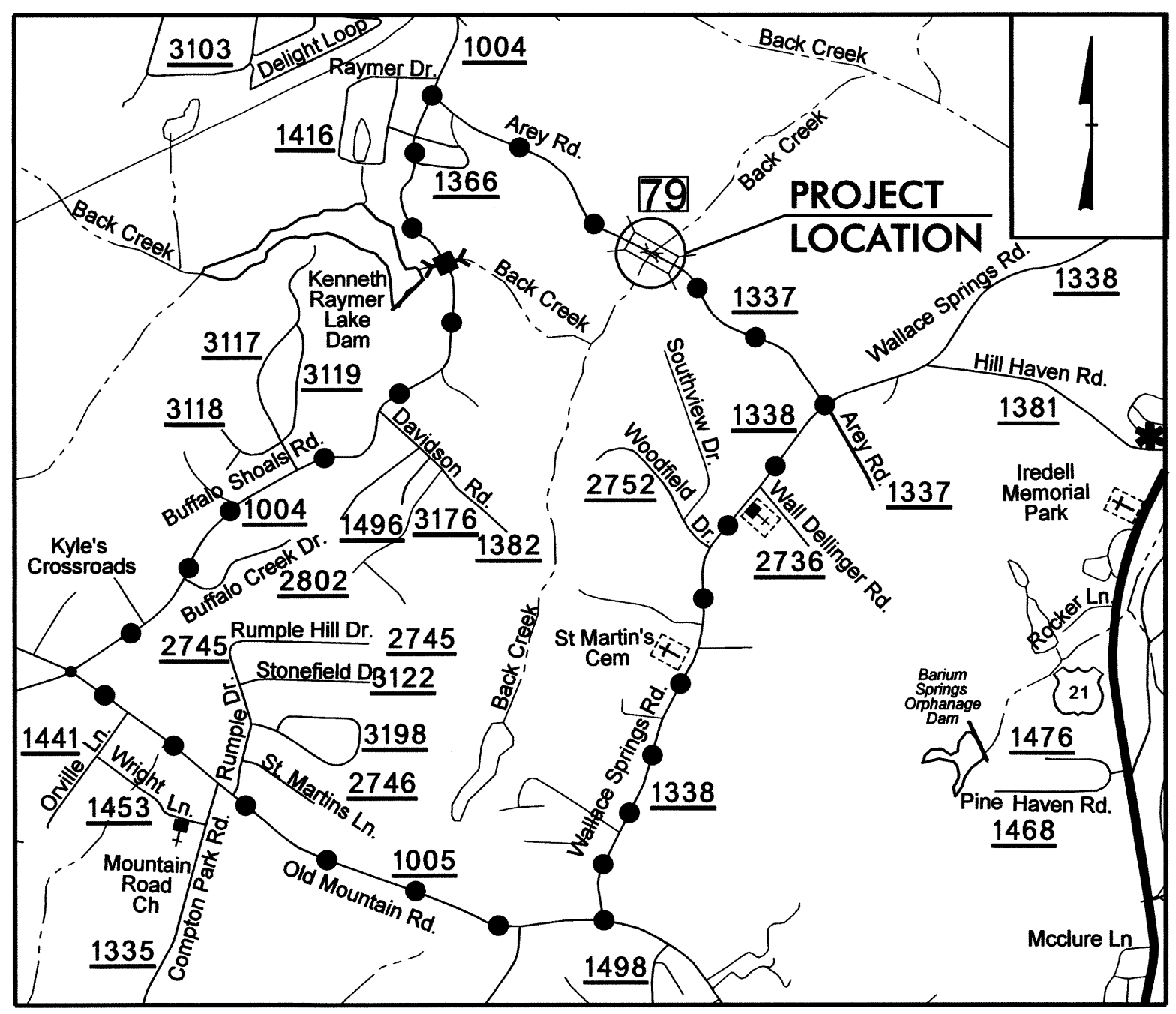


05/08/99

TIP PROJECT: BD-5112G

CONTRACT: DL00021

See Sheet 1-A For Index of Sheets



VICINITY MAP (NOT TO SCALE)

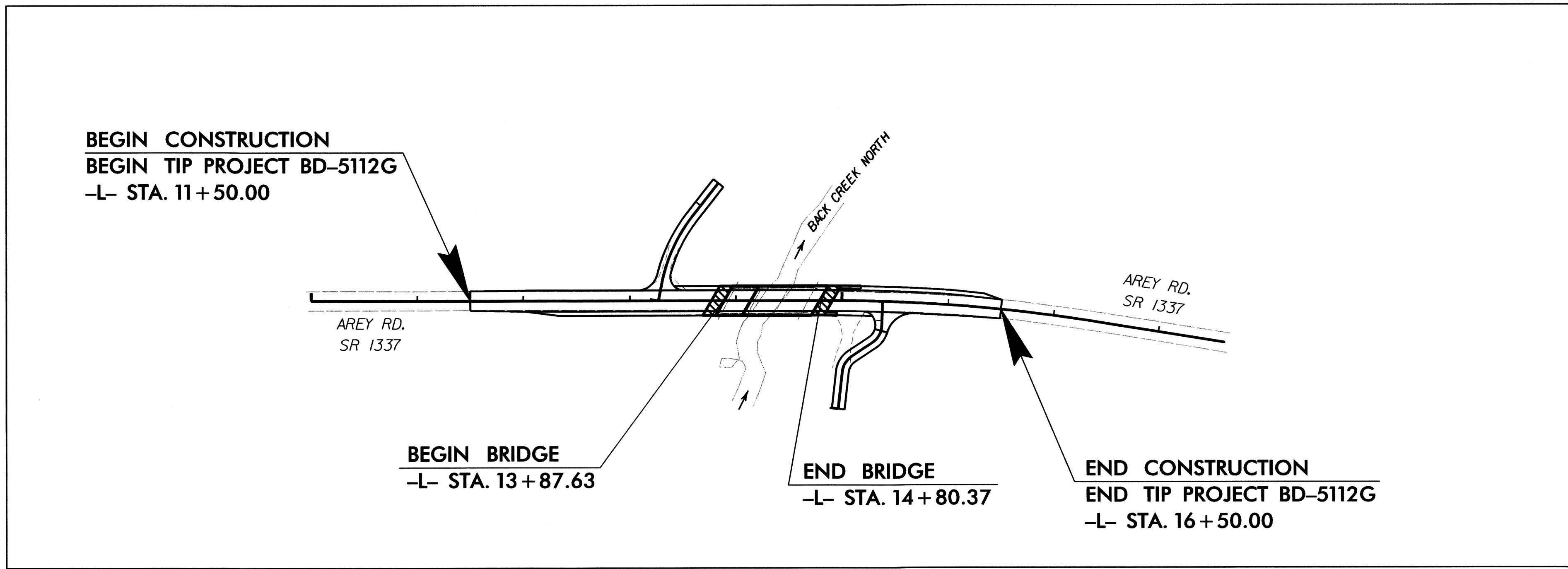
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

IREDELL COUNTY

**LOCATION: BRIDGE NO. 79 ON SR 1337 OVER BACK CREEK
BETWEEN SR 1004 AND SR 1338**

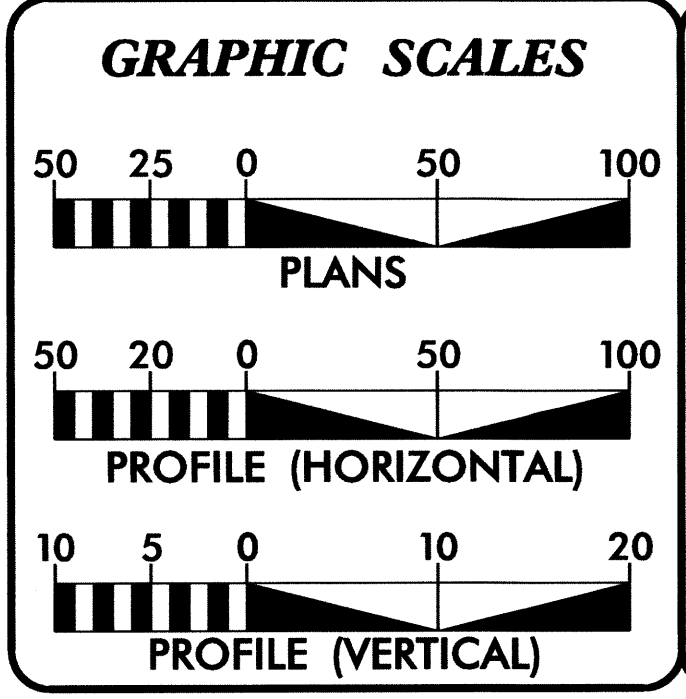
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5112G	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45358.1.7	BRZ-1337(5)	P.E.	
45358.2.7	BRZ-1337(5)	R/W	
45358.3.7	BRZ-1337(5)	CONSTR.	



LOCATION SKETCH

HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116



DESIGN DATA

ADT 2009 =	920
ADT =	
DHV =	%
D =	%
T =	6 %
V =	45 MPH
FUNC CLASS =	
LOCAL RURAL	
SUBREGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BD-5112G	=	0.077 MILES
LENGTH STRUCTURES TIP PROJECT TIP BD-5112G	=	0.018 MILES
TOTAL LENGTH TIP PROJECT BD-5112G	=	0.095 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: **SEPTEMBER 27, 2011**

LETTING DATE: **APRIL 24, 2012**

DOMINIC M. WAINWRIGHT, P.E.
PROJECT ENGINEER

JAMES R. RICE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

[Signature]
SIGNATURE: **DOMINIC M. WAINWRIGHT**
P.E.

ROADWAY DESIGN ENGINEER

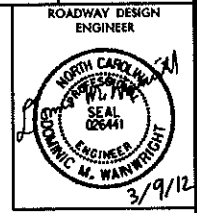
[Signature]
SIGNATURE: **JAMES R. RICE**
P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

MICHAEL L. HOLDER P.E.
DIVISION ENGINEER

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8/17/99



SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3	RIGHT-OF-WAY AREA DATA, SUMMARY OF DRAINAGE QUANTITIES, AND SUMMARY OF GUARDRAIL
4	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC MANAGEMENT PLAN
SD-01	DETOUR SIGN DESIGN
EC-1 THRU EC-4	EROSION CONTROL PLANS
X-1 THRU X-10	CROSS-SECTIONS
S-1 THRU S-18	STRUCTURE PLANS
	STRUCTURE STANDARD NOTES

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.02	Driveway Turnout - Radius Type
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

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

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 10' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS 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.

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, CITY OF STATESVILLE, AND PSNC.
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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04/16/11

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	⊙ EP
Property Corner	-----
Property Monument	⊠ ECU
Parcel/Sequence Number	⊙ (23)
Existing Fence Line	-----
Proposed Woven Wire Fence	-----
Proposed Chain Link Fence	-----
Proposed Barbed Wire Fence	-----
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----
Known Soil Contamination: Boundary or Site	⊙
Potential Soil Contamination: Boundary or Site	⊙

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	⊙
Well	⊙
Small Mine	⊗
Foundation	⊠
Area Outline	⊠
Cemetery	⊠
Building	⊠
School	⊠
Church	⊠
Dam	⊠

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	-----
Buffer Zone 1	-----
Buffer Zone 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	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
Curb Cut Future 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	⊠
UG 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	⊙
UG 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	⊙
UG 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	⊙
UG Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
Recorded SS Forced Main Line	-----
Designated SS Forced Main Line (S.U.E.*)	-----

MISCELLANEOUS:

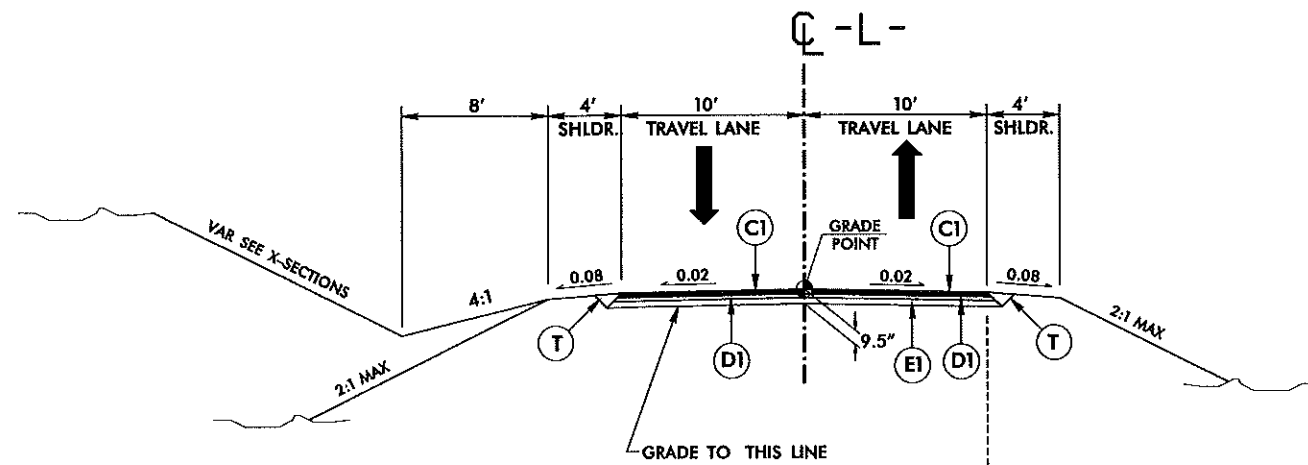
Utility Pole	⊙
Utility Pole with Base	⊠
Utility Located Object	⊙
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line	-----
UG Tank; Water, Gas, Oil	⊠
Underground Storage Tank, Approx. Loc.	⊠
A/G Tank; Water, Gas, Oil	⊠
Geoenvironmental Boring	⊙
UG Test Hole (S.U.E.*)	⊙
Abandoned According to Utility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

B/17/99

PAVEMENT SCHEDULE

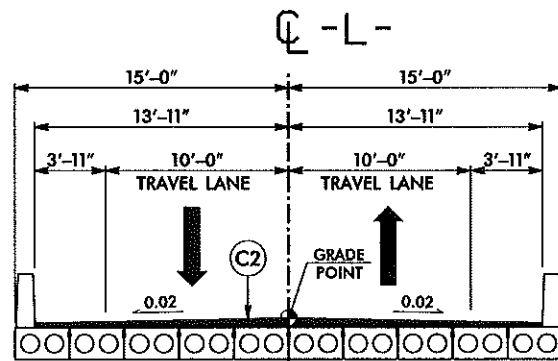
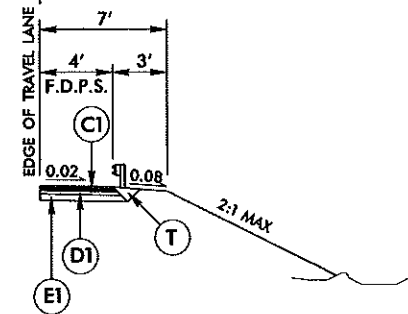
C1	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS PER SQUARE YARD IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2.0" IN DEPTH.
C3	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS PER SQUARE YARD.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS PER SQUARE YARD.
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS PER SQUARE YARD.
T	EARTH MATERIAL
V	8" INCIDENTAL STONE BASE

PROJECT REFERENCE NO. BD-51126	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
HDR Engineering, Inc. of the Carolinas 2733 National Drive, Suite 207 Raleigh, N.C. 27612 N.C.B.E.L.S. License Number: F-0116	



TYPICAL SECTION NO. 1

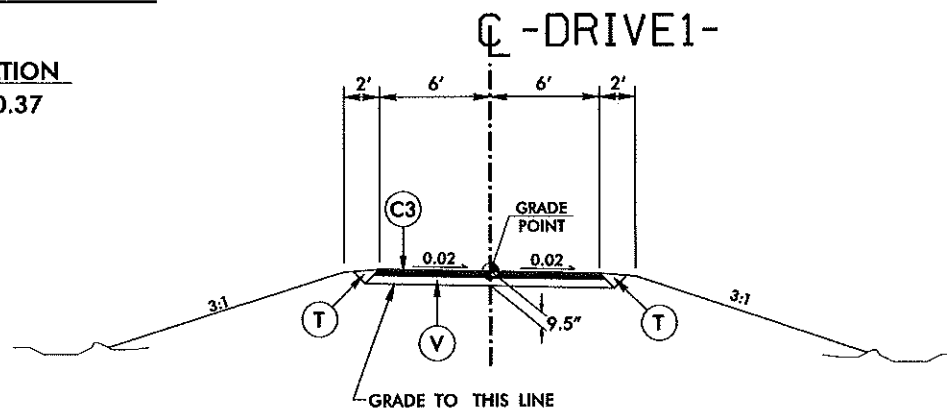
LINE	FROM STATION	TO STATION
-L-	11+50.00	13+87.63
-L-	14+80.37	16+50.00



TYPICAL SECTION NO. 2

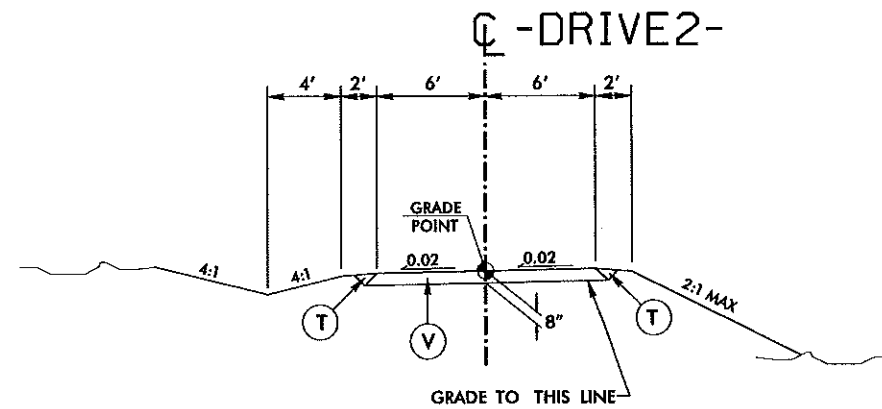
CORED SLAB BRIDGE

LINE	FROM STATION	TO STATION
-L-	13+87.63	14+80.37



TYPICAL SECTION NO. 3

LINE	FROM STATION	TO STATION
-DRIVE1-	10+10.19	11+26.99



TYPICAL SECTION NO. 4

LINE	FROM STATION	TO STATION
-DRIVE2-	10+00.00	10+90.22

PAVE DRIVEWAY TURNOUT THROUGH RADIUS WITH -L- LINE PAVEMENT DESIGN

REVISIONS

3/9/2012 8:23:33 AM
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6/21/08
3/9/2012
23:06:28
13:22:14

COMPUTED BY: S. WEATHERLY DATE: SEPTEMBER 2011
CHECKED BY: D. WAINWRIGHT DATE: DECEMBER 2011

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. BD-5112G
SHEET NO. 3

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

RIGHT OF WAY AREA DATA

Table with columns: PARCEL NO., PROPERTY OWNERS NAMES, TOTAL ACREAGE, AREA TAKEN, AREA REMAINING RT., AREA REMAINING LT., CONST. EASE., PERM. UTILITY EASE., TEMP. DRAIN. EASE.

*NOTE: ALL AREAS ARE IN ACRES

SUMMARY OF PAVEMENT REMOVAL
IN SQUARE YARDS

Table with columns: LOCATION, ASPHALT REMOVAL, ASPHALT BREAK UP, CONCRETE REMOVAL, CONCRETE BREAK UP

SUMMARY OF EARTHWORK
IN CUBIC YARDS

Table with columns: LOCATION, UNCLASSIFIED EXCAVATION, UNDERCUT, EMBT+15%, BORROW, WASTE

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

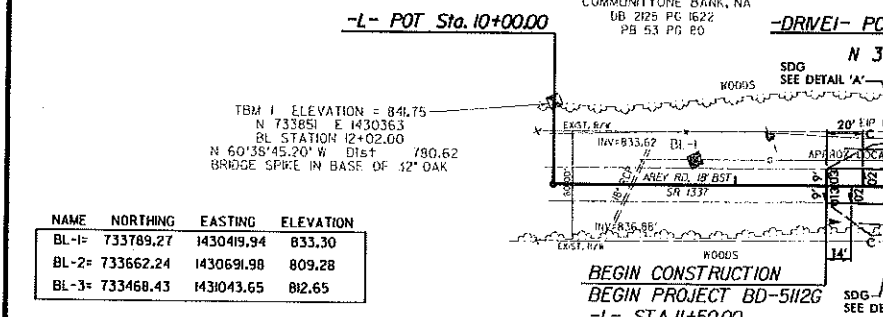
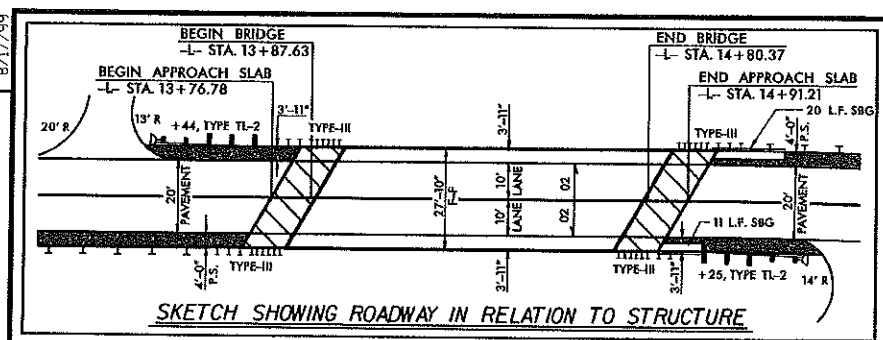
Large summary table for pipes and endwalls with columns for station, size, class, pipe type, endwall type, grate type, and remarks.

* GRAU 350 TEST LEVEL 2 (TYPE TL-2) USED.
"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

Table summarizing guardrail details with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH, WARRANT POINT, FLARE LENGTH, W, ANCHORS, IMPACT ATTENUATOR, and REMARKS.

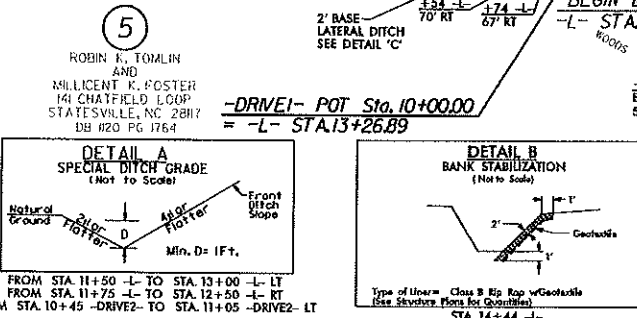
8/17/99
 3/9/202
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DATUM DESCRIPTION

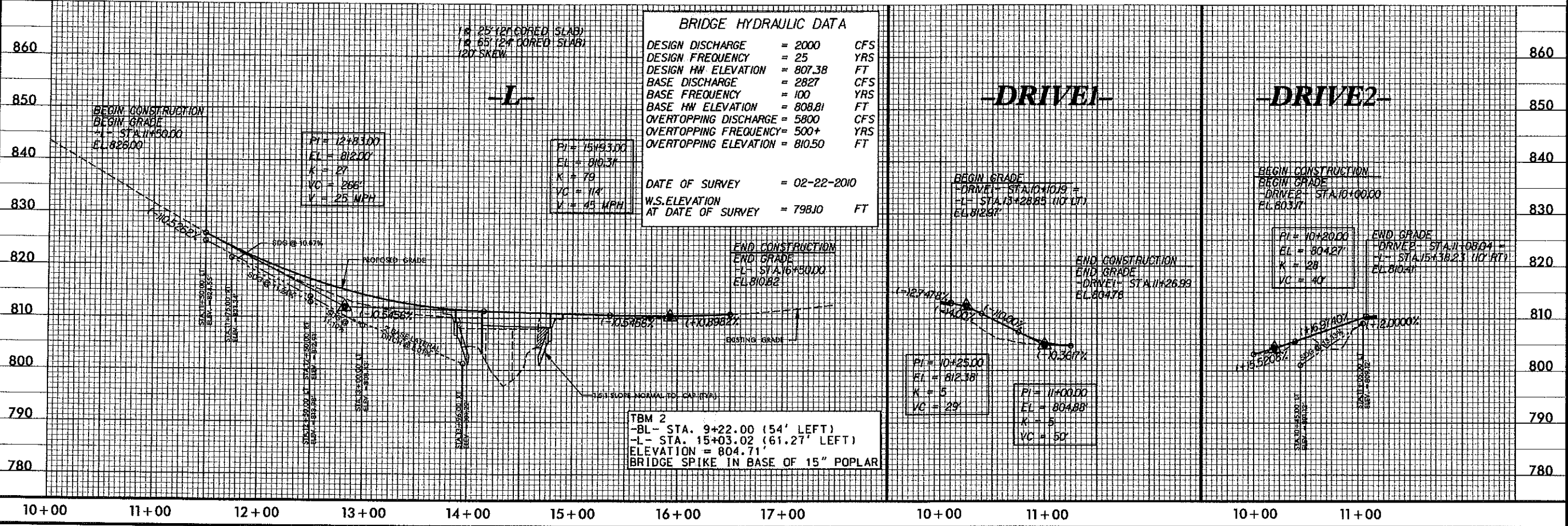
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 733662.2379(ft) EASTING: 1430691.9822(ft) ELEVATION: 809.2770(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987679 LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO -L- STA. 11+50.00 IS N 68°26'54.50\"/>

NAME	NORTHING	EASTING	ELEVATION
BL-1	733789.27	1430419.94	833.30
BL-2	733662.24	1430691.98	809.28
BL-3	733468.43	1430435.65	812.65



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2000	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 807.38	FT
BASE DISCHARGE	= 2827	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 808.81	FT
OVERTOPPING DISCHARGE	= 5800	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 810.50	FT
DATE OF SURVEY	= 02-22-2010	
W.S. ELEVATION AT DATE OF SURVEY	= 798.10	FT



-DRIVE1-
 PI Sta 10+52.73
 $\Delta = 26' 57'' 01.9'' (RT)$
 $D = 38' 11'' 49.9''$
 $L = 70.56'$
 $T = 35.94'$
 $R = 150.00'$

-L-
 PI Sta 16+13.51
 $\Delta = 9' 06'' 01.9'' (RT)$
 $D = 3' 37'' 34.7''$
 $L = 250.95'$
 $T = 125.74'$
 $R = 1580.00'$

PROJECT REFERENCE NO. **BD-5112G** SHEET NO. **4**

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

HDR HDR Engineering, Inc. of the Carolinas
 3733 Notwood Drive, Suite 207 Raleigh, N.C. 27612
 N.C.B.E.L.S. License Number: F-0116

NOTE 1: PLACE CLASS 'B' RIP RAP ON RIGHT CHANNEL BANK FOR STABILIZATION AFTER REMOVAL OF EXISTING BRIDGE PIER.

NOTE 2: NO DECK DRAINS REQUIRED. MAX SPREAD = 3.83' AVAILABLE SHOULDER = 3.92'

-DRIVE2-
 PI Sta 10+86.34
 $\Delta = 54' 17'' 54.9'' (LT)$
 $D = 286' 28'' 44.0''$
 $L = 18.95'$
 $T = 10.26'$
 $R = 20.00'$

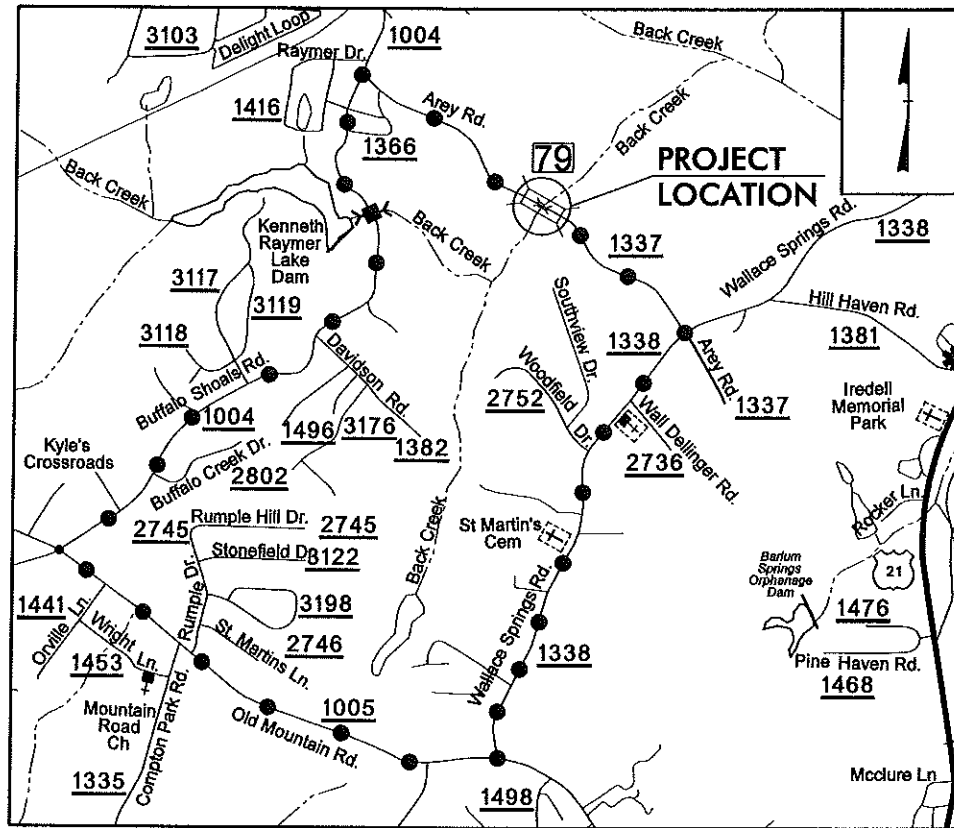
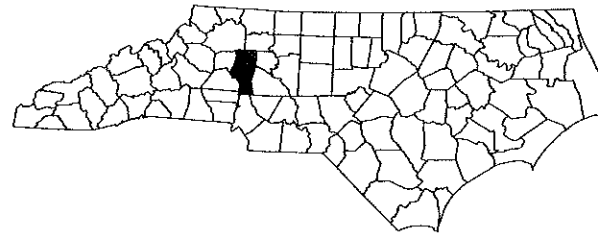
-DRIVE2-
 PI Sta 10+44.73
 $\Delta = 49' 51'' 09.9'' (RT)$
 $D = 286' 28'' 44.0''$
 $L = 17.40'$
 $T = 9.29'$
 $R = 20.00'$

TBM 2
 -BL- STA. 9+22.00 (54' LEFT)
 -L- STA. 15+03.02 (61.27' LEFT)
 ELEVATION = 804.71'
 BRIDGE SPIKE IN BASE OF 15\"/>

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

IREDELL COUNTY



● — ●
DETOUR ROUTE

VICINITY MAP
(NOT TO SCALE)

INDEX OF SHEETS

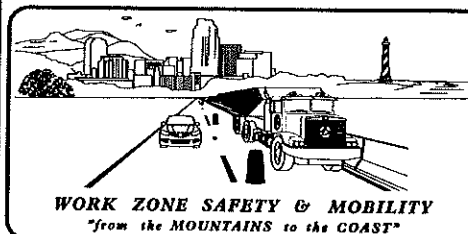
SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	GENERAL NOTES AND PHASING
TMP-2	OFFSITE DETOUR PLAN - AREY ROAD (SR 1337)
SD-01	SIGN DESIGN - AREY ROAD

SHEET NO.
TMP-1

TIP PROJECT:
BD-5112G

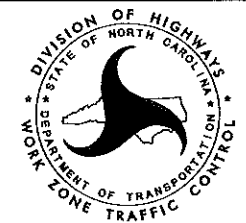
TIP PROJECT:
BD-5112G

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N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
150 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
DOMINIC WAINWRIGHT, P.E. TRAFFIC CONTROL PROJECT ENGINEER
MICHELLE WARD, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER
BRITTANY LIBBY, E.I. TRAFFIC CONTROL DESIGN ENGINEER



PLAN PREPARED BY:
HDR HDR Engineering, Inc. of the Carolinas
3793 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

APPROVED: *Michelle Ward*
DATE: 3/9/2012








ROADWAY STANDARD DRAWINGS

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

<u>STD. NO.</u>	<u>TITLE</u>
1101.01	WORK ZONE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND












GENERAL

-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  EXIST. PVMT.
-  NORTH ARROW
-  PROPOSED PVMT.




 WORK AREA

 REMOVAL




TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM  SKINNY DRUM  TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW PANEL (TYPE C)
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
-  CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN




SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY

PAVEMENT MARKINGS



-  EXISTING LINES
-  TEMPORARY LINES


PAVEMENT MARKERS

-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS

APPROVED: 	DATE: 3/9/12		ROADWAY STANDARD DRAWINGS & LEGEND
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PROJ. REFERENCE NO.	SHEET NO.
BD-5112G	TMP-1B
 HDR Engineering, Inc. of the Carolinas 3131 Walnut Drive, Suite 217 Raleigh, NC 27602 N.C.B.E.L.S. License Number: F-0116	

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 OR 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 SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFFSITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

- D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN THE ROAD CLOSURE IS NOT IN OPERATION. COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFFSITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
- E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

- G) UPON COMPLETION OF ALL OTHER CONSTRUCTION OPERATIONS, INSTALL 2 APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL SURFACE, ACCORDING TO RSD 1205.1, 1205.2 AND 1205.12.

PHASING NOTES

TRAFFIC CONTROL PHASING

NOTE: COORDINATE WITH THE ENGINEER FOR INSTALLATION AND REMOVAL OF ALL SIGNING AND TRAFFIC CONTROL DEVICES.

NOTE: MAINTAIN ACCESS TO DRIVEWAYS WITHIN PROJECT LIMITS AT ALL TIMES.

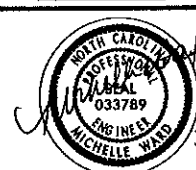
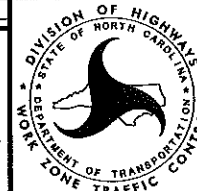
STEP 1: USING RSD 1101.01, SHEET 3 OF 3, INSTALL ADVANCE WORK ZONE WARNING SIGNS ON AREY ROAD (SR 1337).

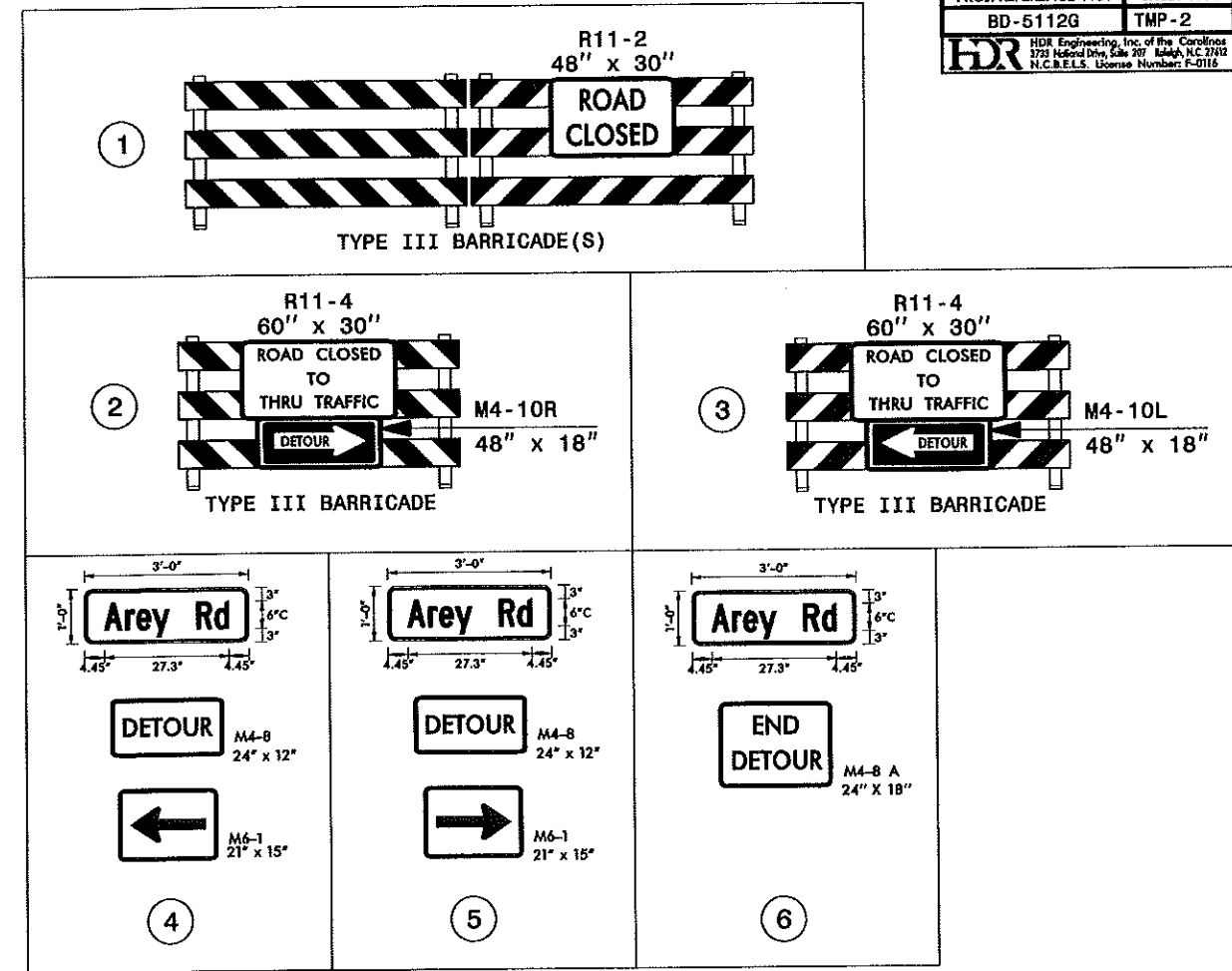
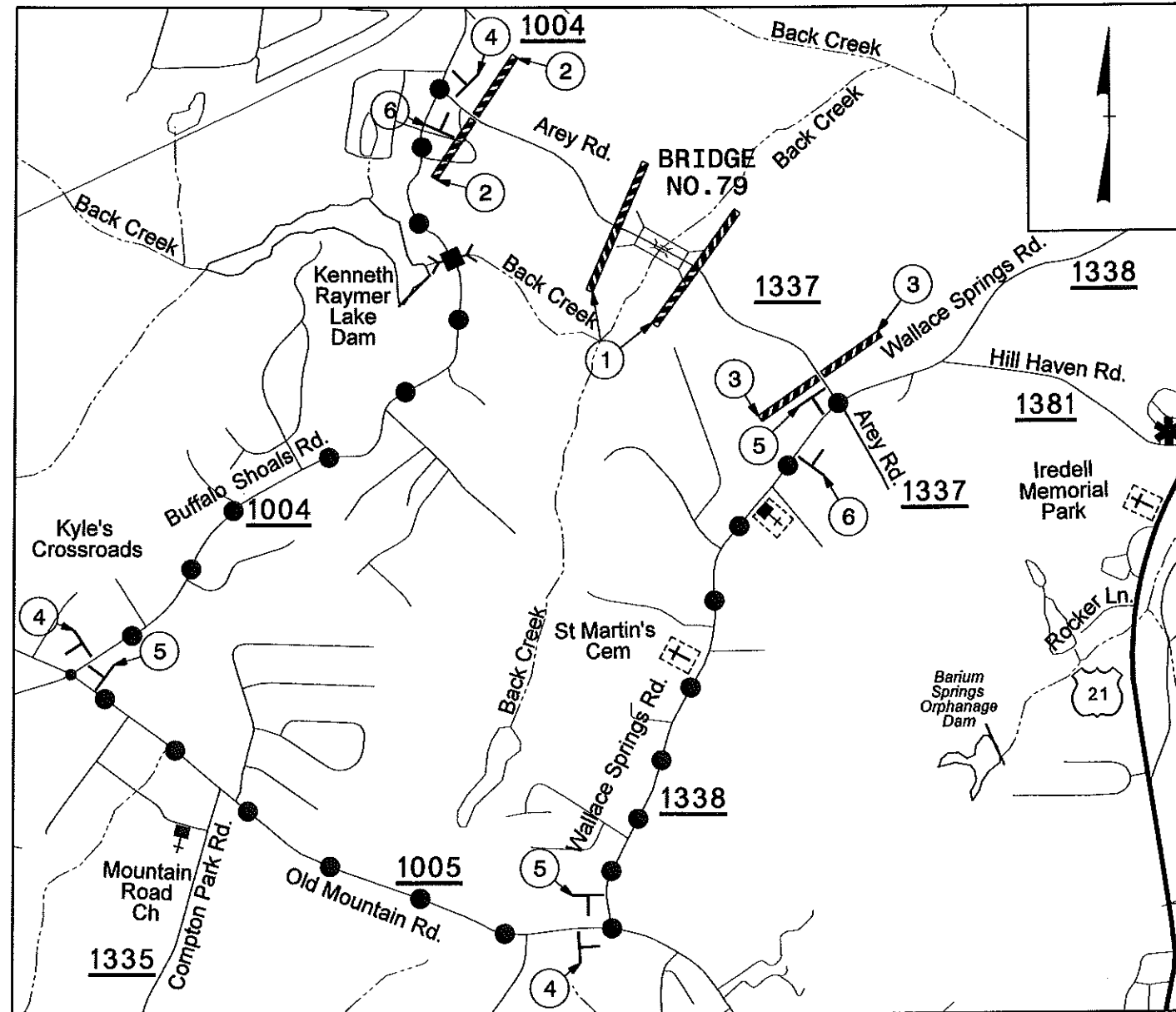
STEP 2: USING RSD 1101.03, SHEET 1 OF 9 AND SHEET TMP-2, INSTALL DETOUR SIGNS AND BARRICADES AND CLOSE AREY RD (SR 1337).

STEP 3: REMOVE EXISTING BRIDGE NO. 79 AND CONSTRUCT PROPOSED BRIDGE AND ROADWAY, UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE. PLACE FINAL PAVEMENT MARKINGS ON AREY ROAD (SR 1337) FROM -L- STA. 11+50 +/- TO STA. 16+50 +/-.

STEP 4: REMOVE ALL ADVANCE WORK ZONE DETOUR SIGNS, AND TRAFFIC CONTROL DEVICES AND OPEN AREY ROAD (SR 1337) TO TRAFFIC.

PLOT DRIVER: NCDOT.pcf.mono.eng.50.pit
 USER: cwo/hwr1
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 PENTABLE: NCDOT.pshpfl.tbl
 DATE: 3/9/2012
 TIME: 9:36:03 AM
 SCALE: hdlf=100i - 1/4h=50i
 NCDOT-Division-12-1\IBR1300_TIP_folder_structure\BD-5112G_TrafficControl\TcP\BD-5112G_TCF_DS.dgn

APPROVED: _____ DATE: _____ 		<h1 style="margin: 0;">GENERAL NOTES AND PHASING</h1>
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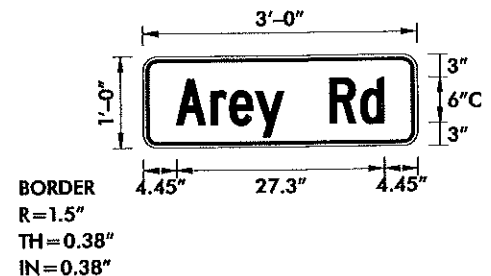


—●—●—
DETOUR ROUTE

REFER TO RSD 1101.03 SHEET 1 OF 9 FOR
ADDITIONAL SIGN AND BARRICADE PLACEMENT

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APPROVED:	DATE:		OFFSITE DETOUR PLAN AREY ROAD (SR 1337)
	3/9/12		

SIGN NUMBER: TYPE: D QUANTITY: 1 SIGN WIDTH: 3'-0" HEIGHT: 1'-0" TOTAL AREA: 3.0 Sq.Ft. BORDER TYPE: FLUSH RECESS: 0.38" WIDTH: 0.38" RADII: 1.5" NO. Z BARS: LENGTH:	BACKG COLOR: Orange COPY COLOR: Black	DESIGN BY: D KERNS PROJECT ID: BD-5112G	CHECKED BY: DIV: 12	DATE: Oct 25, 2011																																												
	<table border="1"> <thead> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> MAT'L: 0.125" (3.2 mm) ALUMINUM	SYMBOL	X	Y	WID	HT																																										
SYMBOL	X	Y	WID	HT																																												
USE NOTES: 1. Legend and border shall be direct applied Grade B sheeting. 2. Background shall be Grade B reflective sheeting.																																																

Spacing Factor is 1 unless specified otherwise

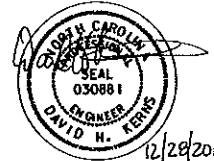

LETTER POSITIONS

Letter spacings are to start of next letter										Series/Size
										Text Length
	A	r	e	y		R	d			C 2000
	4.4	4.6	2.5	3.4	3.7	6	4.1	3.1	4.3	27.3

FILENAME: DWSignDesigns

NORTH CAROLINA D.O.T. SIGN DETAIL

PLOT DRIVER: NCDOT_pdf_mono_eng_50.plt
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 TIME: 4:42:20 PM
 SCALE: hof=100:1 - Full=50:1
 DATE: 12/22/2011

APPROVED:  SEAL DATE: 12/28/2011		SIGN DETAIL AREY RD
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8/27/99

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	XXXXXX
1633.01	Temporary Rock Silt Check Type-A	XXXXXX
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	XXXXXX
1632.03	Rock Inlet Sediment Trap Type C	C
	Temporary Rock Silt Check Type-B	▶
1655.01	Rock Pipe Inlet Sediment Trap Type-A	U

NAME	NORTHING	EASTING	ELEVATION
BL-1	733789.27	1430489.94	833.30
BL-2	733662.24	1430691.98	809.28
BL-3	733468.43	143043.65	812.65

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

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

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NC DOT FOR MONUMENT "BL-2" WITH HAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 733662.23791(FT) EASTING: 1430691.98221(FT) ELEVATION: 809.27701(FT)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987679

LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO "L- STA. 11+50.00" IS N 68°26'54.50" W 228.67'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

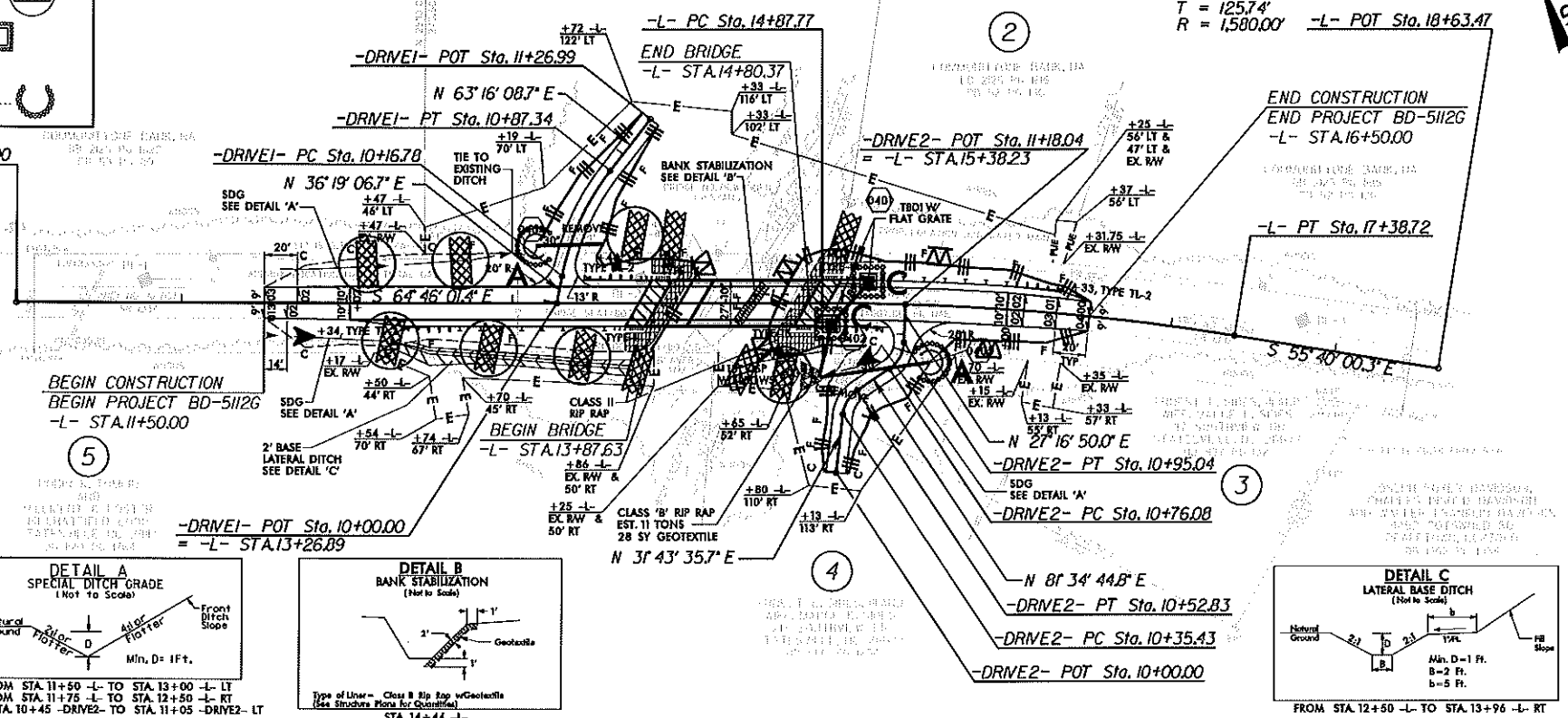
EROSION CONTROL PLANS

-DRIVE1-

PI Sta 10+52.73
 $\Delta = 26' 57" 01.9" (RT)$
 $D = 38' 11" 49.9"$
 $L = 70.56'$
 $T = 35.94'$
 $R = 150.00'$

-L-

PI Sta 16+33.51
 $\Delta = 9' 06" 01.9" (RT)$
 $D = 3' 37" 34.7"$
 $L = 250.95'$
 $T = 125.74'$
 $R = 150.00'$



PROJECT REFERENCE NO. **BD-51126** SHEET NO. **EC-1**

R/W SHEET NO.

WYATT D. YELVERTON, P.E.
 LEVEL III-A: DESIGNER OF EROSION AND SEDIMENT CONTROL PLANS.
 CERTIFICATION NUMBER: 370

HDR HDR Engineering, Inc. of the Carolinas
 3733 Notwood Drive, Suite 207, Raleigh, N.C. 27612
 N.C.B.E.L.S. License Number: F-0116

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

Place Matting for Erosion Control on Slope as Work Allows.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

NOTE 1: PLACE CLASS 'B' RIP RAP ON RIGHT CHANNEL BANK FOR STABILIZATION AFTER REMOVAL OF EXISTING BRIDGE PIER.

NOTE 2: NO DECK DRAINS REQUIRED. MAX SPREAD = 3.83' AVAILABLE SHOULDER = 3.92'

-DRIVE2-

PI Sta 10+86.34
 $\Delta = 54' 17" 54.9" (LT)$
 $D = 286' 28" 44.0"$
 $L = 18.95'$
 $T = 10.26'$
 $R = 20.00'$

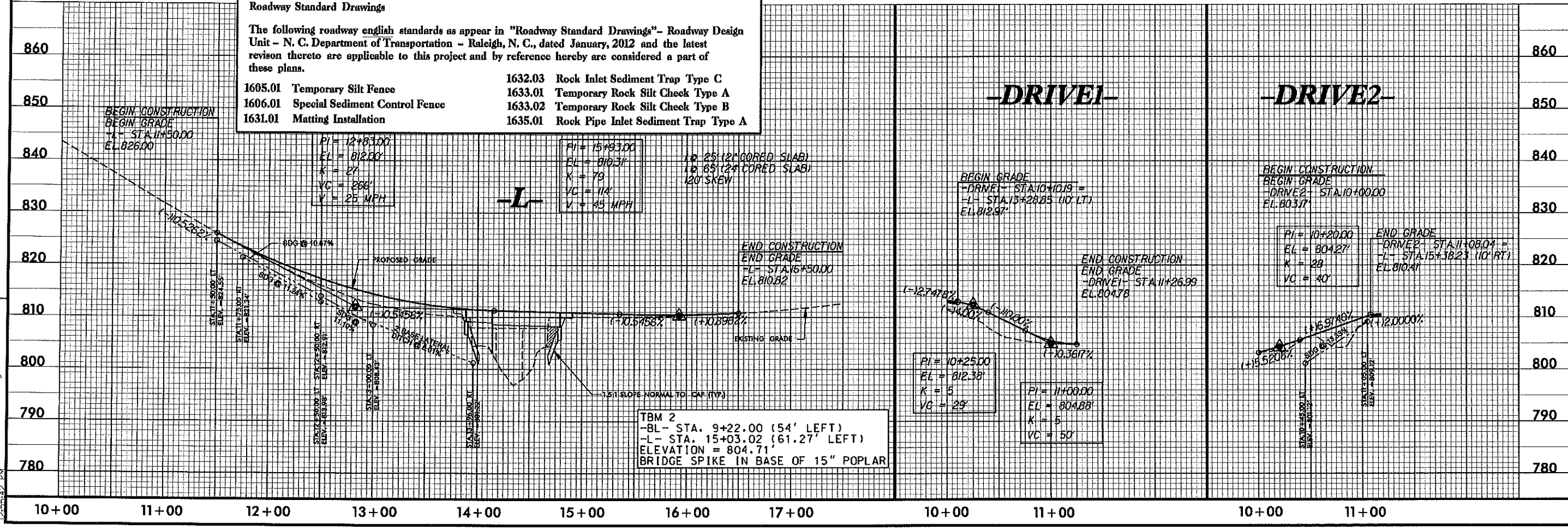
-DRIVE2-

PI Sta 10+44.73
 $\Delta = 49' 51" 09.1" (RT)$
 $D = 286' 28" 44.0"$
 $L = 17.40'$
 $T = 9.29'$
 $R = 20.00'$

Roadway Standard Drawings

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

1605.01 Temporary Silt Fence	1632.03 Rock Inlet Sediment Trap Type C
1606.01 Special Sediment Control Fence	1633.01 Temporary Rock Silt Check Type A
1631.01 Matting Installation	1633.02 Temporary Rock Silt Check Type B
	1635.01 Rock Pipe Inlet Sediment Trap Type A



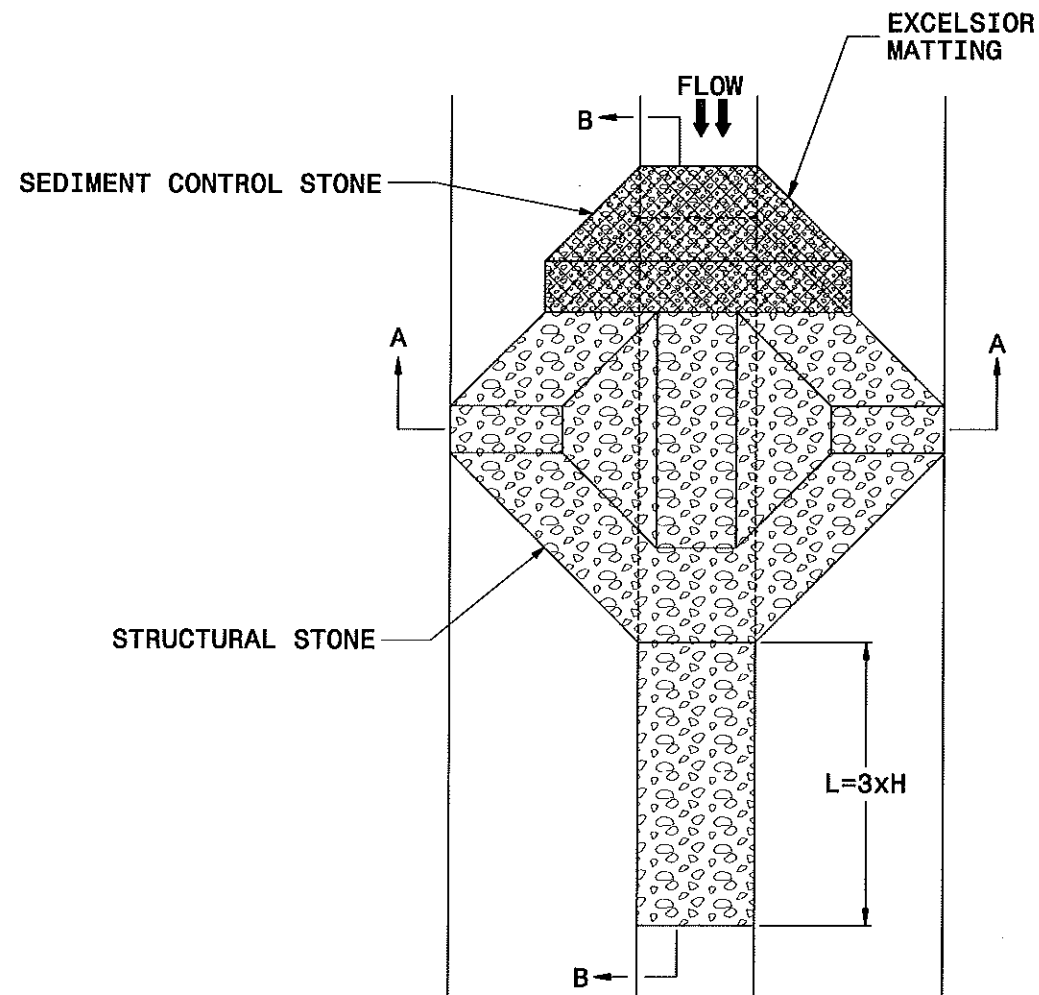
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 12:55:43 PM

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



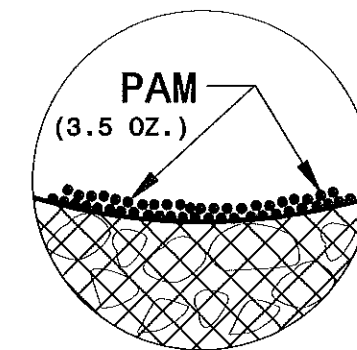
PLAN

NOTES

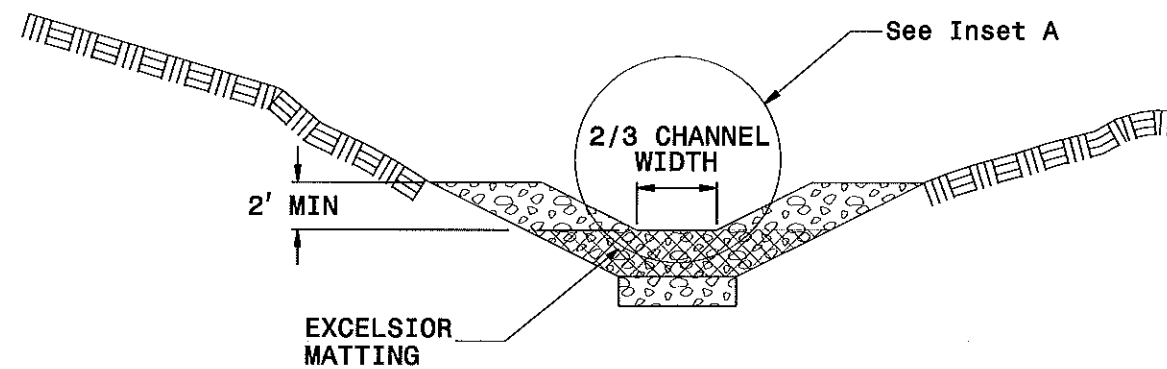
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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 ROCK SILT CHECK.

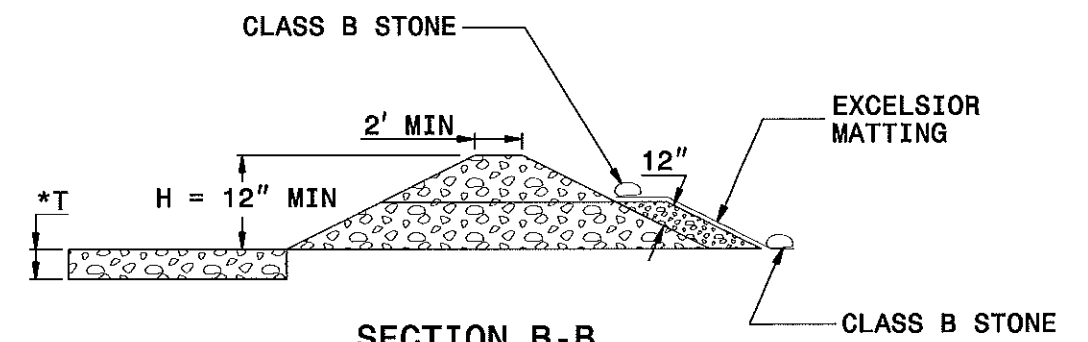
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A

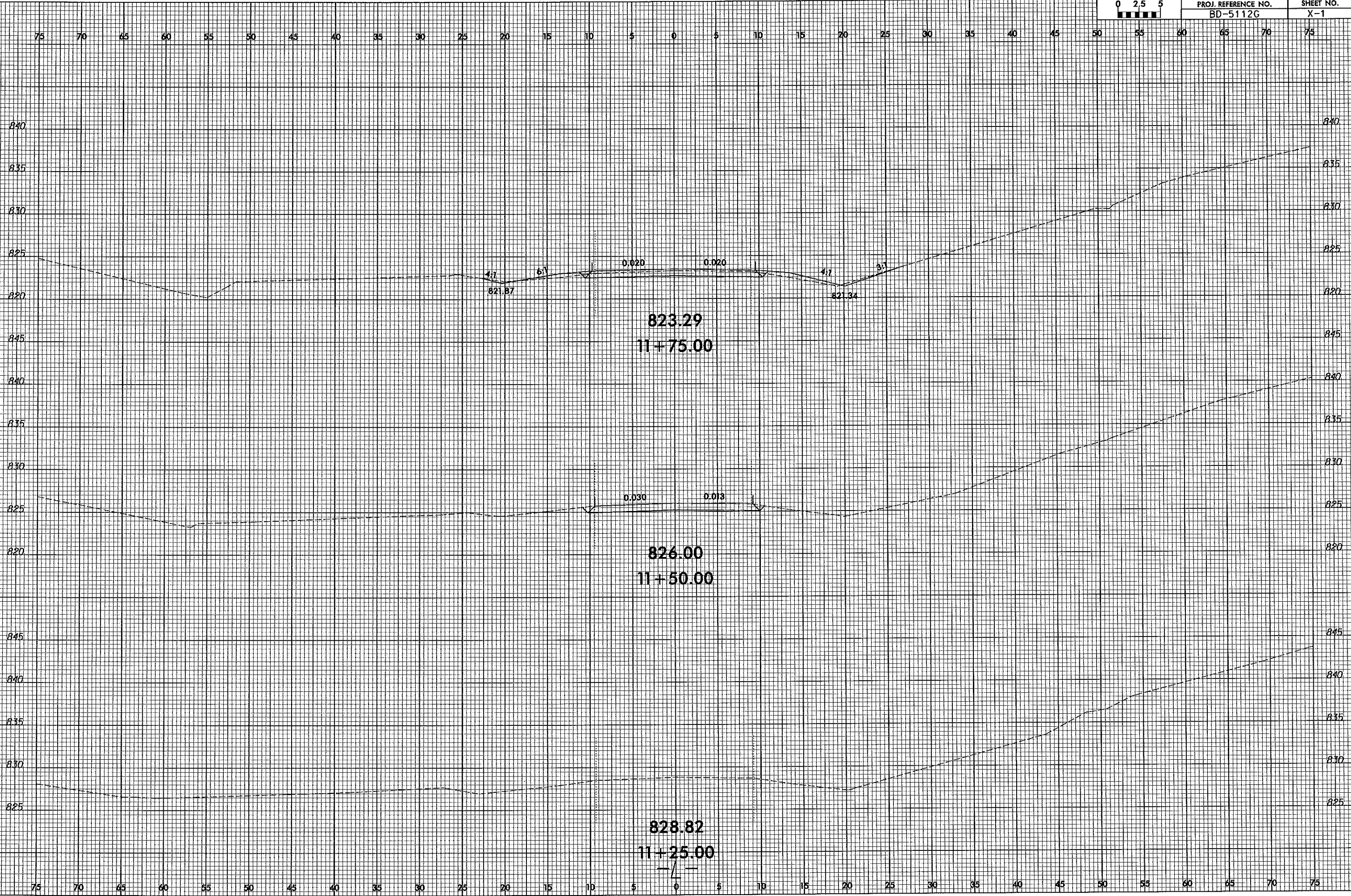


SECTION B-B

*T = 12" MIN., 18" MAX.

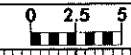
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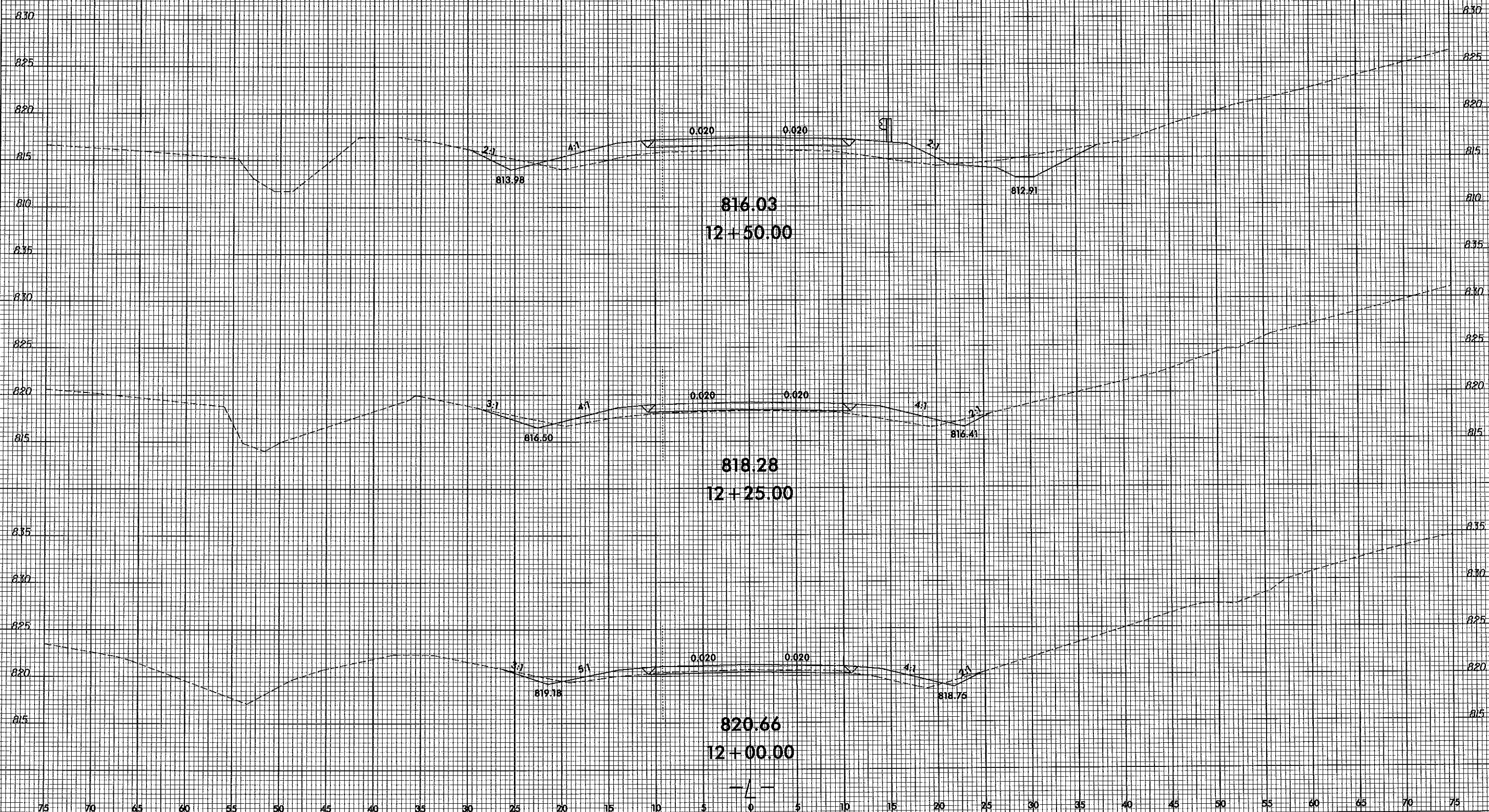
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PROJ. REFERENCE NO.
BD-5112G

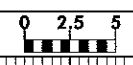
SHEET NO.
X-2

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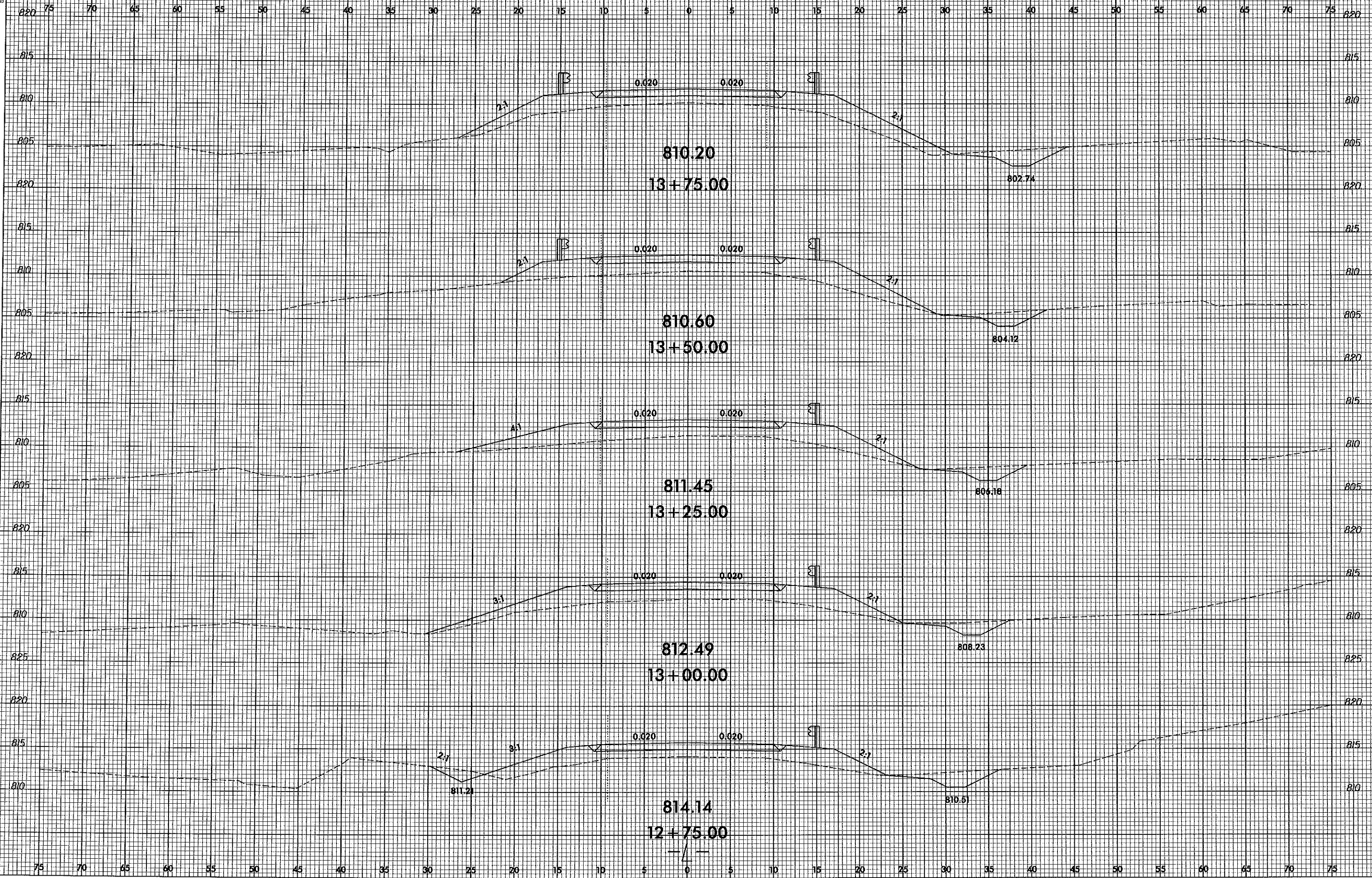
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8/23/99



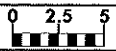
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SHEET NO.
X-3



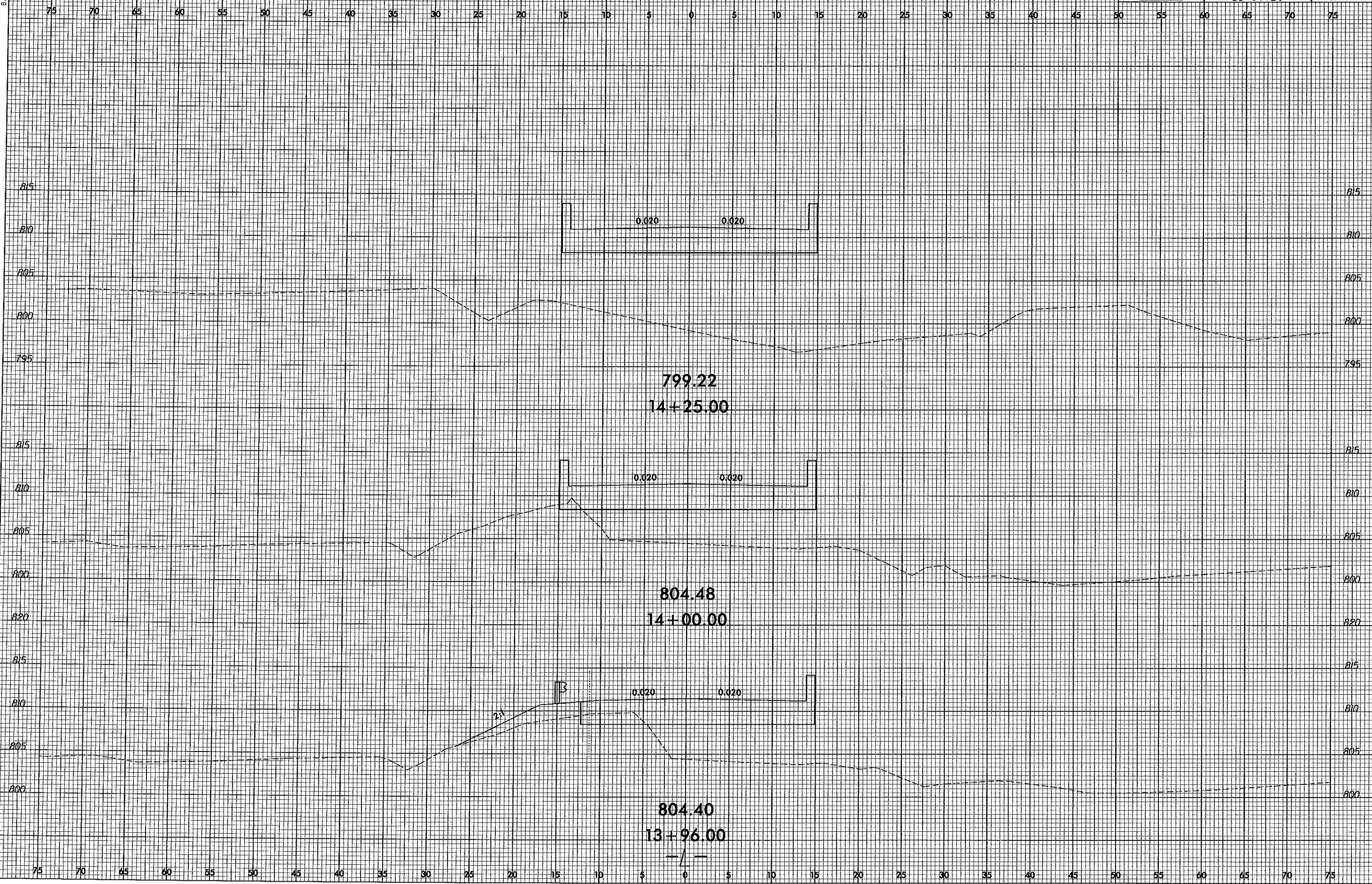
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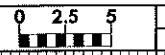
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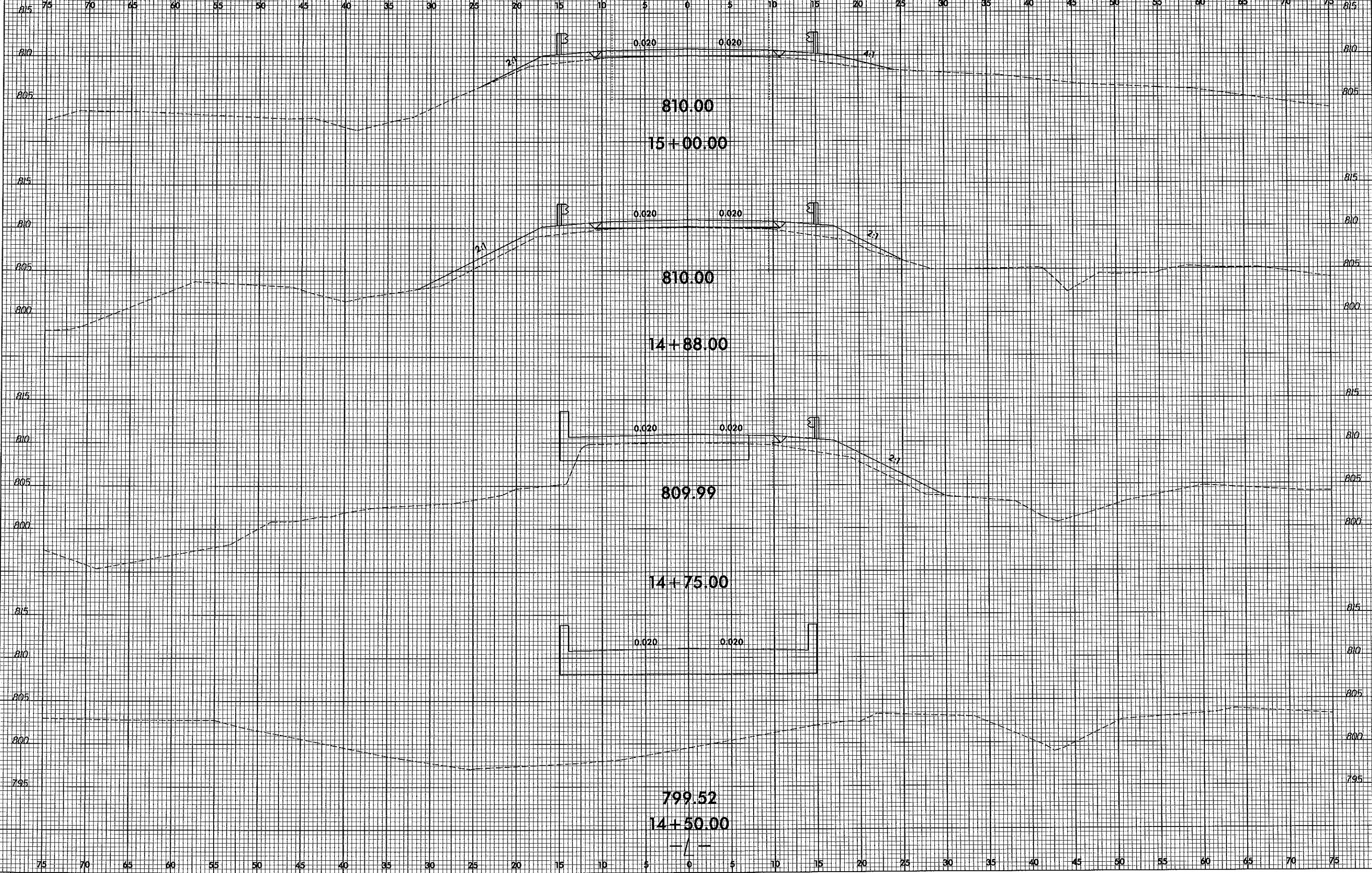
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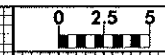
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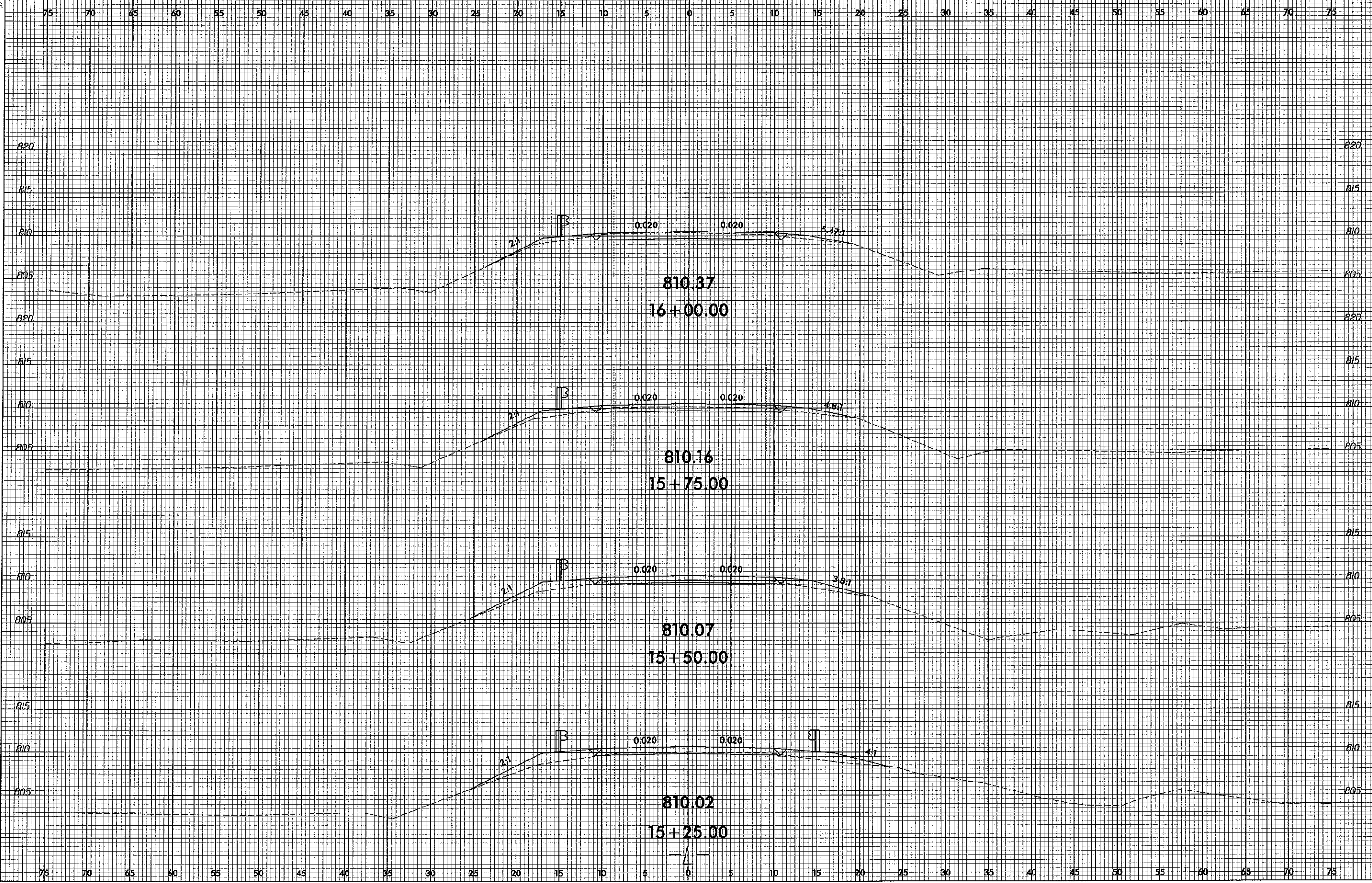
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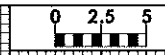
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X-6



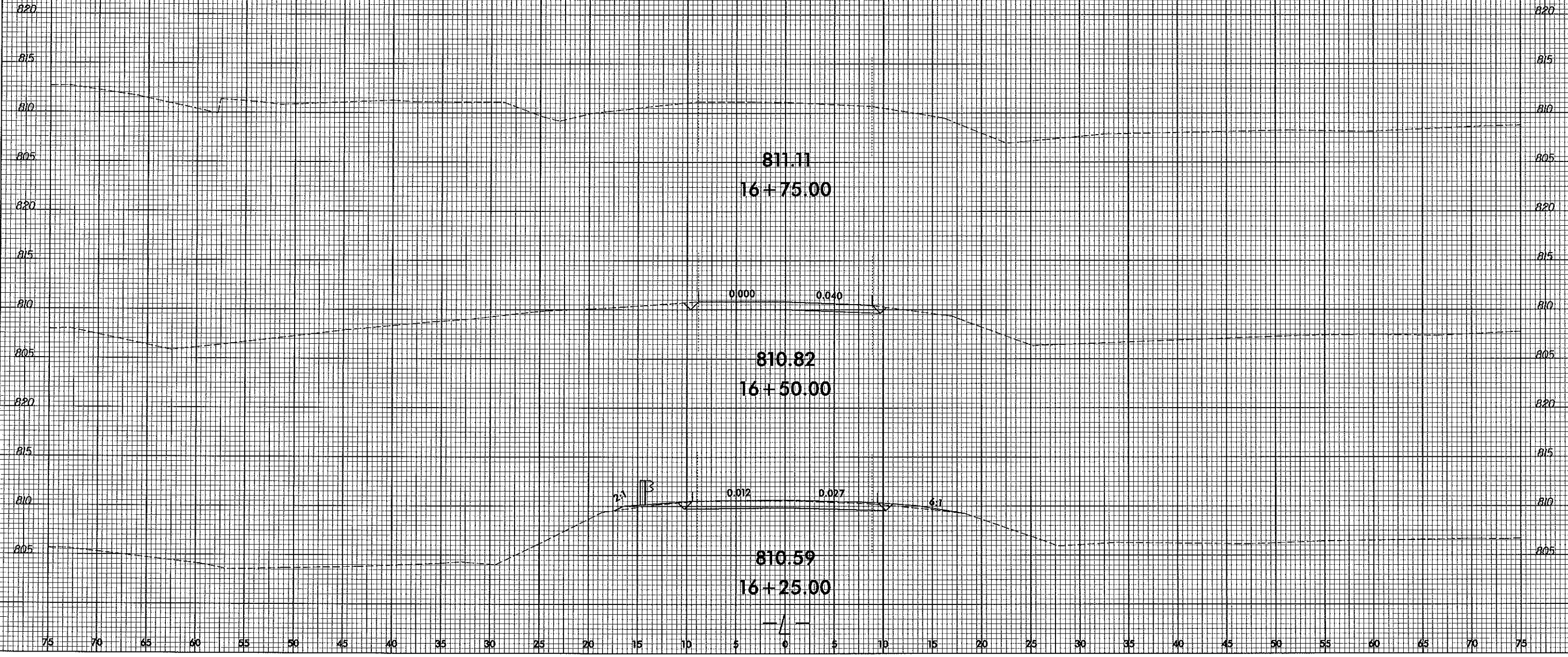
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PROJ. REFERENCE NO. BD-5112G	SHEET NO. X-7
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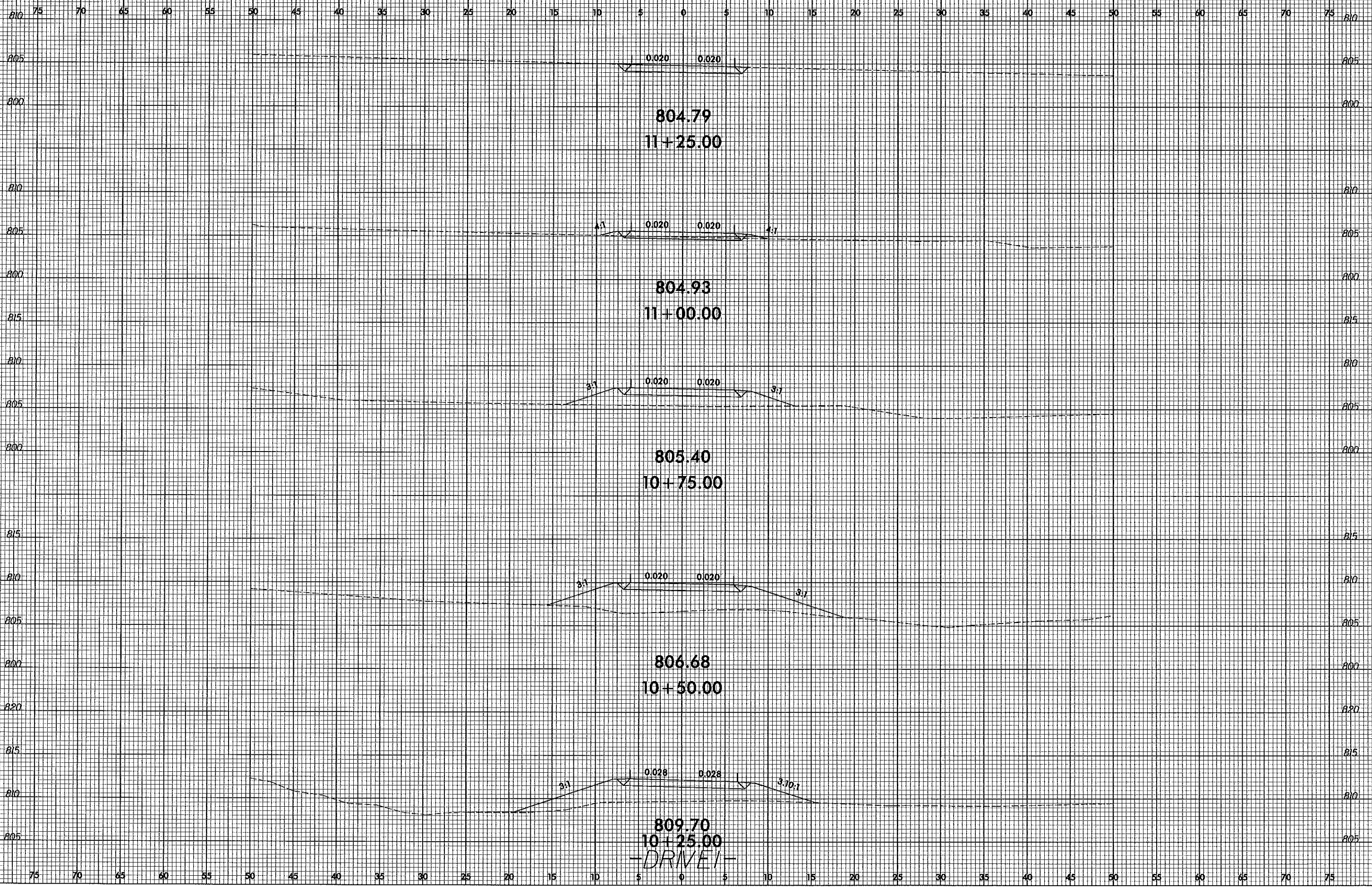


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B.223/99



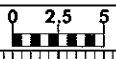
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BD-5112G	X-8



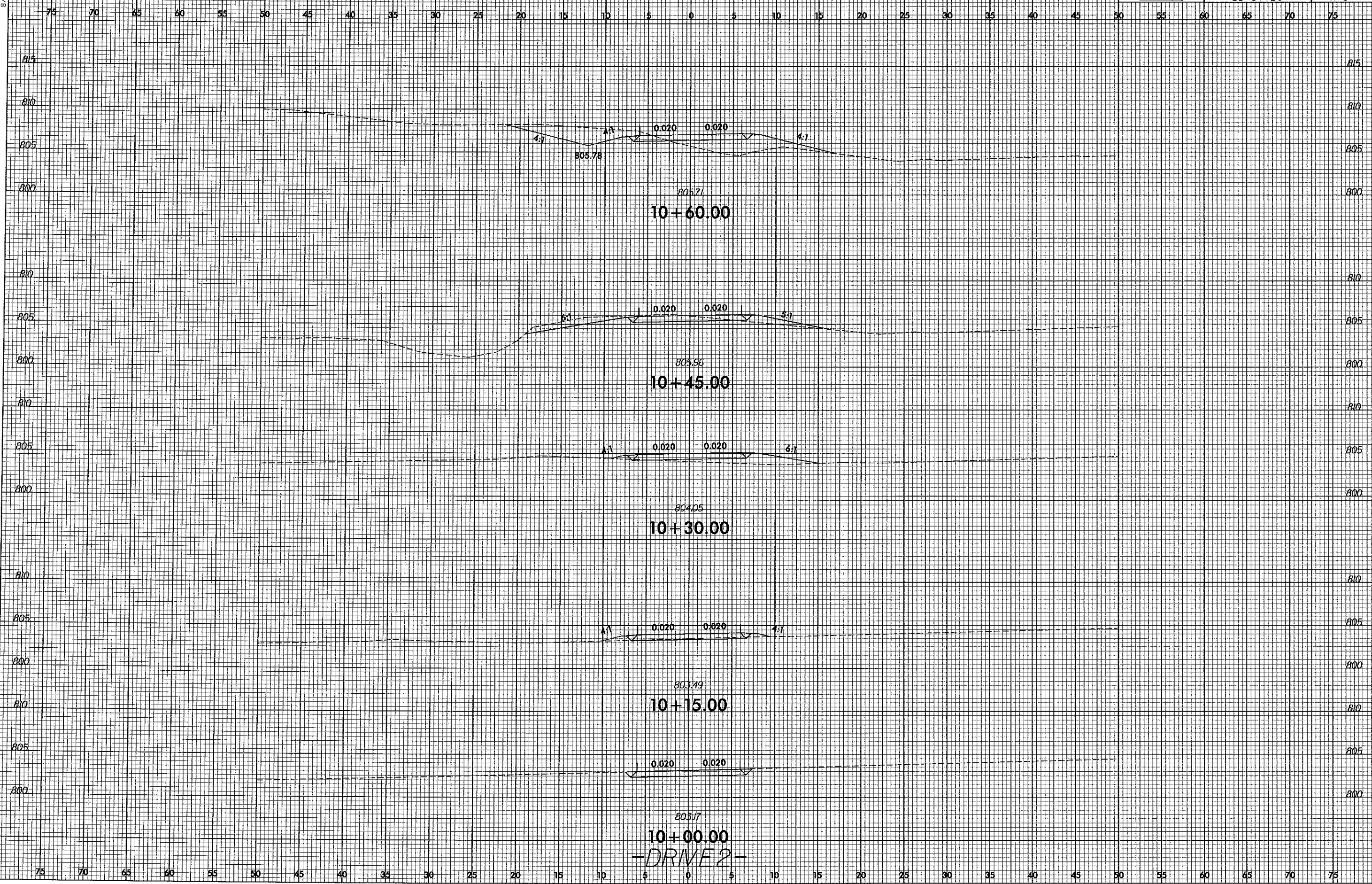
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3/9/2012
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8/23/99

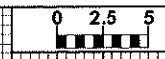


PROJ. REFERENCE NO.	SHEET NO.
BD-5112G	X-9



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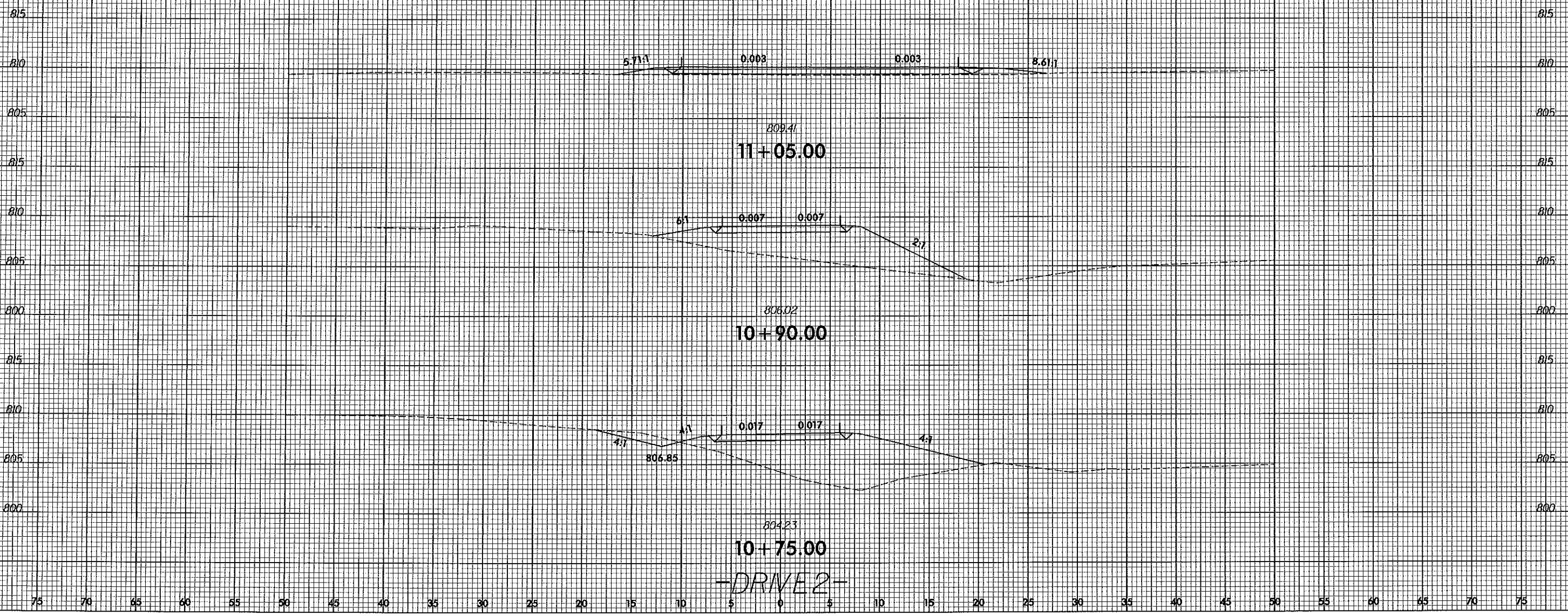
8/23/99



PROJ REFERENCE NO.
BD-5112G

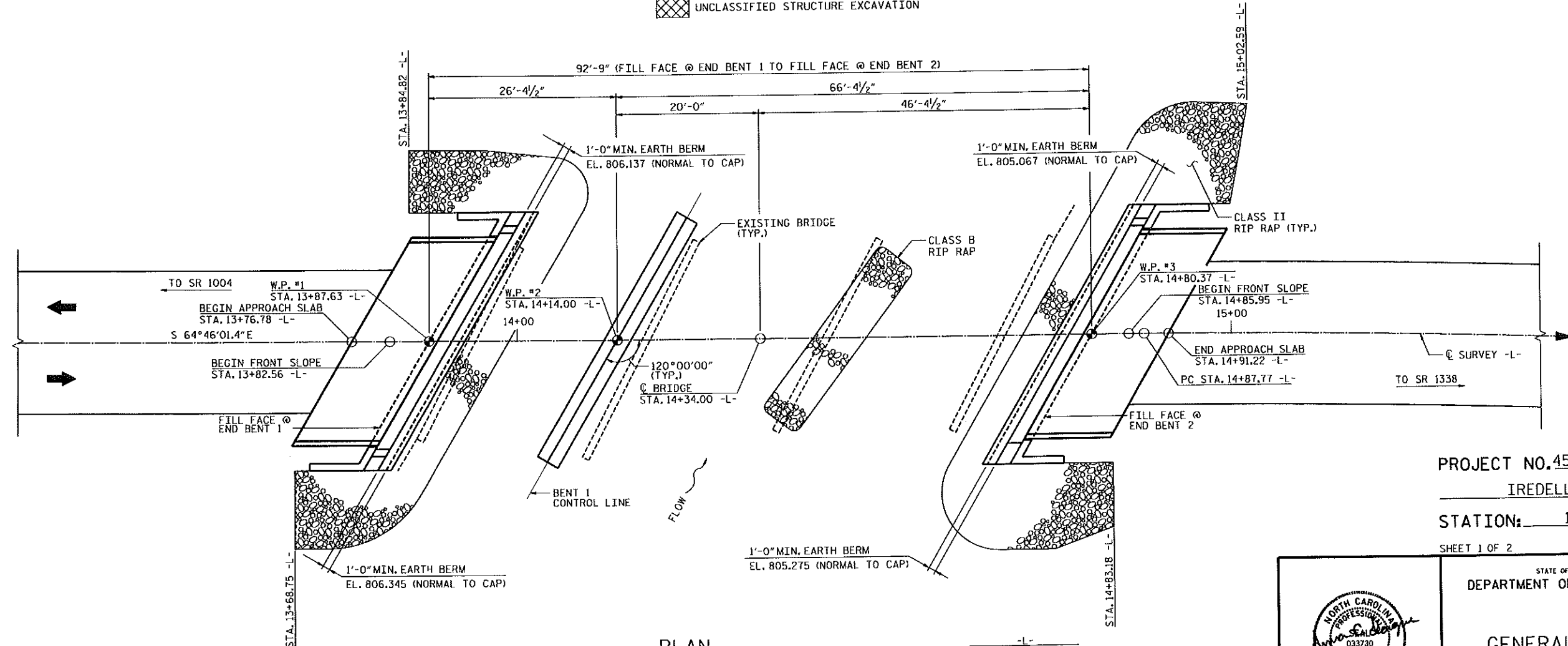
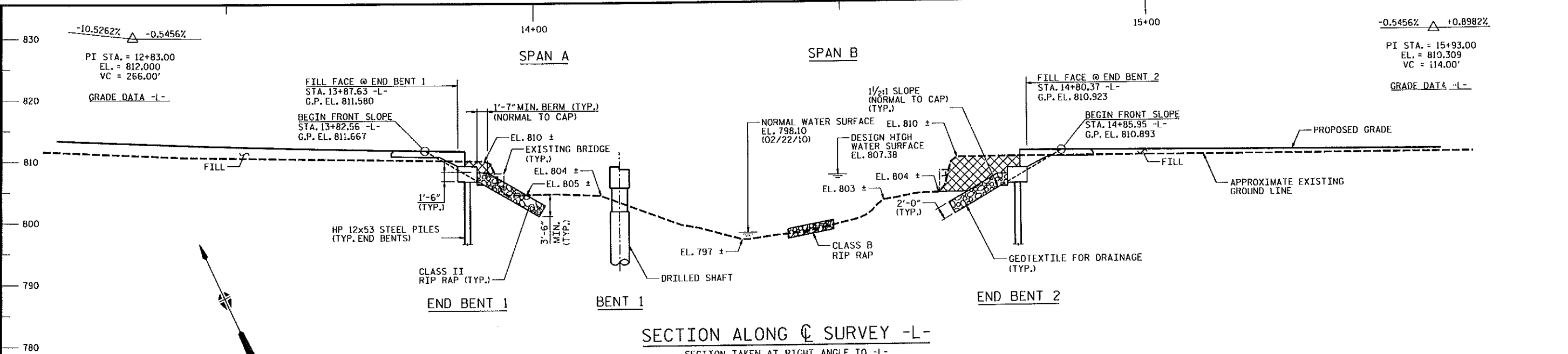
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X-10

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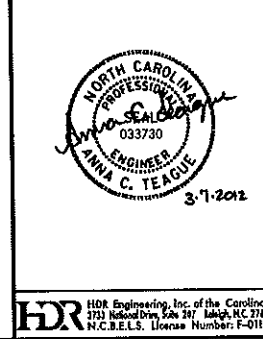
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 FILE: North Carolina Dept. of Transportation\NCDOT_BM.LSC.Task.Order.1\NCDOT_Division-12\12\12\Structure\BD-5112G\Structure\CAD\BD-5112G_SD_GD_01.dgn



-L-
 PI STA. = 16+13.51
 Δ = 9° 06' 01.1" (RT)
 D = 3° 37' 34.7"
 L = 250.95'
 T = 125.74'
 R = 1580.00'

PROJECT NO. 45358.1.7 (BD-5112G)
 IREDELL COUNTY
 STATION: 14+34.00 -L-
 SHEET 1 OF 2 REPLACES BRIDGE NO. 79



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
BRIDGE ON SR 1337 OVER BACK CREEK					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			2		
					SHEET NO. S-1
					TOTAL SHEETS 18

DRAWN BY: M. SELLS DATE: 11/11
 CHECKED BY: A. TEAGUE DATE: 11/11

BENCHMARK: BRIDGE SPIKE IN BASE OF 15" POPLAR TREE, 61.27' LT. OF STA. 15+03.02 -L-, EL. = 804.71'

HYDRAULIC DATA

DESIGN DISCHARGE = 2000 CFS
 FREQUENCY OF DESIGN FLOOD = 25 YR
 DESIGN HIGH WATER ELEVATION = 807.38
 DRAINAGE AREA = 8.14 SQ. MI.
 BASE DISCHARGE (Q100) = 2827 CFS
 BASE HIGH WATER ELEVATION = 808.81

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 5800 CFS
 FREQUENCY OF OVERTOPPING FLOOD = > 500 YR
 OVERTOPPING FLOOD ELEVATION = 810.50

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SM.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR CURING CONCRETE, SEE SECTION 420 OF THE STANDARD SPECIFICATIONS.
 FOR VERTICAL BARRIER RAIL, SEE SECTION 460 OF THE STANDARD SPECIFICATIONS.
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 20 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 THE EXISTING STRUCTURE CONSISTING OF 3 SPANS (2 @ 25'-3", 1 @ 25'-0") WITH A TIMBER DECK ON I-BEAMS AND A CLEAR ROADWAY OF 24'-1" ON TIMER CAPS AND PILES AND TIMBER BULKHEADS, AND LOCATED AT THE PROPOSED SITE SHALL BE REMOVED.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 780.0 FT. THE SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
 SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
 CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
 SPT MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SPT. FOR SPT TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 95 TONS PER PILE.
 DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 158 TONS PER PILE.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 FOR PRESTRESSED CONCRETE MEMBERS, SEE SECTION 1078 OF THE STANDARD SPECIFICATIONS.
 ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, 'EVALUATING SCOUR AT BRIDGES', MAY, 2001.
 INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR 'REMOVAL OF EXISTING STRUCTURE AT STATION 14+34.00 -L-'.
 FOR UTILITY INFORMATION, SEE ROADWAY PLANS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	3'-0" DIA. DRILLED PIERS IN SOIL	3'-0" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" DIA. DRILLED PIER	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL			
	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.			
SUPERSTRUCTURE												
END BENT NO. 1							14.7		2218			
BENT NO. 1		61.5	27.0	34.83	1		16.7		9694			
END BENT NO. 2							14.9		2218			
BANK STABILIZATION												
TOTAL	LUMP SUM	61.5	27.0	34.83	1	LUMP SUM	46.3	LUMP SUM	14130			
	SPIRAL COLUMN REINFORCING STEEL	HP 12 x 53 STEEL PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS B (2'-0" THICK)	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS			
	LBS.	NO.	LIN. FT.	LIN. FT.	TONS	TONS	SO. YDS.	LUMP SUM	NO.	LIN. FT.	NO.	LIN. FT.
SUPERSTRUCTURE				180.58					10	250.0	10	650.0
END BENT NO. 1		5	140		60	65						
BENT NO. 1	1715											
END BENT NO. 2		5	125		75	85						
BANK STABILIZATION					20	25						
TOTAL	1715	10	265	180.58	20	135	175	LUMP SUM	10	250.0	10	650.0

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 60 TONS PER PILE.
 DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE.
 FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
 DRILLED PIERS AT BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 355.0 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 60.0 TSF.
 PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT NO. 1. IF REQUIRED, DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 790.5 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT CASINGS.
 INSTALL DRILLED PIERS AT BENT NO. 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 775.0 FT. (LT), 772.5 FT. (CT) AND 770.0 FT. (RT); SATISFY THE REQUIRED TIP RESISTANCE AND HAVE A PENETRATION OF AT LEAST 6 FT. INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. 45358.1.7 (BD-5112G)

IREDELL COUNTY

STATION: 14+34.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

BRIDGE ON SR 1337
 OVER BACK CREEK

REVISIONS						SHEET NO. S-2 TOTAL SHEETS 18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

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 USER: meells
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 TIME: 8:56:03 AM
 DATE: 3/7/2012

DRAWN BY: M. SELLS DATE: 11/11
 CHECKED BY: A. TEAGUE DATE: 11/11

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.208	--	1.75	0.257	2.83	25'	EL	11.923	0.659	1.21	25'	EL	1.192	0.80	0.257	2.60	25'	EL	11.923		
	HL-93(0pr)	N/A	--	1.565	--	1.35	0.257	3.66	25'	EL	11.923	0.659	1.57	25'	EL	1.192	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.402	50.457	1.75	0.257	4.17	25'	EL	11.923	0.659	1.4	25'	EL	1.192	0.80	0.257	3.85	25'	EL	11.923		
	HS-20(0pr)	36.000	--	1.817	65.407	1.35	0.257	5.41	25'	EL	11.923	0.659	1.82	25'	EL	1.192	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.24	43.746	1.4	0.257	7.59	25'	EL	11.923	0.659	3.24	25'	EL	1.192	0.80	0.257	5.59	25'	EL	11.923	
		SNGARBS2	20.000	--	2.6	51.994	1.4	0.257	7.1	25'	EL	11.923	0.659	2.6	25'	EL	1.192	0.80	0.257	5.24	25'	EL	11.923	
		SNAGRIS2	22.000	--	2.548	56.063	1.4	0.257	7.59	25'	EL	11.923	0.659	2.55	25'	EL	1.192	0.80	0.257	5.59	25'	EL	11.923	
		SNCOTTS3	27.250	--	1.645	44.82	1.4	0.257	3.98	25'	EL	11.923	0.659	1.64	25'	EL	1.192	0.80	0.257	2.93	25'	EL	11.923	
		SNACGRS4	34.925	--	1.585	55.347	1.4	0.257	3.96	25'	EL	11.923	0.659	1.58	25'	EL	1.192	0.80	0.257	2.92	25'	EL	11.923	
		SNS5A	35.550	--	1.655	58.841	1.4	0.257	3.85	25'	EL	11.923	0.659	1.66	25'	EL	1.192	0.80	0.257	2.82	25'	EL	11.923	
		SNS6A	39.950	--	1.588	63.45	1.4	0.257	3.6	25'	EL	11.923	0.659	1.59	25'	EL	1.192	0.80	0.257	2.66	25'	EL	11.923	
	SNS7B	42.000	--	1.599	67.158	1.4	0.257	3.6	25'	EL	11.923	0.659	1.6	25'	EL	1.192	0.80	0.257	2.64	25'	EL	11.923		
	TTST	TNAGRIT3	33.000	--	1.948	64.275	1.4	0.257	5.09	25'	EL	11.923	0.659	1.95	25'	EL	1.192	0.80	0.257	3.75	25'	EL	11.923	
		TNT4A	33.075	--	1.764	58.347	1.4	0.257	4.4	25'	EL	11.923	0.659	1.76	25'	EL	1.192	0.80	0.257	3.25	25'	EL	11.923	
		TNT6A	41.600	--	1.662	69.142	1.4	0.257	4.13	25'	EL	11.923	0.659	1.66	25'	EL	1.192	0.80	0.257	3.05	25'	EL	11.923	
		TNT7A	42.000	--	1.657	69.603	1.4	0.257	4.28	25'	EL	11.923	0.659	1.66	25'	EL	1.192	0.80	0.257	3.15	25'	EL	11.923	
		TNT7B	42.000	--	1.598	67.097	1.4	0.257	3.85	25'	EL	11.923	0.659	1.6	25'	EL	1.192	0.80	0.257	2.84	25'	EL	11.923	
		TNAGRIT4	43.000	--	1.595	68.603	1.4	0.257	4.14	25'	EL	11.923	0.659	1.6	25'	EL	1.192	0.80	0.257	3.04	25'	EL	11.923	
		TNAGT5A	45.000	--	1.625	73.143	1.4	0.257	4.14	25'	EL	11.923	0.659	1.63	25'	EL	1.192	0.80	0.257	3.04	25'	EL	11.923	
TNAGT5B		45.000	3	1.476	66.434	1.4	0.257	4.08	25'	EL	9.538	0.659	1.48	25'	EL	1.192	0.80	0.257	3.02	25'	EL	9.538		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	Y _{DC}	Y _{OW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

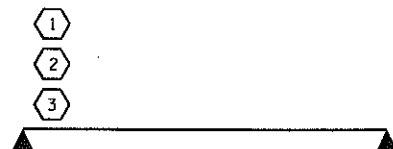
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY
FOR SPAN 'A'

PROJECT NO. BD-5112G
IREDELL COUNTY
STATION: 14+34.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
25' CORED SLAB UNIT
60° SKEW & 120° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-3
1			3			TOTAL
2			4			18

ASSEMBLED BY : B.C. HUNT DATE : 1/2012
CHECKED BY : B. N. GRADY DATE : 2/2012
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

22-FEB-2012 14:24
R:\Structures\Plans\B05112G.S0.LR.01.dgn
LSUITON

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE										COMMENT NUMBER
						MOMENT					SHEAR					MOMENT										
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)				
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.013	--	1.75	0.248	1.16	65'	EL	31.923	0.652	1.01	65'	EL	6.385	0.80	0.248	1.12	65'	EL	31.923				
	HL-93(0pr)	N/A	--	1.313	--	1.35	0.248	1.5	65'	EL	31.923	0.652	1.31	65'	EL	6.385	N/A	--	--	--	--	--				
	HS-20(Inv)	36.000	2	1.246	44.865	1.75	0.248	1.48	65'	EL	31.923	0.652	1.25	65'	EL	6.385	0.80	0.248	1.44	65'	EL	31.923				
	HS-20(0pr)	36.000	--	1.616	58.159	1.35	0.248	1.92	65'	EL	31.923	0.652	1.62	65'	EL	6.385	N/A	--	--	--	--	--				
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.163	42.696	1.4	0.248	4.07	65'	EL	31.923	0.652	3.64	65'	EL	6.385	0.80	0.248	3.16	65'	EL	31.923			
		SNGARBS2	20.000	--	2.395	47.893	1.4	0.248	3.08	65'	EL	31.923	0.652	2.61	65'	EL	6.385	0.80	0.248	2.39	65'	EL	31.923			
		SNAGRIS2	22.000	--	2.284	50.247	1.4	0.248	2.94	65'	EL	31.923	0.652	2.43	65'	EL	6.385	0.80	0.248	2.28	65'	EL	31.923			
		SNCOTTS3	27.250	--	1.575	42.917	1.4	0.248	2.03	65'	EL	31.923	0.652	1.82	65'	EL	6.385	0.80	0.248	1.57	65'	EL	31.923			
		SNAGGRS4	34.925	--	1.331	46.469	1.4	0.248	1.71	65'	EL	31.923	0.652	1.53	65'	EL	6.385	0.80	0.248	1.33	65'	EL	31.923			
		SNS5A	35.550	--	1.3	46.22	1.4	0.248	1.67	65'	EL	31.923	0.652	1.55	65'	EL	6.385	0.80	0.248	1.30	65'	EL	31.923			
		SNS6A	39.950	--	1.199	47.899	1.4	0.248	1.54	65'	EL	31.923	0.652	1.42	65'	EL	6.385	0.80	0.248	1.20	65'	EL	31.923			
		SNS7B	42.000	--	1.142	47.965	1.4	0.248	1.47	65'	EL	31.923	0.652	1.4	65'	EL	6.385	0.80	0.248	1.14	65'	EL	31.923			
	TTST	TNAGRIT3	33.000	--	1.464	48.309	1.4	0.248	1.89	65'	EL	31.923	0.652	1.69	65'	EL	6.385	0.80	0.248	1.46	65'	EL	31.923			
		TNT4A	33.075	--	1.472	48.688	1.4	0.248	1.9	65'	EL	31.923	0.652	1.64	65'	EL	6.385	0.80	0.248	1.47	65'	EL	31.923			
		TNT6A	41.600	--	1.209	50.315	1.4	0.248	1.56	65'	EL	31.923	0.652	1.51	65'	EL	6.385	0.80	0.248	1.21	65'	EL	31.923			
		TNT7A	42.000	--	1.219	51.186	1.4	0.248	1.57	65'	EL	31.923	0.652	1.46	65'	EL	6.385	0.80	0.248	1.22	65'	EL	31.923			
		TNT7B	42.000	--	1.269	53.286	1.4	0.248	1.63	65'	EL	31.923	0.652	1.37	65'	EL	6.385	0.80	0.248	1.27	65'	EL	31.923			
		TNAGRIT4	43.000	--	1.201	51.645	1.4	0.248	1.55	65'	EL	31.923	0.652	1.32	65'	EL	6.385	0.80	0.248	1.20	65'	EL	31.923			
		TNAGT5A	45.000	--	1.13	50.836	1.4	0.248	1.45	65'	EL	31.923	0.652	1.32	65'	EL	6.385	0.80	0.248	1.13	65'	EL	31.923			
		TNAGT5B	45.000	3	1.114	50.113	1.4	0.248	1.43	65'	EL	31.923	0.652	1.25	65'	EL	6.385	0.80	0.248	1.11	65'	EL	31.923			

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

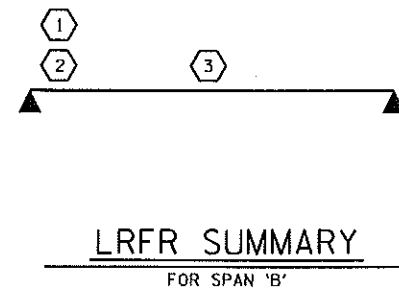
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
 EL - EXTERIOR LEFT GIRDER
 ER - EXTERIOR RIGHT GIRDER



PROJECT NO. BD-5112G
IREDELL COUNTY
 STATION: 14+34.00 -L-

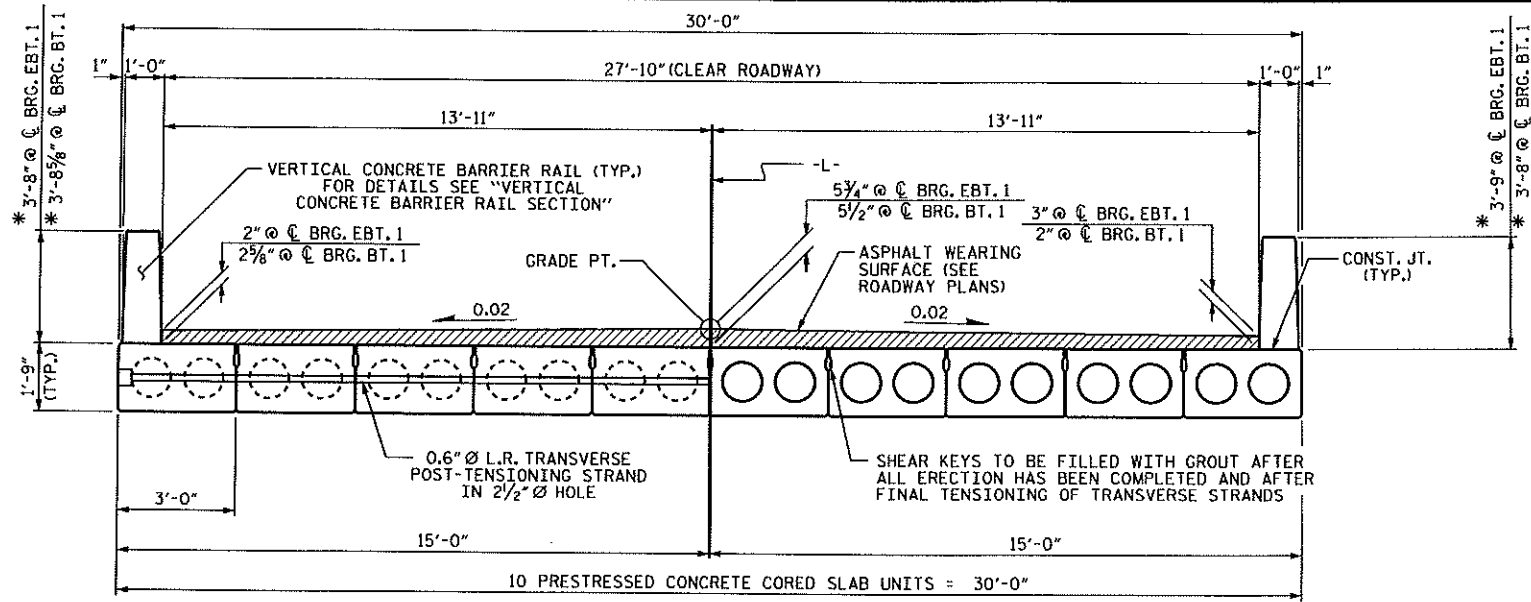
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 LRFR SUMMARY FOR
 65' CORED SLAB UNIT
 60° SKEW & 120° SKEW
 (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			18



ASSEMBLED BY : B.C. HUNT DATE : 1/2012
 CHECKED BY : B. N. GRADY DATE : 2/2012
 DRAWN BY : CVC 6/10
 CHECKED BY : DNS 6/10

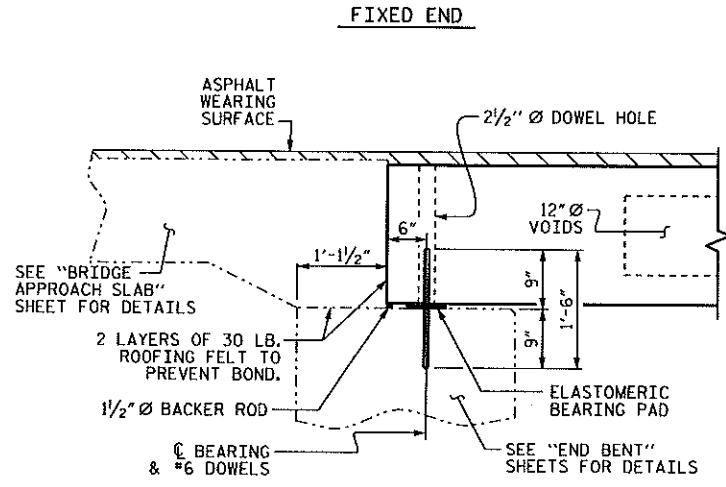


HALF SECTION AT INTERMEDIATE DIAPHRAGMS

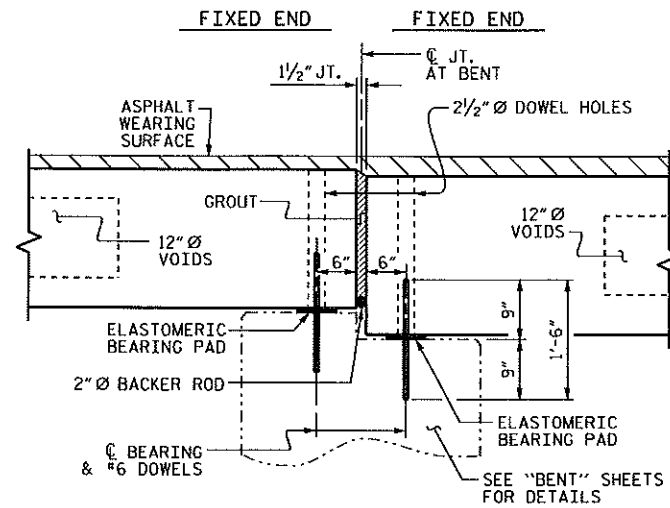
HALF SECTION THROUGH VOIDS

TYPICAL SECTION

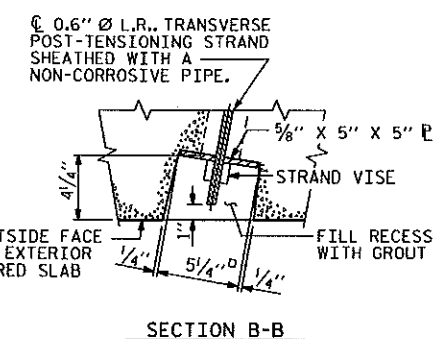
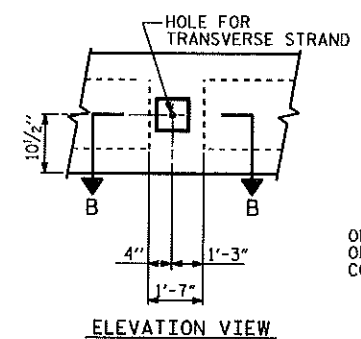
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN, THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



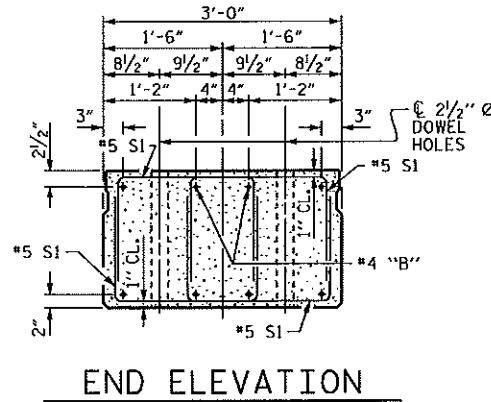
SECTION AT END BENT 1



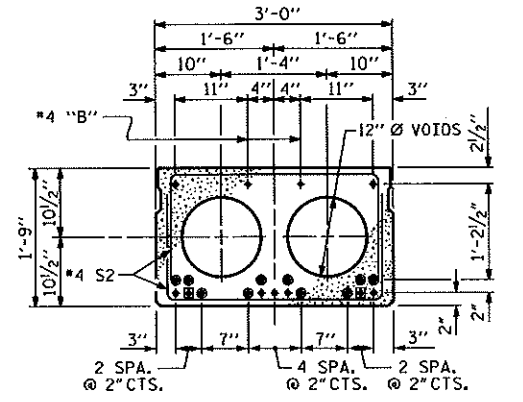
SECTION AT BENT 1



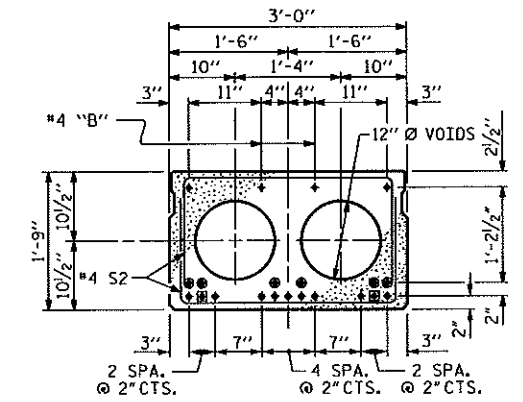
GRouted RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



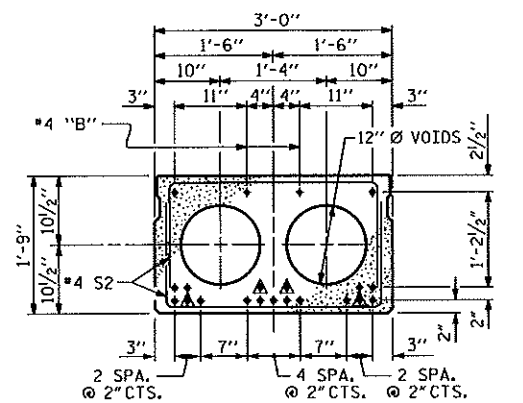
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



STRAND LAYOUT FOR 25', 30' & 35' UNIT (9 STRANDS REQUIRED)

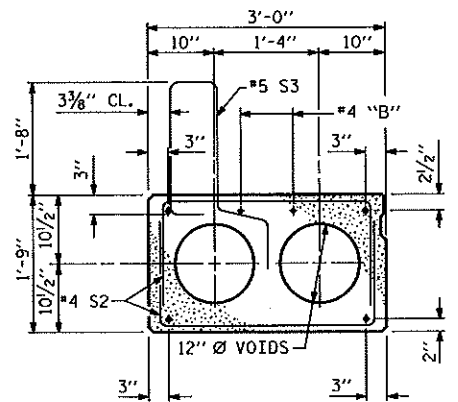


STRAND LAYOUT FOR 40' & 45' UNIT (13 STRANDS REQUIRED)



STRAND LAYOUT FOR 50' & 55' UNIT (19 STRANDS REQUIRED)

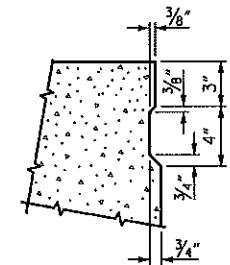
INTERIOR SLAB SECTION 0.6" Ø LOW RELAXATION



EXTERIOR SLAB SECTION (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

- ▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS, THESE STRANDS ARE NOT REQUIRED, IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

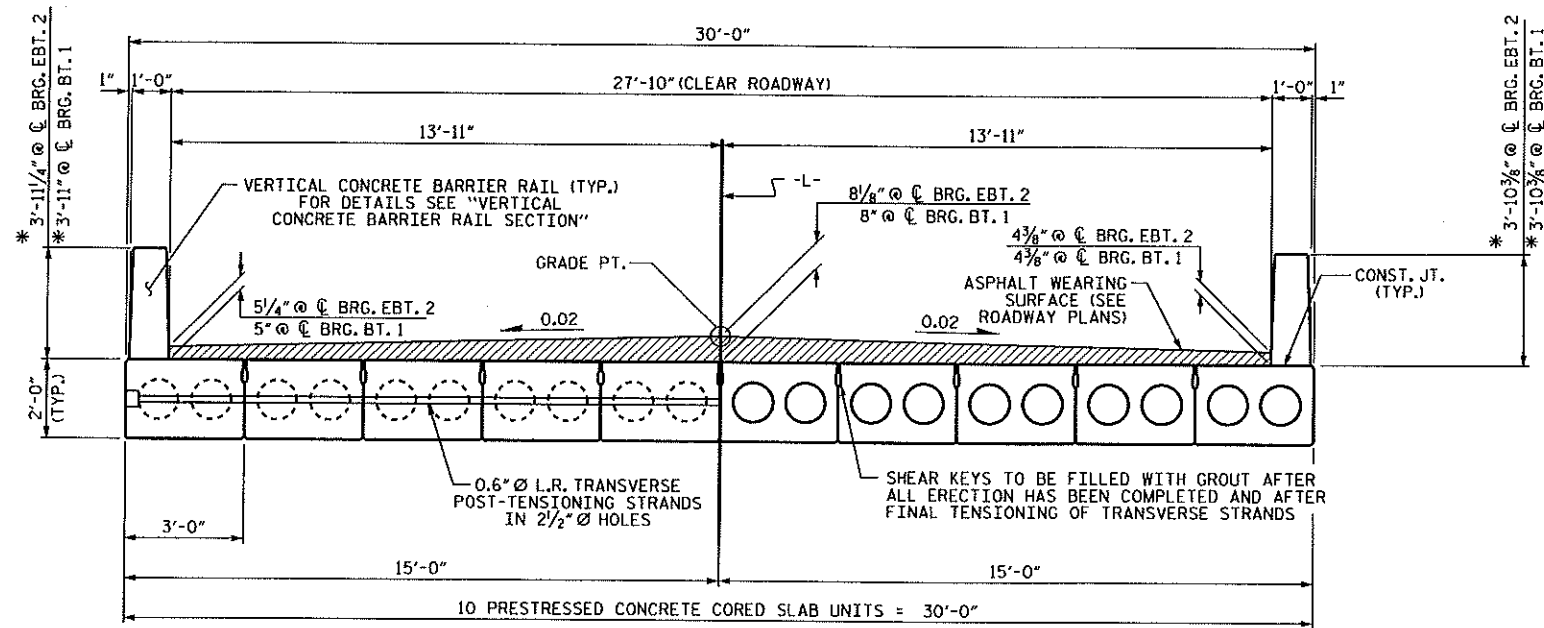
PROJECT NO. BD-5112G
IREDELL COUNTY
 STATION: 14+34.00 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA				SHEET NO.	
DEPARTMENT OF TRANSPORTATION				S-5	
RALEIGH				TOTAL SHEETS	
STANDARD				18	
3'-0" X 1'-9"					
PRESTRESSED CONCRETE					
CORED SLAB UNIT					
120° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

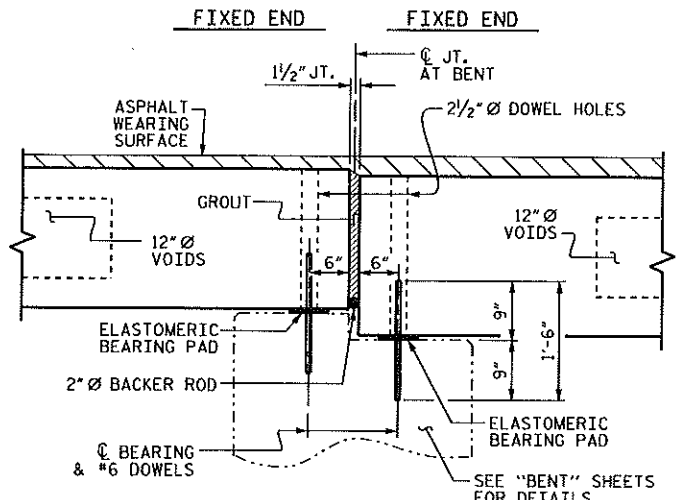


ASSEMBLED BY :	B.C. HUNT	DATE :	1/2012
CHECKED BY :	B.N. GRADY	DATE :	2/2012
DRAWN BY :	DCE	3/09	REV. 12/11
CHECKED BY :	BCH	3/09	MAA/AAC

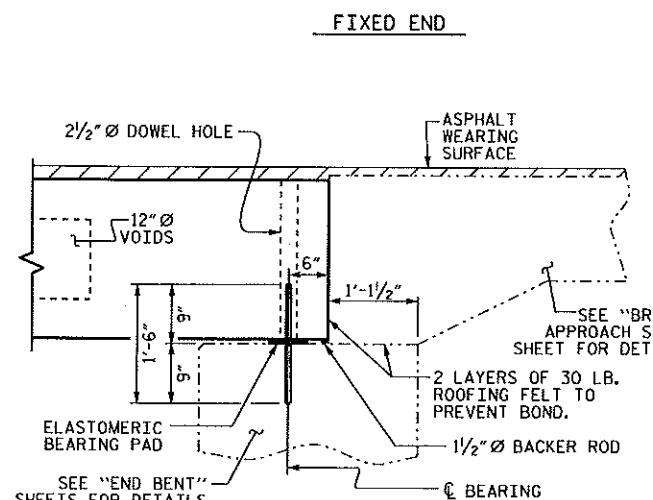


HALF SECTION AT INTERMEDIATE DIAPHRAGMS
 TYPICAL SECTION
 HALF SECTION THROUGH VOIDS

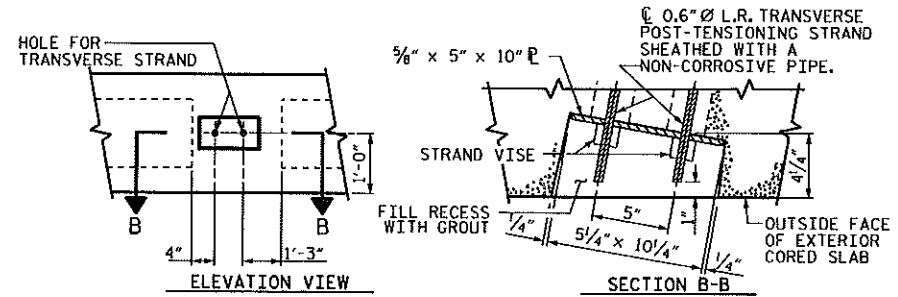
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



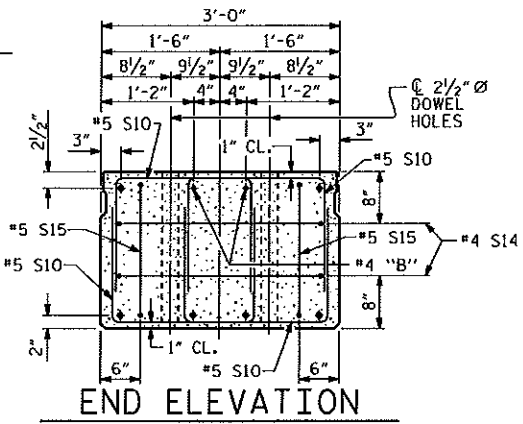
SECTION AT BENT 1



SECTION AT END BENT 2

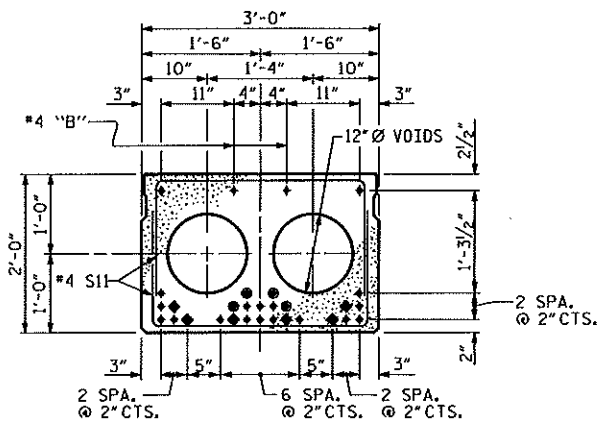


GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS

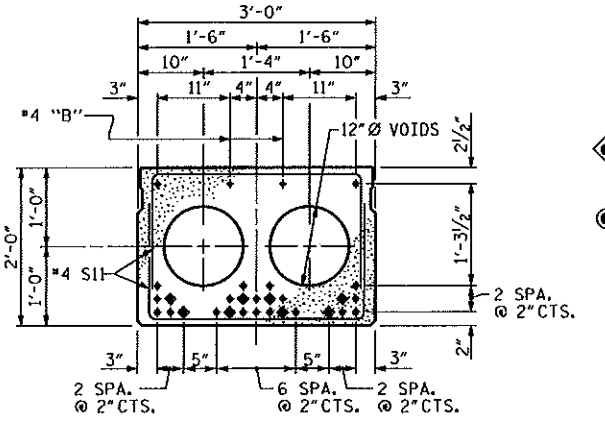


END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

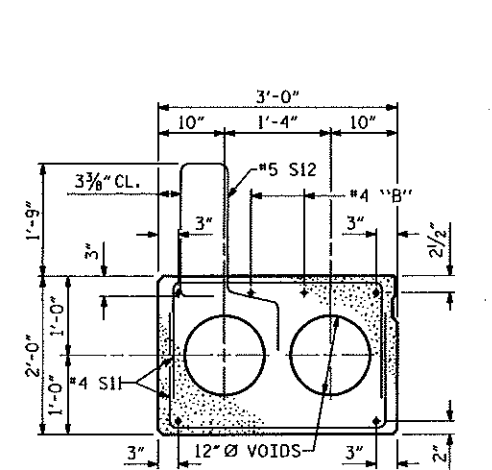


STRAND LAYOUT FOR 60' & 65' UNIT (24 STRANDS REQUIRED)



STRAND LAYOUT FOR 70' UNIT (28 STRANDS REQUIRED)

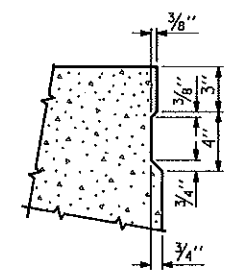
INTERIOR SLAB SECTION 0.6" Ø LOW RELAXATION



EXTERIOR SLAB SECTION (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

- ◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

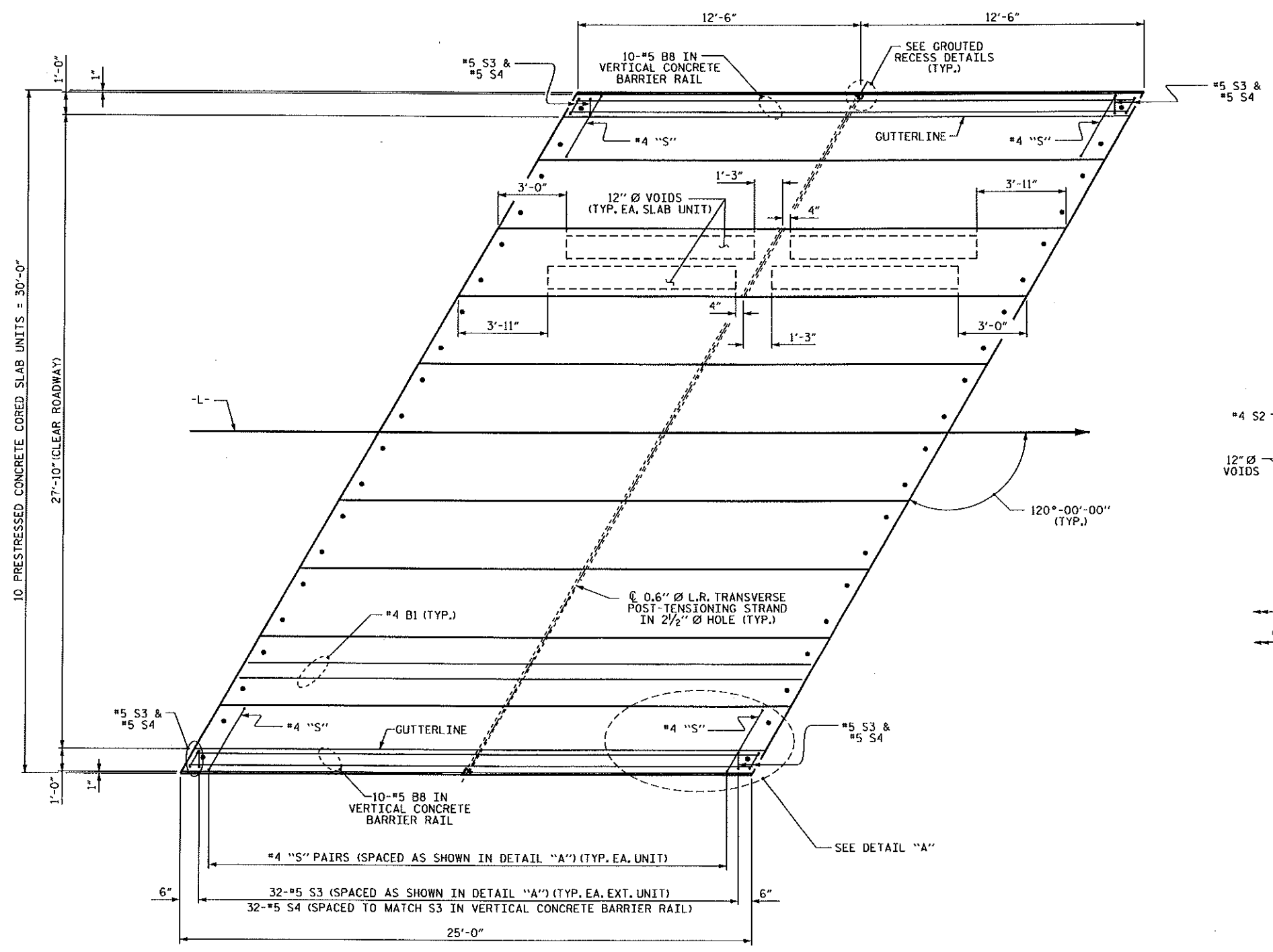
PROJECT NO. BD-5112G
 IREDELL COUNTY
 STATION: 14+34.00 -L-

SHEET 2 OF 6

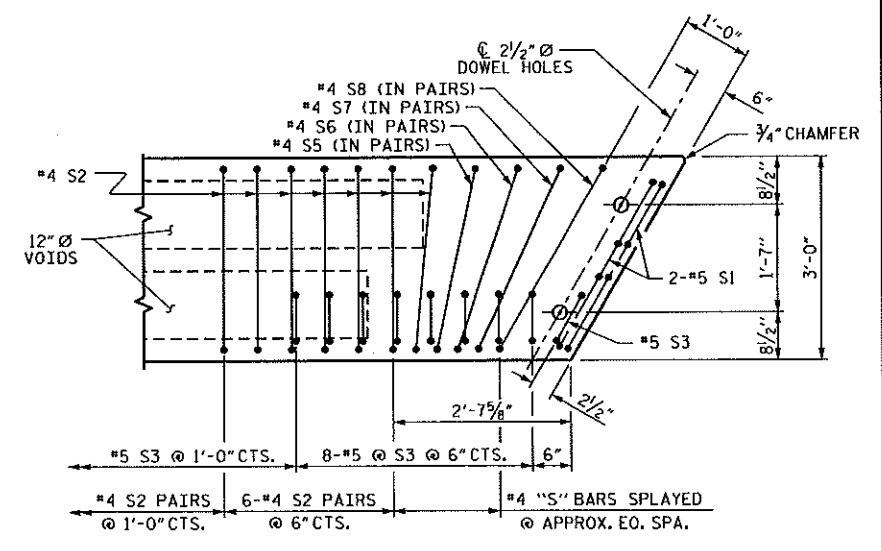
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				SHEET NO.	
STANDARD 3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT 120° SKEW				5-6	
REVISIONS				TOTAL SHEETS	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



ASSEMBLED BY: B.C. HUNT	DATE: 1/2012
CHECKED BY: B.N. GRADY	DATE: 2/2012
DRAWN BY: MAA	6/10
CHECKED BY: MKT	7/10
REV. 12/11	MAA/AAC



PLAN OF UNIT



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. BD-5112G
IREDELL COUNTY
 STATION: 14+34.00 -L-

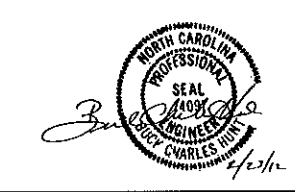
SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF 25' UNIT
 27'-10" CLEAR ROADWAY
 120° SKEW

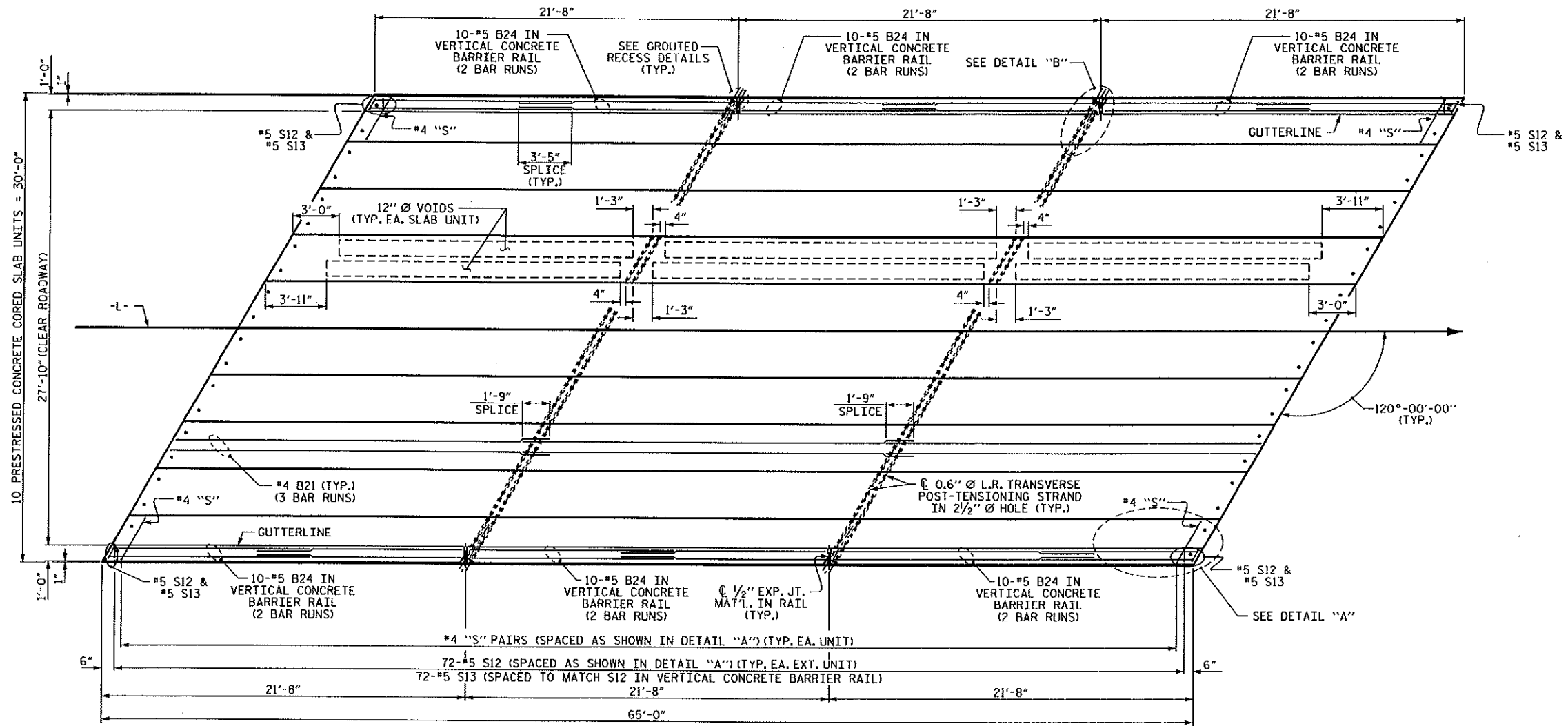
ASSEMBLED BY : B.C. HUNT	DATE : 1/2012
CHECKED BY : B.N. GRADY	DATE : 1/2012
DRAWN BY : DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09	

22-FEB-2012 14:24
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 LSUTTON

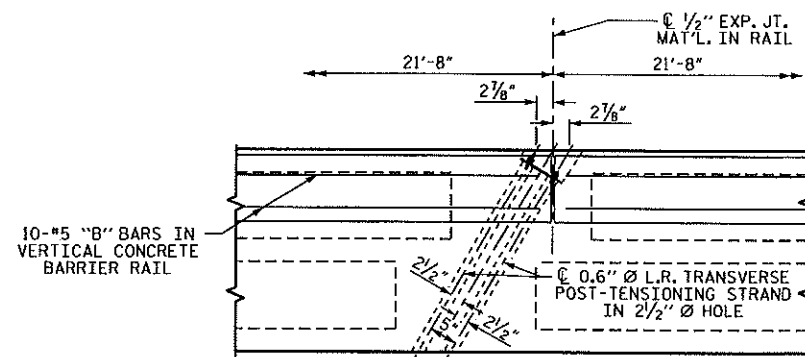


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7	
1			3			TOTAL	18
2			4				

STD. NO. 21" PCS_30_120S_25L

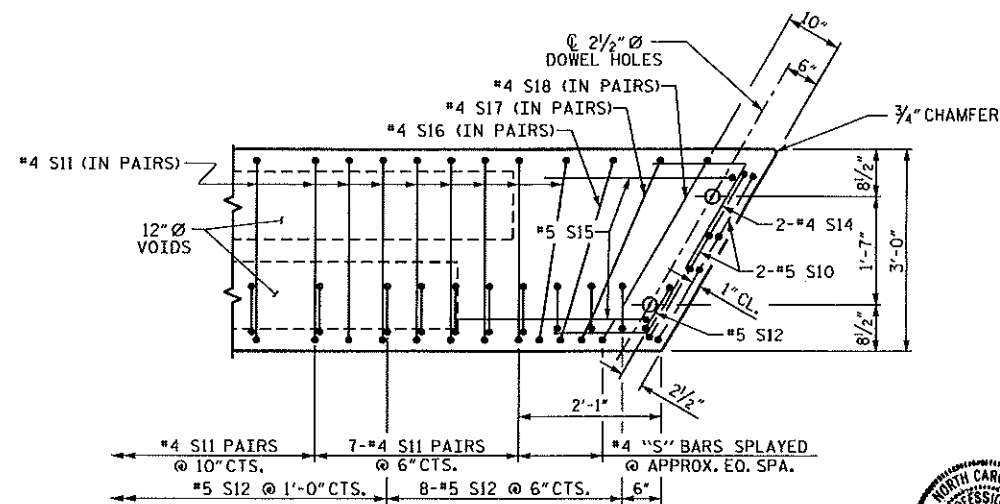


PLAN OF UNIT



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



PROJECT NO. BD-5112G
IREDELL COUNTY
 STATION: 14+34.00 -L-
 SHEET 4 OF 6

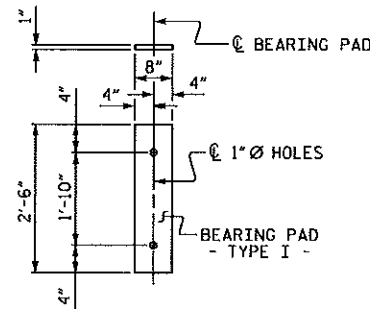
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 65' UNIT
 27'-10" CLEAR ROADWAY
 120° SKEW

ASSEMBLED BY : B.C. HUNT DATE : 1/2012
 CHECKED BY : B.N. GRADY DATE : 2/2012
 DRAWN BY : MAA 6/10
 CHECKED BY : MKT 7/10

22-FEB-2012 15:04
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 LSUTTON

REVISIONS						SHEET NO. 5-8
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 18
2			4			

STD. NO. 24PCS.30.120S.65L



FIXED END
(TYPE I - 20 REO'D)

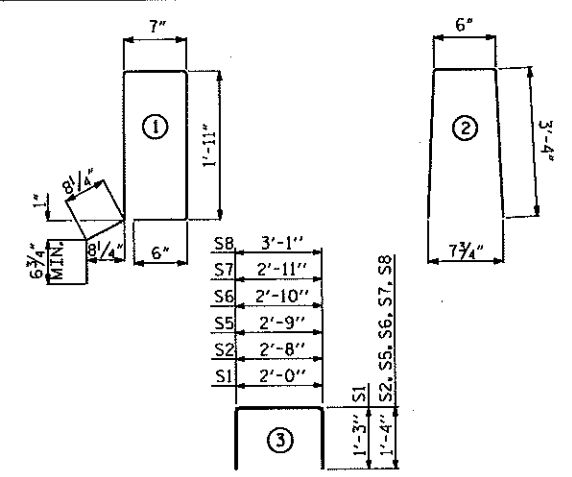
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.6" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

CORED SLABS REQUIRED			
25' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	25'-0"	50'-0"
INTERIOR C.S.	8	25'-0"	200'-0"
TOTAL	10		250'-0"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE 25' CORED SLAB UNIT

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	2	#4	STR	24'-7"	33	24'-7"	33
S1	8	#5	3	4'-6"	38	4'-6"	38
S2	52	#4	3	5'-4"	185	5'-4"	185
* S3	34	#5	1	6'-2"	219		
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-6"	15	5'-6"	15
S7	4	#4	3	5'-7"	15	5'-7"	15
S8	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL				LBS.	315		315
* EPOXY COATED REINFORCING STEEL				LBS.	219		
5000 P.S.I. CONCRETE				CU. YDS.	3.8		3.8
0.6" Ø L.R. STRANDS				No.	9		9

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
25' UNIT						
* BB	20	20	#5	STR	24'-6"	511
* S4	68	68	#5	2	7'-2"	508
* EPOXY COATED REINFORCING STEEL				LBS.		1019
CLASS AA CONCRETE				CU. YDS.		6.6
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		50.29

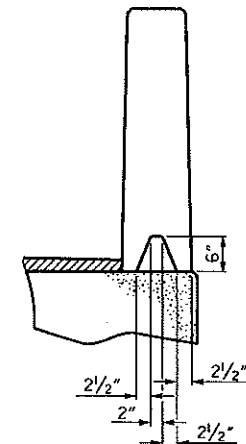
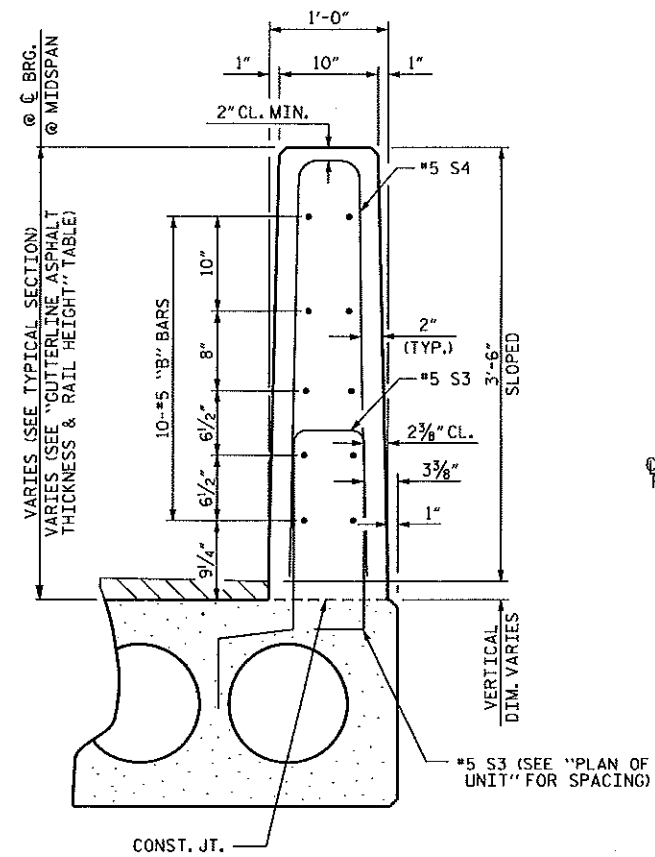
GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

27'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	Ø MID-SPAN	Ø MID-SPAN
	NORMAL CROWN SECTION	
25' UNITS	1 1/2"	3'-7 1/2"

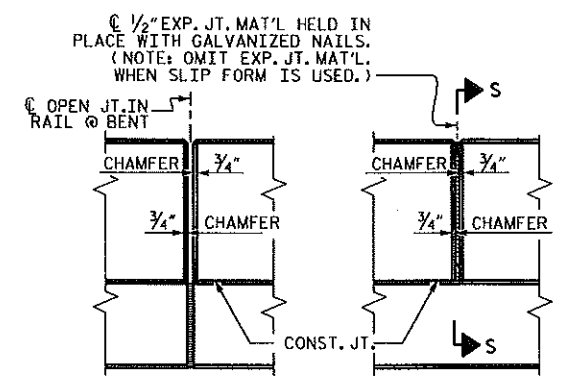
DEAD LOAD DEFLECTION AND CAMBER

25' CORED SLAB UNIT	3'-0" X 1'-9" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/2" †
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" †
FINAL CAMBER	3/8" †

** INCLUDES FUTURE WEARING SURFACE



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL SECTION

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 BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX 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.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL 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.

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 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.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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 THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

CONCRETE RELEASE STRENGTH

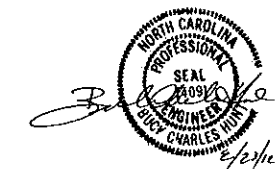
UNIT	PSI
25' UNITS	4000

PROJECT NO. BD-5112G
IREDELL COUNTY
 STATION: 14+34.00 -L-

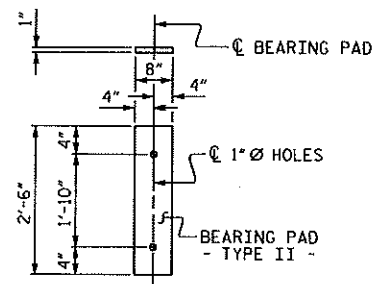
SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-9
1			3			TOTAL SHEETS 18
2			4			



ASSEMBLED BY: B.C. HUNT DATE: 1/2012
 CHECKED BY: B.N. GRADY DATE: 1/2012
 DRAWN BY: DGE 5/09 REV. 12/11 MAA/AAC
 CHECKED BY: BCH 6/09



FIXED END
(TYPE II - 20 REQ'D)

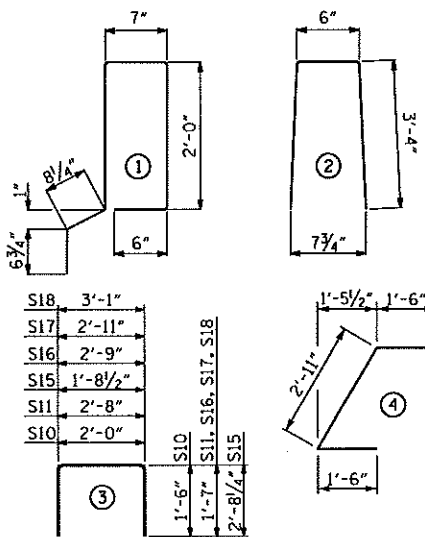
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.6" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

CORED SLABS REQUIRED			
65' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	65'-0"	130'-0"
INTERIOR C.S.	8	65'-0"	520'-0"
TOTAL	10		650'-0"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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 BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX 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 THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

ALL REINFORCING STEEL IN VERTICAL CONCRETE 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.

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 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.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL FOR ONE 65' CORED SLAB UNIT

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B21	6	#4	STR	22'-10"	92	22'-10"	92
S10	8	#5	3	5'-0"	42	5'-0"	42
S11	158	#4	3	5'-10"	616	5'-10"	616
*S12	74	#5	1	6'-4"	489		
S14	4	#4	4	5'-11"	16	5'-11"	16
S15	4	#5	3	7'-1"	30	7'-1"	30
S16	4	#4	3	5'-11"	16	5'-11"	16
S17	4	#4	3	6'-1"	16	6'-1"	16
S18	4	#4	3	6'-3"	17	6'-3"	17
REINFORCING STEEL				LBS.	845	LBS.	845
* EPOXY COATED REINFORCING STEEL				LBS.	489		
6000 P.S.I. CONCRETE				CU. YDS.	11.2	CU. YDS.	11.2
0.6" Ø L.R. STRANDS				No.	24	No.	24

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
65' UNIT						
*B24	120	120	#5	STR	12'-10"	1606
*S13	148	148	#5	2	7'-2"	1106
* EPOXY COATED REINFORCING STEEL				LBS.		2712
CLASS AA CONCRETE				CU. YDS.		17.6
TOTAL VERTICAL CONCRETE BARRIER RAIL				L.N. FT.		130.29

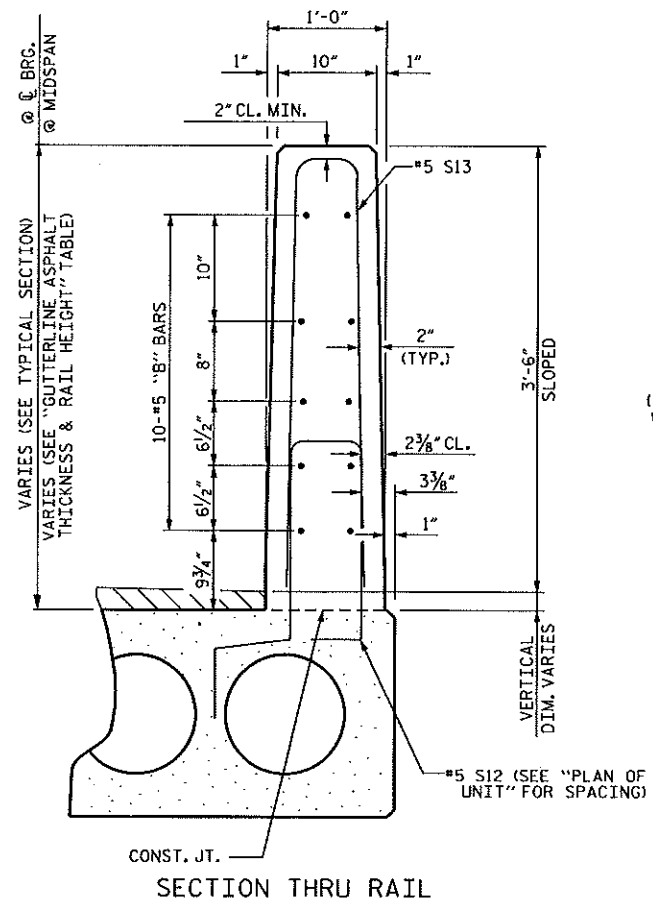
GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
65' UNITS	1 1/2"	3'-7 1/2"

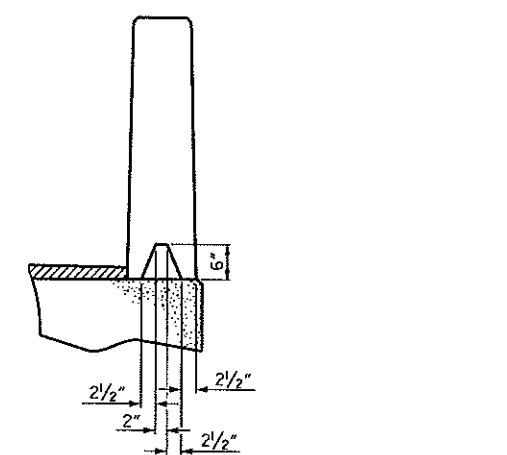
DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 2'-0"
65' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3 3/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/2" ↓
FINAL CAMBER	2 7/8" ↑

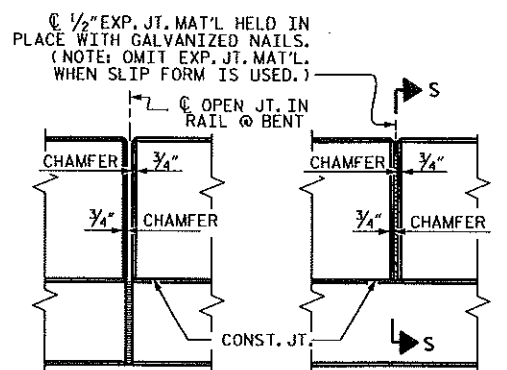
** INCLUDES FUTURE WEARING SURFACE



SECTION THRU RAIL



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS

ASSEMBLED BY : B.C. HUNT	DATE : 1/2012
CHECKED BY : B.N. GRADY	DATE : 2/2012
DRAWN BY : MAA	6/10
CHECKED BY : MKT	7/10
REV. 12/11	MAA/AAC

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CONCRETE RELEASE STRENGTH	
UNIT	PSI
65' UNITS	4800

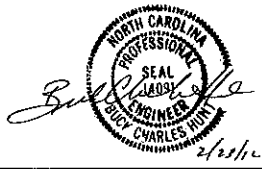
PROJECT NO. BD-5112G
IREDELL COUNTY
STATION: 14+34.00 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW

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

TOTAL SHEETS 18



STD. NO. 24PCS3-30-60&120S

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 1/8" Ø BOLTS WITH NUTS AND WASHERS.

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.)

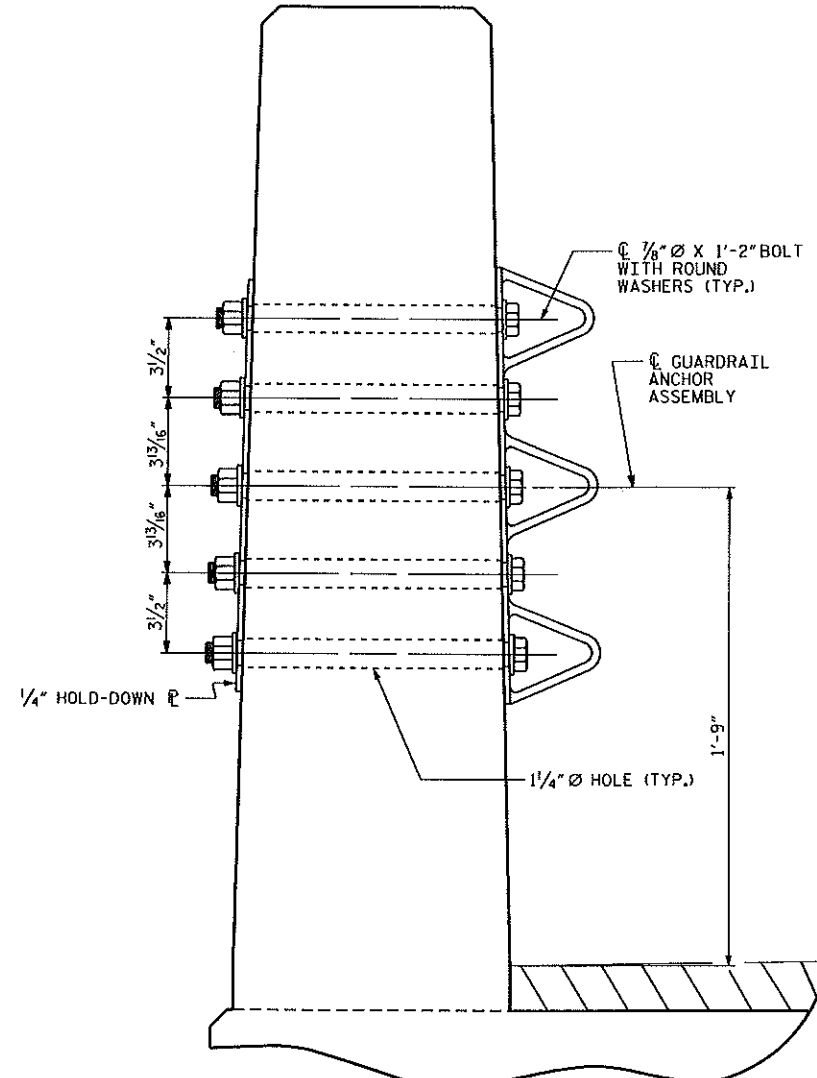
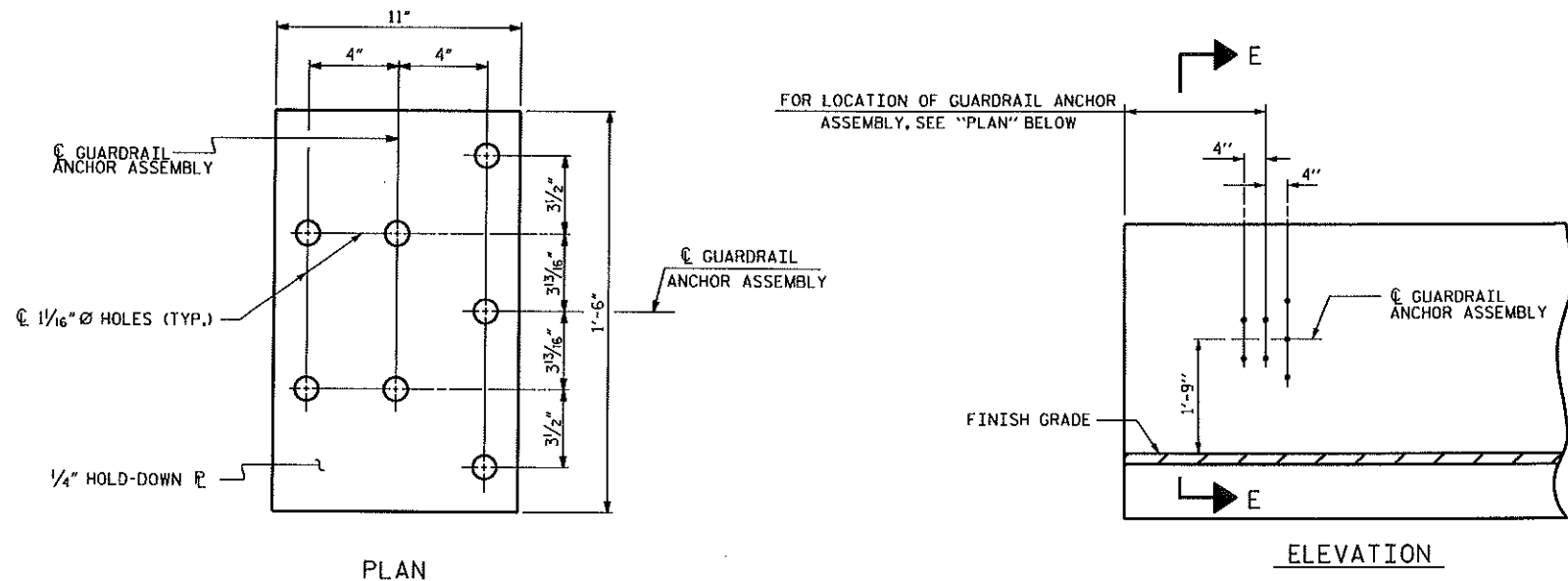
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

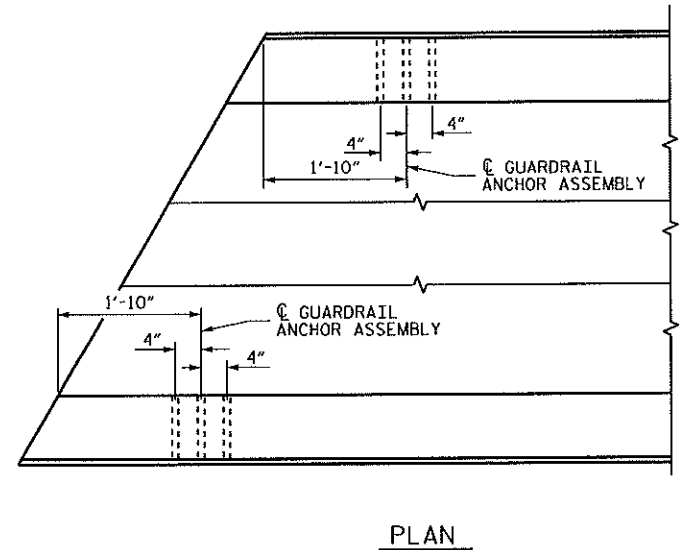
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5112G
IREDELL COUNTY
 STATION: 14+34.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 GUARDRAIL ANCHORAGE
 FOR VERTICAL CONCRETE
 BARRIER RAIL



ASSEMBLED BY : B.C. HUNT	DATE : 1/2012
CHECKED BY : B.N. GRADY	DATE : 2/2012
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11 MAA/GM
	REV. 12/5/11 MAA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			18

NOTES

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

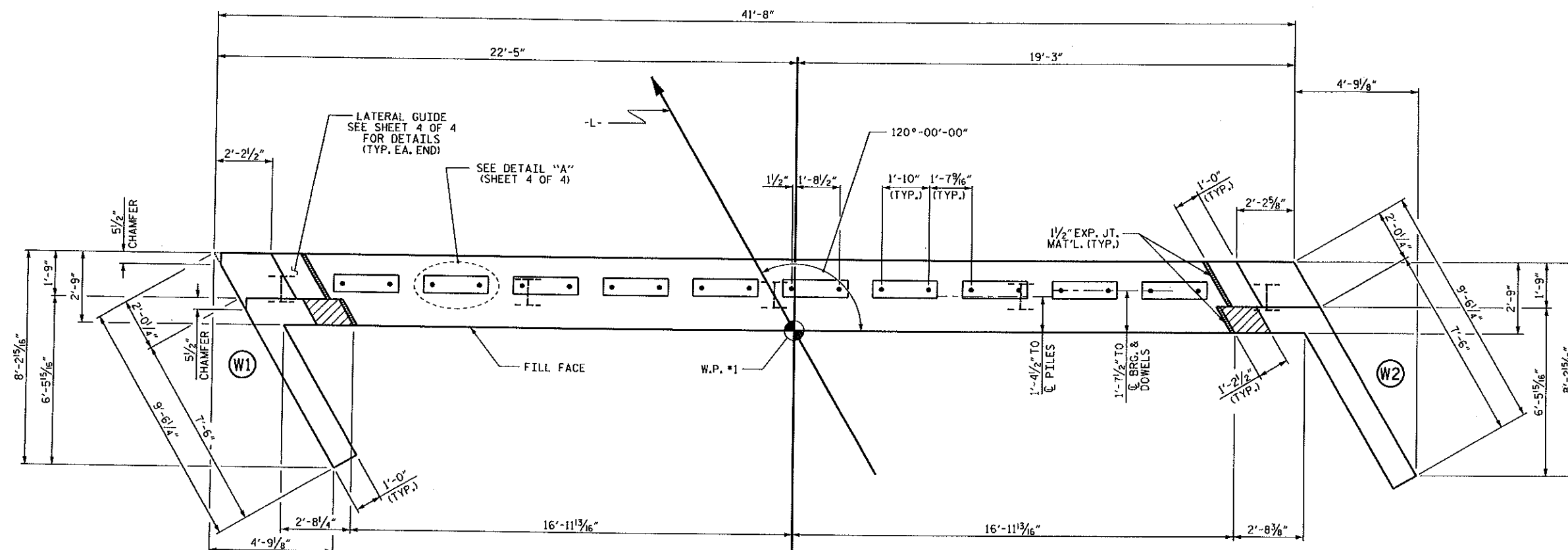
THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

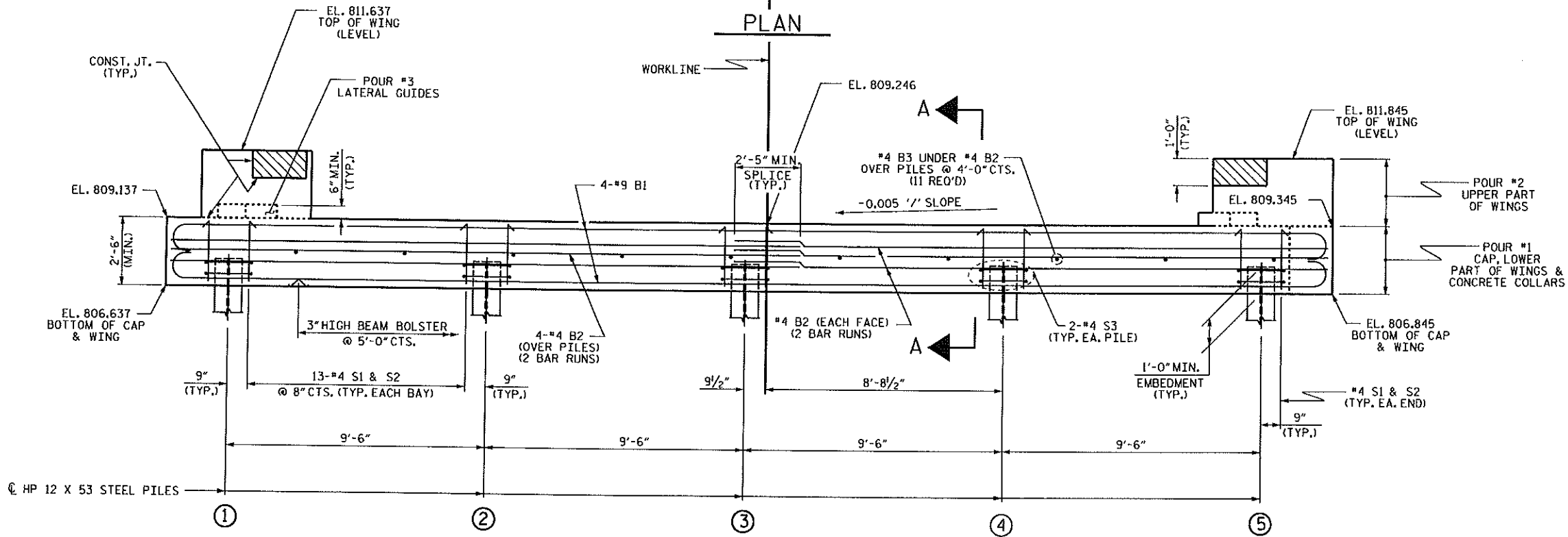
FOR WING DETAILS, SEE SHEET 2 OF 3.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.



PLAN

TOP OF PILE ELEVATIONS	
①	807.646
②	807.694
③	807.741
④	807.789
⑤	807.836



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. BD-5112G
IREDELL COUNTY
STATION: 14+34.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1

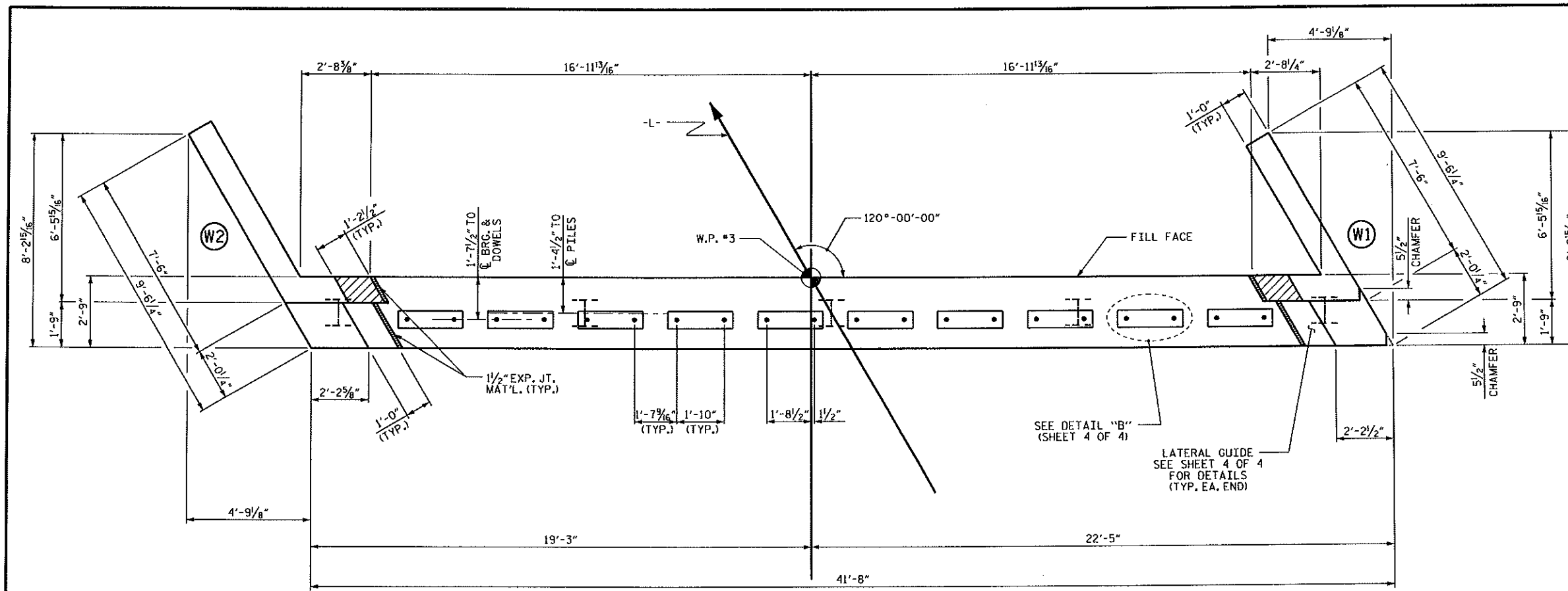


REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

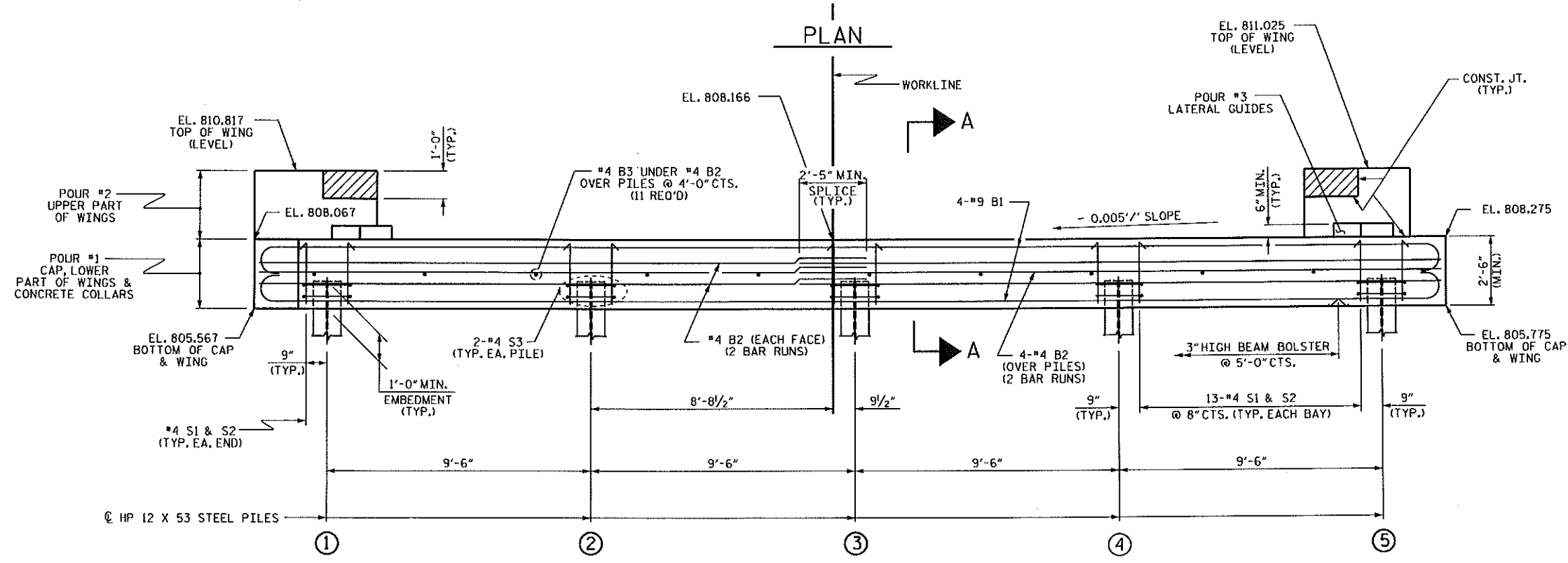
ASSEMBLED BY : B.C. HUNT DATE : 1/2012
CHECKED BY : B.N. GRADY DATE : 2/2012
DRAWN BY : DGE 02/10
CHECKED BY : MKT 02/10

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STD. NO. EB-30-120S



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

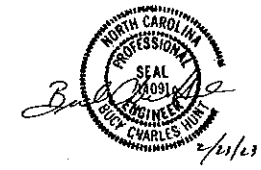
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
- FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.
- FOR WING DETAILS, SEE SHEET 2 OF 3.
- THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.

TOP OF PILE ELEVATIONS	
①	806.576
②	806.624
③	806.671
④	806.719
⑤	806.766

PROJECT NO. BD-5112G
IREDELL COUNTY
 STATION: 14+34.00 -L-
 SHEET 2 OF 4

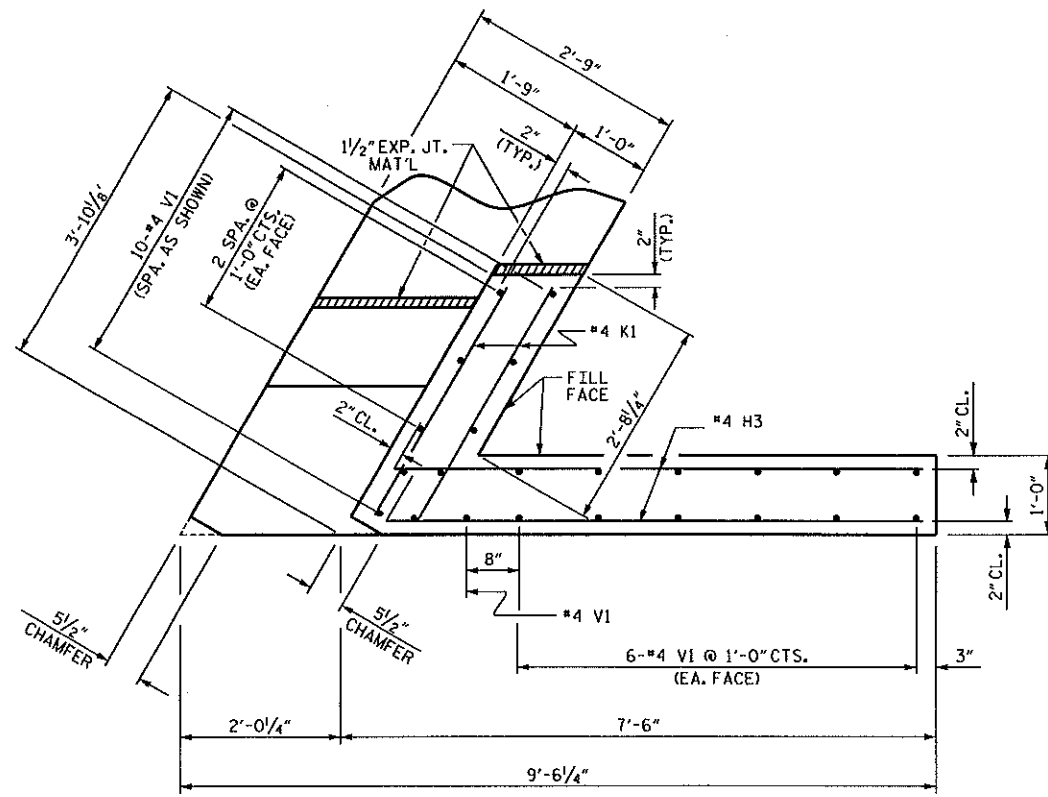
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

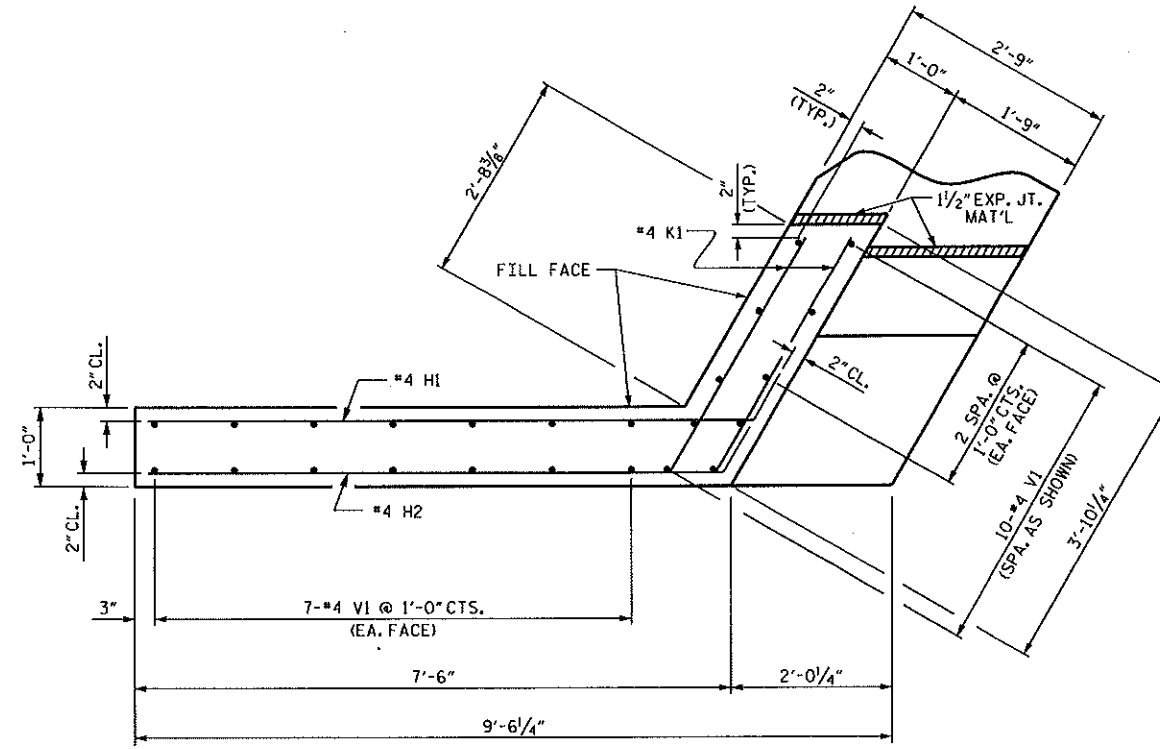


ASSEMBLED BY: B.C. HUNT DATE: 1/2012
 CHECKED BY: B.N. GRADY DATE: 2/2012
 DRAWN BY: DGE 02/10
 CHECKED BY: MKT 02/10

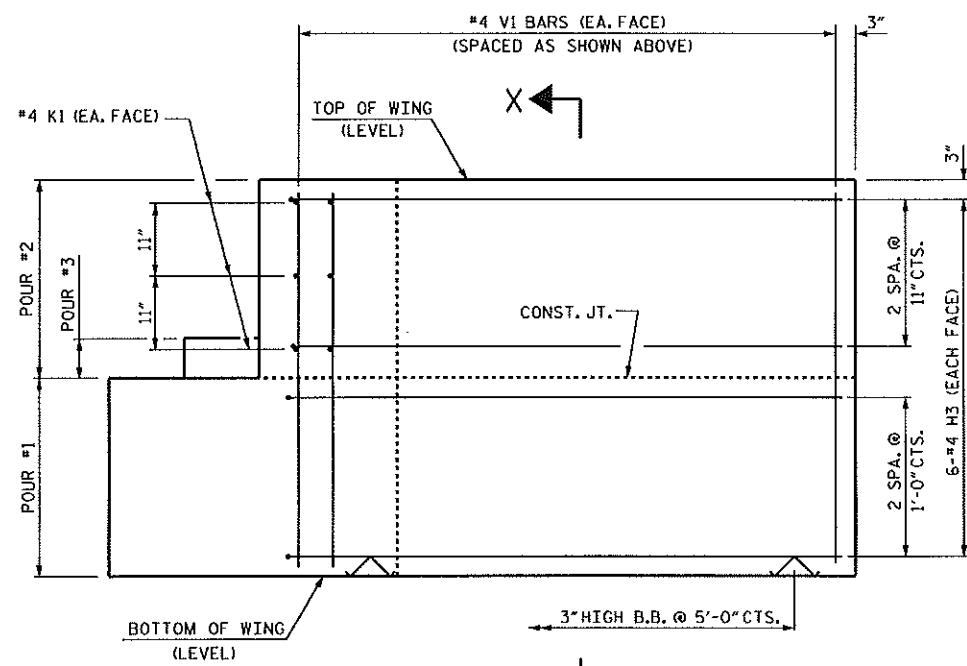
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS 18
2			4			



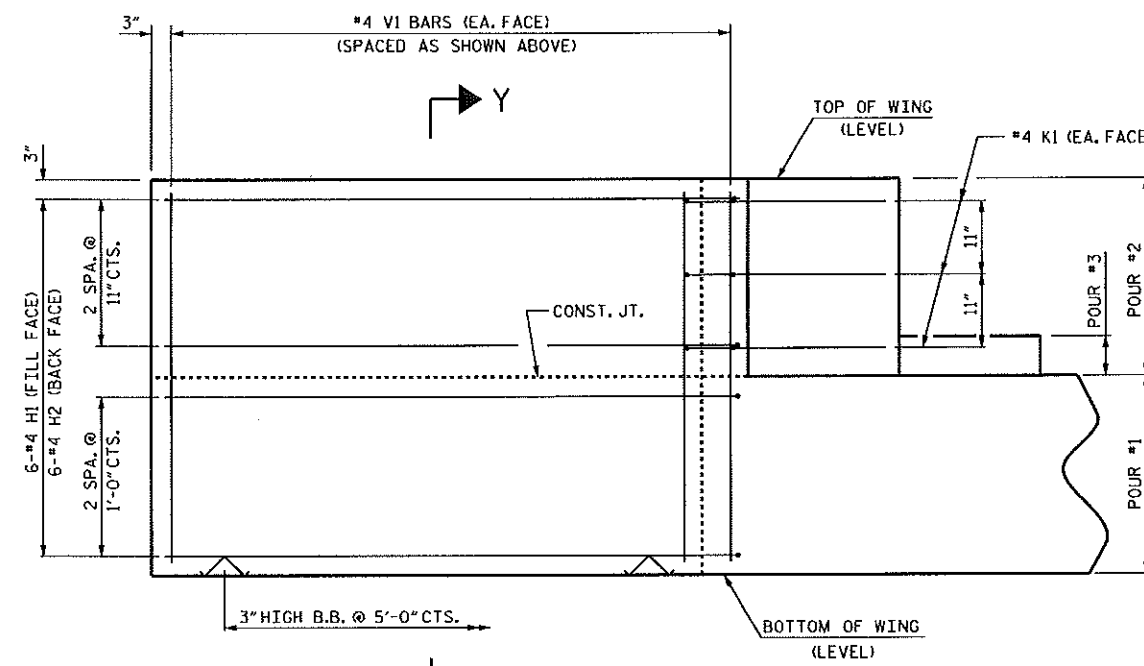
PLAN OF WING (W1)



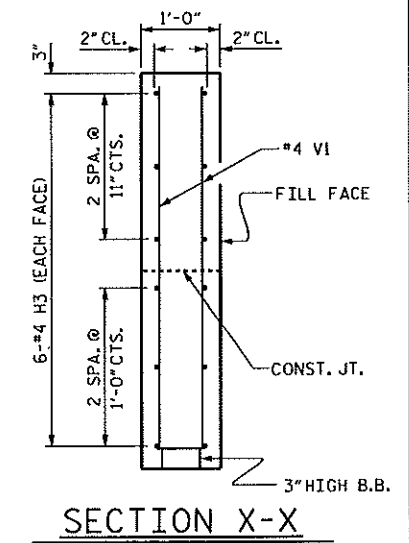
PLAN OF WING (W2)



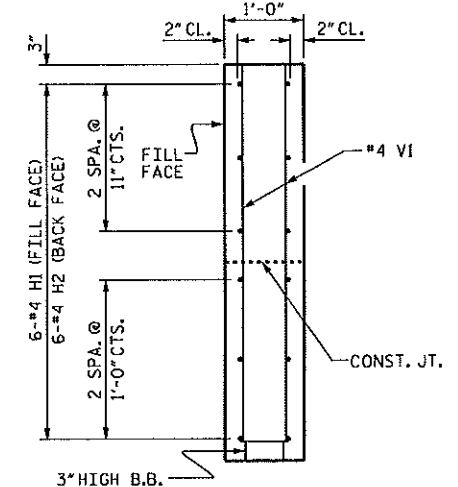
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



SECTION Y-Y

WING DETAILS

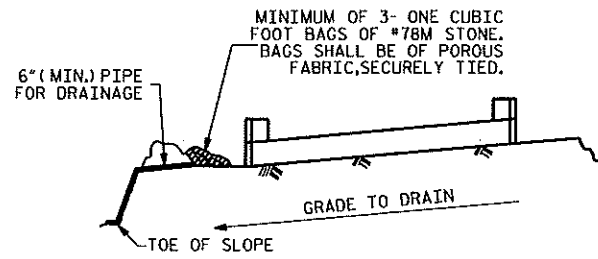
ASSEMBLED BY : B.C. HUNT DATE : 1/2012
 CHECKED BY : B.N. GRADY DATE : 2/2012
 DRAWN BY : DCE 12/09
 CHECKED BY : MKT 01/10

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PROJECT NO. BD-5112G
 IREDELL COUNTY
 STATION: 14+34.00 -L-
 SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-14	
SUBSTRUCTURE END BENT WING DETAILS						TOTAL SHEETS 18	
REVISIONS							
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				

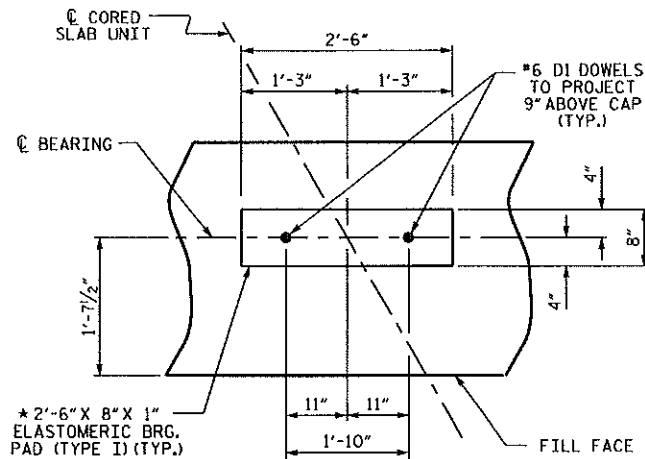


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

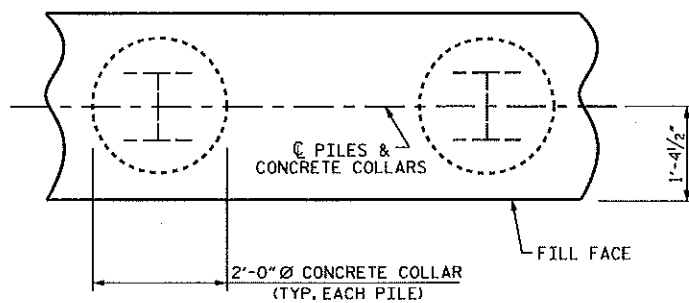
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

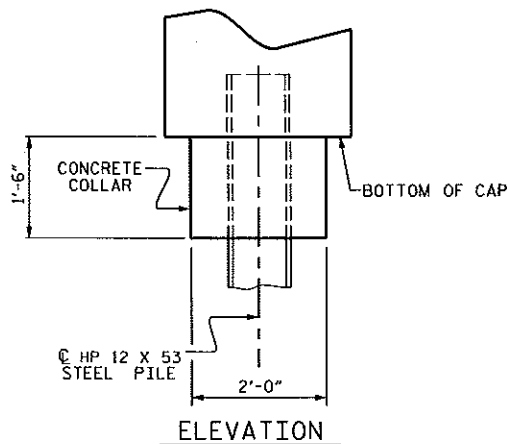


DETAIL "A"

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)
 * AT END BENT 1, USE TYPE I PADS (50 DUROMETER)
 AT END BENT 2, USE TYPE II PADS (60 DUROMETER)

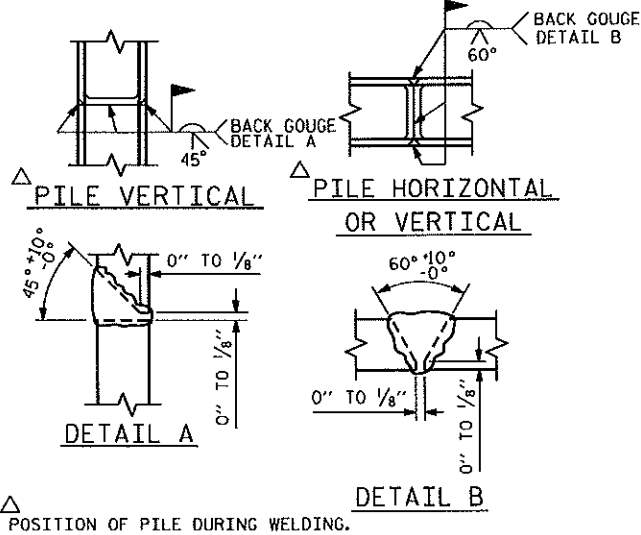


PLAN

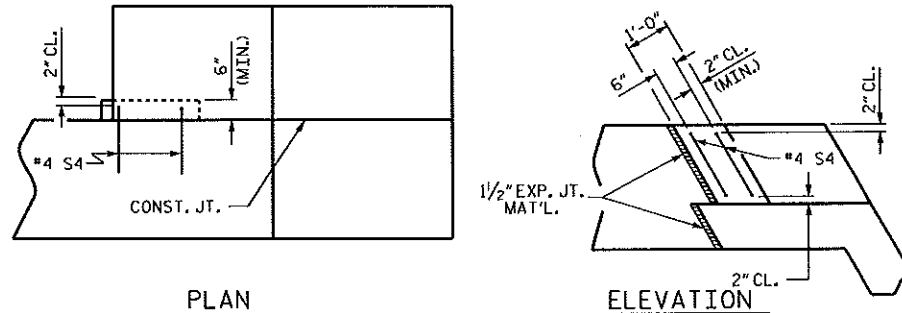


ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL



PILE SPLICE DETAILS



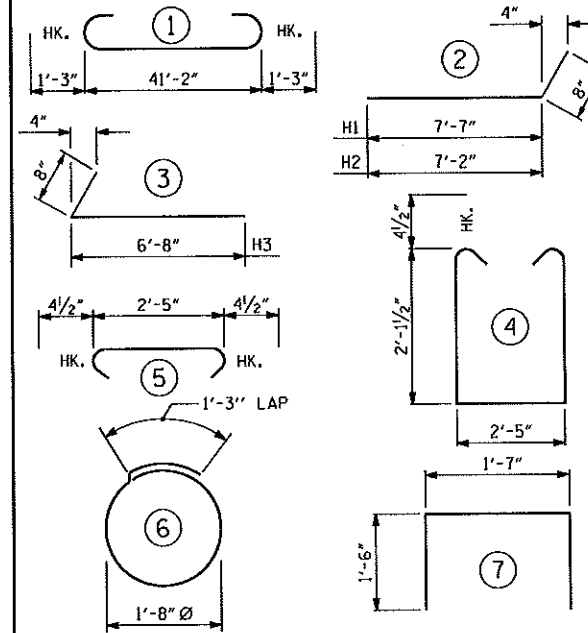
PLAN

ELEVATION

LATERAL GUIDE DETAILS

(END BENT 1, RIGHT LATERAL GUIDE SHOWN, LEFT END SIMILAR)
 (END BENT 2 SIMILAR BY ROTATION)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT 1	END BENT 2
HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES
NO: 5	NO: 5
LIN. FT. = 140	LIN. FT. = 125

BILL OF MATERIAL FOR ONE END BENT

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	#8		43'-8"	1188
B2	#4	STR	21'-11"	234
B3	#4	STR	2'-5"	18
D1	#6	STR	1'-6"	45
H1	#4		8'-3"	33
H2	#4		7'-10"	31
H3	#4		7'-4"	59
K1	#4	STR	3'-3"	26
S1	#4		7'-5"	268
S2	#4		3'-2"	114
S3	#4		6'-6"	43
S4	#4		4'-7"	12
V1	#4	STR	4'-8"	147

REINFORCING STEEL (FOR ONE END BENT) 2218 LBS.

CLASS A CONCRETE BREAKDOWN (END BENT 1)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	12.7 C.Y.
POUR #2	UPPER PART OF WINGS	1.9 C.Y.
POUR #3	LATERAL GUIDES	0.1 C.Y.
TOTAL CLASS A CONCRETE		14.7 C.Y.

CLASS A CONCRETE BREAKDOWN (END BENT 2)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	12.7 C.Y.
POUR #2	UPPER PART OF WINGS	2.1 C.Y.
POUR #3	LATERAL GUIDES	0.1 C.Y.
TOTAL CLASS A CONCRETE		14.9 C.Y.

PROJECT NO. BD-5112G
 IREDELL COUNTY
 STATION: 14+34.00 -L-

SHEET 4 OF 4

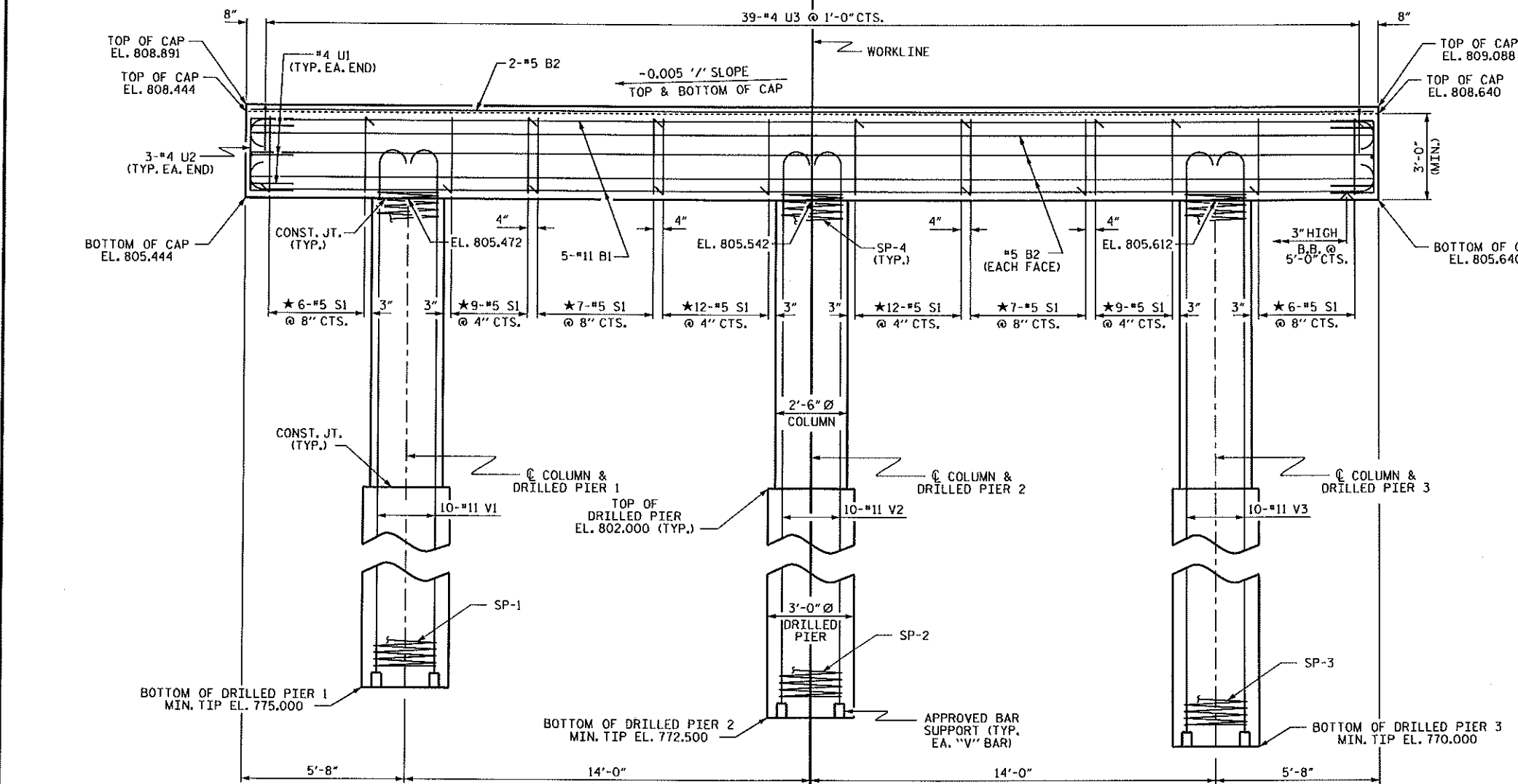
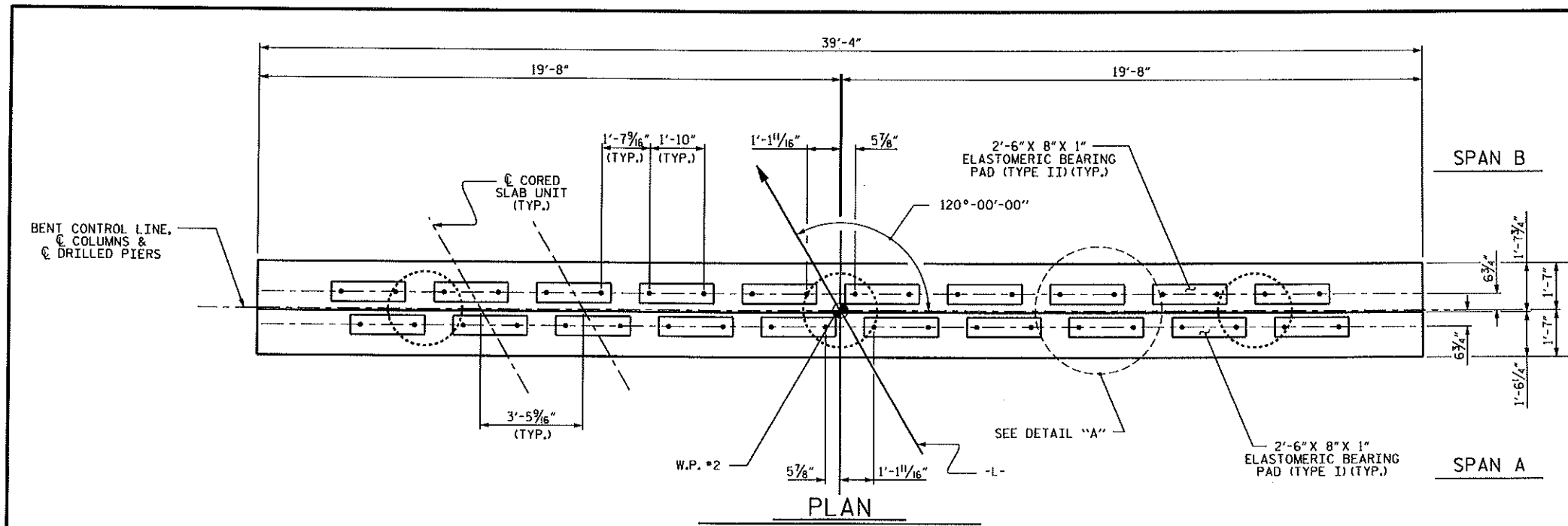
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1 & 2
 DETAILS



ASSEMBLED BY: B.C. HUNT DATE: 1/2012
 CHECKED BY: B.N. GRADY DATE: 2/2012
 DRAWN BY: DGE 12/09
 CHECKED BY: MKT 01/10

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 CSUTTON

SECTION A-A
 (CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



NOTES

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

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR DRILLED PIERS AND PERMANENT STEEL CASING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

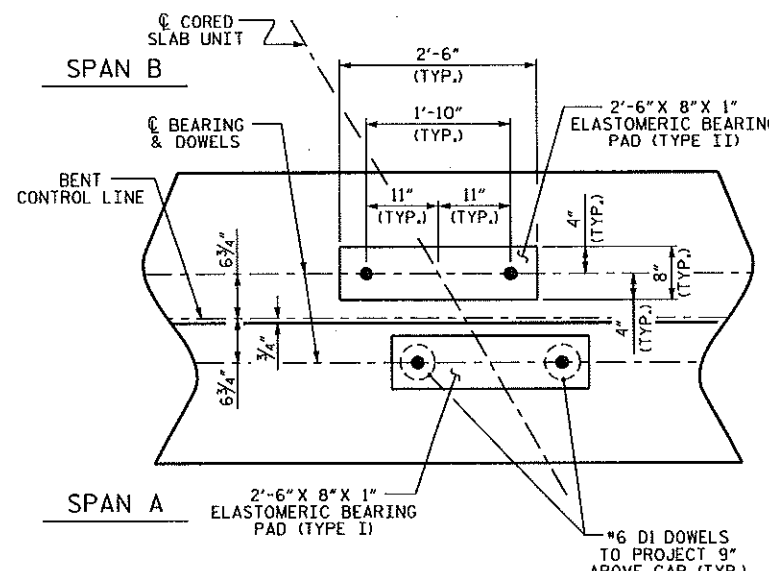
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

★ INVERT ALTERNATE STIRRUPS.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.

DRILLED PIERS SHALL BE TERMINATED ONE FOOT ± ABOVE NORMAL WATER SURFACE ELEVATION FOR SHAFTS LOCATED IN WATER.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.



DETAIL "A"

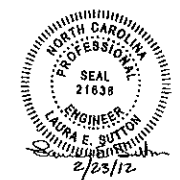
(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. BD-5112G
 IREDELL COUNTY
 STATION: 14+34.00 -L-
 SHEET 1 OF 2

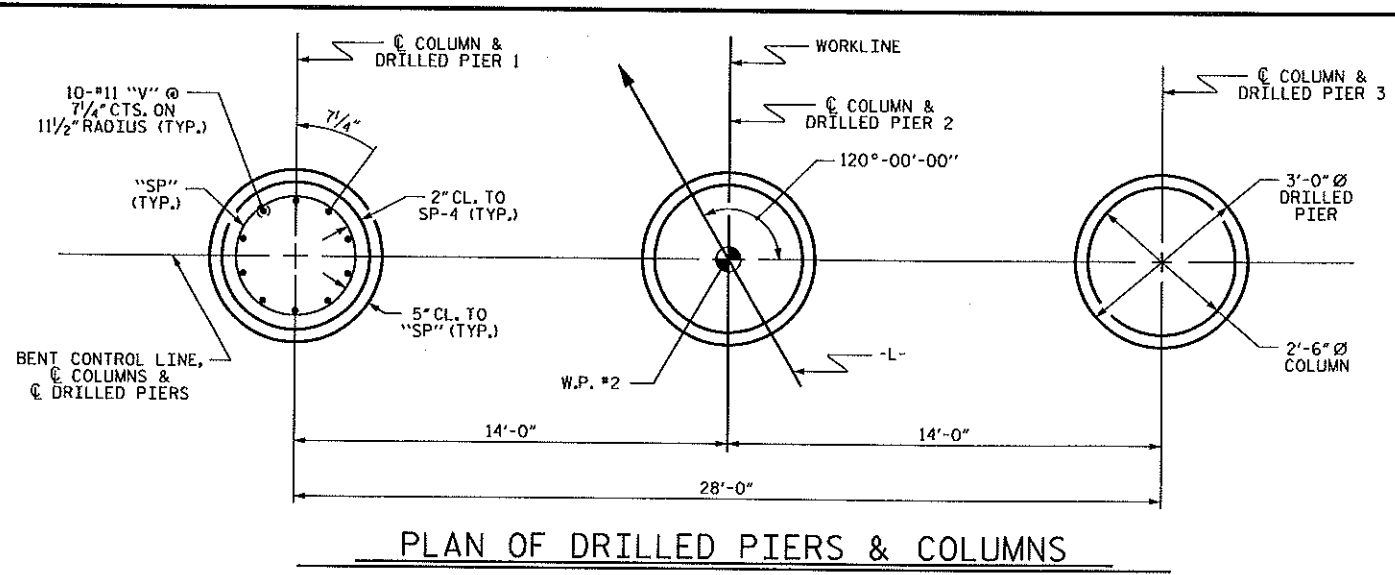
ASSEMBLED BY: L.E. SUTTON DATE: 02/22/12
 CHECKED BY: B.N. GRADY DATE: 02/22/12
 DRAWN BY: DGE 03/10
 CHECKED BY: MKT 03/10

ELEVATION

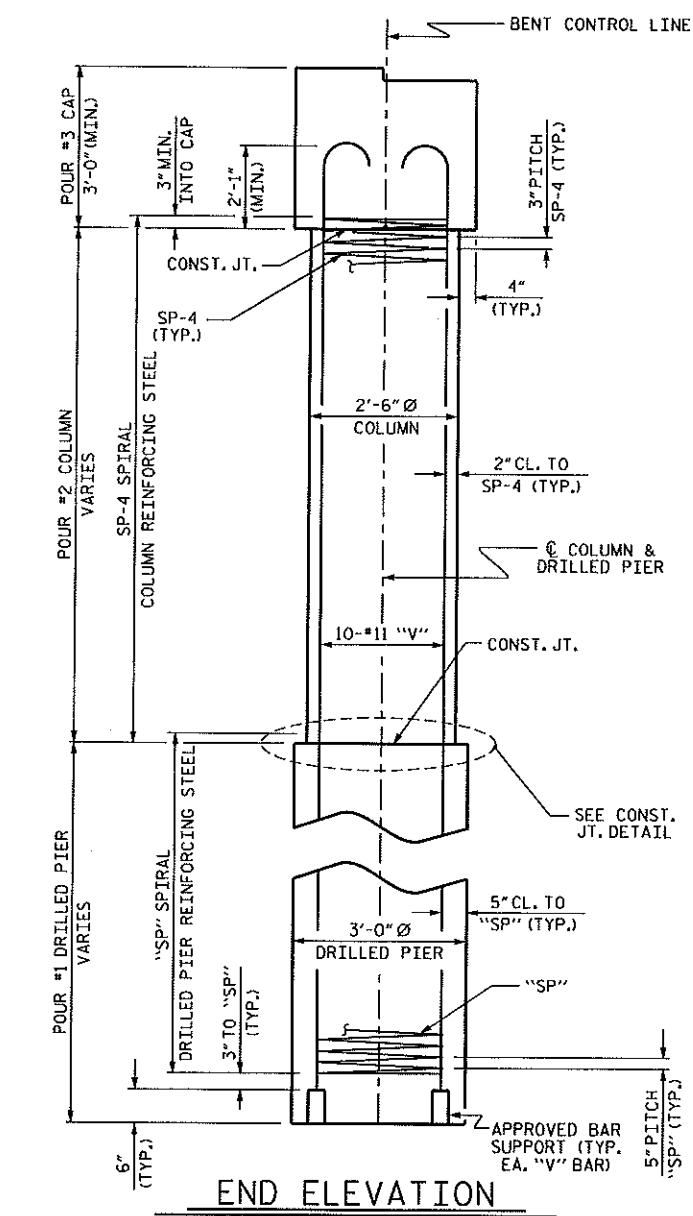
DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.



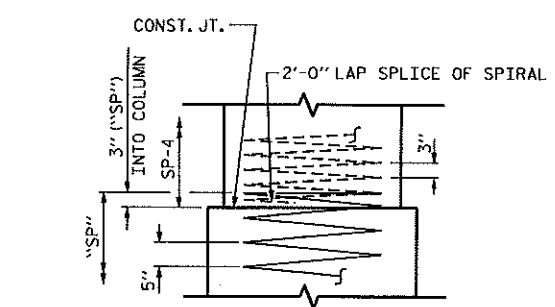
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1					
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					S-16
					TOTAL SHEETS 18



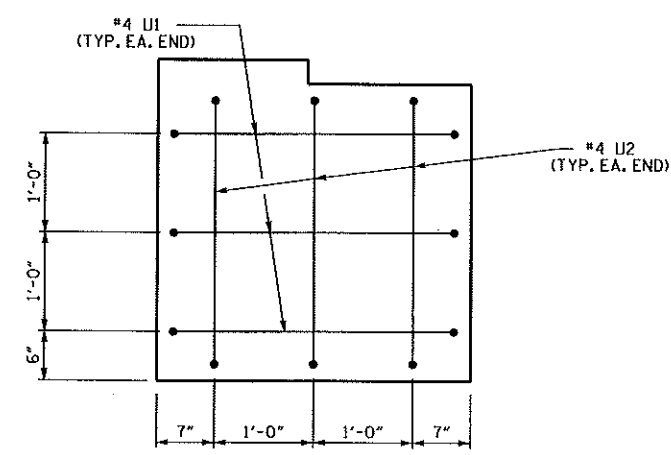
PLAN OF DRILLED PIERS & COLUMNS



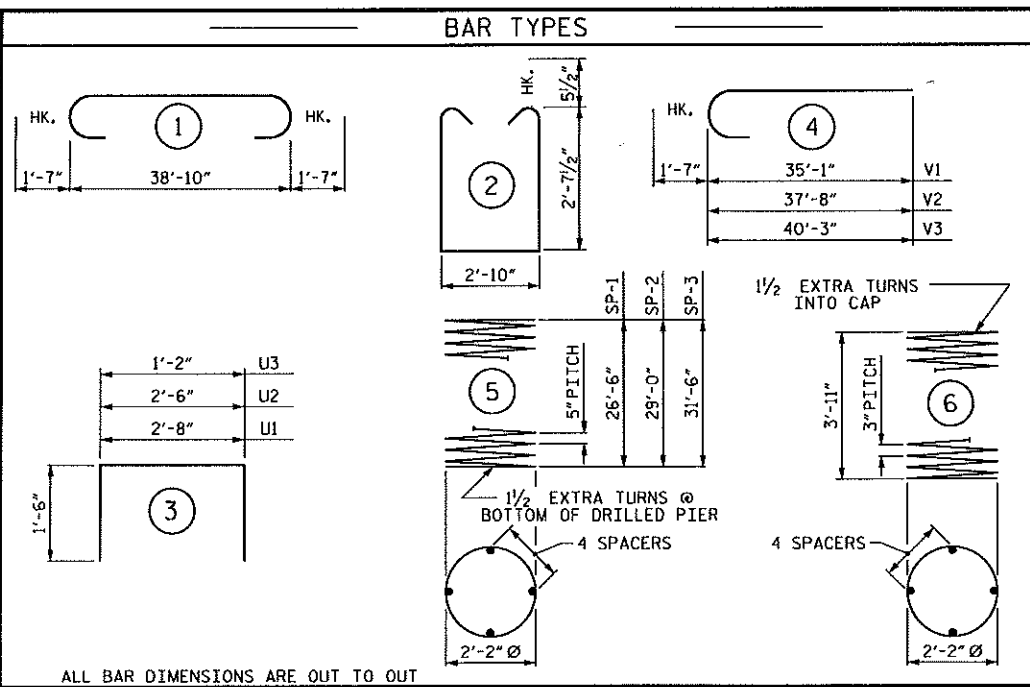
END ELEVATION



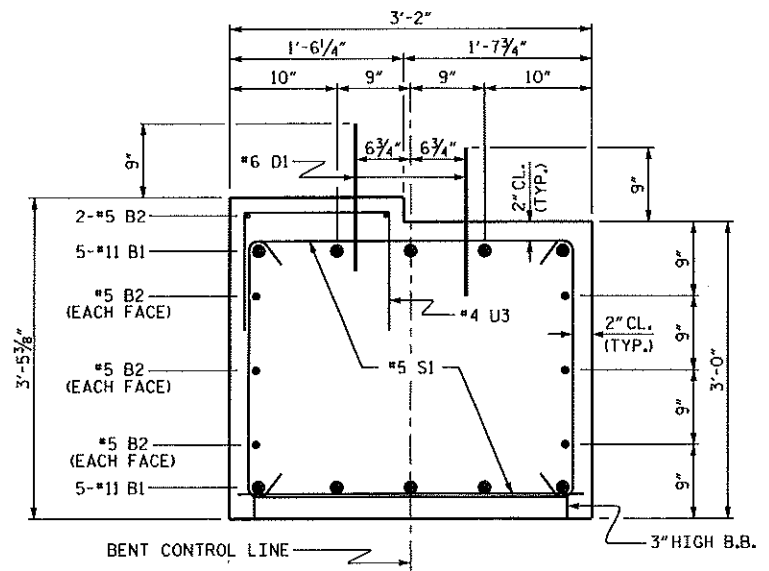
CONSTRUCTION JOINT DETAIL



END OF CAP VIEW
(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT



SECTION THRU CAP

BILL OF MATERIAL					
FOR ONE BENT					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	10	#11	1	42'-0"	2231
B2	8	#5	STR	39'-0"	325
D1	40	#6	STR	1'-6"	90
S1	68	#5	2	9'-0"	638
U1	6	#4	3	5'-8"	23
U2	6	#4	3	5'-6"	22
U3	39	#4	3	4'-2"	109
V1	10	#11	4	36'-8"	1948
V2	10	#11	4	39'-3"	2085
V3	10	#11	4	41'-10"	2223
REINFORCING STEEL (FOR ONE BENT)					9694 LBS.
SP-1	1	*	5	434'-4"	453
SP-2	1	*	5	474'-4"	495
SP-3	1	*	5	514'-3"	536
SP-4	3	**	6	115'-3"	231
SPIRAL COLUMN REINFORCING STEEL (FOR ONE BENT)					1715 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #2 (COLUMNS)				1.9	C.Y.
POUR #3 (CAP)				14.8	C.Y.
TOTAL CLASS A CONCRETE				16.7	C.Y.
DRILLED PIERS; (FOR ONE BENT)					
DRILLED PIER CONCRETE					
POUR #1 (DRILLED PIERS)				23.2	C.Y.
3'-0" Ø DRILLED PIER NOT IN SOIL				27.00	LIN. FT.
3'-0" Ø DRILLED PIER IN SOIL				61.50	LIN. FT.
PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER				34.83	LIN. FT.
CSL TUBES				93.00	LIN. FT.

PROJECT NO. BD-5112G
IREDELL COUNTY
 STATION: 14+34.00 -L-

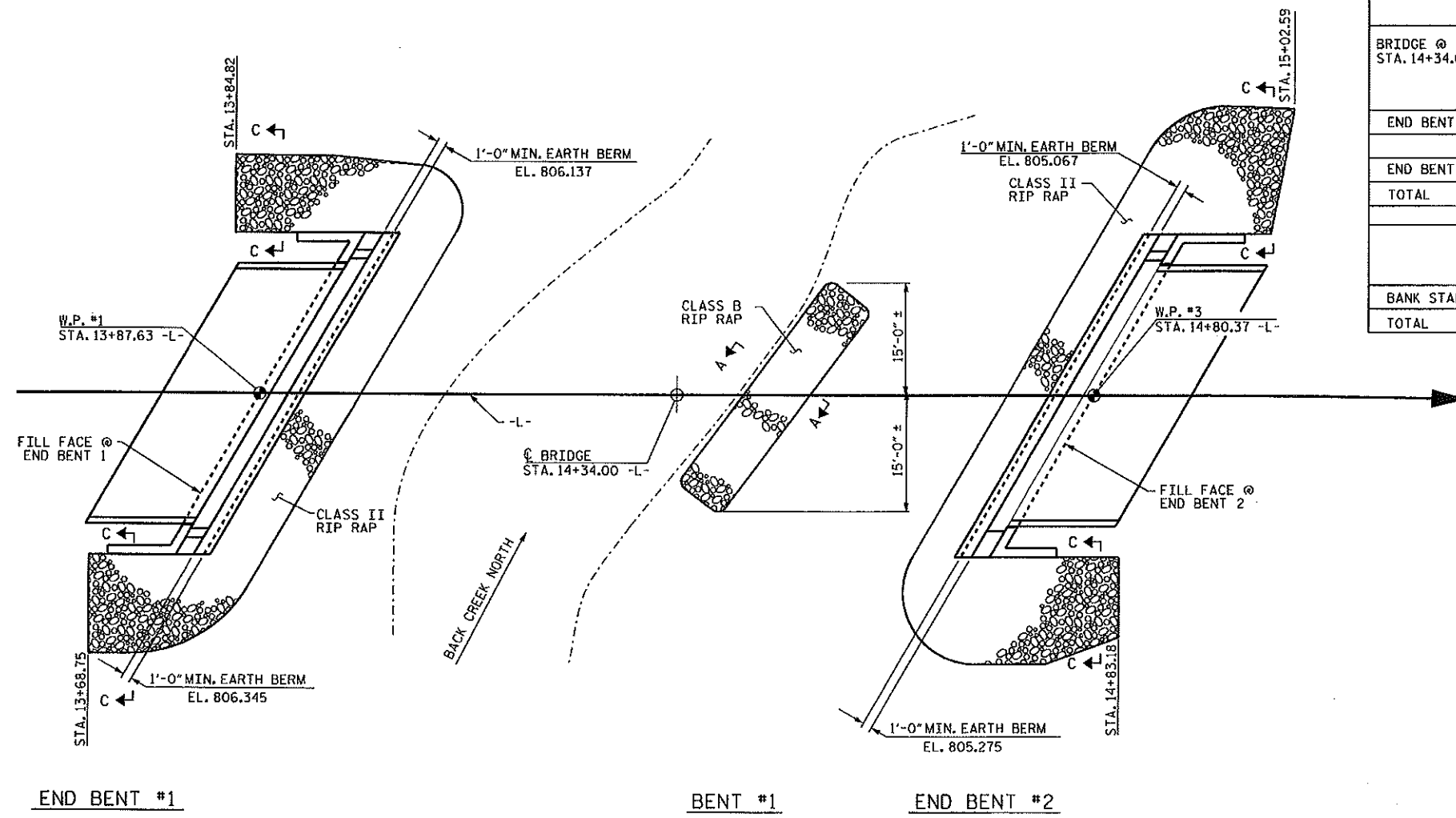
SHEET 2 OF 2



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

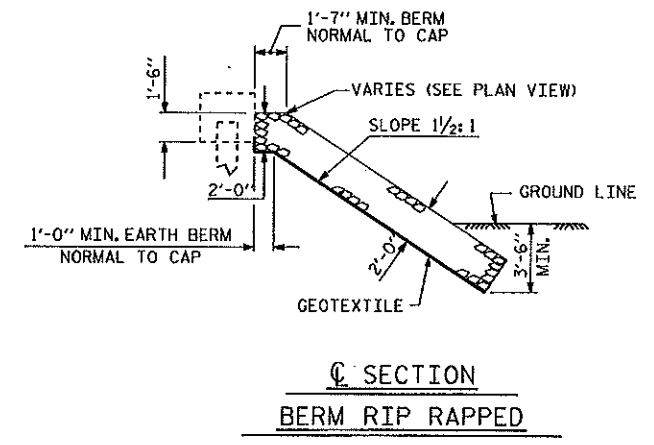
SHEET NO. S-17
TOTAL SHEETS 18

ASSEMBLED BY: L.E. SUTTON DATE: 02/22/12
 CHECKED BY: B.N. GRADY DATE: 02/22/12
 DRAWN BY: DGE 03/10
 CHECKED BY: MKT 03/10

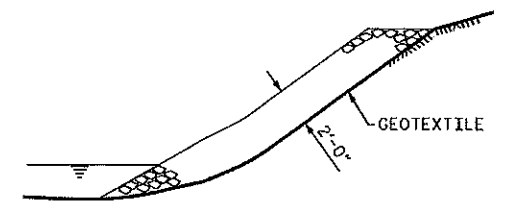


ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+34.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	60	65
END BENT #2	75	85
TOTAL	135	150
	RIP RAP CLASS B (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
BANK STABILIZATION	20	25
TOTAL	20	25

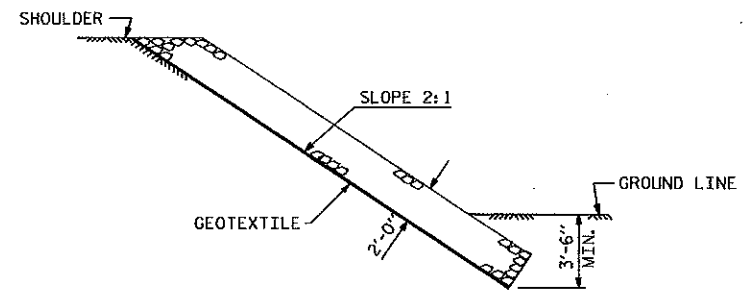
PLAN OF RIP RAP



SECTION C-C
BERM RIP RAPPED



SECTION A-A



SECTION C-C

PROJECT NO. BD-5112G
IREDELL COUNTY
 STATION: 14+34.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RIP RAP DETAILS

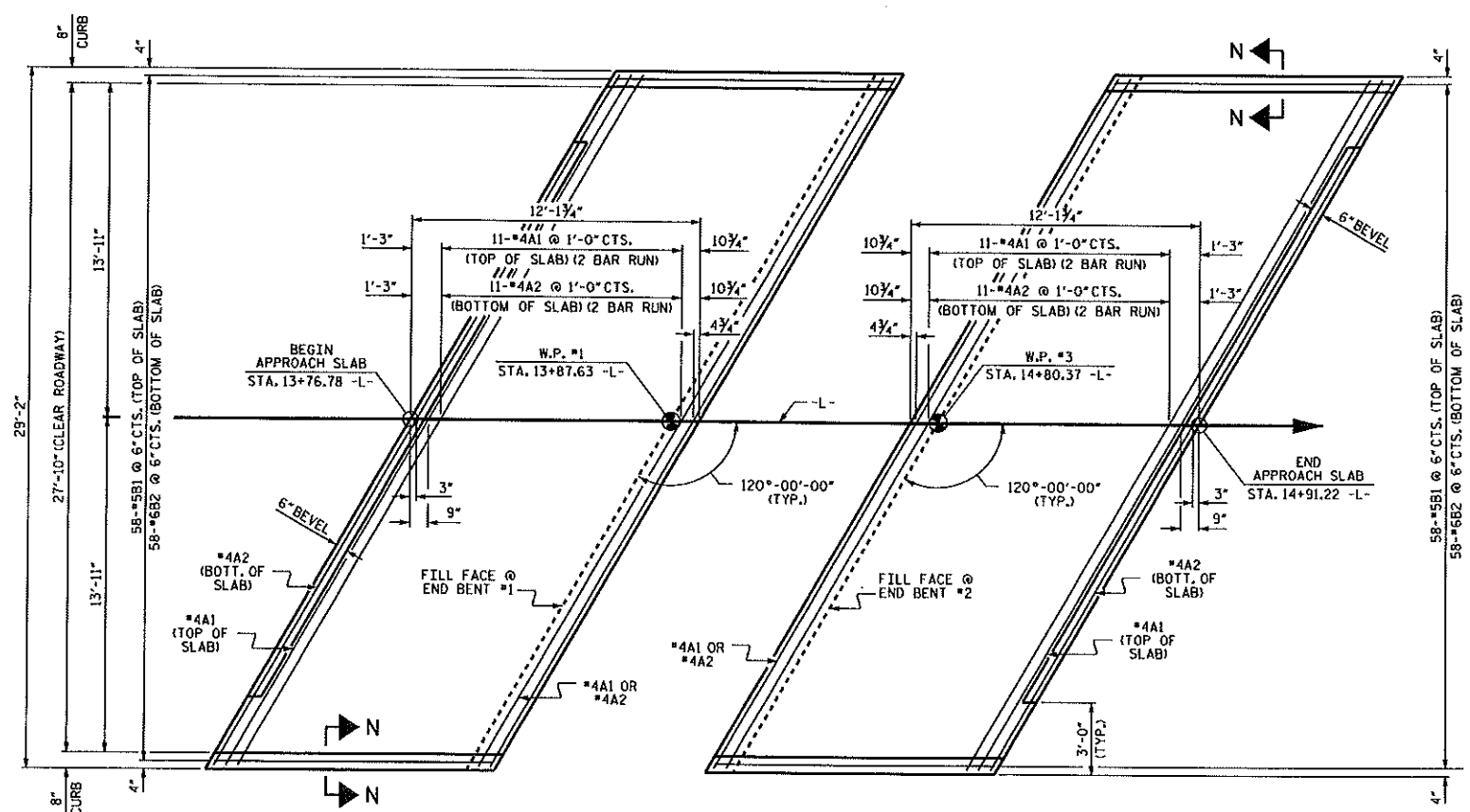


DRAWN BY: B.C. HUNT DATE: 2/2012
 CHECKED BY: L.E. SUTTON DATE: 2/2012

29-FEB-2012 14:32
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REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

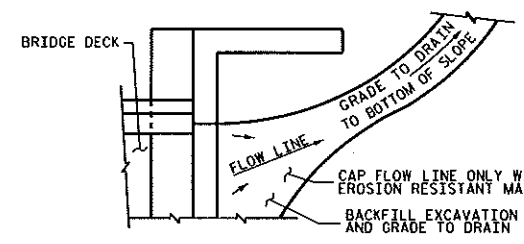
TOTAL SHEETS: 18



PLAN @ END BENT #1 PLAN @ END BENT #2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

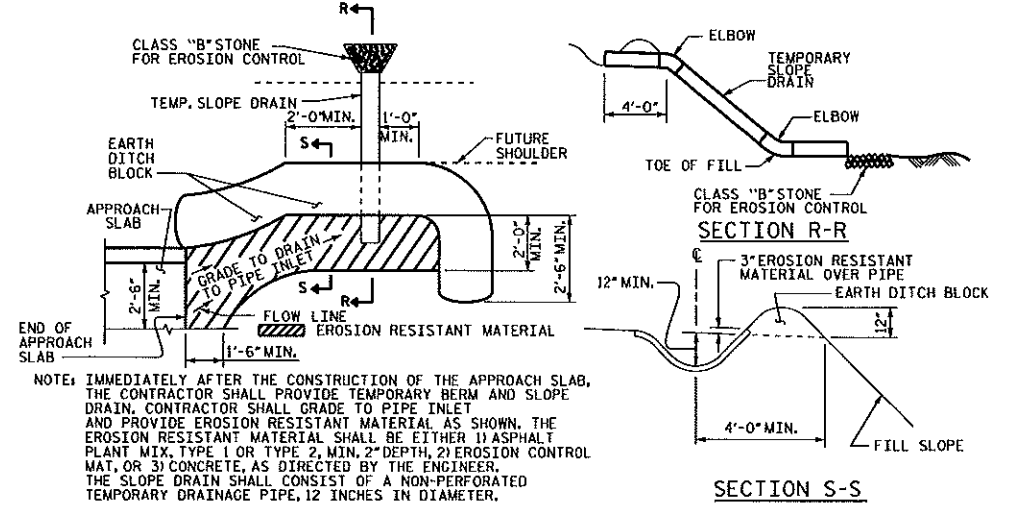
NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND *78M STONE BACKFILL, SEE ROADWAY PLANS.
 GEOTEXTILE SHALL BE TYPE I 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.
 APPROACH SLAB GROOVING IS NOT REQUIRED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

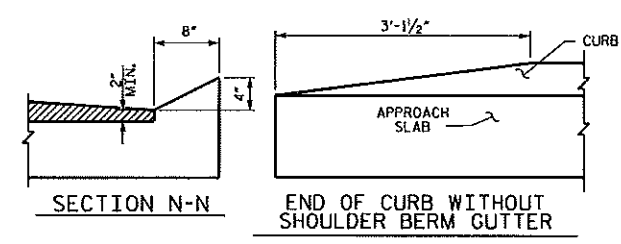
TEMPORARY DRAINAGE DETAIL



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

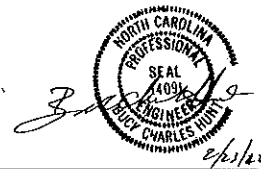
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



CURB DETAILS

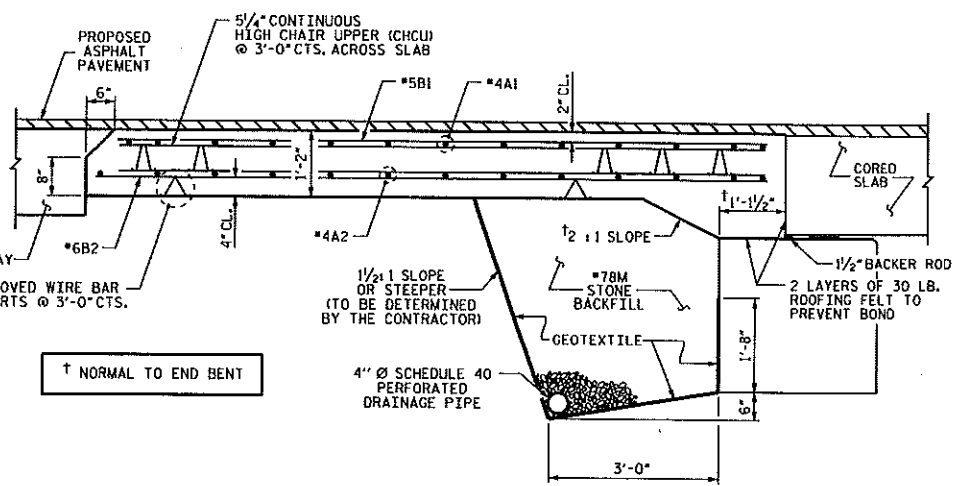
SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	17'-8"	307
A2	26	#4	STR	17'-7"	305
*B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL				LBS.	1314
* EPOXY COATED REINFORCING STEEL				LBS.	977
CLASS AA CONCRETE				C. Y.	17.1
APPROACH SLAB AT EB #2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	17'-8"	307
A2	26	#4	STR	17'-7"	305
*B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL				LBS.	1314
* EPOXY COATED REINFORCING STEEL				LBS.	977
CLASS AA CONCRETE				C. Y.	18.5

ASSEMBLED BY: B.C. HUNT DATE: 1/2012
 CHECKED BY: B.N. GRADY DATE: 2/2012
 DRAWN BY: SHS/MAA 5-09 REV. 12-11 MAA/AAC
 CHECKED BY: BCH 5-09

SECTION THRU SLAB



PROJECT NO. BD-5112G
IREDELL COUNTY
 STATION: 14+34.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)
 120° SKEW

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S-18	
1			3			TOTAL SHEETS 18	
2			4				

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN		
OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT.
		(MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN