INVITATION for BID

IFB-PAG-CIP-022-008

SUPPLY AND INSTALL NEW 11 EA. CYLINDRICAL FENDERING SYSTEM AT WHARF F-3 AND 15EA. RUBBER LEG ARCH FENDER AT WHARF F-4 TO F-6

AMENDMENT NO. 1

DATE: September 23, 2022

ALL BIDDERS MUST ACKNOWLEDGE RECEIPT OF THIS AMENDMENT ON AREA PROVIDED BELOW AND RETURN COPY TO PAG PROCUREMENT OFFICE. FAX: (671) 472-1439 OR EMAIL: SPMUNA01@PORTOFGUAM.COM, PACASTRO@PORTOFGUAM.COM

NOTICE TO OFFERORS: The IFB Documents of the above referenced project are hereby amended to now read:

1. Amend to Change Quantity of Rubber Leg Arch Fenders in Title of Bid and in all other sections of bid packet.
   From: 30ea. New Rubber Leg Arch Fenders at Wharf F-4 to F-6.
   To Now Read: 15ea. New Rubber Leg Arch Fenders at Wharf F-4 to F-6.

2. Amend to Change Bid Submittal Date
   From: Friday, September 30, 2022 at 2:00pm Chamorro Standard Time (Guam time).
   To Now Read: Friday, October 21, 2022 at 2:00pm Chamorro Standard Time (Guam time).

3. Please see attached New Bid Schedule to be included in IFB submittal (see attached).
4. Please see attached elevations, detail plans, specifications and scope of work (see attached).
5. The "Buy American Act" requirement does NOT apply to this IFB.
6. **ALL OTHERS REMAIN THE SAME.**

****** END OF AMENDMENT NO. 1******

Issued by:

RORY J. RESPICIO
General Manager

ACKNOWLEDGEMENT

COMPANY NAME: _____

AUTHORIZED SIGNATURE: _____

PRINT NAME: _____

DATE: _____ **TIME:** _____

Invitation for Bid
Supply and Install New Eleven (11 ea.) Cylindrical Fendering Systems at Wharf F-3 and Thirty (30 ea.) Rubber Legs in Fifteen (15) Arch Fender Systems (each Arch Fender System requires 2 New Rubber Legs) at Wharves F-4 to F-6.

PROJECT LOCATION:

This project is located in the Port Authority of Guam Wharf F-3 to Wharf F-6 Dock Side Area.

PROJECT DESCRIPTION:

The Port Authority of Guam is interested in soliciting an Invitation for Bid to supply and install eleven (11) cylindrical fendering systems at wharf F-3 and 30 rubber legs in fifteen (15) frontal arch fendering systems at wharves F-4 to F-6. The fendering systems act as "bumpers" to absorb the kinetic energy of vessels berthing against the wharves during normal operations and at the same time protect vessels during strong winds and water surges associated with inclement weather such as earthquakes, typhoons, and storm surge events.

Funded by the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP 4398-02-02), this project has gone through a rigorous agency required Environmental and Historical Preservation Review (EHP) process. FEMA determined that the project will have No Adverse Effect with a concurrence by the Guam State Historical Preservation Office (GSHPO). This project is not subject to the Buy American Act.

All systems shall meet the standard compliance of organizations for the American National Standard Institute (ANSI), American Society for Testing & Materials (ASTM), Underwriter Laboratories (UL), & Occupational Safety & Health Association (OSHA).

The contractor is highly encouraged to attend the site visit that is scheduled by the Procurement and Engineering/CIP Divisions.

Period of Performance:

Contractor has Two Hundred and Forty-Three (243) calendar days from the project commencement date (Notice to Proceed) to complete this project;

Scope of Work;

1. Contractor shall obtain any required permits, to include Guam Coastal Zone Management Federal Consistency Certification, provide materials, labor and equipment to supply and install eleven (11) cylindrical fenders at wharf F3. The contractor shall match existing material and dimensions of fenders and utilize stainless steel 316 hardware accessories. See attached elevation, detail plan, and, table # 1 to verify fender locations.
    a. The newly installed fender shall be mounted so that it serves its intended purpose.
    b. Contractor shall mount new cylindrical fendering system to the existing stainless steel pad eyes, provided the mounts are reusable. The scope of this project includes the removal, repair, and reinstallation of fender mounts as needed.
    c. Contractor to provide a material submittal for review and approval by the Engineering Division. The metal components of the cylindrical fendering system shall be stainless steel 316.

d. Contractor shall confirm the required dimensions of the various components of the cylindrical fendering system by verifying field conditions and through coordination with the PAG. Please see attached drawings for reference only. The contractor shall match existing.
e. Adjacent cylindrical fenders shall not be removed at the same time.
f. Contractor shall transport any tires, fenders, chains, and other items removed from the face of the wharf to a designated location in the PAG yard. Contractor shall arrange the removed items neatly as directed by PAG personnel and dispose of any items deemed unusable by PAG Operations.

2. Contractor shall provide materials, labor and equipment to remove, supply, and install 30 rubber legs in fifteen (15) arch fender systems. Each arch fender has two (2) rubber legs. The Contractor shall match existing material and dimensions of fenders and utilize stainless steel 316 hardware accessories. See attached elevation, detail plan, and table # 1 to verify fender locations.
    a. The newly installed fender shall be mounted so that it serves its intended purpose.
    b. Contractor shall mount new arch fendering system to the existing stainless-steel hardware, provided the hardware is reusable. Repair of stainless-steel mount may be required and is included in the SOW.
    c. Contractor to provide a material submittal for review and approval by the Engineering Division. See attached specifications.
    d. Included in the project scope is to remove corrosion, repair and paint the fender steel panel. The removal and reinstallation of the UHMW pads is required to work on all surfaces. Contractor must ensure the steel panel is water tight prior to installing. See attached specs for fender repair.
    e. Contractor to supply all stainless-steel (316) nuts, bolts, washers, and other hardware required to install fender rubber legs.
    f. Prior to painting, steel panel shall be free of all rust, oil and other contaminants. One (1) coat of primer and two (2) coats of epoxy paint shall be applied. Contractor to comply with the specifications for the coating of marine steel.
    g. Adjacent arch fenders shall not be removed at the same time. Contractor shall place temporary protection (PAG owned Yokohama fender or large tire) at the site of the removed fenders to prevent damage to the wharf.
    h. Arch fenders are to be transported to an approved location for restoration. Restoration, repair, and painting is not permitted in the PAG yard. The PAG will provide a laydown area for Contractor equipment tools and storage. Size to be determined at the pre-construction meeting.
    i. In water activity is not permitted.

3. Contractor to request in writing 24 hrs. Prior to final test and pre-final inspection to PAG Engineering for any punch list items.

4. After correction of all punch lists and approval by PAG Engineering and PAG Commercial Divisions, Contractor to submit final billing invoice and close – out documents.

5. Close-out documents shall have the Certificate of Completion, One (1) Year Warranty of Unit and Workmanship, Release of Claims and Liabilities. Submit documents in hard copy and in electronic file in PDF format.

General Requirements;

1. The Contractor shall investigate the project sites; verify existing conditions and measurements prior to submitting Bid cost proposal. Failure to do so shall not be a cause for additional claims against PAG;

2. Contractor shall obtain permits required, provide all labors, materials and equipment to supply and install the aforementioned project. PAG will issue an Intent to Award based on the lowest responsible and responsive bid. An Official Notice to Proceed will be issued to the Contractor once all necessary permits have been obtained.

3. Contractor has 7 days from the project commencement date to submit proof of insurance coverage. Contractor to obtain Comprehensive General Liability Policy and Excess Liability Policy of ($1 Million min.). The PAG shall be an additional insured to the policy.

4. Contractor has 15 days from the project commencement date to submit schedule of values, material submittals, submittal status logs, construction schedule, phasing plan and personnel/equipment listing for review and approval by the PAG Engineering office.

5. All personnel working on this project must attend a MARSEC briefing (conducted by Port Police). Additionally, a Transportation Worker Identification Card (TWIC) is required to enter the port yard. Contractor is responsible for obtaining the necessary TWIC cards to access the yard. Additional information on requirements can be obtained from the Port Police Office. No work will commence without the required TWIC card holders;

6. Contractor shall be responsible for the daily clean-up of the project vicinity. This includes all miscellaneous construction debris that shall be disposed at an approved dumpsite with no cost to PAG.

7. Contractor shall abide by OSHA regulations, provide safety warning signs within work area. All workers shall wear proper Personal Protective Equipment (PPE). To include flotation life jackets proper shoes and googles as a minimum;

8. PAG Engineers and PAG Safety Division to conduct daily inspection of the project site;

9. Liquidated damages shall be assessed for each calendar day the work remains incomplete after the days from the effective date set forth in the Notice to Proceed. See contract document for additional details.

***** Authorized Signatures Appear Below*****

Prepared By:

Iremar C. Gutierrez
Engineer III

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Engineer I

Jacob B. Aquiningoc II
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Reviewed and Approved By:

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Chief Planner

Clarence V. Bagutang
CIP Coordinator

Bid Schedule					
Item	**Description**	**QTY**	**Unit**	**Unit Cost**	**Extended Cost**
1	Mobilization	1	LS		
2	Arch Fender Rubber Legs	30	EA		
3	Arch Fender Hardware (Chains, Nuts, Washers, etc.)	15	EA		
4	Epoxy Paint and Primer	1	LS		
5	Restoration of Arch Fender Steel Panel	15	EA		
6	Cylindrical Fender	11	EA		
7	Cylindrical Fender Hardware (Chain, Shackles, etc.)	11	EA		
8	Disposal Arch Fender Components	15	EA		
9	Disposal Cylindrical Fender Components	11	EA		
10	Labor and Equipment	1	LS		
11	Demobilization	1	LS		
	Grand Total:	-	-	-	

Note: The total project cost needs to be all inclusive; Labor, Materials, Tools and Equipment, Hot Work Permit Fees, Overhead, Profit, Tax, Shipping Cost.

SECTION 02480

FENDER REPAIRS

PART 1 - GENERAL

1.01 SUMMARY

A. The work under this Section includes the removal, refurbishment, and re-installation of the existing fender units and fender components. The work includes the reuse of the fender mounting frames. Some of these frames have been damaged, the repairs necessary for the reuse of the damaged frames is part of this work. Some of the rubber units delaminated from their base plates. The work also includes replacement of delaminated rubber units in kind.

B. CONTRACTOR is advised that fender units and fender components needed to implement repairs may be long-lead items to procure.

C. Related Sections include the following:

1. Section 01110 "Summary of Work"
2. Section 01290 "Measurement and Payment"
3. Section 01330 "Submittal Procedures"
4. Section 01450 "Quality Control"
5. Section 01600 "Product Requirements"
6. Section 01730 "Cutting and Patching"
7. Section 03310 "Polymer-modified Concrete Repair"
8. Section 09960 "Coating of Marine Steel"

1.02 DEFINITIONS

A. Fender Unit: Fender assembly complete with rubbers, steel frame, weight chain, rubbing pads, and anchorage to concrete.

B. Fender Component: Fender component refers to any of the following:

1. Fender rubber legs
2. Fender steel panel
3. Fender weight chain
4. UHMW pads
5. Chain bracket and its anchorage to concrete fascia wall

C. UHMW Pad: Ultra-high Molecular Weight Polyethylene pad.

1.03 REFERENCES

A. The Work covered by this specification shall conform to the latest edition and latest addenda thereto of the following standards to the extent referenced. The publications are referred to in the text by the basic designation only.

B. American Society for Testing and Materials (ASTM)

1. ASTM A36 - Standard Specification for Carbon Structural Steel
2. ASTM A123 - Specification for Zinc (Hot Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strips
3. ASTM A153 - Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

4. ASTM A307 - Specification for Carbon Steel Externally Threaded Fasteners
5. ASTM A325 - Specification for High Strength Bolts for Structural Steel Joints
6. ASTM A572 - Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
7. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar
8. ASTM D6712 - Standard Specification for Ultra-High-Molecular-Weight Polyethylene (UHMW-PE) Solid Plastic Shapes

C. American Welding Society (AWS)

1. AWS D1.1 – Structural Welding Code-Steel

1.04 SUBMITTALS

A. General: Refer to and comply with Section 01330 "Submittal Procedures," for procedures and additional submittal criteria.

B. Within 15 days of Contract Award, CONTRACTOR shall submit a fender units and fender components Procurement Plan.

C. CONTRACTOR shall submit evidence of conformance to the referenced standards for the following:

1. Ferrous items: Mill test certificates for each heat number.

D. The Contractor shall submit for approval shop drawings and details of the proposed anchorage and grouting procedures required for the installation of the fender units.

1.05 COORDINATION OF WORK

A. CONTRACTOR shall coordinate the sequence and schedule of fender repairs with the OWNER. Cargo berths are operational container berths and as such, during the progress of the CONTRACTOR's work, the berths may occasionally be occupied by container vessels. CONTRACTOR shall observe all safety rules implemented by the OWNER for the berth area.

B. CONTRACTOR shall not remove two adjacent fender units for refurbishment at any time.

PART 2 - PRODUCTS

2.01 STEEL PLATES

A. Steel plates used in repair of fender panel frames and chain brackets shall conform to ASTM A572 Gr.50.

B. Steel plates used for chain bracket shall be hot-dip galvanized according to ASTM A153.

2.02 WELDING ELECTRODES

A. Welding electrodes shall conform to AWS suitable for dynamically loaded steel components.

2.03 ANCHOR BOLTS

A. Fender mounting bolts, chain bracket bolts, washers and nuts shall be marine-grade stainless steel conforming to the fender manufacturer's requirements.

B. Use of adhesive (i.e., chemical or epoxy) concrete anchors to install fender rubber legs or chain brackets is not allowed.

2.04 FENDER RUBBERS

A. Replacement fender rubbers shall be AH-600 as manufactured by Maritime International.

2.05 WEIGHT CHAINS

A. Replacement weight chains shall be in accordance with the fender Manufacturer's recommendations.

B. Replacement chains shall be hot dip galvanized in accordance with the Manufacturer's requirements.

2.06 UHMW RUBBING PADS

A. Replacement UHMW low friction pads shall be in accordance with the fender Manufacturer's recommendations and ASTM D6712.

PART 3 - EXECUTION

3.01 GENERAL

A. Within 15 days of Contract Award, CONTRACTOR shall inspect the existing fender units and components for damage and submit a Procurement Plan to the OWNER for approval detailing any and all fender components and miscellaneous items needed to implement the repairs.

B. Following the approval of the Procurement Plan by the OWNER, CONTRACTOR shall submit shop drawings and procedures detailing required repairs to OWNER for approval.

3.02 REMOVAL OF FENDER UNITS

A. CONTRACTOR shall remove fender units from their existing location by cutting anchor bolts without damaging the fenders.

B. No two adjacent fender units shall be removed from the berths at the same time.

3.03 REPAIR OF CONCRETE SURFACES

A. After removal of the fender units, the CONTRACTOR shall repair the concrete surfaces that require repairing, as shown on the Contract Drawings.

B. Cut anchor bolts shall be grinded flush with the concrete surface.

3.04 REPAIR OF FENDER FRAMES

A. All welding performed by the CONTRACTOR shall conform to the applicable requirements of AWS D1.1 including Section 9, Dynamically Loaded Structures.

B. The CONTRACTOR shall pressure test the fender frame after repairs to ensure water tightness of the frame.

C. The CONTRACTOR shall repaint the repaired frames with a coal tar epoxy coating as specified in Section 09960 "Coating of Marine Steel."

3.05 INSTALLATION OF REPAIRED FENDER UNITS

A. The CONTRACTOR shall use canvas slings, wood cradles or other protective devices, or means as recommended by the manufacturer to protect the fender units from damage during handling and installation. Hoisting and slinging by the rubber fender element may be permitted only when approved by the manufacturer, but care is required to avoid cutting or tearing the rubber.

B. The CONTRACTOR shall install the fender assemblies at the locations shown on the Contract Drawings, and in accordance with the approved shop drawings and the manufactures recommendations.

C. The CONTRACTOR shall avoid remnants of the original anchor bolts during the re-installation of fender units.

** END OF SECTION **

SECTION 09960

COATING OF MARINE STEEL

PART 1 - GENERAL

1.01 SUMMARY

A. The work under this Section of the specifications consists of furnishing all materials, labor, supervision, tools, equipment and services to provide and install protective coating on steel surfaces in accordance with manufacturer's recommendations and specifications and as indicated on the Contract Drawings and specified herein.

B. Related Sections include the following:

1. Section 01110 "Summary of Work"
2. Section 01290 "Measurement and Payment"
3. Section 01330 "Submittal Procedures"
4. Section 01450 "Quality Control"
5. Section 01600 "Product Requirements"
6. Section 02480 "Fender Repairs"

1.02 DEFINITIONS

A. Definitions of Painting Terms shall conform to ASTM D16, unless otherwise specified.

B. Dry Film Thickness (DFT): Thickness of a coat of paint in fully cured state measured in mils (1/1000 inch).

1.03 REFERENCES

A. The work covered by this specification shall conform to the latest edition and latest addenda thereto of the following standards to the extent referenced. The publications are referred to in the text by the basic designation only.

B. American Society for Testing and Materials (ASTM)

1. D16 Terminology Relating to Paint, Related Coatings, Materials, and Applications
2. D1186 Method for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base
3. D4285 Indicating Oil or Water in Compressed Air
4. D4417 Field Measurement of Surface Profile of Blast Cleaned Steel
5. D7091 Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Non-conductive Coatings applied to Non-Ferrous Metals
6. E376 Measuring Coating Thickness by Magnetic Field or Eddy Current (Electromagnetic) Examination Methods

C. The Society for Protective Coatings (SSPC)

1. SSPC AB 1 - Mineral and Slag Abrasives
2. SSPC AB 2 - Cleanliness of Recycled Ferrous Metallic Abrasives
3. SSPC AB 3 - Newly Manufactured or Re Manufactured Steel Abrasives
4. SSPC Guide to VIS1 - Guide to Visual Standard for Dry Abrasive Blast Cleaned Steel
5. SSPC VIS 1 - Visual Standard for Dry Abrasive Blast Cleaned Steel (Standard Reference

Photographs)

6. SSPC PA1 - Shop, Field, and Maintenance Painting of Steel
7. SSPC PA Guide 3 - Guide to Safety in Paint Application
8. SSPC PA Guide 6 - Guide for Containing Debris Generated during Paint Removal Operations
9. SSPC PS 11.01 - Black (or Dark Red) Coal Tar Epoxy-Polyamide Painting System
10. SSPC-PS13.01 - Epoxy-Polyamide Painting System
11. SSPC QP 1 - Evaluating Painting Contractors
12. SSPC SP1 - Solvent Cleaning
13. SSPC SP6 - Commercial Blast Cleaning
14. SPPC SP8 - Pickling
15. SSPC SP10 - Near-White Blast Cleaning
16. SSPC-Paint 16 - Coal Tar Epoxy-Polyamide Black (or Dark Red) Paint
17. SSPC-Paint 22 - Epoxy-Polyamide Paints (primer, Intermediate, and Topcoat)

D. NATIONAL ASSOCIATION OF CORROSION ENGINEERS (NACE)

1. NACE No.3 - Commercial Blast Cleaning
2. NACE No.4 - Brush-Off Blast Cleaning

E. OCCUPATIONAL SAFETY AND HEALTH STANDARDS (OSHA)

1. Part 1910 – Occupational Safety and Health Standards

1.04 SUBMITTALS

A. The CONTRACTOR shall refer to and comply with Section 01330 "Submittal Procedures," for procedures and additional submittal criteria.

B. The CONTRACTOR shall submit the following to the OWNER for review and approval:

1. Manufacturer's data and application instructions.
2. Manufacturer's Material Safety Data Sheets (MSDS) for hazardous chemicals, coatings, solvents, and other potentially hazardous materials utilized during application of coating.
3. Manufacturer's or supplier's certifications that all products meet specified requirements.
4. Tools for mixing and application, as approved by the manufacturer of the coating system supplier.
5. Manufacturer's instruction for field touch-up of damaged coating.

1.05 QUALITY ASSURANCE

A. The CONTRACTOR shall comply with Section 01450 "Quality Control".

B. The CONTRACTOR shall conform to coating manufacturer's recommendations.

C. The CONTRACTOR shall engage the services of an independent testing laboratory approved by the ENGINEER to perform testing of coating samples and abrasives for compliance with specification requirements. Testing shall be performed by an approved accredited laboratory regularly engaged in testing of paint samples and abrasives.

D. Coating Applicator Qualifications:

1. The surface preparer and coating applicator shall be SSPC QP1 certified while accomplishing any surface preparation or coating application.

1.06 COORDINATION OF WORK

A. The CONTRACTOR shall coordinate the sequence and scheduling of fender frame coating work with the OWNER. Port Authority of Guam Cargo Terminal berths are operational berths, and as such, during the progress of the CONTRACTOR's work, the berths may occasionally be occupied by container vessels. The CONTRACTOR shall observe all safety rules implemented by the OWNER for the berth area. Further, no two consecutive fender units shall be allowed to be removed for coating.

1.07 REGULATORY REQUIREMENTS

A. Lead content: Coatings having a lead content over 0.06 percent by weight of nonvolatile content shall not be permitted.

B. Chromate content: Coatings containing zinc-chromate or strontium-chromate shall not be permitted.

C. Asbestos content: Materials containing asbestos shall not be permitted.

1.08 DELIVERY, HANDLING, AND STORAGE

A. All coating work, except touch ups for repairs, shall be performed in a paint shop outside of the OWNER's property.

B. The CONTRACTOR shall not bring, store, and handle any coating products in OWNER's property without written authorization from the OWNER.

C. Materials shall be delivered in sealed, labeled containers bearing the manufacturers name, brand designation, specification number, batch or lot number, color, mixing and thinning instructions and date of manufacture.

D. Storage:

1. Materials shall be stored in a clean dry area and within temperature range in accordance with manufacturer's instructions.

2. Containers shall be kept sealed until ready for use.

3. Materials beyond manufacturer's shelf life limits shall not be used.

E. Handling:

1. Materials shall be protected during handling and application to prevent damage or contamination.

2. Nylon slings shall be used to handle coated steel during shipment and delivery to the site.

1.09 SAFETY PRECAUTIONS

A. Materials listed in this Section contain coal tar pitch volatiles, which are toxic. The CONTRACTOR shall follow the safety procedures as recommended by manufacturer and work in a well-ventilated area. The CONTRACTOR shall provide, and require workers to use, impervious clothing, gloves, face shields, and other appropriate protective clothing necessary to prevent eye and skin contact with coating materials. Coatings shall be kept away from heat, sparks and flame.

B. The CONTRACTOR shall apply coating materials using safety methods and equipment in accordance with the following:

1. Safety methods used during coating application shall comply with the requirements of

SSPC PA Guide 3.

2. Toxic Materials: To protect personnel from overexposure to toxic materials, the CONTRACTOR shall conform to the most stringent guidance of:

   a. The chemical manufacturer when using mineral spirits, or other chemicals. The CONTRACTOR shall use impermeable gloves, chemical goggles or face shield, and other recommended protective clothing and equipment to avoid exposure of skin, eyes, and respiratory system. The work shall be performed in a manner to minimize exposure of building occupants and the general public.

   b. The appropriate OSHA standard in Part 1910 for surface preparation on painted surfaces containing lead, zinc-chromate, strontium-chromate, asbestos or other toxic ingredients.

   c. Manufacturer's Material Safety Data Sheets (MSDS).

1.10 ENVIRONMENTAL CONDITIONS

A. Weather: Coatings shall be applied only be when the steel work is perfectly dry.

   1. Air and Surface Temperatures: The CONTRACTOR shall prepare surfaces and apply and cure coatings within air and surface temperature range in accordance with manufacturer's instructions.

   2. Surface Temperature: Minimum of 5 degrees F 3 degrees Celcius above dew point.

   3. Relative Humidity: The CONTRACTOR shall prepare surfaces and apply and cure coatings within relative humidity range in accordance with manufacturer's instructions.

   4. Precipitation: The CONTRACTOR shall not prepare surfaces or apply coatings in rain, snow, fog, or mist.

   5. Wind: Coatings shall not be sprayed if wind velocity is above manufacturer's limit.

B. Ventilation: Ventilation shall be provided during coating evaporation stage in confined or enclosed areas in accordance with manufacturer's instructions.

C. Dust and Contaminants:

   1. The CONTRACTOR shall schedule coating work to avoid excessive dust and airborne contaminants.

   2. Work areas and surfaces shall be protected from excessive dust and airborne contaminants during coating application and curing.

PART 2 - PRODUCTS

2.01 COATING MATERIAL

A. Epoxy polyamide

   1. All epoxy polyamide coating shall comply with SSPC-Paint 22, primer, intermediate and top coats.

   2. Epoxy polyamide coating system shall be a two-part system conforming to SSPC-PS13.01.

B. Color: Color of the finish coats shall be black.

2.02 EQUIPMENT

A. The CONTRACTOR shall use appropriate equipment as necessary to meet the specified requirements and the methods for proper performance and execution of the Work of this

Section.

2.03 SOLUBLE SALTS TEST KITS

A. Test Kit for Measuring Chlorides on Steel Surfaces: The CONTRACTOR shall provide test kits called CHLOR*TEST, as manufactured by CHLOR*RID International Inc. of Chandler, Arizona (www.chlor rid.com) or approved equal. An "equal" test kit shall meet the following requirements:

1. Kit contains all materials, supplies, tools and instructions for field testing and on site quantitative evaluation;
2. Kit extract solution is acidic, factory pre measured, pre packaged, and of uniform concentration;
3. Kit components and solutions are mercury free and environmentally friendly;
4. Kit contains a factory sealed titration device;
5. Kit contains new materials and solutions for each test;
6. Test container (vessel, sleeve, cell. etc.) creates a sealed, encapsulated environment during chloride ion extraction;
7. Test container is suitable for testing the following steel surfaces: horizontal (up/down configuration), vertical, flat, curved, smooth, pitted, and rough;
8. Kit uses test container, with resulting chloride ion extract solution, as the titration container;
9. Chloride ion concentration is directly measured in micrograms per square centimeter without using either conversion charts or tables.

2.04 ABRASIVE

A. The referenced abrasive specifications have maximum limits for soluble salts contamination; however, this maximum level of contamination does not guarantee that contamination will not be transferred to the steel surface during abrasive blasting. Other factors such as on site handling and recycling can allow contamination of abrasive. CONTRACTORs are cautioned to verify that the chosen abrasive, along with work and storage processes, allow the final surface cleanliness requirements to be achieved. Successful testing of chlorides in abrasive does not negate the final acceptance testing of steel surfaces.

1. Non metallic Abrasive: The CONTRACTOR shall conform to SSPC AB 1, Type I or II, Class A, and make adjustments to processes or abrasive gradation to achieve specified surface profile. Recycled non metallic abrasive shall meet all requirements of the specification each time that it is placed in the blast pot.
2. Metallic Abrasive:
   a. New and Remanufactured Steel Grit: The CONTRACTOR shall conform to the chemical and physical properties of SSPC AB 3.
   b. Recycled Steel Grit: The CONTRACTOR shall conform to the chemical and physical properties of SSPC AB 2.

PART 3 - EXECUTION

3.01 PREPARATION

A. Protection of Area and Spaces: Prior to surface preparation and coating applications, the CONTRACTOR shall:

1. Remove, mask, or otherwise protect surfaces.
2. Design and provide a containment system for the capture, containment, collection, storage and disposal of the waste materials generated by the work under this specification Section, to meet the requirements of SSPC PA Guide 6, Class 4. Waste materials covered by this paragraph shall not include any material or residue from removal of coatings containing lead, chromium, cadmium, PCB, or any other hazardous material. It is CONTRACTOR's responsibility to insure the feasibility and workability of the containment system.
3. Perform his/her operations and work schedule in a manner as to minimize leakage of the containment system.
4. Properly maintain the containment system. If at any time during the execution of the work, the containment system fails to function satisfactory, suspend all operations, except those required to minimize adverse impact on the environment or property. Do not resume operations until modifications have been made to correct the cause of the failure.

3.02 CLEANING AND PREPARATION OF SURFACES TO BE COATED

A. General;

1. The CONTRACTOR shall accomplish surface preparation as directed and as specified by the Steel Structures Painting Council and in accordance with the provisions of Section 3.05 of this specification. All surfaces prepared for coating shall be to the satisfaction and approval of the OWNER and the Coating Manufacturer's representative.
2. The CONTRACTOR shall sequence surface cleaning and preparation by:
   a. Establishing "surface standard" for blast cleaning.
   b. Performing "pre-preparation testing for surface contamination", "abrasive blasting", and "pre- application testing for surface contamination" in the prescribed order for each item of work to be coated.
3. Abrasive Blasting Equipment: The CONTRACTOR shall use abrasive blasting equipment of conventional air, force feed, or pressure type, and maintain a minimum pressure of 95 psig 655 kPa at nozzle. Air supply for abrasive blasting shall be free of oil and moisture when tested in accordance with ASTM D4285. Air quality shall be tested at each startup, but in no case less often than every five operating hours.

B. Surface Standard: The CONTRACTOR shall inspect surfaces to be coated, and select plate with similar properties and surface characteristics for use in establishing a surface standard. The CONTRACTOR shall blast clean one or more 1-foot square 300 cm square steel panels as specified herein, and include sequenced testing for surface contamination.

1. The CONTRACTOR shall record blast nozzle type and size, air pressure at nozzle and compressor, distance of nozzle from panel, and angle of blast to establish procedures for blast cleaning.
2. The CONTRACTOR shall measure surface profile in accordance with ASTM D4417. When the surface standard complies with all specified requirements, it will be sealed with a clearcoat protectant.
3. The CONTRACTOR shall use the surface standard for comparison to abrasive blasted surfaces throughout the course of work.

C. Pre-Preparation Testing for Surface Contamination: The CONTRACTOR shall comply with testing sequence specified for surface cleaning and preparation.

1. Pre-Preparation Testing for Oil and Grease Contamination:
   a. The CONTRACTOR shall inspect all surfaces for oil and/or grease contamination

using two or more of the following inspection techniques:

1) Visual inspection.

2) Water Break Test: The CONTRACTOR shall spray atomized mist of distilled water onto surface, and observe for water beading. If water "wets" surface rather than beading up, surface can be considered free of oil or grease contamination. Beading of water (water forms droplets) is evidence of oil or grease contamination.

3) Cloth Rub Test: The CONTRACTOR shall rub a clean, white, lint free, cotton cloth onto surface and observe for discoloration. To confirm oil or grease contamination in lightly stained areas, a non staining solvent may be used to aid in oil or grease extraction. Any visible discoloration is evidence of oil or grease contamination.

b. The CONTRACTOR shall reject oil and/or grease contaminated surfaces, clean using water based pH neutral degreaser in accordance with SSPC SP 1, and recheck for contamination until surfaces are free of oil and grease.

2. Pre-Preparation Testing for Soluble Salts Contamination:

a. The CONTRACTOR shall test surfaces for soluble salts, and wash as required, prior to abrasive blasting. Soluble salt testing is also required in paragraph entitled "Pre Application Testing for Soluble Salts Contamination" as a final acceptance test of prepared surfaces after abrasive blasting, and successful completion of this phase does not negate that requirement. This phase is recommended since pre preparation testing and washing are generally more advantageous than attempting to remove soluble salt contamination after abrasive blasting.

b. Effective removal of soluble salts will require removal of any barrier to the steel surface, including rust. This procedure may necessitate combinations of wet abrasive blasting, high pressure water rinsing, and cleaning using a solution of water washing and soluble salts remover.

c. The soluble salts remover shall be acidic, biodegradable, nontoxic, non-corrosive, and after application, will not interfere with primer adhesion. Delays between testing and preparation, or testing and coating application may allow for the formation of new contamination.

d. The CONTRACTOR shall use potable water, or potable water modified with soluble salt remover, for all washing or wet abrasive blasting.

e. Test methods and equipment used in this phase are selected at CONTRACTOR's discretion.

D. Abrasive Blasting: After pre preparation testing for surface contamination, the CONTRACTOR shall abrasive blast steel surfaces to near white metal in accordance with SSPC SP 10. Prepared surfaces shall conform to SSPC VIS 1and SSPC Guide to VIS 1 and shall match the previously prepared and established "surface standard" test panels.

1. The CONTRACTOR shall provide the mil surface profile specified herein and reject profile greater than minimums specified, discontinue abrasive blasting, and modify processes and materials to provide the specified profile. Surface profile shall be measured in accordance with ASTM D 4417 at rate of three tests for the first 1,000 square feet 100 square meters plus one test for each additional 1,000 square feet 100 square meters or part thereof.

a. The CONTRACTOR shall provide two (2) additional measurements for each non compliant measurement. When surfaces are re-blasted for any reason, retest profile as specified.

b. If Method C of ASTM D 4417 is used to measure profile, the CONTRACTOR shall attach test tapes to Daily Inspection Reports.

c. Following abrasive blasting, the CONTRACTOR shall remove dust and debris by brushing, blowing with oil free and moisture free compressed air, or vacuum cleaning. Time interval between abrasive blasting and application of primer shall not exceed eight (8) hours.

2. Disposal of Used Abrasive: The CONTRACTOR shall Legally dispose of used abrasive in accordance with Local mandated regulations.

E. Pre Application Testing For Surface Contamination: The CONTRACTOR shall comply with testing sequence specified for surface cleaning and preparation and perform pre-application testing for surface contamination after abrasive blasting.

1. Pre-Application Testing for Oil and Grease Contamination: The CONTRACTOR shall Ensure surfaces are free of contamination as described in paragraph entitled "Pre Preparation Testing for Oil and Grease Contamination", except that only questionable areas need be checked for beading of water misted onto surface.

2. Pre-Application Testing for Soluble Salts Contamination: The CONTRACTOR shall test steel surfaces for chloride contamination using the Test Kit described in Article 2.03 entitled "Soluble Salts Test Kits". The CONTRACTOR shall test all surfaces at rate of three (3) tests for the first 1,000 square feet 100 square meters plus one (1) test for each additional 2,000 square feet 200 square meters or part thereof. The CONTRACTOR shall concentrate testing of bare steel at areas of coating failure to bare steel and areas of corrosion pitting. The CONTRACTOR shall perform 30% of tests on bare steel at welds, divided equally between horizontal and vertical welds. One or more readings greater than 5 micrograms per square centimeter of chlorides are evidence of chloride contamination.

a. The CONTRACTOR shall reject contaminated surfaces, wash as specified in paragraph entitled "Pre Preparation Testing for Soluble Salts Contamination", allow surfaces to dry, and re test until all required tests show allowable results. The CONTRACTOR shall re-blast tested and cleaned areas as required.

b. The CONTRACTOR shall Label all test tubes and retain for test verification.

3. Pre Application Testing for Surface Cleanliness: The CONTRACTOR shall apply coatings to dust free surfaces. To test for dust free surfaces, strip of clear adhesive tape shall be applied to surface and rub onto surface with finger. When removed, the tape should show little or no dust, blast abrasive, or other contaminant. The CONTRACTOR shall test surfaces at rate of three (3) tests for the first 1000 square feet 100 square meters plus one (1) test for each additional 1000 square feet 100 square meters or part thereof.

a. The CONTRACTOR shall reject contaminated surfaces and retest. Two (2) additional tests for each failed test or questionable test shall be provided.

b. The CONTRACTOR shall attach test tapes to Daily Inspection Reports.

3.03 COATING APPLICATION

A. The CONTRACTOR shall mix and thin coatings, including multi-component materials, in accordance with manufacturer's instructions. Coatings shall be reduced to proper consistency by adding fresh coating, except when thinning is mandatory for the type of coating being used in accordance with the manufacturer's instructions. Written permission shall be obtained from ENGINEER to use thinners. In the submittal for written permission include description of application and quantities and types of thinners to be used. The CONTRACTOR shall not use mixed coatings beyond pot life limits and keep containers closed when not in use to avoid contamination.

B. The CONTRACTOR shall apply coating materials in accordance with SSPC PA 1 and manufacturer's instructions. SSPC PA 1 methods are applicable to all substrates, except as modified herein. The colors of immediately adjacent coats must be different. The CONTRACTOR shall thoroughly work coating materials into joints, crevices, and open spaces; touch up damaged coatings before applying subsequent coats; uniformly apply coatings at spreading rate required to achieve specified DFT.

C. The CONTRACTOR shall apply coatings with approved brushes, approved rollers, or approved spray equipment, unless specified or recommended otherwise. Areas made inaccessible to brushing shall be sprayed. Dry film thickness shall be determined using a magnetic gage. The CONTRACTOR shall use application equipment, tools, pressure settings, and techniques in accordance with manufacturer's instructions.

D. Drying Time: The CONTRACTOR shall allow time between coats within temperature ranges as both conditions are recommended by the coating manufacturer and provide each coat in specified condition to receive the next coat.

E. Primers and Intermediate Coats: The CONTRACTOR shall not allow primers or intermediate coats to dry more than 30 days, or longer than recommended by the manufacturer, before applying subsequent coats. The CONTRACTOR shall follow manufacturer's recommendations for surface preparation if primers or intermediate coats are allowed to dry longer than recommended by manufacturers of subsequent coatings. Each successive coat shall cover the surface of the preceding coat or surface completely and there shall be a visually perceptible difference in shades of successive coats.

F. Finished Surfaces: The CONTRACTOR shall apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems. Finished surfaces shall be free from runs, drops, ridges, waves, laps, brush marks, and variations in colors. The CONTRACTOR shall stripe paint with brush critical locations on steel such as welds, corners, and edges using specified primer.

G. Complete shop applied coating system shall be allowed to cure for a minimum of eight (8) days prior to installation of the coated steel.

3.04 REPAIR OF DEFECTS

A. Damaged Coatings:

1. The CONTRACTOR shall touch-up or repair damaged coatings. Touch-up of minor damage shall be acceptable where result is not visibly different from adjacent surfaces. Entire surface shall be re-coated where touch-up result is visibly different, either in sheen, texture, or color.

2. Where welding or fastenings are to be accomplished after installation of steel, field applied protective coats shall be made after completion of connections.

B. Coating Defects: The CONTRACTOR shall repair in accordance with manufacturer's instructions coatings that exhibit film characteristics or defects that would adversely affect performance or appearance of coating systems.

3.05 PREPARATION AND COATING SCHEDULE

A. Preparation and Painting Systems shall conform to the following requirements. When more than one (1) coat is required, paint material for each coat shall be by the same manufacturer. CONTRACTOR shall comply with all applicable OSHA safety regulations and those of the manufacturer. The CONTRACTOR shall apply all coatings in a manner that strictly conforms to manufacturer's instructions and recommendations and as specified.

B. Elements to be Coated:

1. Steel Fender Box Frame

a. Coating System: Coal Tar Epoxy Polyamide

2. Areas to be Coated: All outside surfaces of the steel box frame including portion beneath the rubbing pads.

C. Coating Systems

1. Coal Tar Epoxy Polyamide

a. Preparation: The CONTRACTOR shall conform to SSPC SP10 with a 2.5 to 3 mil 60 to 75 micron profile. Residual dust shall be removed from blasted surfaced by blowing with dry, oil-free air, vacuuming or sweeping.

b. Coating: Two coats, at 8 mils minimum DFT each, of coal tar epoxy polyamide, black color, conforming to SSPC Paint 16. Acceptable products:

1) Bitumastic No. 300M by Carboline,

2) Amercoat 78HB by Ameron,

3) Sherwin Williams Tar Guard Coal Tar Epoxy,

4) Tnemec 46H-413 Hi-Build Tneme Tar., or

5) Approved Equal

c. Proportioning: Coal tar epoxy-polyamide consists of a two-component system. Component A contains a refined coal tar pitch, polyamide resin, and a polyamine promoter to accelerate curing rate. Component B is an epoxy resin. The CONTRACTOR shall mix both components in a ratio of 4 parts of Component A to 1 part of Component B by volume. Coatings shall not be thinned when doing so will result in total volatile organic compounds exceeding limits enacted by local air pollution control district. When thinning is allowed and is necessary for proper application, xylene or the coating manufacturer's recommended thinner shall be used, to a maximum of 1/2 gallon to a 5-gallon one liter to a 10 liter batch.

d. Mixing: The CONTRACTOR shall power stir components to a smooth, uniform consistency and continue stirring coating periodically during induction period. The CONTRACTOR shall follow coating manufacturer's requirements for induction time and pot life of mixed batches.

D. Touch-up Systems: Touch-up materials, surface preparation, and application for both shop and field applications shall be as recommended by the manufacturer for the coating product used. Materials for field touch-up shall be similar to and compatible with specified coatings and applied in same dry-film thickness as specified for shop coating.

E. Substitute coating systems may be submitted for consideration if CONTRACTOR can demonstrate with historical evidence that such systems can provide a level of corrosion protection and longevity equivalent to or better than the specified coating systems. Such systems may not be used unless approved by OWNER. The CONTRACTOR shall comply with Section 01600 "Materials and Equipment" for substitution of products requirements.

3.06 FIELD QUALITY CONTROL

A. General: Inspection and Testing as specified herein shall be performed by CONTRACTOR's Testing Laboratory. Any test not meeting the requirements specified shall be re-performed at CONTRACTOR's Expense. Should test(s) yield results which do not meet the requirements of these specifications, CONTRACTOR shall re-coat deficient elements and perform additional testing directed by OWNER at no additional cost to the OWNER .

B. Tests: Inspection and testing agency shall be responsible for quality control checking, including visual inspection and coating thickness measurements. Coating thickness shall be tested in accordance with SSPC and PA2 requirements as a minimum. Inspection and

Testing Agency shall keep and submit records of the results of all testing and inspections in a form suitable to OWNER including:

1. Holiday Testing: Prior to installation, the CONTRACTOR shall test for holidays in total coating system by using a low voltage holiday detector of less than 90 volts in accordance with manufacturer's instructions. After repair of holidays by surface treatment and application of additional coating or by manufacturer's recommendation, the CONTRACTOR shall retest with a low voltage holiday detector.
2. Dry Film Thickness: After repair of holidays, the CONTRACTOR shall measure dry film thickness using a magnetic dry film thickness gage in accordance with ASTM D7091 and ASTM E376. The CONTRACTOR shall verify that DFT of each coat and total DFT of each coating system are as specified using wet film and dry film gauges.
3. Coating Defects: Check coatings for film characteristics or defects that would adversely affect performance or appearance of coating systems.
4. The CONTRACTOR shall submit the following to the OWNER:
    a. Written reports describing inspections made and actions taken to correct nonconforming work.
    b. Report nonconforming work not corrected.
5. Manufacturer's Field Services: Coating manufacturer's representative shall provide technical assistance and guidance for surface preparation and application of coating systems. The manufacturer's representative shall be present during the first day of surface preparation and application of prime or first coat.

3.07 CLEANING

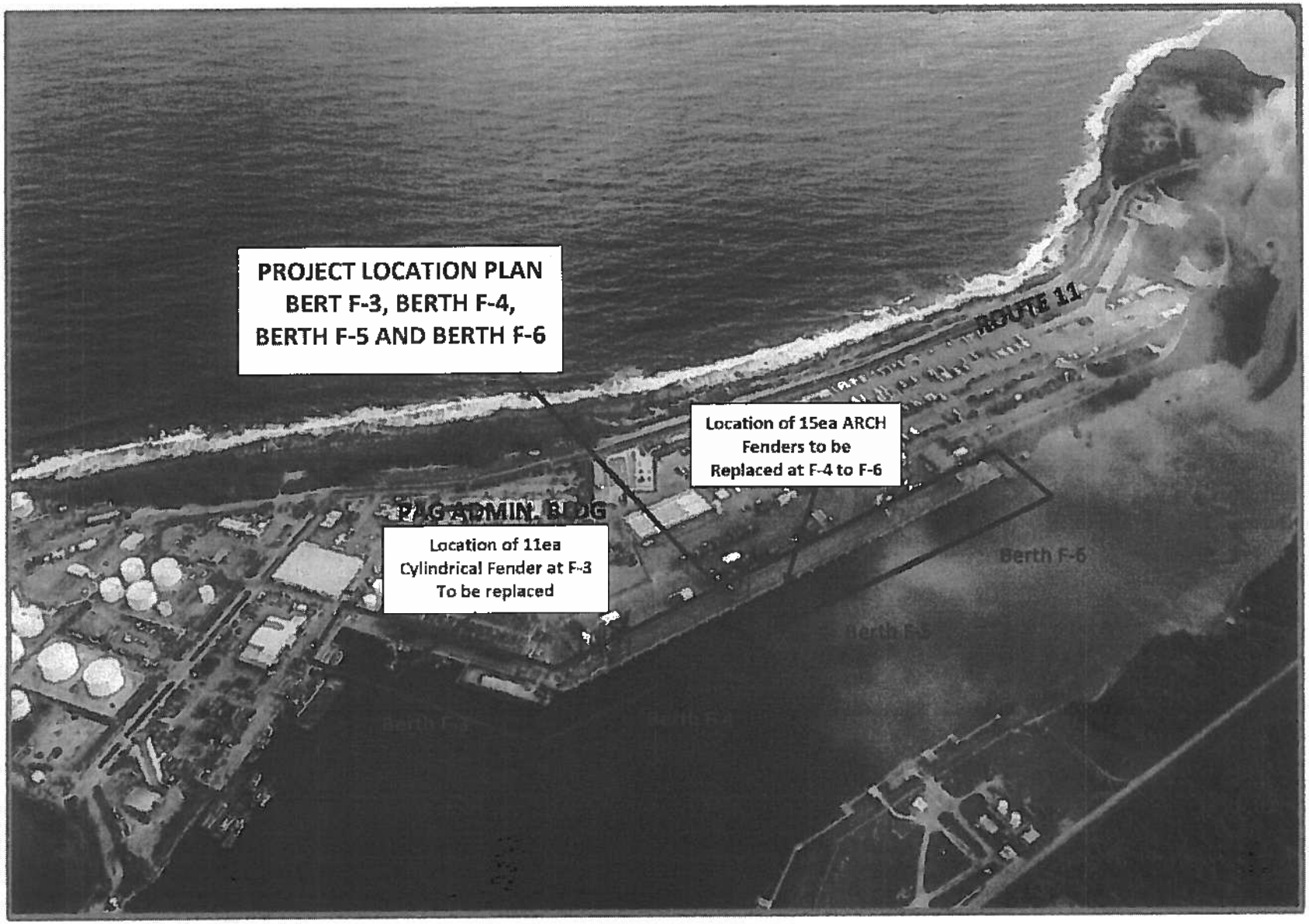
A. The CONTRACTOR shall remove temporary coverings and protection of surrounding areas and surfaces.

3.08 PROTECTION OF COATING SYSTEMS

A. The CONTRACTOR shall protect surfaces of coating systems from damage during construction.

**** END OF SECTION ****

SITE PLAN OF FENDER REPAIRS



F-3 Damaged Cylindrical Fenders and F-4 to F-6 Damaged Arch Fenders

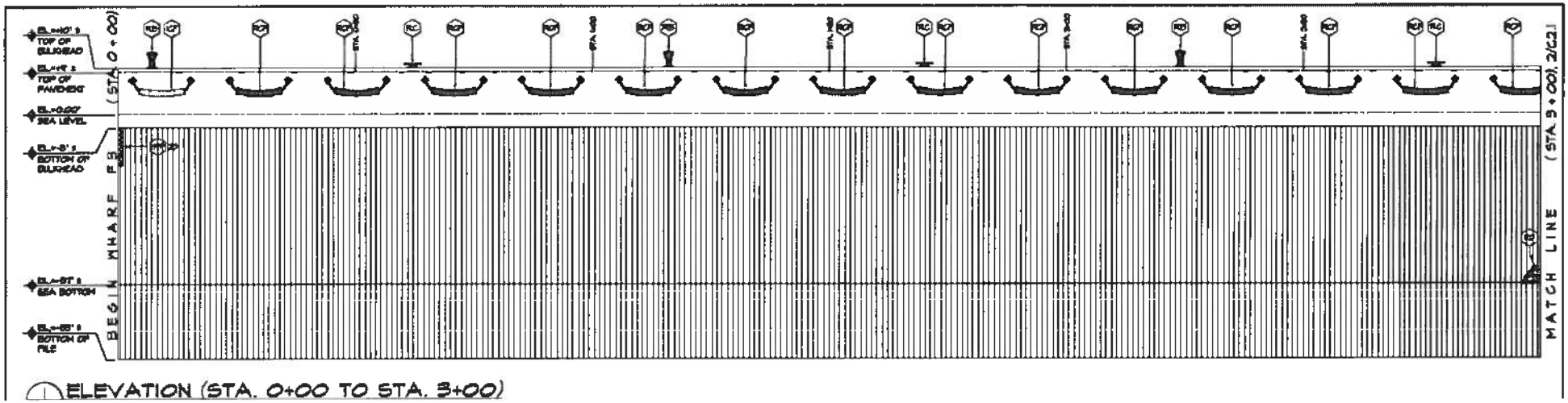
Table 1

DAMAGED CYLINDRIVAL FENDERS and CHAIN Proposed to be funded under HAZARD MITIGATION							
Fender NO.	**Station**	**Berth**	**Cylindrical Fenders**		**Latitude**	**Longitude**	**REMARKS**
1	0+00	F-3	1	EA	13.4621	144.6654	HMGP-FEMA
2		F-3	1	EA	13.4621	144.6654	HMGP-FEMA
3	0+50	F-3	1	EA	13.4620	144.6654	HMGP-FEMA
4		F-3	1	EA	13.4620	144.6655	HMGP-FEMA
5		F-3	1	EA	13.4620	144.6655	HMGP-FEMA
6	1+00	F-3	1	EA	13.4619	144.6656	HMGP-FEMA
7		F-3	1	EA	13.4619	144.6656	HMGP-FEMA
8		F-3	1	EA	13.4618	144.6656	HMGP-FEMA
9	1+50	F-3	1	EA	13.4618	144.6657	HMGP-FEMA
10		F-3	1	EA	13.4617	144.6657	HMGP-FEMA
11		F-3	1	EA	13.4617	144.6657	HMGP-FEMA
TOTAL			**11**	**EA**			
ADDITIONAL DAMAGED ARCH FENDER Proposed to be funded under HAZARD MITIGATION							
Fender No.	**Station**	**Berth**	**Rubber Leg**	**Anchor Rod**	**Latitude**	**Longitude**	**REMARKS**
1	Cleats 8+50	F4	2		13.4605	144.6672	HMGP-FEMA Additional
2	Bollard 10+00	F4	2		13.4605	144.6678	HMGP-FEMA Additional
3	Cleats 11+50	F4	2		13.4605	144.6681	HMGP-FEMA Additional
4	Bollard 12+00	F4	2		13.4605	144.6685	HMGP-FEMA Additional
5	Bollard 13+00	F4	2		13.4605	144.6686	HMGP-FEMA Additional
6	Cleats 14+00	F4	2		13.4605	144.6689	HMGP-FEMA Additional
7	Cleats 14+50	F4	2		13.4605	144.6694	HMGP-FEMA Additional
8	Double Bollard 16+00	F4	2		13.4605	144.6696	HMGP-FEMA Additional
9	Cleats 16+50	F4	2		13.4605	144.6697	HMGP-FEMA Additional
10	Cleats 17+50	F5	2		13.4605	144.6700	HMGP-FEMA Additional
11	Cleats 19+00	F5	2		13.4605	144.6706	HMGP-FEMA Additional
12	Bollard 20+00	F5	2		13.4605	144.6708	HMGP-FEMA Additional
13	Bollard 20+50	F5	2		13.4605	144.6709	HMGP-FEMA Additional
14	Cleats 21+00	F5	2		13.4605	144.6711	HMGP-FEMA Additional
15	Bollard 22+00	F6	2		13.4605	144.6714	HMGP-FEMA Additional
TOTAL			**30**	**1 EA**			

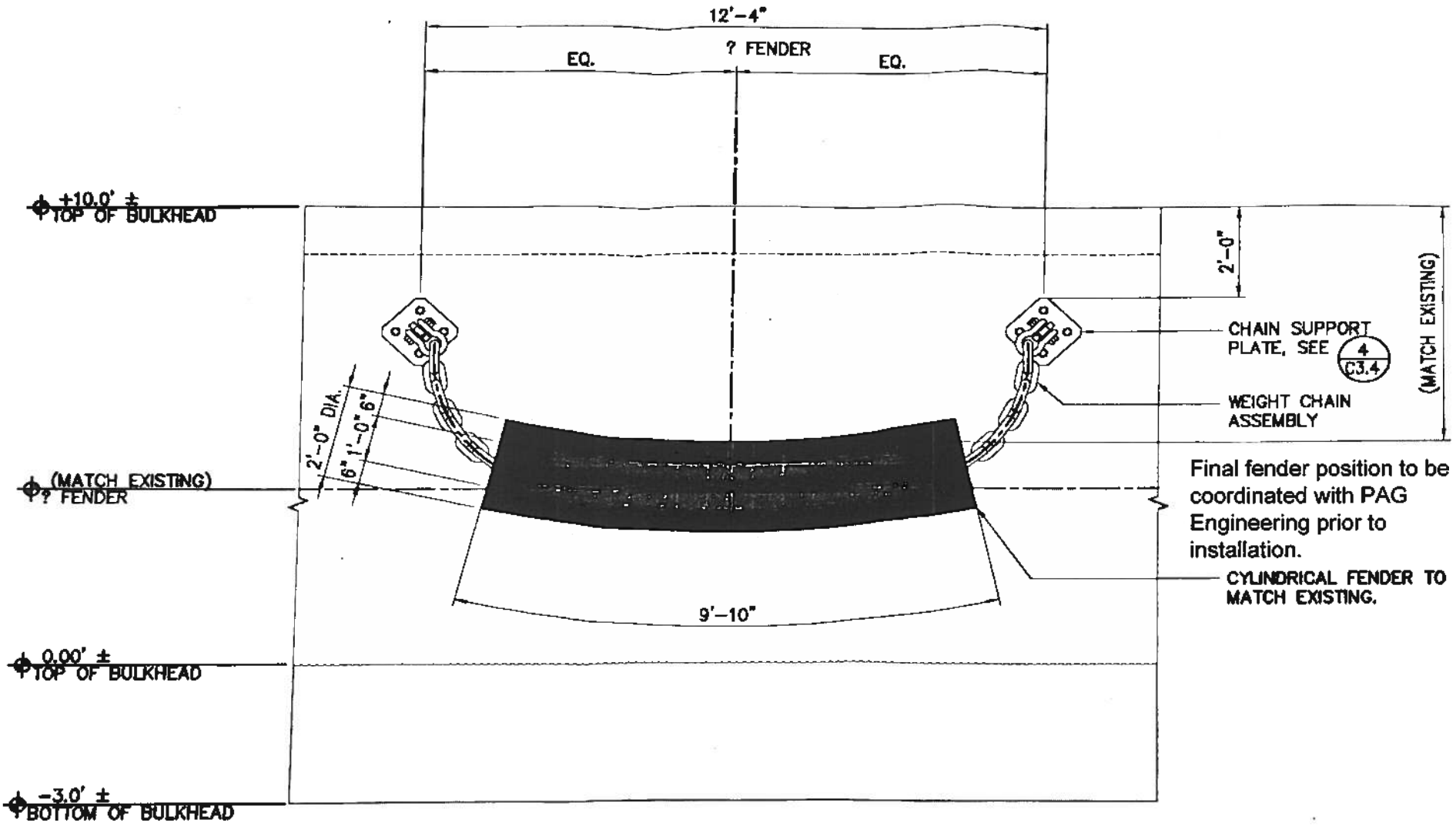
Eleven (11) Cylindrical Fenders.
Verify cylindrical fender locations on Table 1.

1	2	3	4	5	6	7	8	9	10	11
13.4621	13.4621	13.4620	13.4620	13.4620	13.4619	13.4619	13.4618	13.4618	13.4617	13.4617
144.6654	144.6654	144.6654	144.6655	144.6655	144.6656	144.6656	144.6656	144.6657	144.6657	144.6657

Port Authority of Guam F3
Pier
Cylindrical Fenders

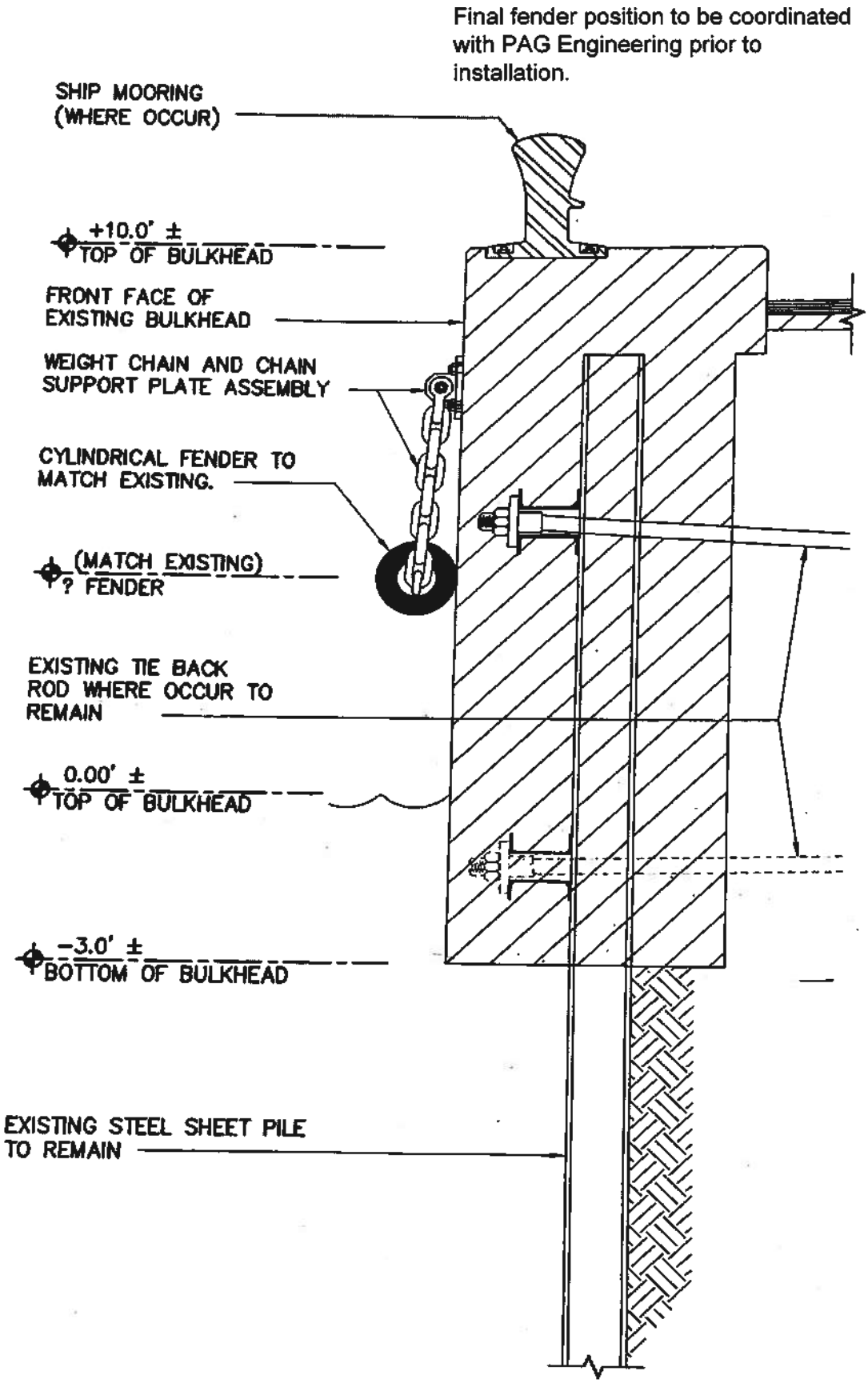


ELEVATION (STA. 0+00 TO STA. 3+00)



3 C3.4 ELEVATION (CYLINDRICAL FENDER)

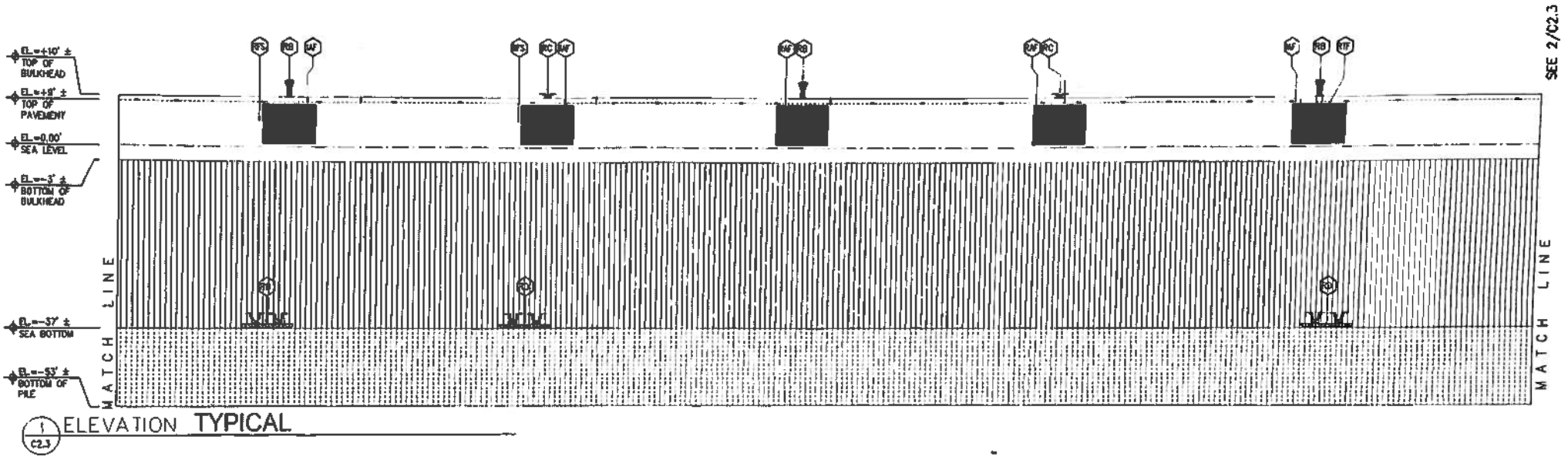
SCALE:

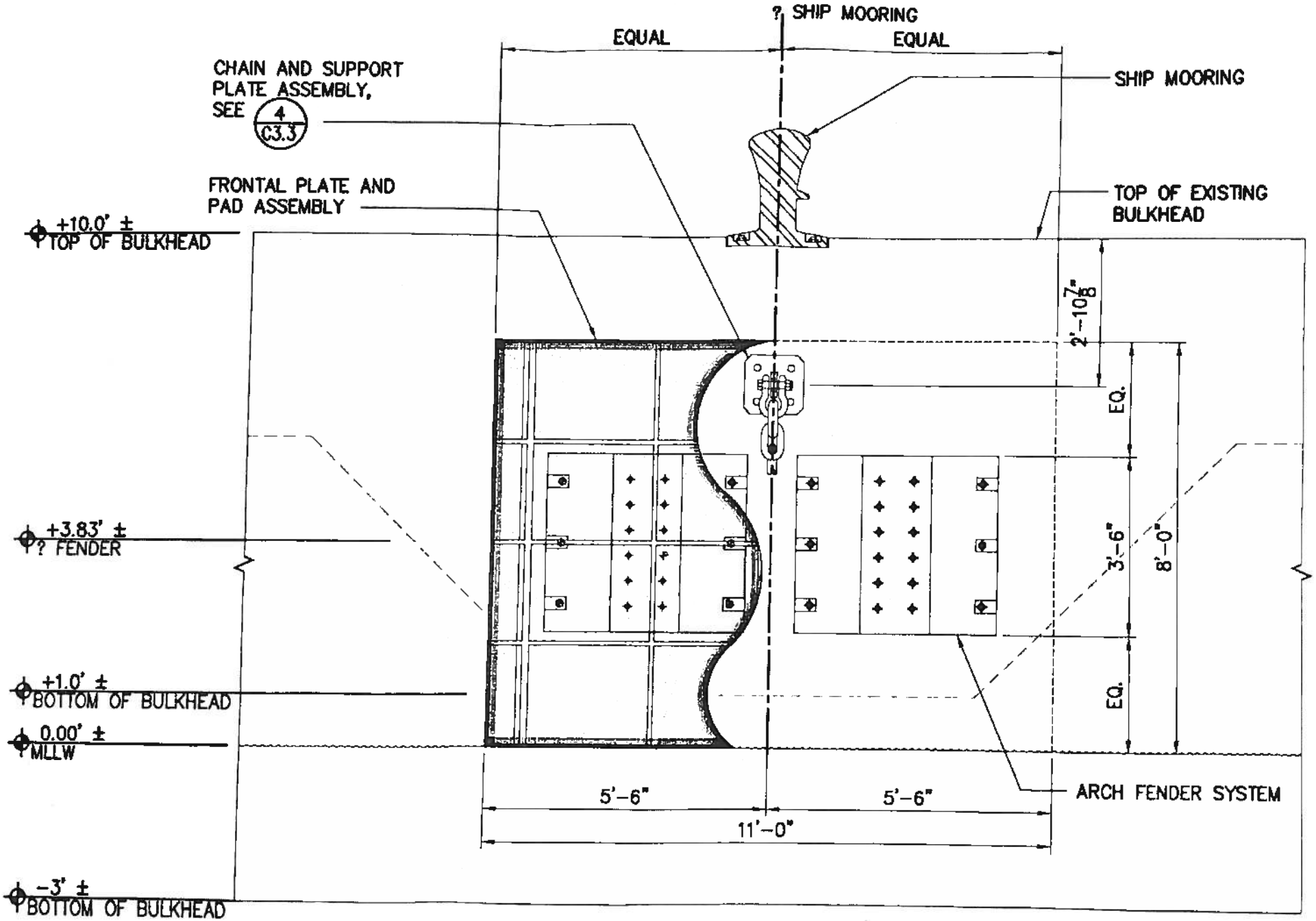


1 / C3.4 SECTION (CYLINDRICAL FENDER)

SCALE:

Fifteen (15) Arch Fenders.
Verify arch fender locations on Table 1.

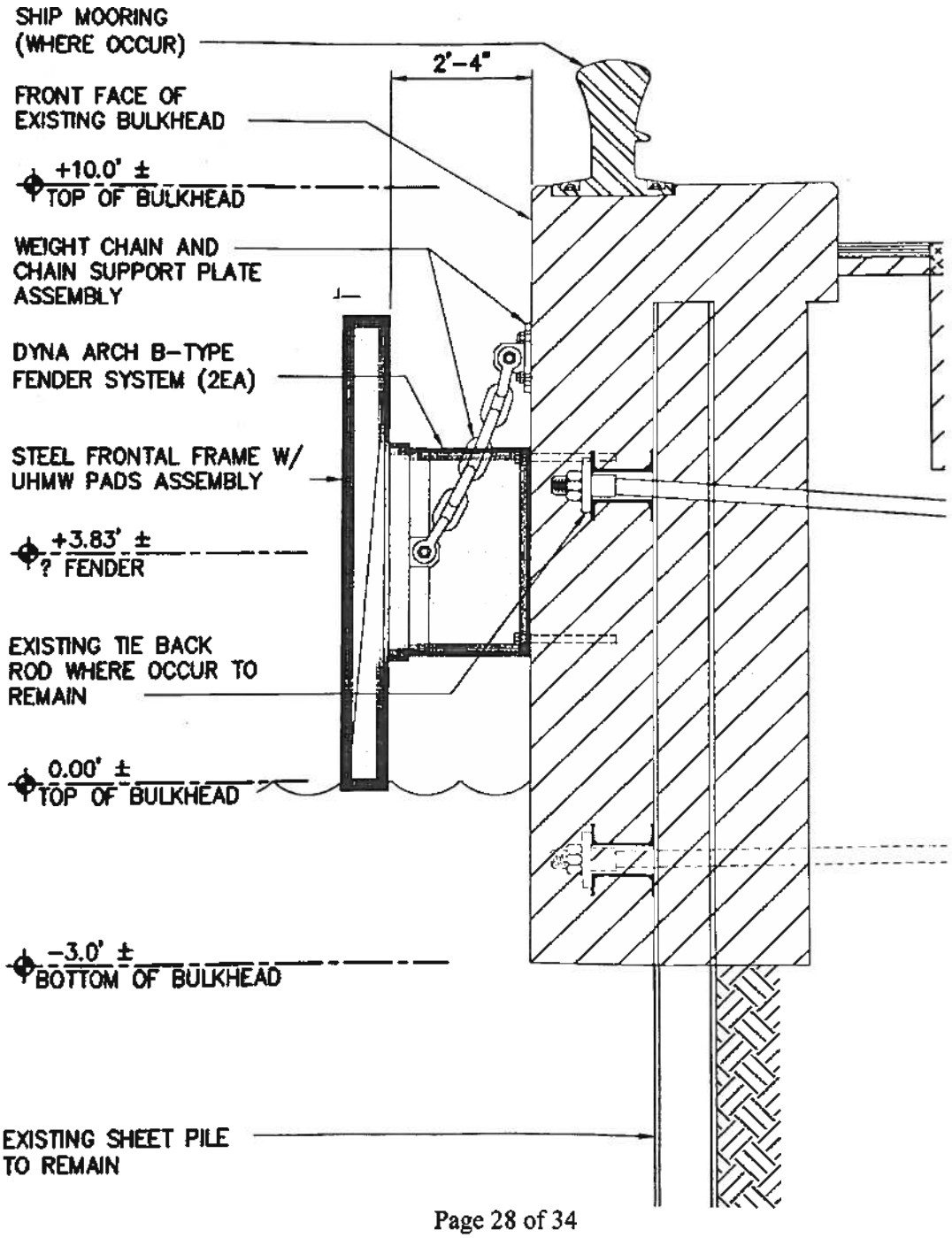


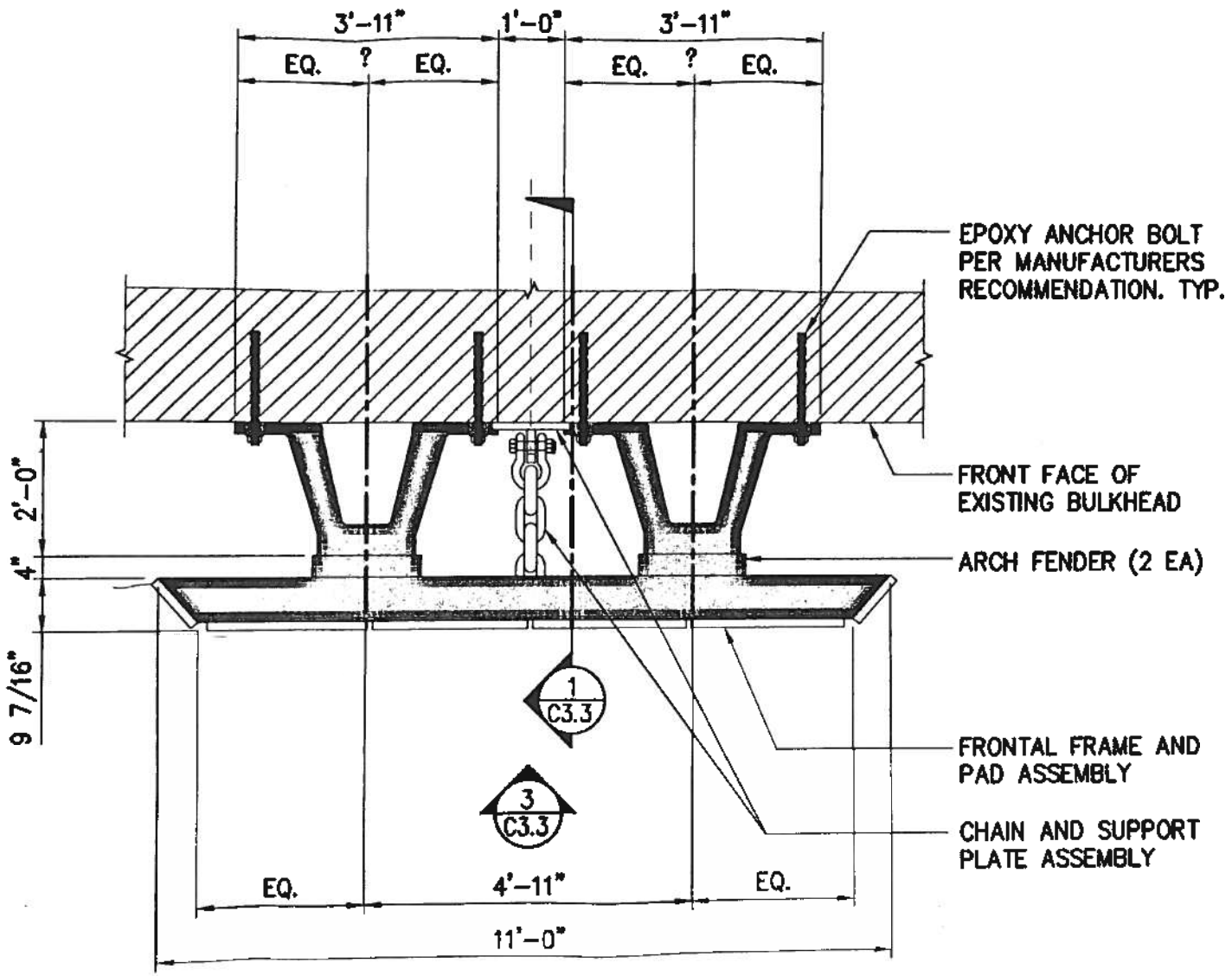

? SHIP MOORING
EQUAL
EQUAL
CHAIN AND SUPPORT PLATE ASSEMBLY, SEE 4/C3.3
SHIP MOORING
FRONTAL PLATE AND PAD ASSEMBLY
TOP OF EXISTING BULKHEAD
+10.0' ± TOP OF BULKHEAD
2'-10 7/8"
EQ.
3'-6"
8'-0"
+3.83' ± ? FENDER
+1.0' ± BOTTOM OF BULKHEAD
0.00' ± MLLW
EQ.
ARCH FENDER SYSTEM
5'-6"
5'-6"
11'-0"
-3' ± BOTTOM OF BULKHEAD

NOTES:

1. DETAILS OF ARCH FENDER SYSTEM WAS BASED ON THE BRIDGESTONE DYNA ARCH B-TYPE FENDER SYSTEM, (MODEL: DA-B600H (M1)) WITH THE STEEL PAINTED FRONTAL FRAME UHMW PADS AND WEIGHT CHAIN ASSEMBLIES. SUBSTITUTED EQUAL SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE PORT AUTHORITY OF GUAM AND IT'S ENGINEERING CONSULTANT.

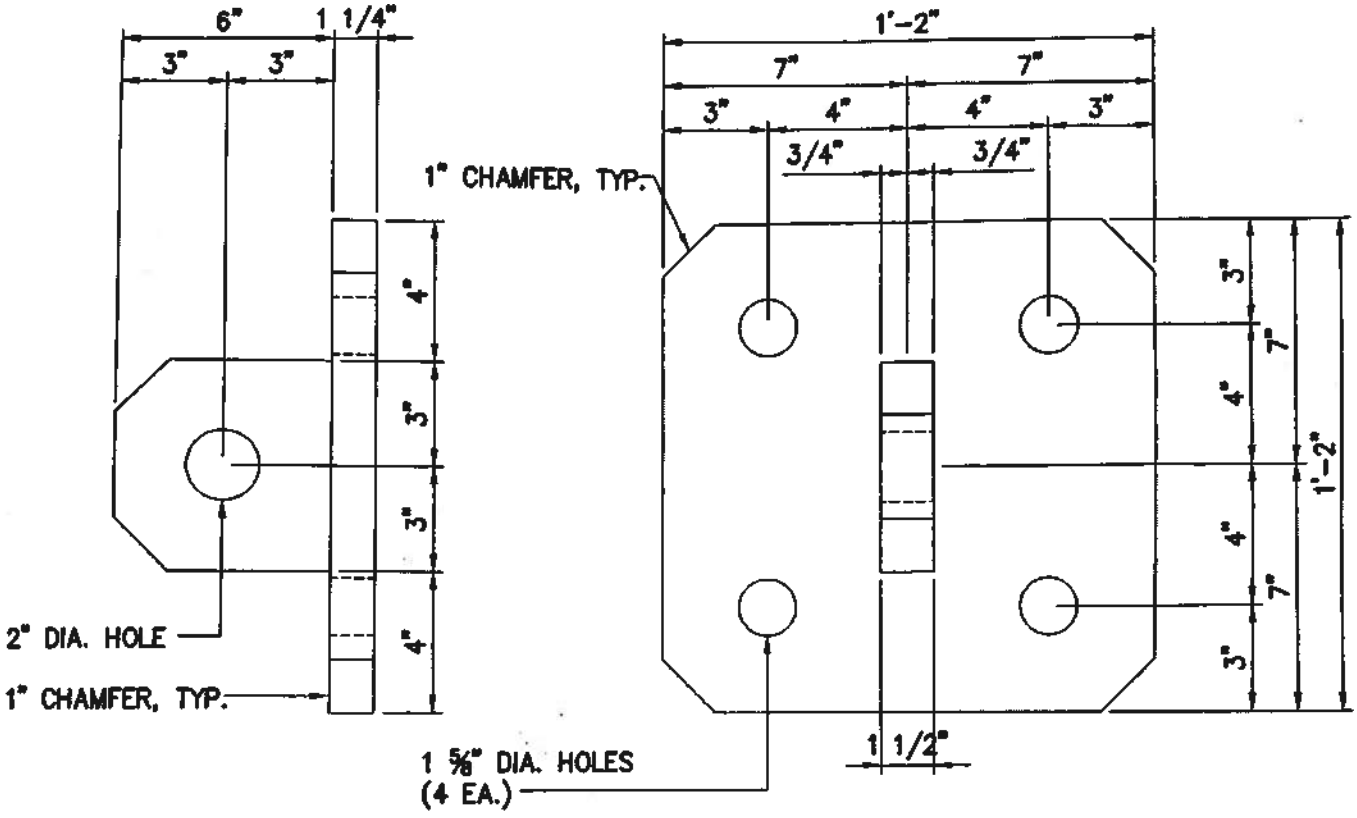
2. ALL ANCHOR BOLT SYSTEM AND CHAIN SUPPORT PLATE(S) SHALL BE PER FENDER MANUFACTURER'S STANDARDS AND RECOMMENDATIONS AND SHALL BE MADE OF STAINLESS STEEL "GRADE 316"





2 / C3.3 PLAN (ARCH FENDER)

SCALE:



4B SECTION

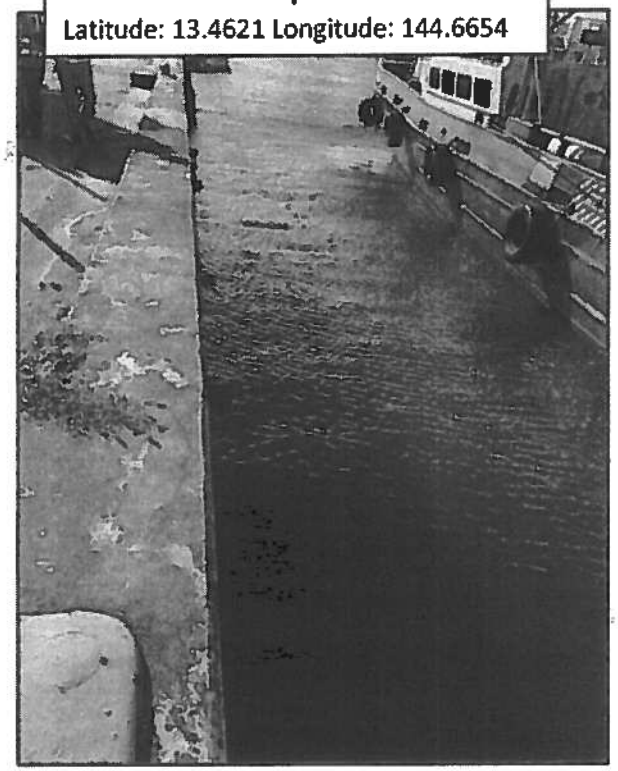
4A ELEVATION

4 TYP. CHAIN SUPPORT PLATE DETAIL

C3.3 SCALE:

Hazard Mitigation Grant Program
F3 Cylindrical Fenders

1
Latitude: 13.4621 Longitude: 144.6654



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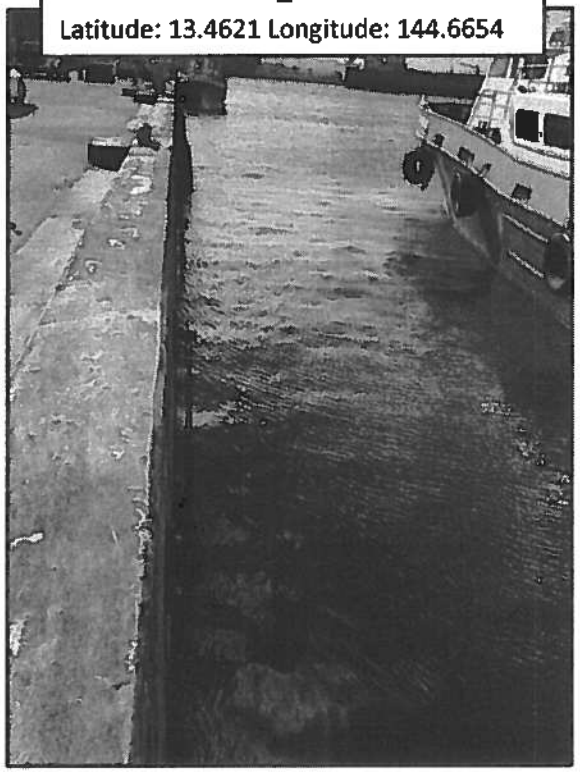
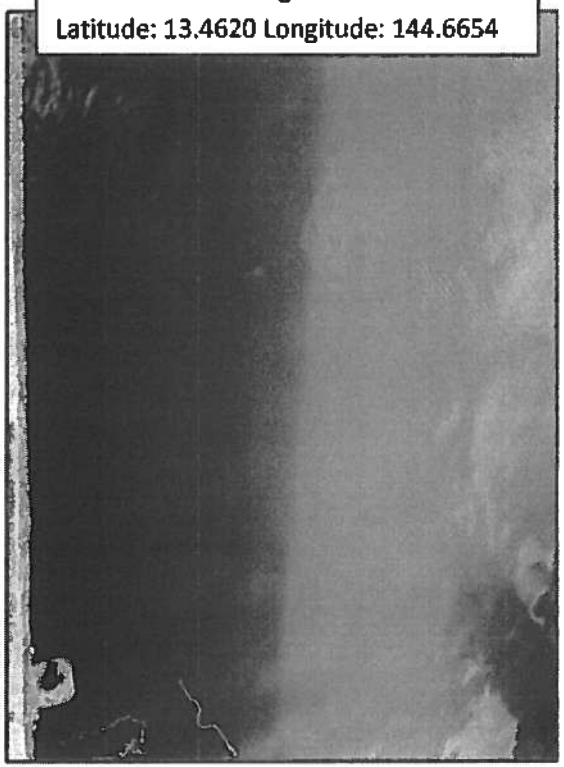


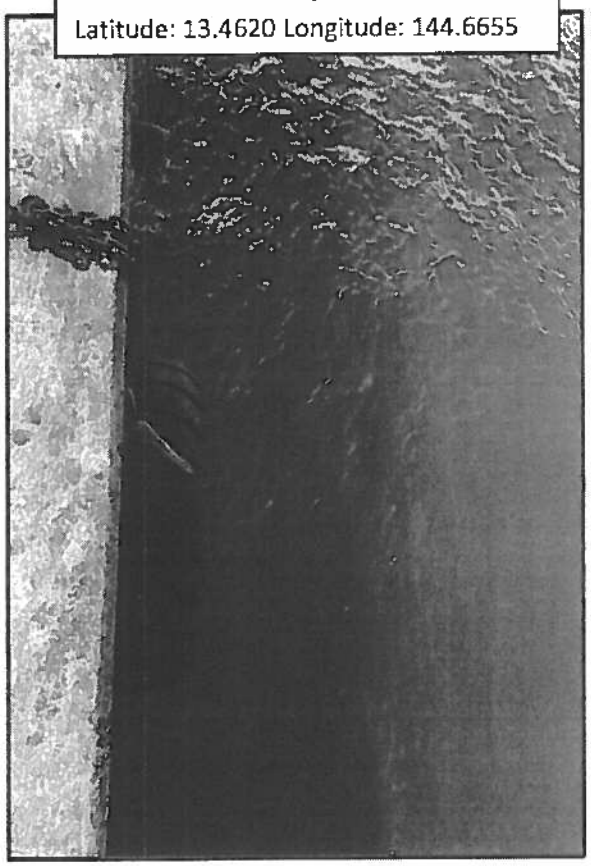
3
Latitude: 13.4620 Longitude: 144.6654



PORT OF GUAM

Hazard Mitigation Grant Program
F3 Cylindrical Fenders

4
Latitude: 13.4620 Longitude: 144.6655



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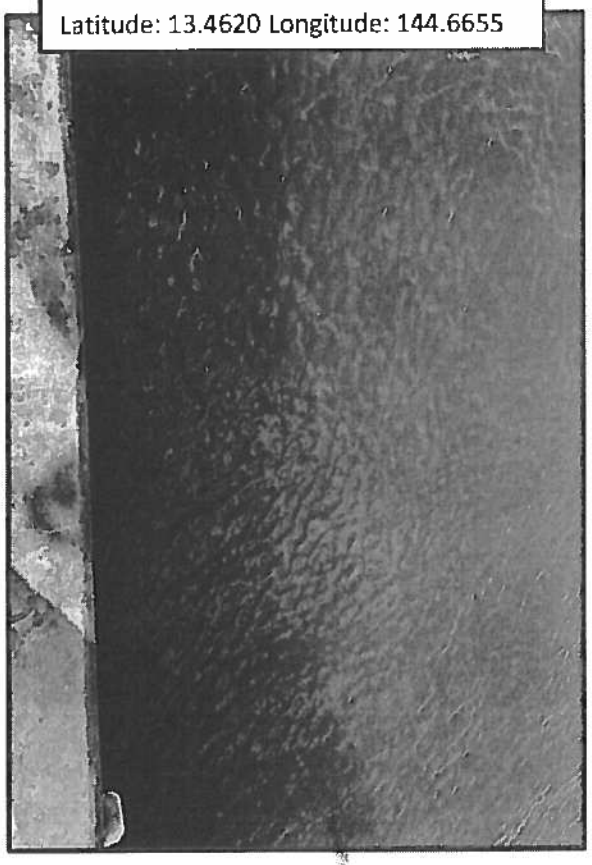

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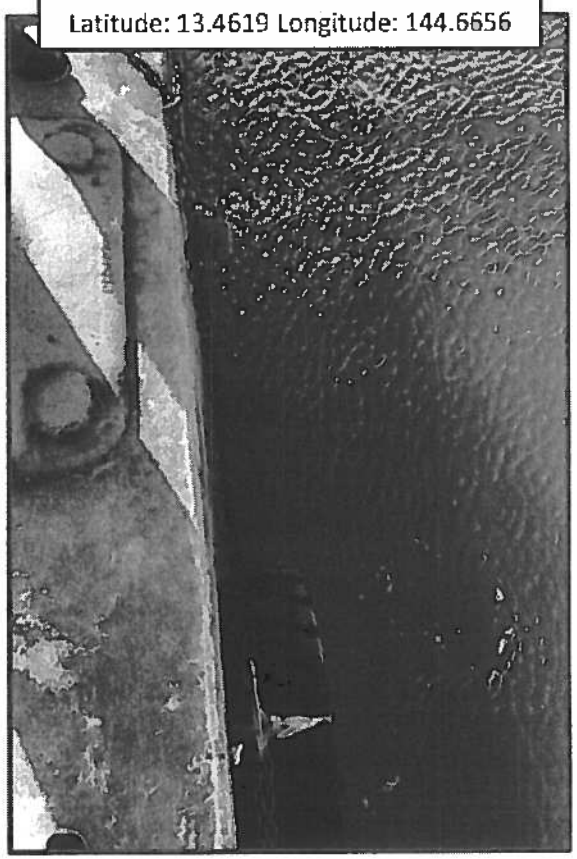

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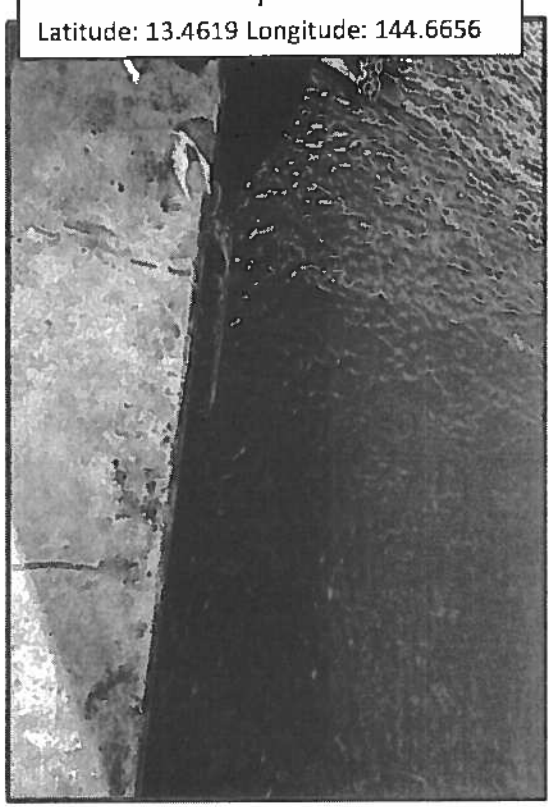
Hazard Mitigation Grant Program
F3 Cylindrical Fenders

7
Latitude: 13.4619 Longitude: 144.6656



8
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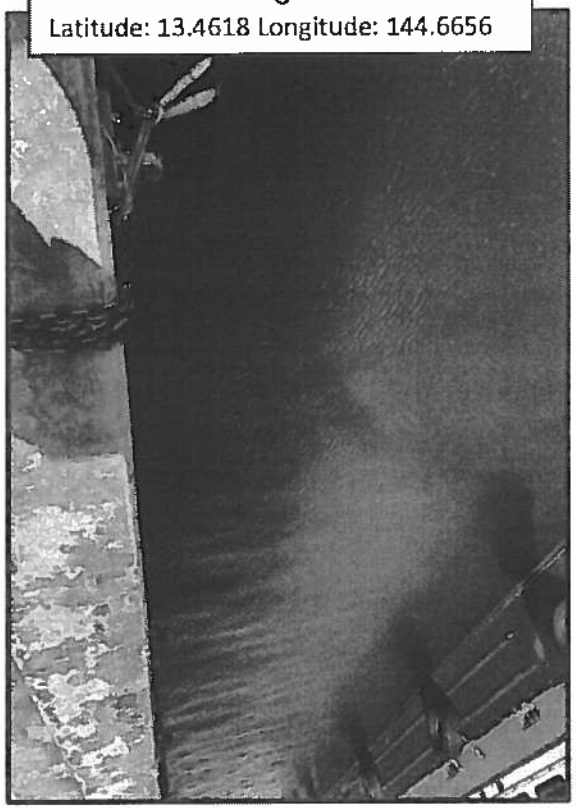
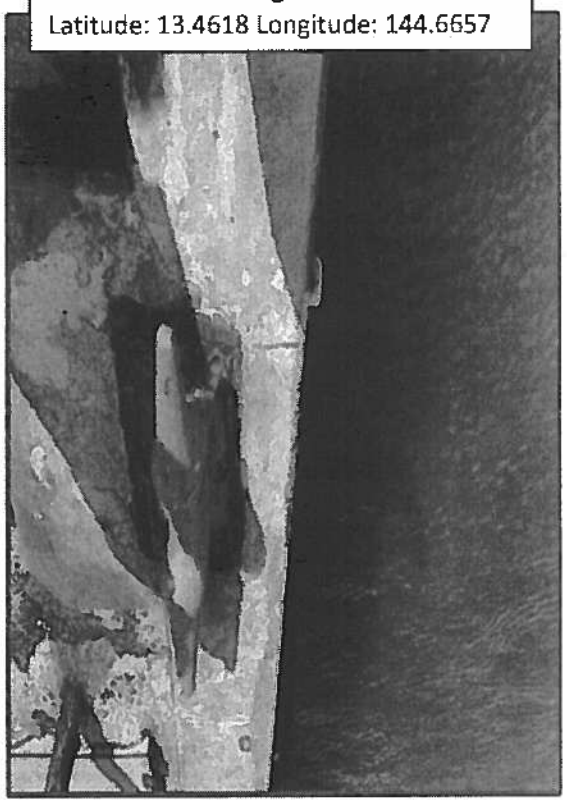
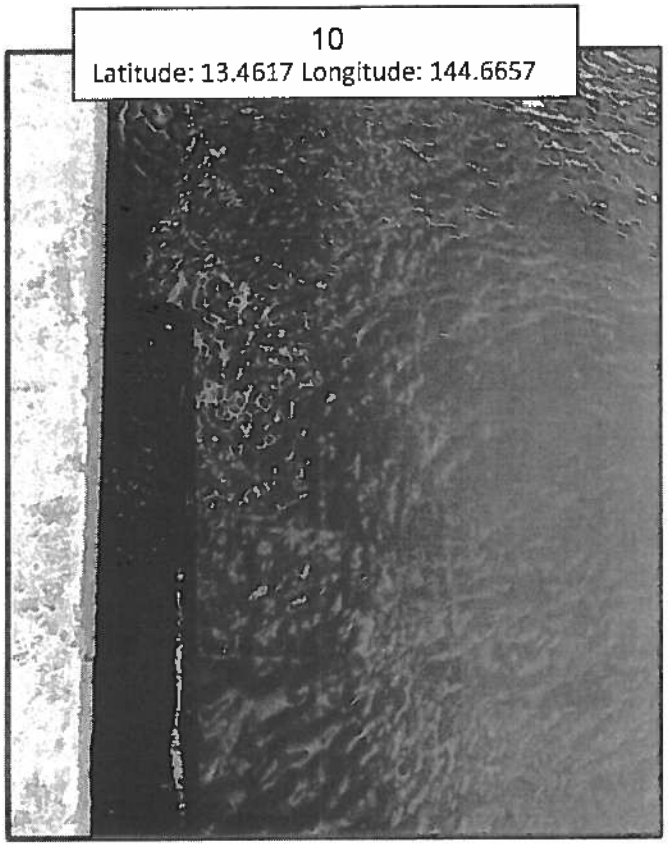


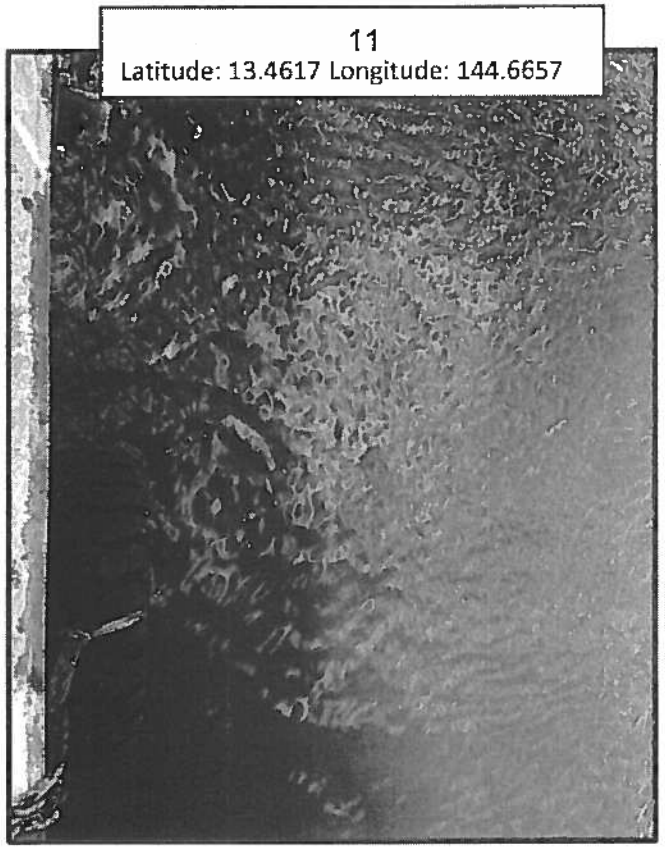
9
Latitude: 13.4618 Longitude: 144.6657



PORT OF GUAM

Hazard Mitigation Grant Program
F3 Cylindrical Fenders





NOTE:

- Cylindrical Fenders along F3 have been either damaged or have fallen off. As an interim solution, rubber tires have been installed along the piers.

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