

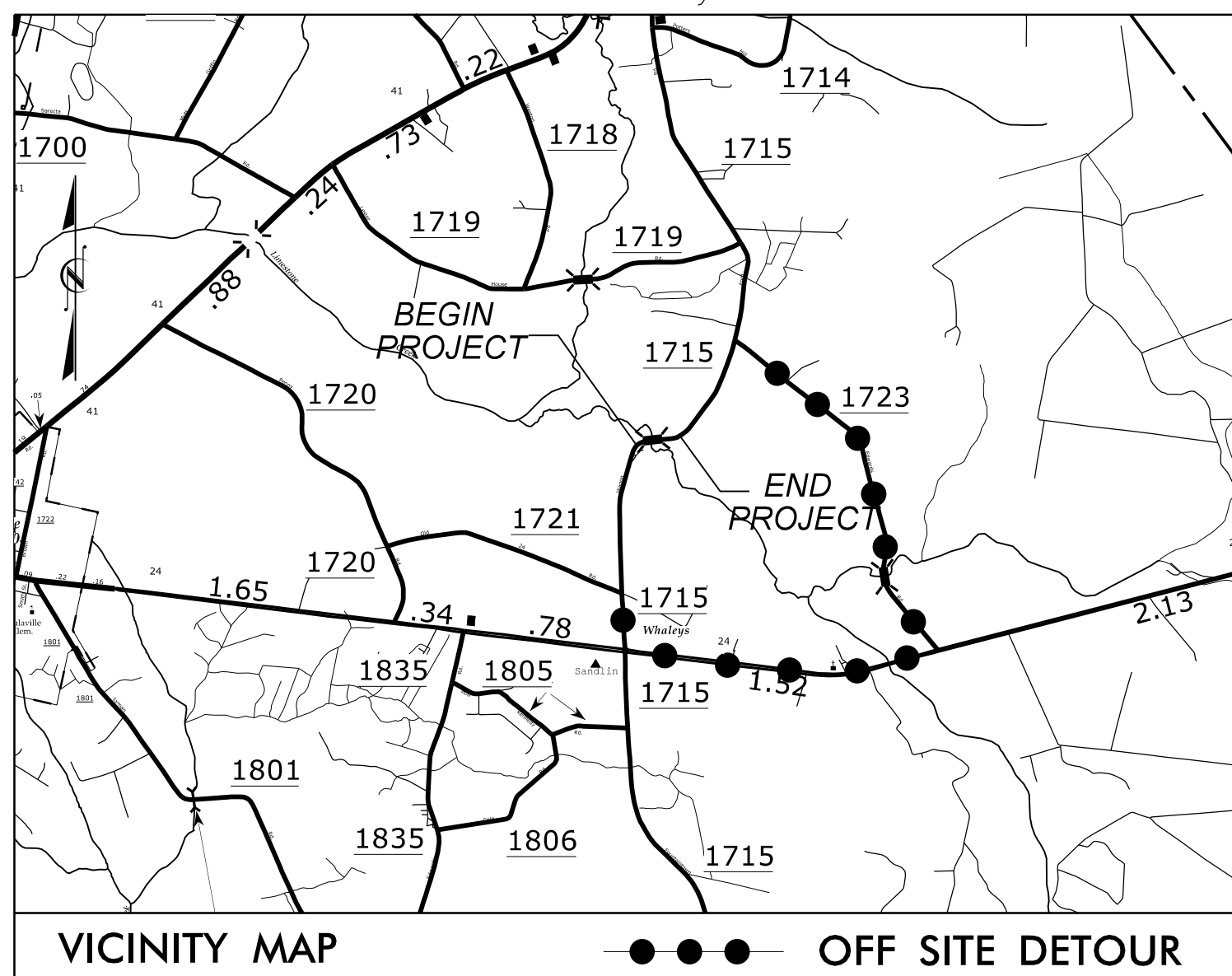
09/08/99

PROJECT: 17BP.3.R.36

CONTRACT:

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



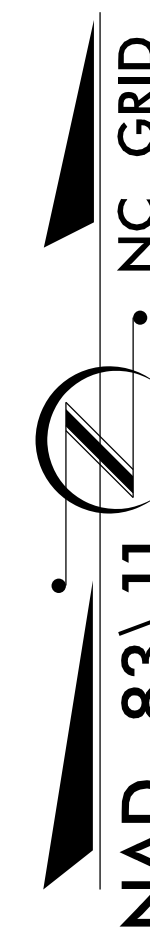
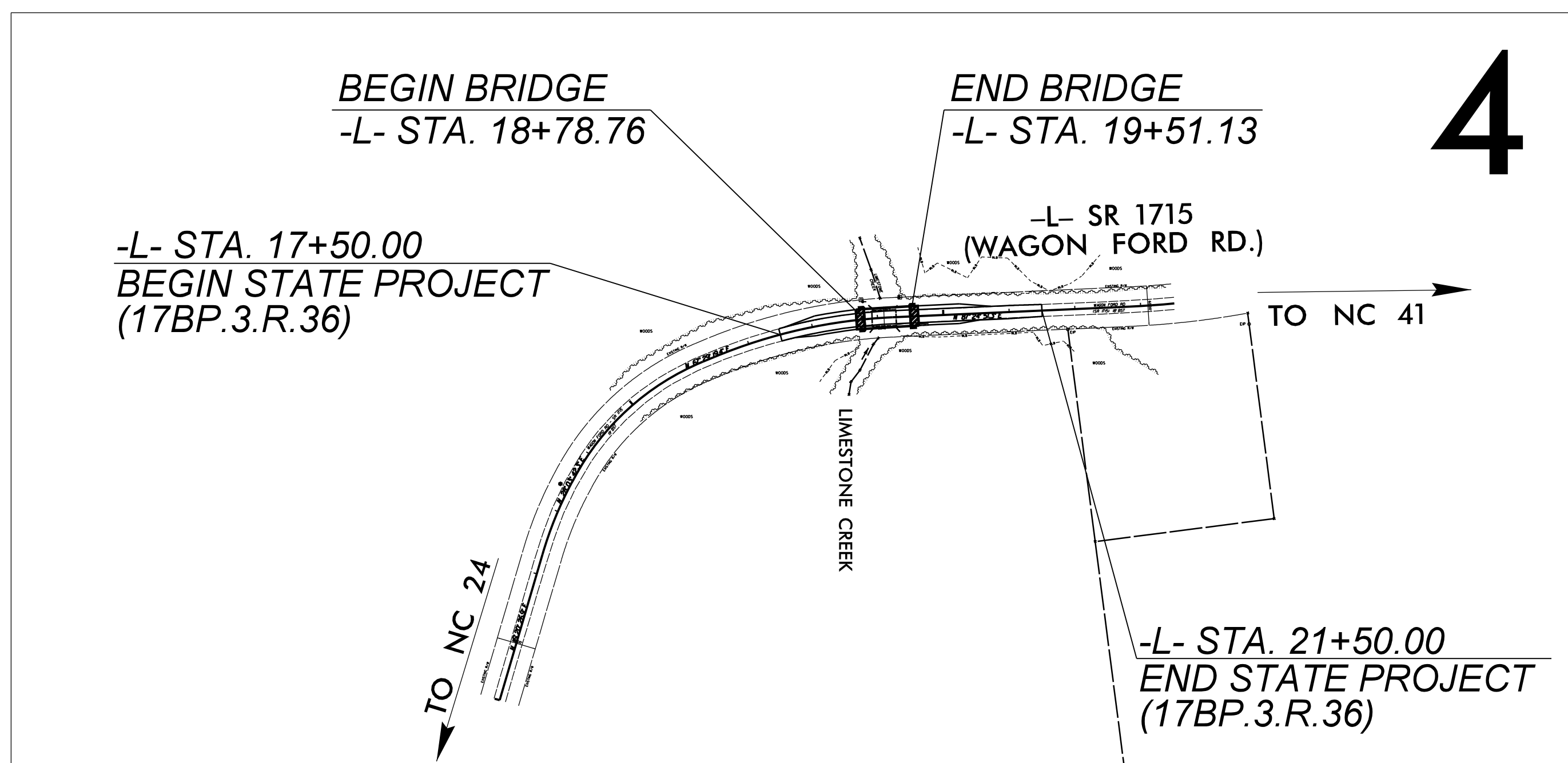
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DUPLIN COUNTY

LOCATION: BRIDGE NO.162 OVER LIMESTONE CREEK ON
SR 1715 (WAGON FORD RD.)

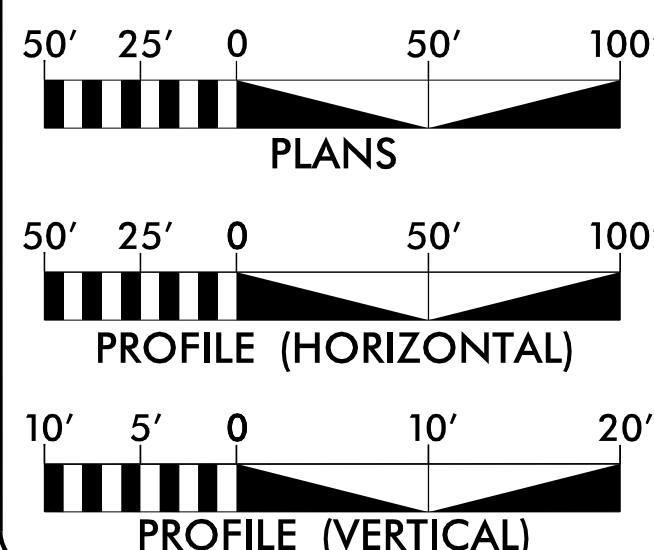
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.R.36	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.3.R.36		PE, RW, UTIL, CONST	



PREPARED FOR
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, NC
PLANS COORDINATED BY: Trevor Carroll
- Div. 3 Division Bridge Program Manager

GRAPHIC SCALES



DESIGN DATA

ADT 2009 = 810
ADT 2025 = 1000
K = N/A
D = N/A
T = N/A
V = 45 MPH
FUNC CLASS =
RURAL LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.3.R.36 = 0.063 Miles
TOTAL STRUCTURE PROJECT 17BP.3.R.36 = 0.013 Miles
TOTAL LENGTH STATE PROJECT 17BP.3.R.36 = 0.076 Miles

Prepared In the Office of:

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
NC License Number F-0159

ECOLOGICAL ENGINEERING
NC FIRM LICENSE No: F-1148
1151 SE Cary Parkway
Suite 101
Cary, NC 27518
(919) 557-9929

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 31, 2014

LETTING DATE:
JANUARY 7, 2016

BRIAN K. EASON, PE
PROJECT ENGINEER

DAVID W. MARTIN
PROJECT DESIGNER

TREVOR CARROLL
NCDOT CONTACT

HYDRAULICS ENGINEER

SEAL 20147

FRANK F. FLEMING
P.E.

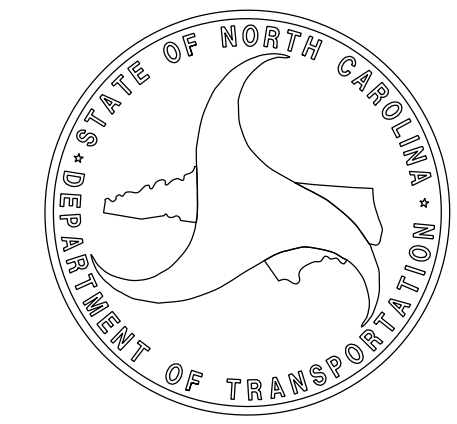
SIGNATURE: _____

ROADWAY DESIGN ENGINEER

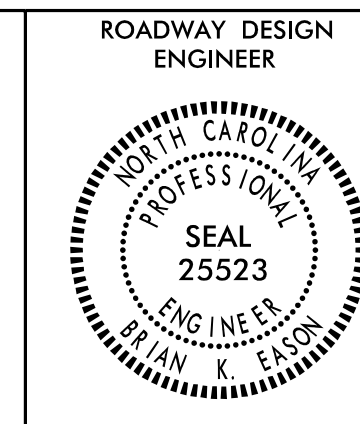
SEAL 25523

BRIAN K. EASON
P.E.

SIGNATURE: _____



7/22/2015
R:\Roadway\Proj\300162_rdy_tsh.dgn
LOCHNER



SHEET NUMBER	INDEX OF SHEETS 17BP.3.R.36
1	TITLE SHEET
1-A	INDEX OF SHEETS
1-B	CONVENTIONAL SUMBOLS
1-C	CENTERLINE COORDINATE LIST
2	"PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS"
3	"SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF EARTHWORK, ROW AREA DATA SUMMARY," "SUMMARY OF SHOULDER BERM GUTTER, GUARDRAIL SUMMARY, ASPHALT PAVEMENT REMOVAL SUMMARY"
4	PLAN & PROFILE SHEET
TMP-1 THRU TMP-2	TRANSPORTATION MANAGEMENT PLANS
SP-1	SIGN DESIGN PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITY BY OTHERS
X-A THRU X-3	CROSS-SECTIONS
S-1 THRU S-16	STRUCTURE PLANS

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 10/31/14

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.

SAFETY CLEARING:

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE AREAS IN THE PLANS DESIGNATED SAFETY CLEARING. THE LIMITS ARE AS SHOWN AND THE CLEARING AND GRUBBING IS CONSIDERED A PART OF THE LUMP SUM ITEM FOR "CLEARING AND GRUBBING".

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

GUARDRAIL:

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

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Time Warner Cable, Duplin County Water, Century Link
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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	
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

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
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	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ? ☠

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite R/W Marker	○
Proposed Control of Access Line with Concrete C/A Marker	○
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

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

Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	□
H-Frame Pole	●
Recorded U/G Power Line	-----
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:

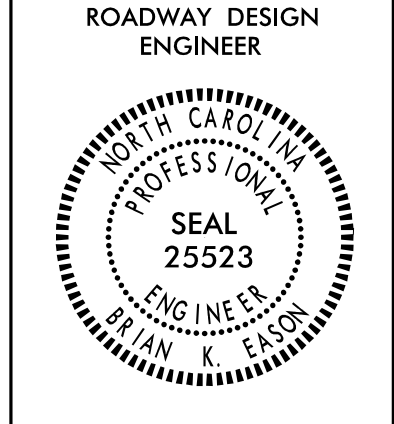
Gas Valve	◇
Gas Meter	⊕
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

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	AATUR
End of Information	E.O.I.



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

POINT NO.	SURVEY LINE	STATION	NORTHING (Y)	EASTING (X)
1	-L-	10+00.00	431,791.624	2,385,626.926
2	-L-	10+50.00	431,839.605	2,385,640.994
3	-L-	11+00.00	431,887.585	2,385,655.061
4	-L-	11+50.00	431,935.565	2,385,669.129
5	-L-	12+00.00	431,983.545	2,385,683.196
6	-L-	12+50.00	432,031.433	2,385,697.568
7	-L-	13+00.00	432,078.170	2,385,715.290
8	-L-	13+50.00	432,123.177	2,385,737.033
9	-L-	14+00.00	432,166.052	2,385,762.695
10	-L-	14+50.00	432,205.330	2,385,793.580
11	-L-	15+00.00	432,240.347	2,385,829.223
12	-L-	15+50.00	432,270.530	2,385,869.042
13	-L-	16+00.00	432,295.387	2,385,912.386
14	-L-	16+50.00	432,315.241	2,385,958.263
15	-L-	17+00.00	432,332.611	2,386,005.141
16	-L-	17+50.00	432,347.019	2,386,053.011
17	-L-	18+00.00	432,358.409	2,386,101.688
18	-L-	18+50.00	432,366.736	2,386,150.982
19	-L-	19+00.00	432,371.968	2,386,200.699
20	-L-	19+50.00	432,374.548	2,386,250.630
21	-L-	20+00.00	432,376.803	2,386,300.580
22	-L-	20+50.00	432,379.059	2,386,350.529
23	-L-	21+00.00	432,381.315	2,386,400.478
24	-L-	21+50.00	432,383.570	2,386,450.427
25	-L-	22+00.00	432,385.826	2,386,500.376
26	-L-	22+50.00	432,388.082	2,386,550.325
27	-L-	23+00.00	432,390.441	2,386,600.269
28	-L-	23+50.00	432,394.287	2,386,650.118
29	-L-	23+51.33	432,394.416	2,386,651.439

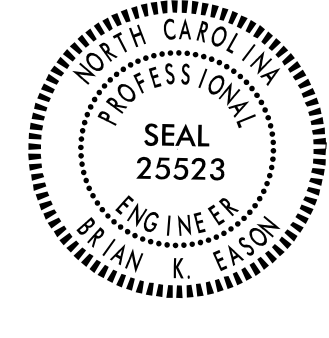
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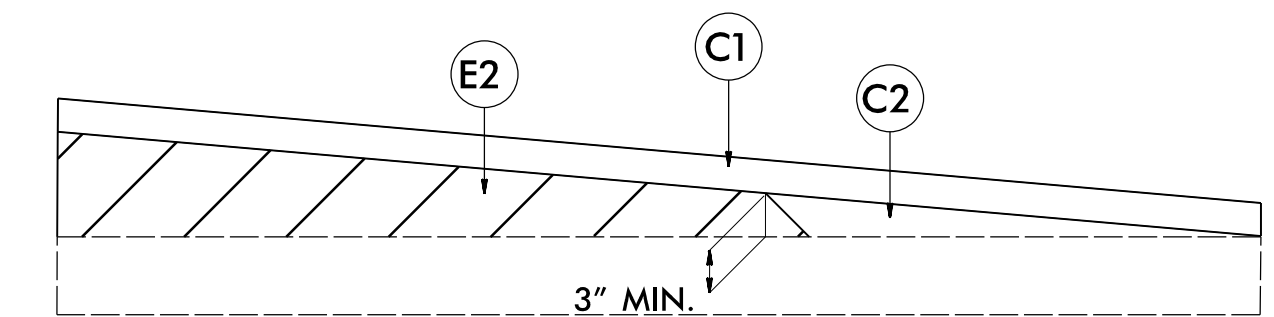
PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	R1	SHOULDER BERM GUTTER
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.	T	EARTH MATERIAL.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.	V	MILLING (VARIABLE DEPTH)
		W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

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

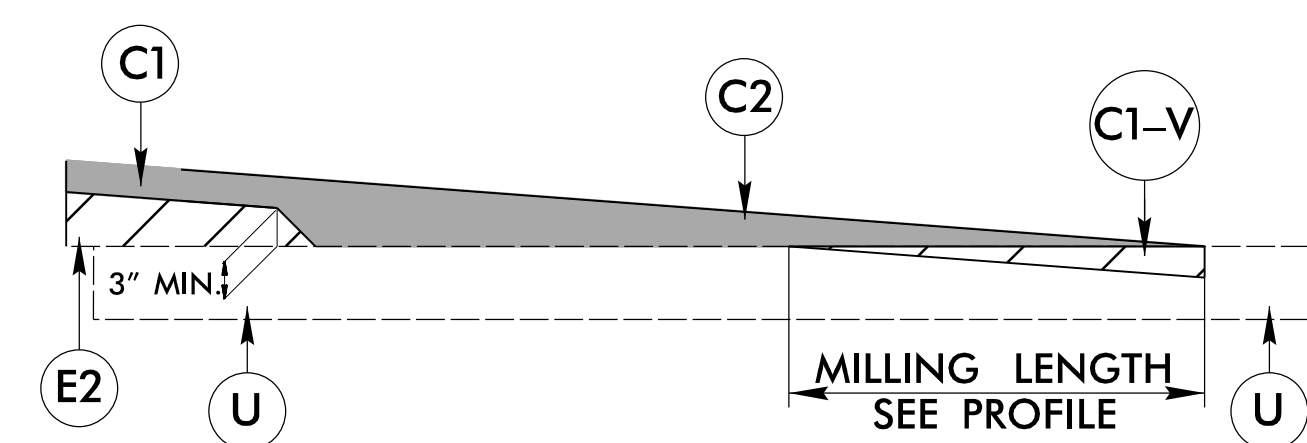
LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612
 NC License Number F-0159

PROJECT REFERENCE NO. 17BP.3.R.36	SHEET NO. 2
RW SHEET NO.	
SEAL ONLY FOR ROADWAY DESIGN ELEMENTS	ROADWAY DESIGN ENGINEER 

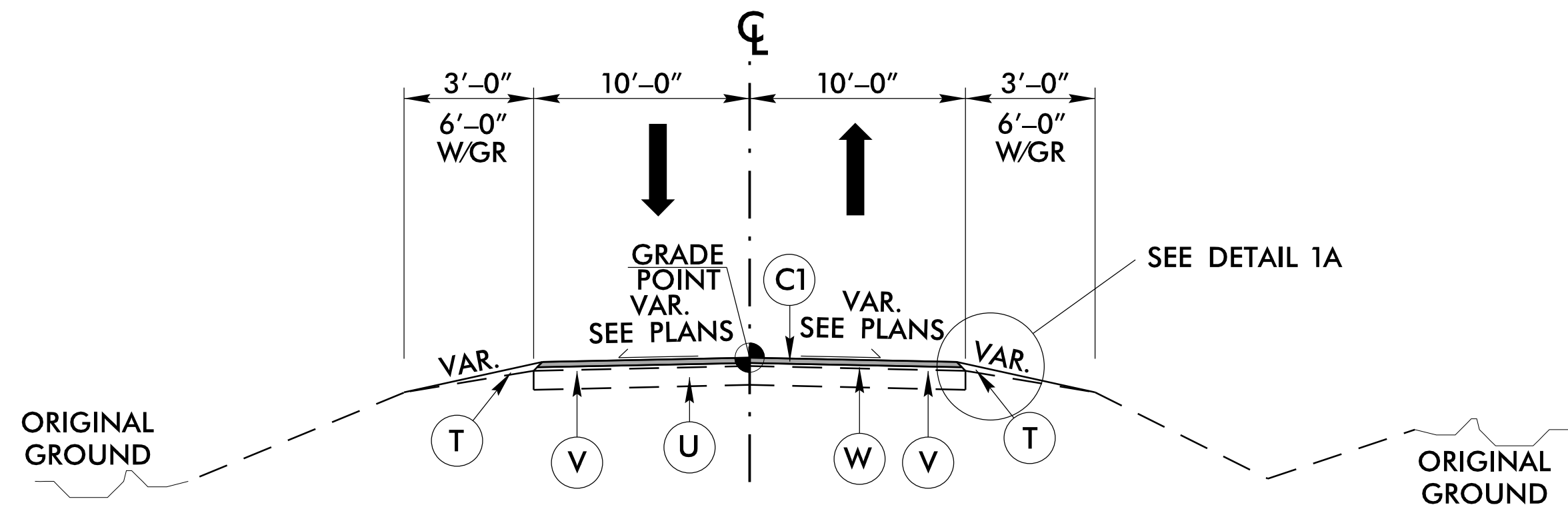


WEDGING DETAIL FOR RESURFACING

WEDGING DETAIL



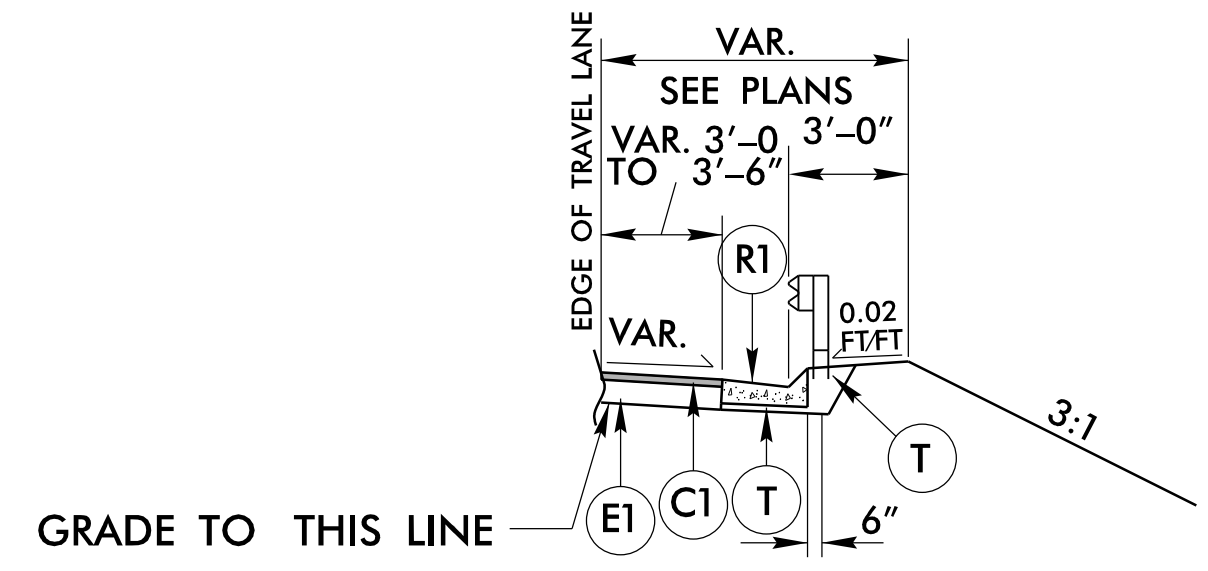
MILLING DETAIL



TYPICAL SECTION NO. 1

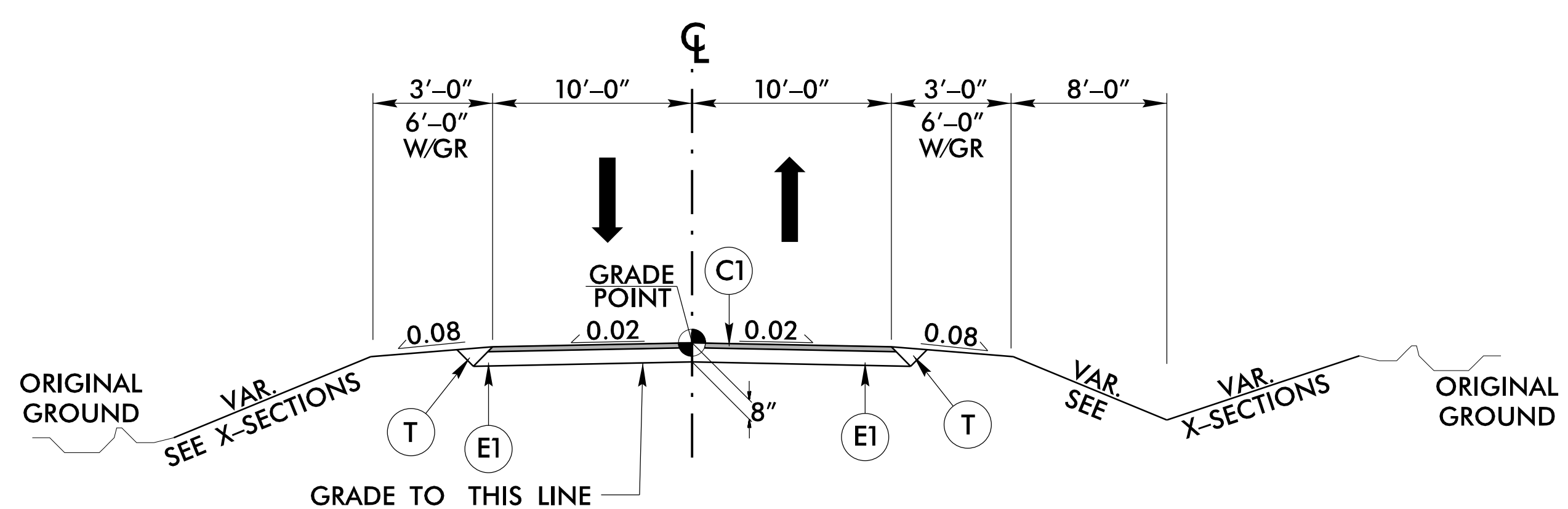
USE TYPICAL SECTION NO. 1
 -L- STA. 17+50.00 TO STA. 18+78.76 (BEGIN BRIDGE)

DETAIL OF SHOULDER BERM GUTTER



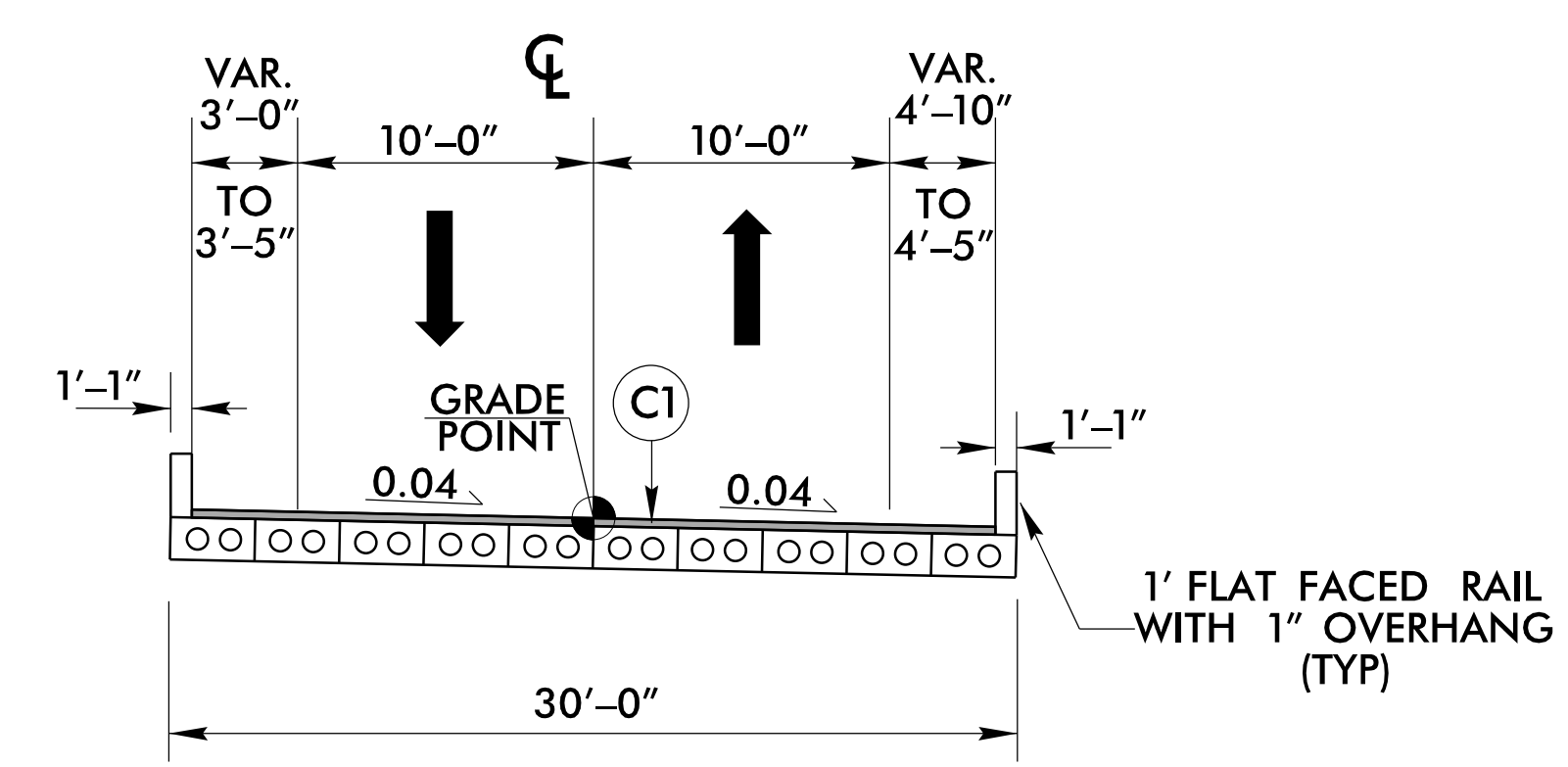
PARTIAL TYPICAL SECTION NO. 1A

USE PARTIAL TYPICAL No. 1A IN CONJUNCTION WITH TYPICAL No. 1 AT:
 -L- STA. 19+62.13 RT. TO 19+77.13 RT.



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
 -L- STA. 19+51.13 (END BRIDGE) TO STA. 21+50.00



TYPICAL SECTION NO. 3
 CORED SLAB BRIDGE OVERLAY

USE TYPICAL SECTION NO. 3
 -L- STA. 18+78.76 TO STA. 19+51.13

7/30/2015
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 LOCHNER

8/17/99

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612
 NC License Number F-0159
 ECOLOGICAL ENGINEERING
 NC FIRM LICENSE No. F-1148
 1151 SE Cary Parkway
 Suite 301
 Cary, NC 27518
 (919) 557-4929

PROJECT REFERENCE NO. 17BP.3.R.36	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 25523	HYDRAULICS ENGINEER SEAL 20147

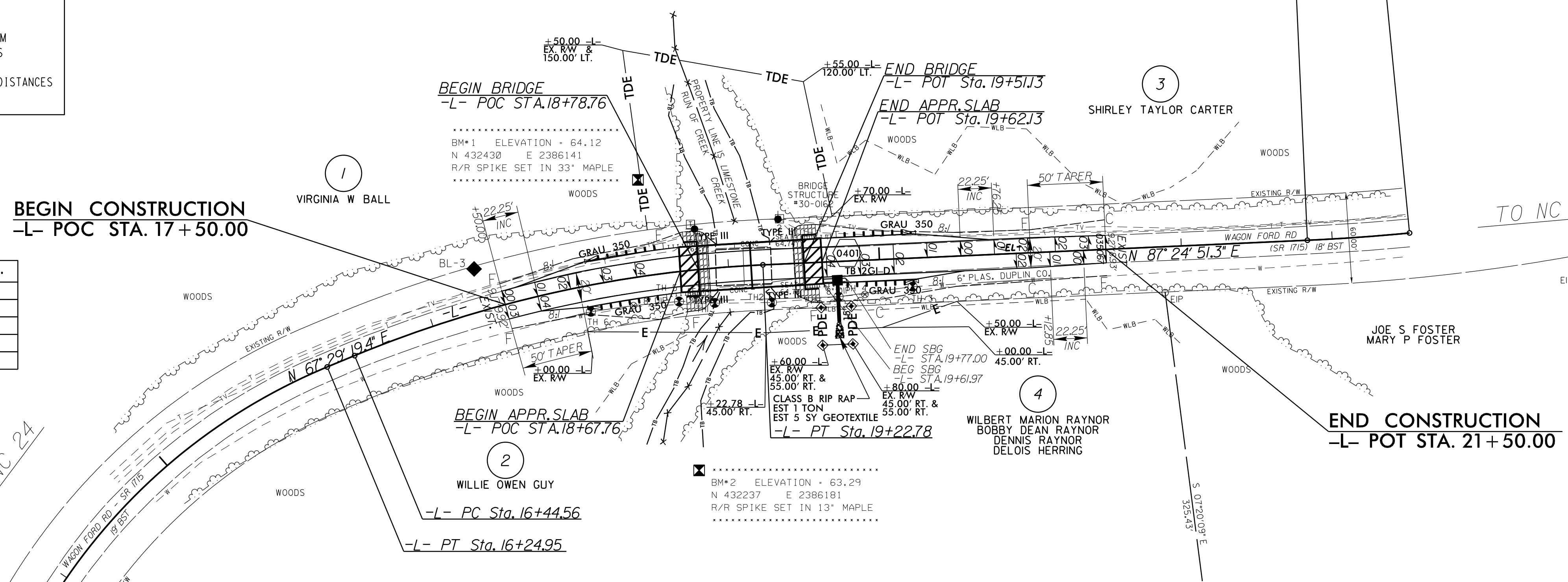
DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "30-0162-2"
 WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 432120.274(FT) EASTING: 2385719.214(FT) ELEVATION: 73.493(FT)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999890418
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "30-0162-2" TO -L- STATION 10+00.00 IS 341.36' S 15°41'07" W
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

-L-
 PI Sta 14+96.04 Δ = 39°25'37.1" (RT) D = 14°39'33.1" L = 268.96' T = 140.05' R = 390.85' SE = EXIST.
 PI Sta 17+85.09 Δ = 19°55'32.0" (RT) D = 7°09'43.1" L = 278.21' T = 140.53' R = 800.00' SE = EXIST.
 PI Sta 23+17.45 Δ = 2°59'11.3" (LT) D = 4°24'26.5" L = 67.76' T = 33.89' R = 1,300.00' SE = EXIST.
 V = 45 mph
 Ro = SEE PLANS

POINT	NORTHING	EASTING	ELEV.
NCDOT GPS MON 300162-2	431,604.013	2,385,548.190	80.933
NCDOT GPS MON 300162-2	432,120.274	2,385,719.214	73.493
BL-3	432,370.587	2,386,032.291	66.723
BM-1	432,430.000	2,386,141.000	64.12
BM-2	432,237.000	2,386,181.000	63.29

BEGIN CONSTRUCTION
 -L- POC STA. 17+50.00

END CONSTRUCTION
 -L- POT STA. 21+50.00



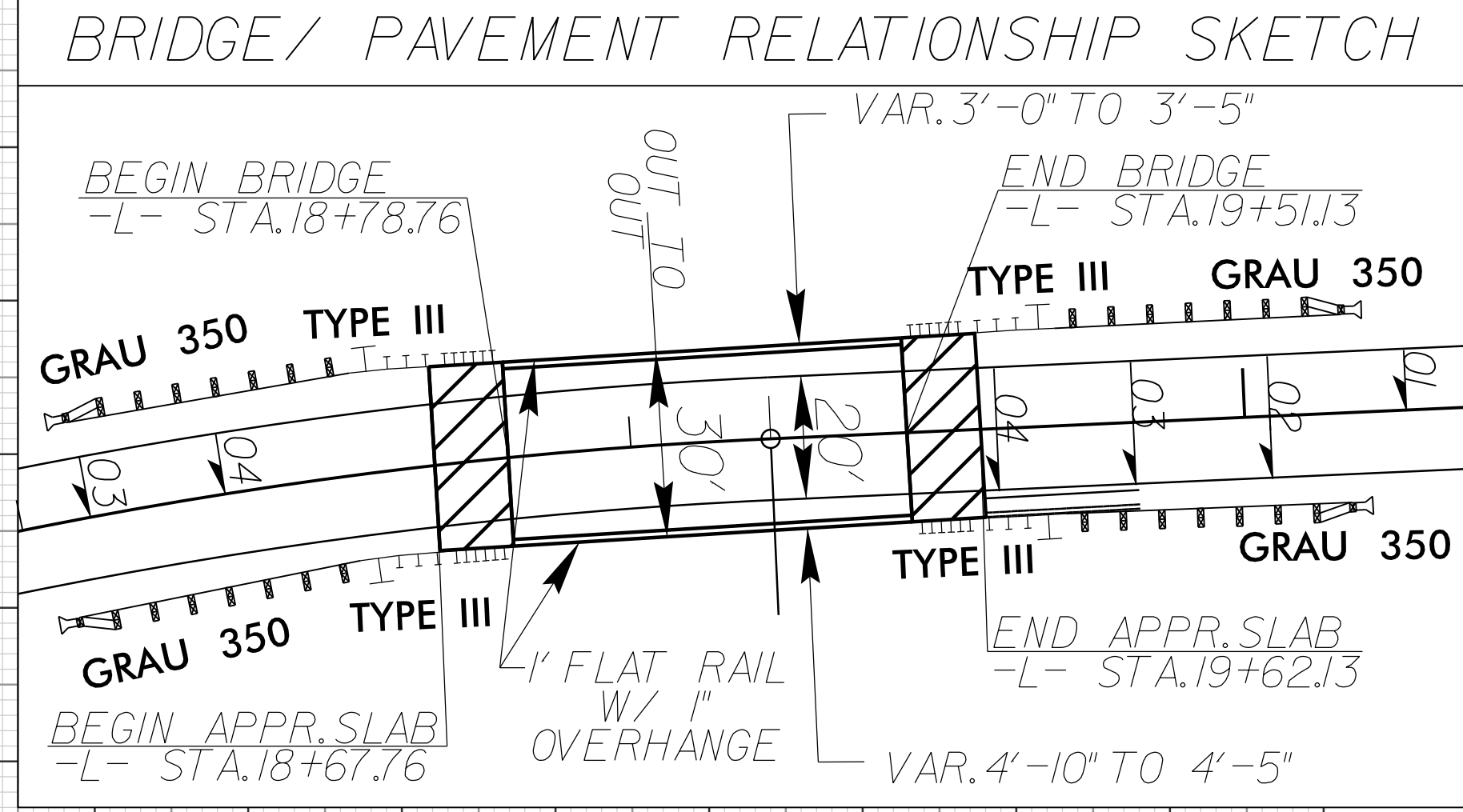
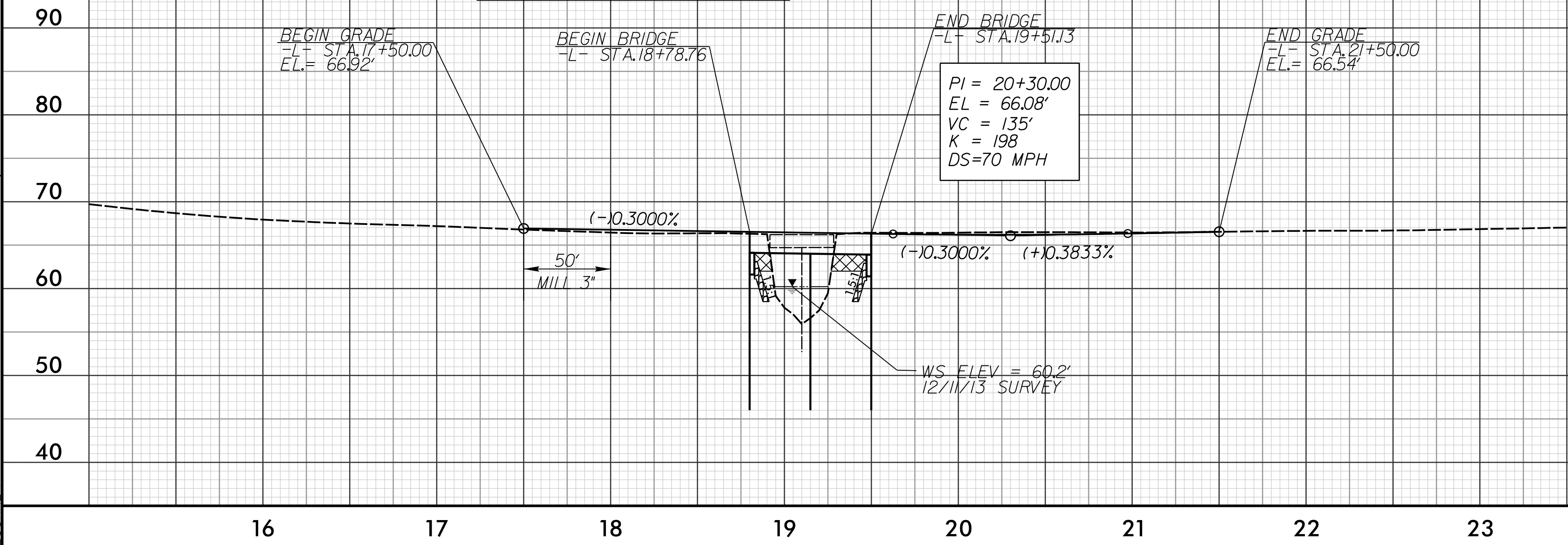
SEE SHEETS S1-S14 FOR STRUCTURE PLANS

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 25	YR
DESIGN HW ELEVATION	= 64.3	FT
BASE DISCHARGE	= 1600	CFS
BASE FREQUENCY	= 100	YR
BASE HW ELEVATION	= 65.47	FT
OVERTOPPING DISCHARGE	= 1860	CFS
OVERTOPPING FREQUENCY	= 200+	YR
OVERTOPPING ELEVATION	= 66.20	FT
DATE OF SURVEY	= 12/11/2013	
W.S. ELEVATION AT DATE OF SURVEY	= 60.2	FT

BM*1 ELEVATION = 64.12
 N 432430 E 2386141
 R/R SPIKE SET IN 33' MAPLE

BM*2 ELEVATION = 63.29
 N 432237 E 2386181
 R/R SPIKE SET IN 13' MAPLE



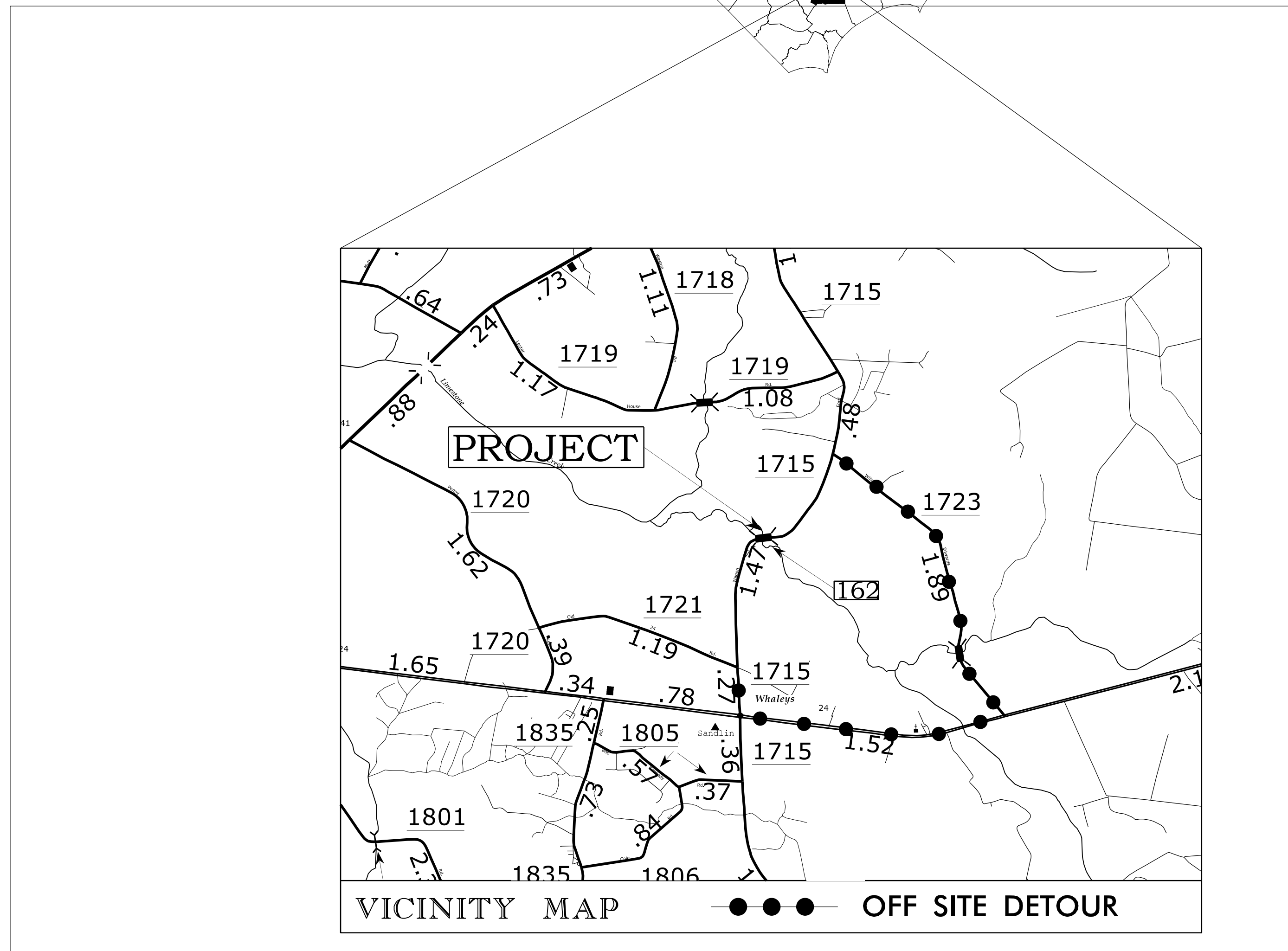
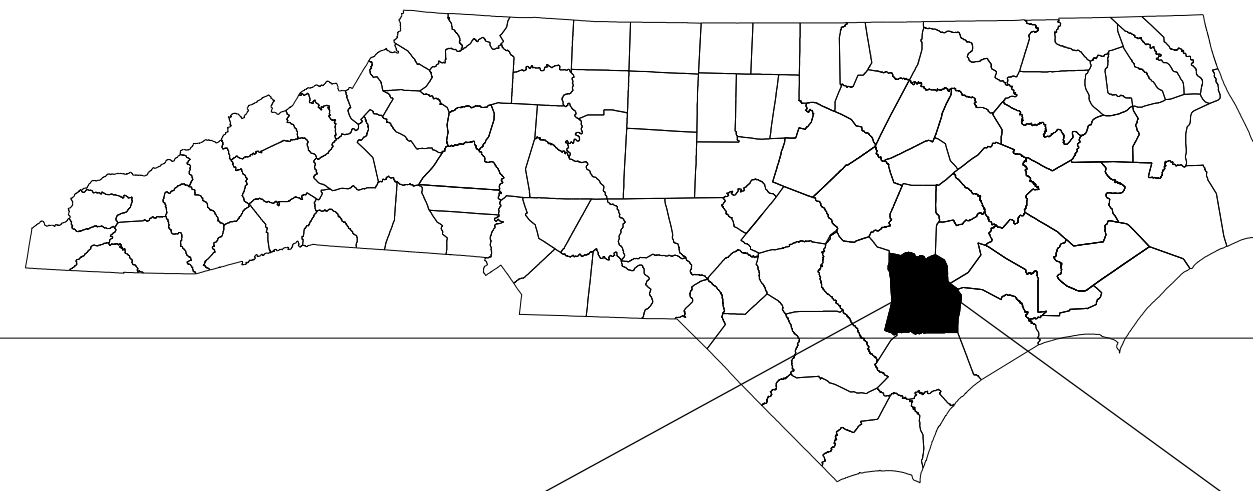
REVISIONS

T:\24\2015
 Rwy Roadway (Pro)\300162_rdy_psh_04.dgn
 LOCHNER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

DUPLIN COUNTY



SHEET NO.
TMP-1

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS AND LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS
TMP-1A	PHASING, GENERAL NOTES AND LOCAL NOTES
TMP-2	DETOUR SIGNING
SP-1	SPECIAL SIGN DESIGN

ROADWAY STANDARD DRAWINGS

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
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS - (TEMPORARY & PERMANENT)
1261.01	GUARDRAIL AND BARRIER DELINEATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATION TYPE
1262.01	GUARDRAIL AND DELINEATION

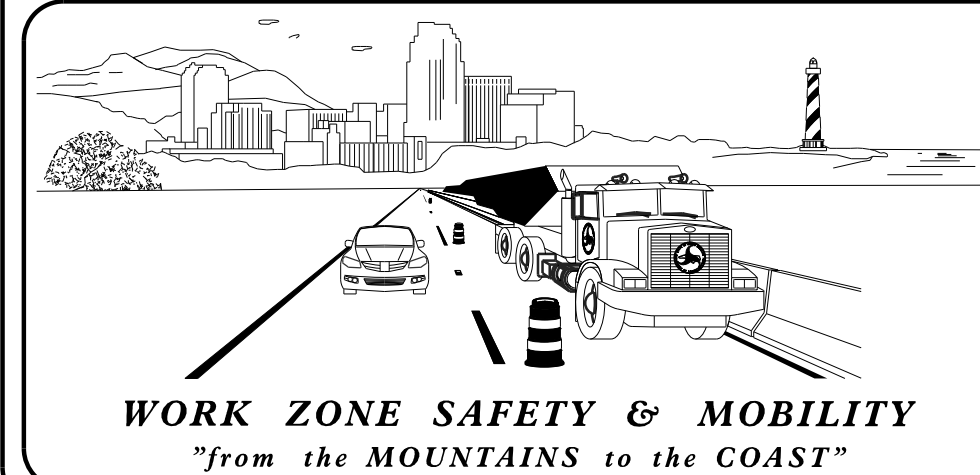
LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
LICENSE # F-0159

 K Smith, PE QC ENGINEER

 B Eason, PE PROJECT ENGINEER

 D Martin DESIGN ENGINEER / TECHNICIAN



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

 KATHERINE HITE, PE DIVISION TRAFFIC ENGINEER



APPROVED: _____
DATE: _____

SEAL

7/24/2015 10:00:00 AM C:\TrafficControl\TCP\300162_TCP_1.TSH.dgn

17BP.3.R.36

TIP PROJECT:

PHASING

PHASE I

PRIOR TO ANY CONSTRUCTION OPERATIONS, INSTALL AND COVER DETOUR SIGNS AS SHOWN ON TMP-2 AND IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 1101.03 SHEET 1 OF 9. DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK UNLESS COVERED.

PHASE II

INSTALL BARRICADES AND UNCOVER DETOUR SIGNS. CLOSE -L- (SR 1715 /WAGON FORD RD.) TO TRAFFIC AS SHOWN ON TMP-2. CONSTRUCT BRIDGE, APPROACHES, AND ROADWAY UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE.

PHASE III

UPON COMPLETION OF BRIDGE, APPROACHES AND ROADWAY, PLACE FINAL PAVEMENT MARKINGS AND MARKERS IN ACCORDANCE WITH ROADWAY STANDARD DRAWINGS. REMOVE ALL ROAD CLOSURE SIGNS AND BARRICADES AND OPEN -L- (SR 1715 /WAGON FORD RD.) TO THROUGH TRAFFIC.

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 UNDESRIED OVERLAPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- B) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- C) PROVIDE 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 SHEET TMP-2.

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

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS



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

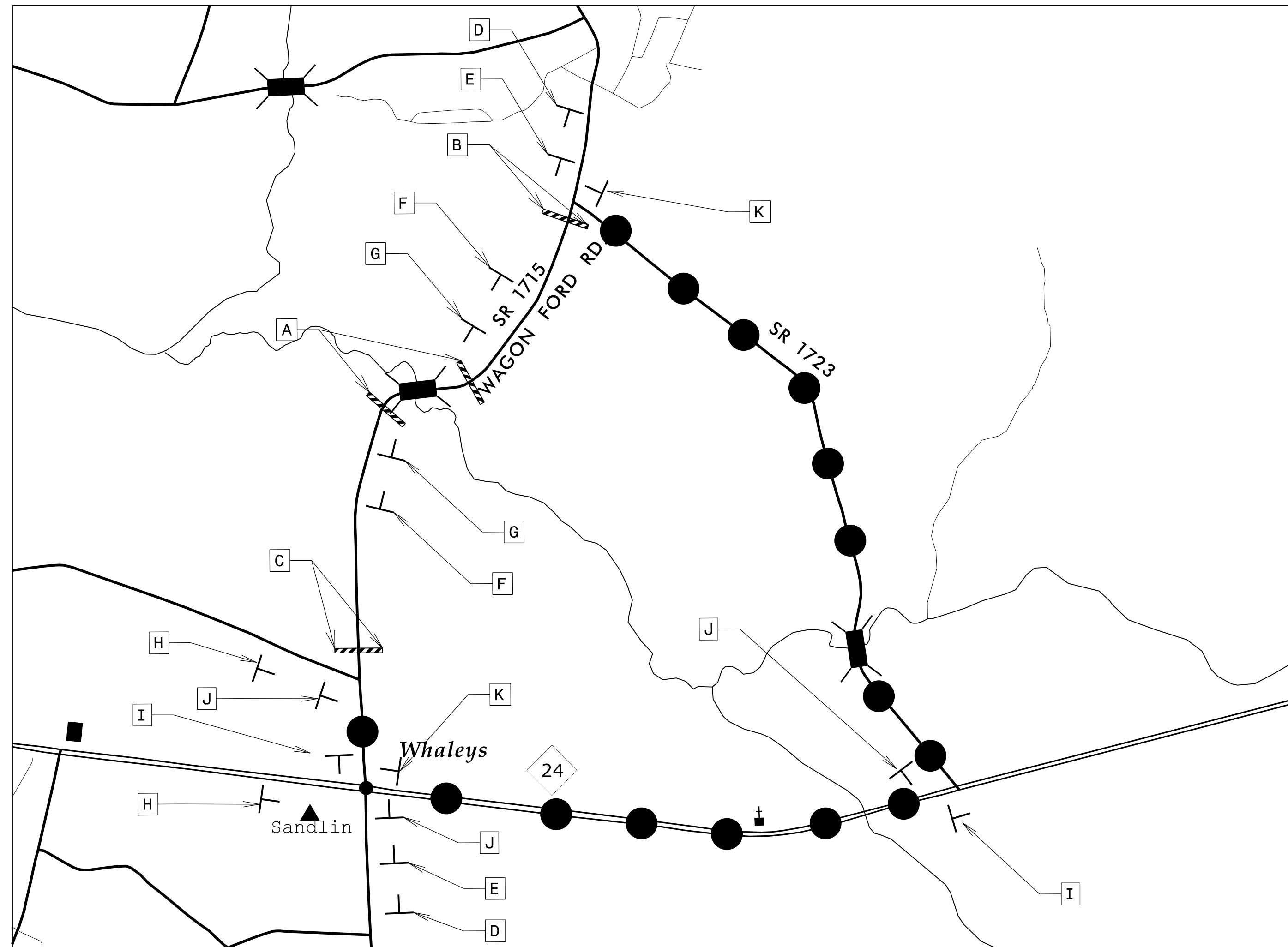
<u>ROAD NAME</u>	<u>MARKING</u>	<u>MARKER</u>
WAGON FORD ROAD	PAINT	RAISED

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

- I) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

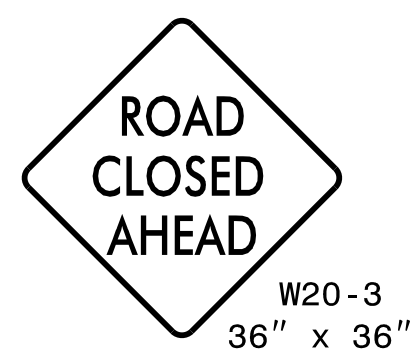
- J) PHASING ZONE WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

APPROVED: _____	DATE: _____			<h1 style="margin: 0;">TRANSPORTATION OPERATION PLAN</h1>
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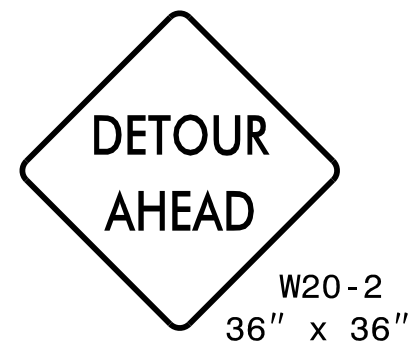


VICINITY MAP

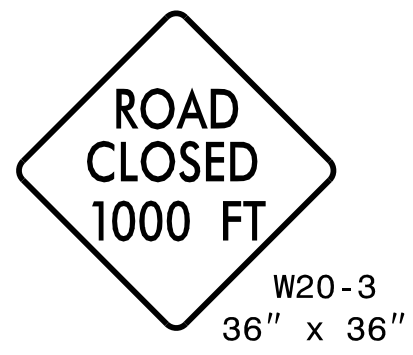
● ● ● OFF SITE DETOUR



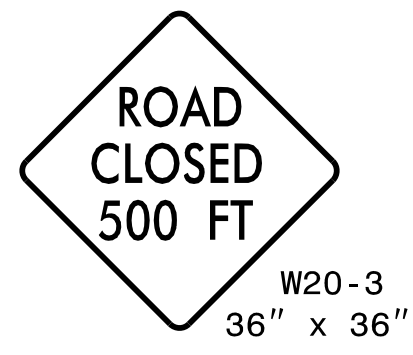
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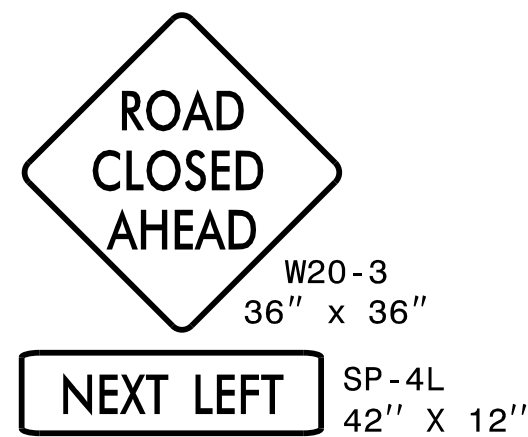
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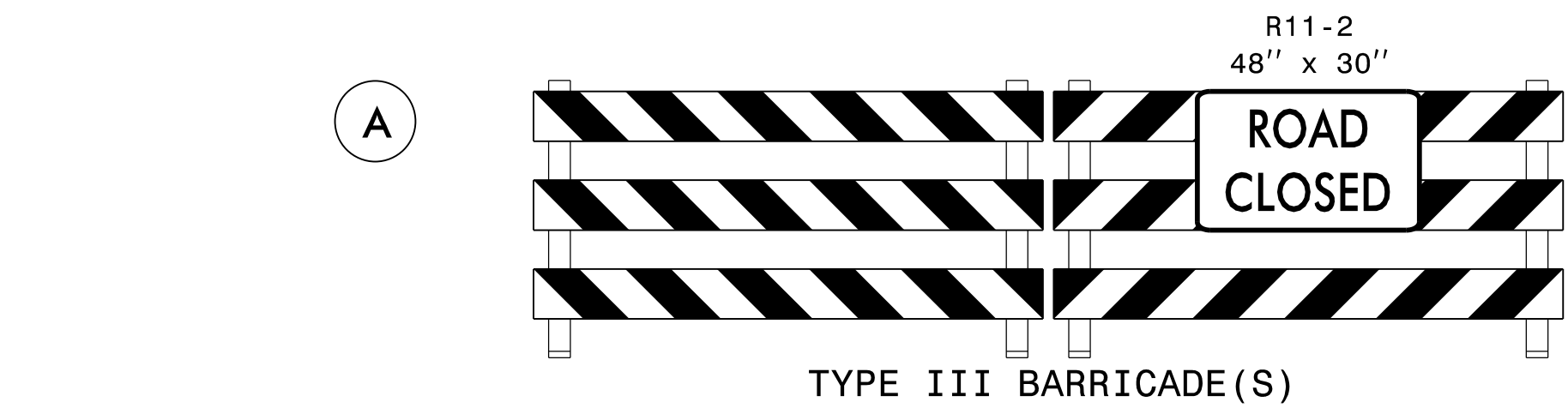
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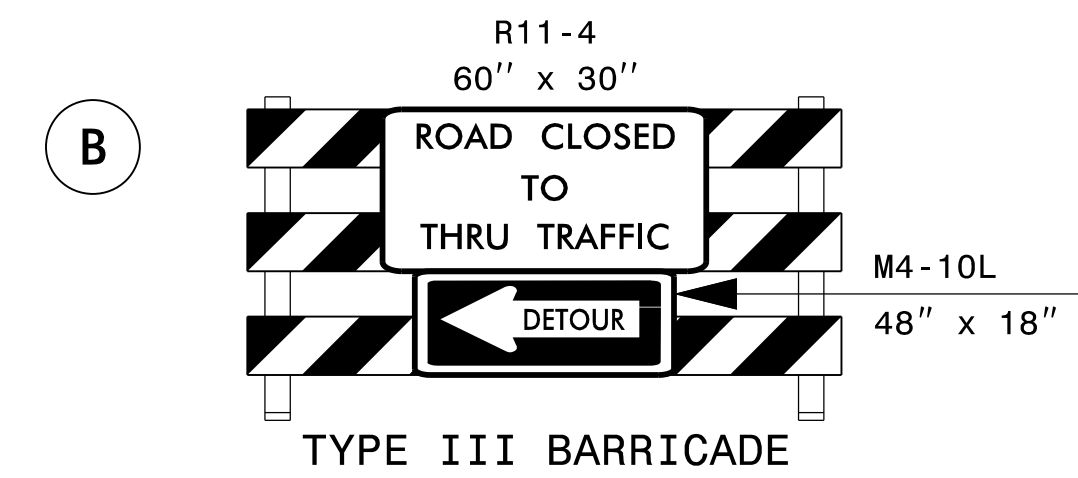
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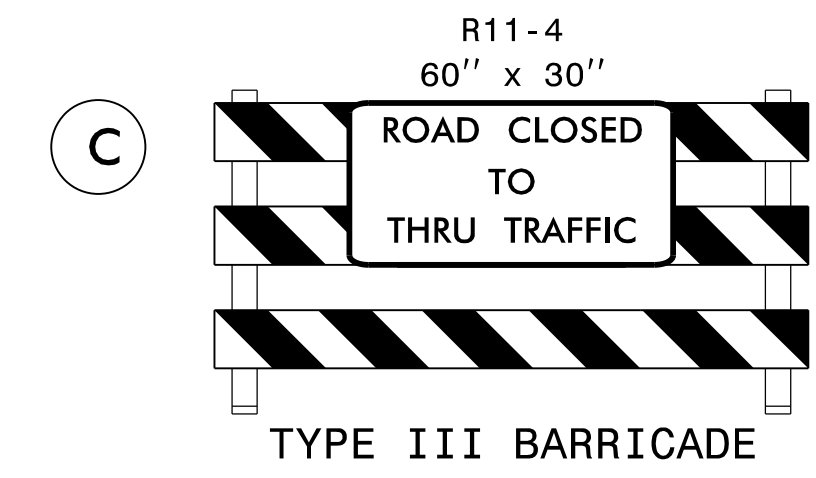
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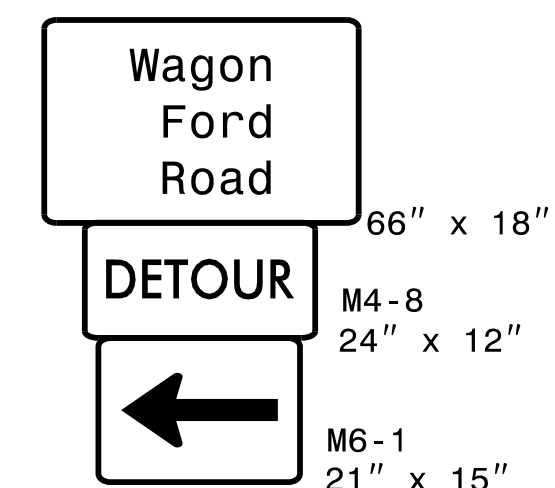
TYPE III BARRICADE(S)



TYPE III BARRICADE

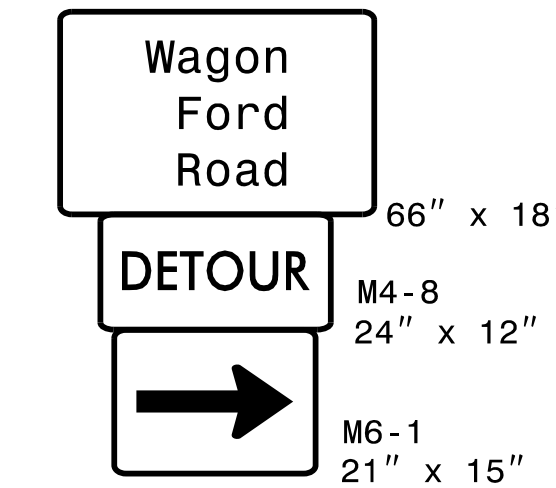


TYPE III BARRICADE



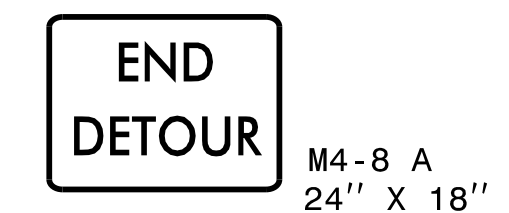
I

SEE TMP-3 FOR SIGN DESIGN



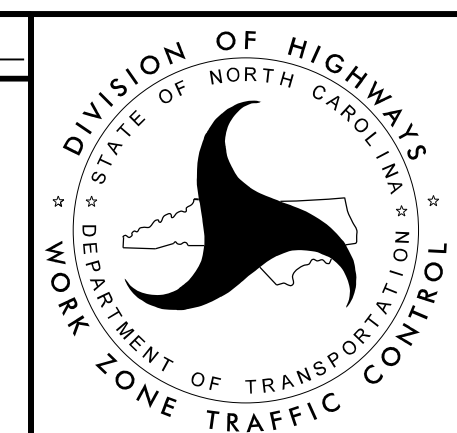
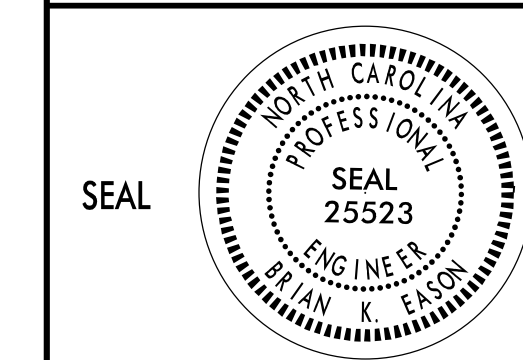
J

SEE TMP-3 FOR SIGN DESIGN



K

APPROVED: _____ DATE: _____



DETOUR SIGNING

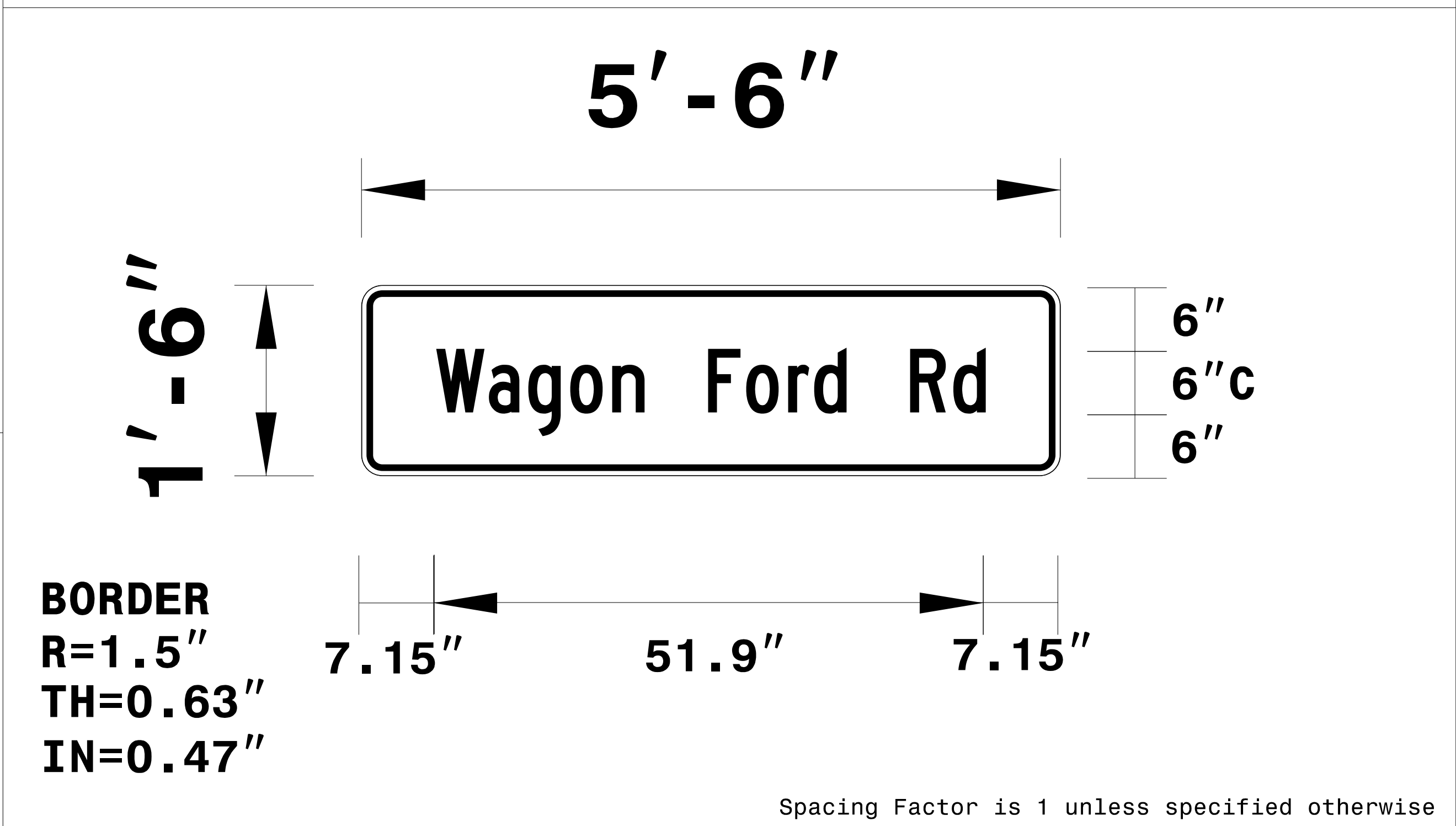
SIGN NUMBER: SP-1
 TYPE: STATIONARY
 QUANTITY: SEE PLANS
 SIGN WIDTH: 5'-6"
 HEIGHT: 1'-6"
 TOTAL AREA: 8.25 Sq.Ft.
 BORDER TYPE: FLUSH
 RECESS: 0.47"
 WIDTH: 0.63"
 RADII: 1.5"
 NO. Z BARS:
 LENGTH:

BACKG COLOR: Fluorescent Orange
 COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: B. DEHLER
 PROJECT ID: 17BP.3.R.36
 CHECKED BY: B. EASON
 DIV: 3
 DATE: July 9, 2014



USE NOTES: 1,2

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

LETTER POSITIONS

Letter locations are panel edge to lower left corner

Letter locations are panel edge to lower left corner														Series/Size
W	a	g	o	n		F	o	r	d		R	d		Text Length
7.1	12.0	15.8	19.7	23.7	26.7	32.7	36.3	40.3	42.8	45.8	51.8	55.9		C 2000
														51.9

FILENAME: GRAY BRIDGE RD NORTH CAROLINA D.O.T. SIGN DETAIL

15-JUL-2014 12:30
 C:\Users\BDEHLER\Documents\17BP\30062.TCP_SPSIGN3.dgn
 BDEHLER

APPROVED: _____ DATE: _____			SPECIAL SIGN DESIGN
SEAL			

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.R.36	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.3.R.36		PE, RW, CONST	

TIP PROJECT: 17BP.3.R.36

RELEASE FOR CONSTRUCTION
 DATE: _____

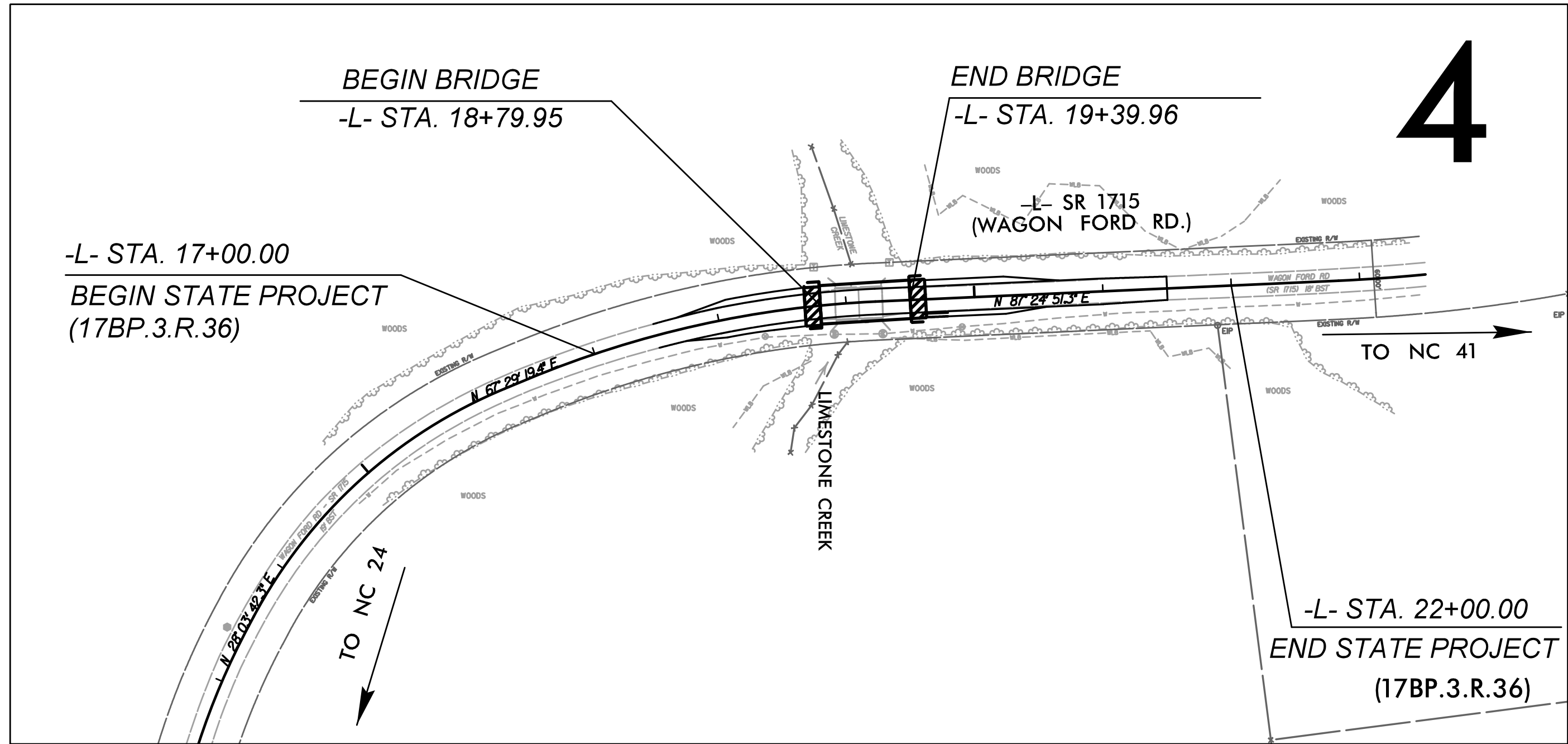
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

 PLAN FOR PROPOSED
 HIGHWAY EROSION CONTROL

DUPLIN COUNTY

**LOCATION: BRIDGE NO. 162 OVER LIMESTONE CREEK ON
 SR 1937 (WAGON FORD RD.)**

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

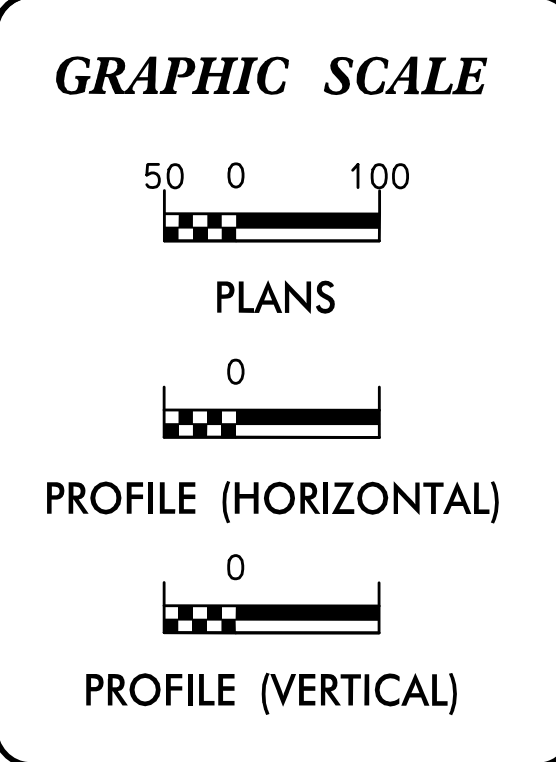


EROSION AND SEDIMENT CONTROL MEASURES

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

REID ROBOL, EI
 LEVEL III NAME

 3409
 LEVEL III CERTIFICATION NO.



Prepared in accordance
 with standards set by:
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.**

Prepared in the Office of:

**ECOLOGICAL
ENGINEERING**

2012 STANDARD SPECIFICATIONS

NC FIRM LICENSE No: F-1148
 1151 SE Cary Parkway
 Suite 101
 Cary, NC 27518
 (919) 557-0929

Roadway Standard Drawings

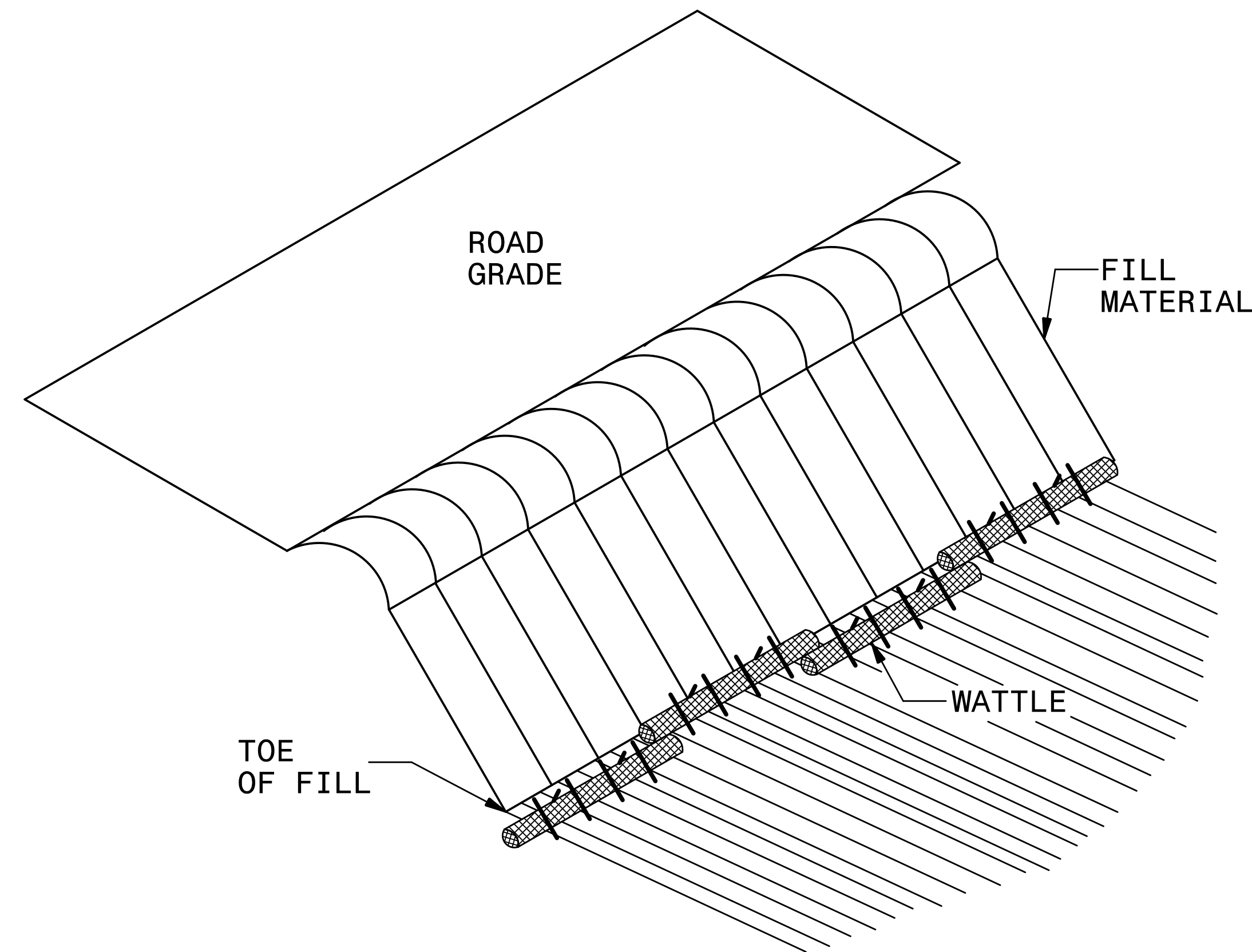
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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	

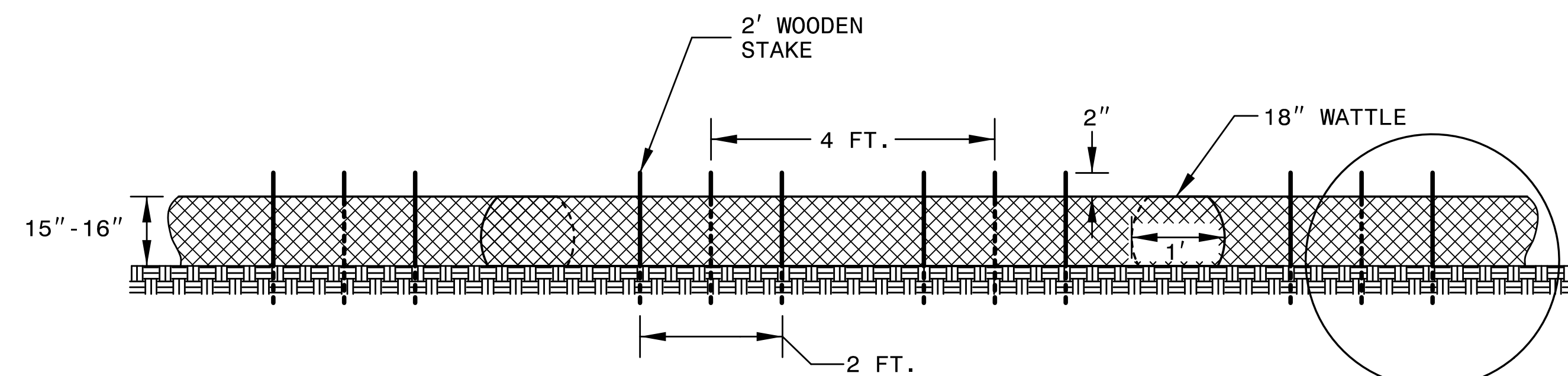
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PROJECT REFERENCE NO. 17BP.3.R.36	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE BARRIER DETAIL



ISOMETRIC VIEW



FRONT VIEW

NOTES:

USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLES ON TOE OF SLOPE.

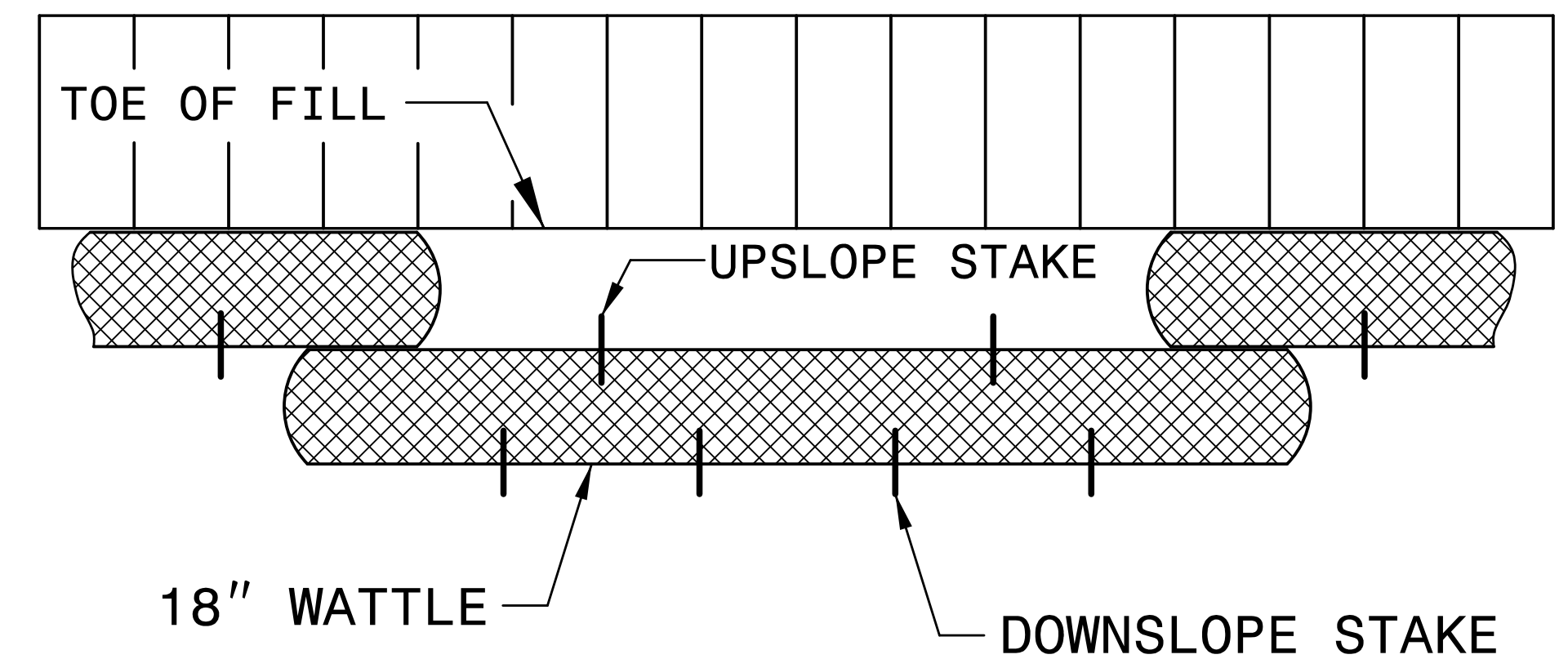
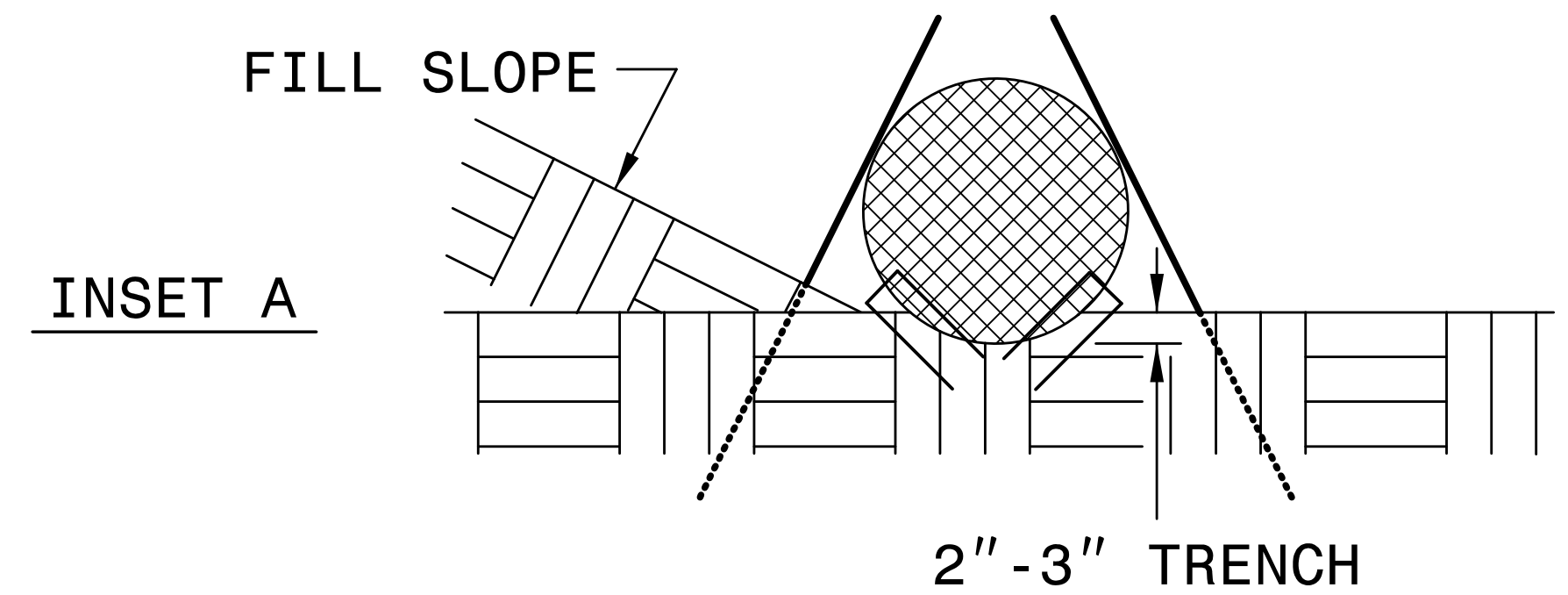
USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

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

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.

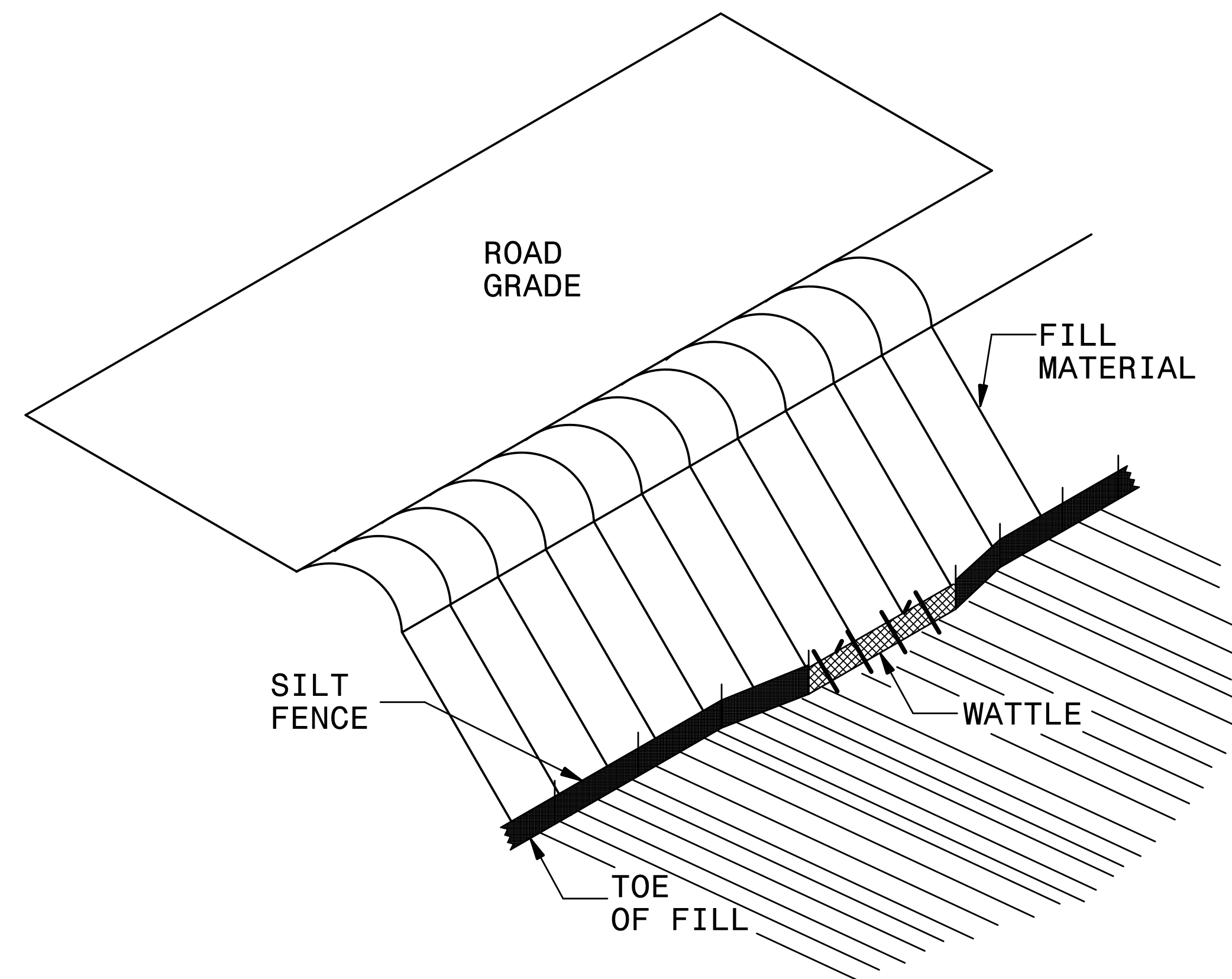
FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 20 FT.



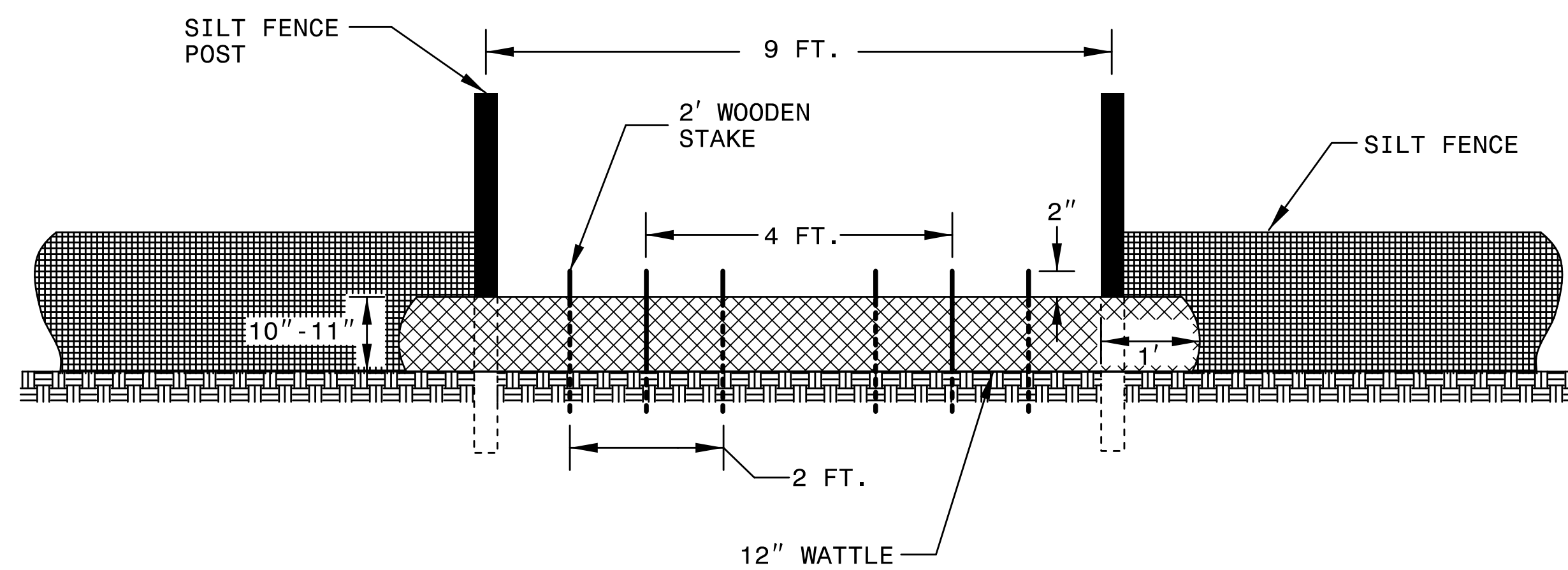
TOP VIEW

SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO. 17BP.3.R.36	SHEET NO. EC-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

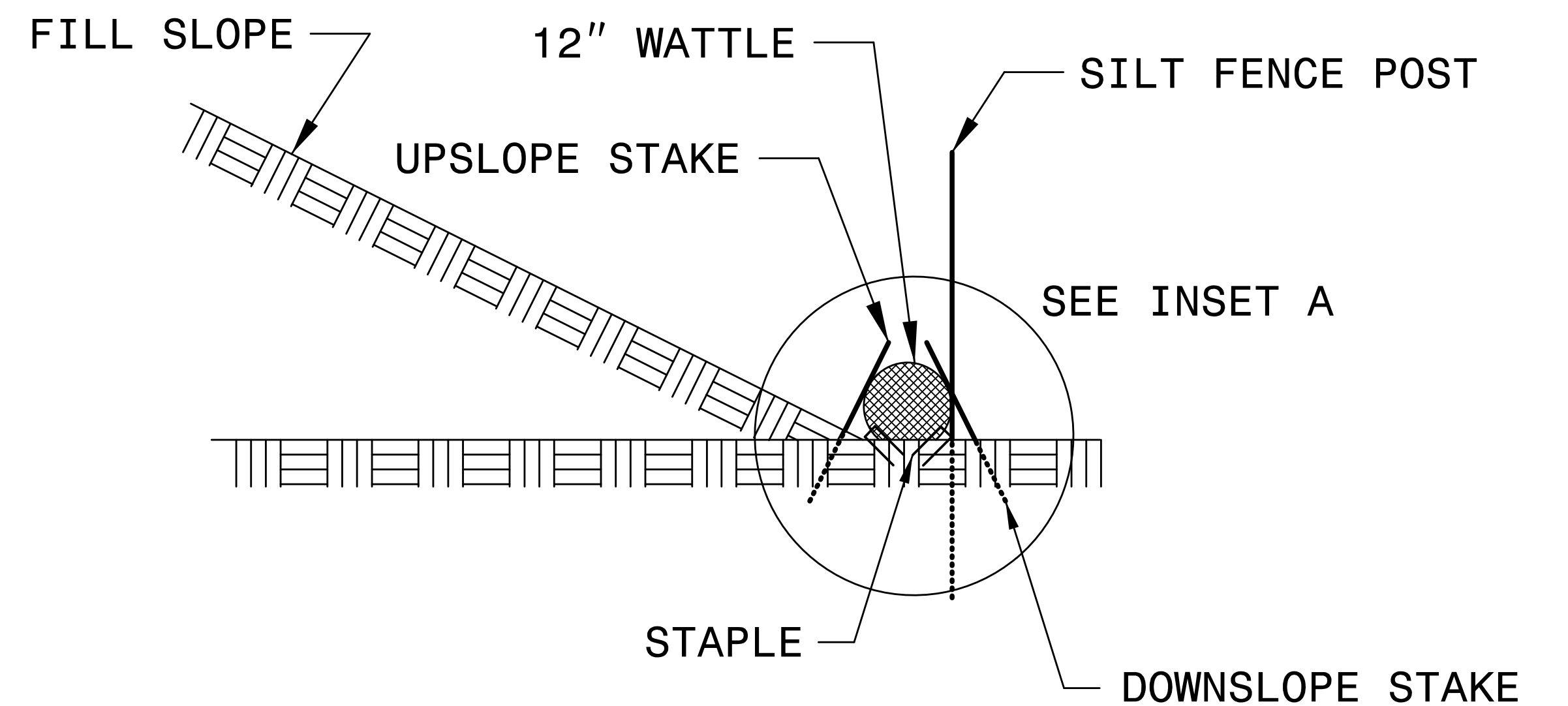
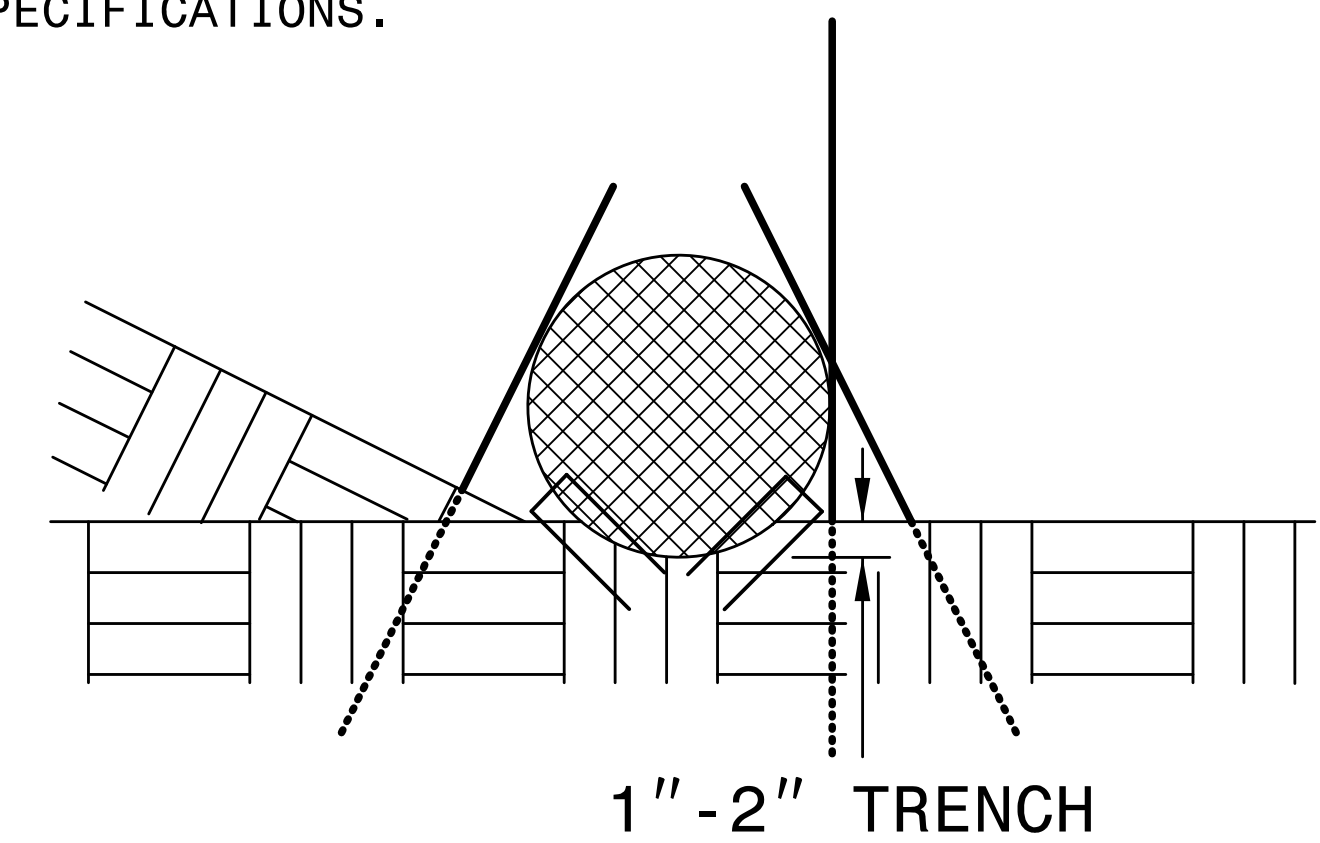
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A



SIDE VIEW

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
<i>17BP.3R.36</i>	<i>EC-4</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

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

8/17/99

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

NC License
Number F-0159



NC FIRM LICENSE No: F-1148
1151 SE Cary Parkway
Suite 101
Cary, NC 27518
(919) 557-9929

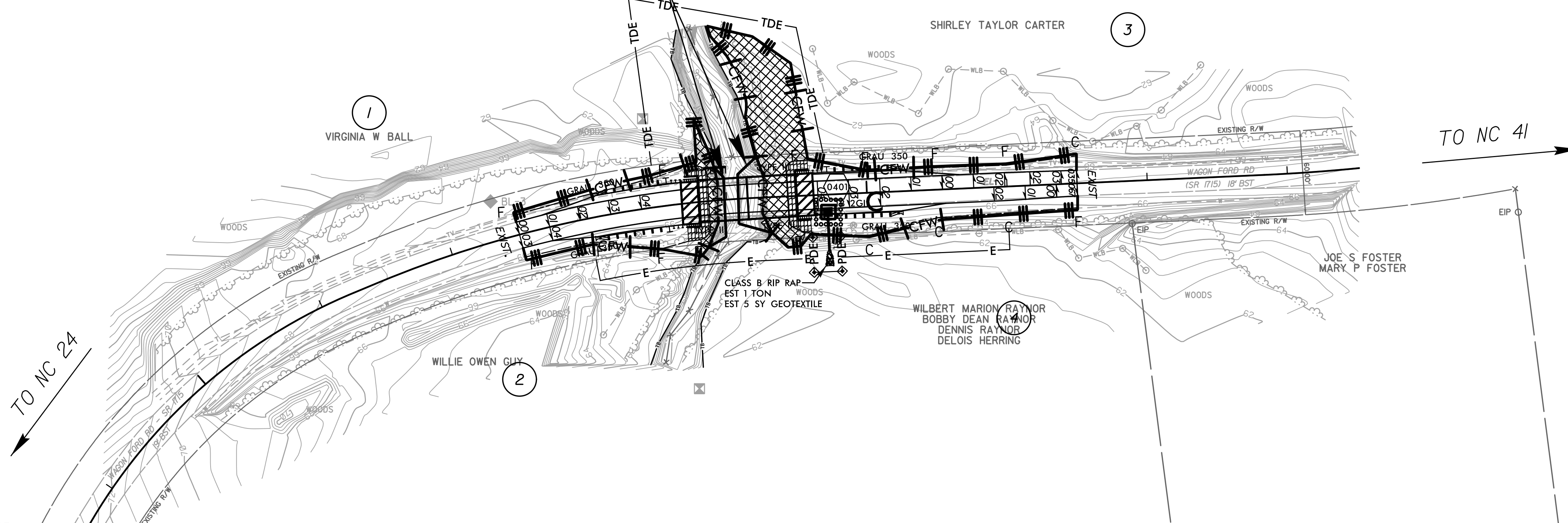
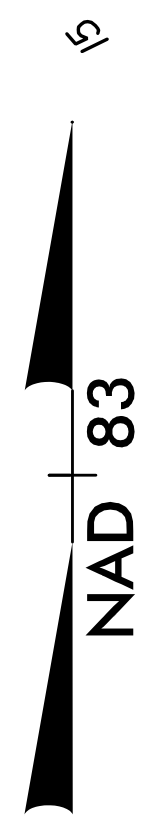
PROJECT REFERENCE NO. SHEET NO.

17BP.3.R.36 EC-05/CONST.04

R/W SHEET NO.

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

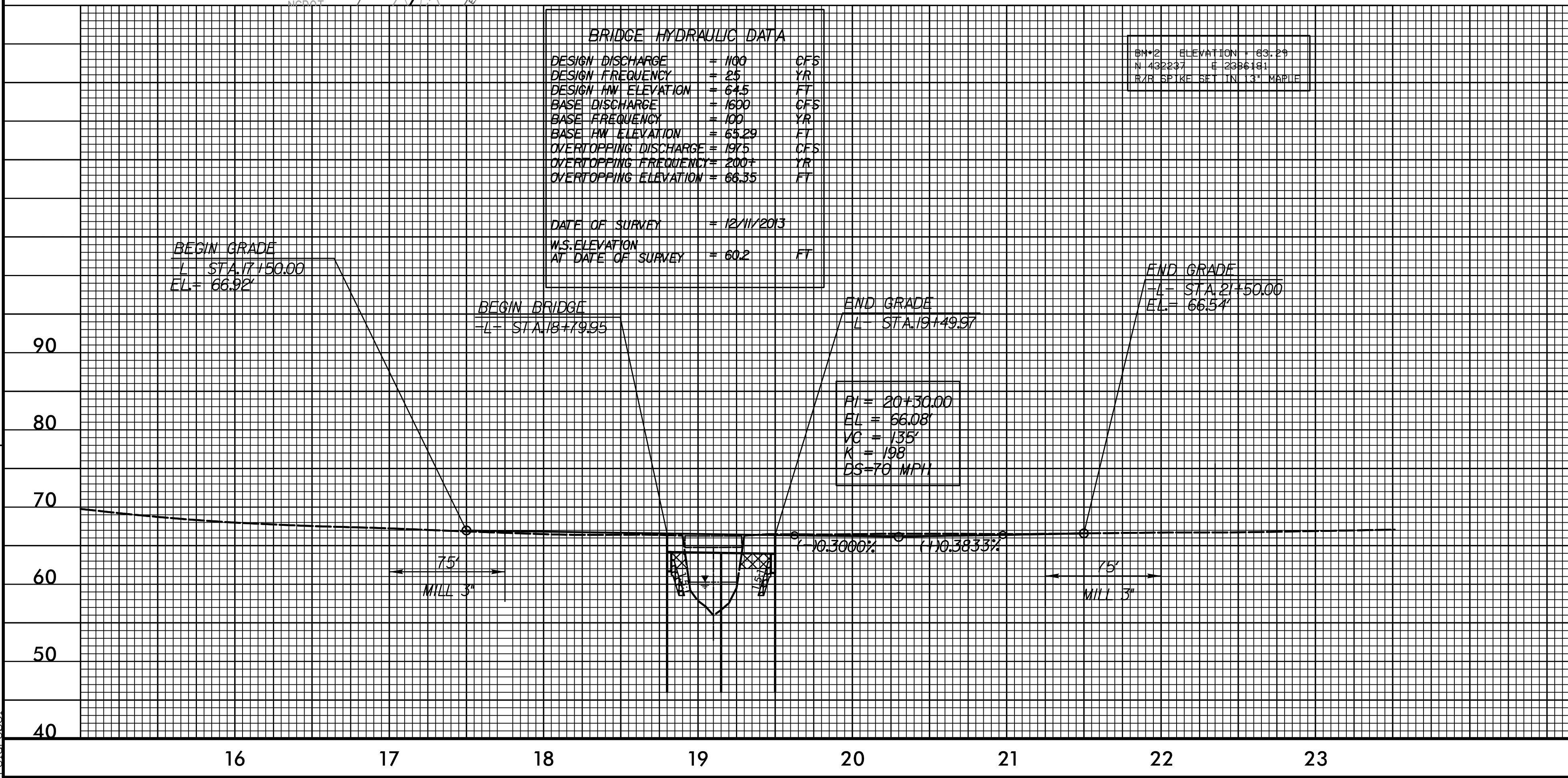
FLOATING TURBIDITY CURTAIN



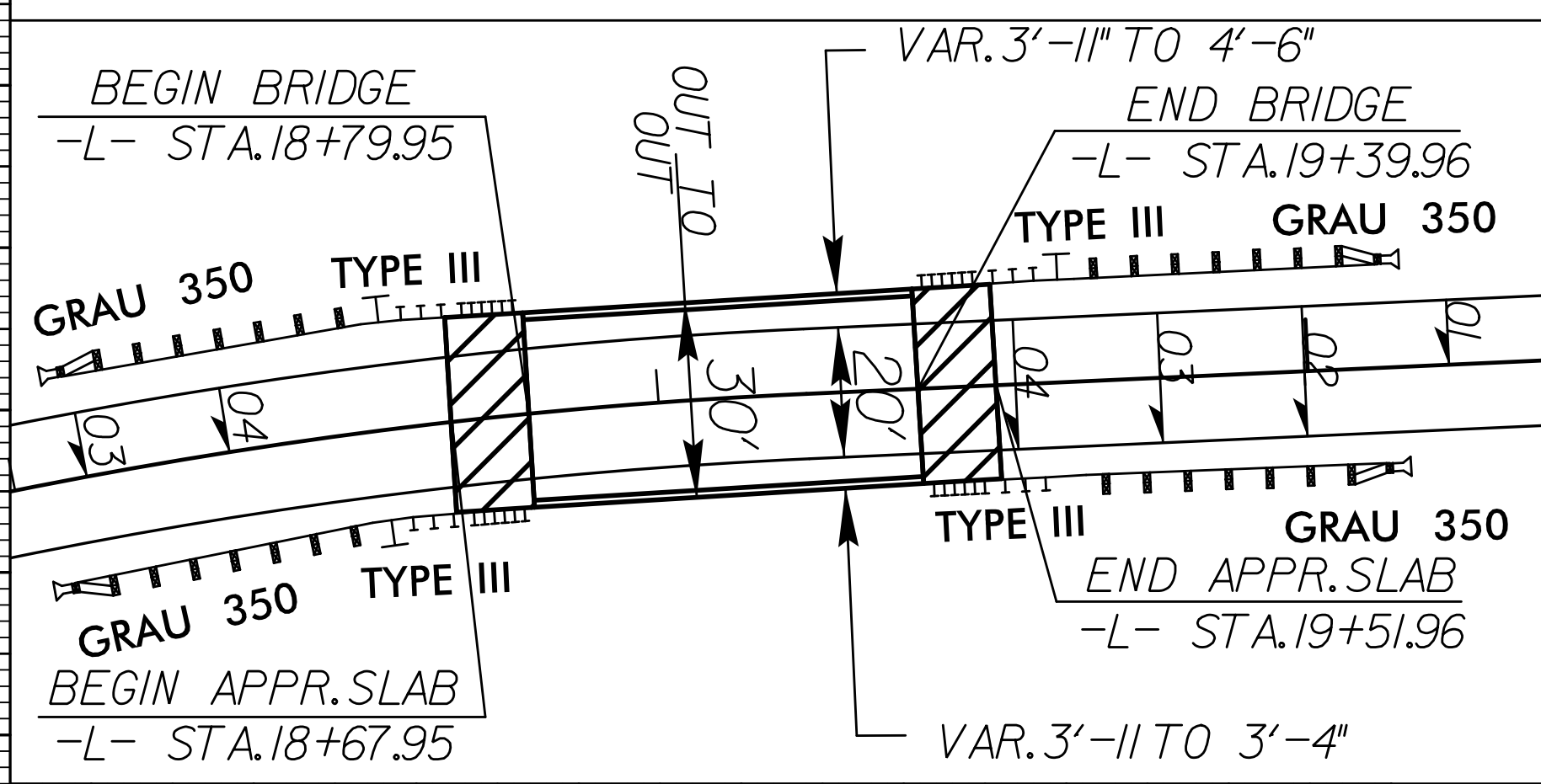
REVISIONS

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 25	YR
DESIGN HW ELEVATION	= 64.5	FT
BASE DISCHARGE	= 1600	CFS
BASE FREQUENCY	= 100	YR
BASE HW ELEVATION	= 65.29	FT
OVERTOPPING DISCHARGE	= 1975	CFS
OVERTOPPING FREQUENCY	= 200	YR
OVERTOPPING ELEVATION	= 66.35	FT
DATE OF SURVEY	= 12/11/2013	
W.S. ELEVATION AT DATE OF SURVEY	= 60.2	FT

BM#2 ELEVATION = 63.29
N 43°22'37" E 239.6191'
#/R SP/RE SET IN 1" MAPLE



BRIDGE/ PAVEMENT RELATIONSHIP SKETCH



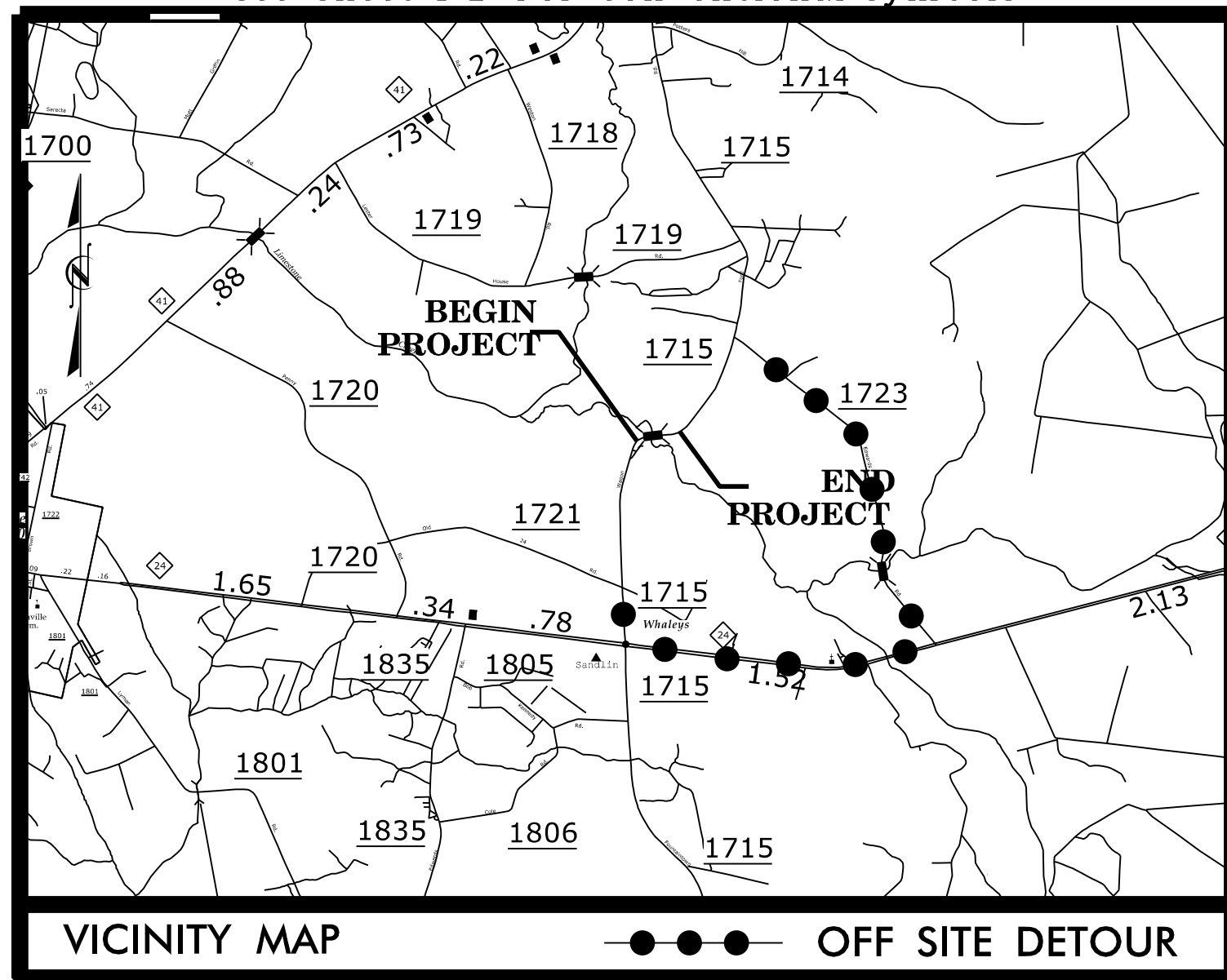
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R:\Environmental\Design\162_Rev_Psh05.dgn
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09/08/99

PROJECT: 17BP.3.R.36

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



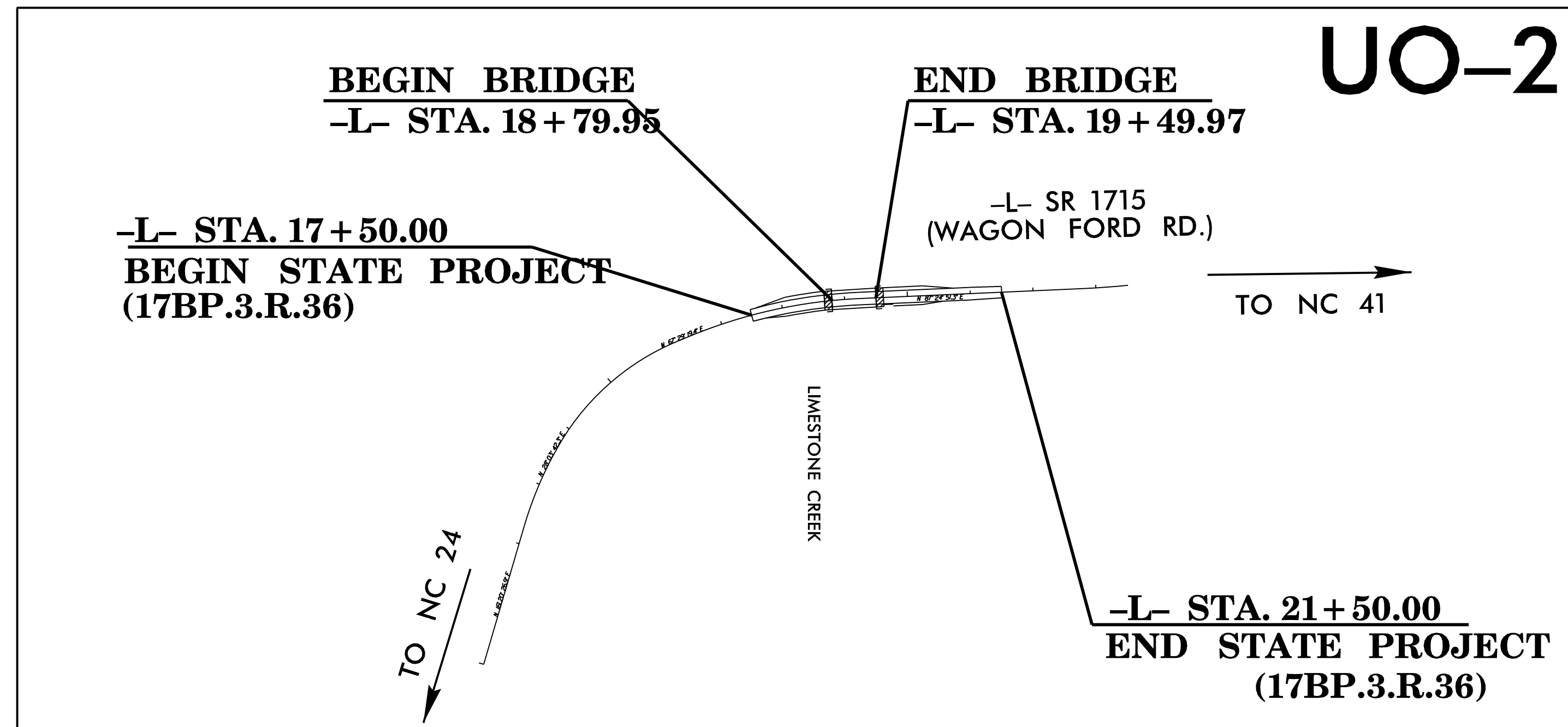
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
DUPLIN COUNTY

LOCATION: BRIDGE NO. 162 OVER LIMESTONE CREEK ON
SR 1715 (WAGON FORD RD.)

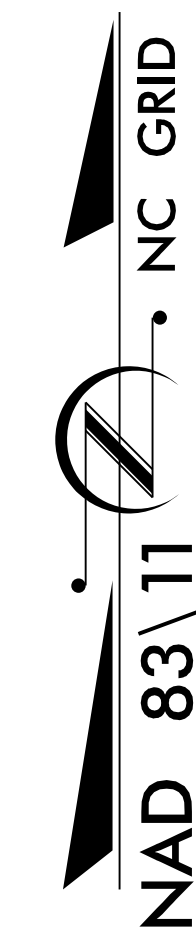
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

UTILITIES BY OTHERS

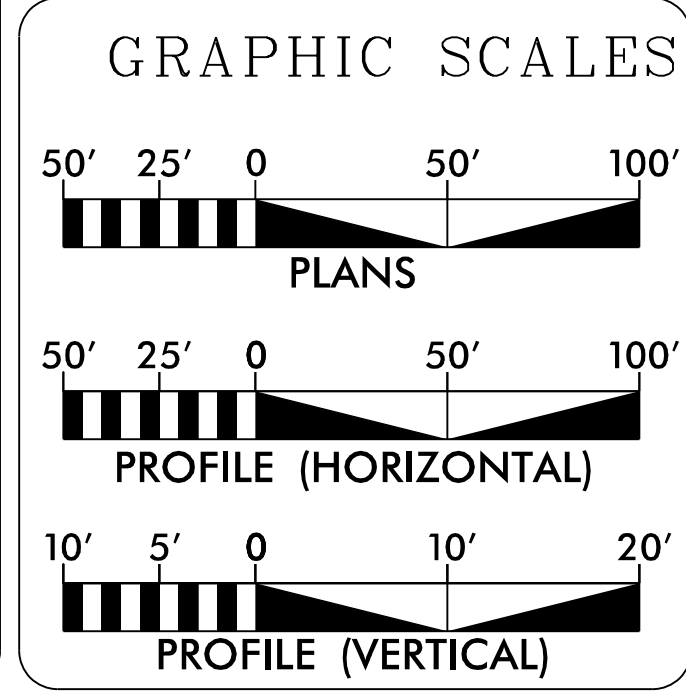
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.R.36	UO-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.3.R.36		PE, RW, UTIL, CONST	



UO-2



SO-DEEP The Subsurface Utility Engineering Company
4650 Paragon Park Road, Raleigh, NC 27616 (919) 878-7466



INDEX OF SHEETS

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

UTILITY OWNERS ON PROJECT

(A) CENTURYLINK - COMMUNICATIONS

Prepared in the Office of:

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
NC License Number F-0135

ECOLOGICAL ENGINEERING
NC FIRM LICENSE No: P-1148
1151 SE Cary Parkway
Suite 101
Cary, NC 27518
OVP 157-0929

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: **MARCH 31, 2014**

LETTING DATE: **JAN 7, 2016**

BRIAN K. EASON, PE
PROJECT ENGINEER

DAVID W. MARTIN
PROJECT DESIGNER

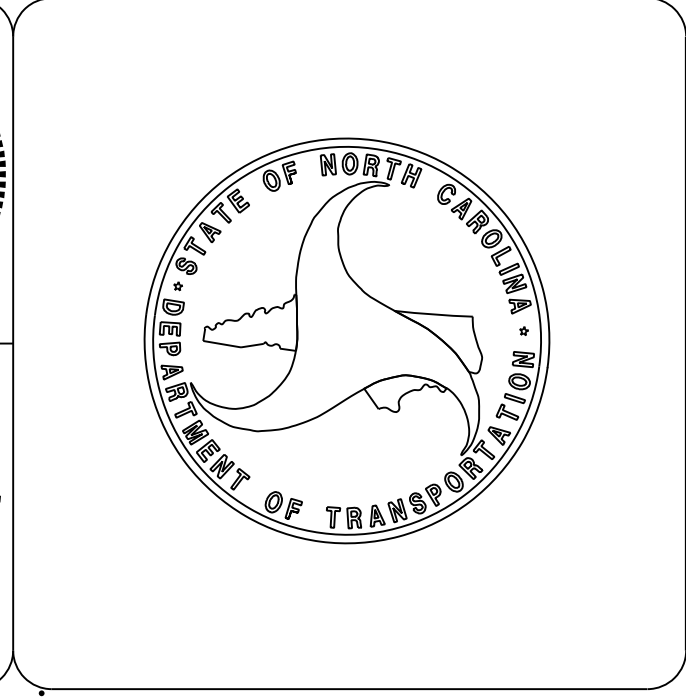
AMANDA GLYNN, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____

ROADWAY DESIGN ENGINEER

SIGNATURE: _____



\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

8/17/99

LOCHNER
 H. W. LOCHNER, INC.
 2840 PLAZA PLACE, SUITE 202
 RALEIGH, NC 27612
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 1151 St. Cary Parkway
 Suite 301
 Cary, NC 27518
 (919) 557-4929

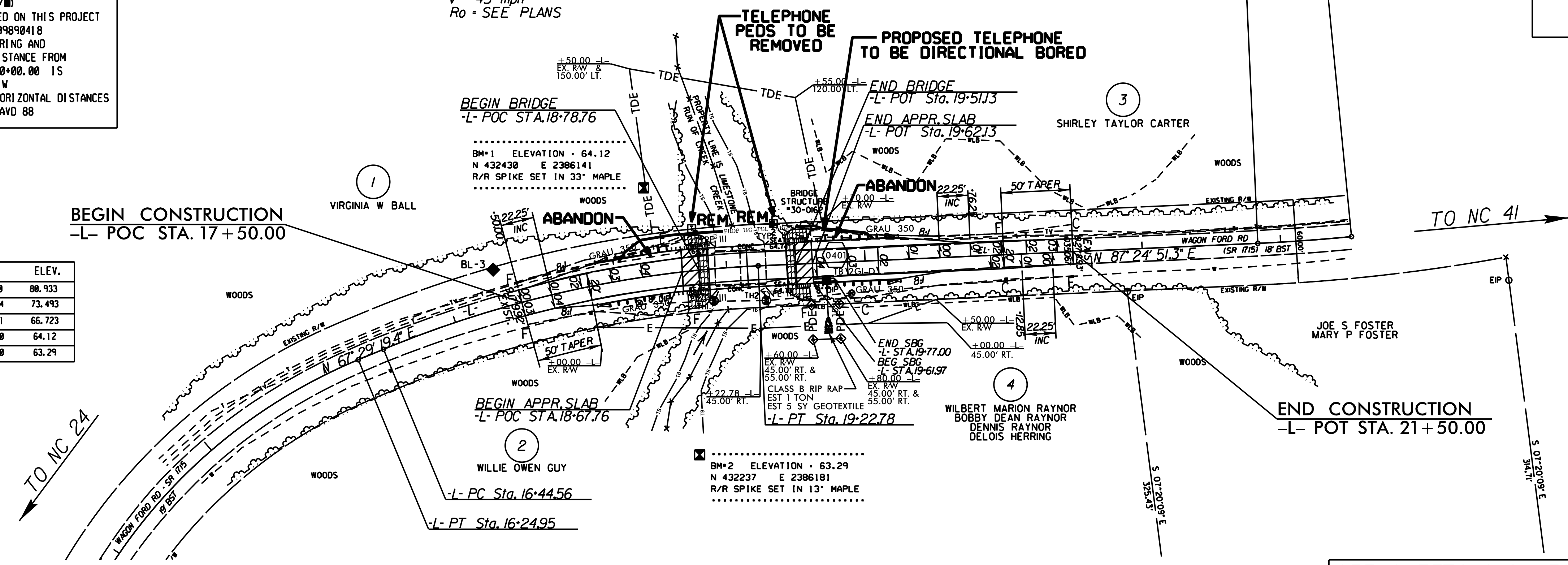
PROJECT REFERENCE NO.	SHEET NO.
17BP.3R.36	UO-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT '30-0162-2' WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 432120.274 // EASTING: 2385719.214 // ELEVATION: 73.493 // THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999890418 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM '30-0162-2' TO -L- STATION 10+00.00 IS 341.36' S 15°41'03" W ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

-L-
 PI Sta 14+96.04 Δ = 39° 25' 37" (RT) D = 14° 39' 33" L = 268.96' T = 140.05' R = 390.85' SE = EXIST.
 PI Sta 17+85.09 Δ = 19° 55' 32" (RT) D = 7° 09' 43" L = 278.21' T = 140.53' R = 800.00' SE = 0.04 V = 45 mph Ro = SEE PLANS
 PI Sta 23+17.45 Δ = 2° 59' 11.3" (LT) D = 4° 24' 26.5" L = 67.76' T = 33.89' R = 1,300.00' SE = EXIST.

POINT	NORTHING	EASTING	ELEV.
NCDOT GPS MON	431,604.013	2,385,548.198	88.933
NCDOT GPS MON	432,120.274	2,385,719.214	73.493
BL-3	432,370.587	2,386,032.291	66.723
BM-1	432,430.000	2,386,141.000	64.12
BM-2	432,237.000	2,386,181.000	63.29

BEGIN CONSTRUCTION
 -L- POC STA. 17+50.00



SEE SHEETS SI-S14 FOR STRUCTURE PLANS

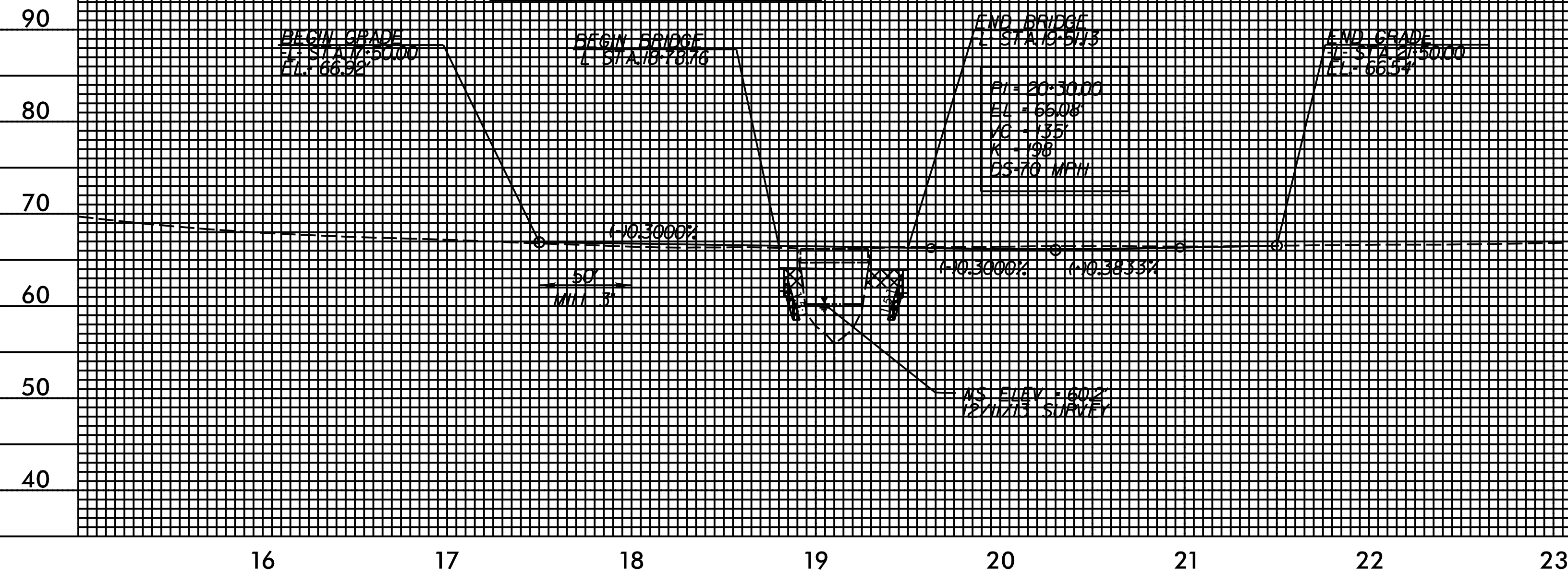
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	1100	CFS
DESIGN FREQUENCY	2%	YR
DESIGN HW ELEVATION	69.13	FT
BASE DISCHARGE	1000	CFS
BASE FREQUENCY	1%	YR
BASE HW ELEVATION	68.47	FT
OVERTOPPING DISCHARGE	1800	CFS
OVERTOPPING FREQUENCY	20%	YR
OVERTOPPING ELEVATION	66.20	FT

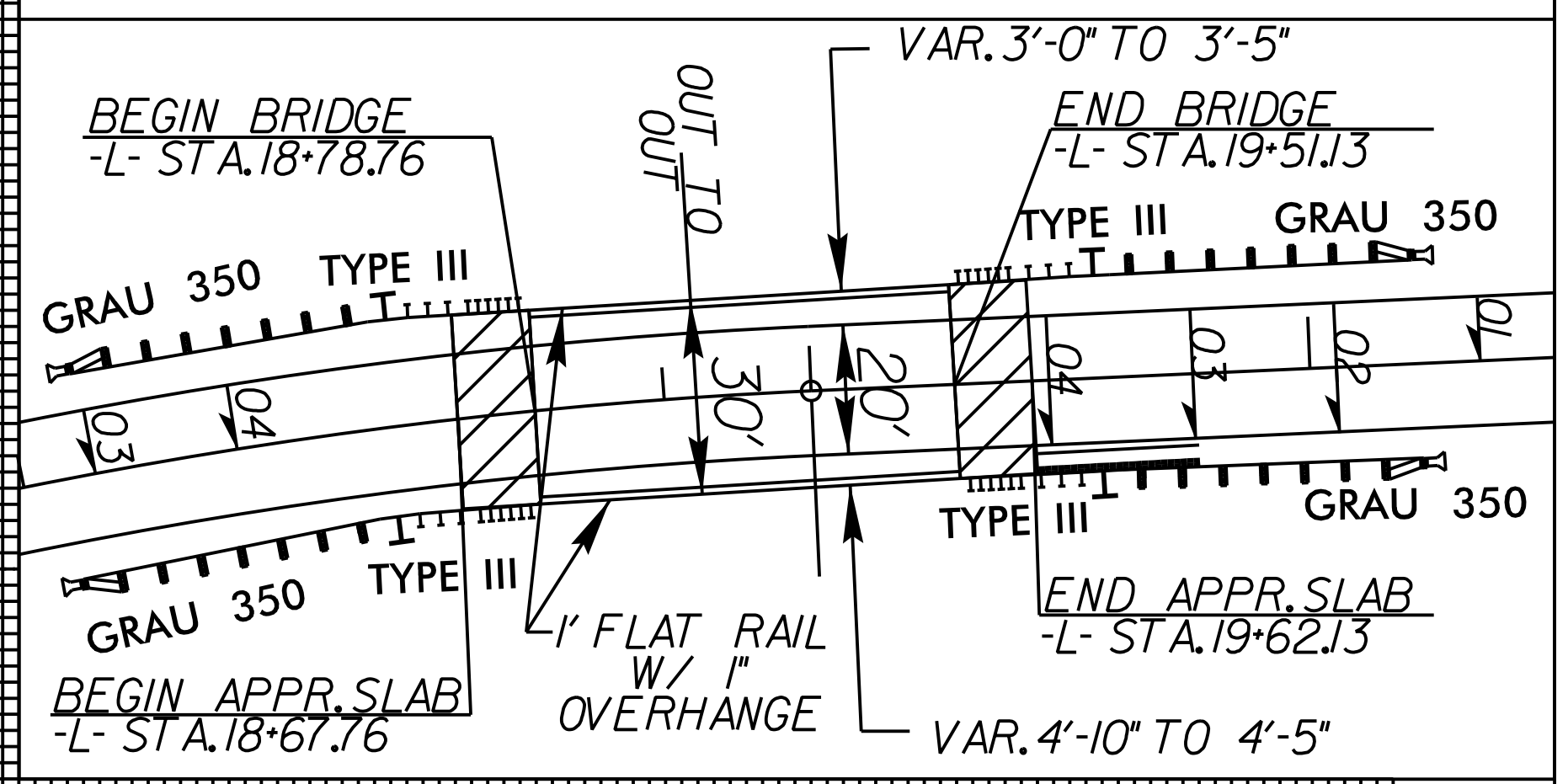
DATE OF SURVEY: 7/21/2015
 M.S. SURVEYOR: [Signature]
 AT DATE OF SURVEY: 5/02

BM-1 ELEVATION: 64.12
 N 432430 E 2386141
 R/R SPIKE SET IN 33' MAPLE

BM-2 ELEVATION: 63.29
 N 432237 E 2386181
 R/R SPIKE SET IN 13' MAPLE



BRIDGE / PAVEMENT RELATIONSHIP SKETCH



REVISIONS

SYSTEM TIME: 8/17/99 10:00 AM
 USER: [Name]

**STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS**

CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

Station	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)																																																																																															
17+50.000	0	0	Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."																																																																																														
18+00.000	5	1																																																																																															
18+50.000	7	4																																																																																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Station</th> <th>Uncl. Exc. (cu. yd.)</th> <th>Embt (cu. yd.)</th> <th colspan="11"></th> </tr> </thead> <tbody> <tr> <td>19+50.000</td> <td>0</td> <td>0</td> <td colspan="11"></td> </tr> <tr> <td>20+00.000</td> <td>48</td> <td>0</td> <td colspan="11"></td> </tr> <tr> <td>20+50.000</td> <td>49</td> <td>0</td> <td colspan="11"></td> </tr> <tr> <td>21+00.000</td> <td>44</td> <td>0</td> <td colspan="11"></td> </tr> <tr> <td>21+50.000</td> <td>38</td> <td>0</td> <td colspan="11"></td> </tr> </tbody> </table>														Station	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)												19+50.000	0	0												20+00.000	48	0												20+50.000	49	0												21+00.000	44	0												21+50.000	38	0											
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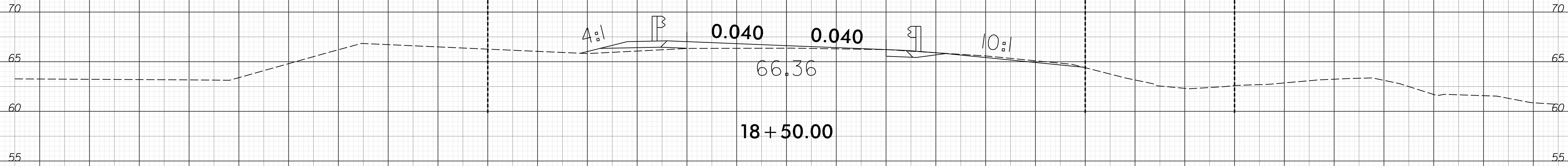
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R/W

C

R/W

TCE

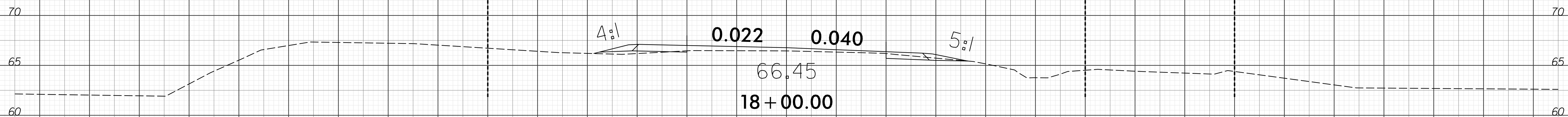


R/W

C

R/W

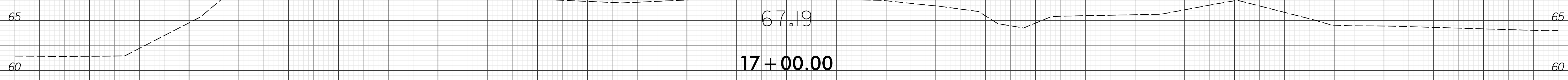
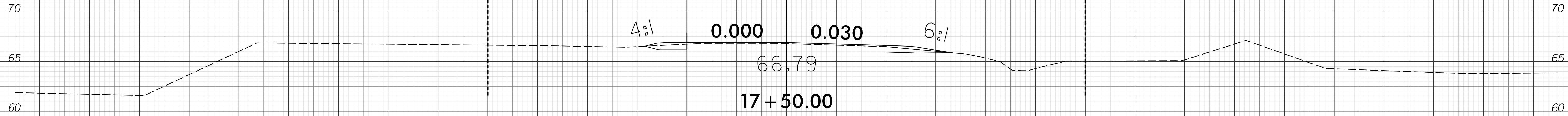
TCE



R/W

C

R/W



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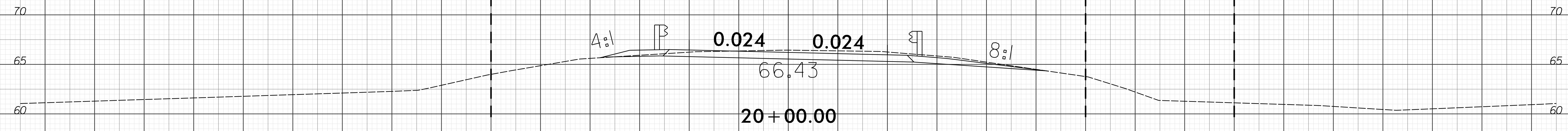
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R/W

C

R/W

TCE



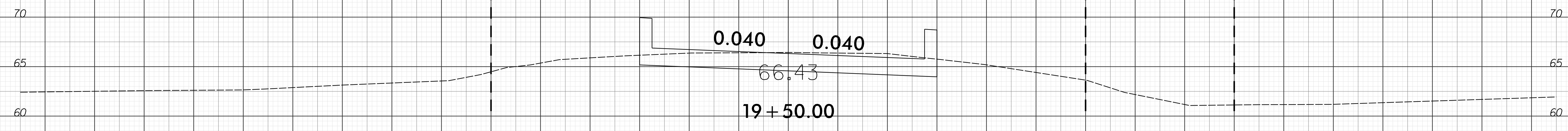
20+00.00
END BRIDGE 19+51.13

R/W

C

R/W

TCE



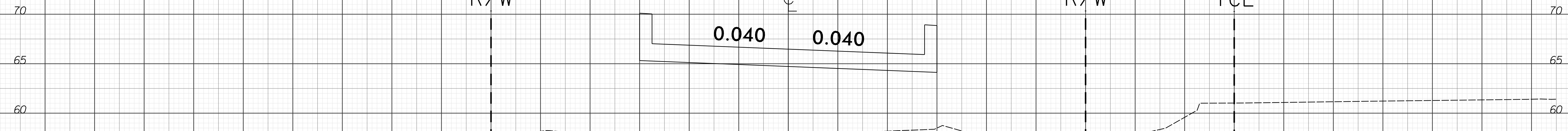
19+50.00

R/W

C

R/W

TCE



19+00.00
BEGIN BRIDGE 18+78.76

-4-

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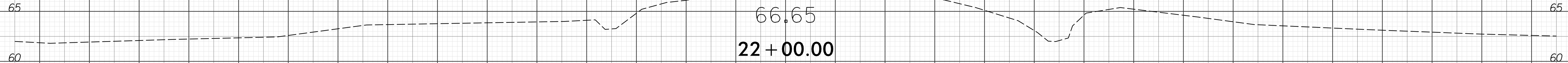
8/23/99

0 2.5 5

PROJ. REFERENCE NO.
17BP.3.R.36

SHEET NO.
X-3

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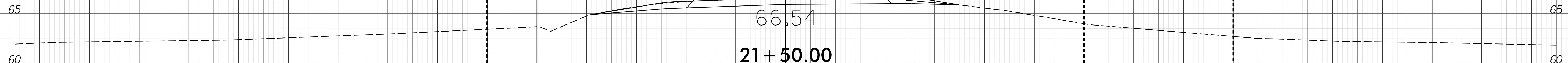


R/W

C

R/W

TCE

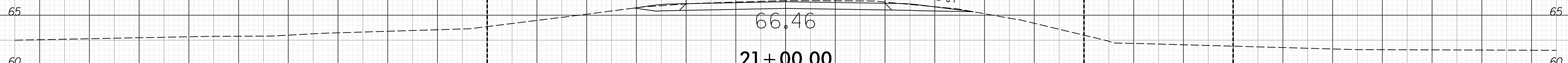


R/W

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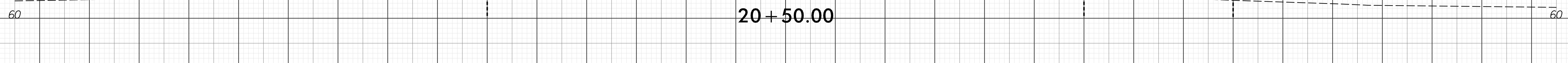
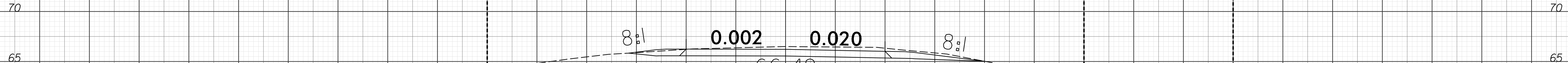


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R/W

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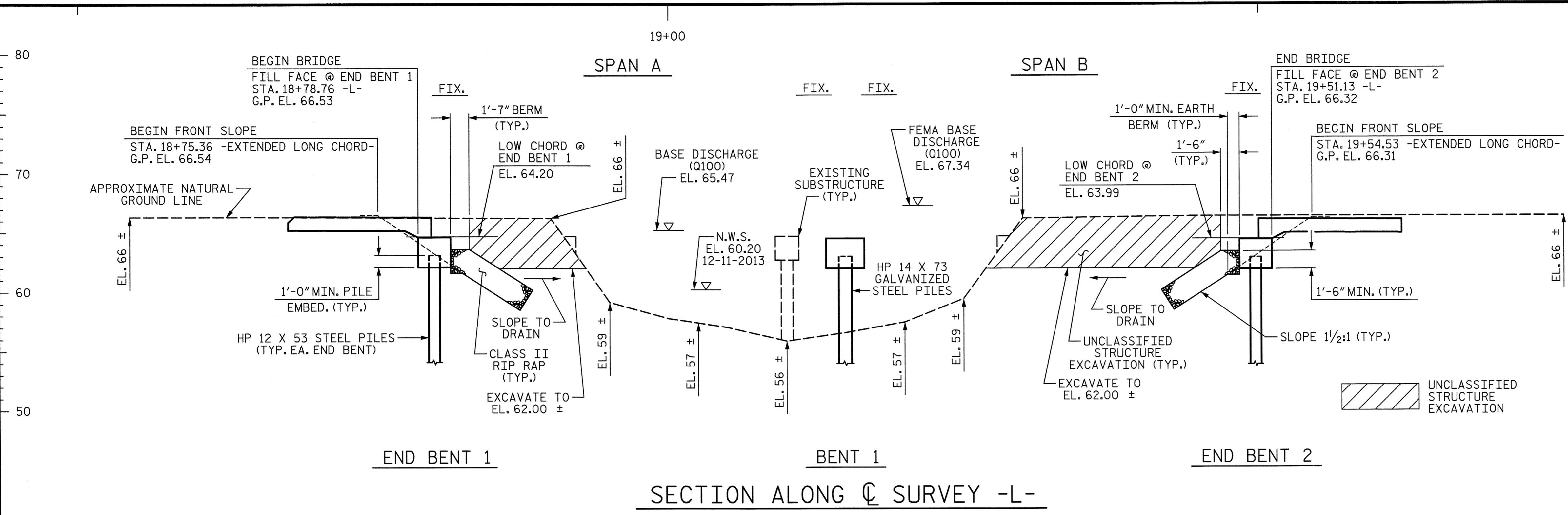
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\$\$\$\$USERNAME\$\$\$\$

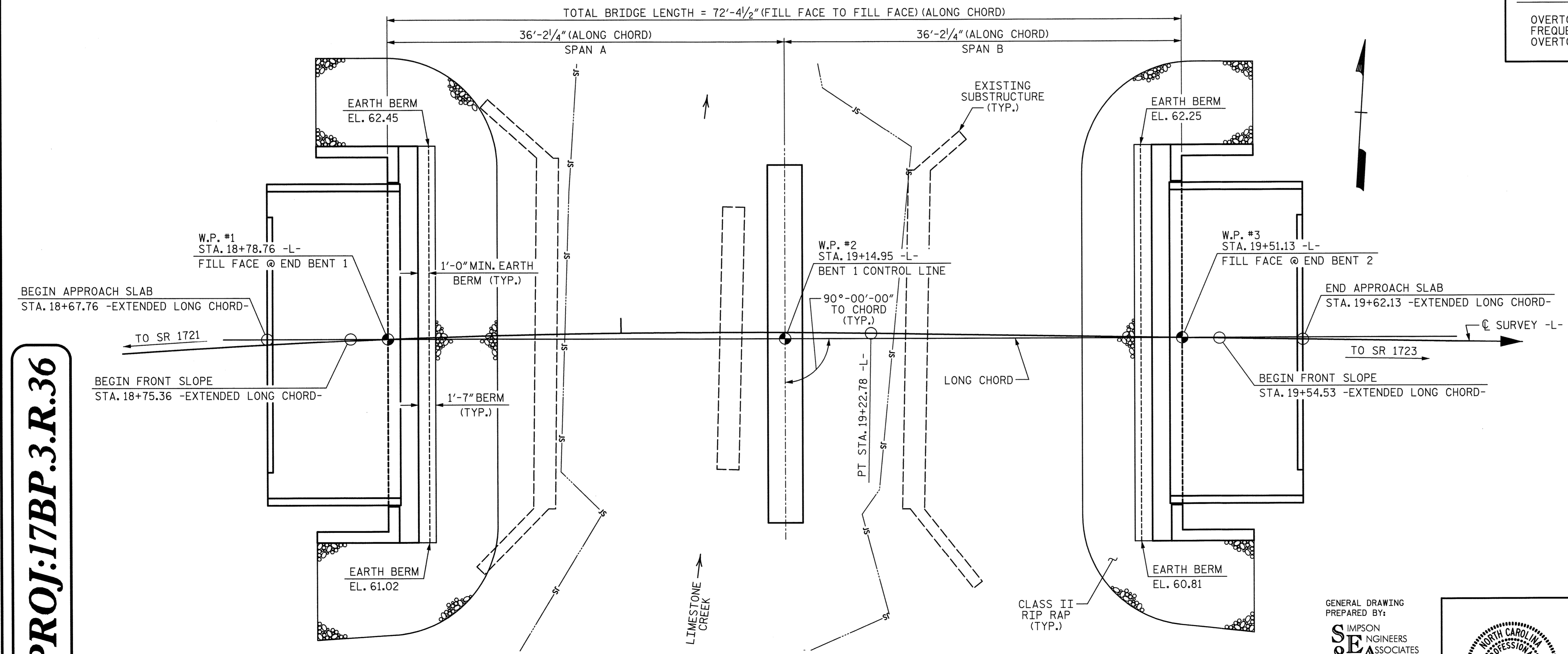
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PROJ:17BP.3.R.36

DRAWN BY: T. BANKOVICH DATE: 7-14
 CHECKED BY: B.S. COX DATE: 7-14
 DESIGN ENGINEER OF RECORD: G.W. DICKEY DATE: 7-14



SECTION ALONG Q SURVEY -L-



PLAN
 (PILES NOT SHOWN IN PLAN VIEW)

GRADE DATA -L-

(-)-0.3000% (+)-0.3833%

PVI STA. 20+30.00
 EL. = 66.08
 VC = 135'

HORIZONTAL CURVE DATA

PI STA. 17+85.09 -L-
 $\Delta = 19^\circ-55'-32.0"$ (RT.)
 $D = 7^\circ-09'-43.1"$
 $L = 278.21'$
 $T = 140.53'$
 $R = 800.00'$

HYDRAULIC DATA:

DESIGN DISCHARGE = 1100 CFS
 FREQUENCY OF DESIGN FLOOD = 25 YEAR
 DESIGN HIGH WATER ELEVATION = 64.40
 DRAINAGE AREA = 11.0 SQ. MI.
 BASE DISCHARGE (Q 100) = 1600 CFS
 BASE HIGH WATER ELEVATION = 65.47
 FEMA DISCHARGE (Q100) = 2630 CFS
 FEMA PROPOSED Q100 ELEVATION = 67.34

OVERTOPPING FLOOD DATA:

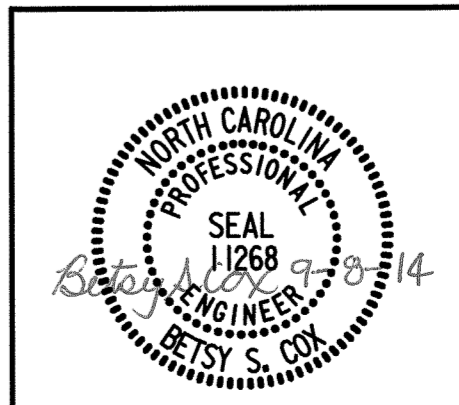
OVERTOPPING DISCHARGE = 1860 CFS
 FREQUENCY OF OVERTOPPING FLOOD = 200+ YEAR
 OVERTOPPING FLOOD ELEVATION = 66.20

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.3.R.36
 DUPLIN COUNTY
 STATION: 19+14.95 -L-
 SHEET 1 OF 2 REPLACES BRIDGE #162

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 1715
 (WAGON FORD RD.)
 OVER LIMESTONE CREEK
 BETWEEN SR 1721 AND SR 1723
 27'-10" CLEAR ROADWAY - 90° SKEW

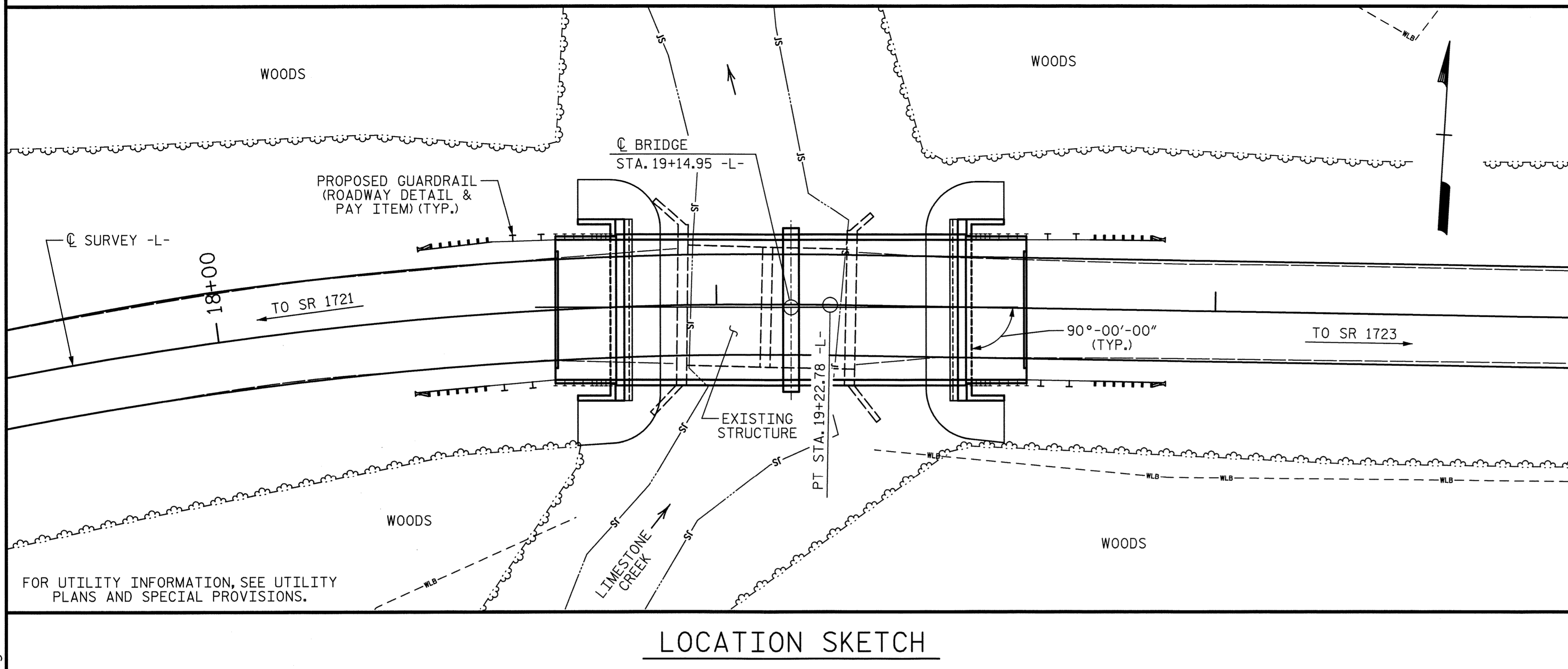
GENERAL DRAWING
 PREPARED BY:
SEA & ASSOCIATES
 5640 Dillard Drive
 Suite 200
 Cary, NC 27518
 (919) 852-0468
 (919) 852-0598 (Fax)
 www.simpsonengr.com
 LICENSURE NO. C-2521



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

TOTAL SHEETS: 15

BM #1 RAILROAD SPIKE IN 33" MAPLE, STA. 18+48.50 -L-, 63.66' LT., EL 64.12



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.

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

THE EXISTING STRUCTURE CONSISTS OF 1 SPAN @ 18'-5" AND 1 SPAN @ 18'-4" WITH A CLEAR ROADWAY WIDTH OF 24 FT. THE SUPERSTRUCTURE CONSISTS OF A REINFORCED CONCRETE DECK ON STEEL I-BEAMS. THE END BENTS AND BENT ARE REINFORCED CONCRETE CAPS ON TIMBER PILES WITH TIMBER BULKHEADS AT THE END BENTS. THE EXISTING STRUCTURE, WHICH IS LOCATED AT THE SITE OF THE PROPOSED STRUCTURE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THE LOAD LIMIT MAY BE REDUCED AS NECESSARY DURING THE LIFE OF THE PROJECT.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 60 FT. LEFT AND 40 FT. RIGHT OF CENTERLINE ROADWAY AT END BENT 1 AND FOR A DISTANCE OF 125 FT. LEFT AND 40 FT. RIGHT OF CENTERLINE ROADWAY AT END BENT 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.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. 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.

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

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.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 19+14.95 -L-."

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE.

DRIVE PILES AT END BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

PILES AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.

DRIVE PILES AT BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 165 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

PILES AT END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE.

DRIVE PILES AT END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT BENT 1. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

INSTALL PILES AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 30.0 FEET.

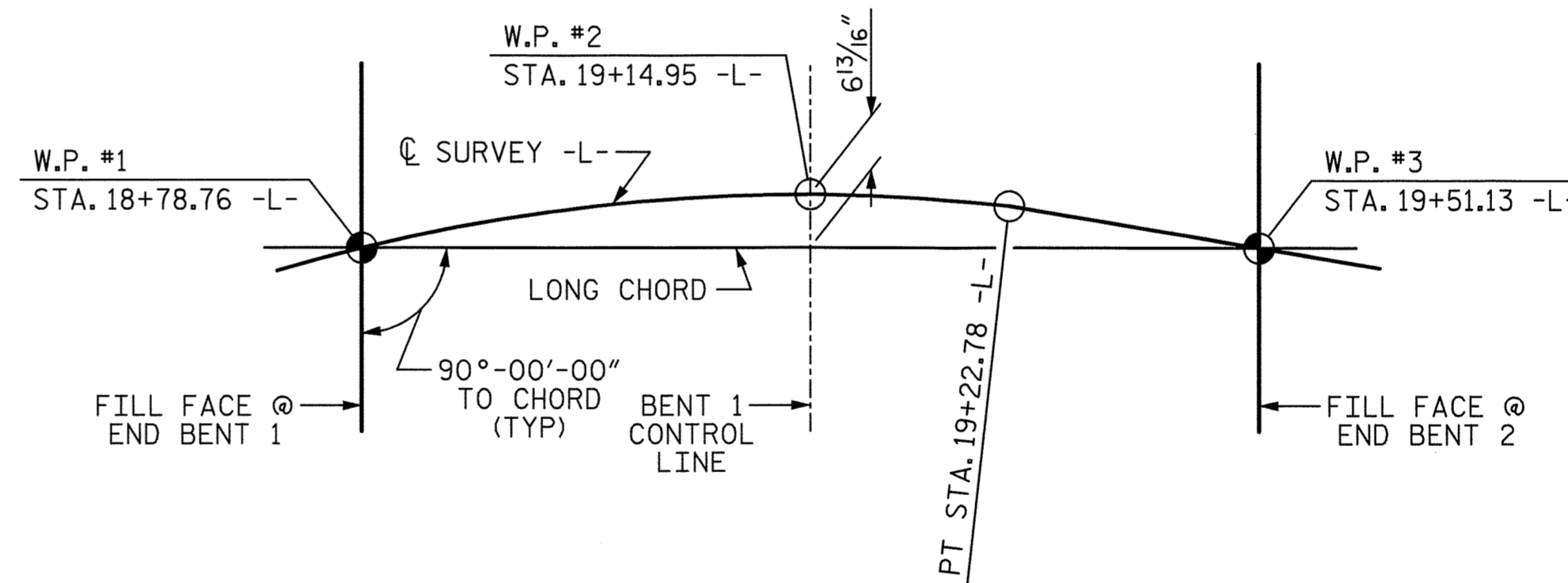
IF NECESSARY, PREDRILL PILE LOCATIONS AT BENT 1 TO ELEVATION 40 FEET WITH EQUIPMENT THAT WILL RESULT IN A MAXIMUM PREDRILLING DIAMETER OF 16". FOR PREDRILLING FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

SPUDDING MAY BE USED INSTEAD OF PREDRILLING AT BENT 1.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS ELEVATION 47.5 FEET. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30 TO 45 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT 1 AND 2 AND BENT 1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

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 AND FOR PILE DRIVING CRITERIA, SEE PILE DRIVING CRITERIA PROVISION.



LONG CHORD LAYOUT

NOTE: THE EFFECTS OF THE HORIZONTAL CURVE SHALL BE NEGLECTED IN THE CONSTRUCTION OF THIS BRIDGE. BRIDGE TO BE BUILT ALONG THE LONG CHORD BETWEEN THE WORK POINTS AT THE FILL FACES.

TOTAL BILL OF MATERIAL

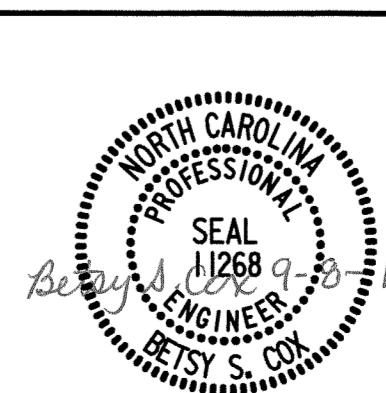
	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		STEEL PILE POINTS	PREDRILLING FOR PILES	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLABS	
							NO.	LF	NO.	LF								EA	LF
SUPERSTRUCTURE	LS	EA	LS	CY	LS	LB					EA	LF	EA	LF	TON <td>SY</td> <td>LS</td> <td>NO.</td> <td>LF</td>	SY	LS	NO.	LF
END BENT 1			LS	13.1		1,977	5	250					3		60	67		20	700.00
BENT 1				9.9		1,959			7	385	7	116	4						
END BENT 2			LS	13.1		1,977	5	250					3		57	63			
TOTAL	LS	1	LS	36.1	LS	5,913	10	500	7	385	7	116	10	140.50	117	130	LS	20	700.00

GENERAL DRAWING PREPARED BY:

S&EA IMPSON ENGINEERS ASSOCIATES

5640 Dillard Drive
Suite 200
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com

LICENSURE NO. C-2521



PROJECT NO. 17BP.3.R.36

DUPLIN COUNTY

STATION: 19+14.95 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1715 (WAGON FORD RD.) OVER LIMESTONE CREEK BETWEEN SR 1721 AND SR 1723
27'-10" CLEAR ROADWAY - 90° SKEW

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

TOTAL SHEETS: 15

9/8/2014 3:27:02 PM G:\Projects\2014\17BP3R36 (Duplin 162)\Structures\Drawings\Final\Duplin 162.smu.gd.dgn

DRAWN BY: T. BANKOVICH DATE: 7-14
 CHECKED BY: B.S. COX DATE: 7-14
 DESIGN ENGINEER OF RECORD: G.W. DICKEY DATE: 7-14

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	1.23	--	1.75	0.281	1.44	35'	EL	17	0.558	1.4	35'	EL	1.7	0.80	0.281	1.23	35'	EL	17		
	HL-93(0pr)	N/A	--	1.82	--	1.35	0.281	1.87	35'	EL	17	0.558	1.82	35'	EL	1.7	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.61	58.098	1.75	0.281	1.89	35'	EL	13.6	0.558	1.61	35'	EL	1.7	0.80	0.281	1.62	35'	EL	13.6		
	HS-20(0pr)	36.000	--	2.09	75.313	1.35	0.281	2.45	35'	EL	13.6	0.558	2.09	35'	EL	1.7	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.81	37.995	1.4	0.281	4.12	35'	EL	17	0.558	4.16	35'	EL	1.7	0.80	0.281	2.81	35'	EL	17	
		SNGARBS2	20.000	--	2.39	47.770	1.4	0.281	3.47	35'	EL	13.6	0.558	3.14	35'	EL	1.7	0.80	0.281	2.39	35'	EL	13.6	
		SNAGRIS2	22.000	--	2.39	52.482	1.4	0.281	3.44	35'	EL	13.6	0.558	3	35'	EL	1.7	0.80	0.281	2.39	35'	EL	13.6	
		SNCOTTS3	27.250	--	1.41	38.396	1.4	0.281	2.06	35'	EL	17	0.558	2.09	35'	EL	1.7	0.80	0.281	1.41	35'	EL	17	
		SNAGGRS4	34.925	--	1.3	45.517	1.4	0.281	1.91	35'	EL	17	0.558	1.87	35'	EL	1.7	0.80	0.281	1.30	35'	EL	17	
		SNS5A	35.550	--	1.27	44.974	1.4	0.281	1.85	35'	EL	17	0.558	1.98	35'	EL	1.7	0.80	0.281	1.27	35'	EL	17	
		SNS6A	39.950	--	1.22	48.782	1.4	0.281	1.79	35'	EL	17	0.558	1.86	35'	EL	1.7	0.80	0.281	1.22	35'	EL	17	
	SNS7B	42.000	3	1.17	48.938	1.4	0.281	1.7	35'	EL	17	0.558	1.9	35'	EL	1.7	0.80	0.281	1.17	35'	EL	17		
	TTST	TNAGRIT3	33.000	--	1.51	49.764	1.4	0.281	2.21	35'	EL	17	0.558	2.17	35'	EL	1.7	0.80	0.281	1.51	35'	EL	17	
		TNT4A	33.075	--	1.51	49.850	1.4	0.281	2.21	35'	EL	17	0.558	2.05	35'	EL	1.7	0.80	0.281	1.51	35'	EL	17	
		TNT6A	41.600	--	1.32	54.926	1.4	0.281	1.93	35'	EL	17	0.558	2.01	35'	EL	1.7	0.80	0.281	1.32	35'	EL	17	
		TNT7A	42.000	--	1.36	56.940	1.4	0.281	2	35'	EL	17	0.558	1.86	35'	EL	1.7	0.80	0.281	1.36	35'	EL	17	
		TNT7B	42.000	--	1.34	56.358	1.4	0.281	1.96	35'	EL	17	0.558	1.81	35'	EL	1.7	0.80	0.281	1.34	35'	EL	17	
		TNAGRIT4	43.000	--	1.36	58.247	1.4	0.281	1.96	35'	EL	13.6	0.558	1.73	35'	EL	1.7	0.80	0.281	1.35	35'	EL	17	
TNAGT5A		45.000	--	1.25	56.369	1.4	0.281	1.83	35'	EL	17	0.558	1.83	35'	EL	1.7	0.80	0.281	1.25	35'	EL	17		
TNAGT5B	45.000	--	1.21	54.253	1.4	0.281	1.77	35'	EL	17	0.558	1.64	35'	EL	1.7	0.80	0.281	1.21	35'	EL	17			

LOAD FACTORS:

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

NOTES:

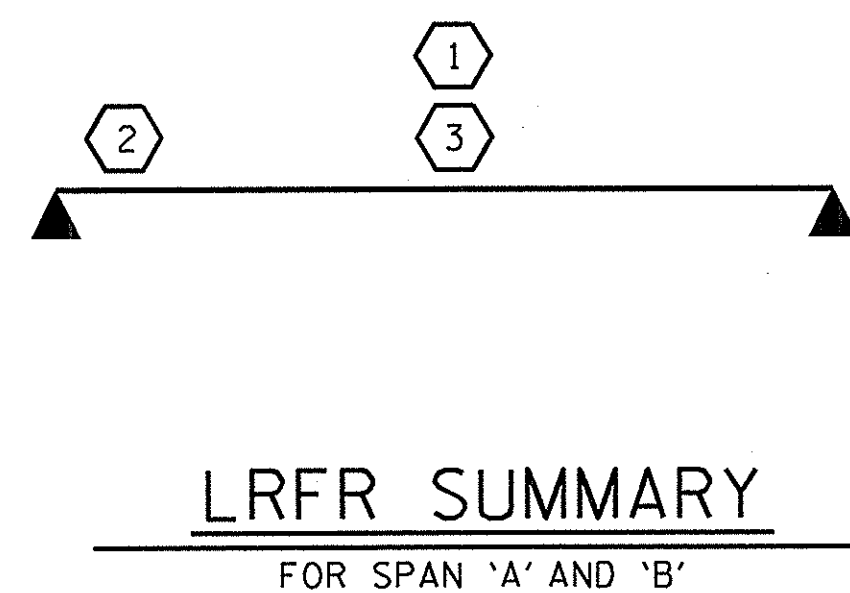
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

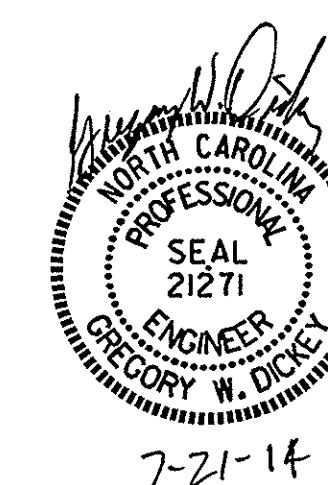
COMMENTS:

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

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	

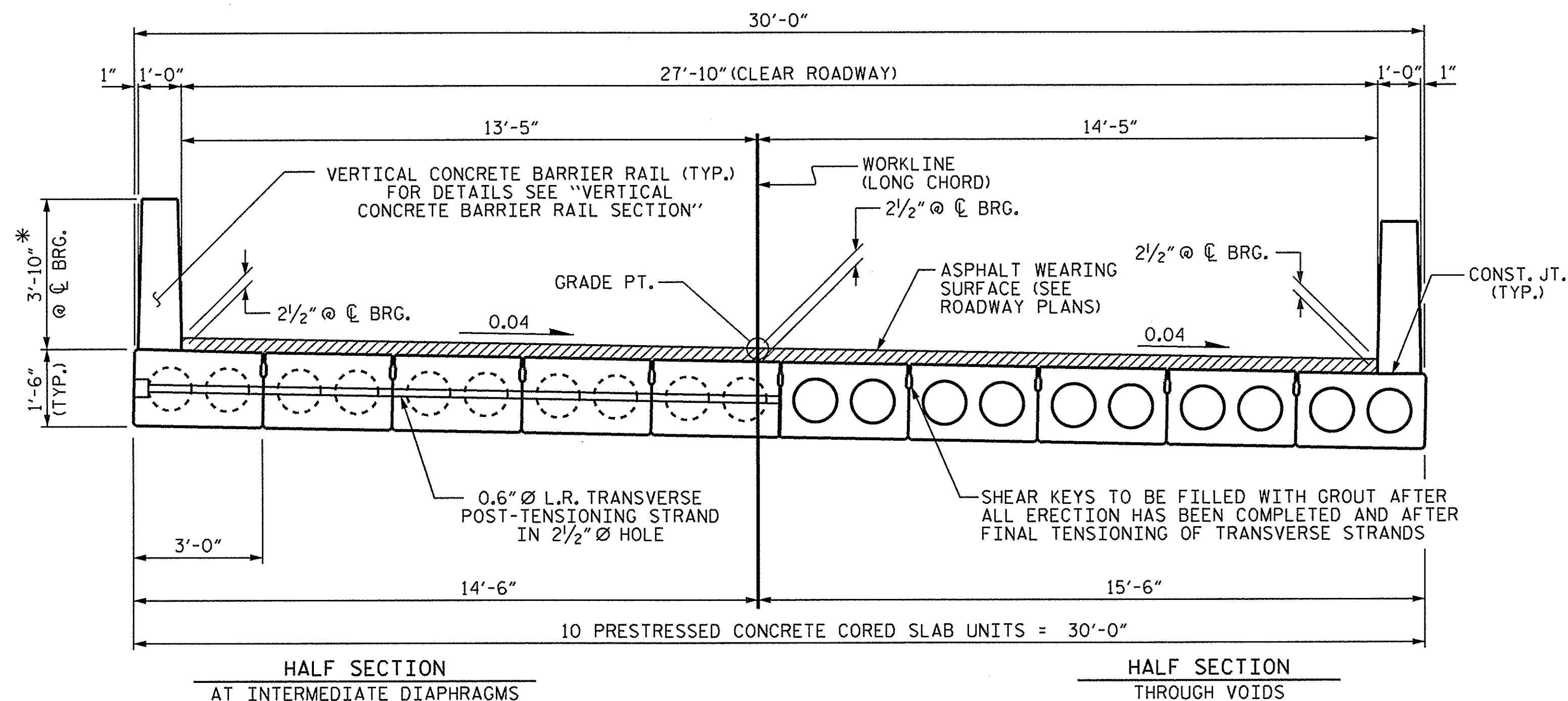


PROJECT NO. 17BP.3.R.36
DUPLIN COUNTY
 STATION: 19+14.95 -L-



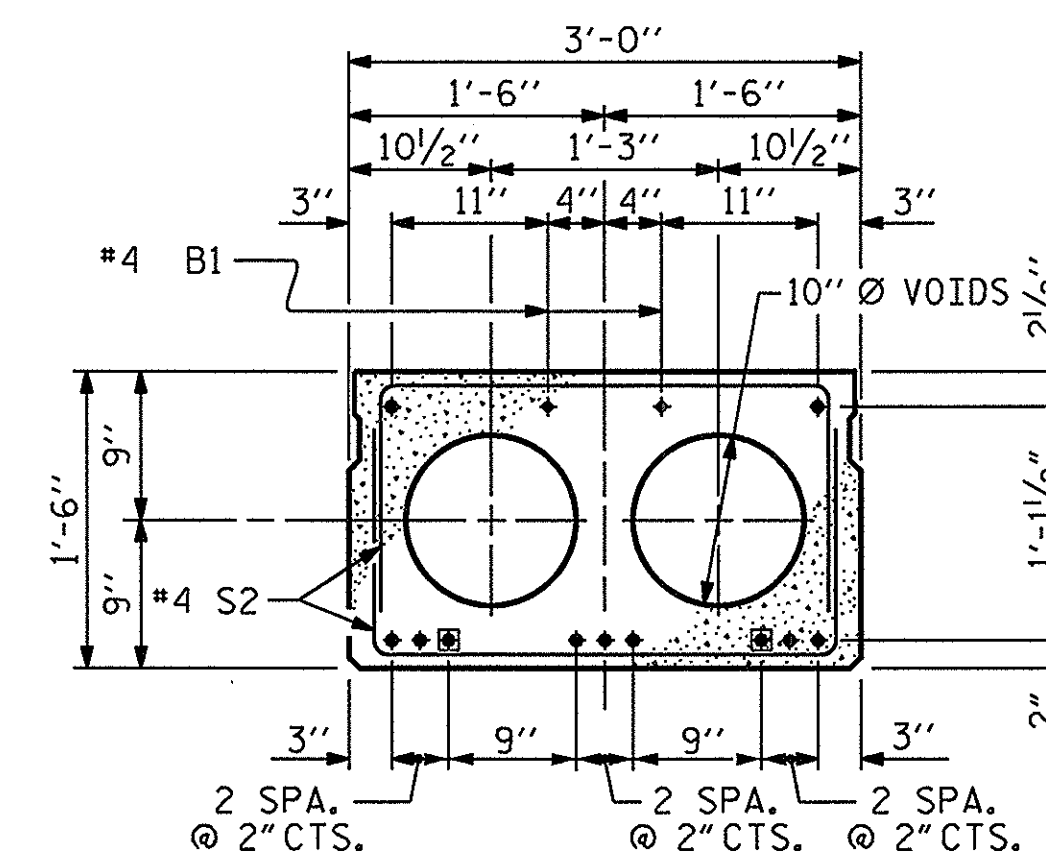
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD LRFR SUMMARY FOR 35' CORED SLAB UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO.
					TOTAL SHEETS

ASSEMBLED BY : C.C.WILLIAMS DATE : 7/14
 CHECKED BY : P.N.HOLDER DATE : 7/14
 DRAWN BY : CVC 6/10
 CHECKED BY : DNS 6/10



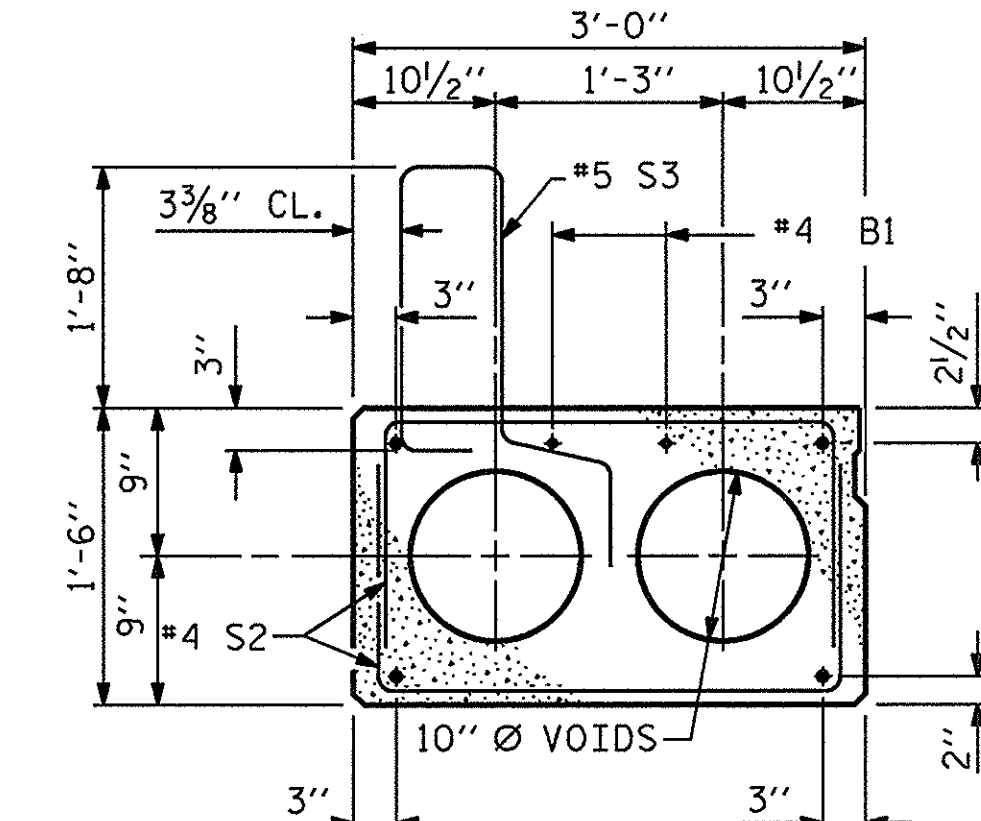
TYPICAL SECTION

* - 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.



INTERIOR SLAB SECTION (35' UNIT)
(11 STRANDS REQUIRED)

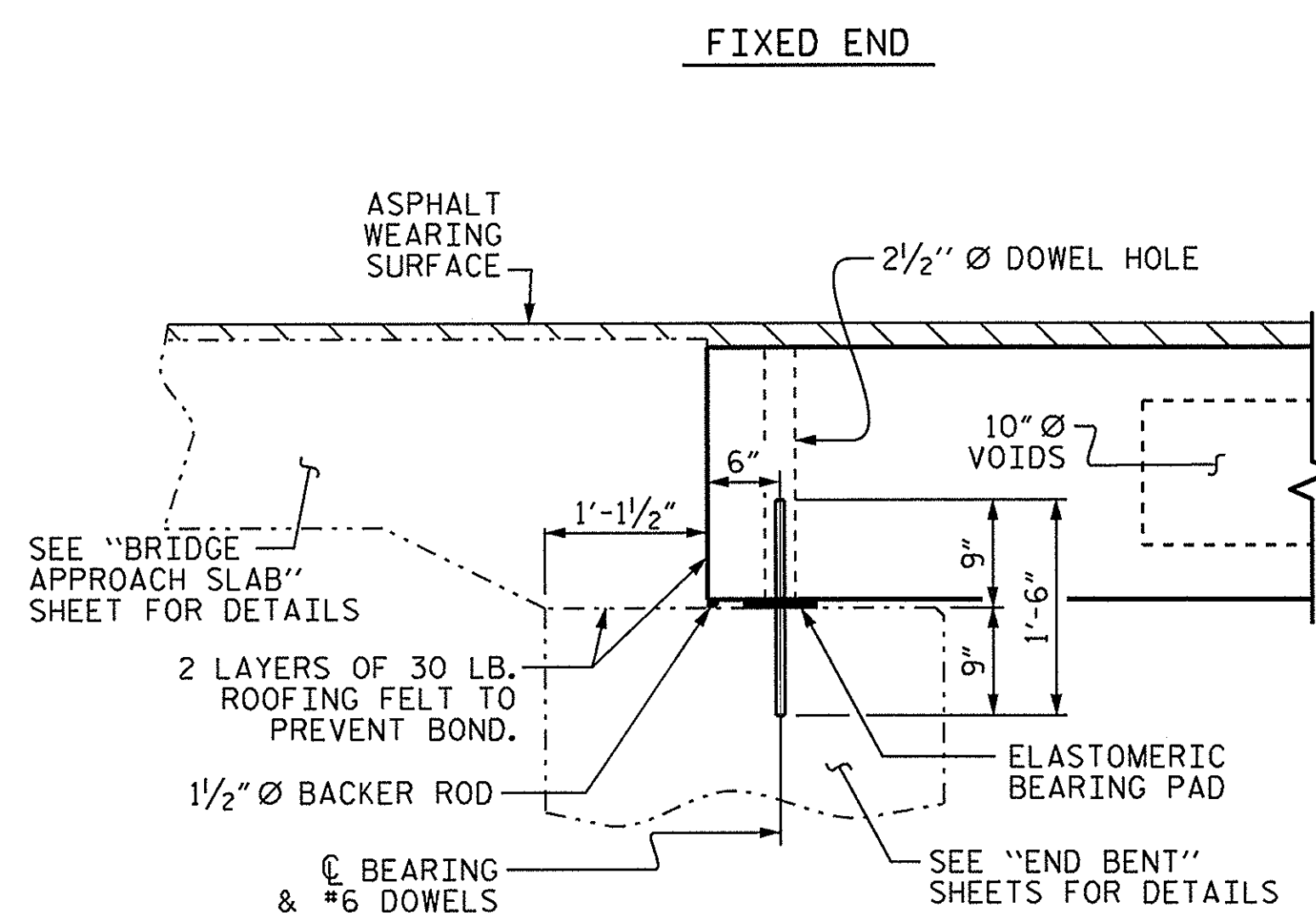
0.6" Ø LOW RELAXATION STRAND LAYOUT



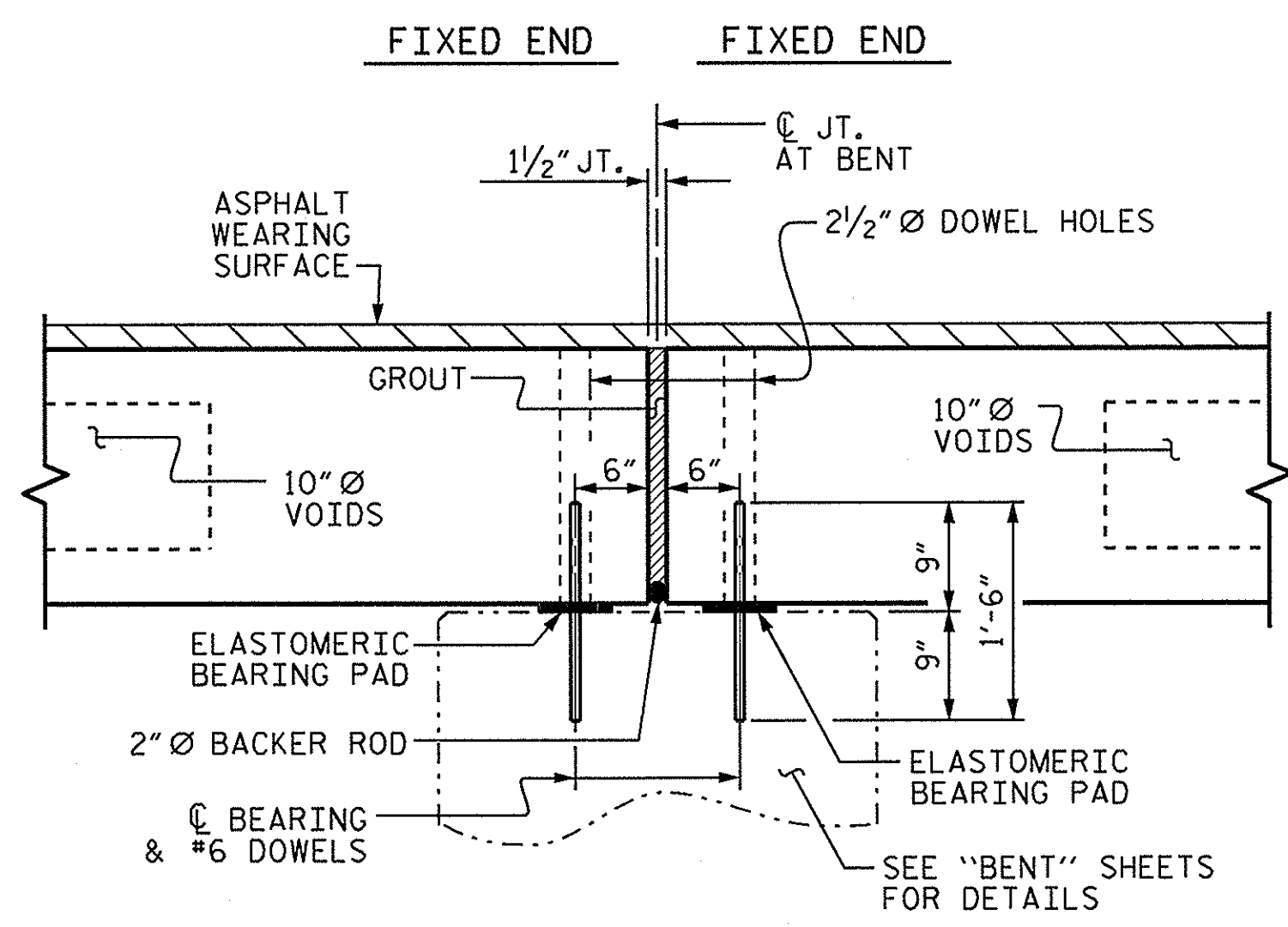
EXT. SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

■ 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.

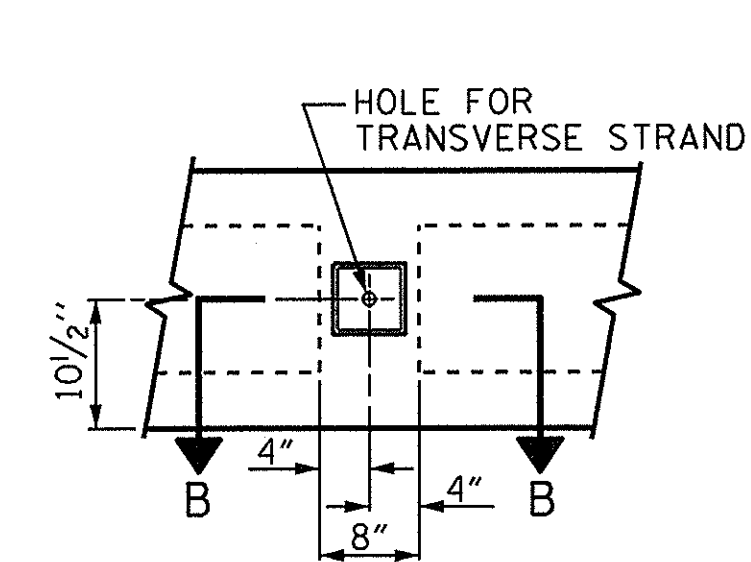
DEBONDING LEGEND



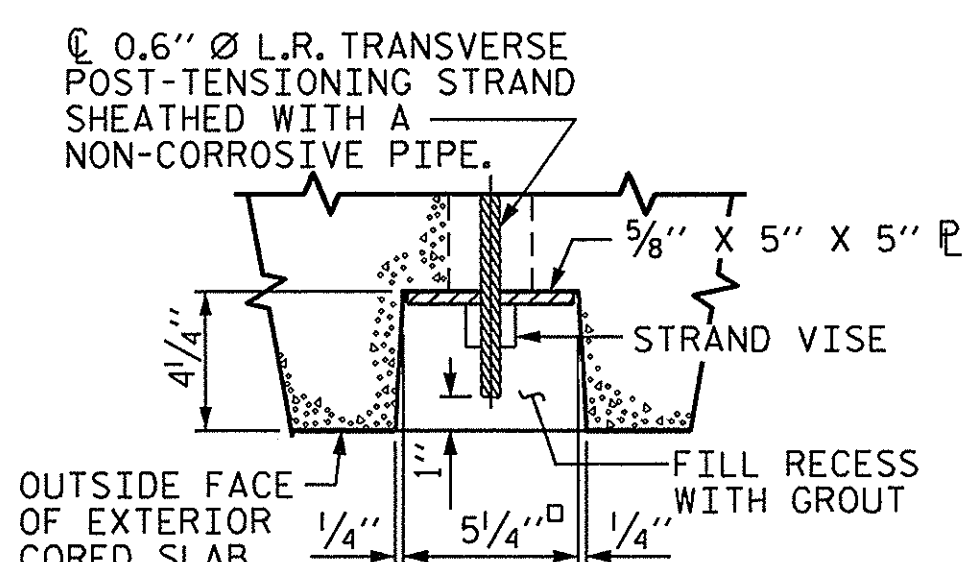
SECTION AT END BENT



SECTION AT BENT

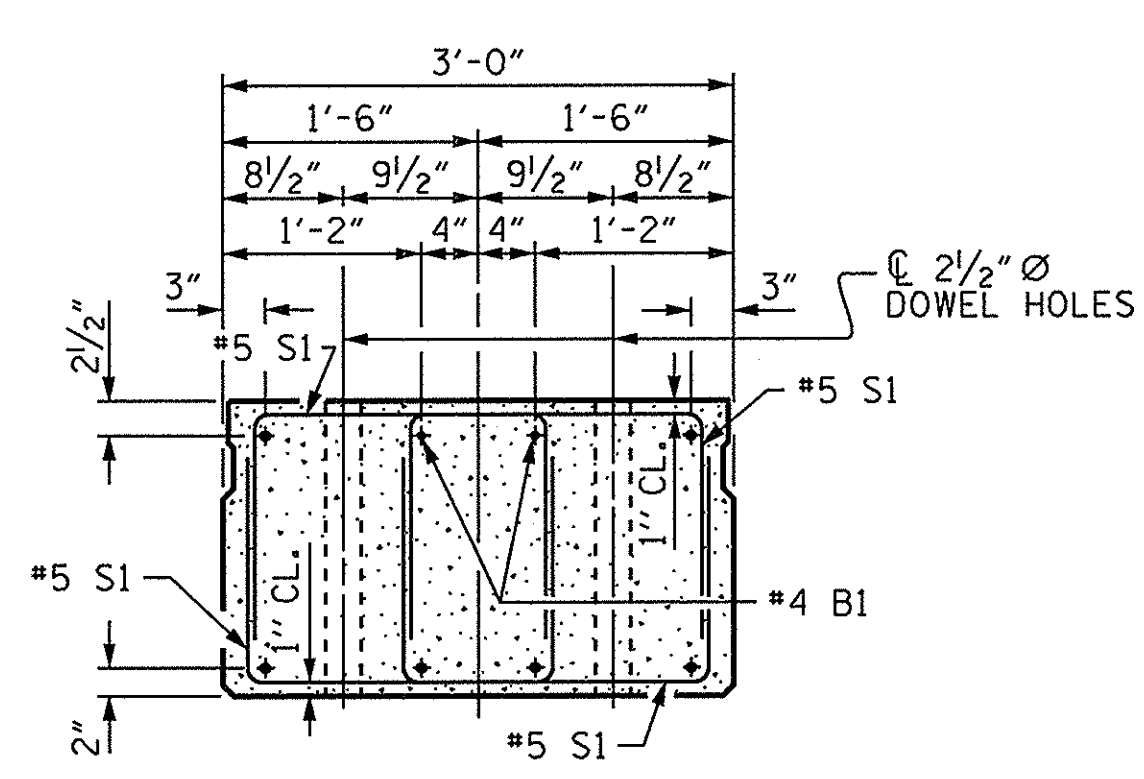


ELEVATION VIEW



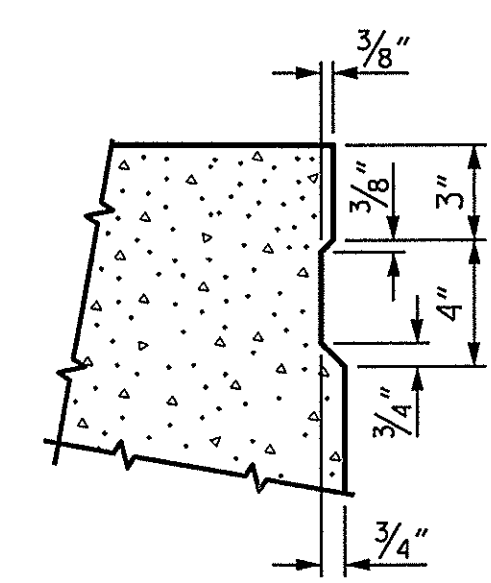
SECTION B-B

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



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.



SHEAR KEY DETAIL

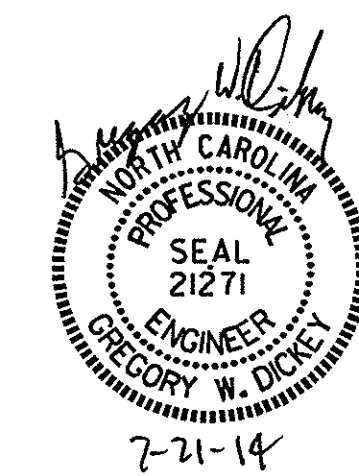
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

ASSEMBLED BY : C.C.WILLIAMS	DATE : 07/14
CHECKED BY : P.N.HOLDER	DATE : 07/14
DRAWN BY : DGE	5/09
CHECKED BY : BCH	6/09
REV. 12/11	MAA/AAC

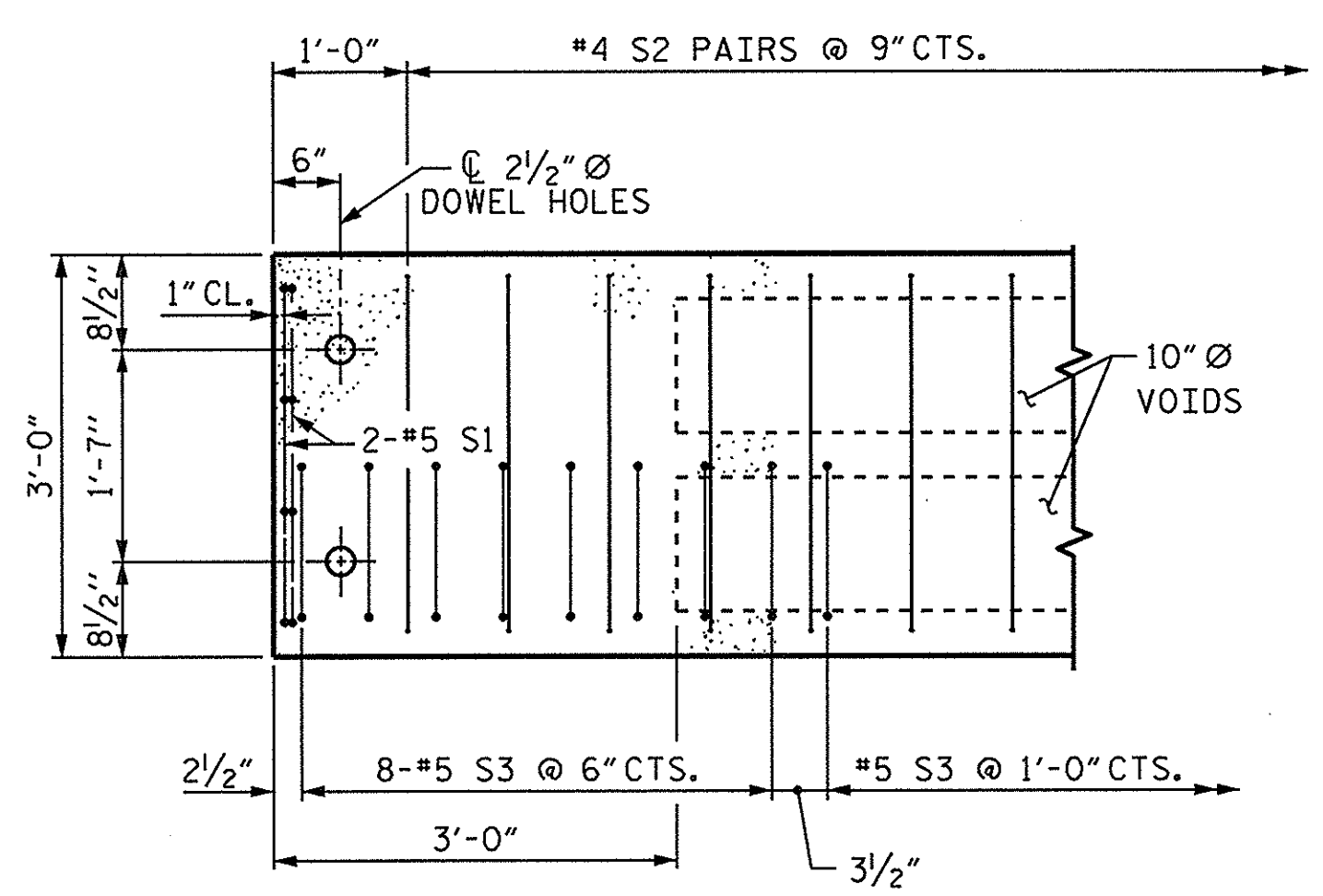
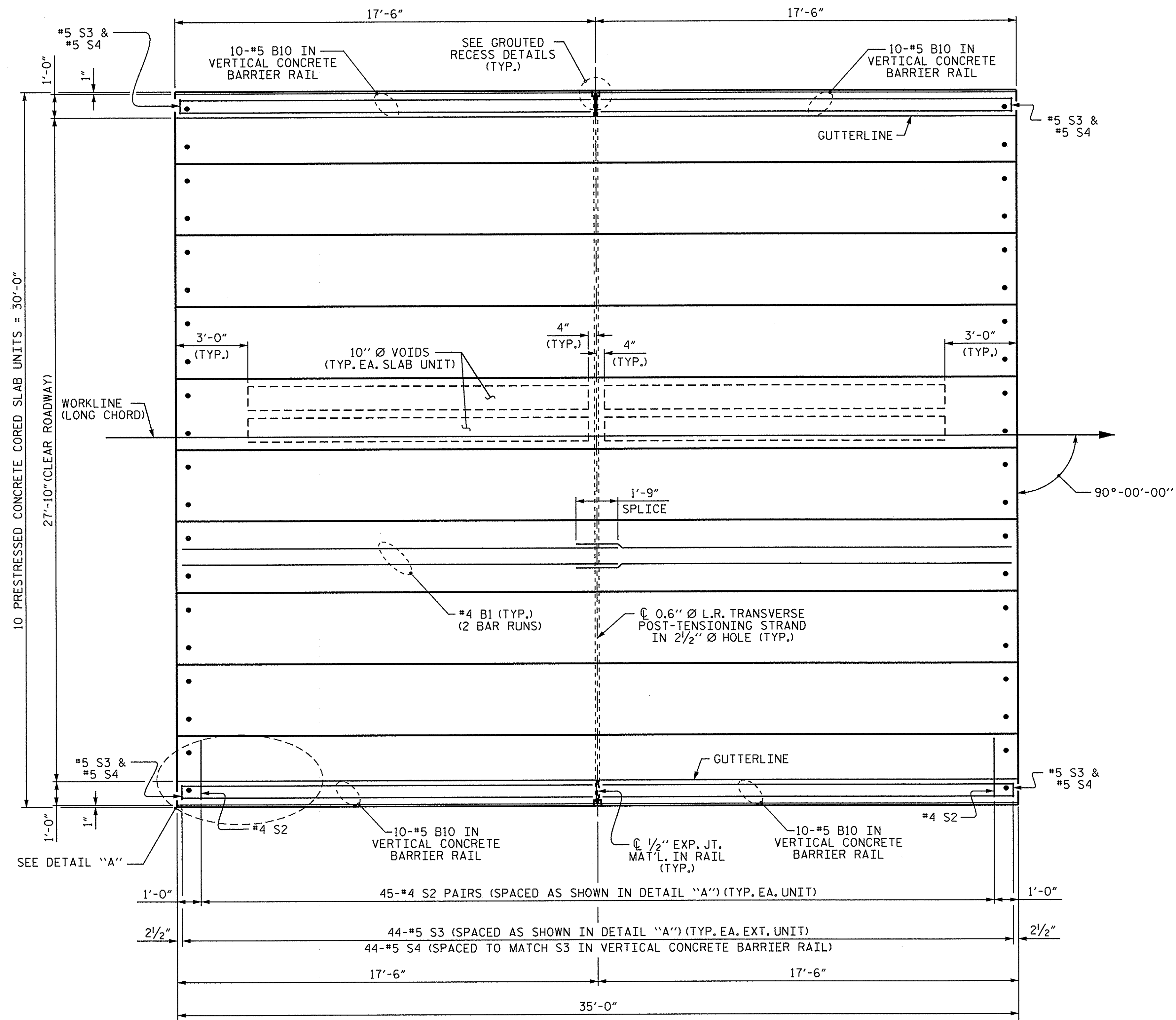
PROJECT NO. 17BP.3.R.36
DUPLIN COUNTY
STATION: 19+14.95 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-6"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW



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



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

PLAN OF UNIT
 FOR SPAN 'A' AND 'B'

PROJECT NO. 17BP.3.R.36
 DUPLIN COUNTY
 STATION: 19+14.95 -L-

SHEET 2 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 35' UNIT
 27'-10" CLEAR ROADWAY
 90° SKEW



ASSEMBLED BY : C.C.WILLIAMS	DATE : 7/14
CHECKED BY : P.N.HOLDER	DATE : 7/14
DRAWN BY : DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09	

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

BILL OF MATERIAL FOR ONE 35' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	18'-3"	49	18'-3"	49
S1	8	#5	3	3'-9"	31	3'-9"	31
S2	90	#4	3	4'-10"	291	4'-10"	291
*S3	44	#5	1	6'-2"	283		
REINFORCING STEEL				LBS.	371		371
* EPOXY COATED REINFORCING STEEL				LBS.	283		
5000 P.S.I. CONCRETE				CU. YDS.	4.7		4.7
0.6" Ø L.R. STRANDS				No.	11		11

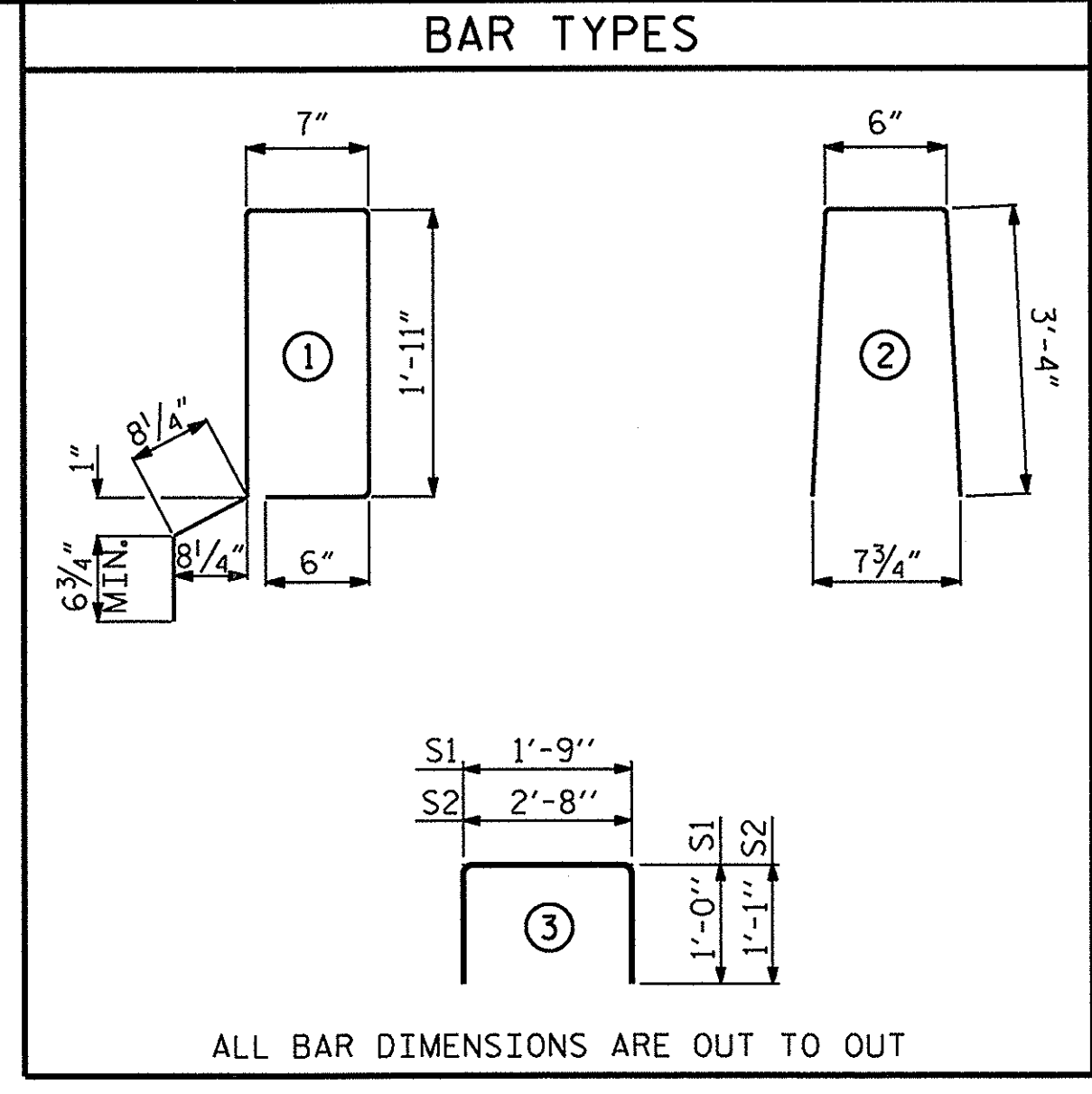
DEAD LOAD DEFLECTION AND CAMBER	
35' CORED SLAB UNIT	3'-0" x 1'-6" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	3/4" ↑

** INCLUDES FUTURE WEARING SURFACE

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
27'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
	SUPERED SECTION	
35' UNITS	1 3/4"	3'-9 1/4"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B10	40	80	#5	STR	17'-1"	1426
*S4	88	176	#5	2	7'-2"	1316
* EPOXY COATED REINFORCING STEEL				LBS.	2742	
CLASS AA CONCRETE				CU. YDS.	18.4	
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.	140.5	

CORED SLABS REQUIRED			
35' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	4	35'-0"	140'-0"
INTERIOR C.S.	16	35'-0"	560'-0"
TOTAL			700'-0"



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.

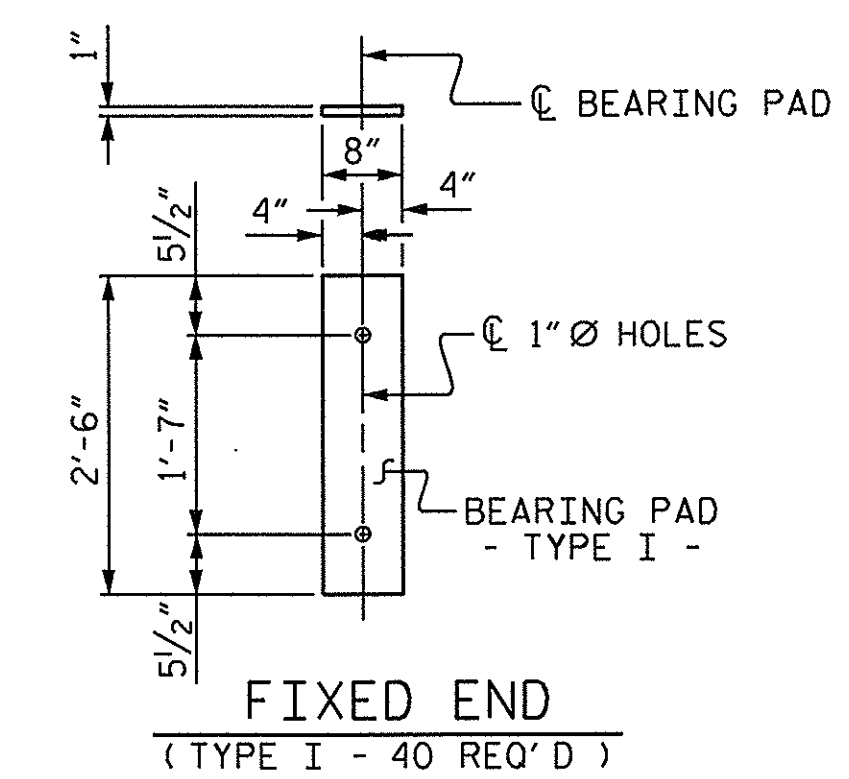
APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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.

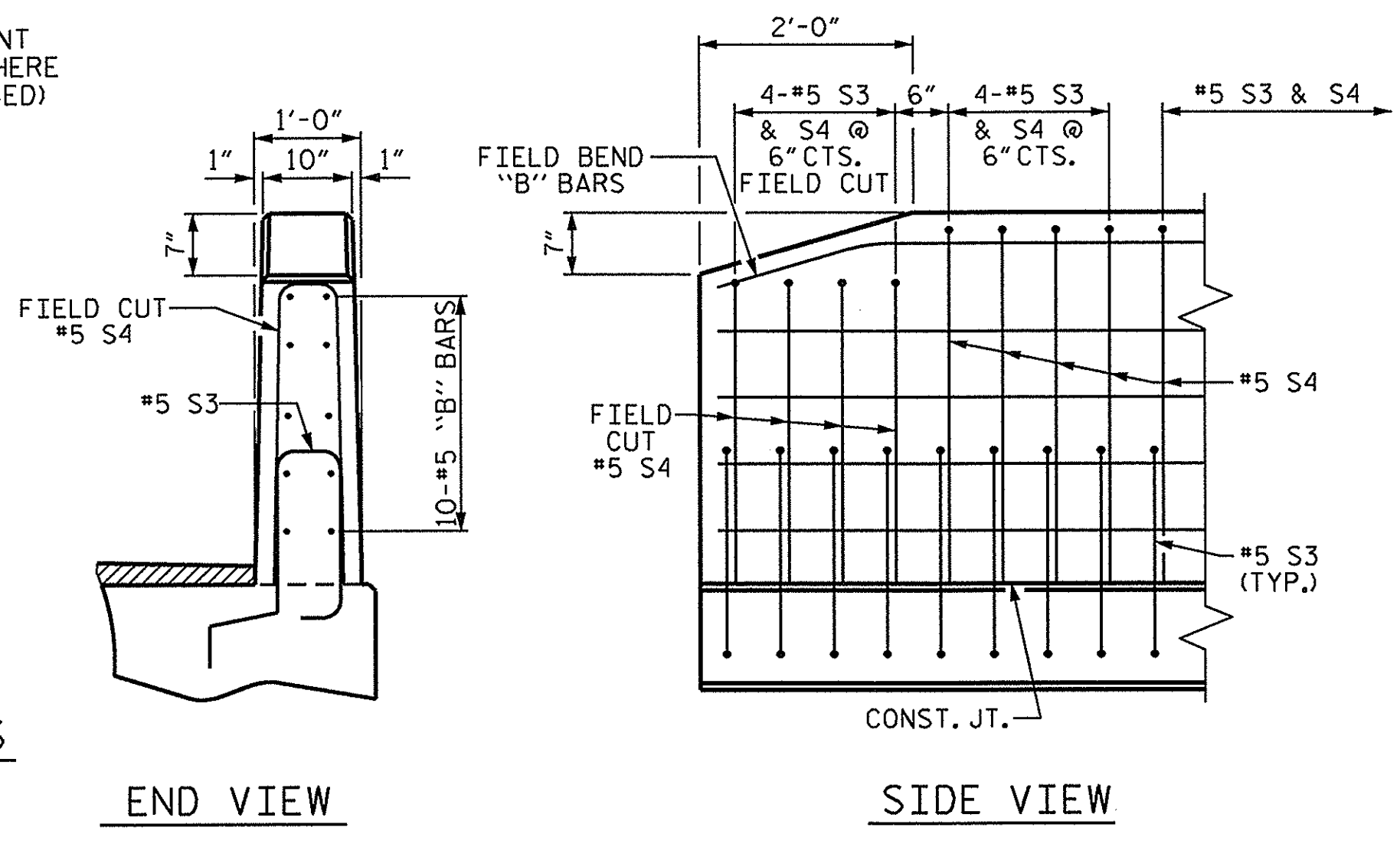
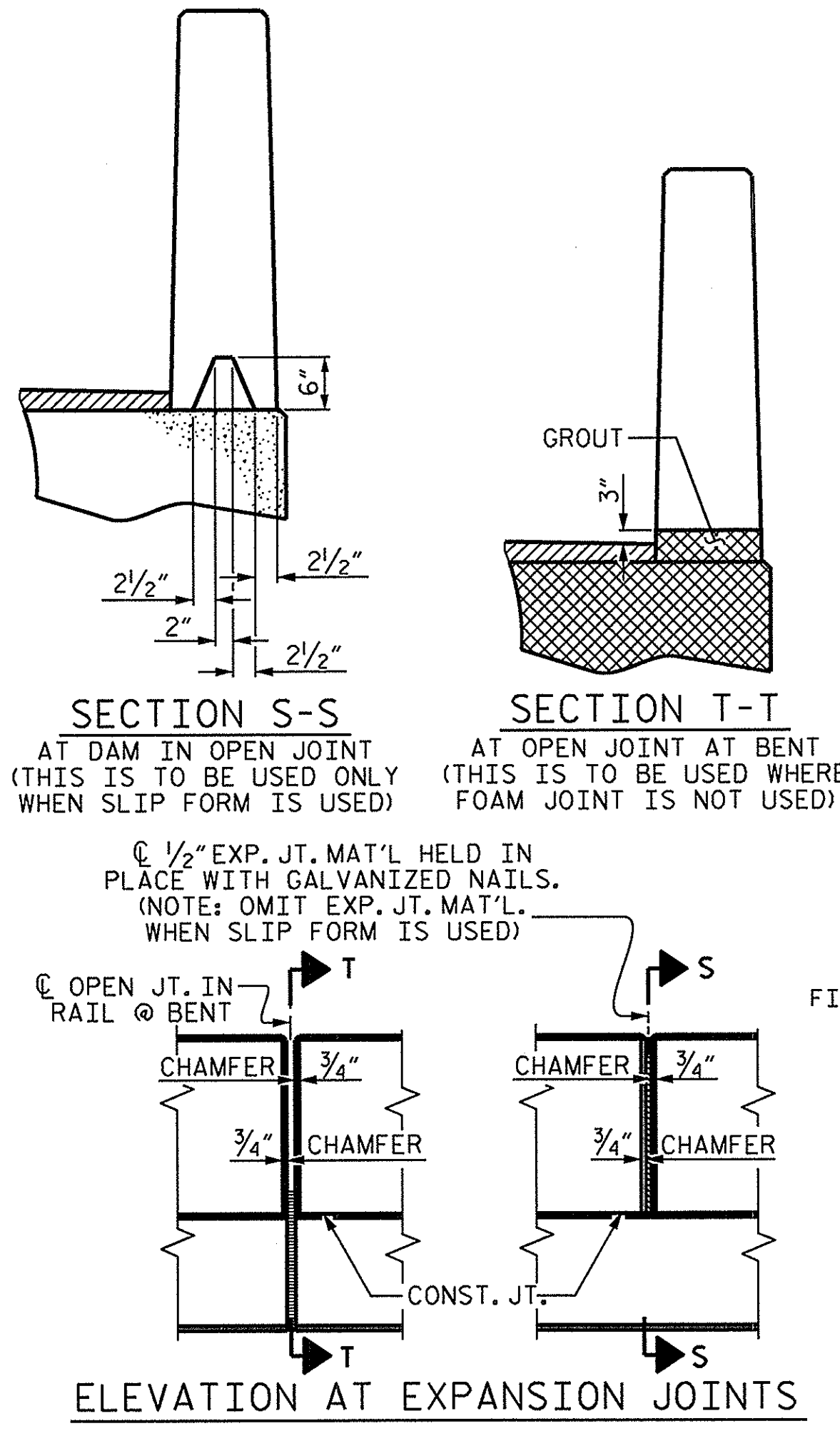
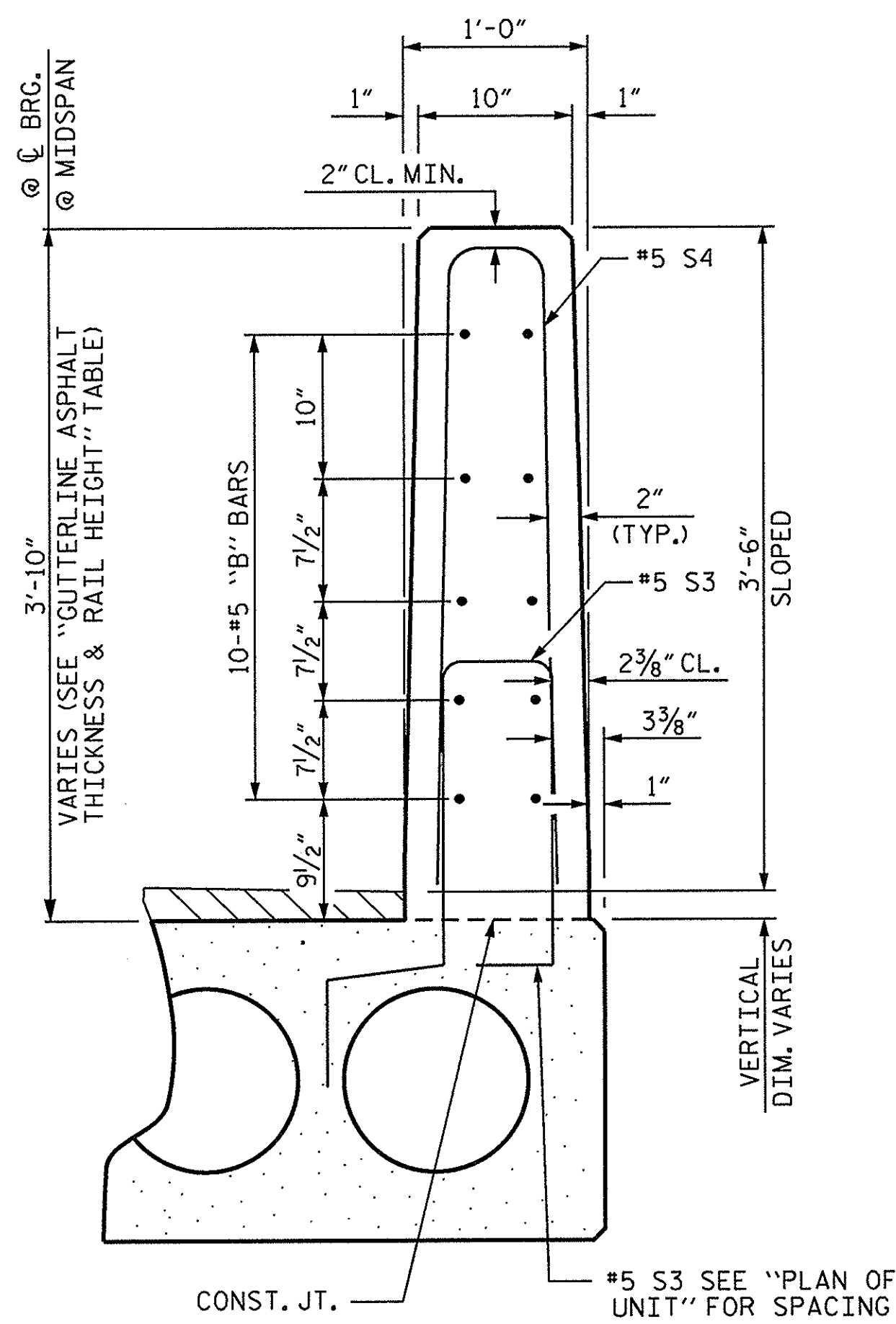
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.



ELASTOMERIC BEARING DETAILS
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

CONCRETE RELEASE STRENGTH	
UNIT	PSI
35' UNITS	4000

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



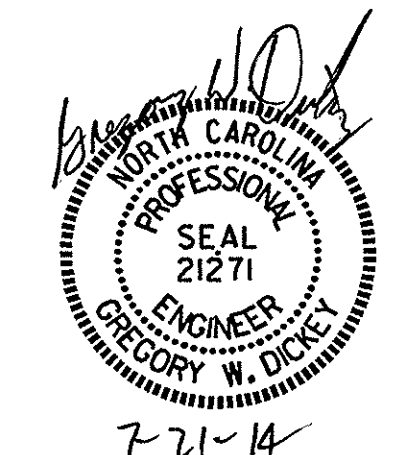
END OF RAIL DETAILS

PROJECT NO. 17BP.3.R.36
DUPLIN COUNTY
STATION: 19+14.95 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-6"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW



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

ASSEMBLED BY : C.C. WILLIAMS DATE : 7/14
CHECKED BY : P.N. HOLDER DATE : 7/14
DRAWN BY : DGE 5/09 REV. 12/11 MAA/AAC
CHECKED BY : BCH 6/09

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.)

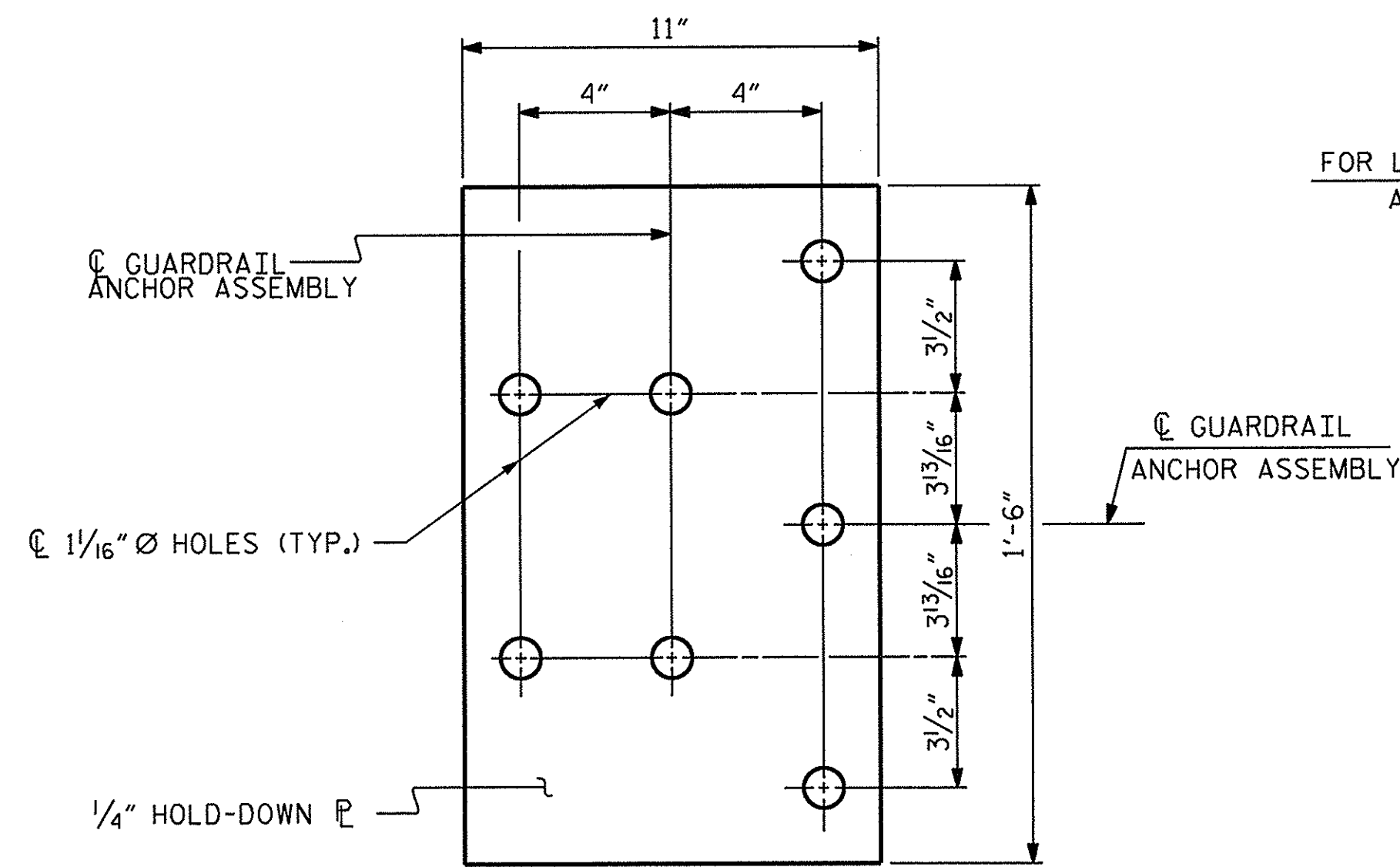
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

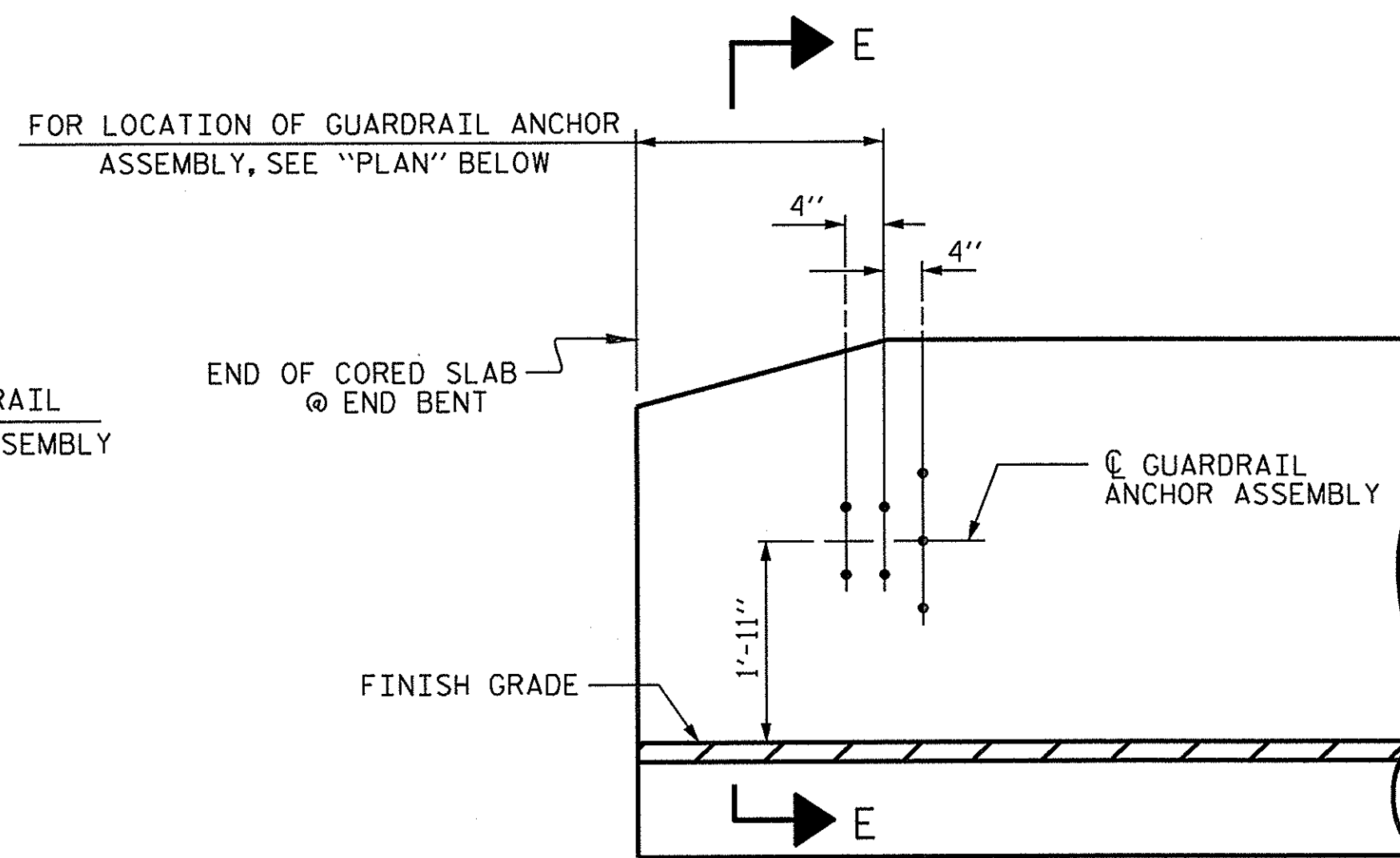
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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

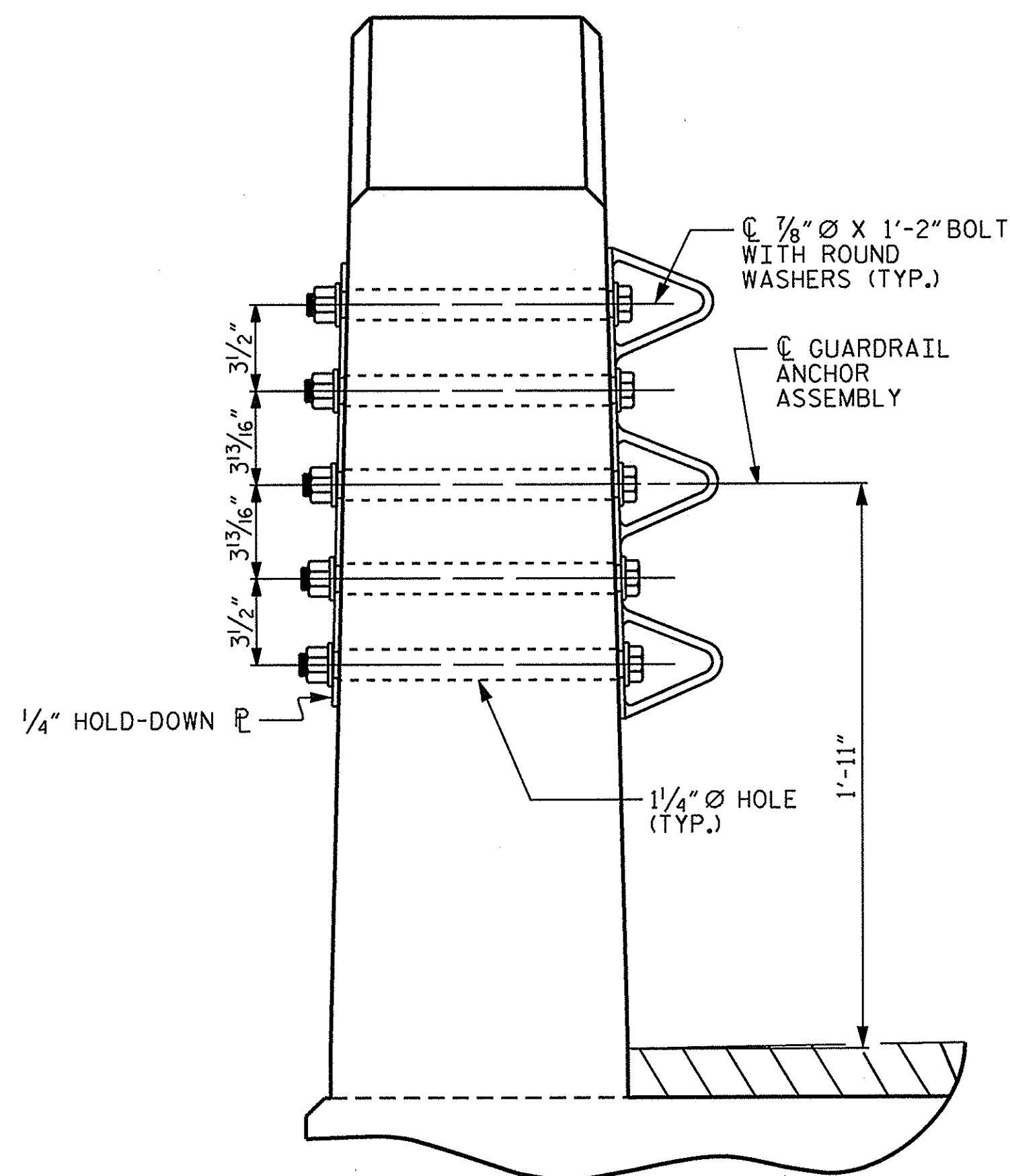
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



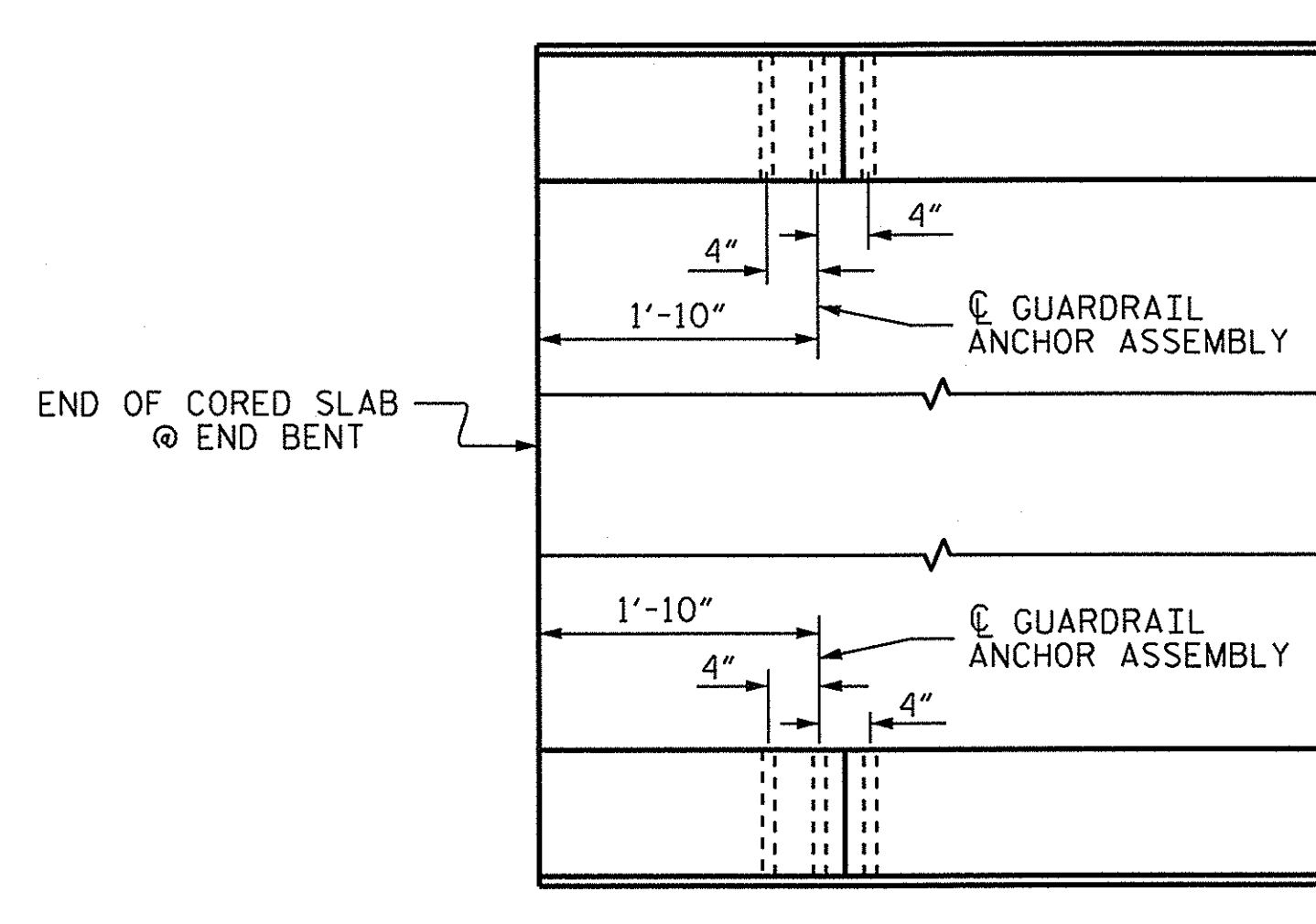
PLAN



ELEVATION



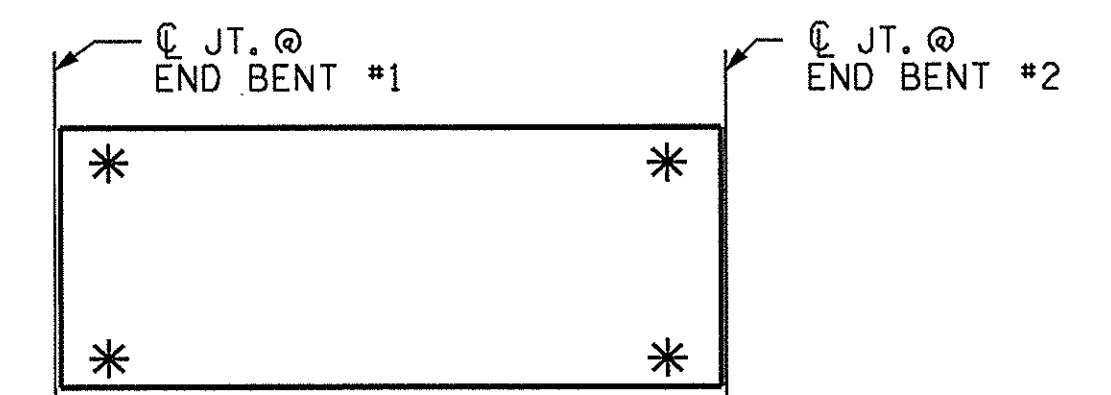
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 17BP.3.R.36
DUPLIN COUNTY
 STATION: 19+14.95 -L-

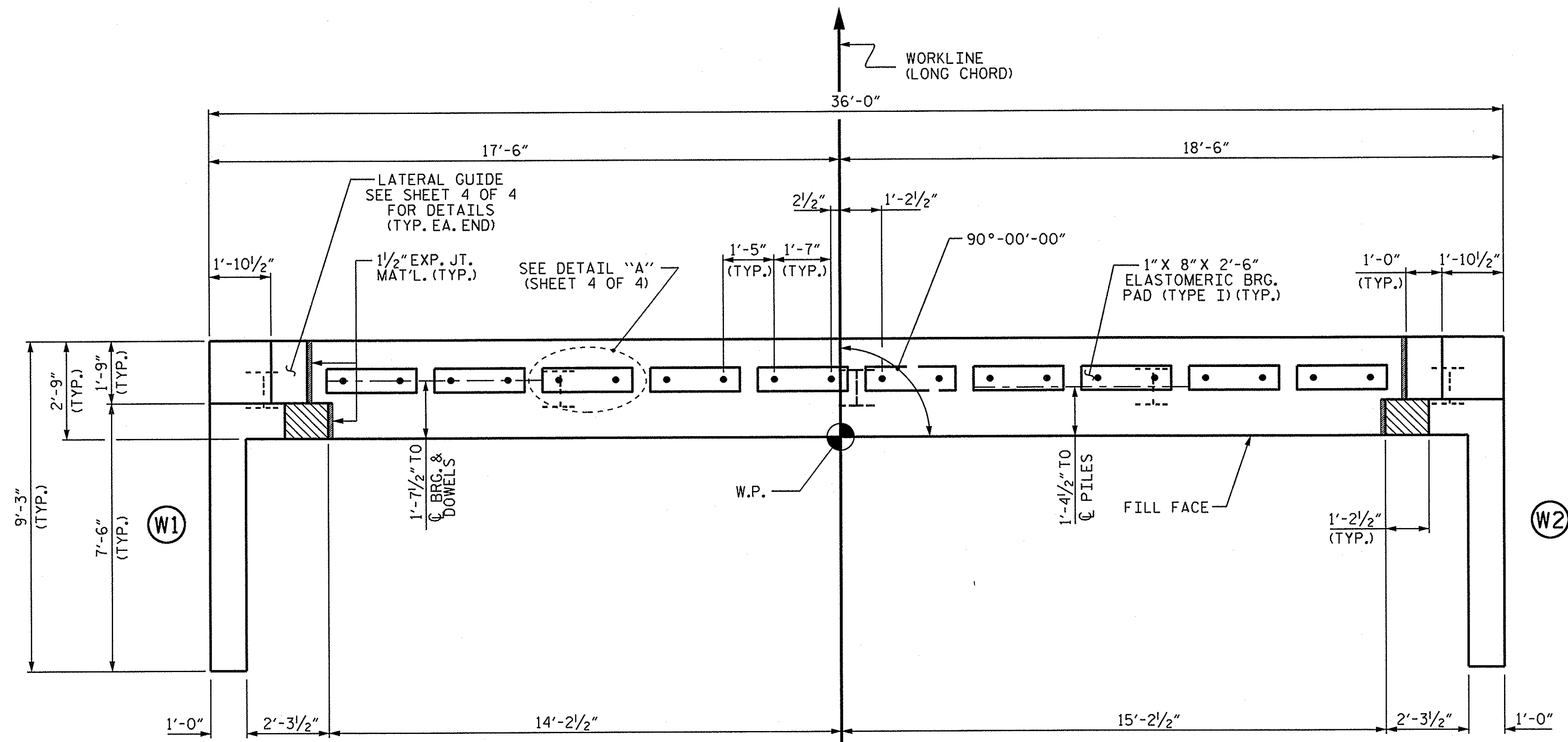
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR VERTICAL CONCRETE
 BARRIER RAIL



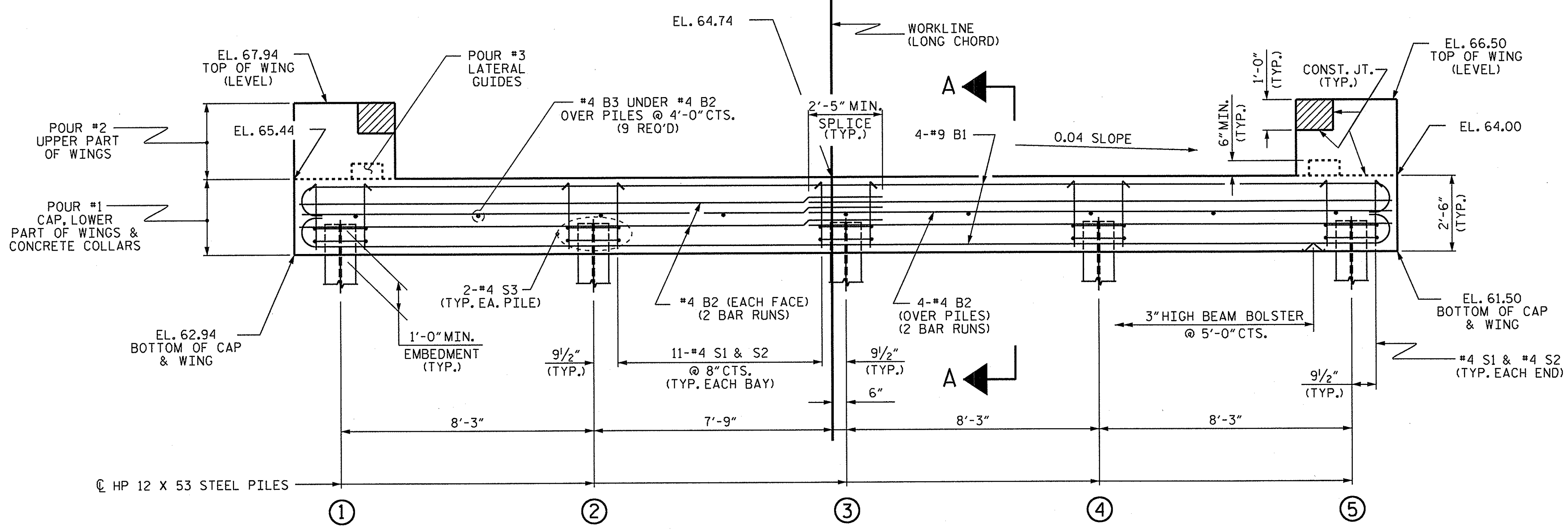
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			
2			4			

(SHT 1) STD. NO. GRA3

ASSEMBLED BY : C.C.WILLIAMS	DATE : 7/14
CHECKED BY : P.N.HOLDER	DATE : 7/14
DRAWN BY : MAA 5/10	REV. 10/1/11 MAA/GM
CHECKED BY : GM 5/10	REV. 12/5/11 MAA/GM
	REV. 6/13 MAA/GM



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.

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

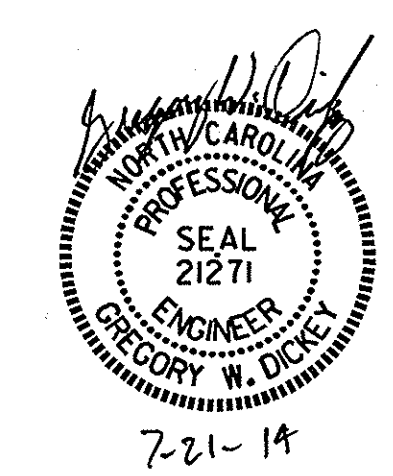
TOP OF PILE ELEVATIONS	
①	63.90
②	63.57
③	63.24
④	62.91
⑤	62.58

PROJECT NO. 17BP.3.R.36
 DUPLIN COUNTY
 STATION: 19+14.95 -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:	TOTAL SHEETS
1			3			
2			4			

ASSEMBLED BY : C.C.WILLIAMS DATE : 7/14
 CHECKED BY : P.N.HOLDER DATE : 7/14
 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.

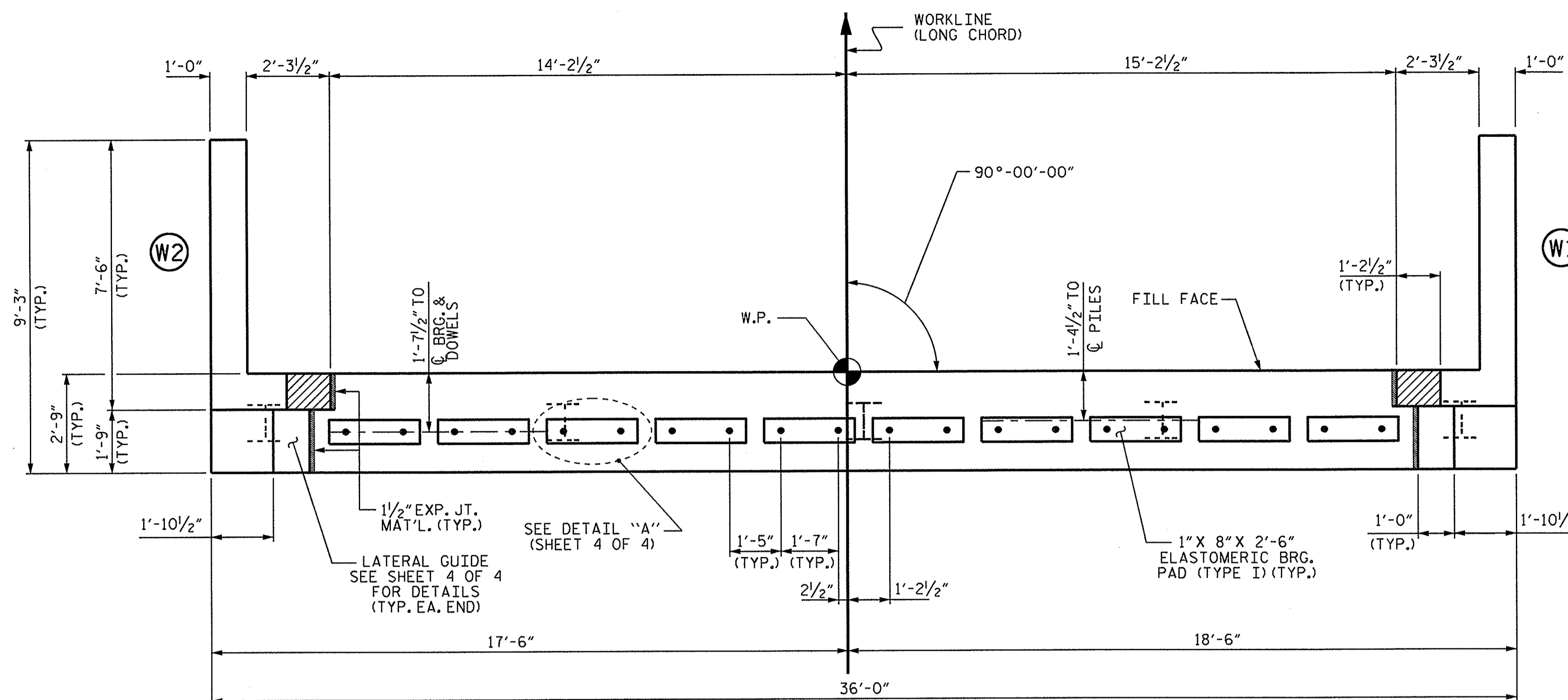
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

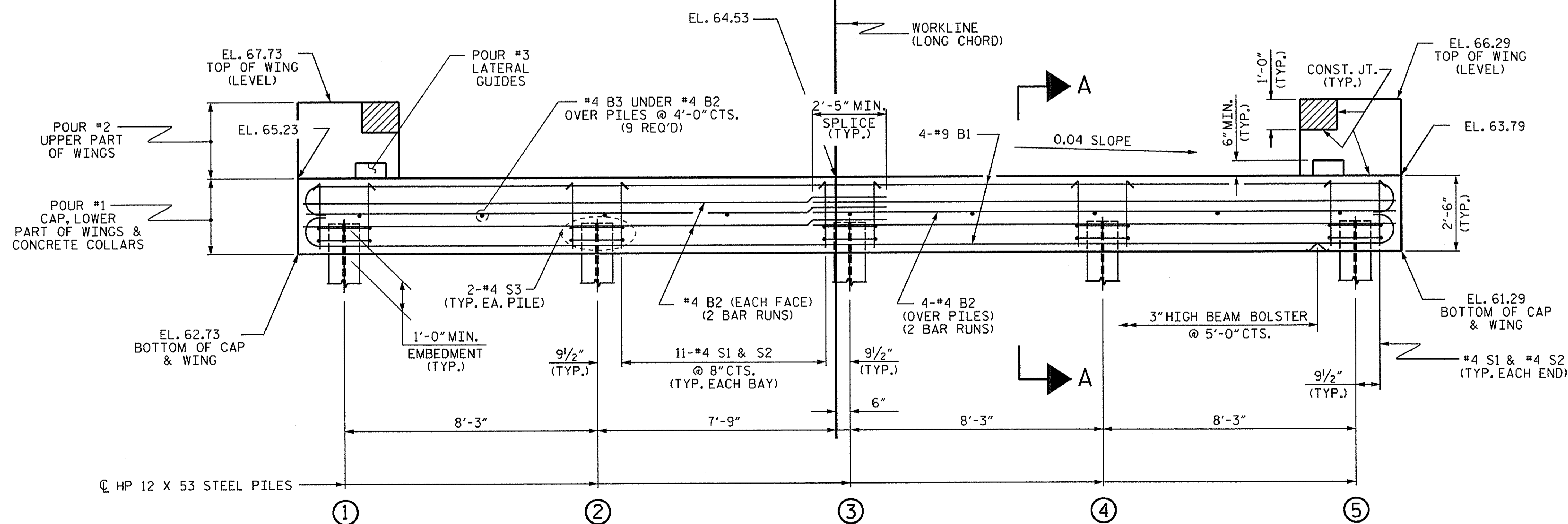
THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

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



PLAN

TOP OF PILE ELEVATIONS	
①	63.69
②	63.36
③	63.03
④	62.70
⑤	62.37



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. 17BP.3.R.36
DUPLIN COUNTY
STATION: 19+14.95 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

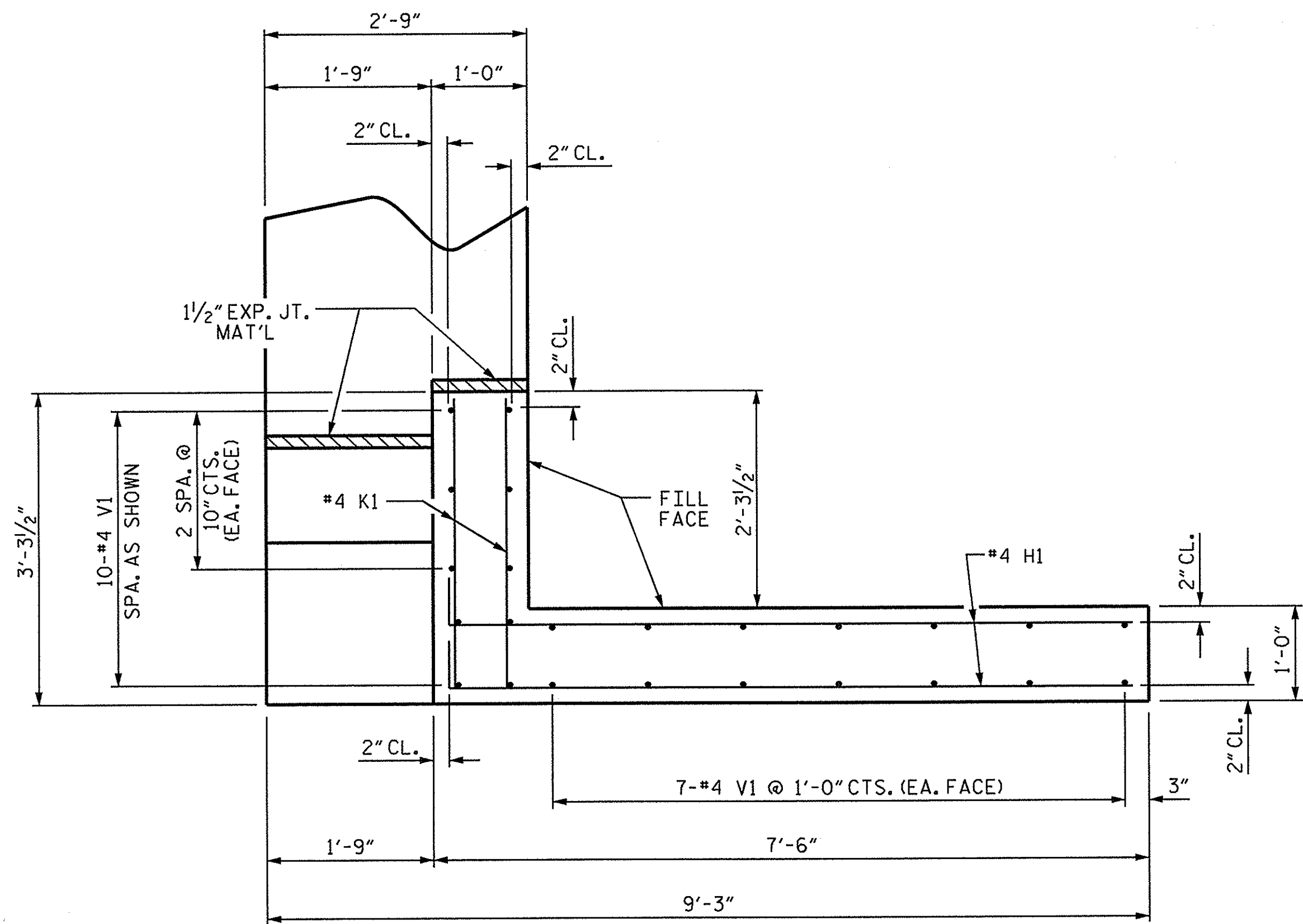
SUBSTRUCTURE
END BENT No. 2



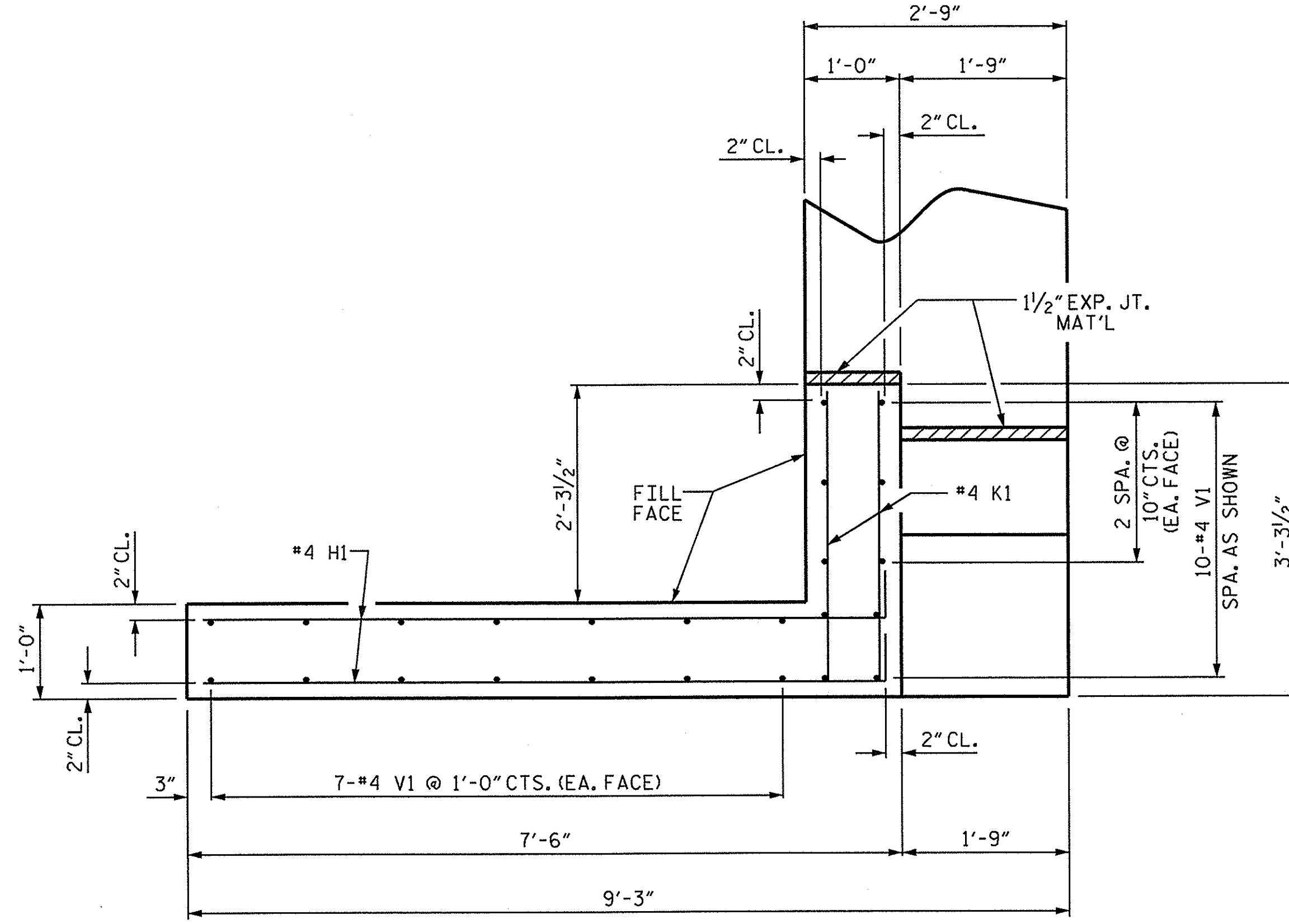
7-21-14

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

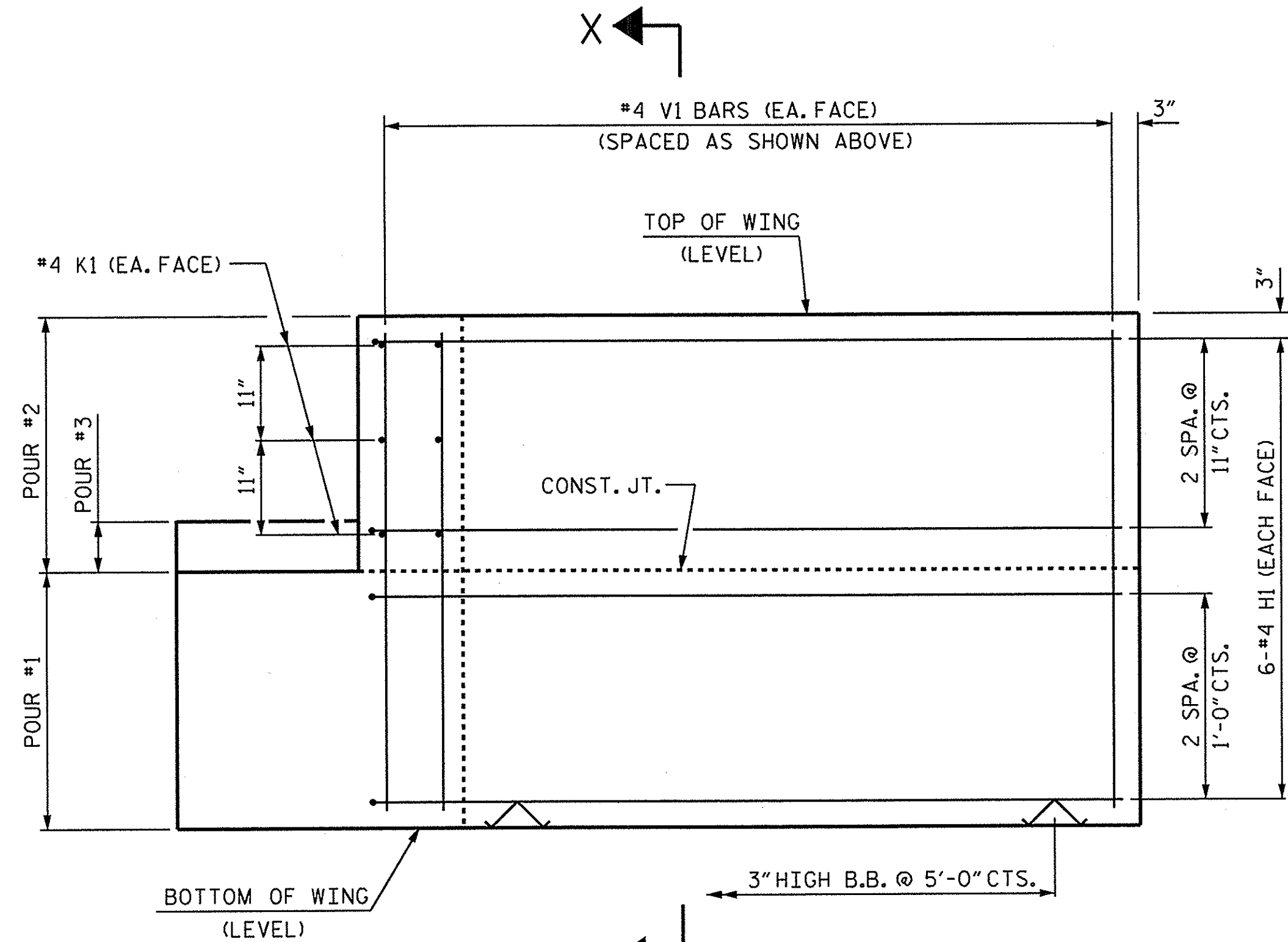
ASSEMBLED BY: C.C.WILLIAMS DATE: 7/14
CHECKED BY: P.N.HOLDER DATE: 7/14
DRAWN BY: DGE 02/10
CHECKED BY: MKT 02/10



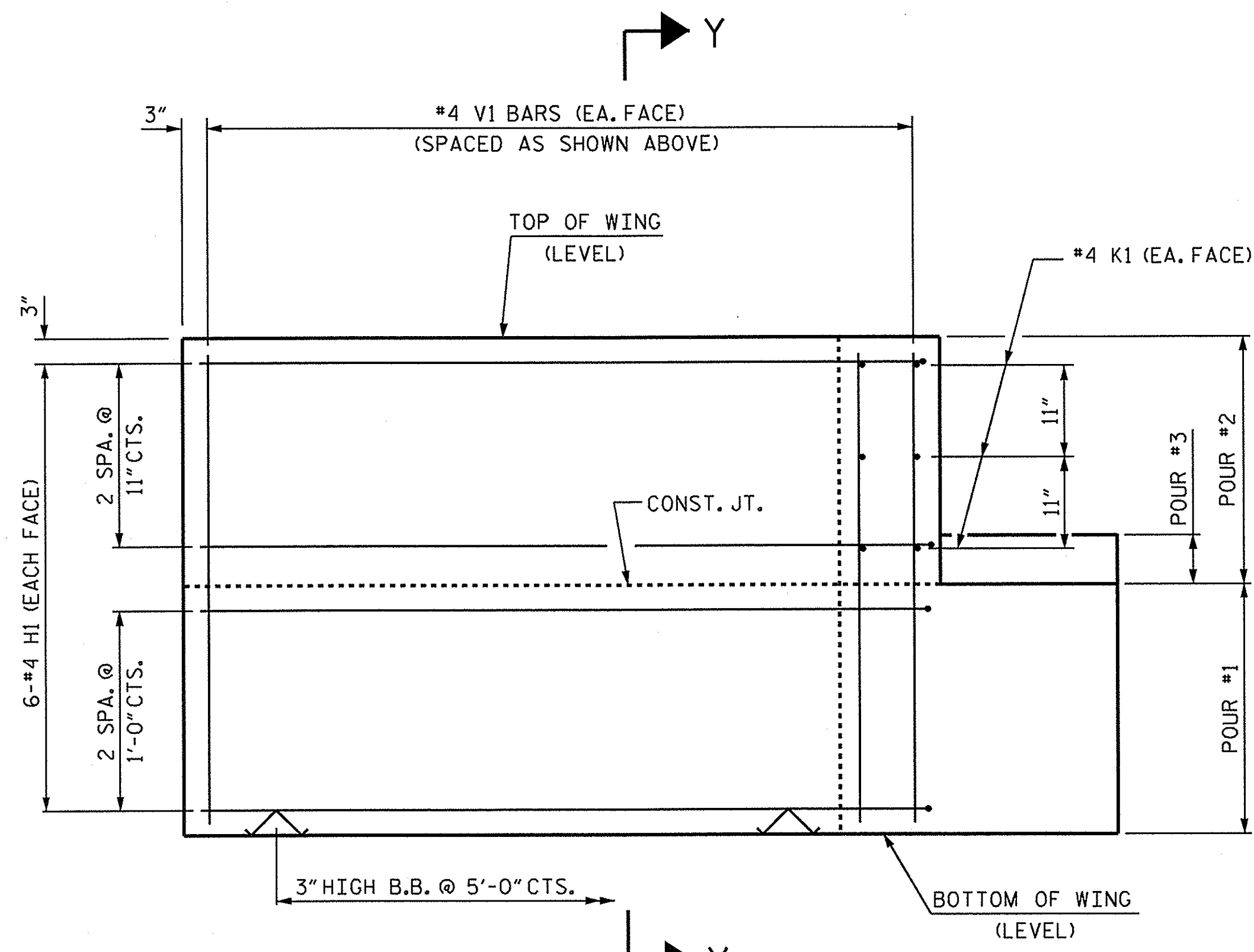
PLAN OF WING (W1)



PLAN OF WING (W2)

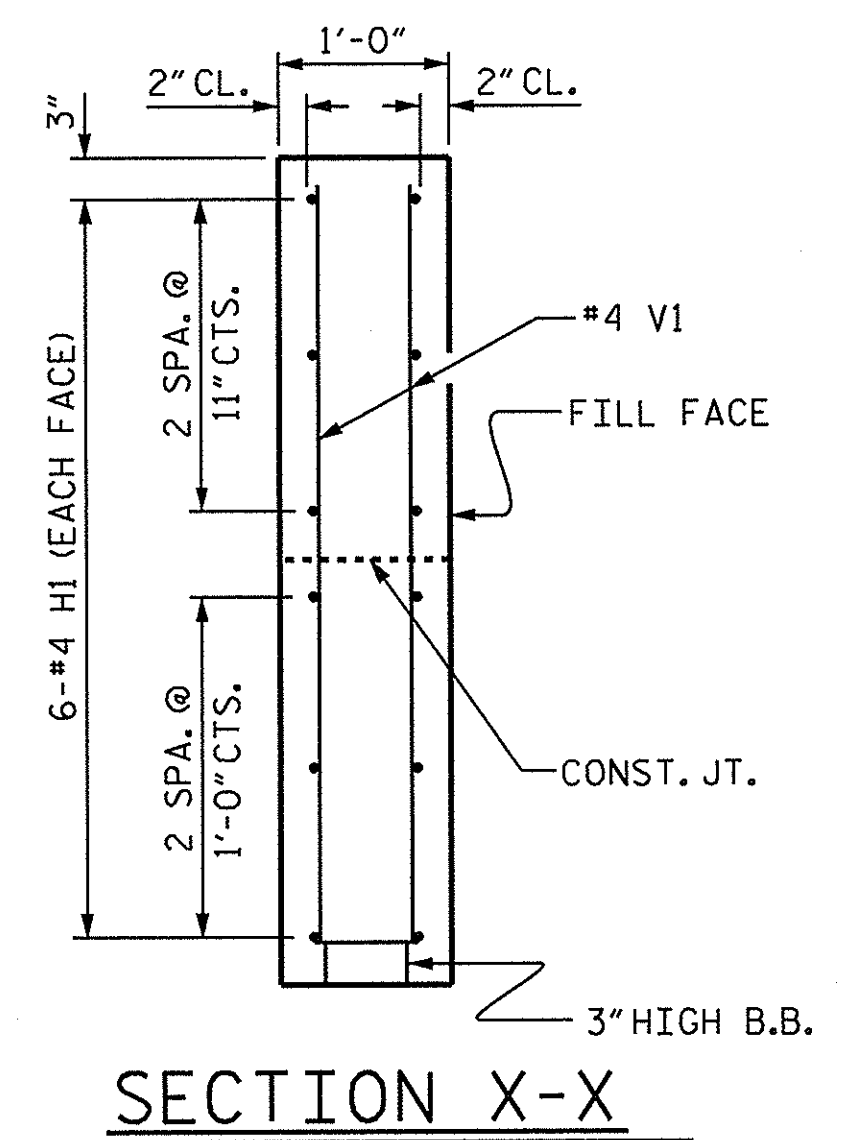


ELEVATION OF WING (W1)

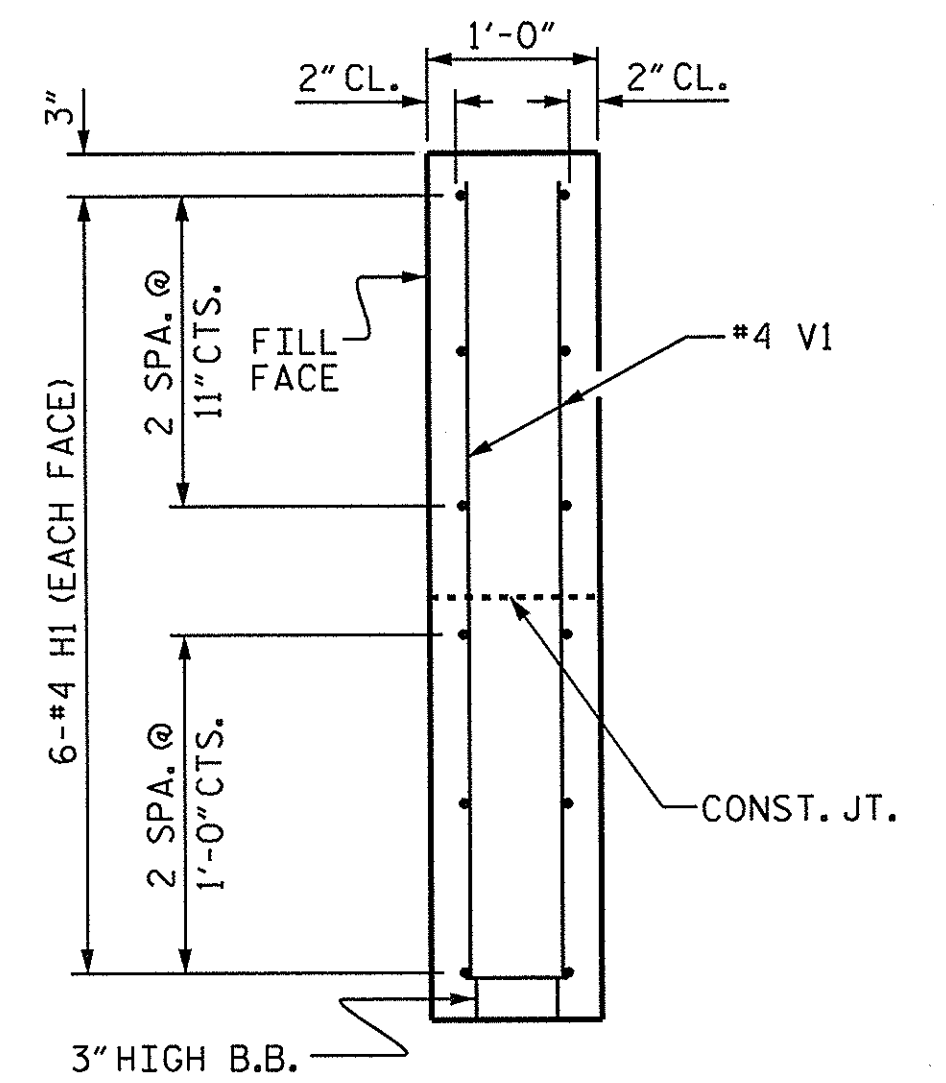


ELEVATION OF WING (W2)

WING DETAILS



SECTION X-X

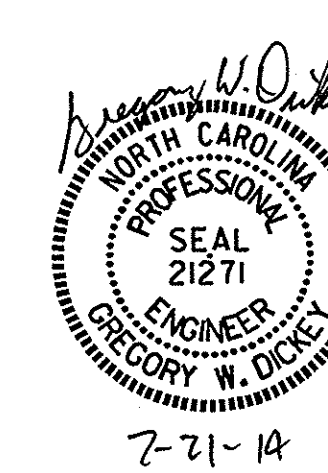


SECTION Y-Y

PROJECT NO. 17BP.3.R.36
 DUPLIN COUNTY
 STATION: 19+14.95 -L-

SHEET 3 OF 4

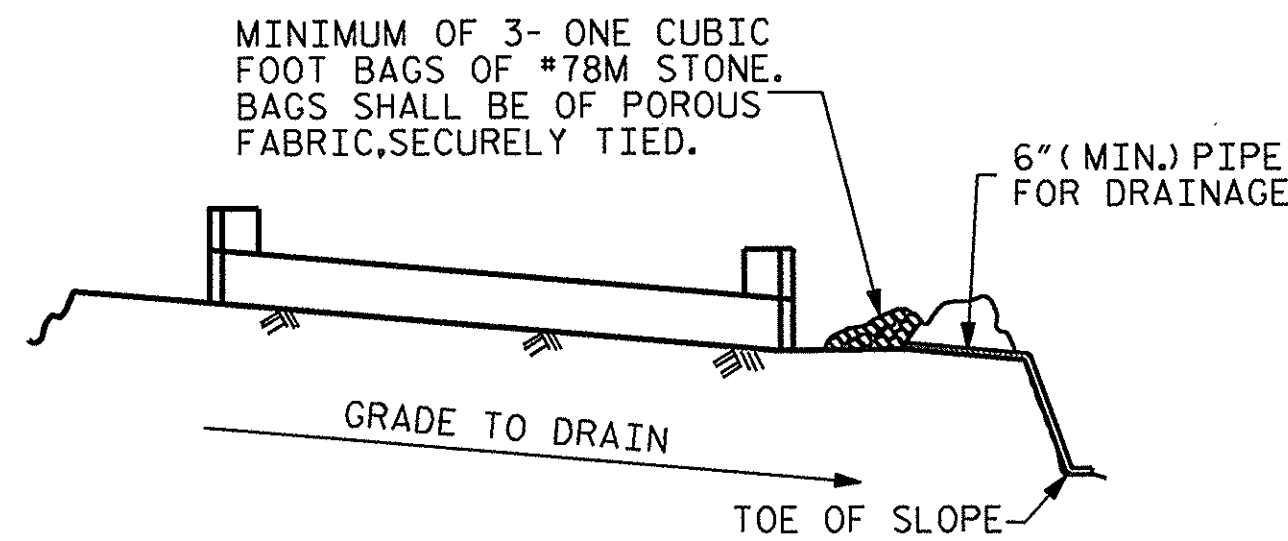
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT WING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					TOTAL SHEETS



ASSEMBLED BY: C.C.WILLIAMS DATE: 7/14
 CHECKED BY: P.N.HOLDER DATE: 7/14
 DRAWN BY: DGE 02/10
 CHECKED BY: MKT 02/10

21-JUL-2014 14:05
 S:\DPG1\Division3\17BP3R36\FinalPlans\17BP.3.R.36_SD_CS.dgn
 gdlckey

STD. NO. EB_30_90S

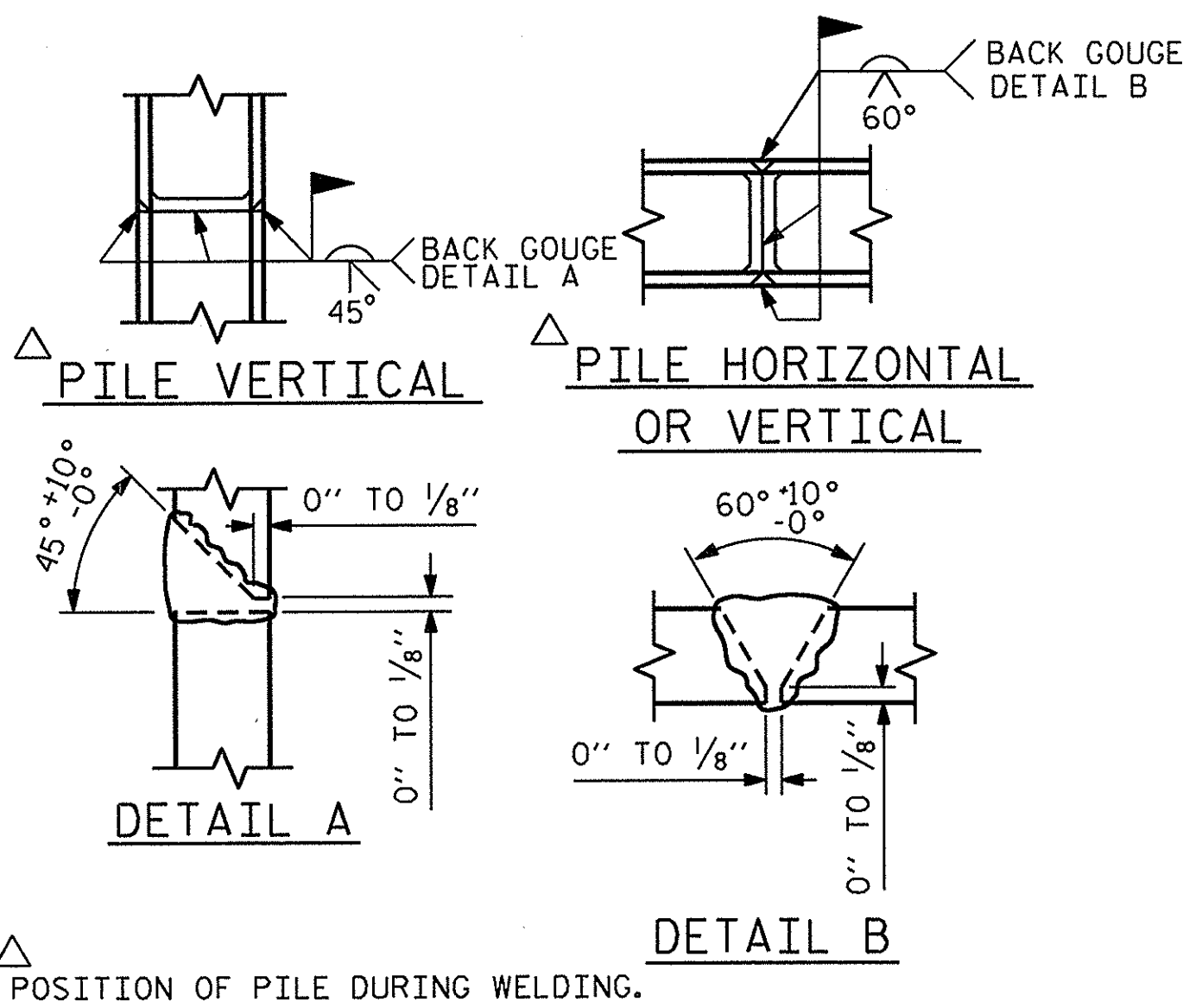


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

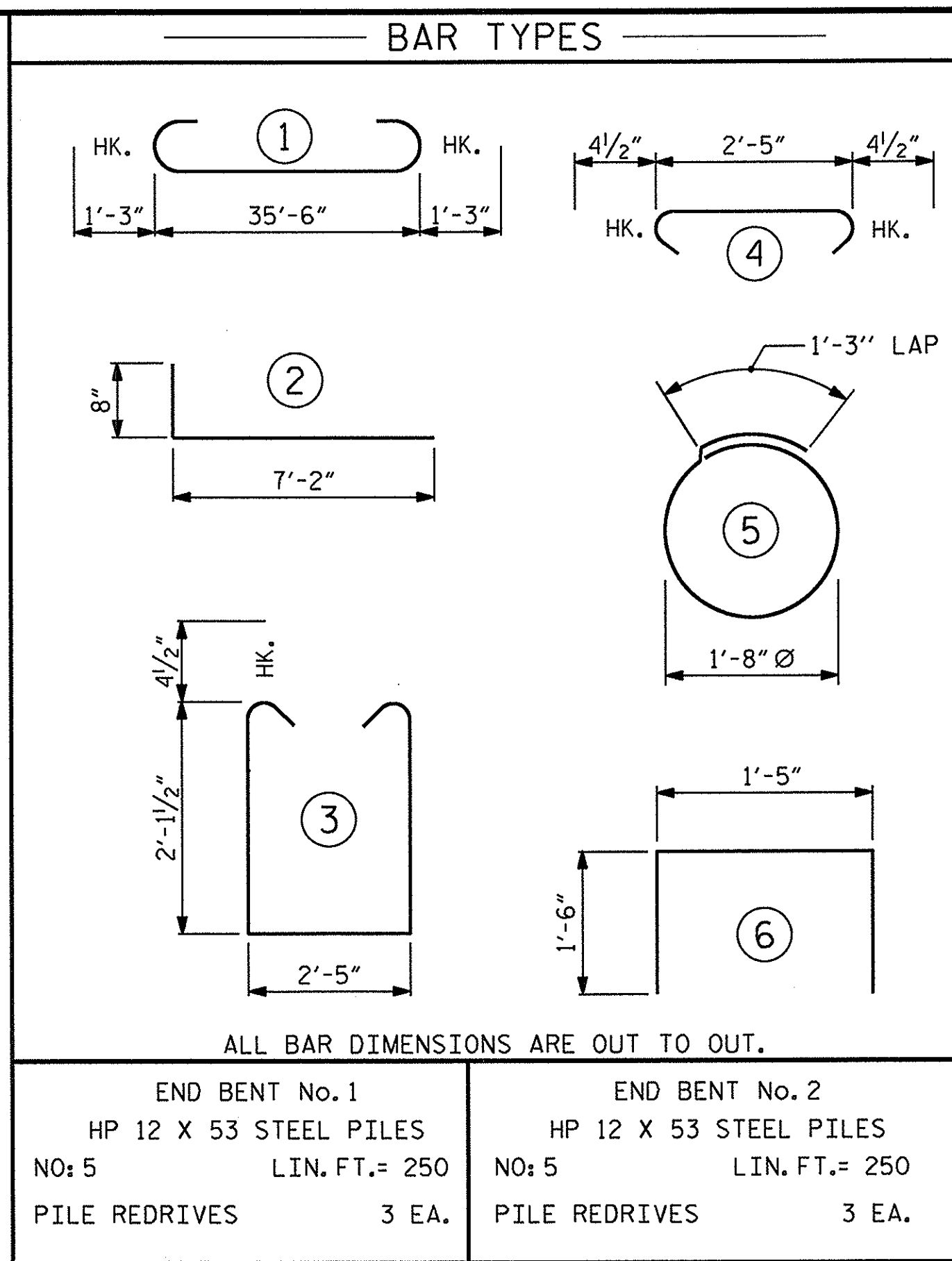
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

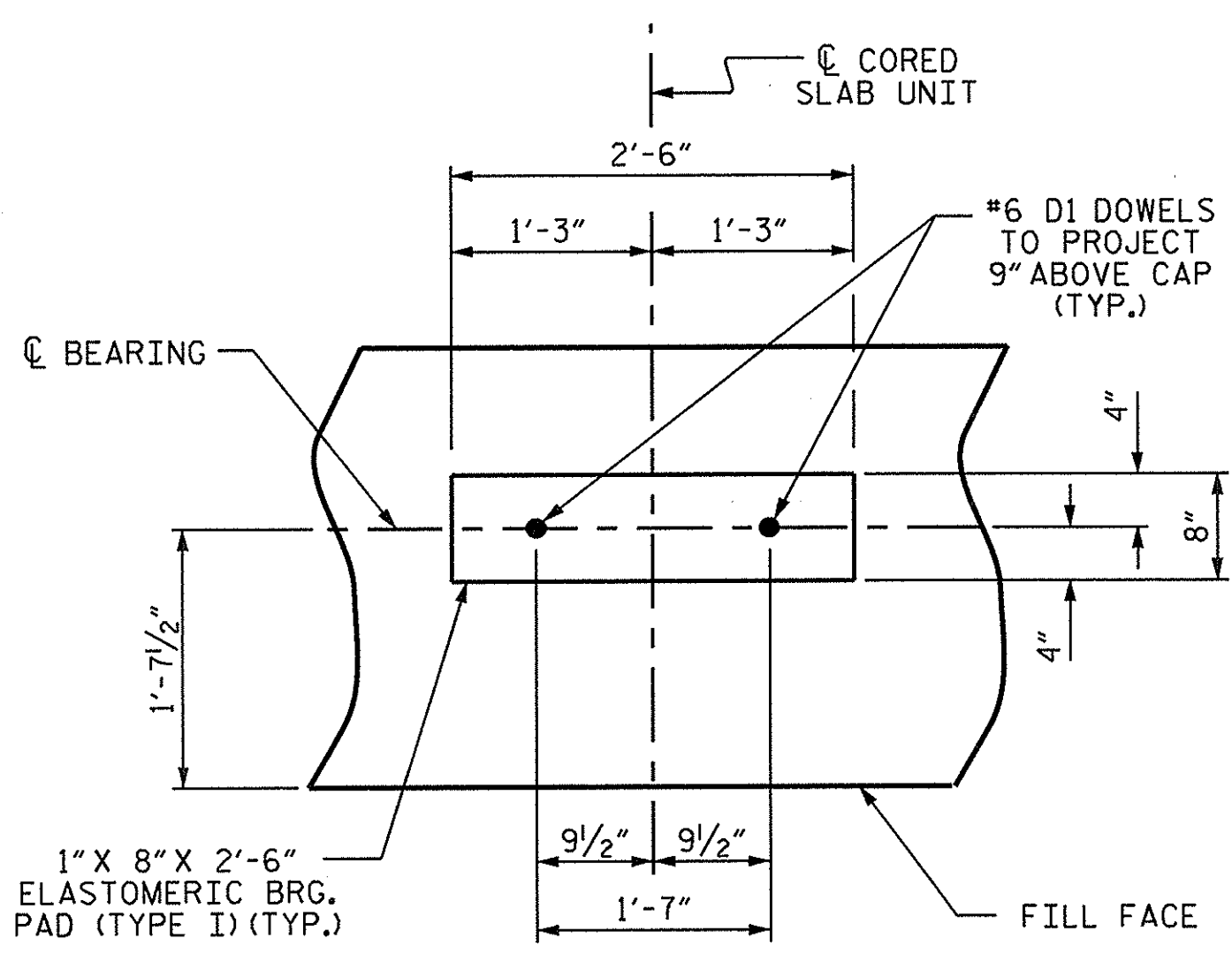
TEMPORARY DRAINAGE AT END BENT



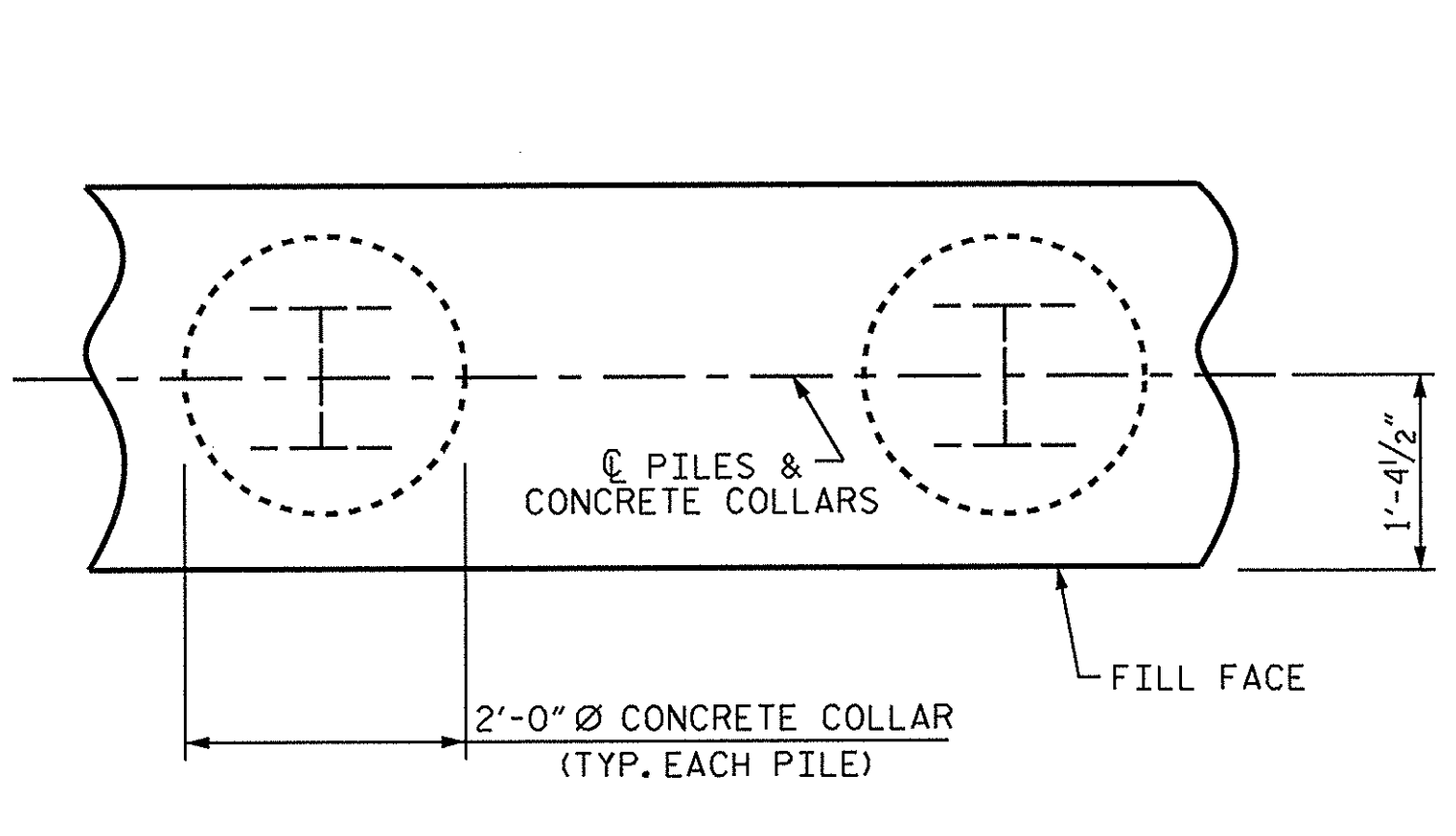
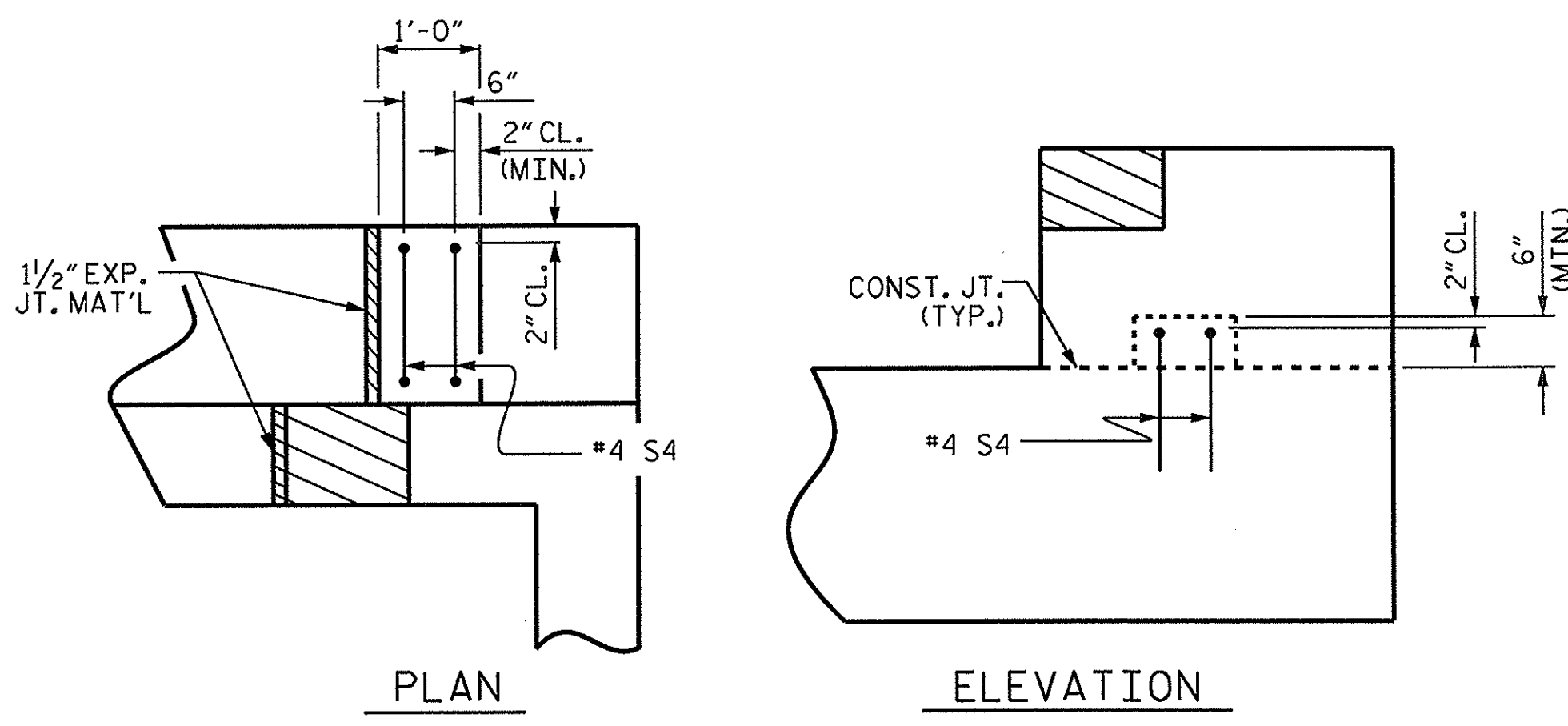
PILE SPLICE DETAILS



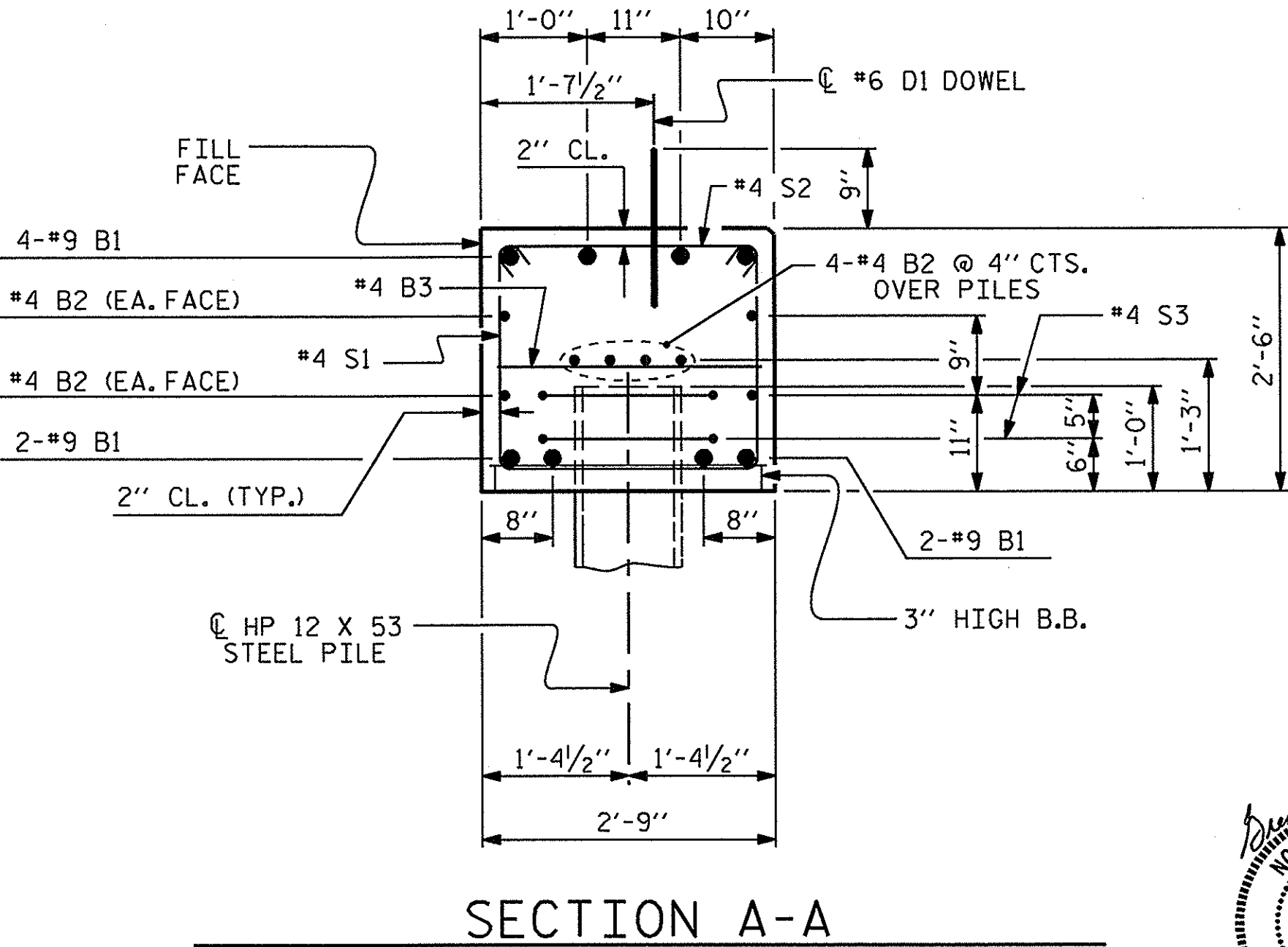
BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	16	#4	STR	19'-1"	204
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	46	#4	3	7'-5"	228
S2	46	#4	4	3'-2"	97
S3	10	#4	5	6'-6"	43
S4	4	#4	6	4'-5"	12
V1	48	#4	STR	4'-8"	150
REINFORCING STEEL (FOR ONE END BENT)					1977 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS			11.2 C.Y.	
POUR #2	UPPER PART OF WINGS			1.8 C.Y.	
POUR #3	LATERAL GUIDES			0.1 C.Y.	
TOTAL CLASS A CONCRETE				13.1 C.Y.	



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



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



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

PROJECT NO. 17BP.3.R.36
DUPLIN COUNTY
STATION: 19+14.95 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1 & 2
DETAILS



ASSEMBLED BY : C.C.WILLIAMS	DATE : 7/14
CHECKED BY : P.N.HOLDER	DATE : 7/14
DRAWN BY : DGE	02/10
CHECKED BY : MKT	02/10

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

NOTES

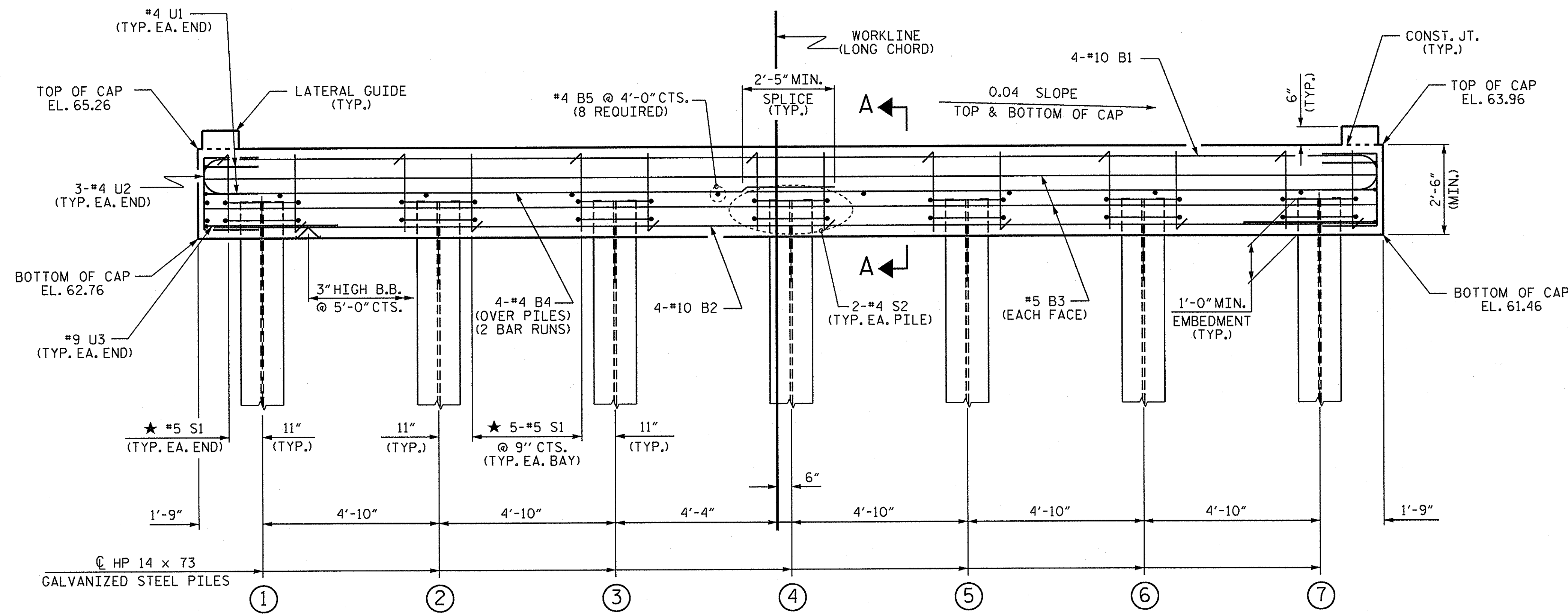
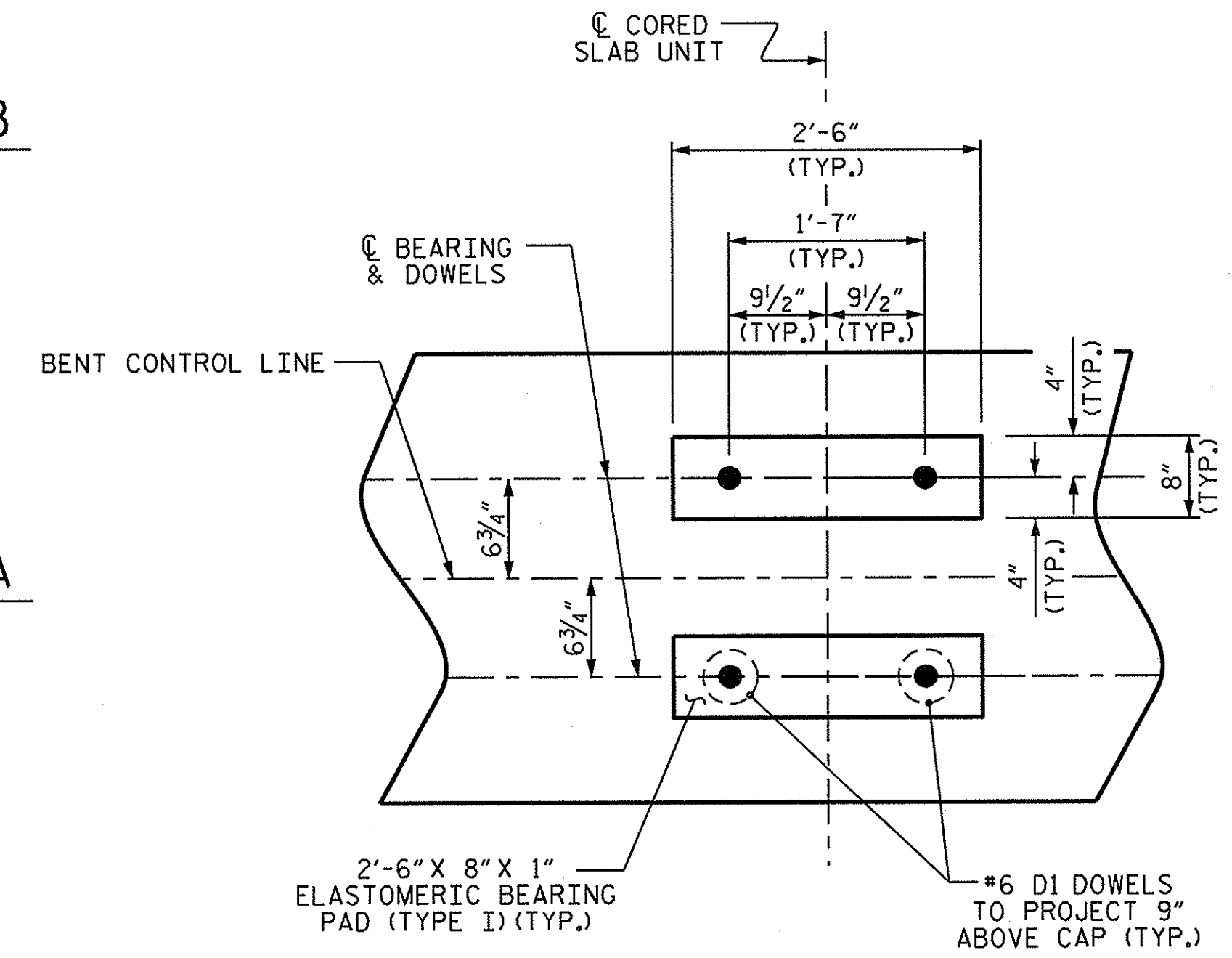
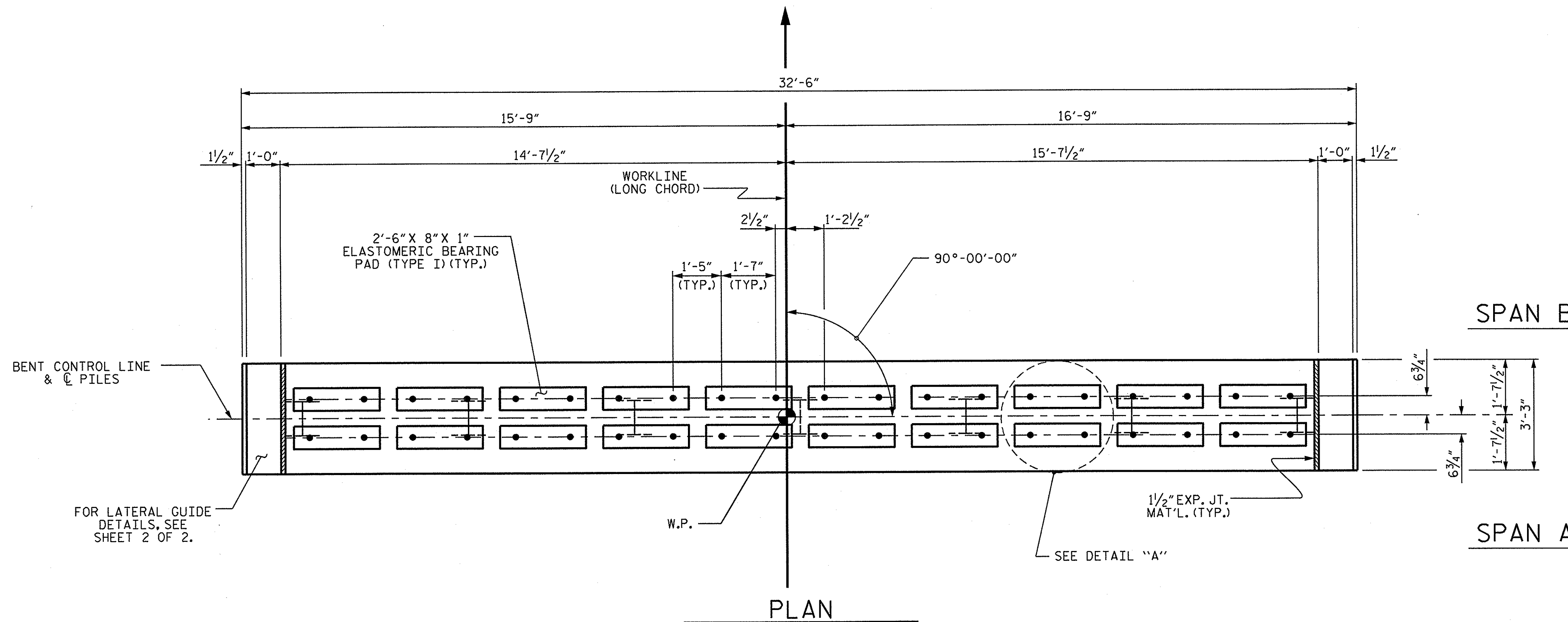
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

★ INVERT ALTERNATE STIRRUPS.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 30 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

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

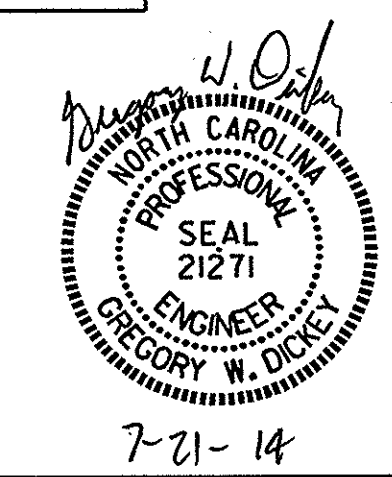


TOP OF PILE ELEVATIONS	
①	63.71
②	63.52
③	63.32
④	63.13
⑤	62.94
⑥	62.74
⑦	62.55

PROJECT NO. 17BP.3.R.36
 DUPLIN COUNTY
 STATION: 19+14.95 -L-
 SHEET 1 OF 2

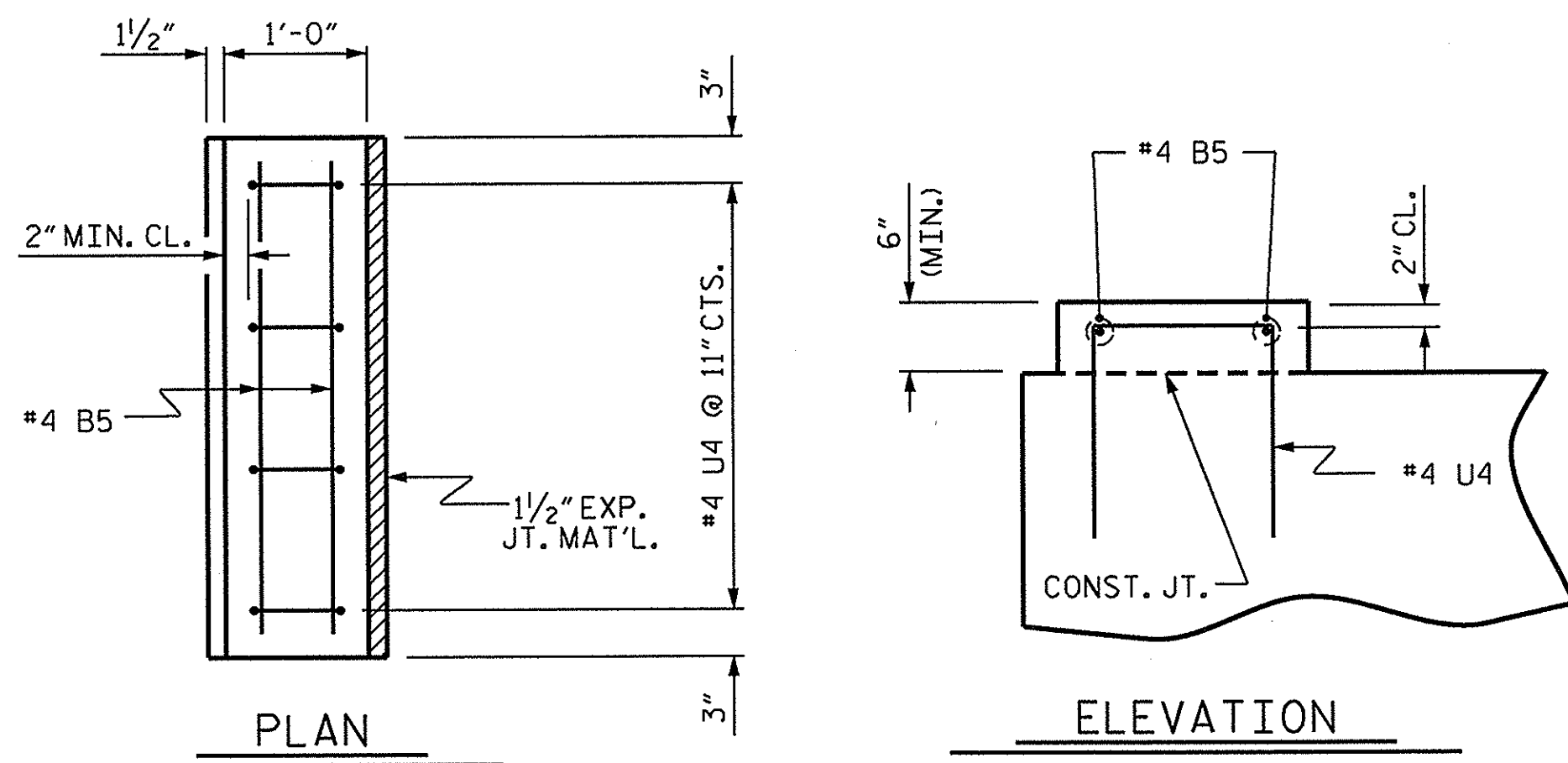
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT No. 1

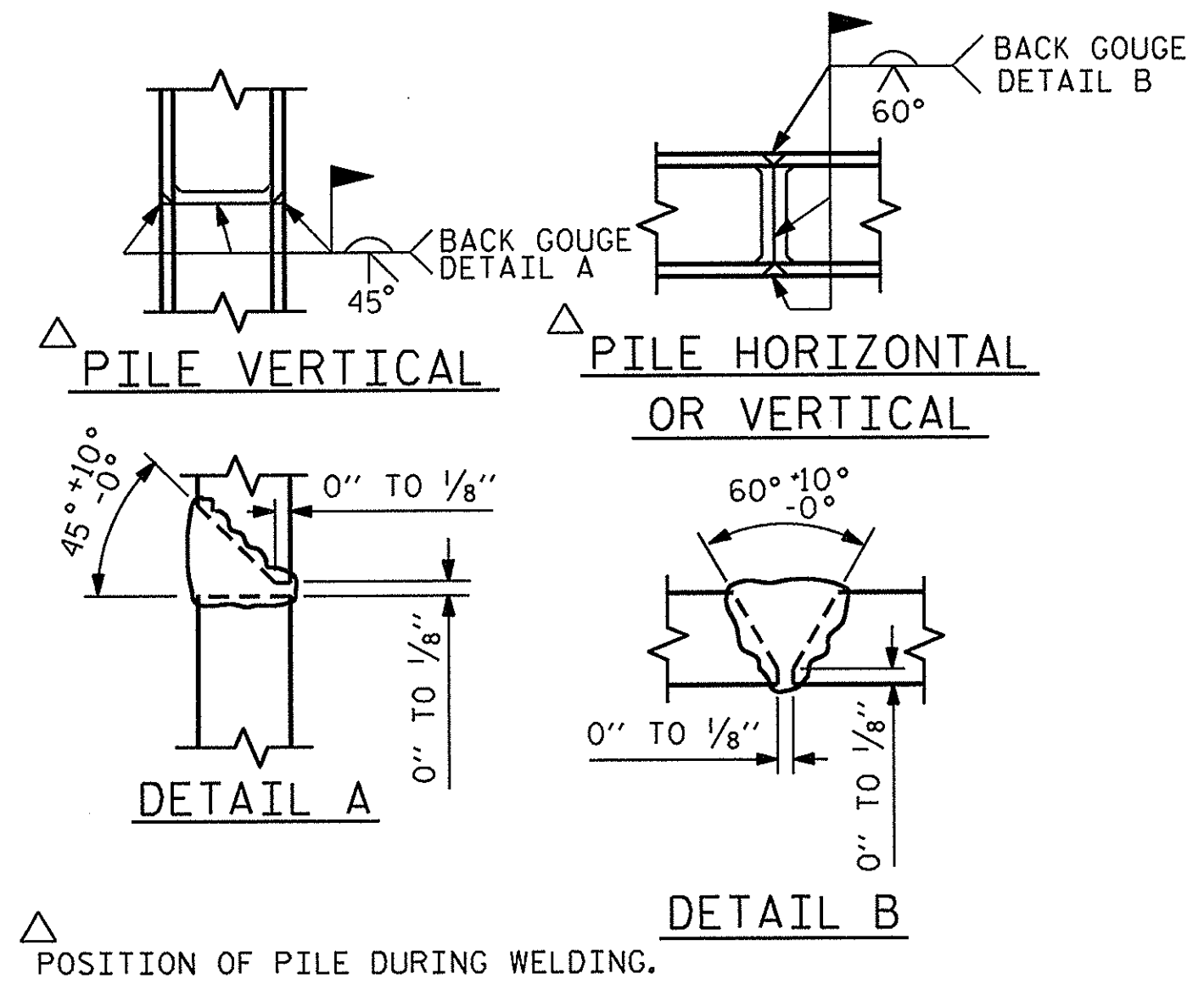


ASSEMBLED BY: C.C. WILLIAMS DATE: 7/14
 CHECKED BY: P.N. HOLDER DATE: 7/14
 DRAWN BY: DGE 05/10
 CHECKED BY: MKT 05/10

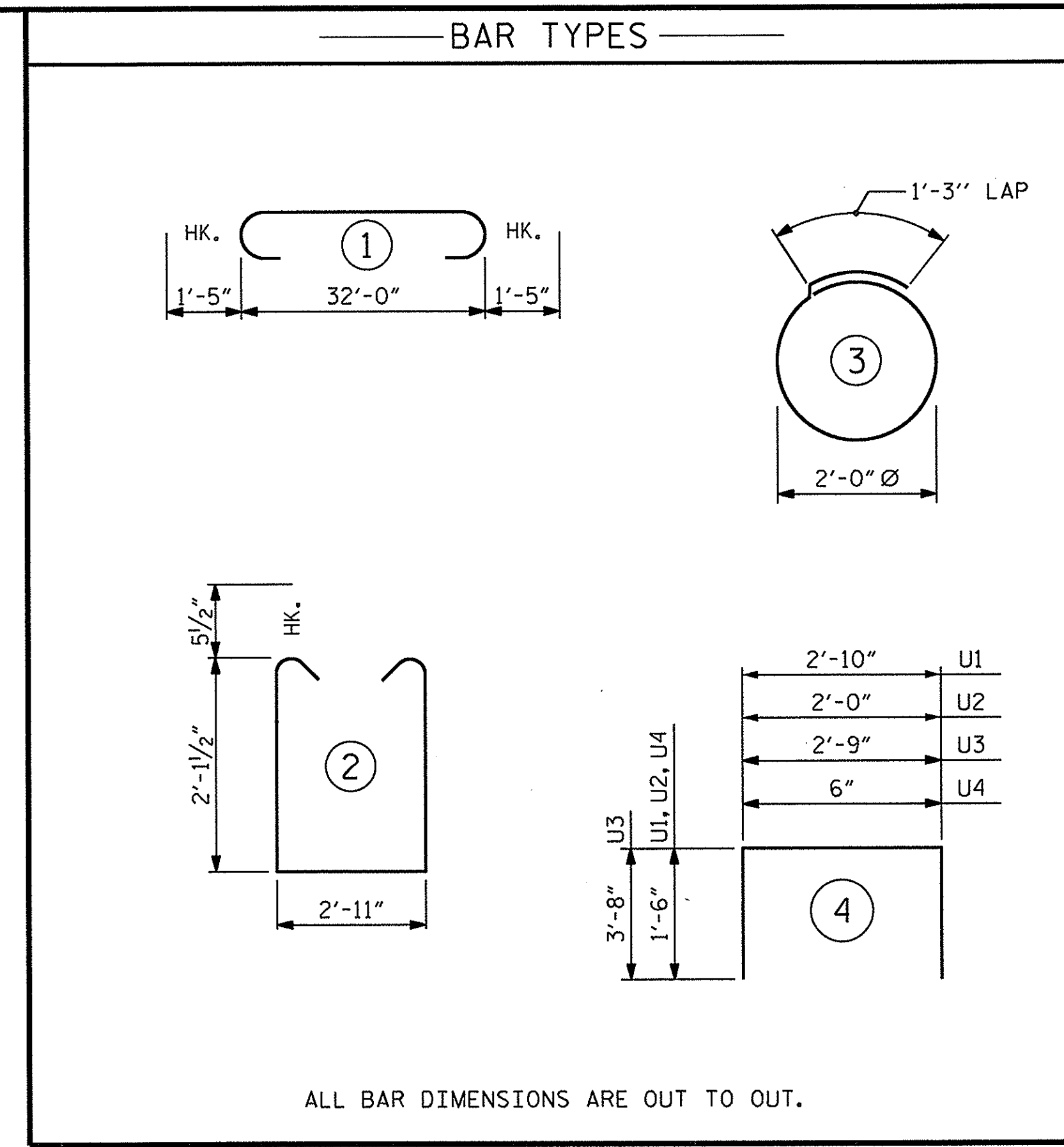
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			
2			4			



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

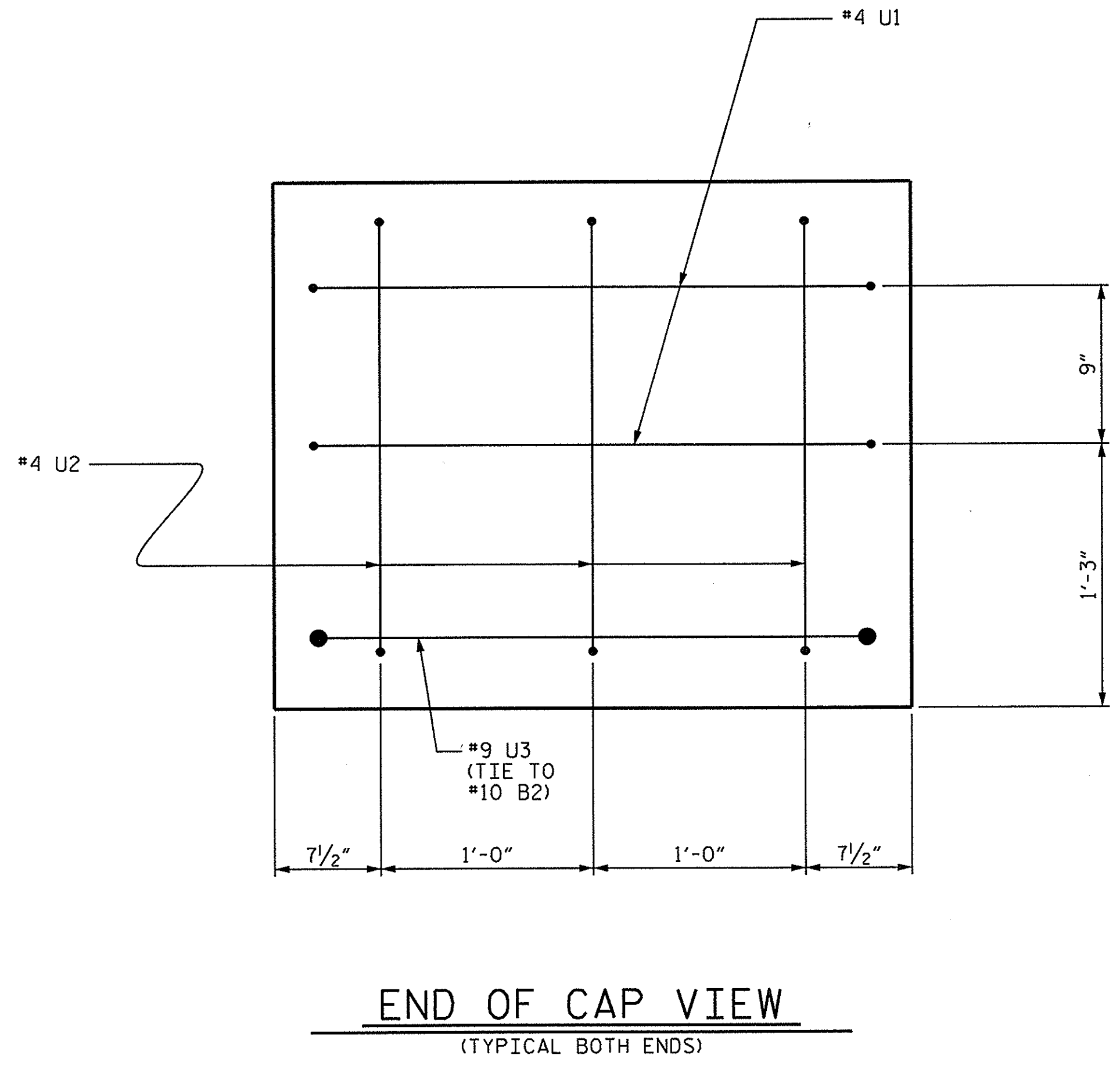


PILE SPLICE DETAILS

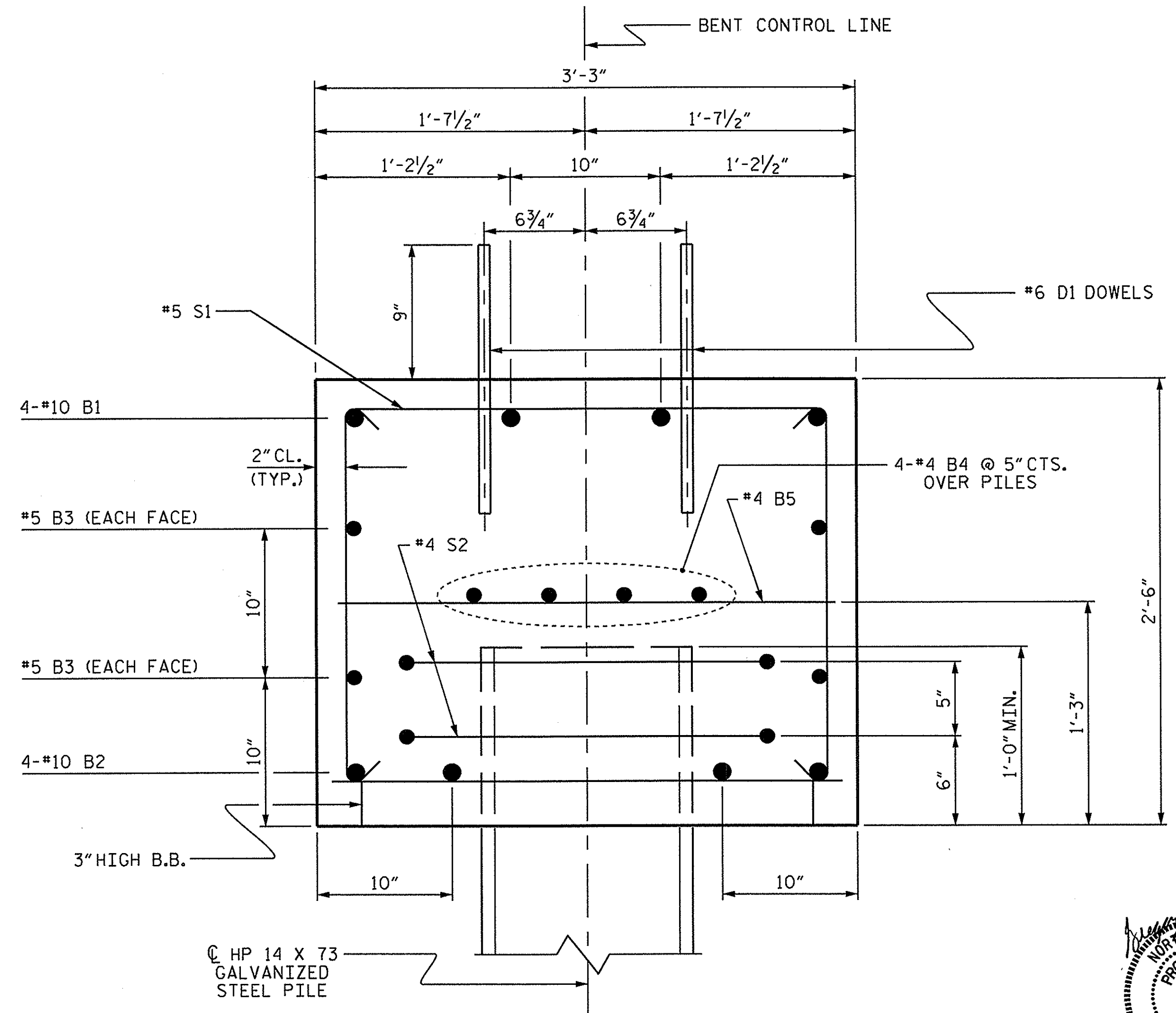


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	34'-10"	600
B2	4	#10	STR	32'-2"	554
B3	4	#5	STR	32'-2"	134
B4	8	#4	STR	17'-4"	93
B5	12	#4	STR	2'-11"	23
D1	40	#6	STR	1'-6"	90
S1	32	#5	2	8'-1"	270
S2	14	#4	3	7'-7"	71
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)				1959 LBS	
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #1 (CAP)				9.8 C.Y.	
POUR #2 (LATERAL GUIDES)				0.1 C.Y.	
TOTAL CLASS A CONCRETE				9.9 C.Y.	
HP 14 X 73 GALVANIZED STEEL PILES (FOR ONE BENT)					
No. 7		LIN. FT.		385	
PILE REDRIVES				4 EA.	
PREDRILLING		LIN. FT.		116	
STEEL PILE POINTS				7	



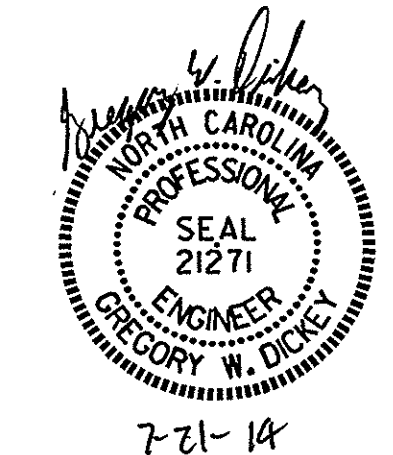
END OF CAP VIEW
(TYPICAL BOTH ENDS)



SECTION A-A

PROJECT NO. 17BP.3.R.36
DUPLIN COUNTY
 STATION: 19+14.95 -L-
 SHEET 2 OF 2

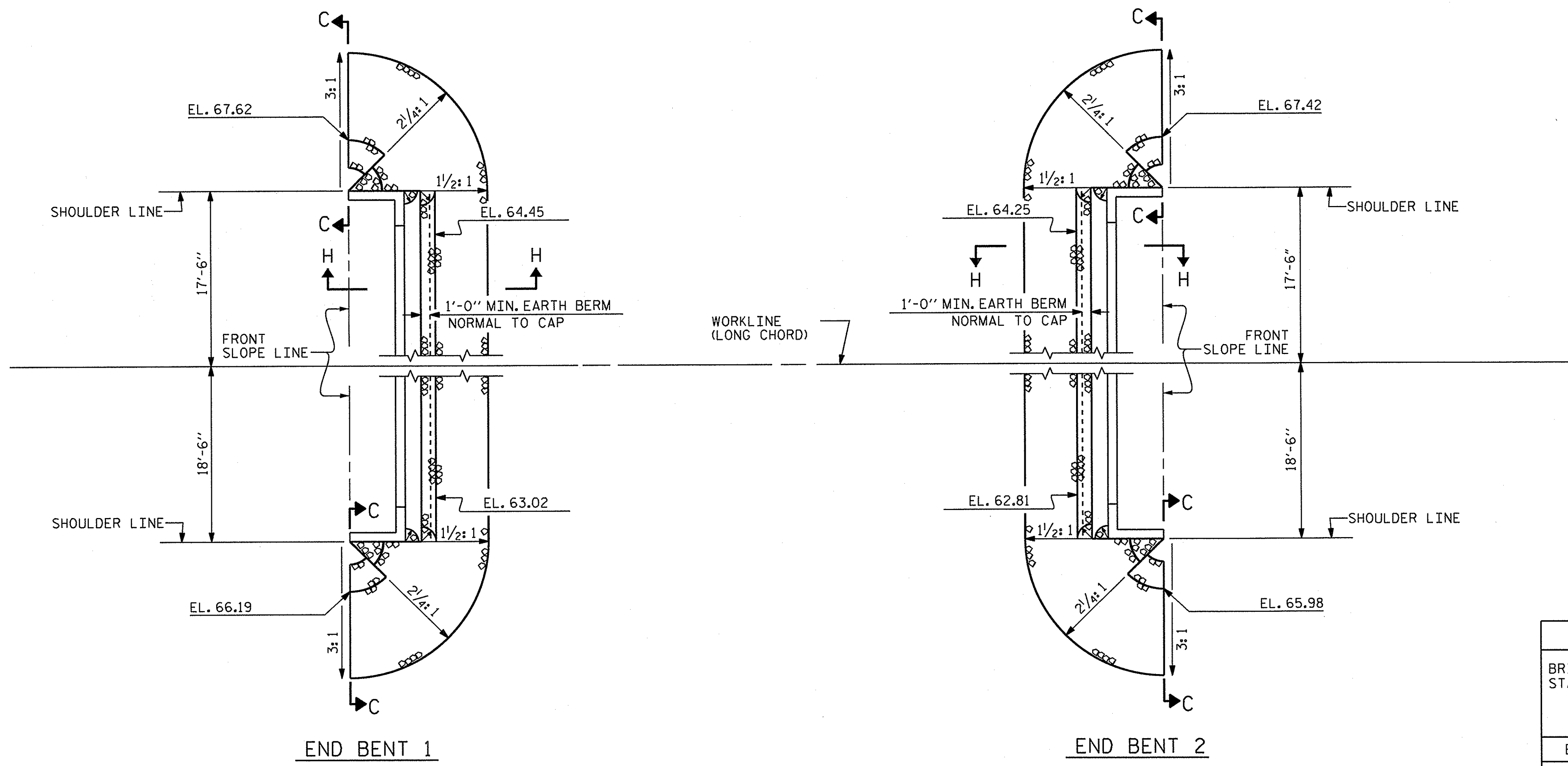
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No. 1



DRAWN BY: C.C.WILLIAMS DATE: 7/14
 CHECKED BY: P.N.HOLDER DATE: 7/14
 DRAWN BY: DCE 05/10
 CHECKED BY: MKT 05/10

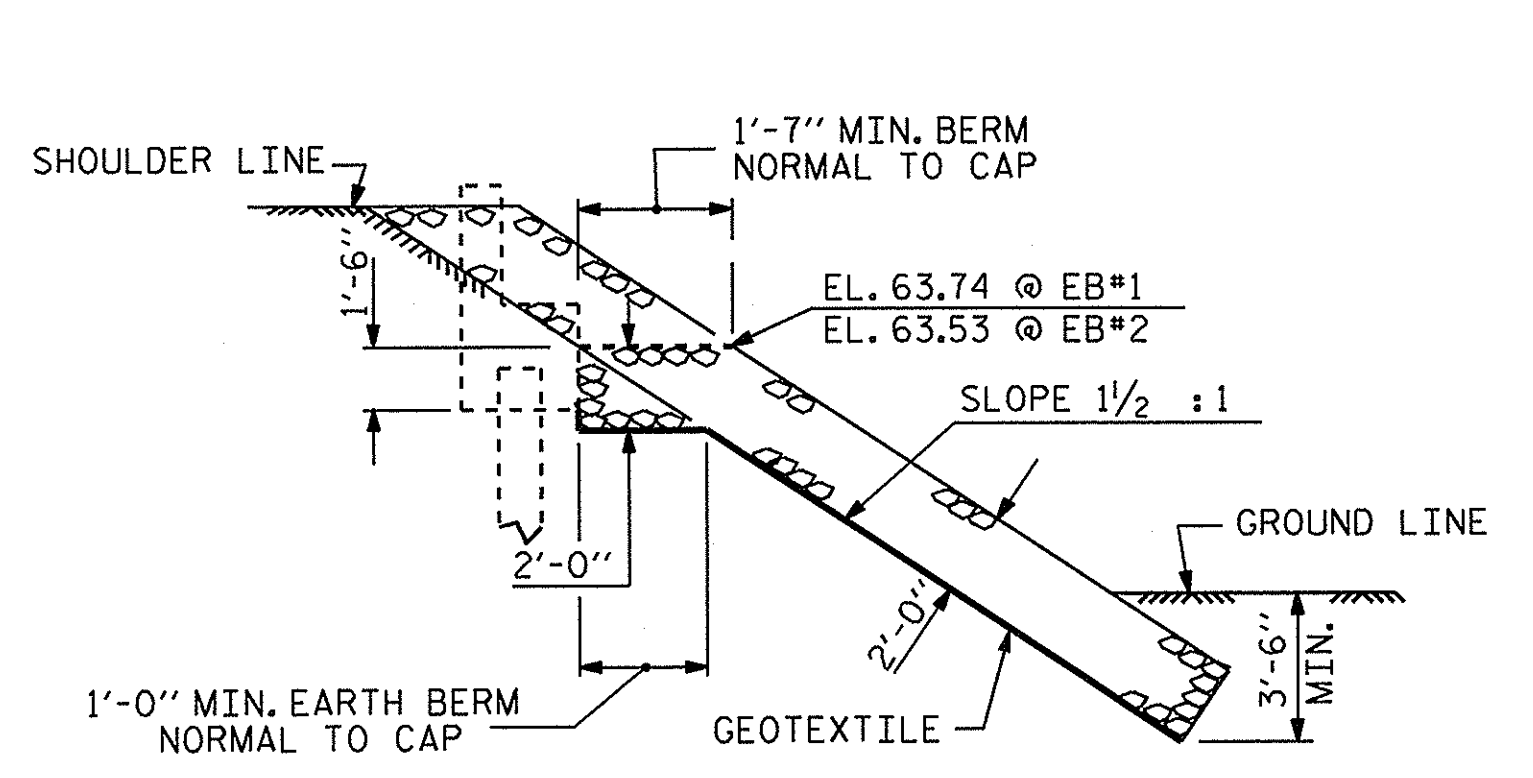
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			
2			4			

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

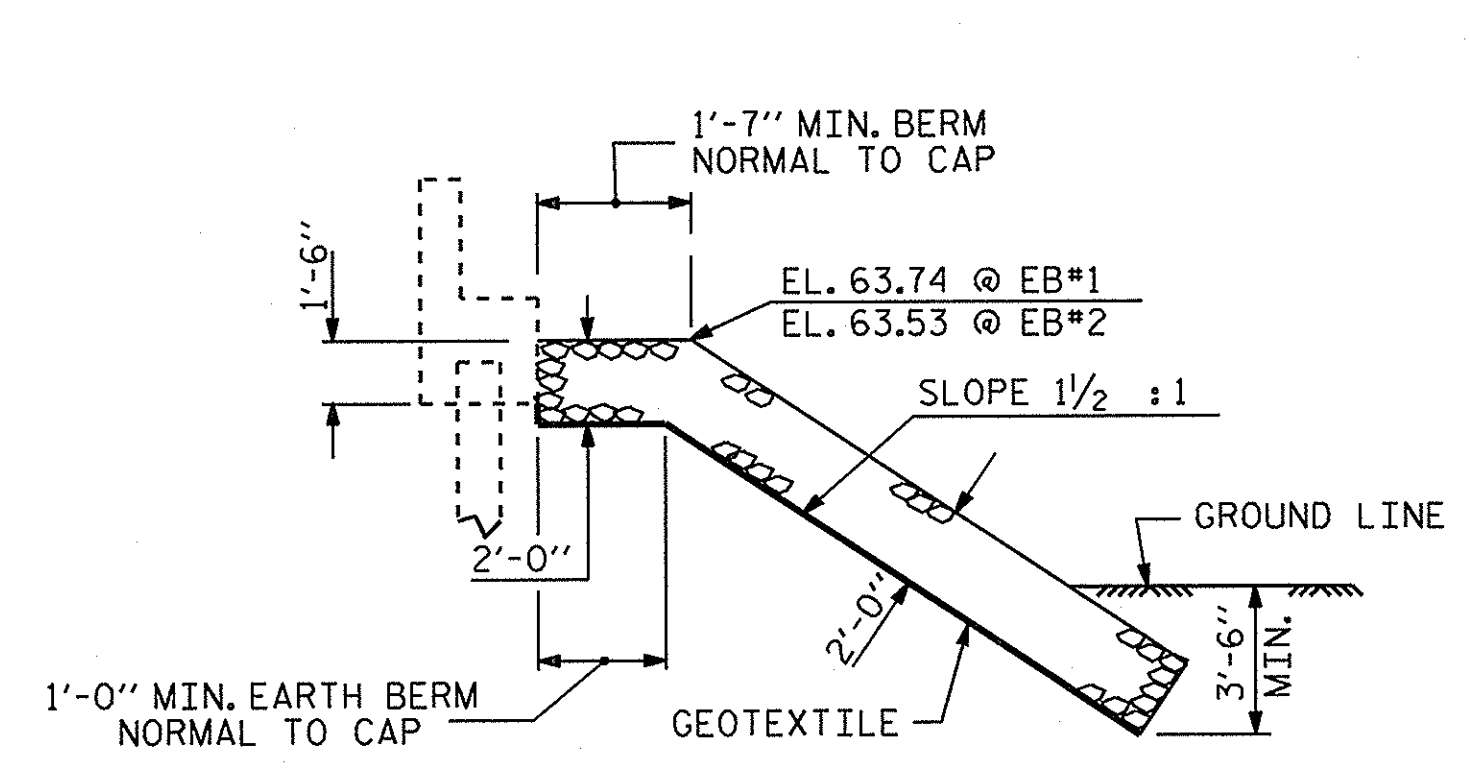


PLAN

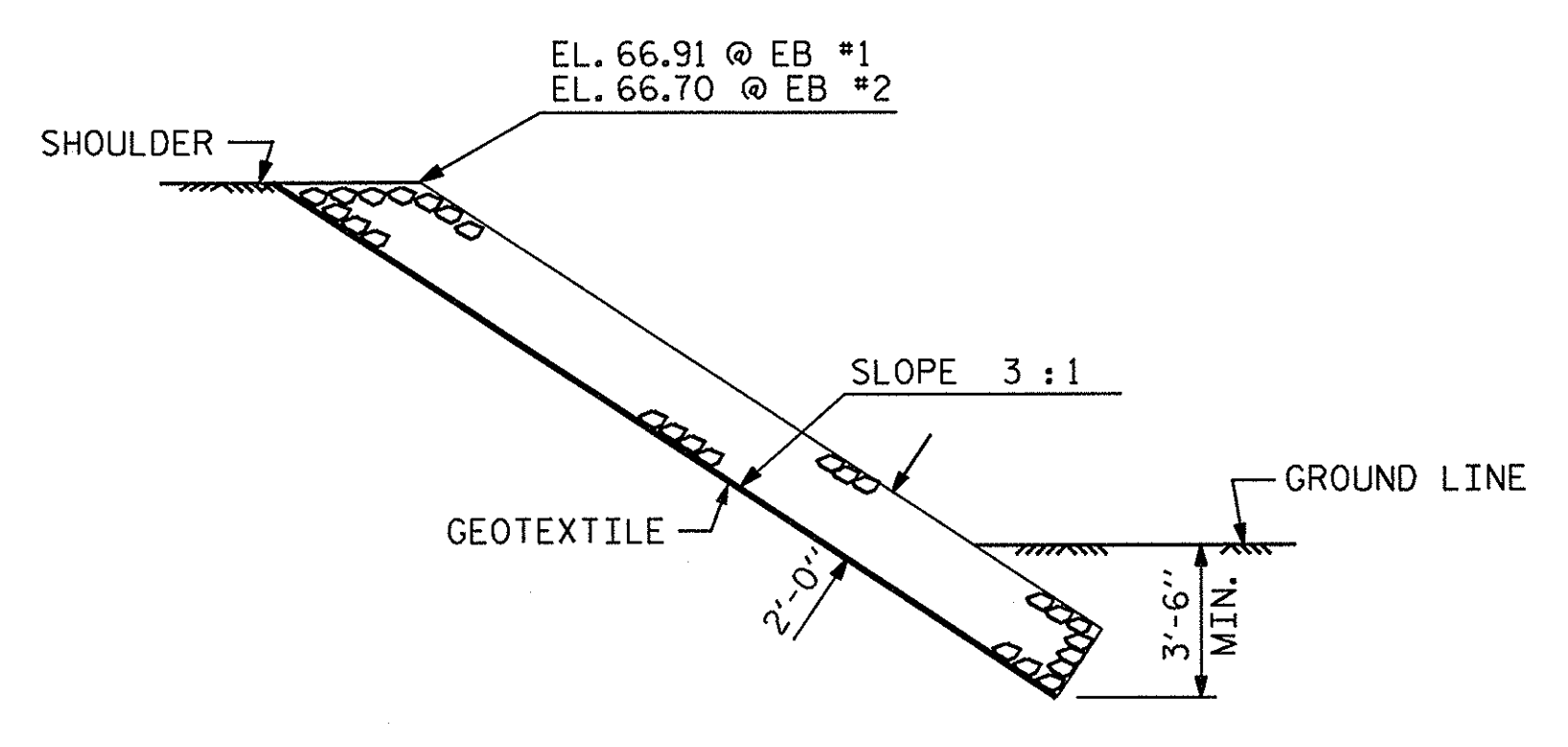
ESTIMATED QUANTITIES		
BRIDGE @ STA. 19+14.95 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	60	67
END BENT 2	57	63



SECTION H-H

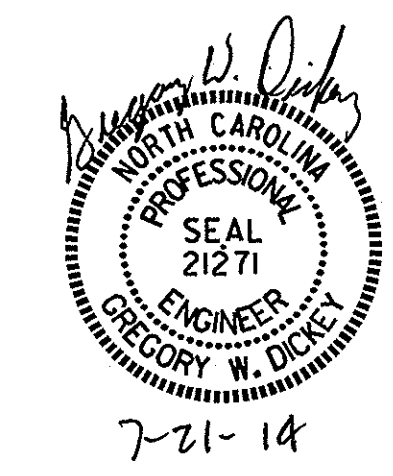


SECTION C-C
BERM RIP RAPPED



SECTION C-C

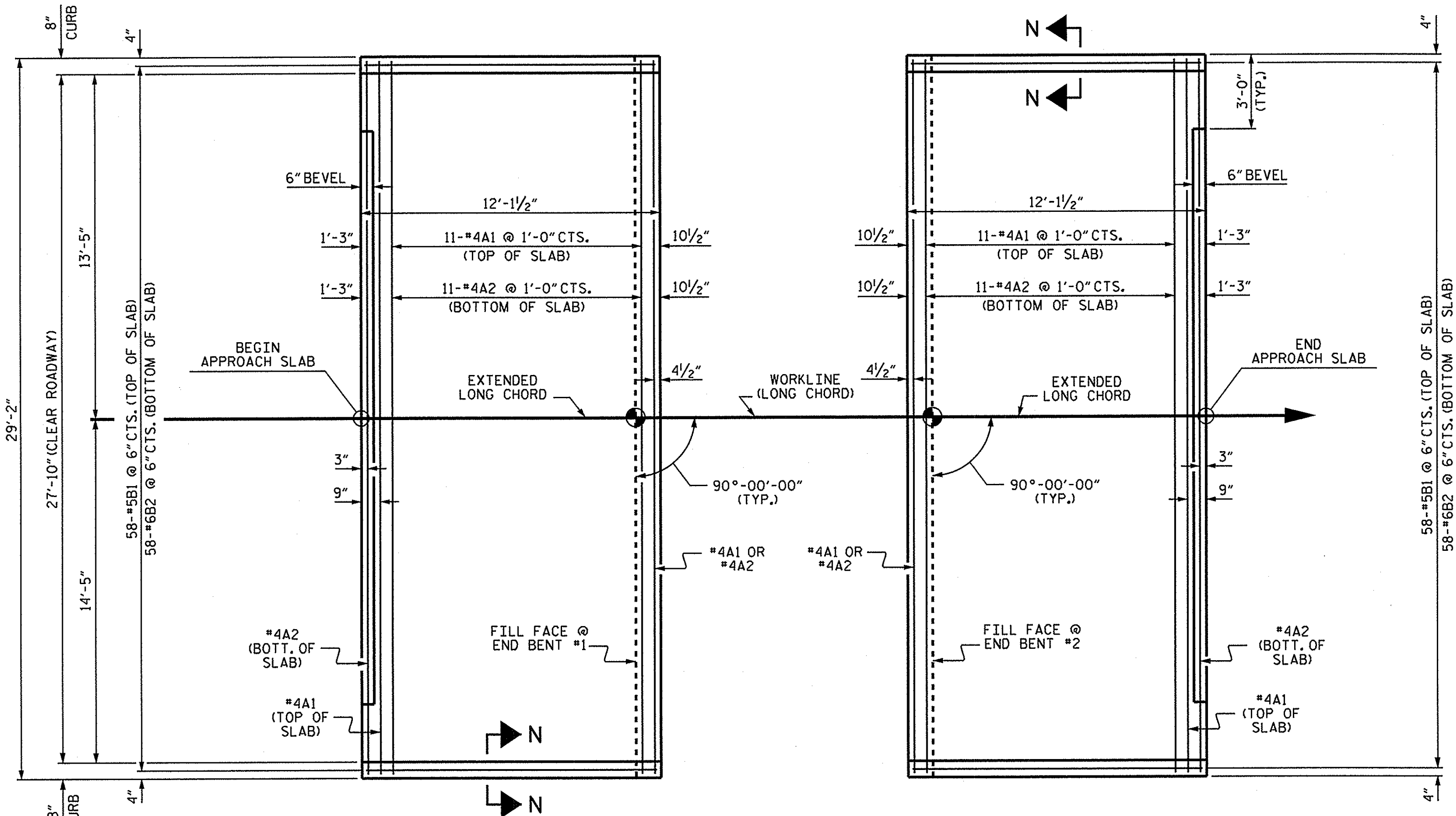
PROJECT NO. 17BP.3.R.36
DUPLIN COUNTY
STATION: 19+14.95 -L-



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

ASSEMBLED BY : C.C.WILLIAMS DATE : 7/14
CHECKED BY : P.N.HOLDER DATE : 7/14
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

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

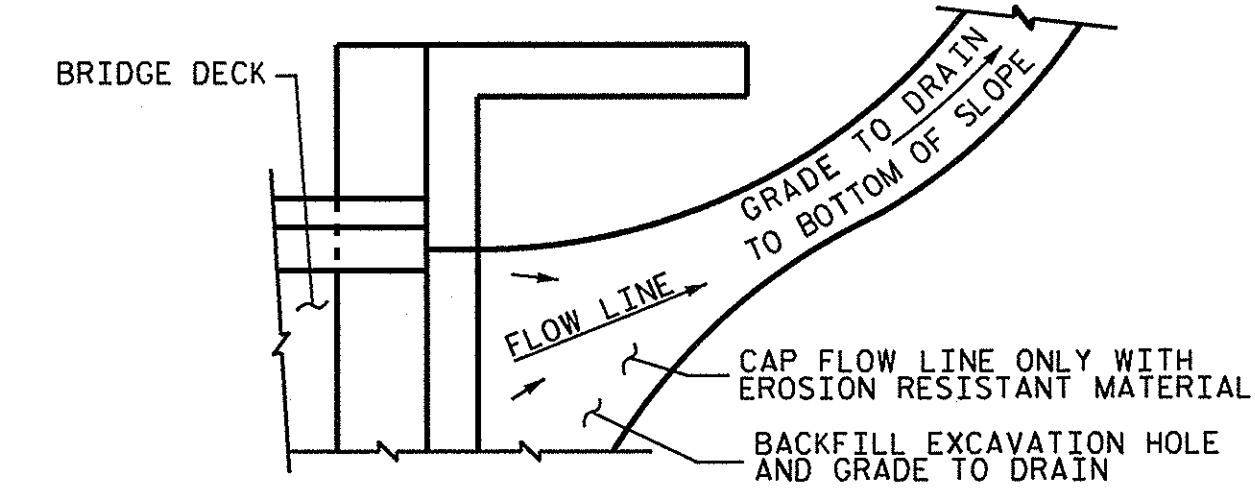


NOTES

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

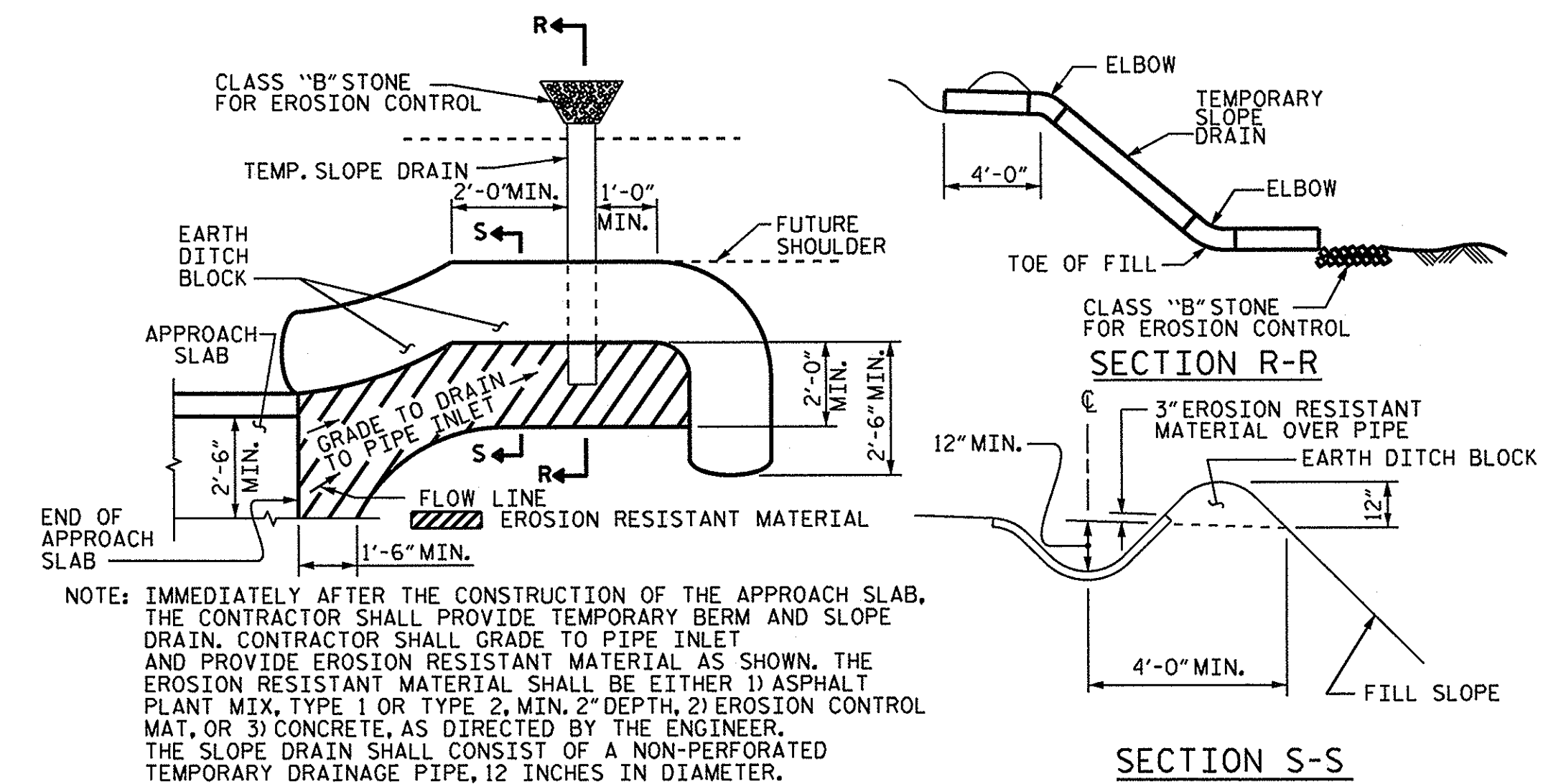
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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.

TEMPORARY DRAINAGE DETAIL

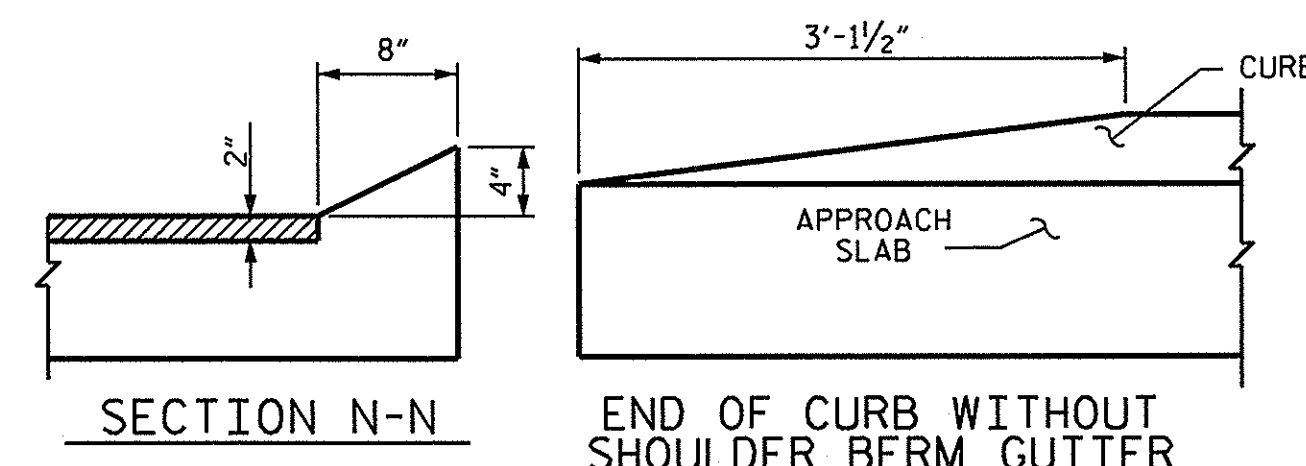


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW

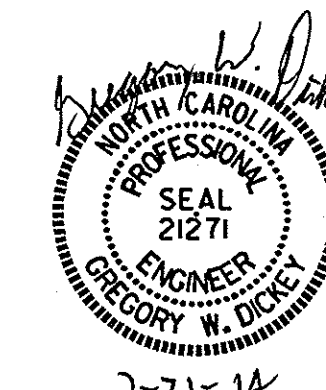
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

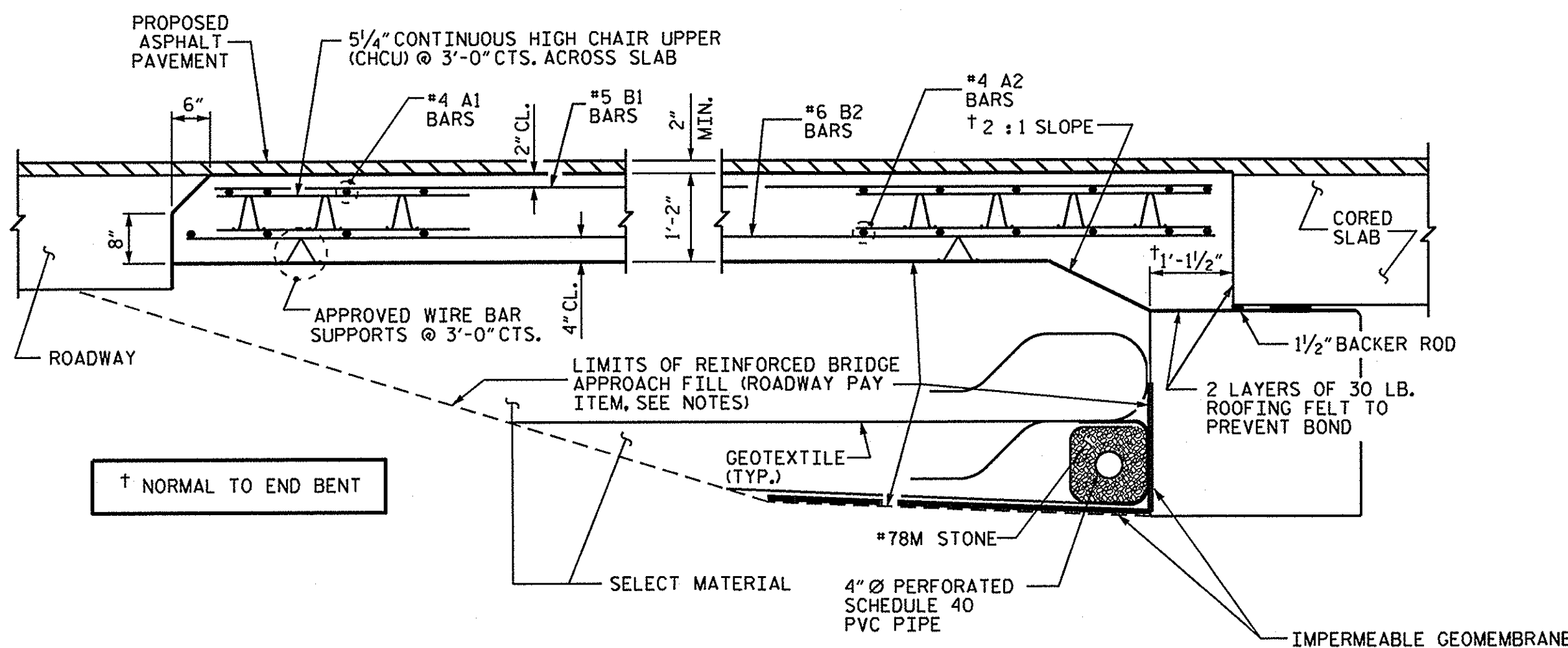


CURB DETAILS

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	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.	16.9
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.	16.9



SECTION THRU SLAB

ASSEMBLED BY : C.C.WILLIAMS DATE : 7/14
 CHECKED BY : P.N.HOLDER DATE : 7/14
 DRAWN BY : SHS/MAA 5-09 REV. 12-11 MAA/AAC
 CHECKED BY : BCH 5-09

PROJECT NO. 17BP.3.R.36
 DUPLIN COUNTY
 STATION: 19+14.95 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

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

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
	GRADE 60	-- 24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER		
	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT.
		(MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS. WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0". EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED. WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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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