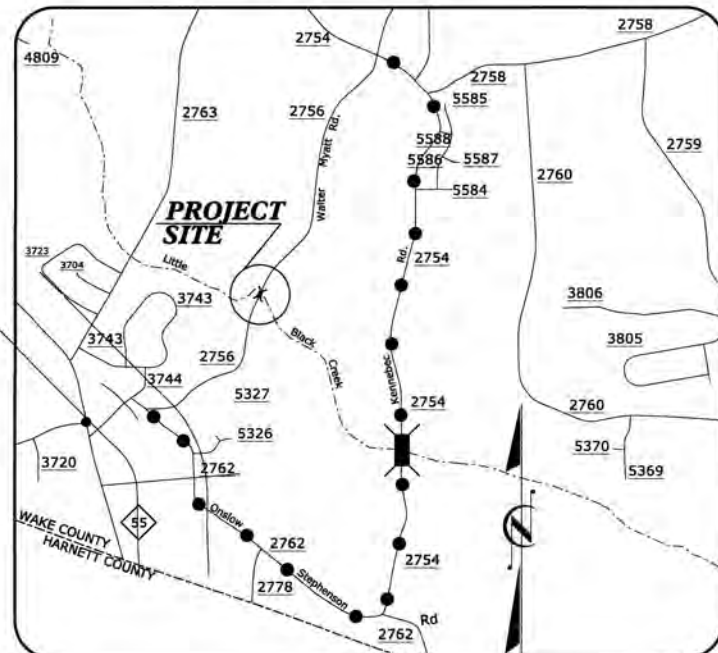


See Sheet 1-A For Index of Sheets

TIP PROJECT: 17BP.5.R.19



VICINITY MAP

OFF-SITE DETOUR ●●●●●

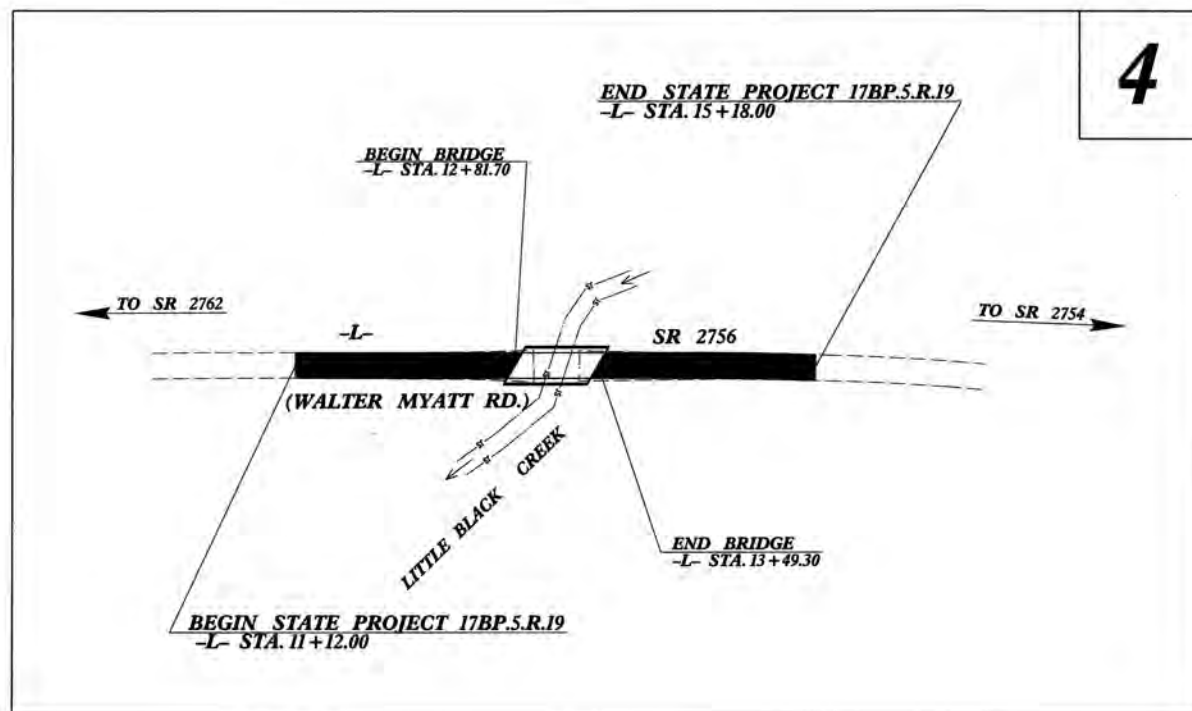
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

**LOCATION: BRIDGE NO. 420 OVER LITTLE BLACK CREEK
ON SR 2756 (WALTER MYATT RD.)**

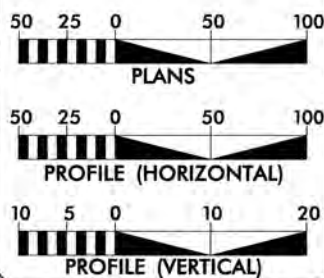
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.19	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.5.R.19		PE, R/W & UTIL. CONST.	



CONTRACT: DE000076

GRAPHIC SCALES



DESIGN DATA

ADT 2012 = 699
ADT 2032 = 1225
DHV = 10 %
D = 50 %
T = 8 % *
V = 50 MPH
* TTST = 3% DUAL 5%
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT 17BP.5.R.19 = 0.064 MILES
LENGTH STRUCTURE STATE PROJECT 17BP.5.R.19 = 0.013 MILES
TOTAL LENGTH STATE PROJECT 17BP.5.R.19 = 0.077 MILES



Prepared for the North Carolina Department of Transportation in the Office of:
559 JONES BRANTON ROAD
SUITE 104
RALEIGH, N.C. 27606
License No. E-02377
Bus. 919 851 8077
Fax 919 851 8107

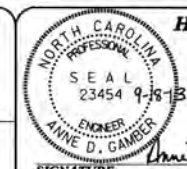
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

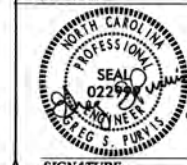
LETTING DATE:
NOVEMBER 2013

GREG S. PURVIS, PE
PROJECT DESIGN ENGINEER



SIGNATURE: *Edward G. Wetherill*

ROADWAY DESIGN ENGINEER



SIGNATURE: *Greg S. Purvis* 9/16/13

P.E.



GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 07-30-12

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

GUARDRAIL:

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

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE CENTURYLINK AND PROGRESS ENERGY. 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.

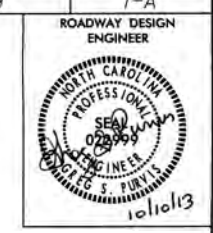
LIST OF ROADWAY STANDARD DRAWINGS

EFF. 01-17-12
REV. 10-30-12

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets



INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	TYPICAL SHEET
2-A	STRUCTURE ANCHOR UNIT DETAIL SHEET
3	SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, EARTHWORK SUMMARY, PAVEMENT REMOVAL SUMMARY, SHOULDER BERM GUTTER SUMMARY AND RIGHT OF WAY AREA DATA
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UBO-1 THRU UBO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-4	CROSS-SECTIONS
S-1 THRU S-13	STRUCTURE PLANS
SN	STRUCTURE NOTES

B:\17\999
 8/17/09
 8/15/13 AM
 P:\2012\Work\420\Roadway\Proj\BRT\420_Rdy_tsh.dgn

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	→
Property Monument	□ EPM
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	W.B.
Proposed Wetland Boundary	W.B.
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ☠

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	▭
Jurisdictional Stream	JS
Buffer Zone 1	BZ 1
Buffer Zone 2	BZ 2
Flow Arrow	→
Disappearing Stream	-----
Spring	○
Wetland	W.B.
Proposed Lateral, Tail, Head Ditch	-----
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	CSX TRANSPORTATION MILEPOST 35
Switch	SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite Marker	△
Existing Control of Access	⊗
Proposed Control of Access	⊗
Existing Easement Line	E
Proposed Temporary Construction Easement	E
Proposed Temporary Drainage Easement	TDE
Proposed Permanent Drainage Easement	PDE
Proposed Permanent Drainage / Utility Easement	DUE
Proposed Permanent Utility Easement	PUE
Proposed Temporary Utility Easement	TUE
Proposed Aerial Utility Easement	AUE

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	C
Proposed Slope Stakes Fill	F
Proposed Curb Ramp	CR
Curb Cut Future Ramp	CCFR
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	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊕
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	PH
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	PH
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	A/G Water

TV:

TV Satellite Dish	⊕
TV Pedestal	⊕
TV Tower	⊕
U/G TV Cable Hand Hole	PH
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	A/G Gas

SANITARY SEWER:

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

MISCELLANEOUS:

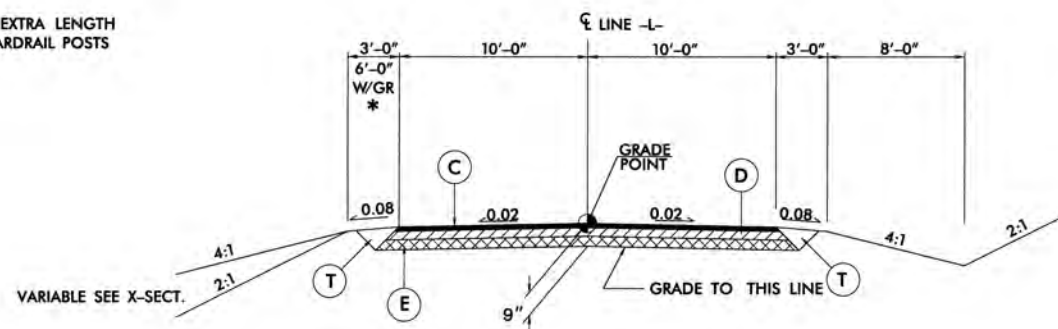
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	UTL
U/G Tank; Water, Gas, Oil	▭
Underground Storage Tank, Approx. Loc.	UST
AG Tank; Water, Gas, Oil	▭
Geoenvironmental Boring	⊕
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.



559 Jones Franklin Rd. Suite 164
 Raleigh, N.C. 27606
 License No. F-0377
 Bus: 919 851 8077
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

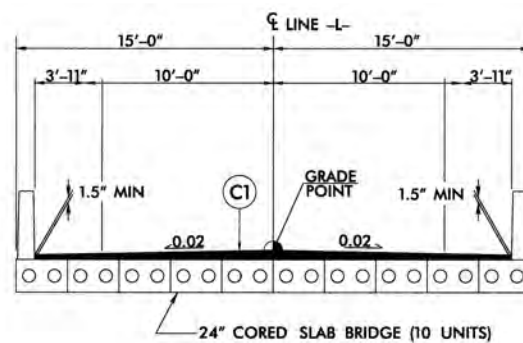
* USE EXTRA LENGTH
 GUARDRAIL POSTS



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:

-L- STA. 11+12.00 TO -L- STA. 12+81.70 (BEGIN BRIDGE)
 -L- STA. 13+49.30 (END BRIDGE) TO -L- STA. 15+18.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:

-L- STA. 12+81.70 (BEGIN BRIDGE) TO -L- STA. 13+49.30 (END BRIDGE)

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

C	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C1	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D1	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL.

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

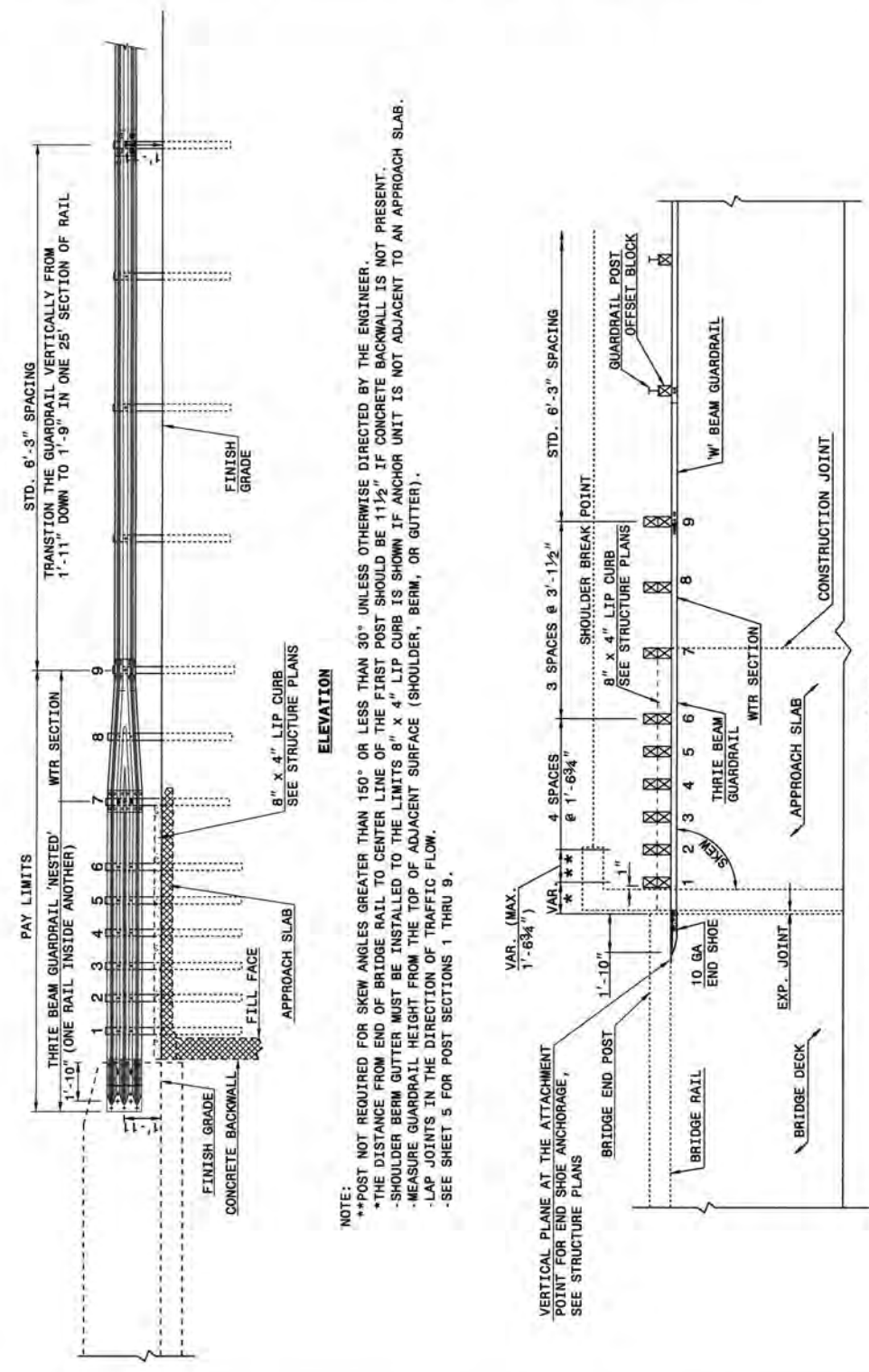
REVISIONS

DATE: 11/16/13
 TIME: 10:00 AM
 BY: J. W. WETHERILL
 CHECKED: J. W. WETHERILL
 APPROVED: J. W. WETHERILL

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

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

SHEET 2 OF 7 862dp03



NOTE:
 **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½' IF CONCRETE BACKWALL IS NOT PRESENT.
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.

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

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

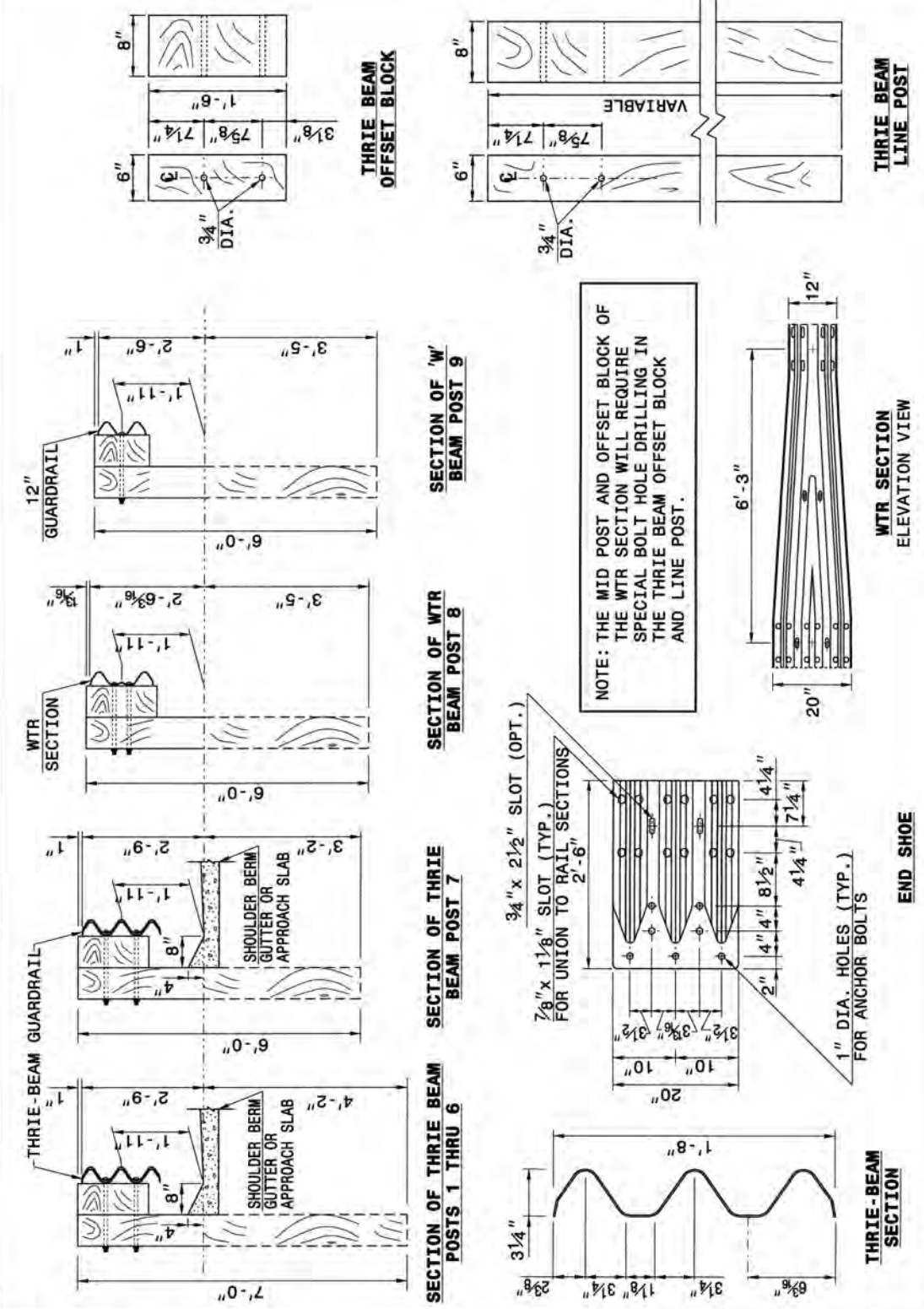
ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7 862dp03

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

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

SHEET 3 OF 7 862dp03



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

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

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

SHEET 3 OF 7 862dp03

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

SEE TITLE BLOCK

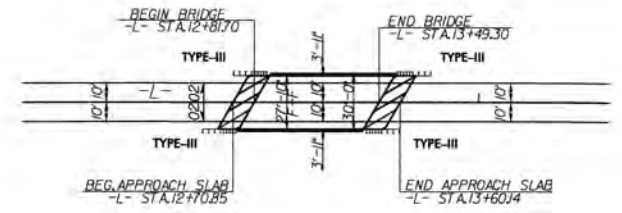
ORIGINAL BY: J HOWERTON DATE: 06-22-12
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.:

B-17/99

REVISIONS

4:53:08 AM
5/15/2013
*4281Roadway\Fr-j\BR#4281_Rd_j.phd.dgn

PI Sta 15+36.61
 $\Delta = 4' 31" 22.0" (RT)$
 $D = 2' 01" 41.6"$
 $L = 222.99'$
 $T = 111.56'$
 $R = 2,825.07'$

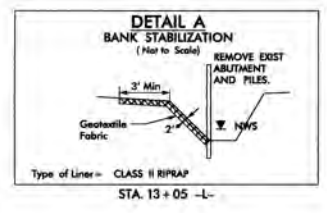
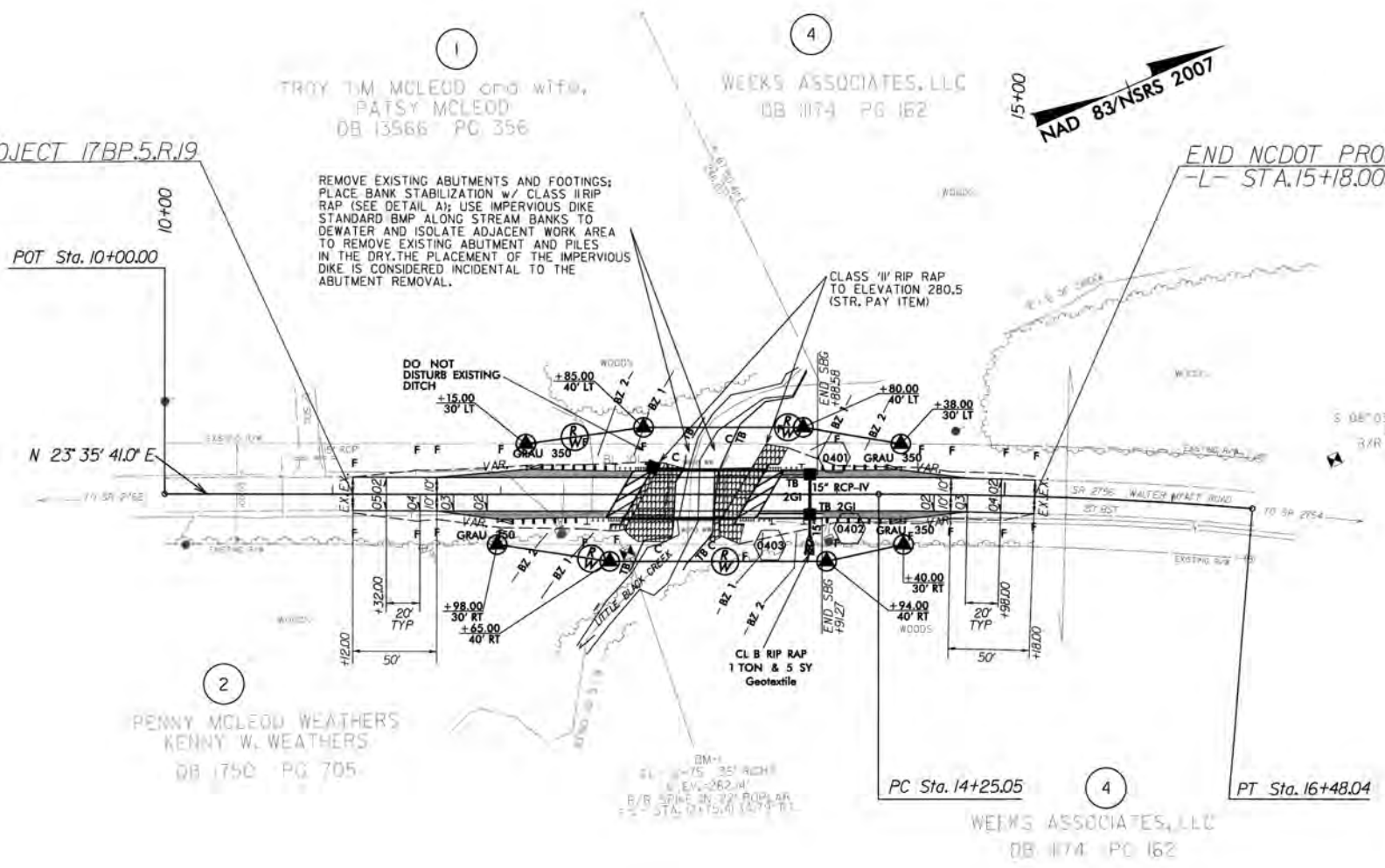


SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

PROJECT REFERENCE NO. 17BP.5.R.19	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 559 Jones Franklin Rd. Suite 154 Raleigh, N.C. 27605 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

BEGIN NCDOT PROJECT 17BP.5.R.19
 -L- STA.11+12.00

END NCDOT PROJECT 17BP.5.R.19
 -L- STA.15+18.00



DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "31-1870-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 652506.7811711; EASTING: 2078486.2111207; ELEVATION: 296.2411711. THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0001240600. THE N.C. LAMBERT GRID BEARING AND LOCAL GRID HORIZONTAL GROUND DISTANCE FROM "31-1870-1" TO -L- STATION 10+00 IS: N 25° 59' 31" L 724.15. ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES. VERTICAL DATUM USED IS NAVD 83.


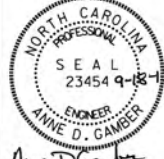

POINT	NORTHING	EASTING	ELEVATION
GPS 1	652506.781	2078486.211	296.24
GPS 2	652506.025	2078492.050	322.87
BM 10	652500.028	2078554.013	284.34
BM 1	652855.858	2078694.641	282.34
BM 2	652764.249	2078821.159	296.87

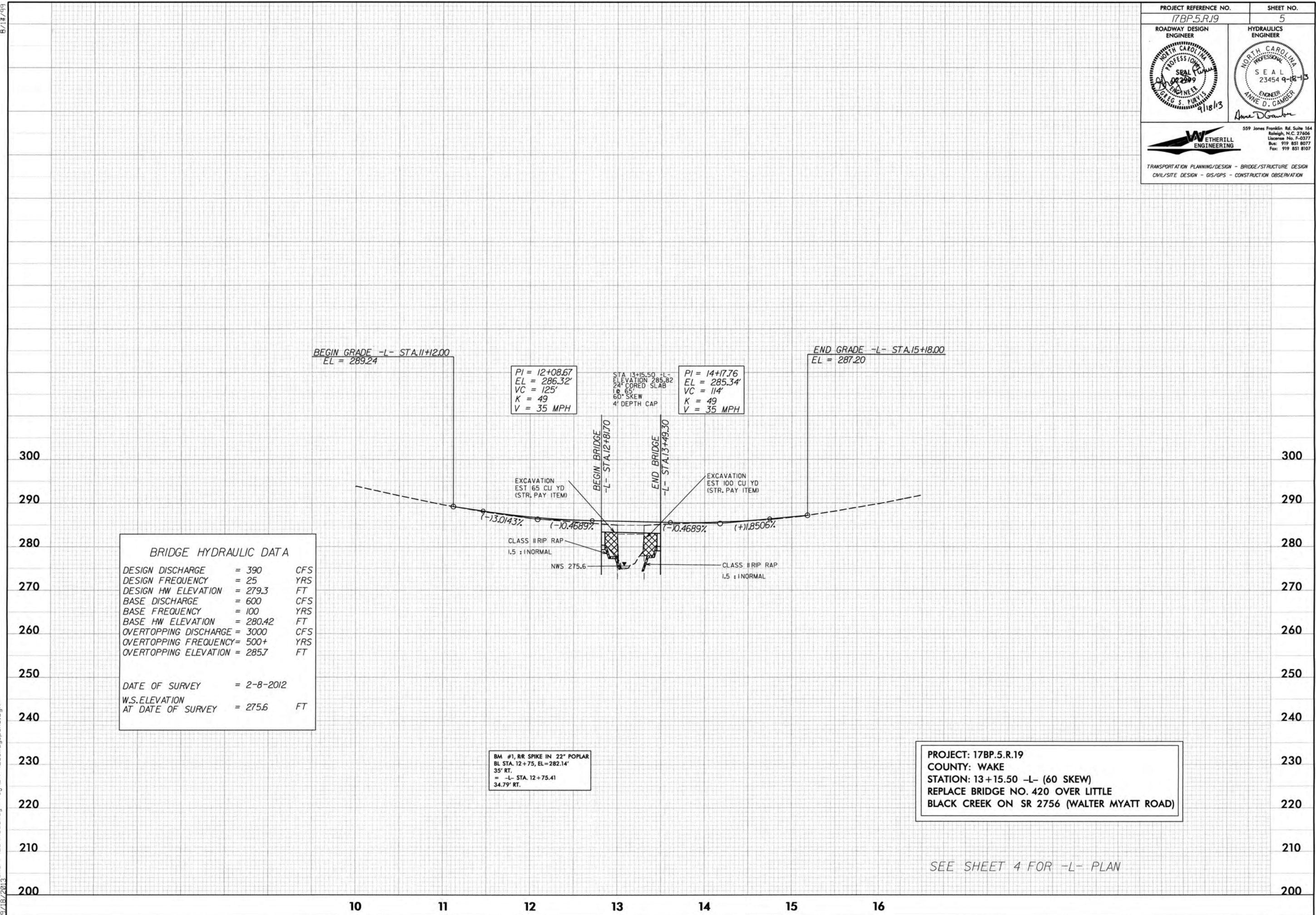
PARCEL INDEX	
PARCEL NO.	PROPERTY OWNER NAME
1	TROY TIM MCLEOD & WIFE PATSY MCLEOD
2	PENNY MCLEOD WEATHERS KENNY W. WEATHERS
3	BRENDA MOORE & JOHN ARTHUR CHATHAM
4	WEEKS ASSOCIATES, LLC.

PROJECT: 17BP.5.R.19
 COUNTY: WAKE
 STATION: 13+15.50 -L- (60 SKEW)
 REPLACE BRIDGE NO. 420 OVER LITTLE BLACK CREEK ON SR 2756 (WALTER MYATT ROAD)

SEE SHEET 5 FOR -L- PROFILE
 SEE SHEET S-1 THRU S-13 FOR STRUCTURE PLANS

B/12/99

PROJECT REFERENCE NO. 17BP.5.R.19	SHEET NO. 5
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
	
<small>559 Jones Franklin Rd. Suite 164 Raleigh, N.C. 27606 License No. T-0377 Bus: 919 851 8077 Fax: 919 851 8107</small>	
<small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</small>	



BEGIN GRADE -L- STA.11+12.00
EL = 289.24

PI = 12+08.67
EL = 286.32'
VC = 125'
K = 49
V = 35 MPH

STA 13+15.50 -L-
ELEVATION 285.82
24" CORED SLAB
18' 65"
60° SKEW
4' DEPTH CAP

PI = 14+17.76
EL = 285.34'
VC = 114'
K = 49
V = 35 MPH

END GRADE -L- STA.15+18.00
EL = 287.20

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 390	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 279.3	FT
BASE DISCHARGE	= 600	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 280.42	FT
OVERTOPPING DISCHARGE	= 3000	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 285.7	FT
DATE OF SURVEY	= 2-8-2012	
W.S.ELEVATION AT DATE OF SURVEY	= 275.6	FT

EXCAVATION EST 65 CU YD (STR. PAY ITEM)

BEGIN BRIDGE -L- STA.12+81.70

END BRIDGE -L- STA.13+49.30

EXCAVATION EST 100 CU YD (STR. PAY ITEM)

CLASS II RIP RAP 1.5 : 1 NORMAL

NWS 275.6

CLASS II RIP RAP 1.5 : 1 NORMAL

Grades: (-)13.0143%, (-)10.4689%, (-)10.4689%, (+)11.8506%

BM #1, RR SPIKE IN 22" POPLAR
BL STA. 12+75, EL=282.14'
35' RT.
= -L- STA. 12+75.41
34.79' RT.

PROJECT: 17BP.5.R.19
COUNTY: WAKE
STATION: 13+15.50 -L- (60 SKEW)
REPLACE BRIDGE NO. 420 OVER LITTLE
BLACK CREEK ON SR 2756 (WALTER MYATT ROAD)

SEE SHEET 4 FOR -L- PLAN

7:55:38 AM
 5/18/2013
 #420\Roadway\Proj\BR#420_Rdy.pst5.dgn

TRAFFIC CONTROL PLAN

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 AS DIRECTED BY THE ENGINEER.

- A) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- B) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.
- C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

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

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
- E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- G) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE ACCORDING TO THE ROADWAY STANDARD DRAWINGS.
- H) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 2756 (WALTER MYATT RD.)	PAINT	N/A
- I) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- J) MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN THE CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

NCDOT 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
1101.04	TEMPORARY SHOULDER CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1135.01	CONES
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

INDEX OF SHEETS

- TCP-1 GENERAL NOTES, ROADWAY STANDARD DRAWINGS, INDEX OF SHEETS, PHASING, AND PAVEMENT MARKING SCHEDULE.
- TCP-2 WALTER MYATT ROAD OFF-SITE DETOUR ROUTE, TRAFFIC CONTROL TEMPORARY SIGNS AND DEVICES.
- TCP-3 WALTER MYATT ROAD SIGN DESIGN

PHASING

- STEP 1. USING ROADWAY STANDARD DRAWING 1101.04, SHT. 1 OF 1, INSTALL AND COVER DETOUR SIGNING.





INSTALL CHANGEABLE MESSAGE SIGNS FOR 7-DAY COUNTDOWN TO ROAD CLOSURE AT DETOUR POINTS AS SHOWN ON TCP-2.
- STEP 2. USING ROADWAY STANDARD DRAWING 1101.03, SHT. 1 OF 9, UNCOVER OFF-SITE DETOUR SIGNING AND CLOSE WALTER MYATT ROAD TO THRU TRAFFIC.
- STEP 3. PERFORM PROPOSED BRIDGE AND ROADWAY CONSTRUCTION. PLACE PAVEMENT MARKINGS.
- STEP 4. REMOVE TYPE III BARRICADES FROM WALTER MYATT ROAD AND REOPEN ROADWAY TO THRU TRAFFIC. REMOVE ALL DETOUR SIGNING.

FINAL PAVEMENT MARKING SCHEDULE

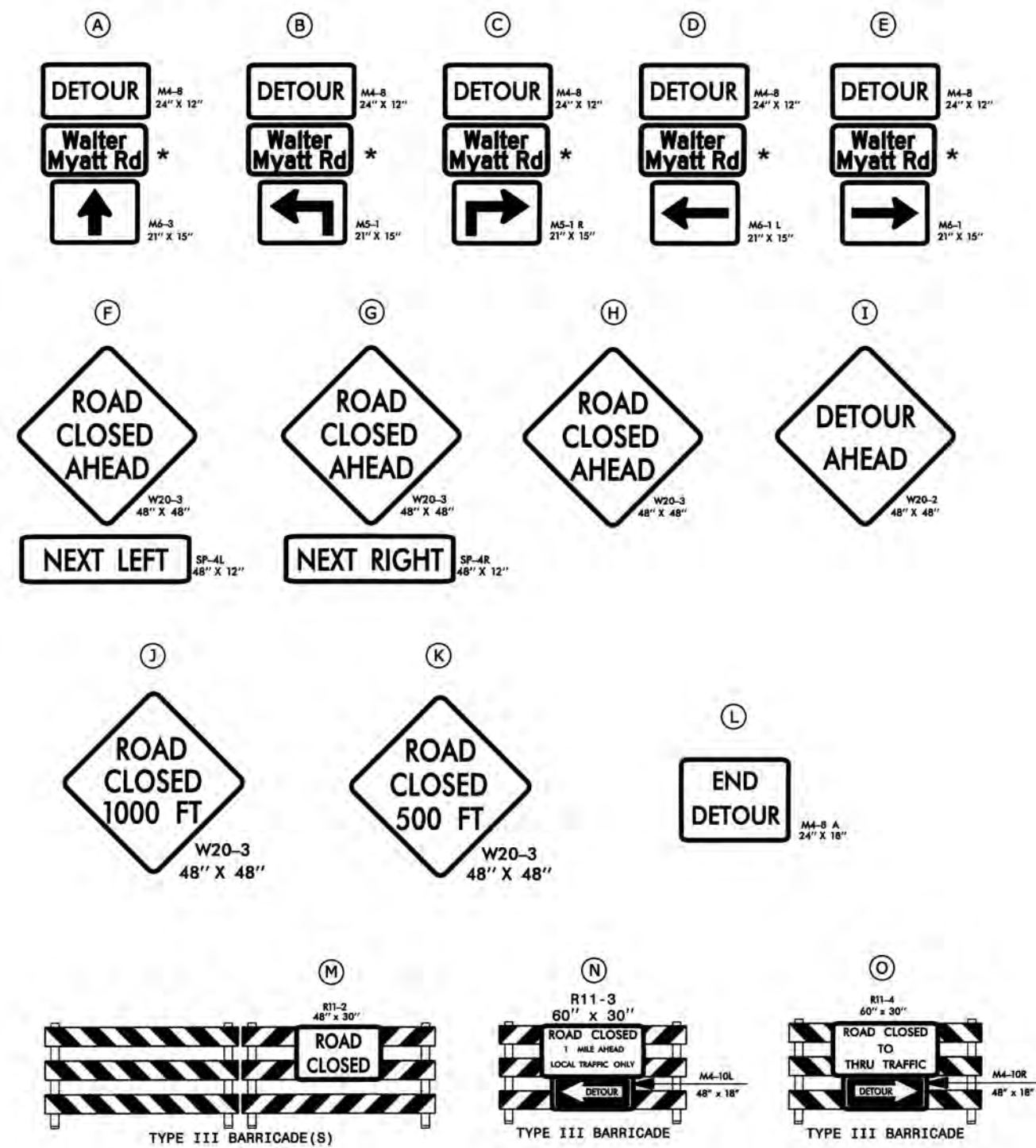
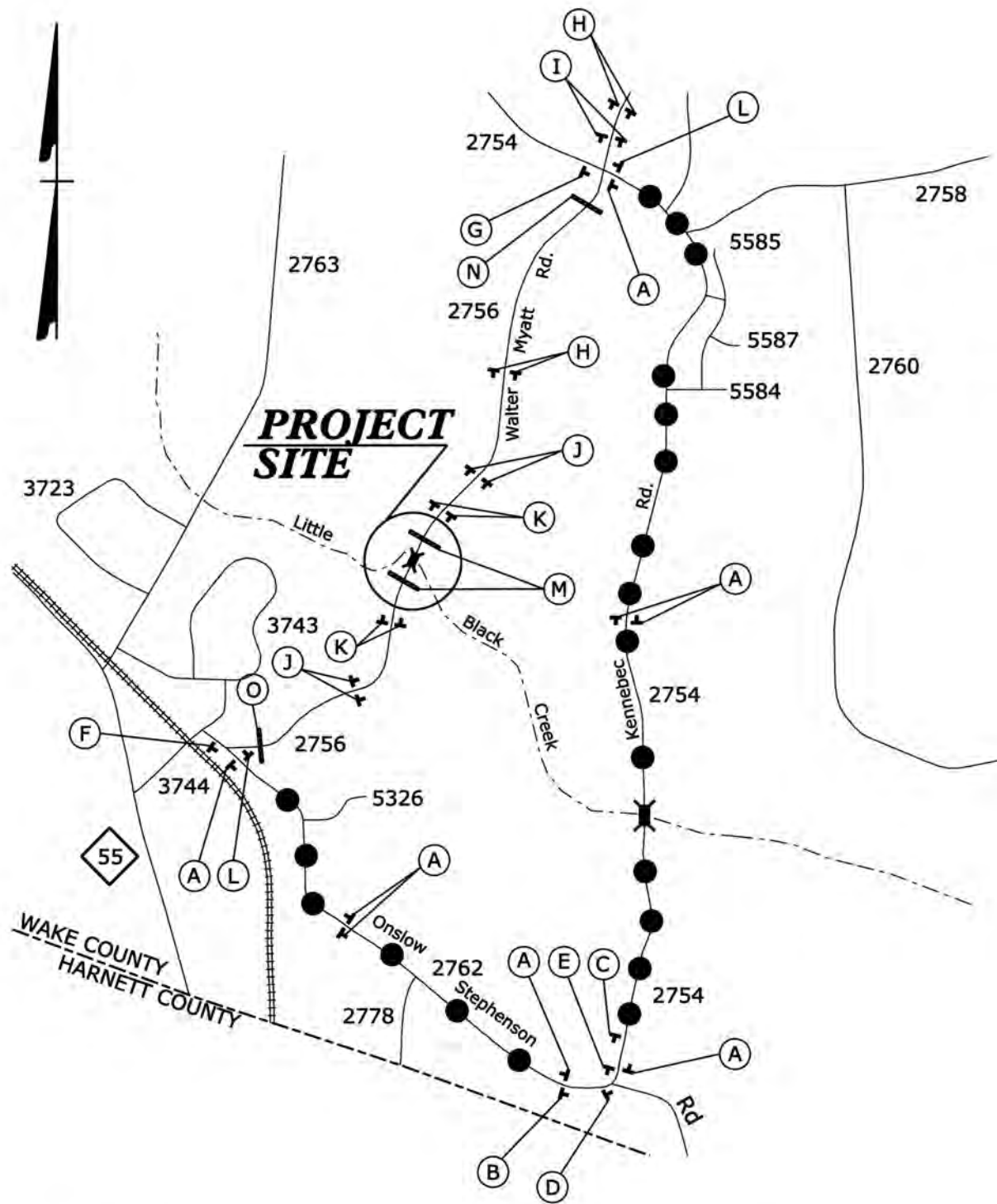
SYMBOL	DESCRIPTION	PAY ITEM QUANTITY BREAKDOWN		TOTAL QUANTITY
		PAVEMENT MARKINGS PAINT (4")		
PA	WHITE EDGELINE (2X)	1638	LF	
PI	YELLOW DOUBLE CENTER (2X)	1638	LF	
				TOTAL 3276 LF

NOTE: FOR EACH PAINT PAVEMENT MARKING ITEM, 1X IMPLIES A SINGLE APPLICATION, 2X IMPLIES TWO APPLICATIONS.

3/11/2013 9:29:56 AM P:\2012\WCKE #420\TrafficControl\TCP\B- #420.TC.TCP.ldgn

 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	559 Jones Franklin Rd. Suite 164 Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107 License No. F-0377	APPROVED:  DATE: 9/16/13 SEAL: 		GENERAL NOTES, ROADWAY STANDARD DRAWINGS, PHASING, INDEX OF SHEETS, PAVEMENT MARKING SCHEDULE
---	---	--	---	--

TRAFFIC CONTROL TEMPORARY SIGNING AND DEVICES



NOTES: REFER TO ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9, FOR SIGNING AND SPACING REQUIREMENTS.
 * REFER TO TCP-3 FOR TEMPORARY WALTER MYATT ROAD SIGN DESIGN.

LEGEND	
	NORTH ARROW
	TYPE III BARRICADE
	STATIONARY SIGN
	OFF-SITE DETOUR

MESSAGE NO. 1	MESSAGE NO. 2
ROAD CLOSURE	IN 7 DAYS

CHANGEABLE MESSAGE SIGN

USE CHANGEABLE MESSAGE SIGNS FOR A 7-DAY COUNTDOWN ROAD CLOSURE NOTICE PRIOR TO CLOSING WALTER MYATT RD. TO THRU TRAFFIC.

INSTALL CHANGEABLE MESSAGE SIGNS AT THE DETOUR POINTS AND AS DIRECTED BY THE ENGINEER.

WETHERILL ENGINEERING

559 Jones Franklin Rd. Suite 164
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 License No. F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *[Signature]* DATE: 9/16/13

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER REG. S. PURVIS 9/16/13

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 WORK ZONE TRAFFIC CONTROL

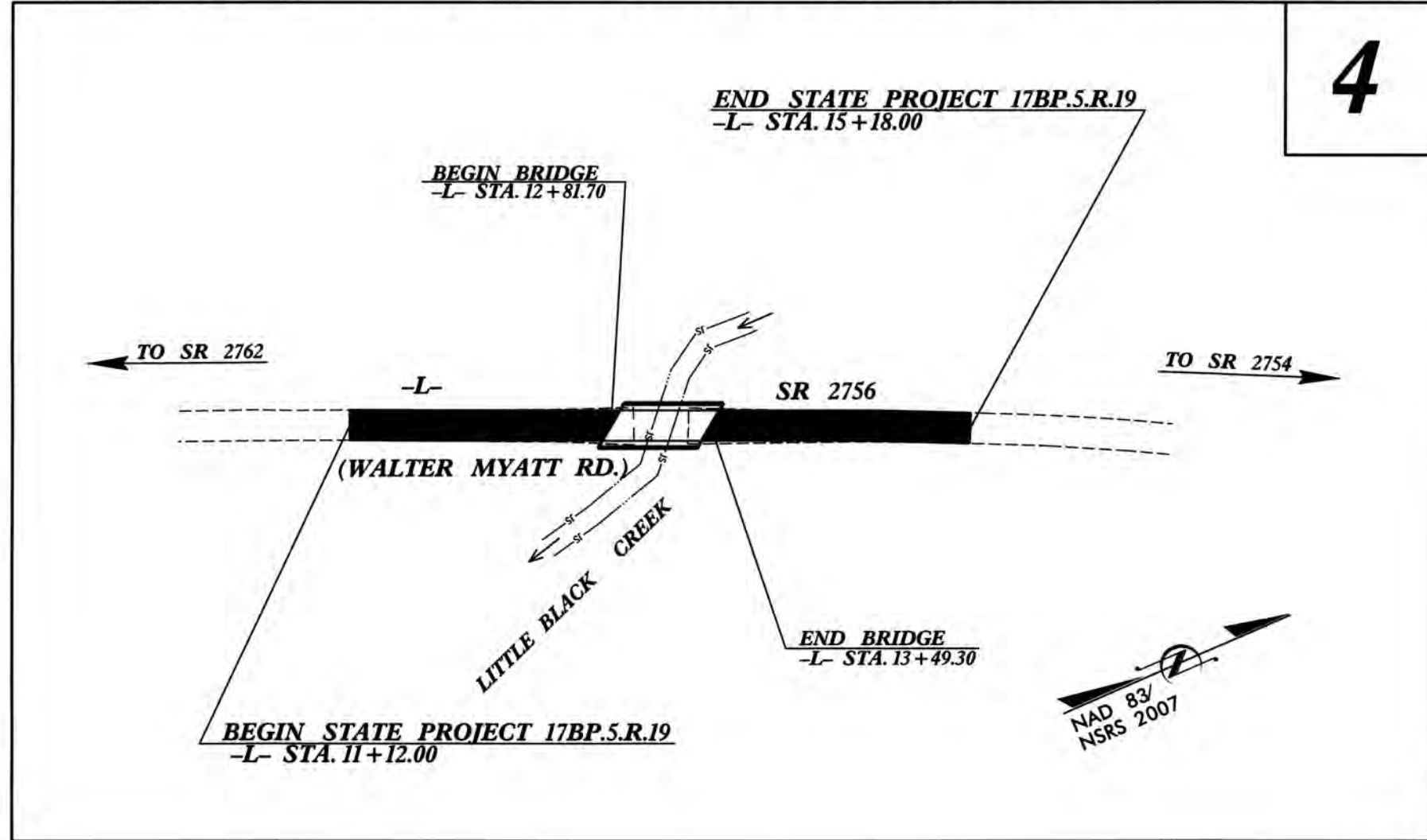
**WALTER MYATT ROAD
 OFF-SITE DETOUR**

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PROJECT: 17BP.5.R.19

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
WAKE COUNTY

**BRIDGE NO. 420 OVER LITTLE BLACK CREEK
ON SR 2756 (WALTER MYATT RD.)
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE**



4

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.19	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

Sta. #	Description	Symbol
1630.03	Temporary Silt Ditch	
1630.06	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	

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

ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT

*Refer To E. C. Special Provisions
for Special Considerations.*

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

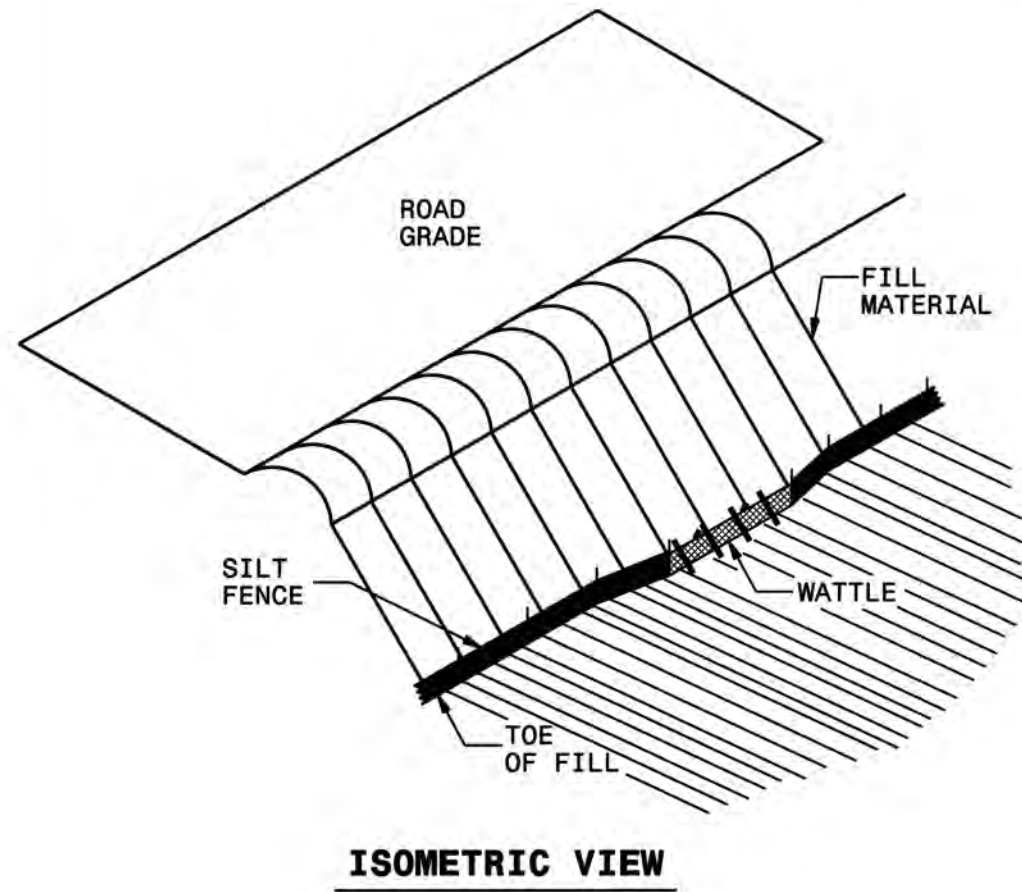
2012 STANDARD SPECIFICATIONS

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	

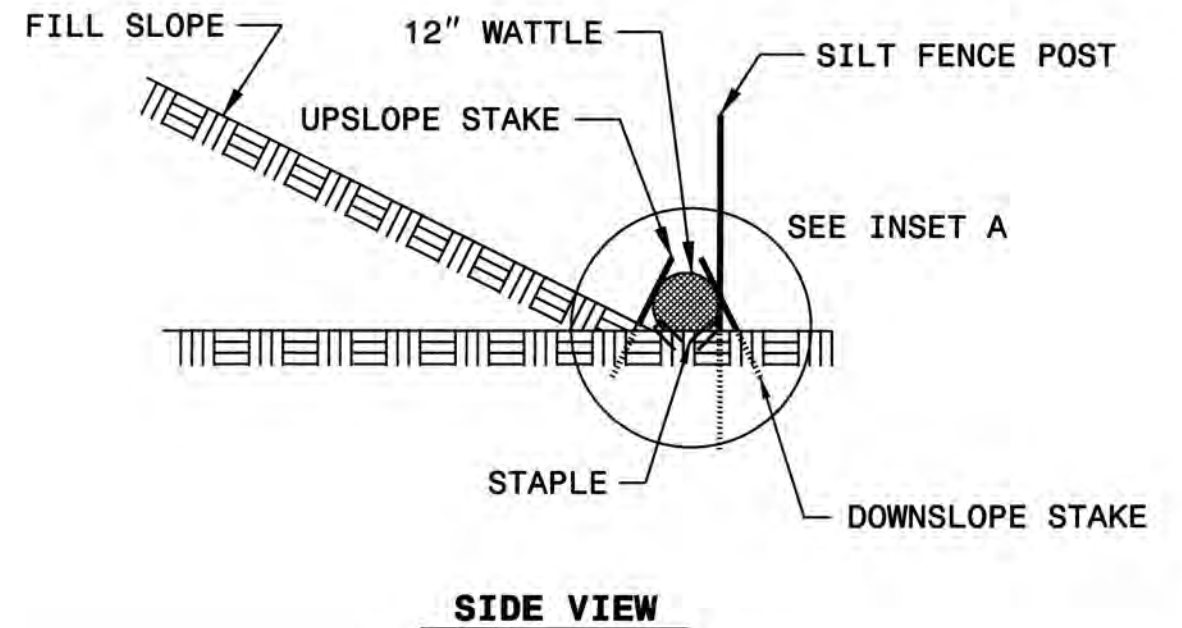
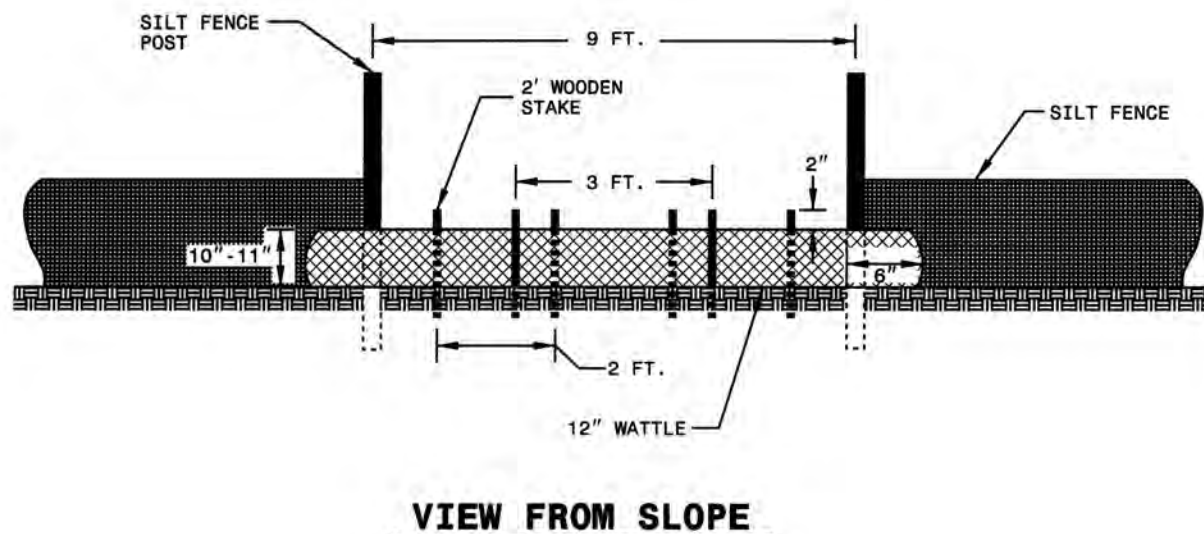
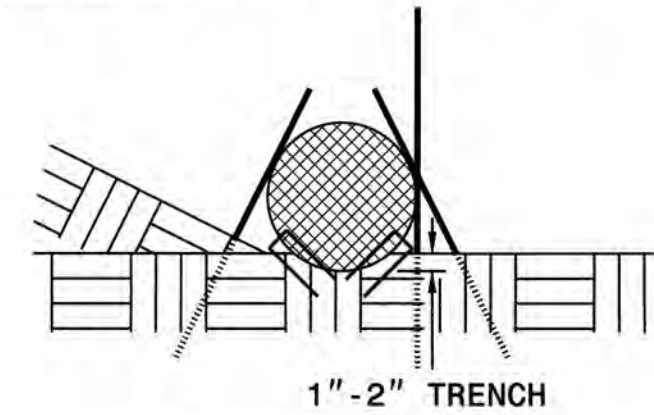
SILT FENCE WATTLE BREAK DETAIL



NOTES:

- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLE ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
- INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A



DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>17.BP.5.R.19</i>	SHEET NO. <i>EC-3</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.

EROSION CONTROL PLAN

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.

PROJECT REFERENCE NO. 17BP-5.RJ9
SHEET NO. EC-5/CONST-4
RW SHEET NO.

ETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Licence No. F-0377
Bus: 919 851 9077
Fax: 919 851 9107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

ANNE GAMBER
LEVEL IIIA NAME

3022
LEVEL IIIA CERTIFICATION NO.

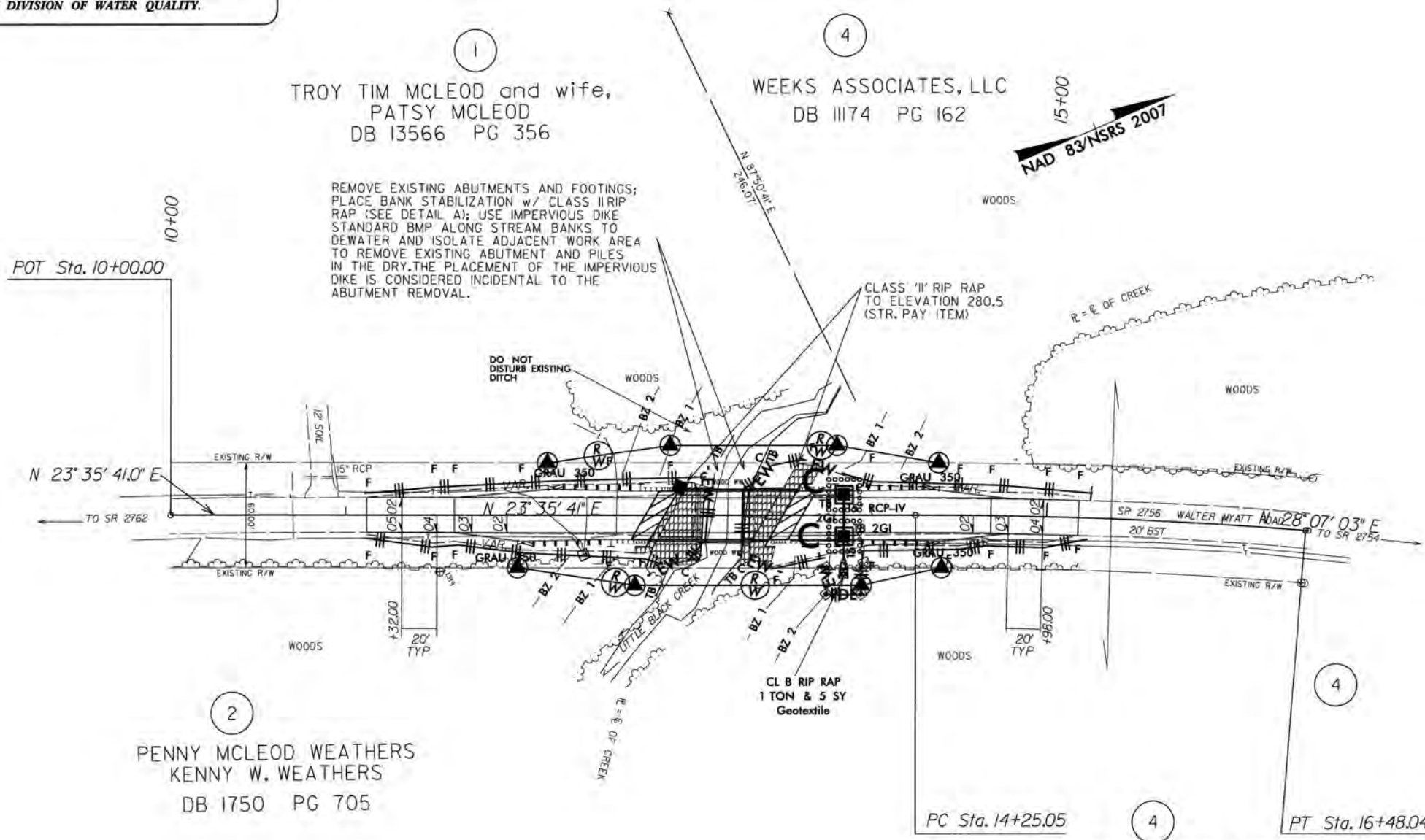
TROY TIM MCLEOD and wife,
PATSY MCLEOD
DB 13566 PG 356

WEEKS ASSOCIATES, LLC
DB 11174 PG 162

REMOVE EXISTING ABUTMENTS AND FOOTINGS;
PLACE BANK STABILIZATION w/ CLASS II RIP
RAP (SEE DETAIL A); USE IMPERVIOUS DIKE
STANDARD BMP ALONG STREAM BANKS TO
DEWATER AND ISOLATE ADJACENT WORK AREA
TO REMOVE EXISTING ABUTMENT AND PILES
IN THE DRY. THE PLACEMENT OF THE IMPERVIOUS
DIKE IS CONSIDERED INCIDENTAL TO THE
ABUTMENT REMOVAL.

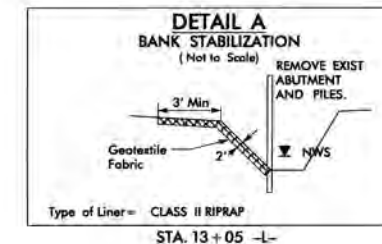
CLASS 'II' RIP RAP
TO ELEVATION 280.5
(STR. PAY ITEM)

DO NOT
DISTURB
EXISTING
DITCH



PENNY MCLEOD WEATHERS
KENNY W. WEATHERS
DB 1750 PG 705

WEEKS ASSOCIATES, LLC
DB 11174 PG 162



2012 STANDARD DRAWINGS

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	

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

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

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1632.03	Rock Inlet Sediment Trap Type C	
	Excelsior Wattle	-EW-

REVISIONS

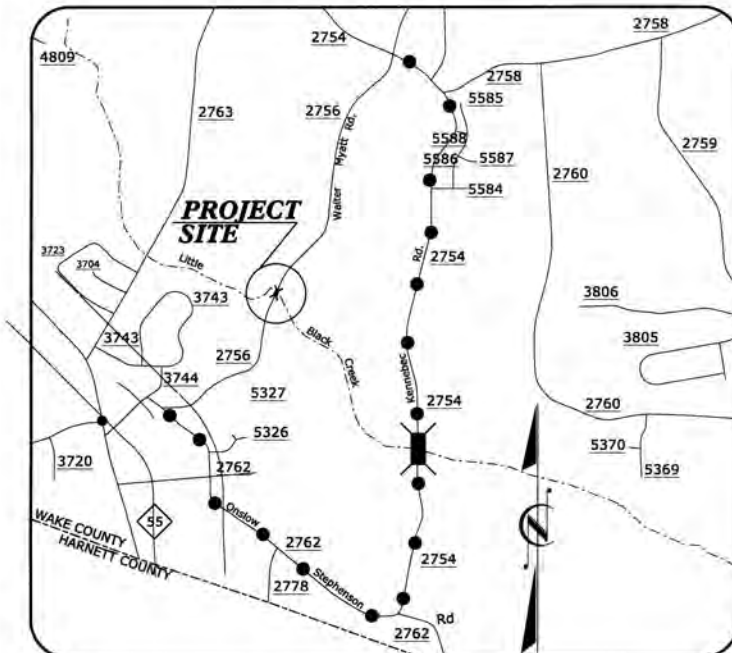
8/17/99

SYSTEMS MESSAGE DOWN INSTRUCTIONS

09/25/99

TIP PROJECT: 17BP.5.R.19

See Sheet 1-A For Index of Sheets



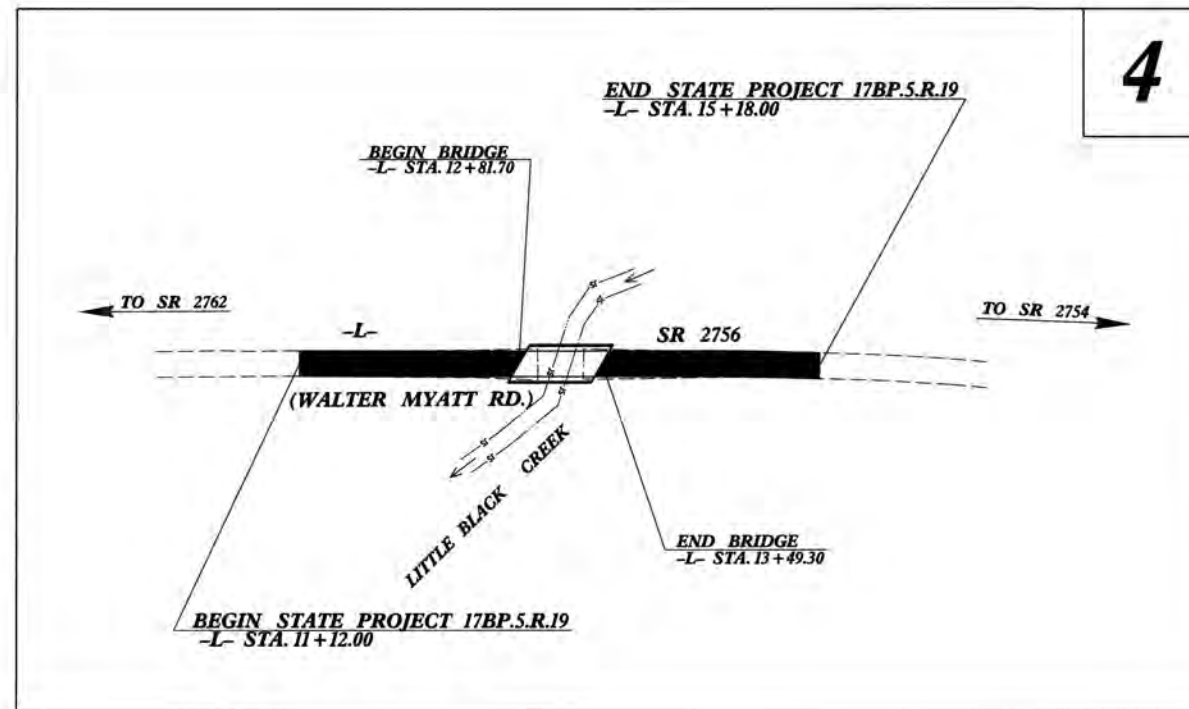
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS
WAKE COUNTY**

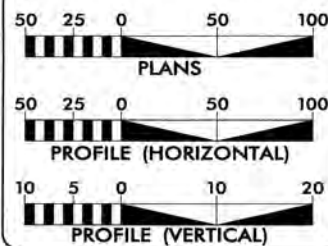
**LOCATION: BRIDGE NO. 420 OVER LITTLE BLACK CREEK
ON SR 2756 (WALTER MYATT RD.)**

TYPE OF WORK: UTILITIES BY OTHERS RELOCATION

T.I.P. NO.	SHEET NO.
17BP.5.R.19	UO-1



GRAPHIC SCALES



INDEX OF SHEETS

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

UTILITY OWNERS ON PROJECT

- (1) PROGRESS ENERGY CAROLINAS, INC.
(POWER DISTRIBUTION)
- (2) CENTURYLINK (TELEPHONE)

Prepared by:



559 JONES FRANKLIN ROAD
SUITE 164
RALEIGH, N.C. 27606
License No. E-4377
Bus: 919 851 8077
Fax: 919 851 8107

JOHN D. SCHRINER, PLS
UTILITY COORDINATOR



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

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

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Xxxxx Xxxxx, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Xxxxx Xxxxx UTILITIES PROJECT DESIGNER

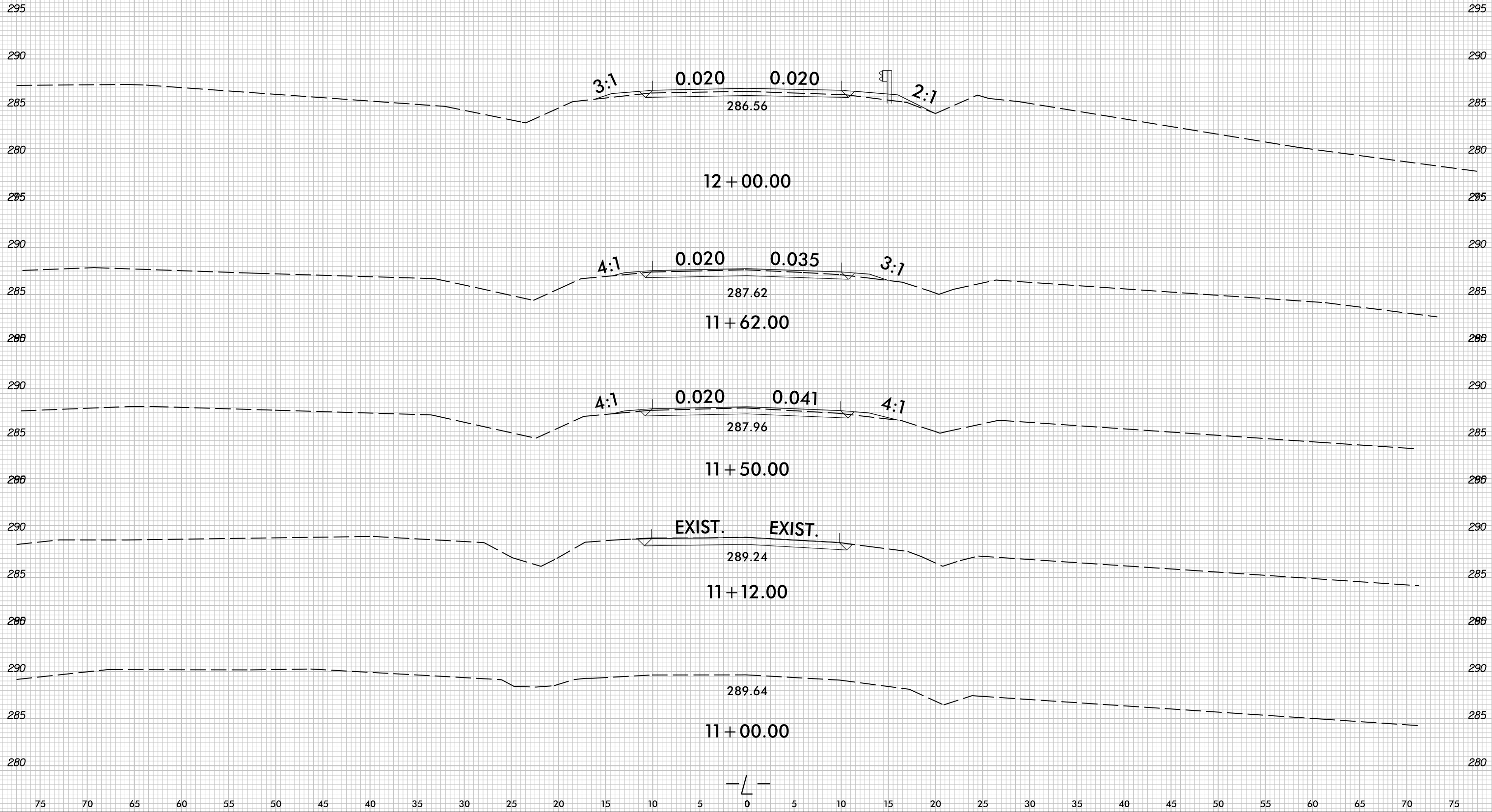
SYSTEMS
SERVICES
CORPORATION
SERVICES
CORPORATION

8/23/99



PROJ. REFERENCE NO.	SHEET NO.
17BP.5.R.19	X-1

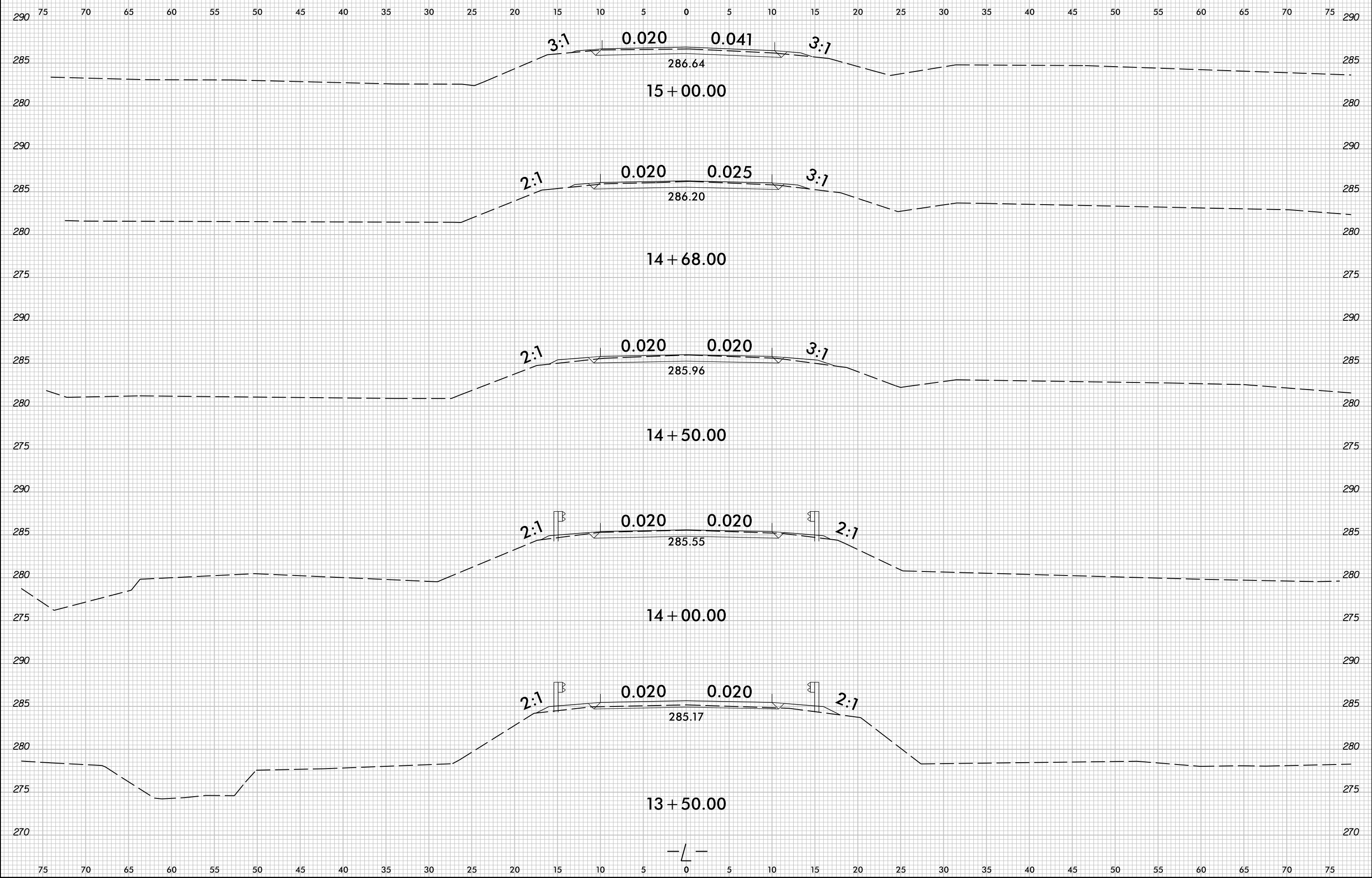
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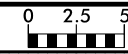
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#420\Roadway\Xsc BR#420.Rdy_xpl.dgn

8/23/99



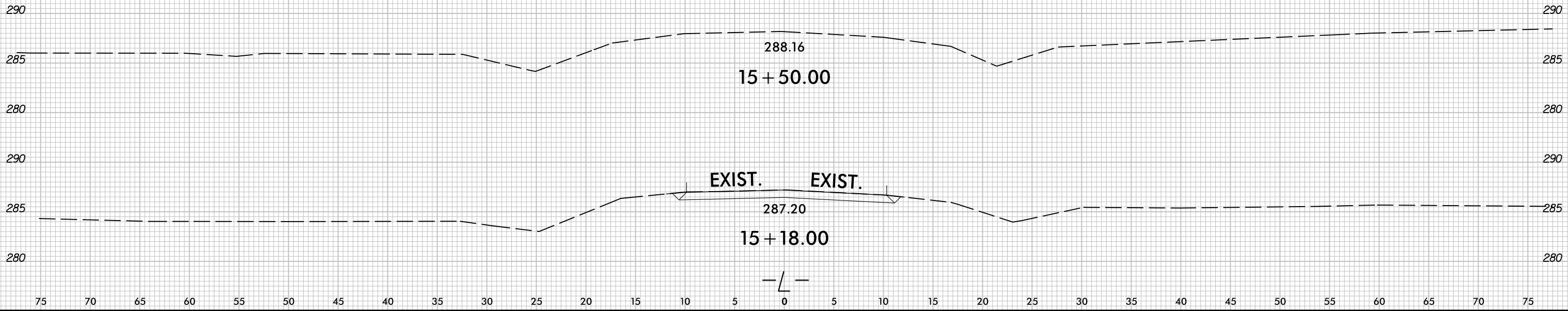
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8/10/2013

8/23/99

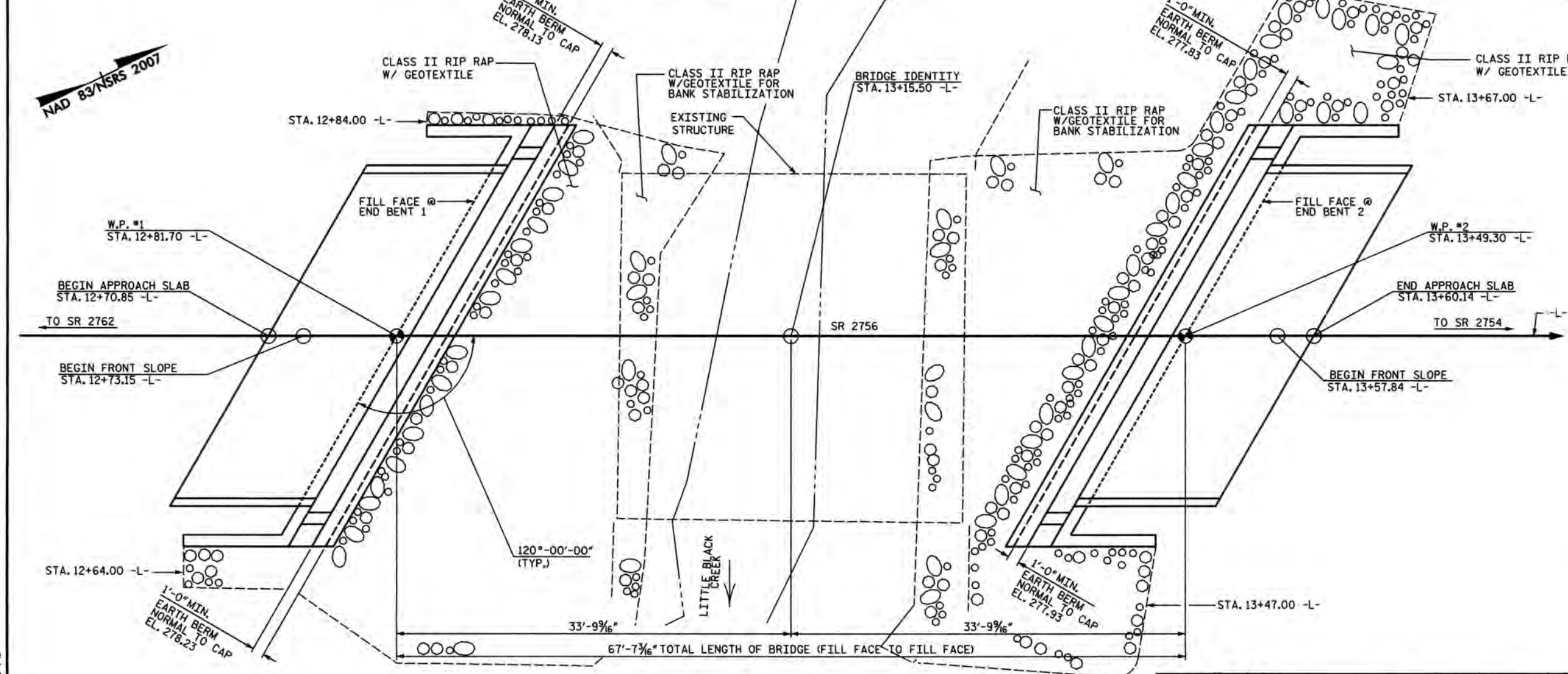
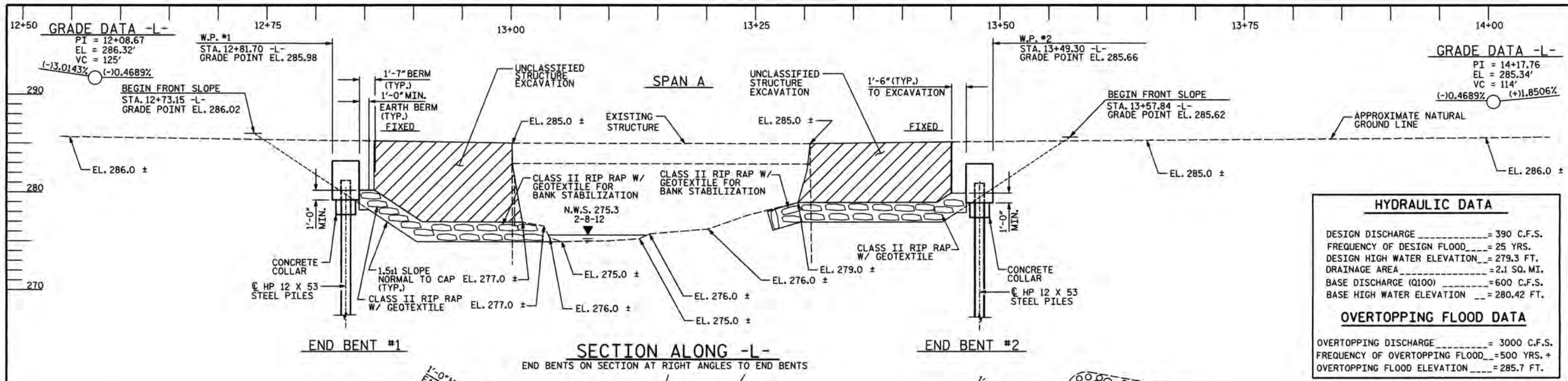


PROJ. REFERENCE NO.	SHEET NO.
17BP.5.R.19	X-4

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



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10/10/2013
#420\Roadway\Xsc BR#420_Rdy_xpl.dgn



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.5.R.19
 WAKE COUNTY
 STATION: 13+15.50 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 420

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON SR 2756
 OVER LITTLE BLACK CREEK
 BETWEEN SR 2762
 AND SR 2754



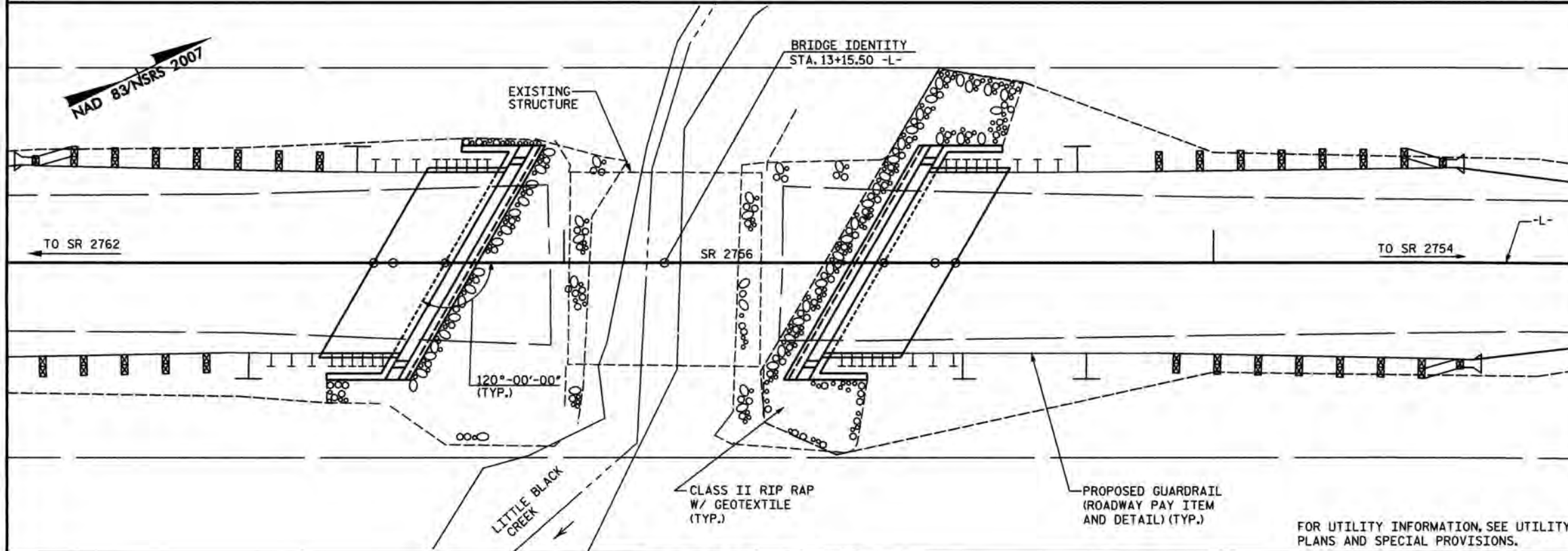
ETHERILL ENGINEERING
 559 Jones Franklin Rd. Suite 164
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 License: F-0377

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

P:\2012\Wak\420\Structures\DWG\BR #420_STR_GD1.dgn
 9/20/2012 1:27:00 PM

DRAWN BY: J. PENDERGRAFT DATE: 6/12
 CHECKED BY: J. DILWORTH DATE: 6/12

BM #1, R/R SPIKE IN 22" POPLAR BL STA. 12+75.00, EL=282.14' 35.00' RT.



LOCATION SKETCH

NOTES:
 ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR SEISMIC PERFORMANCE ZONE 1.
 THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 30'-6" WITH A STEEL PLANK FLOOR ON STEEL I-BEAMS SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 28.2' ON A SUBSTRUCTURE CONSISTING OF TIMBER CAPS ON TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED.
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCE BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY 2001.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR PILE DRIVING CRITERIA, SEE SPECIAL PROVISIONS.

FOUNDATION 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 94 TONS PER PILE.
 DRIVE PILES END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE.
 STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO. 1 AND END BENT NO. 2. FOR STEEL PILE POINTS, SEE SECTIONS 450 OF THE STANDARD SPECIFICATIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 x 53 STEEL PILES	STEEL PILE POINTS	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIp RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EACH	EACH	LIN. FT.	TONS	SQ. YD.	LUMP SUM
SUPERSTRUCTURE	LUMP SUM			LUMP SUM						130.29			10
END BENT 1		LUMP SUM	22.6		2736	5	95	5	3		140	155	
END BENT 2		LUMP SUM	22.6		2736	5	140	5	3		100	110	
TOTAL	LUMP SUM	LUMP SUM	45.2	LUMP SUM	5472	10	235	10	6	130.29	240	265	LUMP SUM

PROJECT NO. 17BP.5.R.19

WAKE COUNTY

STATION: 13+15.50 -L-

SHEET 2 OF 2 REPLACES BRIDGE NO. 420

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 2756
 OVER LITTLE BLACK CREEK
 BETWEEN SR 2762
 AND SR 2754



ETHERILL ENGINEERING
 559 Jones Franklin Rd. Suite 164
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 License: F-0377
 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

DRAWN BY: J. PENDERGRAFT DATE: 6/12
 CHECKED BY: J. DILWORTH DATE: 6/12

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.013	--	1.75	0.248	1.16	65'	EL	31.923	0.652	1.01	65'	EL	6.385	0.80	0.248	1.12	65'	EL	31.923		
	HL-93(OPr)	N/A	--	1.313	--	1.35	0.248	1.5	65'	EL	31.923	0.652	1.31	65'	EL	6.385	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.246	44.865	1.75	0.248	1.48	65'	EL	31.923	0.652	1.25	65'	EL	6.385	0.80	0.248	1.44	65'	EL	31.923		
	HS-20(OPr)	36.000	--	1.616	58.159	1.35	0.248	1.92	65'	EL	31.923	0.652	1.62	65'	EL	6.385	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.163	42.696	1.4	0.248	4.07	65'	EL	31.923	0.652	3.64	65'	EL	6.385	0.80	0.248	3.16	65'	EL	31.923	
		SNGARBS2	20.000	--	2.395	47.893	1.4	0.248	3.08	65'	EL	31.923	0.652	2.61	65'	EL	6.385	0.80	0.248	2.39	65'	EL	31.923	
		SNAGRIS2	22.000	--	2.284	50.247	1.4	0.248	2.94	65'	EL	31.923	0.652	2.43	65'	EL	6.385	0.80	0.248	2.28	65'	EL	31.923	
		SNCOTTS3	27.250	--	1.575	42.917	1.4	0.248	2.03	65'	EL	31.923	0.652	1.82	65'	EL	6.385	0.80	0.248	1.57	65'	EL	31.923	
		SNAGGRS4	34.925	--	1.331	46.469	1.4	0.248	1.71	65'	EL	31.923	0.652	1.53	65'	EL	6.385	0.80	0.248	1.33	65'	EL	31.923	
		SNS5A	35.550	--	1.3	46.22	1.4	0.248	1.67	65'	EL	31.923	0.652	1.55	65'	EL	6.385	0.80	0.248	1.30	65'	EL	31.923	
		SNS6A	39.950	--	1.199	47.899	1.4	0.248	1.54	65'	EL	31.923	0.652	1.42	65'	EL	6.385	0.80	0.248	1.20	65'	EL	31.923	
	TTST	SNS7B	42.000	--	1.142	47.965	1.4	0.248	1.47	65'	EL	31.923	0.652	1.4	65'	EL	6.385	0.80	0.248	1.14	65'	EL	31.923	
		TNAGRIT3	33.000	--	1.464	48.309	1.4	0.248	1.89	65'	EL	31.923	0.652	1.69	65'	EL	6.385	0.80	0.248	1.46	65'	EL	31.923	
		TNT4A	33.075	--	1.472	48.688	1.4	0.248	1.9	65'	EL	31.923	0.652	1.64	65'	EL	6.385	0.80	0.248	1.47	65'	EL	31.923	
		TNT6A	41.600	--	1.209	50.315	1.4	0.248	1.56	65'	EL	31.923	0.652	1.51	65'	EL	6.385	0.80	0.248	1.21	65'	EL	31.923	
		TNT7A	42.000	--	1.219	51.186	1.4	0.248	1.57	65'	EL	31.923	0.652	1.46	65'	EL	6.385	0.80	0.248	1.22	65'	EL	31.923	
		TNT7B	42.000	--	1.269	53.286	1.4	0.248	1.63	65'	EL	31.923	0.652	1.37	65'	EL	6.385	0.80	0.248	1.27	65'	EL	31.923	
		TNAGRIT4	43.000	--	1.201	51.645	1.4	0.248	1.55	65'	EL	31.923	0.652	1.32	65'	EL	6.385	0.80	0.248	1.20	65'	EL	31.923	
TNAGT5A	45.000	--	1.13	50.836	1.4	0.248	1.45	65'	EL	31.923	0.652	1.32	65'	EL	6.385	0.80	0.248	1.13	65'	EL	31.923			
TNAGT5B	45.000	3	1.114	50.113	1.4	0.248	1.43	65'	EL	31.923	0.652	1.25	65'	EL	6.385	0.80	0.248	1.11	65'	EL	31.923			

LOAD FACTORS:

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

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

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

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

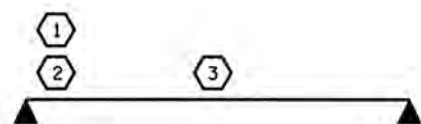
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY
FOR SPAN 'A'

PROJECT NO. 17BP.5.R.19
WAKE COUNTY
STATION: 13+15.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
65' CORED SLAB
UNIT 120° SKEW
(NON-INTERSTATE TRAFFIC)

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



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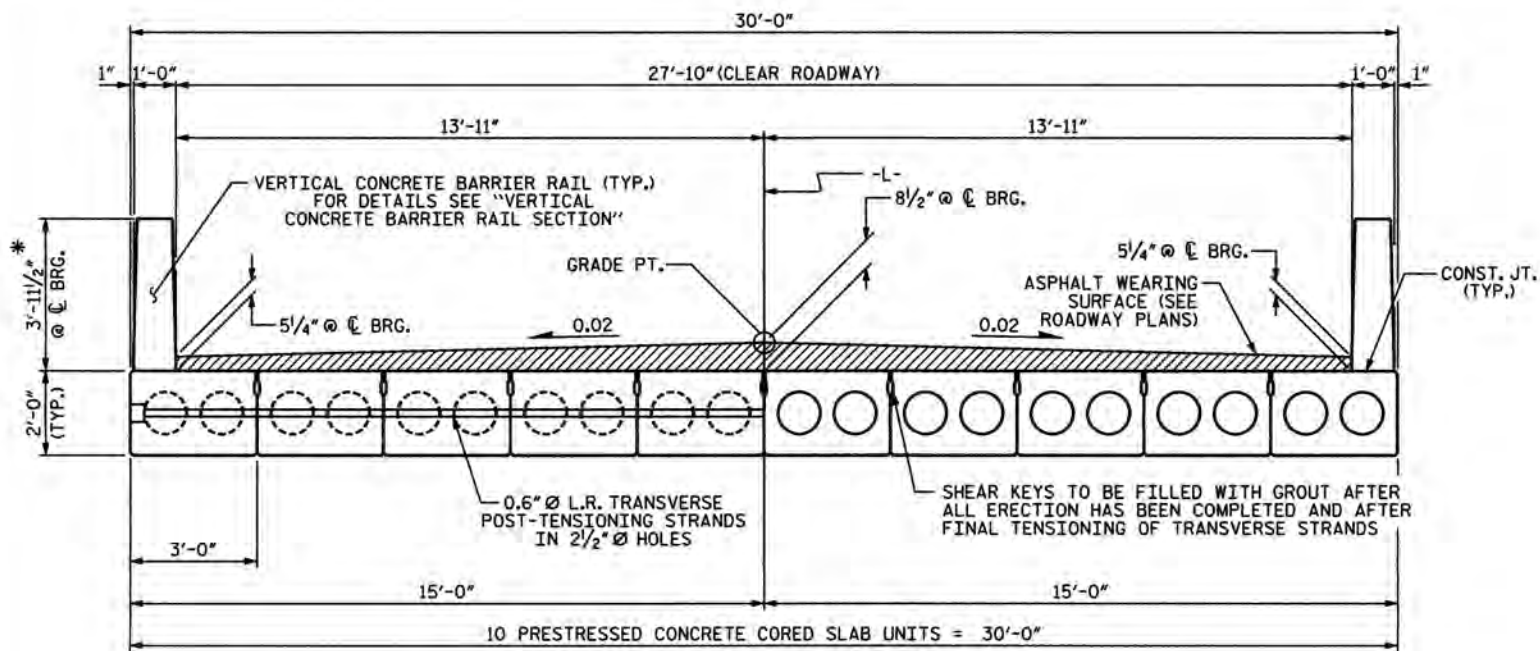
ETHERILL
ENGINEERING

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

ASSEMBLED BY: J. PENDERGRAFT DATE: 6/12
CHECKED BY: J. DILWORTH DATE: 6/12

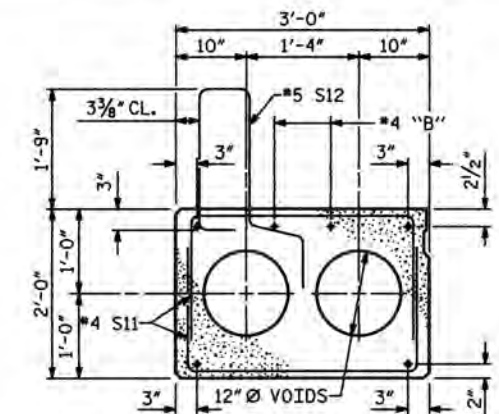
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CHECKED BY: DNS 6/10

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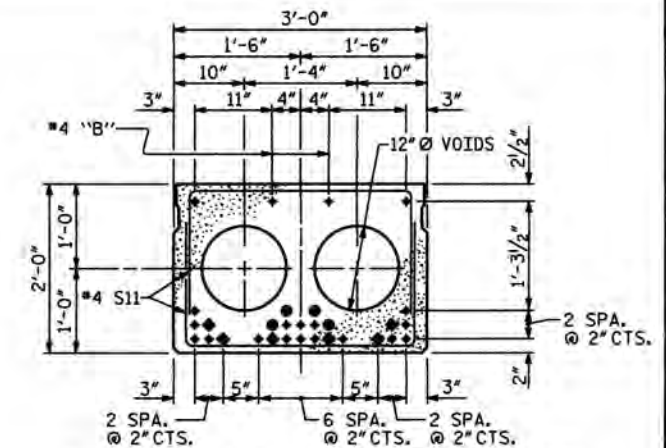


HALF SECTION AT INTERMEDIATE DIAPHRAGMS TYPICAL SECTION HALF SECTION THROUGH VOIDS

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



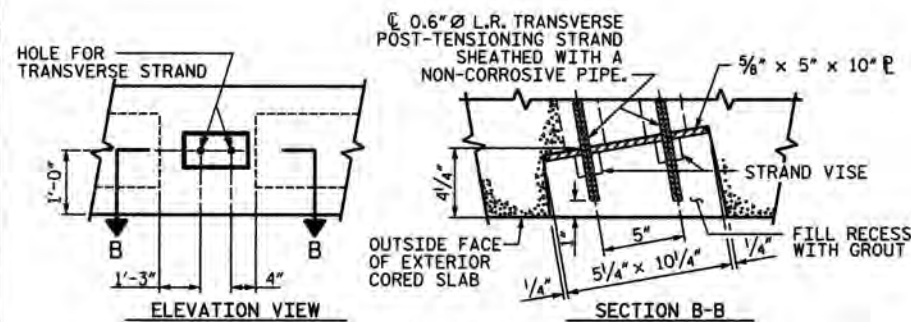
EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



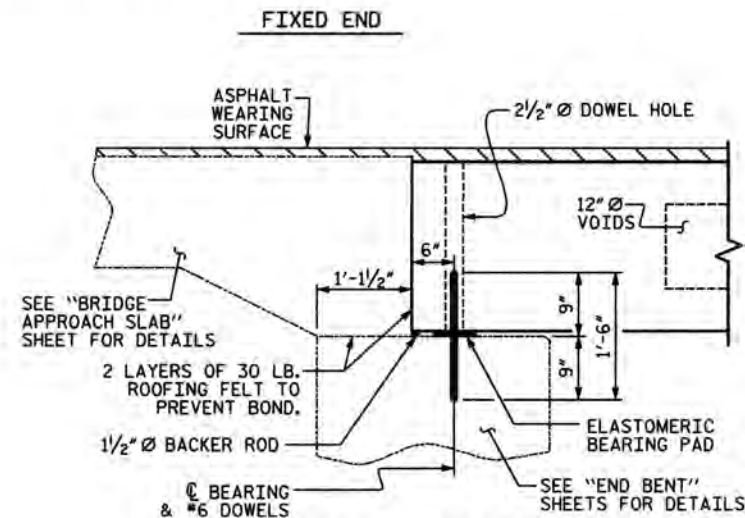
INTERIOR SLAB SECTION (65' UNIT)
(24 STRANDS REQUIRED)
0.6" Ø LOW RELAXATION STRAND LAYOUT

- ◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

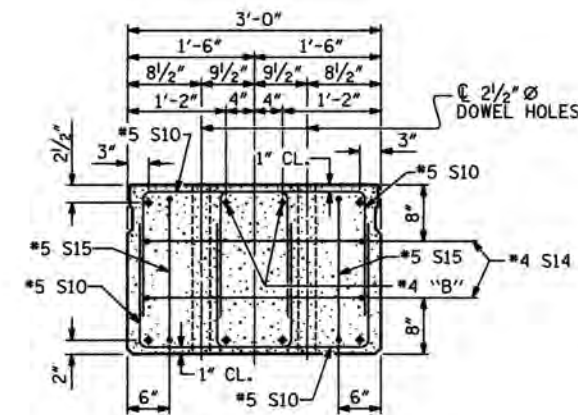
DEBONDING LEGEND



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



SECTION AT END BENT



END ELEVATION

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



SHEAR KEY DETAIL

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

PROJECT NO. 17BP.5.R.19
WAKE COUNTY
STATION: 13+15.50 -L-

SHEET 1 OF 3

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

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



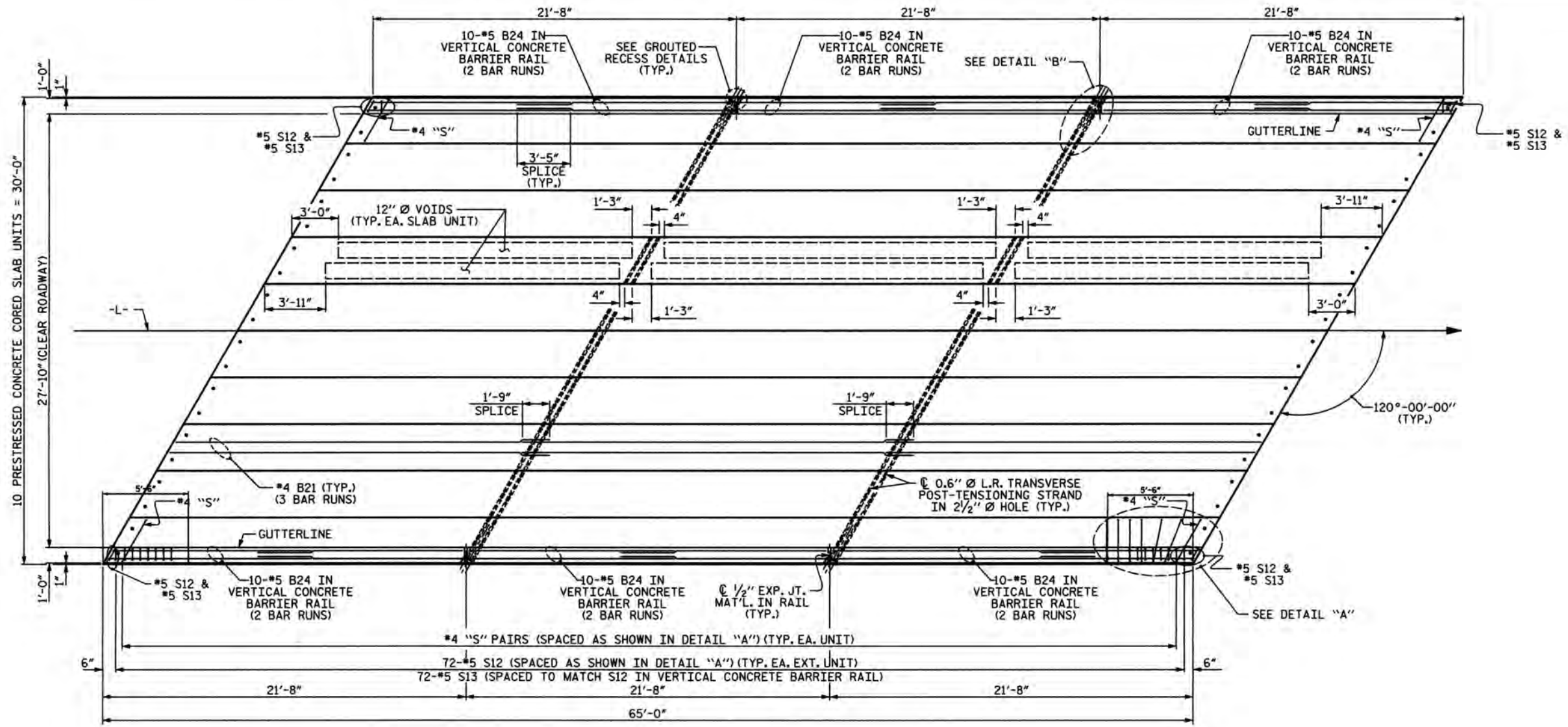
ETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
License: F-0377

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

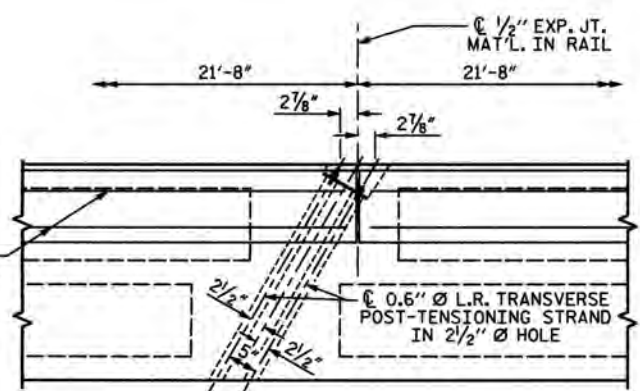
ASSEMBLED BY: J. PENDERGRAFT DATE: 6/12
CHECKED BY: J. DILWORTH DATE: 6/12
DRAWN BY: MAA 6/10 REV. 12/11 MAA/AAC
CHECKED BY: MKT 7/10

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STD. NO. 24PCS4_30_60S

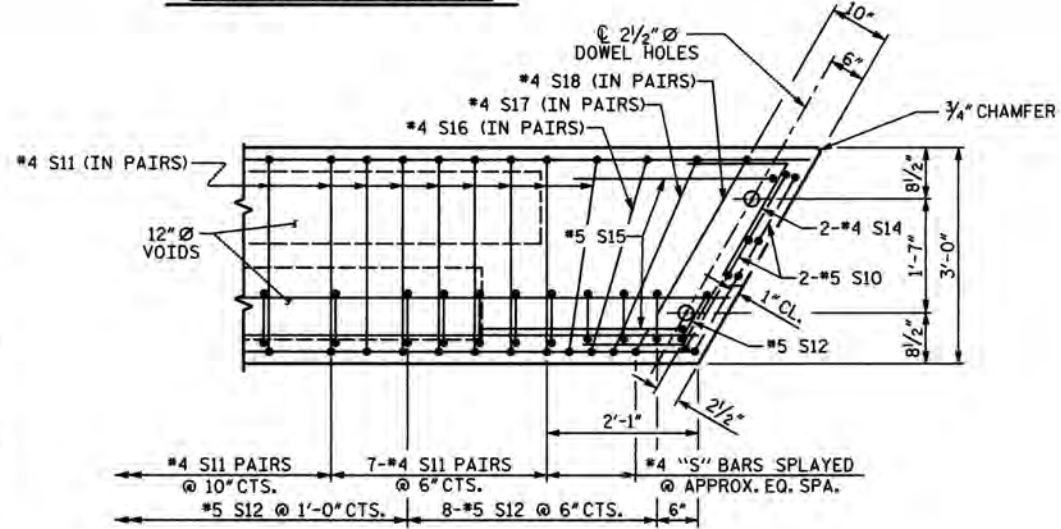


PLAN OF UNIT



DETAIL "B"

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



DETAIL "A"

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

PROJECT NO. 17BP.5.R.19
 WAKE COUNTY
 STATION: 13+15.50 -L-

SHEET 2 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 65' UNIT
 27'-10" CLEAR ROADWAY
 120° SKEW

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



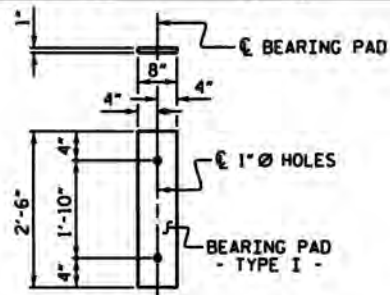
559 Jones Franklin Rd. Suite 164
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 License: F-0377
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 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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ASSEMBLED BY: J. PENDERGRAFT DATE: 6/12
 CHECKED BY: J. DILWORTH DATE: 6/12
 DRAWN BY: MAA 6/10 REV. 12/5/11 MAA/AAC
 CHECKED BY: MKT 7/10

BILL OF MATERIAL FOR ONE 65' CORED SLAB UNIT

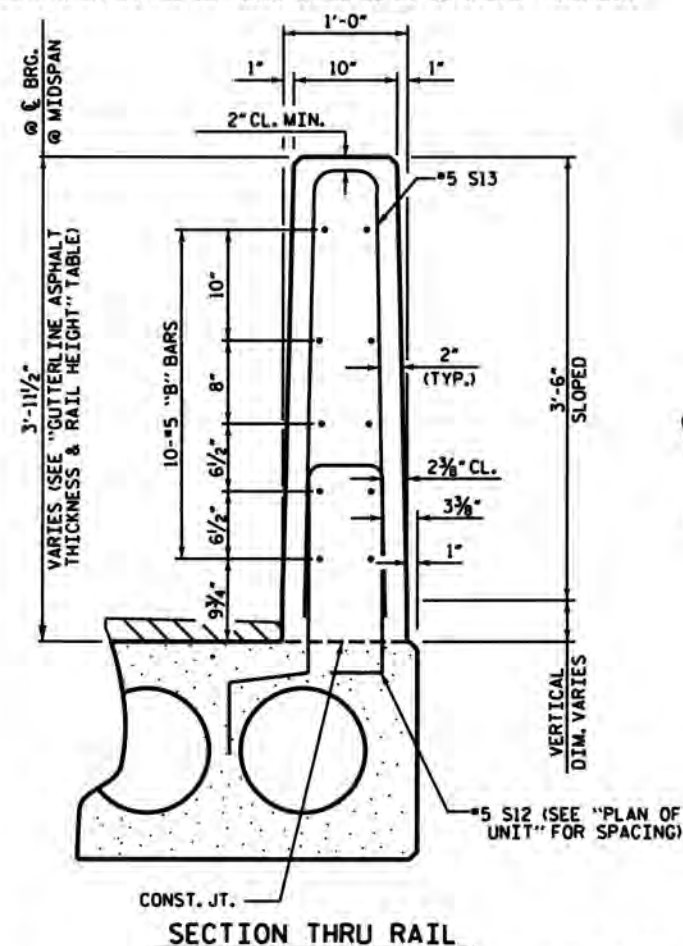
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B21	6	#4	STR	22'-10"	92	22'-10"	92
S10	8	#5	3	5'-0"	42	5'-0"	42
S11	158	#4	3	5'-10"	616	5'-10"	616
*S12	74	#5	1	6'-4"	489		
S14	4	#4	4	5'-11"	16	5'-11"	16
S15	4	#5	3	7'-1"	30	7'-1"	30
S16	4	#4	3	5'-11"	16	5'-11"	16
S17	4	#4	3	6'-1"	16	6'-1"	16
S18	4	#4	3	6'-3"	17	6'-3"	17
REINFORCING STEEL				LBS.	845		845
*EPOXY COATED REINFORCING STEEL				LBS.	489		
6000 P.S.I. CONCRETE				CU. YDS.	11.2		11.2
0.6" Ø L.R. STRANDS				No.	24		24



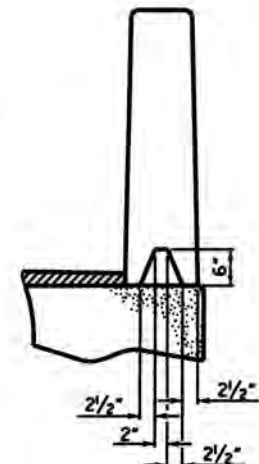
FIXED END
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

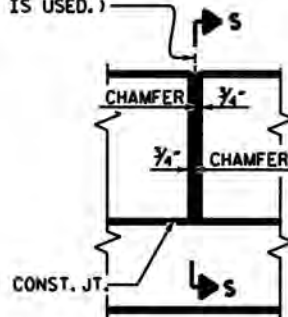


SECTION THRU RAIL



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

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED.)



ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS

ASSEMBLED BY: J. PENDERGRAFT DATE: 6/12
CHECKED BY: J. DILWORTH DATE: 6/12
DRAWN BY: MAA 6/10 REV. 12/11 MAA/AAC
CHECKED BY: MKT 7/10

CONCRETE RELEASE STRENGTH

UNIT	PSI
65' UNITS	4800

CORED SLABS REQUIRED

65' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	65'-0"	130'-0"
INTERIOR C.S.	8	65'-0"	520'-0"
TOTAL	10		650'-0"

DEAD LOAD DEFLECTION AND CAMBER

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

** INCLUDES FUTURE WEARING SURFACE

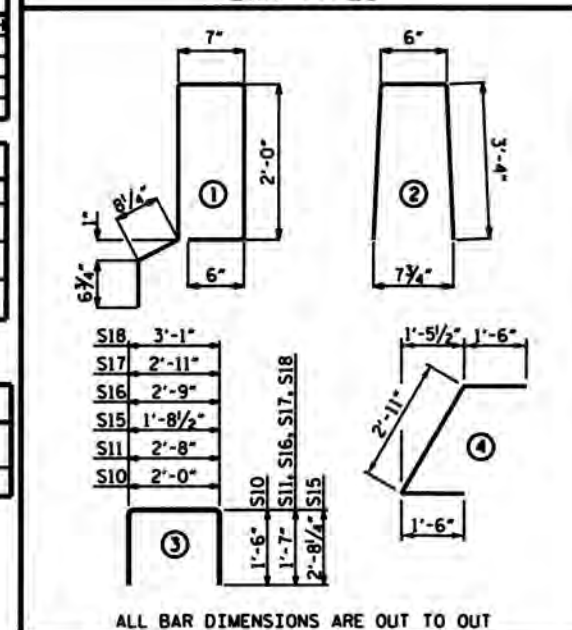
GRADE 270 STRANDS

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

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

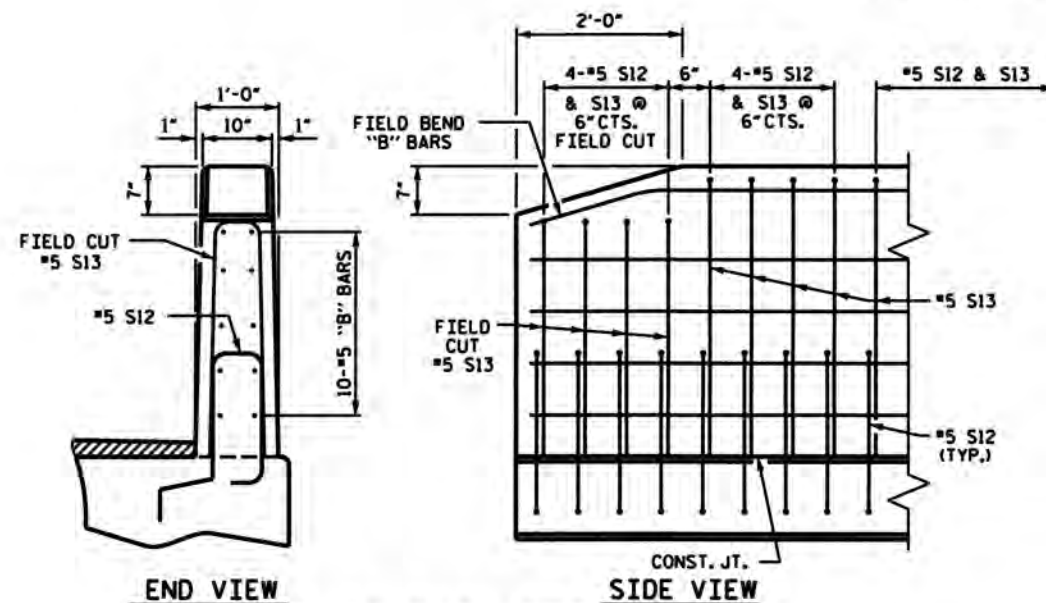
65' UNITS	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
	2 3/8"	3'-8 3/8"

BAR TYPES



BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
65' UNIT						
*B24	120	120	#5	STR	12'-10"	1606
*S13	148	148	#5	2	7'-2"	1106
*EPOXY COATED REINFORCING STEEL						LBS. 2712
CLASS AA CONCRETE						CU. YDS. 17.6
TOTAL VERTICAL CONCRETE BARRIER RAIL						LN. FT. 130.29



END OF RAIL DETAILS

NOTES

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

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

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

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

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

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PROJECT NO. 17BP.5.R.19
WAKE COUNTY
STATION: 13+15.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-6
1			2			13

STD. NO. 24PCS3.30.60&120S

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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.)

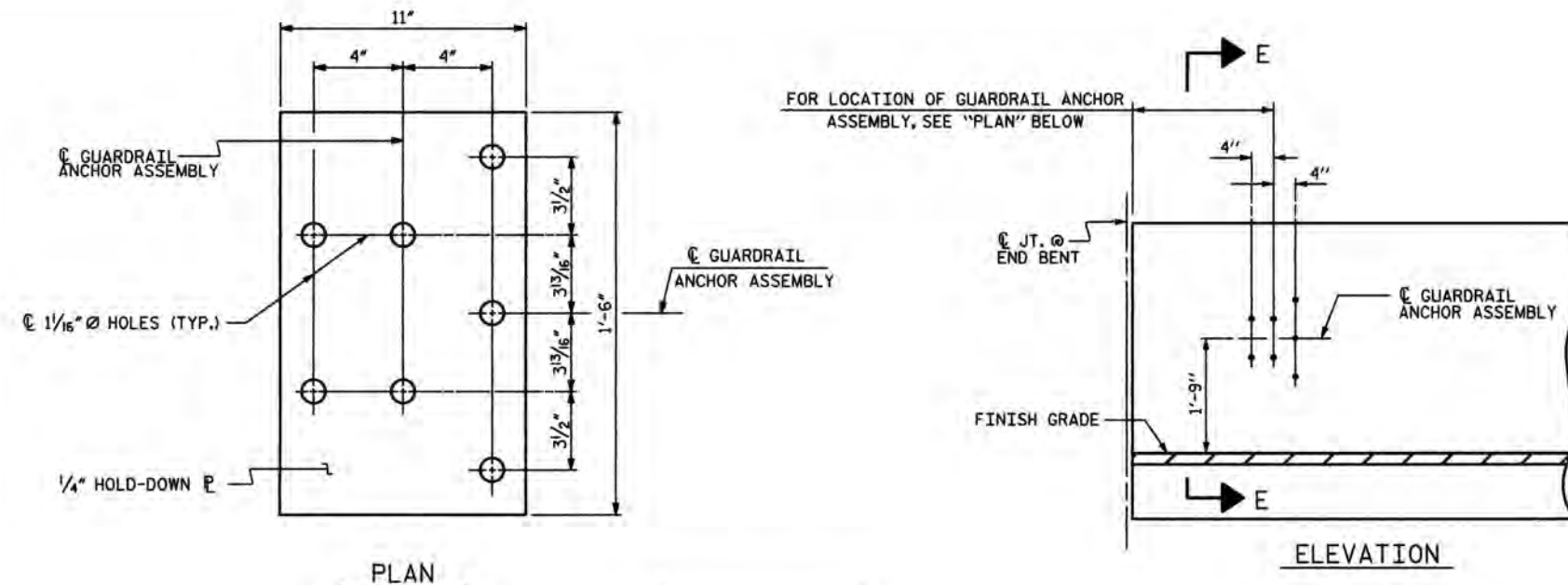
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

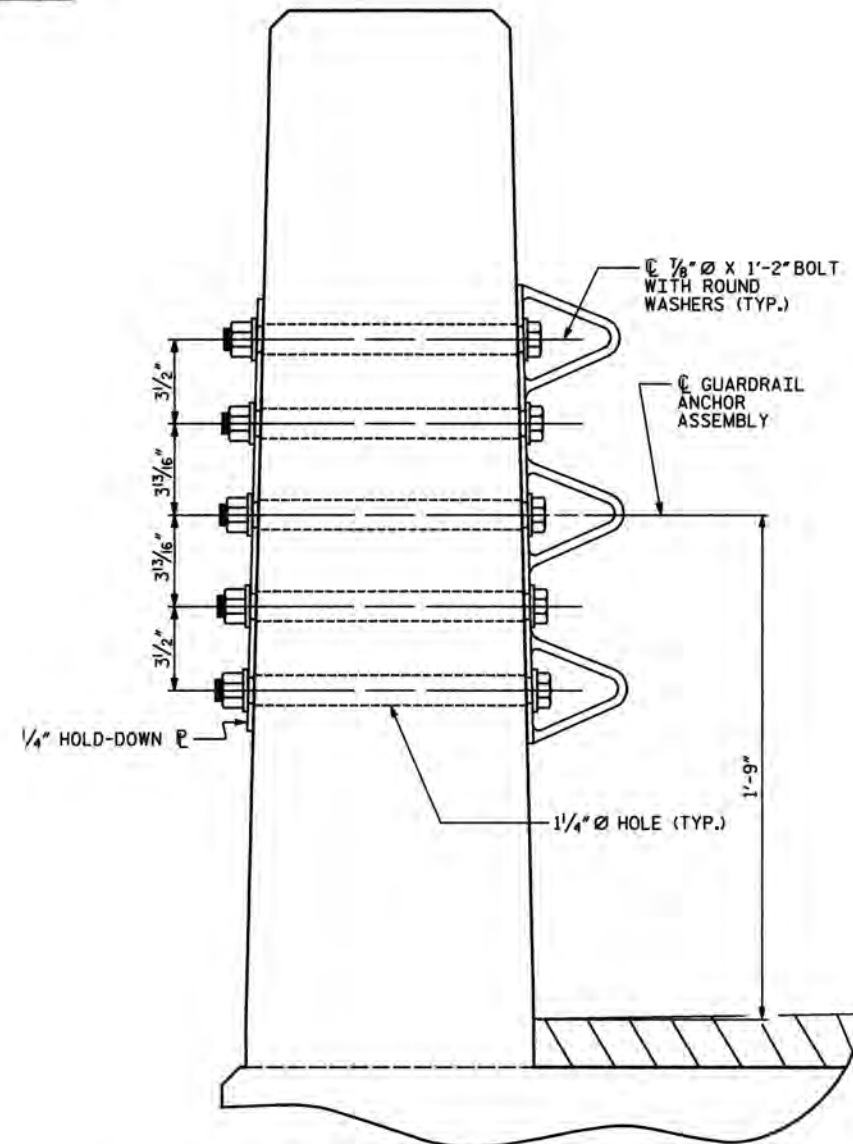
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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

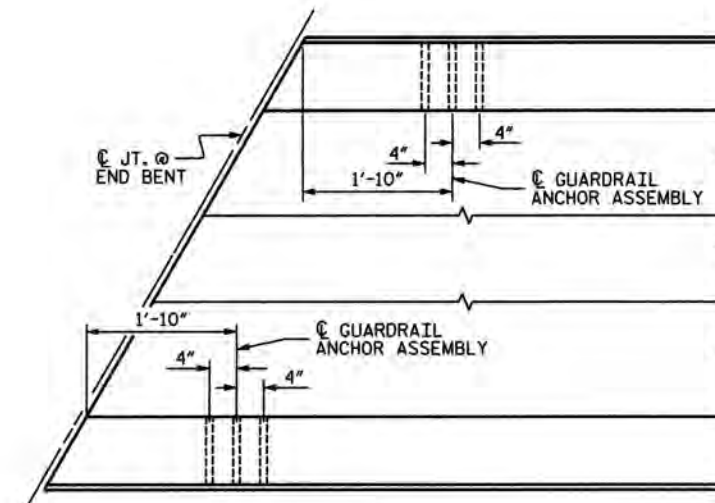


PLAN

ELEVATION



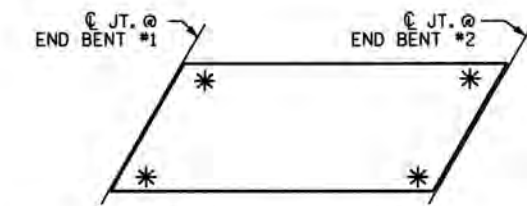
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 17BP.5.R.19

WAKE COUNTY

STATION: 13+15.50 -L-

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

ASSEMBLED BY : J. PENDERGRAFT	DATE : 6/12
CHECKED BY : J. DILWORTH	DATE : 6/12
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11 MAA/GM
	REV. 12/5/11 MAA/GM



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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

TOTAL SHEETS 13

STD. NO. GRA3 (SHEET 1)

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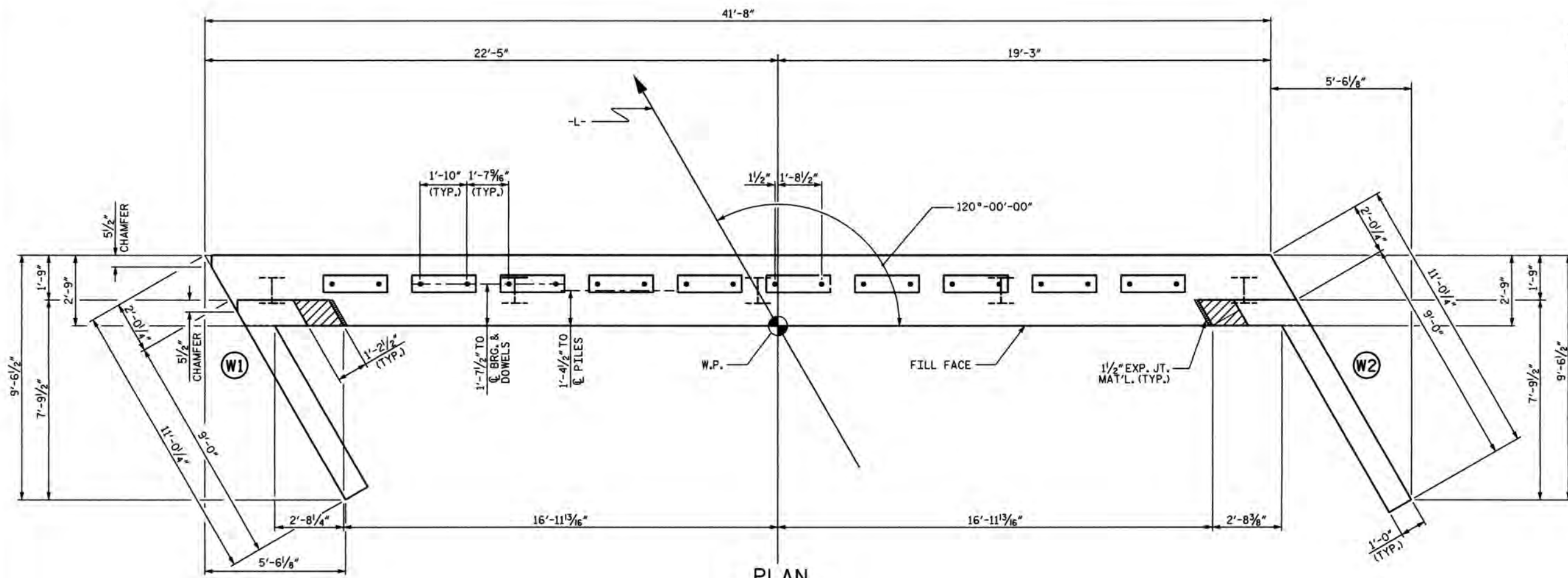
NOTES

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

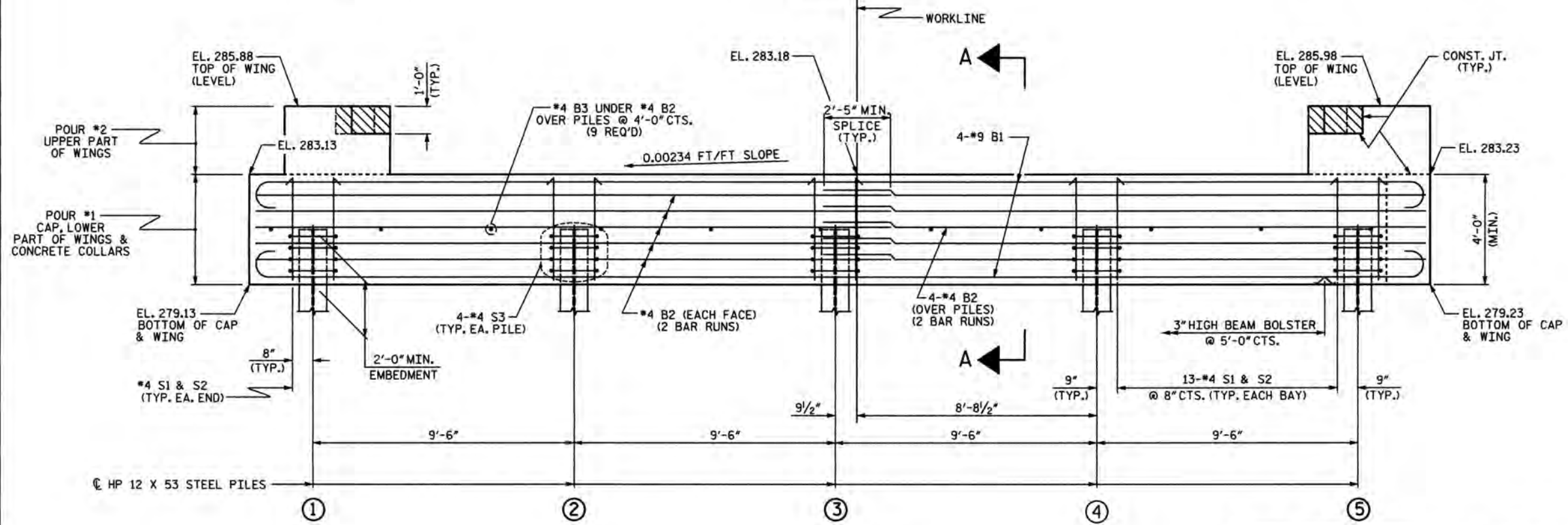
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

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	281.13
②	281.16
③	281.18
④	281.20
⑤	281.22

PROJECT NO. 17BP.5.R.19
WAKE COUNTY
 STATION: 13+15.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS 13	
2			4				



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ASSEMBLED BY : J. PENDERGRAFT DATE : 6/12
 CHECKED BY : J. DILWORTH DATE : 6/12

DRAWN BY : DGE 02/10
 CHECKED BY : MKT 02/10

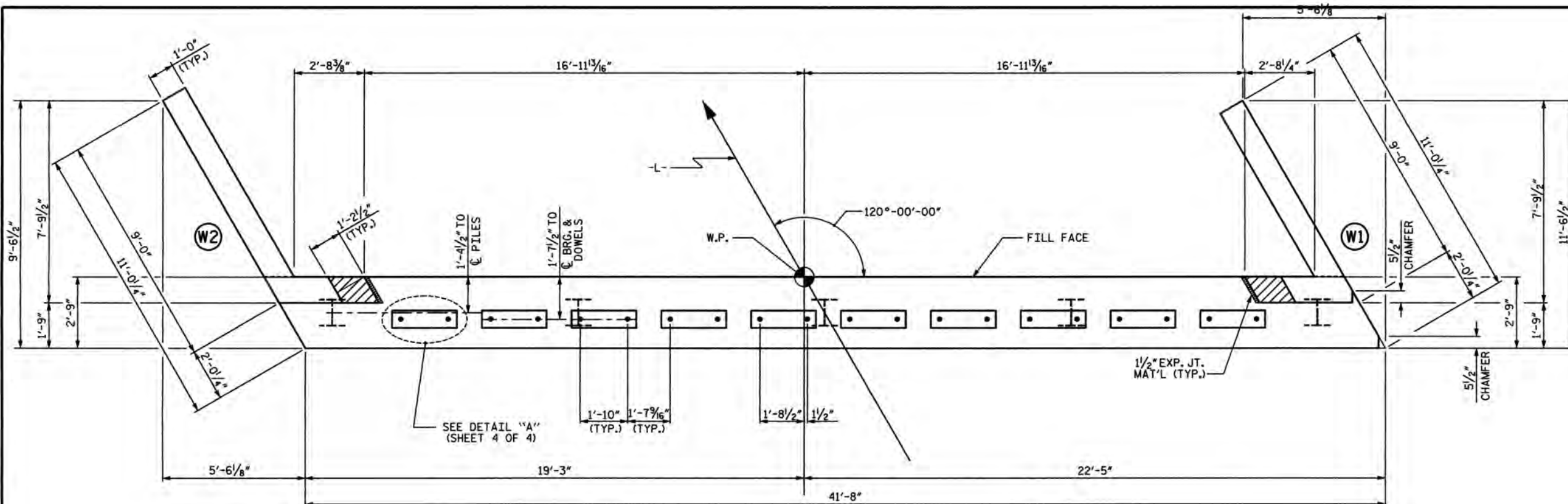
NOTES

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

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

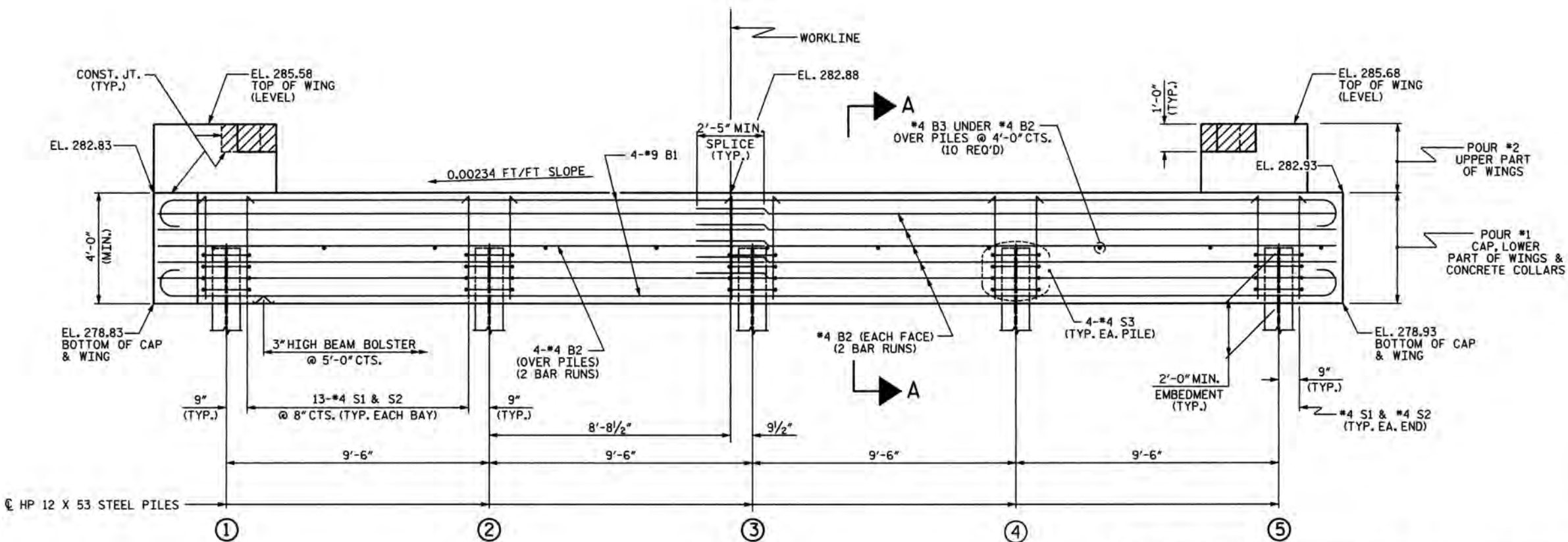
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

TOP OF PILE ELEVATIONS	
①	280.83
②	280.86
③	280.88
④	280.90
⑤	280.92

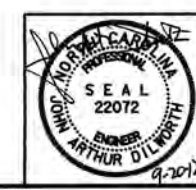


ELEVATION

PROJECT NO. 17BP.5.R.19
 WAKE COUNTY
 STATION: 13+15.50 -L-

SHEET 2 OF 4
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT No. 2

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.



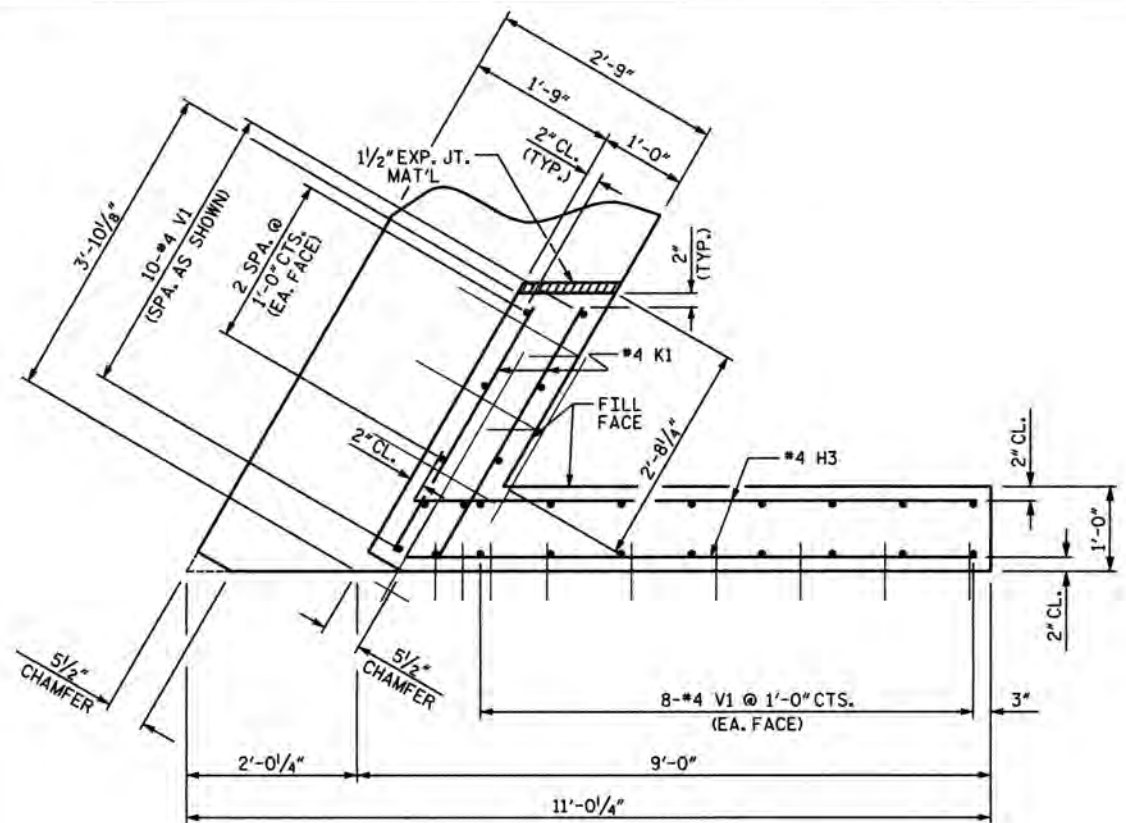
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS 13
2			4			

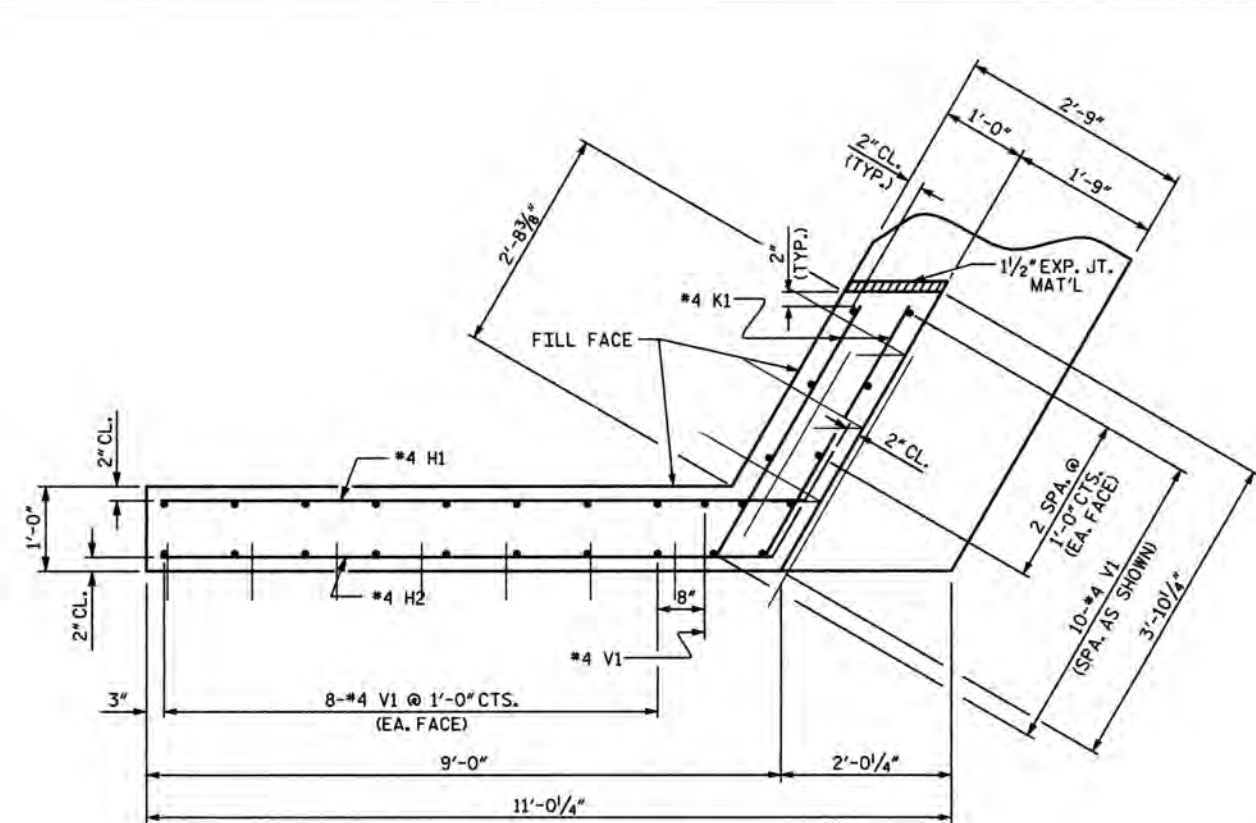
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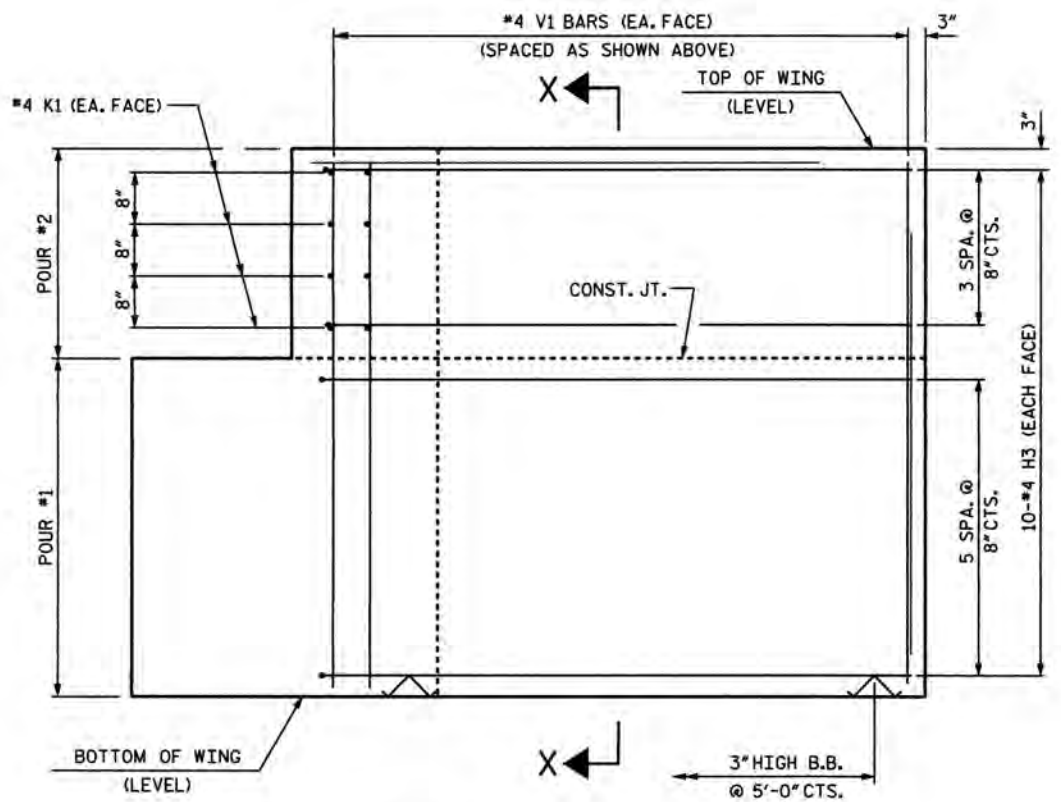
ASSEMBLED BY: J. PENDERGRAFT DATE: 6/12
 CHECKED BY: J. DILWORTH DATE: 6/12
 DRAWN BY: DGE 02/10
 CHECKED BY: MKT 02/10



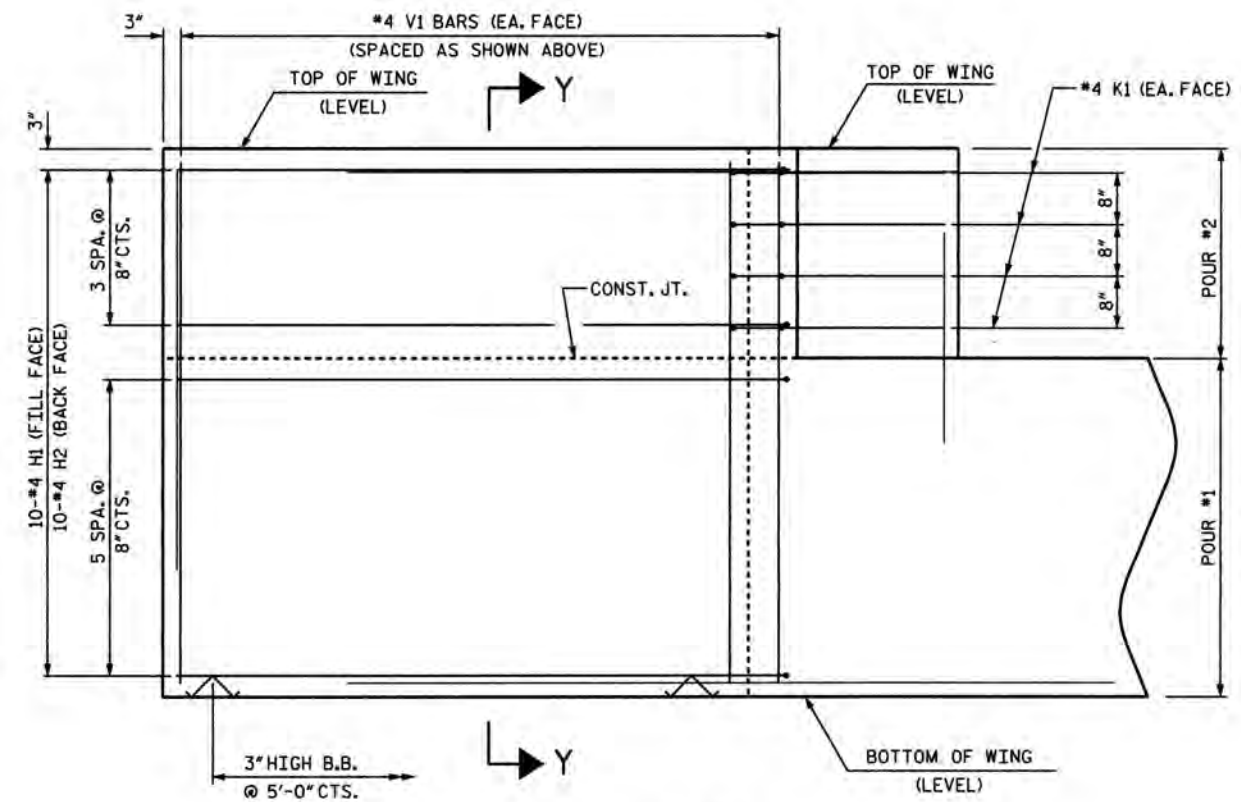
PLAN OF WING (W1)



PLAN OF WING (W2)

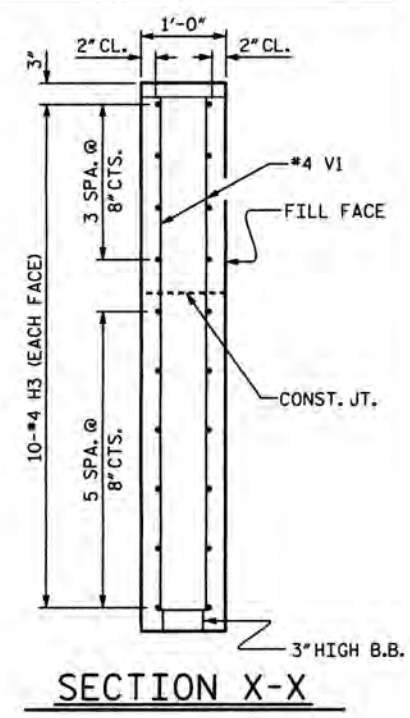


ELEVATION OF WING (W1)

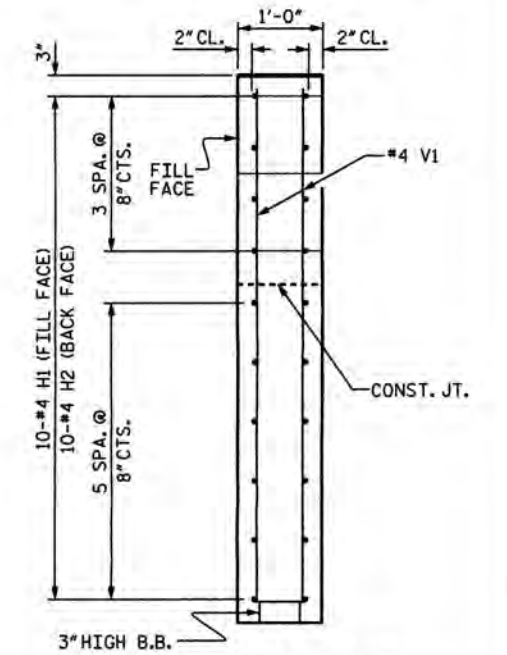


ELEVATION OF WING (W2)

WING DETAILS



SECTION X-X



SECTION Y-Y

PROJECT NO. 17BP.5.R.19
 WAKE COUNTY
 STATION: 13+15.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT
 WING DETAILS

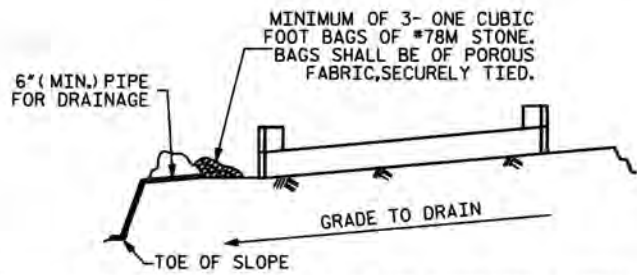
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS 13	
2			4				

ASSEMBLED BY: J. PENDERGRAFT DATE: 6/12
 CHECKED BY: J. DILWORTH DATE: 6/12
 DRAWN BY: DGE 12/09
 CHECKED BY: MKT 01/10



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 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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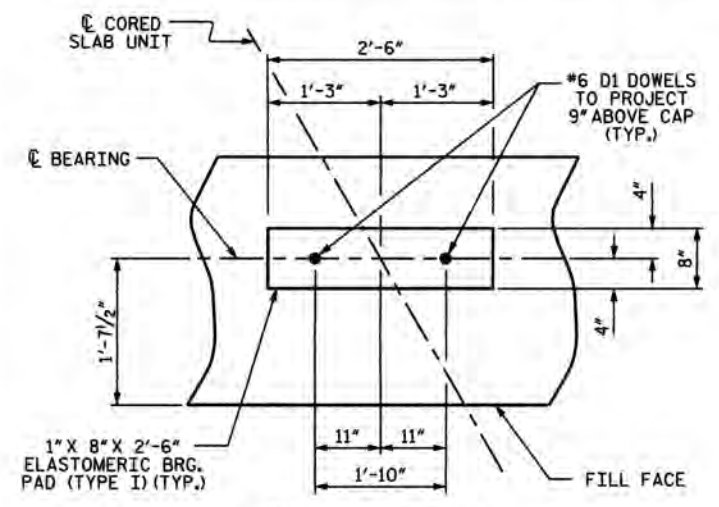


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

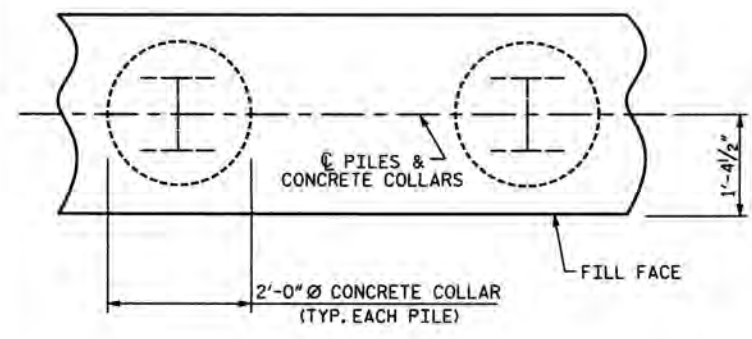
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

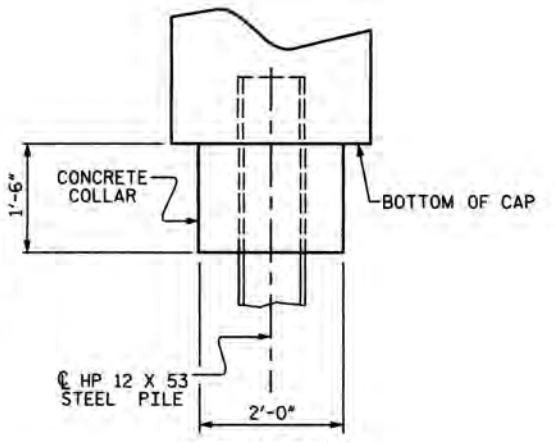


DETAIL "A"

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



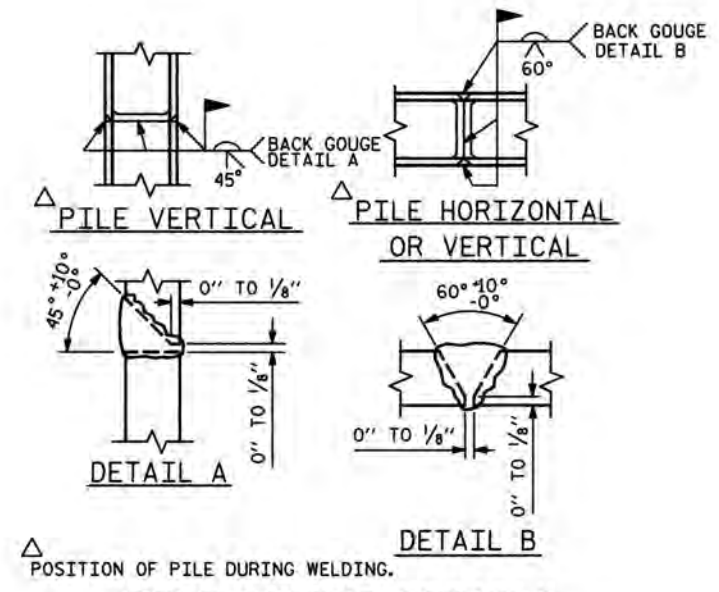
PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL

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



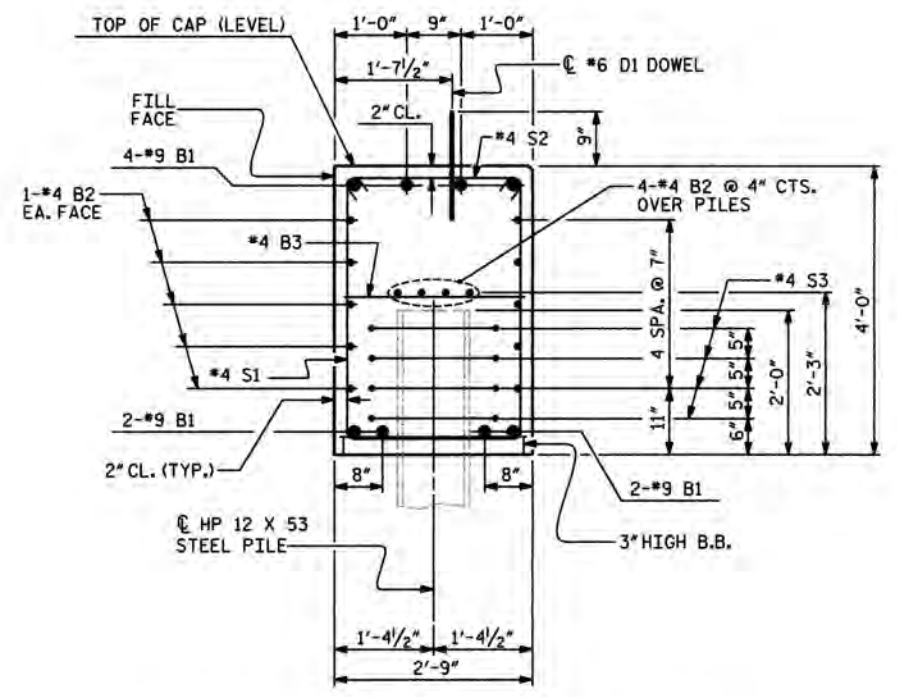
PILE SPLICE DETAILS

SCALE- 1/16" = 1'-0"

BAR TYPES	
①	②
③	④
⑤	⑥

END BENT No. 1		END BENT No. 2	
HP 12 X 53 STEEL PILES	NO: 5	HP 12 X 53 STEEL PILES	NO: 5
LIN. FT.= 95		LIN. FT.= 140	
STEEL PILE POINTS	NO. 5	STEEL PILE POINTS	NO. 5

BILL OF MATERIAL FOR ONE END BENT					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	43'-8"	1188
B2	28	#4	STR	21'-11"	410
B3	11	#4	STR	2'-5"	18
D1	20	#6	STR	1'-6"	45
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
H3	20	#4	3	8'-10"	118
K1	16	#4	STR	3'-3"	35
S1	54	#4	4	10'-5"	376
S2	54	#4	5	3'-2"	114
S3	20	#4	6	6'-6"	87
V1	53	#4	STR	6'-2"	218
REINFORCING STEEL (FOR ONE END BENT)					2736 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					20.2 C.Y.
POUR #2 UPPER PART OF WINGS					2.4 C.Y.
TOTAL CLASS A CONCRETE					22.6 C.Y.



SECTION A-A

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

PROJECT NO. 17BP.5.R.19
 WAKE COUNTY
 STATION: 13+15.50 -L-
 SHEET 4 OF 4

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



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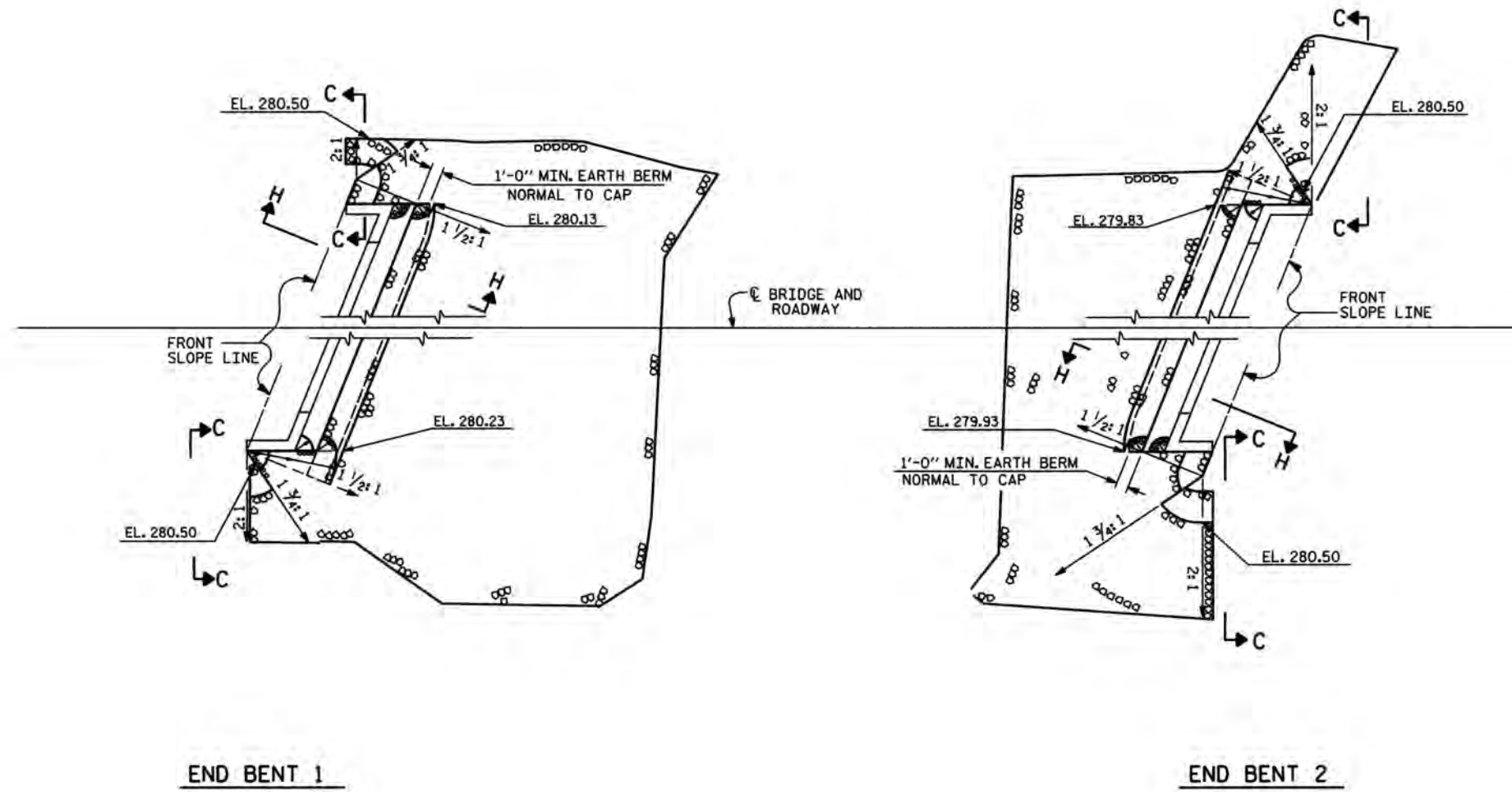
ETHERILL ENGINEERING

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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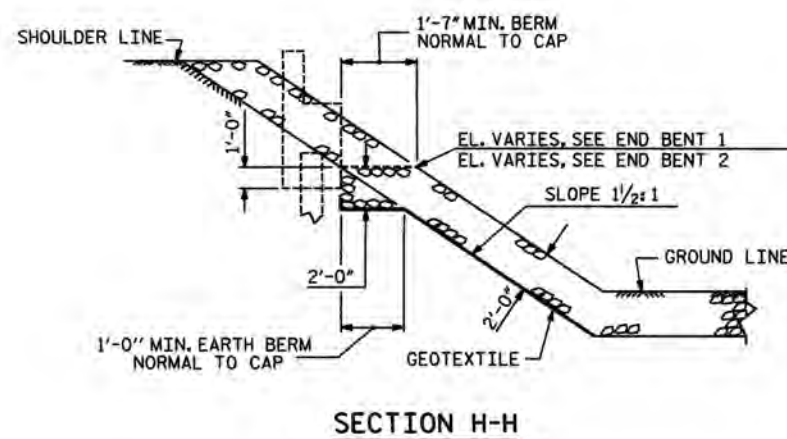
ASSEMBLED BY: J. PENDERGRAFT	DATE: 6/12
CHECKED BY: J. DILWORTH	DATE: 6/12
DRAWN BY: DGE	12/09
CHECKED BY: MKT	01/10

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

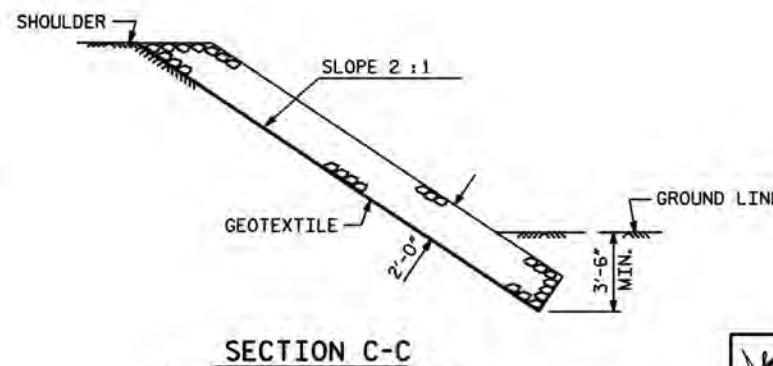


PLAN OF RIP RAP

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+15.50 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	140	155
END BENT 2	100	110



SECTION H-H



SECTION C-C

PROJECT NO. 17BP.5.R.19
WAKE COUNTY
STATION: 13+15.50 -L-

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



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

TOTAL SHEETS: 13

STD. NO. RR1 (Sht 3)

ASSEMBLED BY : J. PENDERGRAFT DATE : 6/12
CHECKED BY : J. DILWORTH DATE : 6/12
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

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NOTES

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

GEOTEXTILE SHALL BE TYPE 1IN 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.

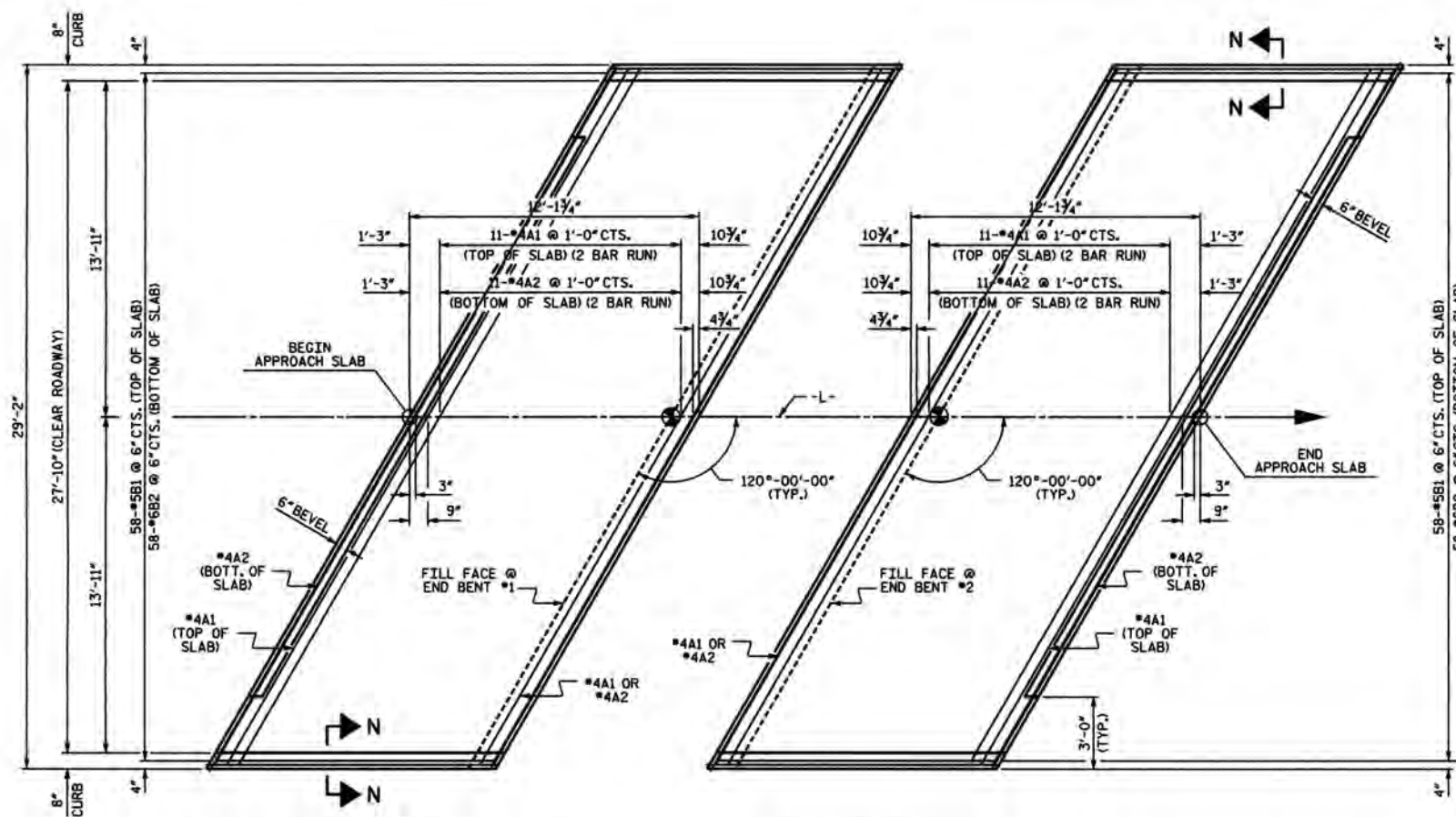
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

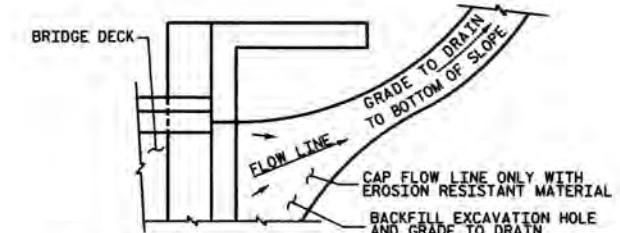
BILL OF MATERIAL

APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	17'-8"	307
A2	26	#4	STR	17'-7"	305
*B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL					LBS. 1314
*EPOXY COATED REINFORCING STEEL					LBS. 977
CLASS AA CONCRETE					C. Y. 18.5

APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	17'-8"	307
A2	26	#4	STR	17'-7"	305
*B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL					LBS. 1314
*EPOXY COATED REINFORCING STEEL					LBS. 977
CLASS AA CONCRETE					C. Y. 18.5

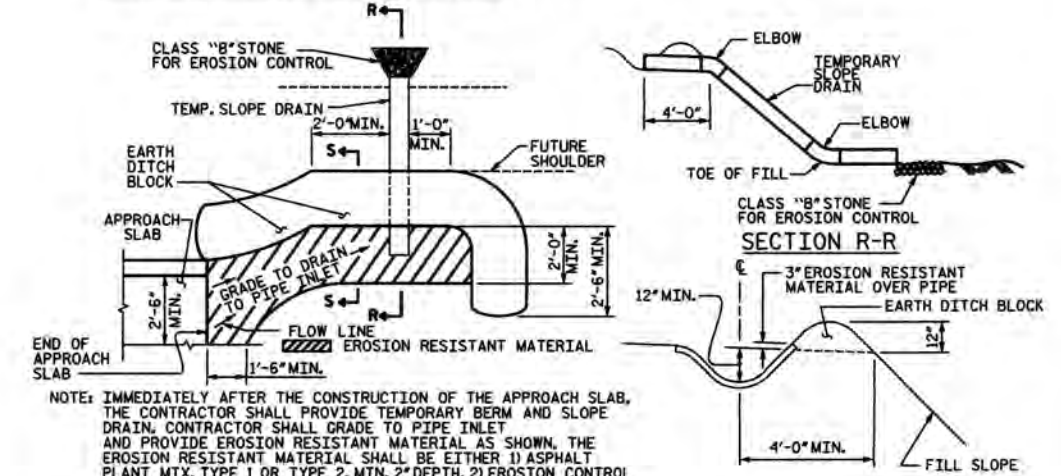


PLAN @ END BENT #1 **PLAN @ END BENT #2**
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



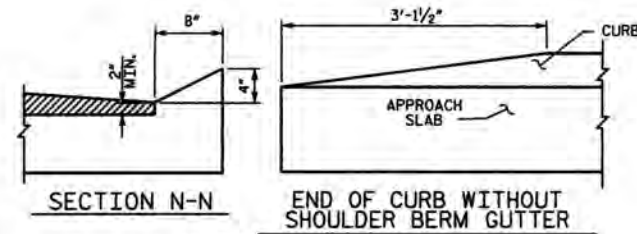
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



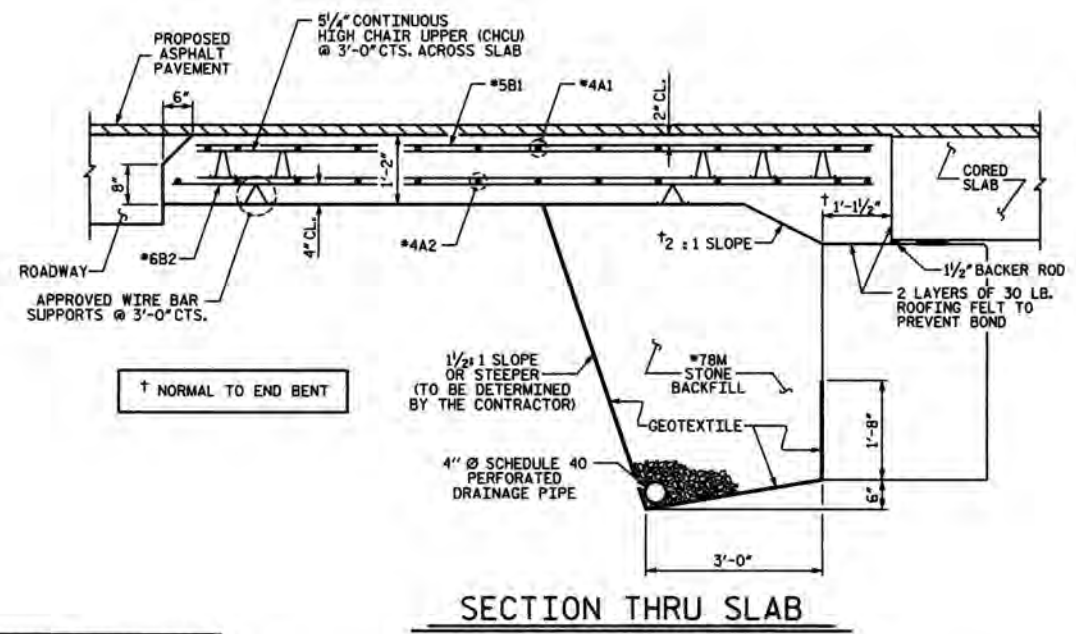
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



SECTION THRU SLAB

PROJECT NO. 17BP.5.R.19
 WAKE COUNTY
 STATION: 13+15.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 120° SKEW

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



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ASSEMBLED BY: J. PENDERGRAFT DATE: 6/12
 CHECKED BY: J. DILWORTH DATE: 6/12
 DRAWN BY: SHS/MAA 5-09 REV. 12-11 MAA/AAC
 CHECKED BY: BCH 5-09

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

REINFORCING STEEL:

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

STRUCTURAL STEEL:

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

HANDRAILS AND POSTS:

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

STD. NO. SN