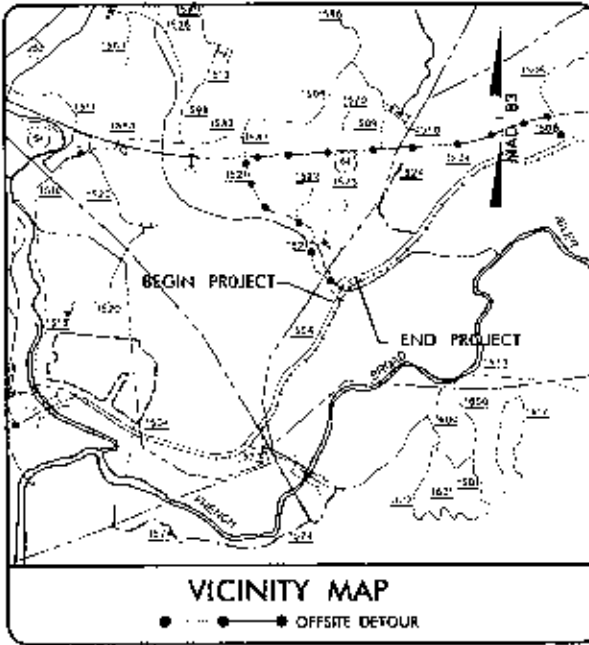


B-5235

CONTRACT: D000052

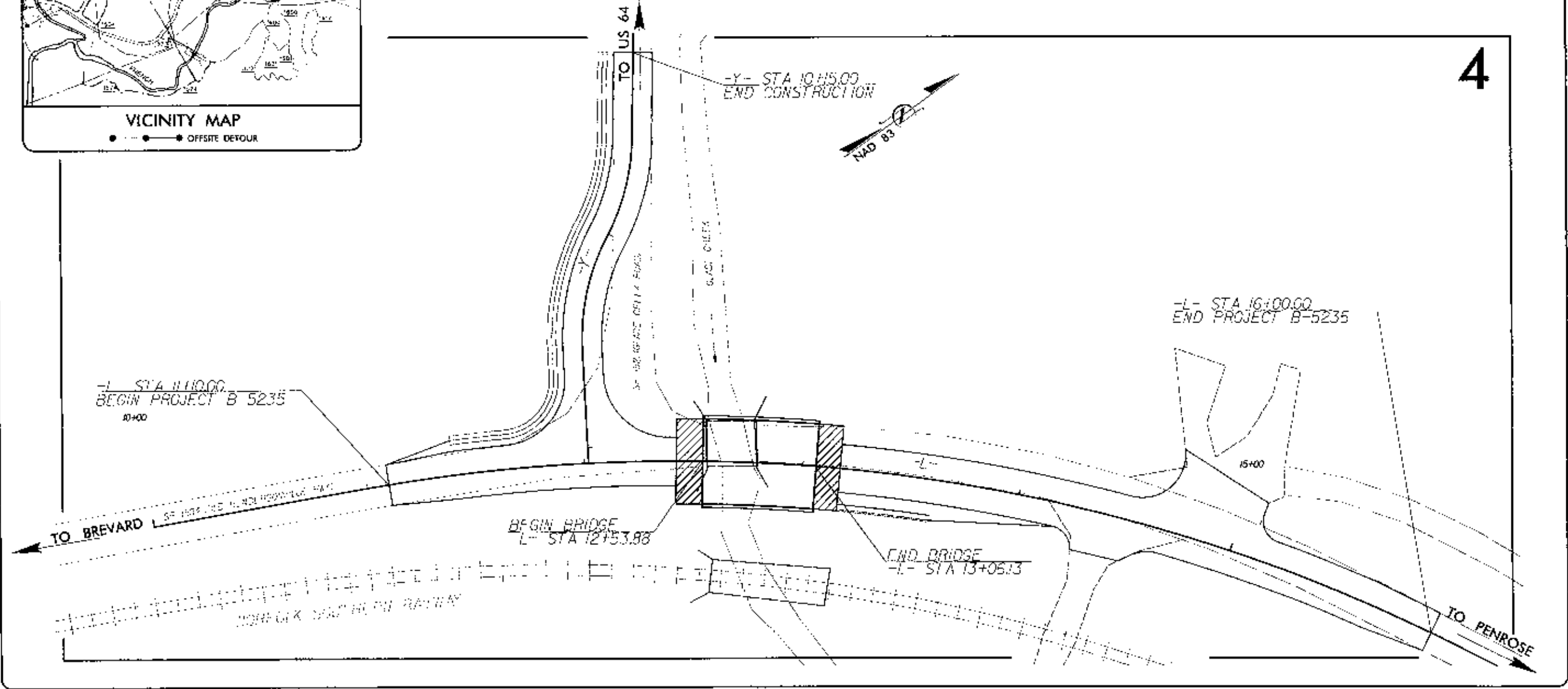
See Sheet 1-A For Index of Sheets



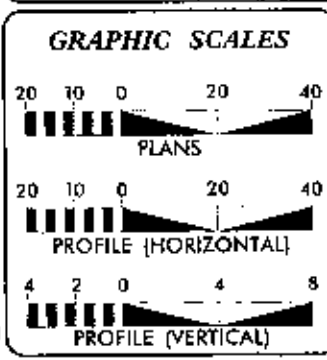
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
TRANSYLVANIA COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5235		
PLANS PREPARED BY	DATE	SCALE	DATE
37639			
42837.3.1			
DESIGNED BY	CHECKED BY	DATE	
APPROVED BY	DATE		
PROJECT TYPE			
PE, RAW			
CONST.			

LOCATION: BRIDGE NO. 194 ON SR 1504 (HENDERSONVILLE HIGHWAY)
OVER GLADE CREEK
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE



4



DESIGN DATA
ADT 2010 = 4,600
ADT 2030 = 9,711
T = 7 %
V = 50 MPH
DESIGN EXCEPTION
REQUIRED FOR
HORIZONTAL SSD AND
HORIZONTAL &
VERTICAL CURVATURE.

PROJECT LENGTH

LENGTH ROADWAY PROJECT B-5235	= .083 MI
LENGTH STRUCTURE PROJECT B-5235	= .010 MI
TOTAL LENGTH PROJECT B-5235	= .093 MI

Plans Prepared By:
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319 8350

2006 STANDARD SPECIFICATIONS

Plans Prepared For:
NCDOT DIVISION 14
NCDOT Contract:
RALPH CANNADY
DIVISION PROJECT ENGINEER

LETTING DATE:

CHARLES L. FLOWE, PE
PROJECT ENGINEER


W. CRAIG PARKER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

SEAL 12300
SEAL 35018

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. G-5235	SHEET NO. 1-A
ROADWAY DESIGN ENGINEER	
	
03/17/08	

SHEET NUMBER	INDEX OF SHEETS
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2 & 2-A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEARING DETAILS
2-B & 2-C	METHOD OF PIPE INSTALLATION
2-D	DETAIL OF ANCHORAGE FOR FRAMES
2-E	DETAIL OF BRIDGE APPROACH FILL SUB-REGIONAL TIE
3	SUMMARY OF EARTHWORK, GUARDRAIL, AND ASPHALT PAVEMENT REPAIRS
3-A	SUMMARY OF DRAINAGE QUANTITIES
4	PLAN SHEET
5	PROFILE SHEET
TOP-1 THRU TOP-6	TRAFFIC CONTROL PLANS
PM-1	PAVEMENT MARKING PLAN
EC-1	EROSION CONTROL TITLE SHEET
EC-2	TEMPORARY SILT CHECK TYPE 'B' DETAIL
EC-2A	COIR FIBER BATTLE DETAIL
EC-2B	WATTLE WITH POLYACRYLAMIDE DETAIL
EC-3	CLEARING AND GRUBBING PLAN SHEET
EC-4	FINAL EROSION CONTROL PLAN SHEET
RI-1	REFORESTATION DETAIL SHEET
X-INDEX	CROSS SECTION INDEX
X-SUM	EARTHWORK VOLUME SUMMARIES
X-1 THRU X-9	CROSS-SECTIONS
S-1 THRU S-15	STRUCTURE PLANS

STD. NO.	TITLE
2006 ROADWAY STANDARD DRAWINGS	
EFFECTIVE: 07-18-06	
REVISED: 01-02-07	
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:	
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superlevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
240.01	Guide for Berm Ditch Construction
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 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.24	Trenches and Narrow Slot Sag Grates
840.29	Trenches and Narrow Slot Flat Grates
840.35	Traffic Bedding Grates Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bedding Precast Drainage Structure
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
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
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-85 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES:

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 09-12-08

**GRADE LINES:
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 FULFILLING.

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RADIUS 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.

BERM DITCHES:

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS 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 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.

UTILITIES:

KNOWN UTILITY OWNERS ON THIS PROJECT ARE:
DUKE ENERGY
COMMUNITY CITIZENS TELEPHONE COMPANY
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 OTHERS.

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	⊙
Property Corner	⊙
Property Monument	⊙
Parcel/Sequence Number	(23)
Existing Fence Line	x x x
Proposed Woven Wire Fence	o
Proposed Chain Link Fence	o
Proposed Barbed Wire Fence	o
Existing Wetland Boundary	~
Proposed Wetland Boundary	~
Existing Endangered Animal Boundary	~
Existing Endangered Plant Boundary	~

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 Marker	⊙
Existing Control of Access	⊙
Proposed Control of Access	⊙
Existing Easement Line	-----
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 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 Wheel Chair 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	-----
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:

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

TELEPHONE:

Existing Telephone Pole	⊙
Proposed Telephone Pole	⊙
Telephone Manhole	⊙
Telephone Booth	⊙
Telephone Pedestal	⊙
Telephone Cell Tower	⊙
U/G Telephone Cable Hand Hole	⊙
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

WATER:

Water Manhole	⊙
Water Meter	⊙
Water Valve	⊙
Water Hydrant	⊙
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	-----

TV:

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

GAS:



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

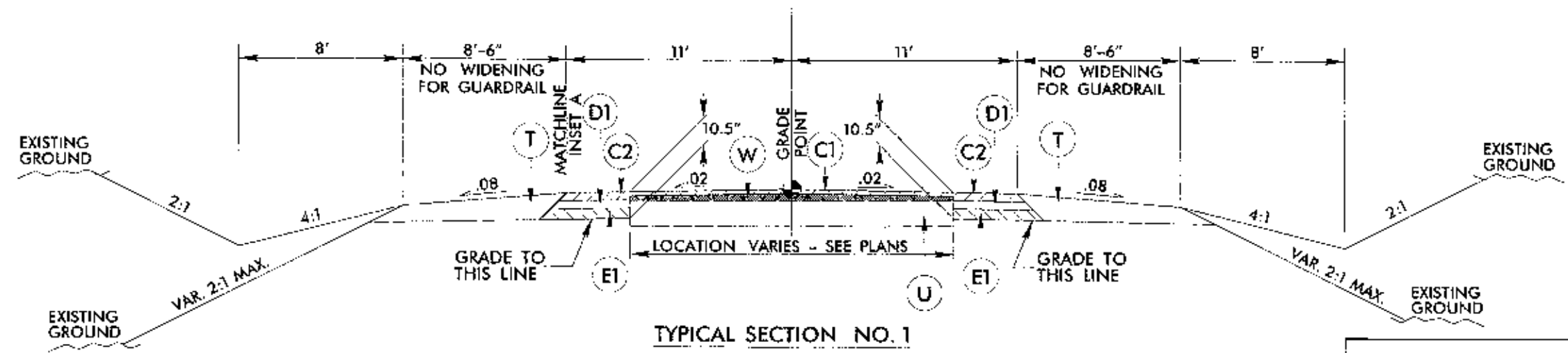
SANITARY SEWER:

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

MISCELLANEOUS:

Utility Pole	⊙
Utility Pole with Base	⊙
Utility Located Object	⊙
Utility Traffic Signal Box	⊙
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	-----
AG Tank; Water, Gas, Oil	-----
U/G Test Hole (S.U.E.*)	⊙
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

PROJECT REFERENCE NO. B-5235	SHEET NO. 2
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
TGS ENGINEERS SUITE 141 975 WALNUT STREET GARY, NC 27511 PH (919) 319-8850	



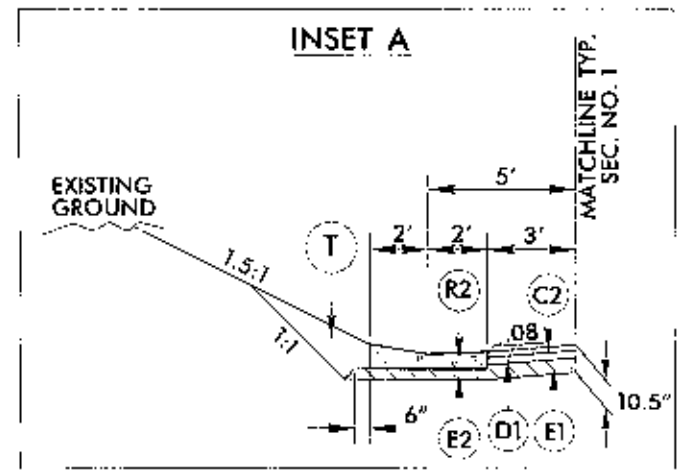
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
 -L- STA. 11+40.00 TO 12+53.88 (BEGIN BRIDGE)
 -L- STA. 13+06.13 (END BRIDGE) TO 15+70.00

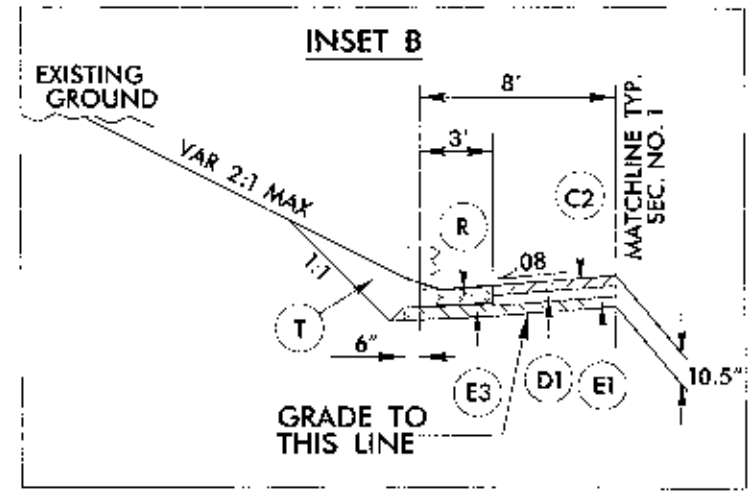
NOTES:
 TRANSITION FROM EXISTING TO TYPICAL NO.1 FROM -L- STA. 11+10.00 TO 11+40.00 AND FROM 15+70.00 TO 16+00.00
 FULL DEPTH PAVEMENT (NO WIDENING) AS FOLLOWS:
 -L- STA. 12+30+/- TO 12+53.88(BEGIN BRIDGE) AND FROM 13+06.13(END BRIDGE) TO 13+30+/-

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 189 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 169 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0B, AT AN AVERAGE RATE OF 334 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 1/2" ASPHALT CONCRETE BASE COURSE, TYPE 825.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E2	PROP. APPROX. 3 1/2" ASPHALT CONCRETE BASE COURSE, TYPE 825.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E3	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE 825.0B, AT AN AVERAGE RATE OF 827 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE 825.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 4" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
R1	CONCRETE SHOULDER BERM GUTTER
R2	CONCRETE EXPRESSWAY GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING.

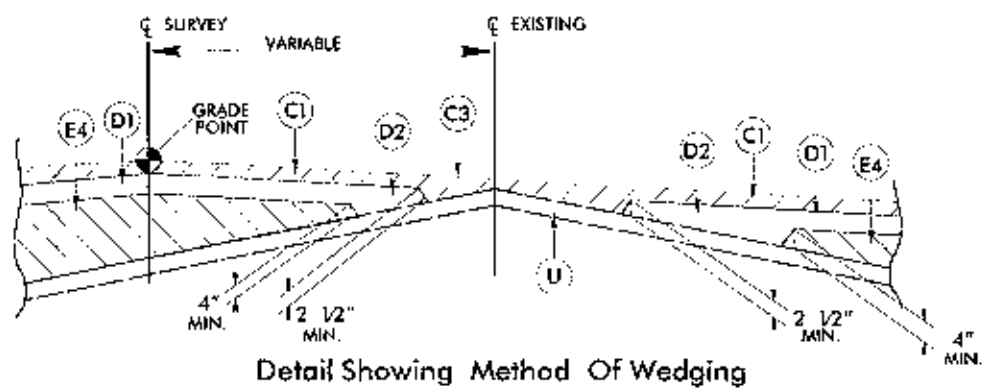
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



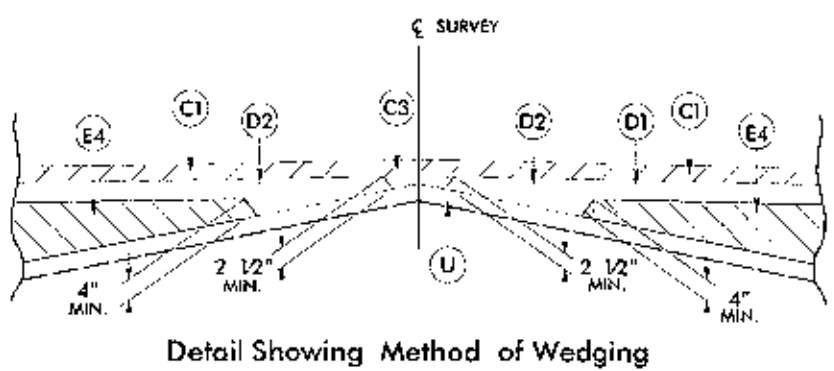
USE INSET 'A' AS FOLLOWS:
 -L- STA. 11+40.00 LT TO 11+87+/- LT



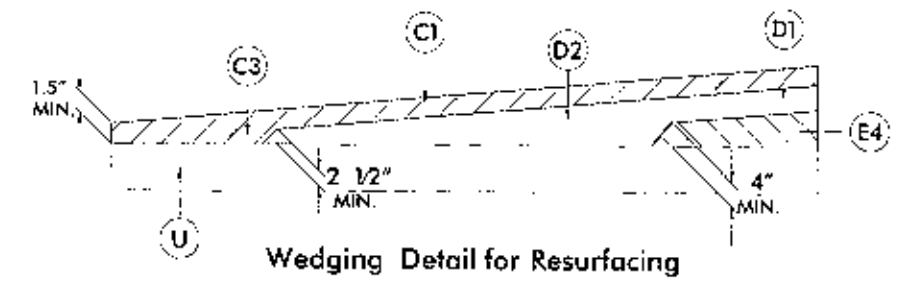
USE INSET 'B' AS FOLLOWS:
 -L- STA. 13+17.06 TO 13+60.00 RT



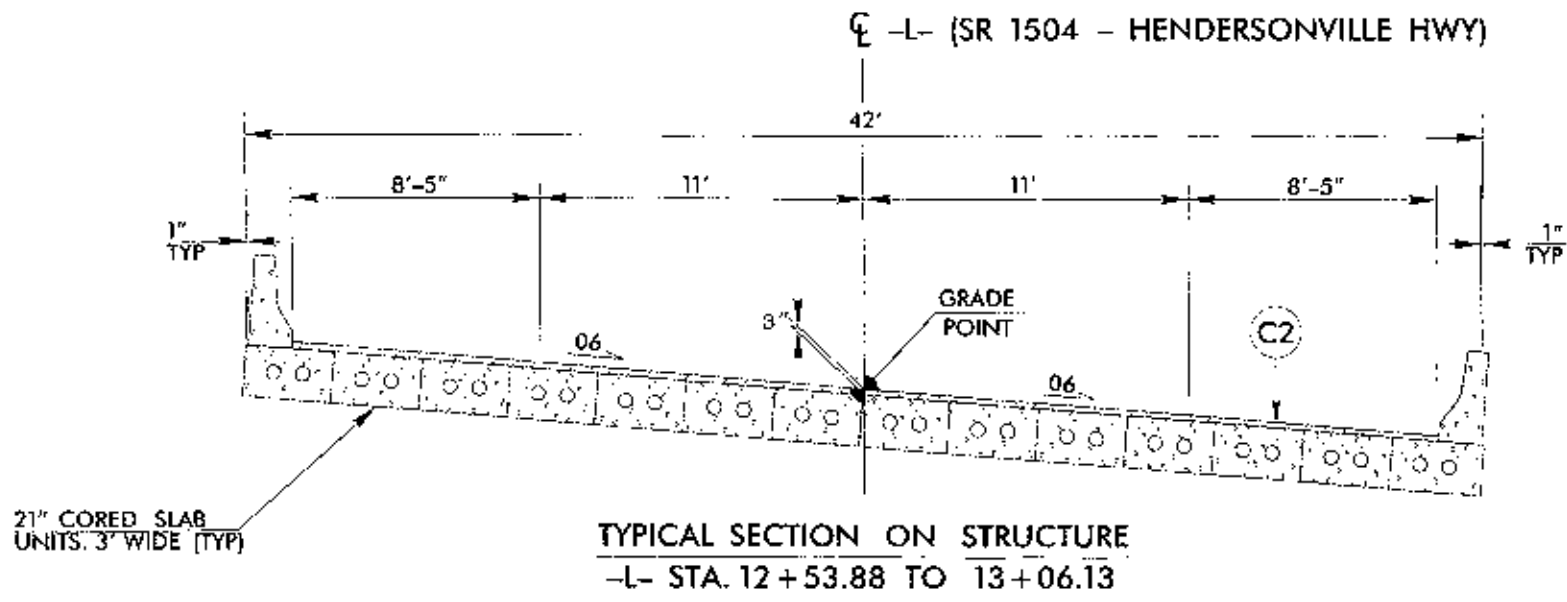
Detail Showing Method Of Wedging



Detail Showing Method of Wedging

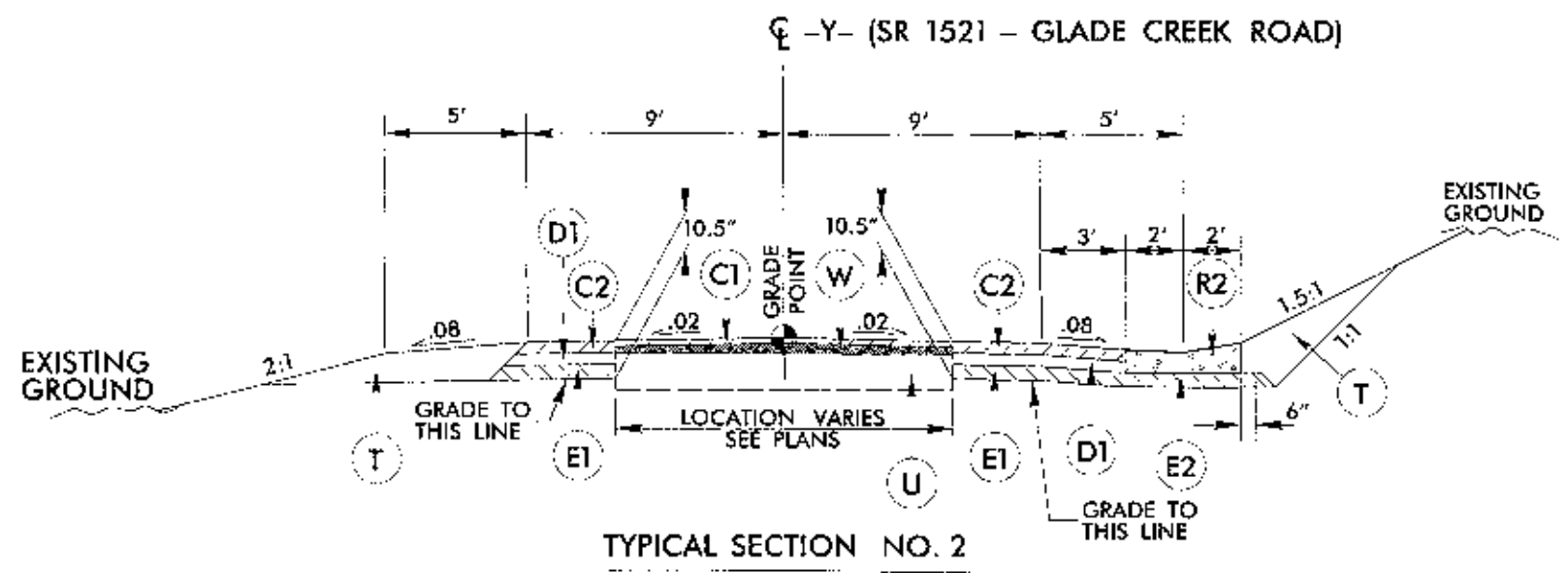


Wedging Detail for Resurfacing



PAVEMENT SCHEDULE	
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE T19.0B.
E1	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B.
E2	PROP. APPROX. 3 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B.
R2	CONCRETE EXPRESSWAY GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WIDGING (SEE WIDGING DETAILS SHEET 2)

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



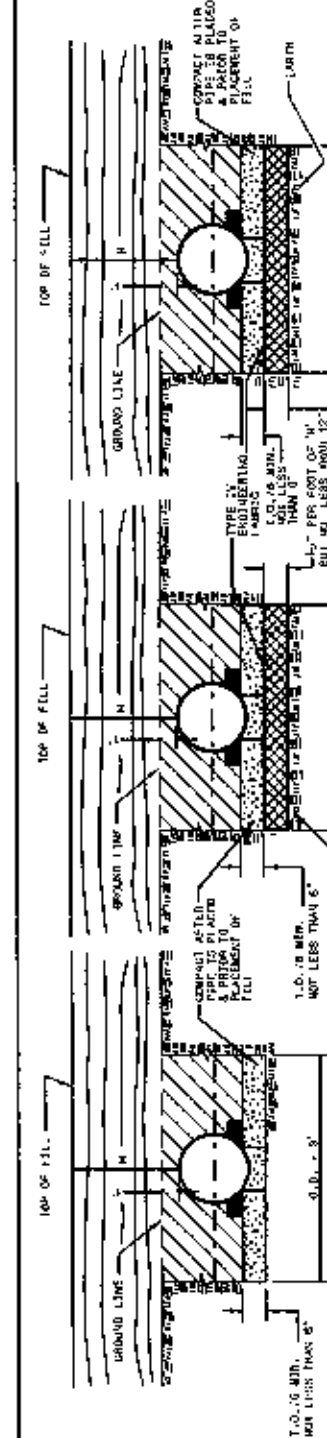
USE TYPICAL SECTION NO.2 AS FOLLOWS:
-Y- STA. 10+50.00 TO 11+96.33

NOTES:
TRANSITION FROM EXISTING TO TYPICAL NO.2
FROM -Y- STA. 10+15.00 TO 10+50.00

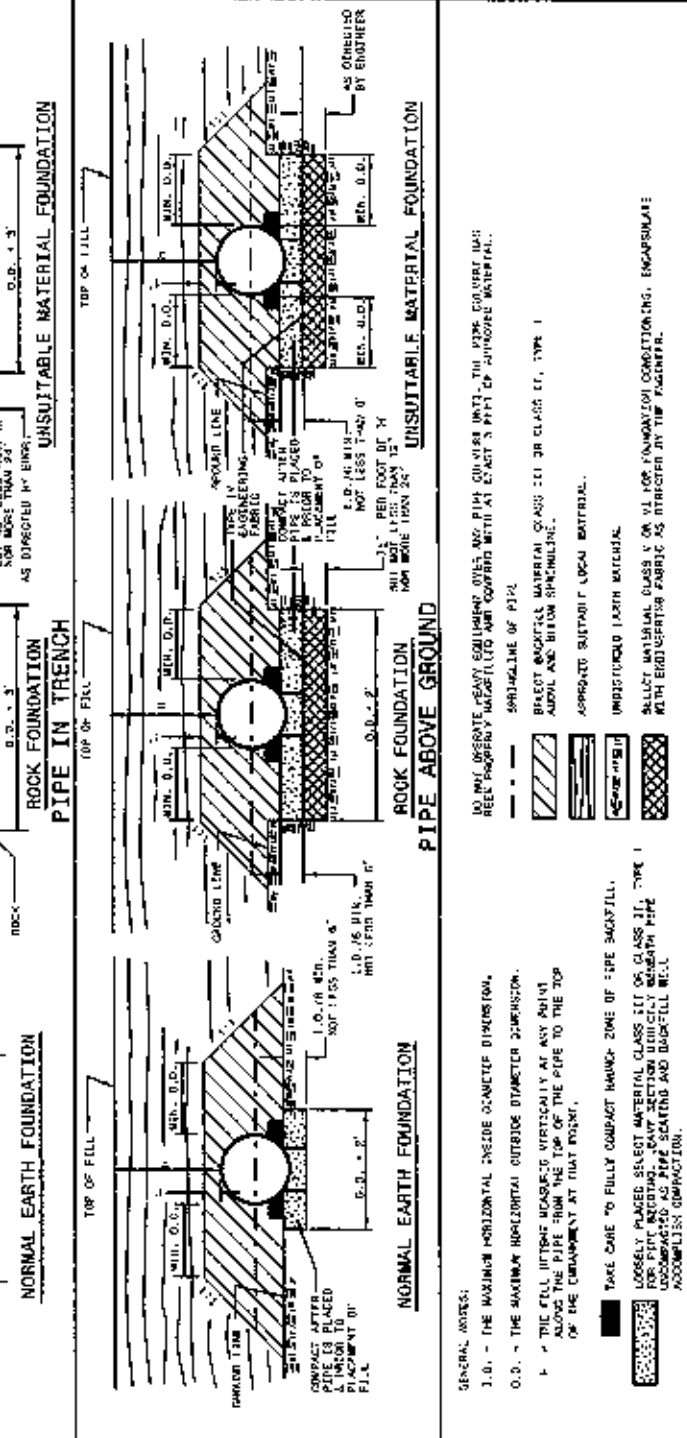
FULL DEPTH PAVEMENT (NO WIDENING) AS FOLLOWS:
-Y- STA. 11+00+/- TO 11+70+/-

OR: 6/19/2005, CLEW, 9:45 AM, C:\CADD\PROJECTS\11111111\11111111.dwg
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 11/11/2005, 11:11 AM, C:\CADD\PROJECTS\11111111\11111111.dwg

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



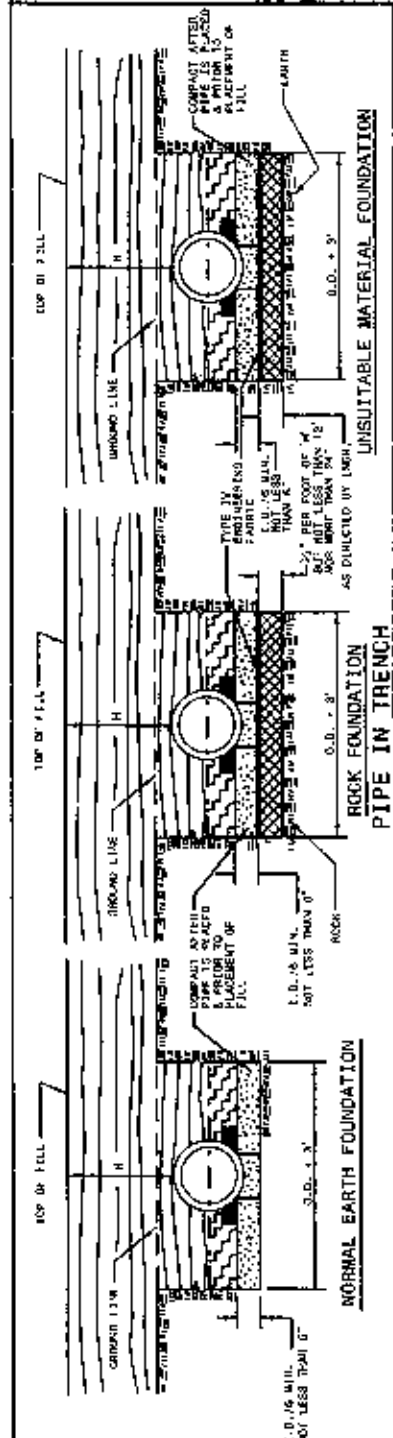
ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE



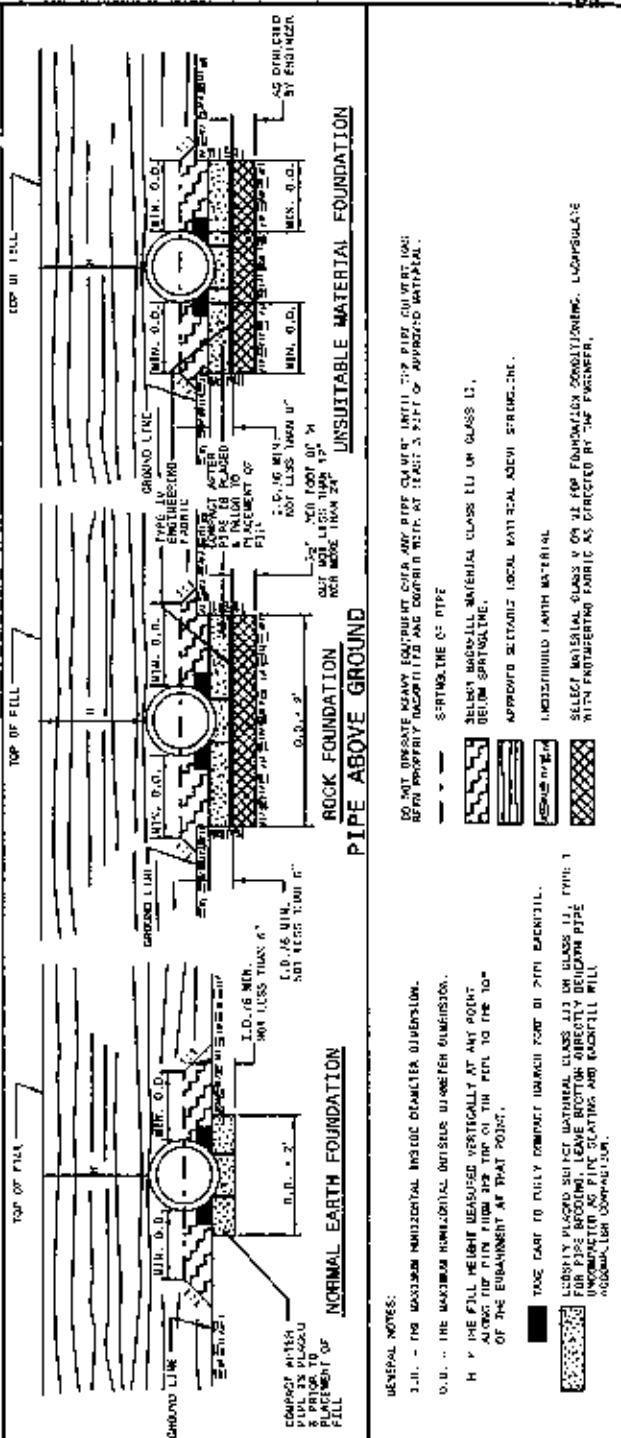
300D01
 SHEET 1 OF 3

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

ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION
 RIGID PIPE



ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION
 RIGID PIPE



300D01
 SHEET 2 OF 3

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



PROJECT DRAWING NO. B-5235
 SHEET NO. 2-B

PROJECT SERVICES UNIT
 STANDARDS AND SPECIAL DESIGN
 OFFICE: 919-250-4129 FAX: 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: _____ DATE: 5-15-08
 MODIFIED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 FILE: SPEC/PLATE/STDS/STANDARDS/300D01.dwg

2K-SEP 2006 08:23
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 2-001.dwg
 2/14/08

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

**ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION**
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

FLEXIBLE PIPE

Round Corrugated Aluminum Pipe
2' x 2/3 x 1/2 corrugation

Diameter (Inches)	Minimum cover (Inches)	Maximum height of cover (feet)
12	12	12
15	12	15
18	12	18
21	12	21
24	12	24
27	12	27
30	12	30
36	12	36
42	12	42
48	12	48
54	12	54
60	12	60
66	12	66
72	12	72

Round Corrugated Steel Pipe
2' x 2/3 x 1/2 corrugation

Diameter (Inches)	Minimum cover (Inches)	Maximum height of cover (feet)
12	12	12
15	12	15
18	12	18
21	12	21
24	12	24
27	12	27
30	12	30
36	12	36
42	12	42
48	12	48
54	12	54
60	12	60
66	12	66
72	12	72

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- DSP - AASHTO M38
- CAAP - AASHTO M198
- HDPE - AASHTO M284
- PVC - ASTM F840 OR AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
 1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

- POP - (Minimum fill) 1' for Class IV & Class V
- (Maximum fill) 2' for Class III & Class II
- (Maximum fill) 10' - Class II pipe
- 20' - Class III pipe
- 30' - Class IV pipe
- 40' - Class V pipe

(For fills > 40' & < 90' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
 1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

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

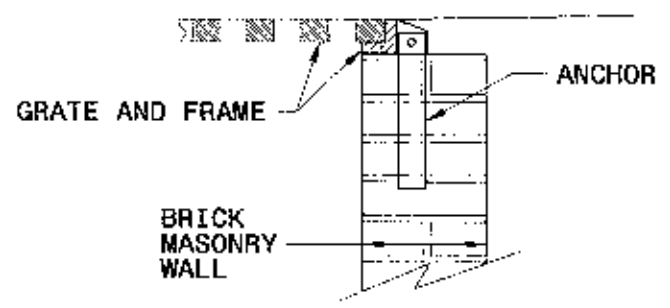
**ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION**
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

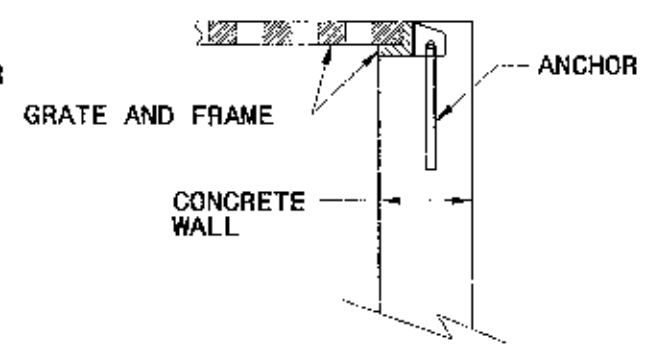
PROJECT SERVICES UNIT STANDARDS AND SPECIAL DESIGN Office 810-250-4128 FAX 810-250-4119	
SEE PLATE FOR TITLE	
ORIGINAL BY: <u>RKspj</u>	DATE: <u>5-12-08</u>
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC: <u>4r:\proj\2006\B-5235\Spec\Drawings\Roadway\Roadway\2-001.dwg</u>	

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

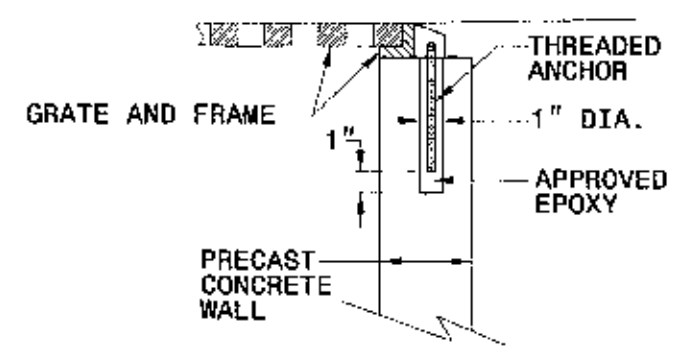
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE



**BRICK MASONRY
CONSTRUCTION**



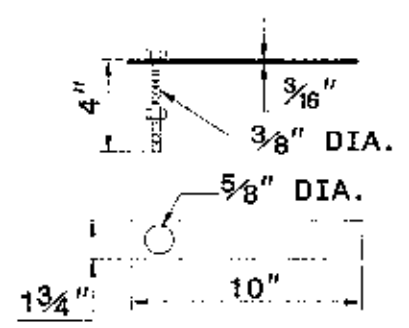
**CONCRETE
CONSTRUCTION**



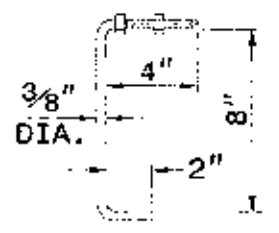
**PRECAST CONCRETE
CONSTRUCTION**

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

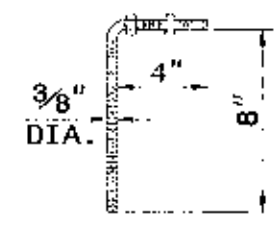
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



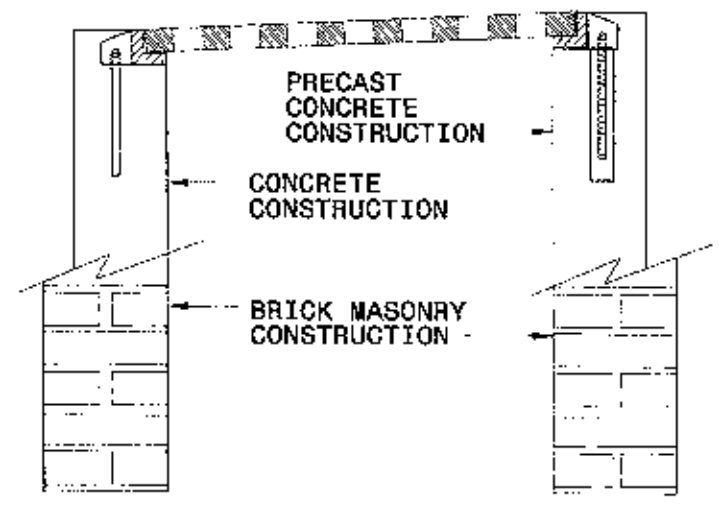
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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.

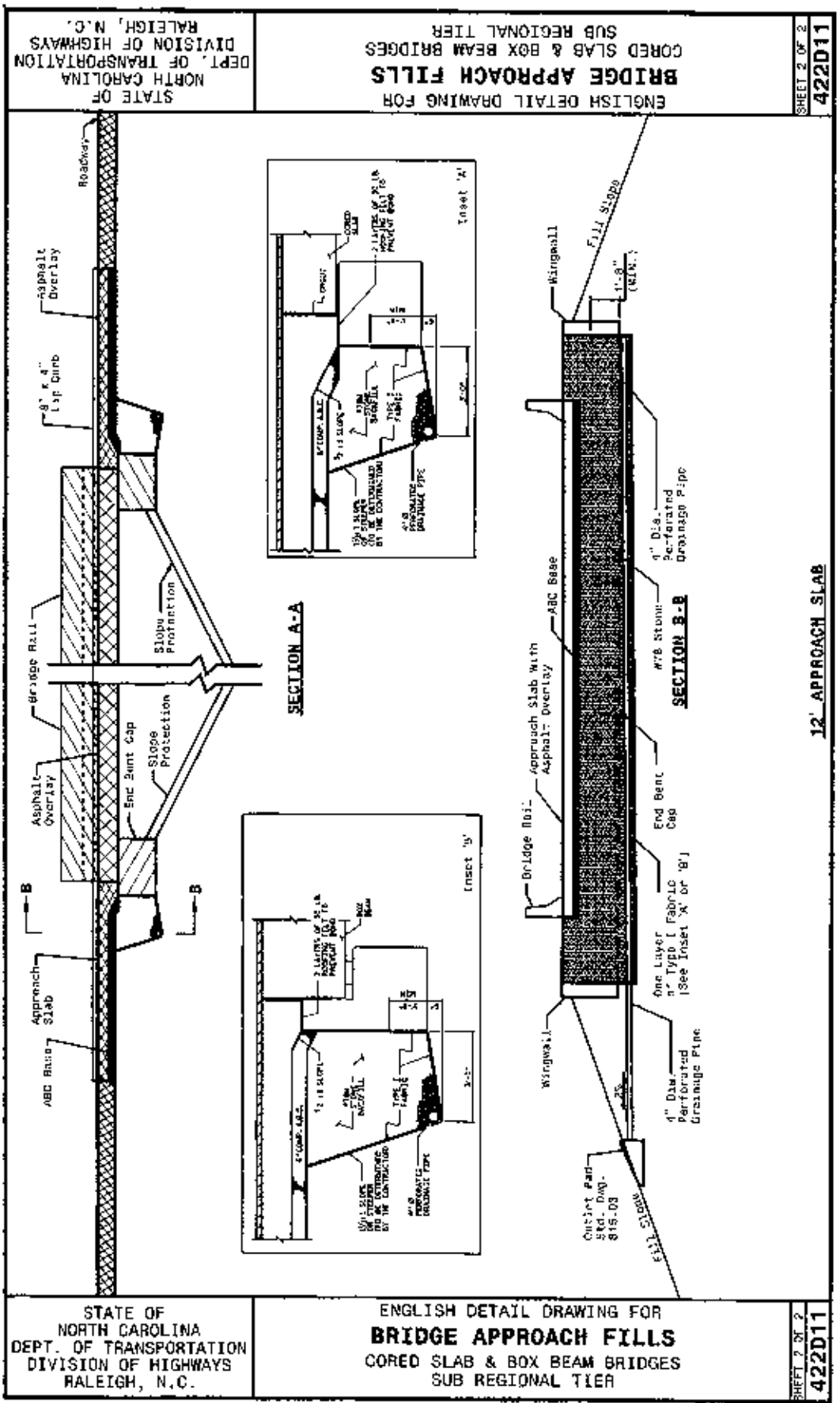
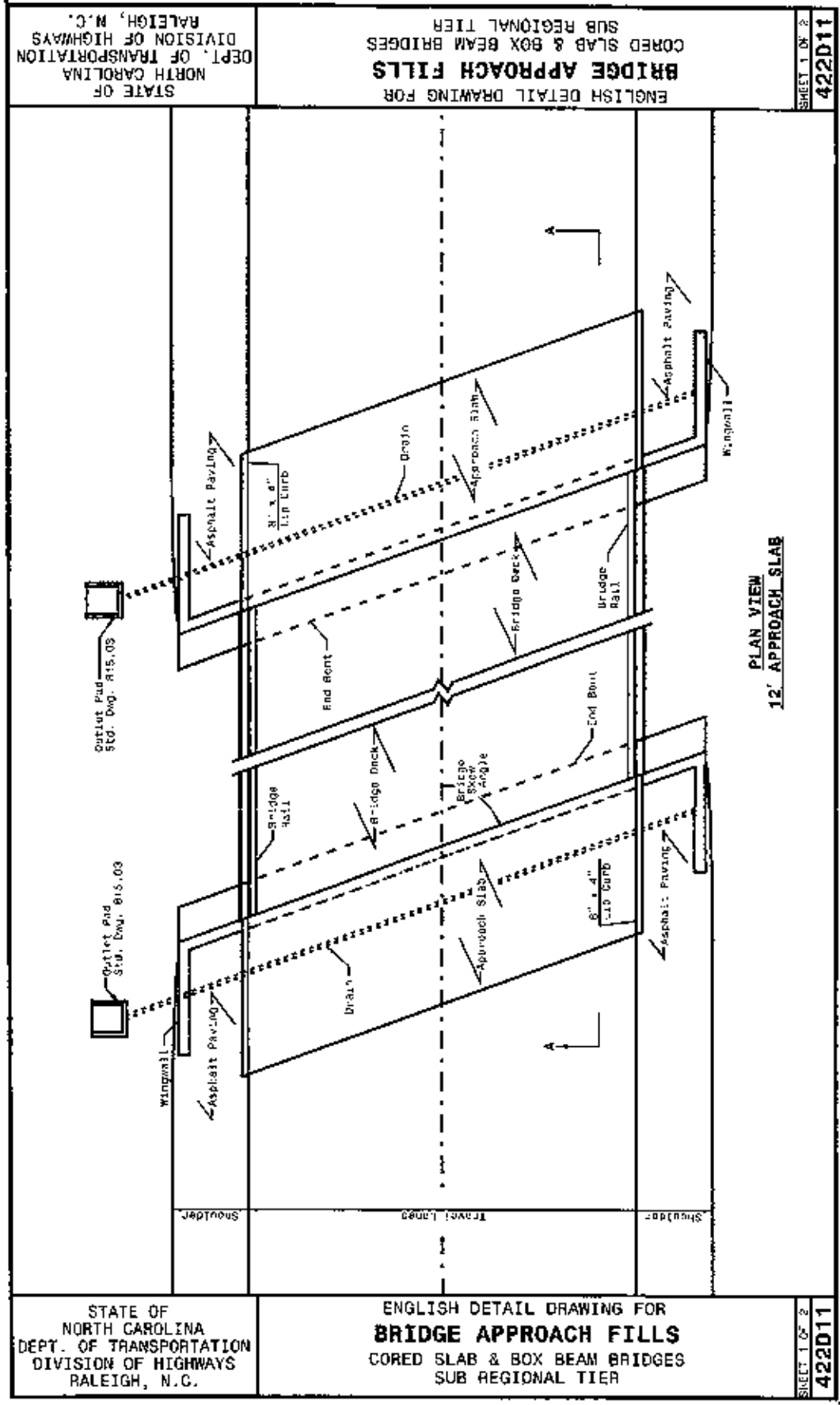
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

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

SEE PLATE FOR TITLE

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.L.E. WARD DATE: 9/25/06
CHECKED BY: DATE: FILE SPEC.:

2006 Standard Specifications for Road and Bridge Construction, Section 200, Part 200.01, Subpart 200.01.01, Detail 840D25



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

BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

ORIGINAL BY: K. A. Keefe DATE: B-10-08
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC: [http://www.ncdot.gov/standards](#)

C:\Users\kakeefe\Documents\422D11\bridge approach fill 12 ft plan view.dwg
 10/10/2008 10:53:11 AM
 10/10/2008 10:53:11 AM
 10/10/2008 10:53:11 AM

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

Line	Station	Station	Uncl. Excav.	Undercut Excav.	Embank. +/-	Borrow	Waste
L	11+10.00	12+53.88	174		5		179
BRIDGE							
L	13+06.13	16+00.00	61		90	76	
SUB-TOTAL 1			235		95	76	179
Y	10+15.00	11+55.33	2,558		26	0	2,562
SUB-TOTAL 2			2,558		26	0	2,562
PROJECT TOTALS			2,827		121	26	2,737
Loss due to Cleaning & Grubbing			-141			141	
Earth Waste to replace Borrow						-147	147
PROJECT TOTALS			2,686		121	0	2,565
GRAND TOTALS			2,686		121	0	2,565
CONTINGENT UNDERCUT				100			
Borrow for Erosion Control Earth Form							
SAV			2,820	100			2,690

SHOULDER BORROW = 80 CY

SUMMARY OF EXISTING ASPHALT
 PAVEMENT REMOVAL

Line	Station	Station	Location L/T/R/D/C/L	SY
Y-L	10+02.34	12+55.80	CL	276.20
L	12+37.89	13+13.59	LT	78.20
L	14+18.59	16+00.00	LT	231.34
TOTAL:				585.74
SAV:				580

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

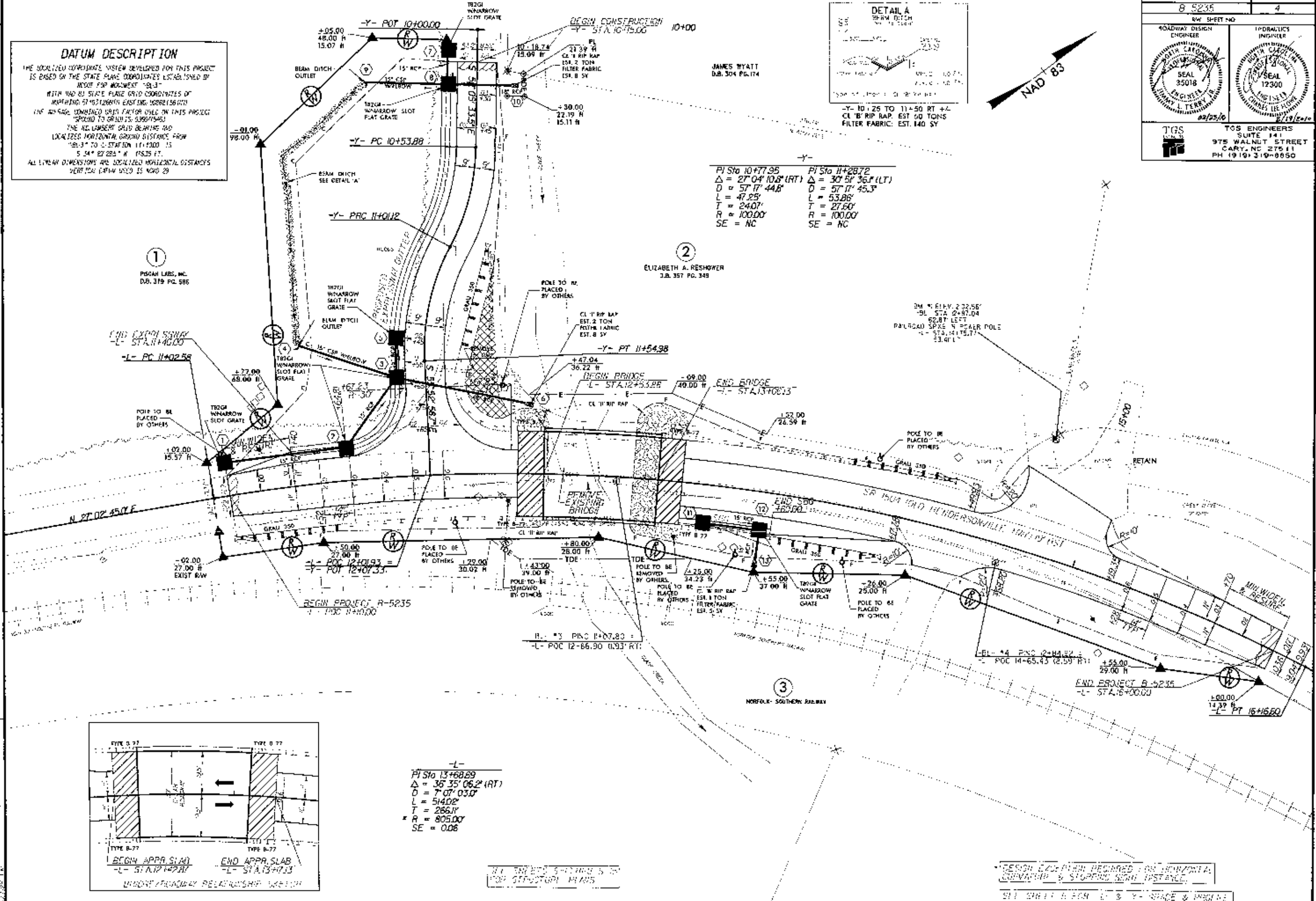
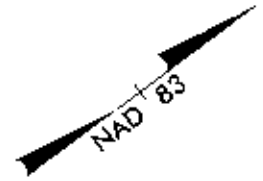
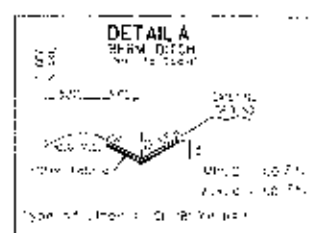
NOTE: APPROXIMATE QUANTITIES ONLY. FINE GRADING, CLEARING AND GRUBBING, SHOULDER BORROW, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

GUARDRAIL SUMMARY

LINE	BEG. STA.	END STA.	LOC.	LENGTH			WARRANT POINT		N' DIST FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH		W		ANCHORS						IMP. ATTN. TYPE 350			REMOVE EXISTING GRDRAIL	REMARKS	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END	GRAU 360	CAT-1	AT-1	B-77	XI MOD	M-350	EA	G	NG			
L	11+08.16	12+53.91	RT	143.75			BRIDGE		8.5'	VARIES	30'															
Y-L	10+33.77	12+53.99	L/T	68.75	50'		BRIDGE		48.5'	VARIES	40'															
L	13+06.03	14+12.39	RT	106.25			BRIDGE		8.5'	VARIES	50'															
L	13+26.05	14+13.19	L/T	113.25			BRIDGE		8.5'	VARIES	50'															
SUB-TOTALS				433.00	50.00																					
LESS ANCHOR DEDUCTIONS																										
GRAU 360																										
TYPE B-77																										
ANCHOR TOTALS				275	0																					
GRAND TOTALS				173	50																					
SAV				187.5	50																					

NOTE: REMOVAL GUARDRAIL POSTS = 1 EA

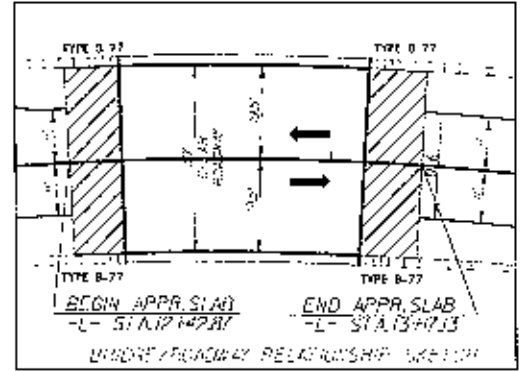
DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCSD FOR MONUMENT "BL-3" WITH NAD 83 STATE PLANE GRID COORDINATES OF MONUMENT 514312660N EASTING: 1089215610N THE 404622 DENOMINATED GRID FACTOR USED ON THIS PROJECT (ROUND TO 6 DECIMALS: 0.9997456) THE NAD 83 STATE PLANE GRID BEARING AND LOCALIZED HORIZONTAL GRID DISTANCES FROM "BL-3" TO STATION 11+100.00 IS 5.54° 27' 28.5" N 195.25 FT. ALL LINEAR DIMENSIONS AND LOCALIZED HORIZONTAL DISTANCES WERE MADE USING NAD 83.



PI Sta 10+77.95 PI Sta 11+28.72
 $\Delta = 27^{\circ} 04' 10.8''$ (RT) $\Delta = 30^{\circ} 51' 36.1''$ (LT)
 $D = 57^{\circ} 17' 44.8''$ $D = 57^{\circ} 17' 45.3''$
 $L = 47.25'$ $L = 53.86'$
 $T = 24.07'$ $T = 27.60'$
 $R = 100.00'$ $R = 100.00'$
 $SE = NC$ $SE = NC$

1
 PSC&H LABS, INC.
 D.B. 319 PG. 586

2
 ELIZABETH A. RESHOWER
 J.B. 357 PG. 348



-L-
 PI Sta 13+68.89
 $\Delta = 36^{\circ} 35' 06.2''$ (RT)
 $D = 7^{\circ} 07' 03.0''$
 $L = 514.02'$
 $T = 266.11'$
 $R = 805.00'$
 $SE = 0.06$

ALL DIMENSIONS SHOWN IN THIS TOP STRUCTURAL PLANS

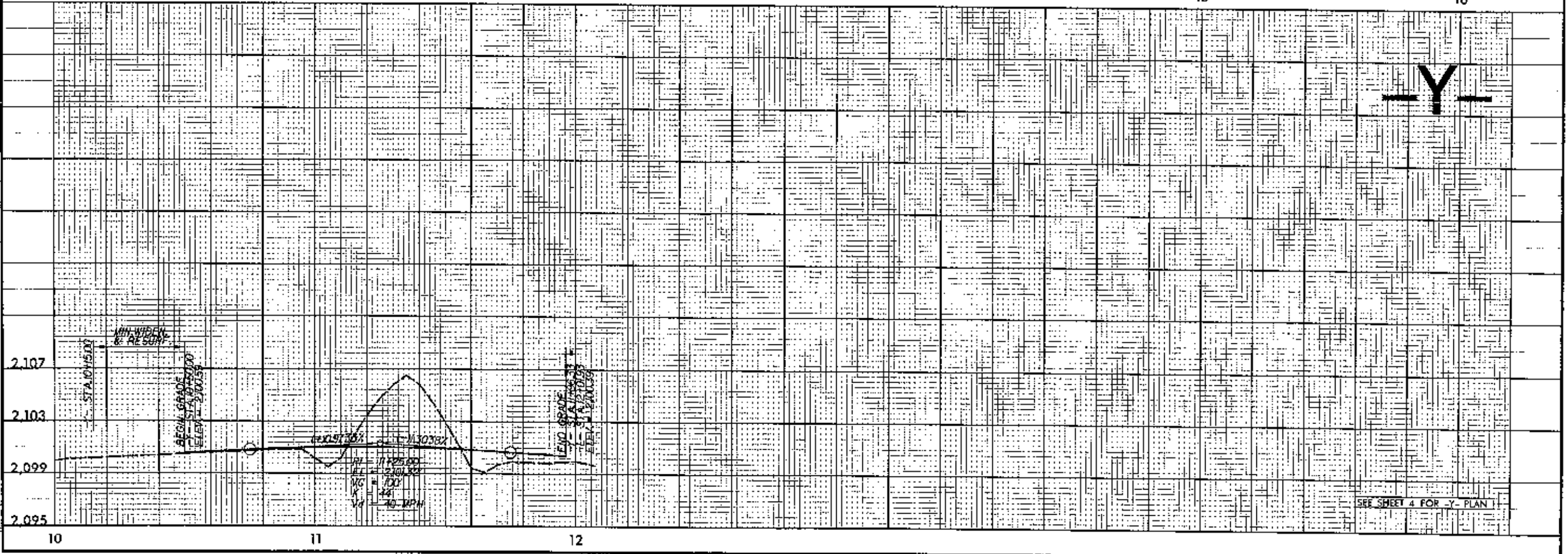
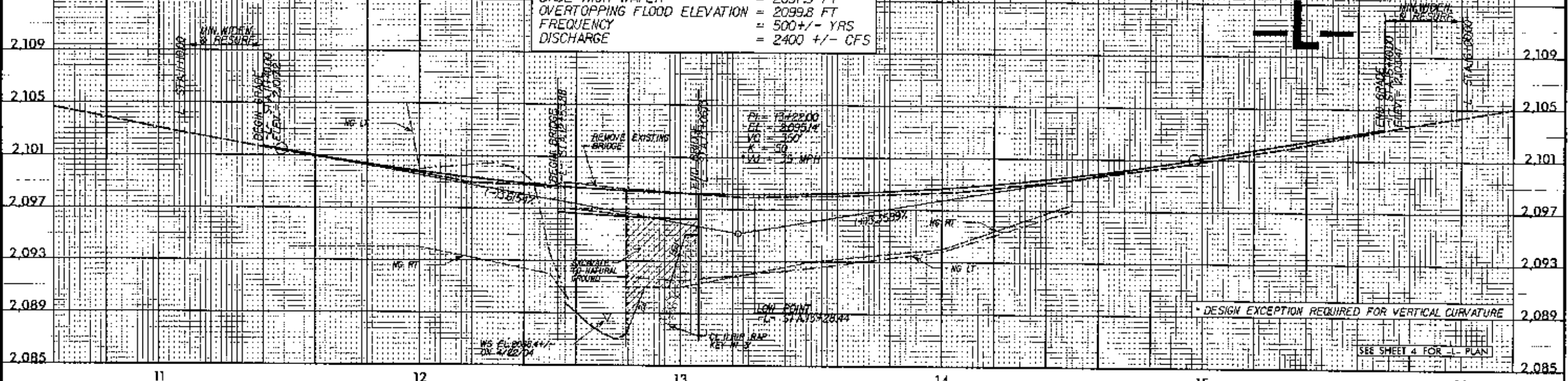
DESIGN EXEMPTION REQUIRED FOR HORIZONTAL CURVATURE & STOPPING SIGHT DISTANCE.
 SEE SHEET B FOR L & Y-SPACE & IMPROVE

REVISIONS

RV- ELEV.=2102.56
 N 57°08' E 407.93
 STA. 4+75.77 53.4' T
 RA ROAD SPIKE IN POWER POLL

PROJECT REFERENCE NO. 9-5235	SHEET NO. 5
ROADWAY DESIGN ENGINEER SEAL 35018 ENG. N.E.L. TERRY L. TERRY, P.E.	HYDRAULIC ENGINEER SEAL 12300 ENG. N.E.L. CHRIS LEE FLOW
02/23/10	2/19/20

STRUCTURE HYDRAULIC DATA
 DESIGN DISCHARGE = 840 CFS
 DESIGN FREQUENCY = 25 YRS
 DESIGN HIGH WATER ELEVATION = 2095.5 FT
 BASE DISCHARGE = 1300 CFS
 BASE HIGH WATER = 2097.3 FT
 OVERTOPPING FLOOD ELEVATION = 2099.8 FT
 FREQUENCY = 500 +/- YRS
 DISCHARGE = 2400 +/- CFS



B-5235

CONTRACT: D000052

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE TIP PROJECT REFERENCE NO. B-5235
SHEET NO. TCP-1

PLAN FOR PROPOSED
TRAFFIC CONTROL, MARKING & DELINEATION
TRANSYLVANIA COUNTY

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"-
ROADWAY DESIGN UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C.,
DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE
CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1170.01	PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - NON-SIGNALIZED INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

INDEX OF SHEETS

SHEET NO.	TITLE
TCP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, INDEX OF SHEETS, & INTERMEDIATE PAVEMENT MARKING SCHEDULE
TCP-2	PROJECT NOTES
TCP-3	PHASE I
TCP-4	PHASE II
TCP-5	DETOUR
TCP-6	DETOUR SIGN LAYOUT
PM-1	FINAL PAVEMENT MARKING SCHEDULE & PAVEMENT MARKING PLAN

LEGEND

- GENERAL**
- DIRECTION OF TRAFFIC FLOW
 - NORTH ARROW
 - PROPOSED PVMT. EXIST. PVMT.
 - WORK AREA
 - REMOVAL OF EXISTING PAVEMENT

- TRAFFIC CONTROL DEVICES**
- TYPE I BARRICADE
 - TYPE II BARRICADE
 - TYPE III BARRICADE
 - CONE
 - DRUM
 - FLASHING ARROW PANEL (TYPE C)
 - TYPE 'B' WARNING LIGHT
 - STATIONARY SIGN
 - PORTABLE SIGN
 - STATIONARY OR PORTABLE SIGN
 - WARNING FLAGS
 - CRASH CUSHION
 - CHANGEABLE MESSAGE SIGN
 - TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
 - POLICE
 - FLAGGER

- PAVEMENT MARKINGS**
- CRYSTAL/CRYSTAL PAVEMENT MARKER
 - YELLOW/YELLOW PAVEMENT MARKER
 - CRYSTAL/RED PAVEMENT MARKER
 - PAVEMENT MARKING SYMBOLS

INTERMEDIATE PAVEMENT
MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM QUANTITY BREAKDOWN	TOTAL QUANTITY
PAVEMENT MARKINGS			
PAINT (4")			
PA	WHITE EDGELINE (1X)	1,438 LF	TOTAL 2,958 LF
PI	YELLOW DOUBLE CENTER (1X)	1,520 LF	
PAINT (24")			
P4	WHITE STOPBAR (1X)	14 LF	TOTAL 14 LF

NOTE:
FOR EACH PAINT PAVEMENT MARKING ITEM, 1X IMPLIES A SINGLE APPLICATION,
2X IMPLIES TWO APPLICATIONS, AND 3X IMPLIES THREE APPLICATIONS.

APPROVED: DATE: _____	PLAN PREPARED FOR N.C.D.O.T. BY:
	 TGS ENGINEERS SUITE 141 975 WALNUT STREET CARY, NC 27511 PH (919) 319-8850
	C. L. FLOWE, PE PROJECT ENGINEER W. C. PARKER, PE DESIGN ENGINEER DESIGN TECHNICIAN

PROJECT NOTES

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO KEEP 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.

LOCAL NOTES

THE FOLLOWING LOCAL NOTES APPLY ONLY AT THE TIMES THEY ARE REFERENCED IN THE PLAN.

1: MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES USING INCIDENTAL STONE

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING IN THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 110-02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF A DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- D) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- E) BACKFILL AT A 5:11 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:
 - BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.
 - BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.
 - BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- F) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIMITS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- H) PROVIDE PERMANENT SIGNING.
- I) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.
 - PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.
- J) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.
 - COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
- K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- L) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

- M) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRAFFIC CONTROL PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.
- N) DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.
- O) ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN THE 121 MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS. TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE BEAMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

TRAFFIC CONTROL DEVICES

- N) SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY WHEN LANE CLOSURES ARE NOT IN EFFECT. WHEN SKINNY DRUMS ARE ALLOWED REFER TO SECTION 1180 OF STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OR AS SHOWN IN THE PLANS.
- O) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

- P) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS SHOWN IN THE PAVEMENT MARKING PLAN.
- Q) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

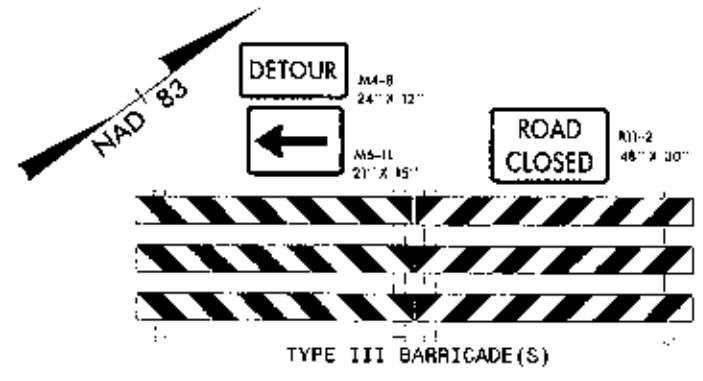
ROAD NAME	MARKING	MARKER
1. SR 1504	PAINT	
2. SR 1521	PAINT	
- R) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- S) FIT PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- T) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

CONSTRUCTION OF THIS ROAD TO BE COMPLETED BY 03/23/10

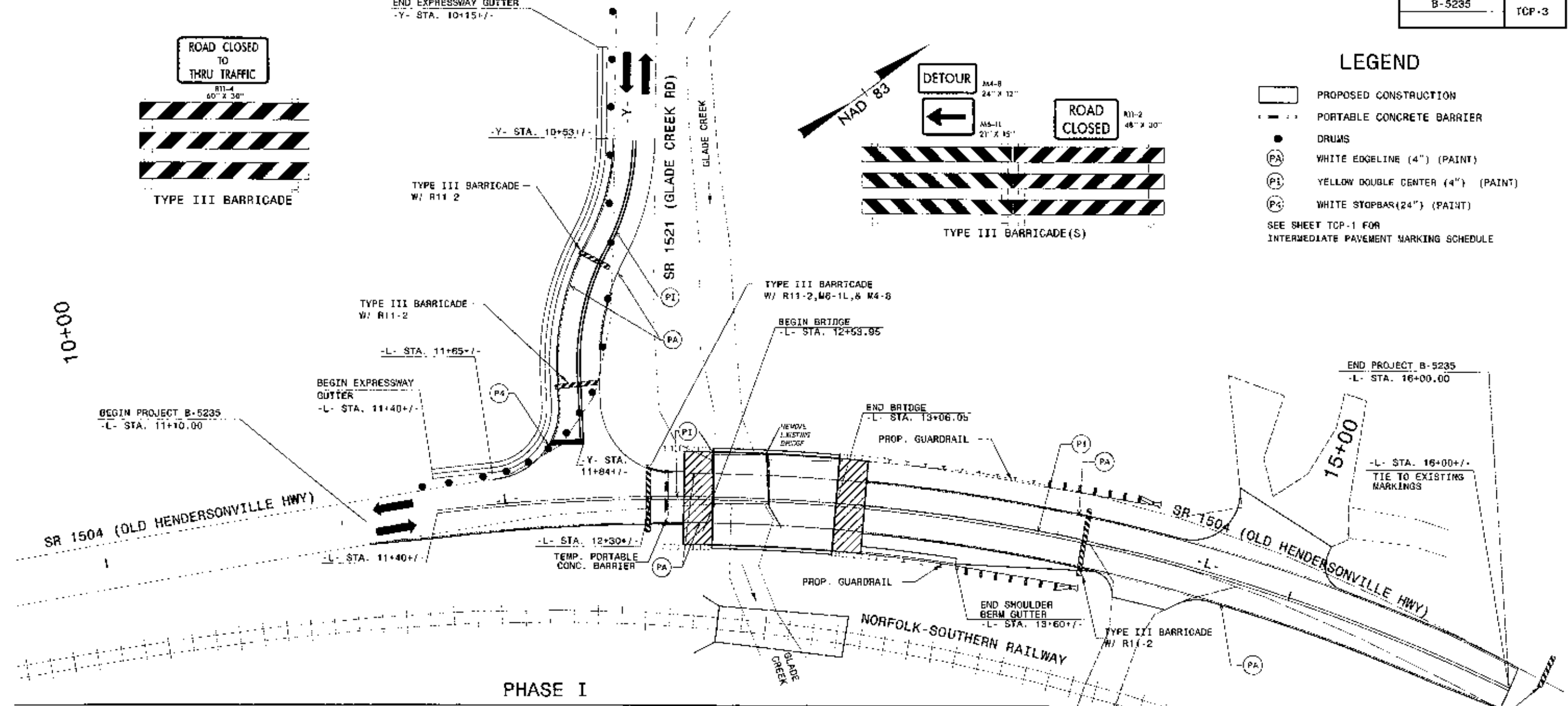
PLANS PREPARED BY:

TGS ENGINEERS
 SUITE 141
 975 WALNUT STREET
 CARY, NC 27511
 PH: (919) 319-8850

APPROVED: _____ DATE: _____ 	<h2 style="margin: 0;">PROJECT NOTES</h2>	REVISIONS 1 _____ _____ _____
SCALE: NONE DATE: NOV., 2009 DRAWN BY: JLT DESIGN BY: JLT REVIEWED BY: WCP		DATE: _____ BY: _____



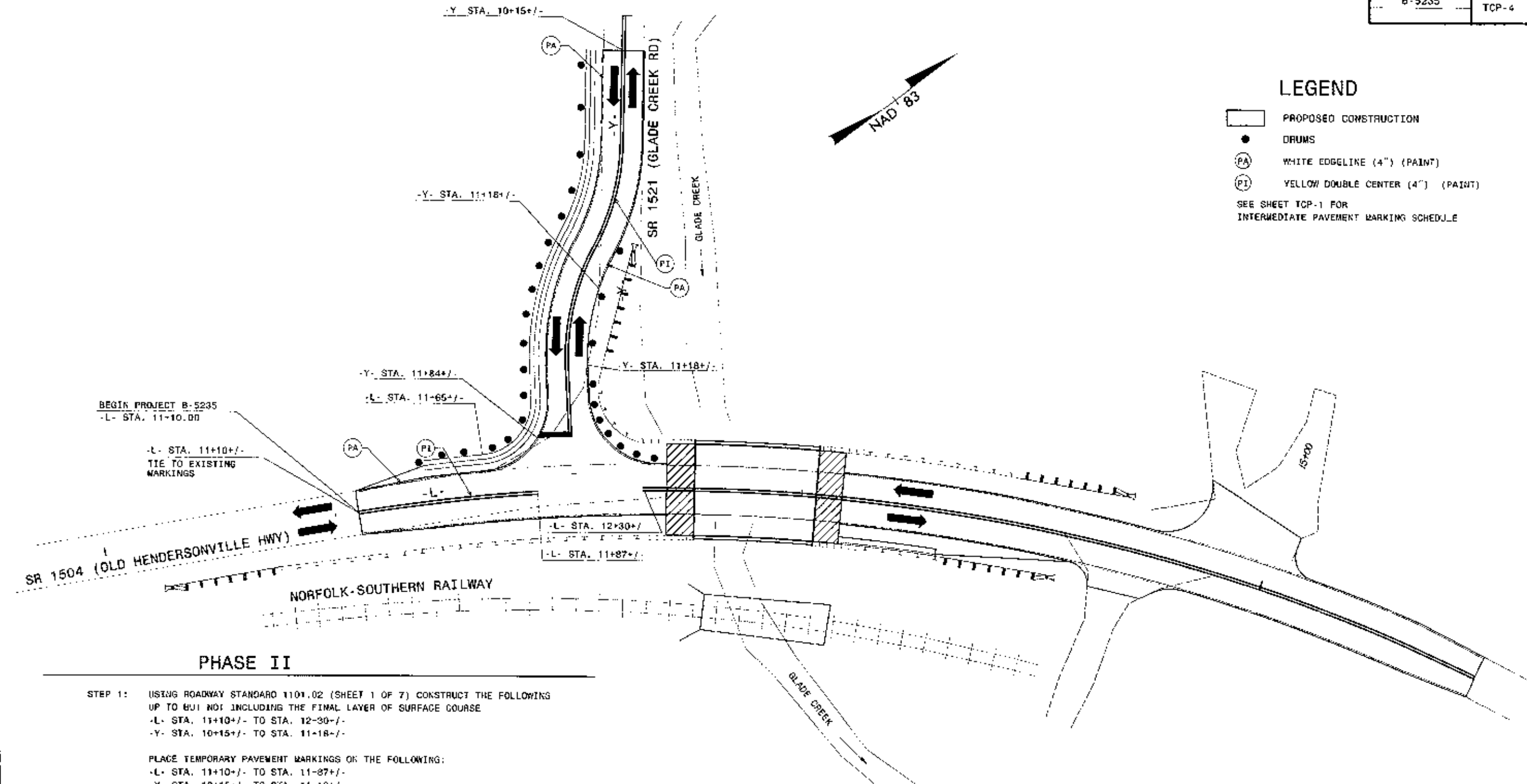
- ### LEGEND
- PROPOSED CONSTRUCTION
 - PORTABLE CONCRETE BARRIER
 - DRUMS
 - WHITE EDGELINE (4") (PAINT)
 - YELLOW DOUBLE CENTER (4") (PAINT)
 - WHITE STOPBAR (24") (PAINT)
- SEE SHEET TCP-1 FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE



- STEP 1: INSTALL ALL ADVANCE WARNING WORKZONE SIGNS AS SHOWN ON ROADWAY STD. DRAWINGS 1101.03 (SHEETS 1 & 2 OF 9) AND 1101.02 (SHEET 1 OF 7). IF WORK IS NOT PURSUED WITHIN 3 DAYS OF SIGN INSTALLATION, THE SIGNS SHALL BE COVERED IN A METHOD APPROVED BY THE ENGINEER ACCORDING TO SECTION 1100.
- INSTALL AND COVER ALL DETOUR ROUTE SIGNS AS SHOWN ON SHEET TCP-5.
- STEP 2: UNCOVER DETOUR SIGNS AND CLOSE SR 1504 (-L-) TO TRAFFIC AS SHOWN IN ROADWAY STANDARD DRAWING 1101.03 (SHEETS 1 & 2 OF 9) AND ON SHEET TCP-5.
- STEP 3: DEMOLISH AND REMOVE THE EXISTING BRIDGE OVER GLADE CREEK. CONSTRUCT THE NEW BRIDGE OVER GLADE CREEK AND THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE:
-L- STA. 12+30+/- TO STA. 12+53.95 (BEGIN BRIDGE)
-L- STA. 13+06.05 (END BRIDGE) TO STA. 16+00+/-
- STEP 4: USING ROADWAY STD. 1101.02 (SHEET 1 OF 7) CONSTRUCT SR 1521 AS SHOWN ON SHEET TCP-3 FROM -Y- STA. 10+53+/- TO -L- STA. 11+65+/- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.
- USING ROADWAY STD. 1101.02 (SHEET 1 OF 7) CONSTRUCT WIDENING OF SR 1504 FROM -L- STA. 11+10+/- TO -L- STA. 12+30+/- UP TO EXISTING PAVEMENT ELEVATIONS.
- CONSTRUCT EXPRESSWAY GUTTER FROM -Y- STA. 10+15+/- TO -L- (SR 1504) STA. 11+40+/-.
- PLACE TEMPORARY PAVEMENT MARKINGS ON THE FOLLOWING:
-L- STA. 11+10+/- TO STA. 16+00+/-
-Y- STA. 10+53+/- TO STA. 11+84+/-
- STEP 5: REMOVE BARRICADES ON SR 1504 (-L-) AND DETOUR SIGNS AND OPEN SR 1504 (-L-) TO TRAFFIC.
- STEP 6: REMOVE BARRICADES ON SR 1521 (-Y-) AND OPEN SR 1521 (-Y-) TO TRAFFIC ON THE NEW ALIGNMENT.

PLANS PREPARED BY:
TGS ENGINEERS
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

APPROVED: _____ DATE: _____	PHASE I													
<table border="1"> <tr> <td>SCALE: NONE</td> <td rowspan="4"> </td> <td>REVISIONS</td> </tr> <tr> <td>DATE: NOV, 2009</td> <td></td> </tr> <tr> <td>DWG BY: JLT</td> <td></td> </tr> <tr> <td>CHKD BY: JLT</td> <td></td> </tr> <tr> <td>REMOVED BY: WCP</td> <td></td> <td></td> </tr> </table>	SCALE: NONE		REVISIONS	DATE: NOV, 2009		DWG BY: JLT		CHKD BY: JLT		REMOVED BY: WCP				
SCALE: NONE			REVISIONS											
DATE: NOV, 2009														
DWG BY: JLT														
CHKD BY: JLT														
REMOVED BY: WCP														



LEGEND

- PROPOSED CONSTRUCTION
- DRUMS
- ⊙ PA WHITE EDGELINE (4") (PAINT)
- ⊙ PI YELLOW DOUBLE CENTER (4") (PAINT)

SEE SHEET TCP-1 FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE

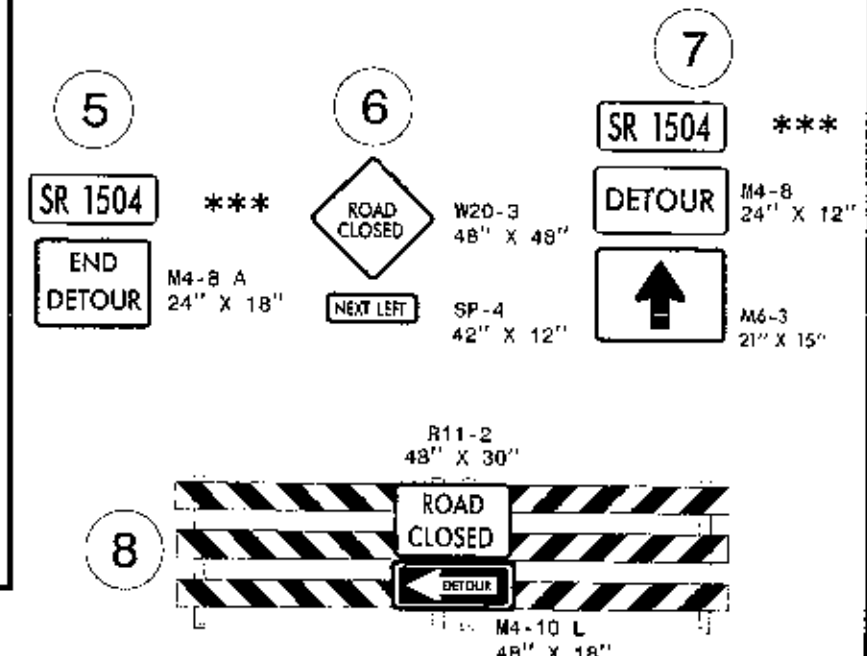
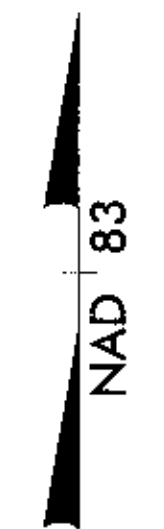
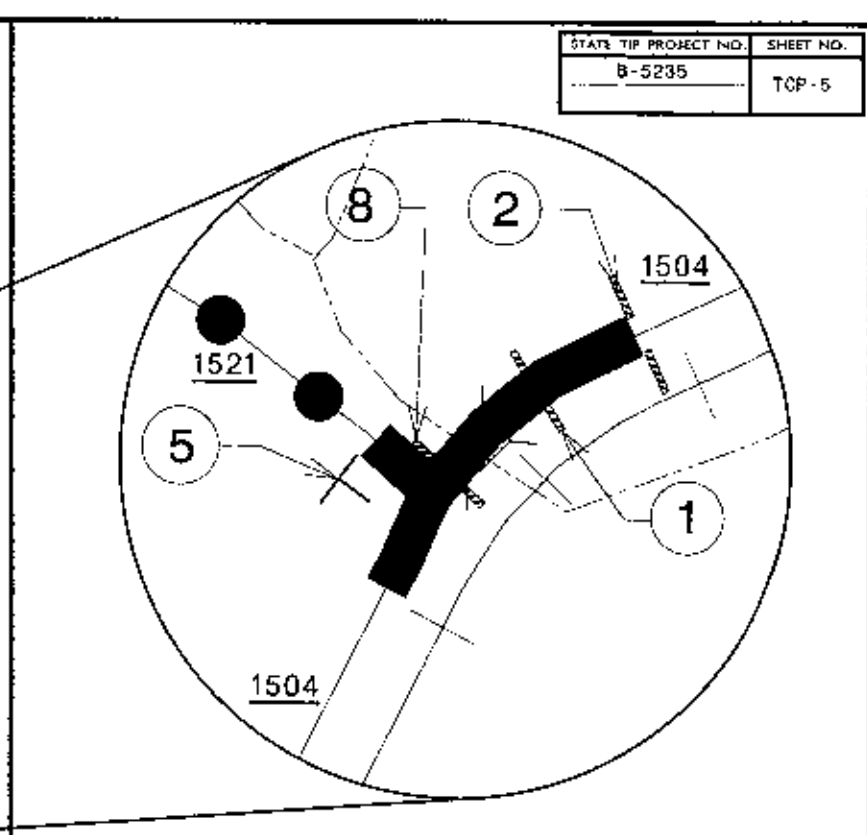
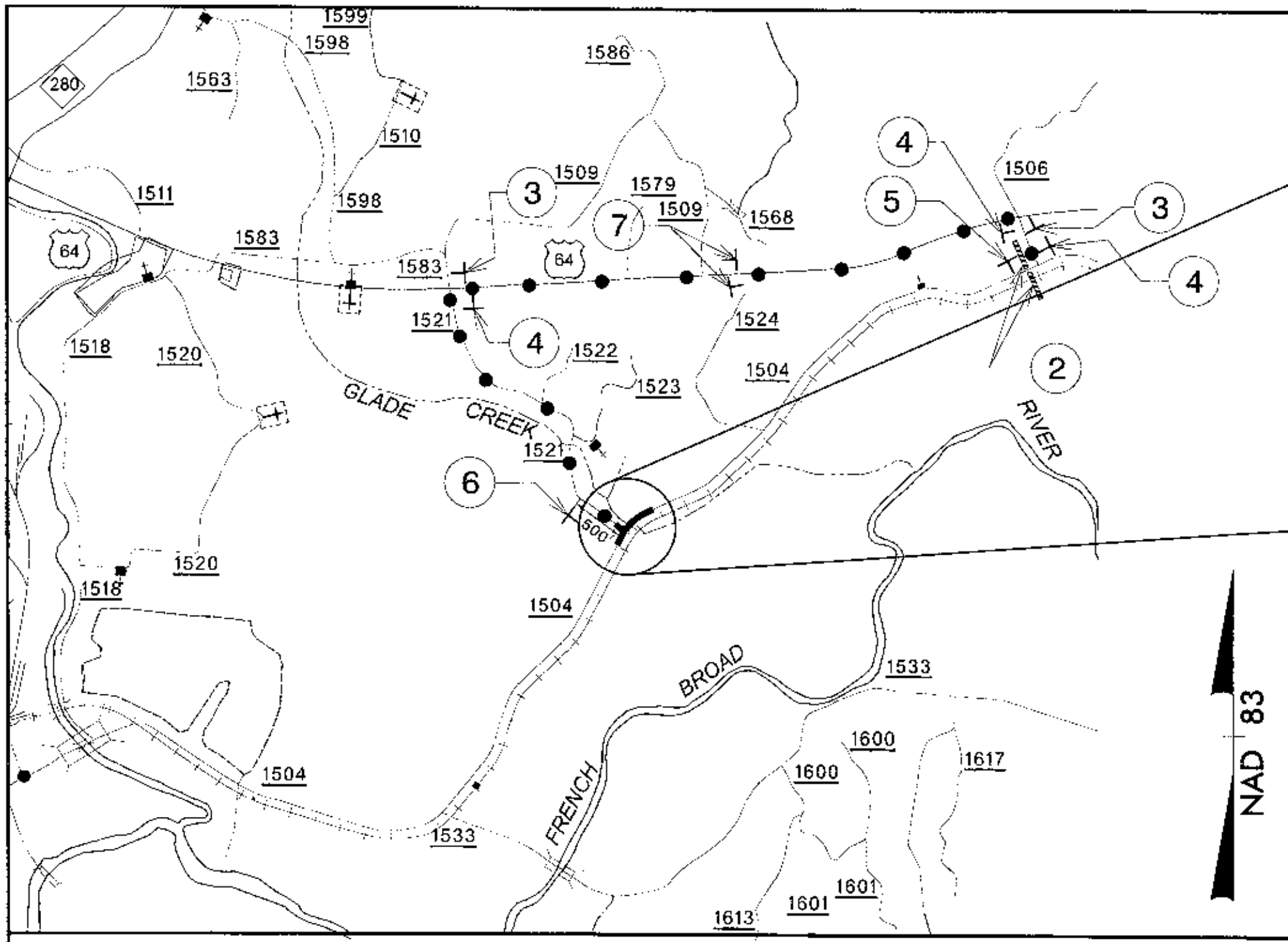
PHASE II

- STEP 1: USING ROADWAY STANDARD 1101.02 (SHEET 1 OF 7) CONSTRUCT THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE
- L- STA. 11+10+/- TO STA. 12+30+/-
 - Y- STA. 10+15+/- TO STA. 11+18+/-
- PLACE TEMPORARY PAVEMENT MARKINGS ON THE FOLLOWING:
- L- STA. 11+10+/- TO STA. 11+87+/-
 - Y- STA. 10+15+/- TO STA. 11+18+/-
- STEP 2: USING ROADWAY STANDARD 1101.02 (SHEET 1 OF 7) AND REFERRING TO SHEET PM-1, PLACE THE FINAL LAYER OF SURFACE COURSE, PLACE PERMANENT PAVEMENT MARKINGS AND SNOWPLOWABLE RAISED REFLECTIVE PAVEMENT MARKERS ON THE FOLLOWING:
- L- STA. 11+10+/- TO STA. 18+00+/-
 - Y- STA. 10+15+/- TO STA. 11+96+/-
- USING ROADWAY STANDARD 1101.02 (SHEET 1 OF 7) AND ROADWAY STANDARD 1101.04 INSTALL GUARDRAIL ALONG -L- FROM STA. 10+24.53 TO STA. 12+53.95 (BEGIN BRIDGE) AND ALONG -Y- (SR 1521) AS SHOWN ON PLAN SHEET 4
- STEP 3: REMOVE ADVANCE WARNING WORKZONE SIGNS AND OPEN SR 1504 (-L-) AND SR 1521 (-Y-) TO TRAFFIC IN FINAL PATTERNS.

PLANS PREPARED BY:

TGS ENGINEERS
 TGS ENGINEERS
 SUITE 141
 975 WALNUT STREET
 CARY, NC 27511
 PH (919) 313-8850

APPROVED: _____ DATE: _____	PHASE II								
	SCALE: NONE								
	DATE: NOV., 2009		<table border="1"> <tr> <th colspan="2">REVISIONS</th> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </table>	REVISIONS					
	REVISIONS								
DWG BY: JLT	DESIGN BY: JLT								
REVIEWED BY: WCP	DATE: 02/25/10								

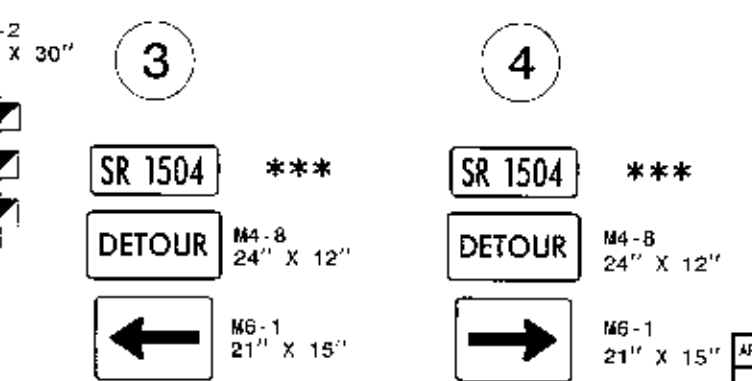
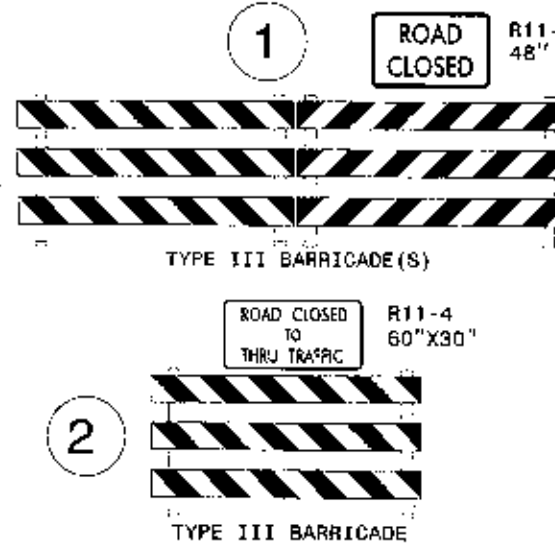


LEGEND

CONSTRUCTION AREA

DETOUR ROUTE

*** SEE SHEET TCP-6 FOR SIGN DESIGN




PLANS PREPARED BY:

TGS
ENGINEERS



TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

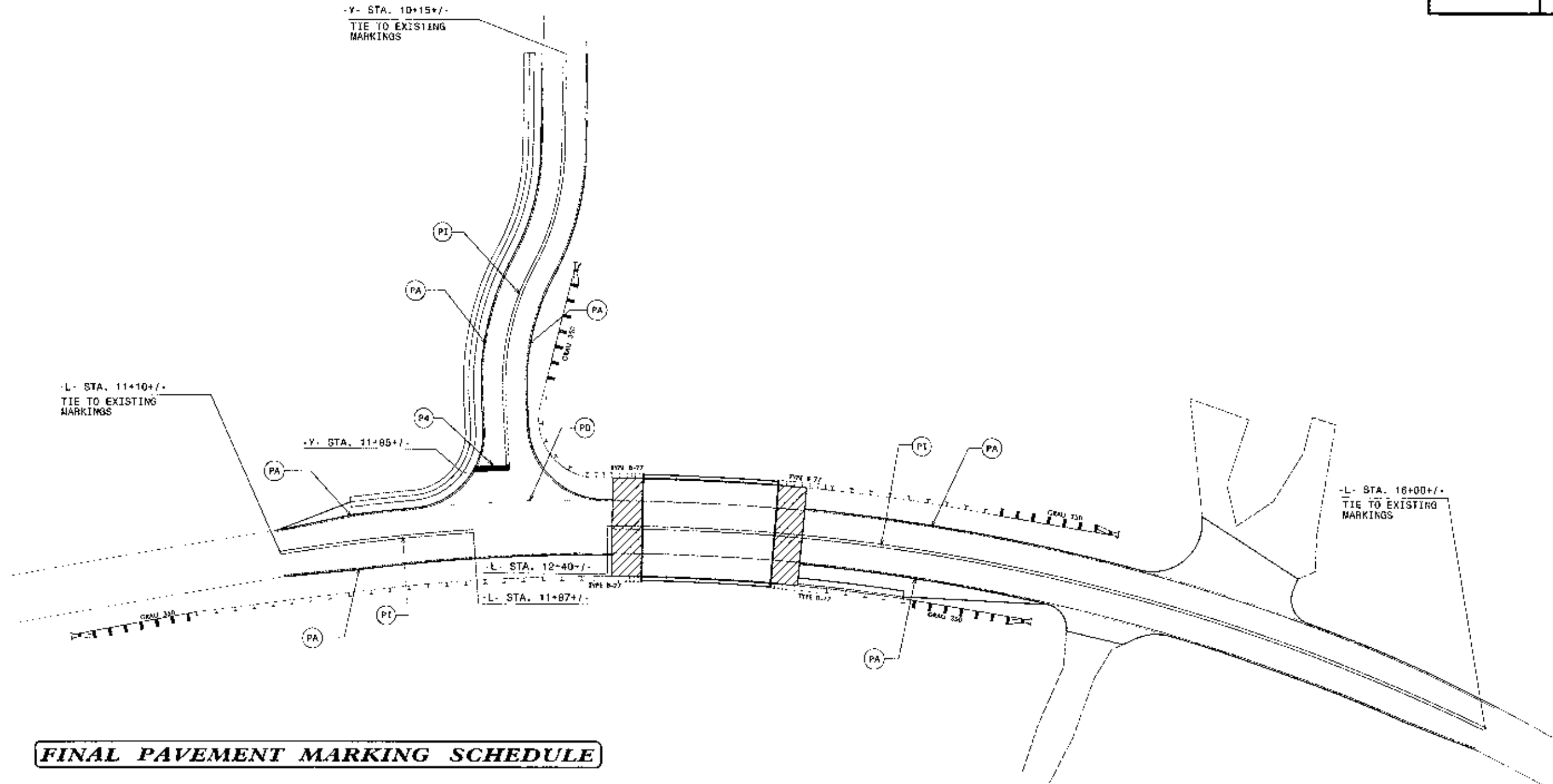
APPROVED: _____ DATE: _____	DETOUR		REVISIONS
			SCALE: NONE
	DESIGNED BY: JLT	DESIGN BY: JLT	REVIEWED BY: WCF

TERRY L. TERRY, P.E. LICENSE NO. 35018 STATE OF NORTH CAROLINA
 TERRY L. TERRY & ASSOCIATES, P.A. 27511-1111 CARY, NC
 02/15/10

SIGN NUMR: DET-1 TYPE: D	TSv3.31 BACKG ORANGE	DESIGN BY: JLT PROJECT ID: B-5235	CK BY: _____ DIV: 14	STD #: 0 DATE: 11/10/09	VERTICAL SPACING			
SIGN WIDTH: 36 INCHES HEIGHT: 18 INCHES TOTAL AREA (S.F.): 4.50	MAJ. COPY SERIES: C ROUTE MARKERS:				6.50 SPACE			
BORDR TYPE: RECESSED RECESS 0.38 INCHES WIDTH: 0.63 INCHES RADII: 1.50 INCHES	ARROW TYPES:				5.00 LINE 1 C 11.5 6.50 SPACE			
NO. Z BARS: #N/A VHB: LENGTH: #N/A INCHES	MAT'L: 0.080 " ALUMINUM				0.00			
USE NO 1,4					0.00			
1. Legend and border shall be direct applied non-reflective sheeting.					0.00			
2. Legend and border shall be direct applied non-reflective sheeting.					0.00			
3. Shields shall be encapsulated lens reflective sheeting on .032" aluminum and demountable.		0.00						
4. Background shall be type VII, VIII, or IX fluorescent orange reflective sheeting.		0.00						
5. Background shall be enclosed lens refl. sheeting.		0.00						
6. Center arrow(s) vertically on sign.		0.00						
			MOUNTED ON 1 U POST	0.00				
				TOTAL: 18 0.00				
SIZE/SERIES	LT MARGIN	SIGN COPY						RT MARGIN
CHAR: 5.00 INCH TYPE: C		S	R	1	5	0	4	
#/LC: 5.00 INCH SPCE: 1.00 FACTOR	6.47 [x]	3.79	2.74	4.10	2.07	3.58	3.74	3.05
LINE 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PRINTED AT THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION, 1201 SOUTH CAROLINA AVENUE, COLUMBIA, SC 29201

APPROVED: _____	DATE: _____	DETOUR SIGN LAYOUT	
	SCALE: NONE		REVISIONS
	DATE: NOV. 2009		
	DWG BY: JLT		
	REVIEWED BY: WCP		



FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM	QUANTITY BREAKDOWN	TOTAL QUANTITY
PAVEMENT MARKINGS LINES				
		PAINT (4")		
PA	WHITE EDGELINE (2X)		2808 LF	
PD	2 FT WHITE MINISKEP (2X)		20 LF	
PI	YELLOW DOUBLE CENTER (2X)		2424 LF	
			TOTAL	5052 LF
P4	WHITE STOPBAR (2X)	PAINT (24")	28 LF	
			TOTAL	28 LF
PAVEMENT MARKERS				
MA	YELLOW & YELLOW	PERMANENT RAISED PAVEMENT MARKERS	20 EA	
			TOTAL	20 EA

NOTE:
 FOR EACH PAINT PAVEMENT MARKING ITEM, 1X IMPLIES A SINGLE APPLICATION, 2X IMPLIES TWO APPLICATIONS, AND 3X IMPLIES THREE APPLICATIONS.

PLANS PREPARED BY:
TGS ENGINEERS
 SUITE 141
 975 WALNUT STREET
 CARY, NC 27511
 PH (919) 319-0850

APPROVED: _____ DATE: _____	FINAL PAVEMENT MARKINGS & SCHEDULE		
	SCALE: NONE		
	DATE: NOV., 2009		REVISIONS
	DWG. BY: JLT		
	DESIGN BY: JLT		
REVIEWED BY: WCP			

TIP PROJECT: B-5235

EROSION CONTROL SCHEDULE

1. Install erosion control measures according to plans in all outlets and at other discharge points after clearing but before grading.
2. Clear and clean out all ditches leading sidestreams at an angle that can be retained by vegetation. These areas will require slope seeding and mulching.
3. Begin grading of roadway ditches. Place erosion control measures along roadway ditches as grading progresses and conditions allow.
4. Seed and mulch all disturbed areas as soon as any phase of grading is completed. (Note: there are 15 working days or 10 calendar days whichever is less to complete seeding and mulching)
5. Clean up and/or rework all temporary erosion control measures after any significant rainfall event or as otherwise needed. These measures should be maintained until a permanent vegetative cover is established.

PIPE INSTALLATION SCHEDULE

1. Install erosion control devices.
2. Remove material and existing pipe while limiting, as much as possible, material and sediment from entering the stream and/or escaping from the project.
3. Prepare slope foundation while taking care to limit material and sediment from entering the stream and/or escaping from the project. Permit conditions will normally require that new grade will be below existing streambed. If needed, bedding material will be clean stone (specify in T&M and M&M notes).
4. Place new pipe and compact fill.
5. Install slope protection on outlet and inlet ends of pipe. Also complete installation of erosion control measures and perform maintenance as needed on existing measures.
6. Establish permanent vegetation as soon as possible.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
**PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL**
TRANSYLVANIA COUNTY

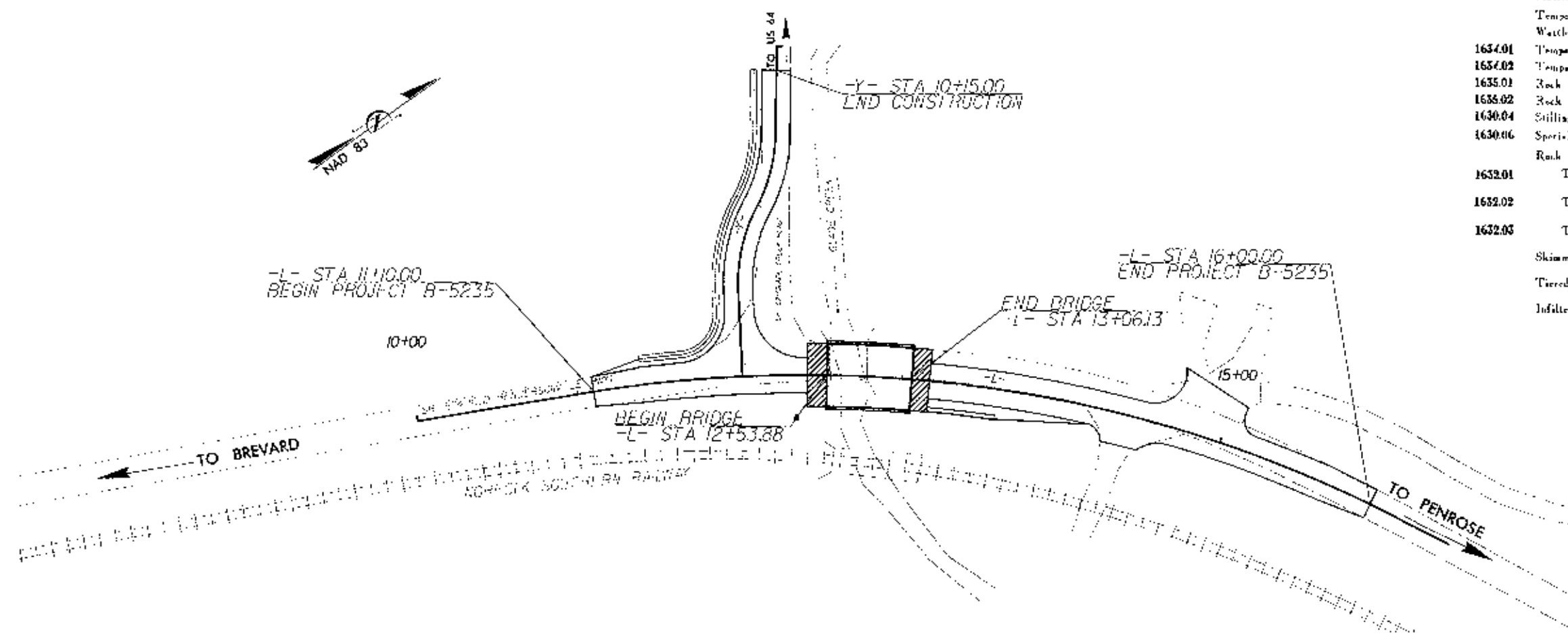
**LOCATION: BRIDGE NO. 194 ON SR 1504 (HENDERSONVILLE HIGHWAY)
OVER GLADE CREEK**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5235	EC-1	
STATE DIVISION	Y. & PERM NO.	DATE/TIME	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	---
1630.05	Temporary Diversion	---
1605.01	Temporary Silt Fence	- - -
1606.01	Special Sediment Control Fence	~ ~ ~ ~
1622.01	Temporary Berms and Slope Drains	~ ~ ~ ~
	Silt Basin Type B	▨
1635.01	Temporary Rock Silt Check Type-A	▨
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▨
	Temporary Rock Silt Check Type-B	▨
	Watch	○
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.**

**THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.**

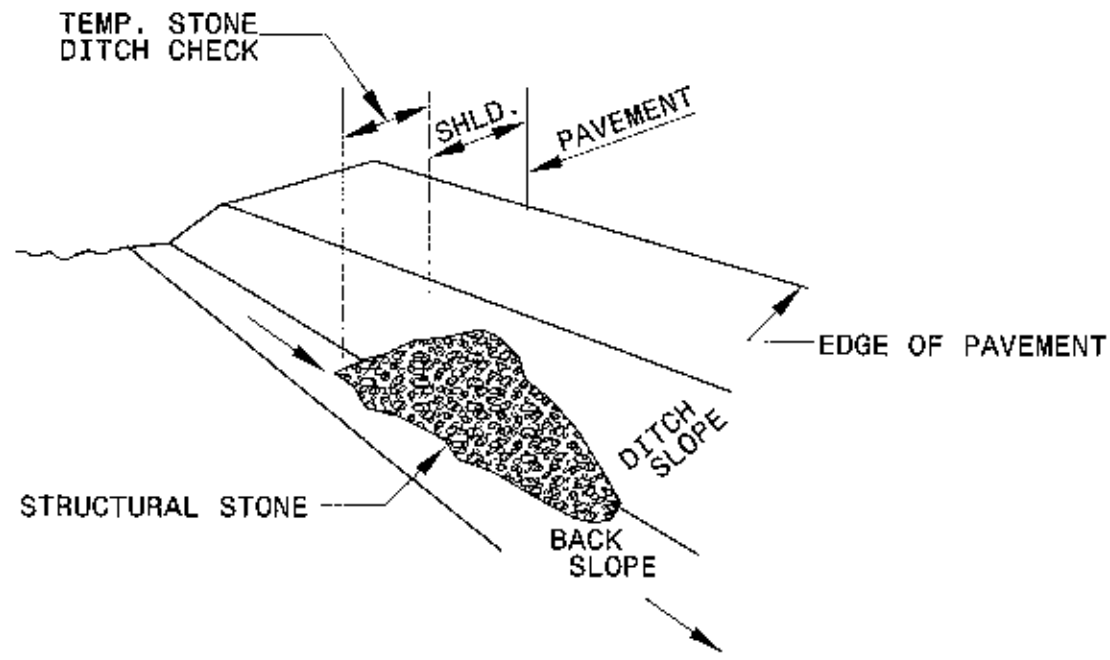
**ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT**

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

<p>GRAPHIC SCALE</p> <p>PLANS</p>	<p>DESIGN DATA</p> <p>ADT 2010 = 4,600 ADT 2030 = 9,711 T = 7 % V = 50 MPH</p>	<p>PROJECT LENGTH</p> <p>LENGTH ROADWAY PROJECT B-5235 = .083 MI LENGTH STRUCTURE PROJECT B-5235 = .010 MI TOTAL LENGTH PROJECT B-5235 = .093 MI</p>	<p>Plans Prepared By:</p> <p>TGS ENGINEERS SUITE 141 975 WALNUT STREET GARY, NC 27841 PH (919) 319-8850</p> <p>100% STANDARD SPECIFICATIONS</p>	<p>Plans Prepared For:</p> <p>NCDOT DIVISION 14 NCDOT Contact: RALPH CANNADY DIVISION PROJECT ENGINEER</p> <p>LETTING DATE: _____</p> <p>JIMMY L. TERRY, PE PROJECT ENGINEER LEVEL III CERTIFICATION NO. 319</p>	<p>Highway Standard Drawings</p> <p>The following roadway engineer standards as appear in "Roadway Standard Drawings" - Roadway Design 1.0a - N. C. Department of Transportation - Raleigh, N. C., dated July 18, 2006 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.</p> <p>1605.01 Temporary Silt Fence 1607.01 Gravel Construction Entrance 1622.01 Temporary Berms and Slope Drains 1630.05 Temporary Diversion 1632.03 Rock Inlet Sediment Trap Type C 1633.01 Temporary Rock Silt Check Type A</p>
--	---	---	--	---	---

PROJECT REFERENCE NO. 8-5235	SHEET NO. FC-2
ROW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL

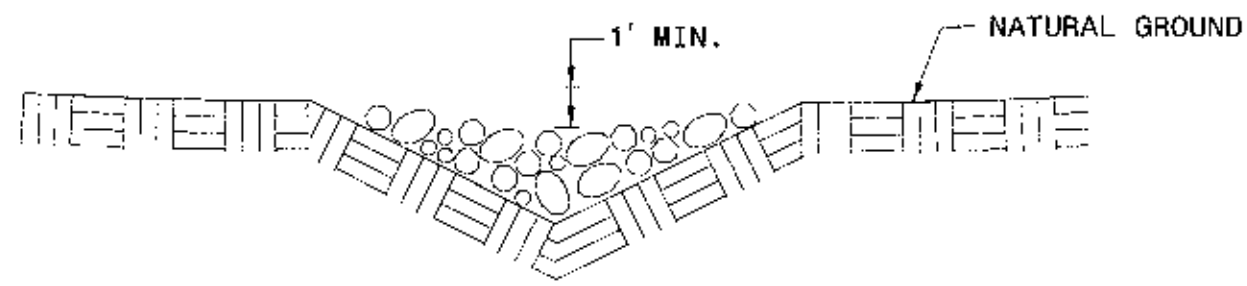


ISOMETRIC VIEW

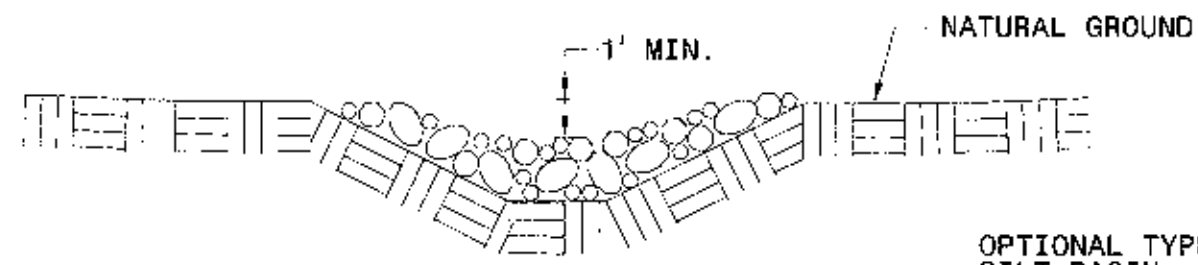
NOTES:

USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

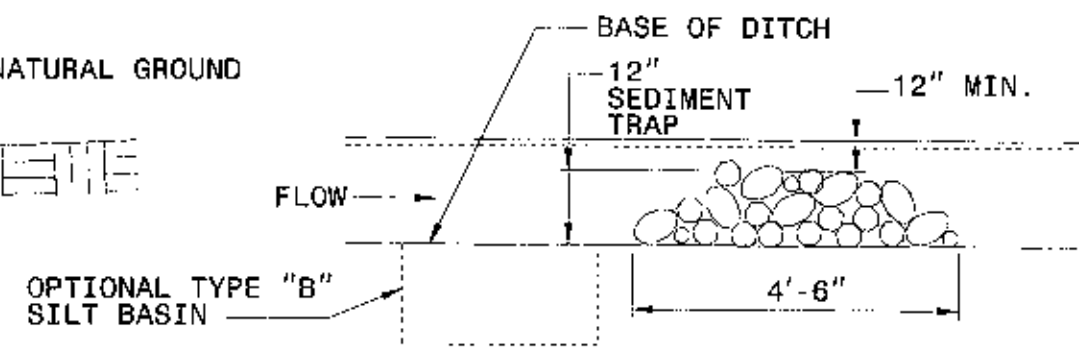
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



CROSS SECTION VEE DITCH



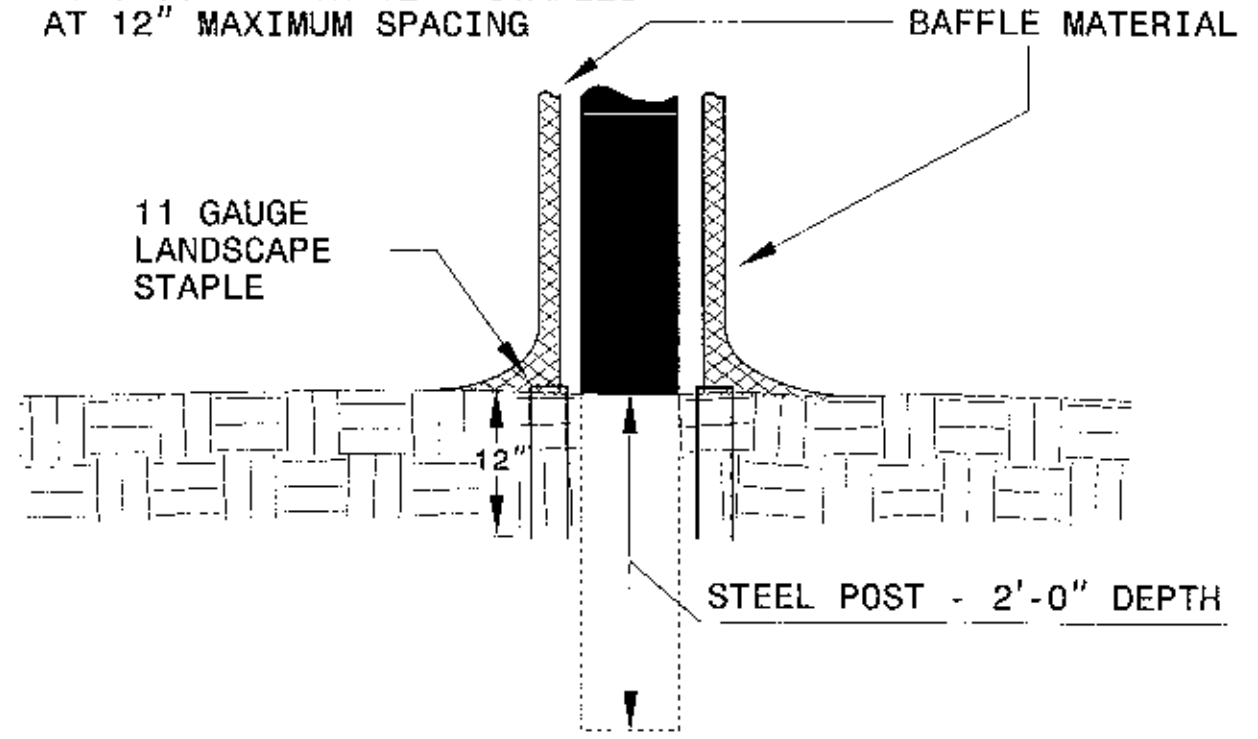
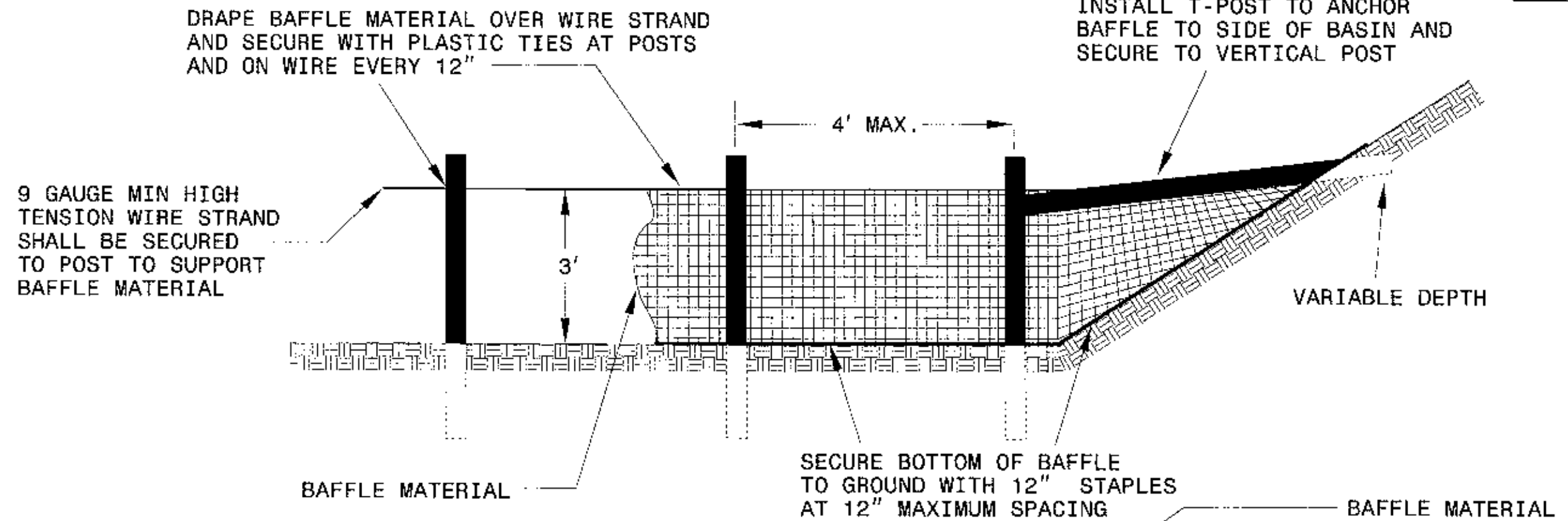
CROSS SECTION TRAPEZOIDAL DITCH



ELEVATION VIEW

PROJECT REFERENCE NO. B-5235	SHEET NO. FC-2A
REV. SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER BAFFLE DETAIL



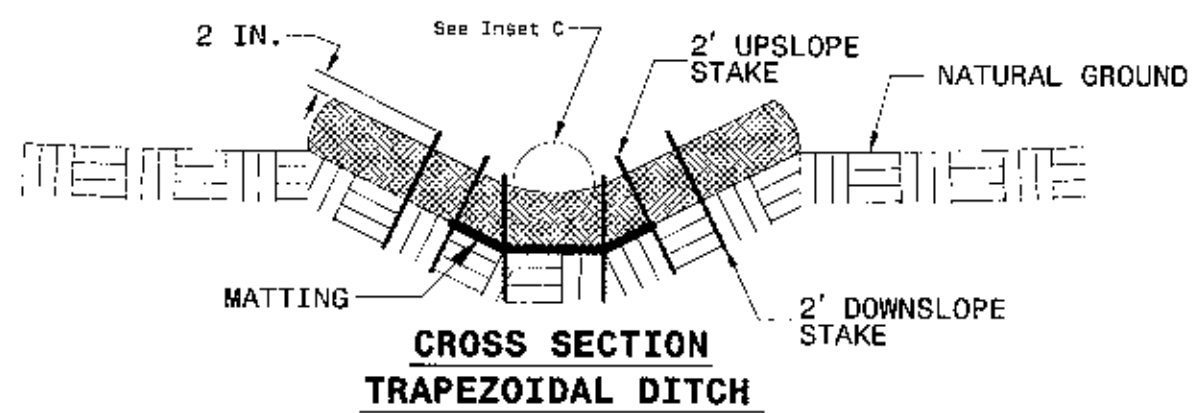
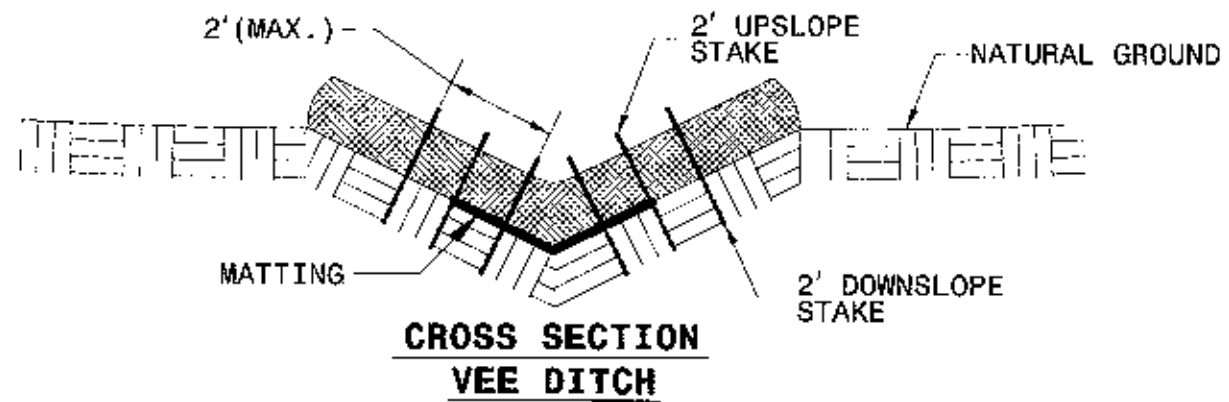
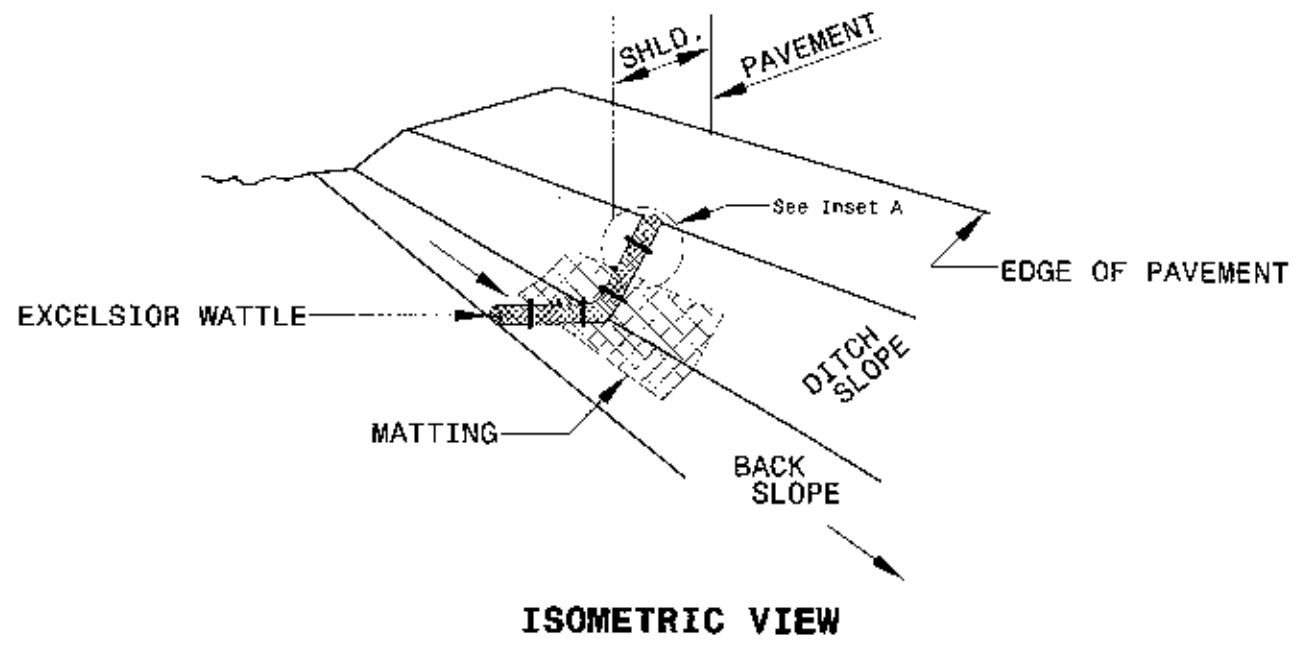
NOTES:

1. INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF $\frac{1}{4}$ THE BASIN LENGTH.
2. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF $\frac{1}{3}$ THE BASIN LENGTH.
3. TOP HEIGHT OF COIR FIBER BAFFLES SHALL NOT BE BELOW BASE OF EMERGENCY SPILLWAY ELEVATION.

BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12" LANDSCAPE STAPLES

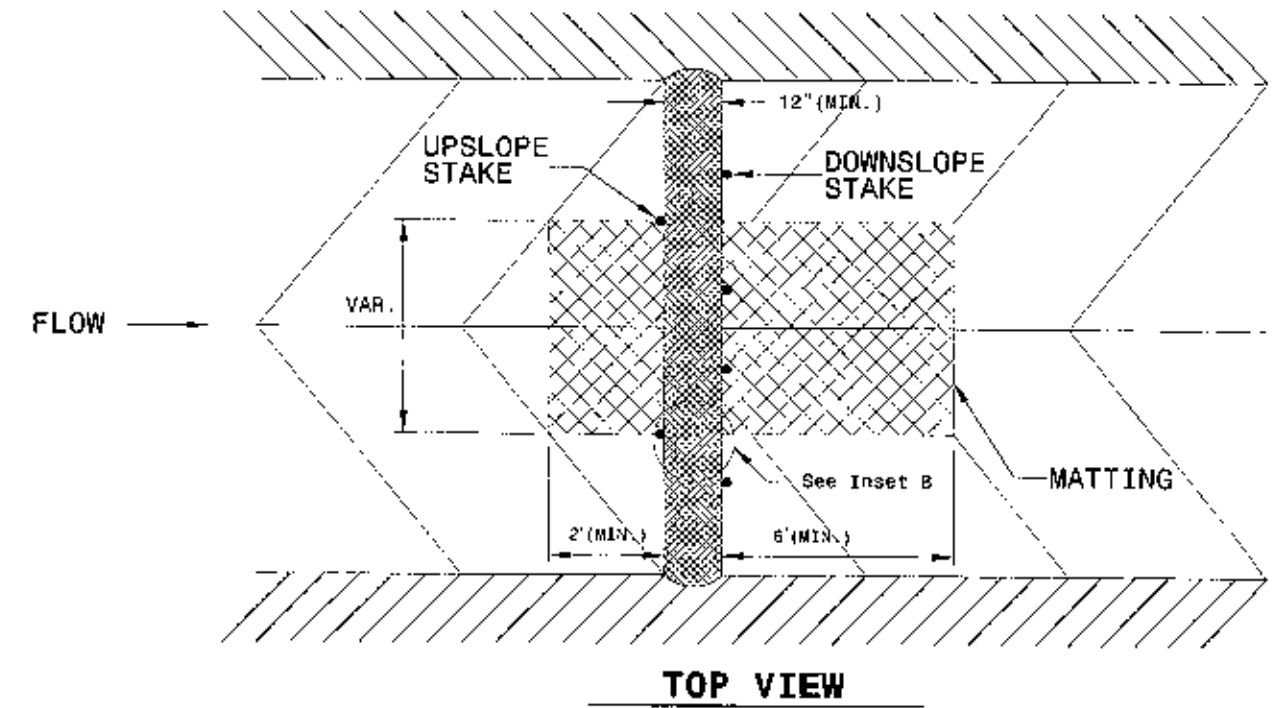
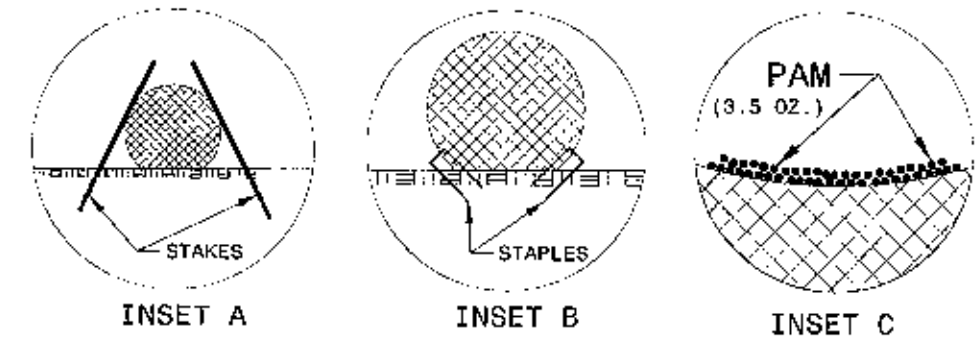
PROJECT REFERENCE NO. B-5235	SHEET NO. FC-28
L.V. SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

WATTLE WITH POLYACRYLAMIDE DETAIL



NOTES:

- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. CROSS SECTION.
- ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
- 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.
- INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.
- PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
- INITIALLY APPLY 3.5 OUNCES OF ANIONIC OR NEUTRALLY CHARGED POLYACRYLAMIDE (PAM) OVER WATTLE WHERE WATER WILL FLOW AND AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



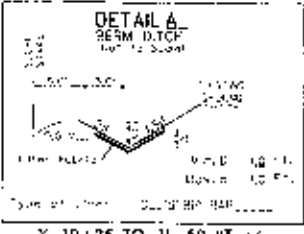


ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

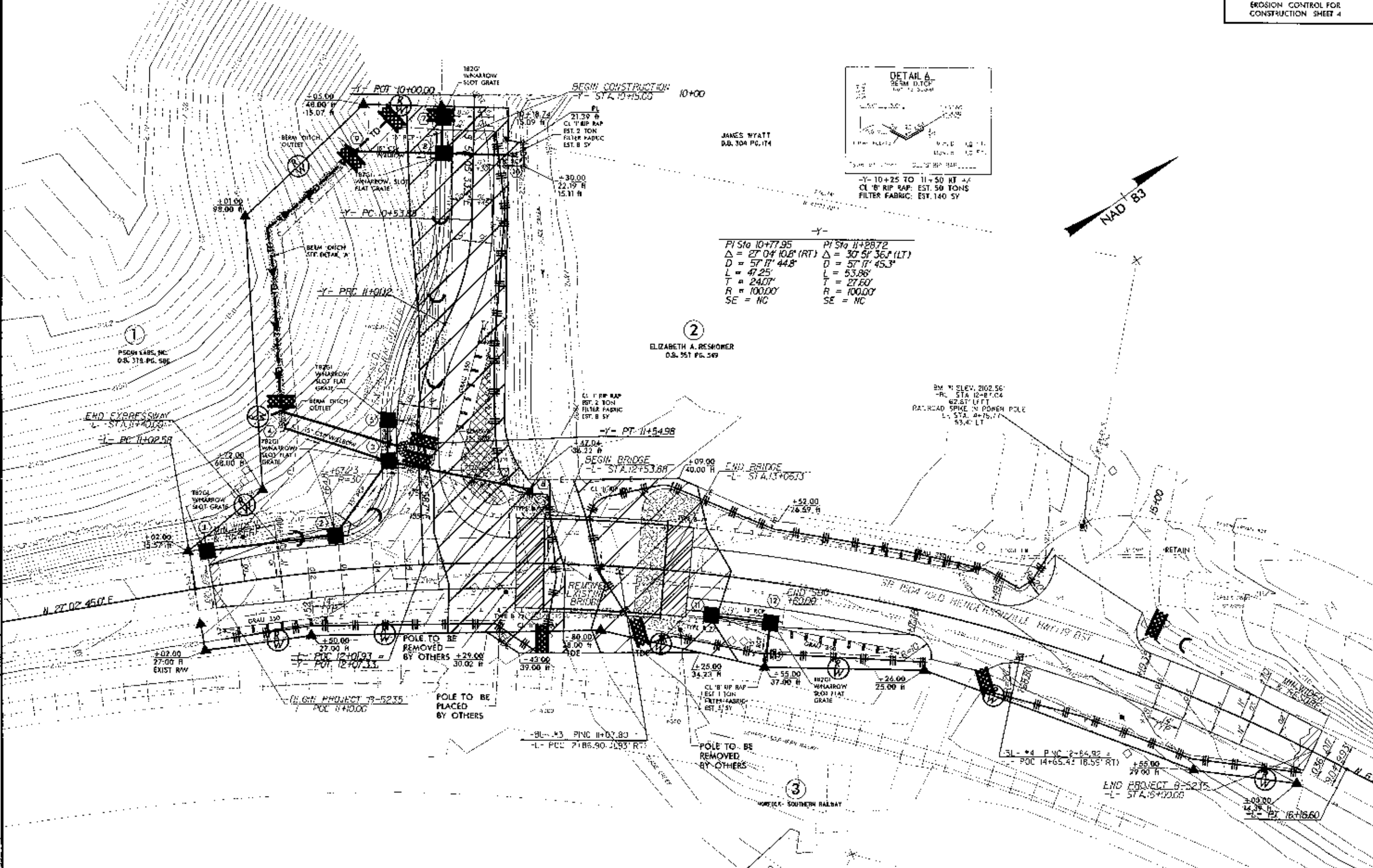
EROSION CONTROL PLAN

PROJECT REFERENCE NO.	DRAWING NO.
17-5235	EC-3/CONST.A
TGS ENGINEERS SUITE 141 975 WALNUT STREET CARY, NC 27513 PH (919) 319-8850	

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



REVISIONS



-Y-

PI STA	PI STA
10+77.95	11+88.72
$\Delta = 27^{\circ} 04' 10.8''$ (RT)	$\Delta = 30^{\circ} 51' 36.1''$ (LT)
$D = 57^{\circ} 17' 44.8''$	$D = 57^{\circ} 17' 45.3''$
$L = 47.25'$	$L = 53.86'$
$T = 24.07'$	$T = 27.60'$
$R = 100.00'$	$R = 100.00'$
$SE = NC$	$SE = NC$

JAMES WYATT
D.B. 304 PG. 174

2
ELIZABETH A. RESHOWER
D.B. 551 PG. 569



1
PUGH LABS, INC.
D.B. 314 PG. 585

B.M. "A" ELEV. 202.56'
-R- STA 12+87.04
62.57' LEFT
RAILROAD SPIKE N POWER POLE
L- STA. 14+75.7'
93.4' LT

SEGW BRIDGE
-L- STA. 12+53.88

END BRIDGE
-L- STA. 13+05.13

POLE TO BE
REMOVED
BY OTHERS

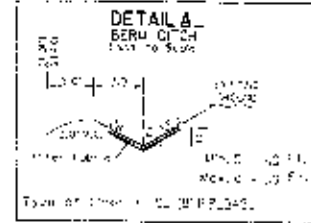
POLE TO BE
REMOVED
BY OTHERS

END PROJECT B-5235
-L- STA. 15+00.00

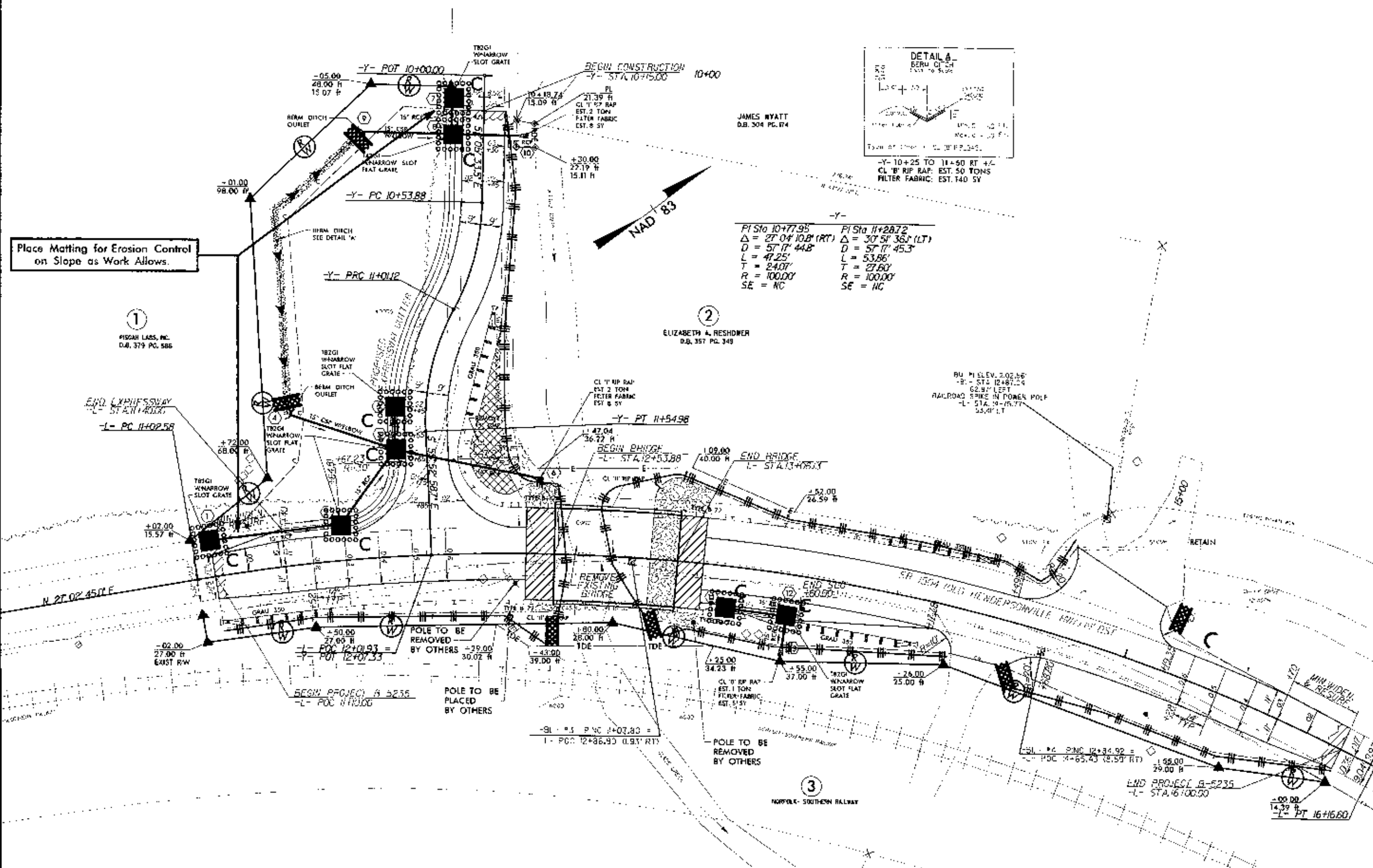
3

17-5235 (sheet 4 of 4) DWS:JLD/2/1/2017 11:46:01

EROSION CONTROL PLAN



-Y-	
PI Sta 10+77.95	PI Sta 11+28.72
$\Delta = 27' 04" 10.8'$ (RT)	$\Delta = 30' 51" 38.1'$ (LT)
$D = 57' 17" 44.8'$	$D = 57' 17" 45.3'$
$L = 47.25'$	$L = 53.86'$
$T = 24.07'$	$T = 27.66'$
$R = 100.00'$	$R = 100.00'$
SE = NC	SE = NC



Place Matting for Erosion Control on Slope as Work Allows.

①
FISCH LAAS, INC.
D.B. 379 PG. 586

②
ELIZABETH A. RESHNER
D.B. 357 PG. 349

③
NORFOLK SOUTHERN RAILWAY

REVISIONS

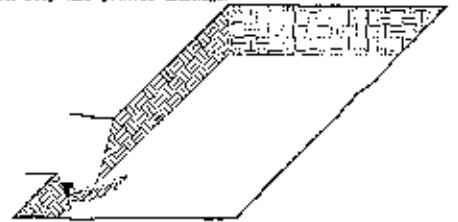
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DRAWN BY: [unreadable]
CHECKED BY: [unreadable]

PLANTING DETAILS

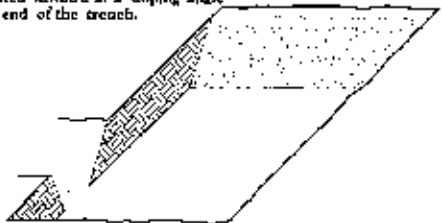
SEEDLING / LINER BARERoot PLANTING DETAIL

HEALING IN

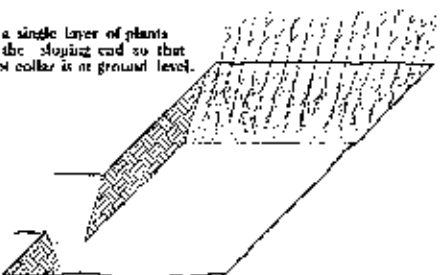
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



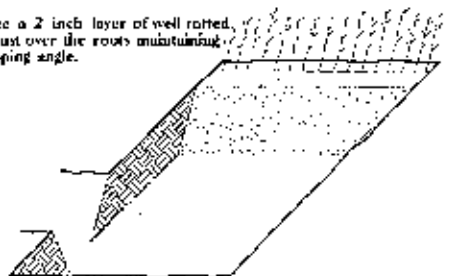
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

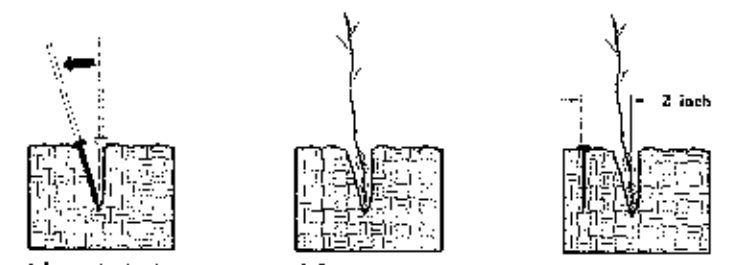


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

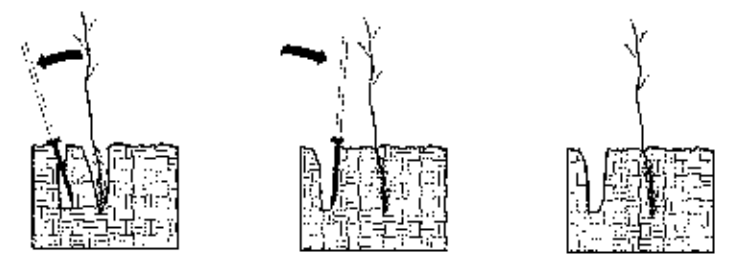


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



1. Insert planting bar as shown and push handle toward planter.
2. Remove planting bar and place seedling at correct depth.
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave competition hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
 During planting, seedlings shall be kept in a canvas bag or similar container to prevent the root system from drying.



KBC PLANTING BAR
 Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
 All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25% LIRODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

B-5235

XS-INDEX

Index	X-INDEX
Summary ...	X-SUM
-L-	X-1 THRU X-5
-Y-	X-6 THRU X-9

11/11/2010 10:11:11 AM

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJ. REFERENCE NO.	SHEET NO.
B-5295	X-SUM.

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

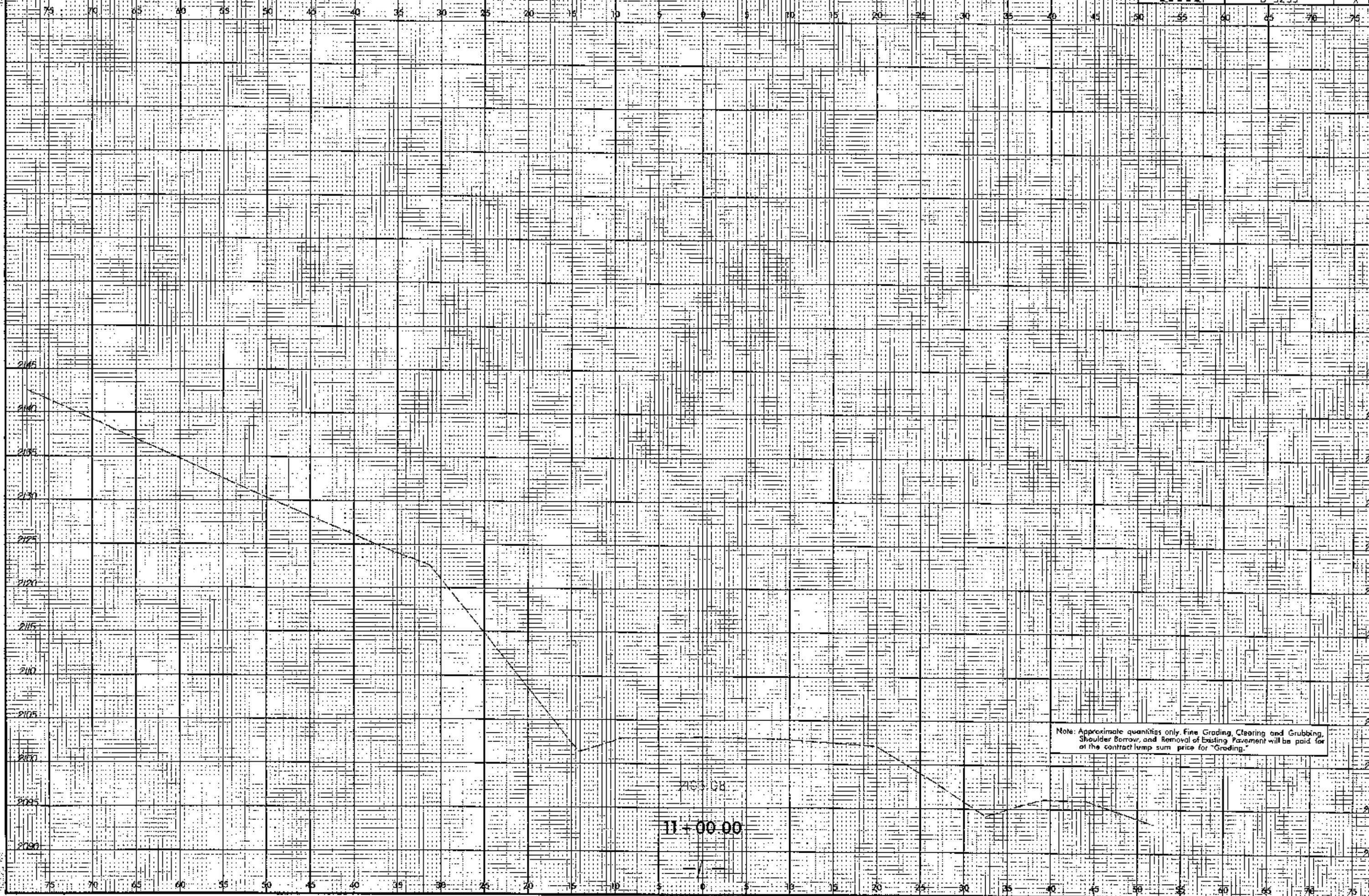
CROSS-SECTION SUMMARY

Station	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
L		
11+10.00	0	0
11+50.00	0	0
12+00.00	94	2
12+53.88	94	2

Approximate quantities only. Fine grading,
clearing and grubbing, shoulder borrow, and removal of existing
pavement will be paid for at the lump sum price for "Grading".

Station	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
L		
13+28.13	0	0
13+50.00	0	0
14+00.00	18	28
14+50.00	13	2
15+00.00	9	1
15+50.00	9	1
16+00.00	0	0

Station	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
Y		
10+15.00	0	0
10+50.00	0	0
11+00.00	808	3
11+50.00	1025	8
11+96.33	0	0



11+00.00

Note: Approximate quantities only. Fine Grading, Clearing and Grubbing, Shoulder Borrow, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

2100 GR

2145
2140
2135
2130
2125
2120
2115
2110
2105
2100
2095
2090

2145
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2135
2130
2125
2120
2115
2110
2105
2100
2095
2090

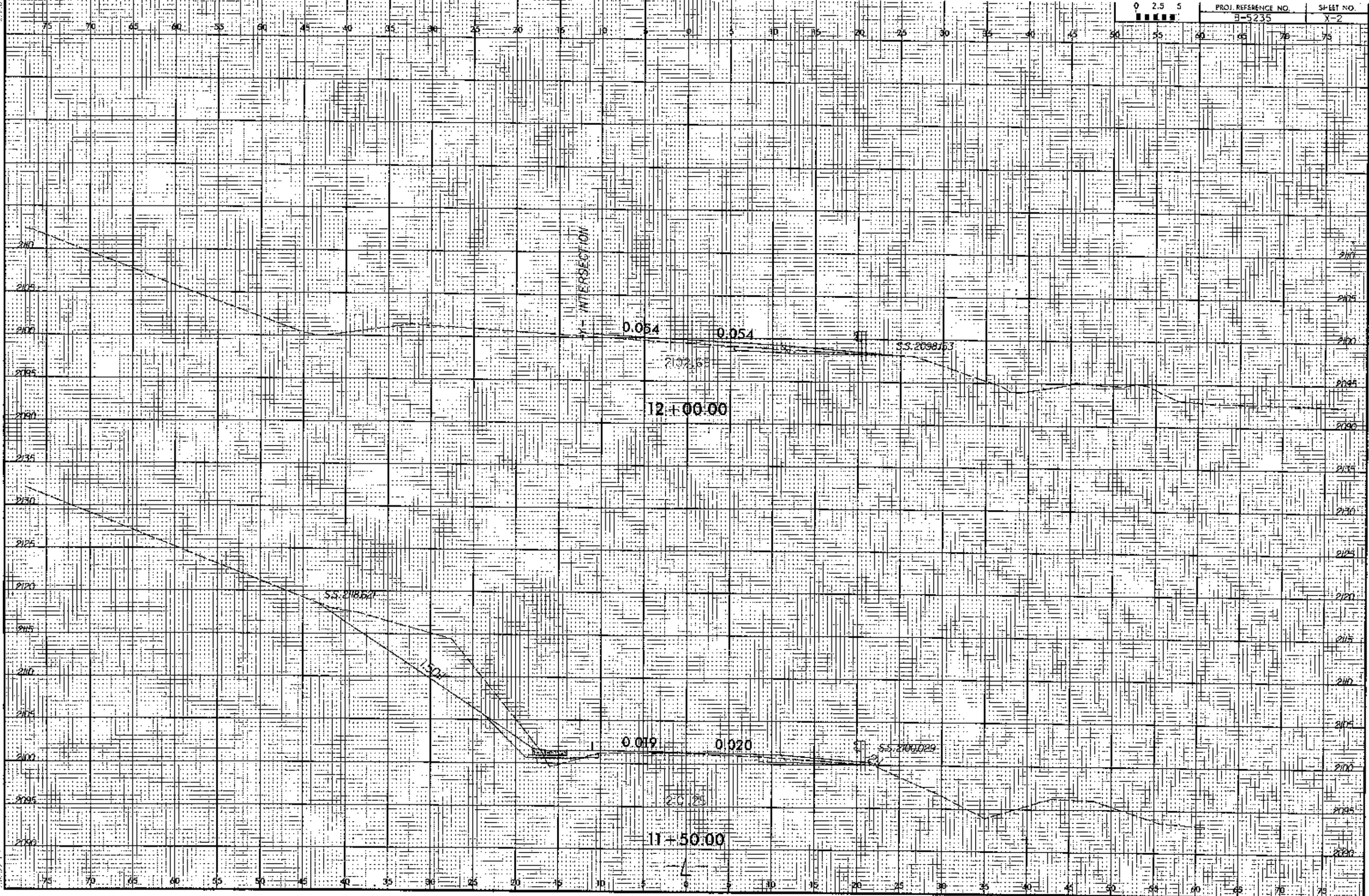
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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 2.5 5

PROJ. REFERENCE NO.
B-5235

SHEET NO.
X-2



VERTICAL INTERSECTION

0.054 0.054

SS-2098753

12+00.00

SS-2108621

150

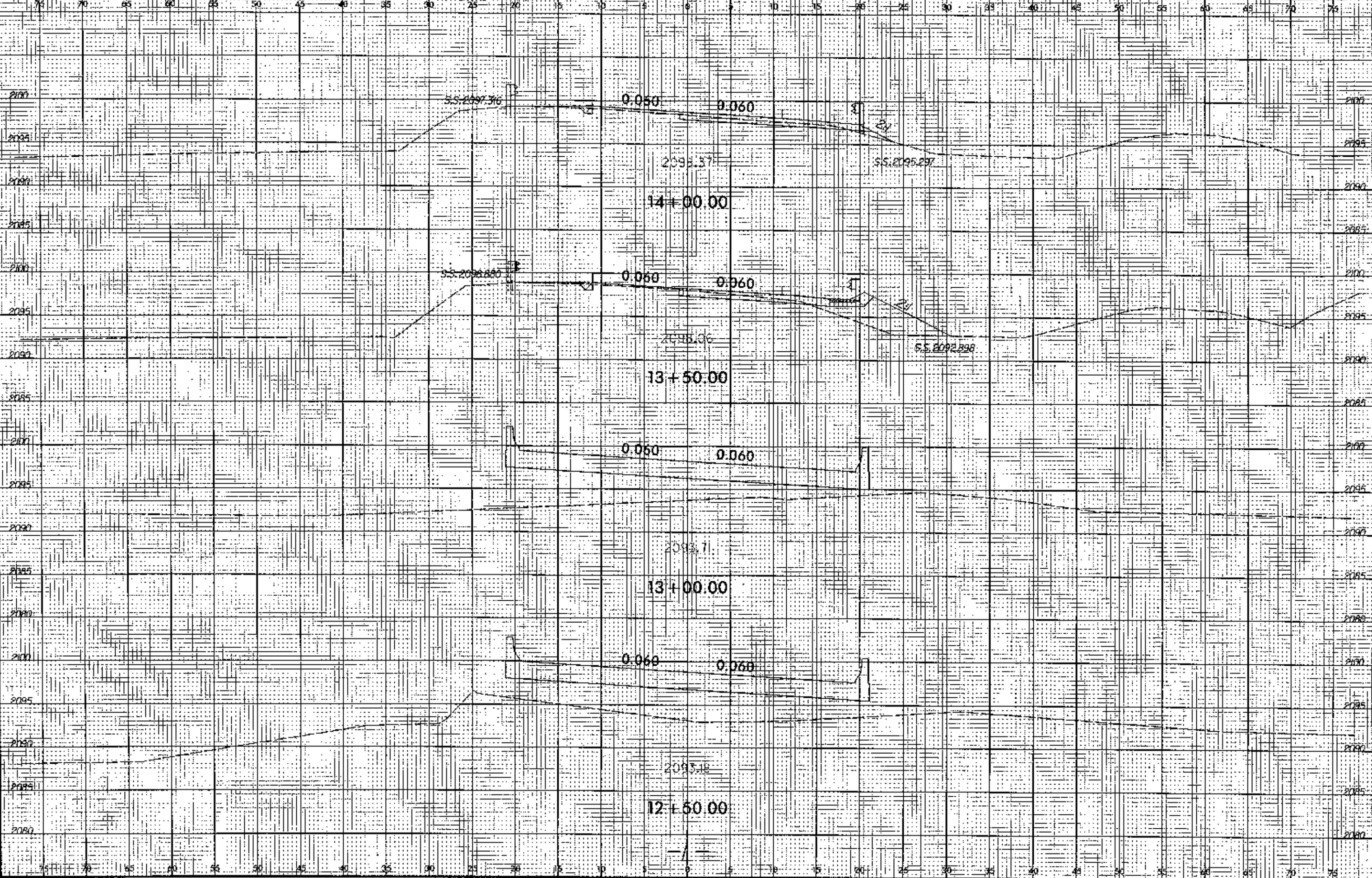
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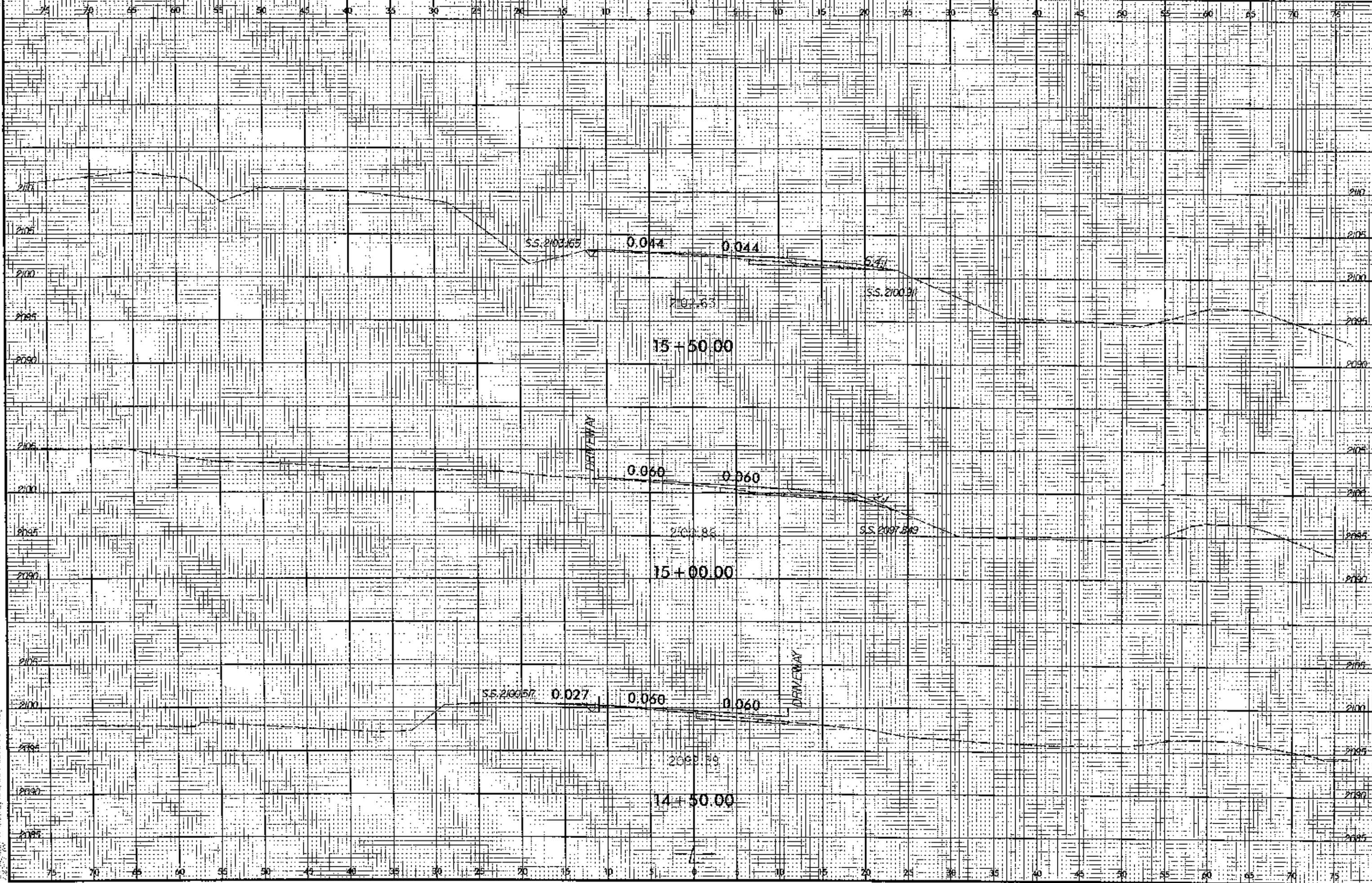
11+50.00

Vertical Curve Data: 11+50.00 to 12+00.00

PL 2.1



Vertical Datum: Mean Sea Level

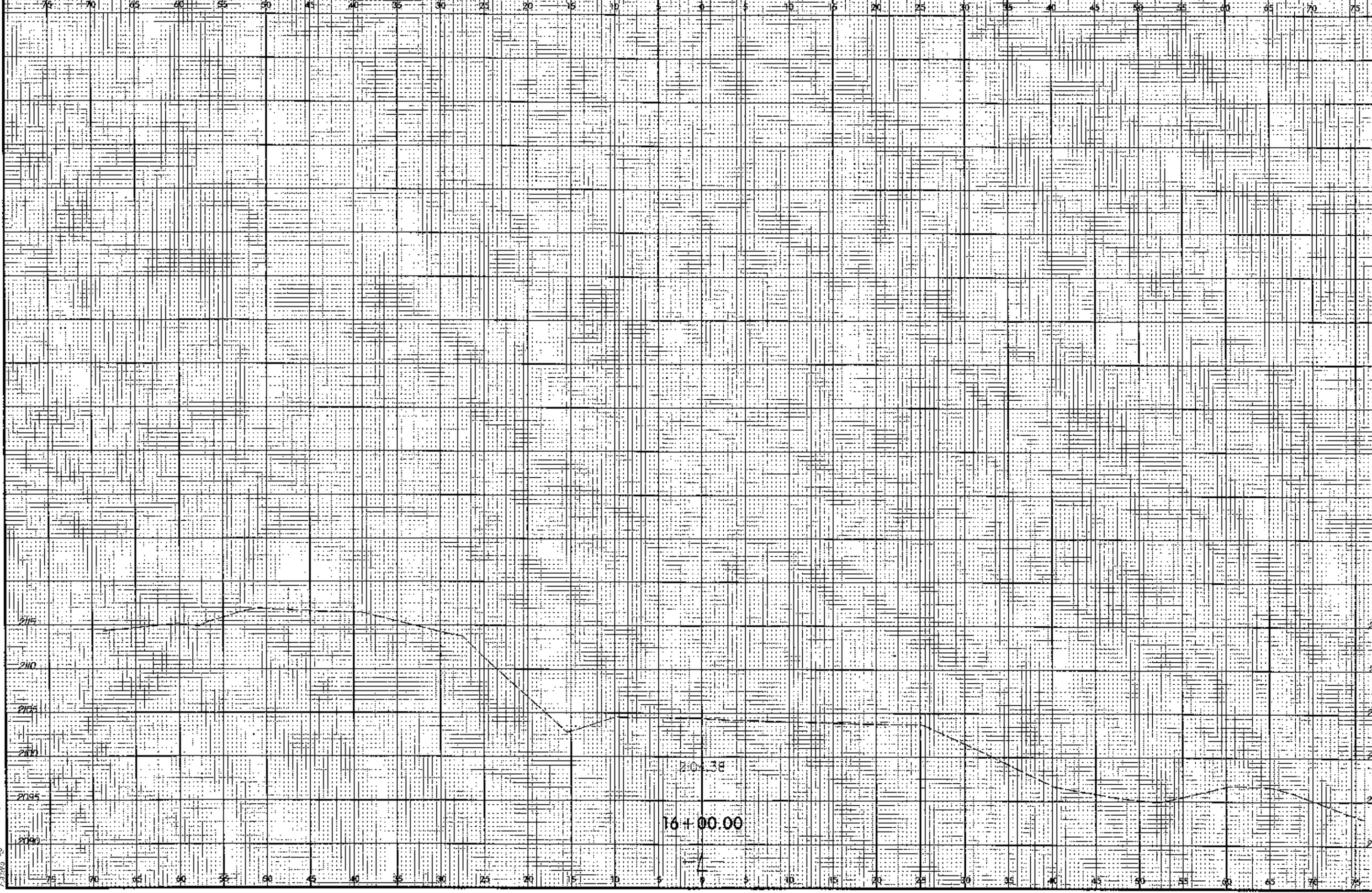


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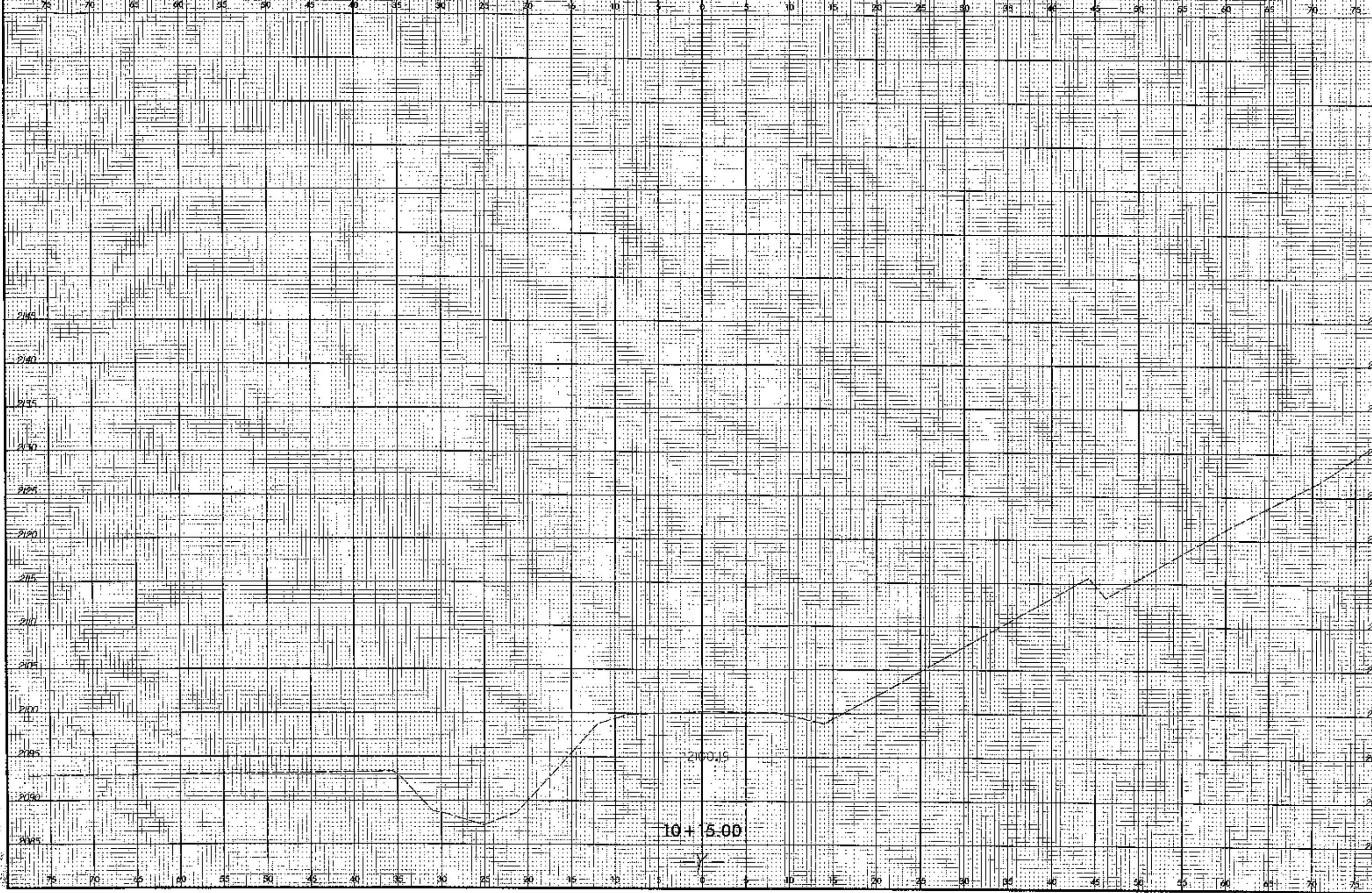
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PROJ. REFERENCE NO.
B-5235

SHEET NO.
X-5



10/22/21
C:\Users\james.van... \Documents\10-22-21 - MP.dwg



10+15.00

Y

0 2.5 5

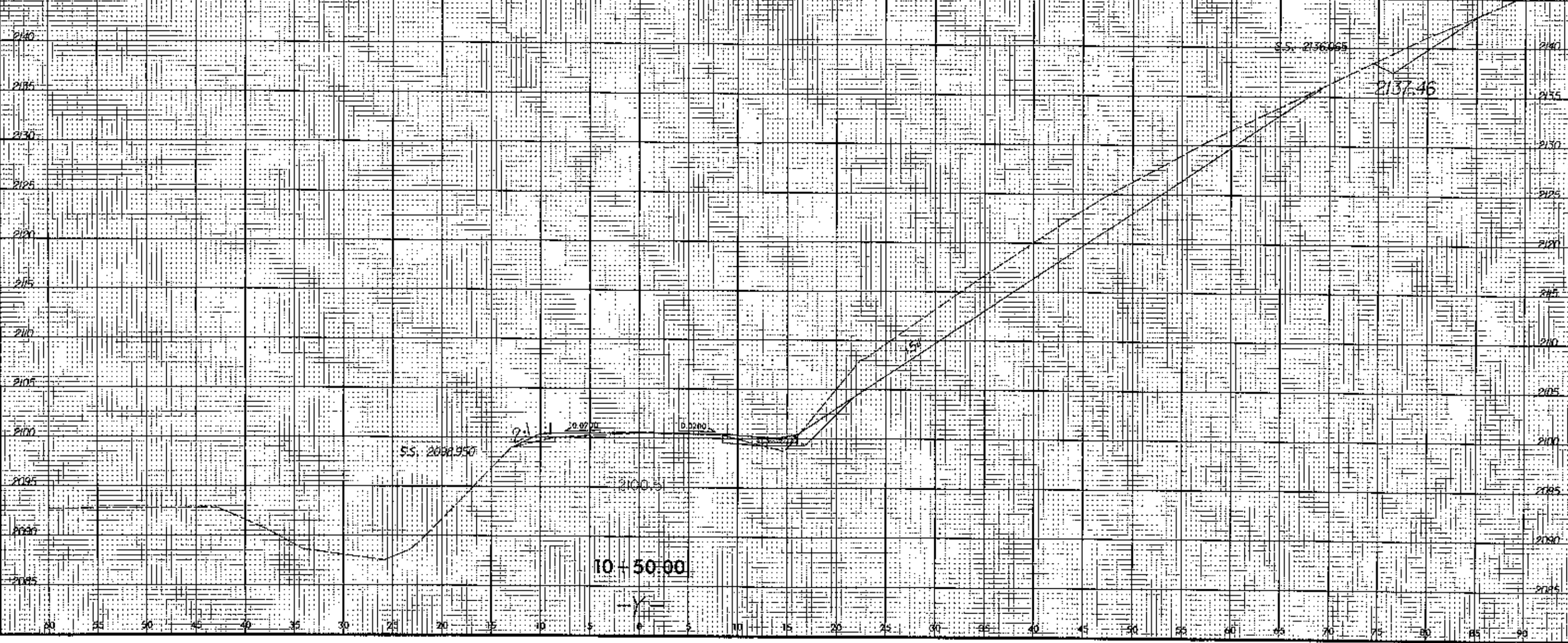
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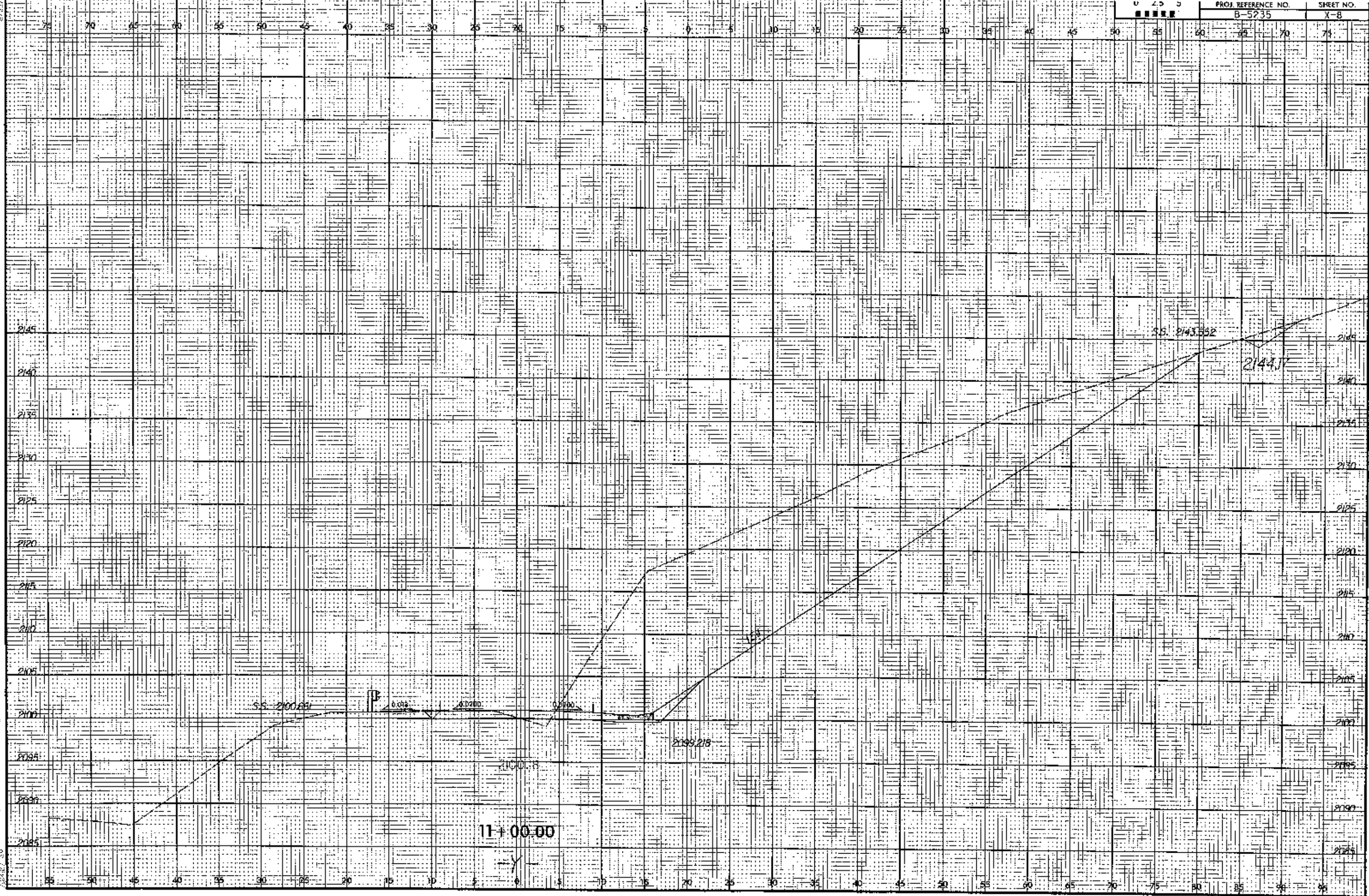
SHEET NO

B-5235

X-7

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SS 2100.651

P

0.018

0.0200

0.0200

2100.15

2199.218

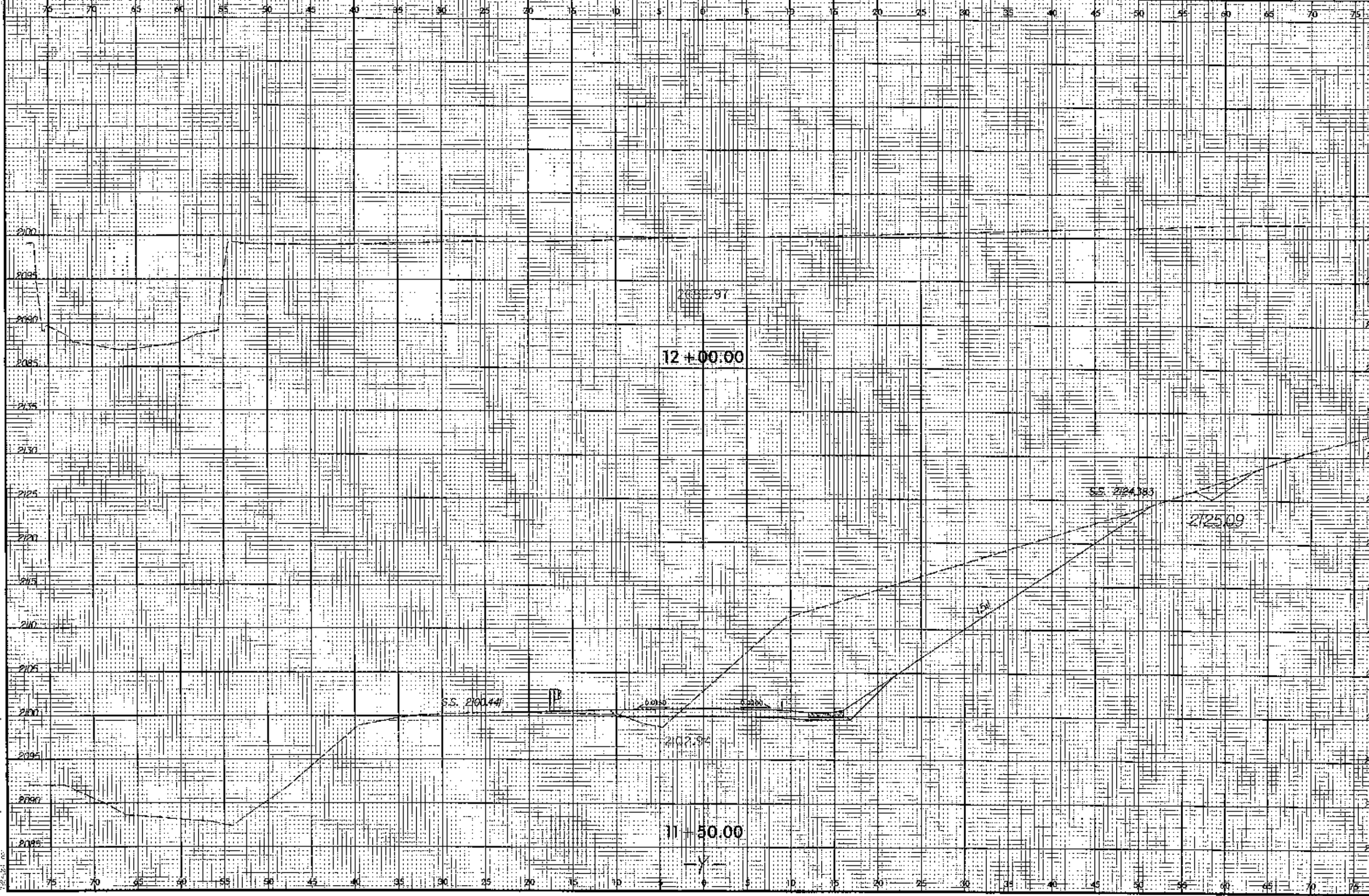
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11+00.00

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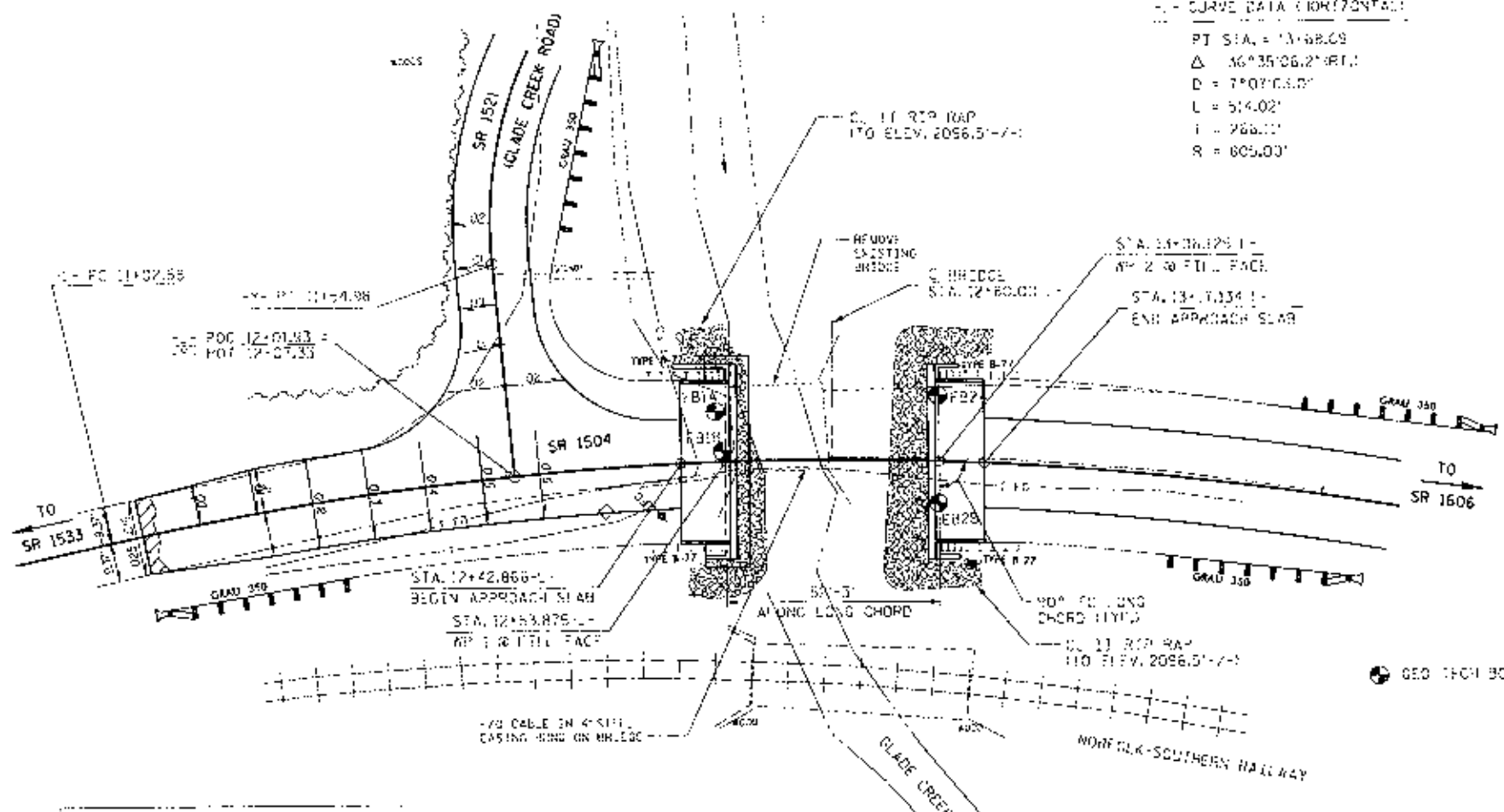
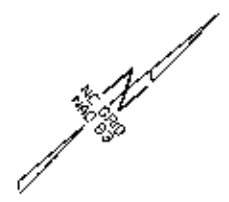
Vertical Curve Data Table



NOTES :

- THE QUANTITY OF RIP RAP TO BE PAID FOR WILL BE THE ACTUAL NUMBER OF TONS OF EACH CLASS OF RIP RAP WHICH HAS BEEN INCORPORATED INTO THE COMPLETED AND ACCEPTED WORK. THE RIP RAP WILL BE MEASURED BY BEING WEIGHED ON TRUCKS OR CERTIFIED PLATFORM SCALES OR OTHER CERTIFIED WEIGHING DEVICES. THE QUANTITY OF RIP RAP WILL BE PAID FOR AT THE CONTRACT LIST PRICE PER TON.
- PLAIN RIP RAP CLASS II (2" THICK) FILTER FABRIC.
- ABUTMENT 1 250 TONS 278 SQ. YDS.
- END BENT 2 450 TONS 500 SQ. YDS.
- TOTAL 700 TONS 778 SQ. YDS.
- DOT 4,600 FOR YEAR 2010.
- PILES TO BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 45 TONS EACH.
- PIILING SHALL BE DRIVEN CONTINUOUSLY IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 450-B UNTIL THE LOAD IS OBTAINED AND OR PAST THE MINIMUM DEPTH TO THE ESTIMATED LENGTH SHOWN ON THE PLANS. IF LOAD IS STILL NOT OBTAINED AT THIS POINT, THE CONTRACTOR MAY SUSPEND DRIVING AND ALLOW THE PILE TO SET BEFORE RESUMING PILE DRIVING. WHEN DRIVING IS RESUMED, THE HAMMER SHALL BE WARM AND OPERATED A SUFFICIENT NUMBER OF BLOWS TO OVERCOME THE FRICTION FORCE (MIN. 10 BLOWS) BEFORE FINAL BEARING IS OBTAINED.
- WHEN DRIVING PILES, THE MAXIMUM BLOW COUNTS SHALL NOT BE EXCEEDED.
- PILE POINTS ARE REQUIRED FOR PILES AT ABUTMENT 1.
- THE STEEL PILES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS FOR GALVANIZING STEEL PILES, SEE SPECIAL PROVISIONS.
- THE EXISTING BRIDGE SHALL BE REMOVED BY SAWING AND/OR NON SHATTERING METHODS SUCH THAT DEBRIS WILL NOT FALL INTO THE WATER.
- THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH F-H-4'S (CONCRETE ADVISORY 73) AND 20 (SCOUR AT BRIDGES).
- ASSUMED LIVE LOAD = HS20.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR ELECTRICAL AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

CURVE DATA (HORIZONTAL)
 PT STA. = 13+68.09
 $\Delta = 36^{\circ}35'06.21''$
 $D = 7^{\circ}07'03.07''$
 $L = 514.02'$
 $T = 268.00'$
 $R = 605.00'$

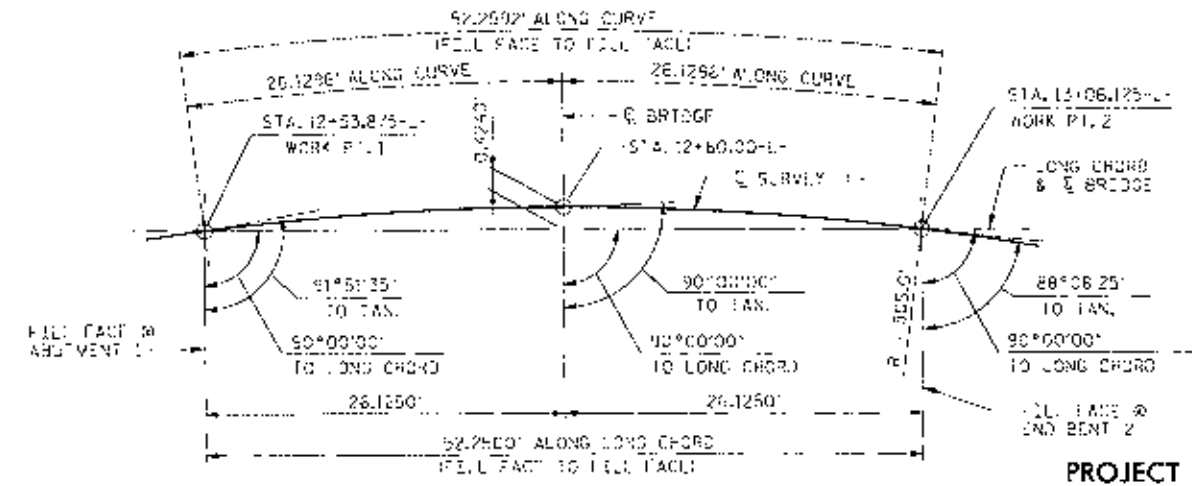


PLAN

BM: RAILROAD SPIKE IN POWER POLE
 STA. 14+77.19 (455417)
 ELEVATION = 2'02.56'

EXISTING BRIDGE #194 ON SPAN BRIDGE
 FOR 20' 10" CONSISTING OF CONCRETE DECK
 ON REINFORCED CONCRETE ABUTMENTS
 WITH 19' ROADWAY, SHALL BE REMOVED.

$\Delta = 13.6754\%$ $\Delta = 103.3589\%$
 $PI = 13+22.00$
 $EL. = 2,095.10'$
 $VC = 150'$

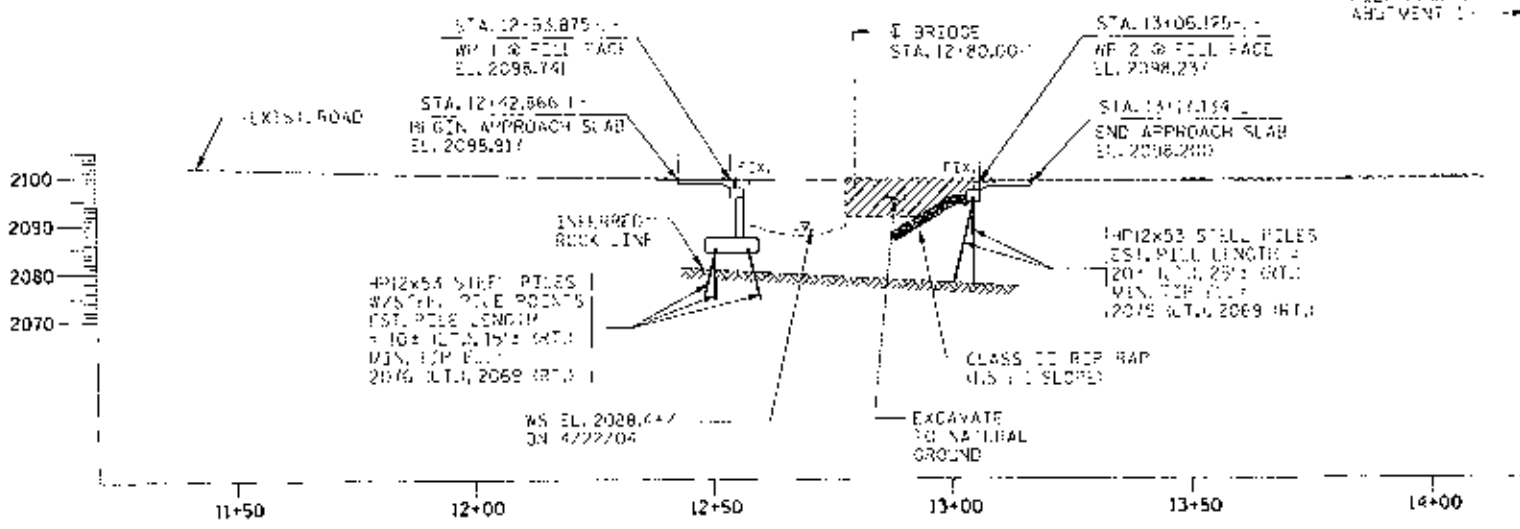


LONG CHORD LAYOUT

PROJECT NO. B-5235
COUNTY: TRANSYLVANIA
STATION: 12+80-L-
REPLACES BRIDGE NO. 194

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RAILROAD

BRIDGE NO. 194 ON SR 1504
OVER GLADE CREEK

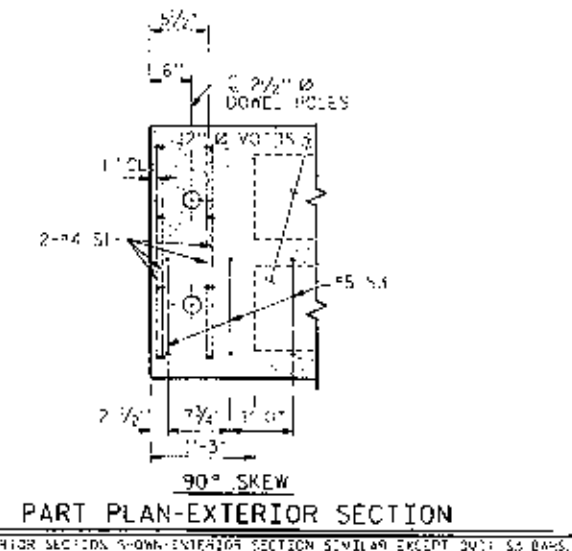
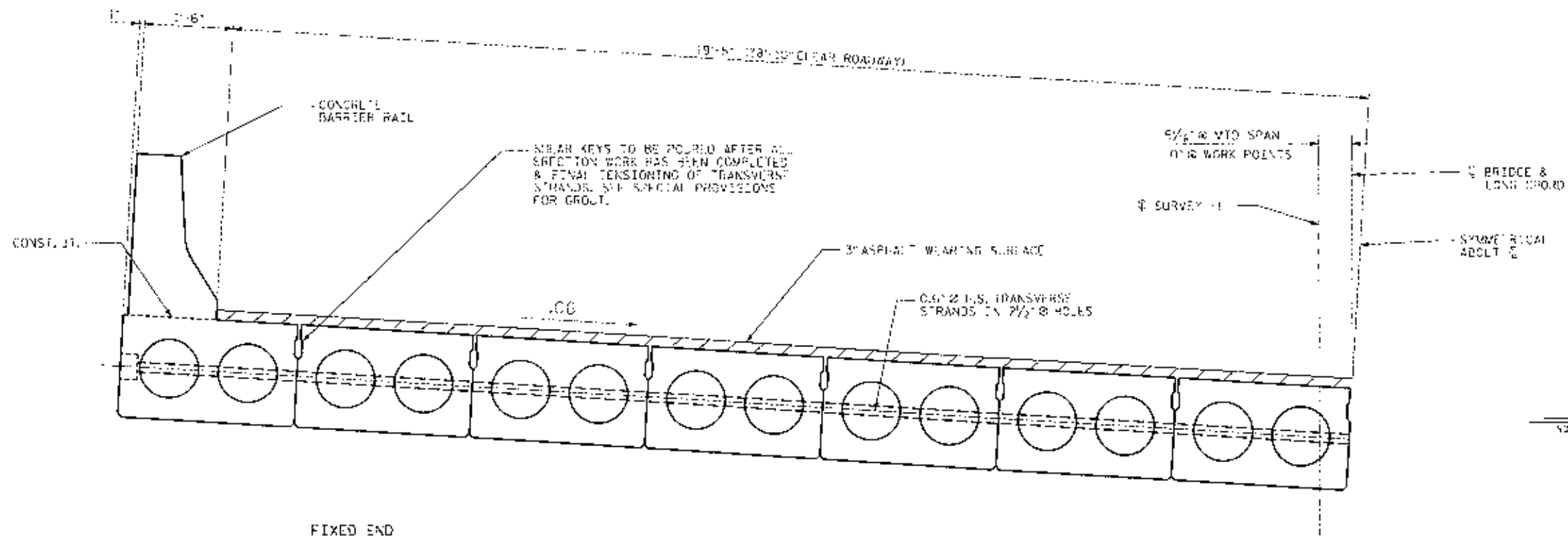


PROFILE ALONG Q SURVEY

DRAWN BY: R.T. DATE: 9/04
 CHECKED BY: N.M. DATE: 11/04

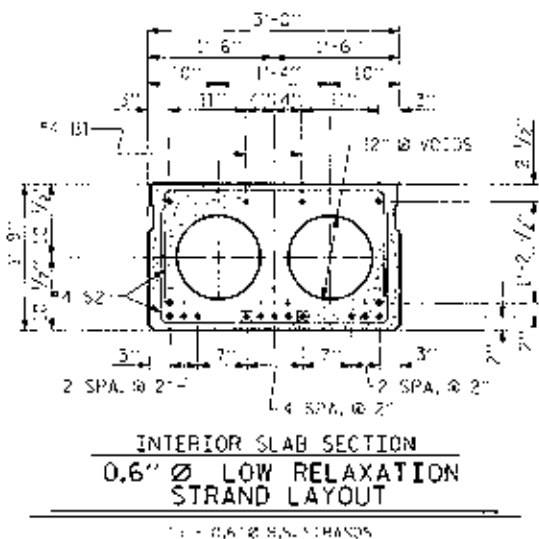
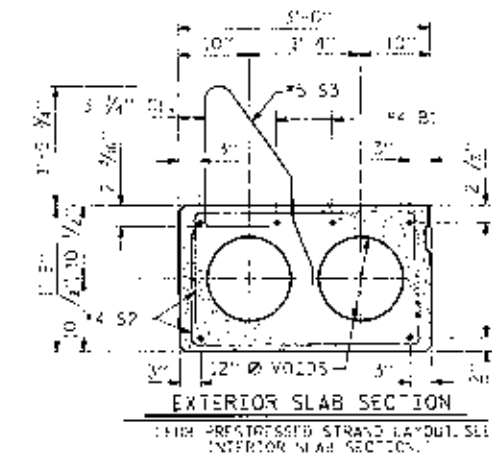
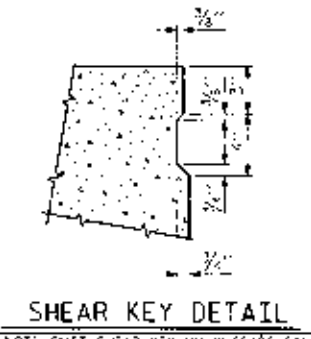
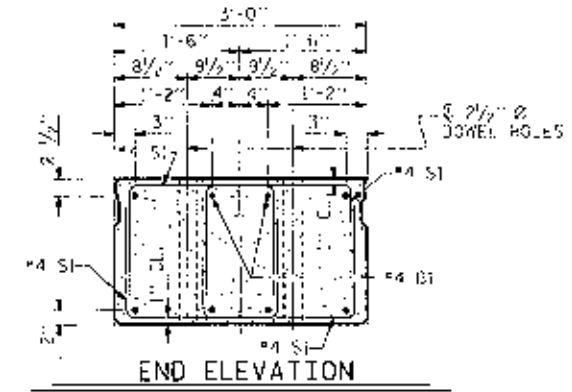
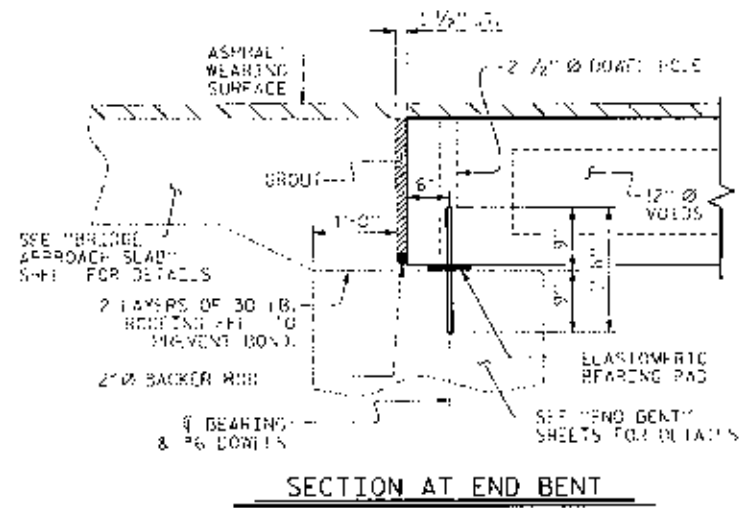
PREPARED BY
 125 INCHES
 2 1/2 X 3 1/2 SHEET
 HORIZONTAL SCALE

NO.	BY	DATE	NO.	BY	DATE	SHEET NO.
1			3			S-1
2			4			15



FIXED END

TYPICAL SECTION



DEVELOP STRANDS 5" FROM END OF CORED SLAB.

PROJECT NO. B-5235
 COUNTY: TRANSYLVANIA
 STATION: 12 + 80-L-
 REPLACES BRIDGE NO. 194



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RAHBIOK

CORED SLAB DETAILS

SHEET 1 OF 2

REVISIONS				SHEET NO.	
NO.	DATE	BY	DATE	NO.	TOTAL SHEETS
1				3	15
2				4	

PREPARED BY: [Signature]
 DATE: 11/11/10
 PROJECT NO. B-5235

DRAWN BY: [Signature] DATE: 11/10
 CHECKED BY: [Signature] DATE: 1/10

GRADE 270 STRANDS	
AREA (SQ. INCHES)	0.67
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M303 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

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

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

THE 2# BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SECTION 109B OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH AT LEAST THREE WEEKS PRIOR TO CASTING CURED SLABS. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,000 PSI.

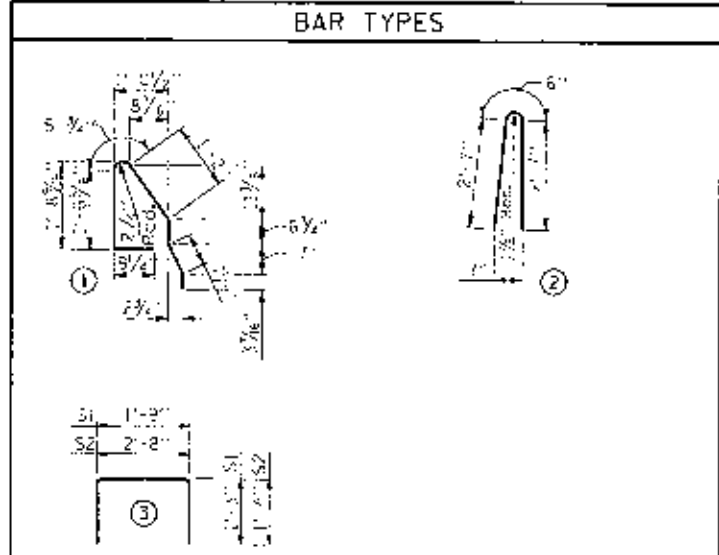
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

TRANSVERSE POST-TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE STRANDS SHALL BE 0.6" Ø AND TENSIONED TO 43,950 POUNDS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE LOCATED IN ALL EXPOSED FACES OF THE BARRIER RAIL, AND IN ACCORDANCE WITH ARTICLE 625.11(D) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT EACH END OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

BAR NUMBER	SIZE	YR	LENGTH	WEIGHT	EXTERIOR UNIT LENGTH	WEIGHT	INTERIOR UNIT LENGTH	WEIGHT
B1	#4	3%	26'-3"	70	26'-3"	70	26'-3"	70
S1	#4	3	7'-3"	45	4'-3"	45		
S2	#4	1	5'-4"	349	3'-4"	349		
*S3	#5	1	5'-5"	254				
REINFORCING STEEL				464 LBS.			464 LBS.	
X EPOXY COATED REINFORCING STEEL				294 LBS.				
6,000 P.S.I. CONCRETE				6.9 CU. YDS.			6.9 CU. YDS.	
0.6" Ø L.R. STRANDS	NO. 18							

DEAD LOAD DEFLECTION AND CAMBER

	EXTERIOR	INTERIOR
	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3.963"	3.873"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	0.566"	0.516"
FINAL CAMBER	1.674"	1.627"

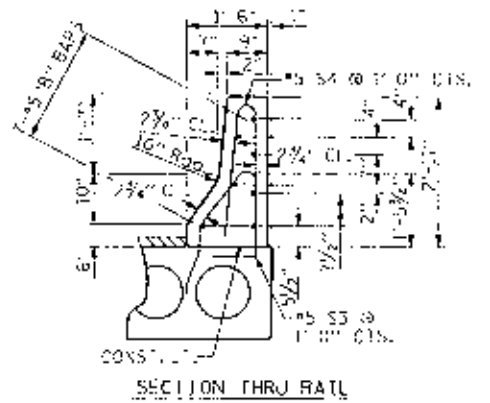
** INCLUDES FINISH WEARING SURFACE

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

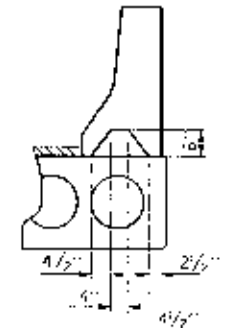
BAR	BARS PER SPAN	LOI, NO	SIZE	YR	LENGTH	WEIGHT
*#2	2R		#2	STR	24'-8"	770
*#4	10R		#4		5'-8"	619
X EPOXY COATED REINFORCING STEEL						1,389 LBS.
CLASS 4A CONCRETE						1.4 CU. YDS.
TOTAL CEMENTitious CONCRETE BARRIER RAIL						100

CORED SLABS REQUIRED

	NUMBER OF CORES	TOTAL LENGTH
EXTERIOR C.S.	2	50'-0"
INTERIOR C.S.	12	600'-0"
TOTAL	14	650'-0"



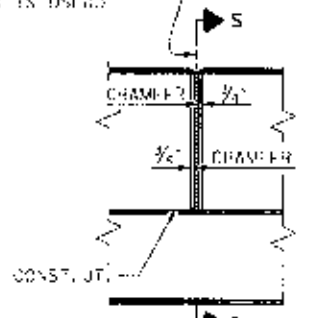
SECTION THRU RAIL



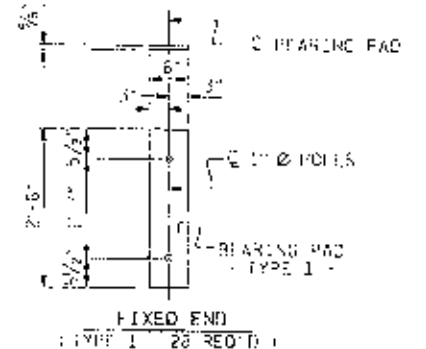
SECTION S-S

A: DIMENSIONS GIVEN FOR THIS IS TO BE USED ONLY WHEN NOT SHOWN IS USED

EXPANSION JOINTS - FIELD IN PLACE WITH GALVANIZED NAILS. 1 NAIL ONLY EXPANSION WITH S.W. FORM IS USED.



ELEVATION AT EXPANSION JOINTS BARRIER RAIL DETAILS



ELASTOMERIC BEARING DETAILS

PROJECT NO. B-5235
COUNTY: TRANSYLVANIA
STATION: 12+80-L-
REPLACES BRIDGE NO. 194

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 ADMINISTRATION

CORED SLAB DETAILS

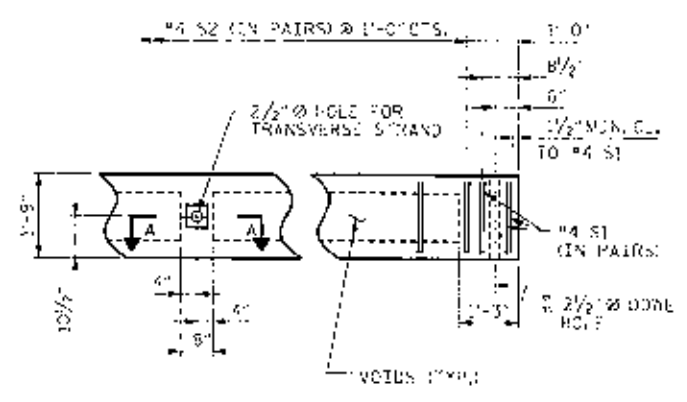
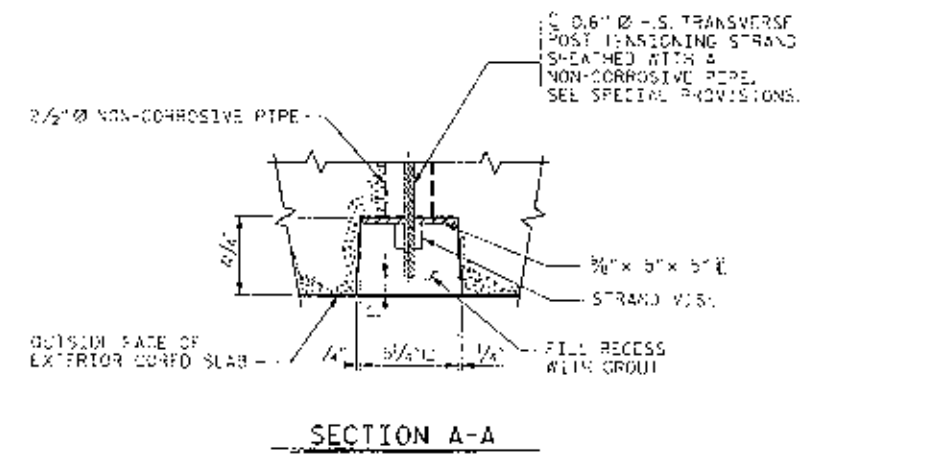
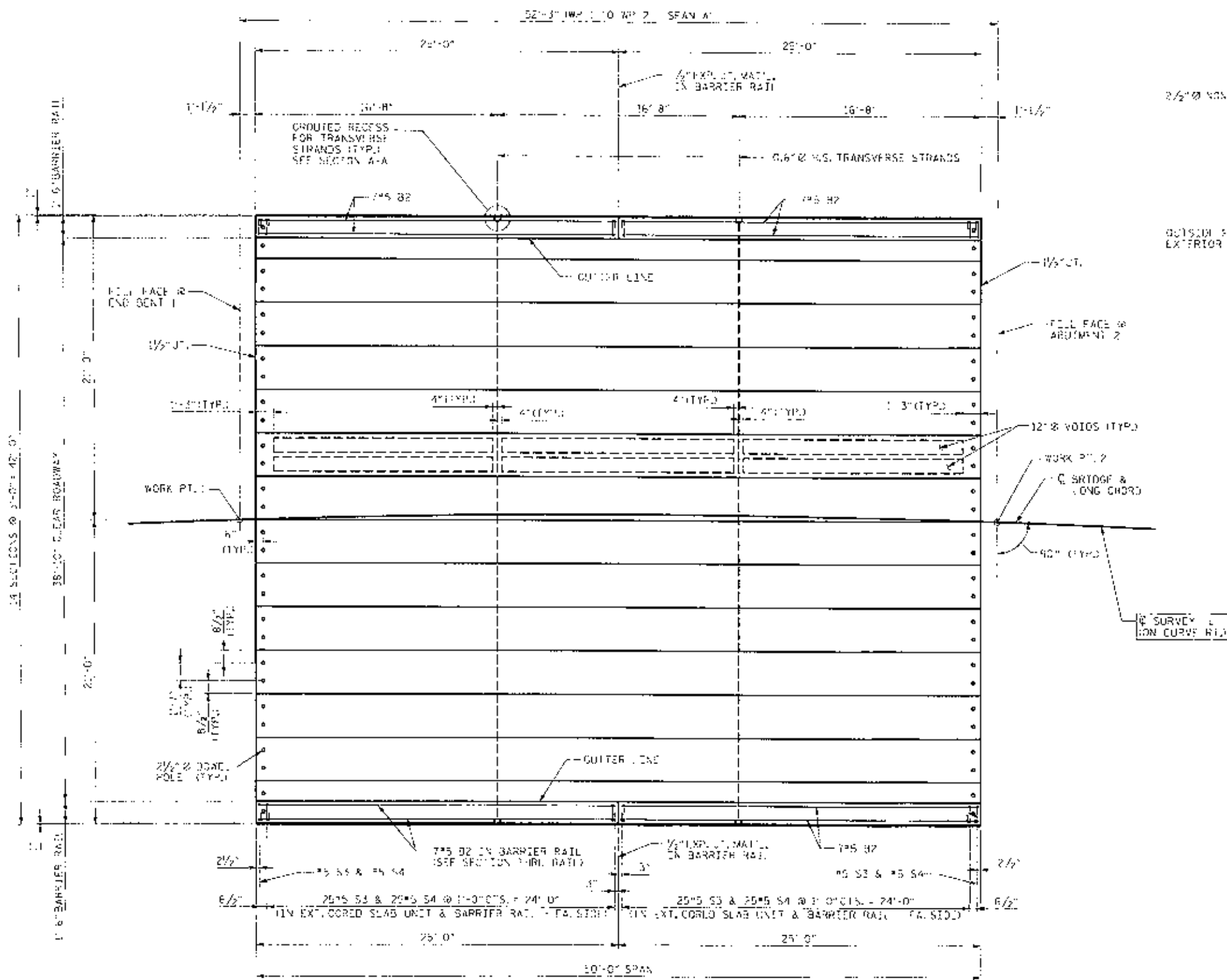
SHEET 2 OF 2



DRAWN BY: BTJ	DATE: 11/09
CHECKED BY: NAW	DATE: 11/10

DESIGNED BY: JES ENG'ERS, 2114 W. BELL ST., WASHINGTON, NC 27681

NO.	BY	DATE	REVISIONS		SHEET NO.
			NO.	DATE	
1					S-3
2					TOTAL SHEETS
3					15



SUPERSTRUCTURE PLAN VIEW



PROJECT NO. B-5235
COUNTY: TRANSYLVANIA
STATION: 12+80-L-
REPLACES BRIDGE NO. 194

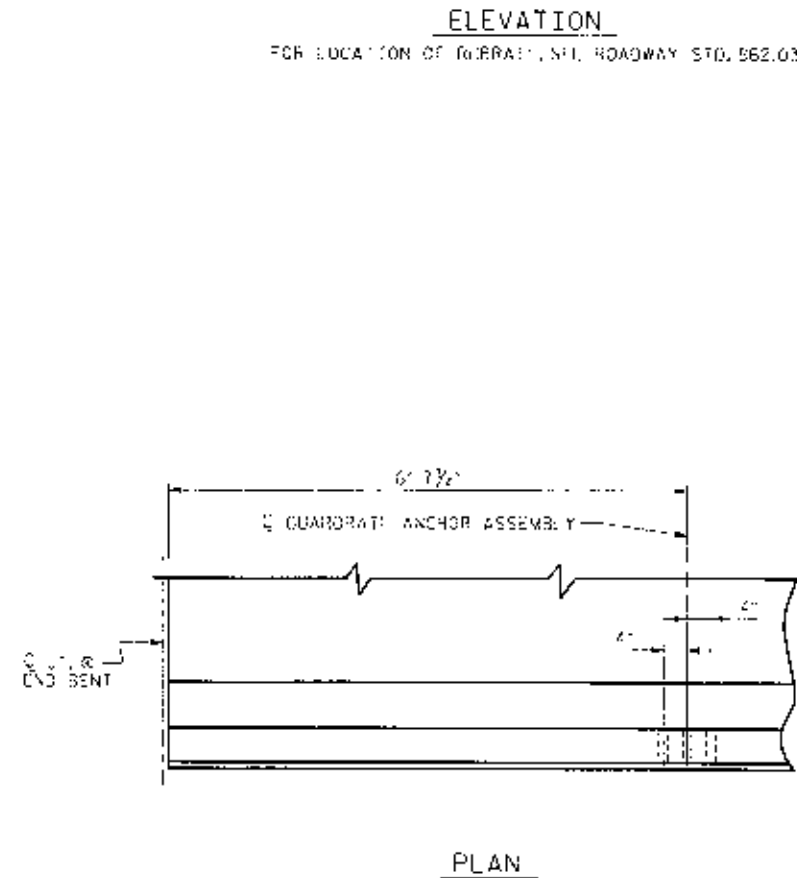
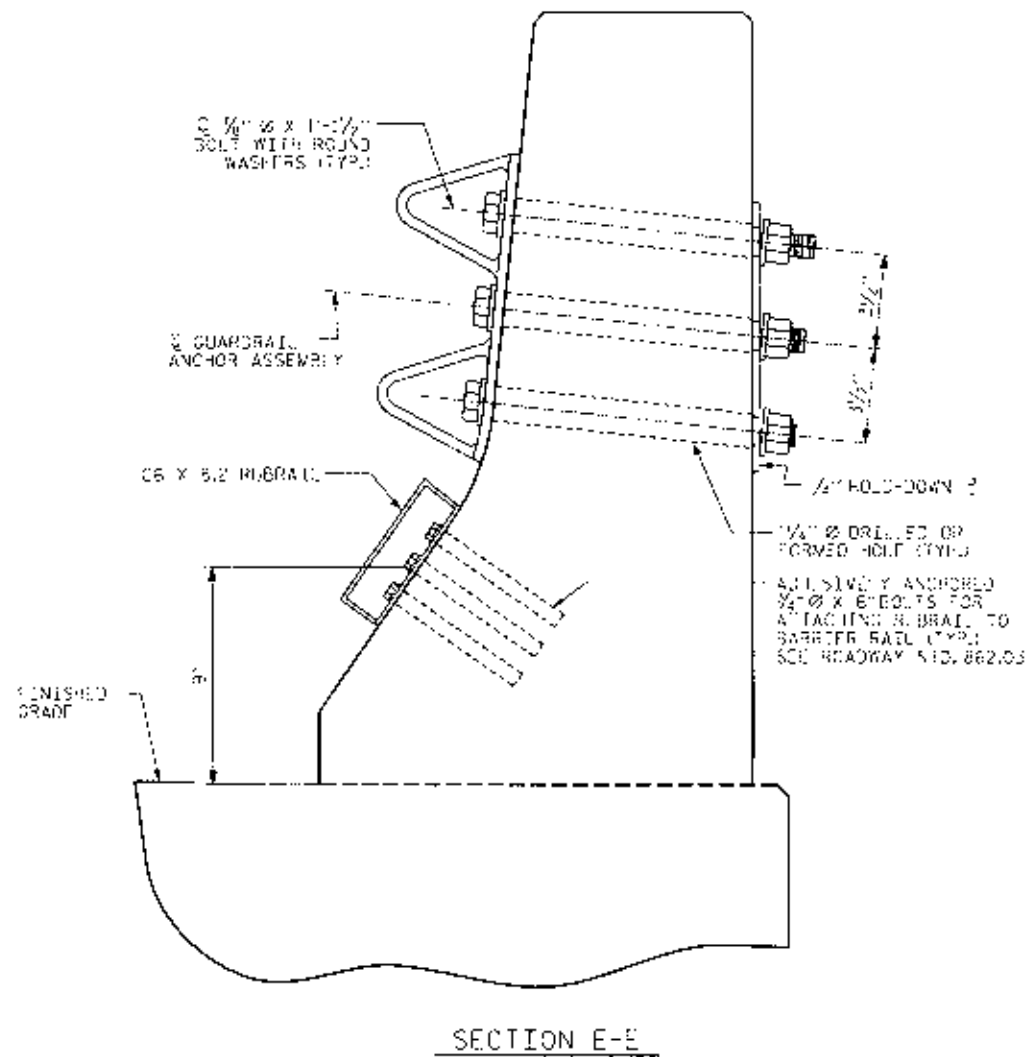
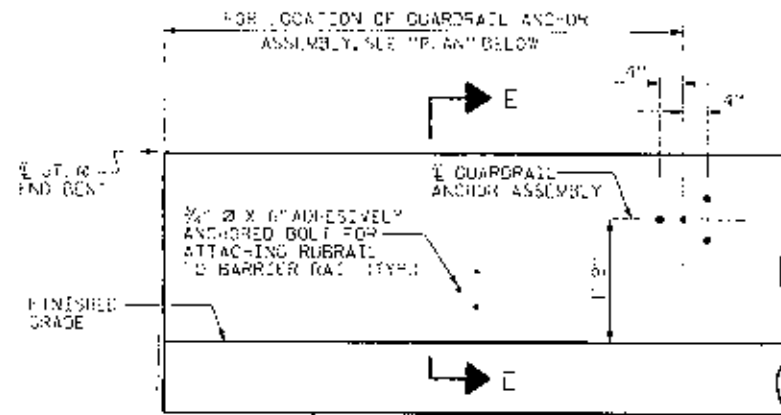
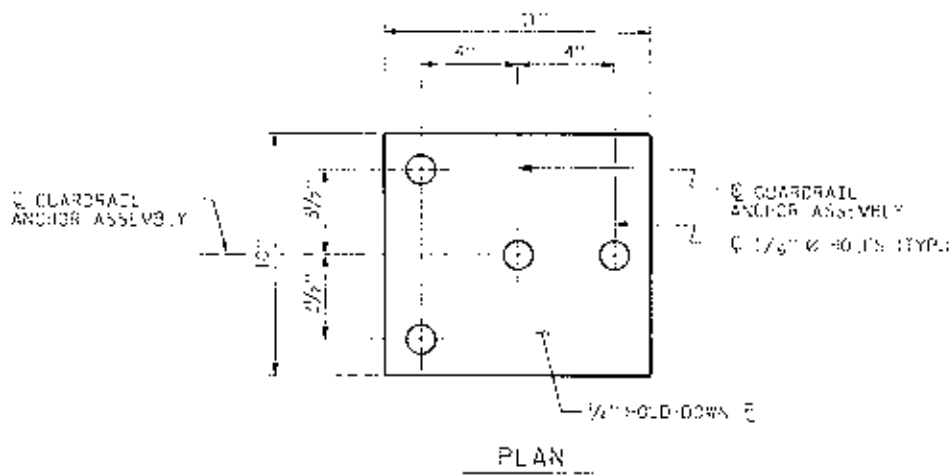
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
LRRR EOOD

PLAN OF SPAN A

NO.	BY	DATE	NO.	BY	DATE	SHEET NO.
1	RTJ	12/04	1	RTJ	12/04	5-4
2			2			15

DRAWN BY: RTJ DATE: 12/04
CHECKED BY: MKA DATE: 11/04

APPROVED BY: JAMES R. SMITH
PROFESSIONAL ENGINEER
14285



LOCATION OF ANCHORS FOR GUARDRAIL

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

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/2" HOLD-DOWN PLATE AND 4 - 1/2" x 6" BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36, AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M11.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A507 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M593. BOLTS, NUTS AND WASHERS SHALL

BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/2" x 6" GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A507. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

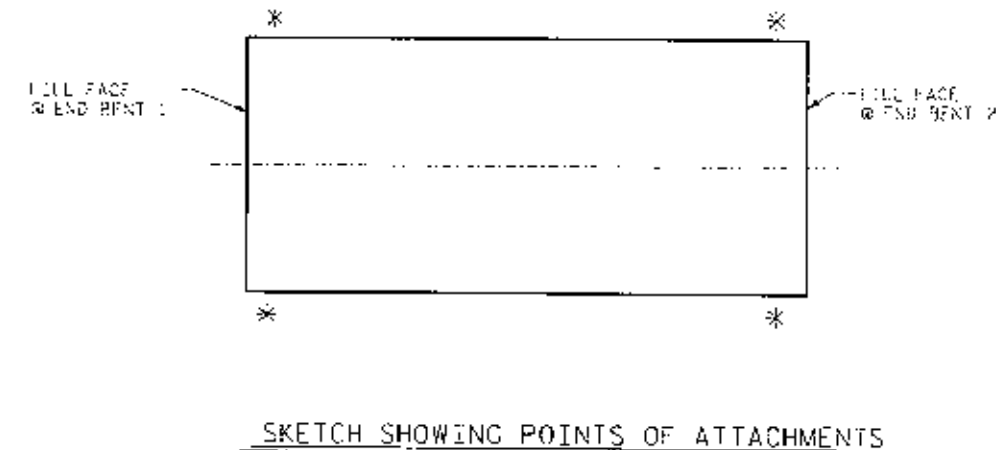
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SECTION.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BLURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 1/2" x 6" HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TAPPING WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE 6" x 8" RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 1/2" x 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1/2" x 6" BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR JOISTS, SEE SPECIAL PROVISIONS, SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



PROJECT NO. B-5235
 COUNTY: TRANSYLVANIA
 STATION: 12+80-L-
 REPLACES BRIDGE NO. 194



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 HAILEIGH

STANDARD GUARDRAIL
 ANCHORAGE DETAILS
 FOR BARRIER RAIL
 TYPE B-77

DRAWN BY: R.L.J. DATE: 12/09
 CHECKED BY: J.L.A. DATE: 2/09

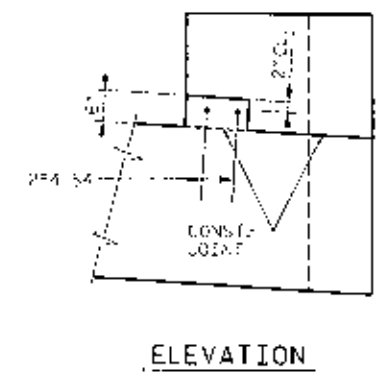
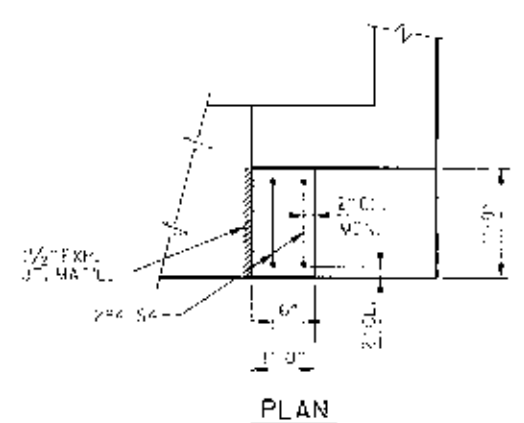
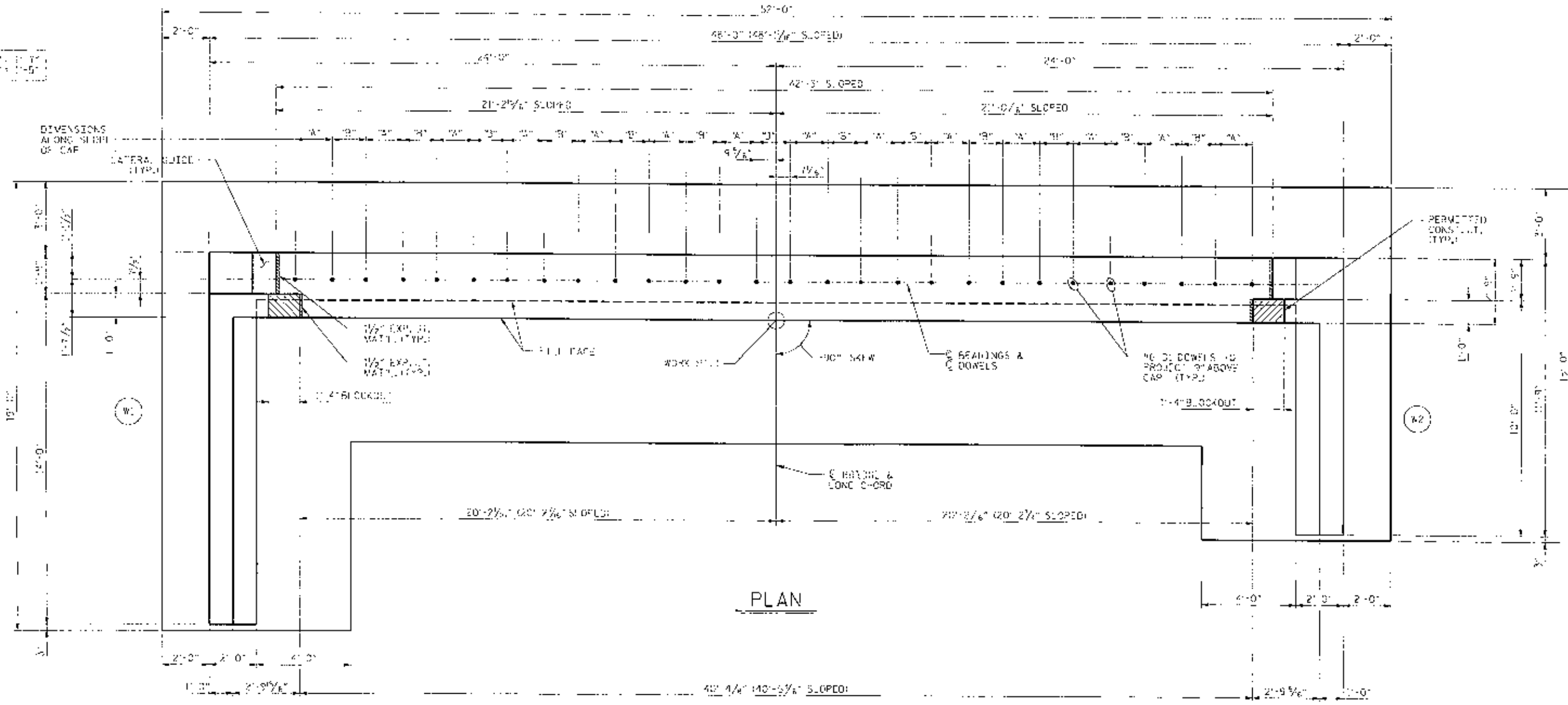
PREPARED BY:
 I.C. ENGINEERING
 311 S. 17th Avenue
 Charlotte, NC 28205

REVISIONS					HEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			1		
2			2		
3			3		
4			4		
5			5		

TOTAL SHEETS: 15

1/4" = 1'-0"

DIMENSIONS
ALONG SLIP
OF CAP



LATERAL GUIDE DETAIL

NOTES:
DIMENSIONS ARE HORIZONTAL UNLESS OTHERWISE NOTED.
STRAINS IN CAPS MAY BE SKEWED AS NECESSARY TO CLEAR DOWELS.
LATERAL GUIDES TO BE POURED AFTER FINAL FINISHING OF TRANSVERSE STRANDS IN CORED SLAB JOINTS.
PILES IN FOOTING NOT SHOWN FOR CLARITY, SEE FOOTING OR PILE LOCATIONS.

PROJECT NO. B-5235
COUNTY: TRANSYLVANIA
STATION: 12 + 80.00-L-
REPLACES BRIDGE NO. 194

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

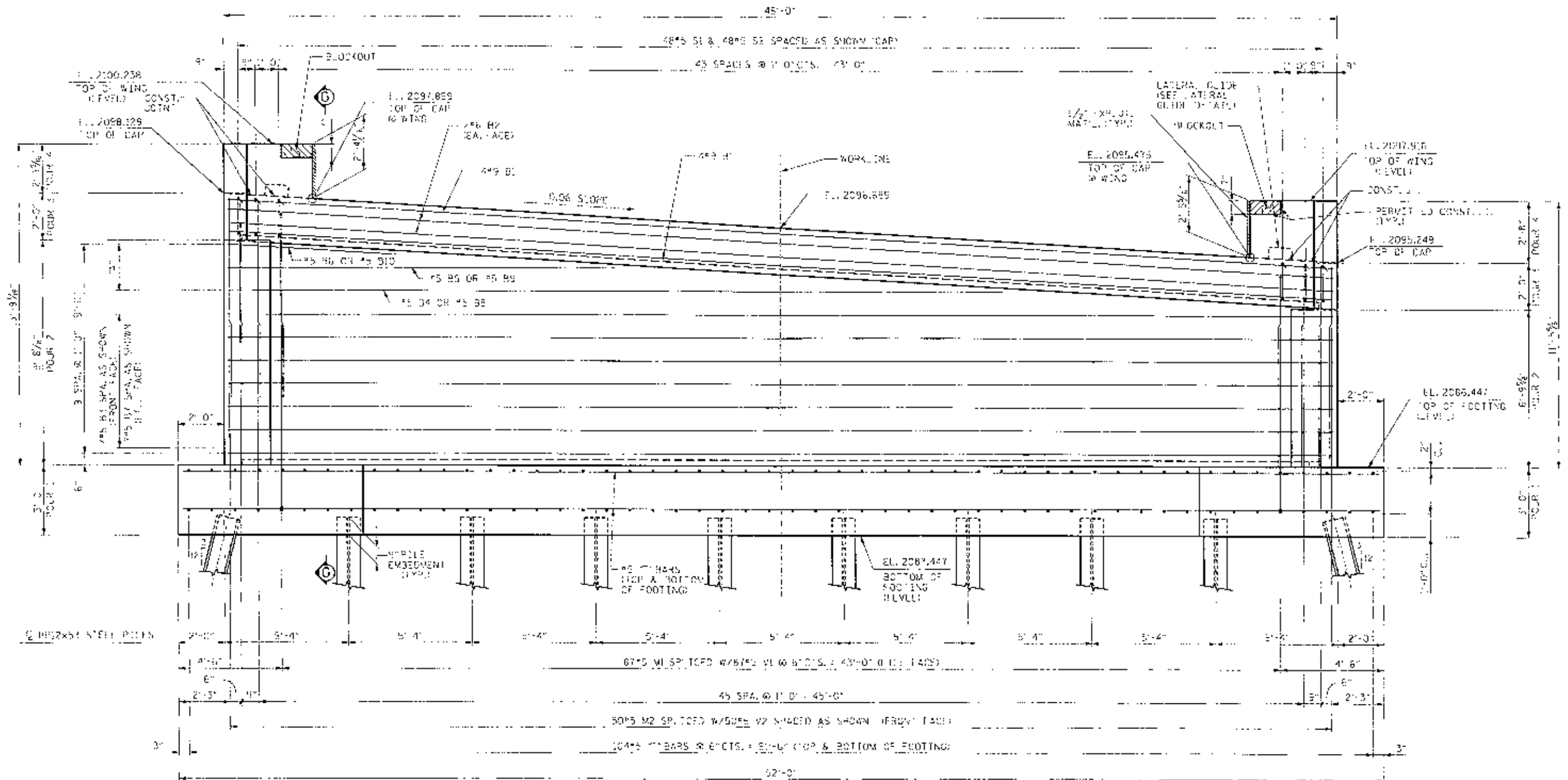
ABUTMENT NO. 1
PLAN



DESIGNED BY
105 ENCLAPS
STATE ST. BLDG.
RALEIGH, NC 27603

DRAWN BY: R/L DATE: 10/04
CHECKED BY: NWW DATE: 01/05

REVISIONS		NO.	BY	DATE	NO.	BY	DATE	SHEET NO.
NO.	BY							
1		8						S-6
2		6					TOTAL SHEETS 15	



ELEVATION

FOR REINFORCING STEEL IN THE FOOTING,
SEE THE FOOTING PLAN.

#5 #4 THRU #5 #6
SPACED AS SHOWN
(FRONT FACE)

#5 #8 THRU #5 #10
SPACED AS SHOWN
(R. FACE)

PROJECT NO. B-5235
COUNTY: TRANSYLVANIA
STATION: 12 + 80.00-L
REPLACES BRIDGE NO. 194



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

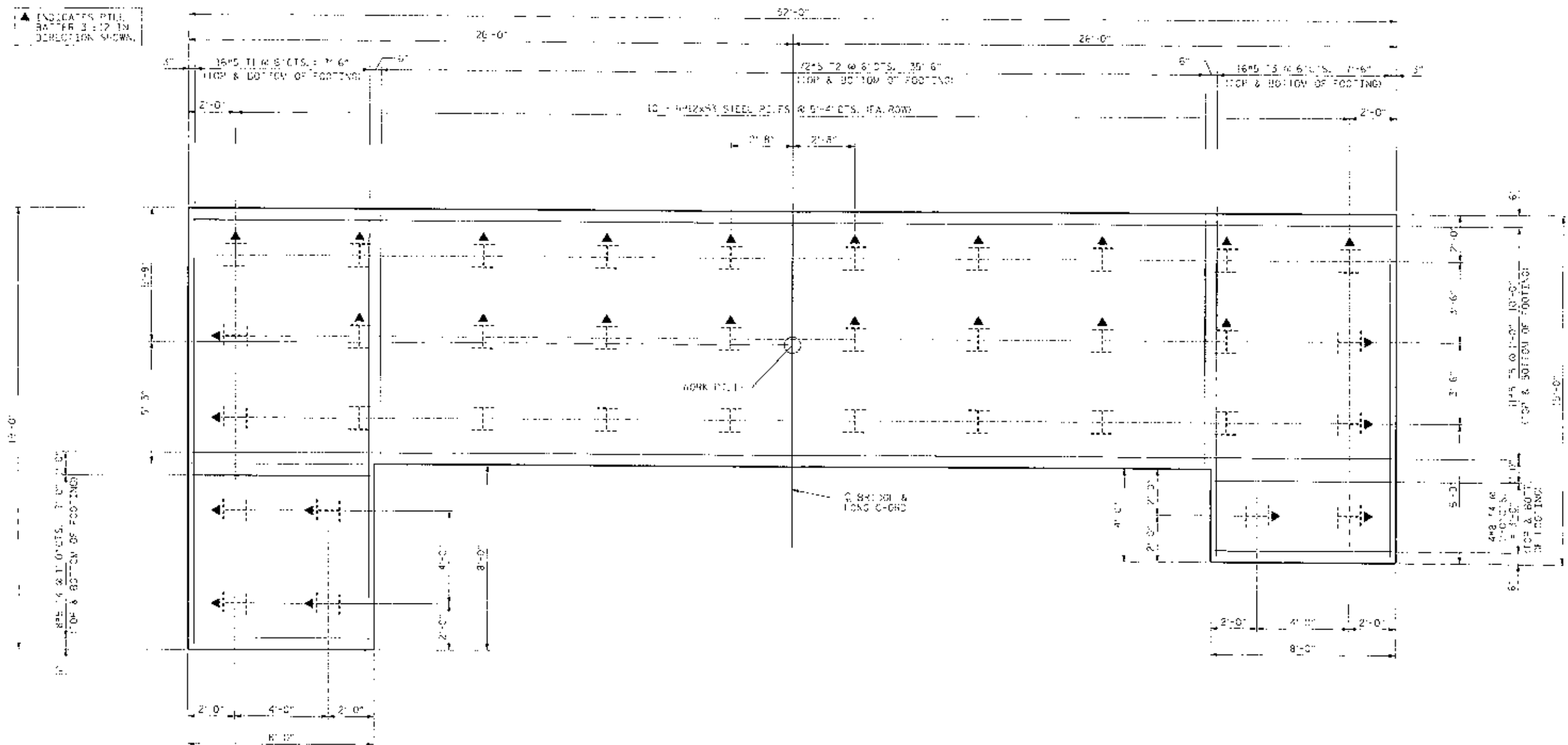
ABUTMENT NO. 1
ELEVATION

DRAWN BY: SFT DATE: 10/04
CHECKED BY: NWH DATE: 01/03

PREPARED BY
J. S. HIGGINS
REGISTERED PROFESSIONAL ENGINEER

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S-7	
1			3			TOTAL SHEETS	
2			4			15	

▲ INDICATES PILE
 BUFFER 3'-12" IN
 DIRECTION SHOWN.



PLAN OF ABUTMENT 1 FOOTING

ALL PILES TO BE #12X55 STEEL PILES.

PROJECT NO. B-5235
 COUNTY: TRANSYLVANIA
 STATION: 12 + 80.00-L-
 REPLACES BRIDGE NO. 194



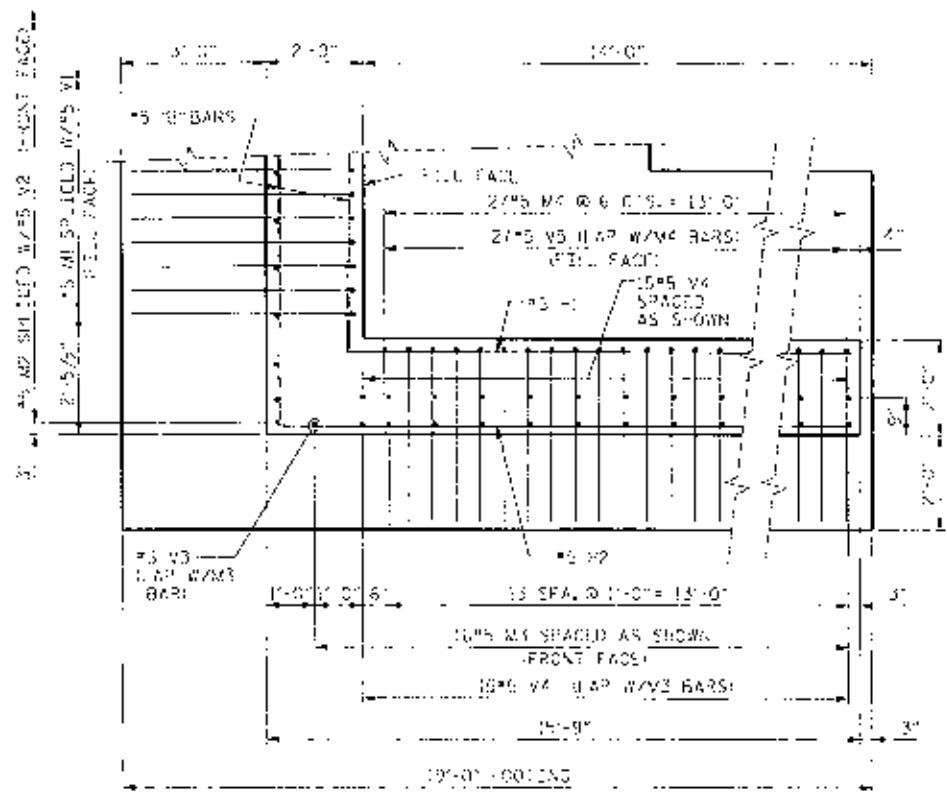
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**ABUTMENT NO. 1
 FOUNDATION PLAN**

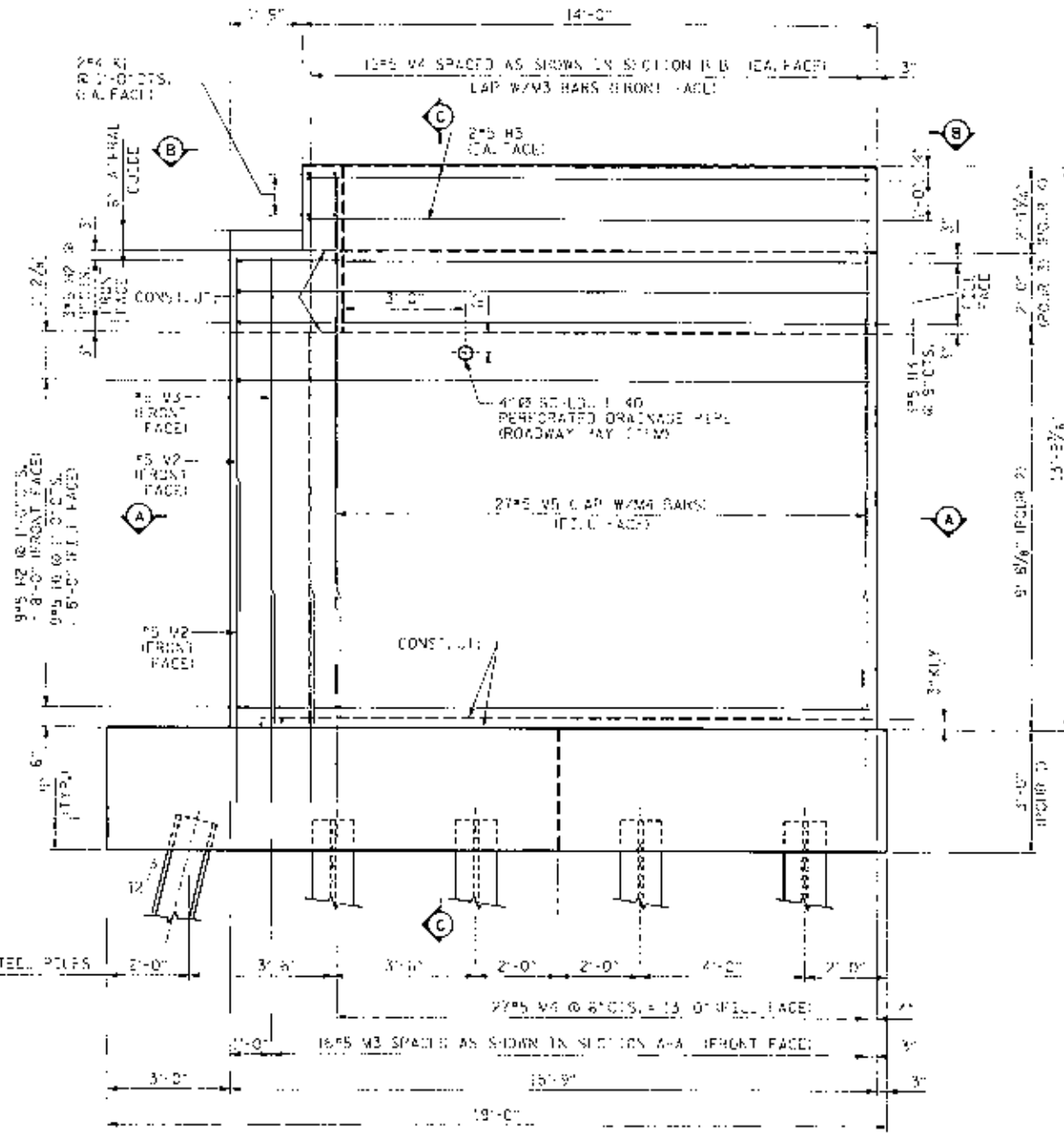
DRAWN BY: HJC DATE: 11/10/11
 CHECKED BY: MWH DATE: 07/25/12

PREPARED BY:
 T. S. THOMPSON
 CIVIL & MECHANICAL ENGINEER
 NORTH CAROLINA

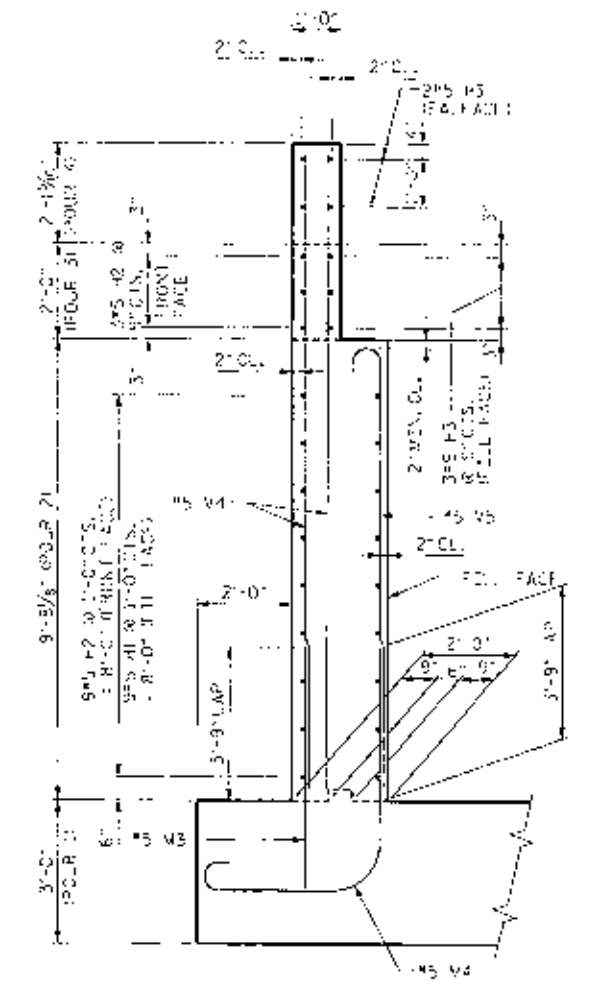
NO.		BY	DATE	NO.	BY	DATE	SHEET NO.
1				1			5-8
2				2			15



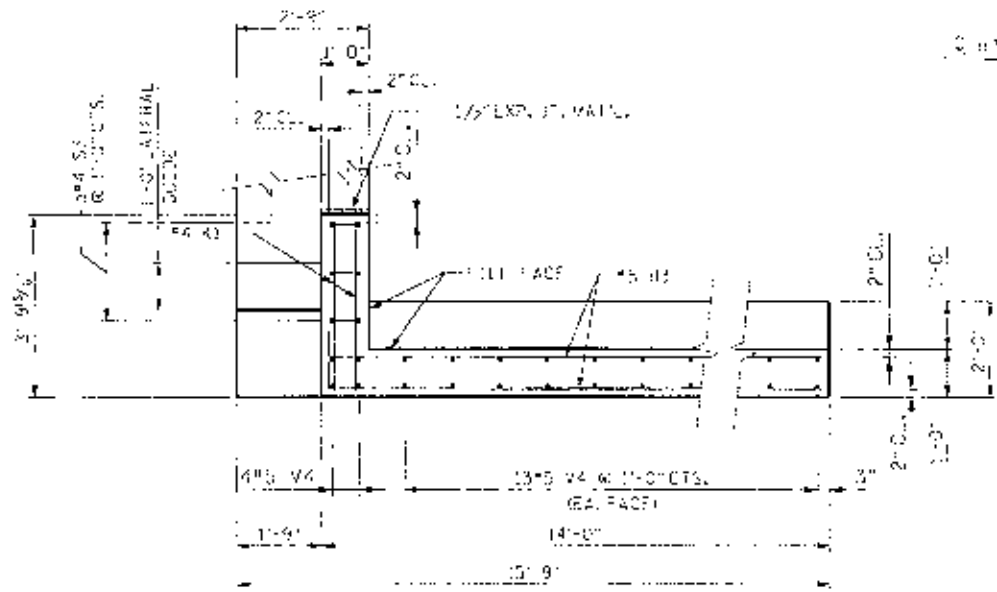
SECTION A-A
WING W1
SECTION 1 & 2



ELEVATION OF WING W1



SECTION C-C



SECTION B-B
WING W1
SECTION 3 & 4

PROJECT NO. B-5235
COUNTY: TRANSYLVANIA
STATION: 12 + 80.00-L
REPLACES BRIDGE NO. 194

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RAILROAD

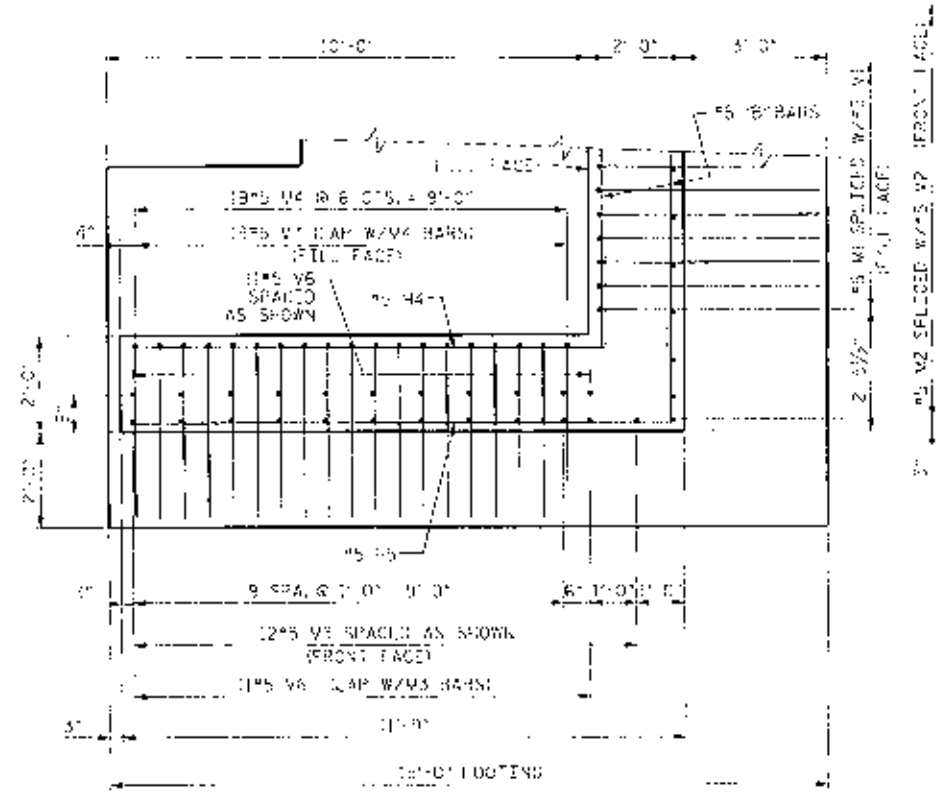
ABUTMENT NO. 1
WING W1 DETAILS



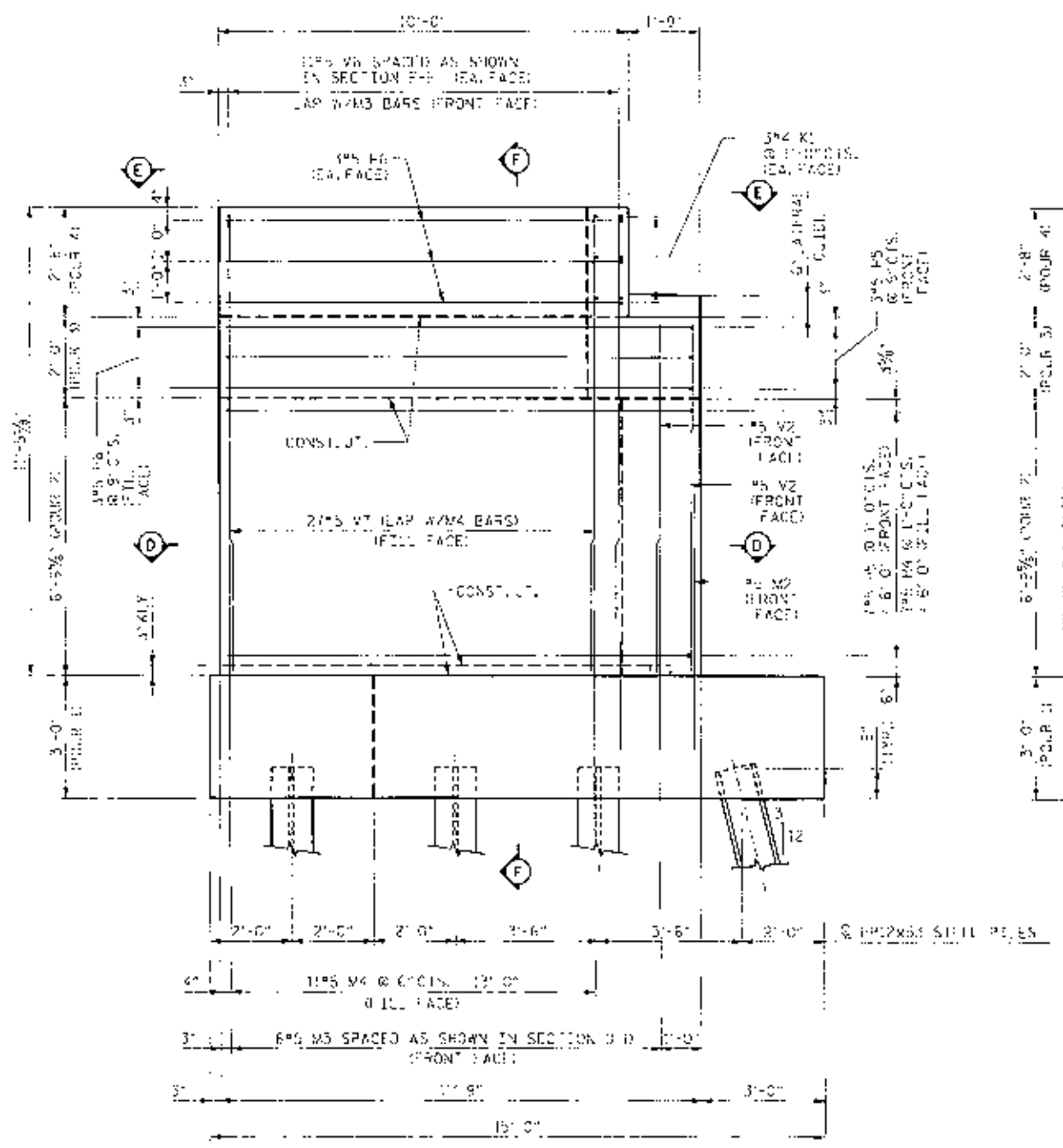
PREPARED BY
123 ENGINEERS
777 W. MAIN AVENUE
COLUMBIANA, NC 28038

REVISIONS		DATE		NO.	BY	DATE	SHEET NO.
1	BY			1			5-9
2	BY			2			TOTAL SHEETS
3	BY			3			15

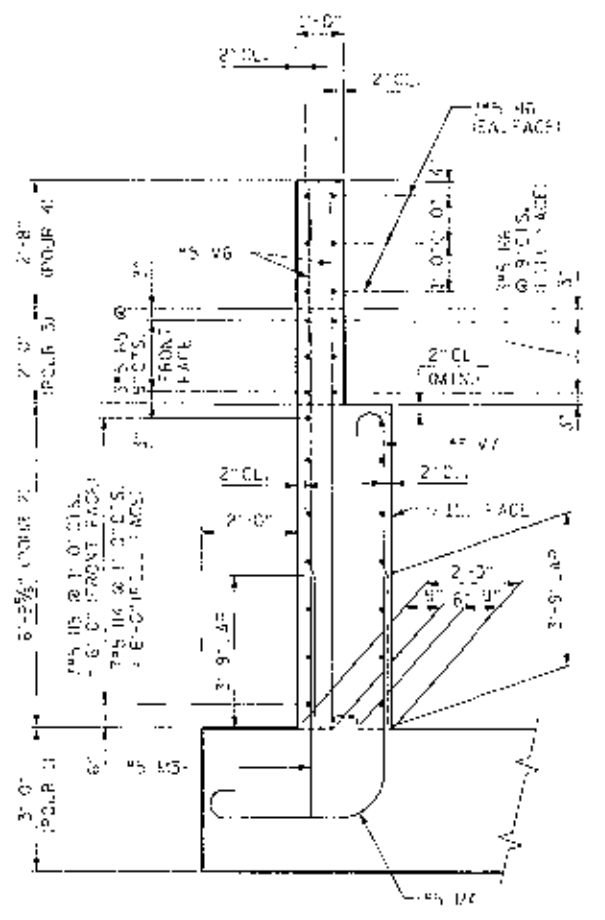
DESIGNED BY: [Signature] DATE: 11/04
CHECKED BY: [Signature] DATE: 11/05



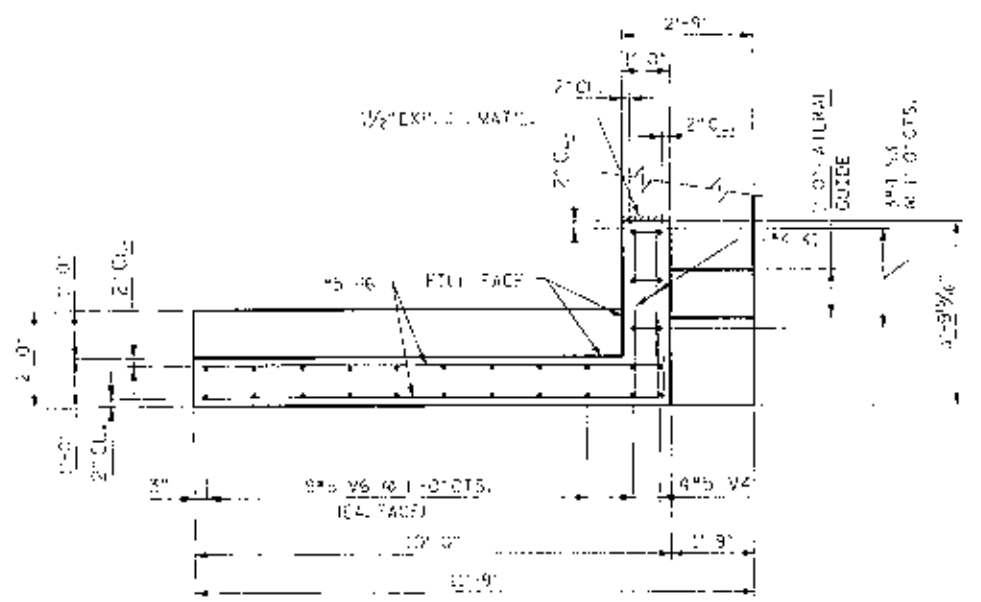
SECTION D-D
WING W2
FIGURES 3 & 4



ELEVATION OF WING W2



SECTION F-F



SECTION E-E
WING W2
FIGURES 3 & 4

DRAWN BY: RJS DATE: 11/04
CHECKED BY: NMA DATE: 01/05



PREPARED BY
TOMAS S. LITTLE
1074 W. 4th AVENUE
WILSON, NC 27158

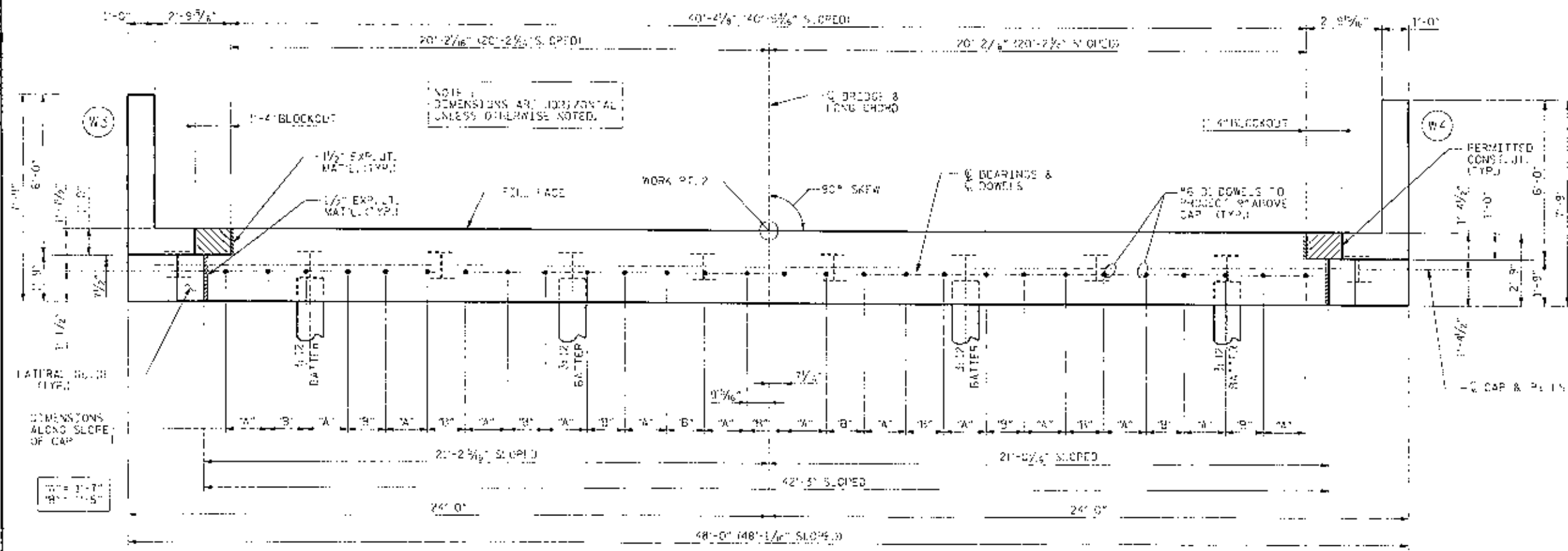
PROJECT NO. B-5235
COUNTY: TRANSYLVANIA
STATION: 12 + 80.00-L
REPLACES BRIDGE NO. 194

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
SECTION

ABUTMENT NO. 1
WING W2 DETAILS

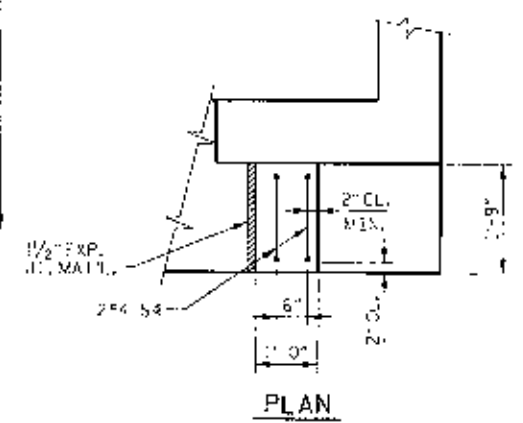
REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			2		
2			3		
3			4		

SHEET NO. S-10
TOTAL SHEETS 15

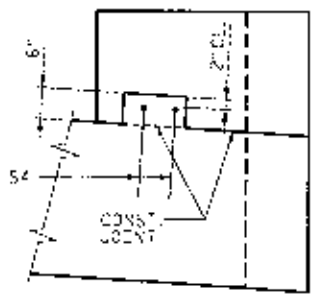


PLAN

NOTES:
 STAIRS IN CAP MAY BE SHEARED AS NECESSARY TO CLEAR DOWELS.
 LATERAL GUIDES TO BE POURED WITH FINAL TRANSFER OF TRANSVERSE STRAINS IN CURED SLAB UNITS.

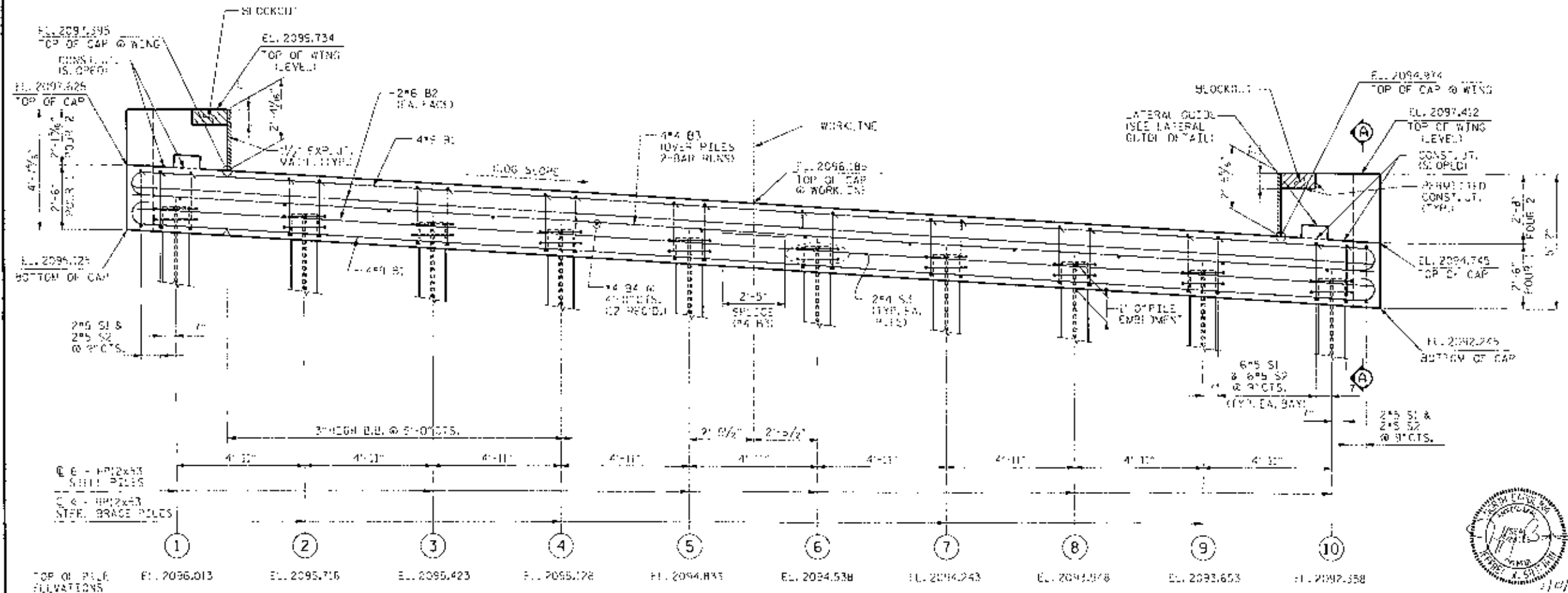


PLAN



ELEVATION

LATERAL GUIDE DETAIL



ELEVATION

PROJECT NO. B-5235
 COUNTY: TRANSYLVANIA
 STATION: 12+80-L
 REPLACES BRIDGE NO. 194

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 BARRIX

END BENT 2
 PLAN AND
 ELEVATION

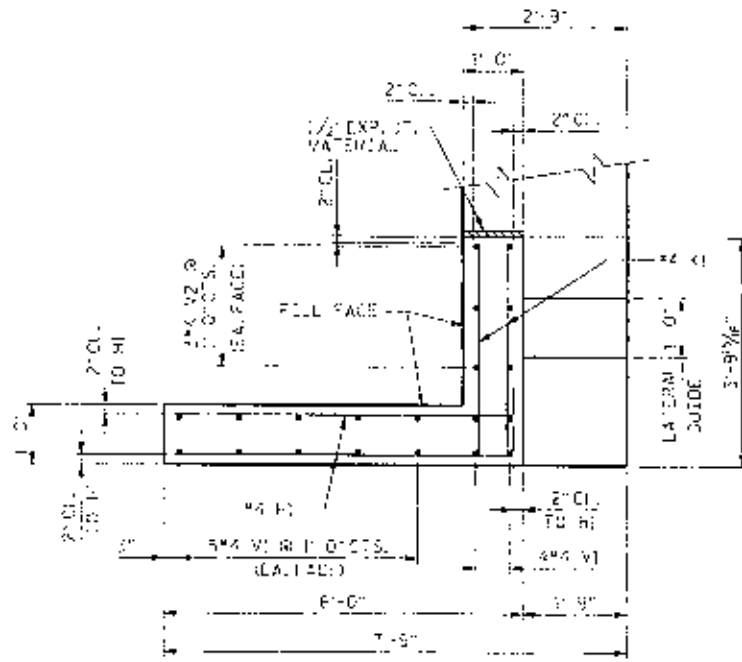


DRAWN BY: RTJ
 CHECKED BY: NMR

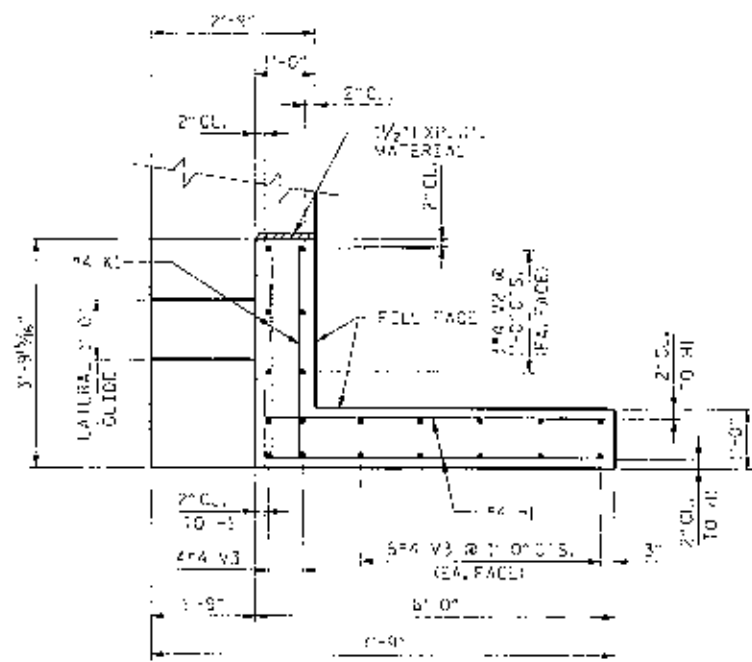
DATE: 10/04
 DATE: 12/04

PREPARED BY
 THE ENGINEERS
 STATE OF NORTH CAROLINA
 REGISTRATION NO. 12345

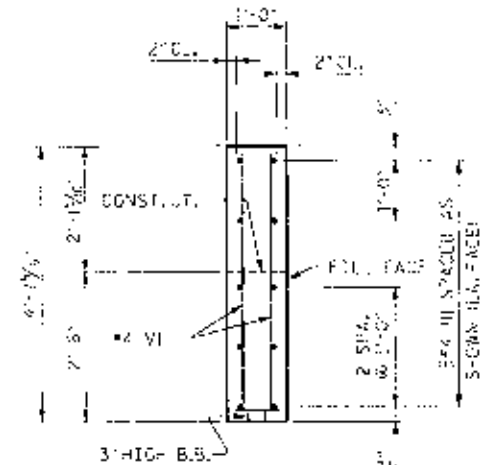
REVISIONS		PROJECT NO.
NO.	BY	DATE
1		5-12
2		TOTAL SHEETS
		15



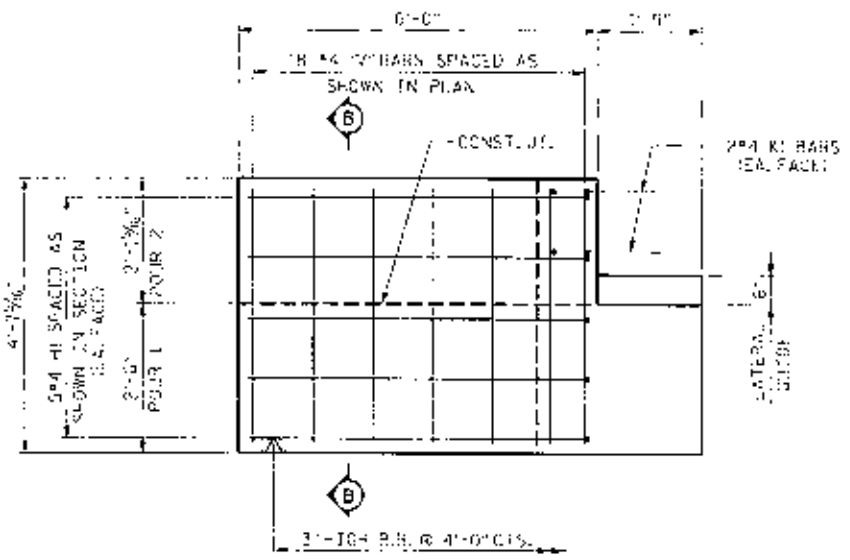
PLAN OF WING W3



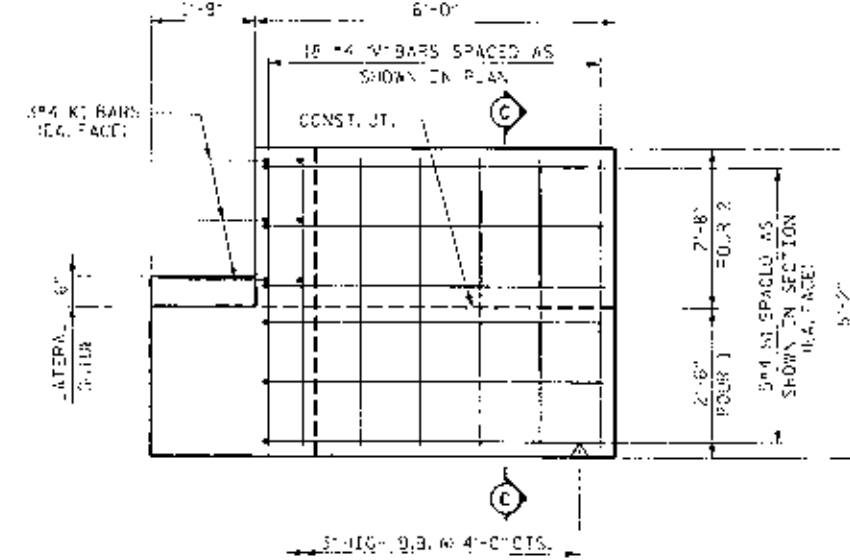
PLAN OF WING W4



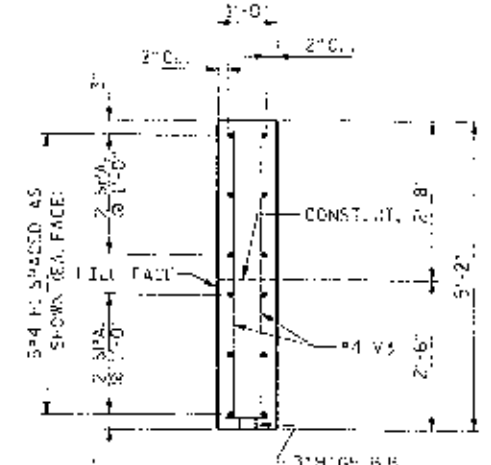
SECTION B-B



ELEVATION OF WING W3



ELEVATION OF WING W4



SECTION C-C

PROJECT NO. B-5235
 COUNTY: TRANSYLVANIA
 STATION: 12 + 80.00-L
 REPLACES BRIDGE NO. 194



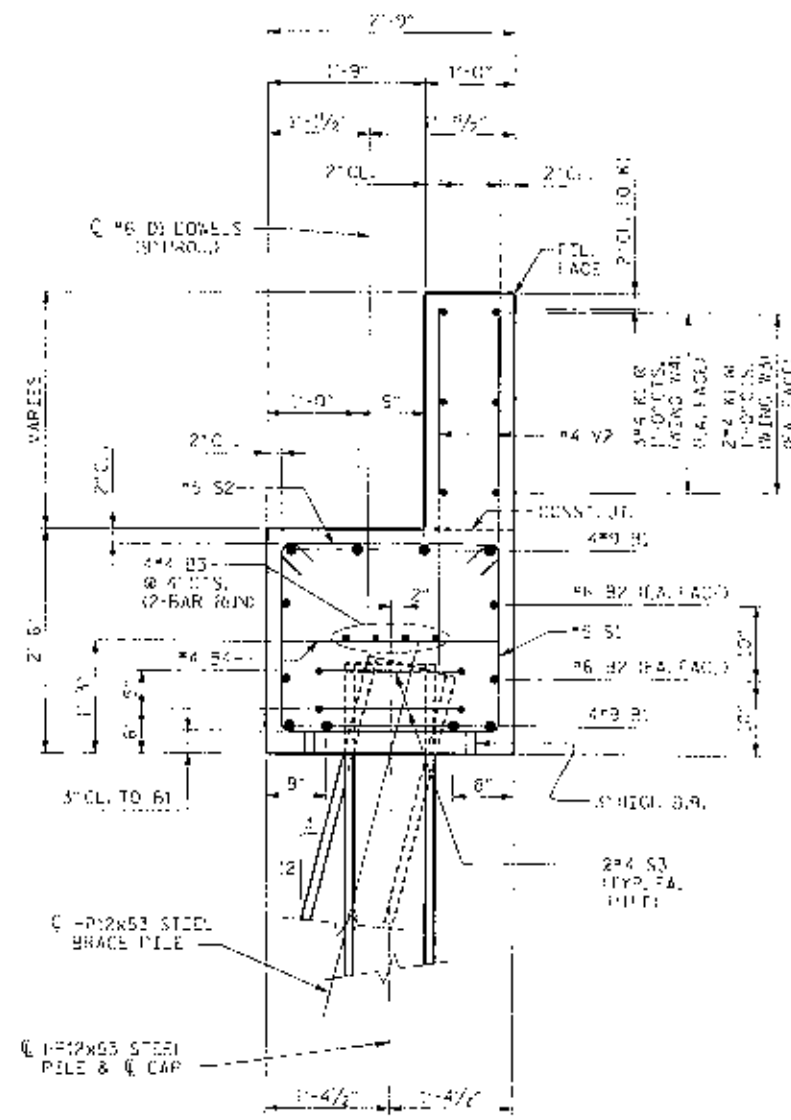
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

END BENT 2
 WING DETAILS

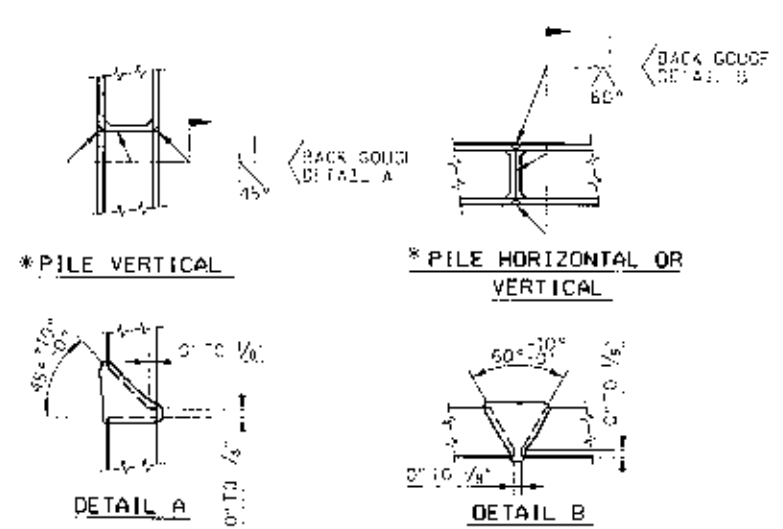
DRAWN BY: B.T.J. DATE: 6/74
 CHECKED BY: N.V.K. DATE: 12/74

PREPARED BY
 FOR THE NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH, N.C. 27601

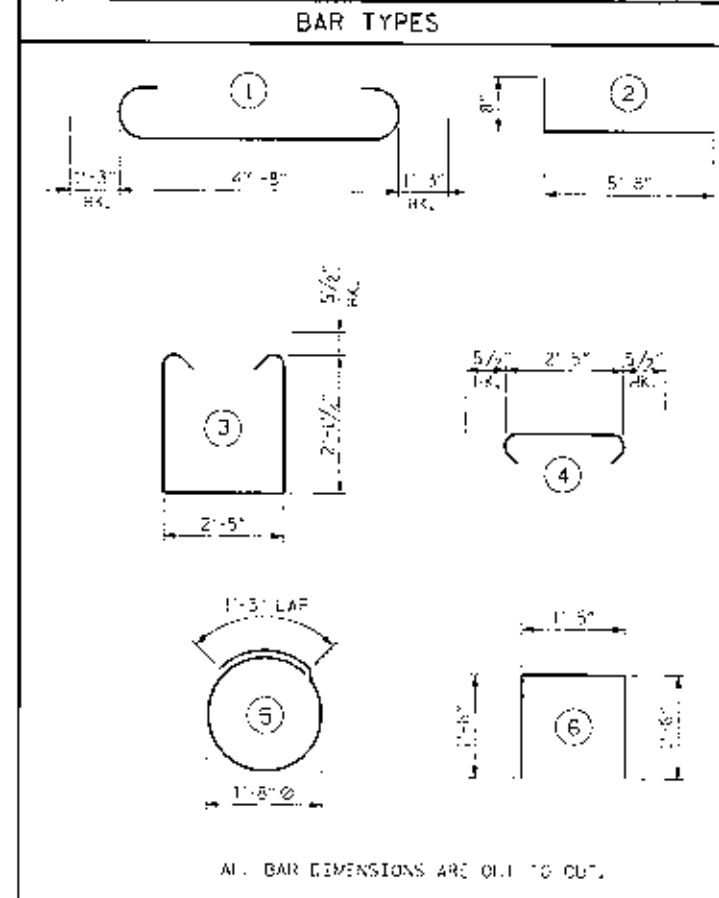
REVISIONS						SHEET NO. 5-13
NO.	BY	DATE	NO.	BY	DATE	
1			1			TOTAL SHEETS 15
2			2			



SECTION A-A



POSITION OF PILE DURING WELDING
PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE O.D. TO OUT.

BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9		50'-2"	1,365
B2	4	#6	STR.	47'-4"	286
B3	8	#4	STR.	25'-1"	134
B4	12	#4	STR.	2'-5"	19
D1	26	#6	STR.	1'-6"	63
D2	20	#4		6'-4"	85
X1	10	#4	STR.	3'-5"	23
S1	58	#5		7'-7"	659
S2	58	#5		3'-4"	202
S3	20	#4		6'-6"	87
S4	4	#4		4'-5"	12
V1	14	#4	STR.	4'-3"	40
V2	12	#4	STR.	4'-5"	35
V3	14	#4	STR.	4'-5"	44
REINFORCING STEEL - LBS.					2,854
CLASS A CONCRETE					
POLYURETHANE CAP & LOWER WINGS					112 C.Y.
POLYURETHANE BENT					16 C.Y.
POLYURETHANE MATERIAL GLIDES					31 C.Y.
TOTAL					143 C.Y.

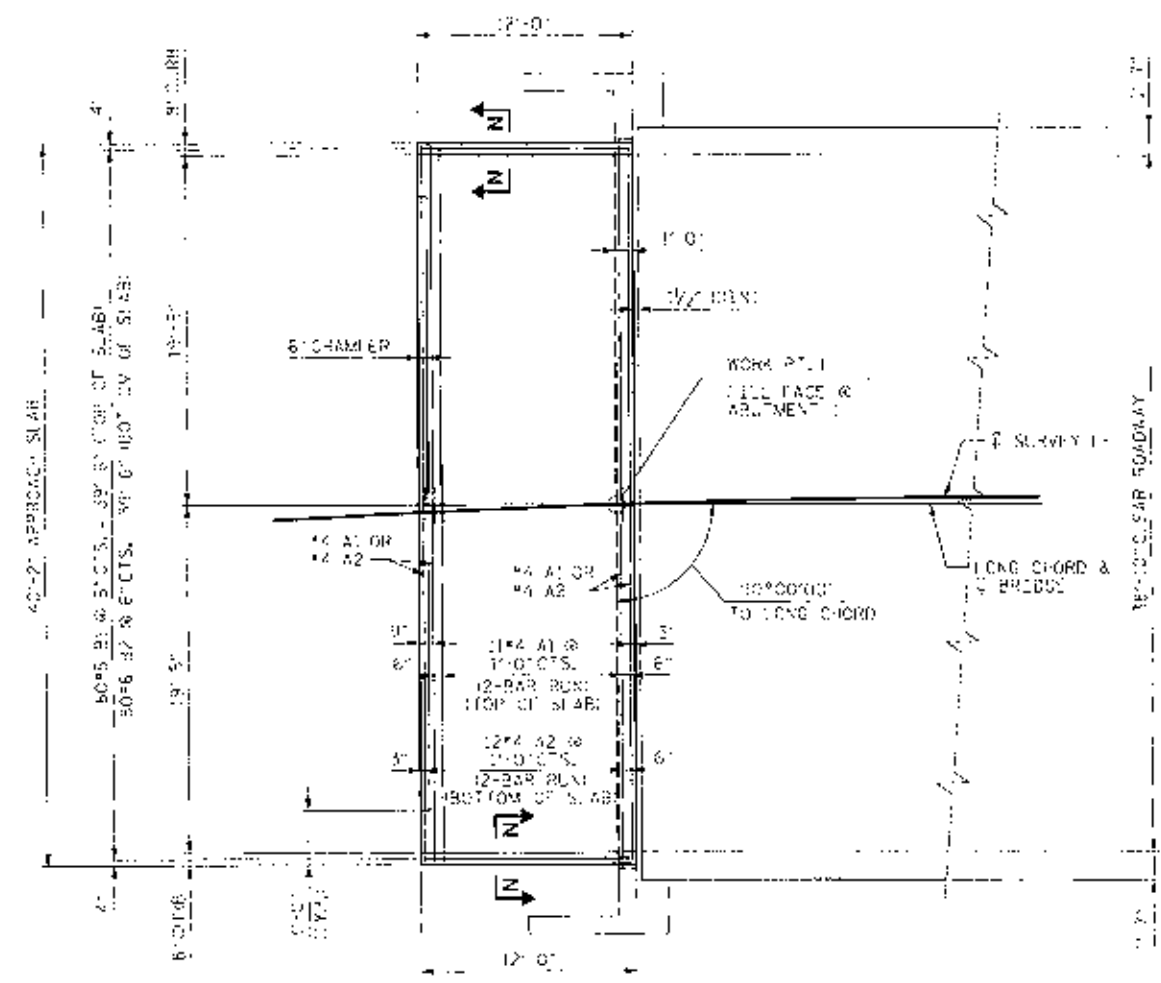
PROJECT NO. B-5235
COUNTY: TRANSYLVANIA
STATION: 12+80-L-
REPLACES BRIDGE NO. 194



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
END BENT 2 DETAILS					
REVISIONS					DATE
NO.	BY	DATE	NO.	BY	DATE
1			5		
2			6		

DRAWN BY: E.T. DATE: 6/7/04
CHECKED BY: J.M. DATE: 12/1/04

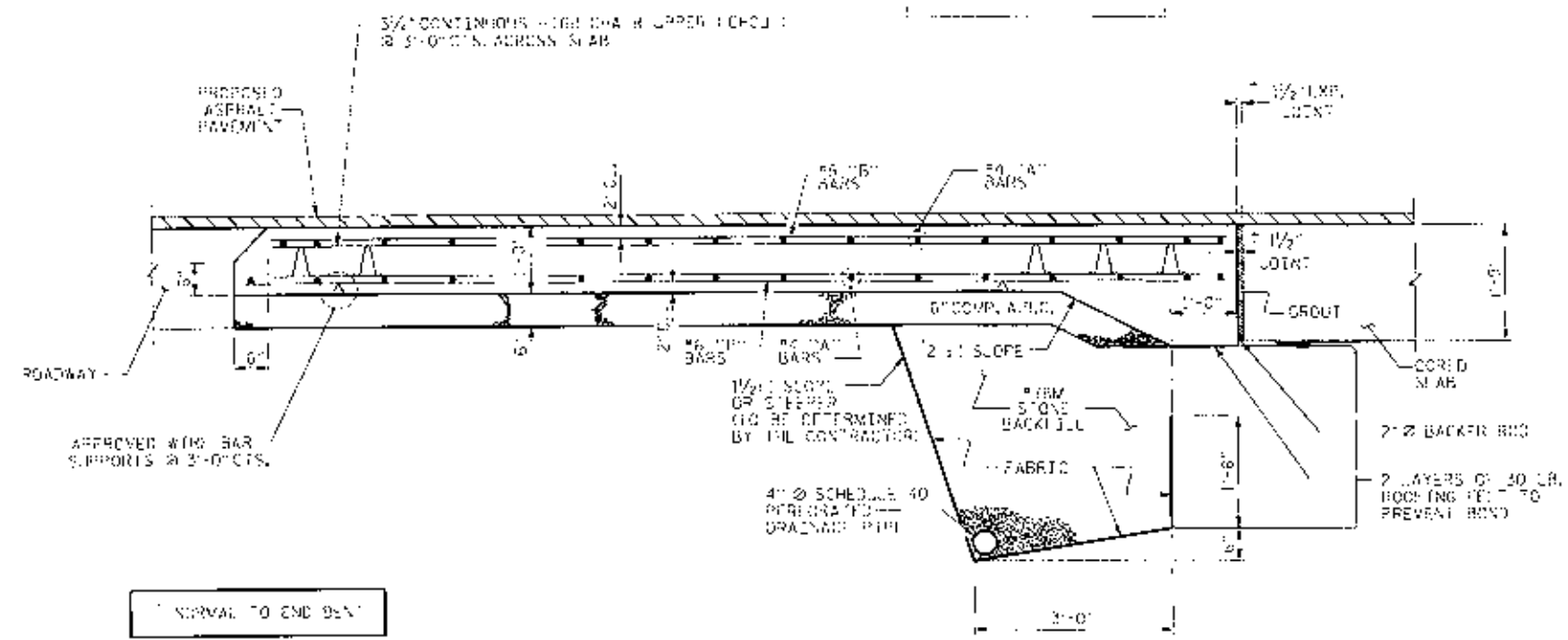
PROPERTY OF
THE ENGINEERS
FIRM WEAVER
MORGENTHAU, INC. 2003



PLAN

SECTION APPROACH SLAB SHOWS END APPROACH SLAB S.M. 12+82.

SPEC. LENGTHS FOR APPROACH SLAB
 #4 UNCOATED 1'-9"
 #4 EPOXY COATED 2'-0"



SECTION THRU SLAB

NOTES

FOR BRIDGE APPROACH FILL (INCLUDING FABRIC, 4"Ø DRAINAGE PIPE, AND FIRM STONE BACKFILL) SEE ROADWAY PLANS.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1016.

FIRM STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

FIRM STONE BACKFILL IS TO BE CONTIGUOUS ALONG FULL FACE OF BACKWALL FROM OUTSIDE CURB TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4"Ø DRAINAGE PIPE OUTLETS, SEE ROADWAY STANDARD DRAWINGS.

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

THE WINGWALL A.S.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 3'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 6" TYPE B-25.03 ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

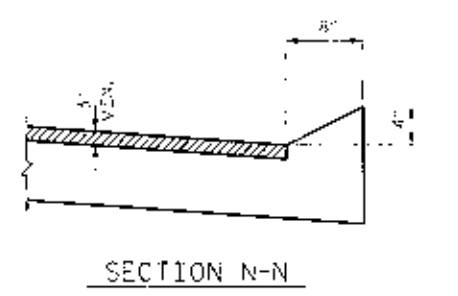
THE CONTRACTOR MAY USE 5" CLASS 7A CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB. HOOKING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT ROND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB LATT" SHEETS.

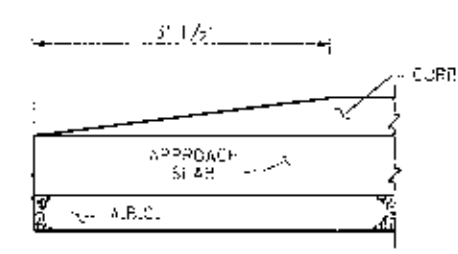
THE JOINT AT THE END BENT SHALL BE CURBED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT INDICED.

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	26	#4	STR	21'-0"	379
A2	26	#4	STR	21'-9"	378
B1	80	#5	STR	17'-2"	932
B2	80	#5	STR	17'-8"	973
REINFORCING STEEL				#5	1,361
EPOXY COATED REINFORCING STEEL				#5	1,311
CLASS AA CONCRETE				C.Y.	20.6
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	26	#4	STR	21'-0"	379
A2	26	#4	STR	21'-9"	378
B1	80	#5	STR	17'-2"	932
B2	80	#5	STR	17'-8"	973
REINFORCING STEEL				#5	1,361
EPOXY COATED REINFORCING STEEL				#5	1,311
CLASS AA CONCRETE				C.Y.	20.6



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

PROJECT NO. B-5235
 COUNTY: TRANSYLVANIA
 STATION: 12+80-L
 REPLACES BRIDGE NO. 194

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

APPROACH SLAB
 AT ABUTMENT 1



REVISIONS				SHEET NO.			
NO.	BY	DATE	NO.	BY	DATE	S-15	
1			8			TOTAL SHEETS	
2			4			15	

DRAWN BY: J.A./H.J. DATE: 9/04
 CHECKED BY: N.W. DATE: 11/04