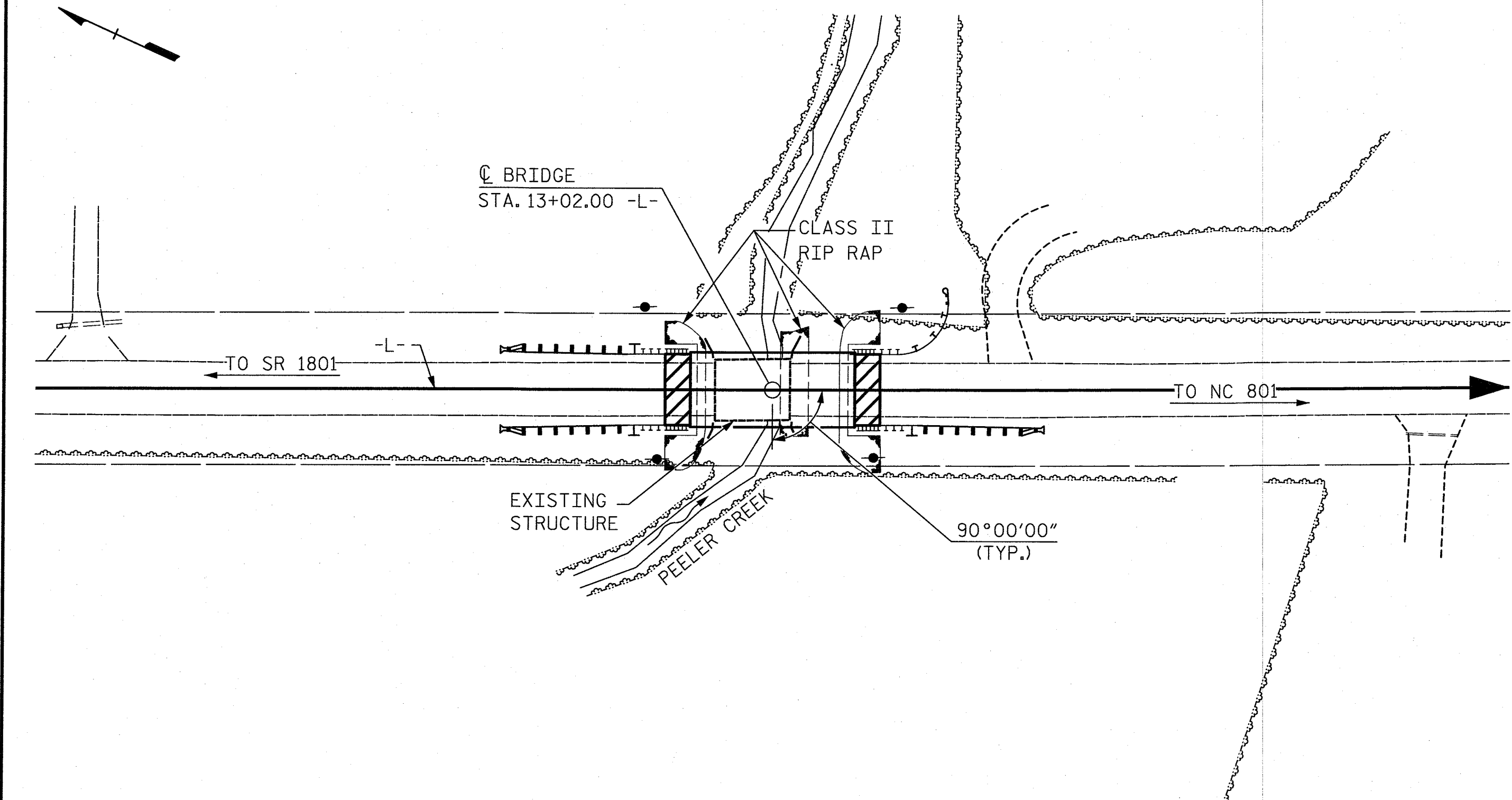


PARSONS BRINCKERHOFF
 121 WEST TRADE ST.
 SUITE 1950
 CHARLOTTE, NC 28202
 LICENSE NO. F-0165

4/24/2015 BD-5109AA_SD_GD_01.dgn

DESIGNED BY:	E. DAVIS	DATE:	MAY 2014
DRAWN BY:	E. DAVIS	DATE:	MAY 2014
CHECKED BY:	J. SHERMAN	DATE:	MAY 2014
DESIGN ENGINEER OF RECORD:	J. SHERMAN	DATE:	APRIL 2015

BM #1 : IRON PIN WITH ALUMINUM CAP SET FLUSH WITH THE GROUND, STA. 12+55.00, 0' RT., EL. 696.45



FOR UTILITIES SEE UTILITY PLANS AND SPECIAL PROVISIONS

LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE EXISTING STRUCTURE CONSISTING OF ONE (1) 31'-0" SPAN, WITH A CLEAR ROADWAY WIDTH OF 24' AND PRECAST PRESTRESSED CONCRETE CHANNELS WITH ASPHALT OVERLAY SUPPORTED BY PRECAST CAPS AND TIMBER PILES SHALL BE REMOVED.

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 MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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.

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

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

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 95 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 158 TONS PER PILE.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE SEAL APPROACH SLABS	REINFORCING STEEL	HP 12x53 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-0" PRESTRESSED CONCRETE CORED SLABS		
						LUMP SUM	LUMP SUM					CU. YDS.	LUMP SUM	LBS.
SUPERSTRUCTURE	LUMP SUM			LUMP SUM				130.25				LUMP SUM	10	650
END BENT NO. 1		LUMP SUM	20.2		2449	5	75		88	98				
END BENT NO. 2		LUMP SUM	20.2		2449	5	105		*165	183				
TOTAL	LUMP SUM	LUMP SUM	40.4	LUMP SUM	4898	10	180	130.25	*253	281	LUMP SUM	10	650	

* - INCLUDES CLASS II BANK PROTECTION

PROJECT NO. BD-5109AA

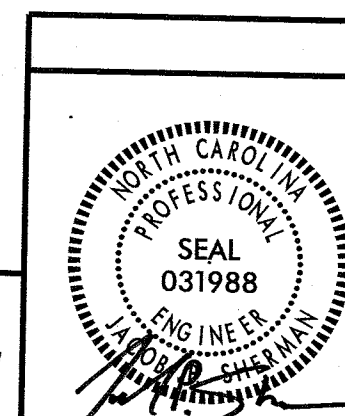
DAVIE COUNTY

STATION: 13+02.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON SR 1802 OVER
PEELER CREEK BETWEEN
SR 1801 AND NC 801



PARSONS BRINCKERHOFF
121 WEST TRADE ST.
SUITE 1950
CHARLOTTE, NC 28202
LICENSE NO. F-0165

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

4/24/2015 BD-5109AA_SD_LS_02.dgn

DESIGNED BY: E. DAVIS DATE: MAY 2014
DRAWN BY: E. DAVIS DATE: MAY 2014
CHECKED BY: J. SHERMAN DATE: MAY 2014
DESIGN ENGINEER OF RECORD: J. SHERMAN DATE: APRIL 2015

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

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{dc}	γ_{dw}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.018	--	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	2.07	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	1.43	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	1.21	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	1.18	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	1.09	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	1.04	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	

NOTES:

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

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

COMMENTS:

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

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

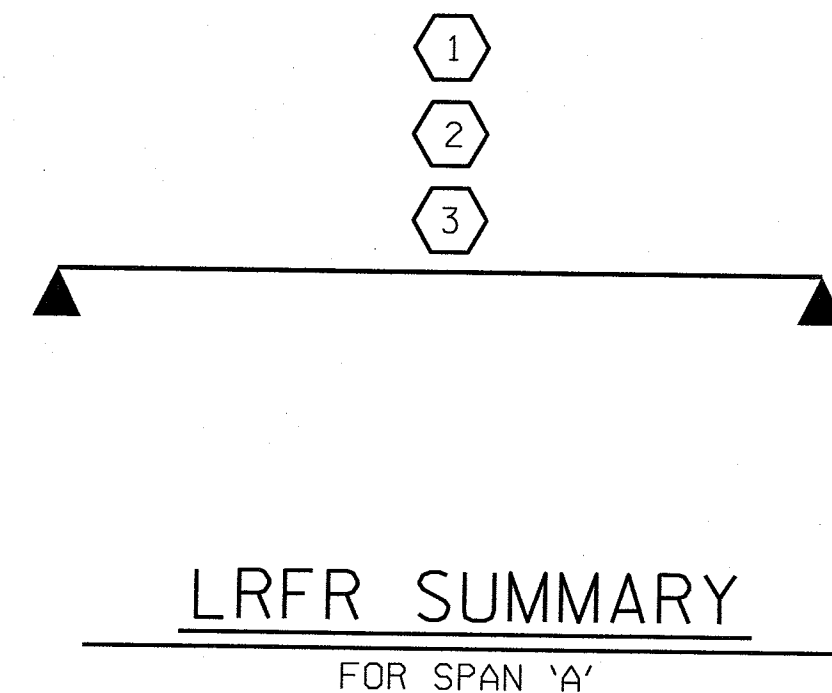
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



PROJECT NO. BD-5109AA

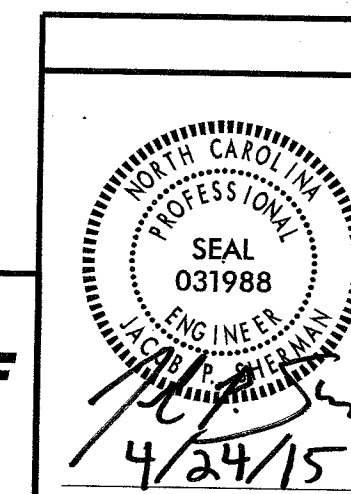
DAVIE COUNTY

STATION: 13+02.00 -L-

DESIGNED BY: E. DAVIS DATE: MAY 2014
 DRAWN BY: E. DAVIS DATE: MAY 2014
 CHECKED BY: J. SHERMAN DATE: MAY 2014
 DESIGN ENGINEER OF RECORD: J. SHERMAN DATE: APRIL 2015

DRAWN BY: CVC 6/10
 CHECKED BY: DNS 6/10

PARSONS BRINCKERHOFF
 121 WEST TRADE ST.
 SUITE 1950
 CHARLOTTE, NC 28202
 LICENSE NO. E-0165



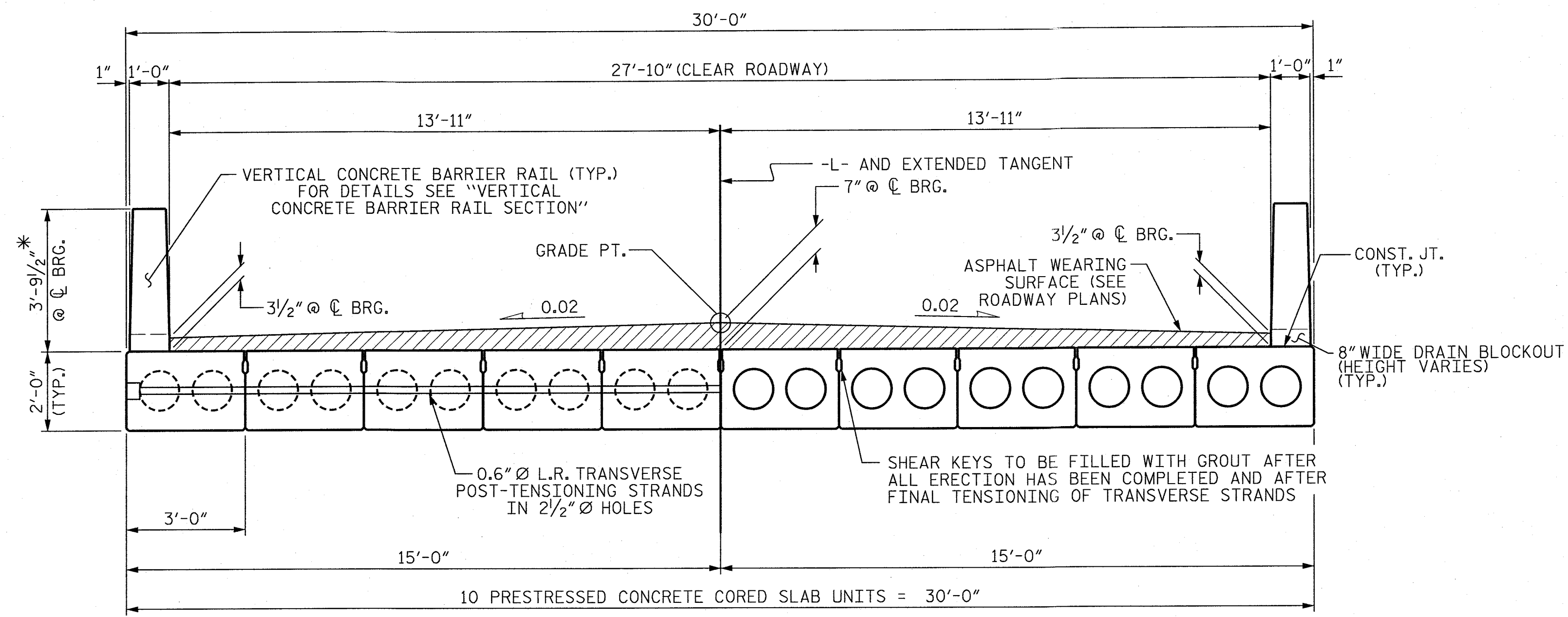
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 65' CORED SLAB UNIT
 90 SKEW
 (NON-INTERSTATE TRAFFIC)

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

S-3
TOTAL SHEETS: 12

STD. NO. 24LRFR1-90S-65L

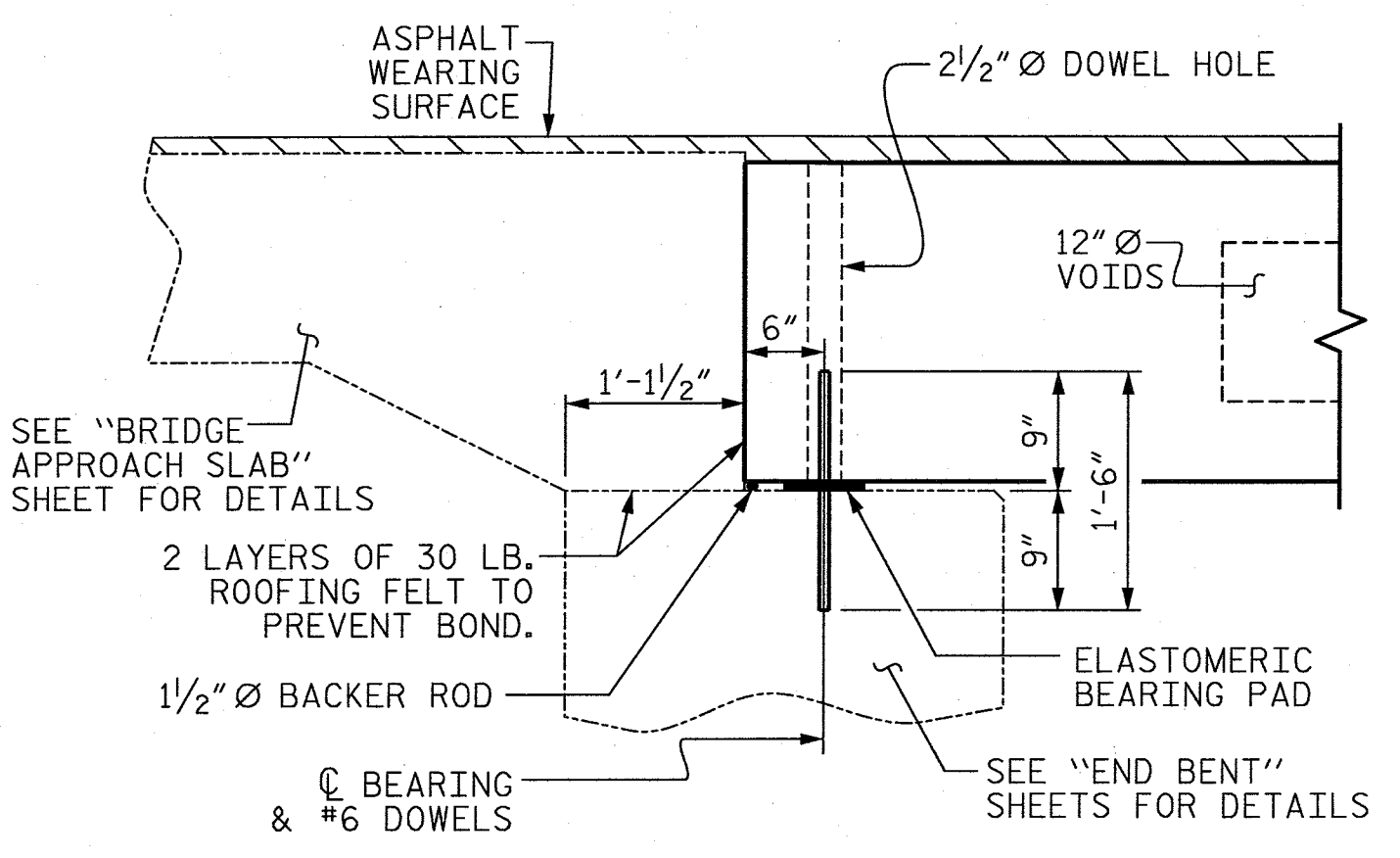
4/24/2015 BD-5109AA STD_LR_LR_03.dgn



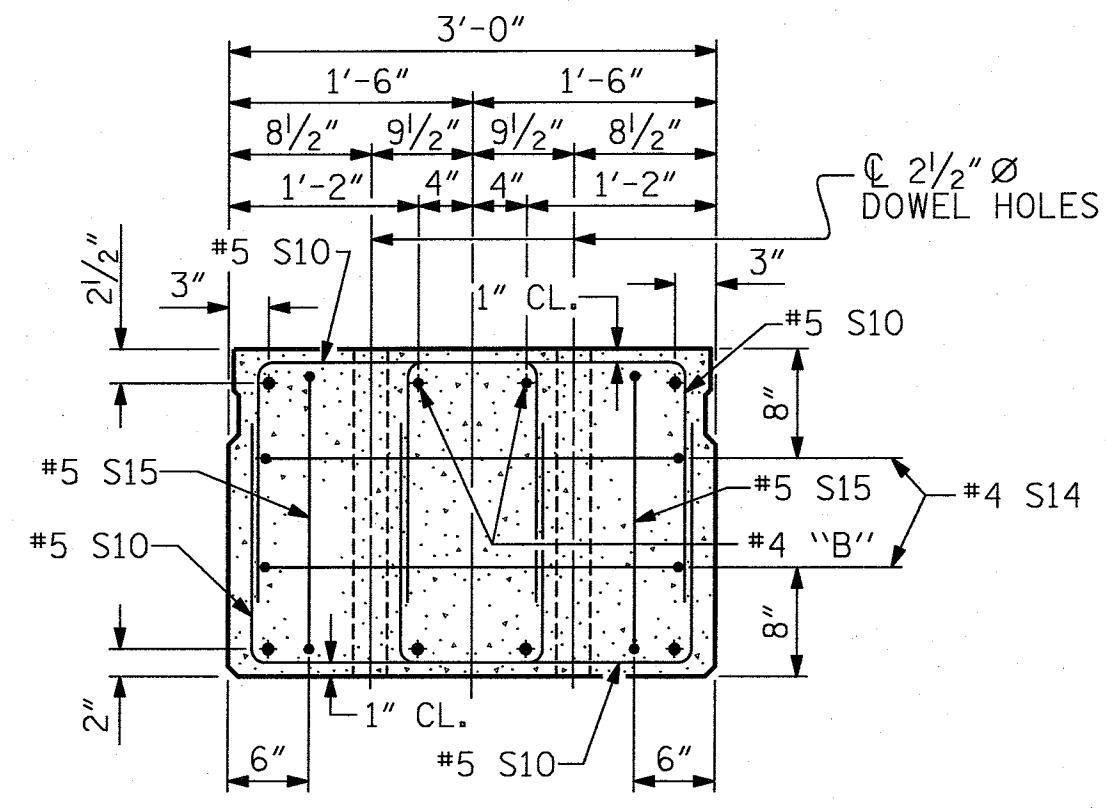
HALF SECTION AT INTERMEDIATE DIAPHRAGMS
TYPICAL SECTION
 HALF SECTION THROUGH VOIDS

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

FIXED END

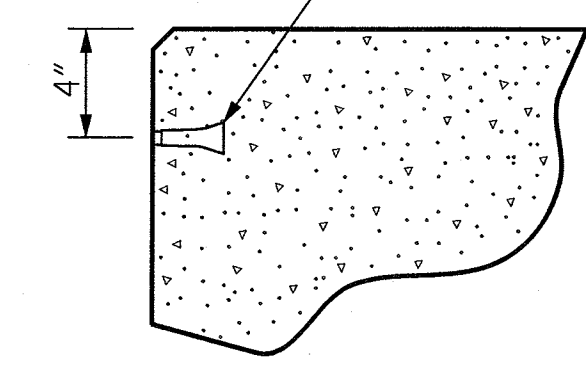


SECTION AT END BENT

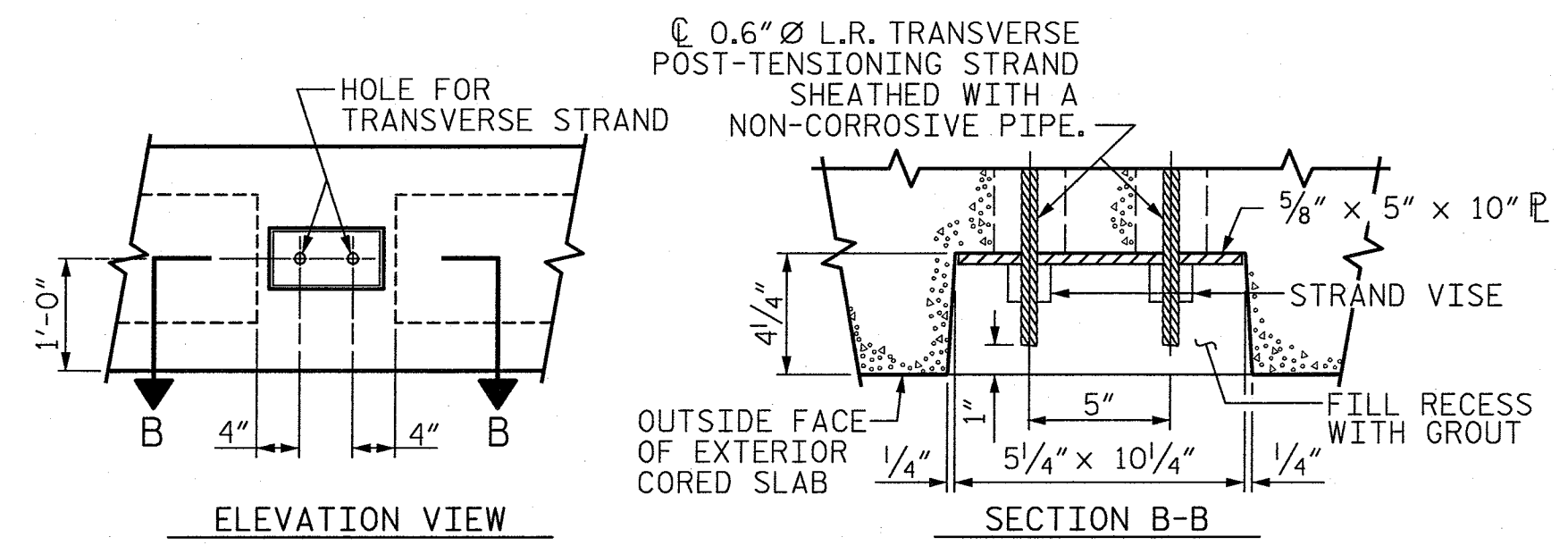


END ELEVATION
 SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.)
 INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

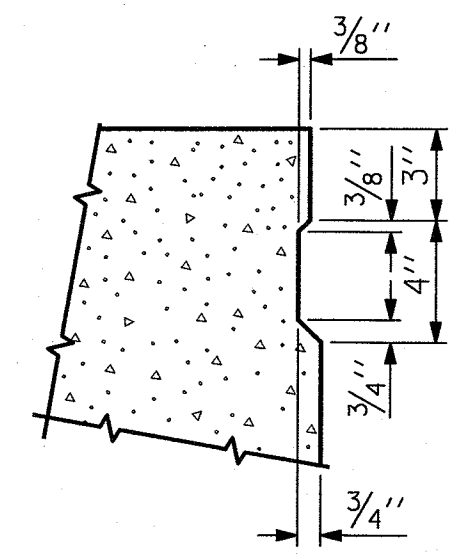
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



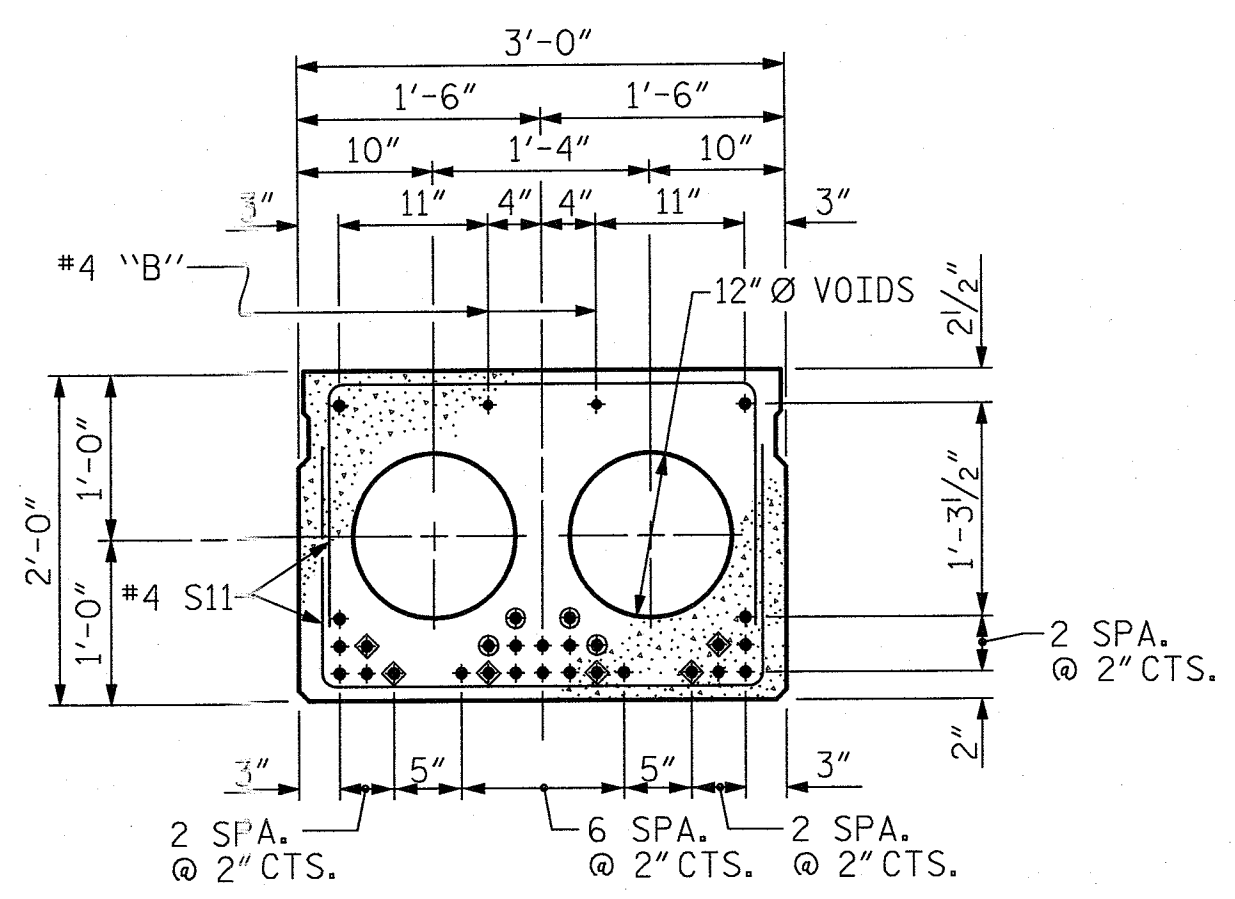
THREADED INSERT DETAIL



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



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



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

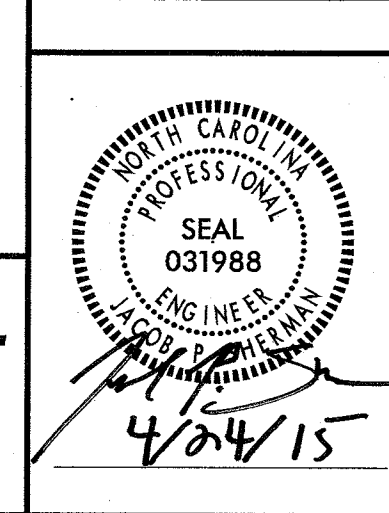
0.6" Ø LOW RELAXATION STRAND LAYOUT

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

PROJECT NO. BD-5109AA
DAVIE COUNTY
 STATION: I3+02.00 -L-

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

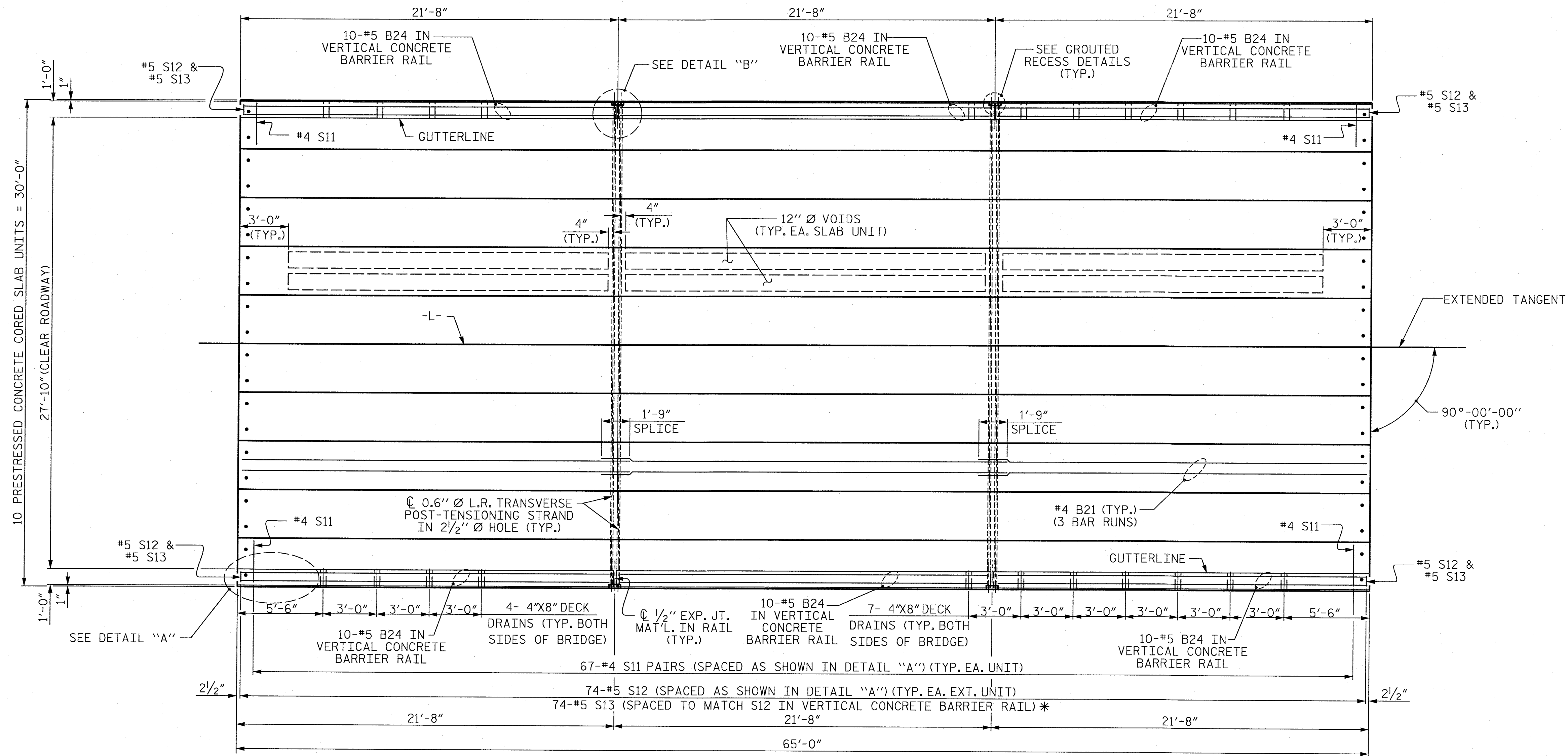


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-4
2			4			12

PARSONS BRINCKERHOFF
 121 WEST TRADE ST.
 SUITE 1950
 CHARLOTTE, NC 28202
 LICENSE NO. F-0165

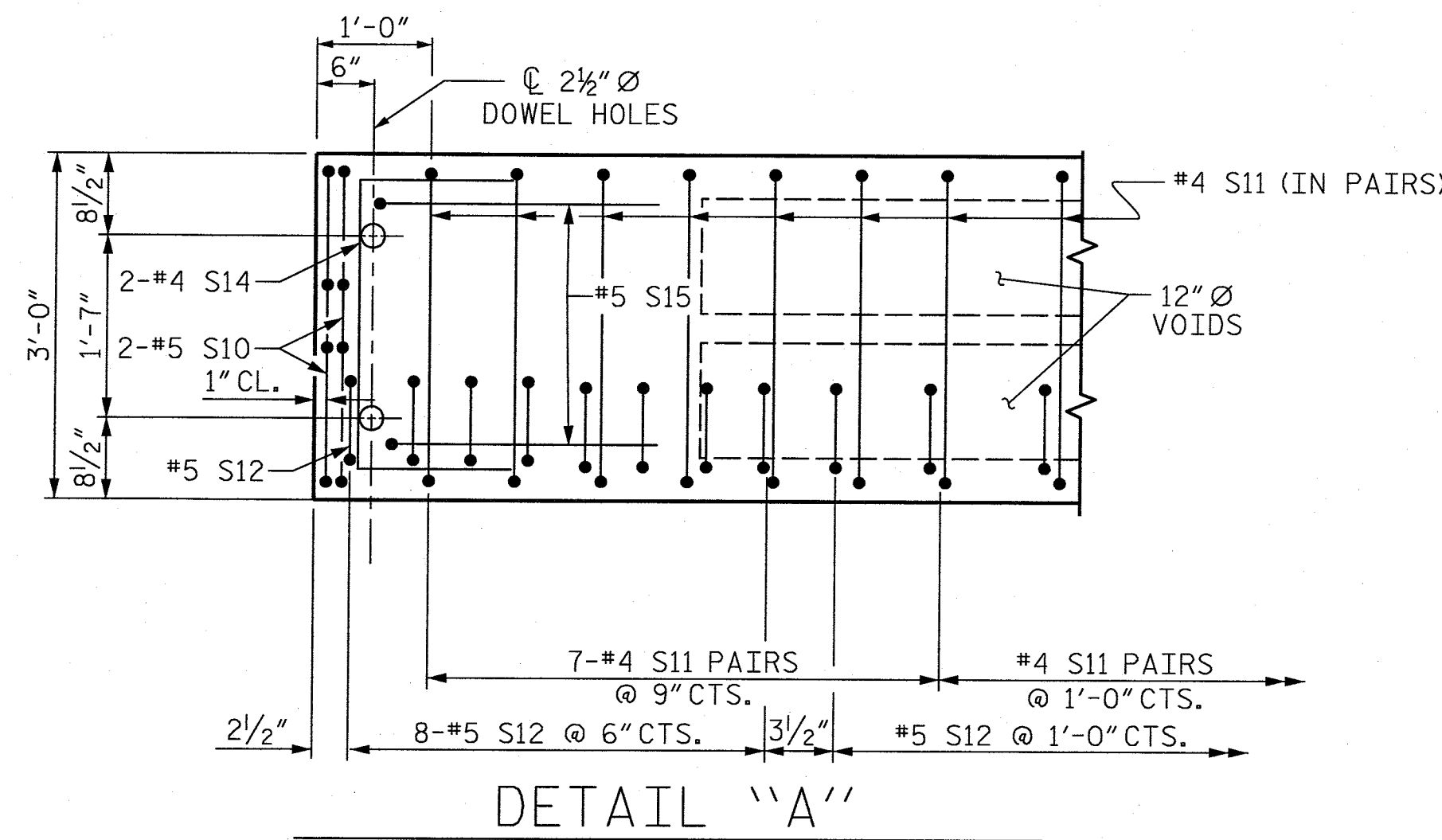
4/24/2015 BD-5109AA_SD_PC_04.dgn

DESIGNED BY: E. DAVIS	DATE: MAY 2014
DRAWN BY: E. DAVIS	DATE: MAY 2014
CHECKED BY: J. SHERMAN	DATE: MAY 2014
DESIGN ENGINEER OF RECORD: J. SHERMAN	DATE: APRIL 2015
DRAWN BY: MAA	6/10
CHECKED BY: MKT	7/10
REV. 8/14	MAA/TMG



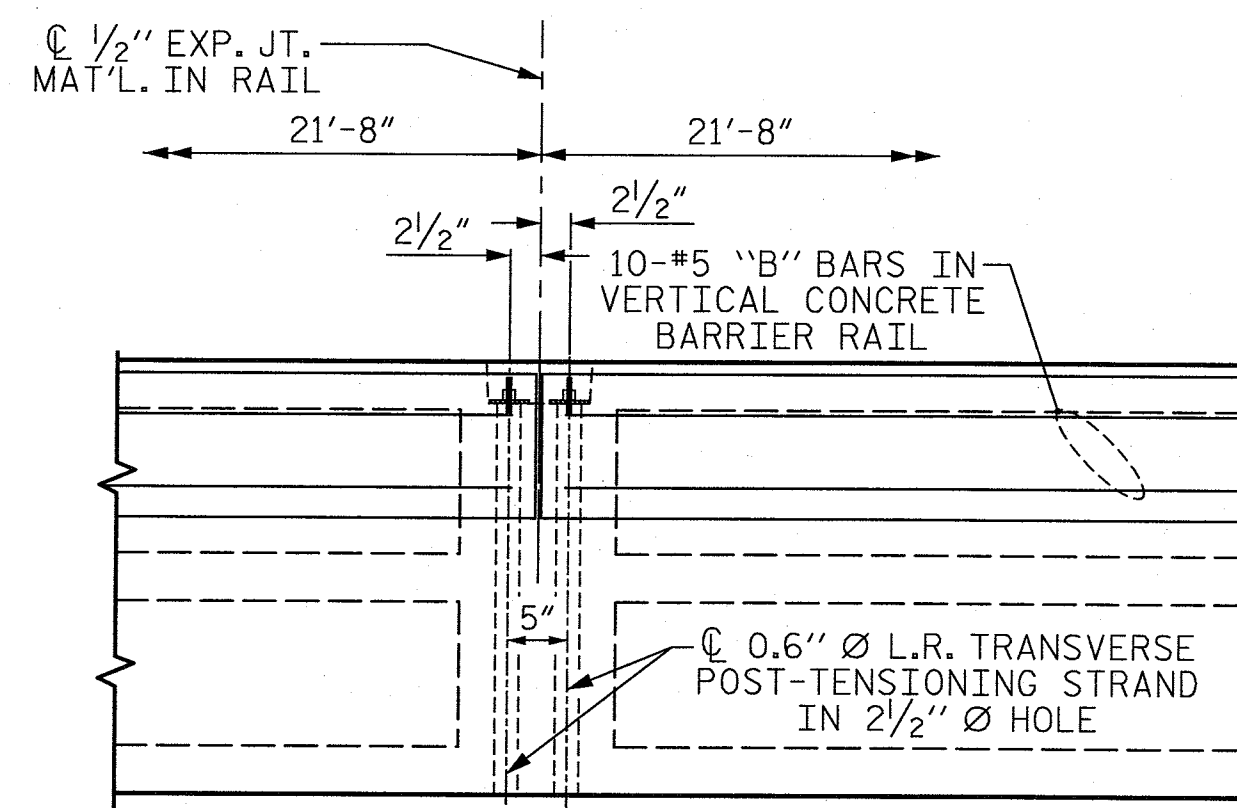
PLAN OF UNIT

*MATCH #5 S13 BARS TO #5 S12 BARS
PLACE SUCH THAT CONCRETE COVER TO
DECK DRAINS IS MAXIMIZED.



DETAIL "A"

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

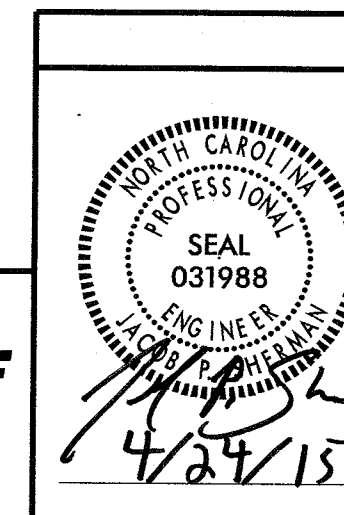


DETAIL "B"

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

PROJECT NO. BD-5109AA
DAVIE COUNTY
STATION: 13+02.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
PLAN OF 65' UNIT
27'-10" CLEAR ROADWAY
90° SKEW



**PARSONS
BRINCKERHOFF**
121 WEST TRADE ST.
SUITE 1950
CHARLOTTE, NC 28202
LICENSE NO. F-0165

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-5
2			4			TOTAL SHEETS 12

DESIGNED BY: E. DAVIS DATE: MAY 2014
DRAWN BY: E. DAVIS DATE: MAY 2014
CHECKED BY: J. SHERMAN DATE: MAY 2014
DESIGN ENGINEER OF RECORD: J. SHERMAN DATE: APRIL 2015
DRAWN BY: MAA 6/10 REV. 12/5/11 MAA/AAC
CHECKED BY: MKT 7/10 REV. 8/14 MAA/TMG

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.

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

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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

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

THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 4" X 8". THE HEIGHT OF THE BLOCKOUT IN THE VERTICAL CONCRETE BARRIER RAIL SHALL EXTEND FROM THE TOP OF THE CORED SLAB UNIT TO THE TOP OF THE DRAIN OPENING.

APPLY EPOXY PROTECTIVE COATING TO EXTERIOR FACE OF THE EXTERIOR CORED SLAB UNITS THAT REQUIRE DRAINS IN THE BARRIER RAIL.

PROJECT NO. BD-5109AA
DAVIE COUNTY
STATION: 13+02.00 -L-

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

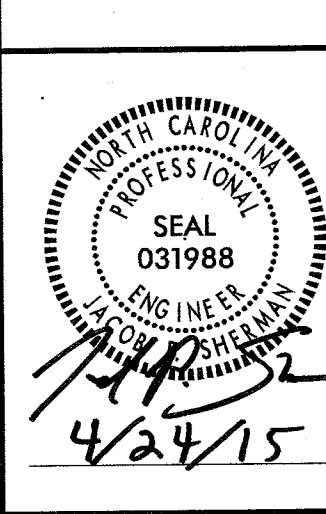


Table with columns for REVISIONS (NO., BY, DATE) and SHEET NO. (9-6, TOTAL SHEETS 12)

Table: GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT. Columns: ASPHALT OVERLAY THICKNESS @ MID-SPAN, RAIL HEIGHT @ MID-SPAN. Values: 2 1/8", 3'-8 1/8"

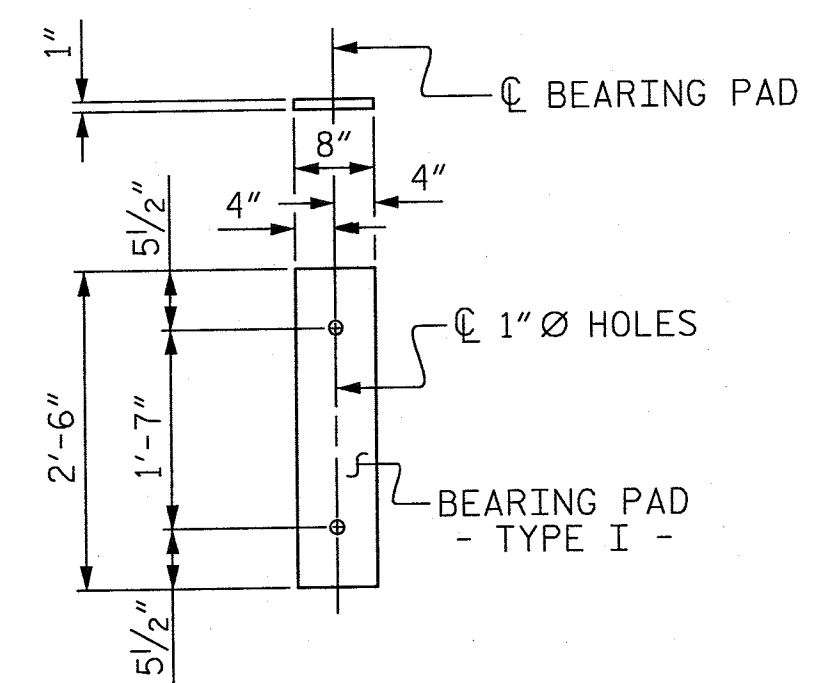
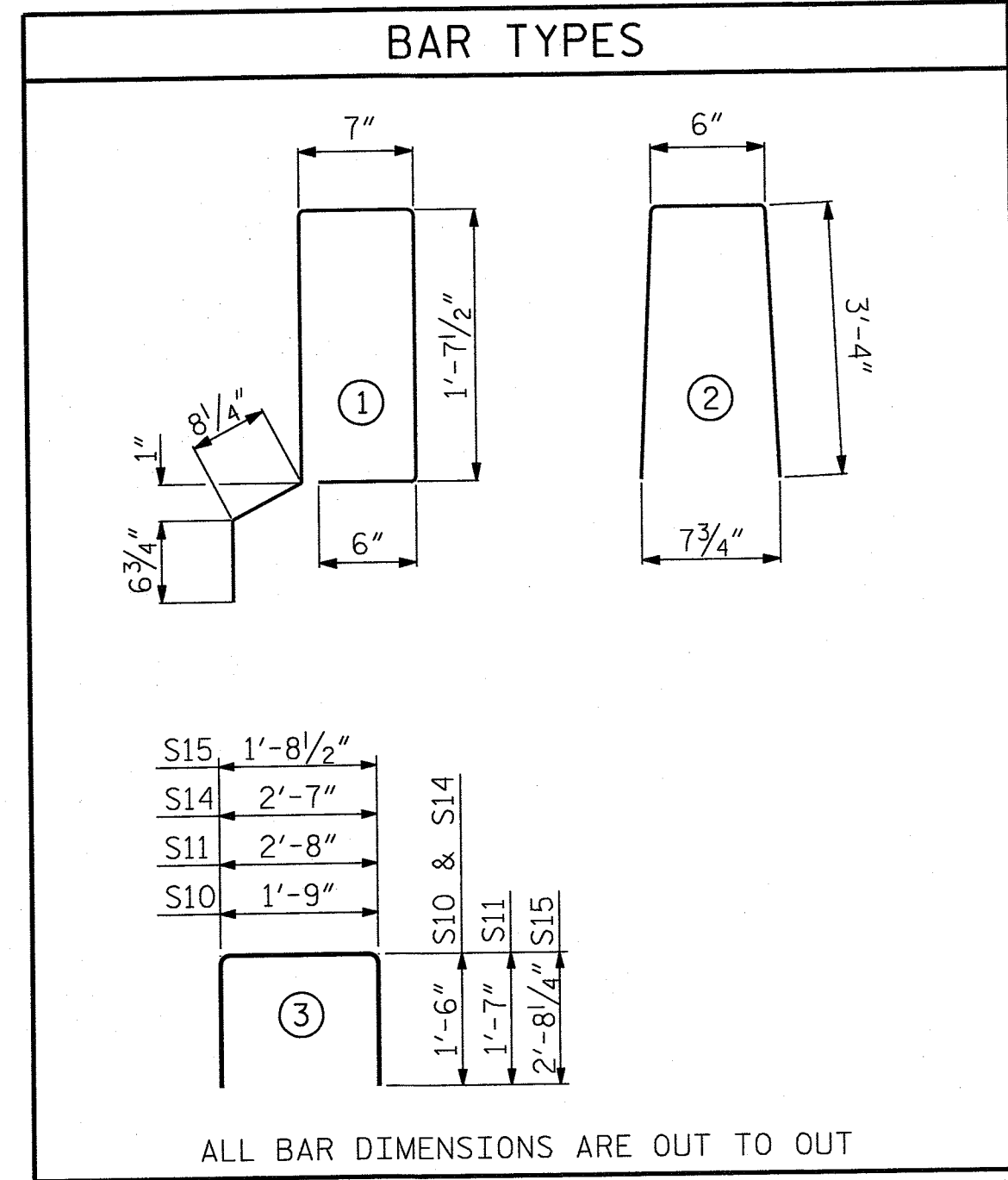
Table: DEAD LOAD DEFLECTION AND CAMBER. Columns: 65' CORED SLAB UNIT, CAMBER (SLAB ALONE IN PLACE), DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**, FINAL CAMBER. Values: 1 1/8" up, 1/2" down, 1 3/8" up

Table: CORED SLABS REQUIRED. Columns: NUMBER, LENGTH, TOTAL LENGTH. Values: 2 @ 65'-0" = 130, 8 @ 65'-0" = 520, TOTAL = 650

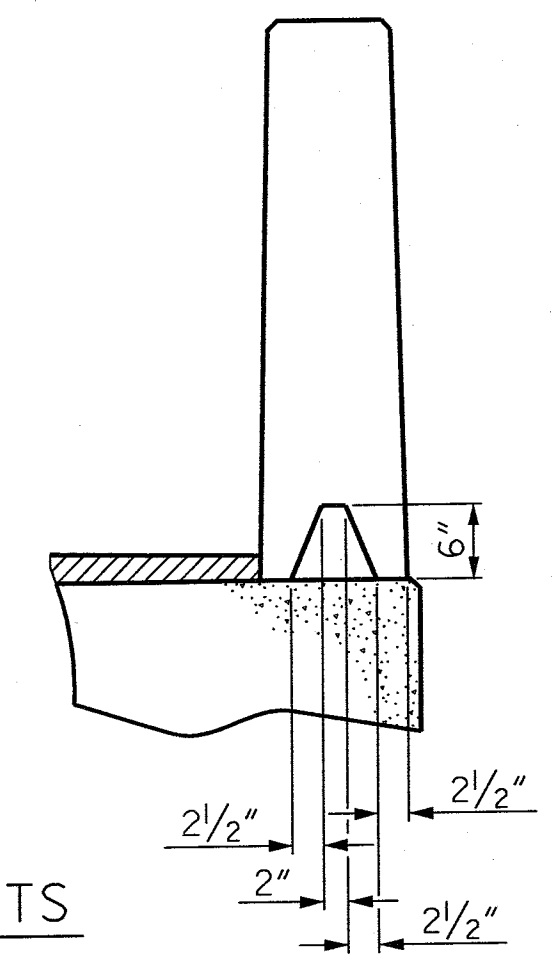
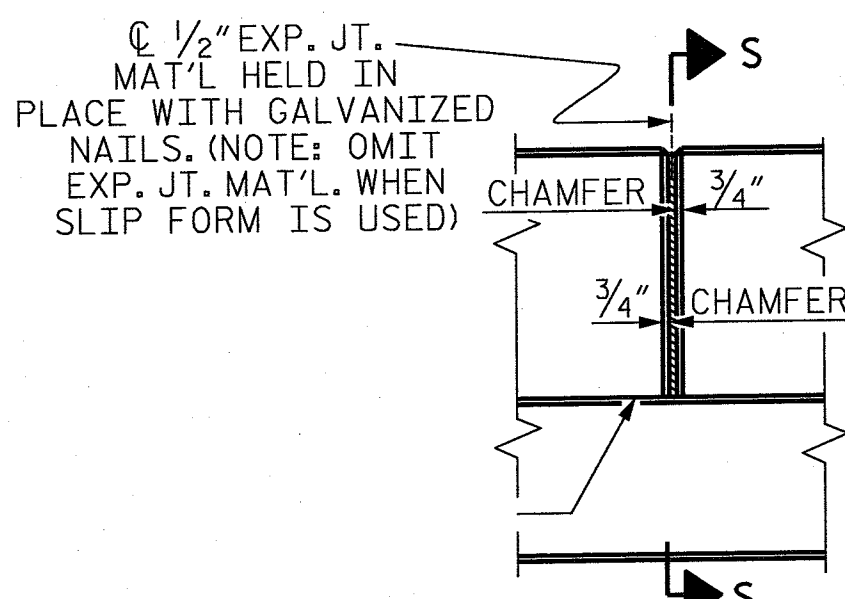
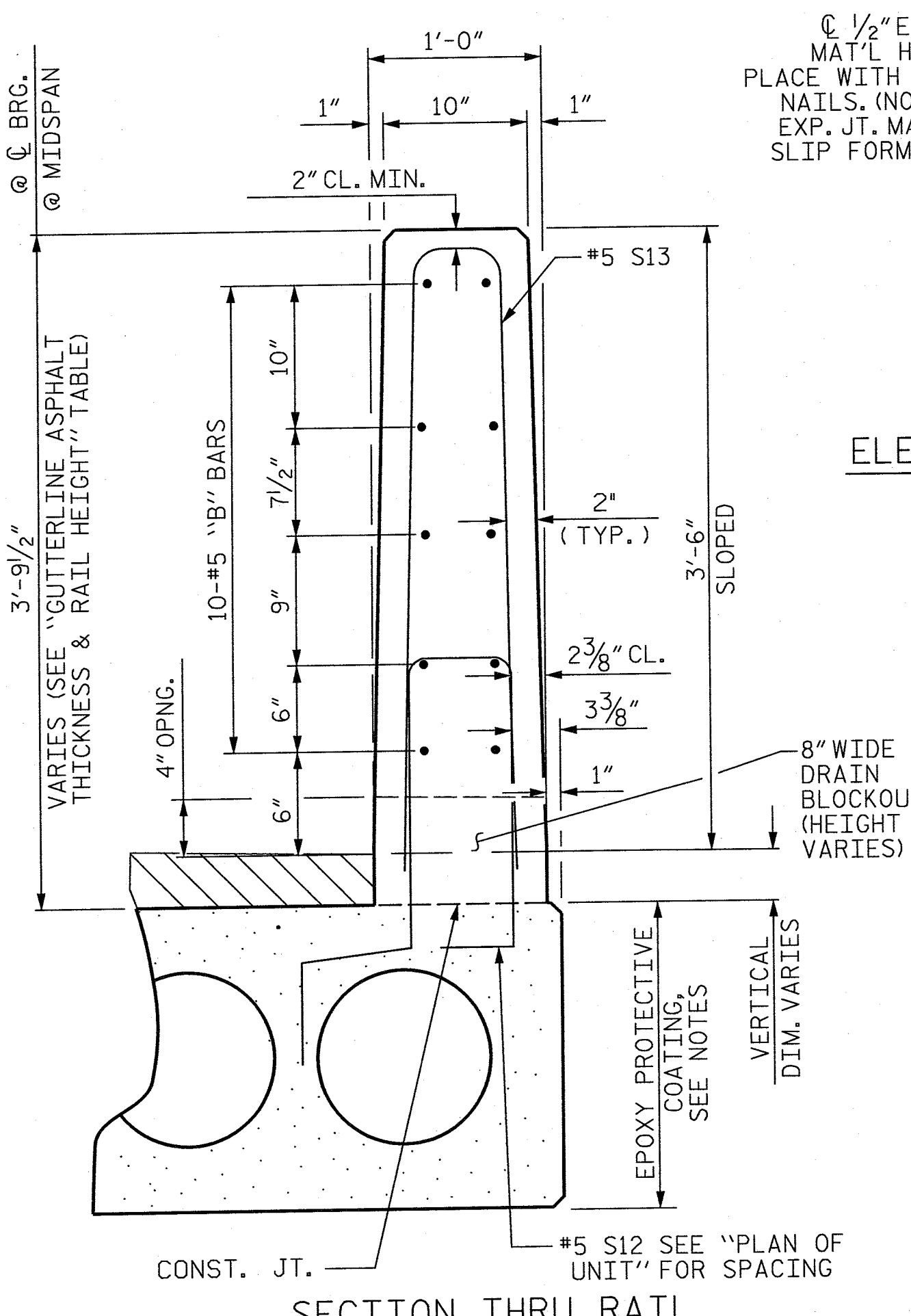
Table: BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL. Columns: BAR, BARS PER PAIR OF EXTERIOR UNITS, TOTAL NO., SIZE, TYPE, LENGTH, WEIGHT. Includes items like *B24, *S13, *EPOXY COATED REINFORCING STEEL, CLASS AA CONCRETE.

Table: GRADE 270 STRANDS. Columns: AREA (SQUARE INCHES), ULTIMATE STRENGTH (LBS. PER STRAND), APPLIED PRESTRESS (LBS. PER STRAND). Values: 0.217, 58,600, 43,950

Table: CONCRETE RELEASE STRENGTH. Columns: UNIT, PSI. Values: 4800



ELASTOMERIC BEARING DETAILS
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

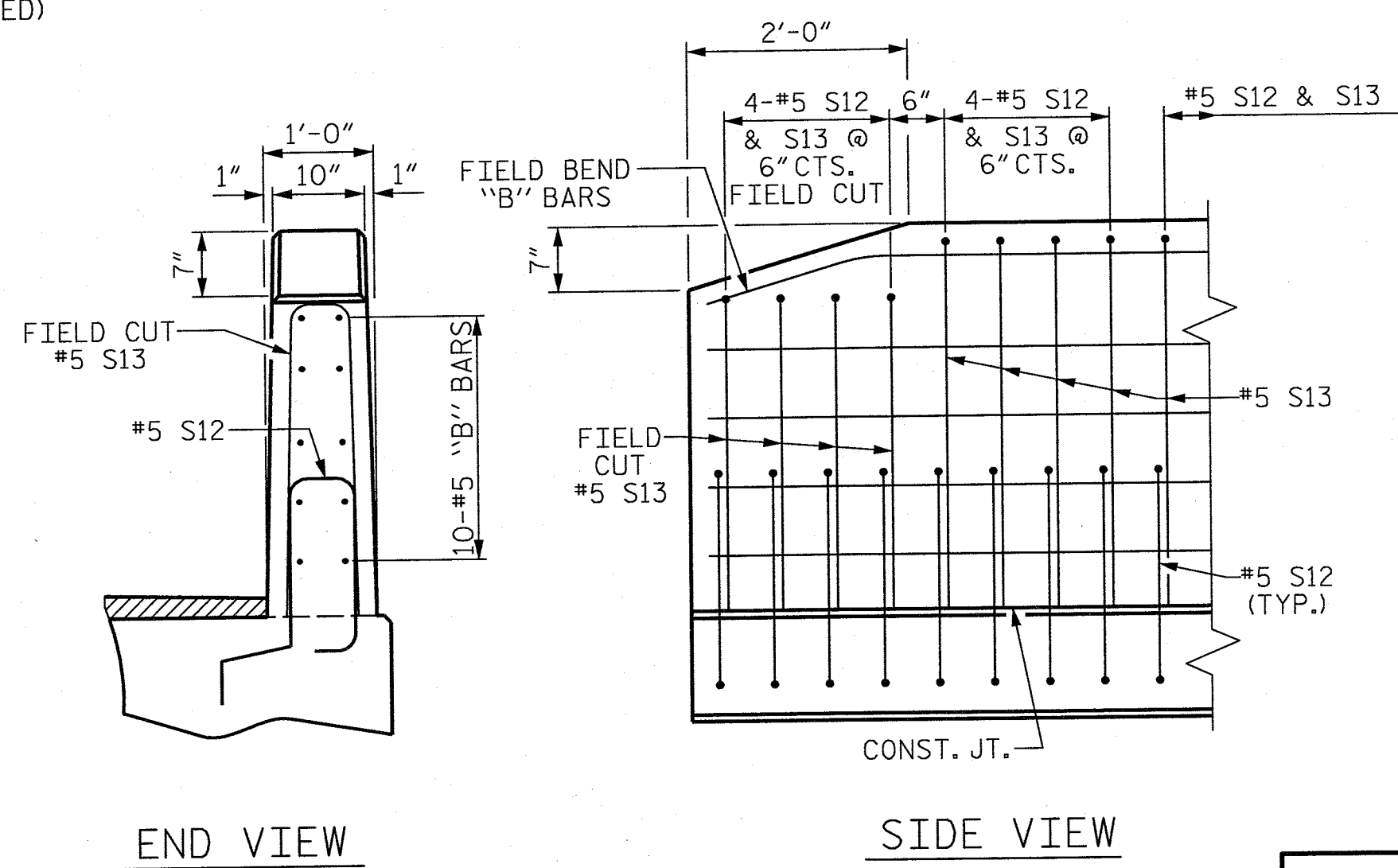


ELEVATION AT EXPANSION JOINTS

SECTION S-S AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

VERTICAL CONCRETE BARRIER RAIL DETAILS

Table: BILL OF MATERIAL FOR ONE 65' CORED SLAB UNIT. Columns: BAR, NUMBER, SIZE, TYPE, EXTERIOR UNIT LENGTH, EXTERIOR UNIT WEIGHT, INTERIOR UNIT LENGTH, INTERIOR UNIT WEIGHT. Includes items like B21, S10, S11, *S12, S14, S15, REINFORCING STEEL, *EPOXY COATED REINFORCING STEEL, 6000 P.S.T. CONCRETE, 0.6" Ø L.R. STRANDS.



END VIEW

SIDE VIEW

END OF RAIL DETAILS

DESIGNED BY: E. DAVIS DATE: MAY 2014
DRAWN BY: E. DAVIS DATE: MAY 2014
CHECKED BY: J. SHERMAN DATE: MAY 2014
DESIGN ENGINEER OF RECORD: J. SHERMAN DATE: APRIL 2015
DRAWN BY: MAA 6/10
CHECKED BY: MKT 7/10
REV. 11/14 MAA/TMG

PARSONS BRINCKERHOFF
121 WEST TRADE ST.
SUITE 1950
CHARLOTTE, NC 28202
LICENSE NO. F-0165

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.)

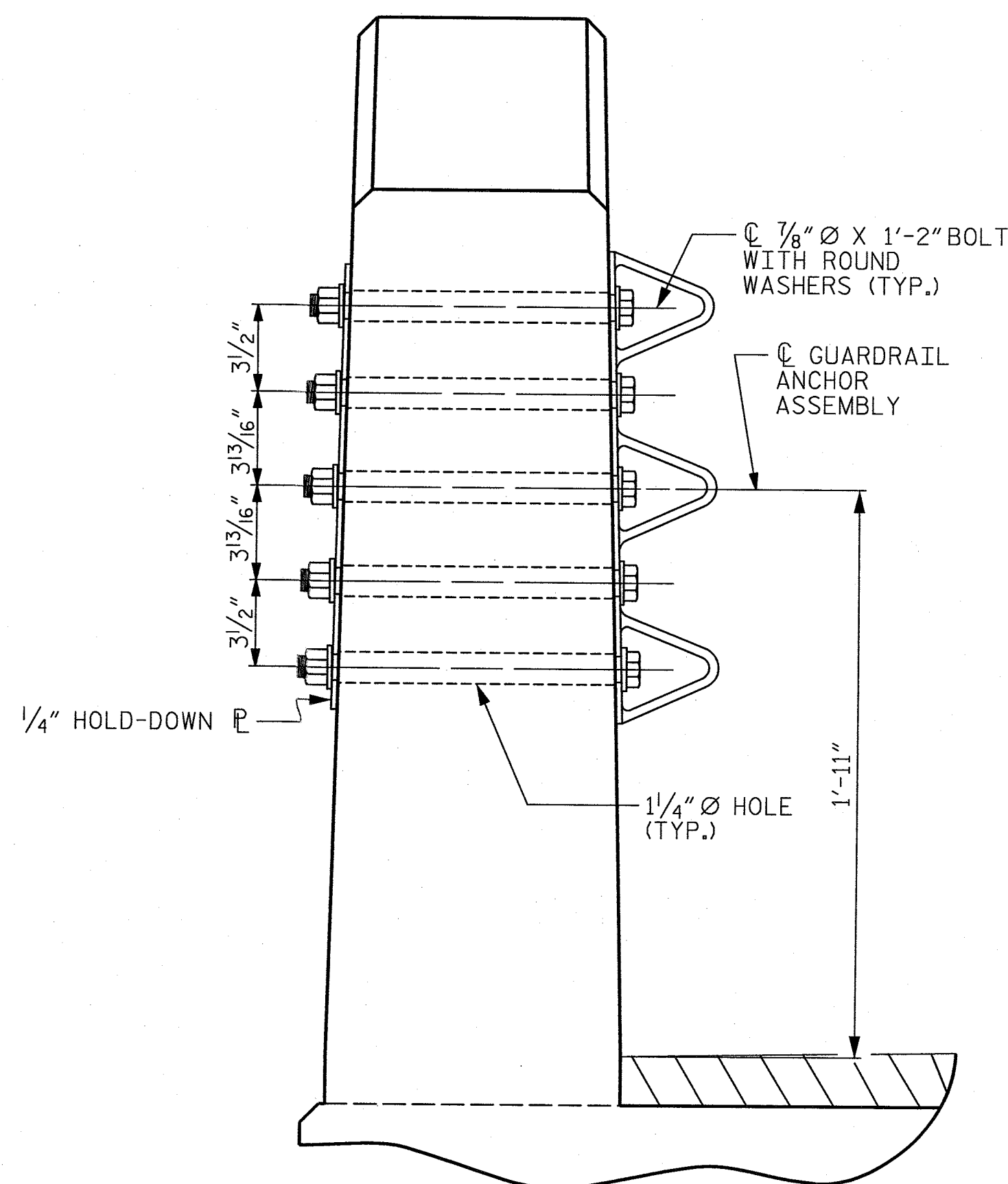
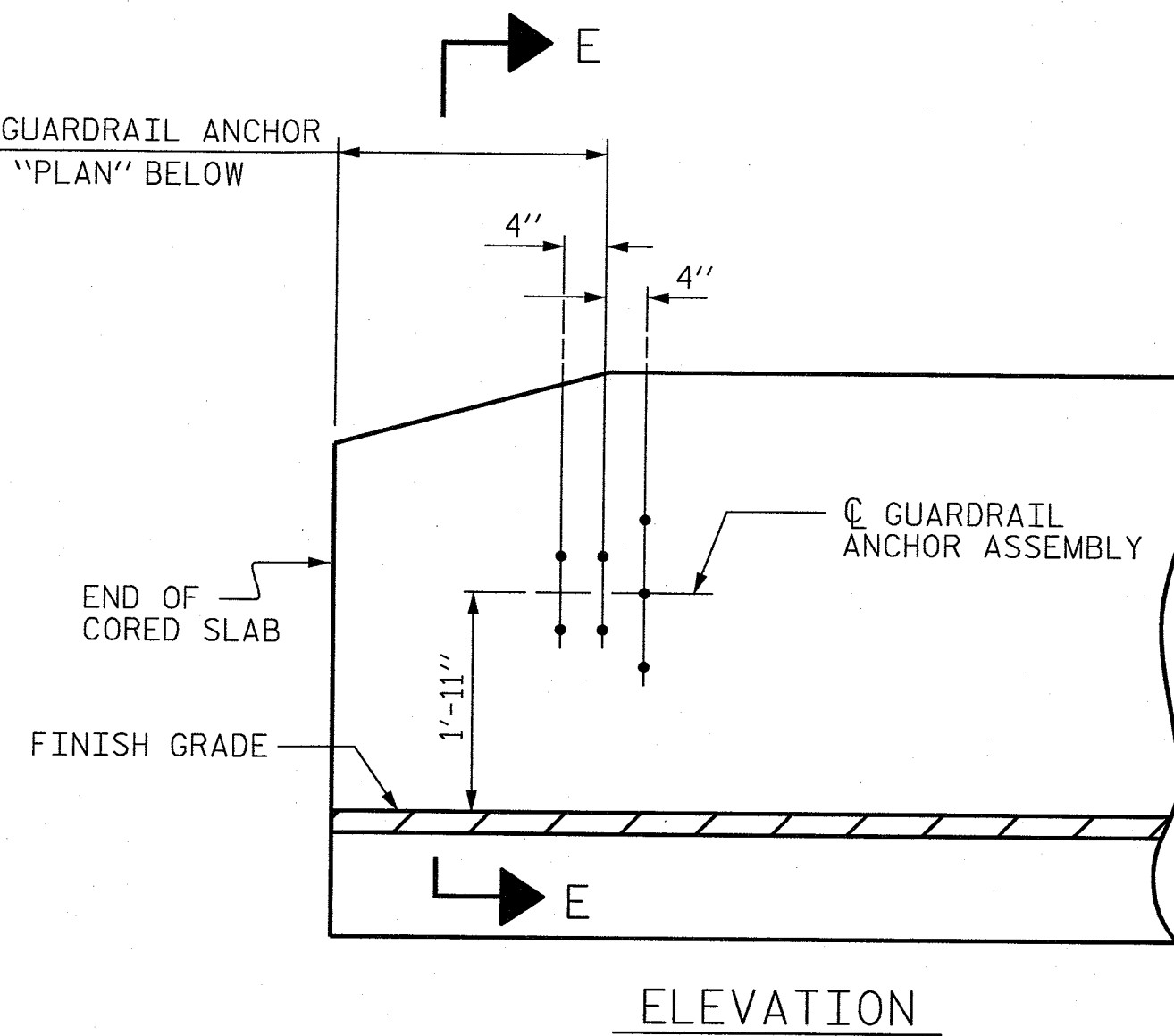
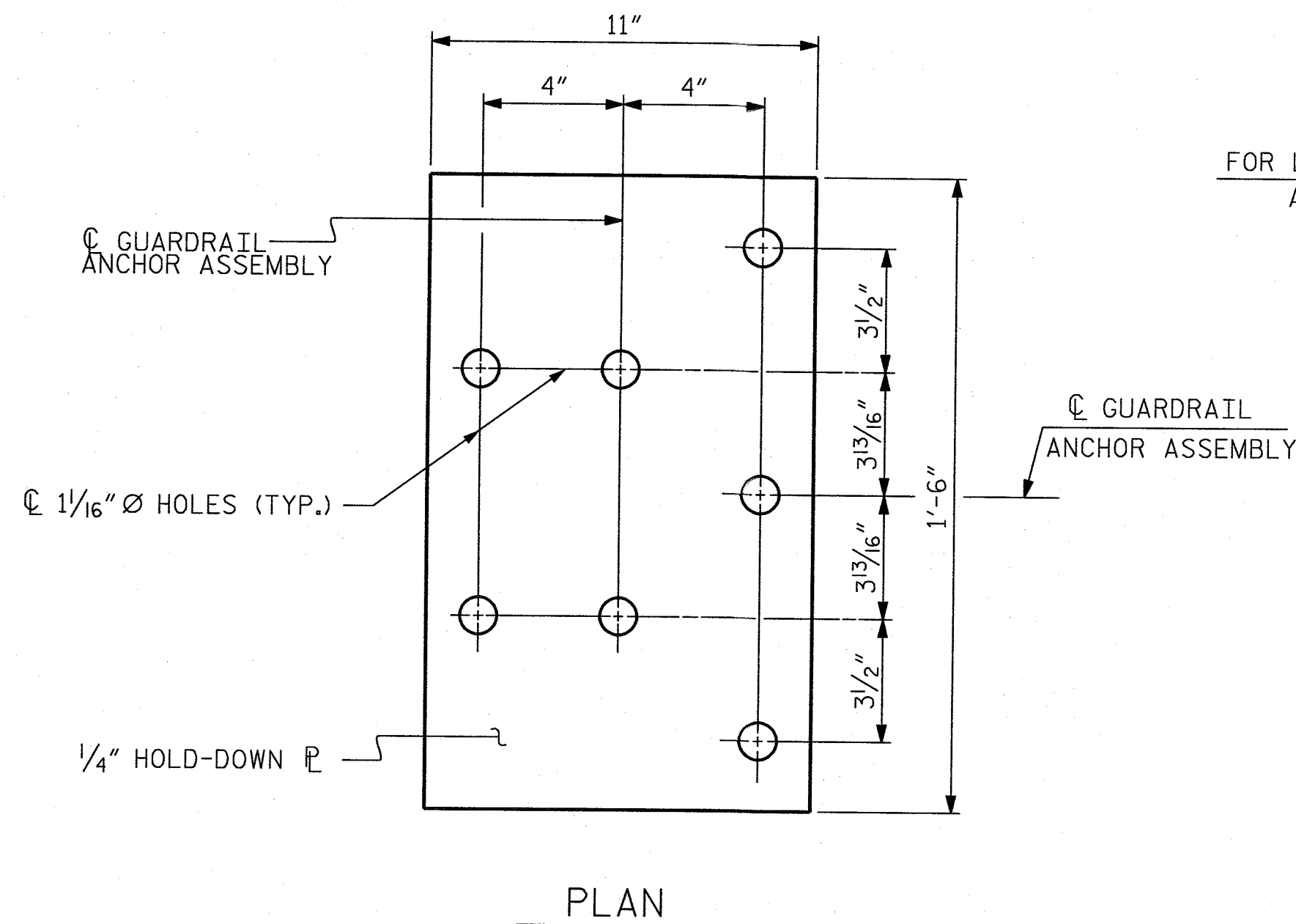
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

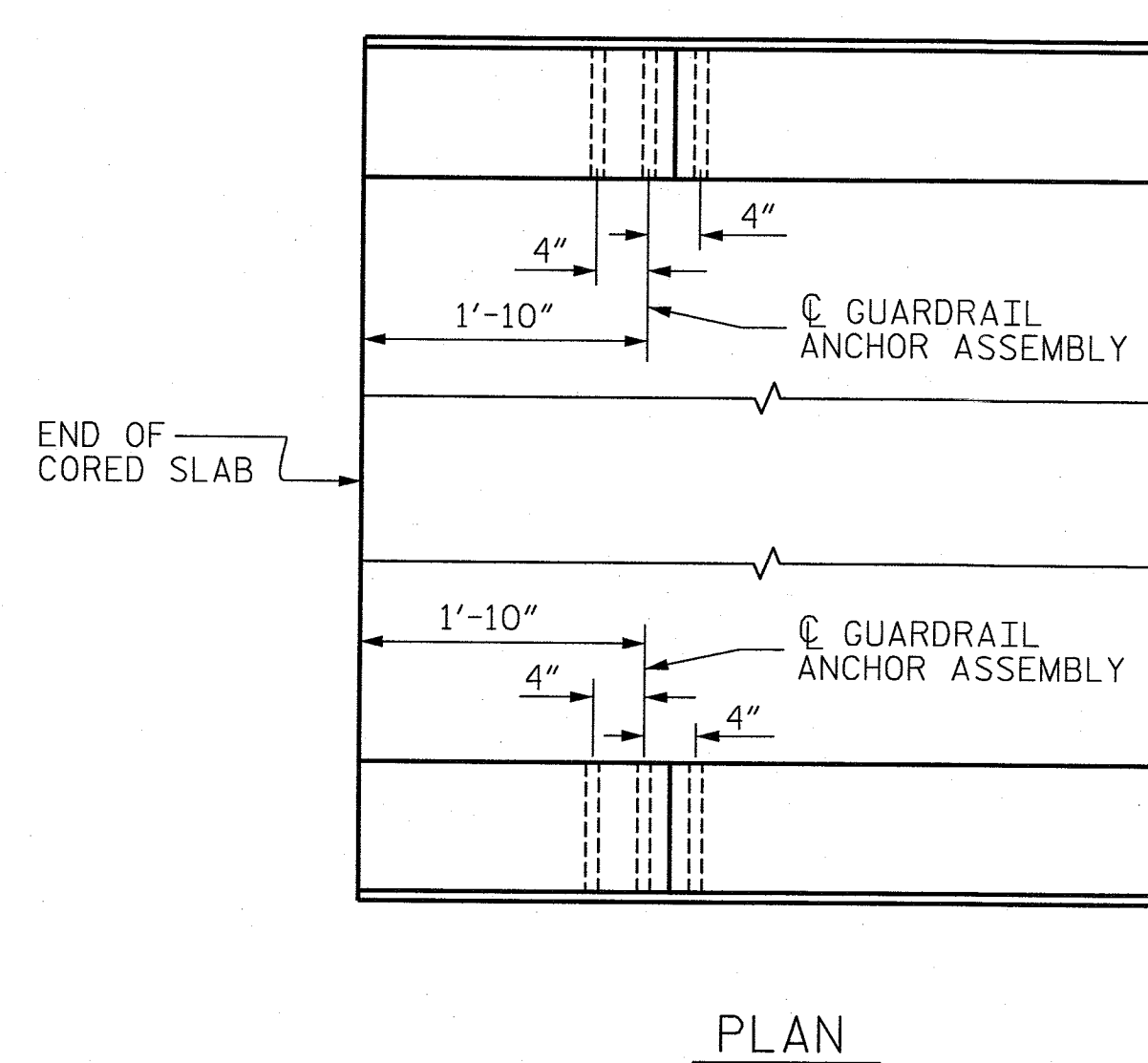
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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.

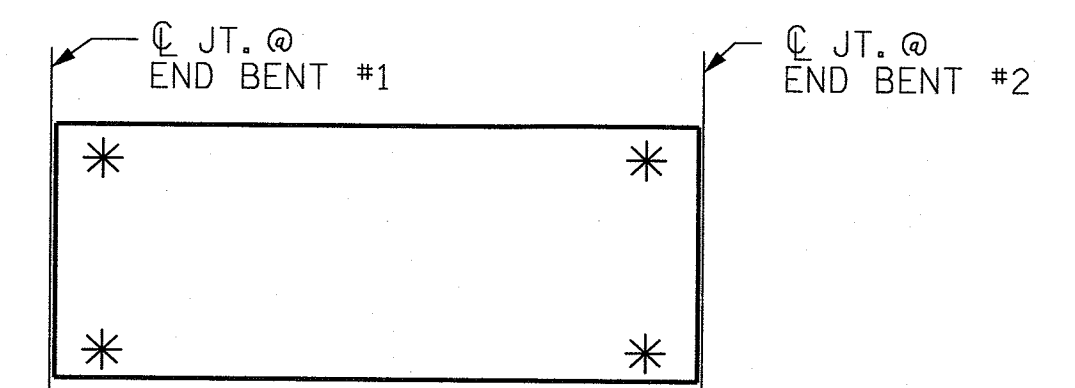


SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

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



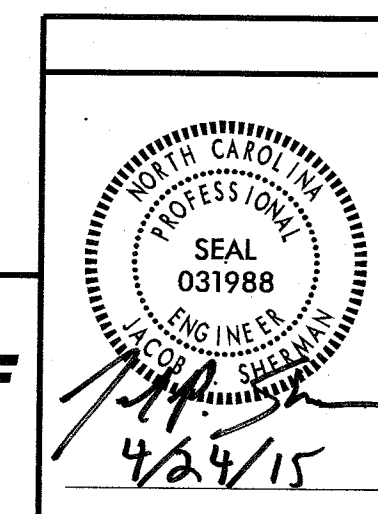
SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5109AA
DAVIE COUNTY
 STATION: 13+02.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
STANDARD GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL			
REVISIONS			
NO.	BY:	DATE:	NO.
1			3
2			4
SHEET NO.			S-7
TOTAL SHEETS			12

PARSONS BRINCKERHOFF
 121 WEST TRADE ST.
 SUITE 1350
 CHARLOTTE, NC 28202
 LICENSE NO. F-0165



DESIGNED BY: E. DAVIS	DATE: MAY 2014
DRAWN BY: E. DAVIS	DATE: MAY 2014
CHECKED BY: J. SHERMAN	DATE: MAY 2014
DESIGN ENGINEER OF RECORD: J. SHERMAN	DATE: APRIL 2015
DRAWN BY: WJH 4/89	REV. 10/1/11 MAA/GM
CHECKED BY: FCJ 5/89	REV. 10/12 MAA/GM
	REV. 6/13 MAA/GM

4/24/2015
 BD-5109AA_SD_GA_07.dgn

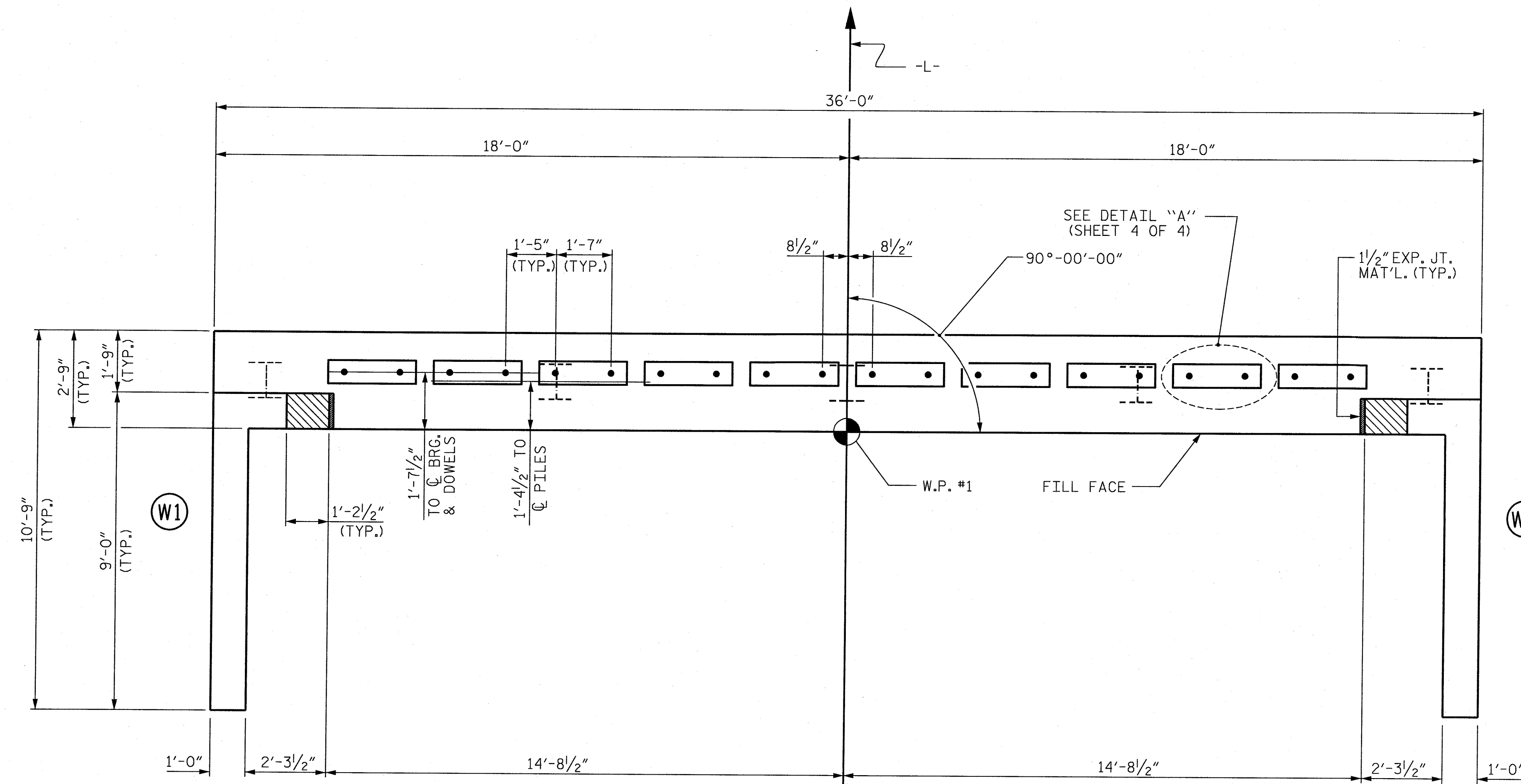
NOTES

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

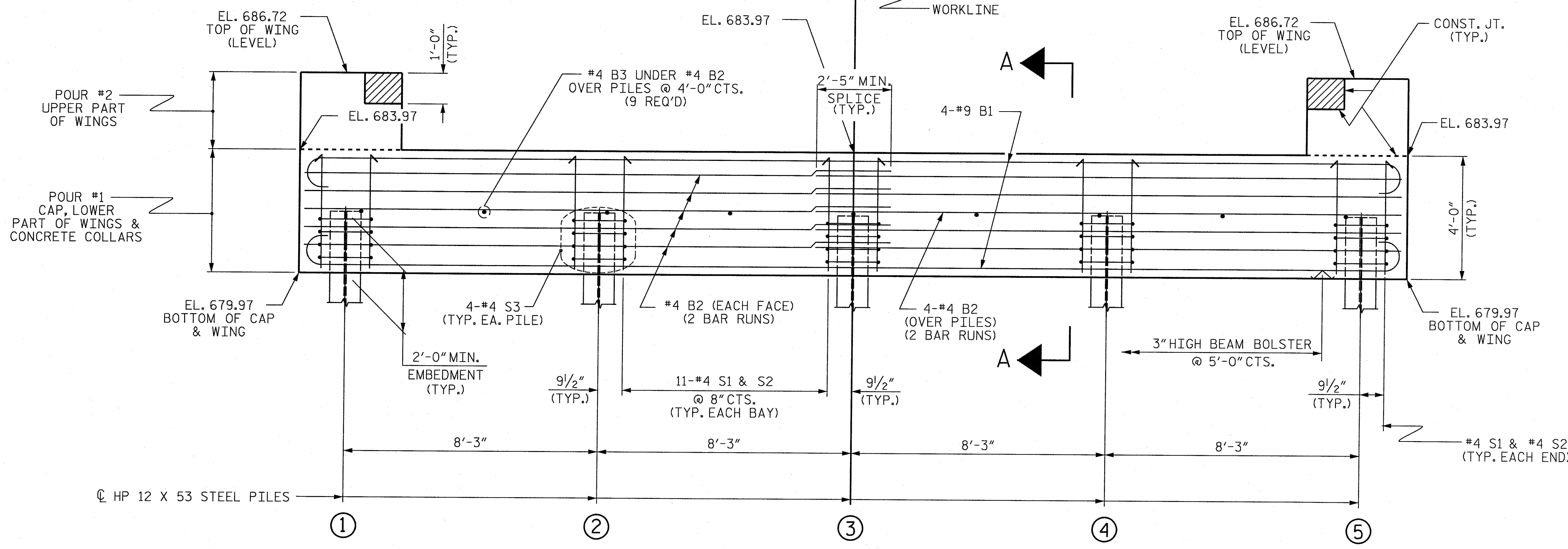
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

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

PROJECT NO. BD-5109AA

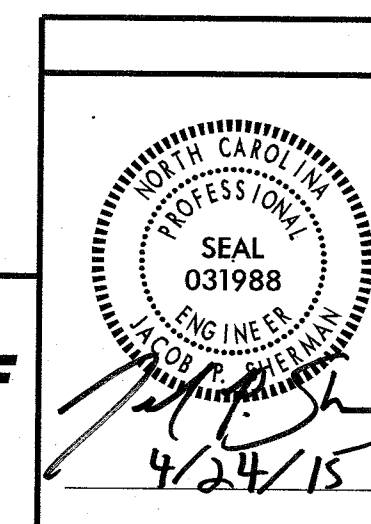
DAVIE COUNTY

STATION: 13+02.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
SUBSTRUCTURE
END BENT No. 1



PARSONS BRINCKERHOFF
121 WEST TRADE ST.
SUITE 1950
CHARLOTTE, NC 28202
LICENSE NO. F-0165

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-8
2			4			TOTAL SHEETS 12

STD. NO. EB_30_90S4

4/24/2015 BD-5109AA_SD_EB_08.dgn

DESIGNED BY: E. DAVIS DATE: MAY 2014
DRAWN BY: E. DAVIS DATE: MAY 2014
CHECKED BY: J. SHERMAN DATE: MAY 2014
DESIGN ENGINEER OF RECORD: J. SHERMAN DATE: APRIL 2015
DRAWN BY: WJH 12/11
CHECKED BY: AAC 12/11

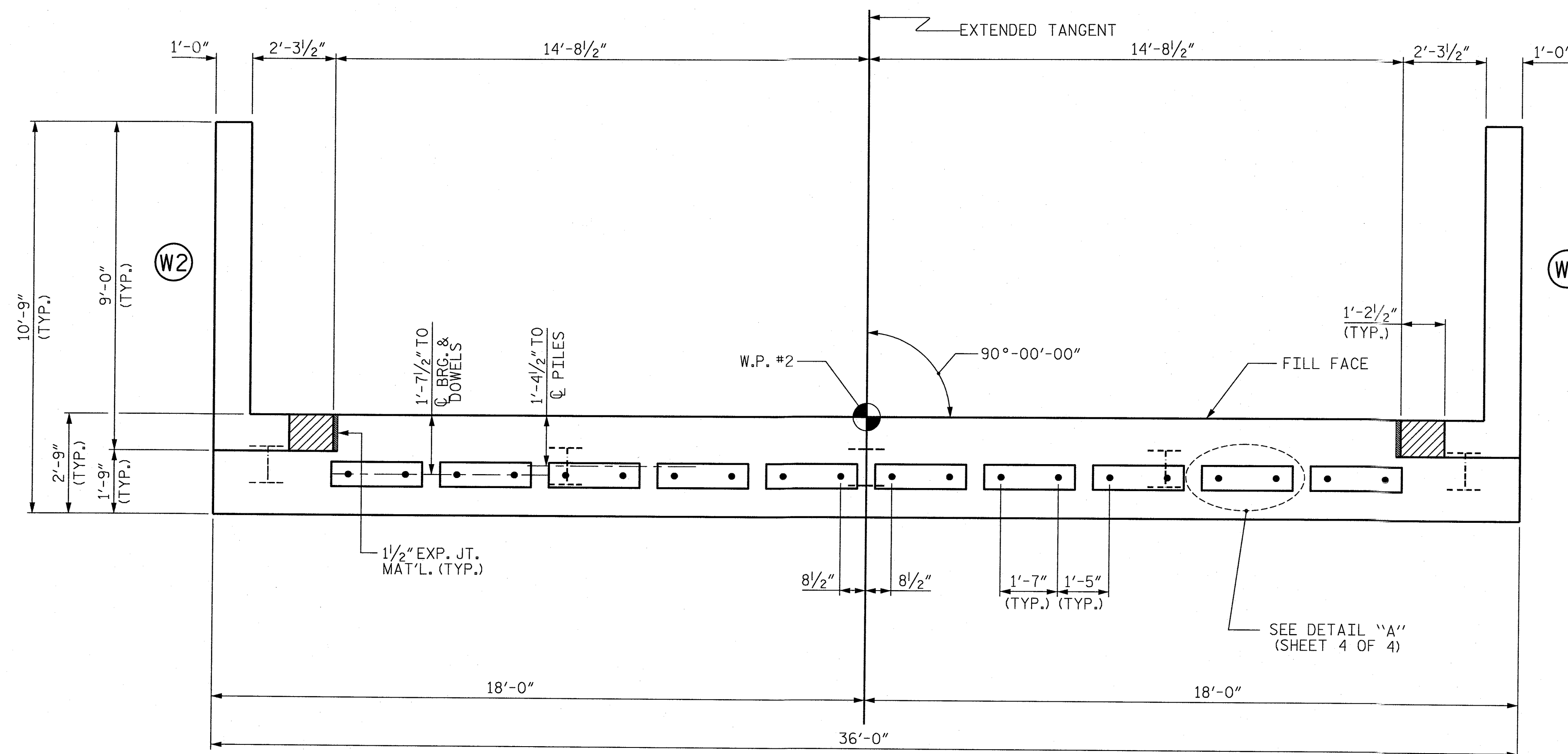
NOTES

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

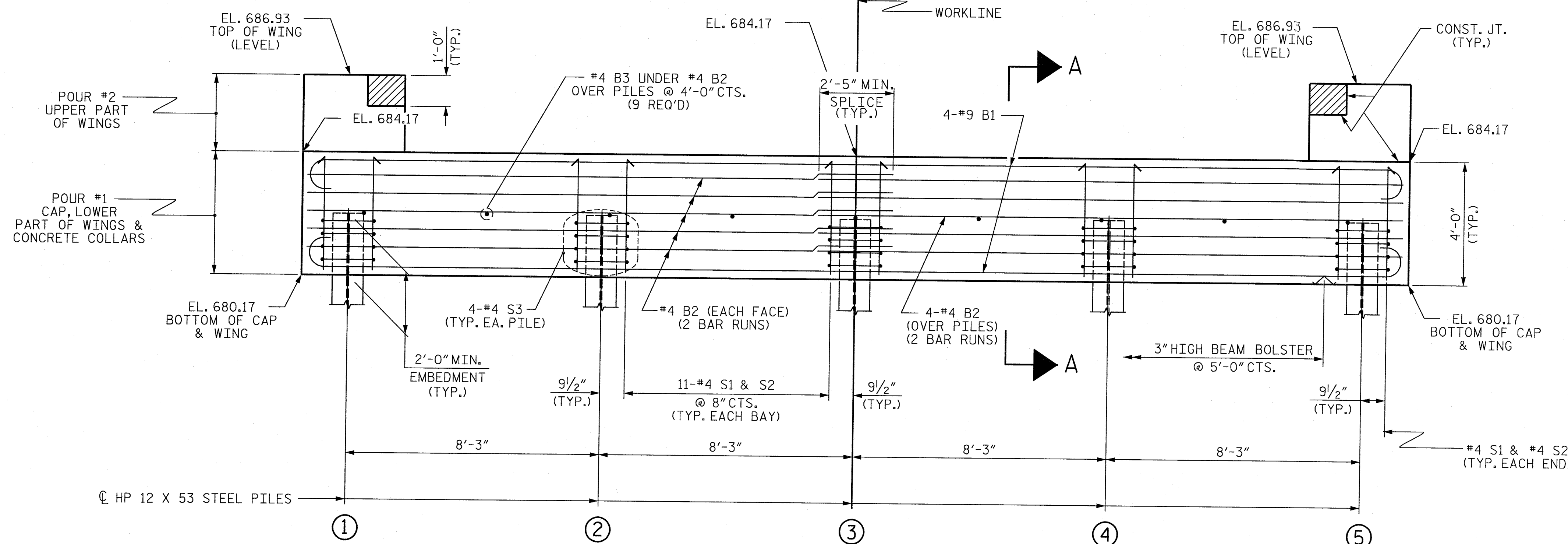
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

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

PROJECT NO. BD-5109AA

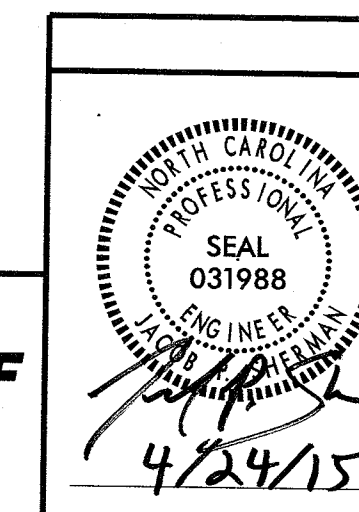
DAVIE COUNTY

STATION: 13+02.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
SUBSTRUCTURE
END BENT No. 2



PARSONS BRINCKERHOFF
121 WEST TRADE ST.
SUITE 1950
CHARLOTTE, NC 28202
LICENSE NO. F-0165

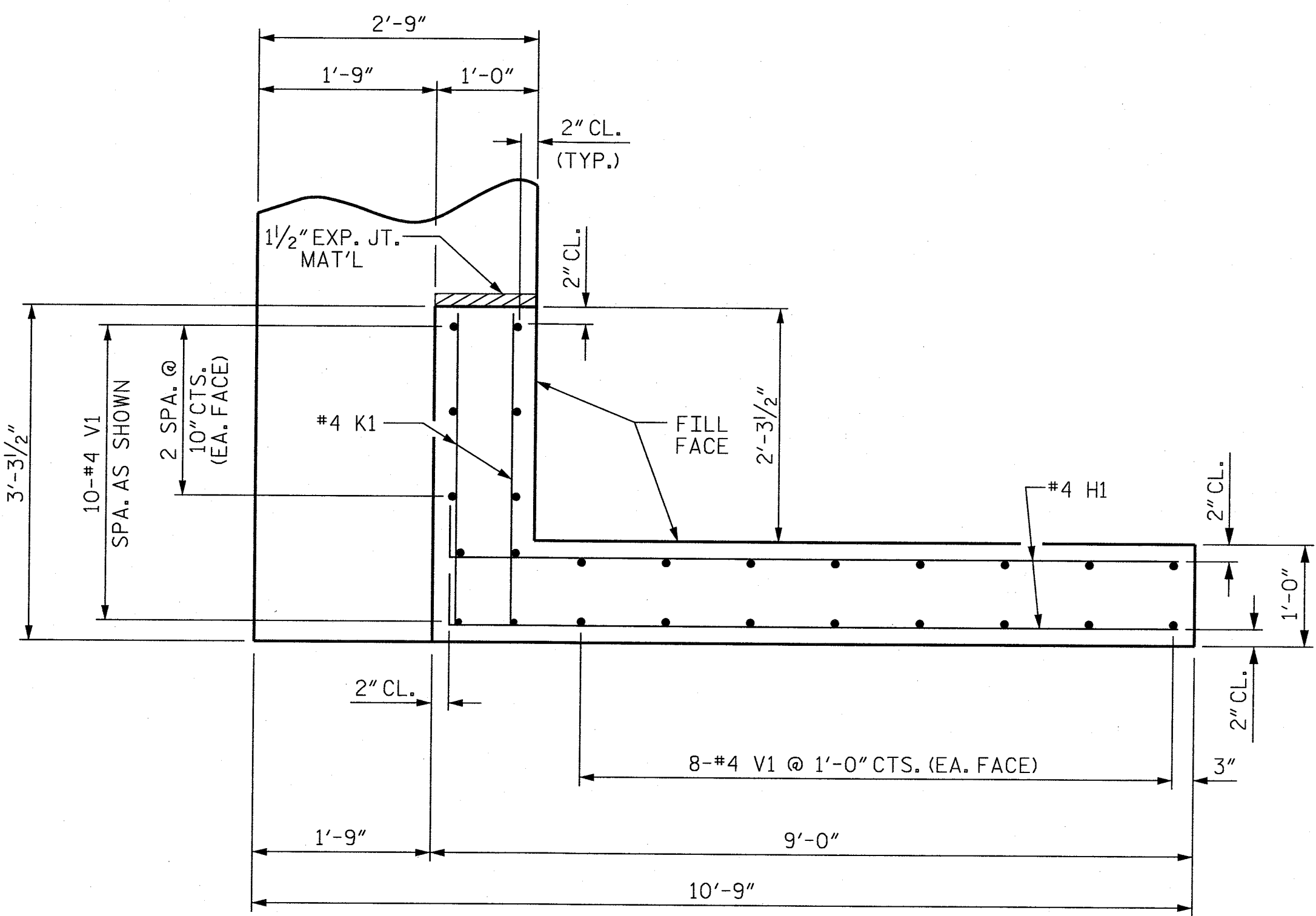
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			TOTAL SHEETS 12	
2			4				

STD. NO. EB_30_90S4

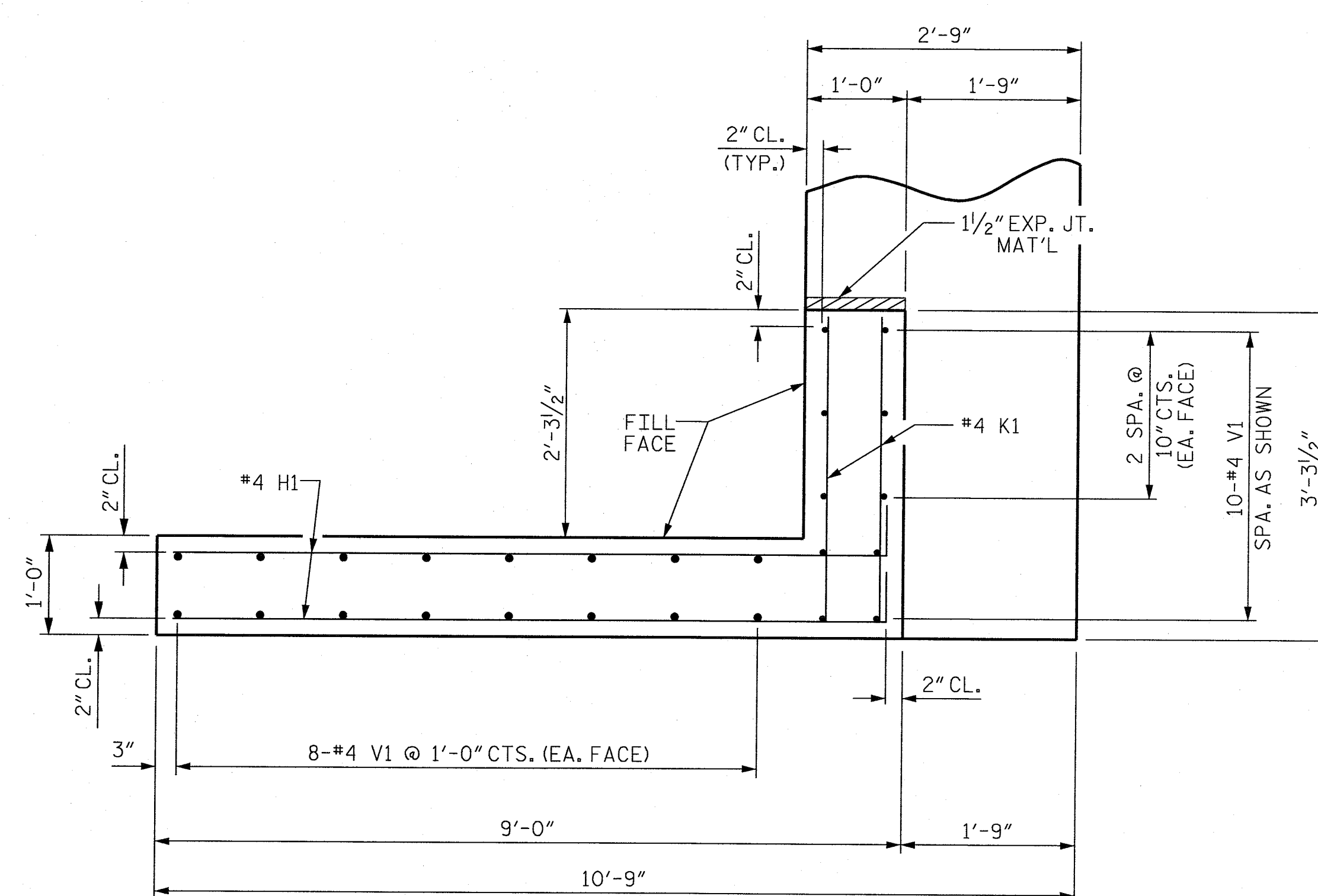
4/24/2015 BD-5109AA-SD-EB_09.dgn

DESIGNED BY: E. DAVIS DATE: MAY 2014
DRAWN BY: E. DAVIS DATE: MAY 2014
CHECKED BY: J. SHERMAN DATE: MAY 2014
DESIGN ENGINEER OF RECORD: J. SHERMAN DATE: APRIL 2015

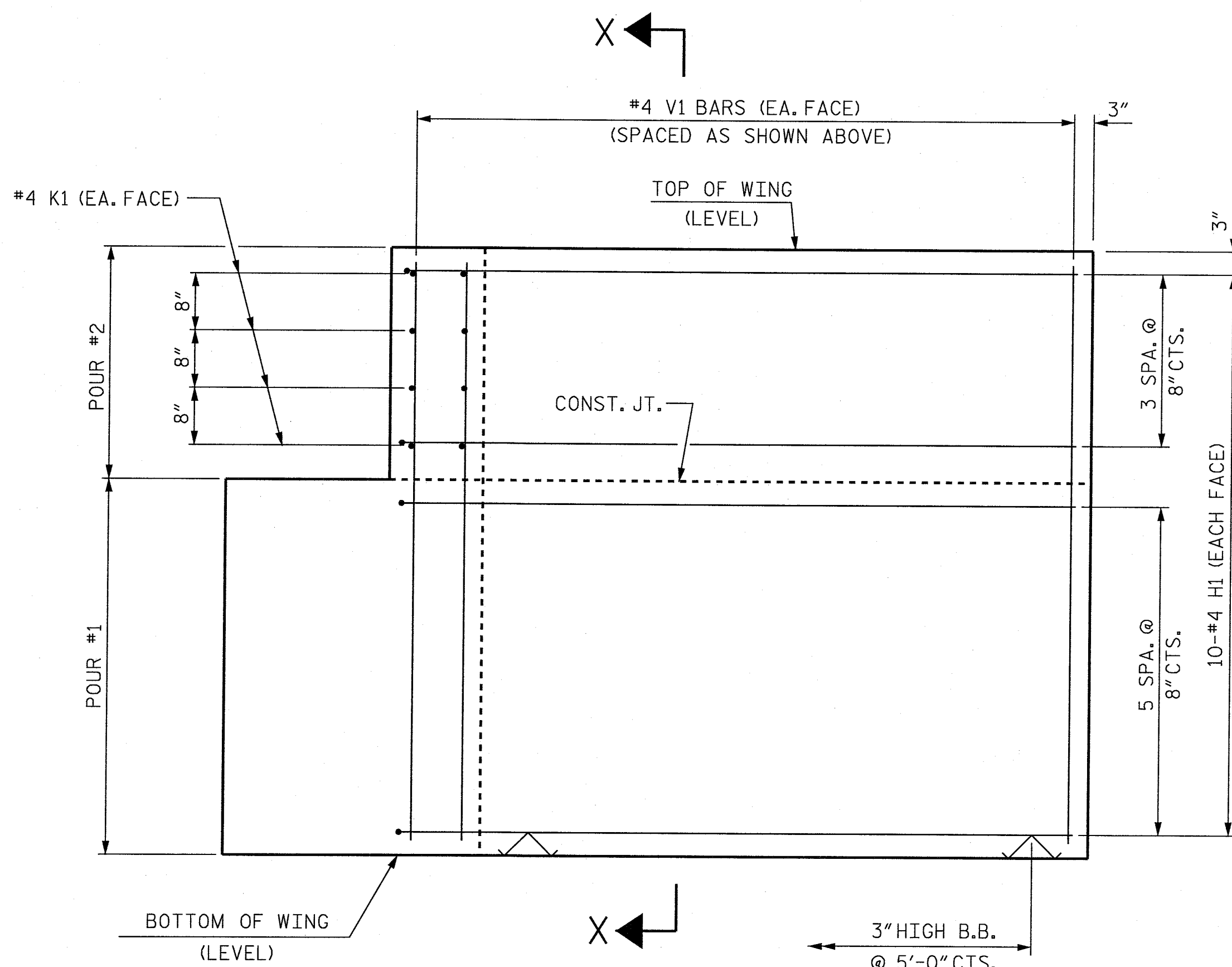
DRAWN BY: WJH 12/11
CHECKED BY: AAC 12/11



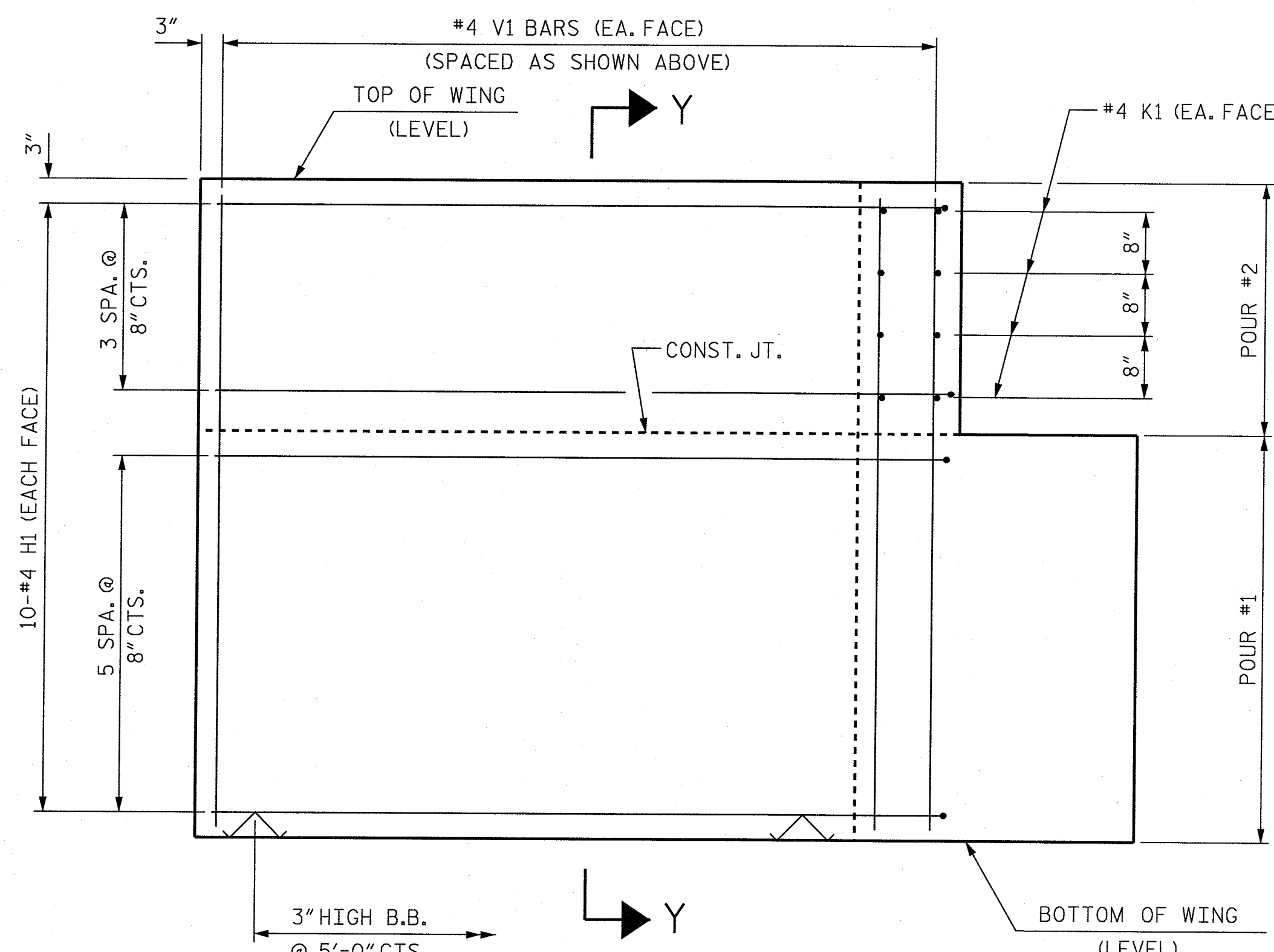
PLAN OF WING (W1)



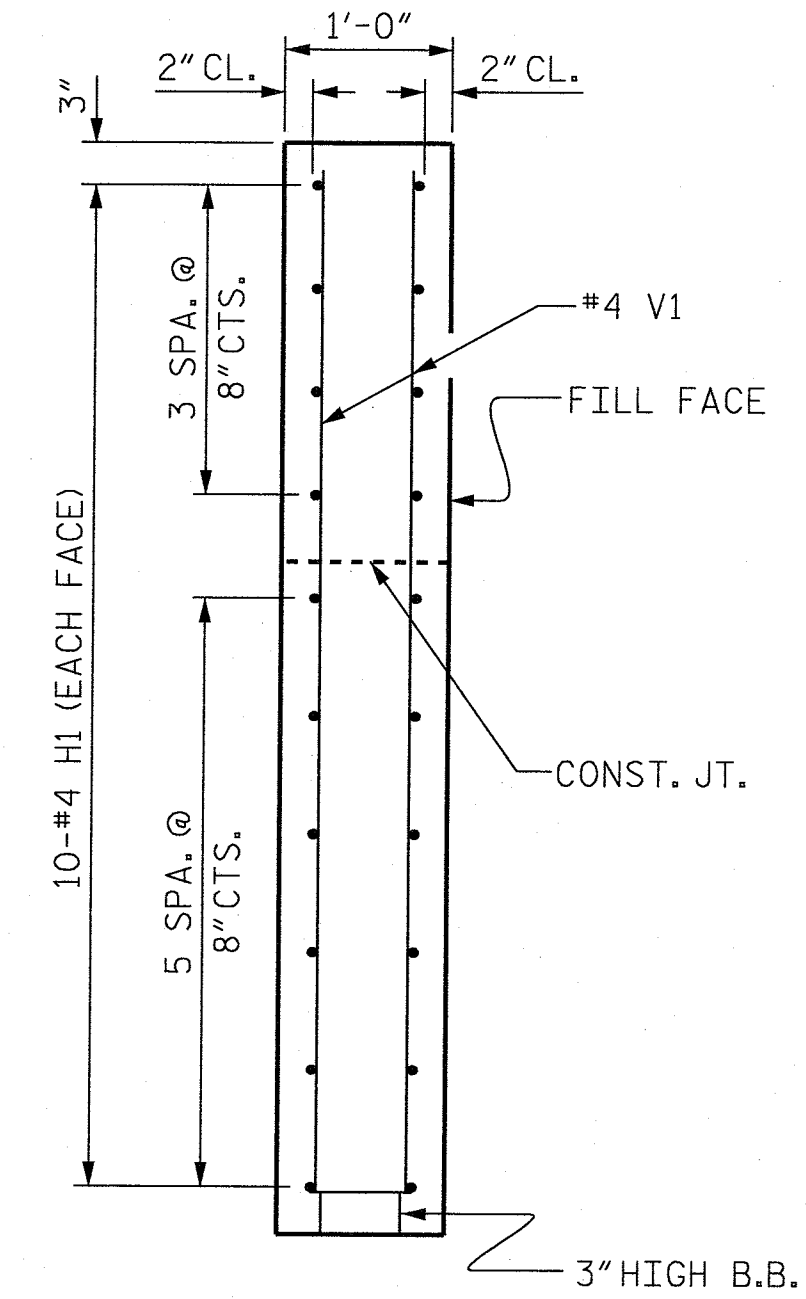
PLAN OF WING (W2)



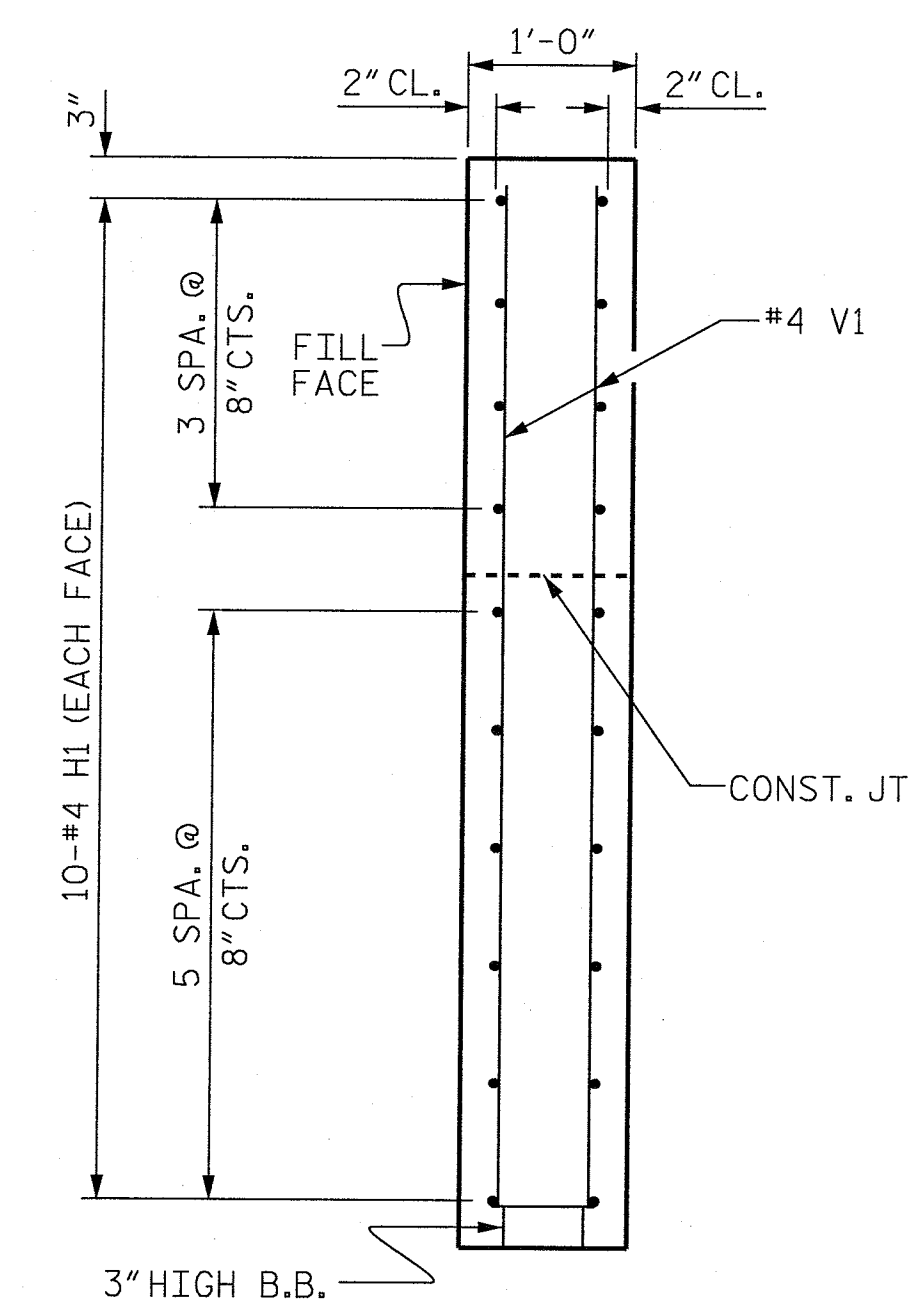
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



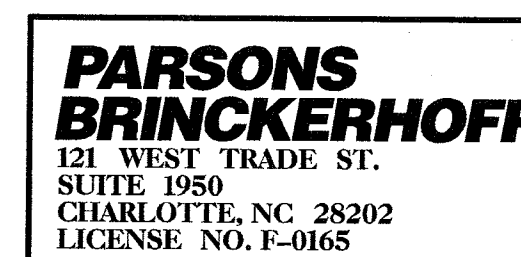
SECTION Y-Y

PROJECT NO. BD-5109AA
 DAVIE COUNTY
 STATION: 13+02.00 -L-
 SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 SUBSTRUCTURE
 END BENT
 WING DETAILS

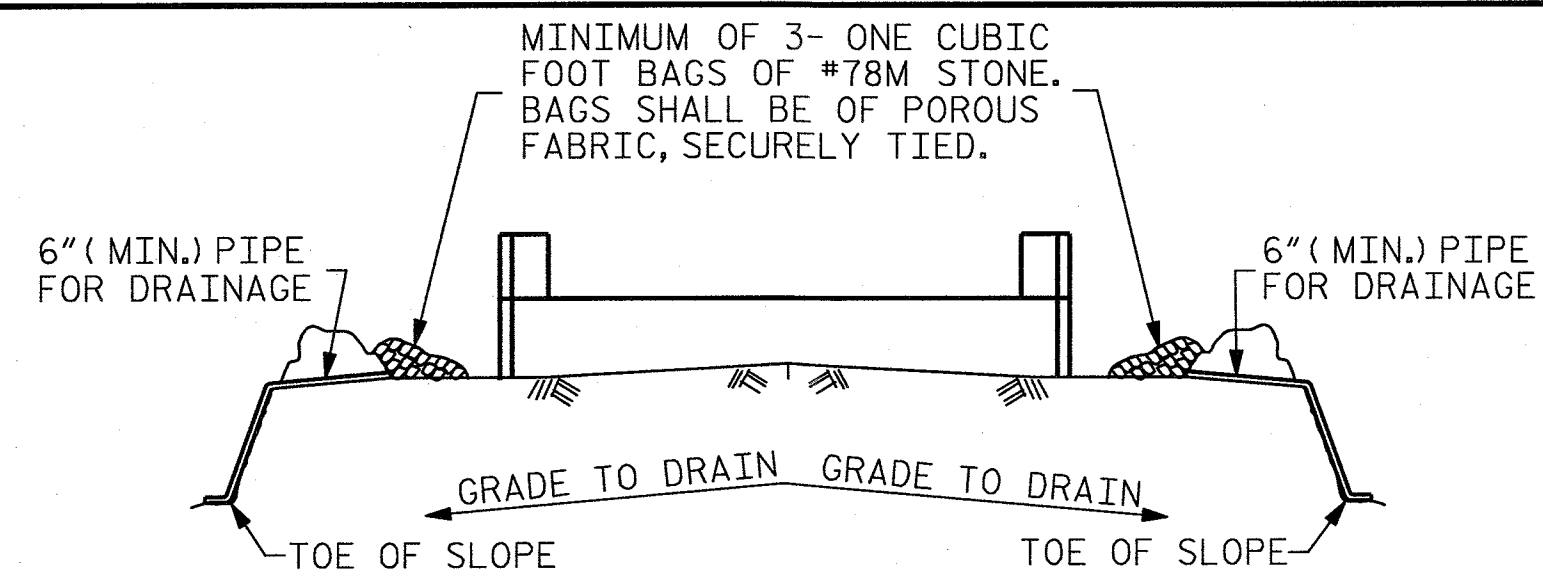
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1			3			S-10	
2			4			12	



4/24/2015 BD-5109AA_SD_WD_10.dgn

DESIGNED BY: E. DAVIS DATE: MAY 2014
 DRAWN BY: E. DAVIS DATE: MAY 2014
 CHECKED BY: J. SHERMAN DATE: MAY 2014
 DESIGN ENGINEER OF RECORD: J. SHERMAN DATE: APRIL 2015
 DRAWN BY: WJH 12/II
 CHECKED BY: AAC 12/II

WING DETAILS

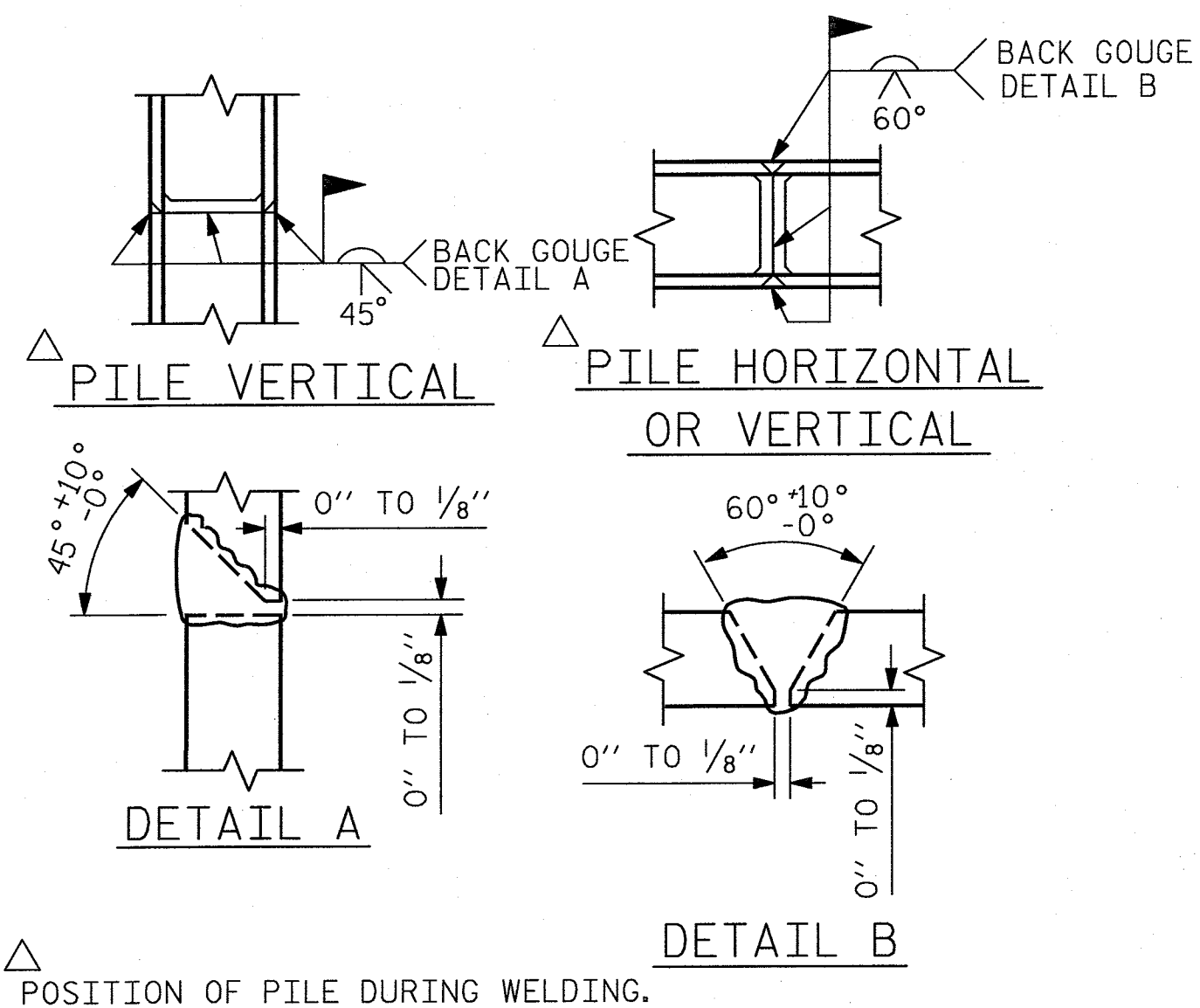


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

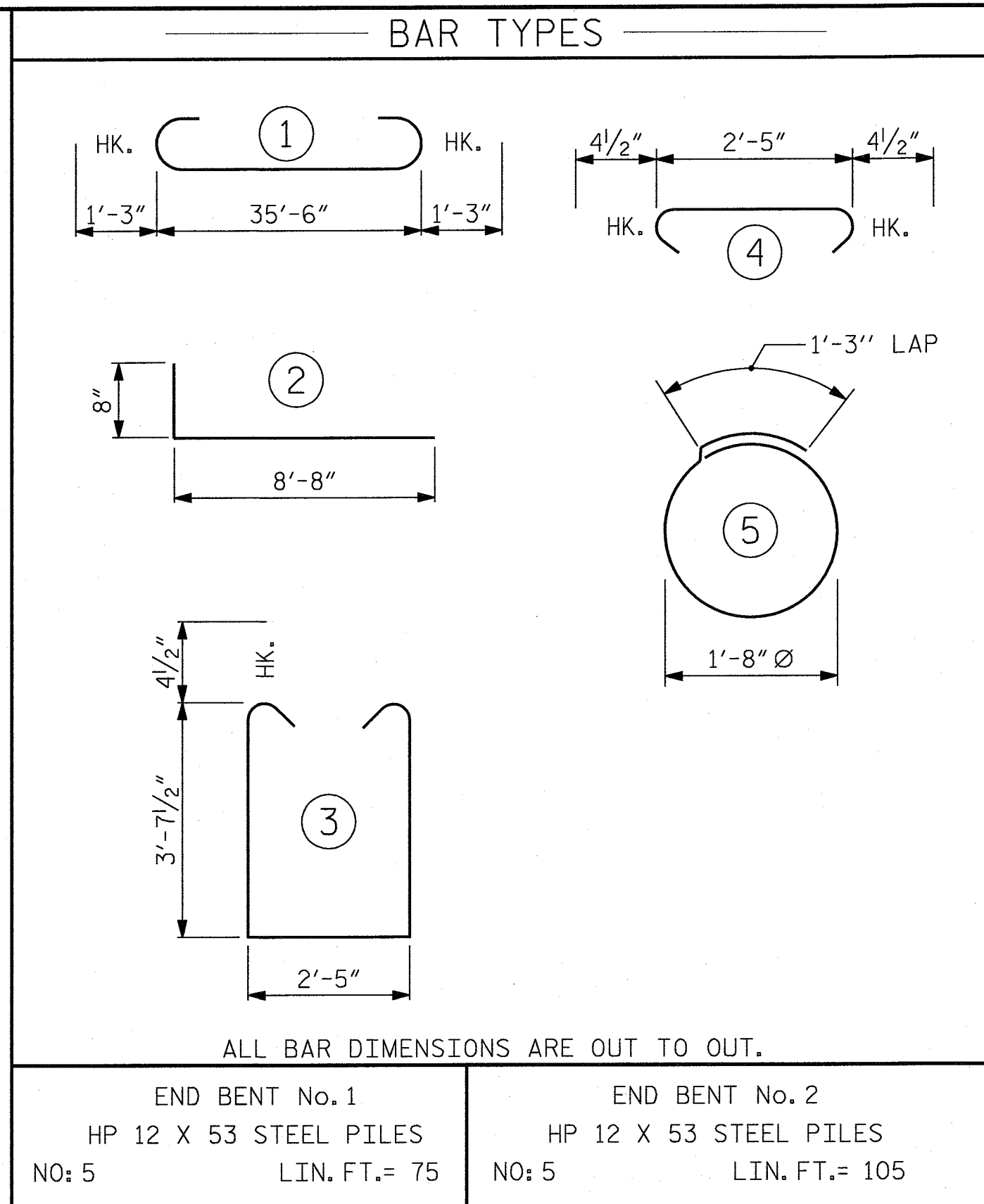
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

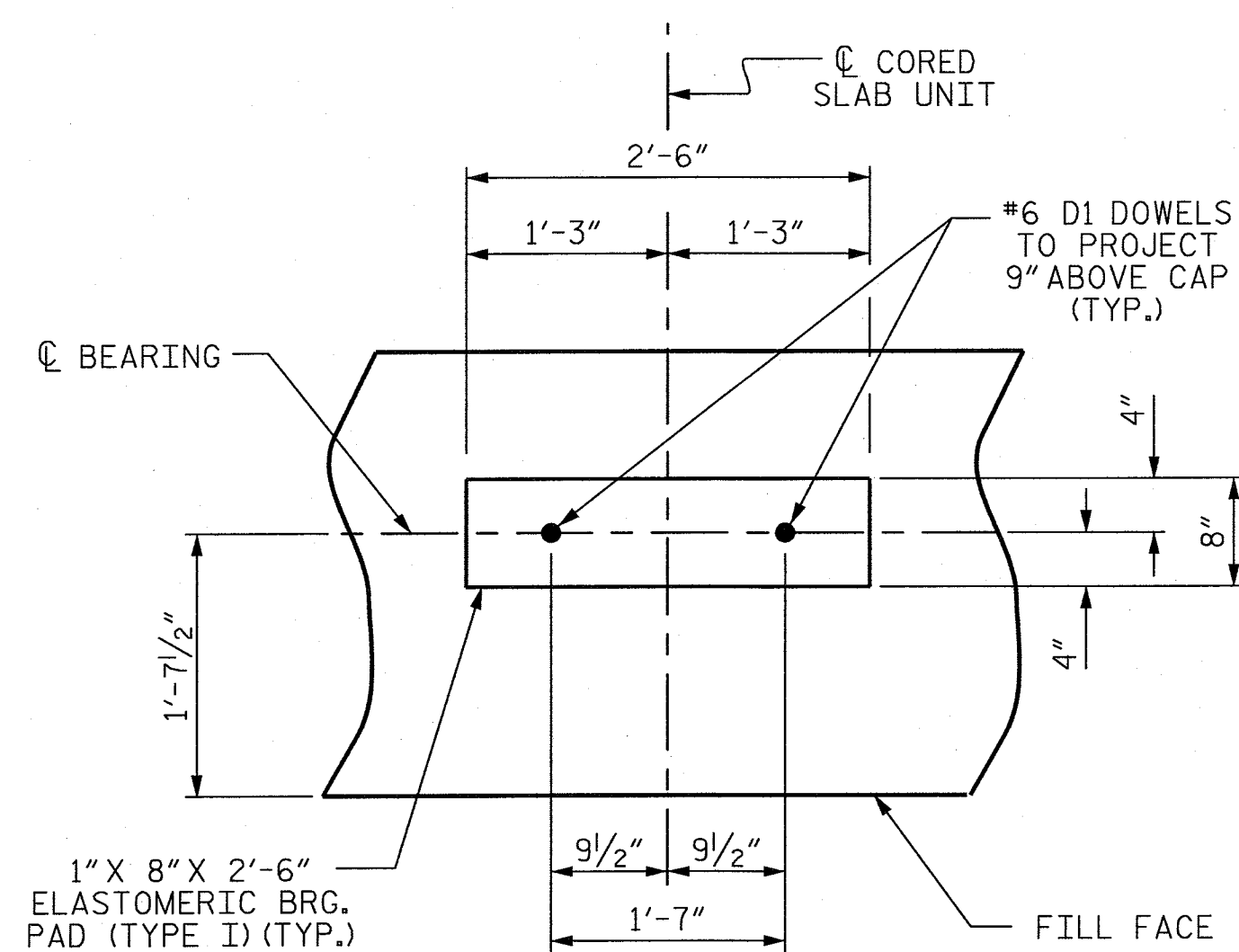
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

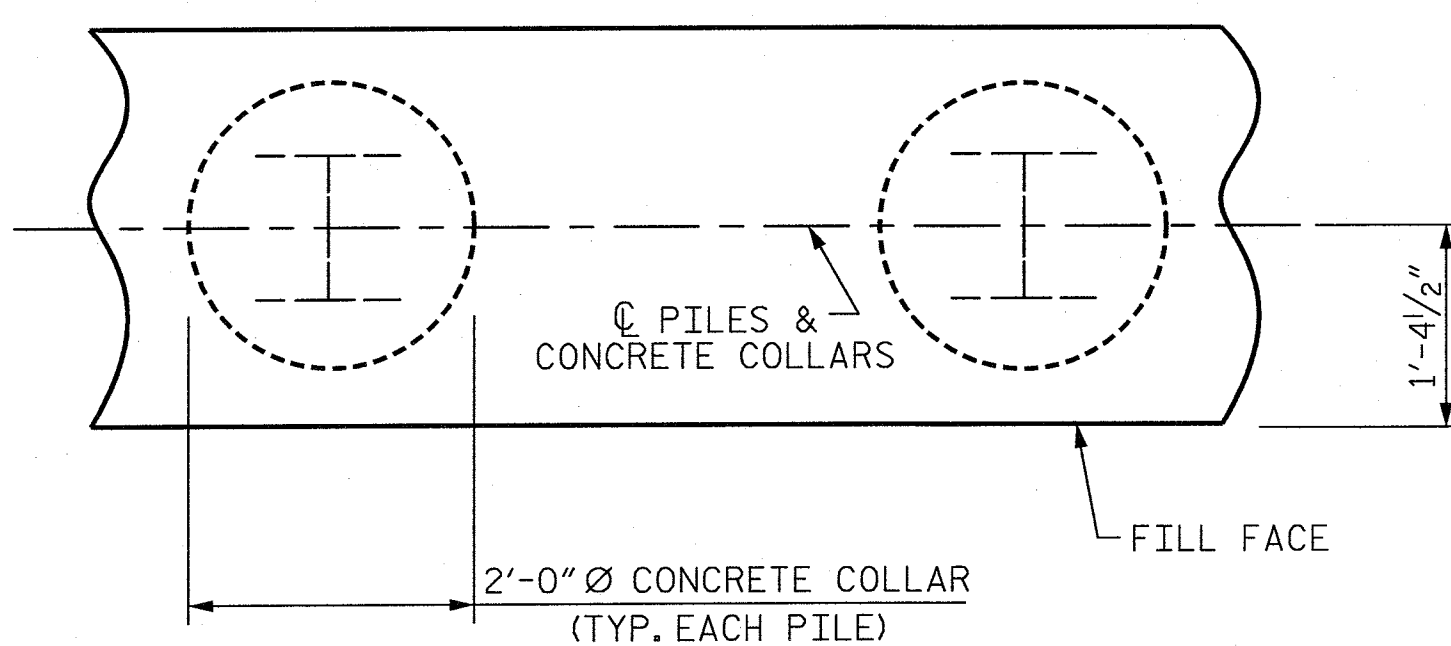


BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		38'-0"	1034
B2	28	#4	STR	19'-1"	357
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	46	#4	3	10'-5"	320
S2	46	#4	4	3'-2"	97
S3	20	#4	5	6'-6"	87
V1	52	#4	STR	6'-2"	214
REINFORCING STEEL (FOR ONE END BENT)					2449 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					17.9 C.Y.
POUR #2 UPPER PART OF WINGS					2.3 C.Y.
TOTAL CLASS A CONCRETE					20.2 C.Y.

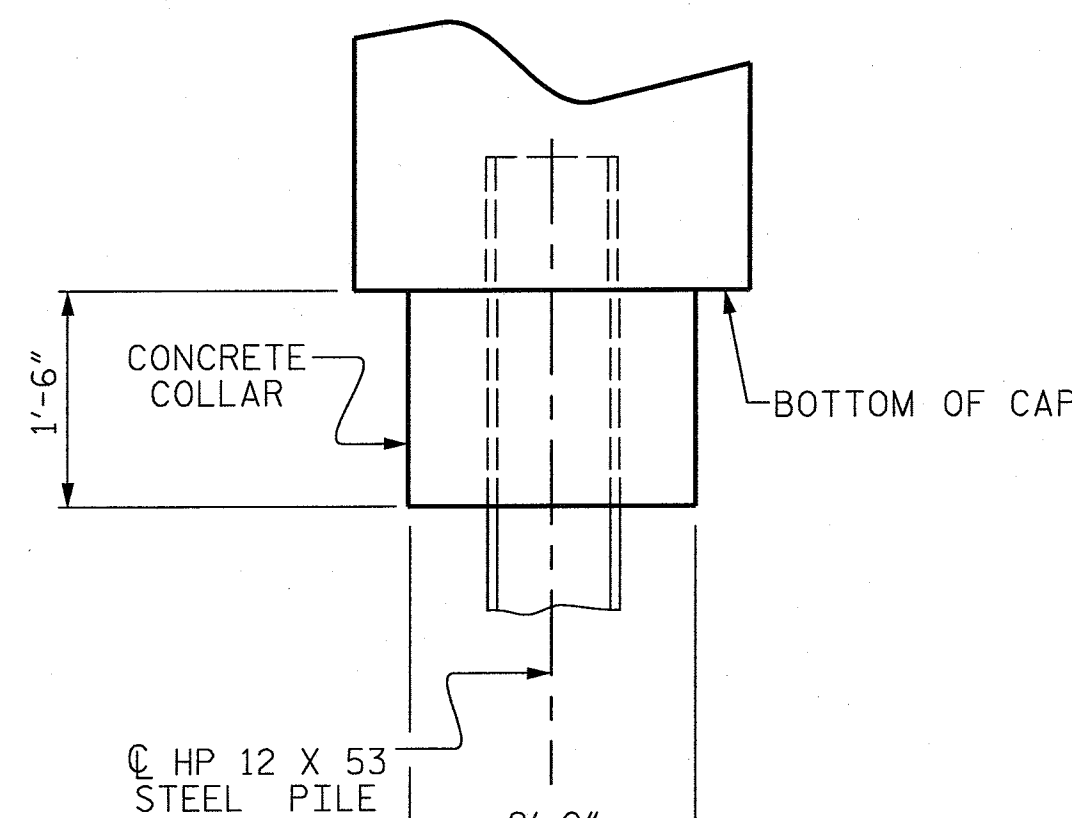


DETAIL "A"

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



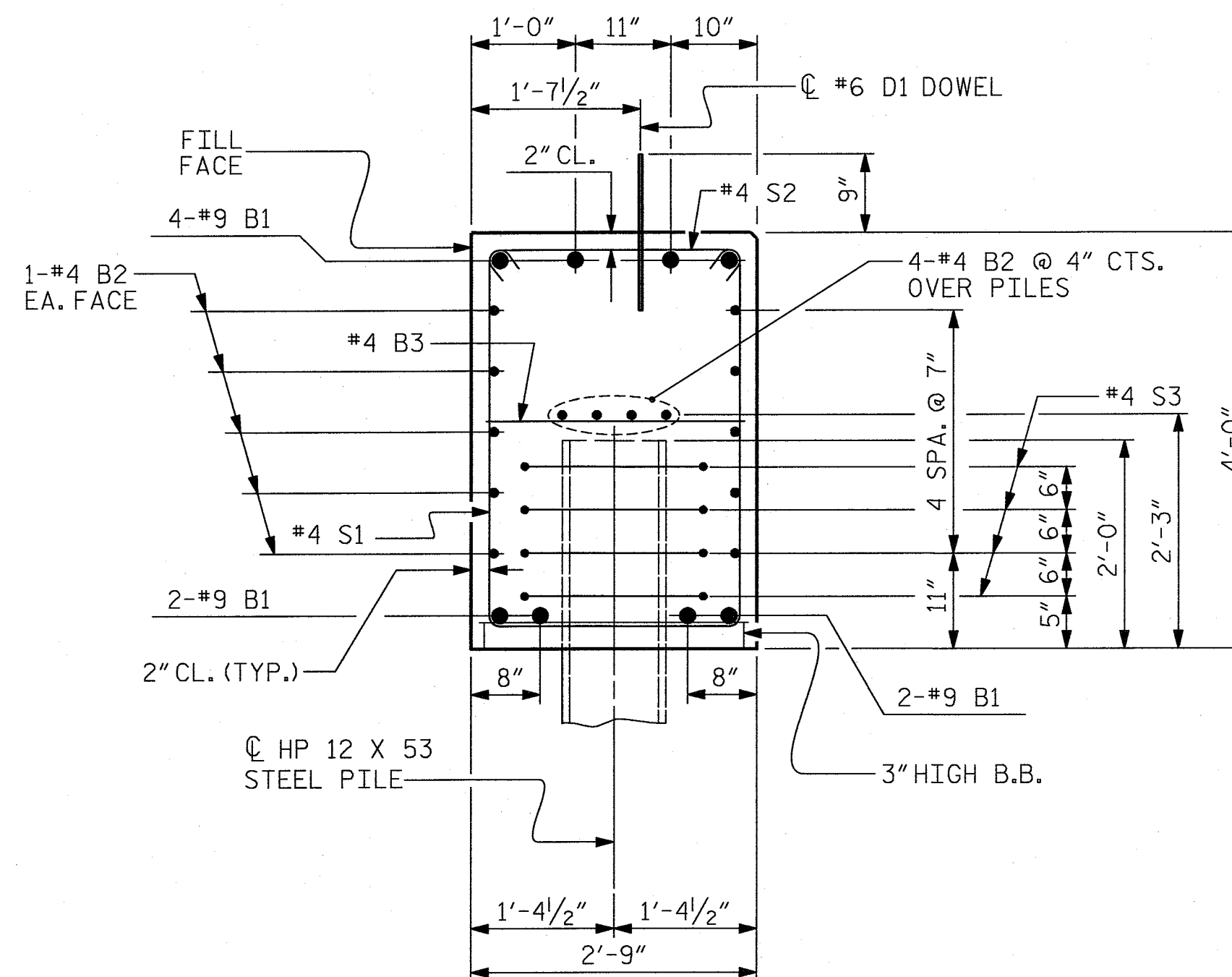
PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL

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



SECTION A-A

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

PROJECT NO. BD-5109AA

DAVIE COUNTY

STATION: 13+02.00 -L-

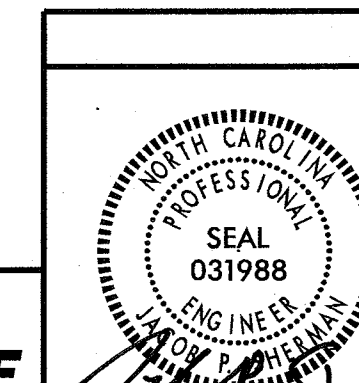
SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
SUBSTRUCTURE
END BENT No. 1 & 2
DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			12

PARSONS BRINCKERHOFF
121 WEST TRADE ST.
SUITE 1950
CHARLOTTE, NC 28202
LICENSE NO. F-0165



STD. NO. EB_30_90S4

4/24/2015 BD-5109AA_SD_EB_11.dgn

DESIGNED BY: E. DAVIS	DATE: MAY 2014
DRAWN BY: E. DAVIS	DATE: MAY 2014
CHECKED BY: J. SHERMAN	DATE: MAY 2014
DESIGN ENGINEER OF RECORD: J. SHERMAN	DATE: APRIL 2015
DRAWN BY: WJH	12/11
CHECKED BY: AAC	12/11

NOTES

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

GEOTEXTILE SHALL BE TYPE 11N ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

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

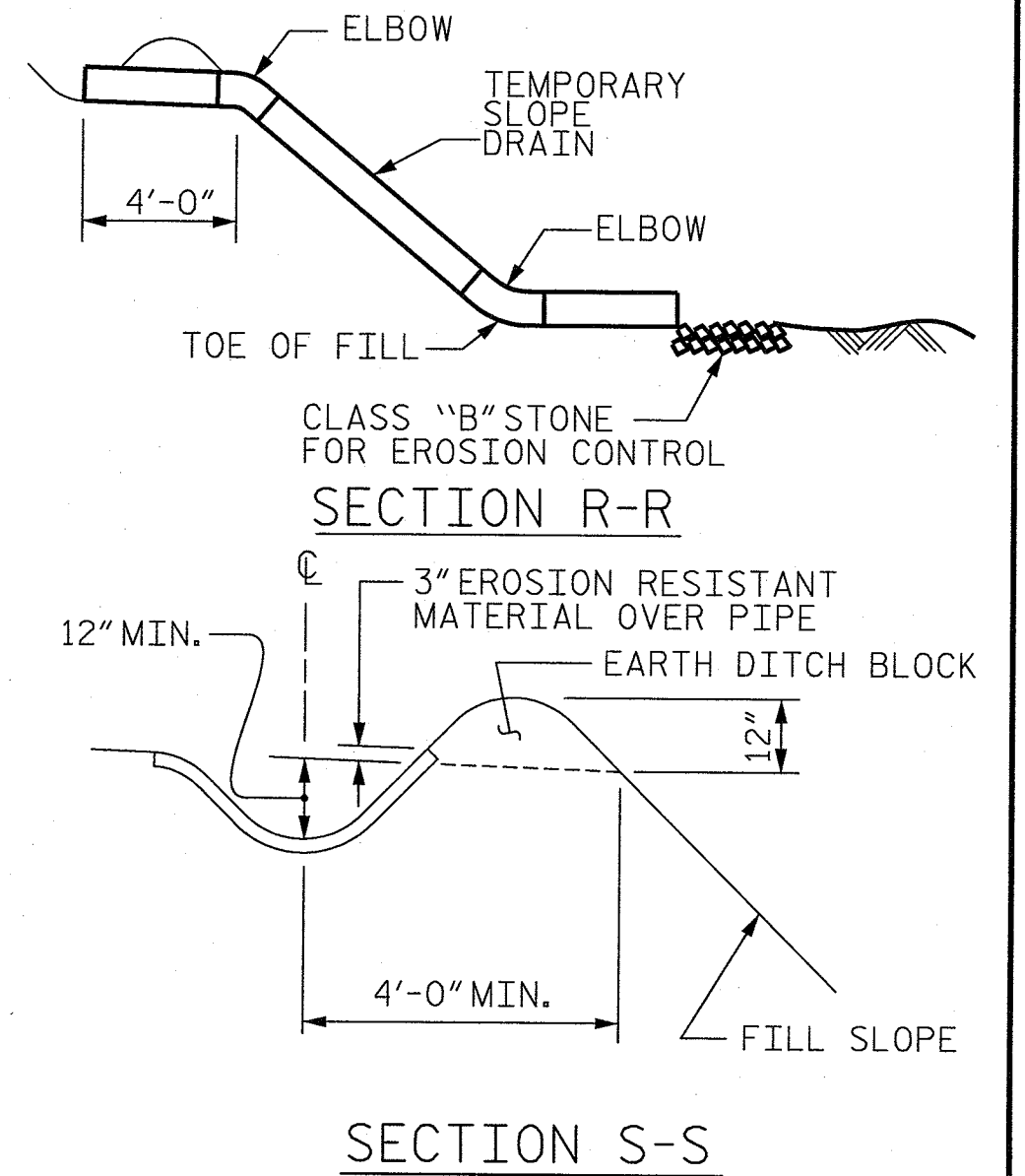
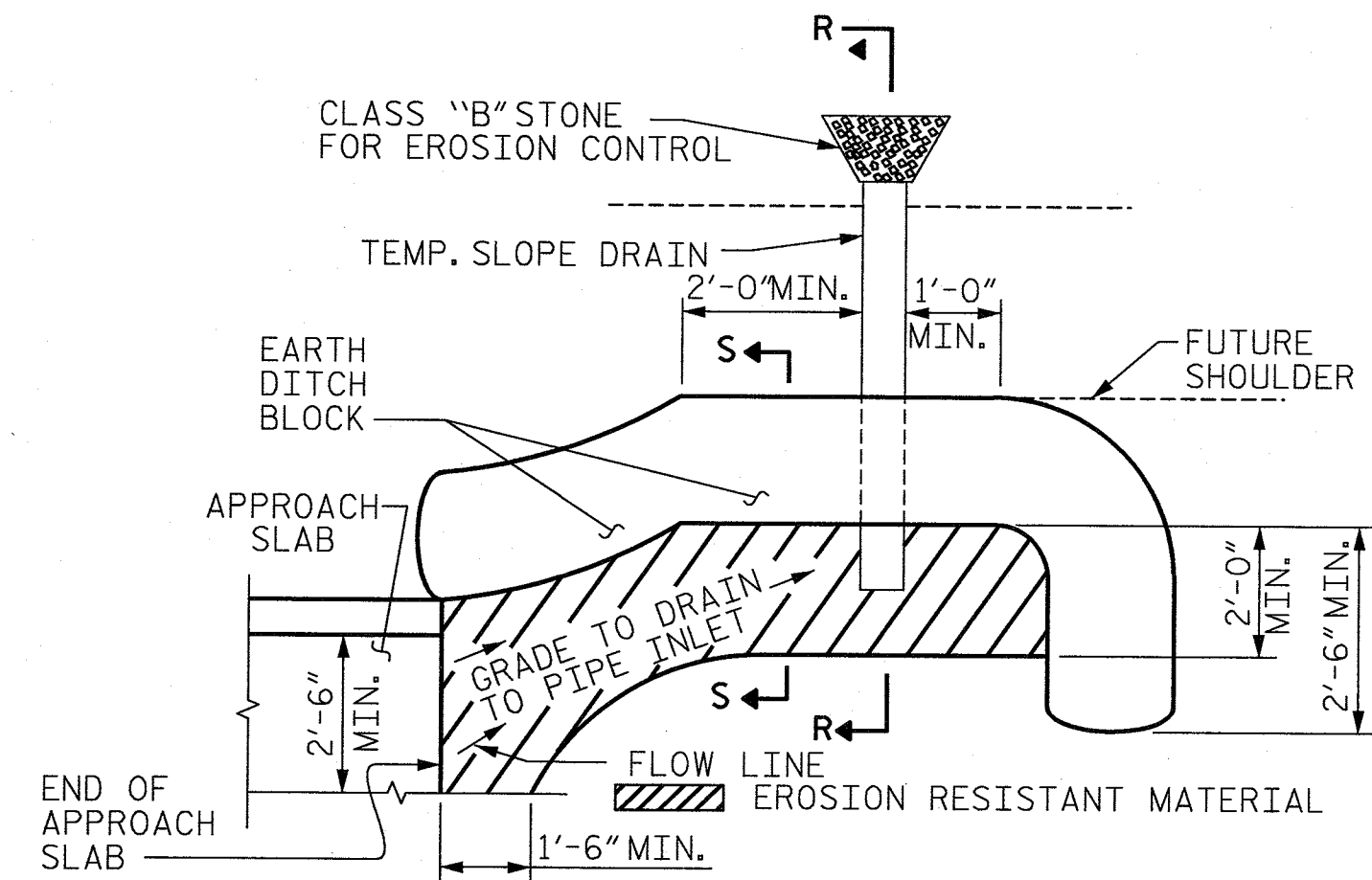
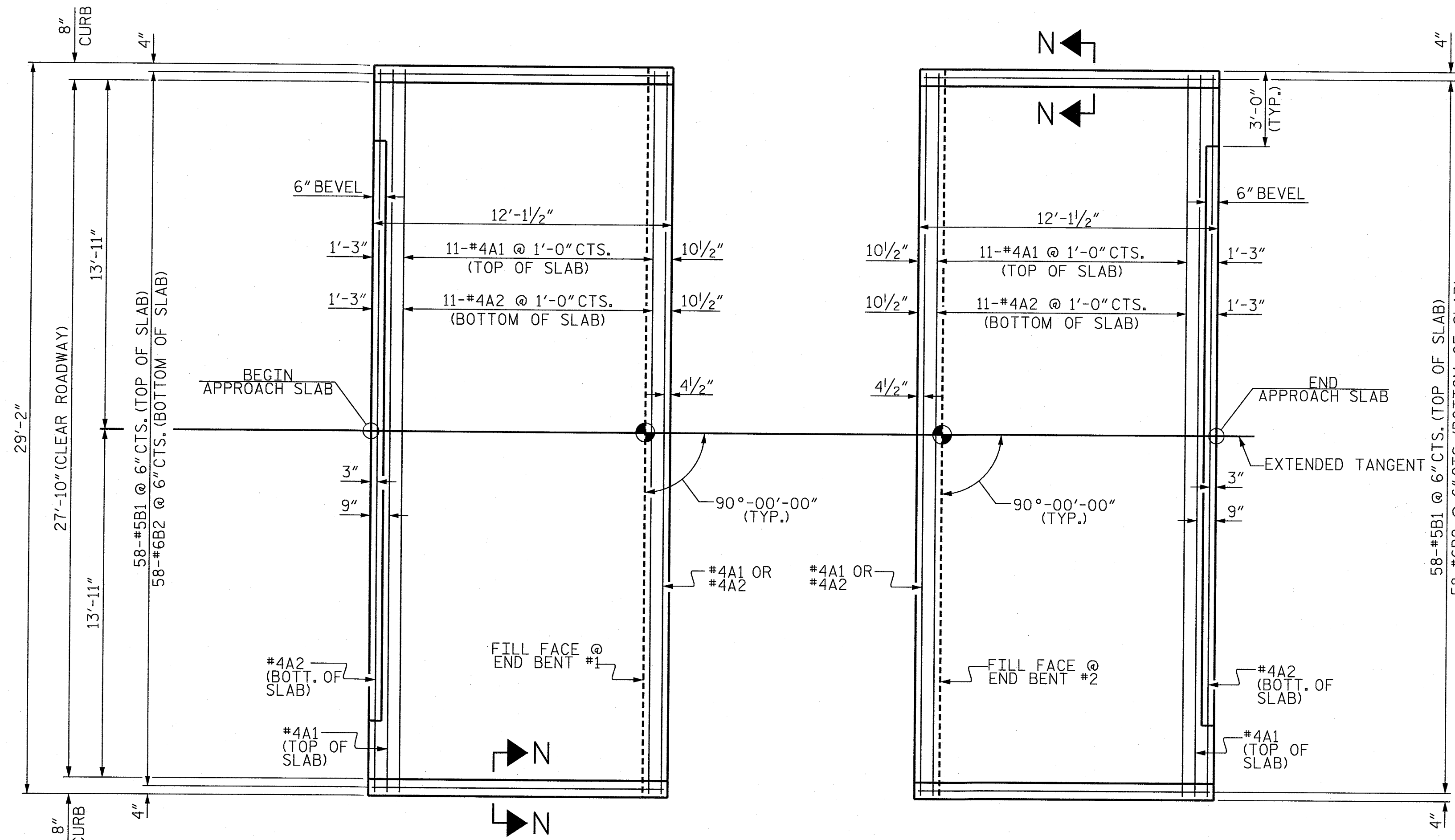
#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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.

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	28'-10"	250	
A2	13	#4	STR	28'-10"	250	
*B1	58	#5	STR	11'-2"	676	
B2	58	#6	STR	11'-8"	1016	
REINFORCING STEEL					LBS.	1266
*EPOXY COATED REINFORCING STEEL					LBS.	926
CLASS AA CONCRETE					C. Y.	17.8
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	28'-10"	250	
A2	13	#4	STR	28'-10"	250	
*B1	58	#5	STR	11'-2"	676	
B2	58	#6	STR	11'-8"	1016	
REINFORCING STEEL					LBS.	1266
*EPOXY COATED REINFORCING STEEL					LBS.	926
CLASS AA CONCRETE					C. Y.	17.8



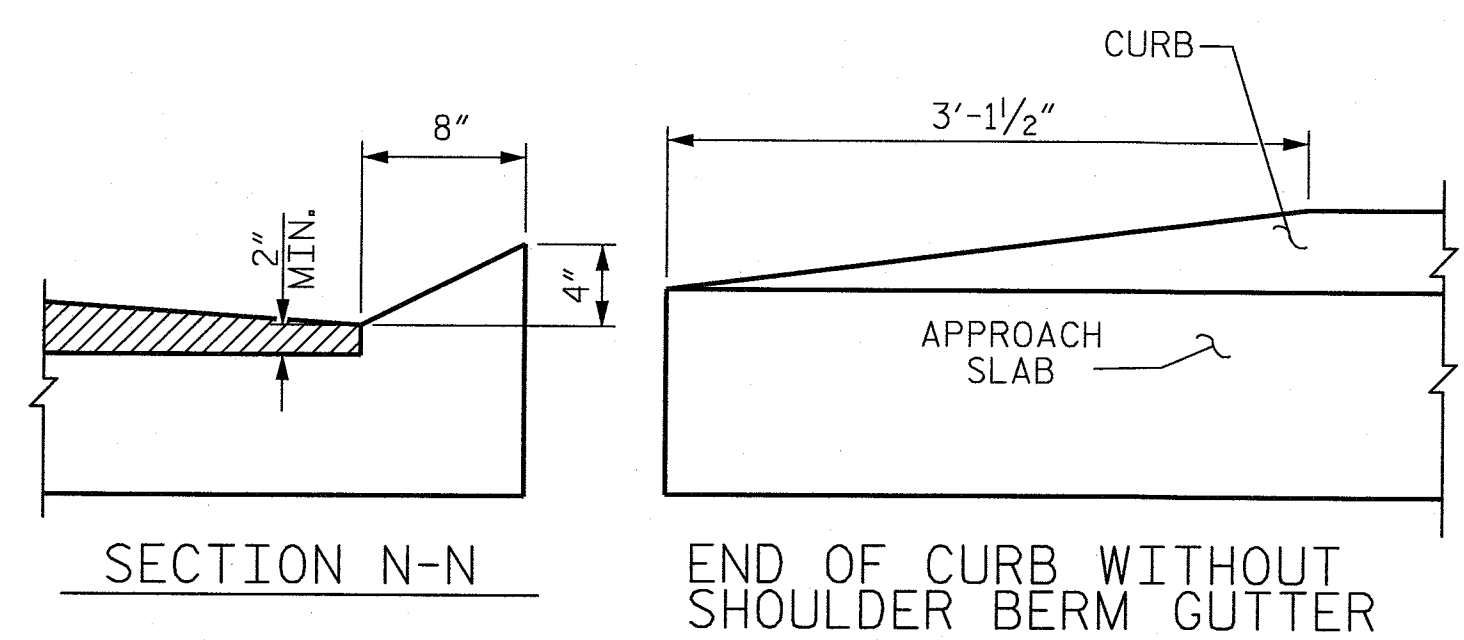
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW

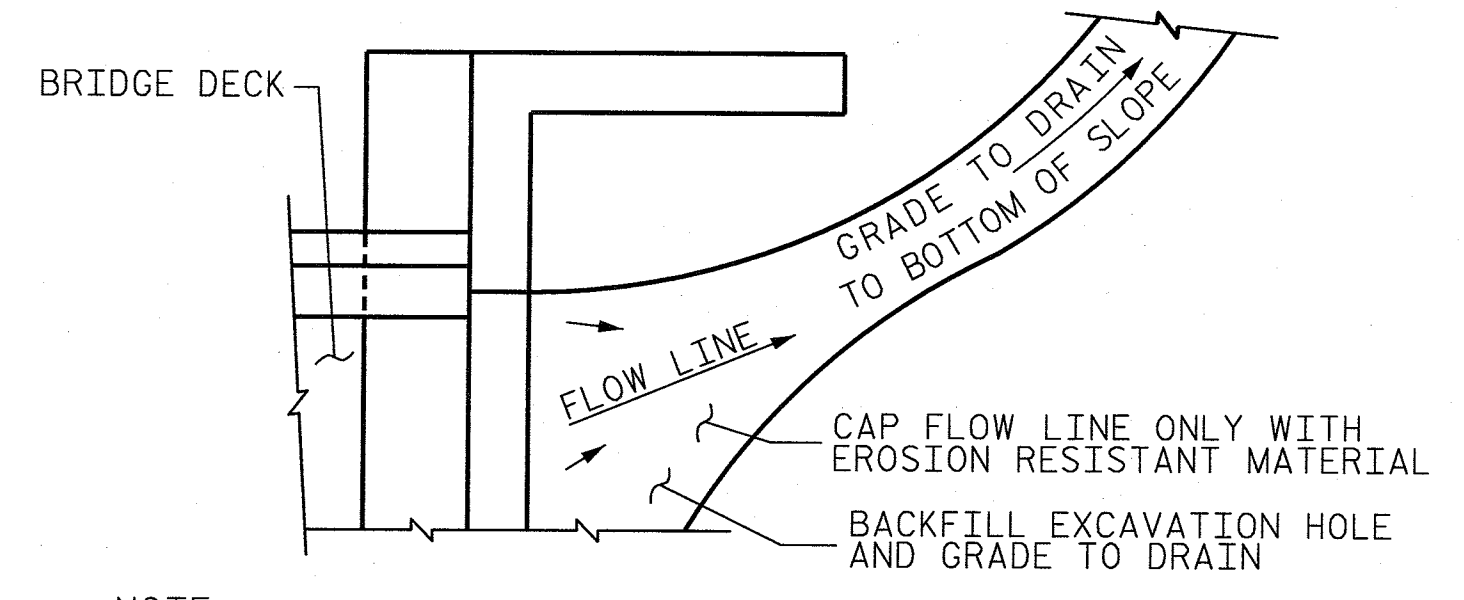
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

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

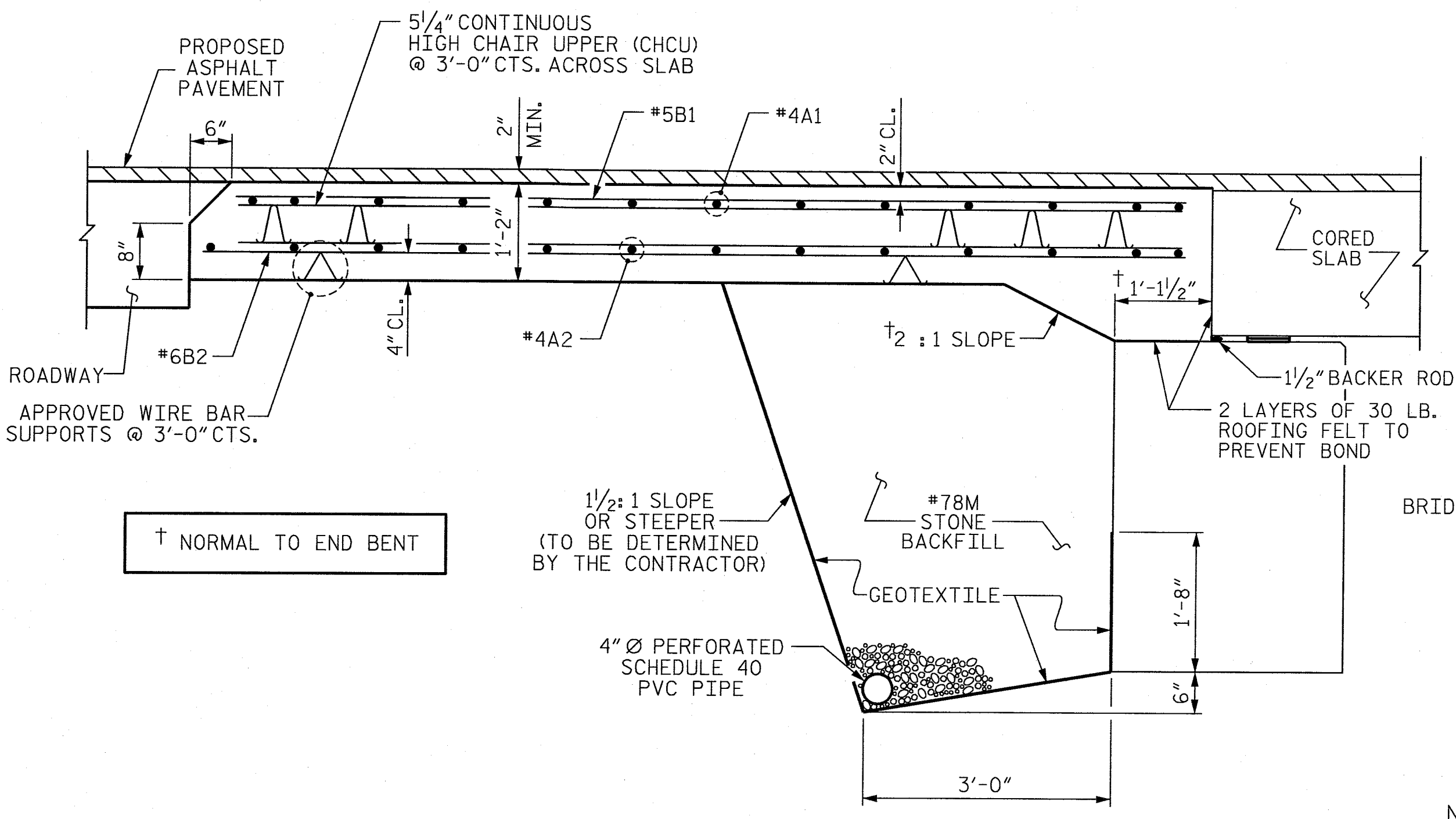


CURB DETAILS



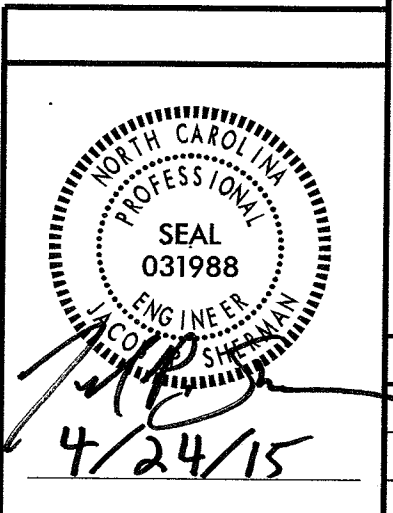
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



PROJECT NO. BD-5109AA
 DAVIE COUNTY
 STATION: 13+02.00 -L-

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



PARSONS BRINCKERHOFF
 121 WEST TRADE ST.
 SUITE 1950
 CHARLOTTE, NC 28202
 LICENSE NO. P-0165

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

TOTAL SHEETS: 12

DESIGNED BY: E. DAVIS DATE: MAY 2014
 DRAWN BY: E. DAVIS DATE: MAY 2014
 CHECKED BY: J. SHERMAN DATE: MAY 2014
 DESIGN ENGINEER OF RECORD: J. SHERMAN DATE: APRIL 2015
 DRAWN BY: SHS/MAA 5-09 REV. 12-11 MAA/AAC
 CHECKED BY: BCH 5-09 REV. 8-14 MAA/TMG

4/24/2015
 BD-5109AA_SD_AS.12.dgn

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" ~ SHEAR STUDS FOR THE 3/4" ~ STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" ~ STUDS FOR 4 - 3/4" ~ STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" ~ STUDS ALONG THE BEAM AS SHOWN FOR 3/4" ~ STUDS BASED ON THE RATIO OF 3 - 7/8" ~ STUDS FOR 4 - 3/4" ~ STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

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