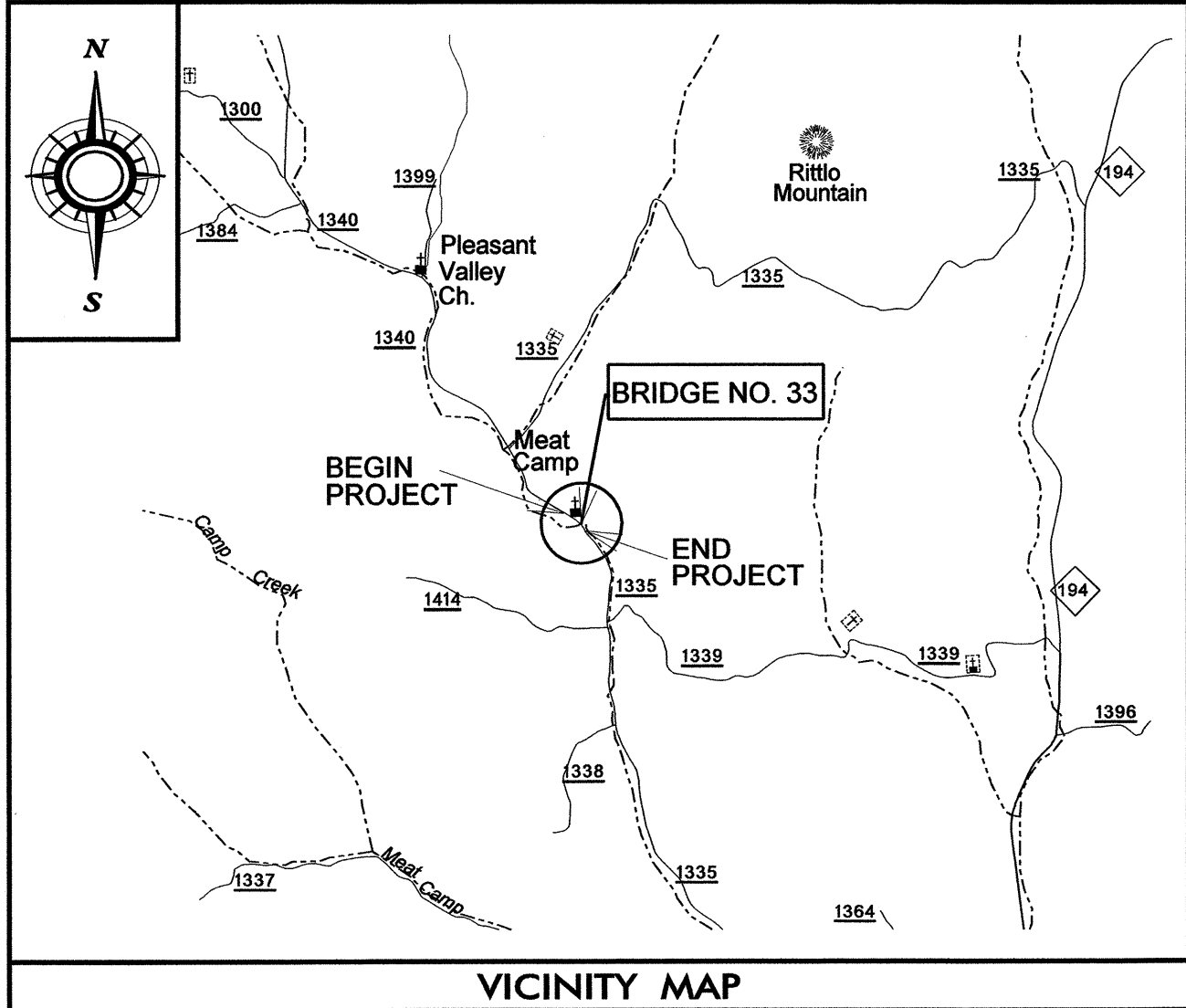


08/08/10

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



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**WATAUGA COUNTY**

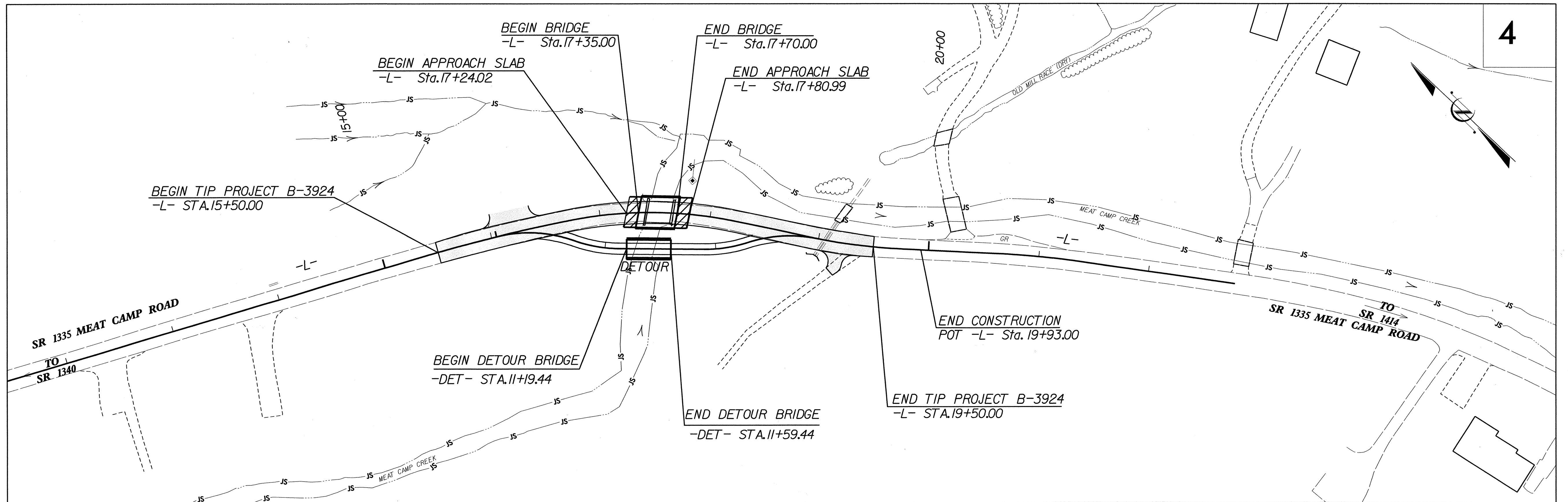
**LOCATION: BRIDGE NO. 33 OVER MEAT CAMP CREEK  
ON SR 1335 (MEAT CAMP ROAD)**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3924	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
36271.1.1	BRZ-1335(2)	PE	
36271.2.1	BRZ-1335(2)	R/W, UTIL.	
36271.3.1	BRZ-1335(2)	CONST.	

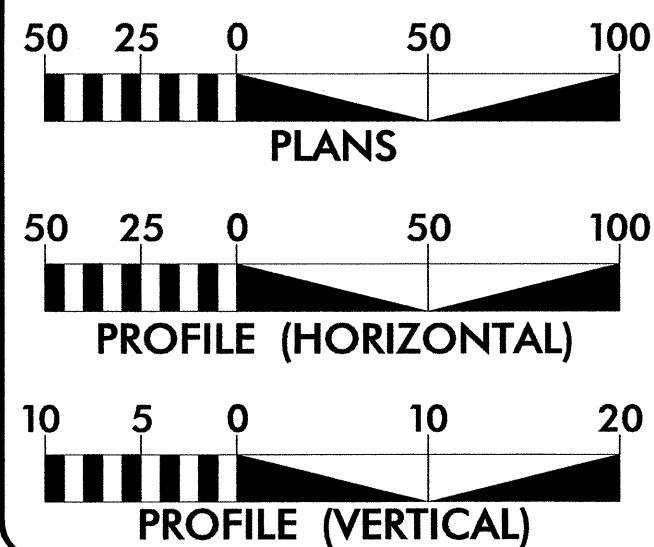
**TIP PROJECT: B-3924**

**CONTRACT: C202650**



NCDOT CONTACT: BRENDA MOORE, P.E., PROJECT ENGINEER - ROADWAY DESIGN

**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2012 = 1880  
ADT 2032 = 2680  
DHV = 12 %  
D = 60 %  
T = 3 % \*  
V = 40 MPH  
\* TTST 1 % DUAL 2%  
FUNC. CLASS =  
RURAL LOCAL  
SUBREGIONAL TIER

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-3924 = 0.069 mi.  
LENGTH OF STRUCTURE TIP PROJECT B-3924 = 0.007 mi.  
TOTAL LENGTH OF TIP PROJECT B-3924 = 0.076 mi.

Prepared in the Office of:  
**WANG ENGINEERING COMPANY, INC.**  
CARY, N.C.

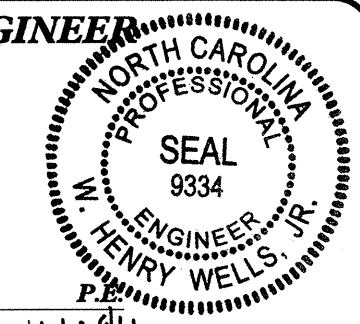
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

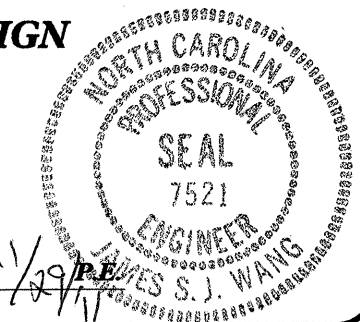
RIGHT OF WAY DATE: **JOSEPH C. OGDEN, PE**  
PROJECT ENGINEER  
SEPTEMBER 13, 2010

LETTING DATE: **JAMES S. WANG, PE**  
PROJECT DESIGN ENGINEER  
FEBRUARY 21, 2012

HYDRAULICS ENGINEER

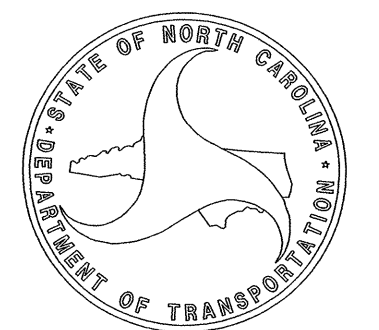


SIGNATURE: *[Signature]*  
ROADWAY DESIGN  
ENGINEER



SIGNATURE: *[Signature]*  
STATE HIGHWAY DESIGN ENGINEER

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

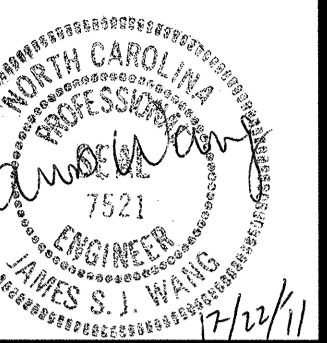


STATE HIGHWAY DESIGN ENGINEER

\$\$\$\$\$ SYSTEM \$\$\$\$\$\$  
\$\$\$\$\$ USER NAME \$\$\$\$\$\$

8/17/99

ROADWAY DESIGN ENGINEER



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
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	DETOUR PLAN SHEET
2-B THRU 2-F	GABION BASKET DETAILS (5)
2-G	TEMPORARY SHORING
3	SUMMARY OF QUANTITIES
3-A	EARTHWORK, GUARDRAIL, TEMPORARY GUARDRAIL, AND ASPHALT PAVEMENT REMOVAL SUMMARIES
3-B	DRAINAGE SUMMARY
4	PLAN & PROFILE SHEET
TMP-1 THRU TMP-6	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION PLAN
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS SECTION SUMMARY AND INDEX
X-2 THRU X-7	CROSS-SECTIONS
S-1 THRU S-23	STRUCTURE PLANS

GENERAL NOTES:

2012 SPECIFICATIONS  
EFFECTIVE: 01-17-12  
REVISED: 08/31/11

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.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Blue Ridge EMC

AT&T

Charter Communications

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

ROCK:

ROCK IS ANTICIPATED BETWEEN 17+65 TO 17+80 -L- (11+60 TO 11+75 -DET-). BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorages for Frames - Brick or Concrete
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
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

01/20/11

Note: Not to Scale

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

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

Table listing symbols for 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.

BUILDINGS AND OTHER CULTURE:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for railroads: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing symbols for 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, 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:

Table listing symbols for roads and related features: Existing Edge of Pavement, Existing Curb, Proposed Slope Stakes Cut, Proposed Slope Stakes Fill, Proposed Wheel Chair Ramp, Existing Metal Guardrail, Proposed Guardrail, Existing Cable Guiderail, Proposed Cable Guiderail, Equality Symbol, Pavement Removal.

VEGETATION:

Table listing symbols for vegetation: Single Tree, Single Shrub, Hedge, Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for gas: Gas Valve, Gas Meter, Recorded U/G Gas Line, Designated U/G Gas Line (S.U.E.\*), Above Ground Gas Line.

SANITARY SEWER:

Table listing symbols for 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:

Table listing symbols for 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, A/G Tank; Water, Gas, Oil, U/G Test Hole (S.U.E.\*), Abandoned According to Utility Records, End of Information.

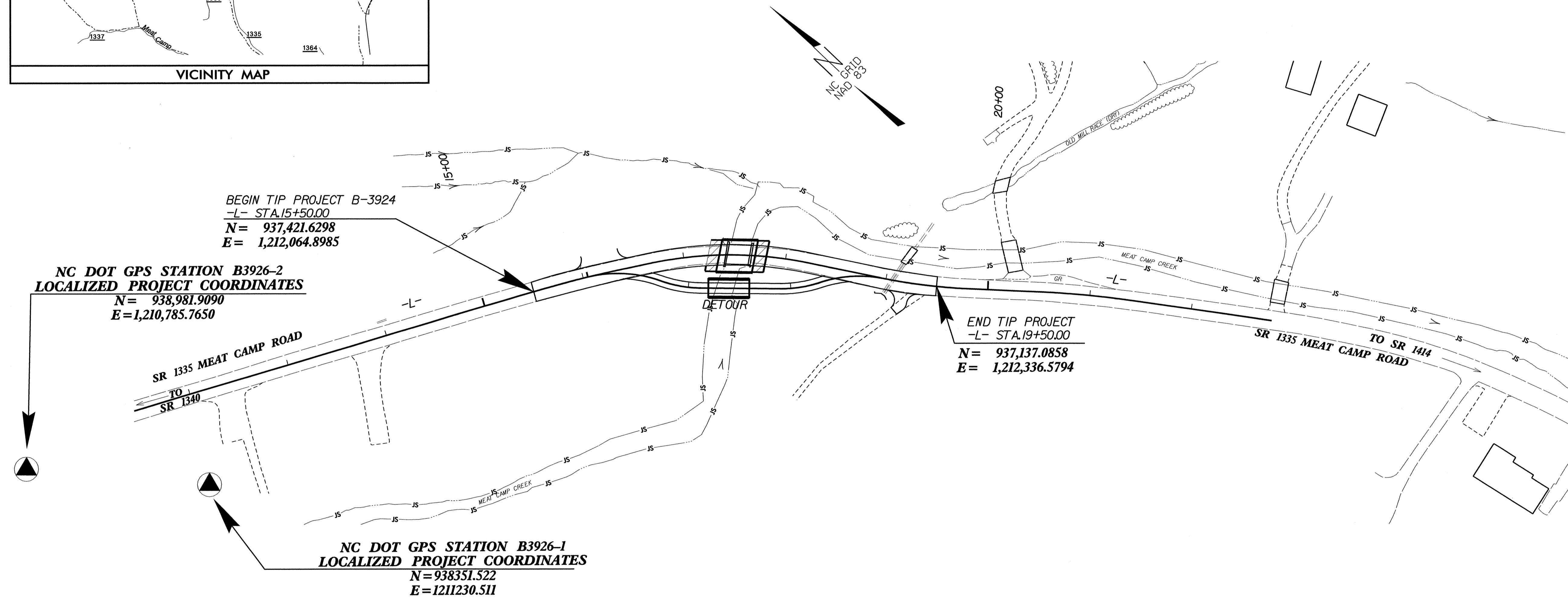
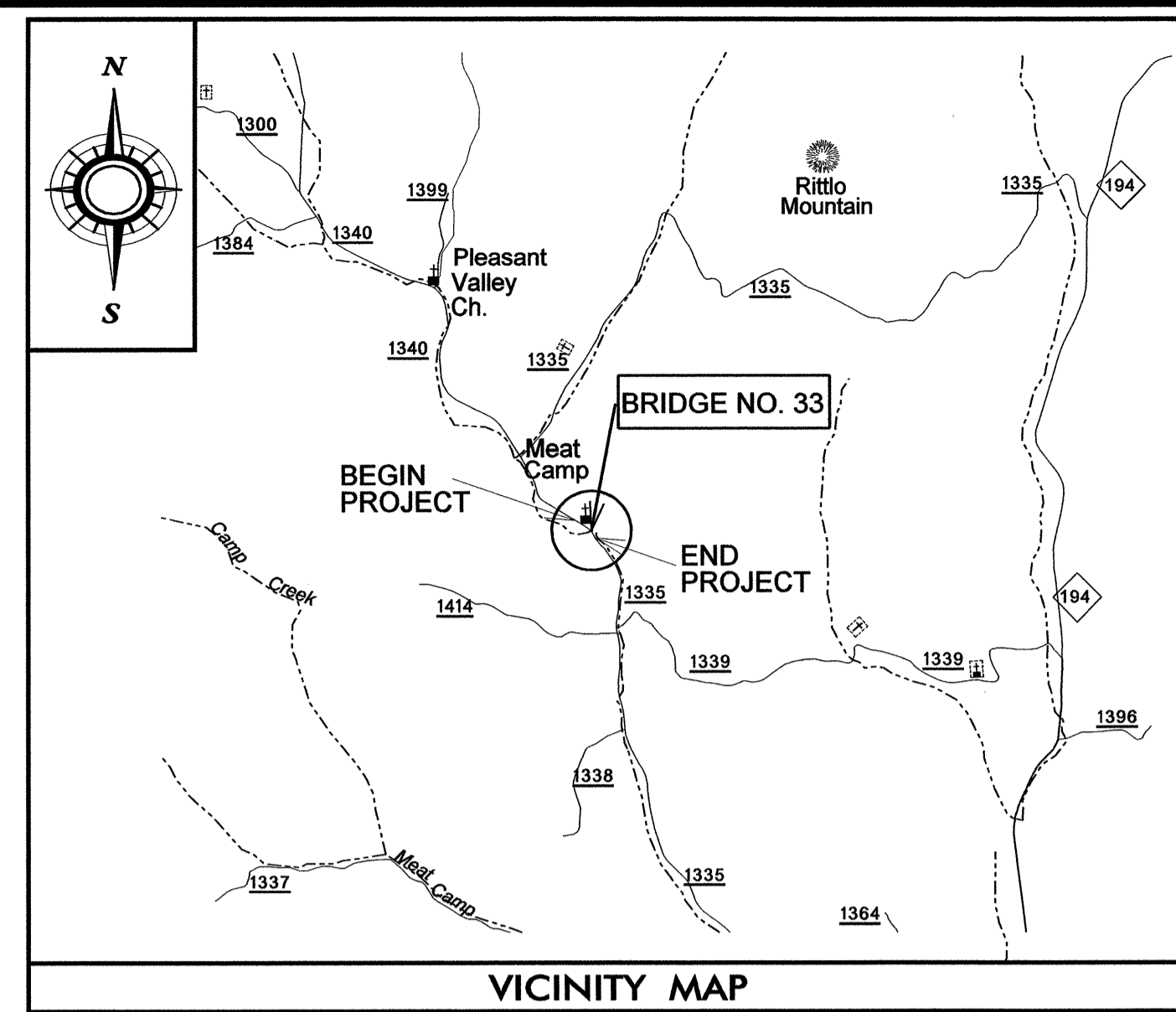
# SURVEY CONTROL SHEET B-3924

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL3	(BL-3)	937813.6391	1211436.6307	3380.53'	OUTSIDE PROJECT LIMITS	
BL4	(BL-4)	937294.0120	1212256.8429	3354.31'	17+76.56	18.99' LT
BL5	(BL-5)	936703.2804	1212649.8240	3336.23'	OUTSIDE PROJECT LIMITS	

\*\*\*\*\*

BM #1	ELEVATION = 3387.01'	BM #2	ELEVATION = 3356.70'	BM #3	ELEVATION = 3353.12'
N 937686	E 1211806	N 937359	E 1212283	N 936939	E 1212807
-L- STATION 11+93 97' LEFT		-L- STATION 17+48 81' LEFT		OUTSIDE PROJECT LIMITS	
8" SPIKE IN ROOT OF 14" TWIN POPLAR TREE		8" SPIKE IN ROOT OF 18" BEECH TREE		8" SPIKE IN BASE OF POWER POLE #03 07 03	

\*\*\*\*\*



## DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3926-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF

NORTHING: 938351.522(ft) EASTING: 1211230.511(ft)  
 ELEVATION: 3394.68(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988164

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3926-1" TO -L- STATION 15+50.00 IS

S 41°54'05" E 1249.36

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NGVD 29

## NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/)

THE FILES TO BE FOUND ARE AS FOLLOWS:  
 B3924\_LS\_CONTROL.TXT

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.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

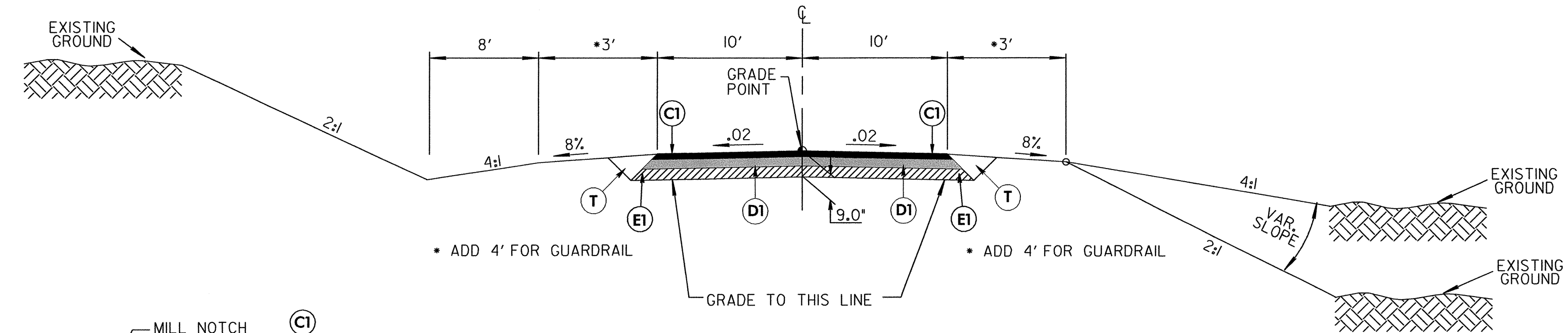
6/2/19

6/12/99

PROJECT REFERENCE NO. B-3924	SHEET NO. 2
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 

PAVEMENT SCHEDULE	
A	CONCRETE WEARING SURFACE
C	PROP. APPROX. 1.25" ASPHALT CONC. SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS PER SQ. YD.
C1	PROP. APPROX. 2.5" ASPHALT CONC. SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1.5" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS PER SQ. YD.
D2	PROP. VAR. DEPTH ASP. CONC. 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 2.5" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4.0" ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONC. 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" OR GREATER THAN 5.5" IN DEPTH.
J	PROPOSED 6" AGGREGATE BASE COURSE
P	PRIME COAT AT A RATE OF 0.35 GAL. PER SQ. YARD
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH PAVEMENT (SEE WEDGING DETAIL)

NOTE: ALL SLOPES 1:1 UNLESS OTHERWISE SPECIFIED

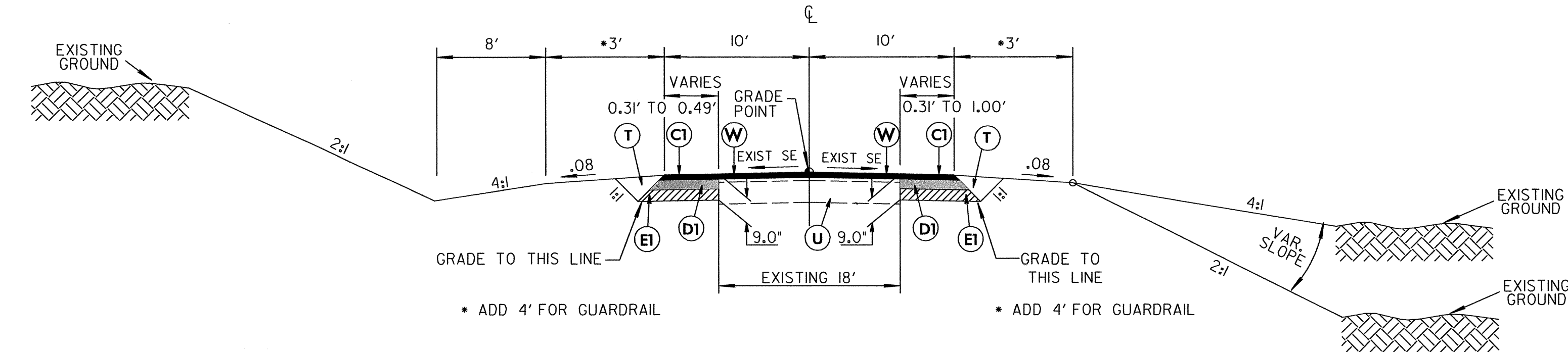


MILL NOTCH TO KEY IN  
L.25"  
MILL 25'  
AS DIRECTED BY ENGINEER

MILL EXISTING PAVEMENT 1.25" DEPTH  
-L- STA 15+50.00 TO 15+75.00

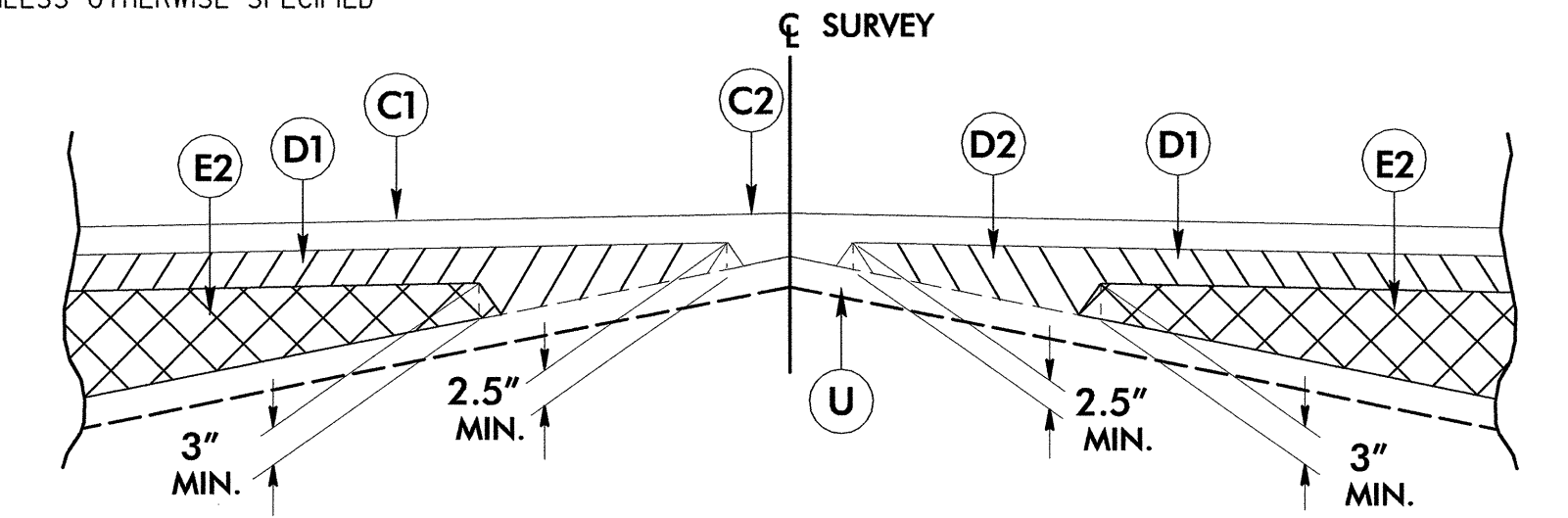
TRANSITION FROM EXIST. TO T.S. NO. 1  
-L- Sta. 15+50.00 to Sta. 15+75.00

**TYPICAL SECTION NO. 1**  
USE TYPICAL SECTION NO. 1 AS FOLLOWS  
-L- Sta. 15+75.00 to Sta. 17+35.00 (BEGIN BRIDGE)  
-L- Sta. 17+70.00 (END BRIDGE) to Sta. 18+42.00

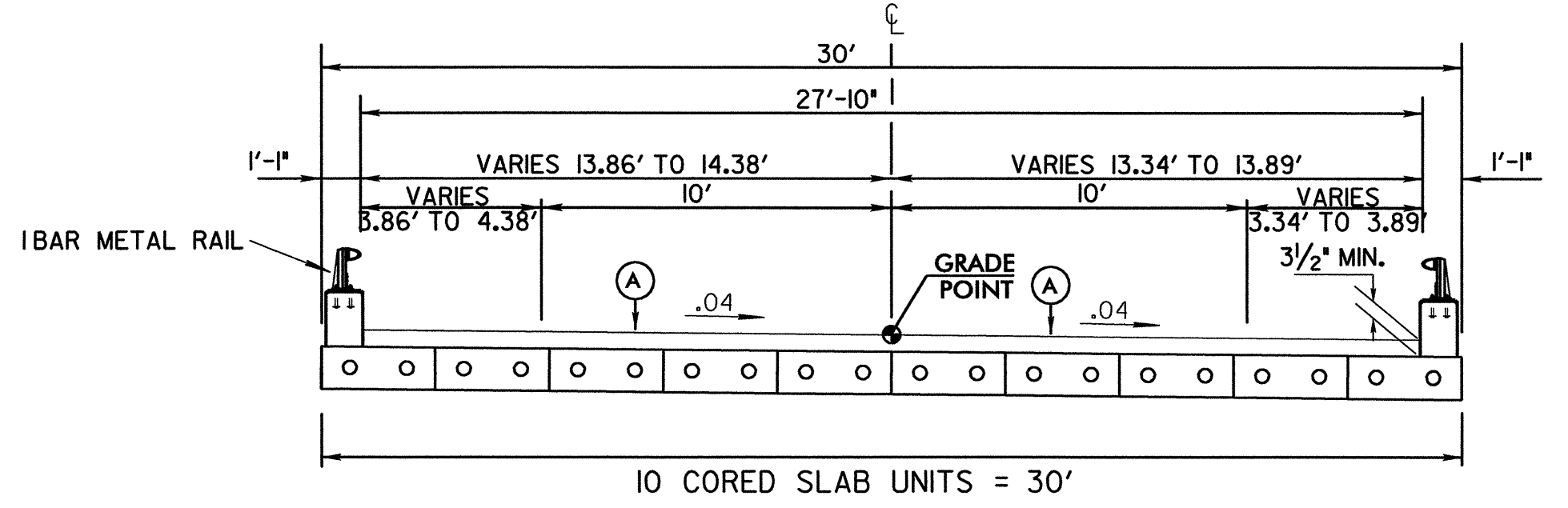


TRANSITION FROM T.S. NO. 2 TO EXIST.  
-L- Sta. 19+25.00 to Sta. 19+50.00

**TYPICAL SECTION NO. 2**  
USE TYPICAL SECTION NO. 2 AS FOLLOWS  
-L- Sta. 18+42.00 to Sta. 19+25.00

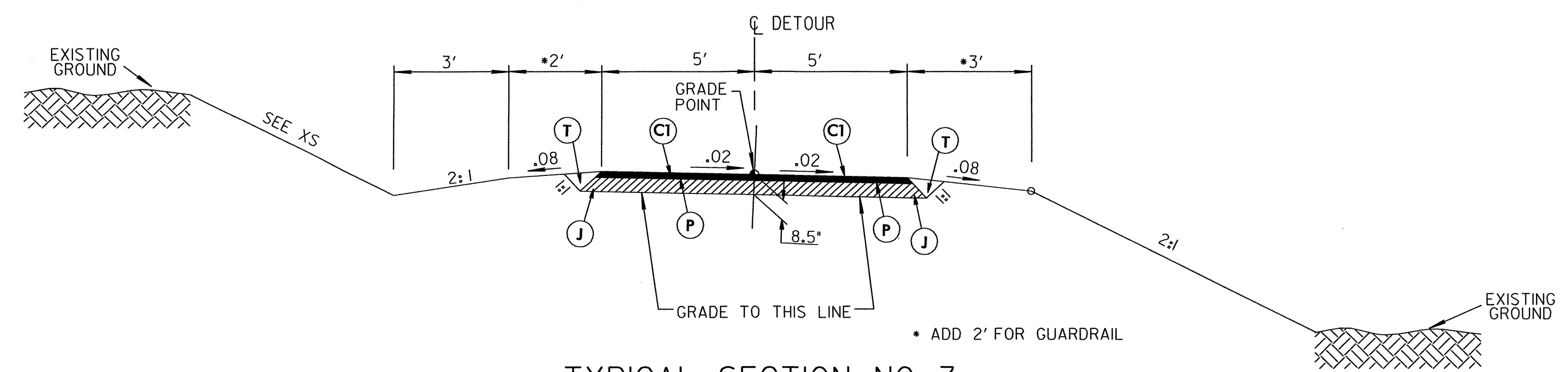


Detail Showing Method of Wedging

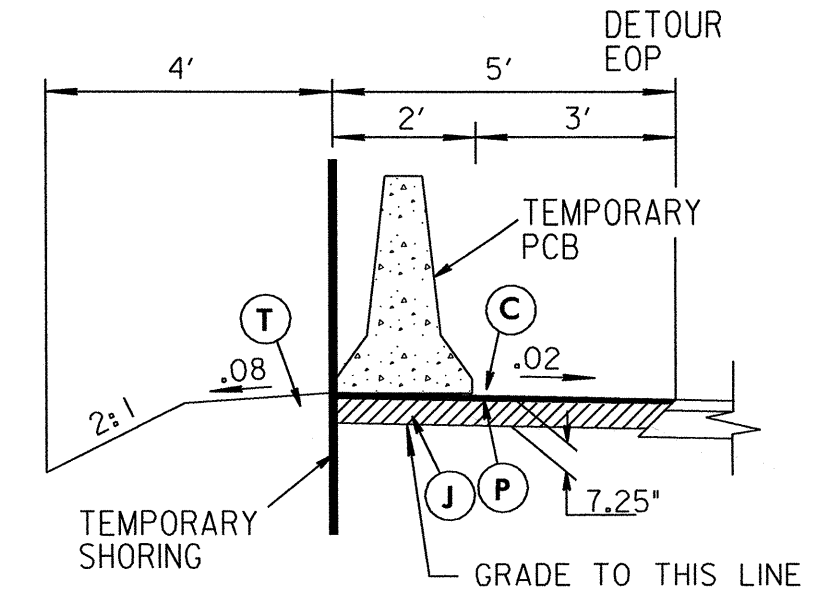


**TYPICAL BRIDGE SECTION**  
-L- Sta. 17+35.00 to Sta. 17+70.00

NOTE: VARIABLE WIDTH DUE TO TANGENT BRIDGE ON HORIZONTAL CURVE.

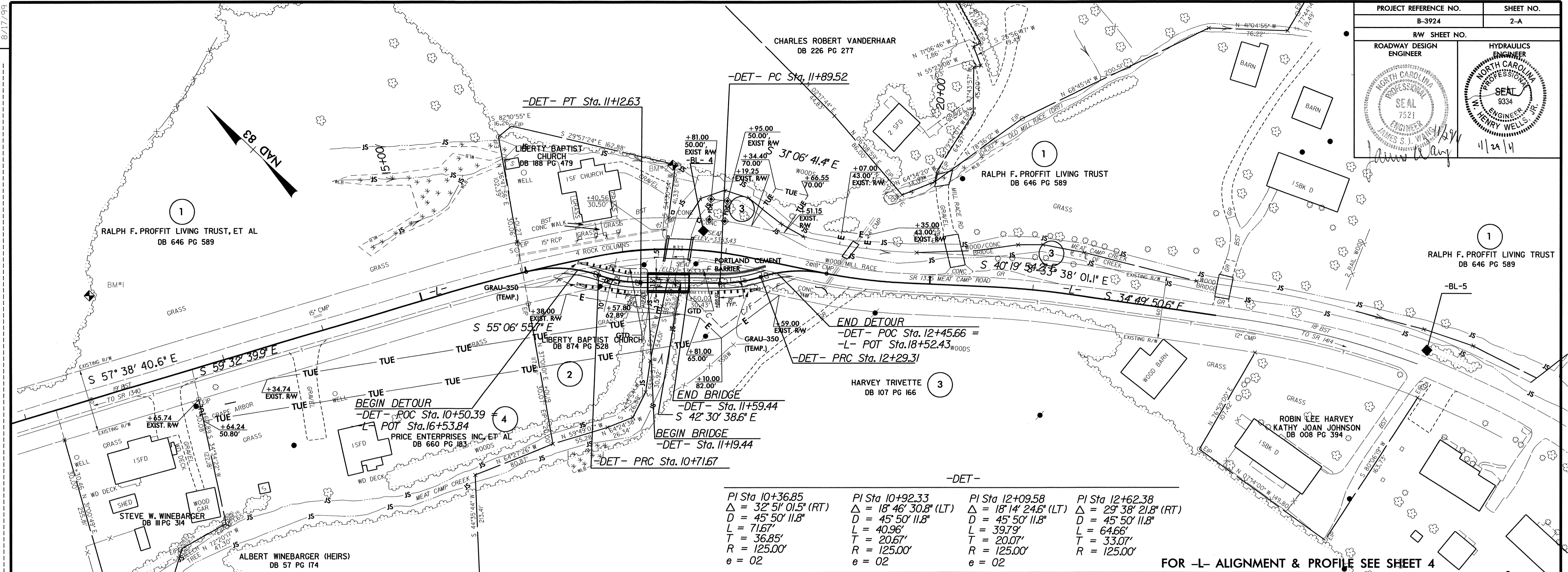


**TYPICAL SECTION NO. 3**  
USE TYPICAL SECTION NO. 3 AS FOLLOWS  
-DET- Sta. 10+50.39 to Sta. 11+19.44  
-DET- Sta. 11+59.44 to Sta. 12+45.66



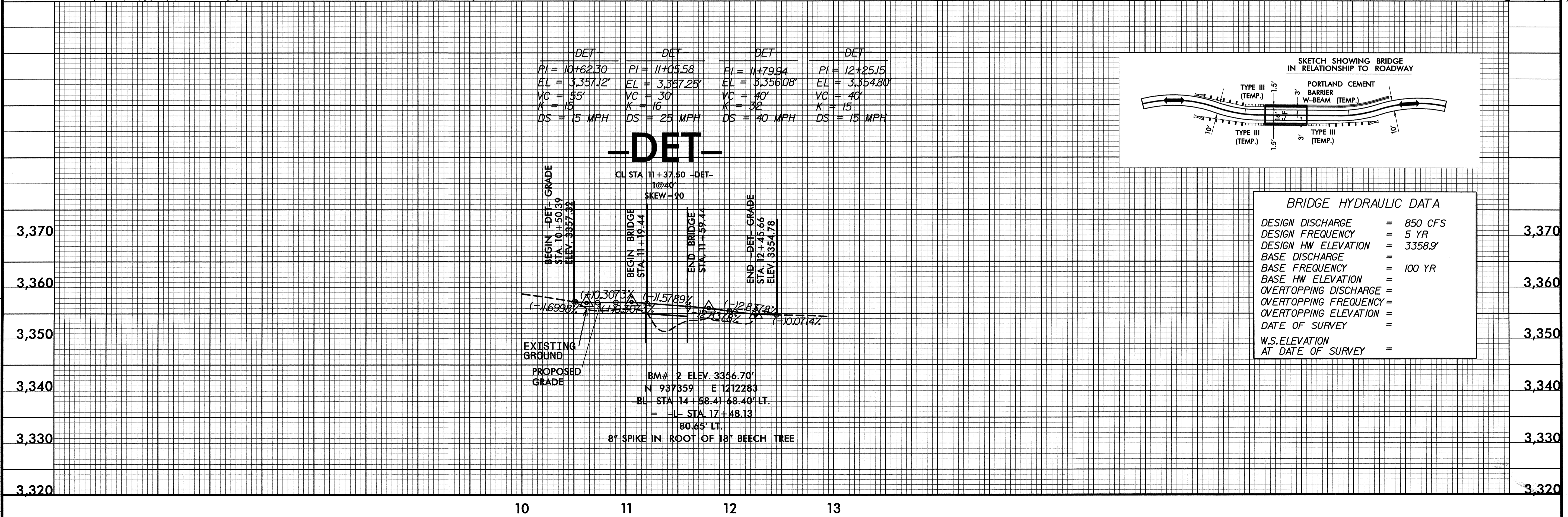
NOTES: TEMPORARY PAVEMENT TO BE USED -DET- +/- 11+59 TO +/- 12+35 LT, SEE TRAFFIC CONTROL PLANS.  
USE 1.25" SF9.5A AND 6" ABC FOR TEMP. PAVEMENT DESIGN.

USE IN CONJUNCTION WITH T.S. NO. 3

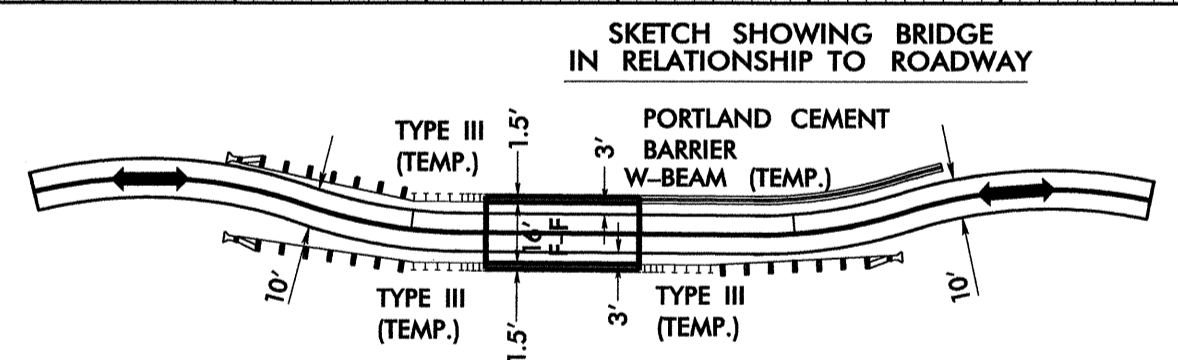


PI Sta	PI Sta	PI Sta	PI Sta
10+36.85	10+92.33	12+09.58	12+62.38
$\Delta = 32' 51'' 01.5'' (RT)$	$\Delta = 18' 46'' 30.8'' (LT)$	$\Delta = 18' 14'' 24.6'' (LT)$	$\Delta = 29' 38'' 21.8'' (RT)$
$D = 45' 50'' 11.8''$	$D = 45' 50'' 11.8''$	$D = 45' 50'' 11.8''$	$D = 45' 50'' 11.8''$
$L = 71.67'$	$L = 40.96'$	$L = 39.79'$	$L = 64.66'$
$T = 36.85'$	$T = 20.67'$	$T = 20.07'$	$T = 33.07'$
$R = 125.00'$	$R = 125.00'$	$R = 125.00'$	$R = 125.00'$
$e = 02$	$e = 02$	$e = 02$	$e = 02$

FOR -L- ALIGNMENT & PROFILE SEE SHEET 4



DET	DET	DET	DET
PI = 10+62.30	PI = 11+05.58	PI = 11+79.94	PI = 12+25.15
EL = 3,357.12	EL = 3,357.25	EL = 3,356.08	EL = 3,354.80
VC = 55'	VC = 30'	VC = 40'	VC = 40'
K = 15	K = 16	K = 32	K = 15
DS = 15 MPH	DS = 25 MPH	DS = 40 MPH	DS = 15 MPH



BRIDGE HYDRAULIC DATA	
DESIGN DISCHARGE	= 850 CFS
DESIGN FREQUENCY	= 5 YR
DESIGN HW ELEVATION	= 3358.9'
BASE DISCHARGE	=
BASE FREQUENCY	= 100 YR
BASE HW ELEVATION	=
OVERTOPPING DISCHARGE	=
OVERTOPPING FREQUENCY	=
OVERTOPPING ELEVATION	=
DATE OF SURVEY	=
W.S. ELEVATION AT DATE OF SURVEY	=

**-DET-**  
CL STA 11+37.50 -DET-  
1@40'  
SKEW=90

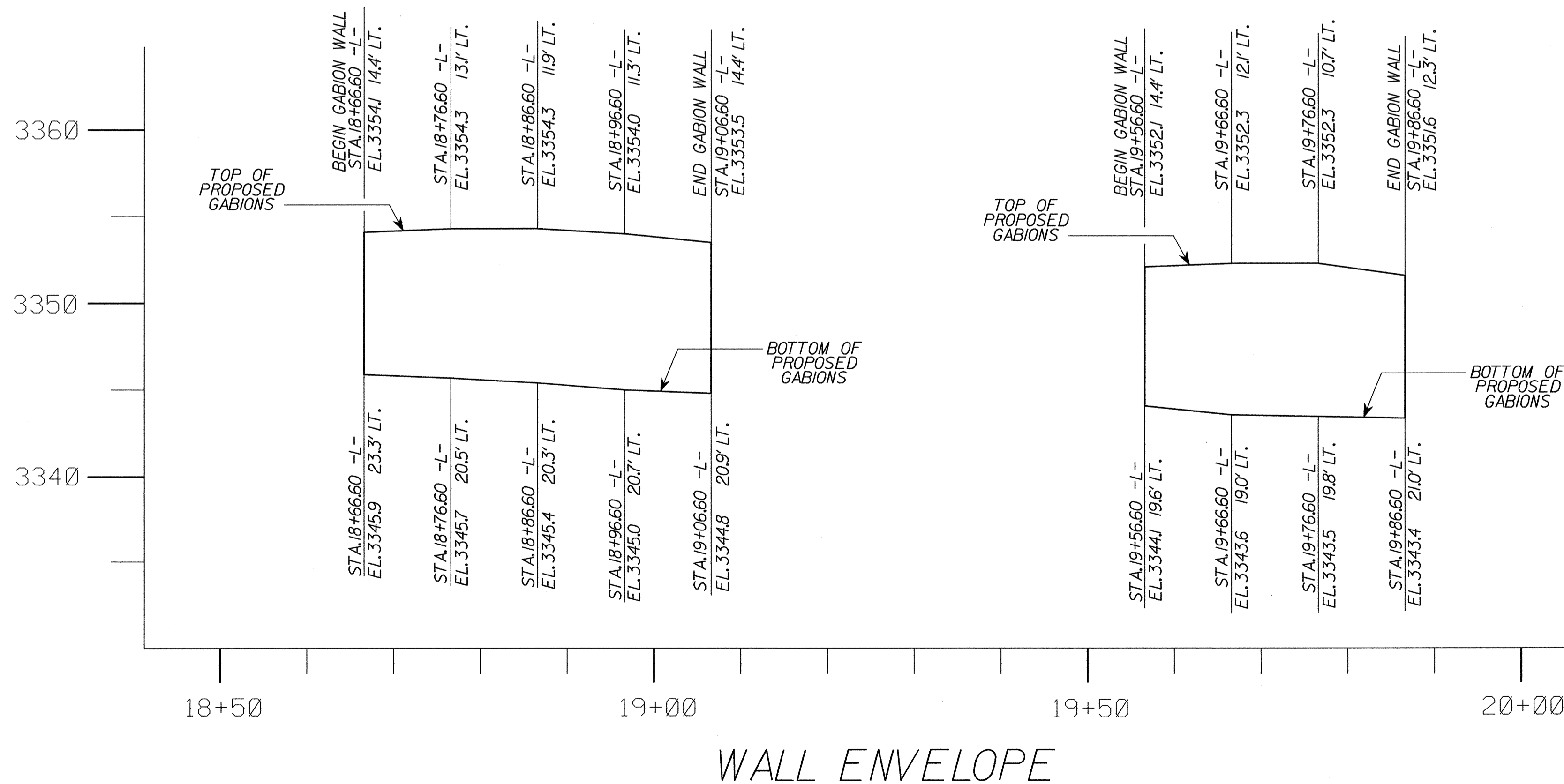
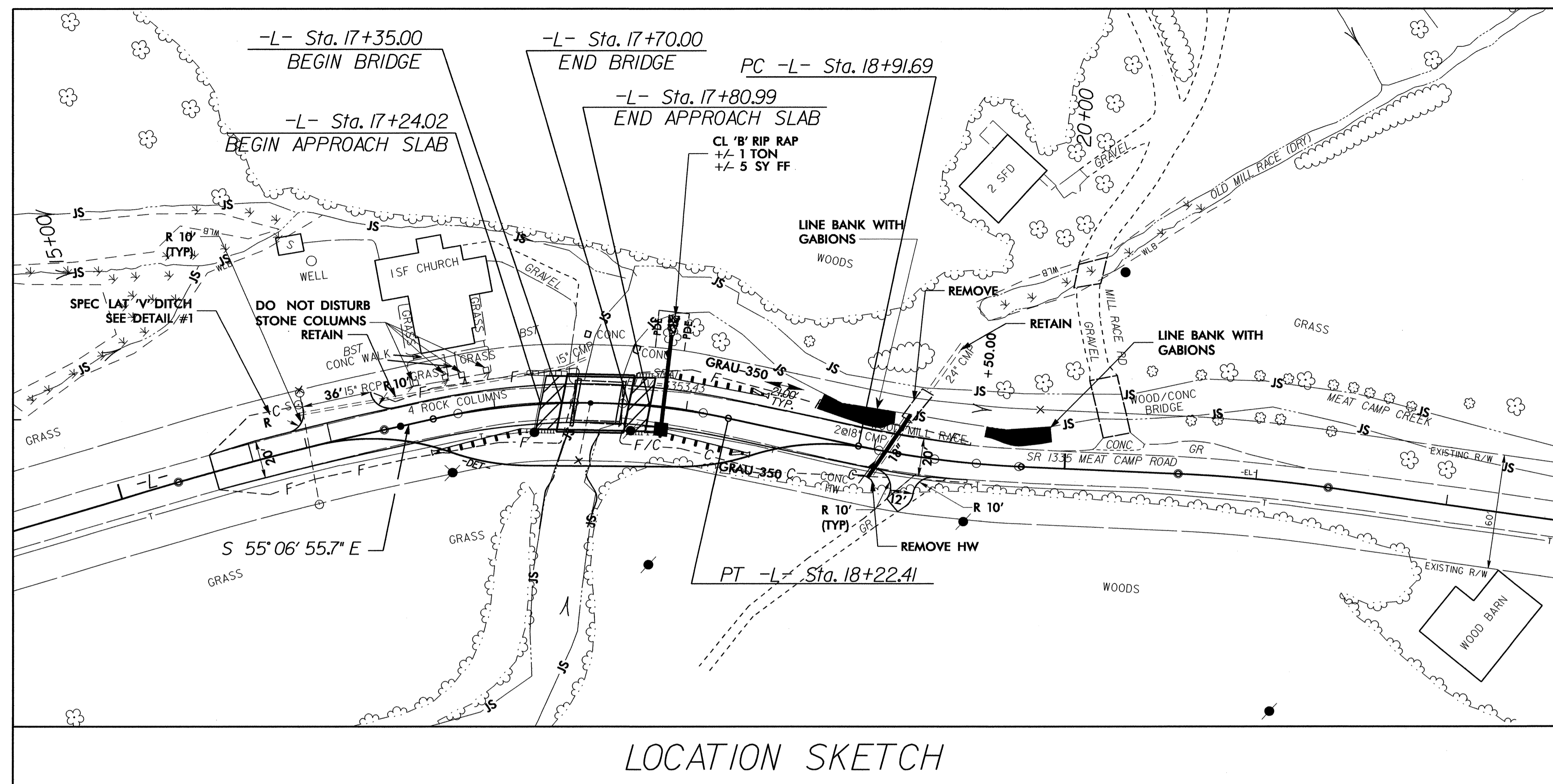
BEGIN -DET- GRADE STA. 10+50.39 ELEV. 3357.32  
BEGIN BRIDGE STA. 11+19.44  
END BRIDGE STA. 11+59.44  
END -DET- GRADE STA. 12+45.66 ELEV. 3354.78

BM# 2 ELEV. 3336.70'  
N 937359 E 1212283  
-BL- STA 14+58.41 68.40' LT.  
-L- STA 17+48.13  
80.65' LT.  
8" SPIKE IN ROOT OF 18" BEECH TREE

REVISIONS

8/17/99

SYSTEMS



PROPOSED WALL ENVELOPES ARE ESTIMATES. ACTUAL FIELD INSTALLATION LIMITS MAY VARY DUE TO VARIATIONS IN INSTALLATION AS DIRECTED BY THE ENGINEER.


PROJECT NO.: B-3924  
 WATAUGA COUNTY  
 STATION: 18+65.60-L TO 19+07.60-L  
 19+56.60-L TO 19+92.60-L  
 SHEET 1 OF 5

PREPARED BY: EJS DATE: 12/2011  
 REVIEWED BY: SCC DATE: 12/2011

**GEOTECHNICAL ENGINEERING UNIT**

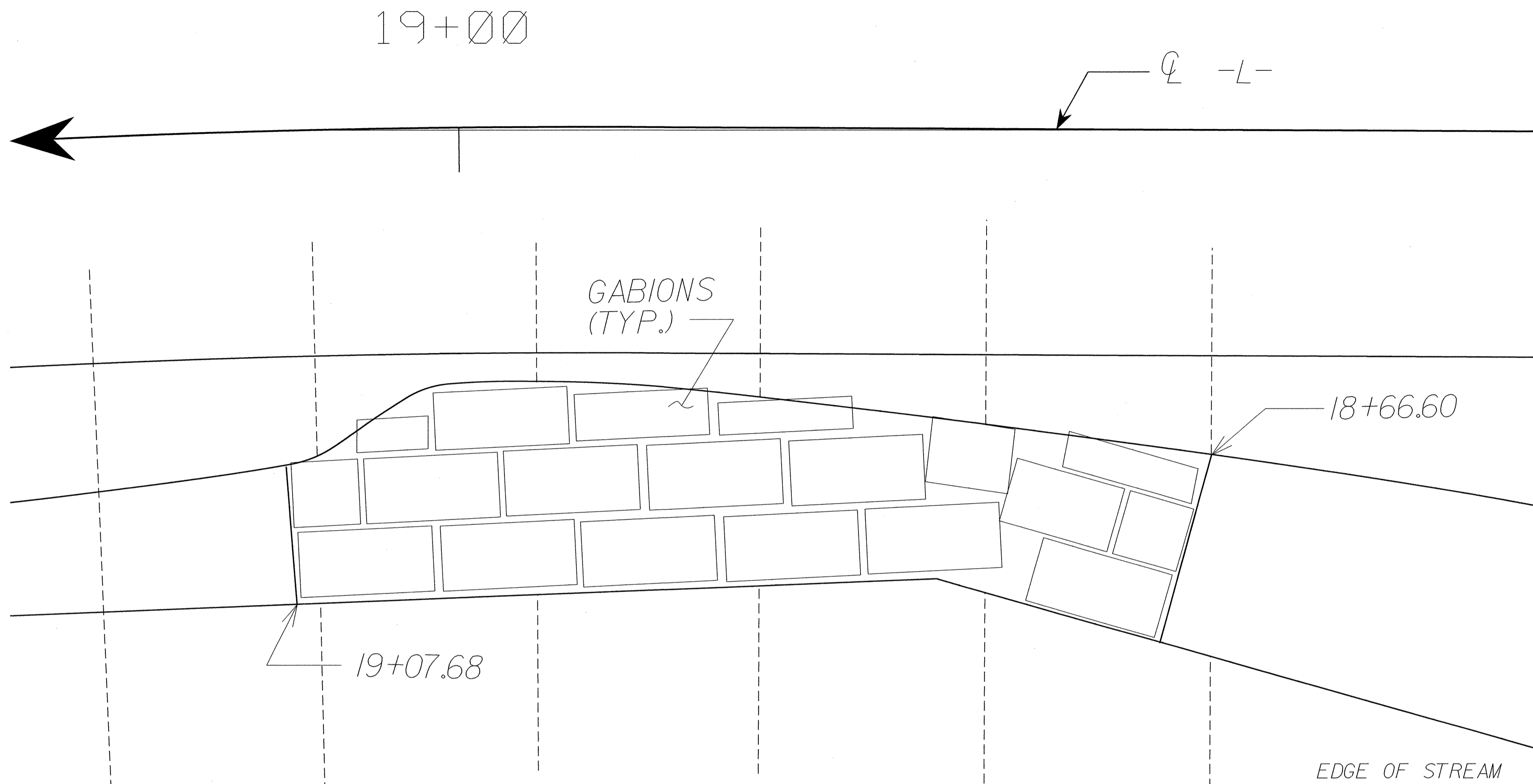
EASTERN REGIONAL OFFICE  
 WESTERN REGIONAL OFFICE  
 CONTRACT OFFICE

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

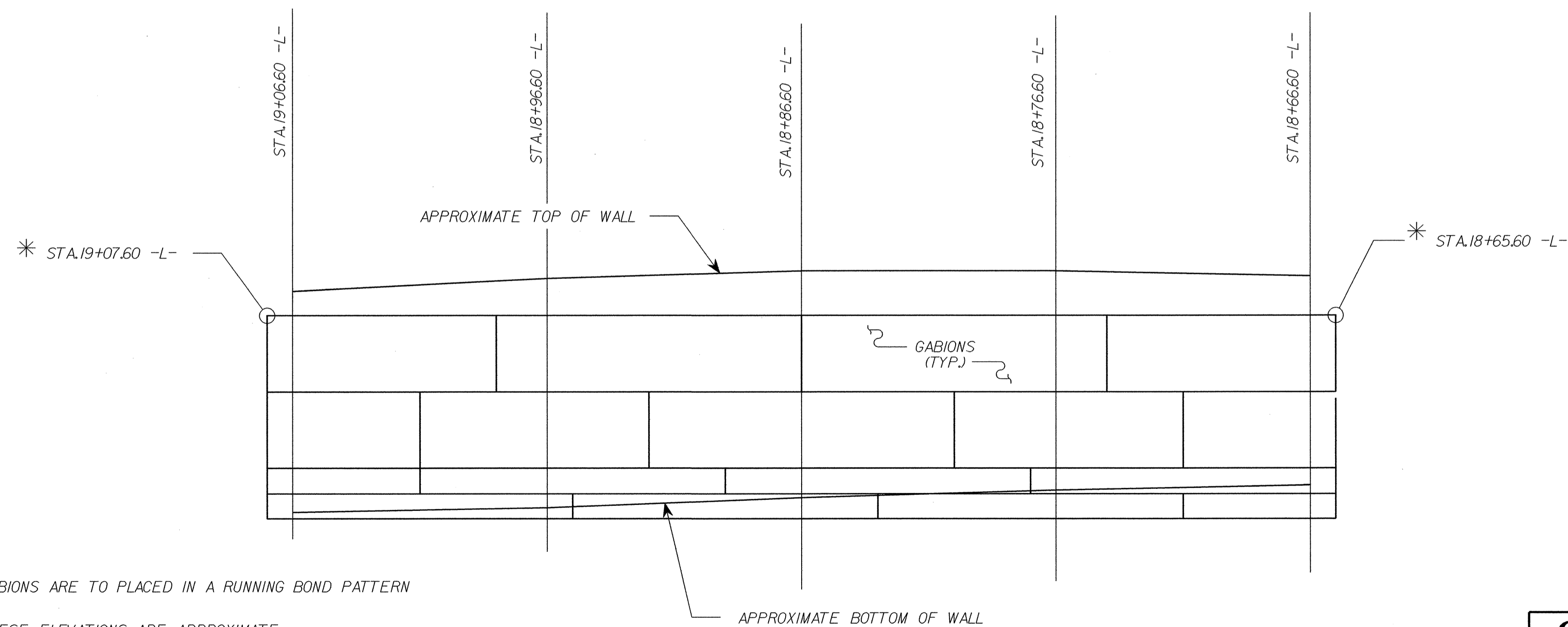


**GABION BASKET  
 SHOULDER CONSTRUCTION  
 DETAILS**

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



PLAN OF SHOULDER REPAIR



GABIONS ARE TO BE PLACED IN A RUNNING BOND PATTERN

\* THESE ELEVATIONS ARE APPROXIMATE

ELEVATION OF SHOULDER REPAIR

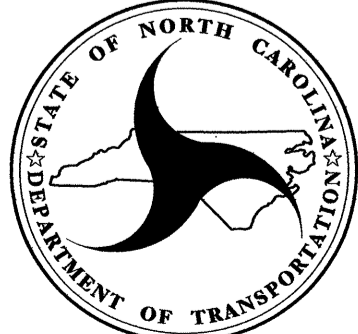
TOTAL LENGTH OF THE GABIONS ARE OUTSIDE THE LIMITS ESTABLISHED BY ROADWAY DESIGN TO LIMIT THE MODIFICATIONS TO THE GABIONS.

PROJECT NO.: B-3924  
 WATAUGA COUNTY  
 STATION: 18+65.60-L- TO 19+07.60-L-  
 SHEET 2 OF 5

**GEOTECHNICAL ENGINEERING UNIT**

EASTERN REGIONAL OFFICE  
 WESTERN REGIONAL OFFICE  
 CONTRACT OFFICE

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

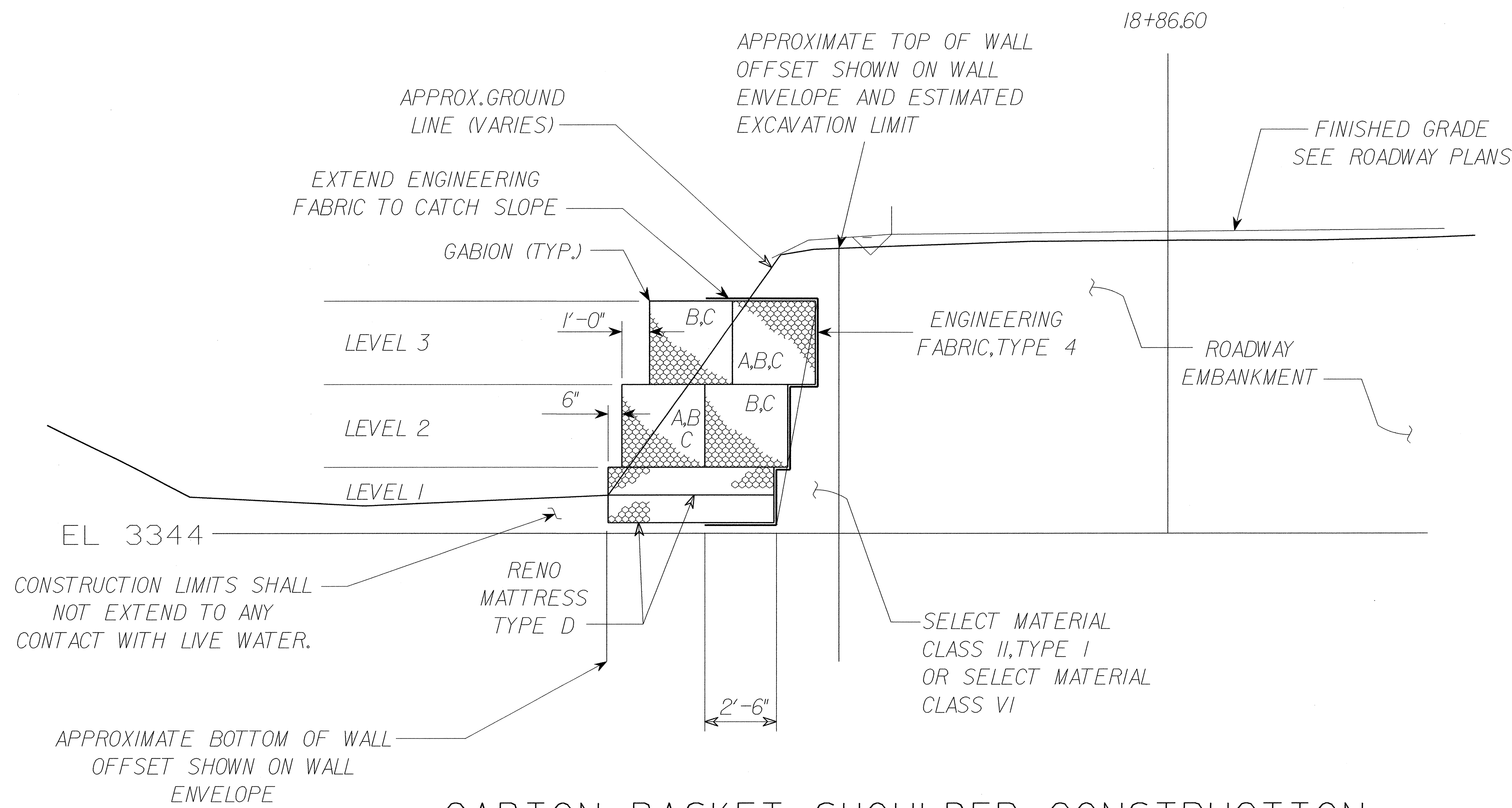


**GABION BASKET SHOULDER CONSTRUCTION DETAILS**

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

PREPARED BY: EJS	DATE: 12/2011
REVIEWED BY: SCC	DATE: 12/2011





ESTIMATED QUANTITIES FOR BIDDING	
<u>GABIONS</u>	
TYPE "A"	4
TYPE "B"	8
TYPE "C"	6
<u>RENO MATTRESS</u>	
TYPE "D"	7
TOTAL VOLUME OF STONE = 75 CU.YDS.	

TYPICAL SIZES			
<u>GABIONS</u>	LENGTH	WIDTH	HEIGHT
TYPE "A"	6' X	3' X	3'
TYPE "B"	9' X	3' X	3'
TYPE "C"	12' X	3' X	3'
<u>RENO MATTRESS</u>	LENGTH	WIDTH	HEIGHT
TYPE "D"	12' X	6' X	12"

PAY ITEMS
GABION AND RENO MATTRESS RETAINING WALL
TOTAL AREA OF WALL = 336 SQ.FT.

## GABION BASKET SHOULDER CONSTRUCTION

### NOTES:

1. RENO MATTRESSES / GABIONS ARE BE TO FILLED WITH THE SIZE AND TYPE OF STONE AS OUTLINED IN THE PROJECT SPECIAL PROVISIONS.
2. RENO MATTRESSES ARE TO BE CUT AND FITTED TO CREATE A LEVEL PLATFORM FOR THE GABIONS, IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.
3. LIMITS OF THE CONSTRUCTION MAY BE EXTENDED AT THE DIRECTION OF THE ENGINEER BASED ON FIELD EVALUATION.
4. OVERLAP FABRIC A MINIMUM 18" OR AS DIRECTED BY THE ENGINEER.
5. BACKFILL CONSTRUCTION EXCAVATION WITH SELECT MATERIAL CLASS II, TYPE I OR SELECT MATERIAL, CLASS VI.

PROJECT NO.: B-3924  
WATAUGA COUNTY  
STATION: 18+65.60-L- TO 19+07.60-L-  
SHEET 3 OF 5

PREPARED BY: EJS      DATE: 12/2011  
REVIEWED BY: SCC      DATE: 12/2011

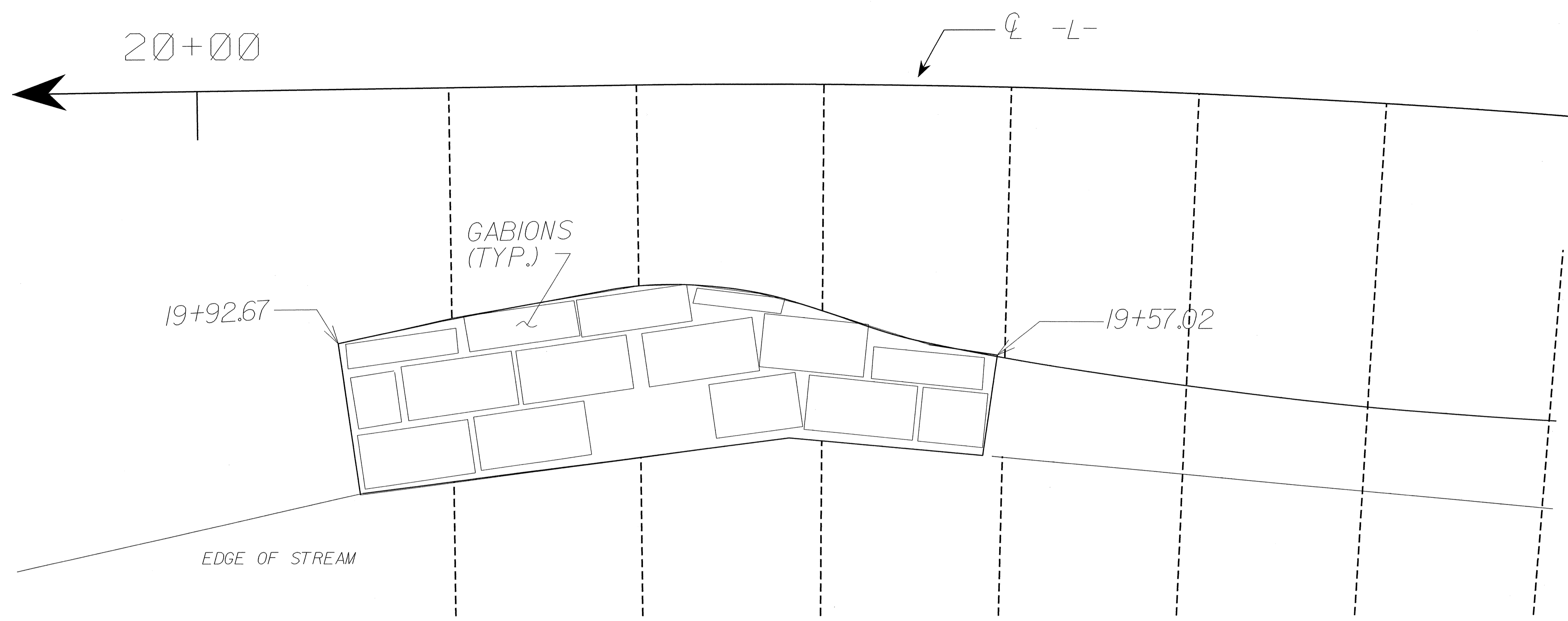
**GEOTECHNICAL ENGINEERING UNIT**

EASTERN REGIONAL OFFICE  
 WESTERN REGIONAL OFFICE  
 CONTRACT OFFICE

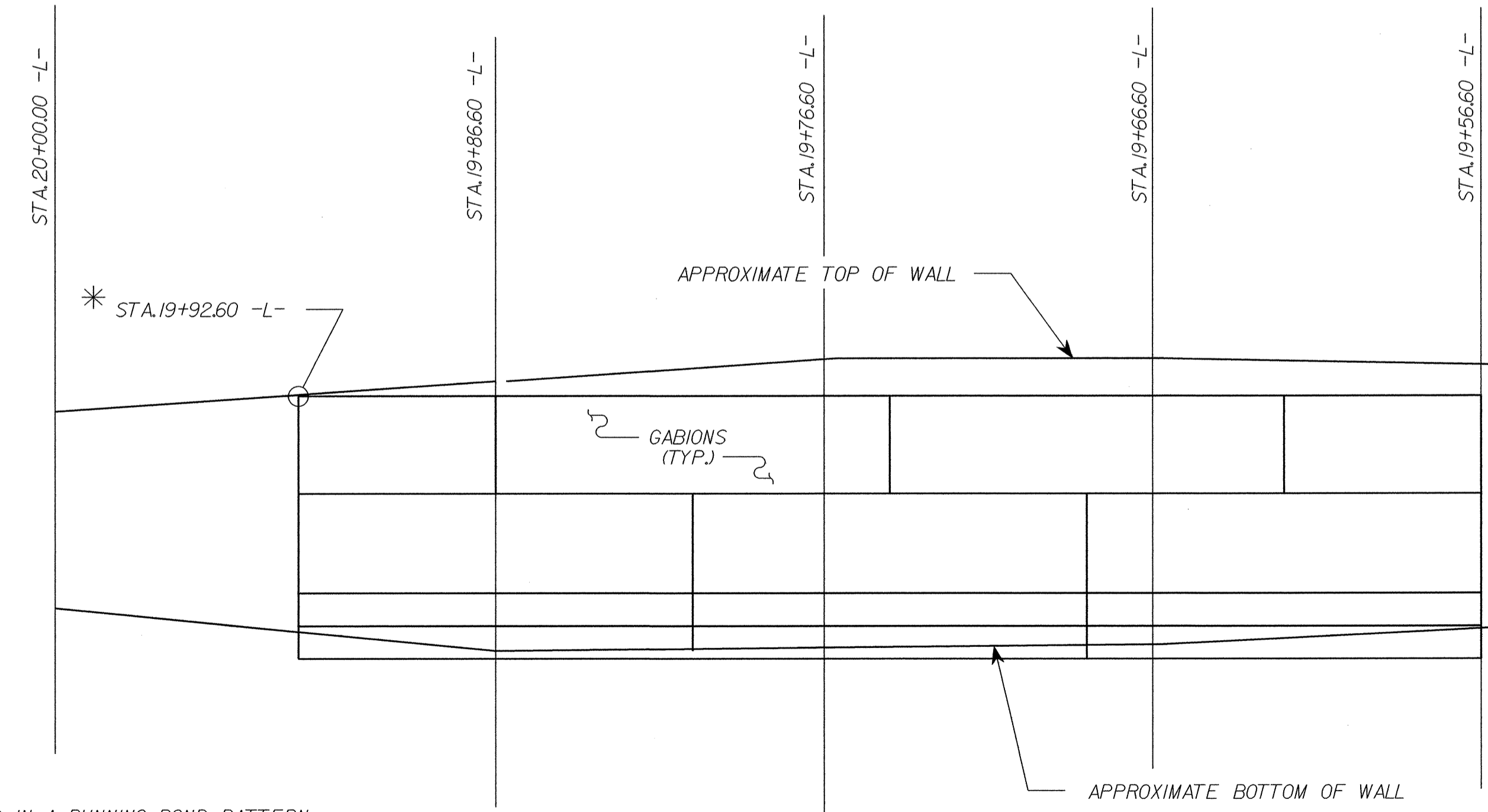
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

GABION BASKET SHOULDER CONSTRUCTION DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	-	-	3	-	-
2	-	-	4	-	-

SHEET NO. 2-D  
TOTAL SHEETS



PLAN OF SHOULDER REPAIR



GABIONS ARE TO BE PLACED IN A RUNNING BOND PATTERN  
 \* THESE ELEVATIONS ARE APPROXIMATE

ELEVATION OF SHOULDER REPAIR

TOTAL LENGTH OF THE GABIONS ARE OUTSIDE THE LIMITS ESTABLISHED BY ROADWAY DESIGN TO LIMIT THE MODIFICATIONS TO THE GABIONS.

PROJECT NO.: B-3924  
 WATAUGA COUNTY  
 STATION: 19+56.60-L- TO 19+92.60-L-  
 SHEET 4 OF 5

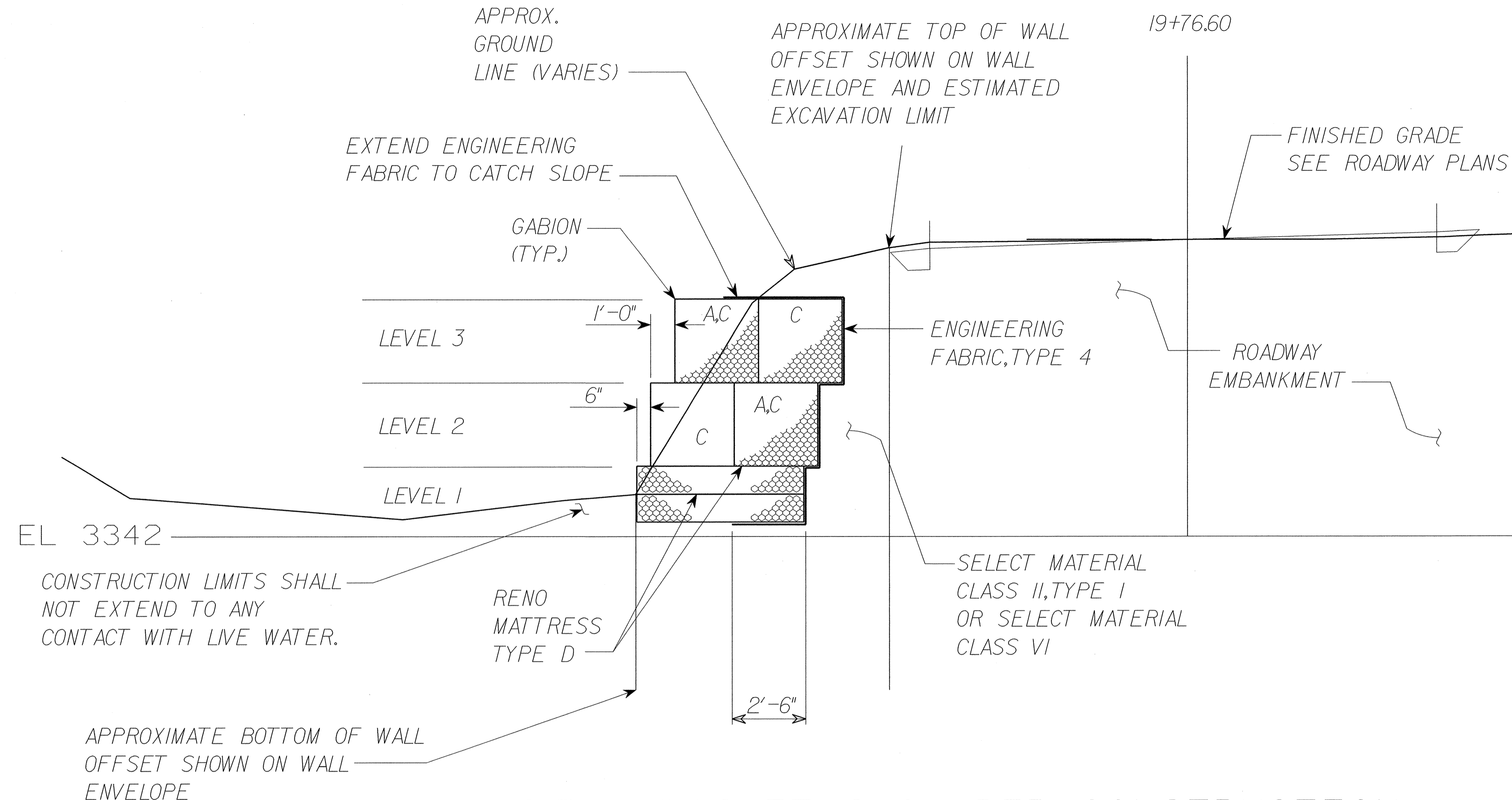
**GEOTECHNICAL ENGINEERING UNIT**

EASTERN REGIONAL OFFICE  
 WESTERN REGIONAL OFFICE  
 CONTRACT OFFICE

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

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

PREPARED BY: EJS	DATE: 12/2011
REVIEWED BY: SCC	DATE: 12/2011



ESTIMATED QUANTITIES FOR BIDDING	
<u>GABIONS</u>	
TYPE "A"	4
TYPE "C"	10
<u>RENO MATTRESS</u>	
TYPE "D"	6
<u>TOTAL VOLUME OF STONE = 60 CU.YDS.</u>	

TYPICAL SIZES			
GABIONS	LENGTH	WIDTH	HEIGHT
TYPE "A"	6' X	3' X	3'
TYPE "C"	12' X	3' X	3'
RENO MATTRESS	LENGTH	WIDTH	HEIGHT
TYPE "D"	12' X	6' X	12"

PAY ITEMS
GABION AND RENO MATTRESS RETAINING WALL
<u>TOTAL AREA OF WALL = 288 SQ.FT.</u>

## GABION BASKET SHOULDER CONSTRUCTION

### NOTES:

1. RENO MATTRESSES / GABIONS ARE TO BE FILLED WITH THE SIZE AND TYPE OF STONE AS OUTLINED IN THE PROJECT SPECIAL PROVISIONS.
2. RENO MATTRESSES ARE TO BE CUT AND FITTED TO CREATE A LEVEL PLATFORM FOR THE GABIONS, IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.
3. LIMITS OF THE CONSTRUCTION MAY BE EXTENDED AT THE DIRECTION OF THE ENGINEER BASED ON FIELD EVALUATION.
4. OVERLAP FABRIC A MINIMUM 18" OR AS DIRECTED BY THE ENGINEER.
5. BACKFILL CONSTRUCTION EXCAVATION WITH SELECT MATERIAL CLASS II, TYPE I OR SELECT MATERIAL, CLASS VI.

**PROJECT NO.:** B-3924  
**WATAUGA COUNTY**  
**STATION:** 19+56.60-L- TO 19+92.60-L-  
 SHEET 5 OF 5

PREPARED BY: EJS      DATE: 12/2011  
 REVIEWED BY: SCC      DATE: 12/2011

**GEOTECHNICAL ENGINEERING UNIT**

EASTERN REGIONAL OFFICE  
 WESTERN REGIONAL OFFICE  
 CONTRACT OFFICE

**STATE OF NORTH CAROLINA**  
**DEPARTMENT OF TRANSPORTATION**  
**RALEIGH**

GABION BASKET SHOULDER CONSTRUCTION DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	-	-	3	-	-
2	-	-	4	-	-

SHEET NO. **2-F**  
TOTAL SHEETS

GEOTECHNICAL ENGINEER

ENGINEER



S. A. Nields 11/19/11  
SIGNATURE DATE

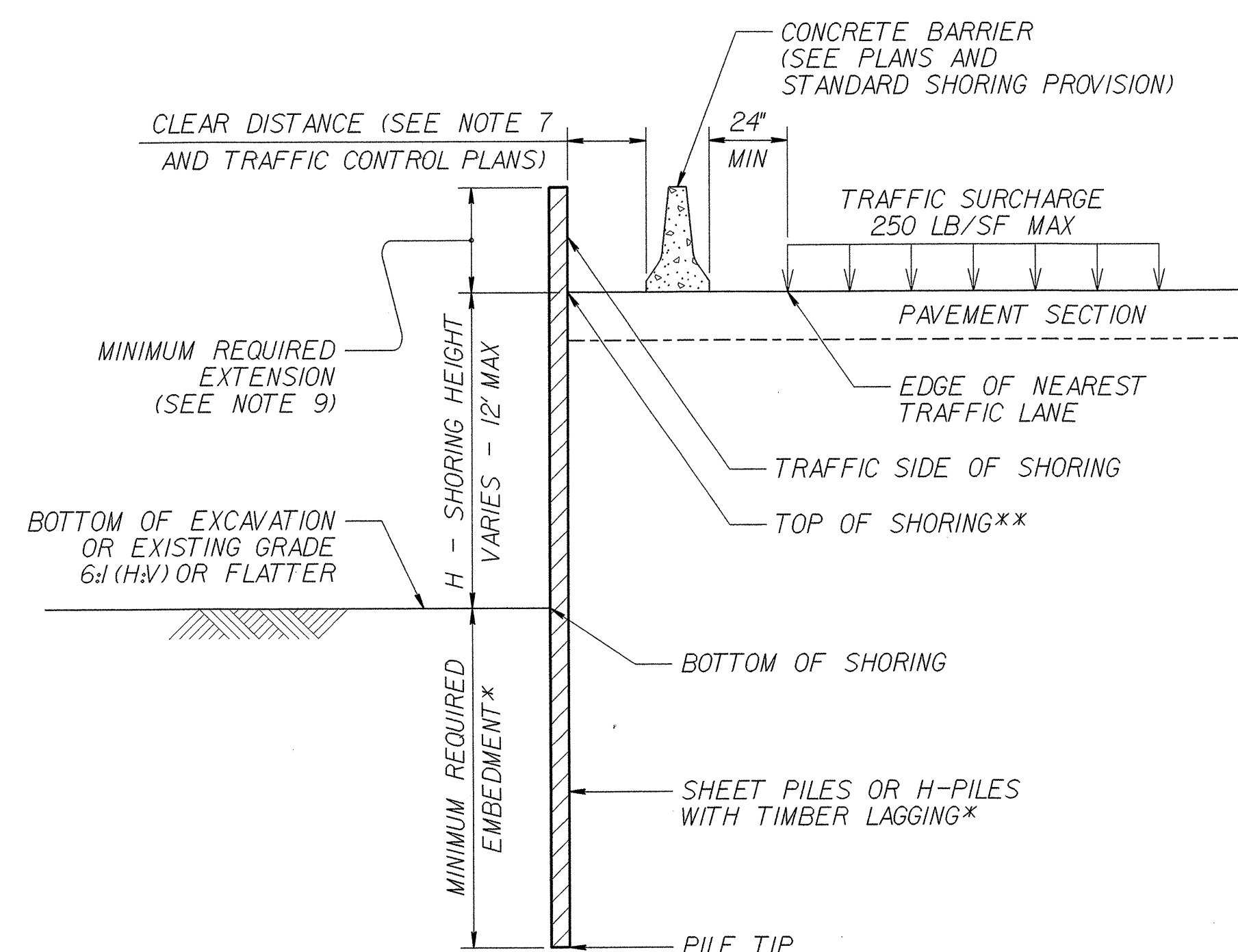
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
			HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73	
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

NOTES:

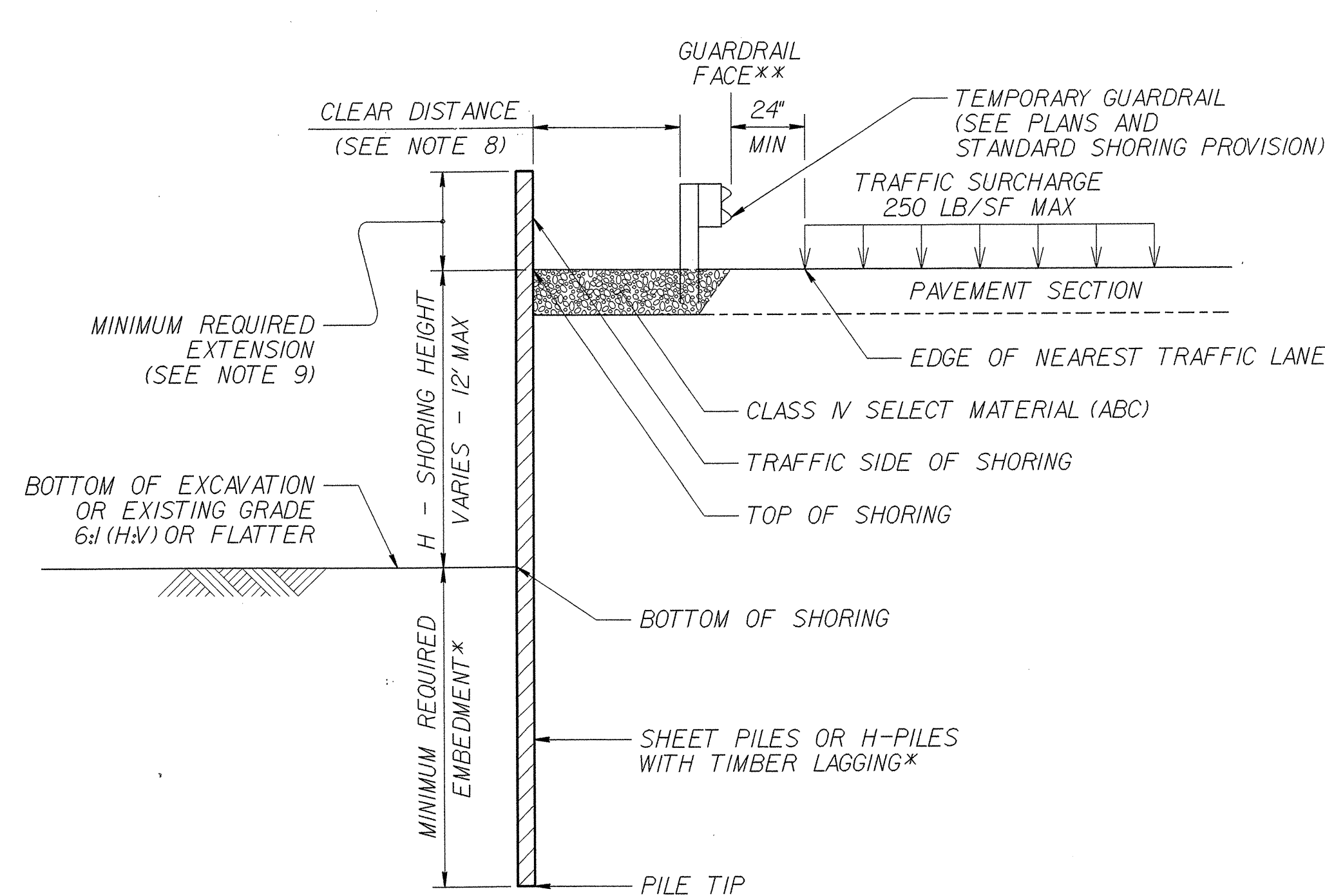
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
UNIT WEIGHT,  $\gamma = 120$  LB/CF  
FRICTION ANGLE,  $\phi = 30$  DEGREES  
COHESION,  $c = 0$  LB/SF
- DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EXTENSION IS 6' FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32' FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
- SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM.
- CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

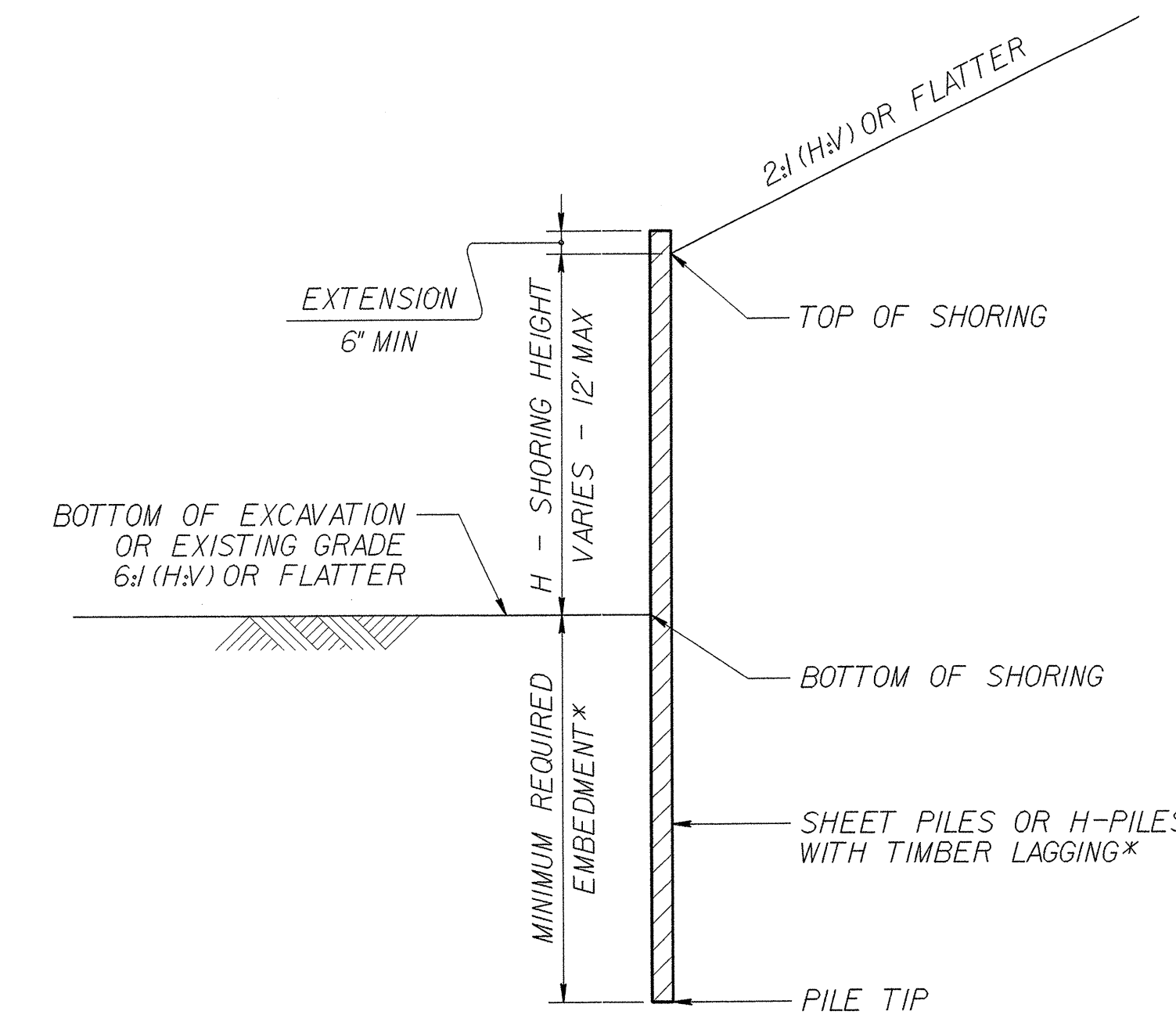
**\*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**



**CONCRETE BARRIER**  
\*\*TOP OF SHORING = EDGE OF PAVEMENT

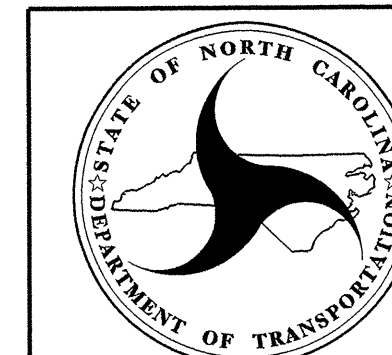


**TEMPORARY GUARDRAIL**  
\*\*GUARDRAIL FACE = EDGE OF PAVEMENT



**STANDARD TEMPORARY SHORING (SLOPE CASE)**  
\*SEE TABLE ABOVE.

**STANDARD TEMPORARY SHORING (SURCHARGE CASE)**  
\*SEE TABLE ABOVE.



**GEOTECHNICAL ENGINEERING UNIT**  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 1-17-12

# STATE OF NORTH CAROLINA SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202650

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION	2044000000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE	4609000000-N	SP	150	DAY	GENERIC TRAFFIC CONTROL ITEM TEMPORARY TRAFFIC SIGNAL SYSTEM
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (17+52.50-L-)	2070000000-N	815	1	EA	SUBDRAIN PIPE OUTLET	4810000000-E	1205	5,380	LF	PAINT PAVEMENT MARKING LINES (4")
0043000000-N	226	Lump Sum		GRADING	2077000000-E	815	6	LF	6" OUTLET PIPE	4835000000-E	1205	25	LF	PAINT PAVEMENT MARKING LINES (24")
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	2286000000-N	840	1	EA	MASONRY DRAINAGE STRUCTURES	6000000000-E	1605	600	LF	TEMPORARY SILT FENCE
0057000000-E	226	100	CY	UNDERCUT EXCAVATION	2367000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29	6006000000-E	1610	270	TON	STONE FOR EROSION CONTROL, CLASS A
0195000000-E	265	100	CY	SELECT GRANULAR MATERIAL	2556000000-E	846	8	LF	SHOULDER BERM GUTTER	6009000000-E	1610	45	TON	STONE FOR EROSION CONTROL, CLASS B
0196000000-E	270	200	SY	GEOTEXTILE FOR SOIL STABILIZATION	3000000000-N	SP	1	EA	IMPACT ATTENUATOR UNIT, TYPE 350	6012000000-E	1610	50	TON	SEDIMENT CONTROL STONE
0199000000-E	SP	120	SF	TEMPORARY SHORING	3150000000-N	862	3	EA	ADDITIONAL GUARDRAIL POSTS	6015000000-E	1615	0.5	ACR	TEMPORARY MULCHING
0318000000-E	300	10	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	3215000000-N	862	3	EA	GUARDRAIL ANCHOR UNITS, TYPE III	6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
0320000000-E	300	30	SY	FOUNDATION CONDITIONING GEOTEXTILE	3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	6021000000-E	1620	1.25	TON	FERTILIZER FOR TEMPORARY SEEDING
0335300000-E	305	40	LF	18" DRAINAGE PIPE	3387000000-N	862	3	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (III)	6029000000-E	SP	500	LF	SAFETY FENCE
0448200000-E	310	48	LF	15" RC PIPE CULVERTS, CLASS IV	3387000000-N	862	1	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (W-BEAM)	6030000000-E	1630	130	CY	SILT EXCAVATION
1099500000-E	505	95	CY	SHALLOW UNDERCUT	3389100000-N	SP	3	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350	6036000000-E	1631	1,000	SY	MATting FOR EROSION CONTROL
1099700000-E	505	125	TON	CLASS IV SUBGRADE STABILIZATION	3649000000-E	876	1	TON	RIP RAP, CLASS B	6037000000-E	SP	125	SY	COIR FIBER MAT
1121000000-E	520	85	TON	AGGREGATE BASE COURSE	3656000000-E	876	355	SY	GEOTEXTILE FOR DRAINAGE	6042000000-E	1632	120	LF	1/4" HARDWARE CLOTH
1220000000-E	545	50	TON	INCIDENTAL STONE BASE	4400000000-E	1110	196	SF	WORK ZONE SIGNS (STATIONARY)	6071010000-E	SP	90	LF	WATTLE
1275000000-E	600	88	GAL	PRIME COAT	4405000000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)	6071020000-E	SP	25	LB	POLYACRYLAMIDE (PAM)
1330000000-E	607	55	SY	INCIDENTAL MILLING	4410000000-E	1110	20	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	6071030000-E	1640	30	LF	COIR FIBER BAFFLE
1489000000-E	610	130	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	4430000000-N	1130	20	EA	DRUMS	6071050000-E	SP	1	EA	*** SKIMMER (1-1/2")
1498000000-E	610	90	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	4435000000-N	1135	10	EA	CONES	6084000000-E	1660	1.5	ACR	SEEDING & MULCHING
1525000000-E	610	150	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	4445000000-E	1145	80	LF	BARRICADES (TYPE III)	6087000000-E	1660	0.25	ACR	MOWING
1575000000-E	620	20	TON	ASPHALT BINDER FOR PLANT MIX	4450000000-N	1150	384	HR	FLAGGER	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
1693000000-E	654	75	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	4465000000-N	1160	1	EA	TEMPORARY CRASH CUSHIONS	6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
2022000000-E	815	22.4	CY	SUBDRAIN EXCAVATION	4485000000-E	1170	80	LF	PORTABLE CONCRETE BARRIER	6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
2033000000-E	815	16.8	CY	SUBDRAIN FINE AGGREGATE	4516000000-N	1180	10	EA	SKINNY DRUM	6108000000-E	1665	0.25	TON	FERTILIZER TOPDRESSING
										6111000000-E	SP	130	LF	IMPERVIOUS DIKE
										<b>ItemNumber</b>	<b>Sec #</b>	<b>Quantity</b>	<b>Unit</b>	<b>Description</b>
										6114500000-N	1667	20	MHR	SPECIALIZED HAND MOWING
										6117000000-N	SP	25	EA	RESPONSE FOR EROSION CONTROL
										6123000000-E	1670	0.1	ACR	REFORESTATION
										8847000000-E	SP	624	SF	GENERIC RETAINING WALL ITEM GABION AND RENO MATTRESS RETAINING WALLS

8/17/99

SYSTEMS DESIGN GROUP

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

Approximate quantities only. Unclassified excavation, fine grading, removal of existing asphalt pavement, clearing and grubbing, will be paid for at the lump sum price for "Grading".

SUMMARY OF EARTHWORK  
 (Cubic Yards)

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
PHASE 1 Place Detour					
-Det- 10+46.15	-Det- 11+19.44	2	56	54	
	Begin Detour Bridge				
-Det- 11+59.44	-Det- 12+43.02	337	84		253
	End Detour Bridge				
<b>Sub Total:</b>		339	140	54	253
PHASE 2 -L-					
-L- 15+50	-L- 17+35	102	28		74
	Begin Bridge				
-L- 17+70	-L- 19+50	33	37	4	
	End Bridge				
<b>Sub Total:</b>		135	65	4	75
PHASE 3 Remove Detour					
-Det- 10+46.15	-Det- 11+19.44	51			51
	Begin Detour Bridge				
-Det- 11+59.44	-Det- 12+43.02	74			74
	End Detour Bridge				
<b>Sub Total:</b>		125		58	125
<b>PROJECT TOTALS:</b>		599	205	58	453
LOSS DUE TO CLEARING & GRUBBING		-100			-100
EST WASTE TO REPLACE BORROW				-58	-58
<b>GRAND TOTALS:</b>		499	205	0	295
<b>SAY:</b>		500			
ADDITIONAL UNDERCUT		100	CY	Note: Earthwork quantities are calculated by the	
SHALLOW UNDERCUT		95	CY	Roadway Design Unit. These earthwork quantities	
FABRIC FOR SOIL STABILIZATION		100	SY	are based in part on subsurface data provided by the	
SELECT GRANULAR MATERIAL		100	CY	Geotechnical Engineering Unit.	
CLASS IV SUBGRADE STABILIZATION		125	TONS		

SUMMARY OF ASPHALT  
 PAVEMENT REMOVAL

LINE	Station	Station	LOC LT/RT/CL	SY (CADD)
L	15+75	17+41	CL	333
L	17+67	18+42	CL	151
DET	10+50.39	11+19.44	CL	75.00
DET	11+59.44	12+45.66	CL	94.00
TOTAL:				652.00
SAY:				660

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL  
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
 W = TOTAL WIDTH OF  
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

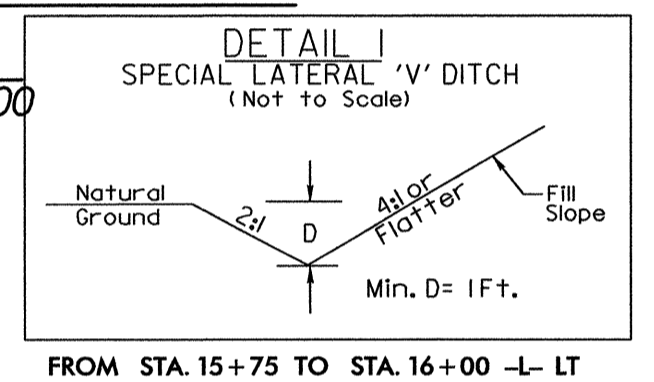
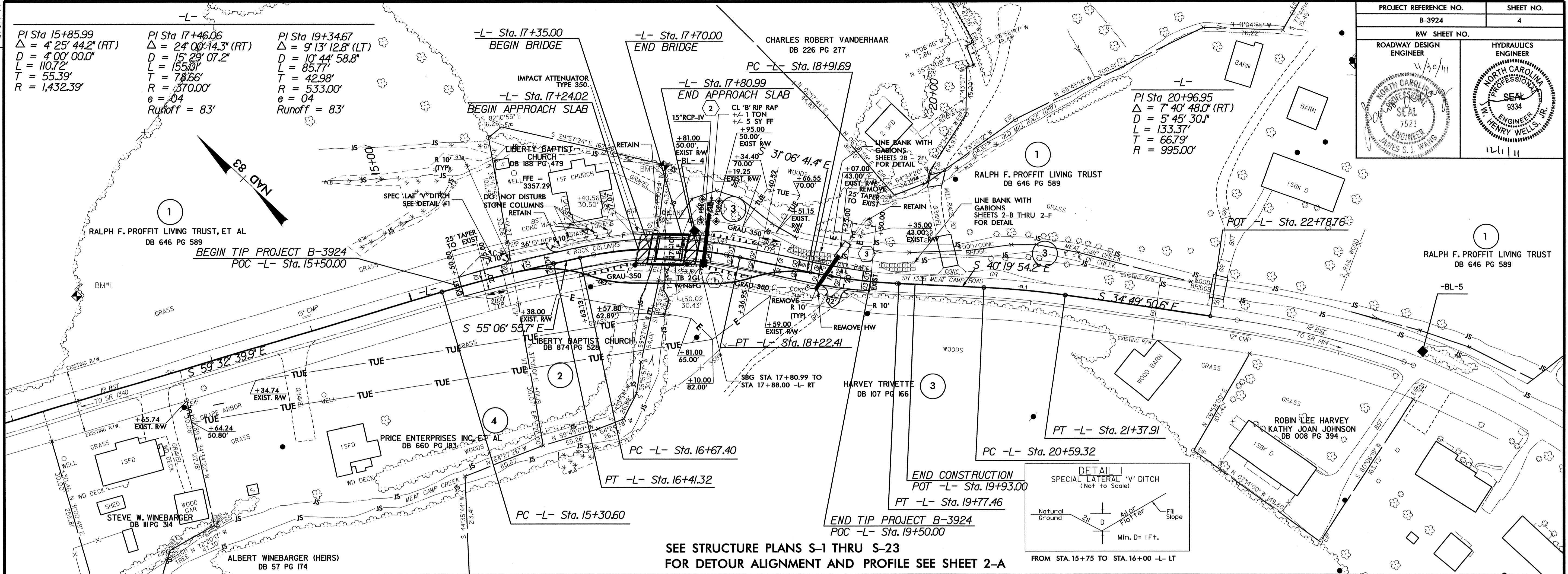
GUARDRAIL SUMMARY

LINE	BEG. STA.	END STA.	LOC.	LENGTH					"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLAIR LENGTH		W		ANCHORS					IMP. ATTEN. TYPE 350			REMOVE EXISTING GRDRAIL	REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END	XI MOD	XI	GRAU 350	TYPE III	CAT-1 VI MOD	EA	G	NG				
-L-	16+63.13	17+31.88	RT	68.75													1									
-L-	17+68.20	18+36.95	RT	68.75													1									
-L-	17+17.07	17+38.07	LT	21.00																1						X
-L-	17+71.80	18+40.55	LT	68.75													1									
Subtotal:				227.25																						
IAU-TYPE 350 1@21' =				-21																						
Type TYPE III 3@ 18.75' =				-56.25																						
GRAU 350 @ 3@ 50.00' =				-150																						
<b>Total:</b>				0.00													3				1					
<b>SAY:</b>				0																						
Additional Guardrail Post =				3																						

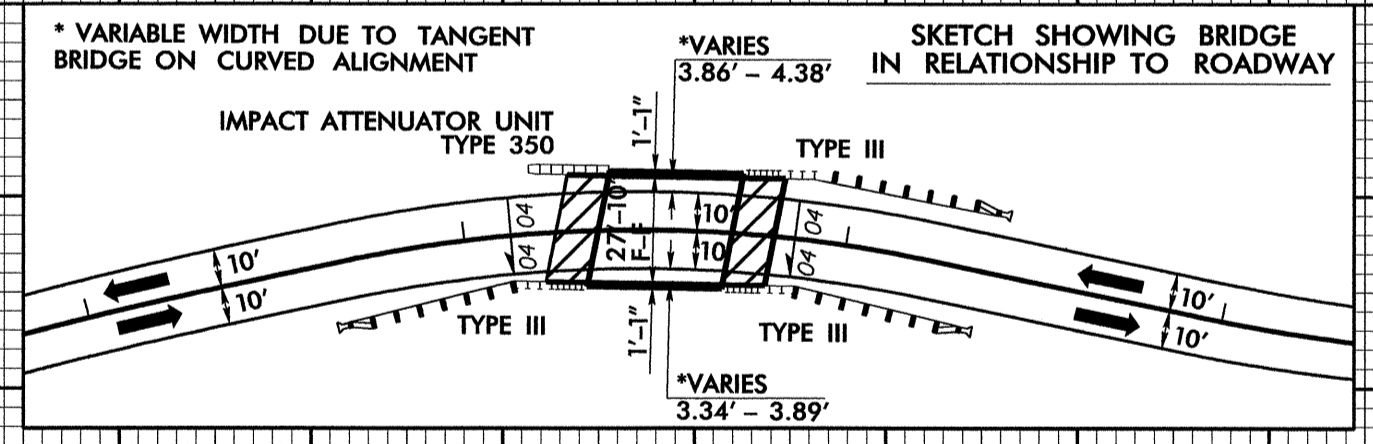
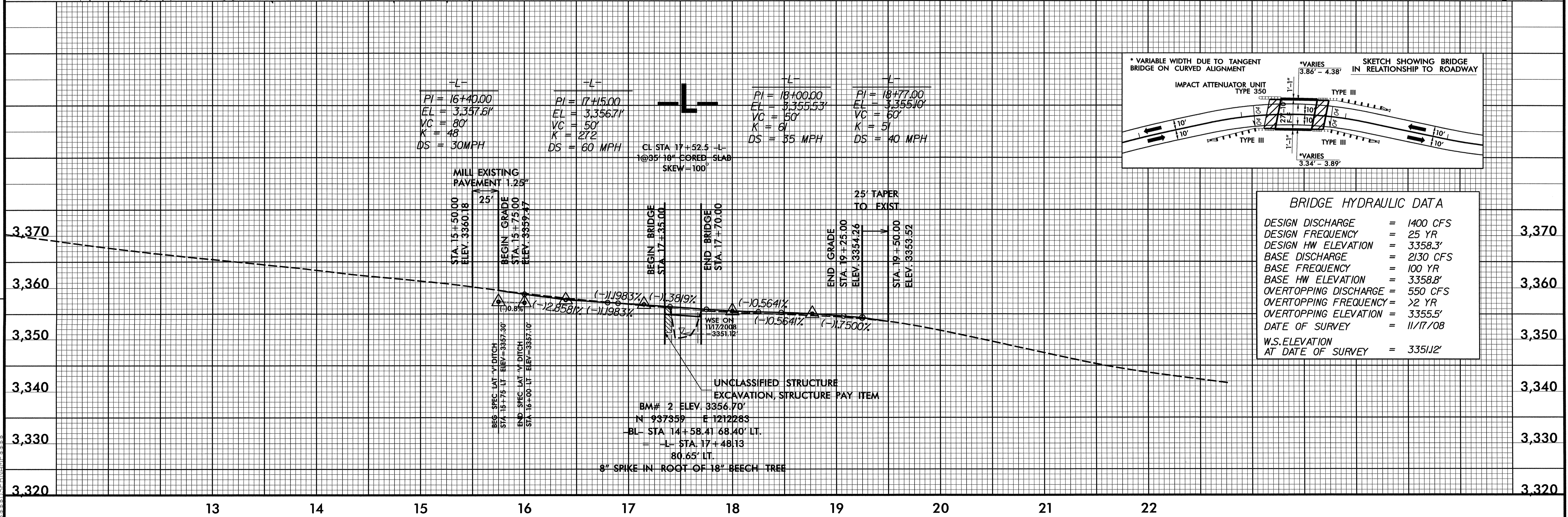
TEMPORARY GUARDRAIL SUMMARY

LINE	BEG. STA.	END STA.	LOC.	LENGTH					"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLAIR LENGTH		W		ANCHORS					IMP. ATTEN. TYPE 350			REMOVE EXISTING GRDRAIL	Temp W-Beam	REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END	XI MOD	XI	TEMP B-77	TEMP GRAU 350	TEMP TYPE III	CAT-1 VI MOD	EA	G				NG	
DET	10+49.41	11+19.44	LT	68.75																							
DET	11+59.44	12+25.25	LT																								1
DET	10+51.99	11+19.44	RT	68.75																							
DET	11+59.44	12+25.25	RT	68.75																							
Subtotal:				206.25																							
TEMP TYPE III 3@ 18.75' =				-56.25																							
GRAU-350 3@ 50.00' =				-150																							
<b>Total:</b>				0.00																							1
<b>SAY:</b>				0																							





SEE STRUCTURE PLANS S-1 THRU S-23  
FOR DETOUR ALIGNMENT AND PROFILE SEE SHEET 2-A



BRIDGE HYDRAULIC DATA	
DESIGN DISCHARGE	= 1400 CFS
DESIGN FREQUENCY	= 25 YR
DESIGN HW ELEVATION	= 3358.3'
BASE DISCHARGE	= 2130 CFS
BASE FREQUENCY	= 100 YR
BASE HW ELEVATION	= 3358.8'
OVERTOPPING DISCHARGE	= 550 CFS
OVERTOPPING FREQUENCY	= >2 YR
OVERTOPPING ELEVATION	= 3355.5'
DATE OF SURVEY	= 11/17/08
W.S. ELEVATION AT DATE OF SURVEY	= 3351.12'

REVISIONS

8/17/09  
1  
2  
3  
4