KO & ASSOCIATES, P.C.
Consulting Engineers
d.b.a. Florence & Hutcheson, Inc.

Project: WBS 42833.1.1 (B-5231)
Bridge #162 on SR 1121 over Price Creek
Yancey County

To: Meeting Attendees

Subject: **MINUTES OF MEETING**

Date Prepared: January 13, 2010

Prepared by: Jim Mondolfi

PURPOSE/DESCRIPTION:	Pre-Bid Meeting
DATE & TIME:	Wednesday, January 6, 2010 10:00 am
LOCATION:	NCDOT Bridge Management Unit Small Conference Room Raleigh, North Carolina

ATTENDEES

Name	Representing	Telephone Number
	See Meeting Roster	
Jim Mondolfi	Ko/Florence & Hutcheson, Inc.	919-851-6066

The following items were discussed:

1) Revised Drawing 3 of 31 indicating cored slab details is attached.

2) Revised Drawings 4, 5, 6, 7, 8, 9, 13 & 13A was distributed to all attendees at the meeting. A complete set of drawings with revisions will be resubmitted to the BMU.

3) Page 5 in the Bid Proposal Document should read "Bids received after 2:00 pm, Tuesday, January 26, 2010 will not be accepted".

4) The existing bridge components will be removed and disposed of by the Contractor.

5) The cored slabs to be used to construct the proposed bridge are currently stored at the Yancey County Maintenance Yard located on Bakers Creek Road, Burnsville, NC 28714. The Contractor will be responsible for loading and transporting the cored slab units to the construction site.

6) Division 13 will not provide a portable traffic signal for use during construction. The Contractor shall include the cost for this item in his price bid for Item "Traffic Control".

7) Item "Safety Fence" was listed twice on the Bid Sheets. Item "Temporary Silt Fence" was omitted from the Bid Sheet. Temporary Silt Fence will be added to the Bid Sheets.

8) The quantity indicated for Safety Fence is 2700 linear feet. The limits of the safety fence delineate the edge of water and also to define the ESA. A sketch showing the project limits is attached for distribution to all attendees.

9) Items "Generic Mobilization (Pile Excavation)", "Pile Excavation in Soil" and "Pile Excavation Not in Soil" will be added to the Bid Sheets.

10) Bid Sheets are revised and attached for distribution to all attendees.

JEM/

From: Wafa, Zaki H
Sent: Thursday, January 21, 2010 3:39 PM
To: 'appletuck@att.net'; 'darrell@carolinasiteworksinc.com';
'jimmysturgill@stimail.com'; 'dlrowe@triad.rr.com';
'tcbbuilder@aol.com'; 'timw@waynebros.com';
'richard@carolinabridgeinc.com'; 'Bruce Horldt'; 'Kevin Burns';
'kgbryantindustries@yahoo.com'; 'Ron Grigsby'
Cc: Summers, Michael K; 'Jim Mondolfi'
Subject: Yancey 162 (B-5231) Addendum to the Minutes of Pre-Bid
Conference

Dear Prospective Bidders:

The 15" RC PIPE CULVERTS, CLASS III was not on the bid sheet, Therefore, we are requesting that you include the price for The 15" RC PIPE CULVERTS, CLASS III (12 LIN.FT.) in the bid Price for the "MASONRY DRAINAGE STRUCTURES".

If you have any questions, please contact me.

Thanks.

Zaki Wafa, PE
Purchase Order Contracts
State Bridge Management Unit
Phone: 919-835-8255
Fax : 919-733-2348
Email: zwafa@ncdot.gov

BID SHEETS (REVISED ON 1-20-2010)

CONTRACT COST PROPOSAL

The Contractor agrees to provide the services outlined in this proposal for the following fixed price:

BRIDGE REPLACEMENT WITH PRESTRESSED CORED SLABS

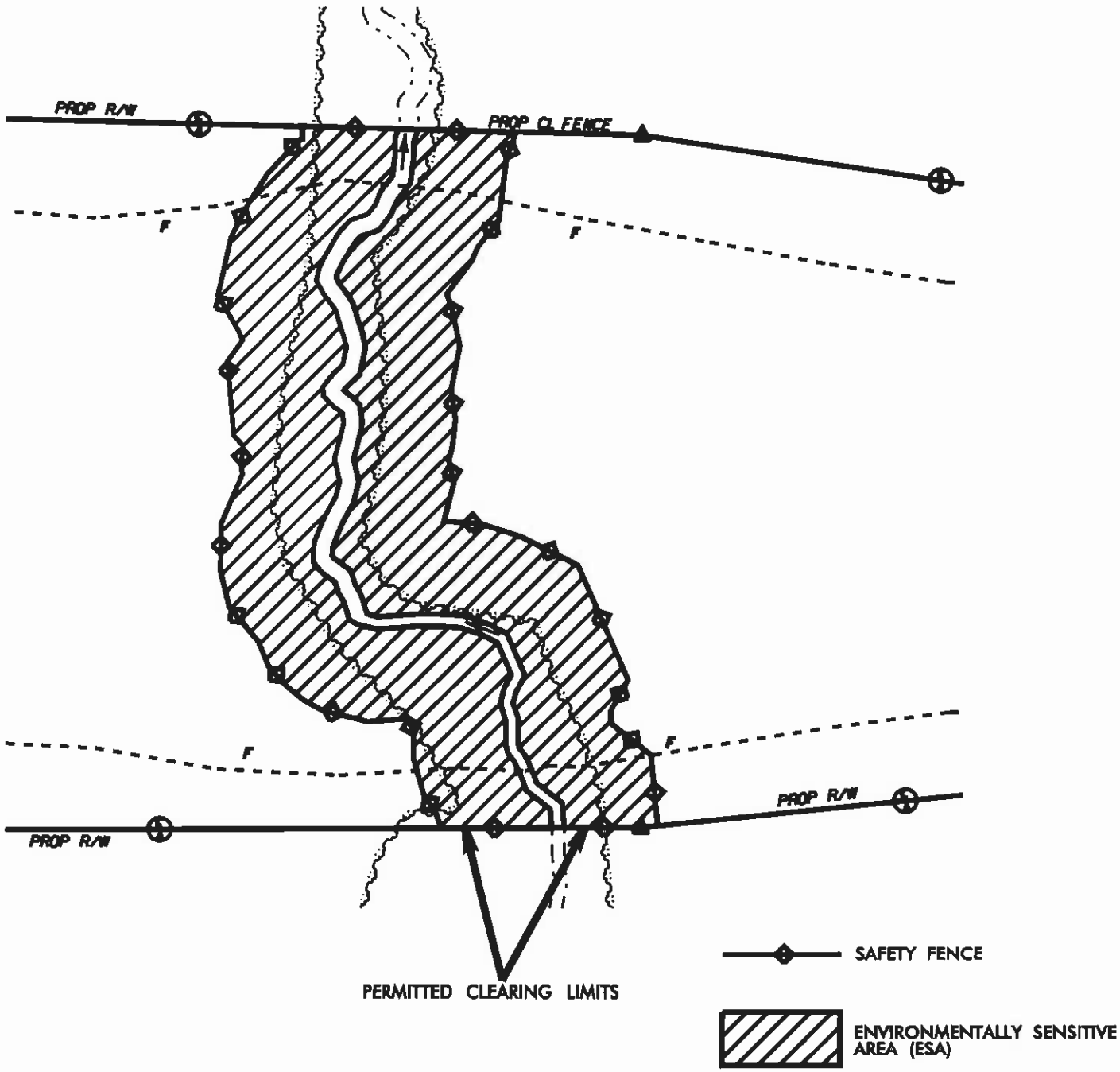
ITEM NUMBER	SEC #	DESCRIPTION	QUANTITY	UNIT COST	AMOUNT
0000100000-N	800	MOBILIZATION	LS	LS	
0000900000-N	SP	GENERIC MOBILIZATION (PILE EXCAVATION)	LS	LS	
0248000000-N	SP	GENERIC GRADING ITEM (EXCAVATION AND EMBANKMENT)	LS	LS	
0199000000-E	SP	TEMPORARY SHORING	820 SF		
0344000000-E	310	18" SIDE DRAIN PIPE	24 LIN. FT.		
0366000000-E	310	36"BIT.COATED CS PIPE CULVERT TYPE B, 0.079" THICK	32 LIN. FT.		
1220000000-E	545	INCIDENTAL STONE BASE	50 TONS		
1489000000-E	610	ASPHALT CONCRETE BASE COURSE, TYPE B25.0B	275 TONS		
1519000000-E	610	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	307 TONS		
1560000000-E	620	ASPHALT BINDER FOR PLANT MIX, TYPE PG 64-22	30 TONS		
2286000000-E	840	MASONRY DRAINAGE STRUCTURES	1 EACH		
2355000000-E	840	FRAME WITH TWO GRATES, STD 840.29	2 EACH		

ITEM NUMBER	SEC.	DESCRIPTION	QUANTITY	UNIT COST	AMOUNT
2556000000-E	846	SHOULDER BERM GUTTER	42 LIN. FT.	_____	_____
3030000000-E	862	STEEL BEAM GUARDRAIL	100 LIN. FT	_____	_____
3045000000-E	862	STEEL BEAM GUARDRAIL (SHOP CURVED)	12.5 LIN. FT	_____	_____
3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	5 EACH	_____	_____
3270000000-N	SP	GUARDRAIL ANCHOR UNIT, TYPE 350	3 EACH	_____	_____
3317000000-N	862	GUARDRAIL ANCHOR UNIT, TYPE B-77	4 EACH	_____	_____
3195000000-N	862	GUARDRAIL ANCHOR UNIT, TYPE AT-1	1 EACH	_____	_____
3656000000-E	876	FILTER FABRIC FOR DRAINAGE	660 S.Y.	_____	_____
4589000000-N	1100	GENERIC TRAFFIC CONTROL	LS	LS	_____
6000000000-E	SP	TEMPORARY SILT FENCE	1180 LIN. FT.	_____	_____
6060000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	225 TONS	_____	_____
6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	195 TONS	_____	_____
6012000000-E	1610	SEDIMENT CONTROL STONE	45 TONS	_____	_____
6029000000-E	SP	SAFETY FENCE	2700 LIN. FT.	_____	_____
6030000000-E	1630	SILT EXCAVATION	270 CY	_____	_____

ITEM NUMBER	SEC.	DESCRIPTION	QUANTITY	UNIT COST	AMOUNT
6036000000-E	1631	MATTING FOR EROSION CONTROL	7500 SY	_____	_____
6133000000-E	SP	GENERIC EROSION CONTROL	LS	LS	_____
8035000000-N	402	REMOVAL OF EXISTING STRUCTURES	LS	LS	_____
8096000000-E	SP	PILE EXCAVATION IN SOIL	20 LIN.FT.	_____	_____
8097000000-E	SP	PILE EXCAVATION NOT IN SOIL	12 LIN.FT.	_____	_____
8210000000-N	422	BRIDGE APPROACH SLABS	LS	LS	_____
8365000000-E	SP	HP12X53 GALVANIZED STEEL PILES	228 LIN.FT.	_____	_____
8391000000-E	SP	STEEL PILE POINTS FOR HP12X53 STEEL PILES	14 EACH	_____	_____
8608000000-E	876	RIP RAP CLASS II	220 TON	_____	_____
8594000000-E	876	PLAIN RIP RAP, CLASS B	1 TON	_____	_____
8765000000-N	SP	CONSTR. OF SUBSTRUCTURE	LS	LS	_____
8766000000-N	SP	CONSTR. OF SUPERSTRUCTURE	LS	LS	_____

TOTAL PROJECT BID_____

JURISDICTIONAL STREAM – HIGH QUALITY WATER (HQW)



PILE EXCAVATION (7-18-06)

1.0 GENERAL

This special provision governs installing piles using pile excavation in accordance with the plans and as directed by the Engineer. Pile excavation is necessary when piles can not be installed to the required bearing capacity and tip elevation with conventional driving equipment due to vibration concerns or the presence of rock, boulders, debris or very dense soils. Install piles in accordance with Section 450 of the Standard Specifications and this provision.

2.0 PILE EXCAVATION

Perform pile excavation to the required elevation shown on the plans or otherwise required by the Engineer. Excavate a hole with a diameter that will result in at least 3 in (75 mm) of clearance around the entire pile. Use equipment of adequate capacity and capable of drilling through soil and non-soil including rock, boulders, debris, man-made objects and any other materials encountered. Blasting is not permitted to advance the excavation. Blasting for core removal is only permitted when approved by the Engineer. Dispose of drilling spoils in accordance with Section 802 of the Standard Specifications and as directed by the Engineer. Drilling spoils consist of all excavated material including water removed from the excavation either by pumping or drilling tools.

If unstable, caving or sloughing soils are anticipated or encountered, the Engineer may require the Contractor to stabilize the excavation with steel casing. Steel casing may be either the sectional type or one continuous corrugated or non-corrugated piece. Steel casings should consist of clean watertight steel of ample strength to withstand handling and driving stresses and the pressures imposed by concrete, earth or backfill. Use steel casings with an outside diameter equal to the hole size and a minimum wall thickness of 1/4 in (7 mm).

3.0 CONCRETE PLACEMENT

Before placing concrete, center the pile in the excavation and drive to the required bearing capacity and specified tip elevation, if applicable, as shown on the plans or as directed by the Engineer. Check the water inflow rate in the excavation after any pumps have been removed. If the inflow rate is less than 6 in (150 mm) per half hour, remove any water and free fall the concrete into the excavation. Ensure that concrete flows completely around the pile. If the water inflow rate is greater than 6 in (150 mm) per half hour, propose a concrete placement procedure to the Engineer. The Engineer shall approve the concrete placement procedure before placing concrete.

Fill the excavation with Class A concrete in accordance with Section 1000 of the Standard Specifications except as modified herein. Provide concrete with a slump of 6 to 8 in (150 to 200 mm). Use an approved high-range water reducer to achieve this slump. Place concrete in a continuous manner and remove all casings.

4.0 MEASUREMENT AND PAYMENT

A. Method of Measurement

1. Pile Excavation in Soil

The quantity of "Pile Excavation in Soil" to be paid for will be the linear feet (meters) of pile excavation exclusive of the linear feet (meters) of "Pile Excavation Not in Soil" computed from elevations and dimensions as shown on the plans or from revised dimensions authorized by the Engineer.

2. Pile Excavation Not in Soil

The quantity of "Pile Excavation Not in Soil" to be paid for will be the linear feet (meters) of pile excavation in non-soil as determined by the Engineer. Non-soil is defined as material that can not be cut with a rock auger and requires excavation by coring, air tools, hand removal or other acceptable methods. Top of non-soil elevation is that elevation where the rock auger penetration rate is less than 2 in (50 mm) per 5 minutes of drilling at full crowd force and coring, air tools, etc. are used to advance the excavation. For pay purposes, after non-soil is encountered, earth seams, rock fragments and voids in the excavation less than 3 ft (0.9 m) in total length will be considered "Pile Excavation Not in Soil". If the non-soil is discontinuous, payment will revert to "Pile Excavation in Soil" at the elevation where non-soil is no longer encountered.

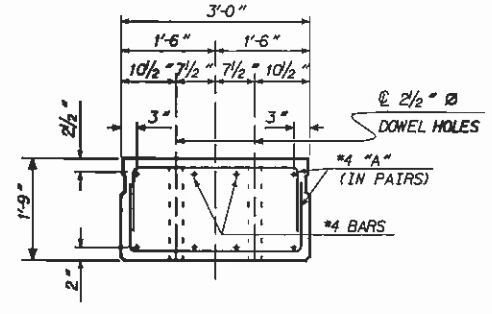
B. Basis of Payment

1. Pile Excavation in Soil

Payment will be made at the contract unit price per linear foot (meter) for "Pile Excavation in Soil". Such payment will include, but is not limited to, furnishing all labor, tools, equipment, materials including concrete complete and in place and all incidentals necessary to excavate and complete the work as described in this provision. The cost for the pile will be paid for separately in accordance with the Standard Specifications and will not be part of the unit bid price for "Pile Excavation in Soil".

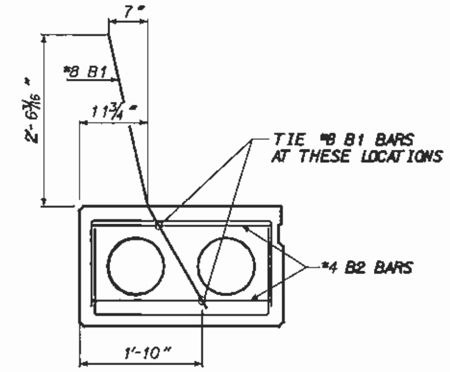
2. Pile Excavation Not in Soil

Payment will be made at the contract unit price per linear foot (meter) for "Pile Excavation Not in Soil". Such payment will include, but is not limited to, furnishing all labor, tools, equipment, materials including concrete complete and in place and all incidentals necessary to excavate and complete the work as described in this provision. The cost for the pile will be paid for separately in accordance with the Standard Specifications and will not be part of the unit bid price for "Pile Excavation Not in Soil".

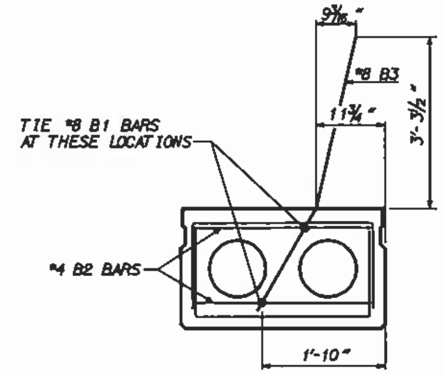


SLAB END ELEVATION

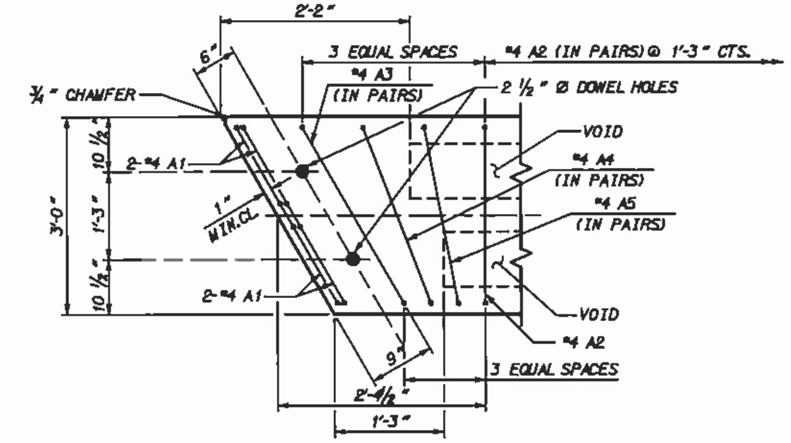
THE 2½" DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT.



TIE LOCATION FOR #8 B1



TIE LOCATION FOR #8 B3



PART PLAN - SLAB

UNIT # 5 AND EXTERIOR SLAB UNITS	60'
CAMBER (SLAB UNIT ALONE IN PLACE)	2.467" (UP)
DEFLECTION (SUPERIMPOSED DEAD LOAD)	0.419" (DOWN)*
FINAL DEFLECTION	2.057" (UP)
* INCLUDES FUTURE WEARING SURFACE	

INTERIOR SLAB UNITS	60'
CAMBER (SLAB UNIT ALONE IN PLACE)	2.621" (UP)
DEFLECTION (SUPERIMPOSED DEAD LOAD)	0.419" (DOWN)*
FINAL DEFLECTION	2.402" (UP)
* INCLUDES FUTURE WEARING SURFACE	

GENERAL NOTES

ASSUMED LIVE LOAD - HS 20-44 OR ALTERNATE LOADING.
CONCRETE: f'c - 7000 psi
CONCRETE: f'ci - 5000 psi
(COMPRESSIVE STRENGTH @ TRANSFER OF STRESSING FORCE.)

ALL PRESTRESS STRANDS SHALL MEET THE REQUIREMENTS OF ASTM A416.

ALL PRESTRESS STRANDS SHALL BE 7 WIRE, LOW RELAXATION, HIGH STRENGTH CABLES IN ACCORDANCE WITH THE SPECIFICATIONS.

SIZE	TYPE	AREA	ULTIMATE STR.
1/2" Ø	HIGH STR.	0.153 ■	41,300 # PER CABLE

APPLIED FORCE 30,980 # PER CABLE

STRUCTURAL STEEL ITEMS SHALL BE OF A GRADE CONFORMING TO EITHER ASTM A36 OR A573, EXCEPT HIGH STRENGTH BOLTS. HIGH STRENGTH BOLTS SHALL BE ASTM A325. ALL STRUCTURAL STEEL SHALL BE GALVANIZED AS PER THE SPECIFICATIONS.

ALL MATERIAL AND WORKMANSHIP SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OF THE NC DEPARTMENT OF TRANSPORTATION DATED JANUARY 2002 AND WITH THE SPECIAL PROVISIONS.

THE ULTIMATE STRENGTH OF THE CORED SLAB UNIT MUST MEET THE REQUIREMENTS OF THE APPLICABLE AASHTO SPECIFICATIONS.

STRANDS SHALL BE CUT FLUSH WITH ENDS OF SLABS AND EPOXY COATED.

A POSITIVE HOLD DOWN SYSTEM MUST BE EMPLOYED TO PREVENT VOIDS FROM RISING.

NOTE:
SPIRAL WIRE REINFORCEMENT MAY BE USED IN LEIU OF DEFORMED BARS FOR STIRRUPS. MIN.W3.5 X 6" PITCH.

UNLESS OTHERWISE NOTED ON THE PLANS. ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾".

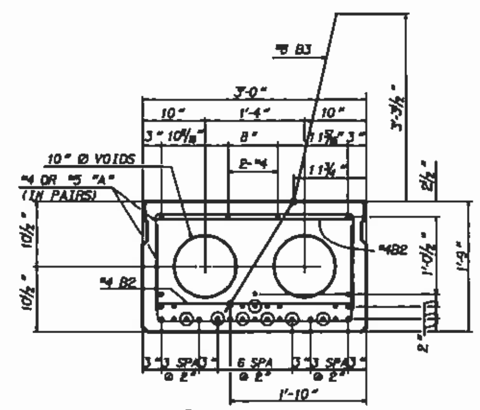
⚠1 APPLY EPOXY PROTECTIVE COATING TO THE ENDS OF THE CORED SLAB UNITS.

SHEATH CHART			
SPAN LENGTH	NUMBER OF SHEATHED STRANDS PER EXTERIOR SLAB SECTIONS	NUMBER OF SHEATHED STRANDS PER INTERIOR SLAB SECTIONS	NUMBER OF SHEATHED STRANDS PER UNIT #5 SLAB SECTIONS
60'	* 4 @ 2"	* 2 @ 2"	* 4 @ 2"
60'	* 1 @ 4"	** 2 @ 2"	* 1 @ 4"
60'	** 2 @ 2"	*** 2 @ 2"	** 2 @ 2"

* BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4 FEET FROM THE END OF THE SLAB

** BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6 FEET FROM THE END OF THE SLAB

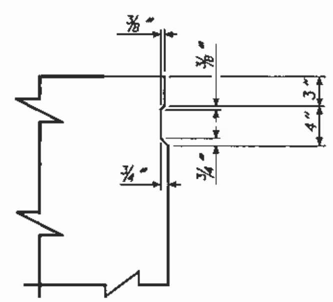
*** BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12 FEET FROM THE END OF THE SLAB



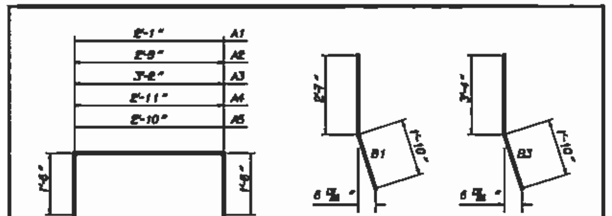
60' SPAN

29 - ½" Ø H.S.STRANDS
CORED SLAB UNIT #5
(STAGE 2)

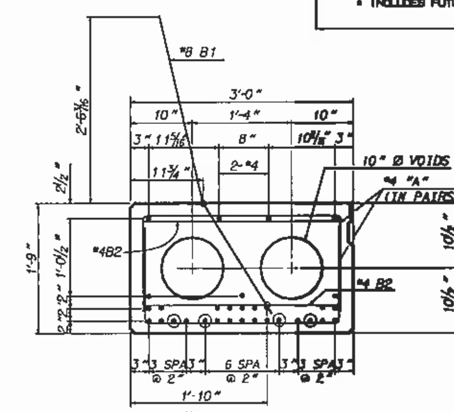
⊙ STRAND IS SHEATHED. SEE SHEATH CHART.



SHEAR KEY DETAIL



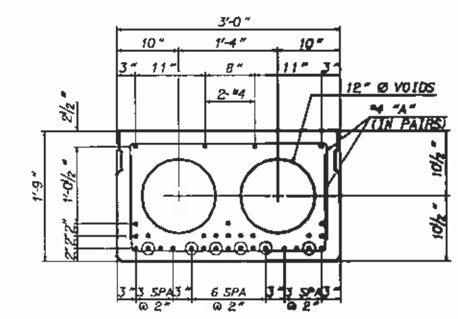
REINFORCING BAR TYPES
BAR DIMENSIONS ARE OUT TO OUT



60' SPAN

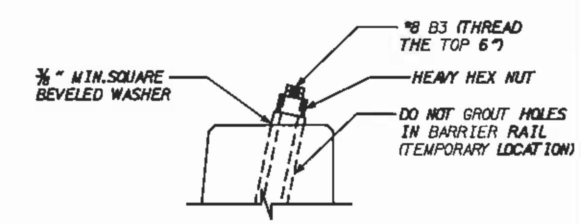
29 - ½" Ø H.S.STRANDS
EXTERIOR SLAB SECTIONS

⊙ STRAND IS SHEATHED. SEE SHEATH CHART.

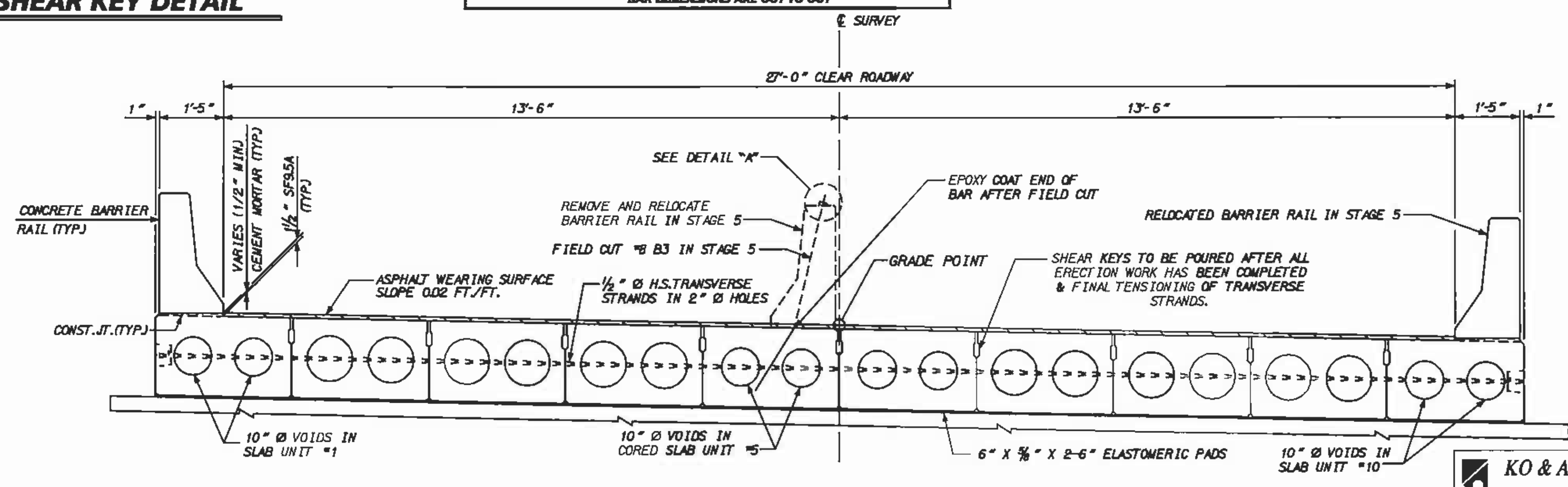


60' SPAN

29 - ½" Ø H.S.STRANDS
INTERIOR SLAB SECTIONS



DETAIL "A"



TYPICAL SECTION

⚠1 ADDED NOTE.

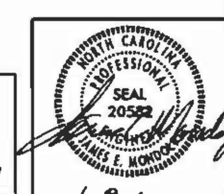
NOT TO SCALE

PROJECT NO. 42833
COUNTY: YANCEY
STATION: 16+03.00
REPLACES BRIDGE NO. 162

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD PRESTRESSED CORED SLAB
60' SPAN
27' CLEAR ROADWAY - 60° SKEW

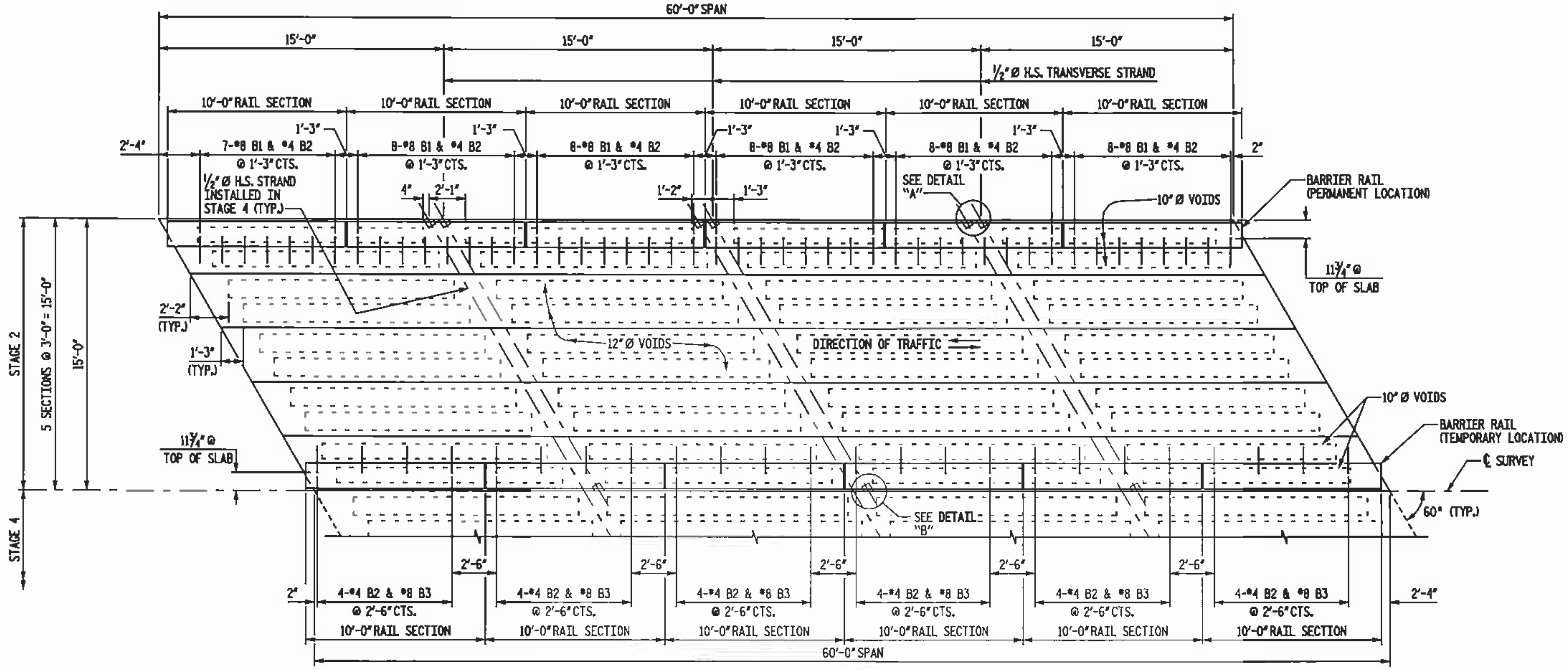
KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066



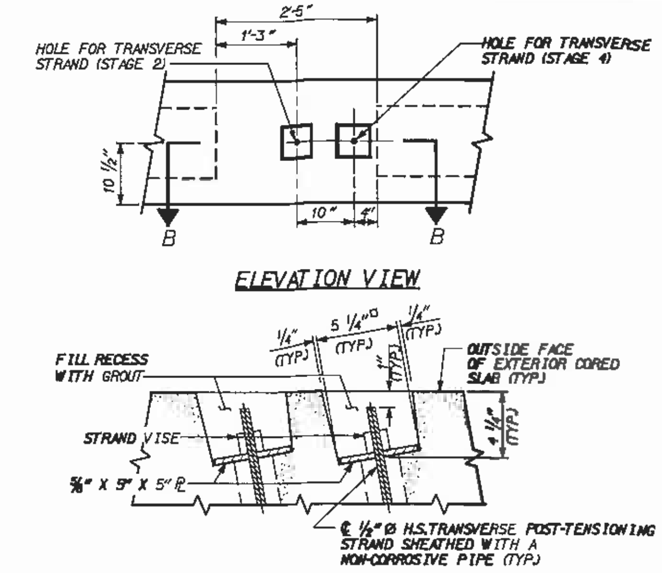
1-8-10

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	3
1	JEM	12/29/09	3			TOTAL SHEETS
2			4			31

DRAWN BY: B.E. LANNING DATE: NOV 2009
CHECKED BY: J.E. MONDOLFI DATE: NOV 2009

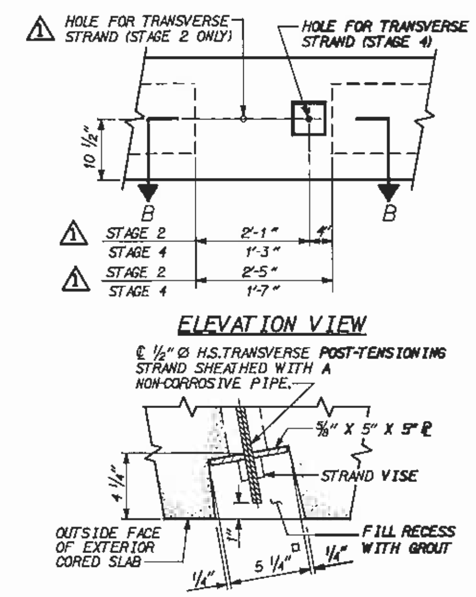


STAGE 2 PLAN VIEW - 60' SPAN



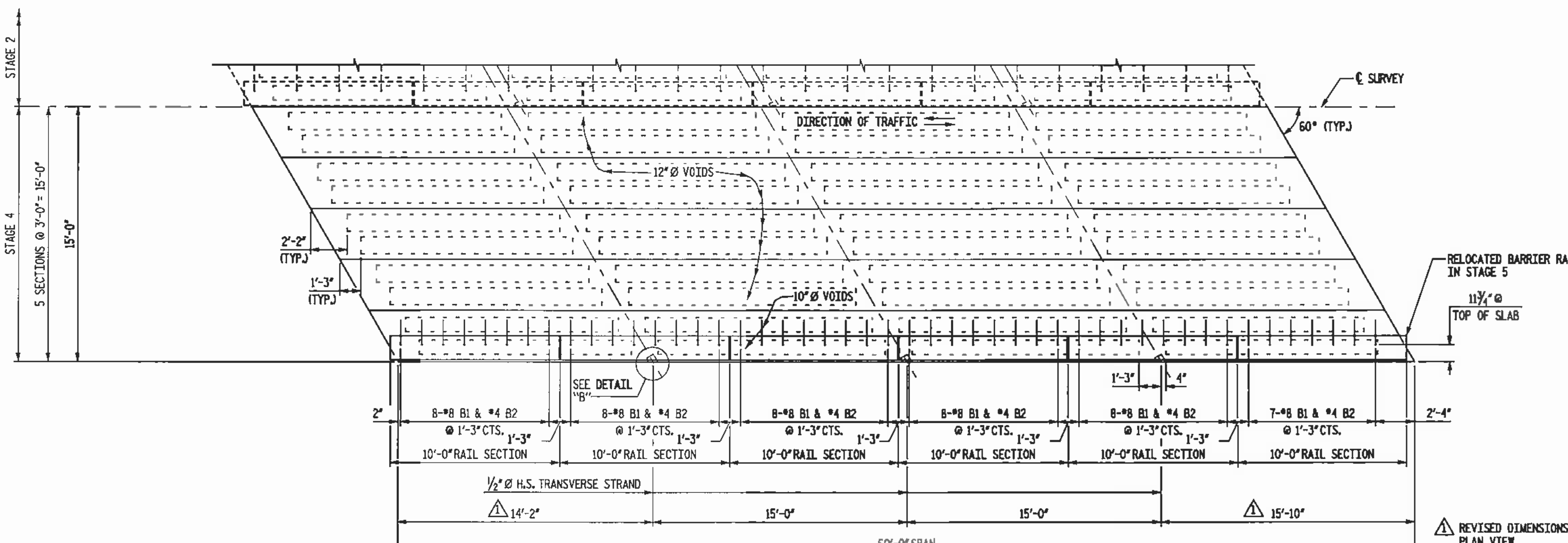
DETAIL "A"

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



DETAIL "B"

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



STAGE 4 PLAN VIEW - 60' SPAN

PROJECT NO. 42833
COUNTY: YANCEY
STATION: 16+03.00
REPLACES BRIDGE NO. 162

⚠ REVISED DIMENSIONS IN STAGE 4 PLAN VIEW

REVISED DETAIL B ELEVATION VIEW

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD PRESTRESSED CORED SLAB
60' SPAN
27' CLEAR ROADWAY - 60° SKEW

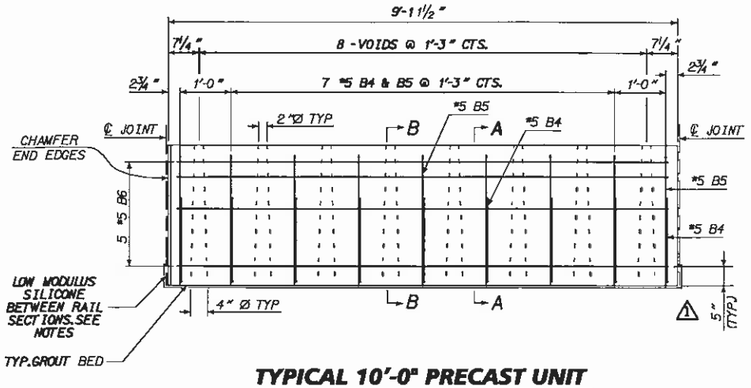
KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N.C. 27607
(919) 851-6066

1-4-10

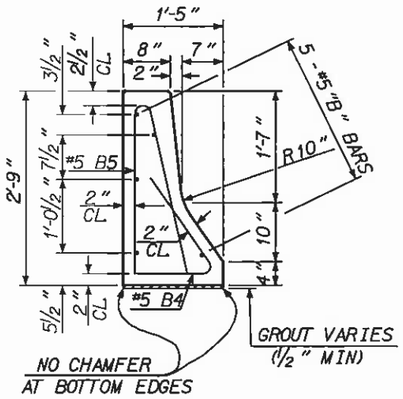
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	4
1	JEM	12/29/09	3			TOTAL SHEETS
2			4			31

DRAWN BY: B.E. LANNING DATE: NOV 2009
CHECKED BY: J.E. MONDOLFI DATE: NOV 2009

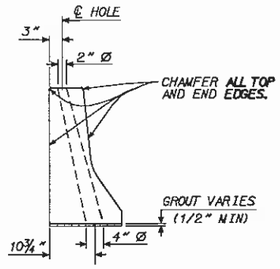
NOT TO SCALE



TYPICAL 10'-0" PRECAST UNIT

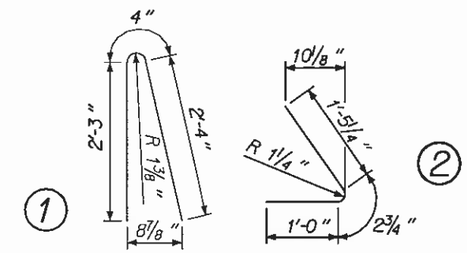


SECTION A-A

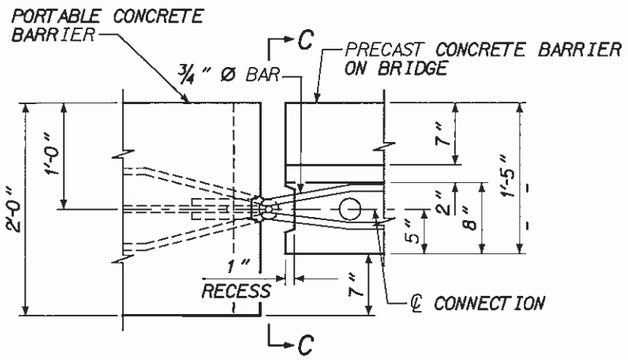


SECTION B-B

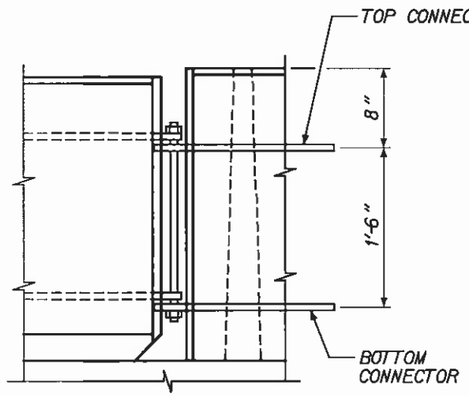
BILL OF MATERIAL					
FOR ONE 10'-0" RAIL SECTION					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B4	9	#5	1	4'-11"	46
B5	9	#5	2	2'-8"	25
B6	5	#5	STR	9'-7"	50
REINFORCING STEEL LBS. = 121					
CLASS AA CONCRETE CU. YDS. = 1.0					



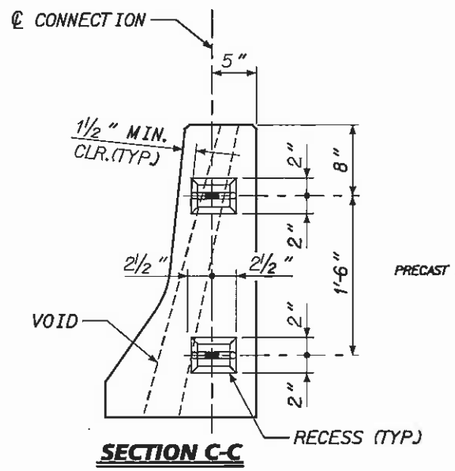
REINFORCING BAR TYPES
BAR DIMENSIONS ARE OUT TO OUT



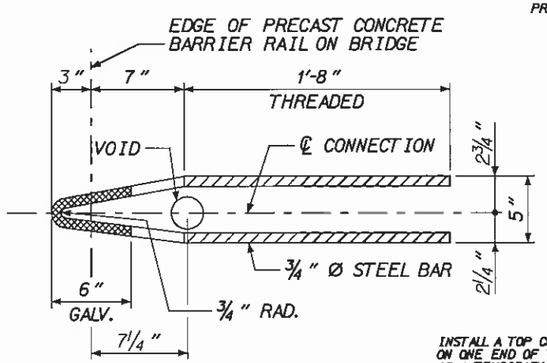
PLAN



ELEVATION



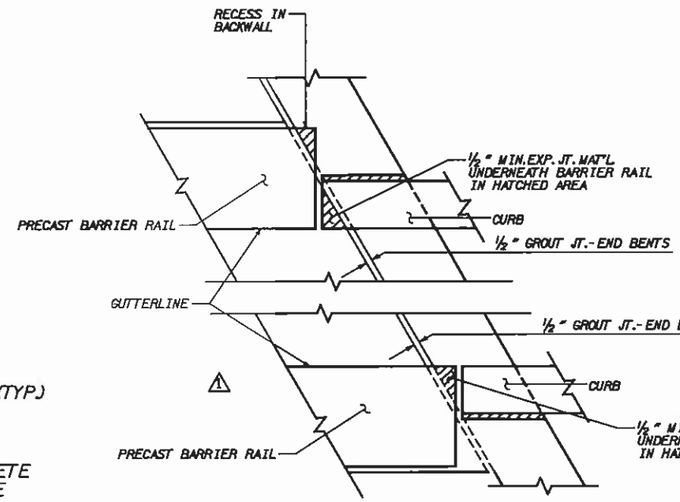
SECTION C-C



CONNECTOR DETAIL

INSTALL A TOP CONNECTOR AND A BOTTOM CONNECTOR ON ONE END OF THE BRIDGE BARRIER RAIL UNIT, USED AS A TEMPORARY BARRIER RAIL FOR STAGE 4 CONSTRUCTION, LOCATED AT THE BEGINNIG AND AT THE END OF THE BRIDGE.

AFTER MOVING THE BARRIER RAIL TO IT'S PERMANENT LOCATION IN STAGE 5, CUT THE 3/4" Ø BAR CONNECTOR FLUSH WITH THE CONCRETE SURFACE. FILL RECESS WITH NON-SHRINK, NON-METALLIC GROUT TO THE NEAT LINE OF BARRIER RAIL UNIT.



PLAN OF BARRIER RAIL AND CURB CORED SLAB AT END BENTS

⚠ NOTES

EACH PRECAST RAIL UNIT SHALL BE CAST WITH CLASS AA CONCRETE.

CENTERLINE OF RAIL TO BE FLUSH WITH END OF CORED SLAB UNITS AT EACH END OF SPAN.

EACH PRECAST RAIL UNIT SHALL BE SUPPLIED WITH LIFTING DEVICE(S). NO CABLES ARE TO BE WRAPPED AROUND THE RAIL UNITS FOR LIFTING.

THE JOINT SEALER SHALL BE LOW MODULUS SILICONE SEALANT. SEE SECTION 1028-4 OF THE STANDARD SPECIFICATIONS.

⚠ ADDED "5 INCH" DIMENSION
REVISED NOTES
REVISED PLAN OF BARRIER RAIL DETAIL

PROJECT NO. 42833
COUNTY: YANCEY
STATION: 16+03.00
REPLACES BRIDGE NO. 162

CONNECTION DETAIL
(PORTABLE CONCRETE BARRIER AT END OF BRIDGE)

NOT TO SCALE

DRAWN BY: B.E. LANNING DATE: NOV 2009
CHECKED BY: J.E. MONDOLFI DATE: NOV 2009

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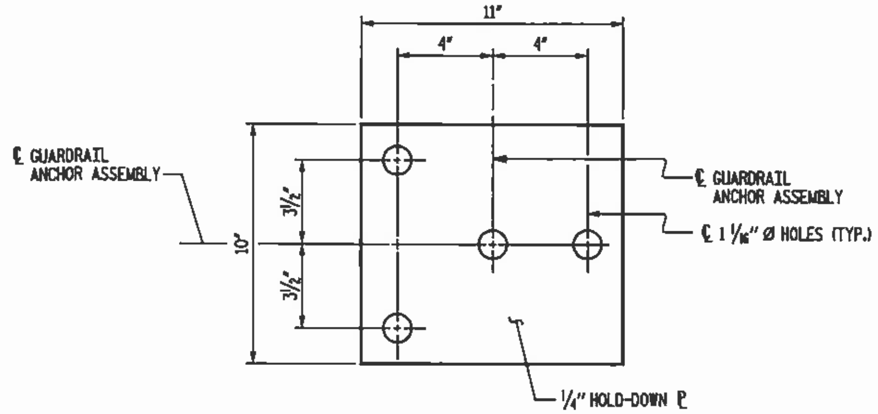
(919) 851-6066

NORTH CAROLINA PROFESSIONAL SEAL 27582 ENGINEER JAMES E. MONDOLFI
1-4-10

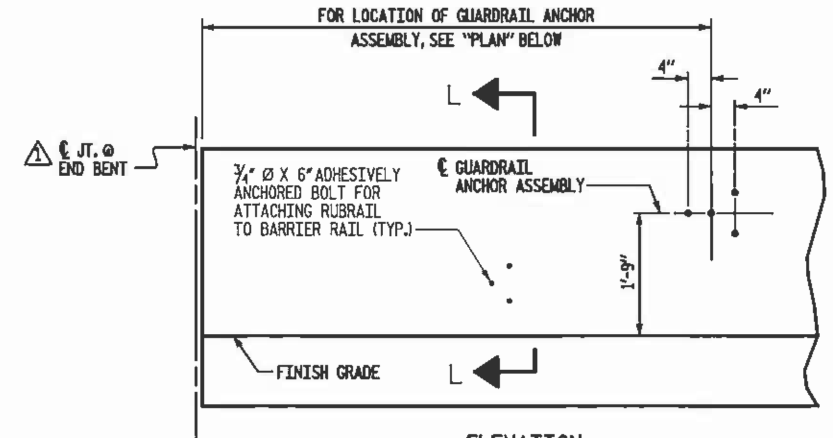
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD PRECAST CONCRETE BARRIER RAIL SECTIONS
60' SPAN
27' CLEAR ROADWAY – 60° SKEW

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5
1	JEM	12/29/09	3			TOTAL SHEETS
2			4			31

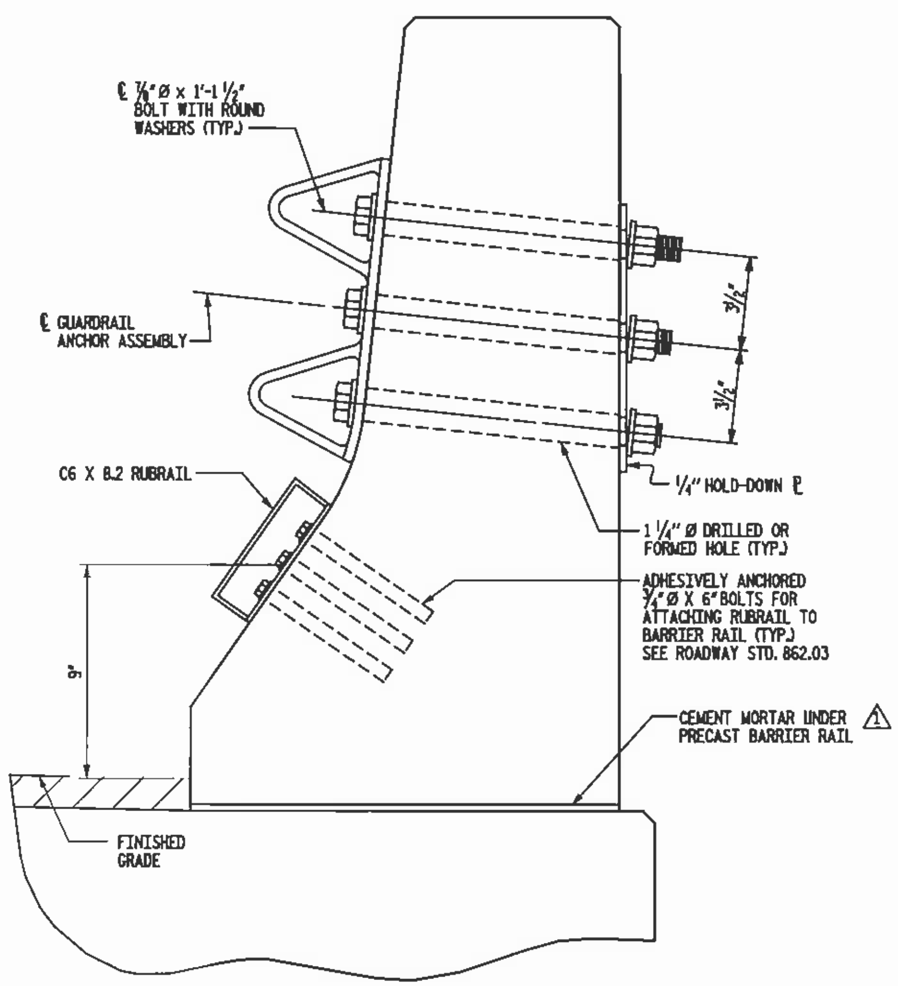


PLAN



ELEVATION

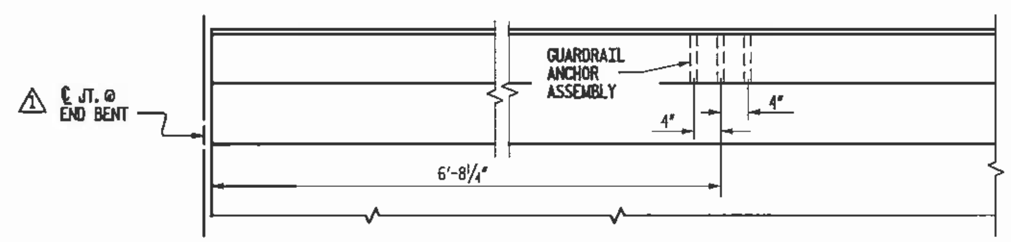
FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION L-L

GUARDRAIL ANCHOR ASSEMBLY DETAILS

FOR CONCRETE BARRIER RAIL ONLY
(FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE THIS SHEET)



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

FOR CONCRETE BARRIER RAIL ONLY
ABUTMENT #1 SHOWN, ABUTMENT #2 SIMILAR

NOTES

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

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" 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.)

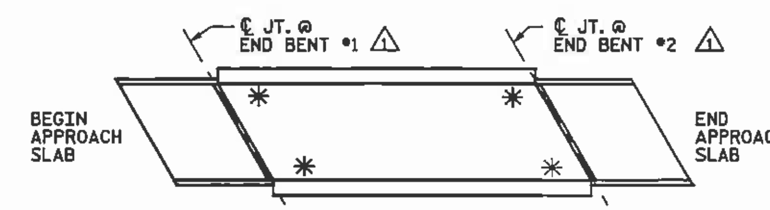
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF CONCRETE BARRIER RAIL OR COCNCRETE END POSTS. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

⚠1 THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR GUARDRAIL ANCHOR UNIT TYPE B-77.

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

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



SKETCH SHOWING POINTS OF ATTACHMENT

✱ INDICATES POINTS OF ATTACHMENT

⚠1 REVISED NOTE.
REVISED DESCRIPTION CALLOUT.
ADDED MORTAR NOTE.

PROJECT NO. 42833
COUNTY: YANCEY
STATION: 16+03.00
REPLACES BRIDGE NO. 162

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
GUARDRAIL ANCHORAGE
DETAILS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	6
1	JEM	12/29/09	3			TOTAL SHEETS
2			4			31

KO & ASSOCIATES, P.C.
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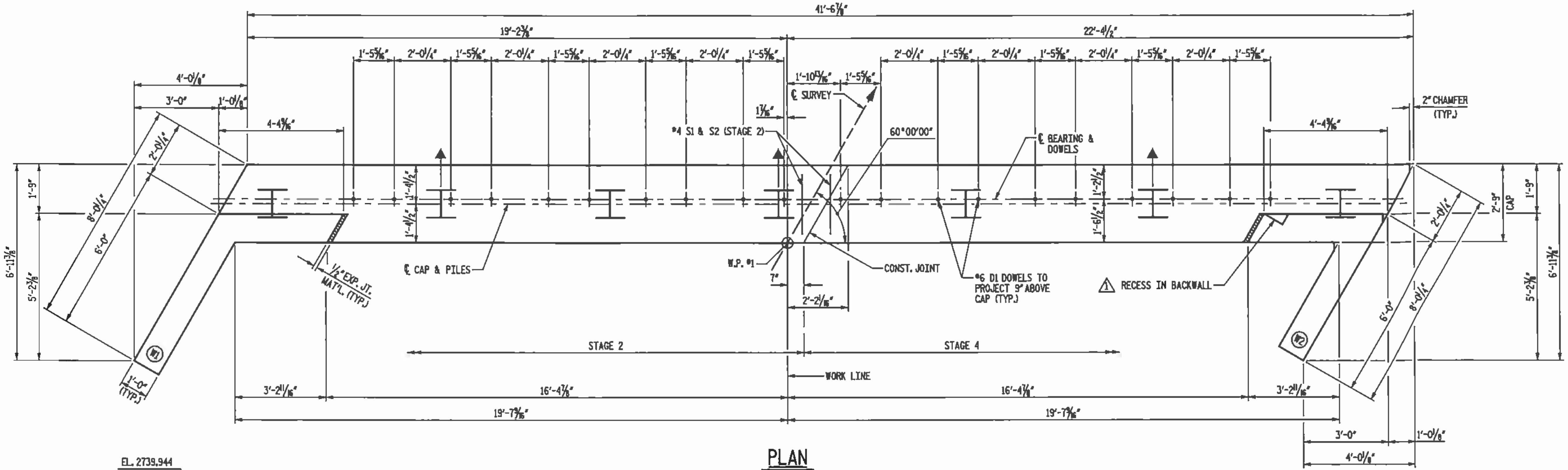
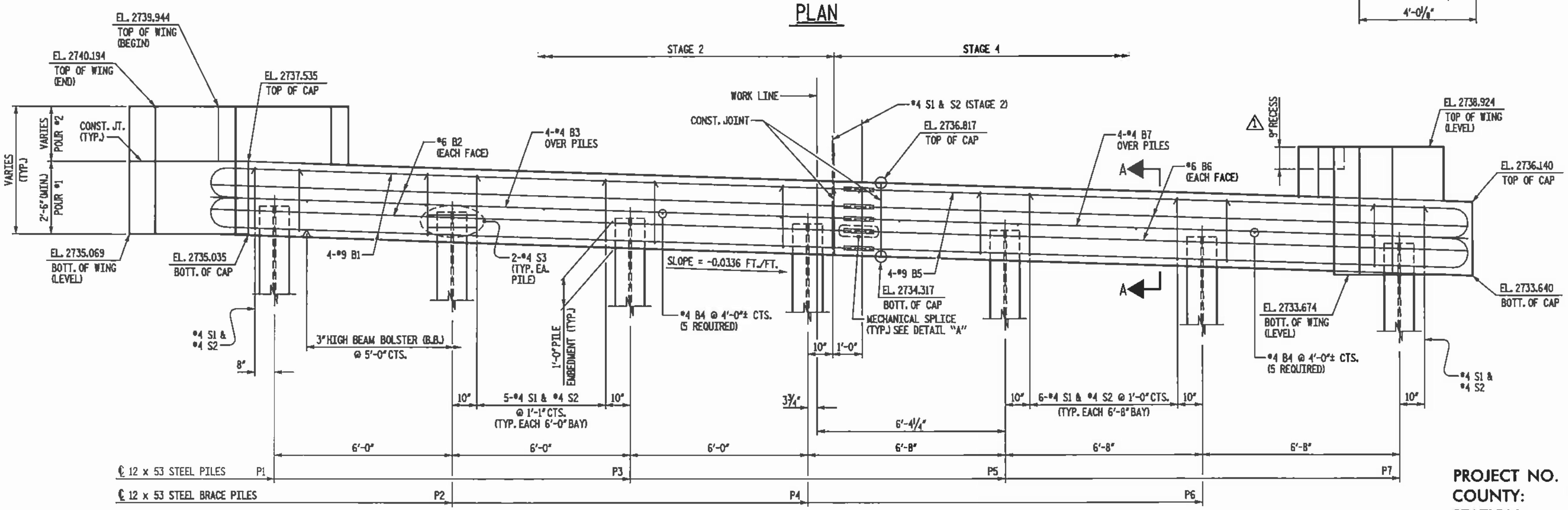
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20500 JAMES E. MONDOLFI
1-4-10

NOT TO SCALE

DRAWN BY: B.E. LANNING DATE: NOV 2009
CHECKED BY: J.E. MONDOLFI DATE: NOV 2009



PLAN



ELEVATION

NOTES:

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

TOP OF PILE ELEVATIONS	
PILE	ELEVATION
P1	2736.063
P2	2735.862
P3	2735.660
P4	2735.459
P5	2735.235
P6	2735.011
P7	2734.787

INDICATES BRACE PILE (BATTER: 3:12)

⚠ ADDED RECESS IN BACKWALL

REMOVED SECOND NOTE

PROJECT NO. 42833
COUNTY: YANCEY
STATION: 16+03.00
REPLACES BRIDGE NO. 162

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

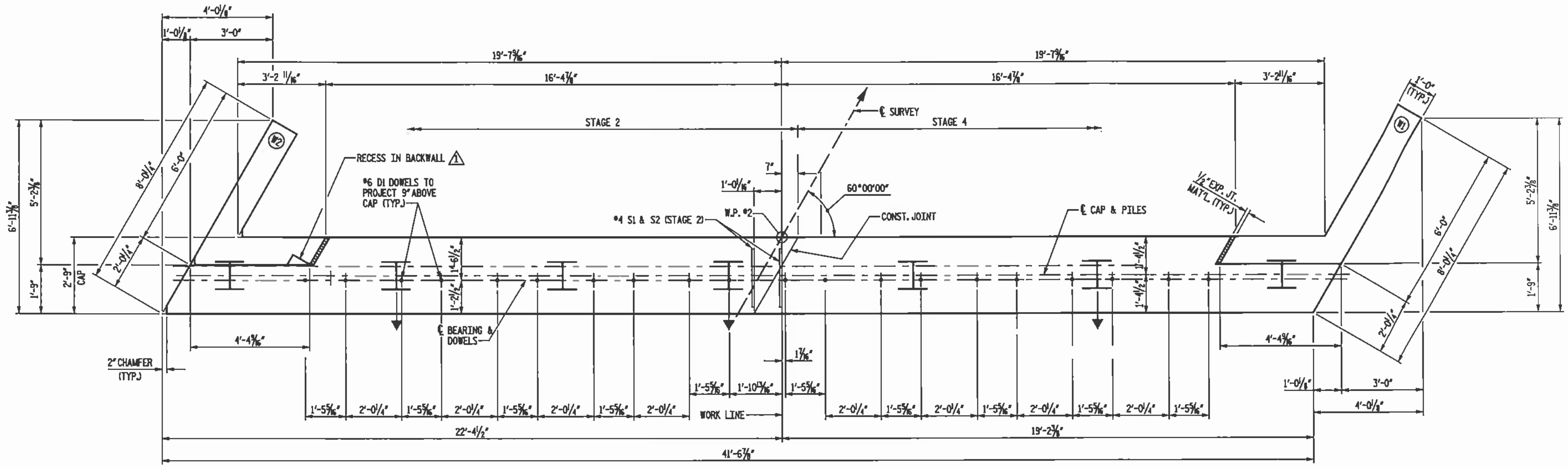
CAST - IN - PLACE
END BENT NO. 1
60' SPAN WITH APPROACH SLAB
27' CLEAR ROADWAY - 60° SKEW

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	JEM	12/29/09	3		
2			4		

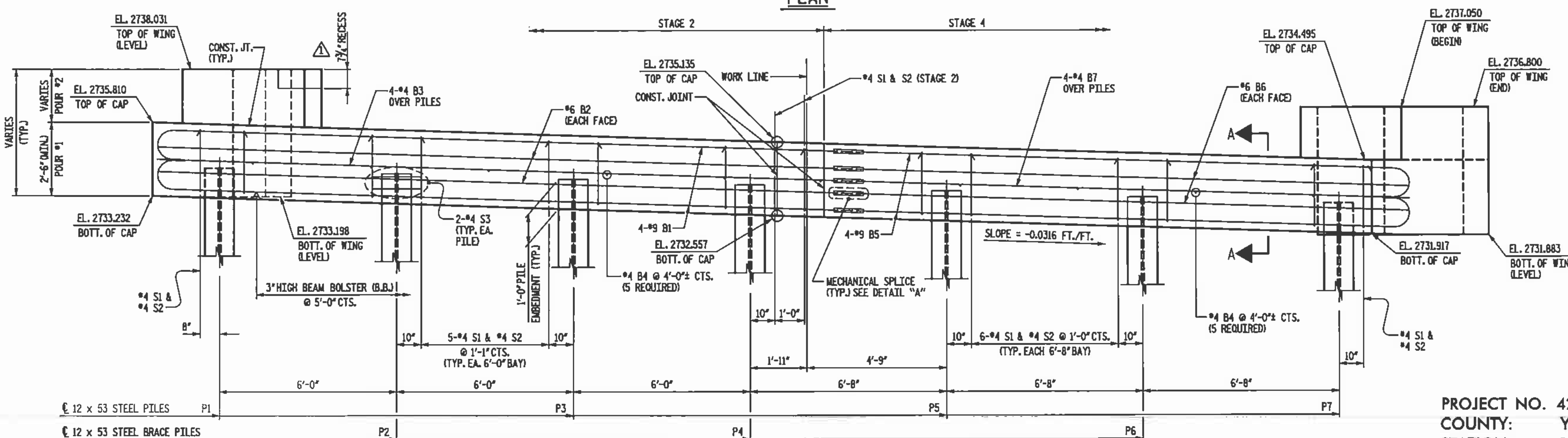
SHEET NO. 7
TOTAL SHEETS 31

1-4-10

DRAWN BY: B.E. LANNING DATE: NOV 2009
CHECKED BY: J.E. MONDOLFI DATE: NOV 2009



PLAN



PROJECT NO. 42833
COUNTY: YANCEY
STATION: 16+03.00
REPLACES BRIDGE NO. 162

ELEVATION

TOP OF PILE ELEVATIONS	
PILE	ELEVATION
P1	2734.221
P2	2734.031
P3	2733.841
P4	2733.651
P5	2733.440
P6	2733.229
P7	2733.018

NOTES:

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

⚠

INDICATES BRACE PILE (BATTER: 3:12)

⚠ ADDED RECESS IN BACKWALL
REMOVED SECOND NOTE

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20587 JAMES E. MONDOLFI
1-4-10

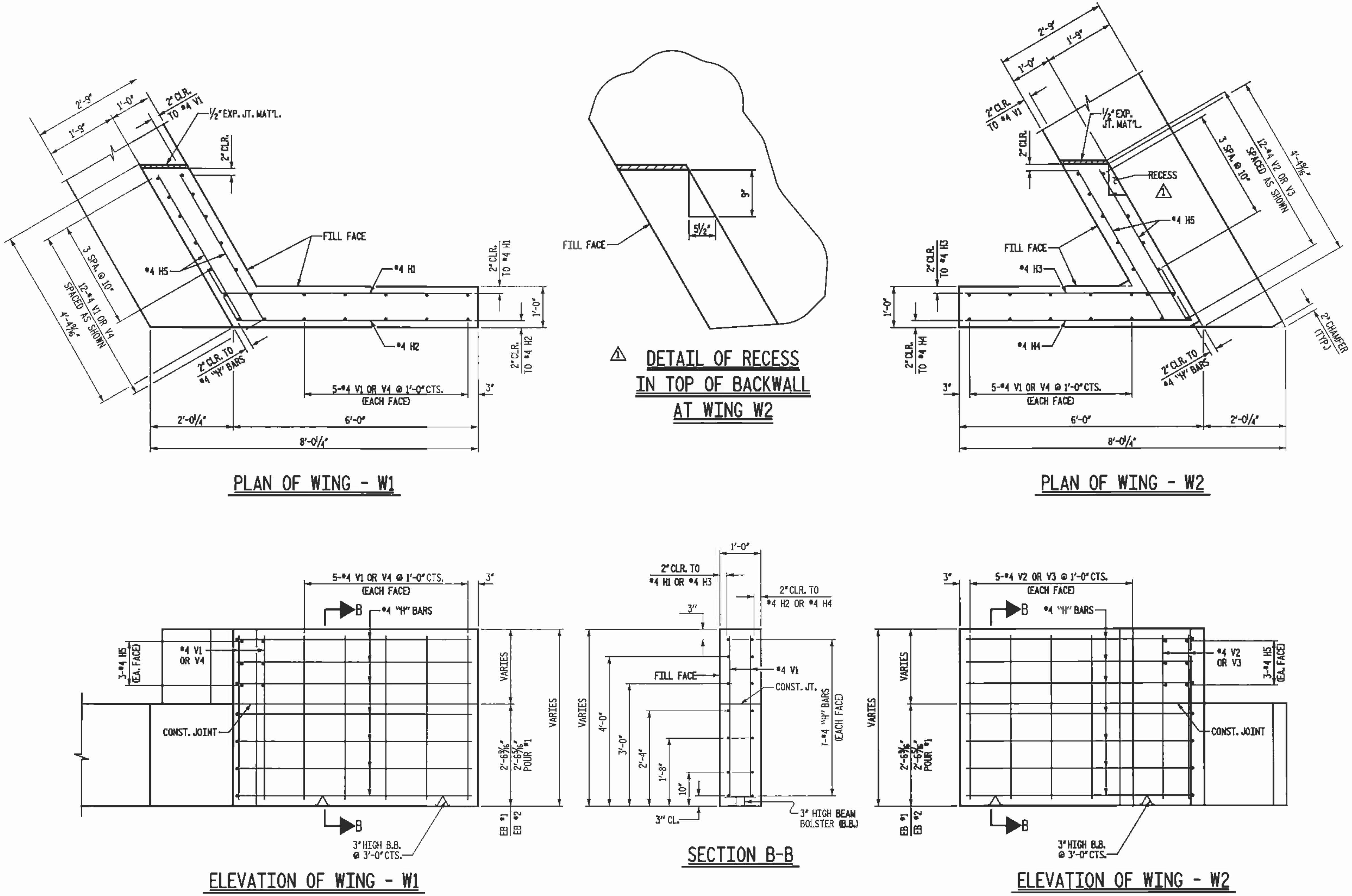
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CAST - IN - PLACE
END BENT NO. 2
60' SPAN WITH APPROACH SLAB
27' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	8
1	JEM	12/29/09	3			TOTAL SHEETS
2			4			31

DRAWN BY: B.E. LANNING DATE: NOV 2009
CHECKED BY: J.E. MONDOLFI DATE: NOV 2009

NOT TO SCALE



NOTE:
SHIFT, FIELD BEND OR CUT REINFORCING STEEL AS NECESSARY TO CLEAR RECESS IN TOP OF BACKWALL.

PROJECT NO. 42833
COUNTY: YANCEY
STATION: 16+03.00
REPLACES BRIDGE NO. 162

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CAST - IN - PLACE
END BENT NO. 1 & 2 DETAILS

⚠ ADDED RECESS DETAIL AND NOTE

KO & ASSOCIATES, P.C.
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(919) 851-6066

NOT TO SCALE

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	9
1	JEM	12/29/09	3			TOTAL SHEETS
2			4			31

DRAWN BY: B.E. LANNING DATE: NOV 2009
CHECKED BY: J.E. MONDOLFI DATE: NOV 2009

1-4-10

BILL OF MATERIAL

APPROACH SLAB AT END BENT #1 - STAGE 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	13	4	STR	17'- 6"	152
A2	13	4	STR	17'- 5"	152
*B1	29	5	STR	11'- 1"	335
B2	29	6	STR	11'- 7"	505
REINFORCING STEEL				LBS.	657
*EPOXY COATED REINFORCING STEEL				LBS.	487
CLASS AA CONCRETE				C. Y.	7.5

APPROACH SLAB AT END BENT #1 - STAGE 4					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A3	13	4	STR	14'-10"	129
A4	13	4	STR	14'-10"	129
*B1	27	5	STR	11'- 1"	312
B2	27	6	STR	11'- 7"	470
REINFORCING STEEL				LBS.	599
*EPOXY COATED REINFORCING STEEL				LBS.	441
CLASS AA CONCRETE				C. Y.	7.5

APPROACH SLAB AT END BENT #2 - STAGE 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	13	4	STR	17'- 6"	152
A2	13	4	STR	17'- 6"	152
*B1	29	5	STR	11'- 1"	335
B2	29	6	STR	11'- 7"	505
REINFORCING STEEL				LBS.	657
*EPOXY COATED REINFORCING STEEL				LBS.	487
CLASS AA CONCRETE				C. Y.	7.5

APPROACH SLAB AT END BENT #2 - STAGE 4					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A3	13	4	STR	14'-10"	129
A4	13	4	STR	14'-10"	129
*B1	27	5	STR	11'- 1"	312
B2	27	6	STR	11'- 7"	470
REINFORCING STEEL				LBS.	599
*EPOXY COATED REINFORCING STEEL				LBS.	441
CLASS AA CONCRETE				C. Y.	7.5

NOTES

⚠ FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4"Ø DRAINAGE PIPE, AND *78M STONE BACKFILL, SEE BRIDGE APPROACH FILLS, SHEET 13A.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO INSTALLATION OF CORED SLAB.

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

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

*78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF END BENT CAP FROM OUTSIDE EDGE OF APPROACH SLAB.

⚠ FOR THE 4"Ø DRAINAGE PIPE OUTLET(S), SEE BRIDGE APPROACH FILLS, SHEET 13A.

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.

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

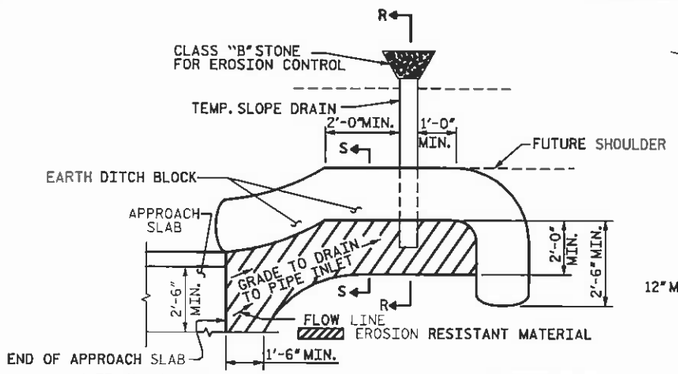
THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

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

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

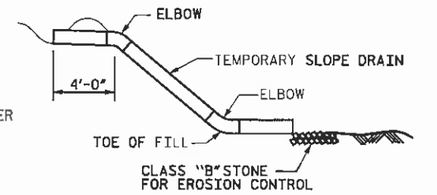
APPROACH SLAB GROOVING IS NOT REQUIRED.

*78 STONE BACKFILL 4"Ø DRAINAGE PIPE, AND FABRIC SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR APPROACH SLABS.

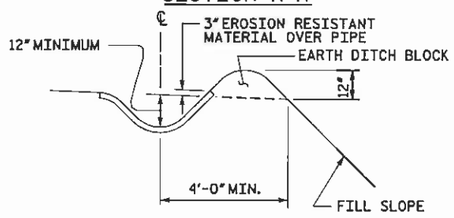


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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.

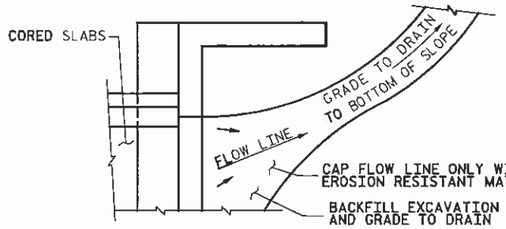
PLAN VIEW



SECTION R-R



SECTION S-S

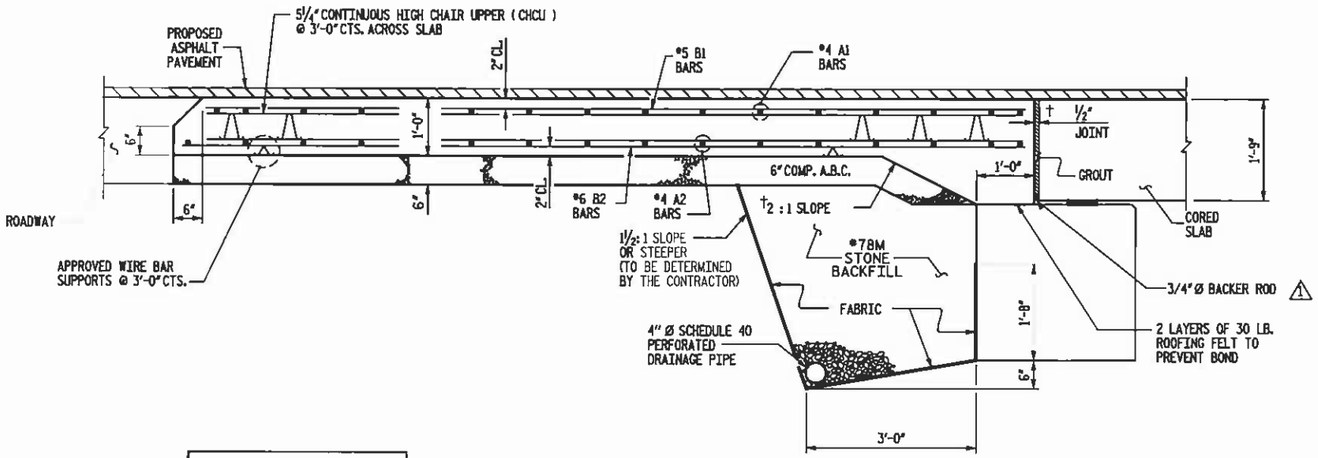


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

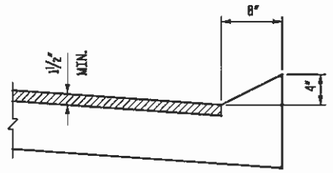
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

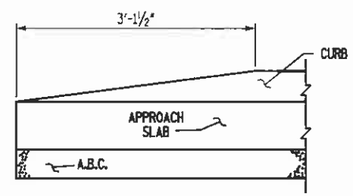


† NORMAL TO END BENT

SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

⚠ REVISED NOTES
ADDED BACKER ROD NOTE
REVISED TITLE BLOCK

PROJECT NO. 42833
COUNTY: YANCEY
STATION: 16+03.00
REPLACES BRIDGE NO. 162

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

⚠ APPROACH SLAB
27'-0" CLEAR ROADWAY
60° SKEW

KO & ASSOCIATES, P.C.
Consulting Engineers
A Florence & Hutcheson, Inc. Company
5121 KINGDOM WAY, SUITE 100 RALEIGH, N C 27607
(919) 851-6066

NORTH CAROLINA PROFESSIONAL SEAL 29537 ENGINEER JAMES E. MONDOLFI
1-4-10

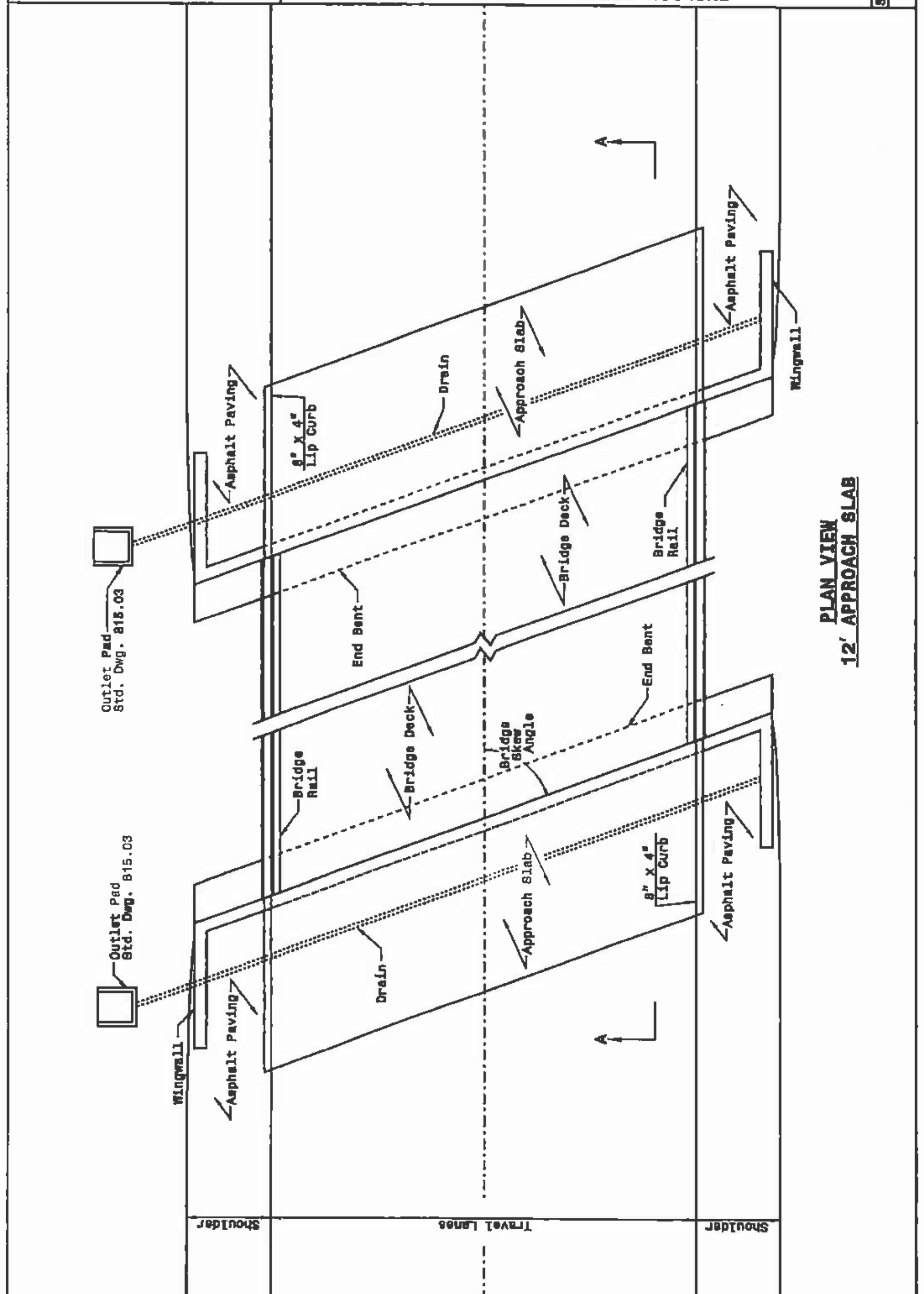
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	13
1	JEM	12/29/09	3			TOTAL SHEETS
2			4			31

DRAWN BY: B.E. LANNING DATE: NOV 2009
CHECKED BY: J.E. MONDOLFI DATE: NOV 2009

NOT TO SCALE

PLOT: 1/4/2010

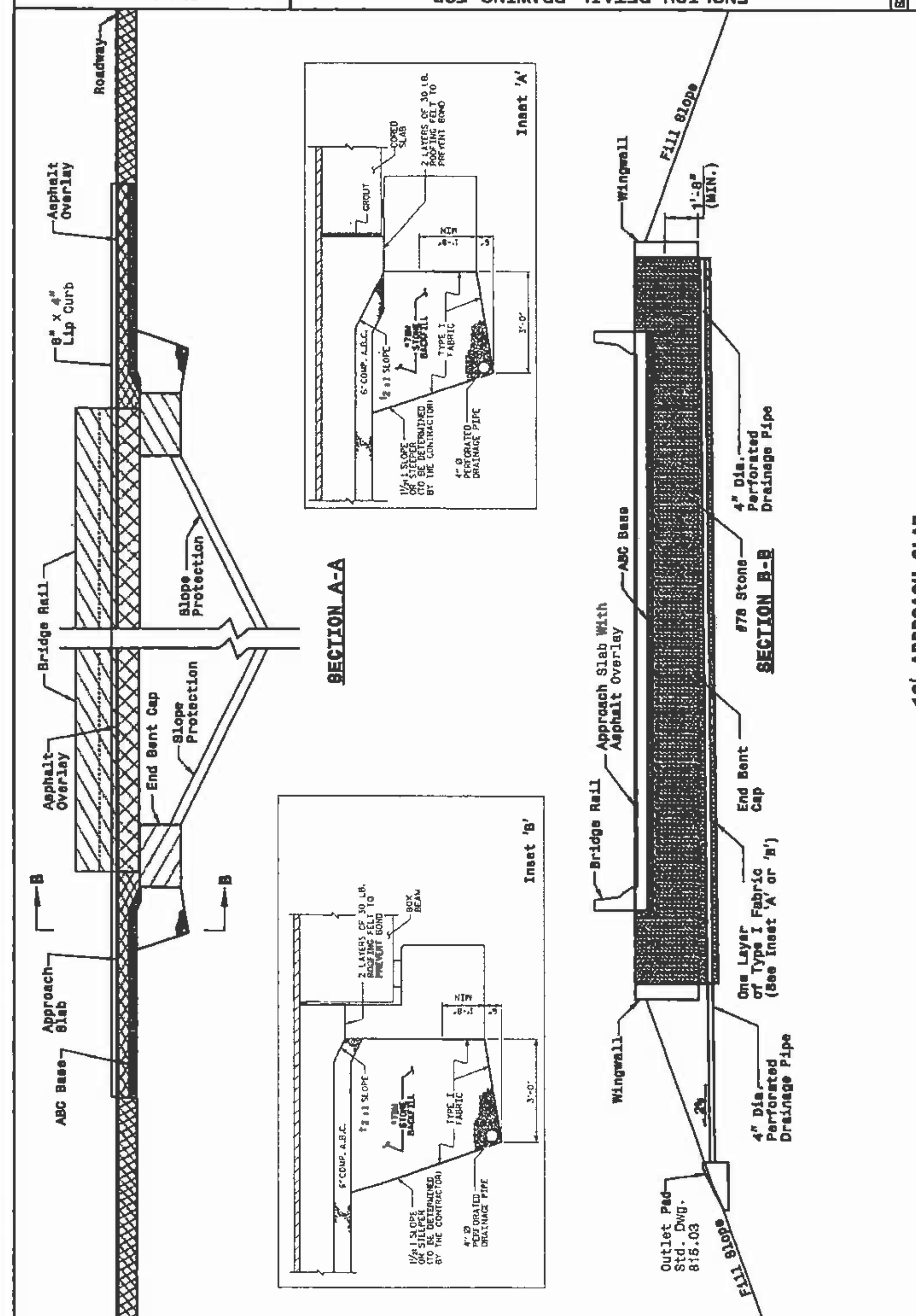
PROJECT REFERENCE NO.	SHEET NO.
B-5231	13A



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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 1 OF 2
422D11



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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 2 OF 2
422D11

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

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

ORIGINAL BY: K. A. Kempf DATE: 6-10-08
MODIFIED BY: DATE:
CHECKED BY: DATE:
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OFFICIAL ROSTER OF PRE-BID CONFERENCE ATTENDEES

NCDOT- BRIDGE MANAGEMENT UNIT -POC

DATE: January 6, 2010
TIME: 10:00 a.m.

BRIDGE REPLACEMENT CONTRACTS:

1. **Rowan County Bridge No. 210, DO00019 (B-5222)**
2. **Yancey County Bridge No. 162, DO00020 (B-5231)**

*** CIRCLE THE NUMBER CORRESPONDING TO THE PROJECT THAT YOU PLAN TO BID ON.**

NAME	*PROJECT	COMPANY REPRESENTED AND ADDRESS	CONTACT INFORMATION
Zaki WAFA	1 2	SBMU - NCDOT	Email: Zwafa@ncdot.gov Phone: 919-835-8255 Fax: 919-733-2348
DAVID BARE	(1) 2	APPLE TUCK & Assoc P.O. Box 904 RUTHERFORDTON NC 28139	Email: appletuck@att.net Phone: 828 287 3767 Fax: 828 287 2181
Casey Cross	1 2	Carolina Site Works	Email: darrell@carolinasiteworks.com Phone: 704-855-7483 Fax: 704-855-7676
Jimmy Sturgill	1 2	Summers Taylor Inc Box 1628 300 west Elk Avenue Elizabethon TN, 37644	Email: jimmysturgill@stimail.com Phone: 423-543-3181 Fax: 423-543-6189
Anderson Rowe	1 2	Smith-Rowe, Inc. 639 old US Hwy 52 S. Mount Airy, NC 27030	Email: dlrowe@triad.rr.com Phone: 336-789-8221 Fax:
Tia Lester	1 2	TCB Builders Inc PO Box 1625 Lexington NC 27293	Email: tcbbuilder@aol.com Phone: 336-224-2200 Fax: 336-224-2299
Tim Waddell	(1) 2	Wayne Brothers, Inc 195 Ervin Woods Drive Kannapolis NC 28081	Email: timw@waynebros.com Phone: 704-939-7027 Fax: 704-938-8680

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NAME	*PROJECT	COMPANY REPRESENTED AND ADDRESS	CONTACT INFORMATION
Richard Nickol	(1) (2)	Carolina Bridge Co PO Box 515 Orangeburg SC 29116	Email: Richard@CarolinaBridgeInc.com Phone: 803-536-1156 Fax: 803-531-2810
BRUCE HORLOT	(1) (2)	DANE CONSTRUCTION, INC PO Box 800 MOOCKSVILLE NC 28115	Email: bruce@danecontruction.com Phone: 704 663 5042 Fax: 704 663 2475
Harvey Lindsey	(1) (2)	Taylor & Murphy PO BOX 6215 Asheville NC 28816	Email: Lind5104@wildsta Phone: 828-667-4526 Fax: 828-667-1770
CRAIG SCANLON	1 2	R.E. BURNS & SONS PO Box 7168 STATESVILLE N.C. 28677	Email: Kevine reburns.com Phone: 704-924-8646 Fax: 704-924-8607
Bradley Duncan	1 2	Bryant's Hand + Development 159 Depot St. Burnsville, N.C.	Email: kgbryant industries@yahoo Phone: 828-678-9966 Fax: " 678-9704
GARRY MOORE	1 2	NC DOT DIVISION 13 20 OLD HWY 74 ASHEVILLE, NC 28803	Email: GMoore5@ncdot.gov Phone: 828-298-1128 Fax: 828-299-0654
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NAME	*PROJECT	COMPANY REPRESENTED AND ADDRESS	CONTACT INFORMATION
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	1 2		Email: Phone: Fax:
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