

09/08/99

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

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

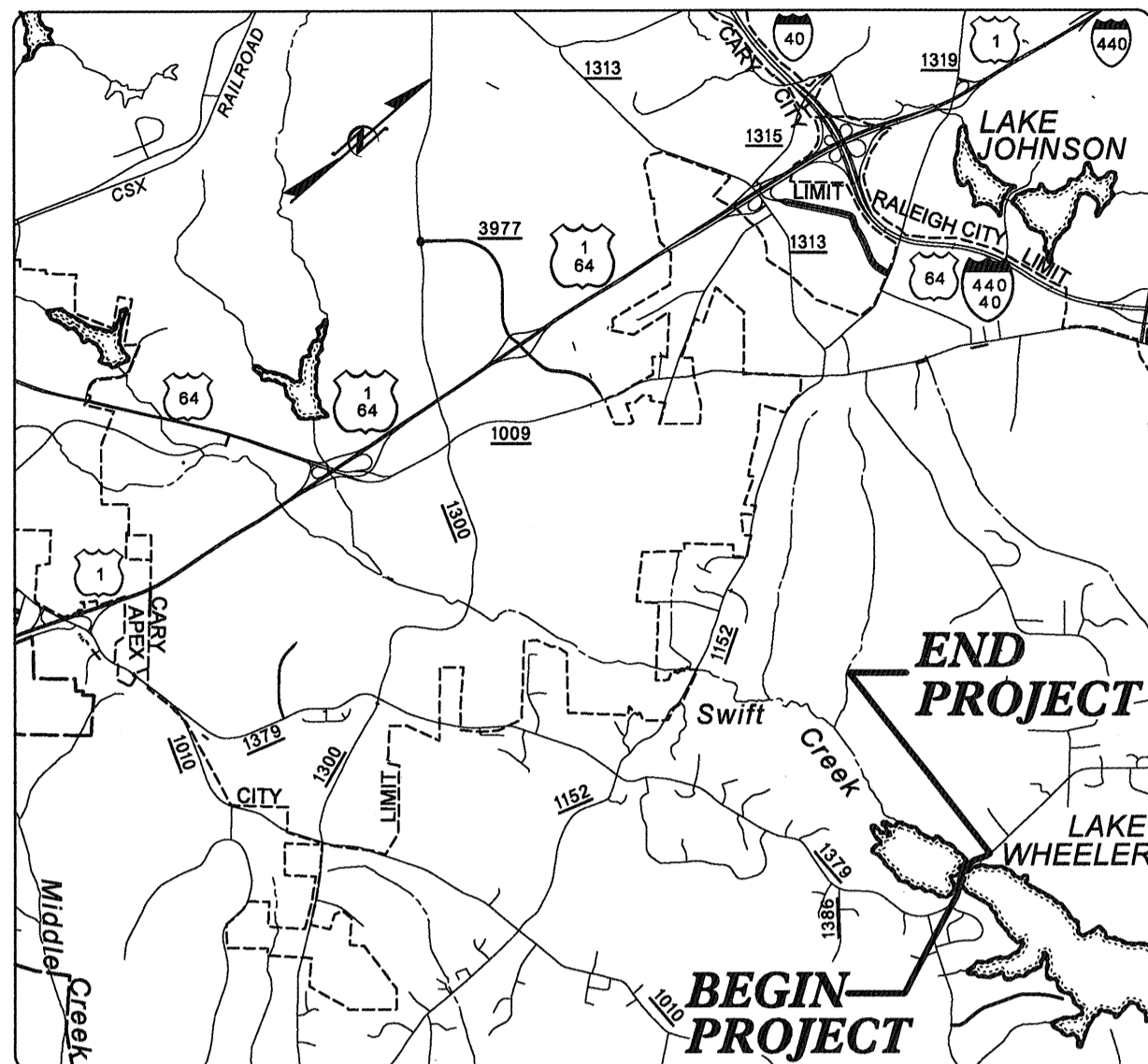
## WAKE COUNTY

**LOCATION: BRIDGE NO. 311 OVER LAKE WHEELER (SWIFT CREEK)  
ON SR 1379 (PENNY ROAD)**

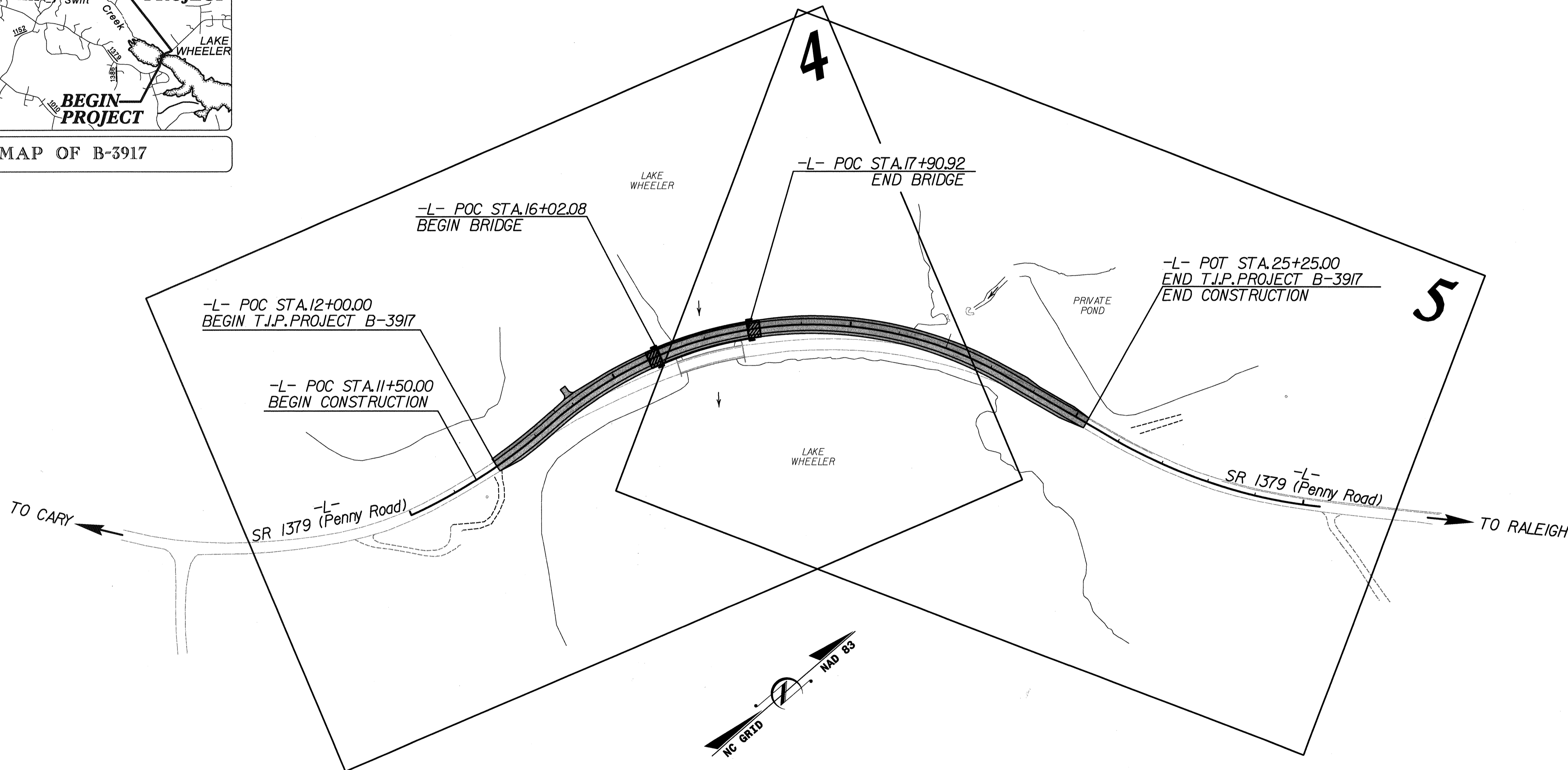
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3917	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33351.1.1	BRZ-1379(1)	PE	
33351.2.1	BRZ-1379(1)	R/W, UTIL	
33351.3.1	BRZ-1379(3)	CONST.	

**TIP PROJECT: B-3917**

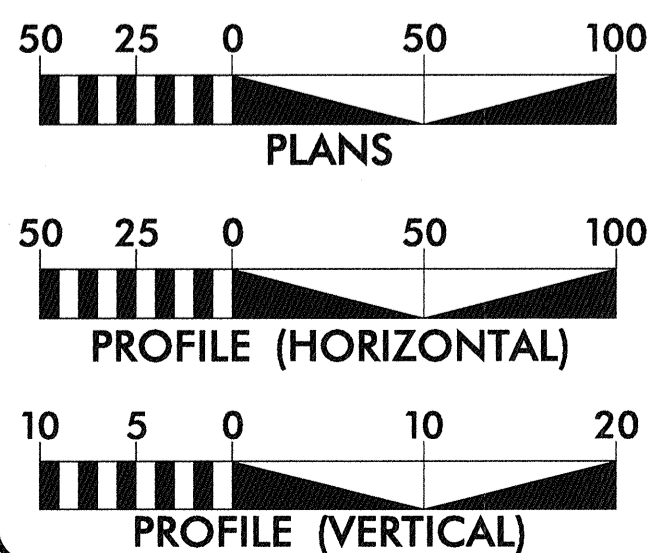


VICINITY MAP OF B-3917



**PROJECT: C201942**

### GRAPHIC SCALES



### DESIGN DATA

ADT 2005 = 6,149  
 ADT 2027 = 14,185  
 DHV = 10%  
 D = 60%  
 T = 5%  
 TTST 2% DUAL 3%  
 V = 50 mph  
 FUNC CLASS = LOCAL  
 \* DESIGN EXCEPTIONS FOR STOPPING SIGHT DISTANCE AND SHOULDER WIDTH ARE REQUIRED

### PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT B-3917 = 0.215 MILES  
 LENGTH STRUCTURES T.I.P. PROJECT B-3917 = 0.036 MILES  
 TOTAL LENGTH OF T.I.P. PROJECT B-3917 = 0.251 MILES

### EarthTech

701 Corporate Center Drive, Suite 475  
 Raleigh, NC 27607  
 (919) 854-6200 - (919) 854-6259(FAX)

2006 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
DECEMBER 30, 2005

**LETTING DATE:**  
NOVEMBER 20, 2007

**NEIL J. DEAN, P.E.**  
EARTH TECH PROJECT MANAGER

**DOUG TAYLOR, P.E.**  
NCDOT PROJECT ENGINEER

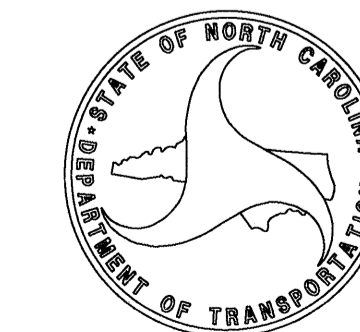
**DAVIDIAN BYRD**  
PROJECT DESIGN ENGINEER

### HYDRAULICS ENGINEER

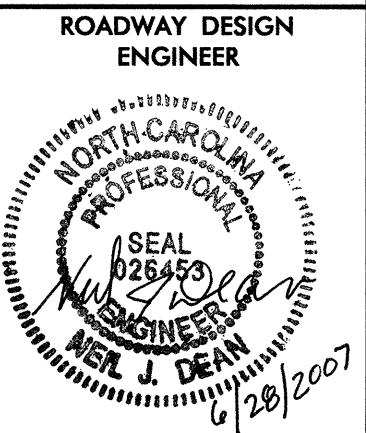
**WILLIAM RHETT BUTLER, II**  
ROADWAY DESIGN ENGINEER

**NEIL J. DEAN, P.E.**  
6/28/2007

### DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA



**Art McMillan**  
STATE HIGHWAY DESIGN ENGINEER



SHEET NUMBER	INDEX OF SHEETS	SHEET
1	TITLE SHEET	
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF ROADWAY STANDARD DRAWINGS	
1B	CONVENTIONAL SYMBOLS	
1C	SURVEY CONTROL SHEET	
2-2A	TYPICAL SECTIONS, PAVEMENTS SCHEDULE	
2B	TEMPORARY PAVEMENT WIDENING DETAIL	
2C	ROCK EMBANKMENT ROCK PLATING DETAIL	
2D	TEMPORARY SHORING DETAIL	
2E	MODIFIED CONCRETE FLUME DETAIL	
2F	ANCHORAGE FOR FRAMES	
3	SUMMARY OF QUANTITIES	
3A	LIST OF PIPE, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)	
3B	SUMMARY OF EARTHWORK, SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL, GUARDRAIL SUMMARY, AND SUMMARY OF SHOULDER BERM GUTTER	
3C	PARCEL INDEX SHEET	
4-5	PLAN SHEETS	
6	PROFILE SHEET	
TCP-1 THRU TCP-10	TRAFFIC CONTROL PLANS	
PM-1	PAVEMENT MARKING PLANS	
EC-1 THRU EC-7	EROSION CONTROL PLANS	
RF-1	REFORESTATION DETAIL SHEET	
SIGN-1 THRU SIGN-4	SIGNING PLANS	
UD-1 THRU UD-3	UTILITIES BY OTHERS PLANS	
X-1	CROSS SECTION SUMMARY SHEET	
X-2 THRU X-11	CROSS SECTIONS	
S-1 THRU S-36	STRUCTURE PLANS	

## GENERAL NOTES:

2006 SPECIFICATIONS  
EFFECTIVE: 07-18-06  
REVISED: 07-18-06

EFF. 07-18-06  
REV. 01-02-07

GRADE LINE:  
GRADING AND SURFACING:

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

## CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD 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" OR "TEMPORARY SHORING-BARRIER SUPPORTED" DEPENDING UPON THE LOCATION OF THE 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 BELL SOUTH,

PROGRESS ENERGY, AND TIME WARNER CABLE

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.

## 2006 ROADWAY STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.24	Frames and Narrow Slot Sag Grates
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
846.02	Drop Inlet Installation in Expressway Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

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 UG 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, Swamp Marsh, 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 Utility Easement.

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, Proposed Wheel Chair Ramp Curb Cut, Curb Cut for Future 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, UG Power Cable Hand Hole, H-Frame Pole, Recorded UG Power Line, Designated UG Power Line (S.U.E.\*); GAS: Gas Valve, Gas Meter, Recorded UG Gas Line, Designated UG Gas Line (S.U.E.\*), Above Ground Gas Line.

TELEPHONE:

Table listing symbols for telephone: Existing Telephone Pole, Proposed Telephone Pole, Telephone Manhole, Telephone Booth, Telephone Pedestal, Telephone Cell Tower, UG Telephone Cable Hand Hole, Recorded UG Telephone Cable, Designated UG Telephone Cable (S.U.E.\*), Recorded UG Telephone Conduit, Designated UG Telephone Conduit (S.U.E.\*), Recorded UG Fiber Optics Cable, Designated UG Fiber Optics Cable (S.U.E.\*).

WATER:

Table listing symbols for water: Water Manhole, Water Meter, Water Valve, Water Hydrant, Recorded UG Water Line, Designated UG Water Line (S.U.E.\*), Above Ground Water Line.

TV:

Table listing symbols for TV: TV Satellite Dish, TV Pedestal, TV Tower, UG TV Cable Hand Hole, Recorded UG TV Cable, Designated UG TV Cable (S.U.E.\*), Recorded UG Fiber Optic Cable, Designated UG Fiber Optic Cable (S.U.E.\*).

GAS:

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

SANITARY SEWER:

Table listing symbols for sanitary sewer: Sanitary Sewer Manhole, Sanitary Sewer Cleanout, UG Sanitary Sewer Line, Above Ground Sanitary Sewer, Recorded SS Forced Main Line, Designated SS Forced Main Line (S.U.E.\*).

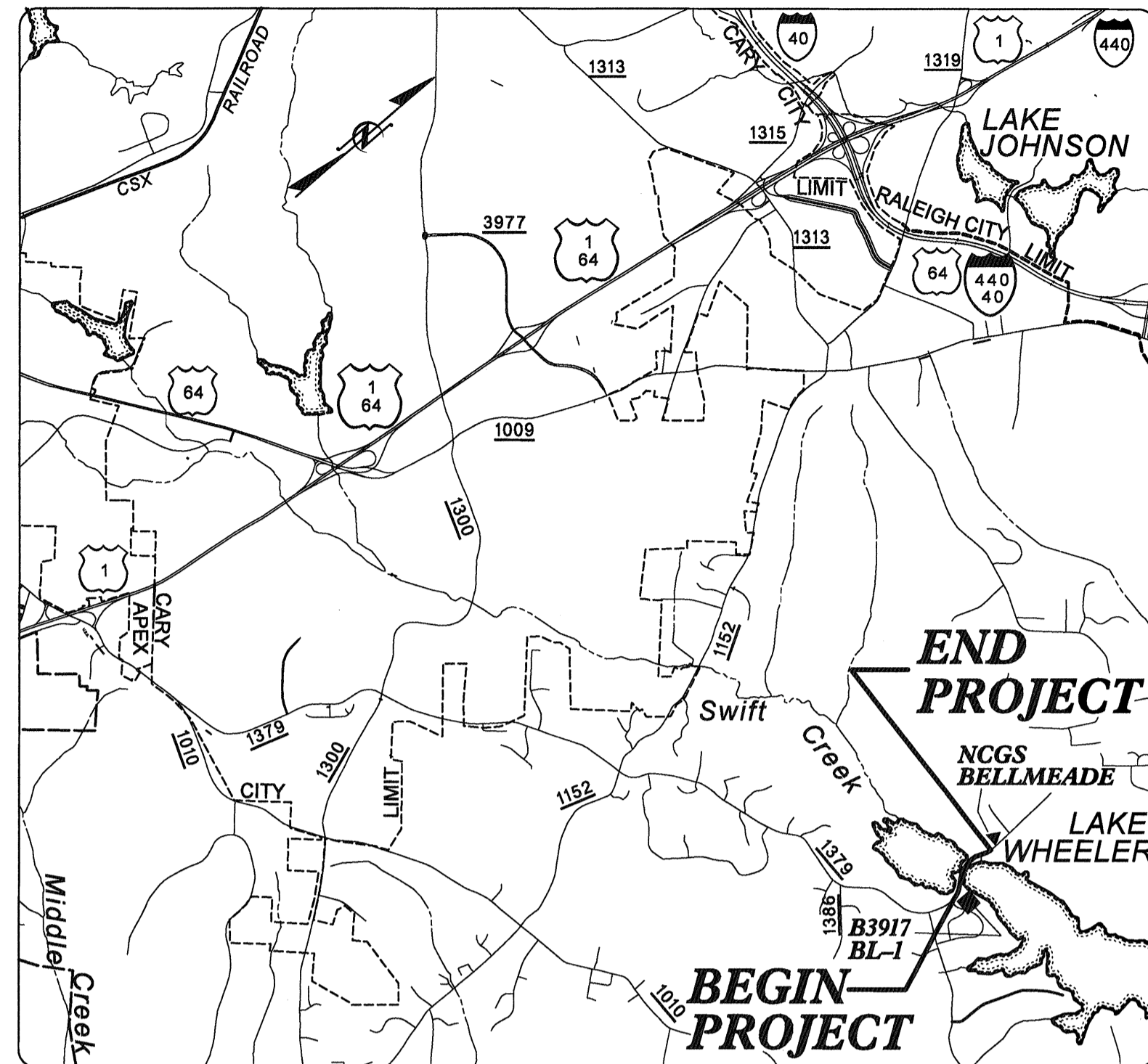
MISCELLANEOUS:

Table listing symbols for miscellaneous: Utility Pole, Utility Pole with Base, Utility Located Object, Utility Traffic Signal Box, Utility Unknown UG Line, UG Tank; Water, Gas, Oil, AG Tank; Water, Gas, Oil, UG Test Hole (S.U.E.\*), Abandoned According to Utility Records, End of Information.

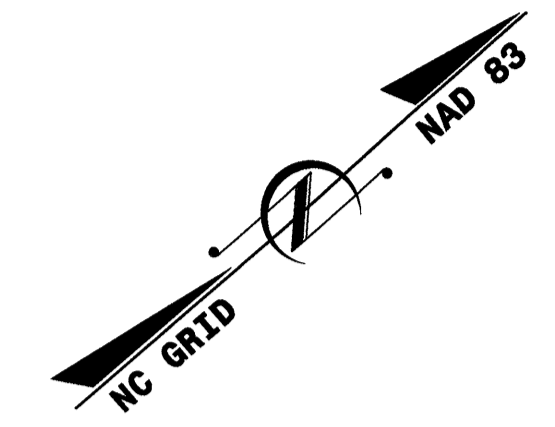
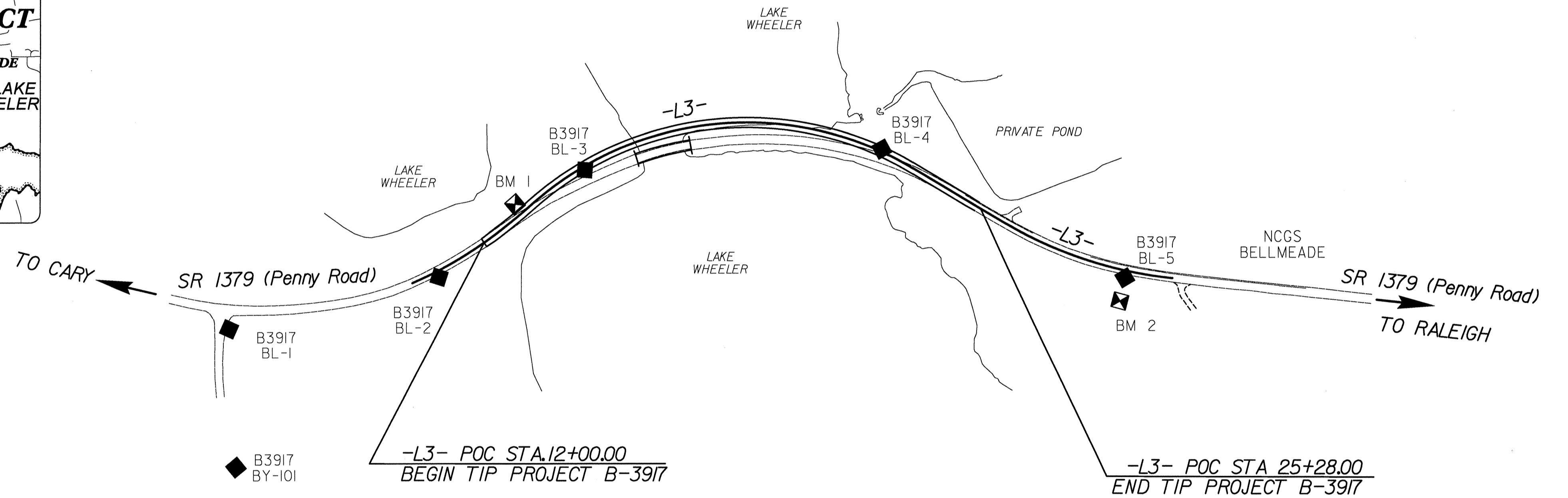
# SURVEY CONTROL SHEET B-3917

## WAKE COUNTY

**LOCATION: BRIDGE NO. 311 OVER LAKE WHEELER (SWIFT CREEK)  
ON SR 1379 (PENNY ROAD)**



VICINITY MAP NO SCALE



BL	POINT	DESC.	NORTH	EAST	ELEVATION	L3 STATION	OFFSET
1	BL-1		708848.1090	2082095.7480	348.23	OUTSIDE PROJECT LIMITS	
2	BL-2		709317.2700	2082334.5360	319.97	10+64.40	14.93 RT
3	BL-3		709752.7320	2082373.0620	295.89	15+01.25	8.20 RT
4	BL-4		710332.9940	2082808.3770	289.11	22+55.20	5.84 LT
5	BL-5		710581.8150	2083427.2160	313.44	29+20.99	17.36 RT
92	NCGS *BELLMEADE		710933.2900	2083739.1600	336.81	OUTSIDE PROJECT LIMITS	
BY	POINT	DESC.	NORTH	EAST	ELEVATION	L3 STATION	OFFSET
1	BL-1		708848.1090	2082095.7480	348.23	OUTSIDE PROJECT LIMITS	
101	BY-101		708641.0130	2082358.9540	354.62	OUTSIDE PROJECT LIMITS	

\*\*\*\*\*  
 BM 1 ELEVATION = 304.14  
 N 709571 E 2082324  
 L3 STATION 13+17 27 LEFT  
 BENCHLITE IN TREE  
 \*\*\*\*\*

\*\*\*\*\*  
 BM 2 ELEVATION = 315.63  
 N 710535 E 2083463  
 L3 STATION 29+21 76 RIGHT  
 BENCHLITE IN TREE  
 \*\*\*\*\*

### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BELLMEADE"  
 WITH NAD 83 STATE PLANE GRID COORDINATES OF  
 NORTHING: 710933.2894(++) EASTING: 2083739.1658(++)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989502  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BELLMEADE" TO -L3- STATION 12+00 IS 2033.47'  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NGVD 29

### NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:

B3917\_Is\_control\_051019.txt

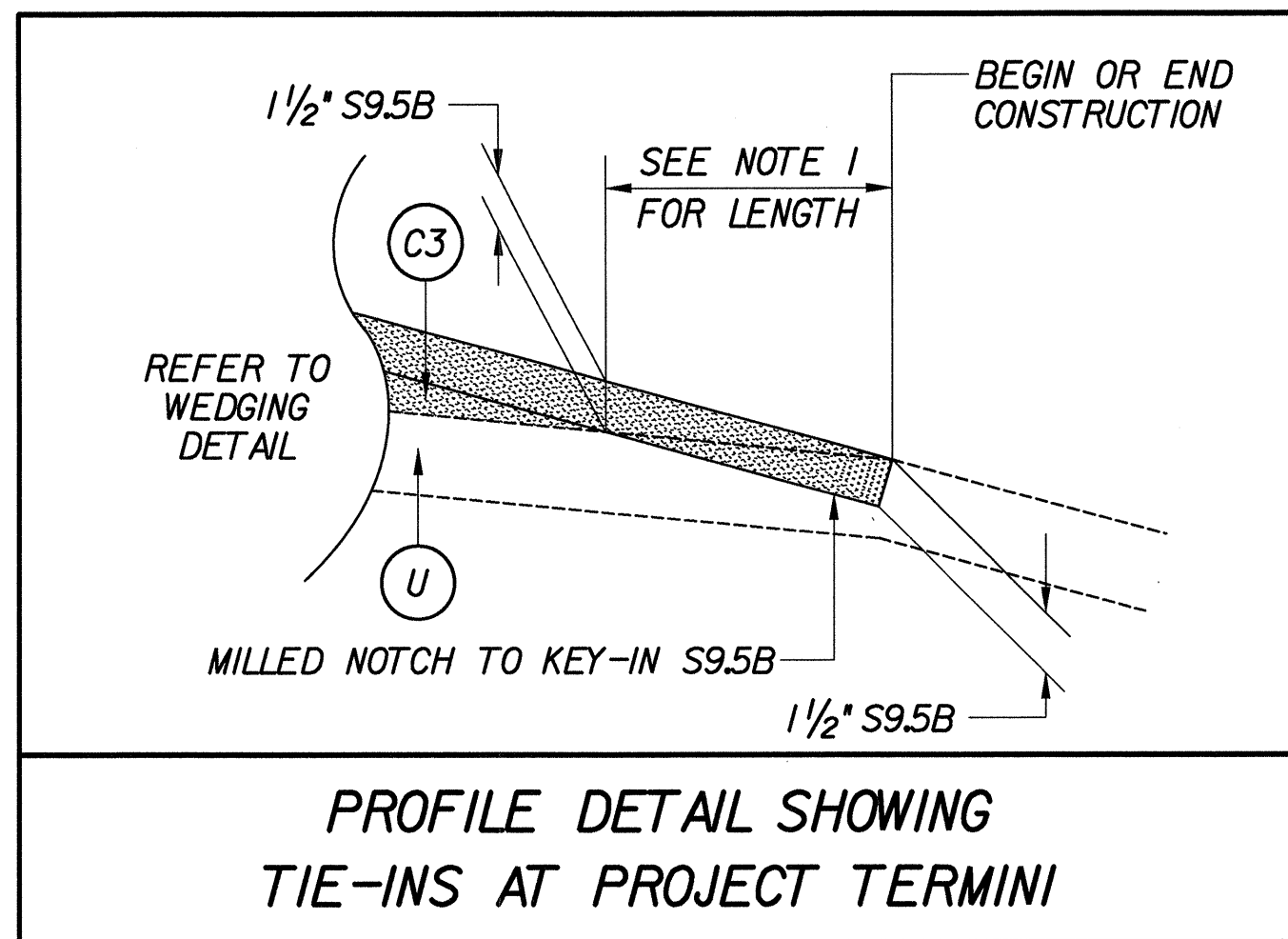
SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

- 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.

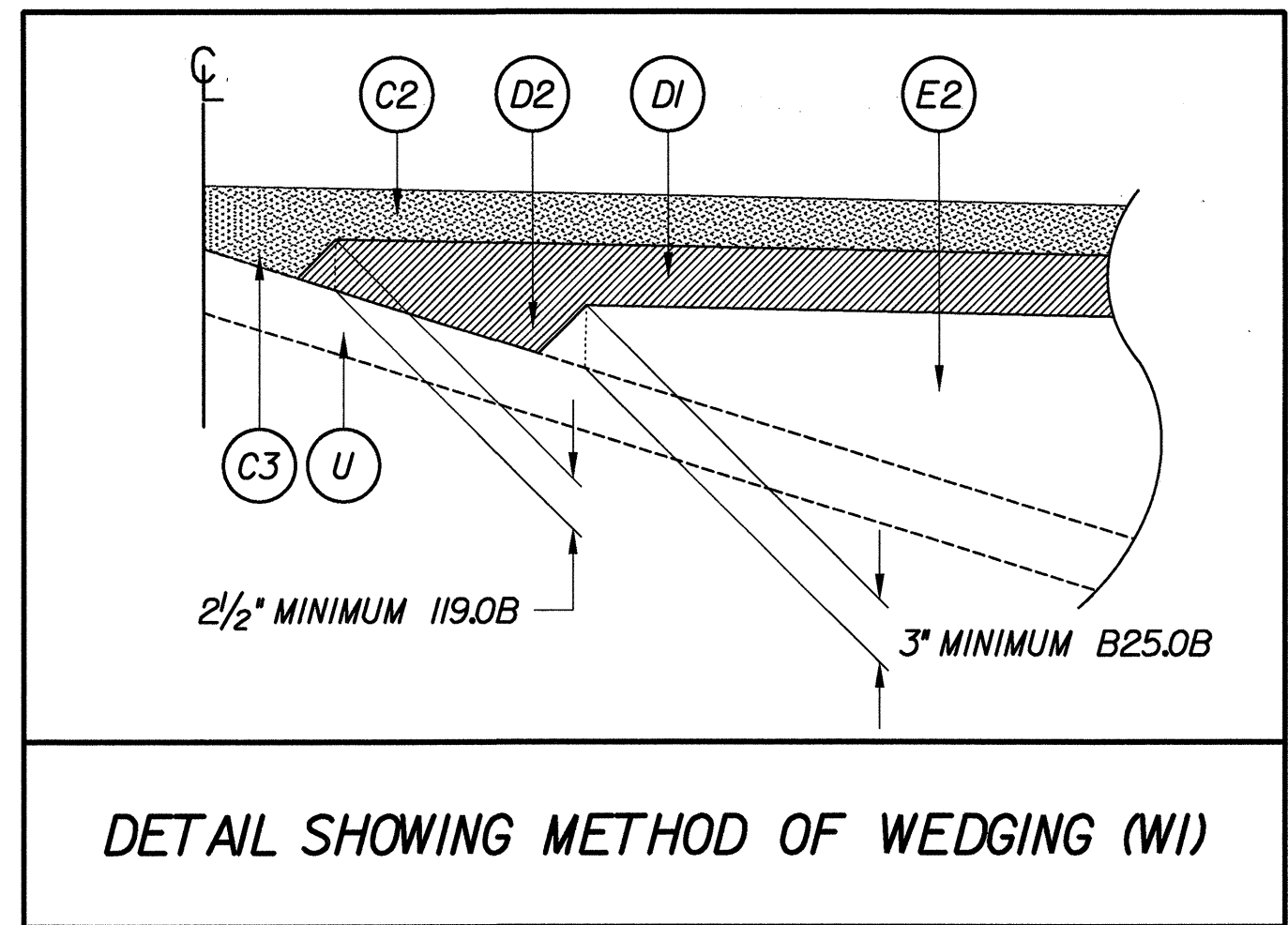
**NOTE: DRAWING NOT TO SCALE**

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT SEE STANDARD WEDGING DETAIL

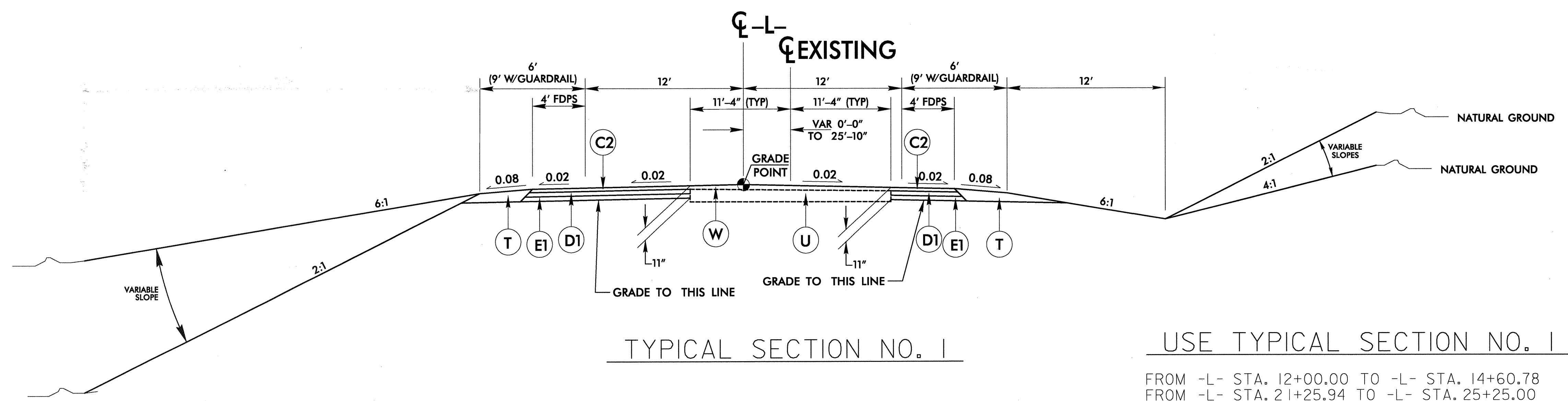
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



NOTE 1: MILL NOTCH TO KEY IN S9.5B FROM  
 -L- STA.12+00.00 TO -L- STA.12+25.00, AND  
 FROM -L- STA.25+00.00 TO -L- STA.25+25.00

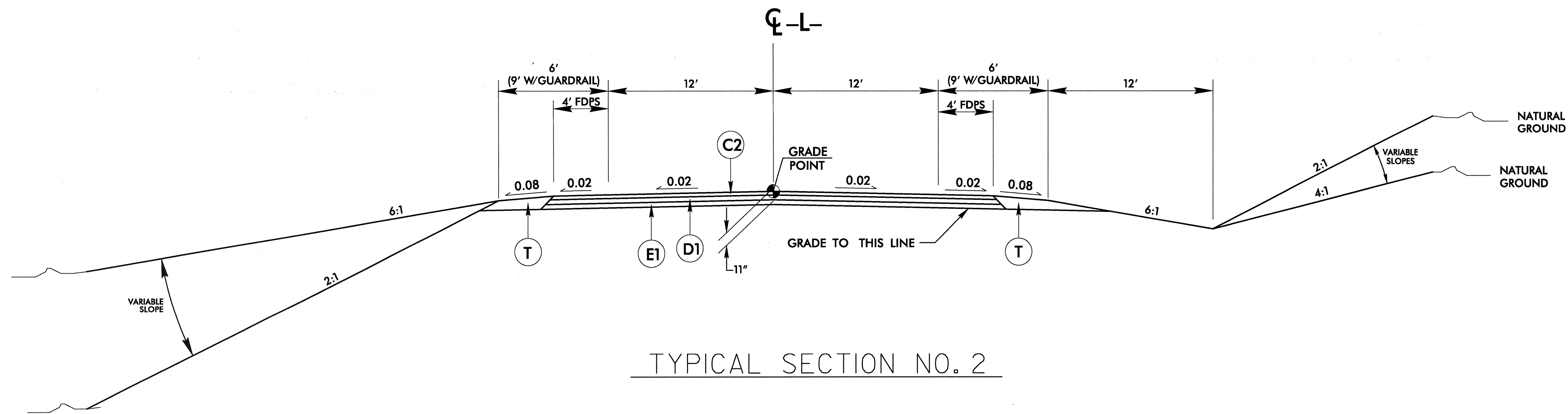


REVISIONS



USE TYPICAL SECTION NO. 1  
 FROM -L- STA. 12+00.00 TO -L- STA. 14+60.78  
 FROM -L- STA. 21+25.94 TO -L- STA. 25+25.00  
 SEE PLANS FOR LOCATIONS OF TAPERS  
 NOTE: IN LOCATIONS WITH GUARDRAIL, EXTEND PAVED SHOULDER TO THE FACE OF GUARDRAIL (SEE PLANS)

USER: nel/dean  
 DATE: 7/13/2007  
 TIME: 2:28:05 PM  
 USER: nel/dean  
 DATE: 7/13/2007  
 TIME: 2:28:05 PM

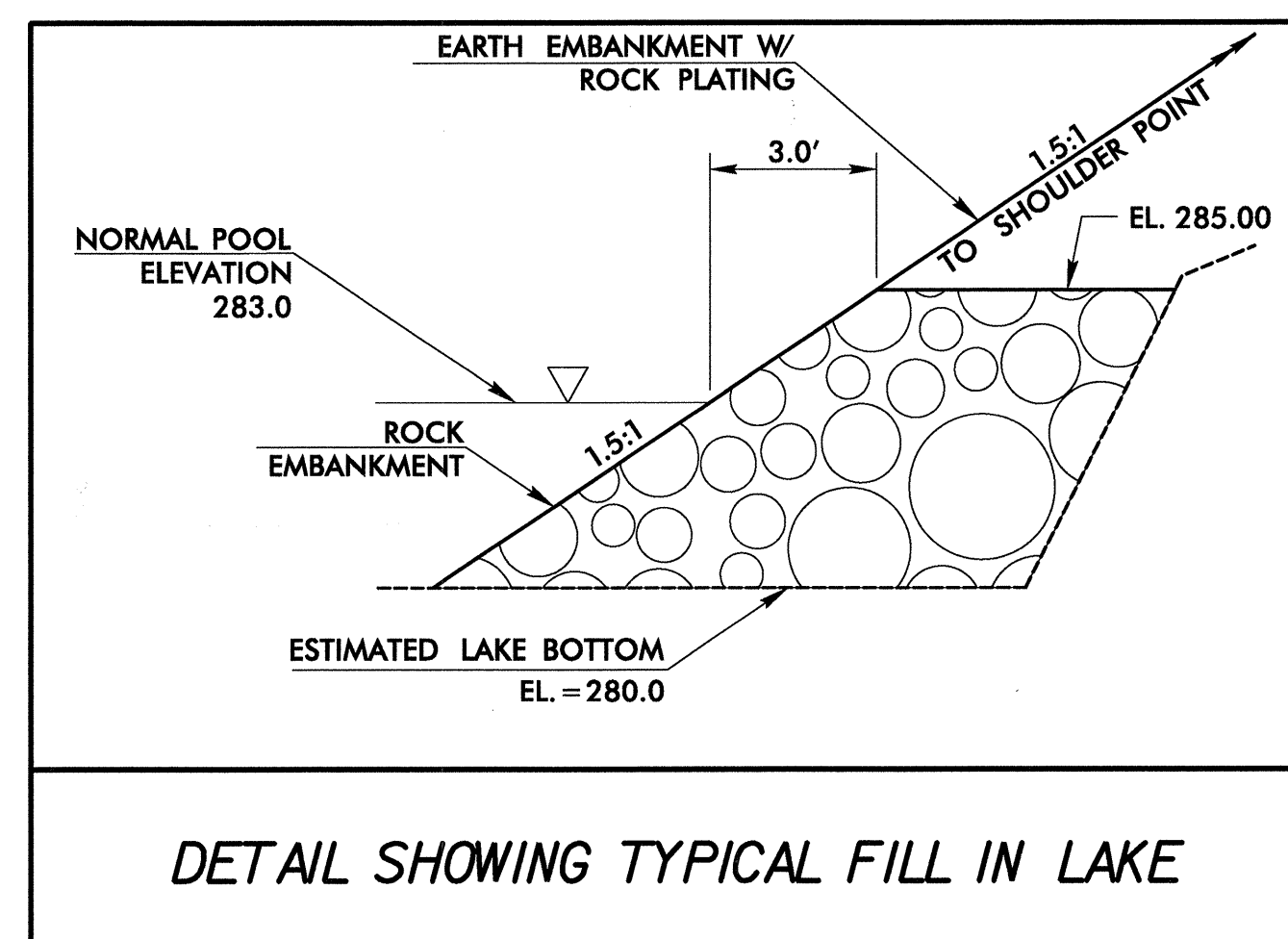


TYPICAL SECTION NO. 2

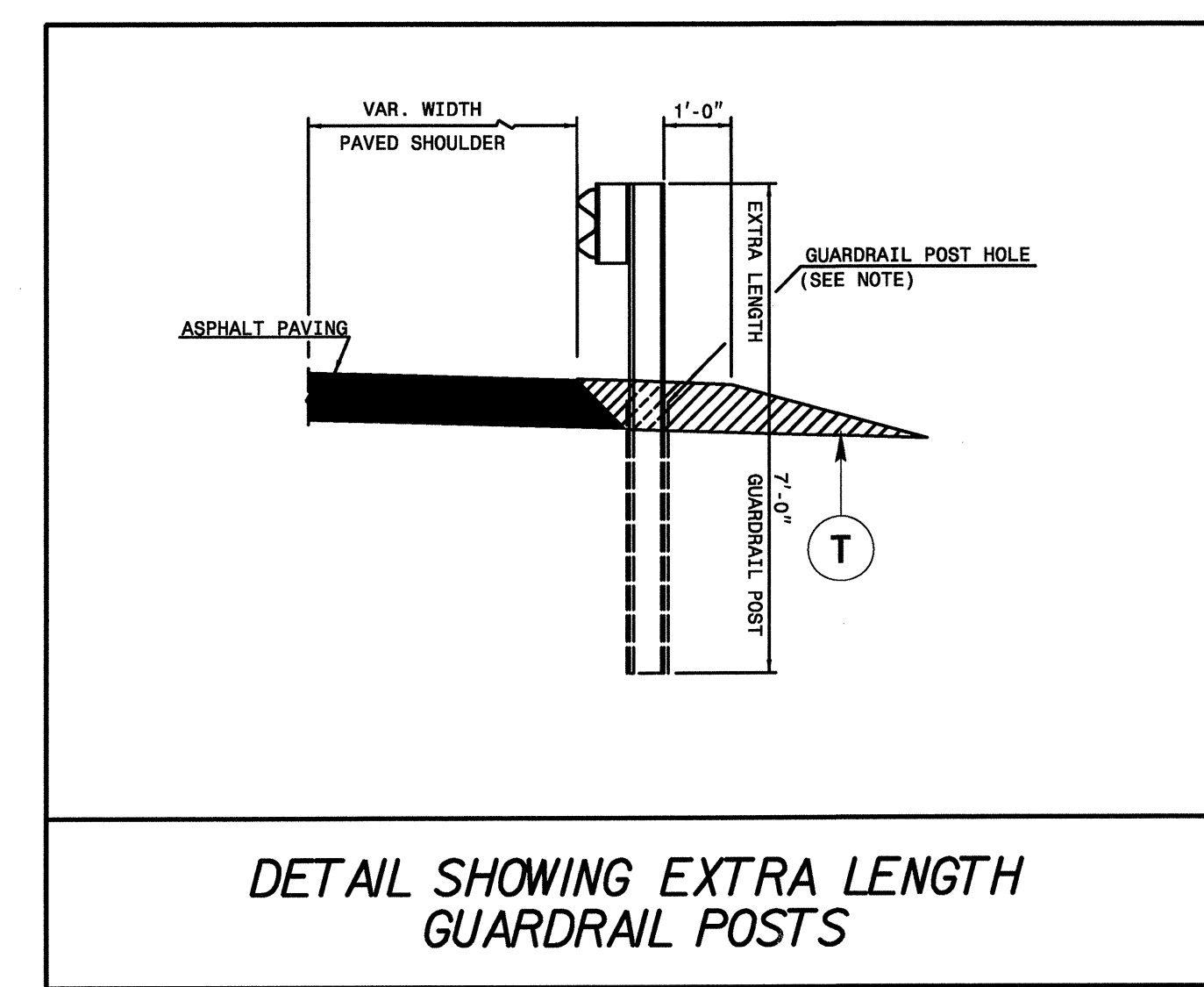
USE TYPICAL SECTION NO. 2

FROM -L- STA. 14+60.78 TO -L- STA 16+02.08 (BEGIN BRIDGE)  
FROM -L- STA. 17+90.92 (END BRIDGE) TO -L- STA. 21+25.94

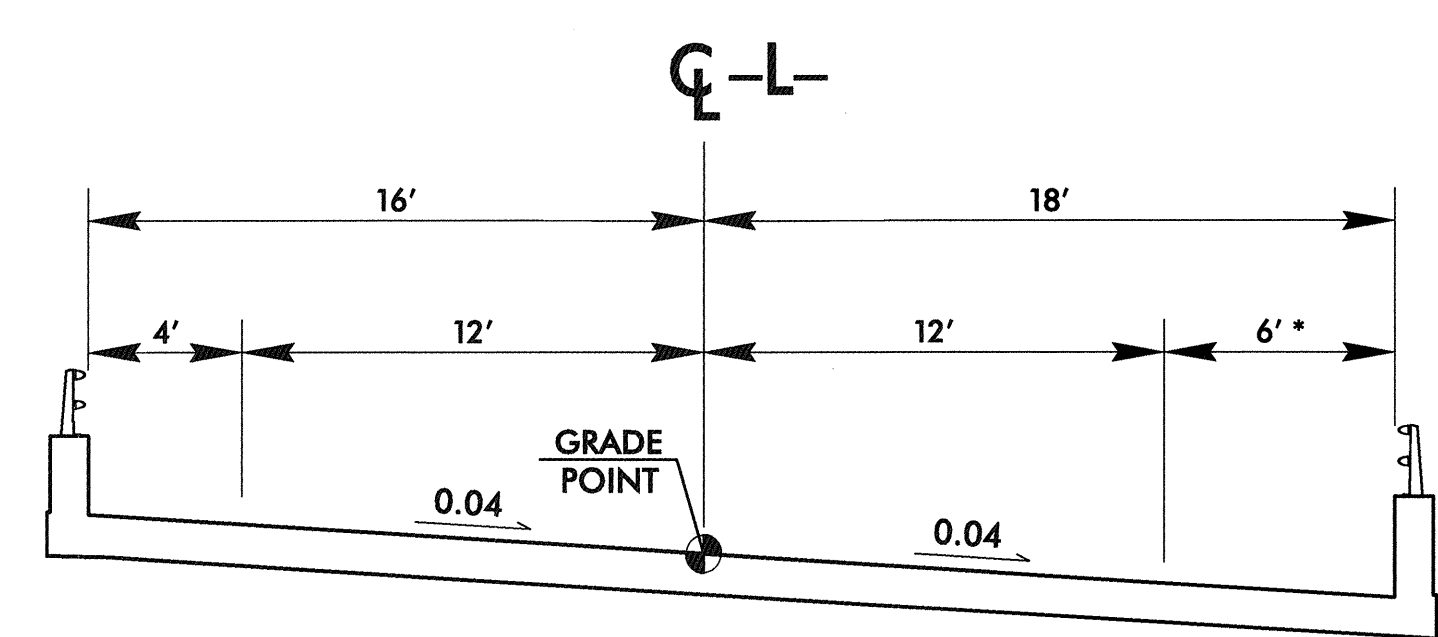
NOTE: IN LOCATIONS WITH GUARDRAIL, EXTEND PAVED SHOULDER TO THE FACE OF GUARDRAIL (SEE PLANS)



DETAIL SHOWING TYPICAL FILL IN LAKE



DETAIL SHOWING EXTRA LENGTH GUARDRAIL POSTS



TYPICAL SECTION NO. 3

FROM -L- STA. 16+02.08 (BEGIN BRIDGE) TO STA. 17+90.92 (END BRIDGE)

\* BRIDGE OFFSET INCREASED TO IMPROVE HORIZONTAL STOPPING SIGHT DISTANCE

FROM -L- STA. 15+92 +/- TO -L- STA 16+02.08 (BEGIN BRIDGE) (RIGHT SIDE)  
FROM -L- STA. 17+90.92 (END BRIDGE) TO -L- STA. 18+01 +/- (RIGHT SIDE)

PAVEMENT SCHEDULE	
C1	1 1/4" SF9.5BA
C2	3" S9.5B
C3	VAR. DEPTH S9.5B,
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B,
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

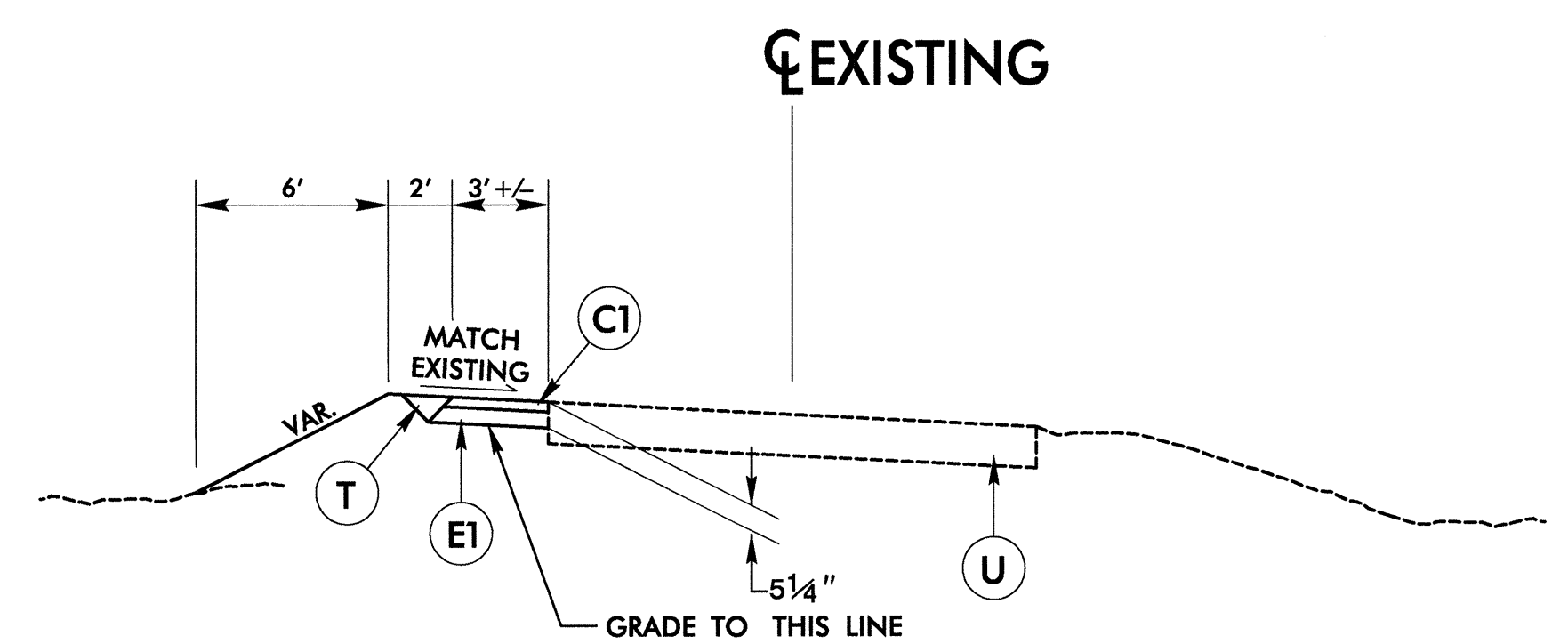
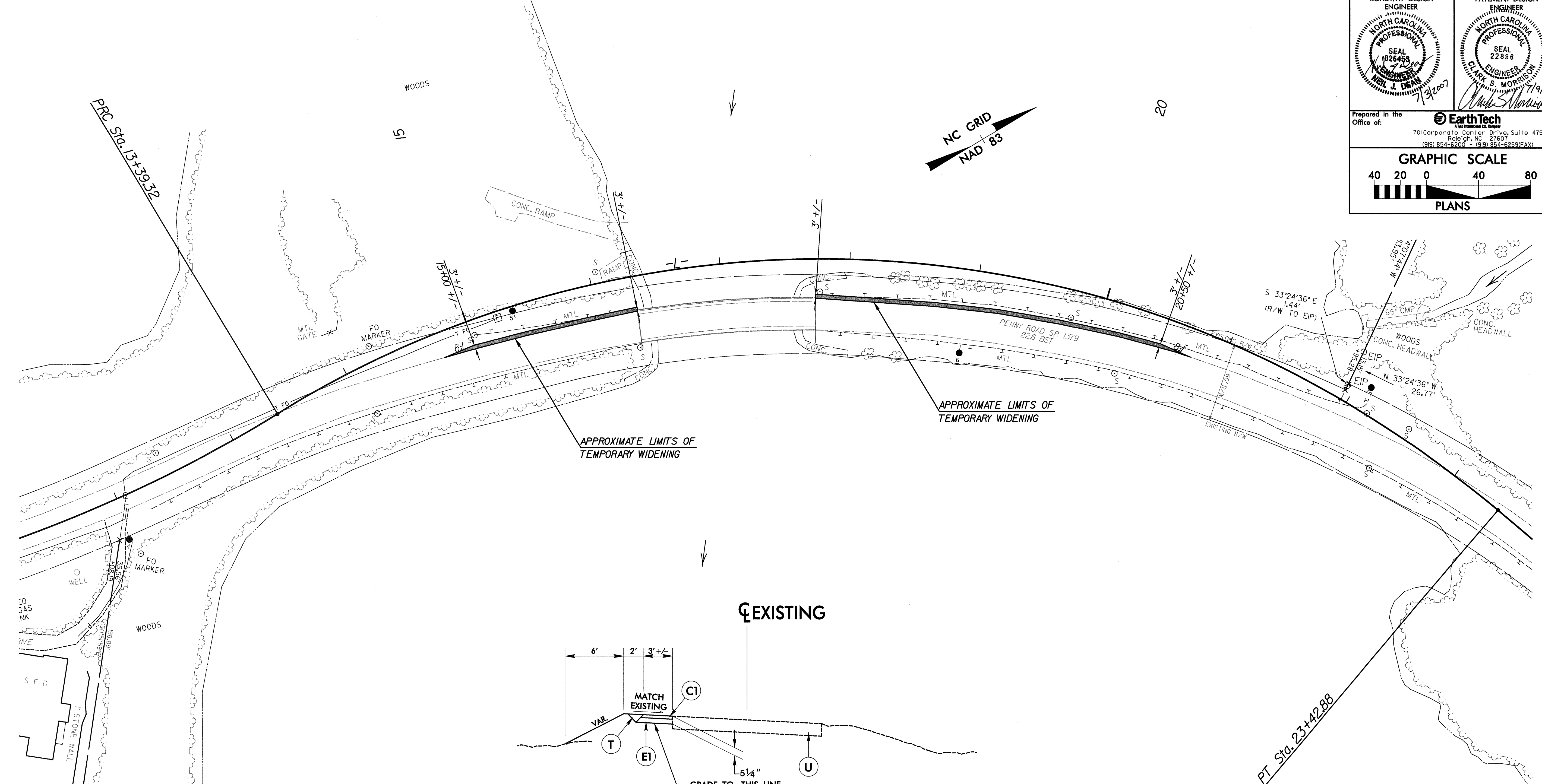
REVISIONS

USER: neldren  
DATE: 7/13/07  
TIME: 2:28:53 PM  
DATE: 7/13/07  
TIME: 2:28:53 PM

# DETAIL OF TEMPORARY PAVEMENT WIDENING

PROJECT REFERENCE NO. B-3917	SHEET NO. 2-B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 1026459 NEEL J. DEAN 7/31/2007	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22896 CLARK S. MORRISON 7/9/07
Prepared in the Office of: <b>EarthTech</b> A Sun International Inc. Company 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	
<b>GRAPHIC SCALE</b>  PLANS	

REVISIONS



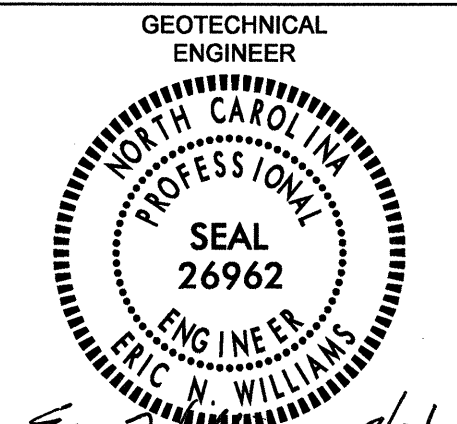
## TYPICAL SECTION FOR TEMPORARY WIDENING

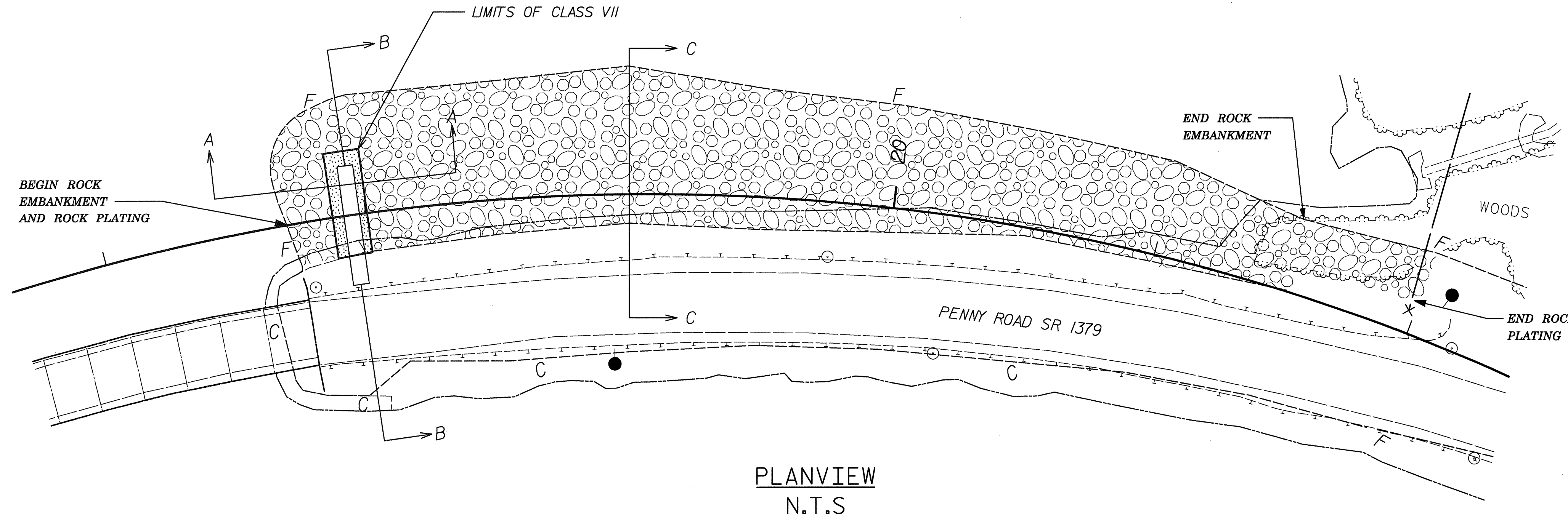
USE THIS TYPICAL SECTION:  
 FROM -L- STA. 15+00+/- TO -L- STA. 16+31+/-  
 FROM -L- STA. 17+74+/- TO -L- STA. 20+50+/-

NOTE: THE PAVEMENT DESIGN FOR THE TEMPORARY WIDENING IS FOR THE SUPPORT OF PORTABLE CONCRETE BARRIER. TRAFFIC SHOULD NOT BE ALLOWED ON THIS TEMPORARY WIDENING AT ANY TIME.

PAVEMENT SCHEDULE	
C1	1 1/4" SF9.5A
C2	3" S9.5B
C3	VAR. DEPTH S9.5B,
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B,
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

USER: nll/len  
 DATE: 7/13/2007  
 TIME: 2:28:00 PM  
 C:\pavement\proj\3917\_01\_tmp\_pavement\_dsn\2d\dwg\2-28840.dwg  
 PLOT: 2-28840.dwg

<b>PROJECT REFERENCE NO.</b>	<b>SHEET</b>
33351.3.1(B-3917)	2-C
GEOTECHNICAL ENGINEER  ERIC N. WILLIAMS ENGINEER 1/3/07 SIGNATURE DATE	



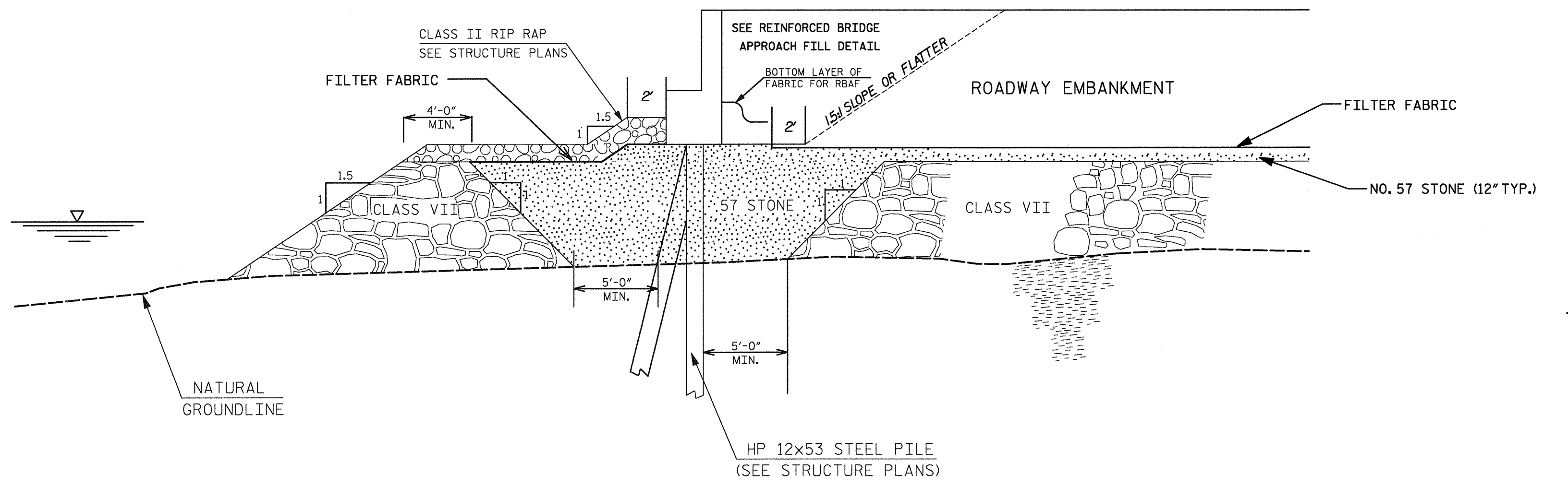
PLANVIEW  
N.T.S

**ROCK EMBANKMENT**  
17+70 TO 21+50 -L-

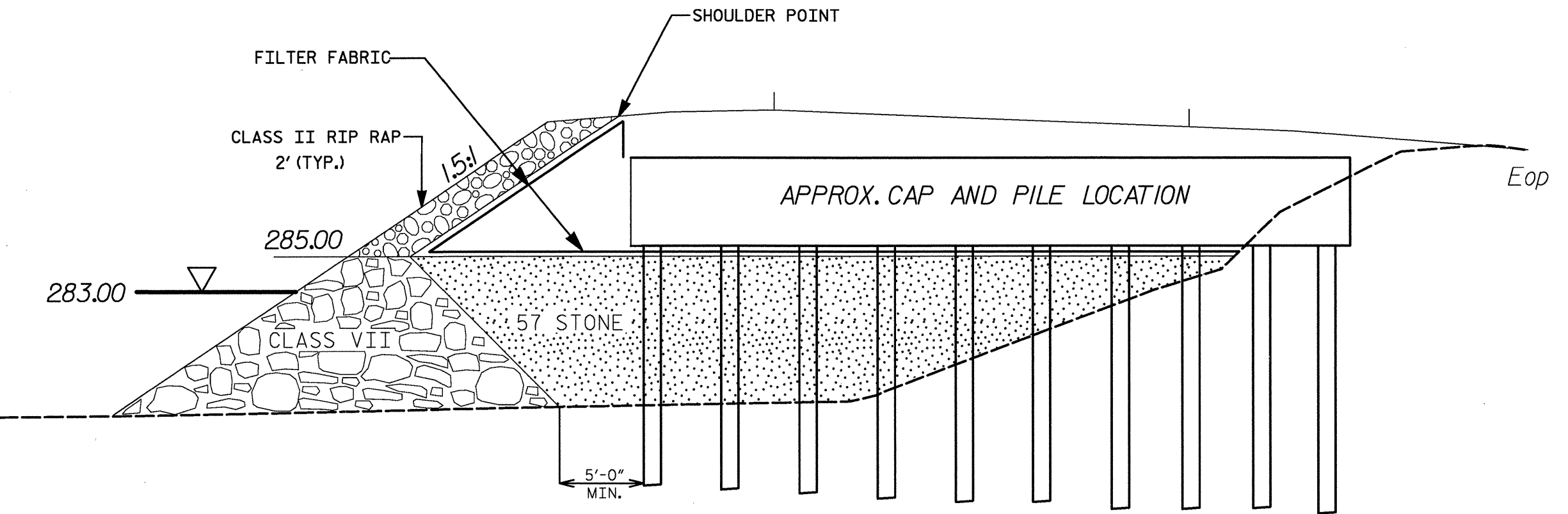
ESTIMATED QUANTITIES	
SELECT MATERIAL, CLASS VII.....	4450 TONS
SELECT MATERIAL, CLASS VI (NO. 57 STONE).....	1850 TONS
FILTER FABRIC FOR DRAINAGE.....	1700 SY

**ROCK PLATING**  
17+70 TO 22+00 -L-

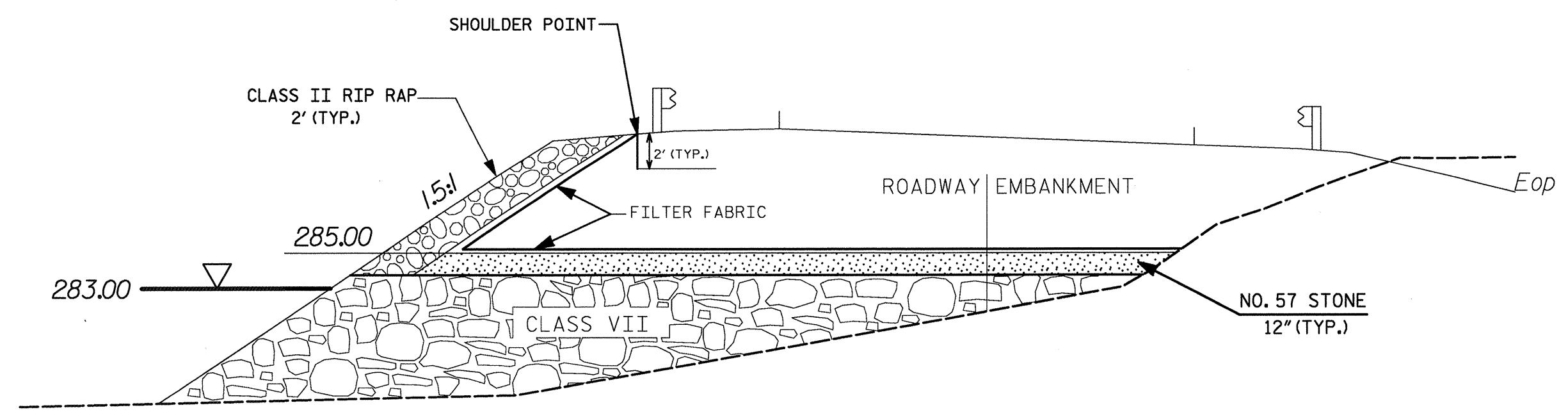
ESTIMATED QUANTITIES	
PLAIN RIP RAP, CLASS II.....	550 TONS
FILTER FABRIC FOR DRAINAGE.....	700 SY



SECTION A-A  
N.T.S



SECTION B-B  
N.T.S




SECTION C-C  
N.T.S

- NOTES ON PLANS:**
- \* CONSTRUCT ROCK EMBANKMENT TO ELEVATION 285.00 AND ACCORDING TO THE SPECIAL PROVISION FOR ROCK EMBANKMENT.
  - \* CONSTRUCT ROCK PLATING FROM ELEVATION 285.00 TO THE SHOULDER POINT AND ACCORDING TO THE SPECIAL PROVISION FOR ROCK PLATING.

PREPARED BY: T.T. WALKER	DATE: 05/06
REVIEWED BY: E.N. WILLIAMS	DATE: 05/06

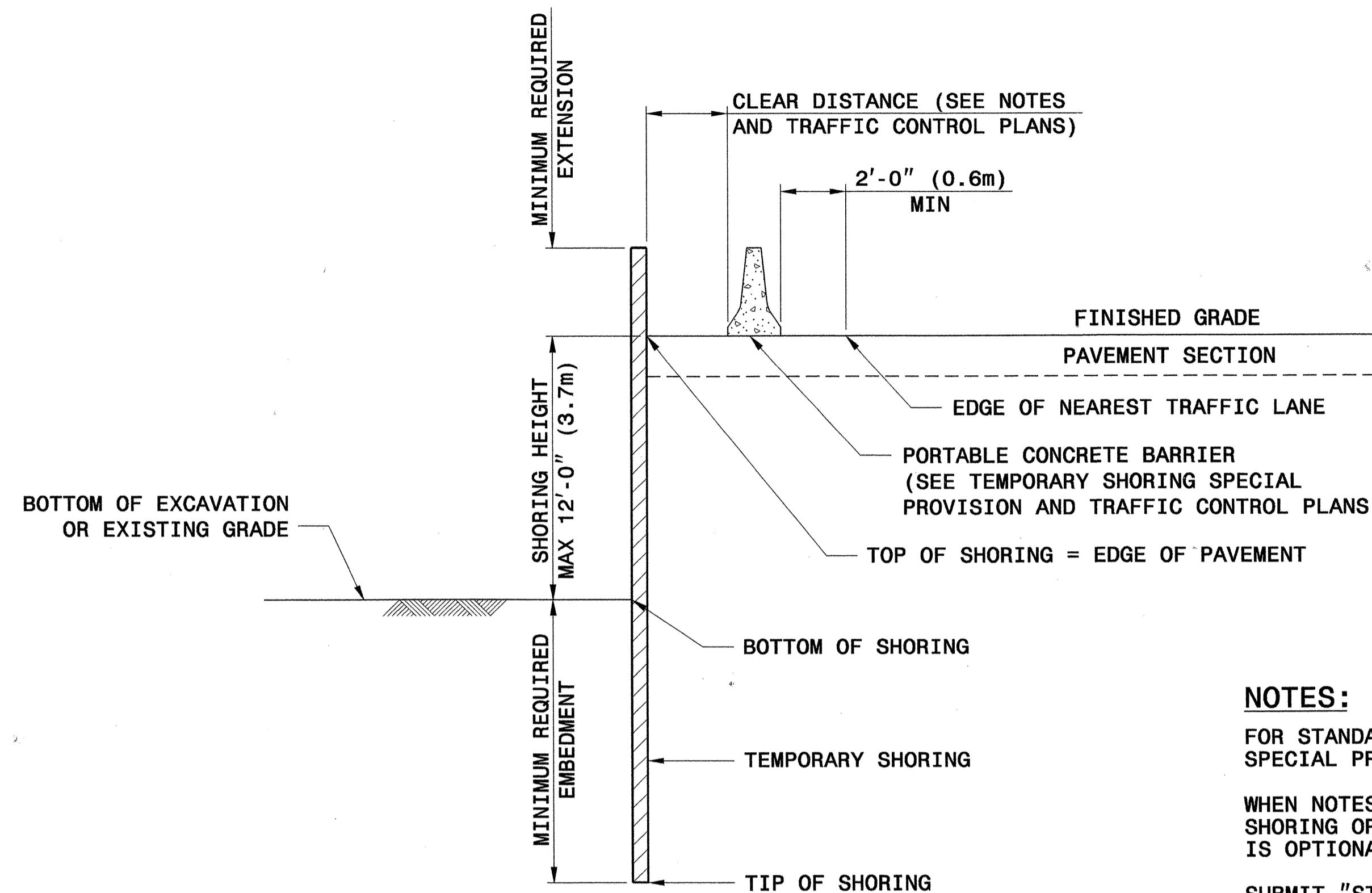
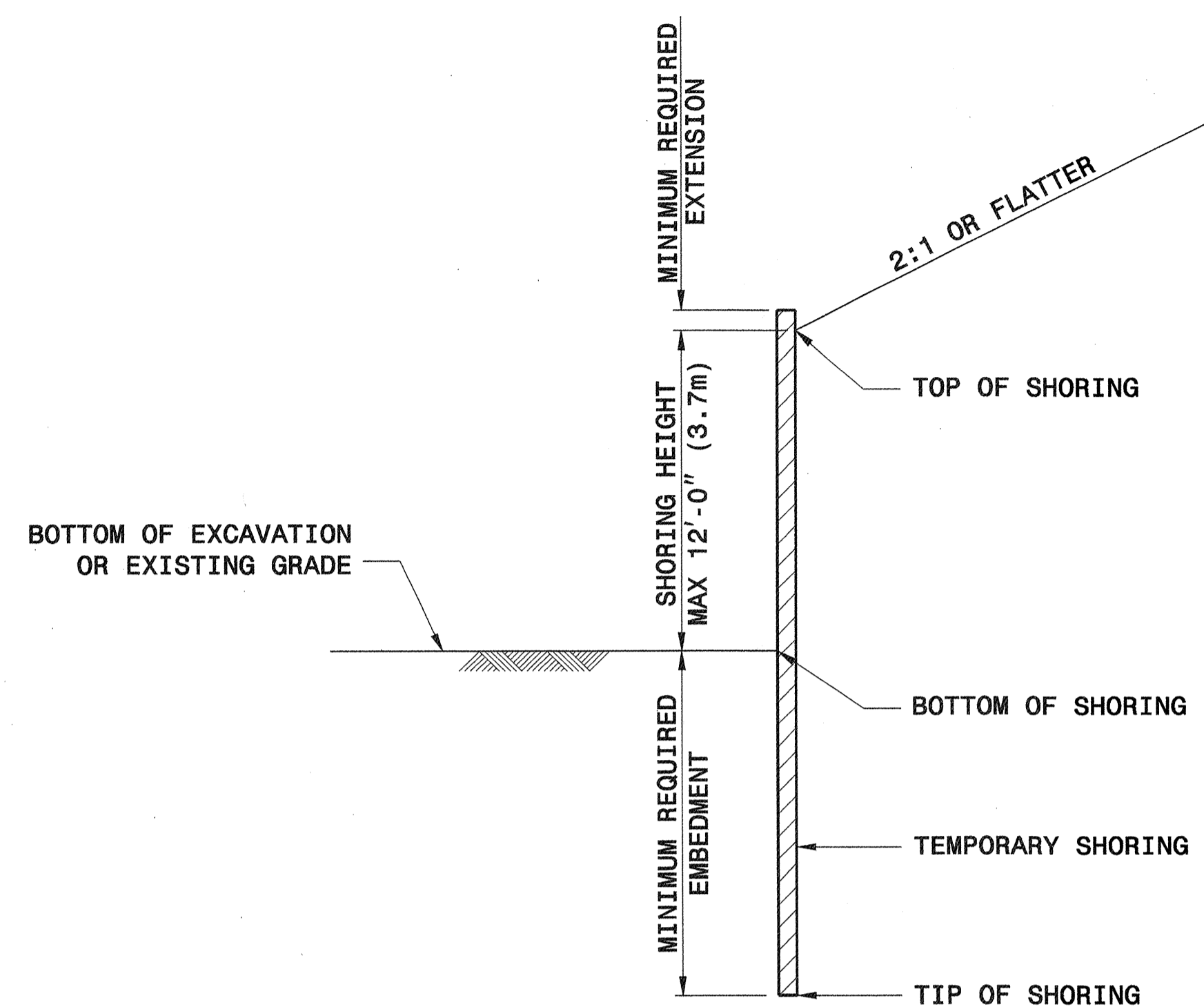
**GEOTECHNICAL ENGINEERING UNIT**

EASTERN REGIONAL OFFICE  
 WESTERN REGIONAL OFFICE


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

ROCK EMBANKMENT ROCK PLATING DETAIL					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		





**NOTES:**

FOR STANDARD TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN NOTES ON PLANS DO NOT PROHIBIT STANDARD TEMPORARY SHORING OR STANDARD SHORING, STANDARD TEMPORARY SHORING IS OPTIONAL.

SUBMIT "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 14 DAYS BEFORE BEGINNING SHORING CONSTRUCTION. UP TO THREE LOCATIONS MAY BE INCLUDED ON EACH SELECTION FORM.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING CONDITIONS:

- 1) MAXIMUM SHORING HEIGHT IS 12'-0" (3.7m).
- 2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
- 3) BOTTOM OF EXCAVATION OR EXISTING GRADE IN FRONT OF SHORING IS 6:1 (H:V) SLOPE OR FLATTER.
- 4) H PILE SPACING IS 6'-0" (1.8m).
- 5) H PILE EMBEDMENT DEPTHS ARE FOR DRIVEN PILES.
- 6) TIMBER LAGGING IS A MINIMUM OF 3" (75mm) THICK.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
 TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/M<sup>3</sup>)  
 FRICTION ANGLE = 30 DEGREES  
 COHESION = 0 PSF (0 KPA)  
 GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT WITHIN THE EMBEDMENT DEPTH.

VERIFY GROUNDWATER ELEVATION BEFORE BEGINNING SHORING CONSTRUCTION.

IF THE CLEAR DISTANCE AVAILABLE IS LESS THAN THE MINIMUM REQUIRED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS, SET THE BARRIER AGAINST THE TRAFFIC SIDE OF THE SHORING AND USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT".

AT THE CONTRACTOR'S OPTION, H PILE EMBEDMENT DEPTHS FOR PILES SET IN DRILLED HOLES MAY BE REDUCED BY 25%. FOR PILE EXCAVATION, SEE TEMPORARY SHORING SPECIAL PROVISION.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF THE SHORING. COLLECT AND DIRECT RUNOFF AWAY FROM SHORING.

CONTACT THE ENGINEER IF MINIMUM REQUIRED EMBEDMENT IS NOT ACHIEVED.

GROUNDWATER CONDITION	SHORING HEIGHT FT (m)	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 (m)	MINIMUM REQUIRED SECTION MODULUS IN <sup>3</sup> /FT (cm <sup>3</sup> /m)	MINIMUM REQUIRED EMBEDMENT FT (m)				MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN <sup>3</sup> /FT (cm <sup>3</sup> /m)	MINIMUM REQUIRED EMBEDMENT FT (m)				
				HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)			HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)			
GROUNDWATER ELEVATION BELOW TIP OF SHORING	< 6 (1.8)	7.5 (2.3)	3.0 (161)	8.0 (2.4)	8.0 (2.4)	8.0 (2.4)	11.0 (3.4)	10.0 (538)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)			
	7 (2.1)	8.5 (2.6)	4.5 (242)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)	12.0 (3.7)	12.0 (645)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)			
	8 (2.4)	10.0 (3.0)	6.5 (349)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)	12.5 (3.8)	14.0 (753)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)			
	9 (2.7)	11.0 (3.4)	9.5 (511)	--	12.0 (3.7)	12.0 (3.7)	13.5 (4.1)	16.5 (887)	--	12.5 (3.8)	12.5 (3.8)			
	10 (3.0)	12.5 (3.8)	13.0 (699)	--	--	13.5 (4.1)	14.0 (4.3)	19.5 (1048)	--	13.5 (4.1)	13.5 (4.1)			
	11 (3.4)	13.5 (4.1)	17.0 (914)	--	--	14.5 (4.4)	15.0 (4.6)	22.5 (1210)	--	--	14.5 (4.4)			
	12 (3.7)	15.0 (4.6)	21.5 (1156)	--	--	16.0 (4.9)	16.0 (4.9)	25.5 (1371)	--	--	15.5 (4.7)			
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND TIP OF SHORING	< 6 (1.8)	11.5 (3.5)	4.5 (242)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)	16.0 (4.9)	12.0 (645)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)			
	7 (2.1)	13.0 (4.0)	7.0 (376)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)	17.0 (5.2)	14.5 (780)	14.5 (4.4)	14.5 (4.4)	14.5 (4.4)			
	8 (2.4)	15.0 (4.6)	10.0 (538)	--	15.0 (4.6)	15.0 (4.6)	18.0 (5.5)	17.0 (914)	--	15.5 (4.7)	15.5 (4.7)			
	9 (2.7)	17.0 (5.2)	14.0 (753)	--	17.0 (5.2)	17.0 (5.2)	19.0 (5.8)	20.0 (1075)	--	17.0 (5.2)	17.0 (5.2)			
	10 (3.0)	18.5 (5.6)	19.5 (1048)	--	--	18.5 (5.6)	20.0 (6.1)	23.5 (1263)	--	--	18.5 (5.6)			
	11 (3.4)	20.5 (6.3)	26.0 (1398)	--	--	--	21.0 (6.4)	28.0 (1505)	--	--	20.0 (6.1)			
	12 (3.7)	22.5 (6.9)	33.0 (1774)	--	--	--	22.0 (6.7)	33.0 (1774)	--	--	21.5 (6.6)			

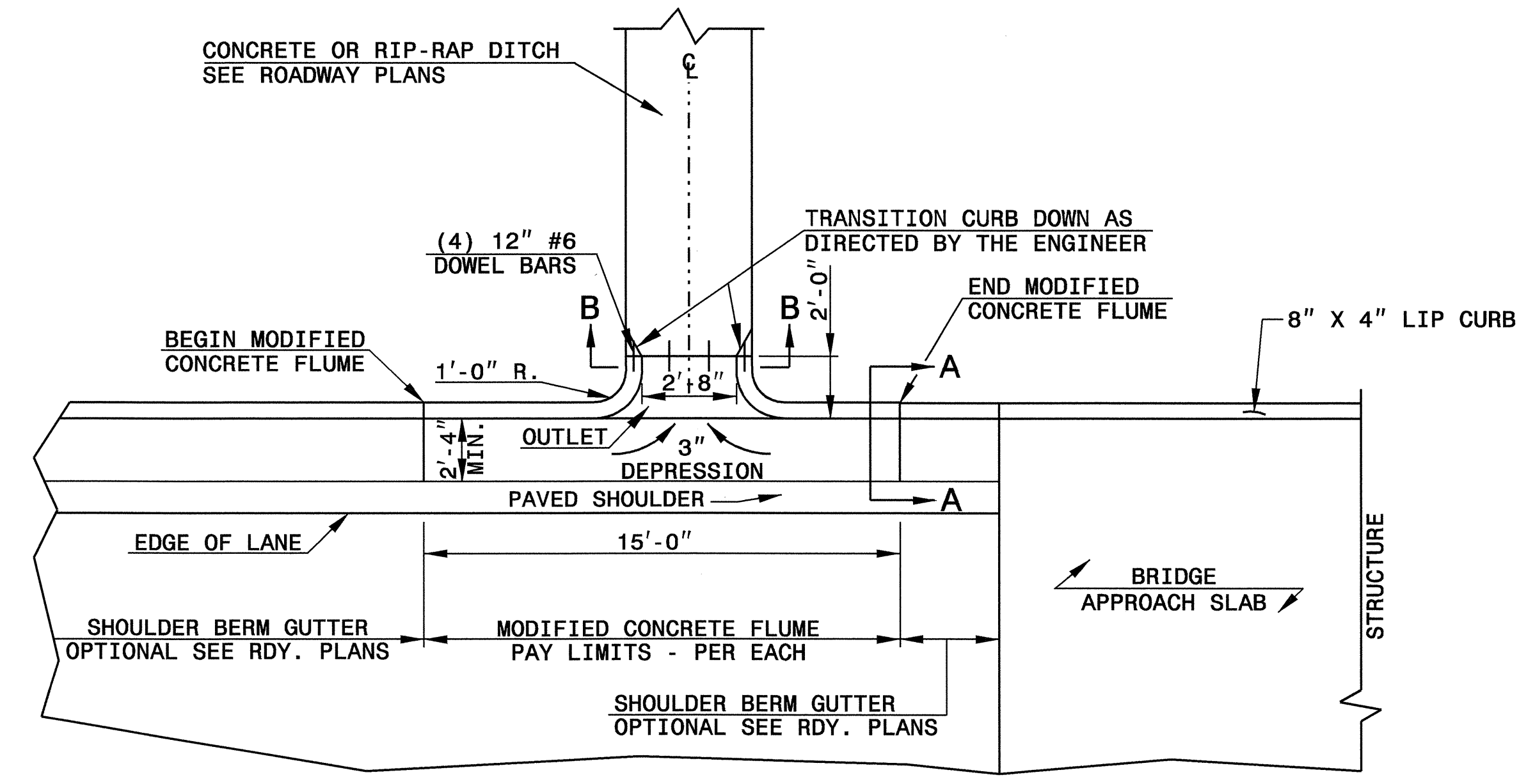
NOTE: MINIMUM REQUIRED EXTENSION IS 6" (150mm) FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" (800 mm) FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".

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

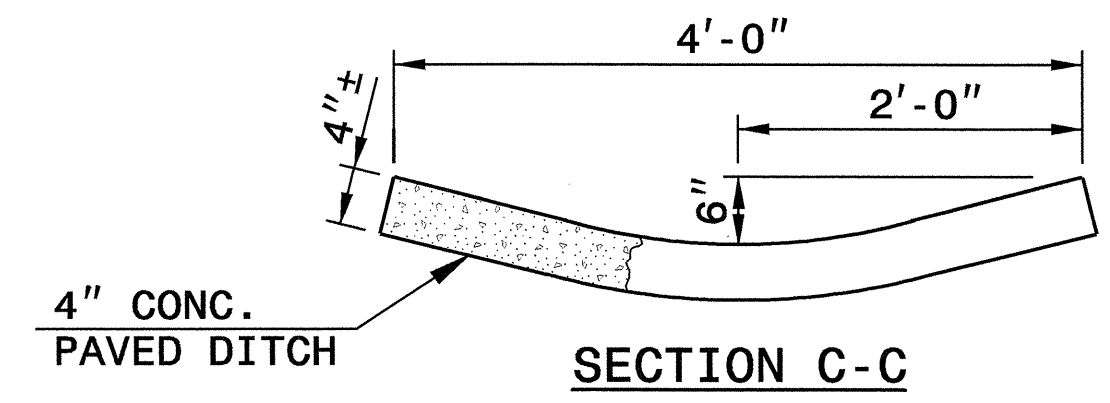
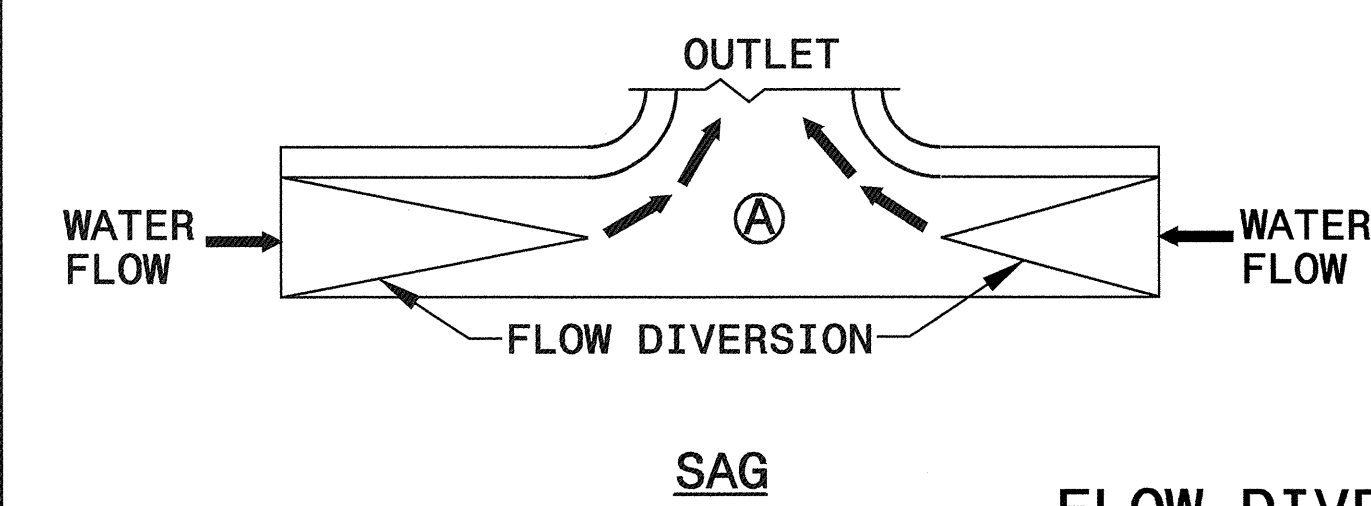
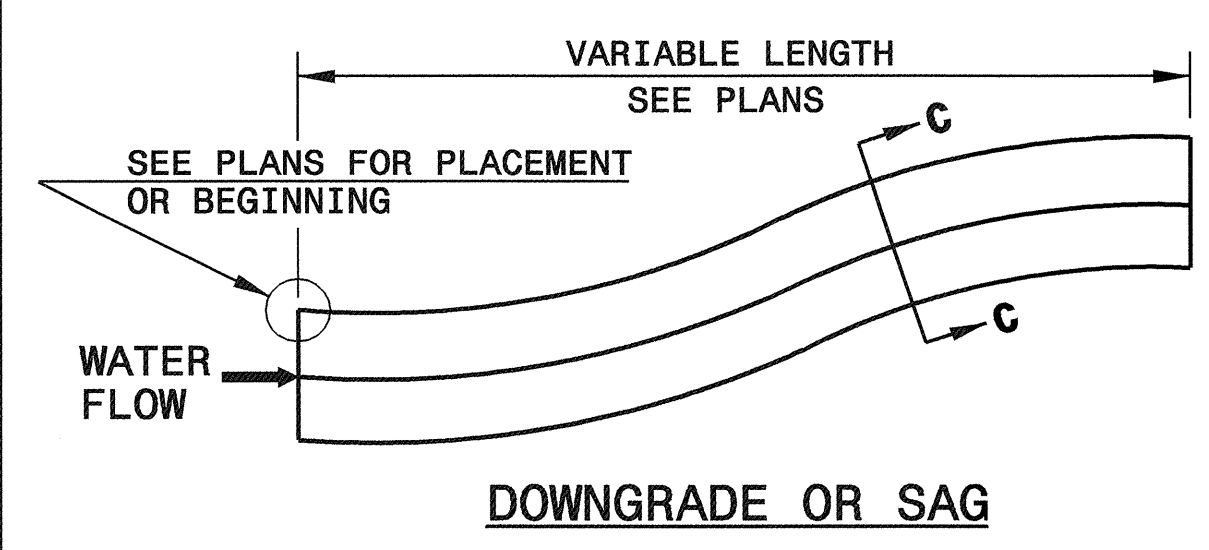
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**MODIFIED CONCRETE FLUME**  
WITH CONCRETE OR RIP-RAP DITCH

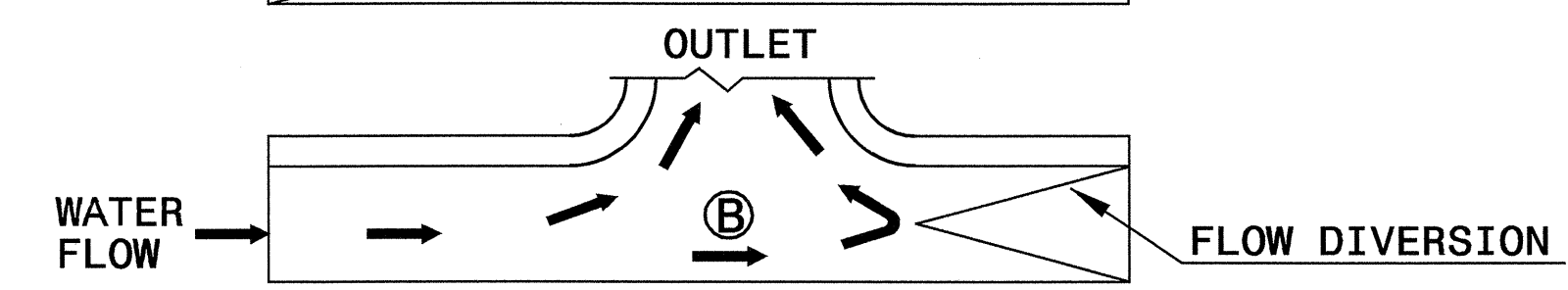
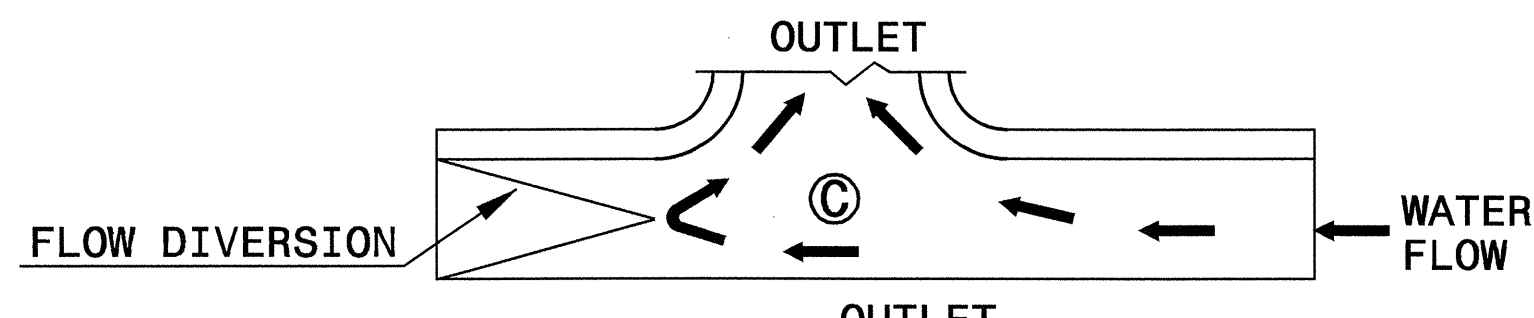
ENGLISH DETAIL DRAWING FOR  
**MODIFIED CONCRETE FLUME**  
WITH CONCRETE OR RIP-RAP DITCH



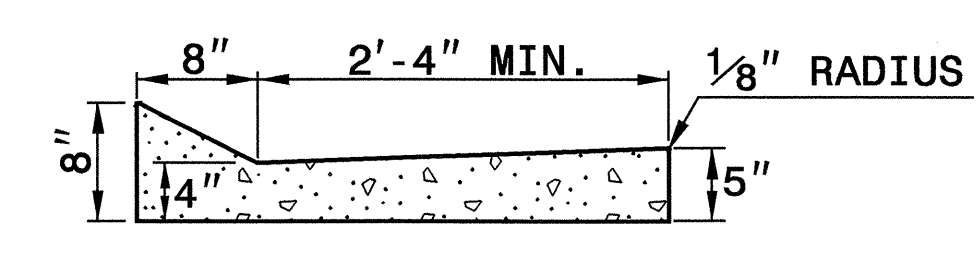
PLAN VIEW



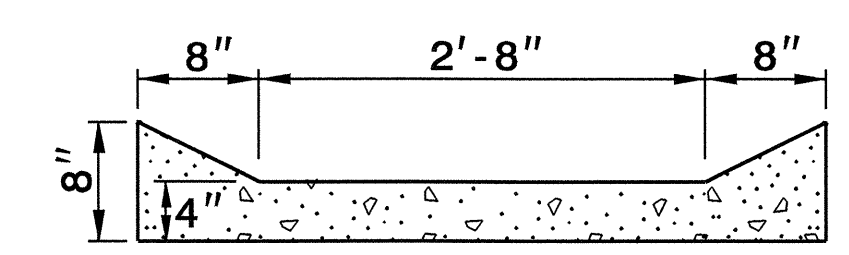
SECTION C-C



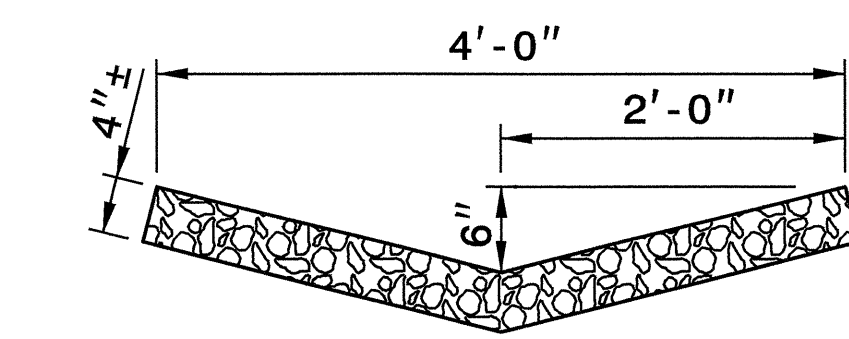
FLOW DIVERSION EXAMPLES



SECTION A-A



SECTION B-B

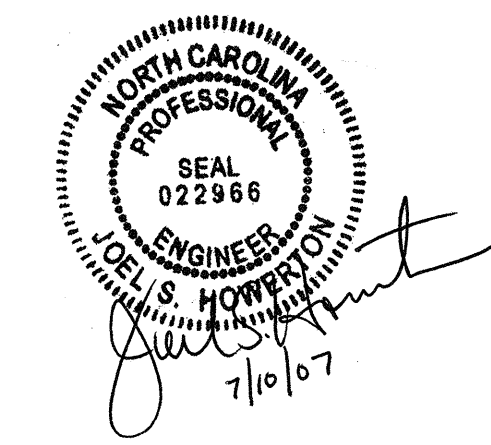


RIP-RAP LINED DITCH

- NOTES:
- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
  - CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
  - CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
  - CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
  - MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

SHEET 1 OF 1  
MODFLMDTCH

SHEET 1 OF 1  
MODFLMDTCH



PROJECT SERVICES UNIT  
STANDARDS AND SPECIAL DESIGN  
Office 919-250-4128 FAX 919-250-4119

**SEE PLATE FOR TITLE**

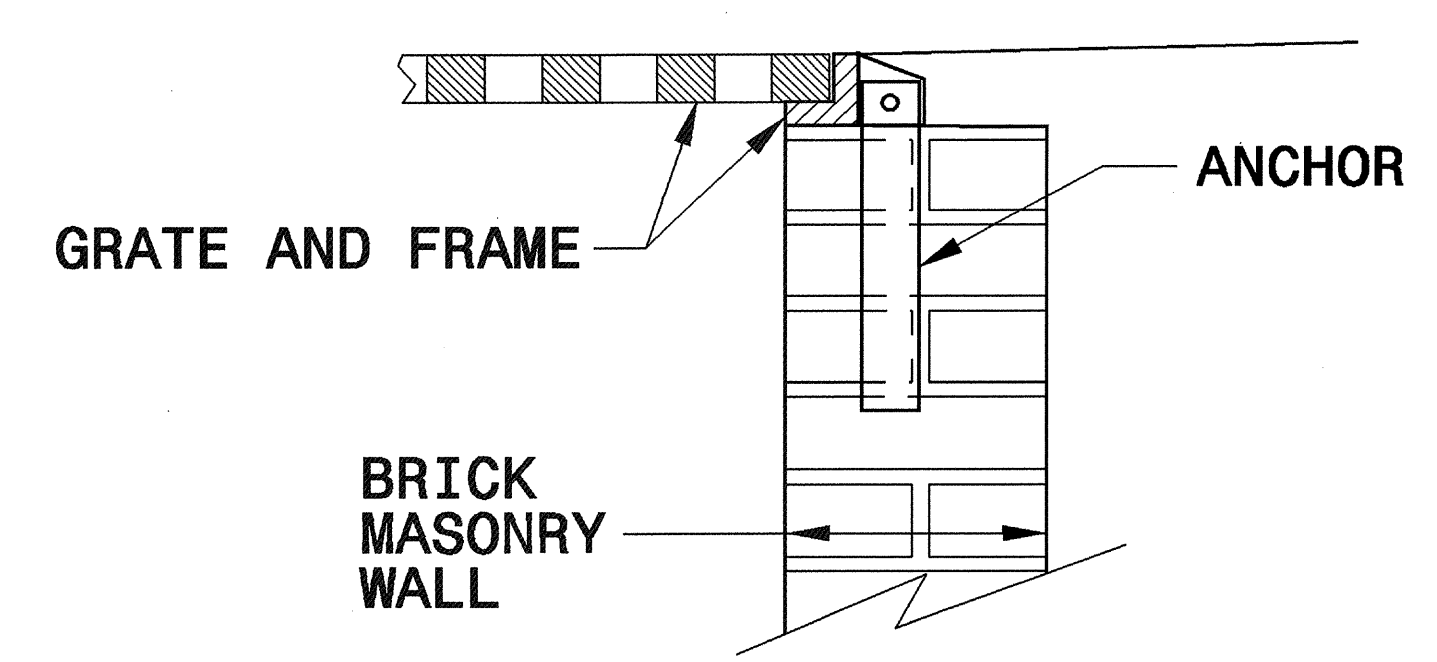
ORIGINAL BY: E.E. Ward DATE: Apr. 2002  
 MODIFIED BY: E.E. Ward DATE: July 2004  
 CHECKED BY: [Signature] DATE: 3/1/06  
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 erickward AT P5222293

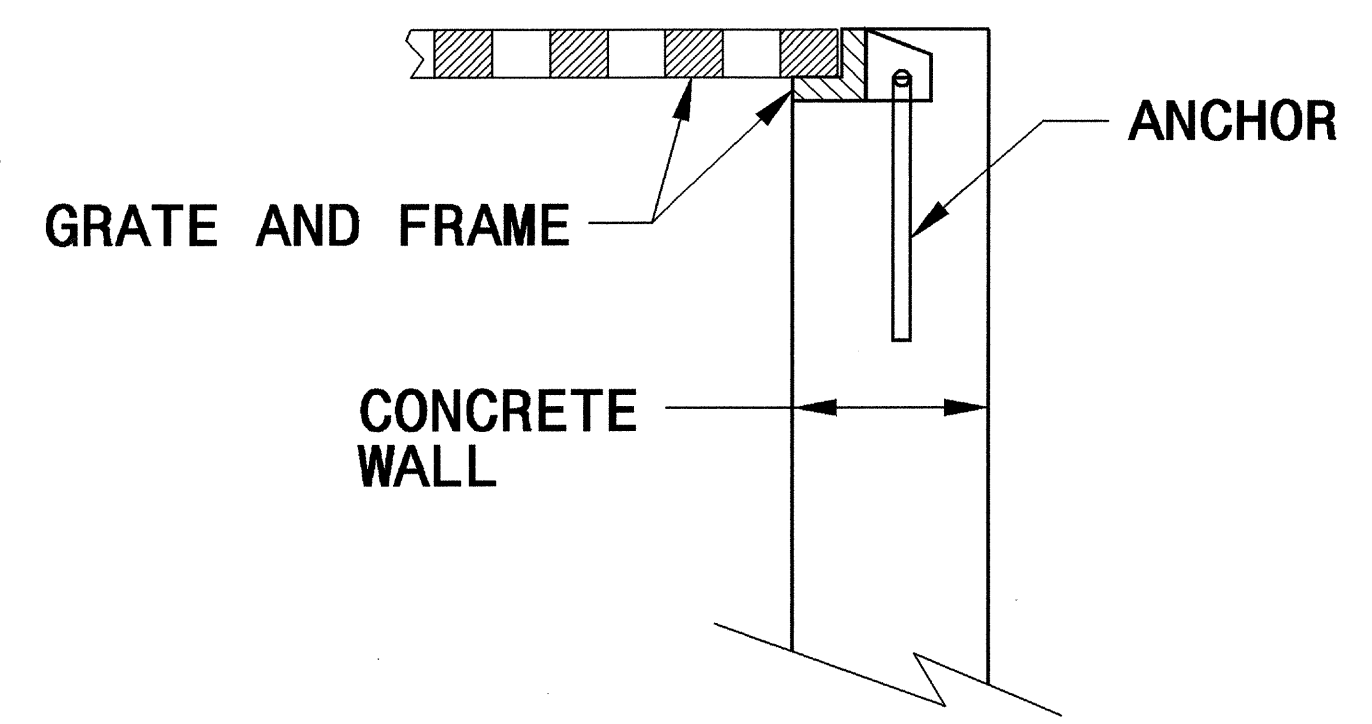
STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

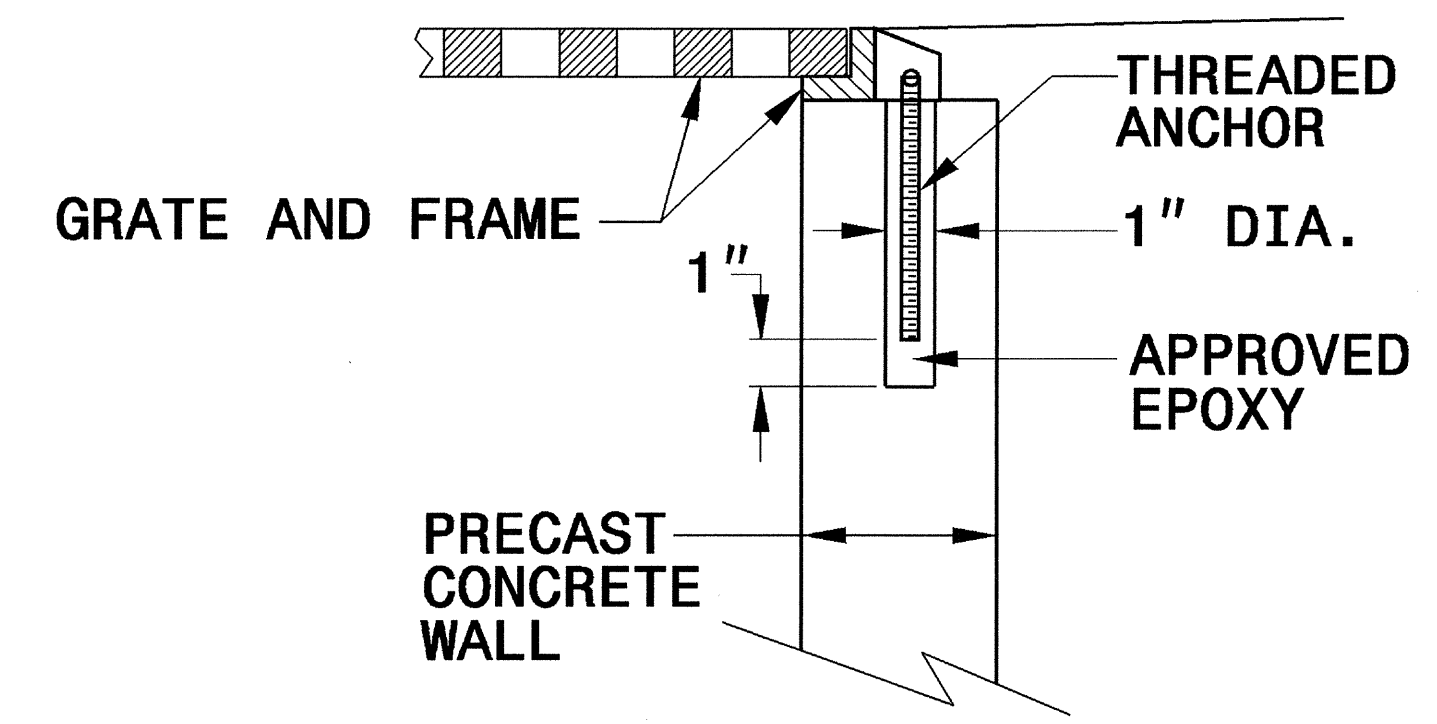
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



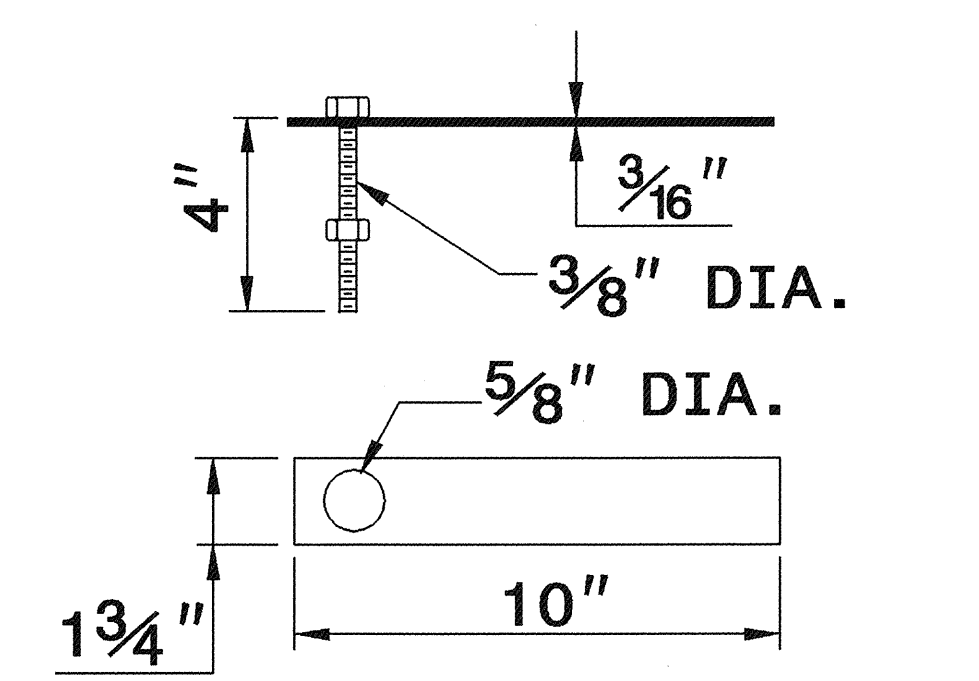
**CONCRETE CONSTRUCTION**



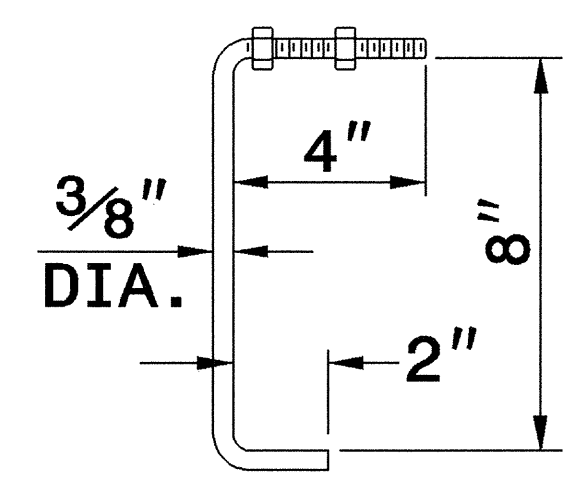
**PRECAST CONCRETE CONSTRUCTION**

**DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET**

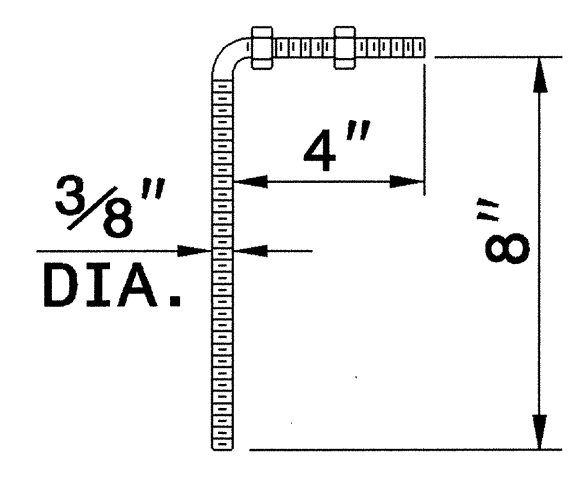
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



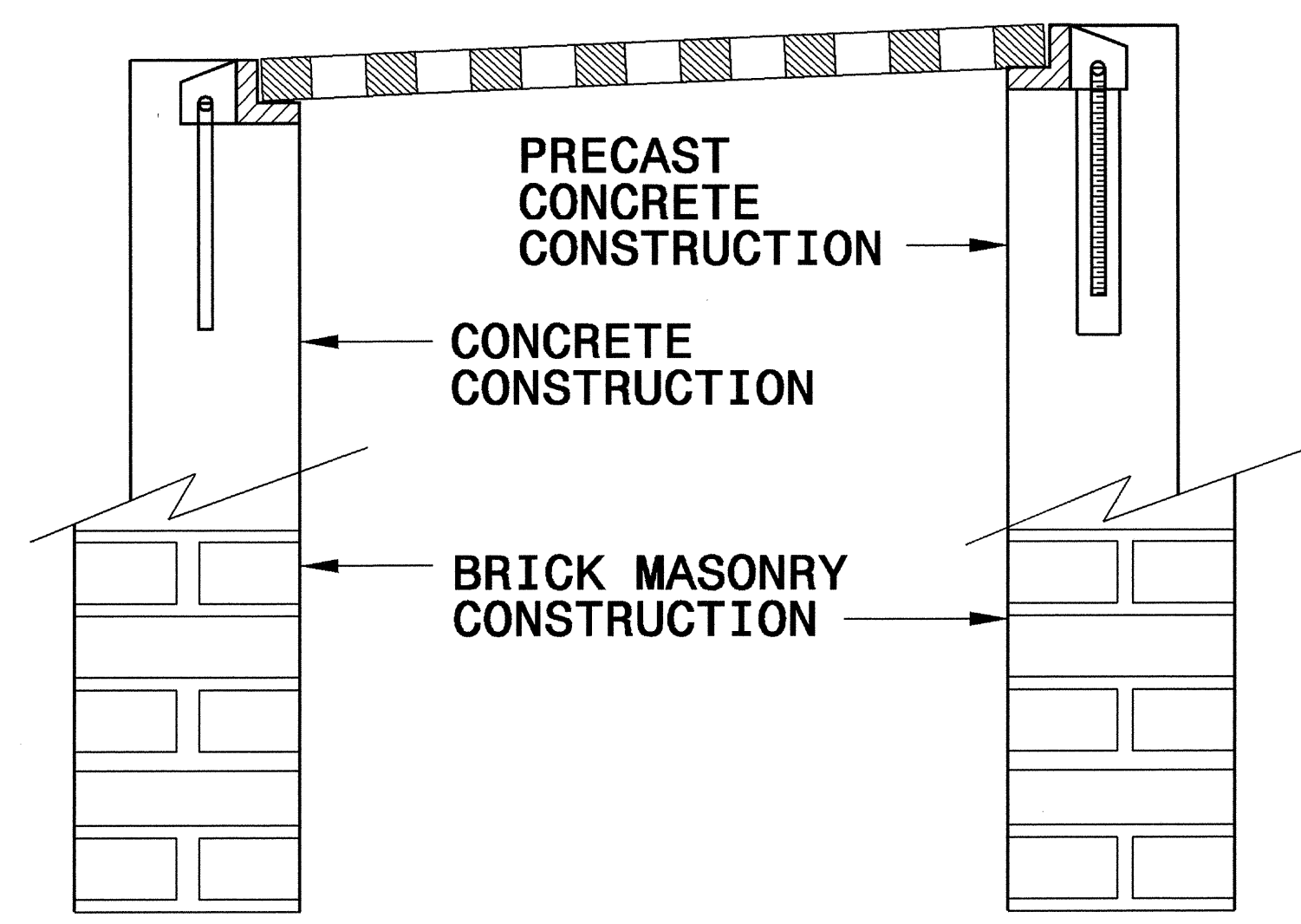
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



**CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



**PRECAST CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



**FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS**

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

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1  
**840D25**

27-SEP-2006 08:59 S:\Contracts\06422293\Special Details\enward\stds\06\stds to Special Details\840D25 Anchorage for Frames\0840D25.dgn enward A1 PSE22293



PROJECT SERVICES UNIT STANDARDS AND SPECIAL DESIGN Office 919-250-4128 FAX 919-250-4119	
<b>SEE PLATE FOR TITLE</b>	
ORIGINAL BY: 2006 STD 840.25	DATE: 07/18/06
MODIFIED BY: E.E. WARD	DATE: 9/25/06
CHECKED BY:	DATE:
FILE SPEC.:	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201942

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
001000000-E	200	Lump Sum		CLEARING & GRUBBING . ACRE(S)
008000000-E	200	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
002200000-E	225	1,300	CY	UNCLASSIFIED EXCAVATION
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (16+96.50)
003600000-E	225	200	CY	UNDERCUT EXCAVATION
008000000-E	SP	100	TON	CLASS IV SUBGRADE STABILIZATION
010600000-E	230	6,500	CY	BORROW EXCAVATION
015600000-E	250	1,790	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
019500000-E	265	100	CY	SELECT GRANULAR MATERIAL
019600000-E	270	100	SY	FABRIC FOR SOIL STABILIZATION
019900000-E	SP	418	SF	TEMPORARY SHORING
025500000-E	SP	1,850	TON	GENERIC GRADING ITEM SELECT MATERIAL, CLASS VI
025500000-E	SP	4,450	TON	GENERIC GRADING ITEM SELECT MATERIAL, CLASS VII
031800000-E	300	35	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
036600000-E	310	328	LF	15" RC PIPE CULVERTS, CLASS III
101100000-N	500	Lump Sum		FINE GRADING
122000000-E	545	25	TON	INCIDENTAL STONE BASE
133000000-E	607	130	SY	INCIDENTAL MILLING
148900000-E	610	790	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
149800000-E	610	860	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE H9.0B
151900000-E	610	660	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
152500000-E	610	10	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
156000000-E	620	115	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
169300000-E	654	25	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
200000000-N	806	5	EA	RIGHT OF WAY MARKERS
202200000-E	815	45	CY	SUBDRAIN EXCAVATION
203300000-E	815	34	CY	SUBDRAIN FINE AGGREGATE
204400000-E	815	200	LF	6" PERFORATED SUBDRAIN PIPE
205500000-E	815	6	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
206600000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
207700000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
228600000-N	840	5	EA	MASONRY DRAINAGE STRUCTURES
235420000-N	840	1	EA	FRAME WITH GRATE, STD 840.24
235500000-N	840	4	EA	FRAME WITH GRATE, STD 840.29
255600000-E	846	250	LF	SHOULDER BERM GUTTER
257000000-N	SP	1	EA	MODIFIED CONCRETE FLUME
257700000-E	846	170	LF	CONCRETE EXPRESSWAY GUTTER
303000000-E	862	1,712.5	LF	STEEL BM GUARDRAIL
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
321500000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
327000000-N	SP	6	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
336000000-E	863	1,680	LF	REMOVE EXISTING GUARDRAIL
363500000-E	876	1,350	TON	RIP RAP, CLASS II
364900000-E	876	10	TON	RIP RAP, CLASS B
365600000-E	876	3,630	SY	FILTER FABRIC FOR DRAINAGE
365900000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
402500000-E	901	15.3	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (D)

ItemNumber	Sec #	Quantity	Unit	Description
402500000-E	901	15	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)
407200000-E	903	132	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
409600000-N	904	2	EA	SIGN ERECTION, TYPE D
410200000-N	904	3	EA	SIGN ERECTION, TYPE E
411610000-N	904	2	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)
415500000-N	907	12	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
440000000-E	1110	603	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	112	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	169	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
442200000-N	1120	20	DAY	CHANGEABLE MESSAGE SIGN (SHORT TERM)
443000000-N	1130	30	EA	DRUMS
443500000-N	1135	15	EA	CONES
444500000-E	1145	128	LF	BARRICADES (TYPE III)
445000000-N	1150	1,680	HR	FLAGGER
446500000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
447000000-N	1160	2	EA	RESET TEMPORARY CRASH CUSHIONS
448000000-N	1165	1	EA	TMIA
448500000-E	1170	720	LF	PORTABLE CONCRETE BARRIER
449500000-E	1170	240	LF	PORTABLE CONCRETE BARRIER (DRAINAGE)
450000000-E	1170	225	LF	RESET PORTABLE CONCRETE BARRIER
450600000-E	1170	75	LF	RESET PORTABLE CONCRETE BARRIER (DRAINAGE)
451600000-N	1180	30	EA	SKINNY DRUM
465000000-N	1251	17	EA	TEMPORARY RAISED PAVEMENT MARKERS
468500000-E	1205	2,272	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
468600000-E	1205	2,272	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
477000000-E	1205	756	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (II)
477000000-E	1205	756	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)
481000000-E	1205	9,088	LF	PAINT PAVEMENT MARKING LINES (4")
490000000-N	1251	17	EA	PERMANENT RAISED PAVEMENT MARKERS
600000000-E	1605	1,200	LF	TEMPORARY SILT FENCE
600600000-E	1610	150	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	90	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	340	TON	SEDIMENT CONTROL STONE
601500000-E	1615	4	ACR	TEMPORARY MULCHING
601800000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	0.5	TON	FERTILIZER FOR TEMPORARY SEEDING
602900000-E	SP	1,700	LF	SAFETY FENCE
603000000-E	1630	320	CY	SILT EXCAVATION
603600000-E	1631	775	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	10	SY	COIR FIBER MAT
603800000-E	SP	2,770	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	120	LF	1/4" HARDWARE CLOTH
604800000-E	SP	3,800	SY	FLOATING TURBIDITY CURTAIN
607000000-N	SP	12	EA	SPECIAL STILLING BASINS
607103000-E	SP	130	LF	COIR FIBER BAFFLES
607105000-E	SP	1	EA	*** SKIMMER (2")
608400000-E	1660	4	ACR	SEEDING & MULCHING
608700000-E	1660	2.5	ACR	MOWING

ItemNumber	Sec #	Quantity	Unit	Description
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	100	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	3	TON	FERTILIZER TOPDRESSING
611400000-N	SP	4.5	HR	SPECIALIZED HAND MOWING
611700000-N	SP	8	EA	RESPONSE FOR EROSION CONTROL
612300000-E	1670	0.1	ACR	REFORESTATION

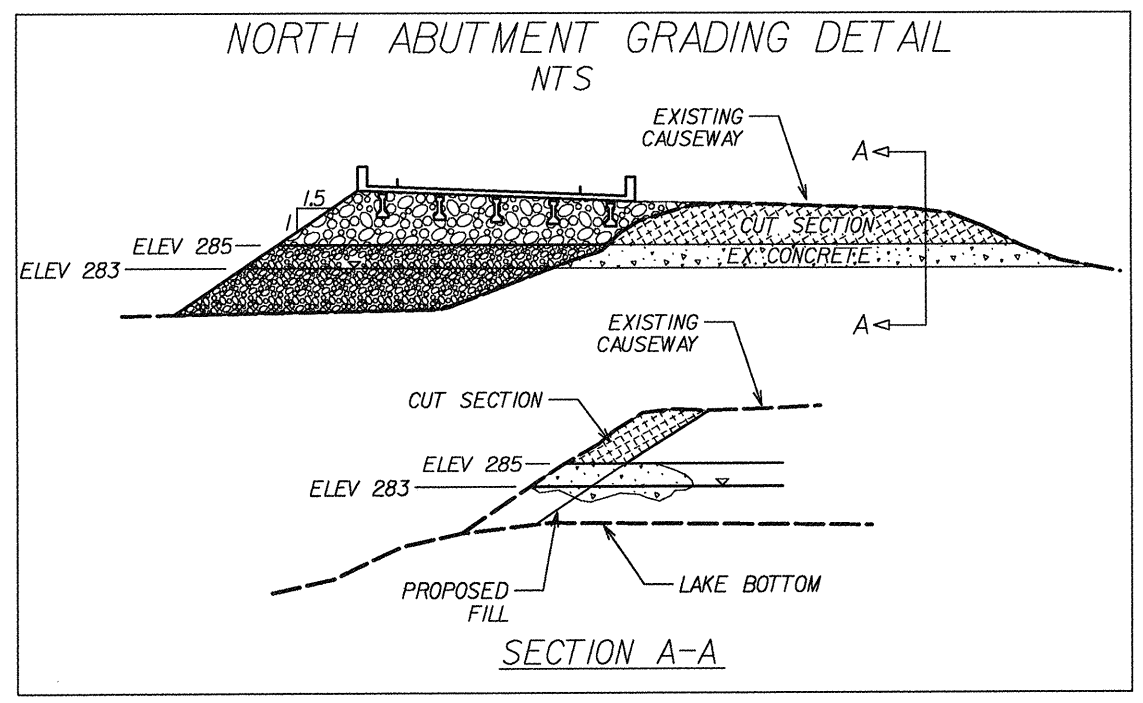
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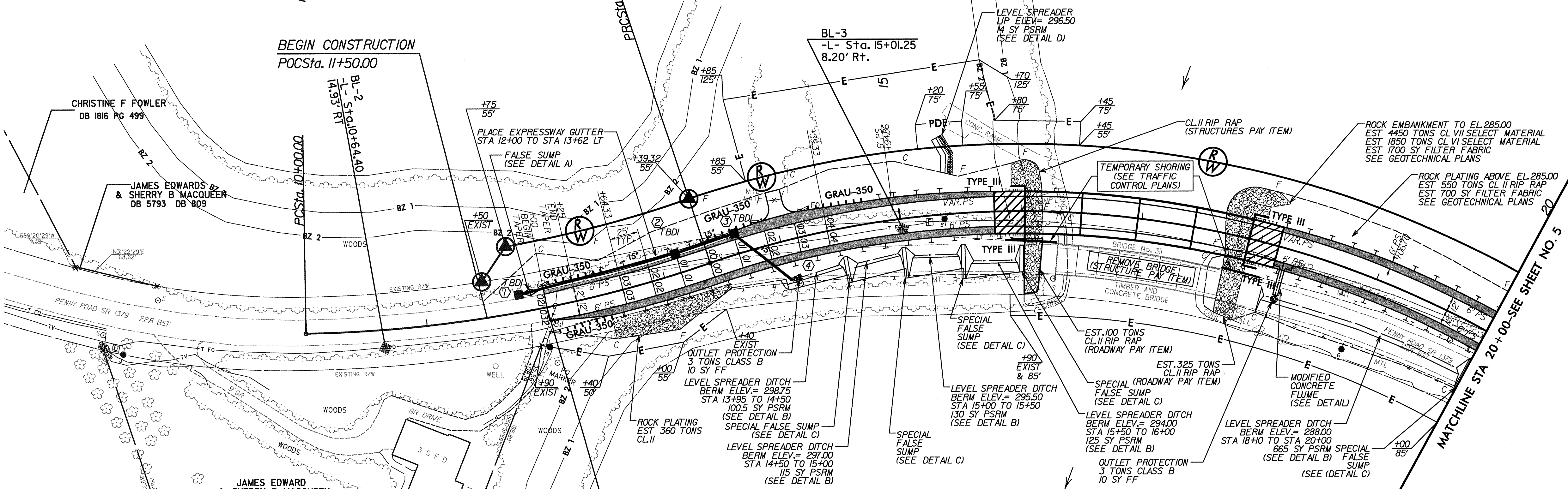
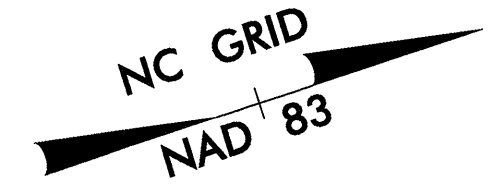




PROJECT REFERENCE NO. B-3917	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL #26453 NEIL J. DEAN 6/28/2007	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL #031554 RHETT BULLOCK 6/28/2007
Prepared in the Office of: <b>EarthTech</b> 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259(FAX)	
GRAPHIC SCALE 50 25 0 50 100 PLANS	



①  
CITY OF RALEIGH (LAKE WHEELER)  
PER UNRECORDED MAP BY JOHN A. EDWARDS & CO. DATED MAY 21, 1987

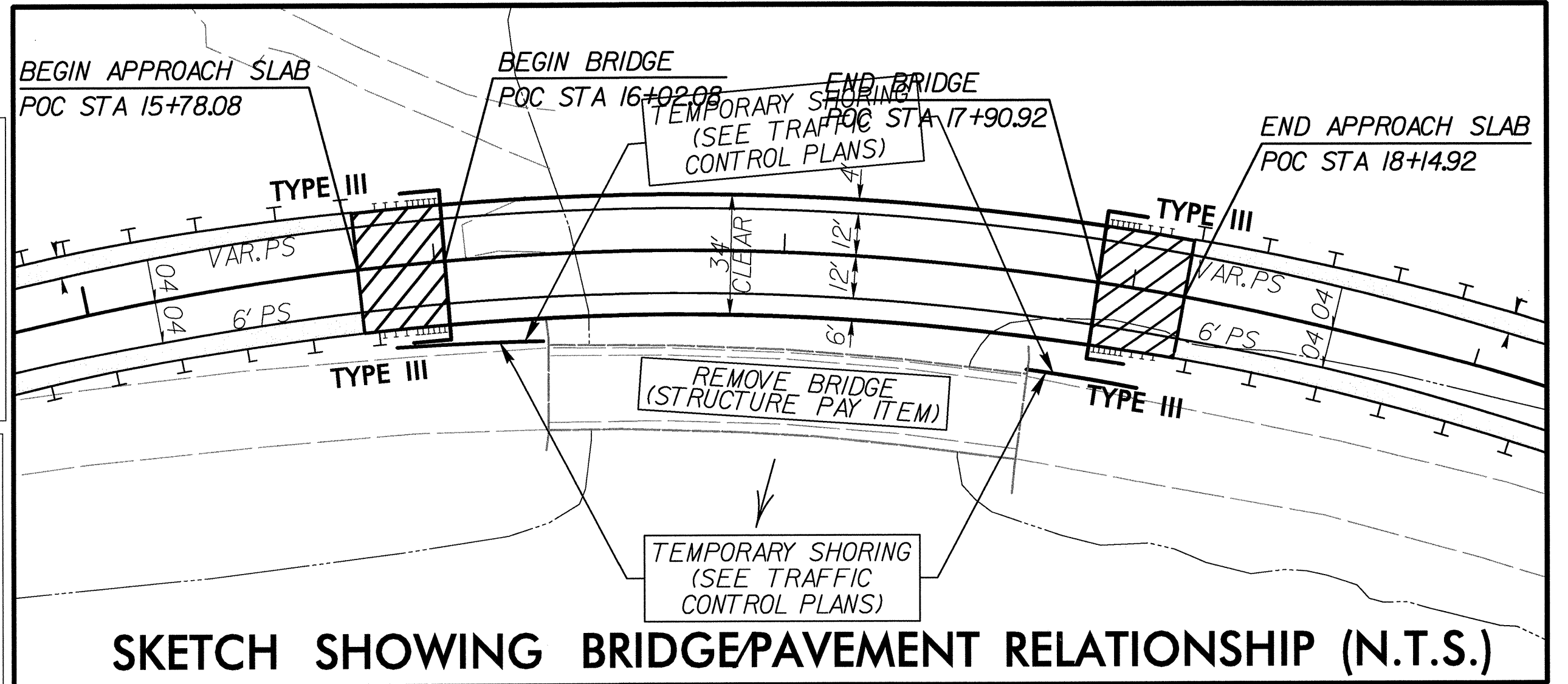
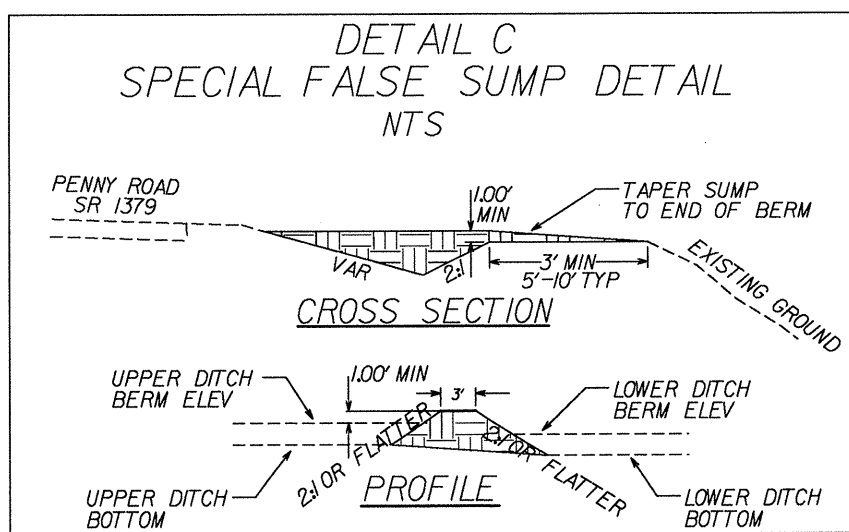
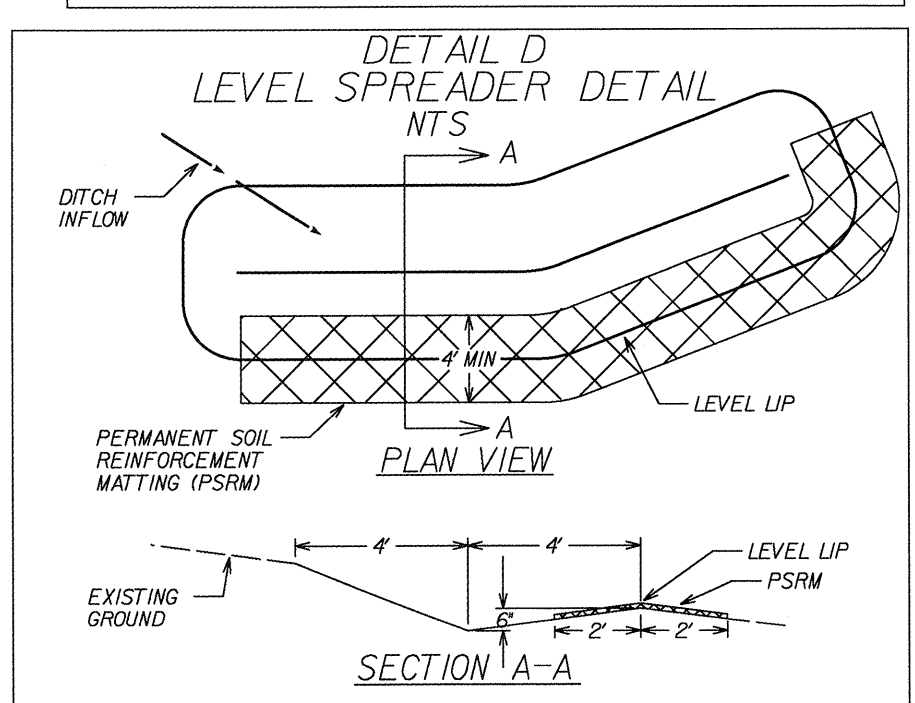
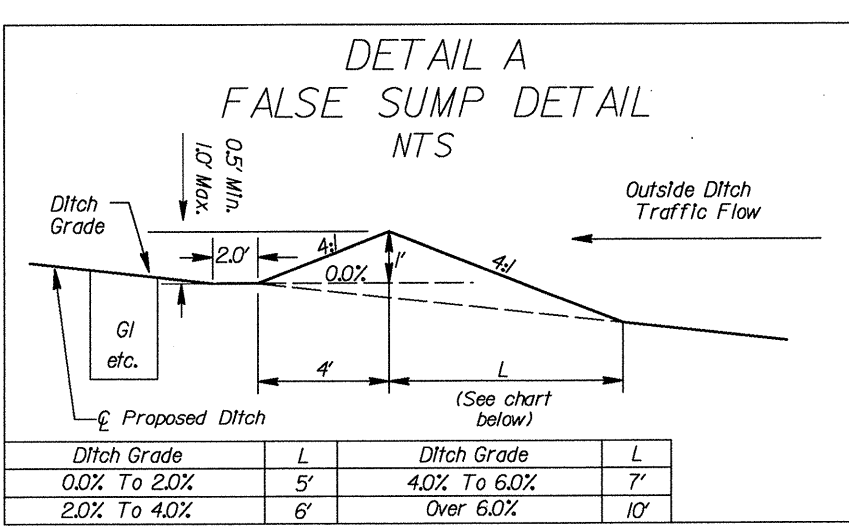
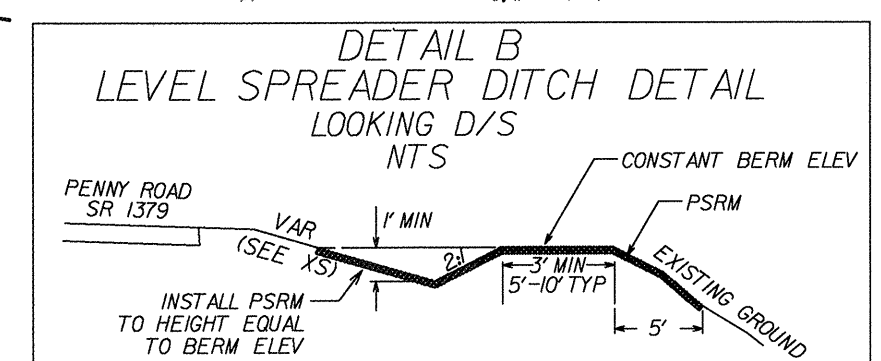


FOR -L- PROFILE, SEE SHEET 6

SEE SHEETS S-1 THRU S-36 FOR STRUCTURE PLANS

PI Sta 11+71.02  
Δ = 17° 40' 28.8" (LT)  
D = 5' 12' 31.3"  
L = 339.32'  
T = 171.02'  
R = 1,100.00'  
e = SEE PLANS  
R.O. = SEE PLANS

PI Sta 19+19.22  
Δ = 7° 52' 28.8" (RT)  
D = 7° 09' 43.1"  
L = 1,003.56'  
T = 579.90'  
R = 800.00'  
e = 0.04 FT./FT.  
R.O. = SEE PLANS



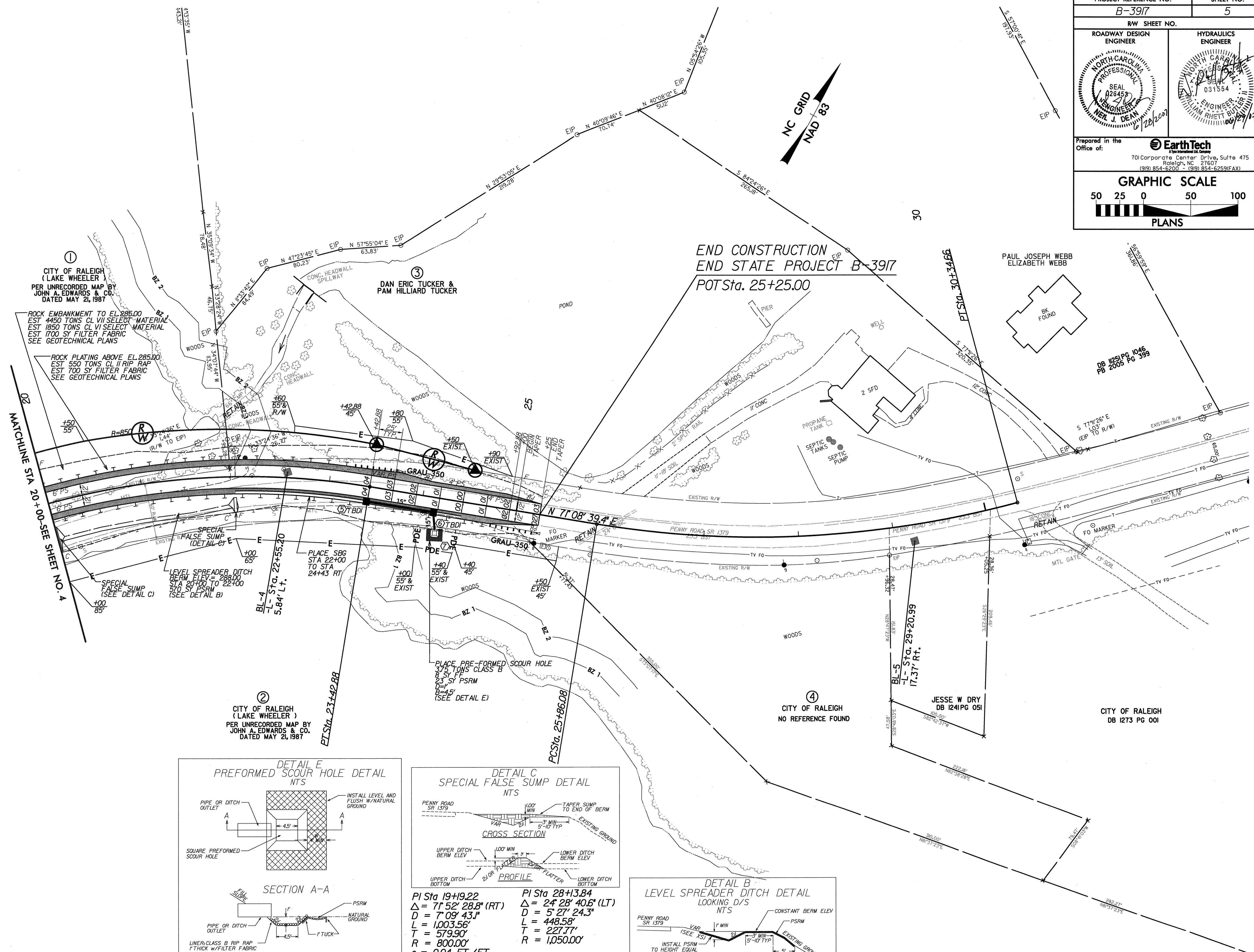
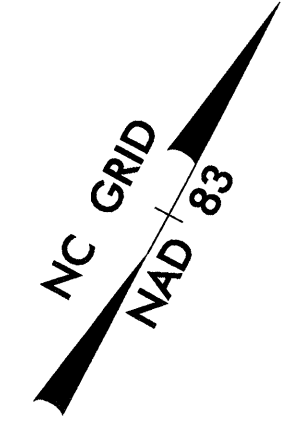
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP (N.T.S.)

REVISIONS

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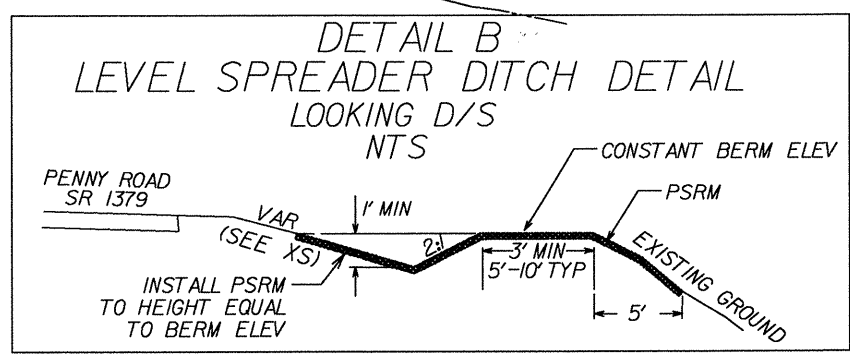
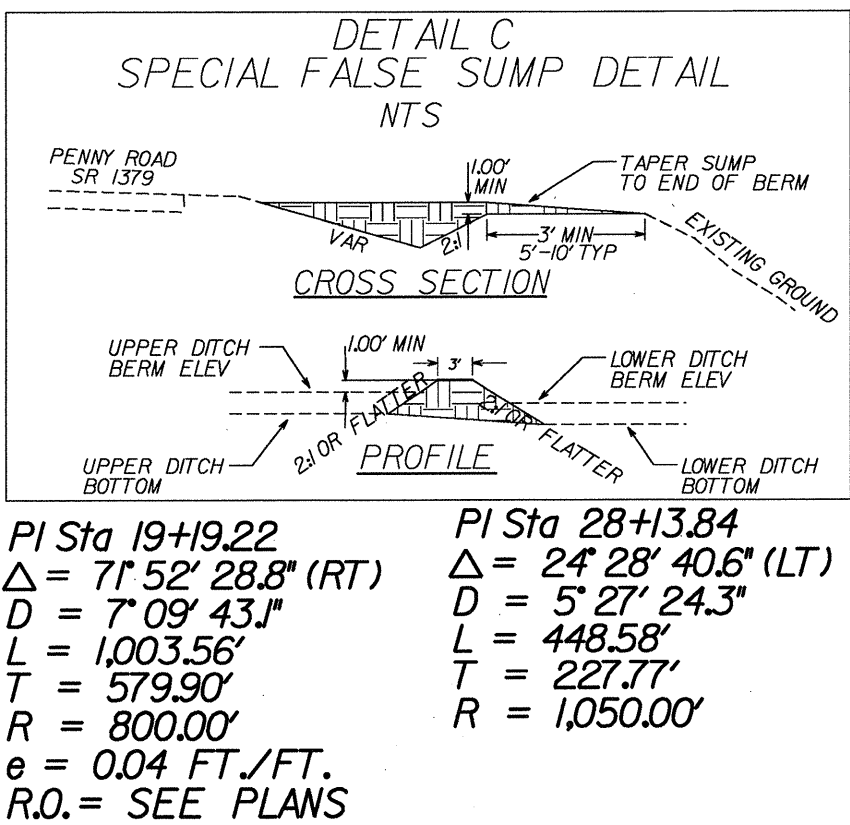
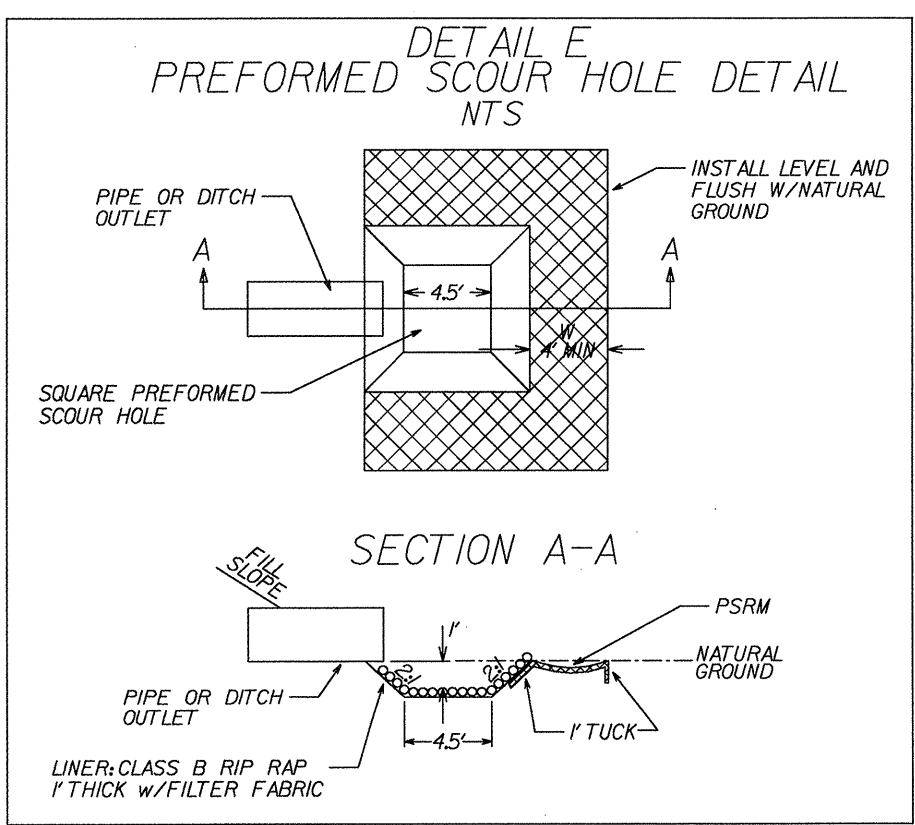


PROJECT REFERENCE NO. B-3917		SHEET NO. 5	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of:			
701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259 FAX			
GRAPHIC SCALE			
PLANS			



REVISIONS

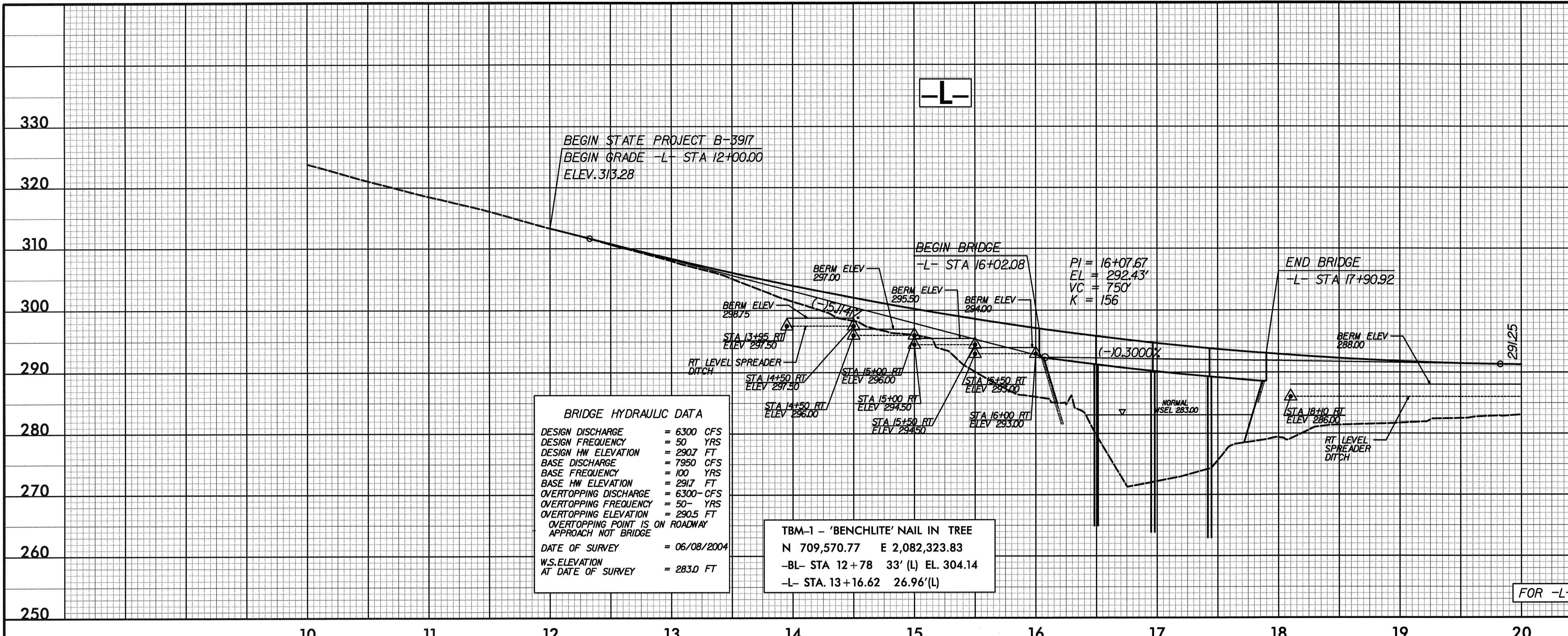
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FOR -L- PROFILE, SEE SHEET 6

5/28/09

PROJECT REFERENCE NO. <b>B-3917</b>	SHEET NO. <b>6</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



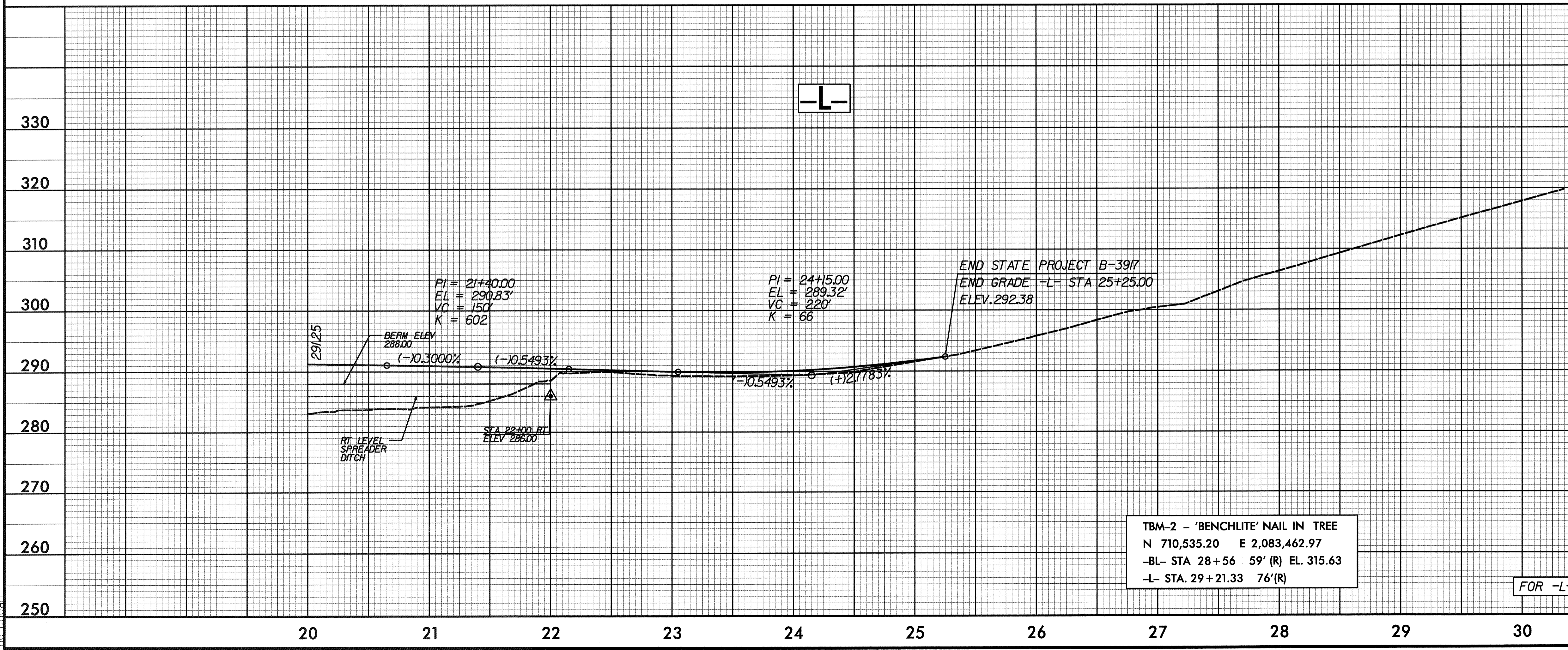
**BRIDGE HYDRAULIC DATA**

DESIGN DISCHARGE	= 6300 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 290.7 FT
BASE DISCHARGE	= 7850 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 291.7 FT
OVERTOPPING DISCHARGE	= 6300 CFS
OVERTOPPING FREQUENCY	= 50 YRS
OVERTOPPING ELEVATION	= 290.5 FT
OVERTOPPING POINT IS ON ROADWAY APPROACH NOT BRIDGE	
DATE OF SURVEY	= 06/08/2004
W.S.ELEVATION AT DATE OF SURVEY	= 283.0 FT

**TBM-1 - 'BENCHLITE' NAIL IN TREE**  
 N 709,570.77 E 2,082,323.83  
 -BL- STA 12+78 33' (L) EL. 304.14  
 -L- STA. 13+16.62 26.96'(L)

FOR -L- PLAN VIEW, SEE SHEET 4

6/28/2007 P:\Roadway\proj\B3917\_rdy.pfl\_06.dgn



**TBM-2 - 'BENCHLITE' NAIL IN TREE**  
 N 710,535.20 E 2,083,462.97  
 -BL- STA 28+56 59' (R) EL. 315.63  
 -L- STA. 29+21.33 76'(R)

FOR -L- PLAN VIEW, SEE SHEET 5