



INDEX OF SHEETS

1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2	TYPICAL SECTIONS
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF DRAINAGE, GUARDRAIL AND EARTHWORK QUANTITIES
4	PLAN AND PROFILE SHEET
TMP1-TMP2	TRAFFIC MANAGEMENT PLANS
EC1-EC3	EROSION CONTROL SHEETS
X1A	CROSS-SECTION SUMMARY
X1	CROSS-SECTIONS
S1-S18	STRUCTURE PLANS (BRIDGE)

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	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
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: 11/01/11

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY ENGINEER.

DRIVEWAYS:

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

GUARDRAIL:

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

END BENTS:

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

UTILITIES:

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	--- MLB
Proposed Wetland Boundary	--- MLB
Existing Endangered Animal Boundary	--- EAB
Existing Endangered Plant Boundary	--- EPB

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ 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	----- (RW)
Proposed Right of Way Line with Iron Pin and Cap Marker	----- (RW) ▲
Proposed Right of Way Line with Concrete or Granite Marker	----- (RW) ▲
Existing Control of Access	○ C/A
Proposed Control of Access	○ C/A
Existing Easement Line	--- E
Proposed Temporary Construction Easement	--- E
Proposed Temporary Drainage Easement	--- TDE
Proposed Permanent Drainage Easement	--- PDE
Proposed Permanent Utility Easement	--- PUE
Proposed Temporary Utility Easement	--- TUE
Proposed Permanent Easement with Iron Pin and Cap Marker	--- E ◆

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	□ Vineyard

EXISTING STRUCTURES:

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

UTILITIES:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

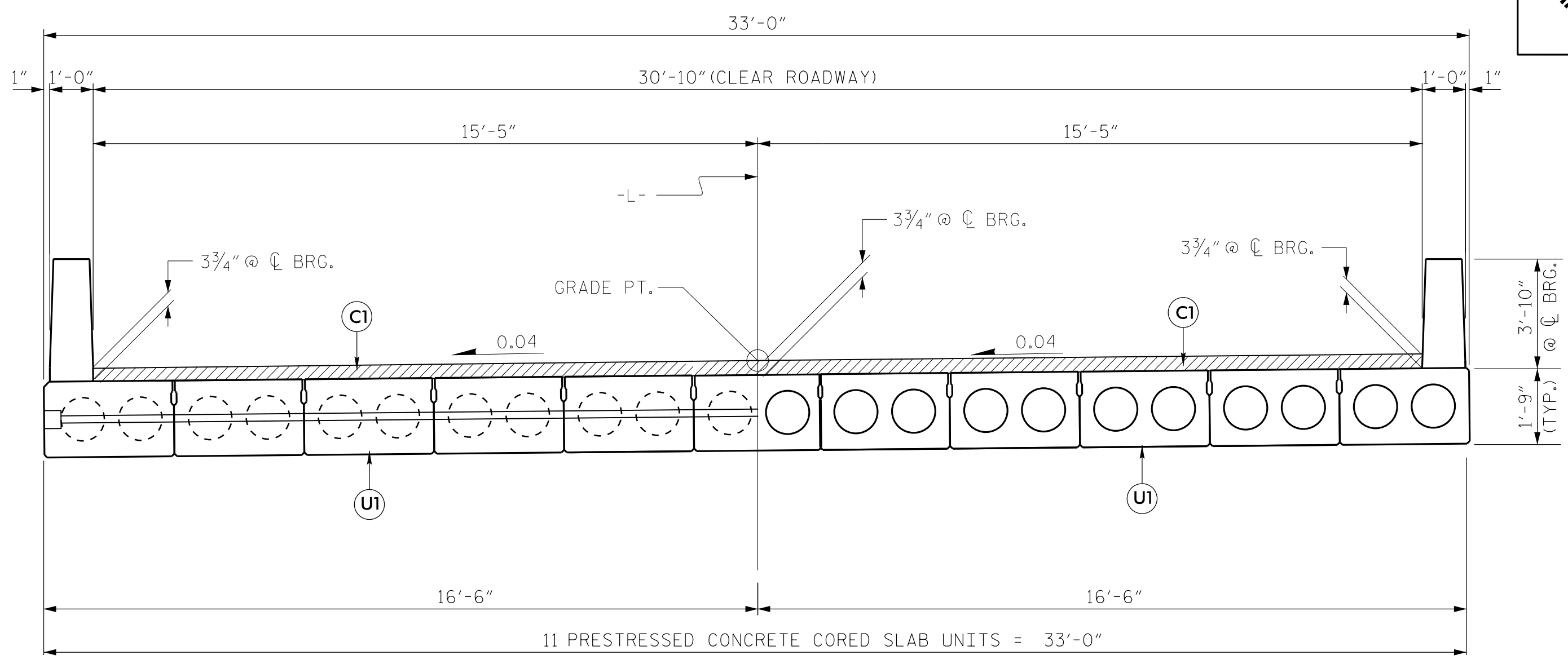
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	--- TUTL
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

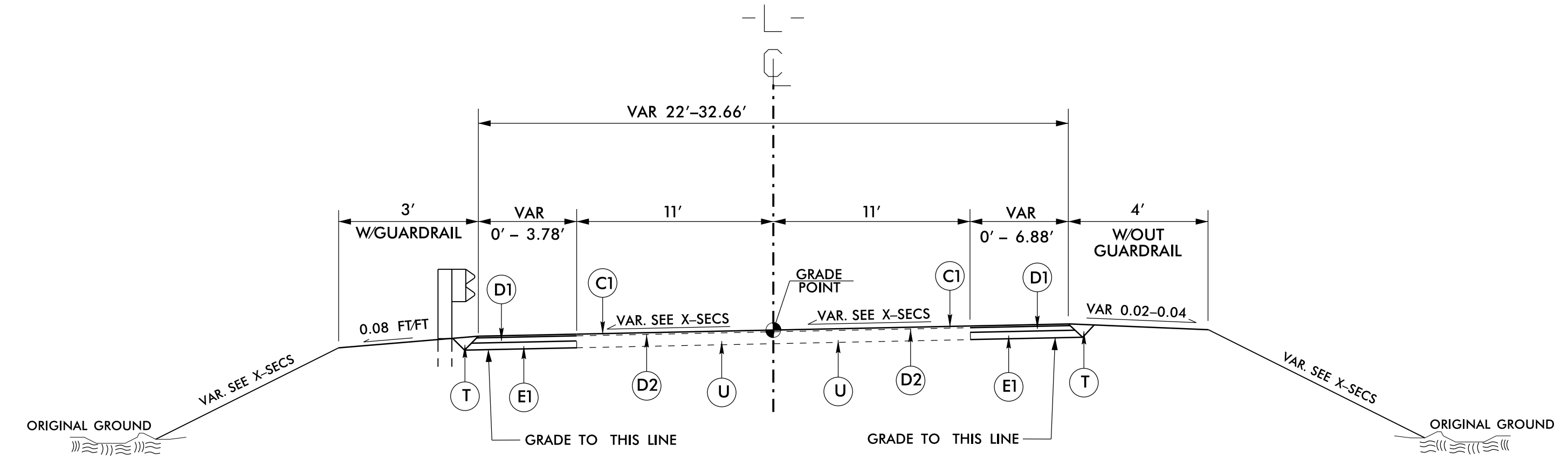
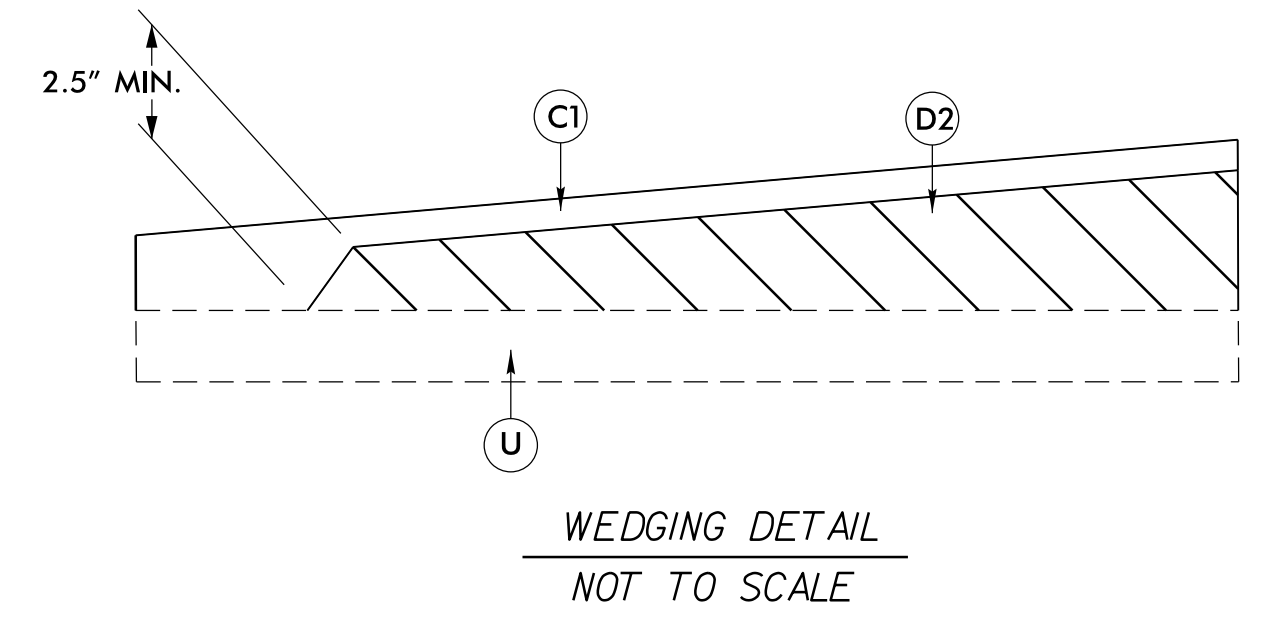
8/15/08 20:04:20 47\BDS102N\NE\BD-5102N\Creene 47\BDS102N_ddc2.psh_ib.dgn

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 336 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
U1	CONCRETE CORED SLABS

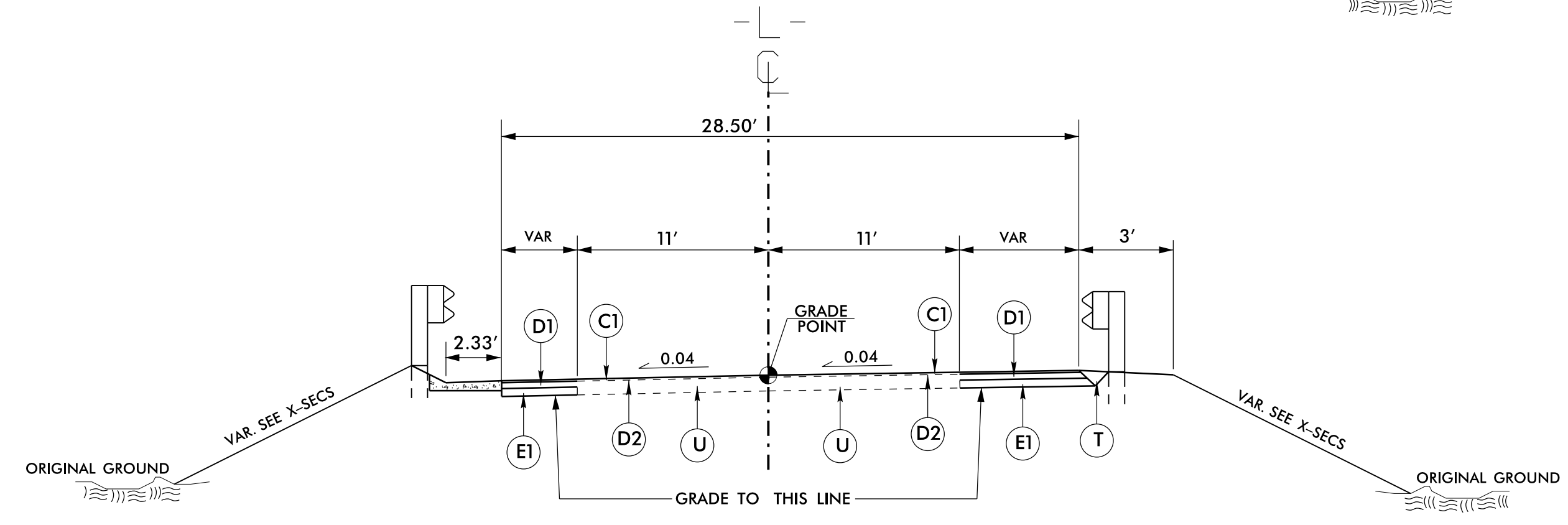
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL BRIDGE SECTION (NTS)
-L- STA 15+11.81 TO -L- STA 15+99.19



USE TYPICAL SECTION #1 (NTS)
-L- 13+50.00 - 14+63.15
-L- 16+10.19 - 17+65.00



USE TYPICAL SECTION #2 (NTS)
-L- 14+63.15 - 15+00.81

REVISIONS

8/17/99

30 JUL 2015 09:09
S:\PROJECTS\BD-5102N\Drawings\BD-5102N.dwg
47\BD5102N.ddc2.psh_2.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF QUANTITIES

ITEM	SECT	QUANTITY	UNIT	ITEM DESCRIPTION	ITEM	SECT	QUANTITY	UNIT	ITEM DESCRIPTION
1	800	1	LS	MOBILIZATION	30	SP	350	LF	SAFETY FENCE
2	801	1	LS	CONSTRUCTION SURVEYING	31	1630	5	CY	SILT EXCAVATION
3	SP	1	LS	REINFORCED BRIDGE APPROACH FILL, -L- STA 15+55.50	32	1631	460	SY	MATTING FOR EROSION CONTROL
4	226	1	LS	GRADING	33	1632	70	LF	1/4" HARDWARE CLOTH
5	226	200	CY	UNDERCUT EXCAVATION	34	SP	80	SY	FLOATING TURBIDITY CURTAIN
6	300	10	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	35	SP	200	LF	WATTLE
7	300	30	SY	FOUNDATION CONDITIONING GEOTEXTILE	36	1660	1	ACRE	SEEDING AND MULCHING
8	310	68	LF	15" R.C. PIPE CULVERTS, CLASS III	37	1661	50	LB	SEED FOR REPAIR SEEDING
9	610	60	TON	ASPHALT CONCRETE BASE COURSE, TYPE B25.0B	38	1661	0.2	TON	FERTILIZER FOR REPAIR SEEDING
10	610	210	TON	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0B					
11	610	275	TON	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B					
12	620	30	TON	ASPHALT BINDER FOR PLANT MIX	39	402	1	LS	REMOVAL OF EXISTING STRUCTURE AT -L- STA 15+55.50
13	840	2	EA	MASONRY DRAINAGE STRUCTURES	40	450	1	EA	PDA TESTING
14	840	2	EA	FRAME WITH GRATE, STD 840.29	41	412	1	LS	UNCLASSIFIED STRUCTURE EXCAVATION
15	846	35	LF	SHOULDER BERM GUTTER	42	420	39.4	CY	CLASS A CONCRETE (BRIDGE)
16	862	124	LF	STEEL BEAM GUARDRAIL, SHOP CURVED	43	422	1	LS	BRIDGE APPROACH SLABS
17	862	10	EA	ADDITIONAL GUARDRAIL POSTS	44	425	6416	LB	REINFORCING STEEL (BRIDGE)
18	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III	45	450	630	LF	HP 12 X 53 STEEL PILES
19	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	46	450	560	LF	HP 14 X 73 GALVANIZED STEEL PILES
20	876	5	TON	RIP RAP, CLASS I	47	450	8	EA	STEEL PILE POINTS
21	876	5	TON	RIP RAP, CLASS B	48	450	12	EA	PILE REDRIVES
22	876	5	SY	GEOTEXTILE FOR DRAINAGE	49	460	170.50	LF	CONCRETE BARRIER RAIL
23	1605	700	LF	TEMPORARY SILT FENCE	50	876	247	TON	RIP RAP, CLASS II (2'-0" THICK)
24	1610	5	TON	STONE FOR EROSION CONTROL, CLASS B	51	876	275	SY	GEOTEXTILE FOR DRAINAGE
25	1610	5	TON	SEDIMENT CONTROL STONE	52	430	1	LS	ELASTOMETRIC BEARINGS
26	1615	1	ACRE	TEMPORARY MULCHING	54	430	935	LF	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS
27	1620	50	LB	SEED FOR TEMPORARY SEEDING					
28	1620	0.2	TON	FERTILIZER FOR TEMPORARY SEEDING					
29	1622	200	LF	TEMPORARY SLOPE DRAINS					

REVISIONS

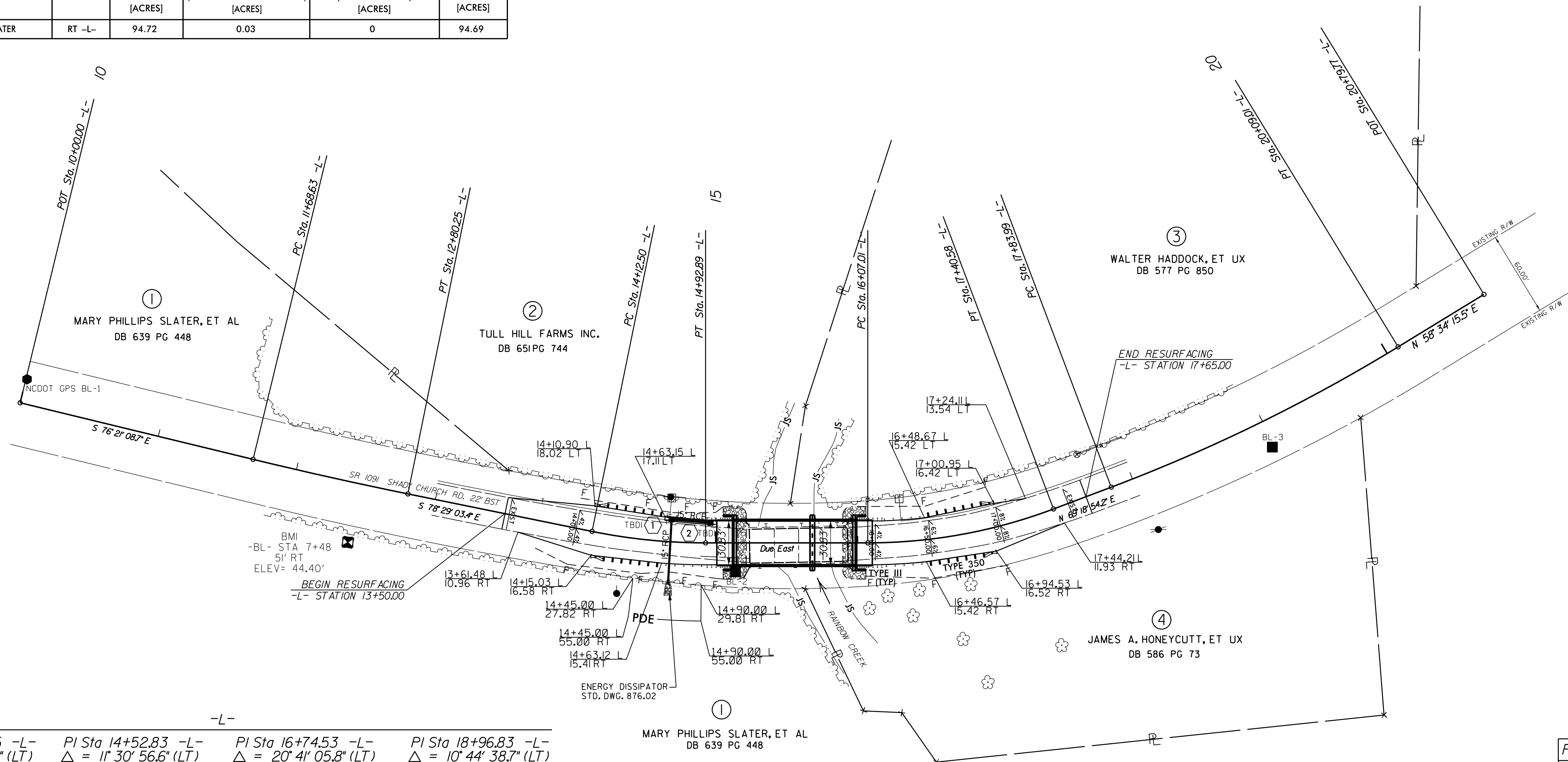
8/17/99

02-AUG-2013 07:28
G:\PROJECTS\GREENE\BD-5102N\Greene 47\BD5102N\ddc2_psh_3.dgn

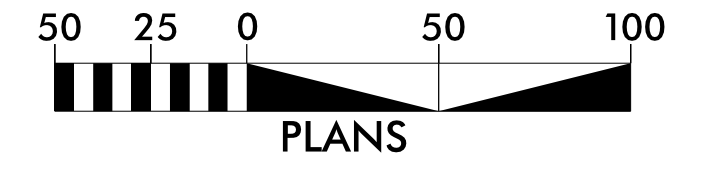
RIGHT OF WAY AREA SUMMARY

PARCEL NO.	PROPERTY OWNER NAME	LOCATION	TOTAL PARCEL AREA [ACRES]	AREA TO BE DEDICATED (PERM. DRAINAGE EASEMENT) [ACRES]	AREA TO BE PURCHASED (RIGHT OF WAY) [ACRES]	PARCEL AREA REMAINING [ACRES]
1	MARY P. SLATER	RT -L-	94.72	0.03	0	94.69

PLAN



PROJECT REFERENCE NO. BD-5102N	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER DWAYNE H. ALLIGOOD 07/29/2013	HYDRAULICS ENGINEER DWAYNE H. ALLIGOOD 07/29/2013



SHOULDER BERM GUTTER
-L- STA 14+63.75 - 15+00.81 LT

WORK POINT DESCRIPTION

WORK POINT #1	-L- STATION 15+11.81 CL
WORK POINT #2	-L- STATION 15+68.00 CL
WORK POINT #3	-L- STATION 15+99.19 CL

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 608307.770(±) EASTING: 2416126.625(±) ELEVATION: 44.351(±) FT.

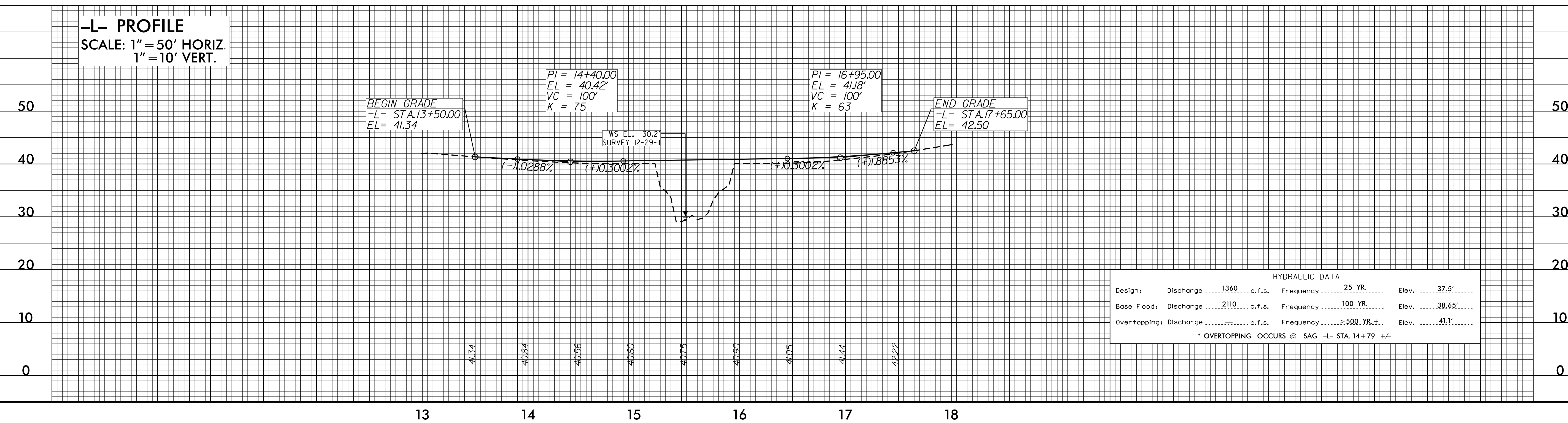
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999880030 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-1" TO -L- STATION IS

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

PI Sta	Δ	D	L	T	R	Vd
12+24.45 -L-	2° 07' 54.8" (LT)	1' 54' 35.5"	111.63'	55.82'	3,000.00'	35 MPH
14+52.83 -L-	1° 30' 56.6" (LT)	14' 19' 26.2"	80.39'	40.33'	400.00'	35 MPH
16+74.53 -L-	20° 41' 05.8" (LT)	15' 29' 07.2"	133.58'	67.52'	370.00'	35 MPH
18+96.83 -L-	10° 44' 38.7" (LT)	4' 46' 28.7"	225.02'	112.84'	1,200.00'	

POINT	NORTH	EAST	ELEVATION
BL1	608307.7700	2416126.6250	44.35
BL2	608172.3842	2416625.1307	40.43
BL3	608260.0451	2417002.7758	47.70

-L- PROFILE
SCALE: 1" = 50' HORIZ.
1" = 10' VERT.



HYDRAULIC DATA

Design:	Discharge	1360 c.f.s.	Frequency	25 YR	Elev.	37.5'
Base Flood:	Discharge	2110 c.f.s.	Frequency	100 YR	Elev.	38.65'
Overtopping:	Discharge	>500 c.f.s.	Frequency	>500 YR	Elev.	41.1'

* OVERTOPPING OCCURS @ SAG -L- STA. 14+79 +/-

REVISIONS

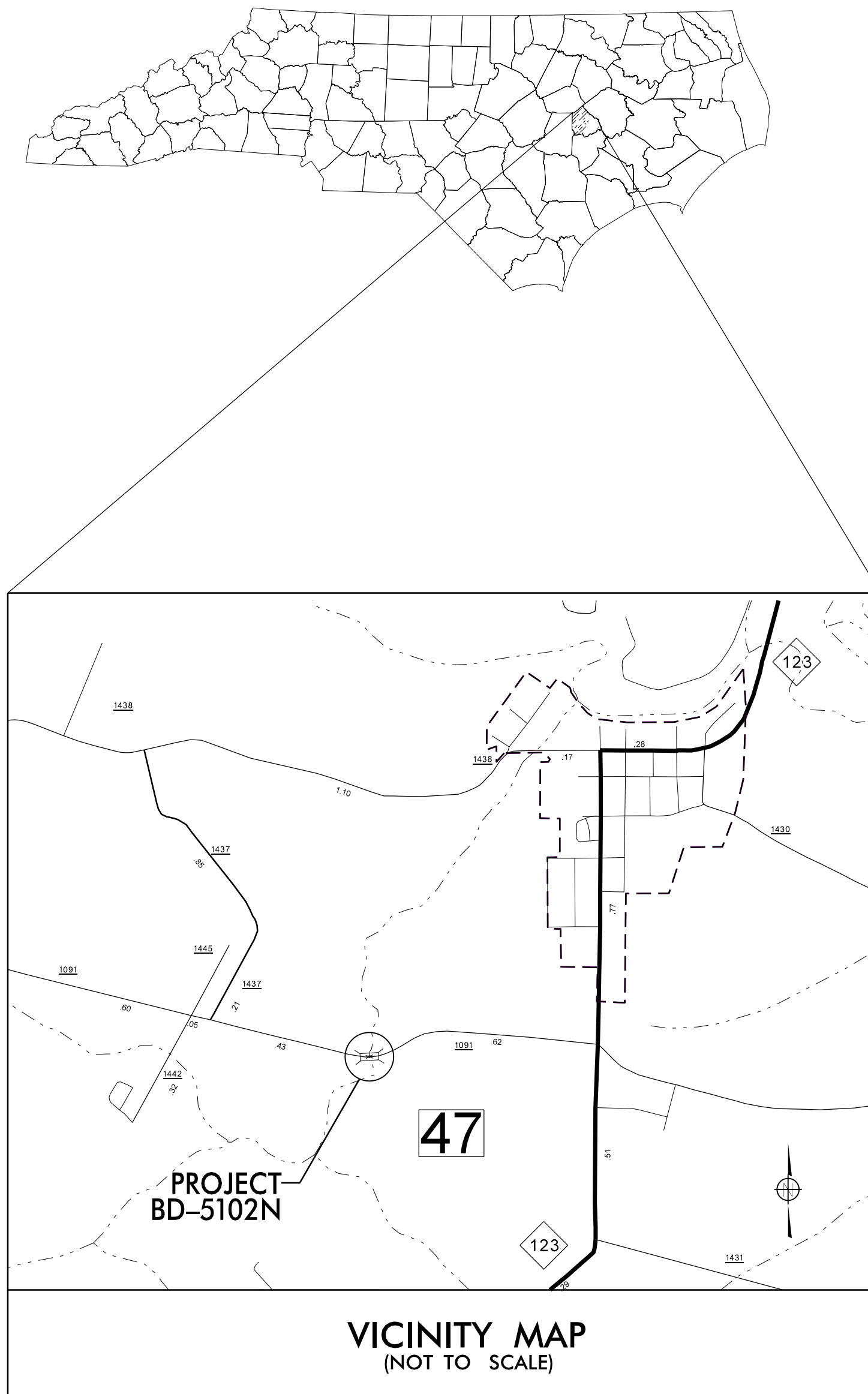
8/17/99

2013/08/14 2:05 PM C:\Users\N\Documents\5102N\Drawings\5102N\ddc2.psh_4.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

GREENE COUNTY



VICINITY MAP
(NOT TO SCALE)

SHEET NO.
TMP-1

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET WITH VICINITY MAP & INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND.
TMP-2	PROJECT NOTES, DETOUR AND PLANS.

ROADWAY 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
1101.03 (SHT. 1 OF 9)	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES (TYPE III)

LEGEND

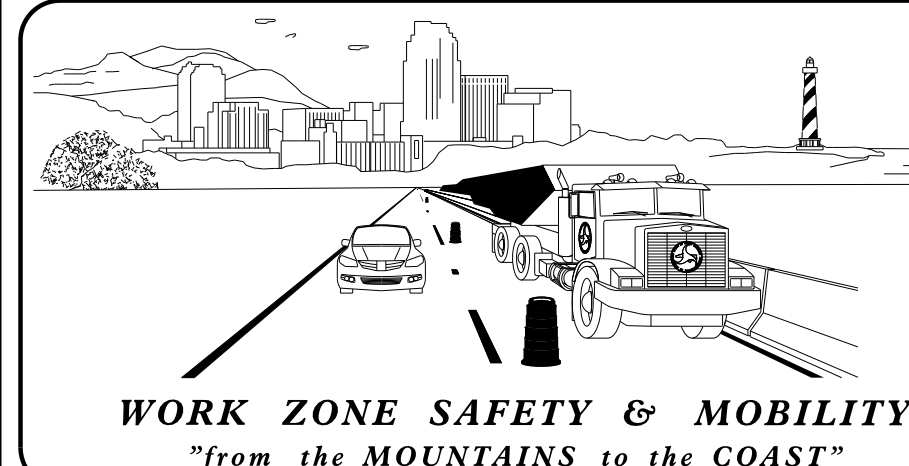
GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- NORTH ARROW
- PROPOSED PVMT.
- EXIST. PVMT.
- WORK AREA

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)

30-JUL-2013 09:09
C:\PROJECTS\GREENE\BD-5102N\Greene 47\BD5102N_ddc2_psh.tcpt.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$



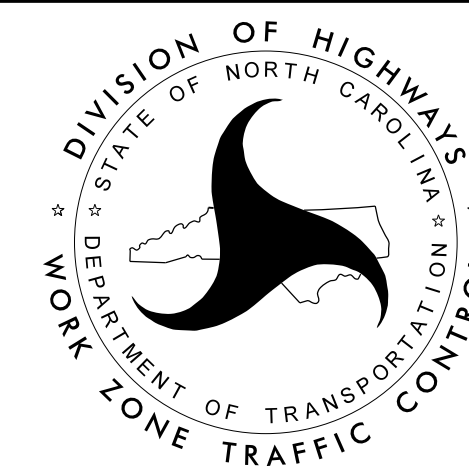
N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
P.O. BOX 1587, GREENVILLE, NC 27835
105 PACTOLUS HWY. (NC 33), GREENVILLE, NC 27835
PHONE: (252) 830-3490 FAX: (252) 830-3352

D. H. ALLIGOOD, PE **TRAFFIC ENGINEER**

D. H. ALLIGOOD, PE **TRAFFIC CONTROL PROJECT ENGINEER**

LANG JONES **TRAFFIC CONTROL PROJECT DESIGN ENGINEER**

LANG JONES **TRAFFIC CONTROL DESIGN ENGINEER**



APPROVED: *Dwayne H. Alligood*
DATE: 07/29/2013

SEAL

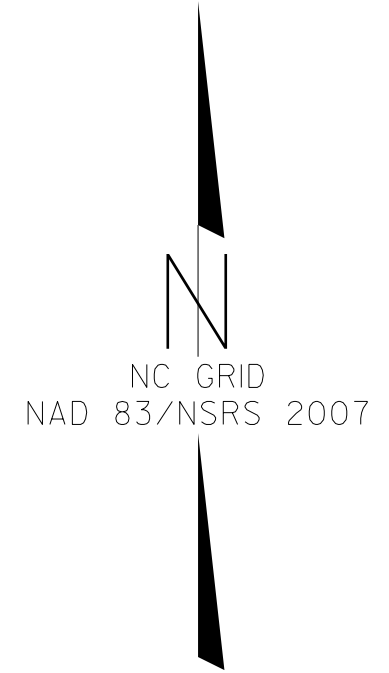
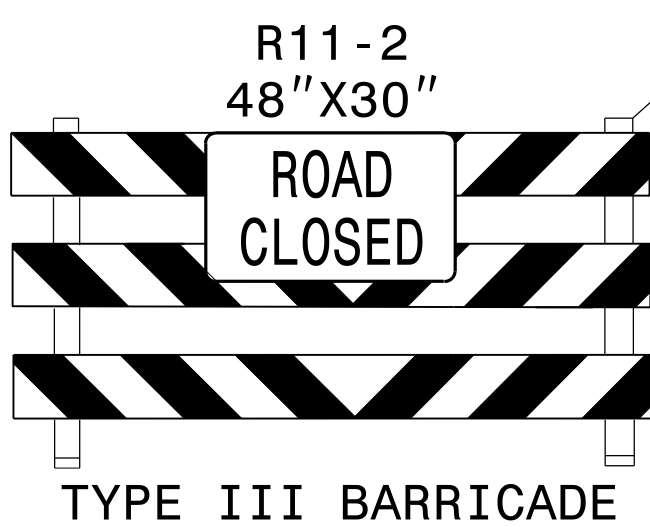
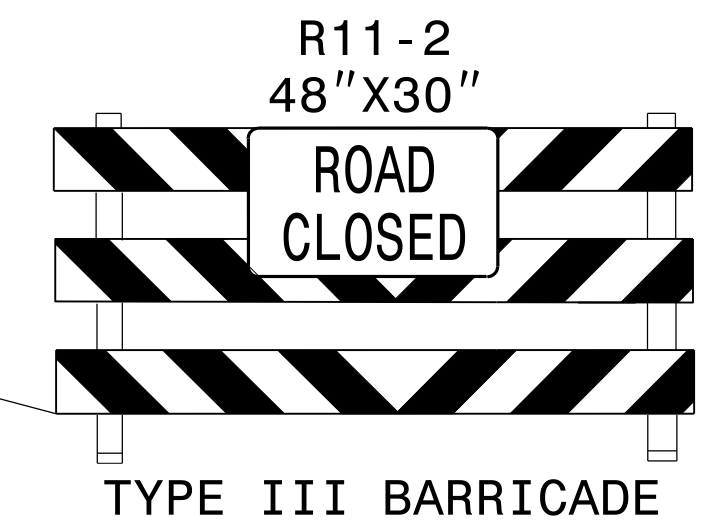
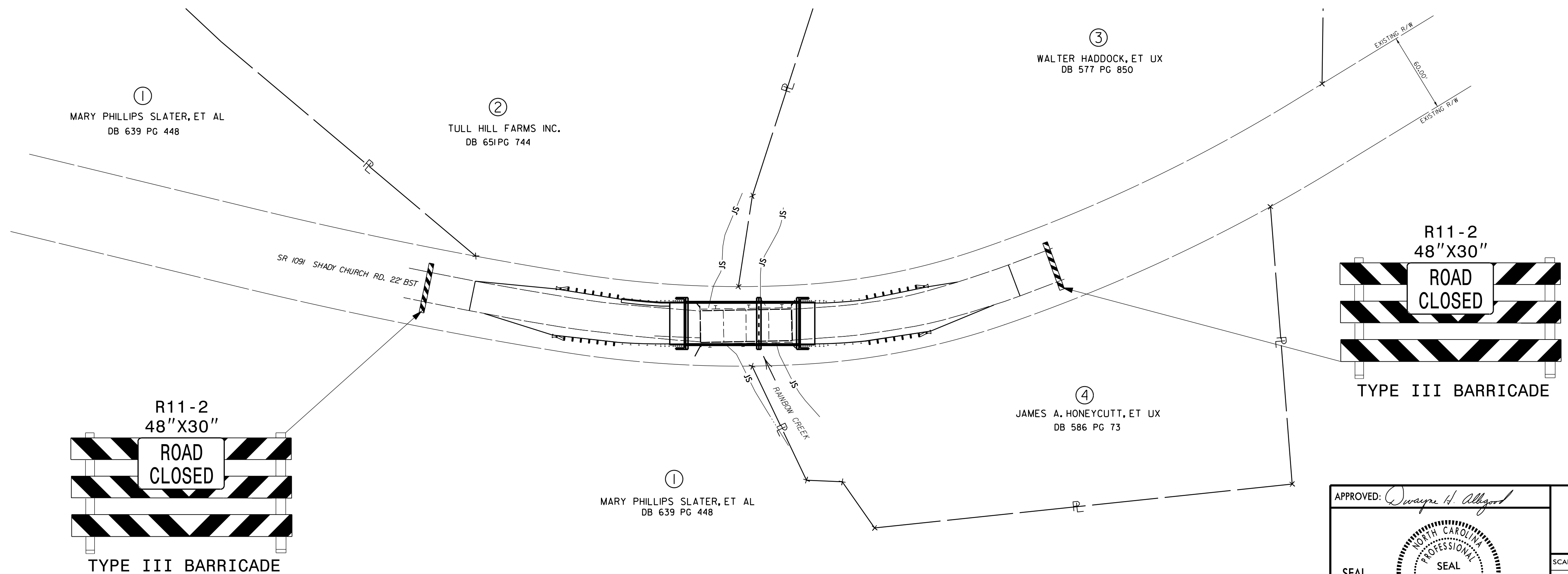
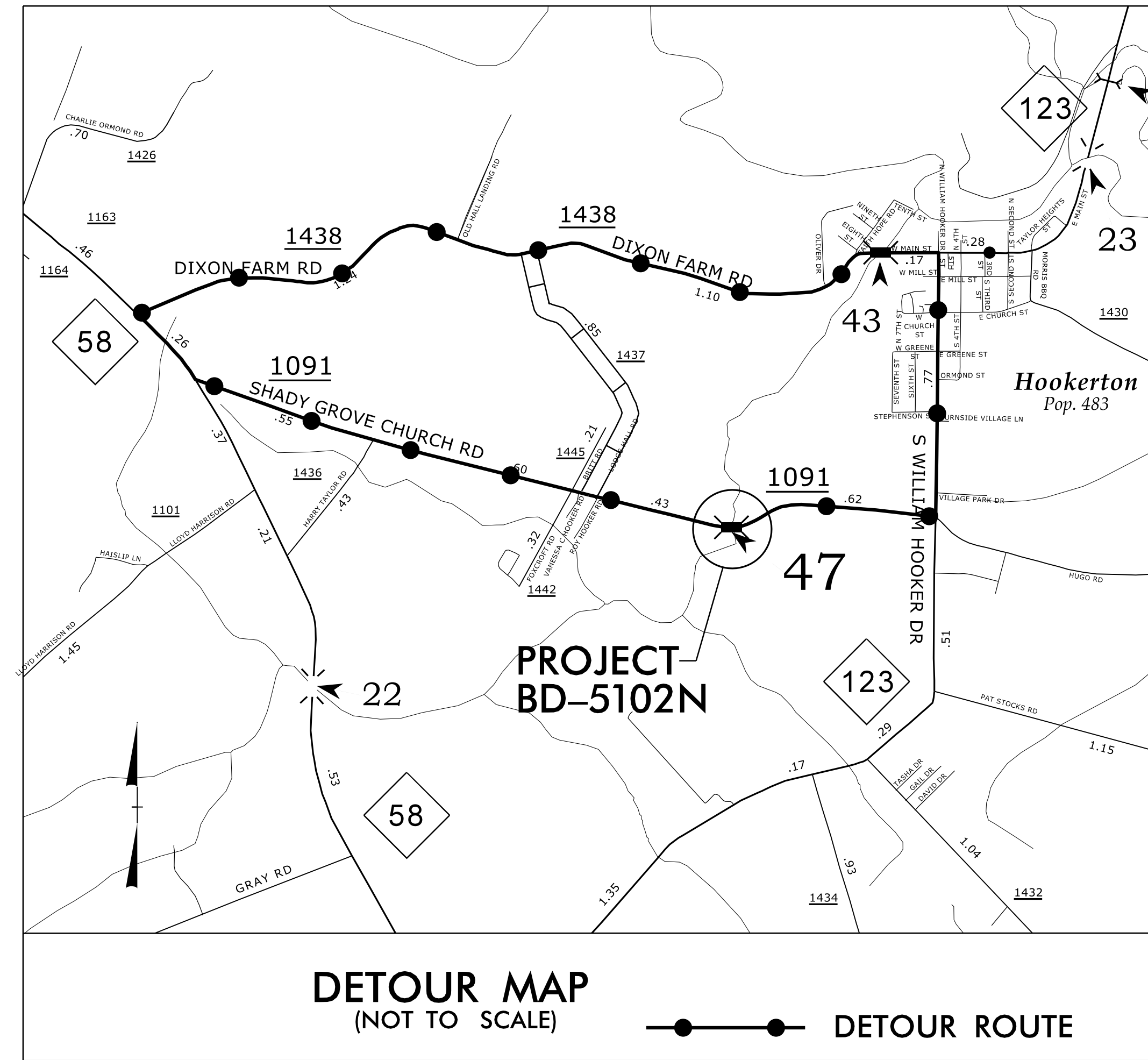
TIP PROJECT: BD-5102N

GENERAL NOTES

IMPLEMENT TRAFFIC CONTROL IN ACCORDANCE WITH THE ROADWAY STANDARD DRAWINGS LISTED ON TCP-1.

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.

STATE FORCES WILL INSTALL AND MAINTAIN THE PROJECT DETOUR AND THE TYPE III BARRICADES AT THE PROJECT LIMITS. STATE FORCES WILL INSTALL PAINT AND MARKERS ON THE FINISHED PROJECT. CALL JIM EVANS AT 252-830-3493 FOR COORDINATION.



APPROVED: *Dwayne H. Allgood*

PROJECT NOTES, DETOUR AND PLANS		REVISIONS
SCALE:	NONE	
DATE:	6/2/12	
DWG. BY:	LJ	
DESIGN BY:	LJ	
REVIEWED BY:	BB	
		CADD FILE

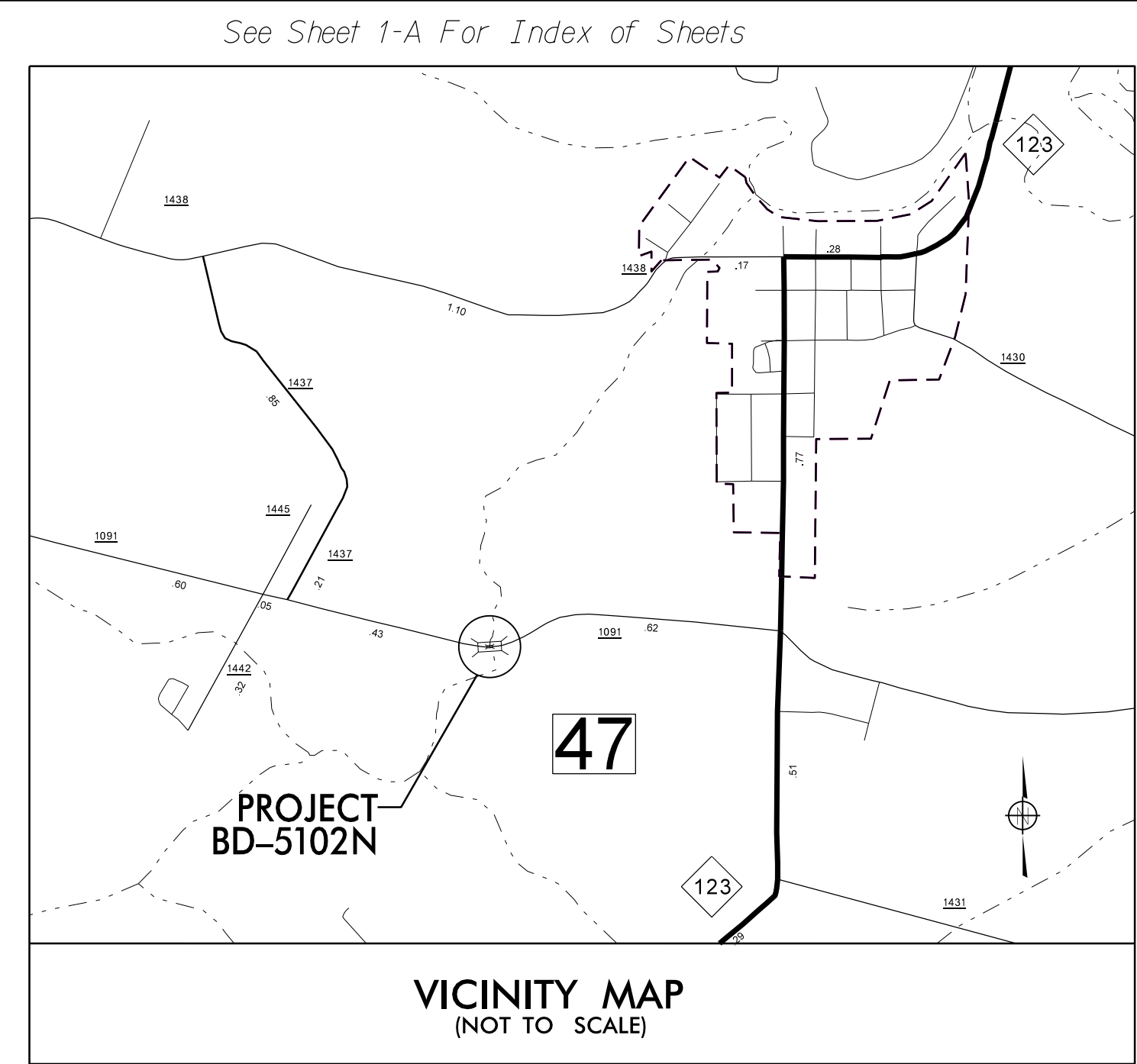
30-JUL-2013 09:09
 G:\PROJECTS\GREENE\BD-5102N\Greene 4\BD5102N.dwg2_psh_tcp2.dgn
 \$\$\$USERVARIABLE\$\$\$

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5102N	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45348.1.14	BRZ-1091(10)	PE	
45348.2.14	BRZ-1091(10)	RW	
45348.3.14	BRZ-1091(10)	CONST	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GREENE COUNTY

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL



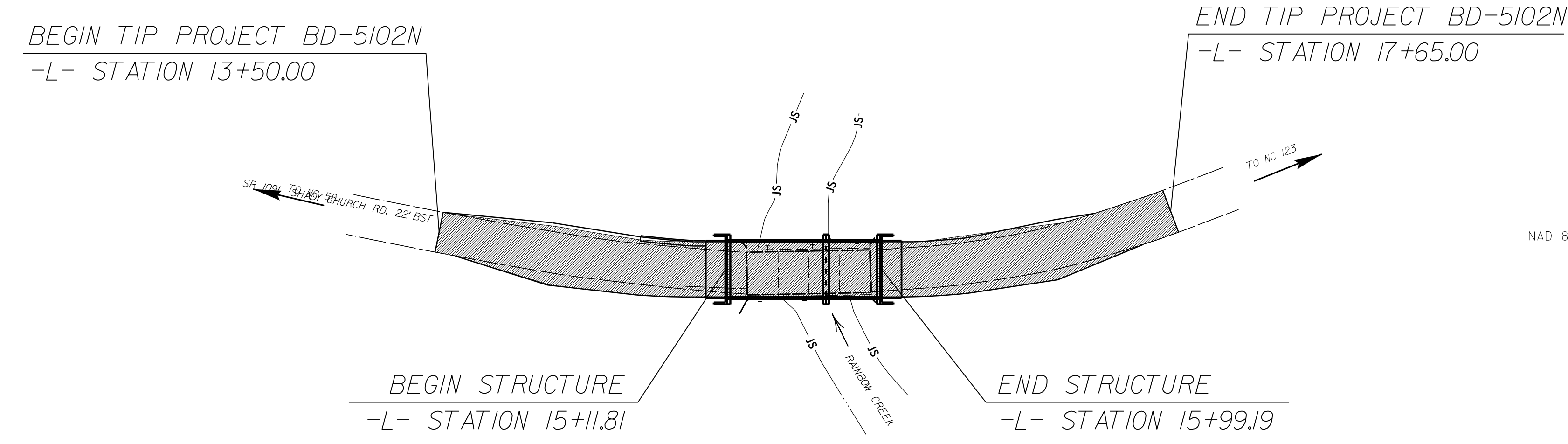
EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	High Vis Temporary Silt Fence.....	
1632.03	Rock Inlet Sediment Trap Type C.....	
SP	Wattle.....	

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

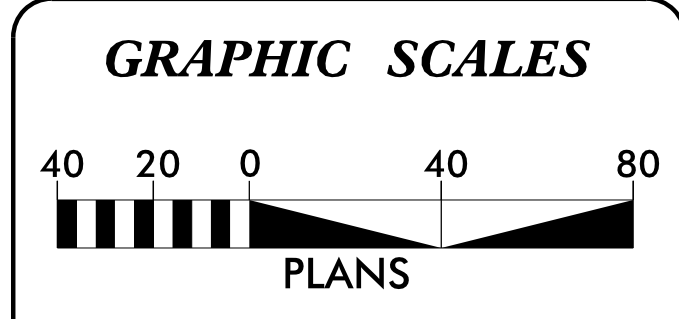
ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT
Refer To E. C. Special Provisions for Special Considerations.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.



TIP PROJECT: BD-5102N

CONTRACT:



PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BD-5102N = 0.063 MILE

LENGTH STRUCTURE TIP PROJECT BD-5102N = 0.016 MILE

TOTAL LENGTH TIP PROJECT BD-5102N = 0.079 MILE

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

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DWAYNE ALLIGOOD, P.E.
PROJECT ENGINEER

LETTING DATE: LANG JONES (#276)
PROJECT DESIGN ENGINEER

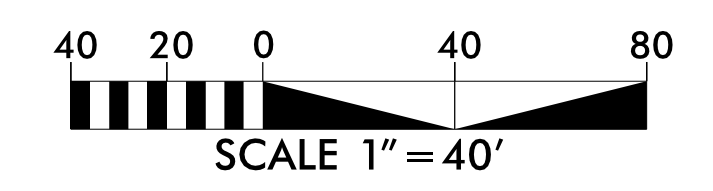
AUGUST 2013

Roadway Standard Drawings

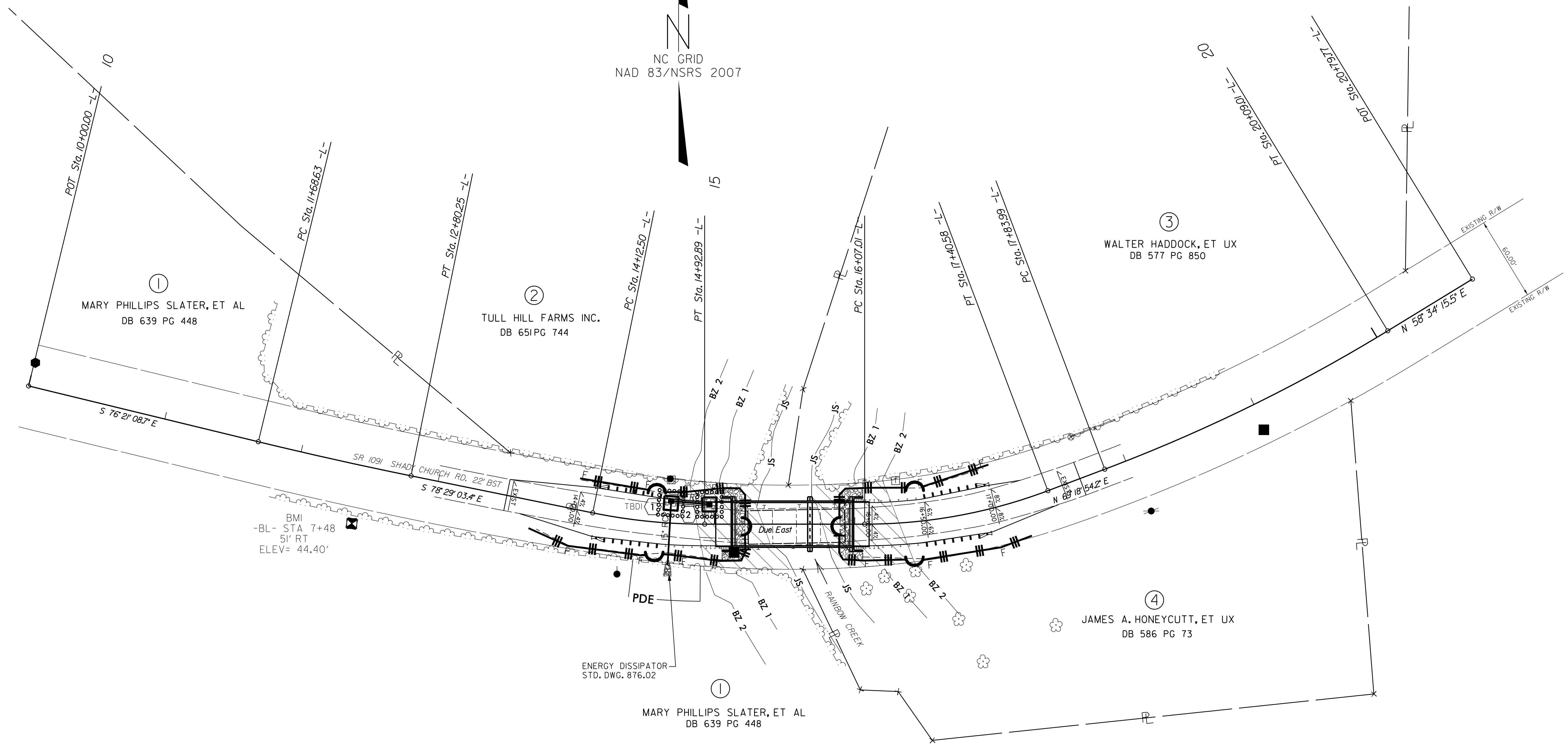
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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		

30-JUL-2013 09:09 G:\PROJECTS\GREENE\BD-5102N\Greene 4T\BD5102N_ddc2_psh_ecl.dgn \$\$\$USERNAME\$\$\$



NC GRID
NAD 83/NSRS 2007



REVISIONS

8/17/99

20-0111-2015-09109
 5:58:51 PM 8/17/2015
 47\BDS102N\Drawings\BD-5102N\Creene 47\BDS102N\ddc2.psh.ec2.dgn

SOIL STABILIZATION TIMEFRAMES

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

Std. #	Description	Symbol
1605.01	High Vis Temporary Silt Fence	
1632.03	Rock Inlet Sediment Trap Type C	
SP	Wattle	



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.
 CONTRACTOR SHALL INSTALL SPECIAL SEDIMENT CONTROL FENCE OR WATTLES IN LOW AREAS OF SILT FENCE AS NEEDED OR DIRECTED BY THE ENGINEER.

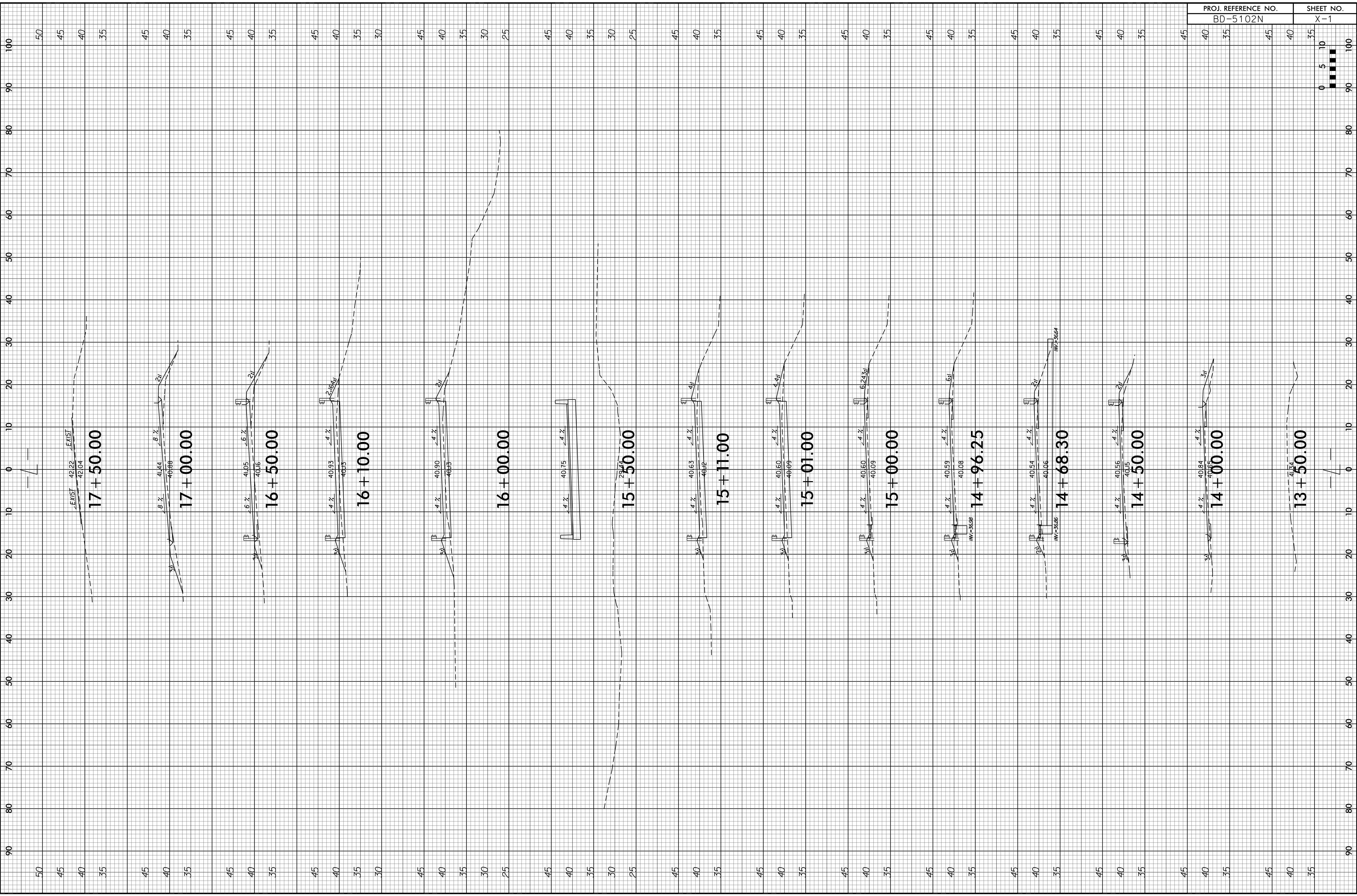
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

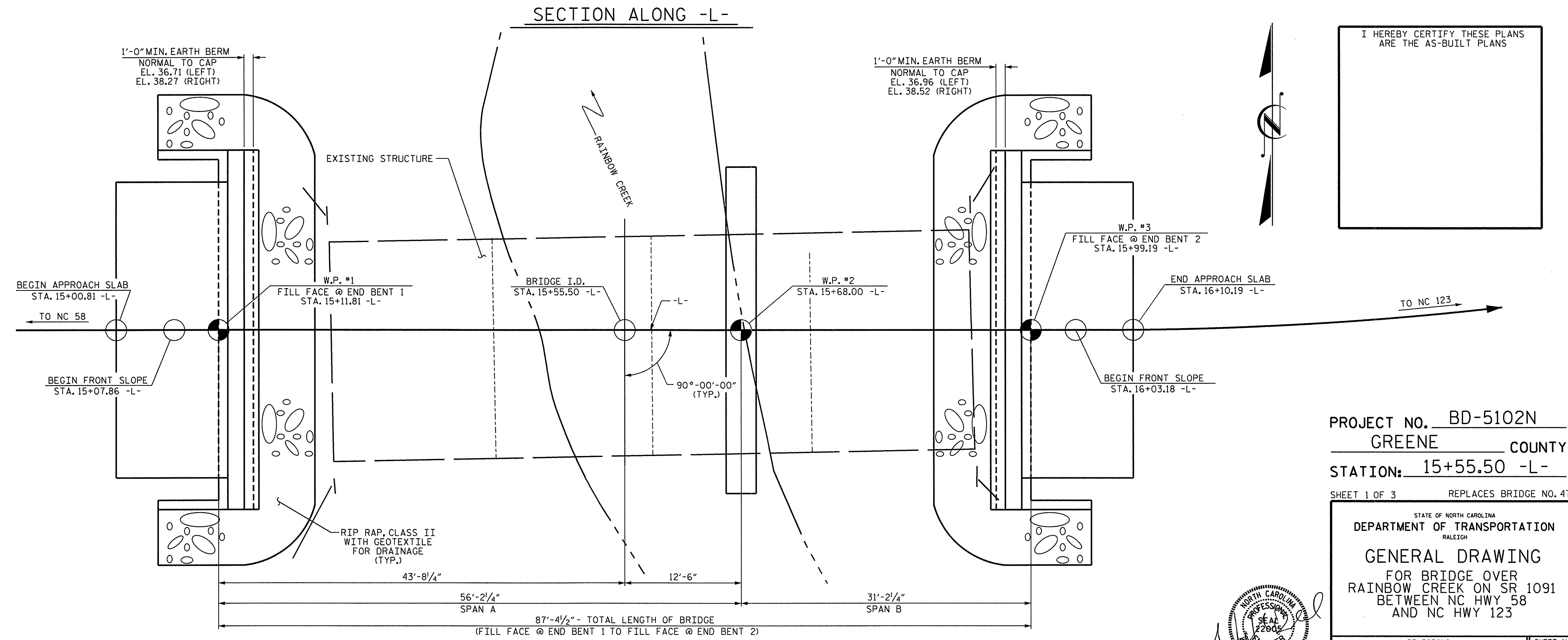
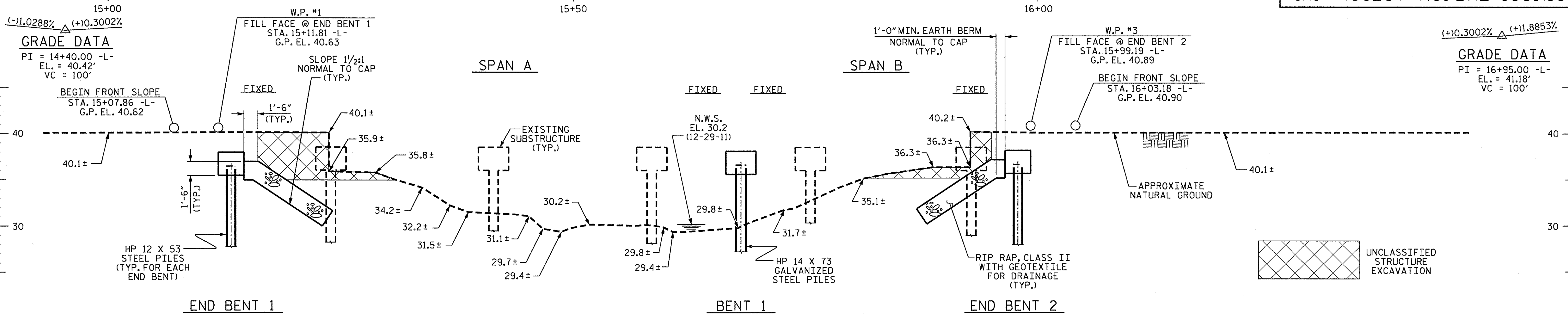
NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract Lump Sum price for "Grading".

CROSS-SECTION SUMMARY
IN CUBIC YARDS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

LOCATION (-L-)	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT
<i>14+00.00</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>14+50.00</i>	<i>4</i>	<i>0</i>	<i>18</i>
<i>14+68.30</i>	<i>1</i>	<i>0</i>	<i>5</i>
<i>14+96.25</i>	<i>1</i>	<i>0</i>	<i>9</i>
<i>15+00.00</i>	<i>0</i>	<i>0</i>	<i>1</i>
<i>15+01.00</i>	<i>1</i>	<i>0</i>	<i>0</i>
<i>15+11.00</i>	<i>13</i>	<i>0</i>	<i>4</i>
BRIDGE			
<i>16+00.00</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>16+10.00</i>	<i>10</i>	<i>0</i>	<i>6</i>
<i>16+50.00</i>	<i>19</i>	<i>0</i>	<i>23</i>
<i>17+00.00</i>	<i>0</i>	<i>0</i>	<i>36</i>



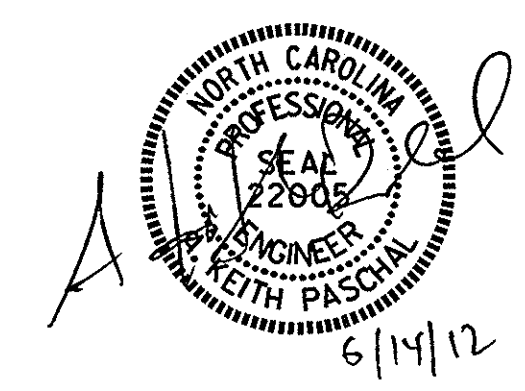


I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 47

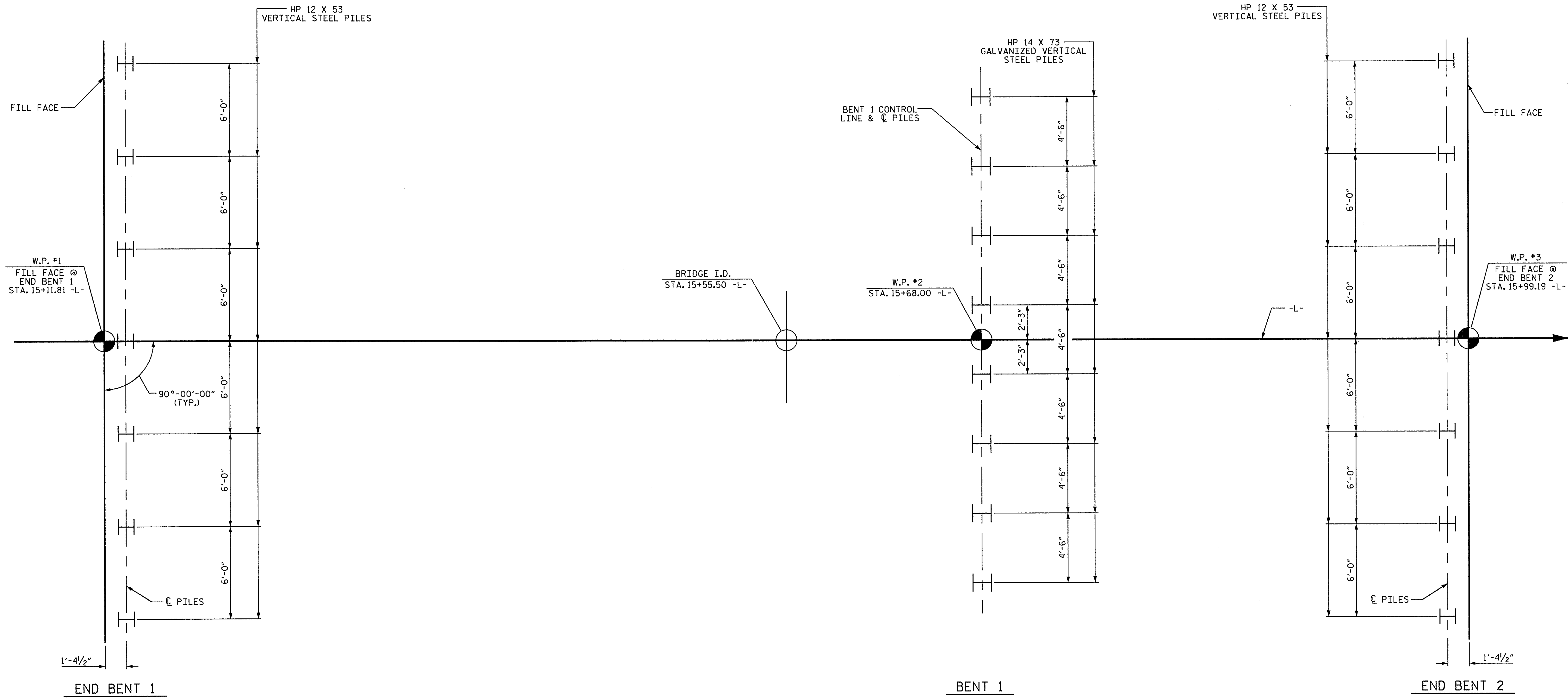
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 RAINBOW CREEK ON SR 1091
 BETWEEN NC HWY 58
 AND NC HWY 123



DRAWN BY : B. L. GREEN DATE : 5/30/12
 CHECKED BY : E. K. POPE DATE : 6/1/12

PLAN
 (PILES ARE NOT SHOWN FOR CLARITY)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			18



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.

FOUNDATION NOTES:

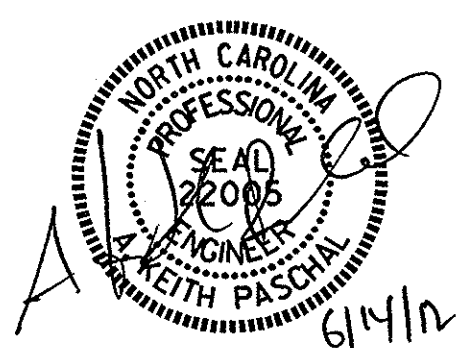
- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE.
- PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 55 TONS PER PILE.
- PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE.
- DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.
- DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 95 TONS PER PILE.
- DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 210 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAW OR SCOUR.
- INSTALL PILES AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN -4 FT.

- STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT BENT NO.1. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 15 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY OF 30,000 TO 50,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO.1 AND END BENT NO.2. THE ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3 (D) (2) OF THE STANDARD SPECIFICATIONS.
- IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY OF 45,000 TO 70,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NO.1. THE ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3 (D) (2) OF THE STANDARD SPECIFICATIONS.

PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-

SHEET 2 OF 3

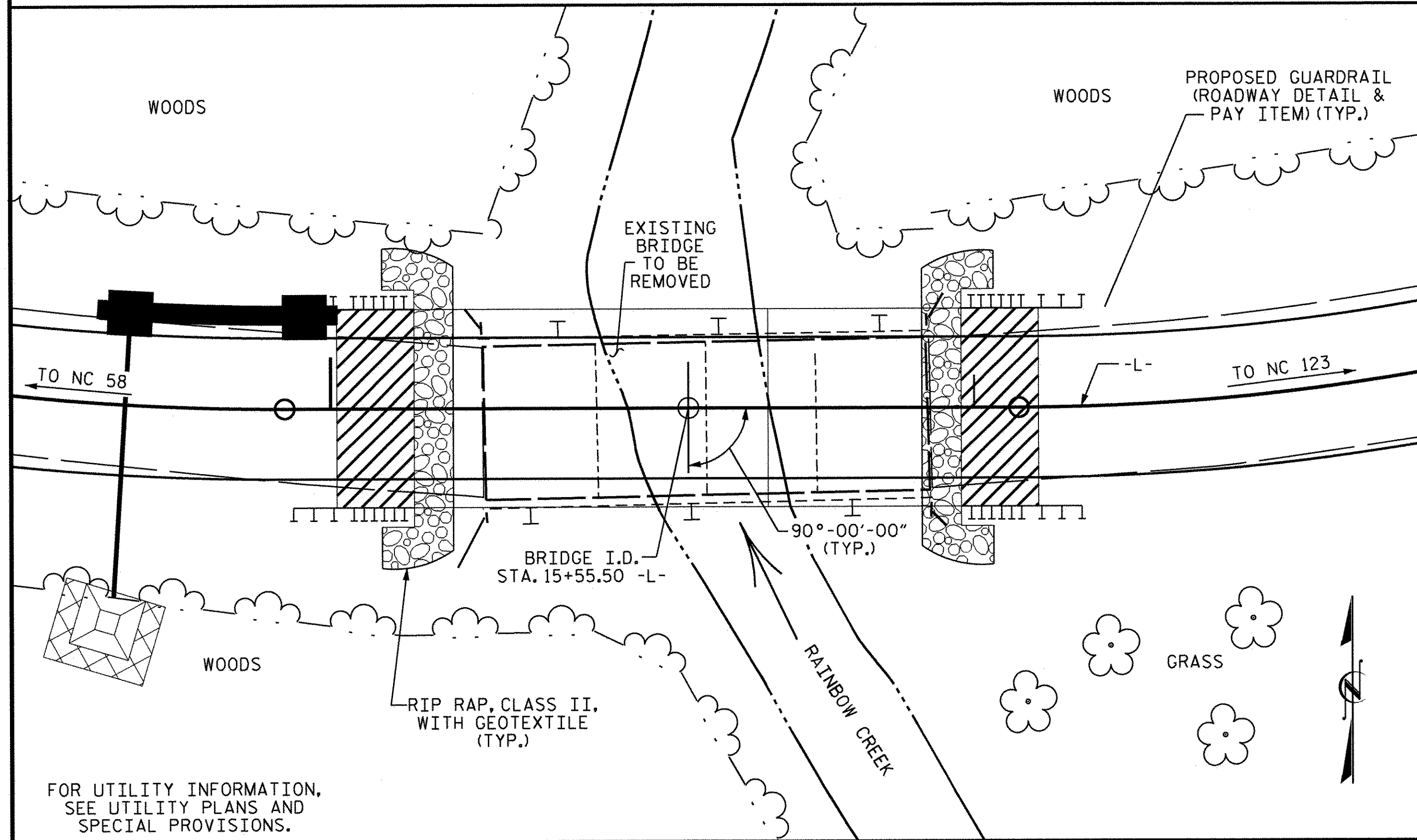
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 RAINBOW CREEK ON SR 1091
 BETWEEN NC HWY 58
 AND NC HWY 123



DRAWN BY : B. L. GREEN DATE : 5/30/12
 CHECKED BY : E. K. POPE DATE : 6/1/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			18

BM1: RAILROAD SPIKE IN 30" OAK, STA. 12+46.10 -L-; 42.00' RT; ELEV. 44.4.



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	=	1,360 c.f.s.
FREQUENCY OF DESIGN FLOOD	=	25 YR.
DESIGN HIGH WATER ELEVATION	=	37.50'
DRAINAGE AREA	=	13.60 Mi ²
BASE DISCHARGE (Q100)	=	2,110 c.f.s.
BASE HIGH WATER ELEVATION	=	38.65'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	- c.f.s.
FREQUENCY OF OVERTOPPING FLOOD	=	500 YR.+
OVERTOPPING FLOOD ELEVATION	=	41.10'

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.
 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.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF APPROXIMATELY 25 FT. EACH SIDE OF CENTERLINE ROADWAY AT END BENTS #1 AND #2 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.
 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 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.
 AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 4 SPANS (2 @ 17'-6", 2 @ 17') REINFORCED CONCRETE DECK/TIMBER JOISTS, TIMBER CAPS ON TIMBER PILES FOR END BENTS AND INTERIOR BENTS WITH A CLEAR ROADWAY WIDTH OF 24'-0" AND LOCATED AT THE APPROXIMATE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

TOTAL BILL OF MATERIAL

	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		STEEL PILE POINTS	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
						NO.	LIN.FT.	NO.	LIN.FT.							NO.	LIN.FT.
SUPERSTRUCTURE		LUMP SUM		LUMP SUM								170.50			LUMP SUM	22	935.00
END BENT NO. 1			14.3		2,127	7	315				4		121	135			
BENT NO. 1	1		10.8		2,162			8	560	8	4						
END BENT NO. 2			14.3		2,127	7	315				4		126	140			
TOTAL	1	LUMP SUM	39.4	LUMP SUM	6,416	14	630	8	560	8	12	170.50	247	275	LUMP SUM	22	935.00

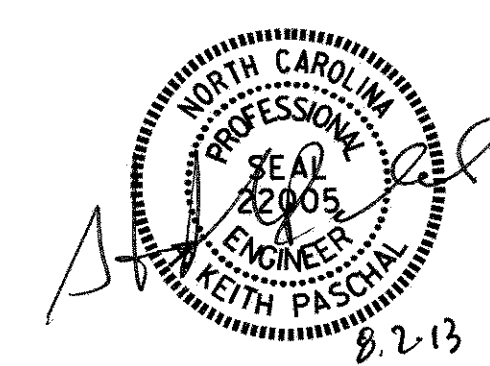
PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 RAINBOW CREEK ON SR 1091
 BETWEEN NC HWY 58
 AND NC HWY 123

REVISIONS						SHEET NO. S-3
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			



DRAWN BY : B. L. GREEN DATE : 5/30/12
 CHECKED BY : E. K. POPE DATE : 6/1/12

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.055	--	1.75	0.275	1.23	55'	EL	27	0.523	1.23	55'	EL	5.4	0.80	0.275	1.05	55'	EL	27		
	HL-93(Opr)	N/A	--	1.591	--	1.35	0.275	1.59	55'	EL	27	0.523	1.59	55'	EL	5.4	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.322	47.585	1.75	0.275	1.54	55'	EL	27	0.523	1.47	55'	EL	5.4	0.80	0.275	1.32	55'	EL	27		
	HS-20(Opr)	36.000	--	1.9	68.396	1.35	0.275	1.99	55'	EL	27	0.523	1.9	55'	EL	5.4	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.776	37.476	1.4	0.275	4.04	55'	EL	27	0.523	4.17	55'	EL	5.4	0.80	0.275	2.78	55'	EL	27	
		SNGARBS2	20.000	--	2.155	43.095	1.4	0.275	3.14	55'	EL	27	0.523	3.02	55'	EL	5.4	0.80	0.275	2.15	55'	EL	27	
		SNAGRIS2	22.000	--	2.079	45.734	1.4	0.275	3.03	55'	EL	27	0.523	2.83	55'	EL	5.4	0.80	0.275	2.08	55'	EL	27	
		SNCOTTS3	27.250	--	1.384	37.708	1.4	0.275	2.01	55'	EL	27	0.523	2.09	55'	EL	5.4	0.80	0.275	1.38	55'	EL	27	
		SNAGGRS4	34.925	--	1.189	41.527	1.4	0.275	1.73	55'	EL	27	0.523	1.77	55'	EL	5.4	0.80	0.275	1.19	55'	EL	27	
		SNS5A	35.550	--	1.16	41.255	1.4	0.275	1.69	55'	EL	27	0.523	1.82	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		SNS6A	39.950	--	1.079	43.102	1.4	0.275	1.57	55'	EL	27	0.523	1.68	55'	EL	5.4	0.80	0.275	1.08	55'	EL	27	
	SNS7B	42.000	--	1.028	43.175	1.4	0.275	1.5	55'	EL	27	0.523	1.67	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27		
	TTST	TNAGRIT3	33.000	--	1.32	43.556	1.4	0.275	1.92	55'	EL	27	0.523	1.98	55'	EL	5.4	0.80	0.275	1.32	55'	EL	27	
		TNT4A	33.075	--	1.33	43.979	1.4	0.275	1.94	55'	EL	27	0.523	1.91	55'	EL	5.4	0.80	0.275	1.33	55'	EL	27	
		TNT6A	41.600	--	1.101	45.811	1.4	0.275	1.6	55'	EL	27	0.523	1.83	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
		TNT7A	42.000	--	1.114	46.804	1.4	0.275	1.62	55'	EL	27	0.523	1.71	55'	EL	5.4	0.80	0.275	1.11	55'	EL	27	
		TNT7B	42.000	--	1.163	48.848	1.4	0.275	1.69	55'	EL	27	0.523	1.62	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		TNAGRIT4	43.000	--	1.101	47.33	1.4	0.275	1.6	55'	EL	27	0.523	1.56	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
TNAGT5A		45.000	--	1.031	46.405	1.4	0.275	1.5	55'	EL	27	0.523	1.58	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27		
TNAGT5B	45.000	3	1.013	45.582	1.4	0.275	1.47	55'	EL	27	0.523	1.48	55'	EL	5.4	0.80	0.275	1.01	55'	EL	27			

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

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

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

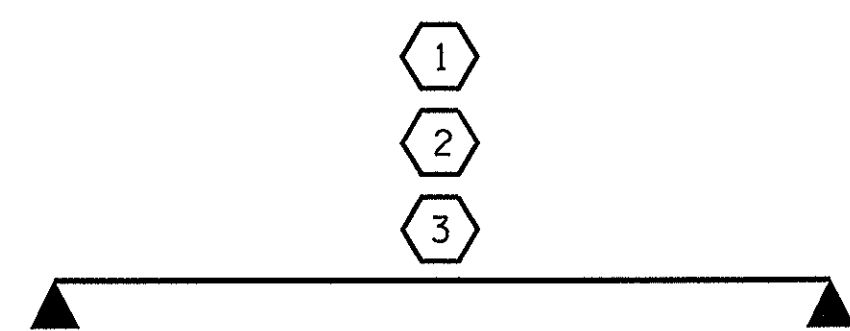
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

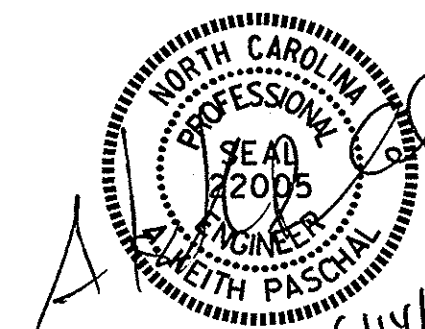
GIRDER LOCATION

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



LRFR SUMMARY
FOR SPAN 'A'

PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD LRFR SUMMARY FOR 55' CORED SLAB UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-4					TOTAL SHEETS 18

ASSEMBLED BY : E. K. POPE DATE : 5-23-12
 CHECKED BY : G. KOUCHEKI DATE : 5-24-12
 DRAWN BY : CVC 6/10
 CHECKED BY : DNS 6/10

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						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	1.037	--	1.75	0.283	1.83	30'	EL	14.5	0.574	1.04	30'	EL	1.45	0.80	0.283	1.58	30'	EL	14.5		
	HL-93(Opr)	N/A	--	1.344	--	1.35	0.283	2.38	30'	EL	14.5	0.574	1.34	30'	EL	1.45	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.183	42.587	1.75	0.283	2.53	30'	EL	11.6	0.574	1.18	30'	EL	1.45	0.80	0.283	2.20	30'	EL	11.6		
	HS-20(Opr)	36.000	--	1.533	55.205	1.35	0.283	3.28	30'	EL	11.6	0.574	1.53	30'	EL	1.45	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.895	39.081	1.4	0.283	5.18	30'	EL	14.5	0.574	2.89	30'	EL	1.45	0.80	0.283	3.56	30'	EL	14.5	
		SNGARBS2	20.000	--	2.240	44.792	1.4	0.283	4.53	30'	EL	11.6	0.574	2.24	30'	EL	1.45	0.80	0.283	3.15	30'	EL	11.6	
		SNAGRIS2	22.000	--	2.157	47.463	1.4	0.283	4.6	30'	EL	11.6	0.574	2.16	30'	EL	1.45	0.80	0.283	3.20	30'	EL	11.6	
		SNCOTTS3	27.250	--	1.462	39.849	1.4	0.283	2.6	30'	EL	14.5	0.574	1.46	30'	EL	1.45	0.80	0.283	1.79	30'	EL	14.5	
		SNAGGRS4	34.925	--	1.346	46.999	1.4	0.283	2.5	30'	EL	14.5	0.574	1.35	30'	EL	1.45	0.80	0.283	1.72	30'	EL	14.5	
		SNS5A	35.550	--	1.427	50.733	1.4	0.283	2.42	30'	EL	14.5	0.574	1.43	30'	EL	1.45	0.80	0.283	1.67	30'	EL	14.5	
	TTST	SNS6A	39.950	--	1.341	53.59	1.4	0.283	2.29	30'	EL	14.5	0.574	1.34	30'	EL	1.45	0.80	0.283	1.58	30'	EL	14.5	
		SNS7B	42.000	--	1.369	57.505	1.4	0.283	2.23	30'	EL	14.5	0.574	1.37	30'	EL	1.45	0.80	0.283	1.53	30'	EL	14.5	
		TNAGRIT3	33.000	--	1.593	52.58	1.4	0.283	2.97	30'	EL	14.5	0.574	1.59	30'	EL	1.45	0.80	0.283	2.04	30'	EL	14.5	
		TNT4A	33.075	--	1.483	49.043	1.4	0.283	2.82	30'	EL	14.5	0.574	1.48	30'	EL	1.45	0.80	0.283	1.94	30'	EL	14.5	
		TNT6A	41.600	--	1.433	59.622	1.4	0.283	2.56	30'	EL	14.5	0.574	1.43	30'	EL	1.45	0.80	0.283	1.76	30'	EL	14.5	
		TNT7A	42.000	--	1.363	57.264	1.4	0.283	2.64	30'	EL	14.5	0.574	1.36	30'	EL	1.45	0.80	0.283	1.82	30'	EL	14.5	
		TNT7B	42.000	--	1.331	55.915	1.4	0.283	2.49	30'	EL	14.5	0.574	1.33	30'	EL	1.45	0.80	0.283	1.72	30'	EL	14.5	
		TNAGRIT4	43.000	--	1.287	55.356	1.4	0.283	2.58	30'	EL	14.5	0.574	1.29	30'	EL	1.45	0.80	0.283	1.78	30'	EL	14.5	
TNAGT5A	45.000	--	1.381	62.151	1.4	0.283	2.5	30'	EL	14.5	0.574	1.38	30'	EL	1.45	0.80	0.283	1.72	30'	EL	14.5			
TNAGT5B	45.000	3	1.212	54.54	1.4	0.283	2.41	30'	EL	11.6	0.574	1.21	30'	EL	1.45	0.80	0.283	1.66	30'	EL	11.6			

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

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

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

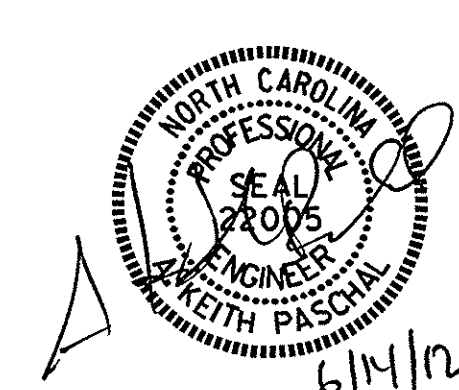
GIRDER LOCATION

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



LRFR SUMMARY
FOR SPAN 'B'

PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-

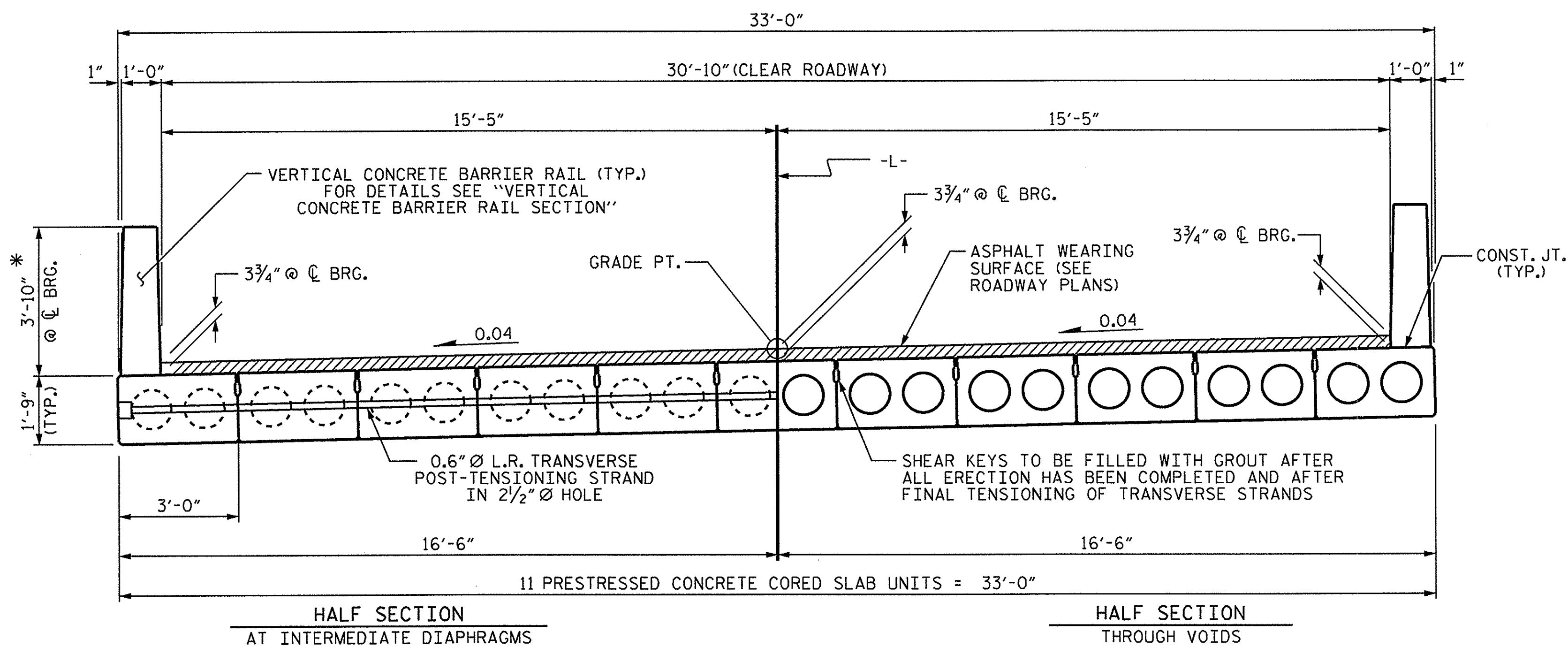


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			18

ASSEMBLED BY : E. K. POPE DATE : 5-23-12
 CHECKED BY : G. KOUCHEKI DATE : 5-24-12
 DRAWN BY : CVC 6/10
 CHECKED BY : DNS 6/10

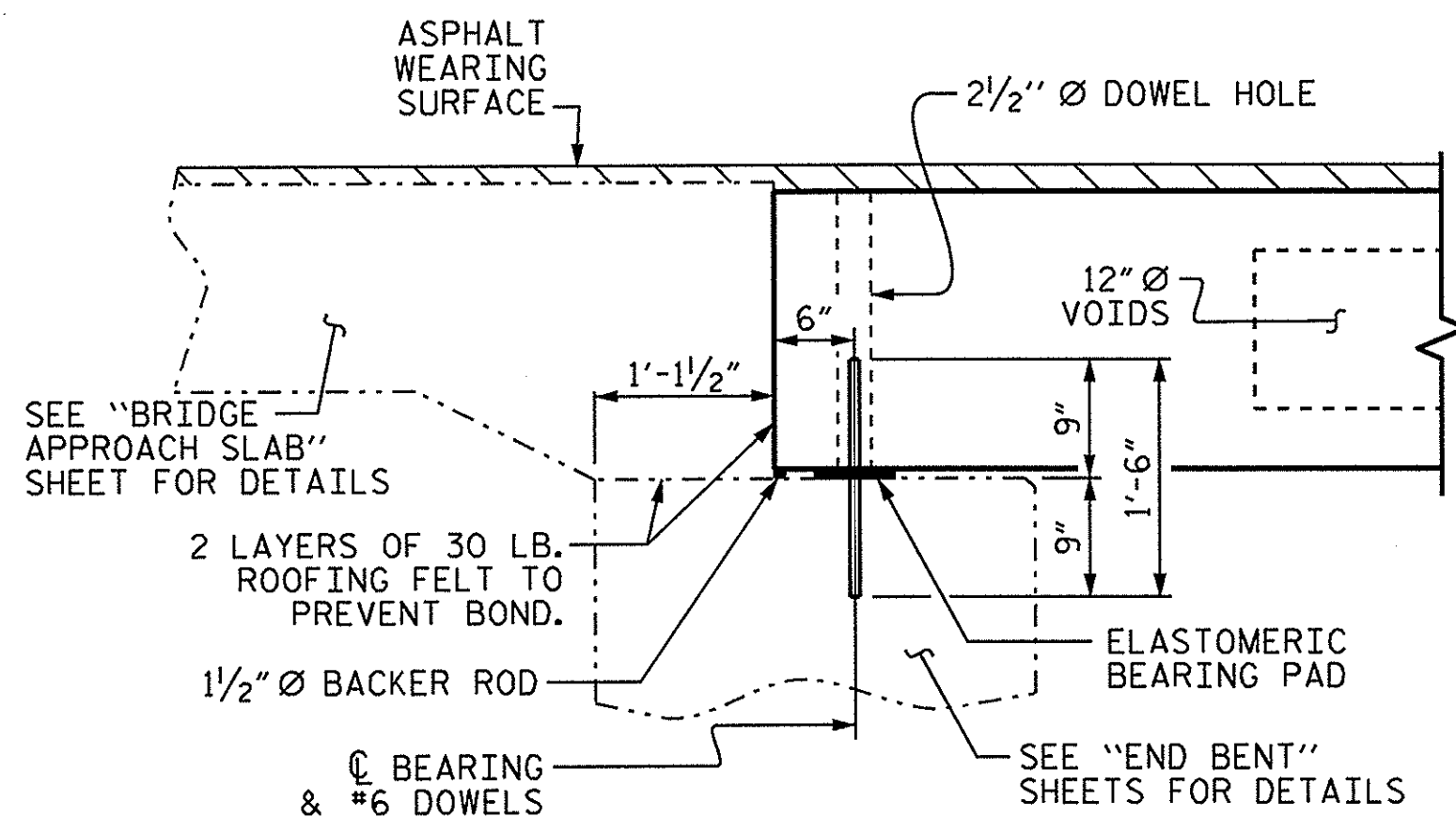


TYPICAL SECTION

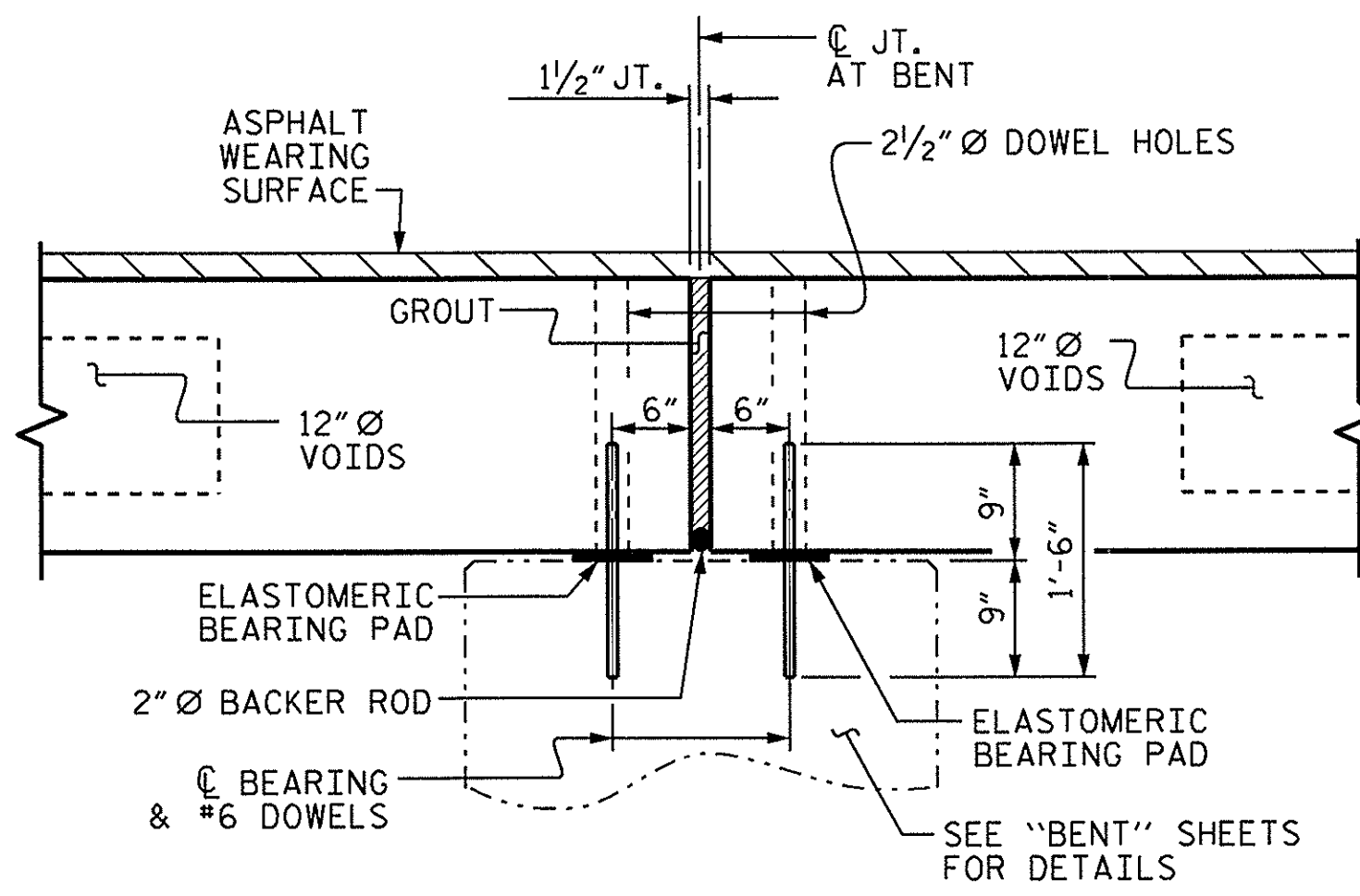
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END

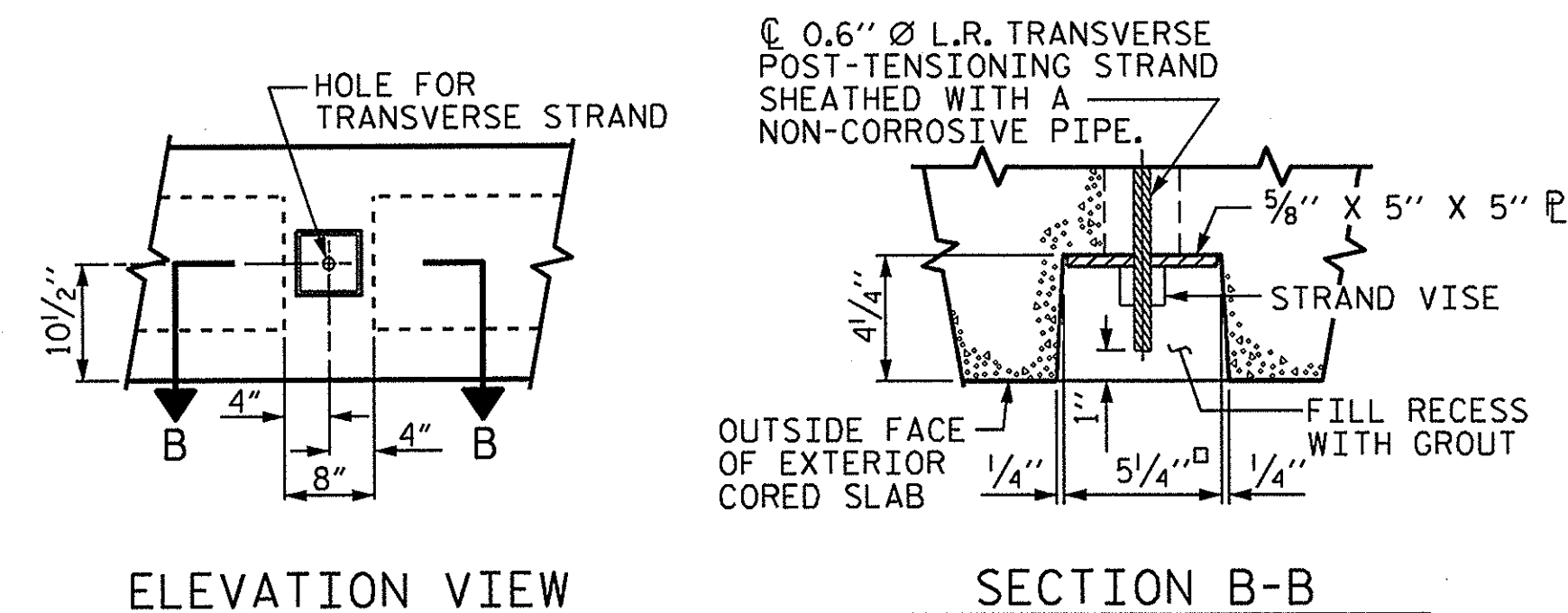
FIXED END **FIXED END**



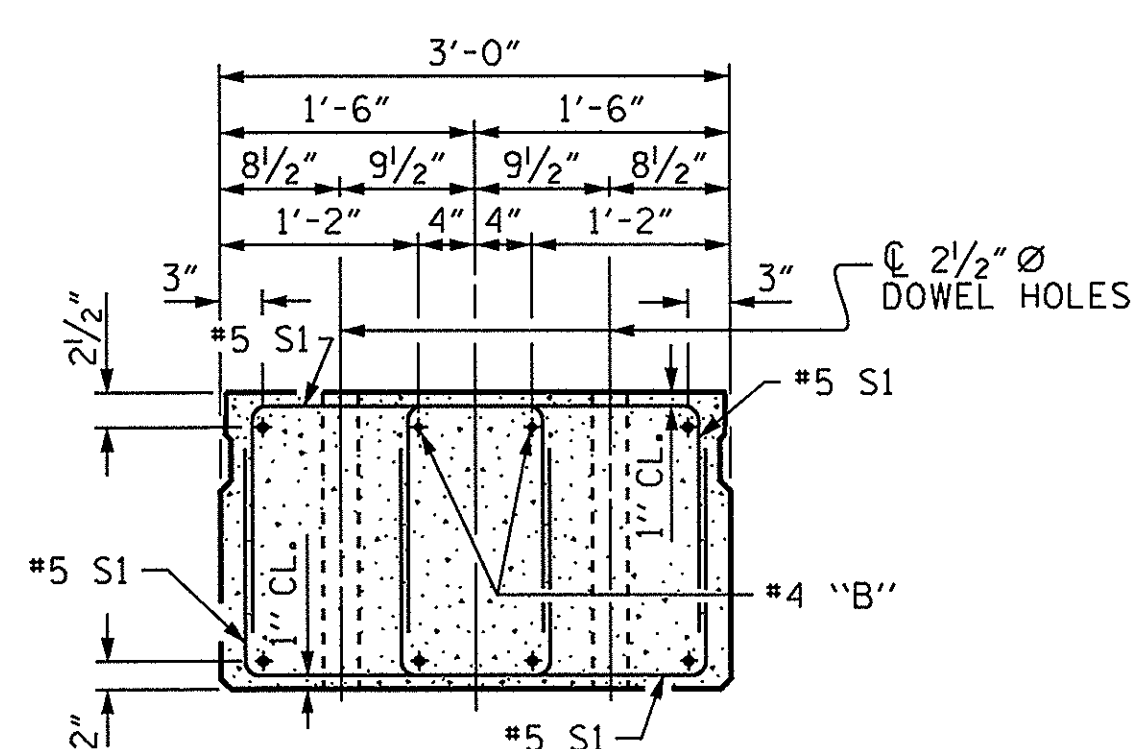
SECTION AT END BENT



SECTION AT BENT

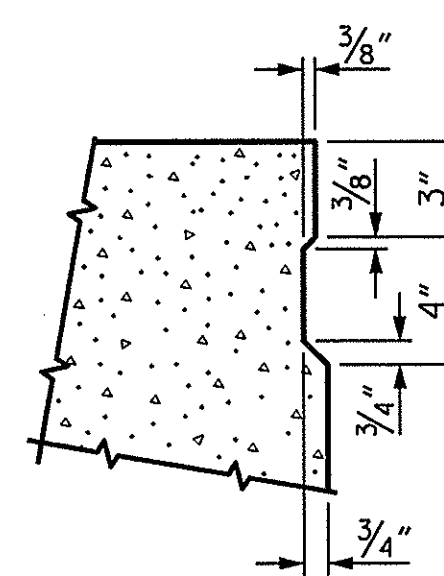


GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



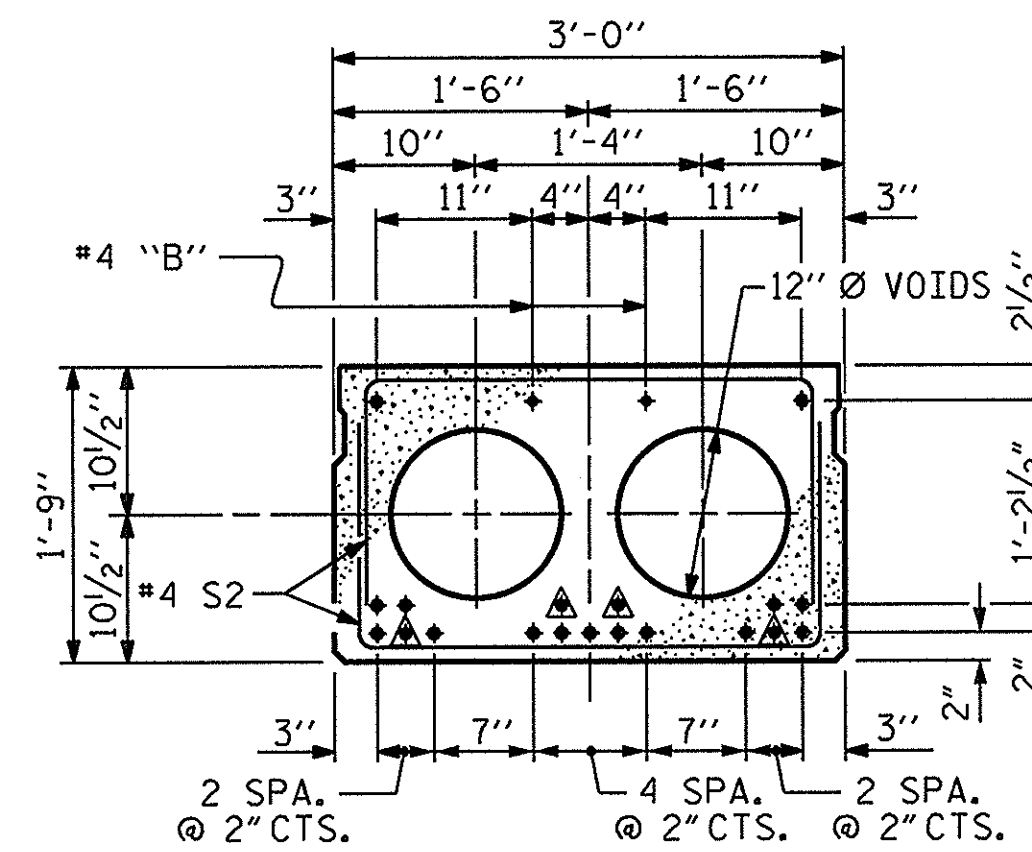
END ELEVATION

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

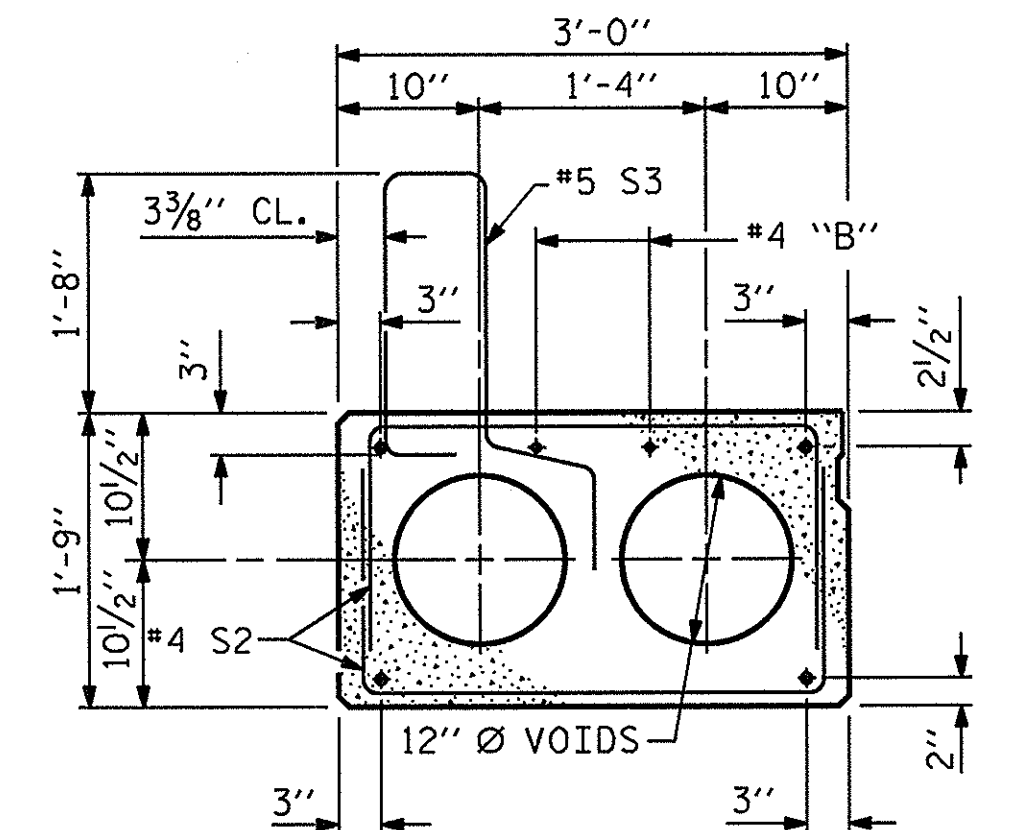


SHEAR KEY DETAIL

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

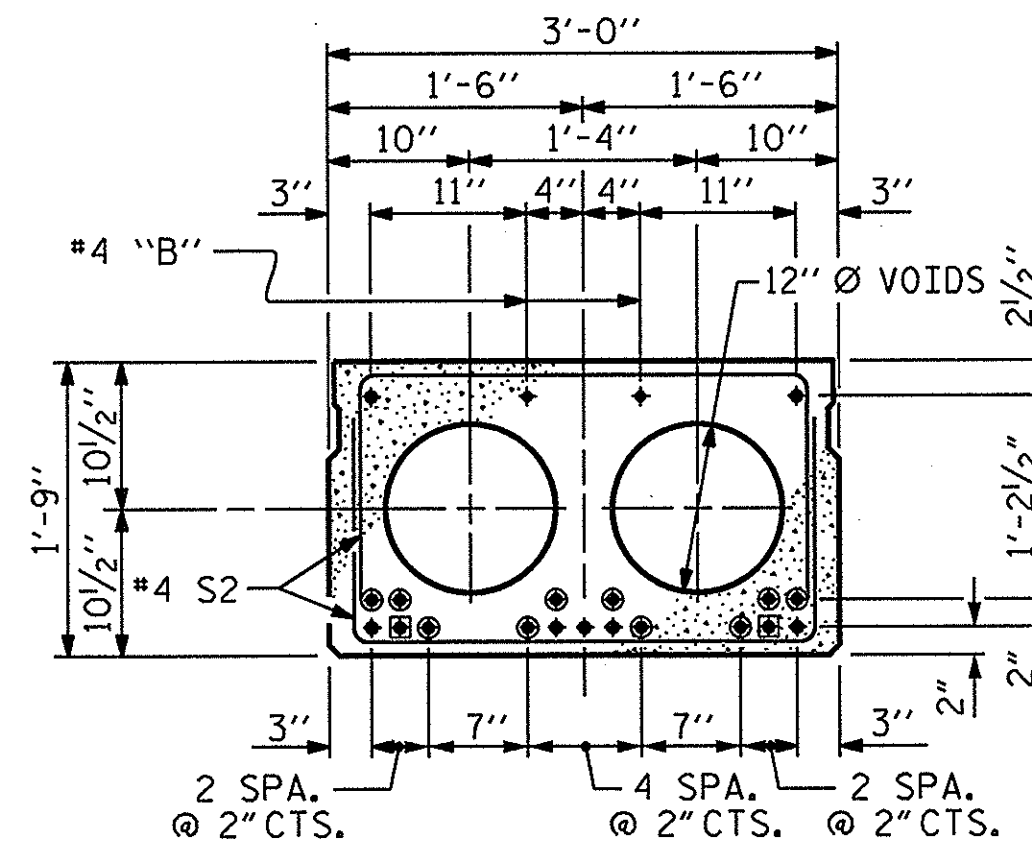


INTERIOR SLAB SECTION (55' UNIT)
(19 STRANDS REQUIRED)



EXT. SLAB SECTION

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



INTERIOR SLAB SECTION (30' UNIT)
(9 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT

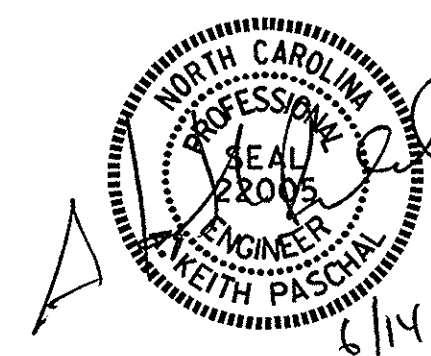
- ▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH 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

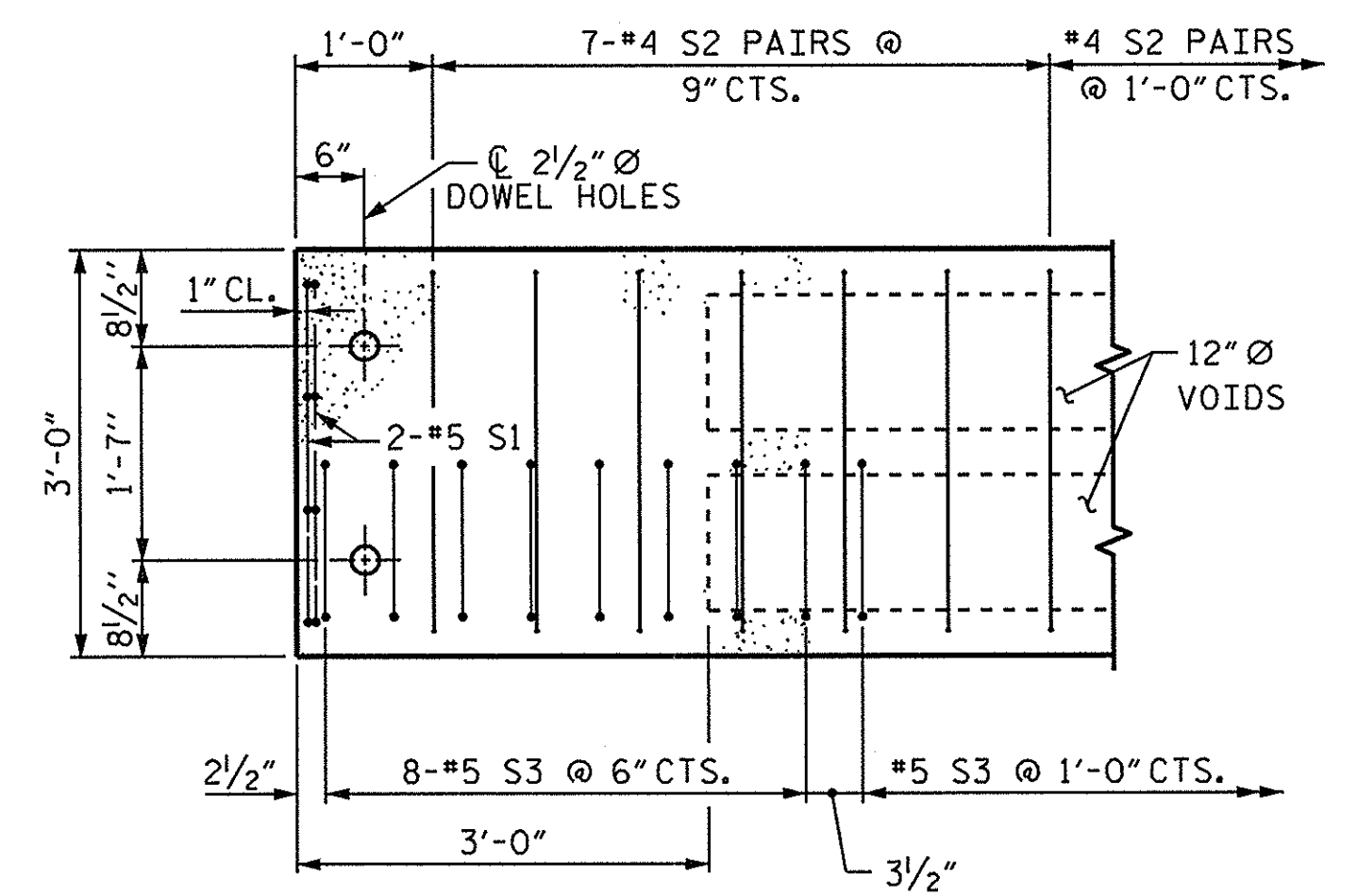
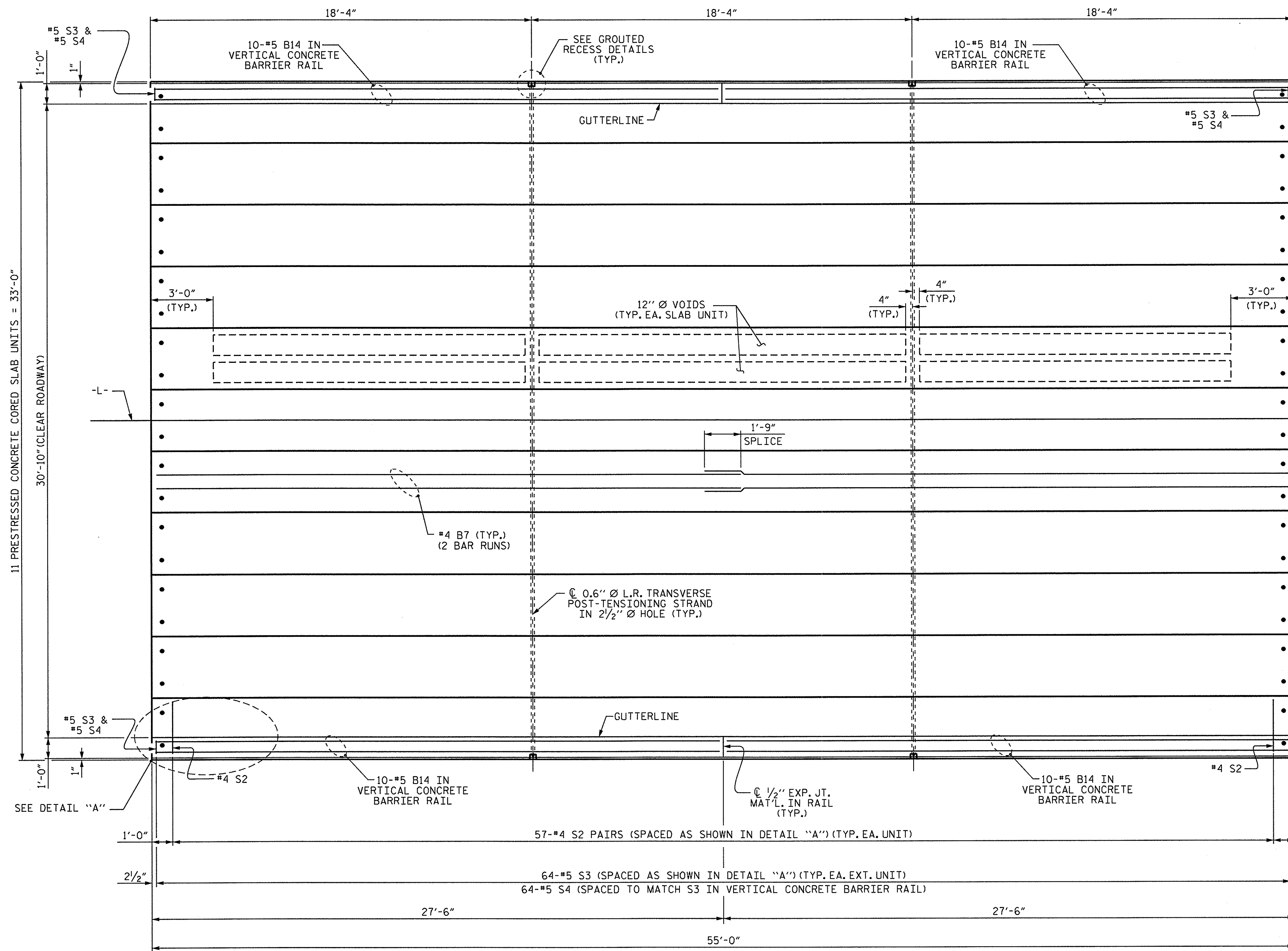
PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-6
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW						TOTAL SHEETS 18
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



ASSEMBLED BY: E. K. POPE DATE: 5-23-12
 CHECKED BY: G. KOUCHEK DATE: 5-24-12
 DRAWN BY: DGE 5/09 REV. 12/11 MAA/AAC
 CHECKED BY: BCH 6/09

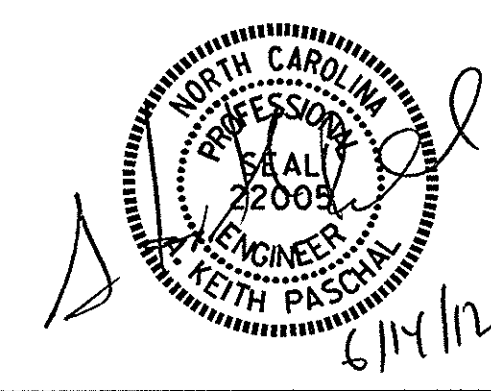


DETAIL "A"
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF UNIT

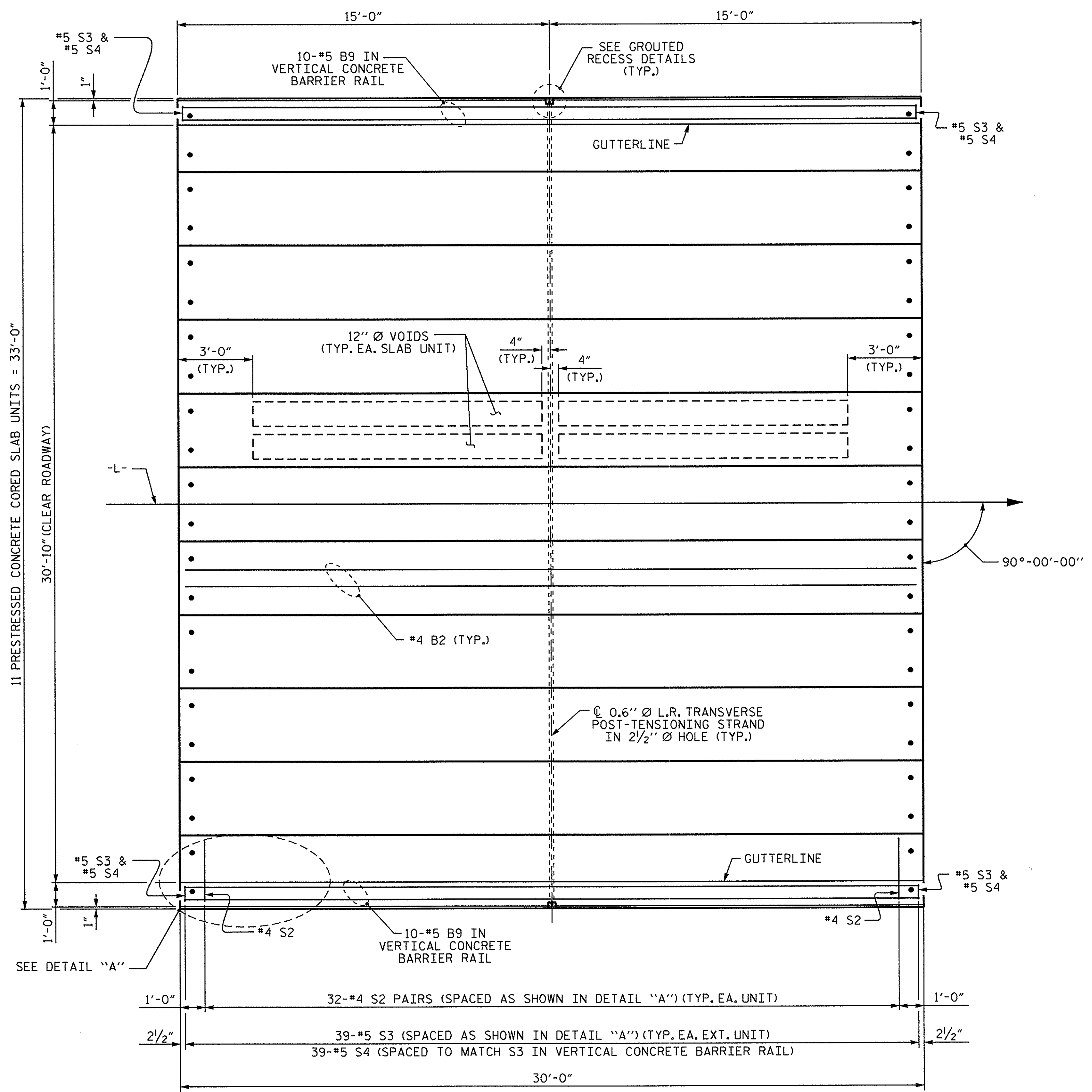
PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-
 SHEET 2 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-7
PLAN OF 55' UNIT 30'-10" CLEAR ROADWAY 90° SKEW						TOTAL SHEETS 18
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

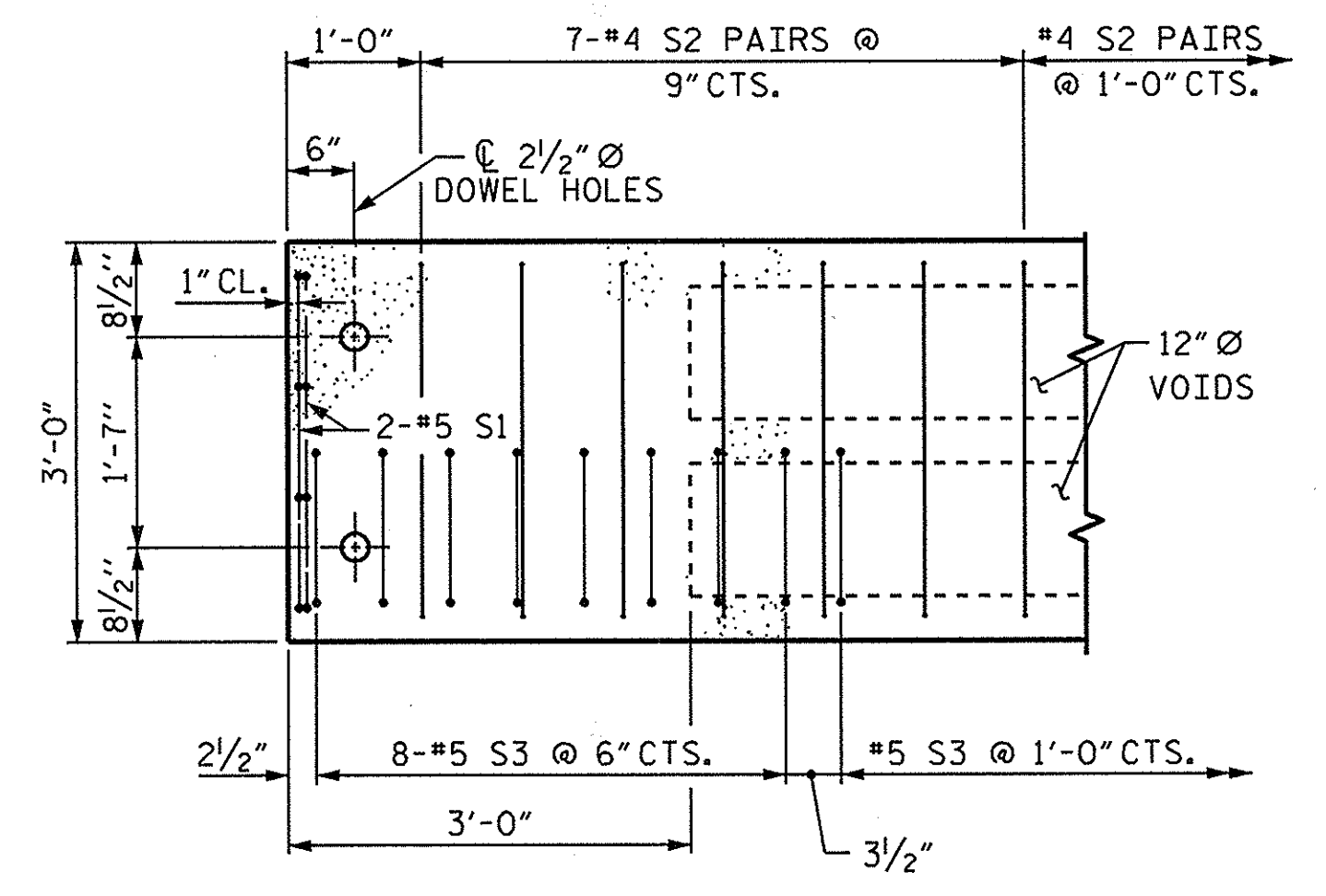


ASSEMBLED BY : E. K. POPE DATE : 5-23-12
 CHECKED BY : G. KOUICHEKI DATE : 5-24-12
 DRAWN BY : DGE 3/09 REV. 12/5/11 MAA/AAC
 CHECKED BY : BCH 3/09

13-JUN-2012 15:21
 S:\DPCI\Keith\BD-5102N\Final Plans\BD5102N_SD_CS_2.dgn
 Kpaschal



PLAN OF UNIT

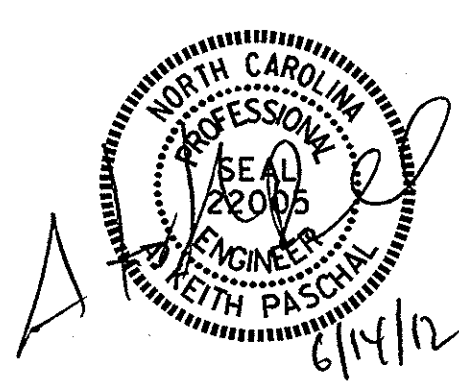


DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-
 SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 30' UNIT
 30'-10" CLEAR ROADWAY
 90° SKEW



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			18

ASSEMBLED BY : E. K. POPE	DATE : 5-23-12
CHECKED BY : G. KOUCHEKI	DATE : 5-24-12
DRAWN BY : DGE	3/09
CHECKED BY : BCH	3/09
REV. 12/5/11	MAA/AAC

13-JUN-2012 15:21
 S:\DPCI\Kait\BD-5102N\Final Plans\BD5102N_SD_CS_2.dgn
 Kpaschal

NOTES

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

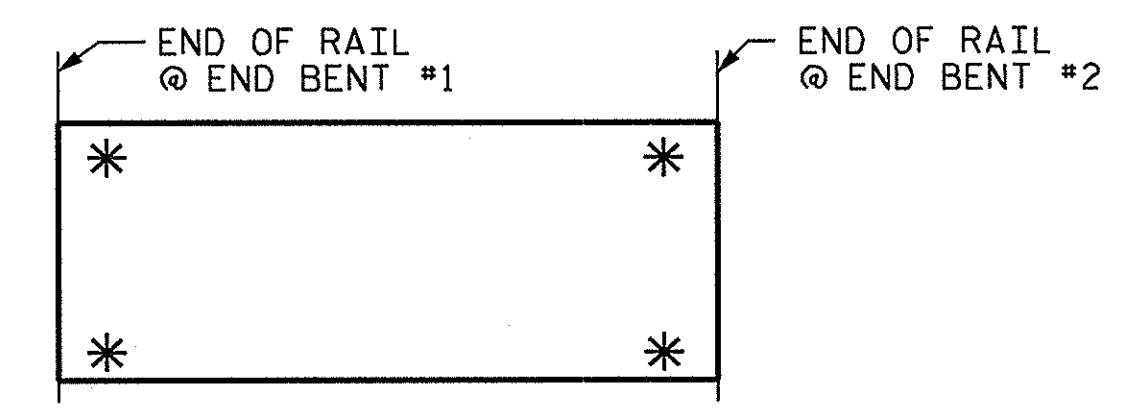
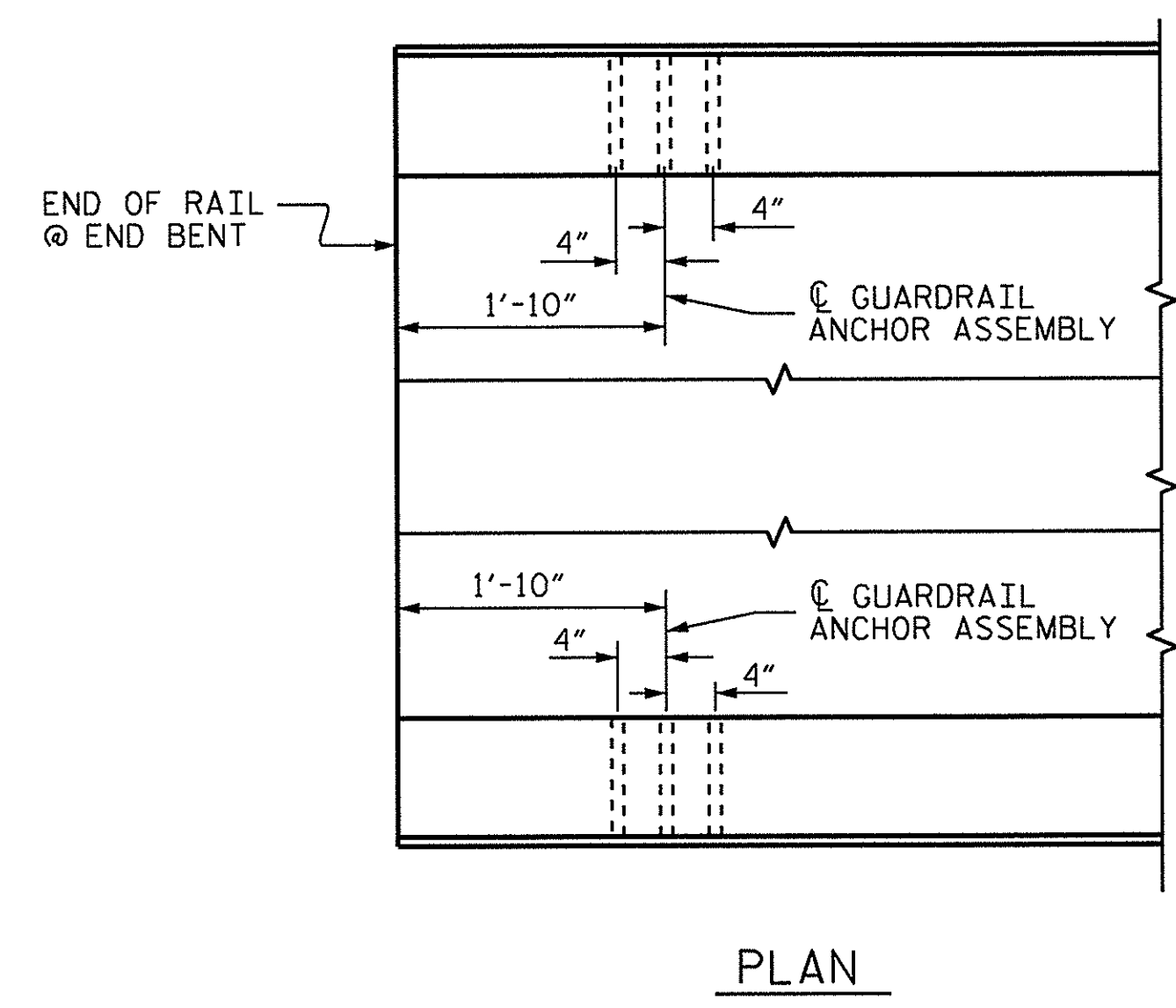
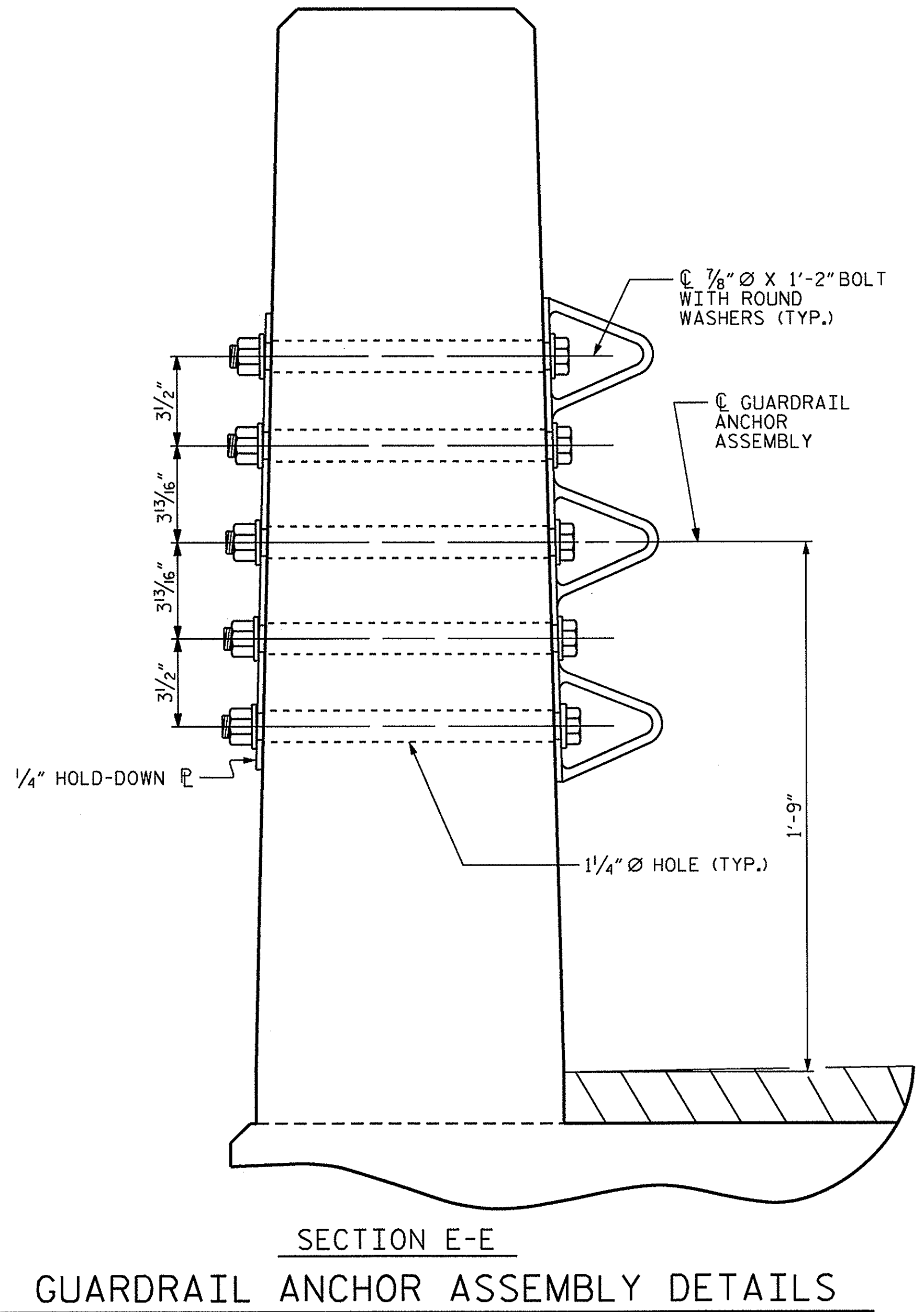
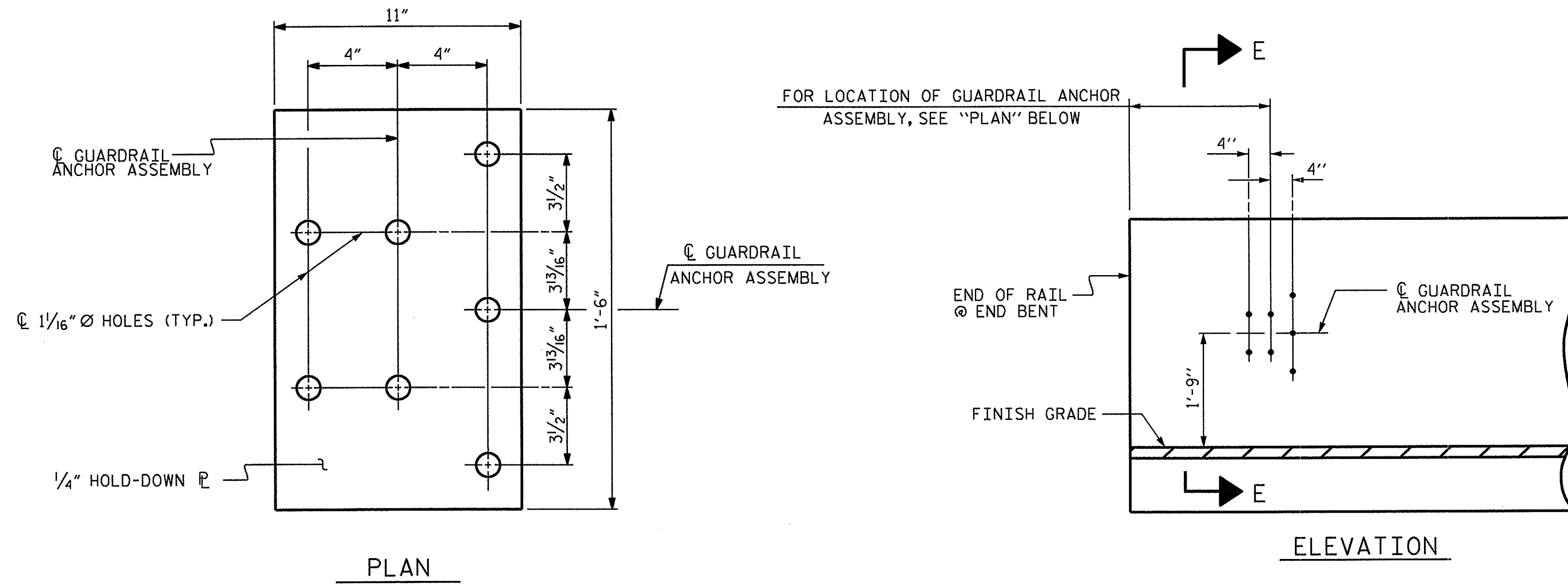
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

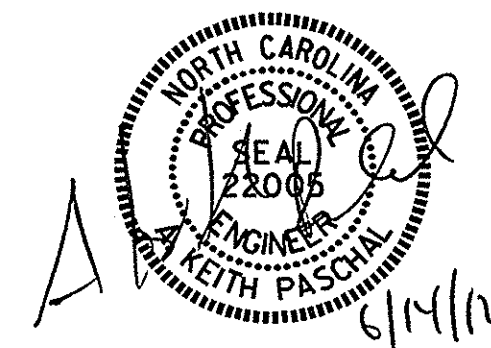
LOCATION OF ANCHORS FOR GUARDRAIL

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

PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 GUARDRAIL ANCHORAGE
 FOR VERTICAL CONCRETE
 BARRIER RAIL

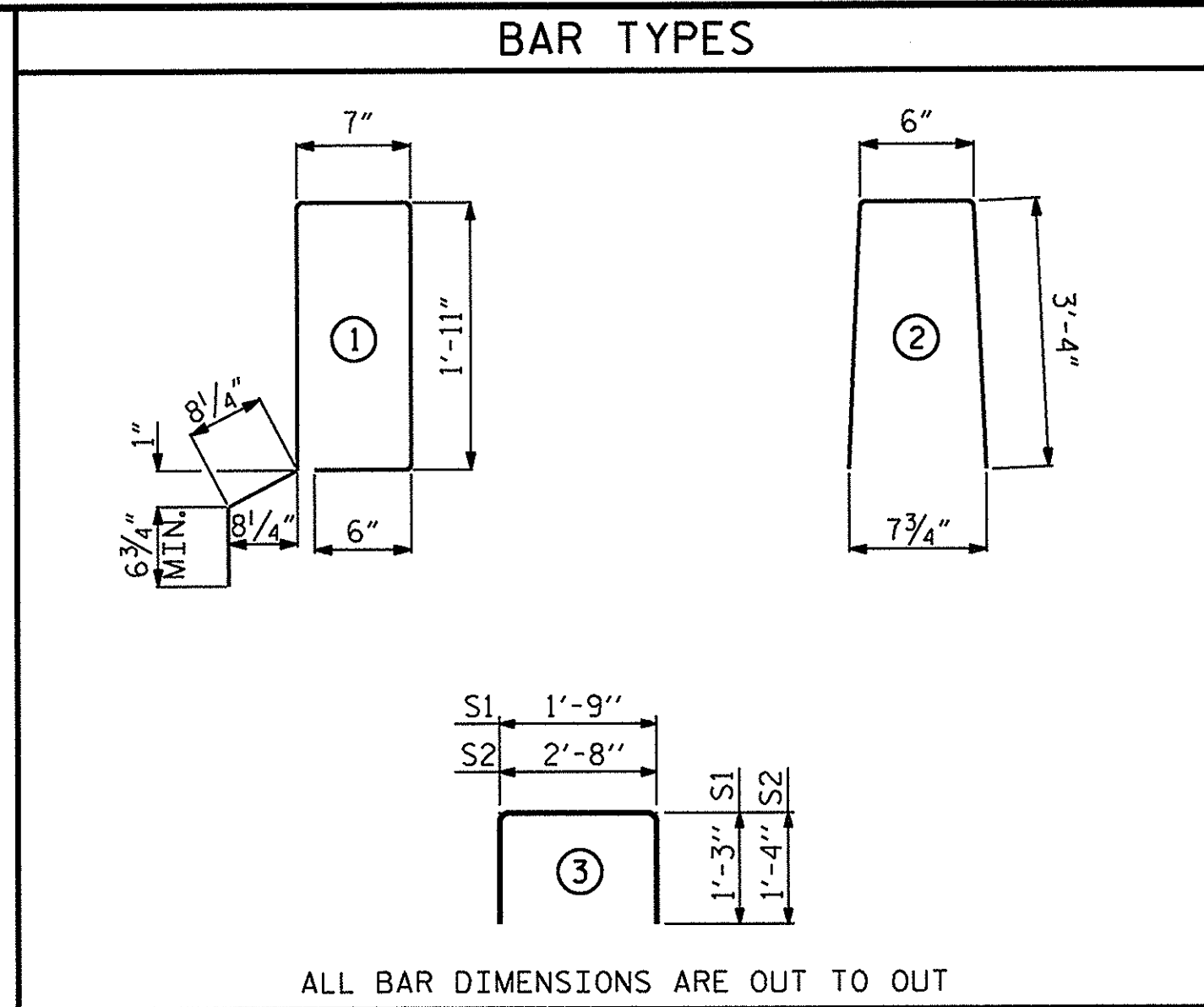


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			TOTAL SHEETS	
2			4			18	

ASSEMBLED BY : E. K. POPE	DATE : 5-23-12
CHECKED BY : G. KOUCKEKI	DATE : 5-24-12
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11 MAA/GM
	REV. 12/5/11 MAA/GM

BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B7	4	#4	STR	28'-3"	75	28'-3"	75
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	114	#4	3	5'-4"	406	5'-4"	406
*S3	64	#5	1	6'-2"	412		
REINFORCING STEEL				LBS.	516		516
*EPOXY COATED REINFORCING STEEL				LBS.	412		
6500 P.S.I. CONCRETE				CU. YDS.	7.8		7.8
0.6" Ø L.R. STRANDS				No.	19		19

BILL OF MATERIAL FOR ONE 30' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B2	2	#4	STR	29'-8"	40	29'-8"	40
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	64	#4	3	5'-4"	228	5'-4"	228
*S3	39	#5	1	6'-2"	251		
REINFORCING STEEL				LBS.	303		303
*EPOXY COATED REINFORCING STEEL				LBS.	251		
5000 P.S.I. CONCRETE				CU. YDS.	4.4		4.4
0.6" Ø L.R. STRANDS				No.	9		9



ALL BAR DIMENSIONS ARE OUT TO OUT

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

CORED SLABS REQUIRED			
55' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	55'-0"	110'-0"
INTERIOR C.S.	9	55'-0"	495'-0"
TOTAL	11		605'-0"

CORED SLABS REQUIRED			
30' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	30'-0"	60'-0"
INTERIOR C.S.	9	30'-0"	270'-0"
TOTAL	11		330'-0"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
55' UNIT						
*B14	40	40	#5	STR	27'-1"	1130
*S4	128	128	#5	2	7'-2"	957
*EPOXY COATED REINFORCING STEEL				LBS.		2087
CLASS AA CONCRETE				CU. YDS.		14.4
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		110.25

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
30' UNIT						
*B9	20	20	#5	STR	29'-7"	617
*S4	78	78	#5	2	7'-2"	583
*EPOXY COATED REINFORCING STEEL				LBS.		1200
CLASS AA CONCRETE				CU. YDS.		7.9
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		60.25

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
30'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
	SUPERED SECTION	
55' UNITS	1 1/2"	3'-7 3/4"
30' UNITS	3 3/8"	3'-9 5/8"

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9" 0.6" Ø L.R. STRAND
55' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2 1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/4" ↓
FINAL CAMBER	2 1/4" ↑
** INCLUDES FUTURE WEARING SURFACE	

CONCRETE RELEASE STRENGTH	
UNIT	PSI
55' UNITS	4900
30' UNITS	4000

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9" 0.6" Ø L.R. STRAND
30' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	3/8" ↑
** INCLUDES FUTURE WEARING SURFACE	

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.

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

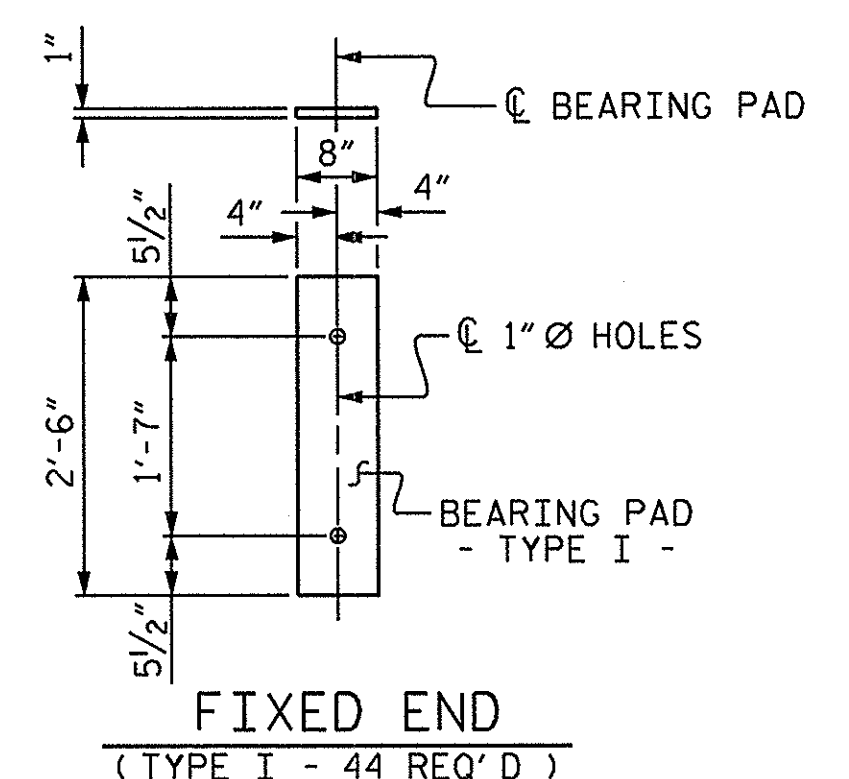
TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

ELASTOMERIC BEARING DETAILS

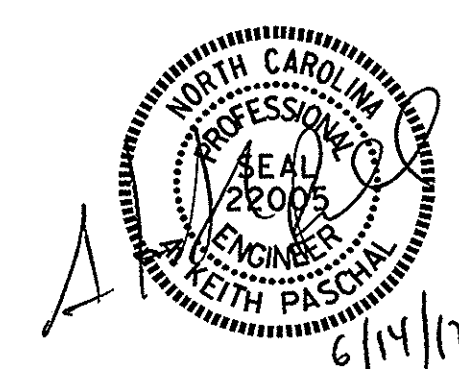
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.



ELASTOMERIC BEARING DETAILS

PROJECT NO. BD-5102N
 GREENE COUNTY
 STATION: 15+55.50 -L-
 SHEET 4 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 18



ASSEMBLED BY: E. K. POPE DATE: 5-23-12
 CHECKED BY: G. KOUCHEK DATE: 5-24-12
 DRAWN BY: DGE 5/09 REV. 12/11 MAA/AAC
 CHECKED BY: BCH 6/09

NOTES

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

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

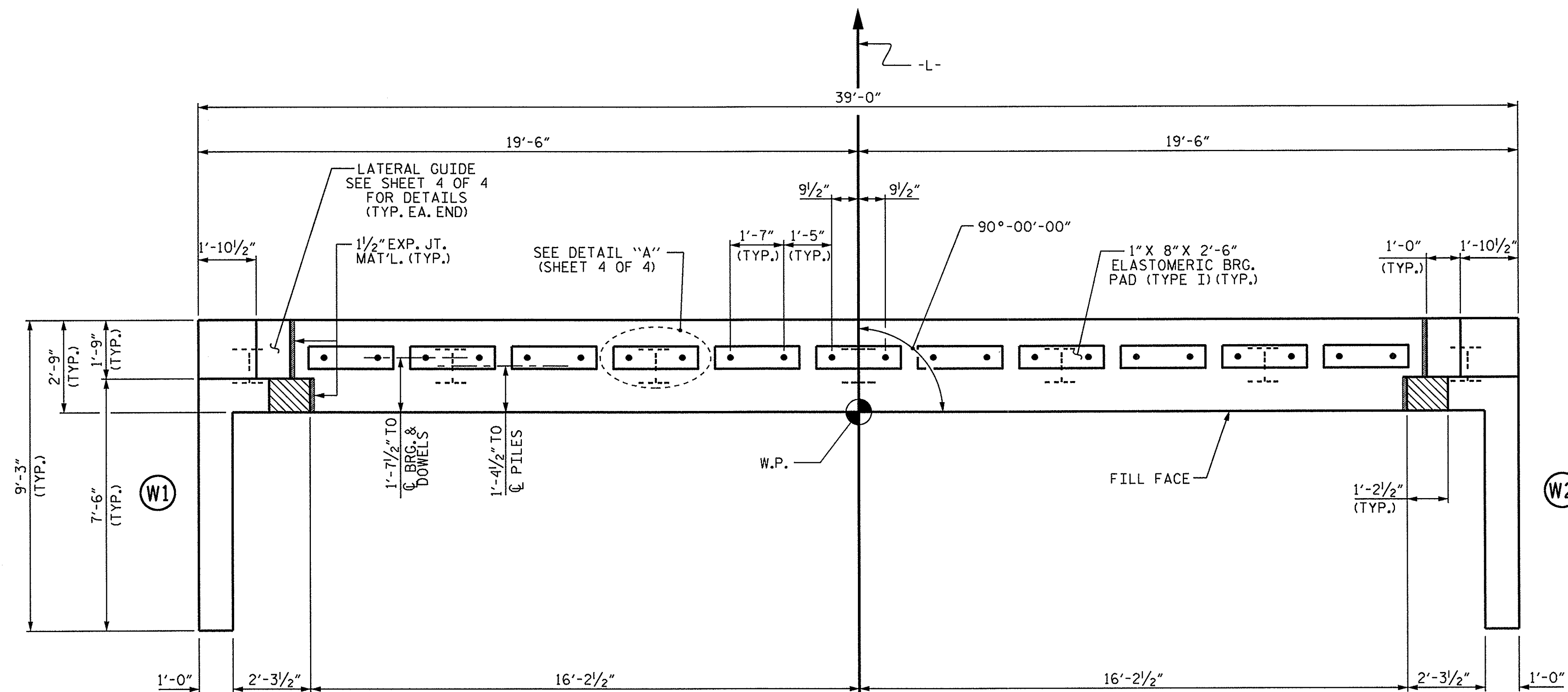
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

INSTALL THE 4" Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

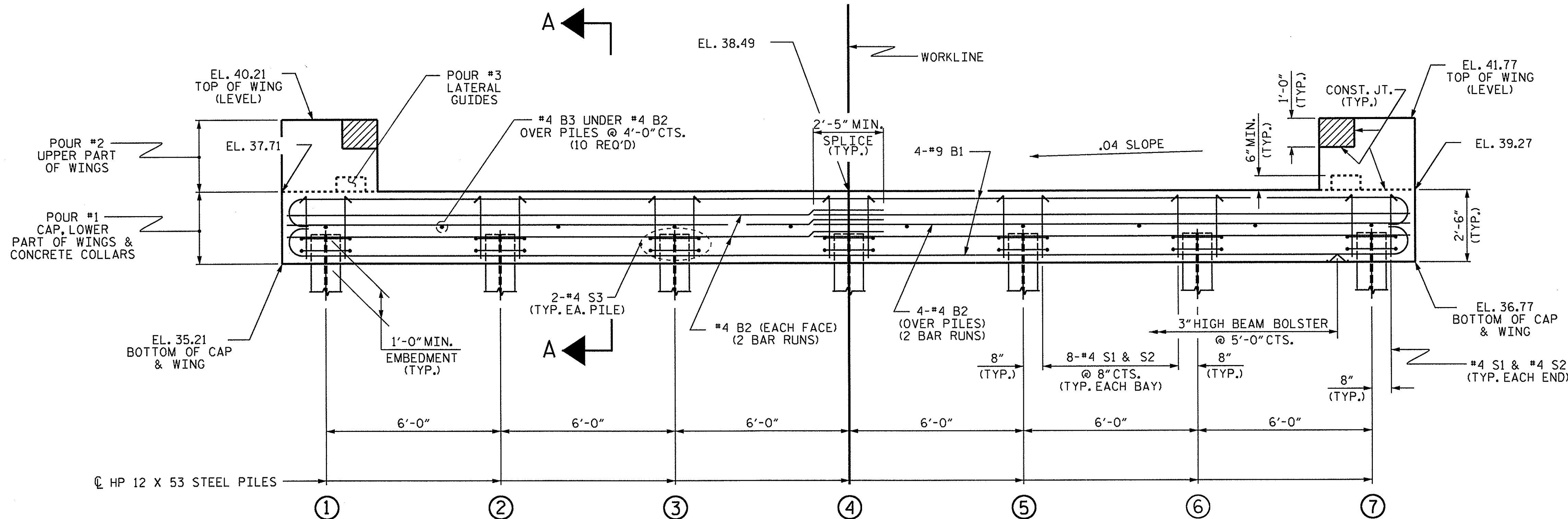
THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.



PLAN

TOP OF PILE ELEVATIONS

①	36.27
②	36.51
③	36.75
④	36.99
⑤	37.23
⑥	37.47
⑦	37.71



ELEVATION

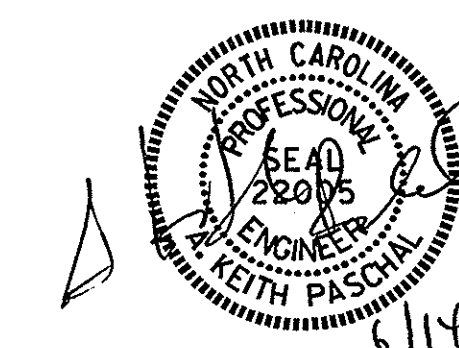
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. BD-5102N
GREENE COUNTY
STATION: 15+55.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS	18
2			4				

ASSEMBLED BY: E. K. POPE DATE: 5-23-12
CHECKED BY: G. KOUCHEKI DATE: 5-24-12
DRAWN BY: DGE 02/10
CHECKED BY: MKT 02/10

NOTES

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

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

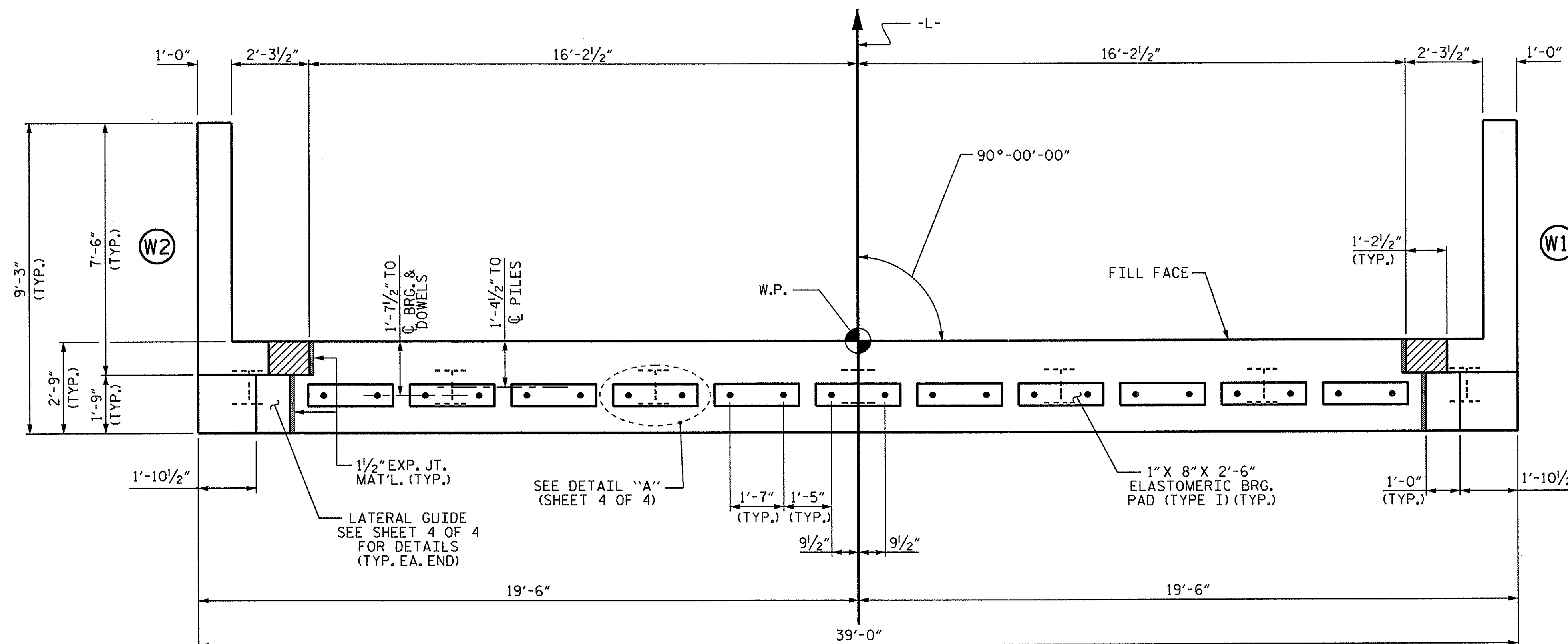
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

INSTALL THE 4" Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

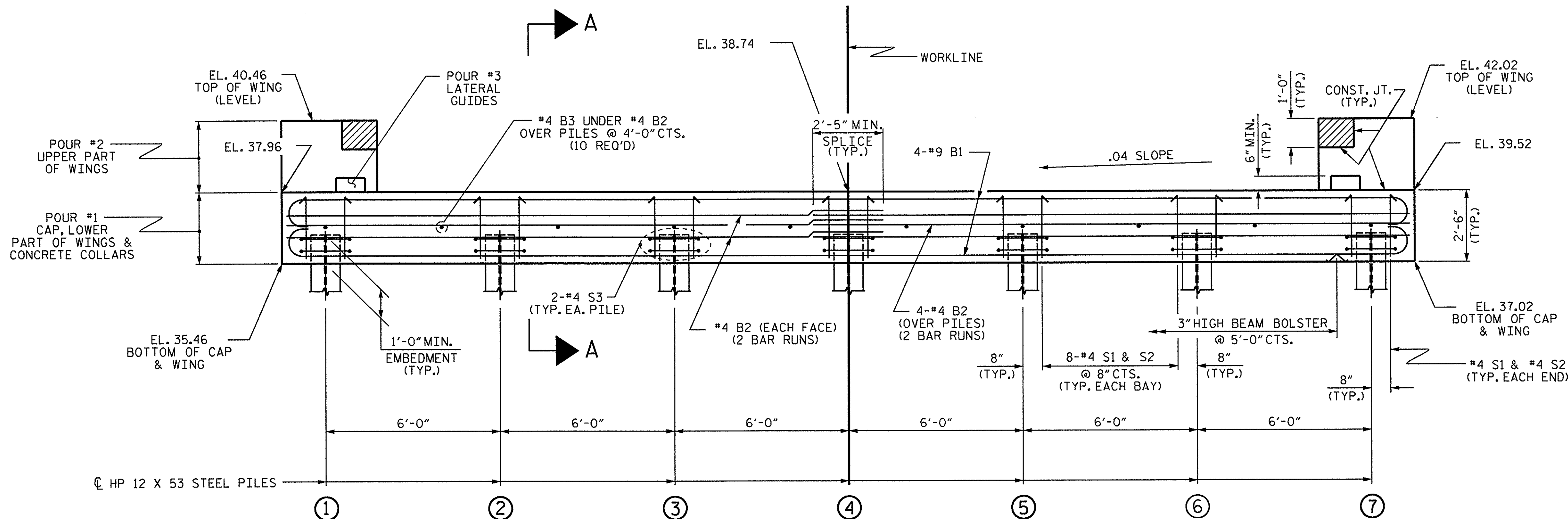
FOR WING DETAILS, SEE SHEET 3 OF 4.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.



PLAN

TOP OF PILE ELEVATIONS	
①	36.52
②	36.76
③	37.00
④	37.24
⑤	37.48
⑥	37.72
⑦	37.96



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-5102N
GREENE COUNTY
STATION: 15+55.50 -L-

SHEET 2 OF 4

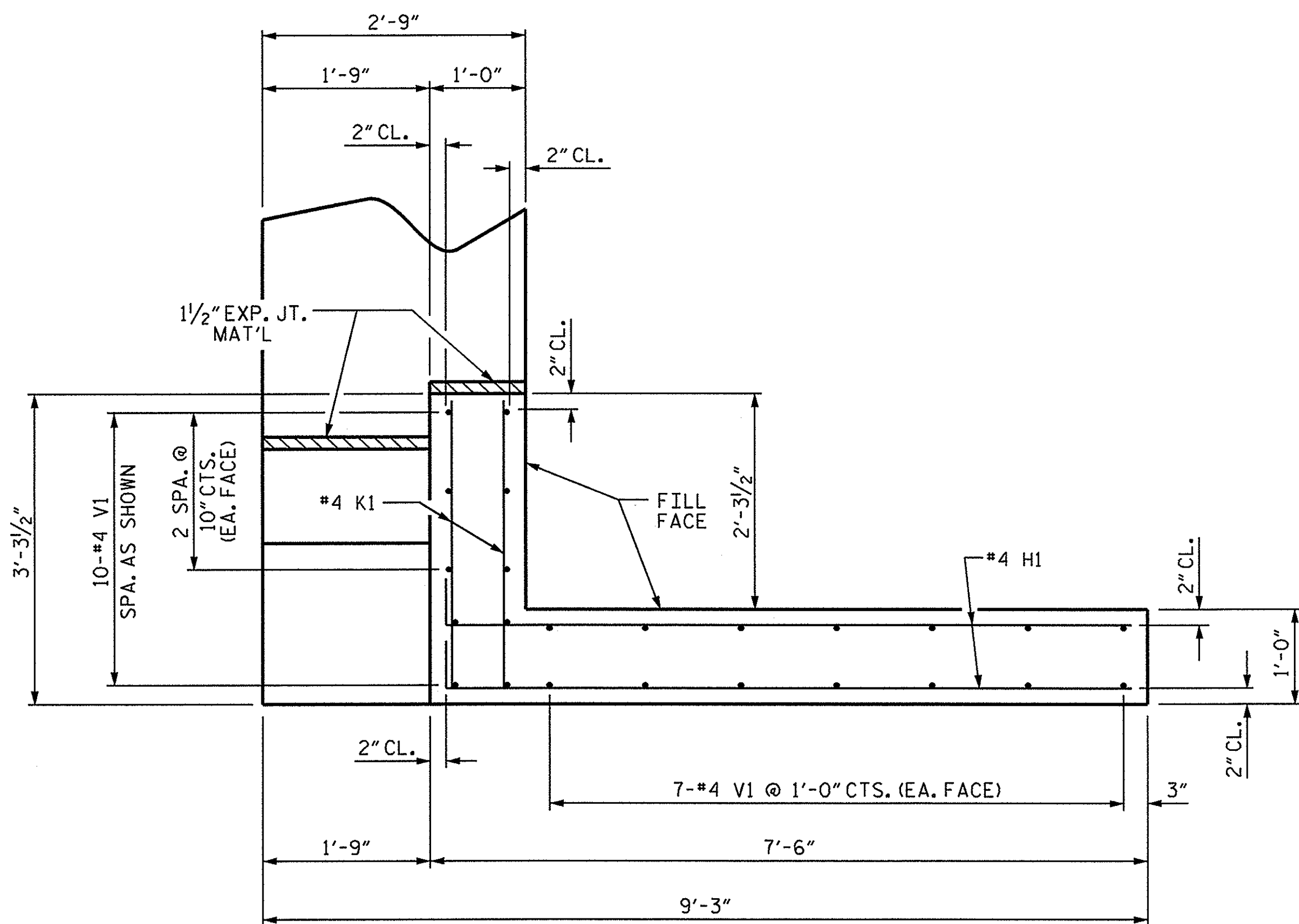
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2

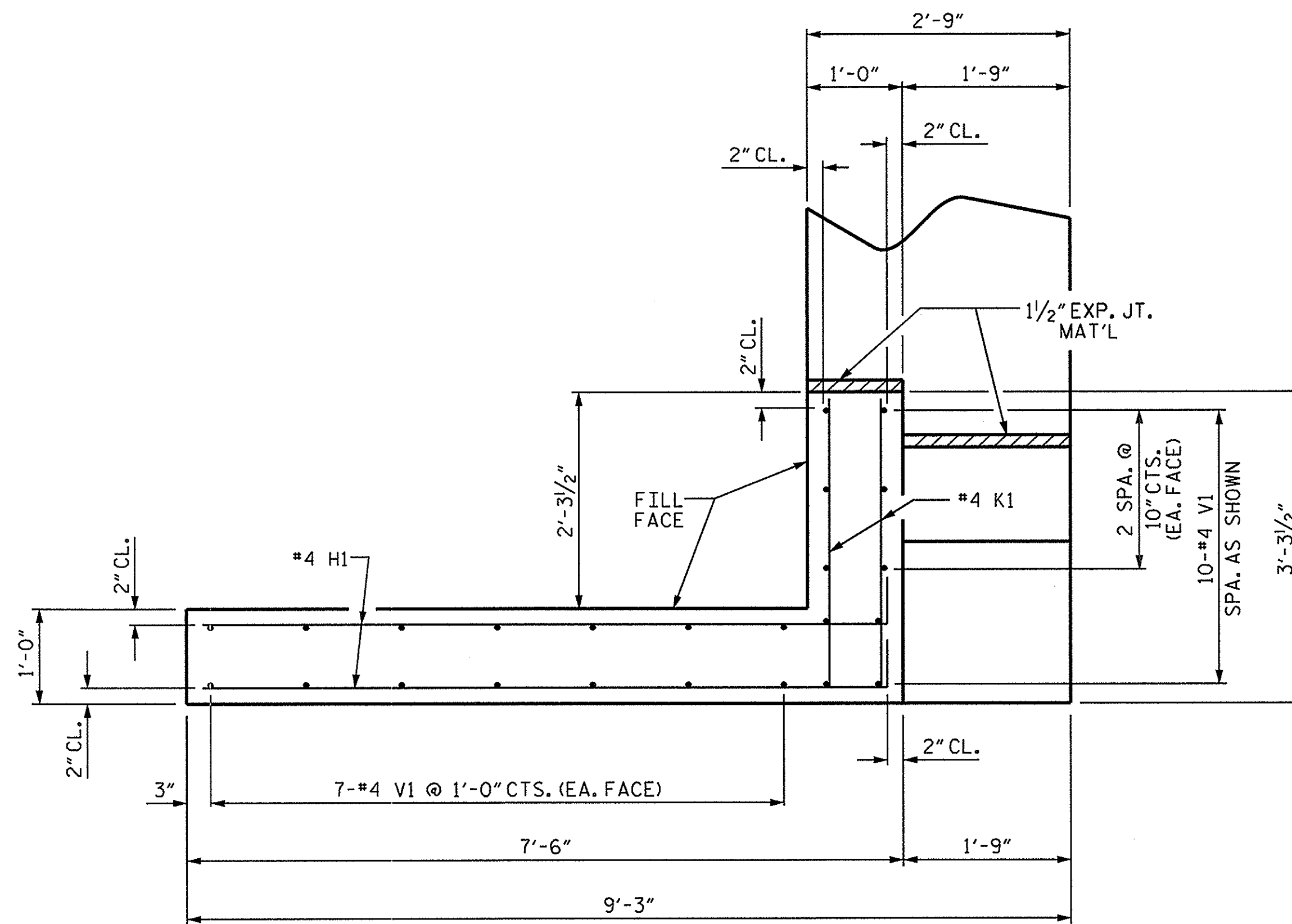


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			18

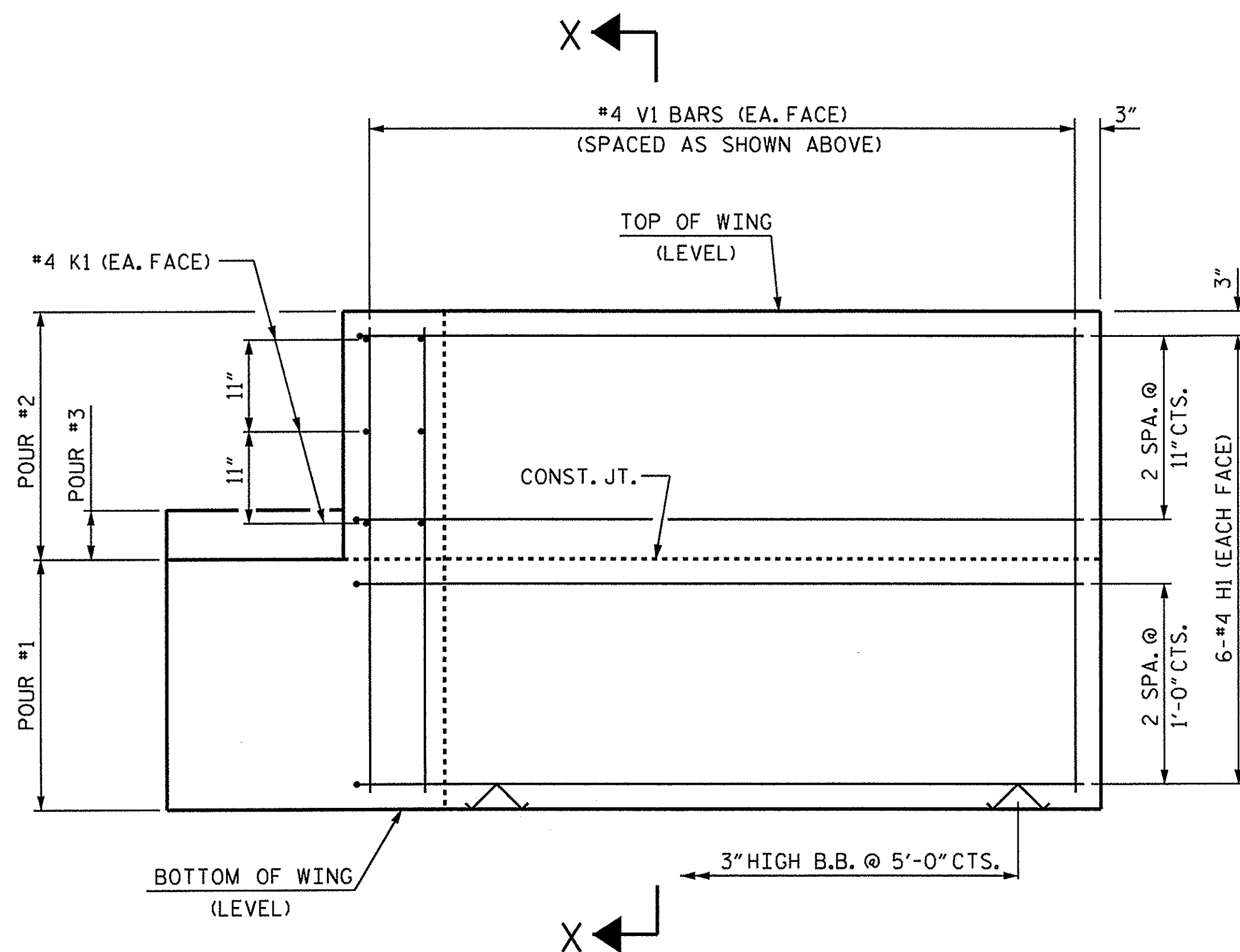
ASSEMBLED BY : E. K. POPE DATE : 5-23-12
CHECKED BY : G. KOUČEKI DATE : 5-24-12
DRAWN BY : DGE 02/10
CHECKED BY : MKT 02/10



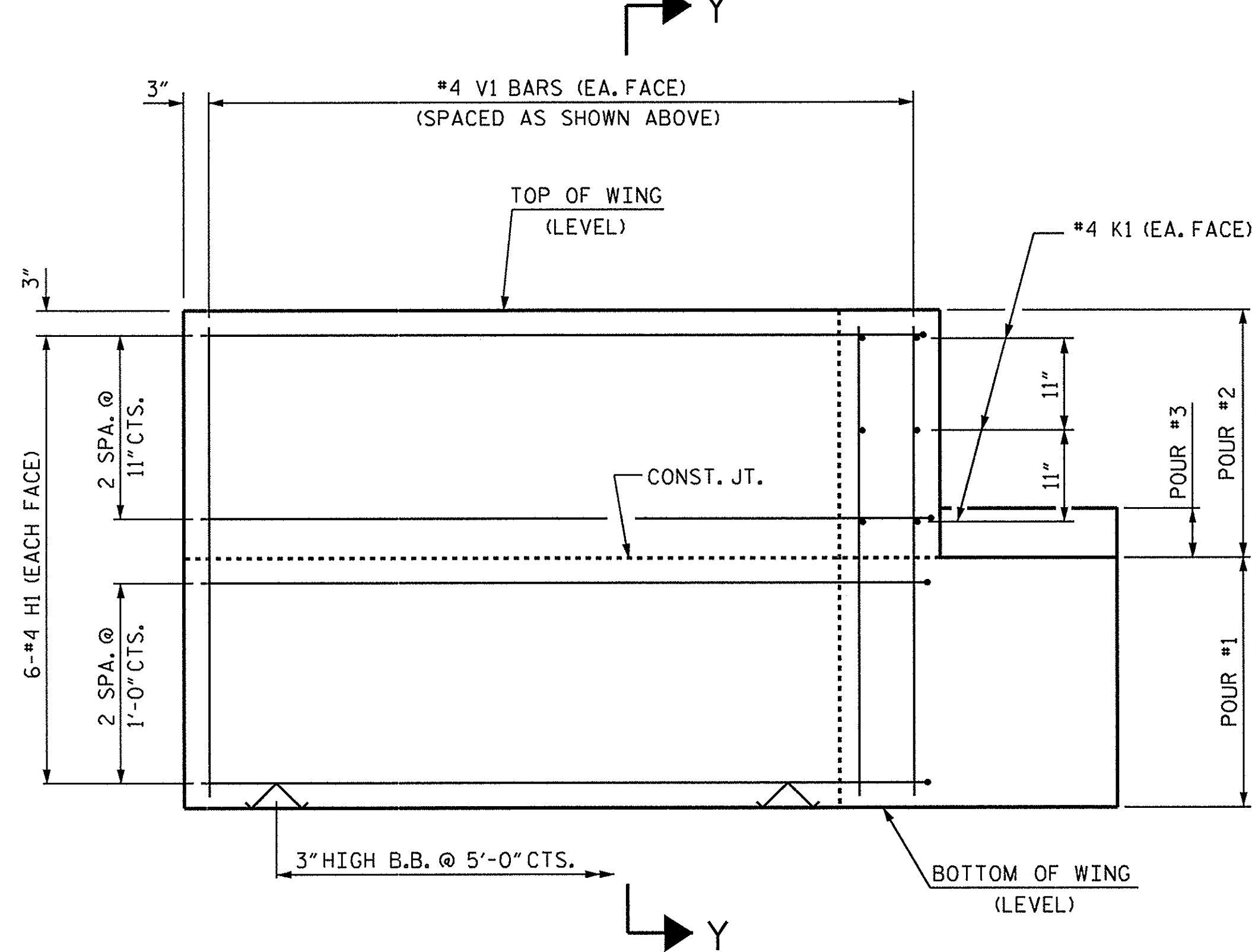
PLAN OF WING (W1)



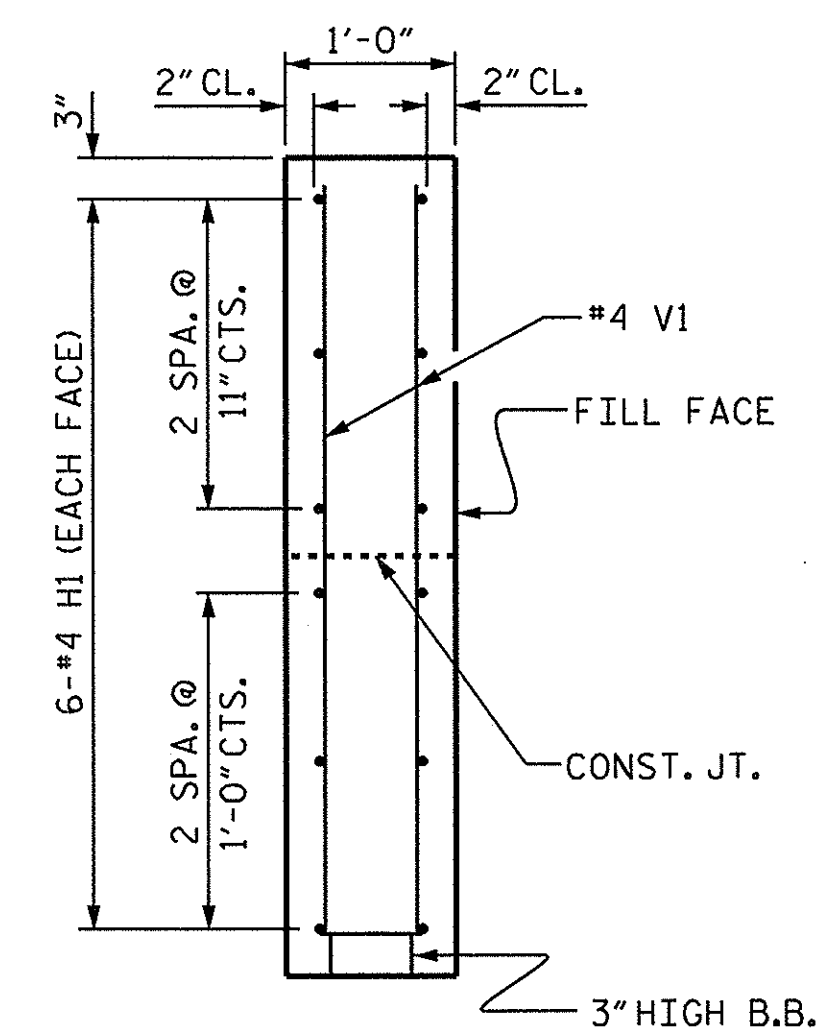
PLAN OF WING (W2)



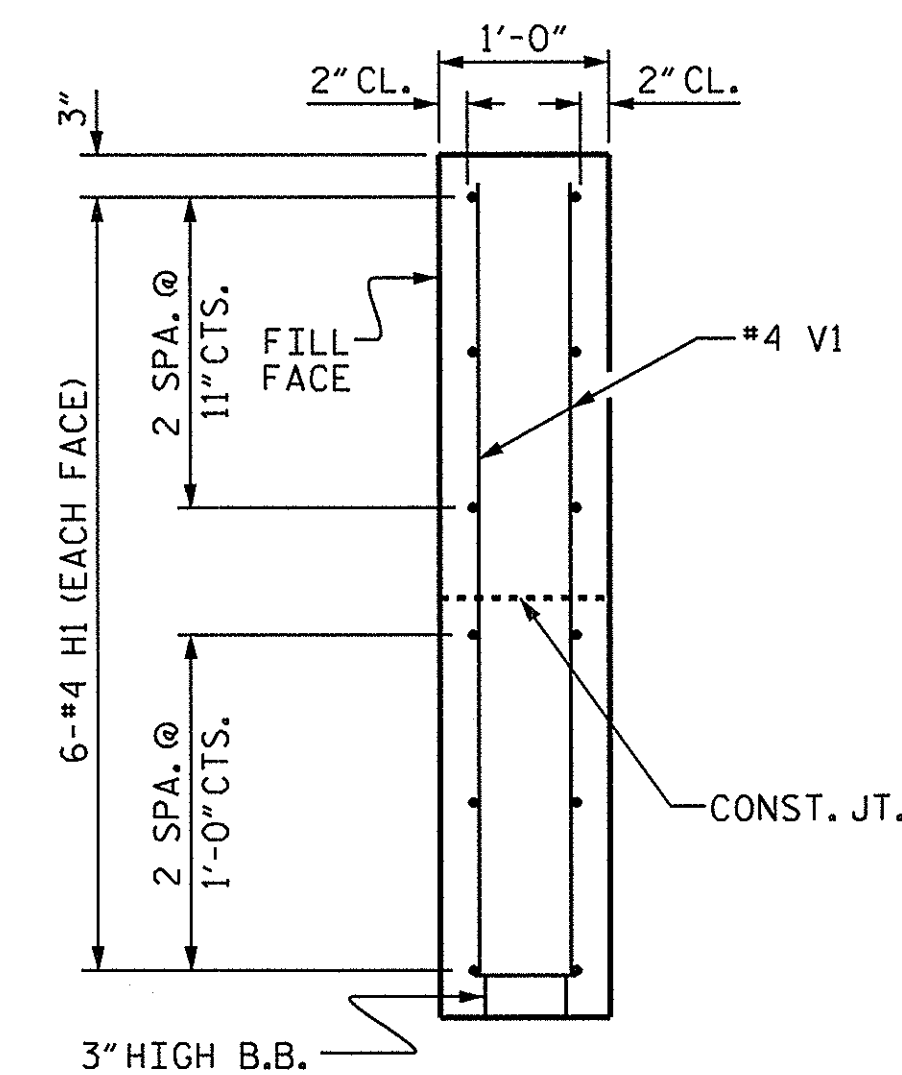
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



SECTION Y-Y

WING DETAILS

ASSEMBLED BY : E. K. POPE DATE : 5-23-12
 CHECKED BY : G. KOUICHEKI DATE : 5-24-12
 DRAWN BY : DGE 02/10
 CHECKED BY : MKT 02/10

13-JUN-2012 15:19
 S:\DPC\Keith\BD-5102N\Final Plans\BD5102N_SD_CS_2.dgn
 Kpaschal



PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-

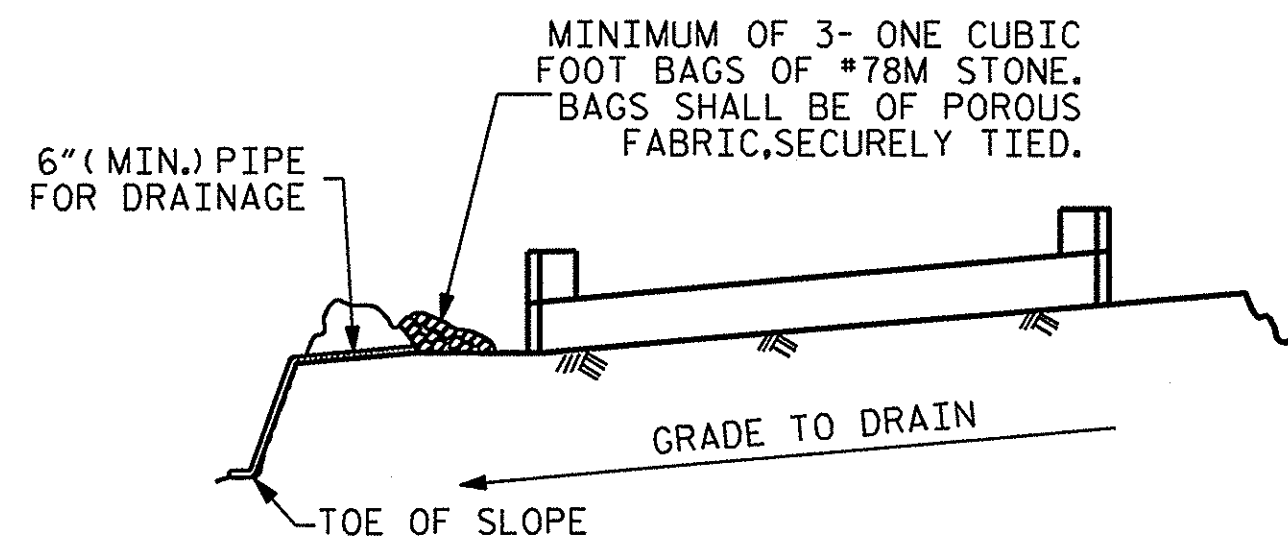
SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT
 WING DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13	
1			3			TOTAL SHEETS	
2			4			18	

STD. NO. EB_33_90S

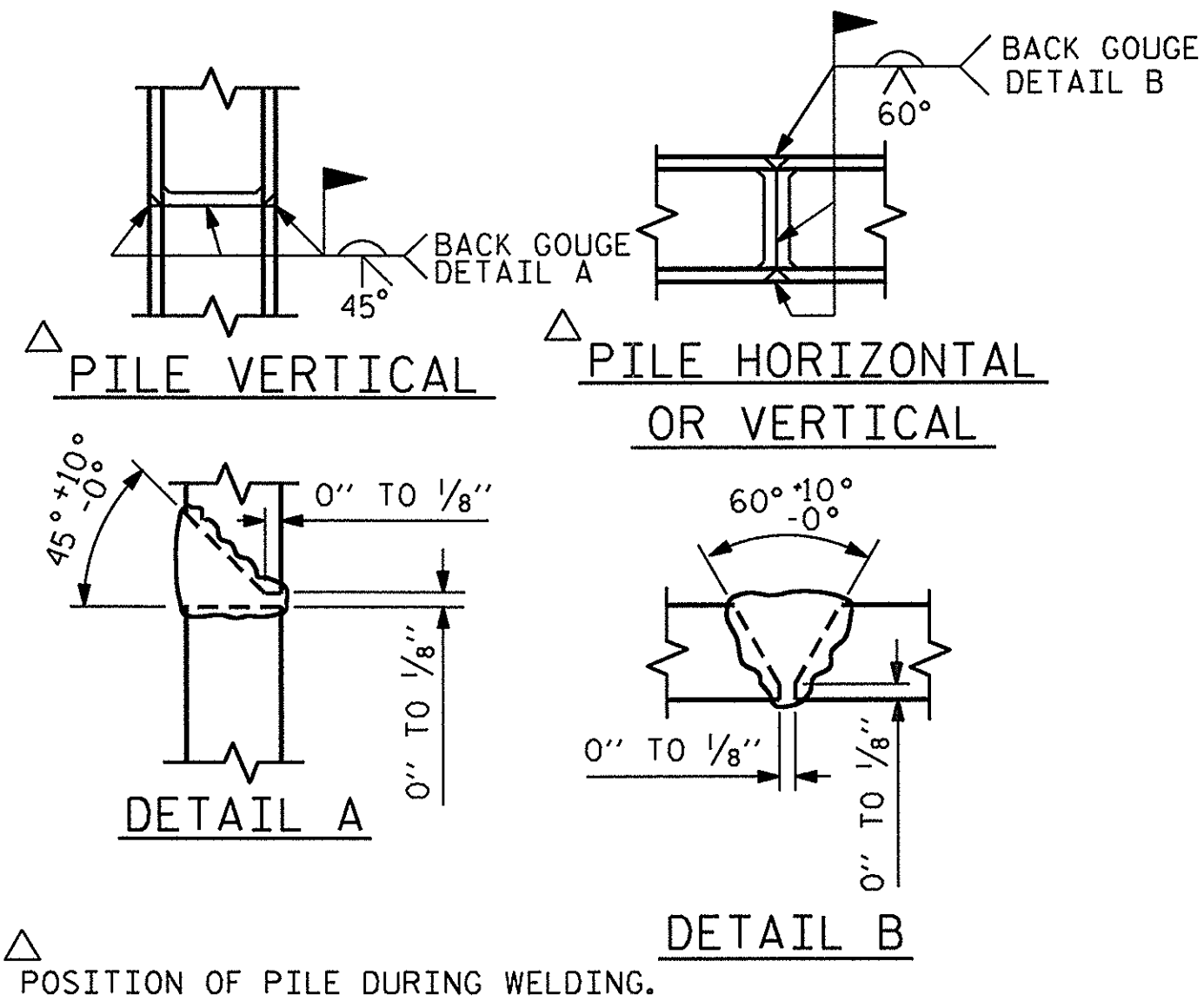


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

TEMPORARY DRAINAGE AT END BENT

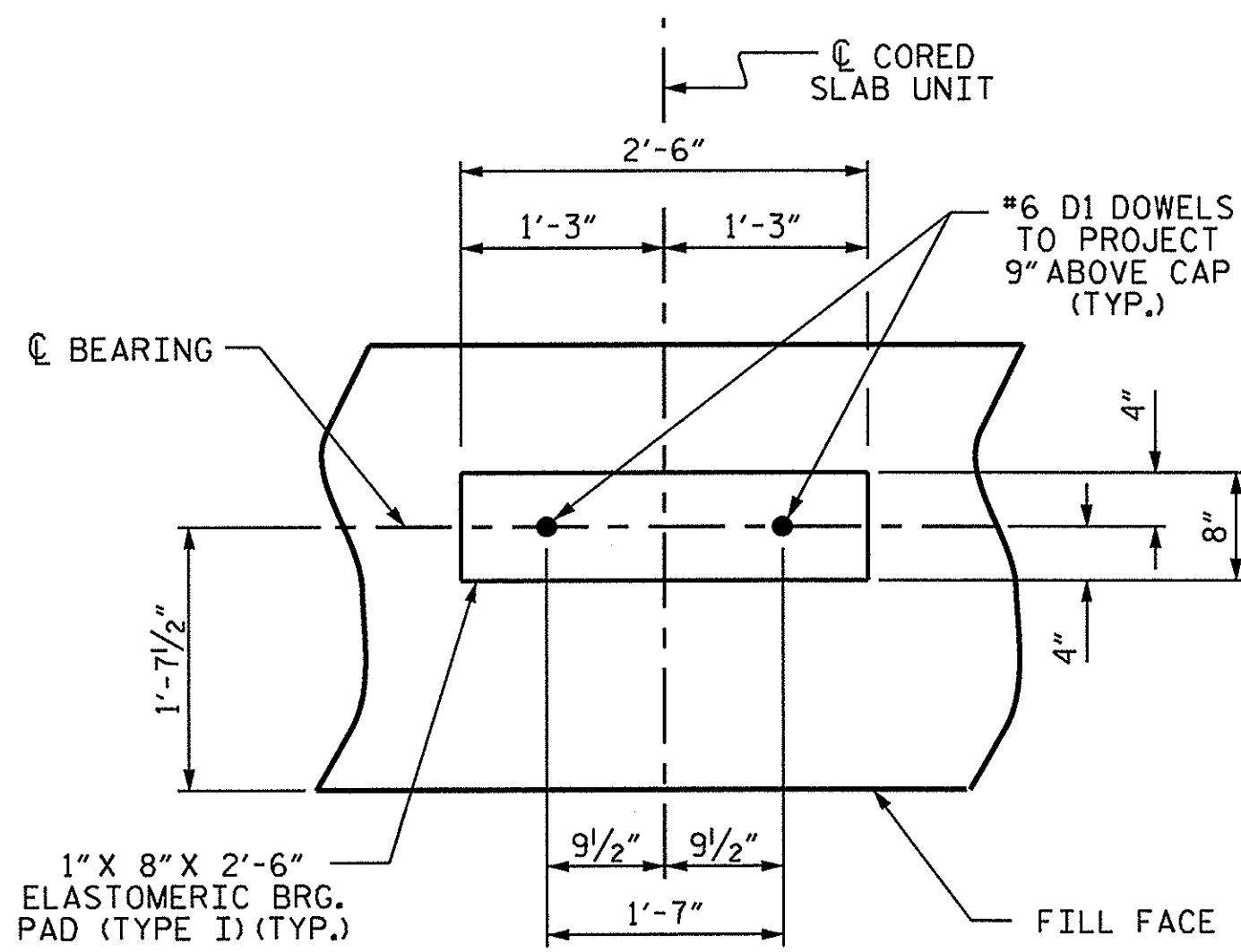


PILE SPLICE DETAILS

BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	16	#4	STR	20'-7"	220
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	50	#4	3	7'-5"	248
S2	50	#4	4	3'-2"	106
S3	14	#4	5	6'-6"	61
S4	4	#4	6	4'-5"	12
V1	48	#4	STR	4'-8"	150
REINFORCING STEEL (FOR ONE END BENT)					2127 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS			12.4 C.Y.	
POUR #2	UPPER PART OF WINGS			1.8 C.Y.	
POUR #3	LATERAL GUIDES			0.1 C.Y.	
TOTAL CLASS A CONCRETE					14.3 C.Y.

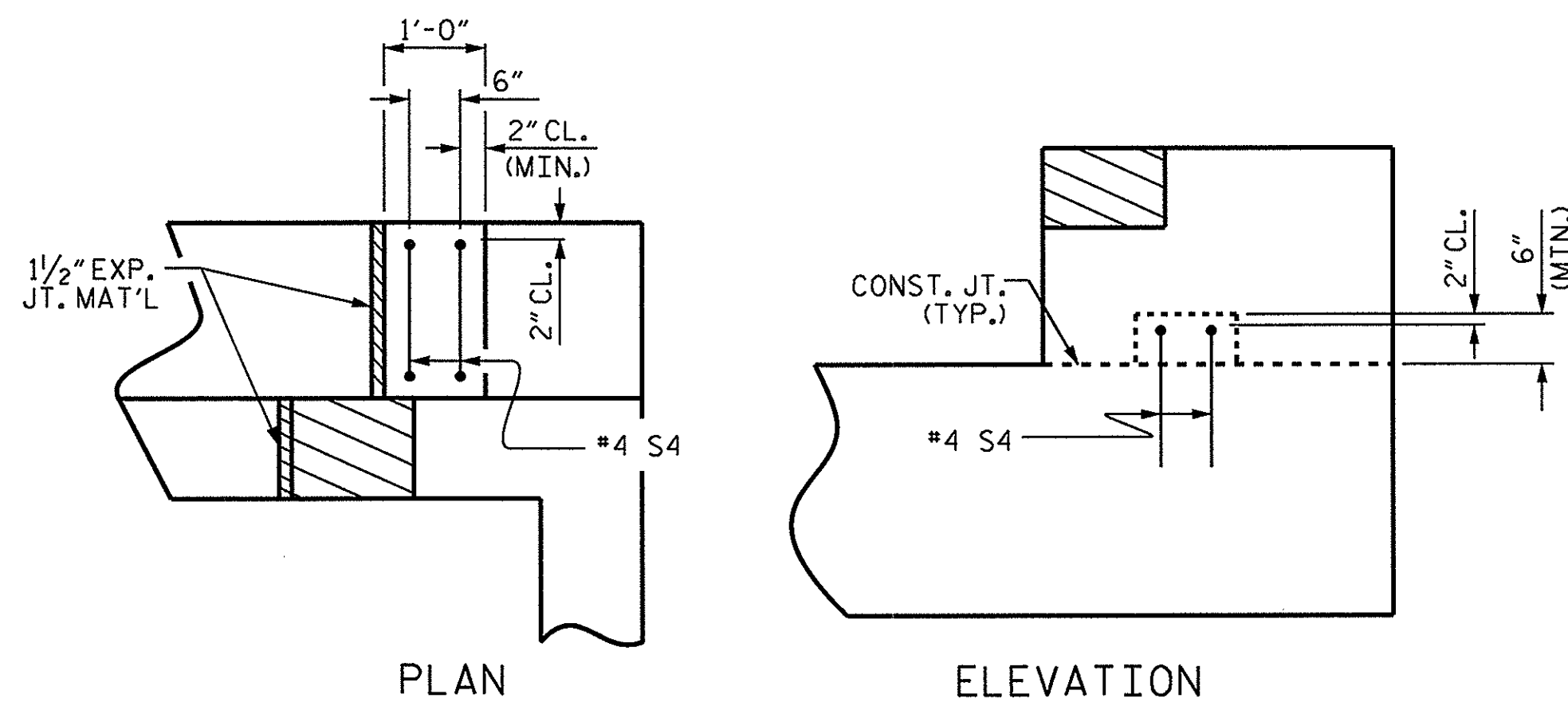
ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1 HP 12 X 53 STEEL PILES NO: 7 PILE REDRIVES EA. NO. = 4	END BENT No. 2 HP 12 X 53 STEEL PILES NO: 7 PILE REDRIVES EA. NO. = 4
--	--



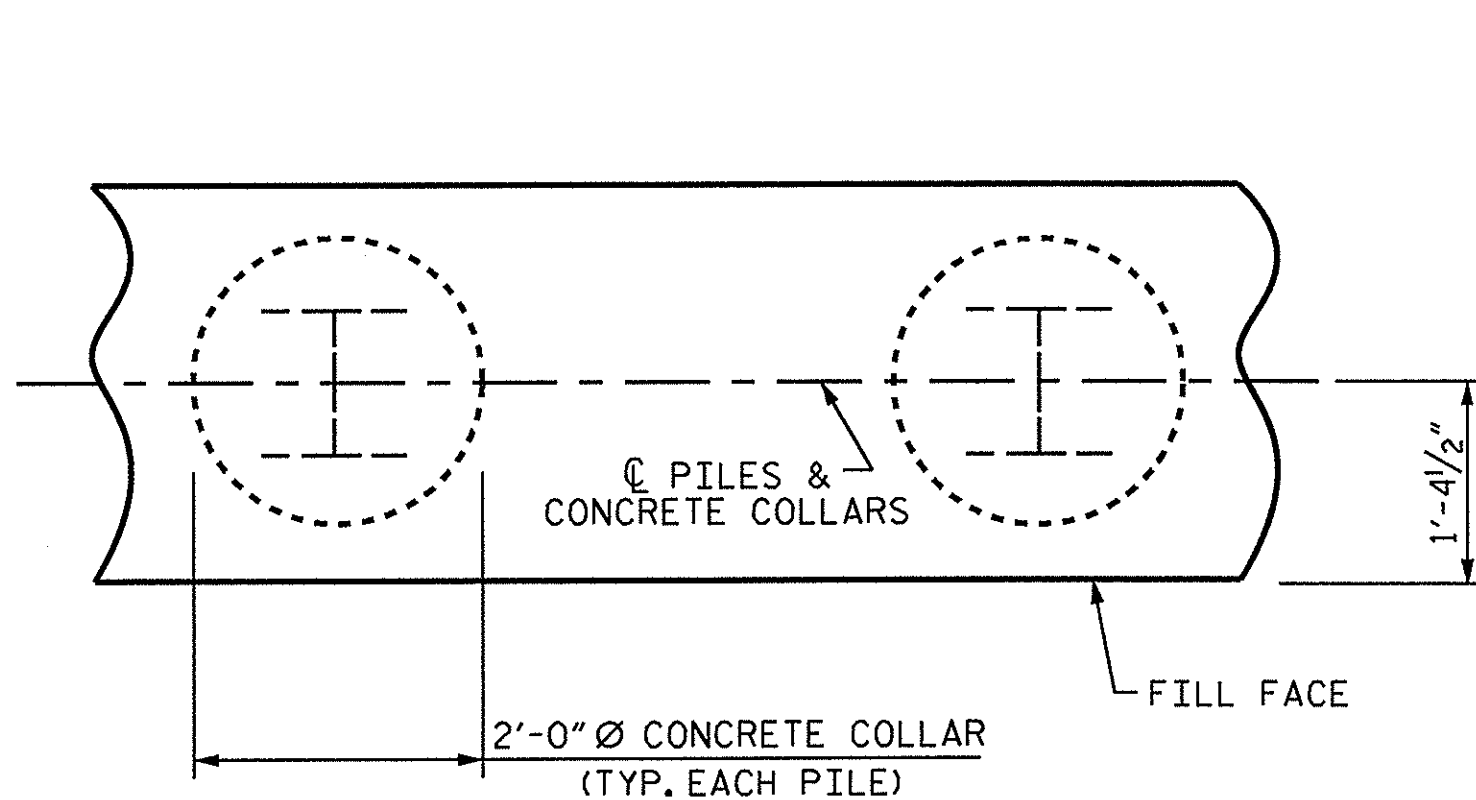
DETAIL "A"

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



LATERAL GUIDE DETAILS

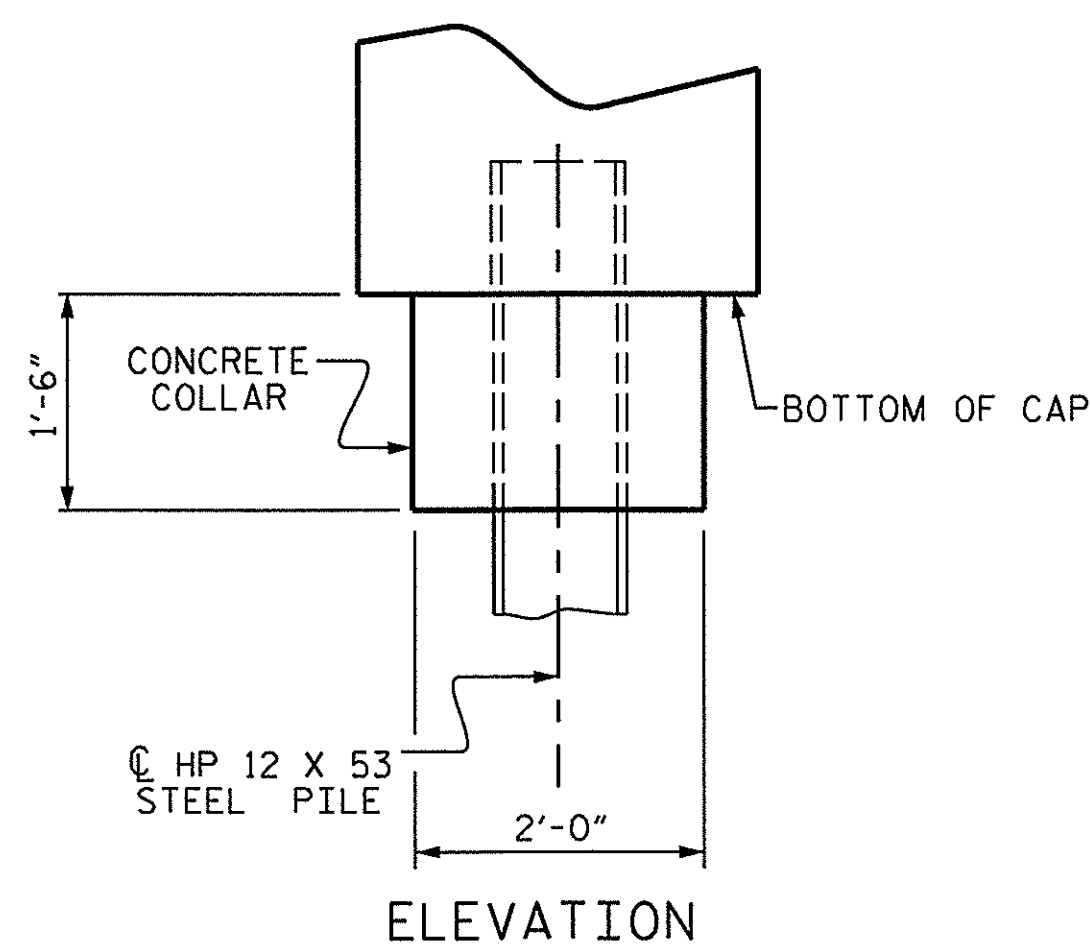
(RIGHT LATERAL GUIDE SHOWN, LEFT END SIMILAR)



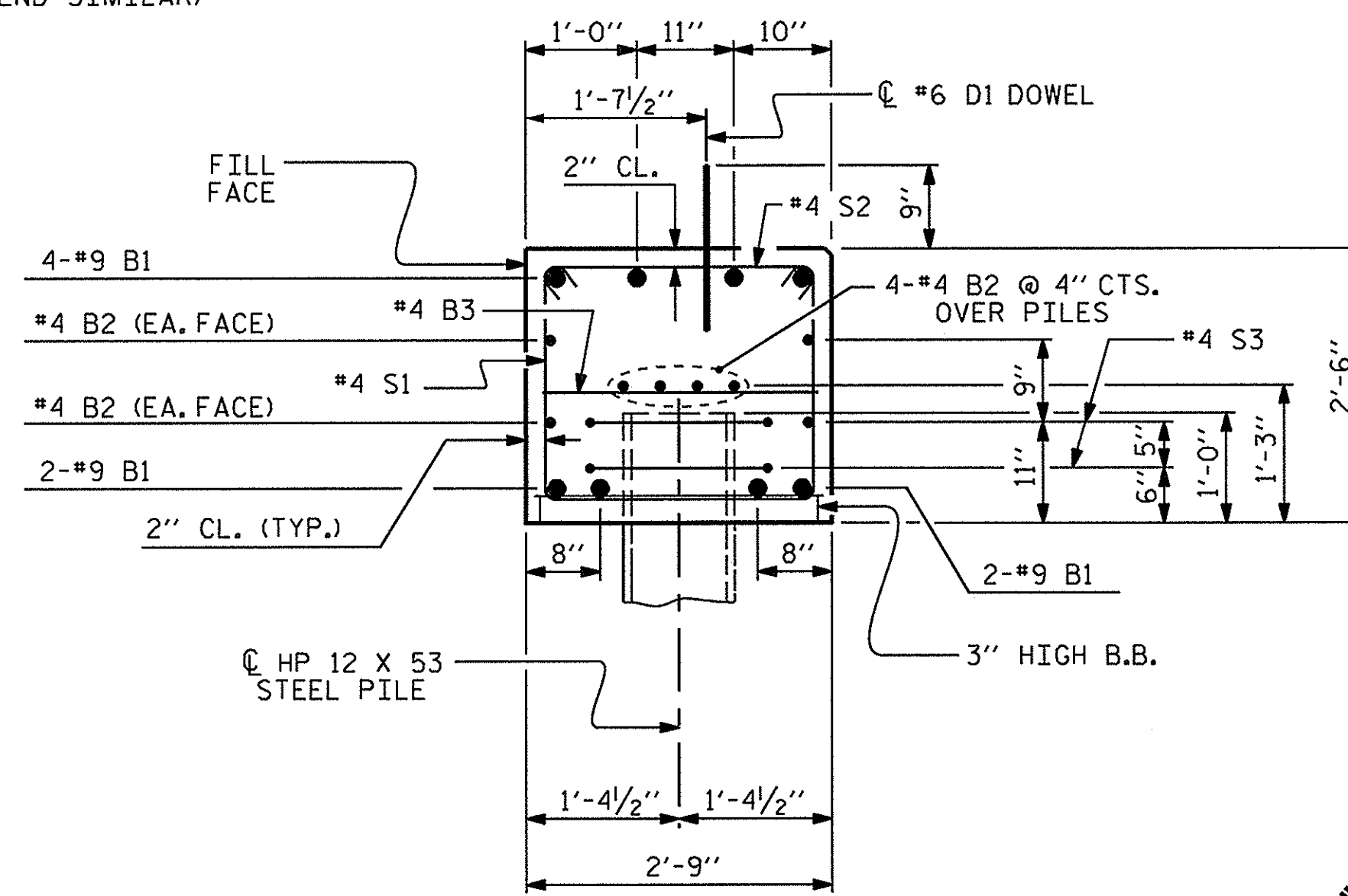
PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

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



ELEVATION



SECTION A-A

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

PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1 & 2
 DETAILS

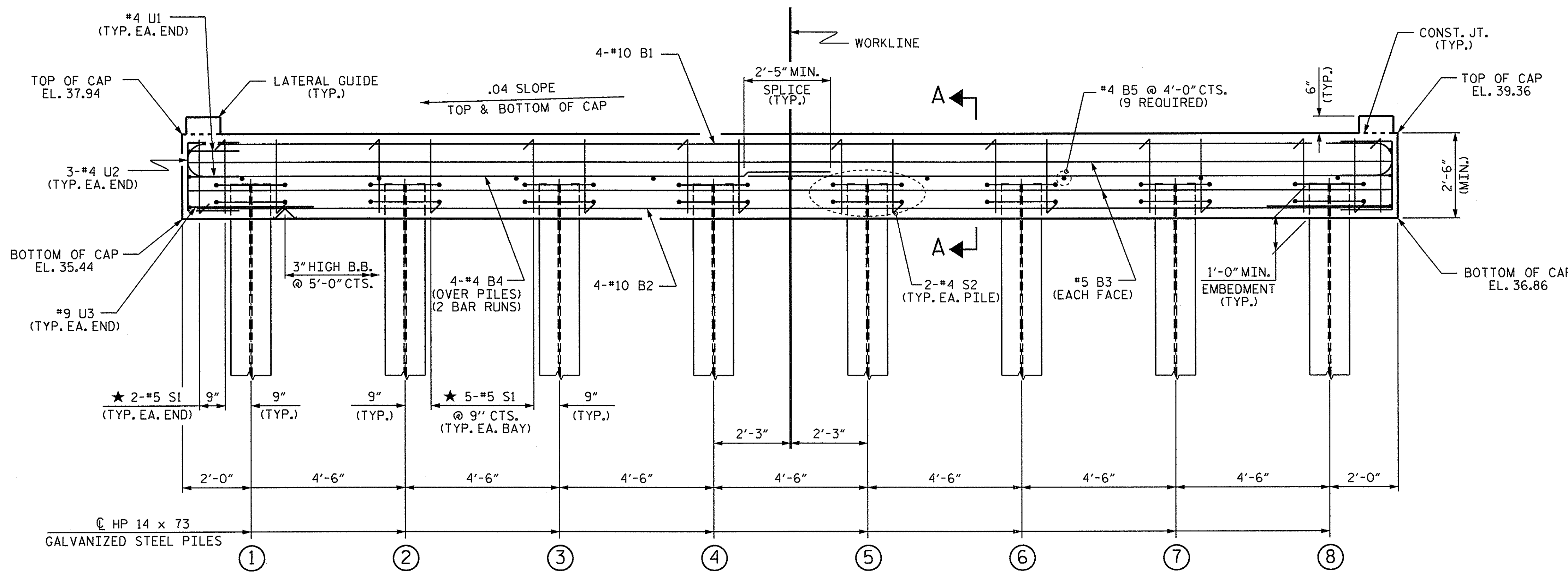
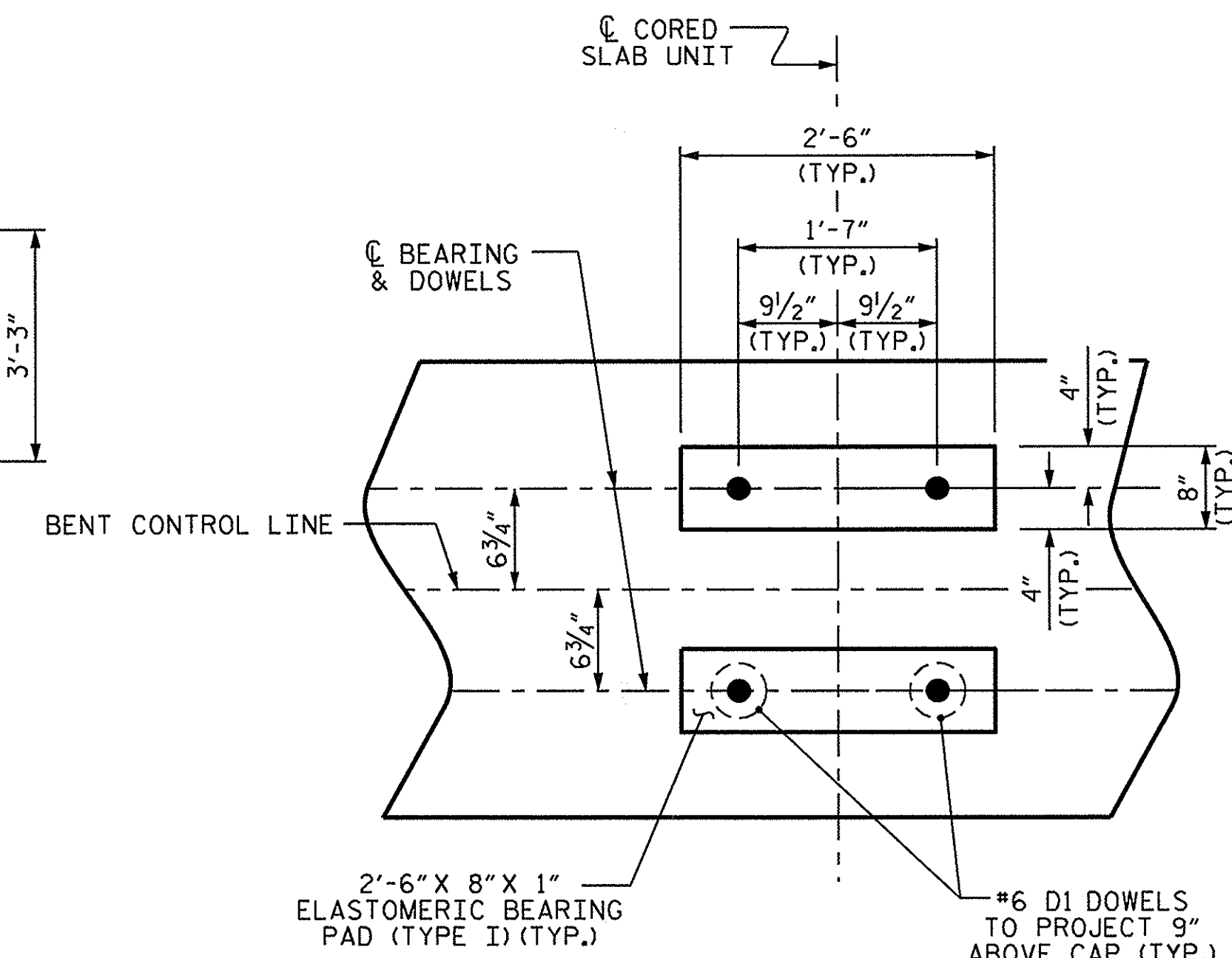
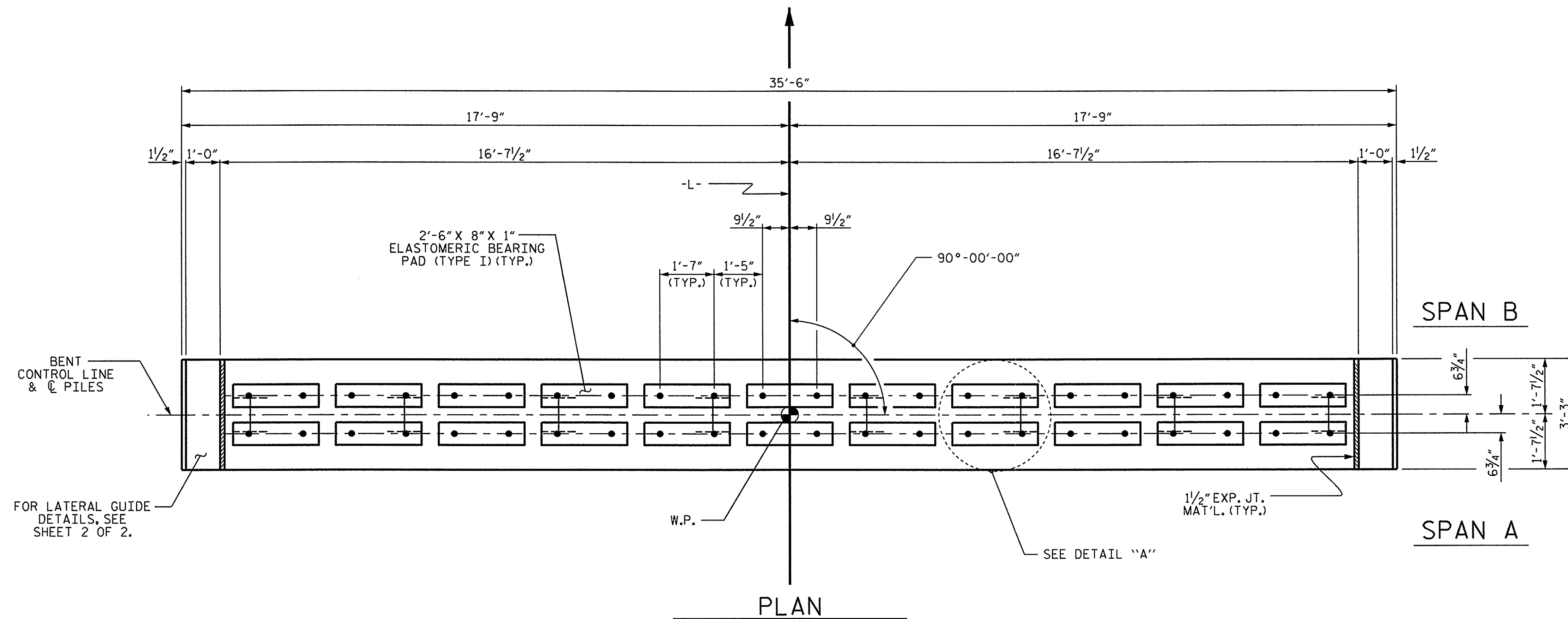


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14	
1			3			TOTAL SHEETS	
2			4			18	

ASSEMBLED BY : E. K. POPE	DATE : 5-23-12
CHECKED BY : G. KOUCHEKI	DATE : 5-24-12
DRAWN BY : DGE	02/10
CHECKED BY : MKT	02/10

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.
- ★ INVERT ALTERNATE STIRRUPS.
- GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.



TOP OF PILE ELEVATIONS

①	36.52
②	36.70
③	36.88
④	37.06
⑤	37.24
⑥	37.42
⑦	37.60
⑧	37.78

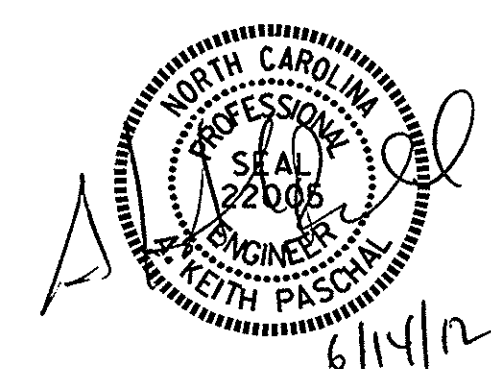
PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

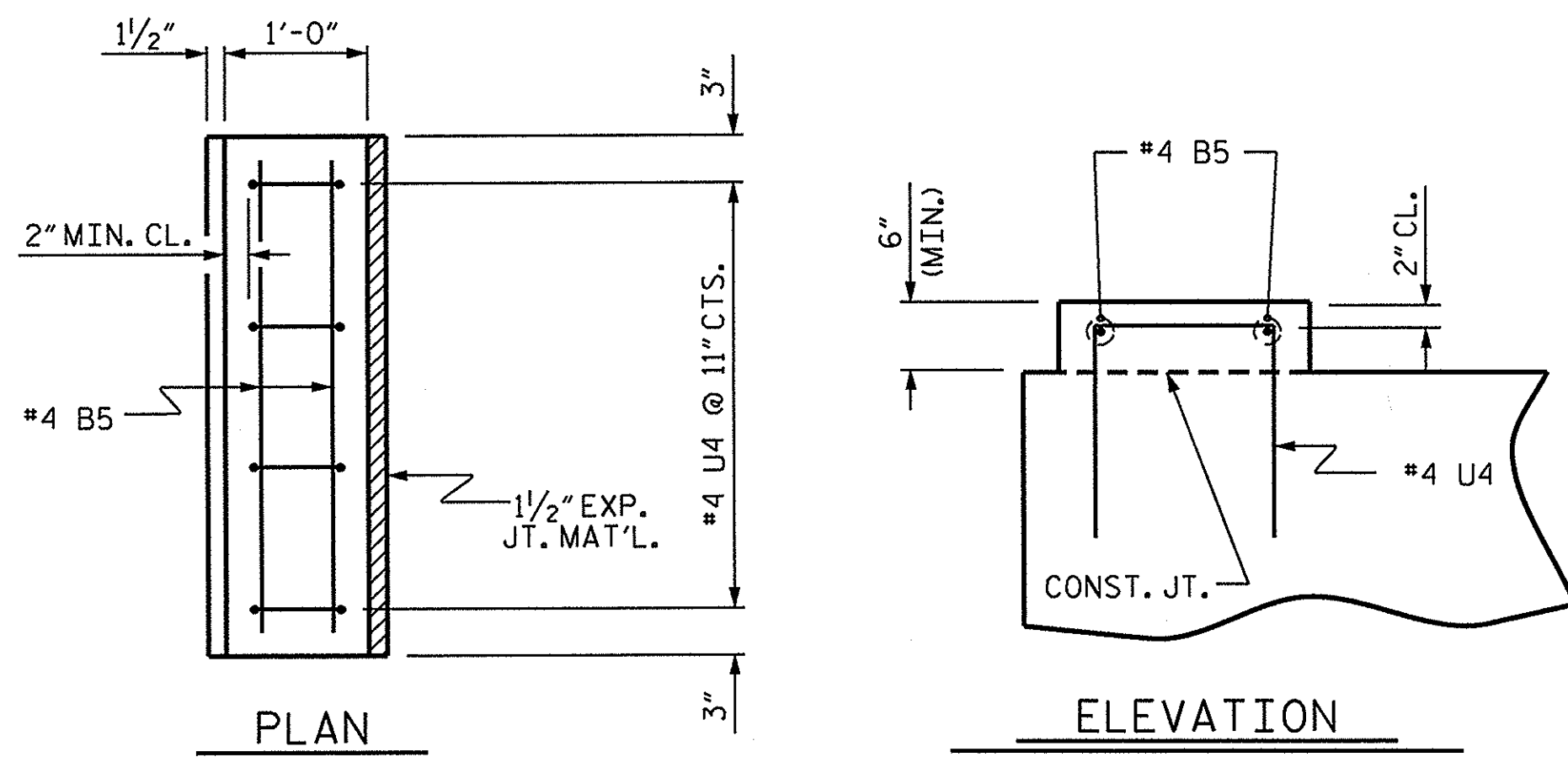
SUBSTRUCTURE BENT No. 1

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	18
2			4				

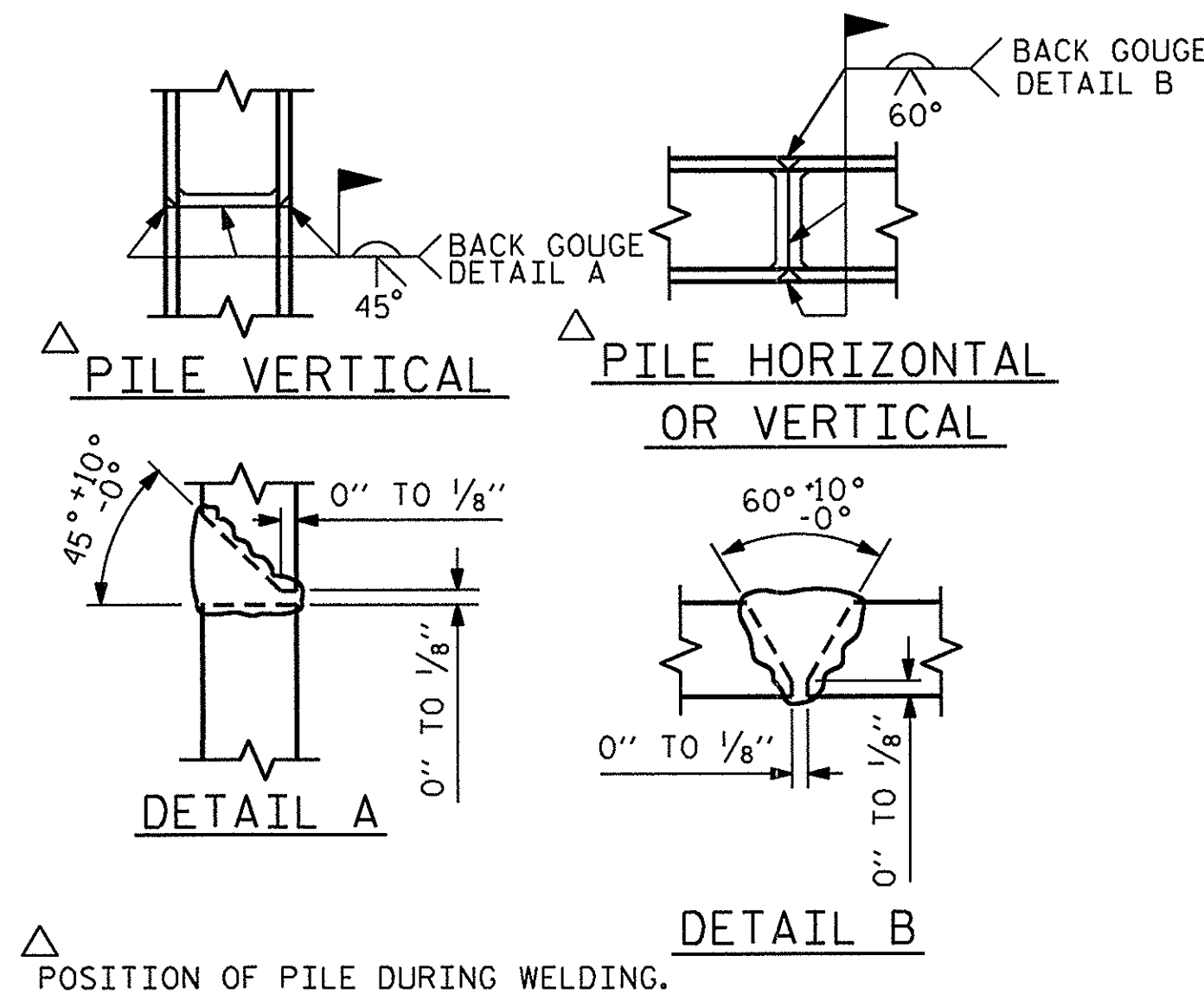


ASSEMBLED BY: E. K. POPE DATE: 5-23-12
 CHECKED BY: G. KOUCHEKI DATE: 5-24-12
 DRAWN BY: DGE 05/10
 CHECKED BY: MKT 05/10

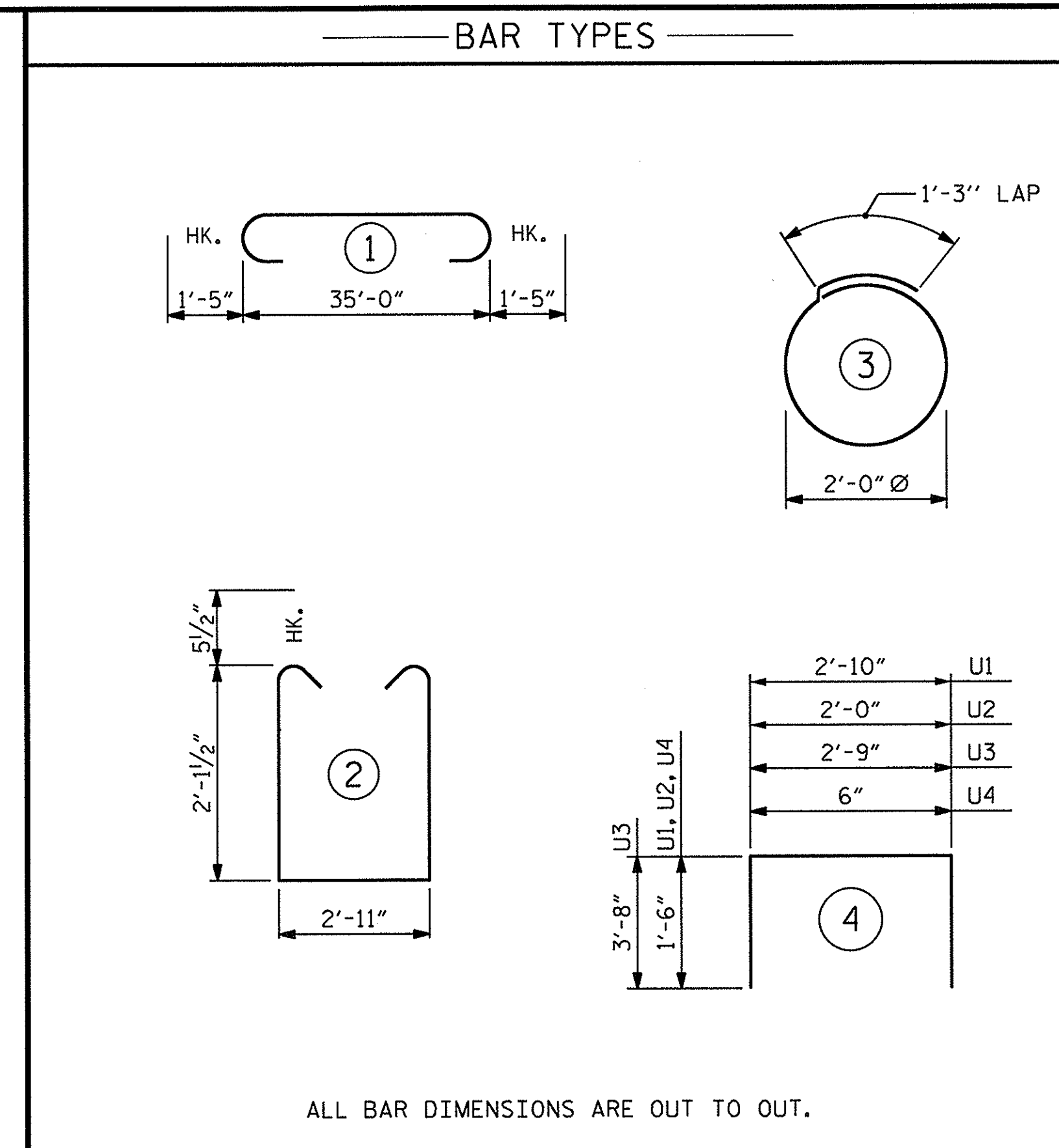
13-JUN-2012 15:19
 S:\DPG1\kpi+h\BD-5102N\Final Plans\BD5102N.SD_CS_2.dgn
 kposchal



LATERAL GUIDE DETAILS
(LEFT LATERAL GUIDE SHOWN, RIGHT SIDE SIMILAR)



PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR ONE BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	37'-10"	651
B2	4	#10	STR	35'-2"	605
B3	4	#5	STR	35'-2"	147
B4	8	#4	STR	18'-10"	101
B5	13	#4	STR	2'-11"	25
D1	44	#6	STR	1'-6"	99
S1	39	#5	2	8'-1"	329
S2	16	#4	3	7'-7"	81
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
U4	8	#4	4	3'-6"	19

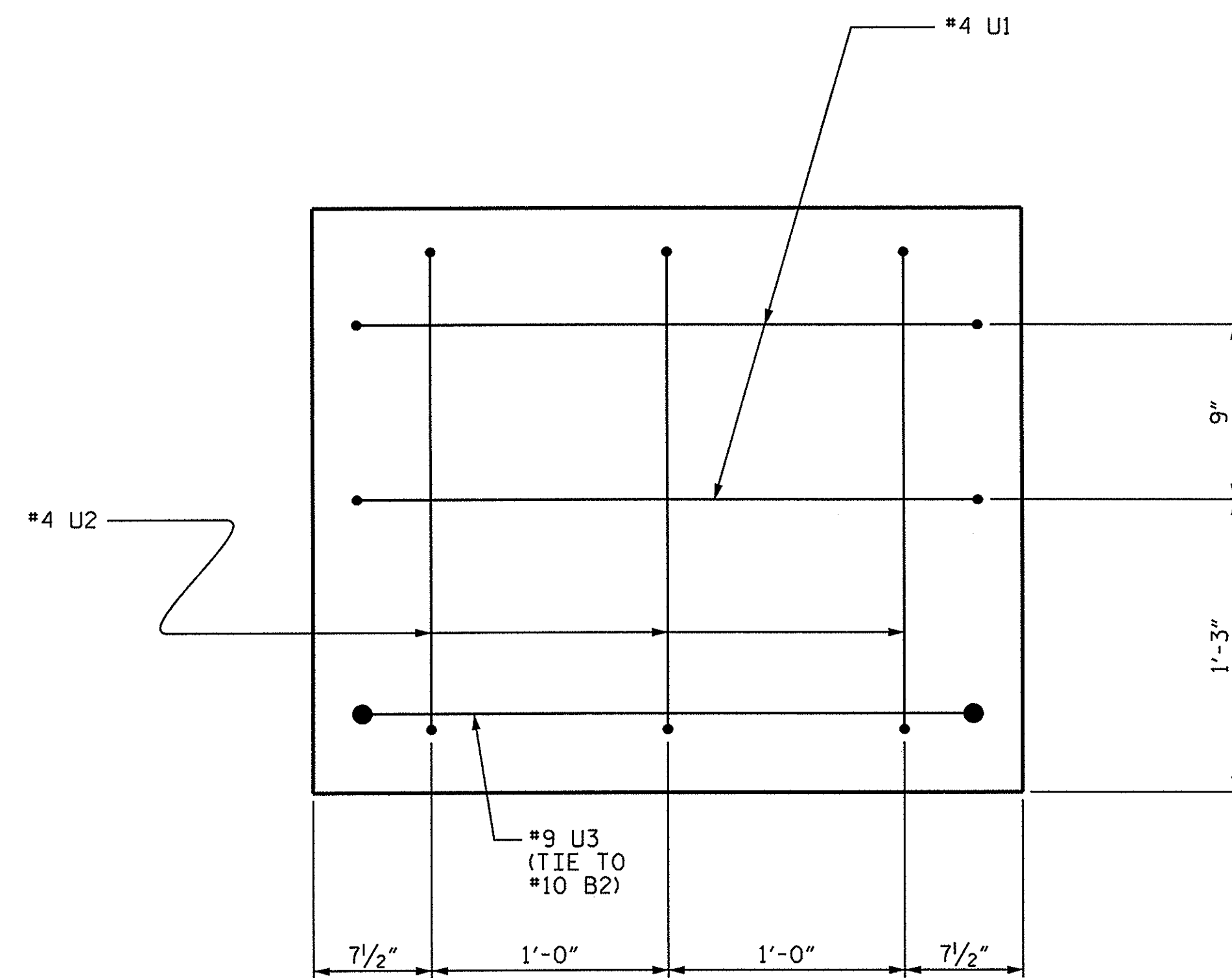
REINFORCING STEEL (FOR ONE BENT) 2162 LBS

CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)

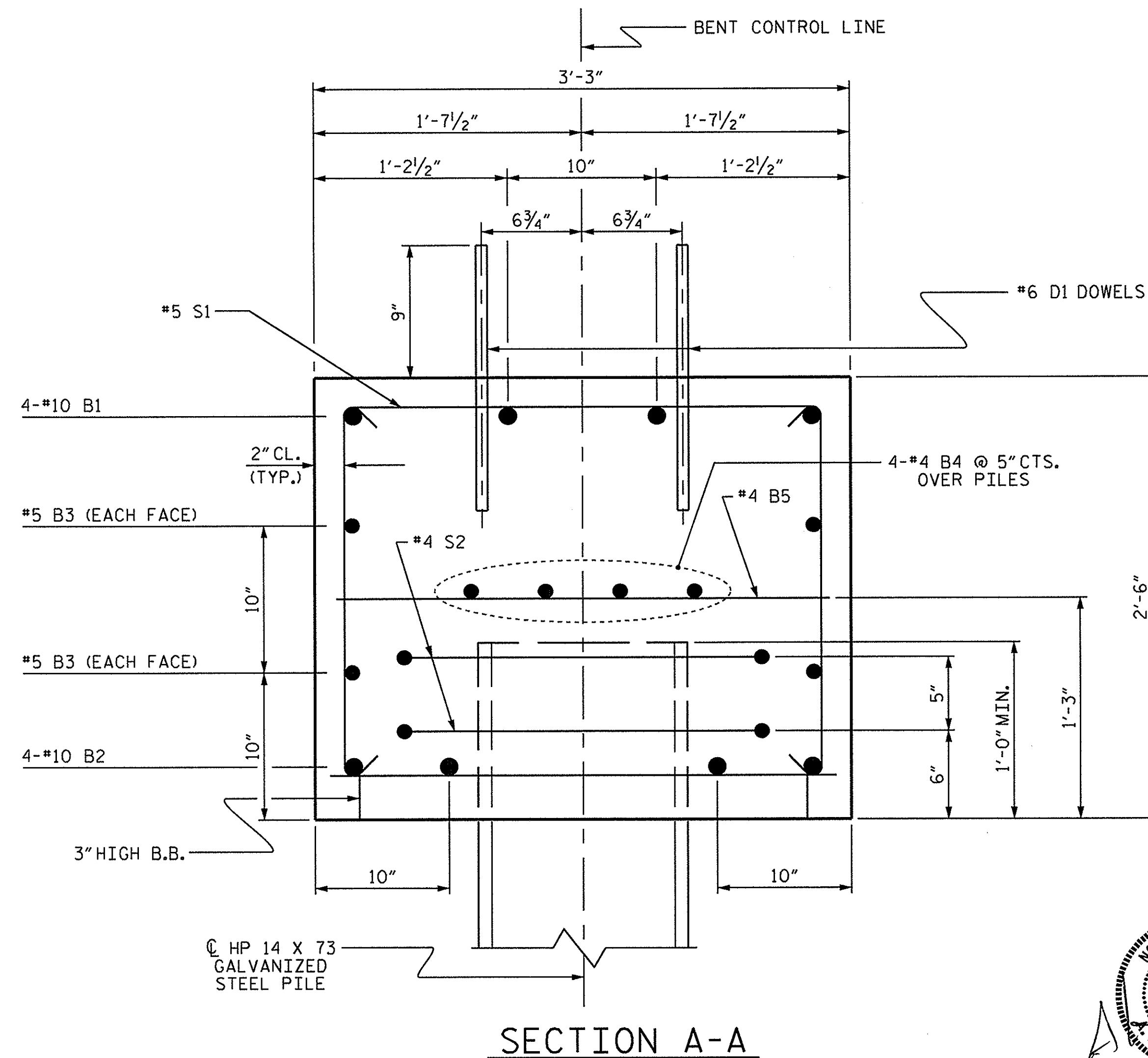
POUR #1 (CAP)	10.7 C.Y.
POUR #2 (LATERAL GUIDES)	0.1 C.Y.
TOTAL CLASS A CONCRETE	10.8 C.Y.

HP 14 X 73 GALVANIZED STEEL PILES (FOR ONE BENT)

No. 8	LIN. FT.	560
PILE REDRIVES EA.	NO. =	4
STEEL PILE POINTS	NO. =	8
PDA TESTING EA.	NO. =	1



END OF CAP VIEW
(TYPICAL BOTH ENDS)



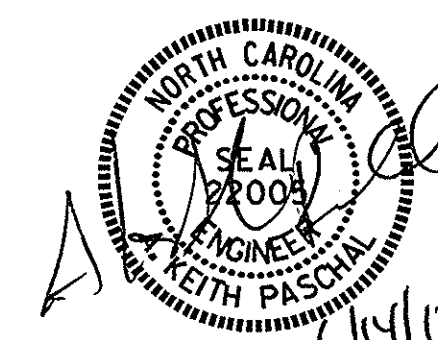
SECTION A-A

PROJECT NO. BD-5102N
GREENE COUNTY
STATION: 15+55.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT No. 1



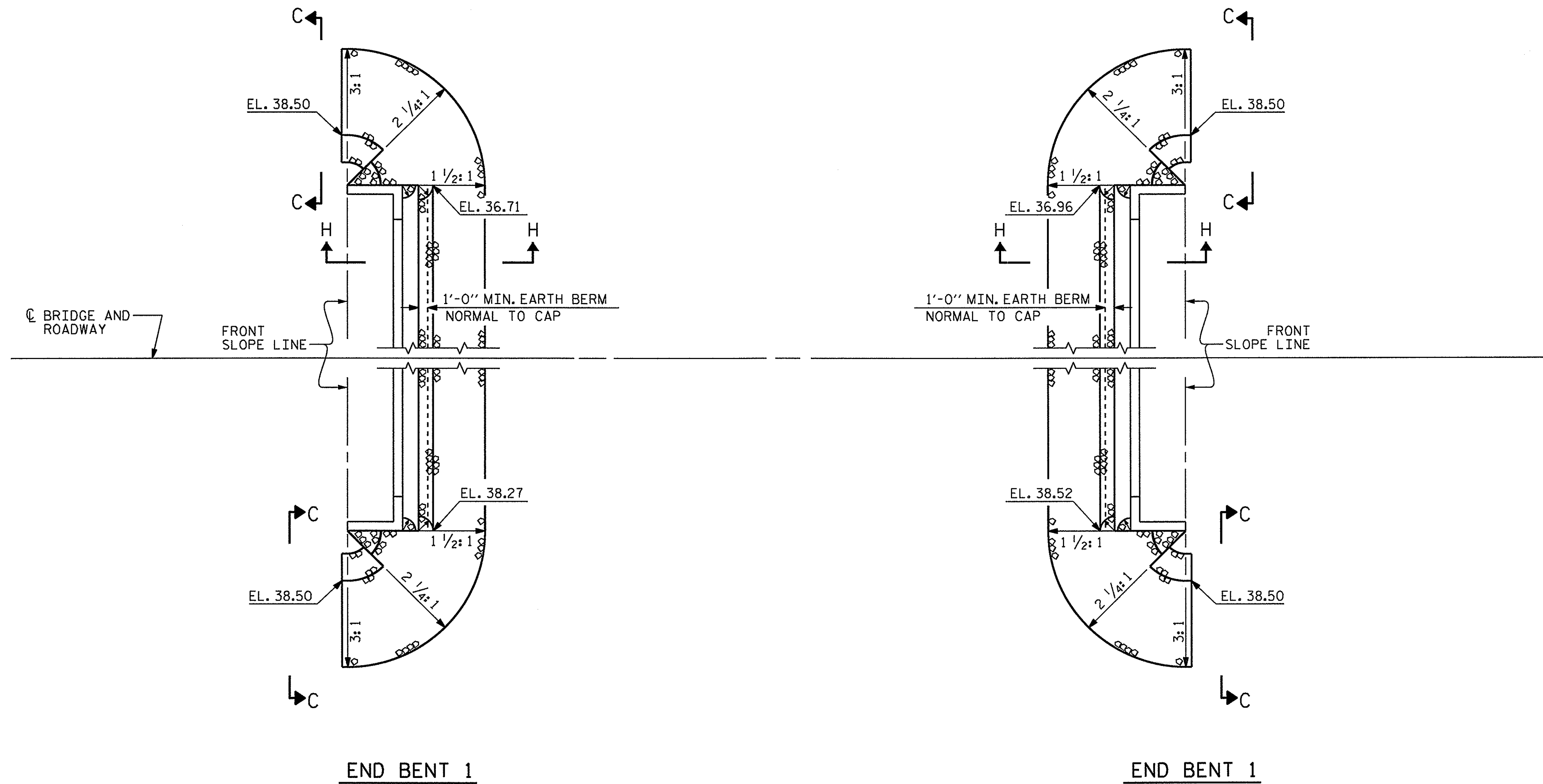
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS 18
2			4			

DRAWN BY: E. K. POPE DATE: 5-23-12
CHECKED BY: G. KOUCHEKI DATE: 5-24-12
DRAWN BY: DGE 05/10
CHECKED BY: MKT 05/10

13-JUN-2012 15:33
S:\DPG1\Keith\BD-5102N\Final Plans\BD5102N_SD_CS_2.dgn
Kpaschal

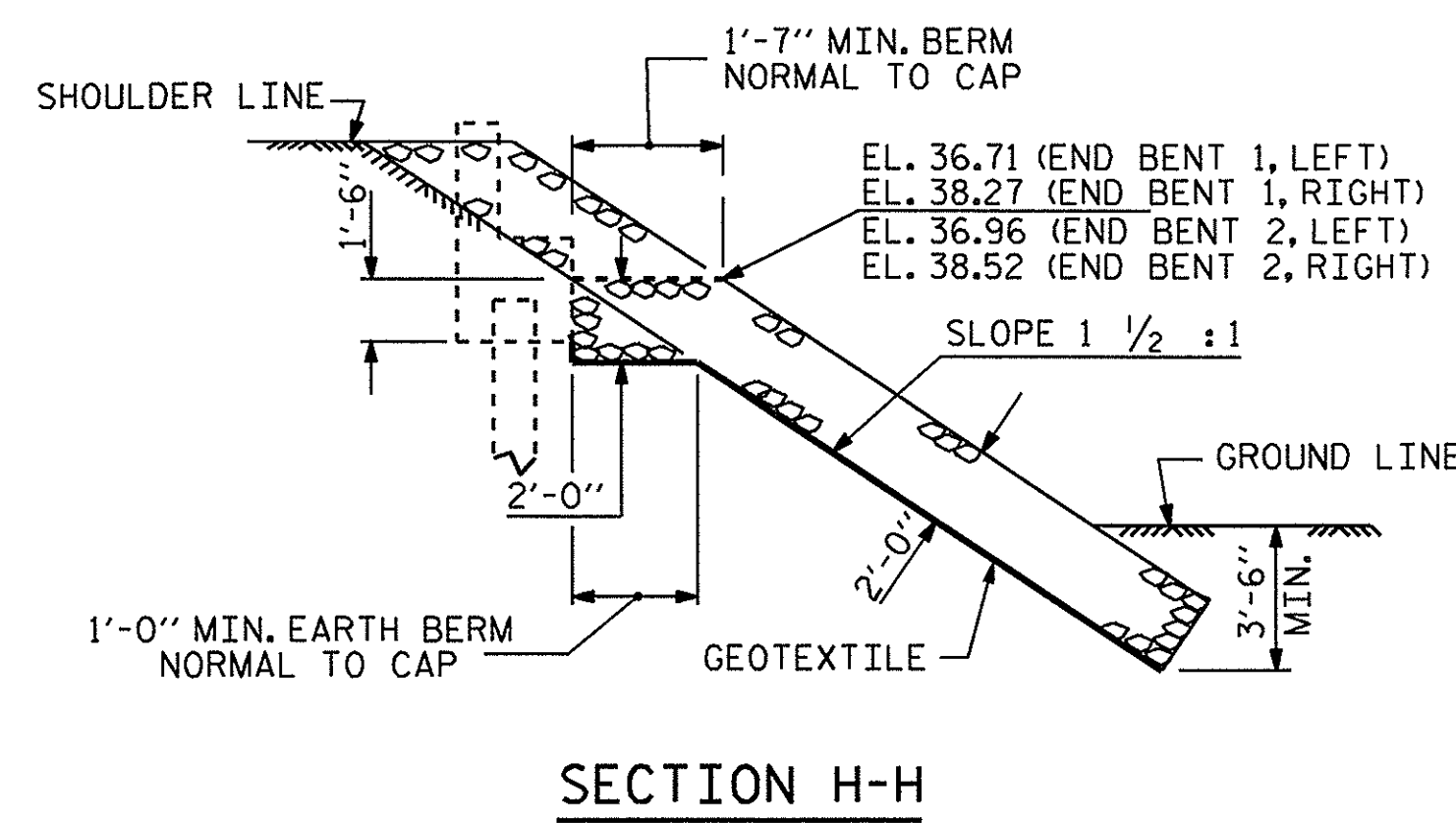
STD. NO. 14" HP_BT_33_90S_<60'

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

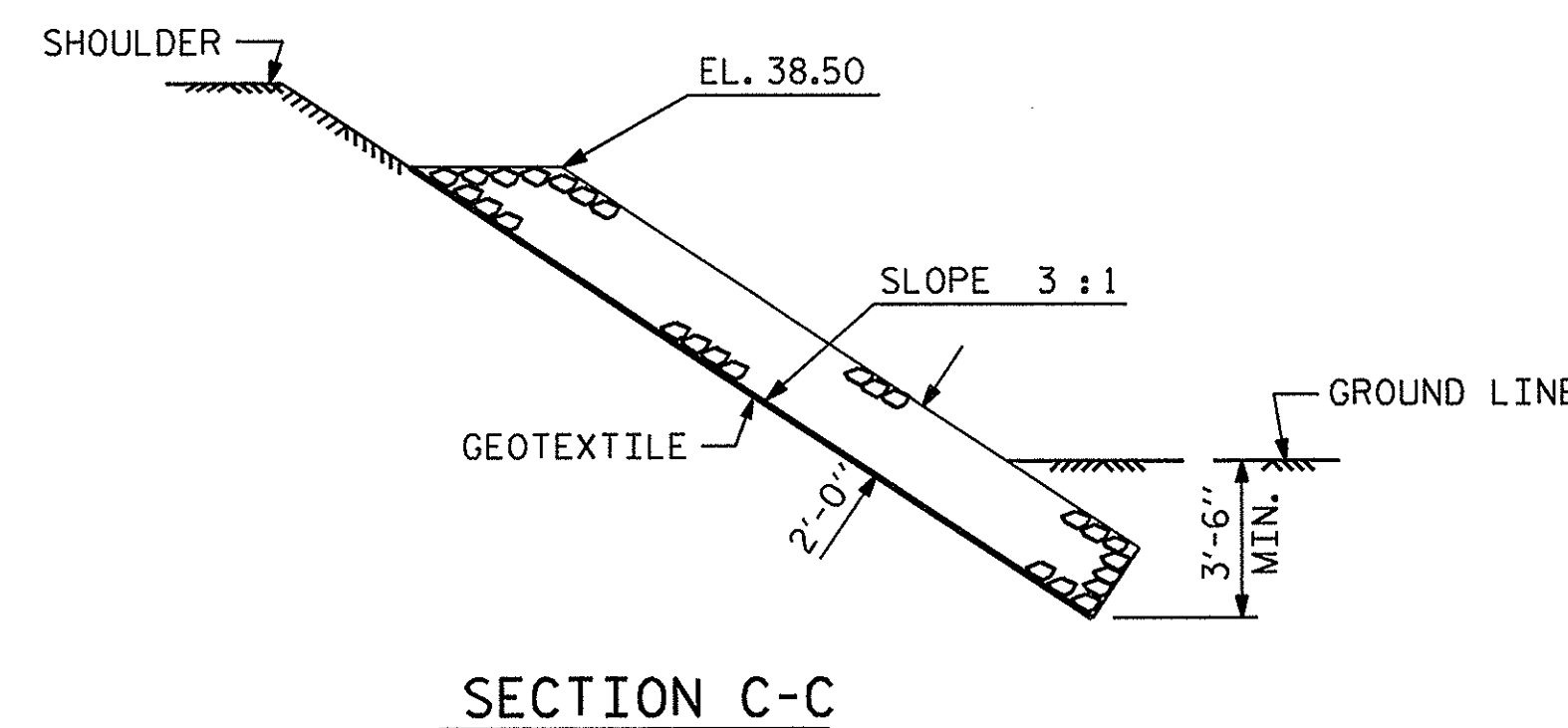


PLAN OF RIP RAP

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+55.50 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	121	135
END BENT 2	126	140



SECTION H-H

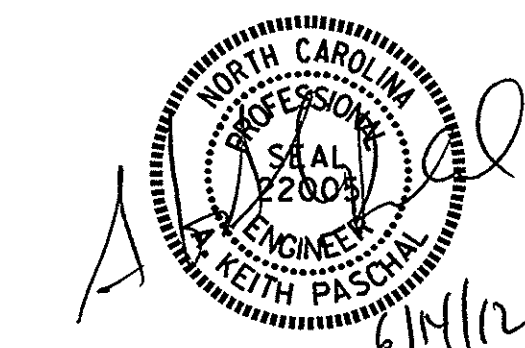


SECTION C-C

PROJECT NO. BD-5102N
GREENE COUNTY
STATION: 15+55.50 -L-

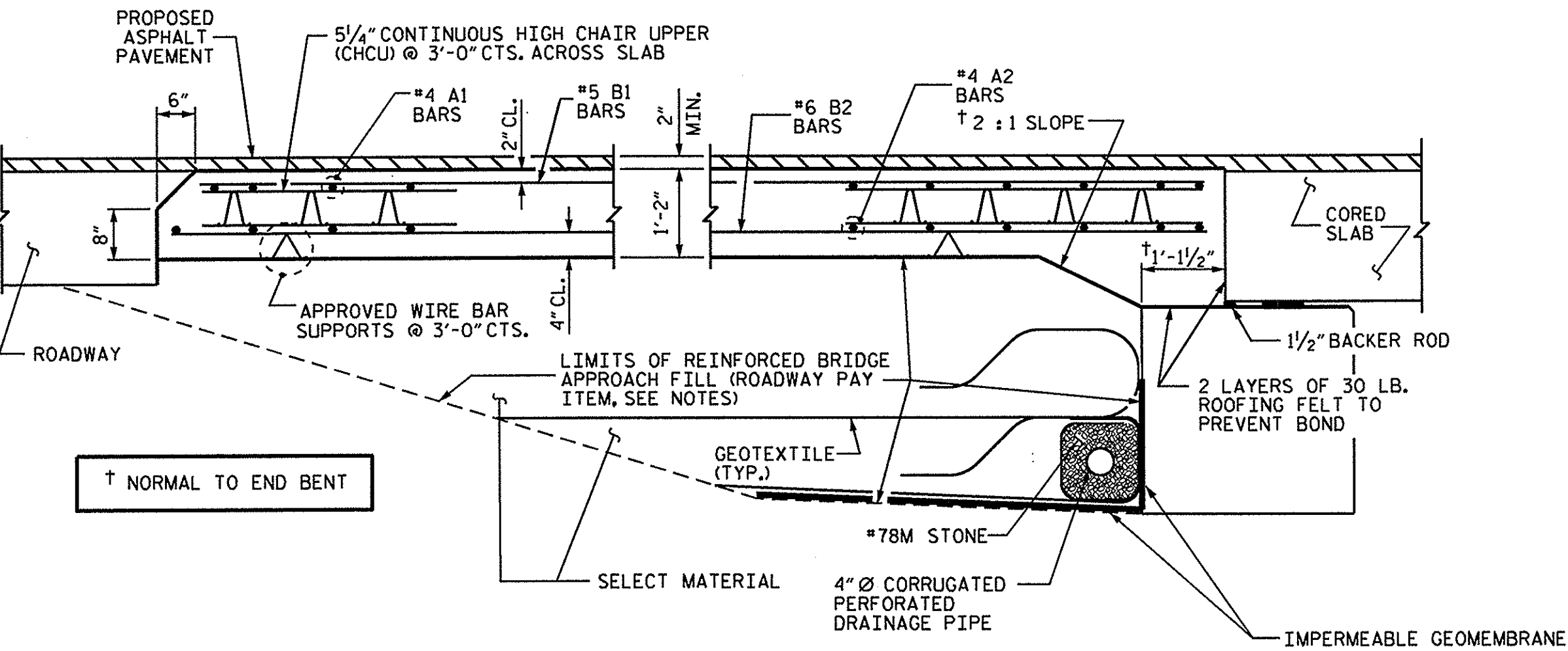
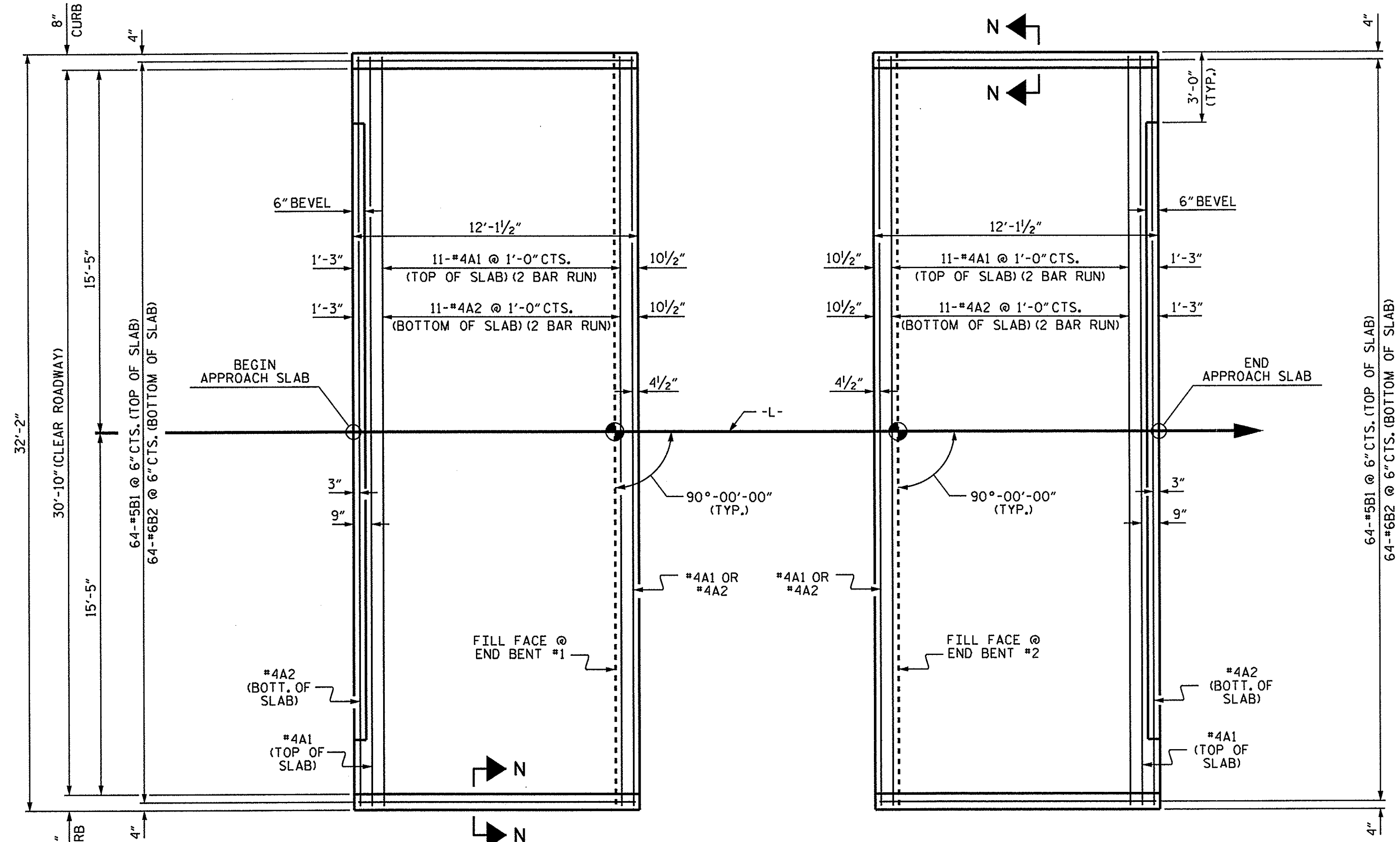
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
= RIP RAP DETAILS =

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17	
1			3			TOTAL	18
2			4			SHEETS	



ASSEMBLED BY : E. K. POPE DATE : 5-23-12
CHECKED BY : G. KOUCHEKI DATE : 5-24-12
DRAWN BY : REK 1/84
CHECKED BY : RDU 1/84

REV. 5/1/06R TLA/GM
REV. 10/1/11 MAA/GM
REV. 12/21/11 MAA/GM

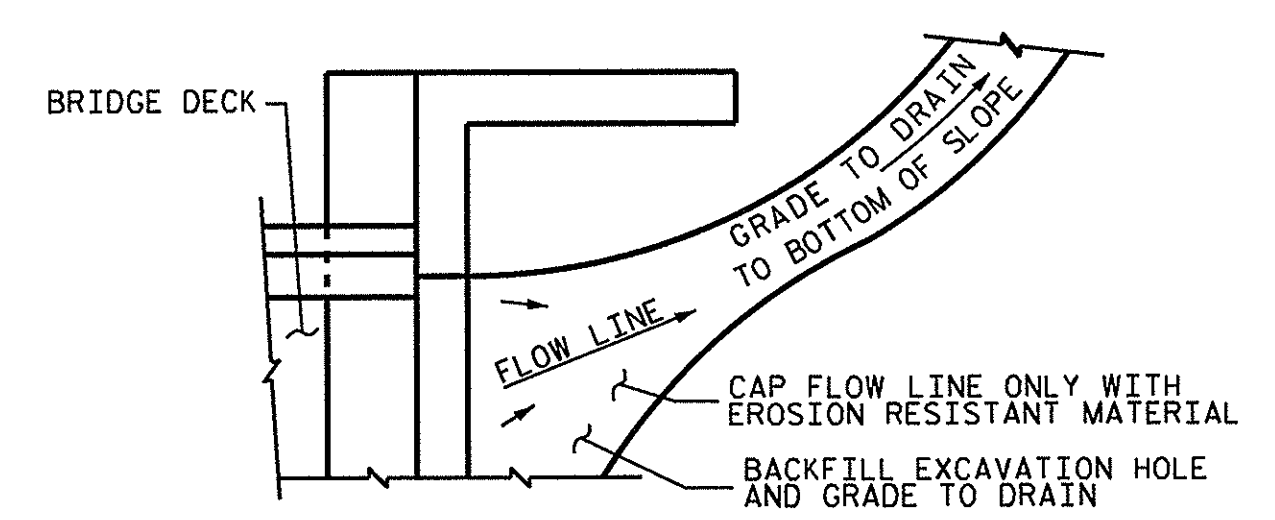


NOTES

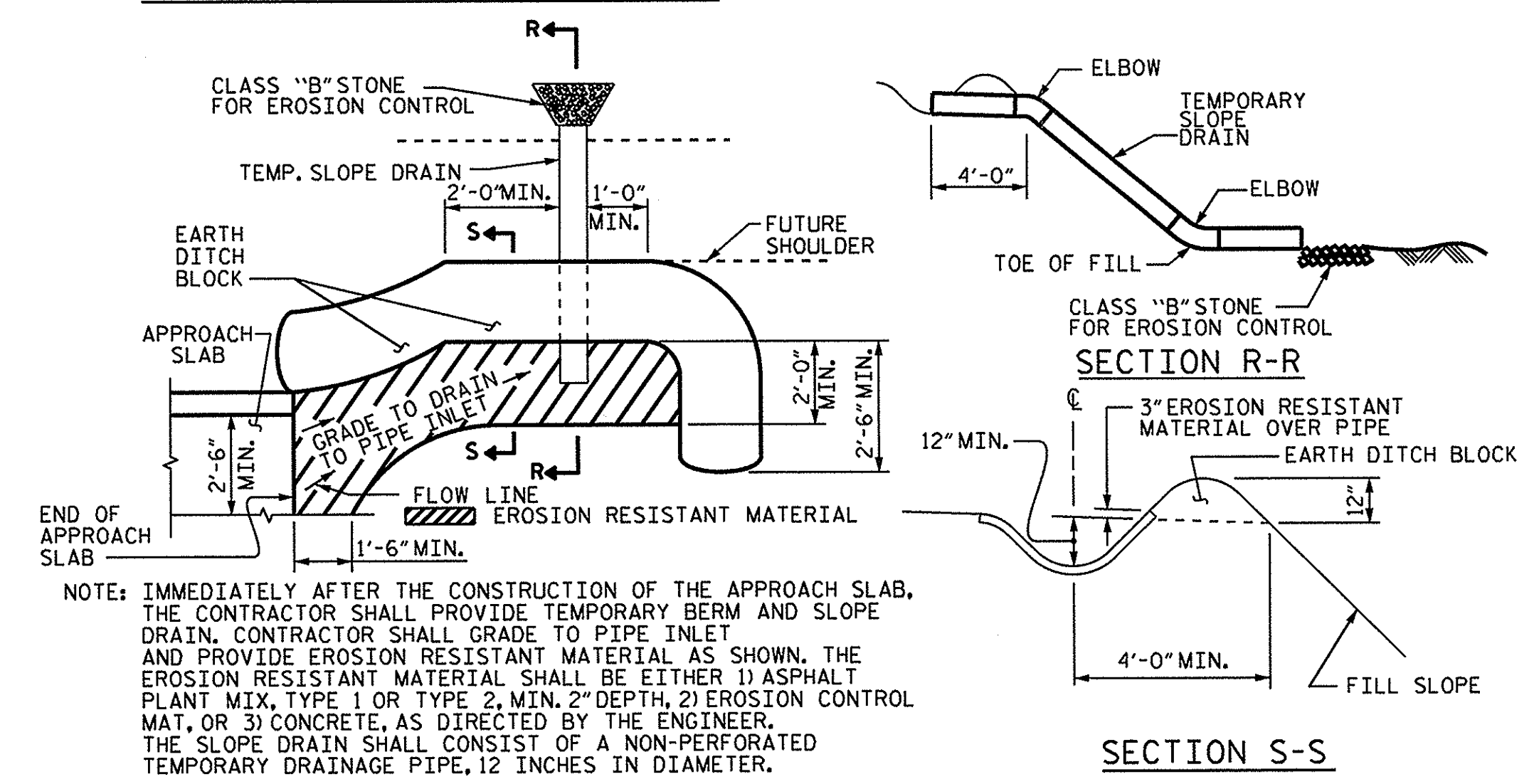
FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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

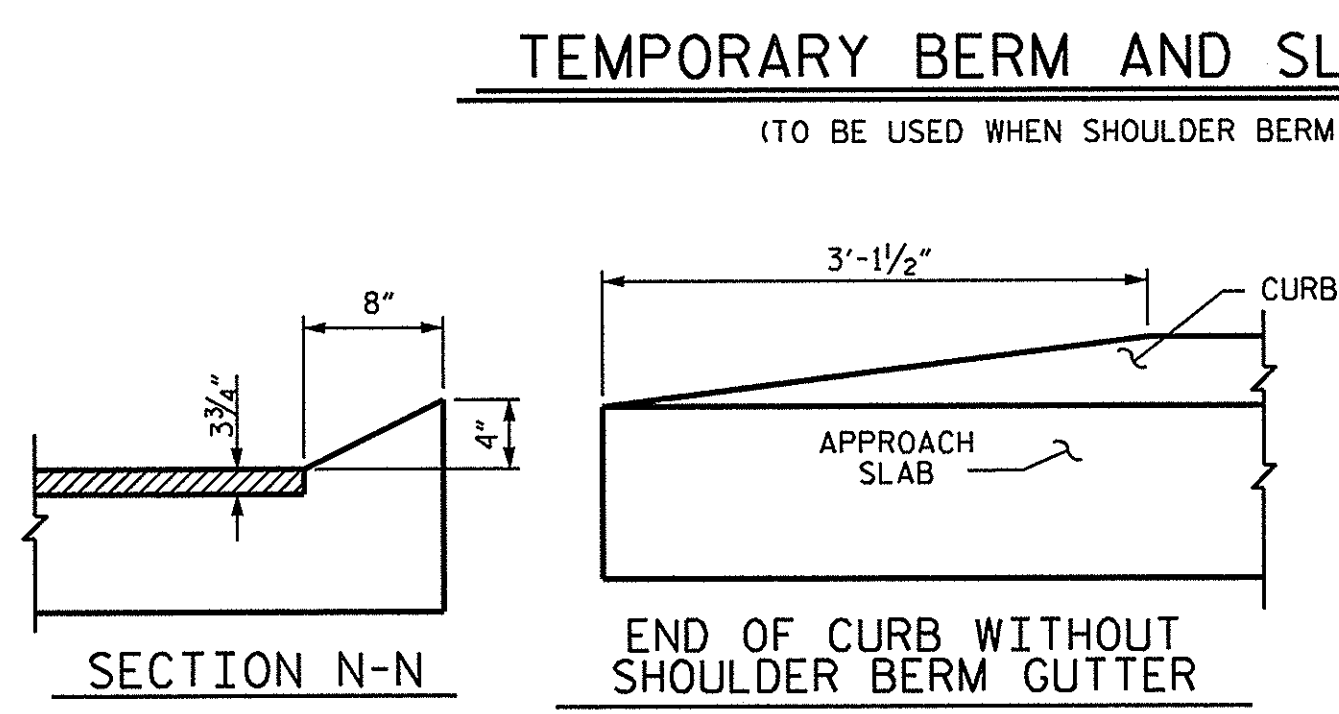
APPROACH SLAB GROOVING IS NOT REQUIRED.



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

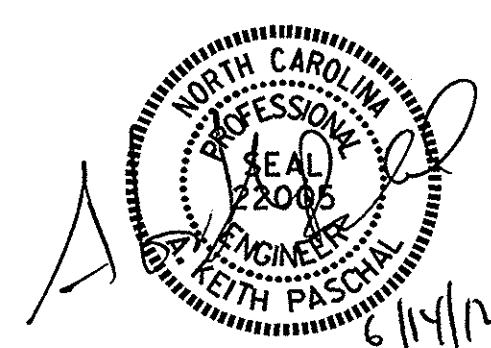


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



SPLICE LENGTHS

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



BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	16'-11"	294	
A2	26	#4	STR	16'-9"	291	
*B1	64	#5	STR	11'-2"	745	
B2	64	#6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1412
* EPOXY COATED REINFORCING STEEL					LBS.	1039
CLASS AA CONCRETE					C. Y.	18.6

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	16'-11"	294	
A2	26	#4	STR	16'-9"	291	
*B1	64	#5	STR	11'-2"	745	
B2	64	#6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1412
* EPOXY COATED REINFORCING STEEL					LBS.	1039
CLASS AA CONCRETE					C. Y.	18.6

PROJECT NO. BD-5102N
GREENE COUNTY
 STATION: 15+55.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

REVISIONS		SHEET NO.	
NO.	BY:	DATE:	TOTAL SHEETS
1			S-18
2			18

ASSEMBLED BY : E. K. POPE DATE : 5-23-12
 CHECKED BY : G. KOUCHEKI DATE : 5-24-12
 DRAWN BY : SHS/MAA 5-09 REV. 12-11 MAA/AAC
 CHECKED BY : BCH 5-09

