

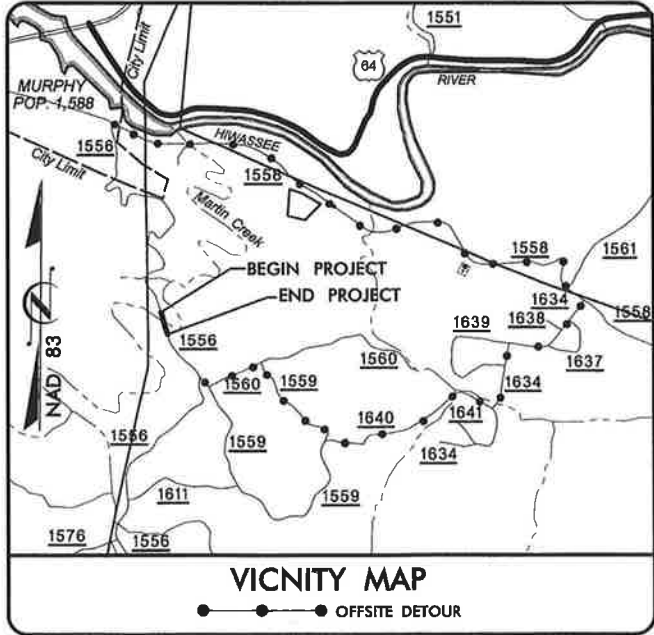
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5233	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42835.3.1		PE, RW, CONST.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CHEROKEE COUNTY

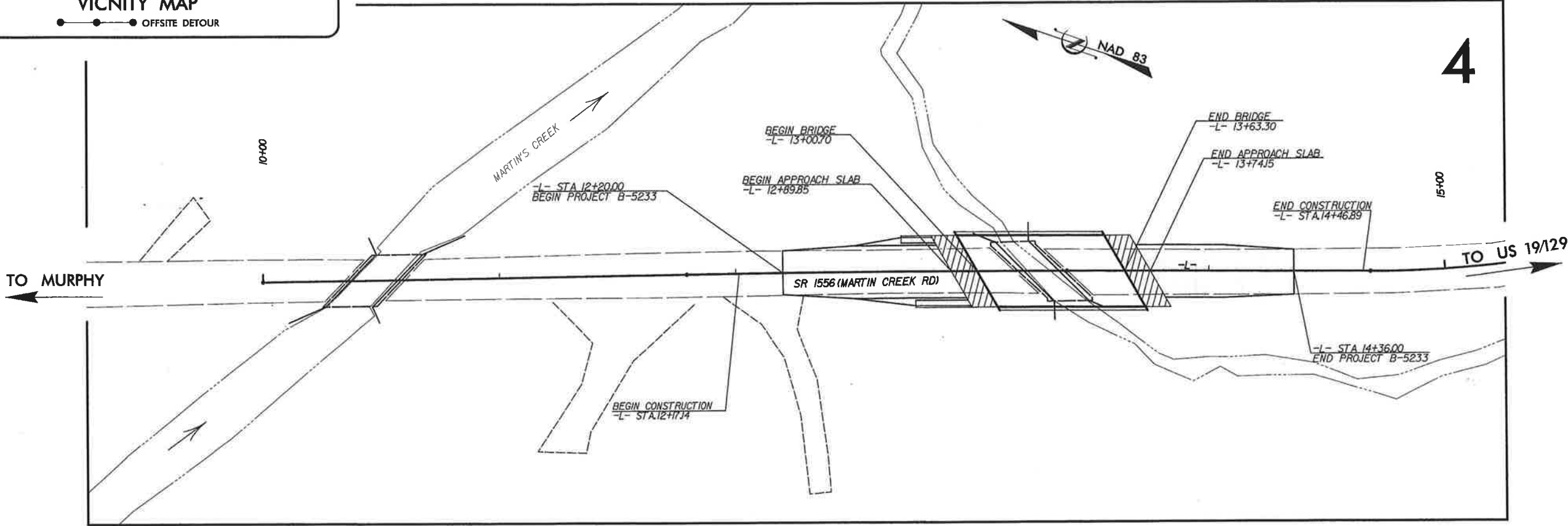
LOCATION: BRIDGE NO. 173 ON SR 1556 (MARTIN CREEK ROAD) OVER
TRIBUTARY TO MARTIN CREEK

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

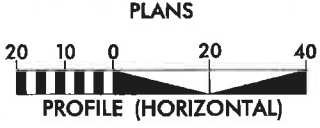


VICINITY MAP

OFFSITE DETOUR



GRAPHIC SCALES



DESIGN DATA

ADT 2010 = 3,200
ADT 2030 = 6,756
T = 6 %
V = 55 MPH

DESIGN EXCEPTION
REQUIRED FOR
VERTICAL CURVATURE.

PROJECT LENGTH

LENGTH ROADWAY PROJECT B-5233 = .029 MI
LENGTH STRUCTURE PROJECT B-5233 = .012 MI
TOTAL LENGTH PROJECT B-5233 = .041 MI

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

2006 STANDARD SPECIFICATIONS

LETTING DATE:

Plans Prepared For:
NCDOT DIVISION 14
NCDOT Contact:
RALPH CANNADY
DIVISION PROJECT MANAGER

CHARLES L. FLOWE, PE
PROJECT ENGINEER
W. CRAIG PARKER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS
ENGINEER

SIGNATURE: *[Signature]*
5/11/2010

ROADWAY DESIGN
ENGINEER

SIGNATURE: *[Signature]*
5/11/2010



PROJECT REFERENCE NO.	SHEET NO.
B-5233	1-A

ROADWAY DESIGN
ENGINEER

STATE OF NORTH CAROLINA
PROFESSIONAL
SEAL
35018
ENGINEER
JIMMY L. TERRY, II

05/11/10

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GENERAL NOTES

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

STANDARD DRAWINGS

2006 ROADWAY ENGLISH STANDARD DRAWINGS
EFF. 07-18-06
REV. 01-02-07

INDEX OF SHEETS

SHEET NO.	SHEET
1	Title Sheet
1-A	Index of Sheets, General Notes, and Standard Drawings List
1-B	Conventional Symbols
2	Pavement Schedule, Typical Sections, and Bridge Typical Method of Pipe Installation
2-A & 2-B	Detail of Anchorage for Frames
2-C	Detail of Bridge Approach Fill
2-D	Sub-Regional Tier
3	Summary of Earthwork, Guardrail, and Asphalt Pavement Removal
3-A	Summary of Drainage
4	Plan and Profile Sheet
TCP-1 thru TCP-5	Traffic Control Plans
PM-1	Pavement Marking Plan
EC-1	Erosion Control Title Sheet
EC-2	Temporary Rock Silt Check - Type 'B' Detail
EC-2A	Coir Fiber Baffle Detail
EC-3	Soil Stabilization Summary Sheet
EC-4	Clearing and Grubbing Plan Sheet
EC-5	Final Erosion Control Plan Sheet
X-SUM	Earthwork Volume Summaries
X-1 thru X-3	Cross Sections
S-1 thru S-12	Structure Plans

GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

SIDE ROADS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC 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:

POWER - MURPHY ELECTRIC POWER BOARD
TELEPHONE - VERIZON
CABLE - MURPHY CABLE

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

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

STD.NO. TITLE

DIVISION 2 - EARTHWORK

200.02 Method of Clearing - Method II
225.02 Guide for Grading Subgrade - Secondary and Local
225.04 Method of Obtaining Superelevation - Two Lane Pavement

DIVISION 4 - MAJOR STRUCTURES

422.10 Reinforced Bridge Approach Fills

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS

560.01 Method of Shoulder Construction - High Side of Superelevated Curve - Method I

DIVISION 8 - INCIDENTALS

840.29 Frames and Narrow Slot Flat Grates
840.35 Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46 Traffic Bearing Precast Drainage Structure
846.01 Concrete Curb, Gutter and Curb & Gutter
846.04 Drop Inlet Installation in Shoulder Berm Gutter
862.01 Guardrail Placement
862.02 Guardrail Installation
862.03 Structure Anchor Units
862.04 Anchoring End of Guardrail - B-77 and B-83 Anchor Units

5/07/2016

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	IP
Property Corner	PC
Property Monument	ECM
Parcel/Sequence Number	123
Existing Fence Line	X-X-X-X
Proposed Woven Wire Fence	W
Proposed Chain Link Fence	C
Proposed Barbed Wire Fence	B
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	PWB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or UG Tank Cap	GP
Sign	S
Well	W
Small Mine	M
Foundation	F
Area Outline	A
Cemetery	C
Building	B
School	S
Church	Ch
Dam	D

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	FA
Disappearing Stream	DS
Spring	SP
Wetland	W
Proposed Lateral, Tail, Head Ditch	LTD
False Sump	FS

RAILROADS:

Standard Gauge	SG
RR Signal Milepost	SM
Switch	SW
RR Abandoned	RA
RR Dismantled	RD

RIGHT OF WAY:

Baseline Control Point	BCP
Existing Right of Way Marker	ERWM
Existing Right of Way Line	ERWL
Proposed Right of Way Line	PRWL
Proposed Right of Way Line with Iron Pin and Cap Marker	PRWL-IPCM
Proposed Right of Way Line with Concrete or Granite Marker	PRWL-CGM
Existing Control of Access	ECA
Proposed Control of Access	PCA
Existing Easement Line	EEL
Proposed Temporary Construction Easement	PTCE
Proposed Temporary Drainage Easement	PTDE
Proposed Permanent Drainage Easement	PDE
Proposed Permanent Drainage / Utility Easement	PDU
Proposed Permanent Utility Easement	PUE
Proposed Temporary Utility Easement	TUE
Proposed Permanent Easement with Iron Pin and Cap Marker	PE-IPCM

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	EOP
Existing Curb	EC
Proposed Slope Stakes Cut	SSC
Proposed Slope Stakes Fill	SSF
Proposed Wheel Chair Ramp	WCR
Existing Metal Guardrail	EMGR
Proposed Guardrail	PMGR
Existing Cable Guiderail	ECGR
Proposed Cable Guiderail	PCGR
Equality Symbol	ES
Pavement Removal	PR

VEGETATION:

Single Tree	ST
Single Shrub	SS
Hedge	H
Woods Line	WL
Orchard	O
Vineyard	V

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	EP
Proposed Power Pole	PP
Existing Joint Use Pole	EJUP
Proposed Joint Use Pole	PJUP
Power Manhole	PM
Power Line Tower	PLT
Power Transformer	PT
UG Power Cable Hand Hole	UGPCHH
H-Frame Pole	HFP
Recorded UG Power Line	RUPL
Designated UG Power Line (S.U.E.*)	DUPL

TELEPHONE:

Existing Telephone Pole	ETP
Proposed Telephone Pole	PTP
Telephone Manhole	TM
Telephone Booth	TB
Telephone Pedestal	TP
Telephone Cell Tower	TCT
UG Telephone Cable Hand Hole	UGTCHH
Recorded UG Telephone Cable	RUPTC
Designated UG Telephone Cable (S.U.E.*)	DUPTC
Recorded UG Telephone Conduit	RUPTC
Designated UG Telephone Conduit (S.U.E.*)	DUPTC
Recorded UG Fiber Optics Cable	RUPTFO
Designated UG Fiber Optics Cable (S.U.E.*)	DUPTFO

WATER:

Water Manhole	WM
Water Meter	WM
Water Valve	WV
Water Hydrant	WH
Recorded UG Water Line	RUWL
Designated UG Water Line (S.U.E.*)	DUWL
Above Ground Water Line	A/G Water

TV:

TV Satellite Dish	TVSD
TV Pedestal	TP
TV Tower	TT
UG TV Cable Hand Hole	UGTVCHH
Recorded UG TV Cable	RUPTV
Designated UG TV Cable (S.U.E.*)	DUPTV
Recorded UG Fiber Optic Cable	RUPTFO
Designated UG Fiber Optic Cable (S.U.E.*)	DUPTFO

GAS:

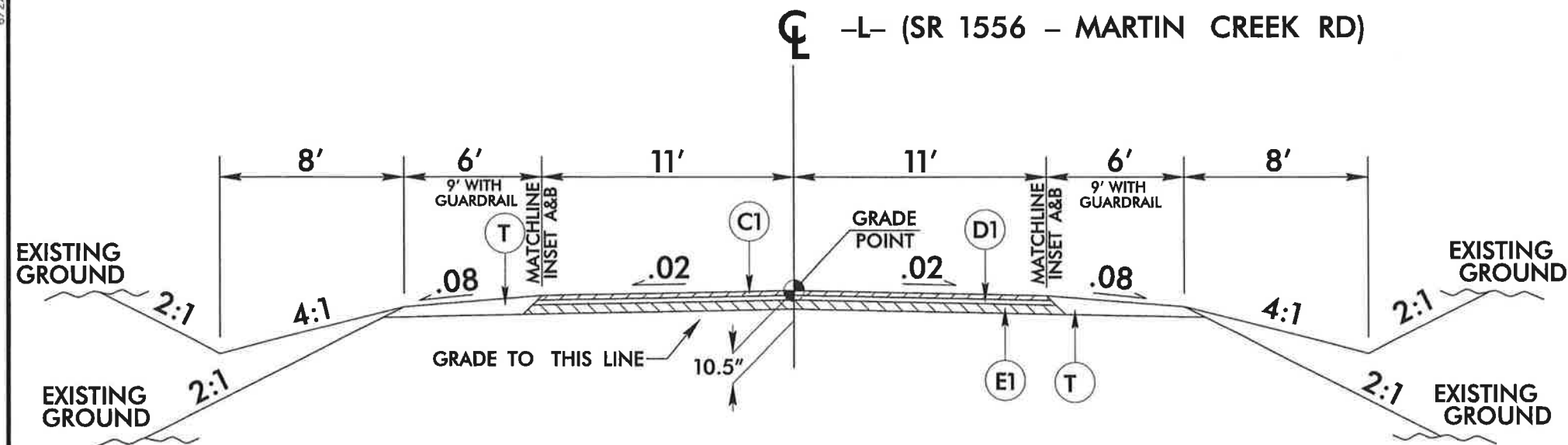
Gas Valve	GV
Gas Meter	GM
Recorded UG Gas Line	RUPL
Designated UG Gas Line (S.U.E.*)	DUPL
Above Ground Gas Line	A/G Gas

SANITARY SEWER:

Sanitary Sewer Manhole	SSM
Sanitary Sewer Cleanout	SSC
UG Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary Sewer
Recorded SS Forced Main Line	SSFML
Designated SS Forced Main Line (S.U.E.*)	SSFML

MISCELLANEOUS:

Utility Pole	UP
Utility Pole with Base	UPB
Utility Located Object	ULO
Utility Traffic Signal Box	UTSB
Utility Unknown UG Line	UTUL
UG Tank; Water, Gas, Oil	UGT
A/G Tank; Water, Gas, Oil	A/GT
UG Test Hole (S.U.E.*)	UGTH
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.



TYPICAL SECTION NO. 1

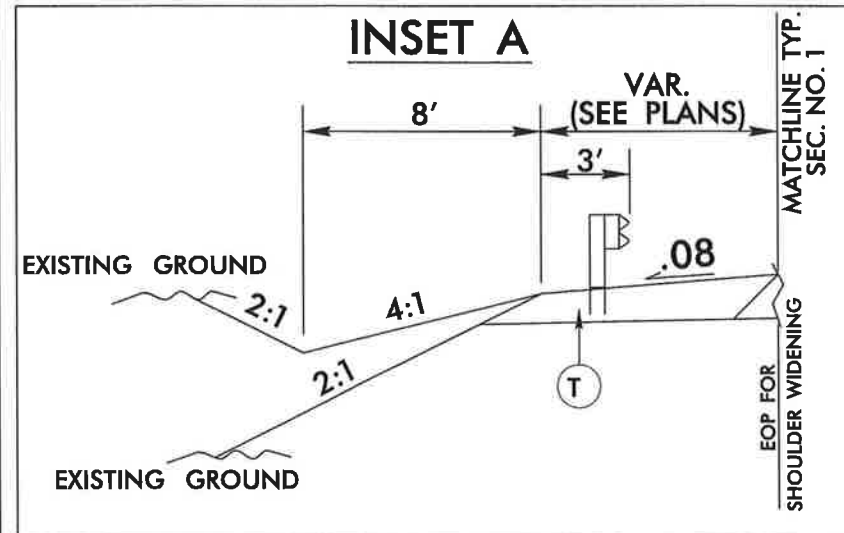
USE TYPICAL SECTION NO.1 AS FOLLOWS:

-L- STA. 12+50.00 TO 13+00.70 (BEGIN BRIDGE)
-L- STA. 13+63.30 (END BRIDGE) TO 14+06.00

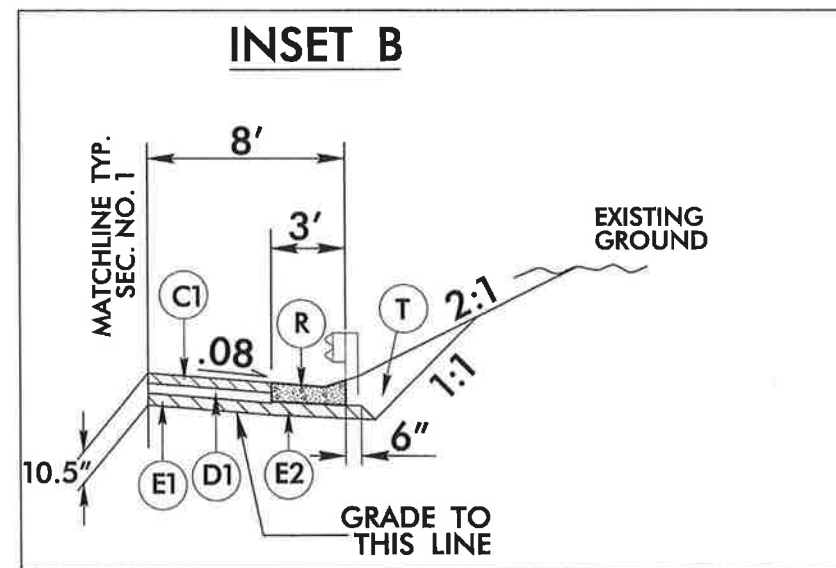
**NOTE: TRANSITION FROM EXISTING TO TYPICAL NO.1 FROM
-L- STA. 12+20.00 TO 12+50.00 AND FROM 14+06.00 TO 14+36.00**

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD..
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 4" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.

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

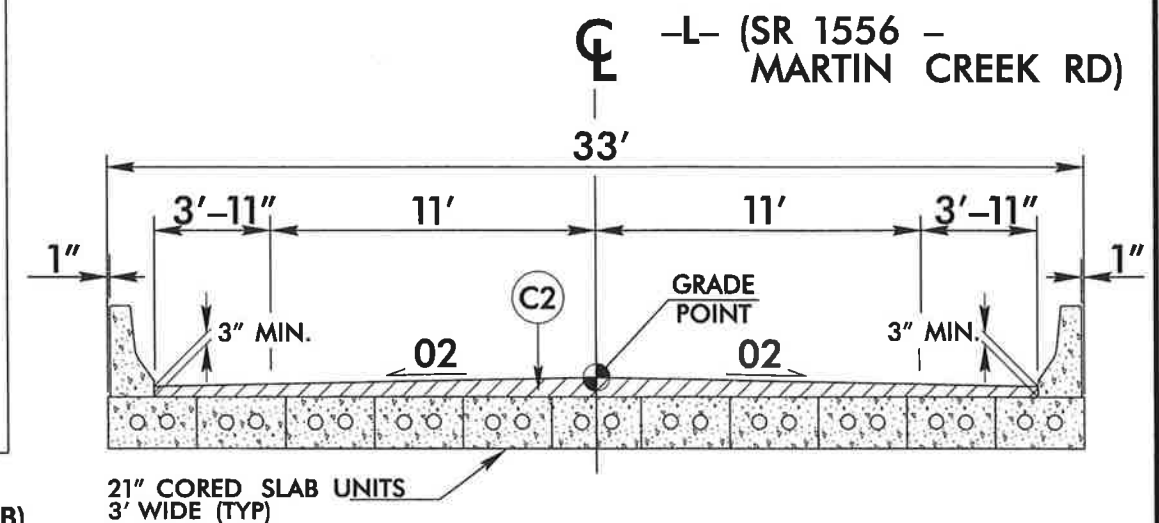


USE INSET 'A' FOR ALL SHOULDER WIDENING AREAS
ADJACENT TO PROPOSED GUARDRAIL (SEE PLANS)



USE INSET 'B' AS FOLLOWS:

-L- 12 + 70.00 LT TO 12 + 89.70 (BEGIN APPROACH SLAB)
-L- 12 + 76.00 RT TO 12 + 89.70 (BEGIN APPROACH SLAB)



TYPICAL SECTION ON STRUCTURE

-L- STA. 13+00.70 TO 13+63.30

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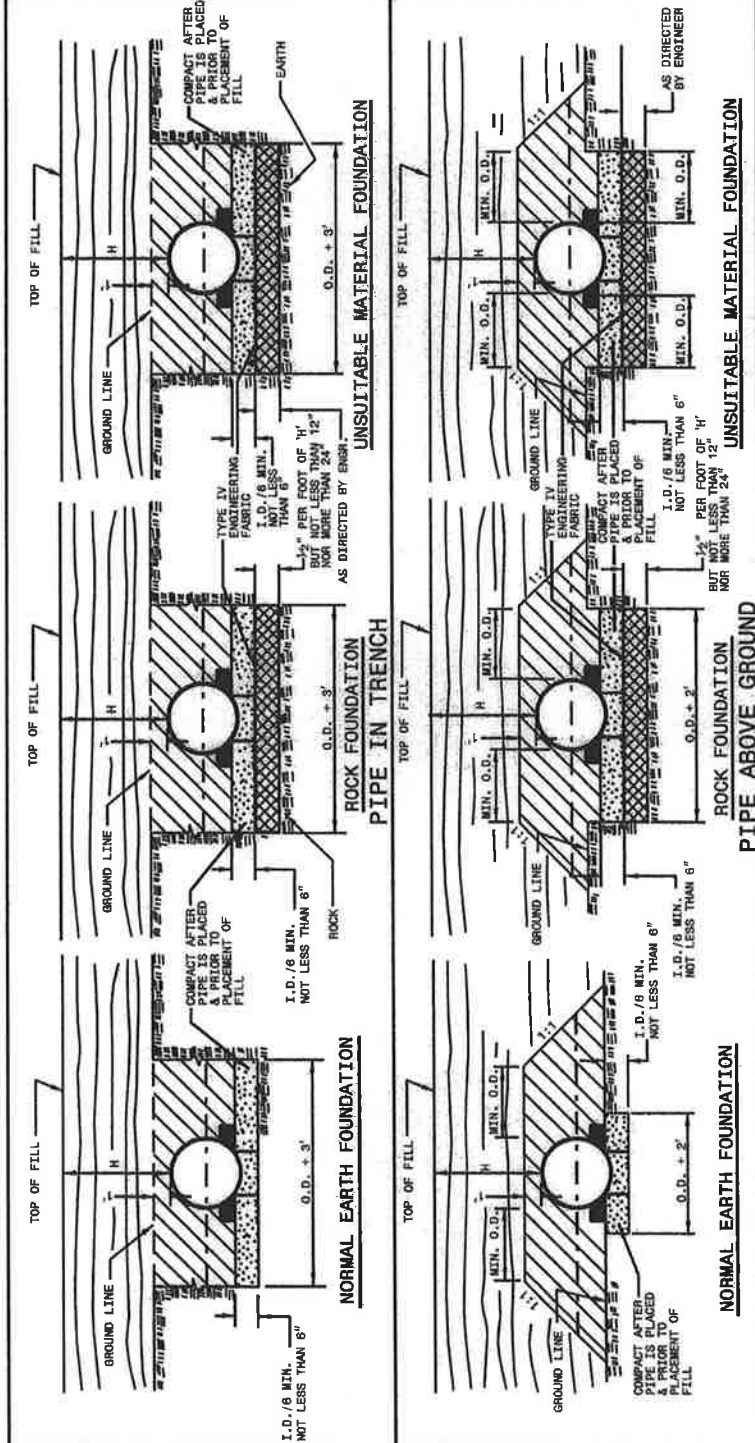
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STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 3
300D01



- GENERAL NOTES:
- I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 - O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 - H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
 - DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 9 FEET OF APPROVED MATERIAL.
 - SPRINGLINE OF PIPE
 - SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
 - APPROVED SUITABLE LOCAL MATERIAL.
 - UNDISTURBED EARTH MATERIAL
 - SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.
- TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

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

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

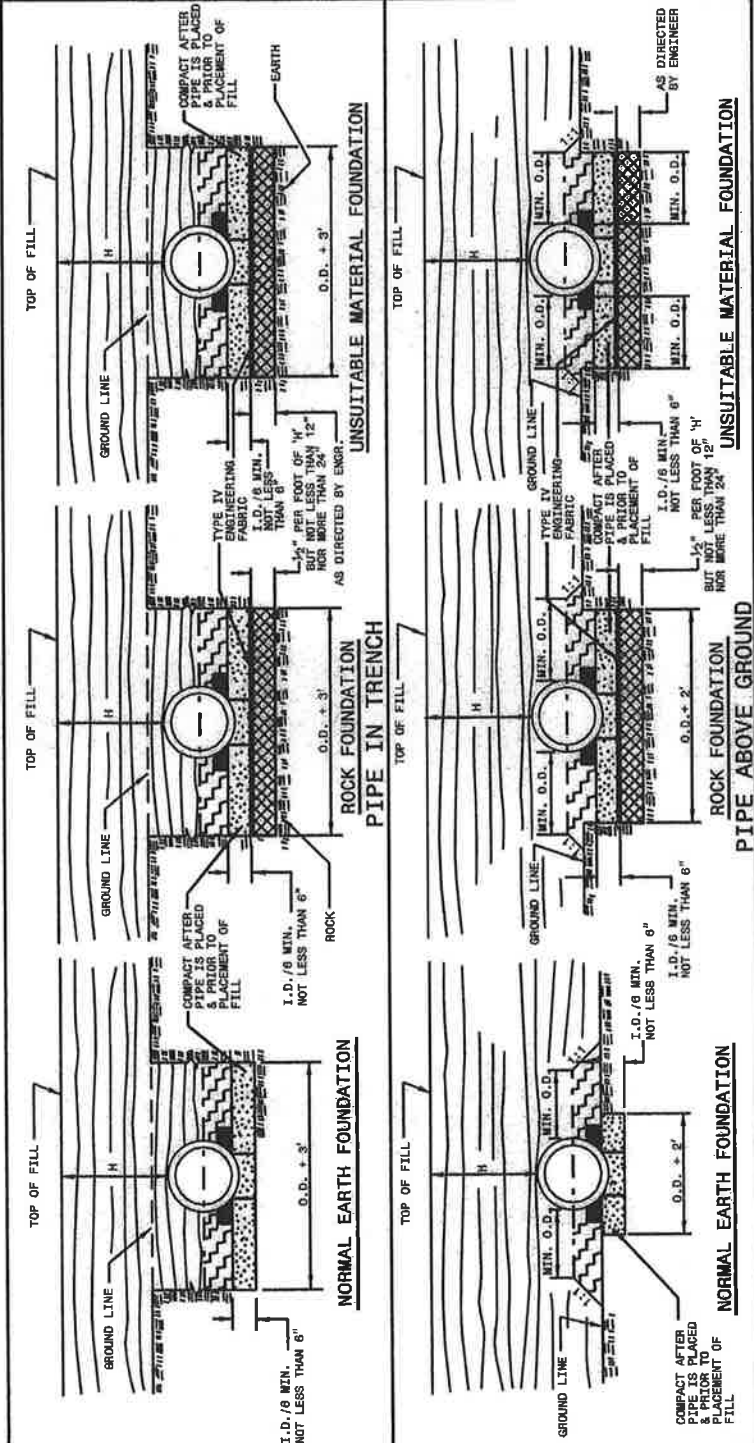
SHEET 2 OF 3
300D01

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

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 3
300D01



- GENERAL NOTES:
- I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 - O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 - H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
 - DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 9 FEET OF APPROVED MATERIAL.
 - SPRINGLINE OF PIPE
 - SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
 - APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.
 - UNDISTURBED EARTH MATERIAL
 - SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.
- TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

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

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 3
300D01

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

SEE PLATE FOR TITLE

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MODIFIED BY: DATE:
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B-5233

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

FLEXIBLE PIPE

Round Corrugated Steel Pipe 2 2/3 x 1/2 corrugation **					
Diameter (inches)	Minimum cover (inches)	(Ga)	16	12	10
12	12	204	258	210	162
15	12	162	204	162	126
18	12	135	169	135	108
21	12	115	145	115	90
24	12	100	126	100	78
30	12	78	100	78	60
36	12	65	83	65	51
42	12	55	70	55	42
48	12	48	61	48	36
54	12	42	54	42	30
60	12	36	48	36	24
66	12	30	40	30	18
72	12	24	36	24	12
78	12	18	30	18	6
84	12	12	24	12	0

Round Corrugated Aluminum Pipe 2 2/3 x 1/2 corrugation **					
Diameter (inches)	Minimum cover (inches)	(Ga)	16	12	10
12	12	123	155	123	95
15	12	98	123	98	74
18	12	81	102	81	59
21	12	69	87	69	48
24	12	60	76	60	39
27	12	52	67	52	31
30	12	45	60	45	24
36	12	36	48	36	18
42	12	30	40	30	12
48	12	24	36	24	6
54	12	18	30	18	0
60	12	12	24	12	0
66	12	6	18	6	0
72	12	0	12	0	0

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

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

GSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 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

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

RCP - * (Minimum fill) 1' for Class IV & Class V
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' & < 80' use LRFD Direct Design Method)

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

RIGID PIPE

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

SHEET 3 OF 3
300D01

SHEET 3 OF 3
300D01

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

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

7-06

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

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-99
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC/ectdswg/stds/stdstdatd01a/30001/0300d01.dgn

PROJECT REFERENCE NO.
B-5233

SHEET NO.
2-B

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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

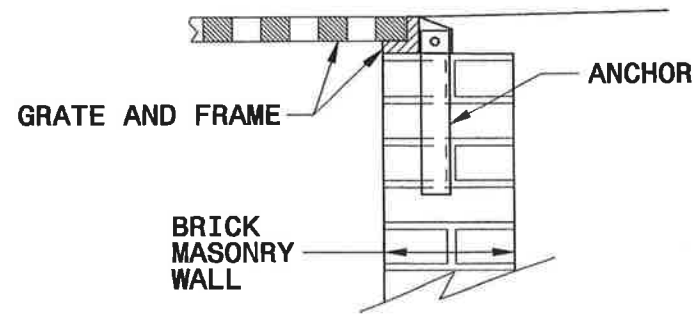
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ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

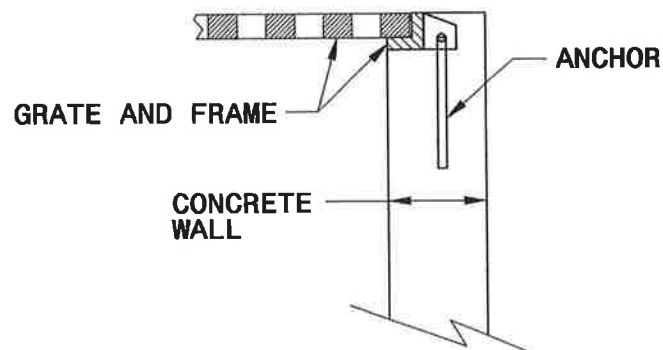
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

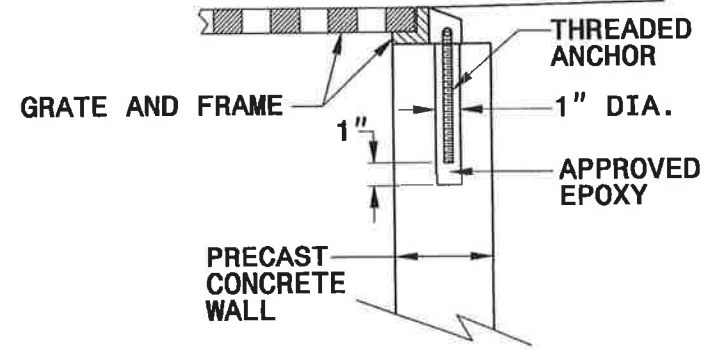
SHEET 1 OF 1
840D25



**BRICK MASONRY
CONSTRUCTION**



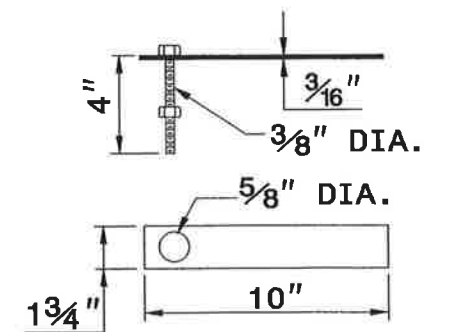
**CONCRETE
CONSTRUCTION**



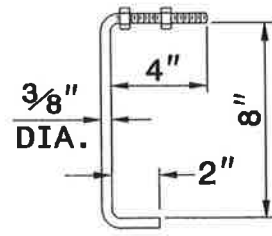
**PRECAST CONCRETE
CONSTRUCTION**

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

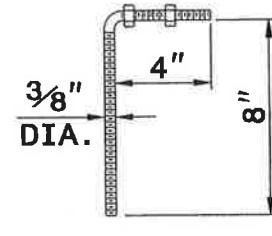
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



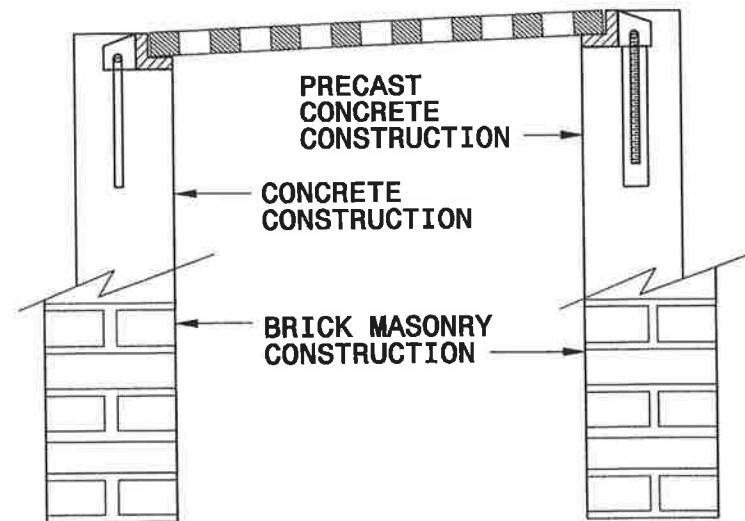
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



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



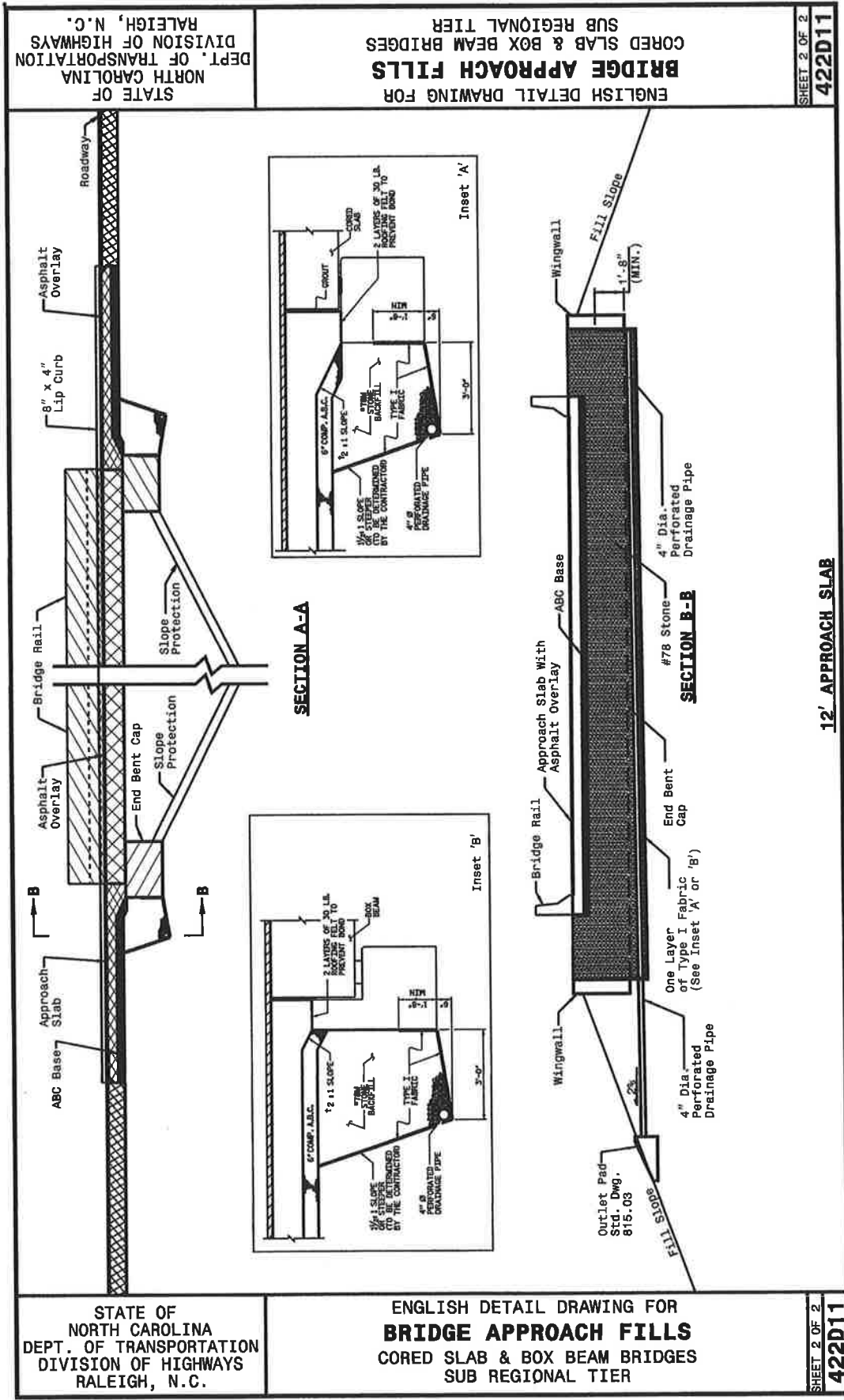
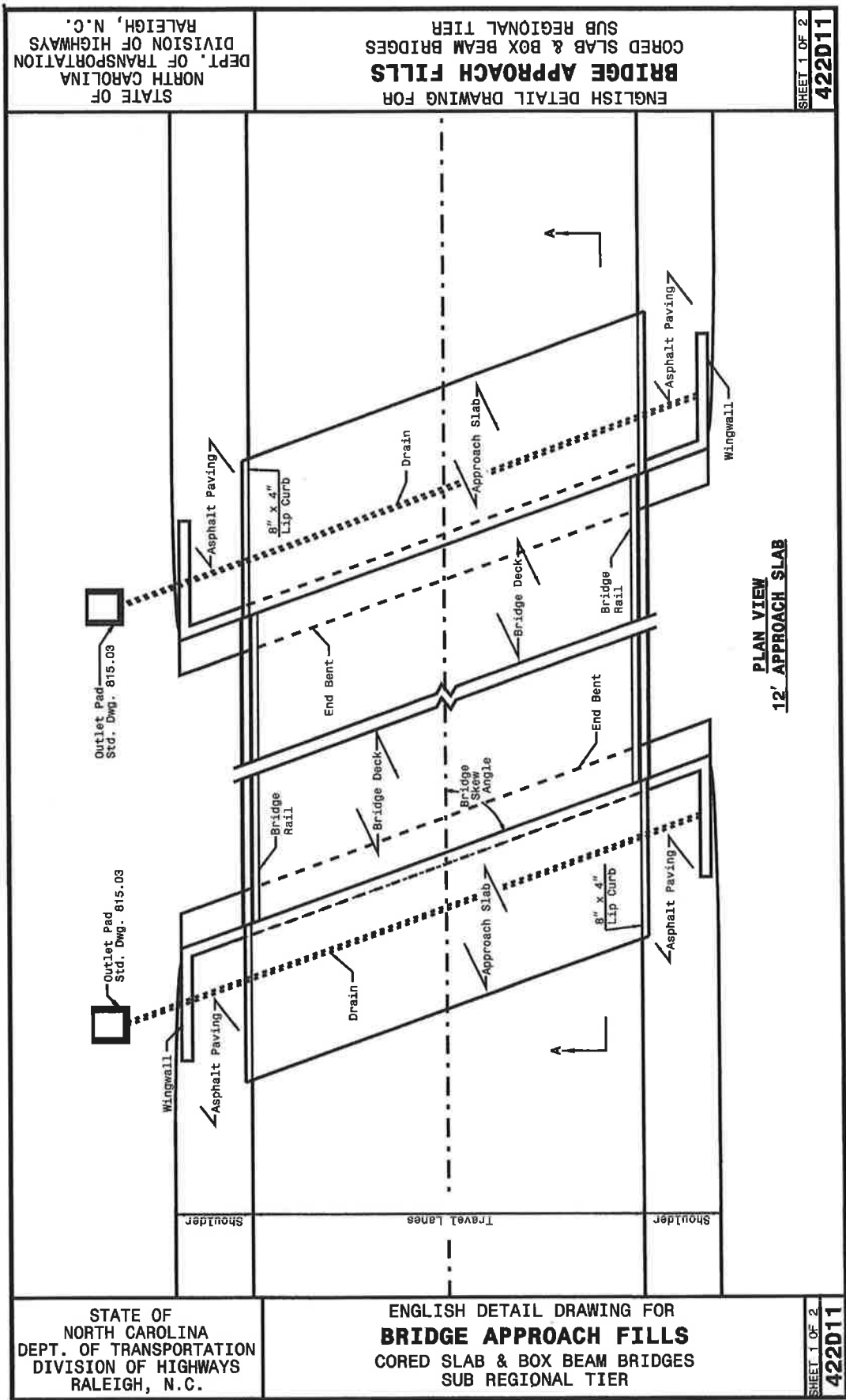
**FRAME AND GRATE INSTALLATION
FOR NORMAL CROWN AND
SUPERELEVATED SECTIONS**

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.E. WARD DATE: 9/25/06
CHECKED BY: DATE:
FILE SPEC.:

01-JUN-2008 14:45
s:\contracts\special details\eroward\stds\06' stds to special details\4221\bridge approach fill sub regional tier.dgn
J.Powerton



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. Kempf DATE: 8-10-08
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: k Kempf/english/bridge approach fills.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

Line	Station	Station	Uncl. Excav.	Undercut Excav.	Embank. +%	Borrow	Waste
-L-	12+17.14	13+00.70	181		0		181
BRIDGE							
-L-	13+63.30	14+46.89	1,016		0		1,016
PROJECT TOTALS			1,197		0		1,197
Loss due to Clearing & Grubbing			-60			60	
Use Waste in Lieu of Borrow						-60	-60
GRAND TOTALS			1,137		0		1,137
Borrow For Erosion Control Earth Berm						15	
SAY			1,190			15	1,190

Contingent Undercut: 100 yd³
Shoulder Borrow: 50 yd³

SUMMARY OF EXISTING ASPHALT
PAVEMENT REMOVAL

Line	Station	Station	Location LT/RT/CL	SY
-L-	12+50.00	13+18.48	CL	138.22
-L-	13+40.28	14+06.00	CL	137.16
			TOTAL:	275.38
			SAY:	300

"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. BORROW EXCAVATION, CLEARING AND GRUBBING, SHOULDER BORROW, FINE GRADING, 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 350	CAT-1	AT-1	B-77	XI MOD	M-350		EA	G	NG		
-L-	12+34.37	13+09.37	RT	75			BRIDGE		4'		56.25		1.125		1			1								
-L-	12+17.14	12+92.14	LT	75				BRIDGE	4'			56.25		1.125	1			1								
-L-	13+54.51	14+29.51	LT	75			BRIDGE		4'		56.25		1.125		1			1								
-L-	13+71.89	14+46.89	RT	75				BRIDGE	4'			56.25		1.125	1			1								
SUB-TOTALS:				300.00																						
LESS ANCHOR DEDUCTIONS																										
	GRAU-350	4@50 ft		200																						
	TYPE B-77	4@18.75 ft		75																						
ANCHOR TOTALS				275																						
GRAND TOTALS				25.00											4			4								
SAY				37.50											4			4							0	
ADDITIONAL GUARDRAIL POSTS = 5 EA																										

8/17/93

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDDOT FOR MONUMENT "BL-2" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 517304969(1) EASTING: 497890641(1) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998280336 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO -L- STATION 12+20.00 IS S 13° 02' 08.79" E 623.41 FT ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

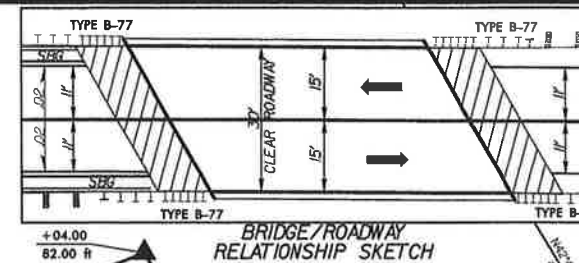


PI Sta 12+59.67
 $\Delta = 110^\circ 27.9' (RT)$
 $D = 0^\circ 43' 50.3'$
 $L = 160.74'$
 $T = 80.37'$
 $R = 7,842.00'$
 $SE = 0.02$

PI Sta 15+02.21
 $\Delta = 75^\circ 56' 26.3' (LT)$
 $D = 1^\circ 47' 21.3'$
 $L = 67.35'$
 $T = 33.73'$
 $R = 486.00'$
 $SE = 0.02$

SEE SHEETS S-1 THRU S-12 FOR STRUCTURE PLANS

1
CLEGG WALLACE AVETT, JR.,
and wife,
GERALDINE AVETT
D.B. 300 PG. 148



PROJECT REFERENCE NO. B-5233		SHEET NO. 4	
RAW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL 12300	
NORTH CAROLINA PROFESSIONAL SEAL 35018		NORTH CAROLINA PROFESSIONAL SEAL 12300	
ENGINEER VIMMY L. TERRY JR.		ENGINEER CHARLES LEE FLOW	
TGS ENGINEERS		TGS ENGINEERS	
975 WALNUT STREET, SUITE 141		975 WALNUT STREET, SUITE 141	
CARY, NC 27511		CARY, NC 27511	
PH (919) 319-8850		PH (919) 319-8850	
KENNETH J. BOOTH and wife, VONNIE SUE BOOTH D.B. 893 PG. 57			

10+00
-L- POT 10+00.00
BM-3
-BL- STA 9+33.98
35.49 LT.
ELEV 1568.51'
-L- STA 10+23.30
15.67 LT

BEGIN PROJECT B-5233
-L- POC 12+20.00
-L- PC 11+79.29

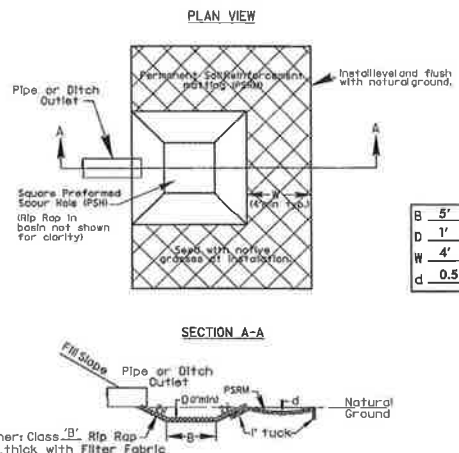
ROBERT MAX JOHNSON
and wife,
BETTY E. JOHNSON
D.B. 647 PG. 68

BEGIN CONSTRUCTION
-L- STA. 12+17.14

-BL- #4 PINC 10+19.32 =
-L- POT 11+08.53 (20.07' RT)

ROBIN E. MARKLAND
D.B. 552 PG. 178

DETAIL A PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON



-L- 12+67+/- LT
PSRM: EST. 34 SY
CL 'B' RIP RAP: EST. 10 TONS
FILTER FABRIC: EST. 26 SY

BM-1 ELEV. = 1571.55
RR SPIKE IN POWER POLE
N 516.667' E 498.055.67
14.64' LT OF -L- STA. 12+56.19

ALLYN YAGER
D.B. 876 PG. 825

* ALL PIPE CLASS III RCP
UNLESS OTHERWISE NOTED

END PROJECT B-5233
-L- POT 14+36.00

END APPROACH SLAB
-L- 13+74.15

END CONSTRUCTION
-L- STA. 14+46.89

BM-2 ELEV. = 1574.86
RR SPIKE IN POWER POLE
N 516.396.03 E 498.103.03
18.27' LT OF -L- STA. 15+27.65

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 150	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1567.1	FT
BASE DISCHARGE	= 240	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1567.3	FT
OVERTOPPING DISCHARGE	= 550	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 1569.8	FT

MIN. WIDEN.
& RESURF.

PI = 12+83.00
EL = 1,570.10
VC = 66'
K = 98
Vd = 50 MPH

PI = 13+78.00
EL = 1,570.45
VC = 56'
K = 49
Vd = 35 MPH

MIN. WIDEN.
& RESURF.

BEGIN GRADE
-L- 12+50.00
ELEV. = 1,570.20

BEGIN BRIDGE
-L- 13+00.70

END BRIDGE
-L- 13+63.30

END GRADE
-L- 14+08.00
ELEV. = 1,570.87

CL II RIP RAP
ON 1/21/04

* DESIGN EXCEPTION REQUIRED FOR VERTICAL CURVATURE

\\03200003\Roadway\Proj\VA1400656_R01_PSH.dwg

B-5233

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
TRAFFIC CONTROL, MARKING & DELINEATION
CHEROKEE COUNTY

STATE TIP PROJECT REFERENCE NO. SHEET NO.

B-5233

TCP-1

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 JANUARY 2002 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE
CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1170.01	PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
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
TCP-2	PROJECT NOTES
TCP-3	OVERVIEW & TRAFFIC CONTROL PHASING
TCP-4	DETOUR
TCP-5	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

APPROVED:
DATE:

SEAL



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

STATE TIP PROJECT NO.	SHEET NO.
B-5233	TCP-2

GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- B) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- C) PROVIDE PERMANENT SIGNING.
- D) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

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

- E) 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.

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

TRAFFIC BARRIER

- G) 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.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) 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 DRUMS 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

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

PAVEMENT MARKINGS AND MARKERS

- I) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS SHOWN IN THE PAVEMENT MARKING PLAN.
- J) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

LOCAL NOTES

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

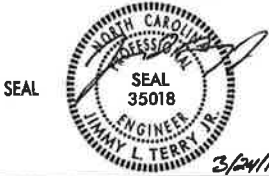
- 1) MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES USING INCIDENTAL STONE

PLANS PREPARED BY:



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

APPROVED: DATE:



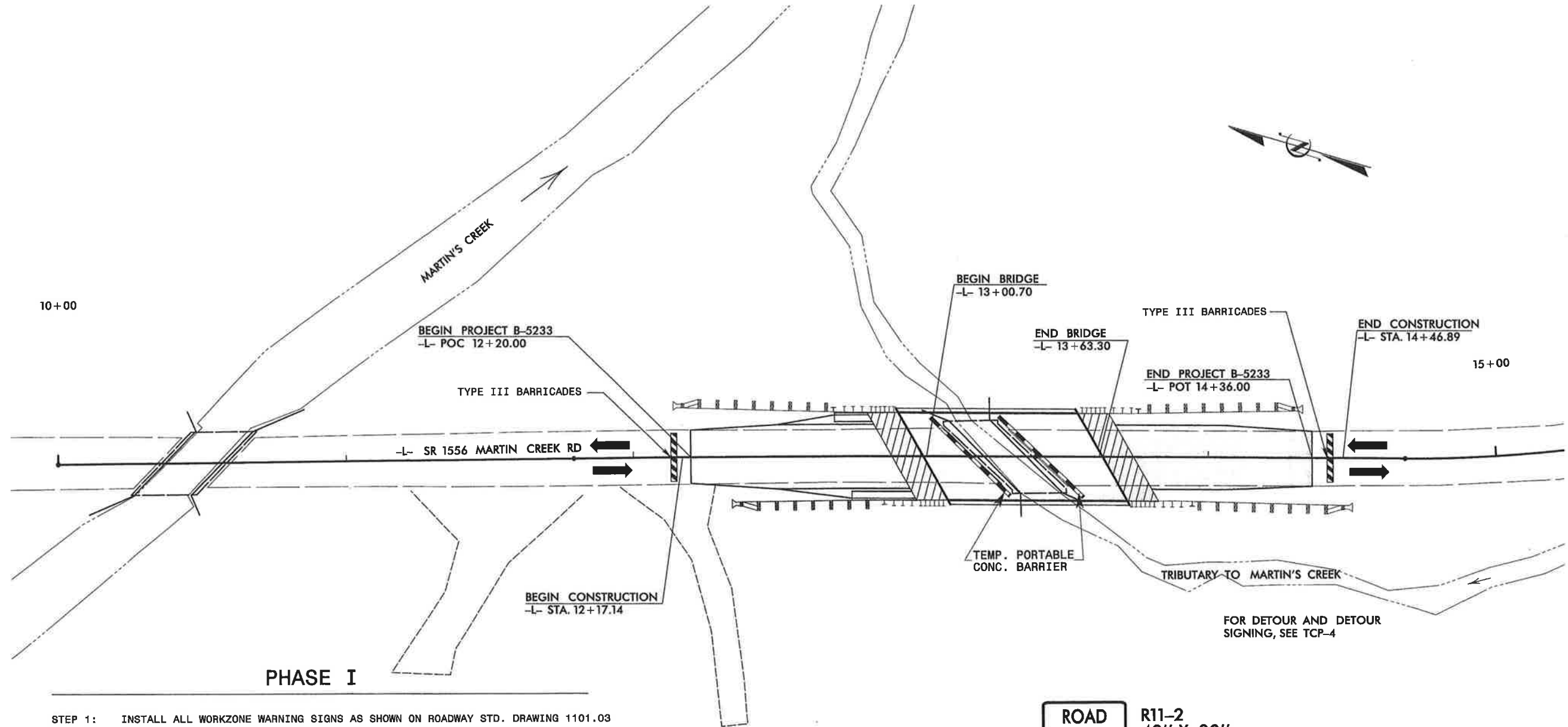
PROJECT NOTES

SCALE: NONE
DATE: NOV., 2009
DWG. BY: JLT
DESIGN BY: JLT
REVIEWED BY: WCP



REVISIONS

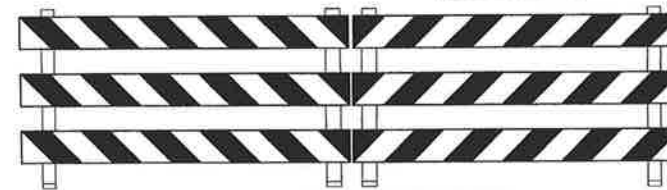
CADD FILE



PHASE I

- STEP 1: INSTALL ALL WORKZONE WARNING SIGNS AS SHOWN ON ROADWAY STD. DRAWING 1101.03 (SHEET 1 OF 9). IF WORK IS NOT PURSUED WITHIN 3 DAYS OF SIGN INSTALLATION, THE SIGN 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-4.
- STEP 2: UNCOVER DETOUR SIGNS AND CLOSE MARTIN CREEK ROAD (-L-) TO TRAFFIC AS SHOWN IN ROADWAY STANDARD DRAWING 1101.03 (SHEET 1 OF 9) AND ON SHEET TCP-4.
- STEP 3: DEMOLISH AND REMOVE THE EXISTING BRIDGE AND CONSTRUCT MARTIN CREEK ROAD (-L-) AND BRIDGE FROM STA. 12+20+/- TO STA. 14+36+/- . TRAFFIC ACCESS MUST BE MAINTAINED TO LOCAL STREETS AND DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION.
- STEP 4: PLACE PERMANENT PAVEMENT MARKINGS AND SNOWPLOWABLE RAISED REFLECTIVE PAVEMENT MARKERS ON MARTIN CREEK ROAD (-L-) FROM STA. 12+20+/- TO STA. 14+36+/- (REFER TO SHEET PM-1).
- INSTALL GUARDRAIL AS SHOWN ON THE ROADWAY PLANS AND ON SHEET TCP-3.
- STEP 5: REMOVE WORKZONE WARNING SIGNS AND DETOUR SIGNS AND OPEN MARTIN CREEK ROAD (-L-) TO TRAFFIC IN FINAL PATTERNS.

ROAD CLOSED R11-2 48" X 30"



TYPE III BARRICADE(S)

LEGEND

- PROPOSED CONSTRUCTION
- PORTABLE CONCRETE BARRIER

PLANS PREPARED BY:

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

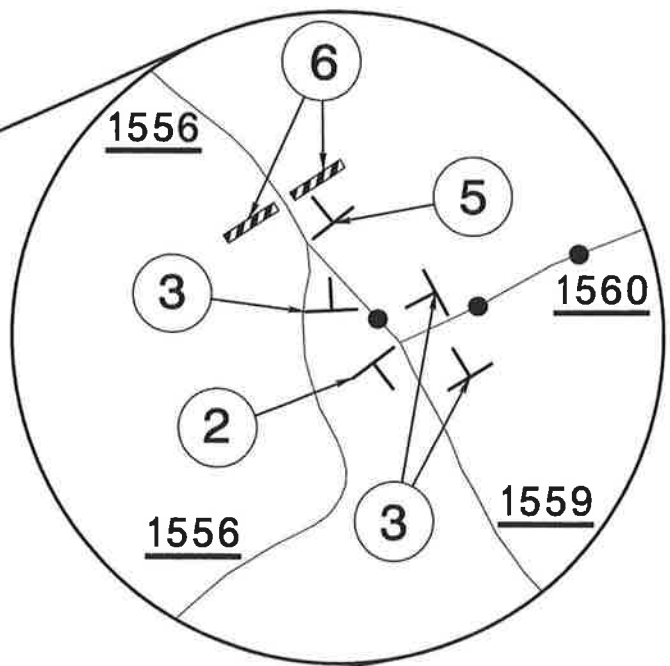
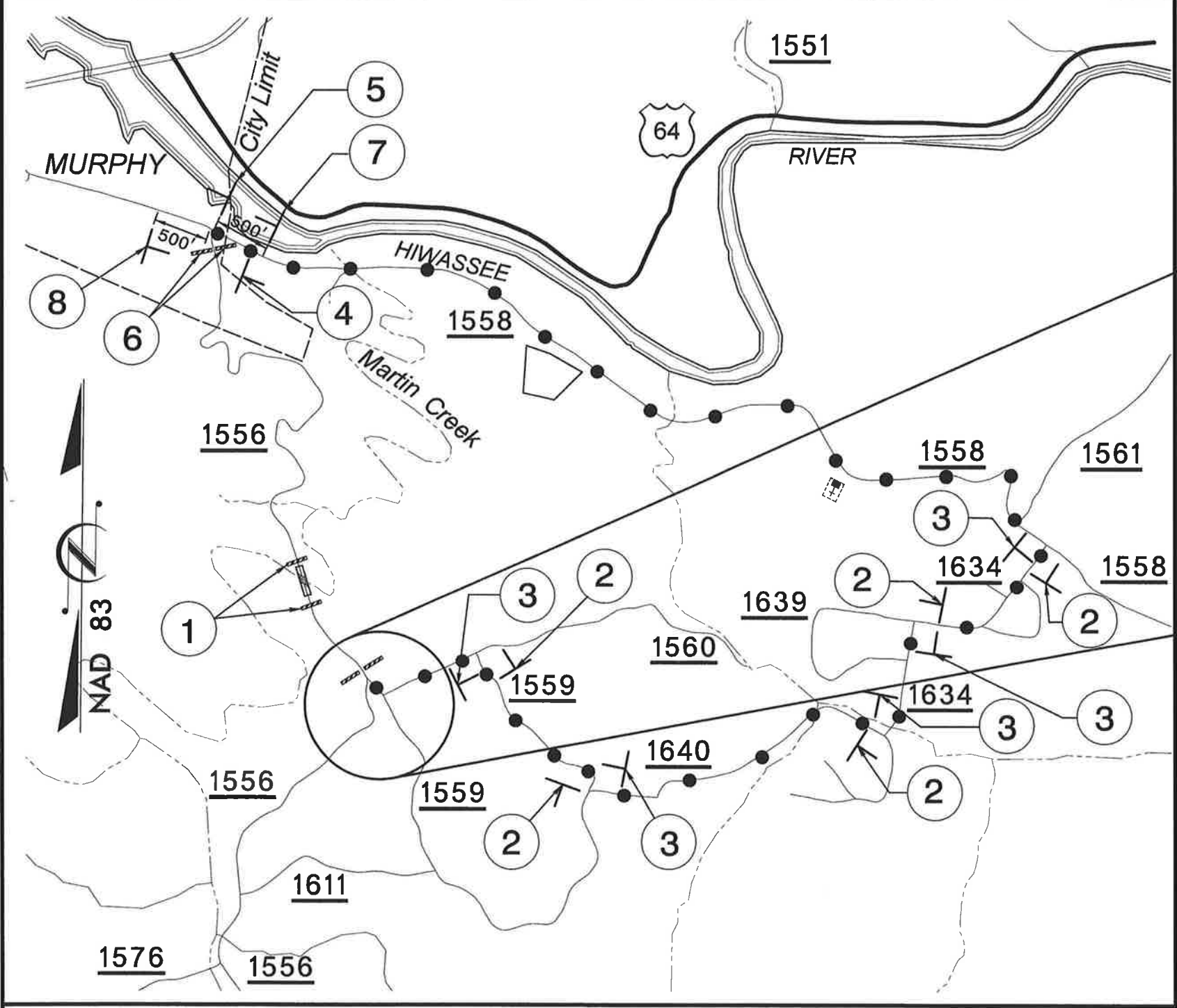
APPROVED:	DATE:
SEAL	3/24/10

OVERVIEW & PHASING

SCALE: NONE
DATE: NOV., 2009
DWG. BY: JLT
DESIGN BY: JLT
REVIEWED BY: WCP



REVISIONS	



LEGEND

CONSTRUCTION AREA

DETOUR ROUTE

*** SEE SHEET TCP-5 FOR SIGN DESIGN

1

ROAD CLOSED R11-2 48" X 30"

TYPE III BARRICADE(S)

2

MARTIN CREEK RD ***

DETOUR M4-8 24" X 12"

M6-1 21" X 15"

3

MARTIN CREEK RD ***

DETOUR M4-8 24" X 12"

M6-1 21" X 15"

4

MARTIN CREEK RD ***

DETOUR M4-8 24" X 12"

M6-3 21" X 15"

5

MARTIN CREEK RD ***

END DETOUR M4-8 A 24" X 18"

6

ROAD CLOSED TO THRU TRAFFIC R11-4 60" X 30"

TYPE III BARRICADE

7

ROAD CLOSED W20-3 48" X 48"

NEXT LEFT SP-4 42" X 12"

8

ROAD CLOSED W20-3 48" X 48"

NEXT RIGHT SP-4 42" X 12"

PLANS PREPARED BY:

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

APPROVED: _____ DATE: _____

SEAL

SEAL 35018

ENGINEER

JIMMY L. TERRY JR.

08/29/10

DETOUR		REVISIONS	
SCALE: NONE	DATE: NOV, 2009		
DWG. BY: JLT	DESIGN BY: JLT		
REVIEWED BY: WCP			

2/22/2010 15:40:06 83V-TrafficControl\TCP\MA4006B-1\cp_DETOUR.dgn 12:30:03 PM

SIGN NUMR: DET-1 TYPE: D	TSv3.31 BACKG ORANGE	DESIGN BY: JLT PROJECT ID:B-5233	CK BY:____STD #: 0 DIV:14 DATE: 11/10/09	VERTICAL SPACING												
				5.13 SPACE												
SIGN WIDTH: 42 INCHES HEIGHT: 24 INCHES TOTALAREA :(S.F.) 7.00	MAJ. COPY SERIES: C	MARTIN CREEK RD		5.00 LINE 1 C 10.1												
ROUTE MARKERS:				3.75 SPACE												
BORDR TYPE:RECESSED RECESS 0.38 INCHES WIDTH: 0.63 INCHES RADII: 1.50 INCHES				5.00 LINE 2 C 18.9												
ARROW TYPES:				5.13 SPACE												
NO. Z BARS: #N/A VHB: LENGTH: #N/A INCHES				0.00												
MAT'L:0.080 " ALUMINUM		0.00														
USE NO 1,4																
1.Legend and border shall be direct applied non-reflective sheeting.																
2.Legend and border shall be direct applied non-reflective sheeting.																
3.Shields shall be encapsulated lens reflective sheeting on .032" aluminum and demountable.																
4.Background shall be type VII, VIII, or IX flourescent orange reflective sheeting.																
5.Background shall be enclosed lens refl. sheeting.																
6.Center arrow(s) vertically on sign.																
MOUNTED ON 1 U POST				0.00												
TOTAL:				24 0.00												
SIZE/SERIES	LT MARGIN	SIGN COPY										RT MARGIN				
CHAR: 5.00 INCH TYPE:C #/LC: 5.00 INCH SPCE: 1.00 FACTOR LINE 1	11.26 [x]	M	A	R	T	I	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		11.3	15.3	19.3	22.9	26.2	28.0	30.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.26
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHAR: 5.00 INCH TYPE:C #/LC: 5.00 INCH SPCE: 1.00 FACTOR LINE 2	7.29 [x]	C	R	E	E	K	R	D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		7.3	10.9	14.7	18.0	21.3	24.1	28.2	32.0	34.7	0.0	0.0	0.0	0.0	0.0	0.0
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.29
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPROVED:____DATE:____

SEAL

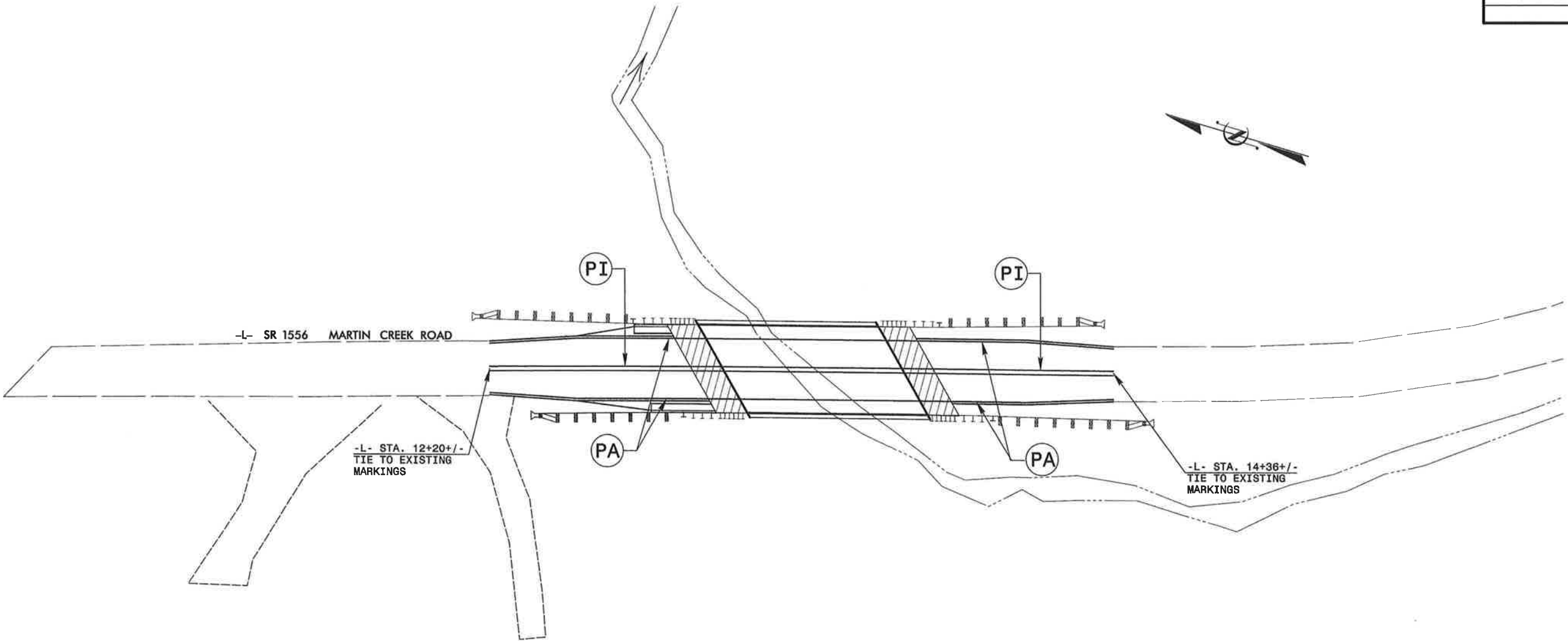
NORTH CAROLINA
PROFESSIONAL
SEAL
35018
ENGINEER
JIMMY L. TERRY JR.

02/23/10

DETOUR SIGN
LAYOUT

SCALE: NONE
DATE: NOV., 2009
DWG. BY: JLT
DESIGN BY: JLT
REVIEWED BY: WCP

REVISIONS



FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM	QUANTITY BREAKDOWN	TOTAL QUANTITY
PAVEMENT MARKINGS LINES				
PA	WHITE EDGELINE (2X)	PAINT (4")	864 LF	TOTAL 1,728 LF
PI	YELLOW DOUBLE CENTER (2X)	PAINT (4")	864 LF	
PAVEMENT MARKERS				
MA	YELLOW & YELLOW	PERMANENT RAISED PAVEMENT	5 EA	TOTAL 5 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) 319-8850

APPROVED: _____ DATE: _____

SEAL

FINAL PAVEMENT MARKINGS & SCHEDULE

SCALE: NONE

DATE: NOV., 2009

DWG. BY: JLT

DESIGN BY: JLT

REVIEWED BY: WCP

REVISIONS

NO.	DESCRIPTION

CARD 118

TIP PROJECT: B-5233

EROSION CONTROL SCHEDULE

1. Install erosion control measures according to plans in all outlets and at other discharge points after clearing but before grubbing.
2. Clear and clean outfall ditches leaving slopesides at an angle that can be retained by vegetation. These areas will require stage 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 30 calendar days (whichever is less) to complete seeding and mulching)
5. Clean out 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 pipe 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 (especially in Trout and HCN waters).
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.

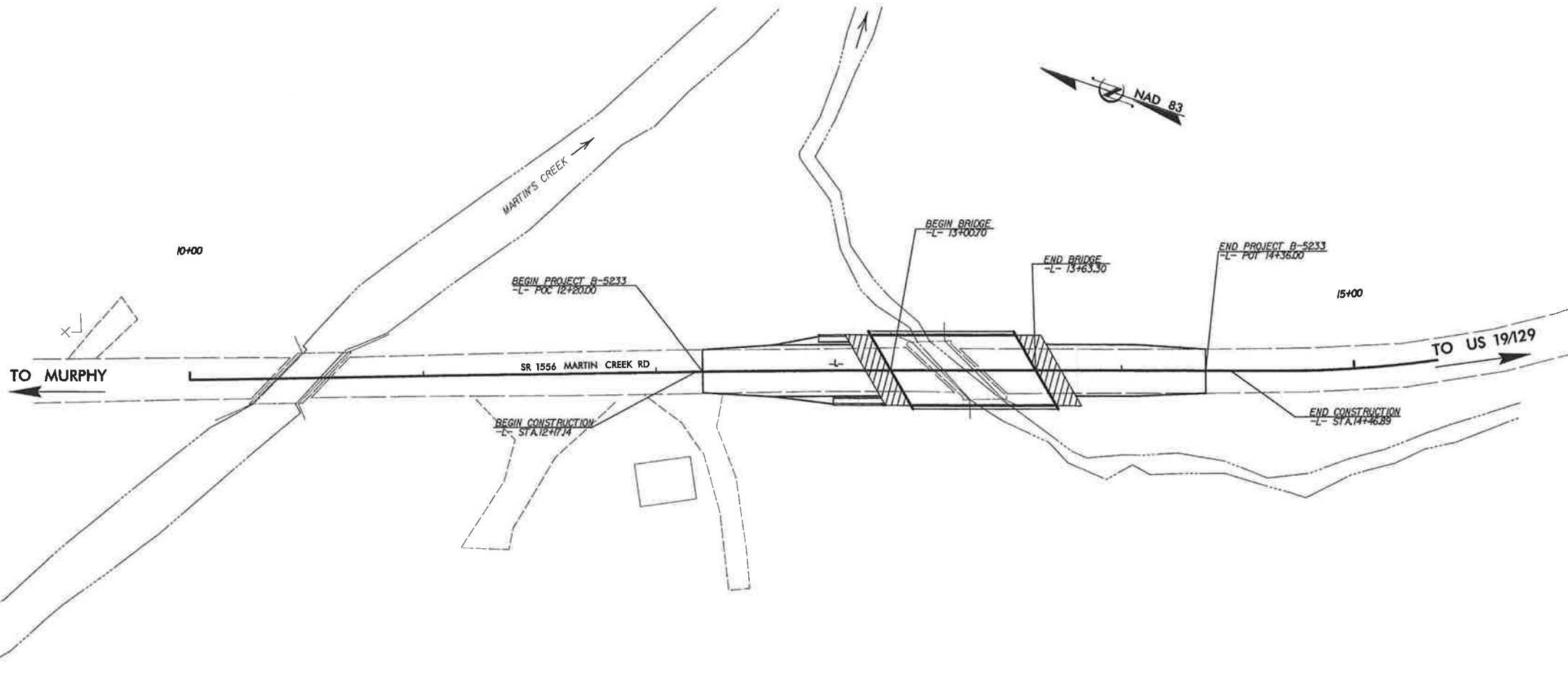
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

CHEROKEE COUNTY

LOCATION: BRIDGE NO. 173 ON SR 1556 (MARTIN CREEK ROAD) OVER
TRIBUTARY TO MARTIN CREEK

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5233	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

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

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

GRAPHIC SCALE



DESIGN DATA

ADT 2010 = 3,200
ADT 2030 = 6,756
T = 6 %
V = 55 MPH

PROJECT LENGTH

LENGTH ROADWAY PROJECT B-5233 = .029 MI
LENGTH STRUCTURE PROJECT B-5233 = .012 MI
TOTAL LENGTH PROJECT B-5233 = .041 MI



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

2006 STANDARD SPECIFICATIONS

LETTING DATE:

Plans Prepared for:
NCDOT DIVISION 14
NCDOT Contact:
RALPH CANNADY
DIVISION PROJECT MANAGER

JIMMY L. TERRY, PE
PROJECT ENGINEER
LEVEL IIIA CERTIFICATION NO. 339

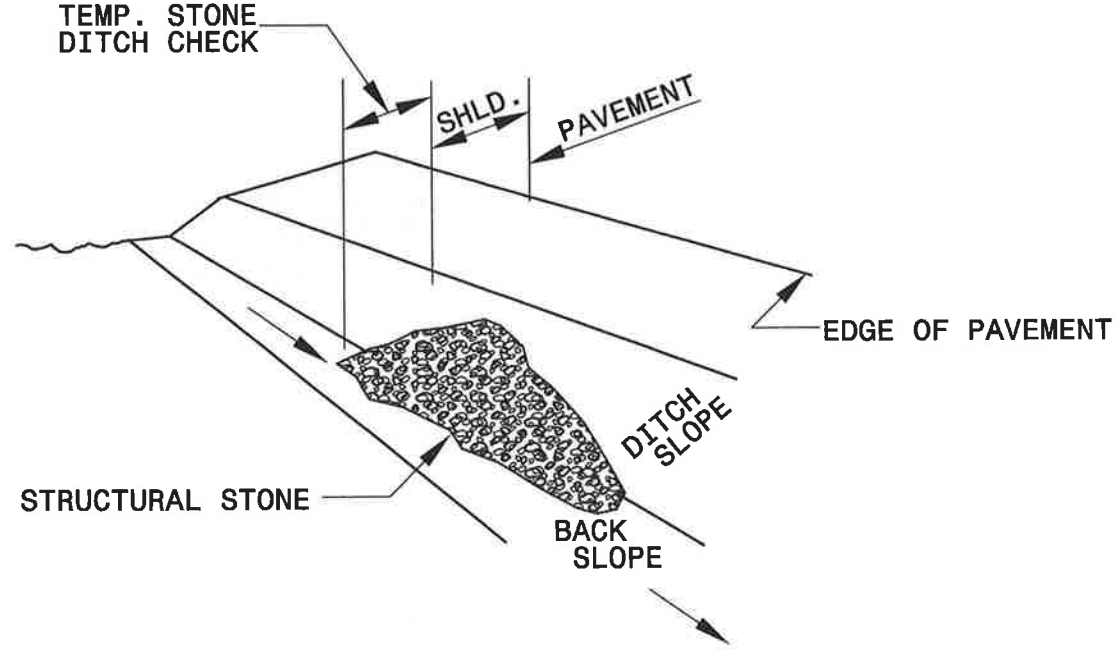
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated July 18, 2006 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1605.01 Temporary Silt Fence
1607.01 Gravel Construction Entrance
1622.01 Temporary Berms and Slope Drains
1630.03 Temporary Silt Ditch
1630.06 Special Stilling Basin
1632.03 Rock Inlet Sediment Trap Type C
1633.01 Temporary Rock Silt Check Type A
1634.02 Temporary Rock Sediment Dam Type B

TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL

PROJECT REFERENCE NO.	SHEET NO.
B-5233	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

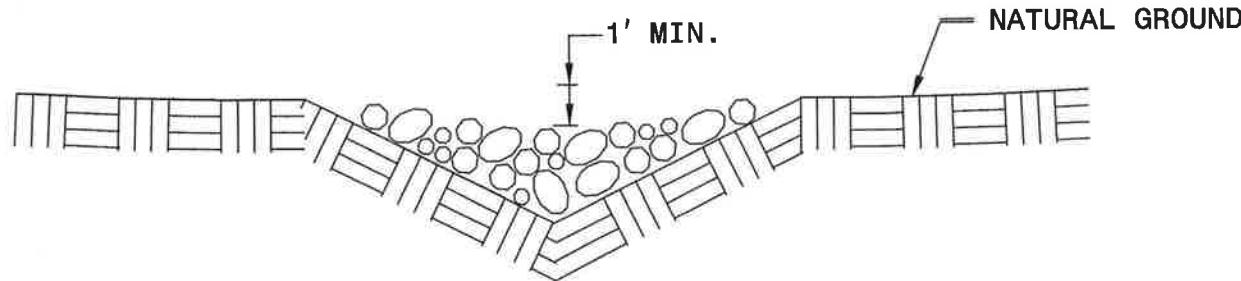


ISOMETRIC VIEW

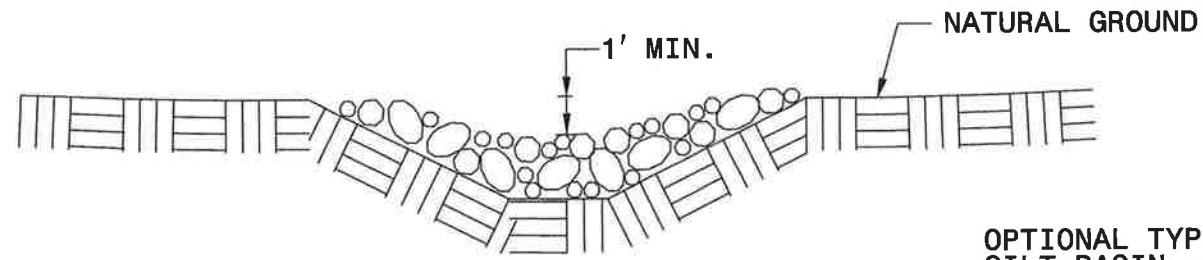
NOTES:

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

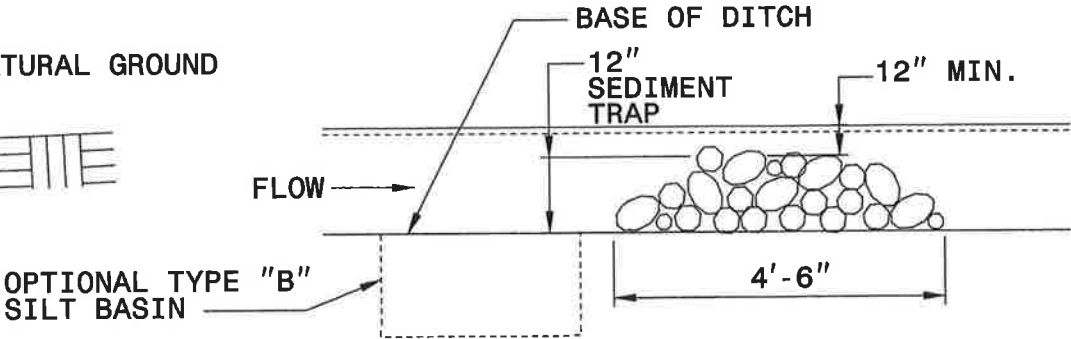
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



**CROSS SECTION
VEE DITCH**



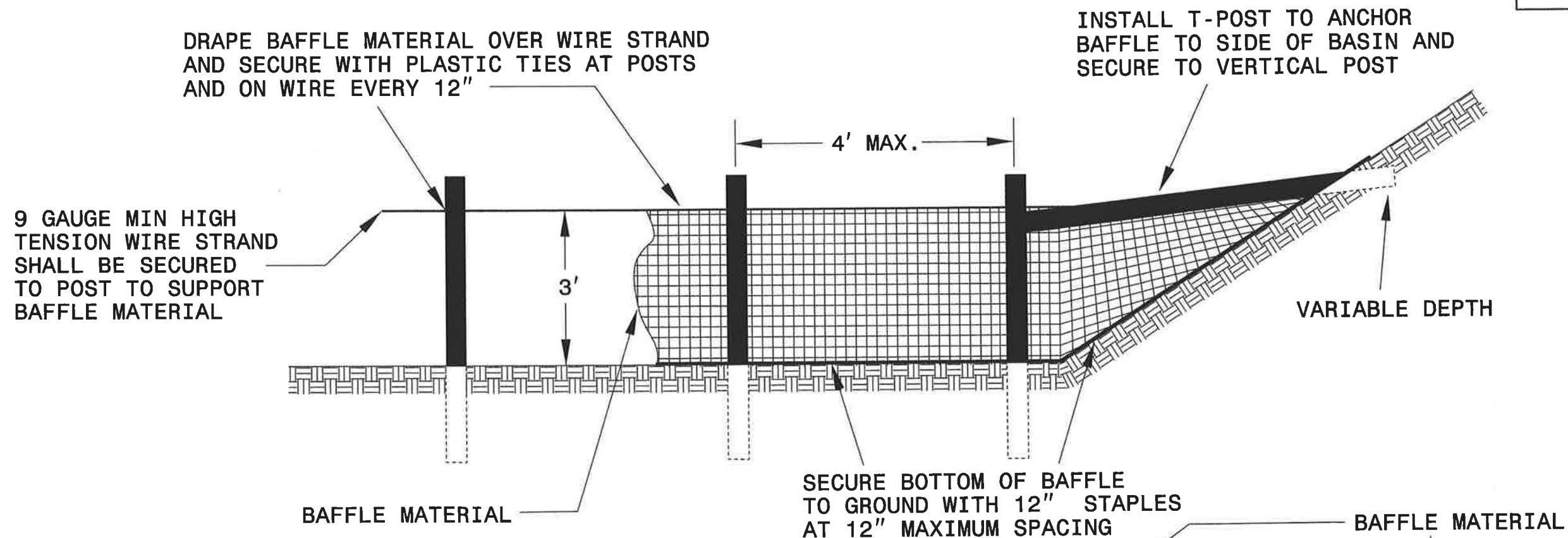
**CROSS SECTION
TRAPEZOIDAL DITCH**



ELEVATION VIEW

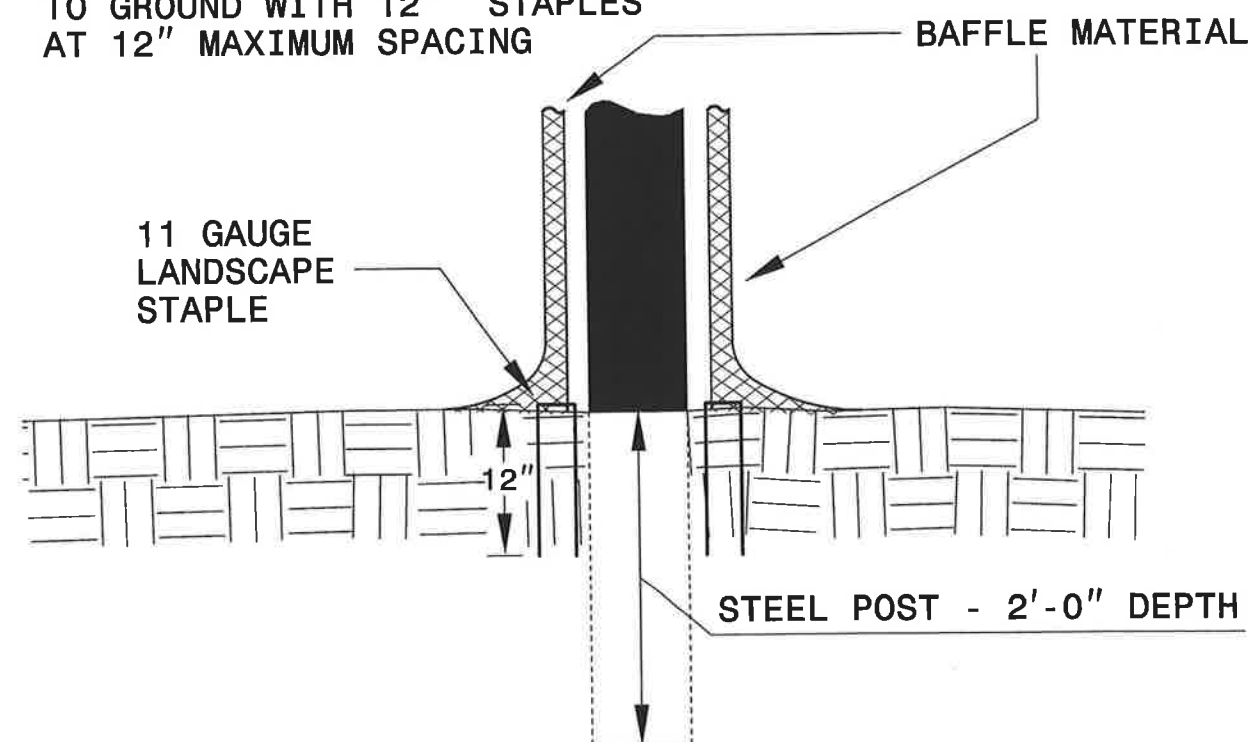
PROJECT REFERENCE NO.	SHEET NO.
B-5233	EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
B-5233	EC-3

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
----------------------------	------------------------

SOIL STABILIZATION SUMMARY SHEET

PERMANENT SOIL REINFORCEMENT MAT

[illegible]

PERMANENT SOIL REINFORCEMENT MAT

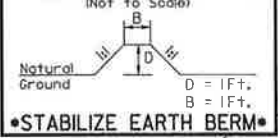
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8/17/99

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCOT FOR MONUMENT "BL-2" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 517304963(1) EASTING: 497890641(1) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998280336 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO L- STATION 12+20.00 IS S 13° 02' 08.79" E 623.41 FT ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAD 83

TEMPORARY EARTH BERM



EROSION CONTROL PLAN

32 x 16 x 2
8 ft. weir
ID -L- STA. 13+20 +/-

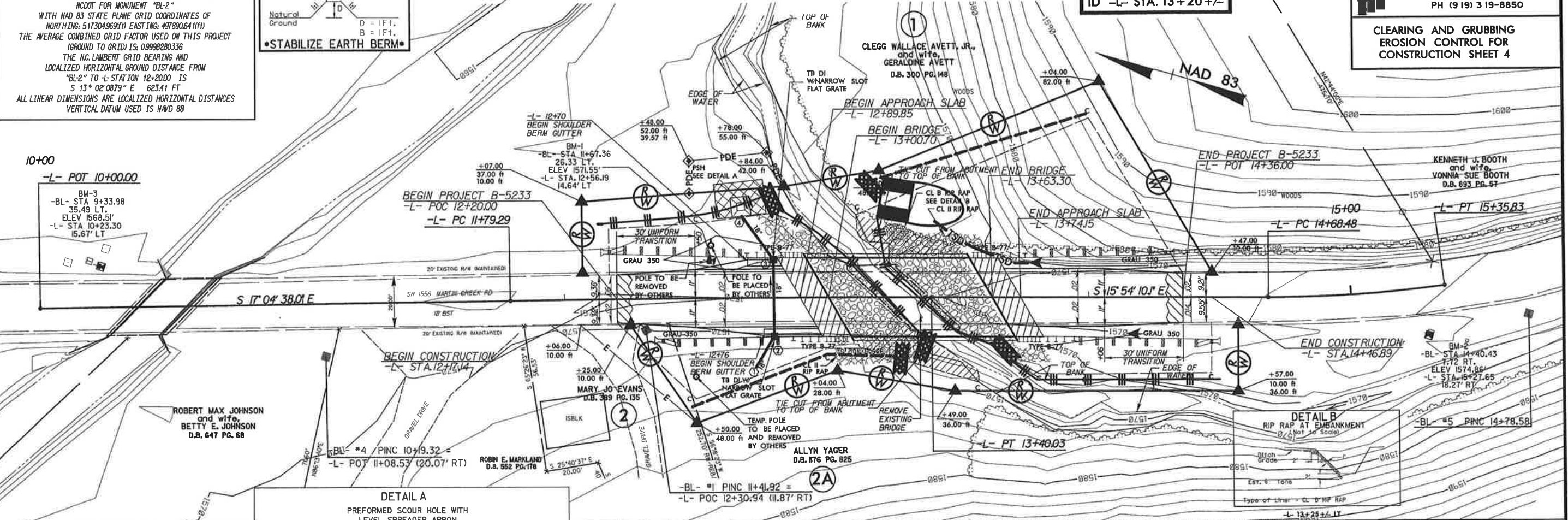
PROJECT REFERENCE NO.
B-5233

SHEET NO.
EC-4/CONST. 4

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

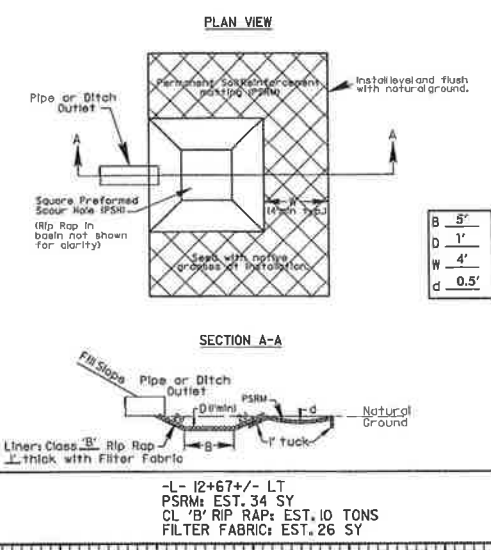
TGS ENGINEERS
975 WALNUT STREET, SUITE 141
CARY, NC 27511
PH (919) 319-8850

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



BM-3 ELEV. = 1568.51
RR SPIKE IN POWER POLE
N 516.890.29 E 497.988.57
15.67' LT OF -L- STA. 10+23.30

DETAIL A PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON

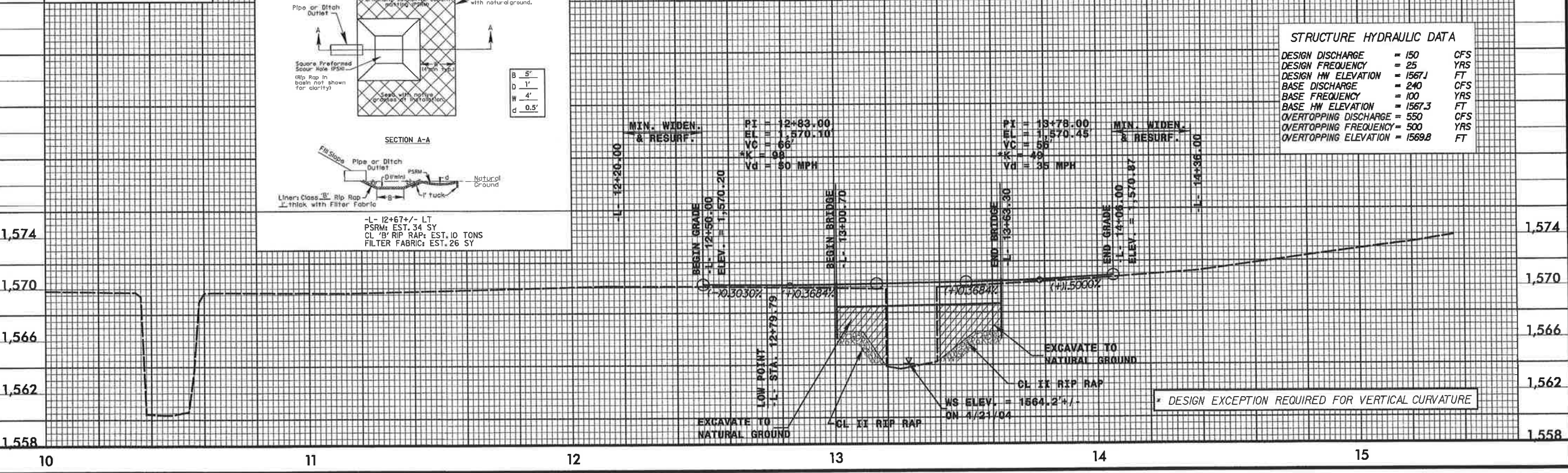


BM-1 ELEV. = 1571.55
RR SPIKE IN POWER POLE
N 516.667.11 E 498.055.67
14.64' LT OF -L- STA. 12+56.19

BM-2 ELEV. = 1574.86
RR SPIKE IN POWER POLE
N 516.396.03 E 498.103.03
18.27' LT OF -L- STA. 15+27.65

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 150	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1567.1	FT
BASE DISCHARGE	= 240	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1567.3	FT
OVERTOPPING DISCHARGE	= 550	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 1569.8	FT

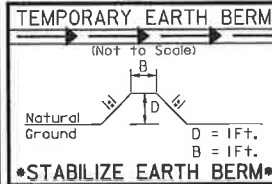


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8/17/99

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCOD FOR MONUMENT "BL-2" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 517304.969(1) EASTING: 497890.641(1) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998280336 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO L-STATION 12+20.00 IS S 13° 02' 08.79" E 623.41 FT ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88



EROSION CONTROL PLAN

32 x 16 x 2
8 ft. weir
ID -L- STA. 13+20+/-

PROJECT REFERENCE NO. B-5233 SHEET NO. EC-5/CONST.4

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

INSTALL PSRM IN THE PROPOSED DITCH LINE. (SEE SHEET EC-3)

NAD 83

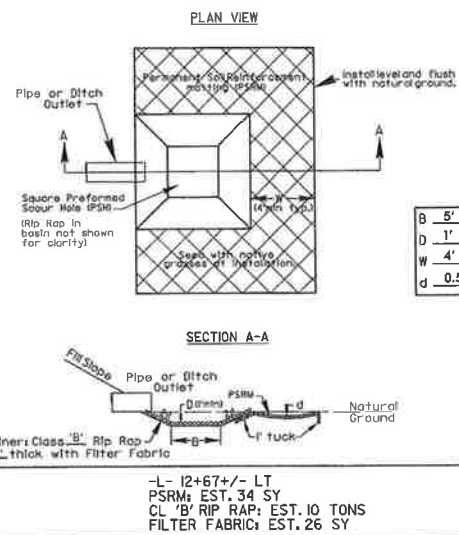
10+00
-L- POT 10+00.00
BM-3
-BL- STA 9+33.98
35.49 LT.
ELEV 1568.51
-L- STA 10+23.30
15.67 LT

BEGIN PROJECT B-5233
-L- PC 12+20.00
-L- PC 11+79.29

ROBERT MAX JOHNSON
and wife,
BETTY E. JOHNSON
D.B. 647 PG. 68

Place Matting for Erosion Control
on Slope as Work Allows.

DETAIL A
PREFORMED SCOUR HOLE WITH
LEVEL SPREADER APRON

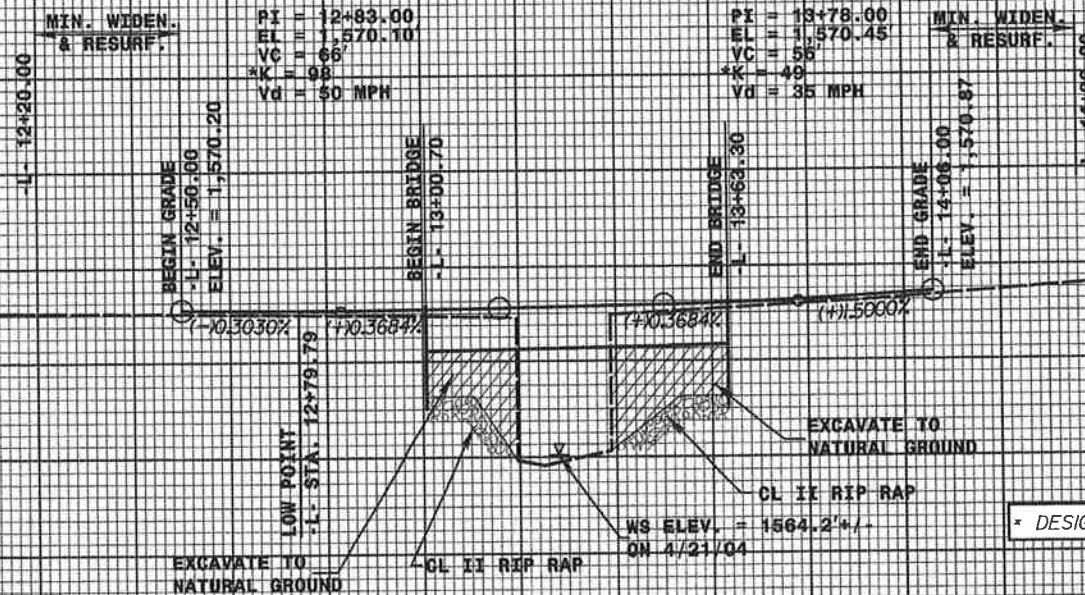


BM-1 ELEV. = 1571.55
RR SPIKE IN POWER POLE
N 516,667.11 E 498,055.67
14.64' LT OF -L- STA. 12+56.19

BM-2 ELEV. = 1574.86
RR SPIKE IN POWER POLE
N 516,396.03 E 498,033.03
18.27' LT OF -L- STA. 15+27.65

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 150	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1567.1	FT
BASE DISCHARGE	= 240	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1567.3	FT
OVERTOPPING DISCHARGE	= 550	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 1569.8	FT



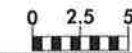
* DESIGN EXCEPTION REQUIRED FOR VERTICAL CURVATURE

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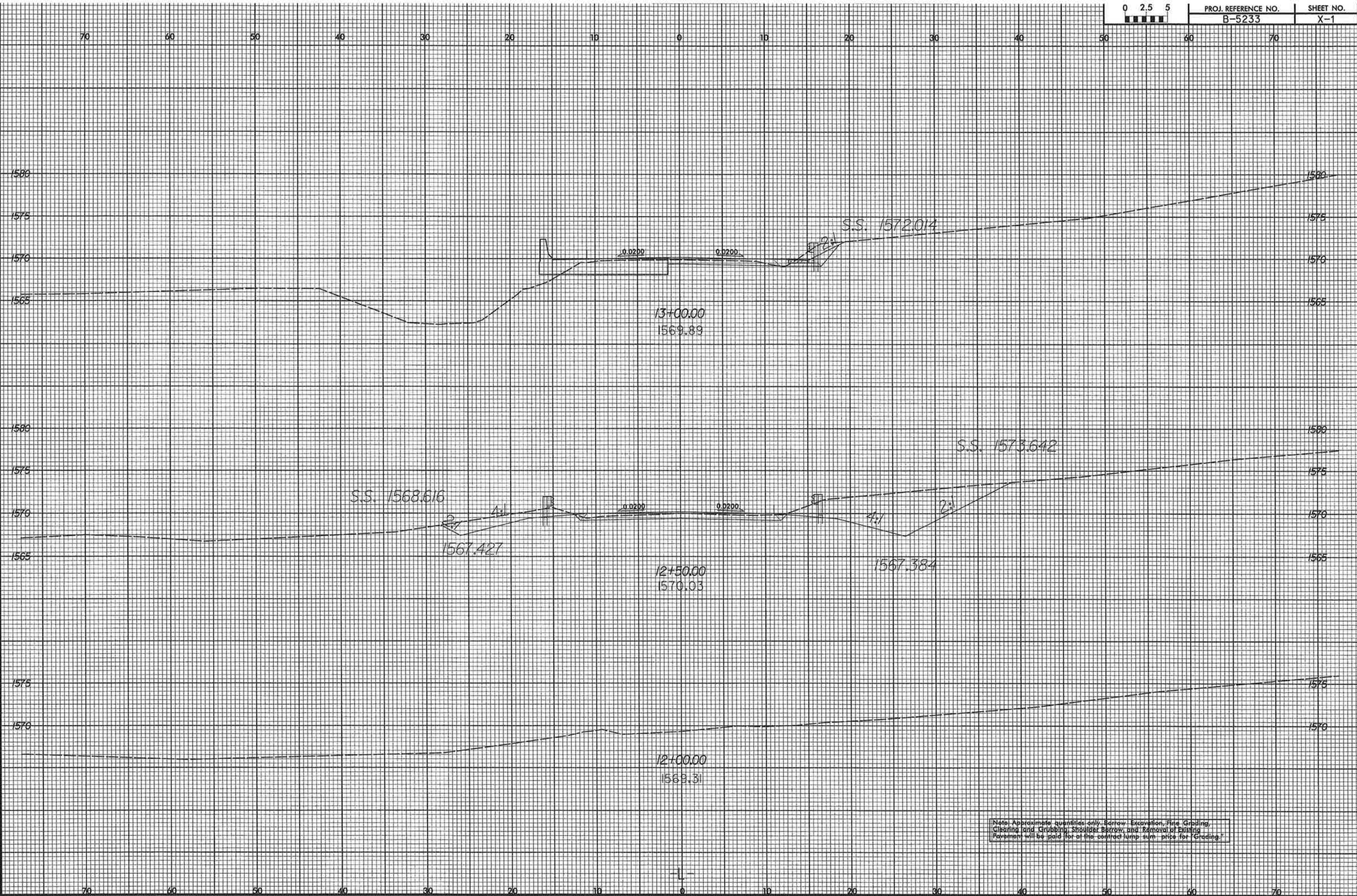
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8/23/98

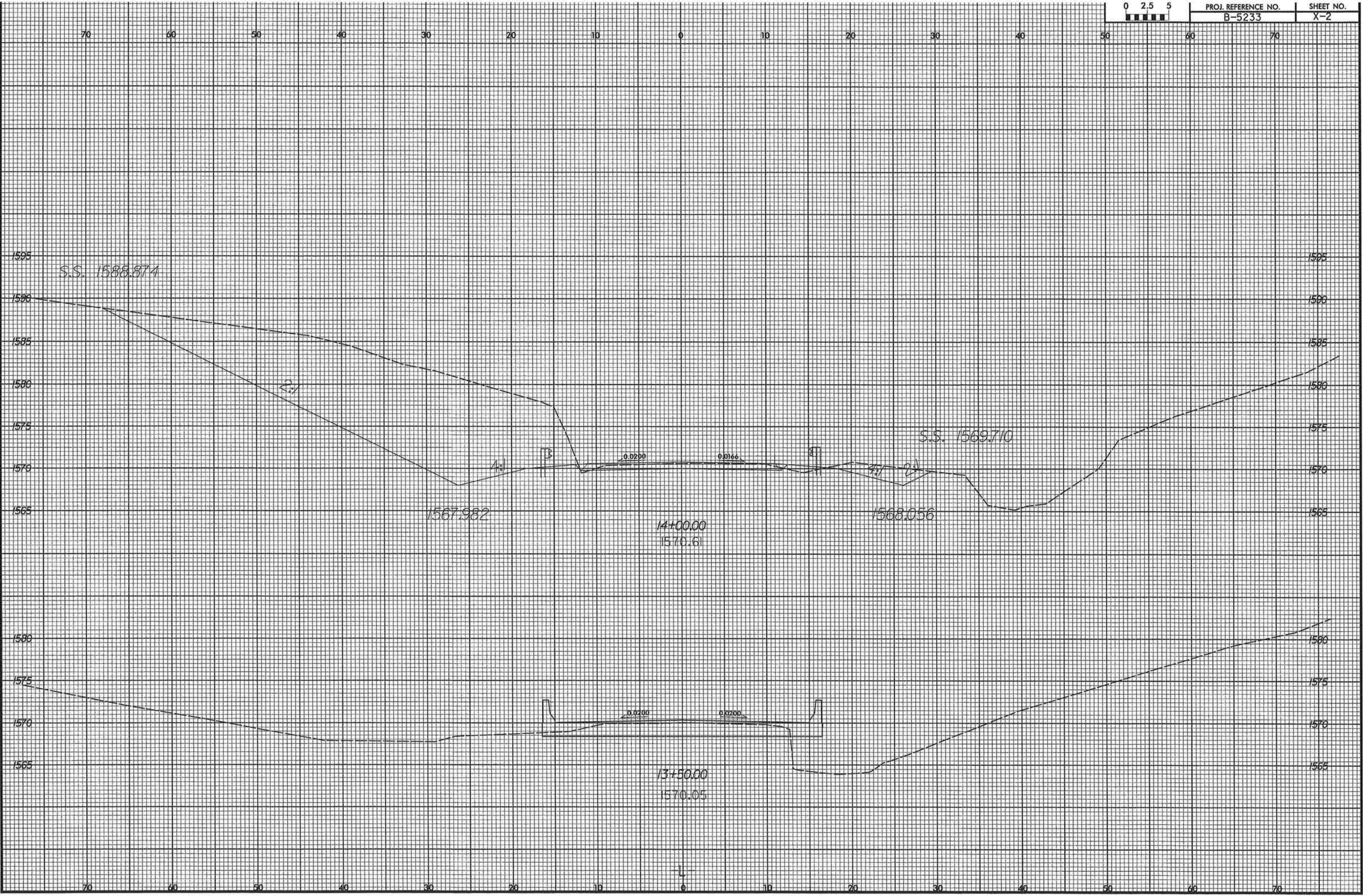


PROJ. REFERENCE NO.
B-5233

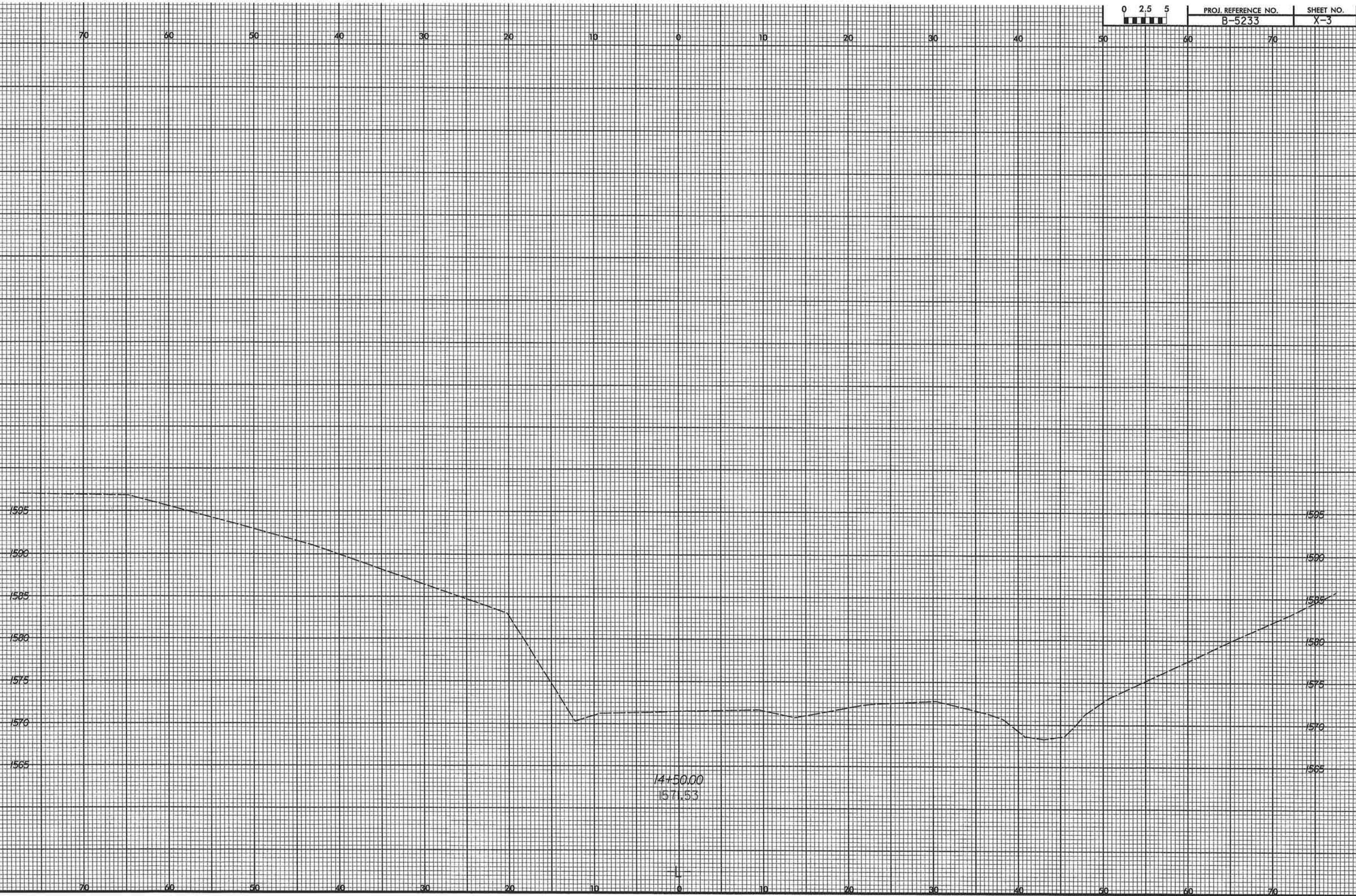
SHEET NO.
X-1



8/22/09
2/22/2010
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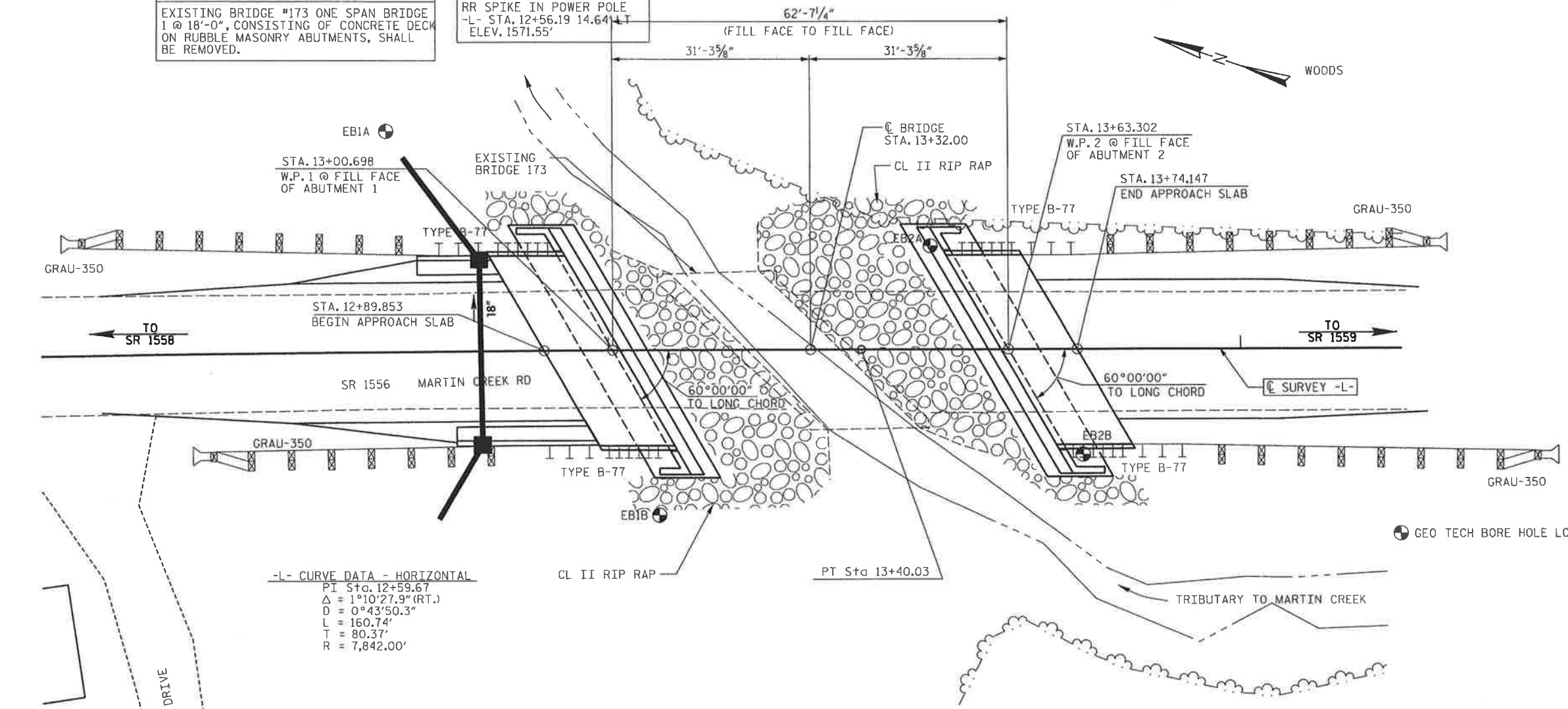


8/23/98
2/22/2010
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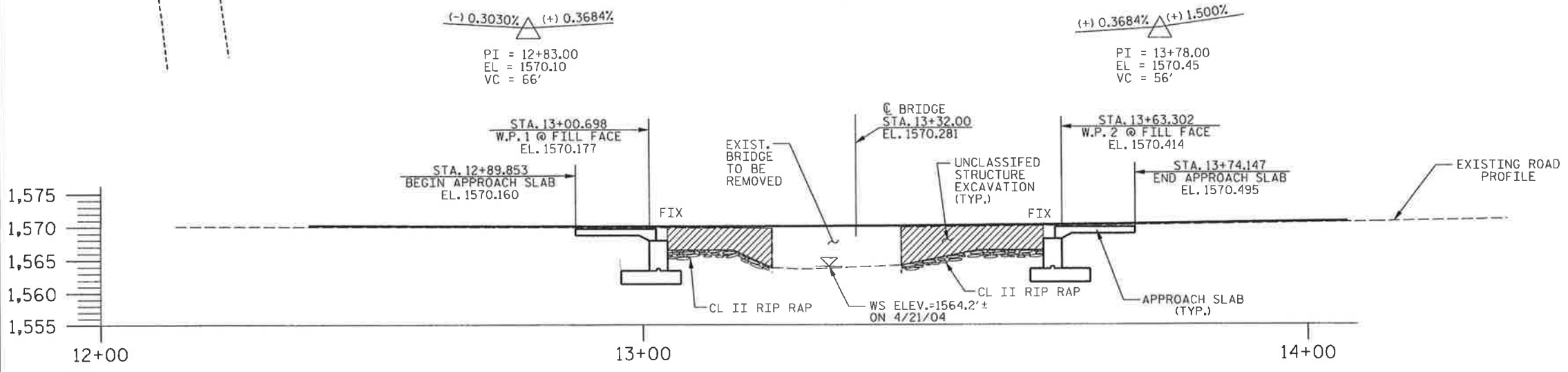


EXISTING BRIDGE INFORMATION
EXISTING BRIDGE #173 ONE SPAN BRIDGE
1 @ 18'-0", CONSISTING OF CONCRETE DECK
ON RUBBLE MASONRY ABUTMENTS, SHALL
BE REMOVED.

BM-1
RR SPIKE IN POWER POLE
-L- STA. 12+56.19 14.6411 T
ELEV. 1571.55'



PLAN



PROFILE ALONG CL SURVEY

NOTES :

1. 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 IN TRUCKS ON CERTIFIED PLATFORM SCALES OR OTHER CERTIFIED WEIGHING DEVICES. THE QUANTITY OF RIP RAP WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON.
2. ADT 3,200 FOR YEAR 2010.
3. THE REQUIRED BEARING CAPACITY OF THE SPREAD FOOTING AT ABUTMENT 1 AND ABUTMENT 2 IS 4.0 TSF. THE REQUIRED BEARING CAPACITY SHALL BE VERIFIED.
4. FOOTING SHALL BE KEYED AT LEAST 12" INTO ROCK WITH A MINIMUM THICKNESS AS SHOWN ON THE PLAN.
5. THE EXISTING BRIDGE SHALL BE REMOVED BY SAWING AND/OR NON-SHATTERING METHODS SUCH THAT DEBRIS WILL NOT FALL INTO THE WATER.
6. THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH FHWA'S TECHNICAL ADVISORY T5140.20 (SCOUR AT BRIDGES).
7. FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
8. FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
9. FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

PLAIN RIP RAP CLASS II (2'-0" THICK)		FILTER FABRIC.
ABUTMENT 1	150 TONS	167 SQ. YDS.
ABUTMENT 2	180 TONS	200 SQ. YDS.
TOTAL	330 TONS	367 SQ. YDS.

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 150	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1567.1	FT
BASE DISCHARGE	= 240	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1567.3	FT
OVERTOPPING DISCHARGE	= 550	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 1569.8	FT

PROJECT NO. B-5233
COUNTY: CHEROKEE
STATION: 13+32.00-L-
REPLACES BRIDGE NO. 173

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

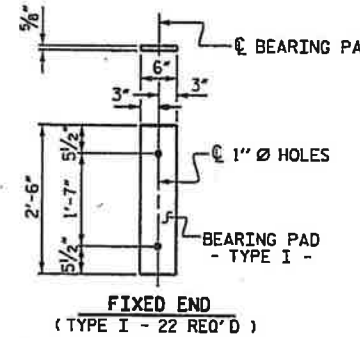
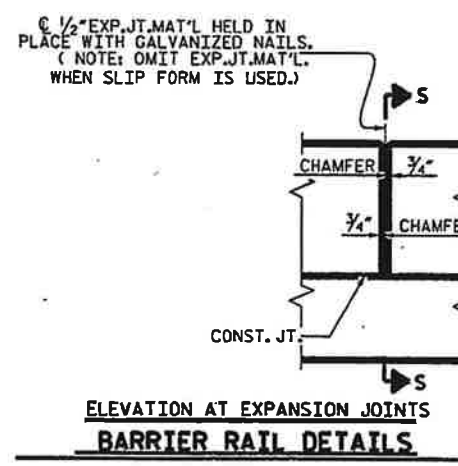
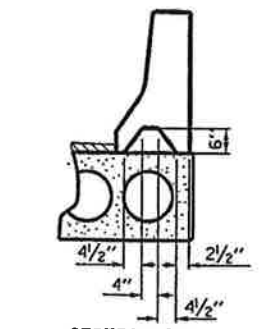
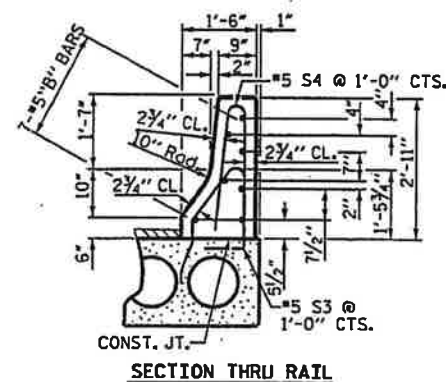
BRIDGE NO. 173 ON SR 1556
OVER TRIBUTARY TO
MARTIN CREEK



PREPARED BY
TOS ENGINEERS
107-A NICH AVENUE
MORGANTON, NC 28655

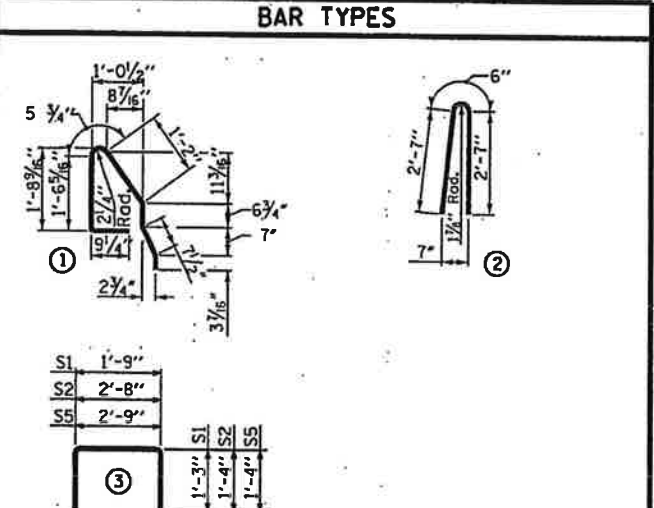
REVISIONS						SHEET NO. S-1
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 12
2			4			

DRAWN BY: JLA DATE: 7/04
CHECKED BY: NMW DATE: 10/04



ELASTOMERIC BEARING DETAILS

GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



BILL OF MATERIAL FOR ONE CORED SLAB SECTION							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B1	6	#4	STR	21'-10"	88	21'-10"	88
S1	16	#4	3	4'-3"	45	4'-3"	45
S2	114	#4	3	5'-4"	406	5'-4"	406
* S3	58	#5	1	5'-5"	328		
S5	4	#4	3	5'-5"	14	5'-5"	14
REINFORCING STEEL				539 LBS.		539 LBS.	
* EPOXY COATED REINFORCING STEEL				328 LBS.			
6,000 P.S.I. CONCRETE				8.5 CU. YDS.		8.5 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 21		No. 21	

DEAD LOAD DEFLECTION AND CAMBER			
	EXTERIOR	INTERIOR	
	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND	
CAMBER (SLAB ALONE IN PLACE)	3.419" ↑	3.383" ↑	
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	0.773" ↓	0.773" ↓	
FINAL CAMBER	2.646" (UP)	2.610" (UP)	

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL							
BAR	SPAN A	BARS PER SPAN	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
* B2		28	28	#5	STR.	29'-3"	854
* S4		116	116	#5	2	5'-8"	686
* EPOXY COATED REINFORCING STEEL				= 1,540 LBS.			
CLASS AA CONCRETE				= 13.7 CU. YDS.			
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL				= 120			

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	60'-0"	120'-0"
INTERIOR C.S.	9	60'-0"	540'-0"
TOTAL	11		660'-0"

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 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 PRESTRESSED CONCRETE CORED SLABS.

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

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

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 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 CORED 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 5,000 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 TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) 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 MIDPOINT 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.



PROJECT NO. B-5233
COUNTY: CHEROKEE
STATION: 13+32-L-
REPLACES BRIDGE NO. 173

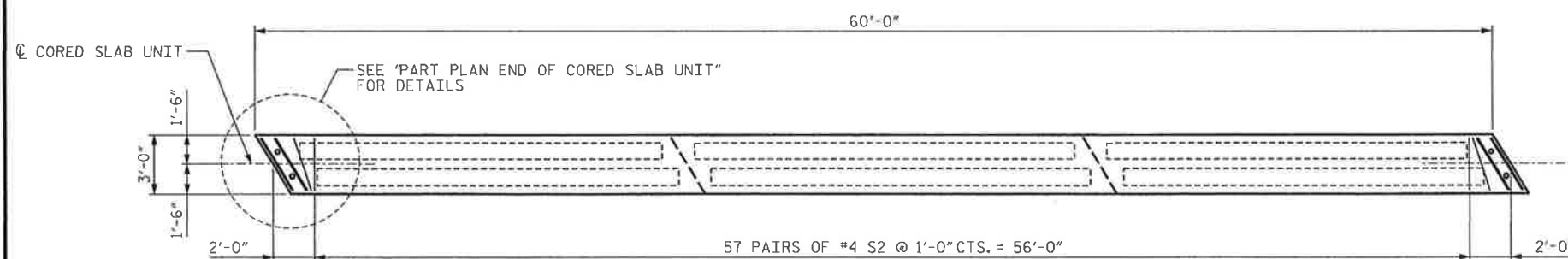
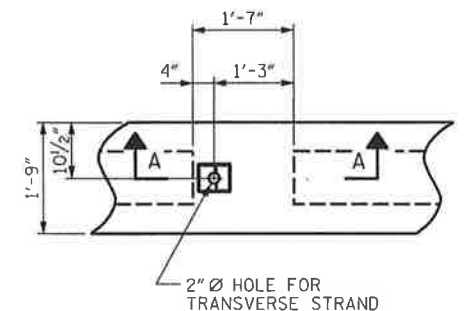
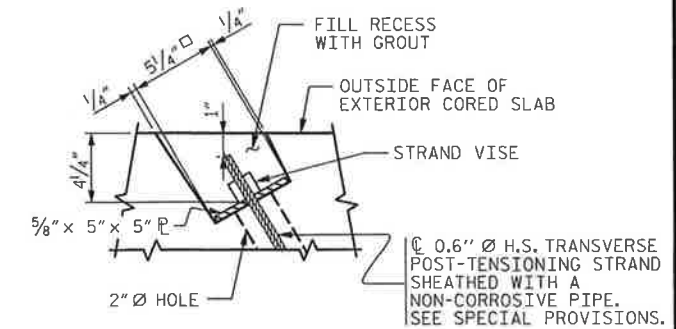
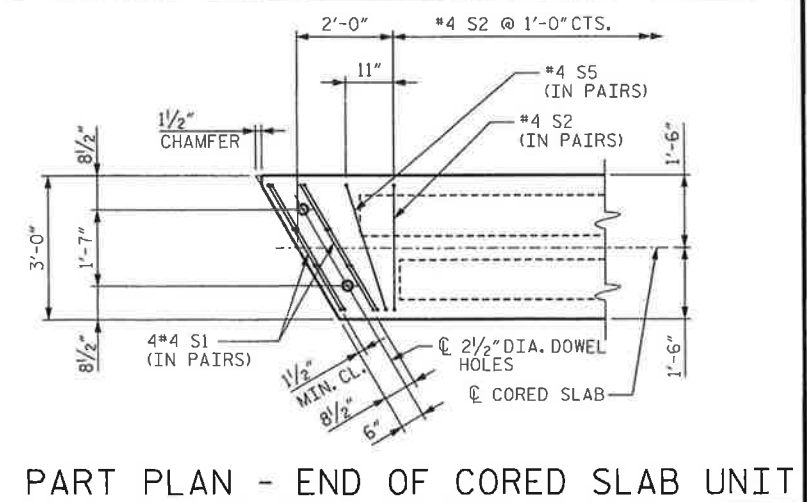
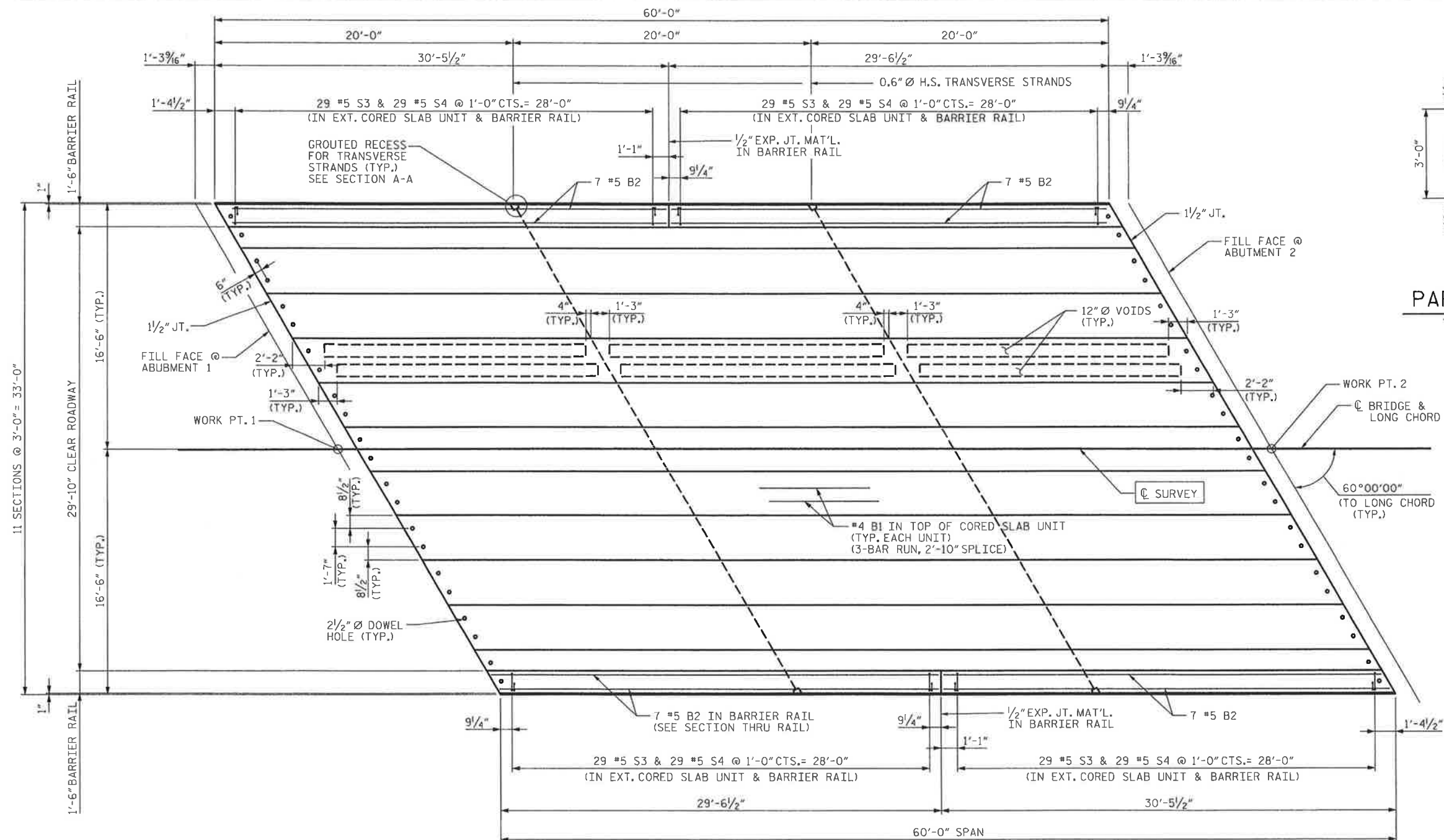
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
CORED SLAB DETAILS
SHEET 2 OF 2

DRAWN BY: JLA DATE: 12/09
CHECKED BY: RJJ DATE: 1/10

PREPARED BY
TOS ENGINEERS
107-A WEA AVENUE
WORGANTON, NC 28655

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

SHEET NO.
S-3
TOTAL SHEETS
12



PLAN OF INTERIOR CORED SLAB UNIT

PROJECT NO. B-5233
COUNTY: CHEROKEE
STATION: 13+32 -L-
REPLACES BRIDGE NO. 173

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN A



PREPARED BY
TGS ENGINEERS
107-A MICA AVENUE
MORGANTON, NC 28655

REVISIONS						SHEET NO. S-4
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 12
2			4			

DRAWN BY: JLA **DATE:** 12/09
CHECKED BY: RTJ **DATE:** 1/10

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 1/8" Ø 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 M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. 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 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

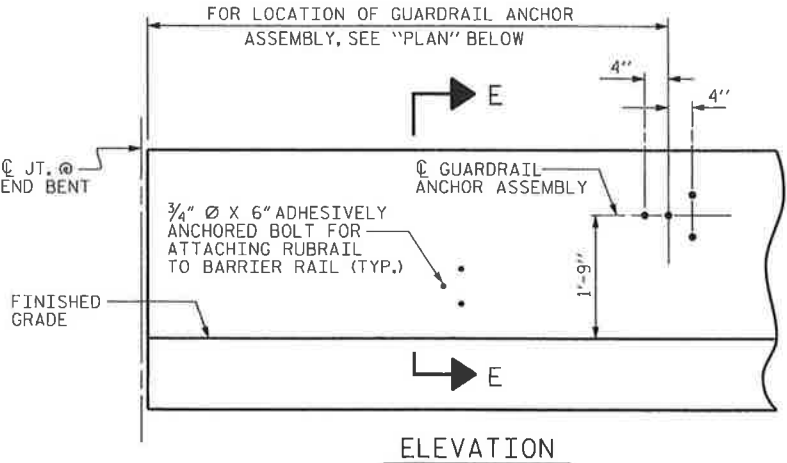
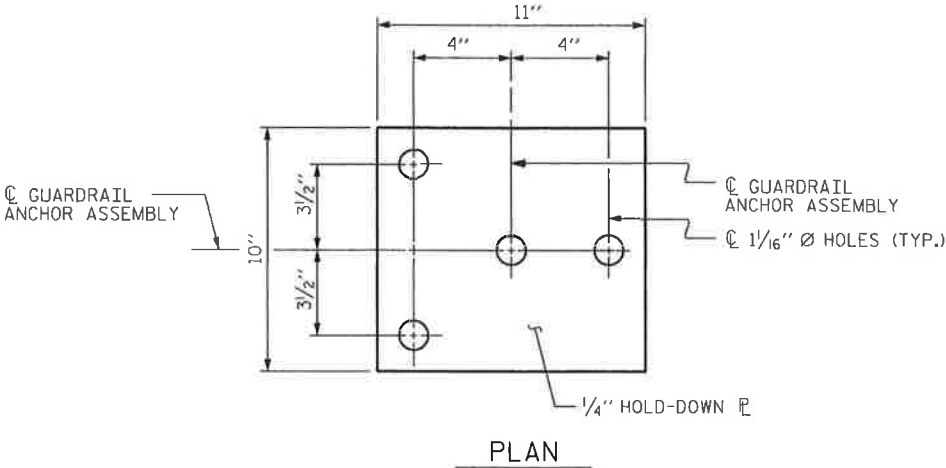
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

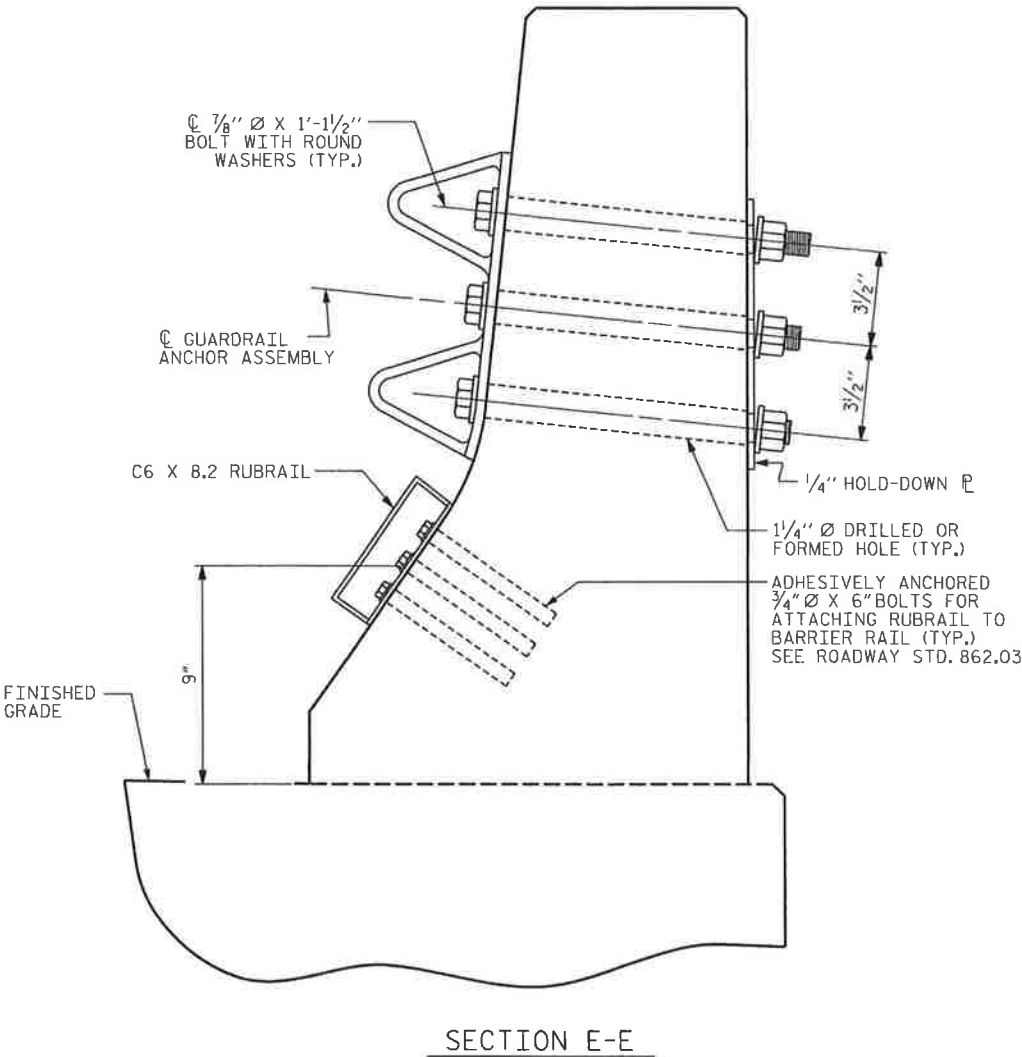
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

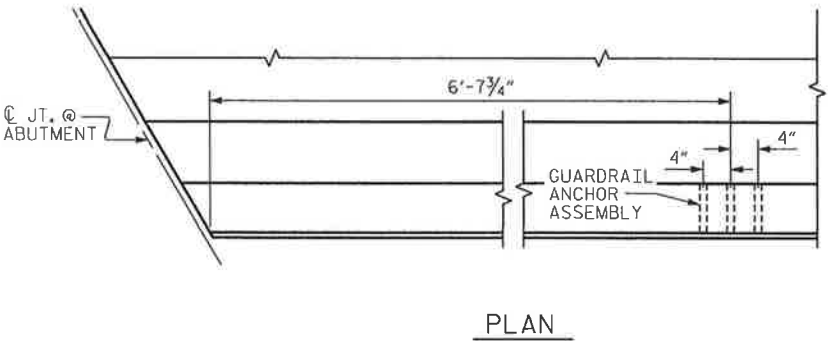
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03

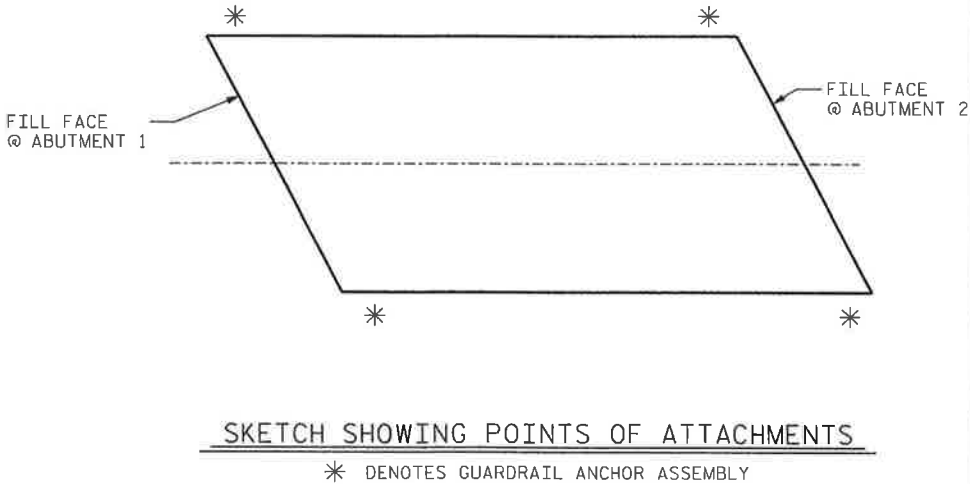


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

ABUTMENT #1 SHOWN, ABUTMENT #2 SIMILAR.



* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-5233
COUNTY: CHEROKEE
STATION: 13+32 -L-
REPLACES BRIDGE NO. 173

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

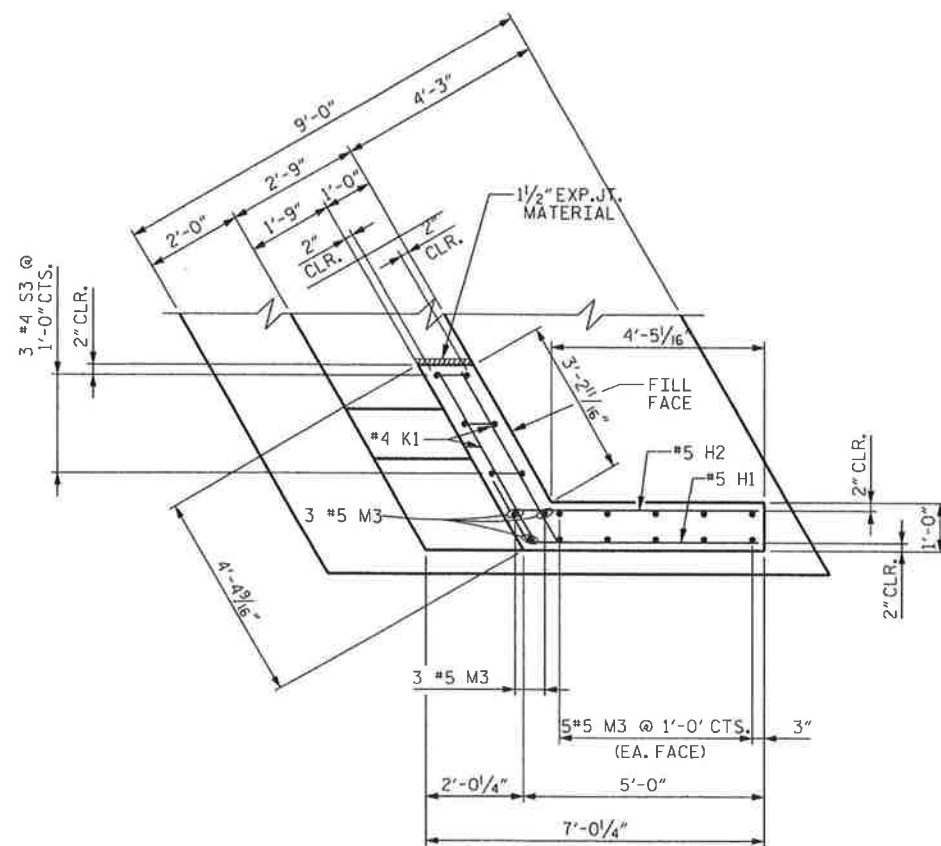
STANDARD GUARDRAIL
ANCHORAGE DETAILS
FOR BARRIER RAIL
TYPE B-77

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-5
1			3			TOTAL SHEETS 12
2			4			

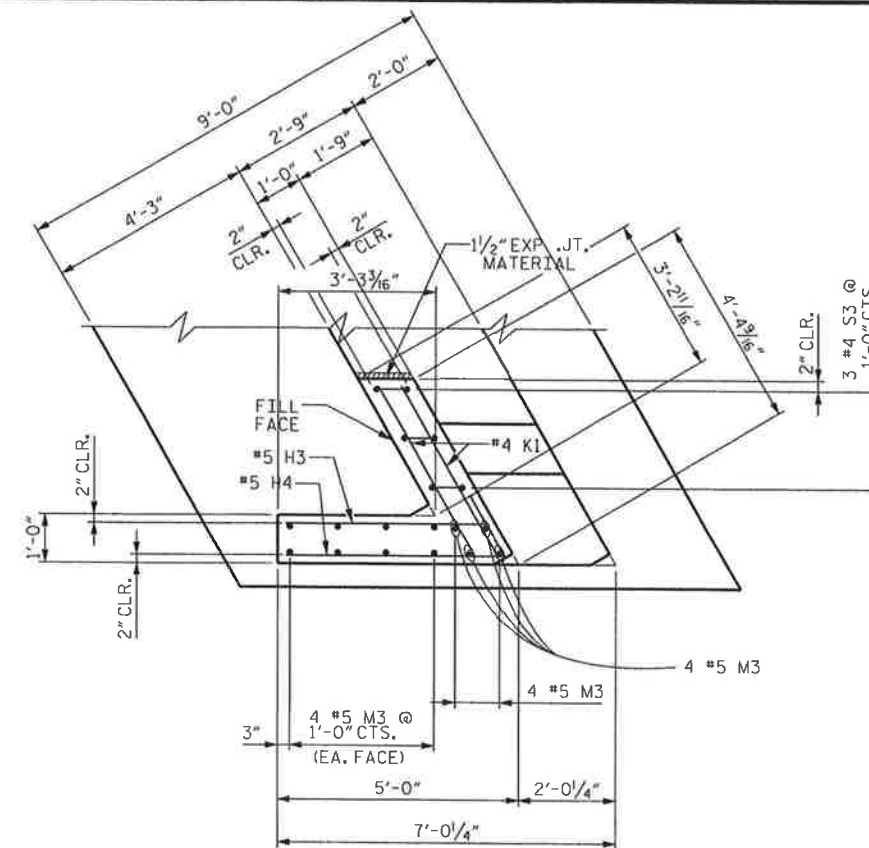


PREPARED BY
TGS ENGINEERS
107-A WICA AVENUE
MORGANTON, NC 28655

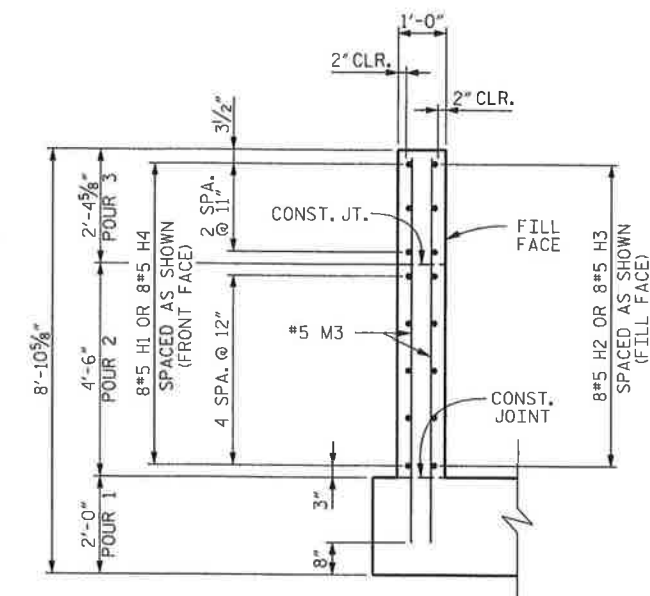
DRAWN BY: JLA DATE: 12/09
CHECKED BY: RJT DATE: 01/10



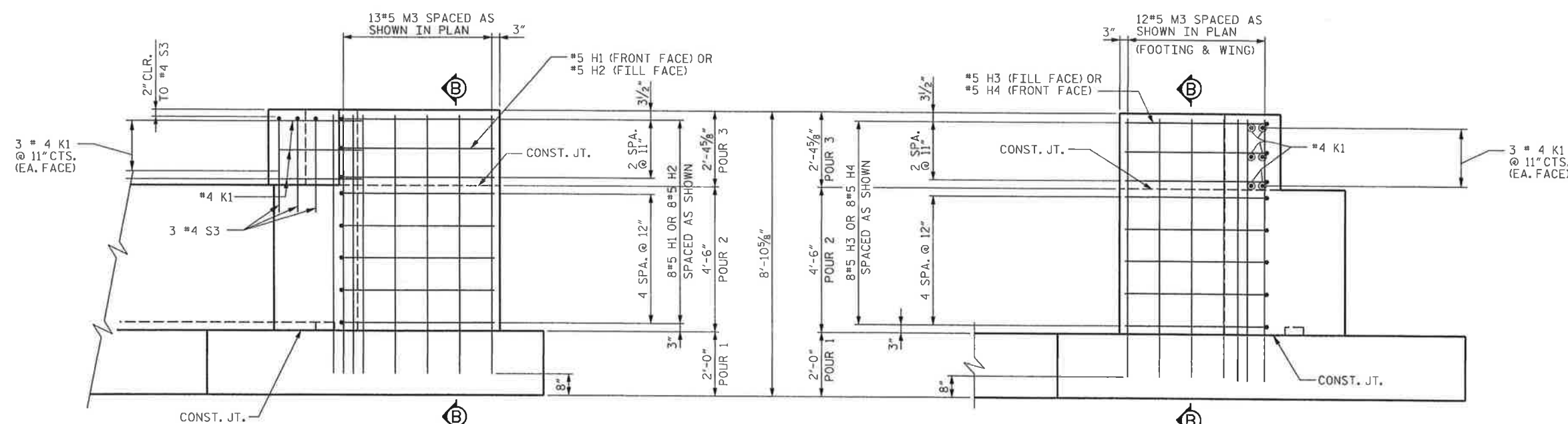
PLAN - WING W1



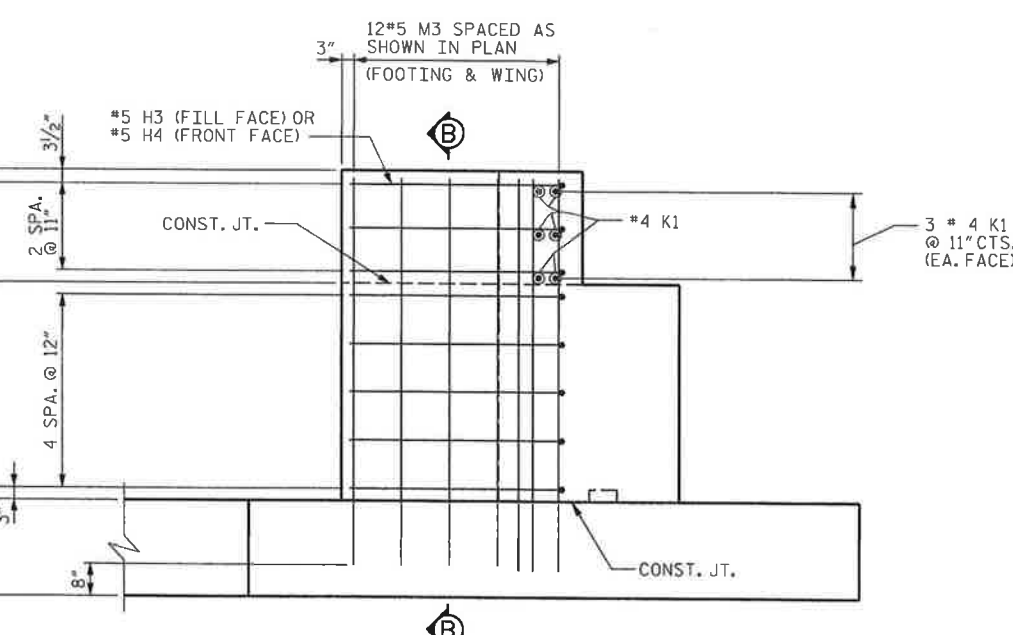
PLAN - WING W2



SECTION B-B



ELEVATION - WING W1



ELEVATION - WING W2

PROJECT NO. B-5233
COUNTY: CHEROKEE
STATION: 13+32 -L-
REPLACES BRIDGE NO. 173

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ABUTMENT 1
29'-10" CLEAR ROADWAY
60° SKEW
60' SPAN

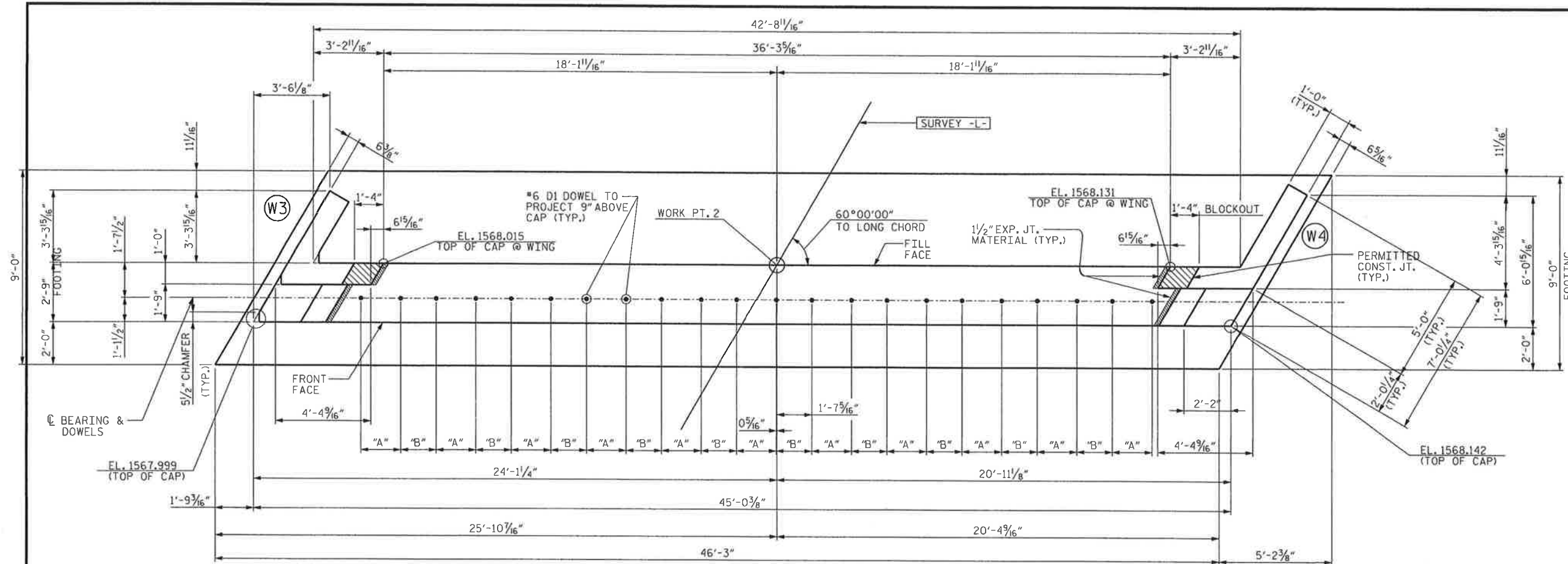


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MORGANTON, NC 28655

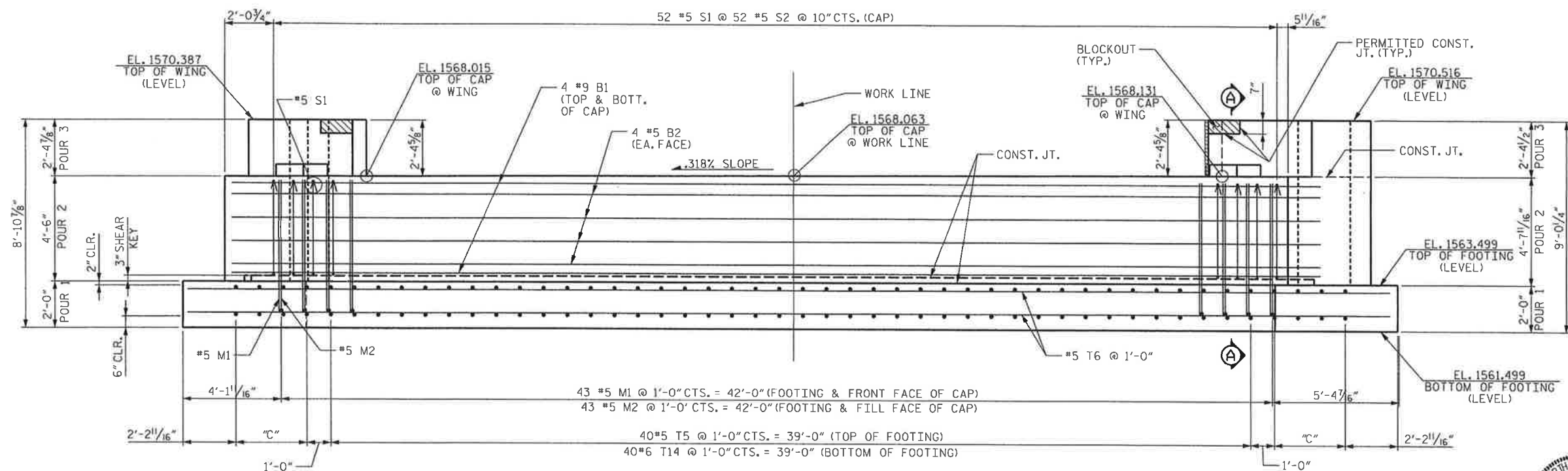
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			S-7
2			4			

TOTAL SHEETS
12

DRAWN BY: JLA DATE: 08/04
CHECKED BY: NMW DATE: 11/04



PLAN



ELEVATION

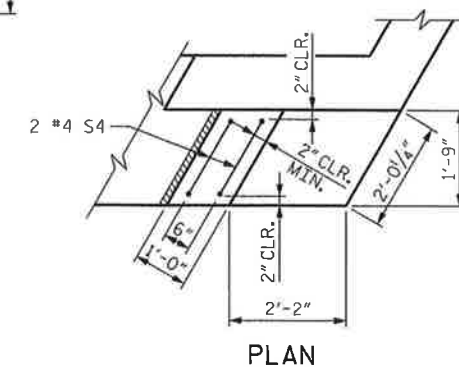
"C" = #5 T1 THRU #5 T4
@ 1'-0" CTS.
(TOP OF FOOTING)
#6 T10 THRU #6 T13
@ 1'-0" CTS.
(BOTTOM OF FOOTING)

NOTE :

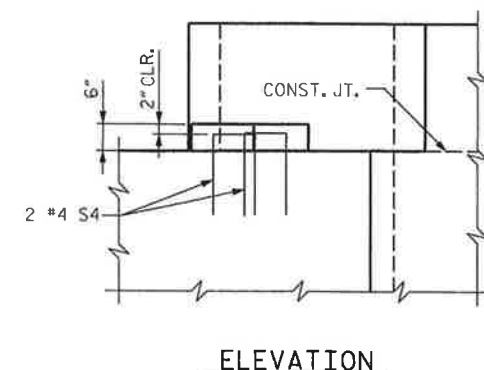
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

LATERAL GUIDES TO BE POURED AFTER FINAL TENSIONING OF TRANSVERSE STRANDS IN CORED SLAB UNITS.

"A" = 1'-9 5/16"
"B" = 1'-7 5/8"



PLAN



ELEVATION

LATERAL GUIDE DETAIL

PROJECT NO. B-5233
COUNTY: CHEROKEE
STATION: 13+32 -L-
REPLACES BRIDGE NO. 173

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ABUTMENT 2
29'-10" CLEAR ROADWAY
60° SKEW
60' SPAN

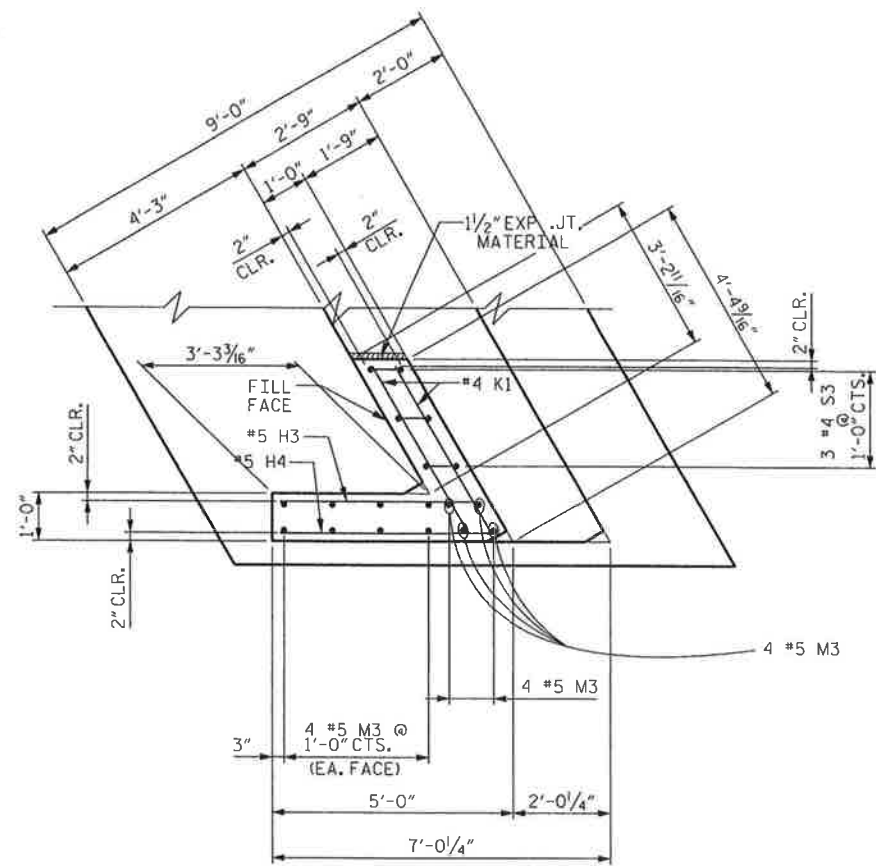


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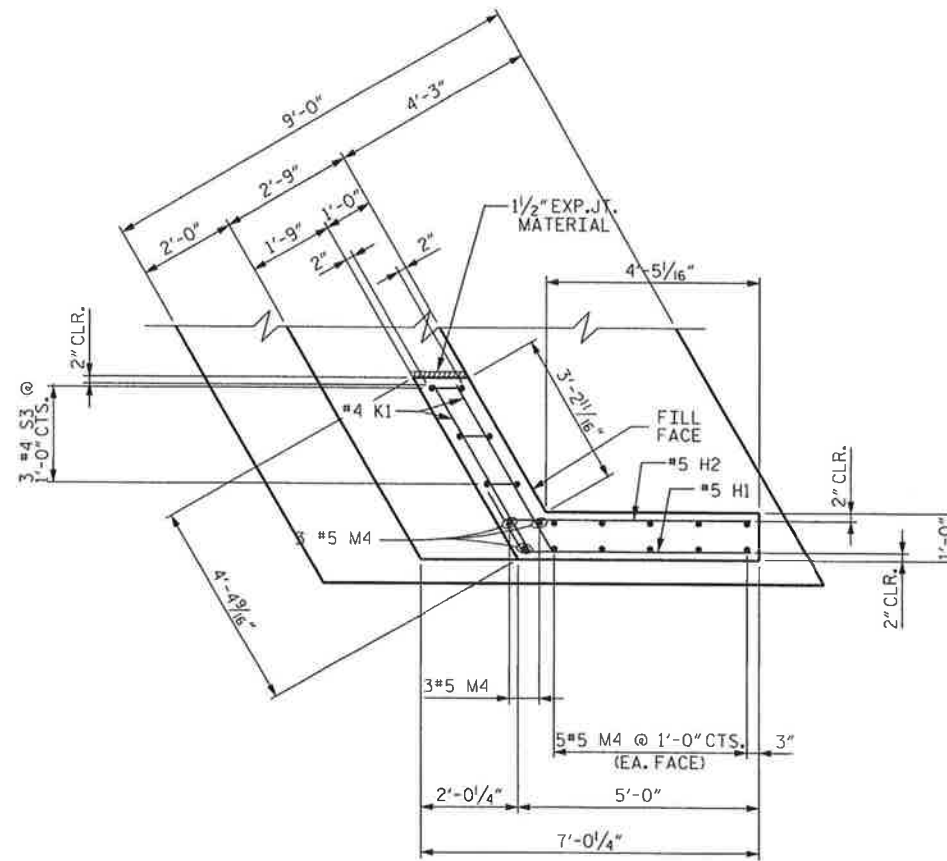
DRAWN BY: JLA DATE: 12/09
CHECKED BY: NMW DATE: 12/09

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			S-9
2			4			

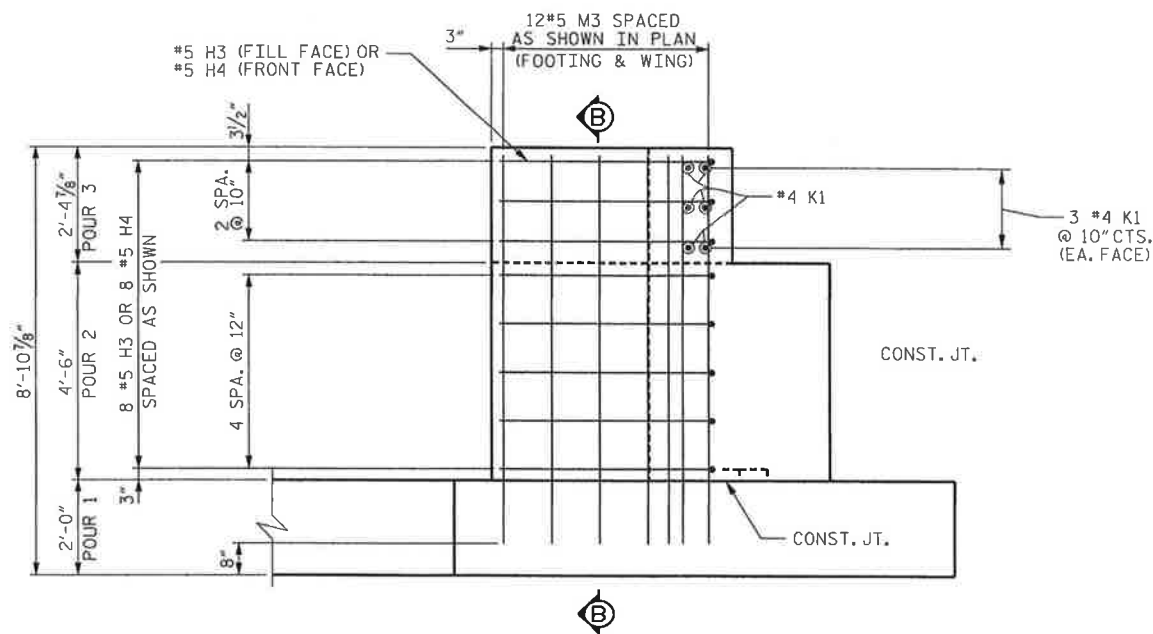
TOTAL SHEETS
12



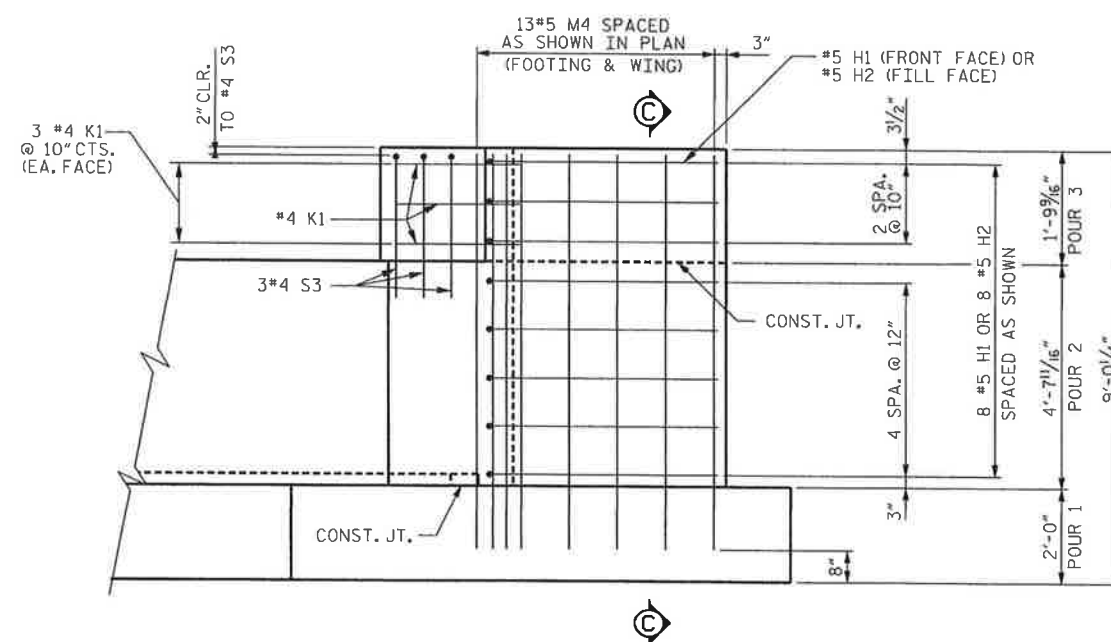
PLAN - WING W3



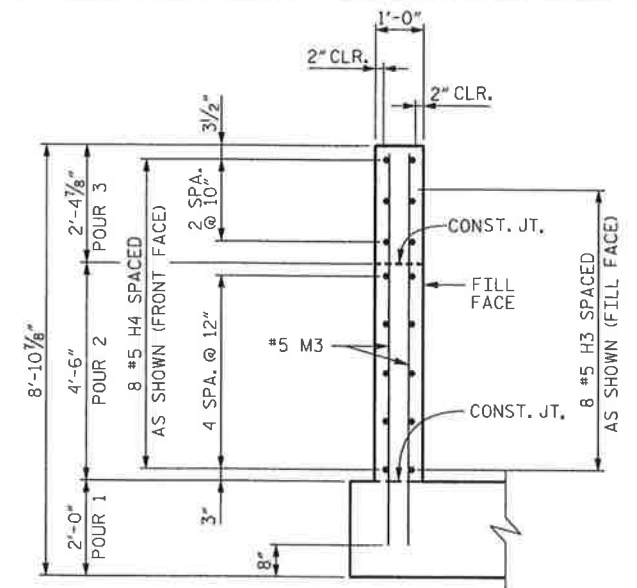
PLAN - WING W4



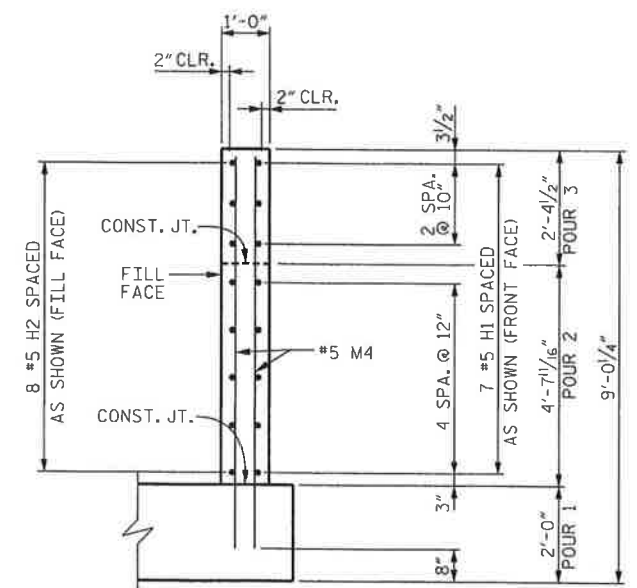
ELEVATION - WING W3



ELEVATION - WING W4



SECTION B-B



SECTION C-C

PROJECT NO. B-5233
COUNTY: CHEROKEE
STATION: 13+32 -L-
REPLACES BRIDGE NO. 173

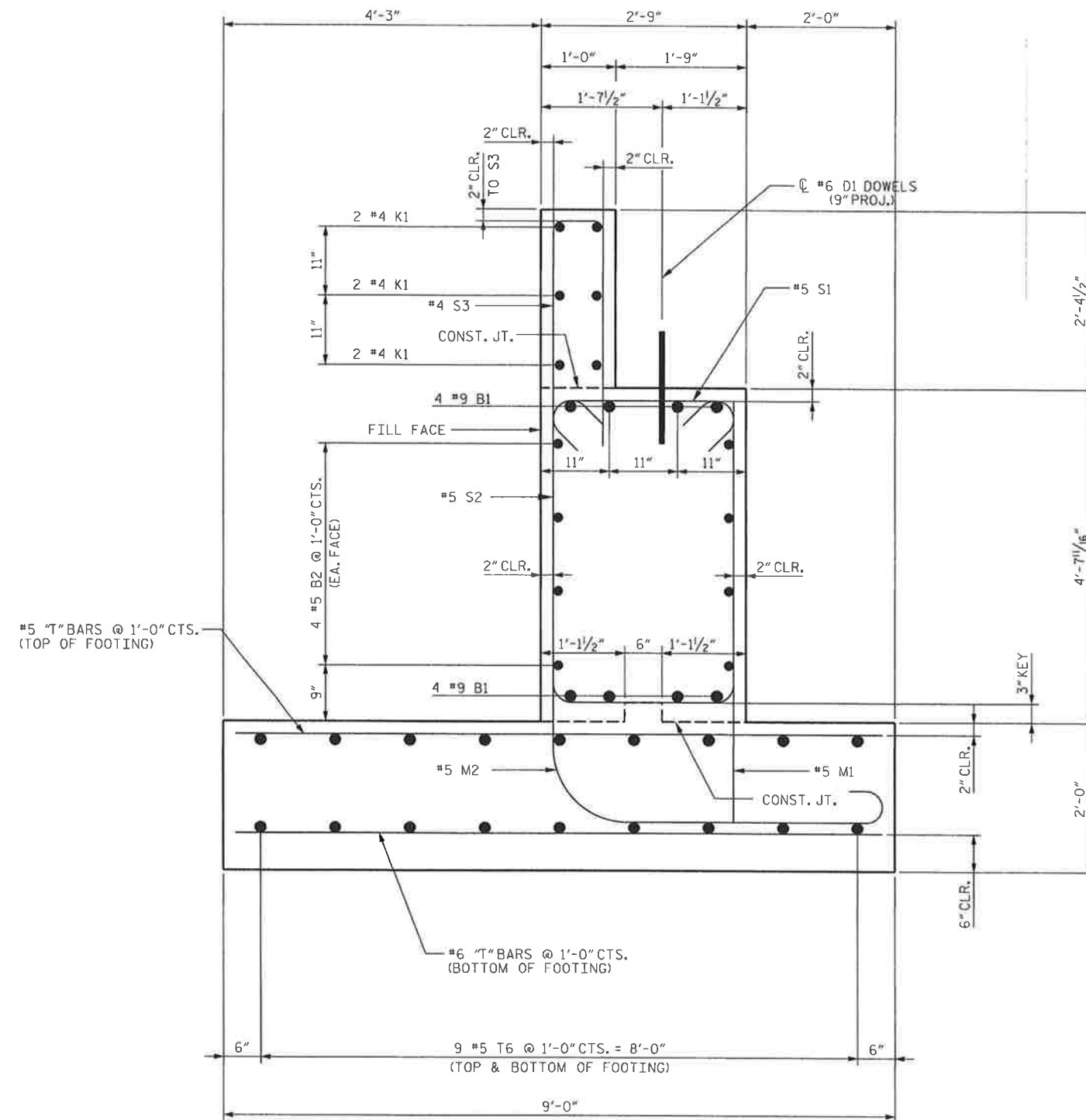
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ABUTMENT 2
29'-10" CLEAR ROADWAY
60° SKEW
60' SPAN

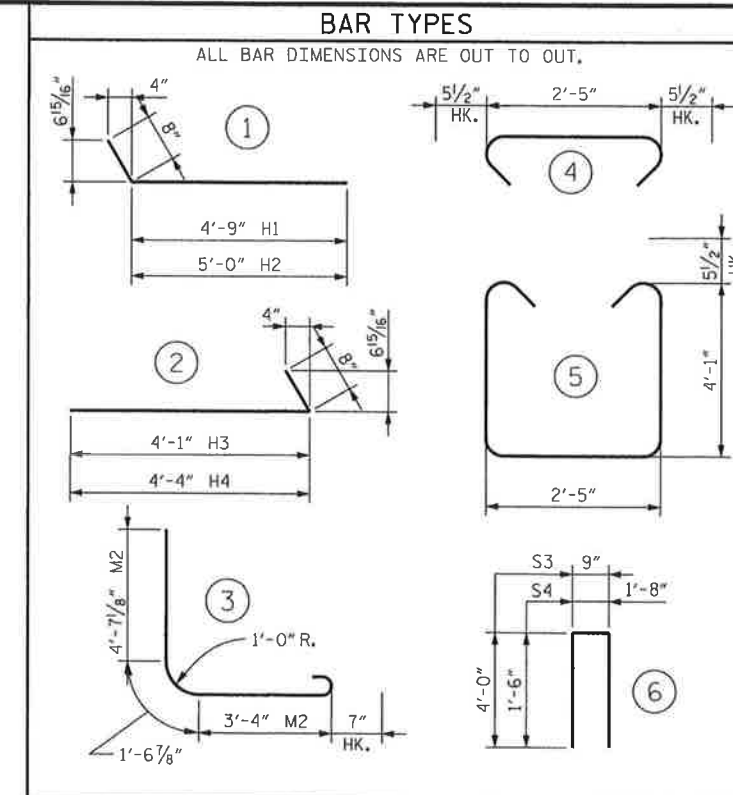


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MORGANTON, NC 28655

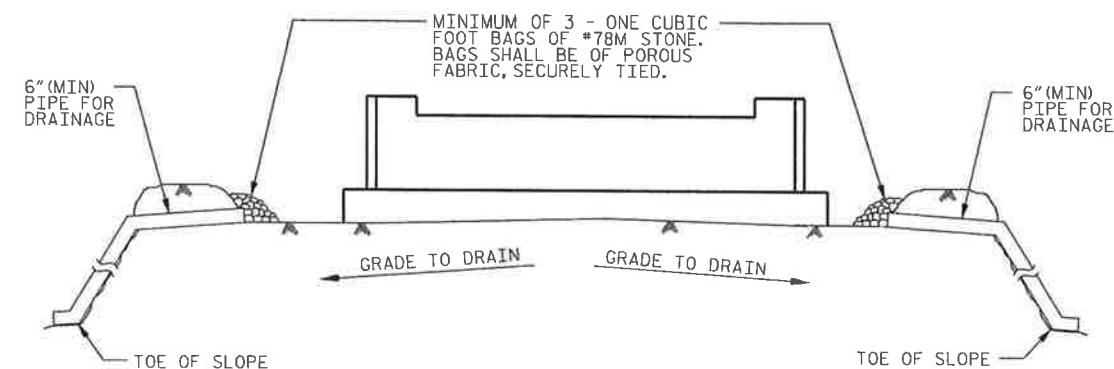
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			S-10
2			4			



SECTION A-A



BILL OF MATERIAL					
ABUTMENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	STR	44'-6"	1210
B2	8	#5	STR	44'-6"	371
D1	22	#6	STR	1'-6"	50
H1	8	#5	1	5'-5"	45
H2	8	#5	1	5'-8"	47
H3	8	#5	2	4'-9"	40
H4	8	#5	2	5'-0"	42
K1	12	#4	STR	4'-0"	32
M1	43	#5	STR	5'-8"	254
M2	43	#5	3	10'-1"	452
M3	12	#5	STR	8'-0"	100
M4	13	#5	STR	8'-2"	111
S1	52	#5	4	3'-4"	181
S2	52	#5	5	11'-6"	624
S3	6	#4	6	8'-9"	35
S4	4	#4	6	4'-8"	12
T1	2	#5	STR	3'-1"	6
T2	2	#5	STR	4'-10"	10
T3	2	#5	STR	6'-6"	14
T4	2	#5	STR	8'-3"	17
T5	40	#5	STR	8'-6"	355
T6	18	#5	STR	45'-8"	857
T10	2	#6	STR	3'-1"	9
T11	2	#6	STR	4'-10"	15
T12	2	#6	STR	6'-6"	20
T13	2	#6	STR	8'-3"	25
T14	40	#6	STR	8'-6"	511
REINFORCING STEEL					5445 LBS.
CLASS A CONCRETE					
POUR 1 FOOTING					30.9 C. Y.
POUR 2 CAP & WINGS					22.3 C. Y.
POUR 3 BACKWALL & WINGS					1.7 C. Y.
POUR 4 LATERAL GUIDES					0.1 C. Y.
CLASS A CONCRETE TOTAL					55.0 C. Y.



BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT ABUTMENT



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TGS ENGINEERS
107-A WICA AVENUE
MORGANTON, NC 28655

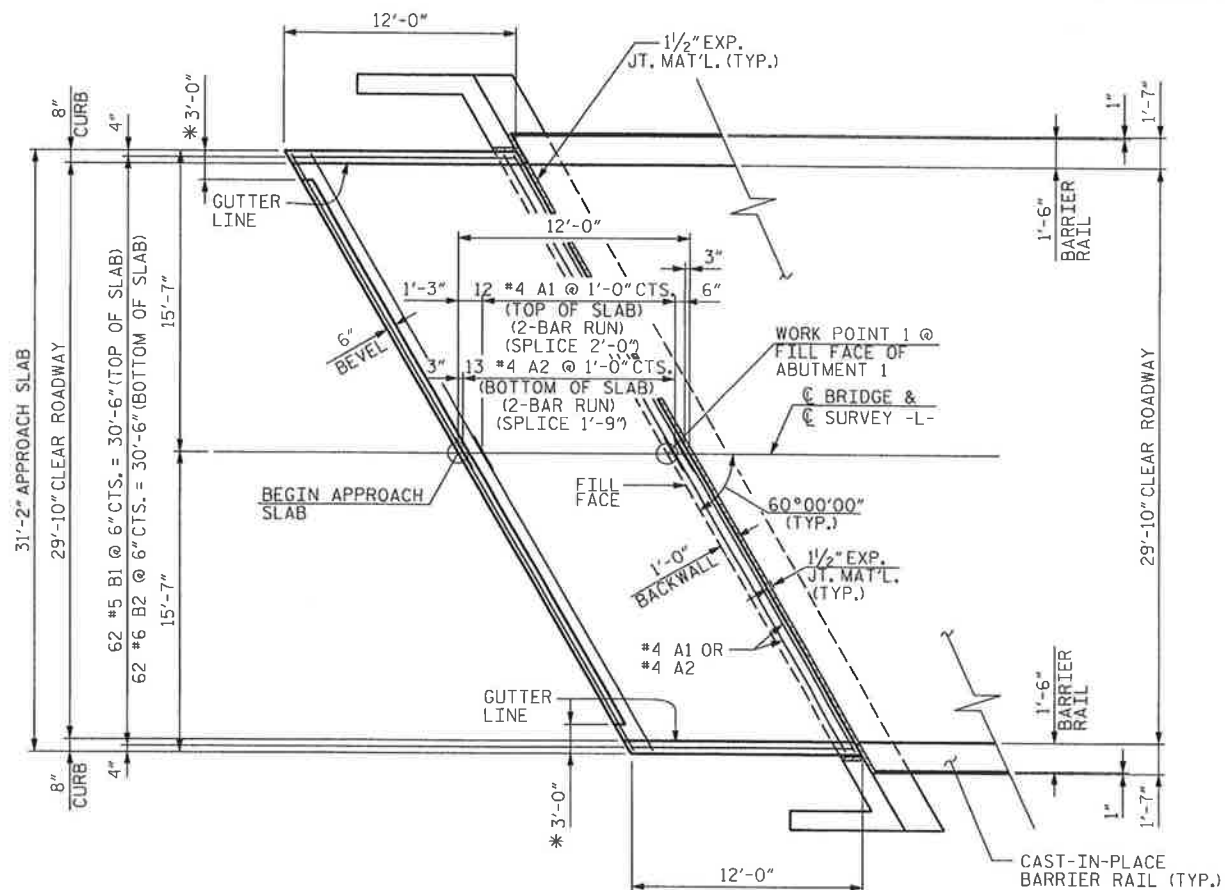
PROJECT NO. B-5233
COUNTY: CHEROKEE
STATION: 13+32 -L-
REPLACES BRIDGE NO. 173

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ABUTMENT 2
29'-10" CLEAR ROADWAY
60° SKEW
60' SPAN

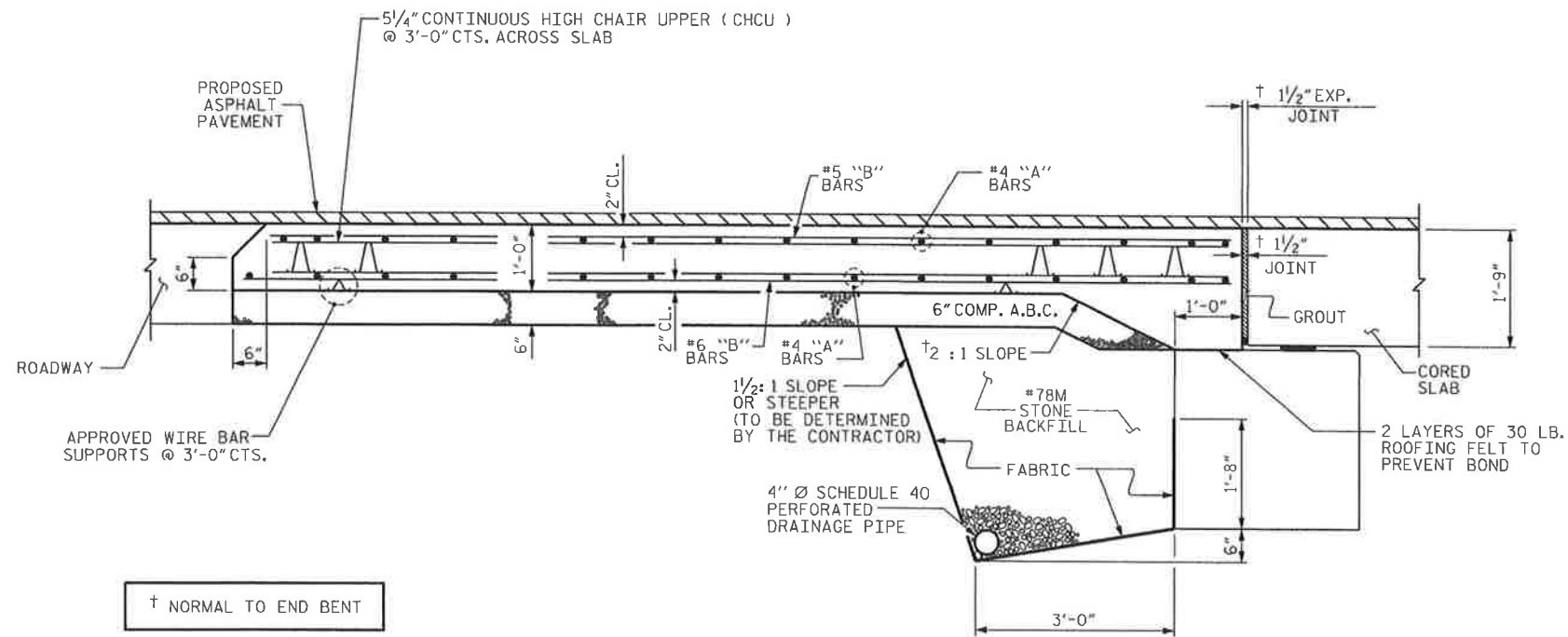
REVISIONS						SHEET NO. S-11
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 12
2			4			

DRAWN BY: JLA **DATE:** 8/04
CHECKED BY: NMW **DATE:** 11/04



PLAN OF APPROACH SLAB

BEGIN APPROACH SLAB SHOWN, END APPROACH SLAB SIMILAR
*ONLY NEEDED AT ABUTMENT 1 FOR SHOULDER BERM CUTTER.



SECTION THRU SLAB

NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4" Ø DRAINAGE PIPE, AND #78M 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 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B 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.

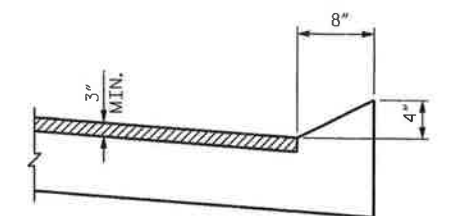
THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. 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 UNIT" SHEETS.

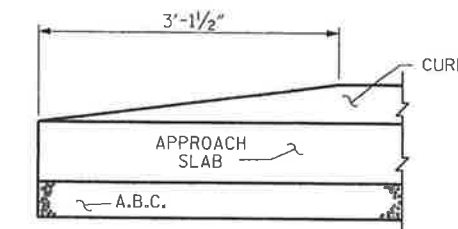
THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	24	#4	STR	18'-11"	302
A2	26	#4	STR	18'-9"	324
*B1	62	#5	STR	11'-3"	727
B2	62	#6	STR	11'-8"	1,086
REINFORCING STEEL					1,410 LBS.
*EPOXY COATED REINFORCING STEEL					1,029 LBS.
CLASS AA CONCRETE					18.2 C. Y.
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	24	#4	STR	18'-11"	302
A2	26	#4	STR	18'-9"	324
*B1	62	#5	STR	11'-3"	727
B2	62	#6	STR	11'-8"	1,086
REINFORCING STEEL					1,410 LBS.
*EPOXY COATED REINFORCING STEEL					1,029 LBS.
CLASS AA CONCRETE					18.2 C. Y.



SECTION N-N



CURB DETAILS

PROJECT NO. B-5240
COUNTY: CHEROKEE
STATION: 13+32-L-
REPLACES BRIDGE NO. 173

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
(SUB-REGIONAL TIER)

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

SHEET NO.
S-12
TOTAL SHEETS
12

ASSEMBLED BY: JLA
CHECKED BY: RTJ
DATE: 11/09
DATE: 01/10

DRAWN BY: KMM 3-08
CHECKED BY: GM 3-08

PREPARED BY
TGS ENGINEERS
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MORGANTON, NC 28655