

23-SEP-2009 09:18  
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 tpayne

**CONTRACT: C202466 WBS ELEMENT: 41732.2**

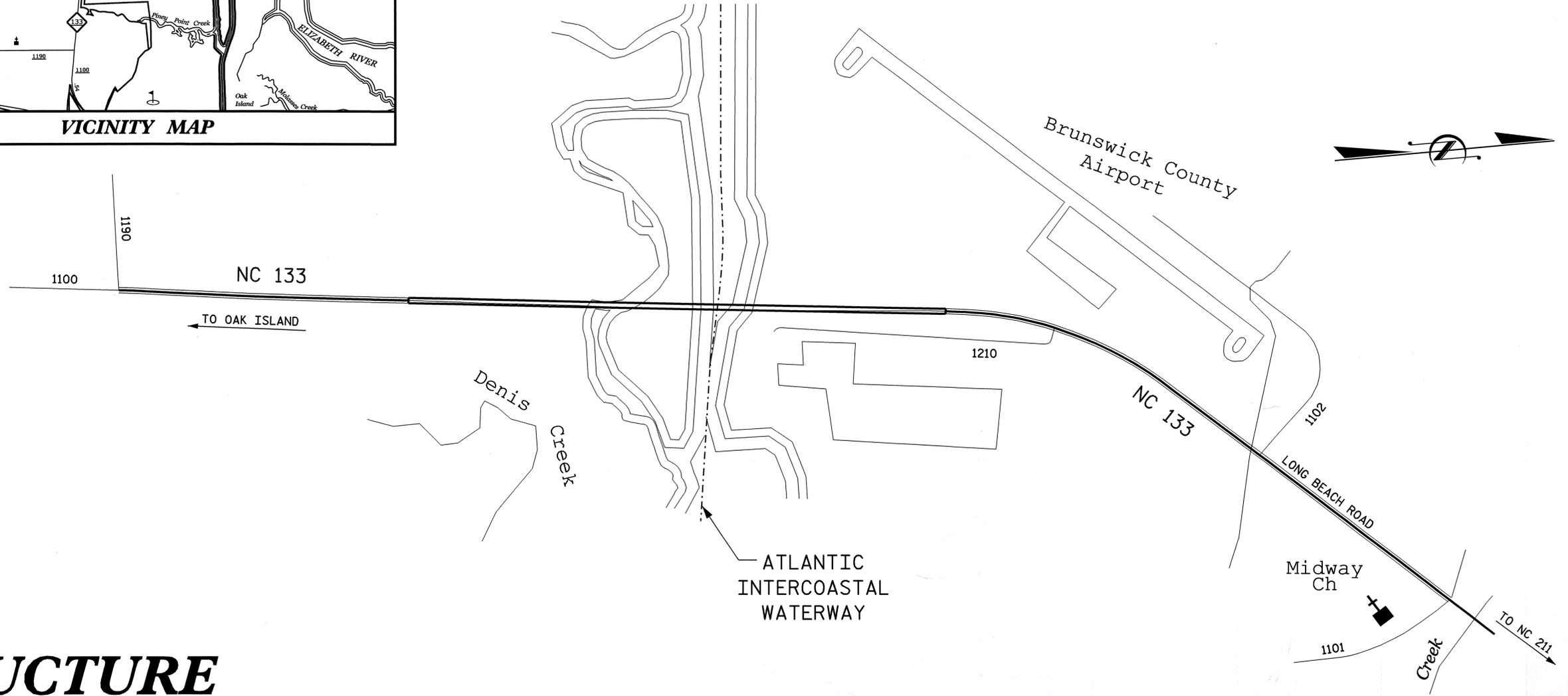
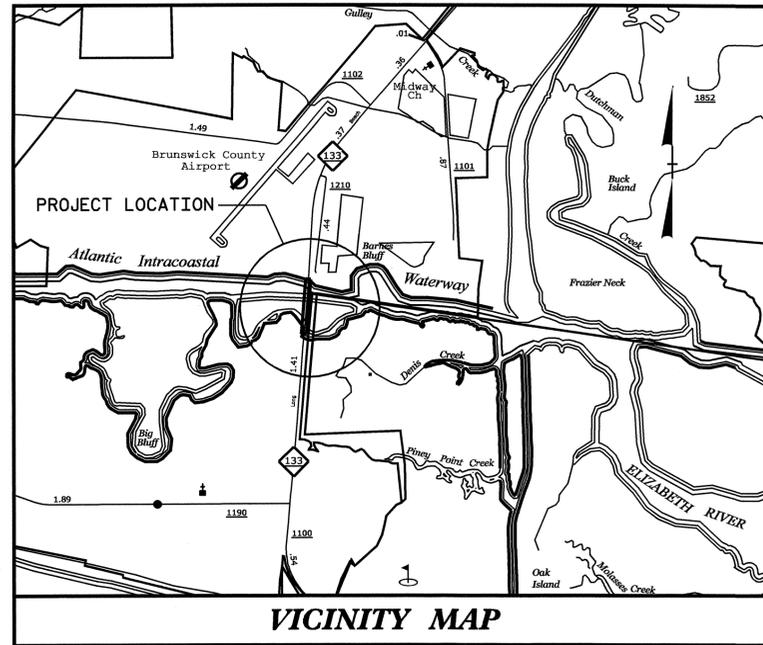
STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**BRUNSWICK COUNTY**

**LOCATION: BRIDGE NO. 14 ON NC133 OVER ATLANTIC INTRACOASTAL WATERWAY  
 BETWEEN SOUTHPORT AND OAK ISLAND**

**TYPE OF WORK: REMOVAL AND REPLACEMENT OF FENDER SYSTEM**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.			
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41732.2			



**STRUCTURE**



Prepared in the Office of:  
**DIVISION OF HIGHWAYS**

**STRUCTURE DESIGN UNIT**  
 1000 BIRCH RIDGE DR.  
 RALEIGH, NC 27610

**DIVISION OF HIGHWAYS**  
 STATE OF NORTH CAROLINA

2006 STANDARD SPECIFICATIONS

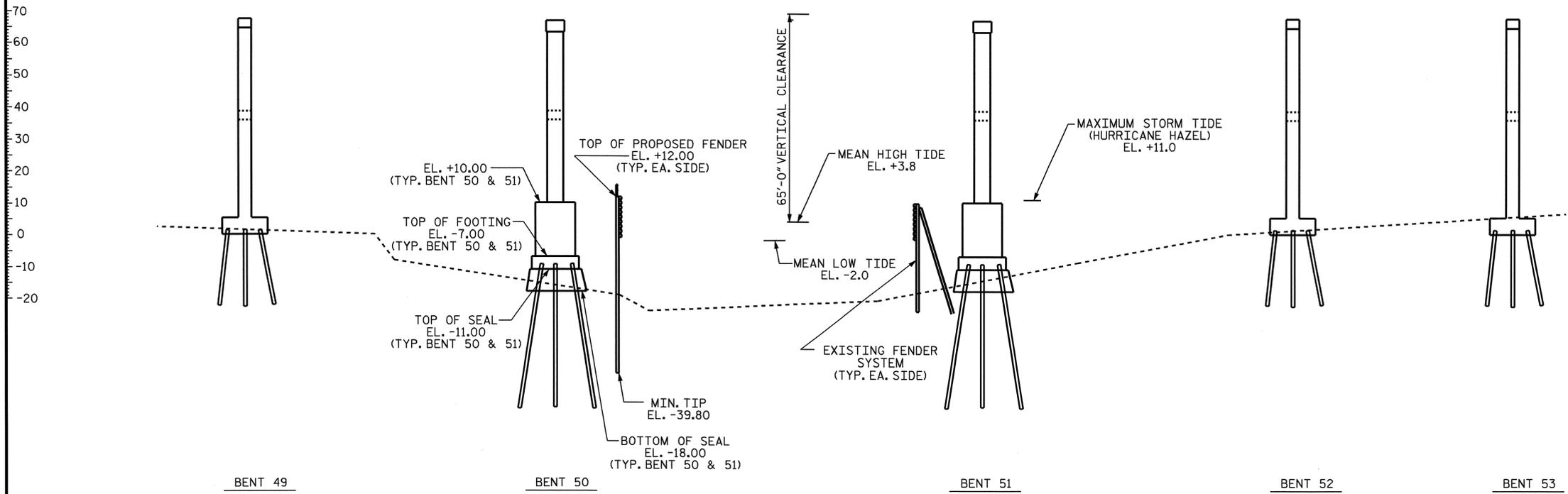
**LETTING DATE:**  
**DECEMBER 15, 2009**

**L. I. BROOKS, P.E.**  
 PROJECT ENGINEER

**T. G. PAYNE, P.E.**  
 PROJECT DESIGN ENGINEERS

STATE DESIGN ENGINEER  
**DEPARTMENT OF TRANSPORTATION**  
**FEDERAL HIGHWAY ADMINISTRATION**

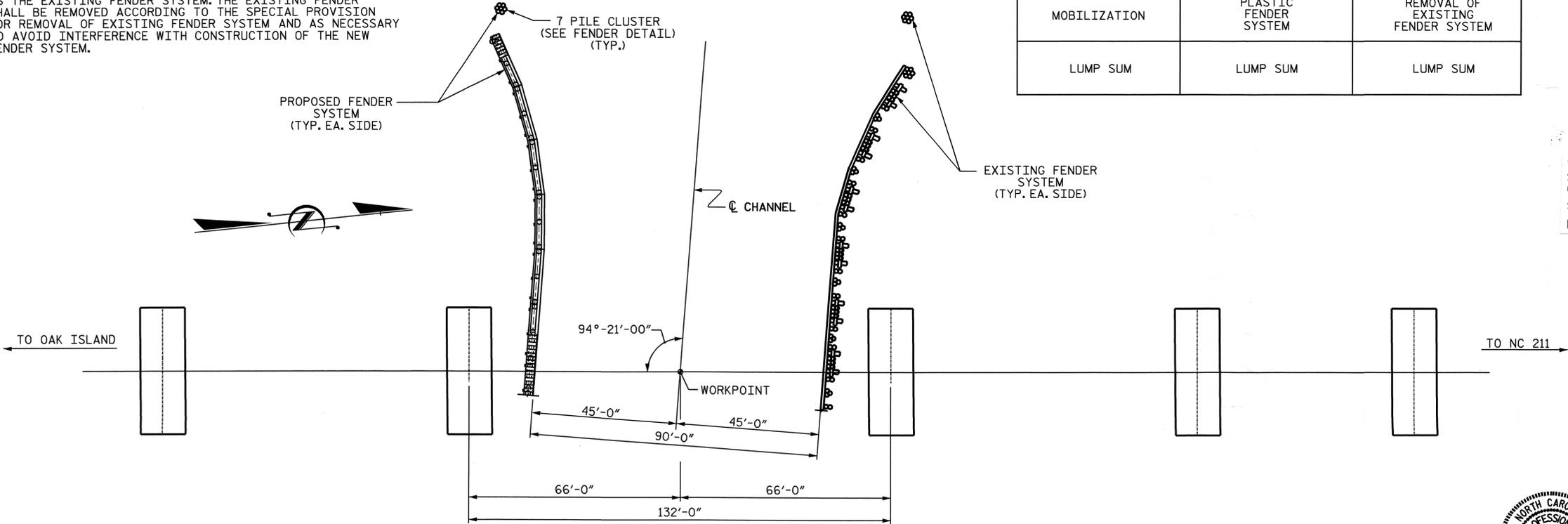
APPROVED  
 DIVISION ADMINISTRATOR DATE



**ELEVATION**

THE CONTRACTORS ATTENTION IS CALLED TO THE FACT THAT THE PROPOSED FENDER SYSTEM IS IN THE SAME LOCATION AS THE EXISTING FENDER SYSTEM. THE EXISTING FENDER SHALL BE REMOVED ACCORDING TO THE SPECIAL PROVISION FOR REMOVAL OF EXISTING FENDER SYSTEM AND AS NECESSARY TO AVOID INTERFERENCE WITH CONSTRUCTION OF THE NEW FENDER SYSTEM.

TOTAL BILL OF MATERIAL		
MOBILIZATION	PLASTIC FENDER SYSTEM	REMOVAL OF EXISTING FENDER SYSTEM
LUMP SUM	LUMP SUM	LUMP SUM



**HALF PLAN OF FENDER SYSTEM**  
(SYMMETRICAL ABOUT CENTERLINE)

- NOTES:**
- FOR U.S. COAST GUARD NOTIFICATION, SEE SPECIAL PROVISION FOR "COORDINATION WITH THE U.S. COAST GUARD".
  - FOR 13" AND 16" DIAMETER COMPOSITE PLASTIC PILES, SEE SPECIAL PROVISION FOR "PLASTIC FENDER SYSTEM".
  - FOR PLASTIC LUMBER AND STRUCTURAL COMPOSITE LUMBER WALES, SEE SPECIAL PROVISION FOR "PLASTIC FENDER SYSTEM"; WALES SHALL BE CONTINUOUS AND SPLICED ONLY AT LOCATIONS SHOWN ON THE PLANS.
  - FOR COORDINATION WITH THE U.S. COAST GUARD, SEE SPECIAL PROVISIONS.
  - FOR NAVIGATIONAL LIGHTING AND CLEARANCE MARKER, SEE SPECIAL PROVISION FOR "COORDINATION WITH THE U.S. COAST GUARD".
  - FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.
  - FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
  - FOR REMOVAL OF EXISTING FENDER SYSTEM, SEE SPECIAL PROVISIONS.
  - FOR PILE DRIVING EQUIPMENT DATA SUBMITTAL, SEE SPECIAL PROVISION FOR "SUBMITTAL OF WORKING DRAWINGS".
  - THE STAINLESS STEEL BOLTS SHALL BE IN ACCORDANCE WITH ASTM F593 TYPE 316. FURNISH STAINLESS STEEL THREADED BARS IN ACCORDANCE WITH ASTM A193 GRADE B8M. FURNISH STAINLESS STEEL NUTS IN ACCORDANCE WITH ASTM F594 TYPE 316. FURNISH STAINLESS STEEL SCREWS IN ACCORDANCE WITH ASTM F593 TYPE 305. FURNISH STAINLESS STEEL WASHERS UNDER HEADS AND NUTS, COMPATIBLE WITH BOLTS, THREADED RODS, AND NUTS. TORQUE NUTS ON 1" DIAMETER BOLTS AND THREADED RODS TO 150 LB-FT. KEEP THREADS ON BOLTS, THREADED BARS, AND NUTS FREE FROM DIRT, COARSE GRIME AND SAND TO PREVENT GALLING AND SEIZING DURING TIGHTENING.
  - THE SPLICE PLATES SHALL BE IN ACCORDANCE WITH ASTM A240 TYPE 316.
  - FOR WIRE ROPE FOR FENDER PILE CLUSTER, SEE SPECIAL PROVISIONS.

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

THE FENDER SYSTEM SERVES PRIMARILY AS A NAVIGATION AID TO VESSEL TRAFFIC BY DELINEATING THE SHIPPING CHANNEL BENEATH THE BRIDGE. IT IS DESIGNED TO BE ROBUST ENOUGH TO SURVIVE A MULTITUDE OF BUMPS AND SCRAPES FROM BARGE TRAFFIC, AND TO ABSORB KINETIC ENERGY WHILE REDIRECTING AN ERRANT BARGE OR OTHER VESSEL. THE FENDER SYSTEM IS NOT DESIGNED FOR FULL VESSEL IMPACT.

THE CONTRACTOR IS MADE AWARE THAT THERE ARE SUBSURFACE UTILITIES AT THE PROJECT SITE. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES AT THE PROJECT SITE AND TAKING APPROPRIATE MEASURES TO AVOID IMPACTS TO THOSE UTILITIES. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK.



PROJECT NO. **WBS 41732.2**  
**BRUNSWICK** COUNTY

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**FENDER SYSTEM FOR BRIDGE OVER AIWW ON NC 133**

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

DRAWN BY : D. S. STUTTS DATE : 9/9/09  
CHECKED BY : T. G. PAYNE DATE : 9/9/09

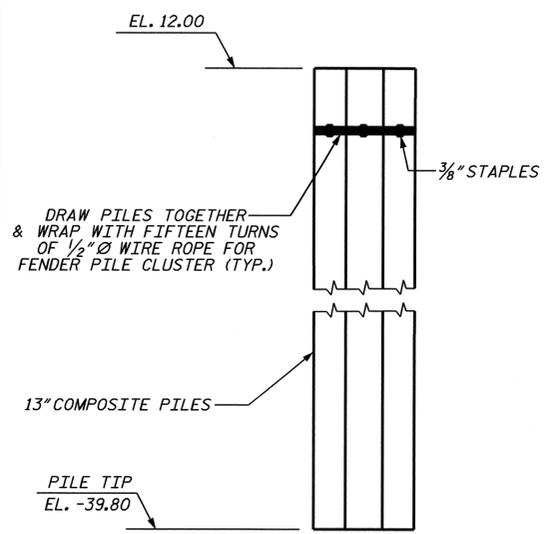
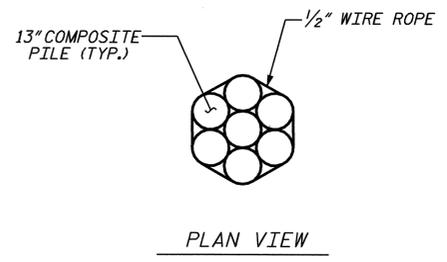
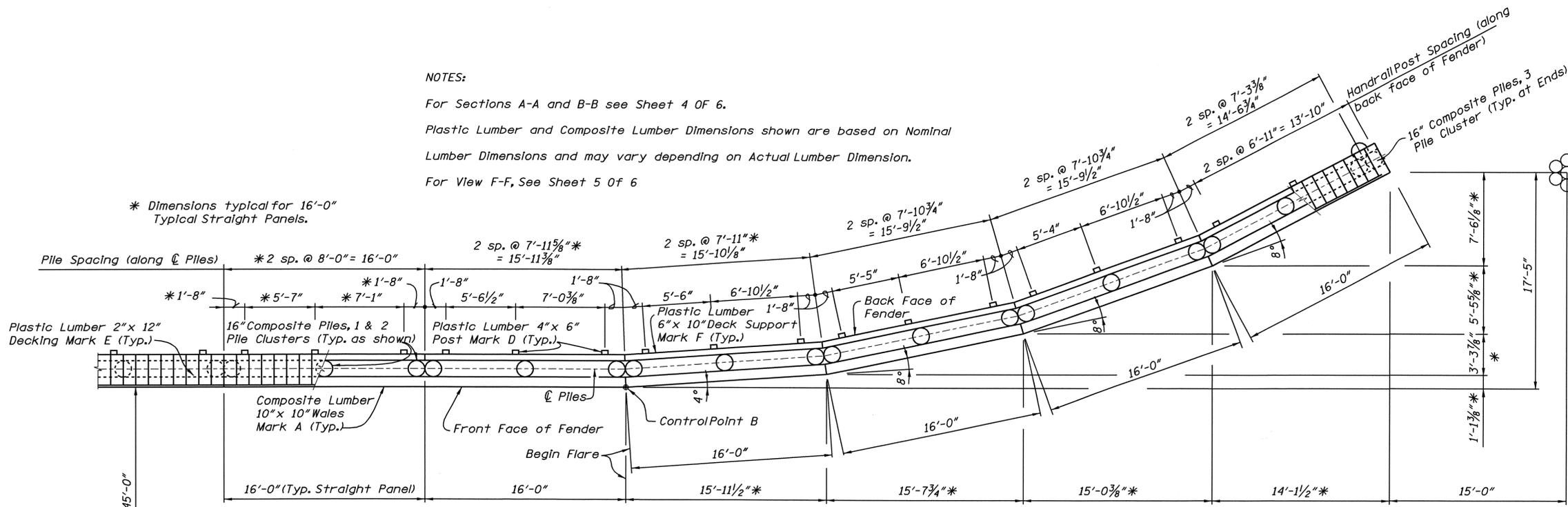
**NOTES:**

For Sections A-A and B-B see Sheet 4 Of 6.

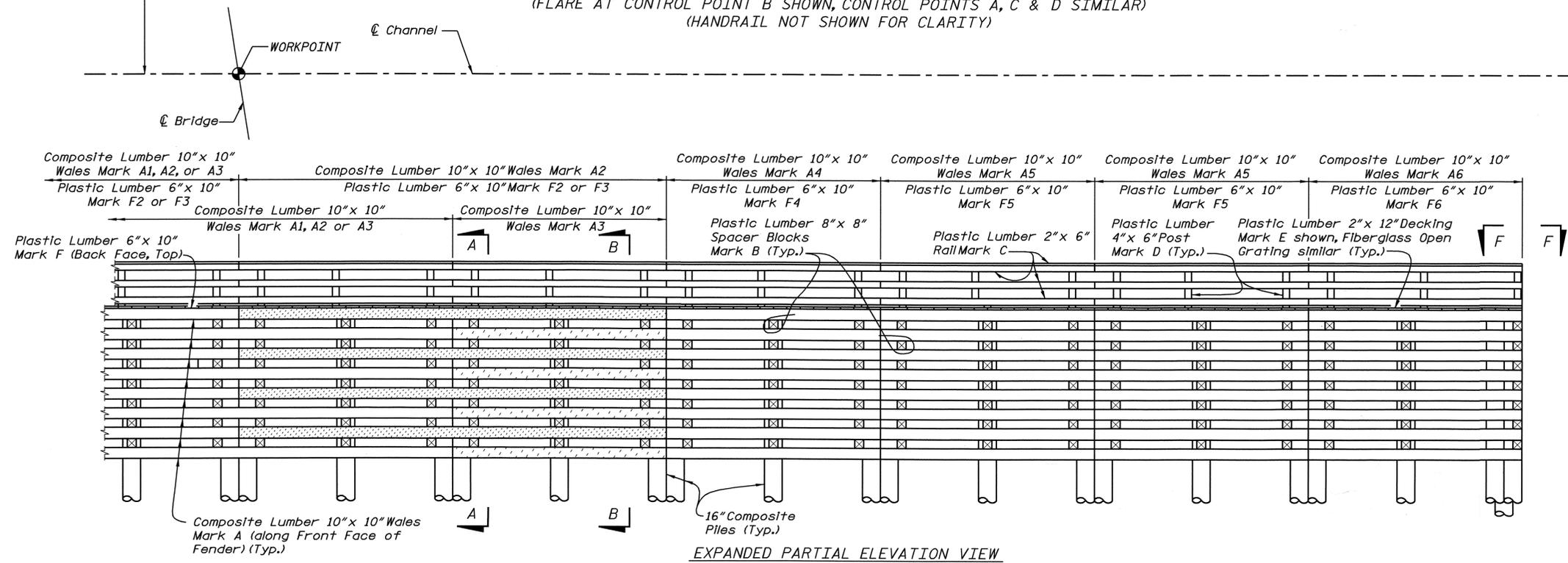
Plastic Lumber and Composite Lumber Dimensions shown are based on Nominal Lumber Dimensions and may vary depending on Actual Lumber Dimension.

For View F-F, See Sheet 5 Of 6

\* Dimensions typical for 16'-0" Typical Straight Panels.



NOTE: IN THE 7-PILE CLUSTER (DOLPHINS), PILES ARE TO BE DRAWN TOGETHER AT THE TOP AND WRAPPED WITH FIFTEEN TURNS OF 1/2" DIA. WIRE ROPE FOR FENDER PILE SYSTEM. THE WIRE ROPE FOR FENDER PILE SYSTEM SHALL BE SECURED WITH 3/8" STAPLES AND TWO CABLE CLAMPS. FASTENINGS TO BE STAINLESS STEEL AND INCLUDED AS HARDWARE. ALL PILES TO BE DRIVEN VERTICALLY.



PROJECT NO. WBS 41732.2  
BRUNSWICK COUNTY

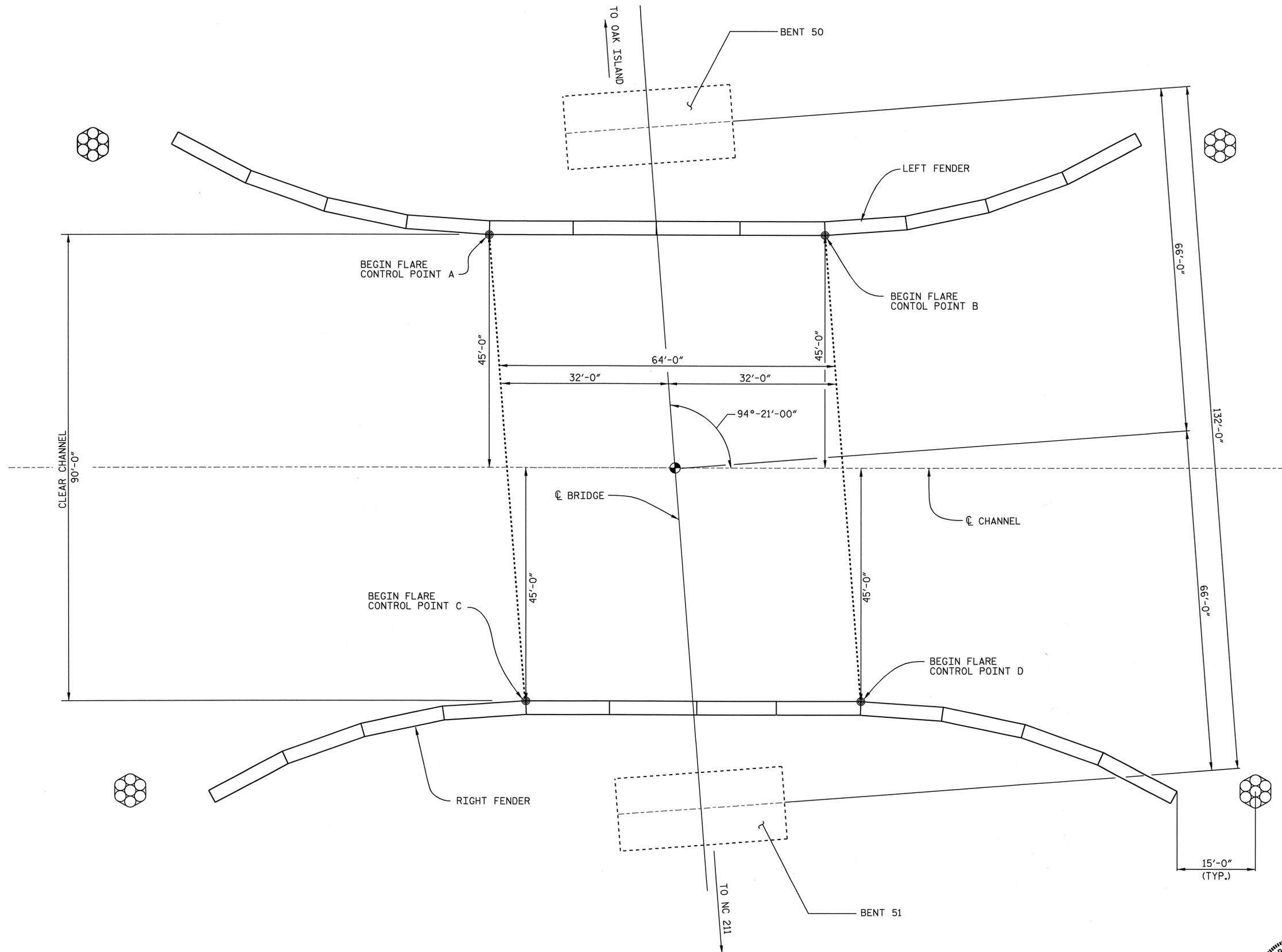
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**FENDER SYSTEM FOR BRIDGE OVER AIWW ON NC 133**



REVISIONS						TOTAL SHEETS
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1			3			6
2			4			

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FENDER SYSTEM LAYOUT

PROJECT NO. WBS 41732.2  
BRUNSWICK COUNTY

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

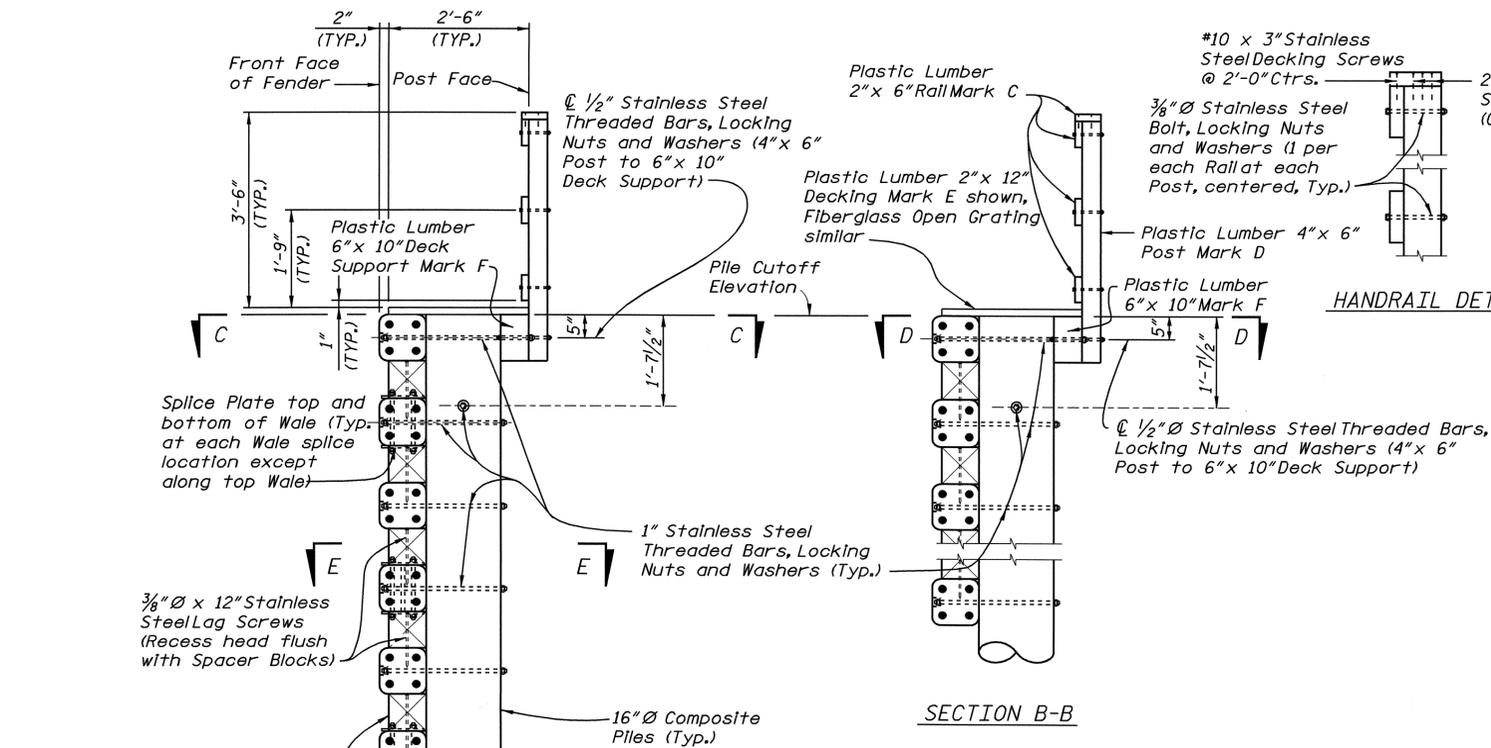
FENDER SYSTEM  
 FOR BRIDGE OVER  
 AIWW ON NC 133



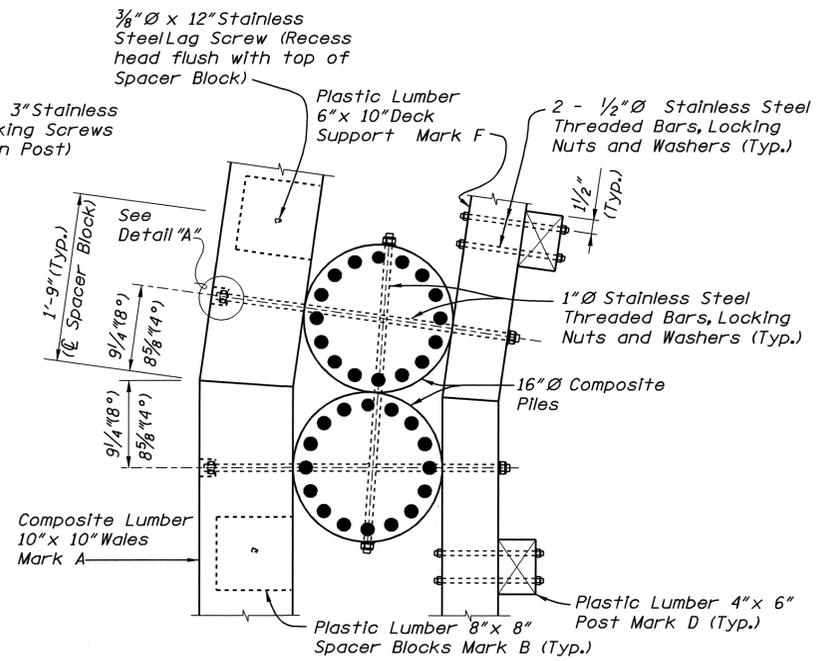
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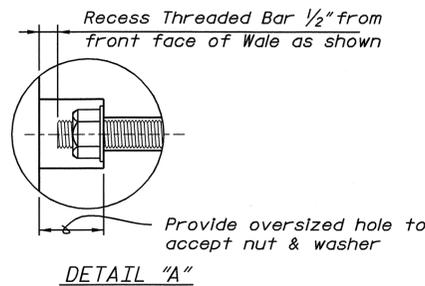
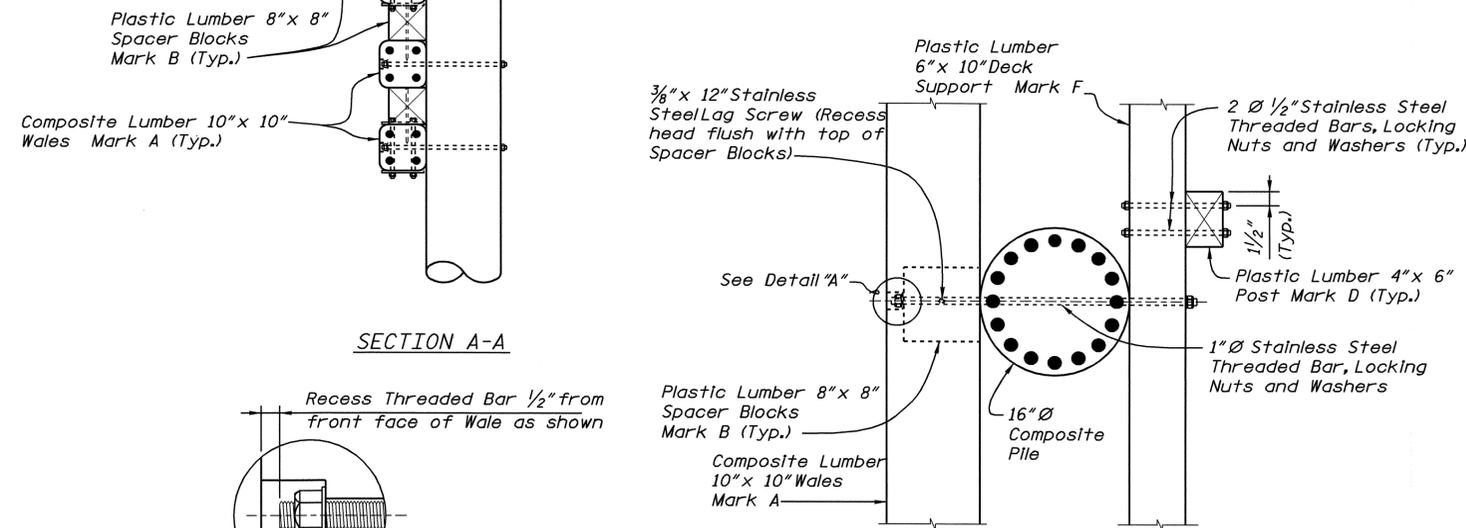
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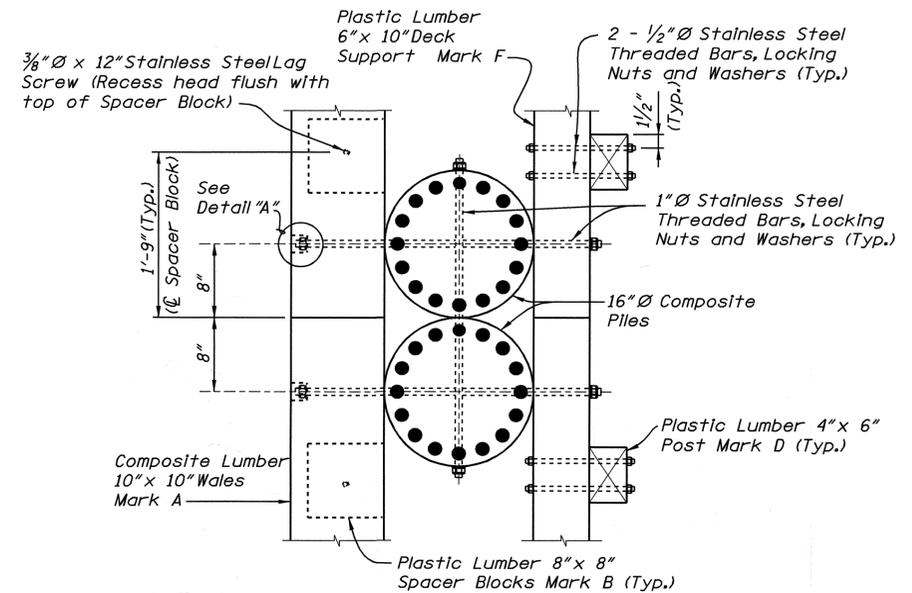
HANDRAIL DETAIL



SECTION C-C  
TYPICAL FLARED SECTION  
(8° TURN SHOWN, 4° TURN SIMILAR)



SECTION D-D  
TYPICAL AT INTERMEDIATE PILES



**NOTES**  
FOR SECTION E-E, SEE SHEET 5 OF 6.

PROJECT NO. **WBS 41732.2**  
**BRUNSWICK** COUNTY

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

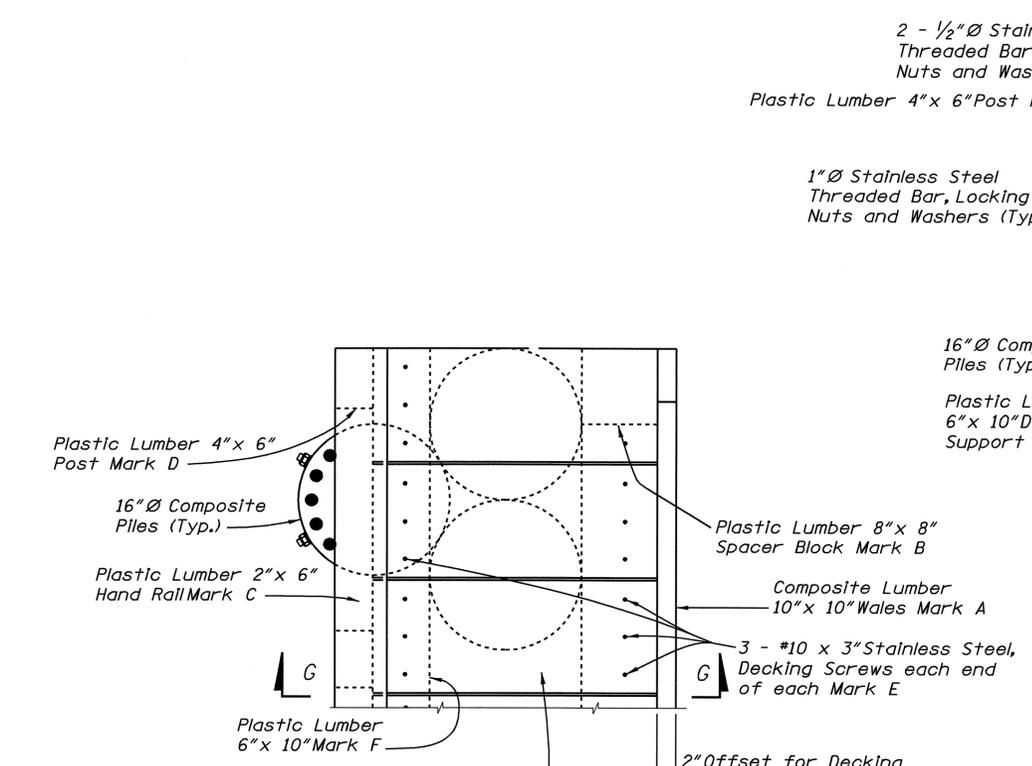
**FENDER SYSTEM  
FOR BRIDGE OVER  
AIWW ON NC 133**



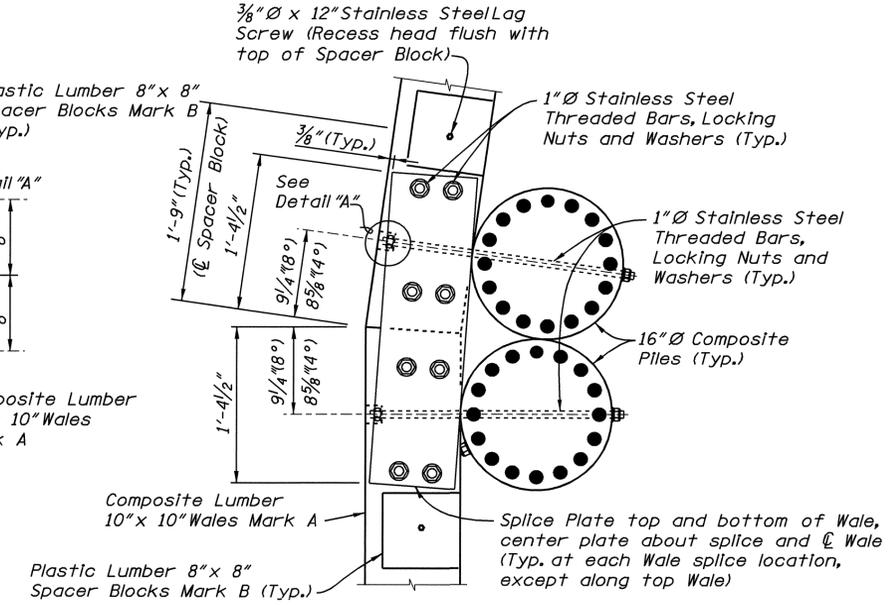
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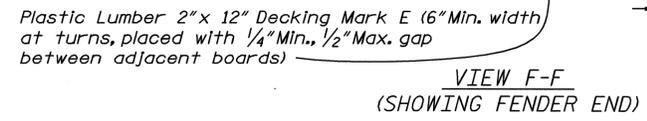
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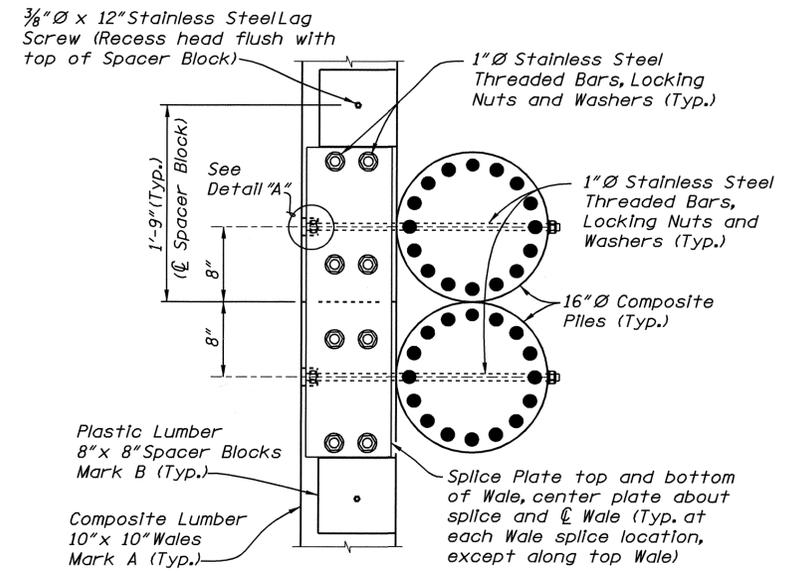
VIEW F-F  
(SHOWING FENDER END; DECKING  
AND HANDRAIL  
NOT SHOWN FOR CLARITY)



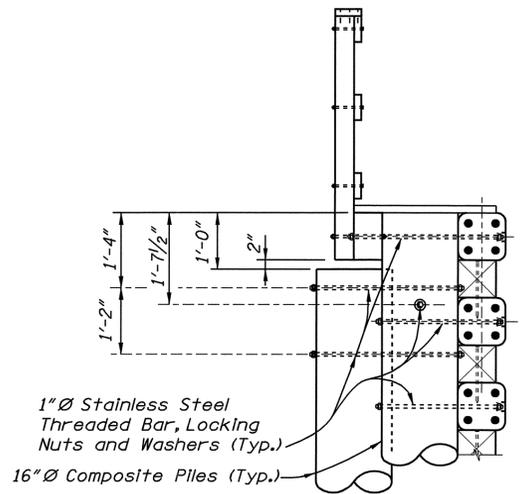
SECTION E-E  
TYPICAL FLARED SECTION  
(8° TURN SHOWN, 4° TURN SIMILAR)



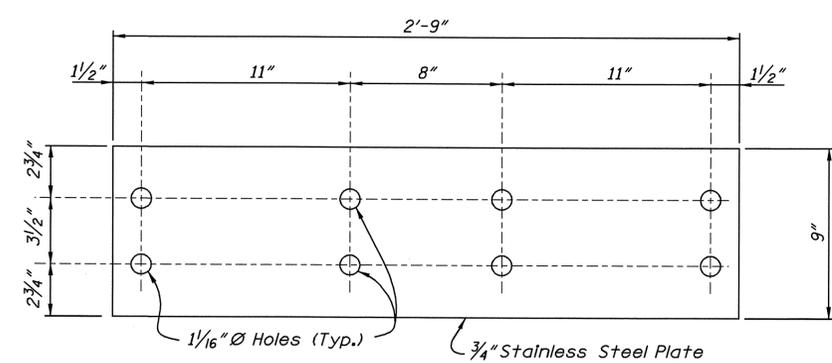
VIEW F-F  
(SHOWING FENDER END)



SECTION E-E  
TYPICAL STRAIGHT SECTION



SECTION G-G



SPLICE PLATE DETAIL

PROJECT NO. WBS 41732.2  
BRUNSWICK COUNTY

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

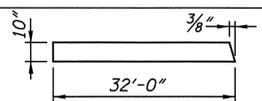
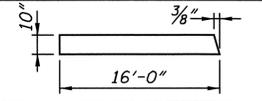
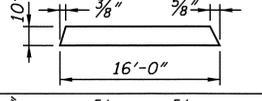
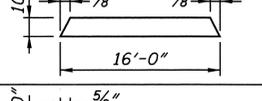
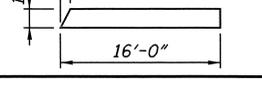
FENDER SYSTEM  
FOR BRIDGE OVER  
AIWW ON NC 133

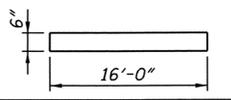
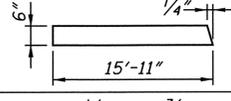
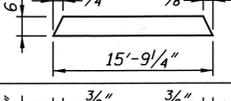
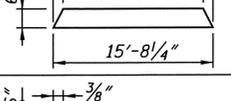
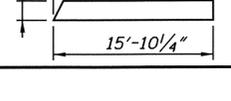


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CHECKED BY : I. G. PAYNE DATE : 9/9/09

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REVISIONS						SHEET NO.
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* STRUCTURAL COMPOSITE LUMBER BILL OF MATERIALS					
MARK	SIZE (NOMINAL)	DIMENSIONS	BOARD FT. PER EACH	NO. REQD.	QUANTITY (BOARD FT.)
A1	10" X 10" COMPOSITE LUMBER	32'-0" (STRAIGHT)	266.6	8	2132.8
A2	10" X 10" COMPOSITE LUMBER		266.6	16	4265.6
A3	10" X 10" COMPOSITE LUMBER		133.3	16	2132.8
A4	10" X 10" COMPOSITE LUMBER		133.3	32	4265.6
A5	10" X 10" COMPOSITE LUMBER		133.3	64	8531.2
A6	10" X 10" COMPOSITE LUMBER		133.3	32	4265.6

* PLASTIC LUMBER BILL OF MATERIALS					
MARK	SIZE (NOMINAL)	DIMENSIONS	BOARD FT. PER EACH	NO. REQD.	QUANTITY (BOARD FT.)
B	8" X 8" PLASTIC LUMBER	8" (STRAIGHT)	3.6	504	1814.4
C	2" X 6" PLASTIC LUMBER	16'-0" (STRAIGHT) (Trim & Miter Ends as required)	16.0	96	1536.0
D	4" X 6" PLASTIC LUMBER	4'-4" (STRAIGHT)	8.7	144	1252.8
**E	2" X 12" PLASTIC LUMBER	2'-6" (STRAIGHT) (Miter as required)	5.0	384	1920.0
F2	6" X 10" PLASTIC LUMBER		80.0	4	320.0
F3	6" X 10" PLASTIC LUMBER		79.6	4	318.4
F4	6" X 10" PLASTIC LUMBER		78.8	4	315.2
F5	6" X 10" PLASTIC LUMBER		78.4	8	627.2
F6	6" X 10" PLASTIC LUMBER		79.2	4	316.8

**NOTES**

\* ALL PLASTIC LUMBER AND COMPOSITE LUMBER DIMENSIONS AND QUANTITIES SHOWN ARE BASED ON NOMINAL LUMBER DIMENSIONS AND MAY VARY DEPENDING ON ACTUAL LUMBER DIMENSIONS.

\*\* CONTRACTOR MAY PROVIDE FIBERGLASS OPEN GRATING IN LIEU OF 2" X 12" PLASTIC LUMBER AT NO ADDITIONAL COST TO THE DEPARTMENT.

FIBERGLASS OPEN GRATING SHALL BE HEAVY DUTY DESIGN SUITABLE FOR EXTERIOR INSTALLATIONS. MAXIMUM GAP OPENING ON THE WALKWAY SURFACE SHALL BE 1/2". DESIGN LIVE LOAD AND DEFLECTIONS SHALL BE A 50 PSF UNIFORMLY DISTRIBUTED LOAD WITH A MAXIMUM DEFLECTION OF 3/8" OR L/120 AT THE CENTER OF A SIMPLE SPAN. COLOR OF FIBERGLASS OPEN GRATING SHALL BE GRAY OR BLACK.

INSTALL FIBERGLASS OPEN GRATING ACCORDING TO MANUFACTURER'S RECOMMENDATIONS USING STAINLESS STEEL HARDWARE, SCREWS, BOLTS, NUTS, AND WASHERS. ATTACH FIBERGLASS OPEN GRATING TO WALES AND DECK SUPPORTS AT A 2'-0" MAXIMUM SPACING SO AS TO RESIST PEDESTRIAN LIVE LOADS AND UPLIFT FORCES FROM WIND, BOUYANCY AND WAVE ACTION.

STRUCTURAL PLASTIC COMPOSITE PILES BILL OF MATERIALS			
SIZE (DIAMETER)	LENGTH	NO. REQD.	TOTAL LENGTH (FT.)
13"	55'-0"	28	1540.0
16"	55'-0"	80	4400.0

PROJECT NO. WBS 41732.2  
BRUNSWICK COUNTY

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

FENDER SYSTEM  
FOR BRIDGE OVER  
AIWW ON NC 133



DRAWN BY : D. S. STUTTS DATE : 9/9/09  
CHECKED BY : T. G. PAYNE DATE : 9/9/09

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

### CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

### ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.  
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

# ENGLISH

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