



**REQUEST FOR PROPOSAL** 

# PROFESSIONAL ENGINEERING SERVICES COLUMBUS STREET TERMINAL WHARF INSPECTIONS

CHARLESTON, SOUTH CAROLINA

Project No. CIF25E006

**REQUEST FOR BIDS** 

June 2025

# 1. INTRODUCTION

This Request for Proposal (RFP) solicits professional engineering services for the comprehensive condition assessment, load rating analysis, and structural evaluation of the current structural integrity of the Columbus Street Terminal (CST) wharf facility. A detailed plan view of the wharf is included herein as Appendix A, and selected as-built construction drawings are provided in Appendix B for reference.

The scope of work shall include, but is not limited to, a visual structural assessment of the wharf's substructure components, including the concrete slabs, rail beams, pile caps, and supporting piles. The evaluation shall be conducted to assess the current condition, identify structural deficiencies, and determine the adequacy of the existing structure under current/ anticipated loading conditions.



Figure 1 - Columbus Street Terminal (CST) Wharf

Respondents are required to provide a comprehensive summary of all findings, including detailed descriptions of recommended repair measures and associated cost estimates for construction-related repairs. The final deliverable shall support informed decision-making regarding future maintenance and capital planning for the CST wharf.

South Carolina Ports Authority (SCPA) has completed previous repair and improvement projects at this terminal. This contract for professional engineering services is herein after referred to as the "Project". The term "Proposer" as used herein includes a firm or firms, consortia, partnerships, joint ventures and others with whom the SCPA will be contracting.

This RFP is provided to qualified Proposers selected by the SCPA. The project site is located on SCPA property at 1 Immigration Street, Charleston, South Carolina.

# 2. PROJECT INFORMATION AND PROCUREMENT OVERVIEW

## 2.1 Project Overview & Background

The Columbus Street Wharf extends approximately 3,878 linear feet in a north-south orientation along the western shoreline of the Cooper River. According to the available construction documentation, the original structure was constructed in 1958, with a series of subsequent improvements implemented between 1963 and 2014. For the purposes of this report, individual segments of the wharf will be referenced in accordance with their respective original construction dates.

Per the referenced documents, stationing for the wharf begins at the southern extremity, with Station 0+00 located at the southernmost point of the structure and extending to Station 34+40 at the northern limit—excluding the section known as the Banana Pier. The primary wharf pile bents are labeled sequentially, beginning with Bent 1 at the northern end of the North Wharf and extending to Bent 287 at the southern tip of the structure.

Additionally, the northern access ramp includes bent designations ranging from Bent R8 at the southern end to Bent R18 at the northern end. The northernmost 438 feet of the structure, designated as the Banana Pier, is also to be inclusive of this project's scope of work.

A summary of the available construction documentation pertaining to the Columbus Street Terminal, State Pier 8, is available in the attached appendices.



Figure 2 - Locations of the Crane Rails and Railroad Tracks



Figure 3 - 1958 Construction, Station 15+80 to 34+40, Pile Bent 1 to 156

Expansion joints isolate the 1958 wharf structure from both the Banana Pier to the north and the 1963 construction to the south. The original 1958 wharf construction typically comprises a 10-inch-thick reinforced concrete slab supported by reinforced concrete pile caps measuring approximately 3 feet in width by 2.5 feet in depth. These pile caps are founded on 21-inch-diameter octagonal precast, prestressed concrete piles. In addition, dedicated reinforced concrete rail beams and crane rail beams were constructed beneath each respective rail alignment to support rail loading. For detailed substructure layout and component configuration, refer to the plan views provided in Appendix C.



Figure 4 - 1963 Construction, Station 12+77 to 15+80, Pile Bent 157 to 181

The 1963 wharf section generally consists of a 10-inch-thick reinforced concrete slab, supported by reinforced concrete pile caps measuring approximately 2.5 feet in width by 3.5 feet in depth. These pile caps are founded on 18-inch square precast, prestressed concrete piles, each equipped with 10-foot-long HP 10x42 steel stingers to facilitate load transfer and embedment into the underlying strata. As with the 1958 wharf segment, dedicated reinforced concrete rail beams and crane rail beams were constructed beneath each corresponding rail alignment to support rail-related loading. Refer to Appendix C for plan views and additional details of the existing substructure configuration.



Figure 5 - 1966 Construction, Station 9+90 to 12+77, Pile Bent 182 to 205

The 1966 wharf section is typically composed of a 17-inch-thick reinforced concrete slab, supported by reinforced concrete pile caps measuring approximately 2.3 feet in width and either 4 feet or 3.3 feet in depth, depending on location. These pile caps are supported by 18-inch square precast, prestressed concrete piles, each outfitted with 10-foot-long HP 10x42 steel stingers to enhance embedment and structural capacity. For detailed plan views and substructure configuration, refer to the construction documents provided in Appendix C.



Figure 6 - 1971 Construction, Station 0+00 to 9+90, Pile Bent 206 to 287

The 1971 wharf construction consists of two distinct structural configurations for the waterside and landside portions. The waterside section typically includes a 16-inch-thick reinforced concrete slab supported by reinforced concrete pile caps measuring approximately 2.5 feet in width by 4.13 feet in depth. The landside section generally comprises a 13.5-inch-thick reinforced concrete slab, supported by pile caps approximately 2.5 feet wide by 3.63 feet deep. Both the waterside and landside pile caps are founded on 18-inch square precast, prestressed concrete piles, each incorporating 5-foot-long HP 10x42 steel stingers for enhanced structural embedment and load transfer. Refer to Appendix C for plan views and further details of the existing substructure.

In 2012, a condition assessment was performed on the substructure of the existing wharf at the Columbus Street Terminal. This inspection was limited to the structural elements supporting the railroad tracks along the full extent of the wharf designated as the Phase I Area. Based on the findings, two phases of concrete rehabilitation were undertaken in 2013 and 2014, addressing all identified deterioration in the rail-supporting substructure elements located north of Bent 116 (STA. 20+58 to STA. 34+40).

Given the elapsed time since the previous evaluation and the potential for continued structural degradation, the Authority intends to initiate a comprehensive inspection of the entire wharf structure.

# **3.0 PROJECT OBJECTIVES**

In selecting an Engineer, the SCPA will place emphasis on proven experience in providing functions on projects of similar magnitude and complexity as the proposed Project, the team proposed to perform the work, and the Proposer's commitment to providing the same team members for the duration of the contract.



Figure 7 – CST Plan View – Drawing Issued Appendix A

# 3.1 Proposal Details

3.1.1 Proposals will be judged based upon the following:

- Depth of knowledge
- Experience and resources for designing similar facilities
- Proven schedule adherence
- Budget control
- Demonstrated quality control
- Familiarity and conformance with state laws, ordinances, and codes applicable to the Project
- The Proposer's knowledge of the Project and approach to delivering the Project on time, on budget, and with the quality expected
- Proposer's commitment to providing sufficient, qualified resources
- Proposer's commitment to committing team members to the contract for the duration
- Firm's fee proposal
- 3.1.2 It is the responsibility of each Proposer to examine the entire RFP, seek clarification in writing, if required, and review its submittal for accuracy before submitting its Proposal.
- 3.1.3 The ability of the Proposer to provide qualified resources able to meet the Project schedule, as defined, will be an important evaluation criterion used by the SCPA.

# 3.2. Project Assumptions

- 3.2.1 The SCPA will enter into an agreement with a single entity.
- 3.2.2 The SCPA expects all parties in the entity to work closely together to achieve a successful project.
- 3.2.3 As-built drawings of the terminal, previous inspection report, and other pertinent information from previous projects will be provided to the successful Proposer.
- 3.2.4 The successful Proposer shall be the Engineer of Record (EOR). The EOR must ensure the integrity of the designs and ensure that all equipment and materials meet the SCPA's requirements and all relevant codes and standards. In addition, the EOR must be licensed in the State of South Carolina.

# **3.3.** Definitions of Terms

- 3.3.1 Whenever the term "RFP" is used, the reference is to the selection process, or this Request for Proposal.
- 3.3.2 Whenever the terms "shall," "must," or "is required" are used in the RFP, the referenced task is a mandatory requirement of this RFP. Failure to meet any mandatory requirement may cause rejection of a submittal.

- 3.3.3 Whenever the terms "can," "may," or "should" are used in the RFP, the referenced specification is discretionary. Therefore, responses that include discretionary items so termed may enable the Proposer to have their submission rated higher than others that do not include these items.
- 3.3.4 Whenever the term "submittal", "Proposal", or "Response to Request for Proposals" is used in the RFP, the reference is to the response offered by a firm in accordance with the RFP.
- 3.3.5 Whenever the term "Selection Committee" is used in the RFP, the reference is to the SCPA's representatives collectively responsible for administering and conducting the evaluation and selection process of the RFP.
- 3.3.6 "Engineer", "team" or "firm" refers to Proposers and the eventual successful Proposer for this contract.
- 3.3.7 "Design Professional" and "Engineer of Record" (EOR) both refer to the Project's licensed architect and/or design engineer, whose responsibilities generally include programming and design for the facility.

# 4. GENERAL INSTRUCTIONS

# 4.1. Selection Process

- 4.1.1 SCPA will use a single-step process to select an Engineer with which to execute a contract for this Project.
- 4.1.2 The proposals will be evaluated, and one Proposer will be selected for award of the Project. A single contract will be executed between the Proposer and SCPA for the Project.
- 4.1.3 Selection of the Engineer will be based upon:
  - Written Proposals: Proposers shall prepare and submit written technical and fee proposals in accordance with the requirements of the RFP.
  - Final Evaluation: From the evaluation of the qualifications, written technical proposals, fee proposals and other sub-factors, the Selection Committee will rank the Proposers in order of suitability and appropriateness for the Project, and will ultimately select the proposal that represents the best value to the SCPA.

## 4.2. Scope of Work Overview

4.2.1 The Engineer's services shall conform to recognized standards of professional practice. The selected Engineer will be responsible for all engineering assessments and corresponding analyses, design, utility coordination, minimization of disruptions to wharf operations, maintenance of traffic design and any other services necessary to complete the Project.

- 4.2.2 The scope of the wharf inspection shall include the following structural components:
  - The underside of the deck slab, railroad track beams, and pile caps. The prestressed concrete piles, waterside crane rail beam, fender system, edge beam and curbs, and all existing utilities are excluded from this assessment.
  - All under-deck elements identified above shall be visually inspected from beneath the wharf utilizing a boat-based platform, with supplemental dive inspection performed as necessary to ensure comprehensive visual access to all critical components and supporting structure.
  - The inspection shall be detailed enough to identify the type (e.g., delamination, spalling, cracking—greater than 1/16 inch in width), dimensions (e.g., length, width, depth of penetration), and location of all significant structural defects.
  - Locations shall be referenced relative to the top of the wharf deck and along with the primary structural gridlines to ensure accurate spatial documentation. Where exposed reinforcing steel is observed, the inspection report shall document the number of visible bars and include an estimated percentage of section loss due to corrosion.
  - Photographic documentation is required for all observed defects. Additionally, representative photographs capturing the typical condition of structural elements shall be provided to establish overall context.
- 4.2.3 The scope of the mooring and berthing inspection shall include:
  - Conduct a comprehensive visual and physical inspection of all accessible mooring and berthing infrastructure.
  - Identify structural deficiencies, wear, corrosion, misalignment, and other potential safety or performance concerns.
  - Document the condition, capacity, and positioning of existing mooring elements in relation to vessel types and loading conditions.
  - Provide recommendations for repair, replacement, or enhancement as necessary
  - The evaluation shall include, but not be limited to, the following components:
     Mooring Infrastructure: bollards, cleats, quick-release hooks, tide risers, and mooring line guides

- Berthing Infrastructure: fender systems, fender panels with UHMW pads, fender chains, berthing dolphins, wharf face and edge beams.
- Berthing face (vertical and horizontal alignment, elevation relative to MHW/MLW)
- Mooring dolphins (if present)
- > Tide and current effects on mooring configuration
- Line of sight and clearances for safe berthing maneuvers
- Any subsurface mooring structures, if applicable (with dive inspection if needed)
- 4.2.4 The deliverables for the Project will include, but may not be limited to:
  - The selected firm shall provide the South Carolina Ports Authority (SCPA) with a comprehensive inspection report. At a minimum, the report shall include an executive summary, a detailed description of the objectives and scope, the methodology employed, documentation of observed conditions, and supporting appendices.
  - To supplement the report, the firm shall prepare a tabulated summary in Microsoft Excel detailing the quantity, type, size, and precise location of all observed deficiencies, areas requiring repair, and other notable observations. Each entry in the table shall be cross-referenced to corresponding photographic documentation, with specific file names clearly identified.
  - Additionally, an as-built site map shall be developed in AutoCAD format, indicating the type and location of all identified damage. Defect callouts on the map shall directly correspond to the identifiers used in the inspection data for ease of reference and traceability.
  - Electronic copies of all photographs taken during the inspection shall also be submitted, preferably in JPEG format.
- 4.2.5 Prior to the condition assessment, the Engineer shall prepare and submit Project Management Documents, including a Project Management Plan, a Master Project Schedule, List of Deliverables, and a Safety Management Plan. The Project Management Documents shall be maintained throughout the duration of the project.
- 4.2.6 The condition assessment of the wharf shall be a Design Level Structural Inspection, including underwater inspection, as defined by ASCE Manual of Practice 130 for a level II, close-up visual inspection.

- 4.2.7 The Engineer will submit a Basis of Design report for the design of the wharf repairs and improvements following the completion of the condition assessment and load rating.
- 4.2.8 The Engineer will take full professional responsibility, create construction documents for the wharf repairs and improvements that satisfy the SCPA's Project requirements, and prepare Bid Documents for the individual construction contract(s).

# 4.3. Schedule of Events

The following Schedule of Events represents the SCPA's best estimate of the schedule that will be followed. The SCPA reserves the right, at its sole discretion, to adjust this schedule as it deems necessary; however, the Inspections and evaluations need to be completed prior to September 2025.

EVENTS	DATE	TIME
1. RFP available for Distribution to Selected Proposers	June 2, 2025	n/a
2. Submission of Proposals July 7, 2025		5:00 pm
3. Estimated date of Award	August 1, 2025	n/a
5. Notice to Proceed	August 15, 2025	n/a
6. Wharf Condition Assessment Report Deliverable	November 10, 2025	5:00 pm

## 5. PROPOSAL SUBMISSION FORMAT AND REQUIREMENTS

# 5.1. Technical Proposal Physical Submittal

- 5.1.2 One electronic copy in portable document format (.pdf) shall be submitted. Each submittal shall include a transmittal letter. The transmittal letter (cover letter) will not count toward the page limit. The table of contents and tab sheets do not count toward the page limit. The cover does not count and shall not be used to convey a response to the Proposal by means of printing on them. Proposers are encouraged to follow in their responses the sequence of the Written Submittal outlined herein. Responses shall be concise, clear, and relevant. Proposers' costs incurred in responding to this RFP are the sole responsibility of the Proposer alone, and the SCPA does not accept liability for any such costs.
- 5.1.3 Responses are limited to 15 letter (8 1/2" x 11") single-sided pages (or 15 double sided pages) using a minimum of a 12-point font and one-inch margins. The pages of the Proposal must be numbered. A table of contents, with corresponding tabs in the body of the submittal, must be included to identify each section. Placing

multiple tabs on a single page is acceptable. More than one item in the table of contents can be started on the same page; in this event, all corresponding tabs shall be placed on that page. The  $11'' \times 17''$  organizational chart, affidavits, certifications, conceptual plans or signed statements called for may be included in an appendix and will not count toward the page limit. Additional information not explicitly requested or required shall not be included in the Appendix.

- 5.1.4 Proposals will not be accepted after the time and date shown in the Schedule of Events. The SCPA is not responsible for the proper or timely delivery of submittals. Failure to meet the deadline for receipt of submittals will result in rejection of the submittal. Submittals received after the deadline will not be considered whether delayed in transit or for any other cause whatsoever. Each Proposer is solely responsible for the accuracy and completeness of its submittal. Errors and omissions may constitute grounds for rejection.
- 5.1.5 Respondents must deliver their submittals via email to the following email addresses:
  - <u>bmitchell@scspa.com</u>
  - Jmccants@scspa.com
  - bweber@scspa.com

The subject line of the email shall reference the terminal name, project number, project name, and name of proposer i.e., "CST – CIF25E006 – Wharf Inspection – Engineering Firm Name' Proposal".

## **Owner's Project Manager:**

John McCants South Carolina Ports Authority 200 Ports Authority Drive Mount Pleasant, South Carolina 29464

Telephone Number: (843) 990-2716 Email: jmccants@scspa.com

- 5.1.6 All documents required to be submitted with the Proposal shall be included in one compiled PDF. Except for submission of questions discussed further below, submitters shall not contact any members or employees of the SCPA regarding any aspect of this procurement until after the award of the contract. Contact with these persons could be grounds for elimination from the competition. Questions must be submitted in writing via e-mail to the attention of John McCants at <u>jmccants@scspa.com</u>.
- 5.1.7 All questions are to be submitted in writing and must be received seven days prior to the submittal date noted in the Schedule of Events (Section 3.3). If changes to

the RFP contents are deemed necessary, modifications will be provided via addendum. The SCPA will provide a document sharing website for the posting and sharing of all relevant Project information. It is the Proposer's responsibility to check the website for any updates to this solicitation.

- 5.1.8 **Interpretation or Correction of Bidding Documents:** Bidders shall promptly notify the Owner of any ambiguity, inconsistency or error, which they may discover upon examination of Bidding Documents, Project site or local conditions. The Owner will make interpretations, corrections or changes to Bidding Documents by written Addendum. Interpretations, corrections or changes made in any other manner will not be binding.
- 5.1.9 **Modification or Withdrawal of Bid:** Bids submitted prior to time and date designated for opening of Bids may be modified or withdrawn only by written notice to individual(s) receiving Bids.
- 5.1.10 **Disqualification of Bidders:** More than one Bid from an individual, a firm or partnership, a corporation, or any association, under the same or different names, will not be considered for any single project. Reasonable grounds for believing that any Bidders interested, as a principal, in any more than one Bid for the work contemplated will cause a rejection of all Bids in which such Bidder is apparently interested.

Any one or all Bids will be rejected if there is reason to believe that collusion exists among the Bidders.

# 5.2. Written Submittal Evaluation

Evaluation Criteria - The Selection Committee will evaluate the submittals uniformly based upon the criteria listed in the table below. The SCPA has listed each category of criteria in descending order of importance. The evaluation of submittals will be based upon consideration of the demonstrated qualifications and capabilities of the teams. Absent modification by addendum, factors to be considered in the evaluation will be limited to the following:

Category	Criteria
Team Description (POINT VALUE = 30)	<ul> <li>Experience and ability of each firm or subcontractor on the team</li> <li>Experience and ability of Engineers, Design Professionals, and Project Manager</li> <li>Experience with similar facilities</li> </ul>

	<ul> <li>Team organization</li> </ul>
Project Delivery and Approach (POINT VALUE = 30)	Clearly defining: • Contract Scope • Contract Deliverables • Quality Management • Contract Schedule
Fee Proposal (POINT VALUE = 30)	Fee proposal shall include all estimated costs to perform the scope of work. A detailed breakdown is required.
Project Challenges (POINT VALUE= 10)	Identification of the Project challenges and development of control and management plans.

# 5.3. Contents of Proposal

The Proposal shall contain the following information:

- 5.3.1 Provide a detailed team description, demonstrating the depth and strength of resource/personnel capability. The detailed description shall include:
  - Firms or subcontractors on the team and their scopes
  - Company information for each firm or subcontractor on the team:
    - o Company name
    - o Company address
    - o E-mail address and name of primary contact
    - o Telephone number
    - Number of years in business
  - Form of ownership, including state of residency or incorporation: The offeror is a sole proprietorship, partnership, corporation, Limited Liability Company (LLC), joint venture, or other structure. For joint venture entities that have not completed at least two relevant projects together, each firm should describe its qualifications separately but hold the unified submittal to the set page limit.

- Design Engineering Team: Identify the key individual's experience and expertise in all phases of port terminals including wharf renovation/re-purposing for STS crane improvements. Key individuals of the design team shall have the following minimum qualifications:
  - The Project Manager shall have progressive experience and expertise in the design of port terminals, and shall oversee and be responsible for all aspects of the design of the Project.
  - The Lead Structural Engineer shall have progressive experience in the design of marine structures.
- Team Organization:
  - Provide an organization chart
  - Key personnel and responsibilities
- 5.3.2 Describe the Project Delivery and Approach, including:
  - Contract Scope:
    - Provide the Proposer's understanding of the contract's scope of work listed previously.
  - Contract Deliverables:
    - Describe the Proposer's approach to developing all the contract deliverables as defined previously.
  - Quality Management:
    - Describe the Proposer's Quality Control/Quality Assurance (QC/QA) processes to be utilized on this contract.
    - Explain the strategy to produce consistent deliverables from the various team members.
  - Contract Schedule:
    - Provide a preliminary schedule for the project deliverables, including all milestones.
    - Identify the Key Performance Indicators (KPI) and use during the project phases.
    - $\circ\,$  Identify the Quality Assurance Management process within the schedule.
    - Identify any proposed changes to the Schedule of Events based on the Proposer's review of the project scope.
- 5.3.3 Each Proposer shall submit a detailed fee proposal for the work. The details shall include estimated man hours and shall include the billable unit rate and extended value for each position/person. The fee proposal shall also include all anticipated expenses to include consumables, reproductions, travel and other anticipated costs. These details are also required for all sub-consultants proposed on the design teams.

- 5.3.4 Identify Project Challenges and demonstrate an understanding of management plans to control these issues. The challenges addressed shall include, but need not be limited to:
  - Budget Management
  - Schedule Management
  - Safety Management
  - Communications/Coordination

# 5.4 Past Performance of Team

SCPA will evaluate the experience of the Proposer's organization. Proposers are advised that SCPA may use all information provided by the Proposer and information obtained from other sources in the assessment of past performance. Past performance information on contracts not listed by the Proposer, or that of named sub-consultants, may also be evaluated. SCPA may contact references other than those identified by the Proposer and information received may be used in the evaluation of the Proposers' past performance. While SCPA may elect to consider information obtained from other sources, the burden of providing current, accurate, and complete past performance information rests with the Proposer.

Resumes of Key Personnel shall be provided in the Proposal on the Key Personnel Resume Form attached (Form 1). Resumes of Key Personnel shall be limited to two pages each. If an individual occupies more than one position, only one resume is required. SF 330 forms shall not be included and will not be reviewed. Identify the previous work experience by the Lead Engineer and any Major Design Sub-Consultants for this Project on the attached Work History Form – Designer (Form 2). The projects listed should be those the Proposer deems relevant in demonstrating qualifications to serve as the Lead Engineer and Major Design Consultant(s) for this Project. For all projects listed, identify the prime/general contractor responsible for the overall construction on the Work History Form – Designer. Neither the Key Personnel Resume Forms nor the Work History Form – Designer forms count against the maximum page count allowed by 4.1.2.

# 5.5 Legal and Financial

Receipt of an addendum by the Proposer must be acknowledged in writing. Failure to acknowledge an addendum may result in rejection of the proposal. Explanations or instructions given in a form other than an addendum to the RFQ shall not be binding. Information provided in response to these sections will not count towards the overall page limitation or be scored.

# 6. SELECTION PROCESS

SCPA reserves the right to withdraw this RFP or to reject any and all submittals at any time and cancel the Project if, in the sole discretion of SCPA, continuation is deemed not to be in its best interest. In addition to the SCPA's general right to reject all submittals, a submittal may be rejected if the submittal contains false or misleading statements or reference that, in the sole judgement of the Selection Committee, do not support an attribute or condition contended by the Proposer and, in the sole judgement of the Selection Committee reserves the right in its sole discretion to waive minor irregularities and to reject any or all submittals.

All submittals, together with any supporting material submitted by the Proposer become the property of the SCPA and may be retained, destroyed, or otherwise disposed of at the convenience of the SCPA.

Upon selection of the preferred team as determined by the Selection Committee, the SCPA will negotiate a time and material professional services agreement with the selected firm. The submittal received from the selected Proposer will become part of the agreement reached by the SCPA and the Proposer. If the selected firm and the SCPA fail to reach an agreement, the SCPA reserves the right to enter contract negotiations with any of the remaining qualified firms and select the firm and contract, deemed by the SCPA, to be in its best interest.

**6.1 Commencement of Work:** The Contractor shall receive written Notice to Proceed from the Owner upon execution of the Owner-Contractor Agreement. The Contract time shall begin on the date established in the written Notice to Proceed.

## 7. SUPPORTING DOCUMENTS

The following documents will be provided upon request from all firms interested in pursuing this RFP.

- Form 1: Key Individual Resume Form
- Form 2: Work History Form
- Appendix A: Plan View Drawings
- Appendix B: Select As-Built Drawings
- Appendix C: Select Substructure Cross Section Design

# END OF REQUEST FOR PROPOSAL

Project No: CIF25E006

# Form 1

Key Individual Resume Form

# KEY INDIVIDUAL RESUME FORM

Bri	ief Resume of Key Individual anticipated for the Project.
a.	Name & Title:
b.	Role of Key Individual for this Project:
C.	Name of Firm with which you are now associated:
d.	Years of Experience: With this Firm <u>Years</u> With Other Firms <u>Years</u>
e.	Education:
f.	Active Registrations:
g.	Document the extent and depth of your experience and qualifications relevant to the Project.
h.	For Key Personnel required to be on-site full-time for the duration of construction, provide a current list of assignments, role, and the anticipated duration of each assignment.

Project No: CIF25E006

# Form 2

Work History Form – Contractor

# WORK HISTORY FORM – CONTRACTOR

# [Name of Lead Contractor or Major Subcontractor]

a. Project Name & Location (City, State)	Project Name & Location (City, State)b. Name of the lead designer responsible for the overall project designc. Contact information of the Owner and their Project Manager who can verify Contractor's responsibilities					
Name: Location:	Name:	Name of Owner: Project Manager: Phone: Email:	MM/YYYY			
a Narrativa describing the work performed	by the Contractor If submitting work of	amplated by an affiliated or subsidiary company of th	a Contractor identify the fu	11 logol non		

l or Estimated	f. Dollar Value of Work Performed				
Construction Cost	by the Contractor identified as the				
sands)	Lead Contractor or Major				
	Subcontractor (in thousands)				
ne of the affiliate or subsidiary and their role on the Project.					

Project No: CIF25E006

# **Appendix A**

**Plan View Drawings** 



Project No: CIF25E006

# **Appendix B**

Select As-Built Drawings

# South Carolina State PORTS AUTHORITY PHASE I WHARF SUBSTRUCTURE REPAIRS **COLUMBUS STREET TERMINAL - STATE PIER 8** CHARLESTON, SOUTH CAROLINA



REVISIONS

DESCRIPTION

# PROJECT NO. CIF12E003A **AUGUST 2012**

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INDEX OF DRAWINGS

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S3	<b>REPAIR ITEM LOCATION PLAN - SEGMENT 2</b>
S4	<b>REPAIR ITEM LOCATION PLAN - SEGMENT 3</b>
S5	OBSERVED DEFECT TABLE - SEGMENT 1
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R2	REPAIR TYPE 2 REPAIR DETAILS
R3	TYPICAL REPAIR DETAILS

**APPROXIMATE LOCATION OF FACILITY IS:** 79° 55' 48"W

VICINITY MAP

PROJECT LOCATION

# **AS-BUILT PLANS** PALMETTO GUNITE **RECEIVED 8/5/13**



GENERAL NOTES:

- 1. NOTES BELOW ARE NOT INTENDED TO REPLACE SPECIFICATIONS. SEE SPECIFICATIONS FOR REQUIREMENTS IN ADDITION TO GENERAL NOTES.
- 2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY THE OWNER IN WRITING OF ANY DISCREPANCIES. THE CONTRACTOR SHALL NOT BEGIN CONSTRUCTION IN ANY SUCH AFFECTED AREA UNTIL THE DISCREPANCY HAS BEEN RESOLVED BY THE OWNER.
- 3. ALL FEDERAL, STATE, AND LOCAL SAFETY REGULATIONS ARE TO BE STRICTLY FOLLOWED. METHODS OF CONSTRUCTION AND INSTALLATION OF MATERIALS IS THE CONTRACTOR'S RESPONSIBILITY.
- 4. ALL ELEVATIONS REFERENCED ON THESE CONTRACT PLANS ARE BASED ON MEAN LOW WATER (MLW) ELEVATION OF 0.0. ALL ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. ALL EXISTING ELEVATIONS ARE BASED ON THE DESIGN DRAWINGS DATED 5-16-1958 AND FROM FIELD INSPECTIONS ON 5-7-2012 THROUGH 5-31-2012.
- 5. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- 6. THE CONTRACTOR SHALL EXERCISE CAUTION DURING CONSTRUCTION OPERATIONS TO PREVENT ANY DAMAGE TO ADJACENT BUILDINGS, STRUCTURES, AND STRUCTURAL COMPONENTS NOT WITHIN THE SCOPE OF THESE OUTLINED REPAIRS. BUILDING MEMBERS, STRUCTURES, AND STRUCTURAL COMPONENTS NOT WITHIN THE SCOPE OF THIS PROJECT THAT ARE DAMAGED DURING THE REPAIR OPERATIONS SHALL BE REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR TO THE SATISFACTION OF THE OWNER.
- 7. ALL UTILITIES IN OR NEAR THE AREA OF WORK SHALL BE TEMPORARILY SUPPORTED OR REMOVED AND REATTACHED COMPARABLE TO EXISTING CONDITIONS TO THE SATISFACTION OF THE OWNER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE SPECIFIED REPAIR WORK. ANY UTILITIES DAMAGED IN THE PROCESS OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR TO THE SATISFACTION OF THE OWNER.
- 8. ALL WORK UNDER THIS CONTRACT SHALL COMPLY WITH "THE SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" (OSHA 29 CFR 1926), THE STATE OF SOUTH CAROLINA, AND ALL OTHER APPLICABLE CODES AND REGULATIONS OF AGENCIES HAVING JURISDICTION.
- 9. FOR ALL REPAIR ITEMS REQUIRING THE REMOVAL OF EXISTING STRUCTURE MATERIALS MARINE GROWTH AND OTHER DELETERIOUS SUBSTANCES, THE CONTRACTOR SHALL CAPTURE ALL MATERIALS AND SUBSTANCES REMOVED AND NOT ALLOW THEIR DISCHARGE INTO THE SURROUNDING LAND, WATER, OR AIR. ALL DEBRIS CREATED DURING THE EXECUTION OF THE SPECIFIED WORK SHALL BE REMOVED FROM THE PROJECT SITE. NO OIL OR OTHER HAZARDOUS SUBSTANCES SHALL BE DISCHARGED INTO THE WATER AROUND THE PROJECT SITE. ALL PRODUCTS OF REMOVAL OPERATIONS, DEBRIS, AND HAZARDOUS SUBSTANCES SHALL BE PROPERLY DISPOSED OF ACCORDING TO THE CONTACT DOCUMENTS AND REGULATIONS OF ALL GOVERNING AGENCIES, AND SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 10. PLAN DIMENSIONS AND DETAILS SHOWN ON THESE CONTRACT DOCUMENTS ARE BASED PRIMARILY ON THE DESIGN DOCUMENTS DATED 5-16-1958 AND AS-BUILT FIELD MEASUREMENTS AND ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS.
- 11. THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS FOR SUCCESSFUL COMPLETETION OF THE PROJECT.
- 12. THE CONTRACTOR SHALL MAKE NO DEVIATION FROM THE CONTRACT DOCUMENTS WITHOUT WRITTEN APPROVAL FROM THE OWNER.
- 13. THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS FOR RESOLUTION PRIOR TO PROCEEDING WITH THE WORK.
- 14. THE LOCATIONS OF UNDERGROUND AND OVERHEAD LINES AND STRUCTURES THAT MAY BE SHOWN ON THE PLANS ARE OF REFERENCE ONLY AND THE ACCURACY AND LOCATIONS ARE NOT GUARANTEED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND LOCATING ALL ABOVEGROUND AND UNDERGROUND UTILITY LINES AND STRUCTURES BEFORE DIGGING. OTHER UTILITIES OR STRUCTURES MAY BE IN PLACE AND THE CONTRACTOR SHALL ACCEPT RISK OF OTHER UNDERGROUND UTILITIES. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO LOCATE OTHER POSSIBLE UNKNOWN UTILITY LINES BY USE OF AN ELECTRONIC PIPE FINDER, OR OTHER MEANS HE MAY PREFER, AND SHALL EXCAVATE AND EXPOSE ALL EXISTING UNDERGROUND LINES IN ADVANCE OF ANY TRENCHING OR DIGGING OPERATIONS. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE WORKMANLIKE REPAIR OF ANY DAMAGE DONE TO ANY UTILITIES DURING WORK UNDER THIS CONTRACT. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND BE PREPARED TO ADEQUATELY CARE FOR AND SAFEGUARD HIMSELF AND THE OWNER FROM DAMAGE.
- 15. ALL ACTIVITIES SHALL BE COORDINATED WITH THE OWNER AND/OR ENGINEER TO INSURE THE CONTRACTOR'S ACTIVITIES DO NOT IMPEDE TERMINAL AND VESSEL ACTIVITIES.
- 16. THE CONTRACTOR SHALL EXPECT VESSEL AND TERMINAL OPERATIONS TO BE ON-GOING THROUGHOUT THE DURATION OF WORK. THE CONTRACTOR SHALL ANTICIPATE RELOCATION OF OPERATIONS DURING HEAVY-LIFTING VESSEL CALLS IF HE IS WORKING IN THE AREA A VESSEL IS AT BERTH. SEE SPECIFICATIONS FOR ADDITIONAL DETAILS.
- 17. THE CONTRACTOR SHALL EXPECT THE MOVEMENT OF HEAVY EQUIPMENT ACROSS THE RAILS AND WHARF IN THE LIMITS OF WORK. THE CONTRACTOR SHALL NOT REDUCE THE CAPACITY OF THE WHARF AT ANY TIME THAT WOULD PREVENT THE USE OF THE WHARF OR RAILS.

ALTERNATE BID #1 NOTES:

1. THE PROJECT INCLUDES ONE ALTERNATIVE THAT INVOLVES REPAIR WORK TO TO BENTS 38 THROUGH 62. THE CONCRETE REPAIRS INCLUDE STRUCTURAL REPAIRS TO PILE CAPS AND RAILROAD TRACK BEAMS.

# **AS-BUILT PLANS** PALMETTO GUNITE -**RECEIVED 8/5/13**



# **APPROXIMATE CHANNEL BOTTOM ELEVATIONS**

BENT 1						
GRID LINE	CHANNEL BOTTOM ELEVATION (MLW, FT)					
А	-32.5					
В	-31.8					
С	-27.3					
D	-24.2					
F	-18.7					
G	-15.9					
A (R1)	-9.5					
B (R1)	-8.2					
C (R1)	-7.4					
D (R1)	-5.8					
F (R1)	-2.1					

BENT 40									
	CHANNEL								
	BOTTOM								
GRID LINE	ELEVATION								
	(MLW, FT)								
Α	-29.6								
В	-28.7								
С	-25.4								
D	-17.2								
E	-14.8								
F	-12.6								
G	-6.5								
Н	-4.1								
I	-2.5								
J	-1.3								
К	-0.8								
L	-0.4								
М	-0.4								
Ν	-0.1								
0	0.9								
Р	2.1								
Q	3.3								
R	3.5								
S	5.6								
Т	6.1								
U	6.2								
V	6.0								
W	6.4								
X	6.6								
Y	6.6								
Z	6.7								
AA	6.6								
BB	6.6								
CC	6.8								
DD	6.4								
EE	5.9								
FF	5.9								
GG	5.7								

VERTICAL DATUM CONVERSION DIAGRAM: NAVD88 TO CHARLESTON LOW WATER (CLW) TO MEAN LOW WATER (MLW). ALL ELEVATIONS IN THE CONTRACT DOCUMENTS ARE REFERENCED IN MLW.

ELEV. 5.90' BASED ON STATION 8665530

- ELEV. 2.95'

NAVD88 TO CLW = + 3.626'

- ELEV. 2.27'

ELEV. 0.00'

TIDAL INFORMATION IS BASED ON THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) BENCHMARK LOCATED AT NOAA STATION 8665530 AT THE COOPER RIVER ENTRANCE, CHARLESTON, SC ON JULY 2012. ELEVATIONS ARE REFERENCED ON THE 1983-2001 EPOCH.

	NAVD88	CLW	MLW		
мннw	+2.63'	+6.26'	+5.58'		
MHW	+2.27'	+5.90'	+5.22'		
MTL	-0.34'	+3.29'	+2.61'		
MSL	-0.21'	+3.42'	+2.74'		
MLW	-2.95'	+0.68'	0.00		
MLLW	-3.14'	+0.49'	-0.19		
NAVD88	0.00'	+3.63'	+2.95'		
CLW	-3.63'	0.00'	-0.68'		

CHANNEL BOTTOM ELEVATIONS WERE OBTAINED AT THE GRID LOCATIONS INDICATED AND ARE ACTUAL ELEVATIONS DETERMINED ON MAY 14, 2012. CHANNEL BOTTOM ELEVATIONS DO VARY.

	12 9	6	3	0	1'	2'	G
			GF	RAPH	IC SCALE		BEVISION NO
DESCRIPTION					DATE	APP'D. BY	
REVISIONS							



# ABBREVIATIONS

ACI = AMERICAN CONCRETE INSTITUTE AISC = AMERICAN INSTITUTE OF STEEL CONSTRUCTION ALT = ALTERNATE ANSI = AMERICAN NATIONAL STANDARDS INSTITUTE APP'D = APPROVED APPROX = APPROXIMATE ASTM = AMERICAN SOCIETY FOR TESTING AND MATERIALS AVG = AVERAGE AWS = AMERICAN WELDING SOCIETY BLDG = BUILDING BMP = BEST MANAGEMENT PRACTICE BOTT = BOTTOM B/W = BETWEEN CC = CENTER-TO-CENTER CF = CUBIC FEET CFS = CUBIC FEET PER SECOND CHK = CHECKERED CIP = CAST-IN-PLACE CJ = CONSTRUCTION JOINT CLR = CLEAR CLW = CHARLESTON LOW WATER CONC = CONCRETE CONST = CONSTRUCTION CONT = CONTINUOUS

CONT'D = CONTINUED

IN = INCLINOMETERS INCL = INCLUDING INFO = INFORMATION JT = JOINT LBS. = POUNDS MAX = MAXIMUM MFR = MANUFACTURER





<u>PLAN VIEW</u> **TERMINAL LAYOUT** 

200 400 SCALE IN FEET

# STANDARD SYMBOLS

- BENCH MARK (INCLUDE ELEVATION REFERENCED TO MEAN LOW WATER)
- (#) DETAIL # ON SHEET S#
- # ITEM NUMBER #
- (#) GRID LINE NUMBER #

WOS = WATERS OF THE STATE

# **AS-BUILT PLANS** PALMETTO GUNITE -**RECEIVED 8/5/13**

ADDENDUM #1	07-27-11	EHS
DESCRIPTION	DATE	APP'D. BY
REVISIONS		













ITEM	PILE	ID	REPAIR	2	F/	ACI	E	LOCATION	TYPE	OF DAMAGE	DIME		IS OF E	
NO.	BENT	PILE	TYPE	N	E	s	w	Cap/Rail Beam	SPALL	IMPENDING SPALL	HEIGHT	WIDTH	PEN./	
1	R8-R9	A-C	1	╀	X			RAILBEAM	X	X	1'-0"	10'-0"	1'-0"	1 Expo
2	R9-R10	C	1	-	1		X	RAILBEAM	X	X	0'-6"	4'-0"	1'-0"	
3	R10-R11	В	1	1	X		1	RAILBEAM		X	1'-0"	3'-0"	0'-6"	
4	R12-R13	С	1				X	RAILBEAM	X	Х	0'-6"	3'-0"	0'-6"	
5	R13-R14	С	1				X	RAILBEAM		Х	0'-6"	3'-0"	0'-6"	
6	R14	A-C	2		ļ	X		CAP	X	Х	2'-0"	15'-0"	0'-6"	
7	R15	A-C	2			X		CAP		X	1'-6"	15'-0"		
8	R18	A	2		-		ļ	CAP	X	X	2'-0"	2'-0"	0'-6"	
	R18		2						X	X	1'-0"	2'-0"	0'-3"	
9	1-2	B	1					RAILBEAM		X	0'-6"	6'-0"	1'-0"	1
	1-2		2	Y	<b> </b>	Y				X	2' 0"	3-0	1-0	<u> </u>
10	2	B-C	2	$\uparrow$		X				×	3-0 1'_0"	4-0 6'-0"	0'-6"	
	2-3	B		-	X				X	×	1'-6"	8'-6"	1'-6"	
11	2-3		1		X				X	X	1'-6"	8'-6"	1'_0"	
	3	A	2	x				CAP	x	X	1'-6"	5'-0"	0'-4"	
	3	B	2	X				CAP	X		1'-0"	2'-0"	0'-6"	
	3	C	2	X			$\left  \right $	CAP		Х	1'-0"	2'-0"	0'-6"	
12	3	D	2	X			┟──┤	CAP	X		1'-0"	2'-0"	0'-6"	
ŀ	3	D	2			X	╏──┤	CAP	X	Х	3'-0"	6'-0"	0'-6"	
ŀ	3		2	X			$\left[ \begin{array}{c} \\ \end{array} \right]$	CAP	X		1'-0"	2'-0"	0'-6"	
F	3	1	2			X		CAP	Х		1'-0"	3'-0"	1'-0"	
13	3-4	В	1		X			RAILBEAM	Х	Х	1'-6"	8'-6"	1'-6"	2 Expos
	4	A-D	2	X				CAP	Х	Х	3'-0"	20'-0"	1'-0"	1
14	4	A-B	2			Х		CAP	Х	Х	2'-0"	8'-0"	1'-0"	
	4	Н	2	X				CAP	Х		1'-0"	2'-0"	0'-6"	
	5	A-B	2	X				CAP		Х	1'-6"	6'-0"	0'-6"	
15	5	С	2			Х		CAP	Х		0'-6"	2'-0"	0'-6"	
	5	G-H	2	X				CAP	Х		3'-0"	15'-0"	1'-6"	1
	5	H	2	ļ		Х		CAP		Х	2'-0"	6'-0"		
16	5-6	B	1		X			RAILBEAM		Х	0'-5"	4'-0"	1'-0"	
	5-6	B	1				X	RAILBEAM	X	X	0'-6"	3'-0"	1'-0"	
17	6	A-D	2	X		V	X	CAP	X	X	2'-0"	20'-0"	3'-0"	4 E
	0	A-B	2			X V			×	X	2'-0"	6'-0"	0'-6"	
18	6.7	B	2		X	$\hat{}$				v	0' 4"	2'-0"	0'-6"	
	7		2	X					^	^ Y	1' 0"	2-0	0' 6"	
┣	7	C	2	X					X		1'_0"	2'-0"	0-0	
F	7	A-E	2			Х			X	X	3'-0"	30'-0"	1'-0"	
19	7	F	2	Х				CAP	X		1'-0"	4'-0"	0'-6"	
	7	G	2	Х				CAP	X		1'-0"	2'-6"	0'-6"	
F	7	H	2	Х				CAP	X		1'-6"	3'-0"	0'-6"	
F	7	Н	2			X		CAP	X	Х	2'-0"	4'-0"	1'-0"	
20	7-8	В	1		Х			RAILBEAM	Х	Х	1'-0"	5'-0"	1'-0"	1 Expos
	8	A-C	2	Х				CAP		Х	2'-6"	10'-0"	0'-6"	
F	8	A-C	2			X		CAP		Х	2'-0"	10'-0"	0'-6"	
21	8	E	2	Х				CAP	X		1'-6"	2'-6"	0'-6"	
21	8	F	2	Х				CAP	Х		0'-6"	2'-0"	0'-3"	
	8	G	2			Х		CAP	Х	Х	3'-0"	3'-0"	0'-6"	
	8	F	2			X		CAP	Х	Х	2'-0"	3'-0"	0'-6"	
22	8-9	В	1		Х			RAILBEAM	X	Х	1'-6"	4'-0"	1'-6"	1 Expos
	9	B-D	2			X		CAP		Х	1'-6"	15'-0"		
23	9	E-G	2	Х				CAP		Х	1'-6"	15'-0"	0'-6"	
Ļ	9	E	2			X		CAP	X	X	1'-0"	3'-0"	0'-6"	
	9	G	2		$\overline{}$	X		CAP	X		1'-0"	3'-0"	0'-6"	
	9-10	<u> </u>	1	$\overline{\cdot}$	X			RAILBEAM		X	1'-6"	8'-6"	1'-0"	
24	10	A-B	2	X				CAP		X	1'-0"	6'-0"		
24	10		2			X		CAP		X	1'-0"	5'-0"	0'-6"	
24 25	10			$\overline{}$	T	•	-		<b>x</b> 1	<b>v</b> 1		- · · · · · · ·	'	
24 25	10 10 10	A-B E-F	2	X	$\overline{}$					<u> </u>	1'-6"	10-0"	0'-6"	
24	10 10 10-11	A-B E-F B	2	X	X			RAILBEAM		X	1'-6" 1'-0"	8'-6"	0'-6"	
24 25 26	10 10 10-11 10-11	A-B E-F B C	2 1 1 1	X B	X TC	TO	M	RAILBEAM RAILBEAM	X	× X	1'-6" 1'-0" 1'-0"	10-0" 8'-6" 3'-0"	0'-6" 1'-0" 0'-1"	
24 25 26	10 10 10-11 10-11 10-11 10-11	A-B E-F B C C	2 1 1 1 1 2	X B(	X TC	TO	M X	RAILBEAM RAILBEAM RAILBEAM	X	× × ×	1'-6" 1'-0" 1'-0" 0'-6"	8'-6" 3'-0" 2'-0"	0'-6" 1'-0" 0'-1"	

COMMENTS
oosed Bar, 10% LOS, 3 Stirrups 100% LOS
1 Exposed Bar, 10% LOS
3 Exposed Bars
1 Exposed Bar & 1 Stirrup
oosed Bar, 10% LOS, 5 Stirrups, 50% LOS
Exposed Bar & 3 Stirrups, 10% LOS
osed Bars 20% LOS. 8 Stirrups 100% LOS
1 Exposed Bar & Stimun 100% 100
1 Exposed Bar, 7 Stirrups 100% LOS
Exposed Bars 4 Stimus 100% LOS
Exposed Bais, 4 Stillups 100% EOS
and Der (00/ 100 0.01/
osed Bar, 10% LOS, 3 Stirrups 100% LOS
Red Bar 100/ 100 2 04: 1000/ 100
Doeu Dai, 10% LOO, 3 Stirrups 100% LOS
Railbeam Underside

- NOTES:
- 1. SEE SHEET S2 FOR ITEM NO. LOCATIONS.
- 2. SEE SHEET R1 FOR REPAIR TYPE 1: VERTICAL AND OVERHEAD SURFACE REPAIR RAIL BEAM, R2 FOR REPAIR TYPE 2: VERTICAL AND OVERHEAD SURFACE REPAIR - PILE CAP.
- 3. THE PILE ID IS THE APPROXIMATE LOCATION OF THE DEFECT CENTER BASED ON THE GRID LINES.
- 4. THE APPROXIMATE DIMENSIONS OF VISIBLE DAMAGE ARE BASED ON FIELD OBSERVATIONS IN JUNE 2012 AND ARE TO BE CONSIDERED APPROXIMATE. THE DIMENSIONS OF DAMAGE ARE NOT MEANT TO REPRESENT THE AMOUNT OF UNSOUND CONCRETE TO BE REMOVED OR THE REPAIR EXTENTS. DURING DEMOLITION THE ACTUAL EXTENTS MAY VARY FROM THE VISIBLE DIMENSIONS OF DAMAGE SHOWN IN THE TABLE.



AUTHORIT

outh Carolina State **PORTS AL JLUMBUS STREET TERMINAL** 

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TH CARO

COLLINS ENGINEERS, INC.

No. C01272

PHASE I WHARF SUBSTRUCTURE REPAIRS REPAIR ITEM DETAIL TABLE - SEGMENT #1

225 SEVEN SUITE 200 CHARLEST (843)884-20

**OLLINS** 

**U**Z

ITEM	PILE	ID	REPAIR	2	FAC	E	LOCATION	TYPE C	F DAMAGE	DIME	ENSION DAMAG	IS OF E	
NO.	BENT	PILE	TYPE	N	ES	w	Cap/Rail Beam	SPALL	IMPENDING SPALL	HEIGHT	WIDTH	PEN/ LENGTH	COMMENTS
	13	A-C	2		X		CAP		Х	2'-0"	1'-0"	12'-0"	
28	13	E-F	2		X		CAP	X		0'-4"	0'-6"	2'-6"	
	13	F	2			X	CAP	X		1'-0"	3'-0"	0'-6"	1 Exposed Bar, 10% LOS
29	13-14	B-C	1		X		RAILBEAM	X		1'-0"	9'-6"	1'-0"	1 Exposed Bar 100% LOS, 5 Stirrups
	13-14	D-E	1		X		RAILBEAM	X		1'-0"	0'-6"	0'-6"	1 Exposed Bar, 25% LOS
	14	A-C	2						X	2'-0"	0'-6"	12'-0"	
20	14								X	1'-6"	2"-6"	1'-0"	
	14 		2						V	2-6		6'-0"	
	14	F	2	+					^ 	2' 0"	11.0"	0-0" 9' 0"	Dile Con Evenend Channels
	14-15	A-B	1	+	X	┼─┤			×	2-0	8'-6"	1'-0"	File Cap, Exposed Channels
	14-15	C-E	1	╉╌╉		x			×	0'-6"	1'-0"	2'-0"	
31 -	14-15	E	1	+	x		RAILBEAM		×	1'-0"	1'-0"	2.0	
	14-15	F	1	+		x	RAILBEAM	x	X	0'-8"	0'-2"	0'-1"	Railbeam 1 Exposed Bar
	15	A-B	2	x			CAP	X	X	2'-0"	02	8'-0"	
	15	E	2	x			CAP	X		1'-0"	2'-0"	0'-8"	Exposed Channels
32	15	F	2	X			CAP	x	X	2'-0"	0'-6"	3'-0"	
	15	A-E	2		X	╞──╂	CAP	X	X	3'-0"	1'-0"	20'-0"	2 Exposed Bars. Up to 100% LOS
	15-16	В	1		x	╞──╂	RAILBEAM		X	0'-2"	8'-6"	1'-0"	
33	15-16	F	1	BC	otto	M	RAILBEAM	X		0'-1.5"	1'-6"	2'-6"	1 Exposed Bar, 10% LOS
	15-16	F	1			X	RAILBEAM		Х	1'-0"	4'-0"		· · · · ·
	16	A-C	2	X			CAP		Х	2'-0"	1'-0"	12'-0"	
34	16	D-E	2	X			CAP	Х	Х	1'-0"	8'-0"	1'-0"	
	16	A-F	2		X		CAP		Х	1'-0"		30'-0"	Full Length *Verify
35 -	16-17	В	1		X		RAILBEAM		Х	1'-0"	8'-6"	0'-6"	
	16-17	F	1	BC	OTTO	M	RAILBEAM	Х		0'-1"	0'-4"	1'-0"	(2 Spalls) 1 exposed bar, 20% LOS
	17	B-E	2	X			CAP	Х	Х	1'-0"	1'-0"	12'-0"	
36	17	F	2				CAP	Х	X	1'-0"	3'-0"	0'-6"	
	1/	A-B			X		CAP		X	1'-0"	8'-0"		
-	18	A-B	2				CAP		XX	2'-6"	5'-0"		
37 -	10	C-E						X	X	1'-0"	10'-0"	0'-6"	
-	10		2		V				×	2-0"	3'-0"		
	10		2	X					^ 	2-0	0-U	0-6	
-	19	F-F	2	X				×	×	2-0	8'-0"		2 Expand Ram 500/ LOS
38	19	A-B	2		X		CAP		X	1'_0"	6'-0"		2 Exposed Bars, 50% LOS
	19	E	2	┝╌┠	X		CAP		× ×	1'-0"	3'-0"	0'-6"	
	19	F	2	╉╼╌╂╴	X		CAP		X	2'-6"	3'-0"	0'-6"	
39	19-20	В	1		x		RAILBEAM		X	2'-0"	6'-0"	1'-0"	
	20	A-B	2	X			CAP		X	1'-6"	8'-0"		
	20	F	2		X		CAP		X	2'-0"	0'-6"	0'-6"	
40 -	20	F	2	X			CAP	X	Х	2'-6"	5'-0"	1'-0"	
	20	A-B	2		X		CAP		X	1'-0"	4'-0"		
41	20-21	В	1		X		RAILBEAM	X	X	1'-6"	8'-6"	3'-0"	5 Exposed Bars, 25% LOS
	21	A-E	2	X			CAP		Х	1'-6"	18'-0"		
42	21	F	2	X			CAP	Х	Х	2'-6"	3'-0"	0'-6"	
	21	F	2		X	X	CAP	X	X	2'-6"	8'-0"	3'-0"	
	21	A-B	2		X		CAP		X	1'-0"	8'-0"		
43 -	21-22	B	1			X	RAILBEAM	X	X	1'-0"	0'-8.5"	0'-6"	1 Exposed Bar, 50% LOS
	21-22		1	BC		M	RAILBEAM	X		2'-6"	1'-0"	2'-0"	Bottom, 1 Exposed Bar, 25% LOS
44	22	8-F	2	X				X	X	3'-0"	20'-0"	0'-6"	Exposed Channels
15	22		2			$\overline{\mathbf{v}}$			× – – – – – – – – – – – – – – – – – – –	3'-0"	30'-0"	0'-6"	Full Length, Exposed Rebar 20% LOS
45	22-23		2							2-0	0-0	1-0"	1 Exposed Bar, 4 Stirrups, 25% LOS
46 -	23		2	X	+				× 1	2-0	3-0	0' 6"	Verify Full Length 201
	23-24	B	- 1		x				×	0'_/"	31_0"	2'-0"	veniy ruli Length 30°
47	23-24	F	1		× +			X	×	0'-6"	6'-0"	1'_6"	1 Exposed Bar 2 Stirring 200/ 100
-	23-24	F	1		<del>`   </del>	x	RAIL BEAM	$-\frac{1}{X}$		0'-6"	0'-6"	0'-1"	1 Exposed Bar, Not Poher
	24	A-D	2	X			CAP			2'-6"	15'-0"		r Exposed Dat, NUL Repar
48	24	F	2	X	+++		CAP	X		0'-8"	2'-0"	0'-6"	
-	24	D-F	2	- •	+x		CAP	X	x	2'-0"		0'-6"	
49	24-25	B	1	+;	x 1		RAILBEAM		X	0'-6"	0'-8.5"	0'-4"	
	25	A-F	2	X	+++		CAP		X	3'-0"	30'-0"		
50	25	A-C	2		x		САР		X	2'-0"	10'-0"	0'-6"	
•	1	1	1		1			1	1	1	1		

# SEGMENT # 2 OBSEDVED DEFECTS

TEM	PILE	ID	REPAIR	2	FAC	CE	LOCATION	TYPE (	OF DAMAGE		ENSION	IS OF		F	5 SEVEN FARM JITE 200 JARLESTON, SI 43)884-2027 ENT
NO.	BENT	PILE	TYPE	N	E	sw	Cap/Rail Beam	SPALL	IMPENDING	HEIGHT	WIDTH	PEN./	COMMENTS		
51	25-26	B	1			x	RAILBEAM		SPALL X	0'-6"	8'-6"	LENGTH	Efforescense		
	26	D	2	X			CAP	X		0'-4"	2'-6"	0'-6"			
52	26	F	2	X			CAP	Х		1'-0"	3'-0"				
	26	A-F	2			X	CAP		X	1'-0"	28'-0"				
53	27		2	X	<u>                                     </u>		CAP		X	2'-0"	8'-0"	01.01			
		A-E	2	x		^		×	X	2'-0"	20'-0"	0'-6"	1 Exposed Bar 50% LOS 5 Stirrupa		
54	28	A	2		+ +;	x	CAP	X	Λ	2'-6"	2'-6"	0'-6"			Ż
55	28-29	В	1		X		RAILBEAM	X	Х	1'-6"	8'-6"		1 Exposed Bar, 4 Stirrups, 10% LOS	0	
56	29	A-F	2	Х			CAP		Х	2'-0"	30'-0"				N S S
	29	A-F	2			X	САР		X	1'-6"	30'-0"				
57	29-30	B	1					X	X X	0'-6"	8'-6"	1'-0"			ШШ
	30	A-F	2	x	$ ^+$			^	× X	2'-6"	30'-0"	0'-6"		Q	
58	30	A-C	2			x	CAP		X	2'-6"	12'-0"	0'-6"			L N
_	30	E-F	2			K	CAP		Х	2'-0"	8'-0"	0'-6"		6	<b>    </b>  5
	30-31	В	1		X		RAILBEAM	X	X	0'-6"	6'-0"	1'-0"	1 Exposed Bar, 20% LOS	<u>]</u>	
59	30-31	F		<b> </b>	<b> </b>	X	RAILBEAM		X	1'-0"	8'-6"	1'-0"	1 Exposed Bar, 10% LOS,1 Stirrup 100% LOS	110	STI 2
F	30-31	U-U   F	   1	$\left  \right $	x		RAILBEAM	×	X 	U'-6"	8'-6" 8' 6"	0'-6"	1 Exposed Bar 200/ LOS		
	31	A-F	2	X				~	× X	3'-0"	30'-0"	0-0	T Exposed Bar, 20% LOS	$\ a\ $	
50	31	C-F	2		,	$\langle    $	CAP		Х	1'-6"	15'-0"			ir	L L
	31	A-C	2			<	CAP	X	Х	3'-0"	8'-0"		2 Exposed Bars, 20% LOS	$\frac{1}{2}$	N H
51	31-32	B	1			X	RAILBEAM	X	X	1'-6"	7'-0"	1'-6"	2 Exposed Bars, 25% LOS	IV.	
	31-32	D-E			X				X X	1'-6"	8'-6"	1'-0"	1 Bar, 4 Stirrups, 20% LOS		<b>D</b>
F	32	B	2	A X					× X	1'-6"	8'-0" 2'-0"	10'-0" 0'-6"			<b>Z</b>
52  -	32	E-F	2	X			CAP		X	1'-6"	8'-0"	0'-6"		$ \eta $	<b>5 a</b>
	32	B-E	2		>		CAP		Х	1'-6"	20'-0"	0'-6"		$\mathcal{M}t$	
63	32-33	В	1		X		RAILBEAM		Х	0'-3"	6'-0"	0'-6"		01	ō
54	33	A-E	2						X	1'-6"	20'-0"	0'-6"		S	ŏ
65  -	33-34	B	1		X				X X	0'-6" 20'-0"	6'-0" 1'-6"	0'-6"	1 Exposed Bar 20% LOS		
	35	A	2	X			CAP		X	1'-6"	1'-6"	0'-6"			TH CAROLI
	35	B-F	2	X			CAP		X	1'-6"	20'-0"			REN	COLLINS GINEERS, INC.
6	35	A-B	2		)	<	CAP	Х	Х	1'-6"	8'-0"	0'-6"			No. C01272
-	35	E	2				CAP		X	1'-0"	2'-0"	0'-6"			E OF ALTINO
	35-36	F R	2		X			X	Y	0'-4"	2'-0"	0'-4"			
57  -	35-36	C-D	1			X	RAILBEAM	X	~	0'-0"	2'-0"	0'-3"	1 Exposed Bar 10% LOS	University of the second	ROFE PENER
	36	A-B	2	X			CAP			1'-6"	6'-0"				No. 27820
8	36	E-F	2	X			CAP		Х	2'-6"	10'-0"			WARD	83-12
	36	A-E	2		X		CAP		X	1'-6"	20'-0"	0'-6"		and HE	WRY STEHNIN
9	36-37	B	1	V	X			X	X X	1'-6"	8'-6"	0'-6"	4 Exposed Bars, 50% LOS	FILE N	AME
0 -	37	E-F	2	X		++	CAP	x	× ×	0'-6"	2-0 6'-0"	0'-6"	1 Exposed Bar 10% LOS	40	-7468-S
1					1									DATE	
									F	٩S	-В	UII	LI PLANS	AUG	SUST 20
									_					SCALE	
									- F	JA	$\Box \Lambda$		IIO GUNILE -		N/A
TES	S:								_					PROJE	
0					<b>•</b> •	~~~	TIONO		F	۶F	C	=   \	/FD 8/5/13		F12E003
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SEE	SHEET	R1 F	OR REP	PAIF	א ד <i>י</i>	PE	1: VERTICAL AN	ND OVEF	RHEAD SUR	FACE	REPAII	R - RAIL	_ BEAM,		KW
R2 I	FOR REI	PAIR	TYPE 2:	VE	RTI	CAL	AND OVERHEA	AD SURF	ACE REPAI	R - PIL	E CAP	•		CHECK	ED BY
THE		IS TI		202	XIM	ATE	LOCATION OF		FECT CENT		SED O		GRIDLINES		ES
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		XIMA מאס			SIO	NS C	OF VISIBLE DAN					SERVAT	IONS IN		ES
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EXT	ENTS. E	URIN			TIO	N TH	IE ACTUAL EXT	ENTS M	IAY VARY F	ROM T	HE VIS	SIBLE			
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10.	DESCRIPTION	DATE	APP'D. BY	
	REVISIONS			

	PILE	ID	DEDAID		FA	CE	=	LOCATION	TYPE	OF DAMAGE			IS OF	
NO.	BENT	PILE	TYPE	N	E	s	w	Cap/Rail Beam	SPALL	IMPENDING	HEIGHT		E PEN./	COMMENTS
71	20	DE	2	1		$\overline{\mathbf{v}}$				SPALL	21 6"	21.0"	LENGTH	
/ 1	38-30	B-C	2	-	X				× ×	× ×	2-0	3-0	0'-6"	1 Exposed Bar 6 Stirrups 10% LOS
72	38-39	F	1							X	0'-6"	8'-6"	0'-0	
12	38-39	F-F	1				М		x		2'-0"	15'-0"	0'-0"	1 Exposed Bar 25% LOS
	39		2							X	2'-6"	8'-6"	0-2	
	39	A-B	2	X				CAP	X		0'-6"	6'-0"	1'-0"	1 Exposed Bar, 10% LOS
	39	C-E	2	X	+			CAP		X	1'-6"	2'-6"	1'-0"	
73	39	F	2	X				CAP		X	1'-0"	3'-0"	0'-6"	
	39	B	2	+	+	X		CAP	X		1'-6"	2'-0"	0'-4"	1 Exposed Bar, 20% LOS
	39	B	2		╉╾╋	X		CAP	X		0'-8"	0'-8"	0'-2"	1 Exposed Bar, 10% LOS
	39-40	В	1	1	X			RAILBEAM	X	X	0'-8"	8'-0"	1'-0"	1 Exposed Bar, 3 Stirrups, 10% LOS
74	39-40	E	1	+	X			RAILBEAM	X		4'-0"	1'-6"	0'-6"	2 Exposed Bars, 15% LOS
	39-40	E	1		X			RAILBEAM	X		1'-0"	1'-6"	0'-6"	
	40	A-C	2	X				CAP		Х	1'-0"	10'-0"	0'-6"	
75	40	E-F	2	X				CAP	X	Х	2'-0"	10'-0"	0'-6"	
	40	A-F	2			X		CAP		Х	1'-6"	30'-0"		
	40-41	В	1		X			RAILBEAM	X	X	1'-6"	8'-6"	1'-6"	2 Exposed Bars, 3 Stirrups, 10% LOS
	40-41	С	1	В	OT	TO	M	RAILBEAM	X		1'-0"	2'-6"	0'-2"	1 Exposed Bar, 50% LOS
76	40-41	С	1	В	OT	TO	M	RAILBEAM		X	3'-0"	2'-0"		
	40-41	E	1	1			X	RAILBEAM	X	X	1'-0"	8'-6"	0'-6"	2 Exposed Bars, 5 Stirrups, 10% LOS
	40-41	E	1	<u> </u>	X			RAILBEAM	X	X	1'-6"	8'-6"	0'-6"	2 Exposed Bars, 20% LOS
	41	A	2	X				CAP		X	3'-0"	1'-0"	0'-6"	
77	41	D-F	2	X				CAP	X	Х	1'-6"	10'-0"	0'-6"	
	41	A-F	2	1		x		CAP	X	Х	2'-0"	30'-0"	0'-6"	
	41-42	В	1		X			RAILBEAM	X	Х	1'-6"	8'-6"	0'-1.5"	1 Exposed Bar, 20% LOS, 6 Stirrups 100% LC
78	41-42	D-E	1	1	x	+		RAILBEAM	X		1'-0"	2'-0"	1'-0"	1 Exposed Bar, 20% LOS, 2 Stirrups 100% LC
	42	A-C	2	X	$\left\{ \begin{array}{c} \\ \end{array} \right\}$			CAP		Х	2'-0"	3'-0"		
ŀ	42	E-F	2	X	╞──┼	-+		CAP	X	X	0'-6"	4'-0"	0'-6"	
79	42	A-E	2			x		CAP	X	X	2'-0"	20'-0"	0'-6"	
	42	F	2		╞──┼	X		CAP		X	1'-6"	3'-0"	0'-6"	
	42-43	B	1		x			RAILBEAM	X	X	1'-6"	8'-6"	1'-6"	2 Exposed Bars 20% LOS 4 Stimups 50% LO
80	42-43	F	1		x			RAILBEAM	X	X	1'-0"	2'-0"	1'-0"	2 Bars Exposed 20% LOS 6 Stirrups 20% LC
	43	B-C	2	x					X	X	2'-6"	1'-0"	0'-6"	
81	43	D-F	2	X						X	2'-0"	15'-0"	0'-6"	
	43	A-F	2		$\left  \right $	x				X	2'-0"	30'-0"	1'-6"	
	43-44	C	1	B			M		x	X	3'-0"	3'_0"	0'-2"	1 Exposed Bar 50% LOS
	43-44	F	1						X	X	1'-6"	2'-0"	0-2	
82	43-44	F	1				x		X		<u>0</u>	0'-6"	∩'₋1"	1 Exposed Bar 10% LOS
ŀ	43-44	B	1		x	-+	$\rightarrow$		X	X	1'_0"	8'-6"	1'_0"	1 Bar Exposed 40% LOS 8 Stirrups 100% L
	44		2	X						X	1'-6"	15'_0"	0'_6"	
83	<u> </u>	A-F	2			x			×	X	1'-6"	30'_0"	0-0	
	44	R R	1		x						1-0	20-0 2' 6"	1' 0"	1 Expand Par 50% LOS 6 Stirrups 100% L
24	44-45		1			-+	$\overline{\mathbf{v}}$		^	^ X	0' 6"	0-0	1-0	TEXPOSED BAI, 50% LOS, 6 Stimups, 100% LO
ן <del>ר</del> ע ן	С++++ ЛЛ ЛГ		1	╞──┤			^					3-0	11 01	
	С++++ ле		ו ר						~		0-0	4-0	1-0"	
	40		2	$ \uparrow $		$\overline{\mathbf{v}}$			~		2-0	10-0"		
	40		2	┠──┤		$\frac{1}{\sqrt{2}}$			v		1-0			
	40		4	$\left  - \right $		4			∧ ∨		1-0"	0-0	U-0"	1 Der Evenned 500/ 1 00 0 01: 1000/ 10
╞	40-40	В	1						X V	X V	1-0"	0-0	1'-U"	тваг Exposed 50% LOS, 6 Stirrups, 100% LC
36	45-46		1				VI	RAILBEAM	X	X	1'-6"	2'-0"	0'-2"	2 Exposed Bars
ŀ	45-46		1				X	KAILBEAM	X	X	1'-6"	3'-0"	0'-4"	
	45-46		1			$\downarrow$	X	KAILBEAM	X	Χ	1'-6"	20'-0"	1'-6"	
5/	46		2			<u>×</u>			X	X	2'-0"	30'-0"	0'-6"	
88	46-47	R R	1		X			KAILBEAM	X	X	1'-6"	8'-6"	1'-0"	1 Bar Exposed, 25% LOS, 6 Stirrups 100% LC
	46-47		1		X	_		KAILBEAM		X	0'-6"	8'-6"	0'-6"	
Ļ	4/		2					CAP	X	Χ	1'-6"	12'-0"	0'-6"	
59   	47		2					CAP		X	1'-6"	8'-0"		
	47	A-F	2			X		CAP		X	1'-6"	30'-0"	0'-6"	
10	47-48	B	1		X			RAILBEAM		X	1'-6"	8'-6"	1'-6"	
	48	A-C	2	X				CAP		Х	1'-6"	15'-0"		
)1	48	A-D	2			X		CAP		Х	1'-6"	18'-0"	0'-6"	
	48	F	2			X		CAP		Х	0'-6"	4'-0"	0'-6"	
$\frac{1}{2}$	49	A-F	2	Х				CAP		Х	2'-0"	30'-0"	0'-6"	
~ [	49	A-F	2			X		CAP		Х	1'-6"	30'-0"	0'-6"	
													1	

w	Cap/Rail Beam	00411	Lungston to			E	001015170
		SPALL	SPALL	HEIGHT	WDTH	PEN./ LENGTH	COMMENTS
	CAP		X	1'-6"	15'-0"		
	CAP	X	Х	1'-6"	27'-0"	0'-6"	
	CAP		Х	1'-6"	6'-0"	0'-6"	
	RAILBEAM	X	Х	1'-6"	8'-6"	1'-0"	
	CAP		Х	1'-6"	15'-0"	0'-6"	
	CAP		Х	1'-6"	27'-0"	0'-6"	
	RAILBEAM		Х	2'-0"	8'-6"	1'-0"	
	CAP		Х	1'-6"	30'-0"	0'-6"	
	CAP		Х	1'-6"	30'-0"	0'-6"	
	CAP		Х	2'-0"	30'-0"	0'-6"	
	CAP		<u> </u>	2' 0"	15'-0"	0' 6"	+ NOT REPAIRED
	RAILBEAM		X		8'-6"	0'-6"	
	RAILBEAM		Х	1'-0"	8'-6"	0'-6"	
	CAP		Х	2'-0"	30'-0"	0'-6"	
	CAP		Х	1'-6"	30'-0"	0'-6"	
	RAILBEAM		Х	1'-6"	8'-6"	1'-0"	
N	RAILBEAM	X		0'-6"	3'-0"	0'-1"	1 Bar Exposed, 20% LOS
M	RAILBEAM	X		0'-4"	1'-0"	0'-1"	1 Bar Exposed, 20% LOS
	САР		X	1'-6"	30'-0"	0'-6"	
	CAP		X	1'-6"	30'-0"	0-6"	
	RAILBEAM		X	0'-6"	8'0"	1'-0"	
	CAP		X	1'-6	10'-0"	0'-6"	
	САР			1'-6"	10'-0"	0'-6"	
	САР			1'-6"	10'-0"	0'-6"	
$\rightarrow$	RAILBEAM		X	0-6"	8'-6"	0'-6"	
			X	1'-0"	0'-0"	0'-6"	
			X	1'-6"	4'-0"		
	RAILBEAN	X	X	0'-6"	8'-6"	0'-0"	
	CAP	X	X	2'-6"	30'-0"	1'-0"	
			X	1'-6"	25'-0"	0'-6"	
				1-0	0-0		i Bar Exposed, 20% LOS, 9 Stirrups 100% LC
				1-0	0-0	1.0"	1 Par Expand 200 4 00 0 04 mm 40004 4 0
			A V	1-0	0-0		I Dal Exposed, 20% US, 3 Stirrups 100% LC
		Y	^	1' 0"	+-U 1' 0"	0-0 ייביי	Evenand Chai
			Y	1'-0	10'0"	0-2	
x		X		1'.6"	5'.0"	0-0	1 Exposed Bar 100/ 1 Stirrupa 200/ 100
	CAP	X	X	2'_0"	15'_0"	0-0 0'_6"	1 Exposed Dal, 10%, 4 Sullups, 50% LUS
	CAP		X	2-0 1'_6"	10'_0"	0-0	
	CAP	x		0'_6"	3'-0"	0'-6"	1 Bar Exposed 10% LOS
		CAP RAILBEAM CAP CAP CAP CAP RAILBEAM RAILBEAM CAP CAP RAILBEAM A RAILBEAM A RAILBEAM CAP CAP CAP CAP CAP CAP CAP CAP CAP CAP	CAPRAILBEAMCAPCAPCAPCAPCAPRAILBEAMRAILBEAMCAPCAPCAPRAILBEAMXRAILBEAMXRAILBEAMXCAPCAPRAILBEAMXCAPCAPCAPCAPCAPCAPCAPCAPCAPCAPCAPCAPCAPCAPCAPCAPX	CAPXRAILBEAMXCAPXCAPXCAPXCAPXCAPXCAPXRAILBEAMXRAILBEAMXCAPXCAPXRAILBEAMXARAILBEAMXCAPXRAILBEAMXCAPXRAILBEAMXCAPXCAPXCAPXCAPXCAPXCAPXCAPXCAPXCAPXCAPXCAPXCAPXCAPXCAPXCAPXCAPXCAPXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXCAPXXXCAP	CAP         X         1'-6"           RAILBEAM         X         2'-0"           CAP         X         1'-6"           CAP         X         1'-6"           CAP         X         1'-6"           CAP         X         1'-6"           CAP         X         2'-0"           GAP         X         2'-0"           GAP         X         2'-0"           RAILBEAM         X         1'-6"           RAILBEAM         X         1'-6"           RAILBEAM         X         1'-6"           RAILBEAM         X         0'-4"           CAP         X         1'-6"           RAILBEAM         X         0'-4"           CAP         X         1'-6"           RAILBEAM         X         0'-6"           M         RAILBEAM         X         0'-6"           CAP         X         1'-6"           RAILBEAM         X         0'-6"           CAP         X         1'-6"           CAP         X         1'-6"           CAP         X         1'-6"           RAILBEAM         X         0'-6" <t< td=""><td>CAP         X         1'-6"         27-0"           RAILBEAM         X         2'-0"         8'-6"           CAP         X         1'-6"         30'-0"           CAP         X         1'-6"         30'-0"           CAP         X         1'-6"         30'-0"           CAP         X         2'-0"         30'-0"           CAP         X         2'-0"         30'-0"           CAP         X         2'-0"         30'-0"           RAILBEAM         X         8'-6"           RAILBEAM         X         1'-6"         30'-0"           CAP         X         1'-6"         30'-0"           CAP         X         1'-6"         30'-0"           RAILBEAM         X         1'-6"         30'-0"           RAILBEAM         X         0'-6"         3'-0"           M RAILBEAM         X         0'-6"         3'-0"           M RAILBEAM         X         0'-6"         3'-0"           CAP         X         1'-6"         10'-0"           CAP         X         1'-6"         30'-0"           CAP         X         1'-6"         10'-0"           <td< td=""><td>CAP         X         1'-6"         27'-0"         0'-6"           RAILBEAM         X         2'-0"         8'-6"         1'-0"           CAP         X         1'-6"         30'-0"         0'-6"           CAP         X         1'-6"         30'-0"         0'-6"           CAP         X         2'-0"         30'-0"         0'-6"           RAILBEAM         X         1'-6"         30'-0"         0'-6"           CAP         X         1'-6"         30'-0"         0'-6"           RAILBEAM         X         1'-6"         30'-0"         0'-6"           ARILBEAM         X         0'-6"         3'-0"         0'-1"           ARAILBEAM         X         0'-6"         3'-0"         0'-6"           CAP         X         1'-6"         30'-0"         0'-6"           CAP         X         1'-6"         30'-0"         0'-6"           CAP         X         1'-6"         3'</td></td<></td></t<>	CAP         X         1'-6"         27-0"           RAILBEAM         X         2'-0"         8'-6"           CAP         X         1'-6"         30'-0"           CAP         X         1'-6"         30'-0"           CAP         X         1'-6"         30'-0"           CAP         X         2'-0"         30'-0"           CAP         X         2'-0"         30'-0"           CAP         X         2'-0"         30'-0"           RAILBEAM         X         8'-6"           RAILBEAM         X         1'-6"         30'-0"           CAP         X         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IIEM	PILE	ID	REPAIR		FA	CE	LOCATION	TYPE	TYPE OF DAMAGE			NS OF	
NO.	BENT	PILE	TYPE	N	E	sv	/ Cap/Rail Beam	SPALL		HEIGHT	WIDTH	PEN./	COMMENTS
	50	A-C	2	X			CAP		X	1'-6"	15'-0"		
94	50	E-F	2	X			CAP	X	X	1'-6"	27'-0"	0'-6"	
	50	A-F	2			X	CAP		X	1'-6"	6'-0"	0'-6"	
95	50-51	В	1		X		RAILBEAM	X	X	1'-6"	8'-6"	1'-0"	
06	51	D-F	2	X			CAP		X	1'-6"	15'-0"	0'-6"	
90	51	A-F	2			X	CAP		Х	1'-6"	27'-0"	0'-6"	
97	51-52	В	1		X		RAILBEAM		Х	2'-0"	8'-6"	1'-0"	
98	52	A-F	2	X			CAP		Х	1'-6"	30'-0"	0'-6"	
	52	A-F	2			X	CAP		Х	1'-6"	30'-0"	0'-6"	
99	53	A-F	2	X			CAP		X	2'-0"	30'-0"	0'-6"	
	-53	AÐ	2			× -	GAP		× ×	2' 0"	15' 0"	0' 6"	+ NOT REPAIRED
100	52-53	B	1		X		RAILBEAM		X		8'-6"	0'-6"	
101	53-54	B	1		X		RAILBEAM		X	1'-0"	8'-6"	0'-6"	
102	54	A-F	2	X			CAP		X	2'-0"	30'-0"	0'-6"	
	54	AE	2			X	CAP		Х	1'-6"	30'-0"	0'-6"	
	54-55	B					RAILBEAM		X	1'-6"	8'-6"	1'-0"	
103	54-55		1	R			RAILBEAM	X		0'-6"	3'-0"	0'-1"	1 Bar Exposed, 20% LOS
	54-55		1	B			RAILBEAM	X		0'-4"	1'-0"	0'-1"	1 Bar Exposed, 20% LOS
104	55		2	X			CAP		X	1'-6"	30'-0"	0'-6"	
105			2			<u>×</u>			X	1'-6"	30'-0"	0.	
105	50-00						RAILBEAN			0'-6"		1'-0"	
106	56		2						× ×	11 6"	10-0	0-0	
	56		2			x				1'6"	10-0	0-0	·
107	56-57	B	1		X				X	1-0	8'_6"	0-0	
	57	E-F	2	X			CAP		X	1'-0"	0'-0"	0'-6"	
108	57	A	2			x	CAP		X	1'-6"	4'-0"		
109	57-58	В	1		X		RAILBEAM		X	0'-6"	8'-6"	0'-6"	
	58	A-F	2				CAP	X	X	2'-6"	30'-0"	1'-0"	
110	58	C-F	2			x	САР	X	X	1'-6"	25'-0"	0'-6"	
111	58-59	A	1		X		RAILBEAM	X	X	1'-6"	8'-0"	1'-0"	1 Bar Exposed, 20% LOS, 9 Stirrups 100% L
112	59	D-F	2	X			CAP		X	1'-6"	8'-0"	0'-6"	
113	59-60	В	1		X		RAILBEAM	X	Х	1'-6"	8'-6"	1'-0"	1 Bar Exposed, 20% OS, 3 Stirrups 100% L
	60	A-B	2	X			CAP		Х	1'-0"	4'-0"	0'-6"	
114	60	E	2	X			CAP	X		1'-0"	1'-0"	0'-2"	Exposed Steel
	60	C-E	2		2	X	CAP		Х	1'-6"	10'-0"	0'-6"	
115	60-61	D	1			X	RAILBEAM	Х		1'-6"	5'-0"	0'-6"	1 Exposed Bar, 10%, 4 Stirrups, 30% LOS
116	61	D-F	2	X			CAP	Х	Х	2'-0"	15'-0"	0'-6"	
	61	A-B	2			X	CAP		Х	1'-6"	10'-0"	0'-6"	
117	62	E	2	X			CAP	X		0'-6"	3'-0"	0'-6"	1 Bar Exposed , 10% LOS

- 1. SEE SHEET S4 FOR ITEM NO. LOCATIONS.
- 2. SEE SHEET R1 FOR REPAIR TYPE 1: VERTICAL AND OVERHEAD SURFACE REPAIR RAIL BEAM R2 FOR REPAIR TYPE 2: VERTICAL AND OVERHEAD SURFACE REPAIR - PILE CAP.
- 3. THE PILE ID IS THE APPROXIMATE LOCATION OF THE DEFECT CENTER BASED ON THE GRID LINES.
- 4. THE APPROXIMATE DIMENSIONS OF VISIBLE DAMAGE ARE BASED ON FIELD OBSERVATIONS IN JUNE 2012 AND ARE TO BE CONSIDERED APPROXIMATE. THE DIMENSIONS OF DAMAGE ARE NOT MEANT TO REPRESENT THE AMOUNT OF UNSOUND CONCRETE TO BE REMOVED OR THE REPAIR EXTENTS. DURING DEMOLITION THE ACTUAL EXTENTS MAY VARY FROM THE VISIBLE DIMENSIONS OF DAMAGE SHOWN IN THE TABLE.

**AS-BUILT PLANS** PALMETTO GUNITE -**RECEIVED 8/5/13** 








## REPAIR TYPE 1 AND 2: RAIL BEAM AND PILE CAP REPAIR NOTES:

- 1. THE CONTRACTOR SHALL USE CONTAINMENT/CATCHMENT DEVICES TO PREVENT CONCRETE CHIPS, DEBRIS, ETC. FROM FALLING INTO THE WATER DURING THE PREPARATION/REPAIR WORK. CONTAINMENT/CATCHMENT DEVICES SHALL BE APPROVED BY THE OWNER PRIOR TO BEGINNING WORK.
- 2. THE REPAIR PERIMETER SHALL BE SAW CUT TO A DEPTH OF 1 IN., OR LESS IF NECESSARY TO AVOID CUTTING THE REINFORCEMENT. THE SAWCUTS SHALL BE A MINIMUM DISTANCE OF 2 IN. OUTSIDE THE FARTHEST EDGE OF THE SPALL IMPENDING SPALL, OR CRACK AND THE SAW CUT SURFACES SHALL BE ROUGHENED. ANY CUT REINFORCEMENT SHALL BE REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR. IF THE CONCRETE IS BROKEN OR REMOVED BEYOND THE LIMITS OF THE INITIAL SAW CUT, THE NEW REPAIR PERIMETER SHALL BE RECUT. THE AREAS TO BE REPAIRED SHALL HAVE ALL LOOSE, UNSOUND CONCRETE REMOVED COMPLETELY BY THE USE OF CHIPPING HAMMERS OR HYDRODEMOLITION EQUIPMENT
- THE CONCRETE REMOVAL SHALL EXTEND ALONG THE REINFORCEMENT BAR(S) UNTIL THE REINFORCEMENT IS FREE OF BOND INHIBITING CORROSION. THE OUTERMOST LAYER OF REINFORCEMENT BAR WITHIN THE REPAIR AREA SHALL BE UNDERCUT TO A DEPTH OF 1 IN. OR THE DIAMETER OF THE REINFORCEMENT BAR, WHICHEVER VALUE IS LARGER. THE UNDERLYING TRANSVERSE REINFORCEMENT BAR(S) SHALL ALSO BE UNDERCUT AS PREVIOUSLY DESCRIBED, UNLESS THE REINFORCEMENT IS NOT CORRODED, AND THE REINFORCEMENT BAR IS ENCASED AND WELL BONDED TO THE SURROUNDING CONCRETE. THE EXPOSED REINFORCEMENT BAR(S) SHALL BE CLEANED OF ALL RUST, SCALE, OIL, AND DIRT BY ABRASIVE BLASTING OR HIGH PRESSURE WATER (3,000 PSI TO 10,000 PSI).
- 4. AFTER CLEANING, ALL EXPOSED REINFORCEMENT BARS SHALL BE CAREFULLY EVALUATED BY THE CONTRACTOR TO DETERMINE IF REPLACEMENT OR ADDITIONAL REINFORCEMENT IS REQUIRED. REINFORCING BARS THAT HAVE BEEN CUT OR HAVE LOST 25 PERCENT OR MORE OF THEIR ORIGINAL CROSS SECTIONAL AREA SHALL BE SUPPLEMENTED BY NEW IN KIND REINFORCEMENT BARS. A MECHANICAL "SERVICE" BAR SPLICER SHALL BE USED UNLESS 32 BAR DIAMETERS OF EXISTING REINFORCEMENT IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE. NEW BARS SHALL BE LAPPED A MINIMUM OF 32 BAR DIAMETERS TO EXISTING BARS IF A MECHANICAL BAR SPLICER IS NOT USED. NO WELDING OF BARS SHALL BE PERFORMED. CONTRACTOR SHALL INFORM THE OWNER IN WRITING OF THE RESULT OF THE EVALUATION AND SHALL ALLOW THE OWNER THE OPPORTUNITY TO VERIFY AND PHOTO DOCUMENT THE REINFORCEMENT PRIOR TO THE PLACEMENT OF ANY CONCRETE REPAIR MATERIALS. ALL REBAR, MECHANICAL SPLICERS AND ACCESSORIES ARE INCLUDED IN THE UNIT PRICE FOR REPAIR TYPES 1 AND 2.
- CONCRETE SURFACES TO BE PATCHED SHALL BE THOROUGHLY CLEANED BY REMOVING ANY LOOSE PARTICLES AND DUST. THE SURFACES SHALL BE SATURATED FOR APPROXIMATELY FOUR HOURS SUBSEQUENT TO CLEANING. JUST PRIOR TO CONCRETE PLACEMENT, THE REPAIR AREA SHALL BE IN A SATURATED, SURFACE DRY CONDITION (THOROUGHLY WET WITH NO STANDING WATER).
- 6. IF APPLICABLE TO THE REPAIR MATERIAL CHOSEN, AN EPOXY BONDING AGENT SHALL BE APPLIED TO THE CLEANED SURFACE OF THE CONCRETE AND REINFORCING STEEL BEFORE PLACING CONCRETE. ANY FURTHER SURFACE PREPARATIONS, TIME FRAME, AND/OR MANNER OF PATCH PLACEMENT SPECIFIED BY THE BONDING AGENT MANUFACTURER'S INSTRUCTIONS SHALL ALSO BE STRICTLY ADHERED TO.
- THE OWNER SHALL HAVE THE OPPORTUNITY TO VERIFY AND PHOTO DOCUMENT THE SURFACE PREPARATION AND REBAR PLACEMENT OF EACH CONCRETE REPAIR PRIOR TO PLACING ANY CONCRETE REPAIR MATERIAL. IF REBAR IS ANTICIPATED TO BE EXPOSED TO THE ELEMENTS FOR MORE THAN THREE DAYS, A CORROSION INHIBITING REBAR COATING SHALL BE APPLIED. SUBMIT PROPOSED REBAR COATING TO OWNER AND ENGINEER FOR APPROVAL PRIOR TO USE.
- CONTRACTOR SHALL HAVE THE OPTION TO REPAIR TYPES 1 AND 2 WITH EITHER 8. SHOTCRETE, FORMED CONCRETE, OR A GROUT REPAIR AS DETAILED IN THE SPECIFICATIONS.
- REPAIR CONC., GROUT, AND MORTAR COMPRESSIVE STRENGTH: fc = 5,000 PSI MIN. AT 28 DAYS. MIX SHALL BE AS DETAILED IN THE SPECIFICATIONS

10. REINFORCING STEEL: ASTM A-615, GRADE 60,

- 11. ALL CONC. WORK SHALL CONFORM TO ACI 318-08 AND THE SPECIFICATIONS.
- 12. PROVIDE MINIMUM CONC. COVER OF 3 IN. FROM FACE OF CONCRETE TO MAIN REINFORCEMENT.
- 13. ALL EXPOSED CONCRETE CORNERS SHALL HAVE A 2 IN. CHAMFER TO MATCH EXISTING CONCRETE CHAMFER.
- 14. METHODS AND EQUIPMENT IN PLACING CONCRETE UNDERWATER OR WITHIN THE TIDAL ZONE SHALL PREVENT THE SEGREGATION OR WASHING OF THE CONCRETE BEFORE IT HAS HARDENED.
- 15. PER THE SPECIFICATIONS, THE CONTRACTOR SHALL SUBMIT PROPOSED FORMWORK AND CONCRETE PLACEMENT PROCEDURES FOR APPROVAL BY THE OWNER PRIOR TO USE.
- 16. PAYMENT SHALL BE BASED ON THE SQUARE FT AREA OF THE REPAIR, WHICH INCLUDES A DEPTH ON ADJACENT FACES. SEE SHEETS R1 AND R2 FOR EACH RESPECTIVE REPAIR TYPE.

#### NOTES:

- 1. SEE SHEETS S1 THROUGH S4 FOR ITEM NO. LOCATIONS.
- 2. SEE SHEETS S5 THROUGH S7 FOR TABLES CORRESPONDING ITEM NUMBERS WITH REPAIR TYPES AND NOTES.









Project No:

# **Appendix C**

#### Select Substructure Cross-Section Design & Details

# SOUTH CAROLINA STATE PORTS AUTHORITY COLUMBUS STREET TERMINAL - STATE PIER 8 NEW CONTAINER BERTH **PROJECT No. CIF02E001** JULY 2001

INDE	X OF DRAWINGS		INDEX OF DRAWINGS
SHT. NO.	DESCRIPTION	SHT. NO.	DESCRIPTION
S1	LOCATION MAP	5 S22	MISCELLANEOUS SECTIONS AND DETAILS
6 5 2 1 s2	SITE PLAN	8 S23A	ELECTRICAL SERVICE PLATFORM DETAILS
2 S3	KEY PLAN	8 S23B	ELECTRICAL SERVICE PLATFORM DETAILS
<u>5</u> 2 S4	CRANE RAIL PLAN - STATION 0+00 TO 2+80	8 S23C	ELECTRICAL SERVICE PLATFORM DETAILS
<u>5</u> <u>2</u> <b>S5</b>	CRANE RAIL PLAN - STATION 2+80 TO 5+60	8 S24A	ELECTRICAL SERVICE PLATFORM DETAILS
521 S6	CRANE RAIL PLAN - STATION 5+60 TO 8+40	8 S24B	ELECTRICAL SERVICE PLATFORM DETAILS
521 s7	CRANE RAIL PLAN - STATION 8+40 TO 11+10	8 S24C	ELECTRICAL SERVICE PLATFORM DETAILS
8 6 5 2 S8	CRANE RAIL PLAN - STATION 11+10 TO 13+90	8 S25A	ELECTRICAL SERVICE PLATFORM DETAILS
8 6 5 2 S9	CRANE RAIL PLAN - STATION 13+90 TO 16+30	8 S25B	ELECTRICAL SERVICE PLATFORM DETAILS
8 6 5 2 1 510	CRANE RAIL PLAN - STATION 16+30 TO 19+00	8 S25C	ELECTRICAL SERVICE PLATFORM DETAILS
6 5 2 1 S11	CRANE RAIL PLAN - STATION 19+00 TO 21+70	S26	TYPICAL TIE-DOWN PLAN
6 5 2 1 S12	CRANE RAIL PLAN - STATION 21+70 TO 24+50	2 S27	CRANE TIE-DOWN FOUNDATION DETAILS
<u>∕</u> 5 <u>2</u> <u>1</u> S13	CRANE RAIL PLAN - STATION 24+50 TO 27+30	S28	CRANE TIE-DOWN DETAILS
<u>∕</u> 5 S14	TYPICAL WHARF SECTION	S29	CRANE TIE-DOWN DETAILS
2 S15	100' GAUGE LAND SIDE CRANE RAIL BEAM - PLAN	A 1 S30	FLOOD LIGHT POLE BUNKER DETAILS
2 1 S16	WATERSIDE CRANE RAIL BEAM - ELEVATION	<u>5</u> <u>1</u> <b>S</b> 31	30" X 36" PILE CAP ELEVATION
3 S16A	100 ' GA. LANDSIDE CRANE RAIL BEAM - ELEVATION	5132	PLAN - FROG AT RAIL CROSSING
4 2 S17	WATERSIDE CRANE RAIL BEAM - DETAILS	<u>5</u> S33	50' GA. LANDSIDE CRANE RAIL BEAM - PLAN
4 3 S17A	100' GA. LANDSIDE CRANE RAIL BEAM - SECTIONS	5 S34	50' GA. LANDSIDE CRANE RAIL BEAM - ELEVATION
<u>1</u> S18	CRANE RAIL BEAM - PLAN TOP REINFORCEMENT	<u>∕</u> 5 <b>S35</b>	50' GA. LANDSIDE CRANE RAIL BEAM - PLAN TOP REINF.
<u>∕</u> 5 S19	<b>CRANE RAIL BEAM - PLAN BOTTOM REINFORCEMENT</b>	8 S33	CONCRETE PILE EXTENSION - ELEVATION
2 S20	PILE SECTIONS AND DETAILS	8 S34	WATER SERVICE BOX MODIFICATIONS
<u>∕</u> 5 <u>∕</u> 1 <b>S21</b>	CRANE RAIL SECTIONS AND DETAILS	8 S35	WATER SERVICE BOX MODIFICATIONS

	CRANE TIE-DOWNS - ALTERNATE BID	5/19/03	RWB	ß	REVISED SCOPE OF WORK	4/15/@2	JVN
$\bigcirc$	CRANE TIE-DOWNS	5/19/03	RWB		REVISED DIMENSION	2/Ø7/Ø2	JVN
8	REVISED EXISTING PILE CAP	12/28/Ø1	JVN	$\boxed{3}$	REVISED EXISTING PILE CAP	12/28/Ø1	JVN
$\triangle$	ISSUED FOR CONSTRUCTION	9/12/01	JVN	2	ISSUED FOR CONSTRUCTION	9/12/01	JVN
6	ADDENDUM NO. 1	8/20/01	JVN		ADDENDUM NO. 1	8/2Ø/Ø1	JVN

IND	EX OF DRAWINGS
SHT. NO.	DESCRIPTION
E1	TERMINAL MAP
E2	SITE PLAN
E3	FOOTCANDLE PLOT PLAN
E4	NEW FLOODLIGHT POLE DETAILS
E5	POWER STATION DETAILS
E6	TRANSFORMER DETAILS
E7	PANEL SCHEDULES AND DIAGRAMS
E8	DETAILS
E9	FLOODLIGHT CONTROL WIRING DIAGRAM
E10	WHARF PLAN - SITE 1
E11	WHARF PLAN - SITE 2
E12	WHARF PLAN - SITE 3
✓ ▲ 5 E13	WHARF CROSS SECTION
E14	DETAILS
E15	DETAILS
E16	LEGEND AND GENERAL NOTES
E17	FLOODLIGHT POWER WIRING DIAGRAM
6 5 E18	CRANE RAIL GROUNDING DETAILS
5 E19	CRANE RAIL GROUNDING DETAILS
10 9 C1	PROJECT LOCATION MAP - CRANE TIE-DOWNS
<u>10</u> <u>9</u> S0-S12	NEW CRANE TIE-DOWNS FOR PACECO-HYUNDAI CRANES AND ADDITIONAL CRANE TIE-DOWNS FOR PACECO-ESPANA CRANES







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OFFSHORE FACE OF CONC. WHARF TOP OF DECK 8'-9" ELEV. +11.5' ± MLW-BULL RAIL -**F**C 5 REMOVE AND REPLACE WATER SIDE CRANE RAIL-ØØ MLW  $\mathbf{H}$ ELEV. -42.0' MLW TOE OF DREDGE TOE OF FENDER PILE ELEV. -63.5 MLW Ш 1000 martine stars



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01.11	drawn b' P. Joi	Y: NES	Columbu	is street t	ERMINAL -	STATE		B DATE: JULY 2001
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## NOTES:

1. WHARF DECK NOT SHOWN.

2. ALL SAW CUTTING OF EXISTING CONCRETE WHARF DECK AND PILE CAPS SHALL BE FULL DEPTH AS SHOWN ON THE DRAWINGS.



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## NOTES:

- 1. CONSTRUCTION JOINTS TO BE LOCATED AT MID SPAN OF NEW CRANE RAIL BEAM.
- 2. GENERAL CONTRACTOR SHALL PROVIDE SHOP DRAWING INDICATIONG LOCATION OF CONSTRUCTION JOINTS AND SPLICES OF REBAR.
- 3. MINIMUM LENGTH OF SPLICE OF REBAR IS 30 INCHES.

SCALE: 1" = 1'-Ø"

							¢ E×I	ST. PILE	CAP
12	'-6"								
¢ NEW 18" SQ. F 4 4 TION AND	PILE ŀ'-∅''	¢	NEW 18	3" GQ. P 4'-	LE 3"				
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## NOTES:

1. CONSTRUCTION JOINTS TO BE LOCATED AT MID SPAN OF NEW CRANE RAIL BEAM.

2. GENERAL CONTRACTOR SHALL PROVIDE SHOP DRAWING INDICATIONG LOCATION OF CONSTRUCTION JOINTS AND SPLICES OF REBAR.

3. MINIMUM LENGTH OF SPLICE OF REBAR IS 30 INCHES.

# NEW LANDSIDE CRANE RAIL BEAM

ELEVATION

SCALE: 1" = 1'-Ø"



12	-6"						-				⊈ E×I	ST. PILI	EC	AP	
" SQ. F 4	⊃ILE +'-Ø"			NE	W 18"	ଚର.	PILE 4'-3"								
7													3'-6"		
	Ē							3) - 48" POX	#6 E TOT4 KT E CON	BARS AL LE MBEL CRET	W/ 24 NGTH 24" E PIL	HOOK HIN. E	<		
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	- ADD AT S AND STAF CON	0'L. 2 OUTI EA. RT 3' C.	-#7X9'-Ø" LG. H END OF WH, SIDE OF EXF 'FROM FACE	ARF P. JTS. OF					
	18 F F	8" So Pres Pile	Q. / 12" STEEL STRESSED CC (SEE SHEET	H-PILE DNCRETE 521)					
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\*6 STIRRUP **5** At 8" O.C.



¢ PILE CAP

TYPICAL EXP. JOINT SCALE: <sup>3</sup>4" = 1'-Ø"



ADD'L. 2-#7×9'-Ø" LG. AT SOUTH END OF WHARF AND EA. SIDE OF EXP. JTS. START 3" FROM FACE OF CONC.



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WESTIN.	APPROVEI	D BY:	PROJECT NO.: CIFQ	22E001	SCALE:	3H0U	N		REVISION NO.: -
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4	REVISED DIMENSION	2/07/02	JVN
A	REVISED EXISTING PILE CAP	12/28/01	JVN
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SCALE: <sup>3</sup>/<sub>4</sub>" = 1'-Ø"

NEW CRANE RAIL BEAM

SECTION



			¢ EXIST. PILE CA	4P	
12'-6" (VARIES AT END SPANS)					
36"X48" CONCRETE CAP CONCRETE H-PILE COMPOSITE		Q	V		
4'-Ø" (3'-3",	-3" (TYP.) At end bay)				
7-#7 (TYP.)					
	-	in in the second se			
				¢ CRAN	IE RAIL
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σ					
¯σ¯				€ EXIST, F	PILES
					gin.
NEW 36"X42" CONCRETE / NEW 18" SQ. X 130'-0" CRANE RAIL BEAM PRE-STRESSED					
CONCRETE H-PILE CO	OMPOSITE				
- EXIST. 18" SQ. PRE-STRESSED NEW 34"+ STEEL DOWEL X 1	18" AT				
CONCRETE PILE 24" O.C. 9" EMBEDMENT (T	ΥP.)				
		U.			
NEUL COANE DAIL BEAM			NOTE:		
			#6 STI SEE S	RRUPS AT 8" O.C. NOT 9 SHEET S12.	3HOWN.
PLAN VIEW					
SCALE : $1^{1}/_{2}^{"} = 1^{'} - 0^{''}$					
		$\triangle$	ADDENDUM NO. 1	8/20/01	
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	SOUTH	CARC	DLINA STATE	PORTS AUTHO	RITY
	HAR ESSIL	P. JONES	Columbus street te	RMINAL - STATE PIER 8	JULY 2001
	₩ No. 11696 6 *	CHECKED BY: JVN	NEW CONT	AINER BERTH EAM - PLAN TOP	SHEET NO.: SI8
	t. VAN NEWLIN	APPROVED BY:	PROJECT NO .: CIF02F001	SCALE:	REVISION NO.:





12'-6" (VARIES AT END SPANS) - EXIST. 36"X48" CONCRETE \$ NEW 18" SQ. × 130'-0" PRE-STRESSED CONCRETE H-PILE COMPOSITE 4'-3" (TYP.) (2'-3" AT END BAY) (5'-3" AT END BAY) 6- #6 BARS EPOXY EMBEDDED 12" MIN. INTO 6- #6 BARS IN PILE EXIST. PILE CAP - W/24" SPLICE LENGTH . . V V VI A. N A . 4 4 4 4 · 4 Δ Δ 4 4 · • · | -NEW 18" SQ. X130'-0" PRE-STRESSED - NEW 36"×42" CONCRETE CONCRETE H-PILE COMPOSITE CRANE RAIL BEAM NOTE: EXIST. 18" SQ. PRE-STRESSED \*6 STIRRUPS AT 8" O.C. NOT SHOWN. CONCRETE PILE A NEW WATERSIDE CRANE RAIL BEAM BOTTOM REINFORCEMENT STEEL <u>Plan view</u> SCALE : 11/2" = 1'-0" Csno



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ENGINE		by: N	CRANE	NEW Rail e	CONT BEAM	AINER B - Plan	erth View B	OTTOM	SHEET NO.: S19
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- HP12X53 PILE

PRE	STRESSED CONCRETE PILE NOTES:		
1.	CONCRETE: A. fc'=4000 PSI @ TRANSFER fc'=4000 PSI @ TIME OF MOVING P fc'=6000 PSI @ 28 DAYS & TIME O	PILE Deriving Pile	
2.	REINFORCING: A. PRESTRESSING STEEL SHALL CONFO TO ASTM A416 GRADE 270 B. MILD STEEL DOWEL - ASTM A775 G C. MILD STEEL SPIRALS - ASTM A82	ORM RADE 60	
3.	EACH WRAP OF SPIRAL SHALL BE TIEI (2) CORNER STRANDS.	D TO AT LEAST	T
4.	IN CUTTING OFF CONCRETE PILES, AN A SHALL BE USED TO SCORE THE CONCI CUT OFF ELEVATION TO THE APPROXIN REINFORCING STEEL.	ABRAGIVE SAW RETE AT THE 1ATE DEPTH O	F
5.	PILE CAPACITY TO BE AS FOLLOWS:		
	COMPRESSION: 120 TONS		

		<u>_</u>							<b>•</b> • • • •
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ncbS20					REVISIONS				
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Rolling	drawn by P. JON	r: NES	COLUMBL	ls street t	ERMINAL - E	TATE	PIER	8	DATE: JULY 2001
	CHECKED BY: JVN		۴	NEW CONT PILE SECTIO	TAINER BER NG AND DET	TH "AILS			SHEET NO.: S2Ø
NESTIT	APPROVED	) BY:	PROJECT NO.: CIFQ	02E001	SCALE:	SHOWN	J		REVISION NO.:
			CIF2	02E001	<u>A9</u>	SHOW			



2-34"\$X8" HEADED STUDS. TYP. EA. SIDE OF EXPANSION JOINT	DNT. SOL	-E fP
L SECTION C S2 S CRANE RAIL EXP. J SCALE: 2" = 1'-0"	2) OINT	
Image: B     3"×1/4"×3" (TYP.)       Image: S211621       Image: S211621 <th></th> <th></th>		
AIL SHALL CONFORM TO ASTM A159. SECTIONS SHA 11TE WELDED TOGETHER AND GROUND SMOOTH IN , A, MANUAL FOR RAILWAY ENGINEERING, CHAPTER 4 2 SHEET NO. SI5 FOR CRANE RAIL ELEVATIONS. WER PORTION OF CRANE RAIL & RAIL CLIPS, THAT NTACT WITH GROUT FILL, WITH MASTIC OR OTHER OU 2 APPROVED BOND BREAKER. (16 MILS MIN). CRANE RAIL, CONTINUOUS SOLE PLATE, RAIL CLIPS 2 RAIL PAD IN ACCORDANCE WITH THE RAIL CLIPS 2 SINSTRUCTIONS. PROVIDE 100% BEARING BENEAT ATE. VOIDS/HONEY COMB WILL NOT BE PERMITTED. 2 GANTREX 9519/20/41/15 OR APPROVED EQUAL. 3 AIL EXPANSION JOINTS SHALL BE FREE OF GROUT 5 RAIL CLIP PAIRS WITHIN 1'-0" OF & EXPANSION JC	LL BE F ACCORI , PART WILL NER/ MANU- TH CONT & MAST DINT	BUTT DANCE 2. TINUOUS
SIDE. INTS OF CONTINUOUS SOLE PLATE WITH & OF PILE F TOR SHALL DETERMINE LEVELING & ALIGNMENT SEC AIL, AND SELECT LOCATIONS OF LEVELING BOLTS ROVIDE BOLTS FOR EACH AND EVERY HOLE IN CO ATE.	ROWS. QUENCE & ANCHO NTINUOU 4/15/02	IS IS
	DATE	APP'D. RY
ncbS21 REVISIONS		
JTH CAROLINA STATE PORTS A	UTHO	RITY
DRAWN BY: COLUMBUS STREET TERMINAL - STAT		B JULY 20

P. JONES COLUMBUS STREET TERMINAL - STATE PIER 8 JULY 2001 CHECKED BY: JVN NEW CONTAINER BERTH CRANE RAIL SECTIONS AND DETAILS PROJECT NO.: CIF02E001 SCALE: AS SHOWN -









- LOAD BREAK JUNCTION & CABLE BREAKOUT N.I.C.

- & EXISTING TRANE RAIL NEW MANHOLE COVER W/FRAME NEENAH R6052-F OR APPROVED - EQUAL

MAINT. PLATFORM BELOW WHARF DECK (SEE DETAIL "S24A-1")

- CRANE CABLE N.I.C.

CABLE ANCHOR ASSEMBLY (SEE DETAIL "S25A-2")

- CRANE CABLE N.I.C.

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/8\

& EXISTING CRANE RAIL

- & NEW CABLE TROUGH (SEE DETAIL "S22-2")

CABLE CHUTE (SEE DETAIL "S25A-1") 

CRANE POWER CABLE

& LOAD BREAKOUT (NIC,

CABLE ANCHOR ASSEMBL



NEW MANHOLE COVER W/FRAME SAW-CUT 24" DIA. OPENING THRU CONCRETE DECK AND CHIP OUT RIM TO ACCEPT MANHOLE FRAME -INSTALL FRAME WITH HIGH STRENGTH NONMETALLIC GROUT FLUSH WITH DECK OF WHARF

## SERVICE PLATFORM NOTES:

THE DIMENSIONS VARY FOR THE SERVICE PLATFORMS AND THREE VARIATIONS IN DIMENSIONS (TYPES A, B, AND C) ARE REQUIRED THE FOUR NEW SERVICE PLATFORMS (PLATFORMS 3 AND 4 ARE THE SAME)

CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS

CONTRACTOR SHALL REPORT ANY DISCREPENCIES OR CONFLICTS WITH EXISITING STRUCTURES AND UTILITIES TO OWNER PRIOR TO PROCEEDING WITH CONSTRUCTION

ALL STEEL SHAPES, PLATE, BAR, AND FASTENERS TO BE GRADE 304 STAINLESS STEEL





















FROM STAINLESS STEEL (304). OWNER//ENGINEER.

NOTES: 1. CABLE ANCHOR ASSEMBLY MAY BE FABRICATED IN TWO HALFS AND BOLTED TOGETHER IN THE FIELD. 2. FABRICATE CABLE ANCHOR ASSEMBLY AND APPURTENANCES

FRONT VIEW



3. EXACT LOCATION TO BE DETERMINED IN THE FIELD BY THE

# DETAIL "S25A-2"

## CABLE ANCHOR ASSEMBLY

SCALE: 1" = 1'-Ø"

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25A					REVISIONS		
Η	CA	RC	DLINA	STATE	PORTS	AUTH	ORITY
	drawn by: 19. Jones		COLUMBL	lg street t	ERMINAL - S	TATE PIER	B JULY 2001
		BY: J	ELECTR	NEW CONT	CE PLATFOR	TH M DETAIL	SHEET NO.: S S25A
•	APPROVED	BY:	PROJECT NO.: CIF2	02E001	SCALE:	SHOWN	REVISION NO.:



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	DRAWN BY	í: Jes	COLUMBL	16 street te	Erminal - S	TATE PIER	B JULY 2001
Mununter,	CHECKED BY: JVN ELECTRICAL SERV				AINER BER	TH M DETAILS	SHEET NO.: B S25B
APPROVED		9 81:	PROJECT NO.: CIF2	02EØØ1	SCALE:	SHOWN	REVISION NO.:


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	DRAWN BY: P. JONES	COLUMBL	is street t	ERMINAL - E		B JULY 2001
	CHECKED BY: JVN	ELECTR	NEW CONT	CE PLATFOR	TH M DETAILS	SHEET NO.: 6 S25C
	APPROVED BY:	PROJECT NO.: CIF2	02E001	SCALE:	SHOUN	REVISION NO.:



		Ø	ISSUED FOR CONSTRUCTION		9/30/02	JLT
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٩	CHECKED JV1	BY: N	NEW CONT TYPICAL TI		SHEET NO.: 526	
	APPROVEI	D BY:	project no.: CIFØ2EØØ1	scale: NONE		REVISION NO.:

1. SEE DRAWING S26A FOR DEMOLITION LIMITS OF EXISTING CONCRETE.

NOTES:

2. SEE DRAWING 528 \$ 529 FOR DETAILS OF TIE-DOWN ASSEMBLIES AND STOWAGE PIN POCKETS.



		Ø ISSUED FOR CONSTRUCTION 9/30								
		Ø	ISSUED FOR CONSTRUCT	ION			9/30/02	JLT		
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drawn b P. JO		Y: NES	COLUMBUS STRE	DATE: JULY 2001						
		BY:	NEW C TYPICAL 1	SHEET NO.: S26A						
	APPROVEL	) BI:	project no.: CIFØ2EØØ1	S	scale: N	ONE		REVISION NO.:		

AND LAP W/ NEW REBAR AS SHOWN ON SECTIONS.
2. CONFIRM LIMITS OF SAW CUT TO AVOID DAMAGE TO EXISTING CRANE RAIL BEAM AND

1. SAW CUT EXISTING SLAB AS SHOWN

3. REMOVE EXISTING CABLE TROUGH AS REQUIRED TO DEMO SLAB & INSTALL NEW TIE-DOWNS AND PIN SOCKETS. CABLE TROUGH SHALL BE REINSTALLED TO MATCH THE ORIGINAL CONSTRUCTION.

AND EXPOSE REBAR. REMOVE ALL DEBRIS

## DEMOLITION NOTES

CONCRETE PILE CAPS.





![](_page_76_Figure_1.jpeg)

![](_page_76_Picture_5.jpeg)

![](_page_76_Picture_6.jpeg)

![](_page_76_Picture_7.jpeg)

![](_page_77_Figure_0.jpeg)

![](_page_78_Figure_0.jpeg)

![](_page_78_Figure_2.jpeg)

		$\triangle$	REVISE BU	INKER DIMENS	ION	11/5/@2	JVN
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× 1/		BY:	FLOO	NEW CONI D LIGHT PO	'AINER BER' LE BUNKER	TH DETAILS	SHEET NO.: S3Ø
IN.	AFFRUVEL	, 91;	PROJECT NO.: CIF2	92EØØ1	SCALE:	APHIC	REVISION NO.:

- BACK EDGE

![](_page_79_Figure_0.jpeg)

![](_page_79_Picture_4.jpeg)

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SEF-	CHECKED BY	<b>v</b> .		Constant and Constant	and a second provide the second se			
₩GI	JVN		30"	NEW CON X 36" PILI	ITAINER BEF E CAP - ELI	RTH EVATI	ON	SHEET NO.: S31

NOTES:

1. THE CONTRACTOR SHALL FIELD CHECK AND VERIFY ALL ELEVATIONS, COORDINATES, DIMENSIONS AND EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION. DISCREPENCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER/ENGINEER.

35.Ø5°

144.95°

- 2. REFER TO SHEET NO. SI FOR GENERAL NOTES.
- 3. TRANSITION TRACK ELEVATIONS BETWEEN SPECIFIED TOP OF RAIL ELEVATIONS.
- 4. ALL RAIL JOINTS WITHIN CROSSING LIMITS SHALL BE THERMITE WELDED TOGETHER AND GROUND SMOOTH. MECHANICAL JOINTS ARE NOT PERMITTED.

![](_page_80_Figure_5.jpeg)

OT PERMITTEI

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		/5\	REVISED :	3COPE OF WO	RK		4/15/02	JVN
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	drawn b' P. Jot	r: NES	COLUMBL	16 Street t	ERMINAL	- Stati		8 DATE: JULY 2001
ENGINA S		BY: V	PL	NEW CON AN - FROG	TAINER B AT RAIL (	ERTH	NG	SHEET NO .: 532
5	APPROVEL	J B1:	PROJECT NO .:		SCALE:			REVISION NO .:
			CIFe	72EØØI		AS SHOU	N	-

![](_page_81_Figure_0.jpeg)

## NOTES:

1. WHARF DECK NOT SHOWN.

2. ALL SAW CUTTING OF EXISTING CONCRETE WHARF DECK AND PILE CAPS SHALL BE FULL DEPTH AS SHOWN ON THE DRAWINGS.

## NEW 50' GAUGE LANDSIDE CRANE RAIL BEAM

PLAN VIEW

SCALE: 11/2" = 1'-0"

![](_page_81_Picture_8.jpeg)

	ĺ	$\overline{\mathbb{S}}$	ADD SHEE	ET			4/15/02	JVN
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TENON A		BY:	50' Ft.	NEW CON GAUGE CRA	TAINER BEI NE RAIL B	RTH EAM -	- PLAN	SHEET NO.: 533
AFST.	APPROVED	) BY:	PROJECT NO.: CIF2	92EØØI	SCALE:	3 SHOU	N	REVISION NO.:

![](_page_82_Figure_0.jpeg)

#### NOTES:

1. CONSTRUCTION JOINTS TO BE LOCATED AT MID SPAN OF NEW CRANE RAIL BEAM.

2. GENERAL CONTRACTOR SHALL PROVIDE SHOP DRAWING INDICATIONG LOCATION OF CONSTRUCTION JOINTS AND SPLICES OF REBAR.

3. MINIMUM LENGTH OF SPLICE OF REBAR IS 30 INCHES.

NEW 50' GAUGE LANDSIDE CRANE RAIL BEA

ELEVATION

SCALE: 1" = 1'-Ø"

12'-6"			
¢ NEW 18	" SQ. PILE		
	6'-3"		
FCAP			
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	(48" TOTAL LENGTH)		
	EPOXY EMBED 24" MIN.		
	INTO CONCRETE PILE		
-			
Ream			
	ADD SHEET	4/15/02	JVN
	DESCRIPTION	DATE	APP'D. BY
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SOUTH CAR	ULINA STATE PORTS AU	JIHOR	
DRAWN BY:			DATE:
P JONES	COLUMBUS STREET TERMINAL - STAT	E PIER 8	JULY 2001
			SHEFT NO.
	NEW CONTAINER BERTH		
S/24/CA	50' GA. LANDSIDE CRANE RAIL BEA	M-ELEV.	534
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annum.	CIFØ2EØØI AS SHOU	N	_

EXIST. PILE CAP

![](_page_83_Figure_0.jpeg)

![](_page_83_Picture_5.jpeg)

![](_page_84_Figure_0.jpeg)

![](_page_85_Figure_0.jpeg)

![](_page_86_Picture_0.jpeg)

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DRAWN BY:		COLUMBL	is street t	ERMINAL - S	TATE		B DATE: DEC. 2002
CHECKED BY: NEW CONTAINER BERTH WATER SERVICE BOX MODIFICATION					IONS	SHEET NO.: 638	
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EDGE OF SAW CUT FOR NEW CRANE RAIL BEAM

![](_page_87_Picture_0.jpeg)

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- COOPER RIVER BRIDGES

- FLP #14 + NEW 100' FLOODLIGHT POLE. IDENTIFICATION AS NOTED. FOR ADDITIONAL LEGEND, SEE SHEET E16
- 1 PROVIDE FLOODLIGHT POLE, COMPLETE AND IN ACCORDANCE WITH DETAIL 1/E2-E4.
- <u>LEGEND</u> HML OF EXISTING HIGH MAST LIGHT STANDARD. 100' B/8 OF POLE IDENTIFICATION AS NOTED.

#13 #13 EXISTING FLOODLIGHT POLE. 80' HIGH WITH 8 FLOODLIGHTS. 4 TOWARD THE WHARF AND 4 TOWARD THE CONTAINER YARD. I.D. AS NOTED.

KEYED NOTES (THIS SHEET ONLY)

2. FOR ENLARGED SITE PLAN/AREA OF WORK. SEE SHEET E2

3. FOR PHOTOMETRIC CRITERIA. SEE SHEET E3

## GENERAL NOTES (THIS SHEET ONLY) 1. FOR ADDITIONAL SITE INFORMATION, REFER TO CIVIL DRAWINGS.

![](_page_88_Figure_0.jpeg)

### GENERAL NOTES (THIS SHEET ONLY)

- 1. FOR FLOODLIGHT POLE POWER WIRING DIAGRAM, REFER TO SHEET E17.
- 2. FOR FLOODLIGHT POLE CONTROL POWER DIAGRAM, REFER TO SHEET E9.
- 3. FLOODLIGHT POLE FOUNDATION, BUNKERS ARE CONSTRUCTED UNDER THE CIVIL/STRUCTURAL SECTIONS OF THE SPECIFICATIONS.

#### KEYED NOTES (THIS SHEET ONLY)

- PROVIDE FLOODLIGHT POLE COMPLETE AND IN ACCORDANCE WITH DETAIL 1/E2-E4
- $\langle 2 \rangle$  PROVIDE POWER STATION PER DETAIL 1/E2-E5.
- PROVIDE UNDERGROUND CONDUIT ACROSS RAILROAD TRACKS PER DETAIL 1/E2-E8.
- (4) IN NEW CONDUIT; PROVIDE 3 PHASE, #2 AWG, 5KV FEEDER CIRCUIT TO TRANSFORMER AT NEW POWER STATION. SEE ONE-LINE DIAGRAM 3/E2-E5.
- 5 EXCAVATE AND EXPOSE WALL OF MANHOLE. CORE BORE THROUGH CONCRETE WALL FOR CONNECTION OF 4" RGS CONDUIT TO MANHOLE. EXISTING DUCT BANK IN THIS AREA IS DIRECT BURIED SCHEDULE 80 PVC-TAKE CARE NOT TO DAMAGE DUCTS. MANHOLE CONTAINS 4160 VOLT MAIN LOOP CONDUCTORS - COORDINATE WITH SPA ENGINEER FOR POWER OUTAGE.
- PROVIDE JUNCTION BOX PER DETAIL 2/E2-E14. SECURE BOX TO BACK WALL OF TRUCK WELL USING S.S. EXPANSION ANCHORS.

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	checked HENDRI	вү: ICKS	NEW CONTAINER BERTH SITE PLAN						SHEET NO.: E2
01	APPROVED ALLE	d by: N	PROJECT NO.:	02EØØ1	SCALE:	SHOW	N		REVISION NO.:

FLP #15 FLP #14 3,9 5.0 6.8 8.8 9.0 9.7 3.9 3.9 5.4 6.1 6.6 6.9 7.1 7.2 7.6 8.3 8.8 8.8 8.7 8.1 7.5 6.9 6.4 5.9 5.3 4.7 4.3 4.0 3.8 3.6 3.4 3.3 3.1 3.0 2.8 2.6 2.4 6 3 5.9 6 7.4 7.7 7.8 7.6 7.5 7.7 8.0 7.9 7.9 7.8 7.3 6.8 6.3 5.8 5.3 4.7 4.3 3.9 3.7 3.5 3.3 3.1 3.0 2.9 2.7 2.6 2.4 5.0 8 6 7.9 7.6 8.2 8.3 8.3 8.1 7.9 7.7 7.8 7.8 7.4 7.2 7.1 6.6 6.1 5.6 5.2 4.7 4.3 3.9 3.6 3.4 3.2 3.0 2.9 2.8 2.6 2.5 2.4 5.6 7.7 8.3 8,2 8,3 8,1 7,9 7.7 7.6 7.6 7.6 7.2 6.6 6.3 6.0 5.7 5.3 4.9 4.5 4.2 3.9 3.6 3.3 3.1 2.9 2.8 2.7 2.6 2.5 4.7 6.0 7.1 7.5 7.5 7.3 7.3 7.3 7.1 6.3 5.8 5.5 5.2 4.9 4.6 4.3 4.0 3.7 3.5 3.3 3.1 2.9 2.7 2.6 2.5 4.9 5.7 6.8 6.5 6.6 6.6 6.7 6.8 6.2 5.5 5.1 4.9 4.6 4.3 41 3.8 3.6 3.3 3.1 3.0 2.8 2.7 2.5  $3.9 \quad 4.3 \quad 4.6 \quad 4.9 \quad 5.0 \quad 5.0 \quad 4.8 \quad 4.5 \quad 4.3 \quad 4.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 2.9 \quad 2.8 \quad 2.6 \quad 2.5 \quad 3.3 \quad 3.1 \quad 2.9 \quad 2.8 \quad 2.6 \quad 2.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.3 \quad 3.1 \quad 3.9 \quad 3.7 \quad 3.5 \quad 3.5$ 3.6 39 4.1 4.3 4.2 4.1 3.9 3.8 3.6 3.5 3.3 31 3.0 2.9 2.7 2.5 3.1 | 3.3 | 3.5 | 3.6 | 3.6 | 3.5 | 3.4 | 3.3 | 3.8 | 3.1 | 2.9 | 2.8 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.7 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 $2.8 \ 3.0 \ 3.1 \ 3.1 \ 3.0 \ 3.0 \ 2.9 \ 2.8 \ 2.7 \ 2.6 \ 2.5$ 2\4 \2.6 \2.6 2.6 2.6 2.6 \2.5 2.5 2.4 2.4 2.2 2.3 2.3 2.3 2.3 2.2 1.9 2.0 2.0 2.0 2.0

![](_page_89_Figure_1.jpeg)

## <u>NOTES</u>

- 1. THIS DESIGN IS ILLUSTRATIVE OF THE PERFORMANCE NECESSARY TO SATISFY OPERATIONAL REQUIREMENTS BUT IS NOT INTENDED TO RESTRICT SELECTION TO LUMINAIRES OF A PARTICULAR MANUFACTURER. BASIS OF DESIGN IS HOLOPHANE LIGHTING.
- 2. FOR SPECIFIC INFORMATION, REFER TO SPECIFICATION SECTION 16530.
- 3. CONTRACTOR SHALL PERFORM A NIGHT TIME TEST IN THE PRESENCE OF THE SPA ENGINEER TO TAKE FOOTCANDLE READINGS AND VERIFY FC LEVELS AND LIGHTING UNIFORMITY. CONTRACTOR SHALL MAKE FINAL ADJUSTMENTS AS DIRECTED. PROVIDE A REPORT DETAILING RESULTS OF NIGHT TIME TEST.

### LIGHTING CRITERIA- WHARF

- 1. NEW FLOODLIGHTS SHALL PROVIDE ILLUMINATION COMPARABLE WITH THE HORIZONTAL FOOTCANDLE VALUES SHOWN ON THIS FOOTCANDLE PLOT PLAN AVERAGE MAINTAINED FC LEVEL SHOULD NOT BE LESS THAN 5.20. PROVIDE COMPUTERIZED FOOTCANDLE PLOT PLAN IN ACCORDANCE WITH THIS CRITERIA CONTAINED ON THE DRAWING AND IN SPECIFICATION 16530.
- 2. FOOTCANDLE VALUES ARE AVE. MAINTAINED BASED UPON A MAINTENANCE FACTOR OF 0.81. INITIAL FC VALUES WILL BE APPROX. 20% HIGHER THAN THOSE SHOWN.
- 3. UNIFORMITY (AVE/MIN) SHOULD NOT BE WORSE THAN 3.5:1.
- 4. AIM FLOODLIGHTS PER AIMING ANGLES PROVIDED BY MANUFACTURER. NEMA DISTRIBUTION ANGLES OF FLOODLIGHTS (HxV) SHALL BE AS REQUIRED TO SATISFY PHOTOMETRIC CRITERIA.

## LEGEND

AIMING DIRECTION OF FLOODLIGHTS. PROVIDE ORIENTATION AND TILT ANGLES

3.03 NUMERALS INDICATE FOOTCANDLE VALUE AT THAT POINT.

![](_page_89_Figure_14.jpeg)

		NO.		APP'D. BY			
3					REVISIONS		
Η	СА	R	DLINA	STATE	PORTS	AUTH	ORITY
	drawn b' PETT	Y: TIT	COLUMBL	is street t	ERMINAL - S	TATE PIER	28 DATE: MAY 2001
	CHECKED HENDR	by: ICKS		NEW CON FOOTCAND	<del>- </del> И	SHEET NO.: E3	
/01	APPROVED	d by: EN		02E001	SCALE:	SHOWN	REVISION NO.:

![](_page_90_Figure_0.jpeg)

![](_page_91_Figure_0.jpeg)

#### KEYED NOTES: (THIS SHEET ONLY)

- (1) PROVIDE CONCRETE PAD FOR NEW TRANSFORMER PER DETAIL 4/E5-E8.
- 2 PROVIDE 300KVA TRANSFORMER PER DETAIL 1/E5-E6.
- (3) PROVIDE PANEL "MDP". REFER TO PANEL SCHEDULE ON SHEET E7.
- $\langle \overline{4} \rangle$  PROVIDE 75KVA TRANSFORMER. NEMA ST 20. NON-VENTILATED, TOTALLY ENCLOSED. 220°C INSULATION WITH TEMPERATURE RISE OF 150°C. STAINLESS STEEL ENCLOSURE.
- (5) PROVIDE PANEL "A". REFER TO PANEL SCHEDULE ON SHEET E7.
- 6 PROVIDE CONTROL PANEL FOR NEW FLOODLIGHT POLES PER DETAIL 1/E5-E14.
- (7) PROVIDE STEEL FRAME STAND FOR SUPPORT OF NEW EQUIPMENT. STAND SHALL BE CONSTRUCTED OF STAINLESS STEEL MEMBERS AND HARDWARE. SUBMIT MATERIALS FOR APPROVAL.
- $\langle 8 \rangle$  PROVIDE FOOTINGS FOR STAND PER DETAIL 4/E5.
- (9) POSITION ELECTRICAL EQUIPMENT ON RACK FOR OPTIMUM VACANT SPACE FOR FUTURE.
- 10 PROVIDE SAFETY RAILING PER DETAIL 5/E5-E8.
- (1) PROVIDE 5KV FEEDER CIRCUIT:  $4^{\circ}C 3\#2$ (5KV) AND 1#4G.
- (12) EXISTING JUNCTION MODULES ARE 600 AMP. PROVIDE 600 TO 200 AMP ADAPTER AT SPARE TAP. PROVIDE 15 KV, 200 AMP LOADBREAK ELBOW CONNECTORS PER DETAIL 3/E5-E6.
- (13) PROVIDE GROUNDING OF SERVICE ENTRANCE PANEL "MDP" PER DIAGRAM 1/E5-E7.
- (14) PROVIDE GROUNDING OF DRY TYPE TRANSFORMER PER DIAGRAM 2/E5-E7.
- (15) PROVIDE ARMORED CABLE FLOODLIGHT CIRCUITS TO NEW FLOODLIGHT POLES.
- (16) PROVIDE ARMORED CABLE CIRCUITS TO JUNCTION BOXES FOR FUTURE USE.
- (17) PROVIDE A CUT OUT WINDOW IN CONCRETE WHARF FOR PASSAGE OF NEW AND FUTURE CIRCUITS. SIZE AS REQUIRED. BE AWARE OF PILE CAP LOCATIONS.
- (18) PROVIDE 5-480 VOLT CIRCUITS VIA 2" CONDUIT NIPPLE.
- (19) PROVIDE SPARE CONDUIT(S) FROM TRANSFORMER. STUB-OFF UNDER WHARF AND CAP.
- DROVIDE 1/2"x10' COPPER CLAD GROUND ROD AND #1/0 BARE COPPER GROUND WIRE. EXOTHERMIC WELD.
- (2) ENSURE PROPER SETBACK DISTANCE SO BOLLARD DOES NOT OBSTRUCT DOOR OF TRANSFORMER.
- 22 PROVIDE PIPE BOLLARD FOR PROTECTION OF ELECTRICAL EQUIPMENT. SEE DETAIL 3/E5-E14.
- 23 BE AWARE OF PILE CAP LOCATIONS WHEN LAYING OUT EXACT PLACEMENTS OF ELECTRICAL EQUIPMENT AND WHEN CORE BORING FOR CONDUIT/CABLE PASSAGE THROUGH WHARF.
- 24 PROVIDE 200 AMP LOADBREAK ELBOW CONNECTORS PER DETAIL 3/E5-E6.

	Г	NO.		DESCRIPTION			DATE	an tha a	APP'D. BY
5					REVISIONS				
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	drawn by: PETTI	: T	COLUMBL	is street t	ERMINAL - S	TATE	PIER	8	DATE: MAY 2001
unununun	CHECKED E	зү: CKS		NEW CONT POWER STA	AINER BERTH TION DETAI	+ Ls			SHEET NO.: E5
01	APPROVED ALLEN	BY: N	PROJECT NO.: CIFQ	02EØØ1	SCALE:	SHOW	N		REVISION NO.:

![](_page_92_Figure_0.jpeg)

![](_page_92_Figure_1.jpeg)

DT SCALE:

TRANSFORMER ELECTRICAL INFORMATION							
KVA:	300						
PHASE:	3						
PRIMARY VOLTAGE:	4,160 VOLTS DELTA						
SECONDARY VOLTAGE:	480/277 VOLTS WYE						
FREQUENCY:	60 HZ						
MINERAL OIL:	CONFORMS TO ASTM D 3487, TYPE II						
TEMPERATURE RISE:	65 DEGREES C						
PRIMARY B.I.L.:	60KV						
SECONDARY B.I.L.:	40KV						
PERCENT IMPEDANCE:	PERCENT (+- 7.5%) STANDARD IMPEDANCE						
TAPS:	TWO $2-1/2$ PERCENT ABOVE AND $2-1/2$ PERCENT BELOW						
	RATED VOLTAGE (TAPS ARE FULL CAPACITY)						
WINDINGS:	ALUMINUM						
FLUID	OIL						
GALLONS	180 APPROXIMATE						
TOTAL WEIGHT	5100 LB APPROXIMATE						
APPROXIMATE DIMENSIONS	AS SHOWN. VERIFY VS ACTUAL XMR PROVIDED						
LOAD DDEAK SWITCH	PADIAL EEED OU IMMEDSED 15KV 200 AMD						

	-									
		45"								
	-	9								
	_	SEE DETAIL 2/E6								
<b>FAIL</b>		SIDE								
	- 									
		KEYED NOTES (THIS SHEET ONLY)								
		(1) PROVIDE 15KV, 200 AMP LOAD BREAK ELBOW CONNECTORS.								
		2 PROVIDE SECONDARY 600 VOLT CRIMP TYPE LUGS.								
		3 PROVIDE 5KV PRIMARY SIDE FEEDER CABLE.								
		(4) PROVIDE 600V SECONDARY SIDE FEEDER CABLES.								
		5 PROVIDE ELBOW ARRESTER3 EA								
		PROVIDE BUSHING WELL INSERTS. TORQUE TO MANUFACTURERS RECOMMENDATION6 EA								
		7 PROVIDE INSULATED STANDOFF BUSHING3 EA								
		(8) PROVIDE ANCHORS AND SECURE TRANSFORMER TO CONCRETE PAD.								
		PROVIDE CONCRETE PAD. SIZE TO ACCOMMODATE DIMENSIONS OF TRANSFORMER ACTUALLY PROVIDED								
		PLUS 8-INCHES CLEAR ALL AROUND.								
6	NO.	DESCRIPTION     DATE     APP D. BY       REVISIONS								
Η	CAR	OLINA STATE PORTS AUTHORITY								
	drawn by: PETTIT	COLUMBUS STREET TERMINAL - STATE PIER 8 MAY 200	1							
Jungun	CHECKED BY:	NEW CONTAINER BERTH								
Willing.	APPROVED BY:	TRANSFORMER DETAILS E6								
(01	ALLEN	PROJECT NO.:SCALE:REVISION NO.:CIF@2E@@1AS SHOWN-								
·										

r										
N	NEW	PANEL "MDP"		_4	<u>00</u> AM	P MAI	N BREA	KER		
	/OLTS	480Y/277,400 <b>A</b> 3Ø4V	V BRAI	NCHES	BOLT C	DN				
					S/N	AR	c S			
					M/B		v v			
					400A		7			
CKT		· · · · · · · · · · · · · · · · · · ·		DATING				DATINO		I
NO.	NO.	DESCRIPTION	WIRE	AMP/P				AMP/P	WIRE	
1	1 3	TRANSFORMER TR2	#1	125				15	<i>#</i> 12	C FLOO
	5		ŕ			•	<b>•</b>			
3	9 11	FLOODLIGHT POLE #14	#8	30			<b></b>			
5	13		#8	30						
	17		#0		└ <u></u>		<b>•</b>			
7	19 21	FLOODLIGHT POLE #16	#8	30	$\models$	•				
	23	••••••••••••••••••••••••••••••••••••••					<b>•</b>			
9	25	FLOODLIGHT POLE #17	#8	30						
	<u>29</u> 31				$- \uparrow -$	•	•			
11	33 35	CONTACTOR #18	<b>#</b> 8	30			<b>↓</b> <b>♦</b>			
В		COPPER, STANDARD PLATING	2					APPRO	X DIME	NSION
s	OLID	NEUTRAL COPPER						ENCLOS		
G	ROUN	ID BAR COPPER				<u> </u>		-		
s	UITAE	BLE FOR SERVICE ENTRANC	<u>E</u>		44.2	44.2	44.2			
1								1		

NE	EW P	ANEL <u>"A"</u>		N	AINS	100	MAIN	BKF	<u>8</u>		P	OLES <u>24</u>
VOL	TS <u>208</u>	<u>3/120</u> AMPS <u>100, 3</u> ø	, <u>4</u> W, <u>6</u>	<u>0</u> HZ			RAC	ACK MOUNTED			Ţ	<u>OP</u> FEED
DE	/ICE	BRANCH CIRC	UIT			РНА	SF-I					
CKT NO.	BRKR. AMP.	DESIGNATION	WIRE	VOLT- AMPS	POLE	(VOL	JE E	IPS)	POLE	VOLT- AMPS	WIRE	DESIGN
1	20	FUTURE LOAD	<b>#</b> 10		1 3				2 4	· · · · · · · · · · · · · · · · · · ·	<b>#</b> 10	FUTURE I
					5				6	~		
· · ·					7				8			
					9				10			
					11				12			
					13				14			
					15				16			
					1/	-			18			
					19				20			
					21				22			
IN1 RA SH	ERRUF TING F ALL B	PTING AMPERE CURF FOR THIS ASSEMBLY E 10,000 AMPS RMS	RENT S SYM	ø TC	TALS:				T0 <sup>-</sup> T0 <sup>-</sup>	TAL CON TAL DEM	INECTE	D LOAD: .OAD:
AP	PROXII	MATE DIMENSIONS:	<u>40"</u> H	x <u>22"</u> W	x <u>8"</u>	D	c	c				
NO 1	TES:	SIRE TYPE 38 /12	STAIN		FFI ·			л <b>с</b>				
1.		JOUNE UN/ 12			و حا دا سا			т. <b>с</b>		$n \mid L \mid N_{1} \mid C$		
2.	SUITA	BLE FOR SERVICE E	NTRAM	NCE				5. <b>S</b>	SOLID I	NEUTRAL	. <u>COPP</u>	ER
3.	BRAN	CHES BOLT ON						6. <b>G</b>	ROUN	D BAR	COPP	ER

30,000         AIC MAIN           4,000         AMPS. SYMS. S           TOP         FEED         RACK	SCCR OUNT	ED
DESCRIPTION	NO.	CKT. NO.
ONTROL PANEL FOR DLIGHT CONTROL PANEL BLANK	2 4 6	2
BLANK	8 10 12	
BLANK	14 16 18	
BLANK	20 22 24	
BLANK	26 28 30	
BLANK	32 34 36	
S 86"H x 32"W TYPE 3R/12 STAINLE	/ x 12 SS S	2 <u>"D</u> TEEL

![](_page_93_Figure_4.jpeg)

E5E7

![](_page_93_Figure_7.jpeg)

![](_page_93_Figure_8.jpeg)

![](_page_93_Figure_9.jpeg)

![](_page_93_Picture_10.jpeg)

![](_page_93_Figure_11.jpeg)

## ELECTRIC SERVICE GROUNDING DIAGRAM

3 E4E7

SCALE: NONE

![](_page_93_Figure_14.jpeg)

FLOODLIGHT	LIGHTNING	PROTECTION	DETAIL
	SCALE: NO	NE	

	-			· · · · · · · · · · · · · · · · · · ·				
		NO.	DESCRIPTION DATE					APP'D. BY
BE7					REVISIONS			
Ή	СА	R	DLINA	STATE	PORT	S AU	JTHC	DRITY
1.1.1.1.	drawn by PETTI	r: IT	COLUMBL	ig street te	RMINAL	- Stat		B DATE: MAY 2001
A Martin		by: CKS	PAN	NEW CONT EL SCHEDUL	AINER BE Es and i	RTH DIAGR/	AMS	SHEET NO.:
	AFFROVED	N	PROJECT NO.: CIFQ	02EØØ1	SCALE:	as show	N	REVISION NO.:

![](_page_94_Figure_0.jpeg)

#### KEYED NOTES (THIS SHEET ONLY)

- (1) RAILROAD OUTAGE WILL REQUIRE 7 DAYS ADVANCE NOTICE. AVAILABILITY OF THE RAILWAY FOR OUTAGE IS AT THE CONVENIENCE OF THE SCSPA RAILWAY SCHEDULE. OUTAGE SHALL NOT EXCEED TWO DAYS. CROSS BOTH TRACKS IN THE SAME OPERATION/OUTAGE. ALL RAILROAD WORK SHALL CONFORM TO CURRENT RAILROAD CONSTRUCTION REQUIREMENTS AS CONTAINED IN AREA (AMERICAN RAILWAY ENGINEERING ASSOCIATION) MANUAL FOR RAILWAY ENGINEERING (OR EQUIVALENT CRITERIA DOCUMENTS AS APPROVED BY THE SCSPA). SUBCONTRACTOR MUST BE EXPERIENCED IN RAILROAD TRACKAGE WORK. SUBMIT QUALIFICATIONS TO SPA ENGINEER.
- 2 PROVIDE ONE 4-INCH RIGID GALVANIZED STEEL CONDUIT ACROSS RAILROAD TRACKS.

- CUT TRENCH ACROSS RAILROAD. SHALLOW BURIAL DEPTH IS APPROVED DUE TO WATER TABLE. PROVIDE WATER REMOVAL SYSTEM AND SHORING AS REQUIRED TO
- a) REMOVE CROSS TIES AS NECESSARY TO ACCOMMODATE TRENCH WIDTH. REUSE CROSS TIES WHEN CLOSING TRENCH. PROVIDE NEW SPIKES WHEN RESECURING
- b) REMOVE STONE BALLAST AS NECESSARY TO ACCOMMODATE TRENCH. REPLACE BALLAST WITH NEW WHEN CLOSING TRENCH.
- c) EXCAVATE AND REMOVE EARTH MATERIAL. PROVIDE SELECT BACKFILL WHEN CLOSING TRENCH. COMPACT TO 95% MODIFIED AASHTO DENSITY. OPTIONALLY, A SLURRY FREEFLOW UP TO THE BOTTOM OF THE BALLAST MAY BE REUSED.
- d) WRAP BOTTOM AND SIDES OF BALLAST WITH MIRAFI 600X GEOTEXTILE
- $\overline{(3)}$  PERFORM CORE BORE FOR PASSAGE OF RGS CONDUIT.
- $\langle 4 \rangle$  BE AWARE OF WATER DUE TO TIDAL MOVEMENT. REFER TO SHEET E13.
- $\langle 5 \rangle$  STUB CONDUIT UP AT TRANSFORMER PAD PER DETAIL 4/E8.
- (6) PROVIDE DRIP LOOP IN ALL ARMORED CABLES ACROSS EACH EXPANSION JOINT.
- (8) PROVIDE SUPPORT FOR ARMORED CABLES PER DETAIL 5/E8-E15.
- (9) INSTALL ARMORED CABLES TO CLEAR EDGES OF CONCRETE PILE CAPS, TYPICAL.
- (10) PASSAGE TO UNDER THE WHARF IS AVAILABLE FROM LAND SIDE VIA ACCESS HOLES THAT HAVE BEEN CUT THROUGH THE 17" THICK BULKHEAD. SEVERAL HOLES HAVE BEEN CUT ALONG THE 840' LONG EXPANSE OF WHARF THAT IS THE AREA OF WORK.

	-								
		NO.		DESCRIPTION			DATE		APP'D. BY
E8					REVISIONS				
Ή	СА	R	DLINA	STATE	PORTS	Αl	JTHC	)F	RITY
IIII	drawn b' PETT	Y: TT	COLUMBL	ls street ti	ERMINAL - S	TAT		8	DATE: MAY 2001
William William	CHECKED HENDRI	by: ICKS		NEW CON	TAINER BERTH TAILS	4			SHEET NO.: E8
(61	APPROVEL	EN EN	PROJECT NO.:	02EØØ1	SCALE:	3HOU	N		REVISION NO.:

![](_page_95_Figure_0.jpeg)

#### KEYED NOTES: (THIS SHEET ONLY)

- (1) FOR CONTROL PANEL DETAILS, SEE SHEET E14.
- ALL CONTROL WIRING INTERIOR TO THE CONTROL PANEL SHALL BE #14 AWG THWN, STRANDED COPPER.
- (3) PROVIDE IDENTIFICATION FOR ALL TERMINAL BLOCKS AND CONTROL WIRE TERMINATIONS.
- (4) PROVIDE METAL OXIDE VARISTER (MOV), 120 VOLTS, 15 AMPS, CLAMPING VOLTAGE 300 VPK.
- (5) PROVIDE HEAVY DUTY, OIL TIGHT SELECTOR SWITCH. 600 VAC. TWO POSITION MAINTAINED CONTACT.
- (6) PROVIDE I.D. PLATES PER DETAIL 5/E9.

#### LEGEND

	WIRING INTERNAL TO CONTROL PANEL
	FIELD WIRING
BLU	COLOR CODED WIRE
	TERMINAL BLOCK CONNECTION AT PANEL
	INDICATES LIGHTING CONTACTOR REMOTELY LOCATED AT BASE OF FLOODLIGHT POLE
$\oslash$	CONNECTION POINT AT FLOODLIGHT POLE
P/0	PART OF
C14	LIGHTING CONTACTOR
CP14	CONTROL POWER CONTACTOR AT FLOOD LIGHT POLE

-BLACK WITH WHITE CENTER CORE TYP. OF 5 EA.

BLACK SWITCH TYP. OF 5 EA.

- RED WITH WHITE CENTER CORE TYP. OF 5 EA.

-RED SWITCH TYP. OF 5 EA.

DITIC SEE E16	NAL							
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	drawn b SCHWA	Y: ARTZ	COLUMBL	is street t	ERMINAL -	State		B DATE: MAY 2001
MANIPHILI.	CHECKED HENDR	BY: ICKS	FLO	NEW CON <sup>.</sup> ODLIGHT CON <sup>.</sup>	TAINER BER TROL WIRING	TH DIAGF	RAM	SHEET NO.: E9
01	ALLE	EN	PROJECT NO.: CIF2	02EØØ1	SCALE:	SHOW	N	REVISION NO.:

![](_page_96_Picture_0.jpeg)

![](_page_97_Picture_0.jpeg)

 KEYED NOTES (THIS PAGE ONLY)
 PROVIDE FLOODLIGHT STANDARD. PER DETAIL 1/E11-E4.
 PROVIDE ARMORED CABLE (480V POWER AND 120V CONTROL) TO FLOODLIGHT POLE. RUN CABLE UNDER THE WHARF PER DETAILS 2/E11-E8 AND 3/E11-E8.
 PROVIDE POWER STATION PER DETAIL 1/E11-E5
 PROVIDE ARMORED CABLE (120/240 VOLT CIRCUIT) FOR FUTURE USE. RUN CABLE UNDER THE WHARF PER DETAILS 2/E11-E8 AND 3/E11-E8.

> 5 PROVIDE 4" RGS CONDUIT FROM MH-16 TO TRANSFORMER AT NEW POWER STATION ON WHARF. CROSS RAILROAD TRACKS PER DETAIL 1/E11-E8.

6 PROVIDE STEEL BOLLARDS PER DETAIL 3/E11-E8.

![](_page_97_Figure_4.jpeg)

![](_page_97_Figure_5.jpeg)

(									
	[	NO.		DESCRIPTION			DATE		APP'D. BY
E11					REVISIONS	-			
Ή	СА	R(	OLINA	STATE	PORTS	JA	JTH(	ЭF	RITY
311	drawn by PETTI	r: IT	COLUMBL	is street ti	ERMINAL - S	ŢĂŢĒ		8	Date: May 2001
	CHECKED HENDRI	вү: CKS		NEW CONT	MAINER BERTH PLAN - SITE 2	-  2			SHEET NO.: E11
(01	APPROVED	N N	PROJECT NO.: CIFQ	22EØØ1	SCALE:	SHOW	N		REVISION NO.:

FUTURE 100 GUAGE CONTAINER CRANE

![](_page_98_Figure_0.jpeg)

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drawn by: POOLE	Columbus Str		RMINAL - S	STATE PIER	B DATE: MAY 2001
CHECKED BY: HENDRICKS	NE Wi	W CONTA	AINER BERT .AN - SITE	H 3	SHEET NO.: <b>E</b> 12
approved by: ALLEN	PROJECT NO.: CIFØ2EØØ1		SCALE:	SHOWN	REVISION NO.:
	NO. CARC DRAWN BY: POOLE CHECKED BY: HENDRICKS APPROVED BY: ALLEN	NO. DE CAROLINA STA DRAWN BY: POOLE CHECKED BY: HENDRICKS APPROVED BY: ALLEN PROJECT NO.: CIFØ2EØØI	NO. DESCRIPTION R CAROLINA STATE DRAWN BY: POOLE CHECKED BY: HENDRICKS APPROVED BY: ALLEN PROJECT NO.: CIFØ2EØØ1	NO.       DESCRIPTION         REVISIONS         CAROLINA STATE PORTS         DRAWN BY:       COLUMBUS STREET TERMINAL - S         POOLE       COLUMBUS STREET TERMINAL - S         CHECKED BY:       NEW CONTAINER BERT         HENDRICKS       WHARF PLAN - SITE         APPROVED BY:       PROJECT NO.:       SCALE:         ALLEN       CIFØ2EØØI       AS	NO.     DESCRIPTION     DATE       REVISIONS       CAROLINA STATE PORTS AUTHO       DRAWN BY:       POOLE     COLUMBUS STREET TERMINAL - STATE PIER       CHECKED BY:       HENDRICKS     NEW CONTAINER BERTH       APPROVED BY:     ALLEN       PROJECT NO.:     SCALE:       ALLEN     CIFØ2EØØI

![](_page_98_Figure_2.jpeg)

-EXPANSION JOINT

 PROVIDE FLOODLIGHT STANDARD. PER DETAIL 1/E10-E4.
 PROVIDE ARMORED CABLE (480V POWER AND 120V CONTROL) TO FLOODLIGHT POLE. RUN CABLE UNDER THE WHARF PER DETAILS 2/E12-E8 AND 3/E12-E8.

 $\langle 3 \rangle$  provide junction box for future use.

PROVIDE ARMORED CABLE (120/240 VOLT CIRCUIT) FOR FUTURE USE. RUN CABLE UNDER THE WHARF PER DETAILS 2/E12-E8 AND AND 3/E12-E8.

KEYED NOTES (THIS SHEET ONLY)

![](_page_99_Figure_0.jpeg)

- THE BASKET FOR REUSE, BUT LEAVE THE EXPANSI

			NOTES (THIS 1. CONTRACTOR SHA THE WHAPE WITH	S SHEET ONLY) ALL COORDINATE AND SCHE	DULE ALL WOR	
			A. <u>SHIPPING SCH</u> a. SHIPPING S SEVERAL O DATA INDIC PER MONTH	EDULE CHEDULE IS DEPENDENT UF THER UNCONTROLLABLE FAR ATES AVERAGE NUMBER OF	PON WEATHER A CTORS. HISTORI SHIPS HANDLE	AND CAL ED S 42
			b. A SHIP IS MUST COOF IN ADVANC	LOGGED IN THE DAY IT DOU RDINATE WITH THE SPA ENG E.	CKS SO CONTRA SINEER 48 HOUF	ACTOR RS
rom Te	.		c. SCHEDULING FOR A SHIF WHERE THE	G HAS SOME LATITUDE IN S P TO DOCK SO WITH PRIOR CONTRACTOR IS WORKING	SELECTING A BE KNOWLEDGE OF THE SHIP MAY	RTH <del>.</del>
3—Е 3—Е'	18. 18.		BE DOCKED SHIP SCHEI CONTRACTO	O AT ANOTHER BERTH. ULTI DULE AND BERTHING TAKES DR ACCESS.	MATELY, HOWEV PRIORITY OVER	∕ER, ₹
ROM	CRANE ETAIL		B. <u>TIDE TABLE</u>			
			a. MEAN LOW	WATER IS 0.00', MEAN WAT	TER IS 5.20'.	
H-F	1LE		b. THERE IS A CHANGES F	PPROXIMATELY 6 HOURS B	ETWEEN TIDE M HIGH TO LOW	Ι.
ie w Er d E fl Ing Rem Ion	/HARF, ETAIL JSION 1/4"SS IOVE		c. TIDE CHANG THE WORK RATE OF A	GES GREATLY AFFECT WORK ELEVATION IS CONSTANTLY PPROXIMATELY 0.9' PER HC	UNDER WHARF CHANGING AT OUR.	THE
IDED	) TO		KEYED NOT	<b>FS</b> (THIS SHEET ONLY)		
WH	ARF.		$\langle 1 \rangle$ PROVIDE	HIGH MAST LIGHT STANDAR	DPER	
				E13-E4.TYPICAL 4 PLACES	NDFR THF	
			STRUCTUF	AL SPECIFICATIONS. REFER	TO STRUCTURA	AL/
			$\langle 3 \rangle$ PROVIDE	ARMORED CABLE PER DETA	IL 4/E13-E15.	
/		τα ο α	00' TO 23+09' STA 0.00' TO 26+0	0' <u>5</u> STA 0.00' T	0 26+92' /5	Â
Δ	5/5/3		50' CALLOE 32' CALLOE			
		LAN	ID SIDE RAIL LAND SIDE RAIL	WATER SIL	DE RAIL	
			$\frac{50'}{32'}$		– <u>8'</u> –	BULL RAIL
	- 6' T	YP.		′Р. ́\		<u>. 12.0</u> 0'
• <u>,</u> • <u>,</u>		• 				
			8×6 2 TYP.	TYP.		COLUMN
						_ 0.00' MEAN
						DW WATER
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		$\left  \right\rangle$	CHANGE ORDER		3/03	TH
			REVISED SCOPE OF WORK		6/02	TH
		∕5∖ NO.	ADD GROUND SYSTEM TO CRANE DESCRIPTION	KAIL	DATE	IH APP'D. BY
२उ			I	REVISIONS		
Η	CA	RC	)LINA STATE	PORTS AU	JTHOF	RITY
	drawn b BLATCH	Y: FORD	COLUMBUS STREET TE	RMINAL - STATE	PIER 8	DATE: MAR 2002
		BY:	NEW CONT	AINER BERTH		SHEET NO.:
		D BY:	WHARF CR	OSS SECTION		EIJ
	ALLE	EN	PROJECT NO.: CIFO2E001	scale: AS SHOW	N	REVISION NO.: 3
		4				

![](_page_100_Figure_0.jpeg)

- (1) PROVIDE CONTROL PANEL FOR NEW FLOODLIGHT POLES. PROVIDE "OFF-ON" AND "LO-HI" CONTROLS PER DIAGRAM 1/E14-E9. PROVIDE POWER CIRCUITS/CONTÁCTORS PER DIAGRAM 1/E14-E17.
- (2) FOR SWITCH DETAILS, SEE SHEET E9.
- (3) PROVIDE PHENOLIC I.D. PLATE. BLACK WITH YELLOW CENTER CORE.
- (4) PROVIDE AN ALUMINUM FACSIMILE, PHOTO PROCESS. COORDINATE WITH SPA ENGINEER FOR SITE DRAWING TO BE USED AS THE BASIS FROM WHICH TO MAKE THE FACSIMILE. SOURCE: TOTAL GRAPHICS, NORTH CHARLESTON, S.C.

JUNCTION BOX SPECIFICATIONS

### 1. NEMA 4X, 14 GAUGE 304 STAINLESS STEEL.

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A.I.I.I.	drawn b' PETT	Y: TT	COLUMBI	lg street te	RMINAL - S	TATE P	IER 8	Date: MAY 2001
Ser Munimum	CHECKED BY: HENDRICKS		NEW CONTAINER BERTH					
c 0	APPROVEL	EN	PROJECT NO.: CIF4	02EØØ1	SCALE:	SHOWN		REVISION NO.:

![](_page_101_Figure_0.jpeg)

![](_page_101_Figure_2.jpeg)

![](_page_101_Picture_3.jpeg)

NOTES (THIS SHEET ONLY)

- 1. THE RADIUS THAT ALUMINUM SHEATHED CABLE MAY BE BENT IS 7xD WHERE "D" IS THE OVERALL DIAMETER OF THE CABLE. DIAMETER OF NEW CABLE IS APPROXIMATELY 0.900 INCHES. BENDING RADIUS IS APPROXIMATELY 7 INCHES.

DRAWN BY: DATE: COLUMBUS STREET TERMINAL - STATE PIER 8 MAT 2001 PETTIT SHEET NO .: CHECKED BY: NEW CONTAINER BERTH HENDRICKS E15 DETAILS APPROVED BY: PROJECT NO .: **REVISION NO.:** SCALE: ALLEN CIFØ2EØØI AS SHOWN -

∽∽∽ S ~∽ ──₩ S ───	LEGEND — EXISTING AERIAL SECONDARY DROP. OPEN OR SPIRALED CONDUCTORS AS INDICATED.
RR	RAILROAD TRACK.
XX	DASHES INDICATES BELOW GRADE UTILITY. LETTERS IDENTIFY UTILITY E.G. T=TELEPHONE, P=PRIMARY, ETC.
FW	UNDERGROUND FIRE SYSTEM WATER LINE
2W4 UD	UNDERGROUND DUCT BANK FOR POWER OR TELEPHONE. DIRECT BURIED DUCTS. 2W4 DENOTES 2 WAY 4" DUCTS.
SD	UNDERGROUND STORM DRAIN.
W	UNDERGROUND POTABLE WATER LINE.
SS	UNDERGROUND SANITARY SEWER LINE.
	DROP INLET AND UNDERGROUND STORM DRAIN.
3/45 💽	WOOD POLE. CLASS/HEIGHT AS INDICATED.
75KVA∆	DISTRIBUTION TYPE TRANSFORMER POLE MOUNTED KVA AS INDICATED.
MH-3 E C	EXISTING MANHOLES IN TANDEM (ELECTRIC AND TELEPHONE). MANHOLE NO. AS NOTED. HIGH MAST LIGHT STANDARD WITH LUMINAIRES, 100' HIGH.
-LP #13 -∰-	WHARF FLOODLIGHTS ON 80' STEEL POLE
$\Theta$	CONDUIT RISER UP POLE WITH WEATHERHEAD
-0-	FIRE HYDRANT
0	POST INDICATOR VALVE
HH # 3	15" x 30" HANDHOLE. I.D. AS NOTED. LOW VOLTAGE.

![](_page_102_Figure_2.jpeg)

LEGEND - NEW HIGH MAST FLODDLIGHT POLE, 100' HIGH IDENTIFICATION AS NOTED. SURGE SUPPRESSOR COIL OF LIGHTING CONTACTOR NOTE DESIGNATOR FOR KEYED NOTE CIRCUIT BREAKER ARMORED CABLE, SURFACE MOUNTED UNDER WHARF. TWO POSTION SELECTOR SWITCH TRANSFORMER ELBOW CONNECTOR. IEEE 386 CARTRIDGE FUSE NORMALLY OPEN CONTACT

**ABBREVIATIONS** 

SPA		STATE PORTS AUTHORITY	NIC	_	NOT IN CONTRACT	
TYP	_	TYPICAL	MFR	_	MANUFACTURER	
UG		UNDERGROUND	MTD	_	MOUNTED	LETTER
G		GROUND	PVC	_	POLYVINYL CHLORIDE	
KV		KILO-VOLTS	INST.	_	INSTALLED	OR DET
AMP. A		AMPERES	FURN.		FURNISHED	
V	_	VOLT	NO	_	NORMALLY OPEN	LETTER
Ø		PHASE	NC		NORMALLY CLOSED	SHEET
KVA		KILOVOLT AMPERES	DIA.		DIAMETER	ELEVAT DETAIL
EL		ELEVATION	12/C	_	12 CONDUCTOR	ADDITIC
ፍ	_	CENTERLINE	EJ		EXPANSION JOINT	
Е		ELECTRIC				
С		COMMUNICATION	AC		ARMORED CABLE	
HML	_	HIGH MAST LIGHT	FLP	_	FLOODLIGHT POLE	
HMST	_	HIGH MAST	PC		PHOTOCELL	01068E
НН		HANDHOLE				
МН	· · · ·	MANHOLE				I SOUT

![](_page_102_Picture_6.jpeg)

![](_page_102_Picture_7.jpeg)

#### GENERAL NOTES

- 1. CONTRACTOR SHALL SCHEDULE AND COORDINATE ALL WORK IN ORDER TO MINIMIZE IMPACT ON TERMINAL OPERATIONS. PROPER BARRICADING PROCEDURES ARE TO BE FOLLOWED AT ALL TIMES IN ORDER TO INSURE THE SAFETY OF PERSONS WORKING IN THE AREA OF THE CONTRACTOR'S OPERATIONS. CONTRACTOR CANNOT BLOCK LANES TO OPERATING FACILITIES. ALTERNATE ROUTING MUST BE PROVIDED WHERE REQUIRED.
- 2. POWER OUTAGE TO ANY PORTION OF THE TERMINAL WILL BE LIMITED TO WEEKENDS OR AFTER 5 O'CLOCK DURING THE WEEKDAYS, AND WILL BE SCHEDULED IN A TIMELY MANNER WITH THE FIELD ENGINEER SO AS TO MINIMIZE IMPACT ON COMPUTER OPERATIONS. 10 DAYS ADVANCE WRITTEN NOTICE IS REQUIRED.
- 3. EXISTING UNDERGROUND UTILITIES SHOWN ON THESE VARIOUS SITE PLANS INDICATE THE EXISTANCE OF THE UTILITY ONLY AND IS NOT INTENDED TO PHYSICALLY LOCATE THE EXACT PLACEMENT OF SUCH UTILITIES.
- 4. PRIMARY DISTRIBUTION SYSTEM ON THE COLUMBUS STREET TERMINAL IS 4160Y/2400 VOLTS, 3 PHASE, 4 WIRE GROUNDED WYE.
- 5. EXISTING MANHOLES ARE PARTIALLY FULL OF WATER. CONTRACTOR SHALL PROVIDE PUMP EQUIPMENT TO DRAIN MANHOLES IN WHICH THERE IS WORK UNDER THIS CONTRACT.
- 6. CONSTRUCTION IN CLOSE PROXIMITY TO ACTIVE RAILROADS IS SUBJECT TO NON-SCHEDULED INTERRUPTION UPON TRAIN OPERATIONS IN THE IMMEDIATE AREA OF WORK.

INDIC R INDI FAIL —	CATES SECTION	ON SHEET NUM SECTION O ATION A/E1-E2 SHEET NUM SECTION O	IBER WHERE ELEVATION R DETAIL IS TAKEN IBER WHERE ELEVATION R DETAIL IS DRAWN	,  ,	
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MANIMULTIN,	CHECKED BY: HENDRICKS	NEW CON LEGEND AND	TAINER BERTH GENERAL NOT	ES	SHEET NO.: E16
01	ALLEN	PROJECT NO.: CIFØ2EØØ1	SCALE:	HOWN	REVISION NO.:

![](_page_103_Figure_0.jpeg)

1 E14E17

FLOODLIGHT POWER RISER DIAGRAM SCALE: NONE

![](_page_103_Picture_5.jpeg)

#### GENERAL NOTES: (THIS SHEET ONLY)

1. FOR CONTROL PANEL DETAILS. SEE SHEET E14.

### KEYED NOTES: (THIS SHEET ONLY)

- (1) PROVIDE LIGHTING CONTACTORS, ELECTRICALLY HELD, OPEN, 3 POLE, 600 VAC, 30 AMP, 120 VAC COIL. 1-NORMALLY OPEN AUXILIARY CONTACT.
- PROVIDE POWER FUSE BLOCKS. 600 VOLT, 3 POLE, COPPER BOX CONNECTORS. 1-PRIMARY #8 AWG, 1-SECONDARY #10 AWG.
- PROVIDE TERMINATORS FOR ARMORED CABLE PER DETAIL 3/E17-E15.

DESCRIPTION APP'D. BY DATE NO. REVISIONS SOUTH CAROLINA STATE PORTS AUTHORITY DATE: DRAWN BY: COLUMBUS STREET TERMINAL - STATE PIER 8 MAY 2001 TUALLA SHEET NO .: CHECKED BY: NEW CONTAINER BERTH HENDRICKS E17 FLOODLIGHT POWER WIRING DIAGRAM APPROVED BY: PROJECT NO .: **REVISION NO.:** SCALE: ALLEN CIFØ2EØØI AS SHOWN 2002

OFF-ON

![](_page_104_Figure_0.jpeg)

![](_page_104_Figure_3.jpeg)

GENERAL NOTES: (THIS SHEET ONLY)

1. REFER TO WHARF SECTION 1/E18-E13 FOR ADDITIONAL INFORMATION.

2. REFER TO DRAWINGS S4 THROUGH S13 FOR PLAN LOCATIONS OF THE RAIL GROUNDING.

3. WHARF, PILE CAP, AND CRANE RAIL BEAM ARE CONCRETE AND STEEL REINFORCED.

4. REFER TO SHEET S21 FOR SECTIONS AND DETAILS OF NEW CRANE RAIL.

KEYED NOTES: (THIS SHEET ONLY)

- (1) PROVIDE GROUNDING JUMPER ACROSS CRANE RAIL EXPANSION JOINT. WELD CABLE TO RAIL PER DETAIL 1/E18-E19. PROVIDE EXPANSION LOOP IN CABLE.
- PROVIDE 1 1/4" CORE BORE THROUGH WHARF AND CRANE RAIL BEAM FOR PASSAGE OF THE GROUNDING CABLE TO THE MAIN RUNNER GROUNDING CABLE UNDER THE WHARF. CHIP AWAY GROUT TO OBTAIN A CLEAR SPACE FOR BORING THAT IS BETWEEN RAIL CLIPS. PROVIDE REPLACEMENT GROUT TO PROTECT CLIPS.
- (3) PROVIDE "T" WELD PER DETAIL 4/E13-E19.
- (4) EXISTING RAIL TROUGHS ARE FULL OF DIRT AND TRASH. CLEAN OUT TROUGH AT WORK POINT. CHIP GROUT AWAY FROM RAIL TO OBTAIN A LARGE ENOUGH WEB AREA FOR WELD. CHIP FLAKING RUST FROM RAIL AND USING A 4" GRINDER, CLEAN THE RAIL TO A BRIGHT AND CLEAN SURFACE. PERFORM LEFT HAND AND RIGHT HAND WELDS PER DETAIL 1/E18-E19.
- WELD, TYP.

(5) GROUND CABLE IN NEW RAIL TROUGHS SHALL REMAIN CLEAR OF GROUT BED.

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![](_page_105_Figure_0.jpeg)

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	GENERAL NOTES: (THIS SHEET ONLY)
FICATIONS:	1. CONTRACTOR SHALL COORDINATE WITH THE WELD MANUFACTURE VALIDATE PART NUMBERS AND APPLICATIONS SHOWN ON THIS SHOP
DWELD CU FLARED. #4/0 RLAY. S02F AC 2S2S	2. AT THE CONCLUSION OF THE PROJECT, TURN OVER ALL MOLDS A MATERIALS AND THE MOLD HOLDER BASKET TO THE SCSPA.
ATERIAL: #150	3. CLEAN MOLDS AFTER EACH WELD USING A MOLD BRUSH, CADWE MOLDS MUST BE CLEAN AND DRY PRIOR TO EACH WELD.
)	<ol> <li>IGNITE WELDS USING A FLINT IGNITER, CADWELD NO. T320. STAR MUST BE DRY FOR GOOD IGNITION.</li> </ol>
5	5. RAIL MOLDS ARE SPECIAL ORDER AND MUST BE OF A SIZE THAT THROUGH THE GAP BETWEEN THE RAIL AND THE EDGE OF THE F FIELD AND DESIGN DIMENSIONS AT EACH EXPANSION JOINT ARE IN TABLES 1 AND 2 ON SHEET E18 AS "LS" AND "WS". THE GAP FOR THE MOLD SHALL BE CALCULATED BY THE CONTRACTOR AND

![](_page_105_Figure_9.jpeg)

# SOUTH CAROLINA STATE PORTS AUTHORITY COLUMBUS STREET TERMINAL - STATE PIER 8 NEW CRANE TIE-DOWNS FOR PACECO-HYUNDAI CRANES AND ADDITIONAL CRANE TIE-DOWNS FOR PACECO-ESPANA CRANES

## PROJECT No. CIF02E001A APRIL 2003

	INDEX OF DRAWINGS
SHT. NO.	DESCRIPTION
C1	PROJECT LOCATION MAP
S0	COVER SHEET & GENERAL NOTES
S1	DEMO PLAN - PACECO-HYUNDAI CRANES
S2	TIE-DOWN LOCATION PLAN - PACECO-HYUNDAI CRANES
S3	SECTIONS & DETAILS - PACECO-HYUNDAI CRANES
S4	SECTIONS & DETAILS - PACECO-HYUNDIA CRANES
S5	SECTIONS & DETAILS - PACECO-HYUNDAI CRANES
	ALTERNATE BID
S6	DEMO PLAN - PACECO-ESPANA CRANES
S7	TIE-DOWN LOCATION PLAN - PACECO-ESPANA CRANES
S8	ENLARGED WATERSIDE PLAN - PACECO-ESPANA CRANES
S9	ENLARGED LANDSIDE PLAN - PACECO-ESPANA CRANES
S10	SECTIONS & DETAILS - PACECO-ESPANA CRANES
S11	SECTIONS & DETAILS - PACECO-ESPANA CRANES
S12	ASSEMBLY SECTIONS & DETAILS - PACECO-ESPANA CRANES

![](_page_106_Picture_3.jpeg)

Csctdts

#### GENERAL NOTES

- 1. ALL ELEVATIONS ARE MEASURED FROM 0.00' CHARLESTON LOW WATER DATUM REFERRED TO HEREIN AS MEAN LOW WATER (MLW).
- 2. ALL COORDINATES ARE IN REFERENCE TO THE SOUTH CAROLINA STATE PLANE SYSTEM (NAD 27).
- 3. THE CONTRACTOR SHALL FIELD CHECK AND VERIFY ALL ELEVATIONS, COORDINATES, DIMENSIONS AND EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION. DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER/ENGINEER.
- 4. THE CONTRACTOR SHALL COMPLY WITH GUIDELINES OF SECTION IV-BEST MANAGEMENT PRACTICES OF THE SOUTH CAROLINA COASTAL COUNCIL'S "STORM WATER MANAGEMENT GUIDELINES (LATEST EDITION)" DURING ENTIRE CONSTRUCTION PERIOD. REMOVE ALL CONCRETE DEBRIS FROM THE JOBSITE. REFER TO SPECIAL CONDITIONS PARAGRAPH 41.
- 5. THE CONTRACTOR SHALL PROVIDE ADEQUATE BARRICADES AROUND ALL OPENINGS IN ACCORDANCE WITH ALL APPLICABLE RULES AND REGULATIONS PROMULGATED BY THE DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION".
- 6. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES IN THE AREAS OF WORK PRIOR TO BEGINNING ANY DEMOLITION AND REPAIR DAMAGED UTILITIES TO THE SATISFACTION OF THE OWNER/ENGINEER AND APPROPRIATE UTILITY COMPANIES AT NO ADDITIONAL COST TO OWNER.
- 7. UPON COMPLETION OF THIS PROJECT THE CONTRACTOR SHALL SWEEP CLEAN ALL AREAS SOILED/TRACKED BY CONSTRUCTION ACTIVITIES. (REFER TO SECTION @2995 OF THE SPECIFICATIONS).
- 8. REFER TO THE CONTRACT SPECIAL CONDITIONS FOR CONSTRUCTION RESTRICTIONS.

SCE &G SUBSTATION

![](_page_107_Figure_10.jpeg)

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SOUTH CAROLINA STATE PORTS AUTHORITY COLUMBUS STREET TERMINAL STATE PIER 8

NEW CRANE TIE-DOWNS FOR PACECO-HYUNDAI CRANES ADDITIONAL CRANE TIE-DOWNS FOR PACECO-ESPANA CRANES





**Consulting Engineers** 

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S1	DEMO PLAN - PACECO-HYUNDAI
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53	SECTIONS & DETAILS - PACECO-
<b>5</b> 4	SECTIONS & DETAILS - PACECO-
S5	SECTIONS & DETAILS - PACECO-
= 56	DEMO PLAN - PACECO-ESPANA
51	TIE-DOWN LOCATION PLAN - PAC
58	ENLARGED WATERSIDE PLAN - F
59	ENLARGED LANDSIDE PLAN - PA
S1Ø	SECTIONS & DETAILS - PACECO-
SII	SECTIONS & DETAILS - PACECO-
S12	ASSEMBLY SECTIONS & DETAILS

ALTERNATE BID

CRANES

CECO-HYUNDAI CRANES

-HYUNDAI CRANES

-HYUNDAL CRANES

HYUNDAI CRANES

CRANES

CECO-ESPANA CRANES

PACECO-ESPANA CRANES

ACECO-ESPANA CRANE

-ESPANA CRANES

-ESPANA CRANES

- PACECO-ESPANA CRANES

# GENERAL NOTES

### 1. EXISTING CONDITIONS:

PROPERTY LINES, EXISTING UTILITIES, BUILDING LOCATIONS AND OTHER SITE FEATURES SHOWNBY THESE DRAWINGS AND PLANS AND INDICATED AS EXISTING WERE DEVELOPED FROM EXISTING DRAWINGS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR VERIFYING THE ACTUAL EXISTING CONDITIONS PRIOR TO SUBMITTING HIS BID. ANYDISCREPANCY NOTED BETWEEN ACTUAL CONDITIONS AND THOSE DESCRIBED BY THESE DRAWINGS SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ENGINEER, NO ADDITIONAL COSTS ASSOCIATED WITH MODIFICATIONS TO THE SCOPE OF WORK REQUIRED DUE TO INACCURATE EXISTING CONDITIONS AS SHOWN BY THESE DRAWINGS WILL BE CONSIDERED UNLESS SAID CONDITIONS HAVE BEEN BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO RECEIVING THE BIDS.

#### 2. INSPECTION

QUALITY CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND HE SHALL BE CAPABLE OF PERFORMING ALL NECESSARY INSPECTIONS. THE CONTRACTOR'S INSPECTION REPORTS SHALL BE FURNISHED TO THE PORT AUTHORITY UPON REQUEST, THE CONTRACTOR SHALL ASSIGN AT LEAST ONE OFHIS QUALITY CONTROL EMPLOYEES TO WORK FULL TIME DURING FABRICATION AND INSTALLATION.

WELD INSPECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND PROCEDURES SHALL BESUBMITTED TO THE PORT AUTHORITY UPON REQUEST.

ALL VISUAL AND NONDESTRUCTIVE WELD INSPECTIONSSHALL BE PERFORMED BY QUALIFIED INSPECTORS AND IN ACCORDANCE WITH AWS DI.I.

# CONCRETE NOTES

- 1. ALL CONCRETE AND REINFORCING STEEL SHALL BE FABRICATED AND INSTALLED ACCORDING TO THE LATEST EDITION OF THE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318).
- 2. READY MIX CONCRETE SHALL CONFORM TO ASTM C94 WITH PORTLAND CEMENT IN ACCORDANCE WITH ASTM C150 CONCRETE COMPRESSIVE STRENGTH SHALL BE4000 PSI AT 28 DAYS.
- 3. REINFORCING STEEL SHALL BE ASTM DESIGNATION A615, GRADE 60. SPLICES BETWEEN EXISTING AND NEW REINFORCING STEEL SHALL BE MECHANICAL SPLICES. MECHANICAL SPLICES SHALL DEVELOP AT LEAST 125% OF THE SPECIFIED YIELD STRENGTH (fy) OF THE BAR.
- 4. AT LOCATIONS IN WHICH NEW CONCRETE IS TO BE PLACED AGAINST PREVIOUSLY HARDENED CONCRE THE EXISTING CONCRETE SURFACE SHALL BE CLEAN FREE OF LAITANCE AND ROUGHENED TO A FULL AM OF APPROXIMATELY 1/2 INCH. PRIOR TO PLACING TH CONCRETE, AN EPOXY BONDING AGENT SHALL BE TO THE CLEAN, ROUGHENED SURFACE. EPOXY BONI AGENT SHALL BE CEILCOTE IT BRUTEM OR APPROV
- 5. EPOXY ANCHORS SHALL BE INSTALLED USING THE HY-150 INJECTION ADHESIVE SYSTEM, OR ENGINEER APPROVED EQUAL. INSTALLATION SHALL BE IN STR ACCORDANCE WITH THE MANUFACTURER'S RECOMME PROCEDURES. THREADED RODS AND REBAR INST USING THE EPOXY ANCHOR SYSTEM SHALLBE THOR CLEANED OF ALL GREASE, OILAND/OR SOLVENTS P TO INSTALLATION.



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# STEEL NOTES

1, WORKMANSHIP

ALL WORK SHALL BE PERFORMED IN A THOROUGH WORKMANLIKE MANNER.

ALL WORK SHALL CONFORM TO THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY AWS DII "STRUCTURAL WELDING CODE" AND THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATION FOR STRUCTURAL STEEL FOR BUILDINGS"

2. MATERIALS:

ALL MATERIAL SHALL BE NEW AND UNUSED. ALL MATERIALS SHALL BE TRACEABLE. UPON REQUEST MILL TEST CERTIFICATES AND OTHER REQUIRED TEST RESULTS SHALL BE PROVIDED TO THE OWNER IN AN ACCEPTABLE FASHION.

ALL NEW STEEL PING AND PLATE MATERIALS SHALL BE FURNISHED IN ACCORDANCE WITH THE MATERIAL GRADE INDICATED ON THE DETAIL DRAWINGS.

PLATES WHICH ARE SUBJECT TO THROUGH PLATE TENSION SHALL BE ULTRASONIC SCANNED 100% FOR MATERIAL LAMINATION AND DEFECTS. ANY DEFECTS FOUND SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND THE DEFECTIVE MATERIAL REPLACED BY THE CONTRACTOR.

## 3. WELDING:

ALL WELDING AND WELD JOINTS SHALL CONFORM TO THE CURRENT REQUIREMENTS OF AMERICAN WELDING SOCIETY AWS DI.I.

ALL WELDERS, WELDING OPERATORS AND TACKERS SHALL HAVE CURRENT CERTIFICATION FOR THE MATERIALS, PROCESSES AND TYPES OF WELDING PERFORMED. COPIES OF CERTIFICATIONS SHALL BE FURNISHED TO THE OWNER UPON REQUEST. CERTIFICATION OF QUALIFICATIONS OF EACH INDIVIDUAL WELDER, TACKER AND WELDING OPERATORAND EACH PROCEDURE SHALL BE FURNISHED TO THE OWNER UPON REQUEST. WELDS INSTALLED USING UN-QUALIFIED PROCEDURES OR WELDINGPERFORMED BY NON-QUALIFIED WELDERS SHALLBE SUBJECT TO REMOVAL AT THE CONTRACTOR'S EXPENSE SUBJECT TO THE DISCRETION OF THE OWNER.

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DEMOLITION NOTES

- 1. SAW CUT EXISTING SLAB AS SHOWN AND EXPOSE REBAR. REMOVE ALL DEBRIS AND SPLICE W/ NEW REBAR AS SHOWN ON SECTIONS. SEE CONCRETE NOTES ON DRAWING SØ.
- 2. CONFIRM LIMITS OF SAW CUT TO AVOID DAMAGE TO EXISTING CRANE RAIL BEAM AND CONCRETE PILE CAPS.
- 3. REMOVE EXISTING CABLE TROUGH AS REQUIRED TO DEMO SLAB & INSTALL NEW TIE-DOWNS AND PIN POCKETS. CABLE TROUGH SHALL BE REINSTALLED TO MATCH THE ORIGINAL CONSTRUCTION.
- 4. REMOVE BEAM EXTENSION EAST OF EXISTING CRANE RAIL #3, EXPOSING THE EXISTING TOP AMD BOTTOM REINFORCING TO BE SPLICED WITH NEW BEAM REINFORCING AS SHOWN IN SECTION "C" ON DRAWING SII.



INDICATES AREA OF EXISTING SLAB OR BEAM TO BE DEMOLISHED.

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#### DEMOLITION NOTES

- 1. SAW CUT EXISTING SLAB AS SHOWN AND EXPOSE REBAR. REMOVE ALL DEBRIS AND SPLICE W/ NEW REBAR AS SHOWN ON SECTIONS. SEE CONCRETE NOTES ON DRAWING SØ.
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Gottlieb, Barnett & Bridges, LLC Consulting Engineers





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# DEMOLITION NOTES

- 1. SAW CUT EXISTING SLAB AS SHOWN AND EXPOSE REBAR. REMOVE ALL DEBRIS AND SPLICE W/ NEW REBAR AS SHOWN ON SECTIONS. SEE CONCRETE NOTES ON DRAWING SØ.
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INDICATES AREA OF EXISTING SLAB OR BEAM TO BE DEMOLISHED.

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				NOTES 1. SEE DRAWING S6 FOR DEMOLITION LIMITS OF EXISTING CONCRETE.
				2. SEE DRAWINGS SI2 FOR DETAILS OF TIE-DOWN ASSEMBLIES AND STOWAGE PIN POCKETS.
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NA CRANES)	GRAPHIC SCALE	tlieb, Barnett & Bridges, LLC Consulting Engineers	HAC APPROVED BY: JJL	TIE-DOWN LOCATION PLAN     ST       PROJECT NO.:     SCALE:       MI608     GRAPHIC







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CRANE TIE-DOWN & STOWAGE PIN POCKET PLAN AT LANDSIDE RAIL

CRANE TIE-E







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NOTES:

- 1. SEE CONCRETE NOTES ON DRAWING SØ.
- 2. EXISTING CONCRETE HAUNCH AND SLAB TO BE REMOVED. SEE TIE-DOWN DEMO PLAN, DWG S6 FOR LIMITS. THE TOP OF THE EXISTING PILE SHALL BE LOWERED TO ACCOMMODATE 6" EMBEDMENT INTO NEW 3'-6" DEEP BEAM.
- 3. NEW SLAB REINFORCING SHALL BE THE SAME SIZE AND SPACING AS THE EXISTING. SIZE AND SPACING OF REBAR TO BE DETERMINED AS DEMOLITION SEQUENCE IS PERFORMED SPLICING OF REBAR SHALL BE IN ACCORDANCE WITH CONCRETE NOTE 3 ON DRAWING SØ.
- 4. REINFORCING STEEL IN NEW EAST / WEST BEAMS WEST OF CRANE RAIL BEAM #3 SHALL BE THE SAME SIZE AND SPACING AS REBAR IN THE DEMOLISHED BEAM EXTENSION (SEE NOTE 4 DRAWING S6). SPLICING OF REBAR SHALL BE IN ACCORDANCE WITH CONCRETE NOTE 3 ON DRAWING SØ.





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