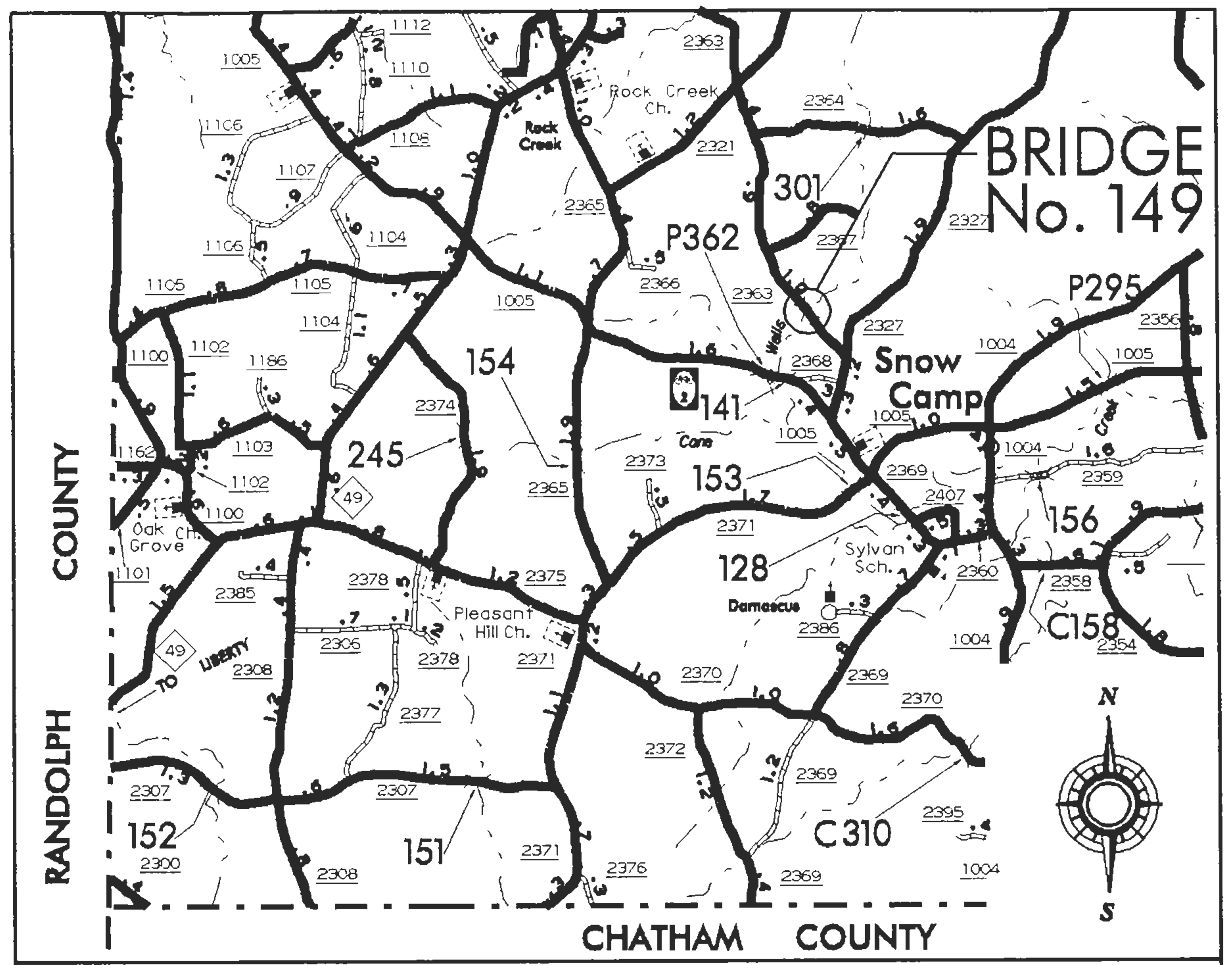
TIP PROJECT: B-4004

WBS: 33372.1.1

STATE	STATE PROJECT REFERENCE NO.	
N.C.	B-4004	TITLE
STATE PROJECT NO.	F.A. PROJ. NO.	DESCRIPTION
33372.1.1		P.E.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

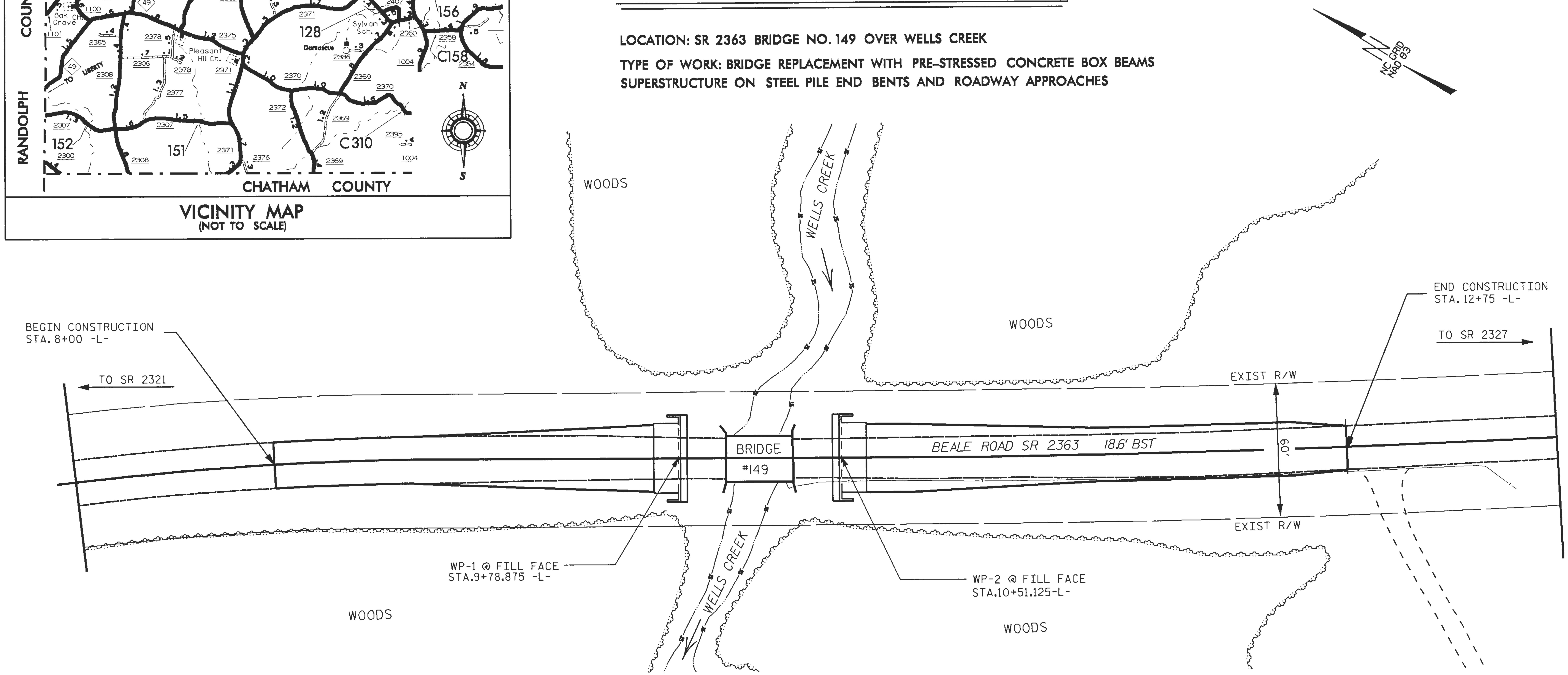
ALAMANCE COUNTY



VICINITY MAP
(NOT TO SCALE)

LOCATION: SR 2363 BRIDGE NO. 149 OVER WELLS CREEK

TYPE OF WORK: BRIDGE REPLACEMENT WITH PRE-STRESSED CONCRETE BOX BEAMS SUPERSTRUCTURE ON STEEL PILE END BENTS AND ROADWAY APPROACHES



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGN DATA

ADT 2005 = 820

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT = 0.072 MILE

LENGTH STRUCTURE TIP PROJECT = 0.018 MILE

TOTAL LENGTH TIP PROJECT = 0.090 MILE

Prepared In the Office of:

BRIDGE MANAGEMENT UNIT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

LETTING DATE: 11-19-2009

DAN HOLDERMAN, PE
STATE BRIDGE MANAGEMENT ENGINEER

NCDOT CONTACT: MIKE SUMMERS
BRIDGE MANAGEMENT PROJECT MANAGER

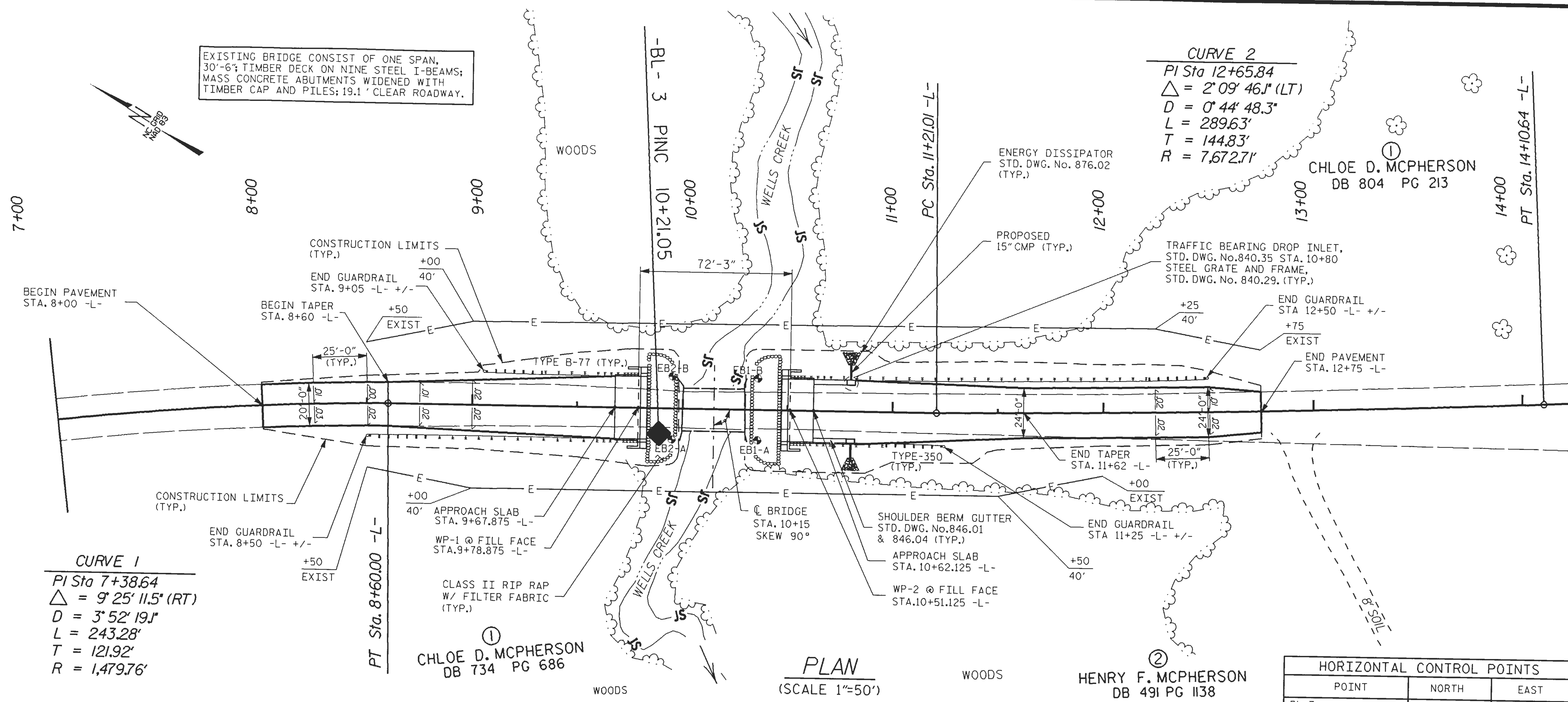
NORTH CAROLINA PROFESSIONAL SEAL 20208 ENGINEER ERIC B. NELSON, JR.

10/21/09

RICK NELSON, PE
DESIGN ENGINEER

33372.1.1 (B-4004)

ALAMANCE



HORIZONTAL CONTROL POINTS		
POINT	NORTH	EAST
BL-3	784927.608	1865780.815
GPS-B4004-1	784554.763	1866028.079
WP #1	784942.438	1865785.887
WP #2	784881.579	1865824.670
PT Sta. 8+60.00 -L-	785042.722	1865721.978
PT Sta. 11+21.01 -L-	784822.612	1865862.248

NOTES

1. THE QUANTITY OF RIP RAP TO BE PAID FOR WILL BE THE ACTUAL NUMBER OF TONS OF EACH CLASS OF RIP RAP WHICH HAS BEEN INCORPORATED INTO THE COMPLETED AND ACCEPTED WORK. THE RIP RAP WILL BE MEASURED BY BEING WEIGHED IN TRUCKS ON CERTIFIED PLATFORM SCALES OR OTHER CERTIFIED WEIGHING DEVICES. THE QUANTITY OF RIP RAP WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON:

   PLAIN RIP RAP CLASS II (2' - 0" THICK) WITH FILTER FABRIC

END BENT NO. 1	100	TONS
END BENT NO. 2	100	TONS

2. THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, 'EVALUATING SCOUR AT BRIDGES," MAY 2001.
3. DRIVE PILES AT END BENT No. 1 AND END BENT No. 2 TO A REQUIRED BEARING CAPACITY OF 90 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.
4. THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT No. 1 AND END BENT No. 2 IS 45 TONS PER PILE.
5. WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.
6. ADT 820 FOR YEAR 2005. FUTURE ADT 1640 FOR YEAR 2025.
7. NO EMBANKMENT CONSTRUCTION RELATED WAITING PERIODS ARE REQUIRED.
8. THE STEEL PILES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.
9. REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER AND IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

BM #1
-BL- STA 10+83.33
197.98' RIGHT
ELEV. 592.89'

GEO TECH BORE HOLES LOCATION

GRAPHIC SCALE

50 25 0 50 100

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 2200 CFS.
FREQUENCY = 500 YR. (±)
EL. = 596.7'

PROJECT NO.: 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

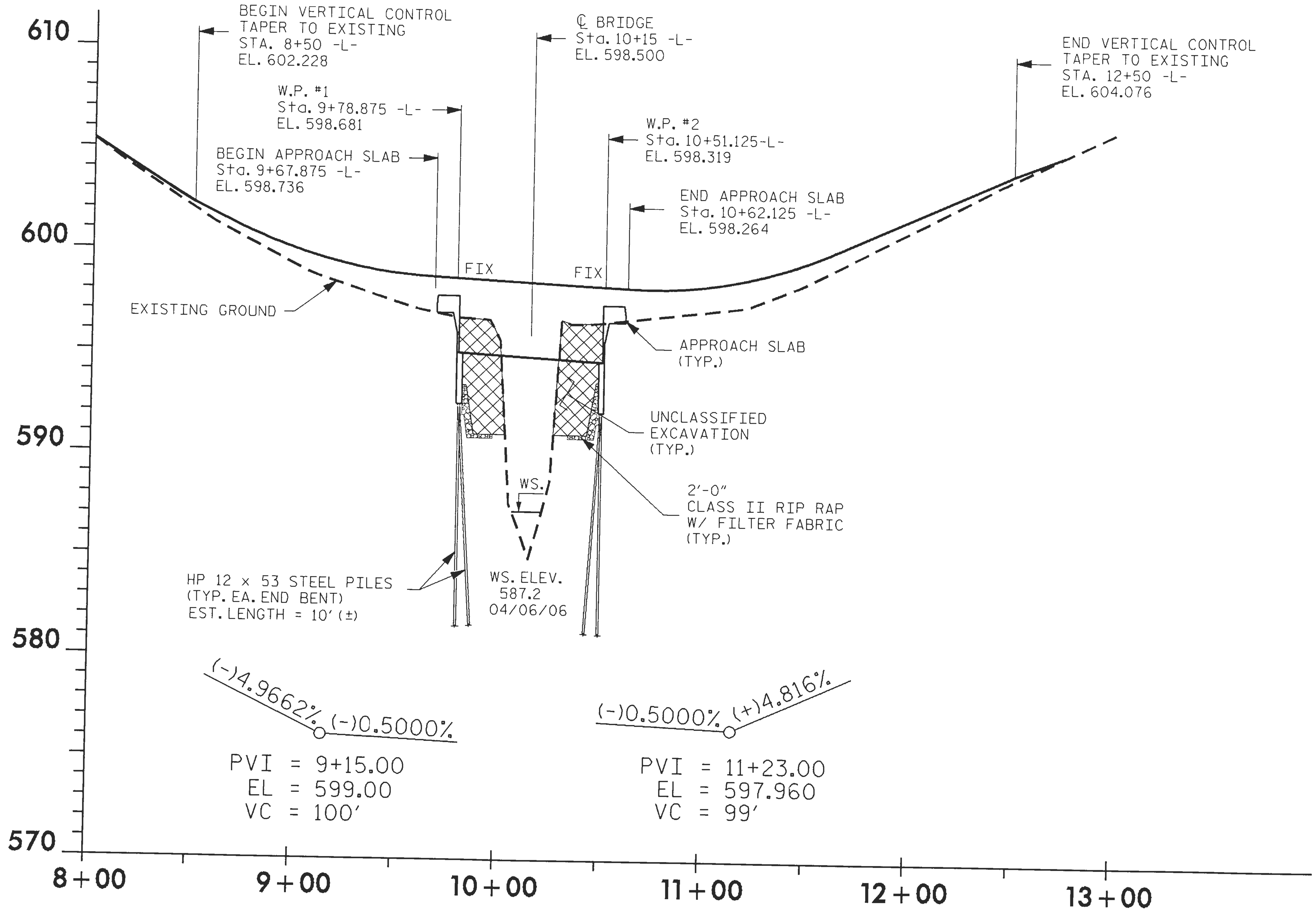
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE #149 ON SR 2363
OVER WELLS CREEK
(29'-10" CRW)

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

DRAWN BY: CLB/STS DATE: 05/09
CHECKED BY: J.A.Y/A.ABRAHA DATE: 09/09

19-OCT-2009 13:21 ssandor AT B0MU240326 s:\poc\squad b\current\149 alamance wbs 33372.1.1\final\roadway\b-4004_1_pro_sht_1.dgn



PROFILE ALONG ℄ SURVEY

(SCALE H: 1"=60'
V: 1"=6')

PROJECT NO.: 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

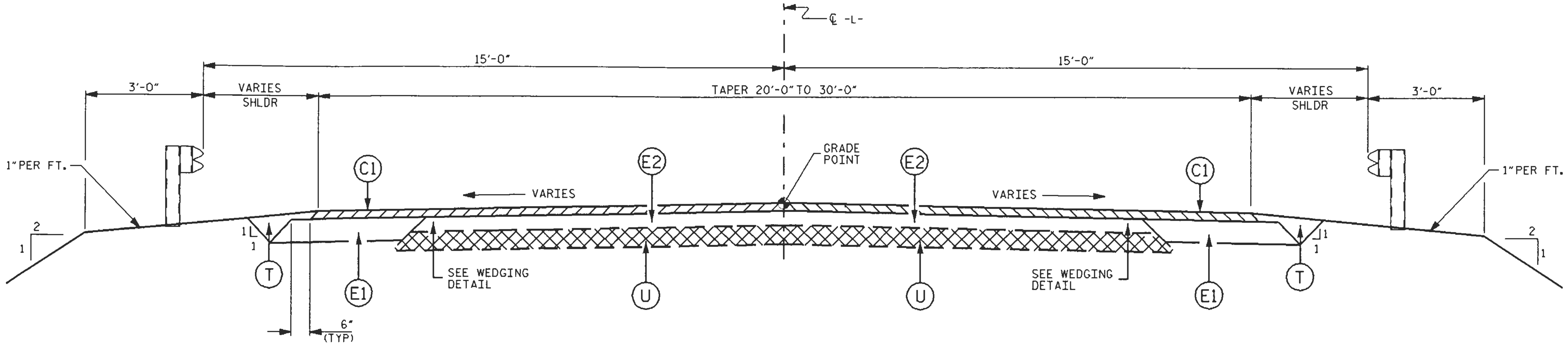
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE #149 ON SR 2363
OVER
WELLS CREEK

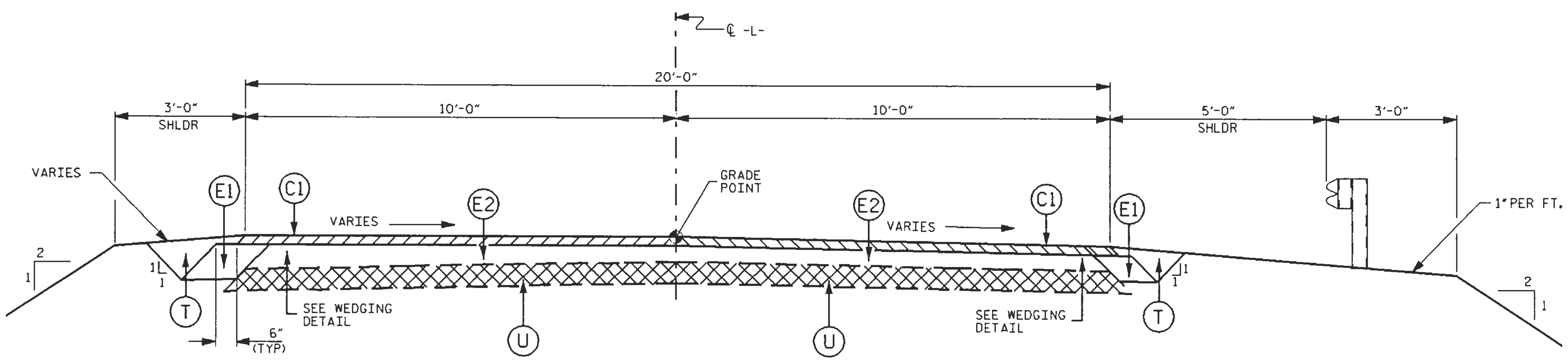
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	3
1			3			TOTAL SHEETS
2			4			18

DRAWN BY: CLB/ STS DATE: 09/09
CHECKED BY: J.A.Y. /A. ABRAHA DATE: 09/09

19-OCT-2009 13:22 ssandor AT BGMU240326 s:\poc\squad b\current\149 alamance wbs 33372.1.1\final\roadway\B-4004_Rdy_pfl.dgn

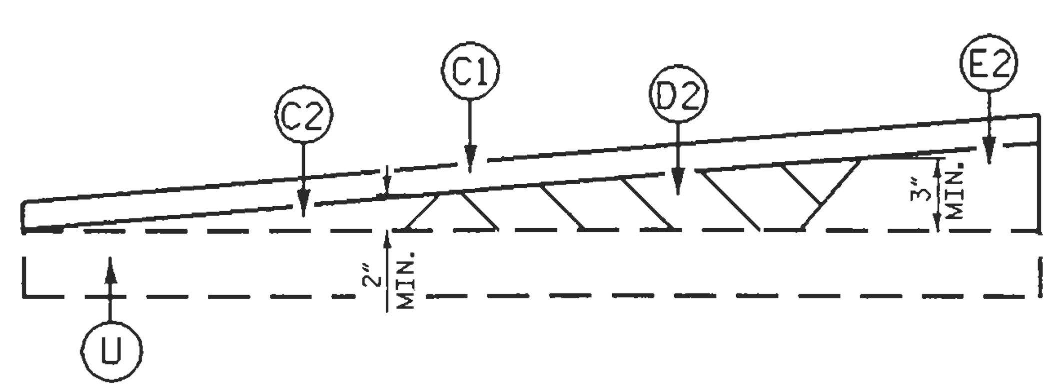


TYPICAL ROADWAY SECTION



TYPICAL ROADWAY SECTION

TAPER TO EXISTING STA. 8+00.000 TO 8+60.000



WEDGING DETAIL FOR RESURFACING

C1	PROPOSED APPROXIMATE 2" MIN. ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF THE TWO LAYERS.
C2	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5A AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1½" IN DEPTH.
D2	PROP. VARIABLE DEPTH ASPHALT CONCRETE INT. COURSE. TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2" IN DEPTH OR GREATER THAN 3½" IN DEPTH.
E1	PROPOSED APPROXIMATE 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.

NOTES

1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
2. FOR METHOD OF SHOULDER CONSTRUCTION, SEE STD. DWG. 560.01

PROJECT NO. 33372
COUNTY: ALAMANCE
STATION: 16+15
REPLACES BRIDGE NO. 149

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

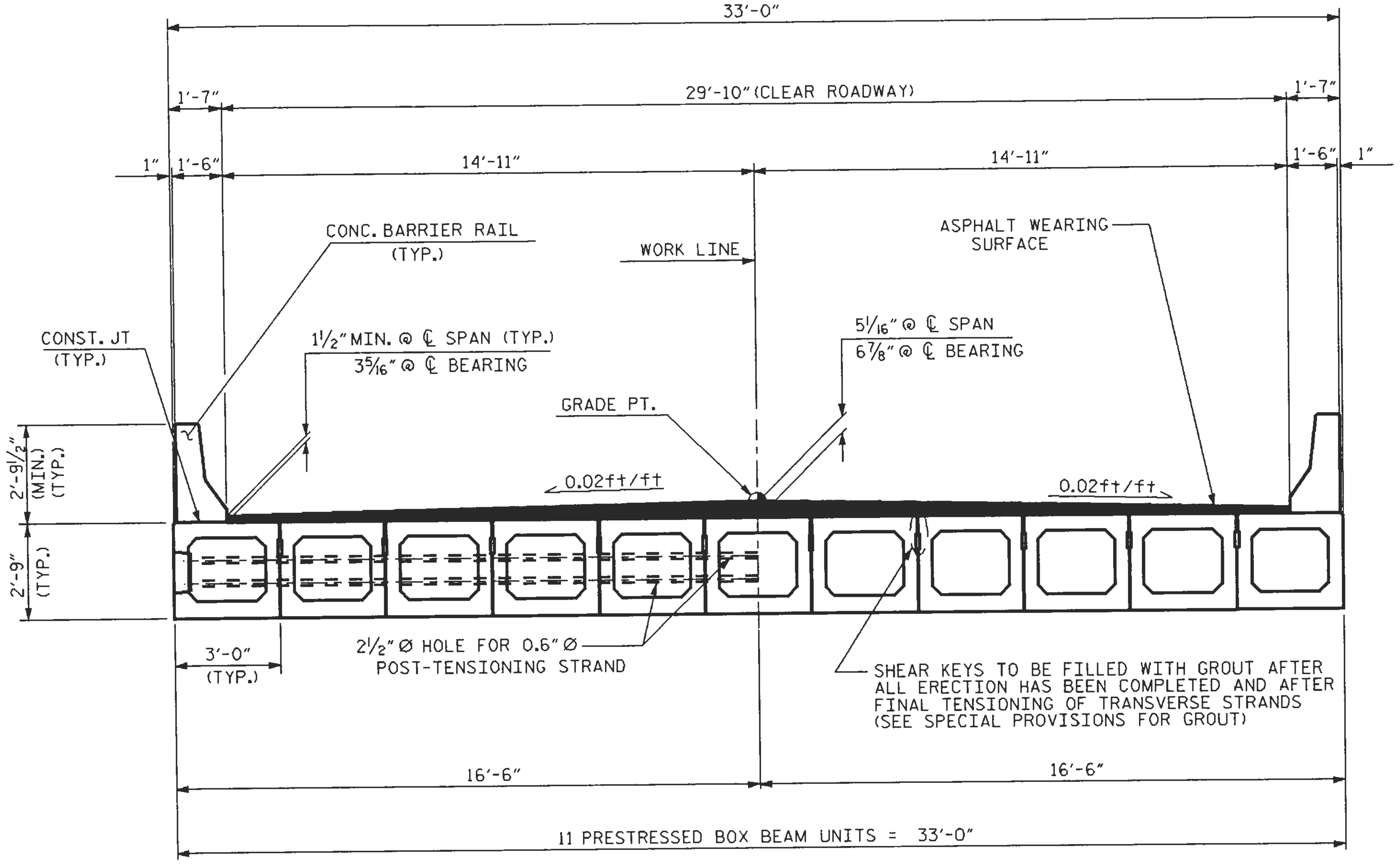
TYPICAL ROADWAY SECTIONS

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	JBH	01/08	3		
2			4		

SHEET NO. 4
TOTAL SHEETS 19

NOTE: NOT TO SCALE

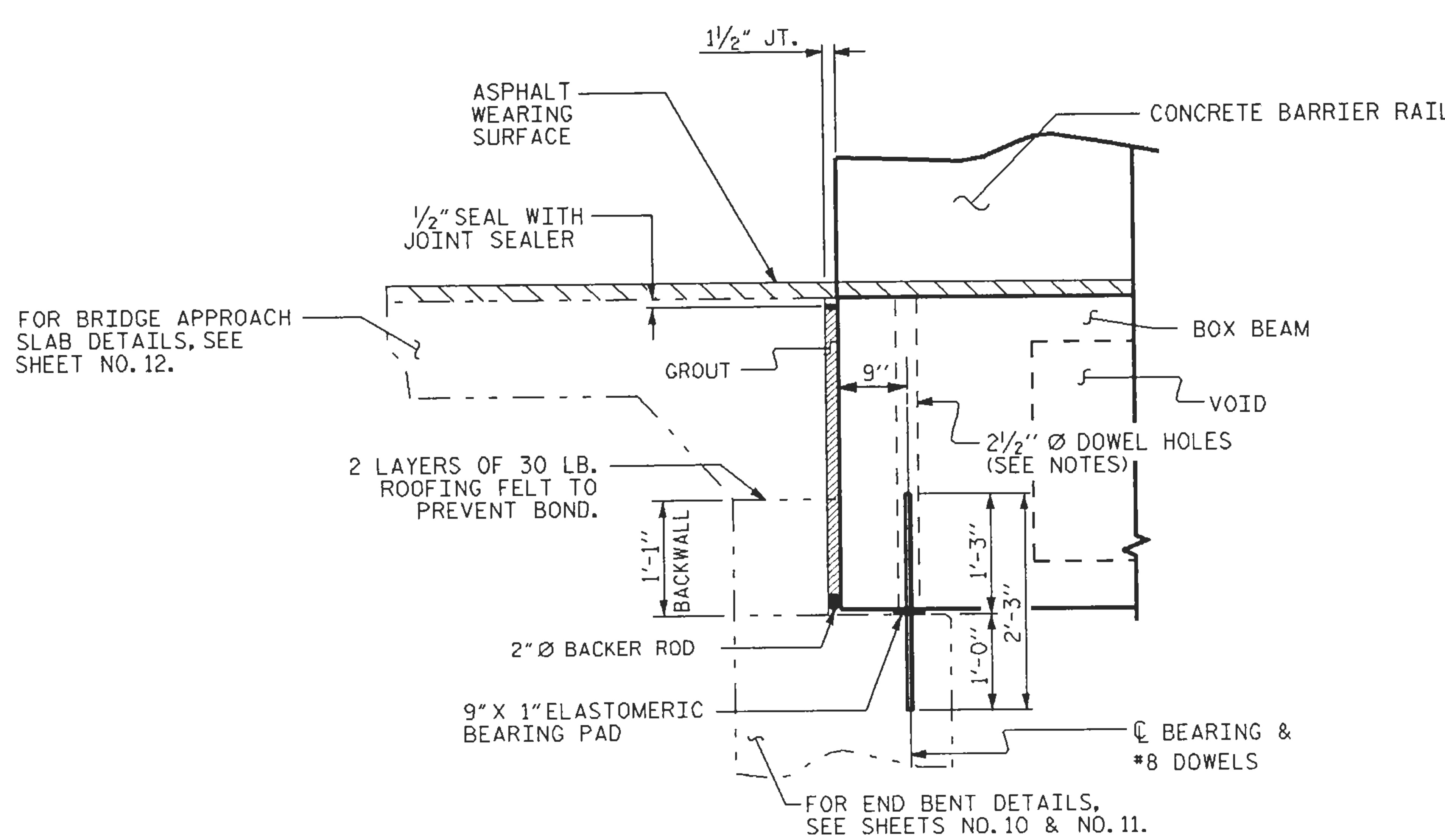
DRAWN BY: C. BRIGHT /STS DATE: 09/2009
CHECKED BY: J.A.Y. /A. ABRAHA DATE: 09/2009



HALF-SECTION AT INTERMEDIATE DIAPHRAGMS

HALF-SECTION AT VOIDS

TYPICAL SECTION



SECTION AT END BENT

NOTES

ASSUMED LIVE LOAD-HS20 OR ALTERNATE LOADING, EXCEPT THAT THE BEAMS HAVE BEEN DESIGNED FOR HS25.

CONCRETE : f'_c =5500psi (MINIMUM COMPRESSIVE STRENGTH @ 28 DAYS)
f'_{c_1} =4400psi (MINIMUM COMPRESSIVE STRENGTH @ TRANSFER OF STRESSING FORCE).

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.

SIZE	TYPE	□ AREA	ULTIMATE STRENGTH	APPLIED FORCE
0.6 " Ø	HIGH STR.	0.217"	58,600 LBS/STRAND	43,950 LBS. PER CABLE

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

THE 2½" Ø DOWEL HOLES AT EACH END OF THE BOX BEAM SECTION SHALL BE FILLED WITH GROUT. SEE SPECIAL PROVISIONS.

EXP. JT. MAT'L SHALL MEET THE REQUIREMENTS OF AASHTO SPECIFICATION M153 TYPE I, TYPE II, OR TYPE III.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4400 PSI.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS. FOR EPOXY PROTECTIVE COATING, SEE STANDARD SPECIFICATIONS.

FOR PRESTRESSED CONCRETE BOX BEAMS AND ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

JOINT SEALER SHALL BE LOW MODULUS SILICONE SEALANT. THE BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF THE TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

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

DEFLECTION TABLE	
	70' SPAN
CAMBER (SLAB UNIT ALONE IN PLACE) ↑	2³⁄₁₆"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ** ↓	⅜"
FINAL CAMBER ↑	1¹³⁄₁₆"

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE BOX BEAM UNIT

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

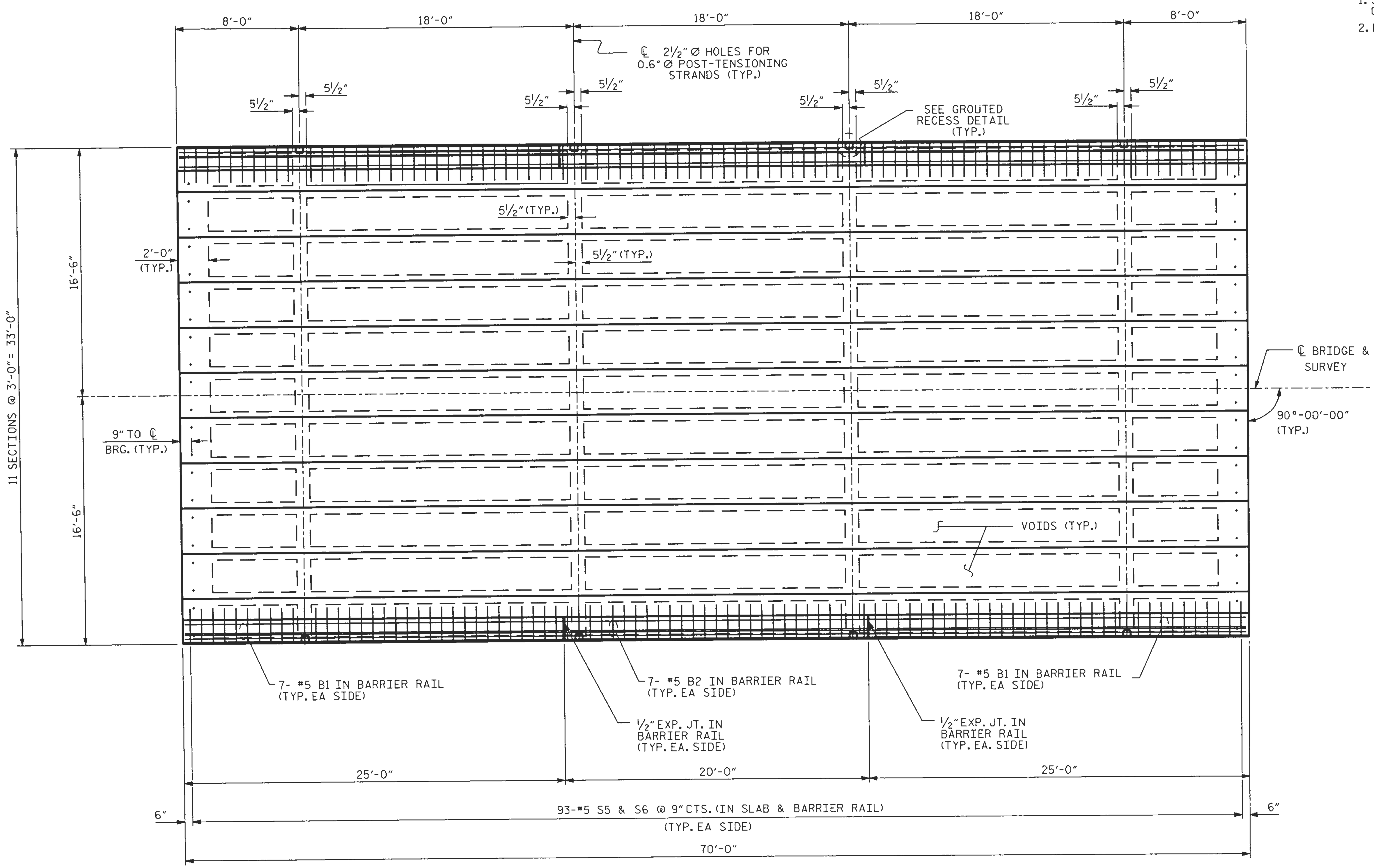
STD. NO. PCBB1

ASSEMBLED BY : S. T. SANDOR	DATE : SEPT. 2009
CHECKED BY : A. ABRAHA	DATE : SEPT. 2009
DRAWN BY : TLA 5/05	ADDED 7/11/05R
CHECKED BY : GM 6/05	

20-OCT-2009 09:31 ssandor AT BGMU240326 s:\poc\squad b\current\149 alamance wbs 33372.1.1\final\structure\b-4004_sd_bg.dgn

NOTES

1. S5 BARS MAY BE SHIFTED AS NECESSARY TO CLEAR 2½" DIA. HOLE FOR TRANSVERSE STRAND.
2. FOR GROUTED RECESS DETAIL, SEE SHEET NO. 8.



PLAN OF SPAN

BOX BEAM UNITS REQUIRED			
SPAN	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	70'-0"	140'-0"
INTERIOR B.B.	9	70'-0"	630'-0"
TOTAL	11	——	770'-0"

PROJECT NO. 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

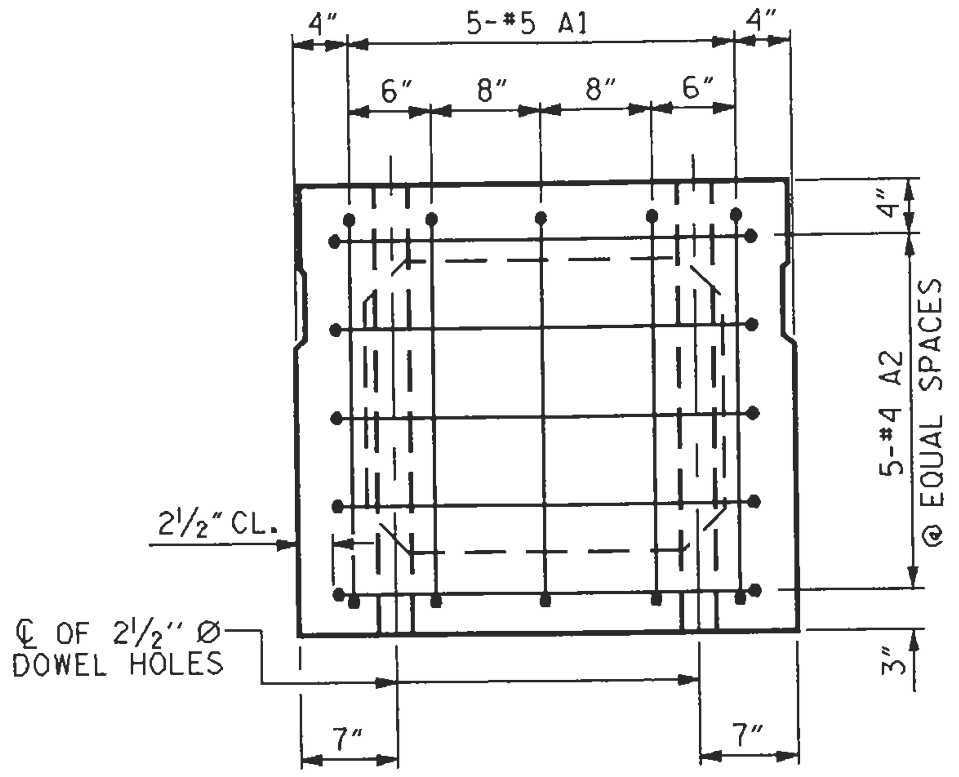
SUPERSTRUCTURE
PLAN OF SPAN

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

SHEET NO. 6
TOTAL SHEETS 18

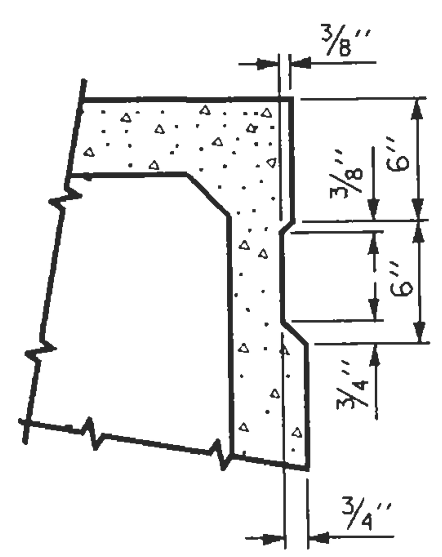
DRAWN BY : S. T. SANDOR DATE : SEPT./2009
CHECKED BY : A. ASTER DATE : OCT./2009

20-OCT-2009 09:38 ssandor AT BGMU240326 s:\poc\squad b\current\149 Alamance wbs 33372.1.1\Final\STRUCTURE\B-4004_BGMU_PS.dgn



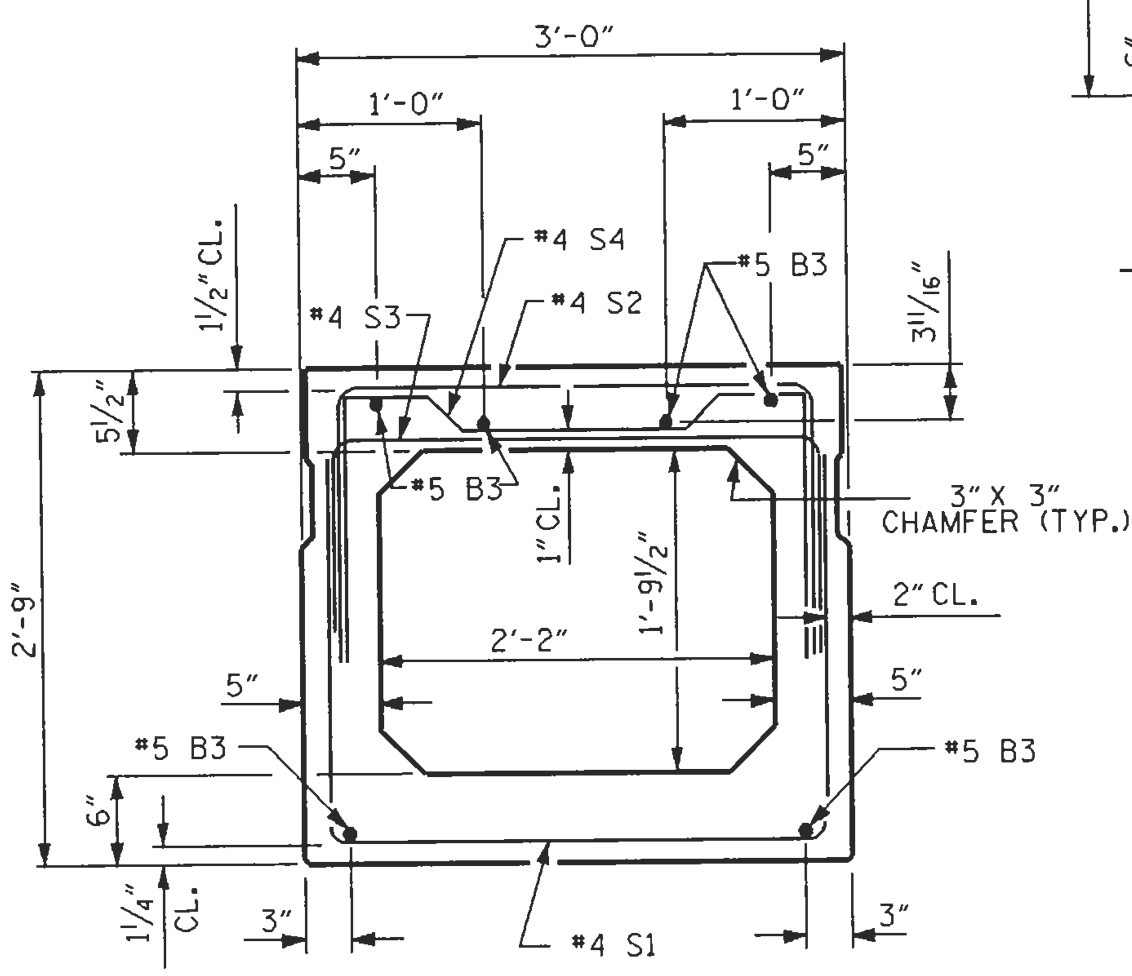
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES.
(INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



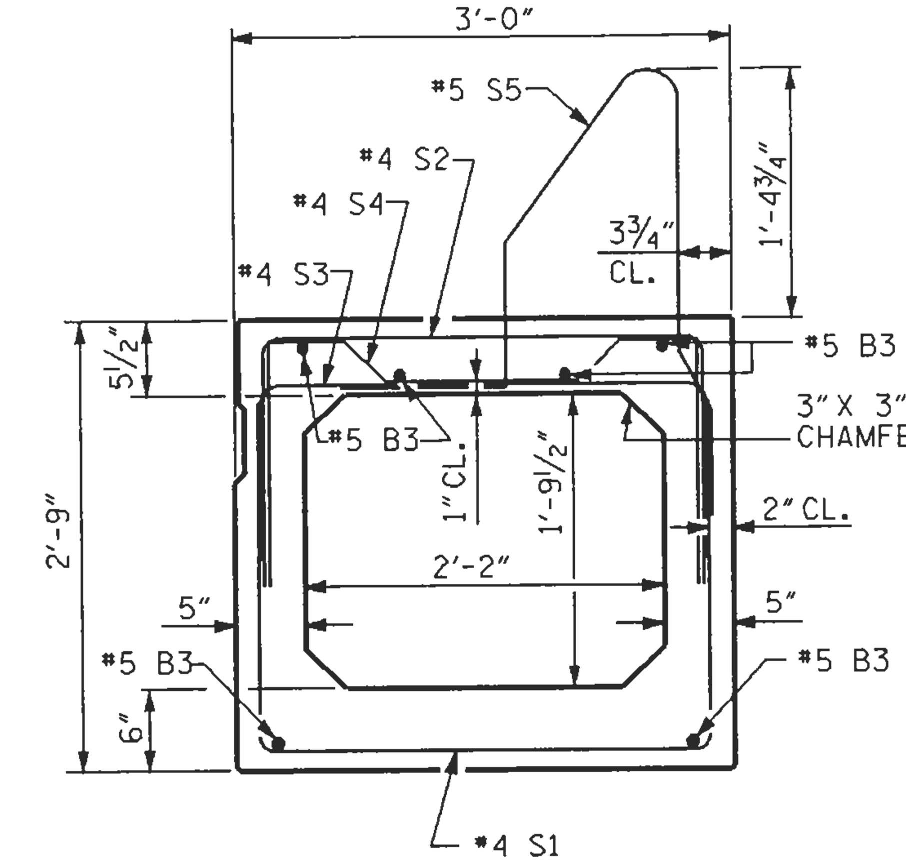
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.



INTERIOR BOX BEAM SECTION

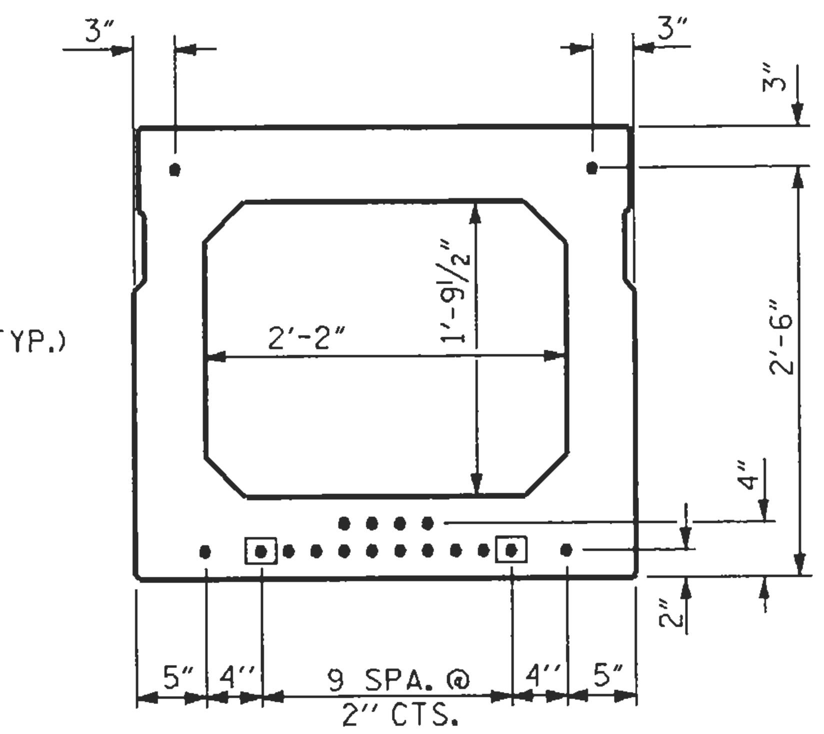
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

(18 STRANDS REQUIRED)

(INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

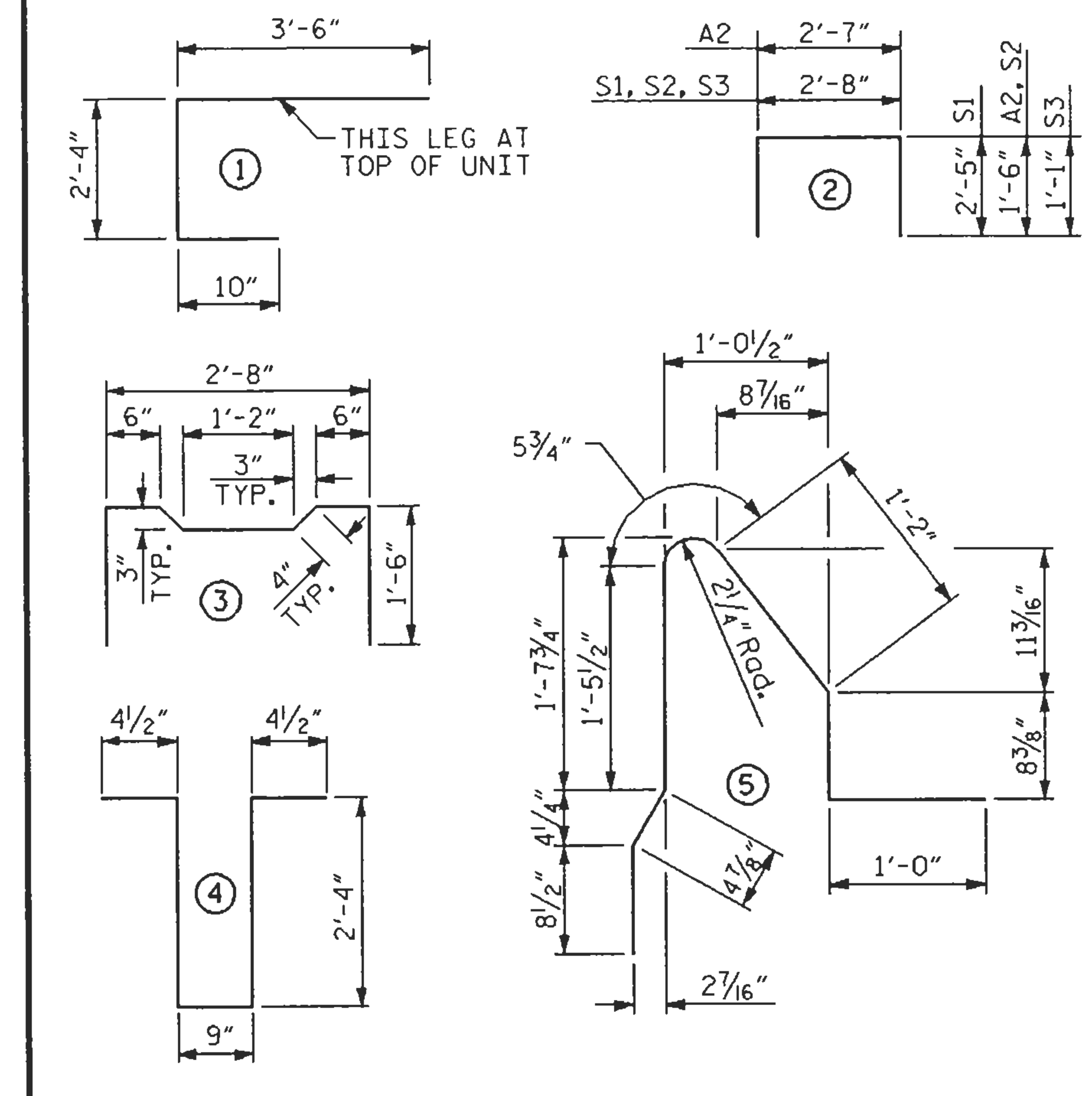
DEBONDING LEGEND

● FULLY BONDED STRANDS

▣ STRANDS DEBONDED FOR 2'-9" FROM END OF BOX BEAM

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

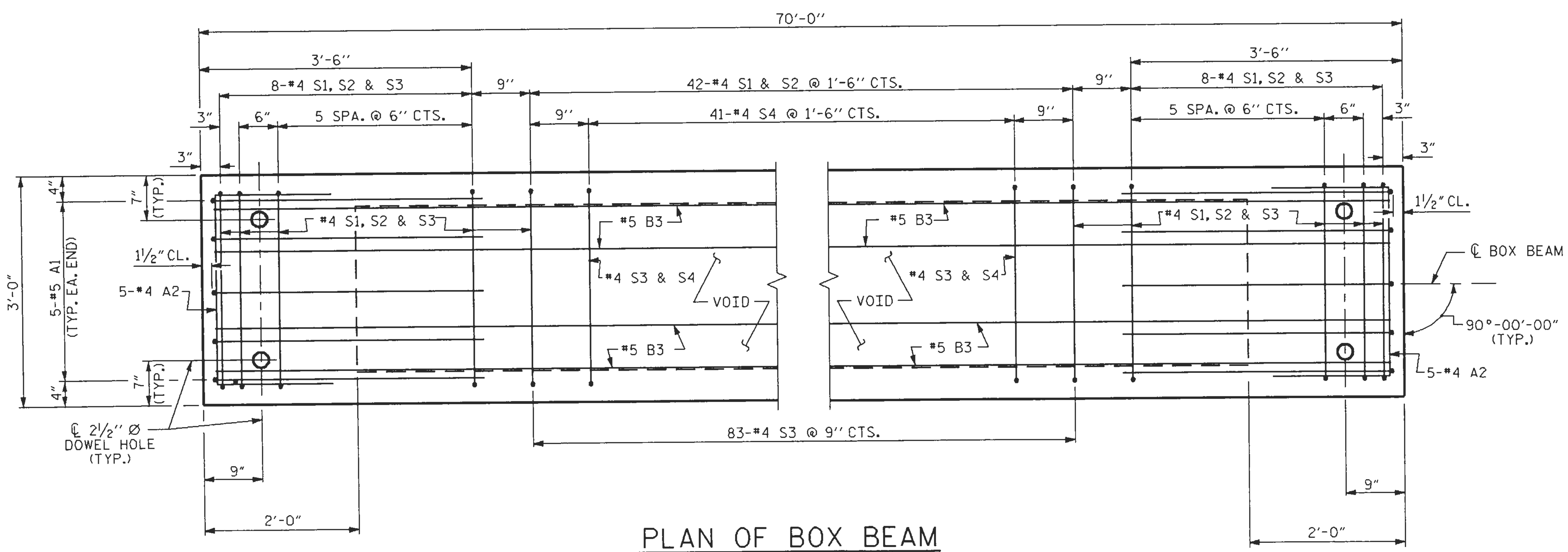
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	34	#4	2	5'-7"	127	5'-7"	127
B3	12	#5	STR	36'-0"	451	36'-0"	451
K1	12	#4	4	6'-2"	49	6'-2"	49
K2	8	#4	STR	2'-7"	14	2'-7"	14
S1	58	#4	2	7'-6"	291	7'-6"	291
S2	58	#4	2	5'-8"	220	5'-8"	220
S3	99	#4	2	4'-10"	320	4'-10"	320
S4	41	#4	3	5'-10"	160	5'-10"	160
✱S5	93	#5	5	5'-11"	574	—	—
REINFORCING STEEL				1702 LBS.		1702 LBS.	
✱EPOXY COATED REINF. STEEL				574 LBS.		—	
5500 P.S.I. CONCRETE				12.5 CU. YDS.		12.5 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 18		No. 18	



PLAN OF BOX BEAM

INTERIOR UNIT SHOWN, EXTERIOR UNIT SIMILAR.
FOR LOCATION OF DIAPHRAGMS, SEE SHEET NO. 6.
FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAIL. (SHEET NO. 8)

PROJECT NO. 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

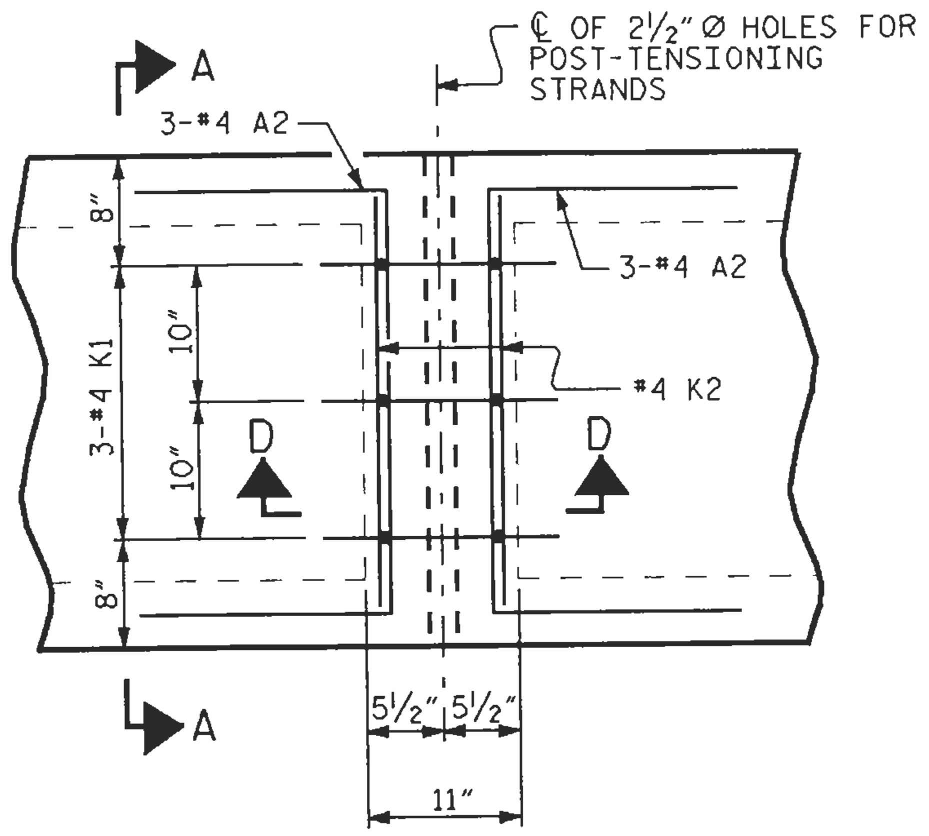
STANDARD

3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAM UNIT

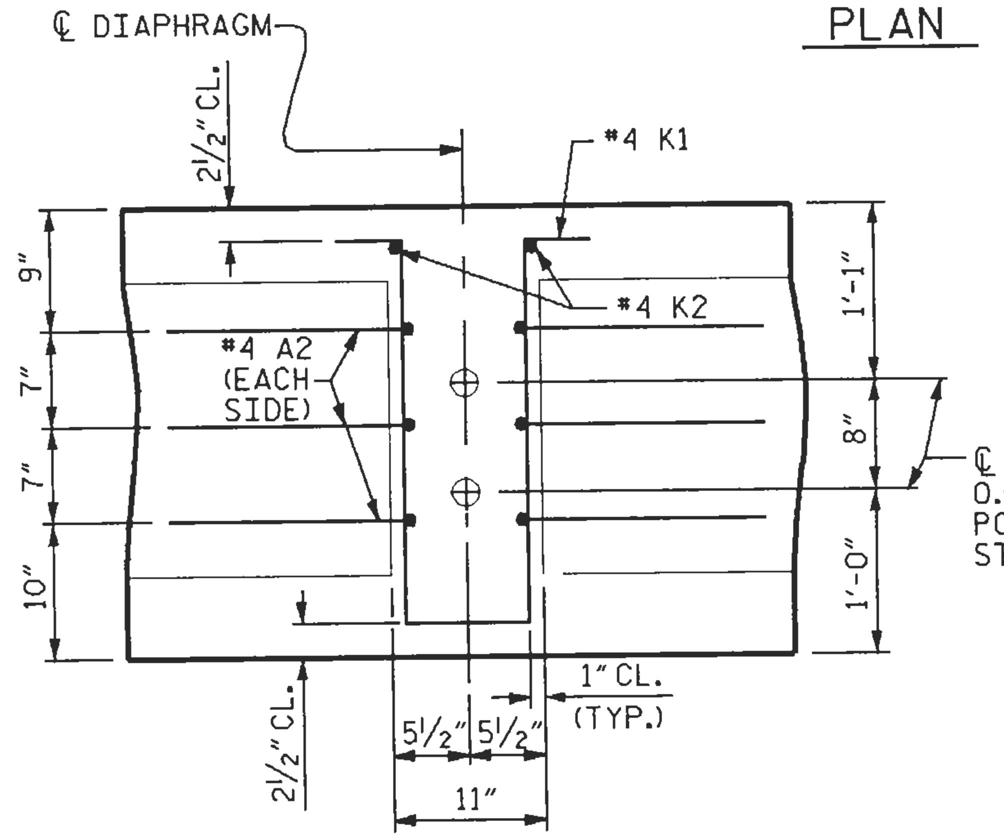
NOT TO SCALE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	7
1			3			TOTAL SHEETS
2			4			19

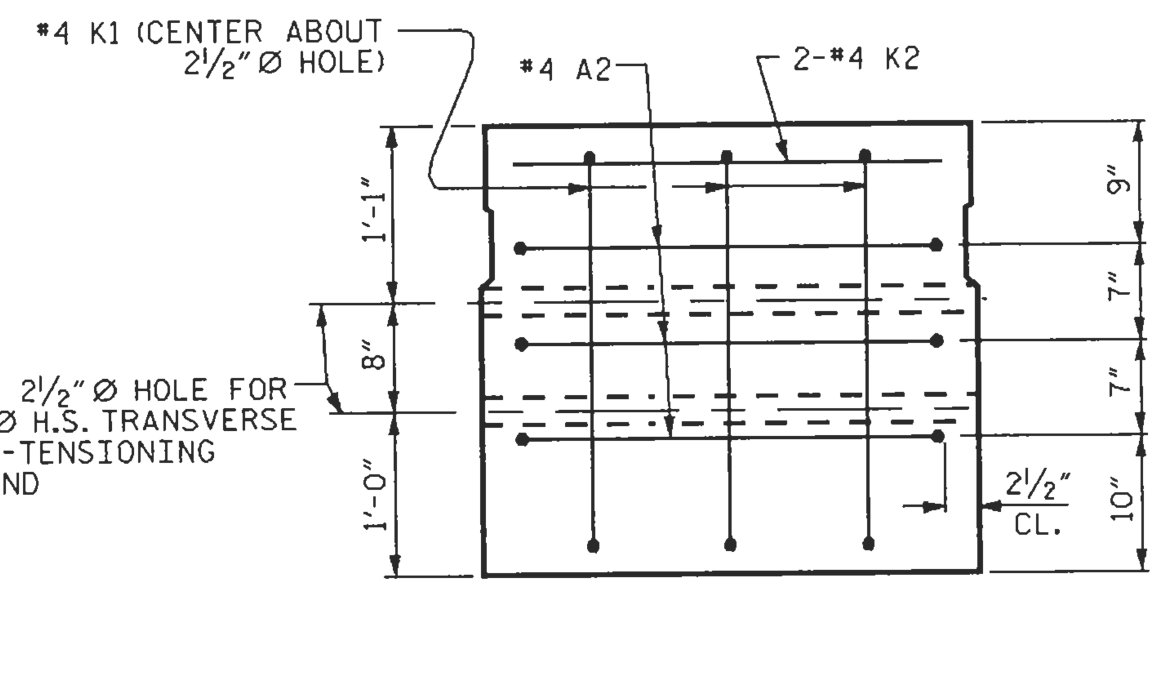
ASSEMBLED BY : S. T. SANDOR	DATE : SEPT. 2009
CHECKED BY: A. ABRAHA	DATE : SEPT. 2009
DRAWN BY : TLA 5/05	
CHECKED BY : GM 6/05	



PLAN



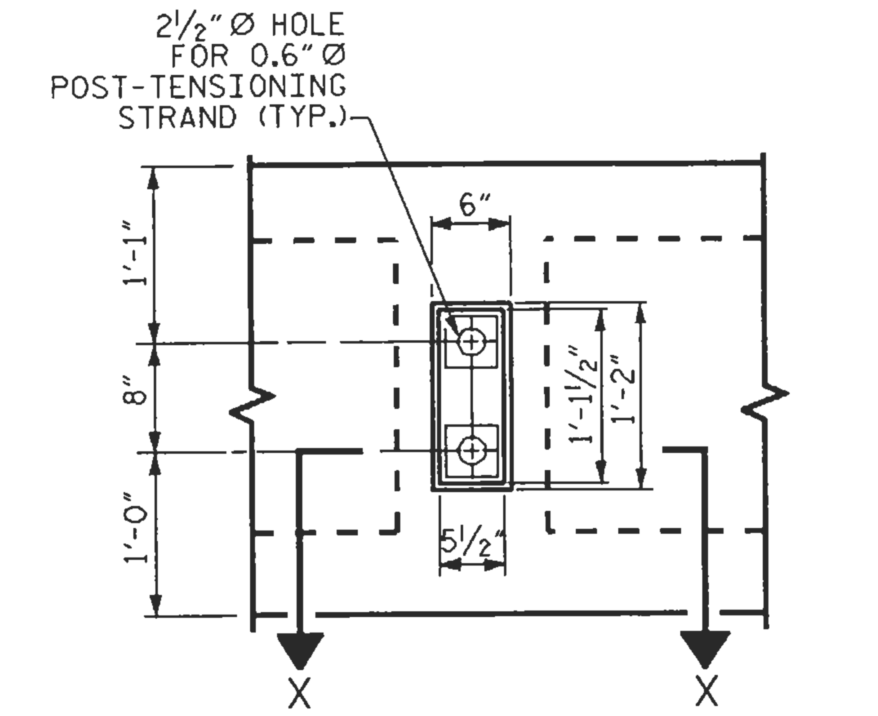
SECTION D-D



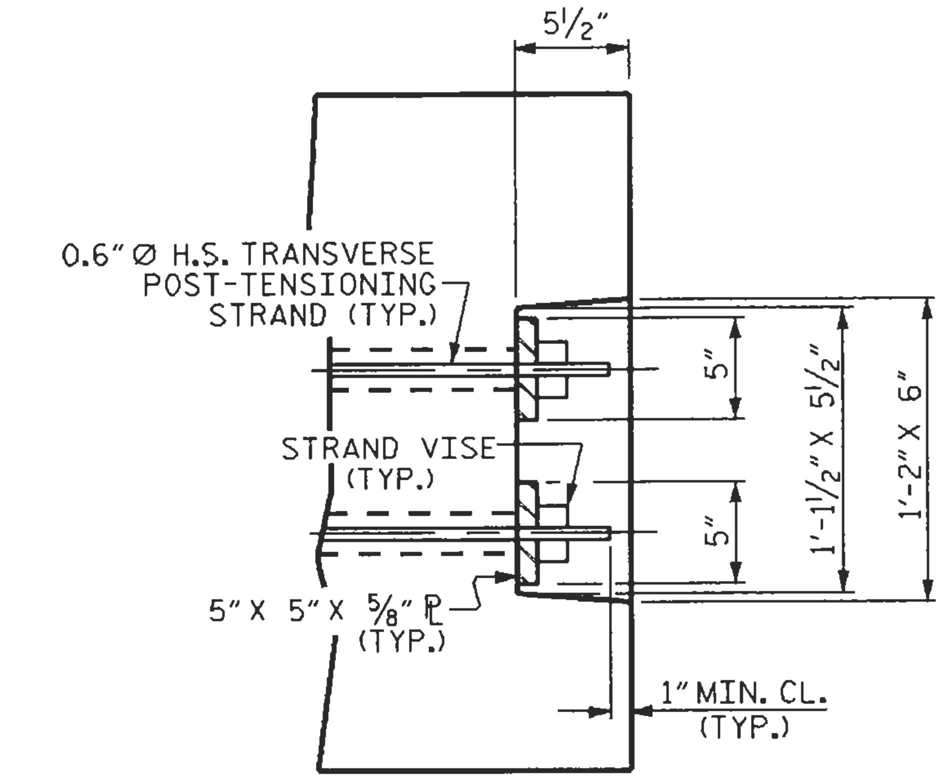
SECTION A-A
VOIDS NOT SHOWN

DOUBLE DIAPHRAGM DETAILS

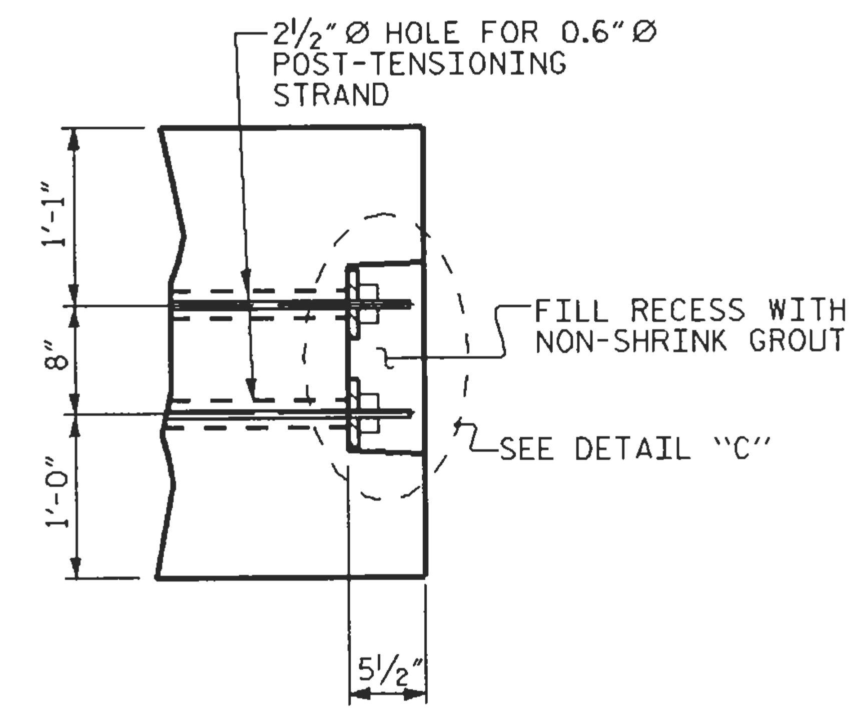
#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2½″ Ø HOLE.



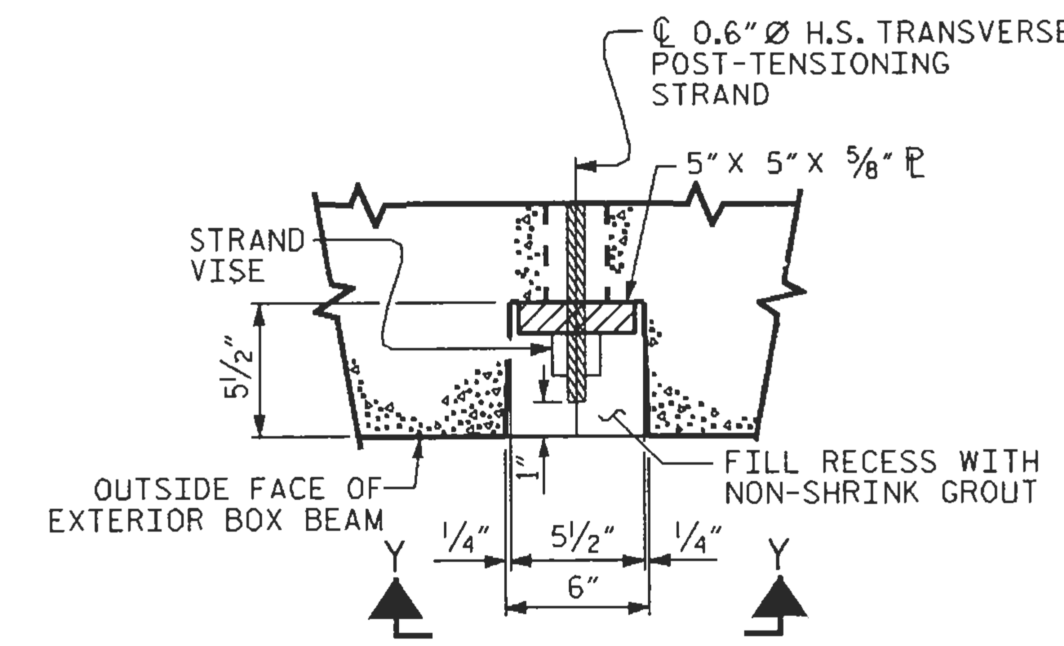
VIEW Y-Y
SHOWING ELEVATION VIEW OF GROUTED RECESS



DETAIL "C"

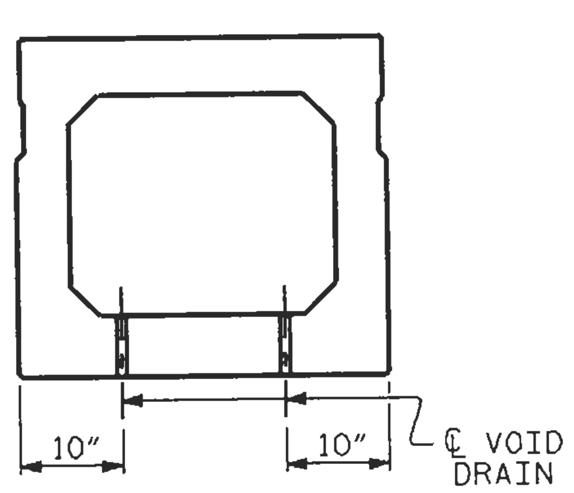


PART SECTION AT RECESS

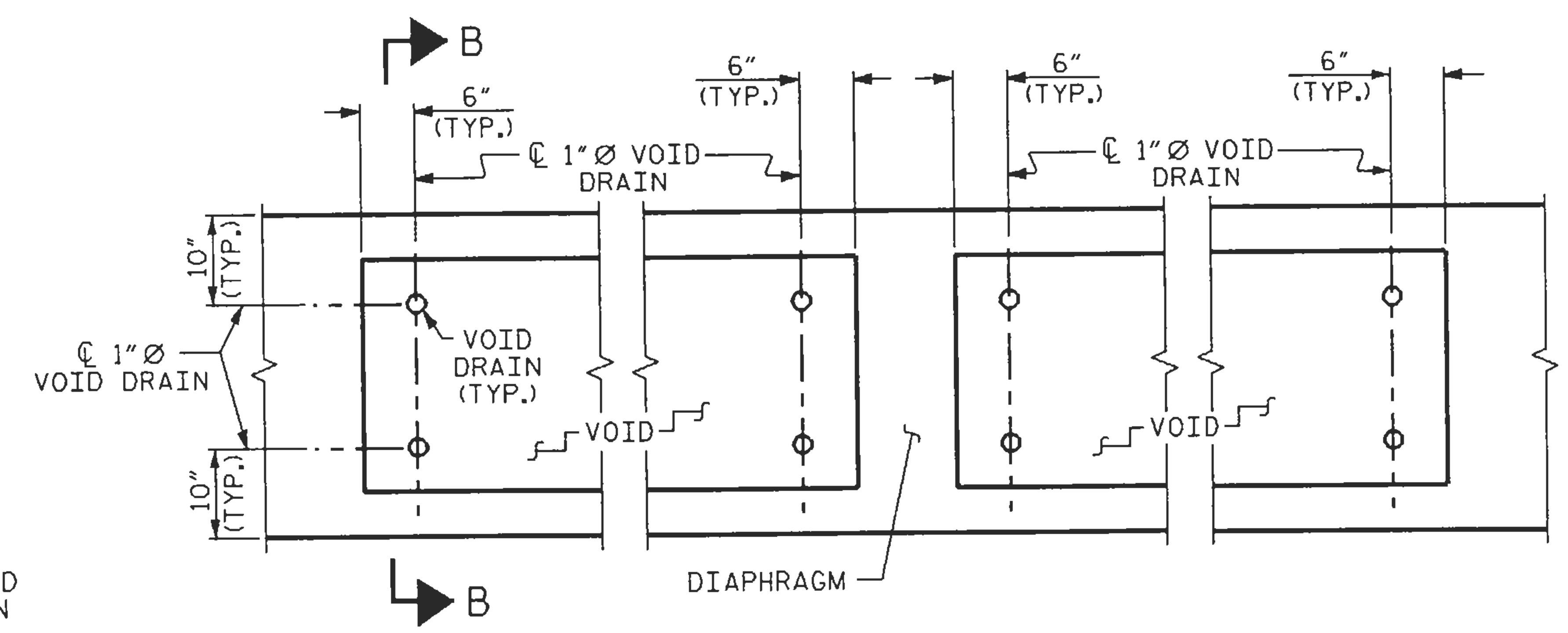


SECTION X-X
SHOWING PLAN VIEW OF GROUTED RECESS

GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM



SECTION B-B



PART PLAN

VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

PROJECT NO. 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

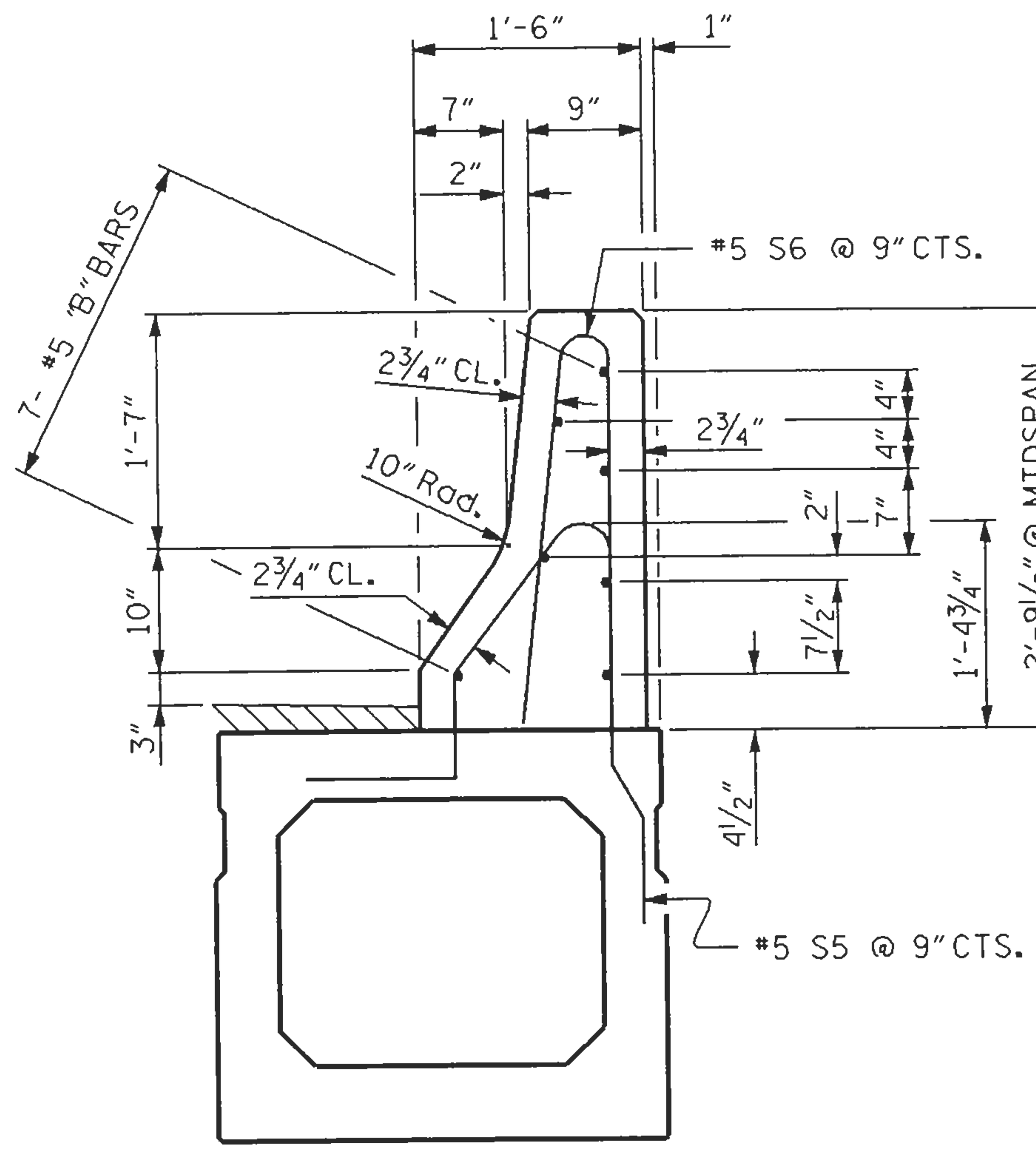
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3′-0″ X 2′-9″ PRESTRESSED CONCRETE BOX BEAM UNIT

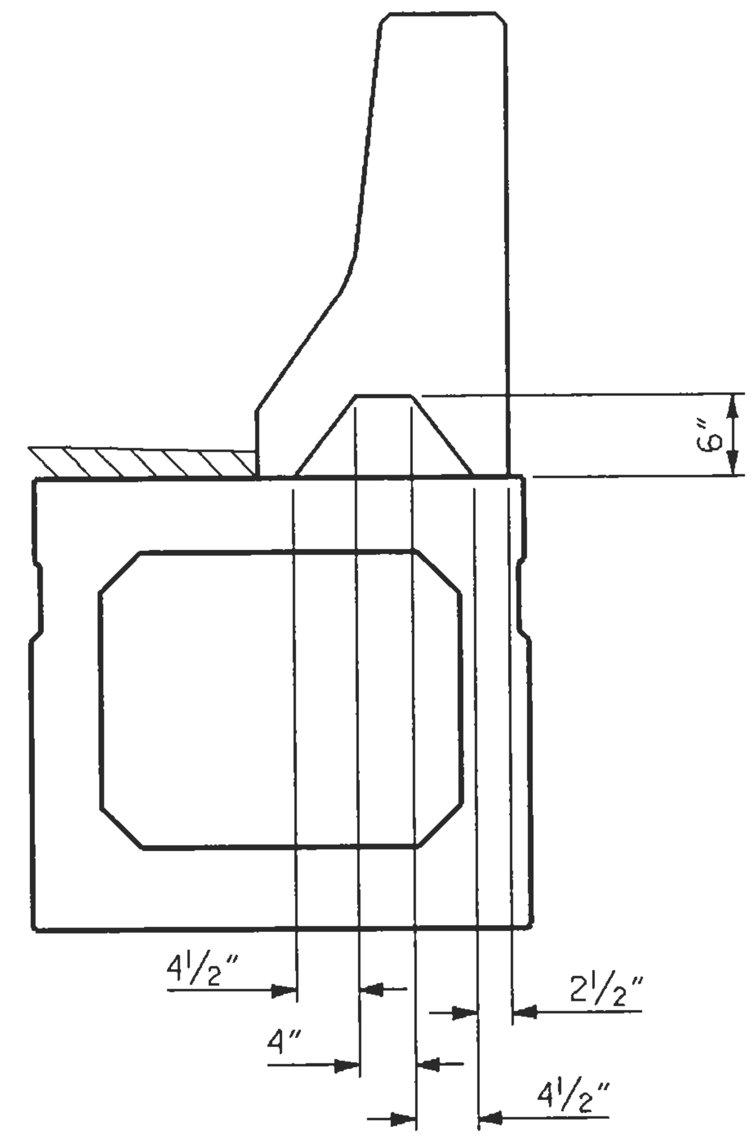
REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		8
1				3				TOTAL SHEETS
2				4				19

ASSEMBLED BY : S. T SANDOR	DATE : SEPT. 2009
CHECKED BY : J. A.Y./ A. ABRAHA	DATE : SEPT. 2009
DRAWN BY : TLA 5/05	ADDED 7/11/05
CHECKED BY : GM 6/05	



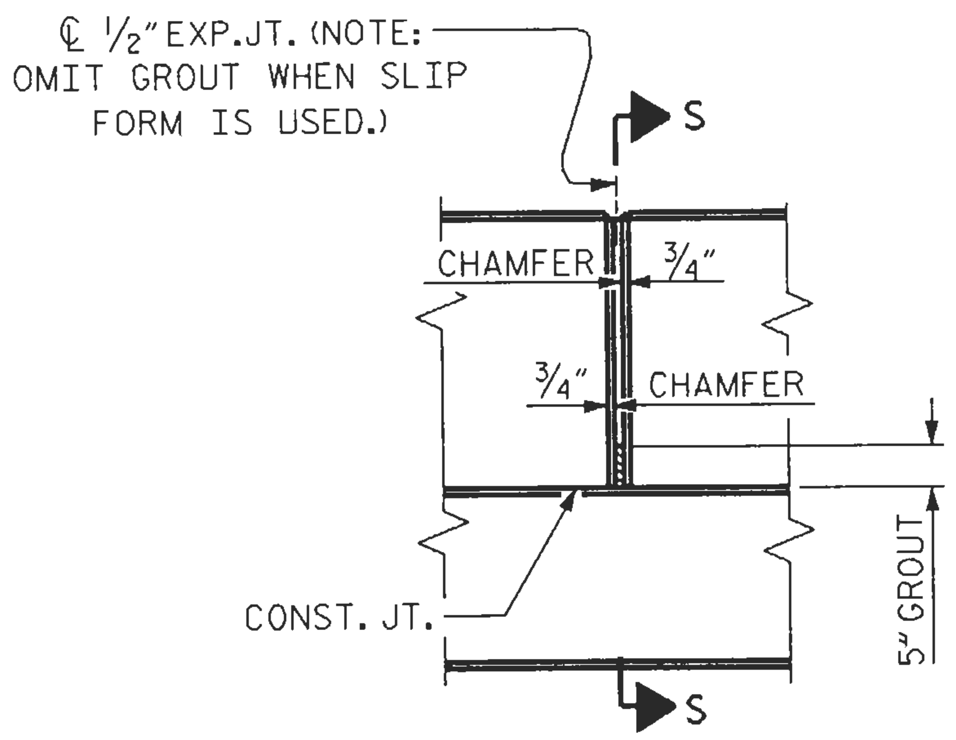
SECTION THRU RAIL

∗ (BASED ON WRG. SURFACE = 1½")



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

NOTES

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

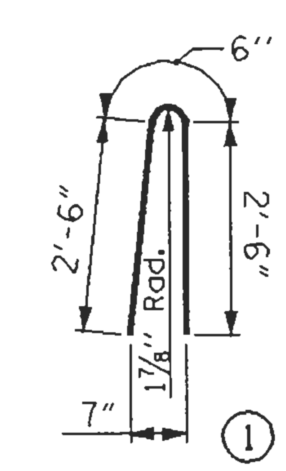
VERTICAL GROOVED CONTRACTION JOINTS, 1/2 " IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

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 ON PLANS.

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

BAR	BARS PER SPAN			TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C					
∗ B1	28			28	#5	STR	24'-7"	718
∗ B2	14			14	#5	STR	19'-7"	286
∗ S6	186			186	#5	1	5'-6"	1067
∗ EPOXY COATED REINFORCING STEEL					LBS.		2071	
CLASS AA CONCRETE					CU.YDS.		15.3	
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL							139'-10"	

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
CONCRETE BARRIER
RAIL SECTION

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	9
1			3			TOTAL SHEETS
2			4			19

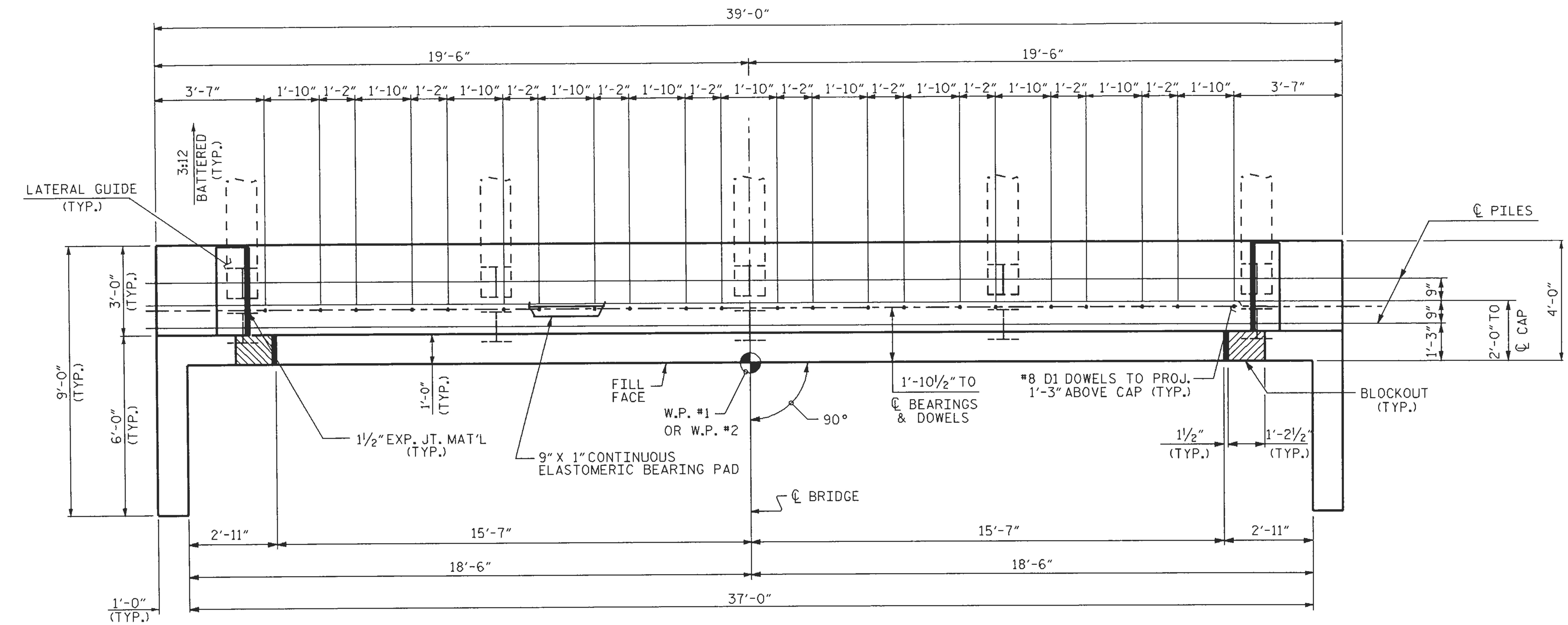
DRAWN BY: C.L.B./STS DATE: 10/09
CHECKED BY: J.A.Y./A. ASTER DATE: 10/09

20-OCT-2009 09:37 ssandor AT BGMU240326 s:\poc\squad b\current\149 Alamance wbs 33372.1.1\Final\STRUCTURE\B-4004_BGMU_BR.dgn

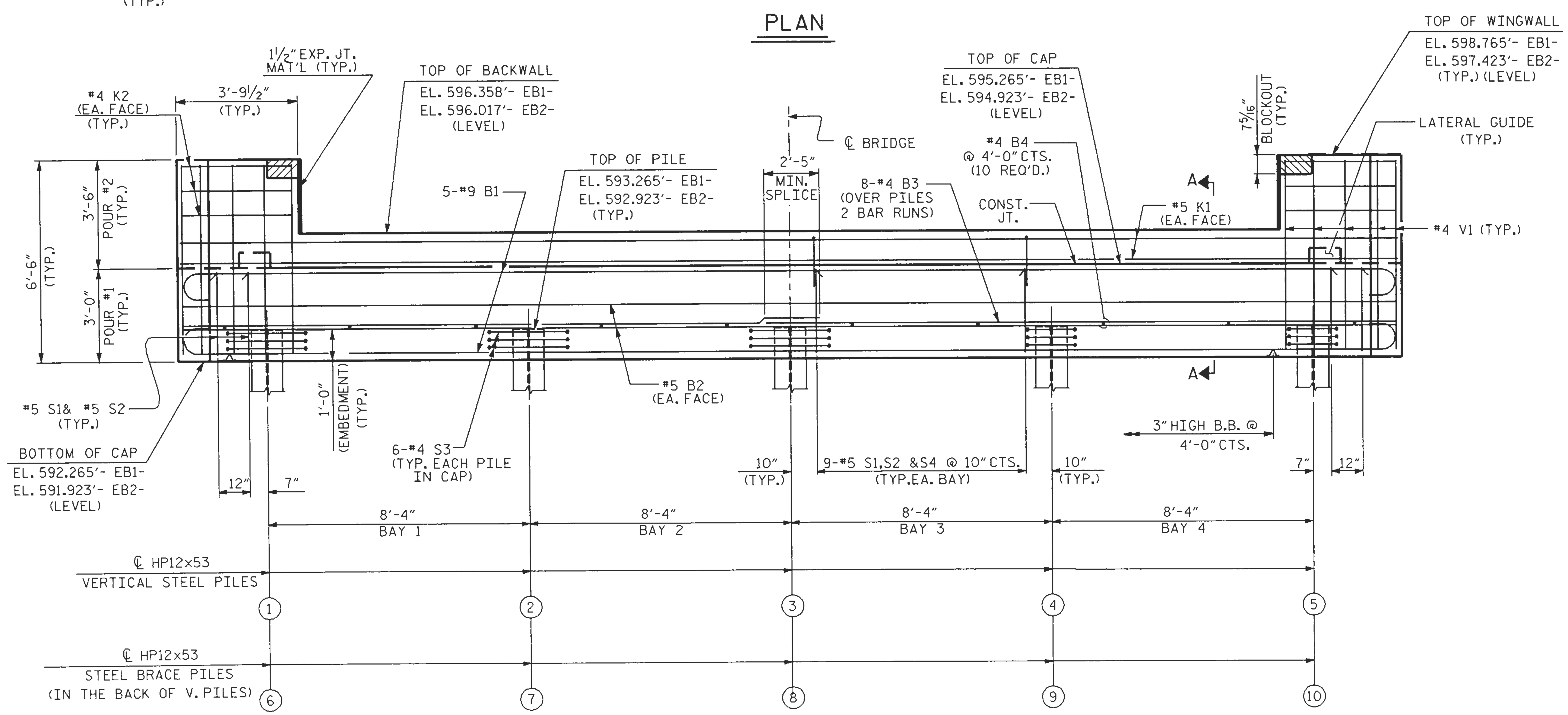
STD. NO. BCBR8

NOTES

1. STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 D1 DOWELS.
2. FOR SECTION A-A AND LATERAL GUIDE DETAILS SEE SHEET NO. 11.
3. END BENT 1 SHOWN. END BENT 2 SIMILAR.



PLAN



ELEVATION

PROJECT NO. 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

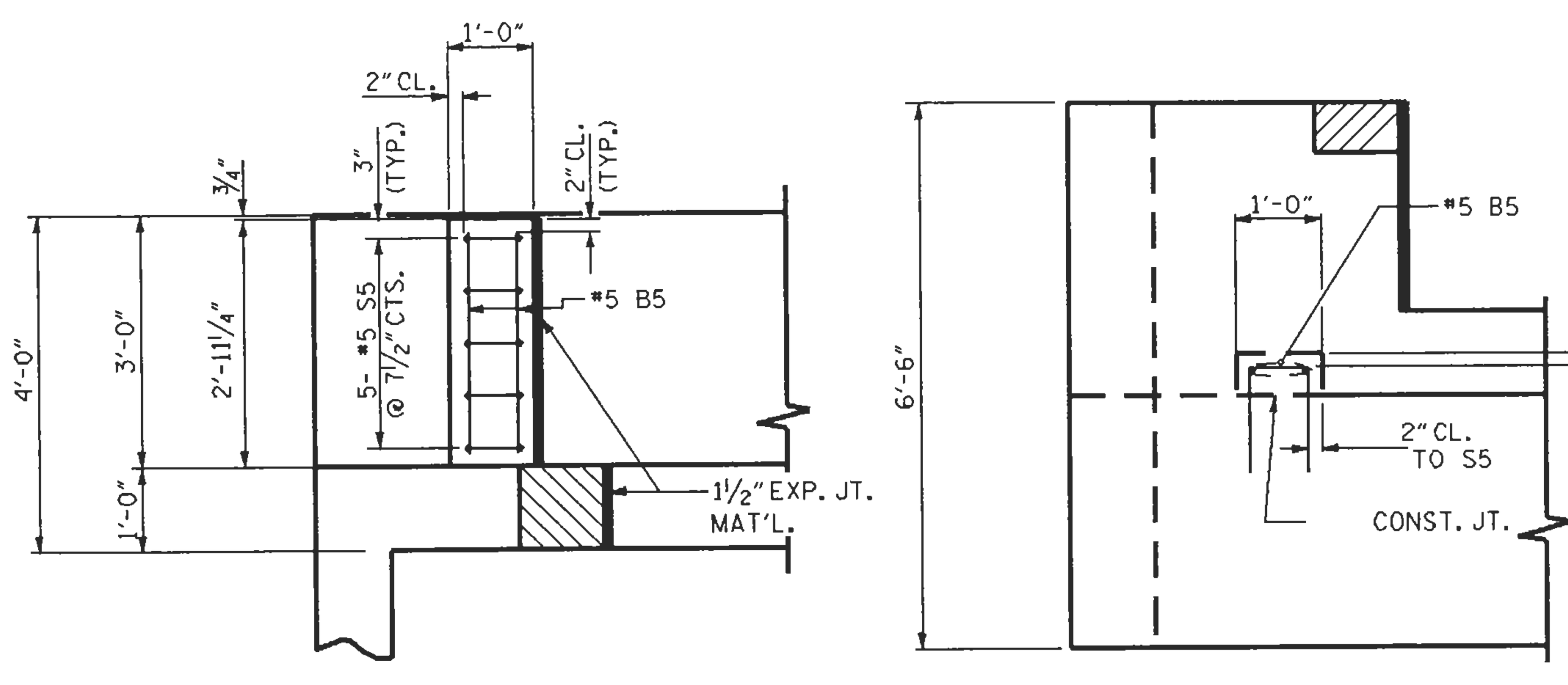
SUBSTRUCTURE

END BENT NO.1 & NO.2

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	10
1			3			TOTAL SHEETS
2			4			19

DRAWN BY : S. T. SANDOR DATE : MAY/2009
CHECKED BY : A. ASTER DATE : MAY/2009

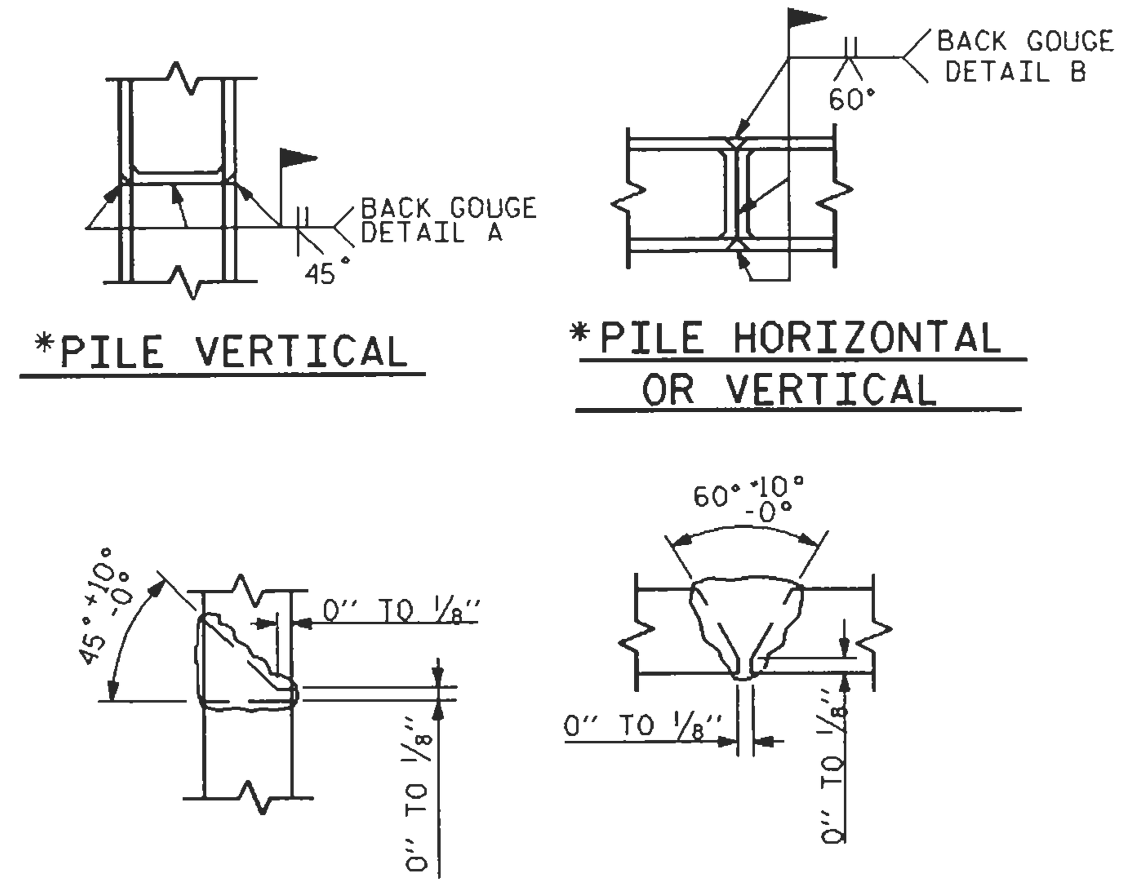
20-OCT-2009 09:37 ssandor AT BGMU240326 s:\poc\squad b\current\149 Alamance wbs 33372.1.1\Final\STRUCTURE\b-4004_bgmu_e*.dgn



PLAN

ELEVATION

LATERAL GUIDE DETAILS



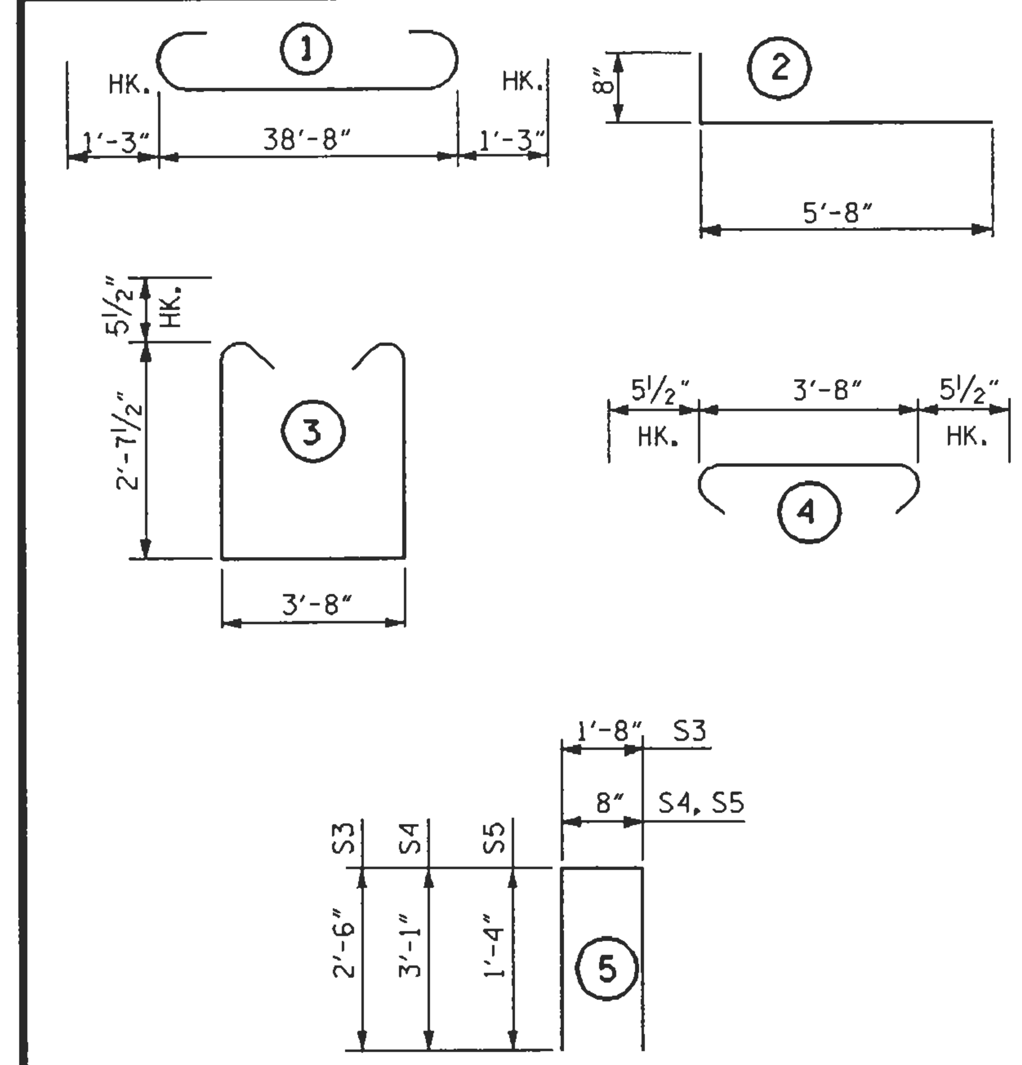
DETAIL A

DETAIL B

*POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR ONE END BENT (TWO REQ'D)

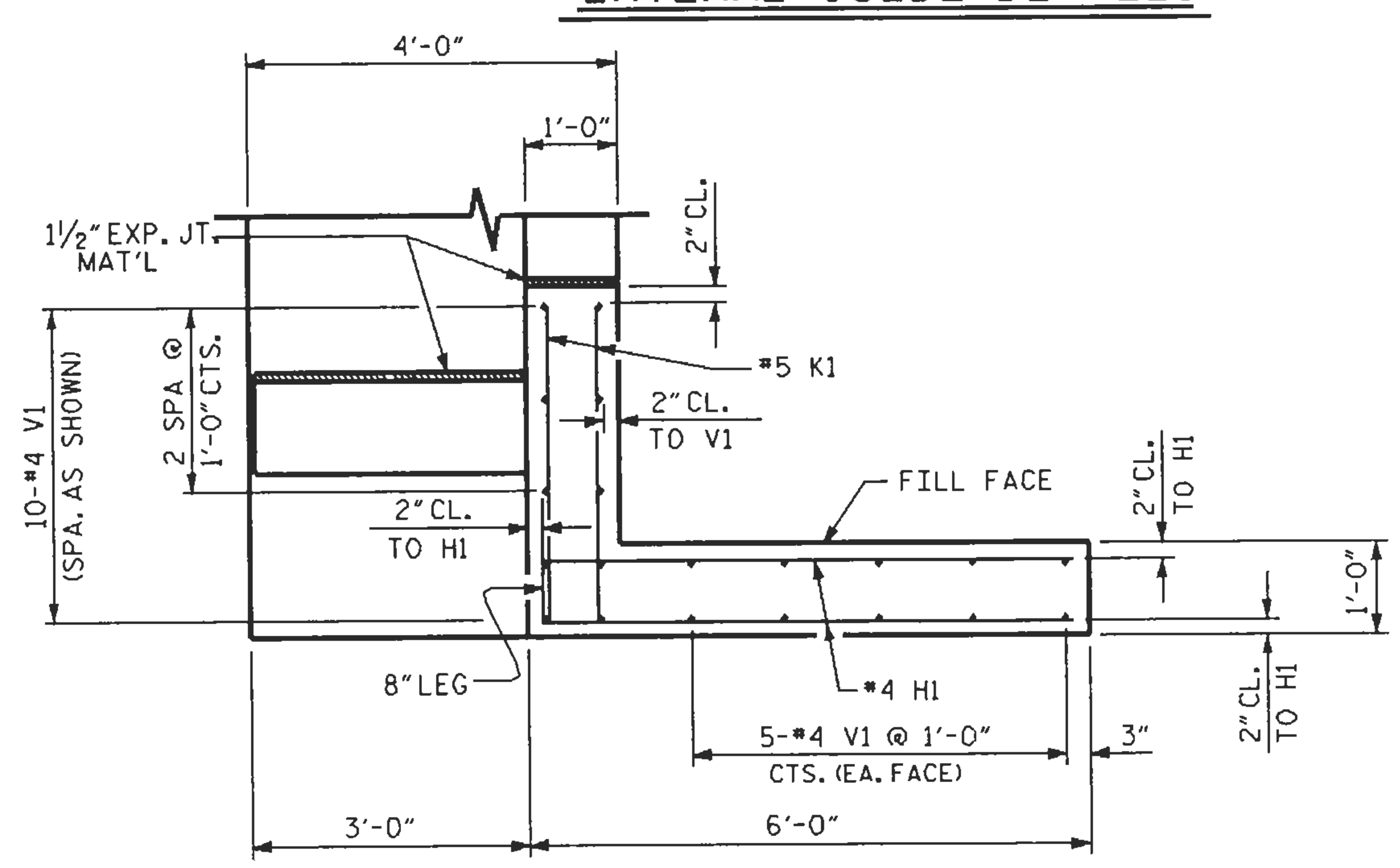
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	9	1	41'-2"	1400
B2	4	5	STR	38'-8"	161
B3	16	4	STR	20'-7"	220
B4	10	4	STR	3'-8"	24
B5	4	5	STR	2'-7"	11
D1	22	8	STR	2'-3"	132
H1	36	4	2	6'-4"	152
K1	4	5	STR	38'-8"	161
K2	12	4	STR	3'-5"	27
S1	40	5	3	9'-10"	410
S2	40	5	4	4'-7"	191
S3	30	4	5	6'-8"	134
S4	40	5	5	6'-10"	285
S5	10	5	5	3'-4"	35
V1	40	4	STR	5'-11"	158

REINFORCING STEEL = 3501 LBS

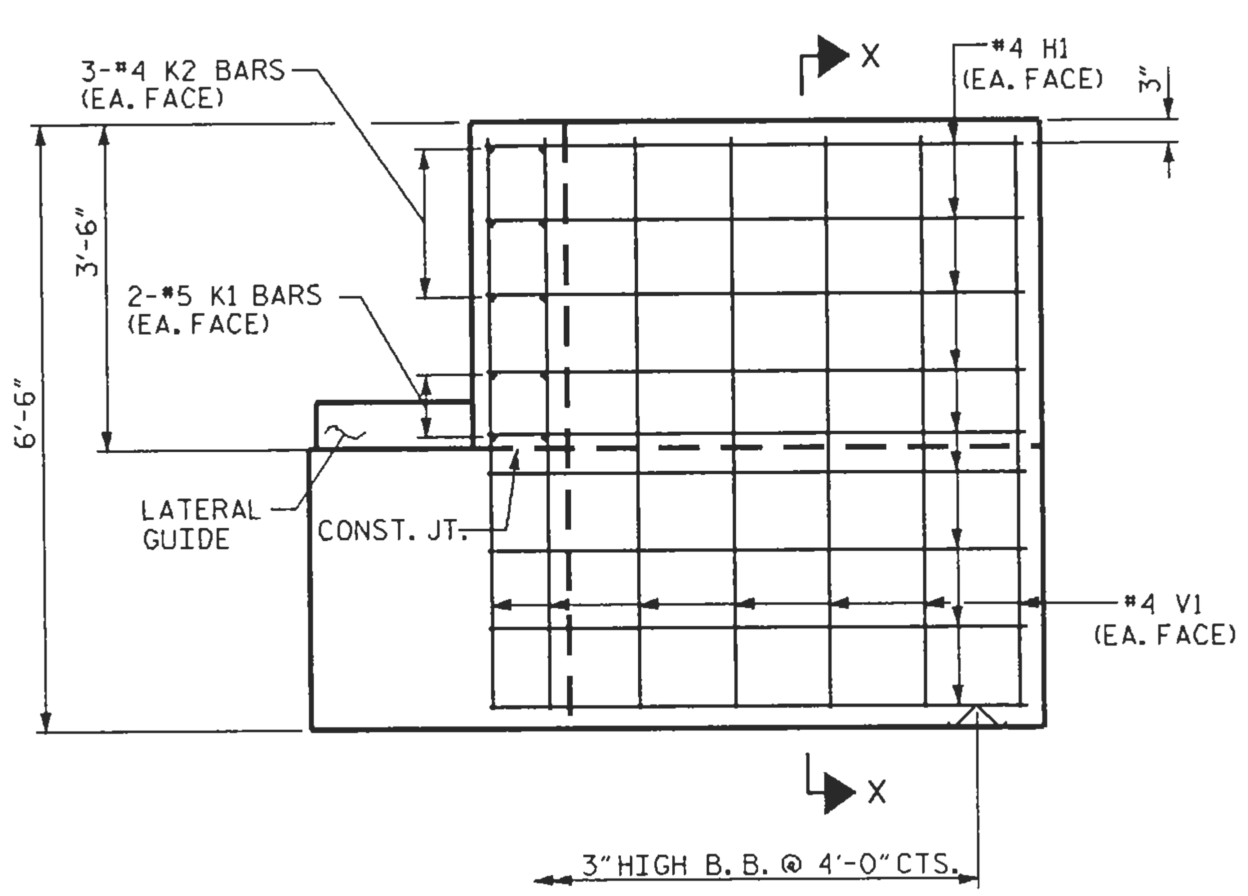
CLASS A CONCRETE

POUR 1		
CAP & LOWER PART OF WINGS	C.Y.	17.6
POUR 2		
BACKWALL,UPPER PART OF WINGS	C.Y.	3.9
POUR 3		
LATERAL GUIDES	C.Y.	0.1
TOTAL	C.Y.	21.6

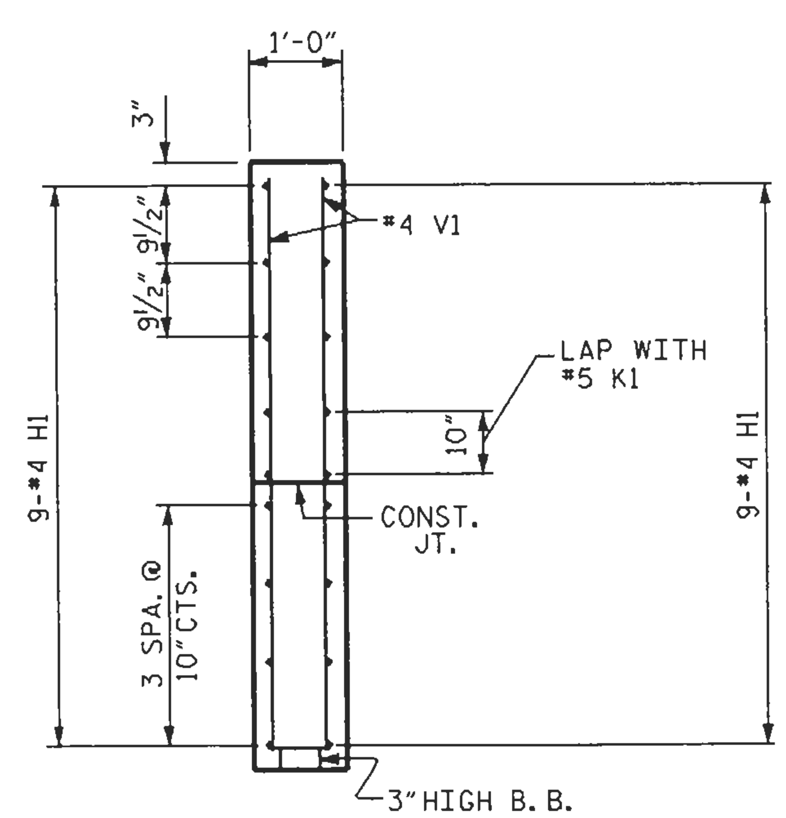
HP 12 X 53 STEEL PILES = 200 LIN. FT. +/-



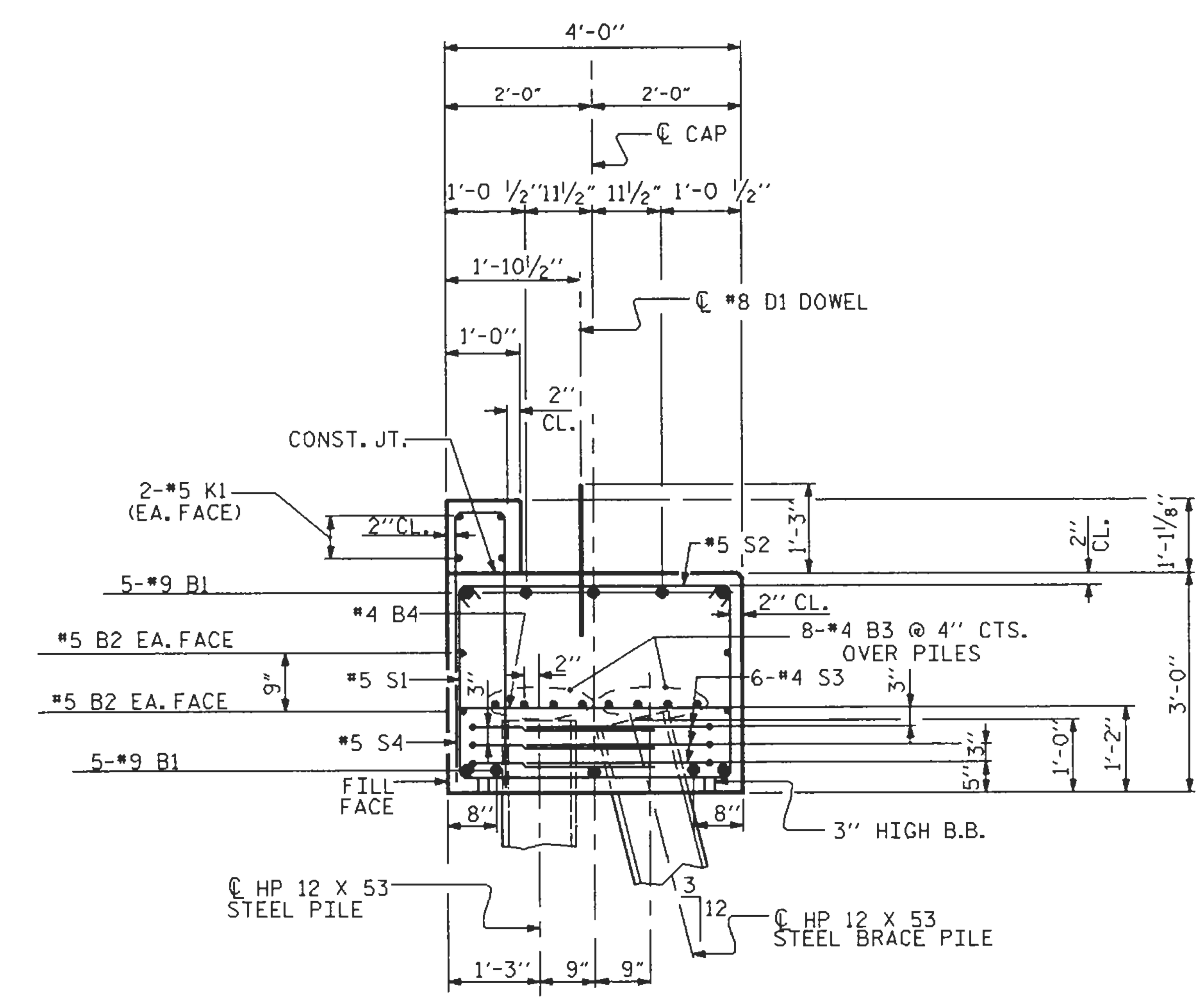
PLAN OF WING



ELEVATION OF WING



SECTION X-X



SECTION A-A

PROJECT NO. 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

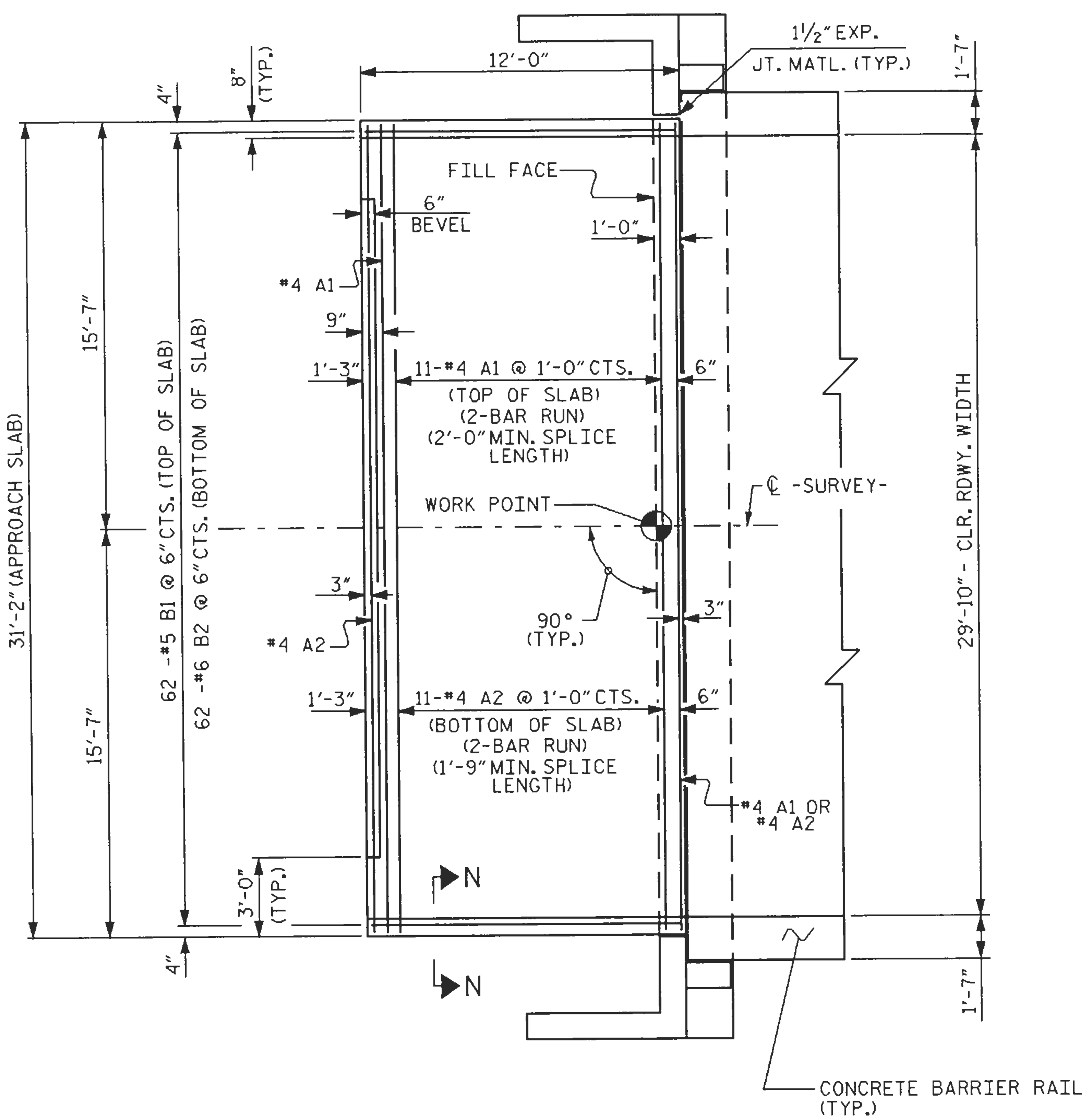
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT DETAILS

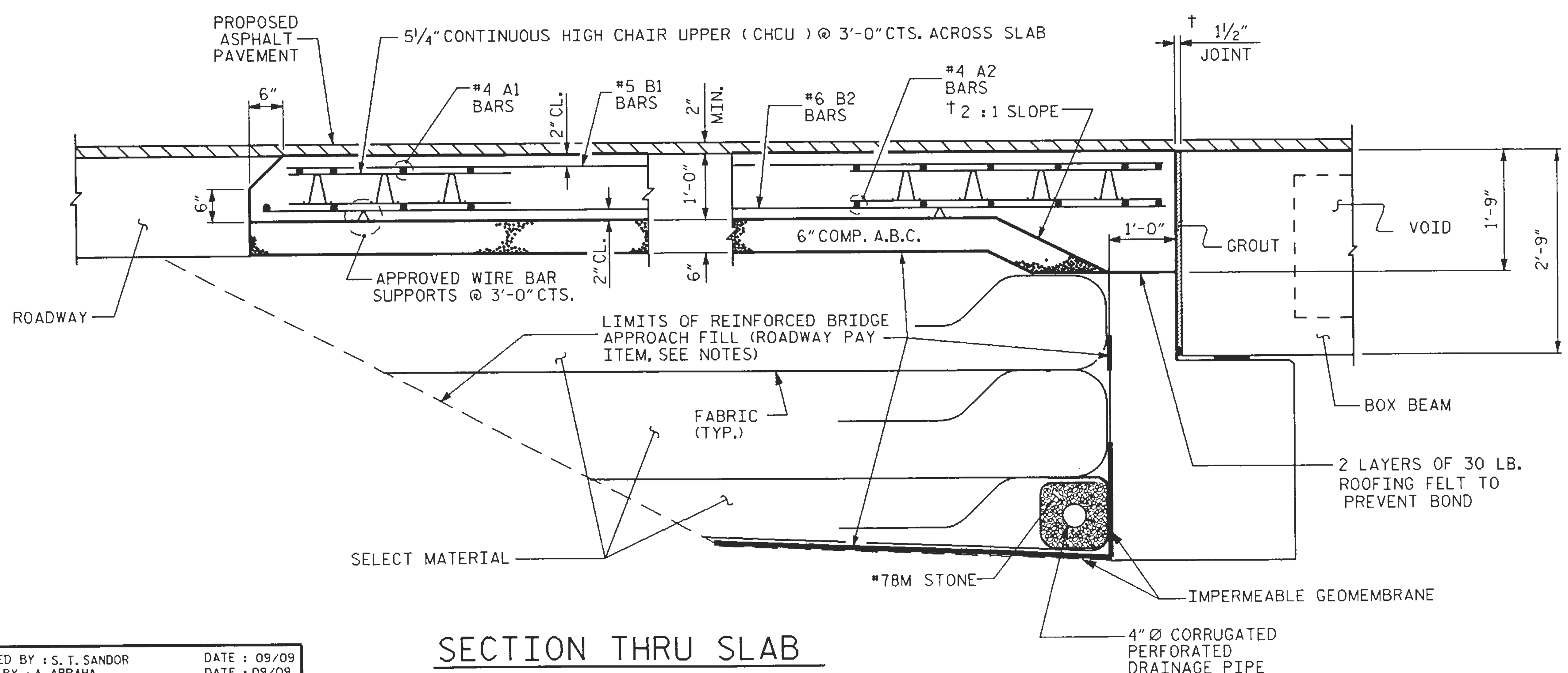
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	11
1			3			TOTAL SHEETS
2			4			19

DRAWN BY : S. T. SANDOR DATE : MAY/2009
CHECKED BY : A. ASTER DATE : MAY/2009

20-OCT-2009 09:38 ssandor AT BGMU240326 s:\poc\squad b\current\149 Alamance wbs 33372.1.1\Final\STRUCTURE\b-4004_bgmu_e*.dgn



PLAN OF APPROACH SLAB



SECTION THRU SLAB

NOTES

WORK SHOWN ON THIS DRAWING AND ROADWAY STANDARD 422.10 WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR APPROACH SLABS.

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY STANDARD 422.10.

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 WITH 4" OF INTERMEDIATE OR SURFACE COURSE ASPHALT.

THE 6" COMP. A.B.C. SHALL EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0" OUTSIDE OF EACH EDGE OF 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 EXTEND 1'-0" BEYOND THE 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.

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR APPROACH SLABS. SEE ROADWAY STANDARD 1622.01.

FOR JOINT DETAILS, SEE SHEET NO. 5.

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.

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

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

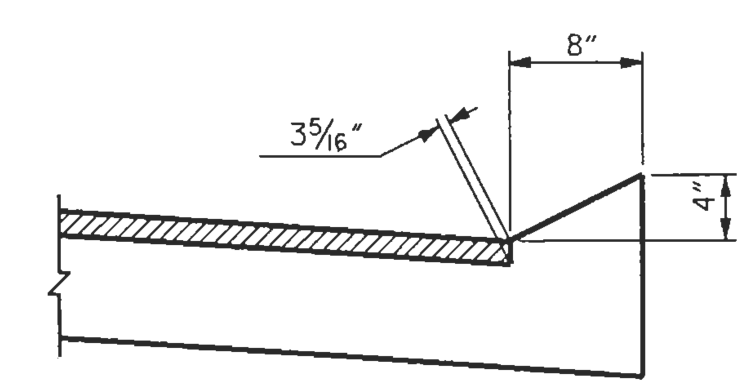
#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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

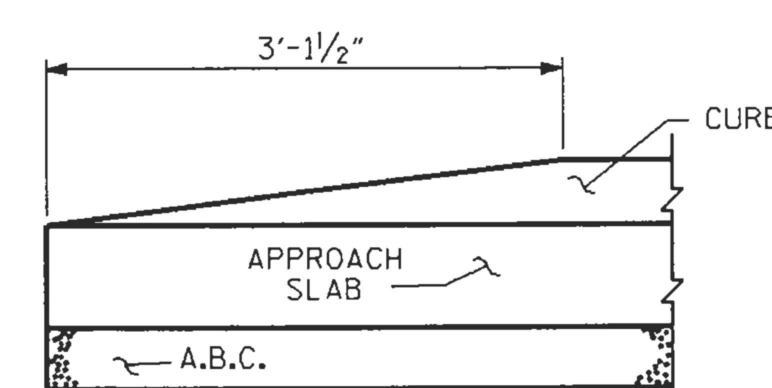
BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	4	STR	16'-5"	285
A2	26	4	STR	16'-4"	284
* B1	62	5	STR	11'-2"	722
B2	62	6	STR	11'-8"	1086
REINFORCING STEEL				LBS.	1007
* EPOXY COATED REINFORCING STEEL				LBS.	1370
CLASS AA CONCRETE				C. Y.	15.25



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NOT TO SCALE

PROJECT NO. 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15.00 -L-
REPLACES BRIDGE NO. 149

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	12
1			3			TOTAL SHEETS
2			4			19

ASSEMBLED BY : S. T. SANDOR — DATE : 09/09
CHECKED BY : A. ABRAHA — DATE : 09/09

DRAWN BY : FCJ 6/87 — REV. 7/10/01 LES/RDR
CHECKED BY : EGA 6/87 — REV. 5/7/03R RWW/JTE
REV. 5/1/06 TLA/GM

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PROJ. REFERENCE NO.	SHEET NO.
33372.1.1	13

PROJ. REFERENCE NO.	SHEET NO.
33372.1.1	14

8/23/99

20-OCT-2009 09:58
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ssandor AT BGMU240326


2.5
EXISTING
606.218
13+00.00
PROPOSED
604.076
0.0100
0.0200
2:1
EXISTING
603.826
12+50.00
PROPOSED
601.668
0.0200
0.0200
2:1
EXISTING
601.228
12+00.00
PROPOSED
599.396
0.0200
0.0200
2:1
EXISTING
598.653
11+50.00
-L-

EROSION CONTROL PLAN

33372.1.1 (B-4004)

CURVE I

PI Sta 7+38.64
Δ = 9° 25' 11.5" (RT)
D = 3° 52' 19.1"
L = 243.28'
T = 121.92'
R = 1,479.76'

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.

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

2006 STANDARD SPECIFICATIONS

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1630.02	Silt Basin Type B	
1630.05	Temporary Diversion	TD
1632.03	Rock Inlet Sediment Trap Type C	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-B	
1634.02	Temporary Rock Sediment Dam Type-B	

GRAPHIC SCALE
50 25 0 50 100

PROJECT NO.: 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE #149 ON
SR 2363 OVER
WELLS CREEK

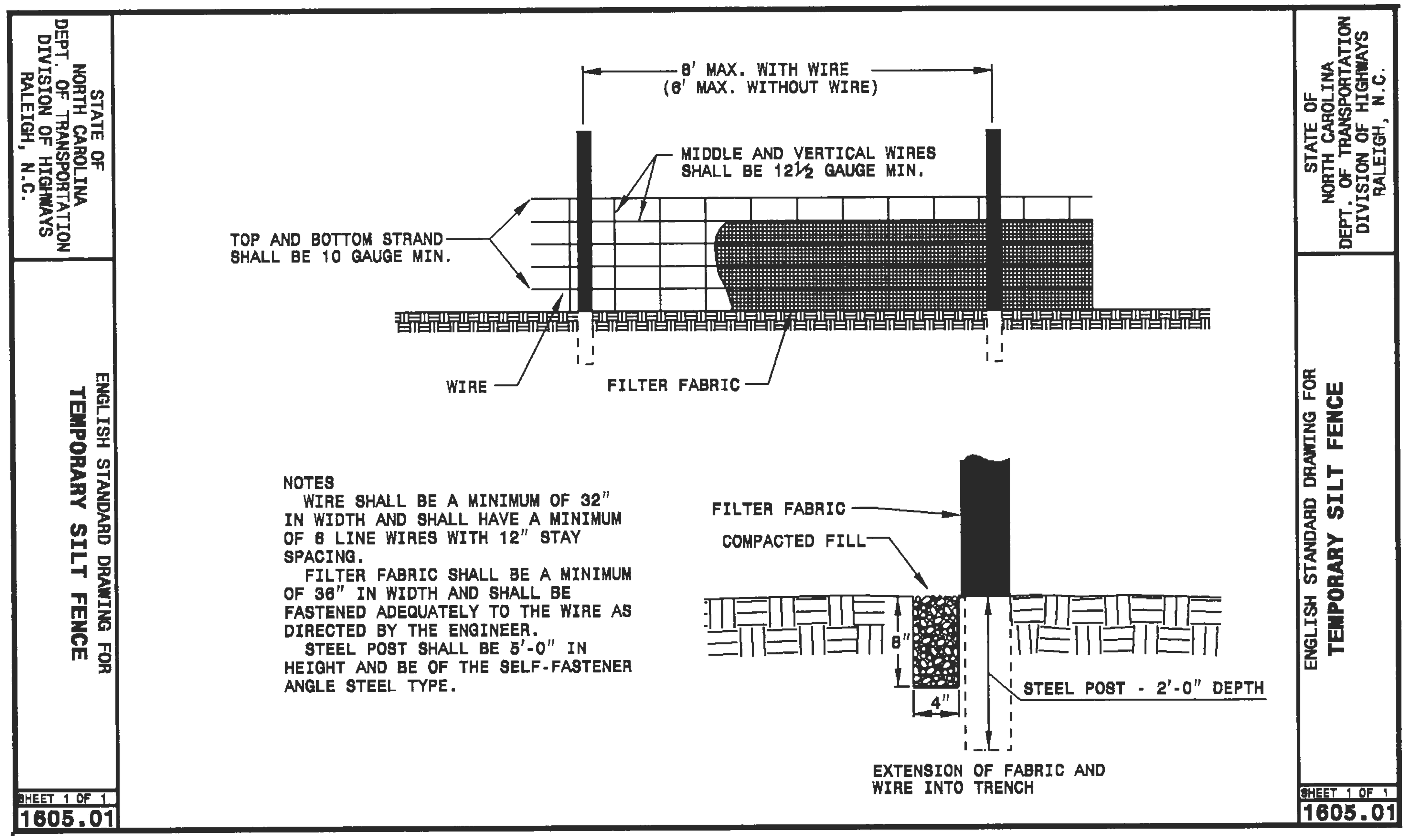
REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	SHEET NO. 16
1	EC	12/07/07	3			TOTAL SHEETS 19
2			4			

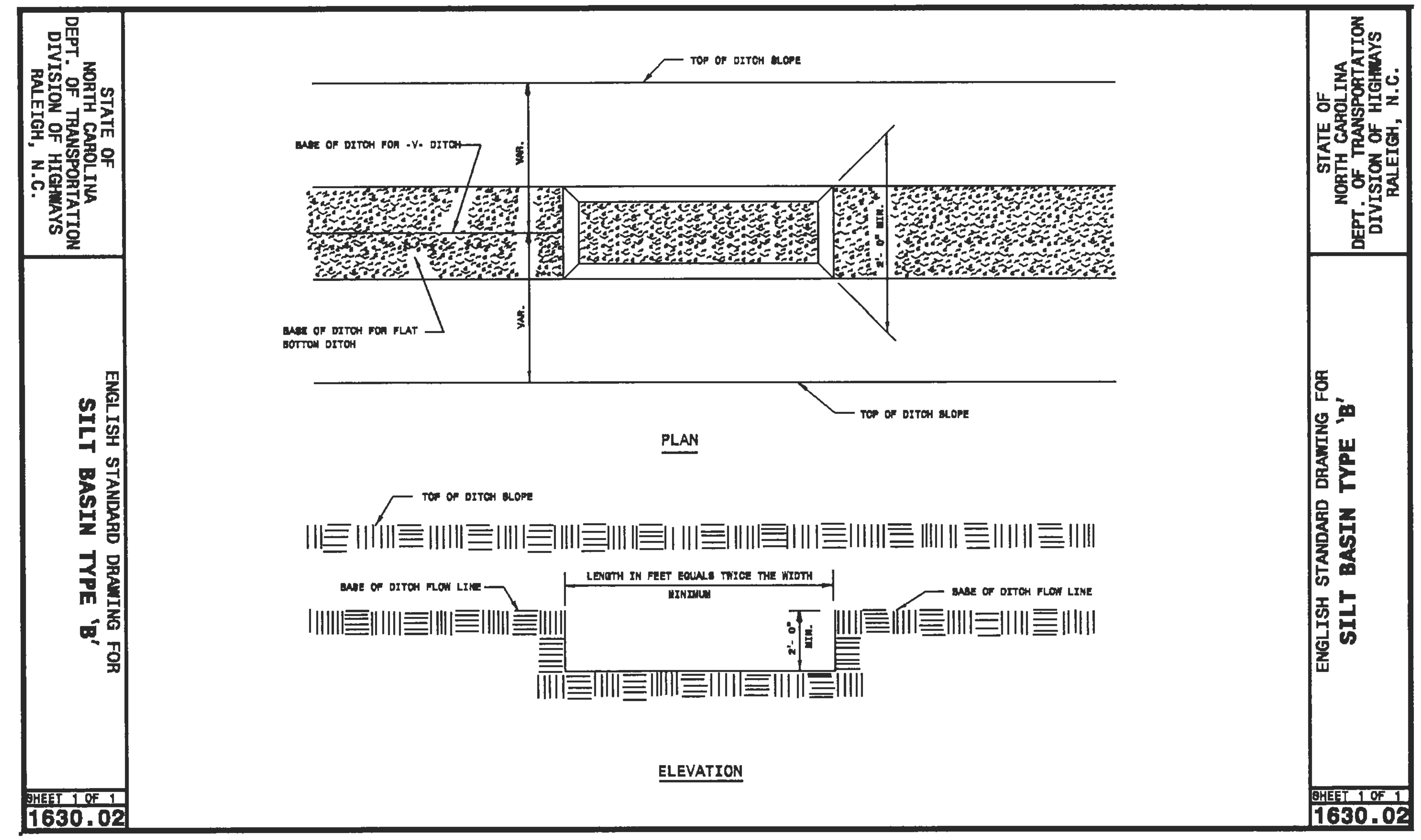
ALAMANCE

EROSION CONTROL PLAN

33372.1.1 (B-4004)

ALAMANCE





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.

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

2006 STANDARD SPECIFICATIONS

PROJECT NO.: 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE #149 ON
SR 2363 OVER
WELLS CREEK

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	EC	12/07/07	3		
2			4		

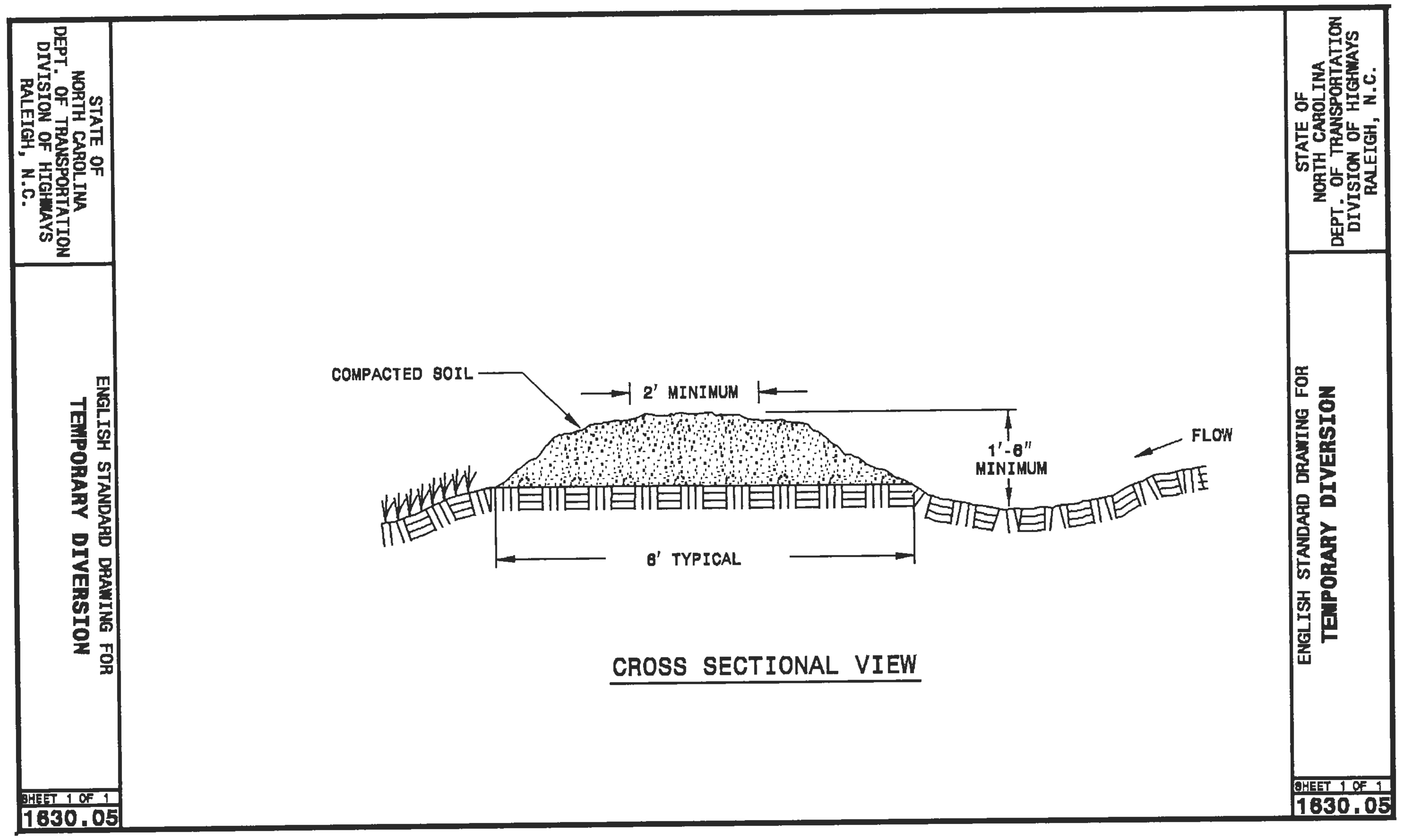
SHEET NO. 17

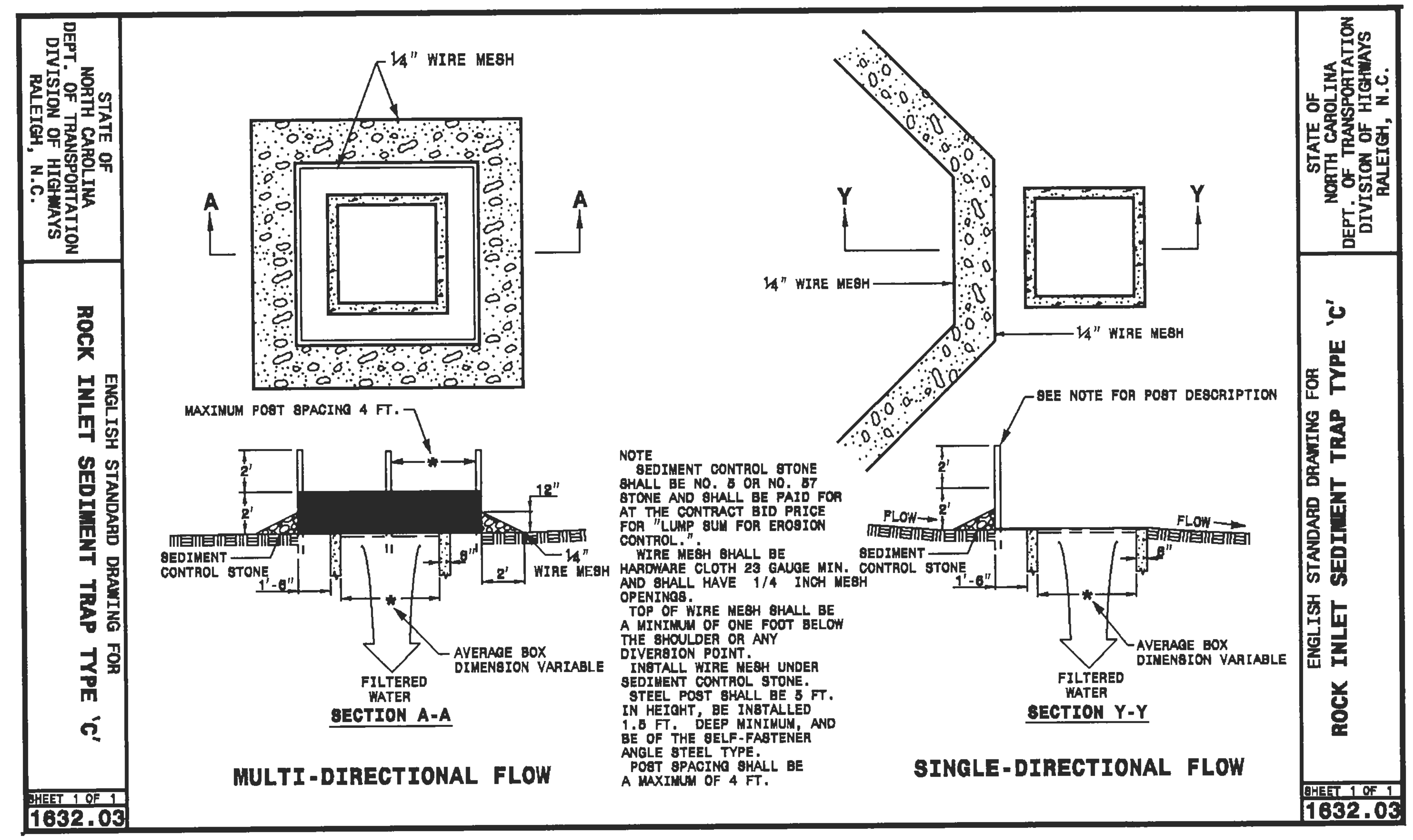
TOTAL SHEETS 19

33372.1.1 (B-4004)

ALAMANCE

EROSION CONTROL PLAN





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.

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

2006 STANDARD SPECIFICATIONS

PROJECT NO.: 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE #149 ON
SR 2363 OVER
WELLS CREEK

REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	SHEET NO. 18
1	EC	12/07/07	3			TOTAL SHEETS 19
2			4			

33372.1.1 (B-4004)

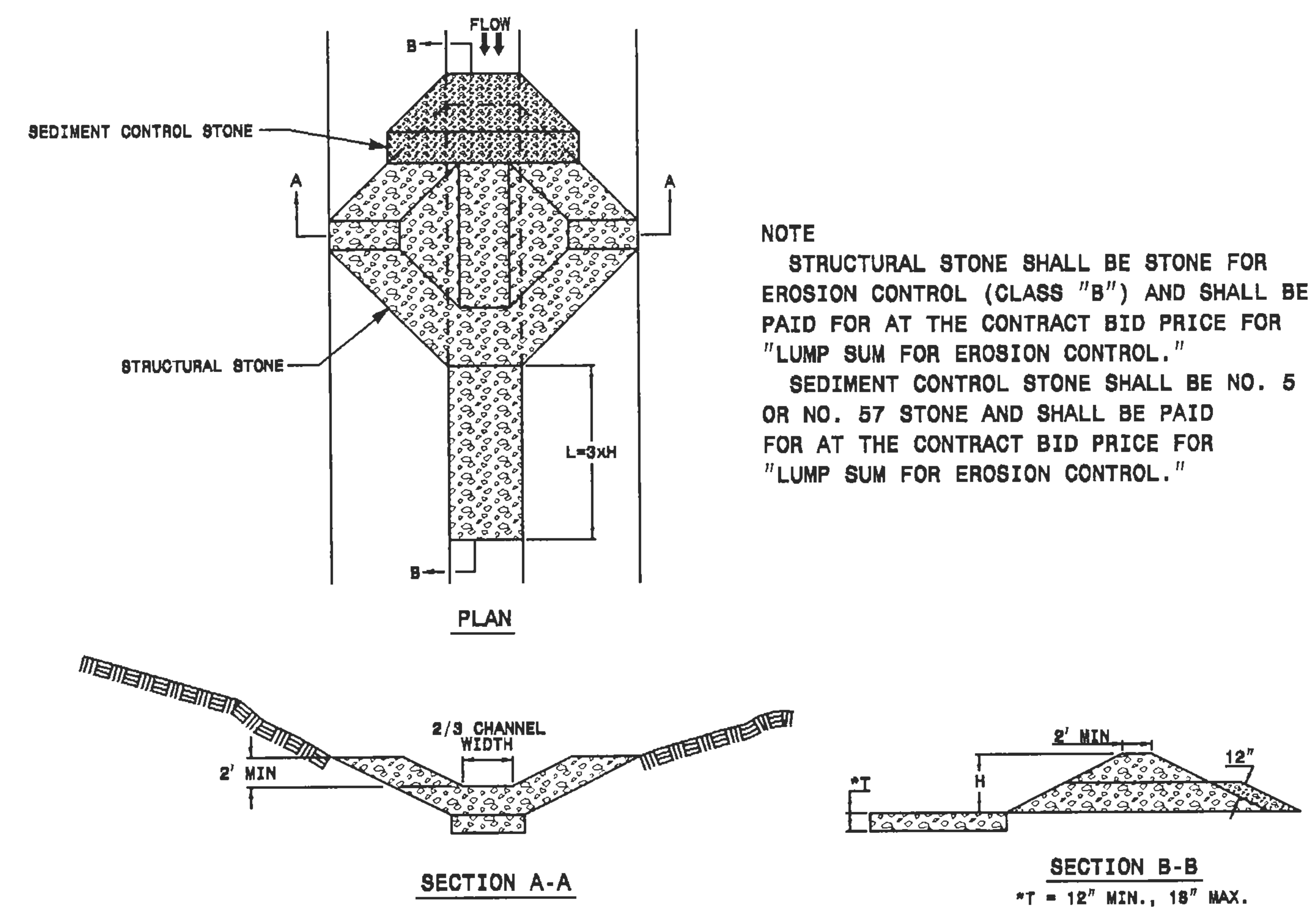
ALAMANCE

EROSION CONTROL PLAN

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

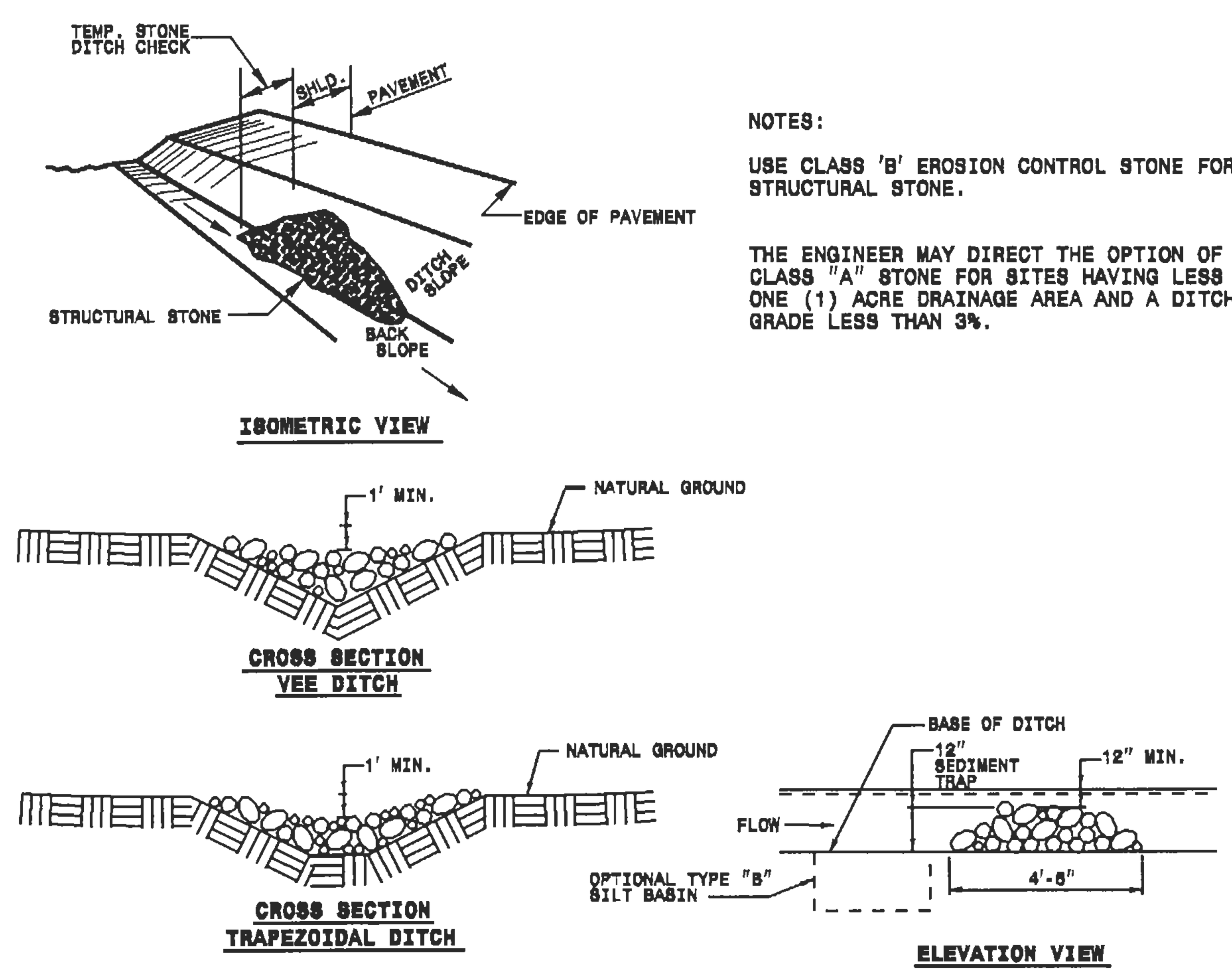
ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'A'

SHEET 1 OF 1
1633.01



NOTE
STRUCTURAL STONE SHALL BE STONE FOR EROSION CONTROL (CLASS "B") AND SHALL BE PAID FOR AT THE CONTRACT BID PRICE FOR "LUMP SUM FOR EROSION CONTROL."
SEDIMENT CONTROL STONE SHALL BE NO. 5 OR NO. 57 STONE AND SHALL BE PAID FOR AT THE CONTRACT BID PRICE FOR "LUMP SUM FOR EROSION CONTROL."

TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL



NOTES:

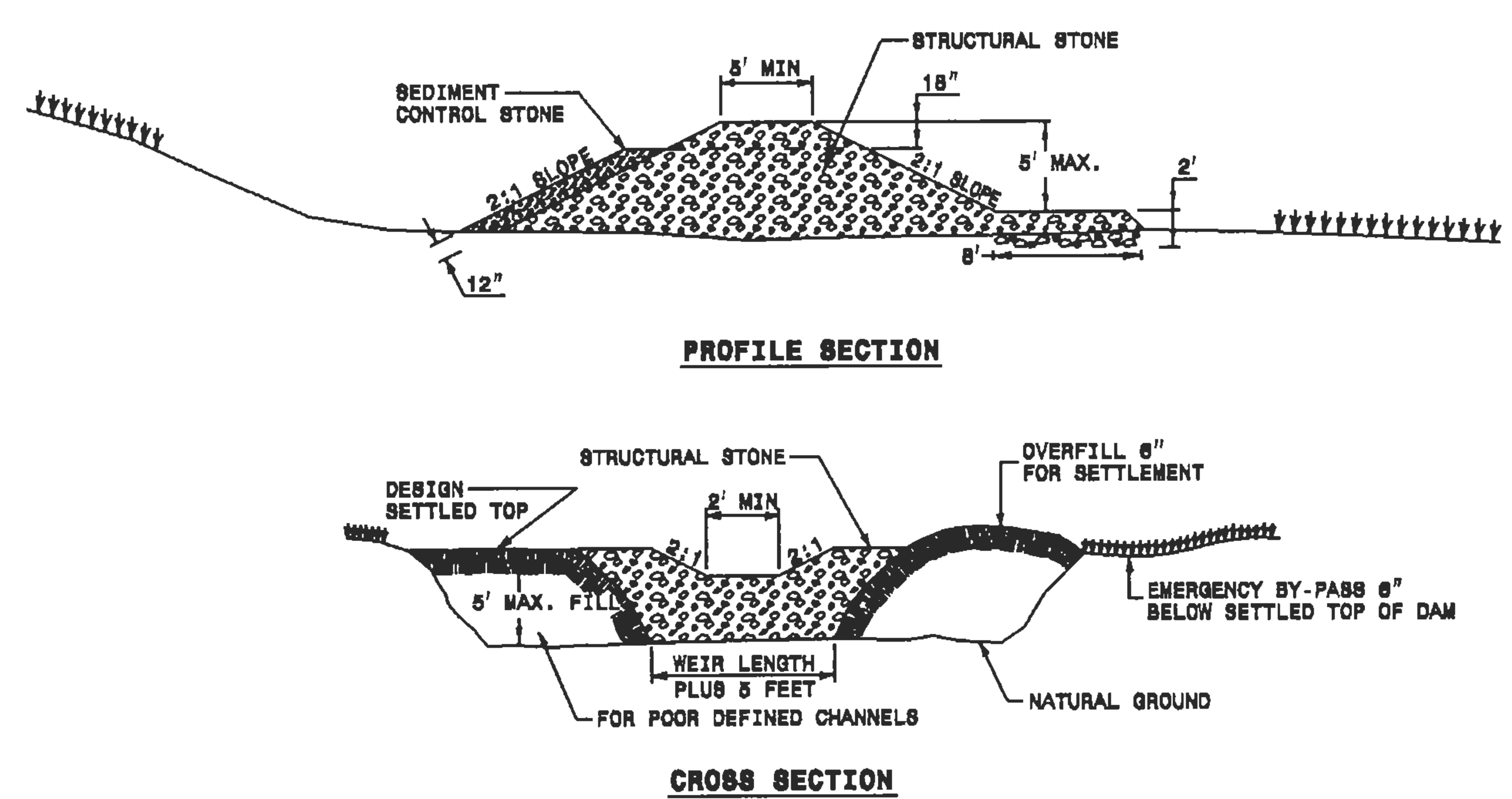
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

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%.

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

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

SHEET 1 OF 1
1634.02



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

NOTES:
STRUCTURAL STONE SHALL BE STONE FOR EROSION CONTROL CLASS "B" AND SHALL BE PAID FOR AT THE CONTRACT BID PRICE FOR "LUMP SUM FOR EROSION CONTROL."
SEDIMENT CONTROL STONE SHALL BE NO. 5 OR NO. 57 STONE AND SHALL BE PAID FOR AT THE CONTRACT BID PRICE FOR "LUMP SUM FOR EROSION CONTROL."
DIKE MAY EXTEND ALONG MORE THAN ONE SIDE OF THE TRAP AREA. A TOTAL SEDIMENT STORAGE VOLUME OF 1800± CUBIC FEET PER ACRE OF DISTURBED AREA SHOULD BE PROVIDED. 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. PAYMENT SHALL BE MADE AT THE CONTRACT BID PRICE FOR "LUMP SUM FOR EROSION CONTROL."

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.

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

2006 STANDARD SPECIFICATIONS

PROJECT NO.: 33372.1.1
COUNTY: ALAMANCE
STATION: 10+15
REPLACES BRIDGE NO. 149

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE #149 ON
SR 2363 OVER
WELLS CREEK

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1	EC	12/07/07	3		
2			4		

SHEET NO. 19
TOTAL SHEETS 19