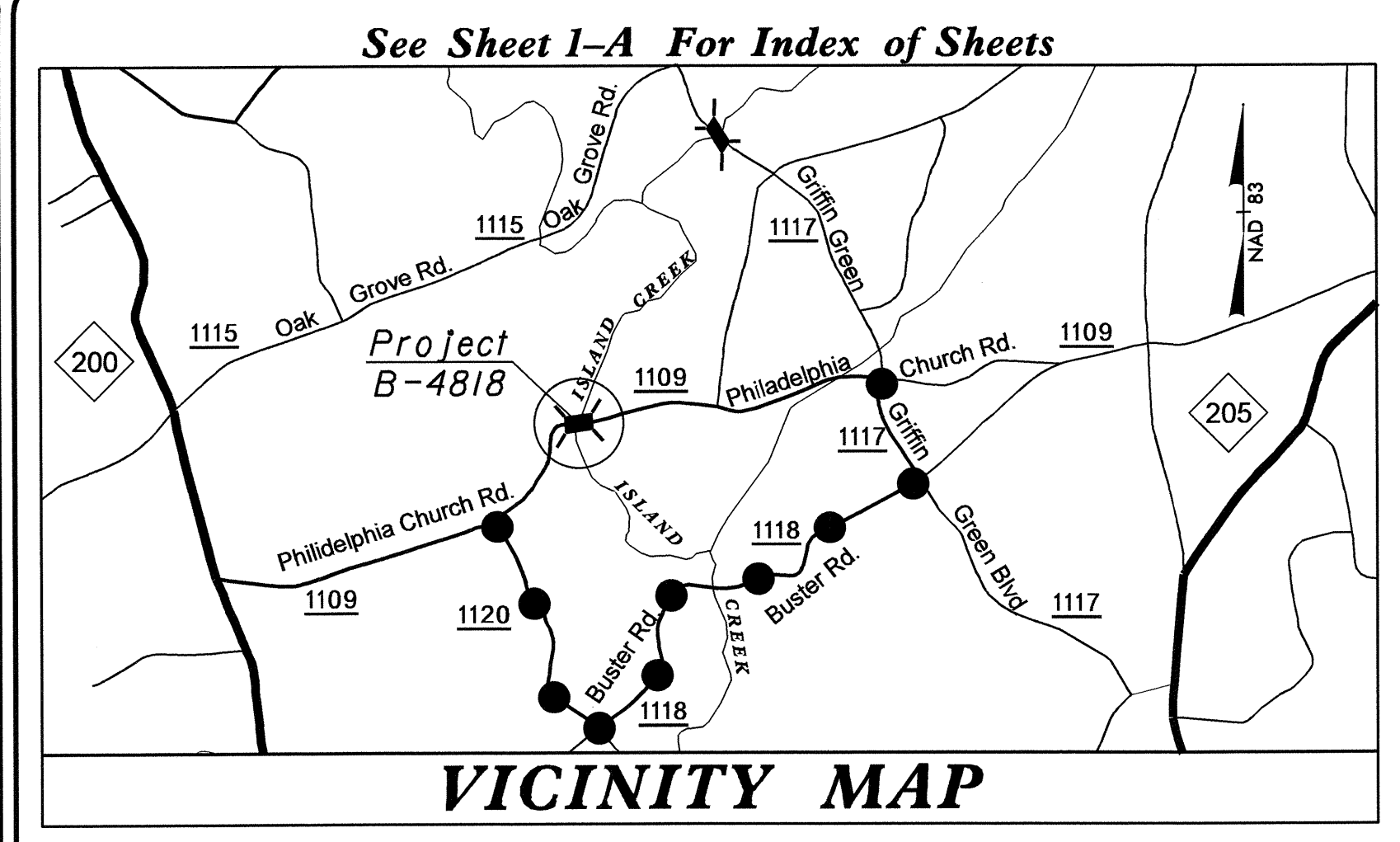


09/08/99

TIP PROJECT: B-4818

CONTRACT: C203286

17-SEP-2013 11:38
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\$\$\$\$\$USERNAME\$\$\$\$\$



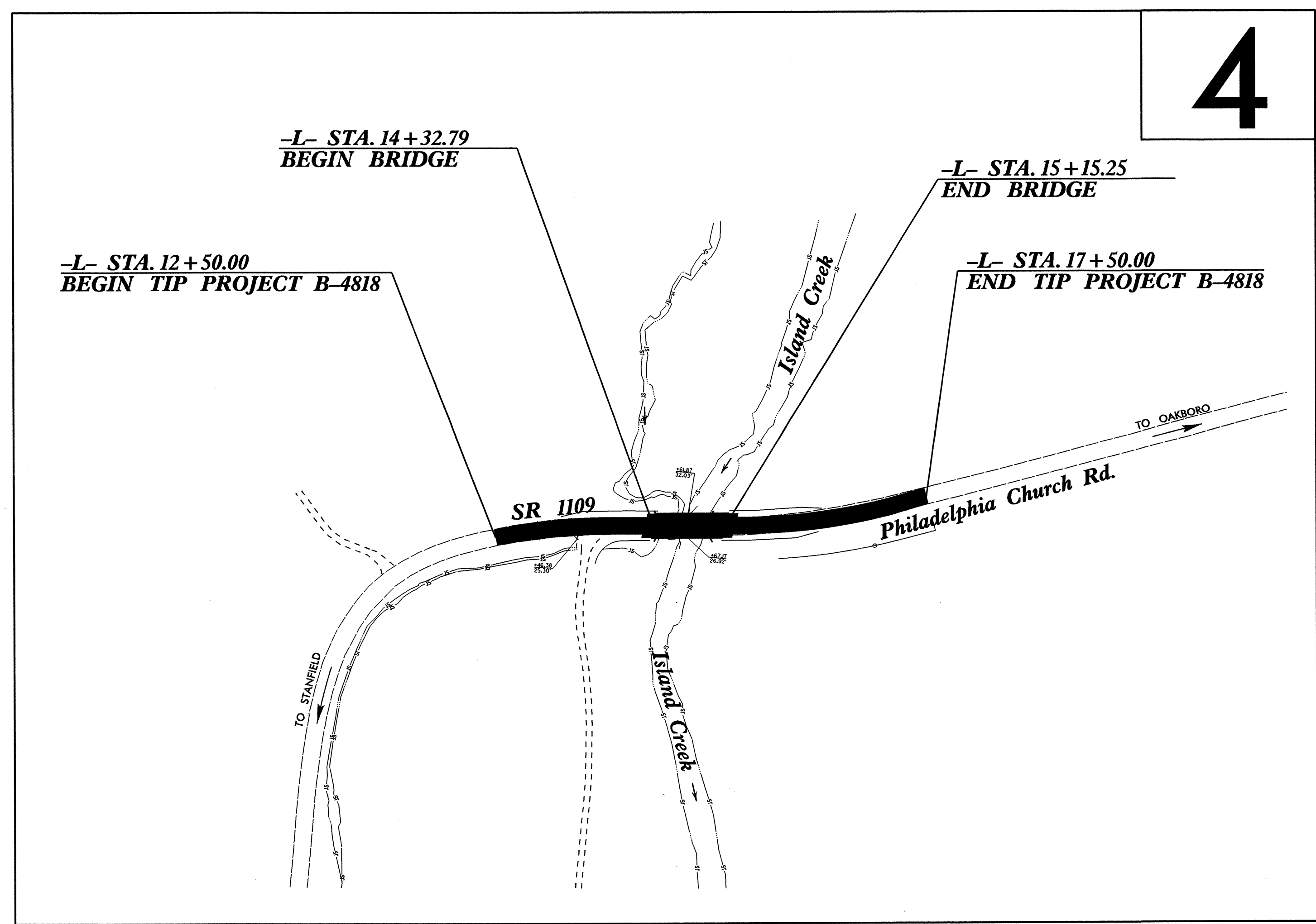
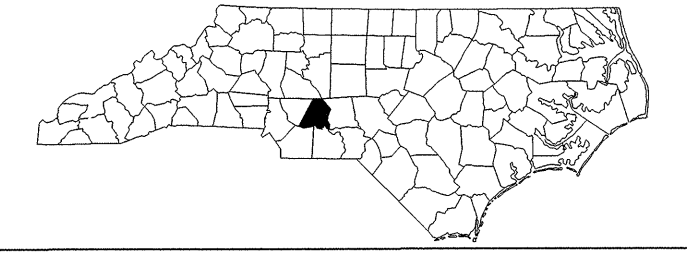
●●●● DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

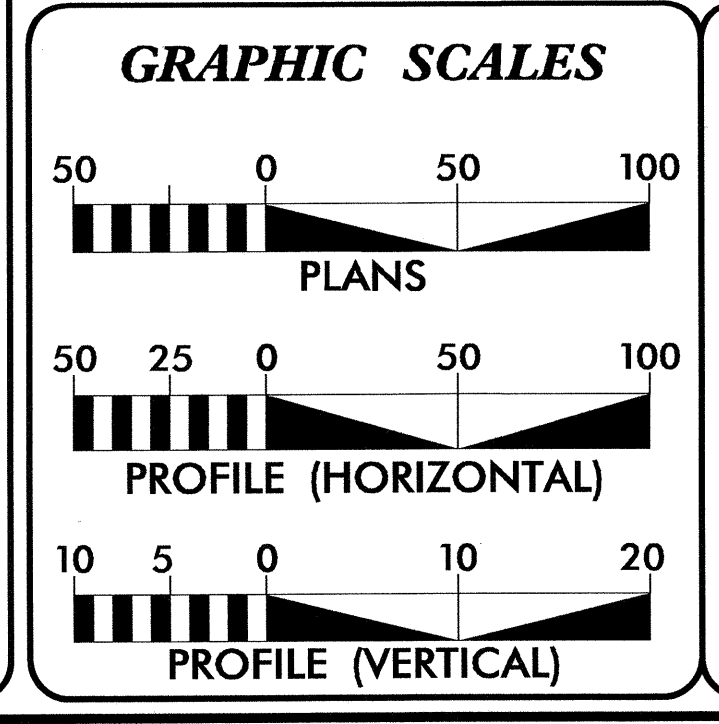
STANLY COUNTY

LOCATION: Bridge No. 138 on SR 1109 (Philadelphia Church Road)
over Island Creek
TYPE OF WORK: Grading, Paving, Drainage and Structure

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4818	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38588.1.1	BRZ-1109(7)	P.E.	
38588.2.1	BRZ-1109(7)	RW & UTIL	
38588.3.FD1	BRZ-1109(7)	CONST	



NAD 83/
NSRS 2007



DESIGN DATA

ADT 2013 = 473
ADT 2035 = 600
DHV = 10%
D = 60%
*T = 5%
V = 50 MPH
SUB REGIONAL TIER
LOCAL CLASSIFICATION
* TTST 2% + DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4818 = .079 MILES
LENGTH STRUCTURE TIP PROJECT B-4818 = .016 MILES
TOTAL LENGTH ROADWAY TIP PROJECT B-4818 = .095 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 17, 2012

LETTING DATE:
DECEMBER 17, 2013

G. E. BREW, P.E.
PROJECT ENGINEER

W. T. BEST
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SEAL 22100
STEPHEN R. MORRIS
P.E.

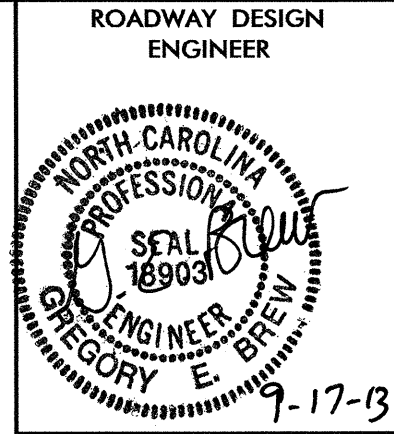
9-17-13

ROADWAY DESIGN ENGINEER

SEAL 18903
GREGORY E. BREW
P.E.

9-17-13

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**



INDEX OF SHEETS

GENERAL NOTES

STANDARD DRAWINGS

EFF. 01-17-2012
REV. 10-30-2012

INDEX OF SHEETS.

Sheet Number	Sheet
1	Title Sheet
1-A	"Index of Sheets, General Notes, and List of Standards"
1-B	Conventional Symbols
1-C	Survey Control Sheet
2	"Pavement Schedule, Typical Sections, Wedging Detail, and Miscellaneous Details"
2-A	Detail for Type III Structure Anchor Units.
3	Summary of Quantities
3-A	Summary of Drainage Quantities
3-B	"Summary of Guardrail, Summary of Asphalt Pavement Removal," "Summary of Woven Wire Fence, and Summary of Earthwork"
4	Plan Sheet
5	Profile Sheet
TMP-1 thru TMP-2	Transportation Management Plans
EC-1 thru EC-5	Erosion Control Plans
X-1A	Cross-section Summary
X-1 thru X-3	Cross-sections
S-1 thru S-19	Structure Plans

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

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
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

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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

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

END BENTS:

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

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED 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 Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.72	Pipe Collar
862.01	Guardrail Placement
862.02	Guardrail Installation
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels
876.03	Drainage Ditches with Class 'A' Rip Rap

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

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

04/16/11

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	⑫③
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	○
Well	○
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	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	○
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite RW Marker	○
Proposed Control of Access Line with Concrete C/A 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	○
Existing Metal Guardrail	▬
Proposed Guardrail	▬
Existing Cable Guiderail	▬
Proposed Cable Guiderail	▬
Equality Symbol	⊕
Pavement Removal	▬

VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	▬
Woods Line	▬

Orchard	○
Vineyard	□

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	○
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-

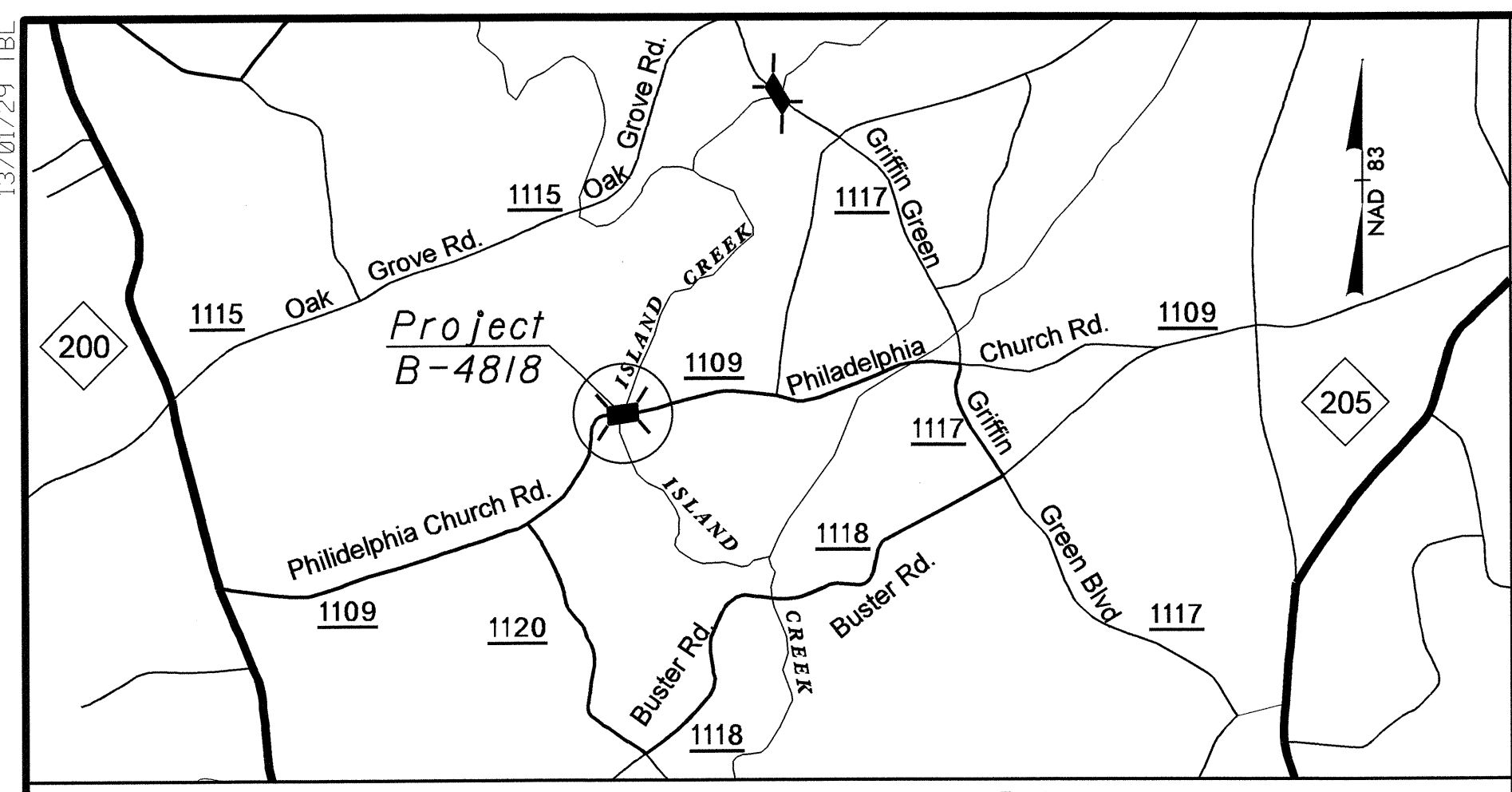
SANITARY SEWER:

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	-?U/L-
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊗
U/G Test Hole (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

SURVEY CONTROL SHEET



VICINITY MAP

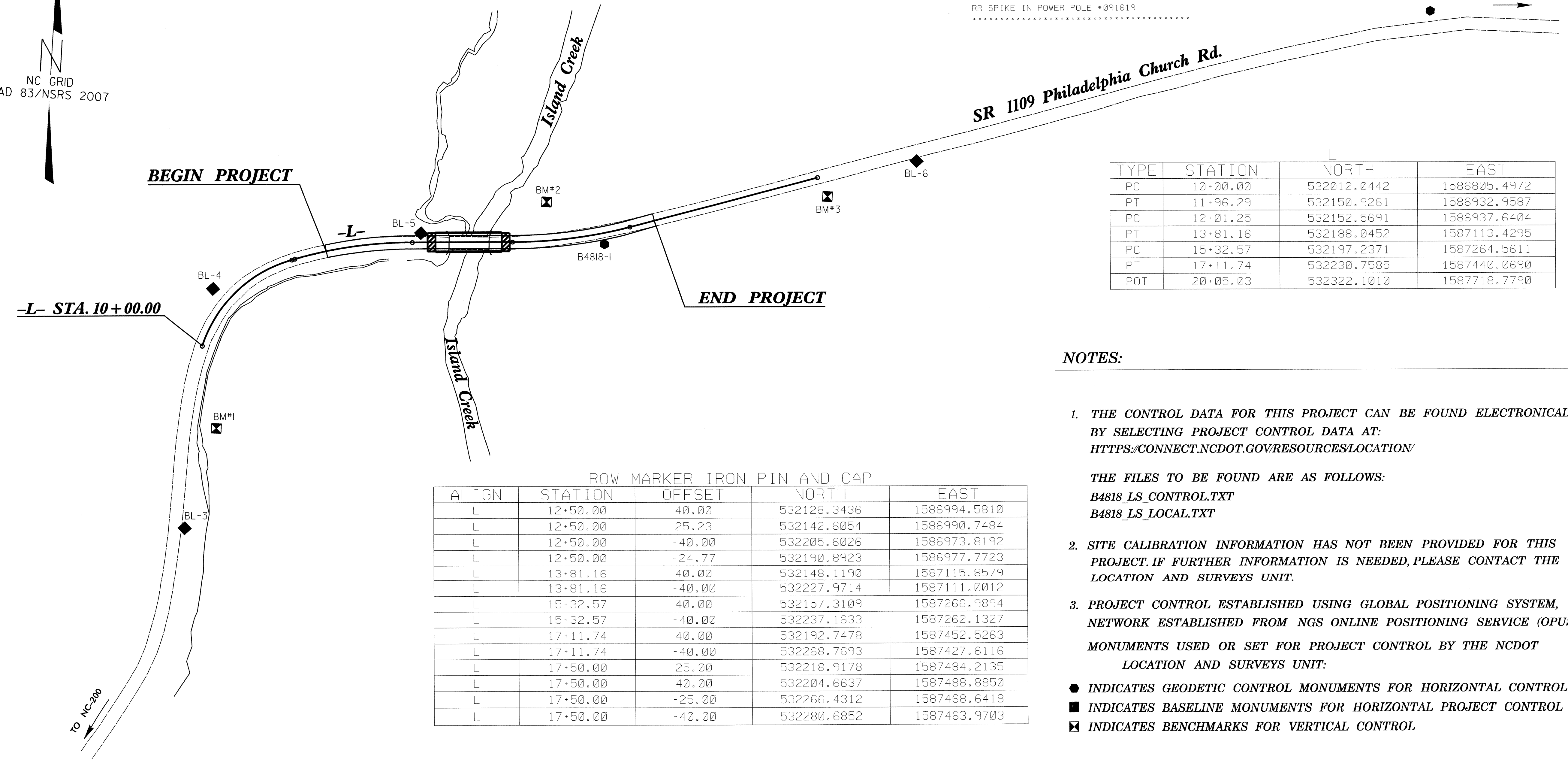
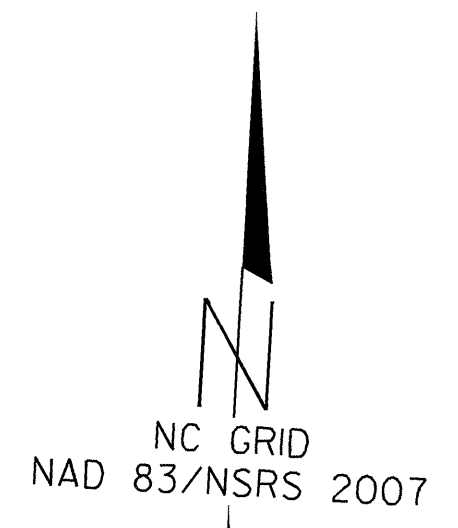
DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4818-2"
 WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 532626.494(±) EASTING: 1588628.519(±) ELEVATION: 447.36(±)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999857
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4818-2" TO L- STATION 10+00.00 IS S71°22'25.0"W 1923.78'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	531736.2470	1586794.6120	434.27		OUTSIDE PROJECT LIMITS
4	BL-4	532100.0320	1586816.4570	418.29	10+78.88	28.88 LT
5	BL-5	532203.0920	1587125.5830	402.82	13+94.20	14.28 LT
1	B4818-1	532202.5140	1587403.1780	400.93	16+68.88	16.69 RT
6	BL-6	532355.3640	1587866.6670	407.14		OUTSIDE PROJECT LIMITS
2	B4818-2	532626.4940	1588628.5190	447.36		OUTSIDE PROJECT LIMITS

.....
 BM1 ELEVATION = 433.05
 N 531890 E 1586834
 L STATION 10+00.00
 S 12°57'38.1" E DIST 125.75
 RR SPIKE IN 20' OAK

 BM2 ELEVATION = 401.78
 N 532262 E 1587312
 L STATION 15+89.00 59 LEFT
 RR SPIKE IN 24' OAK

 BM3 ELEVATION = 403.93
 N 532295 E 1587736
 L STATION 20+05.00
 S 31°18'01.0" E DIST 32.19
 RR SPIKE IN POWER POLE *091619



	STATION	NORTH	EAST
PC	10+00.00	532012.0442	1586805.4972
PT	11+96.29	532150.9261	1586932.9587
PC	12+01.25	532152.5691	1586937.6404
PT	13+81.16	532188.0452	1587113.4295
PC	15+32.57	532197.2371	1587264.5611
PT	17+11.74	532230.7585	1587440.0690
POT	20+05.03	532322.1010	1587718.7790

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+50.00	40.00	532128.3436	1586994.5810
L	12+50.00	25.23	532142.6054	1586990.7484
L	12+50.00	-40.00	532205.6026	1586973.8192
L	12+50.00	-24.77	532190.8923	1586977.7723
L	13+81.16	40.00	532148.1190	1587115.8579
L	13+81.16	-40.00	532227.9714	1587111.0012
L	15+32.57	40.00	532157.3109	1587266.9894
L	15+32.57	-40.00	532237.1633	1587262.1327
L	17+11.74	40.00	532192.7478	1587452.5263
L	17+11.74	-40.00	532268.7693	1587427.6116
L	17+50.00	25.00	532218.9178	1587484.2135
L	17+50.00	40.00	532204.6637	1587488.8850
L	17+50.00	-25.00	532266.4312	1587468.6418
L	17+50.00	-40.00	532280.6852	1587463.9703

NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: [HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 B4818_LS_CONTROL.TXT
 B4818_LS_LOCAL.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM, NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS).
 MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:
 ● INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL
 ■ INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
 ☒ INDICATES BENCHMARKS FOR VERTICAL CONTROL

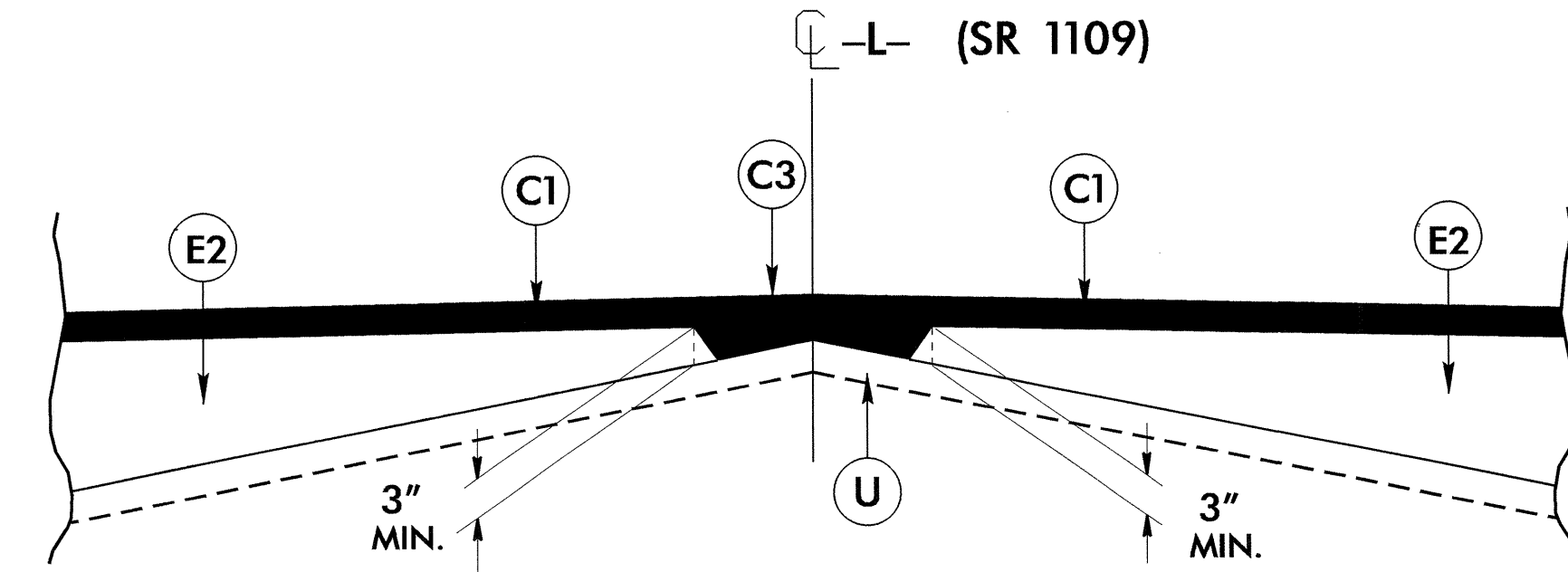
NOTE: DRAWING NOT TO SCALE

6/2/99

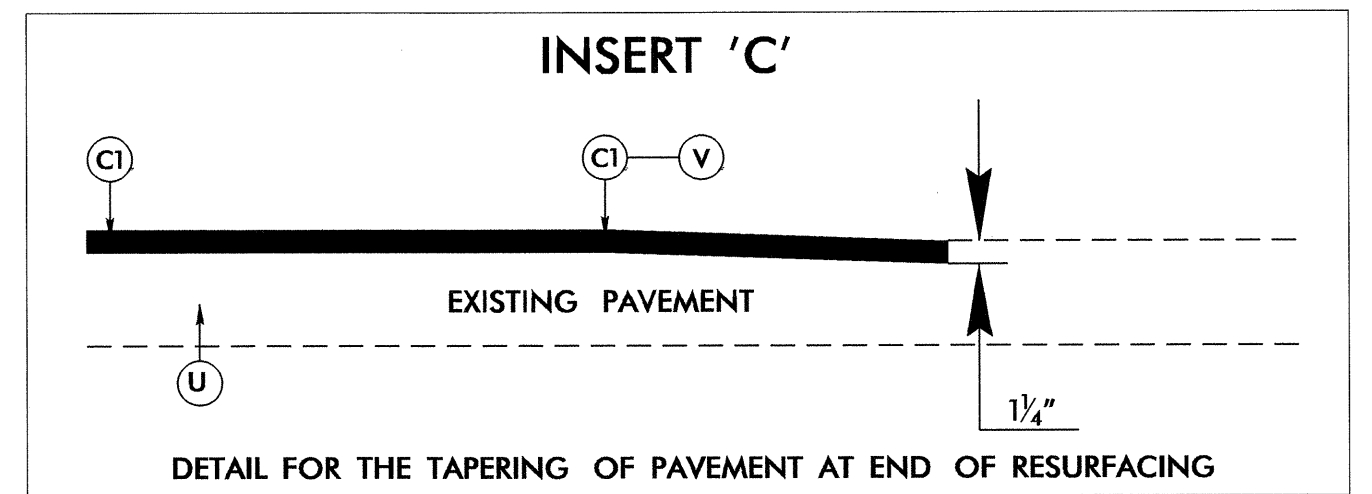
PROJECT REFERENCE NO. B-4818	SHEET NO. 2
ROADWAY DESIGN ENGINEER GREGORY E. BREW SEAL 1800310 9-17-13	PAVEMENT DESIGN ENGINEER CLARK S. MORRISON SEAL 22898 9/16/13

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137 1/2 LBS. PER SQ. YD.
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 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 SHEET NO. 2)
V	INCIDENTAL MILLING FOR BITUMINOUS PAVEMENT.

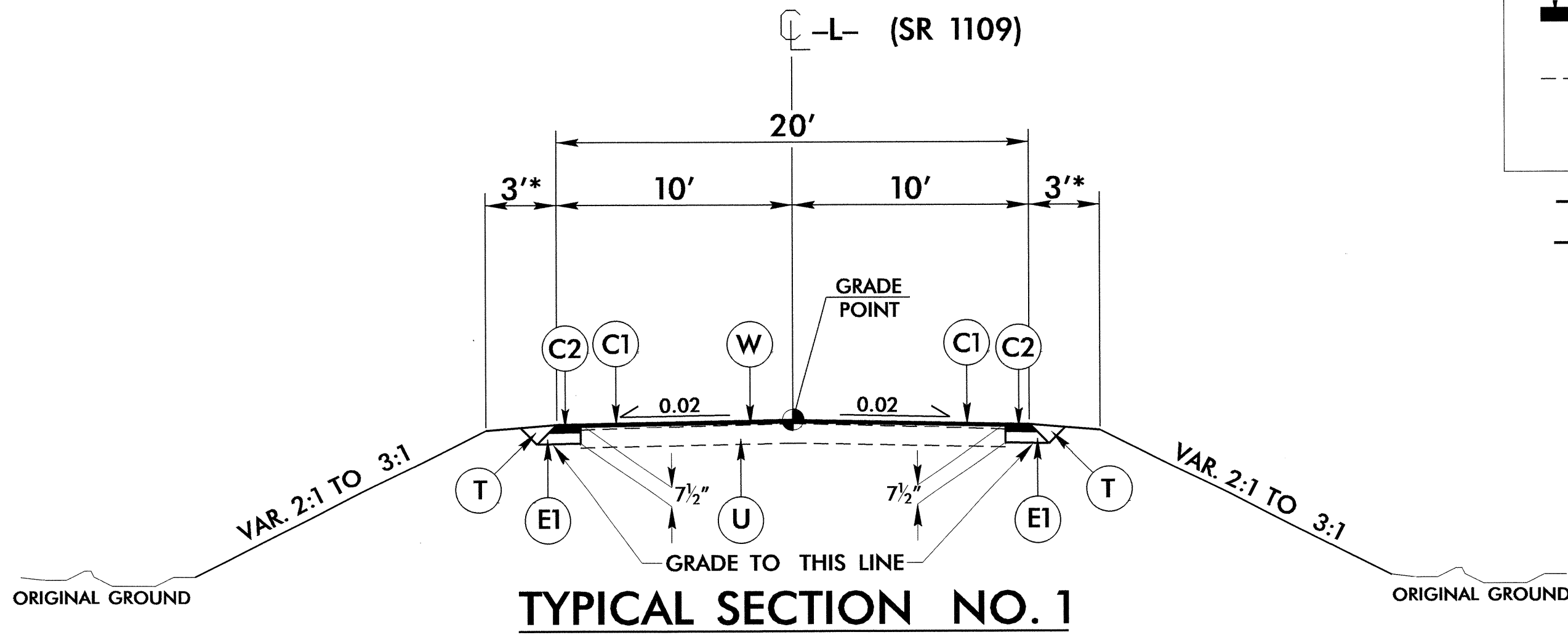
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method of Wedging



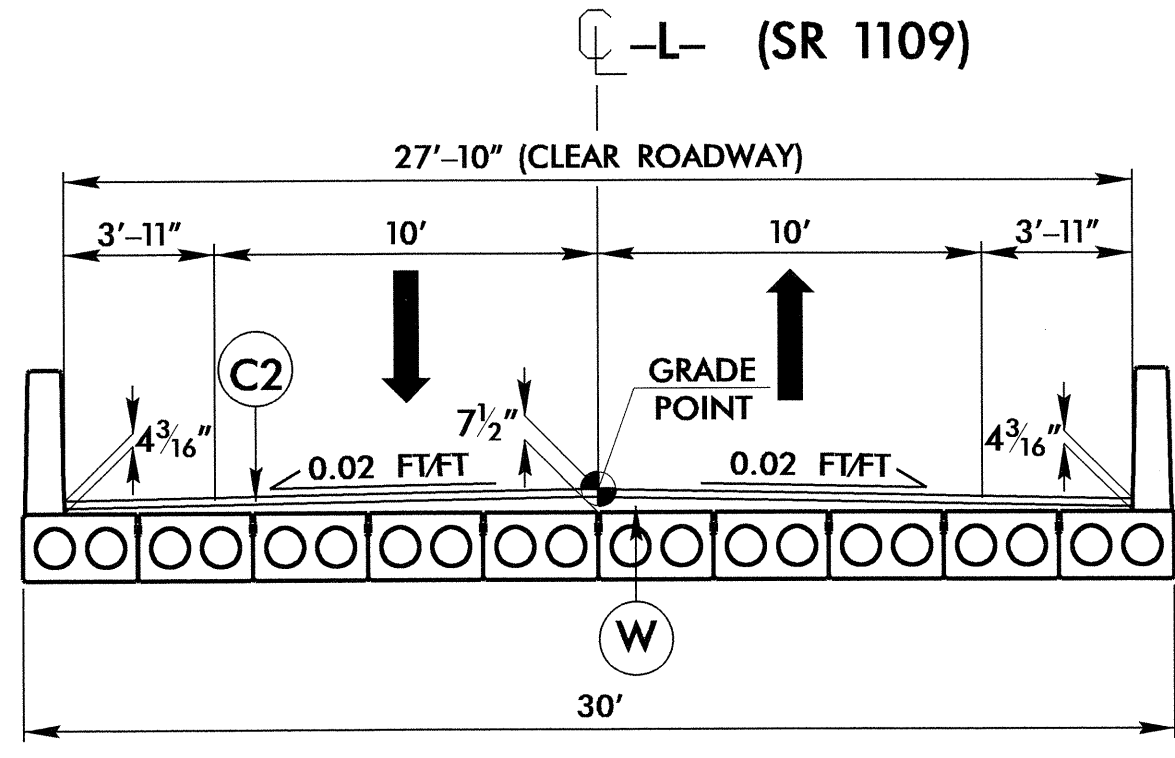
DETAIL FOR THE TAPERING OF PAVEMENT AT END OF RESURFACING
 -L- STA. 12+50.00 TO 12+75.00
 -L- STA. 17+25.00 TO 17+50.00



TYPICAL SECTION NO. 1

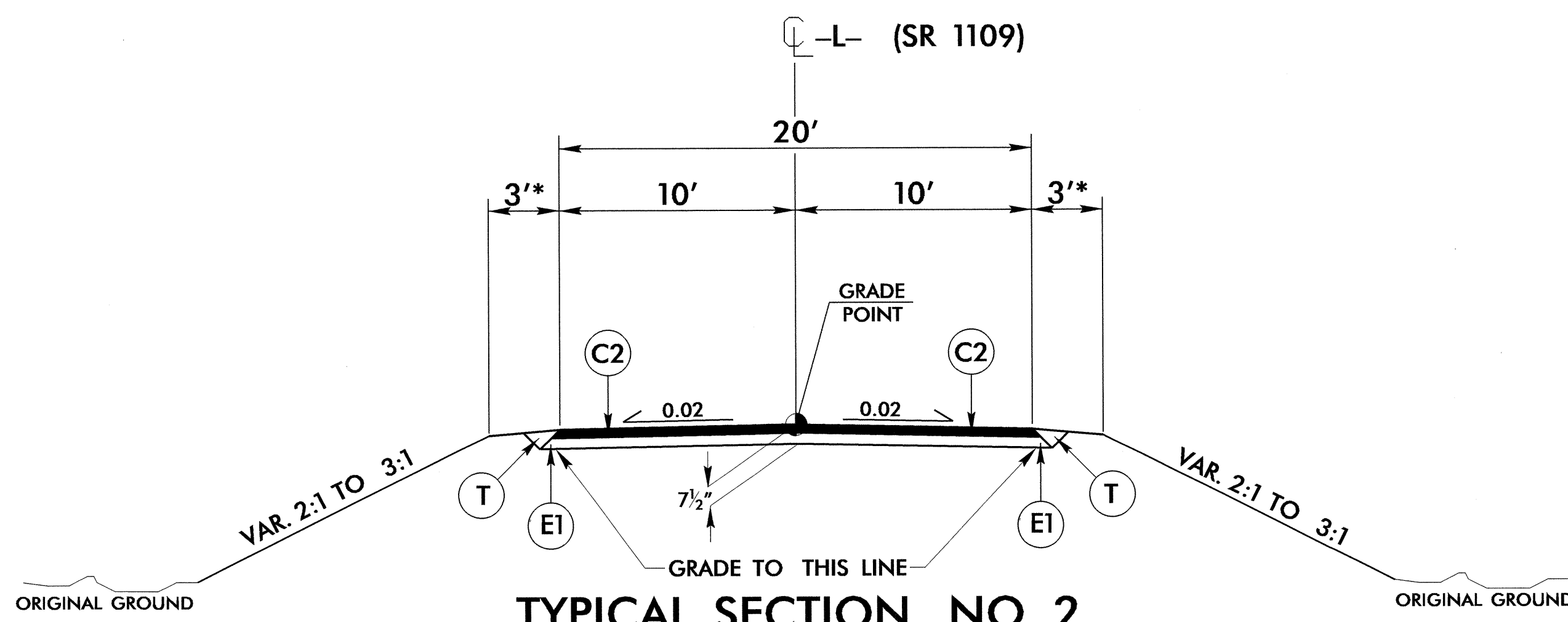
*NOTE: USE 7' WITH GUARDRAIL

USE TYPICAL SECTION NO. 1
 -L- STA. 12+50.00 TO STA. 13+00.00, TRANSITION FROM EXISTING TO TYP. SEC. NO. 1
 -L- STA. 13+00.00 TO 13+15.00
 -L- STA. 16+95.00 TO 17+00.00
 -L- STA. 17+00.00 TO STA. 17+50.00, TRANSITION FROM TYP. SEC. NO. 1 TO EXISTING



TYPICAL SECTION ON STRUCTURE

-L- STA. 14+32.79 TO 15+15.25



TYPICAL SECTION NO. 2

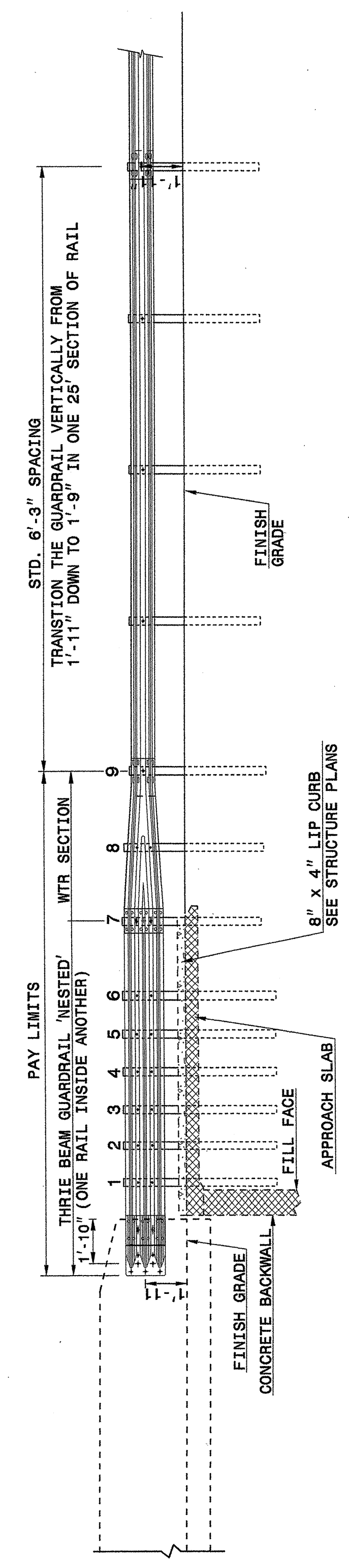
*NOTE: USE 7' WITH GUARDRAIL

USE TYPICAL SECTION NO. 2
 -L- STA. 13+15.00 TO STA. 14+32.79 (BEGIN BRIDGE)
 -L- STA. 15+15.25 (END BRIDGE) TO STA. 16+95.00

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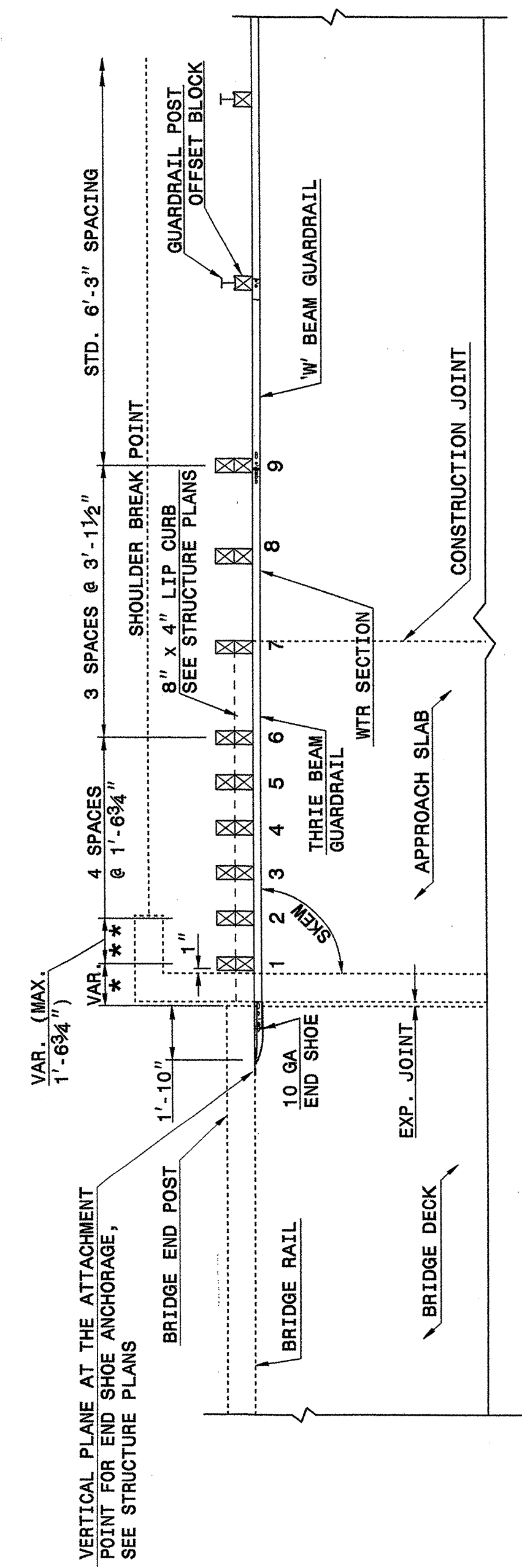
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
RAIL ON BRIDGE - SUB REGIONAL TIER
SHEET 2 OF 7
862d03



ELEVATION

NOTE:
 **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11 1/2" IF CONCRETE BACKWALL IS NOT PRESENT.
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" X 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

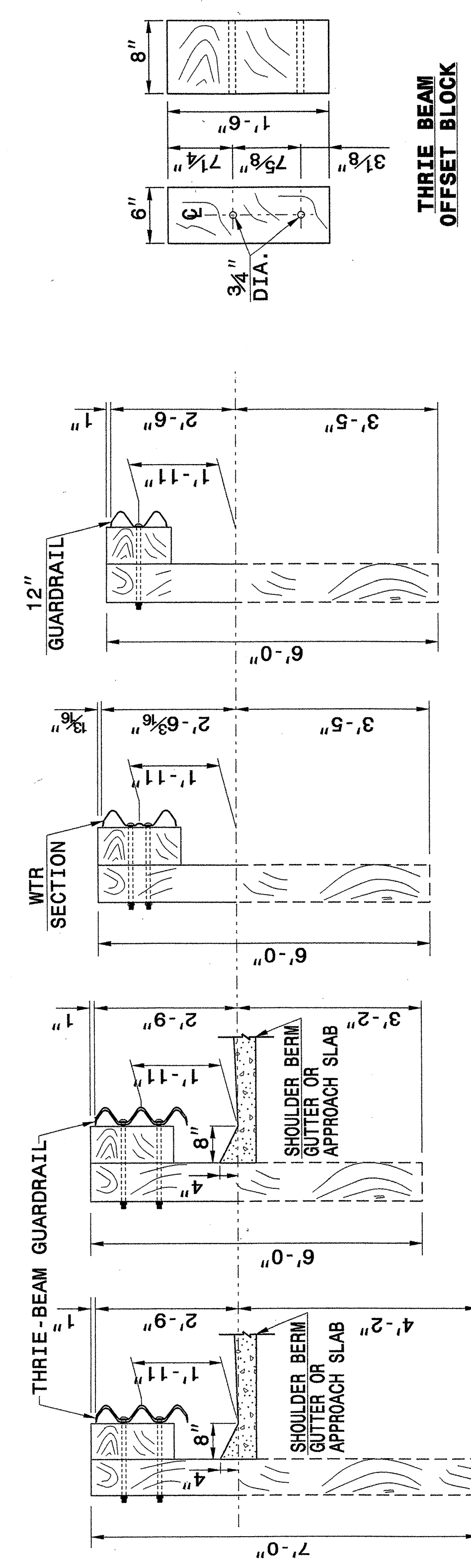
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

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

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER
SHEET 2 OF 7
862d03

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

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
SHEET 3 OF 7
862d03

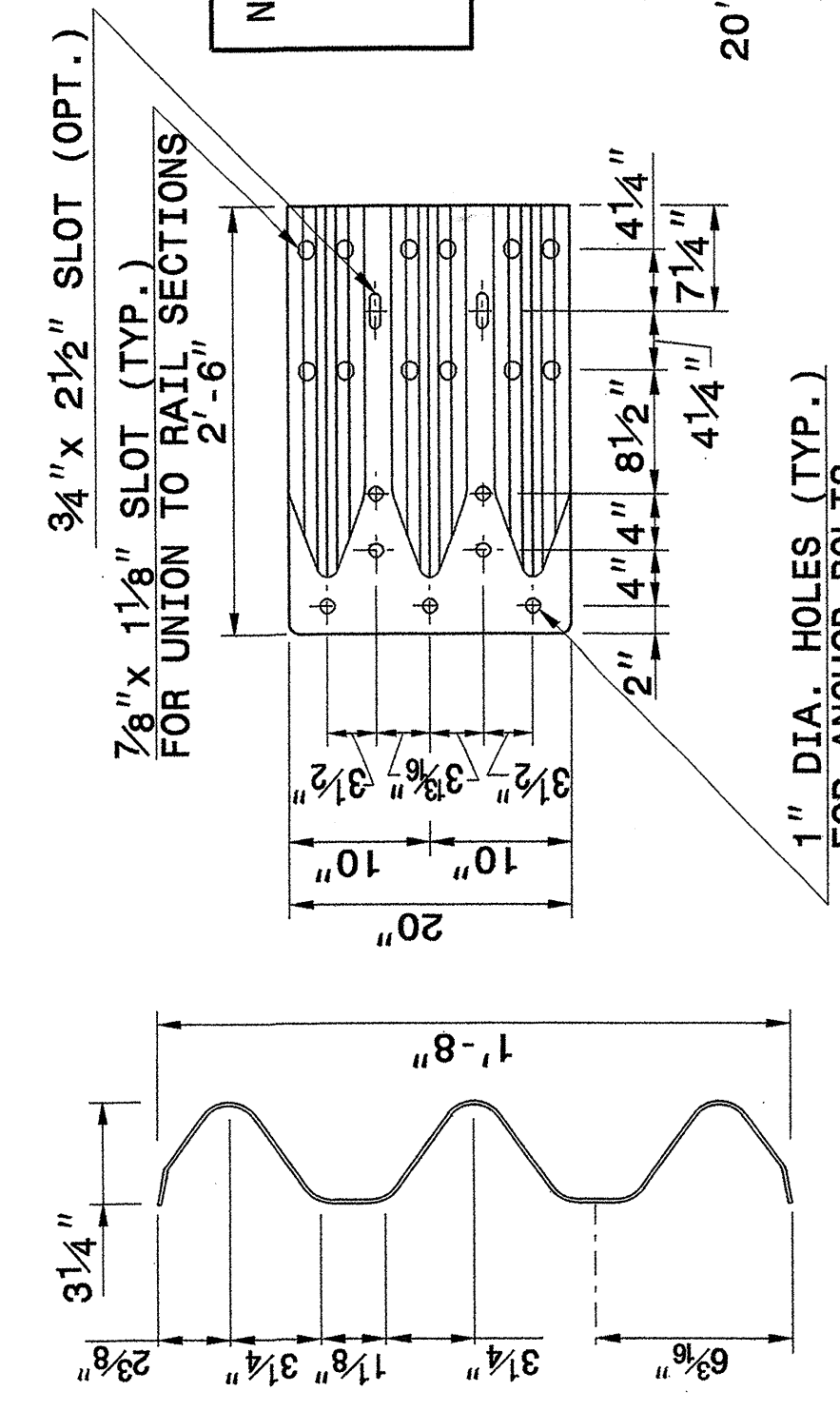


SECTION OF THRIE BEAM POSTS 1 THRU 6

SECTION OF THRIE BEAM POST 7

SECTION OF WTR BEAM POST 8

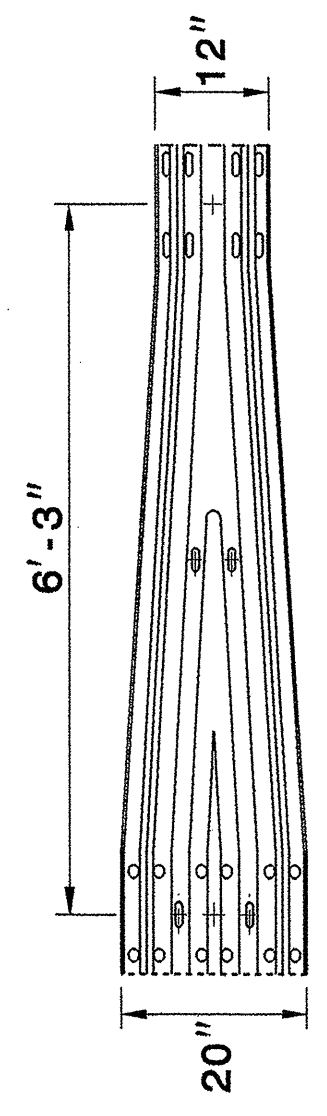
SECTION OF WTR BEAM POST 9



THRIE-BEAM SECTION

END SHOE

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



WTR SECTION ELEVATION VIEW

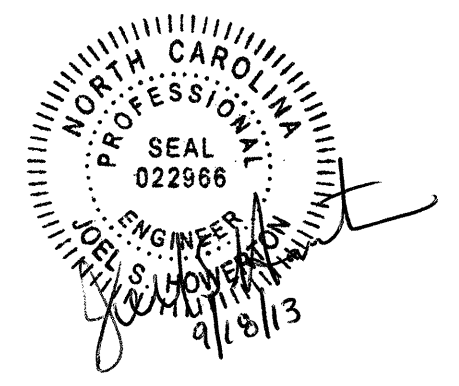
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
SHEET 3 OF 7
862d03

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

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 06-22-12
 MODIFIED BY: DATE:
 CHECKED BY: DATE: 11/13/12
 FILE SPEC.:



 SYSTEMS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203286

ItemNumber	Sec #	Quantity	Unit	Description
3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3509000000-E	866	200	LF	WOVEN WIRE FENCE, *** FABRIC (48")
3509000000-E	866	14	EA	4" TIMBER FENCE POSTS, 7'-6" LONG
3515000000-E	866	8	EA	5" TIMBER FENCE POSTS, 8'-0" LONG
3642000000-E	876	17	TON	RIP RAP, CLASS A
3649000000-E	876	55	TON	RIP RAP, CLASS B
3656000000-E	876	1,790	SY	GEOTEXTILE FOR DRAINAGE
4400000000-E	1110	453	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	128	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	114	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	80	LF	BARRICADES (TYPE III)
6000000000-E	1605	1,510	LF	TEMPORARY SILT FENCE
6006000000-E	1610	150	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	15	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	140	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	0.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	200	LF	SAFETY FENCE
6030000000-E	1630	50	CY	SILT EXCAVATION
6036000000-E	1631	1,000	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	100	SY	COIR FIBER MAT

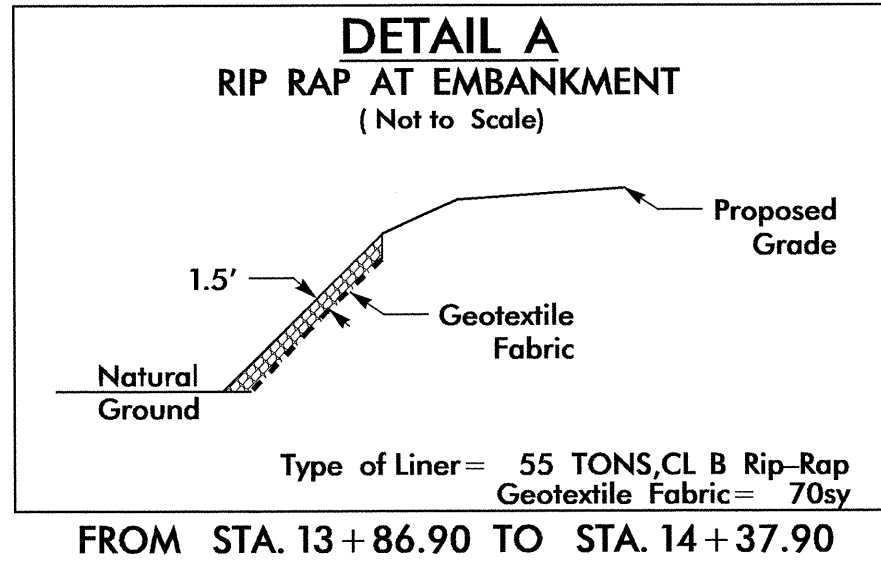
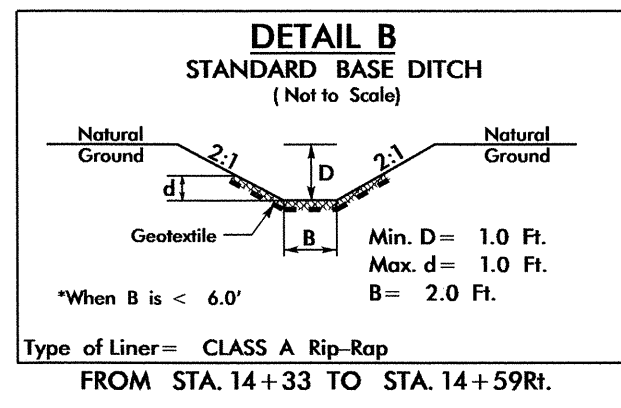
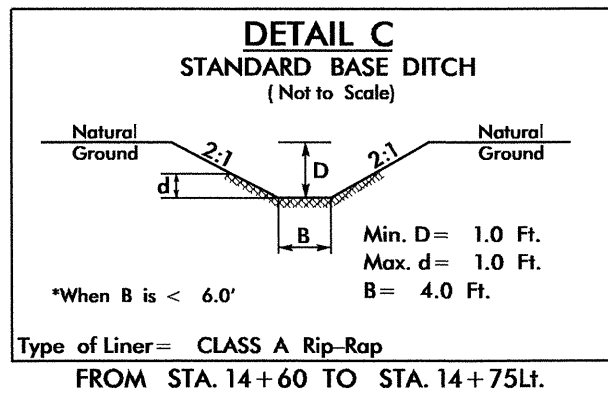
ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (14+74.02)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	150	CY	UNDERCUT EXCAVATION
0134000000-E	240	10	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	250	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	200	SY	GEOTEXTILE FOR SOIL STABILIZATION
0318000000-E	300	5	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	15	SY	FOUNDATION CONDITIONING GEOTEXTILE
0384000000-E	310	32	LF	30" RC PIPE CULVERTS, CLASS III
1099500000-E	505	50	CY	SHALLOW UNDERCUT
1099700000-E	505	100	TON	CLASS IV SUBGRADE STABILIZATION
1220000000-E	545	50	TON	INCIDENTAL STONE BASE
1330000000-E	607	120	SY	INCIDENTAL MILLING
1489000000-E	610	200	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	120	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1575000000-E	620	17	TON	ASPHALT BINDER FOR PLANT MIX
1693000000-E	654	25	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2253000000-E	840	1	CY	PIPE COLLARS
3030000000-E	862	62.5	LF	STEEL BM GUARDRAIL
3045000000-E	862	50	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS

ItemNumber	Sec #	Quantity	Unit	Description
6048000000-E	SP	115	SY	FLOATING TURBIDITY CURTAIN
6070000000-N	1639	6	EA	SPECIAL STILLING BASINS
6071012000-E	SP	140	LF	COIR FIBER WATTLE
6084000000-E	1660	0.5	ACR	SEEDING & MULCHING
6087000000-E	1660	0.2	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	0.25	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL

5/28/99

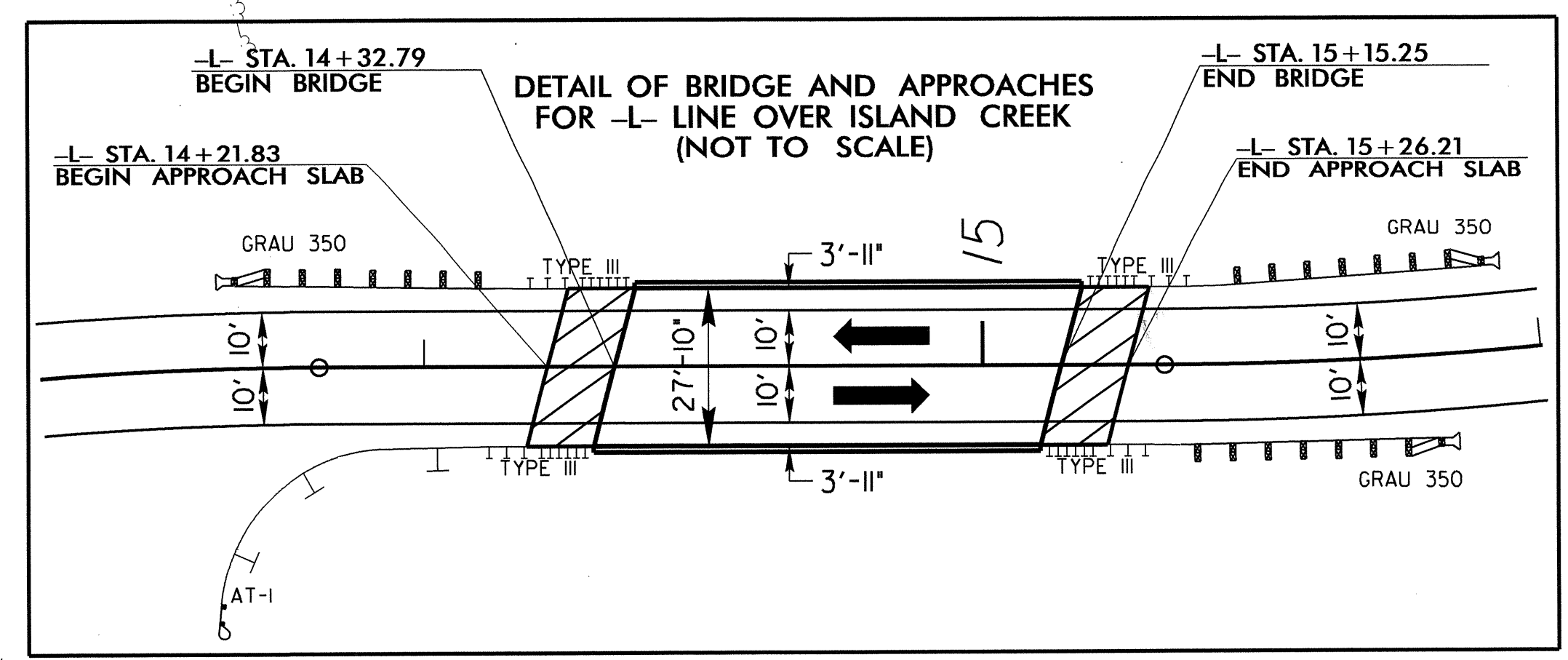
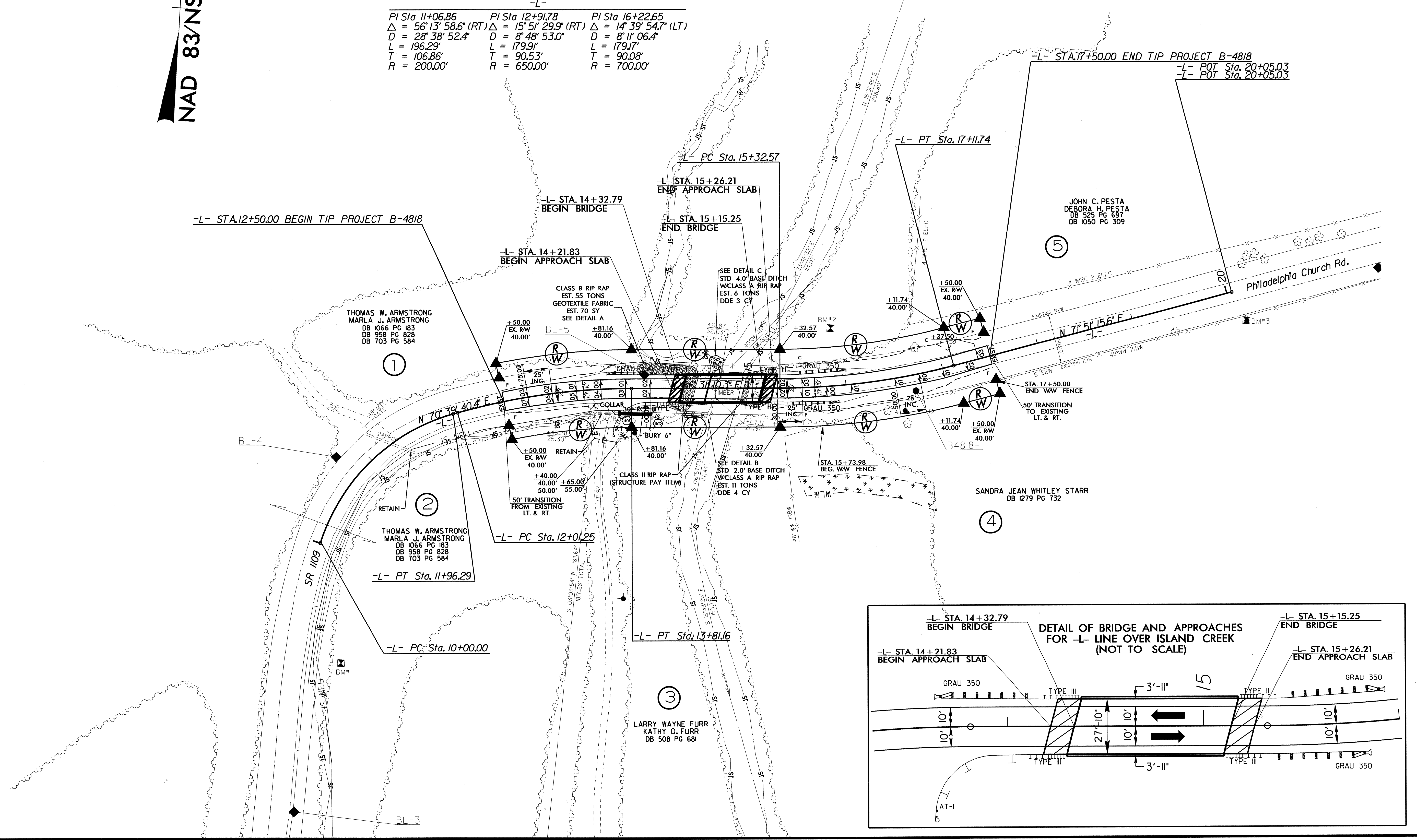
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NAD 83/NSRS 2007



-L-		
PI Sta 11+06.86	PI Sta 12+91.78	PI Sta 16+22.65
$\Delta = 56^{\circ}13'58.6"$ (RT)	$\Delta = 15^{\circ}51'29.9"$ (RT)	$\Delta = 14^{\circ}39'54.7"$ (LT)
D = 28' 38" 52.4"	D = 8' 48" 53.0"	D = 8' 11" 06.4"
L = 196.29'	L = 179.91'	L = 179.17'
T = 106.86'	T = 90.53'	T = 90.08'
R = 200.00'	R = 650.00'	R = 700.00'

FOR -L- PROFILE SEE SHEET 5
FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-19



REVISIONS

8/17/99
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GREGORY E. BLEW

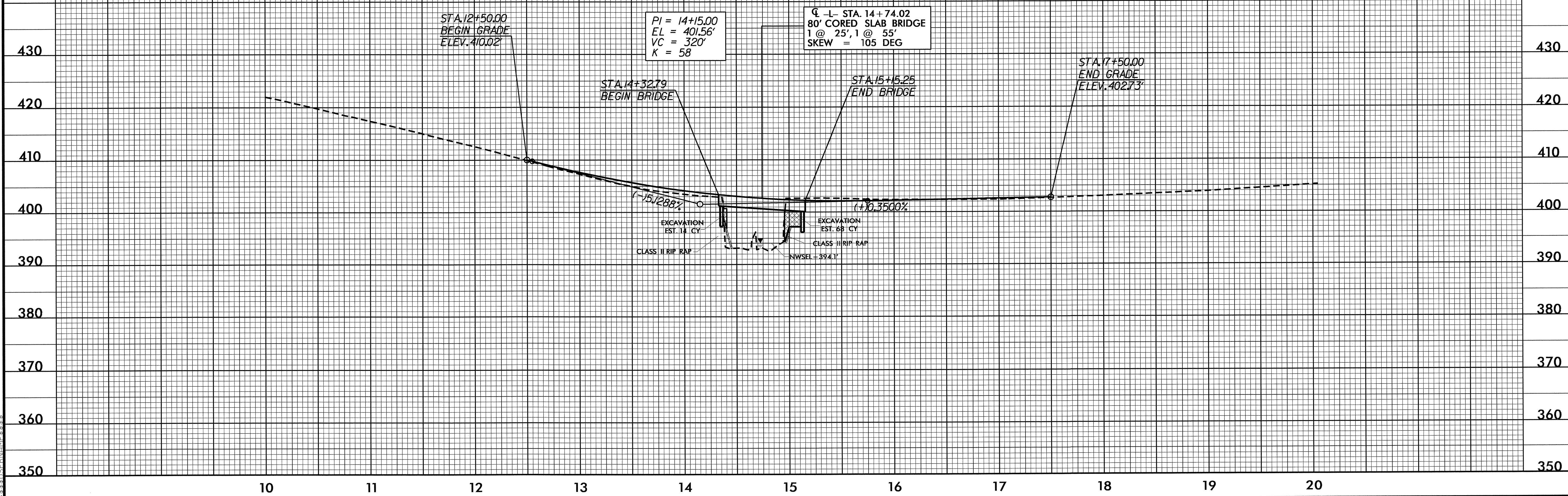
5/14/99

PROJECT REFERENCE NO. B-4818	SHEET NO. 5
ROADWAY DESIGN ENGINEER GREGORY E. BREW NORTH CAROLINA PROFESSIONAL SEAL 18803 9-17-13	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22100 9-17-13

BM*2 ELEVATION = 401.78'
 N 532262 E 1587312
 -L- STA.15+88.96 59.27' LEFT
 RR SPIKE IN 2" OAK

FOR -L- PLAN SEE SHEET 4
 FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-19

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 2300	CFS
DESIGN FREQUENCY	= 10	YRS
DESIGN HW ELEVATION	= 401.7	FT
BASE DISCHARGE	= 4200	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 403.6	FT
OVERTOPPING DISCHARGE	= 2826	CFS
OVERTOPPING FREQUENCY	= 10+	YRS
OVERTOPPING ELEVATION	= 402.1	FT
	=	FT
DATE OF SURVEY	= 6-6-12	
W.S. ELEVATION AT DATE OF SURVEY	= 394.1	FT

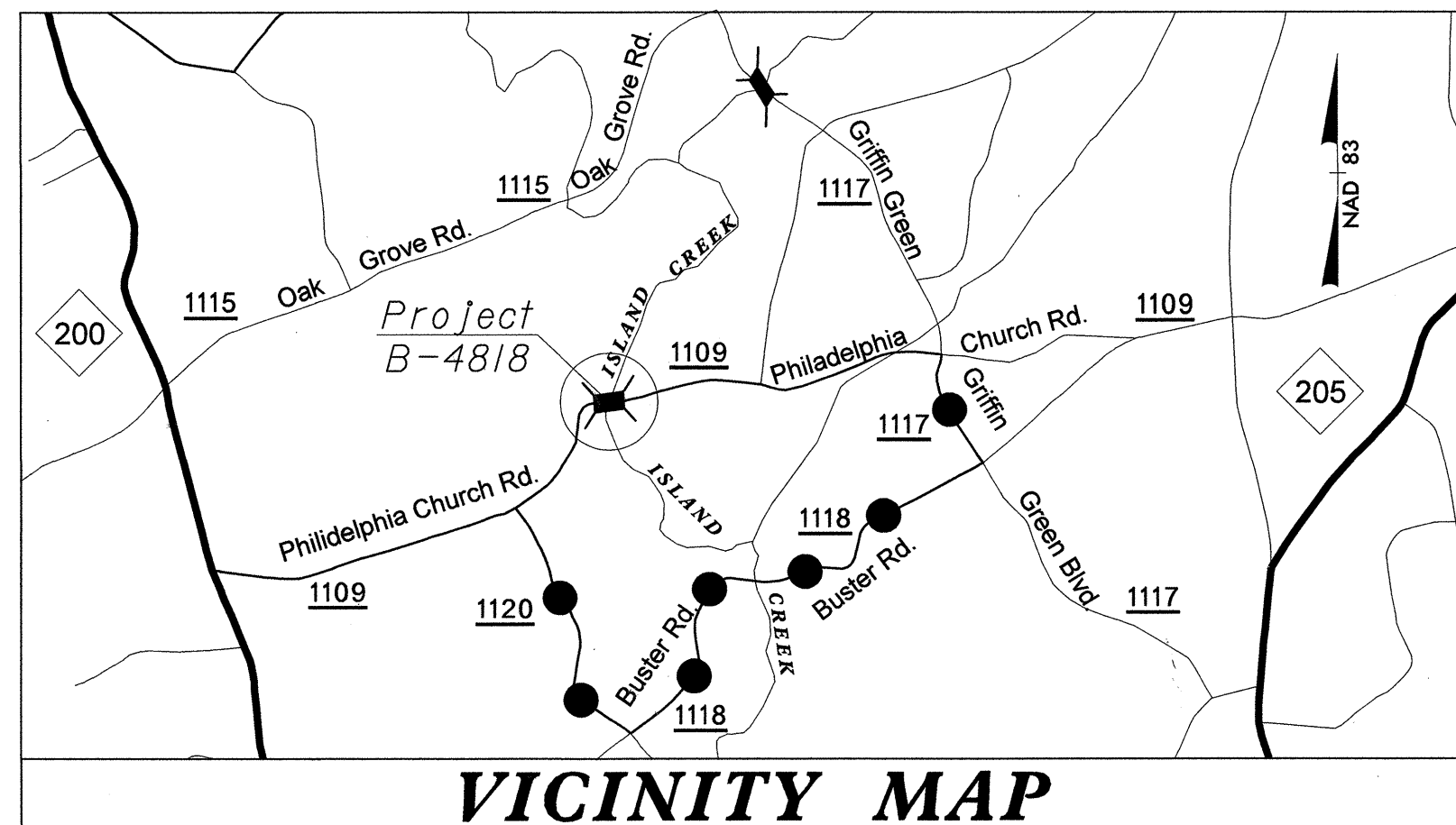
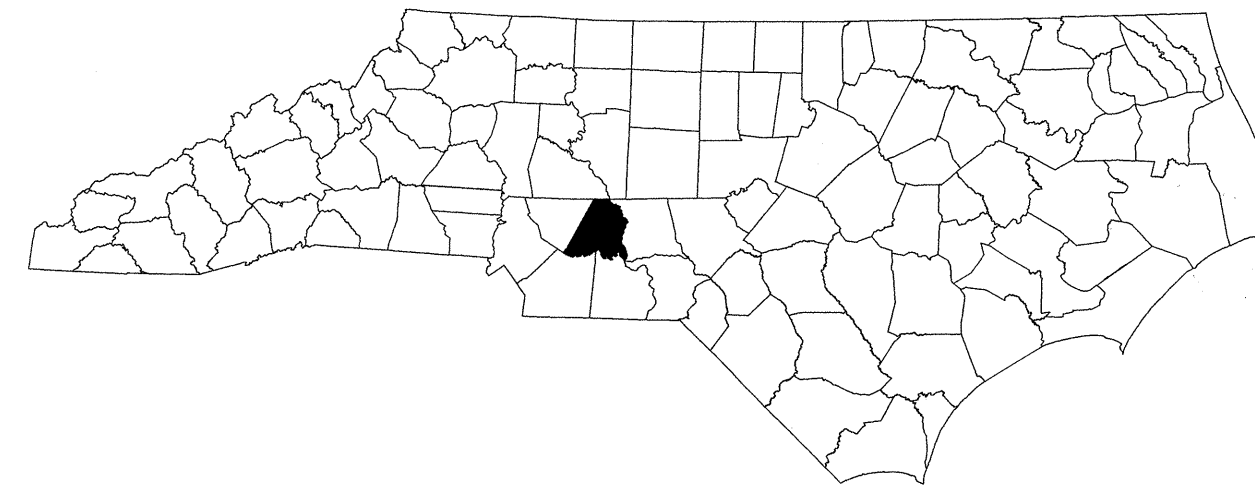


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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

STANLY COUNTY



VICINITY MAP

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARY
●—●—● **DETOUR ROUTE**

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-01	TITLE SHEET, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND PHASING
TMP-02	OFF-SITE DETOUR AND TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

LEGEND

GENERAL

➔ NORTH ARROW

TRAFFIC CONTROL DEVICES

▩ BARRICADE (TYPE III)

PHASING

NOTE: MAINTAIN ACCESS TO DRIVEWAYS THROUGHOUT THE LIFE OF THE PROJECT.

STEP 1) IF OFFSITE DETOUR SIGNS HAVE BEEN COVERED (INSTALLED BY STATE FORCES) UNCOVER OFFSITE DETOUR SIGNING, THEN DETOUR TRAFFIC OFFSITE, INSTALL ALL TRAFFIC CONTROL DEVICES AND SIGNING, AND CLOSE -L- (SR 1109 PHILADELPHIA CHURCH RD) TO TRAFFIC (SEE TMP-02 AND ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9).

AWAY FROM TRAFFIC CONSTRUCT -L- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE, INCLUDING BRIDGE STRUCTURE AND APPROACHES.

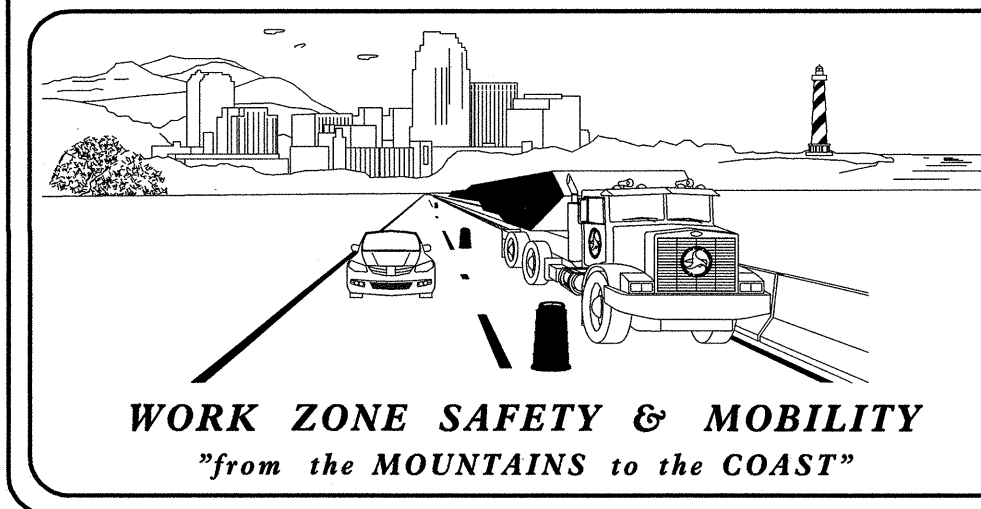
STEP 2) AWAY FROM TRAFFIC INSTALL THE FINAL LIFT OF SURFACE COURSE. AFTER STATE FORCES INSTALL FINAL PAVEMENT MARKINGS, OPEN -L- TO TRAFFIC.

STEP 3) UPON OPENING -L- TO TRAFFIC, REMOVE ALL DETOUR AND ROAD CLOSURE SIGNING, AND ALL TRAFFIC CONTROL DEVICES.

APPROVED: _____
DATE: _____

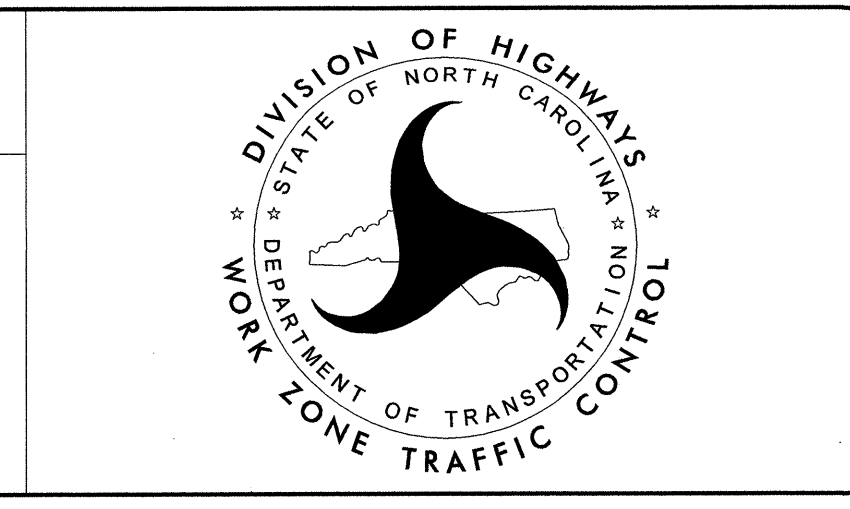
SEAL

7/1/13



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 713-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
G. L. GETTIER, P.E. TRAFFIC CONTROL PROJECT ENGINEER
J. W. WOOLARD, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER
D. A. HAYES, E.I. TRAFFIC CONTROL DESIGN ENGINEER

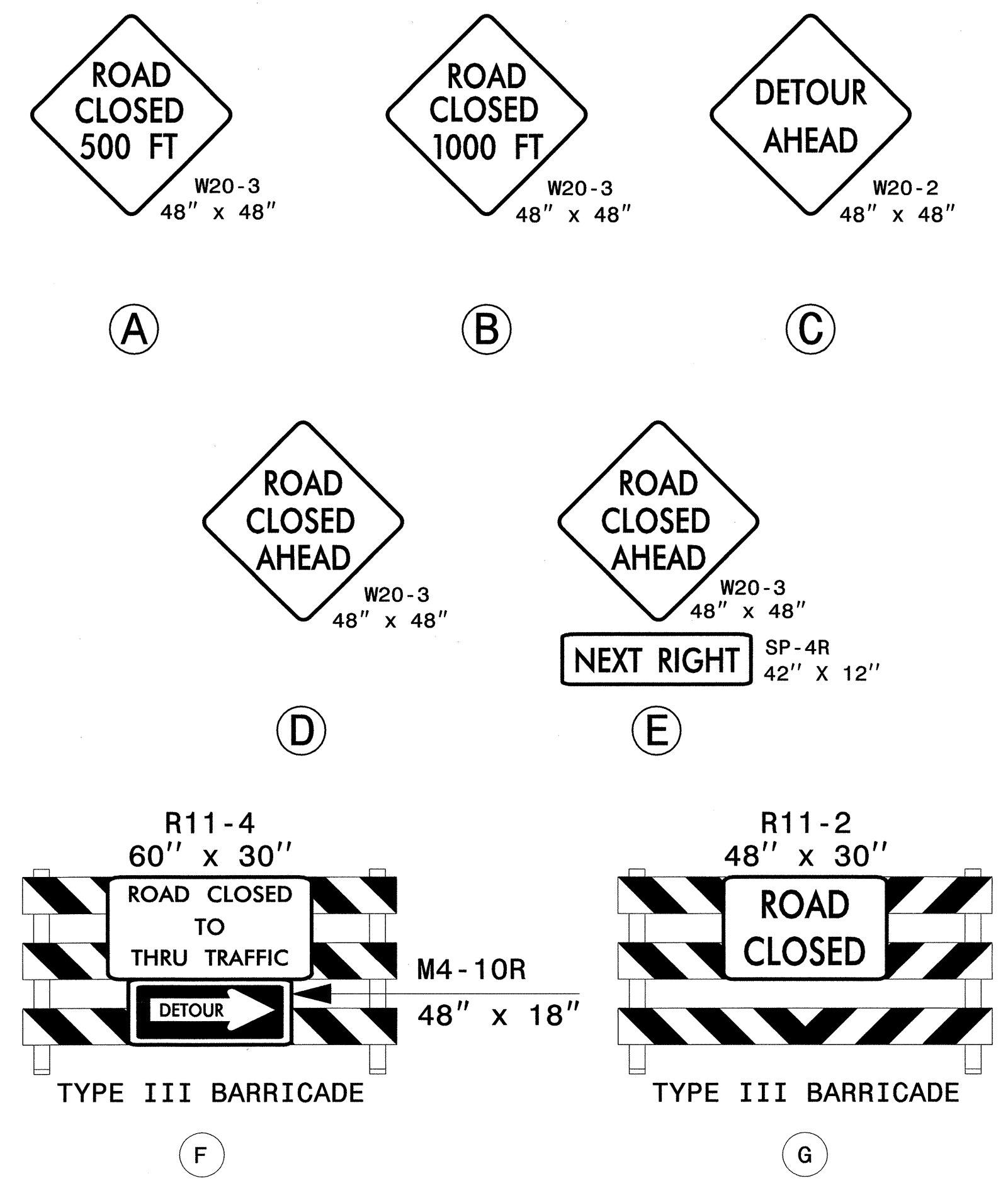
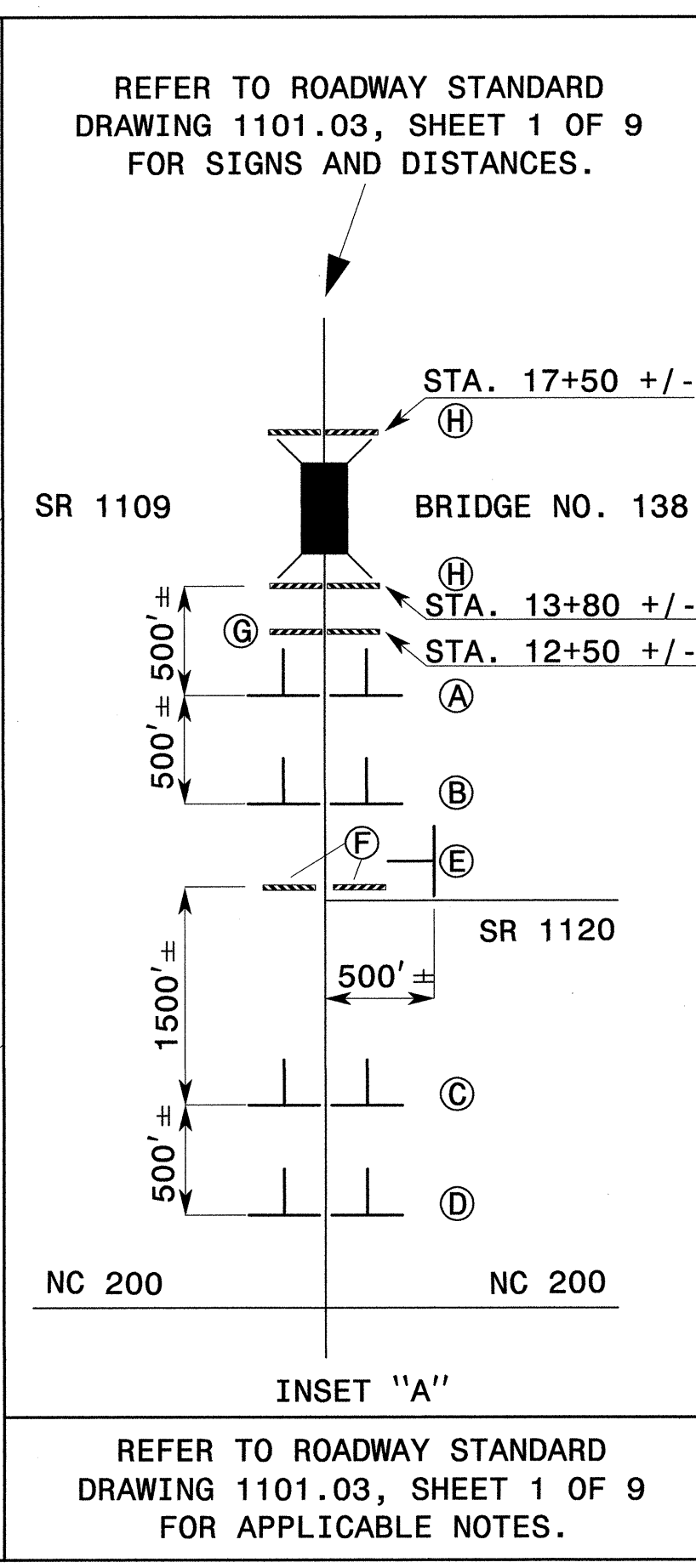
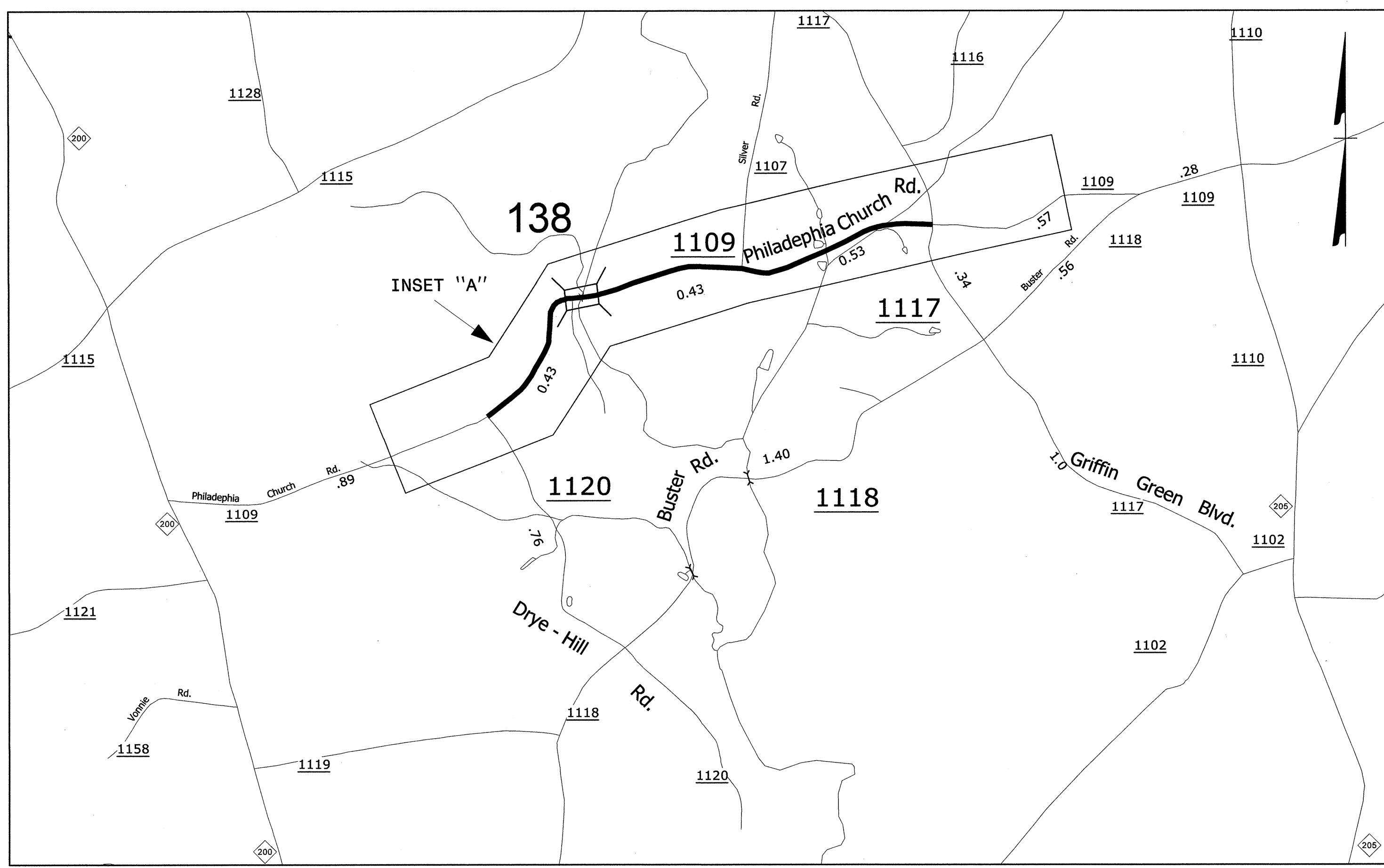


SHEET NO.
TMP-01

B-4818

TIP PROJECT:

6/27/2013 R:\TIPProjects-B\4818\TrafficControl\TCP\B-4818.TCP_01.TIF.dgn User:ahayes76



GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

STATE FORCES WILL INSTALL SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

- C) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

STATE FORCES WILL COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

- D) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

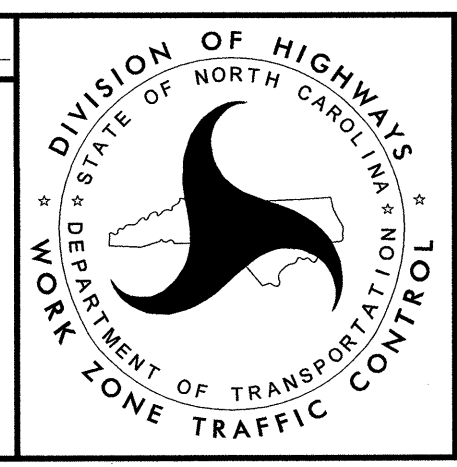
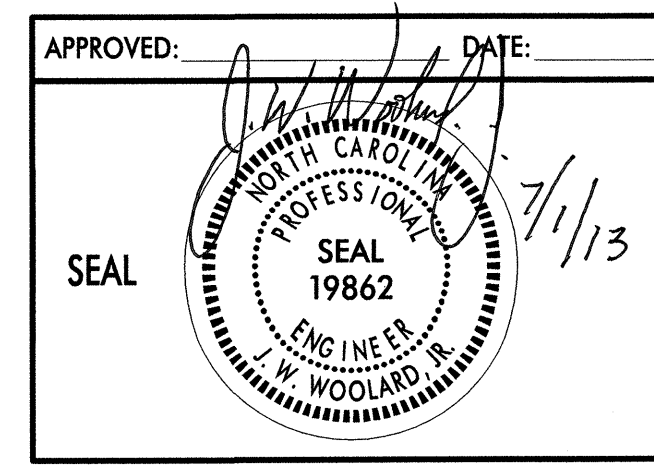
- E) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

- F) STATE FORCES WILL INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE.

MANAGEMENT STRATEGIES

TRAFFIC ON THIS PROJECT WILL BE HANDLED WITH AN OFF-SITE DETOUR.



OFFSITE DETOUR,
TRANSPORTATION
OPERATIONS PLAN,
AND GENERAL NOTES

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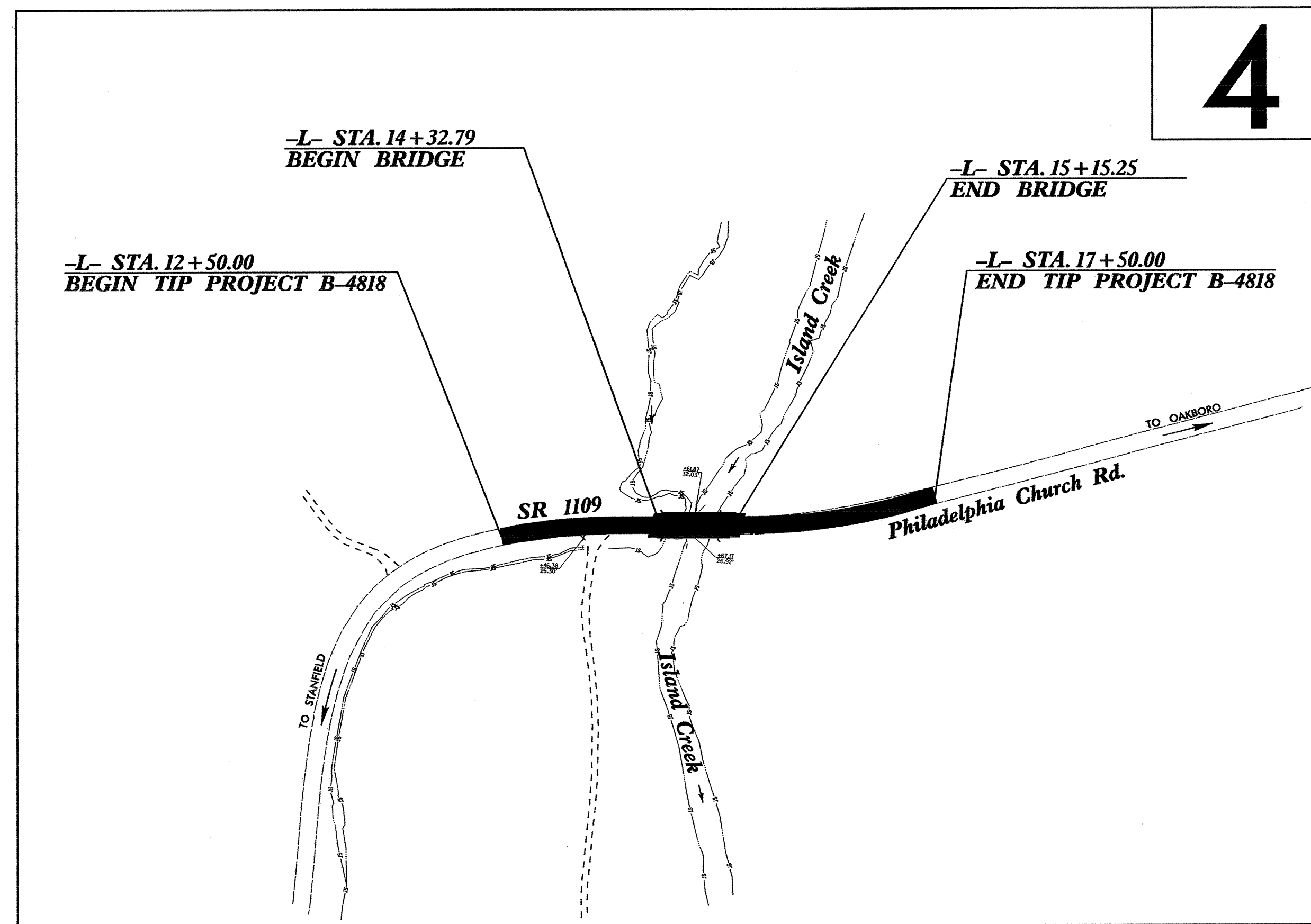
TIP PROJECT: B-4818

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

STANLY COUNTY

**LOCATION: Bridge No. 138 on SR 1109 (Philadelphia Church Road)
over Island Creek**
TYPE OF WORK: Grading, Paving, Drainage and Structure



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4818	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	△△△△△
1622.01	Temporary Berms and Slope Drains	—
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	⊗
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	⊗
1633.02	Temporary Rock Silt Check Type-B	▶
	Wattle / Coir Fiber Wattle	⌒
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	⌒
1634.01	Temporary Rock Sediment Dam Type-A	▨
1634.02	Temporary Rock Sediment Dam Type-B	▨
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⌒
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⌒
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	▭
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭

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

GRAPHIC SCALE

0
PLANS
0
PROFILE (HORIZONTAL)
0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

Prepared in the Office of:
ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611
2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

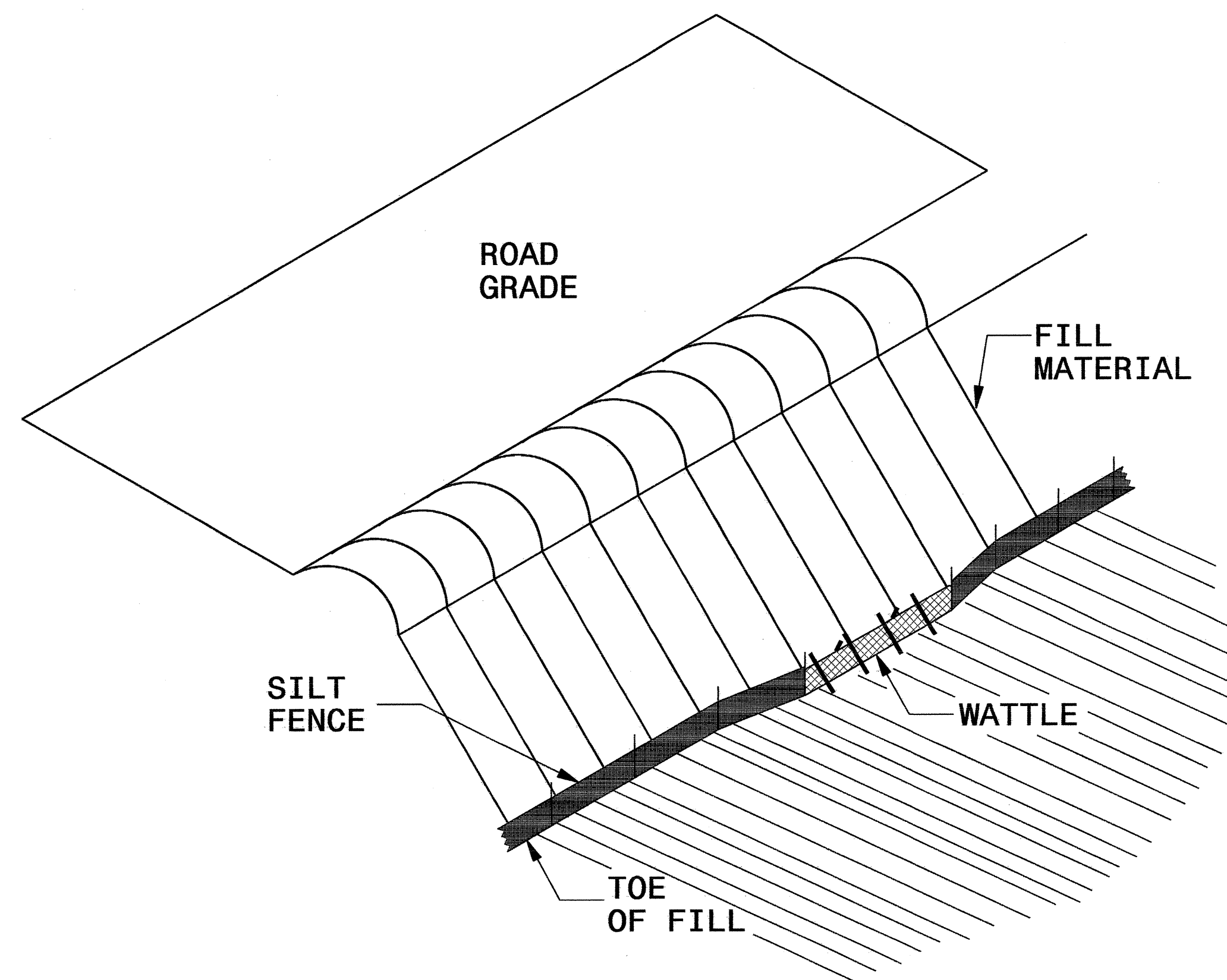
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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

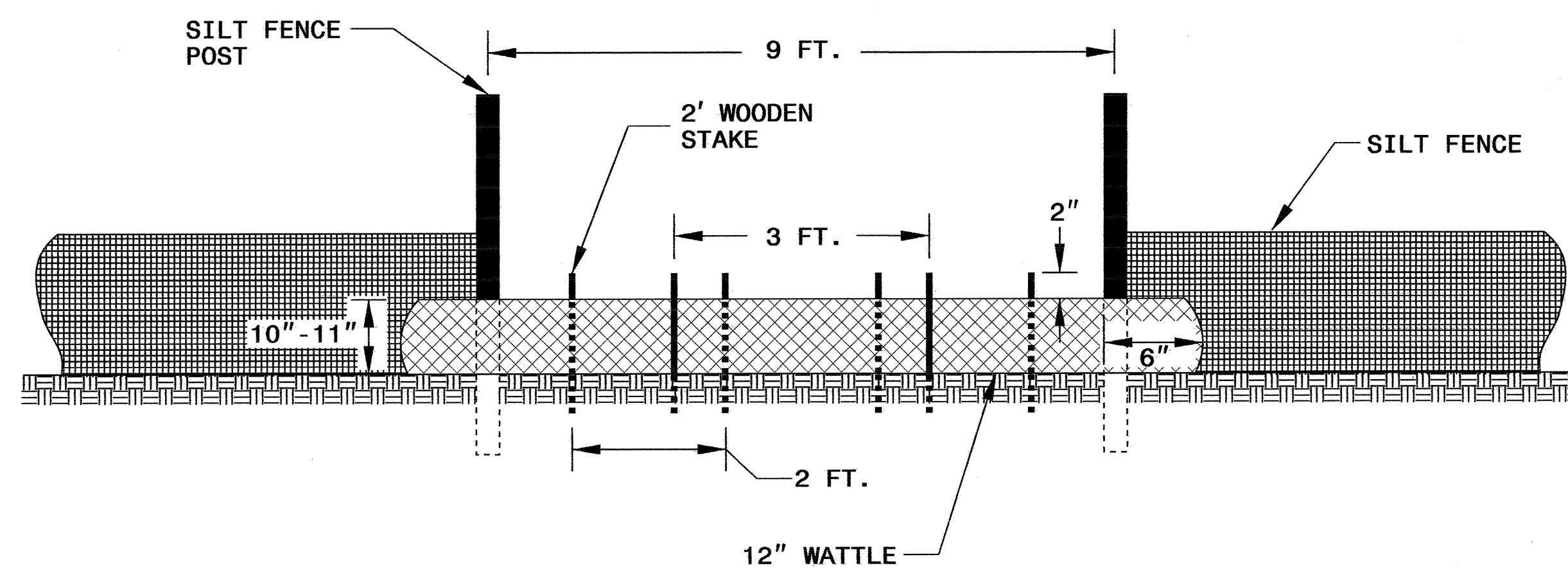
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A1:REIN205248

SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO. B-4818	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW

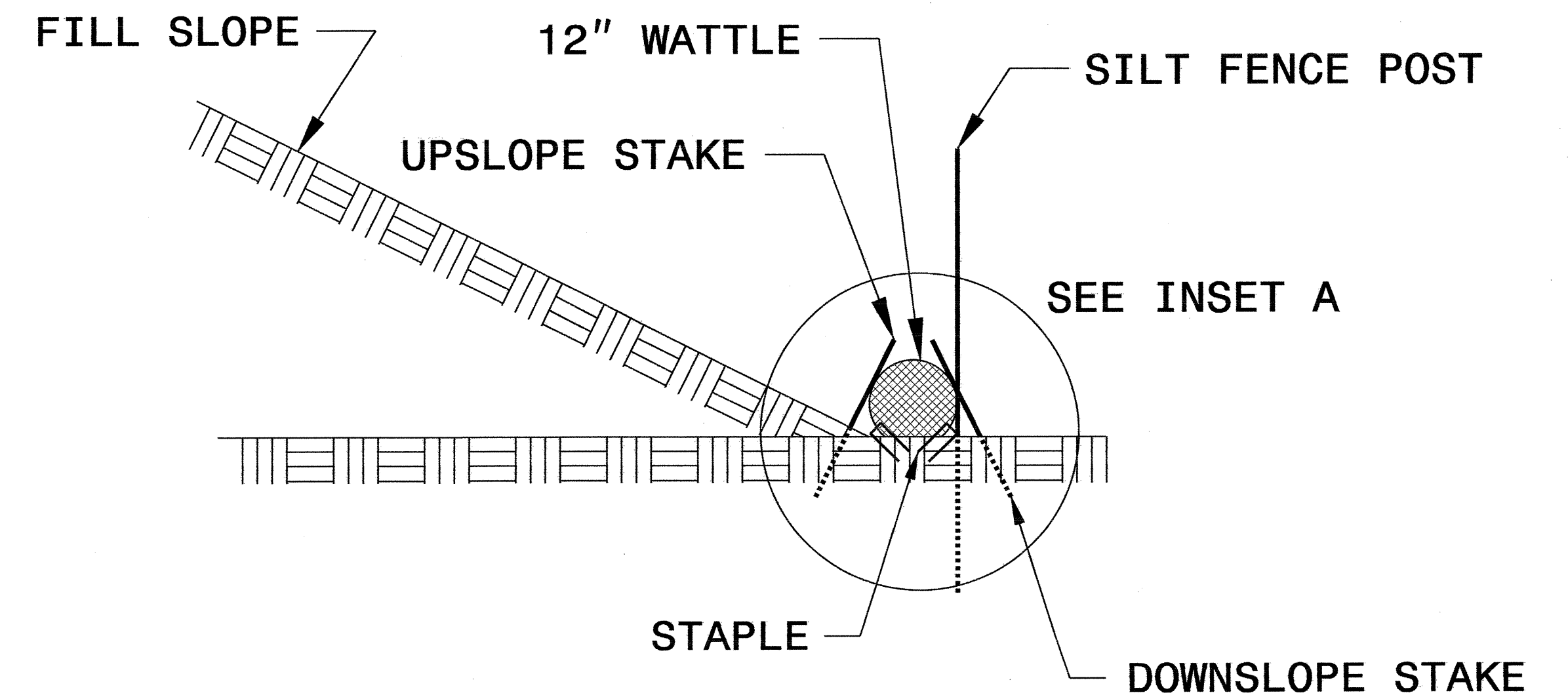
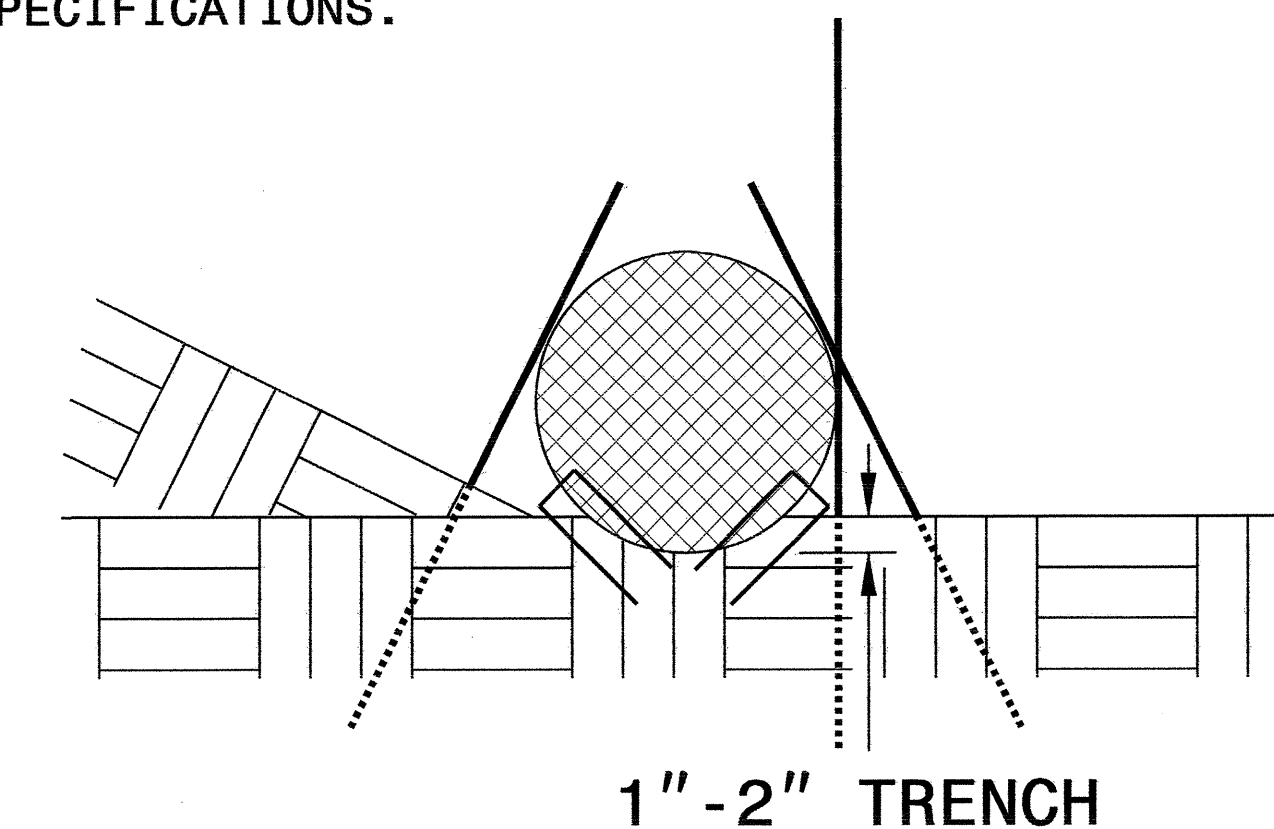


VIEW FROM SLOPE

NOTES:

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

INSET A



SIDE VIEW

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>B-4818</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

NAD 83/NSRS 2007

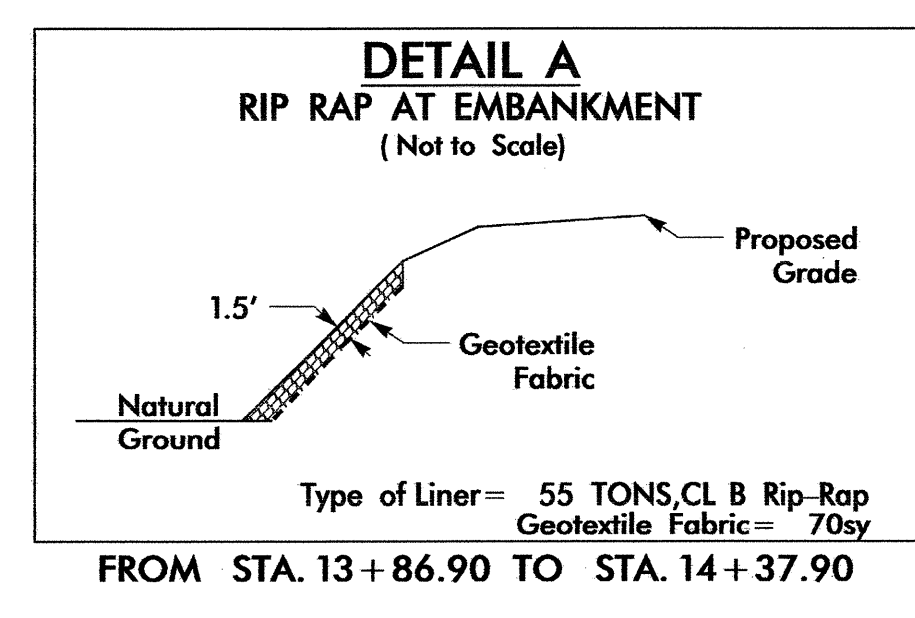
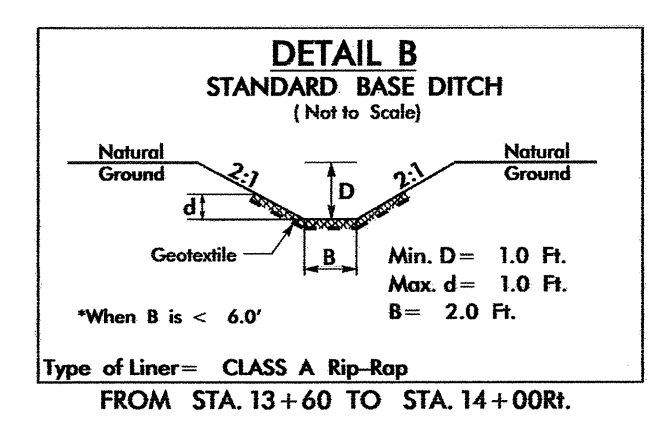
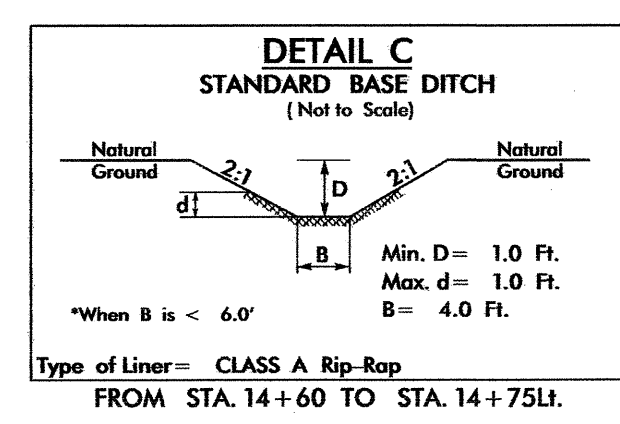
PROJECT REFERENCE NO. B-4818	SHEET NO. EC-4/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

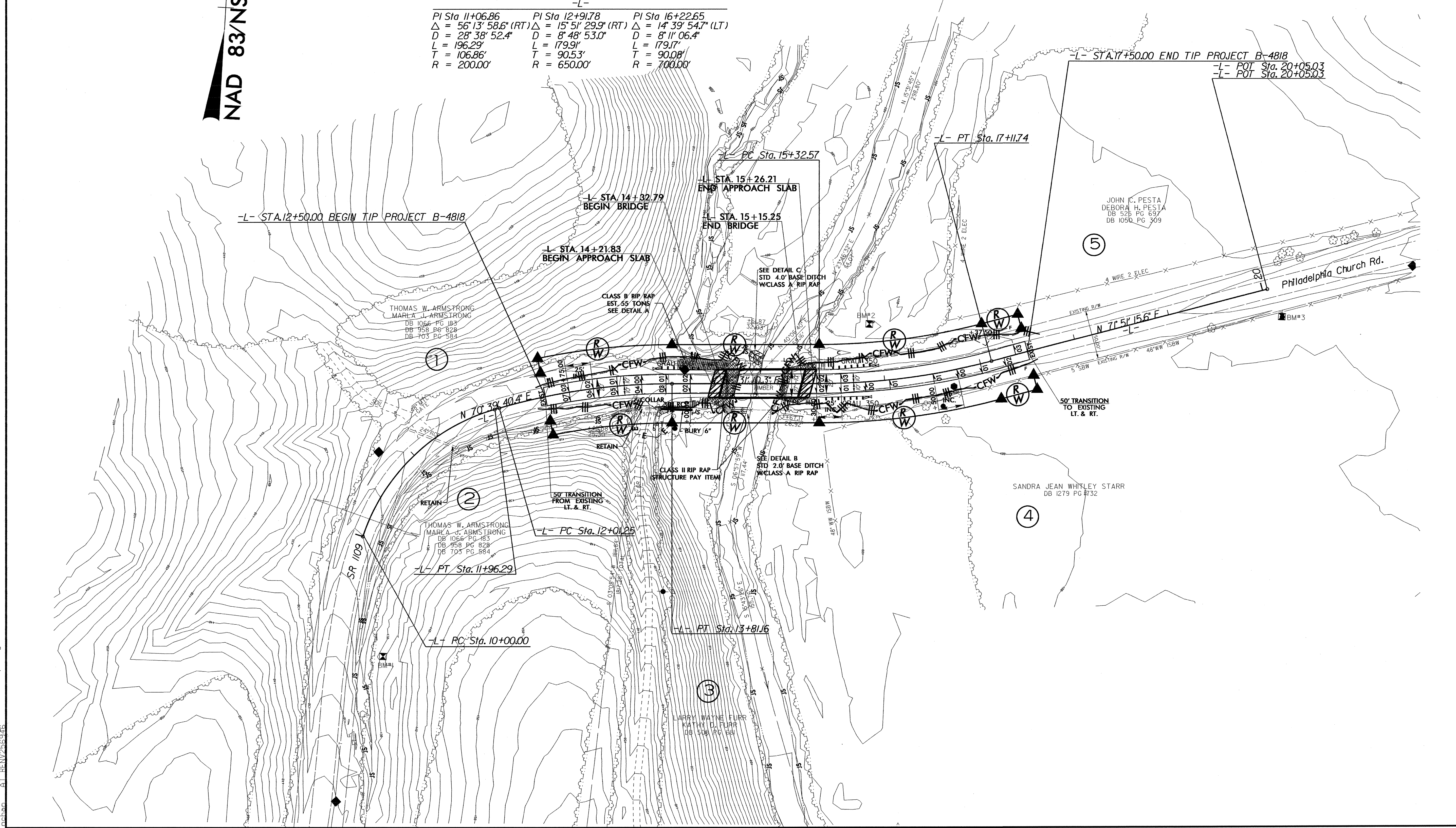
NOTE: UTILIZE SPECIAL STILLING BASIN(S) WHERE APPLICABLE.

FOR -L- PROFILE SEE SHEET 5



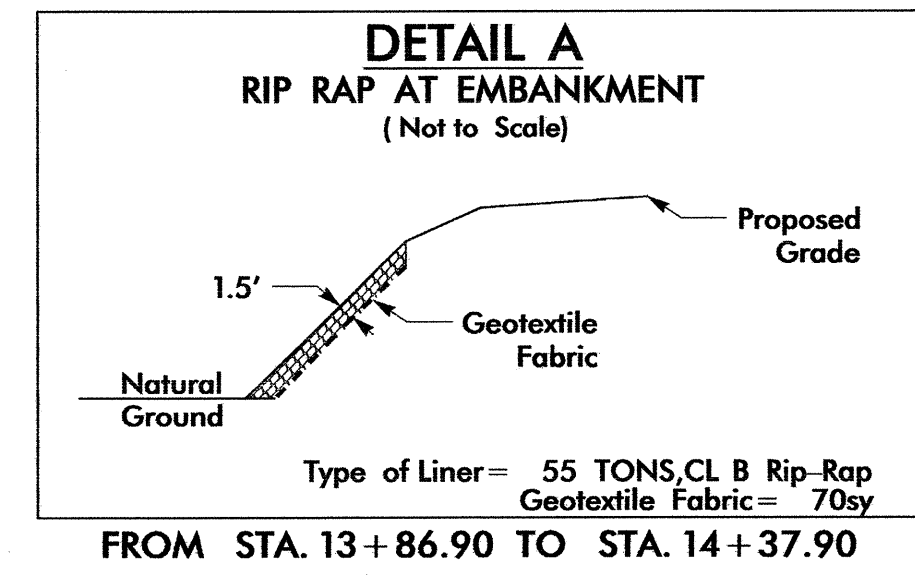
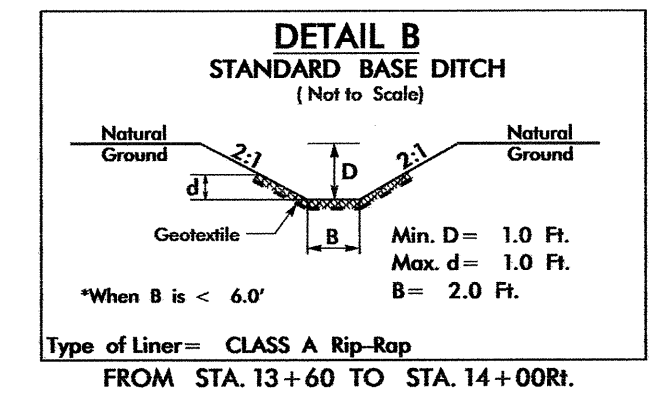
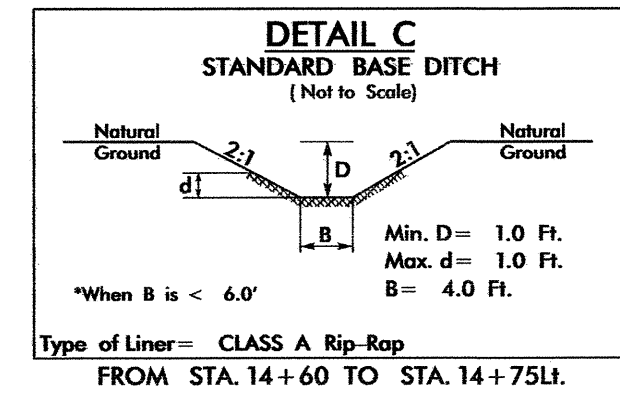
-L-

PI Sta 11+06.86	PI Sta 12+91.78	PI Sta 16+22.65
$\Delta = 56^{\circ} 13' 58.6''$ (RT)	$\Delta = 15^{\circ} 51' 29.9''$ (RT)	$\Delta = 14^{\circ} 39' 54.7''$ (LT)
$D = 28^{\circ} 38' 52.4''$	$D = 8^{\circ} 48' 53.0''$	$D = 8^{\circ} 11' 06.4''$
$L = 196.29'$	$L = 179.91'$	$L = 179.17'$
$T = 106.86'$	$T = 90.53'$	$T = 90.08'$
$R = 200.00'$	$R = 650.00'$	$R = 700.00'$



NAD 83/NSRS 2007

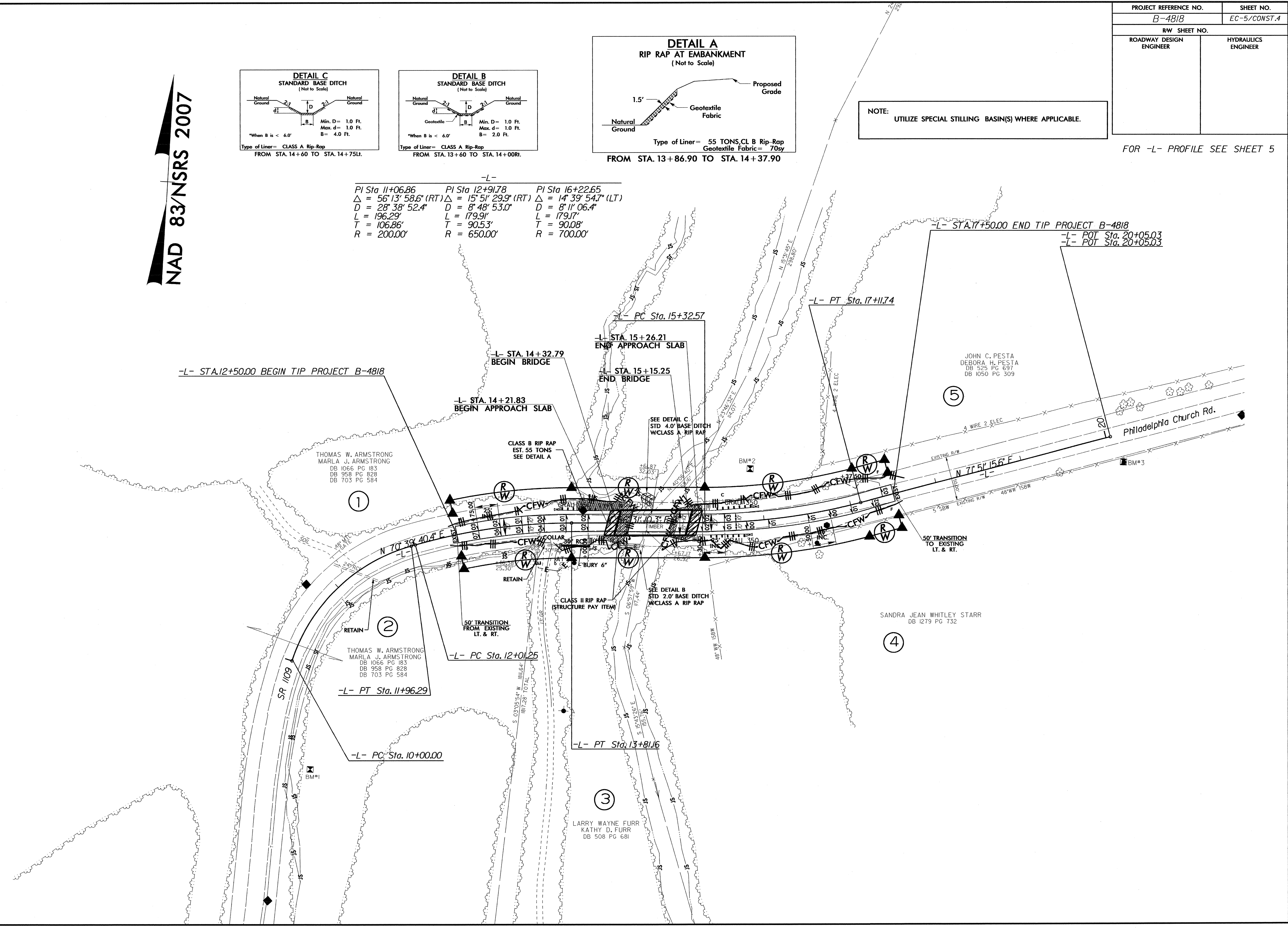
PROJECT REFERENCE NO.	SHEET NO.
B-4818	EC-5/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



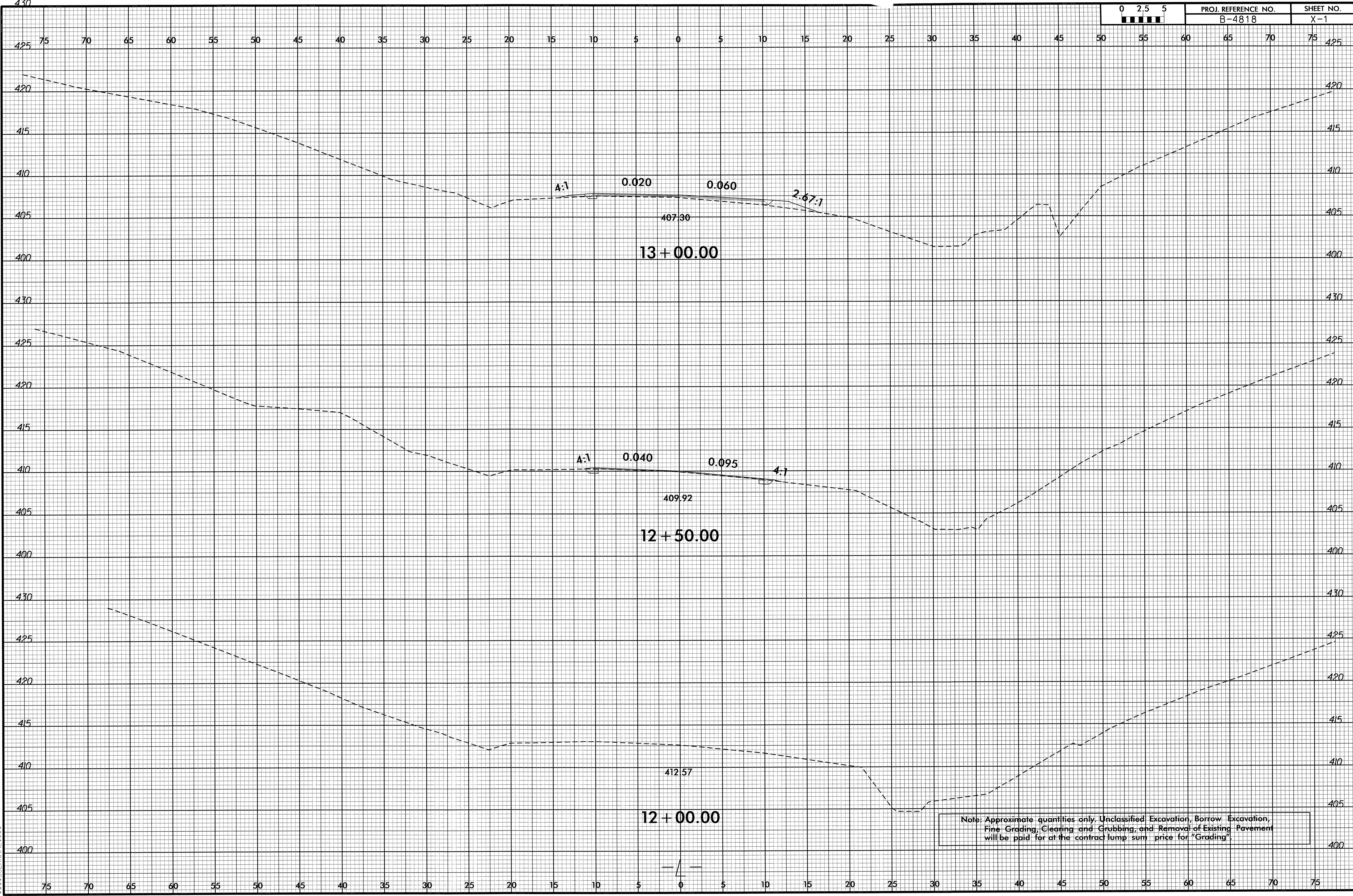
NOTE: UTILIZE SPECIAL STILLING BASIN(S) WHERE APPLICABLE.

FOR -L- PROFILE SEE SHEET 5

-L-		
PI Sta 11+06.86	PI Sta 12+91.78	PI Sta 16+22.65
$\Delta = 56' 13'' 58.6''$ (RT)	$\Delta = 15' 51'' 29.9''$ (RT)	$\Delta = 14' 39'' 54.7''$ (LT)
$D = 28' 38'' 52.4''$	$D = 8' 48'' 53.0''$	$D = 8' 11'' 06.4''$
$L = 196.29'$	$L = 179.91'$	$L = 179.17'$
$T = 106.86'$	$T = 90.53'$	$T = 90.08'$
$R = 200.00'$	$R = 650.00'$	$R = 700.00'$

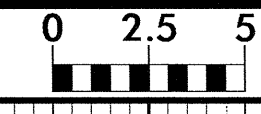


8/23/99
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\$\$\$\$USERNAME\$\$\$

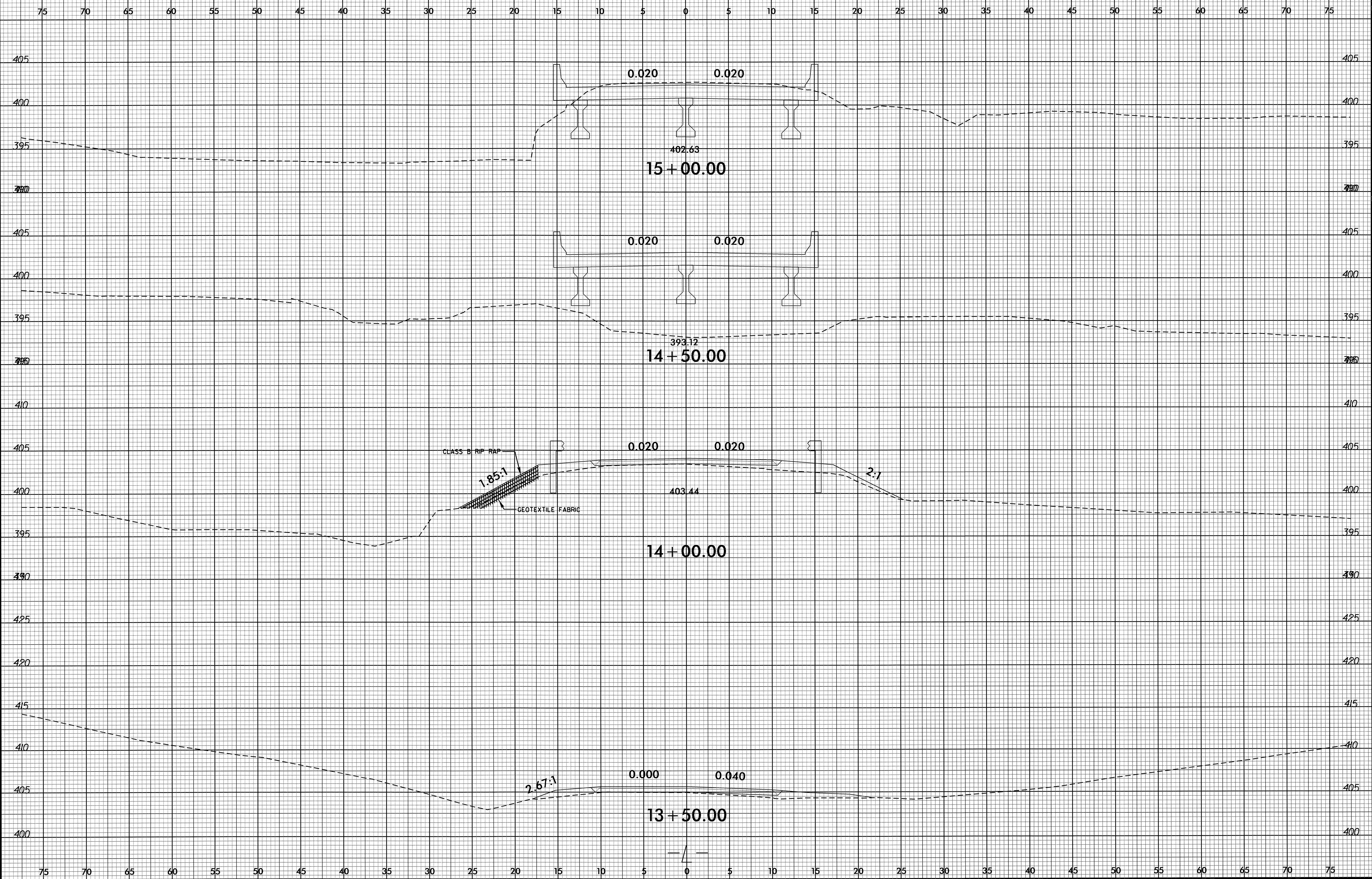


0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
█ █ █ █ █	B-4818	X-1

8/23/99

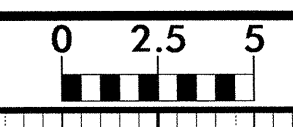


PROJ. REFERENCE NO.	SHEET NO.
B-4818	X-2

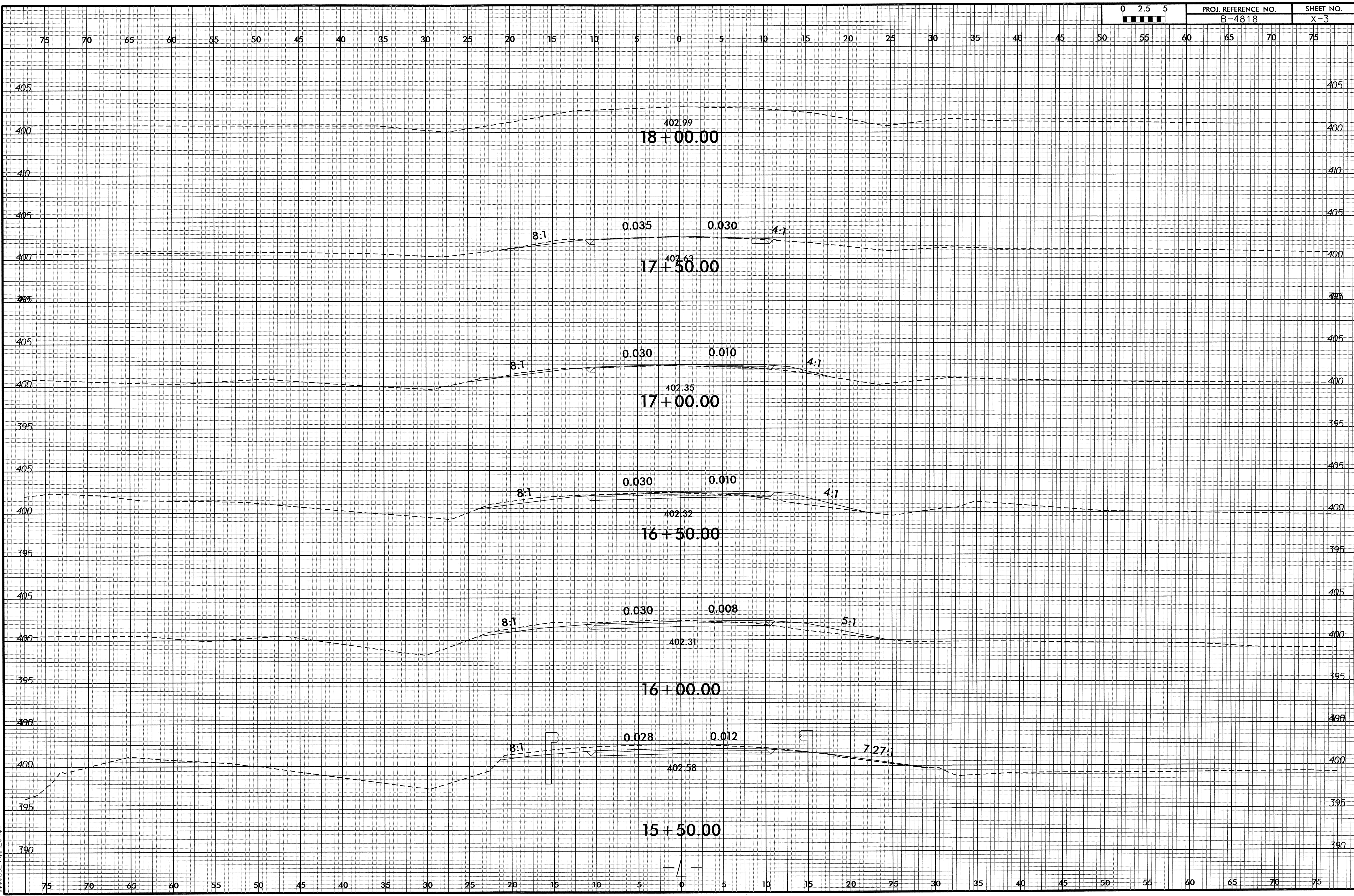


06-SEP-2013 15:09
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8/23/99



PROJ. REFERENCE NO.	SHEET NO.
B-4818	X-3



06 SEP 2003 15:39
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