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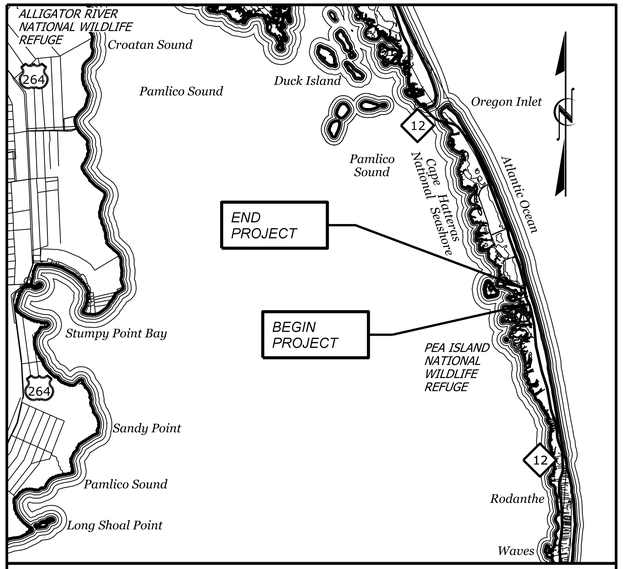
This file or an individual page shall not be considered a certified document.

TIP PROJECT: B-2500AB

CONTRACT: C203756



VICINITY MAP N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

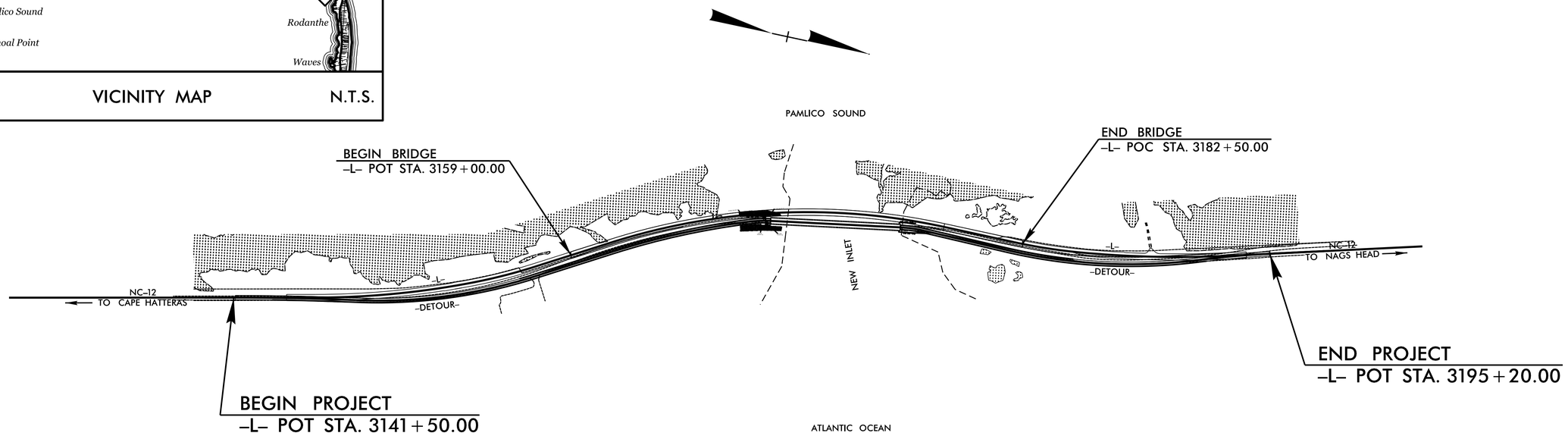
DARE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-2500AB		

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
32635.1.3	BRNHF-0012(62)	P.E.
32635.3.9	BRNHF-0012(62)	CONST.

LOCATION: PHASE II, NC-12 SHORT-TERM IMPROVEMENTS AT PEA ISLAND

TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE



STRUCTURES

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGN DATA

ADT 2012 = 7,300
ADT 2032 = 10,900
K = N/A %
D = N/A %
T = 6% % **
* V = 55 MPH
** (TTST 1%, DUAL 5%)

FUNC CLASS = COLLECTOR

REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-2500AB = 0.572 MILES
LENGTH STRUCTURE TIP PROJECT B-2500AB = 0.445 MILES

TOTAL LENGTH TIP PROJECT B-2500AB = 1.017 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE :

OCTOBER 20, 2015

B.C. HANKS, P.E.
PROJECT ENGINEER

T.M. GARRISON, P.E.
PROJECT DESIGN ENGINEER

F.A. PROJECT No. - BRNHF-0012(62)

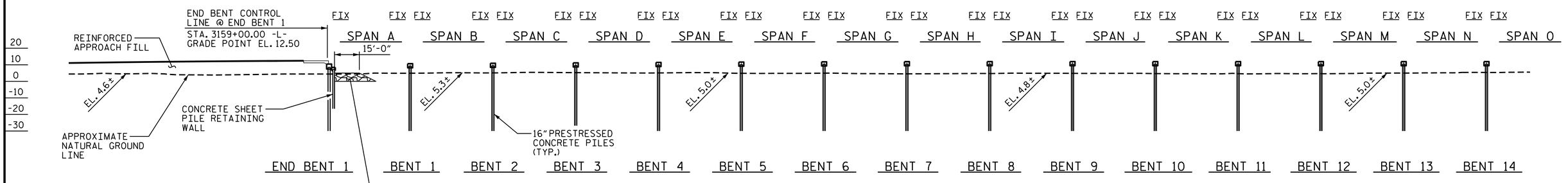
3158+00 3159+00 3160+00 3161+00 3162+00 3163+00 3164+00 3165+00 3166+00

+2.1000% +0.5000%

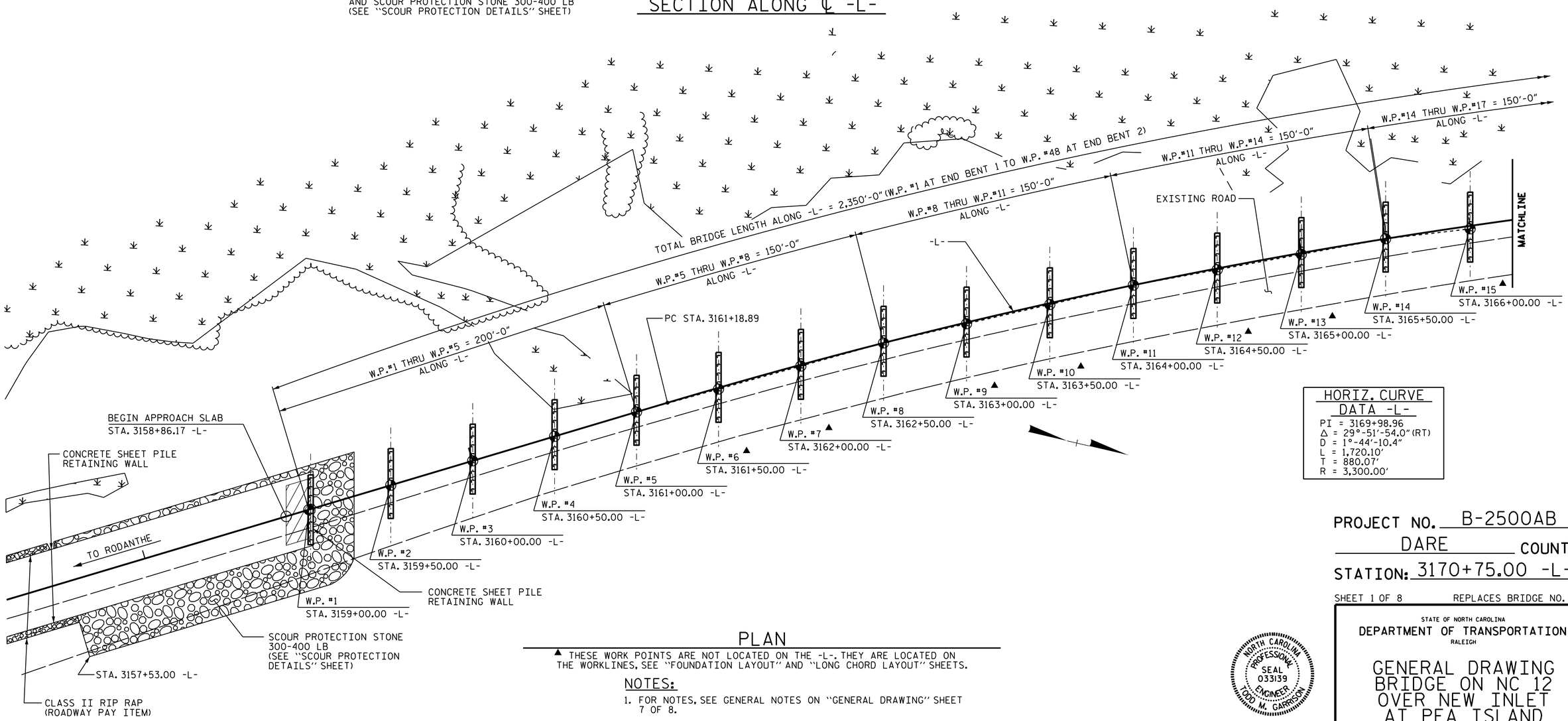
PI = 3157+70.00 -L-
EL. = 11.85'
VC = 200'

+0.5000% +0.0000%

PI = 3162+00.00 -L-
EL. = 14.00'
VC = 200'



SECTION ALONG ℄ -L-



HORIZ. CURVE DATA -L-

PI = 3169+98.96
Δ = 29°-51'-54.0"(RT)
D = 1°-44'-10.4"
L = 1,720.10'
T = 880.07'
R = 3,300.00'

PLAN

▲ THESE WORK POINTS ARE NOT LOCATED ON THE -L-. THEY ARE LOCATED ON THE WORKLINES, SEE "FOUNDATION LAYOUT" AND "LONG CHORD LAYOUT" SHEETS.

NOTES:

1. FOR NOTES, SEE GENERAL NOTES ON "GENERAL DRAWING" SHEET 7 OF 8.
2. FOR RETAINING WALL DETAILS, SEE CONCRETE SHEET PILE RETAINING WALL SHEETS.
3. FOR SKEW ANGLES TO WORKLINES, SEE "LONG CHORD LAYOUT" SHEETS.

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 1 OF 8 REPLACES BRIDGE NO. 69

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING BRIDGE ON NC 12 OVER NEW INLET AT PEA ISLAND

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by:
61EAF7523943466...
8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			44

DRAWN BY : M.A. ALLEN DATE : 6/15
CHECKED BY : E.K. POPE, P.E. DATE : 6/15
DESIGN ENGINEER OF RECORD: E.K. POPE, P.E. DATE : 6/15

29-JUL-2015 14:37
R:\Structures\Final Plans\dgn\B2500AB_SMU_GD.dgn
tgarrison

3167+00 3168+00 3169+00 3170+00 3171+00 3172+00 3173+00 3174+00 3175+00

FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX FIX

SPAN O | SPAN P | SPAN Q | SPAN R | SPAN S | SPAN T | SPAN U | SPAN V | SPAN W | SPAN X | SPAN Y | SPAN Z | SPAN AA | SPAN BB | SPAN CC | SPAN DD | SPAN EE | SPAN FF | SPAN GG

20
10
0
-10
-20
-30

APPROXIMATE NATURAL GROUND LINE

16" PRESTRESSED CONCRETE PILES (TYP.)

EL. 6.0±
EL. 7.3±
EL. 6.3±
EL. 2.0±
EL. 2.0±
EL. 2.6±

FEMA 100YR WSEL=10.0'
CBS 100YR WSEL=7.7'
CBS 50YR WSEL=7.4'
HURRICANE IRENE MAX. WSEL=6.8'

BENT 15 BENT 16 BENT 17 BENT 18 BENT 19 BENT 20 BENT 21 BENT 22 BENT 23 BENT 24 BENT 25 BENT 26 BENT 27 BENT 28 BENT 29 BENT 30 BENT 31 BENT 32

SECTION ALONG ℄ -L-

TOTAL BRIDGE LENGTH ALONG -L- = 2,350'-0" (W.P. #1 AT END BENT 1 TO W.P. #48 AT END BENT 2)

W.P.#14 THRU W.P.#17 = 150'-0" ALONG -L-

W.P.#17 THRU W.P.#20 = 150'-0" ALONG -L-

W.P.#20 THRU W.P.#23 = 150'-0" ALONG -L-

W.P.#23 THRU W.P.#26 = 150'-0" ALONG -L-

W.P.#26 THRU W.P.#29 = 150'-0" ALONG -L-

W.P.#29 THRU W.P.#32 = 150'-0" ALONG -L-

W.P.#32 THRU W.P.#35 = 150'-0" ALONG -L-

W.P. #16 STA. 3166+50.00 -L-
W.P. #17 STA. 3167+00.00 -L-
W.P. #18 STA. 3167+50.00 -L-
W.P. #19 STA. 3168+00.00 -L-
W.P. #20 STA. 3168+50.00 -L-
W.P. #21 STA. 3169+00.00 -L-
W.P. #22 STA. 3169+50.00 -L-
W.P. #23 STA. 3170+00.00 -L-
W.P. #24 STA. 3170+50.00 -L-
W.P. #25 STA. 3171+00.00 -L-
W.P. #26 STA. 3171+50.00 -L-
W.P. #27 STA. 3172+00.00 -L-
W.P. #28 STA. 3172+50.00 -L-
W.P. #29 STA. 3173+00.00 -L-
W.P. #30 STA. 3173+50.00 -L-
W.P. #31 STA. 3174+00.00 -L-
W.P. #32 STA. 3174+50.00 -L-
W.P. #33 STA. 3175+00.00 -L-

℄ BRIDGE STA. 3170+75.00 -L-

PROPOSED WORK BRIDGE OR TIMBER MATTING 33.5' WIDE 950' LONG FROM STA. 3167+50 -L- TO STA. 3177+00 -L-.

MATCHLINE

EXISTING ROAD

EXISTING STEEL SHEET PILES AND SCOUR PROTECTION STONE

PROPOSED WORK BRIDGE OR TIMBER MATTING 33.5' WIDE 990' LONG FROM STA. 3167+69 -L- OFFSET 59' RT. TO STA. 3177+83 -L- OFFSET 63' RT. (LENGTH, STATIONS AND OFFSETS ARE APPROXIMATE.)

EXISTING STUCTURE

MATCHLINE

HORIZ. CURVE DATA -L-
PI = 3169+98.96
Δ = 29°-51'-54.0" (RT)
D = 1°-44'-10.4"
L = 1,720.10'
T = 880.07'
R = 3,300.00'

PLAN

▲ THESE WORK POINTS ARE NOT LOCATED ON THE -L-. THEY ARE LOCATED ON THE WORKLINES, SEE "FOUNDATION LAYOUT" AND "LONG CHORD LAYOUT" SHEETS.

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 2 OF 8

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943466...

8/20/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING BRIDGE ON NC 12 OVER NEW INLET AT PEA ISLAND

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			44

DRAWN BY : M.A. ALLEN DATE : 6/15
CHECKED BY : E.K. POPE, P.E. DATE : 6/15
DESIGN ENGINEER OF RECORD: E.K. POPE, P.E. DATE : 6/15

20-AUG-2015 09:47
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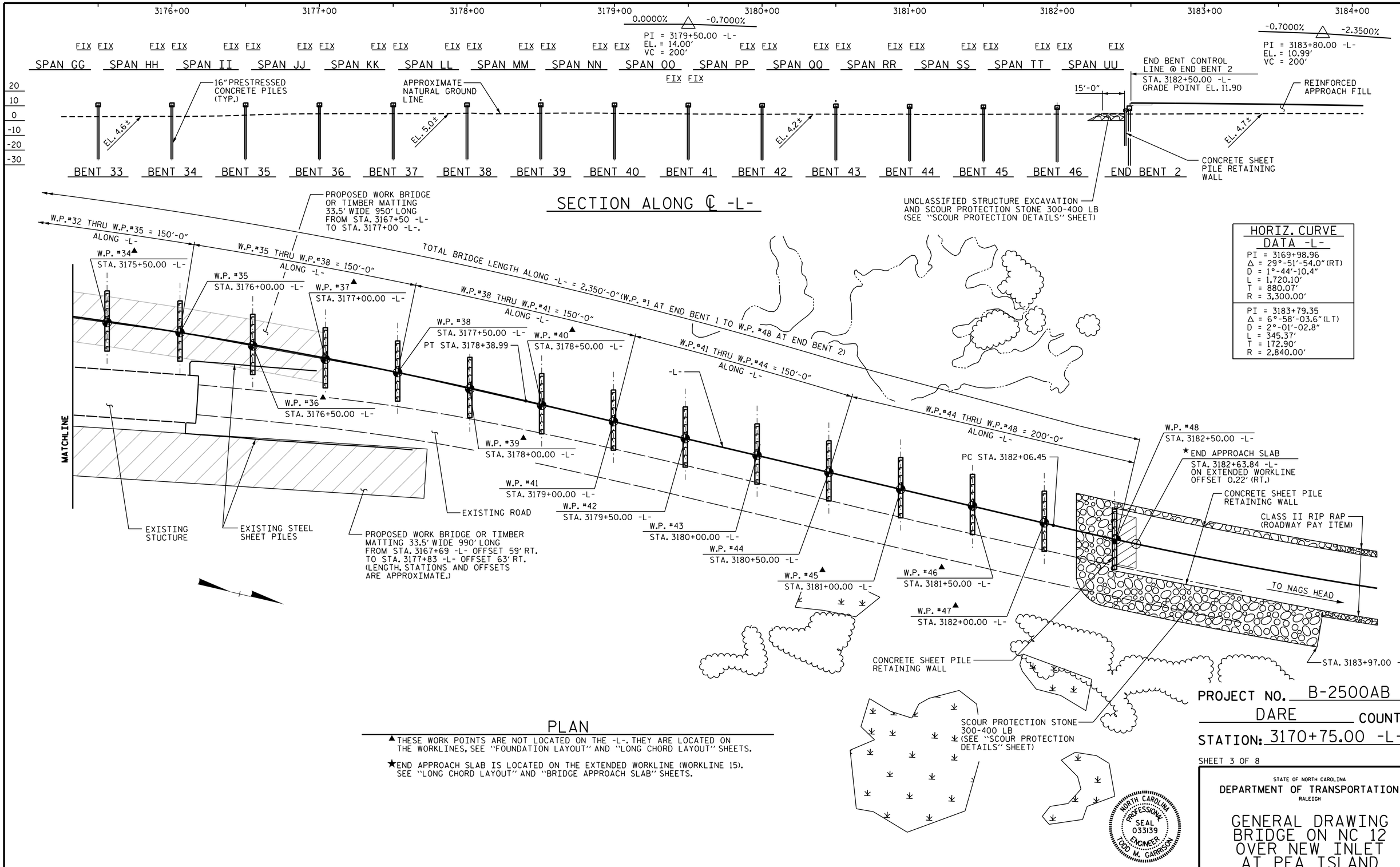
tgarrison



HORIZ. CURVE DATA -L-

PI = 3169+98.96
Δ = 29°-51'-54.0" (RT)
D = 1°-44'-10.4"
L = 1,720.10'
T = 880.07'
R = 3,300.00'

PI = 3183+79.35
Δ = 6°-58'-03.6" (LT)
D = 2°-01'-02.8"
L = 345.37'
T = 172.90'
R = 2,840.00'

PLAN

▲THESE WORK POINTS ARE NOT LOCATED ON THE -L-. THEY ARE LOCATED ON THE WORKLINES, SEE "FOUNDATION LAYOUT" AND "LONG CHORD LAYOUT" SHEETS.

★END APPROACH SLAB IS LOCATED ON THE EXTENDED WORKLINE (WORKLINE 15). SEE "LONG CHORD LAYOUT" AND "BRIDGE APPROACH SLAB" SHEETS.

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 3 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING BRIDGE ON NC 12 OVER NEW INLET AT PEA ISLAND

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			44

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523043466...

8/3/2015

DRAWN BY : M.A. ALLEN DATE : 6/15
CHECKED BY : E.K. POPE, P.E. DATE : 6/15
DESIGN ENGINEER OF RECORD: E.K. POPE, P.E. DATE : 6/15

24-JUL-2015 16:35
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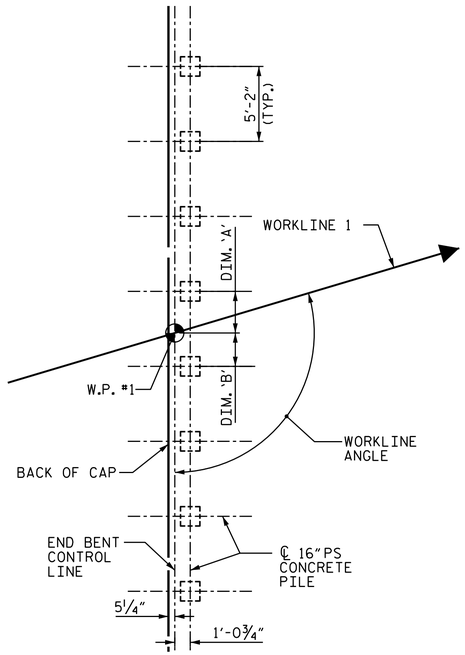
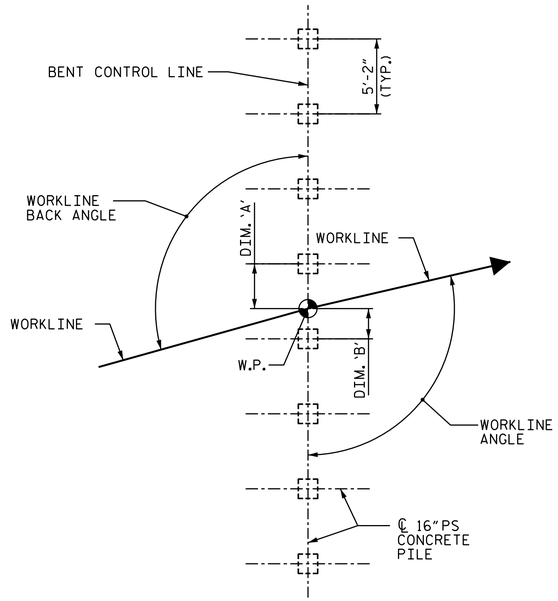
tgarrison

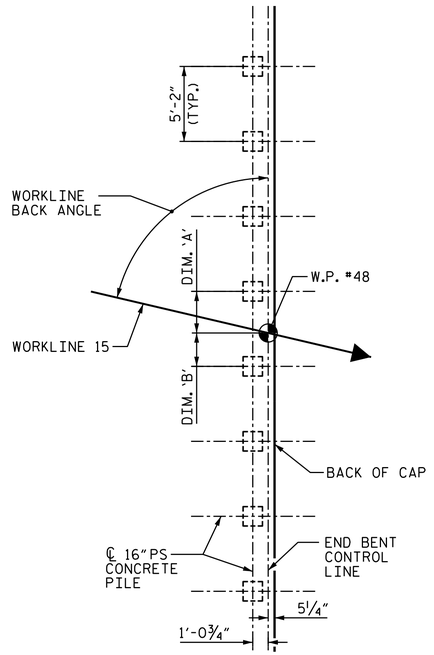


END BENT 1

NOTE BACK OF CAP IS OFFSET FROM THE END BENT CONTROL LINE



BENTS



END BENT 2

NOTE BACK OF CAP IS OFFSET FROM THE END BENT CONTROL LINE

NOTES

W.P. #1 & #48 ARE ON THE END BENT CONTROL LINE NOT THE BACK OF CAP.

W.P. #1, 2, 3, 4, 5, 8, 11, 14, 17, 20, 23, 26, 29, 32, 35, 38, 41, 42, 43, 44 & 48 ARE LOCATED ON THE WORKLINES AND SURVEY LINE -L-.

W.P. #6, 7, 9, 10, 12, 13, 15, 16, 18, 19, 21, 22, 24, 25, 27, 28, 30, 31, 33, 34, 36, 37, 39, 40, 45, 46 & 47 ARE LOCATED ONLY ALONG THE WORKLINES.

THE WORK POINTS ON THIS STRUCTURE ARE LOCATED ALONG 15 TANGENT WORKLINES:

WORK POINTS #1 THRU #5 ARE LOCATED ON WORKLINE 1.
WORK POINTS #5 THRU #8 ARE LOCATED ON WORKLINE 2.
WORK POINTS #8 THRU #11 ARE LOCATED ON WORKLINE 3.
WORK POINTS #11 THRU #14 ARE LOCATED ON WORKLINE 4.
WORK POINTS #14 THRU #17 ARE LOCATED ON WORKLINE 5.
WORK POINTS #17 THRU #20 ARE LOCATED ON WORKLINE 6.
WORK POINTS #20 THRU #23 ARE LOCATED ON WORKLINE 7.
WORK POINTS #23 THRU #26 ARE LOCATED ON WORKLINE 8.
WORK POINTS #26 THRU #29 ARE LOCATED ON WORKLINE 9.
WORK POINTS #29 THRU #32 ARE LOCATED ON WORKLINE 10.
WORK POINTS #32 THRU #35 ARE LOCATED ON WORKLINE 11.
WORK POINTS #35 THRU #38 ARE LOCATED ON WORKLINE 12.
WORK POINTS #38 THRU #41 ARE LOCATED ON WORKLINE 13.
WORK POINTS #41 THRU #44 ARE LOCATED ON WORKLINE 14.
WORK POINTS #44 THRU #48 ARE LOCATED ON WORKLINE 15.

FOR WORK POINT LAYOUT DETAILS AND DIMENSIONS, SEE "LONG CHORD LAYOUT" SHEETS.

FOUNDATION LAYOUT ANGLES & DIMENSIONS

	WORKLINE 1				WORKLINE 2			WORKLINE 3			WORKLINE 4		
WORK POINT NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13
BENT NUMBER	END BENT 1	BENT 1	BENT 2	BENT 3	BENT 4	BENT 5	BENT 6	BENT 7	BENT 8	BENT 9	BENT 10	BENT 11	BENT 12
W.P. STATION -L-	3159+00.00	3159+50.00	3160+00.00	3160+50.00	3161+00.00	3161+50.00	3162+00.00	3162+50.00	3163+00.00	3163+50.00	3164+00.00	3164+50.00	3165+00.00
WORKLINE ANGLE	106°-36'-01.2"	106°-36'-01.2"	106°-36'-01.2"	106°-36'-01.2"	105°-36'-19.7"	105°-36'-19.7"	105°-36'-19.7"	103°-01'-18.4"	103°-01'-18.4"	103°-01'-18.4"	100°-25'-02.7"	100°-25'-02.7"	100°-25'-02.7"
WORKLINE BACK ANGLE	--	106°-36'-01.2"	106°-36'-01.2"	106°-36'-01.2"	106°-36'-01.2"	105°-36'-19.7"	105°-36'-19.7"	105°-36'-19.7"	103°-01'-18.4"	103°-01'-18.4"	103°-01'-18.4"	100°-25'-02.7"	100°-25'-02.7"
DIMENSION A	2'-0 7/8"	3'-1 1/4"	3'-1 1/4"	3'-1 1/4"	3'-1 1/4"	3'-1 1/4"	3'-1 1/4"	3'-1 3/16"	3'-1 3/16"	3'-1 3/16"	3'-1 1/8"	3'-1 1/8"	3'-1 1/8"
DIMENSION B	3'-1 1/8"	2'-0 3/4"	2'-0 3/4"	2'-0 3/4"	2'-0 3/4"	2'-0 3/4"	2'-0 3/4"	2'-0 13/16"	2'-0 13/16"	2'-0 13/16"	2'-0 7/8"	2'-0 7/8"	2'-0 7/8"

	WL 4	WORKLINE 5			WORKLINE 6			WORKLINE 7			WORKLINE 8			WL 9
WORK POINT NUMBER	14	15	16	17	18	19	20	21	22	23	24	25	26	
BENT NUMBER	BENT 13	BENT 14	BENT 15	BENT 16	BENT 17	BENT 18	BENT 19	BENT 20	BENT 21	BENT 22	BENT 23	BENT 24	BENT 25	
W.P. STATION -L-	3165+50.00	3166+00.00	3166+50.00	3167+00.00	3167+50.00	3168+00.00	3168+50.00	3169+00.00	3169+50.00	3170+00.00	3170+50.00	3171+00.00	3171+50.00	
WORKLINE ANGLE	97°-48'-47.0"	97°-48'-47.0"	97°-48'-47.0"	95°-12'-31.3"	95°-12'-31.3"	95°-12'-31.3"	95°-12'-31.3"	92°-36'-15.7"	92°-36'-15.7"	90°-00'-00.0"	90°-00'-00.0"	90°-00'-00.0"	87°-23'-44.3"	
WORKLINE BACK ANGLE	100°-25'-02.7"	97°-48'-47.0"	97°-48'-47.0"	97°-48'-47.0"	95°-12'-31.3"	95°-12'-31.3"	95°-12'-31.3"	92°-36'-15.7"	92°-36'-15.7"	92°-36'-15.7"	90°-00'-00.0"	90°-00'-00.0"	90°-00'-00.0"	
DIMENSION A	3'-1 1/16"	3'-1 1/16"	3'-1 1/16"	3'-1 1/16"	3'-1"	3'-1"	3'-1"	3'-1"	3'-1"	3'-1"	3'-1"	3'-1"	3'-1"	
DIMENSION B	2'-0 15/16"	2'-0 15/16"	2'-0 15/16"	2'-0 15/16"	2'-1"	2'-1"	2'-1"	2'-1"	2'-1"	2'-1"	2'-1"	2'-1"	2'-1"	

	WORKLINE 9			WORKLINE 10			WORKLINE 11			WORKLINE 12			WORKLINE 13	
WORK POINT NUMBER	27	28	29	30	31	32	33	34	35	36	37	38	39	
BENT NUMBER	BENT 26	BENT 27	BENT 28	BENT 29	BENT 30	BENT 31	BENT 32	BENT 33	BENT 34	BENT 35	BENT 36	BENT 37	BENT 38	
W.P. STATION -L-	3172+00.00	3172+50.00	3173+00.00	3173+50.00	3174+00.00	3174+50.00	3175+00.00	3175+50.00	3176+00.00	3176+50.00	3177+00.00	3177+50.00	3178+00.00	
WORKLINE ANGLE	87°-23'-44.3"	87°-23'-44.3"	84°-47'-28.7"	84°-47'-28.7"	84°-47'-28.7"	82°-11'-13.0"	82°-11'-13.0"	82°-11'-13.0"	79°-34'-57.3"	79°-34'-57.3"	79°-34'-57.3"	77°-11'-37.1"	77°-11'-37.1"	
WORKLINE BACK ANGLE	87°-23'-44.3"	87°-23'-44.3"	87°-23'-44.3"	84°-47'-28.7"	84°-47'-28.7"	84°-47'-28.7"	82°-11'-13.0"	82°-11'-13.0"	82°-11'-13.0"	79°-34'-57.3"	79°-34'-57.3"	79°-34'-57.3"	77°-11'-37.1"	
DIMENSION A	3'-1"	3'-1"	3'-1"	3'-1"	3'-1"	3'-1 1/16"	3'-1 1/16"	3'-1 1/16"	3'-1 1/16"	3'-1 1/8"	3'-1 1/8"	3'-1 1/8"	3'-1 1/8"	
DIMENSION B	2'-1"	2'-1"	2'-1"	2'-1"	2'-1"	2'-0 15/16"	2'-0 15/16"	2'-0 15/16"	2'-0 15/16"	2'-0 7/8"	2'-0 7/8"	2'-0 7/8"	2'-0 7/8"	

	WORKLINE 13	WORKLINE 14				WORKLINE 15				
WORK POINT NUMBER	40	41	42	43	44	45	46	47	48	
BENT NUMBER	BENT 39	BENT 40	BENT 41	BENT 42	BENT 43	BENT 44	BENT 45	BENT 46	END BENT 2	
W.P. STATION -L-	3178+50.00	3179+00.00	3179+50.00	3180+00.00	3180+50.00	3181+00.00	3181+50.00	3182+00.00	3182+50.00	
WORKLINE ANGLE	77°-11'-37.1"	76°-44'-07.2"	76°-44'-07.2"	76°-44'-07.2"	76°-49'-51.6"	76°-49'-51.6"	76°-49'-51.6"	76°-49'-51.6"	--	
WORKLINE BACK ANGLE	77°-11'-37.1"	77°-11'-37.1"	76°-44'-07.2"	76°-44'-07.2"	76°-44'-07.2"	76°-49'-51.6"	76°-49'-51.6"	76°-49'-51.6"	76°-49'-51.6"	
DIMENSION A	3'-1 1/8"	3'-1 3/16"	3'-1 3/16"	3'-1 3/16"	3'-1 3/16"	3'-1 3/16"	3'-1 3/16"	3'-1 3/16"	2'-3 1/8"	
DIMENSION B	2'-0 7/8"	2'-0 13/16"	2'-0 13/16"	2'-0 13/16"	2'-0 13/16"	2'-0 13/16"	2'-0 13/16"	2'-0 13/16"	2'-10 7/8"	

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 4 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING BRIDGE ON NC 12 OVER NEW INLET AT PEA ISLAND

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523043466...

8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			44

DRAWN BY : M.A. ALLEN DATE : 6/15
CHECKED BY : T.M. GARRISON, P.E. DATE : 6/15
DESIGN ENGINEER OF RECORD: T.M. GARRISON, P.E. DATE : 6/15

24-JUL-2015 16:37
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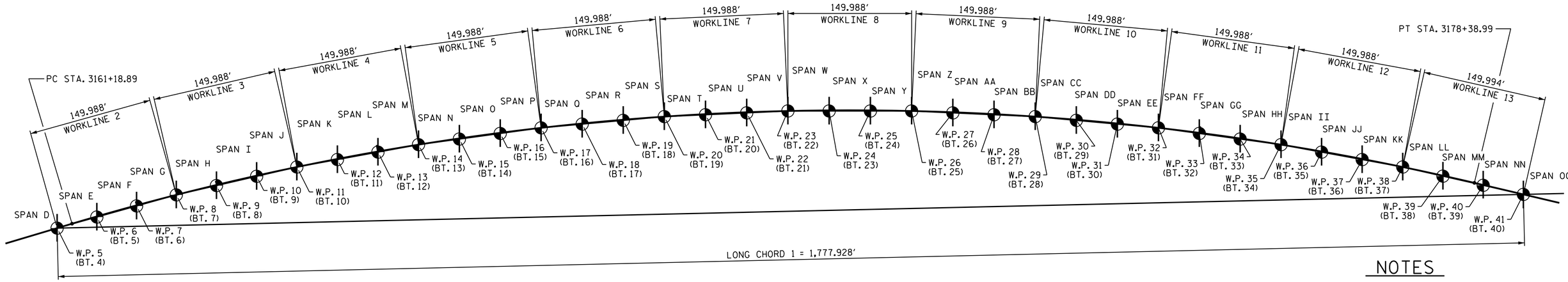
tgarrison



LONG CHORD 1 LAYOUT

(FROM STATION 3161+00 TO 3179+00)
(WORKLINE 2 THRU 13)

NOTES

LONG CHORD 1 IS LOCATED FROM W.P. #5 TO W.P. #41

W.P. #5, 8, 11, 14, 17, 20, 23, 26, 29, 32, 35, 38 & 41 ARE LOCATED ON THE WORKLINES AND SURVEY LINE -L-.

W.P. #6, 7, 9, 10, 12, 13, 15, 16, 18, 19, 21, 22, 24, 25, 27, 28, 30, 31, 33, 34, 36, 37, 39 & 40 ARE ONLY LOCATED ON THE WORKLINES.

THE WORK POINTS ARE LOCATED ALONG TANGENT WORKLINES:

WORK POINTS #5 THRU #8 ARE LOCATED ON WORKLINE 2.
WORK POINTS #8 THRU #11 ARE LOCATED ON WORKLINE 3.
WORK POINTS #11 THRU #14 ARE LOCATED ON WORKLINE 4.
WORK POINTS #14 THRU #17 ARE LOCATED ON WORKLINE 5.
WORK POINTS #17 THRU #20 ARE LOCATED ON WORKLINE 6.
WORK POINTS #20 THRU #23 ARE LOCATED ON WORKLINE 7.
WORK POINTS #23 THRU #26 ARE LOCATED ON WORKLINE 8.
WORK POINTS #26 THRU #29 ARE LOCATED ON WORKLINE 9.
WORK POINTS #29 THRU #32 ARE LOCATED ON WORKLINE 10.
WORK POINTS #32 THRU #35 ARE LOCATED ON WORKLINE 11.
WORK POINTS #35 THRU #38 ARE LOCATED ON WORKLINE 12.
WORK POINTS #38 THRU #41 ARE LOCATED ON WORKLINE 13.

LONG CHORD 1 ANGLES & DIMENSIONS

(FOR DETAILS OF DIMENSIONS, SEE DETAILS "A" & "B" SHEET 6 OF 8)

LONG CHORD 1		WORKLINE 2			WORKLINE 3			WORKLINE 4			WORKLINE 5			WL 6
	WORK POINT NUMBER	5	6	7	8	9	10	11	12	13	14	15	16	17
	BENT NUMBER	BENT 4	BENT 5	BENT 6	BENT 7	BENT 8	BENT 9	BENT 10	BENT 11	BENT 12	BENT 13	BENT 14	BENT 15	BENT 16
	W.P. STATION -L-	3161+00.00	3161+50.00	3162+00.00	3162+50.00	3163+00.00	3163+50.00	3164+00.00	3164+50.00	3165+00.00	3165+50.00	3166+00.00	3166+50.00	3167+00.00
	LONG CHORD ANGLE	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″
	WORKLINE ANGLE	105°-36′-19.7″	105°-36′-19.7″	105°-36′-19.7″	103°-01′-18.4″	103°-01′-18.4″	103°-01′-18.4″	100°-25′-02.7″	100°-25′-02.7″	100°-25′-02.7″	97°-48′-47.0″	97°-48′-47.0″	97°-48′-47.0″	95°-12′-31.3″
	WORKLINE BACK ANGLE	106°-36′-01.2″	105°-36′-19.7″	105°-36′-19.7″	105°-36′-19.7″	103°-01′-18.4″	103°-01′-18.4″	103°-01′-18.4″	100°-25′-02.7″	100°-25′-02.7″	100°-25′-02.7″	97°-48′-47.0″	97°-48′-47.0″	97°-48′-47.0″
	DIMENSION B (FT)	0.000	12.343	24.682	37.025	47.170	57.313	67.458	75.367	83.275	91.184	96.841	102.497	108.155
	DIMENSION Y (FT)	0.000	0.723	0.740	0.000	0.758	0.758	0.000	0.758	0.758	0.000	0.758	0.758	0.000
	DIMENSION Z (FT)	0.000	0.751	0.766	0.000	0.779	0.776	0.000	0.771	0.769	0.000	0.766	0.764	0.000
	DIMENSION LC (FT)	48.170	48.159	48.169	48.727	48.716	48.727	49.188	49.177	49.188	49.549	49.537	49.549	49.806
	DIMENSION WL (FT)	50.000	49.988	50.000	50.000	49.988	50.000	50.000	49.988	50.000	50.000	49.988	50.000	50.000

LONG CHORD 1		WORKLINE 6			WORKLINE 7			WORKLINE 8			WORKLINE 9			WORKLINE 10	
	WORK POINT NUMBER	18	19	20	21	22	23	24	25	26	27	28	29	30	
	BENT NUMBER	BENT 17	BENT 18	BENT 19	BENT 20	BENT 21	BENT 22	BENT 23	BENT 24	BENT 25	BENT 26	BENT 27	BENT 28	BENT 29	
	W.P. STATION -L-	3167+50.00	3168+00.00	3168+50.00	3169+00.00	3169+50.00	3170+00.00	3170+50.00	3171+00.00	3171+50.00	3172+00.00	3172+50.00	3173+00.00	3173+50.00	
	LONG CHORD ANGLE	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	
	WORKLINE ANGLE	95°-12′-31.3″	95°-12′-31.3″	92°-36′-15.7″	92°-36′-15.7″	92°-36′-15.7″	90°-00′-00.0″	90°-00′-00.0″	90°-00′-00.0″	87°-23′-44.3″	87°-23′-44.3″	87°-23′-44.3″	84°-47′-28.7″	84°-47′-28.7″	
	WORKLINE BACK ANGLE	95°-12′-31.3″	95°-12′-31.3″	95°-12′-31.3″	92°-36′-15.7″	92°-36′-15.7″	92°-36′-15.7″	90°-00′-00.0″	90°-00′-00.0″	90°-00′-00.0″	87°-23′-44.3″	87°-23′-44.3″	87°-23′-44.3″	84°-47′-28.7″	
	DIMENSION B (FT)	111.548	114.941	118.334	119.457	120.580	121.702	120.552	119.402	118.251	114.830	111.410	107.989	102.304	
	DIMENSION Y (FT)	0.758	0.758	0.000	0.758	0.758	0.000	0.758	0.758	0.000	0.758	0.758	0.000	0.758	
	DIMENSION Z (FT)	0.761	0.760	0.000	0.759	0.758	0.000	0.758	0.758	0.000	0.758	0.759	0.000	0.760	
	DIMENSION LC (FT)	49.806	49.795	49.806	49.961	49.950	49.961	50.013	50.001	50.013	49.961	49.950	49.961	49.806	49.795
	DIMENSION WL (FT)	50.000	49.988	50.000	50.000	49.988	50.000	50.000	49.988	50.000	50.000	49.988	50.000	50.000	49.988

LONG CHORD 1		WORKLINE 10		WORKLINE 11			WORKLINE 12			WORKLINE 13				
	WORK POINT NUMBER	31	32	33	34	35	36	37	38	39	40	41		
	BENT NUMBER	BENT 30	BENT 31	BENT 32	BENT 33	BENT 34	BENT 35	BENT 36	BENT 37	BENT 38	BENT 39	BENT 40		
	W.P. STATION -L-	3174+00.00	3174+50.00	3175+00.00	3175+50.00	3176+00.00	3176+50.00	3177+00.00	3177+50.00	3178+00.00	3178+50.00	3179+00.00		
	LONG CHORD ANGLE	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″	91°-19′-05.0″		
	WORKLINE ANGLE	84°-47′-28.7″	82°-11′-13.0″	82°-11′-13.0″	82°-11′-13.0″	79°-34′-57.3″	79°-34′-57.3″	79°-34′-57.3″	77°-11′-37.1″	77°-11′-37.1″	77°-11′-37.1″	76°-44′-07.2″		
	WORKLINE BACK ANGLE	84°-47′-28.7″	84°-47′-28.7″	82°-11′-13.0″	82°-11′-13.0″	82°-11′-13.0″	79°-34′-57.3″	79°-34′-57.3″	79°-34′-57.3″	77°-11′-37.1″	77°-11′-37.1″	77°-11′-37.1″		
	DIMENSION B (FT)	96.620	90.935	82.999	75.064	67.127	56.955	46.785	36.613	24.408	12.205	0.000		
	DIMENSION Y (FT)	0.758	0.000	0.758	0.758	0.000	0.758	0.758	0.000	0.570	0.400	0.000		
	DIMENSION Z (FT)	0.761	0.000	0.764	0.766	0.000	0.769	0.771	0.000	0.584	0.411	0.000		
	DIMENSION LC (FT)	49.795	49.806	49.585	49.537	49.549	49.188	49.177	49.188	48.768	48.763	48.771		
	DIMENSION WL (FT)	49.988	50.000	50.000	49.988	50.000	50.000	49.988	50.000	49.998	49.994	50.002		

HORIZ. CURVE DATA -L-

PI = 3169+98.96
Δ = 29°-51′-54.0″(RT)
D = 1°-44′-10.4″
L = 1,720.10′
T = 880.07′
R = 3,300.00′

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 5 OF 8

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943466...
8/3/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING BRIDGE ON NC 12 OVER NEW INLET AT PEA ISLAND

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			44

DRAWN BY : M.A. ALLEN DATE : 6/15
CHECKED BY : T.M. GARRISON, P.E. DATE : 6/15
DESIGN ENGINEER OF RECORD: T.M. GARRISON, P.E. DATE : 6/15

24-JUL-2015 16:38
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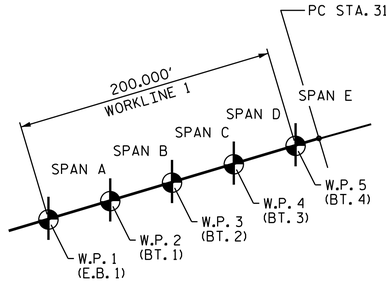
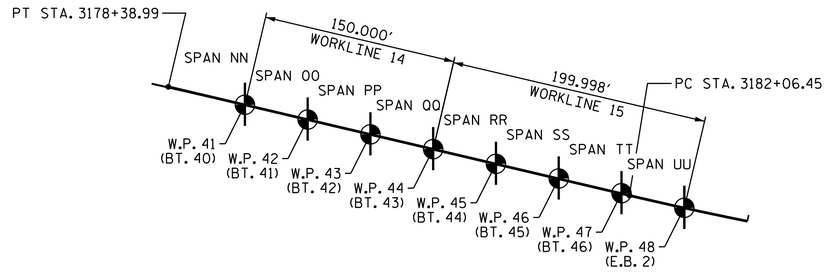


WORKLINE 1 LAYOUT
(FROM STATION 3159+00 TO 3161+00)



WORKLINE 14 LAYOUT
(FROM STATION 3179+00 TO 3180+50)

WORKLINE 15 LAYOUT
(FROM STATION 3180+50 TO 3182+50)

NOTES

W.P. #1 & 48 ARE ON THE END BENT CONTROL LINE NOT THE BACK OF CAP.

W.P. #1, 2, 3, 4, 5, 41, 42, 43, 44 & 48 ARE LOCATED ON THE WORKLINES AND SURVEY LINE -L-.

W.P. #45, 46 & 47 ARE LOCATED ONLY ALONG THE WORKLINES.

THE WORK POINTS ARE LOCATED ALONG TANGENT WORKLINES:

WORK POINTS #1 THRU #5 ARE LOCATED ON WORKLINE 1.
WORK POINTS #41 THRU #44 ARE LOCATED ON WORKLINE 14.
WORK POINTS #44 THRU #48 ARE LOCATED ON WORKLINE 15.

WORKLINE 1 ANGLES & DIMENSIONS

	WORKLINE 1				
WORK POINT NUMBER	1	2	3	4	5
BENT NUMBER	END BENT 1	BENT 1	BENT 2	BENT 3	BENT 4
W.P. STATION -L-	3159+00.00	3159+50.00	3160+00.00	3160+50.00	3161+00.00
WORKLINE ANGLE	106°-36'-01.2"	106°-36'-01.2"	106°-36'-01.2"	106°-36'-01.2"	105°-36'-19.7"
WORKLINE BACK ANGLE	--	106°-36'-01.2"	106°-36'-01.2"	106°-36'-01.2"	106°-36'-01.2"
DIMENSION WL (FT)	50.000	50.000	50.000	50.000	

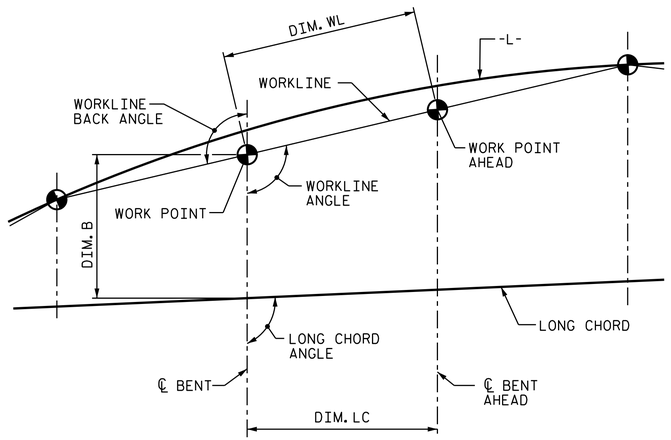
WORKLINE 14 ANGLES & DIMENSIONS

	WORKLINE 14			
WORK POINT NUMBER	41	42	43	44
BENT NUMBER	BENT 40	BENT 41	BENT 42	BENT 43
W.P. STATION -L-	3179+00.00	3179+50.00	3180+00.00	3180+50.00
WORKLINE ANGLE	76°-44'-07.2"	76°-44'-07.2"	76°-44'-07.2"	76°-49'-51.6"
WORKLINE BACK ANGLE	77°-11'-37.1"	76°-44'-07.2"	76°-44'-07.2"	76°-44'-07.2"
DIMENSION WL (FT)	50.000	50.000	50.000	

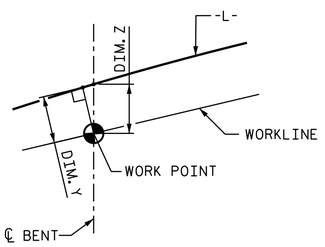
HORIZ. CURVE DATA -L-
PI = 3183+79.35
Δ = 6°-58'-03.6"(LT)
D = 2°-01'-02.8"
L = 345.37'
T = 172.90'
R = 2,840.00'

WORKLINE 15 ANGLES & DIMENSIONS
(SEE DETAIL "C")

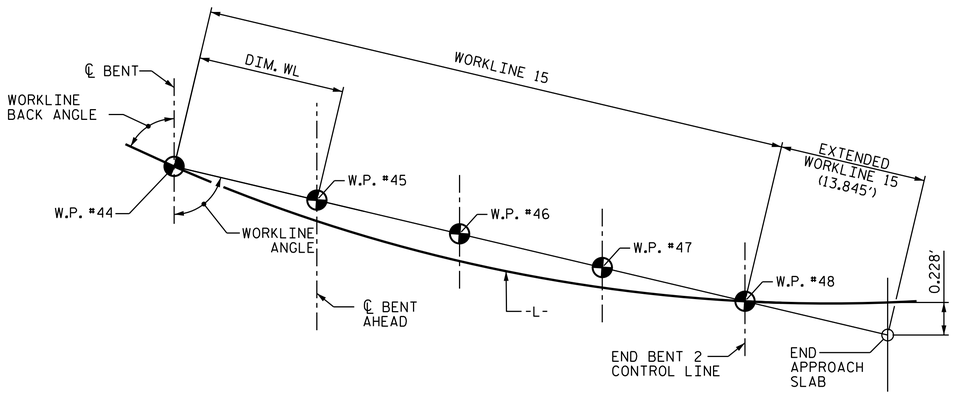
	WORKLINE 15				
WORK POINT NUMBER	44	45	46	47	48
BENT NUMBER	BENT 43	BENT 44	BENT 45	BENT 46	END BENT 2
W.P. STATION -L-	3180+50.00	3181+00.00	3181+50.00	3182+00.00	3182+50.00
WORKLINE ANGLE	76°-49'-51.6"	76°-49'-51.6"	76°-49'-51.6"	76°-49'-51.6"	--
WORKLINE BACK ANGLE	76°-44'-07.2"	76°-49'-51.6"	76°-49'-51.6"	76°-49'-51.6"	76°-49'-51.6"
DIMENSION Y (FT)	0.000	0.084	0.167	0.250	0.000
DIMENSION Z (FT)	0.000	0.086	0.172	0.257	0.000
DIMENSION WL (FT)	50.000	50.000	50.000	49.998	



DETAIL "A"
(FOR DIM. Y & Z SEE DETAIL "B")



DETAIL "B"
(DIM. Y IS PERPENDICULAR TO THE SURVEY LINE & DIM. Z IS ALONG THE ℄ BENT)



DETAIL "C"
(FOR DIM. Y & Z SEE DETAIL "B")

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943466...
8/3/2015

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 6 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING BRIDGE ON NC 12 OVER NEW INLET AT PEA ISLAND

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			44

DRAWN BY : M.A. ALLEN DATE : 6/15
CHECKED BY : T.M. GARRISON, P.E. DATE : 6/15
DESIGN ENGINEER OF RECORD: T.M. GARRISON, P.E. DATE : 6/15

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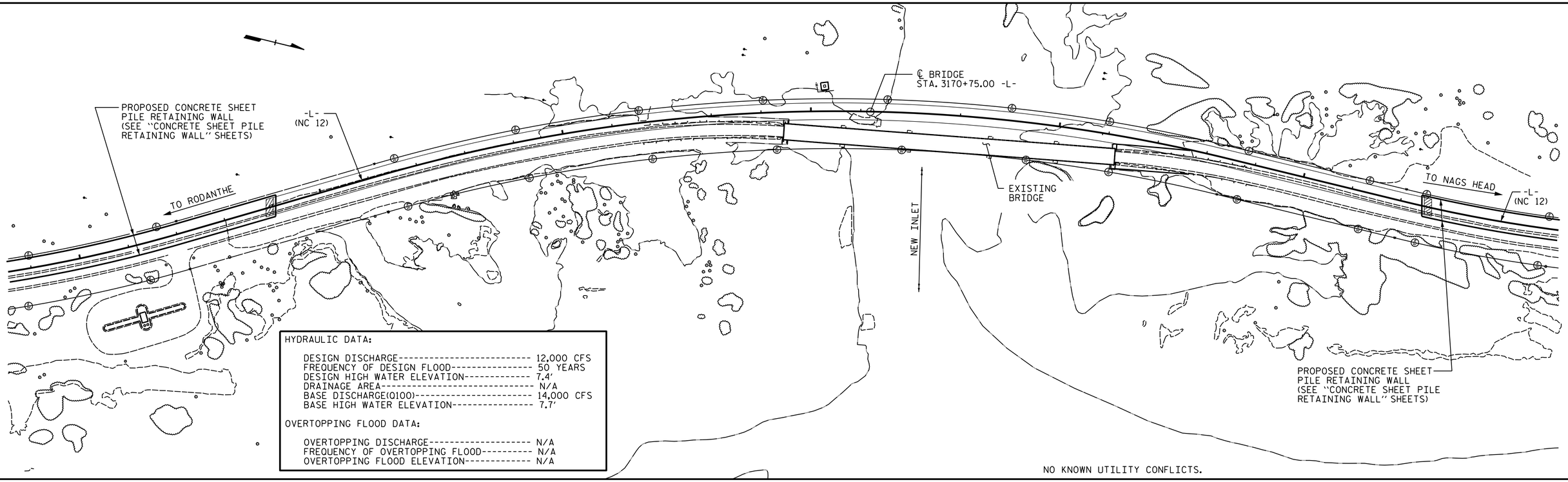

HYDRAULIC DATA:

DESIGN DISCHARGE	12,000 CFS
FREQUENCY OF DESIGN FLOOD	50 YEARS
DESIGN HIGH WATER ELEVATION	7.4'
DRAINAGE AREA	N/A
BASE DISCHARGE(0100)	14,000 CFS
BASE HIGH WATER ELEVATION	7.7'

OVERTOPPING FLOOD DATA:

OVERTOPPING DISCHARGE	N/A
FREQUENCY OF OVERTOPPING FLOOD	N/A
OVERTOPPING FLOOD ELEVATION	N/A

LOCATION SKETCH

GENERAL NOTES

ALL ELEVATIONS ARE SHOWN IN FEET.

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF A 5 SPAN MABEY TRUSS (2 @ 118', 2 @ 133', AND 1 @ 162' = 664' TOTAL) AND LOCATED EAST OF THE PROPOSED STRUCTURE WITH A 24.1' CLEAR ROADWAY WIDTH, SUPPORTED ON INTERIOR BENTS CONSISTING OF CONCRETE FOOTINGS ON 12-2'Ø STEEL PIPE PILES AND END BENTS CONSISTING OF CONCRETE FOOTINGS ON 12-HP14X73 STEEL PILES WITH STEEL PILE BACKWALL, SHALL BE REMOVED. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE ENGINEER OR THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON THE DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30" SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30" 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. ALL COSTS FOR PROVIDING REINFORCING STEEL SAMPLES SHALL BE CONSIDERED INCIDENTAL AND NO ADDITIONAL PAYMENT WILL BE MADE.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

ASPHALT WEARING SURFACE AND OPEN GRADED FRICTION COURSE (OGFC) ARE INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

THIS BRIDGE MAY BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY WORK BRIDGE OR TIMBER MATTING WILL ALSO BE PERMITTED. SEE GENERAL DRAWINGS SHEETS 2 AND 3 OF 8 FOR PROPOSED LOCATION OF WORK BRIDGES OR TIMBER MATTING.

FOR FOUNDATION NOTES AND CORROSION PROTECTION NOTES, SEE GENERAL DRAWING SHEET 8 OF 8.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 3170+75 -L-."

THE EARTH MATERIAL IN THE AREA FOR THE RELOCATED SCOUR PROTECTION STONE SHOWN AT EACH PROPOSED END BENT SHALL BE EXCAVATED FOR A DISTANCE OF 25' LEFT AND 47' RIGHT OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISIONS.

FOR PARTIAL REMOVAL OF 30" PRESTRESSED CONCRETE PILES, SEE "PARTIAL REMOVAL OF DRIVEN PILES" SPECIAL PROVISION.

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CONCRETE SHEET PILE WALL, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR REINFORCED APPROACH FILLS, SEE GEOTECHNICAL SPECIAL PROVISIONS.

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 7 OF 8

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 01EAF7523043466...

8/20/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING BRIDGE ON NC 12 OVER NEW INLET AT PEA ISLAND

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			44

DRAWN BY : M.A. ALLEN DATE : 6/15
CHECKED BY : T.M. GARRISON, P.E. DATE : 6/15
DESIGN ENGINEER OF RECORD: T.M. GARRISON, P.E. DATE : 6/15

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TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STA. 3170+75 -L-	REMOVAL OF EXISTING STRUCTURE AT STA. 3170+75 -L-	UNCLASSIFIED STRUCTURE EXCAVATION	PDA TESTING	BRIDGE APPROACH SLABS AT STA. 3170+75 -L-	EPOXY COATED REINFORCING STEEL	16" PRESTRESSED CONCRETE PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLABS		3'-0" X 2'-6" PRESTRESSED CONCRETE BENT CAPS		CONCRETE SHEET PILE WALL	PARTIAL REMOVAL OF DRIVEN PILES	OFF-SITE JETTING SPOIL DISPOSAL	REINFORCED APPROACH FILLS
	LUMP SUM	LUMP SUM	LUMP SUM	EACH	LUMP SUM	LBS.	NO.	LIN. FT.	EACH	LIN. FT.	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	LUMP SUM	CU. YDS.	SQ. FT.
SUPERSTRUCTURE										4,683.57		LUMP SUM	564	28,102						
END BENT 1 ● (SEE SEPARATE TABLE)				●		15	●	●	●		910				●	●			17	8,335
BENTS 1-46 ● (SEE SEPARATE TABLE)				●			●	●	●						●	●			766	
END BENT 2 ● (SEE SEPARATE TABLE)				●		14	●	●	●		915				●	●			17	5,590
CONCRETE SHEET PILE RETAINING WALL																	1,908.67		1,200	
TOTAL BRIDGE	LUMP SUM	LUMP SUM	LUMP SUM	20	LUMP SUM	29	384	23,040	100	4,683.57	1,825	LUMP SUM	564	28,102	144	1,953.33	1,908.67	LUMP SUM	2,000	13,925

FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 95 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 320 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

INSTALL PILES AT END BENT 1 TO A TIP ELEVATION NO HIGHER THAN -42 FEET.

INSTALL PILES AT END BENT 2 TO A TIP ELEVATION NO HIGHER THAN -40 FEET.

PILES AT BENT 1 THROUGH BENT 46 ARE DESIGNED FOR A FACTORED RESISTANCE OF 95 TONS PER PILE.

DRIVE PILES AT BENT 1 THROUGH BENT 46 TO A REQUIRED DRIVING RESISTANCE OF 320 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

INSTALL PILES AT BENT 1 THROUGH BENT 26 TO A TIP ELEVATION NO HIGHER THAN -42 FEET.

INSTALL PILES AT BENT 27 THROUGH BENT 46 TO A TIP ELEVATION NO HIGHER THAN -40 FEET.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 THROUGH BENT 46 IS ELEVATION -24 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 68 TO 120 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT 1, BENT 1 THROUGH BENT 46, AND END BENT 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

STEEL PILE TIPS ARE REQUIRED FOR PRESTRESSED CONCRETE PILES AT END BENT 1, BENT 1 THROUGH BENT 46, AND END BENT 2. FOR STEEL PILE TIPS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILE AT END BENT 1 THROUGH BENT 4 WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILE AT BENT 5 THROUGH BENT 9 WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILE AT BENT 10 THROUGH BENT 14 WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILE AT BENT 15 THROUGH BENT 19 WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILE AT BENT 20 THROUGH BENT 24 WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILE AT BENT 25 THROUGH BENT 29 WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILE AT BENT 30 THROUGH BENT 34 WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILE AT BENT 35 THROUGH BENT 39 WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILE AT BENT 40 THROUGH BENT 44 WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILE AT BENT 45 THROUGH END BENT 2 WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FOR JETTING AND OFF-SITE JETTING SPOIL DISPOSAL, SEE PILE JETTING SPECIAL PROVISION.

DO NOT JET BELOW ELEVATION -24 FT FOR PILES AT END BENT 1, BENT 1 THROUGH BENT 46, AND END BENT 2.

USE DRIVING OR A COMBINATION OF JETTING AND DRIVING TO ATTAIN THE PILE TIP ELEVATION NO HIGHER THAN REQUIREMENTS.

PILE TIP ELEVATION NO HIGHER THAN REQUIREMENTS ARE MEASURED AT THE BOTTOM OF THE CONCRETE PILE.

INSTALL PILES AT END BENT 1 AND END BENT 2 TO A TIP ELEVATION OF -30 FEET PRIOR TO INSTALLING CONCRETE SHEET PILE RETAINING WALLS.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO THE REQUIRED DRIVING RESISTANCE AND PILE TIP ELEVATION NO HIGHER THAN REQUIREMENTS AFTER INSTALLING CONCRETE SHEET PILE RETAINING WALLS.

THE ENGINEER MAY REQUIRE WAIT TIMES UP TO 72 HOURS WHEN PERFORMING PILE REDRIVES.

	16 INCH PRESTRESSED CONCRETE PILES		3'-0" X 2'-6" PRESTRESSED CONCRETE BENT CAPS		PDA TESTING	PILE REDRIVES
	NO.	LIN. FT.	NO.	LIN. FT.	EACH	EACH
END BENT 1	8	480	3	41.83		
BENT 1	8	480	3	40.67		
BENT 2	8	480	3	40.67	2	10
BENT 3	8	480	3	40.67		
BENT 4	8	480	3	40.67		
BENT 5	8	480	3	40.67		
BENT 6	8	480	3	40.67		
BENT 7	8	480	3	40.67	2	10
BENT 8	8	480	3	40.67		
BENT 9	8	480	3	40.67		
BENT 10	8	480	3	40.67		
BENT 11	8	480	3	40.67		
BENT 12	8	480	3	40.67	2	10
BENT 13	8	480	3	40.67		
BENT 14	8	480	3	40.67		
BENT 15	8	480	3	40.67		
BENT 16	8	480	3	40.67		
BENT 17	8	480	3	40.67	2	10
BENT 18	8	480	3	40.67		
BENT 19	8	480	3	40.67		
BENT 20	8	480	3	40.67		
BENT 21	8	480	3	40.67		
BENT 22	8	480	3	40.67	2	10
BENT 23	8	480	3	40.67		
BENT 24	8	480	3	40.67		

	16 INCH PRESTRESSED CONCRETE PILES		3'-0" X 2'-6" PRESTRESSED CONCRETE BENT CAPS		PDA TESTING	PILE REDRIVES
	NO.	LIN. FT.	NO.	LIN. FT.	EACH	EACH
BENT 25	8	480	3	40.67		
BENT 26	8	480	3	40.67		
BENT 27	8	480	3	40.67	2	10
BENT 28	8	480	3	40.67		
BENT 29	8	480	3	40.67		
BENT 30	8	480	3	40.67		
BENT 31	8	480	3	40.67		
BENT 32	8	480	3	40.67	2	10
BENT 33	8	480	3	40.67		
BENT 34	8	480	3	40.67		
BENT 35	8	480	3	40.67		
BENT 36	8	480	3	40.67		
BENT 37	8	480	3	40.67	2	10
BENT 38	8	480	3	40.67		
BENT 39	8	480	3	40.67		
BENT 40	8	480	3	40.67		
BENT 41	8	480	3	40.67		
BENT 42	8	480	3	40.67	2	10
BENT 43	8	480	3	40.67		
BENT 44	8	480	3	40.67		
BENT 45	8	480	3	40.67		
BENT 46	8	480	3	40.67	2	10
END BENT 2	8	480	3	40.83		
TOTAL	384	23,040	144	1,953.33	20	100

CORROSION PROTECTION NOTES

PRESTRESSED CONCRETE CORED SLAB UNITS ARE DESIGNED FOR 0 psi TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

THE WATER/CEMENT RATIO FOR 16" PRESTRESSED CONCRETE PILES AND CONCRETE SHEET PILES SHALL NOT EXCEED 0.40.

THE CONCRETE IN THE PRESTRESSED CONCRETE PILES AND PRESTRESSED CONCRETE SHEET PILES SHALL CONTAIN A MINIMUM OF 25% FLY ASH CLASS F OR A MINIMUM OF 40% GROUND GRANULATED BLAST FURNACE SLAG (GGBFS). ADDITIONALLY, SILICA FUME SHALL BE SUBSTITUTED FOR A MINIMUM 5% OF THE PORTLAND CEMENT BY WEIGHT IN THE PRESTRESSED CONCRETE PILES AND PRESTRESSED CONCRETE SHEET PILES. MINERAL ADMIXTURES SHALL REPLACE THE CEMENT CONTENT AT A 1:1 RATIO BY WEIGHT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION, AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A STRUCTURE IN A HIGHLY CORROSIVE AREA.

PRESTRESSED CONCRETE CORED SLAB UNITS, PRESTRESSED CONCRETE SHEET PILES, 16" PRESTRESSED CONCRETE PILES, PRESTRESSED CONCRETE END BENT CAPS AND PRESTRESSED CONCRETE BENT CAPS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE INHIBITOR SHALL BE APPLIED AT A RATE OF 4.0 GALLONS PER CUBIC YARD. NO SEPARATE PAYMENT WILL BE MADE FOR THE ADDITION OF CALCIUM NITRITE, AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE END BENT WING WALLS AND CONCRETE SHEET PILE COPING, AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE INHIBITOR SHALL BE APPLIED AT A RATE OF 4.0 GALLONS PER CUBIC YARD. NO SEPARATE PAYMENT WILL BE MADE FOR THE ADDITION OF CALCIUM NITRITE, AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 8 OF 8

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943466...

8/20/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
TOTAL BILL
OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			44

DRAWN BY : M.A. ALLEN DATE : 6/15
CHECKED BY : T.M. GARRISON, P.E. DATE : 6/15
DESIGN ENGINEER OF RECORD: T.M. GARRISON, P.E. DATE : 6/15

20-AUG-2015 10:03
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tgarrison

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

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.205	--	1.75	0.271	1.59	*	EL	**	0.616	**1.2**	*	EL	***	0.80	0.271	1.46	*	EL	**	
		HL-93(Opr)	N/A	--	1.562	--	1.35	0.271	2.06	*	EL	**	0.616	1.56	*	EL	***	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.434	51.614	1.75	0.271	1.97	*	EL	**	0.616	**1.43**	*	EL	***	0.80	0.271	1.81	*	EL	**	
		HS-20(Opr)	36.000	--	1.859	66.906	1.35	0.271	2.56	*	EL	**	0.616	1.86	*	EL	***	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.678	49.655	1.4	0.271	5.02	*	EL	**	0.616	4	*	EL	***	0.80	0.271	3.68	*	EL	**	
		SNGARBS2	20.000	--	2.905	58.101	1.4	0.271	3.97	*	EL	**	0.616	2.93	*	EL	***	0.80	0.271	2.91	*	EL	**	
		SNAGRIS2	22.000	--	2.748	60.456	1.4	0.271	3.83	*	EL	**	0.616	2.75	*	EL	***	0.80	0.271	2.81	*	EL	**	
		SNCOTTS3	27.250	--	1.835	49.998	1.4	0.271	2.5	*	EL	**	0.616	2.01	*	EL	***	0.80	0.271	1.83	*	EL	**	
		SNAGGRS4	34.925	--	1.595	55.714	1.4	0.271	2.18	*	EL	**	0.616	1.72	*	EL	***	0.80	0.271	1.60	*	EL	**	
		SNS5A	35.550	--	1.556	55.303	1.4	0.271	2.12	*	EL	**	0.616	1.77	*	EL	***	0.80	0.271	1.56	*	EL	**	
		SNS6A	39.950	--	1.455	58.112	1.4	0.271	1.99	*	EL	**	0.616	1.64	*	EL	***	0.80	0.271	1.45	*	EL	**	
		SNS7B	42.000	--	1.386	58.224	1.4	0.271	1.89	*	EL	**	0.616	1.65	*	EL	***	0.80	0.271	1.39	*	EL	**	
	TTST	TNAGRIT3	33.000	--	1.782	58.809	1.4	0.271	2.43	*	EL	**	0.616	1.94	*	EL	***	0.80	0.271	1.78	*	EL	**	
		TNT4A	33.075	--	1.798	59.458	1.4	0.271	2.45	*	EL	**	0.616	1.86	*	EL	***	0.80	0.271	1.80	*	EL	**	
		TNT6A	41.600	--	1.497	62.293	1.4	0.271	2.04	*	EL	**	0.616	1.8	*	EL	***	0.80	0.271	1.50	*	EL	**	
		TNT7A	42.000	--	1.52	63.842	1.4	0.271	2.08	*	EL	**	0.616	1.67	*	EL	***	0.80	0.271	1.52	*	EL	**	
		TNT7B	42.000	--	1.585	66.559	1.4	0.271	2.16	*	EL	**	0.616	1.59	*	EL	***	0.80	0.271	1.58	*	EL	**	
		TNAGRIT4	43.000	--	1.504	64.667	1.4	0.271	2.05	*	EL	**	0.616	1.53	*	EL	***	0.80	0.271	1.50	*	EL	**	
		TNAGT5A	45.000	--	1.405	63.217	1.4	0.271	1.92	*	EL	**	0.616	1.56	*	EL	***	0.80	0.271	1.40	*	EL	**	
		TNAGT5B	45.000	3	1.376	61.936	1.4	0.271	1.88	*	EL	**	0.616	1.45	*	EL	***	0.80	0.271	**1.38**	*	EL	**	

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1. * BEARING-TO-BEARING GIRDER LENGTH VARIES BY SPAN. SEE PLAN OF SPANS FOR GIRDER LENGTHS.
2. ** DISTANCE VARIES BY SPAN. THE POINT IS AT MIDSPAN FOR ALL SPANS.
3. *** DISTANCE VARIES BY SPAN. THE POINT IS AT THE FIRST 10TH POINT FOR ALL SPANS.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

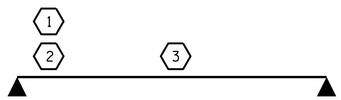
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

FOR SPANS 'A' - 'P', SKEW RANGE 106°-36'-1" TO 97°-48'-47"
AND SPANS 'FF' - 'UU', SKEW RANGE 82°-11'-13" TO 76°-49'-52"

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K Pope FA3E85D1C94A440...

8/3/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

LRFR SUMMARY FOR CORED SLAB UNIT

(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E. DATE :	6/15
CHECKED BY : B. L. GREEN, P.E. DATE :	6/15
DRAWN BY : CVC	6/10
CHECKED BY : DNS	6/10

24-JUL-2015 16:40
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tgarrison

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

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.394	--	1.75	0.276	1.57	*	EL	**	0.531	**1.39**	*	EL	***	0.80	0.276	1.44	*	EL	**	
		HL-93(Opr)	N/A	--	1.807	--	1.35	0.276	2.03	*	EL	**	0.531	1.81	*	EL	***	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.667	60.007	1.75	0.276	1.95	*	EL	**	0.531	**1.67**	*	EL	***	0.80	0.276	1.79	*	EL	**	
		HS-20(Opr)	36.000	--	2.161	77.787	1.35	0.276	2.52	*	EL	**	0.531	2.16	*	EL	***	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.635	49.079	1.4	0.276	4.95	*	EL	**	0.531	4.7	*	EL	***	0.80	0.276	3.64	*	EL	**	
		SNGARBS2	20.000	--	2.871	57.42	1.4	0.276	3.91	*	EL	**	0.531	3.42	*	EL	***	0.80	0.276	2.87	*	EL	**	
		SNAGRIS2	22.000	--	2.778	61.109	1.4	0.276	3.78	*	EL	**	0.531	3.21	*	EL	***	0.80	0.276	2.78	*	EL	**	
		SNCOTTS3	27.250	--	1.814	49.418	1.4	0.276	2.47	*	EL	**	0.531	2.36	*	EL	***	0.80	0.276	1.81	*	EL	**	
		SNAGGRS4	34.925	--	1.577	55.063	1.4	0.276	2.15	*	EL	**	0.531	2.01	*	EL	***	0.80	0.276	1.58	*	EL	**	
		SNS5A	35.550	--	1.537	54.657	1.4	0.276	2.09	*	EL	**	0.531	2.07	*	EL	***	0.80	0.276	1.54	*	EL	**	
		SNS6A	39.950	--	1.438	57.43	1.4	0.276	1.96	*	EL	**	0.531	1.91	*	EL	***	0.80	0.276	1.44	*	EL	**	
		SNS7B	42.000	--	1.370	57.54	1.4	0.276	1.87	*	EL	**	0.531	1.91	*	EL	***	0.80	0.276	1.37	*	EL	**	
	TTST	TNAGRIT3	33.000	--	1.761	58.118	1.4	0.276	2.4	*	EL	**	0.531	2.25	*	EL	***	0.80	0.276	1.76	*	EL	**	
		TNT4A	33.075	--	1.777	58.759	1.4	0.276	2.42	*	EL	**	0.531	2.17	*	EL	***	0.80	0.276	1.78	*	EL	**	
		TNT6A	41.600	--	1.480	61.558	1.4	0.276	2.01	*	EL	**	0.531	2.08	*	EL	***	0.80	0.276	1.48	*	EL	**	
		TNT7A	42.000	--	1.502	63.087	1.4	0.276	2.05	*	EL	**	0.531	1.94	*	EL	***	0.80	0.276	1.50	*	EL	**	
		TNT7B	42.000	--	1.566	65.773	1.4	0.276	2.13	*	EL	**	0.531	1.84	*	EL	***	0.80	0.276	1.57	*	EL	**	
		TNAGRIT4	43.000	--	1.486	63.902	1.4	0.276	2.02	*	EL	**	0.531	1.77	*	EL	***	0.80	0.276	1.49	*	EL	**	
		TNAGT5A	45.000	--	1.388	62.47	1.4	0.276	1.89	*	EL	**	0.531	1.8	*	EL	***	0.80	0.276	1.39	*	EL	**	
		TNAGT5B	45.000	3	1.360	61.206	1.4	0.276	1.85	*	EL	**	0.531	1.68	*	EL	***	0.80	0.276	**1.36**	*	EL	**	

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1. * BEARING-TO-BEARING GIRDER LENGTH VARIES BY SPAN. SEE PLAN OF SPANS FOR GIRDER LENGTHS.
2. ** DISTANCE VARIES BY SPAN. THE POINT IS AT MIDSPAN FOR ALL SPANS.
3. *** DISTANCE VARIES BY SPAN. THE POINT IS AT THE FIRST 20TH POINT FOR ALL SPANS.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

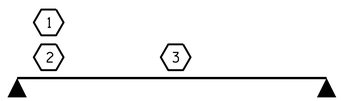
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

FOR SPANS 'O' - 'EE', SKEW RANGE 95°-12'-31" TO 84°-47'-29"

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...

8/3/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

LRFR SUMMARY FOR CORED SLAB UNIT

(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E. DATE :	6/15
CHECKED BY : B. L. GREEN, P.E. DATE :	6/15
DRAWN BY : CVC	6/10
CHECKED BY : DNS	6/10

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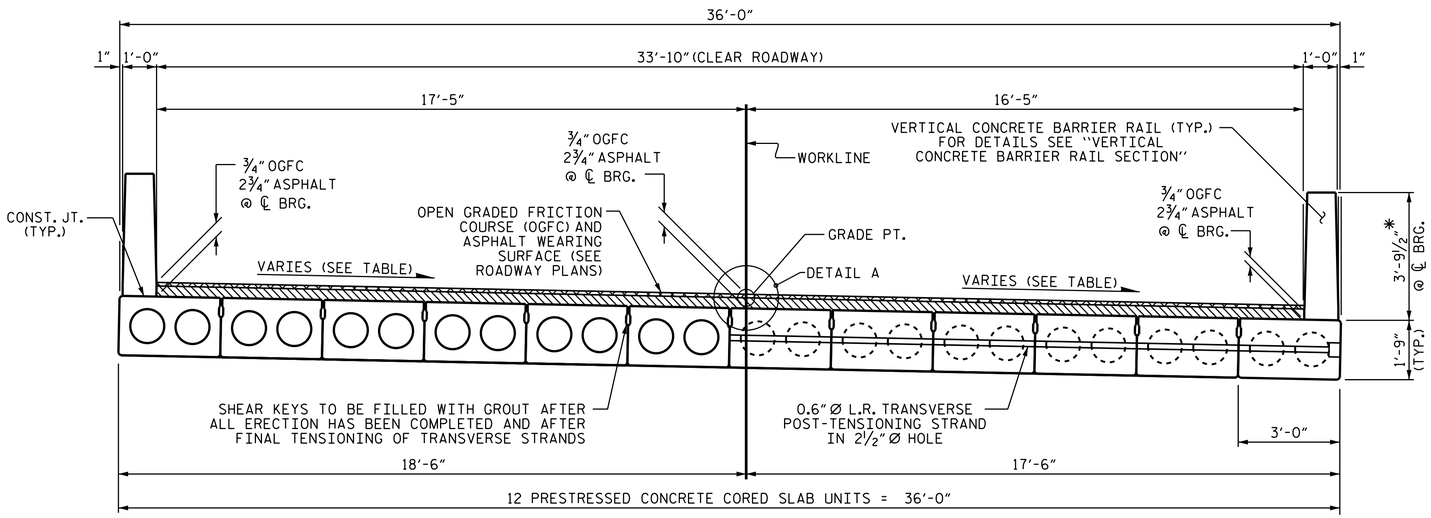
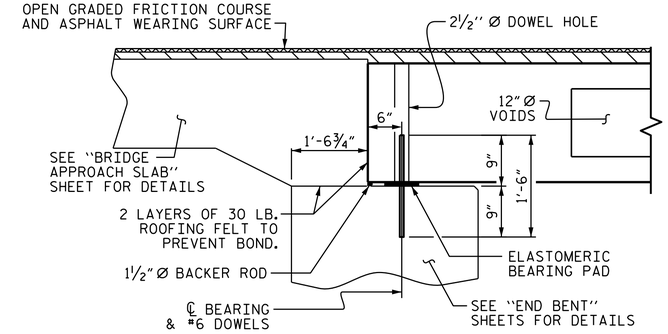


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

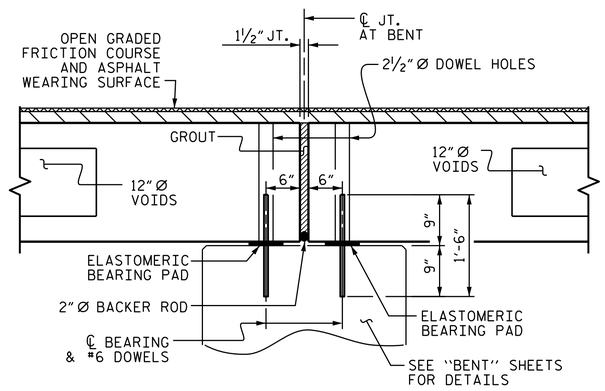
HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

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



SECTION AT END BENT



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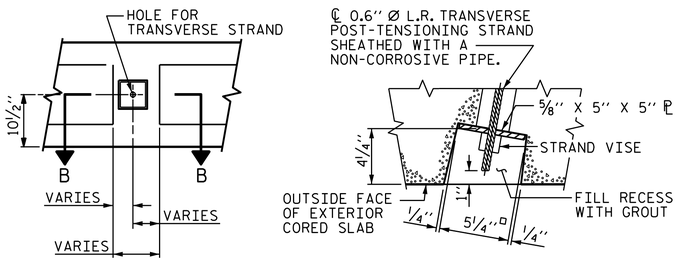
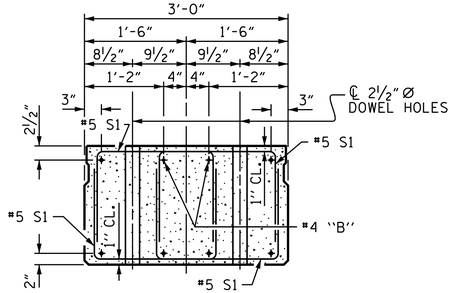


ELEVATION VIEW
(SEE PLAN OF SPAN FOR DISTANCES)

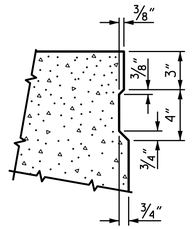
SECTION B-B
(SKEW > 90° SHOWN; DIMENSIONS FOR 90° SKEW AND SKEW < 90° SIMILAR)

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



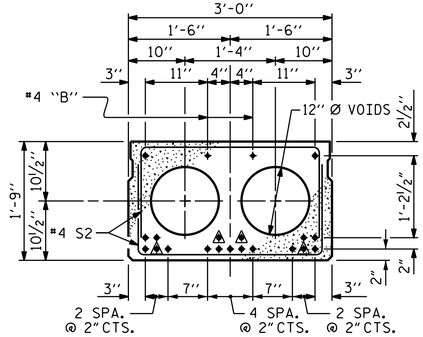
END ELEVATION

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

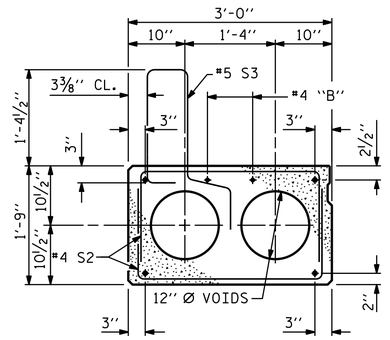


SHEAR KEY DETAIL

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



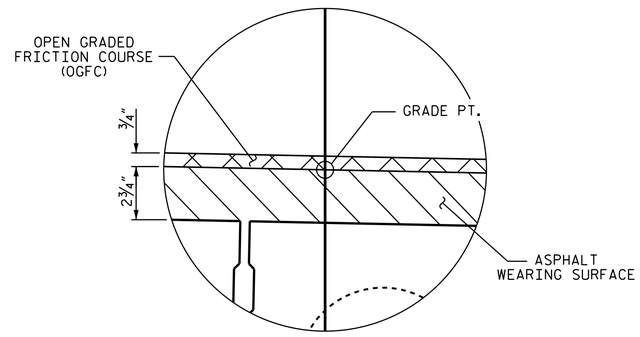
INTERIOR SLAB SECTION
(19 STRANDS REQUIRED)



EXT. SLAB SECTION

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

0.6" Ø LOW RELAXATION STRAND LAYOUT

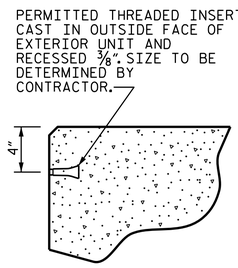


DETAIL A

VARIABLE SUPERELEVATIONS ON BRIDGE	
-L- STATION	SUPERELEVATION
3158+50	0.01
3159+00	0.02
3160+00	0.03
3161+00	0.04
3180+50	0.04
3181+50	0.03
3182+50	0.02
3183+00	0.01

⚠ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



THREADED INSERT DETAIL

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 1 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...
8/3/2015

REVISIONS						SHEET NO.
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CHECKED BY : B. L. GREEN, P.E. DATE : 6/15		
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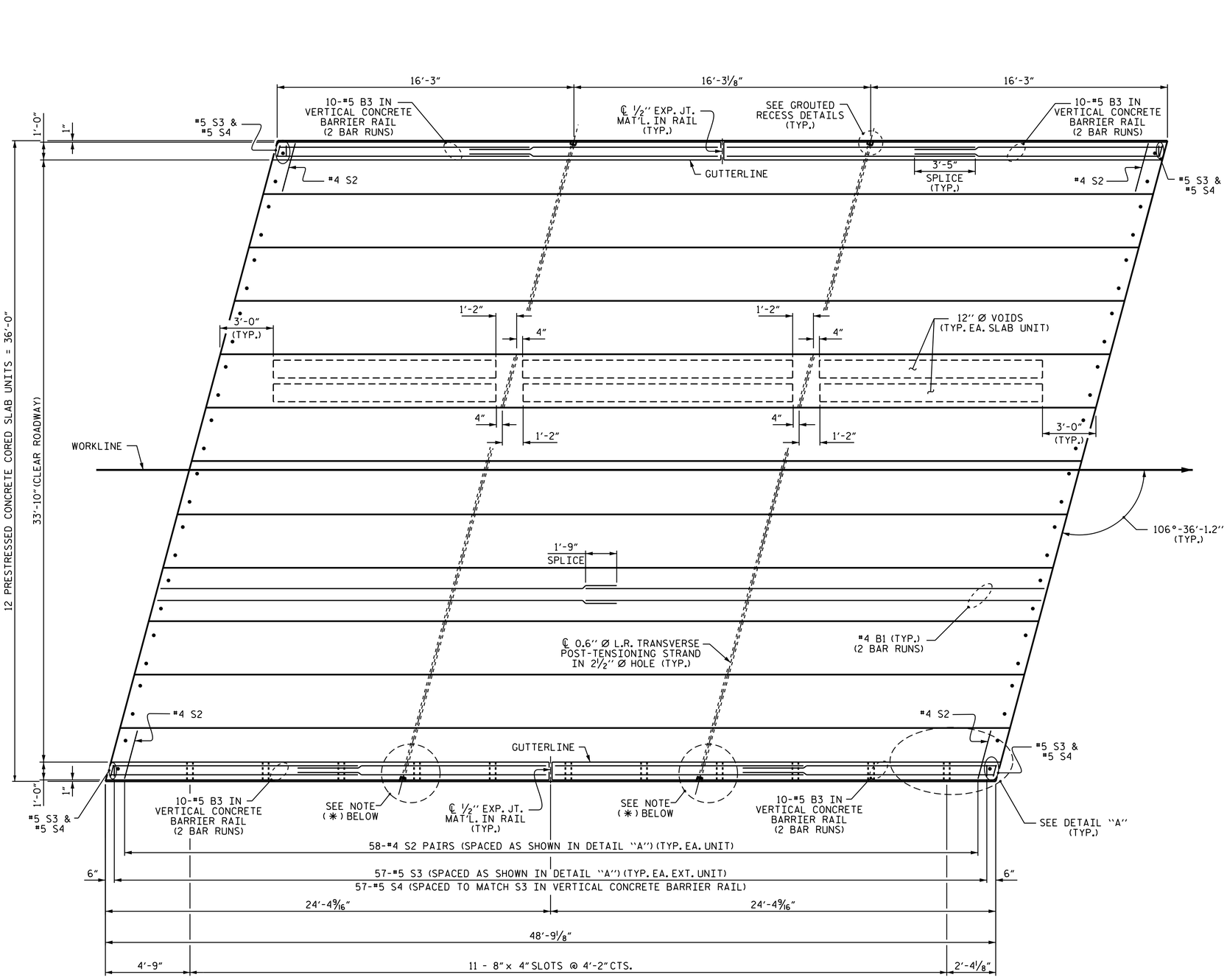
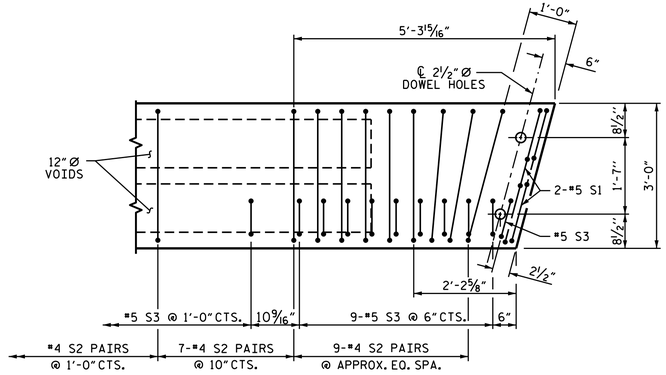


PLAN OF UNIT

FOR SPAN 'A'

* DRAIN SLOTS IN BARRIER RAIL SHOULD BE LOCATED APPROXIMATELY 2'-0" AWAY FROM THE GROUTED RECESS LOCATIONS.



DETAIL "A"

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

BEARINGS	
NEAR BRG.	FAR BRG.
A1	B1

SEE "ELASTOMERIC BEARING DETAILS" ON "SUPERSTRUCTURE TABLES AND DETAILS", SHEET 7 OF 11

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 2 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN A 33'-10" CLEAR ROADWAY

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...

8/3/2015

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1			3			TOTAL SHEETS
2			4			44

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CHECKED BY :	B. L. GREEN, P.E.	DATE :	6/15
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CHECKED BY:	BCH	6/09	
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REV.	8/14	MAA/TMG	

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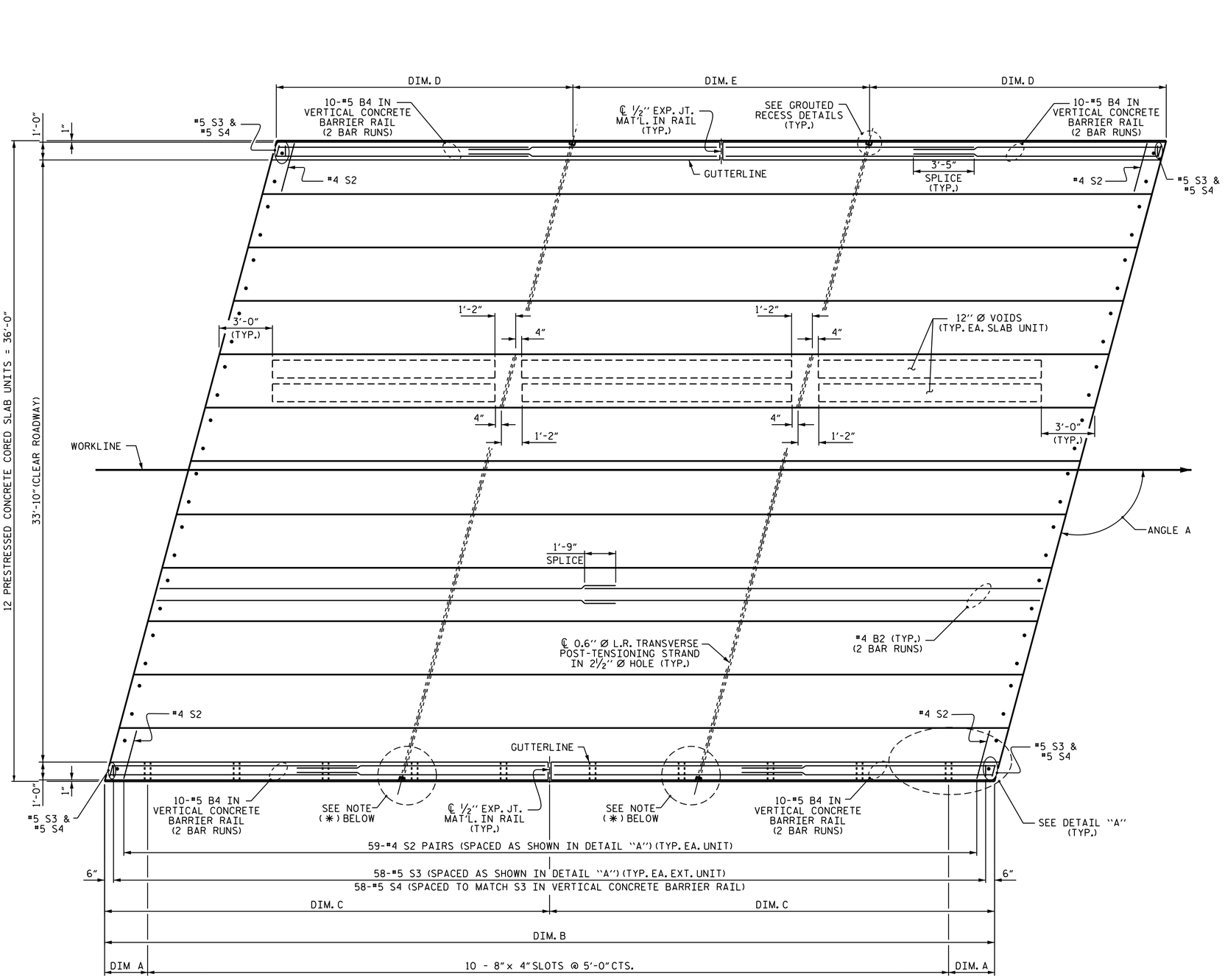
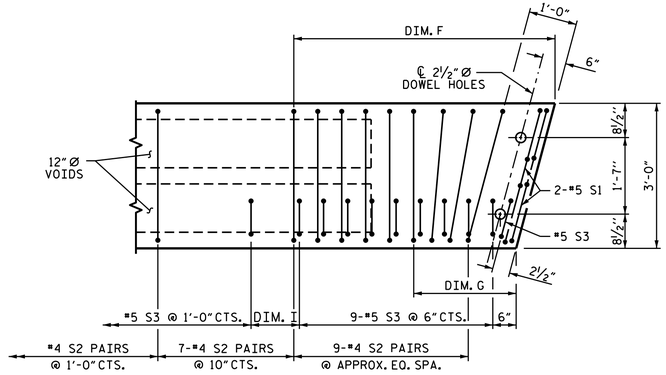


PLAN OF UNIT

FOR DIMENSIONS A THRU I FOR EACH SPAN, SEE "SUPERSTRUCTURE TABLES AND DETAILS", SHEET 7 OF 11.

* DRAIN SLOTS IN BARRIER RAIL SHOULD BE LOCATED APPROXIMATELY 2'-0" AWAY FROM THE GROUTED RECESS LOCATIONS.



DETAIL "A"

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

BEARINGS		
SPAN	NEAR BRG.	FAR BRG.
SPAN B	C1	B1
SPAN C	C1	B1
SPAN D	C1	B1
SPAN E	C2	A2
SPAN F	A2	A2
SPAN G	A2	A2
SPAN H	A3	A3
SPAN I	A3	A3
SPAN J	A3	A3
SPAN K	A4	A4
SPAN L	A4	A4
SPAN M	A4	A4
SPAN N	A5	A5
SPAN O	A5	A5
SPAN P	A5	A5
SPAN Q	A6	A6
SPAN R	A6	A6
SPAN S	A6	A6
SPAN T	A7	A7
SPAN U	A7	A7
SPAN V	A7	A7

SEE "ELASTOMERIC BEARING DETAILS" ON "SUPERSTRUCTURE TABLES AND DETAILS", SHEET 7 OF 11

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 3 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS B - V
33'-10" CLEAR ROADWAY

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...
8/3/2015

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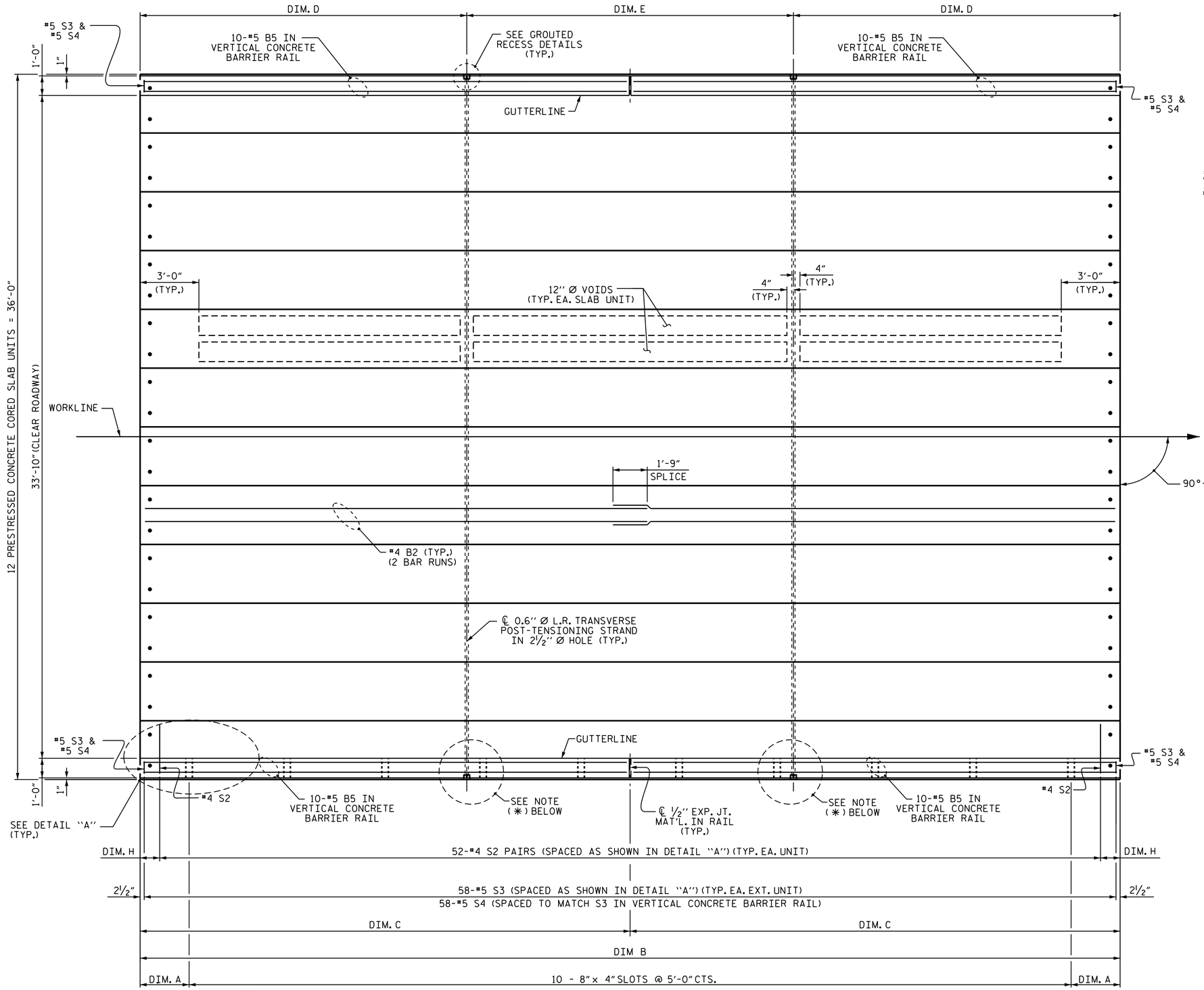

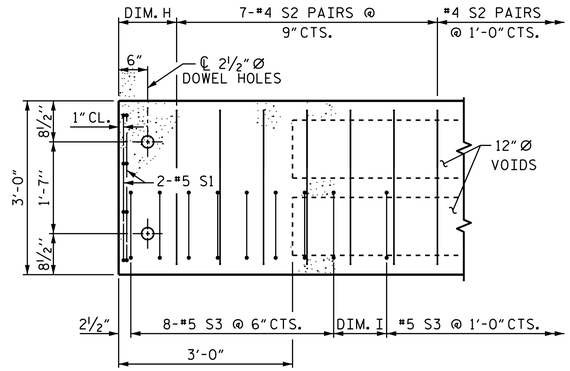

DETAIL "A"

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

BEARINGS		
SPAN	NEAR BRG.	FAR BRG.
SPAN W	A7	A7
SPAN X	A7	A7
SPAN Y	A7	A7

SEE "ELASTOMERIC BEARING DETAILS" ON "SUPERSTRUCTURE TABLES AND DETAILS", SHEET 7 OF 11

PLAN OF UNIT

FOR DIMENSIONS A THRU I FOR EACH SPAN, SEE "SUPERSTRUCTURE TABLES AND DETAILS", SHEET 7 OF 11.

* DRAIN SLOTS IN BARRIER RAIL SHOULD BE LOCATED APPROXIMATELY 2'-0" AWAY FROM THE GROUTED RECESS LOCATIONS.

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-
SHEET 4 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS W - Y
33'-10" CLEAR ROADWAY

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

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8/3/2015

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			44

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CHECKED BY : B. L. GREEN, P.E.	DATE :	6/15	
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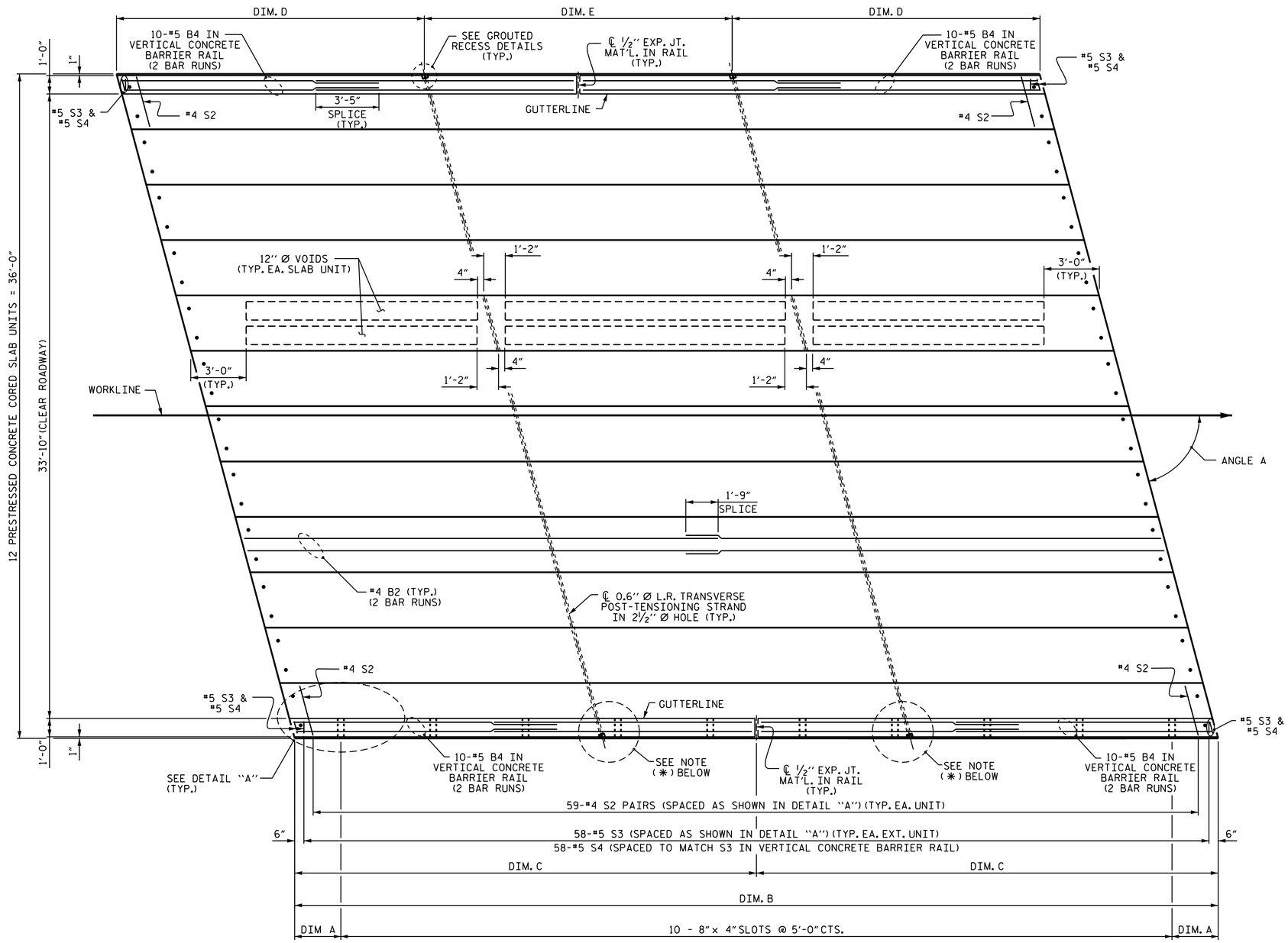
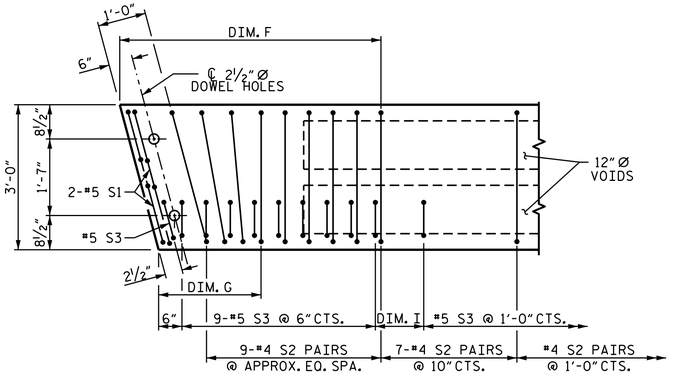


PLAN OF UNIT

FOR DIMENSIONS A THRU I FOR EACH SPAN, SEE "SUPERSTRUCTURE TABLES AND DETAILS", SHEET 7 OF 11.

* DRAIN SLOTS IN BARRIER RAIL SHOULD BE LOCATED APPROXIMATELY 2'-0" AWAY FROM THE GROUTED RECESS LOCATIONS.



DETAIL "A"

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

BEARINGS		
SPAN	NEAR BRG.	FAR BRG.
SPAN Z	A7	A7
SPAN AA	A7	A7
SPAN BB	A7	A7
SPAN CC	A6	A6
SPAN DD	A6	A6
SPAN EE	A6	A6
SPAN FF	A5	A5
SPAN GG	A5	A5
SPAN HH	A5	A5
SPAN II	A4	A4
SPAN JJ	A4	A4
SPAN KK	A4	A4
SPAN LL	A3	A3
SPAN MM	A3	A3
SPAN NN	A3	A3
SPAN OO	A3	A3
SPAN PP	A3	A3
SPAN QQ	A3	C3
SPAN RR	B2	C3
SPAN SS	B2	C3
SPAN TT	B2	C3

SEE "ELASTOMERIC BEARING DETAILS" ON "SUPERSTRUCTURE TABLES AND DETAILS", SHEET 7 OF 11

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 5 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS Z - TT 33'-10" CLEAR ROADWAY

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K Pope FA3E85D1C94A440...
8/3/2015

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			44

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CHECKED BY : B. L. GREEN, P.E.	DATE : 6/15		
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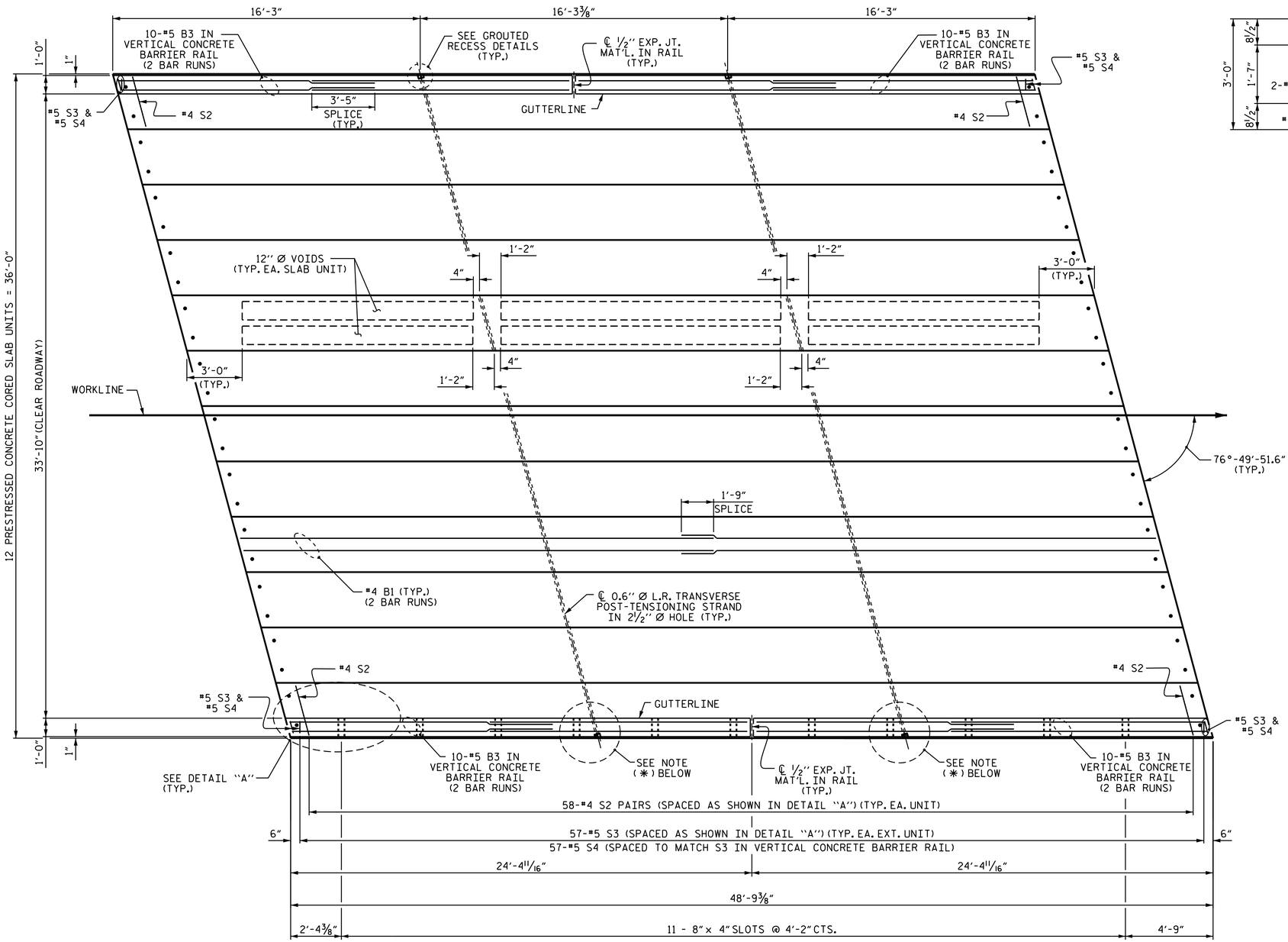
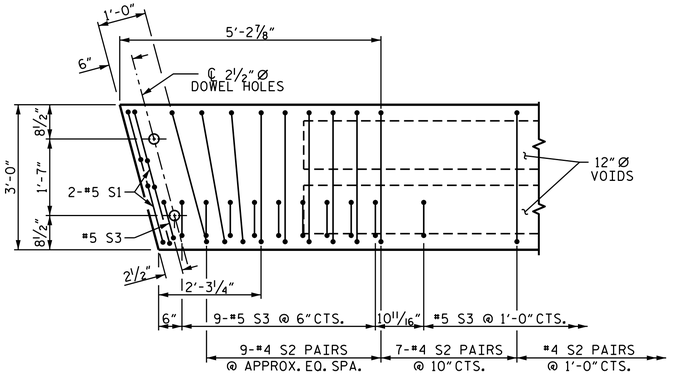


PLAN OF UNIT

FOR SPAN 'UU'

* DRAIN SLOTS IN BARRIER RAIL SHOULD BE LOCATED APPROXIMATELY 2'-0" AWAY FROM THE GROUTED RECESS LOCATIONS.



DETAIL "A"

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

BEARINGS	
NEAR BRG.	FAR BRG.
B2	A3

SEE "ELASTOMERIC BEARING DETAILS" ON "SUPERSTRUCTURE TABLES AND DETAILS", SHEET 7 OF 11

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 6 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN UU
33'-10" CLEAR ROADWAY

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

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8/3/2015

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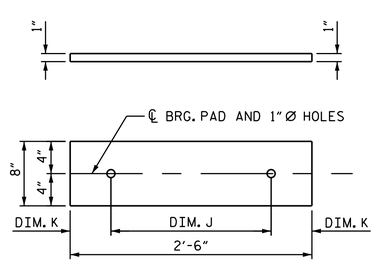
ANGLES AND DIMENSIONS FOR PLAN OF SPANS B THRU V									
SPAN	ANGLE A	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E	DIM. F	DIM. G	DIM. I
SPAN B	106°-36'-1.2"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-4 5/8"	2'-2 15/16"	11 1/4"
SPAN C	106°-36'-1.2"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-4 5/8"	2'-2 15/16"	11 1/4"
SPAN D	106°-36'-1.2"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-4 5/8"	2'-2 15/16"	11 1/4"
SPAN E	105°-36'-19.7"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-4 1/4"	2'-3 1/8"	11 1/4"
SPAN F	105°-36'-19.7"	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	5'-4 3/16"	2'-3 1/16"	11 3/16"
SPAN G	105°-36'-19.7"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-4 1/4"	2'-3 1/8"	11 1/4"
SPAN H	103°-1'-18.4"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-3 7/16"	2'-3 9/16"	11 1/4"
SPAN I	103°-1'-18.4"	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	5'-3 3/8"	2'-3 1/2"	11 3/16"
SPAN J	103°-1'-18.4"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-3 7/16"	2'-3 9/16"	11 1/4"
SPAN K	100°-25'-2.7"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-2 9/16"	2'-4"	11 1/4"
SPAN L	100°-25'-2.7"	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	5'-2 1/2"	2'-3 15/16"	11 3/16"
SPAN M	100°-25'-2.7"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-2 9/16"	2'-4"	11 1/4"
SPAN N	97°-48'-47.0"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-1 3/4"	2'-4 3/8"	11 1/4"
SPAN O	97°-48'-47.0"	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	5'-1 11/16"	2'-4 3/8"	11 3/16"
SPAN P	97°-48'-47.0"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-1 3/4"	2'-4 3/8"	11 1/4"
SPAN Q	95°-12'-31.3"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-0 7/8"	2'-4 13/16"	11 1/4"
SPAN R	95°-12'-31.3"	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	5'-0 13/16"	2'-4 3/4"	11 3/16"
SPAN S	95°-12'-31.3"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-0 7/8"	2'-4 13/16"	11 1/4"
SPAN T	92°-36'-15.7"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-0 1/16"	2'-5 3/16"	11 1/4"
SPAN U	92°-36'-15.7"	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	5'-0"	2'-5 3/16"	11 3/16"
SPAN V	92°-36'-15.7"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-0 1/16"	2'-5 3/16"	11 1/4"

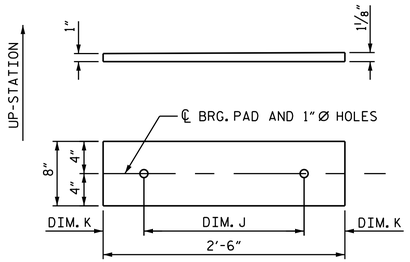
DIMENSIONS FOR PLAN OF SPANS W THRU Y							
SPAN	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E	DIM. H	DIM. I
SPAN W	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	11 1/4"	8 3/4"
SPAN X	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	11 3/16"	8 11/16"
SPAN Y	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	11 1/4"	8 3/4"



BEARING PAD A

FIXED END, TYPE 1

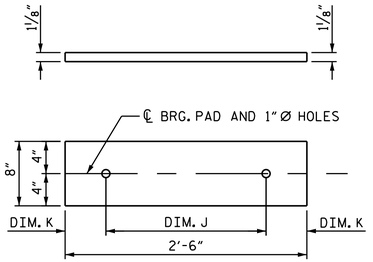
BRG.	DIM. J	DIM. K	REQ'D
A1	1'-7 7/8"	5 1/16"	12
A2	1'-7 3/4"	5 1/8"	60
A3	1'-7 1/2"	5 1/4"	216
A4	1'-7 3/8"	5 5/16"	144
A5	1'-7 1/4"	5 3/8"	144
A6	1'-7 1/8"	5 7/16"	144
A7	1'-7"	5 1/2"	216



BEARING PAD B

FIXED END, TYPE 1

BRG.	DIM. J	DIM. K	REQ'D
B1	1'-7 7/8"	5 1/16"	48
B2	1'-7 1/2"	5 1/4"	48



BEARING PAD C

FIXED END, TYPE 1

BRG.	DIM. J	DIM. K	REQ'D
C1	1'-7 7/8"	5 1/16"	36
C2	1'-7 3/4"	5 1/8"	12
C3	1'-7 1/2"	5 1/4"	48

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

ANGLES AND DIMENSIONS FOR PLAN OF SPANS Z THRU TT									
SPAN	ANGLE A	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E	DIM. F	DIM. G	DIM. I
SPAN Z	87°-23'-44.3"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-0 1/16"	2'-5 3/16"	11 1/4"
SPAN AA	87°-23'-44.3"	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	5'-0"	2'-5 3/16"	11 3/16"
SPAN BB	87°-23'-44.3"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-0 1/16"	2'-5 3/16"	11 1/4"
SPAN CC	84°-47'-28.7"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-0 7/8"	2'-4 13/16"	11 1/4"
SPAN DD	84°-47'-28.7"	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	5'-0 13/16"	2'-4 3/4"	11 3/16"
SPAN EE	84°-47'-28.7"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-0 7/8"	2'-4 13/16"	11 1/4"
SPAN FF	82°-11'-13.0"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-1 3/4"	2'-4 3/8"	11 1/4"
SPAN GG	82°-11'-13.0"	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	5'-1 11/16"	2'-4 3/8"	11 3/16"
SPAN HH	82°-11'-13.0"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-1 3/4"	2'-4 3/8"	11 1/4"
SPAN II	79°-34'-57.3"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-2 9/16"	2'-4"	11 1/4"
SPAN JJ	79°-34'-57.3"	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	5'-2 1/2"	2'-3 15/16"	11 3/16"
SPAN KK	79°-34'-57.3"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-2 9/16"	2'-4"	11 1/4"
SPAN LL	77°-11'-37.1"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-3 5/16"	2'-3 9/16"	11 1/4"
SPAN MM	77°-11'-37.1"	2'-5 3/16"	49'-10 3/8"	24'-11 3/16"	16'-7 1/2"	16'-7 3/8"	5'-3 1/4"	2'-3 9/16"	11 3/16"
SPAN NN	77°-11'-37.1"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-3 5/16"	2'-3 9/16"	11 1/4"
SPAN OO	76°-44'-7.2"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-3 1/2"	2'-3 1/2"	11 1/4"
SPAN PP	76°-44'-7.2"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-3 1/2"	2'-3 1/2"	11 1/4"
SPAN QQ	76°-44'-7.2"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-3 1/2"	2'-3 1/2"	11 1/4"
SPAN RR	76°-49'-51.6"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-3 7/16"	2'-3 9/16"	11 1/4"
SPAN SS	76°-49'-51.6"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-3 7/16"	2'-3 9/16"	11 1/4"
SPAN TT	76°-49'-51.6"	2'-5 1/4"	49'-10 1/2"	24'-11 1/4"	16'-7 1/2"	16'-7 1/2"	5'-3 7/16"	2'-3 9/16"	11 1/4"

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 7 OF 11

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SUPERSTRUCTURE TABLES AND DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...

8/20/2015

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

SHEET NO. S-17

TOTAL SHEETS 44

ASSEMBLED BY : E. K. POPE, P.E. DATE : 5/15
CHECKED BY : B. L. GREEN, P.E. DATE : 6/15

DRAWN BY : DGE 5/09
CHECKED BY: BCH 6/09

REV. 12/5/11 MAA/AAC
REV. 8/14 MAA/TMG

20-AUG-2015 10:12
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tgarrison

CONCRETE RELEASE STRENGTH
4900 PSI

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9"
ALL SPANS	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1½" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	⅜" ↓
FINAL CAMBER	1⅛" ↑

** INCLUDES FUTURE WEARING SURFACE

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

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
ALL SPANS	1⅝"	3'-8⅜"

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

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

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

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 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 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.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

PRESTRESSED CONCRETE CORED SLAB UNITS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE CORED SLAB UNITS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE INHIBITOR SHALL BE APPLIED AT A RATE OF 4.0 GALLONS PER CUBIC YARD. NO SEPARATE PAYMENT WILL BE MADE FOR THE ADDITION OF CALCIUM NITRITE, AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

THE DRAIN OPENING AT THE GUTTERLINE SHALL BY 4" x 8". THE HEIGHT OF THE BLOCKOUT IN THE VERTICAL CONCRETE BARRIER RAIL SHALL EXTEND FROM THE TOP OF THE CORED SLAB UNIT TO THE TOP OF THE DRAIN OPENING.

APPLY EPOXY PROTECTIVE COATING TO EXTERIOR FACE OF THE EXTERIOR CORED SLAB UNITS THAT REQUIRE DRAINS IN THE BARRIER RAIL.

APPLY EPOXY PROTECTIVE COATING TO GROUTED RECESS AREA OF EXTERIOR CORED SLAB UNITS ONCE GROUT STRENGTH REACHES 5000 PSI.

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 8 OF 11

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K Pope FA3E85D1C94A440...

8/3/2015

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-18
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E. DATE : 6/15	
CHECKED BY : B. L. GREEN, P.E. DATE : 6/15	
DRAWN BY : DGE 5/09	REV. 11/14 MAA/TMG
CHECKED BY : BCH 6/09	

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BILL OF MATERIAL FOR ONE CORED SLAB UNIT - SPAN A

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B1	4	#4	STR	25'-2"	67	25'-2	67
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	116	#4	3	5'-4"	413	5'-4"	413
✳ S3	59	#5	1	5'-7"	344		
REINFORCING STEEL		LBS.			515		515
✳ EPOXY COATED REINFORCING STEEL		LBS.			344		
6500 P.S.I. CONCRETE		CU. YDS.			7.3		7.3
0.6" Ø L.R. STRANDS		No.			19		19

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL
INTERIOR C.S.	10	48'-9⅛"	487'-7¼"
EXTERIOR C.S.	2	48'-9⅛"	97'-6¼"
TOTAL	12		585'-1½"

BILL OF MATERIAL FOR ONE CORED SLAB UNIT SPANS B, C, D, E, G, H, J, K, M, N, P, Q, S, T, V, Z, BB, CC, EE, FF, HH, II, KK, LL, NN, OO, PP, QQ, RR, SS, AND TT

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B2	4	#4	STR	25'-8"	69	25'-8"	69
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	118	#4	3	5'-4"	420	5'-4"	420
✳ S3	60	#5	1	5'-7"	349		
REINFORCING STEEL		LBS.			524		524
✳ EPOXY COATED REINFORCING STEEL		LBS.			349		
6500 P.S.I. CONCRETE		CU. YDS.			7.3		7.3
0.6" Ø L.R. STRANDS		No.			19		19

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL
INTERIOR C.S.	310	49'-10½"	15461'-3"
EXTERIOR C.S.	62	49'-10½"	3092'-3"
TOTAL	372		18553'-6"

BILL OF MATERIAL FOR ONE CORED SLAB UNIT SPANS F, I, L, O, R, U, AA, DD, GG, JJ, AND MM

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B2	4	#4	STR	25'-8"	69	25'-8"	69
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	118	#4	3	5'-4"	420	5'-4"	420
✳ S3	60	#5	1	5'-7"	349		
REINFORCING STEEL		LBS.			524		524
✳ EPOXY COATED REINFORCING STEEL		LBS.			349		
6500 P.S.I. CONCRETE		CU. YDS.			7.3		7.3
0.6" Ø L.R. STRANDS		No.			19		19

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL
INTERIOR C.S.	110	49'-10⅜"	5485'-1¼"
EXTERIOR C.S.	22	49'-10⅜"	1097'-0¼"
TOTAL	132		6582'-1½"

BILL OF MATERIAL FOR ONE CORED SLAB UNIT - SPANS W AND Y

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B2	4	#4	STR	25'-8"	69	25'-8"	69
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	104	#4	3	5'-4"	371	5'-4"	371
✳ S3	58	#5	1	5'-7"	338		
REINFORCING STEEL		LBS.			475		475
✳ EPOXY COATED REINFORCING STEEL		LBS.			338		
6500 P.S.I. CONCRETE		CU. YDS.			7.3		7.3
0.6" Ø L.R. STRANDS		No.			19		19

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL
INTERIOR C.S.	20	49'-10½"	997'-6"
EXTERIOR C.S.	4	49'-10½"	199'-6"
TOTAL	24		1197'-0"

BILL OF MATERIAL FOR ONE CORED SLAB UNIT - SPAN X

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B2	4	#4	STR	25'-8"	69	25'-8"	69
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	104	#4	3	5'-4"	371	5'-4"	371
✳ S3	58	#5	1	5'-7"	338		
REINFORCING STEEL		LBS.			475		475
✳ EPOXY COATED REINFORCING STEEL		LBS.			338		
6500 P.S.I. CONCRETE		CU. YDS.			7.3		7.3
0.6" Ø L.R. STRANDS		No.			19		19

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL
INTERIOR C.S.	10	49'-10⅜"	498'-7¾"
EXTERIOR C.S.	2	49'-10⅜"	99'-8¾"
TOTAL	12		598'-4½"

BILL OF MATERIAL FOR ONE CORED SLAB UNIT - SPAN UU

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B1	4	#4	STR	25'-2"	67	25'-2"	67
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	116	#4	3	5'-4"	413	5'-4"	413
✳ S3	59	#5	1	5'-7"	344		
REINFORCING STEEL		LBS.			515		515
✳ EPOXY COATED REINFORCING STEEL		LBS.			344		
6500 P.S.I. CONCRETE		CU. YDS.			7.3		7.3
0.6" Ø L.R. STRANDS		No.			19		19

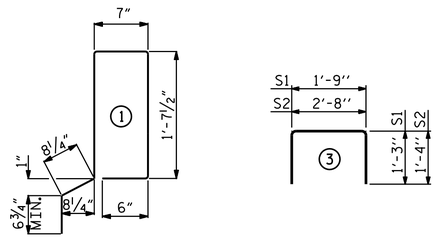
CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL
INTERIOR C.S.	10	48'-9⅜"	487'-9¾"
EXTERIOR C.S.	2	48'-9⅜"	97'-6¾"
TOTAL	12		585'-4½"

NOTES

SEE "SUPERSTRUCTURE TABLES AND DETAILS", SHEET 7 OF 11, FOR SKEW ANGLES FOR EACH SPAN.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 9 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K Pope FA3E85D1C94A440...

8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E. DATE : 6/15
CHECKED BY : B. L. GREEN, P.E. DATE : 6/15

DRAWN BY : DGE 5/09
CHECKED BY : BCH 6/09

REV. 11/14 MAA/TMG

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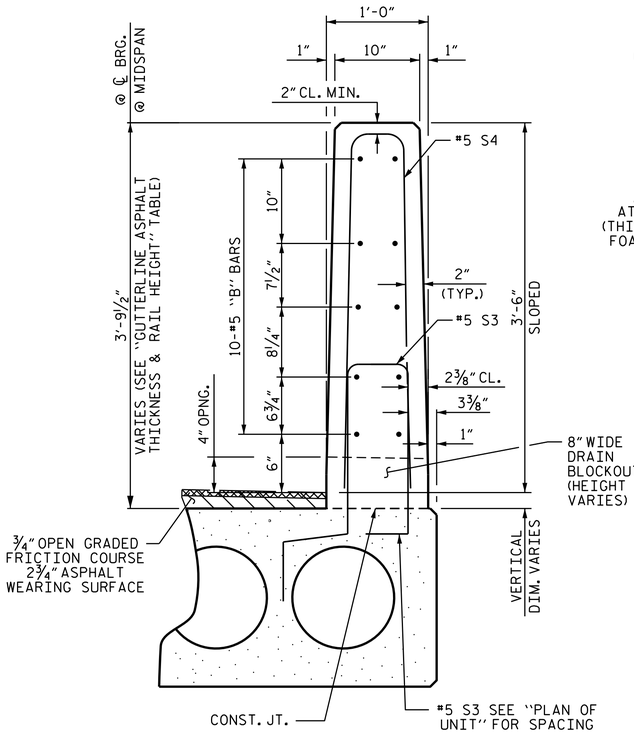
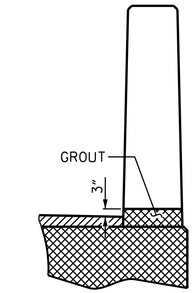
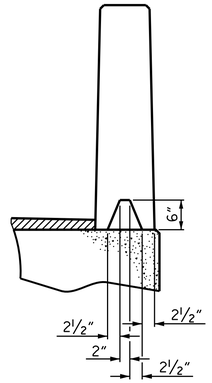


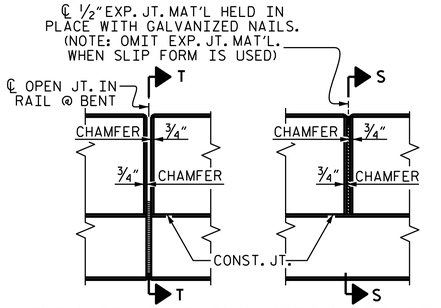
VERTICAL CONCRETE BARRIER RAIL SECTION



SECTION T-T
AT OPEN JOINT AT BENT
(THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)



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



ELEVATION AT EXPANSION JOINTS

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPANS A AND UU	2 SPANS				
✳ B3	80	160	#5	STR	13'-9"	2295
✳ S4	118	236	#5	2	7'-2"	1764
✳EPOXY COATED REINFORCING STEEL				LBS.		4059
CLASS AA CONCRETE				CU.YDS.		25.3
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		195.08

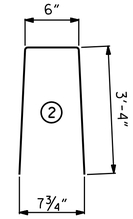
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPANS B THRU V AND SPANS Z THRU TT	42 SPANS				
✳ B4	80	3360	#5	STR	14'-2"	49647
✳ S4	120	5040	#5	2	7'-2"	37673
✳EPOXY COATED REINFORCING STEEL				LBS.		87320
CLASS AA CONCRETE				CU.YDS.		543.1
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		4189.26

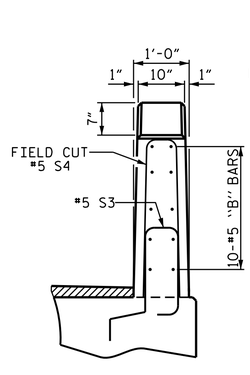
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPANS W THRU Y	3 SPANS				
✳ B5	40	120	#5	STR	24'-7"	3077
✳ S4	116	348	#5	2	7'-2"	2601
✳EPOXY COATED REINFORCING STEEL				LBS.		5678
CLASS AA CONCRETE				CU.YDS.		38.8
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		299.23

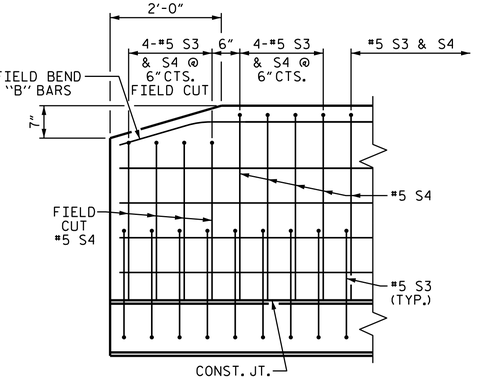
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT



END VIEW



SIDE VIEW

END OF RAIL DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K Pope FA3E85D1C94A440...
8/3/2015

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 10 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E.	DATE : 6/15
CHECKED BY : B. L. GREEN, P.E.	DATE : 6/15
DRAWN BY : DGE 5/09	REV. 11/14 MAA/TMG
CHECKED BY : BCH 6/09	

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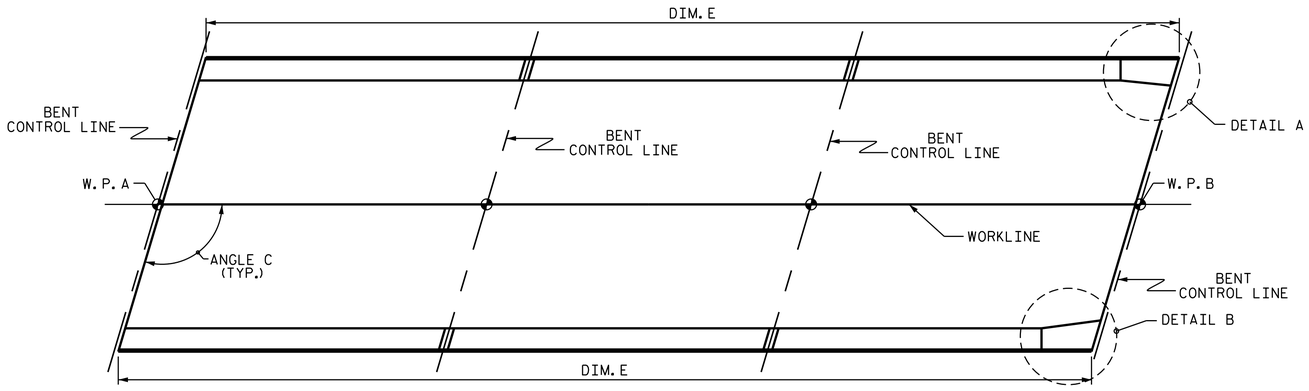
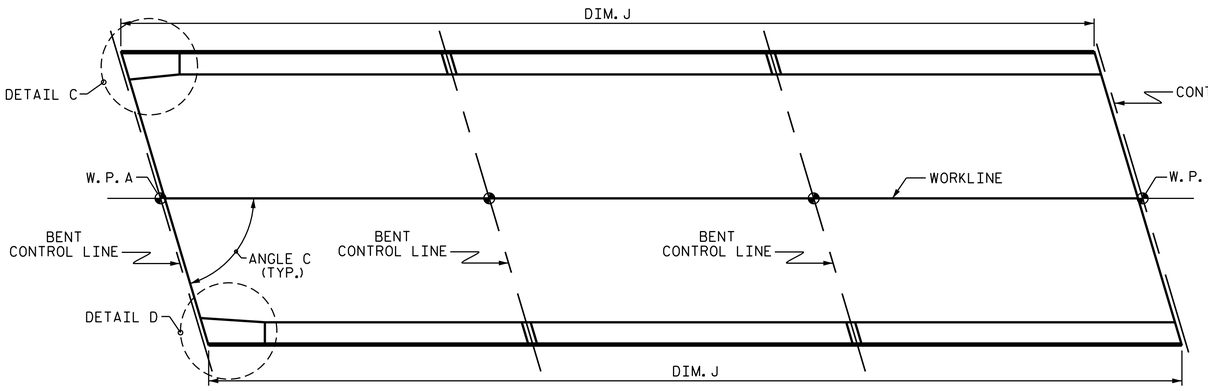
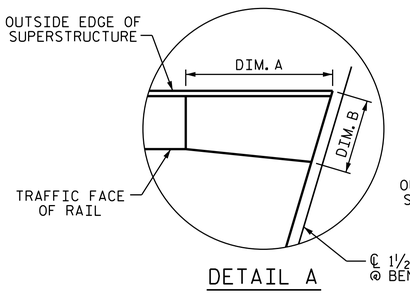
STD. NO. 21"PCS3_36_75S



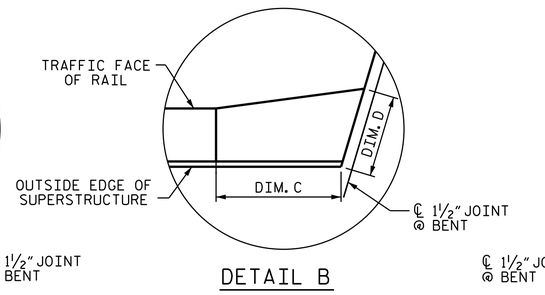
PLAN OF TAPERED RAILS - SPANS A THRU Y



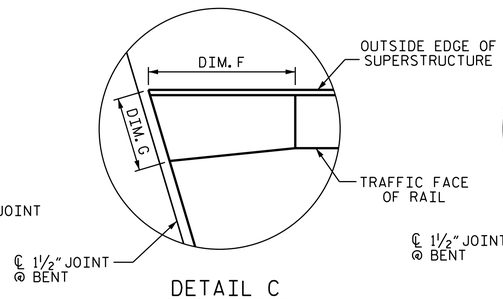
PLAN OF TAPERED RAILS - SPANS Z THRU UU



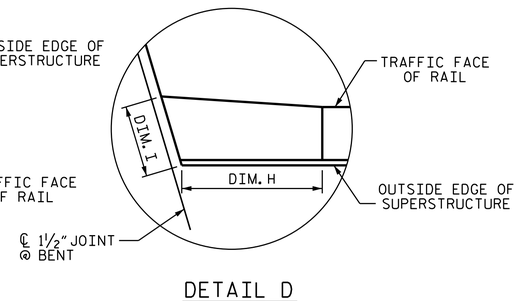
DETAIL A



DETAIL B



DETAIL C



DETAIL D

NOTES:

THE CONTRACTOR HAS THE OPTION OF CASTING THE VERTICAL CONCRETE BARRIER RAIL ON THE CORED SLAB UNITS PRIOR TO PLACING THE CORED SLAB UNITS ON THE PRECAST CAPS. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY AND STABILITY OF THE EXTERIOR UNITS WITH THE CAST IN PLACE RAIL AT ALL TIMES. THE CONTRACTOR SHALL SUBMIT PROPOSED FABRICATION AND CONSTRUCTION PROCEDURES INCLUDING BUT NOT LIMITED TO DETAILS FOR THE BARRIER RAIL FORMWORK, DETAILS FOR PLUMB BARRIER RAIL FACES AFTER ERECTION TO COMPENSATE FOR SUPERELEVATION AND DEAD LOAD DEFLECTION AND CAMBER, HANDLING, PLACING, ALIGNING THE POST TENSION DUCTS, AND POST TENSIONING OF THE EXTERIOR UNITS WITH BARRIER RAILS TO THE ENGINEER FOR APPROVAL. ALL COST ASSOCIATED WITH REPAIRING DAMAGED OR REPLACING REJECTED BEAMS DUE TO DAMAGE WILL BE AT THE EXPENSE OF THE CONTRACTOR.

TAPERED RAIL DIMENSIONS SPANS A THRU Y

SPAN GROUP	W. P. A	W. P. B	ANGLE C	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E
A THRU D	W. P. #1	W. P. #5	106°-36'-1.2"	5'-3 5/8"	1'-2 5/8"	5'-3"	1'-2 9/16"	198'-9 1/8"
E THRU G	W. P. #5	W. P. #8	105°-36'-19.7"	4'-8 9/16"	1'-3 15/16"	4'-9"	1'-3 3/4"	149'-10 3/8"
H THRU J	W. P. #8	W. P. #11	103°-1'-18.4"	3'-9 7/8"	1'-3 5/16"	3'-9"	1'-3 1/8"	149'-10 3/8"
K THRU M	W. P. #11	W. P. #14	100°-25'-2.7"	2'-11 5/16"	1'-2 3/4"	3'-0"	1'-2 9/16"	149'-10 3/8"
N THRU P	W. P. #14	W. P. #17	97°-48'-47.0"	2'-0 15/16"	1'-2 3/16"	2'-0"	1'-2 1/16"	149'-10 3/8"
Q THRU S	W. P. #17	W. P. #20	95°-12'-31.3"	1'-2 3/4"	1'-1 11/16"	1'-3"	1'-1 9/16"	149'-10 3/8"
T THRU V	W. P. #20	W. P. #23	92°-36'-15.7"	NO TAPER		NO TAPER		149'-10 3/8"
W THRU Y	W. P. #23	W. P. #26	90°-00'-00"	NO TAPER		NO TAPER		149'-10 3/8"

DIMENSIONS SHALL BE MEASURED AT THE TOP OF THE CORED SLAB UNITS

TAPERED RAIL DIMENSIONS SPANS Z THRU UU

SPAN GROUP	W. P. A	W. P. B	ANGLE C	DIM. F	DIM. G	DIM. H	DIM. I	DIM. J
Z THRU BB	W. P. #26	W. P. #29	87°-23'-44.3"	NO TAPER		NO TAPER		149'-10 3/8"
CC THRU EE	W. P. #29	W. P. #32	84°-47'-28.7"	1'-2 3/4"	1'-1 11/16"	1'-3"	1'-1 9/16"	149'-10 3/8"
FF THRU HH	W. P. #32	W. P. #35	82°-11'-13.0"	2'-1"	1'-2 3/16"	2'-0"	1'-2 1/16"	149'-10 3/8"
II THRU KK	W. P. #35	W. P. #38	79°-34'-57.3"	2'-11 1/2"	1'-2 3/4"	3'-0"	1'-2 9/16"	149'-10 3/8"
LL THRU NN	W. P. #38	W. P. #41	77°-11'-37.1"	3'-9 9/16"	1'-3 3/8"	3'-9"	1'-3"	149'-10 3/8"
OO THRU QQ	W. P. #41	W. P. #44	76°-44'-7.2"	NO TAPER		NO TAPER		149'-10 1/2"
RR THRU UU	W. P. #44	W. P. #48	76°-49'-51.6"	NO TAPER		NO TAPER		198'-9 3/8"

DIMENSIONS SHALL BE MEASURED AT THE TOP OF THE CORED SLAB UNITS

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 11 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

VERTICAL CONCRETE BARRIER RAIL

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K Pope FA3E85D1C94A440...
8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E.	DATE : 6/15
CHECKED BY : T. M. GARRISON, P.E.	DATE : 6/15
DRAWN BY : DGE 5/09	REV. 11/14 MAA/TMG
CHECKED BY : BCH 6/09	

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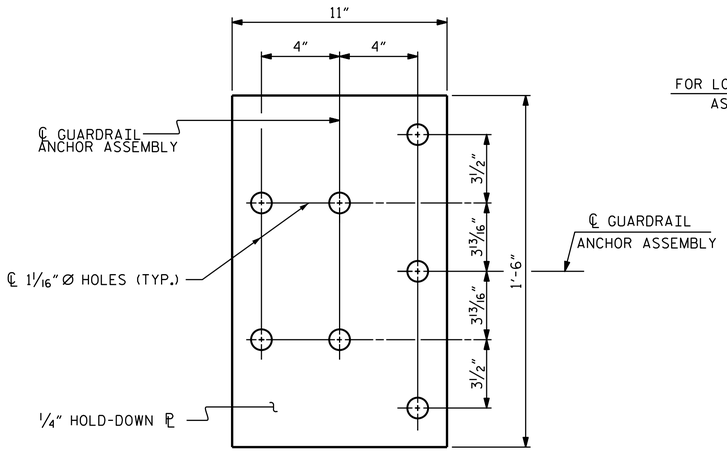
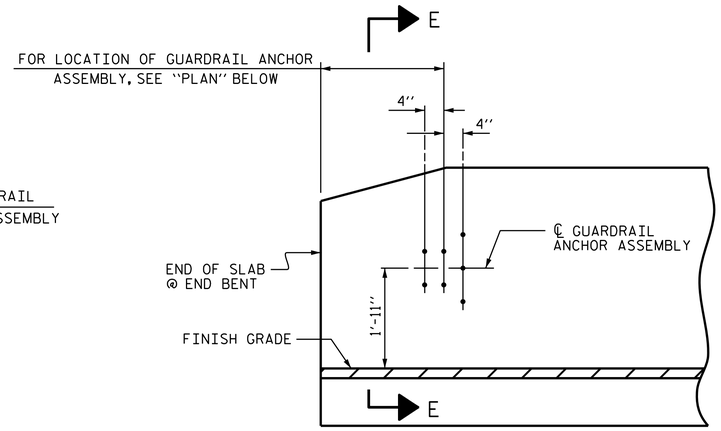


PLAN



ELEVATION

NOTES

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

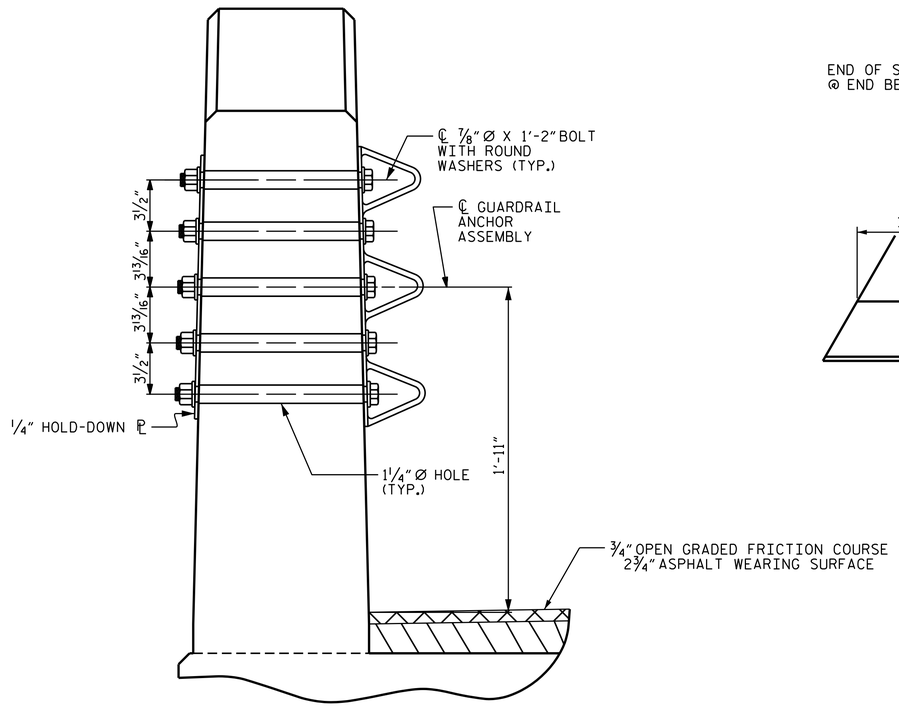
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

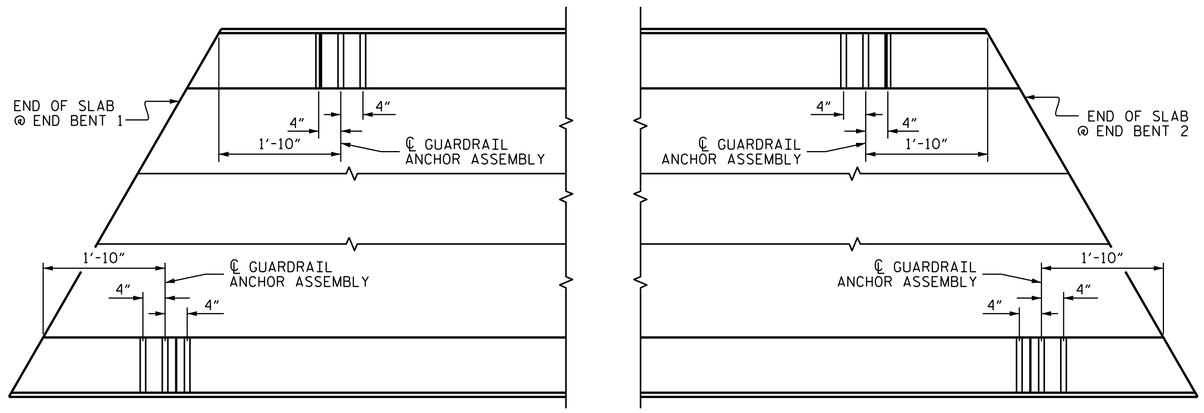
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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



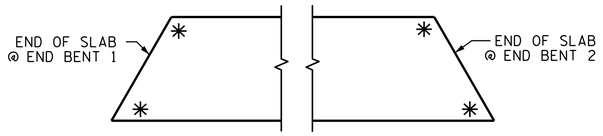
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			44

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...

8/3/2015

ASSEMBLED BY : E. K. POPE, P.E.		DATE : 6/15	
CHECKED BY : B. L. GREEN, P.E.		DATE : 6/15	
DRAWN BY : MAA 5/10	REV. 12/5/11		MAA/GM
CHECKED BY : GM 5/10	REV. 6/13		MAA/GM
	REV. 1/15		MAA/TMG

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(SHT 1a) STD. NO. GRA3

NOTES

FOR PRESTRESSED CAP DETAILS AND BILL OF MATERIAL, SEE "PIECE EB1-01" "PIECE EB1-02" & "PIECE EB1-03" SHEETS.

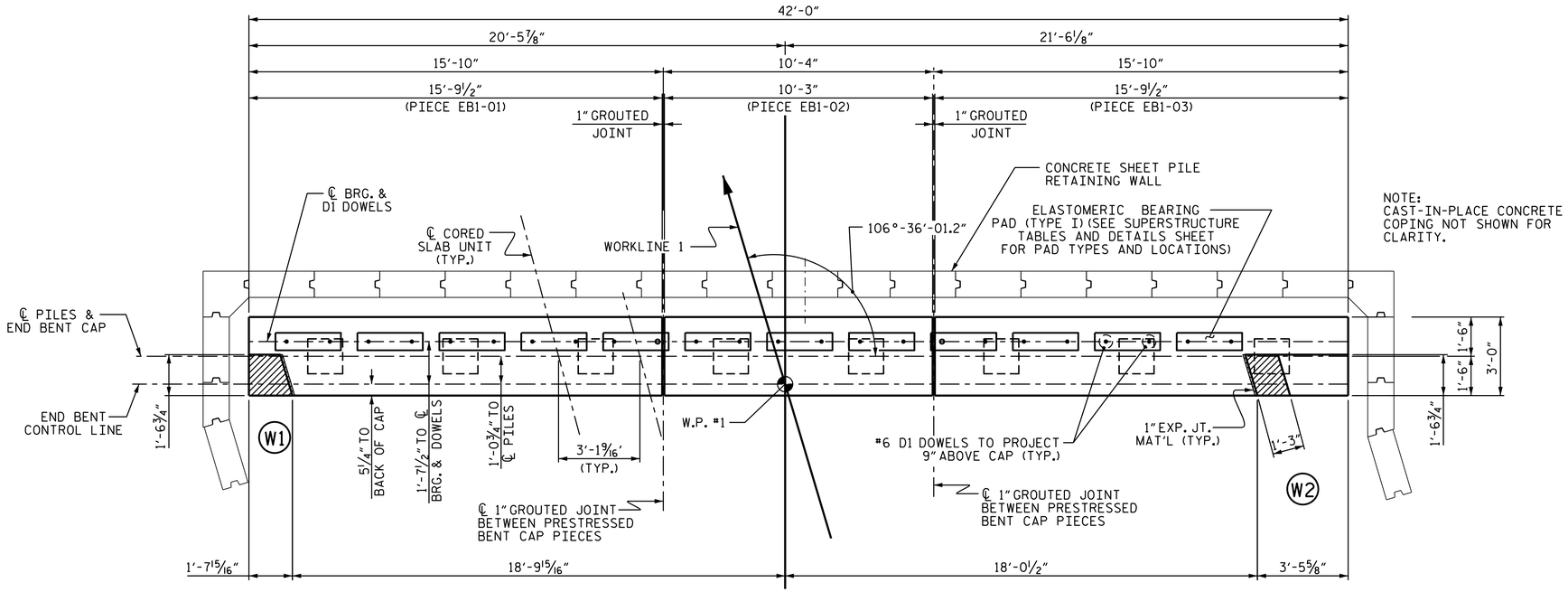
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR 3'-0" x 2'-6" PRESTRESSED CONCRETE BENT CAPS, SEE SPECIAL PROVISIONS.

FOR CONCRETE SHEET PILE RETAINING WALLS, SEE "CONCRETE SHEET PILE RETAINING WALL, WALL AND COPING DETAILS AT END BENTS" SHEET.

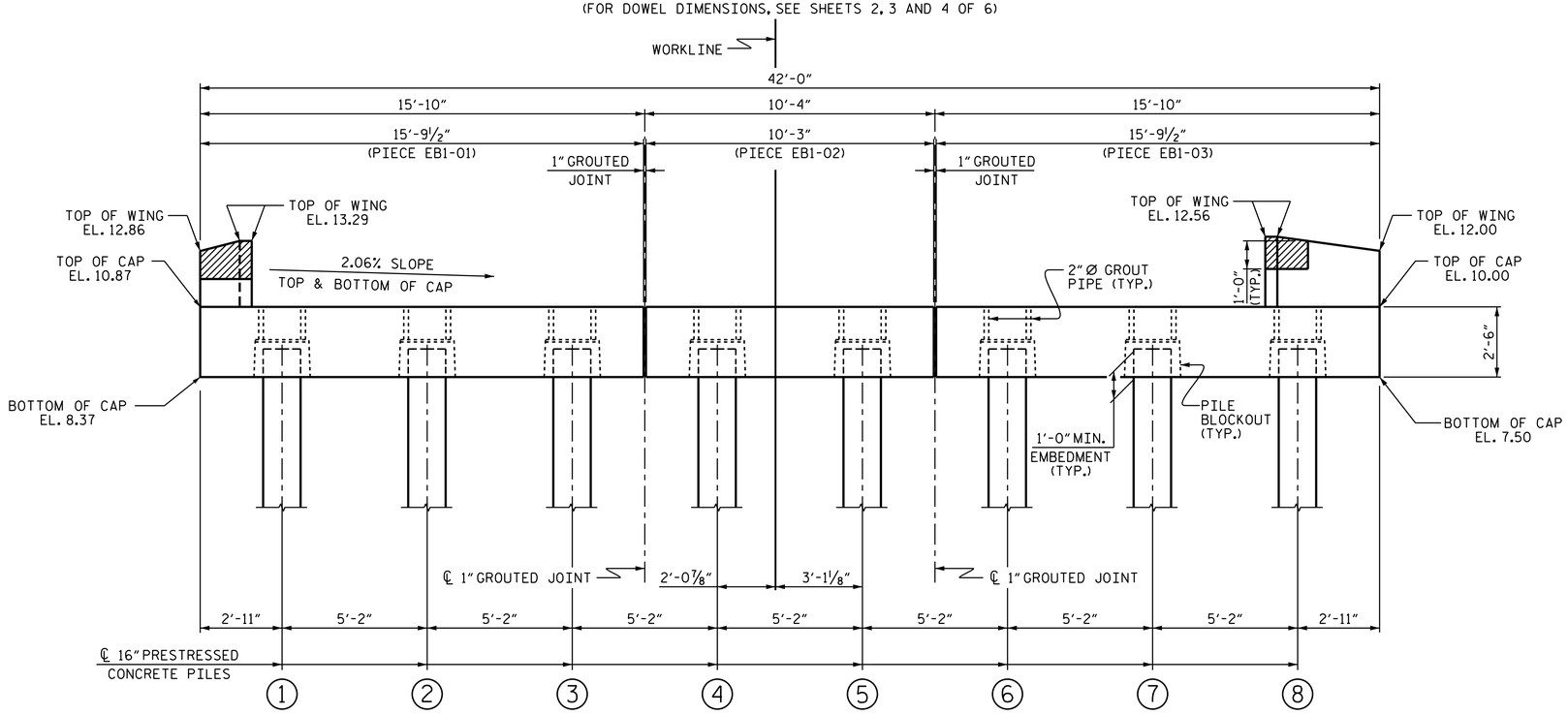
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR WING DETAILS, SEE SHEET 6 OF 6.



PLAN

(PILE BLOCKOUTS AND GROUT PIPES NOT SHOWN FOR CLARITY)
(FOR DOWEL DIMENSIONS, SEE SHEETS 2, 3 AND 4 OF 6)



ELEVATION

FOR 2" Ø GROUT PIPE AND PILE BLOCKOUT DETAILS, SEE SHEET 5 OF 6

TOP OF PILE ELEVATIONS	
1	9.32
2	9.22
3	9.11
4	9.00
5	8.90
6	8.79
7	8.68
8	8.58

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943466...

8/3/2015

ASSEMBLED BY : M.A. ALLEN	DATE : 6/15
CHECKED BY : T.M. GARRISON	DATE : 6/15
DRAWN BY : MAA	7/12
CHECKED BY : SHS	8/12

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			44

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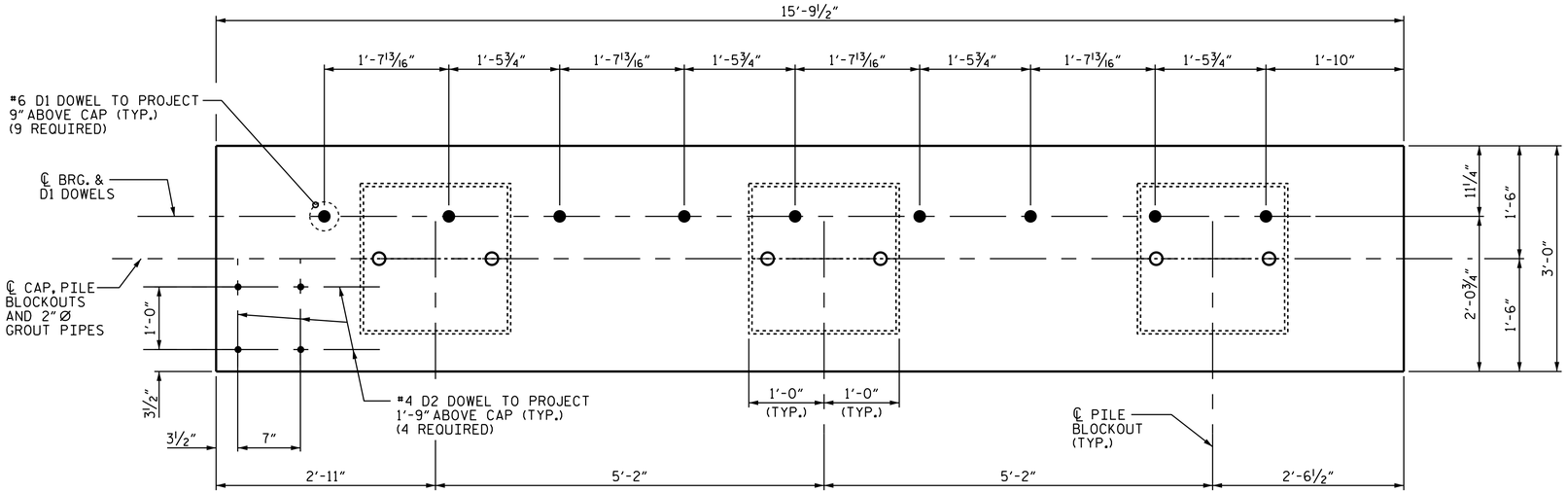
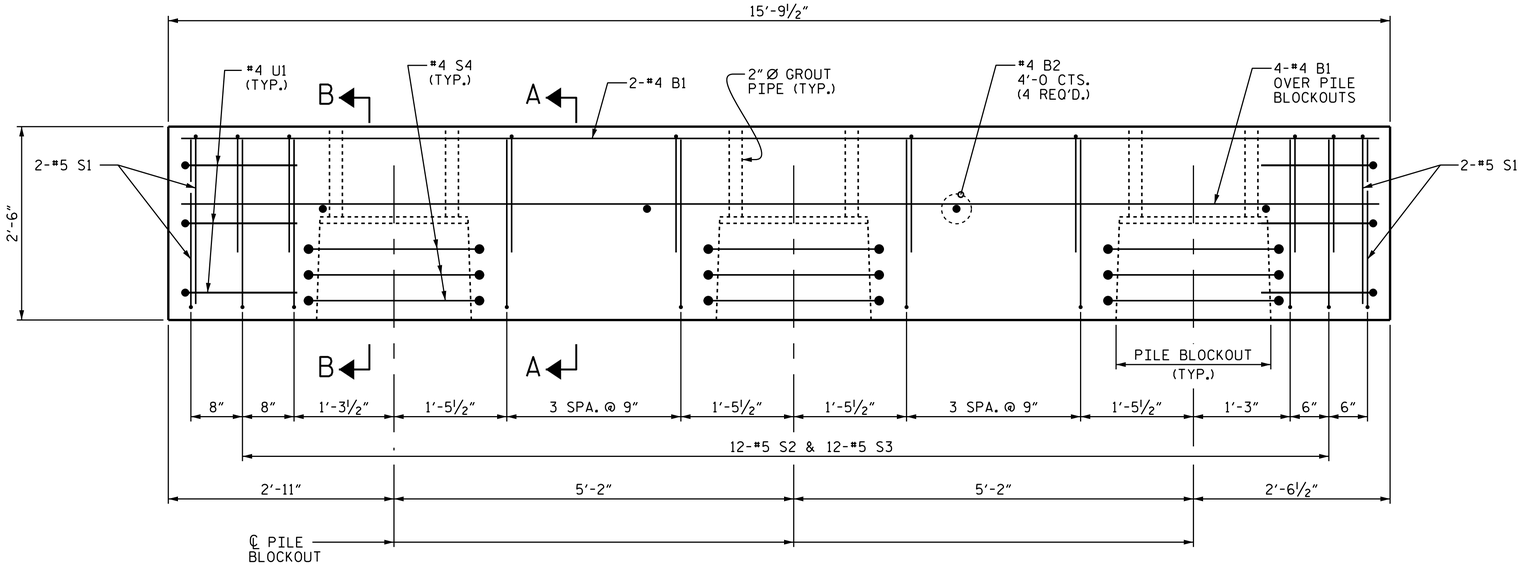


PLAN

(FOR PILE BLOCKOUT DETAILS, SEE SHEET 5 OF 6)



ELEVATION

(#6 D1 AND #4 D2 DOWELS NOT SHOWN FOR CLARITY)
FOR SECTION A-A AND SECTION B-B, SEE SHEET 5 OF 6.

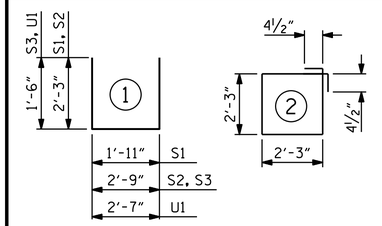
BILL OF MATERIAL

FOR ONE PIECE EB1-01

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#4	STR	15′-5″	62
B2	4	#4	STR	2′-8″	7
D1	9	#6	STR	1′-6″	20
✳D2	4	#4	STR	2′-9″	7
S1	8	#5	1	6′-5″	54
S2	12	#5	1	7′-3″	91
S3	12	#5	1	5′-9″	72
S4	9	#4	2	9′-9″	59
U1	6	#4	1	5′-7″	22

REINFORCING STEEL	387 LBS
✳EPOXY COATED REINFORCING STEEL	7 LBS
4000 PSI PRESTRESS CONCRETE	3.9 C.Y.
PILE BLOCKOUT GROUT ▲	0.4 C.Y.
0.6″Ø L.R. STRANDS	No. 12

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

▲ GROUT DISPLACED BY THE 16″PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE GROUT QUANTITY.

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

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

PRESTRESSED PIECE EB1-01

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943466...

8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : M.A. ALLEN DATE : 6/15
CHECKED BY : T.M. GARRISON DATE : 6/15
DRAWN BY : MAA 7/12
CHECKED BY : SHS 8/12

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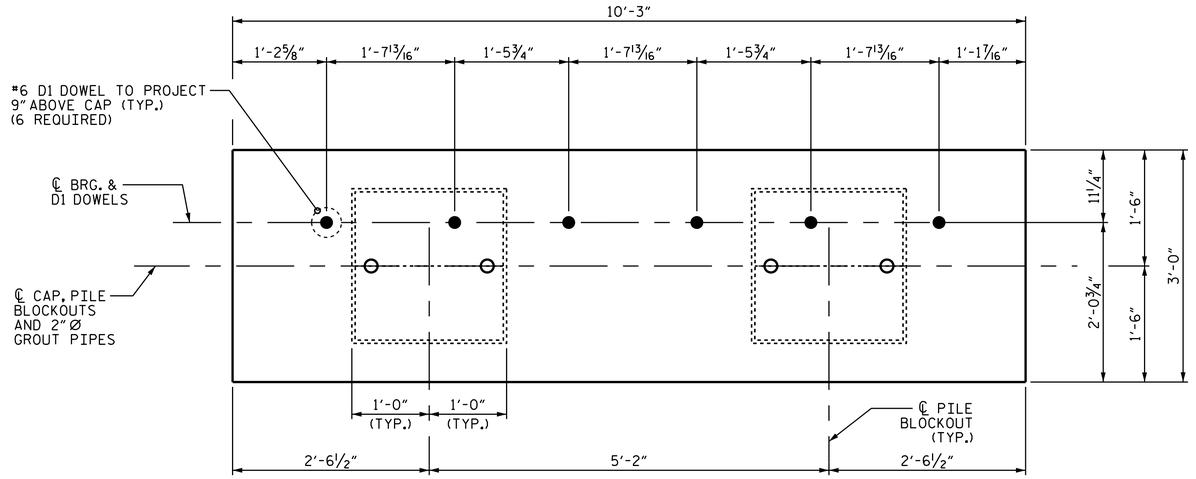
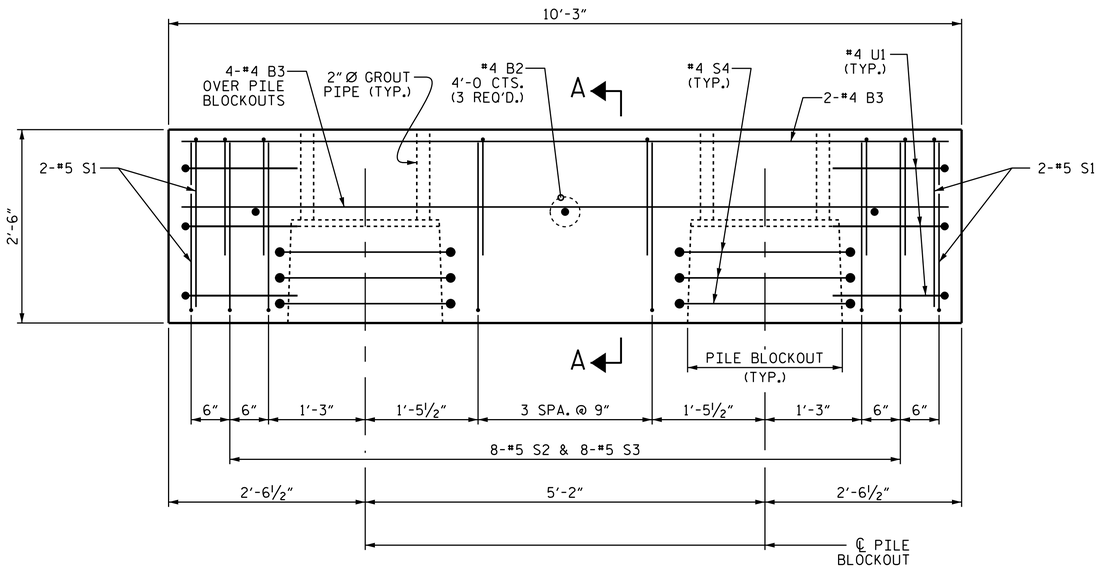


PLAN

(FOR PILE BLOCKOUT DETAILS, SEE SHEET 5 OF 6)



ELEVATION

(#6 D1 DOWELS NOT SHOWN FOR CLARITY)
FOR SECTION A-A, SEE SHEET 5 OF 6.

BILL OF MATERIAL

FOR ONE PIECE EB1-02

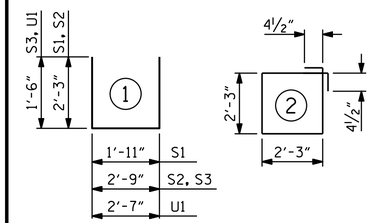
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B2	3	#4	STR	2'-8"	5
B3	6	#4	STR	9'-11"	40
D1	6	#6	STR	1'-6"	14
S1	8	#5	1	6'-5"	54
S2	8	#5	1	7'-3"	60
S3	8	#5	1	5'-9"	48
S4	6	#4	2	9'-9"	39
U1	6	#4	1	5'-7"	22

REINFORCING STEEL 282 LBS

4000 PSI PRESTRESS CONCRETE 2.5 C.Y.
PILE BLOCKOUT GROUT ▲ 0.2 C.Y.

0.6" Ø L.R. STRANDS No. 12

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

▲ GROUT DISPLACED BY THE 16" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE GROUT QUANTITY.

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

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

PRESTRESSED PIECE EB1-02

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943468...
8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : M.A. ALLEN DATE : 6/15
CHECKED BY : T.M. GARRISON DATE : 6/15
DRAWN BY : MAA 7/12
CHECKED BY : SHS 8/12

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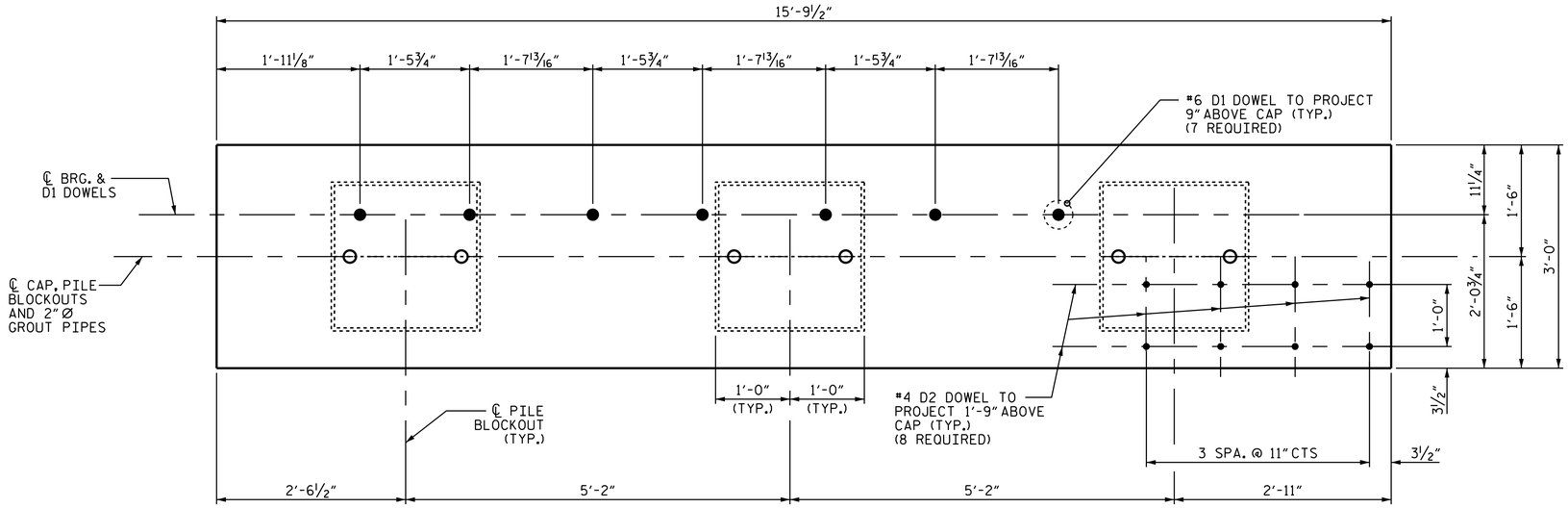
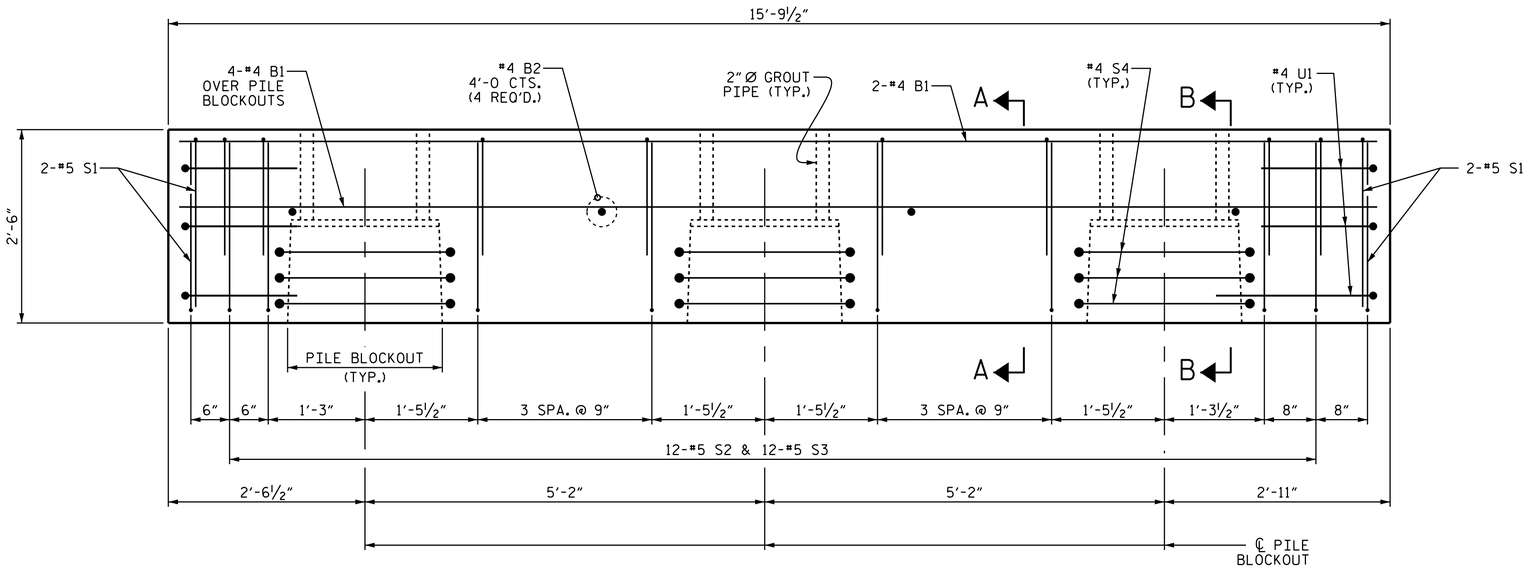


PLAN

(FOR PILE BLOCKOUT DETAILS, SEE SHEET 5 OF 6)



ELEVATION

(#6 D1 AND #4 D2 DOWELS NOT SHOWN FOR CLARITY)
FOR SECTION A-A AND SECTION B-B, SEE SHEET 5 OF 6.

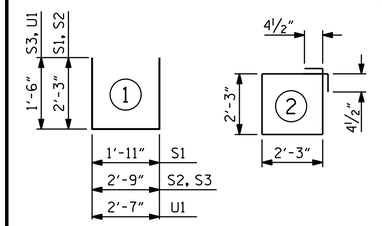
BILL OF MATERIAL

FOR ONE PIECE EB1-03

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#4	STR	15′-5″	62
B2	4	#4	STR	2′-8″	7
D1	7	#6	STR	1′-6″	16
✳D2	8	#4	STR	2′-9″	15
S1	8	#5	1	6′-5″	54
S2	12	#5	1	7′-3″	91
S3	12	#5	1	5′-9″	72
S4	9	#4	2	9′-9″	59
U1	6	#4	1	5′-7″	22

REINFORCING STEEL	383 LBS
✳EPOXY COATED REINFORCING STEEL	15 LBS
4000 PSI PRESTRESS CONCRETE	3.9 C.Y.
PILE BLOCKOUT GROUT ▲	0.4 C.Y.
0.6″Ø L.R. STRANDS	No. 12

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

▲ GROUT DISPLACED BY THE 16″ PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE GROUT QUANTITY.

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

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

PRESTRESSED PIECE EB1-03

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

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8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY :	M.A. ALLEN	DATE :	6/15
CHECKED BY :	T.M. GARRISON	DATE :	6/15
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CHECKED BY :	SHS	8/12	

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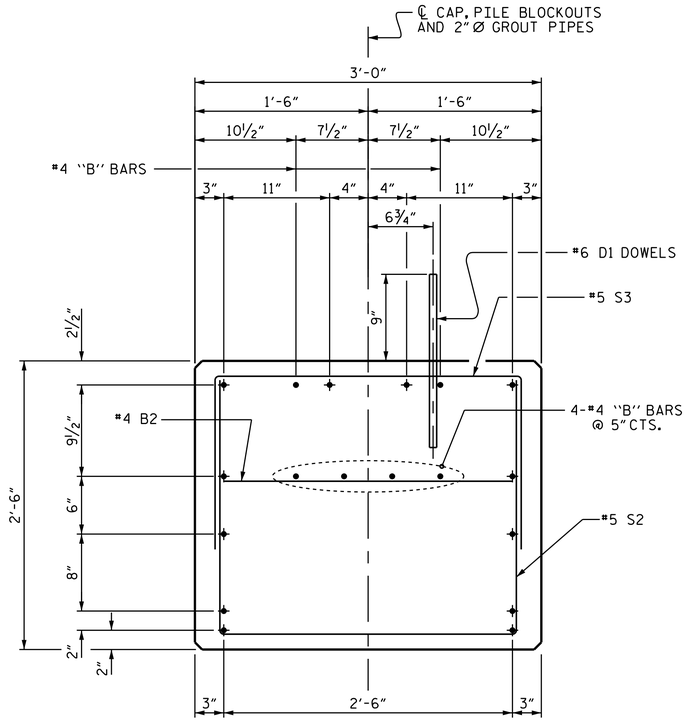
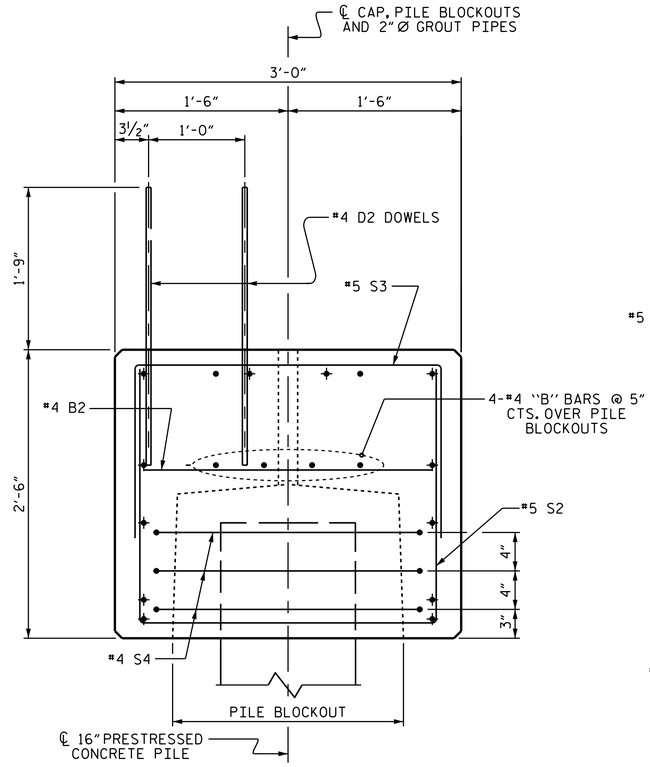
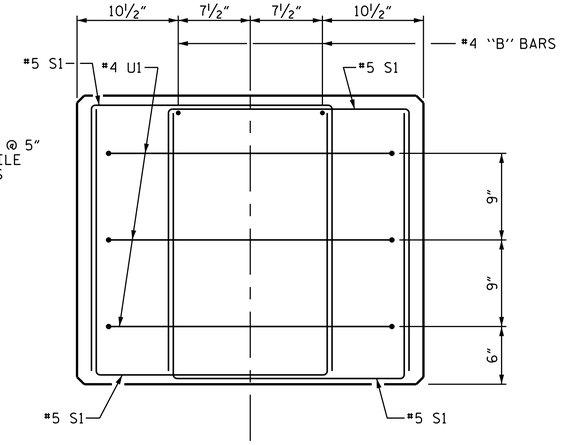


SECTION A-A

(SHOWING 0.6"Ø LOW RELAXATION STRAND LAYOUT)
(12 STRANDS)

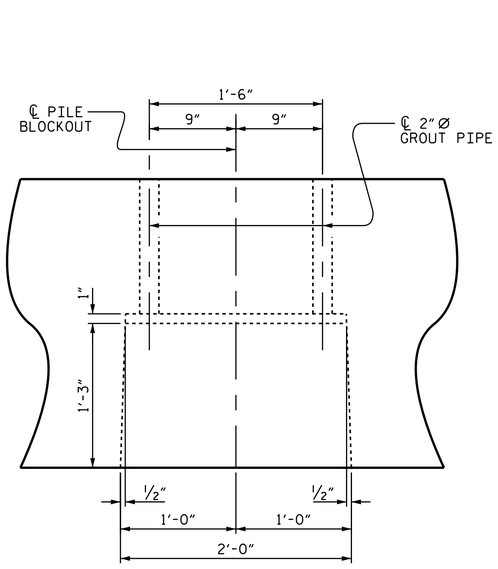


SECTION B-B

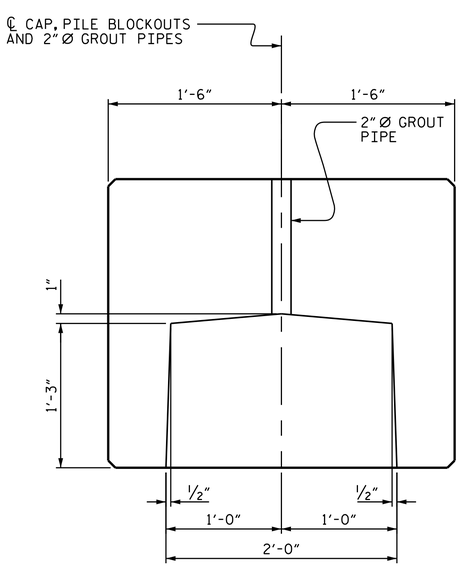


END OF CAP VIEW

(TYPICAL BOTH ENDS)



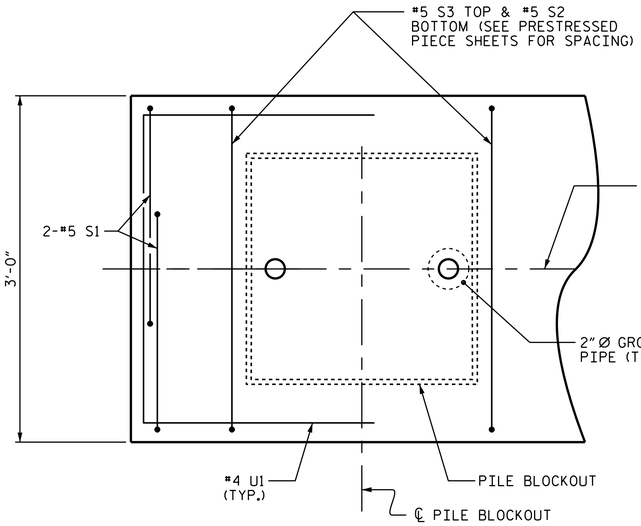
ELEVATION



SECTION

PILE BLOCKOUT DETAILS

(DIMENSIONS ARE TYPICAL EACH BLOCKOUT)



PART PLAN-END OF CAP

(TYPICAL BOTH ENDS)

NOTES

STIRRUPS IN PRESTRESSED PIECES MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS AND GROUT PIPES.

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 END BENT CAP SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "3'-0" x 2'-6" PRESTRESSED CONCRETE BENT CAPS".

WHEN END BENT CAPS ARE CAST, A HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING END BENT CAPS, 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.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE ENDS OF THE END BENT CAP SEGMENTS.

APPLY EPOXY PROTECTIVE COATING TO THE EXTERIOR END FACE OF PRESTRESSED PIECE EB1-01 AND EB1-03.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE END BENT CAPS SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A METHOD TO LIFT AND SUPPORT THE PRESTRESSED CAP PIECES IN THE PROPER LOCATION AND ELEVATION AS SHOWN ON THE PLANS PRIOR TO PLACEMENT AND CURING OF THE GROUT IN THE PILE BLOCKOUTS. THE METHOD CHOSEN SHALL PROVIDE FOR A WATERTIGHT SEAL AT THE BOTTOM OF THE CAP UNTIL THE GROUT HAS HARDENED SO NO GROUT LEAKS FROM THE PILE BLOCKOUT AREA.

PRESTRESSED CONCRETE END BENT CAPS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE INHIBITOR SHALL BE APPLIED AT A RATE OF 4.0 GALLONS PER CUBIC YARD. NO SEPARATE PAYMENT WILL BE MADE FOR THE ADDITION OF CALCIUM NITRITE, AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

PRESTRESSED CONCRETE BENT CAPS (END BENT 1)

PIECE	LENGTH	NUMBER	TOTAL LENGTH
EB1-01	15'-9½"	1	15'-9½"
EB1-02	10'-3"	1	10'-3"
EB1-03	15'-9½"	1	15'-9½"
TOTAL		3	41.83'

16" PRESTRESSED CONCRETE PILES (FOR END BENT 1)

No. 8 LIN. FT. 480

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943466...

8/20/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : M.A. ALLEN DATE : 6/15
CHECKED BY : T.M. GARRISON DATE : 6/15
DRAWN BY : MAA 7/12
CHECKED BY : SHS 8/12

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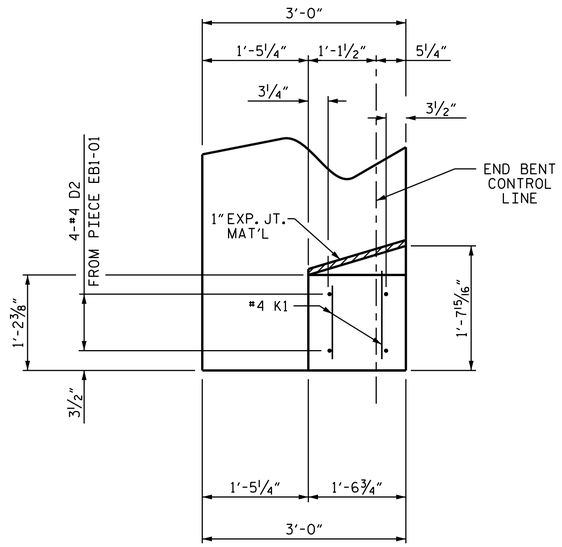
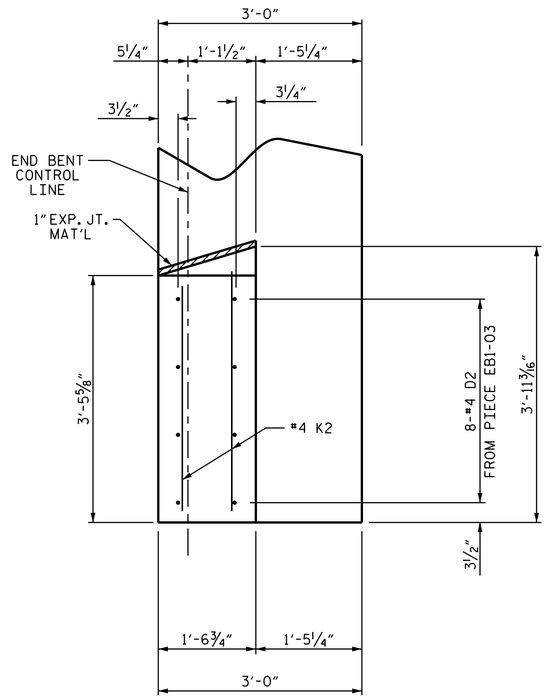
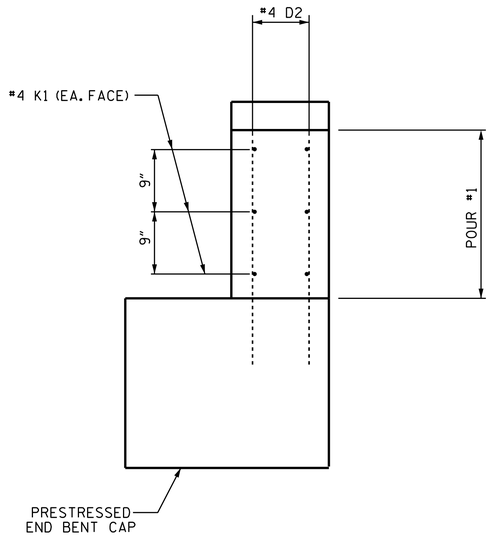


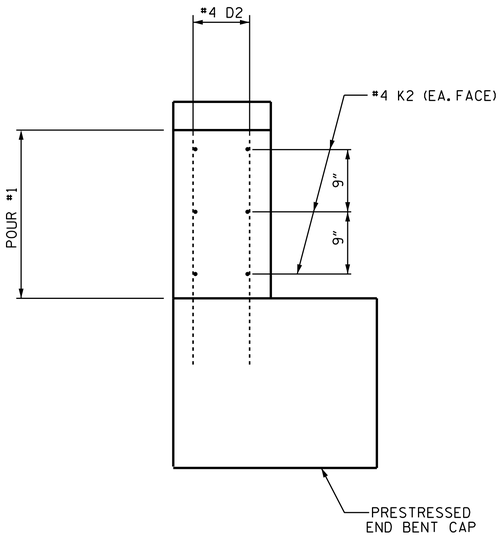
PLAN OF WING (W1)



PLAN OF WING (W2)



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

BILL OF MATERIAL
FOR END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱K1	6	#4	STR	10"	3
✱K2	6	#4	STR	3'-0"	12

✱EPOXY COATED REINFORCING STEEL (FOR ONE END BENT) 15 LBS.

✱✱CLASS AA CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 WINGS 0.7 C.Y.

✱✱CLASS AA CONCRETE SHALL BE CONSIDERED INCIDENTAL TO COST OF CONCRETE SHEET PILE WALLS.

WING DETAILS

ASSEMBLED BY : M.A. ALLEN	DATE : 6/15		
CHECKED BY : T.M. GARRISON	DATE : 6/15		
DRAWN BY : MAA	4/13		
CHECKED BY : BCH	4/13		

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NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

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8/3/2015

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1
WING DETAILS

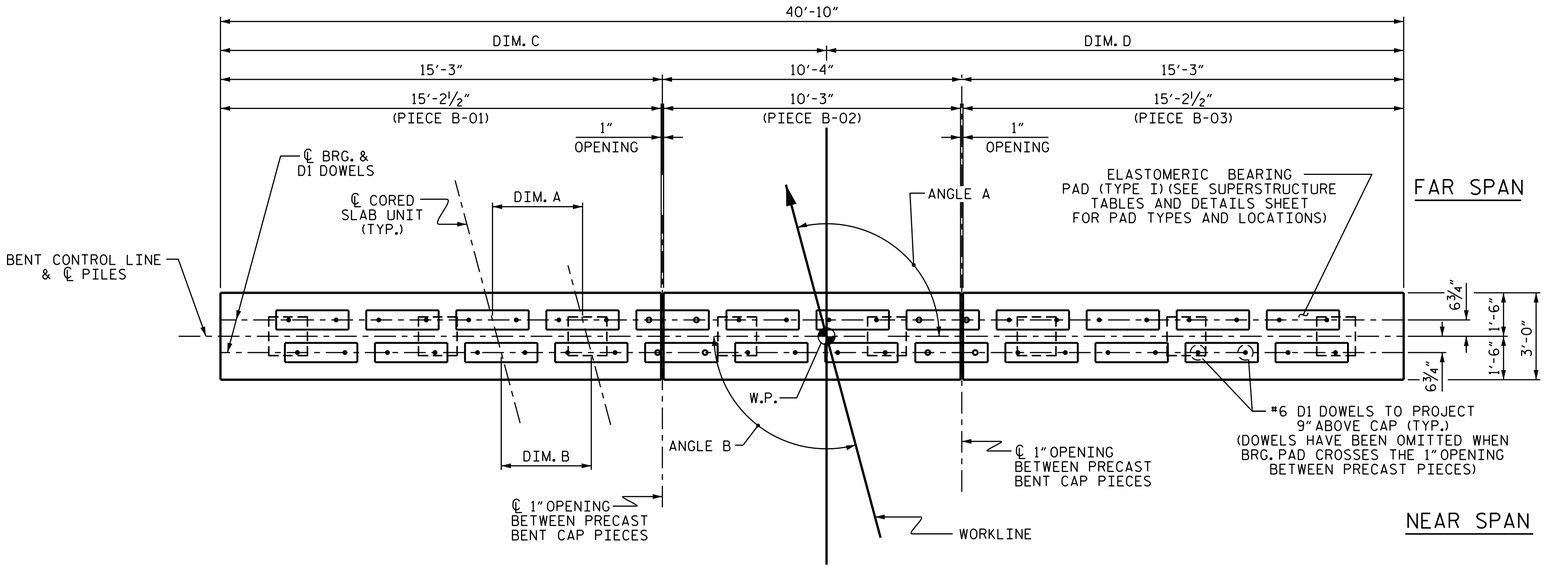
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			44

NOTES

FOR PRECAST CAP DETAILS AND BILL OF MATERIAL, SEE "PIECE B-01", "PIECE B-02", & "PIECE B-03" SHEETS.

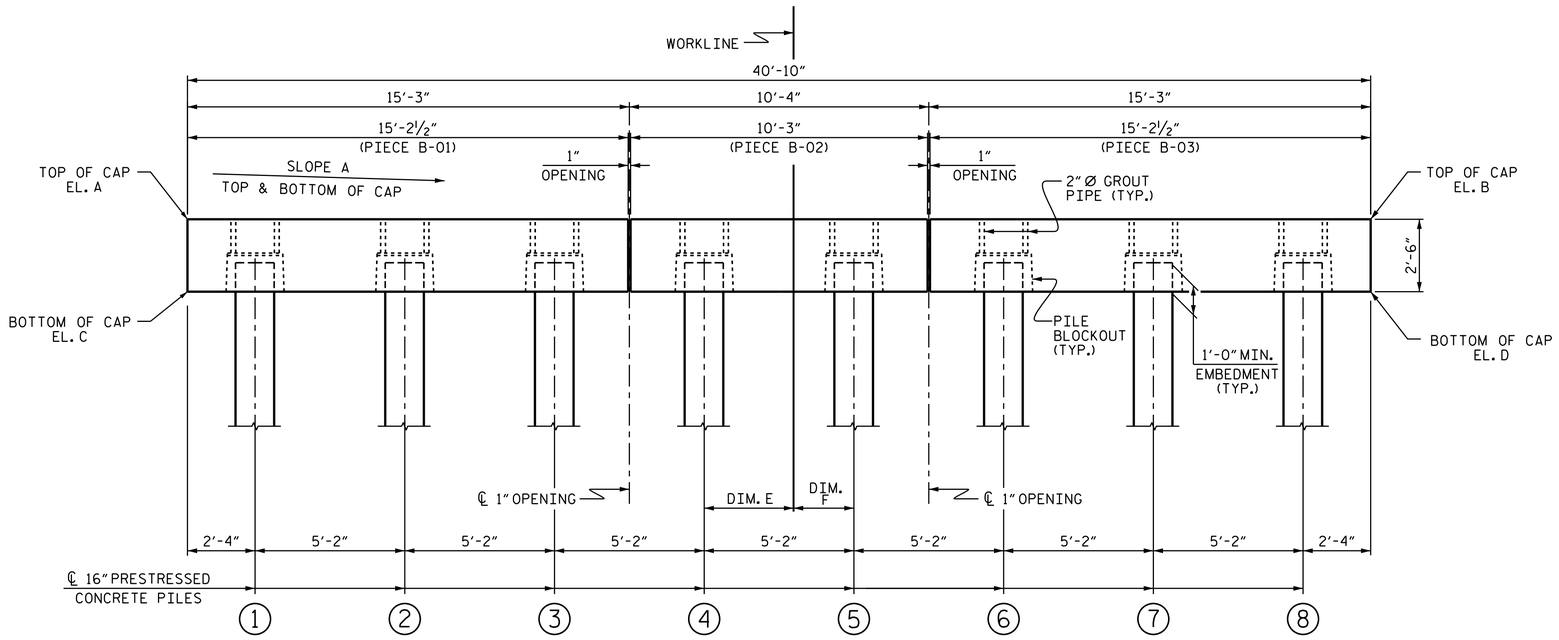
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR 3'-0" x 2'-6" PRESTRESSED CONCRETE BENT CAPS, SEE SPECIAL PROVISIONS.



PLAN

(PILE BLOCKOUTS AND GROUT PIPES NOT SHOWN FOR CLARITY)
(SEE SHEET 6 OF 7 FOR PIECE DESIGNATIONS FOR EACH BENT; FOR EXAMPLE, THE SECOND PIECE FOR BENT 19 WILL BE DESIGNATED B19-02)
(FOR DOWEL DIMENSIONS, SEE SHEET 6 OF 7)
(FOR CAP DIMENSIONS, SEE SHEET 2 OF 7)



ELEVATION

FOR 2" Ø GROUT PIPE AND PILE BLOCKOUT DETAILS, SEE SHEET 7 OF 7
FOR CAP DIMENSIONS AND TOP OF PILE ELEVATIONS SEE SHEET 2 OF 7

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 1 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 THRU 46

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...
8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E. DATE : 6/15
CHECKED BY : T. M. GARRISON, P.E. DATE : 6/15
DRAWN BY : MAA 7/12
CHECKED BY : SHS 8/12

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STD. NO. 16"PS_PSBT_36_105S_<60'

BENT CAP DIMENSIONS

BENT	ANGLE A	ANGLE B	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E	DIM. F	SLOPE A
1	106°-36'-1.2"	106°-36'-1.2"	3'-1 9/16"	3'-1 9/16"	20'-11 1/4"	19'-10 3/4"	3'-1 1/4"	2'-0 3/4"	2.54 %
2	106°-36'-1.2"	106°-36'-1.2"	3'-1 9/16"	3'-1 9/16"	20'-11 1/4"	19'-10 3/4"	3'-1 1/4"	2'-0 3/4"	3.02 %
3	106°-36'-1.2"	106°-36'-1.2"	3'-1 9/16"	3'-1 9/16"	20'-11 1/4"	19'-10 3/4"	3'-1 1/4"	2'-0 3/4"	3.50 %
4	105°-36'-19.7"	106°-36'-1.2"	3'-1 3/8"	3'-1 9/16"	20'-11 1/4"	19'-10 3/4"	3'-1 1/4"	2'-0 3/4"	3.94 %
5	105°-36'-19.7"	105°-36'-19.7"	3'-1 3/8"	3'-1 3/8"	20'-11 1/4"	19'-10 3/4"	3'-1 1/4"	2'-0 3/4"	3.95 %
6	105°-36'-19.7"	105°-36'-19.7"	3'-1 3/8"	3'-1 3/8"	20'-11 1/4"	19'-10 3/4"	3'-1 1/4"	2'-0 3/4"	3.93 %
7	103°-1'-18.4"	105°-36'-19.7"	3'-0 15/16"	3'-1 3/8"	20'-11 3/16"	19'-10 13/16"	3'-1 3/16"	2'-0 13/16"	3.88 %
8	103°-1'-18.4"	103°-1'-18.4"	3'-0 15/16"	3'-0 15/16"	20'-11 3/16"	19'-10 13/16"	3'-1 3/16"	2'-0 13/16"	3.89 %
9	103°-1'-18.4"	103°-1'-18.4"	3'-0 15/16"	3'-0 15/16"	20'-11 3/16"	19'-10 13/16"	3'-1 3/16"	2'-0 13/16"	3.90 %
10	100°-25'-2.7"	103°-1'-18.4"	3'-0 5/8"	3'-0 15/16"	20'-11 1/8"	19'-10 7/8"	3'-1 1/8"	2'-0 7/8"	3.90 %
11	100°-25'-2.7"	100°-25'-2.7"	3'-0 5/8"	3'-0 5/8"	20'-11 1/8"	19'-10 7/8"	3'-1 1/8"	2'-0 7/8"	3.93 %
12	100°-25'-2.7"	100°-25'-2.7"	3'-0 5/8"	3'-0 5/8"	20'-11 1/8"	19'-10 7/8"	3'-1 1/8"	2'-0 7/8"	3.94 %
13	97°-48'-47.0"	100°-25'-2.7"	3'-0 5/16"	3'-0 5/8"	20'-11 1/16"	19'-10 15/16"	3'-1 1/16"	2'-0 15/16"	3.94 %
14	97°-48'-47.0"	97°-48'-47.0"	3'-0 5/16"	3'-0 5/16"	20'-11 1/16"	19'-10 15/16"	3'-1 1/16"	2'-0 15/16"	3.96 %
15	97°-48'-47.0"	97°-48'-47.0"	3'-0 5/16"	3'-0 5/16"	20'-11 1/16"	19'-10 15/16"	3'-1 1/16"	2'-0 15/16"	3.97 %
16	95°-12'-31.3"	97°-48'-47.0"	3'-0 1/8"	3'-0 5/16"	20'-11 1/16"	19'-10 15/16"	3'-1 1/16"	2'-0 15/16"	3.96 %
17	95°-12'-31.3"	95°-12'-31.3"	3'-0 1/8"	3'-0 1/8"	20'-11"	19'-11"	3'-1"	2'-1"	3.98 %
18	95°-12'-31.3"	95°-12'-31.3"	3'-0 1/8"	3'-0 1/8"	20'-11"	19'-11"	3'-1"	2'-1"	3.99 %
19	92°-36'-15.7"	95°-12'-31.3"	3'-0 1/16"	3'-0 1/8"	20'-11"	19'-11"	3'-1"	2'-1"	3.98 %
20	92°-36'-15.7"	92°-36'-15.7"	3'-0 1/16"	3'-0 1/16"	20'-11"	19'-11"	3'-1"	2'-1"	3.99 %
21	92°-36'-15.7"	92°-36'-15.7"	3'-0 1/16"	3'-0 1/16"	20'-11"	19'-11"	3'-1"	2'-1"	4.00 %
22	90°-00'-00.0"	92°-36'-15.7"	3'-0"	3'-0 1/16"	20'-11"	19'-11"	3'-1"	2'-1"	4.00 %
23	90°-00'-00.0"	90°-00'-00.0"	3'-0"	3'-0"	20'-11"	19'-11"	3'-1"	2'-1"	4.00 %
24	90°-00'-00.0"	90°-00'-00.0"	3'-0"	3'-0"	20'-11"	19'-11"	3'-1"	2'-1"	4.00 %
25	87°-23'-44.3"	90°-00'-00.0"	3'-0 1/16"	3'-0"	20'-11"	19'-11"	3'-1"	2'-1"	4.00 %
26	87°-23'-44.3"	87°-23'-44.3"	3'-0 1/16"	3'-0 1/16"	20'-11"	19'-11"	3'-1"	2'-1"	4.00 %
27	87°-23'-44.3"	87°-23'-44.3"	3'-0 1/16"	3'-0 1/16"	20'-11"	19'-11"	3'-1"	2'-1"	3.99 %
28	84°-47'-28.7"	87°-23'-44.3"	3'-0 1/8"	3'-0 1/16"	20'-11"	19'-11"	3'-1"	2'-1"	3.98 %
29	84°-47'-28.7"	84°-47'-28.7"	3'-0 1/8"	3'-0 1/8"	20'-11"	19'-11"	3'-1"	2'-1"	3.99 %
30	84°-47'-28.7"	84°-47'-28.7"	3'-0 1/8"	3'-0 1/8"	20'-11"	19'-11"	3'-1"	2'-1"	3.98 %
31	82°-11'-13.0"	84°-47'-28.7"	3'-0 5/16"	3'-0 1/8"	20'-11 1/16"	19'-10 15/16"	3'-1 1/16"	2'-0 15/16"	3.96 %
32	82°-11'-13.0"	82°-11'-13.0"	3'-0 5/16"	3'-0 5/16"	20'-11 1/16"	19'-10 15/16"	3'-1 1/16"	2'-0 15/16"	3.97 %
33	82°-11'-13.0"	82°-11'-13.0"	3'-0 5/16"	3'-0 5/16"	20'-11 1/16"	19'-10 15/16"	3'-1 1/16"	2'-0 15/16"	3.96 %
34	79°-34'-57.3"	82°-11'-13.0"	3'-0 5/8"	3'-0 5/16"	20'-11 1/16"	19'-10 15/16"	3'-1 1/16"	2'-0 15/16"	3.94 %
35	79°-34'-57.3"	79°-34'-57.3"	3'-0 5/8"	3'-0 5/8"	20'-11 1/8"	19'-10 7/8"	3'-1 1/8"	2'-0 7/8"	3.94 %
36	79°-34'-57.3"	79°-34'-57.3"	3'-0 5/8"	3'-0 5/8"	20'-11 1/8"	19'-10 7/8"	3'-1 1/8"	2'-0 7/8"	3.93 %
37	77°-11'-37.1"	79°-34'-57.3"	3'-0 15/16"	3'-0 5/8"	20'-11 1/8"	19'-10 7/8"	3'-1 1/8"	2'-0 7/8"	3.90 %
38	77°-11'-37.1"	77°-11'-37.1"	3'-0 15/16"	3'-0 15/16"	20'-11 1/8"	19'-10 7/8"	3'-1 1/8"	2'-0 7/8"	3.90 %
39	77°-11'-37.1"	77°-11'-37.1"	3'-0 15/16"	3'-0 15/16"	20'-11 1/8"	19'-10 7/8"	3'-1 1/8"	2'-0 7/8"	3.89 %
40	76°-44'-7.2"	77°-11'-37.1"	3'-1"	3'-0 15/16"	20'-11 3/16"	19'-10 13/16"	3'-1 3/16"	2'-0 13/16"	3.93 %
41	76°-44'-7.2"	76°-44'-7.2"	3'-1"	3'-1"	20'-11 3/16"	19'-10 13/16"	3'-1 3/16"	2'-0 13/16"	3.97 %
42	76°-44'-7.2"	76°-44'-7.2"	3'-1"	3'-1"	20'-11 3/16"	19'-10 13/16"	3'-1 3/16"	2'-0 13/16"	4.01 %
43	76°-49'-51.6"	76°-44'-7.2"	3'-1"	3'-1"	20'-11 3/16"	19'-10 13/16"	3'-1 3/16"	2'-0 13/16"	4.03 %
44	76°-49'-51.6"	76°-49'-51.6"	3'-1"	3'-1"	20'-11 3/16"	19'-10 13/16"	3'-1 3/16"	2'-0 13/16"	3.52 %
45	76°-49'-51.6"	76°-49'-51.6"	3'-1"	3'-1"	20'-11 3/16"	19'-10 13/16"	3'-1 3/16"	2'-0 13/16"	3.04 %
46	76°-49'-51.6"	76°-49'-51.6"	3'-1"	3'-1"	20'-11 3/16"	19'-10 13/16"	3'-1 3/16"	2'-0 13/16"	2.56 %

BENT CAP ELEVATIONS

BENT	EL. A	EL. B	EL. C	EL. D
1	11.21	10.17	8.71	7.67
2	11.56	10.33	9.06	7.83
3	11.91	10.48	9.41	7.98
4	12.25	10.64	9.75	8.14
5	12.45	10.84	9.95	8.34
6	12.60	11.00	10.10	8.50
7	12.72	11.13	10.22	8.63
8	12.72	11.13	10.22	8.63
9	12.72	11.13	10.22	8.63
10	12.75	11.16	10.25	8.66
11	12.73	11.12	10.23	8.62
12	12.73	11.12	10.23	8.62
13	12.76	11.15	10.26	8.65
14	12.74	11.12	10.24	8.62
15	12.74	11.12	10.24	8.62
16	12.77	11.15	10.27	8.65
17	12.74	11.11	10.24	8.61
18	12.74	11.11	10.24	8.61
19	12.77	11.14	10.27	8.64
20	12.74	11.11	10.24	8.61
21	12.74	11.11	10.24	8.61
22	12.77	11.14	10.27	8.64
23	12.74	11.11	10.24	8.61
24	12.74	11.11	10.24	8.61
25	12.77	11.14	10.27	8.64
26	12.74	11.11	10.24	8.61
27	12.74	11.11	10.24	8.61
28	12.77	11.14	10.27	8.64
29	12.74	11.11	10.24	8.61
30	12.74	11.11	10.24	8.61
31	12.77	11.15	10.27	8.65
32	12.74	11.12	10.24	8.62
33	12.74	11.12	10.24	8.62
34	12.76	11.15	10.26	8.65
35	12.73	11.12	10.23	8.62
36	12.73	11.12	10.23	8.62
37	12.75	11.16	10.25	8.66
38	12.73	11.14	10.23	8.64
39	12.74	11.15	10.24	8.65
40	12.72	11.11	10.22	8.61
41	12.59	10.97	10.09	8.47
42	12.38	10.74	9.88	8.24
43	12.07	10.42	9.57	7.92
44	11.62	10.18	9.12	7.68
45	11.17	9.93	8.67	7.43
46	10.72	9.68	8.22	7.18

TOP OF PILE ELEVATIONS

BENT	1	2	3	4	5	6	7	8
1	9.67	9.54	9.41	9.28	9.14	9.01	8.88	8.75
2	10.01	9.86	9.70	9.54	9.39	9.23	9.08	8.92
3	10.35	10.17	9.99	9.81	9.63	9.45	9.27	9.09
4	10.68	10.48	10.28	10.07	9.87	9.67	9.46	9.26
5	10.89	10.68	10.48	10.28	10.07	9.87	9.66	9.46
6	11.04	10.84	10.63	10.43	10.23	10.02	9.82	9.62
7	11.15	10.95	10.75	10.55	10.35	10.15	9.95	9.75
8	11.16	10.96	10.75	10.55	10.35	10.15	9.95	9.75
9	11.16	10.96	10.76	10.55	10.35	10.15	9.95	9.75
10	11.19	10.99	10.79	10.58	10.38	10.18	9.98	9.78
11	11.16	10.96	10.76	10.55	10.35	10.15	9.95	9.74
12	11.17	10.96	10.76	10.55	10.35	10.15	9.94	9.74
13	11.20	10.99	10.79	10.59	10.38	10.18	9.98	9.77
14	11.17	10.96	10.76	10.56	10.35	10.15	9.94	9.74
15	11.17	10.97	10.76	10.56	10.35	10.15	9.94	9.74
16	11.20	11.00	10.79	10.59	10.38	10.18	9.97	9.77
17	11.17	10.97	10.76	10.56	10.35	10.15	9.94	9.73
18	11.17	10.97	10.76	10.56	10.35	10.14	9.94	9.73
19	11.20	11.00	10.79	10.59	10.38	10.18	9.97	9.76
20	11.18	10.97	10.76	10.56	10.35	10.14	9.94	9.73
21	11.18	10.97	10.76	10.56	10.35	10.14	9.94	9.73
22	11.21	11.00	10.79	10.59	10.38	10.17	9.97	9.76
23	11.18	10.97	10.76	10.56	10.35	10.14	9.94	9.73
24	11.18	10.97	10.76	10.56	10.35	10.14	9.94	9.73
25	11.21	11.00	10.79	10.59	10.38	10.17	9.97	9.76
26	11.18	10.97	10.76	10.56	10.35	10.14	9.94	9.73
27	11.18	10.97	10.76	10.56	10.35	10.14	9.94	9.73
28	11.20	11.00	10.79	10.59	10.38	10.18	9.97	9.76
29	11.17	10.97	10.76	10.56	10.35	10.14	9.94	9.73
30	11.17	10.97	10.76	10.56	10.35	10.15	9.94	9.73
31	11.20	11.00	10.79	10.59	10.38	10.18	9.97	9.77
32	11.17	10.97	10.76	10.56	10.35	10.15	9.94	9.74
33	11.17	10.96	10.76	10.56	10.35	10.15	9.94	9.74
34	11.20	10.99	10.79	10.59	10.38	10.18	9.98	9.77
35	11.17	10.96	10.76	10.55	10.35	10.15	9.94	9.74
36	11.16	10.96	10.76	10.55	10.35	10.15	9.95	9.74
37	11.19	10.99	10.79	10.58	10.38	10.18	9.98	9.78
38	11.17	10.96	10.76	10.56	10.36	10.16	9.96	9.75
39	11.17	10.97	10.77	10.57	10.37	10.17	9.96	9.76
40	11.15	10.95	10.74	10.54	10.34	10.13	9.93	9.73
41	11.03	10.82	10.62	10.41	10.21	10.00	9.80	9.59
42	10.82	10.61	10.40	10.19	9.99	9.78	9.57	9.36
43	10.50	10.29	10.08	9.88	9.67	9.46	9.25	9.04
44	10.06	9.88	9.70	9.51	9.33	9.15	8.97	8.79
45	9.62	9.46	9.30	9.15	8.99	8.83	8.68	8.52
46	9.18	9.04	8.91	8.78	8.65	8.52	8.38	8.25

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 2 OF 7

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...

8/3/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 THRU 46 CAP DIMENSIONS AND TOP OF PILE ELEVATIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E. DATE : 6/15
CHECKED BY : T. M. GARRISON, P.E. DATE : 6/15

DRAWN BY : MAA 7/12
CHECKED BY : SHS 8/12

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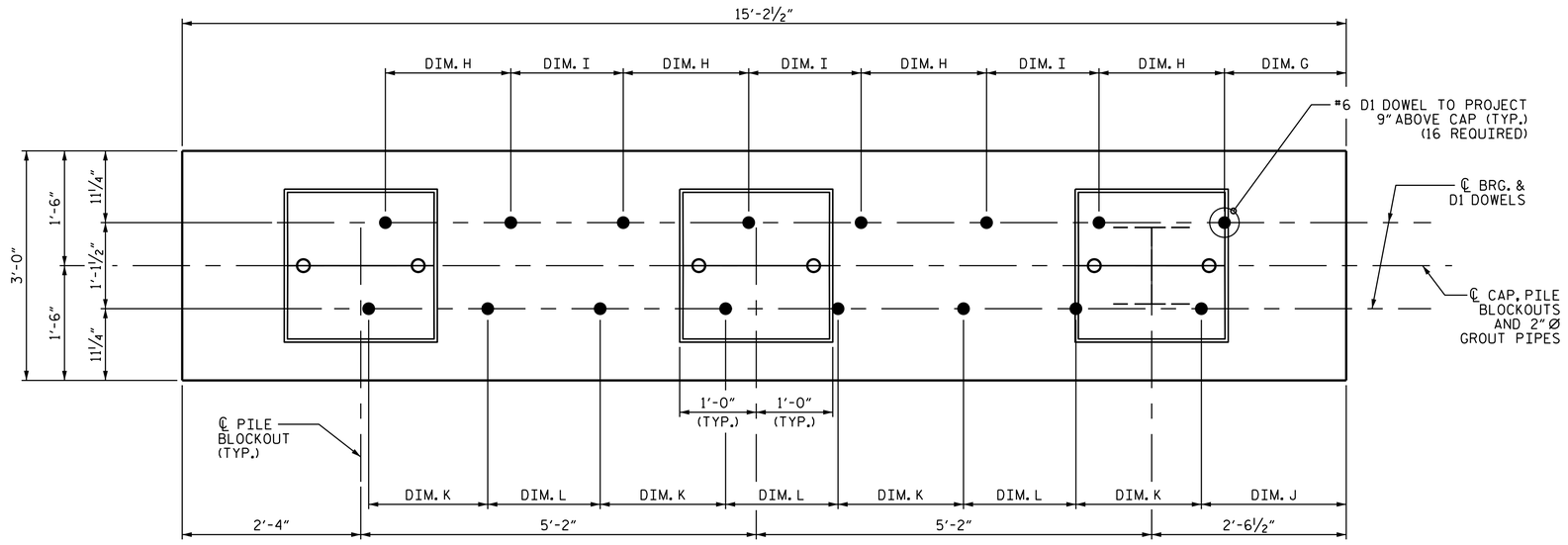
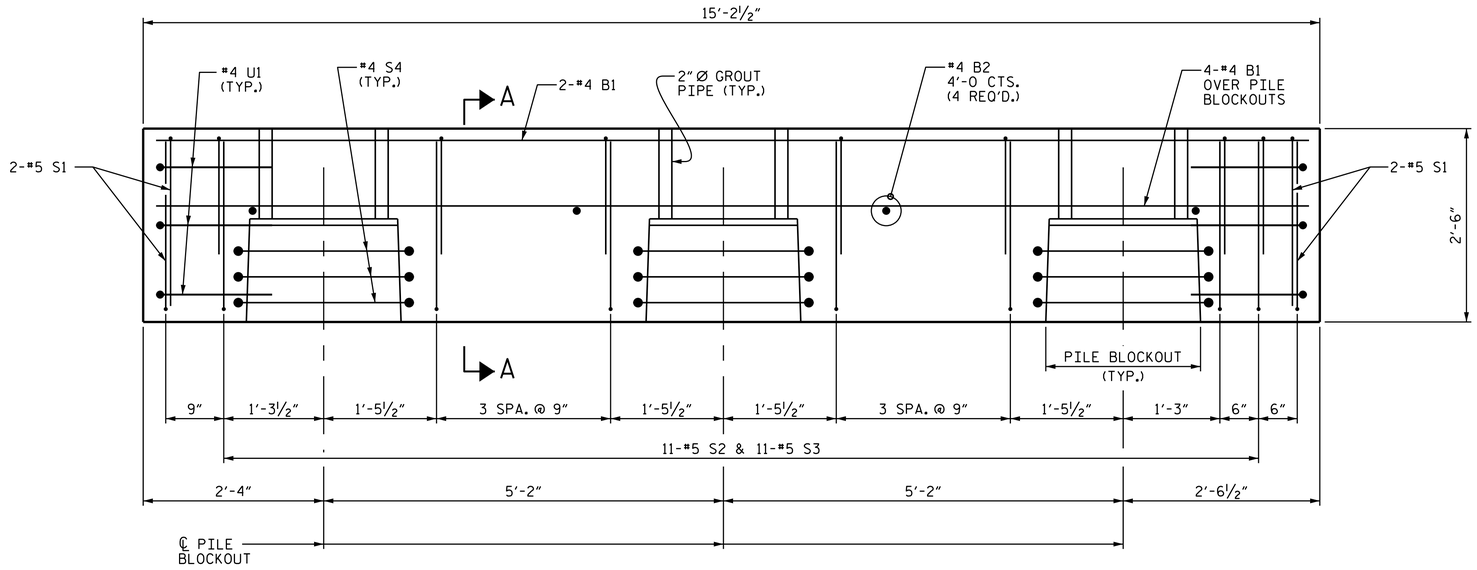


PLAN

(FOR PILE BLOCKOUT DETAILS, SEE SHEET 7 OF 7)
(SEE SHEET 6 OF 7 FOR PIECE DESIGNATIONS FOR EACH BENT;
FOR EXAMPLE, THE SECOND PIECE FOR BENT 19 WILL BE DESIGNATED B19-02)
(FOR DOWEL DIMENSIONS, SEE SHEET 6 OF 7)



ELEVATION

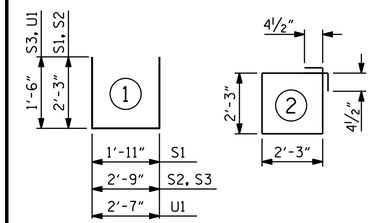
(#6 D1 DOWELS NOT SHOWN FOR CLARITY)
FOR SECTION A-A, SEE SHEET 7 OF 7.

BILL OF MATERIAL
FOR ONE PIECE B-01

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#4	STR	14′-10″	59
B2	4	#4	STR	2′-8″	7
D1	16	#6	STR	1′-6″	36
S1	8	#5	1	6′-5″	54
S2	11	#5	1	7′-3″	83
S3	11	#5	1	5′-9″	66
S4	9	#4	2	9′-9″	59
U1	6	#4	1	5′-7″	22

REINFORCING STEEL	386 LBS
4000 PSI PRESTRESS CONCRETE	3.7 C.Y.
PILE BLOCKOUT GROUT ▲	0.4 C.Y.
0.6″Ø L.R. STRANDS	No. 12

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

▲ GROUT DISPLACED BY THE 16″PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE GROUT QUANTITY.

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

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 3 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 THRU 46
PRECAST
PIECE B-01

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K Pope FA3E85D1C94A440...
8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E.	DATE : 6/15
CHECKED BY : T. M. GARRISON, P.E.	DATE : 6/15
DRAWN BY : MAA 7/12	
CHECKED BY : SHS 8/12	

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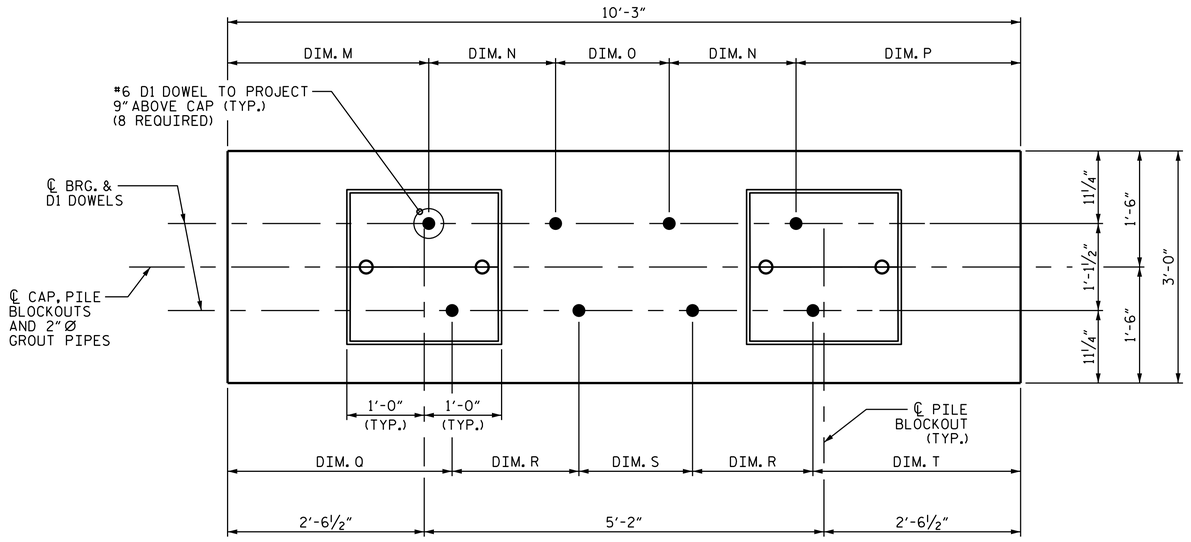
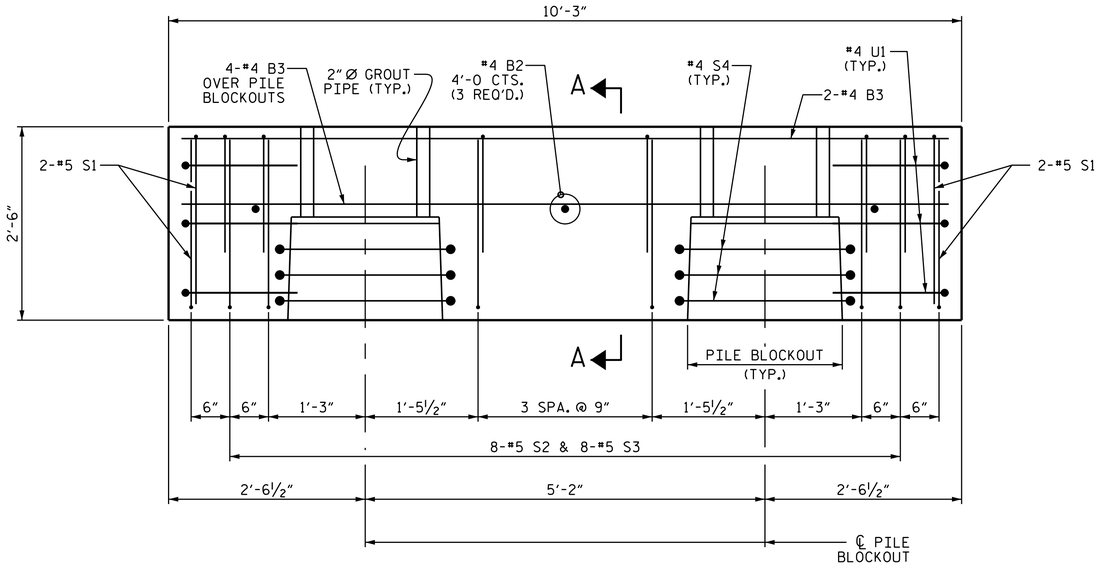
STD. NO. 16″PS_PSBT_36_105S_<60′



PLAN

(FOR PILE BLOCKOUT DETAILS, SEE SHEET 7 OF 7)
(SEE SHEET 6 OF 7 FOR PIECE DESIGNATIONS FOR EACH BENT;
FOR EXAMPLE, THE SECOND PIECE FOR BENT 19 WILL BE DESIGNATED B19-02)
(FOR DOWEL DIMENSIONS, SEE SHEET 6 OF 7)



ELEVATION

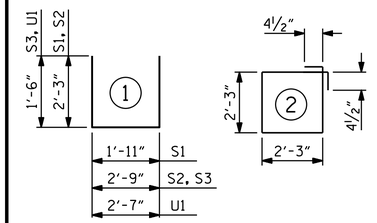
(#6 D1 DOWELS NOT SHOWN FOR CLARITY)
FOR SECTION A-A, SEE SHEET 7 OF 7.

BILL OF MATERIAL
FOR ONE PIECE B-02

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B2	3	#4	STR	2'-8"	5
B3	6	#4	STR	9'-11"	40
D1	8	#6	STR	1'-6"	18
S1	8	#5	1	6'-5"	54
S2	8	#5	1	7'-3"	60
S3	8	#5	1	5'-9"	48
S4	6	#4	2	9'-9"	39
U1	6	#4	1	5'-7"	22

REINFORCING STEEL	286 LBS
4000 PSI PRESTRESS CONCRETE	2.5 C.Y.
PILE BLOCKOUT GROUT ▲	0.2 C.Y.
0.6" Ø L.R. STRANDS	No. 12

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

▲ GROUT DISPLACED BY THE 16" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE GROUT QUANTITY.

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

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 4 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 THRU 46 PRECAST PIECE B-02

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...
8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E. DATE : 6/15
CHECKED BY : T. M. GARRISON, P.E. DATE : 6/15

DRAWN BY : MAA 7/12
CHECKED BY : SHS 8/12

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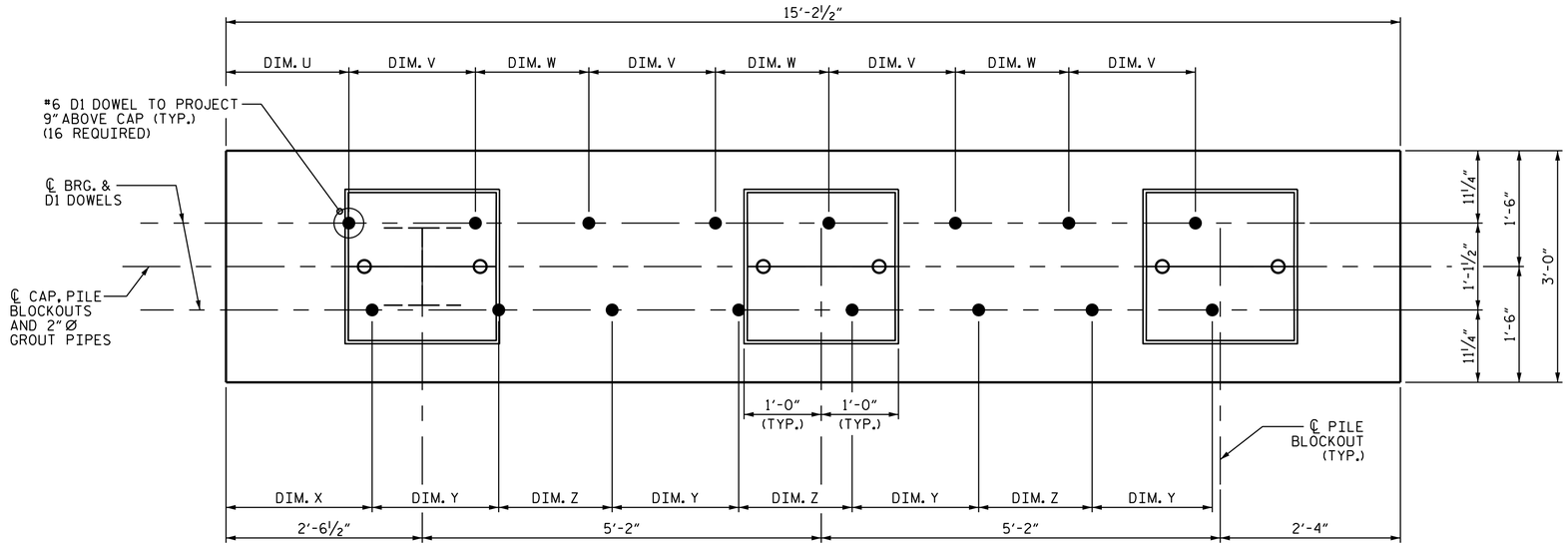
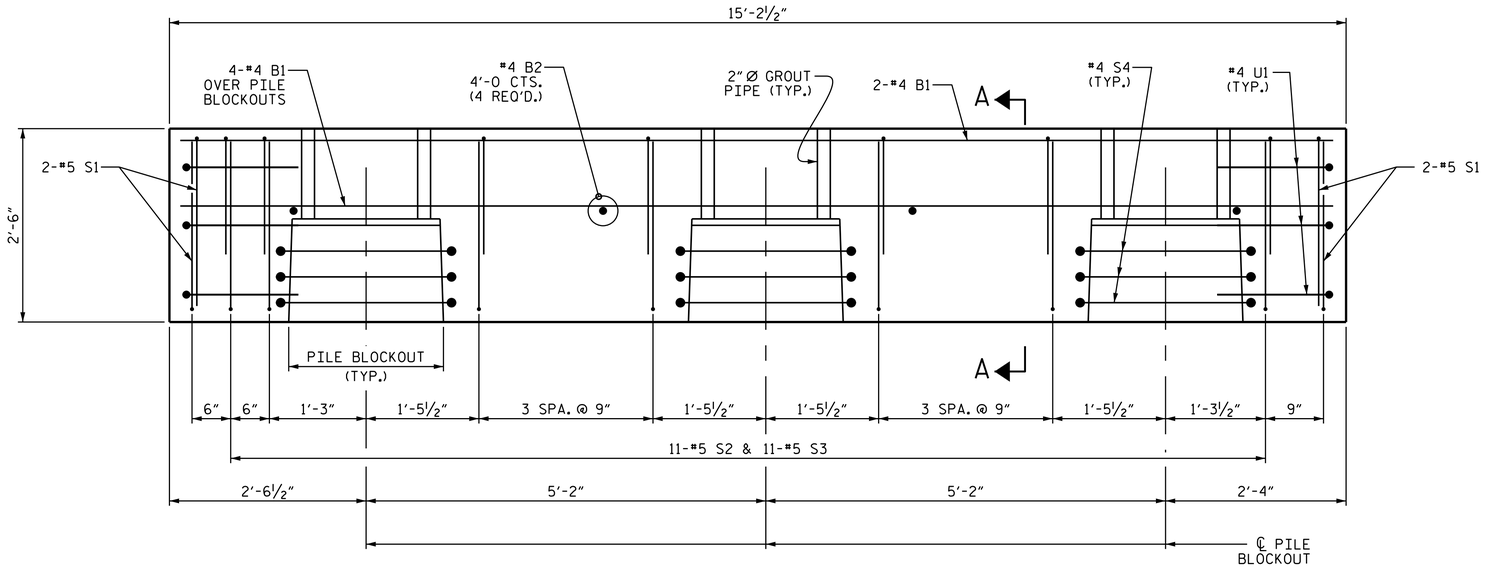
STD. NO. 16"PS_PSBT_36_105S_<60'



PLAN

(FOR PILE BLOCKOUT DETAILS, SEE SHEET 7 OF 7)
(SEE SHEET 6 OF 7 FOR PIECE DESIGNATIONS FOR EACH BENT;
FOR EXAMPLE, THE SECOND PIECE FOR BENT 19 WILL BE DESIGNATED B19-02)
(FOR DOWEL DIMENSIONS, SEE SHEET 6 OF 7)



ELEVATION

(#6 D1 DOWELS NOT SHOWN FOR CLARITY)
FOR SECTION A-A, SEE SHEET 7 OF 7.

BILL OF MATERIAL
FOR ONE PIECE B-03

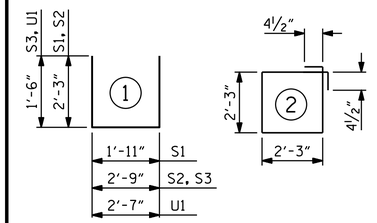
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#4	STR	14'-10"	59
B2	4	#4	STR	2'-8"	7
D1	16	#6	STR	1'-6"	36
S1	8	#5	1	6'-5"	54
S2	11	#5	1	7'-3"	83
S3	11	#5	1	5'-9"	66
S4	9	#4	2	9'-9"	59
U1	6	#4	1	5'-7"	22

REINFORCING STEEL 386 LBS

4000 PSI PRESTRESS CONCRETE 3.7 C.Y.
PILE BLOCKOUT GROUT ▲ 0.4 C.Y.

0.6"Ø L.R. STRANDS No. 12

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

▲ GROUT DISPLACED BY THE 16"PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE GROUT QUANTITY.

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

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 5 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 THRU 46 PRECAST PIECE B-03

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...
8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E. DATE : 6/15
CHECKED BY : T. M. GARRISON, P.E. DATE : 6/15

DRAWN BY : MAA 7/12
CHECKED BY : SHS 8/12

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STD. NO. 16"PS_PSBT_36_105S_<60'

PRECAST PIECE B-01 DOWEL DIMENSIONS

BENT	DESIG.	DIM. G	DIM. H	DIM. I	DIM. J	DIM. K	DIM. L
1	B1-01	1′-11½″	1′-7 13/16″	1′-5¾″	1′-7½″	1′-7 13/16″	1′-5¾″
2	B2-01	1′-11½″	1′-7 13/16″	1′-5¾″	1′-7½″	1′-7 13/16″	1′-5¾″
3	B3-01	1′-11½″	1′-7 13/16″	1′-5¾″	1′-7½″	1′-7 13/16″	1′-5¾″
4	B4-01	1′-10 15/16″	1′-7¾″	1′-5⅝″	1′-7½″	1′-7 13/16″	1′-5¾″
5	B5-01	1′-10 15/16″	1′-7¾″	1′-5⅝″	1′-7 3/16″	1′-7¾″	1′-5⅝″
6	B6-01	1′-10 15/16″	1′-7¾″	1′-5⅝″	1′-7 3/16″	1′-7¾″	1′-5⅝″
7	B7-01	1′-9 11/16″	1′-7½″	1′-5 7/16″	1′-7 3/16″	1′-7¾″	1′-5⅝″
8	B8-01	1′-9 11/16″	1′-7½″	1′-5 7/16″	1′-6 9/16″	1′-7½″	1′-5 7/16″
9	B9-01	1′-9 11/16″	1′-7½″	1′-5 7/16″	1′-6 9/16″	1′-7½″	1′-5 7/16″
10	B10-01	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″	1′-6 9/16″	1′-7½″	1′-5 7/16″
11	B11-01	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″	1′-6⅛″	1′-7 5/16″	1′-5 5/16″
12	B12-01	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″	1′-6⅛″	1′-7 5/16″	1′-5 5/16″
13	B13-01	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″	1′-6⅛″	1′-7 5/16″	1′-5 5/16″
14	B14-01	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″
15	B15-01	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″
16	B16-01	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″
17	B17-01	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″
18	B18-01	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″
19	B19-01	1′-6⅜″	1′-7″	1′-5″	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″
20	B20-01	1′-6⅜″	1′-7″	1′-5″	1′-5¾″	1′-7″	1′-5″
21	B21-01	1′-6⅜″	1′-7″	1′-5″	1′-5¾″	1′-7″	1′-5″
22	B22-01	1′-6″	1′-7″	1′-5″	1′-5¾″	1′-7″	1′-5″
23	B23-01	1′-6″	1′-7″	1′-5″	1′-6″	1′-7″	1′-5″
24	B24-01	1′-6″	1′-7″	1′-5″	1′-6″	1′-7″	1′-5″
25	B25-01	1′-5¾″	1′-7″	1′-5″	1′-6″	1′-7″	1′-5″
26	B26-01	1′-5¾″	1′-7″	1′-5″	1′-6⅜″	1′-7″	1′-5″
27	B27-01	1′-5¾″	1′-7″	1′-5″	1′-6⅜″	1′-7″	1′-5″
28	B28-01	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″	1′-6⅜″	1′-7″	1′-5″
29	B29-01	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″
30	B30-01	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″
31	B31-01	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″
32	B32-01	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″
33	B33-01	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″
34	B34-01	1′-6⅛″	1′-7 5/16″	1′-5 5/16″	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″
35	B35-01	1′-6⅛″	1′-7 5/16″	1′-5 5/16″	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″
36	B36-01	1′-6⅛″	1′-7 5/16″	1′-5 5/16″	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″
37	B37-01	1′-6½″	1′-7½″	1′-5 7/16″	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″
38	B38-01	1′-6½″	1′-7½″	1′-5 7/16″	1′-9 9/16″	1′-7½″	1′-5 7/16″
39	B39-01	1′-6½″	1′-7½″	1′-5 7/16″	1′-9 9/16″	1′-7½″	1′-5 7/16″
40	B40-01	1′-6⅝″	1′-7½″	1′-5 7/16″	1′-9 9/16″	1′-7½″	1′-5 7/16″
41	B41-01	1′-6⅝″	1′-7½″	1′-5 7/16″	1′-9 13/16″	1′-7½″	1′-5 7/16″
42	B42-01	1′-6⅝″	1′-7½″	1′-5 7/16″	1′-9 13/16″	1′-7½″	1′-5 7/16″
43	B43-01	1′-6⅝″	1′-7½″	1′-5 7/16″	1′-9 13/16″	1′-7½″	1′-5 7/16″
44	B44-01	1′-6⅝″	1′-7½″	1′-5 7/16″	1′-9¾″	1′-7½″	1′-5 7/16″
45	B45-01	1′-6⅝″	1′-7½″	1′-5 7/16″	1′-9¾″	1′-7½″	1′-5 7/16″
46	B46-01	1′-6⅝″	1′-7½″	1′-5 7/16″	1′-9¾″	1′-7½″	1′-5 7/16″

PRECAST PIECE B-02 DOWEL DIMENSIONS

BENT	DESIG.	DIM. M	DIM. N	DIM. O	DIM. P	DIM. Q	DIM. R	DIM. S	DIM. T
1	B1-02	2′-6 13/16″	1′-7 13/16″	1′-5¾″	2′-10 13/16″	2′-10 13/16″	1′-7 13/16″	1′-5¾″	2′-6 13/16″
2	B2-02	2′-6 13/16″	1′-7 13/16″	1′-5¾″	2′-10 13/16″	2′-10 13/16″	1′-7 13/16″	1′-5¾″	2′-6 13/16″
3	B3-02	2′-6 13/16″	1′-7 13/16″	1′-5¾″	2′-10 13/16″	2′-10 13/16″	1′-7 13/16″	1′-5¾″	2′-6 13/16″
4	B4-02	2′-7 1/16″	1′-7¾″	1′-5⅝″	2′-10 13/16″	2′-10 13/16″	1′-7 13/16″	1′-5¾″	2′-6 13/16″
5	B5-02	2′-7 1/16″	1′-7¾″	1′-5⅝″	2′-10 13/16″	2′-10 13/16″	1′-7¾″	1′-5⅝″	2′-7 1/16″
6	B6-02	2′-7 1/16″	1′-7¾″	1′-5⅝″	2′-10 13/16″	2′-10 13/16″	1′-7¾″	1′-5⅝″	2′-7 1/16″
7	B7-02	2′-7 11/16″	1′-7½″	1′-5 7/16″	2′-10 13/16″	2′-10 13/16″	1′-7¾″	1′-5⅝″	2′-7 1/16″
8	B8-02	2′-7 11/16″	1′-7½″	1′-5 7/16″	2′-10 13/16″	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7 11/16″
9	B9-02	2′-7 11/16″	1′-7½″	1′-5 7/16″	2′-10 13/16″	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7 11/16″
10	B10-02	2′-8 5/16″	1′-7 5/16″	1′-5 5/16″	2′-10¾″	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7 11/16″
11	B11-02	2′-8 5/16″	1′-7 5/16″	1′-5 5/16″	2′-10¾″	2′-10¾″	1′-7 5/16″	1′-5 5/16″	2′-8 5/16″
12	B12-02	2′-8 5/16″	1′-7 5/16″	1′-5 5/16″	2′-10¾″	2′-10¾″	1′-7 5/16″	1′-5 5/16″	2′-8 5/16″
13	B13-02	2′-8 13/16″	1′-7 3/16″	1′-5 3/16″	2′-10 11/16″	2′-10¾″	1′-7 5/16″	1′-5 5/16″	2′-8 5/16″
14	B14-02	2′-8 13/16″	1′-7 3/16″	1′-5 3/16″	2′-10 11/16″	2′-10 11/16″	1′-7 3/16″	1′-5 3/16″	2′-8 13/16″
15	B15-02	2′-8 13/16″	1′-7 3/16″	1′-5 3/16″	2′-10 11/16″	2′-10 11/16″	1′-7 3/16″	1′-5 3/16″	2′-8 13/16″
16	B16-02	2′-9¼″	1′-7 1/16″	1′-5 1/16″	2′-10½″	2′-10 11/16″	1′-7 3/16″	1′-5 3/16″	2′-8 13/16″
17	B17-02	2′-9¼″	1′-7 1/16″	1′-5 1/16″	2′-10½″	2′-10½″	1′-7 1/16″	1′-5 1/16″	2′-9¼″
18	B18-02	2′-9¼″	1′-7 1/16″	1′-5 1/16″	2′-10½″	2′-10½″	1′-7 1/16″	1′-5 1/16″	2′-9¼″
19	B19-02	2′-9 11/16″	1′-7″	1′-5″	2′-10¼″	2′-10½″	1′-7 1/16″	1′-5 1/16″	2′-9¼″
20	B20-02	2′-9 11/16″	1′-7″	1′-5″	2′-10¼″	2′-10¼″	1′-7″	1′-5″	2′-9 11/16″
21	B21-02	2′-9 11/16″	1′-7″	1′-5″	2′-10¼″	2′-10¼″	1′-7″	1′-5″	2′-9 11/16″
22	B22-02	2′-10″	1′-7″	1′-5″	2′-10″	2′-10¼″	1′-7″	1′-5″	2′-9 11/16″
23	B23-02	2′-10″	1′-7″	1′-5″	2′-10″	2′-10″	1′-7″	1′-5″	2′-10″
24	B24-02	2′-10″	1′-7″	1′-5″	2′-10″	2′-10″	1′-7″	1′-5″	2′-10″
25	B25-02	2′-10¼″	1′-7″	1′-5″	2′-9 11/16″	2′-10″	1′-7″	1′-5″	2′-10″
26	B26-02	2′-10¼″	1′-7″	1′-5″	2′-9 11/16″	2′-9 11/16″	1′-7″	1′-5″	2′-10¼″
27	B27-02	2′-10¼″	1′-7″	1′-5″	2′-9 11/16″	2′-9 11/16″	1′-7″	1′-5″	2′-10¼″
28	B28-02	2′-10½″	1′-7 1/16″	1′-5 1/16″	2′-9¼″	2′-9 11/16″	1′-7″	1′-5″	2′-10¼″
29	B29-02	2′-10½″	1′-7 1/16″	1′-5 1/16″	2′-9¼″	2′-9¼″	1′-7 1/16″	1′-5 1/16″	2′-10½″
30	B30-02	2′-10½″	1′-7 1/16″	1′-5 1/16″	2′-9¼″	2′-9¼″	1′-7 1/16″	1′-5 1/16″	2′-10½″
31	B31-02	2′-10 11/16″	1′-7 3/16″	1′-5 3/16″	2′-8 13/16″	2′-9¼″	1′-7 1/16″	1′-5 1/16″	2′-10½″
32	B32-02	2′-10 11/16″	1′-7 3/16″	1′-5 3/16″	2′-8 13/16″	2′-8 13/16″	1′-7 3/16″	1′-5 3/16″	2′-10 11/16″
33	B33-02	2′-10 11/16″	1′-7 3/16″	1′-5 3/16″	2′-8 13/16″	2′-8 13/16″	1′-7 3/16″	1′-5 3/16″	2′-10 11/16″
34	B34-02	2′-10¾″	1′-7 5/16″	1′-5 5/16″	2′-8 5/16″	2′-8 13/16″	1′-7 3/16″	1′-5 3/16″	2′-10 11/16″
35	B35-02	2′-10¾″	1′-7 5/16″	1′-5 5/16″	2′-8 5/16″	2′-8 5/16″	1′-7 5/16″	1′-5 5/16″	2′-10¾″
36	B36-02	2′-10¾″	1′-7 5/16″	1′-5 5/16″	2′-8 5/16″	2′-8 5/16″	1′-7 5/16″	1′-5 5/16″	2′-10¾″
37	B37-02	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7¾″	2′-8 5/16″	1′-7 5/16″	1′-5 5/16″	2′-10¾″
38	B38-02	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7¾″	2′-7¾″	1′-7½″	1′-5 7/16″	2′-10 13/16″
39	B39-02	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7¾″	2′-7¾″	1′-7½″	1′-5 7/16″	2′-10 13/16″
40	B40-02	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7 5/8″	2′-7¾″	1′-7½″	1′-5 7/16″	2′-10 13/16″
41	B41-02	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7 5/8″	2′-7 5/8″	1′-7½″	1′-5 7/16″	2′-10 13/16″
42	B42-02	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7 5/8″	2′-7 5/8″	1′-7½″	1′-5 7/16″	2′-10 13/16″
43	B43-02	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7 11/16″	2′-7 5/8″	1′-7½″	1′-5 7/16″	2′-10 13/16″
44	B44-02	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7 11/16″	2′-7 11/16″	1′-7½″	1′-5 7/16″	2′-10 13/16″
45	B45-02	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7 11/16″	2′-7 11/16″	1′-7½″	1′-5 7/16″	2′-10 13/16″
46	B46-02	2′-10 13/16″	1′-7½″	1′-5 7/16″	2′-7 11/16″	2′-7 11/16″	1′-7½″	1′-5 7/16″	2′-10 13/16″

PRECAST PIECE B-03 DOWEL DIMENSIONS

BENT	DESIG.	DIM. U	DIM. V	DIM. W	DIM. X	DIM. Y	DIM. Z
1	B1-03	1′-7½″	1′-7 13/16″	1′-5¾″	1′-11½″	1′-7 13/16″	1′-5¾″
2	B2-03	1′-7½″	1′-7 13/16″	1′-5¾″	1′-11½″	1′-7 13/16″	1′-5¾″
3	B3-03	1′-7½″	1′-7 13/16″	1′-5¾″	1′-11½″	1′-7 13/16″	1′-5¾″
4	B4-03	1′-7⅜″	1′-7¾″	1′-5⅝″	1′-11½″	1′-7 13/16″	1′-5¾″
5	B5-03	1′-7⅜″	1′-7¾″	1′-5⅝″	1′-10 15/16″	1′-7¾″	1′-5⅝″
6	B6-03	1′-7⅜″	1′-7¾″	1′-5⅝″	1′-10 15/16″	1′-7¾″	1′-5⅝″
7	B7-03	1′-6 9/16″	1′-7½″	1′-5 7/16″	1′-10 15/16″	1′-7¾″	1′-5⅝″
8	B8-03	1′-6 9/16″	1′-7½″	1′-5 7/16″	1′-9 11/16″	1′-7½″	1′-5 7/16″
9	B9-03	1′-6 9/16″	1′-7½″	1′-5 7/16″	1′-9 11/16″	1′-7½″	1′-5 7/16″
10	B10-03	1′-6⅛″	1′-7 5/16″	1′-5 5/16″	1′-9 11/16″	1′-7½″	1′-5 7/16″
11	B11-03	1′-6⅛″	1′-7 5/16″	1′-5 5/16″	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″
12	B12-03	1′-6⅛″	1′-7 5/16″	1′-5 5/16″	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″
13	B13-03	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″
14	B14-03	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″
15	B15-03	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″
16	B16-03	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″
17	B17-03	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″
18	B18-03	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″
19	B19-03	1′-5¾″	1′-7″	1′-5″	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″
20	B20-03	1′-5¾″	1′-7″	1′-5″	1′-6⅜″	1′-7″	1′-5″
21	B21-03	1′-5¾″	1′-7″	1′-5″	1′-6⅜″	1′-7″	1′-5″
22	B22-03	1′-6″	1′-7″	1′-5″	1′-6⅜″	1′-7″	1′-5″
23	B23-03	1′-6″	1′-7″	1′-5″	1′-6″	1′-7″	1′-5″
24	B24-03	1′-6″	1′-7″	1′-5″	1′-6″	1′-7″	1′-5″
25	B25-03	1′-6⅜″	1′-7″	1′-5″	1′-6″	1′-7″	1′-5″
26	B26-03	1′-6⅜″	1′-7″	1′-5″	1′-5¾″	1′-7″	1′-5″
27	B27-03	1′-6⅜″	1′-7″	1′-5″	1′-5¾″	1′-7″	1′-5″
28	B28-03	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″	1′-5¾″	1′-7″	1′-5″
29	B29-03	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″
30	B30-03	1′-6 15/16″	1′-7 1/16″	1′-5 1/16″	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″
31	B31-03	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″	1′-5 11/16″	1′-7 1/16″	1′-5 1/16″
32	B32-03	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″
33	B33-03	1′-7 11/16″	1′-7 3/16″	1′-5 3/16″	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″
34	B34-03	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″	1′-5 13/16″	1′-7 3/16″	1′-5 3/16″
35	B35-03	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″	1′-6⅛″	1′-7 5/16″	1′-5 5/16″
36	B36-03	1′-8 9/16″	1′-7 5/16″	1′-5 5/16″	1′-6⅛″	1′-7 5/16″	1′-5 5/16″
37	B37-03	1′-9 9/16″	1′-7½″	1′-5 7/16″	1′-6⅛″	1′-7 5/16″	1′-5 5/16″
38	B38-03	1′-9 9/16″	1′-7½″	1′-5 7/16″	1′-6½″	1′-7½″	1′-5 7/16″
39	B39-03	1′-9 9/16″	1′-7½″	1′-5 7/16″	1′-6½″	1′-7½″	1′-5 7/16″
40	B40-03	1′-9 13/16″	1′-7½″	1′-5 7/16″	1′-6½″	1′-7½″	1′-5 7/16″
41	B41-03	1′-9 13/16″	1′-7½″	1′-5 7/16″	1′-6⅝″	1′-7½″	1′-5 7/16″
42	B42-03	1′-9 13/16″	1′-7½″	1′-5 7/16″	1′-6⅝″	1′-7½″	1′-5 7/16″
43	B43-03	1′-9¾″	1′-7½″	1′-5 7/16″	1′-6⅝″	1′-7½″	1′-5 7/16″
44	B44-03	1′-9¾″	1′-7½″	1′-5 7/16″	1′-6⅝″	1′-7½″	1′-5 7/16″
45	B45-03	1′-9¾″	1′-7½″	1′-5 7/16″	1′-6⅝″	1′-7½″	1′-5 7/16″
46	B46-03	1′-9¾″	1′-7½″	1′-5 7/16″	1′-6⅝″	1′-7½″	1′-5 7/16″

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 THRU 46 PRECAST PIECE DOWEL DIMENSIONS

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...

8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E. DATE : 6/15
CHECKED BY : T. M. GARRISON, P.E. DATE : 6/15

DRAWN BY : MAA 7/12
CHECKED BY : SHS 8/12

27-JUL-2015 08:16
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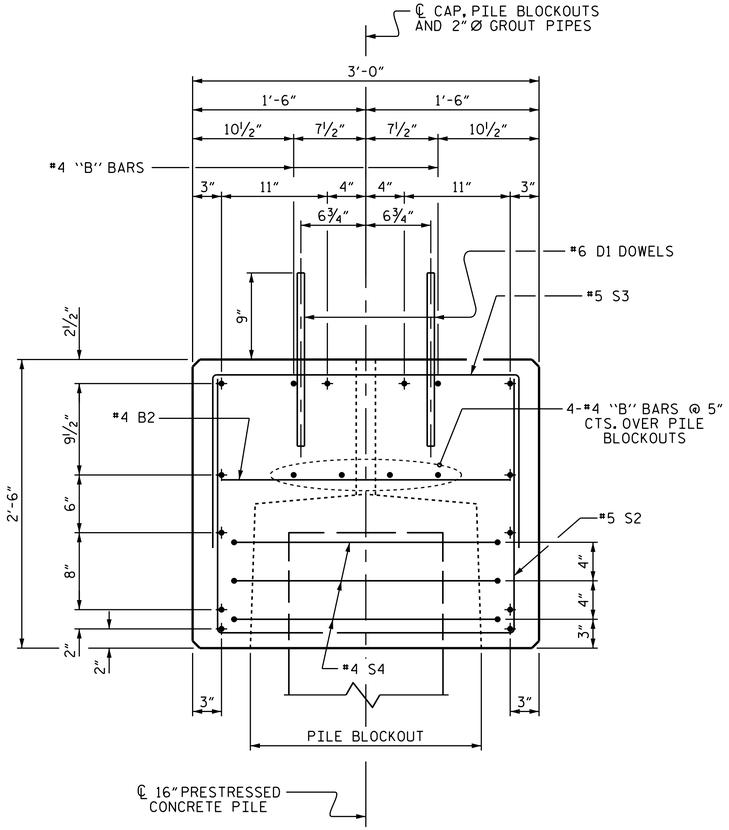
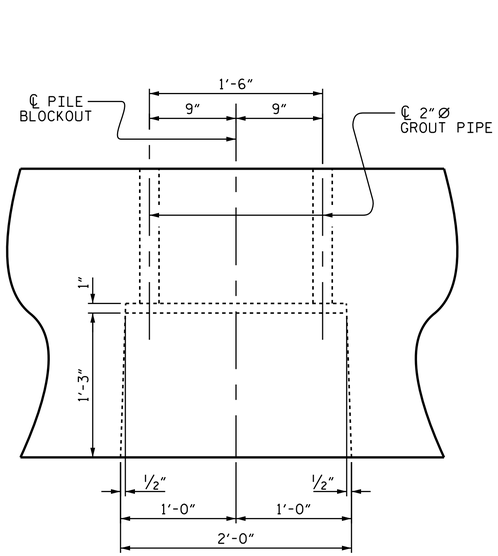
tgarrison

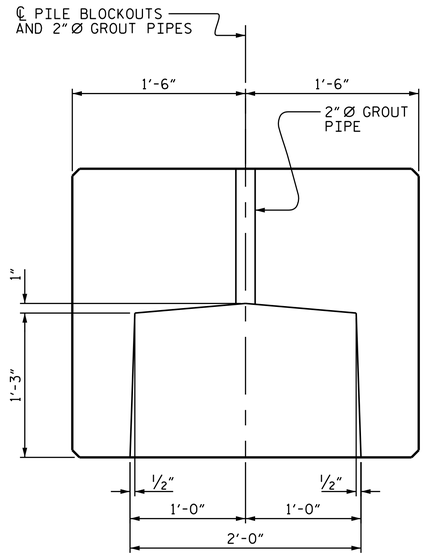


SECTION A-A

(SHOWING 0.6"Ø LOW RELAXATION STRAND LAYOUT)
(12 STRANDS)



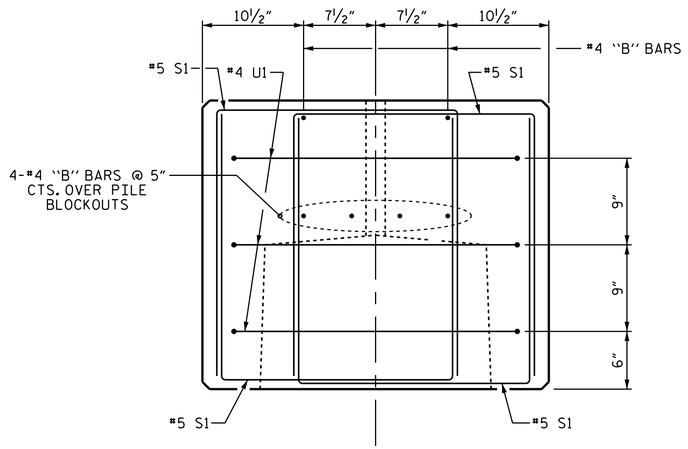
ELEVATION



SECTION

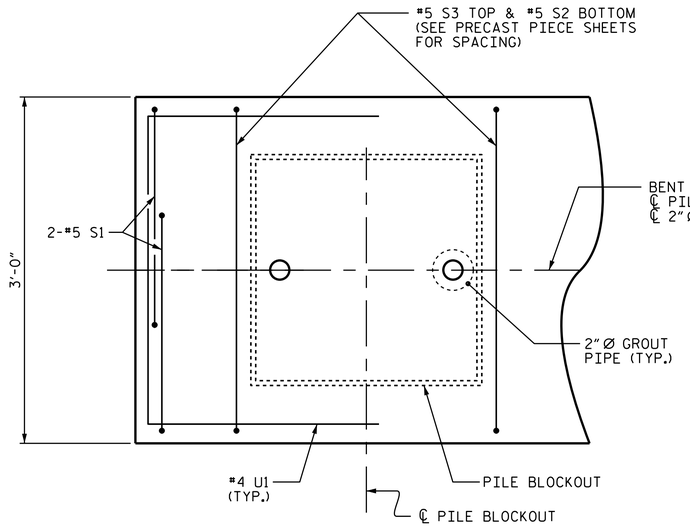
PILE BLOCKOUT DETAILS

(DIMENSIONS ARE TYPICAL EACH BLOCKOUT)



END OF CAP VIEW

(TYPICAL BOTH ENDS)



PART PLAN-END OF CAP

(TYPICAL BOTH ENDS)

NOTES

STIRRUPS IN PRECAST PIECES MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS AND GROUT PIPES.

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 BENT CAP SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRECAST BENT CAPS.

WHEN BENT CAPS ARE CAST, A HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING BENT CAPS, 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.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE ENDS OF THE BENT CAP SEGMENTS.

APPLY EPOXY PROTECTIVE COATING TO THE ENDS OF THE BENT CAP SEGMENTS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BENT CAPS SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A METHOD TO LIFT AND SUPPORT THE PRECAST CAP PIECES IN THE PROPER LOCATION AND ELEVATION AS SHOWN ON THE PLANS PRIOR TO PLACEMENT AND CURING OF THE GROUT IN THE PILE BLOCKOUTS. THE METHOD CHOSEN SHALL PROVIDE FOR A WATERTIGHT SEAL AT THE BOTTOM OF THE CAP UNTIL THE GROUT HAS HARDENED SO NO GROUT LEAKS FROM THE PILE BLOCKOUT AREA.

PRESTRESSED CONCRETE BENT CAPS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE INHIBITOR SHALL BE APPLIED AT A RATE ON 4.0 GALLONS PER CUBIC YARD. NO SEPARATE PAYMENT WILL BE MADE FOR THE ADDITION OF CALCIUM NITRITE, AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

PRESTRESSED CONCRETE BENT CAPS (FOR ONE BENT)

PIECE	LENGTH	NUMBER	TOTAL LENGTH
B-01	15'-2½"	1	15'-2½"
B-02	10'-3"	1	10'-3"
B-03	15'-2½"	1	15'-2½"
TOTAL		3	40.67'

16" PRESTRESSED CONCRETE PILES (FOR ONE BENT)

No. 8 LIN. FT. 480.0

PRESTRESSED CONCRETE BENT CAPS (TOTAL FOR ALL BENTS)

PIECE	LENGTH	NUMBER	TOTAL LENGTH
B-01	15'-2½"	46	699'-7"
B-02	10'-3"	46	471'-6"
B-03	15'-2½"	46	699'-7"
TOTAL		138	1870.67'

16" PRESTRESSED CONCRETE PILES (TOTAL FOR ALL BENTS)

No. 368 LIN. FT. 22,080.0

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 7 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 THRU 46

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...

8/20/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E.	DATE : 6/15
CHECKED BY : T. M. GARRISON, P.E.	DATE : 6/15
DRAWN BY : MAA 7/12	
CHECKED BY : SHS 8/12	

20-AUG-2015 10:48
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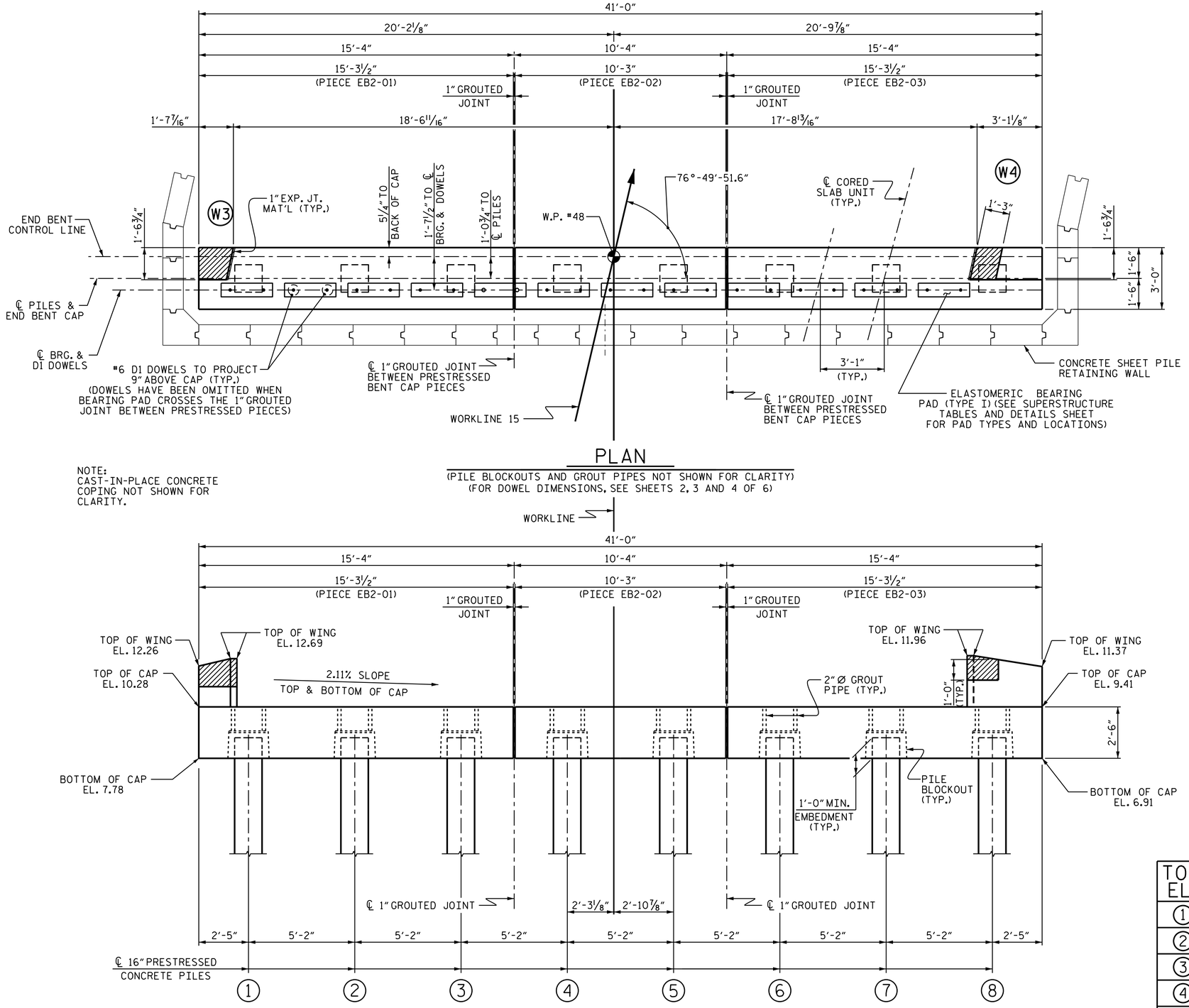
STD. NO. 16"PS_PSBT_36_75/105S_<60'



NOTE:
CONCRETE COPING NOT SHOWN FOR CLARITY.

PLAN

(PILE BLOCKOUTS AND GROUT PIPES NOT SHOWN FOR CLARITY)
(FOR DOWEL DIMENSIONS, SEE SHEETS 2, 3 AND 4 OF 6)

ELEVATION

FOR 2" Ø GROUT PIPE AND PILE BLOCKOUT DETAILS, SEE SHEET 5 OF 6

NOTES

FOR PRESTRESSED CAP DETAILS AND BILL OF MATERIAL, SEE "PIECE EB2-01" "PIECE EB2-02" & "PIECE EB2-03" SHEETS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR 3'-0" x 2'-6" PRESTRESSED CONCRETE BENT CAPS, SEE SPECIAL PROVISIONS.

FOR CONCRETE SHEET PILE RETAINING WALLS, SEE "CONCRETE SHEET PILE RETAINING WALL, WALL AND COPING DETAILS AT END BENTS" SHEET.

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

FOR WING DETAILS, SEE SHEET 6 OF 6.

TOP OF PILE ELEVATIONS	
①	8.74
②	8.63
③	8.52
④	8.41
⑤	8.30
⑥	8.19
⑦	8.08
⑧	7.97

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943468...
8/3/2015

PROJECT NO. B-2500AB
DARE COUNTY
STATION: 3170+75.00 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : M.A. ALLEN DATE : 6/15
CHECKED BY : T.M. GARRISON DATE : 6/15
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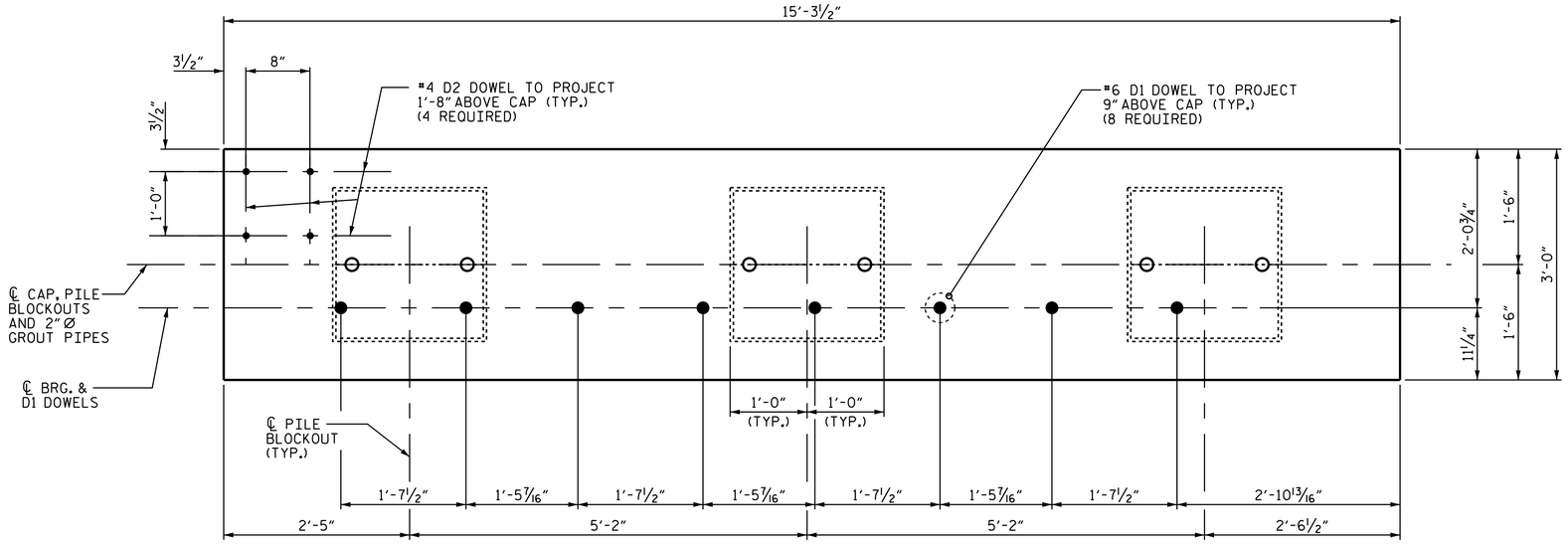
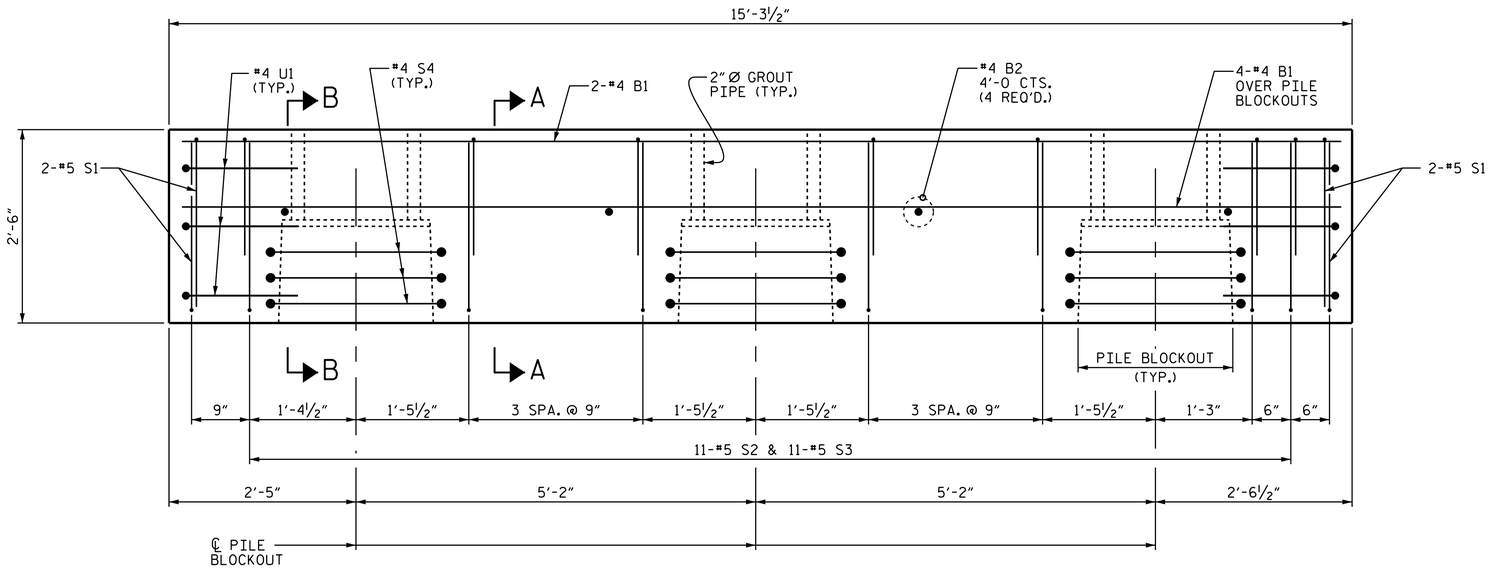


PLAN

(FOR PILE BLOCKOUT DETAILS, SEE SHEET 5 OF 6)



ELEVATION

(#6 D1 AND #4 D2 DOWELS NOT SHOWN FOR CLARITY)
FOR SECTION A-A AND SECTION B-B, SEE SHEET 5 OF 6.

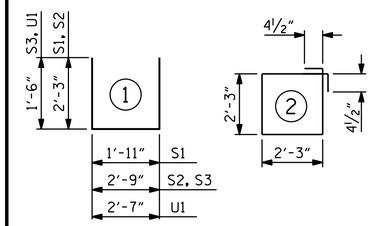
BILL OF MATERIAL

FOR ONE PIECE EB2-01

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#4	STR	14'-11"	60
B2	4	#4	STR	2'-8"	7
D1	8	#6	STR	1'-6"	18
✳D2	4	#4	STR	2'-8"	7
S1	8	#5	1	6'-5"	54
S2	11	#5	1	7'-3"	83
S3	11	#5	1	5'-9"	66
S4	9	#4	2	9'-9"	59
U1	6	#4	1	5'-7"	22

REINFORCING STEEL	369 LBS
✳EPOXY COATED REINFORCING STEEL	7 LBS
4000 PSI PRESTRESS CONCRETE	3.7 C.Y.
PILE BLOCKOUT GROUT ▲	0.4 C.Y.
0.6" Ø L.R. STRANDS	No. 12

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

▲ GROUT DISPLACED BY THE 16" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE GROUT QUANTITY.

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

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

PRESTRESSED PIECE EB2-01

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943468...
8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : M.A. ALLEN	DATE : 6/15	
CHECKED BY : T.M. GARRISON	DATE : 6/15	
DRAWN BY : MAA 7/12		
CHECKED BY : SHS 8/12		

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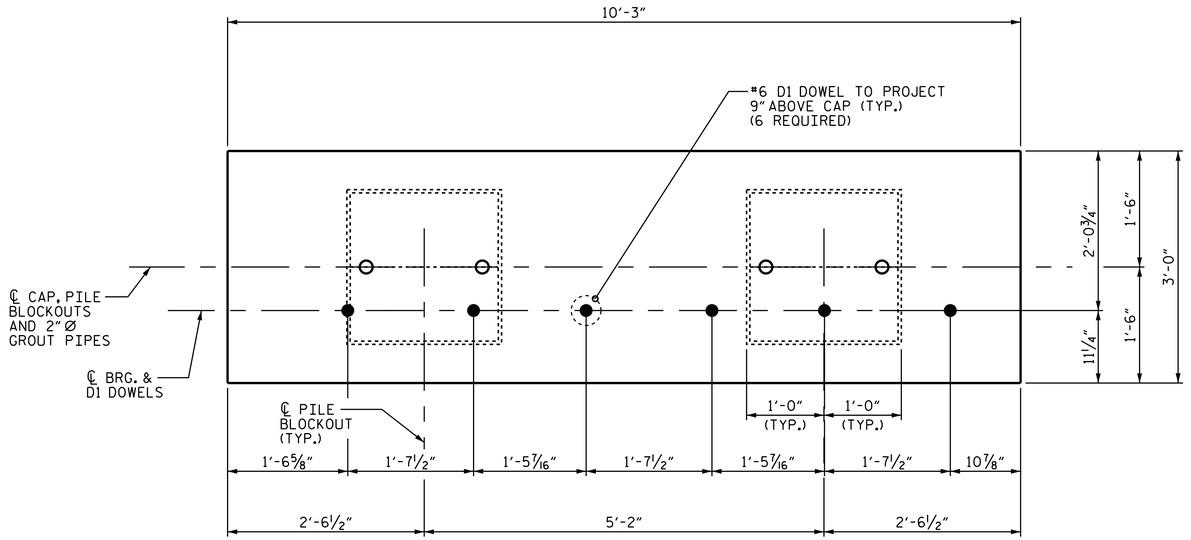
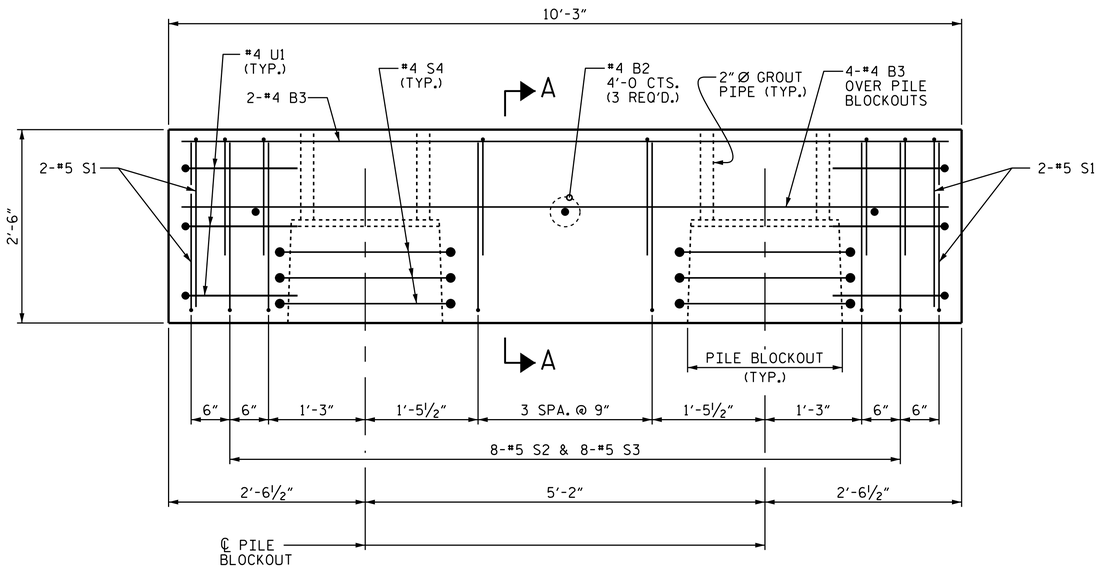


PLAN

(FOR PILE BLOCKOUT DETAILS, SEE SHEET 5 OF 6)



ELEVATION

(#6 D1 DOWELS NOT SHOWN FOR CLARITY)
FOR SECTION A-A, SEE SHEET 5 OF 6.

BILL OF MATERIAL

FOR ONE PIECE EB2-02

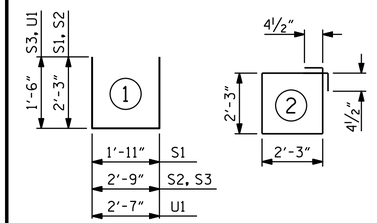
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B2	3	#4	STR	2'-8"	5
B3	6	#4	STR	9'-11"	40
D1	6	#6	STR	1'-6"	14
S1	8	#5	1	6'-5"	54
S2	8	#5	1	7'-3"	60
S3	8	#5	1	5'-9"	48
S4	6	#4	2	9'-9"	39
U1	6	#4	1	5'-7"	22

REINFORCING STEEL 282 LBS

4000 PSI PRESTRESS CONCRETE 2.5 C.Y.
PILE BLOCKOUT GROUT ▲ 0.2 C.Y.

0.6" Ø L.R. STRANDS No. 12

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

▲ GROUT DISPLACED BY THE 16" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE GROUT QUANTITY.

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

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

PRESTRESSED PIECE EB2-02

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943468...

8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : M.A. ALLEN DATE : 6/15
CHECKED BY : T.M. GARRISON DATE : 6/15
DRAWN BY : MAA 7/12
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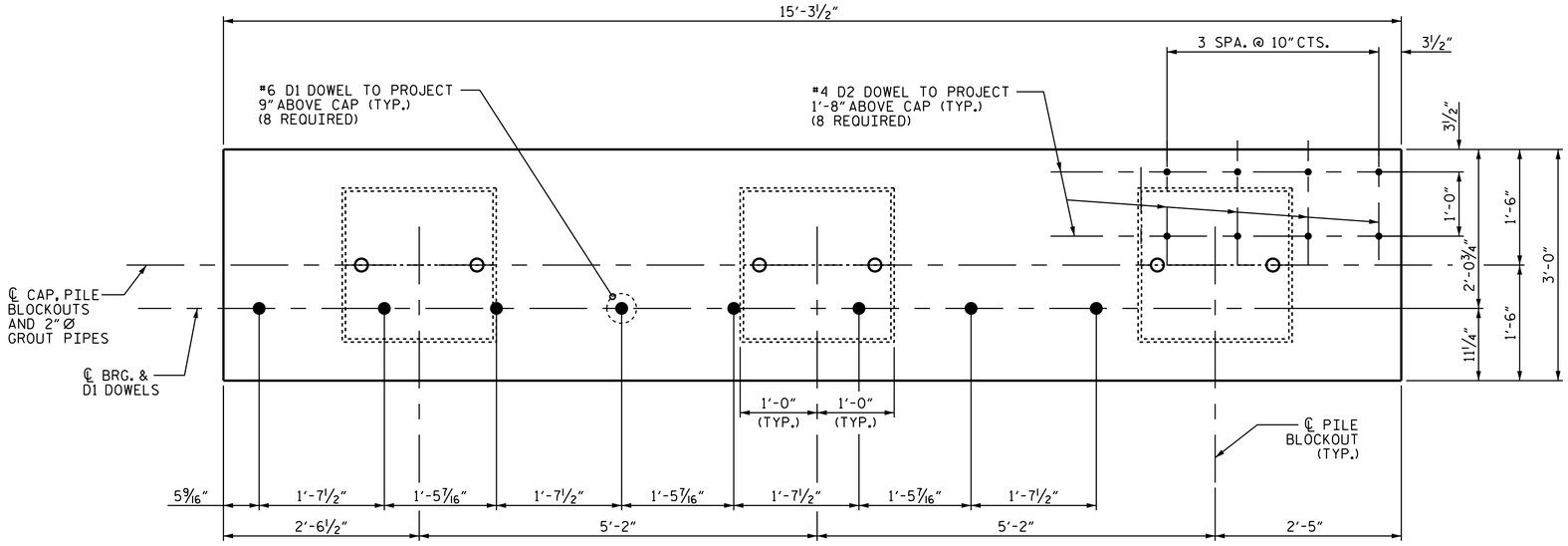
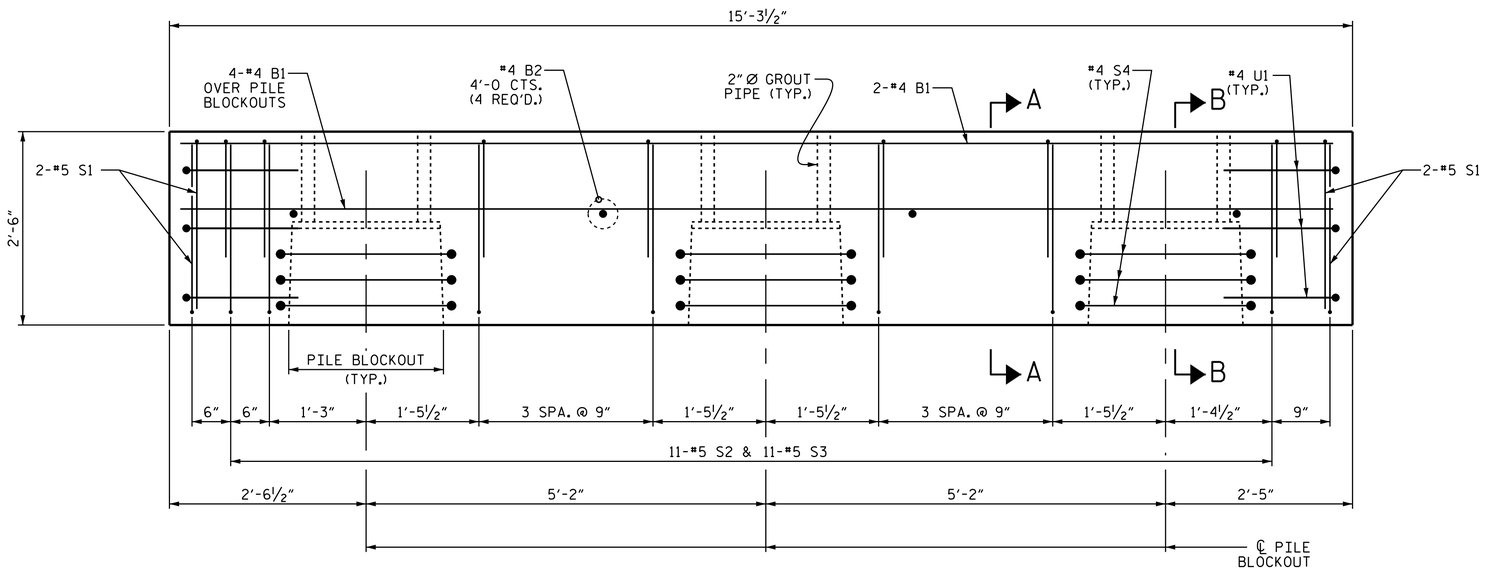


PLAN

(FOR PILE BLOCKOUT DETAILS, SEE SHEET 5 OF 6)



ELEVATION

(#6 D1 AND #4 D2 DOWELS NOT SHOWN FOR CLARITY)
FOR SECTION A-A AND SECTION B-B, SEE SHEET 5 OF 6.

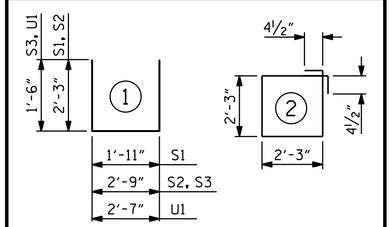
BILL OF MATERIAL

FOR ONE PIECE EB2-03

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#4	STR	14'-11"	60
B2	4	#4	STR	2'-8"	7
D1	8	#6	STR	1'-6"	18
✳D2	8	#4	STR	2'-8"	14
S1	8	#5	1	6'-5"	54
S2	11	#5	1	7'-3"	83
S3	11	#5	1	5'-9"	66
S4	9	#4	2	9'-9"	59
U1	6	#4	1	5'-7"	22

REINFORCING STEEL	369 LBS
✳EPOXY COATED REINFORCING STEEL	14 LBS
4000 PSI PRESTRESS CONCRETE	3.7 C.Y.
PILE BLOCKOUT GROUT ▲	0.4 C.Y.
0.6" Ø L.R. STRANDS	No. 12

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

▲ GROUT DISPLACED BY THE 16" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE GROUT QUANTITY.

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

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

PRESTRESSED PIECE EB2-03

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943468...

8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : M.A. ALLEN	DATE : 6/15	
CHECKED BY : T.M. GARRISON	DATE : 6/15	
DRAWN BY : MAA	7/12	
CHECKED BY : SHS	8/12	

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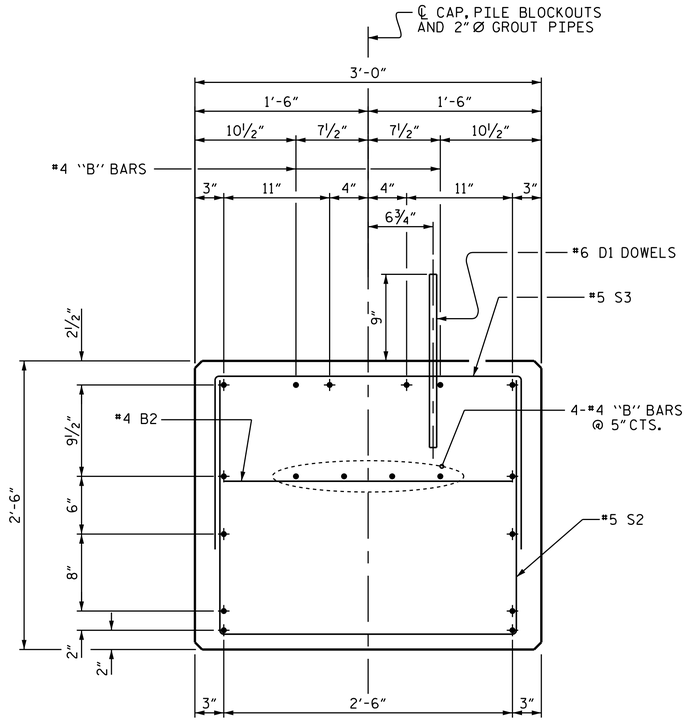
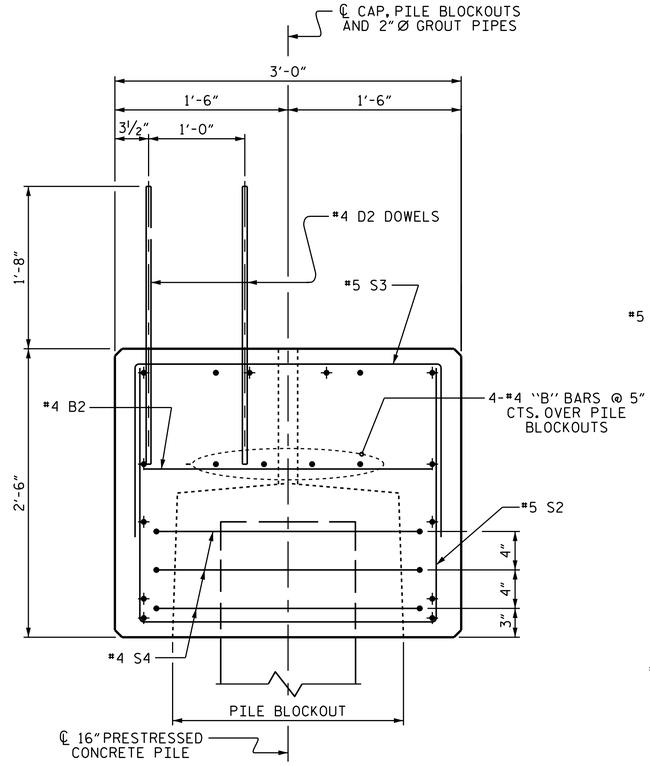
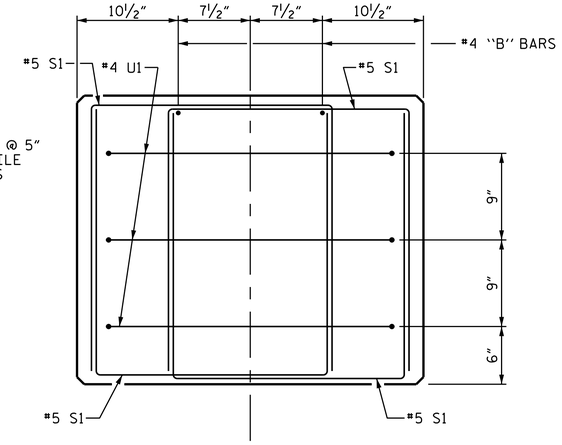


SECTION A-A

(SHOWING 0.6"Ø LOW RELAXATION STRAND LAYOUT)
(12 STRANDS)

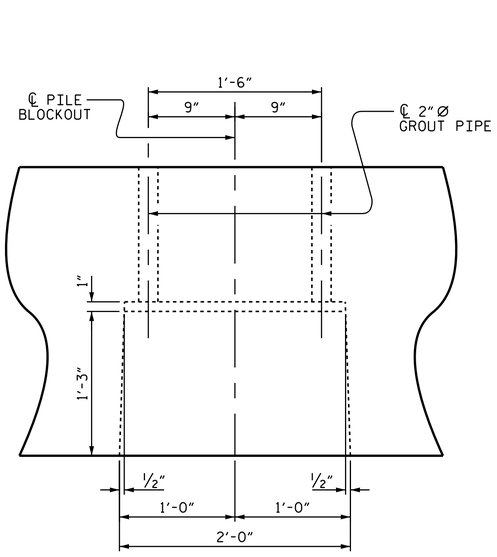


SECTION B-B

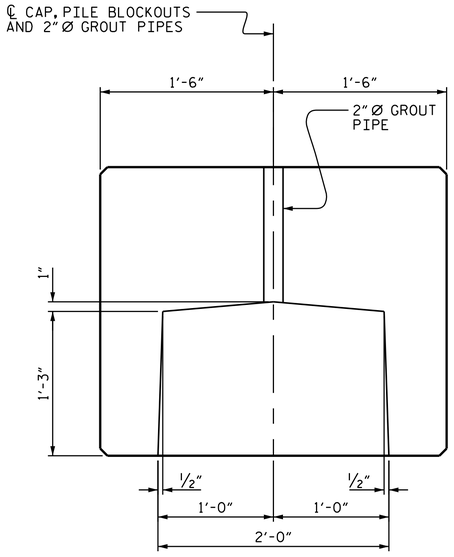


END OF CAP VIEW

(TYPICAL BOTH ENDS)



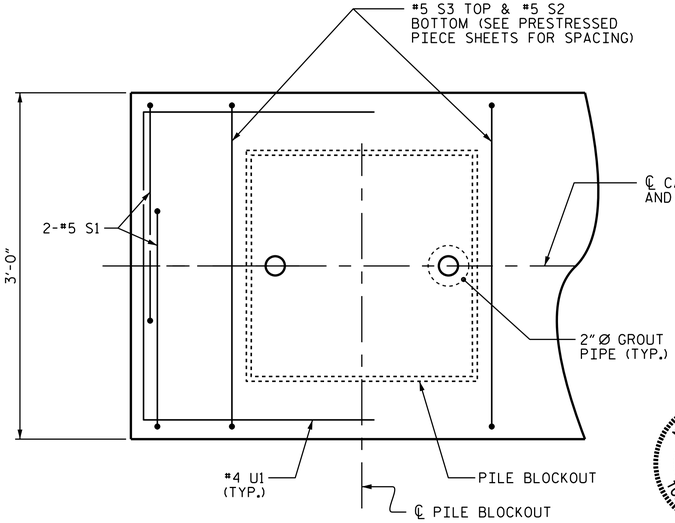
ELEVATION



SECTION

PILE BLOCKOUT DETAILS

(DIMENSIONS ARE TYPICAL EACH BLOCKOUT)



PART PLAN-END OF CAP

(TYPICAL BOTH ENDS)

NOTES

STIRRUPS IN PRESTRESSED PIECES MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS AND GROUT PIPES.

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 END BENT CAP SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "3'-0" x 2'-6" PRESTRESSED CONCRETE BENT CAPS".

WHEN END BENT CAPS ARE CAST, A HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING END BENT CAPS, 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.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE ENDS OF THE END BENT CAP SEGMENTS.

APPLY EPOXY PROTECTIVE COATING TO THE EXTERIOR END FACE OF PRESTRESSED PIECE EB2-01 AND EB2-03.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE END BENT CAPS SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A METHOD TO LIFT AND SUPPORT THE PRESTRESSED CAP PIECES IN THE PROPER LOCATION AND ELEVATION AS SHOWN ON THE PLANS PRIOR TO PLACEMENT AND CURING OF THE GROUT IN THE PILE BLOCKOUTS. THE METHOD CHOSEN SHALL PROVIDE FOR A WATERTIGHT SEAL AT THE BOTTOM OF THE CAP UNTIL THE GROUT HAS HARDENED SO NO GROUT LEAKS FROM THE PILE BLOCKOUT AREA.

PRESTRESSED CONCRETE END BENT CAPS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE INHIBITOR SHALL BE APPLIED AT A RATE OF 4.0 GALLONS PER CUBIC YARD. NO SEPARATE PAYMENT WILL BE MADE FOR THE ADDITION OF CALCIUM NITRITE, AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

PRESTRESSED CONCRETE BENT CAPS (END BENT 2)

PIECE	LENGTH	NUMBER	TOTAL LENGTH
EB2-01	15'-3½"	1	15'-3½"
EB2-02	10'-3"	1	10'-3"
EB2-03	15'-3½"	1	15'-3½"
TOTAL		3	40.83'

16" PRESTRESSED CONCRETE PILES (FOR END BENT 2)		
No. 8	LIN. FT.	480

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943466...

8/20/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-40
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY :	M.A. ALLEN	DATE :	6/15
CHECKED BY :	T.M. GARRISON	DATE :	6/15
DRAWN BY :	MAA		7/12
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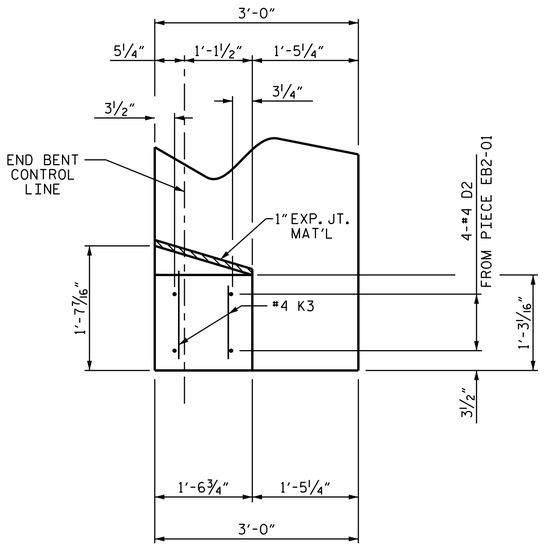
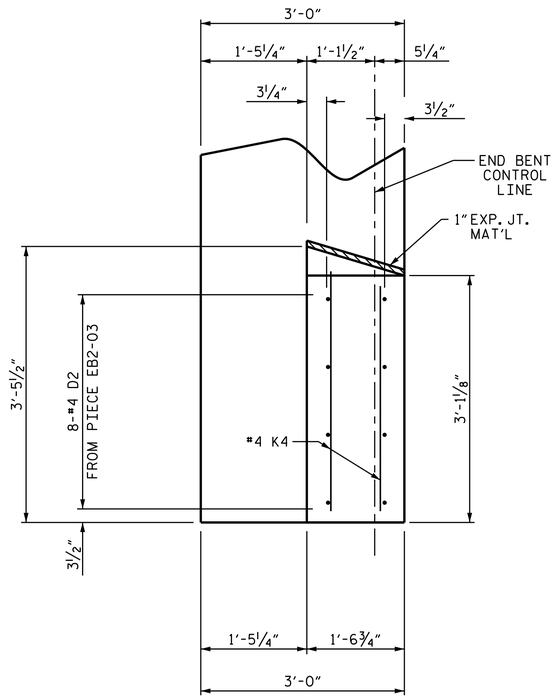


PLAN OF WING (W3)



PLAN OF WING (W4)

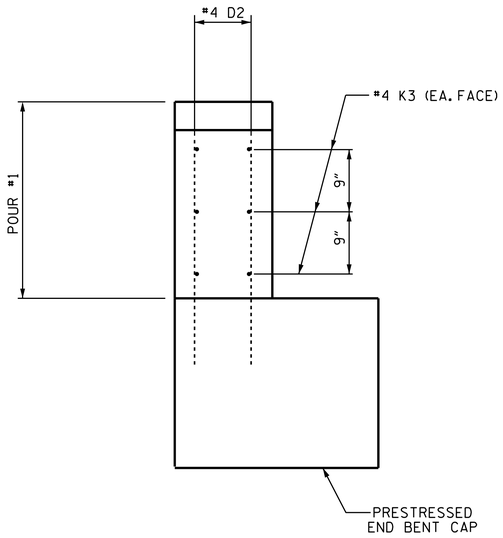
BILL OF MATERIAL FOR END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱K3	6	#4	STR	10"	3
✱K4	6	#4	STR	2'-9"	11

✱ EPOXY COATED REINFORCING STEEL (FOR ONE END BENT) 14 LBS.

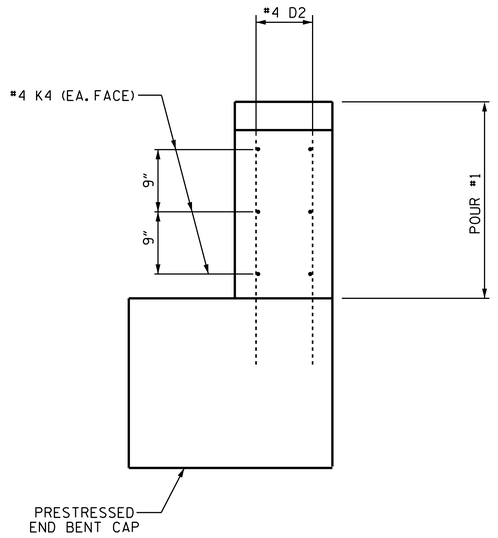
✱✱ CLASS AA CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 WINGS 0.7 C.Y.

✱✱ CLASS AA CONCRETE SHALL BE CONSIDERED INCIDENTAL TO COST OF CONCRETE SHEET PILE WALLS.



ELEVATION OF WING (W3)



ELEVATION OF WING (W4)

WING DETAILS

ASSEMBLED BY : M.A. ALLEN	DATE : 6/15		
CHECKED BY : T.M. GARRISON	DATE : 6/15		
DRAWN BY : MAA 4/13			
CHECKED BY : BCH 4/13			

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tgarrison

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943468...

8/3/2015

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

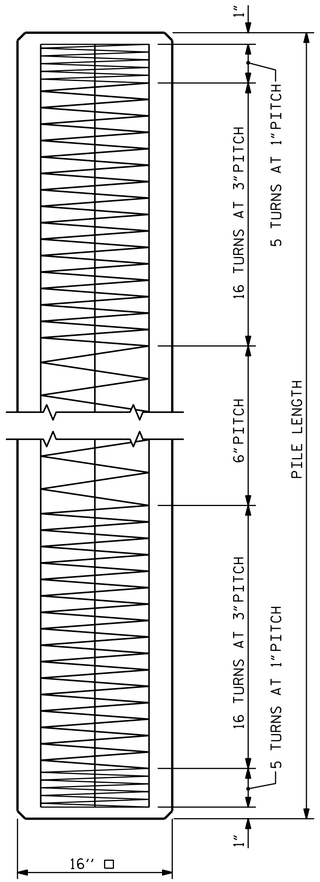
SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

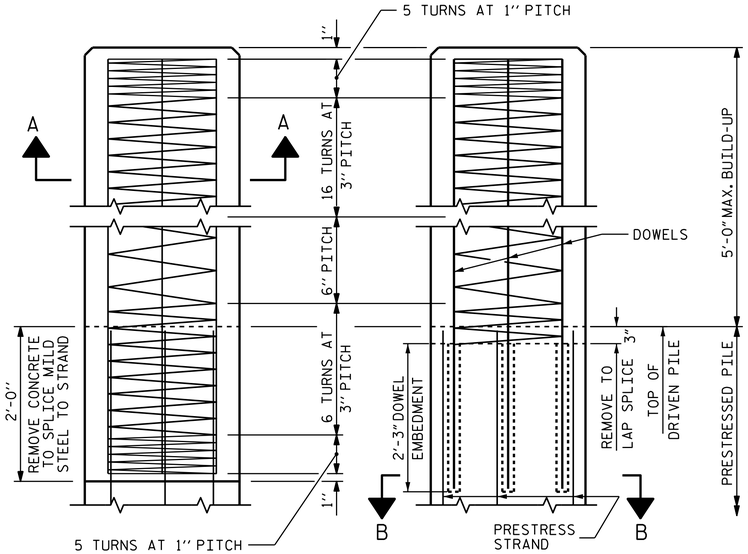
SUBSTRUCTURE

END BENT 2
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			44

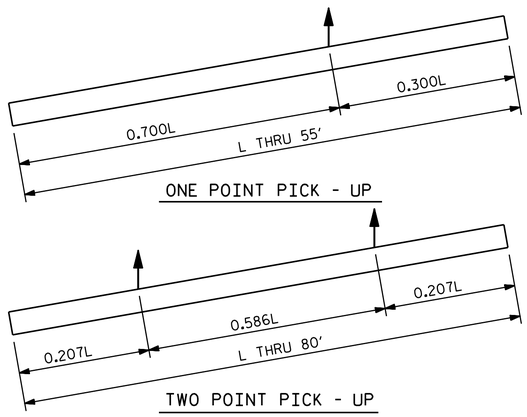


ELEVATION

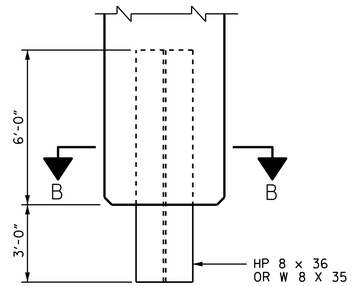


BUILD-UP AND SPIRAL REINFORCING

OPTIONAL BUILD-UP WITH DOWELS



PICK - UP POINTS



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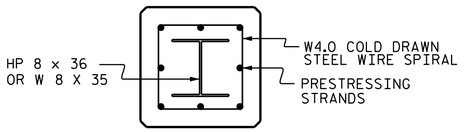
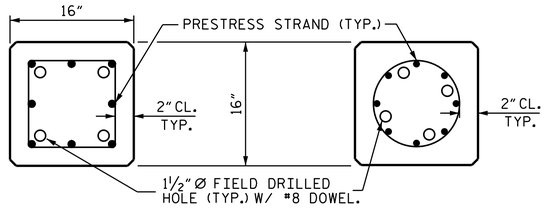


SECTION B-B

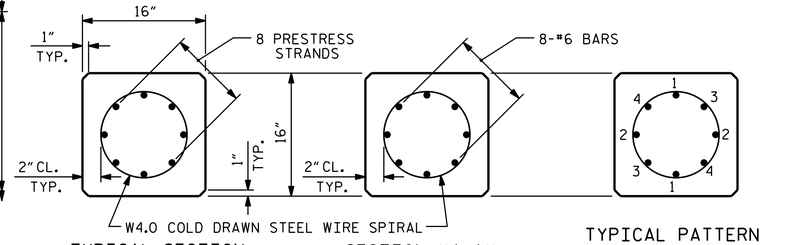
PILE TIP DETAILS

FOR 16" SQUARE PRESTRESSED CONCRETE PILE



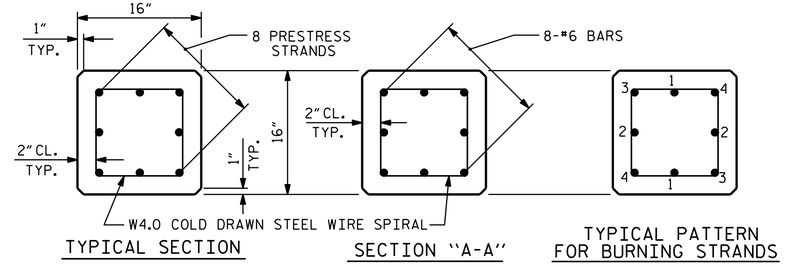
SECTION "B-B"

(AT THE CONTRACTOR'S OPTION, PILE BUILD-UP MAY BE CONSTRUCTED WITH DOWELS.)



TYPICAL SECTION SECTION "A-A" TYPICAL PATTERN FOR BURNING STRANDS

½" OR 0.6" Ø GRADE 270 L.R. PRESTRESS STRANDS



TYPICAL SECTION SECTION "A-A" TYPICAL PATTERN FOR BURNING STRANDS

½" OR 0.6" Ø GRADE 270 L.R. PRESTRESS STRANDS

DOWEL INSTALLATION FOR OPTIONAL BUILD-UP

GROUT COMPRESSIVE STRENGTH: f'c= 7,500 PSI

BEFORE DRILLING DOWEL HOLES, REMOVE THE UPPER 3" OF CONCRETE FROM THE TOP OF THE PILE WITHOUT DAMAGE TO THE REINFORCING STEEL. THE REMOVAL PLANE SHOULD BE NORMAL TO THE EDGE OF THE PILE.

DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN ½" CLEAR TO ALL EXISTING PRESTRESSING STRANDS IN THE CONCRETE PILE.

FIELD DRILLED HOLES SHALL BE CLEAN AND FREE OF ANY OBSTRUCTIONS BEFORE GROUTING OF DOWELS. DOWEL BARS SHALL BE INSTALLED AND GROUTED WITH AN APPROVED NON-SHRINK GROUT.

THE SPIRAL REINFORCING IN ALL BUILD-UPS SHALL BE W4.0 COLD DRAWN WIRE WHICH SHALL BE SECURED TO THE LONGITUDINAL REINFORCEMENT TO MAINTAIN PITCH.

THE SPIRAL REINFORCING IN THE BUILD-UP AND THE PRESTRESSED CONCRETE PILE SHALL BE SPLICED BY OVERLAPPING A MIN. OF ONE TURN.

STRAND DATA:

SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
½"	270 L.R.	0.153	41,300# PER STRAND	30,980# PER STRAND
0.6"	270 L.R.	0.217	58,600# PER STRAND	43,940# PER STRAND

QUANTITIES FOR ONE 16" PRESTRESSED PILE

LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE POINT PICK-UP 0.300L	ONE POINT PICK-UP 0.700L	TWO POINT PICK-UP 0.207L	TWO POINT PICK-UP 0.586L
25'-0"	1.63	3.31	7'-6"	17'-6"	5'-2"	14'-8"
30'-0"	1.96	3.97	9'-0"	21'-0"	6'-2½"	17'-7"
35'-0"	2.29	4.63	10'-6"	24'-6"	7'-3"	20'-6"
40'-0"	2.61	5.29	12'-0"	28'-0"	8'-3½"	23'-5"
45'-0"	2.94	5.95	13'-6"	31'-6"	9'-4"	26'-4"
50'-0"	3.27	6.61	15'-0"	35'-0"	10'-4"	29'-4"
55'-0"	3.59	7.28	16'-6"	38'-6"	11'-4½"	32'-3"
60'-0"	3.92	7.94			12'-5"	35'-2"
65'-0"	4.25	8.60			13'-5½"	38'-1"
70'-0"	4.57	9.26			14'-6"	41'-0"
75'-0"	4.90	9.92			15'-6½"	43'-11"
80'-0"	5.23	10.58			16'-7"	46'-10"

NOTES

PRESTRESSED CONCRETE STRENGTH : f'c = 10,000 PSI

BUILD-UP CONCRETE STRENGTH : f'c = 10,000 PSI

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS CONFORMING TO AASHTO M203. STRAND SAMPLING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

AT THE CONTRACTOR'S OPTION, 1/2 "OR 0.6" STRANDS MAY BE USEDIN EITHER STRAND CONFIGURATION SHOWN IN THE TYPICAL SECTION DETAIL. MIXING OF STRAND SIZE IS NOT ALLOWED.

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

TRANSFER THE LOAD FROM THE ANCHORAGES TO THE PILE AFTER THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BEBURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERNSHOWN. FOR ANY NUMBER OF STRANDS, BURN IN OPPOSITE PAIRS AND SYMMETRICALLY ABOUT BOTH THE VERTICAL AND HORIZONTAL AXES. STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 3-3 AND 4-4, MAY BE BURNED AT ANY ONE SECTIONBEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS ARE TO BE INDICATED WITH A 2" WIDE BLACK MARK.

DRIVE PILES USING A METHOD APPROVED BY THE ENGINEER, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

DRIVING OF THE BUILT-UP PILE WILL NOT BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 7,500 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.

PRESTRESSED CONCRETE PILES SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE INHIBITOR SHALL BE APPLIED AT A RATE OF 4.0 GALLONS PER CUBIC YARD. NO SEPARATE PAYMENT WILL BE MADE FOR THE ADDITION OF CALCIUM NITRITE, AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

THE CONCRETE IN THE PILES SHALL CONTAIN A MINIMUM OF 25% FLY ASH CLASS F OR A MINIMUM OF 40% GROUND GRANULATED BLAST FURNACE SLAG (GGBFS). ADDITIONALLY, SILICA FUME SHALL BE SUBSTITUTED FOR A MINIMUM 5% OF THE PORTLAND CEMENT BY WEIGHT IN THE PILES AT BENT 1 THROUGH BENT 46. MINERAL ADMIXTURES SHALL REPLACE THE CEMENT CONTENT AT A 1:1 RATIO BY WEIGHT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION, AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943466...

8/3/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

16" PRESTRESSED CONCRETE PILE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY :	M.A. ALLEN	DATE :	6/15
CHECKED BY :	B.L. GREEN	DATE :	6/15
DRAWN BY :	RH 9/98	REV. 11/30/10	WMC/GM
CHECKED BY :	LES 10/98	REV. 10/1/11	MAA/GM
		REV. 12/14	MAA/TMG

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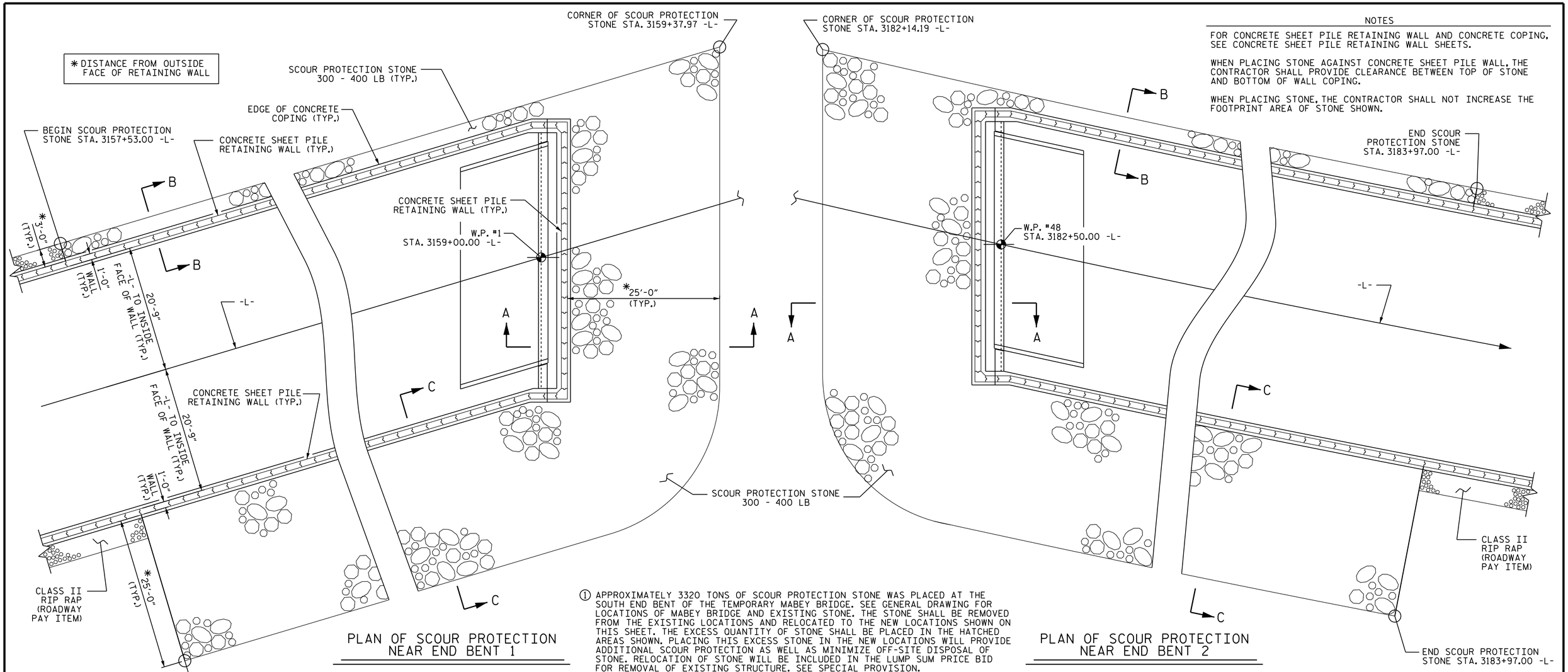
STD. NO. PCP2 (SHT 2)



PLAN OF SCOUR PROTECTION NEAR END BENT 1

PLAN OF SCOUR PROTECTION NEAR END BENT 2

NOTES

FOR CONCRETE SHEET PILE RETAINING WALL AND CONCRETE COPING, SEE CONCRETE SHEET PILE RETAINING WALL SHEETS.

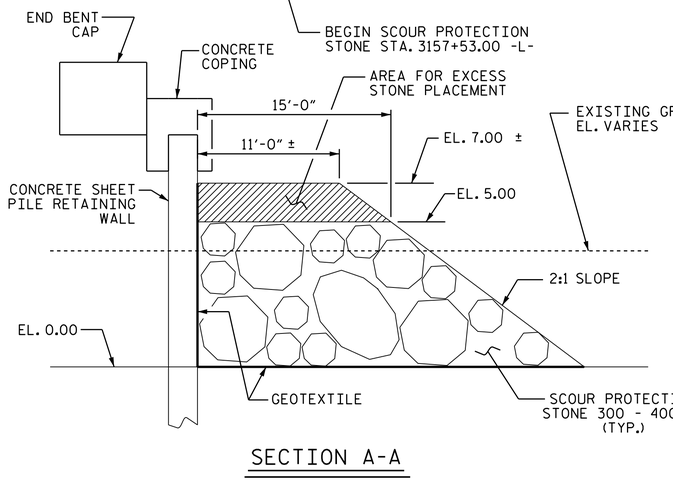
WHEN PLACING STONE AGAINST CONCRETE SHEET PILE WALL, THE CONTRACTOR SHALL PROVIDE CLEARANCE BETWEEN TOP OF STONE AND BOTTOM OF WALL COPING.

WHEN PLACING STONE, THE CONTRACTOR SHALL NOT INCREASE THE FOOTPRINT AREA OF STONE SHOWN.

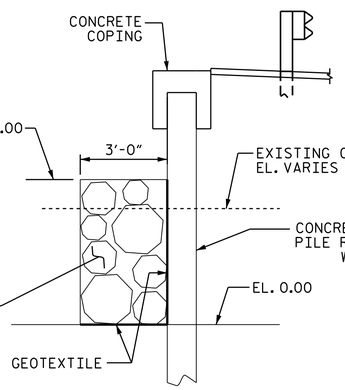
① APPROXIMATELY 3320 TONS OF SCOUR PROTECTION STONE WAS PLACED AT THE SOUTH END BENT OF THE TEMPORARY MABEY BRIDGE. SEE GENERAL DRAWING FOR LOCATIONS OF MABEY BRIDGE AND EXISTING STONE. THE STONE SHALL BE REMOVED FROM THE EXISTING LOCATIONS AND RELOCATED TO THE NEW LOCATIONS SHOWN ON THIS SHEET. THE EXCESS QUANTITY OF STONE SHALL BE PLACED IN THE HATCHED AREAS SHOWN. PLACING THIS EXCESS STONE IN THE NEW LOCATIONS WILL PROVIDE ADDITIONAL SCOUR PROTECTION AS WELL AS MINIMIZE OFF-SITE DISPOSAL OF STONE. RELOCATION OF STONE WILL BE INCLUDED IN THE LUMP SUM PRICE BID FOR REMOVAL OF EXISTING STRUCTURE. SEE SPECIAL PROVISION.

② QUANTITIES OF GEOTEXTILE MATERIAL HAVE BEEN INCREASED TO ACCOUNT FOR THE EXCESS QUANTITY OF STONE TO BE PLACED IN THE HATCHED AREAS SHOWN.

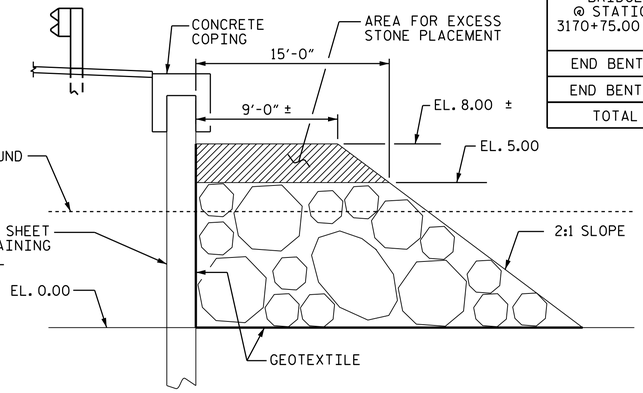
ESTIMATED QUANTITIES		
BRIDGE @ STATION 3170+75.00 -L-	SCOUR PROTECTION STONE 300-400 LB	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	1,290	910
END BENT 2	1,300	915
TOTAL	2,590 ①	1,825 ②



SECTION A-A



SECTION B-B



SECTION C-C

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SCOUR PROTECTION DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 033139 ENGINEER TODD M. GARRISON

DocuSigned by: 61EAF7523943466...

8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			44

DRAWN BY : T. M. GARRISON, P.E. DATE : 6/15
CHECKED BY : M. A. ALLEN DATE : 6/15
DESIGN ENGINEER OF RECORD: T. M. GARRISON, P.E. DATE : 6/15

27-JUL-2015 08:26
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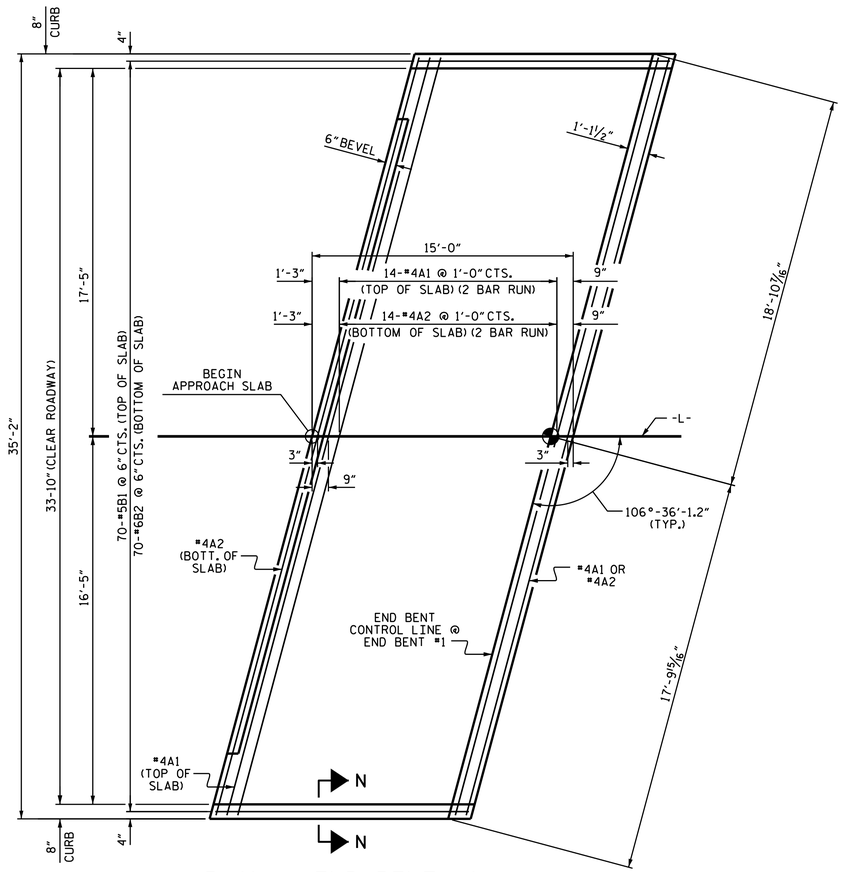
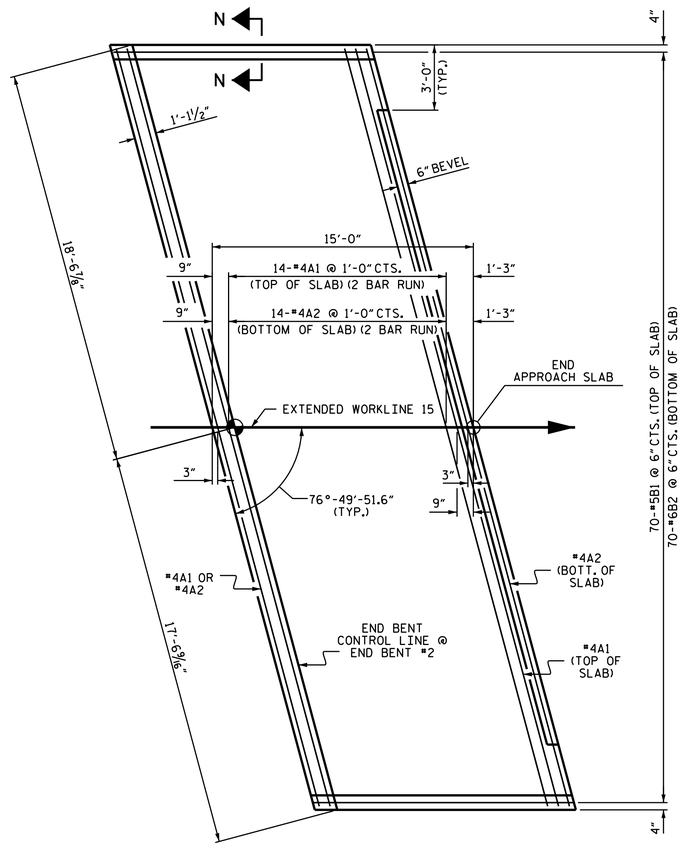


PLAN @ END BENT #1



PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

FOR REINFORCED APPROACH FILL SEE REINFORCED APPROACH FILL DETAILS AND SPECIAL PROVISIONS.

AREA BETWEEN THE CONCRETE SHEET PILE RETAINING WALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE END BENT CAP AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

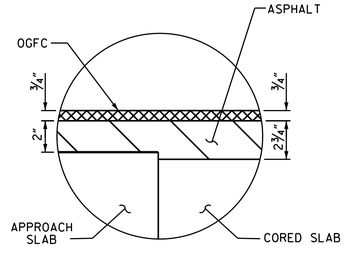
BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱A1	32	#4	STR	19'-1"	408
A2	32	#4	STR	18'-11"	404
✱B1	70	#5	STR	14'-0"	1022
B2	70	#6	STR	14'-6"	1525
REINFORCING STEEL				LBS.	1929
✱EPOXY COATED REINFORCING STEEL				LBS.	1430
CLASS AA CONCRETE				C.Y.	25.2

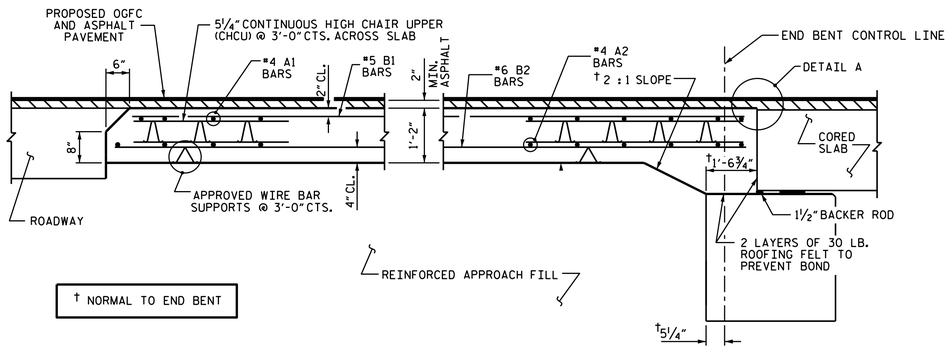
APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱A1	32	#4	STR	18'-10"	403
A2	32	#4	STR	18'-8"	399
✱B1	70	#5	STR	14'-0"	1022
B2	70	#6	STR	14'-6"	1525
REINFORCING STEEL				LBS.	1924
✱EPOXY COATED REINFORCING STEEL				LBS.	1425
CLASS AA CONCRETE				C.Y.	25.2



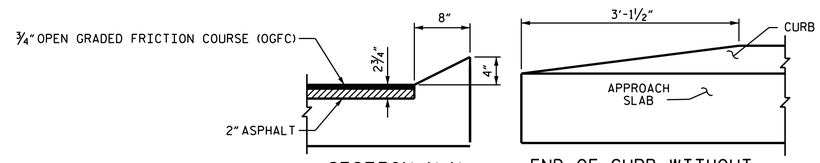
DETAIL A

(SHOWING DEPTHS OF ASPHALT AND OGFC ON APPROACH SLAB AND BRIDGE)



† NORMAL TO END BENT

SECTION THRU SLAB



SECTION N-N

END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

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

PROJECT NO. B-2500AB

DARE COUNTY

STATION: 3170+75.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT

NORTH CAROLINA PROFESSIONAL SEAL 41452 ENGINEER ELIZABETH K. POPE

DocuSigned by: Elizabeth K. Pope FA3E85D1C94A440...

8/3/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			44

ASSEMBLED BY : E. K. POPE, P.E.	DATE : 6/15
CHECKED BY : B. L. GREEN, P.E.	DATE : 6/15
DRAWN BY : SHS/MAA 5-09	REV. 12-11 MAA/AAC
CHECKED BY : BCH 5-09	REV. 8-14 MAA/TMG

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