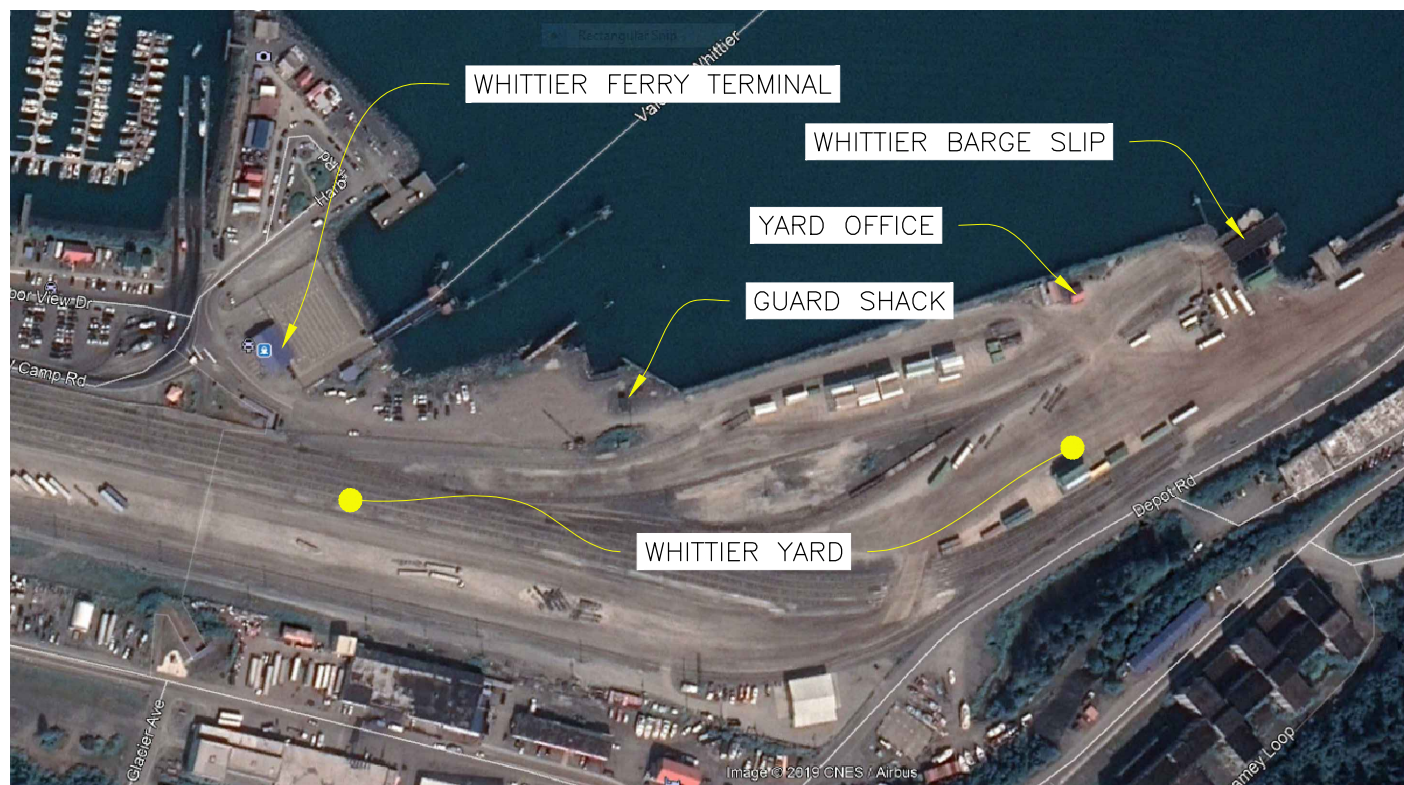




# ALASKA RAILROAD CORPORATION ENGINEERING SERVICES

P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500


## WHITTIER BARGE SLIP CORROSION REPAIRS WHITTIER, AK



**A** WORK LOCATION  
1 | 1 SCALE: N.T.S.

### SHEET INDEX

1. TITLE PAGE, WORK LOCATION, SHEET INDEX
2. GENERAL NOTES AND SPECIFICATIONS
3. GENERAL LAYOUT
4. LATERAL BRACING REPAIR LOCATIONS
5. END FLOORBEAMS, DIAPHRAGM, CROSS FRAME AND STRUT REPAIRS
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9. GIRDER 4 SPRAY METALLIZING
10. LATERAL BRACING PARTS 1
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ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT: <b>WHITTIER BARGE SLIP CORROSION REPAIR</b>		
TITLE: <b>TITLE PAGE INDEX</b>		
DESIGNED BY: DJS	SCALE: AS NOTED	AFE NO.:
DRAWN BY: DJS		ACAD FILE:
CHECKED BY: BAO	DATE: 8/29/19	DWG NO. <b>1</b> OF <b>12</b>
APPROVED BY: CDR		

## 1) REFERENCED DOCUMENTS: (LATEST EDITION)

- A. AMERICAN RAILWAY ENGINEERING AND MAINTENANCE--OF--WAY ASSOCIATION MANUAL FOR RAILWAY ENGINEERING (AREMA MANUAL)
- B. AMERICAN SOCIETY FOR TESTING AND MATERIALS
  - 1. ASTM A123, STD SPEC FOR ZINC COATINGS ON IRON AND STEEL PRODUCTS
  - 2. ASTM A153, STD SPEC FOR ZINC COATINGS ON IRON AND STEEL HARDWARE
  - 3. ASTM A36, STD SPEC FOR CARBON STRUCTURAL STEEL
  - 4. ASTM F3125, STD SPEC FOR HIGH STRENGTH BOLTS AND ASSEMBLIES
  - 5. ASTM F959, STD SPEC FOR COMPRESSIBLE--WASHER--TYPE DIRECT TENSION INDICATORS FOR USE WITH STRUCTURAL FASTENERS
- C. AMERICAN WELDING SOCIETY
  - 1. AWS D1.5, BRIDGE WELDING MANUAL
  - 2. AWS C2.18, GUIDE FOR THE PROTECTION OF STEEL WITH THERMAL SPRAYED COATINGS OF ALUMINUM AND ZINC AND THEIR ALLOYS AND COMPOSITES
  - 3. AWS C2.23, SPECIFICATION FOR THE APPLICATION OF THERMAL SPRAY COATINGS (METALLIZING) OF ALUMINUM, ZINC, AND THEIR ALLOYS AND COMPOSITES FOR THE CORROSION PROTECTION OF STEEL.
- D. THE SOCIETY FOR PROTECTIVE COATINGS
  - 1. SSPC--CS 23

## 2) MATERIALS

- A. STRUCTURAL STEEL
  - 1. STRUCTURAL ANGLES AND PLATE: ASTM A36
  - 2. BOLTS: ASTM F3125 GRADE A325
  - 3. NUTS: ASTM F3125 GRADE A563
  - 4. WASHERS: ASTM F436
- B. WELD ELECTRODES: WELD ELECTRODES SHALL BE COMPATIBLE WITH BASE STEEL MATERIAL PROPERTIES AND WEATHERING CHARACTERISTICS AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 70,000 psi.

## 3) CONSTRUCTION

- A. GENERAL: CONTRACTOR TO PROVIDE ALL MATERIALS, SCAFFOLDING, FALSEWORK AND ALL TOOLS, MACHINERY, AND APPLIANCES, NEEDED TO PERFORM THE WORK EFFICIENTLY. INSTALL THE STRUCTURAL STEEL, REMOVE AND DISPOSE OF CORRODED MATERIALS, AND DO THE WORK TO COMPLETE THE REPAIRS, AS REQUIRED BY THE CONTRACT AND PLANS. ALL WORK SHALL BE IN ACCORDANCE WITH THE AREMA, AWS, AND SSPC MANUALS UNLESS SPECIFIED OTHERWISE.
- B. FALSE WORK AND SCAFFOLDING SHALL BE BUILT TO ACCOMMODATE THE PROPOSED METHOD OF REPAIRS WITHOUT OVER STRESSING THE EXISTING STRUCTURAL STEEL. ALL FALSEWORK AND SCAFFOLDING PLANS SHALL BE SUBMITTED FOR APPROVAL BY ENGINEER. ALL FALSEWORK AND SCAFFOLDING MATERIAL SHALL BE COMPLETELY REMOVED AFTER JOB COMPLETION UNLESS APPROVED BY ENGINEER.
- C. ALL WELDERS SHALL BE QUALIFIED FOR THE WELD PROCEDURE PER AWS D1.5.
- D. ALL FIELD WELDS ON EXISTING STRUCTURE NOT DETAILED IN PLANS ARE PROHIBITED UNLESS APPROVED BY ENGINEER.
- E. WELD TESTING:
  - 1. ALL WELD TESTING PROCEDURES SHALL BE IN ACCORDANCE WITH AWS D1.5.
  - 2. WELD TESTING TYPE AND QUANTITIES SHALL BE AS LISTED BELOW:
    - a. ALL GROOVE WELDS UNLESS OTHERWISE NOTED SHALL BE 100% VISUALLY INSPECTED AND AT LEAST 10% ULTRASONICALLY TESTED.
  - 3. ULTRASONIC WELD TESTS SHALL BE PERFORMED BY AWS INSPECTORS CERTIFIED PER AWS D1.5
- F. REMOVAL OF UNACCEPTABLE WELD OR BASE METAL SHALL BE DONE BY MECHANICAL MEANS OR MECHANICALLY CONTROLLED METHODS.
- G. BOLT INSTALLATION: BOLT INSTALLATION SHALL BE IN ACCORDANCE WITH AREMA CHAPTER 15, SECTION 3.2.2, INSTALLATION OF HIGH STRENGTH BOLTS, DIRECT TENSION INDICATOR (DTI) TENSIONING. 7/8" DIAMETER BOLTS SHALL BE TENSIONED TO A MINIMUM OF 39,000 LBS. BOLTS SHALL BE INSTALLED WITH A WASHER AND DTI. AN ASTM F436 WASHER SHALL BE PLACED BETWEEN THE TURNING ELEMENT AND THE DTI OR AN ASTM F435 WASHER SHALL BE PLACED UNDER THE TURNING ELEMENT AND THE DTI SHALL BE PLACED UNDER THE NON--TURNING ELEMENT. INSTALLER SHALL VERIFY THAT THE DTI PROTRUSIONS HAVE NOT BEEN COMPRESSED TO A GAP LESS THAN THE JOB INSPECTION GAP DURING SNUG TIGHTENING OF THE CONNECTION, AND IF THIS HAS OCCURRED, THE DTI SHALL BE REMOVED AND REPLACED. SUBSEQUENTLY, ALL BOLTS IN THE JOINT SHALL BE TENSIONED. THE INSTALLER SHALL VERIFY THAT THE DTI PROTRUSIONS HAVE BEEN COMPRESSED TO A GAP THAT IS LESS THAN THE JOB INSPECTION GAP. A SKIDMORE--WILHELM CALIBRATOR OR AN ACCEPTABLE EQUIVALENT TENSION--MEASURING DEVICE SHALL BE AVAILABLE FOR USE WHENEVER HIGH--STRENGTH BOLTS ARE BEING INSTALLED. FIVE FASTENER ASSEMBLIES OF EACH COMBINATION OF DIAMETER, GRADE, AND LOT TO BE USED IN THE WORK SHALL BE TIGHTENED TO 1.05 TIMES THE TENSION SPECIFIED. THE JOB INSPECTION GAP SHALL BE THE AVERAGE OF THE GAPS ATTAINED IN THE TEST. THE POSITION OF THE DTI, THE ASTM F436 WASHER, AND THE TURNING ELEMENT SHALL MATCH THE CONDITIONS OF THE WORK.

## 4) COATINGS

- A. ANGLES AND PLATES TO BE GALVANIZED PER ASTM A123.
- B. BOLT ASSEMBLIES TO BE GALVANIZED PER ASTM A153.
- C. COATING REPAIRS TO GIRDERS, PLATES, AND ROLLED SHAPES ARE TO RECEIVE A THERMAL SPRAY COATING (METALLIZING) WITH ALUMINUM, ZINC, OR ZN/AL--ALLOY PER AWS C2.18--93. PREPARE SURFACE TO WHITE METAL FINISH, SSPC--SP5/NACE NO. 1, WITH 2.5 MIL ANGULAR PROFILE. MINIMUM DRY COATING THICKNESS OF 10 MILS IS REQUIRED FOR ALUMINUM COATING AND A MINIMUM OF 14 MILS IS REQUIRED FOR ZINC OR ZN/AL--ALLOY.
- D. ADHESION TESTING OF THERMAL SPRAYED COATING SHALL BE PERFORMED BY THE BEND TEST PER AWS C2.23--2018.
- E. COATINGS DAMAGED DURING INSTALLATION SHALL BE REPAIRED BY THERMAL SPRAY COATING AS DESCRIBED ABOVE WITH THE EXCEPTION OF FIELD DRILLING HOLES IN GALVANIZED ANGLES AND PLATES.

## 5) DISPOSAL

- A. ALL MATERIALS REMOVED OR REPLACED SHALL BECOME PROPERTY OF THE CONTRACTOR AND BE DISPOSED OF PROPERLY.

## 6) SAFETY AND PERMITTING


- A. LEAD BASE PAINT: LABORATORY TESTS CONFIRM THAT EXISTING COATINGS ON THE BARGE SLIP CONTAIN LEAD AND THE CONTRACTOR WILL BE RESPONSIBLE FOR THE FOLLOWING:
  - 1. OBTAINING ANY AND ALL REQUIRED PERMITS FOR CONDUCTING WORK OVER WATERS OF THE UNITED STATES AND THE PASSAGE CANAL.
  - 2. FOLLOWING CONSTRUCTION INDUSTRY REGULATIONS PER 29 CFR 1926.62.
  - 3. PROVIDING A LEAD ABATEMENT AND DISPOSAL PLAN FOR REVIEW AND APPROVAL BY THE ENGINEER. SAID PLAN SHALL:
    - 3.1. ENSURE, THROUGH ENGINEERING CONTROLS AND/OR PERSONAL PROTECTIVE EQUIPMENT, THAT WORK AND/OR BYSTANDER EXPOSURES TO LEAD OR ANY OTHER AIRBORNE HAZARD(S) WILL BE KEPT BELOW THE AKOSH OR OSHA "PERMISSIBLE EXPOSURE LIMITS" (WHICHEVER IS MORE STRINGENT).
    - 3.2. ENSURE THAT ALL GOVERNING REGULATIONS, MOST NOTABLY ADEC AND EPA REGULATIONS, ARE FOLLOWED FOR THE CONTAINMENT, COLLECTION, AND DISPOSAL OF ANY AND ALL WASTE PRODUCTS (i.e. PAINT) GENERATED BY THIS WORK.
- B. CONTRACTOR SHALL CREATE AND SUBMIT A SITE SPECIFIC SAFETY PLAN (SSSP) THAT ADHERES TO APPLICABLE AKOSH, FRA, OSHA, AND COAST GUARD REGULATIONS AS IT PERTAINS TO WORKING ON, OR AROUND, THE BARGE SLIP, THE WHITTIER RAIL YARD, AND THE PASSAGE CANAL OF THE PRINCE WILLIAM SOUND.
- C. THE RAILROAD OR ITS REPRESENTATIVE HAS THE RIGHT TO STOP ANY WORK ACTIVITY IF THEY DEEM IT IS UNSAFE OR NOT IN COMPLIANCE WITH THE AFOREMENTIONED SAFETY REGULATIONS.

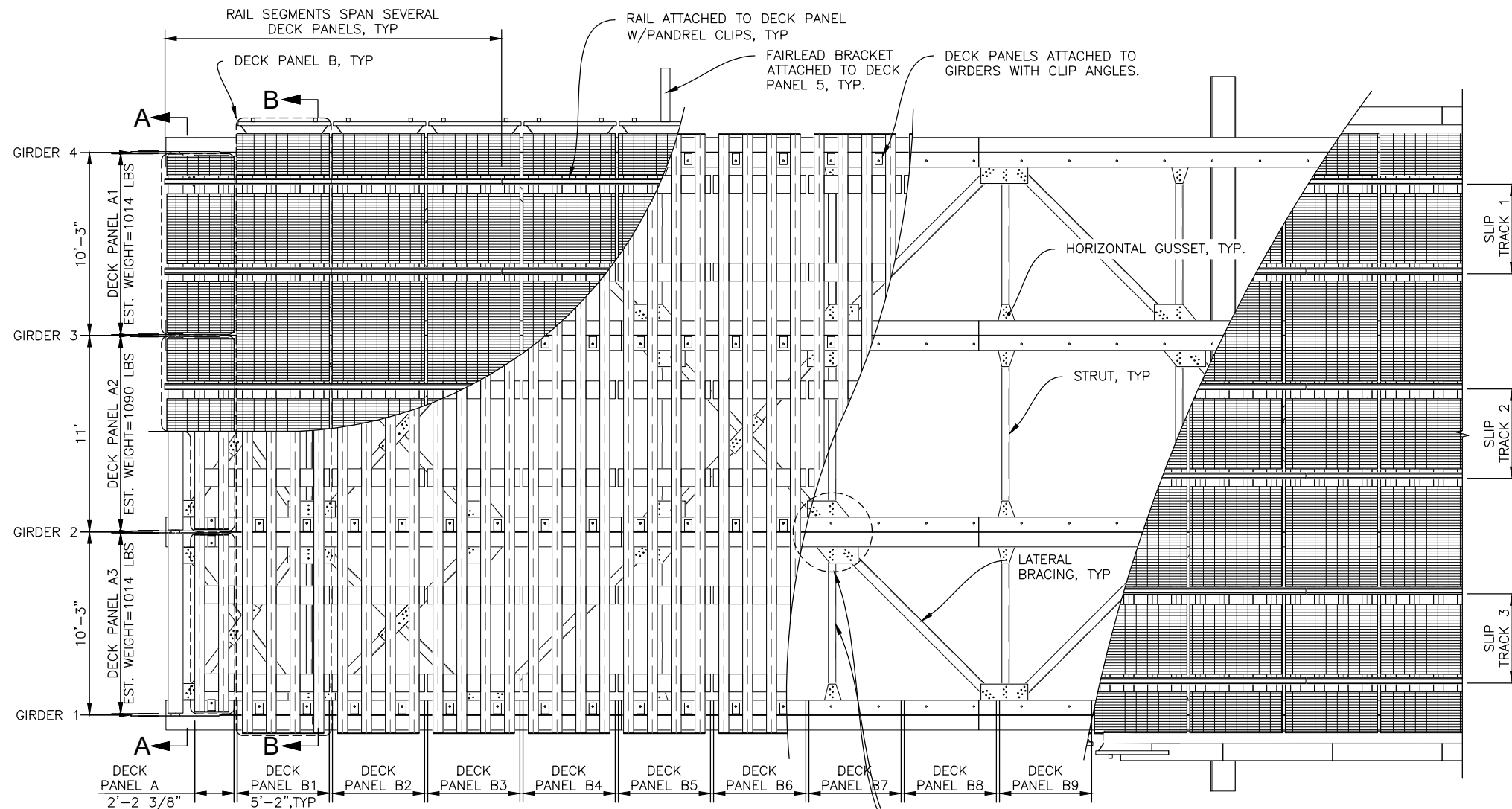
## 7) WORK SCHEDULE

- A. THE WHITTIER BARGE SLIP IS CRUCIAL TO RAILROAD OPERATIONS AND AS SUCH THE CONTRACTOR'S SCHEDULING AND PHASING OF THE REPAIR WORK IS PARAMOUNT. WORK MUST BE PERFORMED IN SUCH A MANNER THAT MINIMIZES IMPACTS TO THE FACILITIES OPERATIONAL STATUS. CONTRACTOR CAN EXPECT A MINIMUM OF (1) BARGE PER WEEK WHICH WILL PROHIBIT WORK DIRECTLY ON THE BARGE SLIP DURING DISCHARGE AND BACK LOADING OF RAILCARS AND CONTAINERS. TYPICAL BARGE SCHEDULE OPERATIONS START AS EARLY AS TUESDAY EVENINGS AND ARE COMPLETED BY THURSDAY EVENINGS. CONTRACTOR WILL RECEIVE A MINIMUM OF 24 HOUR NOTICE PRIOR TO THE ARRIVAL OF BARGES. CONTRACTOR MUST ENSURE THAT ALL TOOLS, EQUIPMENT, SCAFFOLDING, AND FALSE WORK THAT WOULD PROHIBIT THE MOVEMENT OF FORKLIFTS, RAILCARS, AND THE FUNCTIONALITY OF THE BARGE SLIP ARE RELOCATED, REMOVED AND/OR SECURED PRIOR TO COMMENCING BARGE OPERATIONS. ALL BRACING, PLATES, DECK PANELS, AND RAIL REMOVED FOR REPAIRS MUST BE RE--INSTALLED AND SECURED BY THE CONTRACTOR AND INSPECTED BY THE APPROPRIATE RAILROAD PERSONNEL PRIOR TO BARGE SLIP OPERATIONS. CONTRACTOR TO COORDINATE WORK SCHEDULE WITH MANAGER OF MARINE OPERATIONS, TRACK INSPECTOR, AND PROJECT ENGINEER TO ENSURE ADEQUATE TIME IS GIVEN FOR INSPECTION PRIOR TO BARGE SLIP OPERATIONS.
- B. SUBMIT A CRITICAL PATH METHOD (CPM) SCHEDULE AND A PHASING AND WORK PLAN PRIOR TO COMMENCING REPAIR WORK ON THE FACILITY.
- C. CONTRACTOR WILL BE GIVEN ACCESS AND ALLOWED TO WORK ON THE BARGE SLIP 24 HOURS A DAY BETWEEN BARGE TRAFFIC AS TO TAKE ADVANTAGE OF LOW TIDE CYCLES FOR ACCESS UNDER THE BARGE SLIP.

## 8) SUBMITTALS

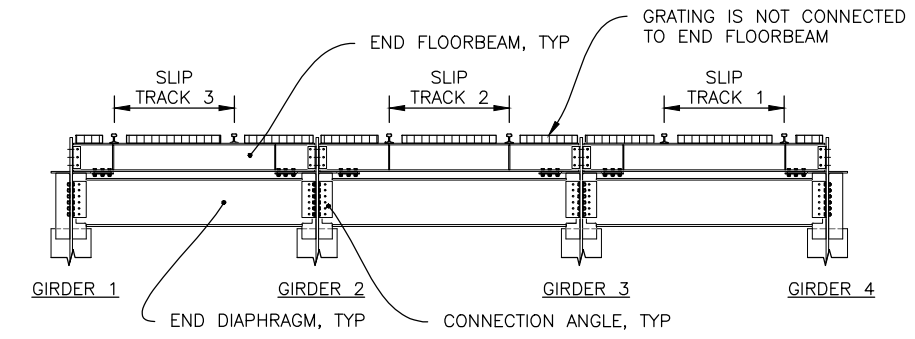
- A. SUBMITTALS LISTED BELOW, AND REFERENCED ABOVE, MUST BE PROVIDED TO, AND APPROVED BY, THE ENGINEER BEFORE TO COMMENCING WORK.
  - 1. ALL WELD PROCEDURES REQUIRED TO COMPLETE THE WORK OUTLINED IN THE CONTRACT DOCUMENTS FOR APPROVAL.
  - 2. WELDER CERTIFICATIONS FOR ALL WELDERS VERIFYING WELDERS ARE BOTH QUALIFIED TO PERFORM THE APPROVED WELD PROCEDURES AND QUALIFIED PER THE RESPECTIVE AWS STANDARD.
  - 3. NAME OF THIRD PARTY QUALITY ASSURANCE AGENCY PERFORMING WELD TESTING, BOLT TENSIONING, AND THERMAL SPRAY COATING TESTING FOR APPROVAL.
    - 3.1. QUALIFICATIONS OF THE FIRM.
    - 3.2. QUALIFICATIONS OF THE INDIVIDUALS PERFORMING THE REQUIRED TESTING.
  - 4. SITE SPECIFIC SAFETY PLAN (SSSP) AND LEAD ABATEMENT PLAN.
- B. SUBMITTALS LISTED BELOW MUST BE PROVIDED TO THE ENGINEER BEFORE PROJECT COMPLETION
  - 1. MANUFACTURERS CERTIFICATES FOR ALL MATERIALS STATING THAT THEY MEET THE APPLICABLE AREMA OR ASTM SPECIFICATIONS.
  - 2. ALL WELD TEST RESULTS.
  - 3. ALL SKIDMORE--WILHELM CALIBRATION AND BOLT TENSIONING TEST RESULTS.
  - 4. ALL THERMAL SPRAY COATING TEST RESULTS.
- C. IN THE INTEREST OF REDUCING DOCUMENT PREPARATION COSTS AND DELIVERY TIME, ALL SUBMITTALS MAY BE PROVIDED IN THE ELECTRONIC FORMAT VIA EMAIL. IF SUBMITTALS ARE PROVIDED IN HARD COPY (PAPER FORMAT), SUBMIT ONLY ONE COPY FOR ARRC REVIEW AND RECORDS, UNLESS ADDITIONAL COPIES ARE REQUESTED BY THE ENGINEER. SUBMITTAL APPROVAL STATUS WILL BE RETURNED VIA EMAIL.

	<b>ALASKA RAILROAD CORPORATION</b> ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510--7500	
PROJECT:	<b>WHITTIER BARGE SLIP CORROSION REPAIR</b>	
TITLE:	<b>GENERAL NOTES AND SPECIFICATIONS</b>	
DESIGNED BY: <u>DJS</u>	SCALE : AS NOTED	AFE NO.:
DRAWN BY: <u>DJS</u>		ACAD FILE:
CHECKED BY: <u>BAO</u>	DATE : 8/29/19	DWG NO. <b>2</b> OF <b>12</b>
APPROVED BY: <u>CDR</u>		

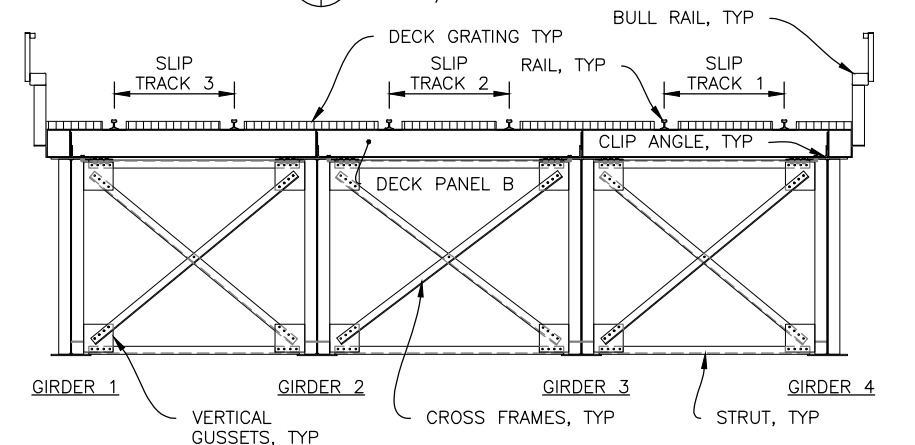


**A PLAN VIEW**  
3/3 SCALE: 1/8"=1'-0"

NOTE: SEVERAL BOLTS AND ANGLES ARE CORRODED AND NEED REPLACING.



**C SECTION A-A**  
3/3 SCALE: 1/8"=1'-0"



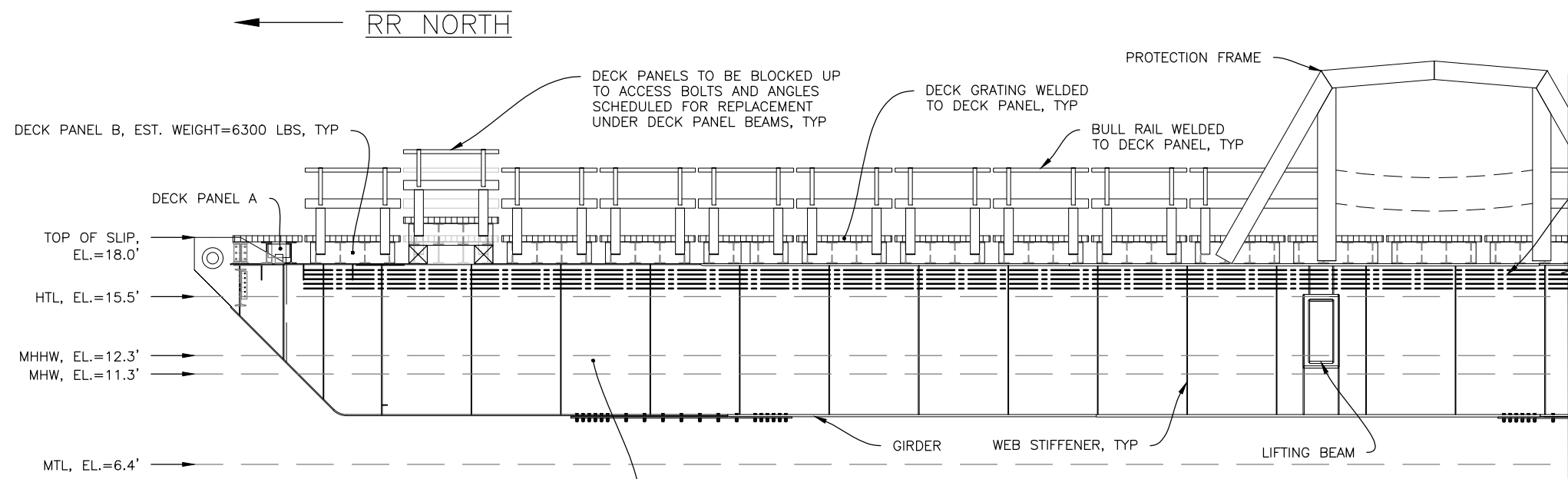
**D SECTION B-B**  
3/3 SCALE: 1/8"=1'-0"

**SCOPE OF WORK:**

1. REPLACE CORRODED GUSSET PLATES, STRUTS, CROSS BRACING, CONNECTION ANGLES AND LATERAL BRACING AS NOTED IN DWG. 4 & 5.
2. REPLACE CORRODED BOLTS AT BRACING LOCATIONS AS NOTED ON DWG. 4 & 5
3. REMOVE SURFACE CORROSION AND REPAIR COATING VIA SPRAY METALLIZING ON GIRDER ELEMENTS, BRACING, AND GUSSETS AS NOTED IN DWG. 4-9.


UTILITY LINES ATTACHED TO OUTBOARD SIDE OF GIRDERS 1 & 4 MAY HAVE TO BE TEMPORARILY PULLED AWAY AND SUPPORTED TO ACCESS GIRDER PANELS. COORDINATE UTILITY RELATED ACTIVITIES WITH THE ARRC.

NOTE: ABUTMENT NOT SHOWN FOR CLARITY

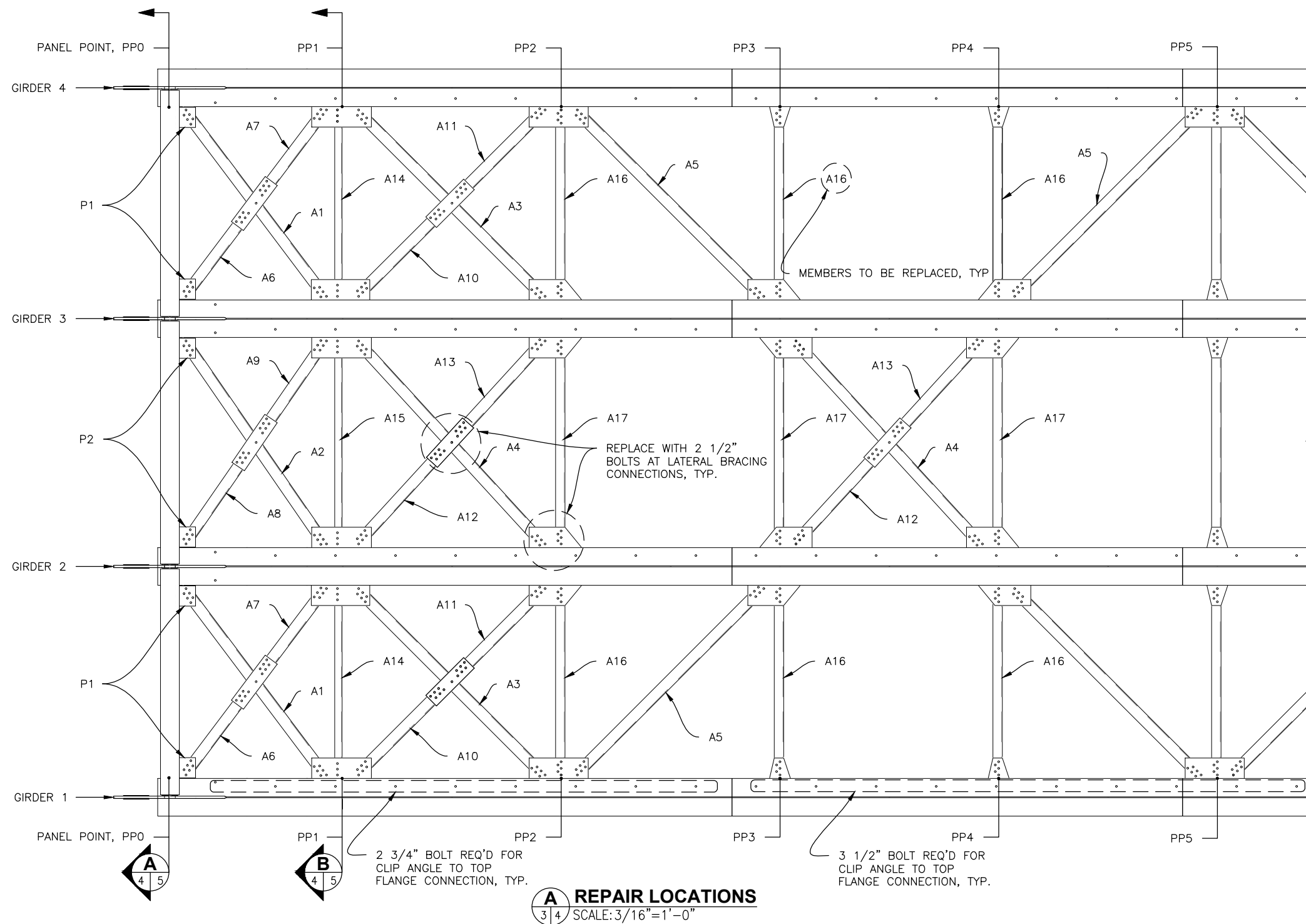


**B ELEVATION VIEW**  
3/3 SCALE: 1/8"=1'-0"

NOTE: SURFACE CORROSION FOUND ON GIRDER PANELS AND CONNECTED ELEMENTS ARE TO BE REPAIRED VIA SPRAY METALLIZING.

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PROJECT: <b>WHITTIER BARGE SLIP CORROSION REPAIR</b>		
TITLE: <b>GENERAL LAYOUT</b>		
DESIGNED BY: DJS	SCALE: AS NOTED	AFE NO.:
DRAWN BY: DJS	DATE: 8/29/19	ACAD FILE:
CHECKED BY: BAO		DWG. NO. <b>3</b> OF <b>12</b>
APPROVED BY: CDR		





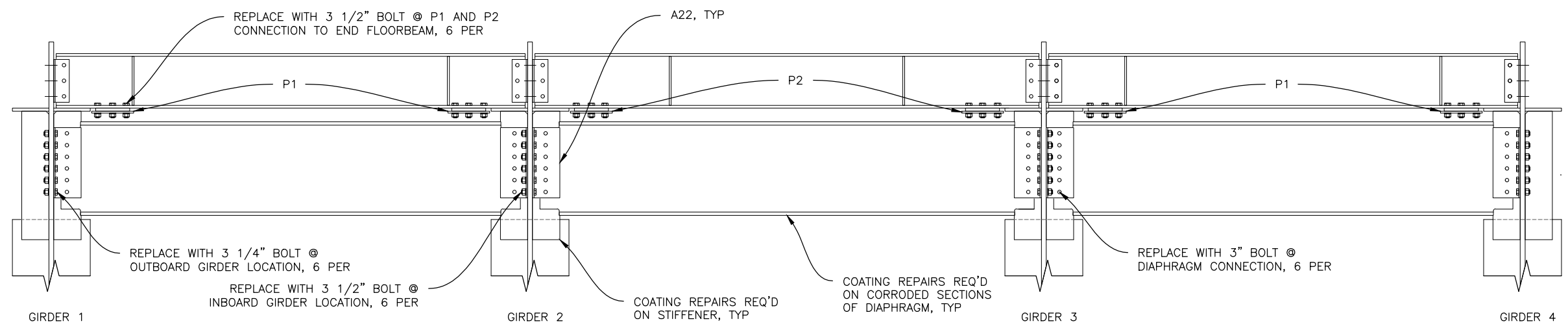
**NOTE:**

1. REPLACE ALL BOLTS FOR LATERAL BRACING FROM PANEL POINT (PP) 0 THROUGH PANEL POINT (PP) 5.
2. REPLACE ALL LATERAL BRACING AND PLATES AS SCHEDULED.
3. CLIP ANGLE TO TOP FLANGE CONNECTION BOLTS VARY IN LENGTH DO TO VARIABLE THICKNESS OF GIRDER TOP FLANGE. BOLT REPLACEMENT IS ONLY NECESSARY IF THE FLOORBEAM PANEL IS REMOVED FOR REPAIR ACCESS.
4. CONTRACTOR TO REPAIR THE UNDERSIDE OF HORIZONTAL GUSSET PLATES WHERE NECESSARY. DETERMINATION WILL BE MADE IN THE FIELD BY THE OWNER UPON REMOVAL OF THE LATERAL BRACING.

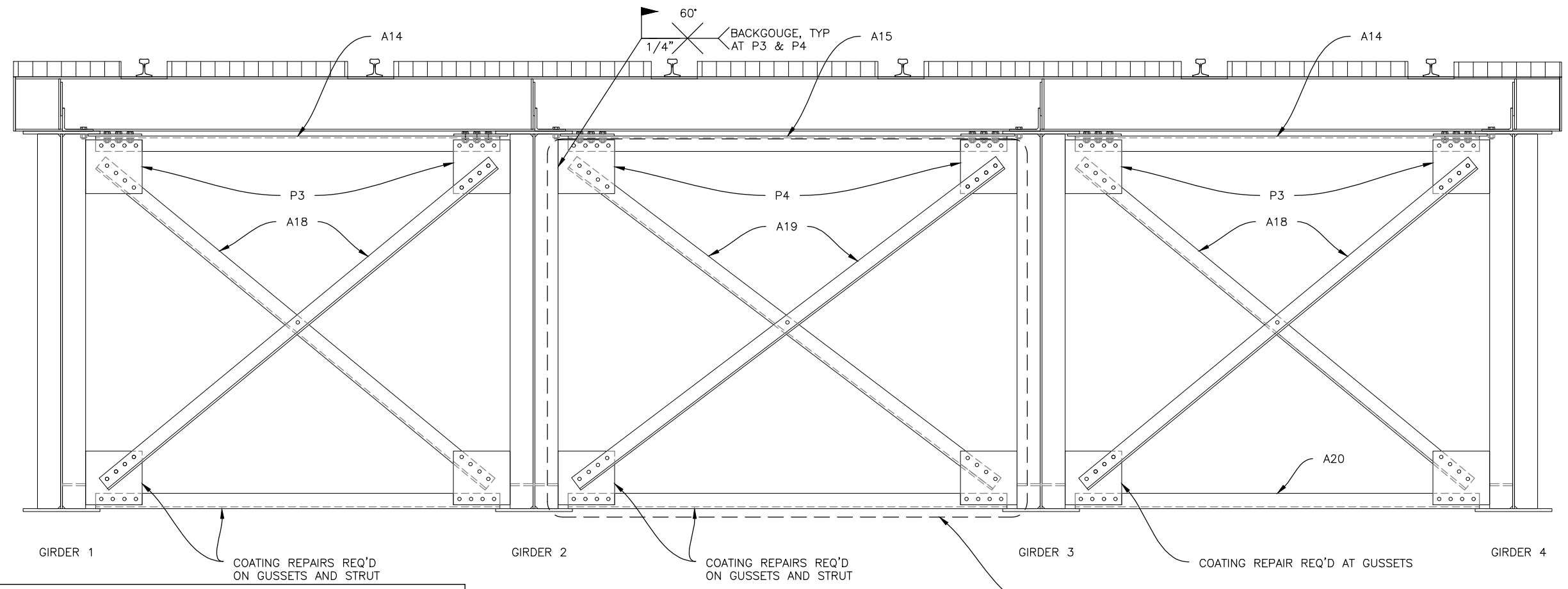
MARK	QTY	SIZE	LENGTH		DWG SHOWN	WEIGHT
			FT	IN		
A1	2	L6X6X3/8	10	7.25	10	316.00
A2	1	L6X6X3/8	11	2.5	10	167.00
A3	2	L6X6X3/8	11	11.313	10	355.89
A4	2	L6X6X3/8	12	5.875	10	372.19
A5	3	L6X6X3/8	11	11.313	10	533.84
A6	2	L6X6X3/8	4	10.375	10	144.96
A7	2	L6X6X3/8	4	11.875	10	148.69
A8	1	L6X6X3/8	5	1.75	10	76.67
A9	1	L6X6X3/8	5	2.75	10	77.91
A10	2	L6X6X3/8	5	8.688	11	170.58
A11	2	L6X6X3/8	5	7.188	11	166.85
A12	2	L6X6X3/8	5	10.438	11	174.92
A13	2	L6X6X3/8	5	11.938	11	178.65
A14	2	L4X4X1/2	8	9.25	11	224.53
A15	1	L4X4X1/2	9	6.25	11	121.87
A16	6	L5X5X3/8	8	6.25	11	628.84
A17	3	L5X5X3/8	9	3.25	11	342.09
P1	4	PL10 3/4X1/2	1	6	12	109.74
P2	2	PL10 3/4X1/2	1	6	12	54.87
	457	7/8" DIA. BOLT w/N&W	0	2.5		464.31
	38	7/8" DIA. BOLT w/N&W	0	2.75		40.20
	40	7/8" DIA. BOLT w/N&W	0	3.5		47.20
					<b>TOTAL</b>	<b>4917.82</b>

RR NORTH

<b>ALASKA RAILROAD CORPORATION</b> ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500	
PROJECT: <b>WHITTIER BARGE SLIP CORROSION REPAIR</b>	
TITLE: <b>LATERAL BRACING REPAIR LOCATIONS</b>	
DESIGNED BY: <u>DJS</u> DRAWN BY: <u>DJS</u> CHECKED BY: <u>BAO</u> APPROVED BY: <u>CDR</u>	SCALE: AS NOTED DATE: 8/29/19
AFE NO.: ACAD FILE: DWG NO.	<b>4</b> OF <b>12</b>



**A END FLOORBEAM AND DIAPHRAGM REPAIR**  
 4 | 5 SCALE: 3/8" = 1'-0"



**B CROSS FRAME AND STRUT REPAIR**  
 4 | 5 SCALE: 3/8" = 1'-0"

**BILL OF MATERIALS**

MARK	QTY	SIZE	LENGTH		DWG SHOWN	WEIGHT
			FT	IN		
A18	4	L4X4X1/2	10	11.5	12	561.07
A19	2	L4X4X1/2	11	6.625	12	295.73
A20	1	L4X4X1/2	8	9.25	12	112.27
A22	6	L7X4X3/8	1	6	12	122.40
P3	4	PL14X1/2	1	2.75	12	117.11
P4	2	PL14X1/2	1	2.75	12	58.56
	99	7/8" DIA. BOLT w/N&W	0	2.5		100.58
	36	7/8" DIA. BOLT w/N&W	0	3		39.60
	12	7/8" DIA. BOLT w/N&W	0	3.25		13.68
	48	7/8" DIA. BOLT w/N&W	0	3.5		56.64
		<b>TOTAL</b>				<b>1477.64</b>

**ALASKA RAILROAD CORPORATION**  
 ENGINEERING SERVICES  
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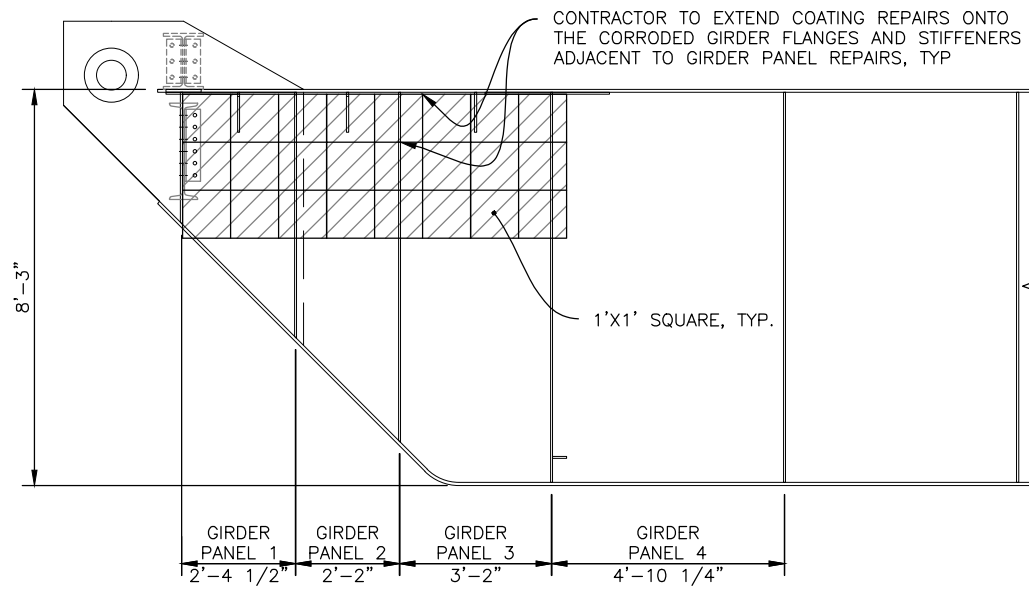
**WHITTIER BARGE SLIP CORROSION REPAIR**

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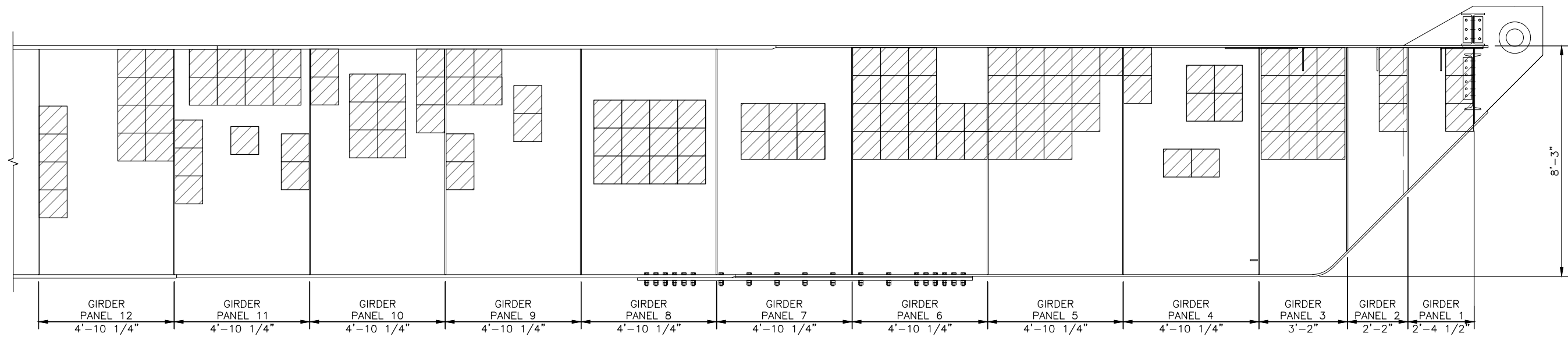
**END FLOORBEAMS, DIAPHRAGM, CROSS FRAME AND STRUT REPAIRS**

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DRAWN BY: <u>DJS</u>	DATE: <u>8/29/19</u>	ACAD FILE:
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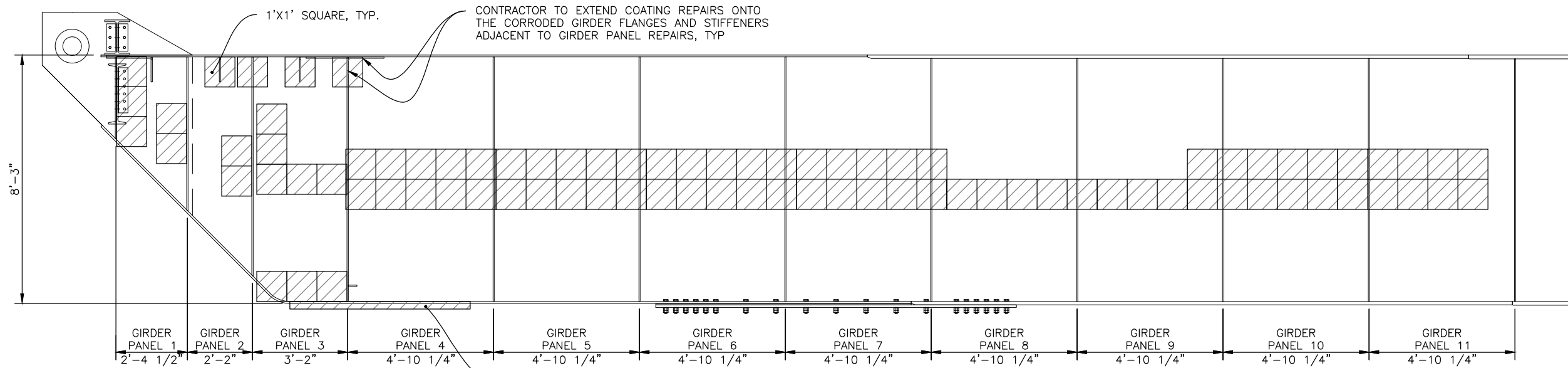


**A GIRDER 1 WEST FACE**  
 6/6 SCALE: 1/4"=1'-0"  
 ESTIMATED AREA=24 SF

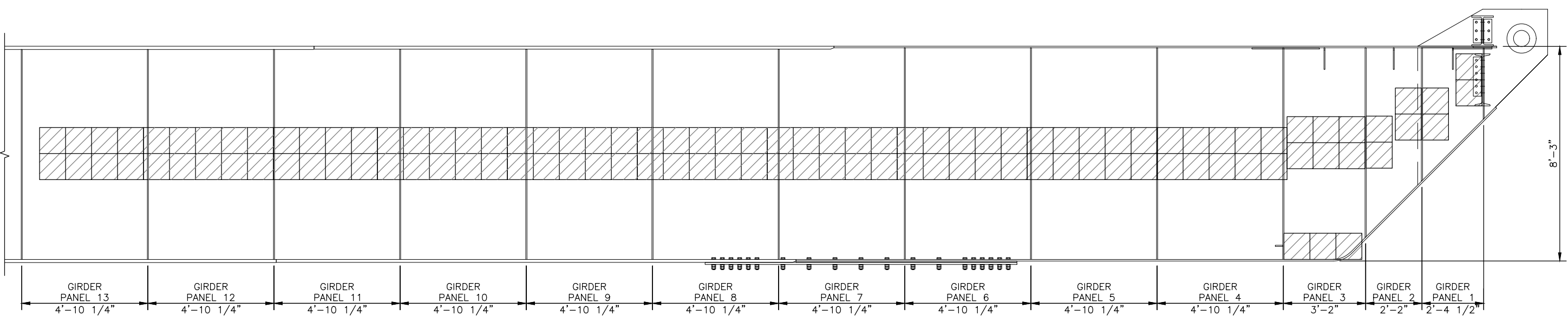


**B GIRDER 1 EAST FACE**  
 6/6 SCALE: 1/4"=1'-0"  
 ESTIMATED AREA=121 SF


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PROJECT : <b>WHITTIER BARGE SLIP CORROSION REPAIR</b>		
TITLE : <b>GIRDER 1 SPRAY METALLIZING</b>		
DESIGNED BY: <u>DJS</u>	SCALE : AS NOTED	AFE NO.:
DRAWN BY: <u>DJS</u>	DATE : 8/29/19	ACAD FILE:
CHECKED BY: <u>BAO</u>		DWG NO. <b>6</b> OF <b>12</b>
APPROVED BY: <u>CDR</u>		

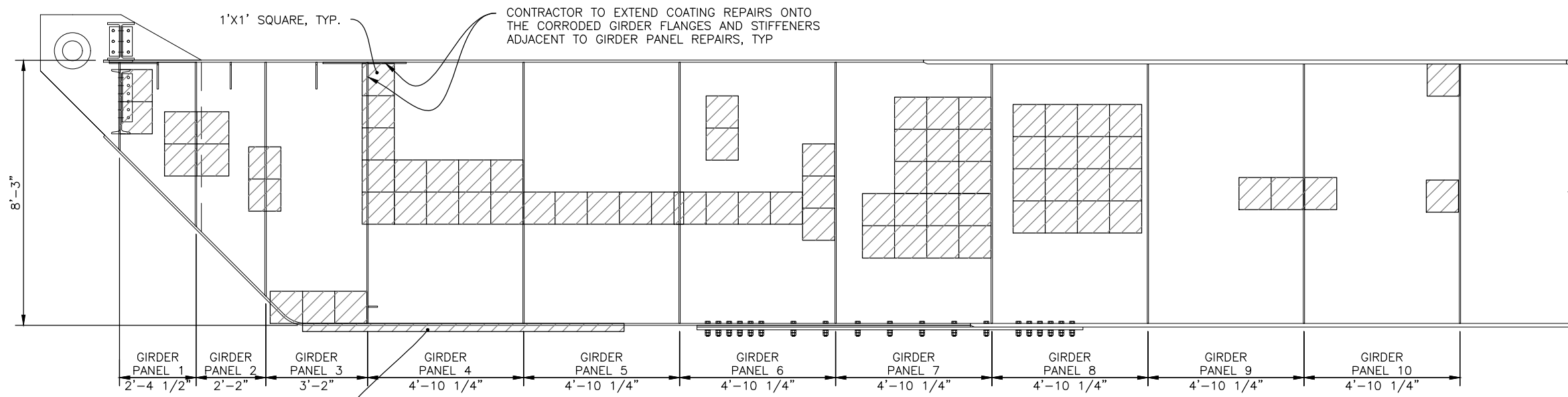


**A GIRDER 2 WEST FACE**  
 SCALE: 1/4"=1'-0"  
 ESTIMATED AREA=89 SF



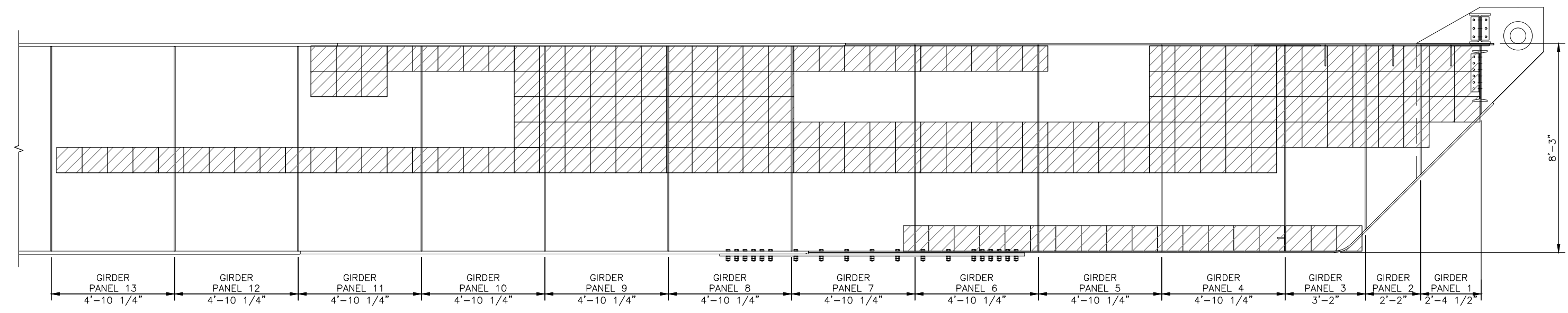
**B GIRDER 2 EAST FACE**  
 SCALE: 1/4"=1'-0"  
 ESTIMATED AREA=115 SF

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TITLE: <b>GIRDER 2 SPRAY METALLIZING</b>		
DESIGNED BY: DJS	SCALE: AS NOTED	AFE NO.:
DRAWN BY: DJS	DATE: 8/29/19	ACAD FILE:
CHECKED BY: BAO		DWG NO. <b>7</b> OF <b>12</b>
APPROVED BY: CDR		




COATING REPAIRS REQ'D ON 20"X10'-0" SECTION ON BOTTOM SIDE OF FLANGE. ESTIMATED AREA=17 SF

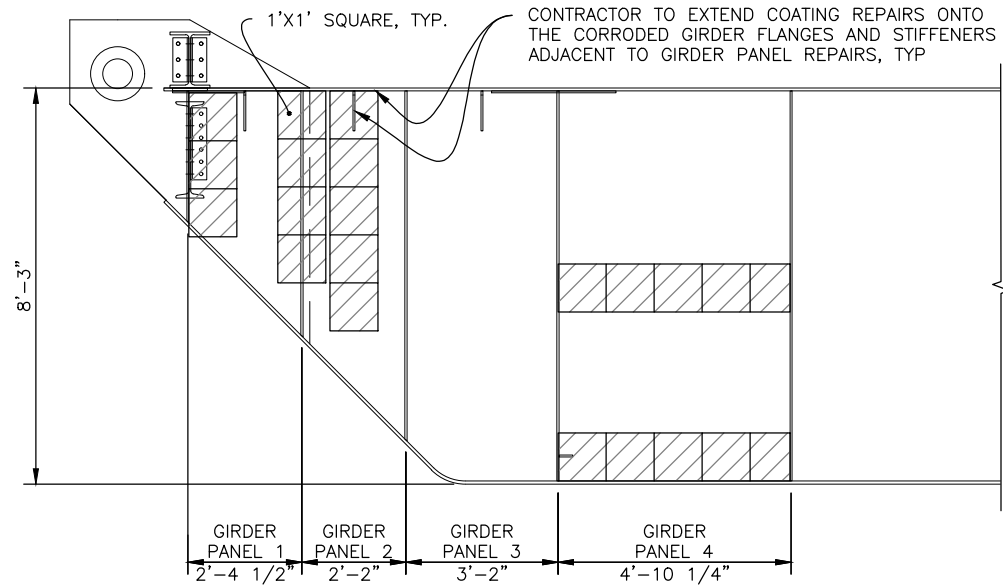
**A GIRDER 3 WEST FACE**  
 8/8 SCALE: 1/4"=1'-0"  
 ESTIMATED AREA=76 SF



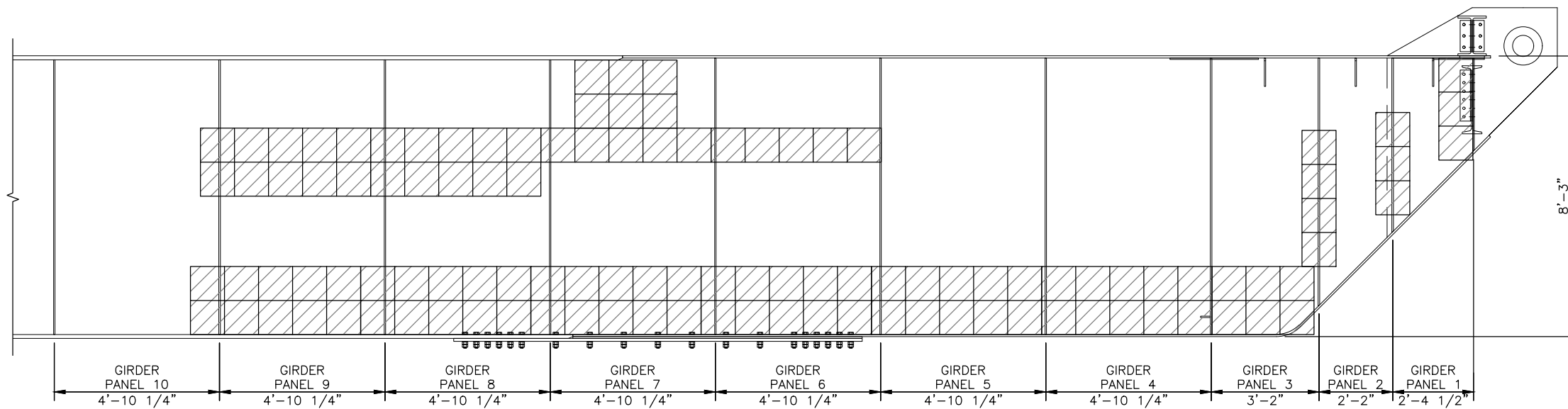
**B GIRDER 3 EAST FACE**  
 8/8 SCALE: 1/4"=1'-0"  
 ESTIMATED AREA=202 SF

 <b>ALASKA RAILROAD CORPORATION</b> ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT: <b>WHITTIER BARGE SLIP CORROSION REPAIR</b>		
TITLE: <b>GIRDER 3 SPRAY METALLIZING</b>		
DESIGNED BY: <u>DJS</u>	SCALE: AS NOTED	AFE NO.:
DRAWN BY: <u>DJS</u>	DATE: 8/29/19	ACAD FILE:
CHECKED BY: <u>BAO</u>		DWG. NO. <b>8</b> OF <b>12</b>
APPROVED BY: <u>CDR</u>		




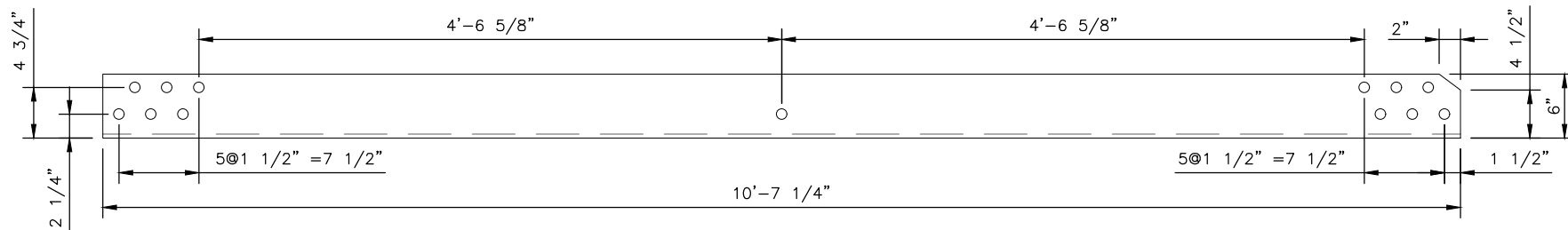


**A GIRDER 4 WEST FACE**  
 9 | 9 SCALE: 1/4"=1'-0"  
 ESTIMATED AREA=22 SF

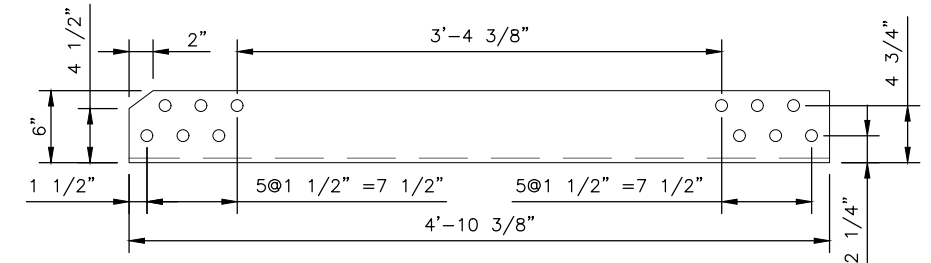


**B GIRDER 4 EAST FACE**  
 9 | 9 SCALE: 1/4"=1'-0"  
 ESTIMATED AREA=117 SF

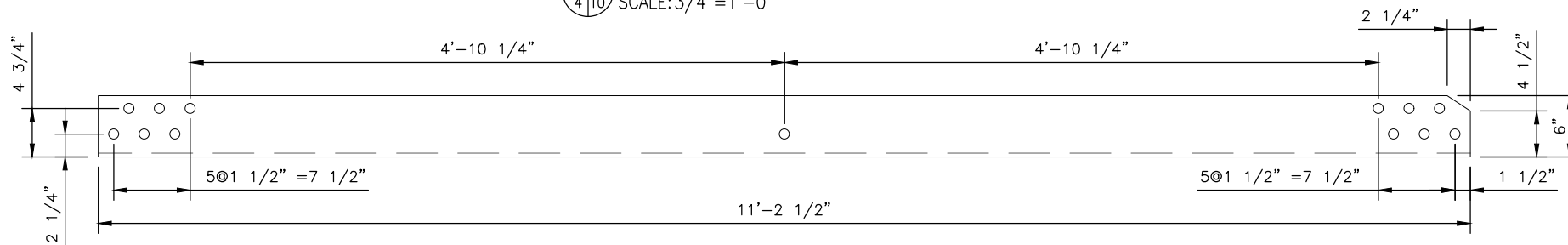
 <b>ALASKA RAILROAD CORPORATION</b> ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT : <b>WHITTIER BARGE SLIP CORROSION REPAIR</b>		
TITLE : <b>GIRDER 4 SPRAY METALLIZING</b>		
DESIGNED BY: <u>DJS</u>	SCALE : AS NOTED	AFE NO.:
DRAWN BY: <u>DJS</u>	DATE : 8/29/19	ACAD FILE:
CHECKED BY: <u>BAO</u>		DWG NO. <b>9</b> OF <b>12</b>
APPROVED BY: <u>CDR</u>		



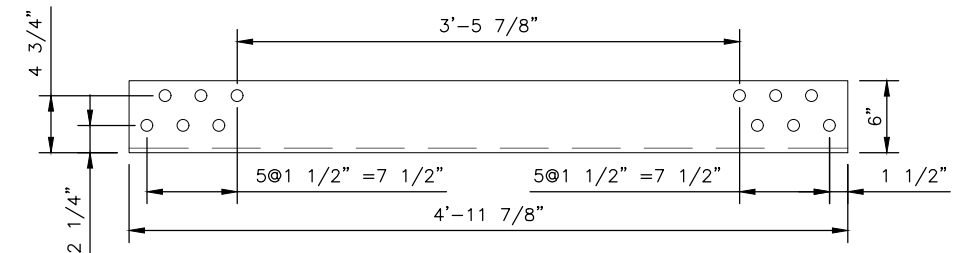
**A A1-L6"X6"X3/8"X10'-7 1/4"**  
 4/10 SCALE: 3/4"=1'-0"



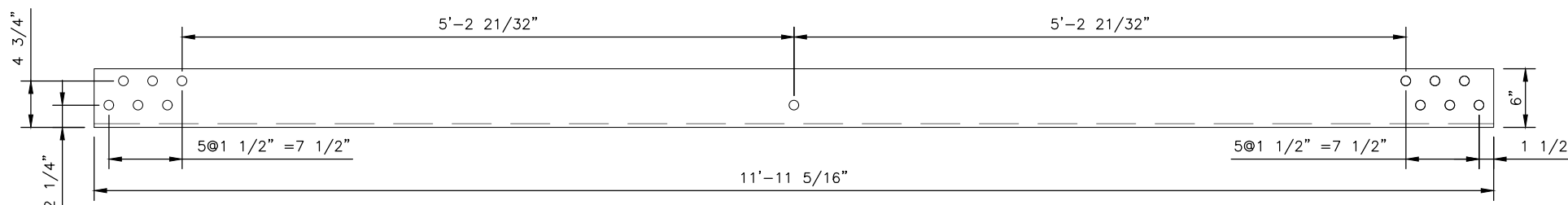
**F A6-L6"X6"X3/8"X4'-10 3/8"**  
 4/10 SCALE: 3/4"=1'-0"



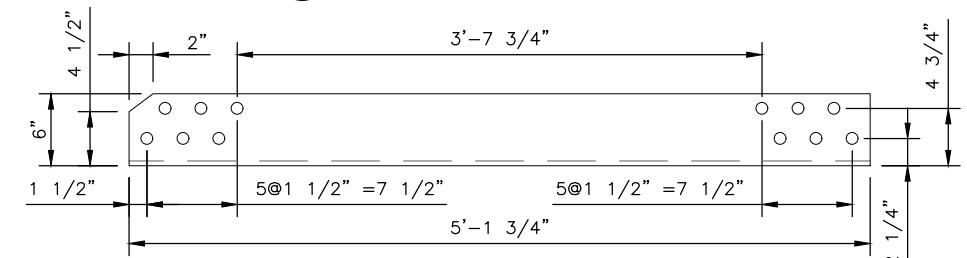
**B A2-L6"X6"X3/8"X11'-2 1/2"**  
 4/10 SCALE: 3/4"=1'-0"



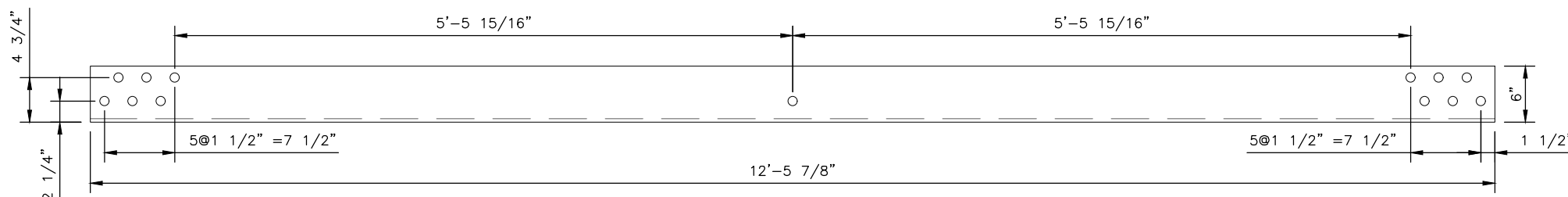
**G A7-L6"X6"X3/8"X4'-11 7/8"**  
 4/10 SCALE: 3/4"=1'-0"



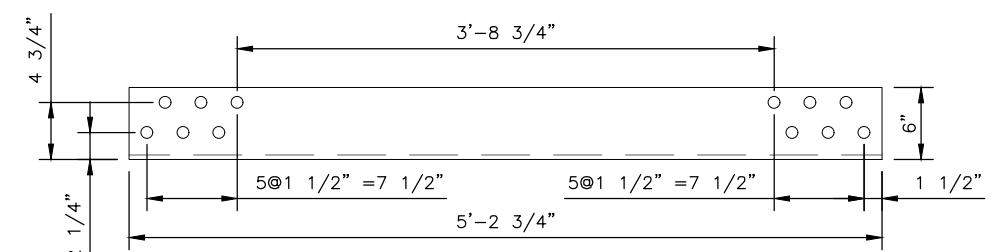
**C A3-L6"X6"X3/8"X11'-11 5/16"**  
 4/10 SCALE: 3/4"=1'-0"



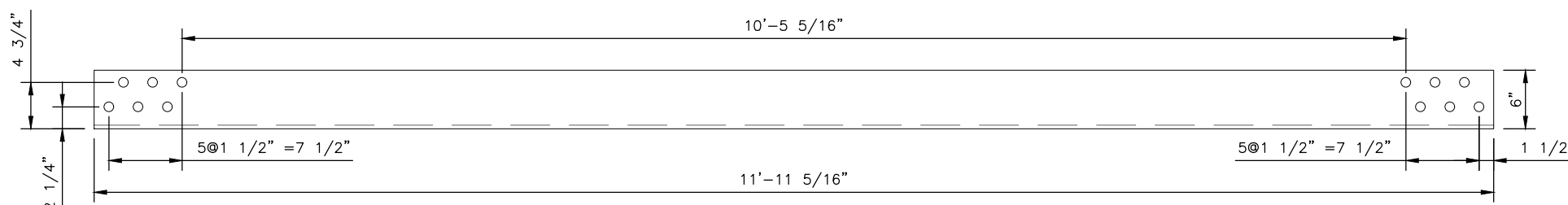
**H A8-L6"X6"X3/8"X5'-1 3/4"**  
 4/10 SCALE: 3/4"=1'-0"



**D A4-L6"X6"X3/8"X12'-5 7/8"**  
 4/10 SCALE: 3/4"=1'-0"




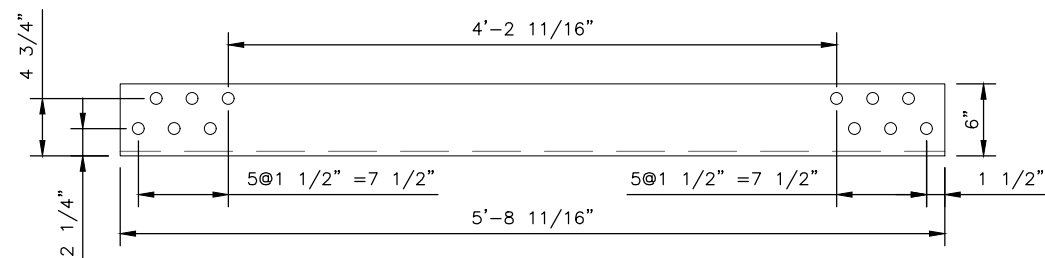
**H A9-L6"X6"X3/8"X5'-2 3/4"**  
 4/10 SCALE: 3/4"=1'-0"



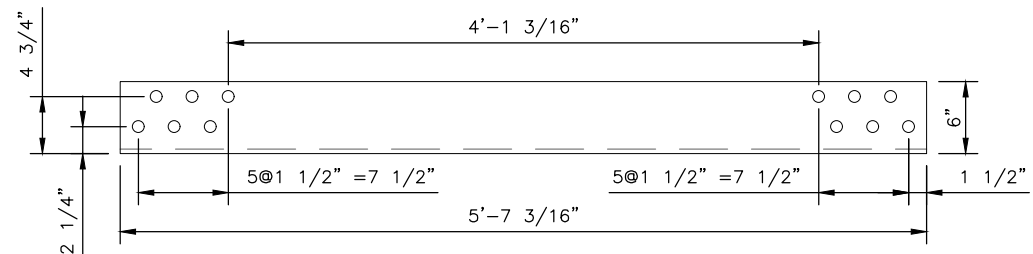
**E A5-L6"X6"X3/8"X11'-11 5/16"**  
 4/10 SCALE: 3/4"=1'-0"

**NOTE:**  
 1. ALL HOLES SHALL BE 1"Ø UNLESS NOTED.  
 2. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS PRIOR TO PROCURING MATERIALS.  
 3. FIELD DRILLING OF HOLES IS PERMISSIBLE IF CONTRACTOR ELECTS TO DO SO.

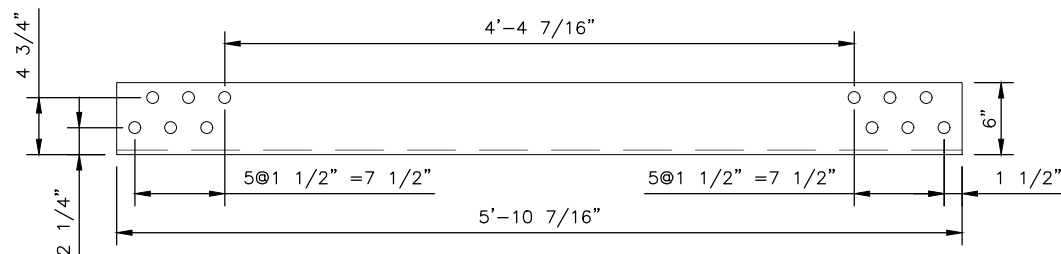
 <b>ALASKA RAILROAD CORPORATION</b> ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT: <b>WHITTIER BARGE SLIP CORROSION REPAIR</b>		
TITLE: <b>LATERAL BRACING PARTS 1</b>		
DESIGNED BY: <u>DJS</u>	SCALE: AS NOTED	AFE NO.:
DRAWN BY: <u>DJS</u>	DATE: 8/29/19	ACAD FILE:
CHECKED BY: <u>BAO</u>		DWG NO. <b>10</b> OF <b>12</b>
APPROVED BY: <u>CDR</u>		



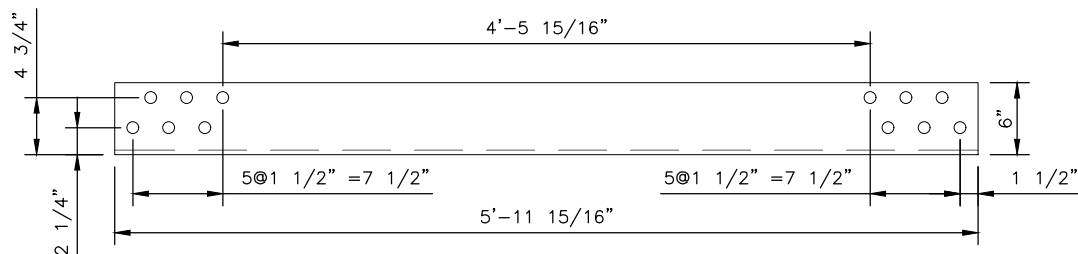
**A A10-L6''X6''X3/8''X5'-8 11/16''**  
 4/11 SCALE: 3/4"=1'-0"



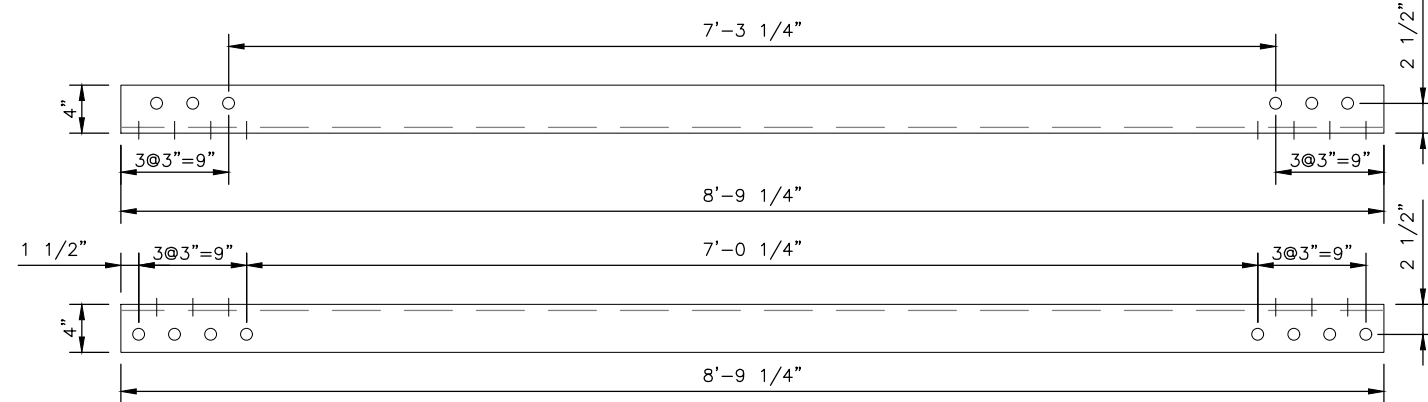
**B A11-L6''X6''X3/8''X5'-7 3/16''**  
 4/11 SCALE: 3/4"=1'-0"



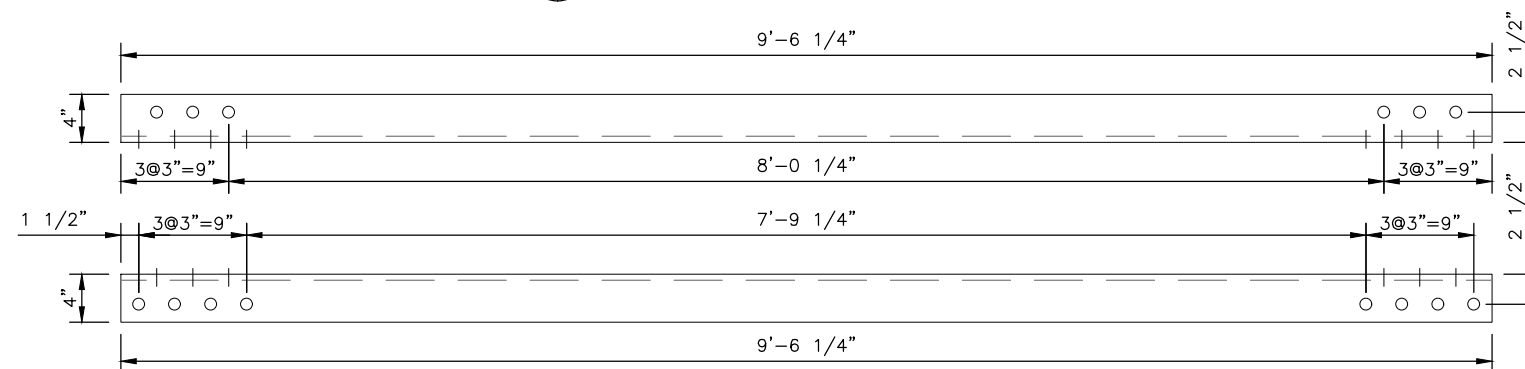
**C A12-L6''X6''X3/8''X5'-10 7/16''**  
 4/11 SCALE: 3/4"=1'-0"



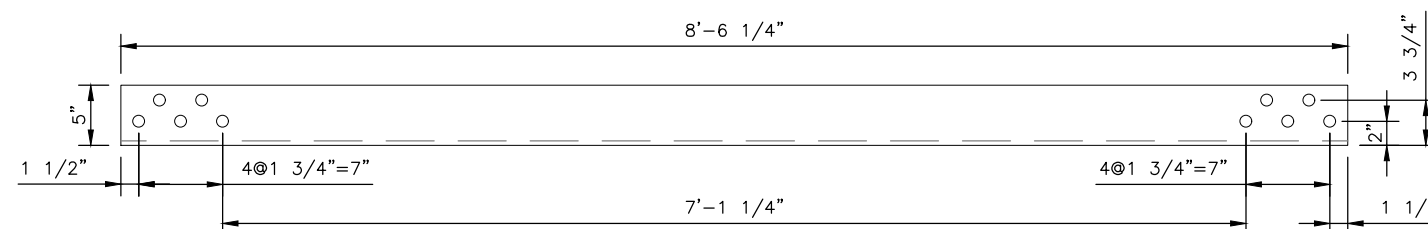
**D A13-L6''X6''X3/8''X5'-11 15/16''**  
 4/11 SCALE: 3/4"=1'-0"



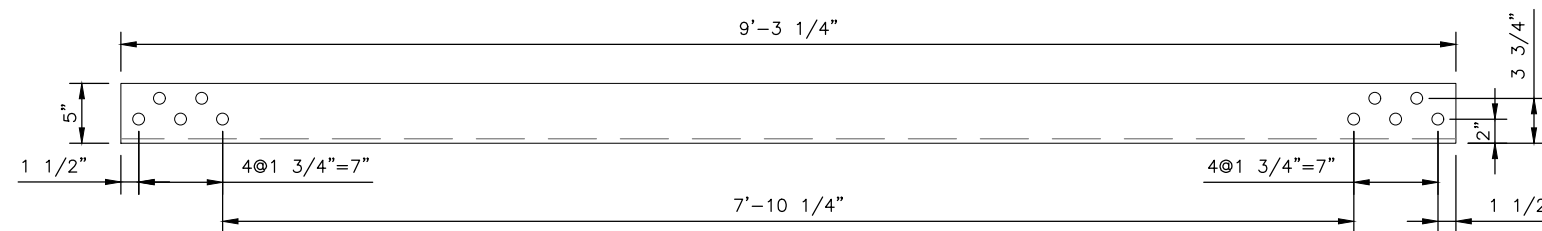
**E A14-L4''X4''X1/2''X8'-9 1/4''**  
 4/11 SCALE: 3/4"=1'-0"



**F A15-L4''X4''X1/2''X9'-6 1/4''**  
 4/11 SCALE: 3/4"=1'-0"




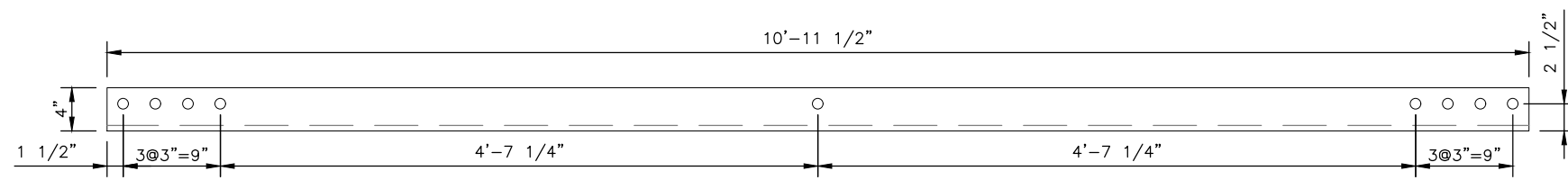
**G A16-L5''X5''X3/8''X8'-6 1/4''**  
 4/11 SCALE: 3/4"=1'-0"



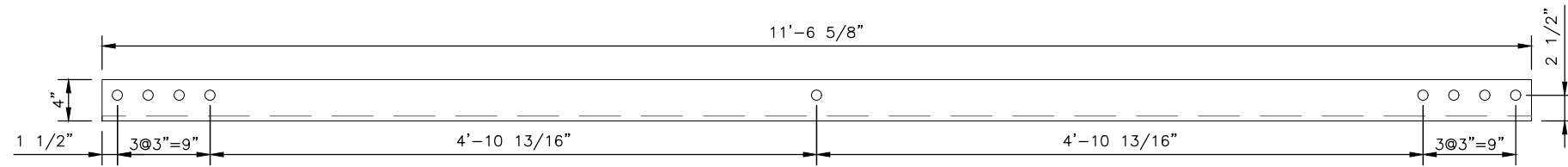
**H A17-L5''X5''X3/8''X9'-3 1/4''**  
 4/11 SCALE: 3/4"=1'-0"

NOTE:  
 1. ALL HOLES SHALL BE 1"Ø UNLESS NOTED.  
 2. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS PRIOR TO PROCURING MATERIALS.  
 3. FIELD DRILLING OF HOLES IS PERMISSIBLE IF CONTRACTOR ELECTS TO DO SO.

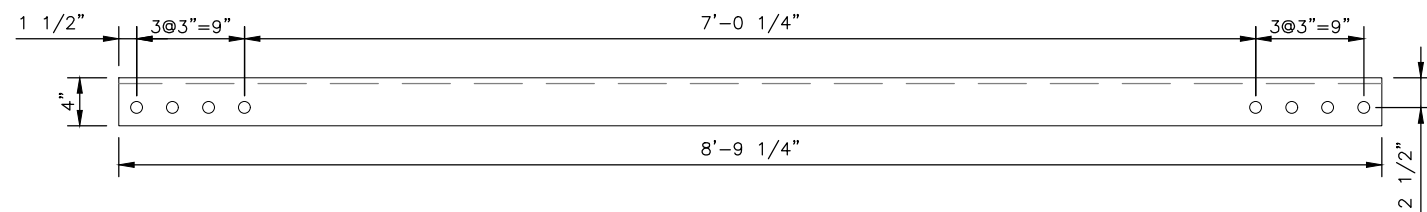
 <b>ALASKA RAILROAD CORPORATION</b> ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT:		
<b>WHITTIER BARGE SLIP CORROSION REPAIR</b>		
TITLE:		
<b>LATERAL BRACING PARTS 2</b>		
DESIGNED BY: <u>DJS</u>	SCALE: AS NOTED	AFE NO.:
DRAWN BY: <u>DJS</u>	DATE: 8/29/19	ACAD FILE:
CHECKED BY: <u>BAO</u>		DWG NO. <b>11</b> OF <b>12</b>
APPROVED BY: <u>CDR</u>		



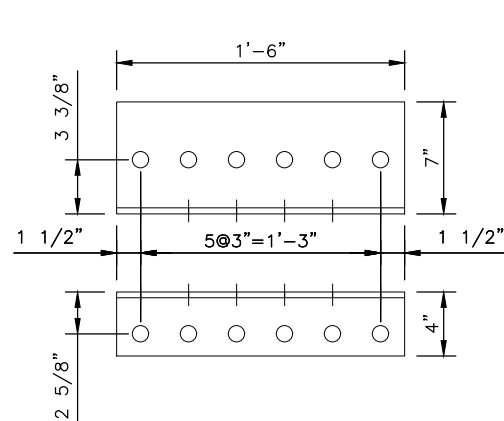
**A A18-L4"x4"x1/2"x10'-11 1/2"**  
 5/12 SCALE: 3/4"=1'-0"



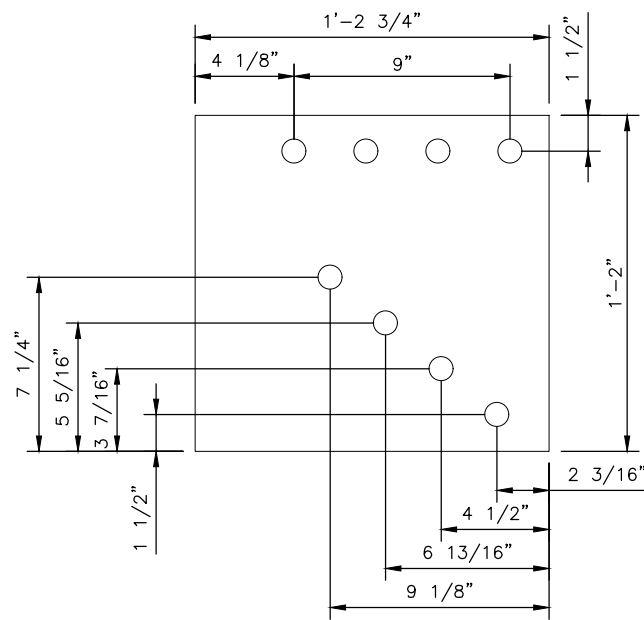
**B A19-L4"x4"x1/2"x11'-6 5/8"**  
 5/12 SCALE: 3/4"=1'-0"



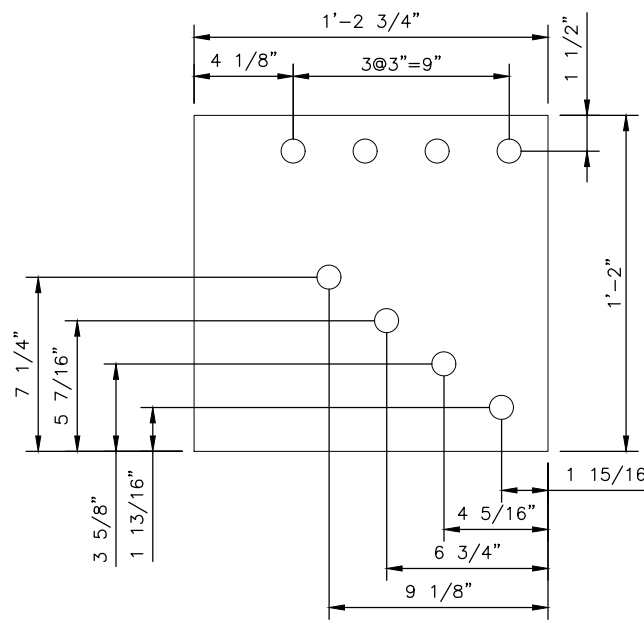
**C A20-L4"x4"x1/2"x8'-9 1/4"**  
 5/12 SCALE: 3/4"=1'-0"



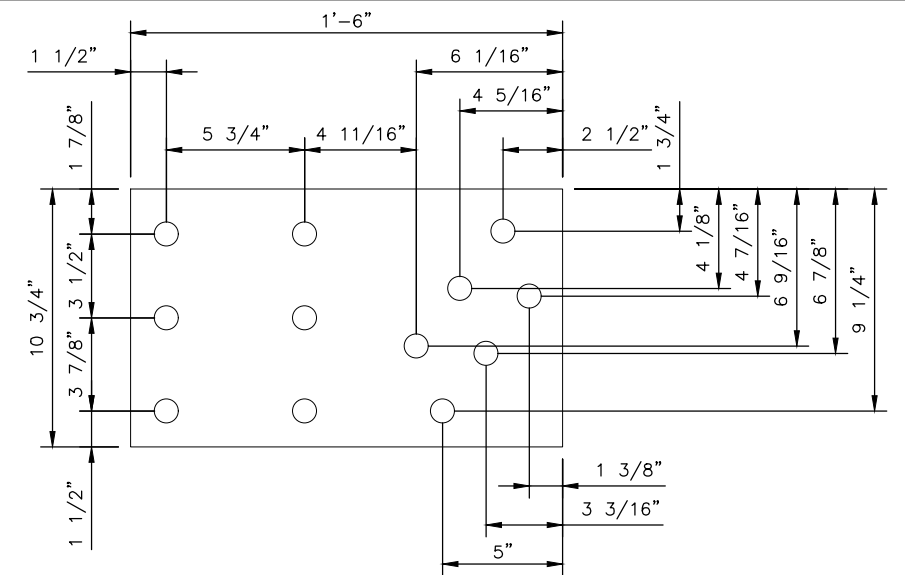
**D A22-L7"x4"x3/8"x1'-6"**  
 5/12 SCALE: 1"=1'-0"



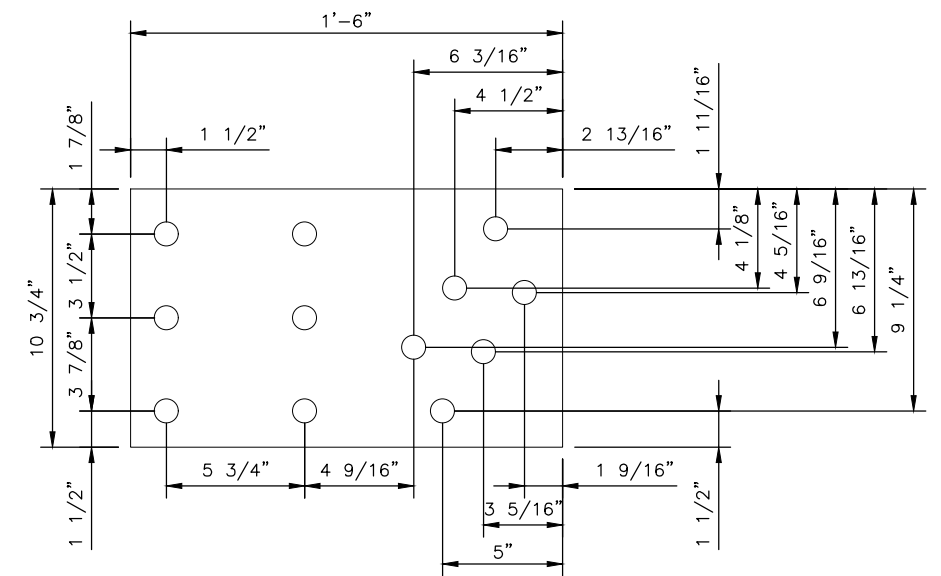
**G P3-PL1-2"x1'-2 3/4"x1/2"**  
 5/12 SCALE: 1 1/2"=1'-0"



**H P4-PL1'-2"x1'-2 3/4"x1/2"**  
 5/12 SCALE: 1 1/2"=1'-0"




**E P1-PL10 3/4"x1'-6"x1/2"**  
 5/12 SCALE: 1 1/2"=1'-0"



**F P2-PL10 3/4"x1'-6"x1/2"**  
 5/12 SCALE: 1 1/2"=1'-0"

NOTE:  
 1. ALL HOLES SHALL BE 1"Ø UNLESS NOTED.  
 2. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS PRIOR TO PROCURING MATERIALS.  
 3. FIELD DRILLING OF HOLES IS PERMISSIBLE IF CONTRACTOR ELECTS TO DO SO.

 <b>ALASKA RAILROAD CORPORATION</b> ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT: <b>WHITTIER BARGE SLIP CORROSION REPAIR</b>		
TITLE: <b>CROSS BRACING, STRUTS, CONN. ANGLE AND GUSSET PLATES</b>		
DESIGNED BY: <u>DJS</u>	SCALE: AS NOTED	AFE NO.:
DRAWN BY: <u>DJS</u>	DATE: 8/29/19	ACAD FILE:
CHECKED BY: <u>BAO</u>		DWG NO. <b>12</b> OF <b>12</b>
APPROVED BY: <u>CDR</u>		