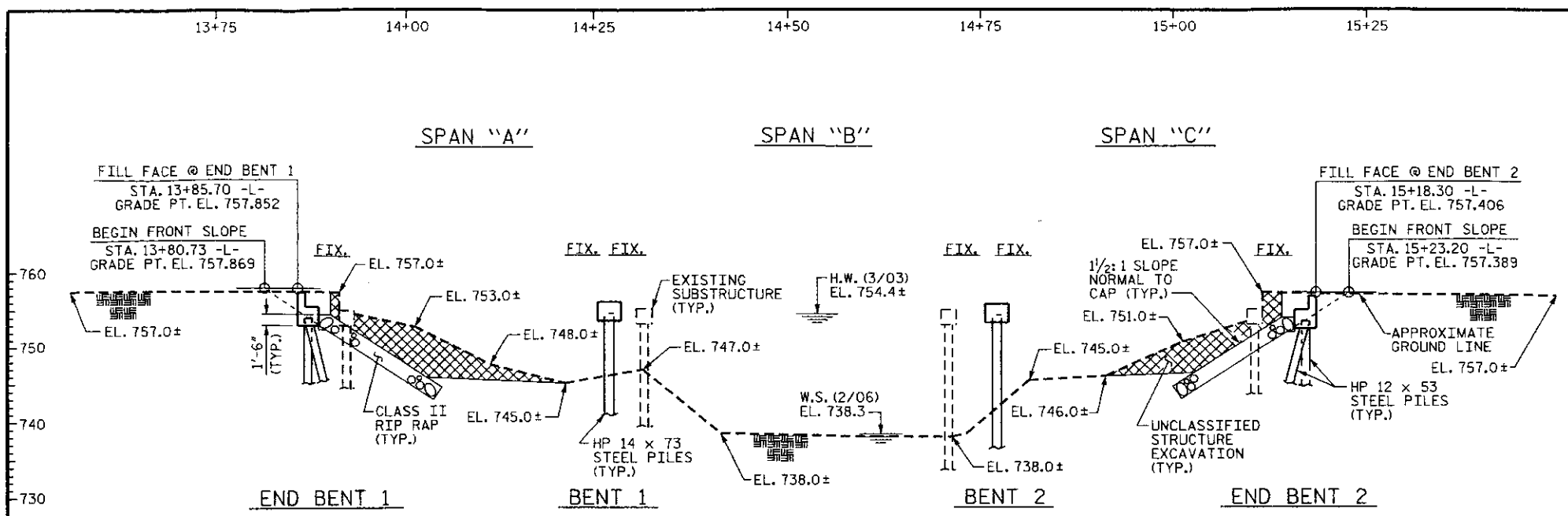
B-4518 33742 #110 GASTON



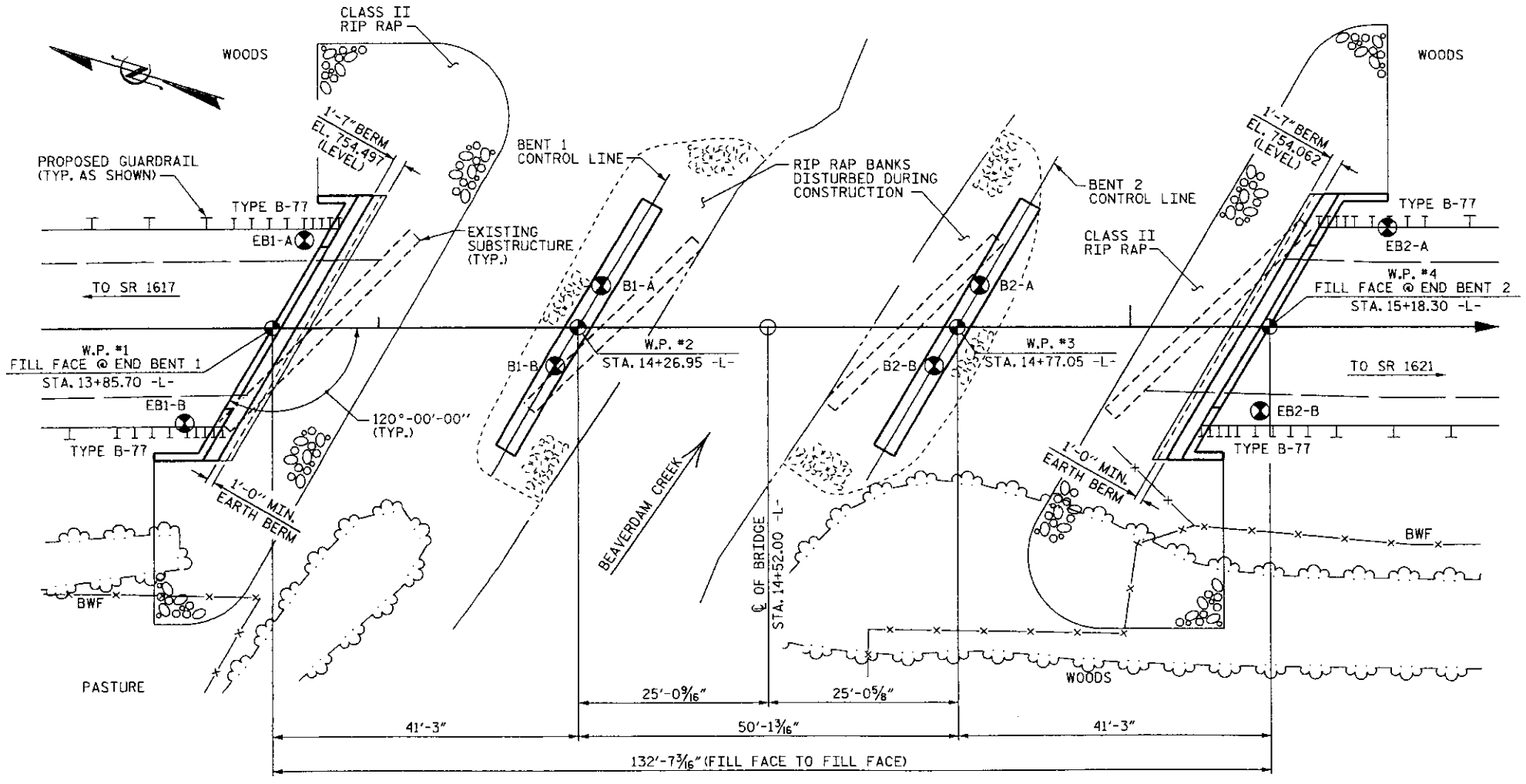
-2.3588% -0.3367%

PI = 13+21.00 -L-
EL. 758.07
VC = 100'

GRADE DATA -L-

SECTION ALONG -L-

SECTION @ END BENTS & BENTS ARE @ RIGHT ANGLES.



PLAN

⊗ DENOTES GEOTECH BORING HOLE LOCATIONS.

NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS25.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO 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 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 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 MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR UNCLASSIFIED STRUCTURE EXCAVATION.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

DRIVE PILES AT END BENTS 1 & 2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENTS 1 & 2 IS 50 TONS PER PILE.

DRIVE PILES AT BENTS 1 & 2 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT BENTS 1 & 2 IS 60 TONS PER PILE.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS 719 FEET. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT 2 IS 720 FEET. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE

TESTING PILES WITH THE PILE DRIVING ANALYZER DURING DRIVING AT END BENTS 1 & 2 AND BENTS 1 & 2 IS REQUIRED. SEE PILE DRIVING ANALYZER SPECIAL PROVISION.

LOCATE EACH PILE LOCATION AT BENTS 1 & 2 BY SURVEY.

SEE SPECIAL PROVISIONS FOR:
- SUBMITTAL OF WORKING DRAWINGS
- FALSEWORK AND FORMWORK
- CRANE SAFETY
- GROUT FOR STRUCTURES
- PRESTRESSED CONCRETE MEMBERS.

	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	164	182
END BENT 2	145	161

EXISTING BRIDGE NO. 110
(TO BE REMOVED)

19.3' CLEAR ROADWAY, 3 SPANS @ 40'-0"
SUPERSTRUCTURE: TIMBER DECK ON I-BEAMS
SUBSTRUCTURE: TIMBER CAPS AND PILES

BM #2: R.R. SPIKE IN BASE OF 12" PINE, 60.78' LT. OF STA. 11+69.62 -L-, EL. 769.10

NORTH CAROLINA PROFESSIONAL SEAL 9804 ENGINEER RUSS W. GIROLAMI 9-29-08

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 9/24/08

PROJECT NO. 33742
GASTON COUNTY
STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER BEAVERDAM CREEK ON SR 1620 BETWEEN SR 1617 AND SR 1621

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	1
1			3			TOTAL SHEETS
2			4			27

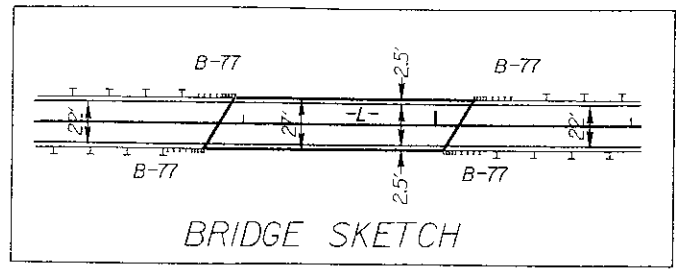
DRAWN BY : A.S. CALLAWAY DATE : 10/30/07
CHECKED BY : L.E. SUTTON DATE : 9/3/08

PROJECT REFERENCE NO.	SHEET NO.
B-4518	2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

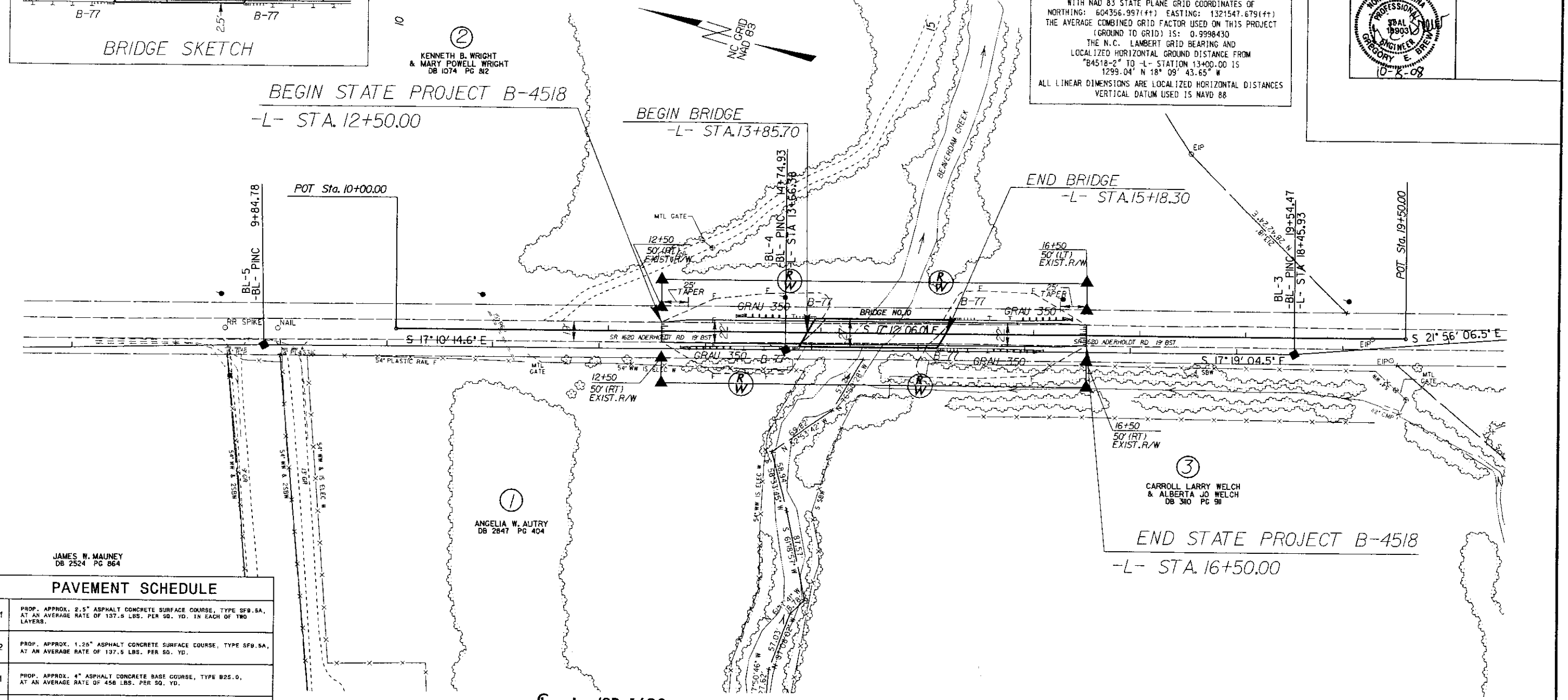
NORTH CAROLINA PROFESSIONAL SEAL 19903 ENGINEER GREGORY E. BREW
10-8-08

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4518-2"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 604356.997(ft) EASTING: 1321547.679(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998430
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4518-2" TO -L- STATION 13+00.00 IS 1299.04' N 18° 09' 43.65" W
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

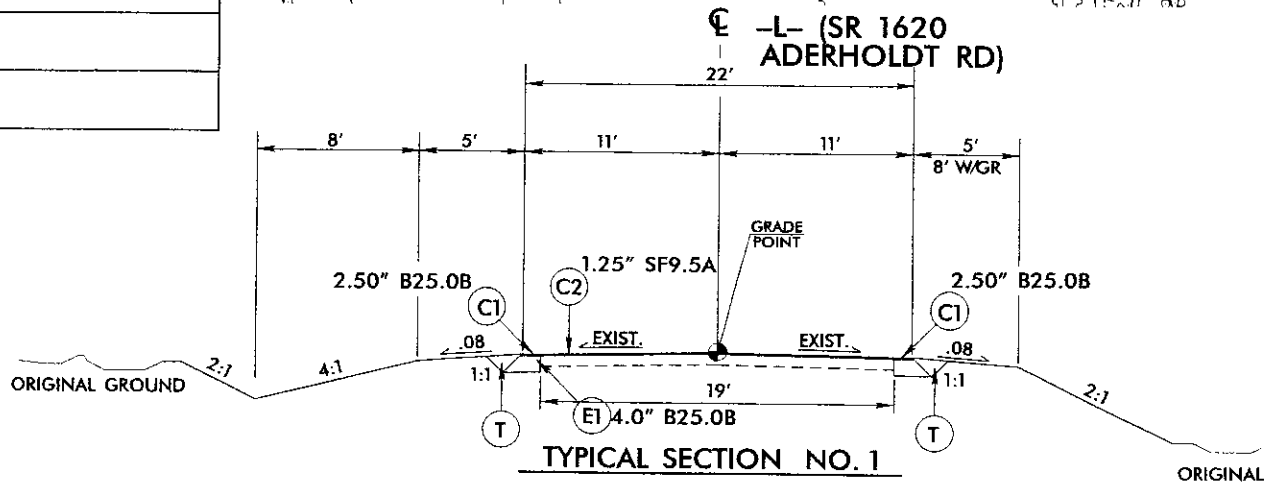


BRIDGE SKETCH



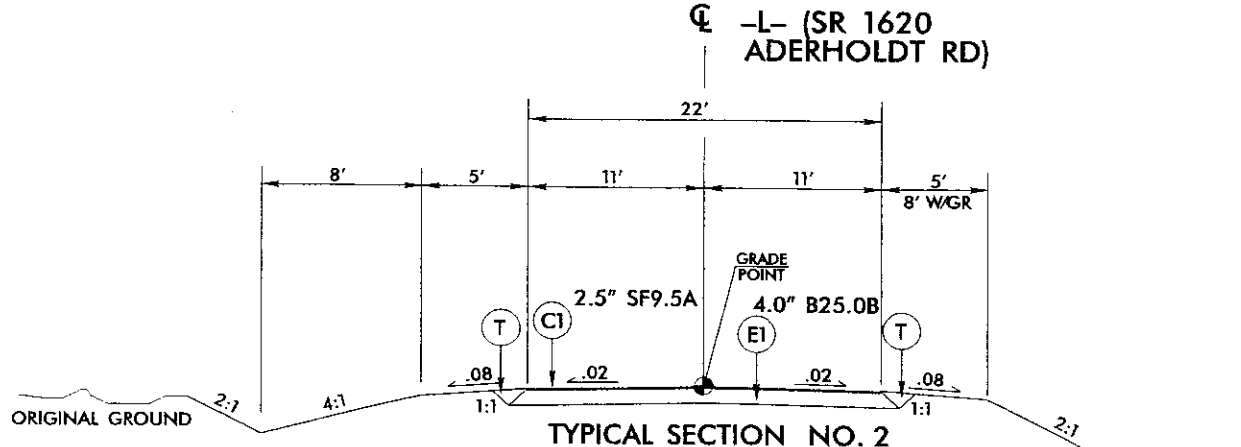
PAVEMENT SCHEDULE

C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0, AT AN AVERAGE RATE OF 458 LBS. PER SQ. YD.
T	EARTH MATERIAL
U	EXISTING PAVEMENT



TYPICAL SECTION NO. 1

MINIMUM RESURFACING & WIDENING
-L- STA 12+50.00 – 13+00.00
-L- STA 15+75.00 – 16+50.00



TYPICAL SECTION NO. 2

NEW PAVEMENT & WIDENING
-L- STA. 13+00.00 – BEGIN BRIDGE (STA 13+85.70)
END BRIDGE (STA 15+18.30) – STA 15+75.00

REVISIONS

07-OCT-2008 16:08
I:\roadway\projects\b-4518_rdy_psh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4518	3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16903 ENGINEER GREGORY E. BREW 10-2-08

BM # 2 ELEV.769.10
DESCRIPTION: RR SPIKE IN BASE OF 12" PINE, 60.78' LT. OF -L- STA. 11+69.62

BEGIN BRIDGE
-L- STA. 13+85.70

END BRIDGE
-L- STA. 15+18.30

PI = 13+12.00
EL = 778.07'
VC = 100'
K = 19

PI = 15+75.00
EL = 754.48'
VC = 70'
K = 41

Y=2.35880% Y=10.3367%

Y=10.3367% Y=2.6400%

769.74

755.83'

BEGIN GRADE
STA. 11+50.00 -L-
EL. 756.24

END GRADE
STA. 16+50.00 -L-
EL. 755.83'

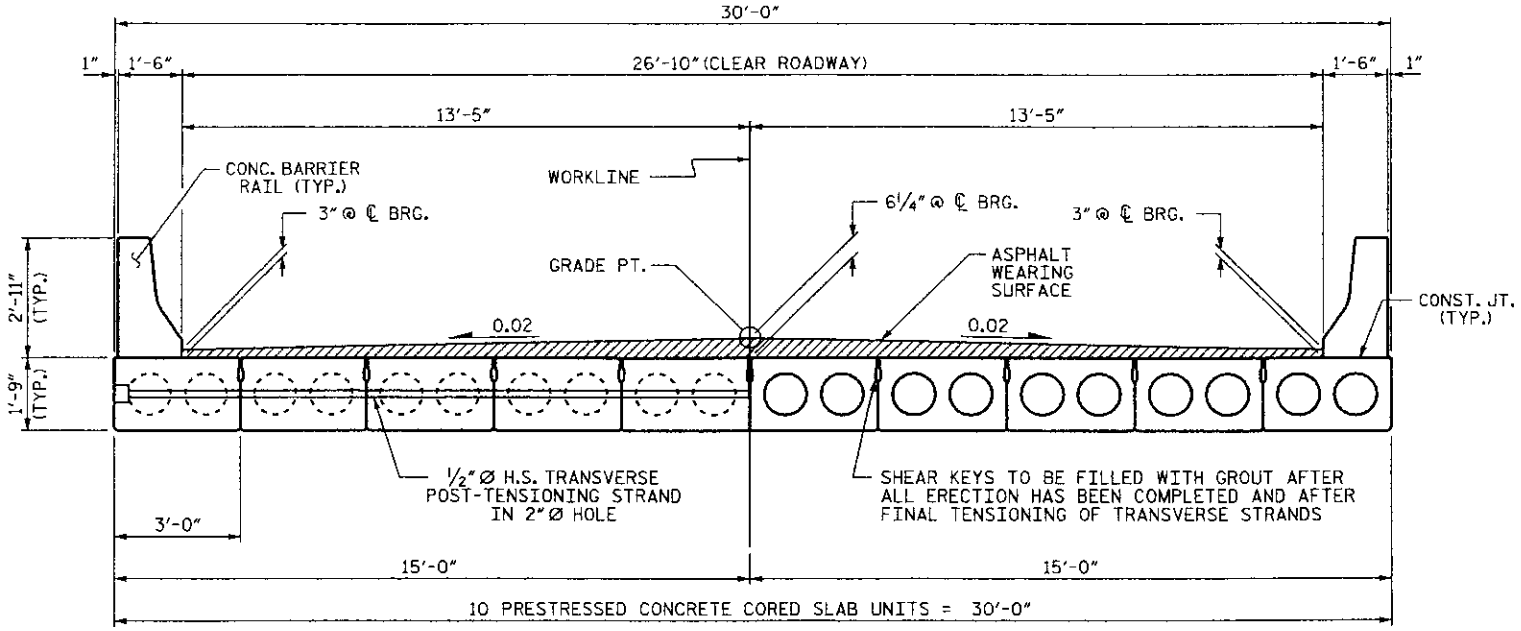
-L- SR 1620

FOR -L- PLAN SEE SHEET NO. 4

780
770
760
750
740
730
720
710

10 11 12 13 14 15 16 17 18 19

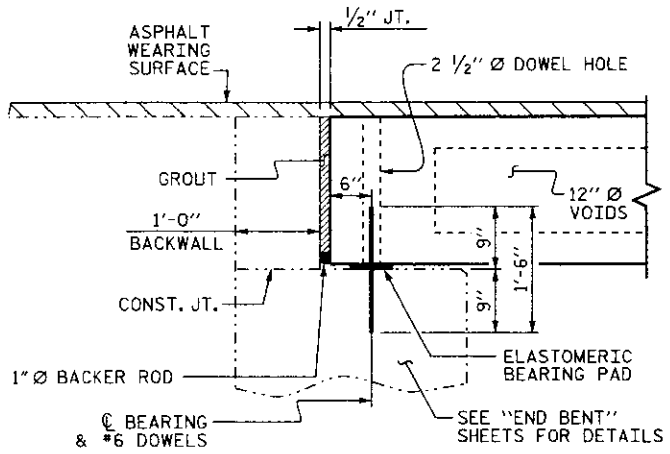
760
750
740
730
720
710



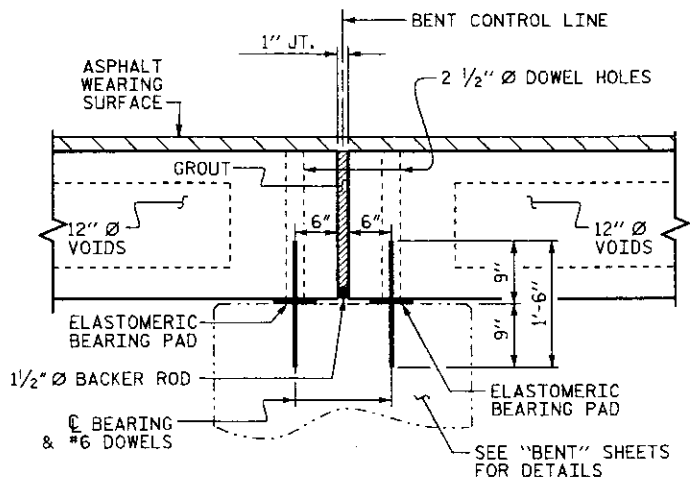
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

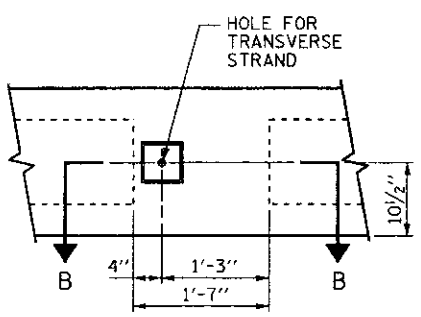
TYPICAL SECTION



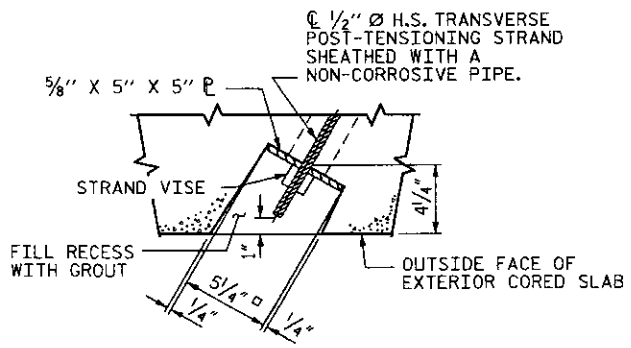
SECTION AT END BENT



SECTION AT BENT

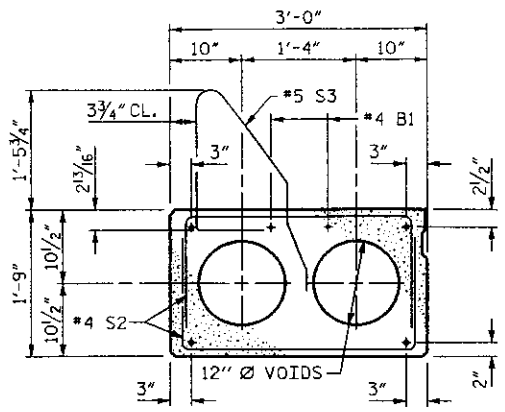


ELEVATION VIEW

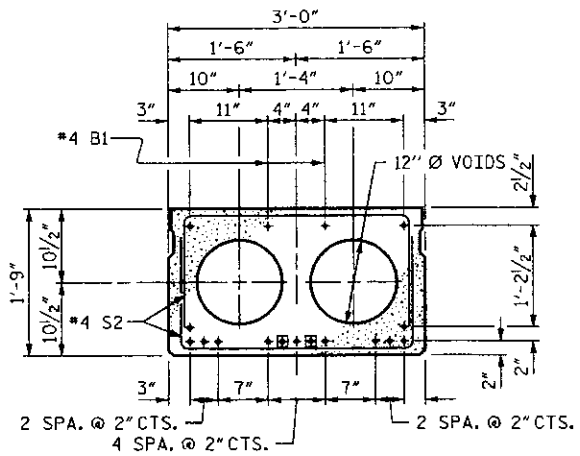


SECTION B-B

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



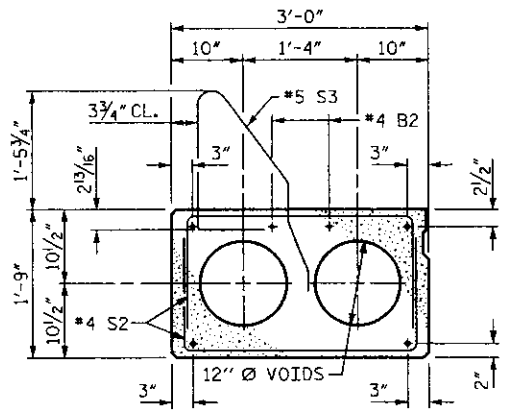
EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



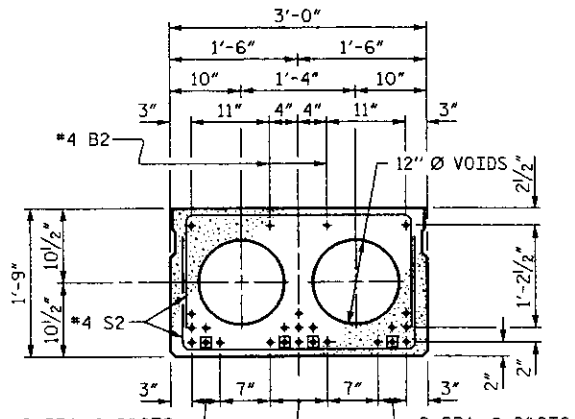
INTERIOR SLAB SECTION
½" Ø LOW RELAXATION STRAND LAYOUT
15 STRANDS

40' SPAN

● THE BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF THE CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



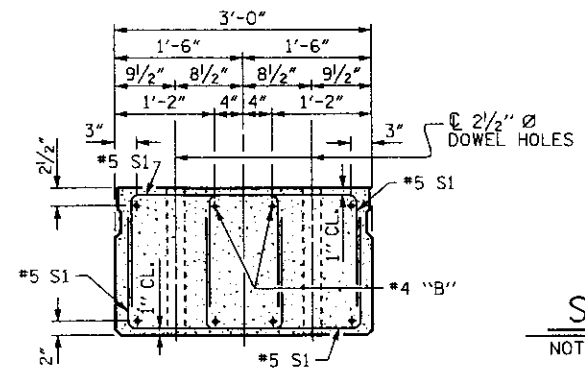
EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



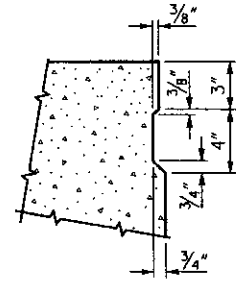
INTERIOR SLAB SECTION
½" Ø LOW RELAXATION STRAND LAYOUT
23 STRANDS

50' SPAN

● THE BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF THE CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



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



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

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 9/22/08

PROJECT NO. 33742
GASTON COUNTY
STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

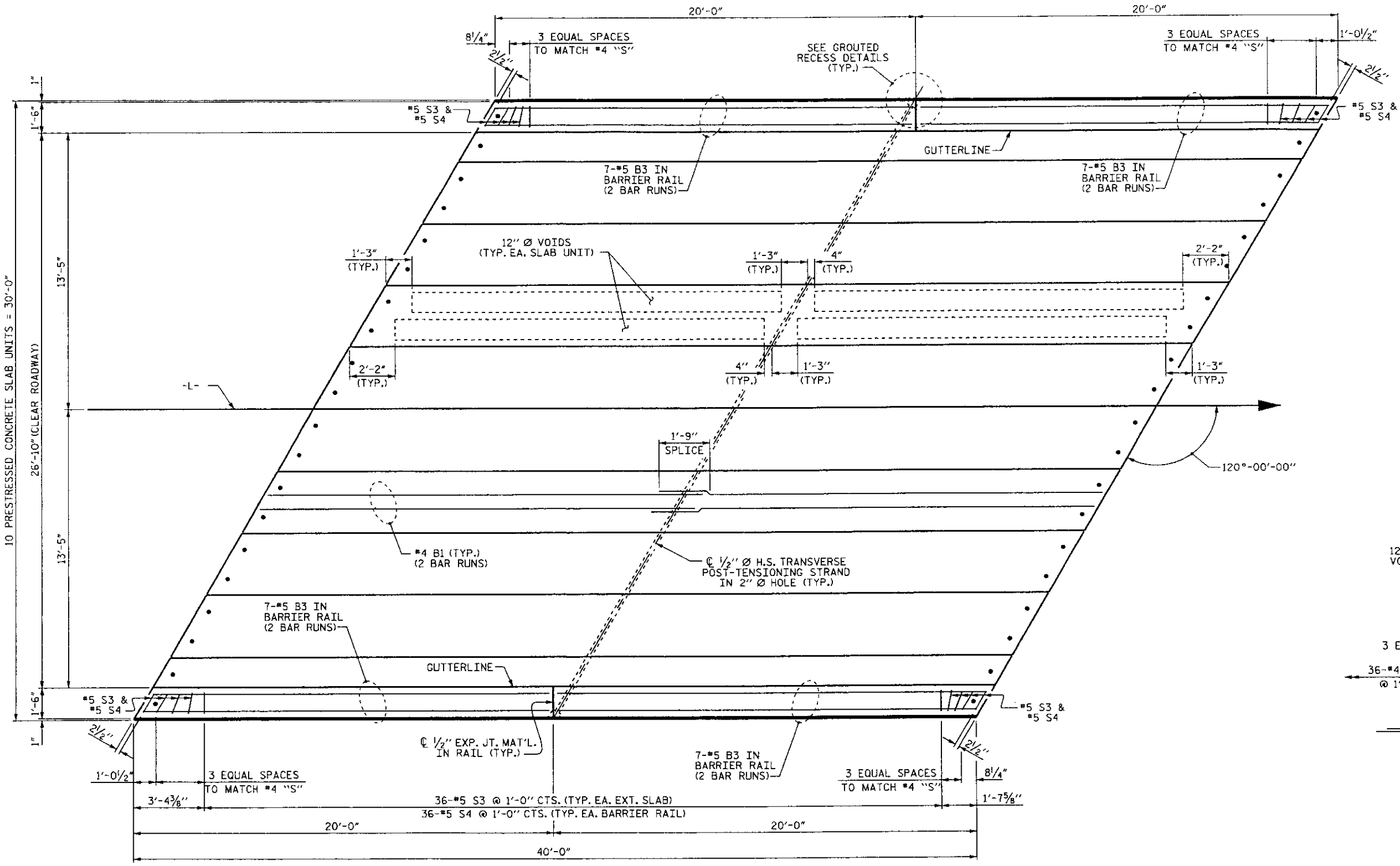
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	4
1			3			TOTAL SHEETS
2			4			27

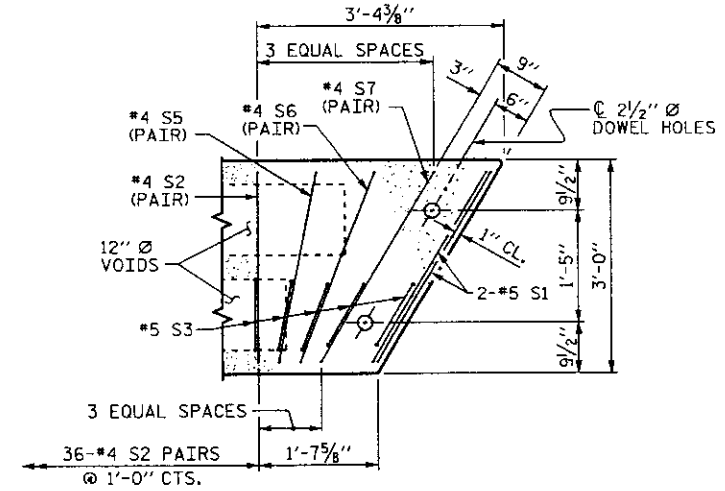
ASSEMBLED BY : A.S. CALLAWAY	DATE : 1/30/08	REV. 10/17/00	RWW/LES
CHECKED BY : L.E. SUTTON	DATE : 9/2/08	REV. 7/10/01RR	RWW/LES
DRAWN BY : WJH	4/89	REV. 5/1/06	TLA/GM
CHECKED BY : FCJ	5/89		

STD. NO. PCS3



PLAN OF SPAN

SPANS "A" & "C"



PART PLAN - SLAB SECTION

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

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

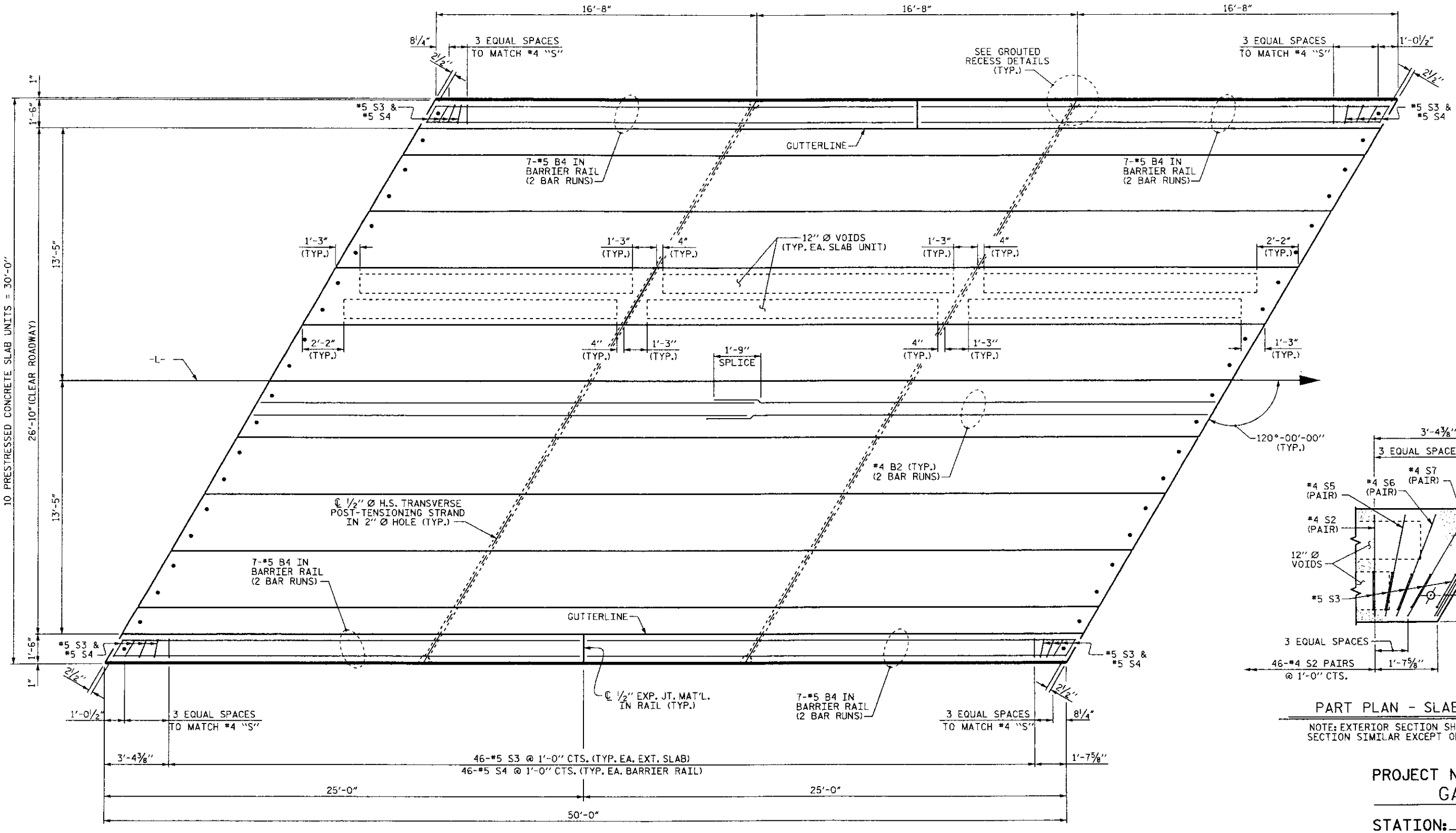
PLAN OF SPAN
26'-10" CLEAR ROADWAY
120° SKEW - 40' SPAN

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E SUTTON
4/24/08

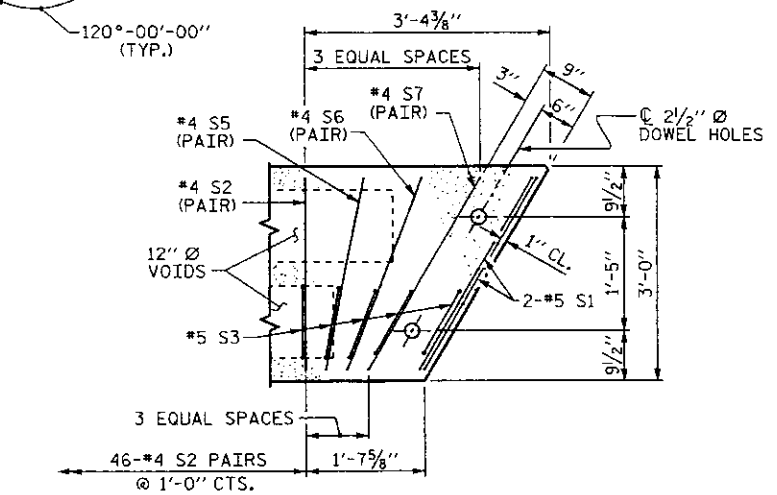
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 1/30/08
CHECKED BY : L.E. SUTTON DATE : 9/2/08

26-SEP-2008 10:41



PLAN OF SPAN
SPAN "B"



PART PLAN - SLAB SECTION
NOTE: EXTERIOR SECTION SHOWN - INTERIOR SECTION SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

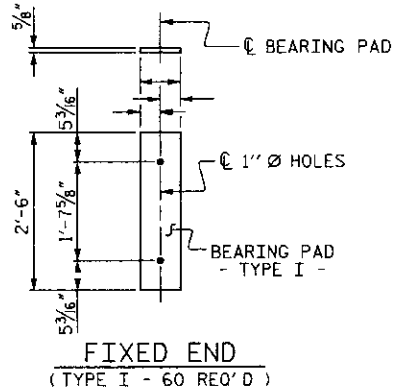
PLAN OF SPAN
26'-10" CLEAR ROADWAY
120° SKEW - 50' SPAN

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 9/29/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	6
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 1/30/08
CHECKED BY : L.E. SUTTON DATE : 9/2/08

26-SEP-2008 10:41



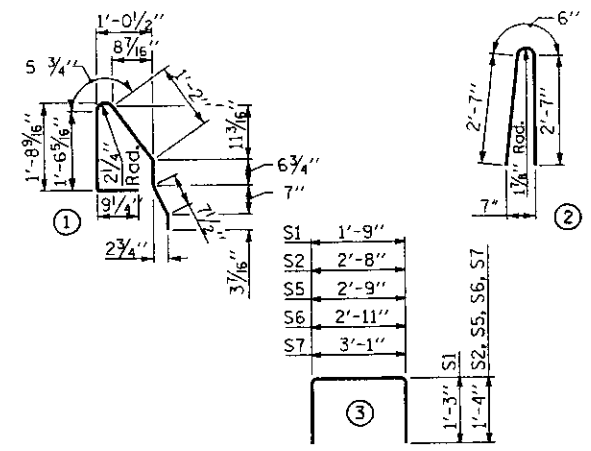
FIXED END
(TYPE I - 60 REQ'D)

ELASTOMERIC BEARING DETAILS

GRADE 270 STRANDS	
	½" Ø L.R.
AREA (SQUARE INCHES)	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980

CORED SLAB UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
40' SPAN			
EXTERIOR C.S.	4	40'-0"	160'-0"
INTERIOR C.S.	16	40'-0"	640'-0"
50' SPAN			
EXTERIOR C.S.	2	50'-0"	100'-0"
INTERIOR C.S.	8	50'-0"	400'-0"
TOTAL	30	——	1300'-0"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE 40' CORED SLAB SECTION

BAR	NO.	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B1	4	#4	STR	20'-9"	55	20'-9"	55
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	72	#4	3	5'-4"	257	5'-4"	257
* S3	44	#5	1	5'-5"	249	——	——
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-7"	15	5'-7"	15
S7	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL				LBS.	391	LBS.	391
*EPOXY COATED REINFORCING STEEL				LBS.	249		——
5000 P.S.I. CONCRETE				CU. YDS.	5.7	CU. YDS.	5.7
½" Ø L.R. STRANDS				NO.	15	NO.	15

BILL OF MATERIAL FOR ONE 50' CORED SLAB SECTION

BAR	NO.	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B2	4	#4	STR	25'-9"	69	25'-9"	69
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	92	#4	3	5'-4"	328	5'-4"	328
* S3	54	#5	1	5'-5"	305	——	——
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-7"	15	5'-7"	15
S7	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL				LBS.	476	LBS.	476
*EPOXY COATED REINFORCING STEEL				LBS.	305		——
5000 P.S.I. CONCRETE				CU. YDS.	7.1	CU. YDS.	7.1
½" Ø L.R. STRANDS				NO.	23	NO.	23

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 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. 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, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

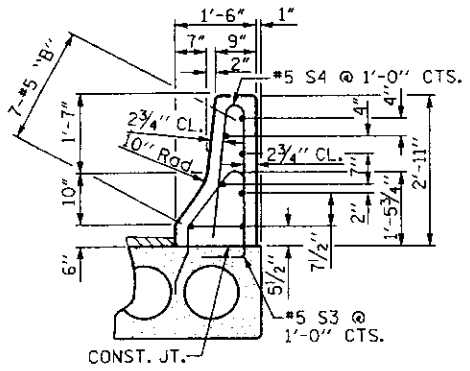
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

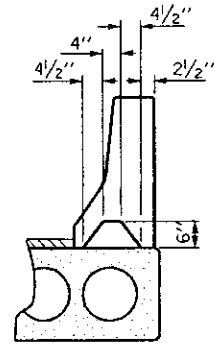
APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

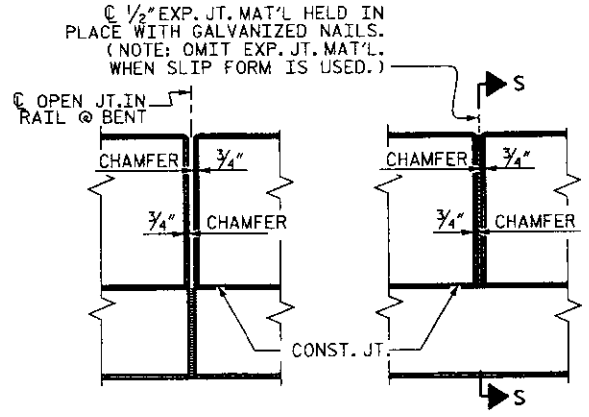
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.



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

BARRIER RAIL DETAILS

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL								
BAR	BARS PER SPAN SPAN A	SPAN B	SPAN C	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
* B3	56	——	56	112	#5	STR	11'-11"	1392
* B4	——	56	——	56	#5	STR	14'-5"	842
* S4	88	108	88	284	#5	2	5'-8"	1679
*EPOXY COATED REINFORCING STEEL							LBS.	3,913
CLASS AA CONCRETE							CU.YDS.	29.7
TOTAL CONCRETE BARRIER RAIL							LIN. FT.	260.48

DEAD LOAD DEFLECTION AND CAMBER		
	3'-0" x 1'-9" ½" Ø L.R. STRAND	
	40' SPAN	50' SPAN
CAMBER (SLAB ALONE IN PLACE) ↑	0.942"	2.090"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ** ↓	0.142"	0.354"
FINAL CAMBER ↑	0.800"	1.736"

** INCLUDES FUTURE WEARING SURFACE.

PROJECT NO. 33742
GASTON COUNTY
STATION: 14+52.00 -L-
REPLACES BRIDGE NO. 110

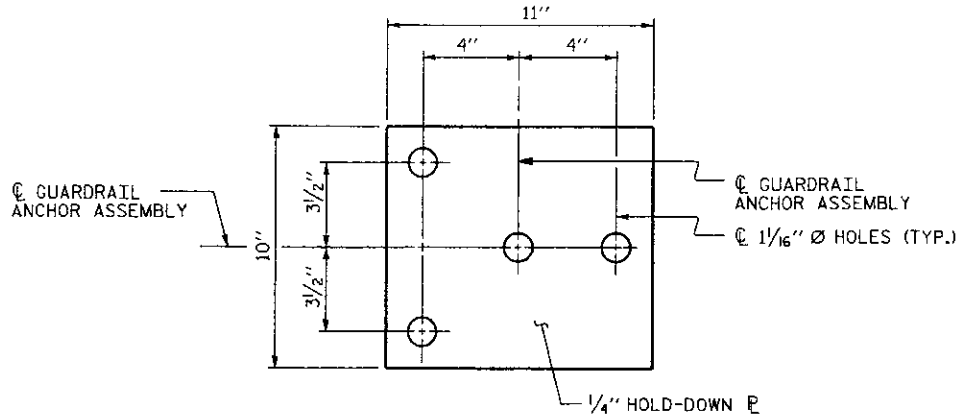
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	7
1			3			TOTAL SHEETS
2			4			27

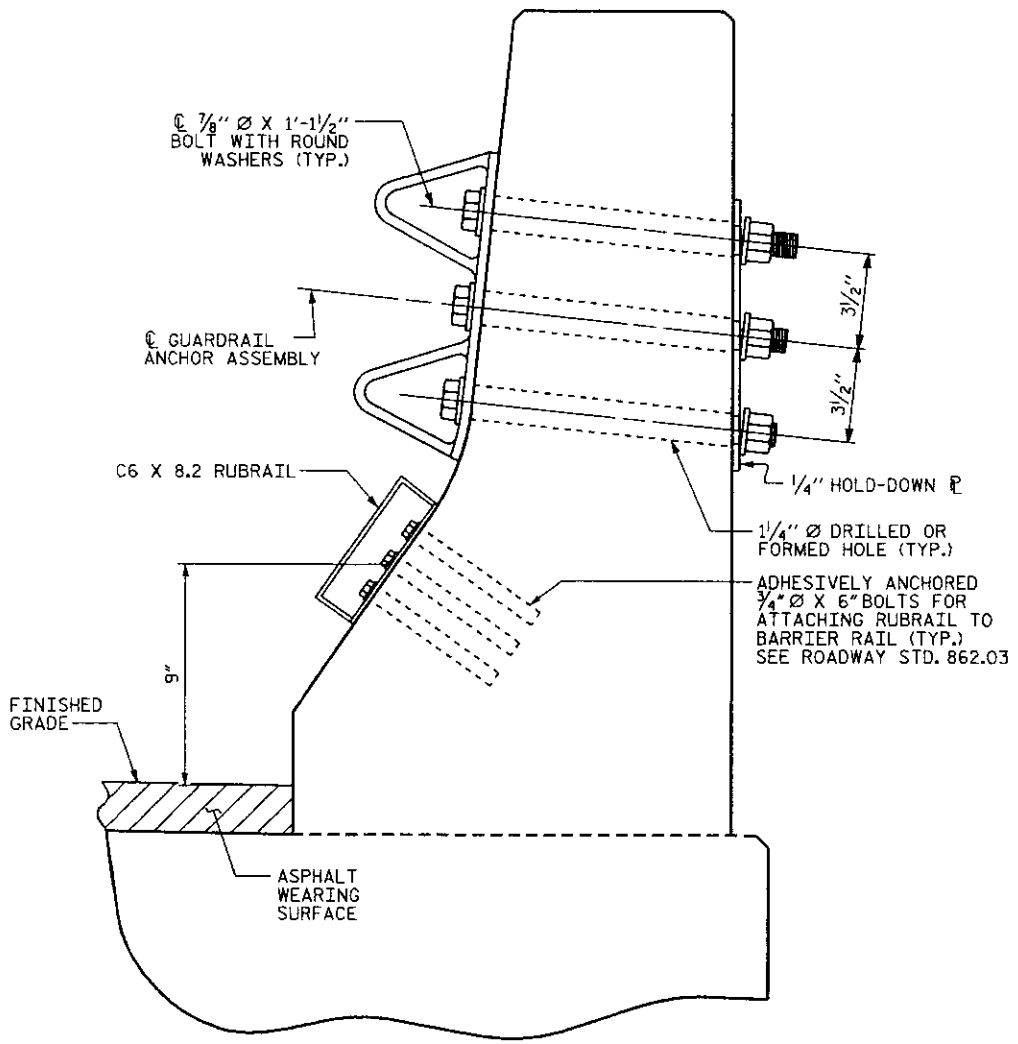
STD. NO. PCS3

ASSEMBLED BY : A.S. CALLAWAY DATE : 1/30/08
CHECKED BY : L.E. SUTTON DATE : 9/2/08
DRAWN BY : WJH 4/89
CHECKED BY : FCJ 5/89
REV. 7/10/01 RWW/LES
REV. 5/7/03RRR RWW/JTE
REV. 5/1/06 TLA/GM

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAUREN E. SUTTON 4/24/08

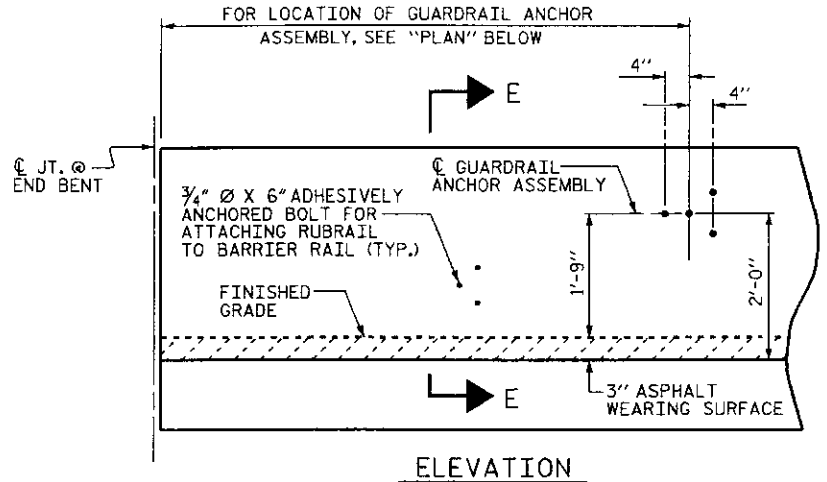


PLAN



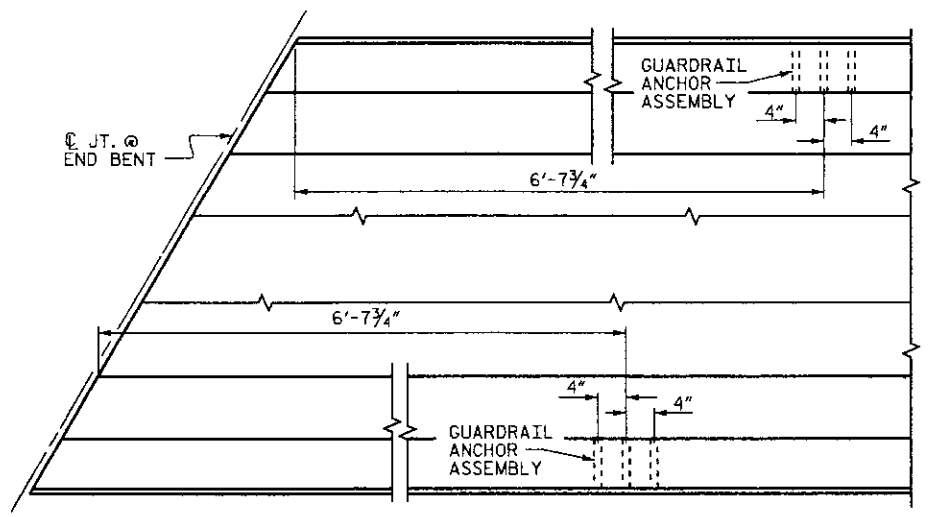
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.

NOTES

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

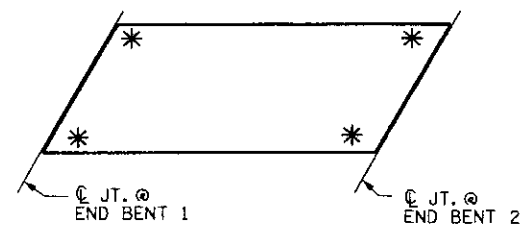
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

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

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



SKETCH SHOWING POINTS OF ATTACHMENTS

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

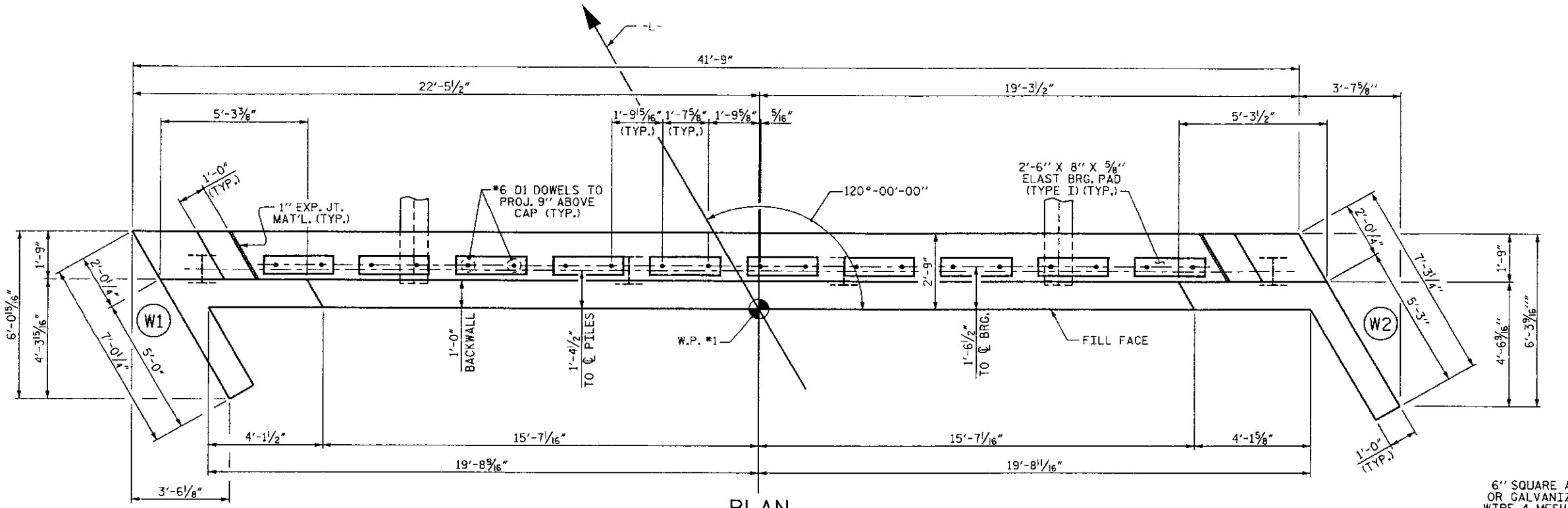
STANDARD

GUARDRAIL ANCHORAGE FOR BARRIER RAIL

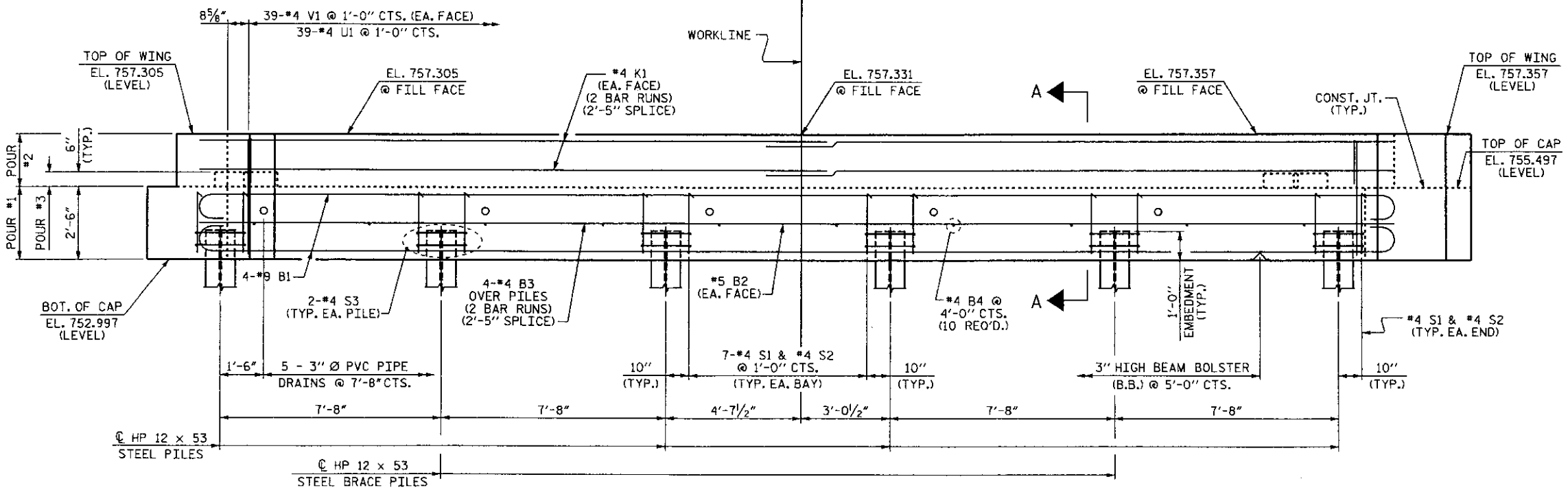
NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 9/2/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	8
1			3			TOTAL SHEETS
2			4			27

ASSEMBLED BY : A.S. CALLAWAY	DATE : 1/30/08
CHECKED BY : L.E. SUTTON	DATE : 9/2/08
DRAWN BY : TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06	



PLAN



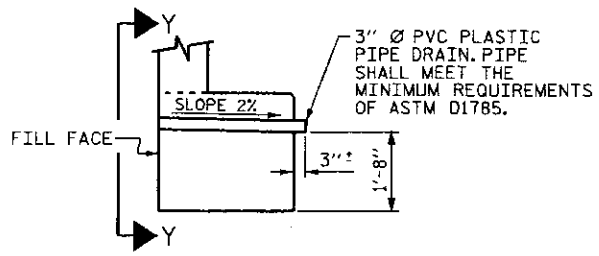
ELEVATION

NOTES

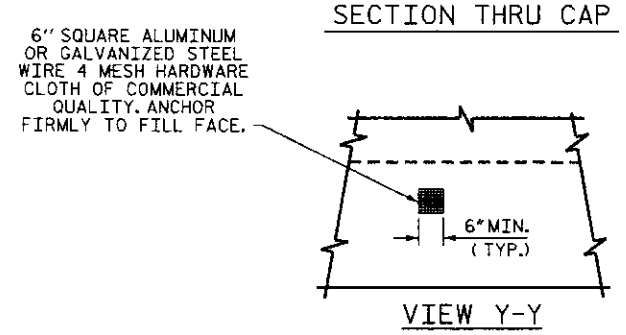
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE #4 V1 BARS IN THE BACKWALL SHALL BE PLACED 2" CLEAR FROM THE TOP OF THE BACKWALL.



SECTION THRU CAP



VIEW Y-Y

PIPE DRAIN DETAILS

NOTE: NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PLASTIC PIPE DRAINS, HARDWARE CLOTH AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

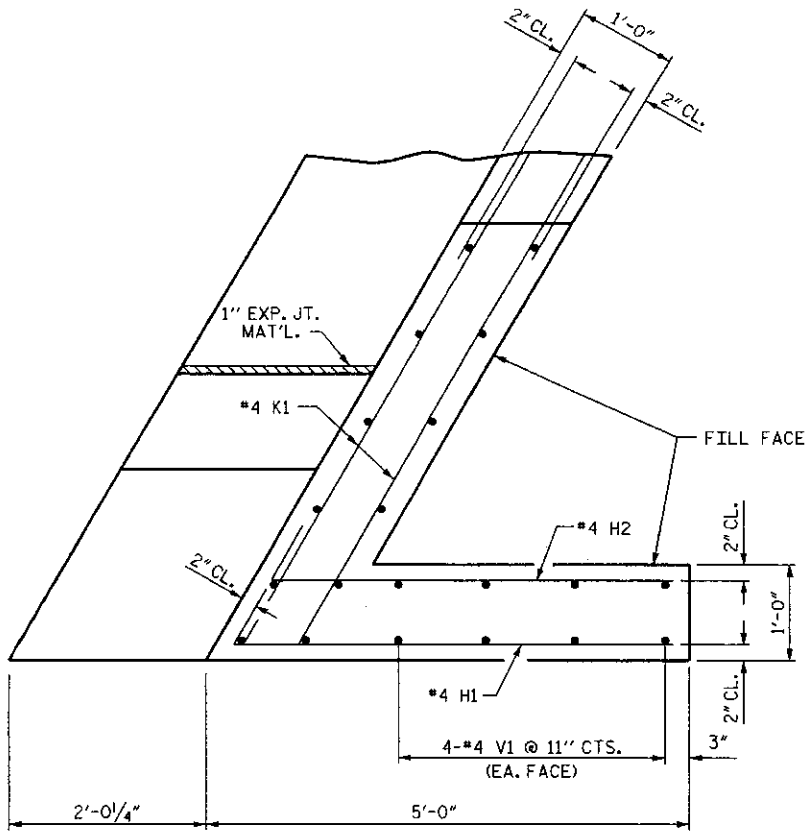
SUBSTRUCTURE

END BENT 1
26'-10" CLEAR ROADWAY
120° SKEW - 40' SPAN

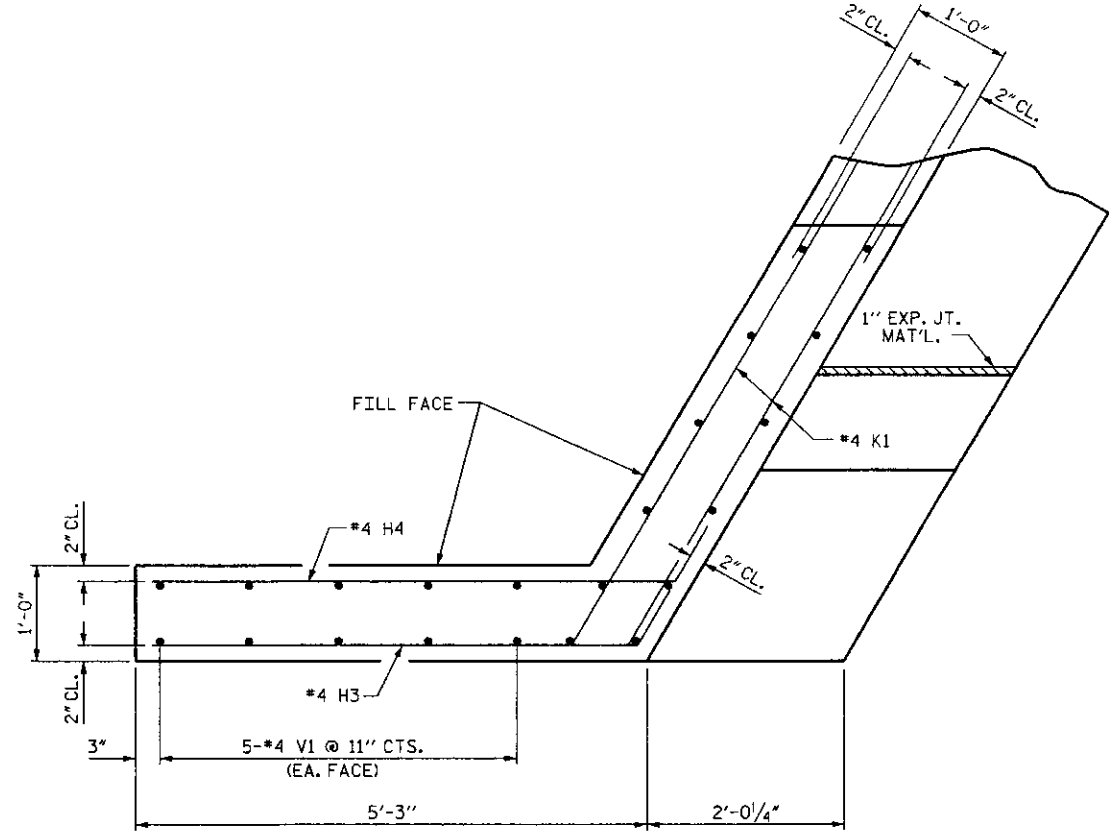
NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 9/2/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	9
1			3			TOTAL SHEETS
2			4			27

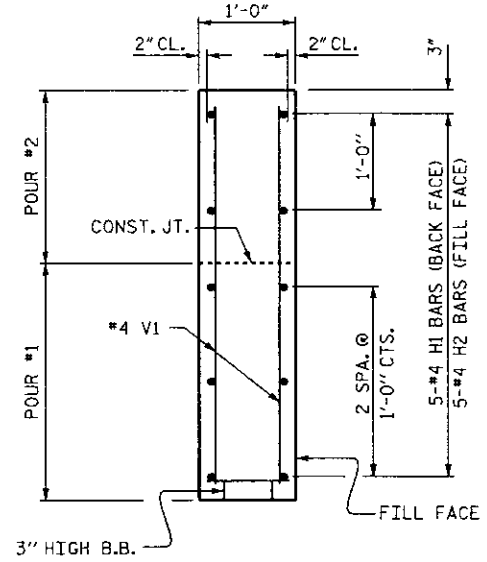
DRAWN BY : A.S. CALLAWAY DATE : 3/7/08
CHECKED BY : L.E. SUTTON DATE : 9/2/08



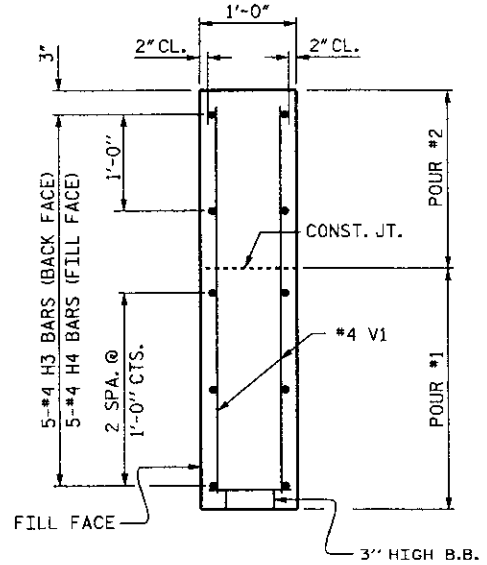
PLAN OF WING (W1)



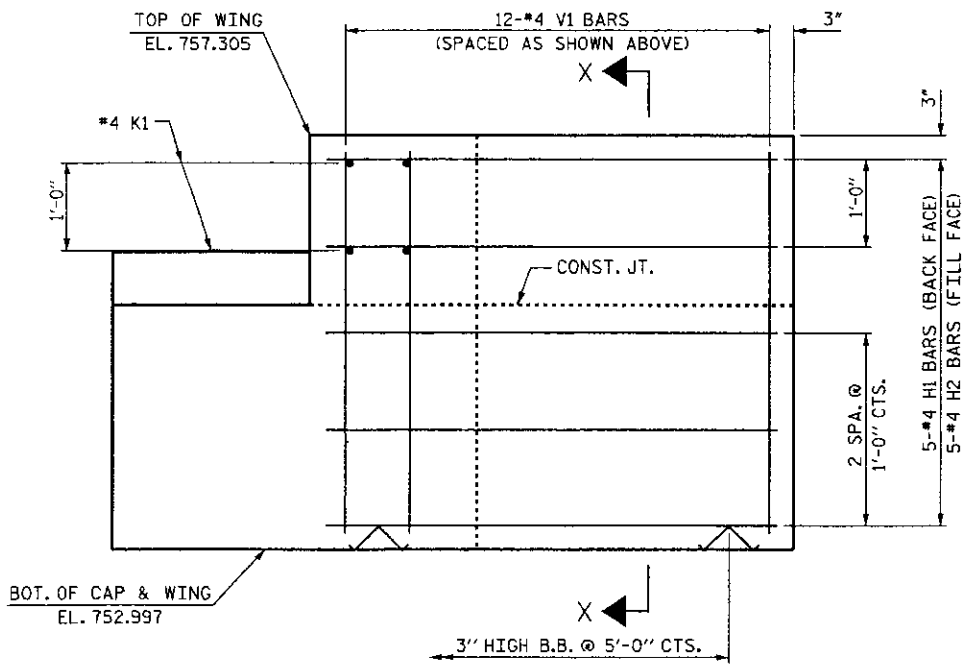
PLAN OF WING (W2)



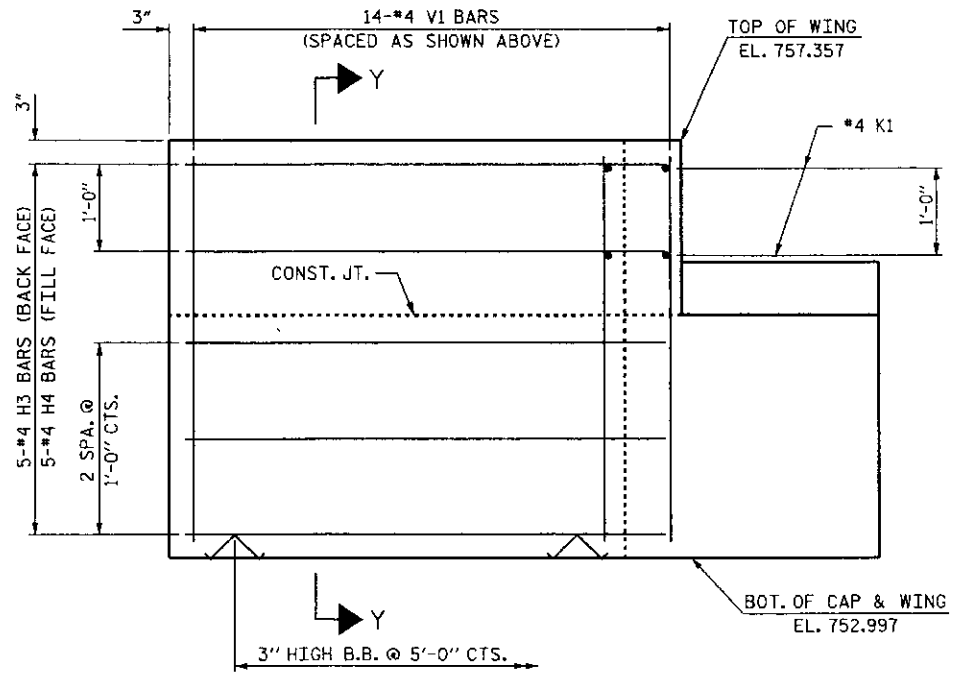
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

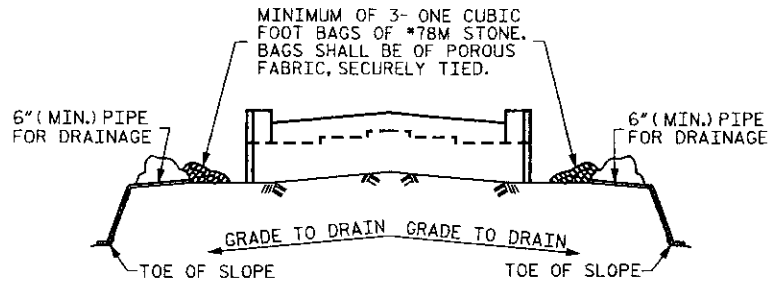
END BENT 1
26'-10" CLEAR ROADWAY
120° SKEW - 40' SPAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	10
1			3			TOTAL SHEETS
2			4			27

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 9/24/08

DRAWN BY : A.S. CALLAWAY DATE : 3/7/08
CHECKED BY : L.E. SUTTON DATE : 9/2/08

26-SEP-2008 10:41

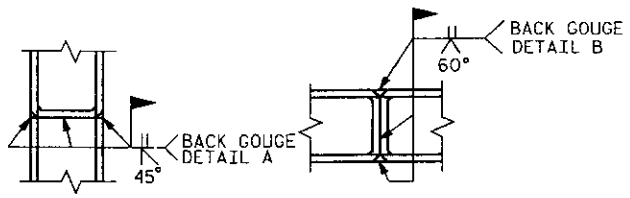


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

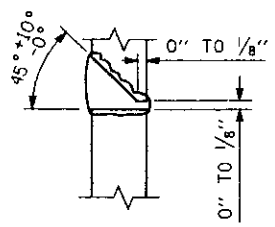
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

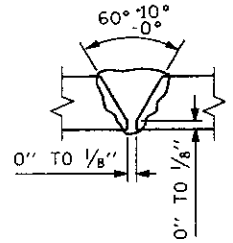


✱PILE VERTICAL



DETAIL A

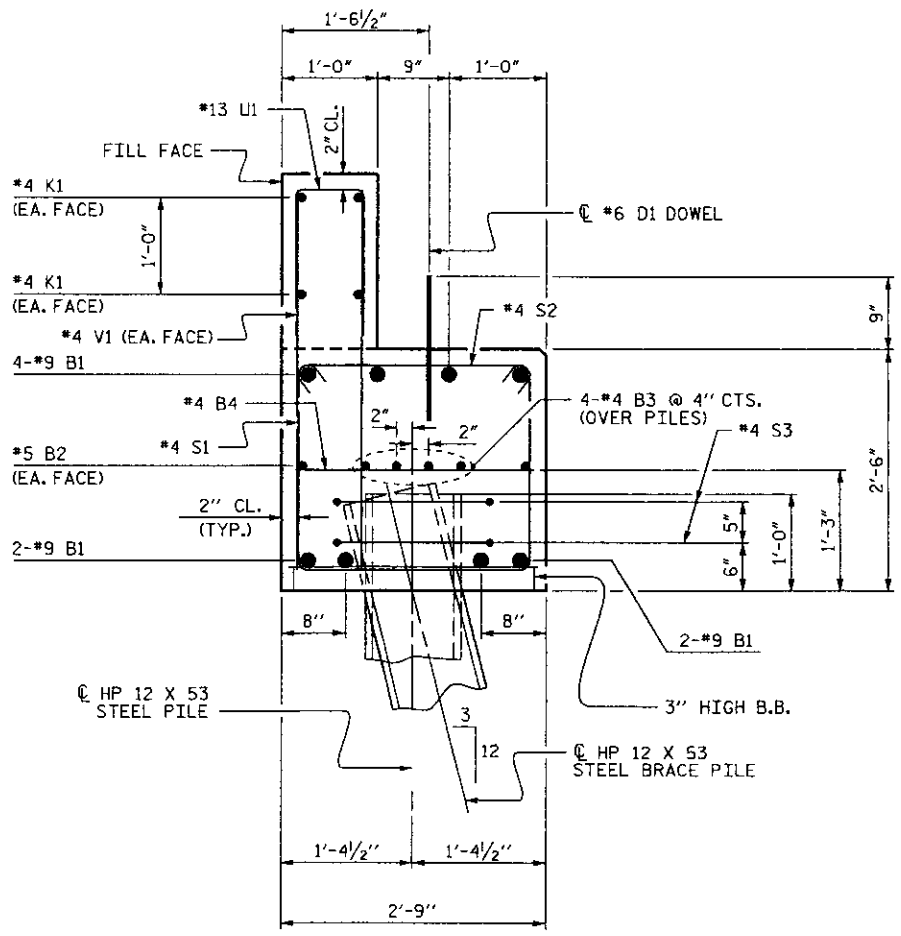
✱PILE HORIZONTAL OR VERTICAL



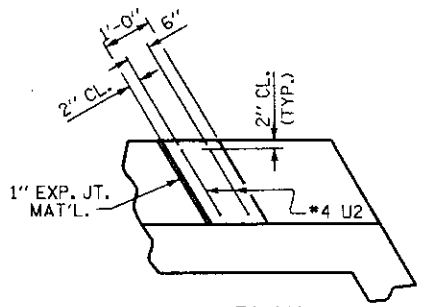
DETAIL B

✱POSITION OF PILE DURING WELDING.

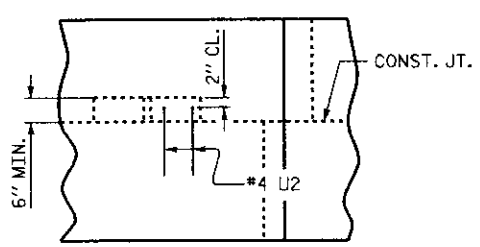
PILE SPLICE DETAIL



SECTION A-A



PLAN

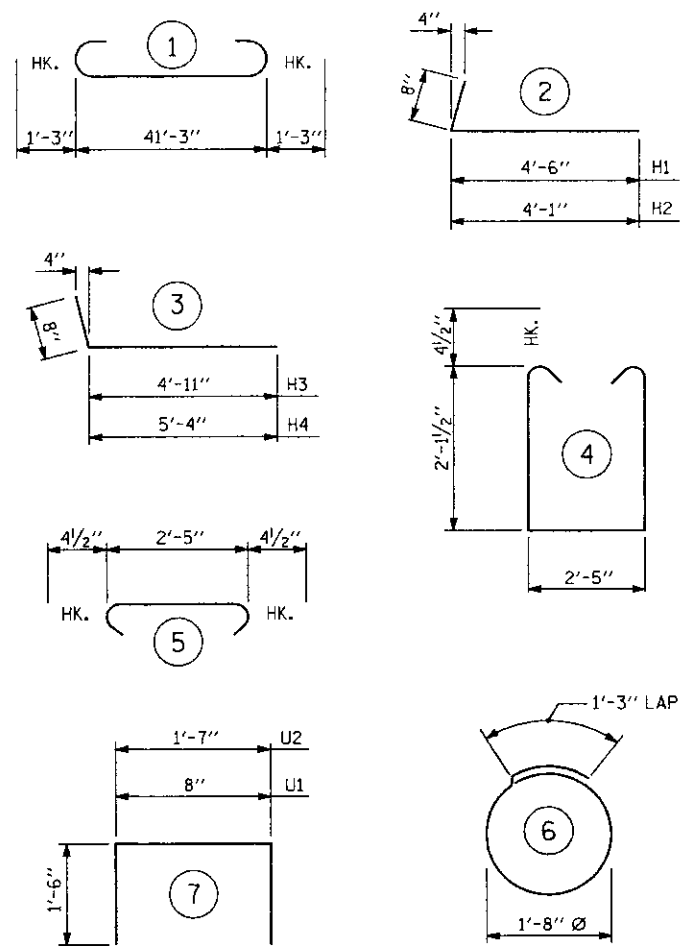


ELEVATION

LATERAL GUIDE DETAIL

(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	43'-9"	1190
B2	2	#5	STR	41'-5"	86
B3	8	#4	STR	21'-11"	117
B4	10	#4	STR	2'-5"	16
D1	20	#6	STR	1'-6"	45
H1	5	#4	2	5'-2"	17
H2	5	#4	2	4'-9"	16
H3	5	#4	3	5'-7"	19
H4	5	#4	3	6'-0"	20
K1	8	#4	STR	21'-11"	117
S1	37	#4	4	7'-5"	183
S2	37	#4	5	3'-2"	78
S3	12	#4	6	6'-6"	52
U1	39	#4	7	3'-8"	96
U2	4	#4	7	4'-7"	12
V1	104	#4	STR	3'-11"	272

REINFORCING STEEL	LBS.	2,336
CLASS A CONCRETE BREAKDOWN:		
POUR #1 - CAP & LOWER WINGS	CU. YDS.	11.4
POUR #2 - BACKWALL & UPPER WINGS	CU. YDS.	3.4
POUR #3 - LATERAL GUIDES	CU. YDS.	0.1
TOTAL	CU. YDS.	14.9
HP 12 x 53 STEEL PILES NO. = 6	LIN. FT.	510
PDA TESTING	EA.	2
PDA ASSISTANCE	EA.	2

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1
26'-10" CLEAR ROADWAY
120° SKEW - 40' SPAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	11
1			3			TOTAL SHEETS
2			4			27

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
11/21/08

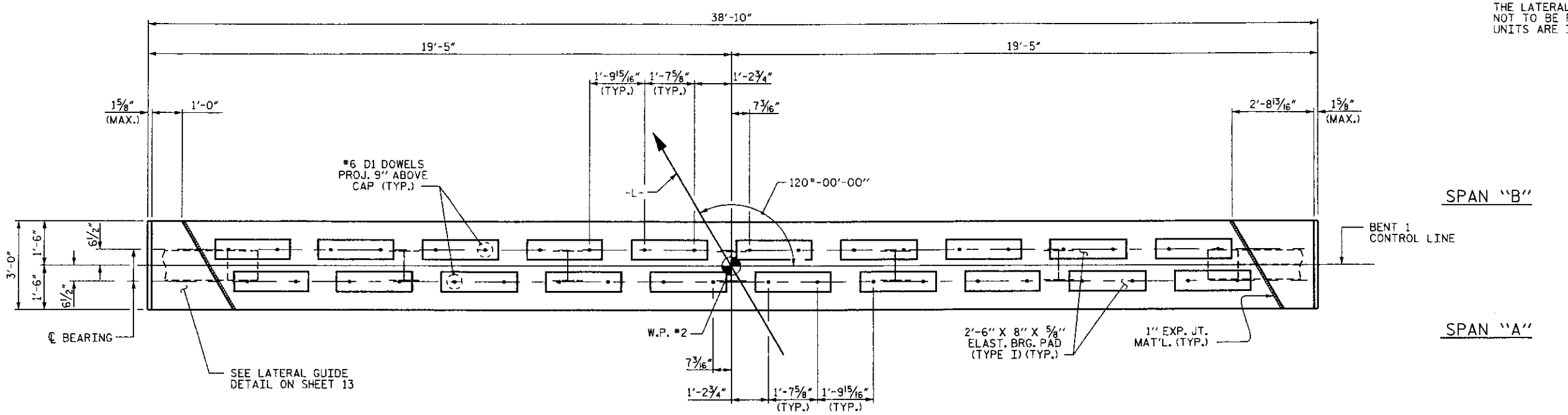
DRAWN BY : A.S. CALLAWAY DATE : 3/7/08
CHECKED BY : L.E. SUTTON DATE : 9/2/08

26-SEP-2008 10:41

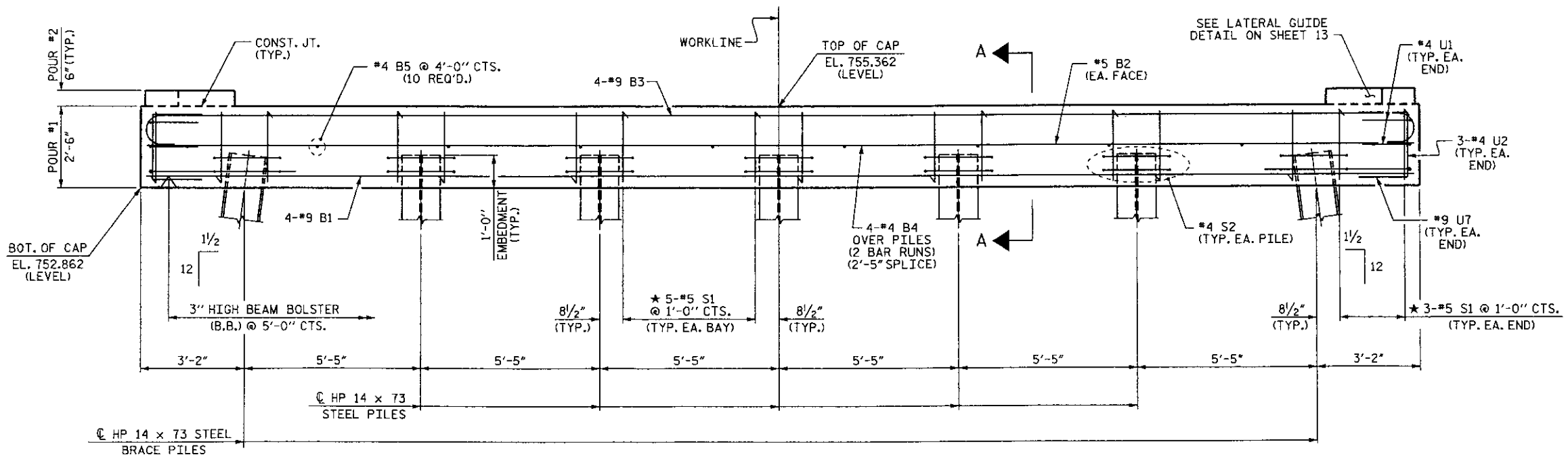
NOTES

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

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.



PLAN



ELEVATION

★ INVERT ALTERNATE STIRRUPS.

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

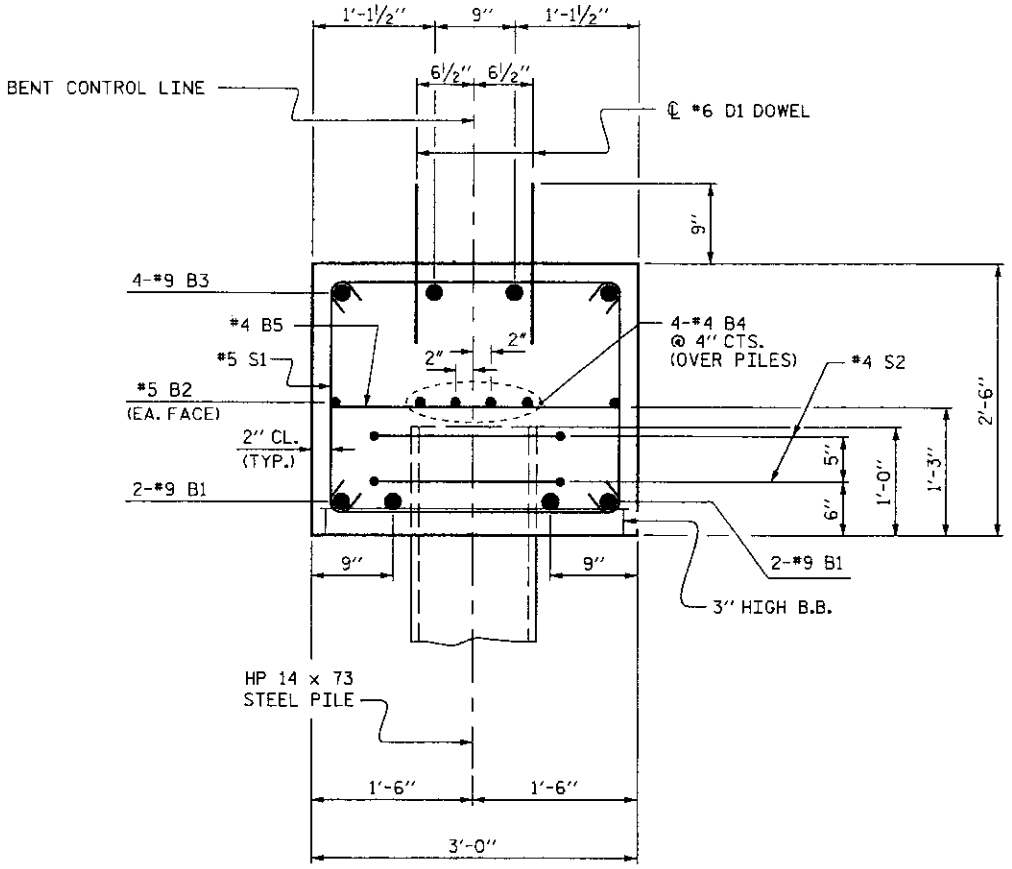
SUBSTRUCTURE

BENT 1

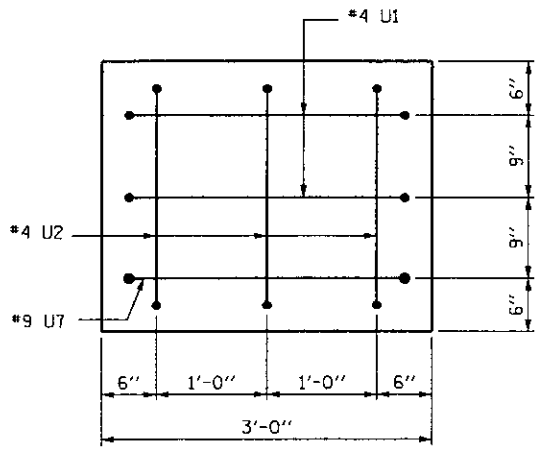
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	12
1			3			TOTAL SHEETS
2			4			27

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON

DRAWN BY : A.S. CALLAWAY DATE : 3/10/08
CHECKED BY : L.E. SUTTON DATE : 9/3/08



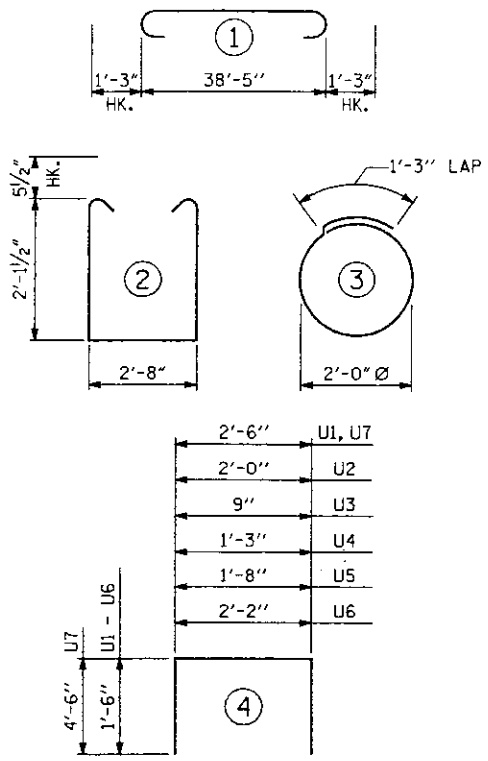
SECTION A-A



END VIEW

(TYP. BOTH ENDS)

BAR TYPES



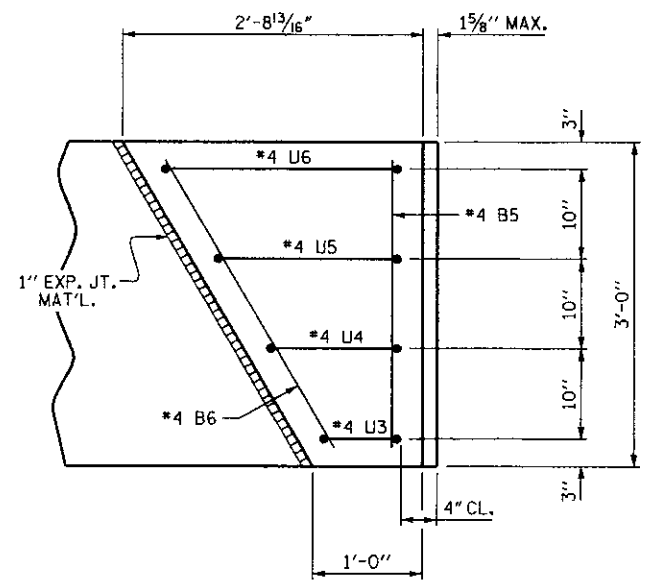
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

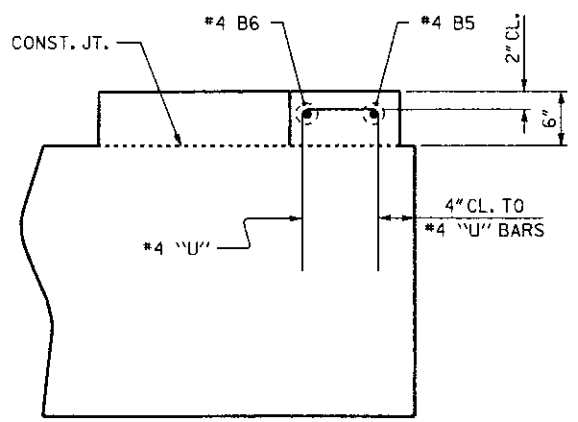
BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	STR	38'-6"	524
B2	2	#5	STR	38'-6"	80
B3	4	#9	1	40'-11"	556
B4	8	#4	STR	20'-6"	110
B5	12	#4	STR	2'-8"	21
B6	2	#4	STR	3'-1"	4
D1	40	#6	STR	1'-6"	90
S1	36	#5	2	7'-10"	294
S2	14	#4	3	7'-6"	70
U1	4	#4	4	5'-6"	15
U2	6	#4	4	5'-0"	20
U3	2	#4	4	3'-9"	5
U4	2	#4	4	4'-3"	6
U5	2	#4	4	4'-8"	6
U6	2	#4	4	5'-2"	7
U7	2	#9	4	11'-6"	78

REINFORCING STEEL	LBS.	1,886
CLASS A CONCRETE BREAKDOWN:		
POUR #1 - CAP	CU. YDS.	10.8
POUR #2 - LATERAL GUIDES	CU. YDS.	0.2
TOTAL	CU. YDS.	11.0
HP 14 x 73 STEEL PILES NO. = 7	LIN. FT.	560
PDA TESTING	EA.	2
PDA ASSISTANCE	EA.	2



PLAN



ELEVATION

LATERAL GUIDE DETAIL

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	13
1			3			TOTAL SHEETS
2			4			27

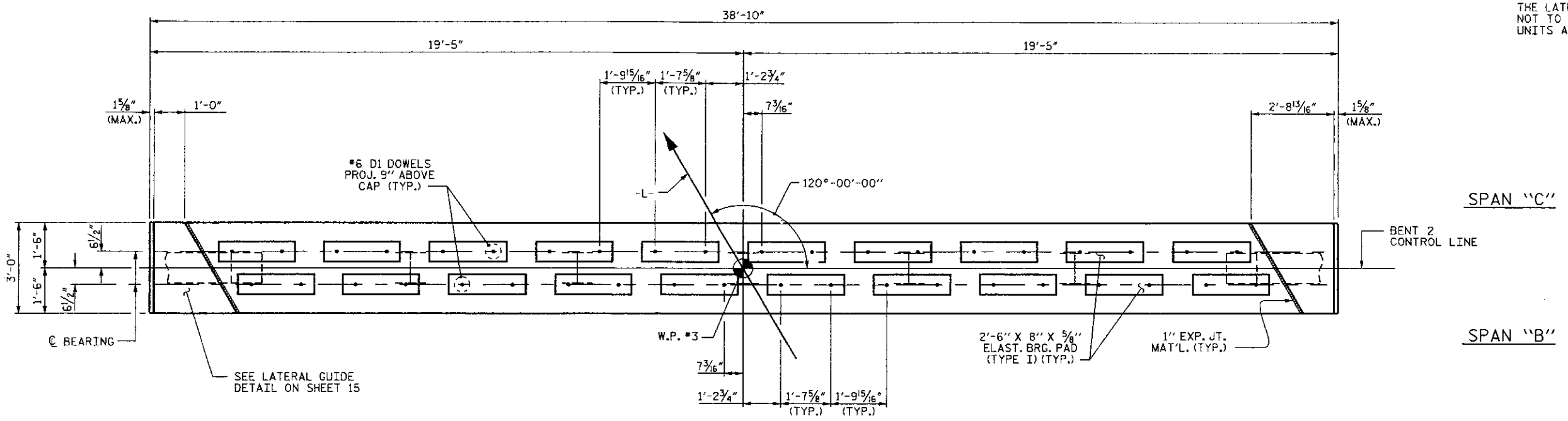
DRAWN BY : A.S. CALLAWAY DATE : 3/10/08
CHECKED BY : L.E. SUTTON DATE : 9/3/08

26-SEP-2008 10:41

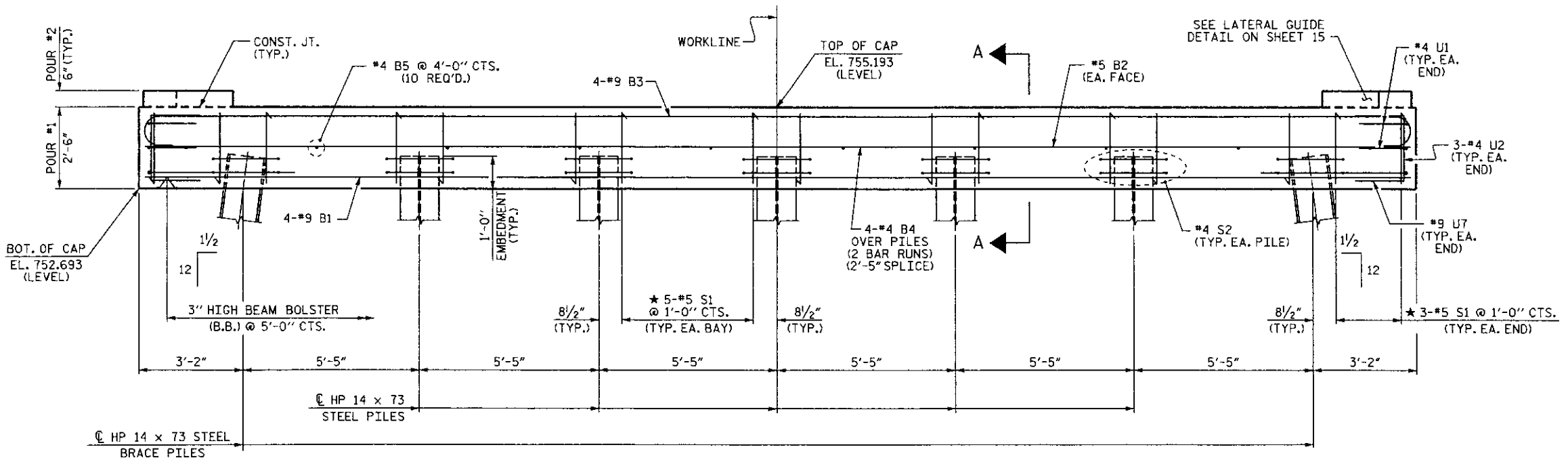
NOTES

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

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.



PLAN



ELEVATION

★ INVERT ALTERNATE STIRRUPS.

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

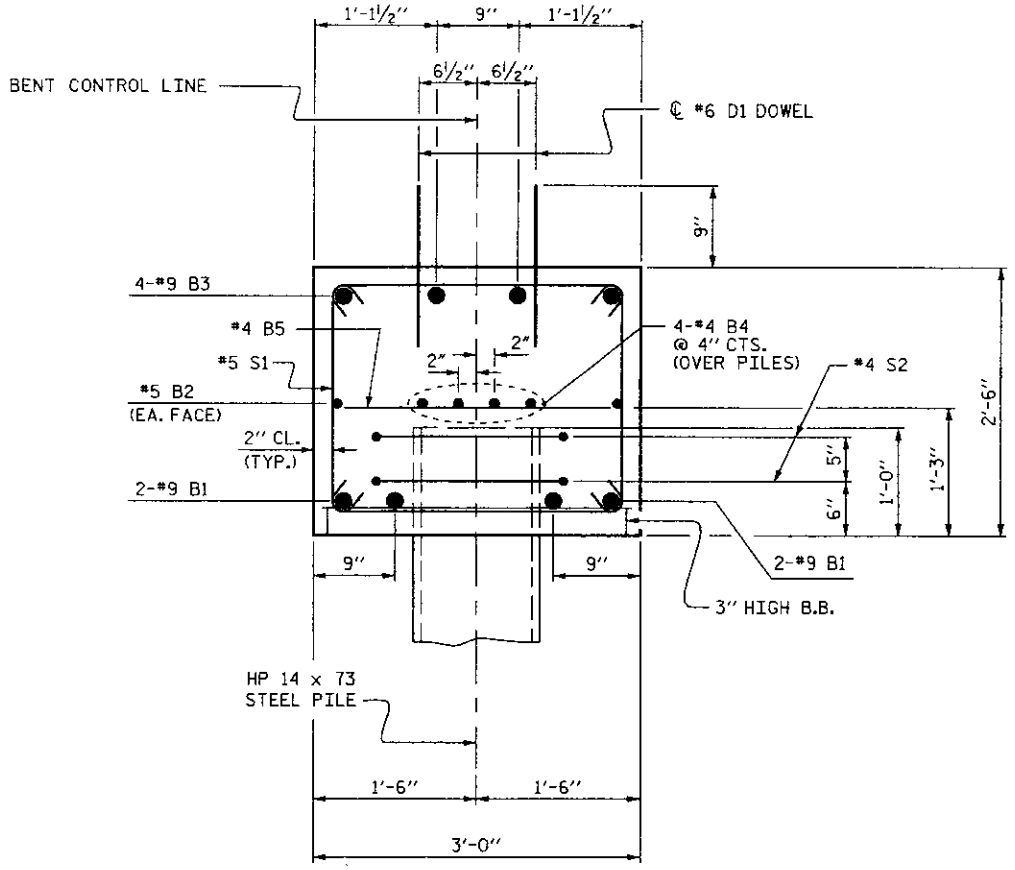
BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	14
1			3			TOTAL SHEETS
2			4			27

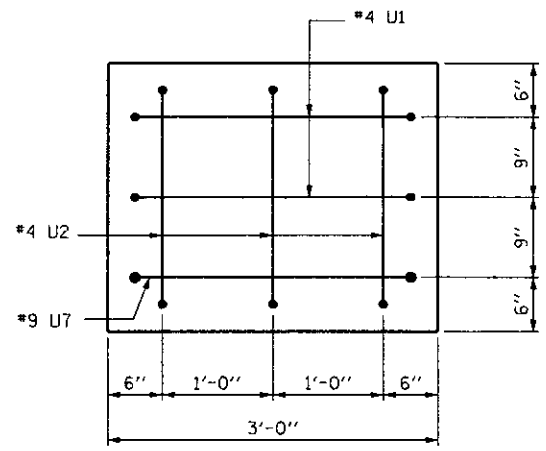
NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 9/29/08

DRAWN BY : A.S. CALLAWAY DATE : 3/10/08
CHECKED BY : L.E. SUTTON DATE : 9/3/08

26-SEP-2008 10:41



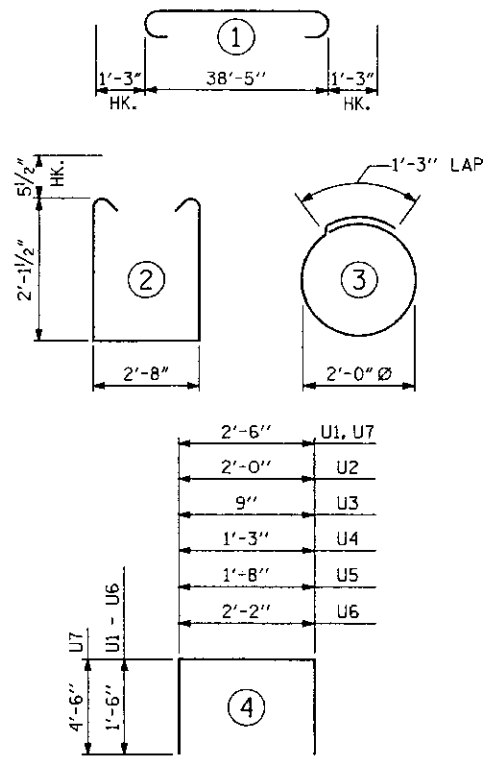
SECTION A-A



END VIEW

(TYP. BOTH ENDS)

BAR TYPES



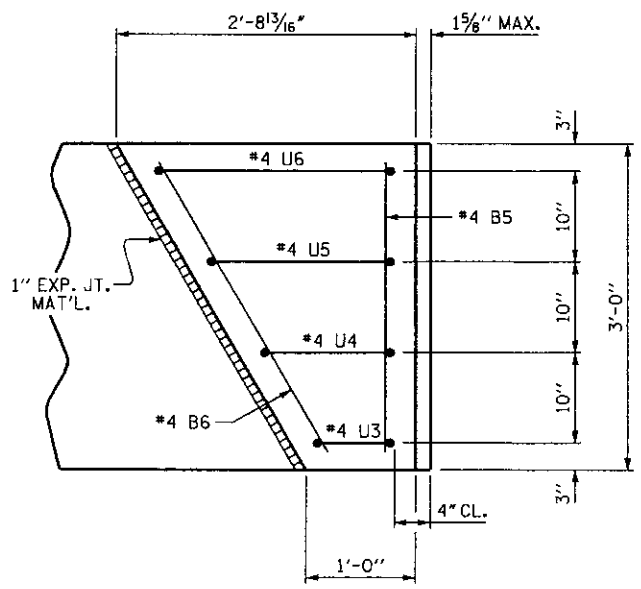
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

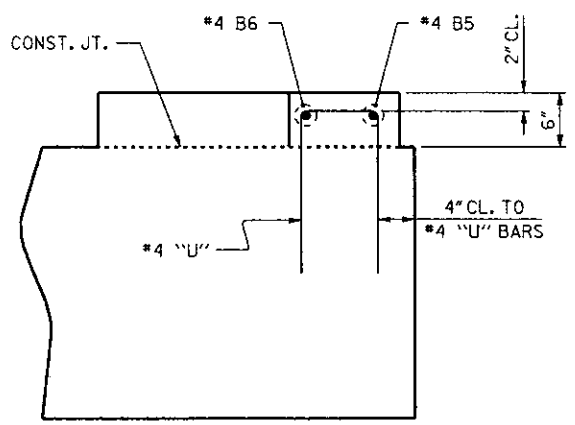
BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	STR	38'-6"	524
B2	2	#5	STR	38'-6"	80
B3	4	#9	1	40'-11"	556
B4	8	#4	STR	20'-6"	110
B5	12	#4	STR	2'-8"	21
B6	2	#4	STR	3'-1"	4
D1	40	#6	STR	1'-6"	90
S1	36	#5	2	7'-10"	294
S2	14	#4	3	7'-6"	70
U1	4	#4	4	5'-6"	15
U2	6	#4	4	5'-0"	20
U3	2	#4	4	3'-9"	5
U4	2	#4	4	4'-3"	6
U5	2	#4	4	4'-8"	6
U6	2	#4	4	5'-2"	7
U7	2	#9	4	11'-6"	78

REINFORCING STEEL	LBS.	1,886
CLASS A CONCRETE BREAKDOWN:		
POUR #1 - CAP	CU. YDS.	10.8
POUR #2 - LATERAL GUIDES	CU. YDS.	0.2
TOTAL	CU. YDS.	11.0
HP 14 x 73 STEEL PILES NO. = 7	LIN. FT.	560
PDA TESTING	EA.	2
PDA ASSISTANCE	EA.	2



PLAN



ELEVATION

LATERAL GUIDE DETAIL

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

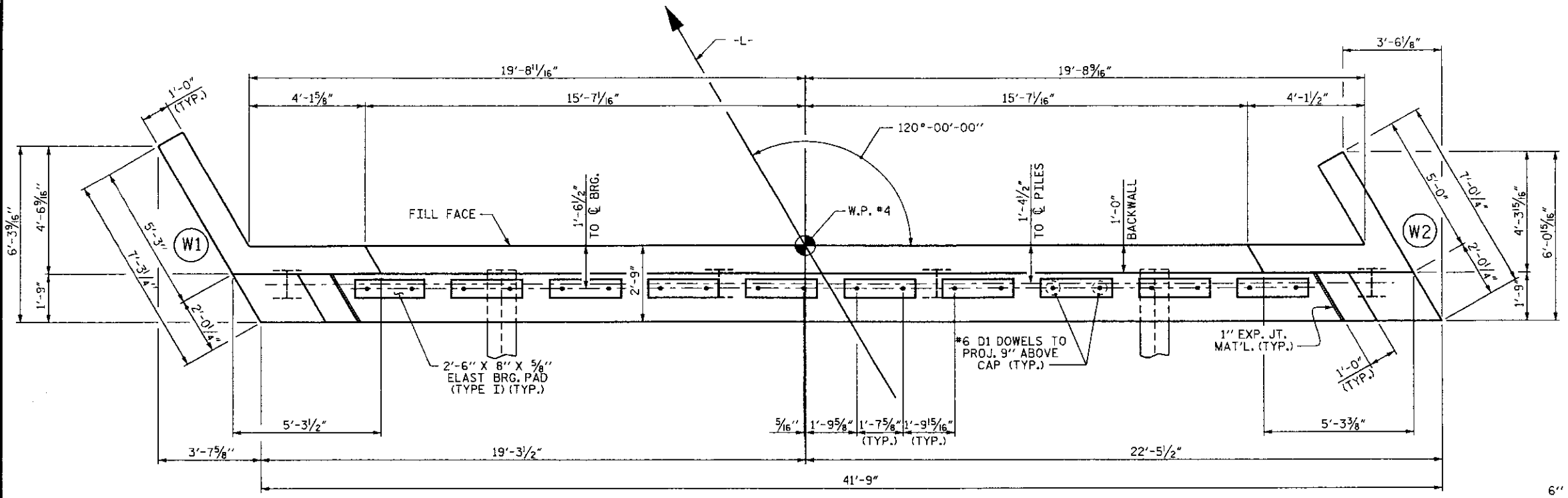
SUBSTRUCTURE

BENT 2

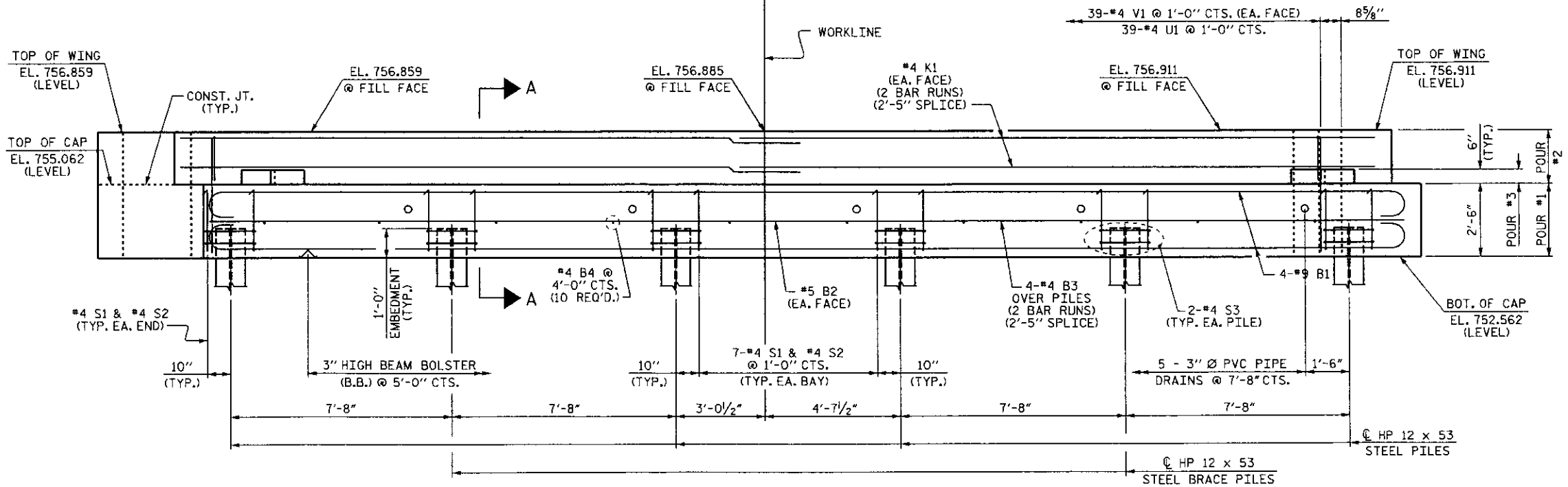
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	15
1			3			TOTAL SHEETS
2			4			27

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 9/20/08

DRAWN BY : A.S. CALLAWAY DATE : 3/10/08
CHECKED BY : L.E. SUTTON DATE : 9/3/08



PLAN



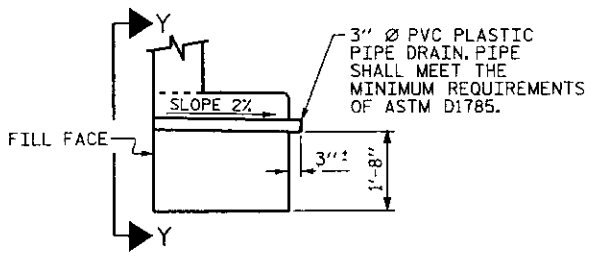
ELEVATION

NOTES

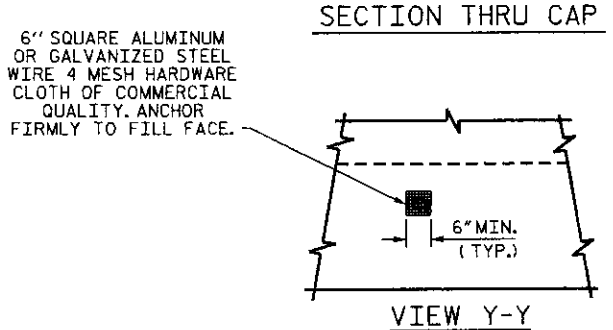
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE #4 V1 BARS IN THE BACKWALL SHALL BE PLACED 2" CLEAR FROM THE TOP OF THE BACKWALL.



SECTION THRU CAP



VIEW Y-Y

PIPE DRAIN DETAILS

NOTE: NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PLASTIC PIPE DRAINS, HARDWARE CLOTH AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

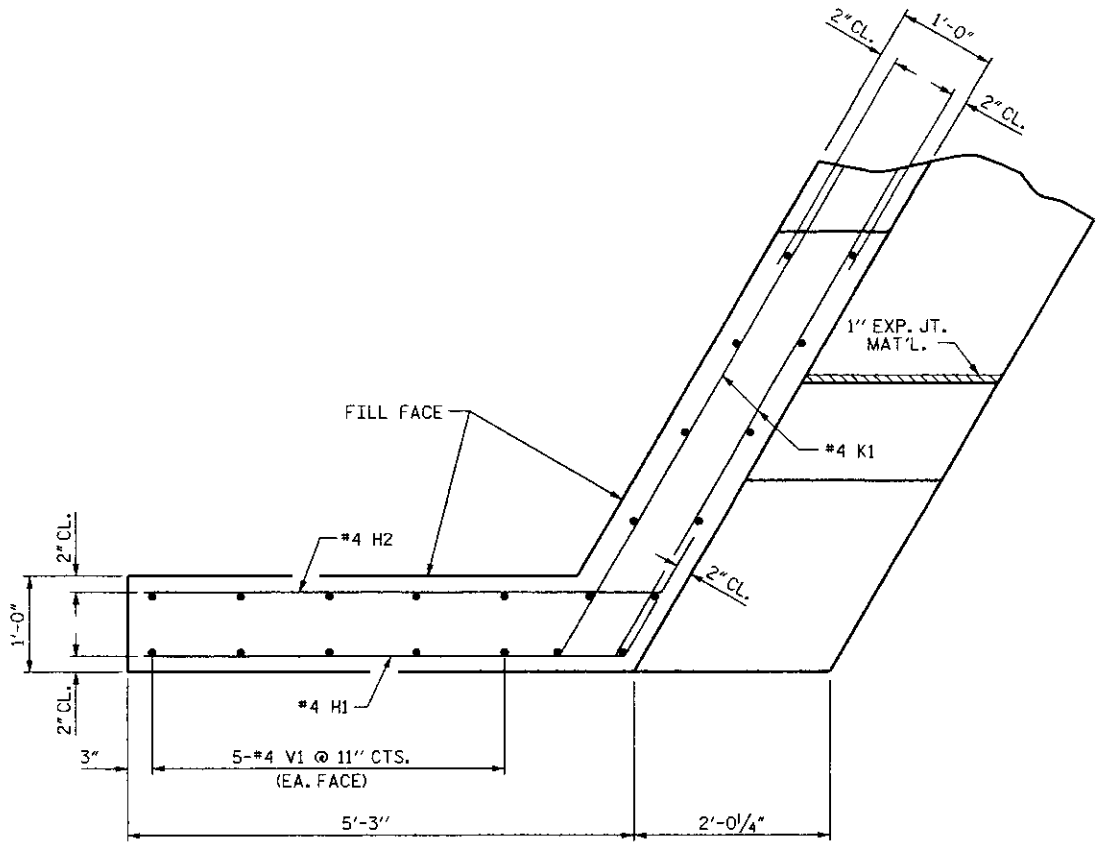
SUBSTRUCTURE

END BENT 2
26'-10" CLEAR ROADWAY
120° SKEW - 40' SPAN

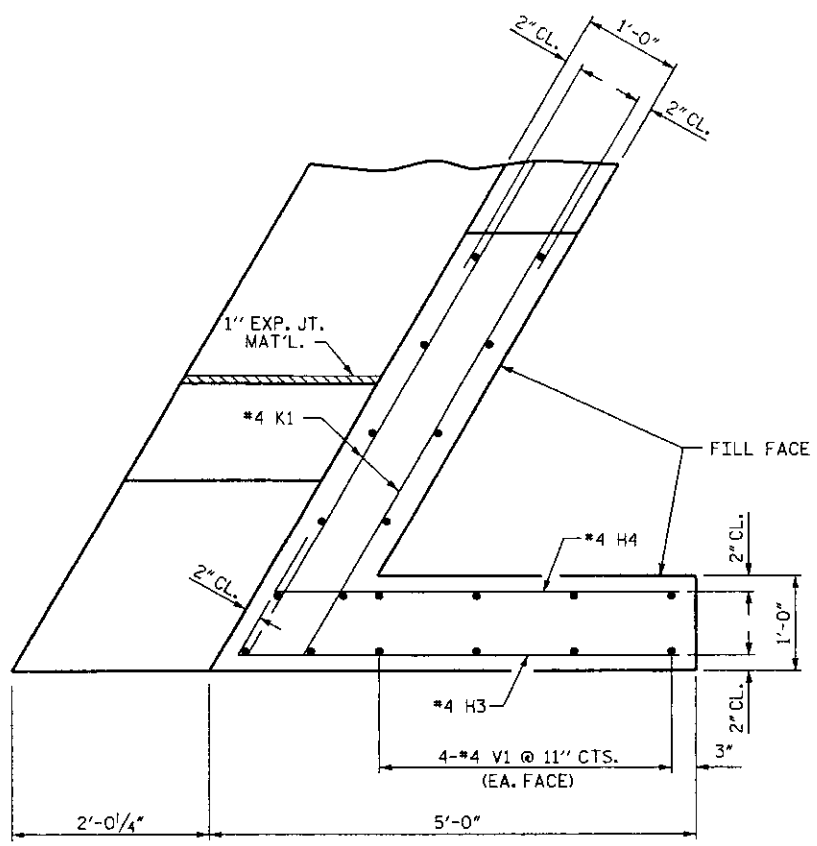
NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 9/9/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	16
1			3			TOTAL SHEETS
2			4			27

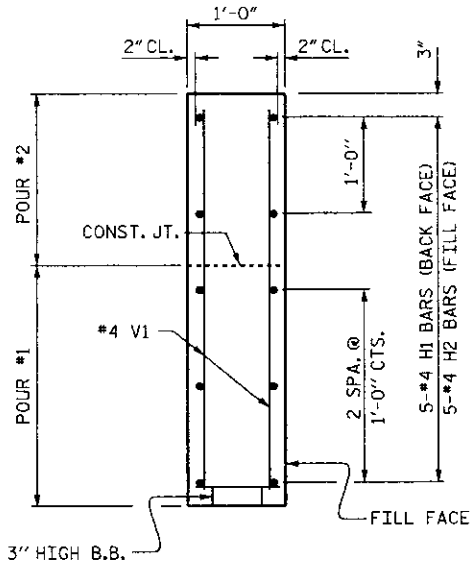
DRAWN BY : A.S. CALLAWAY DATE : 3/7/08
CHECKED BY : L.E. SUTTON DATE : 9/2/08



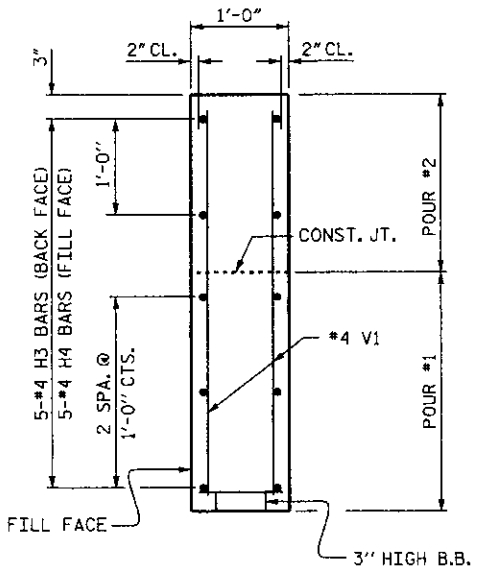
PLAN OF WING (W1)



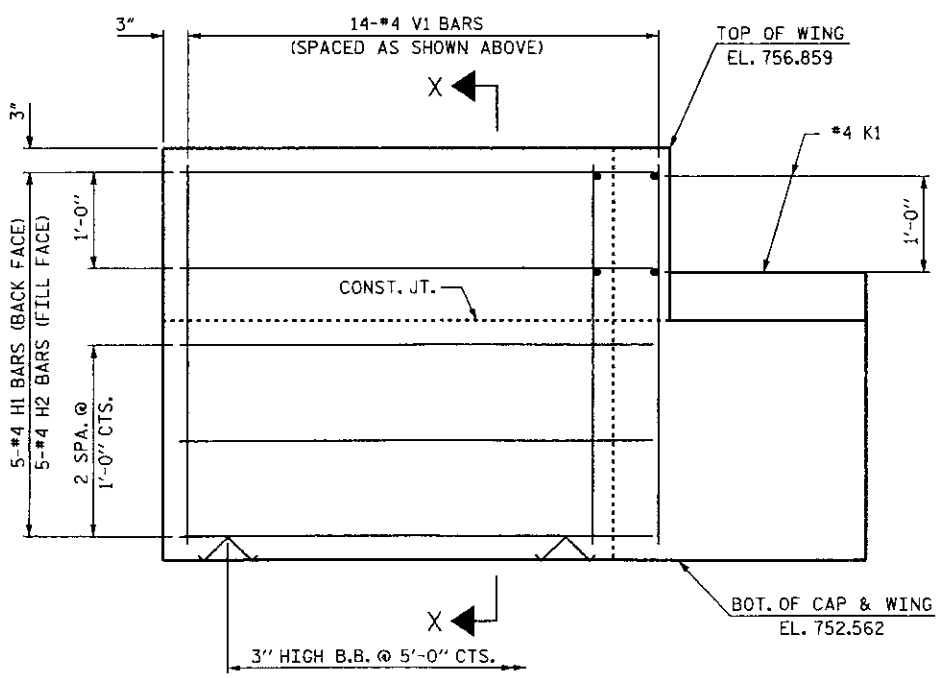
PLAN OF WING (W2)



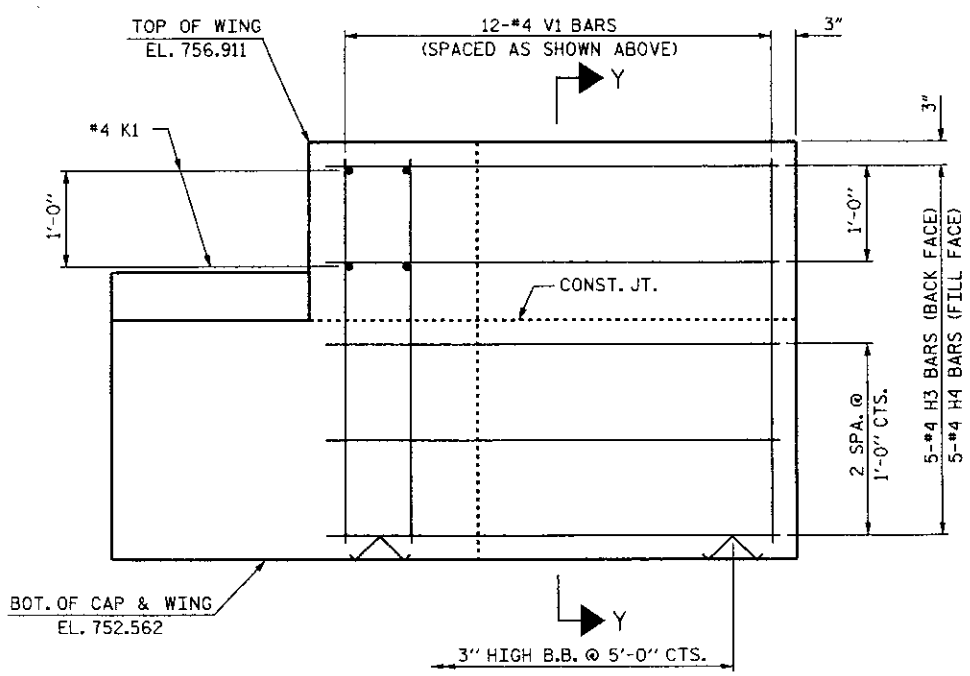
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

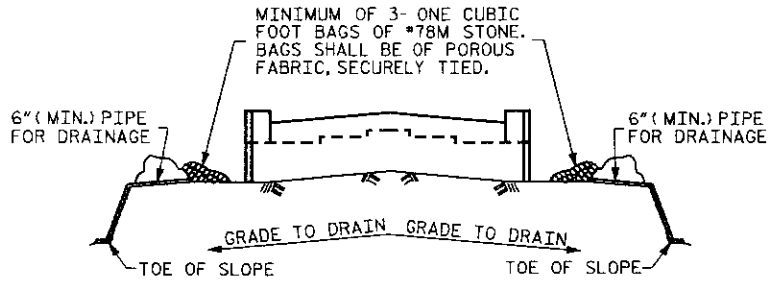
SUBSTRUCTURE

END BENT 2
26'-10" CLEAR ROADWAY
120° SKEW - 40' SPAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	17
1			3			TOTAL SHEETS
2			4			27

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON 9/24/08

DRAWN BY : A.S. CALLAWAY DATE : 3/7/08
CHECKED BY : L.E. SUTTON DATE : 9/2/08

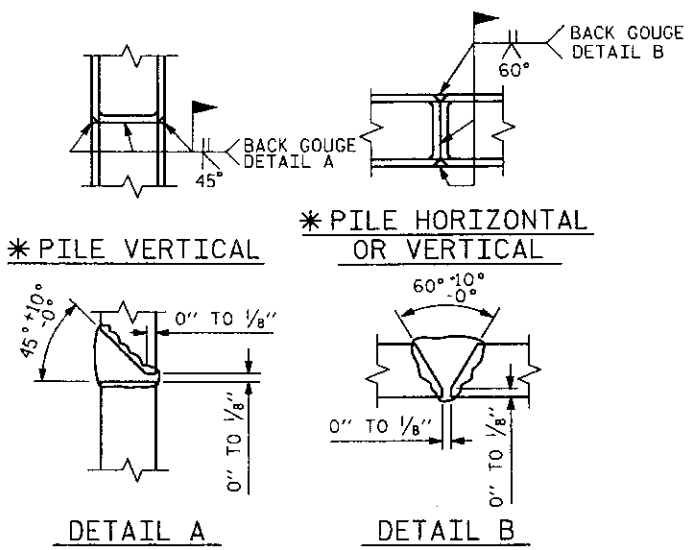


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

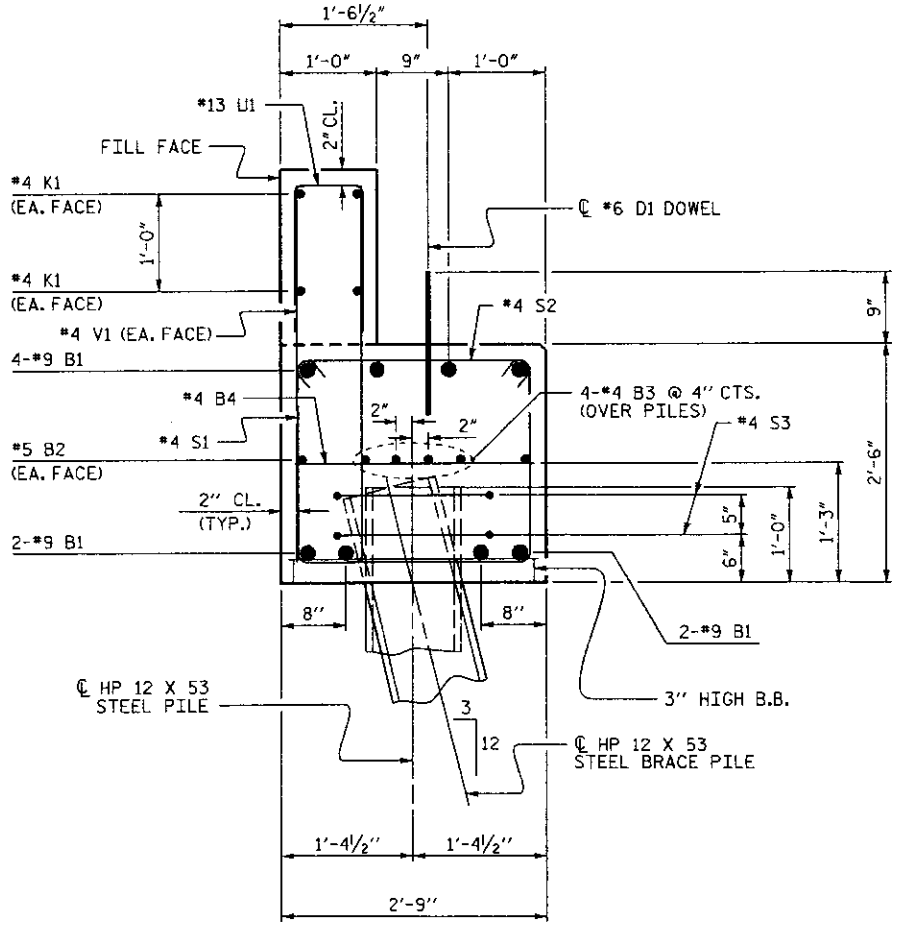
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

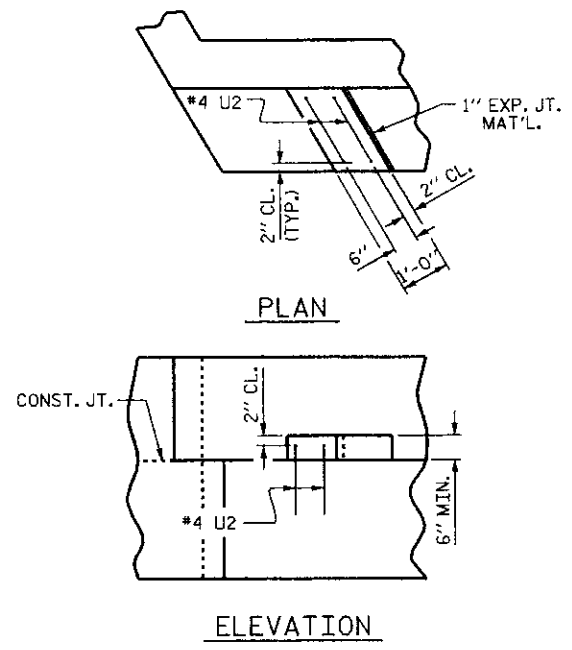


* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAIL



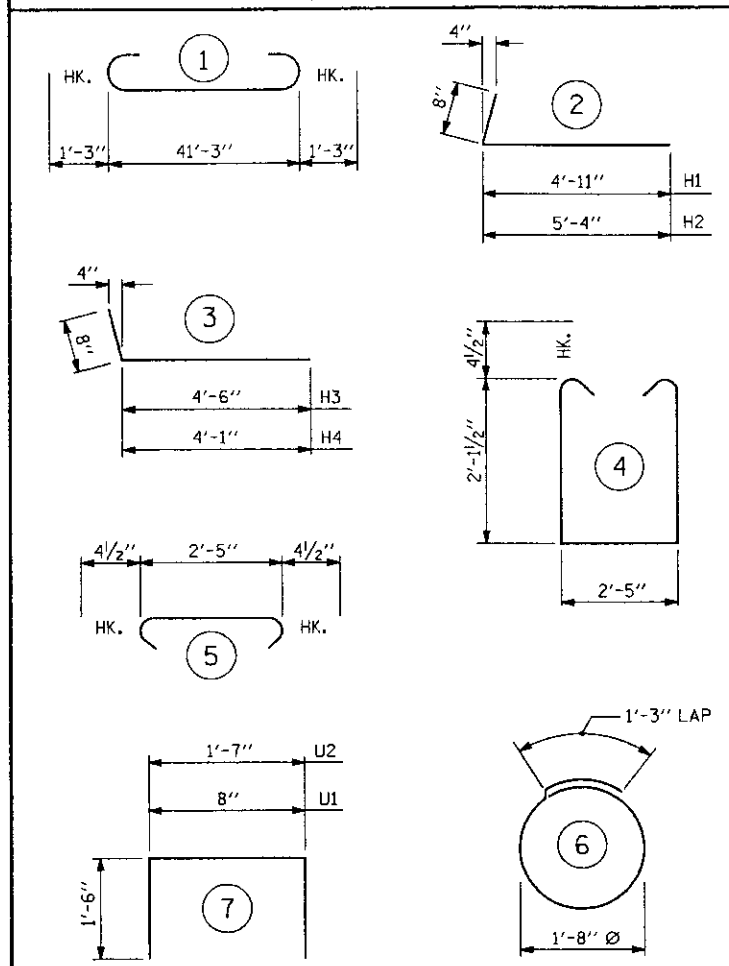
SECTION A-A



LATERAL GUIDE DETAIL

(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	43'-9"	1190
B2	2	#5	STR	41'-5"	86
B3	8	#4	STR	21'-11"	117
B4	10	#4	STR	2'-5"	16
D1	20	#6	STR	1'-6"	45
H1	5	#4	2	5'-7"	19
H2	5	#4	2	6'-0"	20
H3	5	#4	3	5'-2"	17
H4	5	#4	3	4'-9"	16
K1	8	#4	STR	21'-11"	117
S1	37	#4	4	7'-5"	183
S2	37	#4	5	3'-2"	78
S3	12	#4	6	6'-6"	52
U1	39	#4	7	3'-8"	96
U2	4	#4	7	4'-7"	12
V1	104	#4	STR	3'-11"	272

REINFORCING STEEL	LBS.	2,336
CLASS A CONCRETE BREAKDOWN :		
POUR #1 - CAP & LOWER WINGS	CU. YDS.	11.4
POUR #2 - BACKWALL & UPPER WINGS	CU. YDS.	3.4
POUR #3 - LATERAL GUIDES	CU. YDS.	0.1
TOTAL	CU. YDS.	14.9
HP 12 x 53 STEEL PILES NO. = 6	LIN. FT.	480
PDA TESTING	EA.	2
PDA ASSISTANCE	EA.	2

PROJECT NO. 33742

GASTON COUNTY

STATION: 14+52.00 -L-

REPLACES BRIDGE NO. 110

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2
26'-10" CLEAR ROADWAY
120° SKEW - 40' SPAN

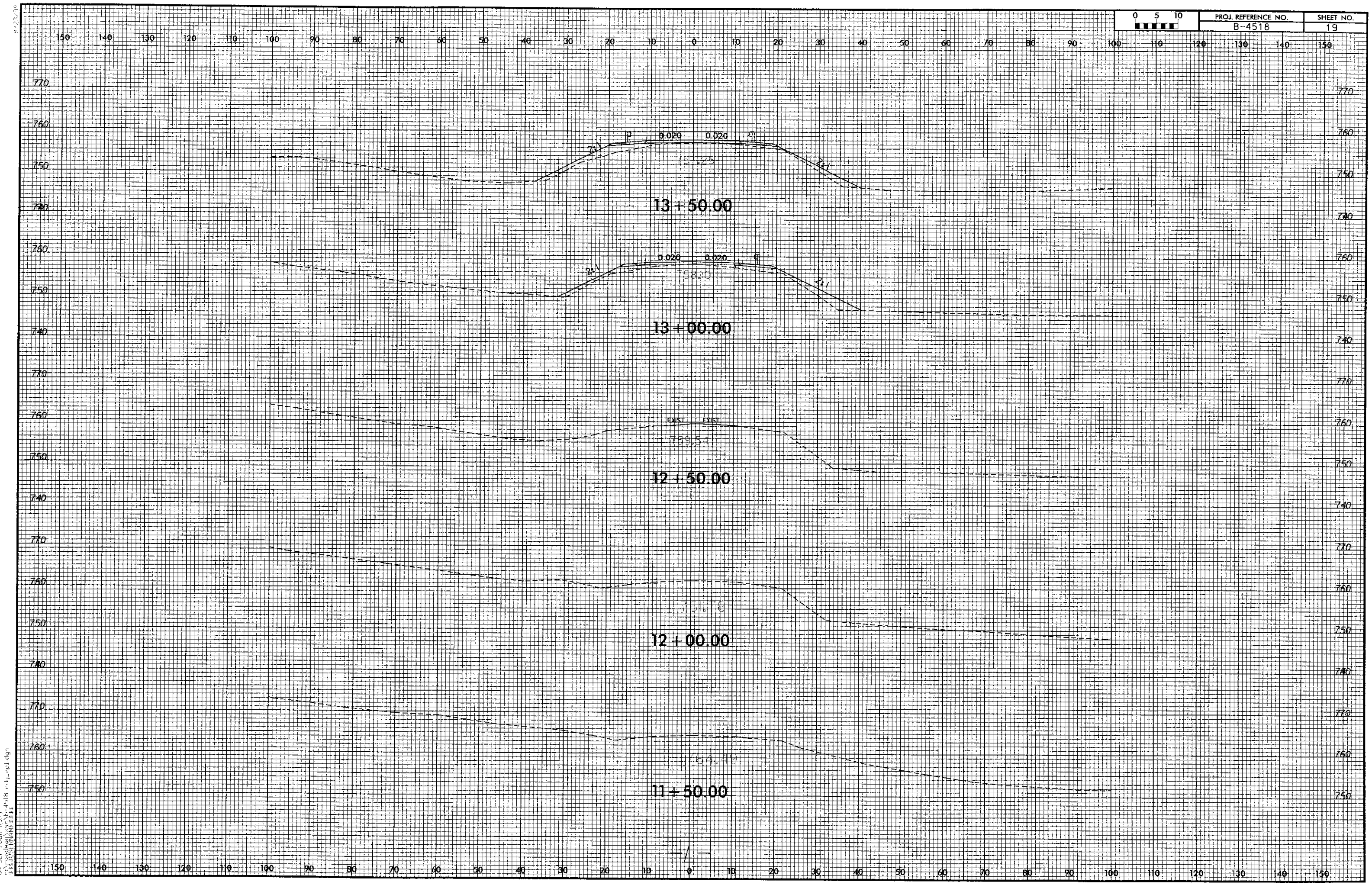
NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
9/24/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	18
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : A.S. CALLAWAY DATE : 3/7/08
CHECKED BY : L.E. SUTTON DATE : 9/2/08

25-FEB-2009 10:42

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4518	19



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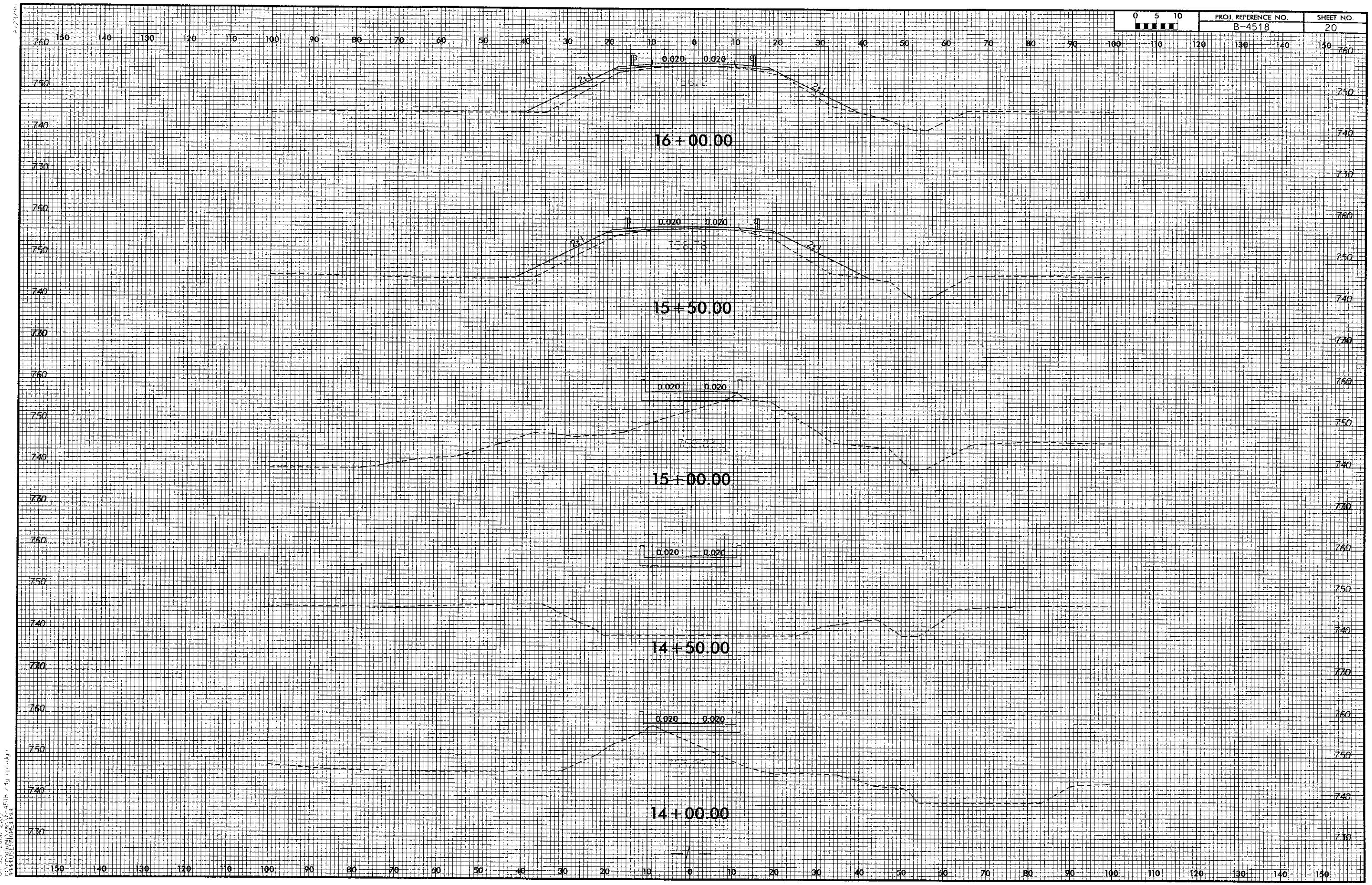
	B-4518	20



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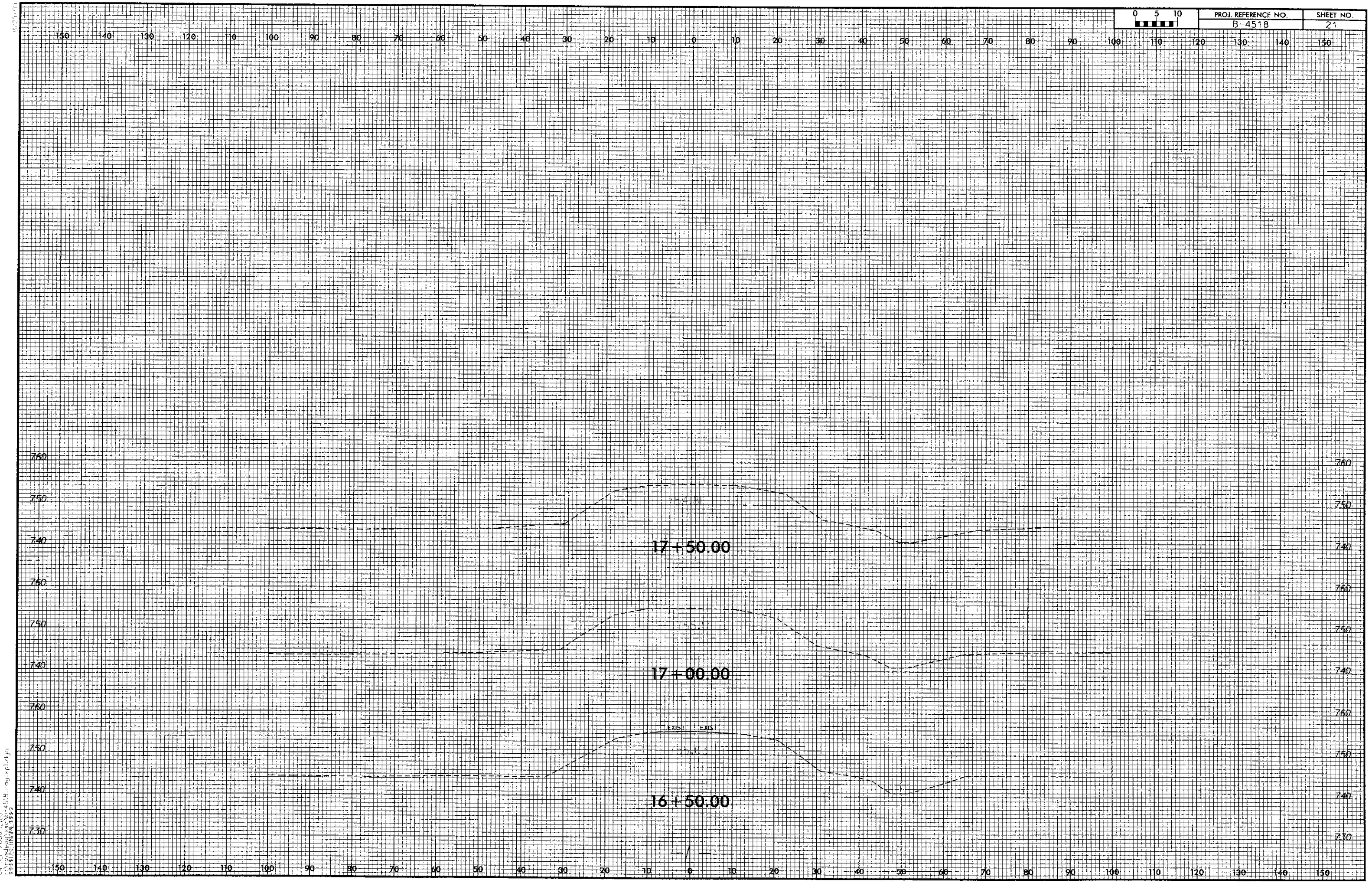
	B-4518	21



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 2006 "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. FINS 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.

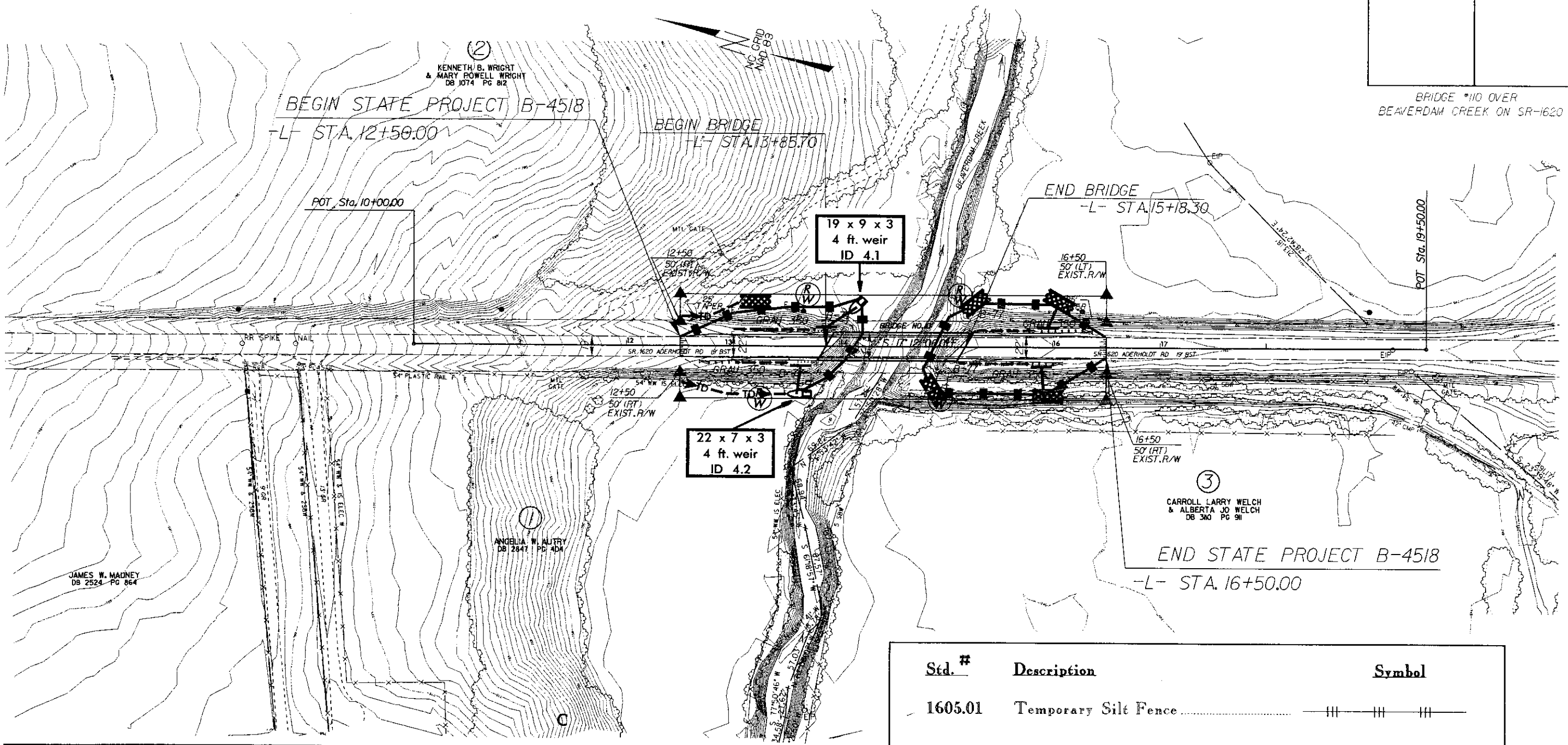
SPECIAL NOTES:

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.

EROSION CONTROL PLAN

PROJECT REFERENCE NO.	SHEET NO.
B-4518	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

BRIDGE #110 OVER
BEAVERDAM CREEK ON SR-1620



ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2006 STANDARD SPECIFICATIONS

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.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1622.01	Temporary Berms and Slope Drains	
1630.05	Temporary Diversion	TD
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-B	
1634.02	Temporary Rock Sediment Dam Type-B	

REVISIONS 8/17/09

26-SEP-2009 10:55

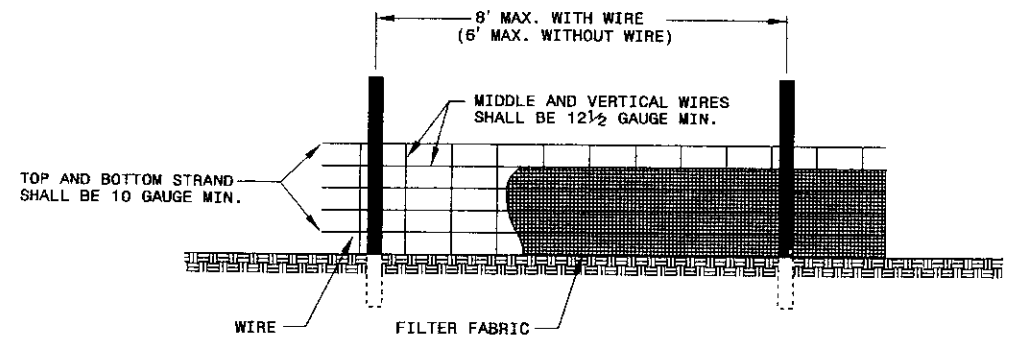
EROSION CONTROL PLAN

PROJECT REFERENCE NO.	SHEET NO.
B-4518	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

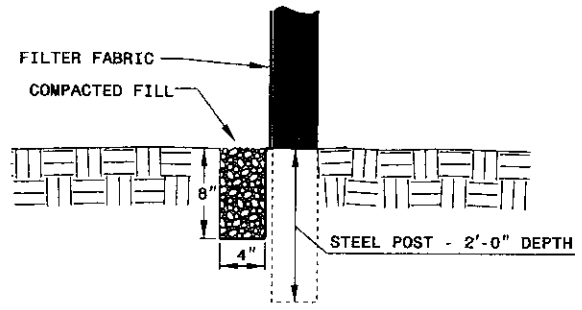
BRIDGE #110 OVER
BEAVERDAM CREEK ON SR-1620

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

ENGLISH STANDARD DRAWING FOR
TEMPORARY SILT FENCE



NOTES
USE WIRE A MINIMUM OF 32" IN WIDTH AND WITH A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
USE FILTER FABRIC A MINIMUM OF 36" IN WIDTH AND FASTEN ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER.
PROVIDE 5'-0" STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE.



EXTENSION OF FABRIC AND WIRE INTO TRENCH

SHEET 1 OF 1
1605.01

ROADSIDE ENVIRONMENTAL UNIT
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RALEIGH, N.C.

2006 STANDARD SPECIFICATIONS

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

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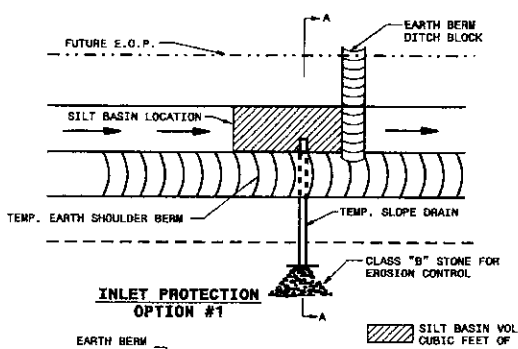
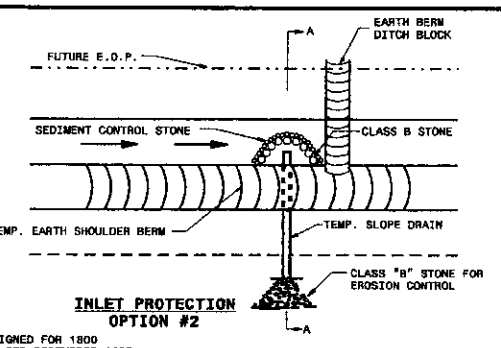
RALEIGH, N.C.

1-02

ENGLISH STANDARD DRAWING FOR
GUIDE FOR TEMPORARY BERMS AND SLOPE DRAIN

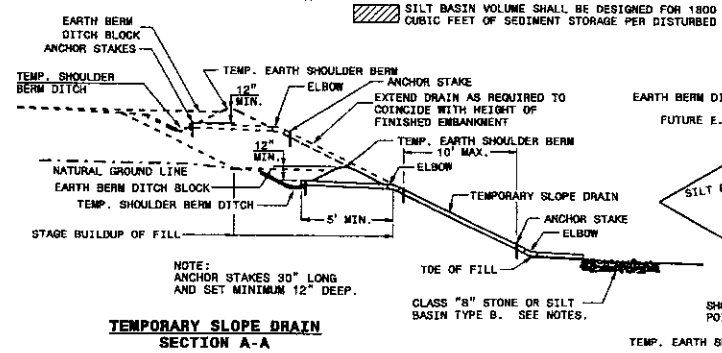


INLET PROTECTION OPTION #1



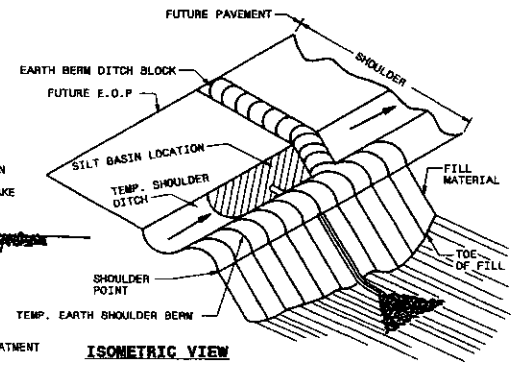
INLET PROTECTION OPTION #2

SILT BASIN VOLUME SHALL BE DESIGNED FOR 1800 CUBIC FEET OF SEDIMENT STORAGE PER DISTURBED ACRE.



NOTE:
ANCHOR STAKES 30" LONG AND SET MINIMUM 12" DEEP.

TEMPORARY SLOPE DRAIN SECTION A-A



ISOMETRIC VIEW

NOTES:
1. OPEN END PIPE WITH MINIMUM SETBACK AND PROPER COMPACTION IS AN ACCEPTABLE INLET TREATMENT FOR STAGED CONSTRUCTION WHEN NOT LEFT IN PLACE FOR MORE THAN 30 DAYS.
2. DESIGN INLET PROTECTION OPTION #2 FOR 1800 CUBIC FOOT OF SEDIMENT STORAGE PER DISTURBED ACRE.
3. DESIGN SILT BASINS WITH A 2:1 LENGTH TO WIDTH RATIO MINIMUM.
4. USE CLASS B STONE FOR EROSION CONTROL AT OUTLET LOCATIONS SUBJECT TO SCOURING. SILT BASINS AND/OR OTHER EROSION CONTROL DEVICES MAY ALSO BE UTILIZED TO PREVENT SCOUR AT OUTLET LOCATIONS.
5. USE MAXIMUM SLOPE DRAIN SPACING OF 200 FT.

SHEET 1 OF 1
1622.01

EROSION CONTROL PLAN

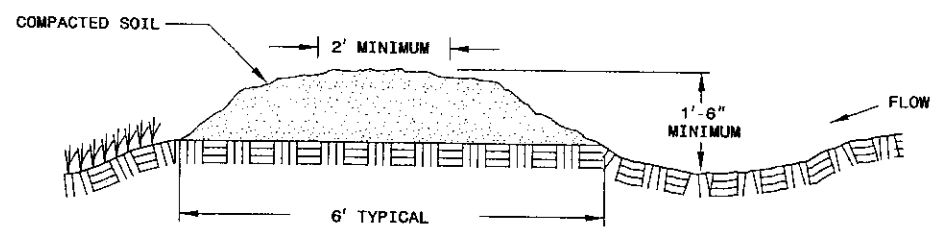
PROJECT REFERENCE NO.	SHEET NO.
B-4518	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

BRIDGE #110 OVER
BEAVERDAM CREEK ON SR-1620

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

ENGLISH STANDARD DRAWING FOR
TEMPORARY DIVERSION

SHEET 1 OF 1
1630.05



CROSS SECTIONAL VIEW

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

ENGLISH STANDARD DRAWING FOR
TEMPORARY DIVERSION

SHEET 1 OF 1
1630.05

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2006 STANDARD SPECIFICATIONS

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

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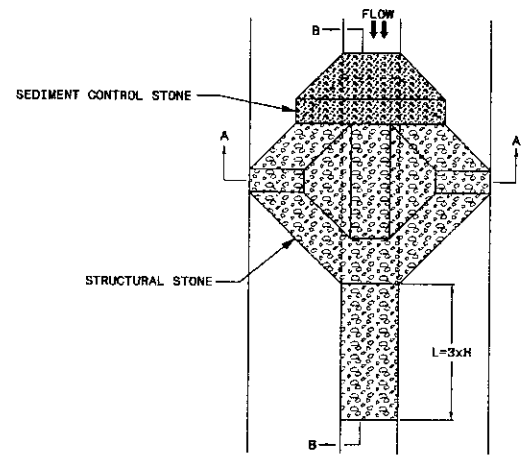
RALEIGH, N.C.

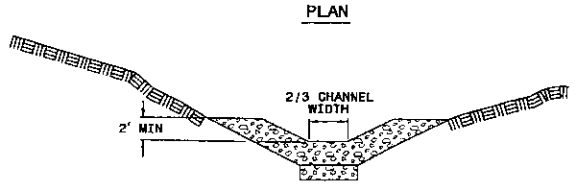
ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'A'

SHEET 1 OF 1
1633.01

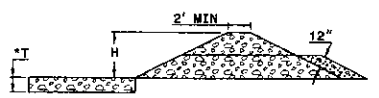


PLAN

NOTE
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.



SECTION A-A



SECTION B-B
*T = 12" MIN., 18" MAX.

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ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'A'

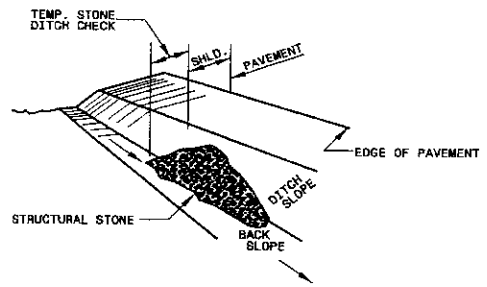
SHEET 1 OF 1
1633.01

EROSION CONTROL PLAN

PROJECT REFERENCE NO.	SHEET NO.
B-4518	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

BRIDGE #110 OVER
BEAVERDAM CREEK ON SR-1520

TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL

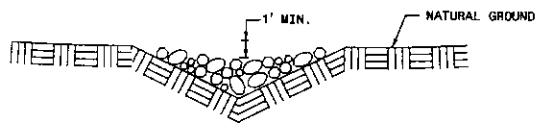


ISOMETRIC VIEW

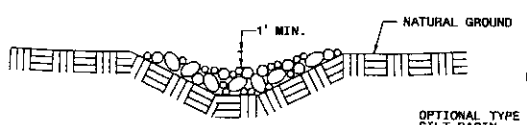
NOTES:

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

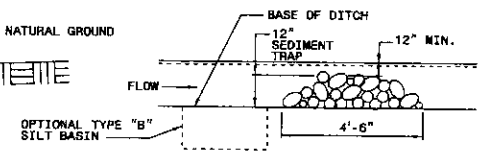
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



CROSS SECTION
VEE DITCH



CROSS SECTION
TRAPEZOIDAL DITCH



ELEVATION VIEW

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2006 STANDARD SPECIFICATIONS

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

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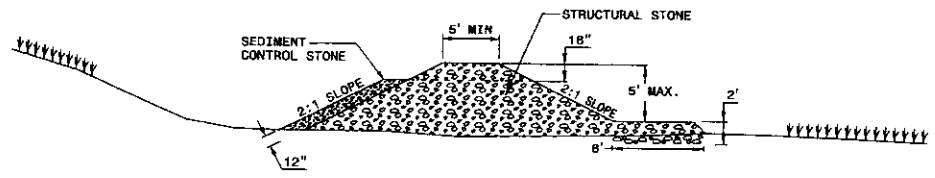
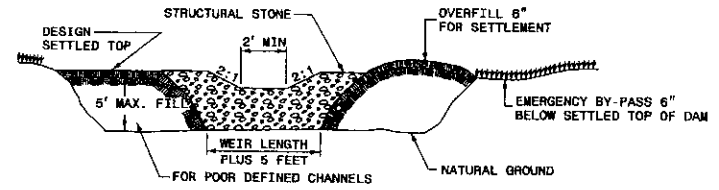
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SEDIMENT DAM TYPE 'B'

SHEET 1 OF 1
1634.02



PROFILE SECTION



CROSS SECTION

DRAINAGE AREA (ACRES)	WEIR LENGTH (FT)
1	4.0
2	6.0
3	8.0
4	10.0
5	12.0

NOTES:
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.
DIKE MAY EXTEND ALONG MORE THAN ONE SIDE OF THE TRAP AREA. PROVIDE A TOTAL SEDIMENT STORAGE VOLUME OF 1800± CUBIC FEET PER ACRE OF DISTURBED AREA. SOME OF THE REQUIRED VOLUME MAY BE PROVIDED BY OTHER UP OR DOWNSTREAM CONTROLS.
AN UNDERLAY OF STRUCTURAL STONE WITH FILTER FABRIC MAY BE REQUIRED BY THE ENGINEER.

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ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SEDIMENT DAM TYPE 'B'

SHEET 1 OF 1
1634.02

EROSION CONTROL PLAN

PROJECT REFERENCE NO.	SHEET NO.
B-4518	27
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

BRIDGE #110 OVER
BEAVERDAM CREEK ON SR-1620

COIR FIBER BAFFLE:

Description

Furnish material, install and maintain coir fiber baffles according to the details in the plans or in locations as directed. Coir Fiber Baffles shall be installed in silt basins and sediment dams at drainage outlets. Work includes providing all materials, placing, securing, excavating and backfilling of Coir Fiber Baffles.

Materials

(A) Coir Fiber Mat

Matting: Provide matting to meet the following requirements:

100% coconut fiber (coir) twine woven into high strength matrix
Thickness – 0.30 in. minimum
Tensile Strength 1348 x 626 lbft minimum
Elongation 34% x 38% maximum
Flexibility (mg-cm) 65030 x 29590
Flow Velocity Observed 11 ft/sec
Weight 20 oz/SY
Size 6.6 x 164 ft (120 SY)
"C" Factor 0.002
Open Area (measured) 50%

(B) Staples

Provide staples made of 0.125 in. diameter new steel wire formed into a u shape not less than 12" in length with a throat of 1" in width.

(C) Posts

Steel posts shall be at least 5 ft. in length, approximately 1 3/8" wide measured parallel to the fence, and have a minimum weight of 1.25 lbft of length. The post shall be equipped with an anchor plate having a minimum area of 14.0 square inches, and shall be of the self-fastener angle steel type to have a means of retaining wire and coir fiber mat in the desired position without displacement.

(D) Wire

Provide 9-gauge high-tension wire strand of variable lengths.

Construction Methods

Place the coir fiber baffles immediately upon excavation of basins. Install three (3) baffles in basins with a spacing of one fourth (1/4) the basin length and according to the detail sheets. Two (2) coir fiber baffles shall be installed in basins less than 20 ft. in length with a spacing of one third (1/3) the basin length.

Steel posts shall be placed at a depth of 2 ft. below the basin surface, with a maximum spacing of 4 ft. Attach an 9-gauge high tension wire strand to the steel posts at a height of 3 ft. with plastic ties or wire fasteners. Install a steel post into side of the basin at a variable depth and a height of 3 ft. from the bottom of the basin to anchor coir fiber mat. Secure anchor post to the upright steel post in basin with wire fasteners.

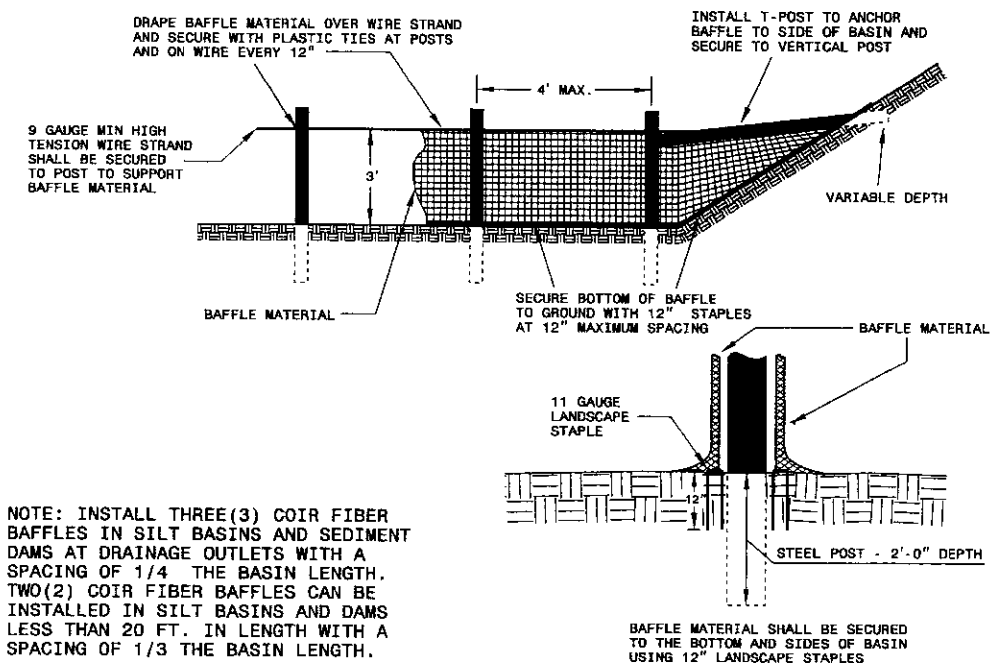
The coir fiber mat shall be draped over the wire strand to a minimum of 3 ft. of material on each side of the strand. Secure the coir fiber mat to the wire strand with plastic ties or wire fasteners. Place staples across the matting at ends and junctions approximately 1 ft. apart at the bottom and side slopes of basin. Overlap matting at least 6" where 2 or more widths of matting are installed side by side.

Refer to details in the plan sheets. The Engineer may require adjustments in the stapling requirements to fit individual site conditions.

Measurement and Payment

Payment for Coir Fiber Baffles will be included in the contract bid price for Lump Sum for Erosion Control. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the coir fiber baffles.

COIR FIBER BAFFLE DETAIL



NOTE: INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF 1/4 THE BASIN LENGTH. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.

ROADSIDE ENVIRONMENTAL UNIT
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2006 STANDARD SPECIFICATIONS

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