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