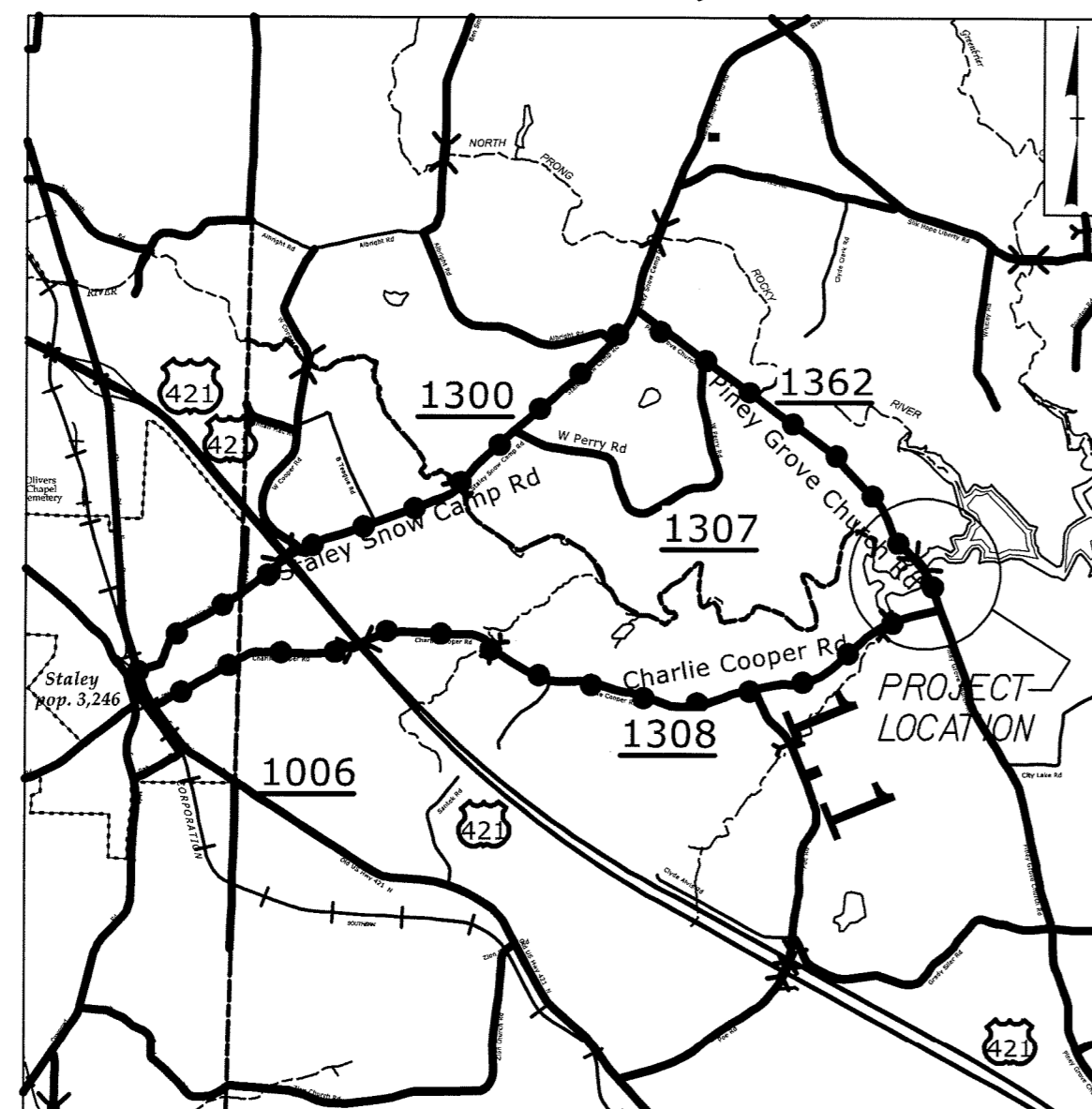


09/08/14

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional symbols
See Sheet 1-C For Survey Control Sheet



VICINITY MAP
OFF-SITE DETOUR ROUTE = ●—●—●—●

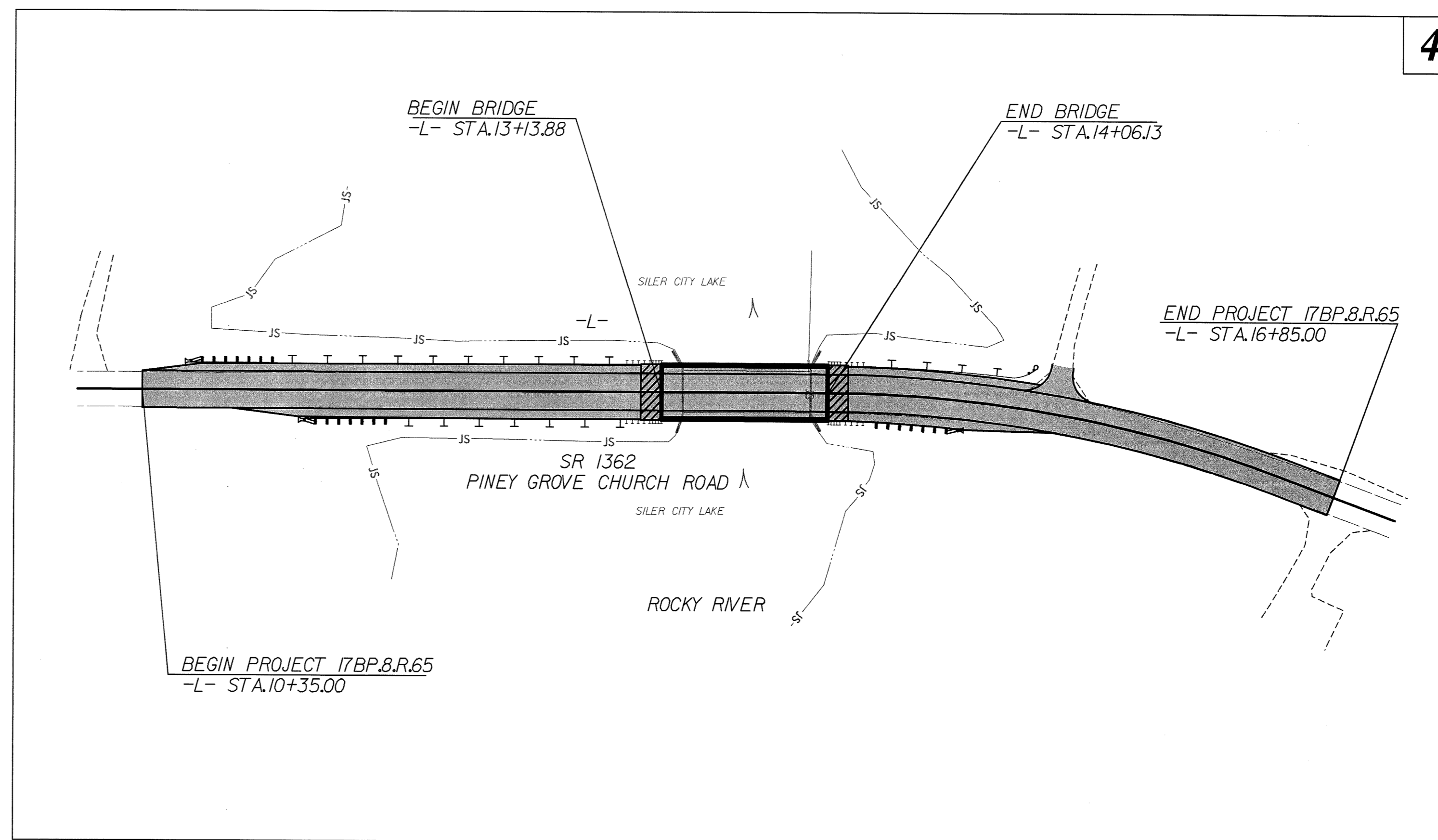
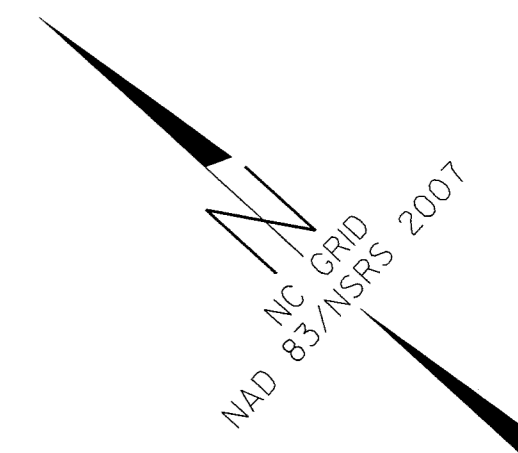
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CHATHAM COUNTY

**LOCATION: BRIDGE NO. 282 OVER ROCKY RIVER
ON SR 1362 (PINEY GROVE CHURCH ROAD)**

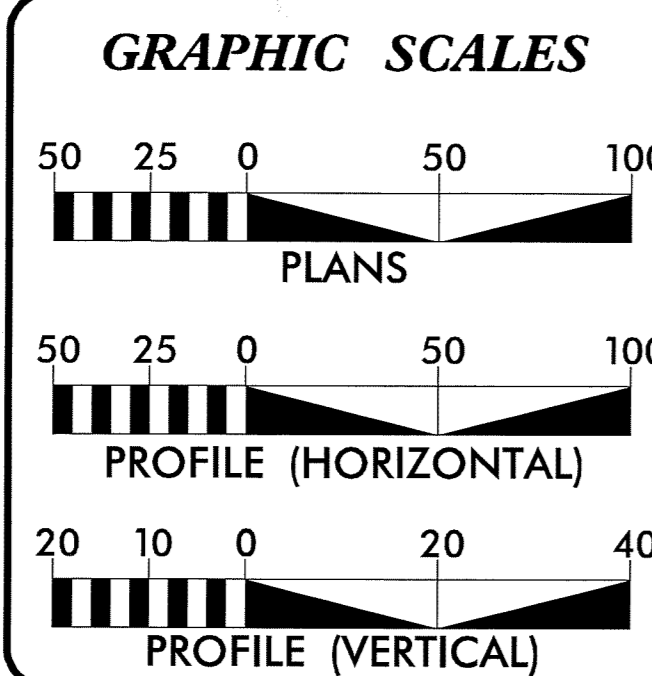
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.65	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
17BP.8.R.65		PE	
17BP.8.R.65		R/W & UTIL	
17BP.8.R.65		CONST.	



TIP PROJECT: 17BP.8.R.65

CONTRACT:



DESIGN DATA

ADT 2014 = 850

T = 6 % *

V = 55 MPH

* TTST = 3% DUAL 3%

FUNC CLASS = LOCAL

SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.8.R.65 = 0.106 MI

LENGTH OF STRUCTURE PROJECT 17BP.8.R.65 = 0.017 MI

TOTAL LENGTH OF PROJECT 17BP.8.R.65 = 0.123 MI

Prepared in the Office of:

SEPI
ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel: 919-789-9977
Fax: 919-789-9591
License: C-21197

FOR THE NORTH CAROLINA DEPT. OF TRANSPORTATION
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH, 2014

LETTING DATE: OCTOBER 28, 2014

STEVE SCOTT, PE
PROJECT ENGINEER

AGNIESZKA NAU, PE
PROJECT DESIGN ENGINEER

TIM WELCH, PE
NCDOT CONTACT

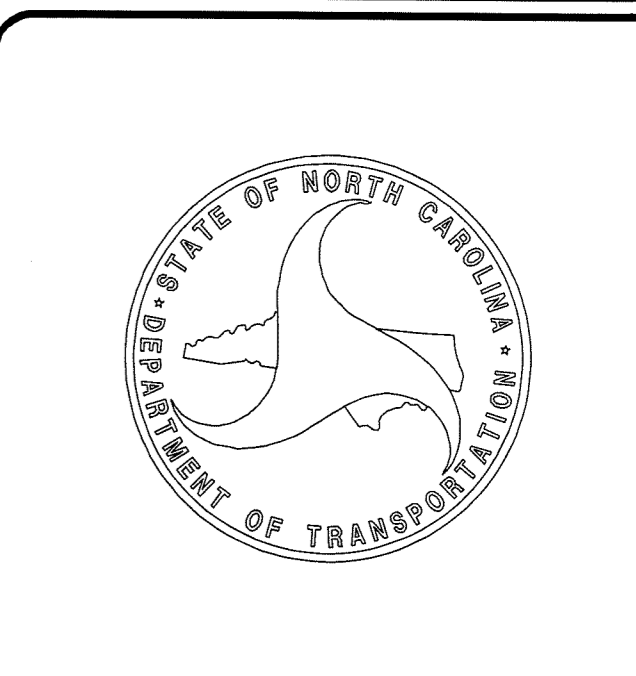
HYDRAULICS ENGINEER

Elizabeth G. Dink

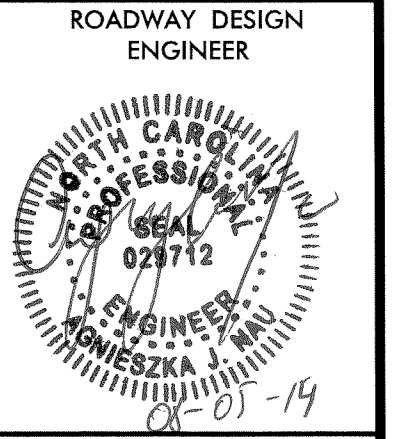
ROADWAY DESIGN ENGINEER

Agneszka Nau

08-05-14 P.E.



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



EFF. 01-17-12
REV. 11-01-11

SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF DRAINAGE QUANTITIES
3B	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-4	TRAFFIC CONTROL PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
X-1 THRU X-9	CROSS-SECTIONS
S-1 THRU S-16	STRUCTURE PLANS
UO-1 THRU UO-2	UTILITIES PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11-01-11

**GRADE LINE:
GRADING AND SURFACING:**

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

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.

END BENTS:

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

UTILITIES:

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

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 July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

8/17/99
CONTRACT NO. 17BP.8.R.65
DATE OF ISSUE 08-01-14















STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS





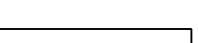
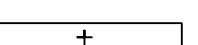

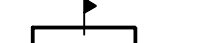



Note: Not to Scale

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

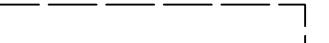









BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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


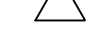






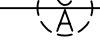

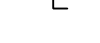







HYDROLOGY:

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






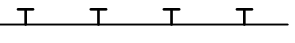
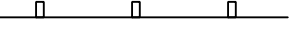
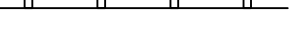



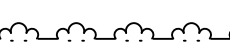



RAILROADS:

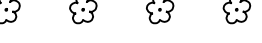
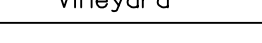
Standard Gauge	_____ 
RR Signal Milepost	_____ 
Switch	_____ 
RR Abandoned	_____ 
RR Dismantled	_____ 

RIGHT OF WAY:

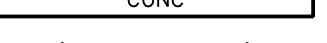

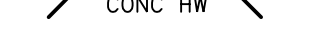
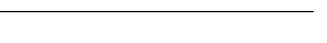





Baseline Control Point	_____ 
Existing Right of Way Marker	_____ 
Existing Right of Way Line	_____ 
Proposed Right of Way Line	_____ 
Proposed Right of Way Line with Iron Pin and Cap Marker	_____ 
Proposed Right of Way Line with Concrete or Granite RW Marker	_____ 
Proposed Control of Access Line with Concrete CA Marker	_____ 
Existing Control of Access	_____ 
Proposed Control of Access	_____ 
Existing Easement Line	_____ 
Proposed Temporary Construction Easement	_____ 
Proposed Temporary Drainage Easement	_____ 
Proposed Permanent Drainage Easement	_____ 
Proposed Permanent Drainage / Utility Easement	_____ 
Proposed Permanent Utility Easement	_____ 
Proposed Temporary Utility Easement	_____ 
Proposed Aerial Utility Easement	_____ 
Proposed Permanent Easement with Iron Pin and Cap Marker	_____ 

ROADS AND RELATED FEATURES:












Existing Edge of Pavement	_____ 
Existing Curb	_____ 
Proposed Slope Stakes Cut	_____ 
Proposed Slope Stakes Fill	_____ 
Proposed Curb Ramp	_____ 
Existing Metal Guardrail	_____ 
Proposed Guardrail	_____ 
Existing Cable Guiderail	_____ 
Proposed Cable Guiderail	_____ 
Equality Symbol	_____ 
Pavement Removal	_____ 
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	_____ 
End of Information	_____ 

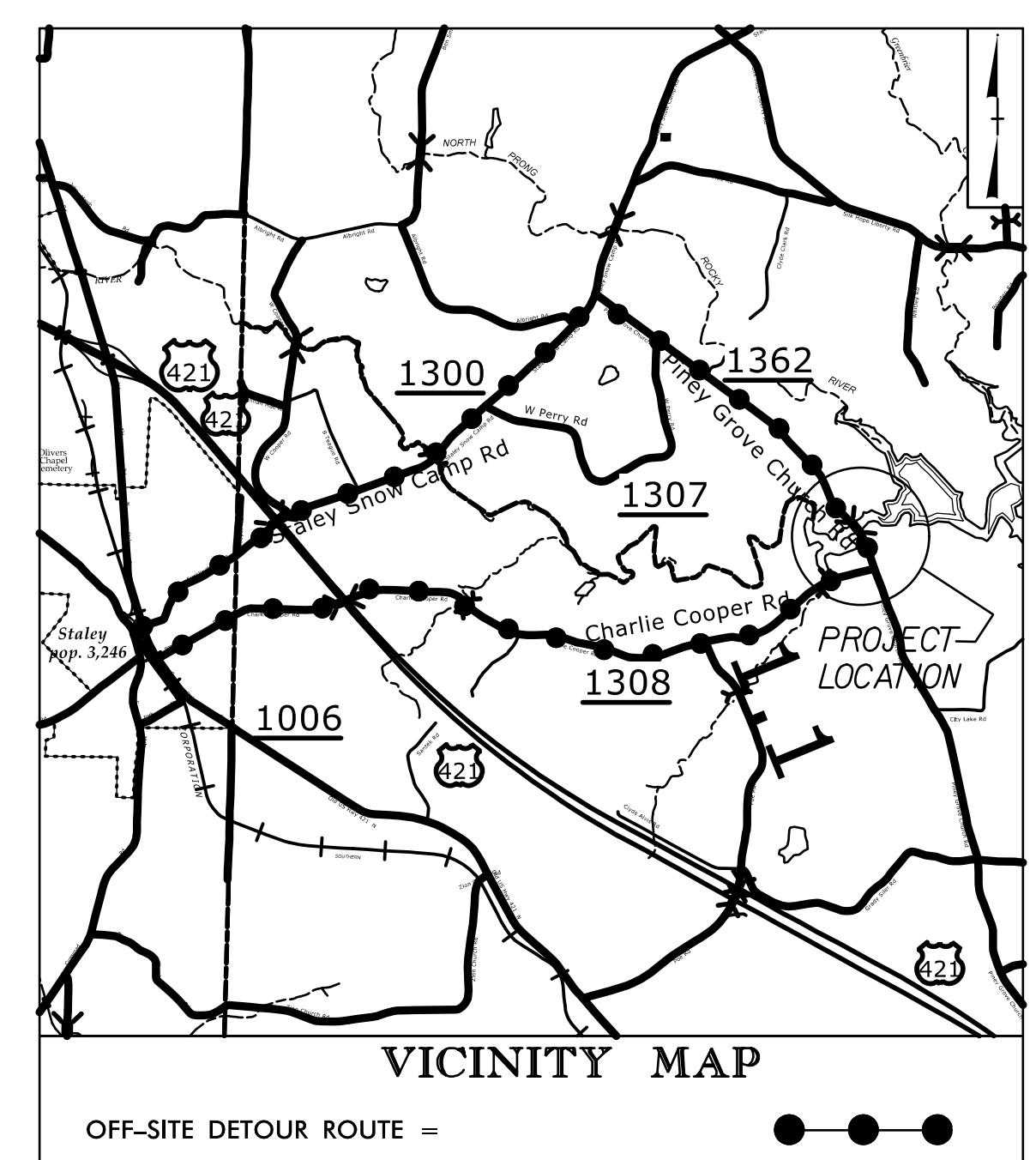
8.17/99

SURVEY CONTROL SHEET 17BP.8.R.65

SEPI
ENGINEERING & CONSTRUCTION

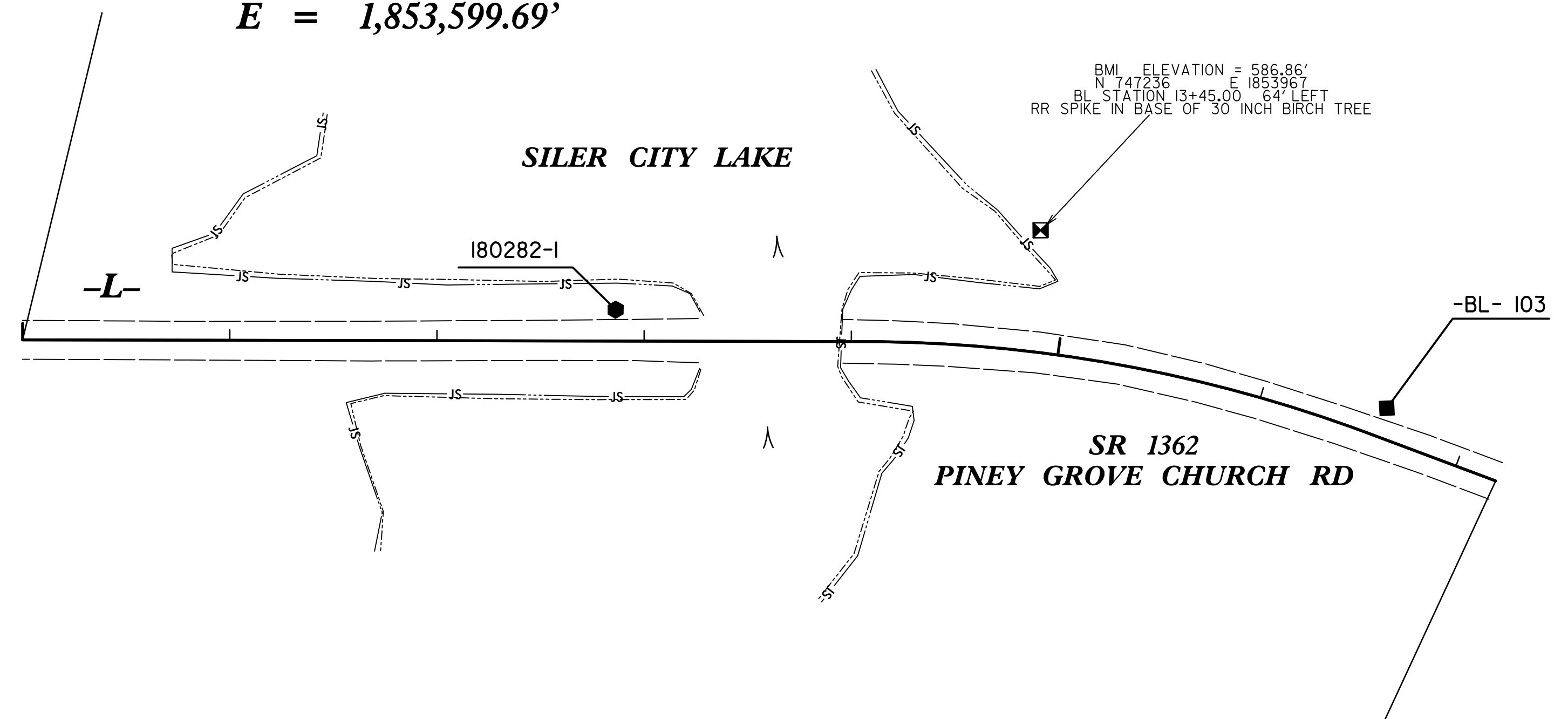
1025 Wade Avenue
Raleigh, NC 27605
Tel: 919-789-9977
Fax: 919-789-9591
License: C-2197

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.65	1-C
RW SHEET NO.	



BL POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
2	180282-2	747825.7073	1853350.9878	605.39	OUTSIDE PROJECT LIMITS	
1	180282-1	747362.9960	1853801.6660	588.94	12+86.20	15.13 LT
103	BL-103	747054.1810	1854014.8240	594.73	16+58.96	14.45 LT

-L- STA. 10+00.00 BEGIN STATE PROJECT 17BP.8.R.65
LOCALIZED PROJECT COORDINATES
N = 747,566.34' **E = 1,853,599.69'**



-L- STA. 17+20.46 END STATE PROJECT 17BP.8.R.65
LOCALIZED PROJECT COORDINATES
N = 746,991.66' **E = 1,854,023.87'**

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "180282-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 747362.9960(±) EASTING: 1853801.6660(±) ELEVATION: 588.942(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988763

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "180282-1" TO -L- STATION 10+00.00 IS 286.6002' N44° 48' 23.28"W

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

NOTES:

- THE CONTROL DATA FOR THIS PROJECT WAS PROVIDED BY NCDOT. CONTROL POINTS PROVIDED ARE AS FOLLOWS:
 180282-1 N=747,362.9960 E=1,853,801.6660 ELEV=588.942'
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 - ◆ INDICATES CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY NCDOT.

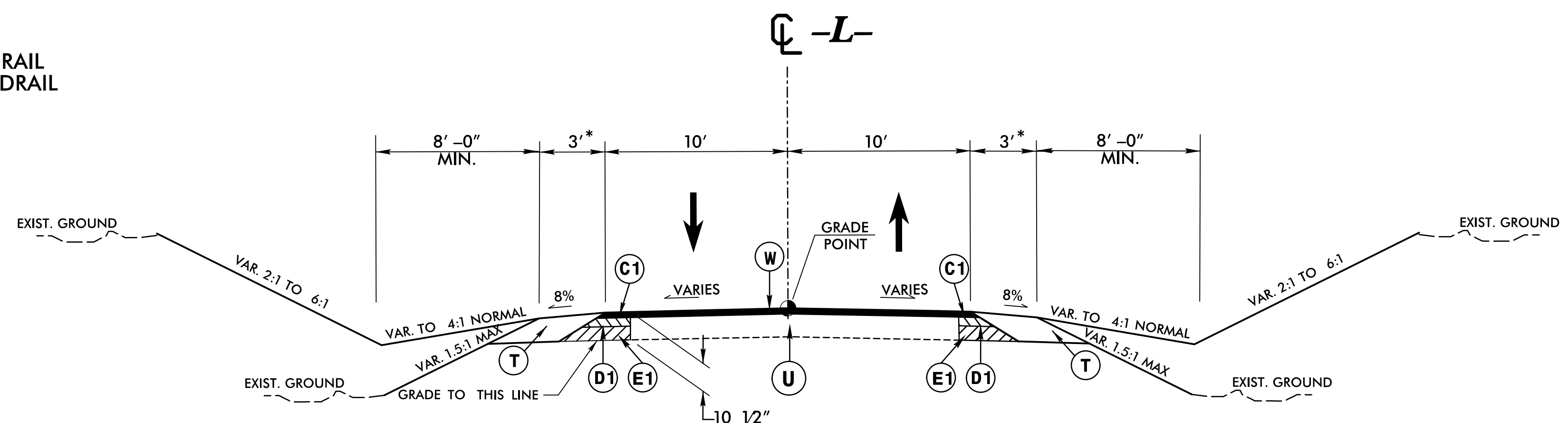
NOTE: DRAWING NOT TO SCALE

REVISIONS

8.17/99

5/14/99

* ADD 3' TO SHOULDERS FOR GUARDRAIL
PAVE SHOULDER TO FACE OF GUARDRAIL



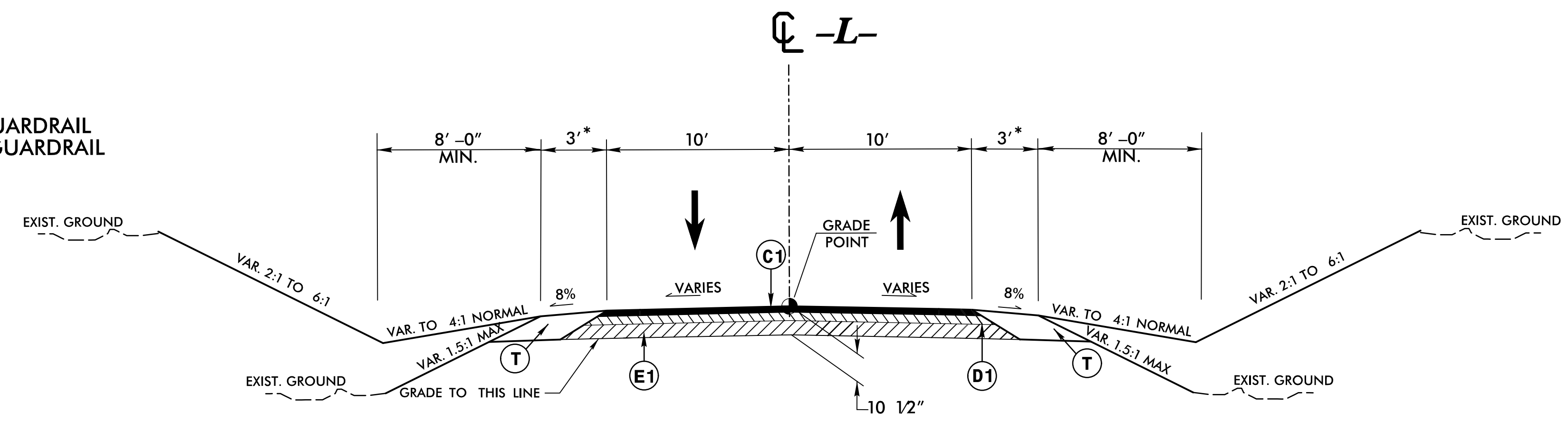
TYPICAL SECTION NO. 1

-L- STA. 12+25.00 TO -L- STA. 13+13.88 (BEGIN BRIDGE)
-L- STA. 14+06.13 (END BRIDGE) TO -L- STA. 16+00.00

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
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.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE DETAIL)

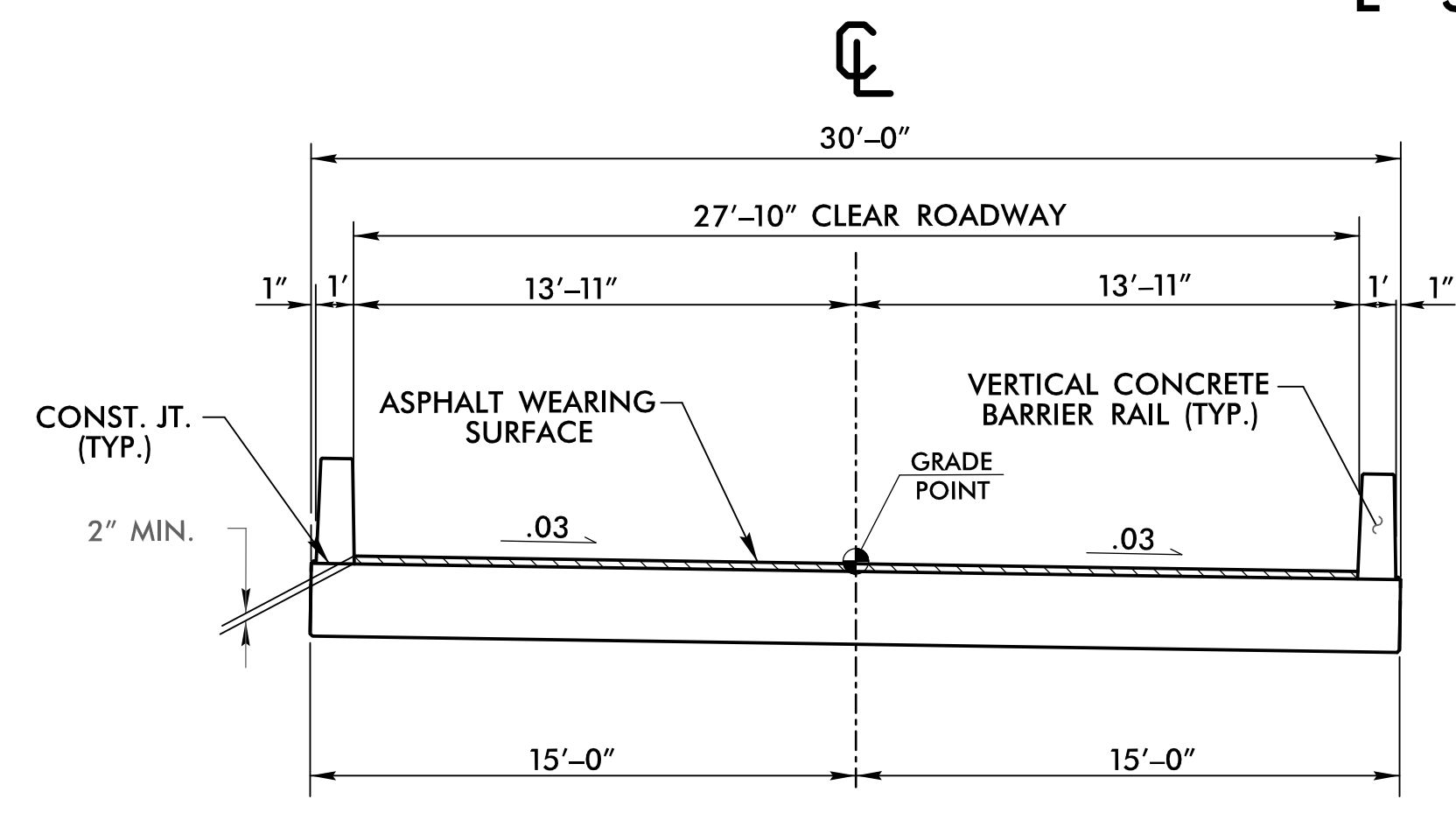
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

* ADD 3' TO SHOULDERS FOR GUARDRAIL
PAVE SHOULDER TO FACE OF GUARDRAIL



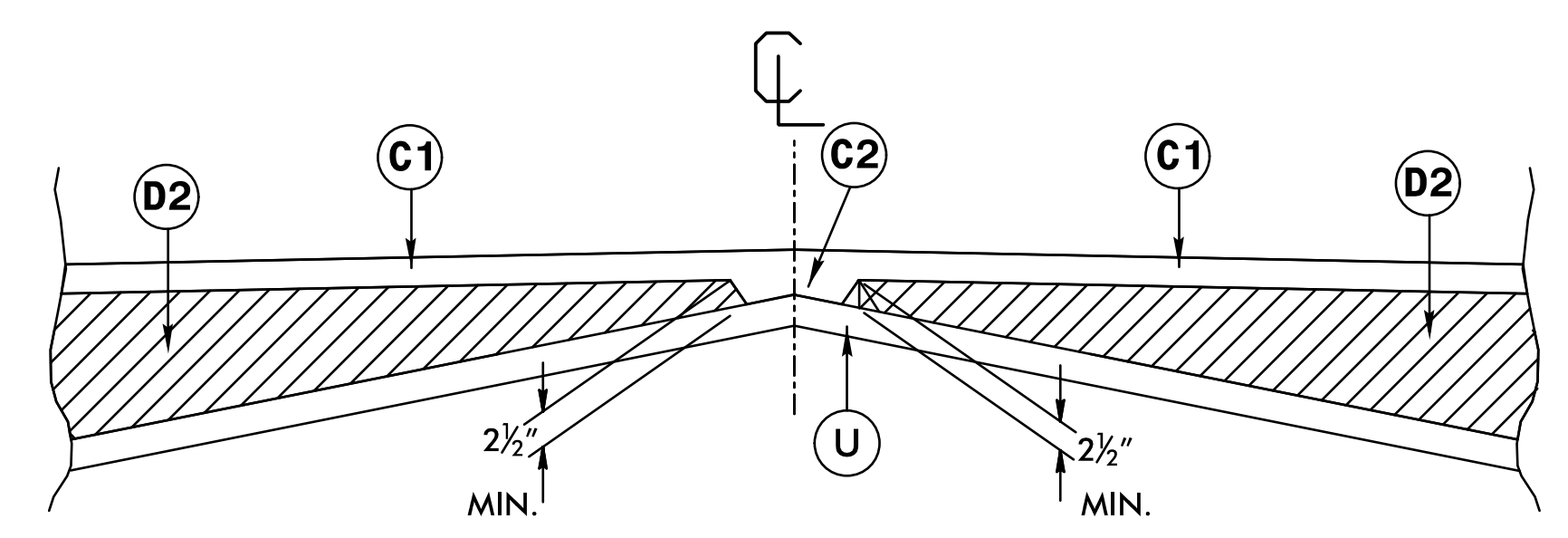
TYPICAL SECTION NO. 2

-L- STA. 10+35.00 TO -L- STA. 12+25.00
-L- STA. 16+00.00 TO -L- STA. 16+85.00



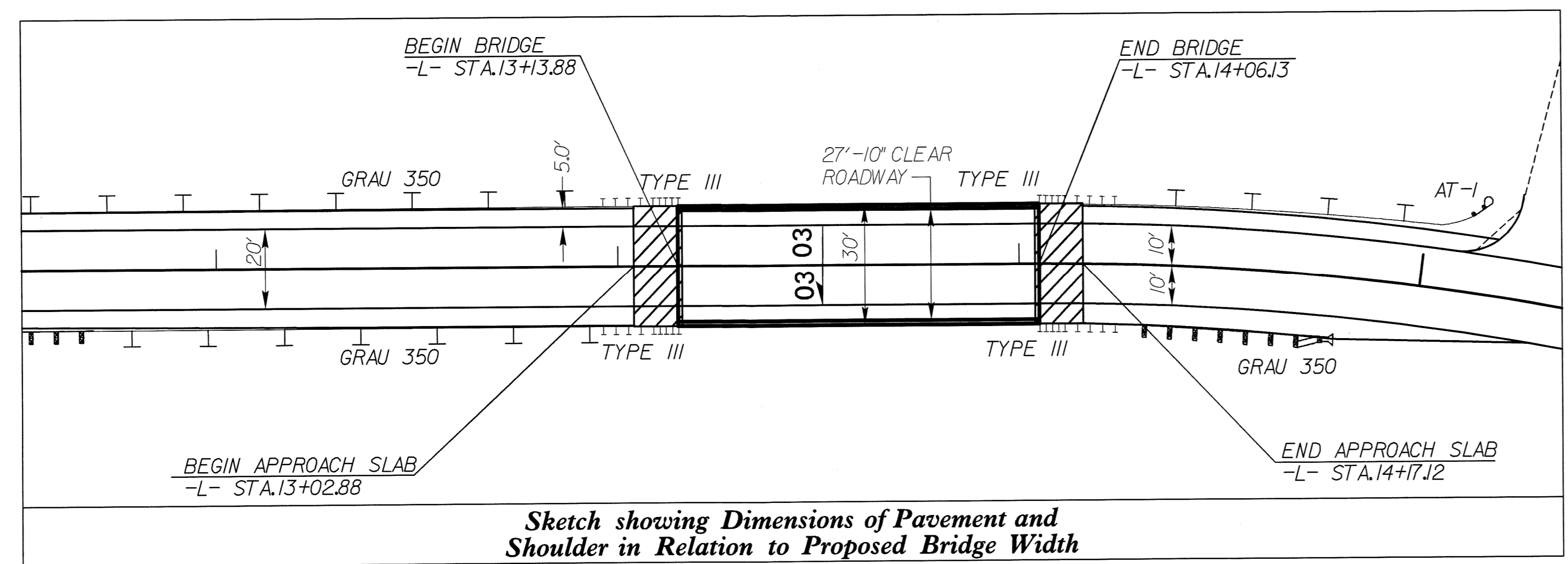
TYPICAL BRIDGE SECTION NO. 1

-L- STA. 13+13.88 TO -L- STA. 14+06.13

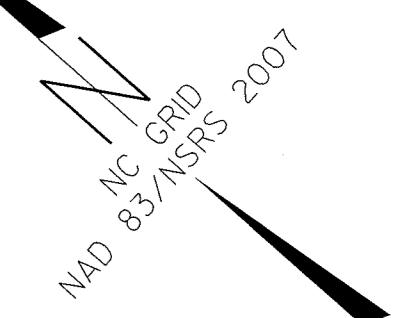
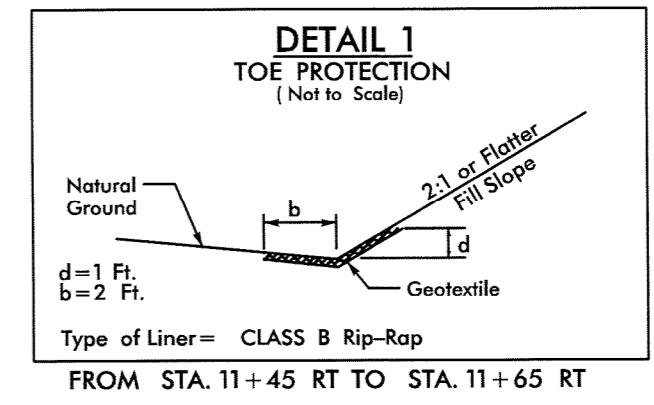


Detail Showing Method of Wedging

5/14/99

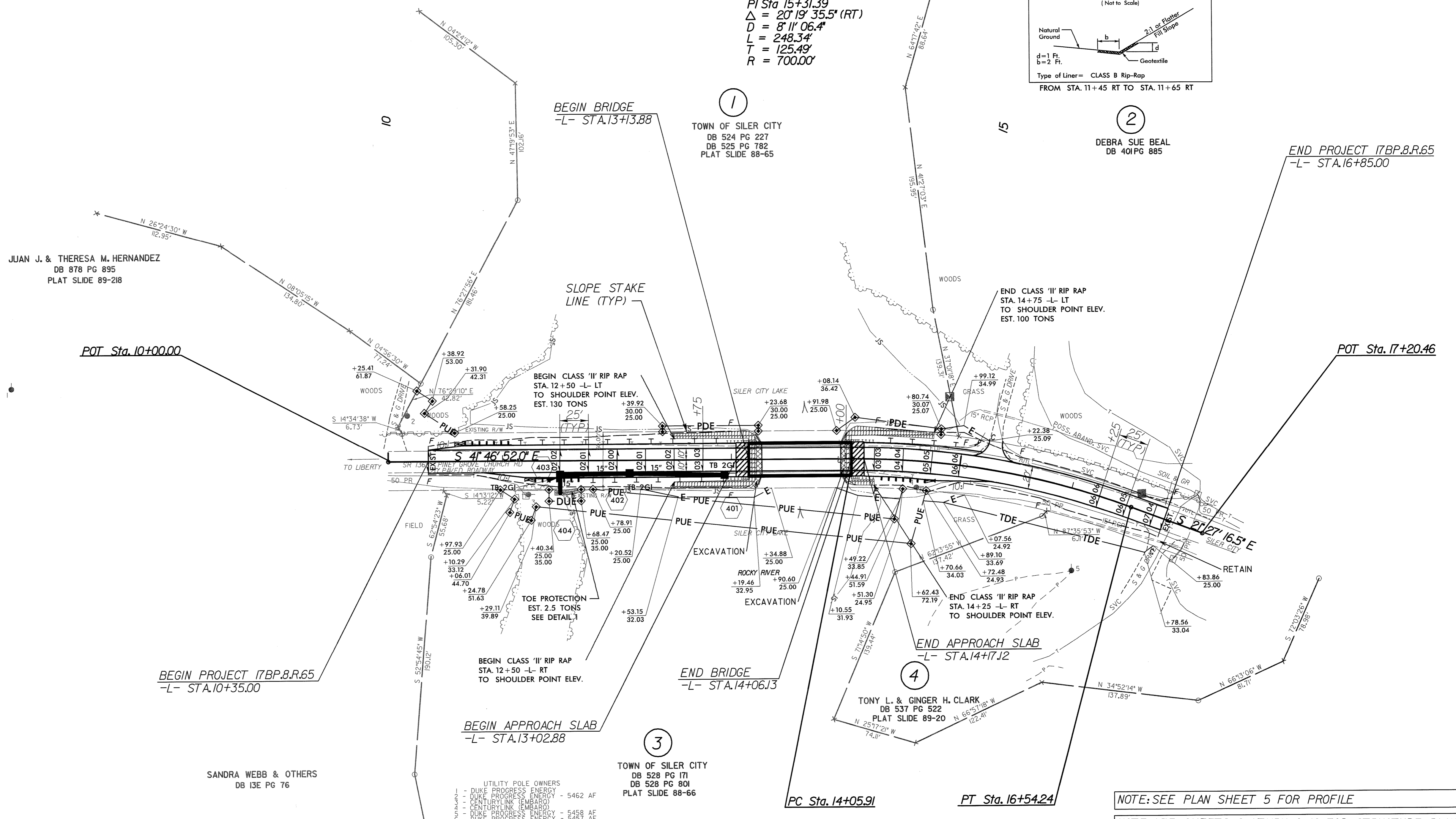


Sketch showing Dimensions of Pavement and Shoulder in Relation to Proposed Bridge Width



-L-
PI Sta 15+31.39
 $\Delta = 20' 19'' 35.5''$ (RT)
D = 8' 11'' 06.4"
L = 248.34'
T = 125.49'
R = 700.00'

REVISIONS



NOTE: SEE PLAN SHEET 5 FOR PROFILE
NOTE: SEE SHEETS S-1 THRU S-16 FOR STRUCTURE PLANS

8/17/99
SYSTEMS DESIGN
ILLINOIS STATE UNIVERSITY

5/14/99

SEPI
ENGINEERING & CONSTRUCTION

1025 Wade Avenue
Raleigh, NC 27605
Tel: 919-789-9977
Fax: 919-789-9981
License: C-2197

PROJECT REFERENCE NO. 17BP.8.R.65	SHEET NO. 5
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	HYDRAULICS ENGINEER <i>[Signature]</i>

BM 1
-BL- Sta. 13+45.00
OFF 64.00' LT
ELEV. 586.86'
R/R SPIKE IN BASE OF
30" BIRCH

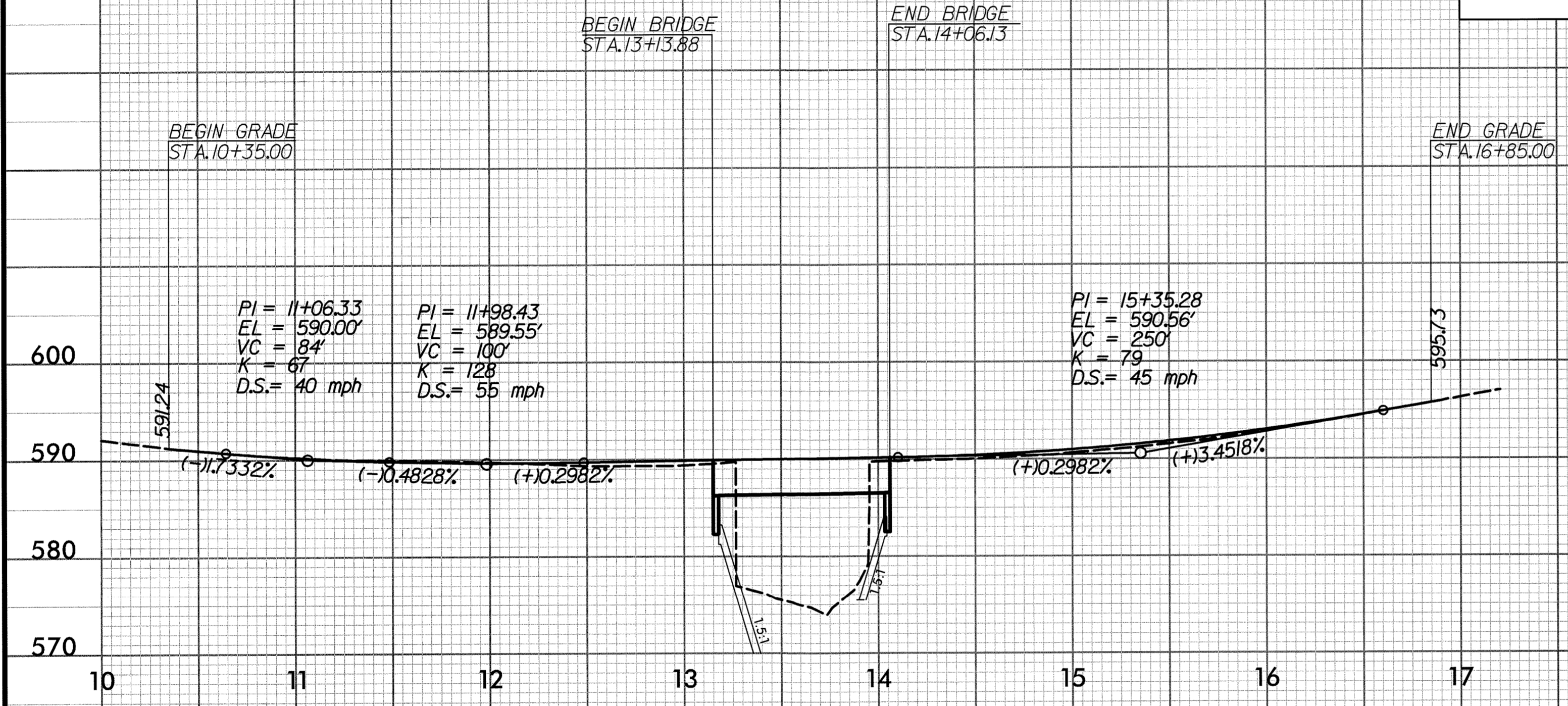
-L-
Sta. 14+84.81
OFF 58.68' LT

-L-

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 3050 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 585.6 FT
BASE DISCHARGE = 3965 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 587.42 FT
OVERTOPPING DISCHARGE = 6750 CFS
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING ELEVATION = 590.1 FT

DATE OF SURVEY = 12/1987
W.S. ELEVATION AT DATE OF SURVEY = 583.0 FT



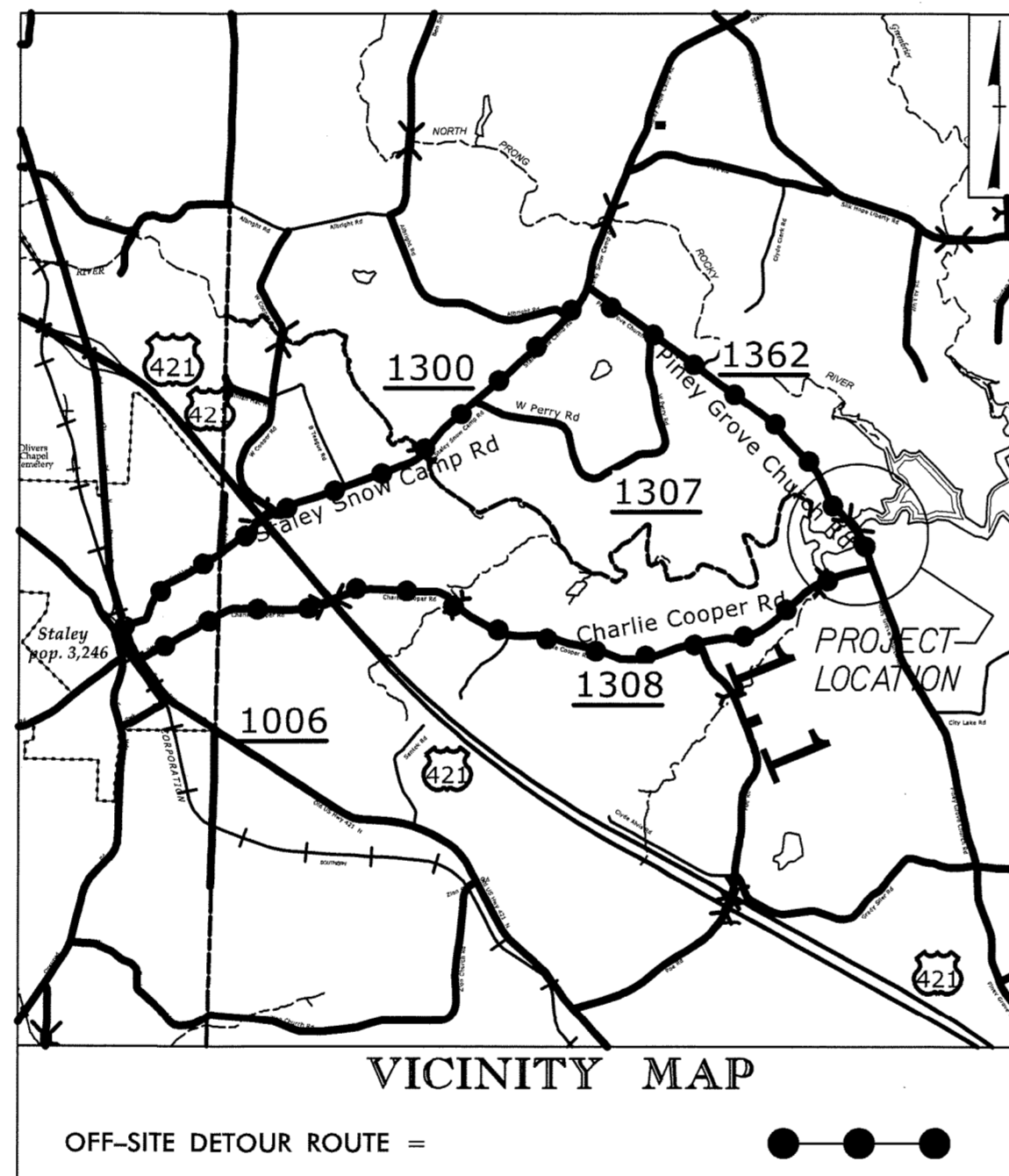
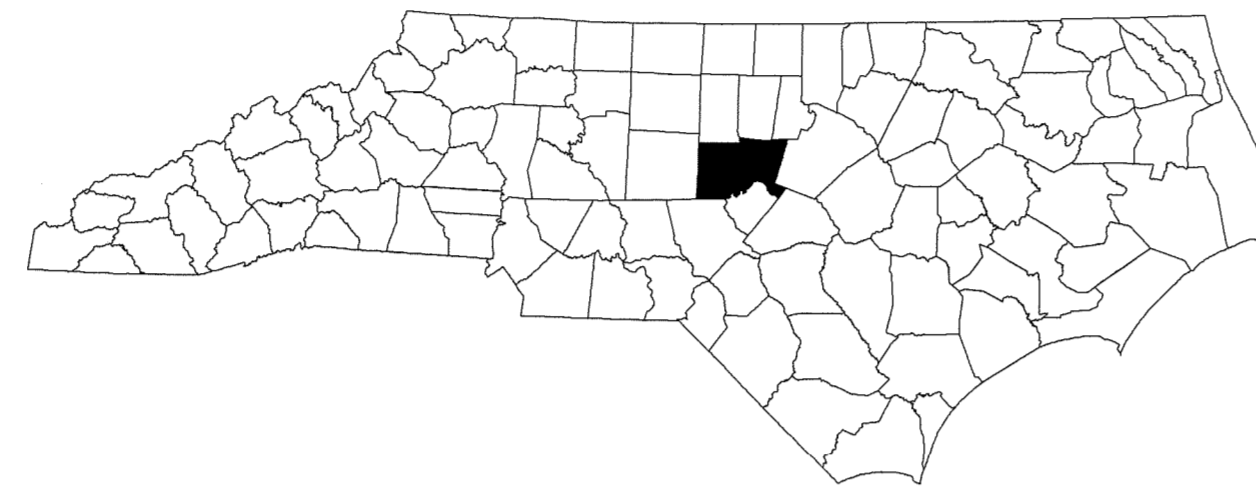
NOTE: SEE PLAN SHEET 4 FOR PLAN
NOTE: SEE SHEETS S-1 THRU S-16 FOR STRUCTURE PLANS

SYSTEMS TIME 5/14/99 11:58:58 AM

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CHATHAM COUNTY



**LOCATION: BRIDGE NO. 282 OVER ROCKY RIVER ON SR 1362
(PINEY GROVE CHURCH ROAD)**

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

INDEX OF SHEETS

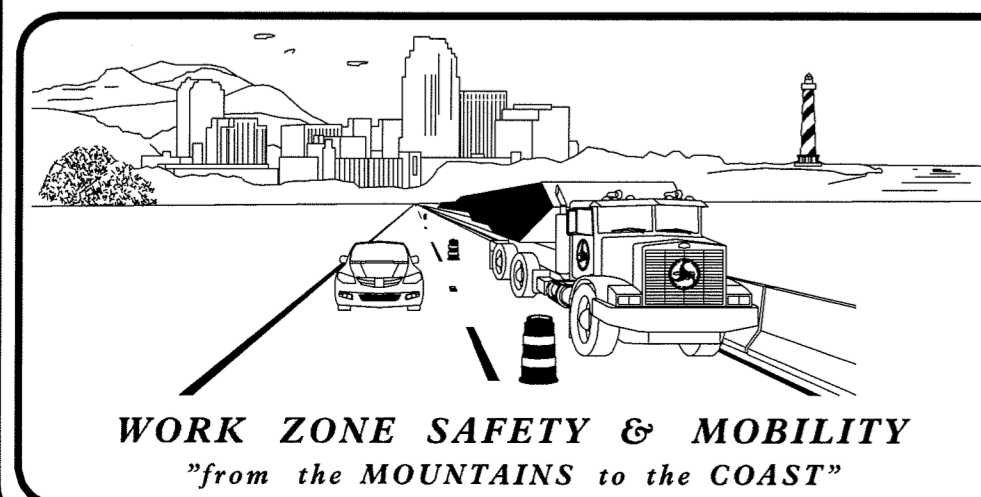
SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND PHASING)
TMP-2	SIGN DESIGN
TMP-3	OFF-SITE DETOUR
TMP-4	ROAD CLOSURE

SHEET NO.

TMP-1

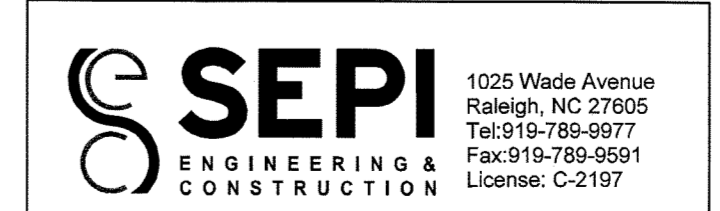
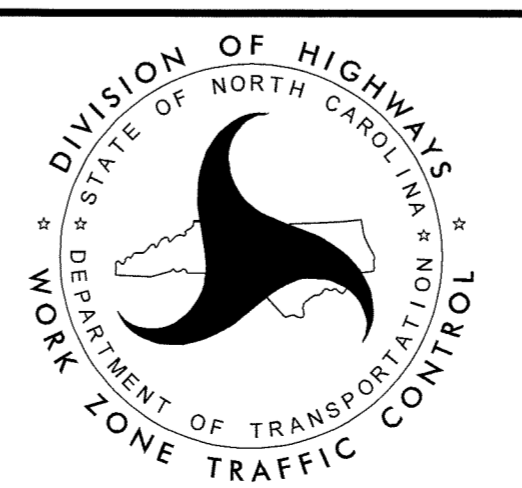
**TIP PROJECT:
17BP.8.R.65**

\$\$\$\$\$SYSTEM\$\$\$\$\$
\$\$\$\$\$DATE\$\$\$\$\$
\$\$\$\$\$USER\$\$\$\$\$
\$\$\$\$\$USER\$\$\$\$\$

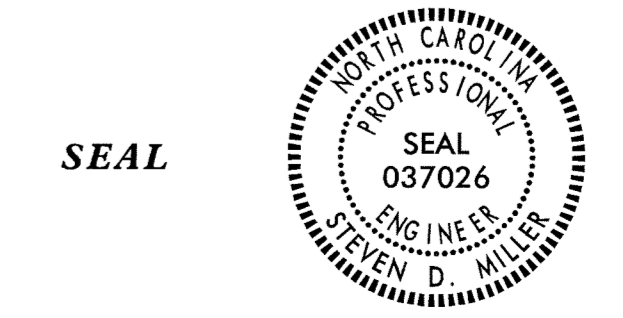


N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
J. ISHAK, P.E. TRAFFIC CONTROL PROJECT ENGINEER
TRAFFIC CONTROL PROJECT DESIGN ENGINEER
TRAFFIC CONTROL DESIGN ENGINEER



APPROVED: *[Signature]*
DATE: 7-15-14



SEAL

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES-TYPE III

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)

WORK AREA

REMOVAL

USER DEFINED (IF NEEDED)

USER DEFINED (IF NEEDED)

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$DNDN\$\$\$\$\$
 \$\$\$USERNAME\$\$\$

APPROVED: <i>St. Mill</i> DATE: 7-15-14		ROADWAY STANDARD DRAWINGS & LEGEND

MANAGEMENT STRATEGIES

- CLOSE SR 1362 (PINEY GROVE CHURCH ROAD) AND DETOUR TRAFFIC OFF-SITE
- LOCAL ACCESS TO ALL RESIDENCES AND BUSINESSES WILL BE MAINTAINED BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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


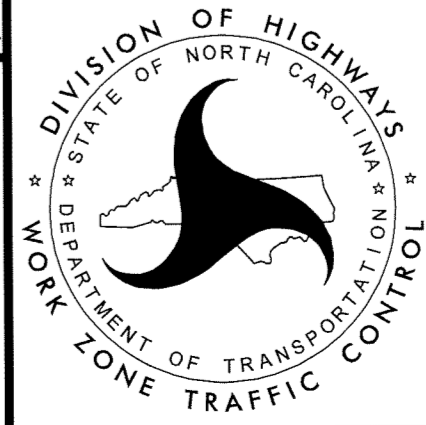
PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC MANAGEMENT PLANS.
- C) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

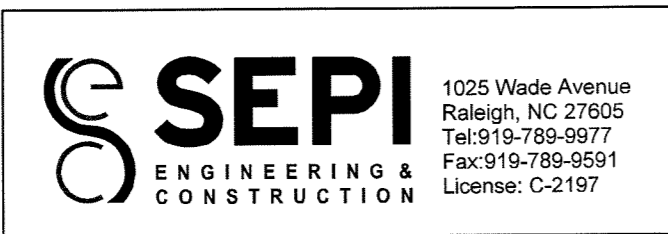
COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
- D) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

PHASING

- PROVIDE TWENTY-ONE DAYS NOTICE TO THE ENGINEER, CHATHAM COUNTY EMERGENCY SERVICES, AND CHATHAM COUNTY SCHOOL OFFICIALS PRIOR TO ROAD CLOSURE.
- STEP 1 USING RSD 1101.03 SHEET 1 OF 9, CLOSE PINEY GROVE CHURCH ROAD (SR 1362) AND DETOUR TRAFFIC OFF-SITE AS SHOWN ON TMP-3. MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN CLOSURE POINTS.
 - STEP 2 REMOVE THE EXISTING STRUCTURE.
 - STEP 3 CONSTRUCT THE PROPOSED STRUCTURE AND ROADWAY.
 - STEP 4 PLACE FINAL PAVEMENT MARKINGS ACCORDING TO THE PAVEMENT MARKING PLANS.
 - STEP 5 OPEN PINEY GROVE CHURCH ROAD (SR 1362) TO TRAFFIC AND REMOVE ALL TRAFFIC CONTROL DEVICES.

\$\$\$SYTIME\$\$\$\$\$
 \$\$\$USERNAME\$\$\$\$\$
 \$\$\$DCON\$\$\$\$\$
 \$\$\$\$\$\$\$\$

APPROVED: <i>SA Miller</i>	DATE: <i>7-15-17</i>			<h3>TRANSPORTATION OPERATIONS PLAN</h3>
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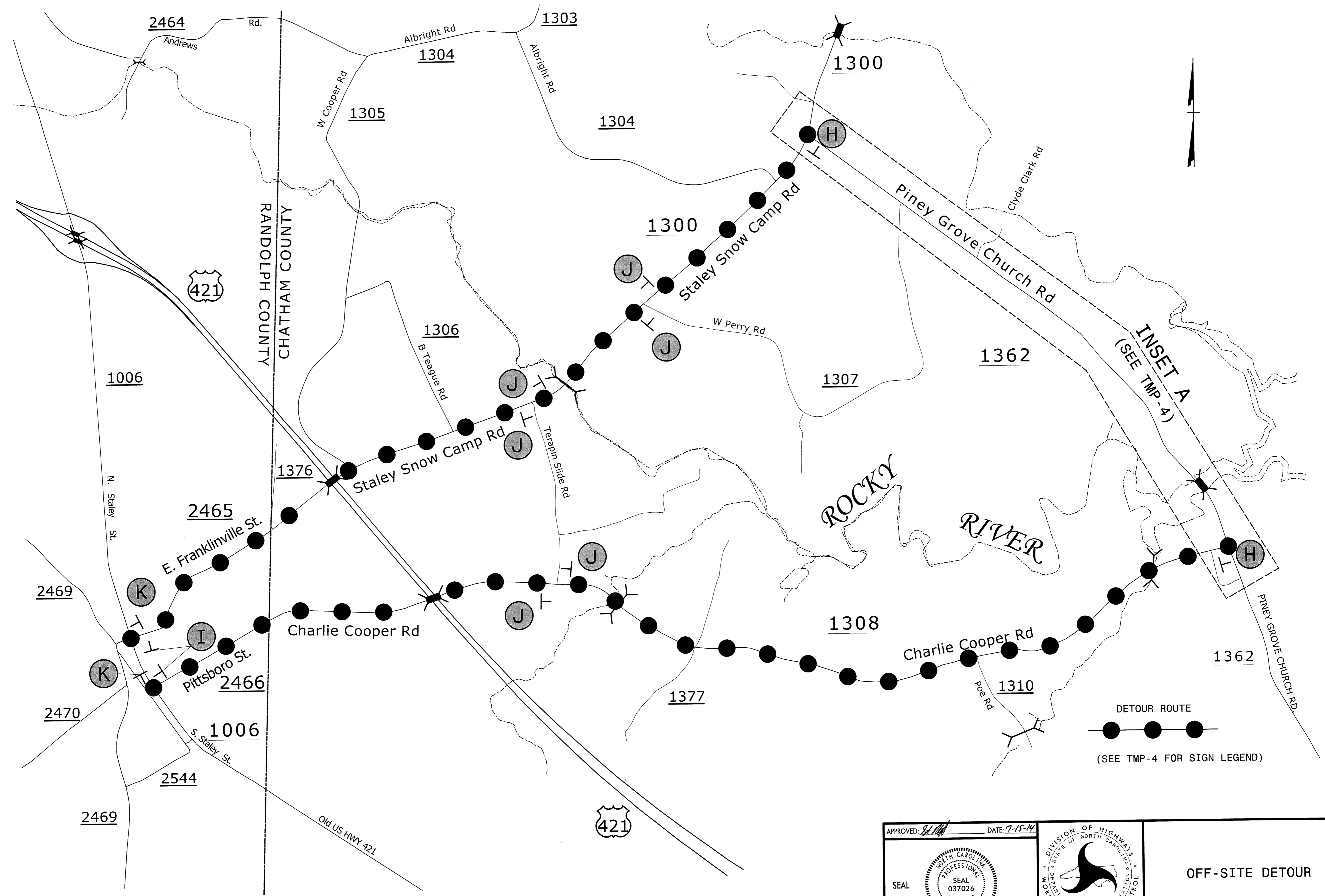
<p>SIGN NUMBER: SP-1 BACKG COLOR: Orange TYPE: STATIONARY COPY COLOR: Black QUANTITY: SEE PLANS</p> <p>SIGN WIDTH: 36" HEIGHT: 42" TOTAL AREA: 10.5 S.F.</p> <p>BORDER TYPE: RECESSED RECESS: 0.47" WIDTH: 0.63" RADII: 1.5"</p> <p>MAT'L: 0.125" (3.2 mm) ALUMINUM 0.079" COMPOSITE</p>	<p>DESIGN BY: R. DRAYTON CHECKED BY: S. MILLER PROJECT ID: 17BP.8.R.65 DIV: 8 DATE: Oct 31, 2013</p>	
<p style="text-align: center;">USE NOTES</p> <ol style="list-style-type: none"> 1. Legend and border shall be direct applied black non-reflective sheeting. 2. Background shall be Type VII, VIII, or IX (prismatic) fluorescent orange retroreflective sheeting. 		
Spacing Factor is 1 unless specified otherwise		

LETTER POSITIONS

Letter spacings are to start of next letter																Series/Size	
																Text Length	
		P	I	N	E	Y											C 2000
9.62	4.56	2.16	4.68	3.6	3.84	7.54											18.84
		G	R	O	V	E											C 2000
7.76	4.56	4.26	4.26	4.56	3.06	7.54											20.7
		C	H	U	R	C	H										C 2000
5.06	4.56	4.68	4.68	4.26	4.56	3.36	4.84										26.1
		R	O	A	D												C 2000
9.83	4.26	4.26	4.68	3.36	9.61												16.56

\$\$\$SYSTEM\$\$\$\$\$
 \$\$\$DDON\$\$\$\$\$
 \$\$\$USERNAME\$\$\$\$\$

APPROVED: DATE: 7-15-13		
SEAL	SIGN DESIGN	



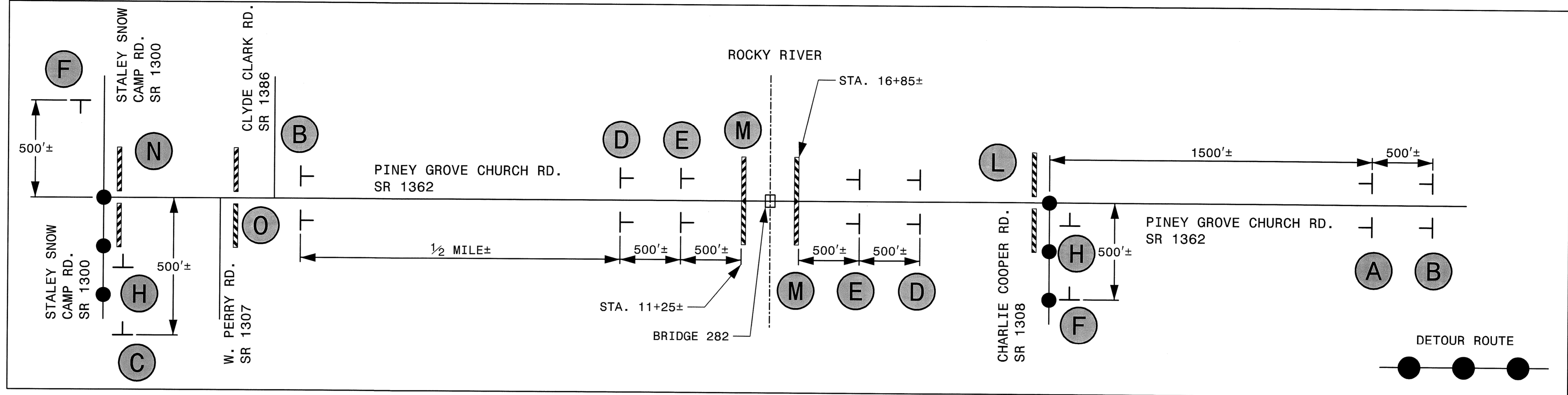
INSET A
(SEE TMP-4)

DETOUR ROUTE
(SEE TMP-4 FOR SIGN LEGEND)

\$\$\$\$\$SYSTIME\$\$\$\$\$
\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$USERNAM\$\$\$\$\$

APPROVED: <i>[Signature]</i>	DATE: 7-15-14		OFF-SITE DETOUR

INSET A



W20-2
48" X 48"

A



W20-3
48" X 48"

B



W20-3
48" X 48"

NEXT RIGHT

SP-4R
48" X 12"

C



W20-3
48" X 48"

D



W20-3
48" X 48"

E

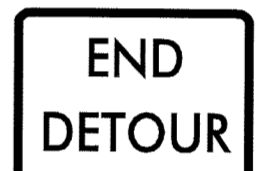


W20-3
48" X 48"

NEXT LEFT

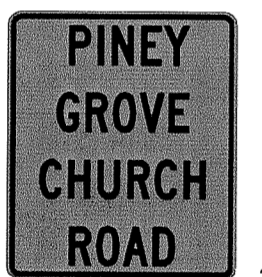
SP-4L
48" X 12"

F



M4-8 A
24" X 18"

H



SP-1
36" X 42"

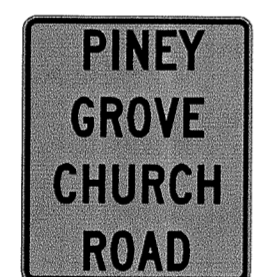


M4-8
24" X 12"



M6-1
21" X 15"

I



SP-1
36" X 42"

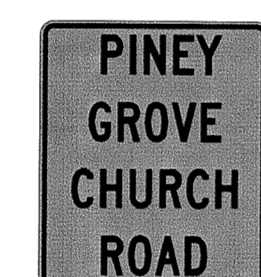


M4-8
24" X 12"



M6-3
21" X 15"

J



SP-1
36" X 42"

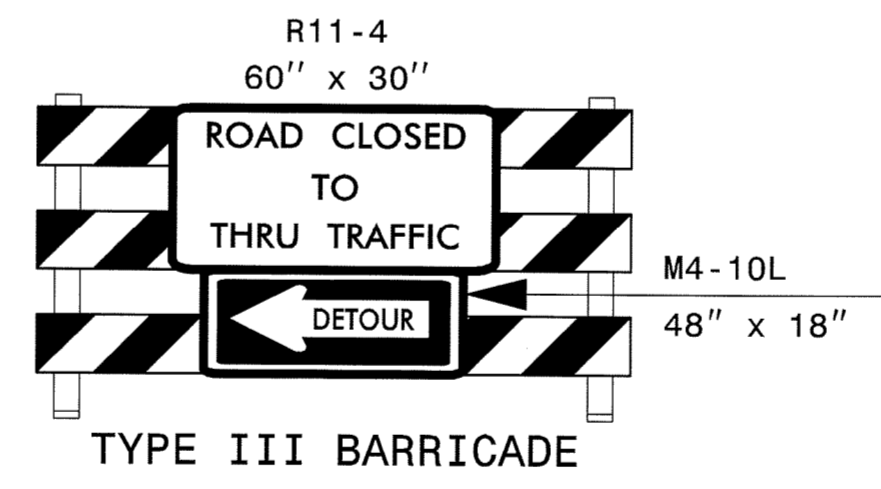


M4-8
24" X 12"



M6-1 L
21" X 15"

K

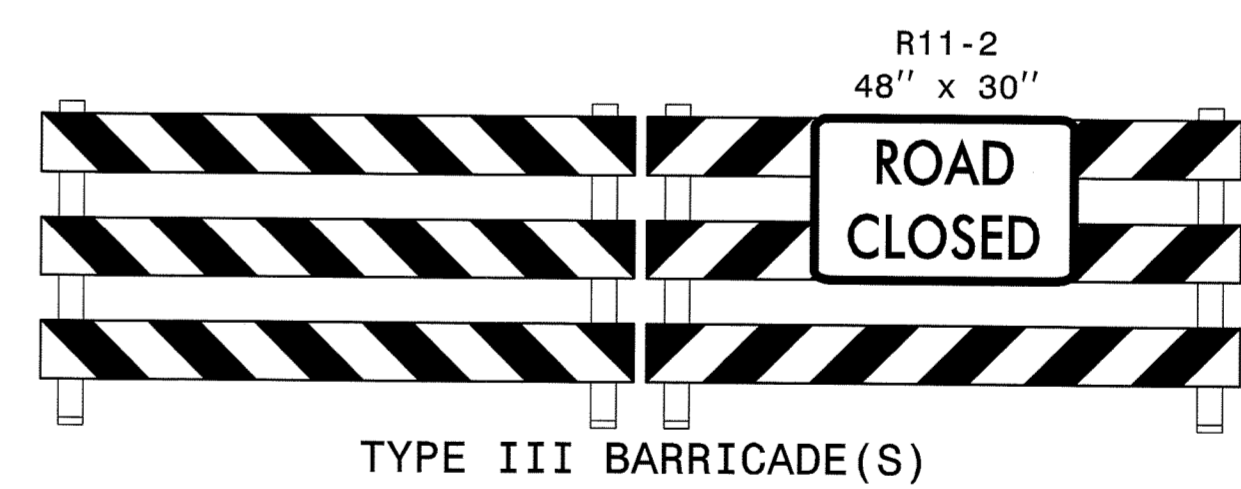


R11-4
60" x 30"

M4-10L
48" x 18"

TYPE III BARRICADE

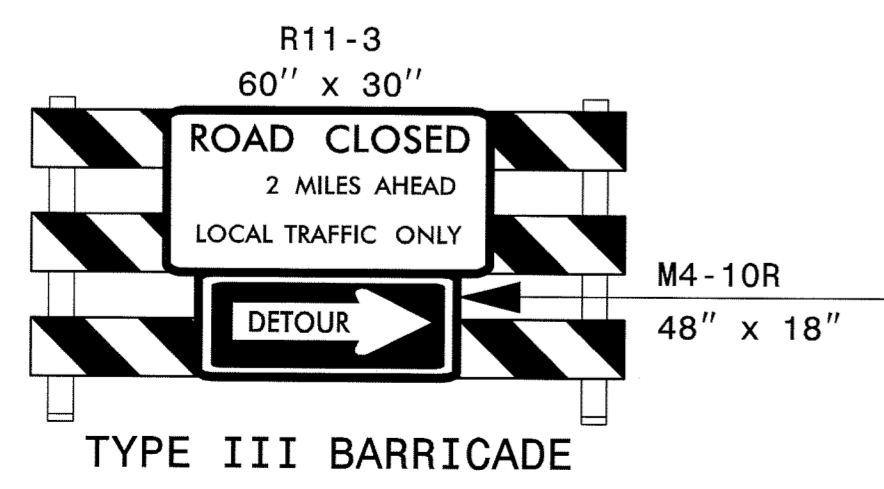
L



R11-2
48" x 30"

TYPE III BARRICADE(S)

M

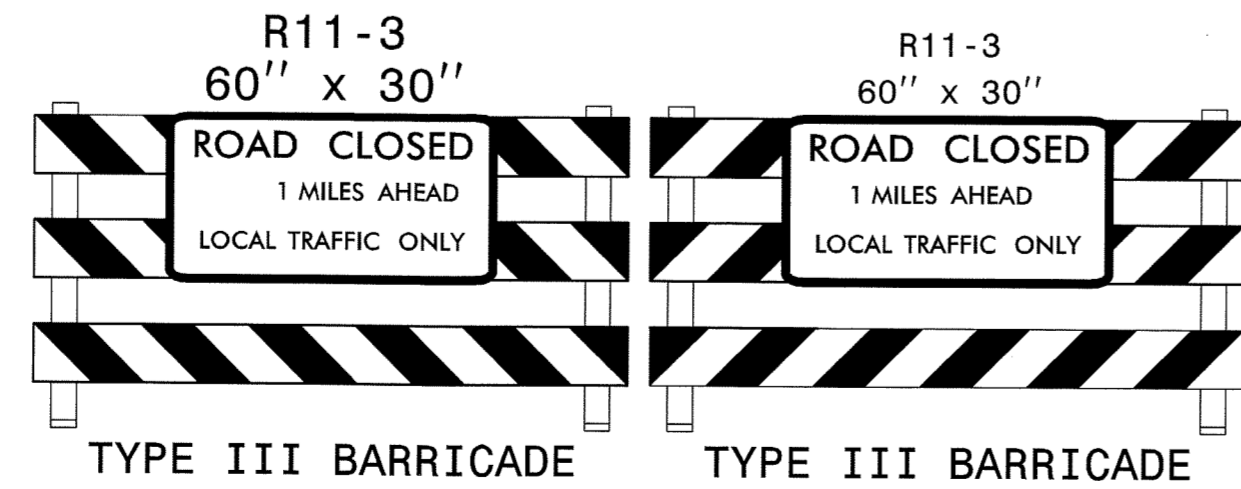


R11-3
60" x 30"

M4-10R
48" x 18"

TYPE III BARRICADE

N



R11-3
60" x 30"

R11-3
60" x 30"

TYPE III BARRICADE

TYPE III BARRICADE

O

APPROVED: *[Signature]* DATE: 7-15-49

ROAD CLOSURE

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DCN\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.65	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

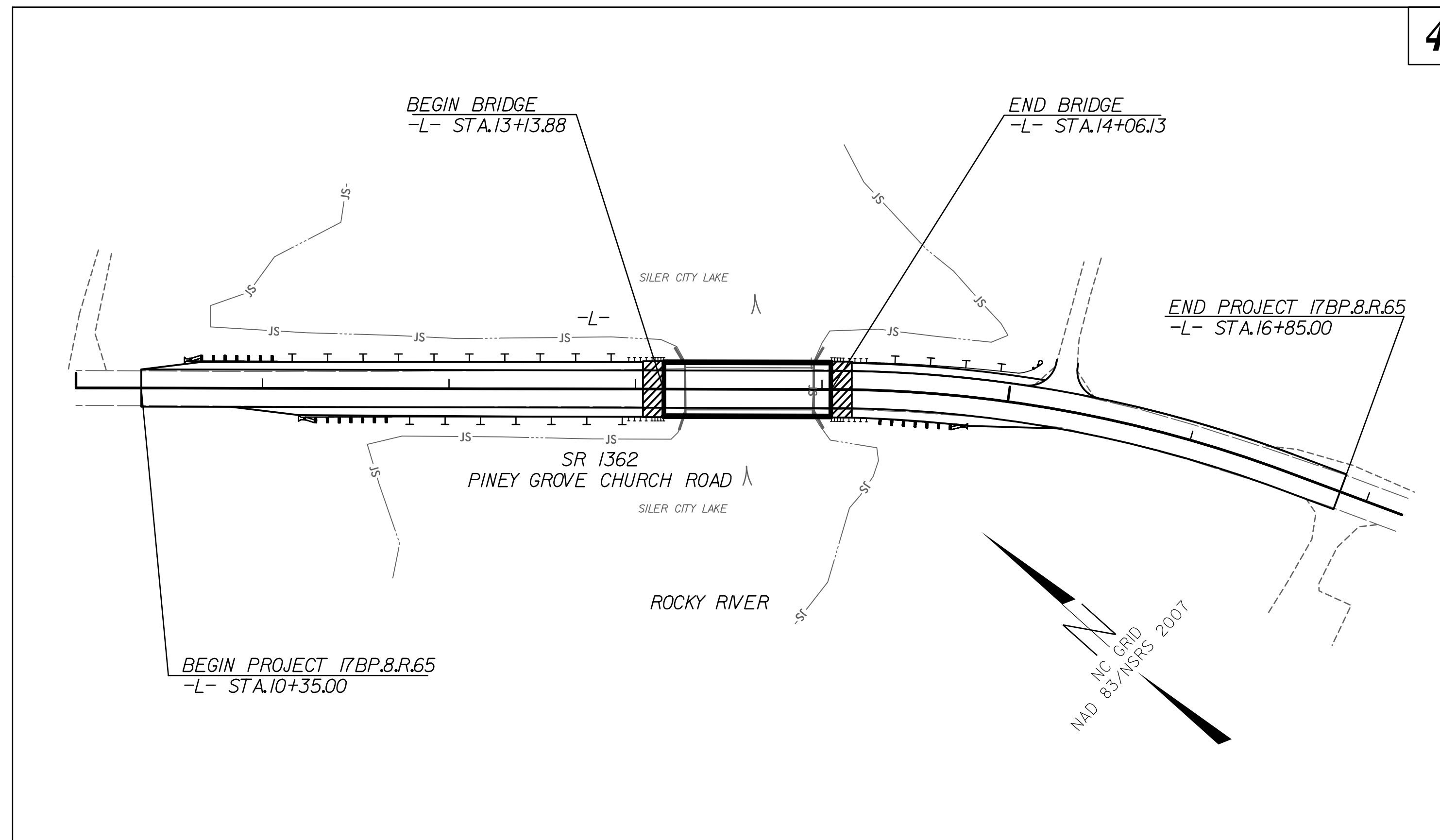
TIP PROJECT: 17BP.8.R.65

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	

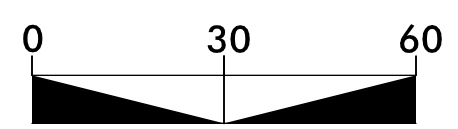
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
**CHATHAM COUNTY
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL**

**LOCATION: BRIDGE NO. 282 OVER ROCKY RIVER
ON SR 1362 (PINEY GROVE CHURCH ROAD)
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE**



4

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



ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Elizabeth (Liz) G. DiNatale, PE
LEVEL III DESIGNER OF EROSION
AND SEDIMENT CONTROL PLANS
3480
LEVEL III CERTIFICATION NO.

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:

SEPI
ENGINEERING &
CONSTRUCTION

1025 Wade Avenue
Raleigh, NC 27605
Tel: 919-789-9977
Fax: 919-789-9591
License: C-2197

2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

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

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

*****STANDARD DRAWINGS*****

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>17BP13.R.65</i>	SHEET NO. <i>EC-2</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

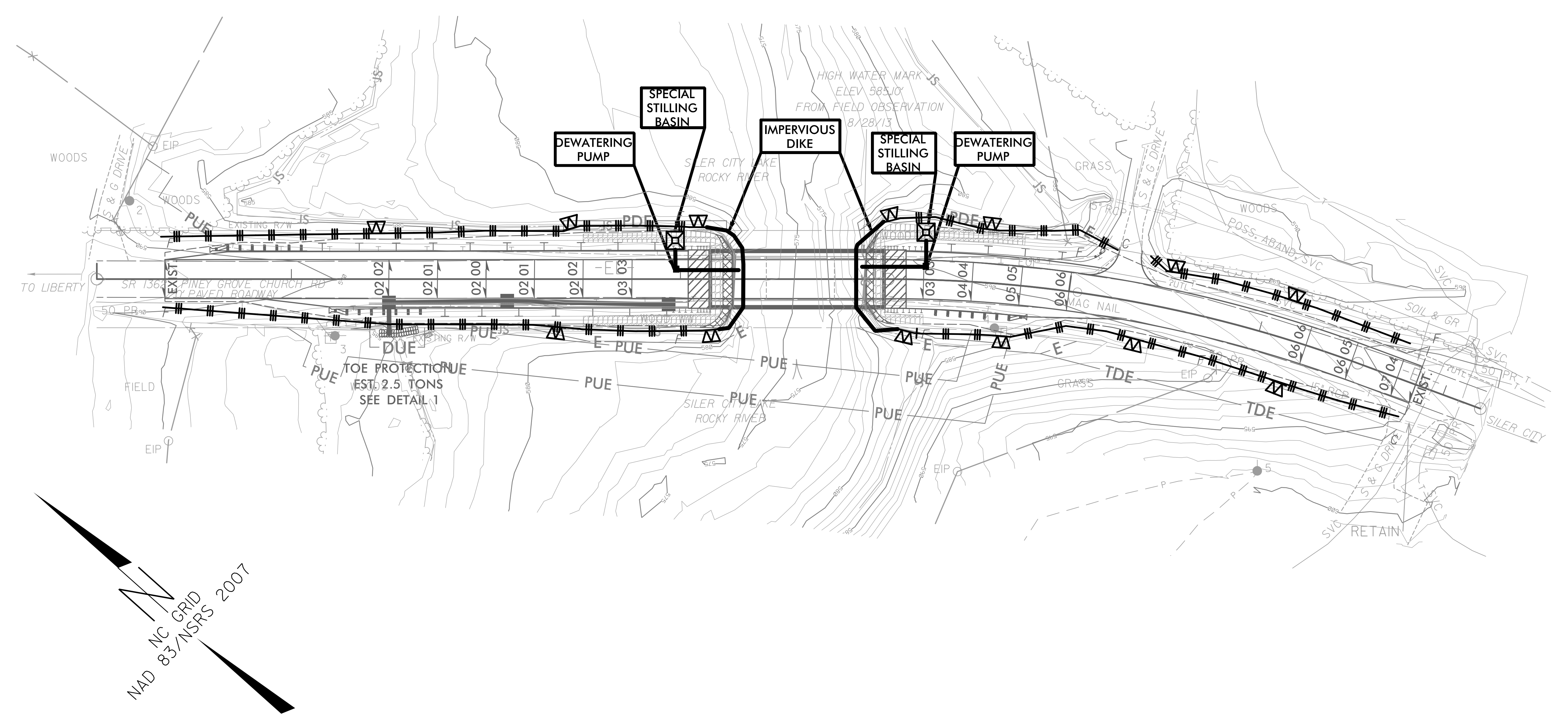
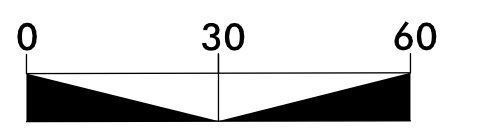
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



1025 Wade Avenue
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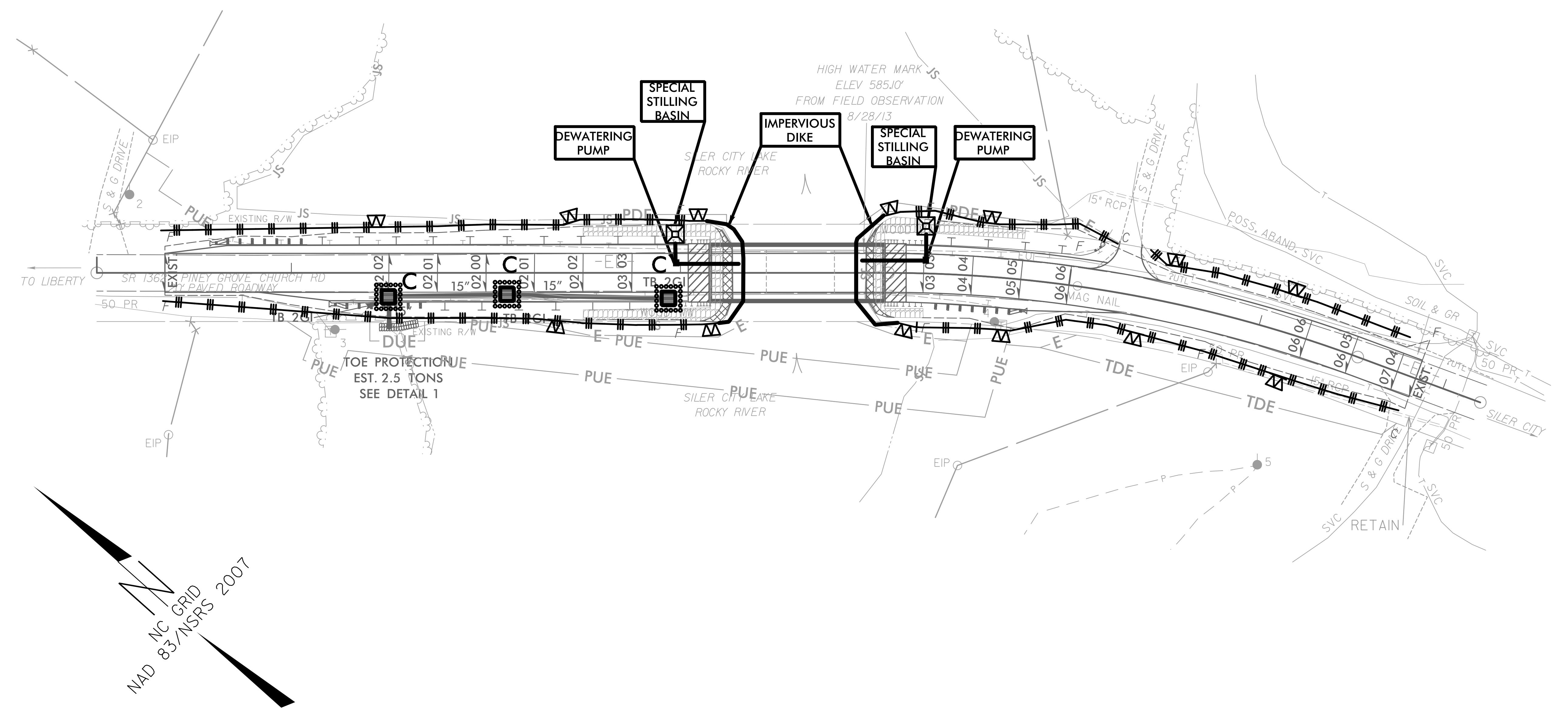
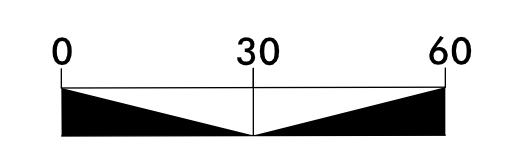
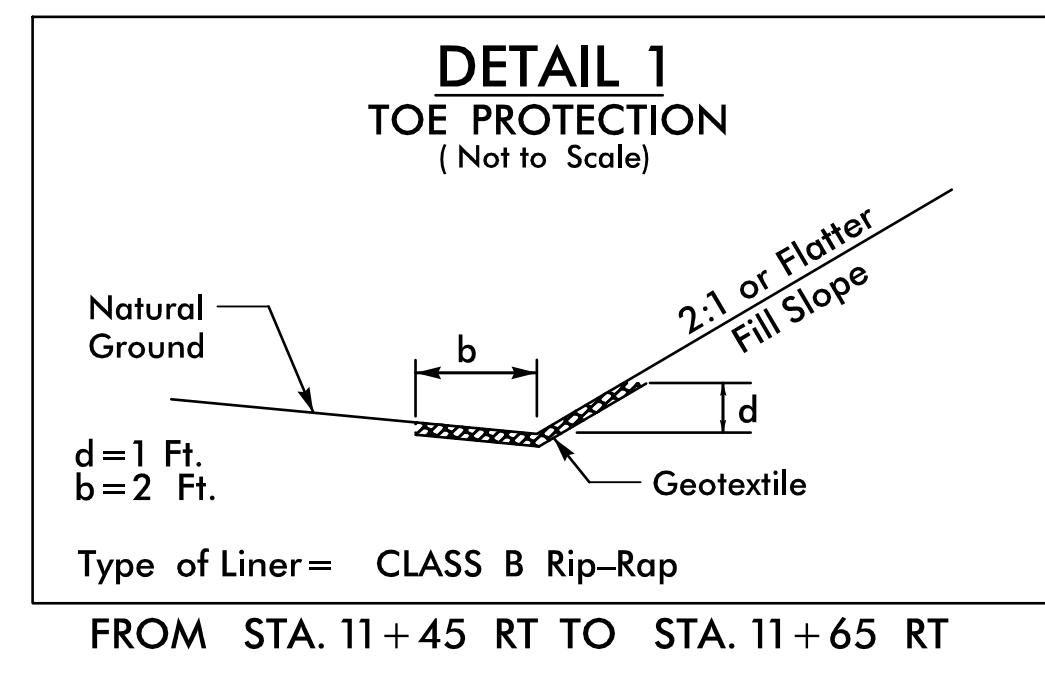
PROJECT REFERENCE NO. 17BP.8.R.65	SHEET NO. EC-3/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PROJECT REFERENCE NO. 17BP.8.R.65	SHEET NO. EC-4/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



1025 Wade Avenue
Raleigh, NC 27605
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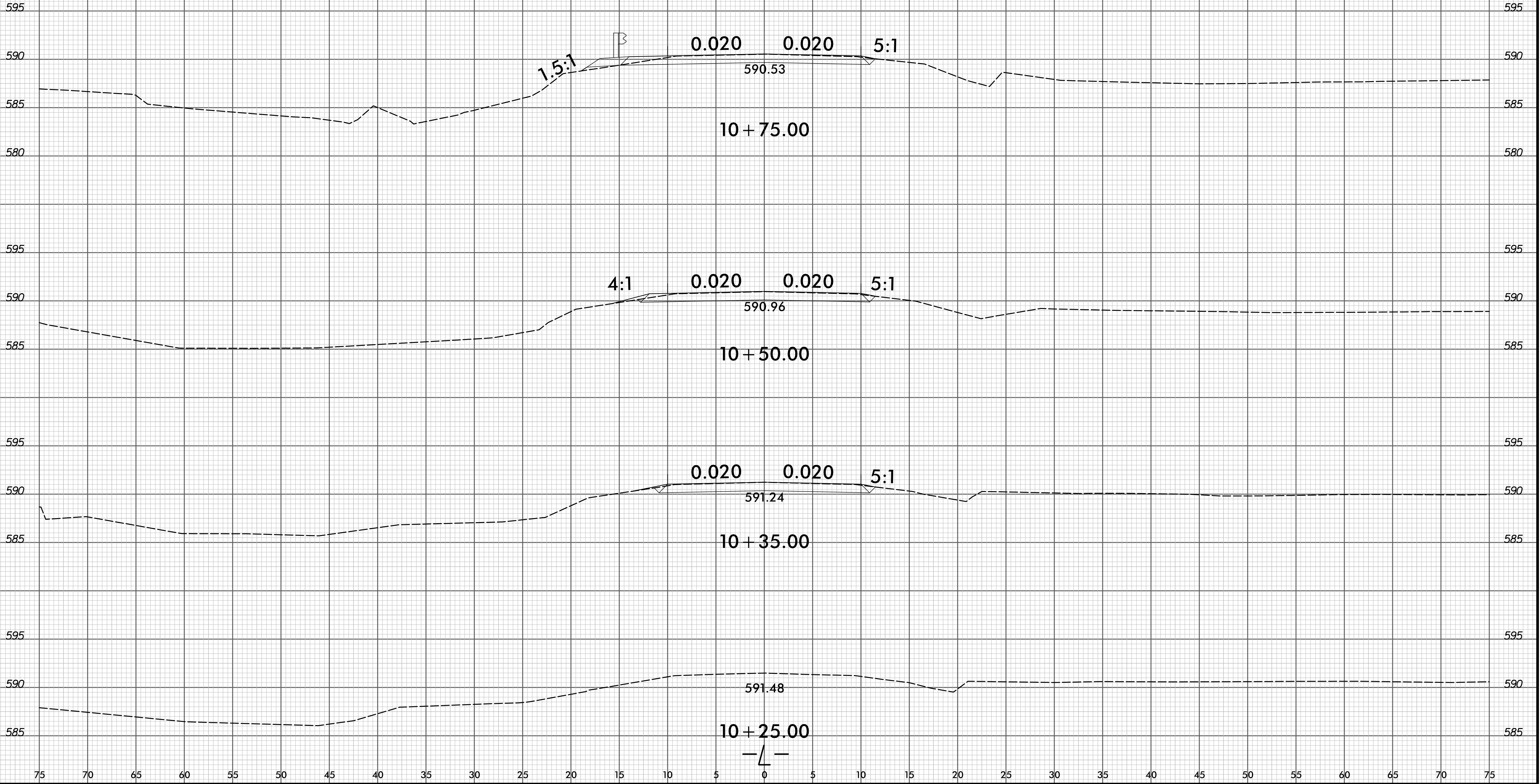
8/23/99



PROJ. REFERENCE NO.
17BP.8.R.65

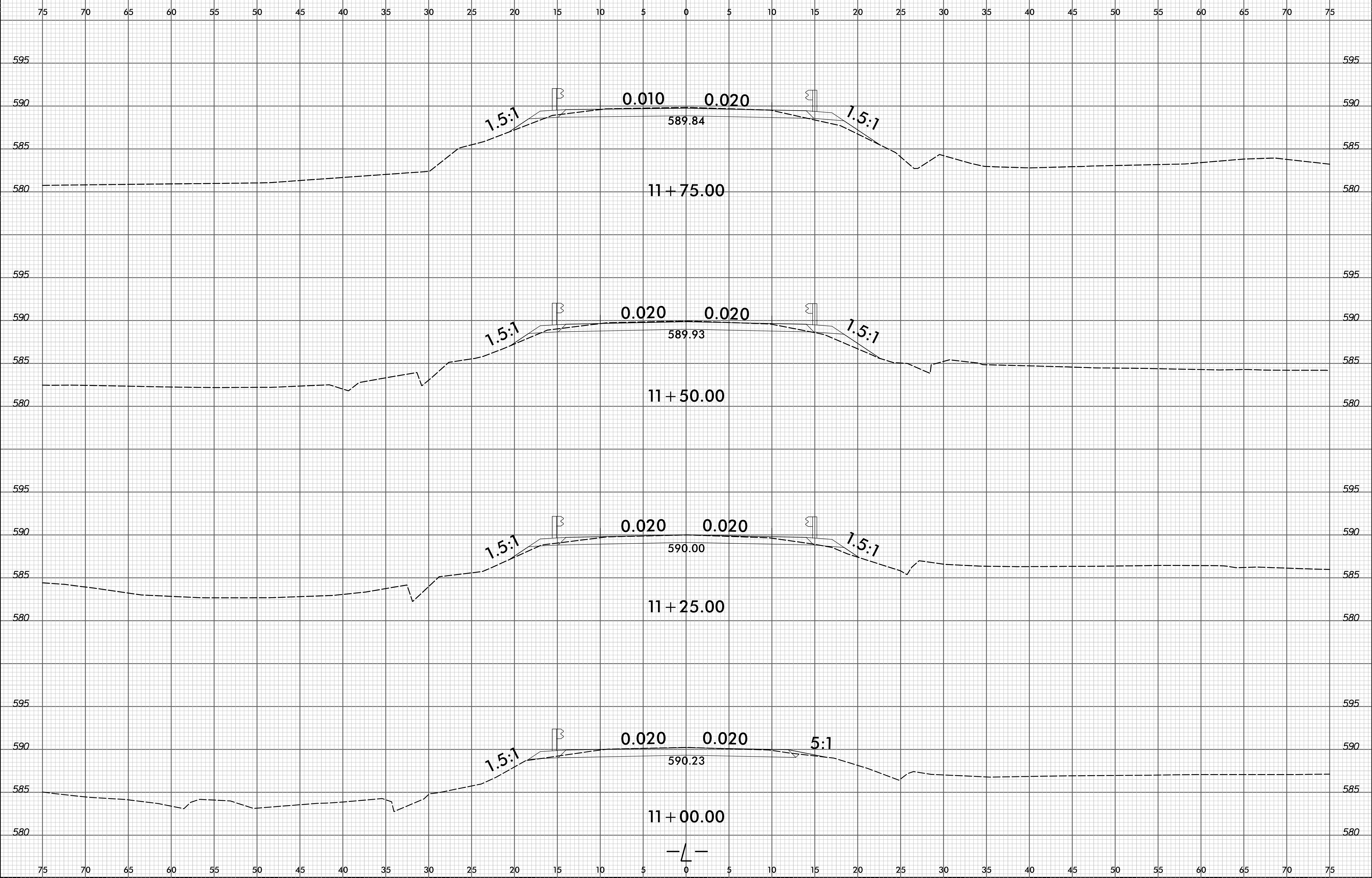
SHEET NO.
X-1

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



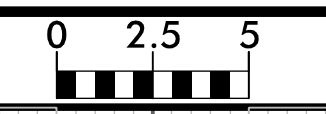
8/23/99
17BP.8.R.65
X-1

8/23/99

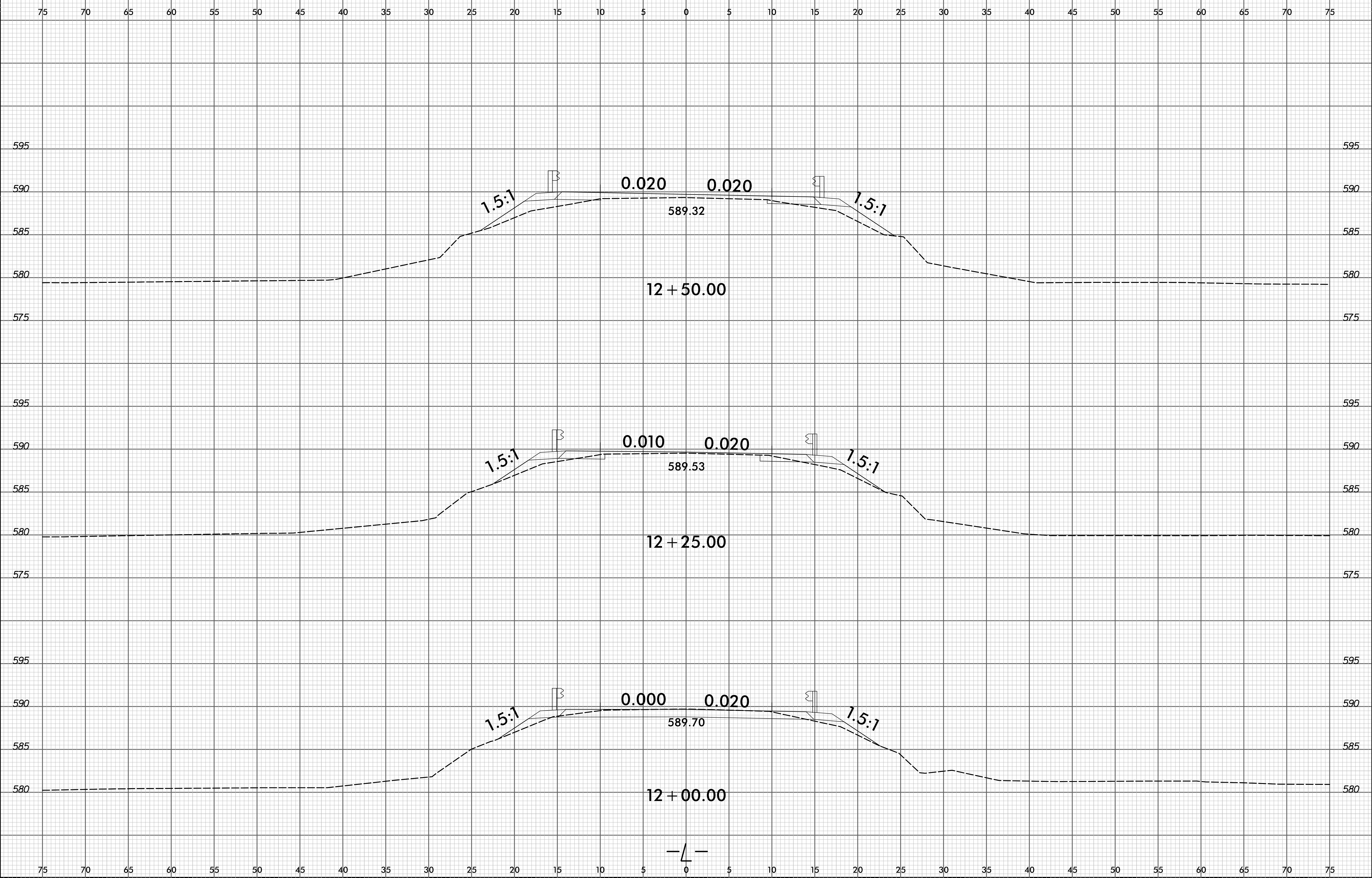


DATE: 8/23/99
BY: [illegible]
CHECKED: [illegible]
SCALE: AS SHOWN
PROJECT: 17BP.8.R.65
SHEET: X-2

8/23/99



PROJ. REFERENCE NO. 17BP.8.R.65	SHEET NO. X-3
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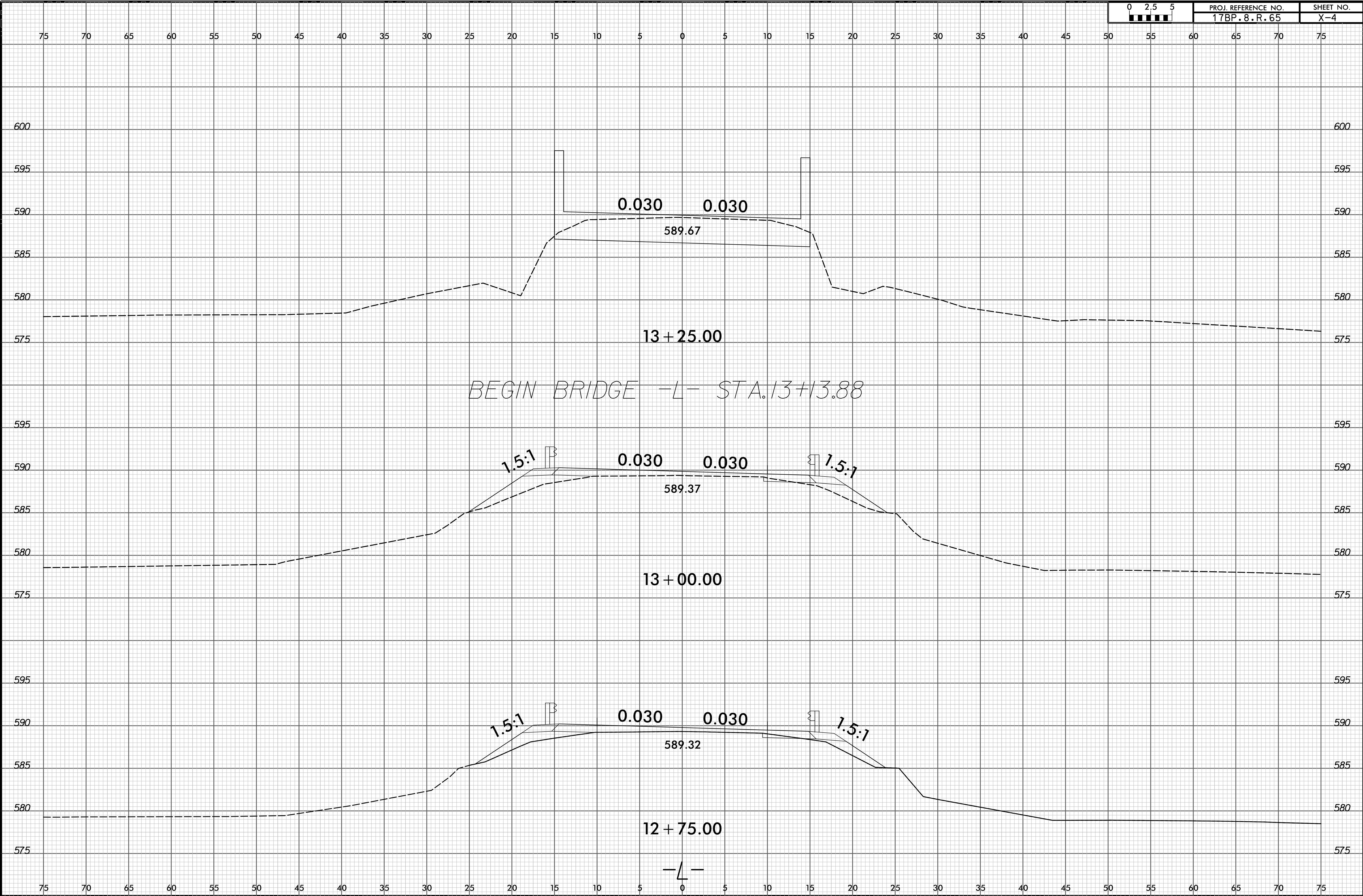
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CHECKED: [illegible]
SCALE: [illegible]
PROJECT: [illegible]
SHEET: [illegible]

8/23/99



PROJ. REFERENCE NO.
17BP.8.R.65

SHEET NO.
X-4



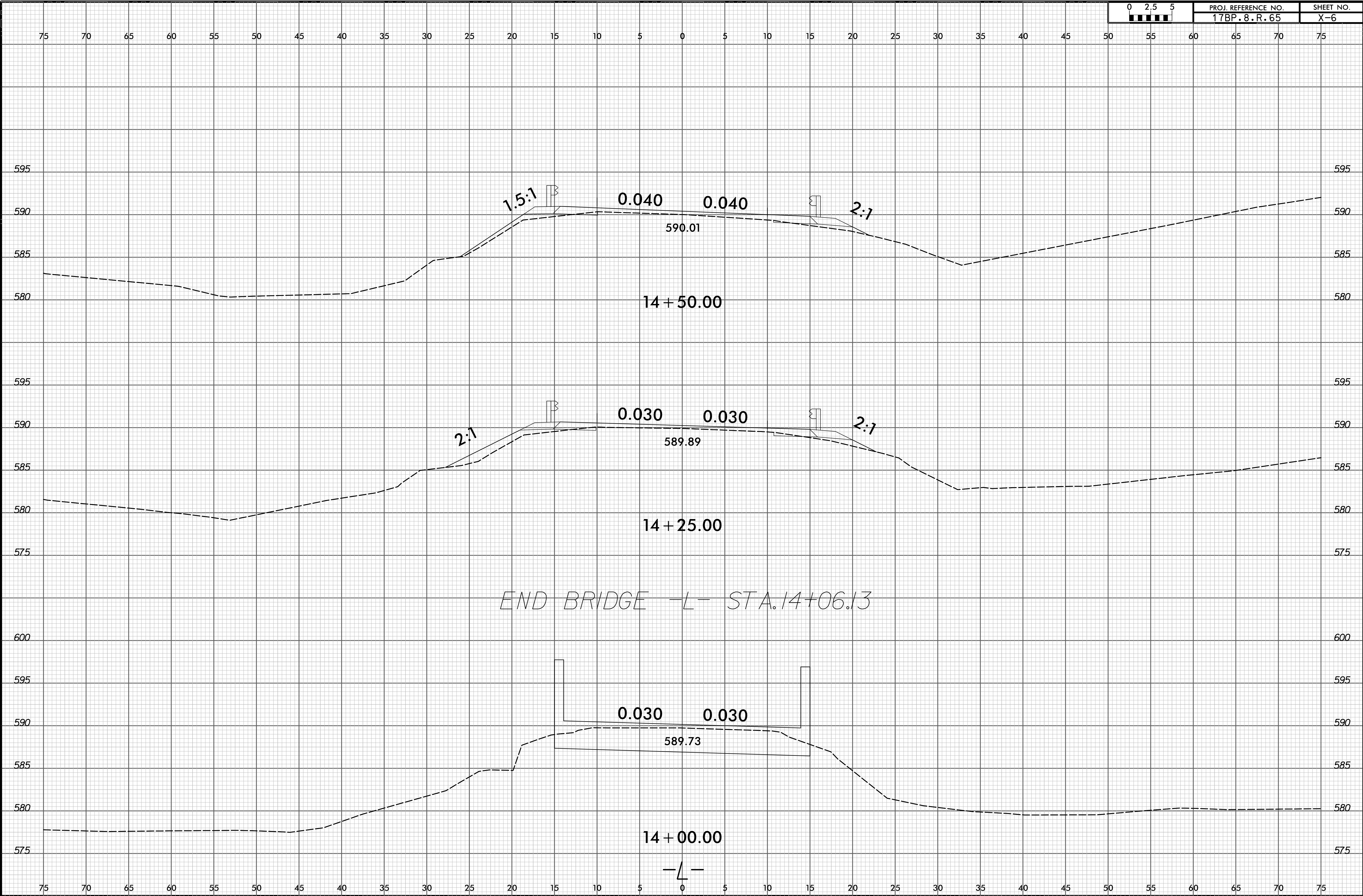
BEGIN BRIDGE -L- STA. 13+13.88

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8/23/99

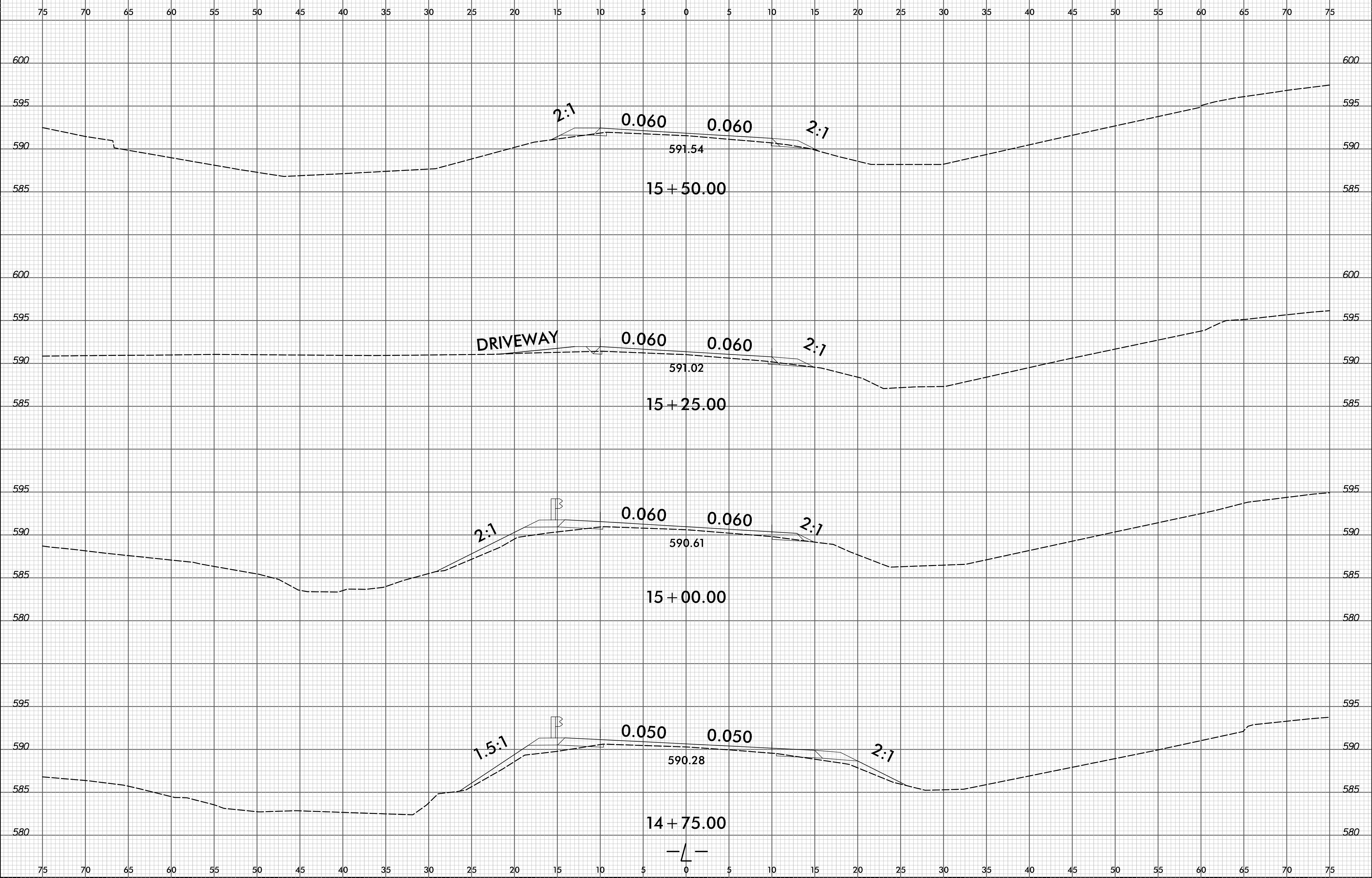


PROJ. REFERENCE NO.	SHEET NO.
17BP.8.R.65	X-6



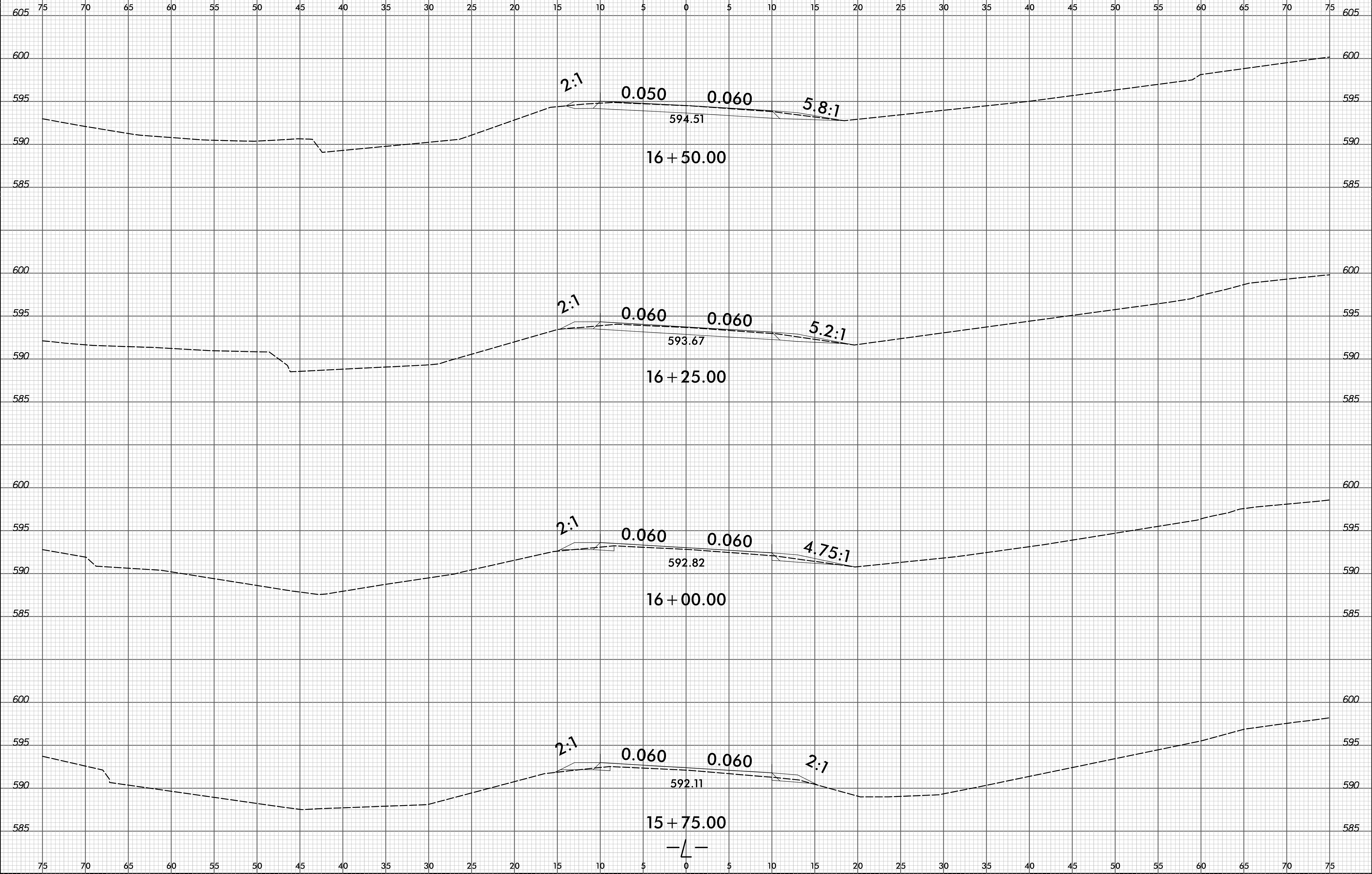
8/23/99

8/23/99



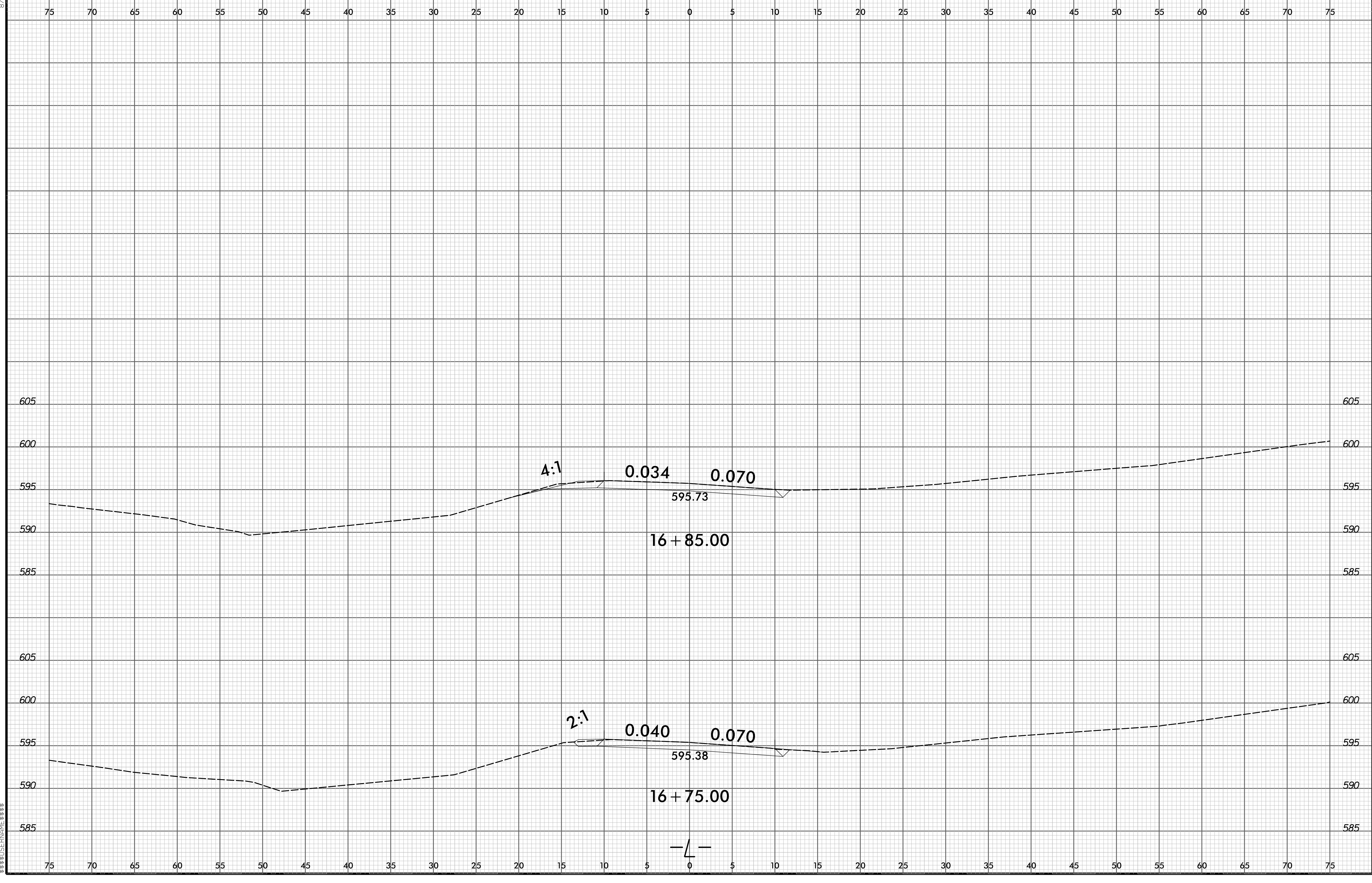
8/23/99

8/23/99



8/23/99

8/23/99



DATE: 8/23/99
DRAWN BY: [illegible]
CHECKED BY: [illegible]
SCALE: 1" = 20'

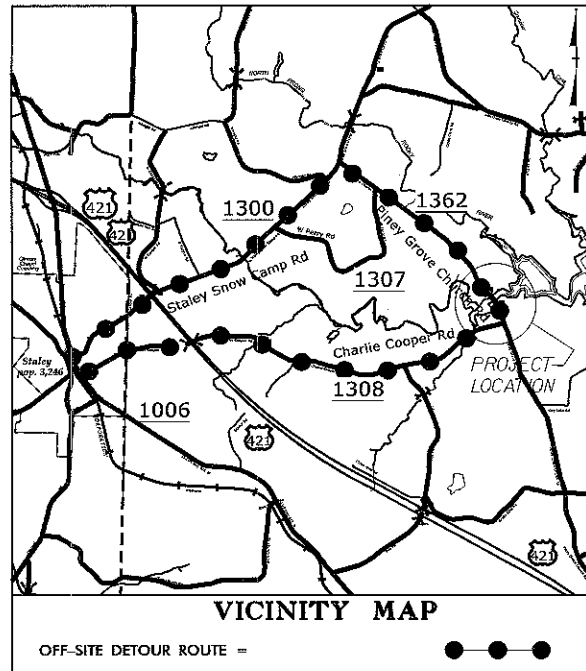
CONTRACT: PROJECT NO: 17BP.8.R.65

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

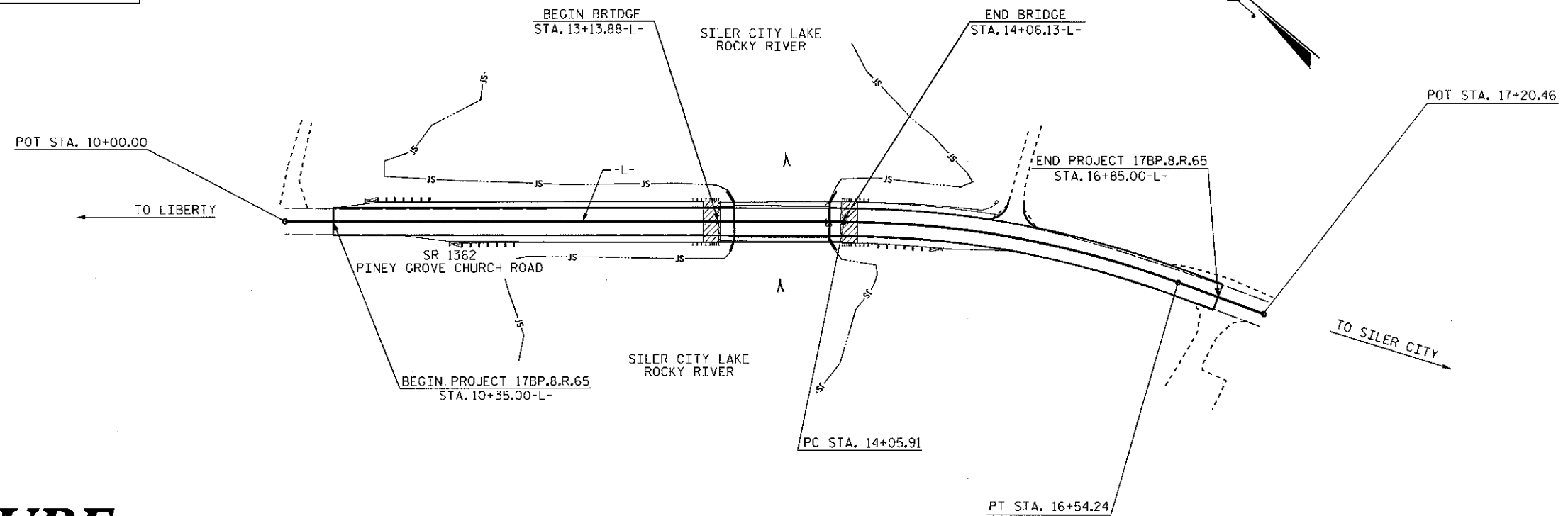
CHATHAM COUNTY

**LOCATION: BRIDGE NO. 282 OVER ROCKY RIVER
ON SR 1362 (PINEY GROVE CHURCH ROAD)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.8.R.65		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.8.R.65		PE	
17BP.8.R.65		RW & UTIL	
17BP.8.R.65		CONST.	



STRUCTURE



DESIGN DATA

ADT 2014 = 850
 T = 6% *
 V = 55 MPH
 * TTST = 3% DUAL 3%
 FUNC CLASS = LOCAL
 SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.8.R.65 = 0.106 MI
 LENGTH OF STRUCTURE PROJECT 17BP.8.R.65 = 0.017 MI
 TOTAL LENGTH OF PROJECT 17BP.8.R.65 = 0.123 MI

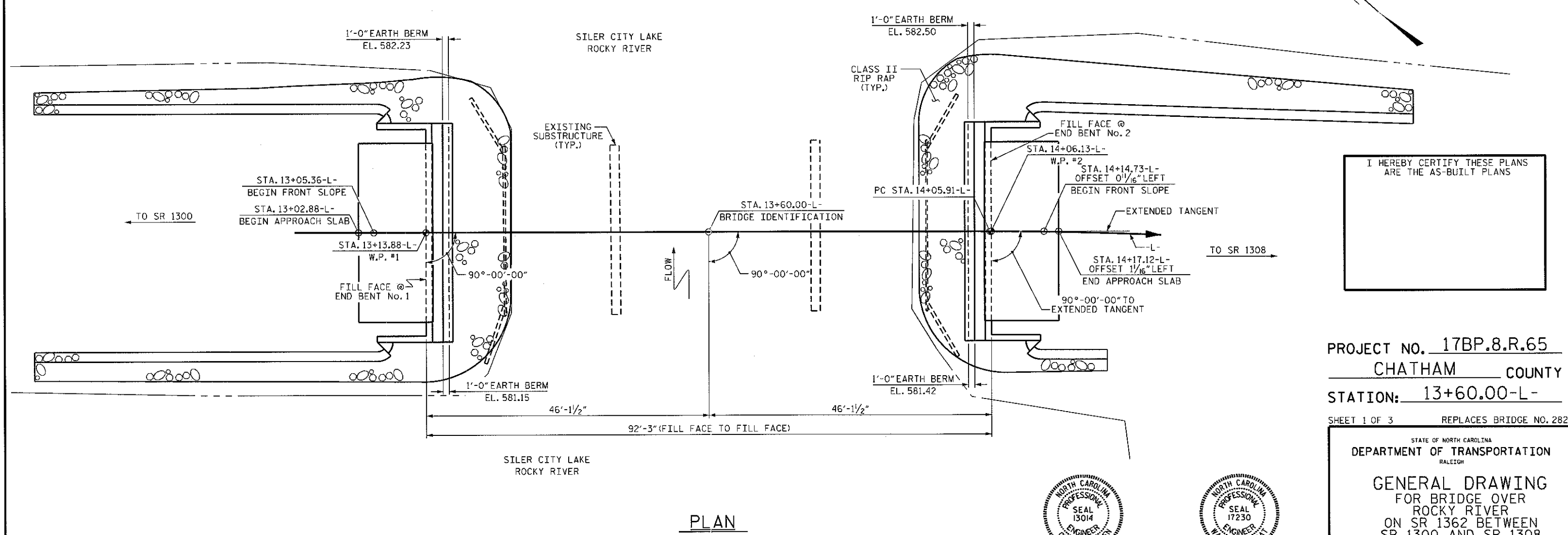
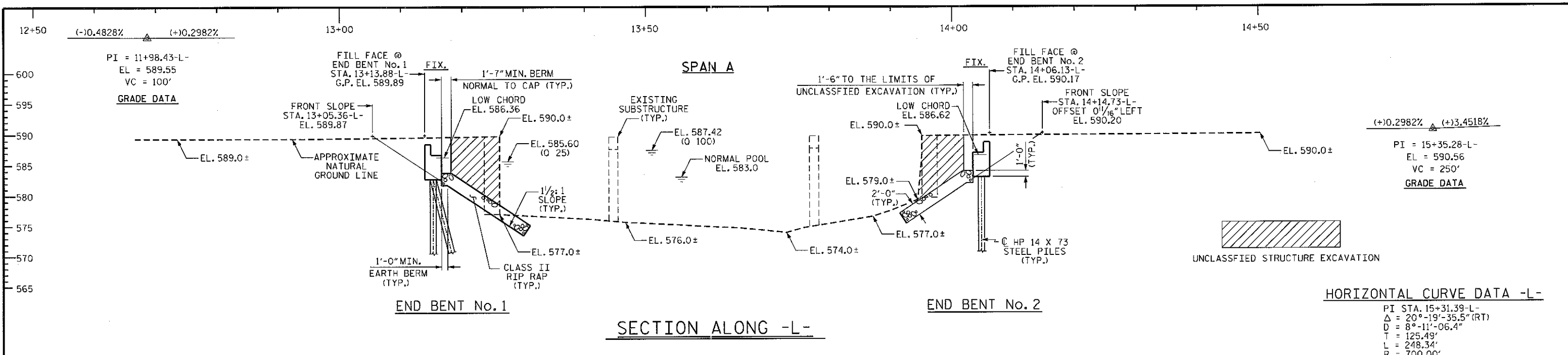
Prepared In the Office of:
DIVISION OF HIGHWAYS
 STRUCTURES MANAGEMENT UNIT
 1000 BIRCH RIDGE DR.
 RALEIGH, N.C. 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE :
 OCTOBER 28, 2014

QUANG NGUYEN, P.E.
 PROJECT ENGINEER

WAEEL S. ARAFAT, P.E.
 PROJECT DESIGN ENGINEER



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.8.R.65
CHATHAM COUNTY
STATION: 13+60.00-L-
SHEET 1 OF 3 REPLACES BRIDGE NO. 282

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER
ROCKY RIVER
ON SR 1362 BETWEEN
SR 1300 AND SR 1308



Quang H. Nguyen 7-3-14

Noel S. Craft 07-03-14

DRAWN BY: H. T. BARBOUR DATE: 4-7-14
CHECKED BY: D. HODGE DATE: 5-14
DESIGN ENGINEER OF RECORD: A. M. LEE DATE: 6-17-14

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

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT No. 1 AND END BENT No. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 130 TONS PER PILE.

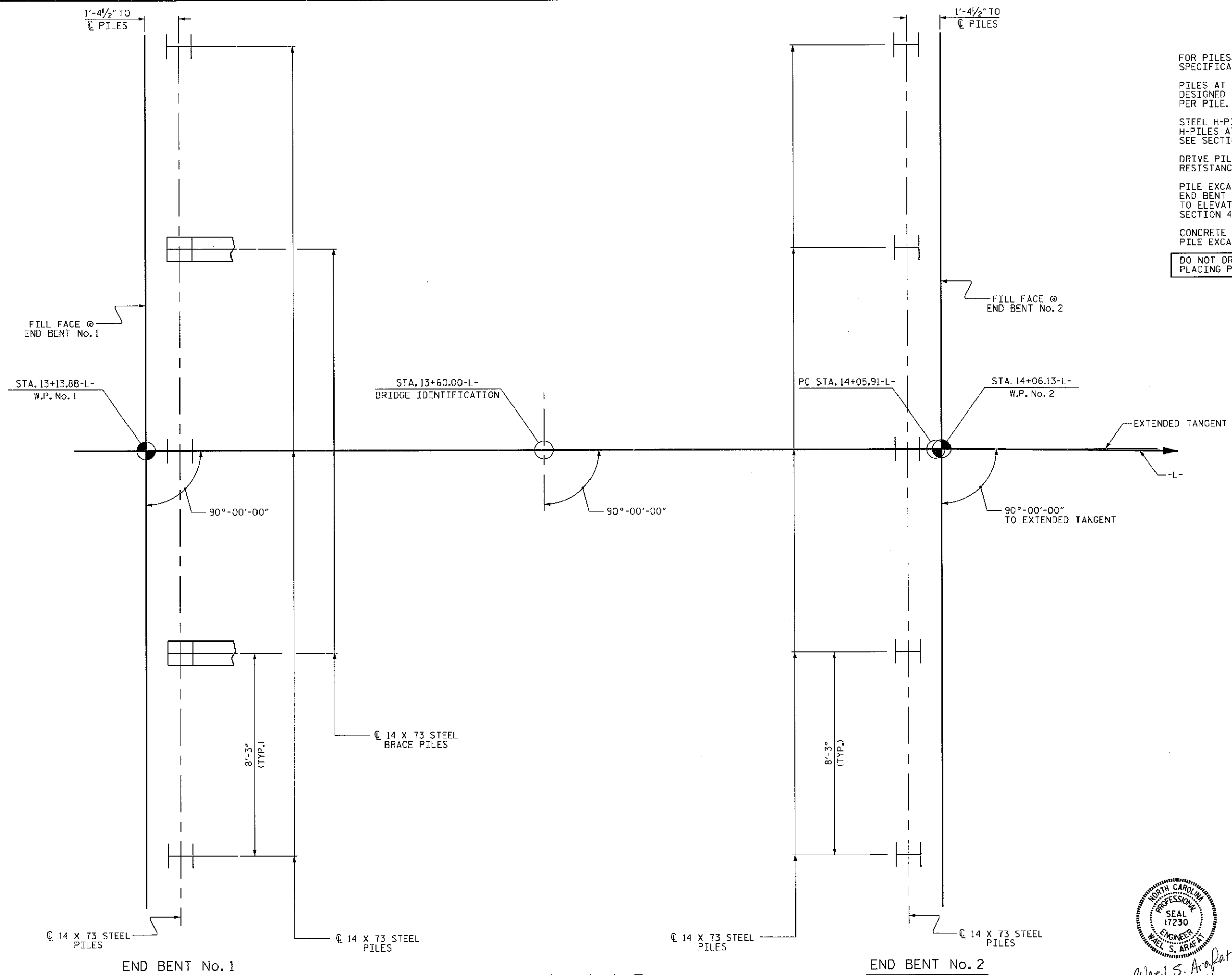
STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT No. 1. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS

DRIVE PILES AT END BENT No. 1 TO A REQUIRED DRIVING RESISTANCE OF 215 TONS PER PILE.

PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT No. 2. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 572.5 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

CONCRETE IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT END BENT No. 2.

DO NOT DRIVE PILES AT END BENT No. 2 AFTER PLACING PILES IN EXCAVATED HOLES.

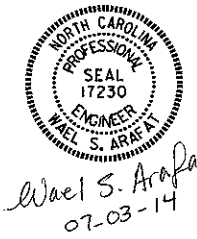


PROJECT NO. 17BP.8.R.65
CHATHAM COUNTY
 STATION: 13+60.00-L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**GENERAL DRAWING
 FOR BRIDGE OVER ROCKY RIVER
 ON SR 1362 BETWEEN
 SR 1300 AND SR 1308**



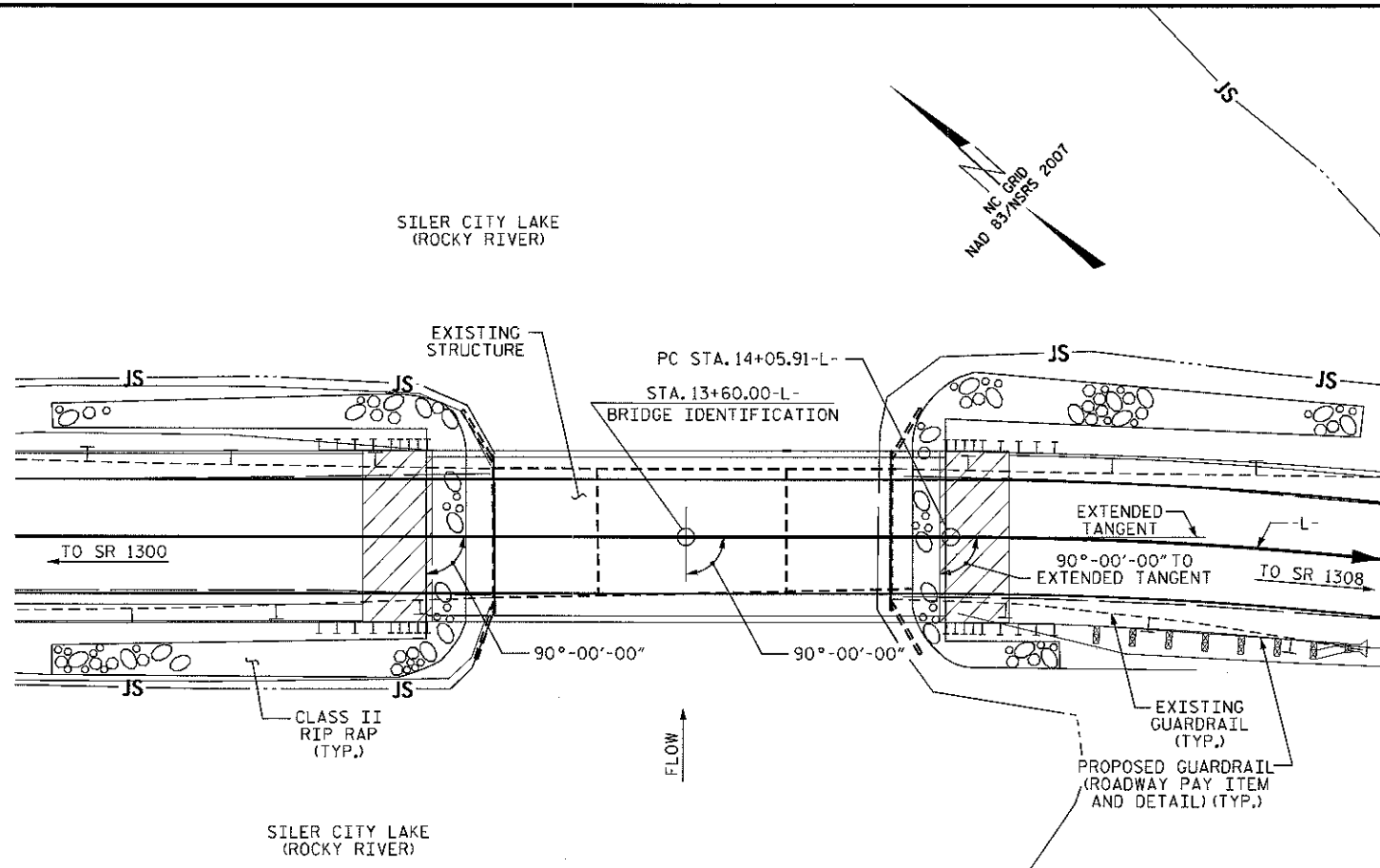
DRAWN BY : H. T. BARBOUR DATE : 4-7-14
 CHECKED BY : D. HODGE DATE : 5-14
 DESIGN ENGINEER OF RECORD: A. M. LEE DATE : 6-17-14

FOUNDATION LAYOUT

ALL DIMENSIONS LOCATING PILES ARE TO THE PILE CENTERLINE
 HP 14 X 73 STEEL BRACE PILES ARE BATTERED 3:12

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

B.M. #1: RR SPIKE IN BASE OF 30" Ø BIRCH, 58.68 FT. LEFT OF STA. 14+84.81, EL. 586.86



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING STRUCTURE DESCRIBED BELOW AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

EXISTING SUPERSTRUCTURE:
 3 SPANS, 1 @ 17'-6", 1 @ 35'-0", 1 @ 17'-6"
 22'-7" CLEAR ROADWAY WIDTH
 4X8 TIMBER DECK
 11 LINES OF I BEAMS @ 2'-3" CTS.

EXISTING SUBSTRUCTURE:
 END BENTS: TIMBER CAPS & PILES ENCASED IN CONCRETE
 INTERIOR BENTS: TIMBER POSTS AND SILLS

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

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

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

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 13+60.00-L."

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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.

COFFERDAMS MAYBE REQUIRED TO CONSTRUCT THE END BENTS AND PLACE THE CLASS II RIP RAP, SEE SPECIAL PROVISIONS FOR "CONSTRUCTION MAINTENANCE & REMOVAL OF TEMPORARY ACCESS."

HYDRAULIC DATA

DESIGN DISCHARGE	3050 CFS
FREQUENCY OF DESIGN FLOOD	25 YEARS
DESIGN HIGH WATER ELEVATION	585.60
DRAINAGE AREA	12.6 SQ. MI.
BASE DISCHARGE(Q100)	3965 CFS
BASE HIGH WATER ELEVATION	587.42

OVERTOPPING FLOOD DATA

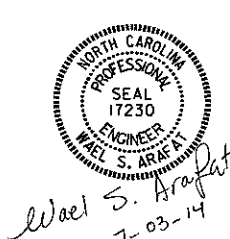
OVERTOPPING DISCHARGE	6750 CFS
FREQUENCY OF OVERTOPPING FLOOD	500 YR. +
OVERTOPPING FLOOD ELEVATION	590.10

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 14 X 73 STEEL PILES	STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAMS		
	LUMP SUM	LUMP SUM	LIN.FT.	LIN.FT.	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	EACH	LIN.FT.	SO.YDS.	LUMP SUM	NO.	LIN.FT.	
SUPERSTRUCTURE											180				10	900.0	
END BENT NO. 1					LUMP SUM	23.8		3361	5	75	5		515	570			
END BENT NO. 2			17.0	33.0	LUMP SUM	23.8		3361	5	50			295	330			
TOTAL	LUMP SUM	LUMP SUM	17.0	33.0	LUMP SUM	47.6	LUMP SUM	6722	10	125	5	180	810	900	LUMP SUM	10	900.0

PROJECT NO. 17BP.8.R.65
 CHATHAM COUNTY
 STATION: 13+60.00-L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE
 OVER ROCKY RIVER
 ON SR 1362 BETWEEN
 SR 1300 AND SR 1308

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

DRAWN BY: H. T. BARBOUR DATE: 4-7-14
 CHECKED BY: D. HODGE DATE: 5-14
 DESIGN ENGINEER OF RECORD: A. M. LEE DATE: 6-17-14

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	1.109	--	1.75	0.272	1.47	A	EL	44.25	0.493	1.26	A	EL	4.425	0.80	0.272	1.11	A	EL	44.25		
	HL-93(0pr)	N/A	--	1.633	--	1.35	0.272	1.9	A	EL	44.25	0.493	1.63	A	EL	4.425	N/A	--	--	--	--	--		
	HS-20(Inv)	36,000	②	1.507	54,255	1.75	0.272	1.99	A	EL	44.25	0.493	1.65	A	EL	4.425	0.80	0.272	1.51	A	EL	44.25		
	HS-20(0pr)	36,000	--	2.14	77,039	1.35	0.272	2.59	A	EL	44.25	0.493	2.14	A	EL	4.425	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13,500	--	3,519	47,501	1.4	0.272	5.82	A	EL	44.25	0.493	5.05	A	EL	4.425	0.80	0.272	3.52	A	EL	44.25	
		SNGARBS2	20,000	--	2,572	51,43	1.4	0.272	4.25	A	EL	44.25	0.493	3.55	A	EL	4.425	0.80	0.272	2.57	A	EL	44.25	
		SNAGRIS2	22,000	--	2,415	53,122	1.4	0.272	4	A	EL	44.25	0.493	3.27	A	EL	4.425	0.80	0.272	2.41	A	EL	44.25	
		SNCOTTS3	27,250	--	1,749	47,674	1.4	0.272	2.89	A	EL	44.25	0.493	2.52	A	EL	4.425	0.80	0.272	1.75	A	EL	44.25	
		SNAGGRS4	34,925	--	1,443	50,381	1.4	0.272	2.39	A	EL	44.25	0.493	2.06	A	EL	4.425	0.80	0.272	1.44	A	EL	44.25	
		SNS5A	35,550	--	1,412	50,195	1.4	0.272	2.34	A	EL	44.25	0.493	2.07	A	EL	4.425	0.80	0.272	1.41	A	EL	44.25	
		SNS6A	39,950	--	1,287	51,435	1.4	0.272	2.13	A	EL	44.25	0.493	1.88	A	EL	4.425	0.80	0.272	1.29	A	EL	44.25	
	SNS7B	42,000	--	1,226	51,483	1.4	0.272	2.03	A	EL	44.25	0.493	1.83	A	EL	4.425	0.80	0.272	1.23	A	EL	44.25		
	TTST	TNAGRIT3	33,000	--	1,568	51,733	1.4	0.272	2.59	A	EL	44.25	0.493	2.24	A	EL	4.425	0.80	0.272	1.57	A	EL	44.25	
		TNT4A	33,075	--	1,572	52,007	1.4	0.272	2.6	A	EL	44.25	0.493	2.2	A	EL	4.425	0.80	0.272	1.57	A	EL	44.25	
		TNT6A	41,600	--	1,278	53,17	1.4	0.272	2.11	A	EL	44.25	0.493	1.92	A	EL	4.425	0.80	0.272	1.28	A	EL	44.25	
		TNT7A	42,000	--	1,281	53,782	1.4	0.272	2.12	A	EL	44.25	0.493	1.89	A	EL	4.425	0.80	0.272	1.28	A	EL	44.25	
		TNT7B	42,000	--	1,315	55,229	1.4	0.272	2.18	A	EL	44.25	0.493	1.79	A	EL	4.425	0.80	0.272	1.31	A	EL	44.25	
		TNAGRIT4	43,000	--	1,258	54,101	1.4	0.272	2.08	A	EL	44.25	0.493	1.74	A	EL	4.425	0.80	0.272	1.26	A	EL	44.25	
TNAGT5A		45,000	--	1.19	53,537	1.4	0.272	1.97	A	EL	44.25	0.493	1.71	A	EL	4.425	0.80	0.272	1.19	A	EL	44.25		
TNAGT5B	45,000	③	1.178	53,027	1.4	0.272	1.95	A	EL	44.25	0.493	1.66	A	EL	4.425	0.80	0.272	1.18	A	EL	44.25			

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.

④ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

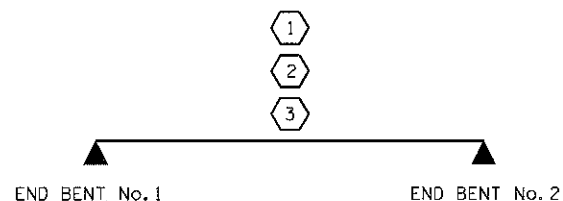
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

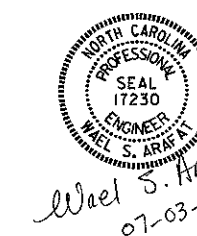
GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. 17BP.8.R.65
CHATHAM COUNTY
STATION: 13+60.00-L-

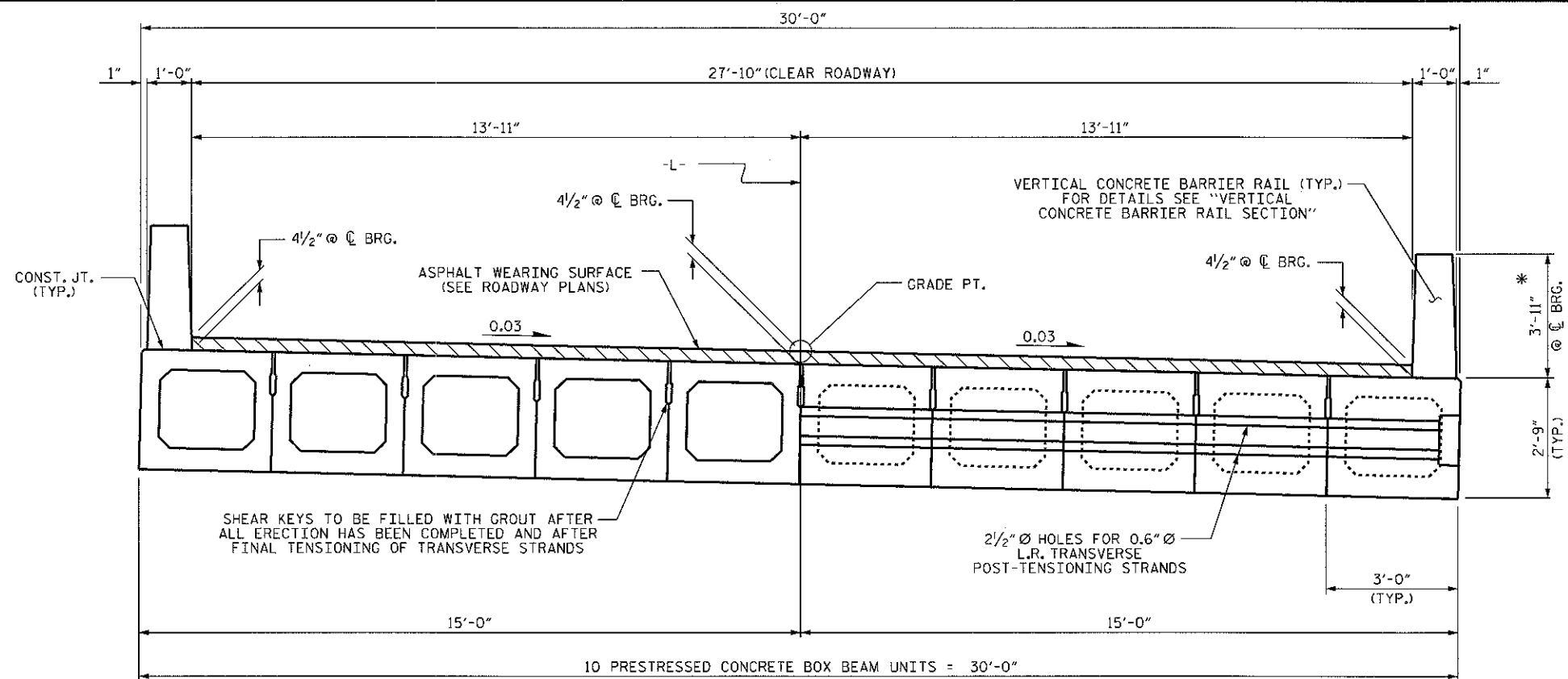


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
90' BOX BEAM UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

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

ASSEMBLED BY: H. T. BARBOUR DATE: 4-4-14
CHECKED BY: W. DEBREW DATE: 4-14
DRAWN BY: TMC 11/11
CHECKED BY: AAC 11/11

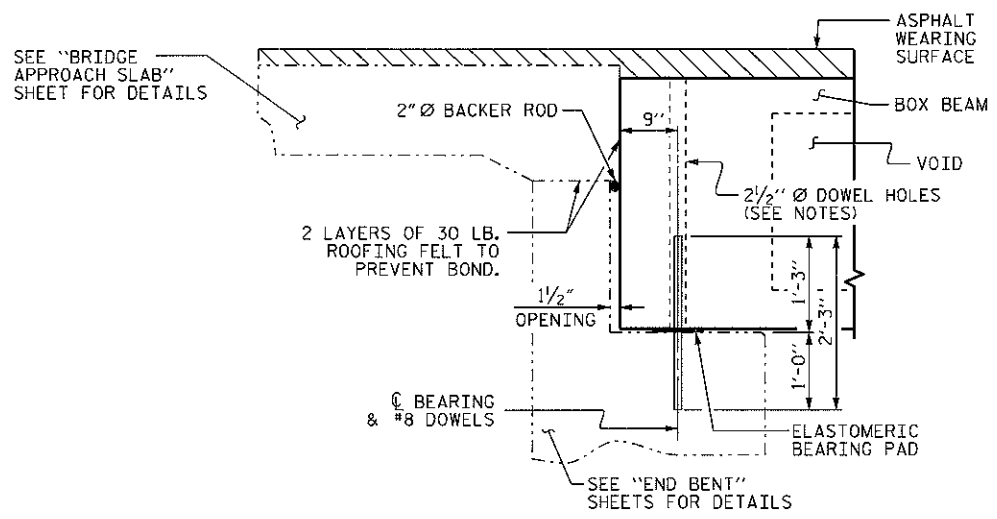


HALF SECTION THROUGH VOIDS
 HALF SECTION AT INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION

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

FIXED END



SECTION AT END BENT

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 BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.
- RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.
- THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM 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.
- THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.
- ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.
- PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.
- APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.
- VERTICAL 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 VERTICAL 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.
- THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- CONCRETE INSERTS SHALL HAVE A MINIMUM WORKING LOAD SHEAR CAPACITY OF 2.5 KIPS.
- THE 3/4" Ø BOLTS, WASHERS AND CONCRETE INSERTS SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.
- THE 3/4" Ø BOLTS, WASHERS AND CONCRETE INSERTS ARE PROVIDED AS AN OPTION FOR THE CONTRACTOR TO ATTACH MATERIALS TO PREVENT DEBRIS FROM DROPPING INTO THE WATER DURING CONSTRUCTION OF THE VERTICAL CONCRETE BARRIER RAILS.
- UPON COMPLETION OF THE BRIDGE CONSTRUCTION, THE 3/4" Ø BOLTS, AND WASHERS SHALL BE REMOVED AND THE CONCRETE INSERTS SHALL BE GROUTED.
- THE COST OF THE 3/4" Ø BOLTS, WASHERS, AND INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.
- FOR 3/4" Ø BOLTS, WASHERS & INSERTS, SEE EXTERIOR BEAM SECTION, SHEET 3 OF 5.

PROJECT NO. 17BP.8.R.65
 CHATHAM COUNTY
 STATION: 13+60.00-L-

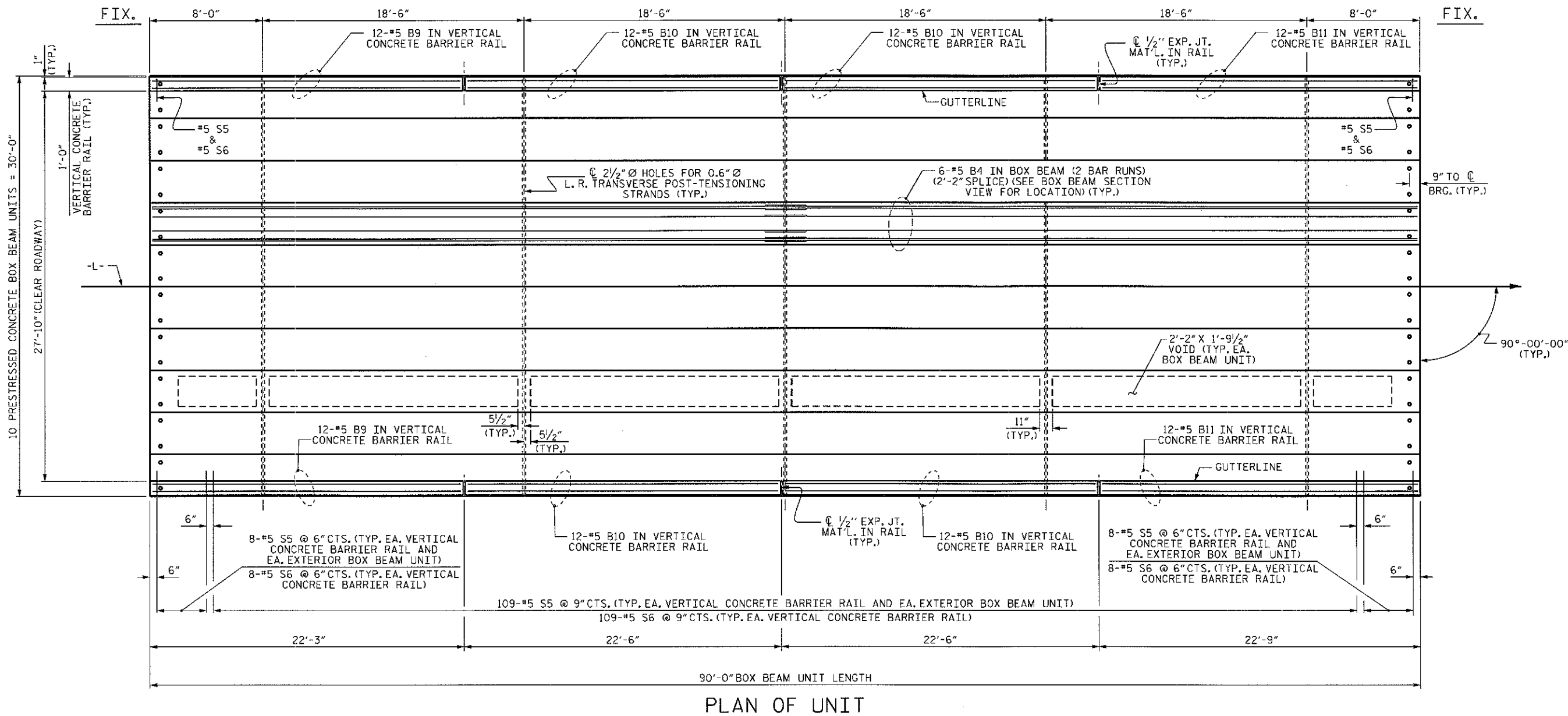
SHEET 1 OF 5



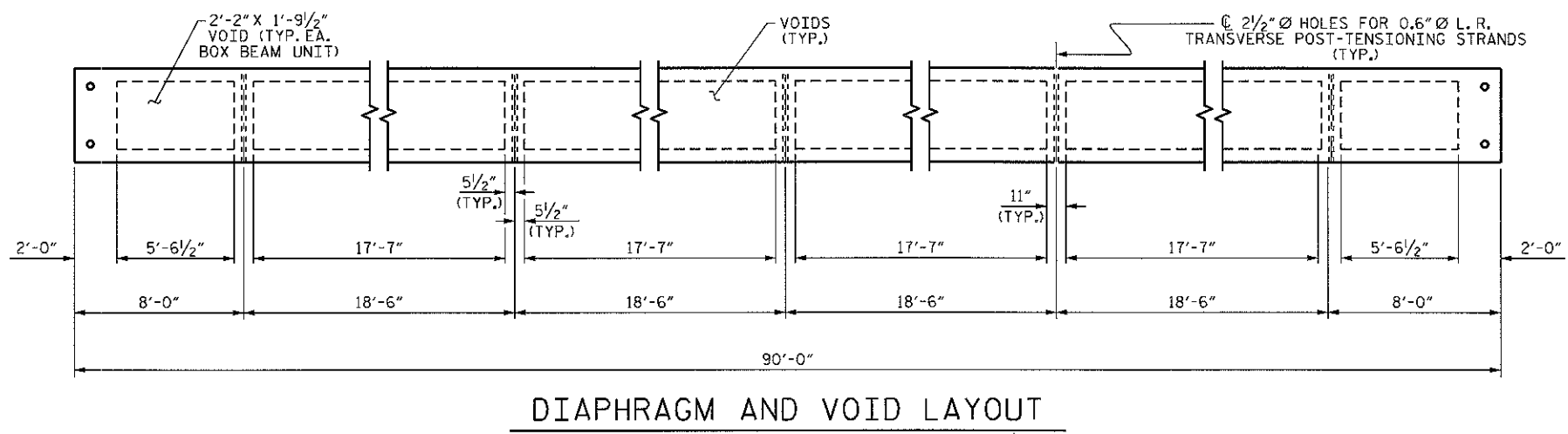
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

REVISIONS						SHEET NO. S-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 16
2			4			

ASSEMBLED BY : H. T. BARBOUR	DATE : 4-4-14
CHECKED BY : W. DEBREW	DATE : 4-17-14
DRAWN BY : DGE 8/II	
CHECKED BY : TMG 11/II	



PLAN OF UNIT



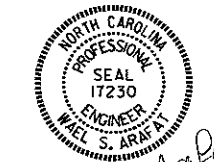
DIAPHRAGM AND VOID LAYOUT

PROJECT NO. 17BP.8.R.65
 CHATHAM COUNTY
 STATION: 13+60.00-L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF 90' UNIT
 27'-10" CLEAR ROADWAY
 90° SKEW

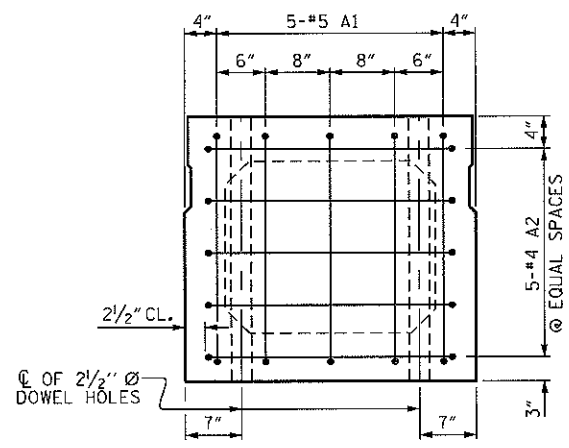


Wael S. Arafa
 07-03-14

ASSEMBLED BY : H. T. BARBOUR DATE : 4-4-14
 CHECKED BY : W. DEBREW DATE : 4-17-14
 DRAWN BY : DGE 8/10
 CHECKED BY : TMC 11/11

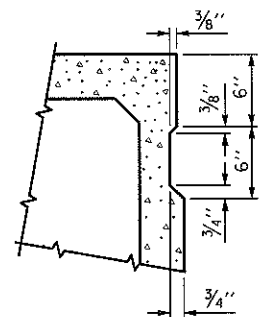
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6	
1			3			TOTAL SHEETS 16	
2			4				

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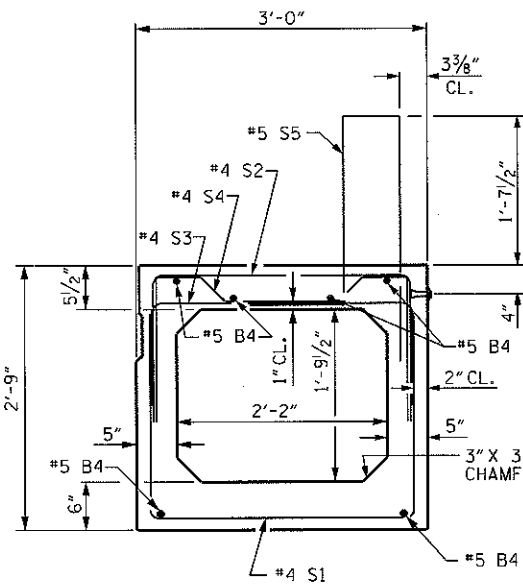
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION, STRAND LAYOUT NOT SHOWN.)



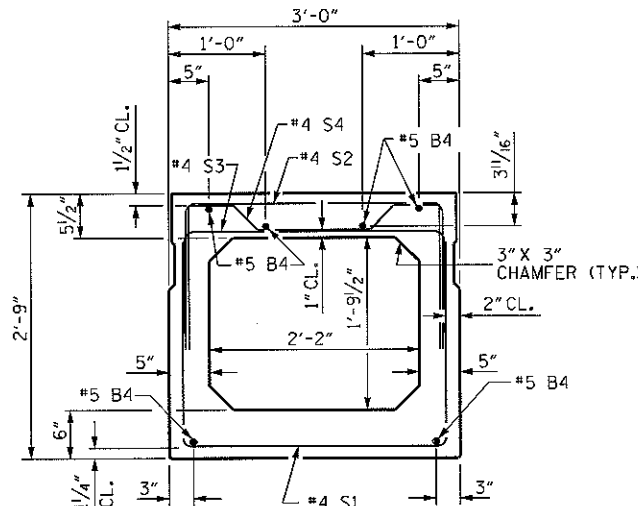
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

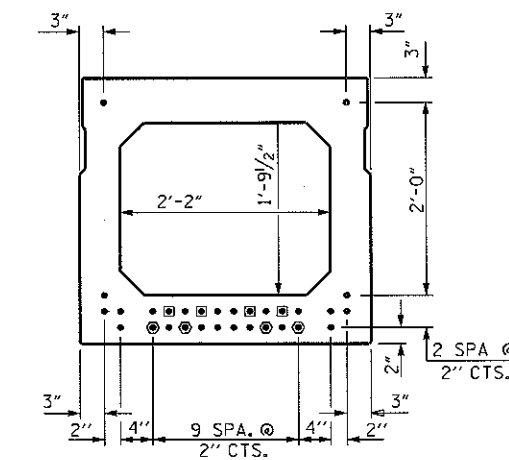


INTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

3/4" Ø BOLTS WITH WASHERS IN APPROVED CONCRETE INSERTS CAST IN EXTERIOR CORED SLAB UNITS @ 10'-0" CTS. (SEE NOTES, SHEET 1 OF 5)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

(30 STRANDS REQUIRED)

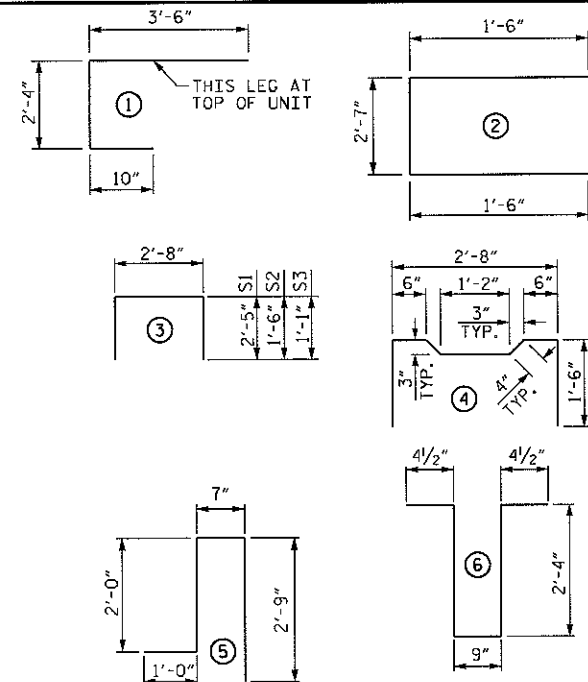
DEBONDING LEGEND

- FULLY BONDED STRANDS
- ⊙ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- ⊕ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

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

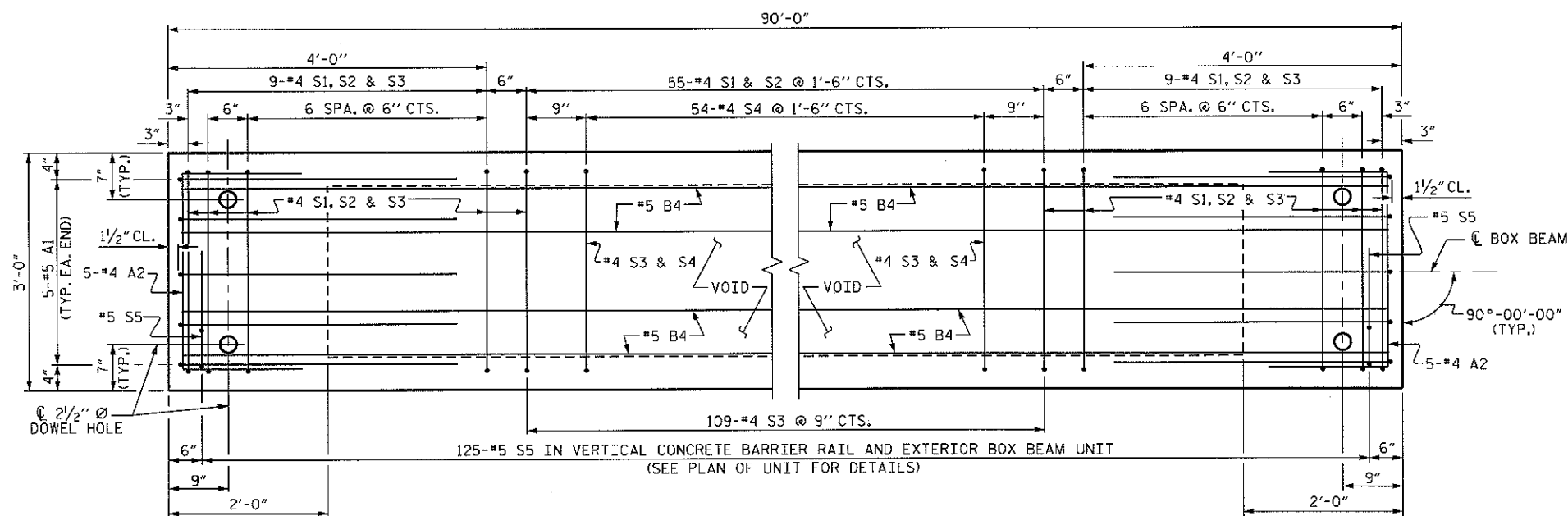
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	40	#4	2	5'-7"	149	5'-7"	149
B4	12	#5	STR	45'-11"	575	45'-11"	575
K1	15	#4	6	6'-2"	62	6'-2"	62
K2	10	#4	STR	2'-7"	17	2'-7"	17
S1	73	#4	3	7'-6"	366	7'-6"	366
S2	73	#4	3	5'-8"	276	5'-8"	276
S3	127	#4	3	4'-10"	410	4'-10"	410
S4	54	#4	4	5'-10"	210	5'-10"	210
* S5	125	#5	5	6'-4"	826	--	--
REINFORCING STEEL				2135	LBS.	2135	LBS.
* EPOXY COATED REINF. STEEL				826	LBS.		
8000 P.S.I. CONCRETE				16.0	CU. YDS.	15.9	CU. YDS.
0.6" Ø L.R. STRANDS				No. 30		No. 30	

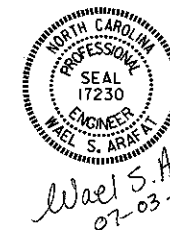


PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE PLAN OF UNIT. FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAILS.

ASSEMBLED BY: H. T. BARBOUR DATE: 4-4-14
 CHECKED BY: W. DEBREW DATE: 4-17-14
 DRAWN BY: DGE 10/11
 CHECKED BY: TMC 11/11

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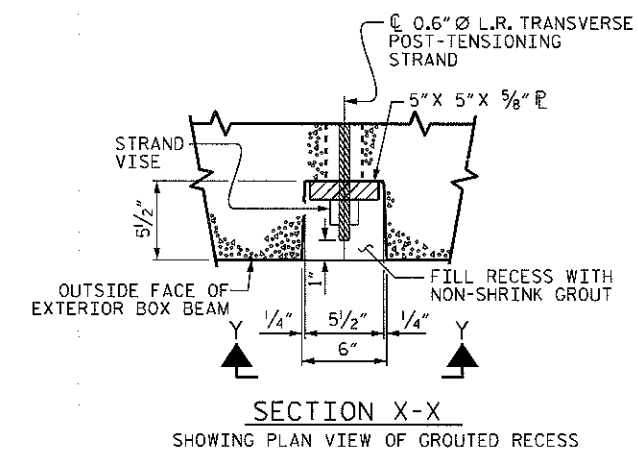
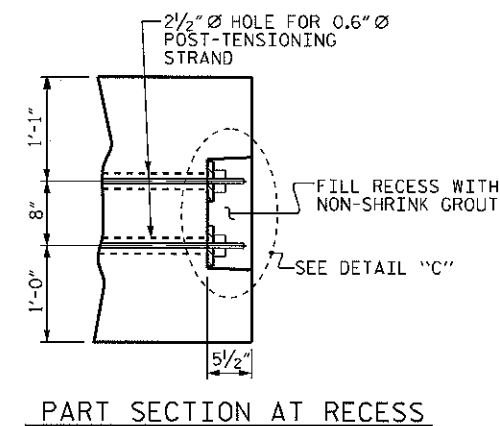
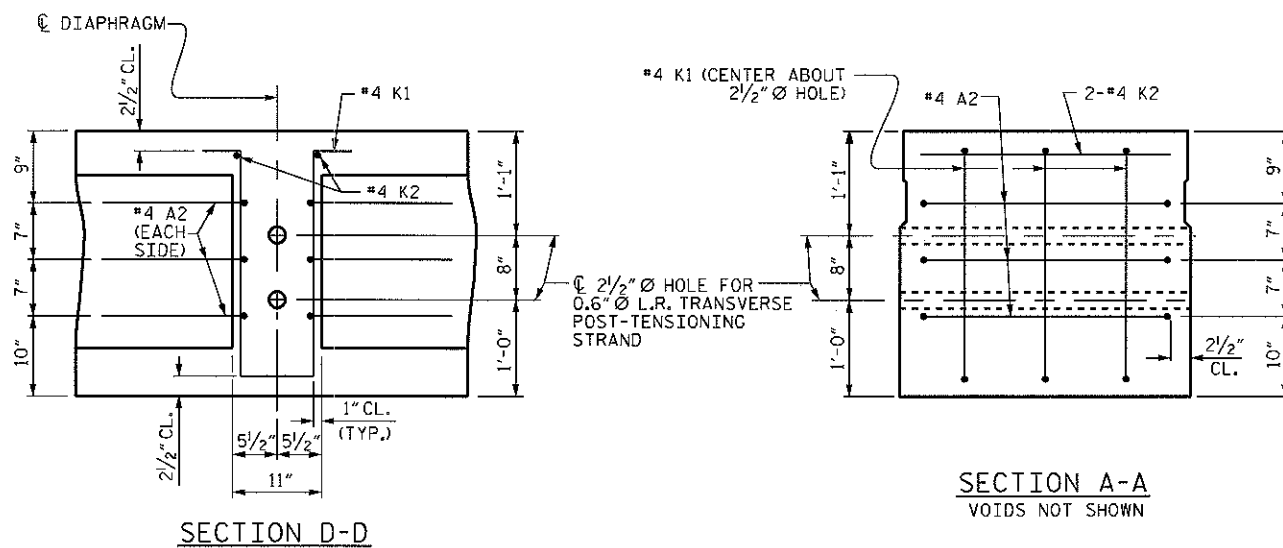
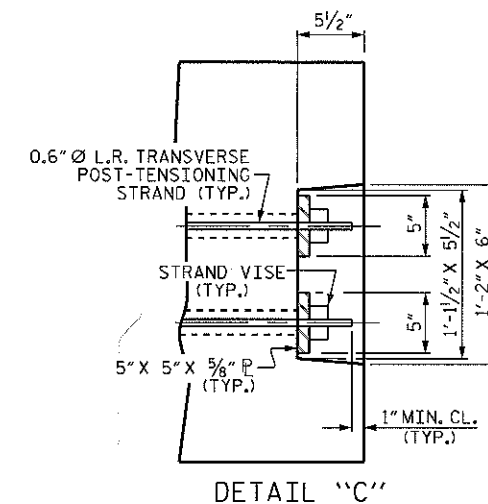
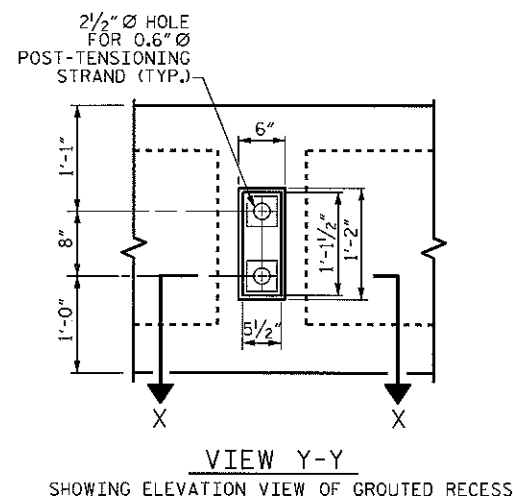
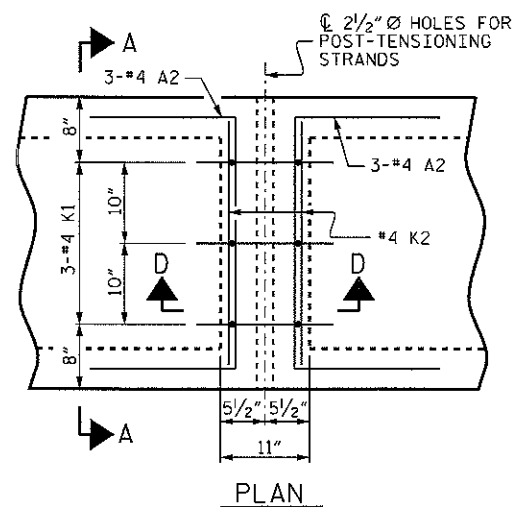
PROJECT NO. 17BP.8.R.65
 CHATHAM COUNTY
 STATION: 13+60.00-L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

REVISIONS						SHEET NO. S-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 16
2			4			

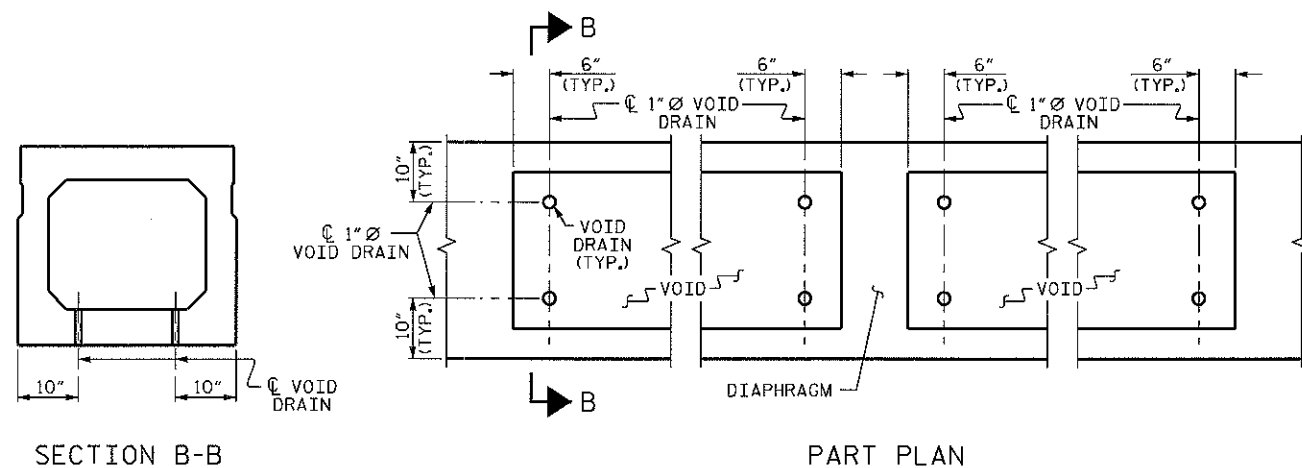
STD. NO. 33PCBB4.90S.90L



DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.

GROUDED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM



VOID DRAIN DETAILS

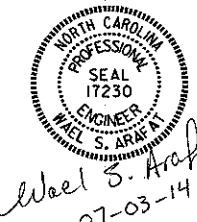
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

DEAD LOAD DEFLECTION AND CAMBER	
90' BOX BEAM UNIT (NC & SE)	3'-0" x 2'-9"
CAMBER (SLAB ALONE IN PLACE)	3/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/4" ↓
FINAL CAMBER	3" ↑

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. 17BP.8.R.65
CHATHAM COUNTY
STATION: 13+60.00-L-

SHEET 4 OF 5



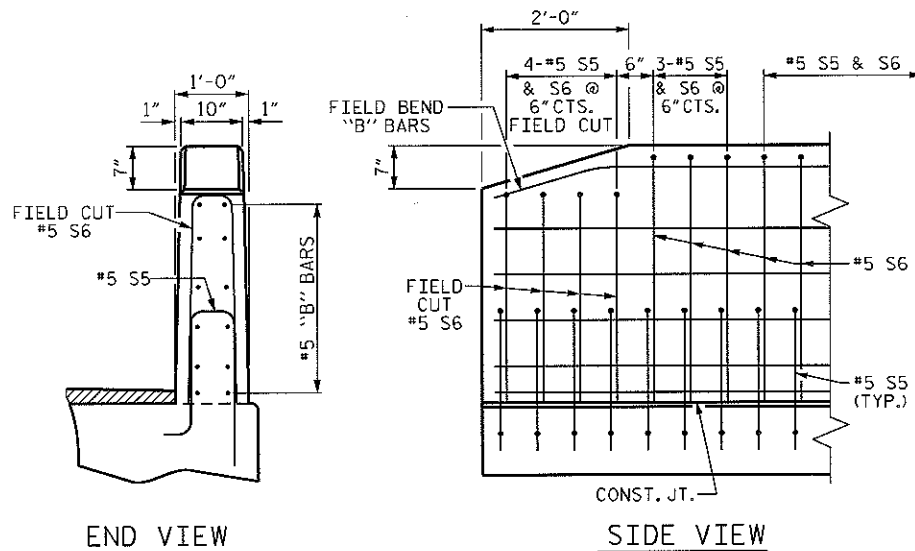
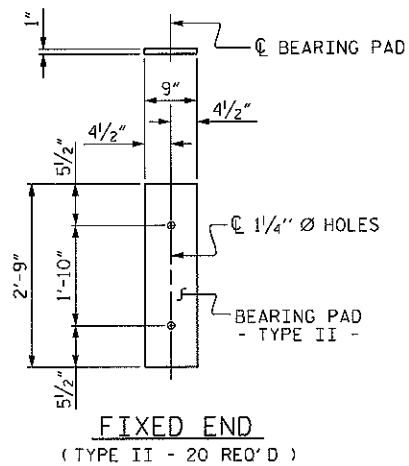
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

ASSEMBLED BY: H. T. BARBOUR DATE: 4-4-14
CHECKED BY: W. DEBREW DATE: 4-17-14
DRAWN BY: DGE 10/11
CHECKED BY: TMG 11/11

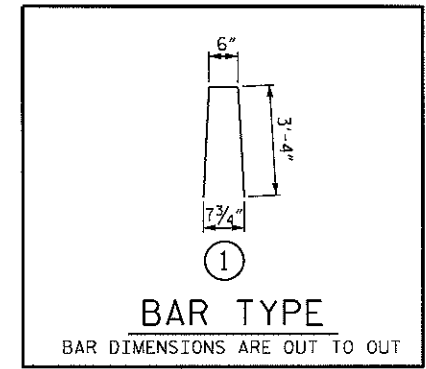
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS 16
2			4			

STD.NO.33PCBB5_90S



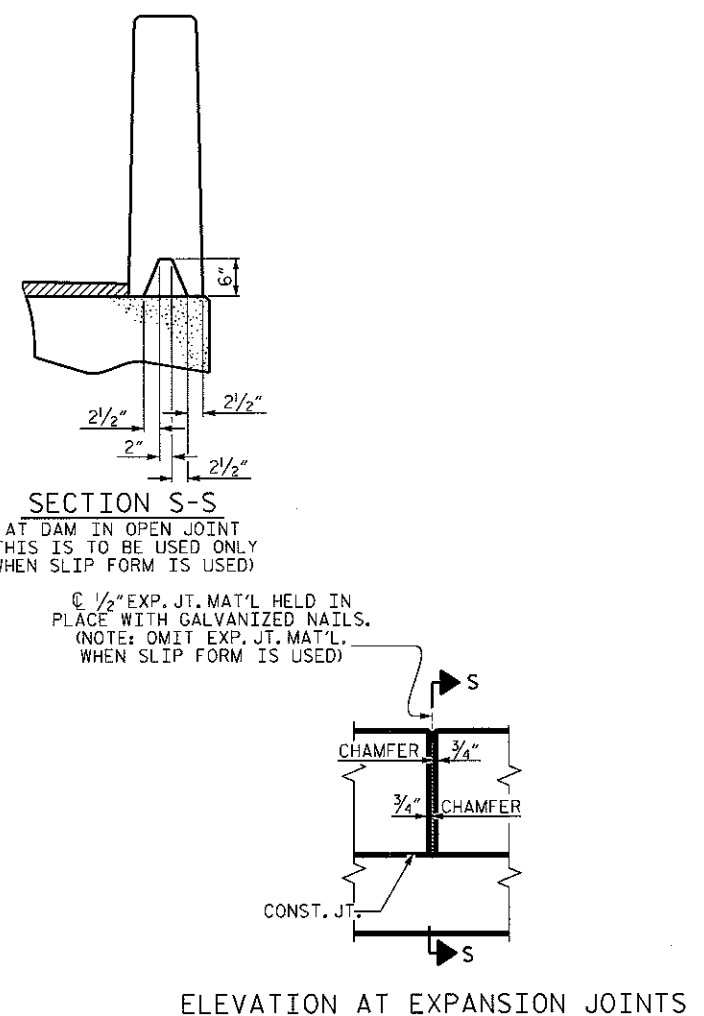
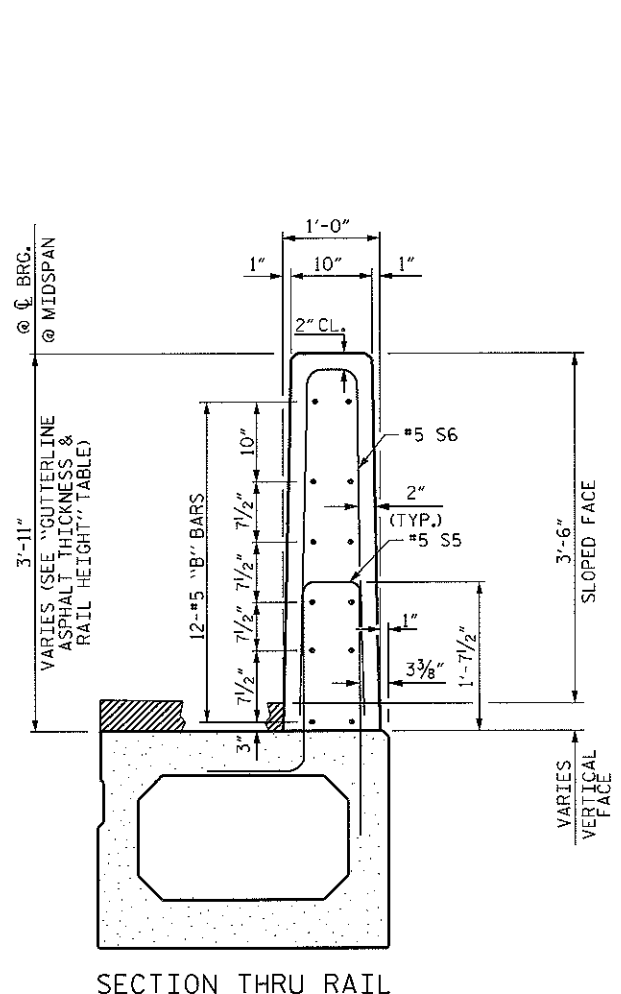
BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	90'-0"	180'-0"
INTERIOR B.B.	8	90'-0"	720'-0"
TOTAL	10		900'-0"



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

END OF RAIL DETAILS

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	SIZE	TYPE	LENGTH	WEIGHT	
	90' UNIT					
* B9	24	#5	STR	21'-10"	547	
* B10	48	#5	STR	22'-1"	1106	
* B11	24	#5	STR	22'-4"	559	
* S6	250	#5	1	7'-2"	1869	
* EPOXY COATED REINFORCING STEEL				LBS.	4081	
CLASS AA CONCRETE				CU.YDS.	24.2	
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN.FT.	180.0	



GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
90' UNITS	1 1/2"	3'-8"

VERTICAL CONCRETE BARRIER RAIL DETAILS

PROJECT NO. 17BP.8.R.65
 CHATHAM COUNTY
 STATION: 13+60.00-L-

SHEET 5 OF 5
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 17230
 ENGINEER
 WEL S. ARAFAT
 07-03-14

ASSEMBLED BY : H. T. BARBOUR DATE : 4-4-14
 CHECKED BY : W. DEBREW DATE : 4-17-14
 DRAWN BY : DGE 10/II
 CHECKED BY : TMC 11/II

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-9
2			4			TOTAL SHEETS 16

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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.)

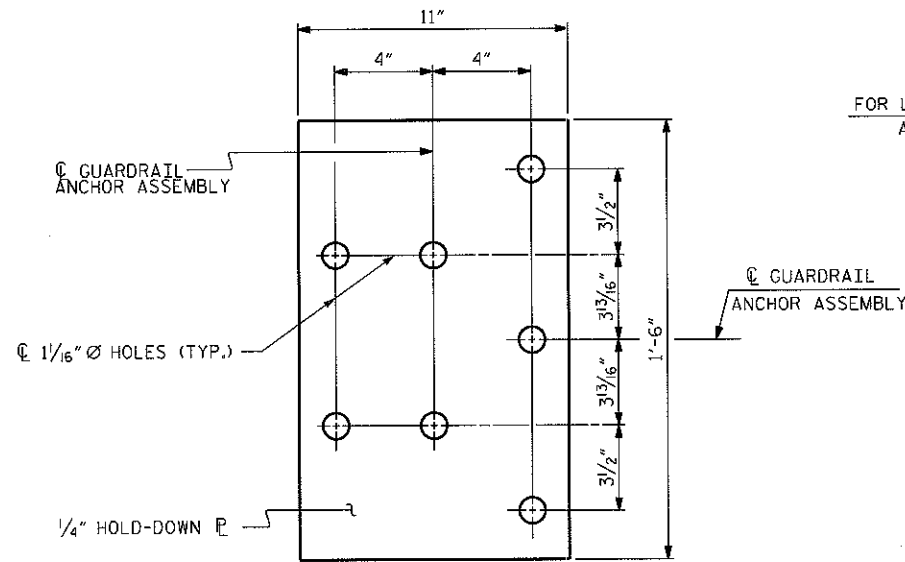
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

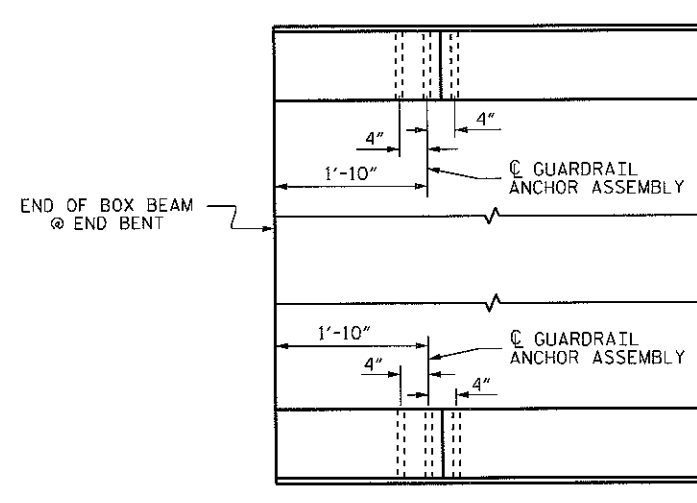
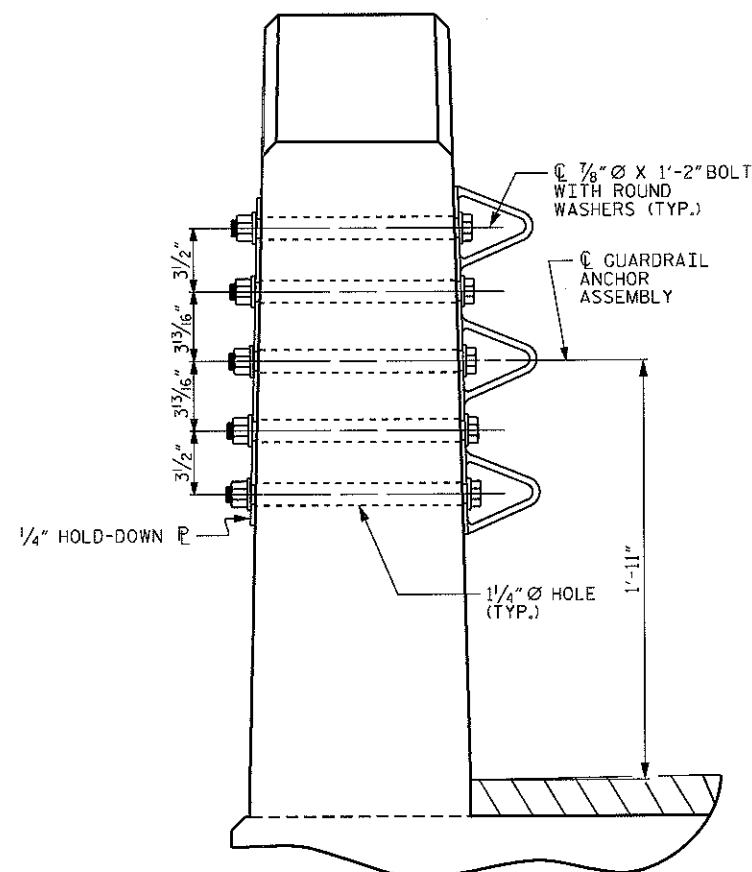
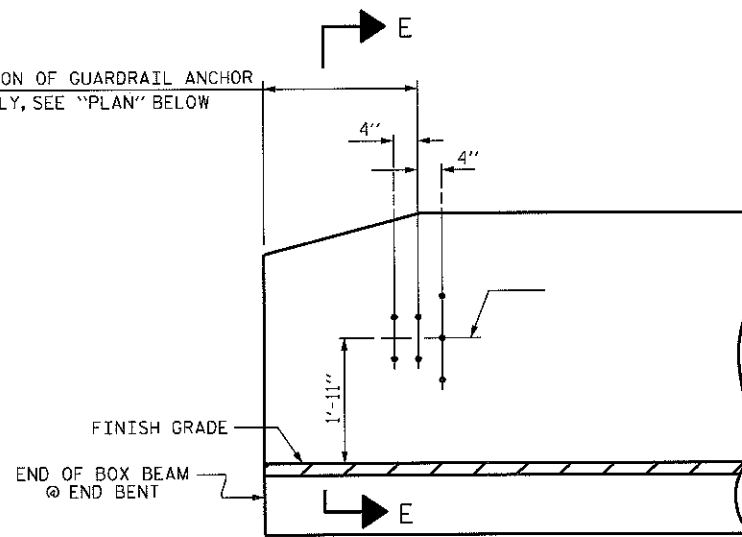
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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

THE 1/4" 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.



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



LOCATION OF ANCHORS FOR GUARDRAIL

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



* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 17BP.8.R.65
CHATHAM COUNTY
STATION: 13+60.00-L-



Wael S. Arafa
07-03-14

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

ASSEMBLED BY :	H. T. BARBOUR	DATE :	4-4-14
CHECKED BY :	W. DEBREW	DATE :	4-17-14
DRAWN BY :	MAA 5/10	REV. 10/1/8	MAA/GM
CHECKED BY :	GM 5/10	REV. 12/5/11	MAA/GM
		REV. 6/13	MAA/GM

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

TOTAL SHEETS: 16

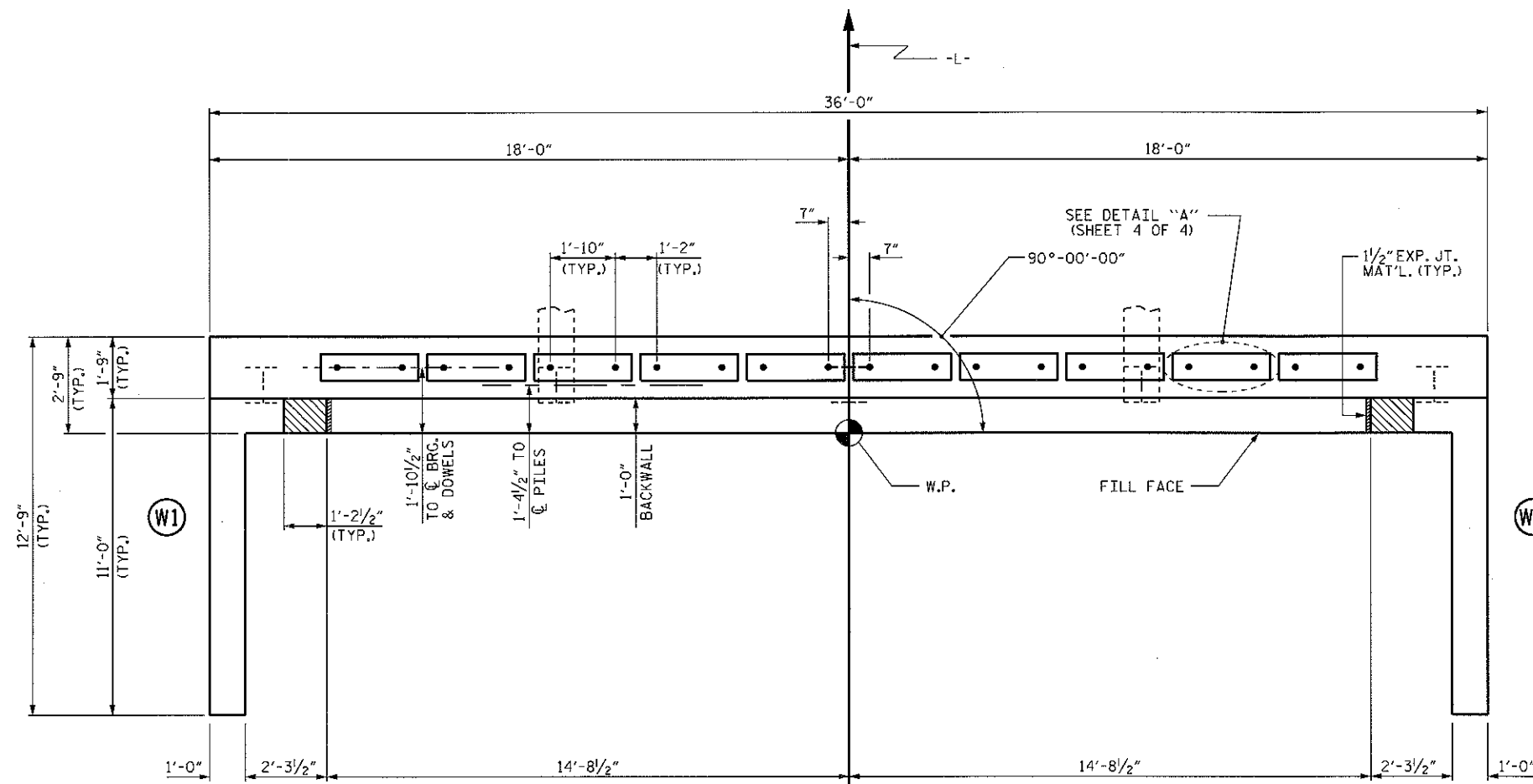
NOTES

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

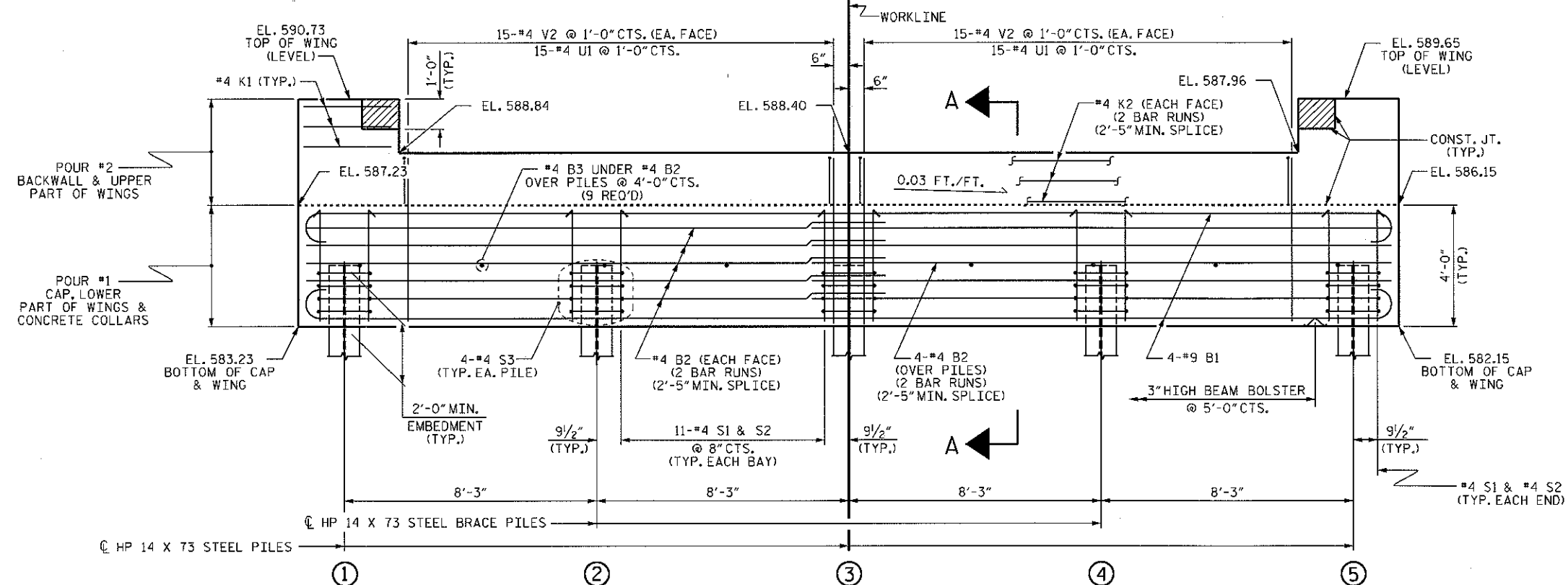
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



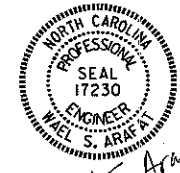
ELEVATION

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

TOP OF PILE ELEVATIONS	
①	EL. 585.20
②	EL. 584.95
③	EL. 584.71
④	EL. 584.46
⑤	EL. 584.21

PROJECT NO. 17BP.8.R.65
CHATHAM COUNTY
 STATION: 13+60.00-L-

SHEET 1 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			16

DESIGN ENGINEER OF RECORD: A. M. LEE	DATE: 6-17-14
ASSEMBLED BY: H. T. BARBOUR	DATE: 4-4-14
CHECKED BY: W. DEBREW	DATE: 4-17-14
DRAWN BY: WJH 12/11	
CHECKED BY: AAC 12/11	

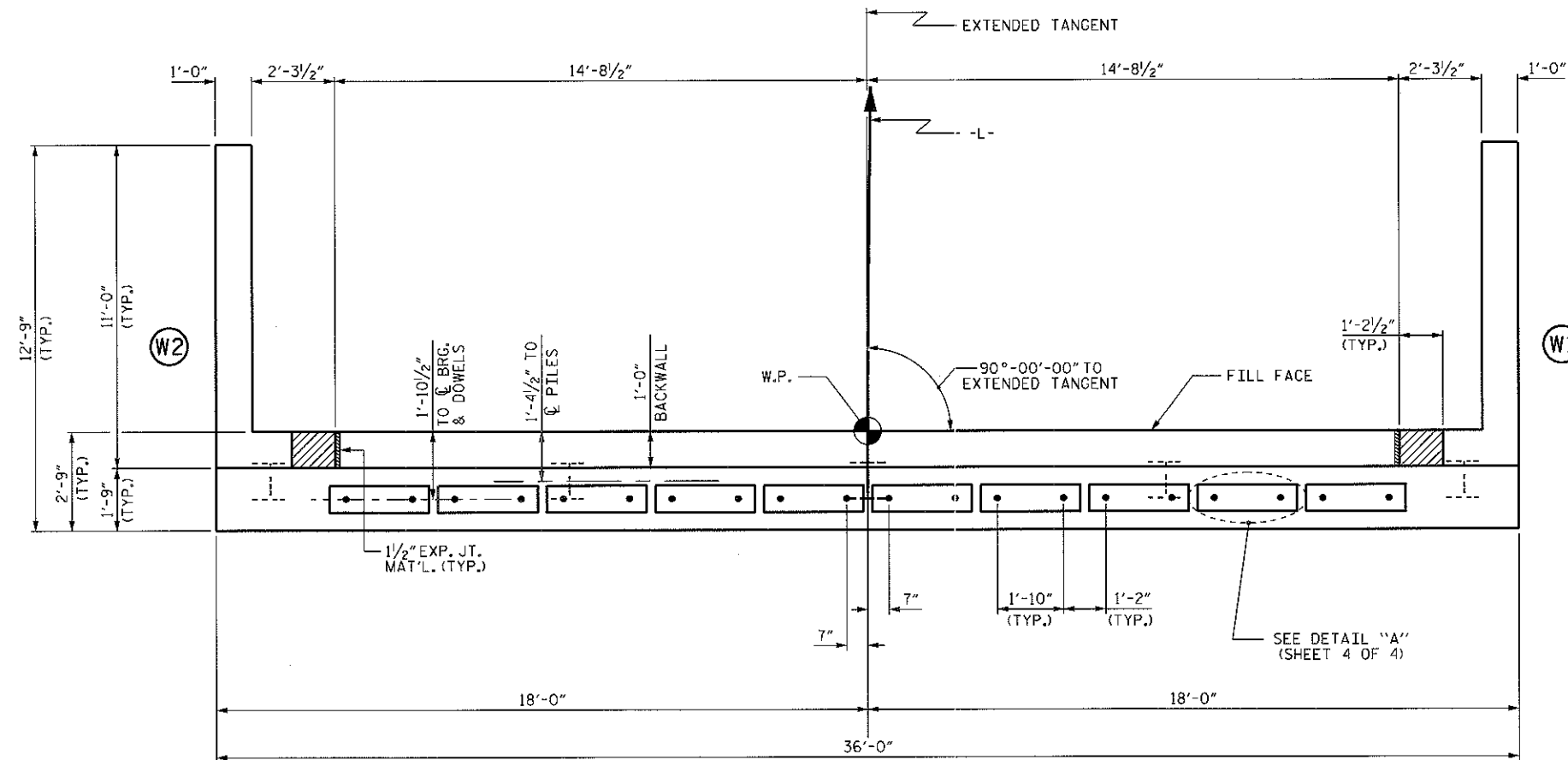
NOTES

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

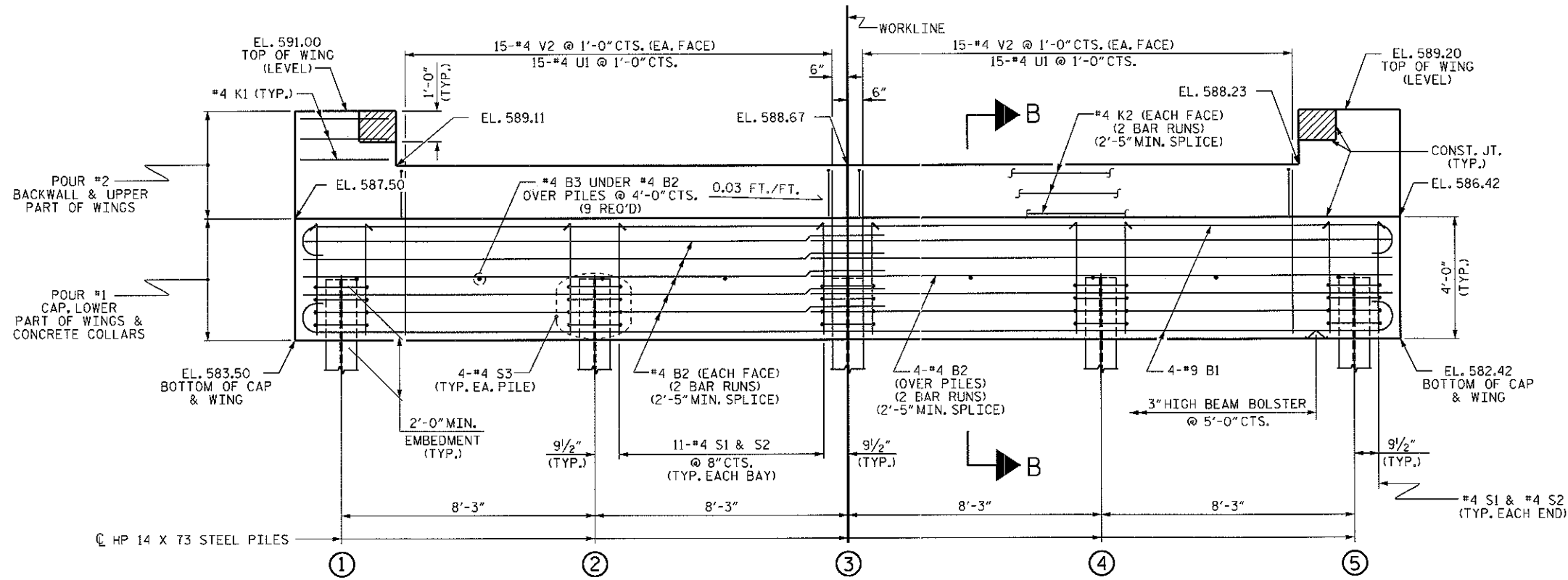
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION B-B, 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.

TOP OF PILE ELEVATIONS	
①	EL. 585.47
②	EL. 585.22
③	EL. 584.98
④	EL. 584.73
⑤	EL. 584.48

PROJECT NO. 17BP.8.R.65
CHATHAM COUNTY
STATION: 13+60.00-L-

SHEET 2 OF 4

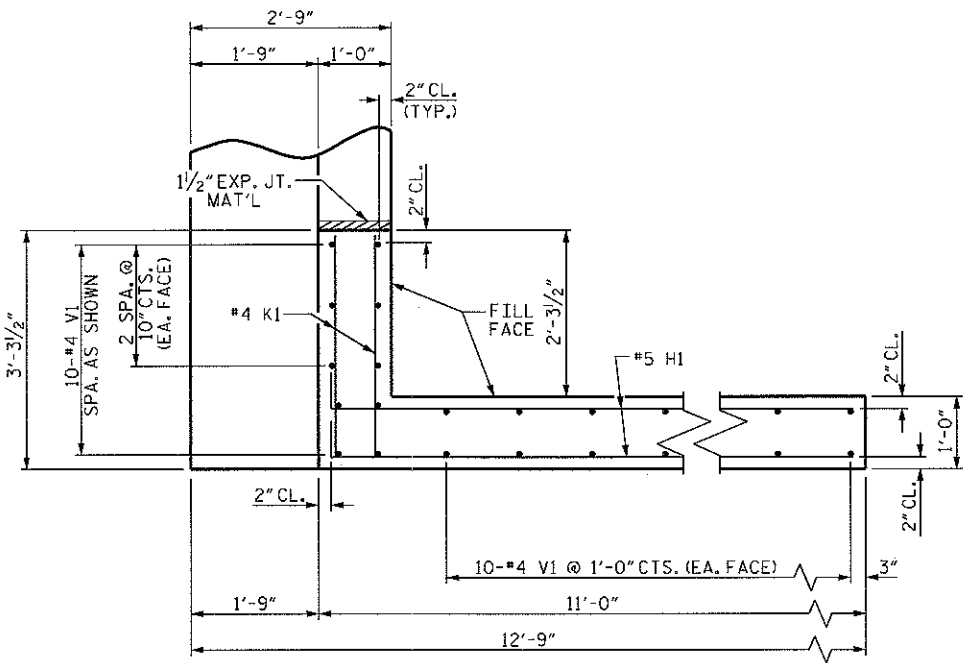
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2

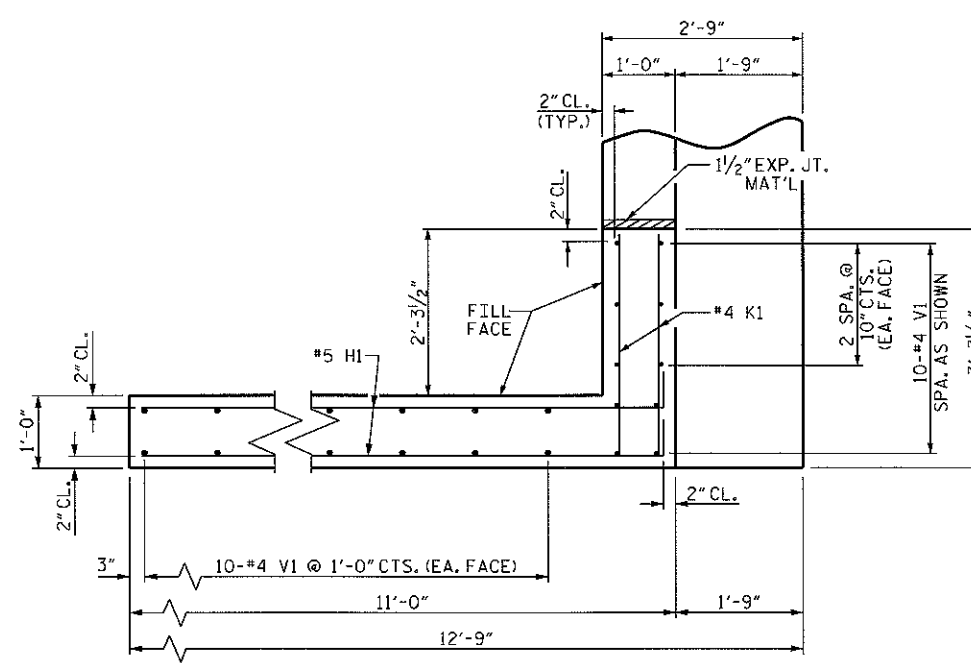
Wael S. Arafa
07-03-14

DESIGN ENGINEER OF RECORD: A. M. LEE	DATE: 6-17-14
ASSEMBLED BY: H. T. BARBOUR	DATE: 4-4-14
CHECKED BY: W. DEBREW	DATE: 4-17-14
DRAWN BY: WJH	12/11
CHECKED BY: AAC	12/11

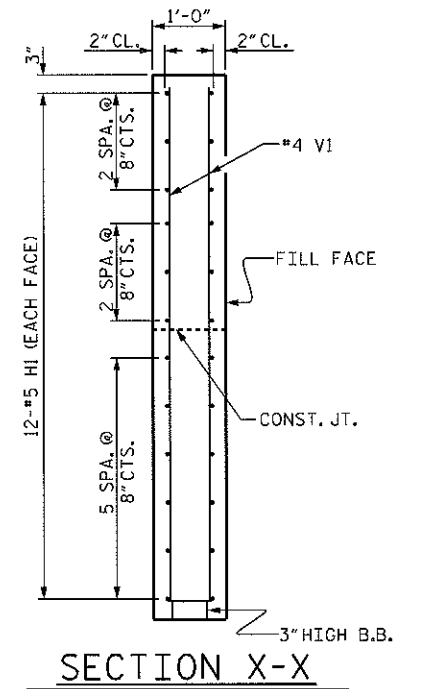
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12	
1			3			TOTAL SHEETS 16	
2			4				



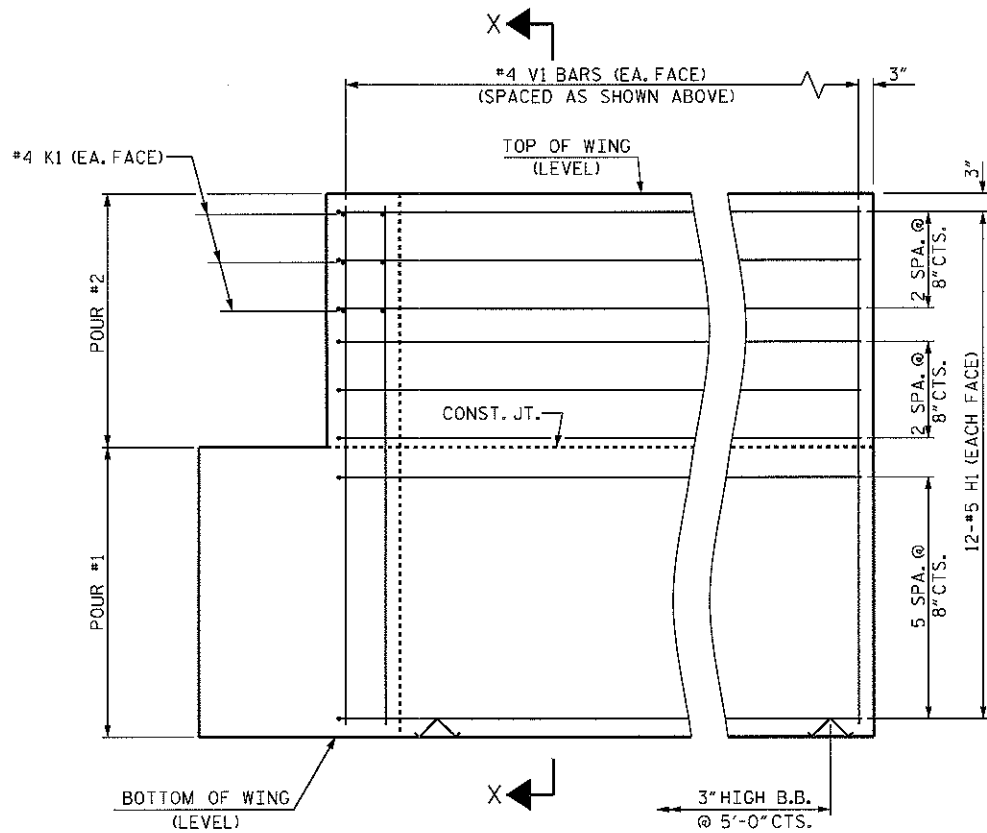
PLAN OF WING (W1)



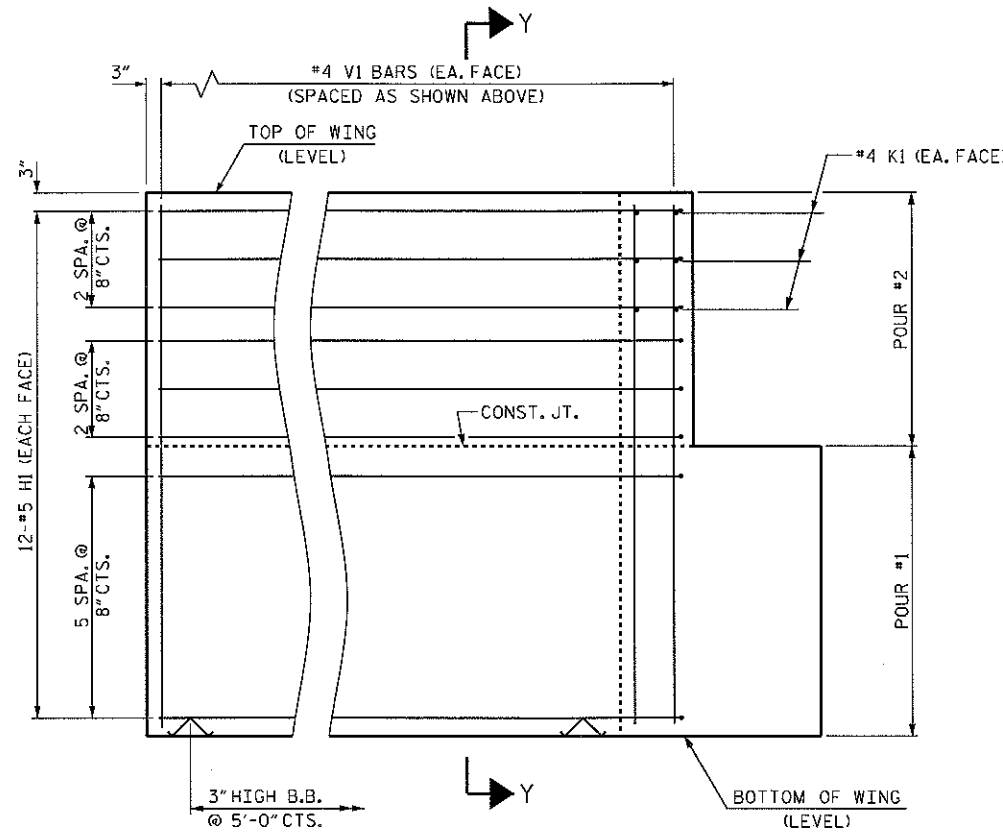
PLAN OF WING (W2)



SECTION X-X

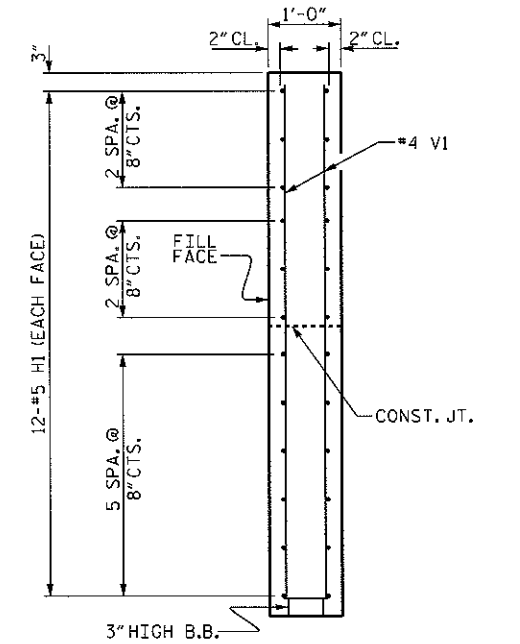


ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

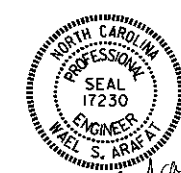


SECTION Y-Y

PROJECT NO. 17BP.8.R.65
 CHATHAM COUNTY
 STATION: 13+60.00-L-

SHEET 3 OF 4

Wael S. Arafat
 07-03-14

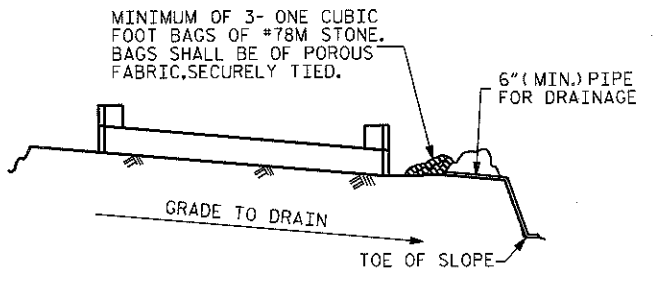


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT
 WING DETAILS

ASSEMBLED BY : H. T. BARBOUR	DATE : 4-4-14
CHECKED BY : W. DEBREW	DATE : 4-17-14
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	5-13	
1			3			TOTAL SHEETS	16
2			4				

03-JUL-2014 13:46
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 vnguyen



MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

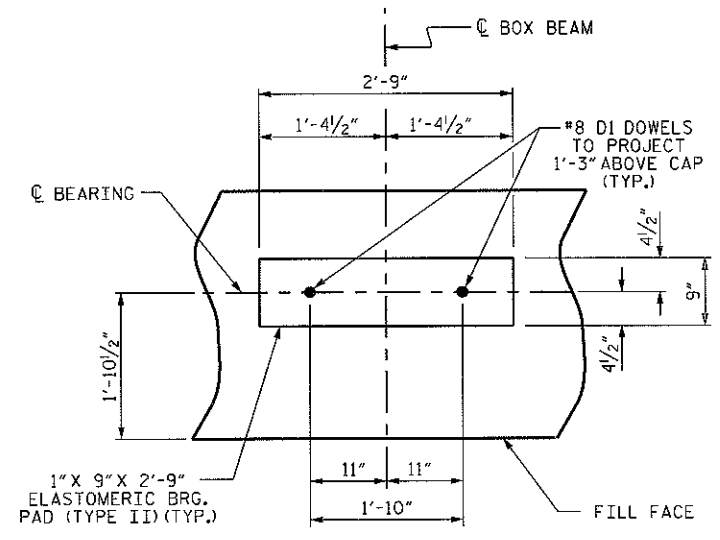
TOE OF SLOPE

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.

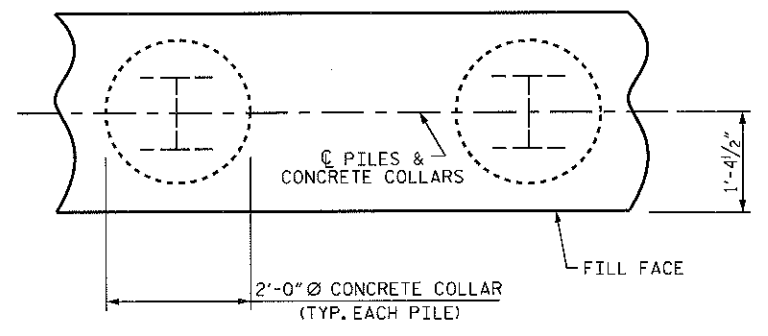
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

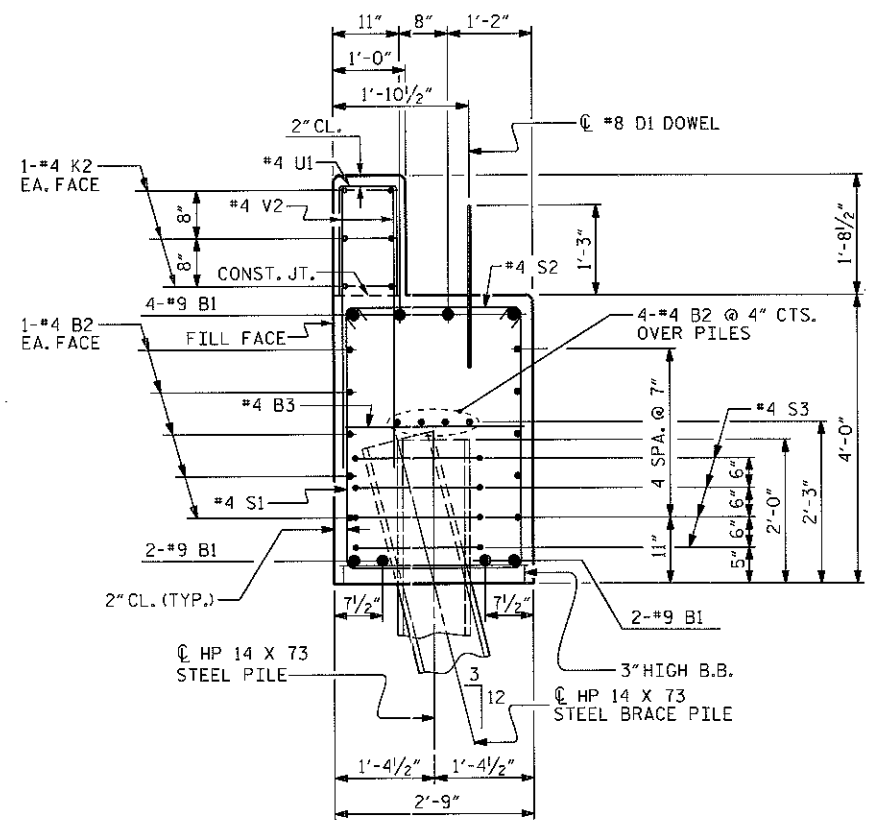
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



PLAN

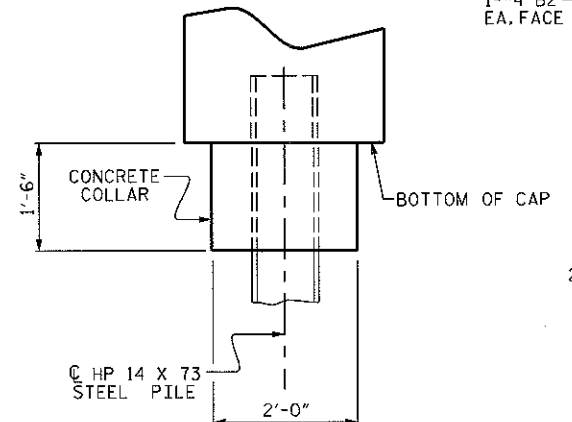
CORROSION PROTECTION FOR STEEL PILES DETAIL

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

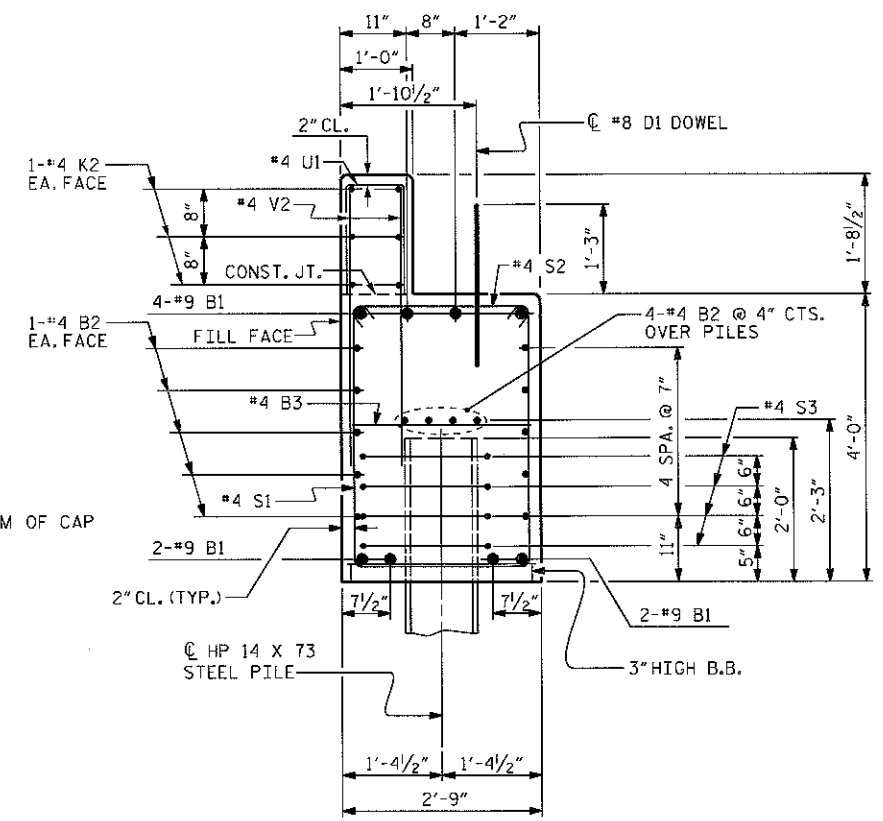


SECTION A-A

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



ELEVATION

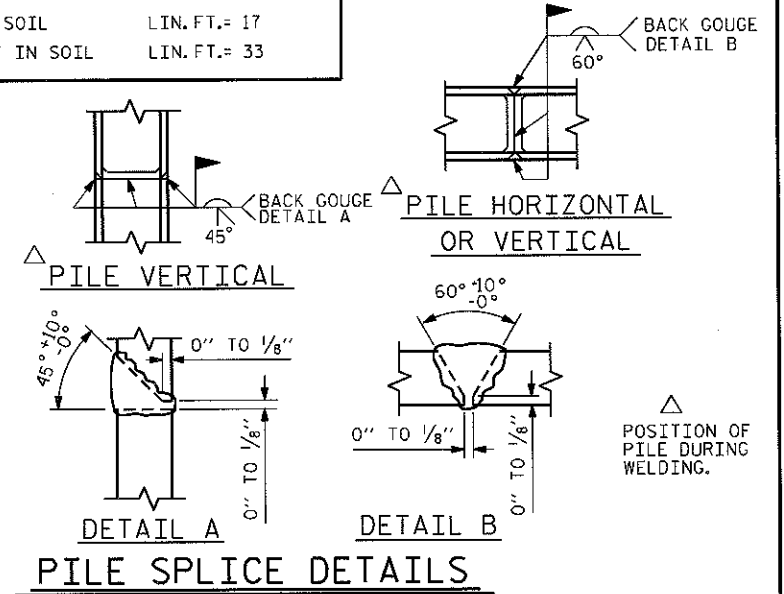


SECTION B-B

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

BAR TYPES	
ALL BAR DIMENSIONS ARE OUT TO OUT.	
END BENT No. 1 HP 14 X 73 STEEL PILES NO: 5 LIN. FT. = 75	END BENT No. 2 HP 14 X 73 STEEL PILES NO: 5 LIN. FT. = 50
STEEL PILE POINTS NO: 5	PILE EXCAVATION EA. IN SOIL LIN. FT. = 17 NOT IN SOIL LIN. FT. = 33

BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	STR	38'-0"	1034
B2	28	#4	STR	19'-1"	357
B3	9	#4	STR	2'-5"	15
D1	20	#8	STR	2'-3"	120
H1	48	#5	2	11'-4"	567
K1	12	#4	STR	2'-11"	23
K2	12	#4	STR	19'-1"	153
S1	46	#4	3	10'-5"	320
S2	46	#4	4	3'-2"	97
S3	20	#4	5	7'-7"	101
U1	30	#4	6	3'-8"	73
V1	60	#4	STR	7'-2"	287
V2	60	#4	STR	5'-4"	214
REINFORCING STEEL (FOR ONE END BENT)					3361 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					18.5 C.Y.
POUR #2 BACKWALL & UPPER PART OF WINGS					5.3 C.Y.
TOTAL CLASS A CONCRETE					23.8 C.Y.



PROJECT NO. 17BP.8.R.65
CHATHAM COUNTY
STATION: 13+60.00-L-
SHEET 4 OF 4

Wael S. Arafat
01-03-14

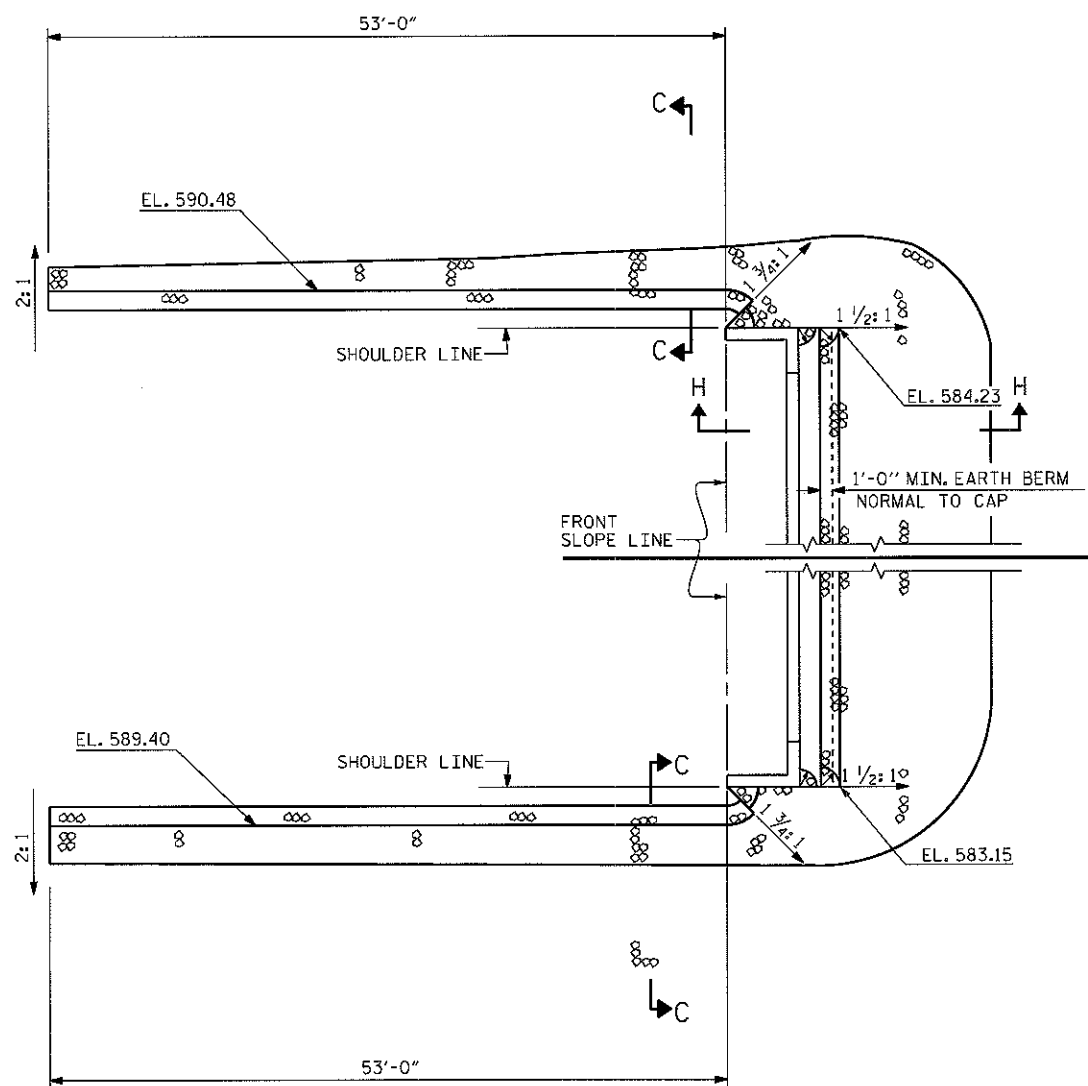
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT No. 1 & 2
DETAILS

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-14
1			3		TOTAL SHEETS
2			4		16

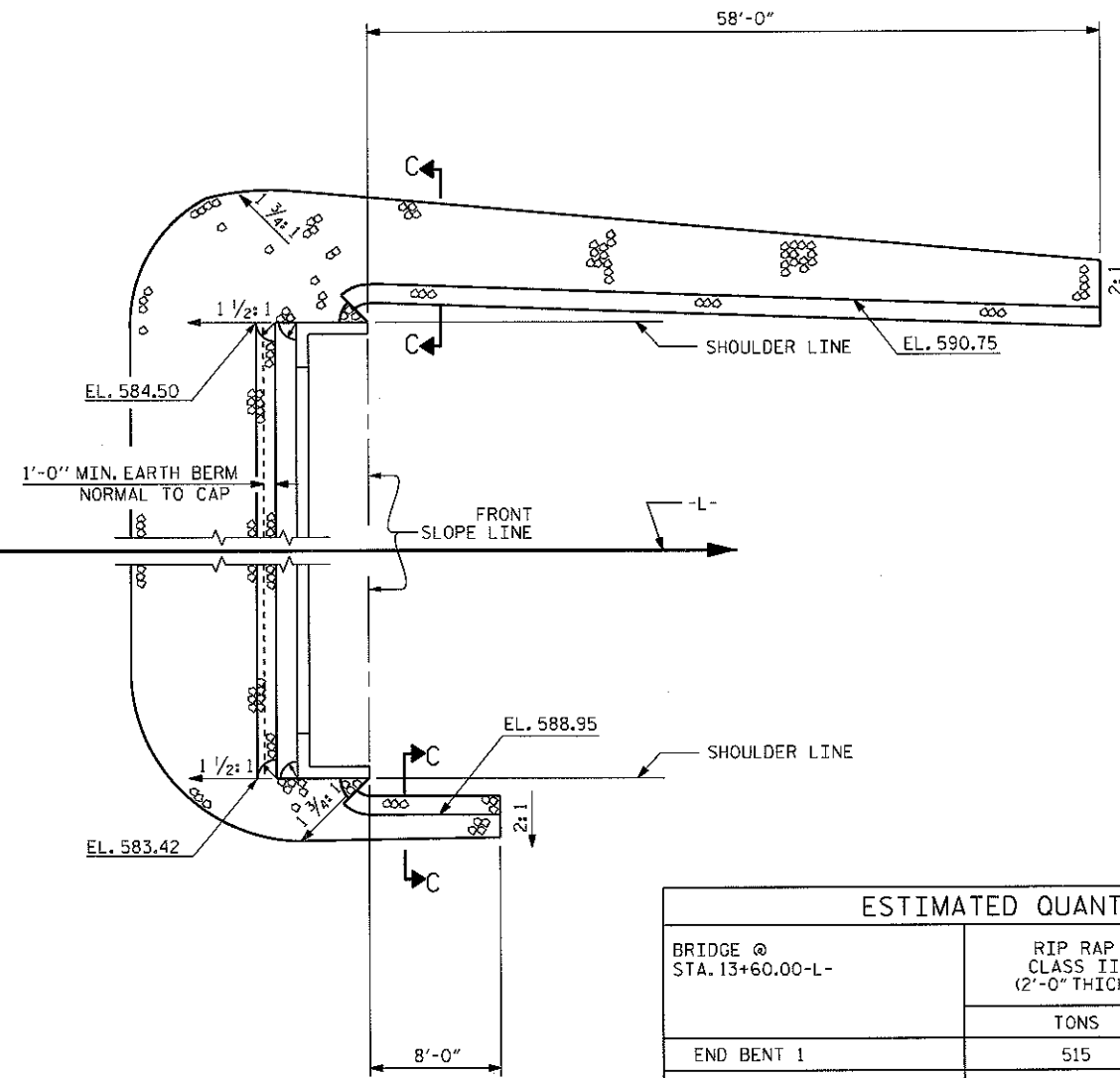
ASSEMBLED BY: H. T. BARBOUR DATE: 4-4-14
CHECKED BY: W. DEBREW DATE: 4-17-14

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

DESIGN ENGINEER OF RECORD:
A. M. LEE DATE: 6-17-14



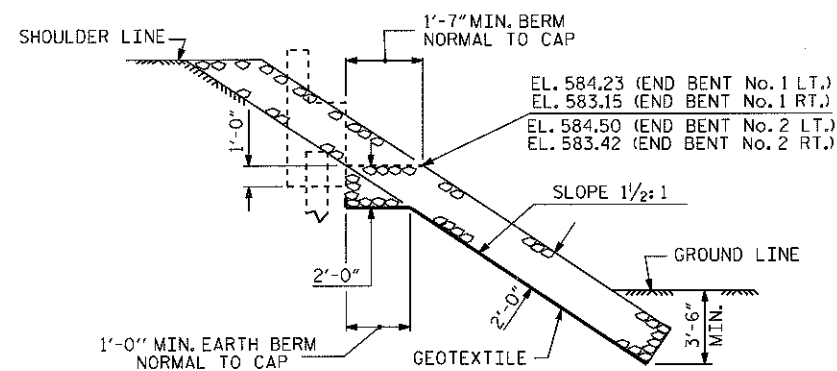
END BENT No. 1



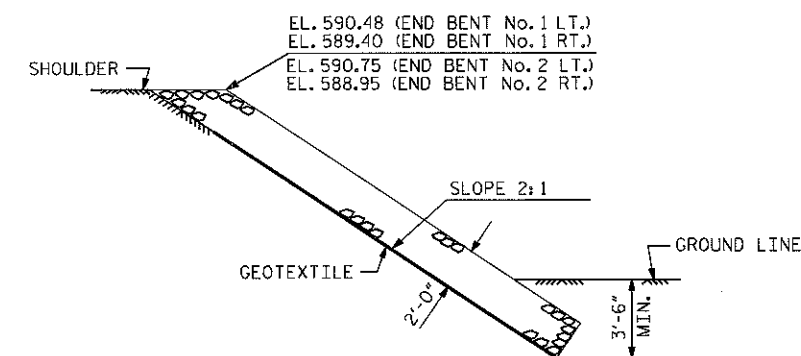
END BENT No. 2

PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+60.00-L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	515	570
END BENT 2	295	330
TOTAL	810	900

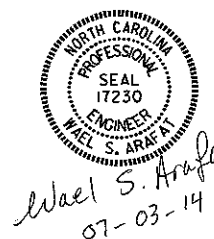


SECTION H-H



SECTION C-C

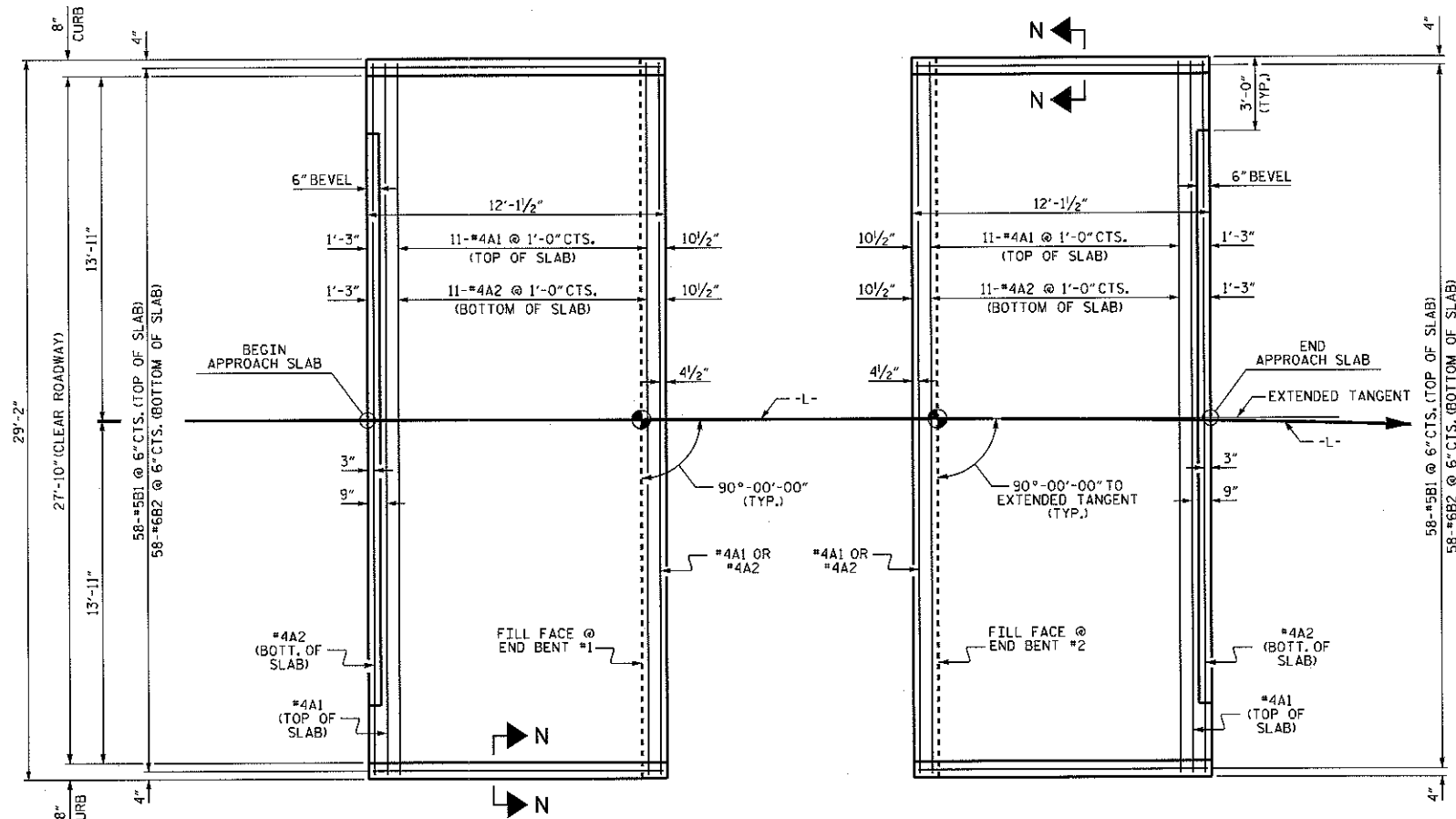
PROJECT NO. 17BP.8.R.65
 CHATHAM COUNTY
 STATION: 13+60.00-L-



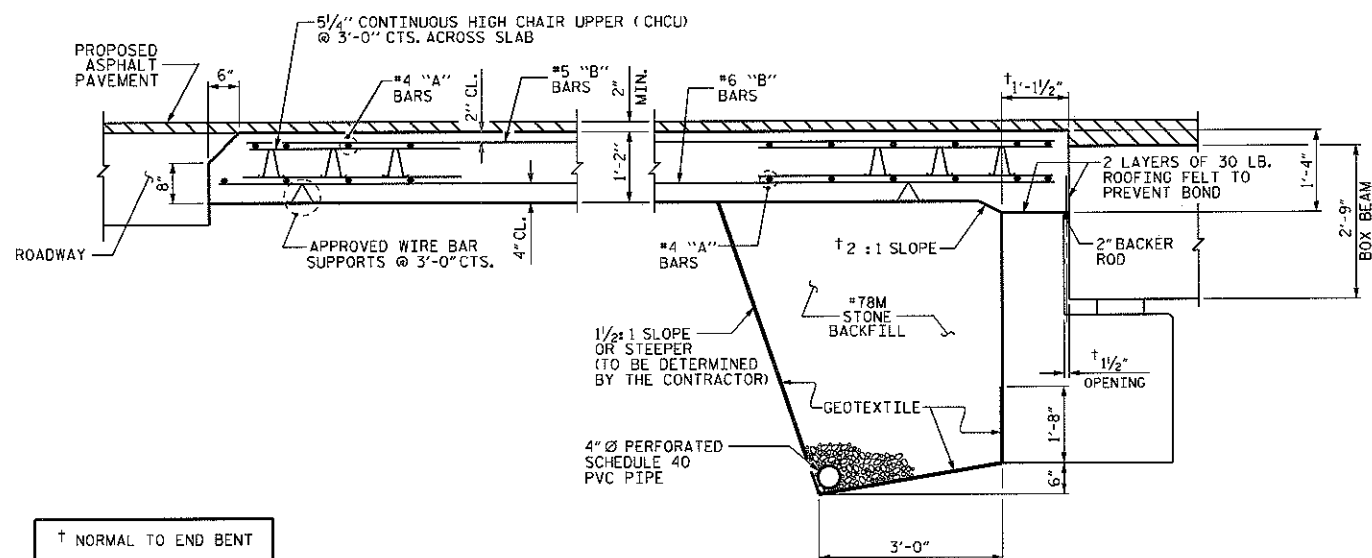
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 = RIP RAP DETAILS =

ASSEMBLED BY :	H. T. BARBOUR	DATE :	4-3-14
CHECKED BY :	W. DEBREW	DATE :	4-17-14
DRAWN BY :	REK 1/84	REV. 5/1/06R	TLA/GM
CHECKED BY :	RDU 1/84	REV. 10/1/11	MAA/GM
		REV. 12/21/11	MAA/GM

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS 16	
2			4				



PLAN @ END BENT #1 PLAN @ END BENT #2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

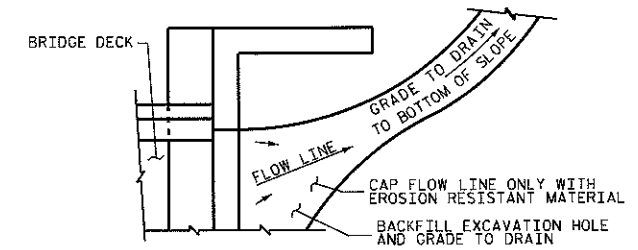
NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.
 GEOTEXTILE SHALL BE TYPE I IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.
 #78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.
 #78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.
 FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.
 AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED, SEE ROADWAY PLANS.
 APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

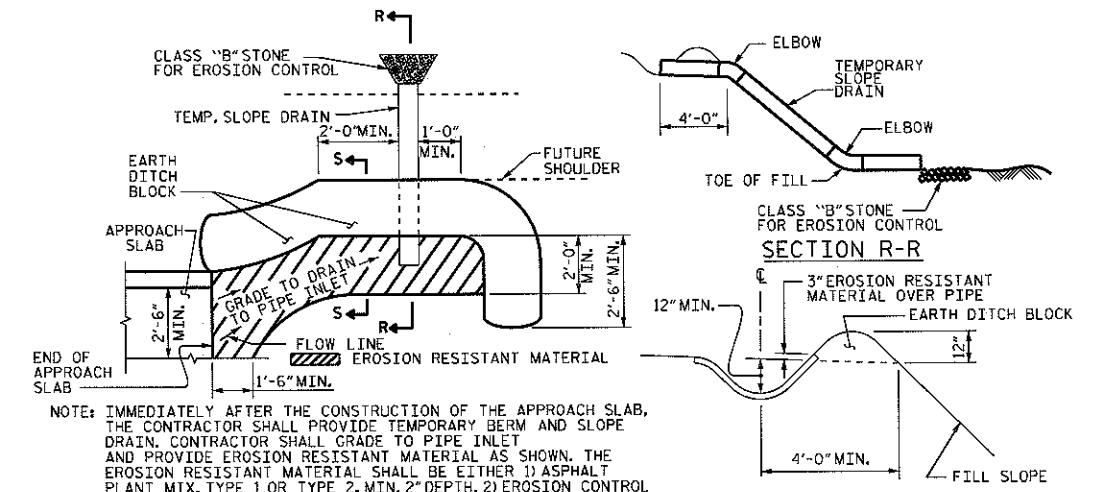
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	28'-10"	250	
A2	13	#4	STR	28'-10"	250	
*B1	58	#5	STR	11'-2"	676	
B2	58	#6	STR	11'-8"	1016	
REINFORCING STEEL					LBS.	1266
* EPOXY COATED REINFORCING STEEL					LBS.	926
CLASS AA CONCRETE					C. Y.	15.6

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.	15.6



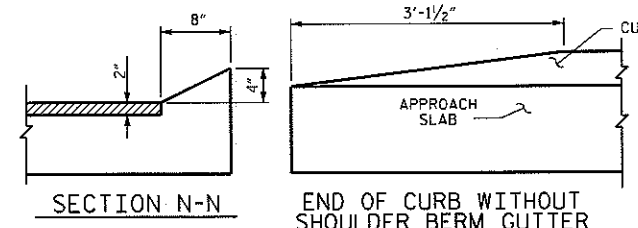
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



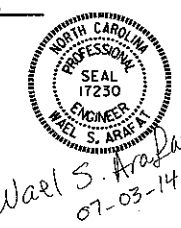
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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"



PROJECT NO. 17BP.8.R.65
 CHATHAM COUNTY
 STATION: 13+60.00-L-

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

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

TOTAL SHEETS 16

ASSEMBLED BY: H. T. BARBOUR DATE: 4-4-14
 CHECKED BY: W. DEBREW DATE: 4-17-14
 DRAWN BY: MAA 11/11
 CHECKED BY: AAC 11/11

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.

ENGLISH

JANUARY, 1990

07/05/99

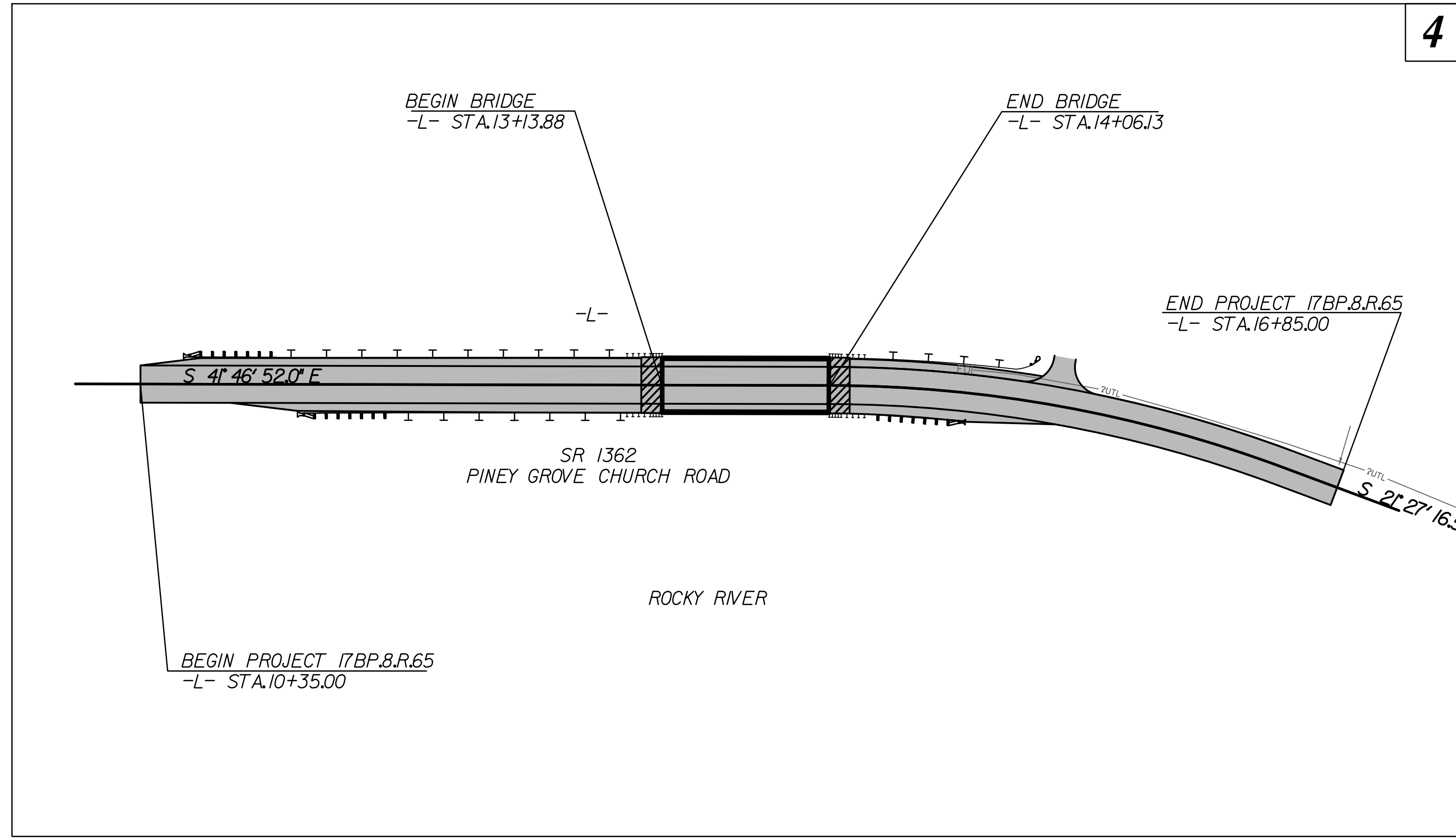
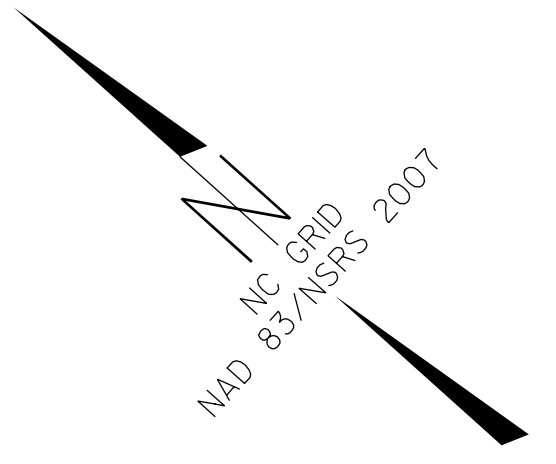
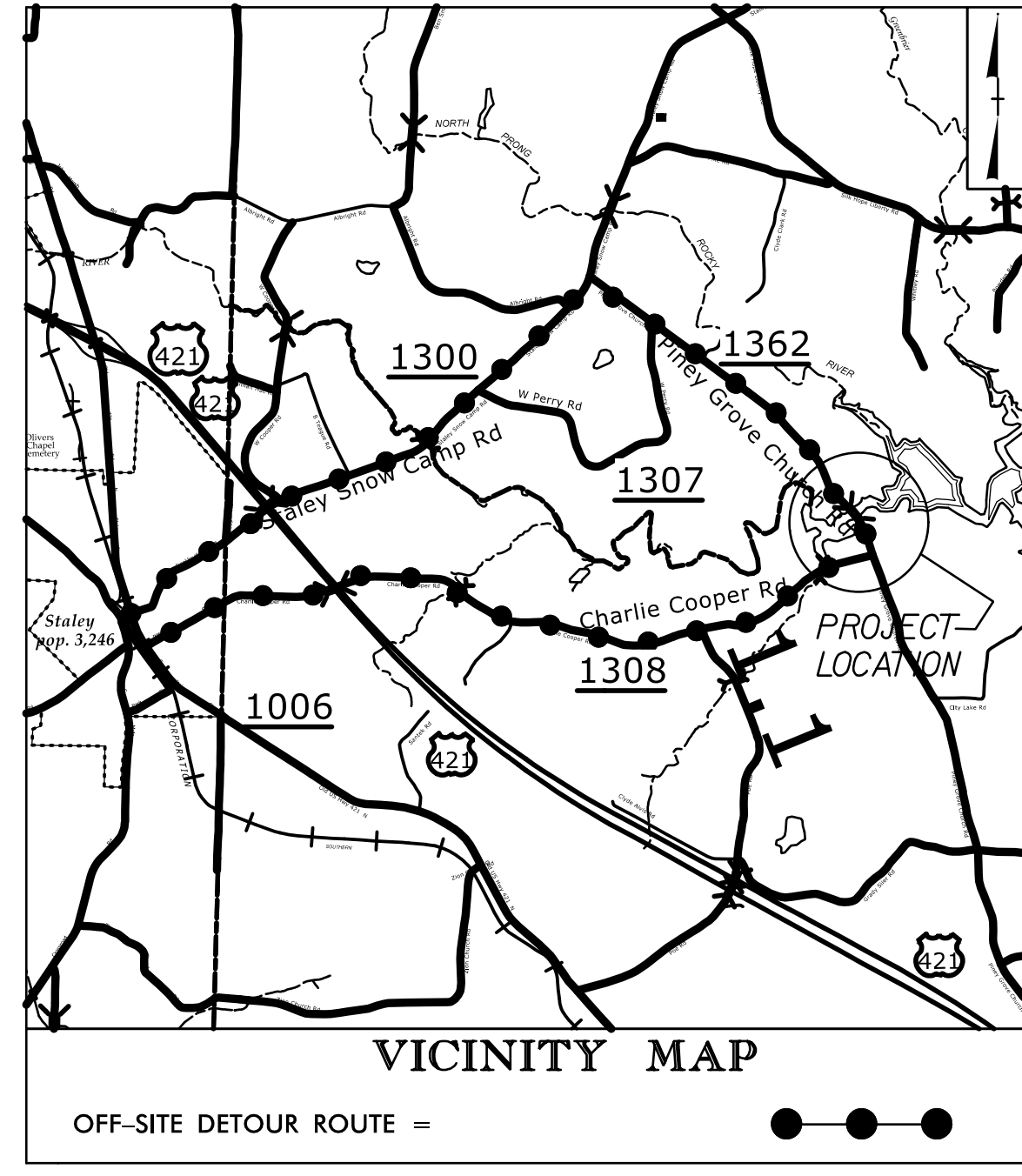
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
17BP.8.R.65	UO-1

CHATHAM COUNTY

LOCATION: BRIDGE NO. 282 OVER ROCKY RIVER
ON SR 1362 (PINEY GROVE CHURCH ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



4

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: 17BP.8.R.65

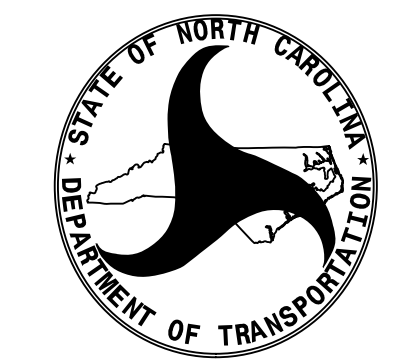
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INDEX OF SHEETS

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

UTILITY OWNERS ON PROJECT

- 1) DUKE (PROGRESS ENERGY)
- 2) CENTURY LINK (EMBARQ)



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

1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Ron Wilkins, PE UTILITIES SQUAD LEADER PROJECT ENGINEER

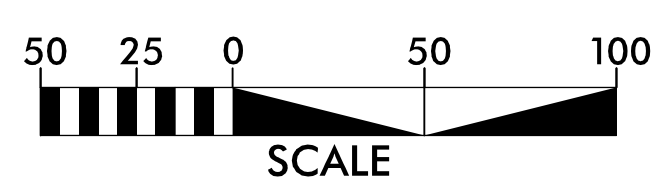
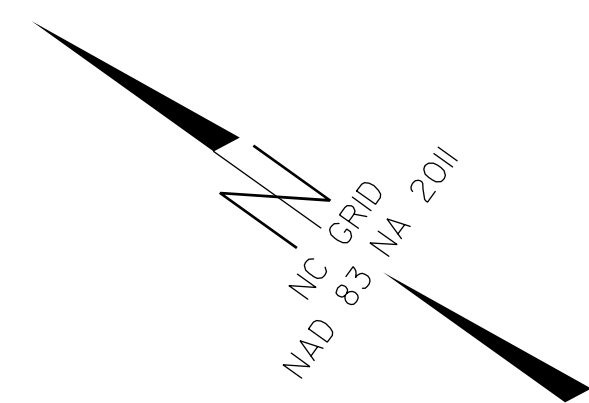
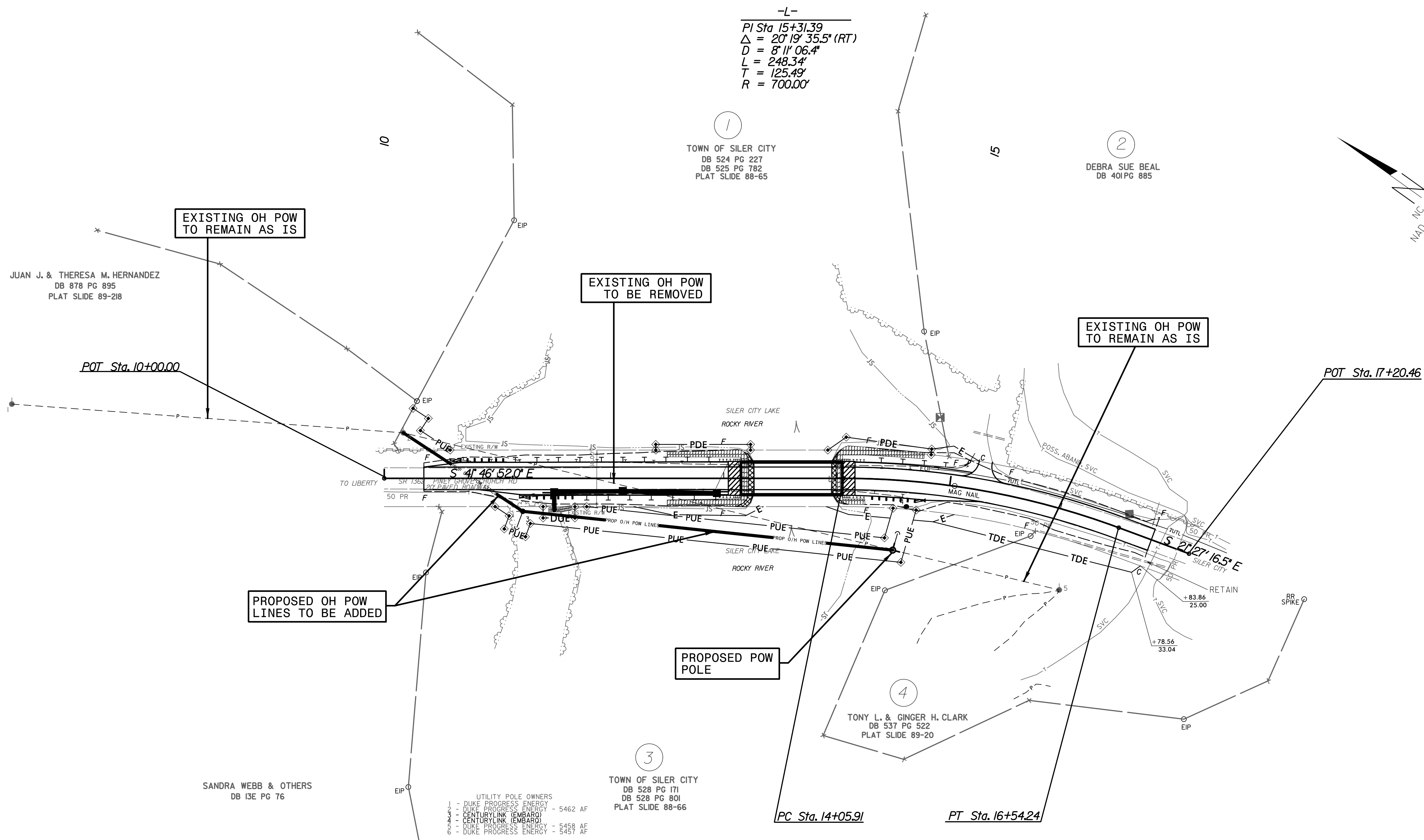
JAMIE YOW UTILITY COORDINATOR - DIVISION 8

PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.65	U0-2
RW SHEET NO.	
UTILITIES BY OTHERS	
NOTE: ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS	

8/17/99

REVISIONS

-L-
 PI Sta 15+31.39
 $\Delta = 20^{\circ} 19' 35.5" (RT)$
 $D = 8^{\circ} 11' 06.4"$
 $L = 248.34'$
 $T = 125.49'$
 $R = 700.00'$



REVISIONS