09/08/09

TIP PROJECT: B-3672

CONTRACT: 201636 TIP

STRUCTURE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

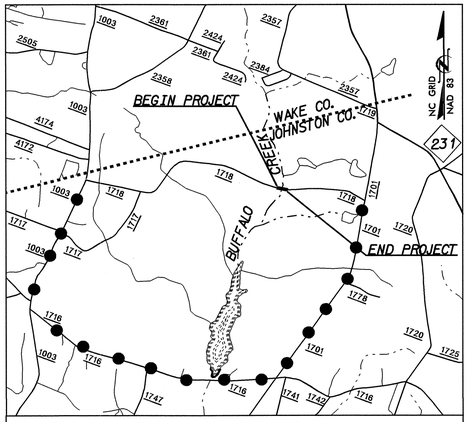
JOHNSTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3672		

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33216.1.1	BRZ-1718 (4)	PE
33216.2.1	BRZ-1718 (4)	RW, UTIL.
33216.3.1	BRZ-1718 (5)	CONST.

LOCATION: ***BRIDGE NO. 415 OVER BUFFALO CREEK AND APPROACHES ON SR 1718***

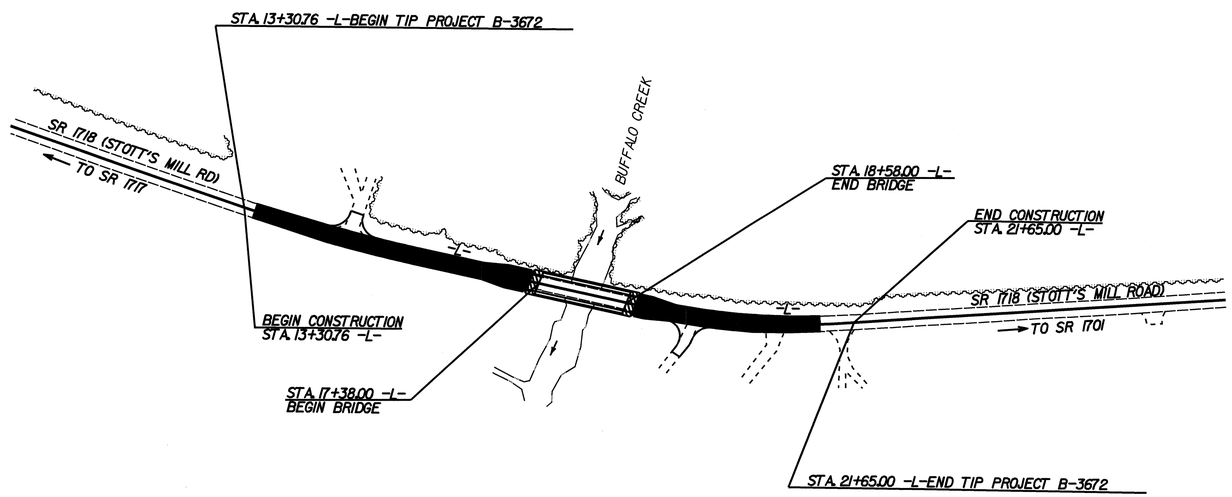
TYPE OF WORK: ***GRADING, DRAINAGE, PAVING, GUARDRAIL, AND STRUCTURE***



VICINITY MAP

DETOUR

NOTE: THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARIES OF ANY TOWN OR CITY.



DESIGN DATA

ADT 2007 = 430 VPD
ADT 2027 = 730 VPD
DHV = 12%
D = 60%
T = 4% *
V = 60 MPH
* TTST 1% + DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3672 = 0.135 MILE
LENGTH STRUCTURE TIP PROJECT B-3672 = 0.023 MILE
TOTAL LENGTH OF TIP PROJECT B-3672 = 0.158 MILE

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

2006 STANDARD SPECIFICATIONS

LETTING DATE:
March 20, 2007

JOHN C. FRYE, P. E.
PROJECT ENGINEER

W. A. DAVIS, P. E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 Birch Ridge Dr., NC, 27610

NORTH CAROLINA PROFESSIONAL SEAL 14552 ENGINEER GREGORY R. PERFETTI

1-30-07

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

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F.A. PROJECT NO. BRZ-1718 (5)

17+00 17+50 18+00 18+50 19+00

-3.7300% △ 1.0168%
PI = 15+35.00
EL = 257.78
VC = 380'

GRADE DATA

270 260 250 240 230

SPAN A SPAN B SPAN C

FILL FACE @ E.B. #1
STA. 17+38.00 -L-
G.P. EL. 259.844

BEGIN FRONT SLOPE
STA. 17+33.59 -L-
G.P. EL. 259.792

1'-7" MIN. BERM
1'-0" MIN. EARTH BERM

FIX FIX FIX FIX FIX

EL. 253± EL. 252± EL. 254.8± EL. 254.4± EL. 245± EL. 242± EL. 239± EL. 241± EL. 248± EL. 245± EL. 247± EL. 253± EL. 255± EL. 256.5±

1'-6" MIN.

APPROXIMATE NATURAL GROUND

HIGH WATER EL. 255.0 (100 YRS)

NORMAL WATER EL. 243.4 (12-04-01)

TEMPORARY CAUSEWAY

HP 12 x 53 STEEL PILES

SLOPE: 1½:1 (NORMAL TO CAP)

℄ 3'-6"Ø DRILLED PIER

TOP OF DRILLED PIER EL. 244.486

TOP OF DRILLED PIER EL. 244.494

FILL FACE @ E.B. #2
STA. 18+58.00 -L-
G.P. EL. 261.064

BEGIN FRONT SLOPE
STA. 18+62.61 -L-
G.P. EL. 261.104

END BENT #1 BENT #1 BENT #2 END BENT #2

SECTION ALONG ℄ -L-

(BENTS ON SECTION AT RIGHT ANGLES TO BENTS)

UNCLASSIFIED STRUCTURE EXCAVATION

TEMPORARY CAUSEWAY
CLASS "A" RIP RAP
CLASS II RIP RAP
2'-0"

SECTION A-A

BUFFALO CREEK

EXISTING STRUCTURE

1'-7" BERM EL. 256.394
1'-0" MIN. EARTH BERM EL. 254.394

1'-7" BERM EL. 257.580
1'-0" MIN. EARTH BERM EL. 255.580

℄ BENT #1 CONTROL LINE
℄ BRIDGE STA. 17+98.00 -L-
℄ BENT #2 CONTROL LINE

5'-0" (TYP.)

BEGIN FRONT SLOPE STA. 17+33.59 -L-
BEGIN FRONT SLOPE STA. 18+62.61 -L-

SR 1717 SR 1701 -L-

BEGIN APPROACH SLAB STA. 17+24.02 -L-
END APPROACH SLAB STA. 18+71.98 -L-

W.P. #1 FILL FACE @ END BENT #1 STA. 17+38.00 -L-
W.P. #2 STA. 17+73.00 -L-
W.P. #3 STA. 18+23.00 -L-
W.P. #4 FILL FACE @ END BENT #2 STA. 18+58.00 -L-

100°-00'-00" (TYP.)

TEMPORARY CAUSEWAY
CLASS II RIPRAP

25'-0" 25'-0"
35'-0" (SPAN A) 50'-0" (SPAN B) 35'-0" (SPAN C)
120'-0" (FILL FACE TO FILL FACE)

PLAN

(PILES AND DRILLED PIERS NOT SHOWN IN PLAN VIEW)

NORTH CAROLINA PROFESSIONAL SEAL 11915 ENGINEER JOHN C. FRYE 1/19/07

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS 1/19/07

DRAWN BY : J.D. HAWK/P.K.N. DATE : 7/25/06
CHECKED BY : J.G. KHARVA/T.L.C. DATE : 7/25/06

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PROJECT NO. B-3672
JOHNSTON COUNTY
STATION: 17+98.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 415

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING BRIDGE OVER BUFFALO CREEK ON SR 1718 BETWEEN SR 1717 & SR 1701

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			24

FOUNDATION NOTES

DRIVE PILES AT BENTS NO. 1 AND 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 END BENT NO. 1 AND END BENT NO. 2 IS 60 TONS PER PILE.

DRILLED PIERS AT BENTS NO. 1 AND 2 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 60 TSF.

DRILLED PIERS FOR BENTS NO. 1 AND 2 HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 175 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENT NO. 1. DO NOT EXTEND THE CASING BELOW ELEVATION 232.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. SEE DRILLED PIERS SPECIAL PROVISION.

PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENT NO. 2. DO NOT EXTEND THE CASING BELOW ELEVATION 237.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. SEE DRILLED PIERS SPECIAL PROVISION.

DRILLED PIERS AT BENT NO. 1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 223.0 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIERS AT BENT NO. 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 228.0 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 230.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 2 IS ELEVATION 234.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISION.

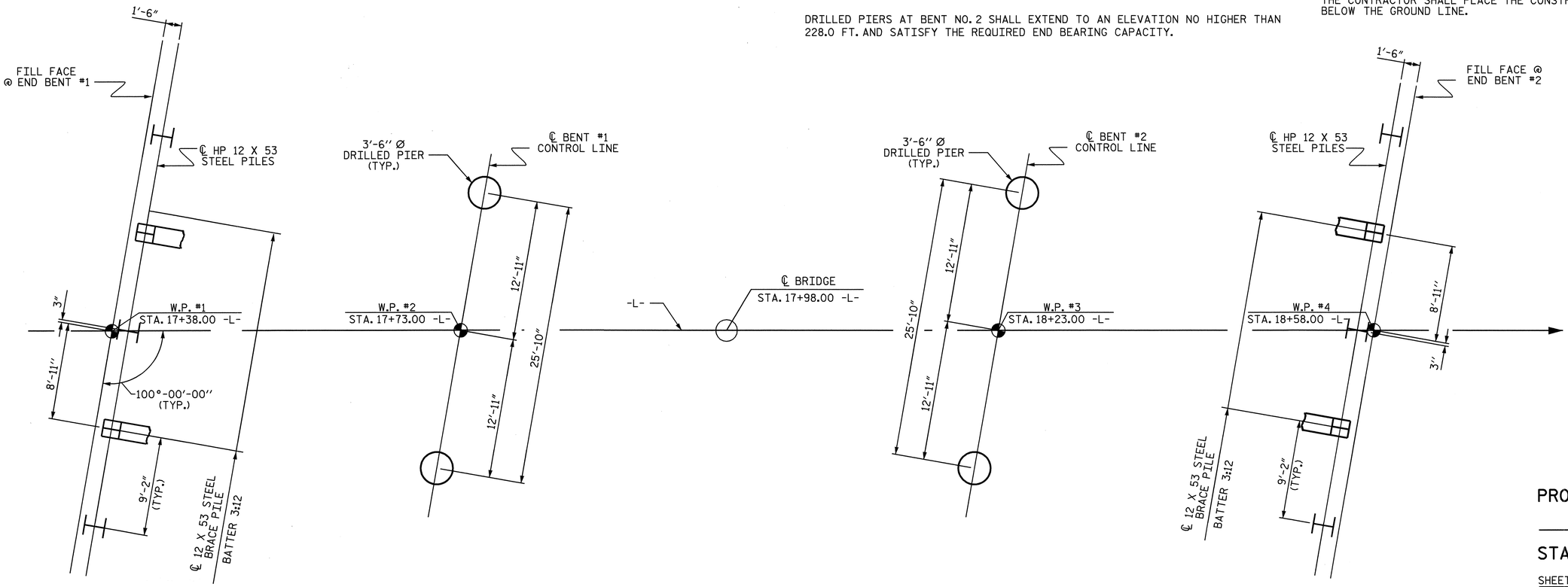
SPT TESTING IS NOT REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENTS NO. 1 AND 2.

DO NOT USE SLURRY CONSTRUCTION FOR DRILLED PIERS AT BENT NO. 1 AND 2.

SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. SEE DRILLED PIERS SPECIAL PROVISION.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. SEE CROSSHOLE SONIC LOGGING SPECIAL PROVISION.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FOOT BELOW THE GROUND LINE.



FOUNDATION LAYOUT

DIMENSION LOCATING HP 12 X 53 STEEL PILES ARE SHOWN TO CENTERLINE.
DIMENSIONS LOCATING 3'-6"Ø DRILLED PIERS ARE SHOWN TO CENTERLINE.

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING BRIDGE OVER BUFFALO CREEK ON SR 1718 BETWEEN SR 1717 & SR 1701

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
1/3/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : T.L. CLELLAND DATE : 8/10/06
CHECKED BY : W.A. DAVIS DATE : 8/15/06

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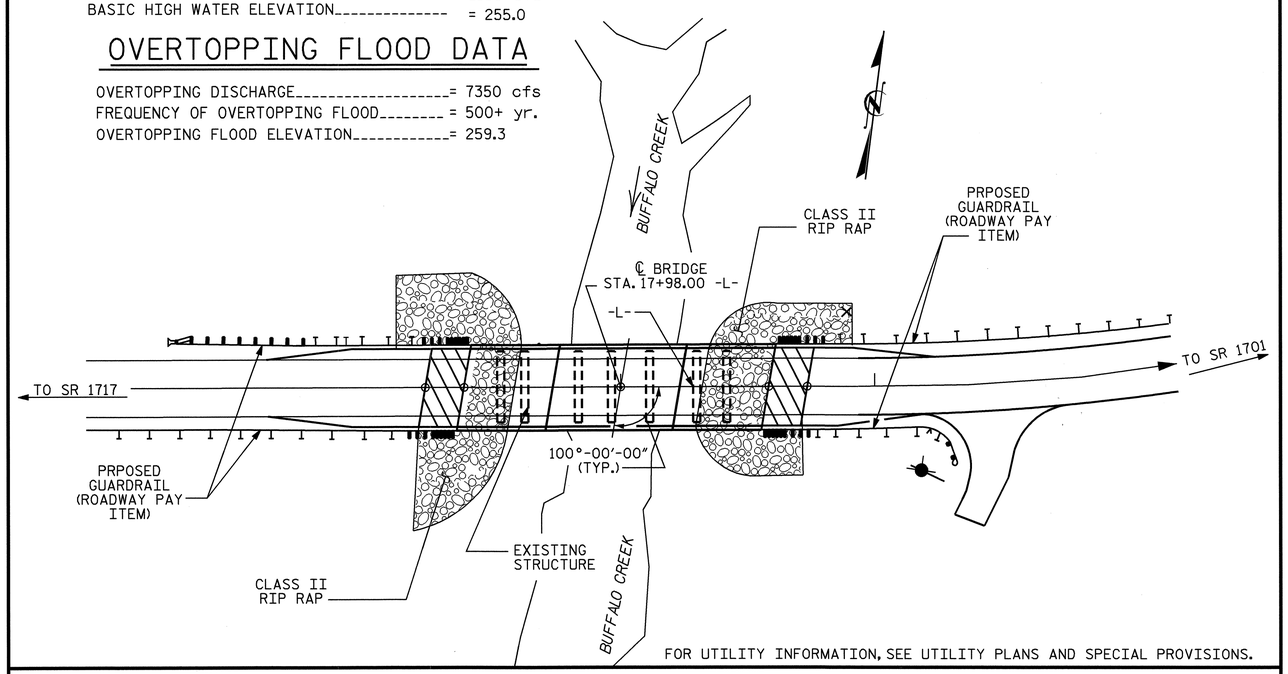
BM-2 : RR SPIKE SET IN 10'' OAK TREE, 131.45'
RT.OF -L- STA.18+74.41, EL. 255.55

HYDROGRAPHIC DATA

DESIGN DISCHARGE_____= 3900 cfs
FREQUENCY OF DESIGN FLOOD_____ = 25 yr.
DESIGN HIGH WATER ELEVATION_____ = 253.2
DRAINAGE AREA_____ = 20.7 sq. mi.
BASIC DISCHARGE (Q100)_____ = 5100 cfs
BASIC HIGH WATER ELEVATION_____ = 255.0

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE_____= 7350 cfs
FREQUENCY OF OVERTOPPING FLOOD_____ = 500+ yr.
OVERTOPPING FLOOD ELEVATION_____= 259.3



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HS20 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.

THE EXISTING STRUCTURE CONSISTING OF 6 SPANS AT 17 FT WITH A TIMBER FLOOR ON TIMBER JOISTS WITH A CLEAR ROADWAY OF 19.2 FT ON TIMBER CAPS AND PILES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

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

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.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 17+98.00 -L-.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

NO SEPARATE PAYMENT SHALL BE MADE FOR ANY ADDITIONAL STEEL REQUIRED IN CONSTRUCTION OF THE DRILLED PIER AS THIS IS CONSIDERED INCIDENTAL TO THE LINEAR FOOT PRICE FOR DRILLED PIER.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE EXISTING PAVEMENT WITHIN THE AREA OF THE END BENT PILES SHALL BE REMOVED AND THE ROADBED SCARIFIED TO A MINIMUM DEPTH OF 2'-0".

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-6'' Ø DRILLED PIER IN SOIL	3'-6'' Ø DRILLED PIER NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" DRILLED PIERS	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 X 53 STEEL PILES		CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0"X 1'-9" PRESTRESSED CONCRETE CORED SLABS
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EA.	EA.	LUMP SUM	C.Y.	LUMP SUM	LBS.	LBS.	FT.	NO.	LIN. FT.	TONS	S.Y.	LUMP SUM	LIN. FT.
SUPERSTRUCTURE	LUMP SUM	LUMP SUM						LUMP SUM							234.92			LUMP SUM	1292.04
END BENT #1									11.7		2034		100.0	5		490	545		
BENT #1			23.0	20.0	25.0				27.3		10059	1314							
BENT #2			15.0	18.0	15.0				27.6		9385	1131							
END BENT #2									11.8		2039		75.0	5		420	467		
TOTAL	LUMP SUM	LUMP SUM	38.0	38.0	40.0	2	1	LUMP SUM	78.4	LUMP SUM	23517	2445	175.0	10	234.92	910	1012	LUMP SUM	1292.04

PROJECT NO. B-3672
JOHNSTON COUNTY
STATION: 17+98.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE OVER BUFFALO CREEK ON SR 1718 BETWEEN SR 1717 & SR 1701

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
1/22/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : T.L. CLELLAND DATE : 8/10/06
CHECKED BY : W.A. DAVIS DATE : 8/15/06

22-JAN-2007 11:21
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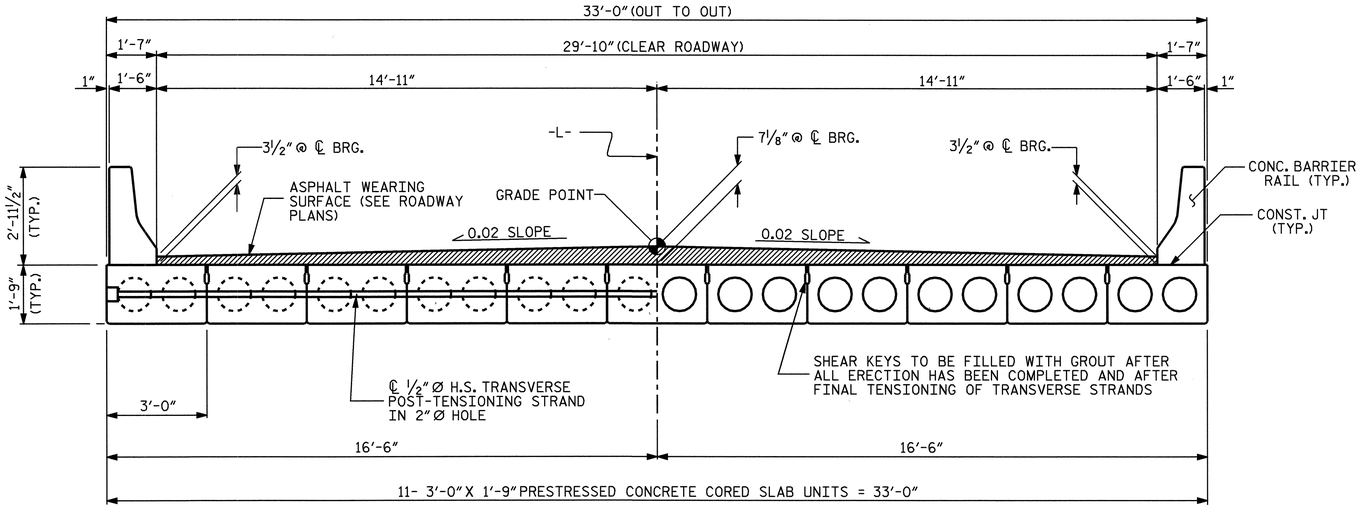
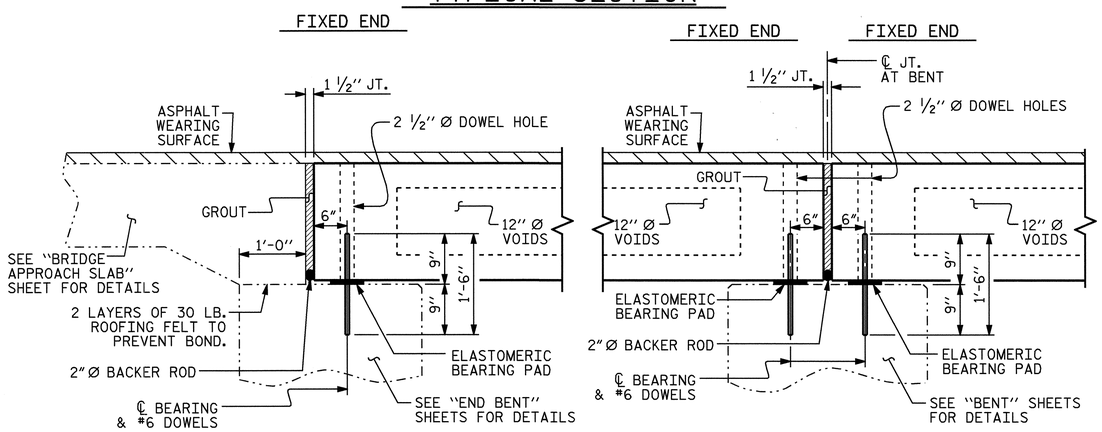


HALF SECTION @ INTERMEDIATE DIAPHRAGMS

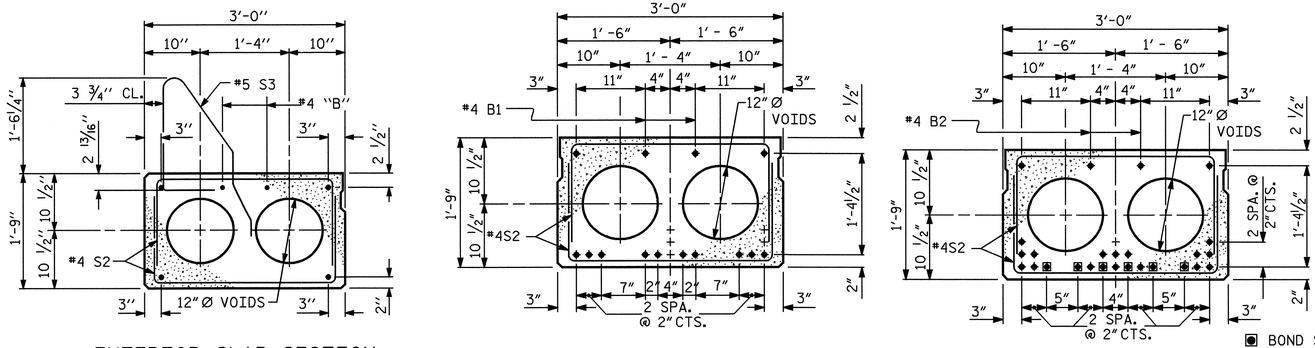
HALF SECTION @ 12" Ø VOIDS

TYPICAL SECTION



SECTION AT END BENT

SECTION AT BENT

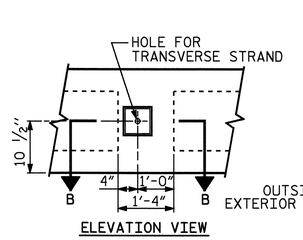


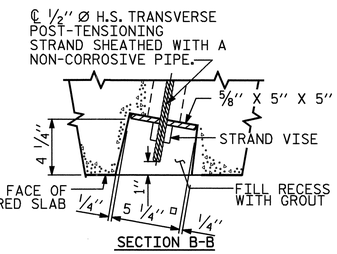
EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

SPANS A & C
INTERIOR SLAB SECTION
½" Ø LOW RELAXATION STRAND LAYOUT
12 STRANDS

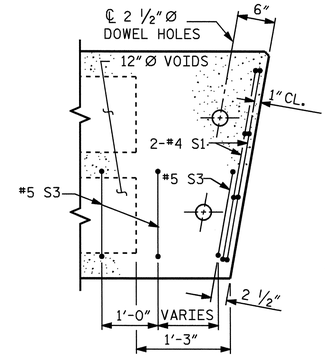
SPAN B
INTERIOR SLAB SECTION
½" Ø LOW RELAXATION STRAND LAYOUT
24 STRANDS
6 STRANDS SHEATHED

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



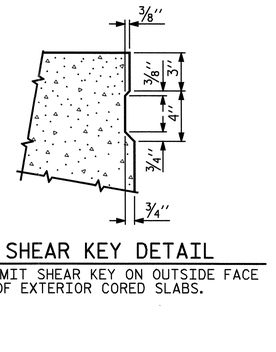


GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



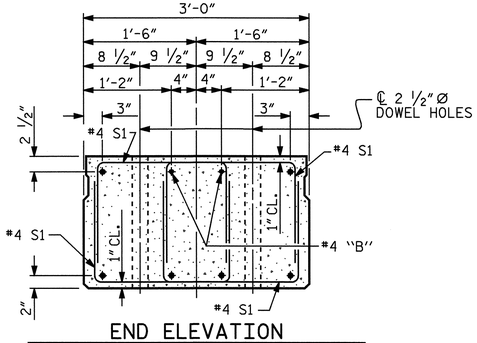
PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS. SEE CORED SLAB UNIT DETAIL SHEETS FOR DIMENSION.



SHEAR KEY DETAIL

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



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.

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
1/19/07

PROJECT NO. B-3672
JOHNSTON COUNTY
STATION: 17+98.00 -L-

SHEET 1 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : J.D. HAWK / P.K.N DATE : 2/03		
CHECKED BY : J.G. KHARVA / T.L.C. DATE : 8/4/06		
DRAWN BY : WJH 4/89	REV. 8/6/99	EEM/RGW
CHECKED BY : FCJ 5/89	REV. 10/17/00	RWW/LES
	REV. 7/10/01	RWW/LES

19-JAN-2007 14:29
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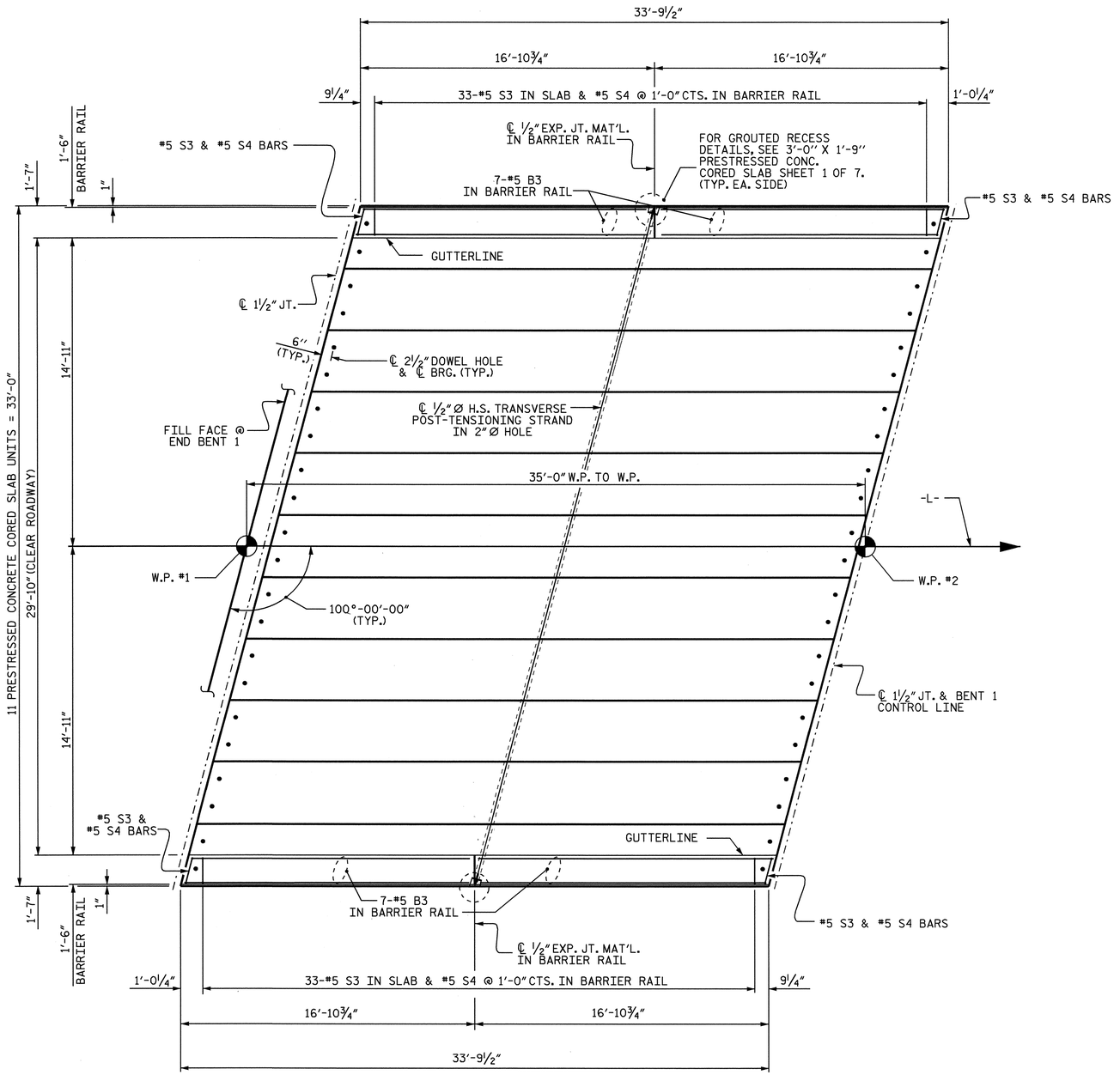
STD. No. PCS2



PLAN OF SPAN A

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 2 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN A

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : J.D. HAWK/P.K.N. DATE : 2-14-03
CHECKED BY : J.G. KHARVA/T.L.C. DATE : 8-4-06

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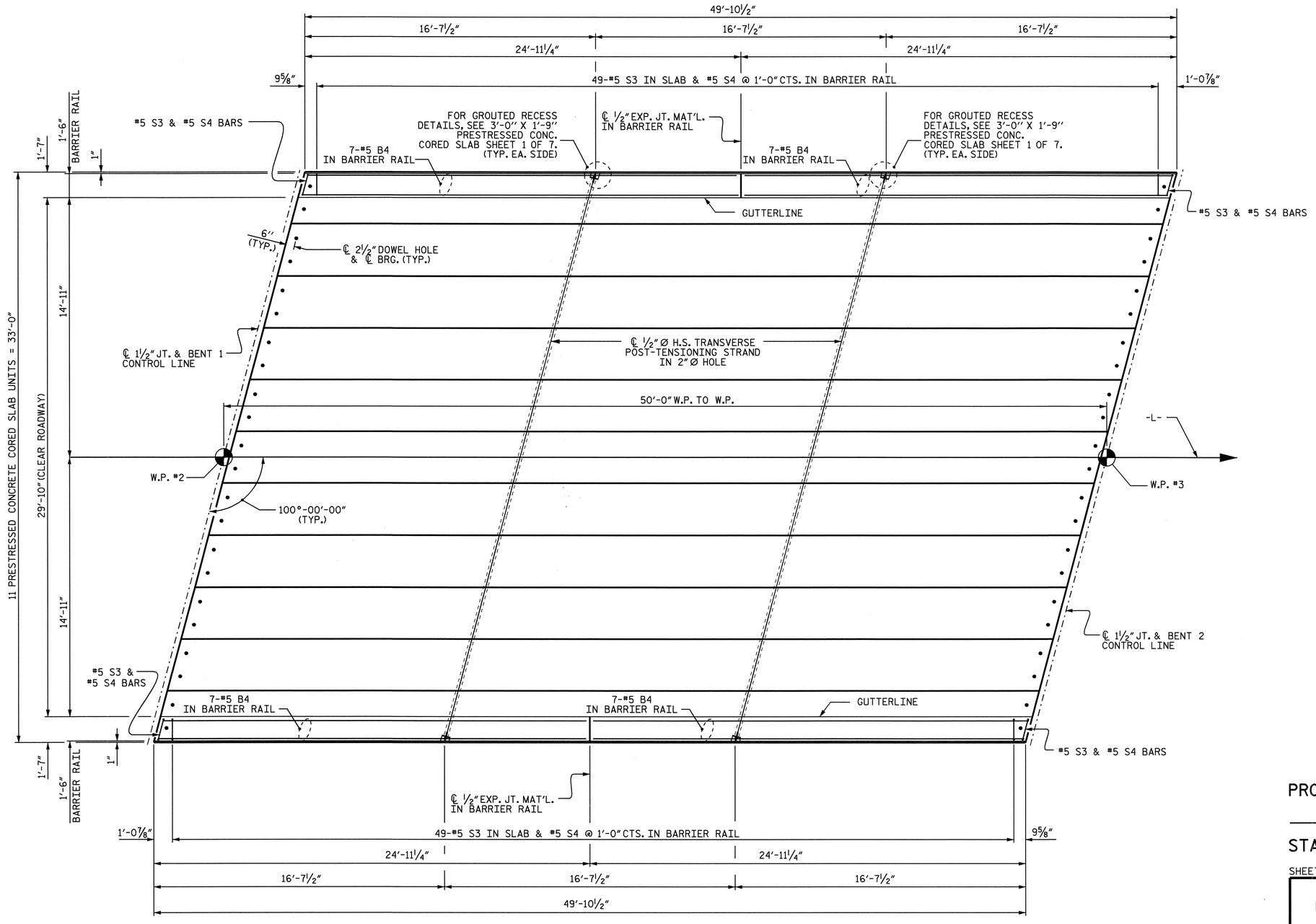

PLAN OF SPAN B

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 3 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
1/3/07

DRAWN BY : J.D. HAWK/P.K.N. DATE : 2-14-03
CHECKED BY : J.G. KHARVA/T.L.C. DATE : 8-4-06

02-JAN-2007 14:37
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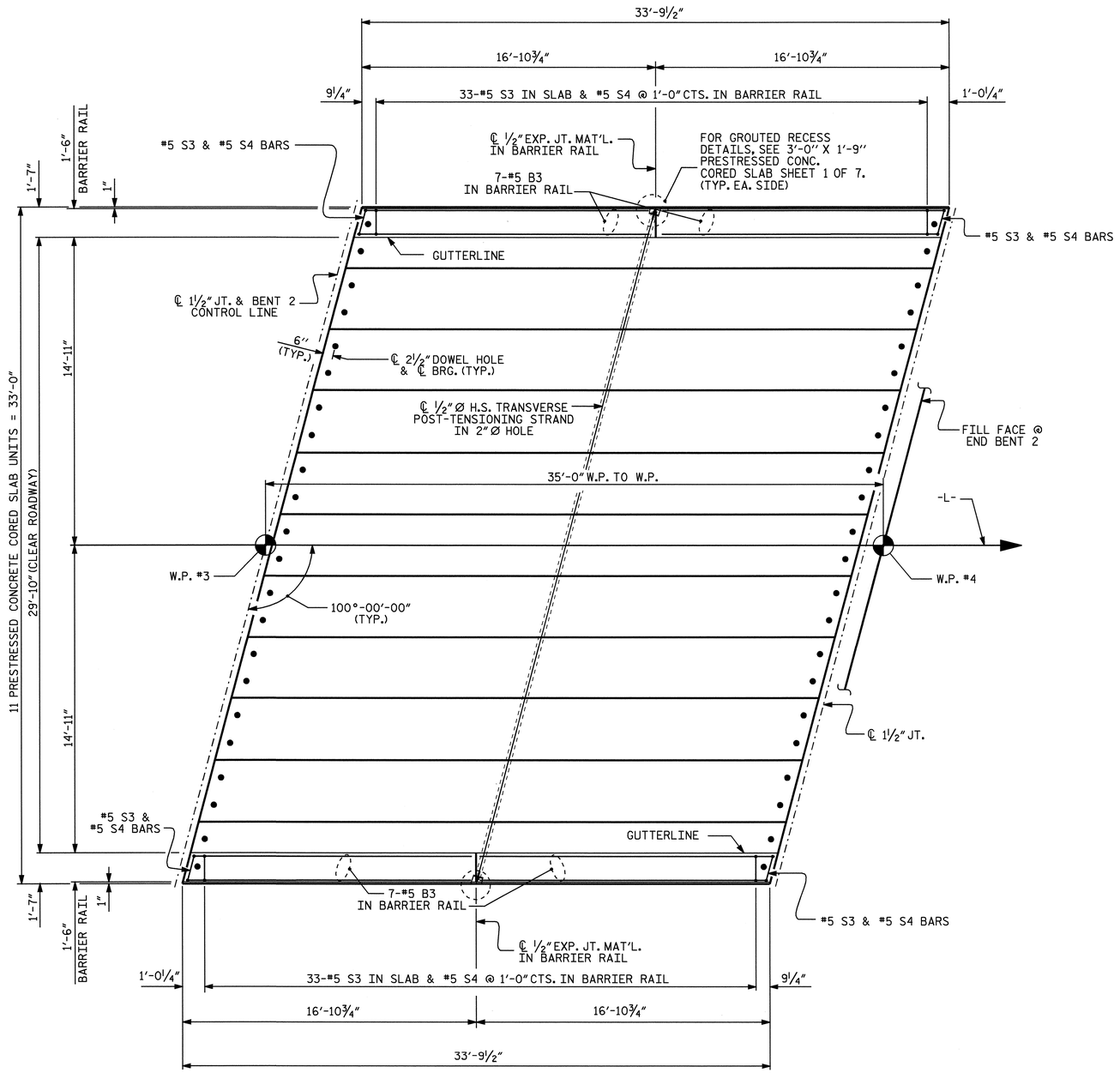

PLAN OF SPAN C

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 4 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
1/19/07

DRAWN BY : J.D. HAWK/P.K.N. DATE : 2-14-03
CHECKED BY : J.G. KHARVA/T.L.C. DATE : 8-4-06

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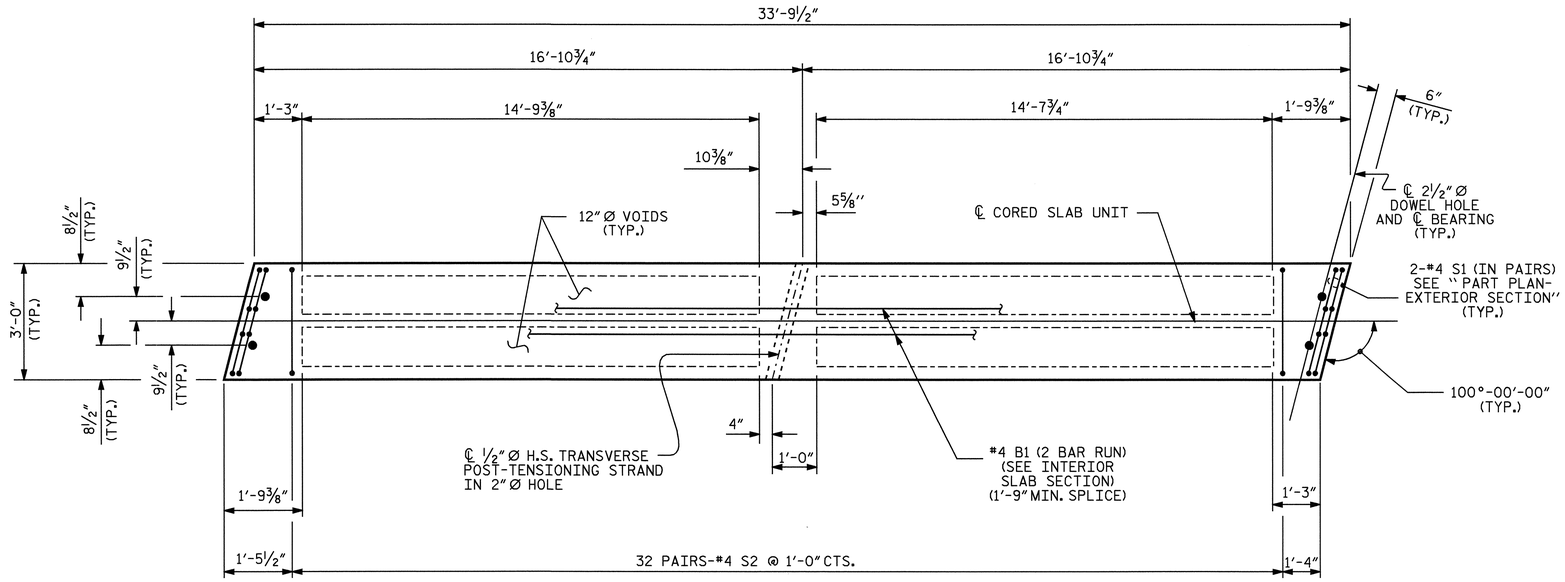
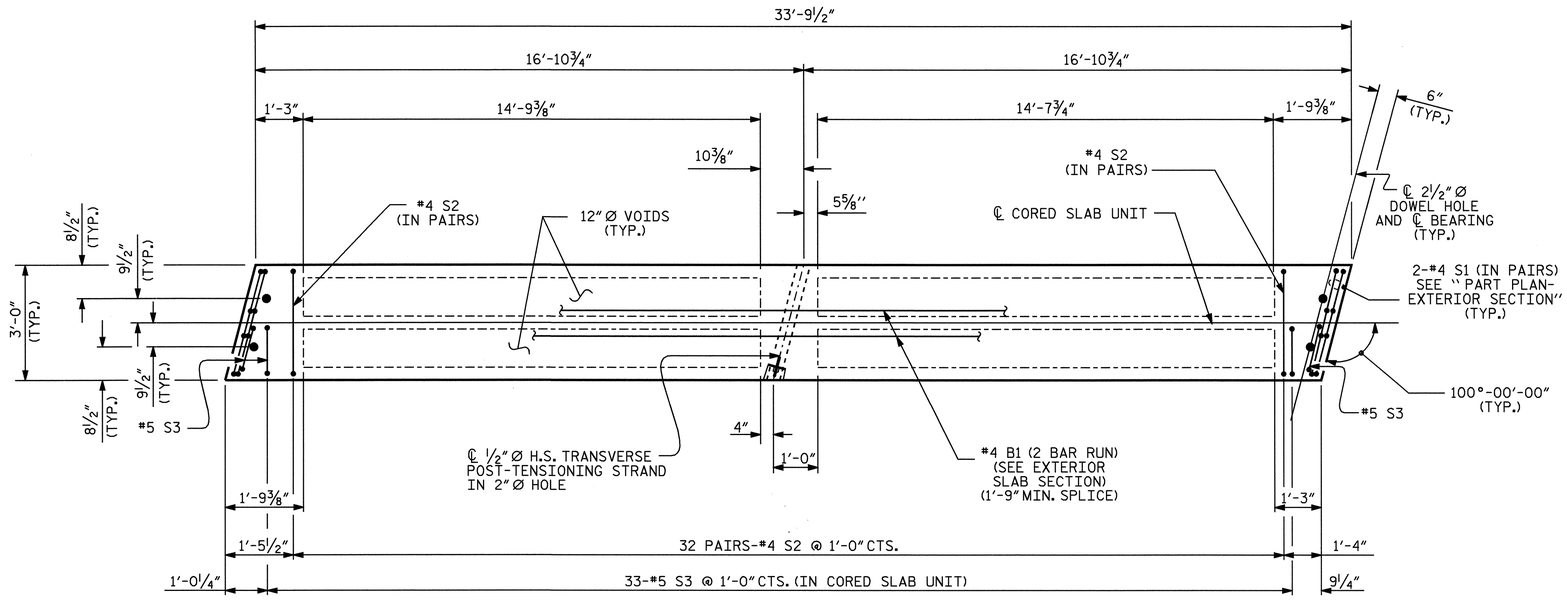


PLAN OF INTERIOR SLAB - SPANS A AND C



PLAN OF EXTERIOR SLAB - SPANS A AND C

DRAWN BY : J.D. HAWK/P.K.N. DATE : 2-14-03
CHECKED BY : J.G. KHARVA/T.L.C. DATE : 8-4-06

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PROJECT NO. B-3672
JOHNSTON COUNTY
STATION: 17+98.00 -L-

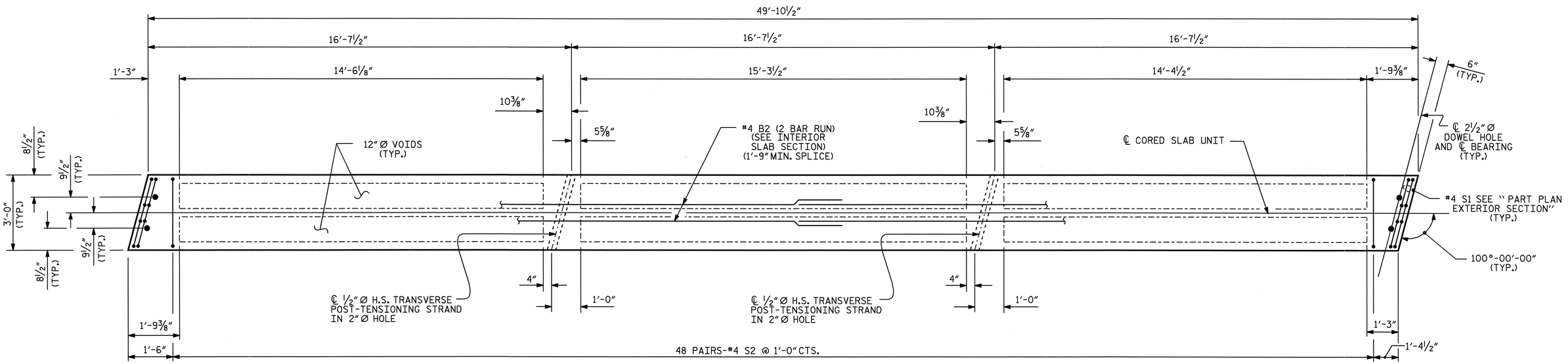
SHEET 5 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

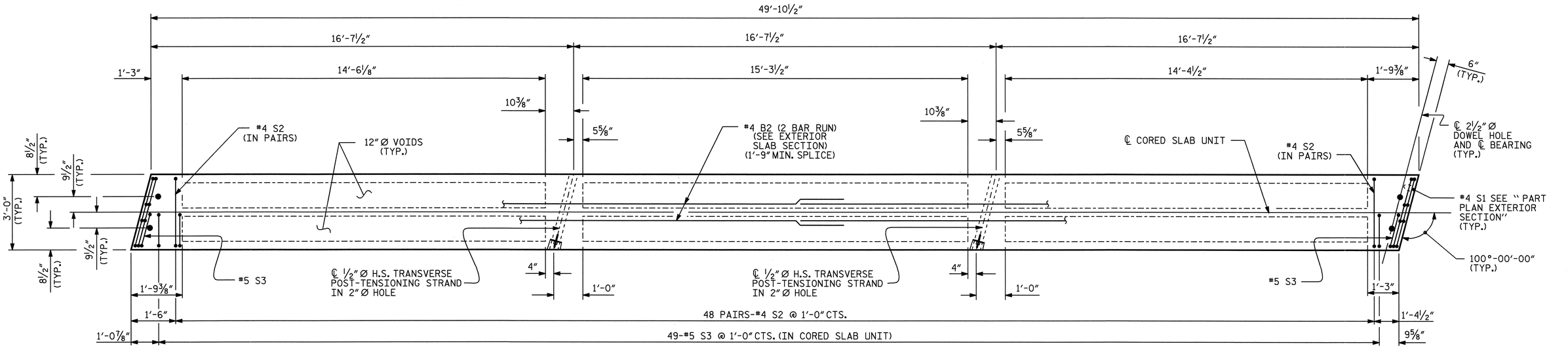
3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/9/07



PLAN OF INTERIOR SLAB - SPAN B



PLAN OF EXTERIOR SLAB - SPAN B

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
1/19/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : J.D. HAWK/P.K.N. DATE : 2-14-03
CHECKED BY : J.G. KHARVA/T.L.C. DATE : 8-4-06

19-JAN-2007 14:28
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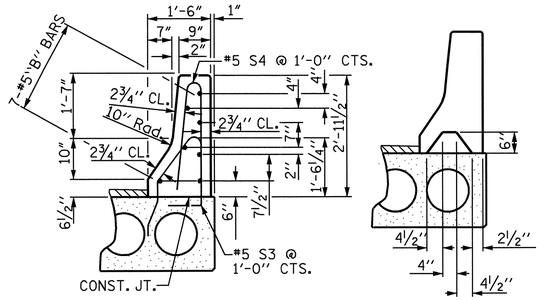
NOTE:
FOR BARRIER RAIL REINFORCING
PLAN SEE "PLAN OF SPANS"
SHEET 2, 3, AND 4 OF 7.

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

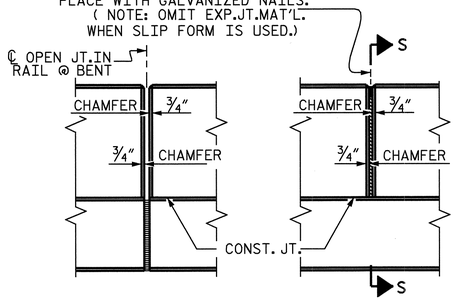
SPLICE LENGTH CHART		
BAR	SIZE	SPLICE LENGTH
B1, B2	#4	1'-9"



SECTION THRU RAIL

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

BARRIER RAIL - END OF RAIL DETAILS

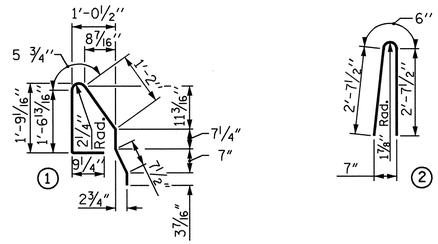


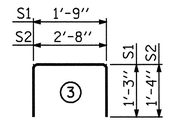
ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

CORED SLABS REQUIRED				
SPAN	LOCATION	NUMBER	LENGTH	TOTAL LENGTH
SPAN "A"	EXTERIOR C.S.	2	33'-9½"	67'-7"
	INTERIOR C.S.	9	33'-9½"	304'-1½"
SPAN "B"	EXTERIOR C.S.	2	49'-10½"	99'-9"
	INTERIOR C.S.	9	49'-10½"	448'-10½"
SPAN "C"	EXTERIOR C.S.	2	33'-9½"	67'-7"
	INTERIOR C.S.	9	33'-9½"	304'-1½"
TOTAL		33		1292'-0½"

BAR TYPES





ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPANS A AND C				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	17'-7"	47	17'-7"	47
S1	8	#4	3	4'-3"	23	4'-3"	23
S2	64	#4	3	5'-4"	228	5'-4"	228
✳ S3	34	#5	1	5'-6"	195		
REINFORCING STEEL					298 LBS.		298 LBS.
✳EPOXY COATED REINFORCING STEEL					195 LBS.		
5,000 P.S.I. CONCRETE					4.8 CU. YDS.		4.8 CU. YDS.
½" Ø L.R. STRANDS					No. 12		No. 12

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPAN B				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B2	4	#4	STR	25'-7"	68	25'-7"	68
S1	8	#4	3	4'-3"	23	4'-3"	23
S2	98	#4	3	5'-4"	349	5'-4"	349
✳ S3	51	#5	1	5'-6"	293		
REINFORCING STEEL					440 LBS.		440 LBS.
✳EPOXY COATED REINFORCING STEEL					293 LBS.		
5,000 P.S.I. CONCRETE					7.0 CU. YDS.		7.0 CU. YDS.
½" Ø L.R. STRANDS					No. 24		No. 24

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 GROUT.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

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

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

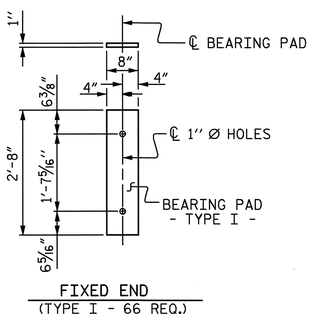
VERTICAL GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION 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.

DEAD LOAD DEFLECTION AND CAMBER	
SPANS A AND C	3'-0" x 1'-9"
CAMBER (SLAB ALONE IN PLACE) ↑	9/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD** ↓	1/16"
FINAL CAMBER ↑	½"

** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER	
SPANS B	3'-0" x 1'-9"
CAMBER (SLAB ALONE IN PLACE) ↑	2⅜"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD** ↓	⅜"
FINAL CAMBER ↑	2"

** INCLUDES FUTURE WEARING SURFACE



FIXED END
(TYPE I - 66 REQ.)

ELASTOMERIC BEARING DETAILS

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL								
BAR	BARS PER SPAN			TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C					
✳ B3	28		28	56	#5	STR	16'-6"	964
✳ B4		28		28	#5	STR	24'-6"	715
✳ S4	70	102	70	242	#5	2	5'-9"	1451
✳EPOXY COATED REINFORCING STEEL				LBS.				3130
CLASS AA CONCRETE				CU.YDS.				27.4
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL								234.92

PROJECT NO. B-3672
JOHNSTON COUNTY
STATION: 17+98.00 -L-
SHEET 7 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : J.D. HAWK/P.K.N. DATE : 1/03
CHECKED BY : J.G. KHARVA/T.L.C. DATE : 7/26/06

DRAWN BY : WJH 4/89
CHECKED BY : FCJ 5/89

REV. 2/6/97	EEM/RGW
REV. 8/16/99	RWW/LES
REV. 10/17/00	RWW/LES

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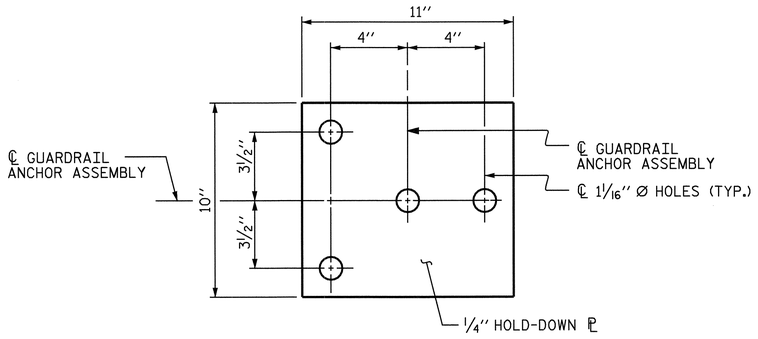
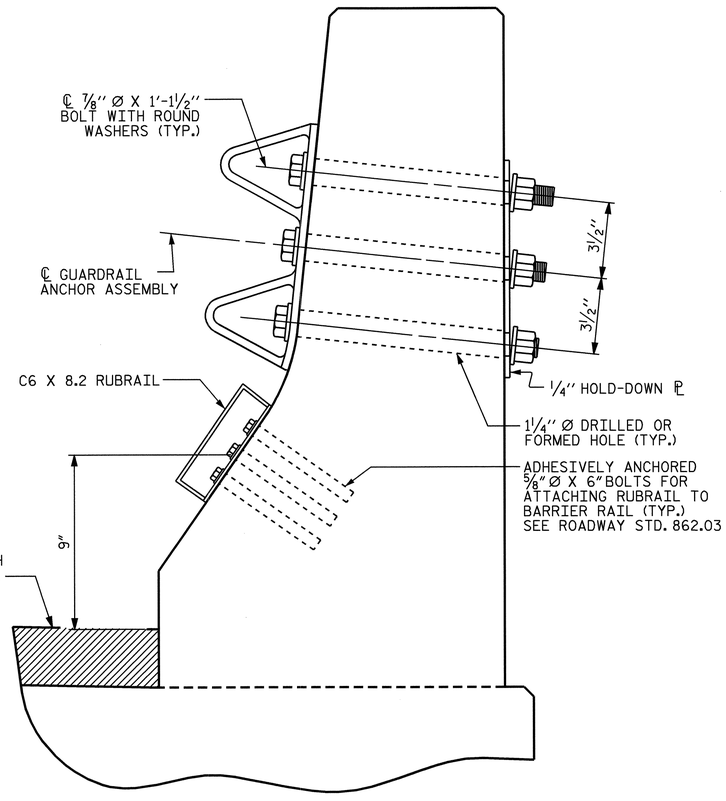
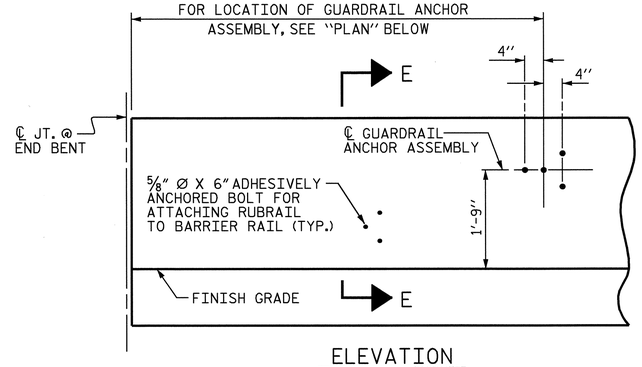


PLAN



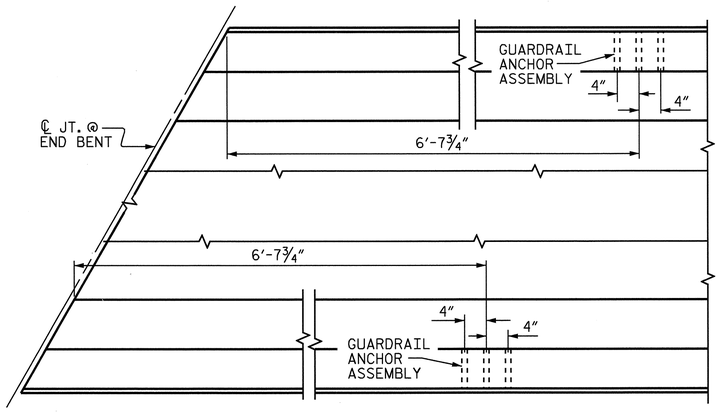
SECTION E-E

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 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 5/8'' Ø X 6'' BOLTS WITH WASHERS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

SKETCH SHOWING POINTS OF ATTACHMENTS

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

GUARDRAIL ANCHORAGE FOR BARRIER RAIL

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
1/3/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : T.L.CLELLAND DATE : 11/06	
CHECKED BY : W.A. DAVIS DATE : 11/06	
DRAWN BY : TLA 5/06	ADDED 5/1/06
CHECKED BY : GM 5/06	

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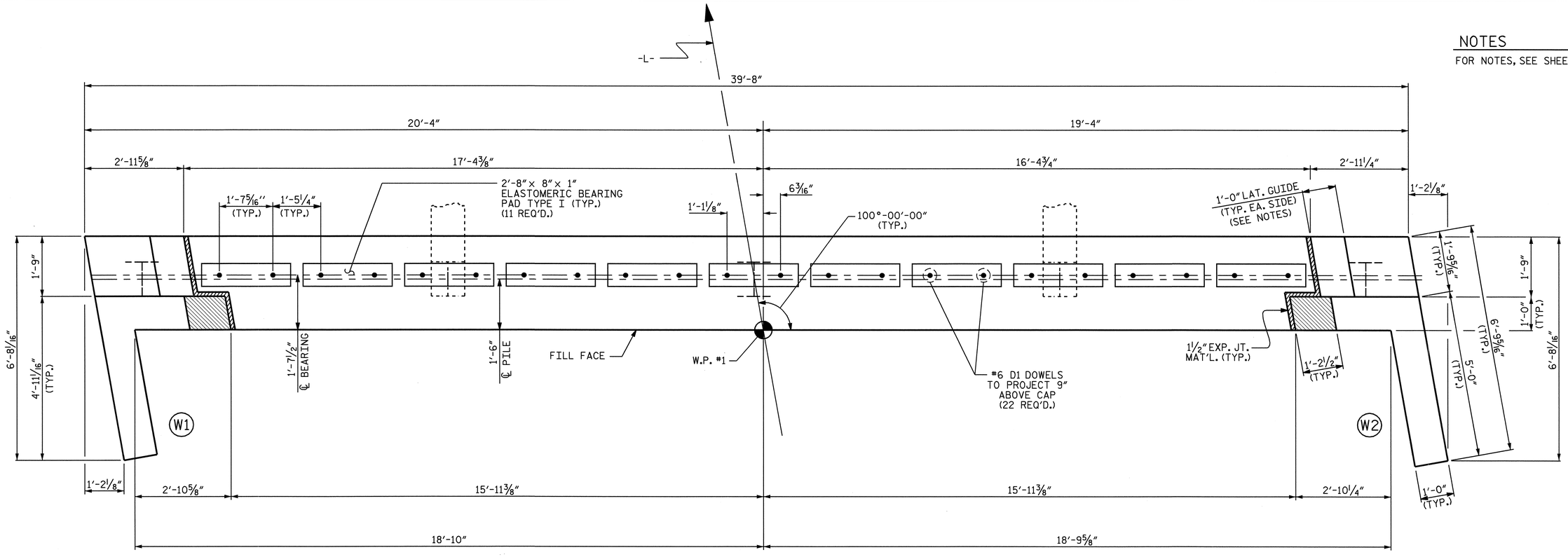
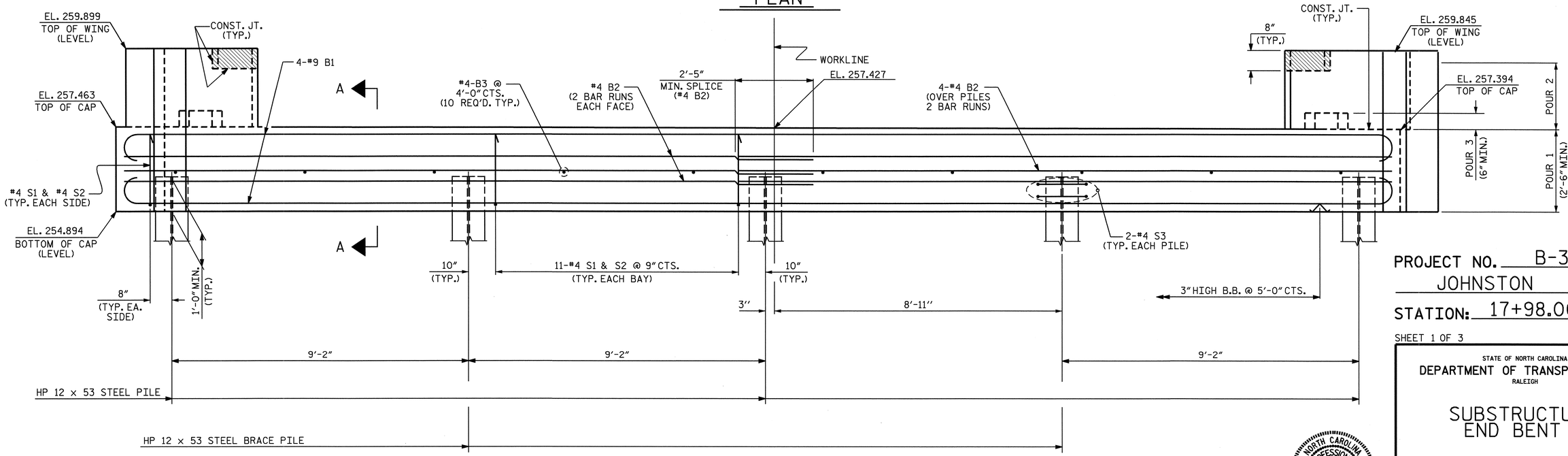
(SHT 2) STD. NO. GRA2

NOTES

FOR NOTES, SEE SHEET 3 OF 3.



PLAN



ELEVATION

(FOR WING REINFORCING STEEL AND DETAILS SEE SHEET 2 OF 3)

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM M. DAVIS
1/19/07

DRAWN BY : J.B. WILSON / P.K.N. DATE : 2/10/06
CHECKED BY : T.L. CLELAND DATE : 8/4/06

19-JAN-2007 14:28
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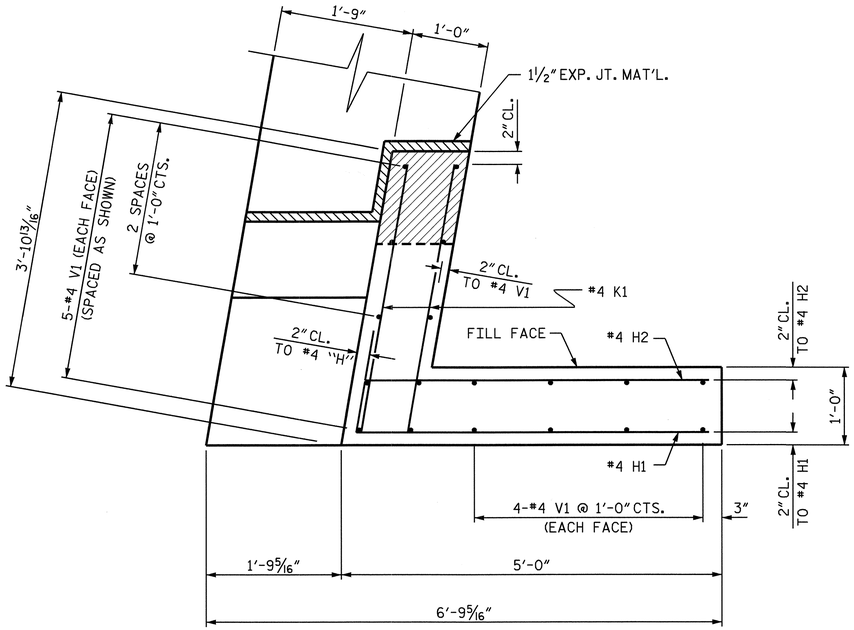
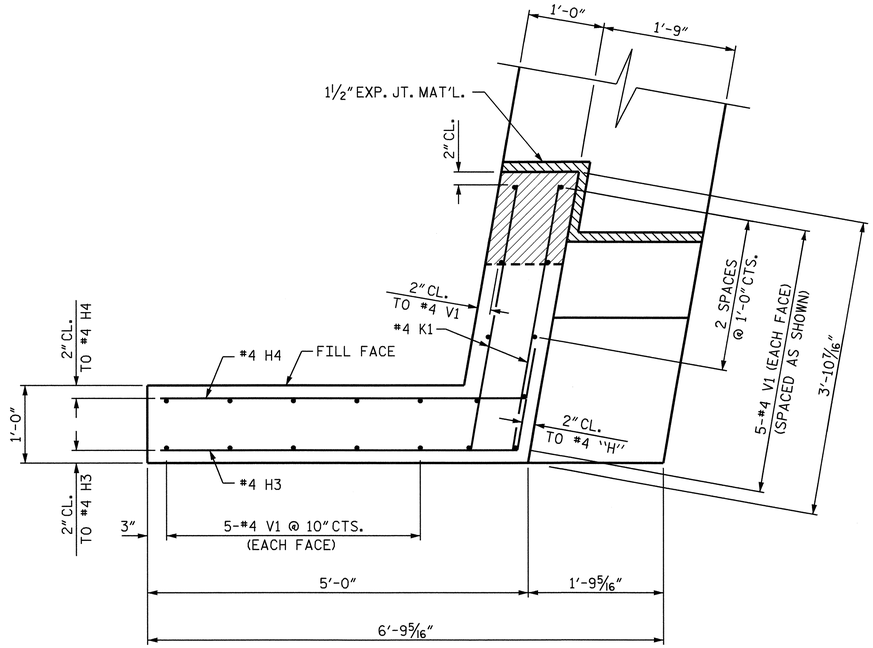
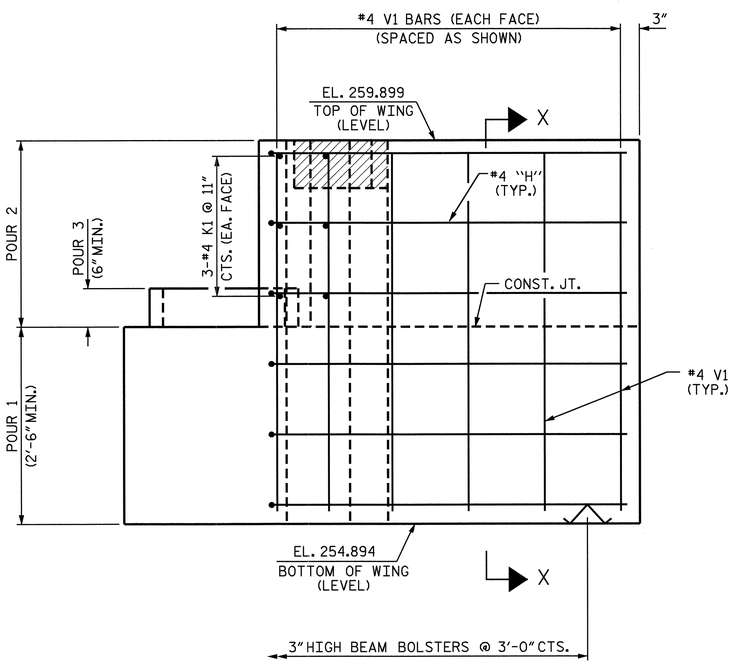


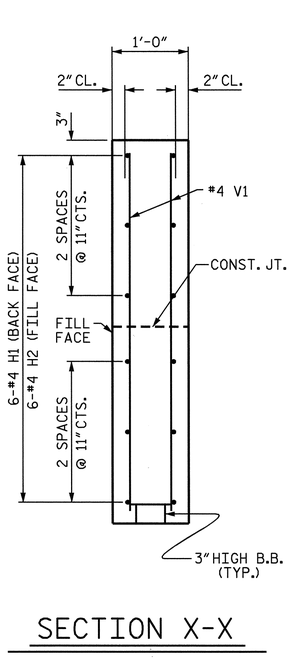
PLAN OF WING (W1)



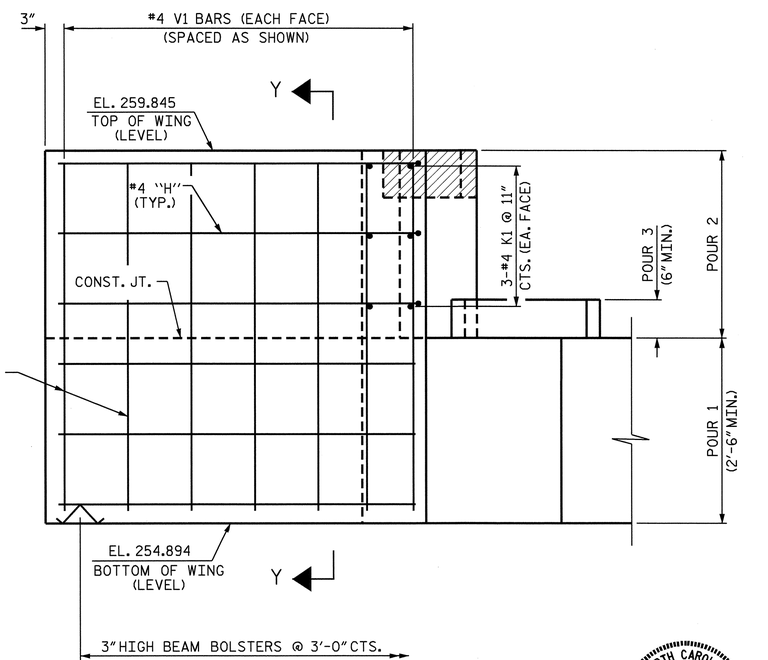
PLAN OF WING (W2)



ELEVATION OF WING (W1)



SECTION X-X



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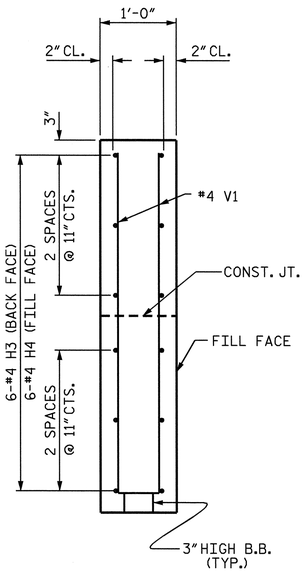

SECTION Y-Y

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
1/3/07

DRAWN BY : J.B. WILSON / P.K.N. DATE : 2/10/06
CHECKED BY : T.L. CLELAND DATE : 8/4/06

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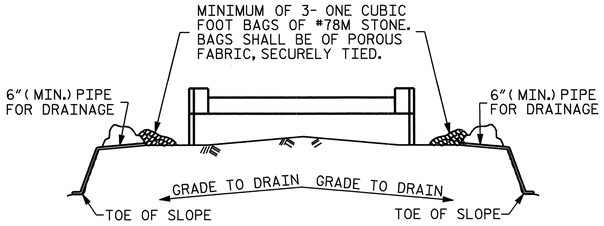
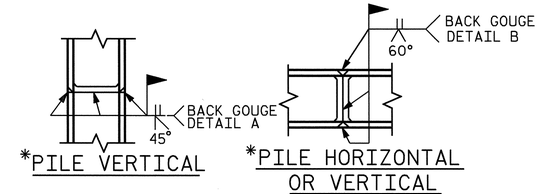


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

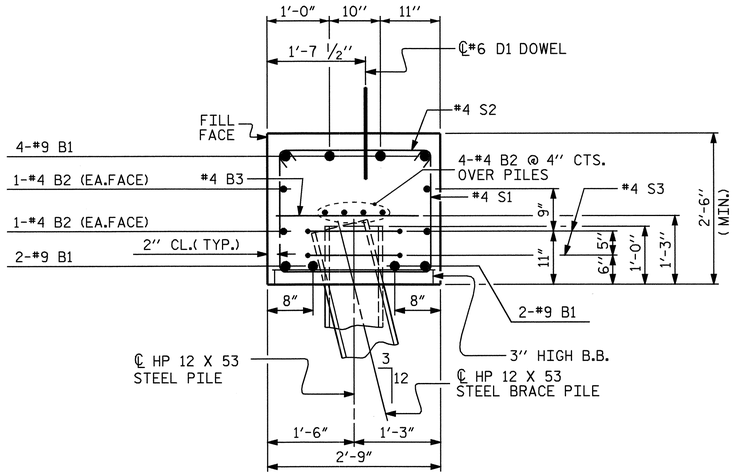
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

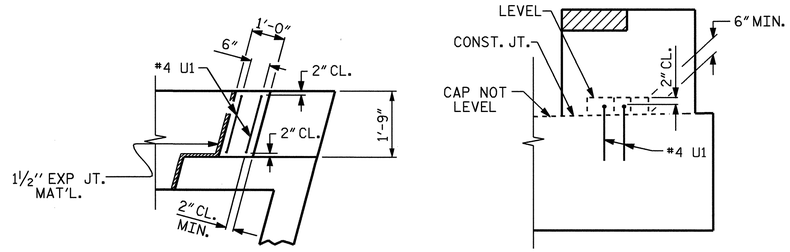


*POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

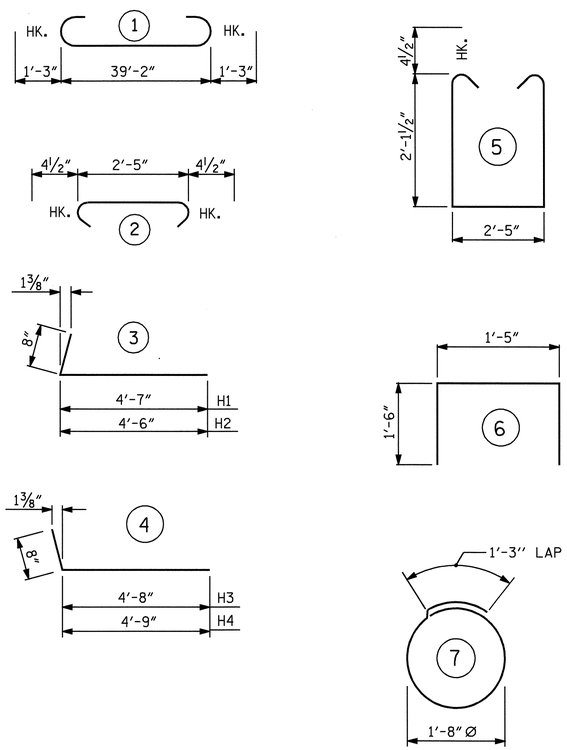


SECTION A-A



LATERAL GUIDE DETAILS

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	41'-8"	1134
B2	16	#4	STR	20'-10"	223
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	6	#4	3	5'-3"	21
H2	6	#4	3	5'-2"	21
H3	6	#4	4	5'-4"	21
H4	6	#4	4	5'-5"	22
K1	12	#4	STR	3'-6"	28
S1	46	#4	5	7'-5"	228
S2	46	#4	2	3'-2"	97
S3	10	#4	7	6'-6"	43
U1	4	#4	6	4'-5"	12
V1	38	#4	STR	4'-8"	118

REINFORCING STEEL = 2034 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1 (CAP & LOWER PART OF WINGS) ____ 10.2 C.Y.

POUR #2 (UPPER PART OF WINGS) ____ 1.4 C.Y.

POUR #3 (LATERAL GUIDE) ____ 0.1 C.Y.

TOTAL CLASS A CONCRETE ____ 11.7 C.Y.

HP 12 X 53 STEEL PILES
NO. 5 100 LIN. FT.

NOTES

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

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 CORED SLAB UNITS ARE IN PLACE.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 1

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS

1/19/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : J.B. WILSON / P.K.N. DATE : 12/01/05
CHECKED BY : T.L. CLELAND DATE : 8/4/06

19-JAN-2007 14:28
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tcleland

NOTES

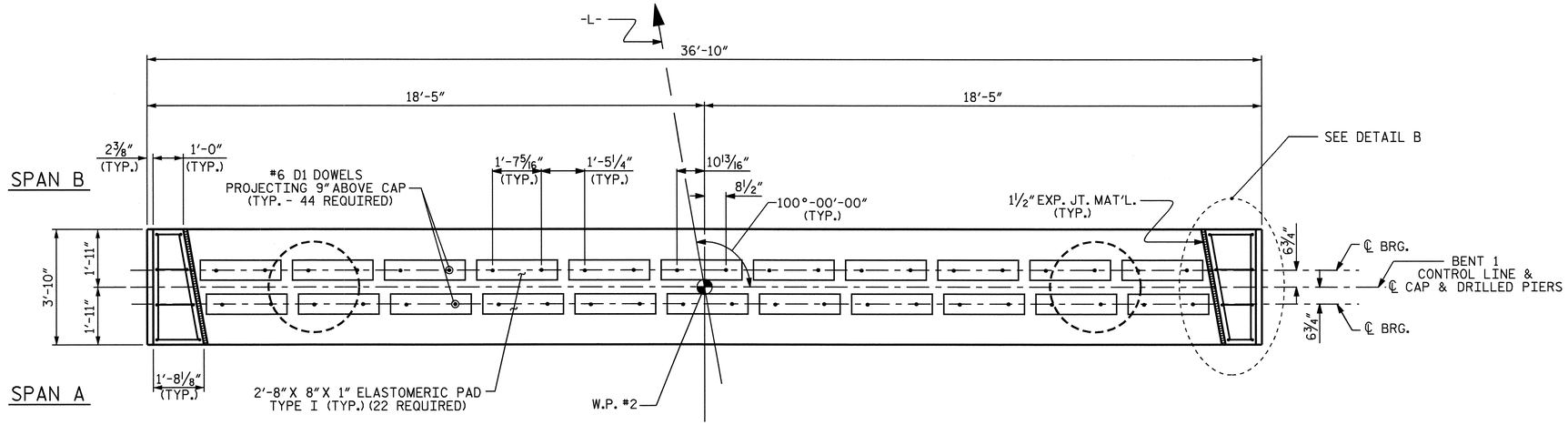
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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

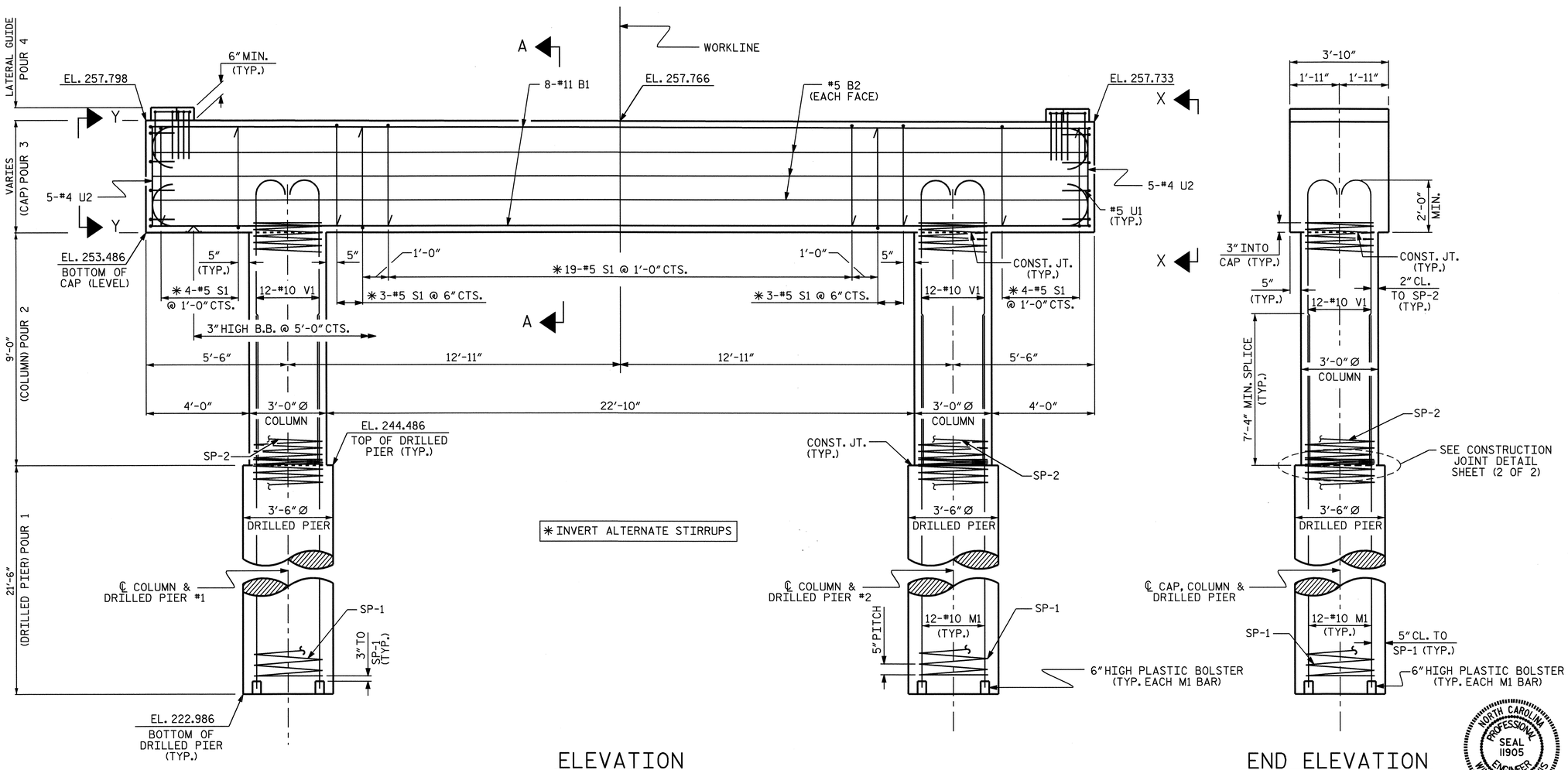
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

NO SEPARATE PAYMENT SHALL BE MADE FOR ANY ADDITIONAL STEEL REQUIRED IN CONSTRUCTION OF THE DRILLED PIER AS THIS IS CONSIDERED INCIDENTAL TO THE LINEAR FOOT PRICE FOR DRILLED PIER.

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

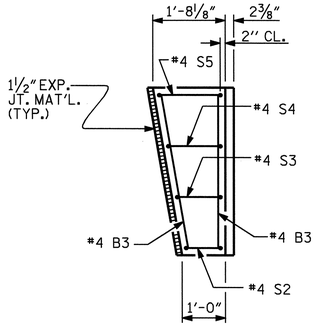


PLAN

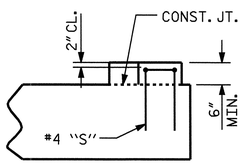


ELEVATION

END ELEVATION



PLAN



ELEVATION

DETAIL B

(TYP. EA. LATERAL GUIDE)

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00-L-

SHEET 1 OF 2

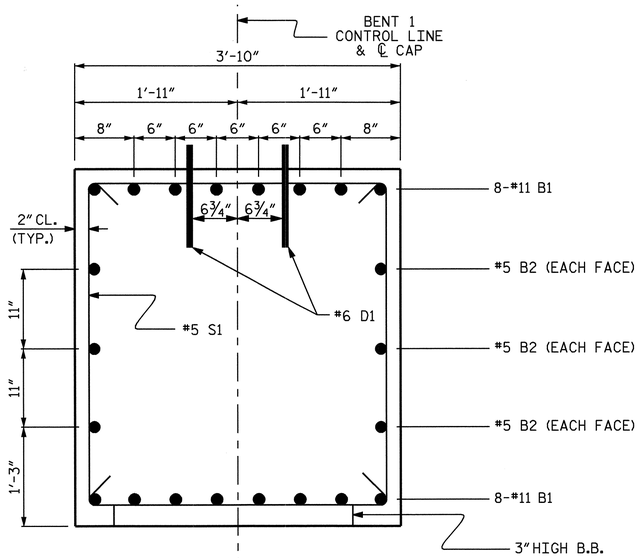
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE BENT 1

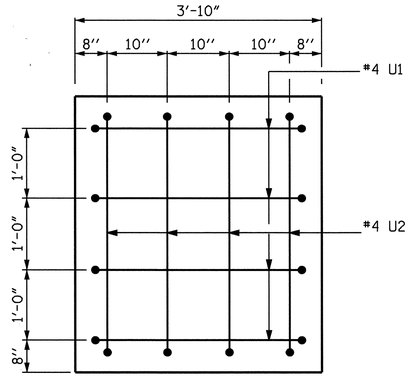
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : J.B. WILSON DATE : 1/27/06
CHECKED BY : T.L. CLELAND DATE : 2/28/06

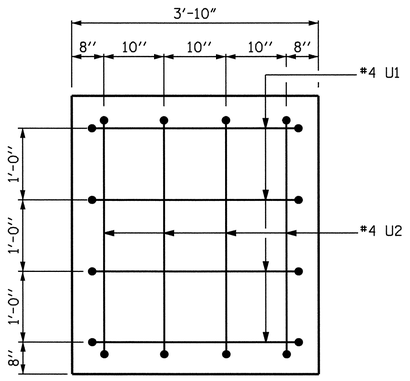
NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM ALDAVIS BROWN
11/19/07



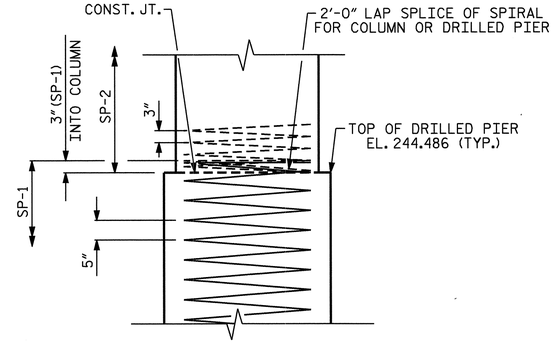
SECTION A-A



SECTION X-X

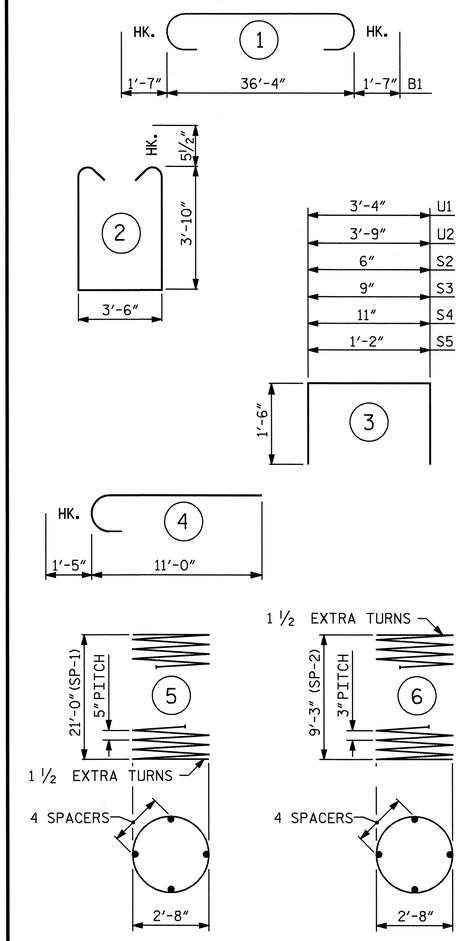


SECTION Y-Y



CONSTRUCTION JOINT DETAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#11	1	39'-6"	3358
B2	6	#5	STR	36'-6"	228
B3	4	#4	STR	3'-6"	9
D1	44	#6	STR	1'-6"	99
M1	24	#10	STR	31'-7"	3262
S1	33	#5	2	12'-1"	416
S2	2	#4	3	3'-6"	5
S3	2	#4	3	3'-9"	5
S4	2	#4	3	3'-11"	5
S5	2	#4	3	4'-2"	6
U1	8	#4	3	6'-4"	34
U2	8	#4	3	6'-9"	36
V1	24	#10	4	12'-5"	1282
SP-1	2	*	5	426'-10"	890
SP-2	2	**	6	317'-8"	424

REINFORCING STEEL = 10059 LBS

SPIRAL COLUMN REINFORCING STEEL
= 1314 LBS.

CLASS A CONCRETE

POUR #2 (COLUMNS)	4.7 C.Y.
POUR #3 CAP	22.4 C.Y.
POUR #4 LATERAL GUIDE	0.2 C.Y.
TOTAL	27.3 C.Y.

DRILLED PIERS

DRILLED PIER CONCRETE
POUR #1 (DRILLED PIERS) 15.3 C.Y.

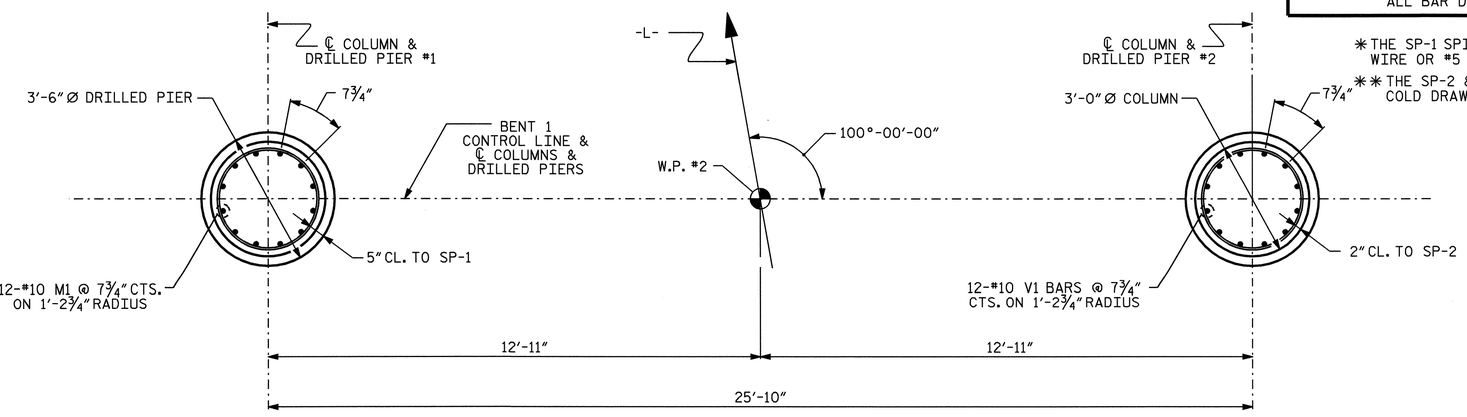
3'-6"Ø DRILLED PIERS IN SOIL
23.0 LIN. FT.

3'-6"Ø DRILLED PIERS NOT IN SOIL
20.0 LIN. FT.

PERMANANT STEEL CASING
FOR 3'-6"Ø DRILLED PIERS LIN. FT. = 25.0

CROSSHOLE SONIC LOGGING 1 EACH

CSL TUBES LIN. FT. = 192.0



PLAN OF DRILLED PIERS

PLAN OF COLUMNS

PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE
TYPICAL FOR ALL COLUMNS AND DRILLED PIERS)

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

** THE SP-2 & SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
1/19/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : J.B. WILSON DATE : 1/26/06
CHECKED BY : T.L. CLELAND DATE : 2/28/06

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NOTES

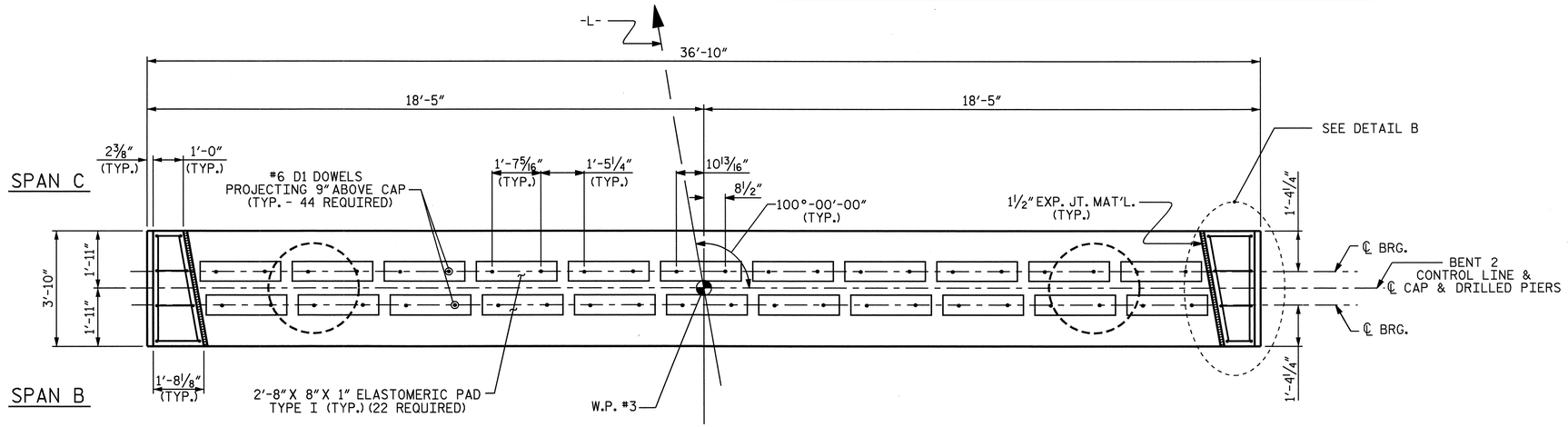
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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

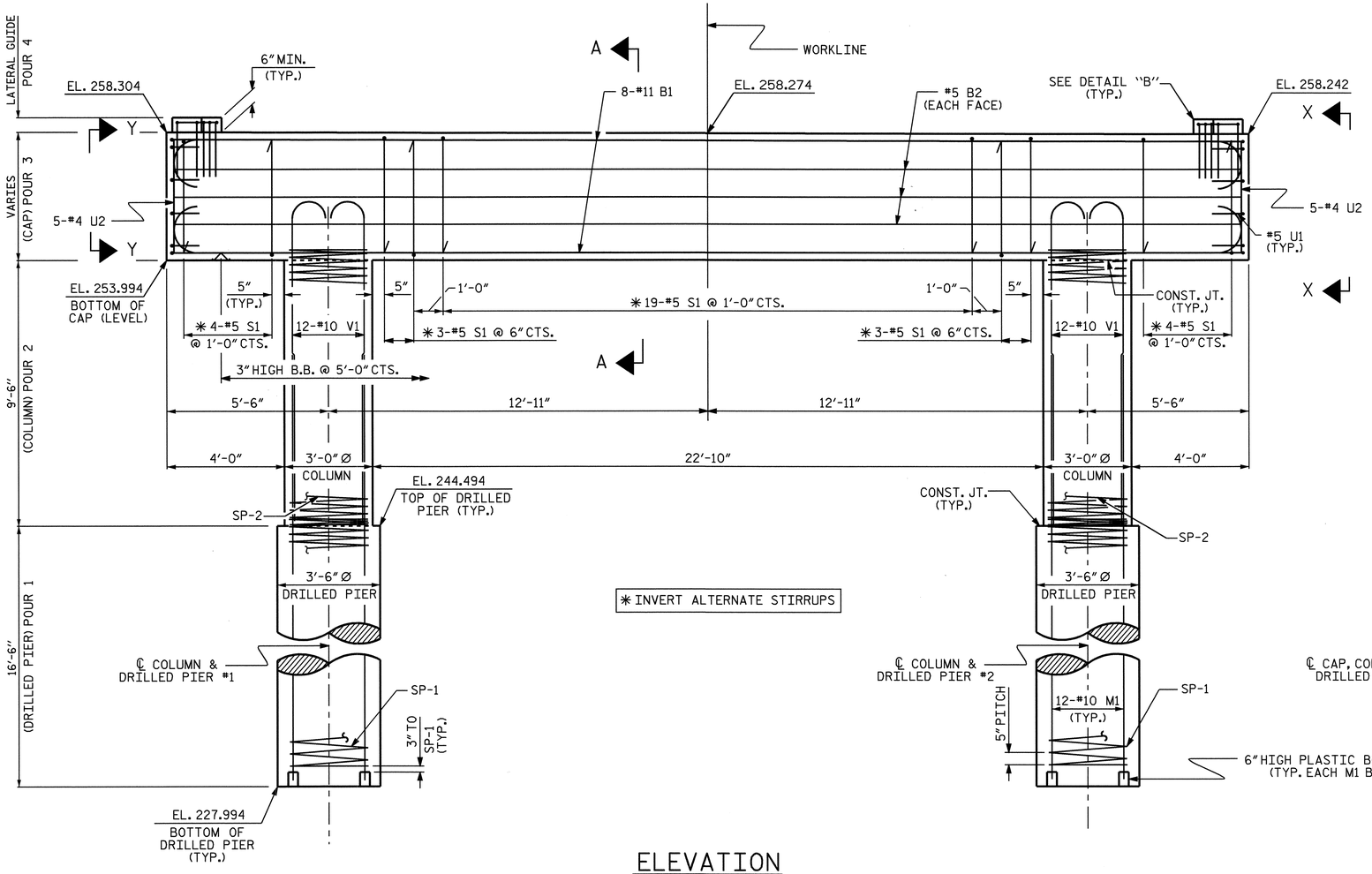
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

NO SEPARATE PAYMENT SHALL BE MADE FOR ANY ADDITIONAL STEEL REQUIRED IN CONSTRUCTION OF THE DRILLED PIER AS THIS IS CONSIDERED INCIDENTAL TO THE LINEAR FOOT PRICE FOR DRILLED PIER.

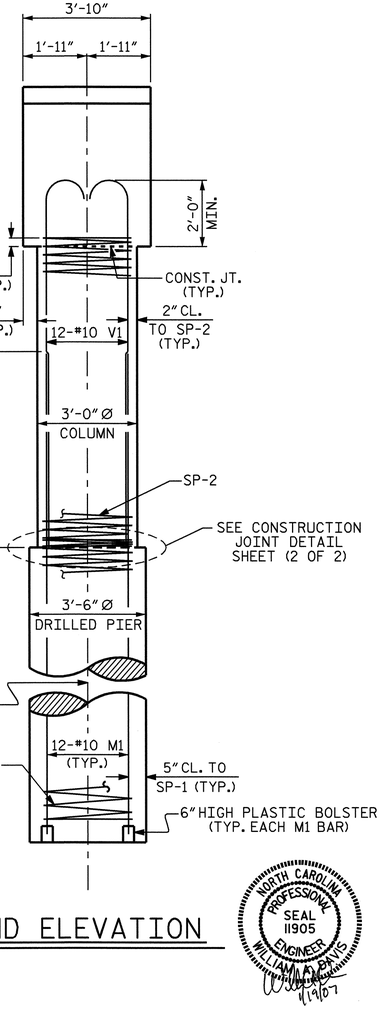
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.



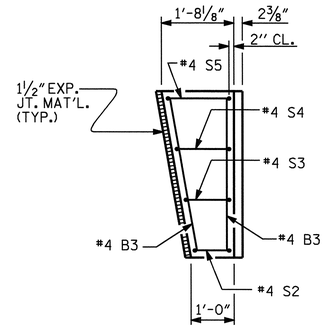
PLAN



ELEVATION



END ELEVATION



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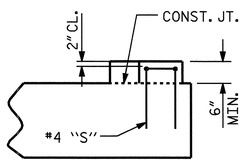


ELEVATION

DETAIL B

(TYP. EA. LATERAL GUIDE)

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00-L-

SHEET 1 OF 2

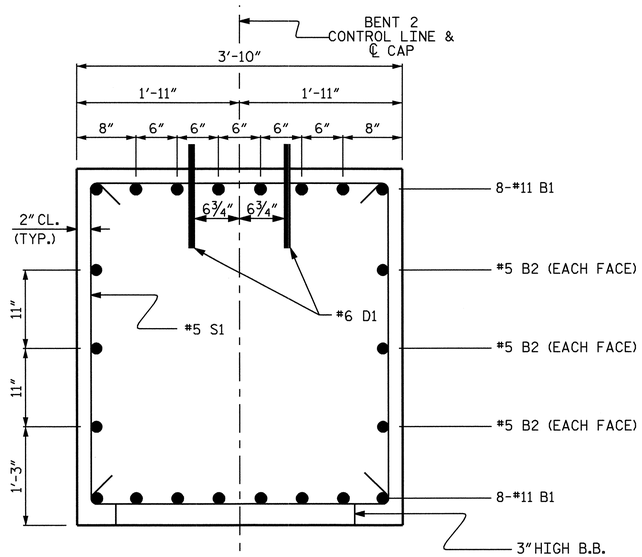
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE BENT 2

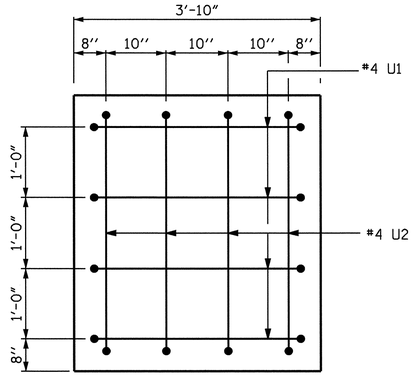
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM D. PARIS 4/19/07

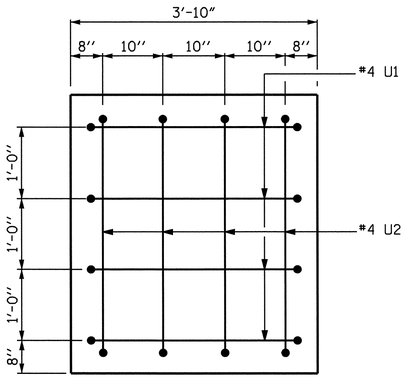
DRAWN BY : J.B. WILSON DATE : 1/27/06
CHECKED BY : T.L. CLELAND DATE : 2/28/06



SECTION A-A



SECTION X-X



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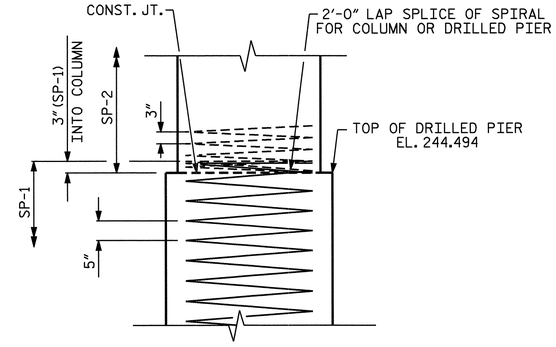
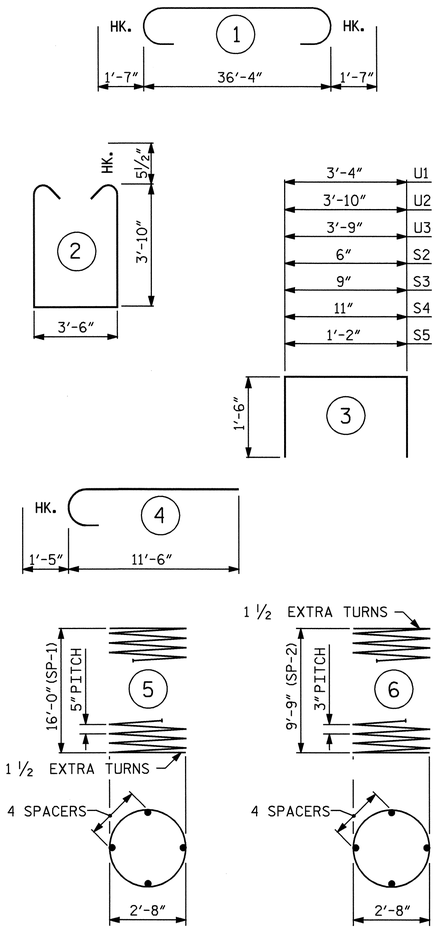


CONSTRUCTION JOINT DETAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#11	1	39′-6″	3358
B2	6	#5	STR	36′-6″	228
B3	4	#4	STR	3′-6″	9
D1	44	#6	STR	1′-6″	99
M1	24	#10	STR	26′-4″	2719
S1	33	#5	2	12′-1″	416
S2	2	#4	3	3′-6″	5
S3	2	#4	3	3′-9″	5
S4	2	#4	3	3′-11″	5
S5	2	#4	3	4′-2″	6
U1	8	#4	3	6′-4″	34
U2	8	#4	3	6′-9″	36
V1	24	#10	4	12′-11″	1334
SP-1	2	✳	5	328′-2″	685
SP-2	2	✳✳	6	334′-2″	446

REINFORCING STEEL = 9385 LBS

SPIRAL COLUMN REINFORCING STEEL
= 1131 LBS.

CLASS A CONCRETE

POUR #2 (COLUMNS)	5.0 C.Y.
POUR #3 CAP	22.4 C.Y.
POUR #4 LATERAL GUIDE	0.2 C.Y.
TOTAL	27.6 C.Y.

DRILLED PIERS

DRILLED PIER CONCRETE

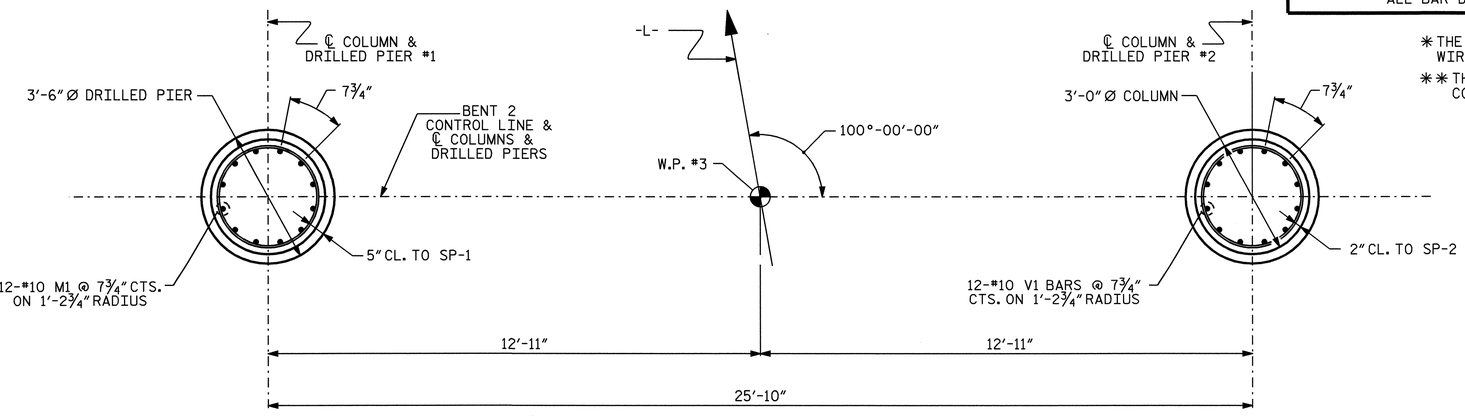
POUR #1 (DRILLED PIERS)	11.8 C.Y.

3′-6″ Ø DRILLED PIERS IN SOIL
15.0 LIN. FT.

3′-6″ Ø DRILLED PIERS NOT IN SOIL
18.0 LIN. FT.

PERMANANT STEEL CASING
FOR 3′-6″ Ø DRILLED PIERS LIN. FT. = 15.0

CSL TUBES LIN. FT. = 152.0



PLAN OF DRILLED PIERS

PLAN OF COLUMNS

PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE
TYPICAL FOR ALL COLUMNS AND DRILLED PIERS)

✳ THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

✳✳ THE SP-2 & SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 2

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/19/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : J.B. WILSON DATE : 1/26/06
CHECKED BY : T.L. CLELAND DATE : 2/28/05

19-JAN-2007 14:26
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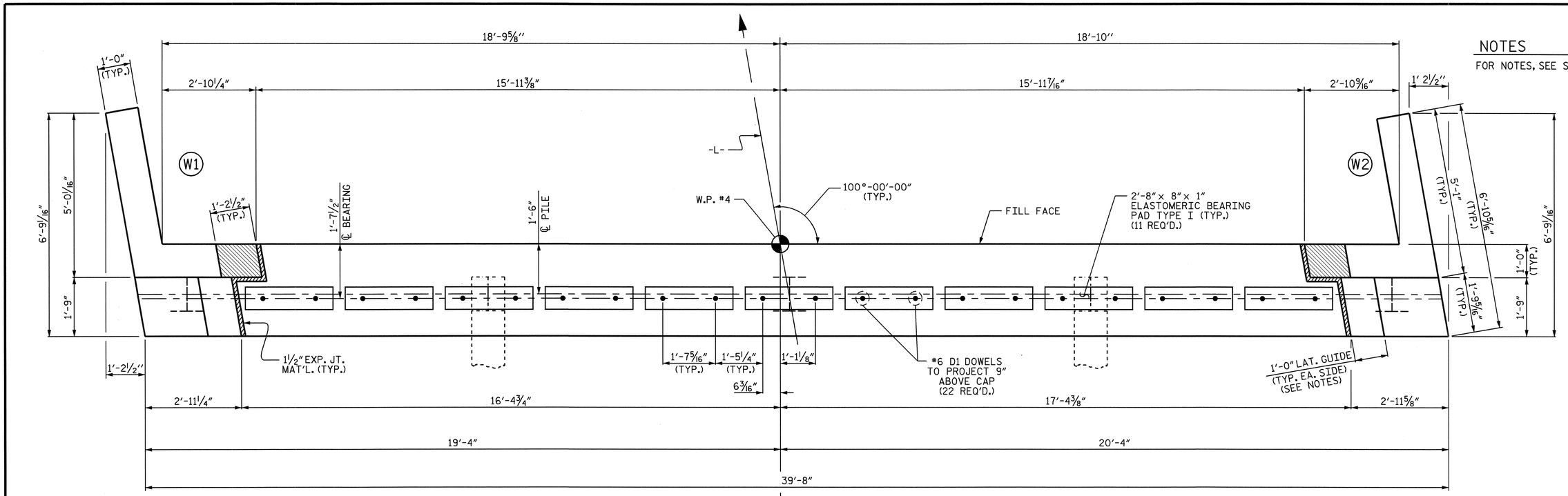
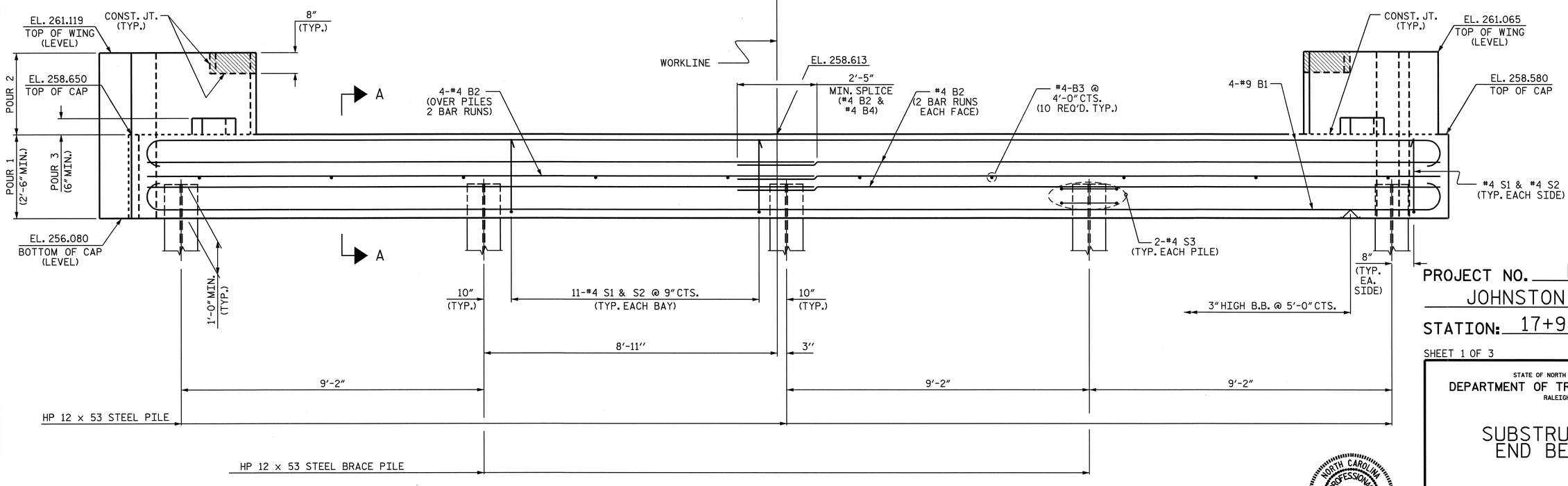


PLAN

NOTES

FOR NOTES, SEE SHEET 3 OF 3.



ELEVATION

FOR WING REINFORCING STEEL AND DETAILS, SEE SHEET 2 OF 3)

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
1/3/07

DRAWN BY : J.B. WILSON / P.K.N. DATE : 2/10/06
CHECKED BY : T.L. CLELAND DATE : 8/4/06

02-JAN-2007 12:38
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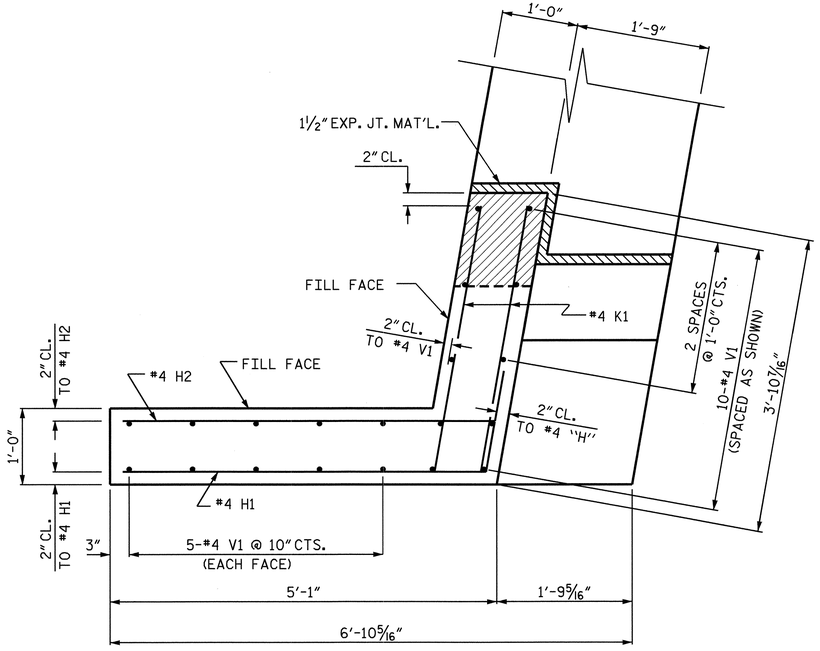
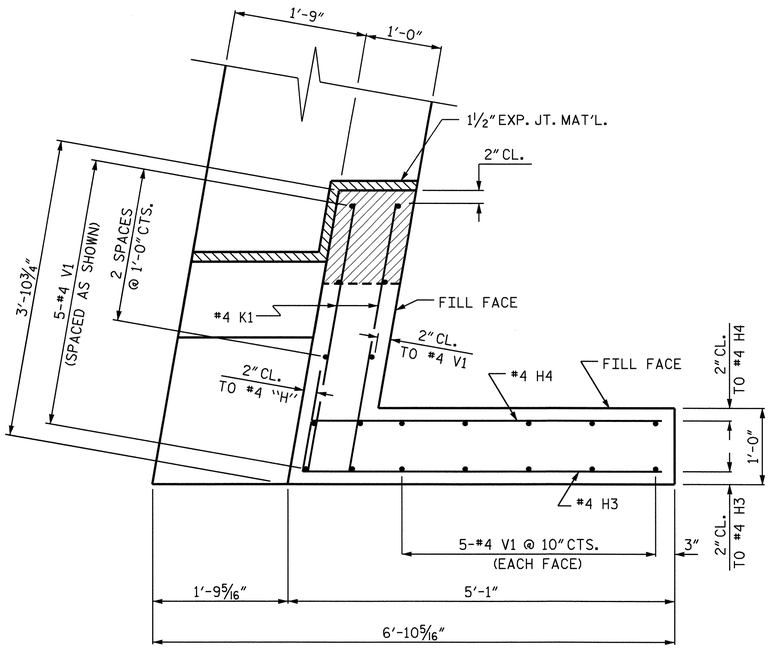
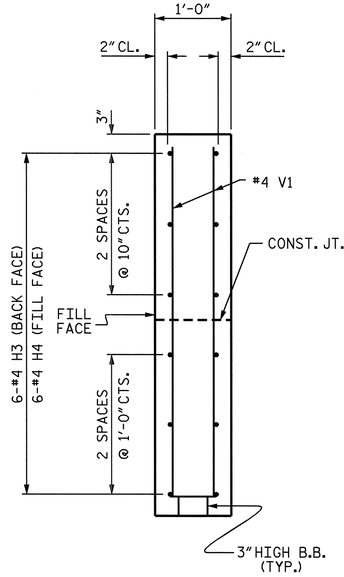


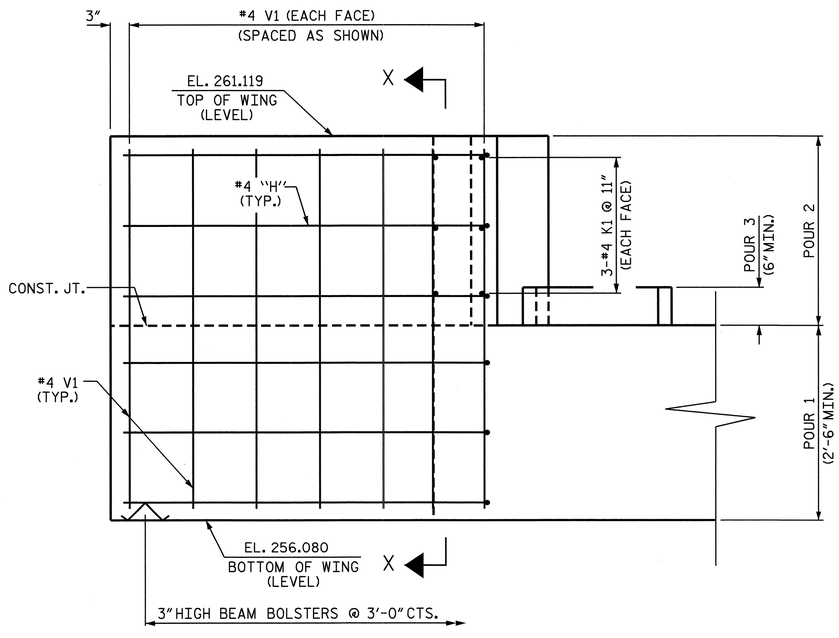
PLAN OF WING (W1)



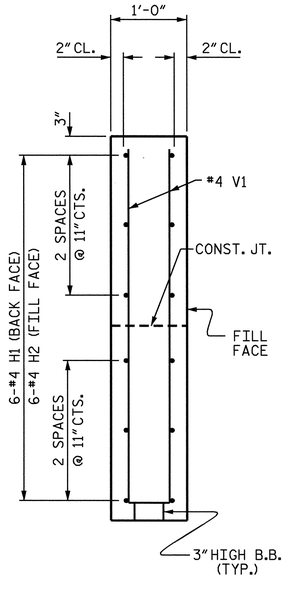
PLAN OF WING (W2)



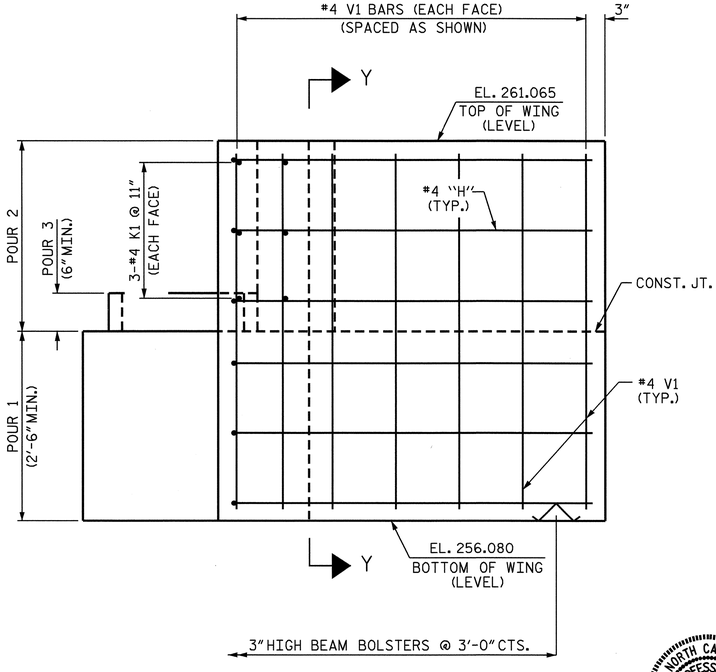
SECTION Y-Y



ELEVATION OF WING (W1)



SECTION X-X



ELEVATION OF WING (W2)

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : J.B. WILSON / P.K.N. DATE : 2/10/06
CHECKED BY : T.L. CLELAND DATE : 8/4/06

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS 1/3/07

02-JAN-2007 12:38
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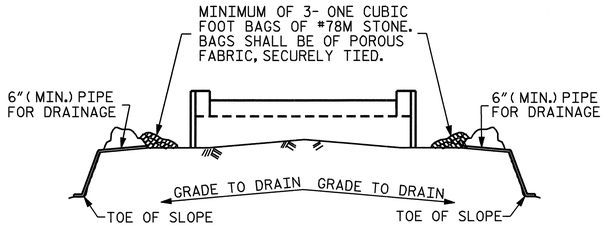
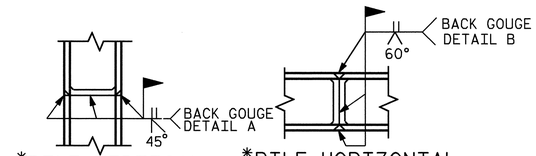


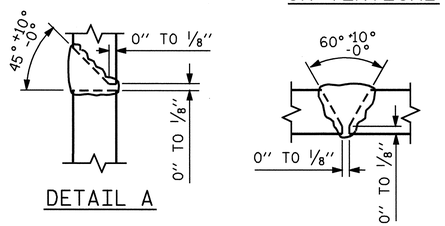
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

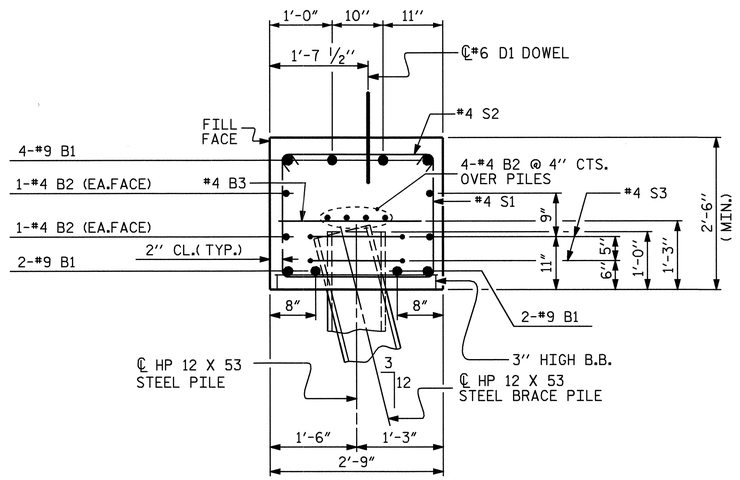
TEMPORARY DRAINAGE AT END BENT





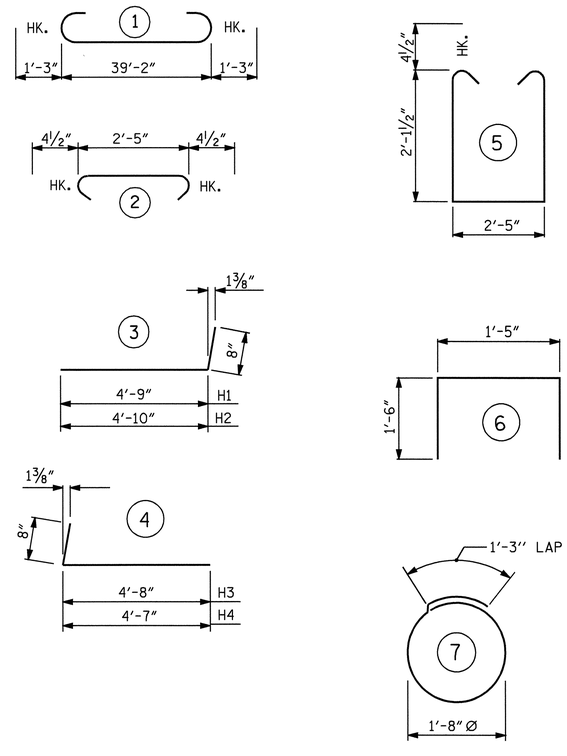
*POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



SECTION A-A

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	41'-8"	1134
B2	16	#4	STR	20'-10"	223
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	6	#4	3	5'-5"	22
H2	6	#4	3	5'-6"	22
H3	6	#4	4	5'-4"	21
H4	6	#4	4	5'-3"	21
K1	12	#4	STR	3'-6"	28
S1	46	#4	5	7'-5"	228
S2	46	#4	2	3'-2"	97
S3	10	#4	7	6'-6"	47
U1	4	#4	6	4'-5"	12
V1	38	#4	STR	4'-8"	118

REINFORCING STEEL = 2039 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1 (CAP & LOWER PART OF WINGS) ____ 10.2 C.Y.

POUR #2 (UPPER PART OF WINGS) ____ 1.5 C.Y.

POUR #3 (LATERAL GUIDE) ____ 0.1 C.Y.

TOTAL CLASS A CONCRETE ____ 11.8 C.Y.

HP 12 X 53 STEEL PILES
NO. 5 75 LIN. FT.

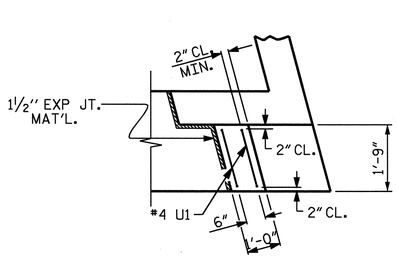
NOTES

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

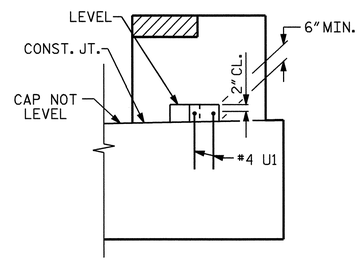
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4"DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



PLAN



ELEVATION

LATERAL GUIDE DETAILS

PROJECT NO. B-3672
JOHNSTON COUNTY
STATION: 17+98.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/19/07

DRAWN BY : J.B. WILSON / P.K.N. DATE : 2/10/06
CHECKED BY : T.L. CLELAND DATE : 8/4/06

19-JAN-2007 14:26
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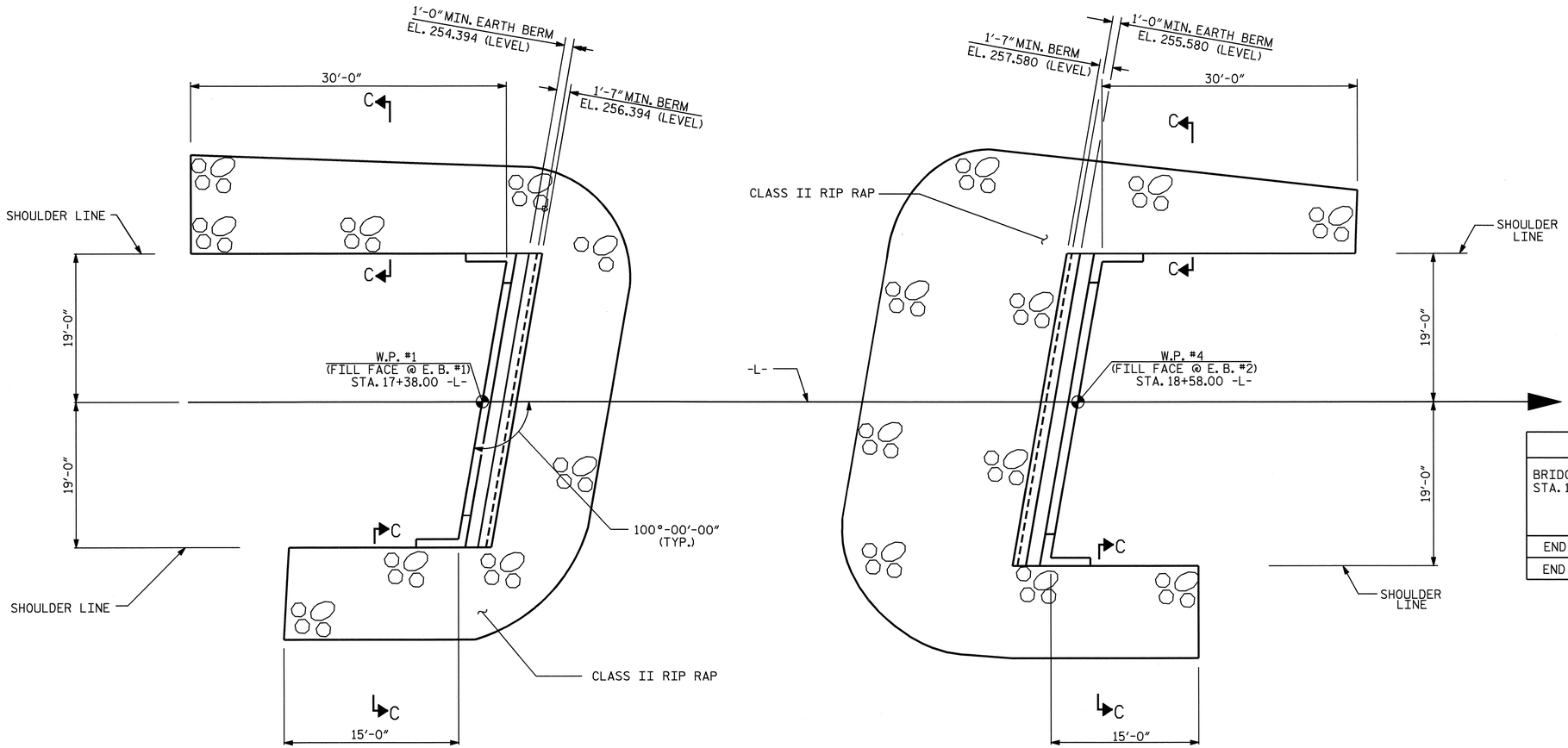
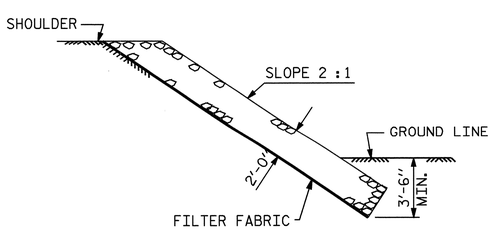


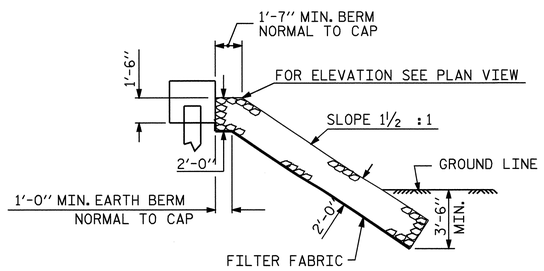
END BENT #1

END BENT #2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 17+98.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	490	545
END BENT #2	420	467



SECTION C-C



℄ SECTION

BERM RIP RAPPED

PROJECT NO. B-3672
JOHNSTON COUNTY
STATION: 17+98.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

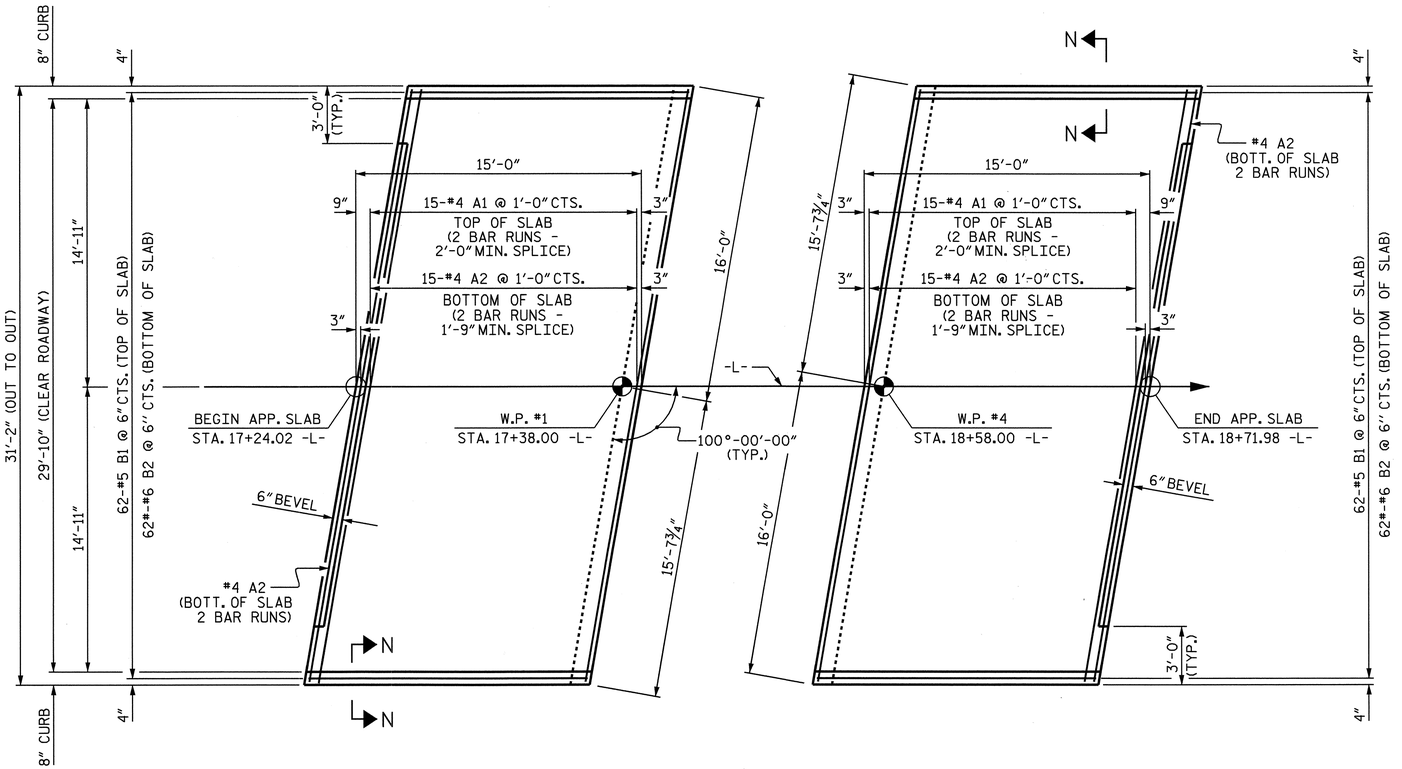
RIP RAP DETAILS

ASSEMBLED BY : J.G. KHARVA	DATE : 6/02
CHECKED BY : T.L. CLELLAND	DATE : 11/06
DRAWN BY : FCJ 2/88	REV. 7/17/98 REK/RWW
CHECKED BY : ARB 8/88	REV. 8/16/99 RWW/LES
	REV. 10/17/00 RWW/LES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			24

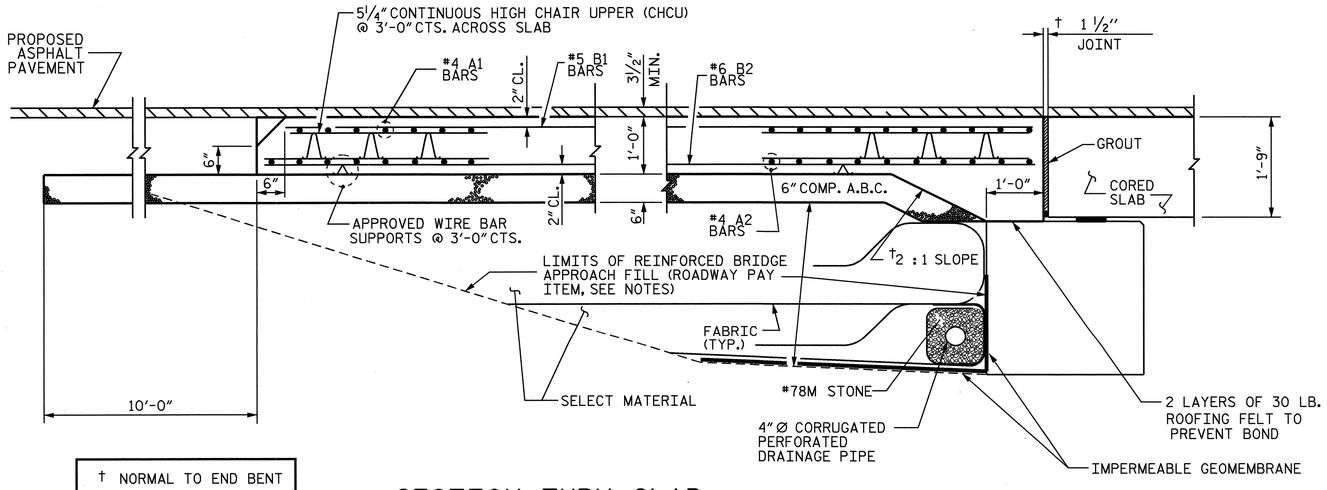
SKEW 90°

STD. NO. RR2



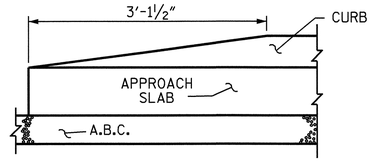
PLAN @ END BENT 1 PLAN @ END BENT 2

(DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS)

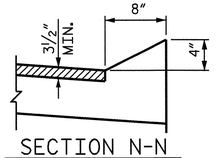


† NORMAL TO END BENT

SECTION THRU SLAB



END OF CURB WITHOUT
SHOULDER BERM GUTTER



SECTION N-N

NOTES

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

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

THE 6" COMP. A.B.C. SHALL 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.

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

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

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A1	30	#4	STR	16'-8"	334
A2	32	#4	STR	16'-7"	354
✳B1	62	#5	STR	14'-1"	911
B2	62	#6	STR	14'-7"	1358
REINFORCING STEEL				LBS.	1712
✳EPOXY COATED REINFORCING STEEL				LBS.	1245
CLASS AA CONCRETE BREAKDOWN					
CLASS AA CONCRETE				C.Y.	19.1

SPLICE CHART

BAR	SPLICE LENGTH
#4 A1	2'-0"
#4 A2	1'-9"

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB

ASSEMBLED BY : J.B. WILSON	DATE : 2/05/06		
CHECKED BY : T.L. CLELAND	DATE : 3/01/06		
DRAWN BY : LES 8/01	REV. 10/17/00	RWW/LES	
CHECKED BY : RDR 8/01	REV. 7/10/01	LES/RDR	
	REV. 5/7/03R	RWW/JTE	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS

1/30/07

STD. NO. BAS7

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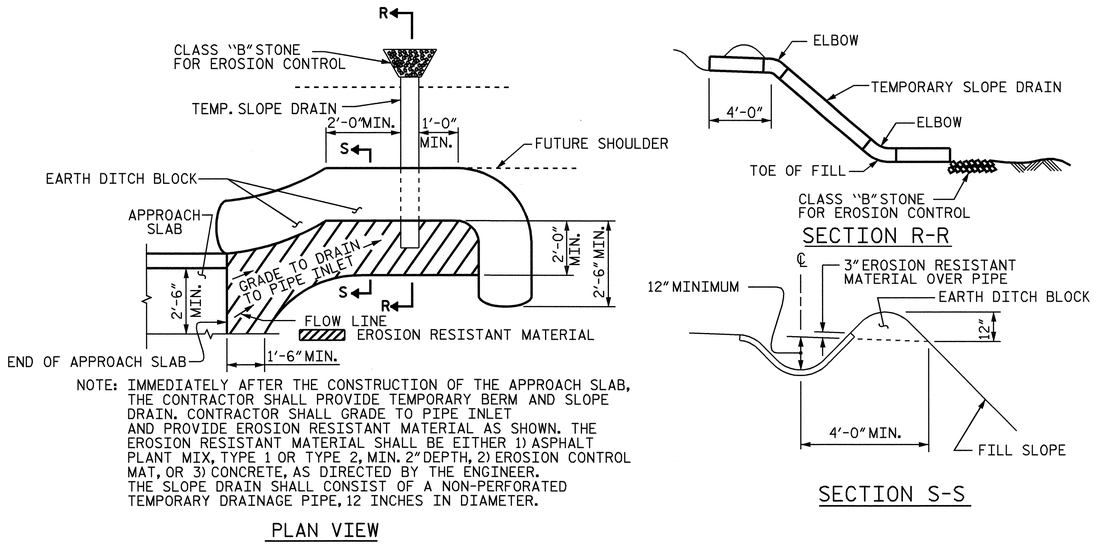


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

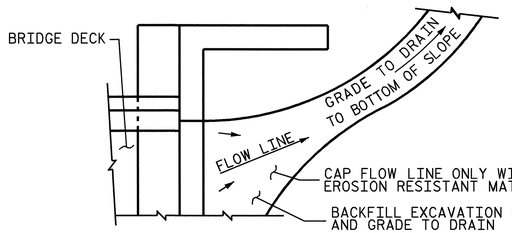
PLAN VIEW

SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

TEMPORARY DRAINAGE DETAIL

ASSEMBLED BY :	J.B. WILSON	DATE :	2/05/06
CHECKED BY :	T.L. CLELAND	DATE :	3/01/06
DRAWN BY : FCJ	11/88	REV. 8/16/99	MAB/LES
CHECKED BY : ARB	11/88	REV. 10/17/00	RWW/LES
		REV. 5/7/03	RWW/JTE

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NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
1/3/07

PROJECT NO. B-3672

JOHNSTON COUNTY

STATION: 17+98.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB DETAILS

1988

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			24

STD. NO. BAS10

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 2002 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; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

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 WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. 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.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11.

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.

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