

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4273	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33614.1.1	BRNHS-401(14)	P.E.	
33614.2.1	BRNHS-401(14)	ROW & UTIL.	
33614.3.1	BRNHS-401(14)	CONST.	

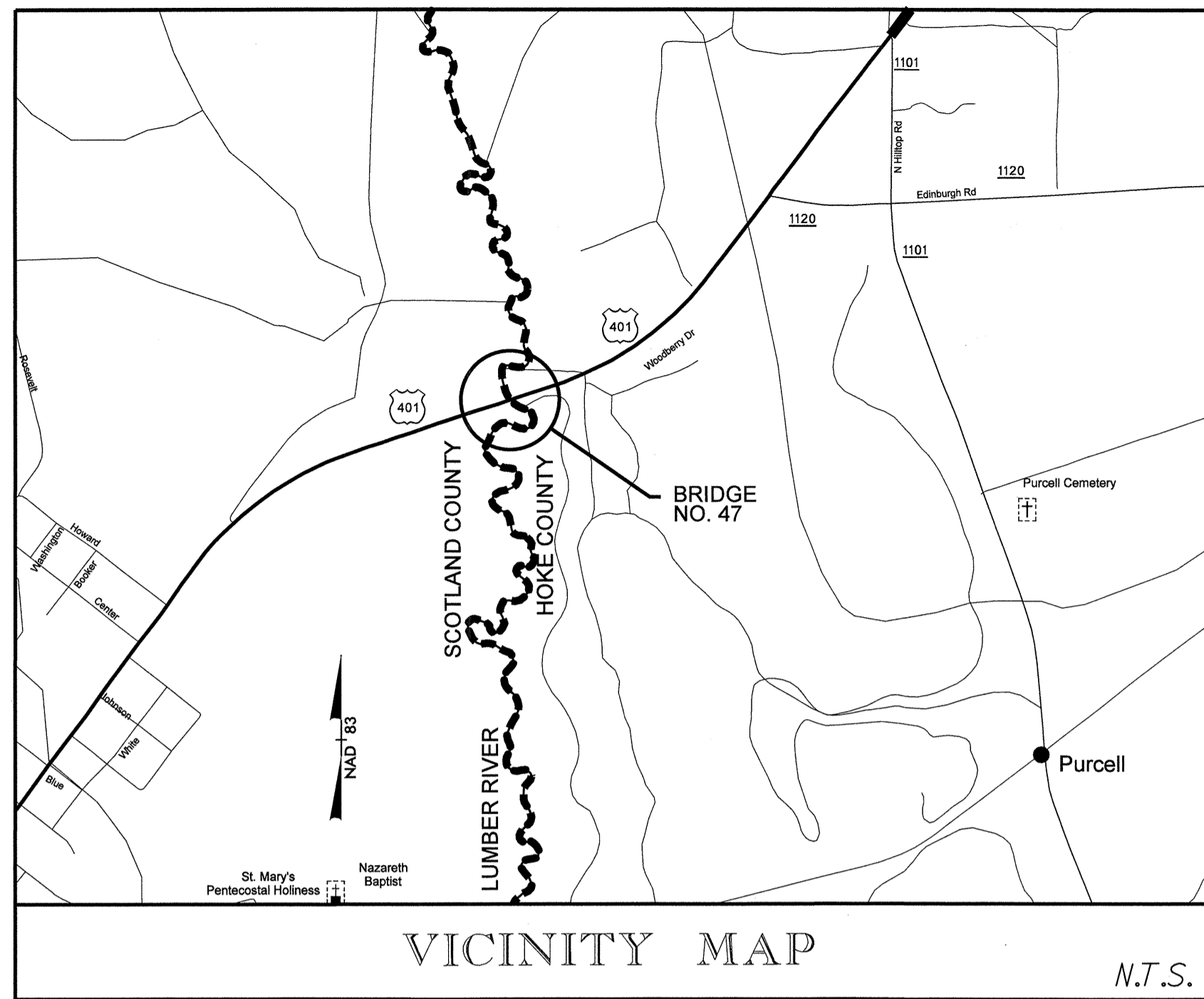
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**SCOTLAND & HOKE
COUNTIES**

LOCATION: BRIDGE NO. 47 OVER LUMBER RIVER ON US 401

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

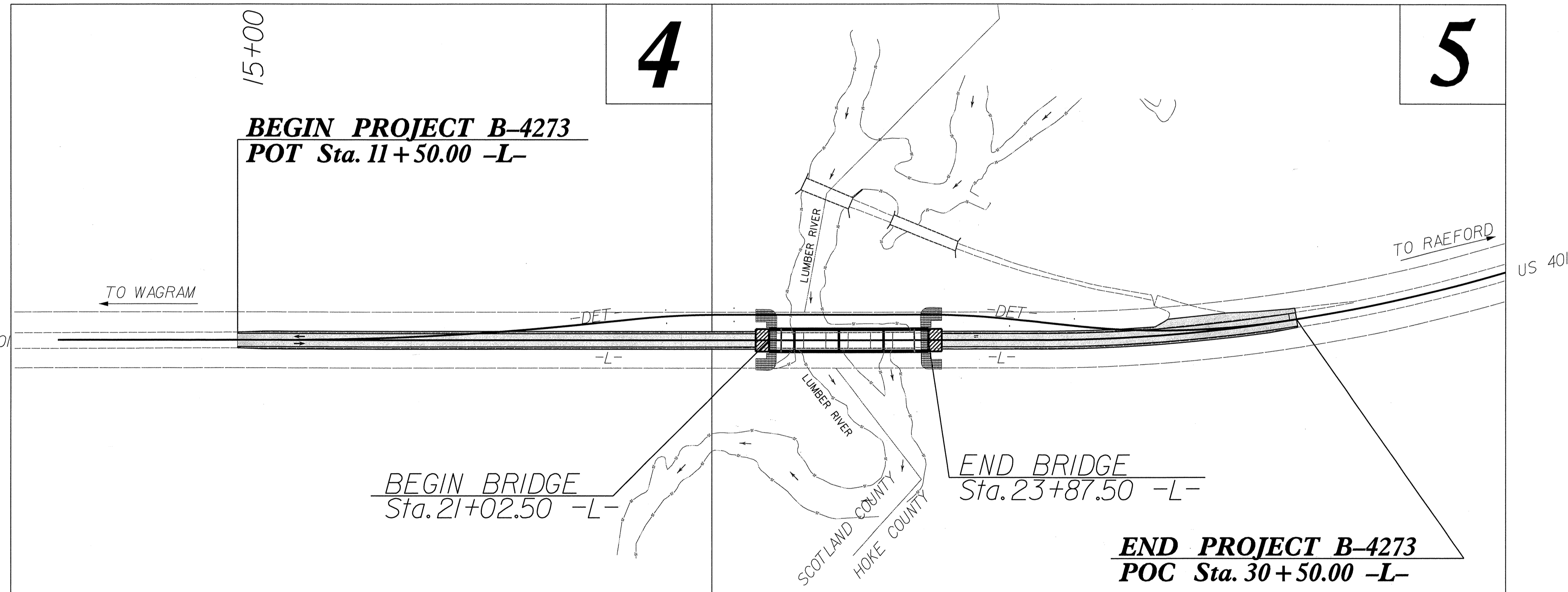
See Sheet 1-A For Index of Sheets



VICINITY MAP

N.T.S.

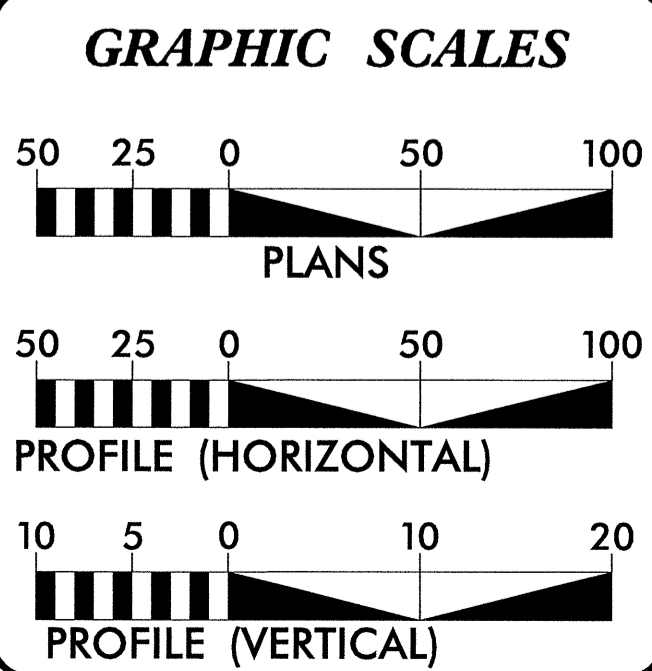
20+00
25+00
30+00



TIP PROJECT: B-4273

CONTRACT: C202949

NCDOT CONTACT: BRENDA L. MOORE, P.E. - ROADWAY DESIGN - ENGINEERING COORDINATION SECTION



DESIGN DATA

FUNC. CLASS	=	PRINCIPAL ARTERIAL
ADT 2012	=	5,600
ADT 2032	=	7,500
DHV	=	9%
D	=	55%
T	=	10% *
V	=	50 MPH
STATEWIDE TIER		
*(TTST 6% + DUAL 4%)		

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4273 =	.306 MILES
LENGTH OF STRUCTURE TIP PROJECT B-4273 =	.054 MILES
TOTAL LENGTH OF TIP PROJECT B-4273 =	.360 MILES

Prepared in the Office of:
WILBUR SMITH ASSOCIATES
421 FAYETTEVILLE STREET, RALEIGH NC 27601
FOR: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
11/18/2011

LETTING DATE:
11/20/2012

J. MATTHEW PICKENS, P.E.
PROJECT ENGINEER

J. MATTHEW PICKENS, P.E.
PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER

8/28/12
SIGNATURE: HENRY WELLS
ROADWAY DESIGN ENGINEER

8/28/12
SIGNATURE: JASON M. PICKENS
P.E.



FILE: R:\Inroads\B4273 (Roadway)\Proj\B4273_A01_P5401.dgn
DATE: 8/22/2012 2:36:58 PM

PROJECT REFERENCE NO.	SHEET NO.
B-4273	1A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 37950 MASON M. PICKENS 2/29/12	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 9334 HENRY WELLS 2/29/12
WINDSTREAM	SUNGATE DESIGN GROUP, P.A. 421 Fayetteville Street Raleigh, N.C. 27601 NC LICENSE F-6278

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

1-D CENTERLINE COORDINATE LIST

2 PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS

2-A DETOUR PLAN AND PROFILE

2-B DETOUR PLAN AND PROFILE

2-C THRU 2-D DETAIL FOR PLACEMENT OF GEOTEXTILE FOR SOIL STABILIZATION AND SELECT GRANULAR MATERIAL, CLASS III

2-E THRU 2-G TEMPORARY SHORING

3 SUMMARY OF QUANTITIES

3-A SUMMARY OF DRAINAGE QUANTITIES

3-B GUARDRAIL SUMMARY, R/W PARCEL INDEX, AND ASPHALT REMOVAL SUMMARY

3-C EARTHWORK SUMMARY

4 THRU 6 PLAN AND PROFILE SHEET

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PMP1 THRU PMP2 PAVEMENT MARKING PLAN

EC1 THRU EC9 EROSION CONTROL PLANS

RF1 REFORESTATION PLANS

SIGN1 THRU SIGN3 SIGNING PLANS

U01 THRU U03 UTILITY BY OTHERS PLANS

X-1 THRU X-18 CROSS-SECTIONS

S1 THRU S35 STRUCTURE PLANS

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11/01/11

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.

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".

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
Windstream - Telephone Co.
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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 Superlevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.45	Precast Drainage Structure
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
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

EFF. 01-17-12

REVISIONS

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	✕
Property Monument	□ ECM
Parcel/Sequence Number	②③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ 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	↓
Proposed Lateral, Tail, Head Ditch	←
False Sump	◇

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	○
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-
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----

Orchard	-----
Vineyard	□ Vineyard

EXISTING STRUCTURES:

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

UTILITIES:

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

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	-T-
Designated U/G Telephone Cable (S.U.E.*)	-T-
Recorded U/G Telephone Conduit	-TC-
Designated U/G Telephone Conduit (S.U.E.*)	-TC-
Recorded U/G Fiber Optics Cable	-T FO-
Designated U/G Fiber Optics Cable (S.U.E.*)	-T FO-

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
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
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊗
U/G Test Hole (S.U.E.*)	⊗
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

REVISIONS

SURVEY CONTROL SHEET B-4273

6/2/99

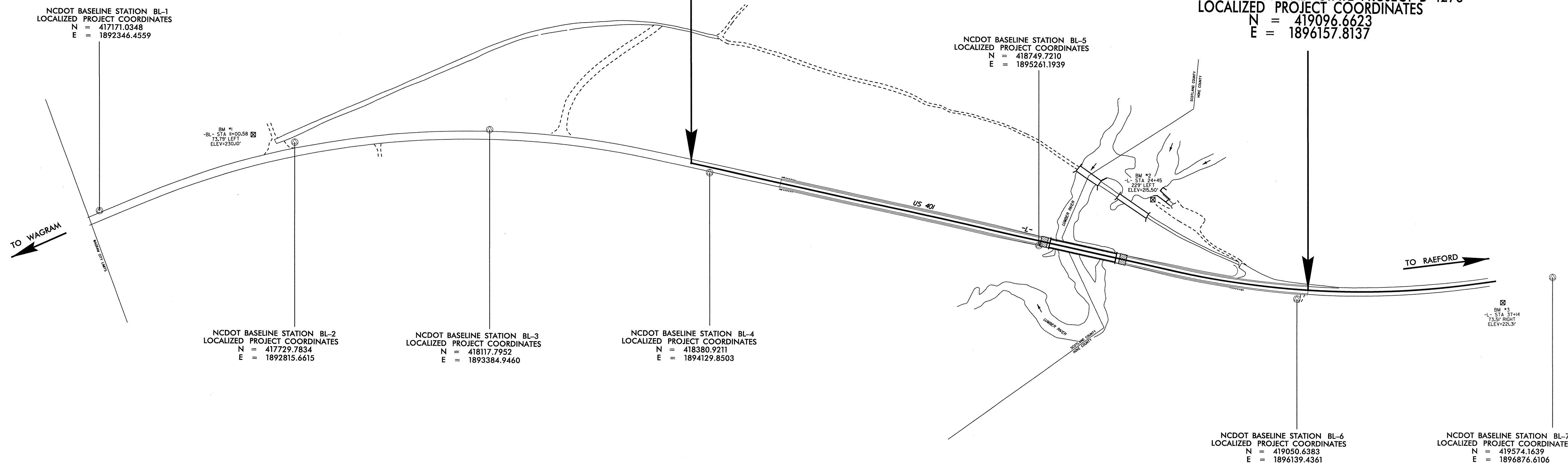


-L- STA 11+50.00 BEGIN STATE PROJECT B-4273
 LOCALIZED PROJECT COORDINATES
 N = 418476.0232
 E = 1894363.6999

-L- STA 30+50.00 END STATE PROJECT B-4273
 LOCALIZED PROJECT COORDINATES
 N = 419096.6623
 E = 1896157.8137

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL-1	BL-1	417171.8348	1892346.4559	228.81		OUTSIDE PROJECT LIMITS
BL-2	BL-2	417729.7834	1892815.6615	228.57		OUTSIDE PROJECT LIMITS
BL-3	BL-3	418117.7952	1893384.9460	226.31		OUTSIDE PROJECT LIMITS
BL-4	BL-4	418380.9211	1894129.8503	223.38	8+96.22	18.32 RT
BL-5	BL-5	418749.7210	1895261.1939	223.41	28+88.15	16.52 RT
BL-6	BL-6	419050.6383	1896139.4361	223.67	38+13.15	32.91 RT
BL-7	BL-7	419574.1639	1896876.6106	226.18		OUTSIDE PROJECT LIMITS

BM1	ELEVATION = 238.18
N 417678	E 1895276
L STATION 8+27.77	
S 53°18'48" W DIST. 1547.45'	
RR SPIKE IN BASE OF 12 INCH PINE TREE	
.....	
BM2	ELEVATION = 215.58
N 419894	E 1895528
L STATION 24+45.00 229 LEFT	
RR SPIKE IN BASE OF 18 INCH OAK TREE	
.....	
BM3	ELEVATION = 221.31
N 419409	E 1896771
L STATION 37+12.95	
S 48°55'28" E DIST. 78.58'	
RR SPIKE IN BASE OF 20 INCH OAK TREE	
.....	



DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BOATING"
 WITH NAD 83/86 STATE PLANE GRID COORDINATES OF
 NORTHING: 419050.6383(ft) EASTING: 1896139.4361(ft)
 ELEVATION: 223.670(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998859
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BOATING" TO -L- STATION 11+50.00 IS
 S 72° 04' 07.7" W 1866.393'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 29

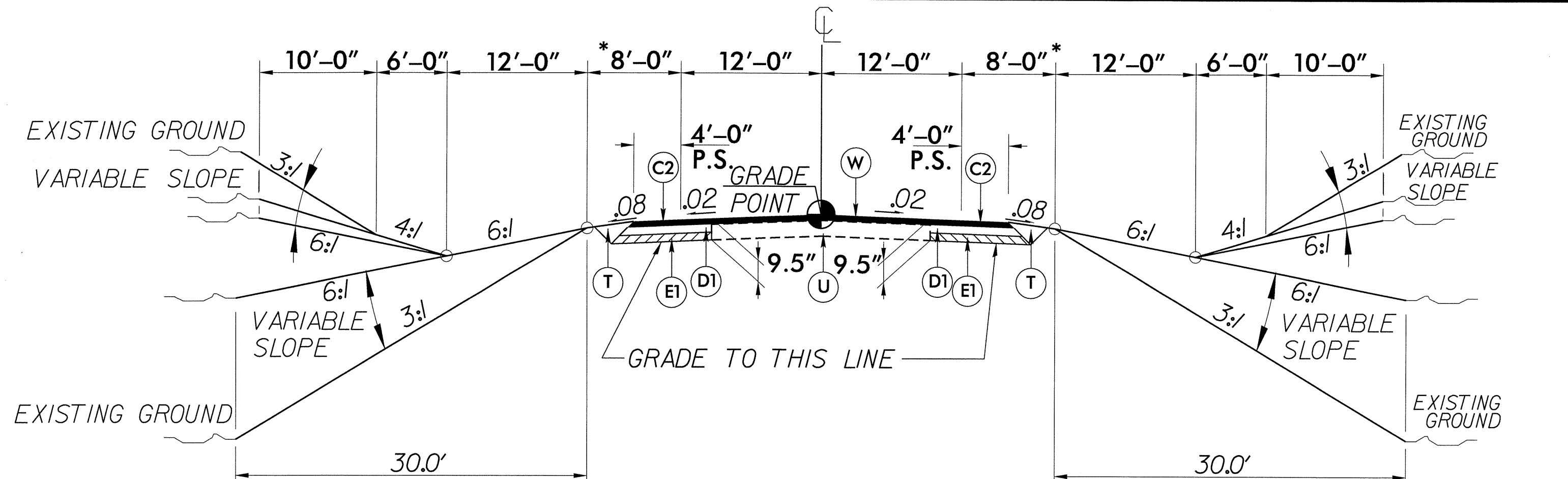
NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRCONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/DOH/PRCONSTRUCT/HIGHWAY/LOCATION/PROJECT/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 B4273_LS_CONTROL_060811.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.
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION.
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

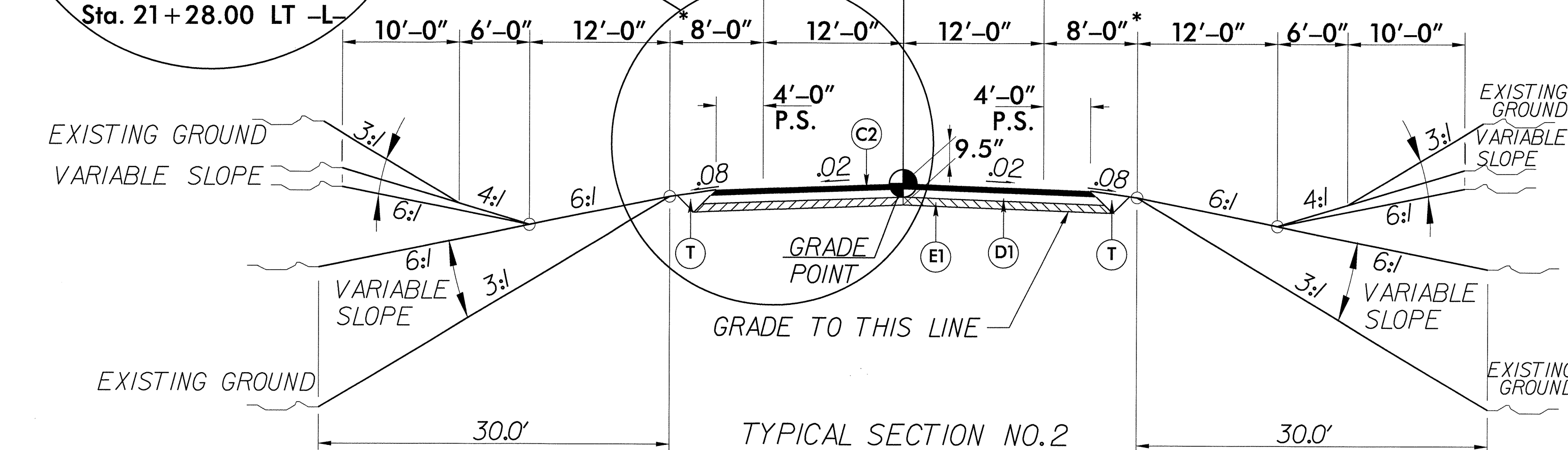
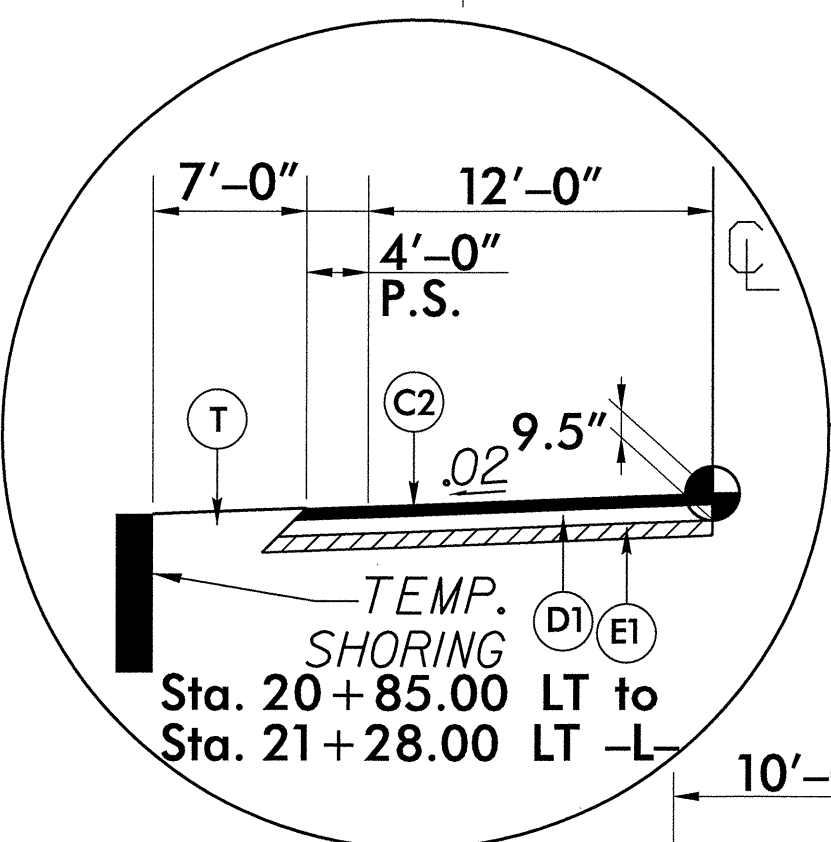
NOTE: DRAWING NOT TO SCALE

REVISIONS

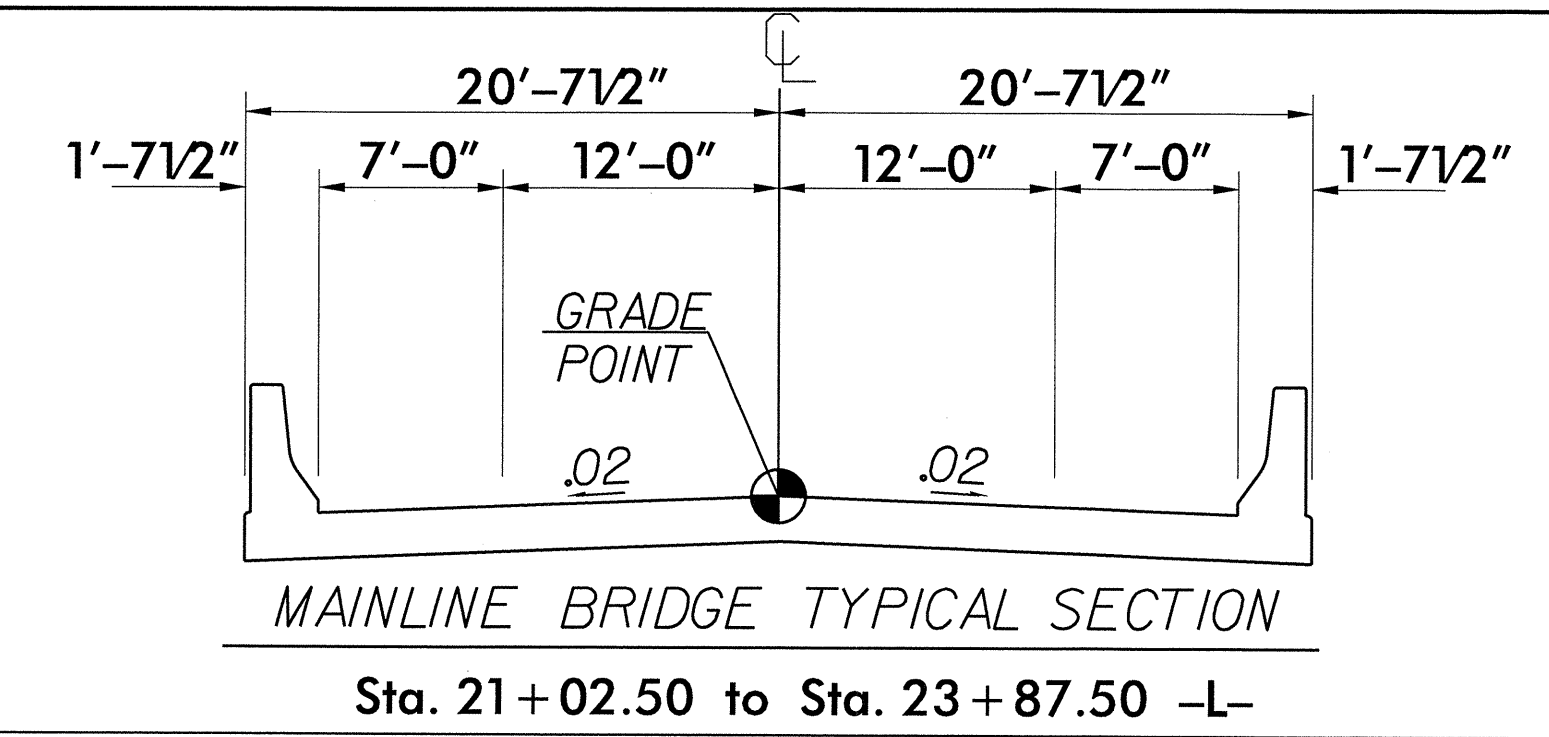
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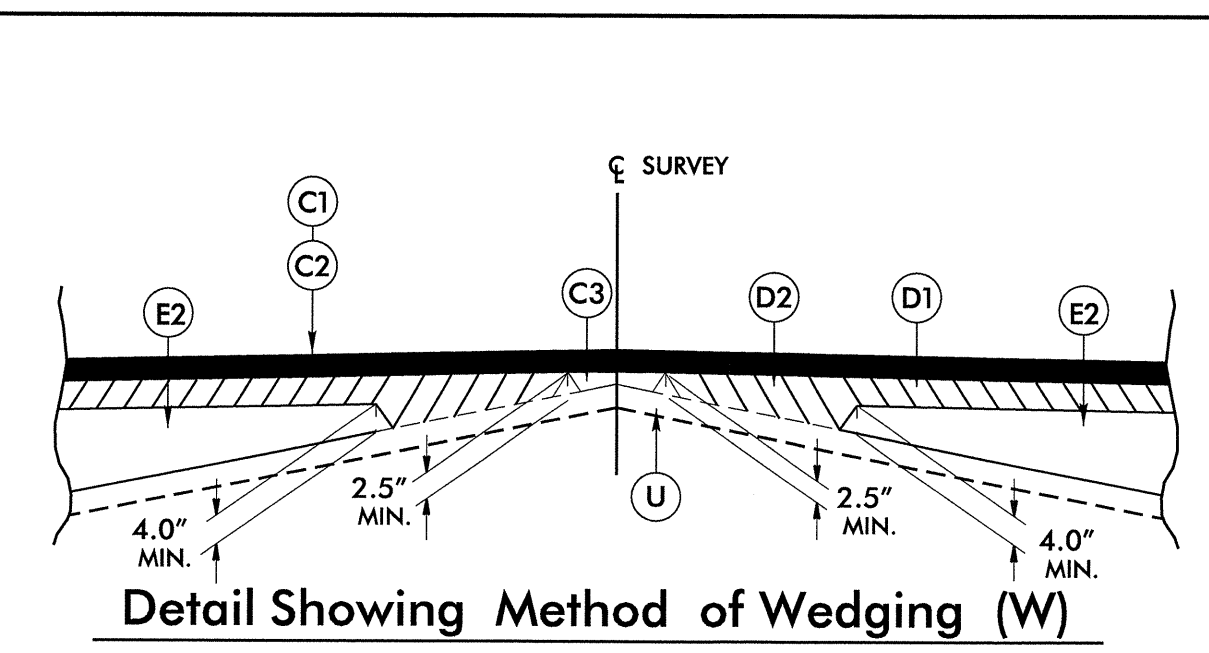
TYPICAL SECTION NO.1
Sta. 11+50.00 to Sta. 20+50.00 -L-
Sta. 26+34.04 to Sta. 30+50.00 -L-



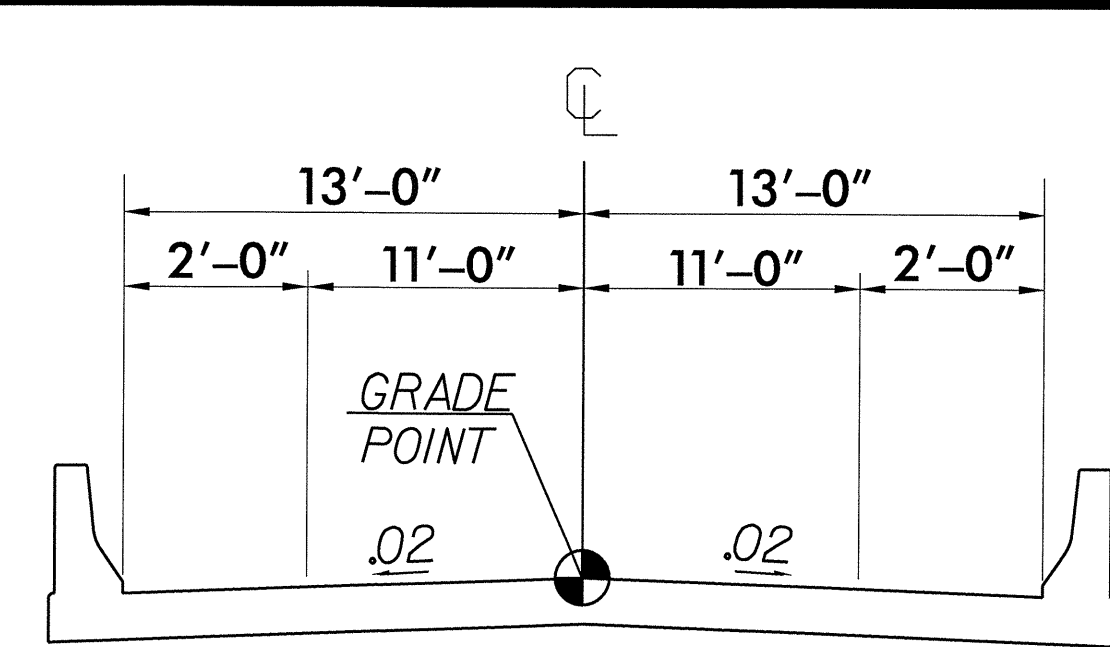
TYPICAL SECTION NO.2
Sta. 20+50.00 to 21+02.50 (BEGIN BRIDGE) -L-
Sta. 23+87.50 (END BRIDGE) to Sta. 26+34.04 -L-



MAINLINE BRIDGE TYPICAL SECTION
Sta. 21+02.50 to Sta. 23+87.50 -L-

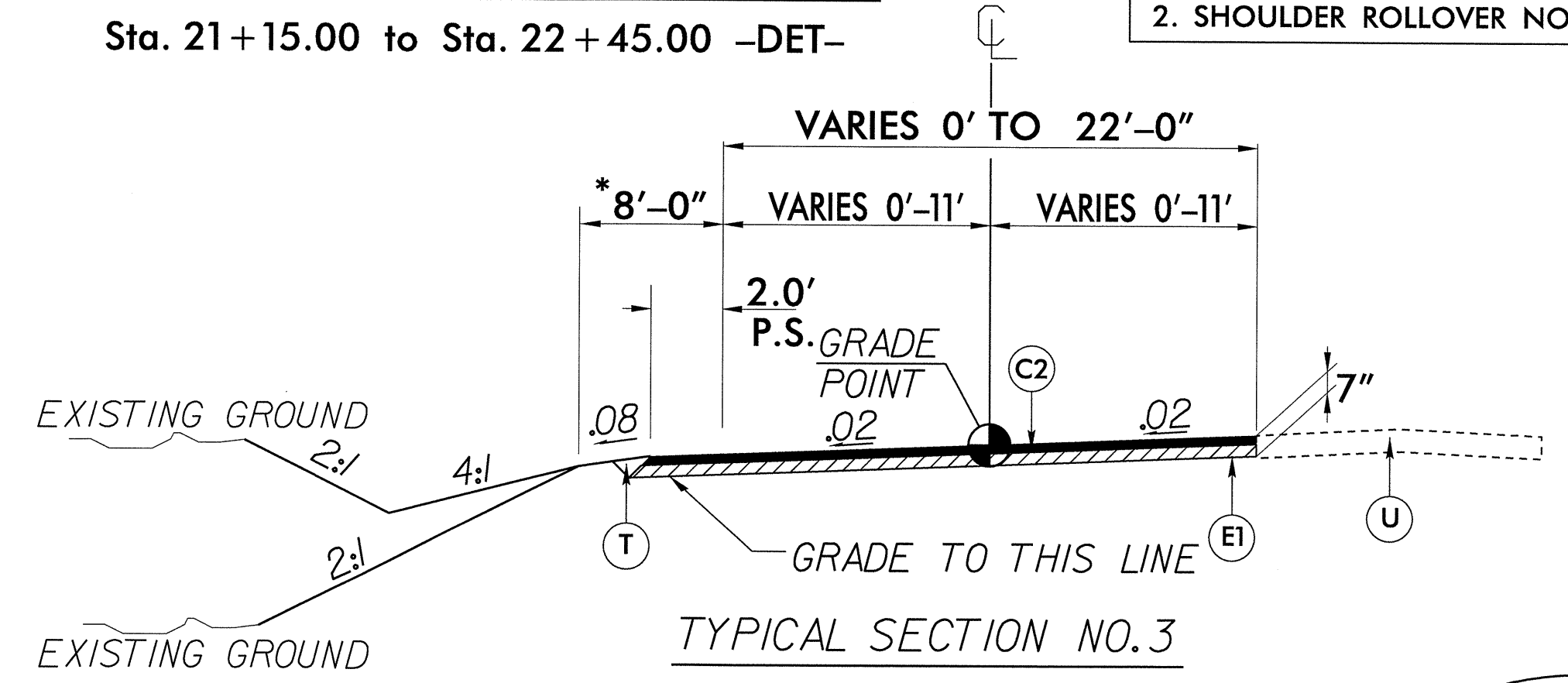


Detail Showing Method of Wedging (W)

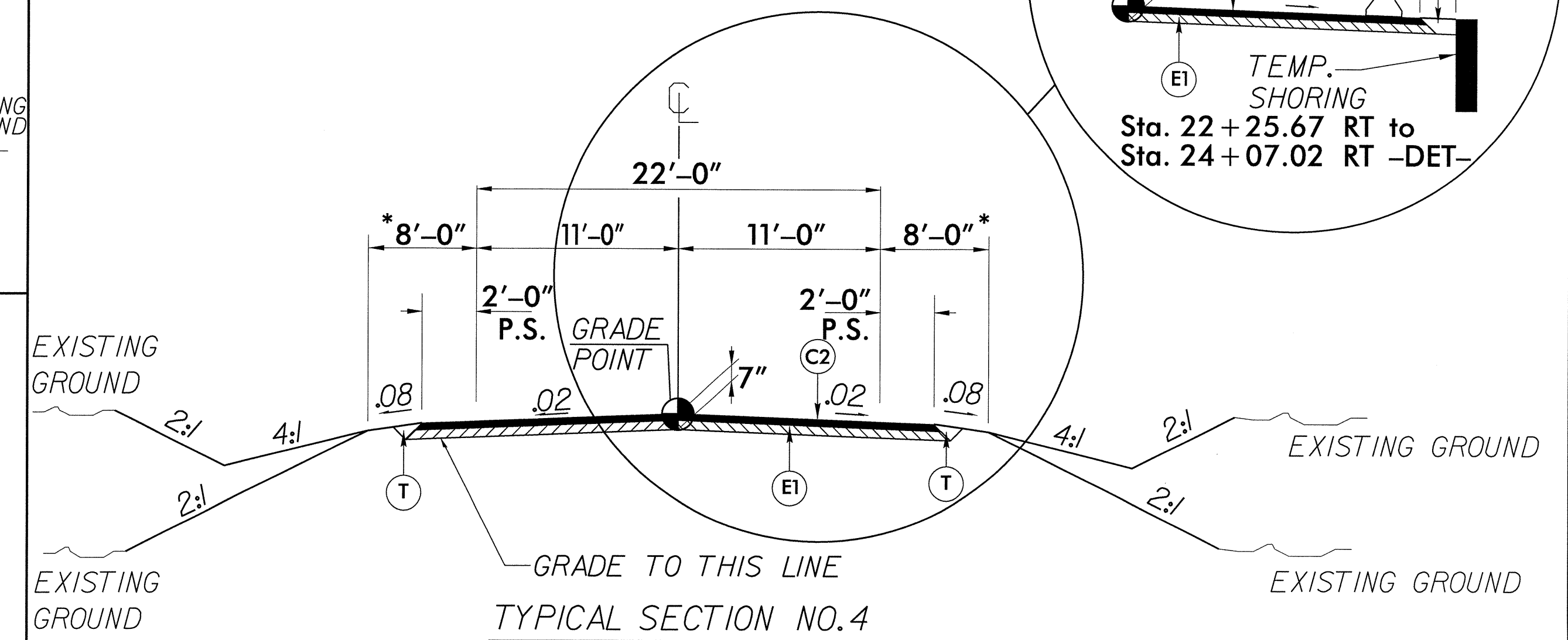
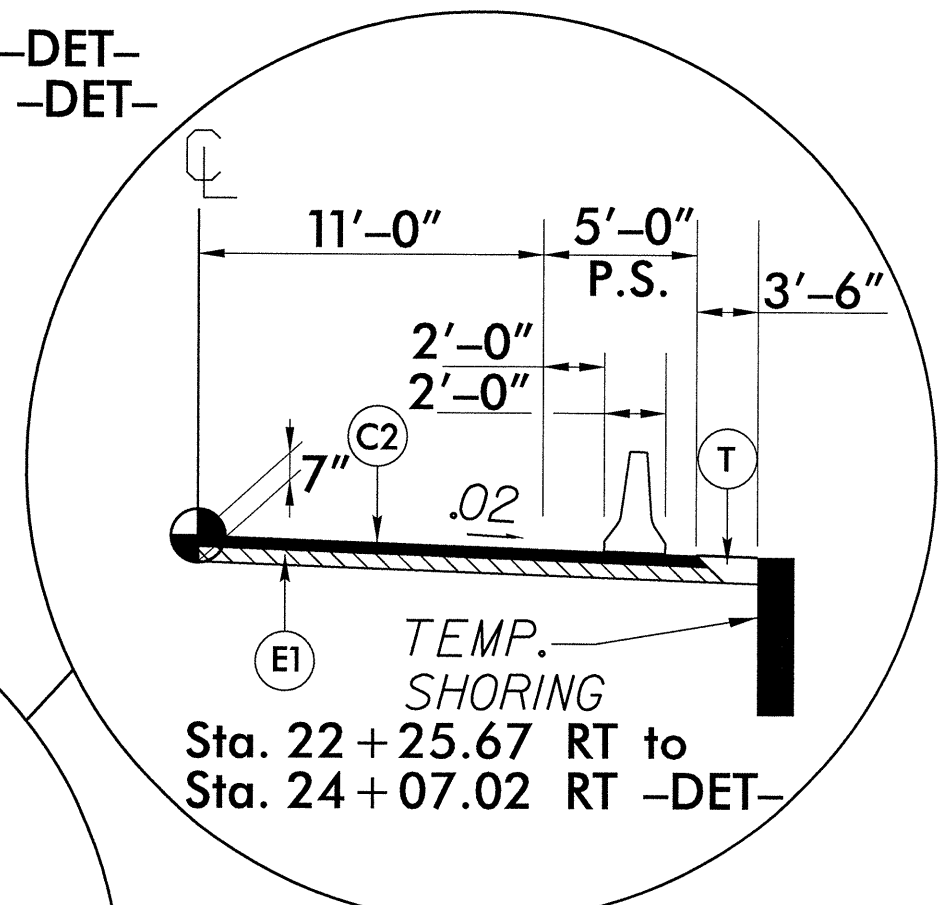


DETOUR BRIDGE TYPICAL SECTION
Sta. 21+15.00 to Sta. 22+45.00 -DET-

* 11' W/GUARDRAIL



TYPICAL SECTION NO.3
Sta. 13+06.82 to Sta. 17+58.47 -DET-
Sta. 26+37.76 to Sta. 28+09.67 -DET-



TYPICAL SECTION NO.4
Sta. 17+58.47 to Sta. 21+15.00 (BEGIN BRIDGE) -DET-
Sta. 22+45.00 (END BRIDGE) to Sta. 26+37.76 -DET-

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	PROP. APPROX. 1.5 IN. ASPHALT SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS/SY	D1	PROP. APPROX. 2.5 IN. ASPHALT INT. COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS/SY	E2	PROP. VAR. DEPTH ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS/SY IN LAYERS NOT LESS THAN 3 IN. NOR GREATER THAN 5.5 IN.	W	WEDGING SEE DETAIL ON THIS SHEET
C2	PROP. APPROX. 3 IN. ASPHALT SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS/SY IN EACH OF TWO LAYERS	D2	PROP. VAR. DEPTH ASPHALT CONC. INT. COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS/SY IN LAYERS NOT LESS THAN 2.5 IN. NOR GREATER THAN 4 IN.	T	EARTH MATERIAL		
C3	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS/SY IN LAYERS NOT LESS THAN 1.5 IN. NOR GREATER THAN 2 IN.	E1	PROP. APPROX. 4.0 IN. ASPHALT BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS/SY	U	EXISTING PAVEMENT		

FILE: 8:\mcd\04273\Roadway\Proj\B4273_RDY_PSH02.dgn
DATE: 8/22/02 5:06:02 PM

SEE SHEETS X-11 THRU X-14 FOR -DET- CROSS SECTIONS

10+00

15+00

STATE OF NORTH CAROLINA
DB 936 PG 238
PB 10 PG 345

①

PC Sta. 12+02.56
BEGIN DETOUR

PT Sta. 17+70.94

PC Sta. 18+73.61

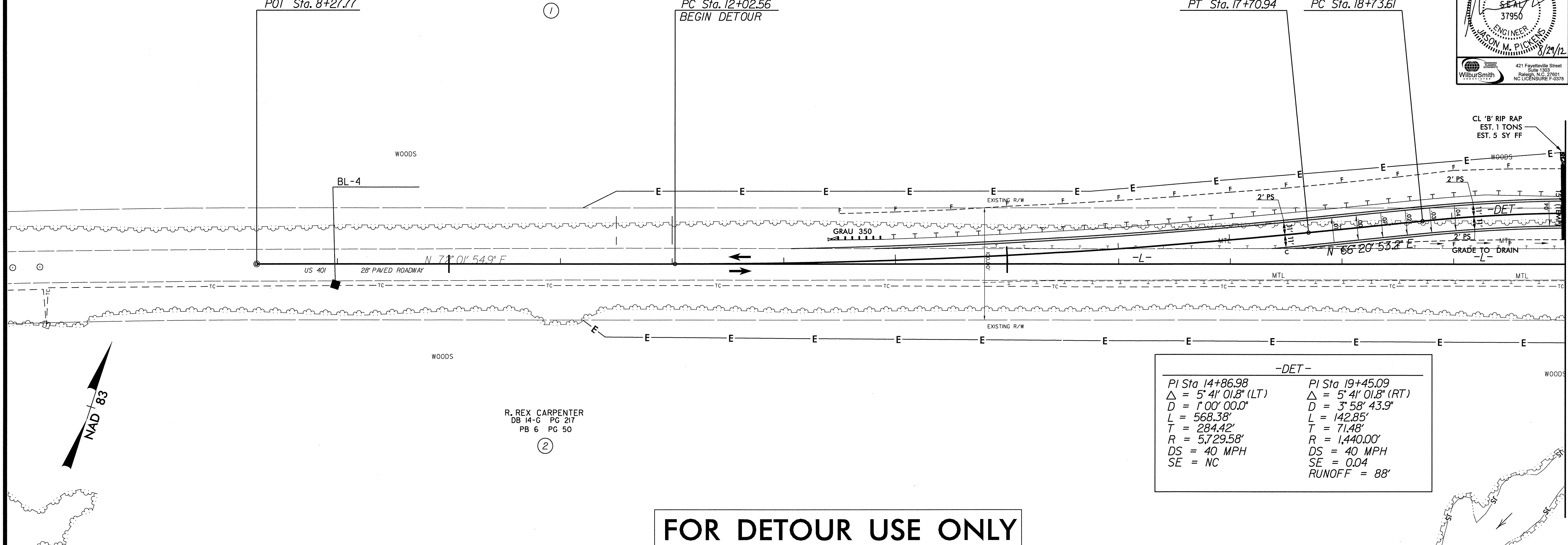
PROJECT REFERENCE NO. B-4273	SHEET NO. 2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 37950 JASON M. PICKENS 8/24/12	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL ONLY 9334 HENRY WELLS 8/24/12
SUNGATE DESIGN GROUP, P.A. 421 Fyfeville Street Raleigh, N.C. 27601 N.C. License No. F-20793	

POT Sta. 8+27.77

BL-4

WOODS

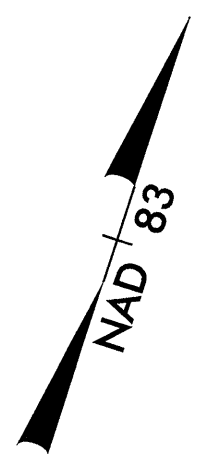
CL 'B' RIP RAP
EST. 1 TONS
EST. 5 SY FF



-DET-	
PI Sta. 14+86.98	PI Sta. 19+45.09
$\Delta = 5' 41' 01.8\" (LT)$	$\Delta = 5' 41' 01.8\" (RT)$
$D = 1' 00' 00.0\"$	$D = 3' 58' 43.9\"$
$L = 568.38'$	$L = 142.85'$
$T = 284.42'$	$T = 71.48'$
$R = 5,729.58'$	$R = 1,440.00'$
$DS = 40 MPH$	$DS = 40 MPH$
$SE = NC$	$SE = 0.04$
	$RUNOFF = 88'$

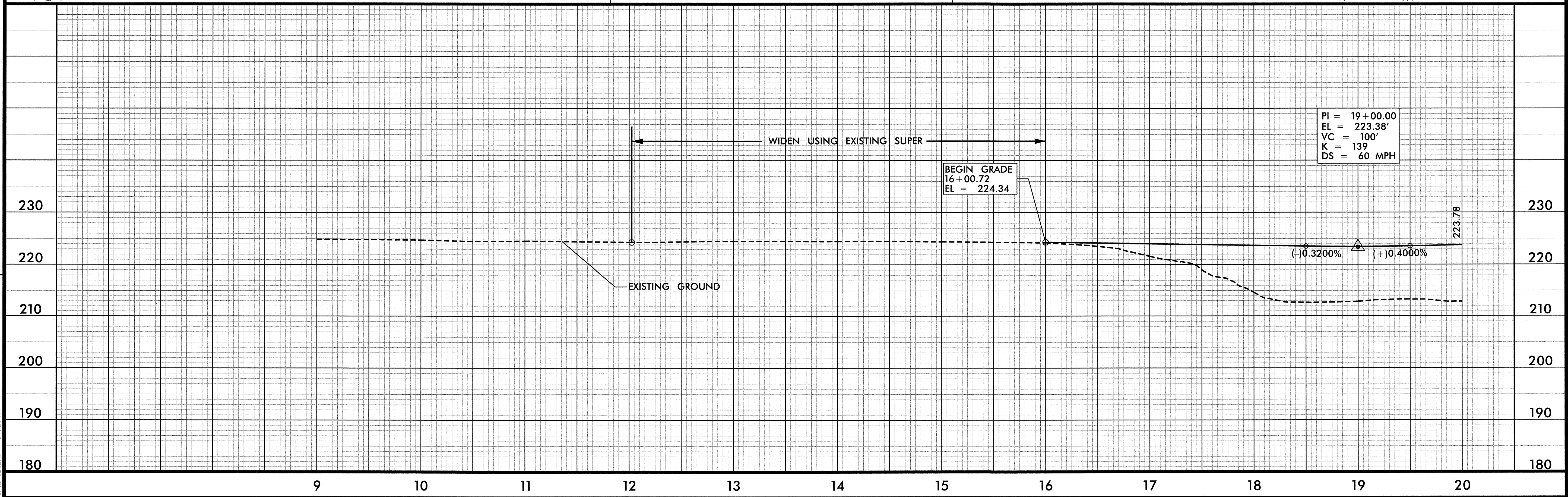
R. REX CARPENTER
DB 14-G PG 217
PB 6 PG 50

②



FOR DETOUR USE ONLY

MATCHLINE SEE SHEET 2B
STA. 20+00.00 -L-

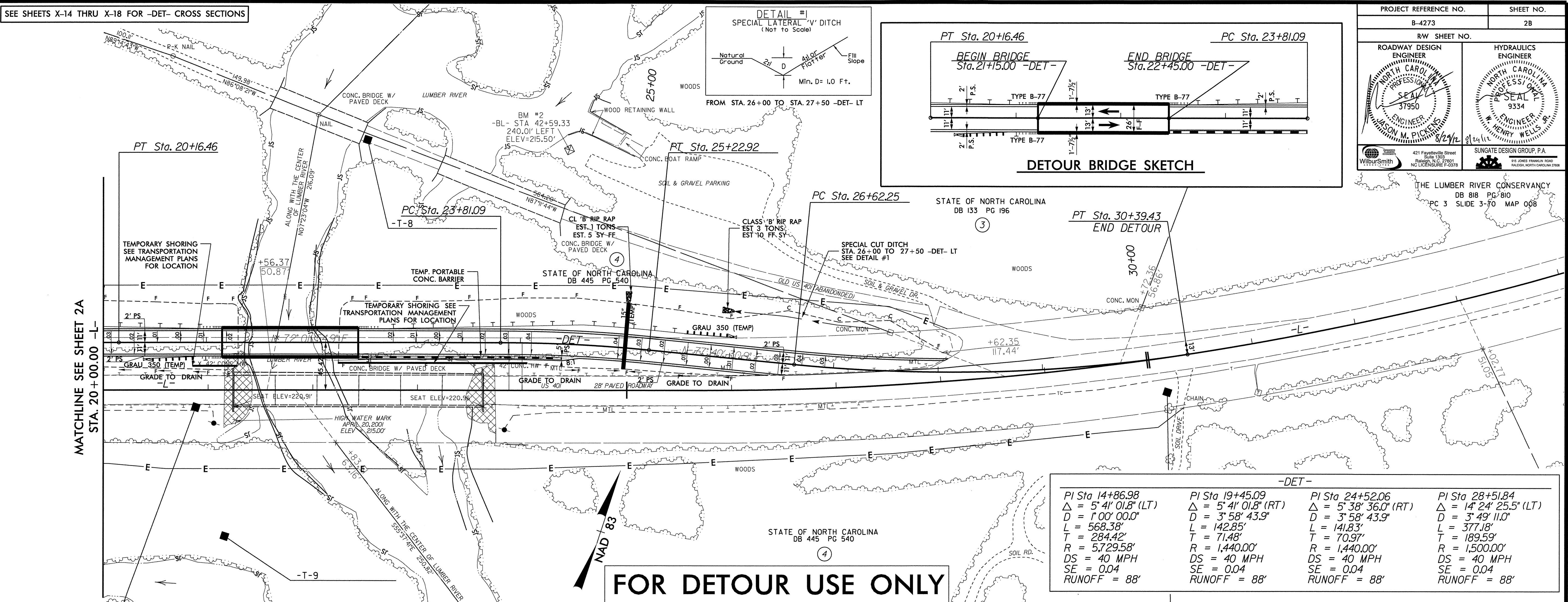
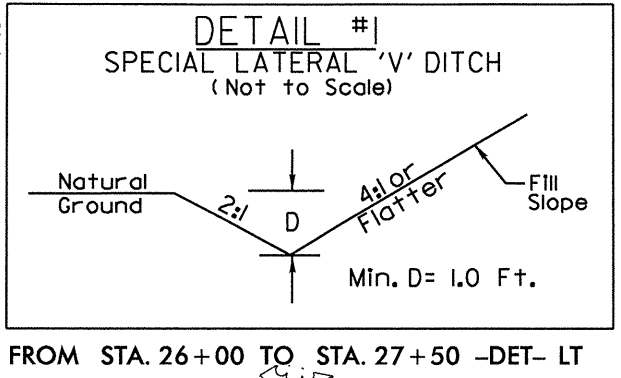
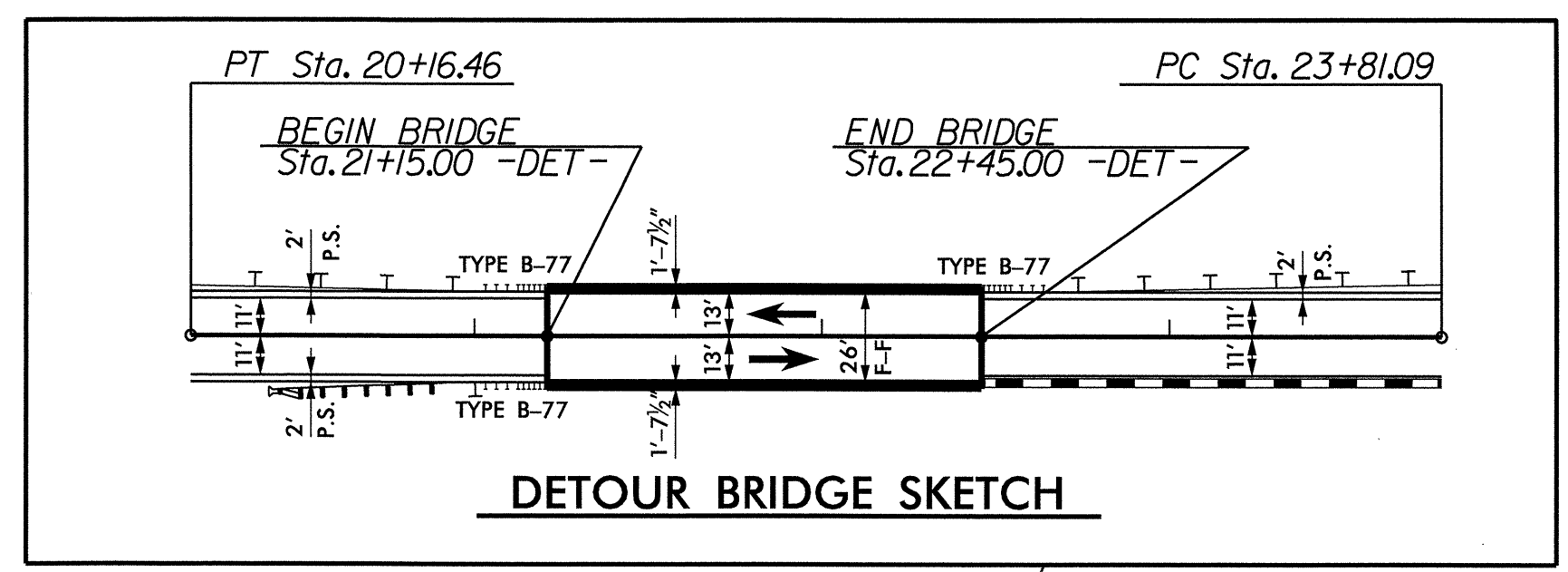


REVISIONS

FILE: R:\roads\B4273 (Roadway)\Proj\B4273_RDY_FS102A.dgn
DATE: 02/28/2012 5:15:20 PM

SEE SHEETS X-14 THRU X-18 FOR -DET- CROSS SECTIONS

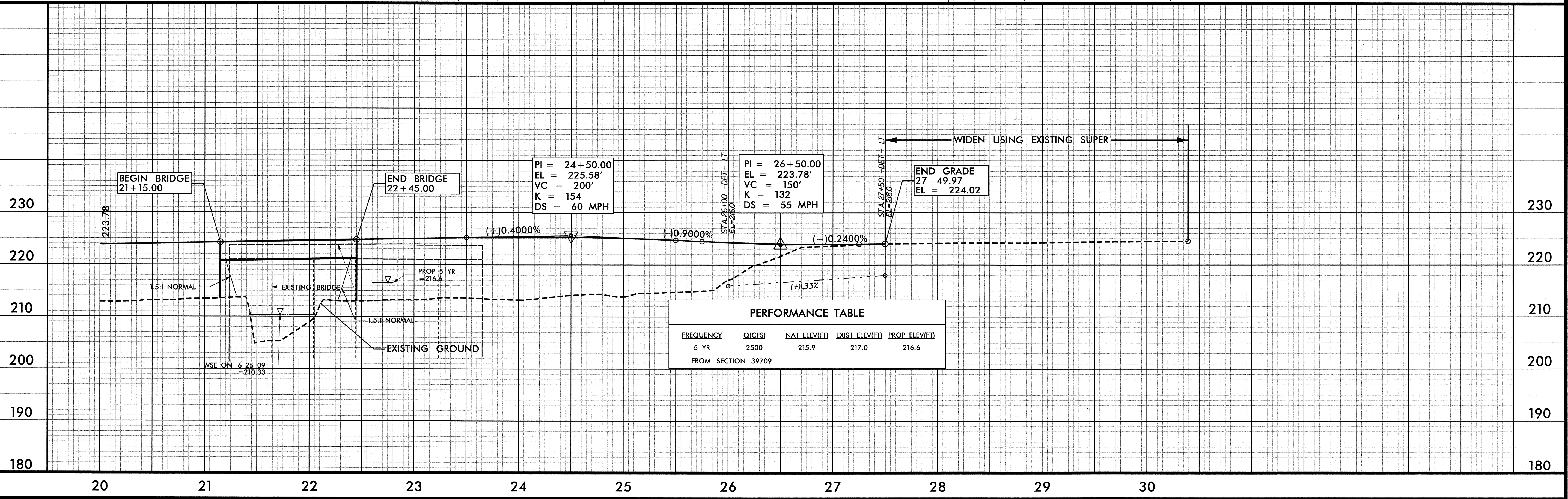
PROJECT REFERENCE NO. B-4273	SHEET NO. 2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 37950 JASON M. PICKENS	HYDRAULICS ENGINEER SEAL 9334 HENRY WELLS
SUNGATE DESIGN GROUP, P.A. 421 Fayetteville Street Raleigh, NC 27601 919-876-7070	



-DET-

PI Sta 14+86.98 Δ = 5' 4" 01.8" (LT) D = 1' 00' 00.0" L = 568.38' T = 284.42' R = 5729.58' DS = 40 MPH SE = 0.04 RUNOFF = 88'	PI Sta 19+45.09 Δ = 5' 4" 01.8" (RT) D = 3' 58' 43.9" L = 142.85' T = 71.48' R = 1,440.00' DS = 40 MPH SE = 0.04 RUNOFF = 88'	PI Sta 24+52.06 Δ = 5' 38' 36.0" (RT) D = 3' 58' 43.9" L = 141.83' T = 70.97' R = 1,440.00' DS = 40 MPH SE = 0.04 RUNOFF = 88'	PI Sta 28+51.84 Δ = 14' 24' 25.5" (LT) D = 3' 49' 11.0" L = 377.18' T = 189.59' R = 1,500.00' DS = 40 MPH SE = 0.04 RUNOFF = 88'
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FOR DETOUR USE ONLY



REVISIONS

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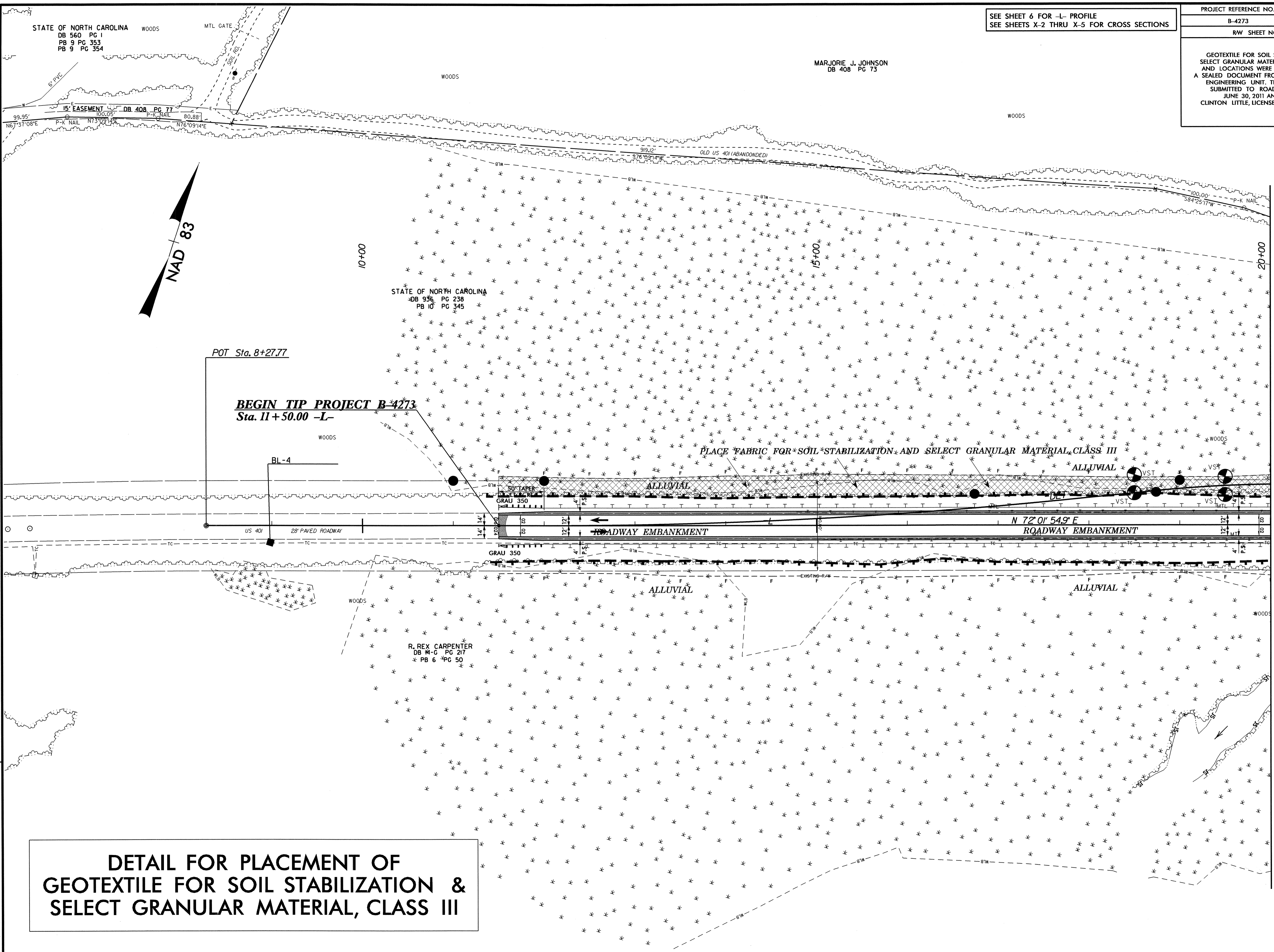
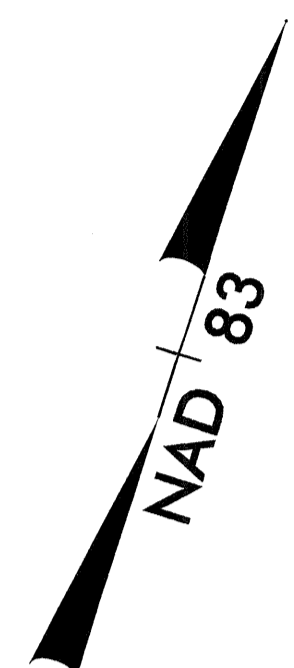
STATE OF NORTH CAROLINA
DB 560 PG 1
PB 9 PG 353
PB 9 PG 354

SEE SHEET 6 FOR -L- PROFILE
SEE SHEETS X-2 THRU X-5 FOR CROSS SECTIONS

PROJECT REFERENCE NO.	SHEET NO.
B-4273	2C
RW SHEET NO.	

MARJORIE J. JOHNSON
DB 408 PG 73

GEOTEXTILE FOR SOIL STABILIZATION AND
SELECT GRANULAR MATERIAL, CLASS III, DETAILS
AND LOCATIONS WERE PROVIDED THROUGH
A SEALED DOCUMENT FROM THE GEOTECHNICAL
ENGINEERING UNIT, THE DOCUMENT WAS
SUBMITTED TO ROADWAY DESIGN ON
JUNE 30, 2011 AND SEALED BY
CLINTON LITTLE, LICENSED GEOLOGIST, #1104.



BEGIN TIP PROJECT B-4273
Sta. 11+50.00 -L-

PLACE FABRIC FOR SOIL STABILIZATION AND SELECT GRANULAR MATERIAL, CLASS III ALLUVIAL

**DETAIL FOR PLACEMENT OF
GEOTEXTILE FOR SOIL STABILIZATION &
SELECT GRANULAR MATERIAL, CLASS III**

REVISIONS

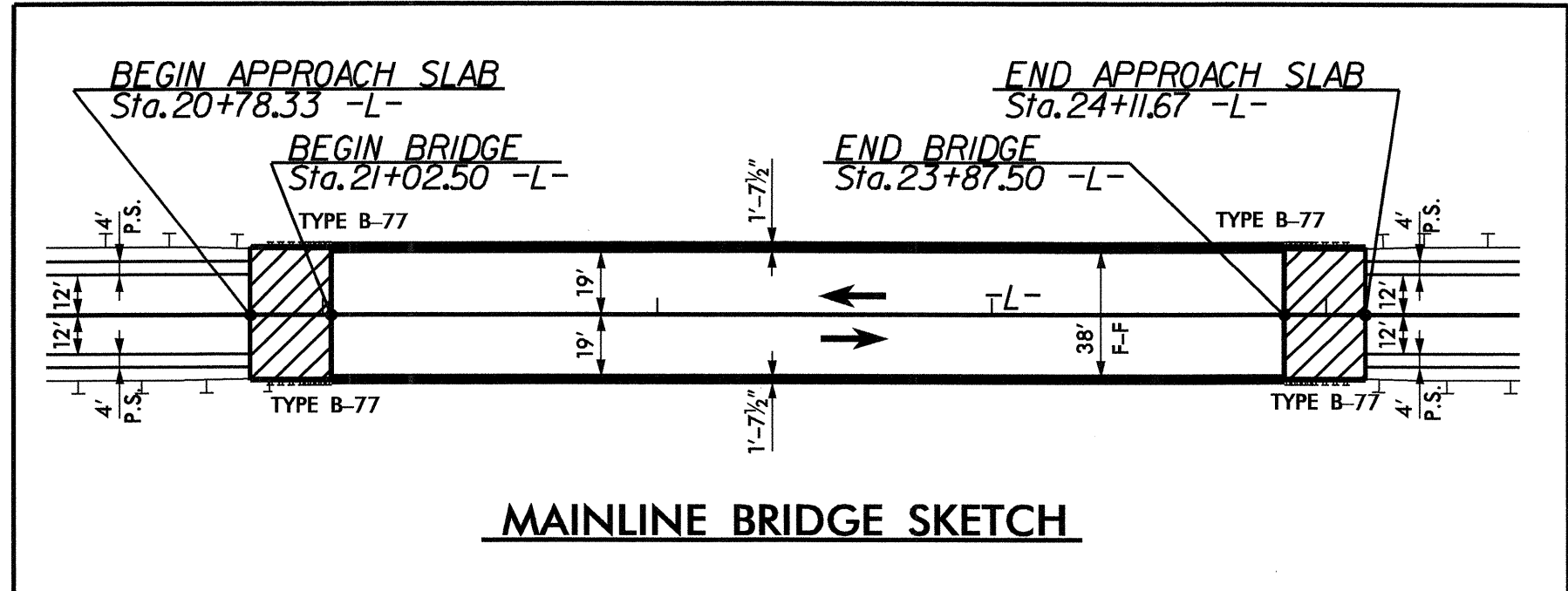
MATCHLINE SEE SHEET 5
STA. 20+00.00 -L-

FILE: SFILES
DATE: 02/01/11
STW:MS

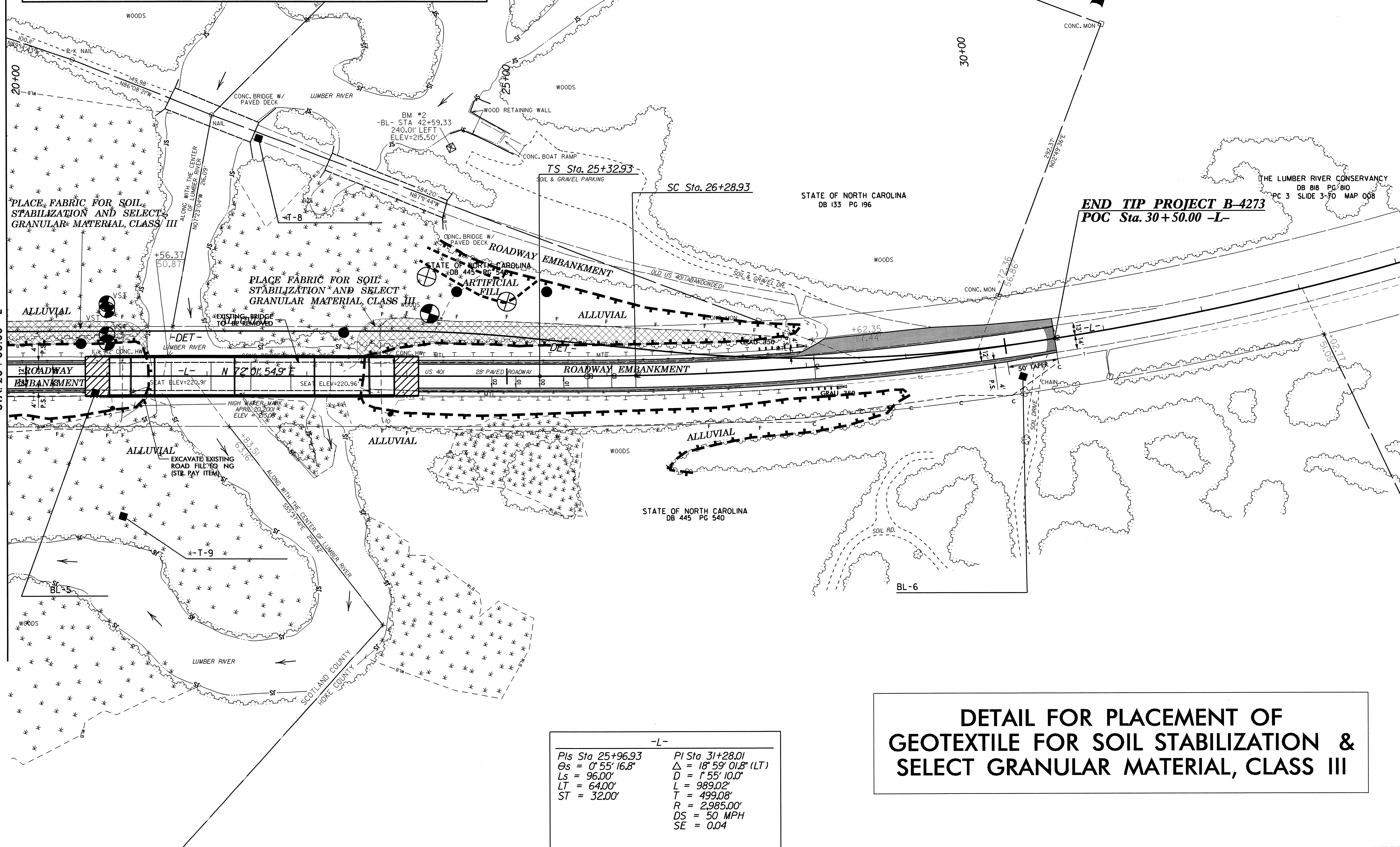
SEE SHEET 6 FOR -L- PROFILE
SEE SHEETS X-5 THRU X-10 FOR CROSS SECTIONS
SEE SHEETS S-1 THRU S-35 FOR STRUCTURE PLANS

PROJECT REFERENCE NO.	SHEET NO.
B-4273	2D
RW SHEET NO.	

GEOTEXTILE FOR SOIL STABILIZATION AND SELECT GRANULAR MATERIAL, CLASS III, DETAILS AND LOCATIONS WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO ROADWAY DESIGN ON JUNE 30, 2011 AND SEALED BY CLINTON LITTLE, LICENSED GEOLOGIST, #1104.



MATCHLINE SEE SHEET 4
STA. 20 + 00.00 -L-




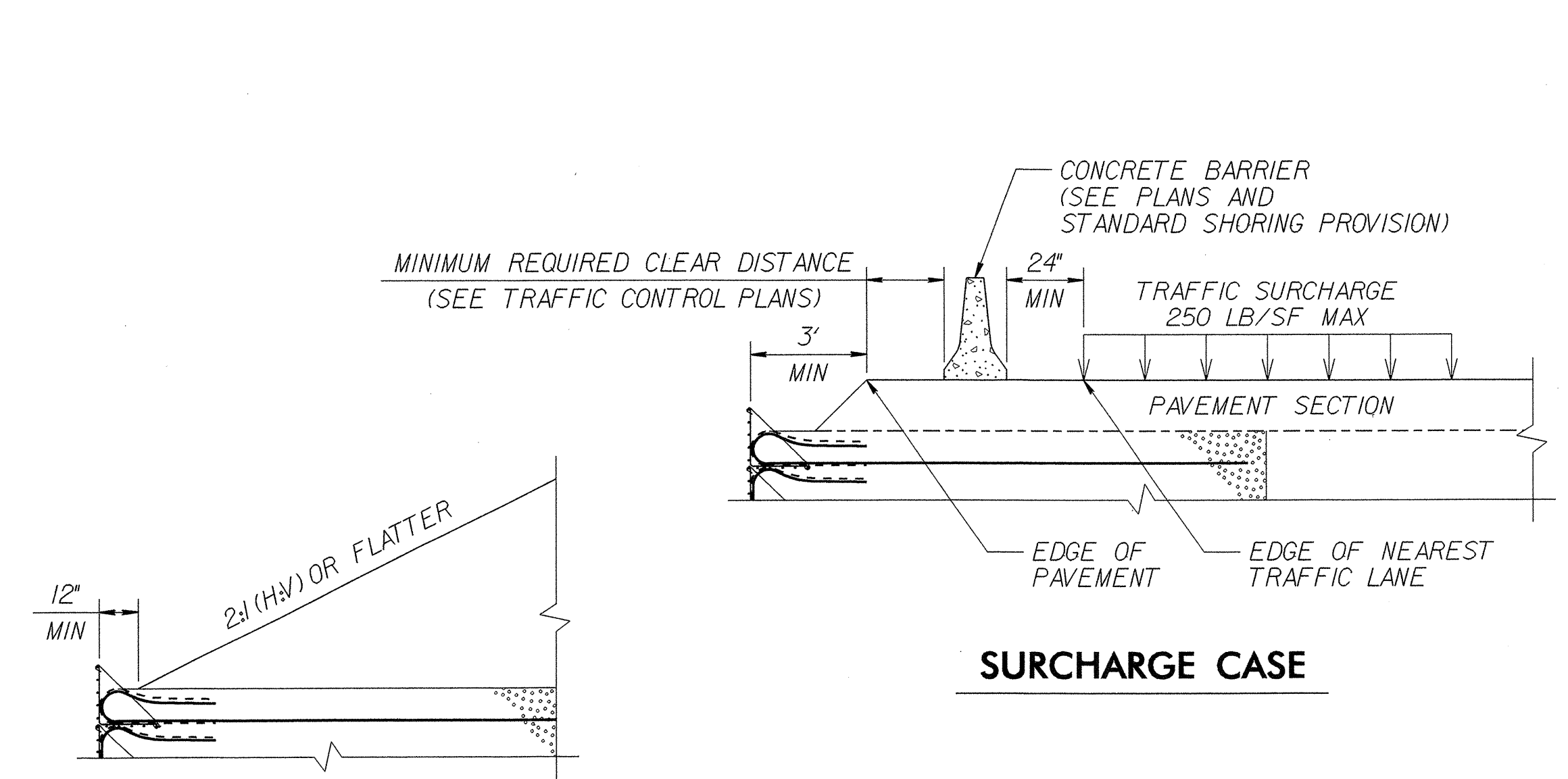
END TIP PROJECT B-4273
POC Sta. 30+50.00 -L-

**DETAIL FOR PLACEMENT OF
GEOTEXTILE FOR SOIL STABILIZATION &
SELECT GRANULAR MATERIAL, CLASS III**

-L-	
PIs Sta 25+96.93	PI Sta 31+28.01
Os = 0° 55' 16.8"	Δ = 18° 59' 01.8" (LT)
Ls = 96.00'	D = 1° 55' 10.0"
LT = 64.00'	L = 989.02'
ST = 32.00'	T = 499.08'
	R = 2,985.00'
	DS = 50 MPH
	SE = 0.04

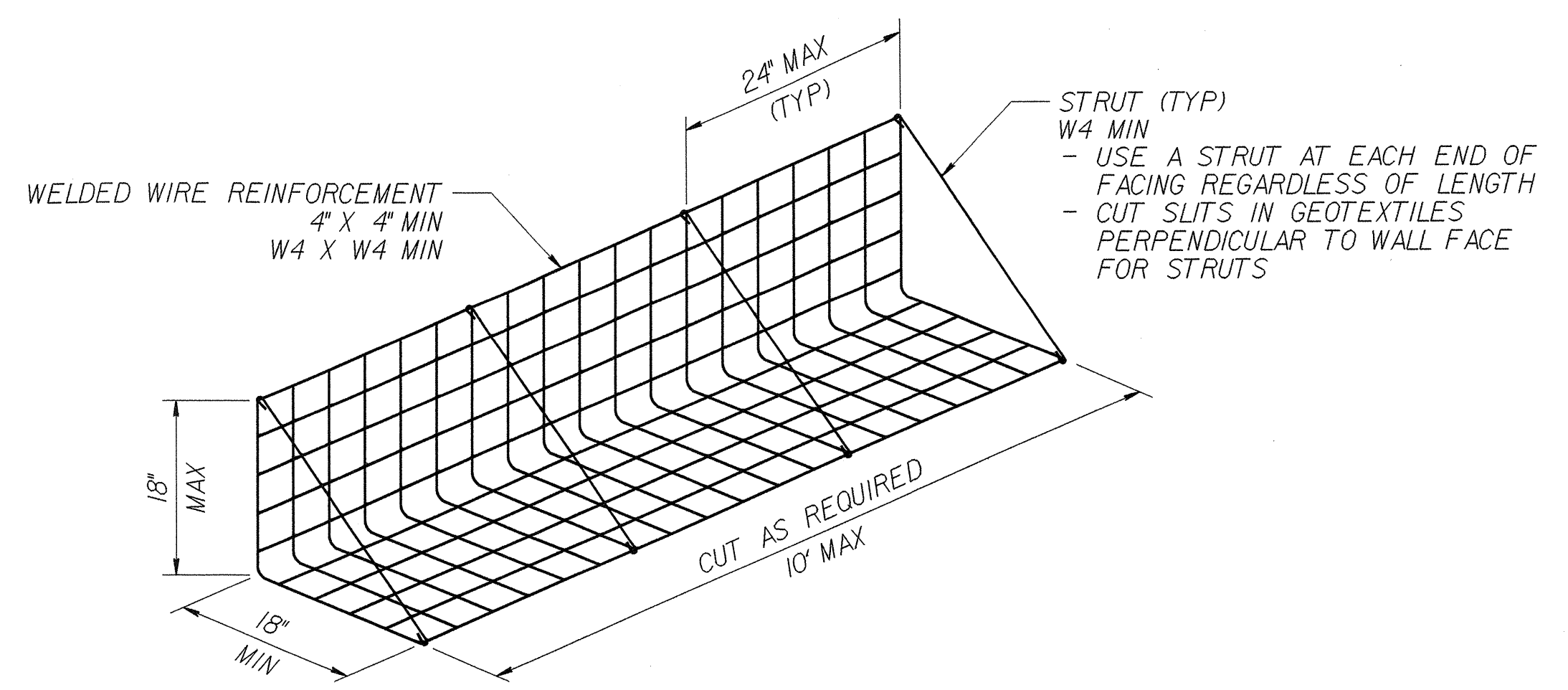
FILE: SFILES STWGS
DATE: 04/27/11

GEOTECHNICAL ENGINEER  Scott A. Hadden 8/10/12 SIGNATURE DATE	ENGINEER SIGNATURE DATE
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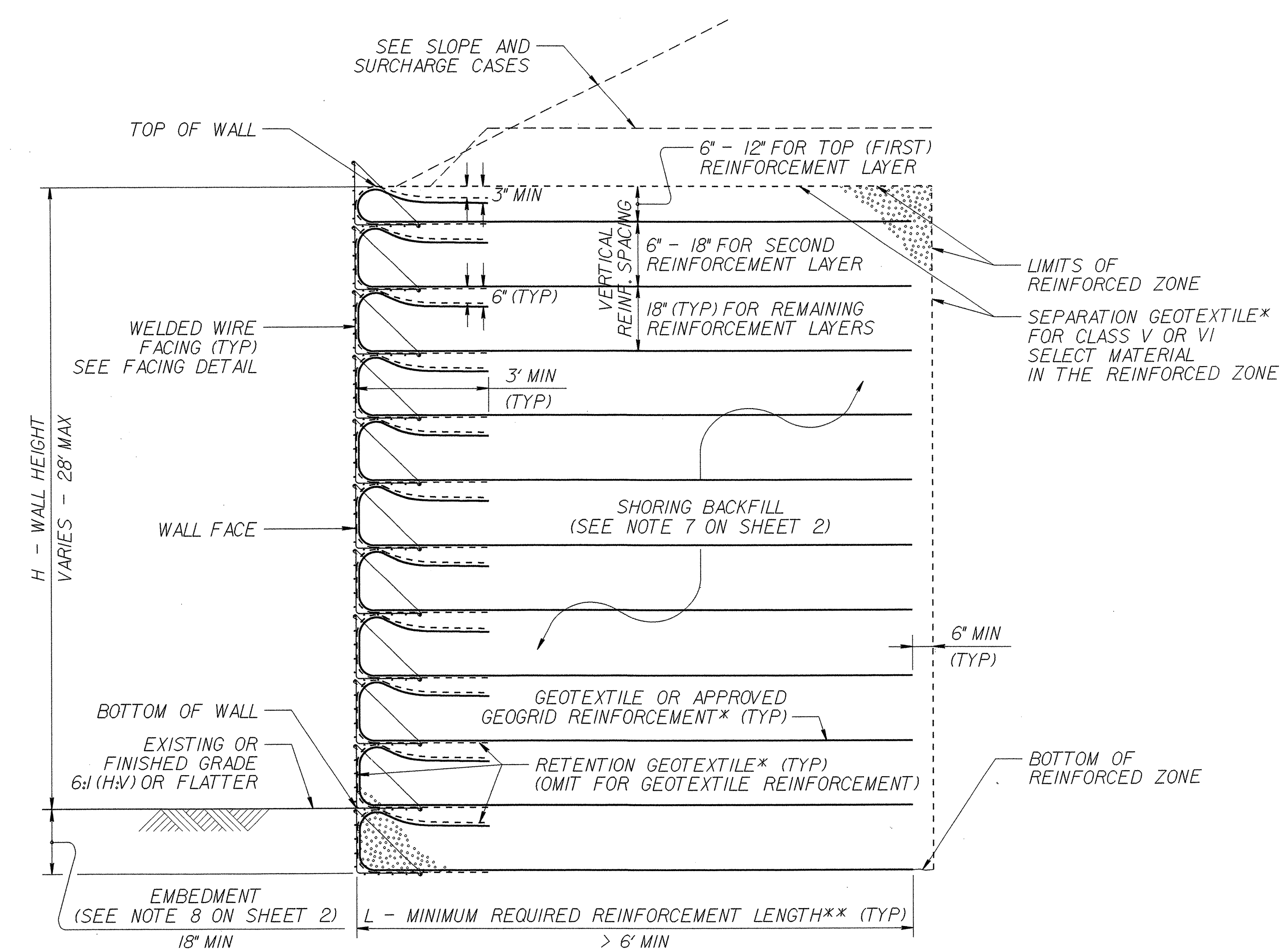


SLOPE CASE

SURCHARGE CASE

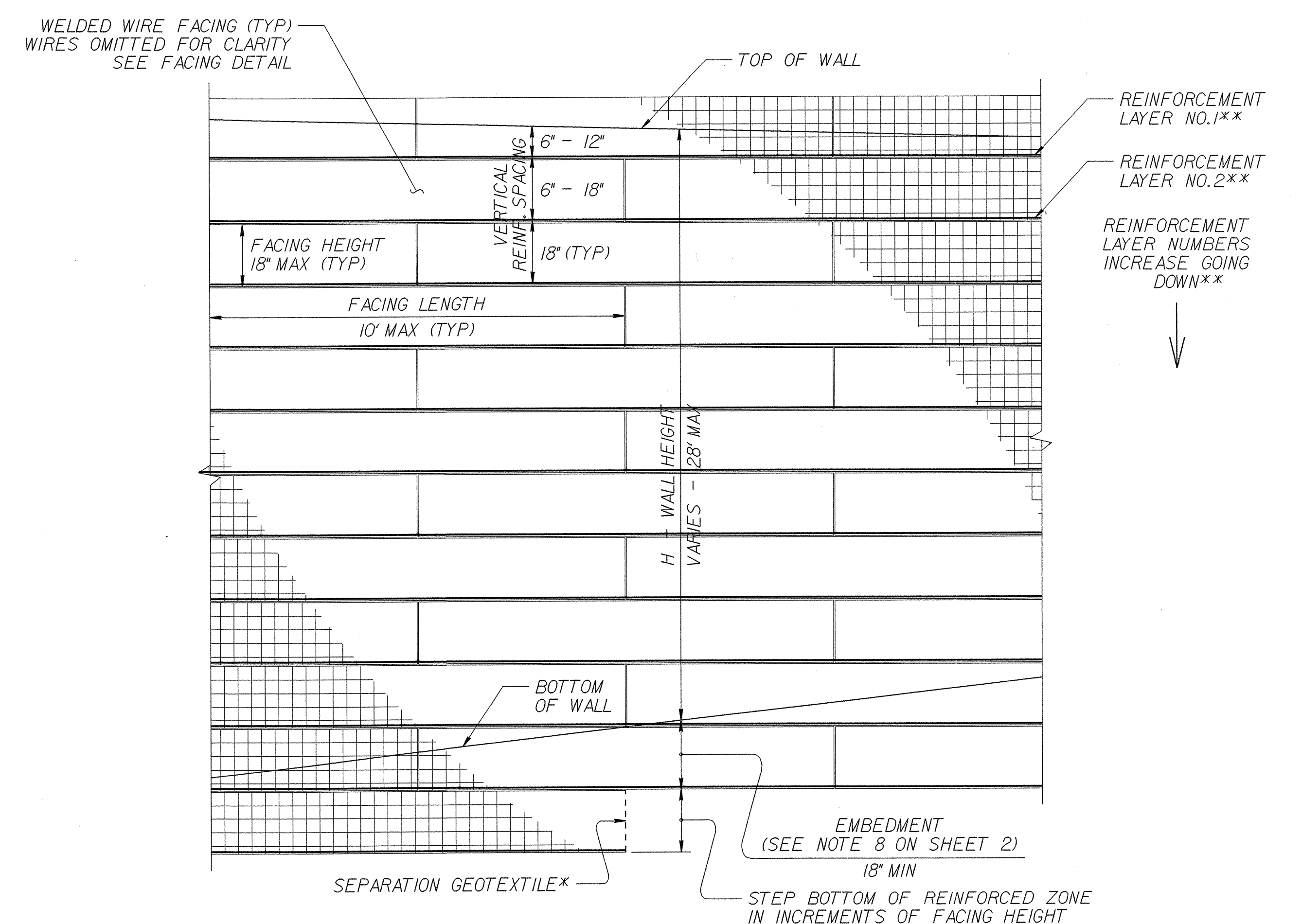


FACING DETAIL



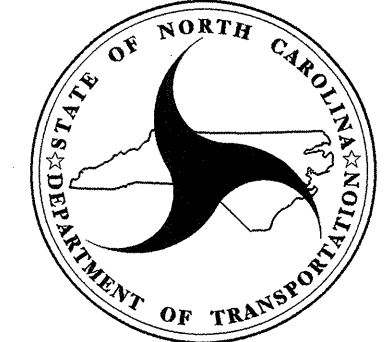
STANDARD TEMPORARY WALL


(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
 *SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
 **SEE REINFORCEMENT TABLES ON SHEET 3.

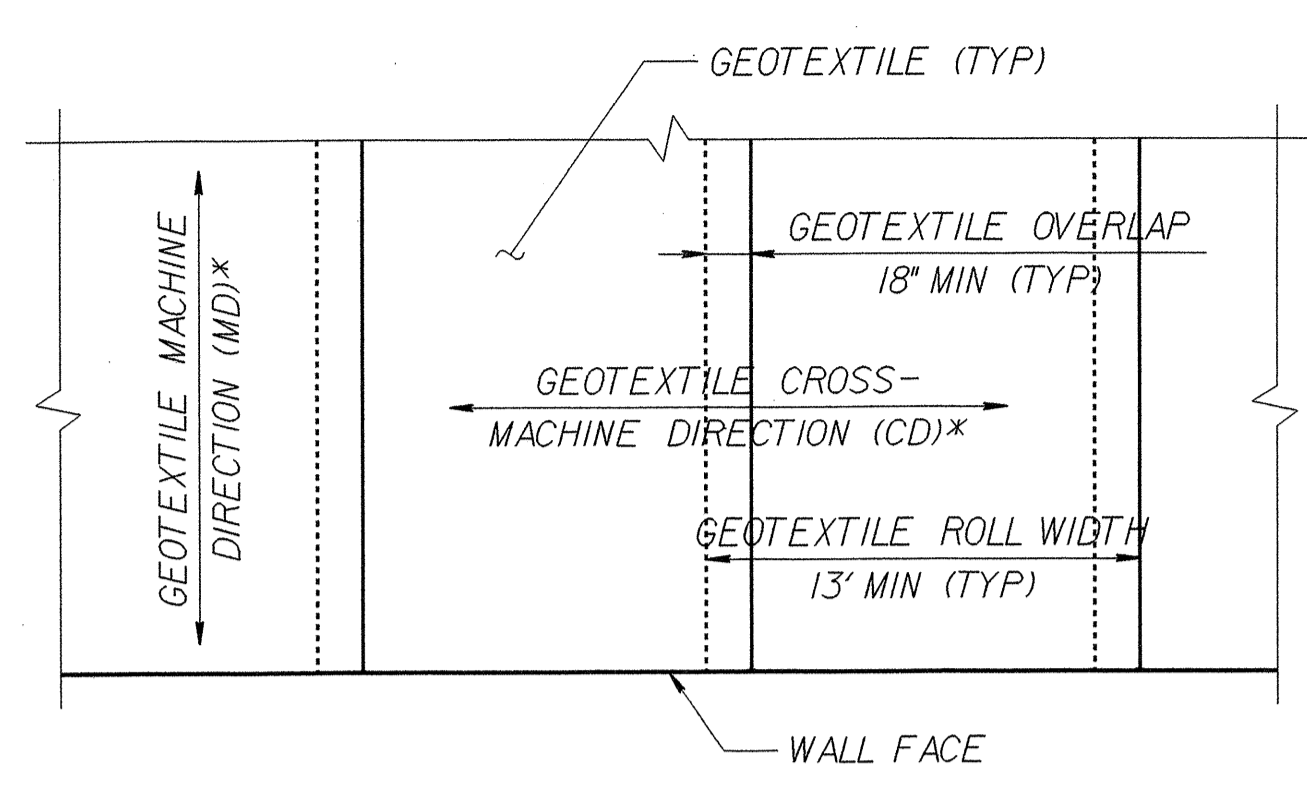


STANDARD TEMPORARY WALL - PARTIAL ELEVATION

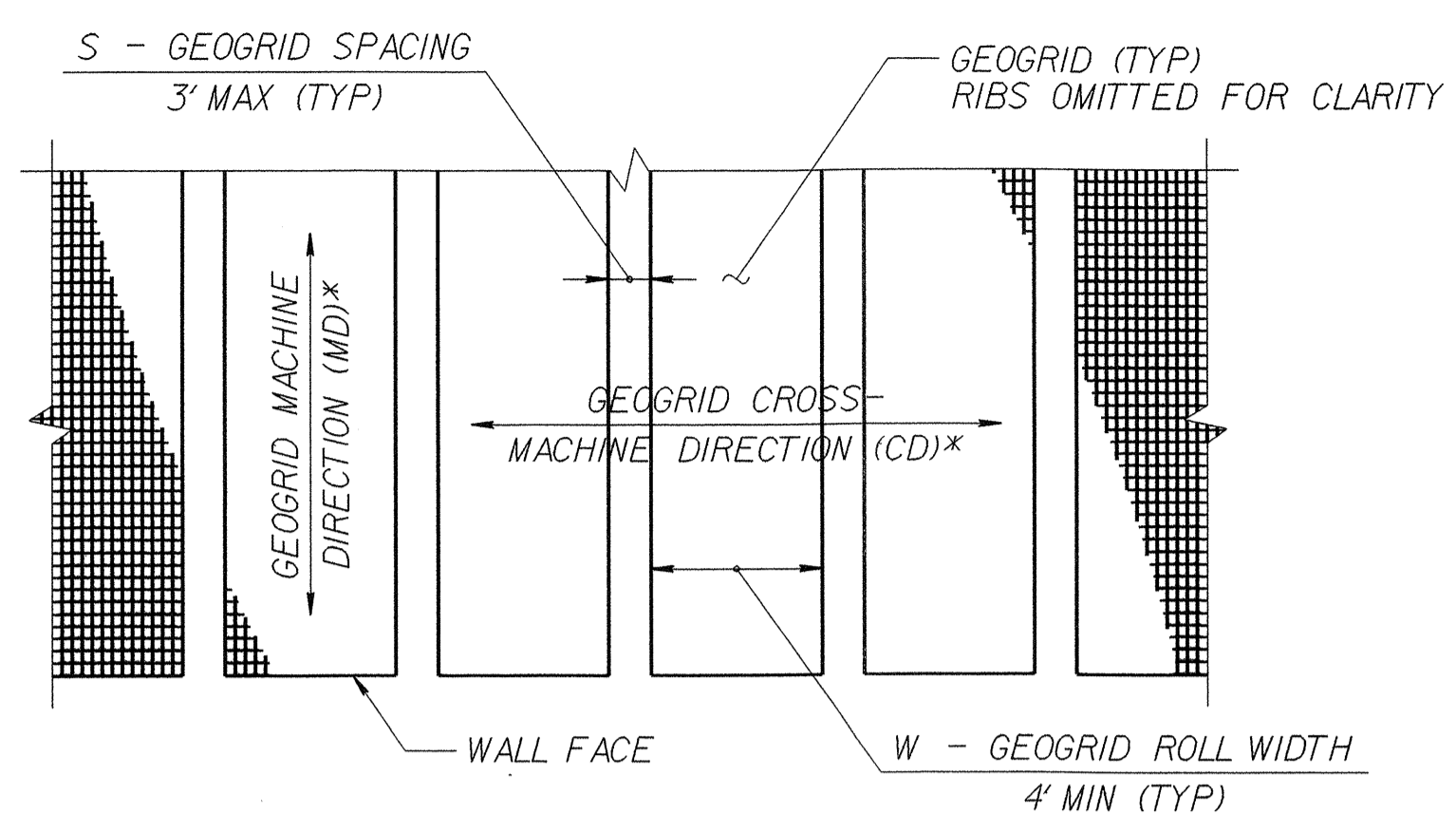
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
 **SEE REINFORCEMENT TABLES ON SHEET 3.

 GEOTECHNICAL ENGINEERING UNIT STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH	STANDARD DRAWING NO. 1801.02
	STANDARD TEMPORARY WALL Sheet 1 of 3 DATE: 11-20-12

GEOTECHNICAL ENGINEER  Scott A. Hadden 8/15/12 SIGNATURE DATE	ENGINEER SIGNATURE DATE
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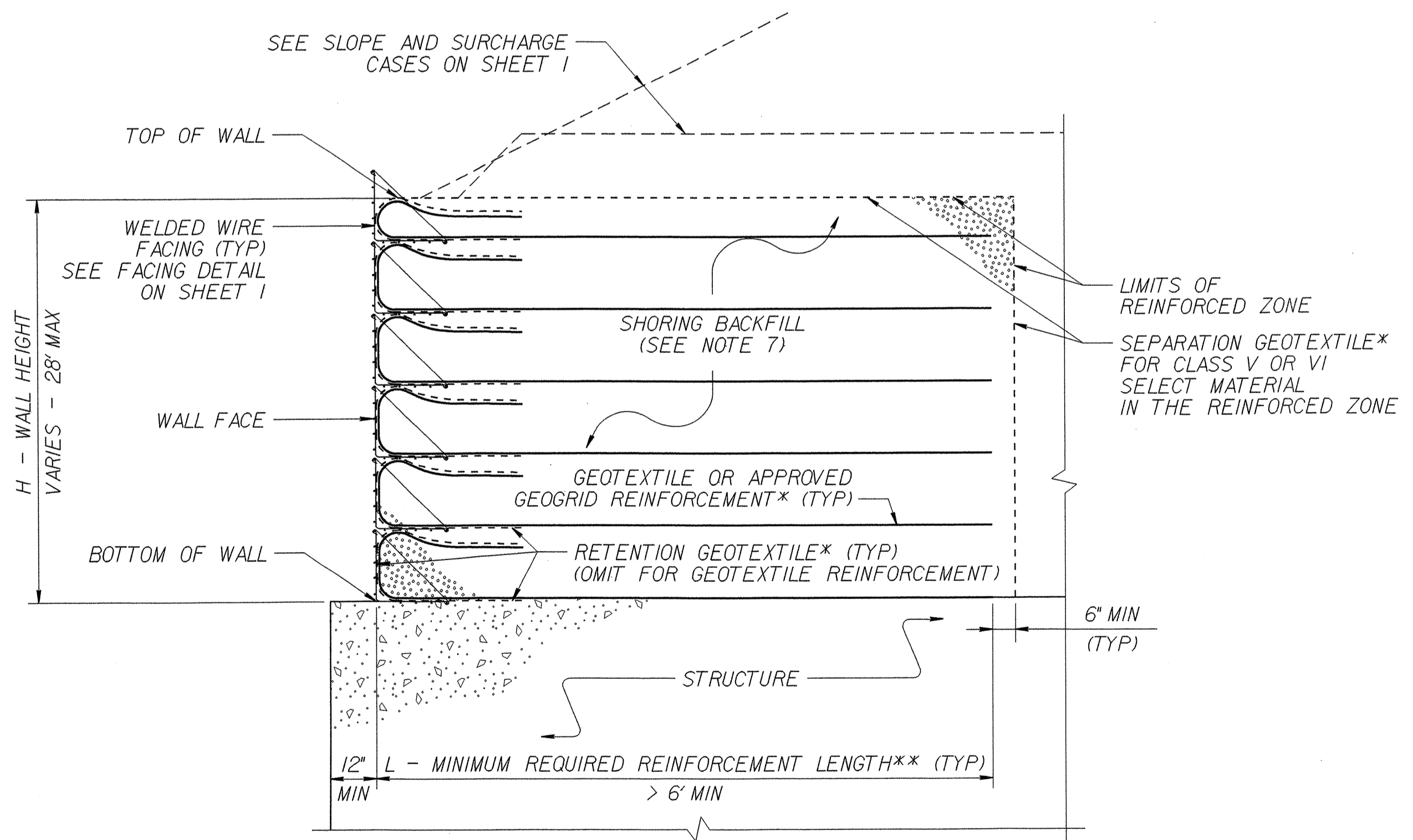
GEOTEXTILE PLACEMENT
(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



GEOGRID PLACEMENT
(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT - $\frac{W}{W+S} \times 100 \geq 80\%$, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS

(PLAN VIEW)
*SEE NOTE 12.



TEMPORARY WALL ON STRUCTURE DETAIL

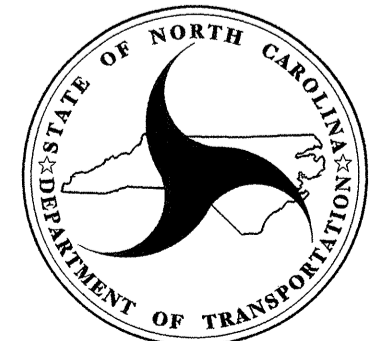
*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY WALLS ARE 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 WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER IS ABOVE BOTTOM OF REINFORCED ZONE.
- DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
- EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
- DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
- GEOGRIDS ARE APPROVED FOR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) BASED ON MATERIAL TYPE. FOR DETAILS OF APPROVED GEOGRIDS AND SHORT-TERM DESIGN STRENGTHS, SEE www.ncdot.org/doh/operations/materials/soils/gep.html DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

- FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
- AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH THE FOLLOWING CONDITIONS OCCUR:
- W (REINFORCEMENT ROLL WIDTH) > L (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
- REINFORCEMENT STRENGTH IN CD \geq MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
- SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION.
- DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
- FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
- DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
- CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
- FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
- FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.


GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD
TEMPORARY WALL
Sheet 2 of 3

DATE: 11-20-12

GEOTECHNICAL ENGINEER

ENGINEER



Scott A. Hadden 8/10/12

SIGNATURE DATE SIGNATURE DATE

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																									
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
SLOPE CASE	> 0	CLASS II, TYPE I, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27	
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22	
		A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21	
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20	
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19	

L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)
(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

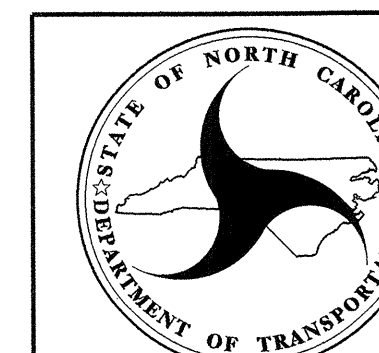
REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOGRID REINFORCEMENT SHORT-TERM DESIGN STRENGTH (LB/FT)
(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD
(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1 FOR REINFORCEMENT LAYER NUMBERING.



GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY WALL
Sheet 3 of 3

DATE: 11-20-12

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202949

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	477000000-E	1205	1,144	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (2)
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (22+45.00)	327000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	481000000-E	1205	30,400	LF	PAINT PAVEMENT MARKING LINES (4")
0043000000-N	226	Lump Sum		GRADING	331700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77	485000000-E	1205	7,200	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	336000000-E	863	2,202	LF	REMOVE EXISTING GUARDRAIL	490000000-N	1251	24	EA	PERMANENT RAISED PAVEMENT MARKERS
0057000000-E	226	2,000	CY	UNDERCUT EXCAVATION	338000000-E	862	1,062.5	LF	TEMPORARY STEEL BM GUARDRAIL	600000000-E	1605	6,300	LF	TEMPORARY SILT FENCE
0194000000-E	SP	3,500	CY	SELECT GRANULAR MATERIAL, CLASS III	338900000-N	SP	3	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (350)	600600000-E	1610	370	TON	STONE FOR EROSION CONTROL, CLASS A
0196000000-E	270	3,600	SY	GEOTEXTILE FOR SOIL STABILIZATION	364900000-E	876	9	TON	RIP RAP, CLASS B	600900000-E	1610	470	TON	STONE FOR EROSION CONTROL, CLASS B
0199000000-E	SP	2,659	SF	TEMPORARY SHORING	365600000-E	876	565	SY	GEOTEXTILE FOR DRAINAGE	601200000-E	1610	680	TON	SEDIMENT CONTROL STONE
0318000000-E	300	30	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	407200000-E	903	114	LF	SUPPORTS, 3-LB STEEL U-CHANNEL	601500000-E	1615	7.5	ACR	TEMPORARY MULCHING
0320000000-E	300	70	SY	FOUNDATION CONDITIONING GEOTEXTILE	409600000-N	904	4	EA	SIGN ERECTION, TYPE D	601800000-E	1620	250	LB	SEED FOR TEMPORARY SEEDING
0343000000-E	310	168	LF	15" SIDE DRAIN PIPE	415500000-N	907	4	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	602100000-E	1620	2	TON	FERTILIZER FOR TEMPORARY SEEDING
0348000000-E	310	2	EA	*** SIDE DRAIN PIPE ELBOWS (15")	440000000-E	1110	132	SF	WORK ZONE SIGNS (STATIONARY)	602400000-E	1622	1,550	LF	TEMPORARY SLOPE DRAINS
0448200000-E	310	40	LF	15" RC PIPE CULVERTS, CLASS IV	440500000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)	602900000-E	SP	1,400	LF	SAFETY FENCE
0995000000-E	340	132	LF	PIPE REMOVAL	441000000-E	1110	24	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	603000000-E	1630	1,150	CY	SILT EXCAVATION
1330000000-E	607	125	SY	INCIDENTAL MILLING	443000000-N	1130	36	EA	DRUMS	603600000-E	1631	12,000	SY	MATting FOR EROSION CONTROL
1489000000-E	610	1,730	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	443500000-N	1135	25	EA	CONES	603700000-E	SP	40	SY	COIR FIBER MAT
1498000000-E	610	620	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	444500000-E	1145	48	LF	BARRICADES (TYPE III)	604200000-E	1632	2,350	LF	1/4" HARDWARE CLOTH
1519000000-E	610	1,370	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	445000000-N	1150	200	HR	FLAGGER	604800000-E	SP	430	SY	FLOATING TURBIDITY CURTAIN
1575000000-E	620	190	TON	ASPHALT BINDER FOR PLANT MIX	446500000-N	1160	1	EA	TEMPORARY CRASH CUSHIONS	6071012000-E	SP	350	LF	COIR FIBER WATTLE
1693000000-E	654	20	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	448000000-N	1165	2	EA	TMA	6071020000-E	SP	100	LB	POLYACRYLAMIDE (PAM)
2286000000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES	449000000-E	1170	339	LF	PORTABLE CONCRETE BARRIER (ANCHORED)	6071030000-E	1640	270	LF	COIR FIBER BAFFLE
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29	465000000-N	1251	95	EA	TEMPORARY RAISED PAVEMENT MARKERS	6071050000-E	SP	3	EA	*** SKIMMER (1-1/2")
2556000000-E	846	19	LF	SHOULDER BERM GUTTER	468500000-E	1205	3,230	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	608400000-E	1660	6	ACR	SEEDING & MULCHING
3030000000-E	862	2,475	LF	STEEL BM GUARDRAIL	468600000-E	1205	3,295	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	608700000-E	1660	3	ACR	MOWING
										609000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
										609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
										609600000-E	1662	175	LB	SEED FOR SUPPLEMENTAL SEEDING
										610800000-E	1665	5	TON	FERTILIZER TOPDRESSING
										611450000-N	1667	10	MHR	SPECIALIZED HAND MOWING
										611700000-N	SP	40	EA	RESPONSE FOR EROSION CONTROL
										612300000-E	1670	0.5	ACR	REFORESTATION

REVISIONS

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4 & 5	STATE OF NORTH CAROLINA
2	4 & 5	R. REX CARPENTER
3	5	STATE OF NORTH CAROLINA
4	5	STATE OF NORTH CAROLINA

REMOVAL OF EXISTING ASPHALT PAVEMENT SUMMARY

LINE	STATION TO STATION	LOCATION	SQUARE YARDS
-DET-	STA 16+31 TO STA 21+15	LT	1,438
-L-	STA 20+50 TO STA 21+23	LT	211
-DET-	STA 22+45 TO STA 27+29	LT	1,519
-L-	STA 23+63 TO STA 26+34	LT	783
TOTAL			3,951
SAY			3,960

REVISIONS

"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 FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
 G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS							IMPACT ATTENUATOR TYPE 350			SINGLE FACED CONCRETE BARRIERS	REMARKS																	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350	CAT-1	AT-1	B-77	TYPE III								EA	G	NG														
-L-	11+52.50	21+02.50	LT	950.00				21+02.50	8	8											1																						
-L-	23+87.50	27+87.50	LT	400.00				23+87.50	8	8											1																						
-L-	11+52.50	21+02.50	RT	950.00				21+02.50	8	8											1																						
-L-	23+87.50	28+37.50	RT	450.00				23+87.50	8	8											1																						
SUBTOTAL				2750.00																	4																						
LESS ANCHOR DEDUCTIONS				-275.00																																							
GRAU 350 4 @ 50.00 =				-200.00																																							
B-77 4 @ 18.75 =				-75.00																																							
TOTAL			SAY	2475.00	5 ADDITIONAL GR POST																4																						
EXISTING GUARDRAIL REMOVAL: 2202.00 LF																																											

TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS							IMPACT ATTENUATOR TYPE 350			SINGLE FACED CONCRETE BARRIERS	REMARKS																				
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350	CAT-1	AT-1	B-77	TYPE III	TYPE III MOD								EA	G	NG																
DETOUR	13+40.00	21+15.00	LT	775.0				13+90.00	8	8		185.0		6.0							1																									
DETOUR	20+40.00	21+15.00	RT	75.0				20+90.00	8	8	50.0		1.5								1																									
DETOUR	22+45.00	26+07.50	LT	362.5				25+57.50	8	8	214.5		6.0								1																									
SUBTOTAL				1212.5																																										
LESS ANCHOR DEDUCTIONS																																														
GRAU 350 3 @ 50				150.0	-150.0																																									
TOTAL			SAY	1062.5																																										
SAY				1062.5																	3																									

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
EARTHWORK SUMMARY
 IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT +%	BORROW	WASTE
SUMMARY #1					
-L- 11+50.00 TO 21+02.50 (Begin Bridge)	255		4,646	4,391	
SUBTOTAL: SUMMARY #1	255		4,646	4,391	
SUMMARY #2					
-L- 23+87.50 (End Bridge) TO 30+50.00	258		1,798	1,540	
SUBTOTAL: SUMMARY #2	258		1,798	1,540	
SUMMARY #3					
-DET- 13+50.00 TO 21+15.00 (Begin Bridge)	22		10,259	10,237	
SUBTOTAL: SUMMARY #3	22		10,259	10,237	
SUMMARY #4					
-DET- 22+45.00 (End Bridge) TO 28+00.00	68		9,086	9,018	
SUBTOTAL: SUMMARY #4	68		9,086	9,018	
SUMMARY #5					
-DET- (Removal) 13+50.00 (Begin Bridge) TO 21+15.00	5,105				5,105
-DET- (Removal) 22+45.00 (End Bridge) TO 28+00.00	6,418				6,418
SUBTOTAL: SUMMARY #5	11,523				11,523
SUBTOTAL (SUMMARIES 1-5)	12,126		25,789	25,186	11,523
SELECT MATERIAL, CLASS III IN LIEU OF BORROW			(4,200)	(4,200)	
PROJECT TOTAL	12,126		21,589	20,986	11,523
EST 5% TO REPLACE TOP SOIL ON BORROW PIT				1,049	
GRAND TOTAL	12,126		21,589	22,035	11,523
SAY	12,200			22,100	
UNDERCUT EXCAVATION CONTINGENCY PER GEOTECH REPORT: 2,000 CY					

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE QUANTITIES ARE BASED IN PART ON THE SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

REVISIONS

STATE OF NORTH CAROLINA
DB 560 PG 1
PB 9 PG 353
PB 9 PG 354

WOODS

MTL GATE

WOODS

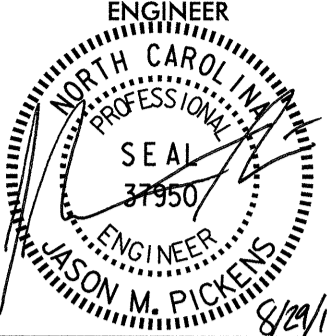
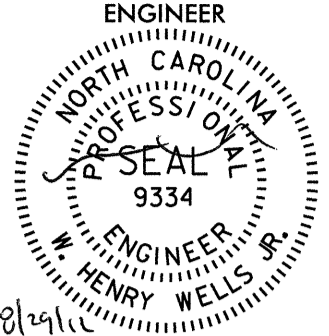
MARJORIE J. JOHNSON
DB 408 PG 73

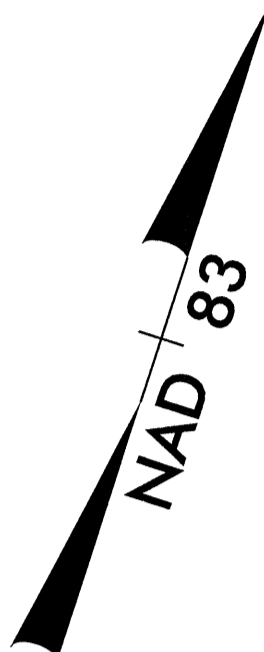
SEE SHEET 6 FOR -L- PROFILE
SEE SHEETS X-2 THRU X-5 FOR CROSS SECTIONS

PROJECT REFERENCE NO. SHEET NO.

B-4273 4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
WILBUR SMITH 421 Fegemville Street Suite 300 Raleigh, N.C. 27601 NC LICENSE # F-0378	
SUNGATE DESIGN GROUP, P.A. 511 JONES FRANKLIN ROAD FALCON, NORTH CAROLINA 28734	



POT Sta. 8+27.77

BEGIN TIP PROJECT B-4273
Sta. 11+50.00 -L-

BL-4

US 401 28' PAVED ROADWAY

STATE OF NORTH CAROLINA
DB 936 PG 238
PB 10 PG 345

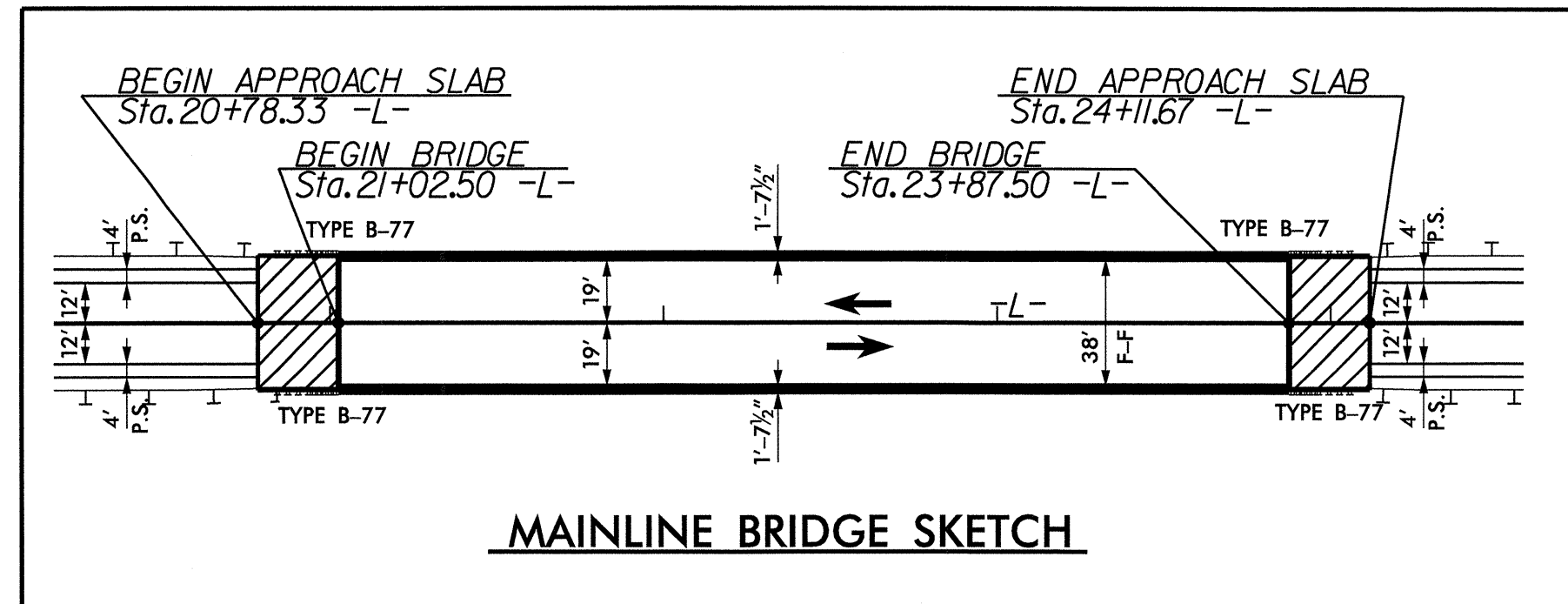
R. REX CARPENTER
DB 14-C PG 217
PB 6 PG 50

MATCHLINE SEE SHEET 5
STA. 20+00.00 -L-

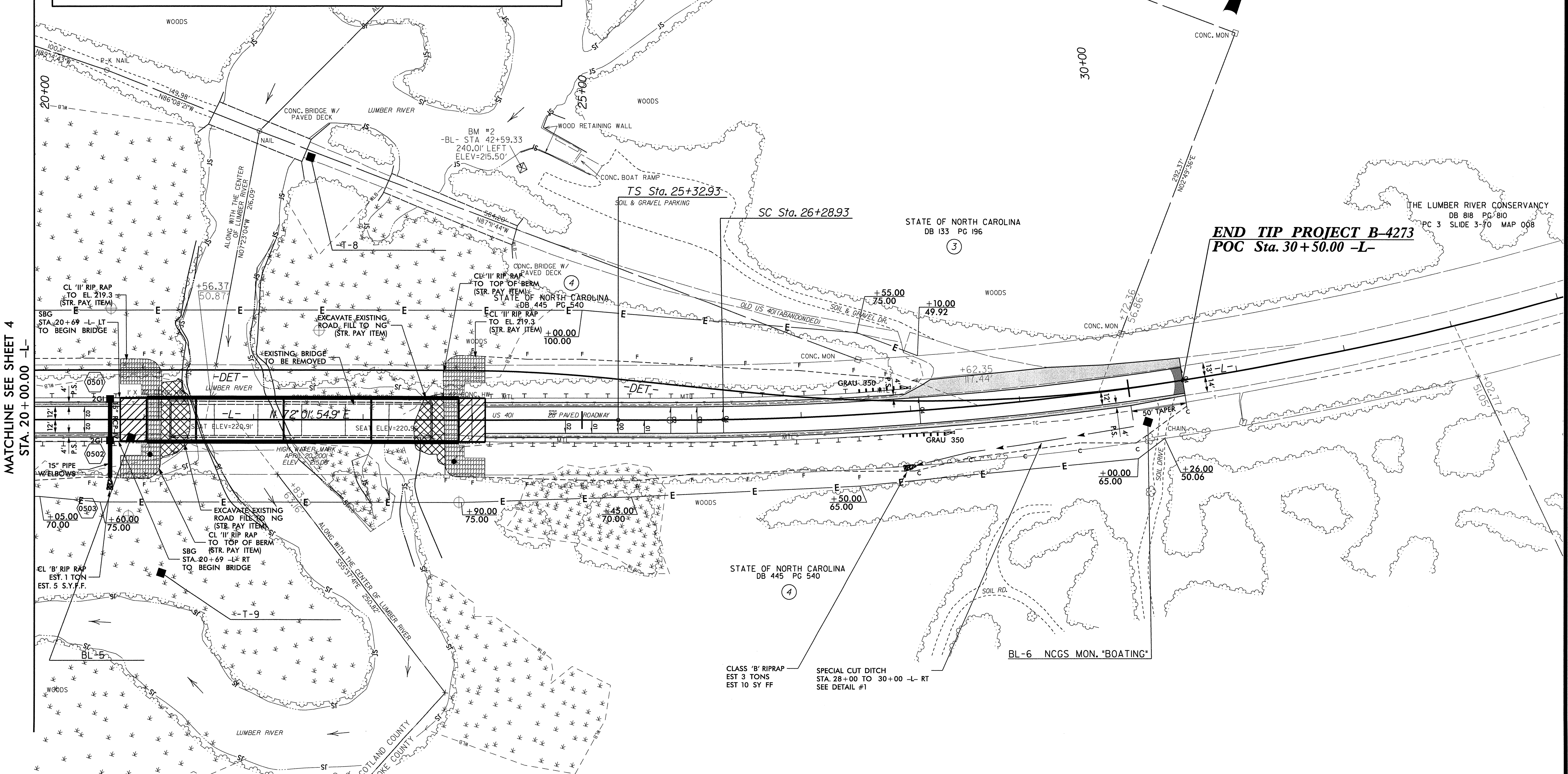
REVISIONS

SEE SHEET 6 FOR -L- PROFILE
 SEE SHEETS X-5 THRU X-10 FOR CROSS SECTIONS
 SEE SHEETS S-1 THRU S-35 FOR STRUCTURE PLANS

PROJECT REFERENCE NO. B-4273	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER WILBUR SMITH 37950 8/21/11	HYDRAULICS ENGINEER HENRY WELLS 9334 8/21/11
SUNGATE DESIGN GROUP, P.A. 421 Fayetteville Street Suite 1900 Raleigh, N.C. 27601 NC LICENSE # F-20778	



MAINLINE BRIDGE SKETCH

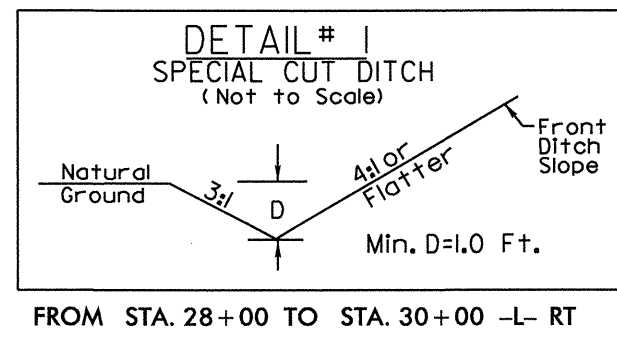


END TIP PROJECT B-4273
 POC Sta. 30+50.00 -L-

MATCHLINE SEE SHEET 4
 STA. 20+00.00 -L-

-L-

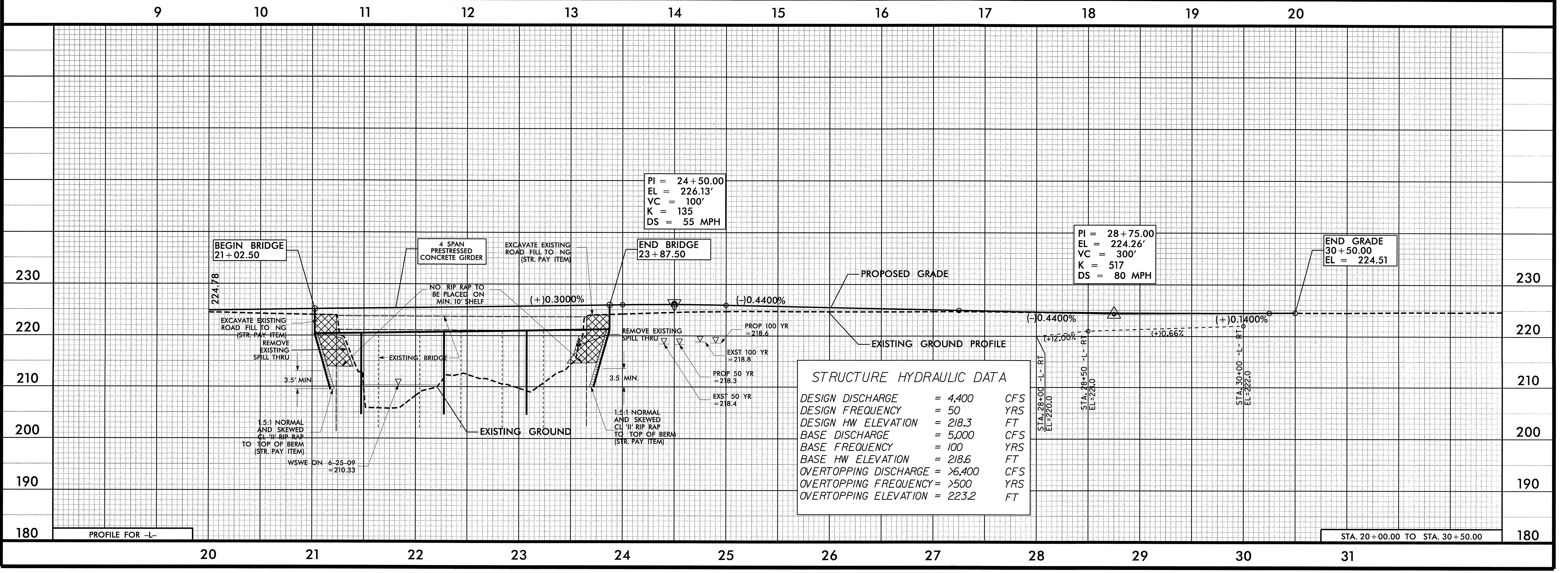
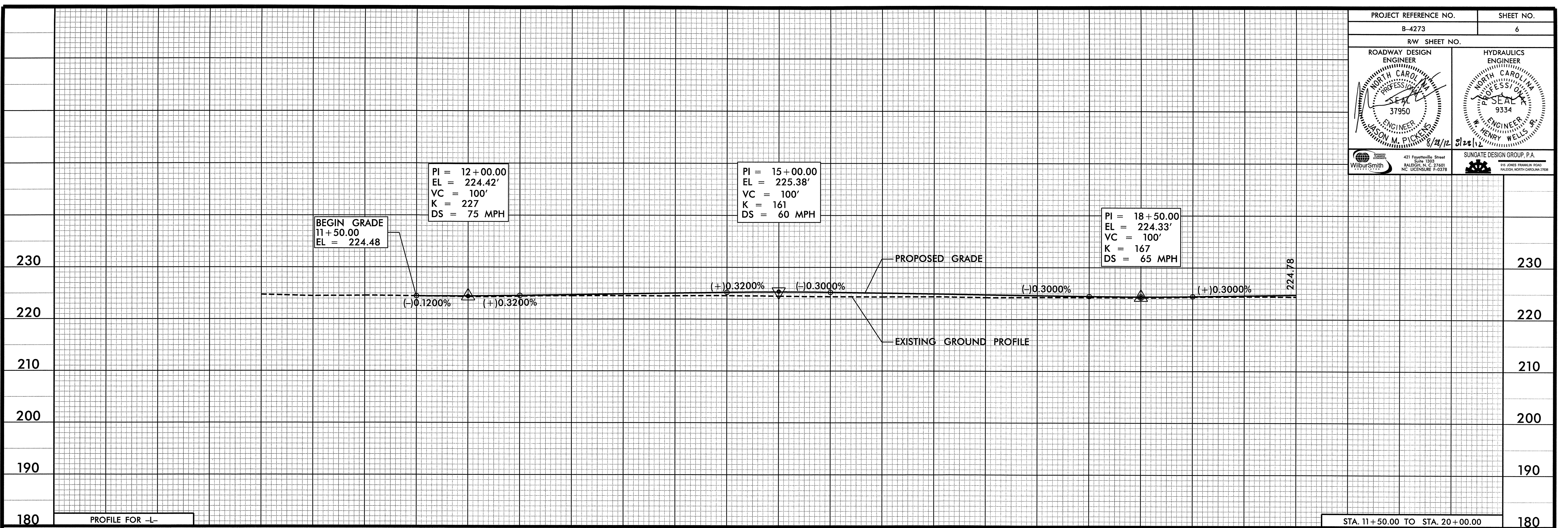
Pts Sta 25+96.93	Pi Sta 31+28.01
$\Theta_s = 0^\circ 55' 16.8''$	$\Delta = 18^\circ 59' 01.8'' (LT)$
$L_s = 96.00'$	$D = 1' 55' 10.0''$
$LT = 64.00'$	$L = 989.02'$
$ST = 32.00'$	$T = 499.08'$
	$R = 2,985.00'$
	$DS = 50 MPH$
	$SE = 0.04$



FROM STA. 28+00 TO STA. 30+00 -L- RT

REVISIONS

FILE: 0:\work\14273\Revised\Proj\14273_RDY_P5105.dgn
 DATE: 8/22/2012 5:13:31 PM



FILE: D:\projects\B4273\B4273_Roadway\B4273_Roadway_Plan.dwg
 DATE: 02/20/12 2:32:12 PM