

REQUEST FOR BIDS (RFB 2023-05)
FOR
ISLE OF PALMS MARINA
PUBLIC DOCK AND INTRACOASTAL DOCK IMPROVEMENTS

ISLE OF PALMS, SOUTH CAROLINA

Prepared by:

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for:

CITY OF ISLE OF PALMS
1207 PALM BOULEVARD
ISLE OF PALMS, SC 29451

October 19, 2023

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A – REQUEST FOR BIDS

City of Isle of Palms, South Carolina
Request for Bids (RFB) 2023-05
Isle of Palms Marina – Public Dock and Intracoastal Dock Improvements

In compliance with the City’s Procurement Ordinance, the City of Isle of Palms, South Carolina is seeking bids for improvements to the marina facility at the Isle of Palms Marina per the plans and specifications included in this RFB. The request will be bid and awarded pursuant to the City’s procurement ordinance. The City reserves the right to reject any and all bids and to waive irregularities.

- I. Defined Terms
- II. Description of Project
- III. Bid Process
- IV. Bid Form
- V. Submission Requirements

I. Defined Terms

The terms used in the RFB and Bid Documents shall have the meanings assigned to them herein which are applicable to both the singular and plural form thereof.

OWNER: City of Isle of Palms, 1207 Palm Boulevard Isle of Palms, SC 29451

DESIGN CRITERIA PROFESSIONAL: Applied Technology & Management (ATM) is serving as the Design Criteria Professional for the new floating dock, anchorage, and gangway systems. ATM is also serving as the Design Criteria Professional for the basic repairs to the Intracoastal Dock (excluding marine utilities). ATM is located at 941 Houston Northcutt Blvd, Ste 201. Mount Pleasant, SC, 29464. (843) 414-1040.

ENGINEER: ATM is serving as the Engineer of Record for the structural design of the new Public Dock. ATM’s sub consultant, EPIC Engineering, Inc., P.O. Box 2132, Mount Pleasant, SC 29465, shall be the Engineer of Record for marine utilities.

The CONTRACTOR shall provide an Engineer of Record for the new floating dock design, floating dock anchorage design, and gangway design as described in the Bid Documents.

ARCHITECT: ATM shall act as the “Architect” pursuant to the terms in the form of contract presented herein

BIDDER: One who evaluates and submits a bid for the project.

CONTRACTOR: The contractor is the qualified bidder who submits the preferred bid as determined by the Owner and Design Criteria Professional and is contracted to perform the work.

BID DOCUMENTS: Includes the Request for Bids, Form of Contract, Form of Application and Certification for Payment, Performance Specifications (including appendices), the Bid Drawings, technical reports, and any issued addenda.

II. Description of the Project

Existing Site Conditions

The existing marina facility is located at the confluence of Morgan Creek and the Atlantic Intracoastal Waterway. A portion of the marina docks were replaced in 2021-2022. These included all docks on the Morgan Creek side of the property. There are two dock structures on the Atlantic Intracoastal Waterway side of the property: the Intracoastal Dock and the Public Dock. The Intracoastal Dock includes a fixed timber pier leading out to a timber-framed floating dock system. This dock was constructed in ~2004 and includes basic potable water and electrical service for recreational boats. The Public Dock includes a fixed timber pier that leads out to a timber-framed floating dock system. Limited utility service is provided on this dock structure. The age of the existing Public Dock structures is unknown.

The upland portion of the site supports a marina store, restaurant building, an upland fueling station, parking and related improvements. A three-lane concrete boat ramp is also located at the subject site.

Bidders shall visit the site to observe and satisfy themselves with existing project conditions in preparation of their bids.

General Scope

The successful Bidder shall provide all equipment, labor, materials, supervision, warranties, bonding, insurances, and other items necessary for the work as detailed in this RFB and the attached plans and specifications.

The project involves the demolition the existing Public Dock, including all pilings, gangway, fixed piers, floating docks, and marine utility infrastructure. The project also involves the new construction of a new Public Dock that includes a new fixed timber pier, floating dock, gangway, and marine utilities such as electrical power, fire suppression system, potable water. Portions of this project shall be design-build.

The project also includes basic maintenance on a portion of the existing Intracoastal Dock and replacement of marine utilities on the entirety of this structure (potable water, electrical system).

In general, the contractor shall include the following in their scope of work:

Public Dock

1. Demolition of all docks and water-side appurtenances related to the existing Public Dock (piling, gangway, floating docks, fixed pier, and utilities). Include removal of all piling below the mudline.
2. Construct new fixed timber pier and appurtenances
3. Design, furnish and install new floating dock system and associated anchorage
4. Design, furnish and install gangways
5. Furnish and install all marine electrical system components to and including upland panels and equipment

6. Furnish and install potable water system
7. Furnish and install fire protection system to serve the new dock system
8. Related work as indicated in the plans and specifications to provide fully functioning pier, dock and marine utility systems.
9. The work may also include, at the discretion of the City, selected alternates such as alternate floating dock decking, etc.

Intracoastal Dock

1. General maintenance and repair of existing fixed pier and a portion of the floating dock system as indicated on the plans
2. Replacement of marine utility systems serving this dock, including power pedestals, electrical service, and potable water service
3. Related work as indicated in the plans and specifications
4. The work may also include, at the discretion of the City, selected alternates such as alternate decking, painting, etc.

III. Bid Process

Bids should be submitted to the following:

Desirée Fragoso
City Administrator
City of Isle of Palms
1207 Palm Boulevard Post Office Box 508
Isle of Palms, South Carolina 29451

Pre-Bid Meeting: An optional pre-bid meeting will be held at the project location on **Wednesday November 1, 2023 at 10:00am.**

Deadline for Questions: The deadline for questions is **Tuesday, November 14, 2023 at 5:00pm**. Bidders should send questions regarding this Request for Bids to Desirée Fragoso, City Administrator, in writing or email to desireef@iop.net. Questions received before this deadline will be answered via addendum posted on the City's website at <http://www.iop.net/requests-for-bids-proposals>. Questions received after this deadline may not be answered.

If an addendum is issued, bidders must acknowledge receipt of the addendum with their bids.

Deadline for Submissions: The deadline for submission of bids is **November 21, 2023 at 2:00pm**. Bids must be received at 1207 Palm Boulevard, Isle of Palms, South Carolina 29451 in a sealed envelope, where they will be opened and read aloud. Sealed envelopes must be clearly marked **RFB 2023-05 Isle of Palms Marina – Public Dock and Intracoastal Dock Improvements** and include one (1) hard copy

and one (1) electronic copy saved to USB Flash Drive. The City accepts no responsibility for electronic submissions, and it will be the responsibility of the bidders to verify receipt by the City.

Bids may be delivered by hand or by mail, but no bid shall be considered which is not actually received by the City at the place, date and time appointed by the City and the City shall not be responsible for any failure, misdirection, delay or error resulting from the selection by any bidder of any particular means of delivery of bids.

Bidders acknowledge and agree that the City will not be liable for any costs, expenses, losses, damages (including damages for loss of anticipated profit) or liabilities incurred by the respondent or any member of the respondent's organization as a result of, or arising out of, submitting a bid, negotiating changes to such bid, or due to the City's acceptance or non- acceptance of the bid or the rejection of any and all bids. Respondents are responsible for submission of accurate, adequate and clear descriptions of the information requests. Neither issuance of the RFB, preparation and submission of a response, nor the subsequent receipt and evaluation of any response by the City of Isle of Palms will commit the City to award a contract to any respondent even if all the requirements in the RFB have been met.

Respondents must have or be able to procure an Isle of Palms Business License and possess a valid South Carolina Marine Contractor's license.

If the Bidder is a corporation, state the correct corporate name and State of incorporation. If Bidder is a partnership, state names and addresses of partners. If Bidder is a trust or other legal entity, state correct names and addresses of trustees or names and address of those legally authorized to bid and enter into contracts.

By signing its bid, Bidder certifies that it will comply with the applicable requirements of Title 8, Chapter 14 of the South Carolina Code of Laws and agrees to provide to the City upon request any documentation required to establish either: (a) the applicability of Title 8, Chapter 14 to Contractor and any subcontractors or sub-subcontractors; or (b) the compliance with Title 8, Chapter 14 by Contractor and any subcontractors or sub-subcontractors. Pursuant to Section 8- 14-60, 'A person who knowingly makes or files any false, fictitious, or fraudulent document, statement, or report pursuant to this chapter is guilty of a felony, and, upon conviction, must be fined within the discretion of the court or imprisoned for not more than five years, or both.' Contractor agrees to include in any contracts with its subcontractors language requiring its subcontractors to (a) comply with the applicable requirements of Title 8, Chapter 14, and (b) include in their contracts with the sub-subcontractors language requiring the sub-subcontractors to comply with the applicable requirements of Title 8, Chapter 14.

Firms considering submission under this RFB will be expected to have read and be prepared to enter into the attached contract, which is a part of this RFB.

- Received bids shall remain valid for a period of 60 days.
- 10% retainage will be included as part of the contract for construction.
- The form of contract is presented for informational purposes only.

Examination of the Site

It is the responsibility of each Bidder before submitting a Bid to take the minimum following measures:

To satisfy themselves by personal examination of the general, local, and site conditions of the proposed Work.

To examine thoroughly the Form of Contract Agreement and other related data identified in the Bid Documents including "technical" data referred to in subsequent sections.

To examine thoroughly the requirements of the Work and the accuracy of the estimate of the quantities of the Work to be done.

To consider governmental and local laws and regulations that may affect cost, progress, performance or furnishing of the Work.

To study and carefully correlate Bidder's knowledge and observations with the Bid Documents and such other related data.

To promptly notify the Design Criteria Professional of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Bid Documents and such other related documents.

Reference is made to the Specifications for identification of:

Reports of exploration and tests of subsurface conditions have been identified by the Design Criteria Professional/Engineer in preparation of the Bid Documents. Bidder may rely upon the accuracy of the technical data contained in such reports but not upon non-technical data, interpretations or opinions contained therein or for the completeness thereof for the purposes of bidding or construction.

Copies of such reports and drawings are part of the Bid Documents where applicable.

Information and data shown or indicated in the Bid Documents with respect to existing Underground Utilities at or contiguous to the site is based upon information and data furnished to the Owner and Design Criteria Professional by owners of such Underground Utilities or others, and the Owner and Design Criteria Professional do not assume responsibility for the accuracy or completeness thereof. The Contractor shall make every effort to locate other possible unknown utility lines by use of an electric pipe finder, or other means he may prefer, and shall excavate all existing underground lines in advance of any trenching, digging, or pile driving 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. This shall specifically include research, identification, and familiarity with any underwater utilities adjacent to the Public Dock site.

Before submitting a Bid, each Bidder shall be responsible for obtaining such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and underground utilities) at or contiguous to the site or otherwise, which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Bid Documents.

On request, the Owner shall provide each Bidder access to the site to conduct such examinations, investigations, explorations, tests and studies, as each Bidder deems necessary for submission of a Bid.

Bidder must fill all holes and clean up and restore the site to its equal or better condition upon completion of such explorations, investigations, tests, and studies.

The submission of a Bid shall constitute an incontrovertible representation by Bidder that Bidder has complied with all requirements listed in this section, that without exception the Bid is premised upon performing and furnishing all Work required by the Bid Documents and applying the specific means, methods, techniques, sequences or procedures of construction that may be shown or indicated or expressly required by the Bid Documents, that Bidder has given the Design Criteria Professional written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Bid Documents and the written resolutions thereof by the Design Criteria Professional is acceptable to Bidder, and that the Bid Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

Insurance Requirements

Contractor shall procure, and maintain in effect during the term of this Agreement, insurance coverage in amounts and on terms not less than set forth below:

Contractor agrees to maintain commercial general liability insurance coverage throughout the duration of the Project, with policy limits not less than \$1,000,000.00 for each occurrence and \$2,000,000.00 aggregate providing coverage for claims including: damages because of bodily injury, sickness or disease, and death of any person; personal injury; damages because of injury to or destruction of tangible property; bodily injury or property damage arising out of completed operations. The CGL policy must not contain exclusions or limitations for losses from trucking, grading, earth-moving, or other heavy machinery or equipment.

Contractor also agrees to maintain workers' compensation coverage on its employees as required by the State of South Carolina workers' compensation laws.

Contractor also agrees to obtain and maintain pollution liability insurance with policy limits not less than \$1,000,000.00, unless an alternative limit is agreed to in writing by the City.

Contractor also agrees to maintain automobile and trucking liability insurance covering all vehicles, trucks, and/or machinery involved in the work at the Project.

Contractor also agrees to maintain professional liability insurance for damages incurred by reason of any negligent act, error or omission committed or alleged to have been committed by Contract in the amount of \$1,000,000.00 per claim and in the aggregate

All insurance coverage required hereunder shall be with companies approved in advance by City, who shall be named as an additional insured on all such policies. Proof of such insurance shall be provided to City prior to commencement of any work by Contractor.

Project Timeline

Bids Due..... November 21, 2023
Anticipated Notice to Proceed By.....December 8, 2023
Substantial Completion By.....May 6, 2024
Final Project Completion By.....June 6, 2024

Permits

Regulatory permits for the project have been obtained from the South Carolina Department of Health and Environmental Control – Office of Ocean and Coastal Resource Management (OCRM) and the United States Army Corps of Engineers (USACE) for the water-side aspects of the Public Dock project. The City is pursuing a Maintenance and Repair Authorization for the dock repairs on the Intracoastal Dock. This authorization will be provided to the Contractor upon receipt.

The City is also pursuing SCDHEC approvals for the potable water systems on each dock. These will be provided to the contractor and no deviations from the bid plans/specifications are anticipated.

The selected contractor shall also be responsible for procuring any other federal/state/local permits or approvals for the works and shall include in their bid (such work may include state/local utility approvals).

The selected contractor will have to comply with all conditions of the above-mentioned and any other required permits and should consider in their bid.

Site Laydown and Access

Contractor to coordinate with the City and Marina Operator with regard to on-site laydown, access, parking, safety, and operations. Upland laydown will be generally limited to the City’s 16 resident-only parking spaces adjacent to the boardwalk near the access to the Intracoastal Dock (see bid plans). It is anticipated that the marina store, upland fueling facilities, boat ramp, restaurant, and marina activities will continue throughout the construction process.

The City's Noise Ordinance limits the operation of piledrivers, steam shovels, pneumatic hammers, derricks, steam or electric hoists or any other equipment that creates loud or disturbing noises between 7:30 a.m. and 6:00 p.m. Monday through Friday and between 9:00 a.m. and 4:00 p.m. on Saturday. No construction work will be allowed on Sundays and the following legal holidays: New Year's Day; Memorial Day; Fourth of July; Labor Day; Thanksgiving Day; and Christmas Day.

IV. Bid Form

BASE BID					
Item	Description	Number	Unit	Unit Cost	Total Cost
PUBLIC DOCK					
1	Performance Bond	1	LS		
2	Mobilization/Demobilization	1	LS		
3	Demolition of existing Public Dock and related water-side appurtenances	1	LS		
4	Design, Furnish and Install (1) 8'x80' aluminum gangway	1	EA		
5	Furnish and Install New Fixed Pier and Roof Structures	1	LS		
6	Furnish and Install electrical system	1	LS		
7	Furnish and Install potable water system	1	LS		
8	Design/Furnish/Install floating dock system and anchorage (Meeco Sullivan Timber) - Include all kayak launch infrastructure		SF		
9	Furnish/Install fire protection system (standpipe system)	1	LS		
10	Furnish/Install fire pedestals		EA		
11	Design, Furnish and Install swings and benches	1	LS		
12	Retrofit boardwalk handrail at location of existing pier	1	LS		
INTRACOASTAL DOCK					
12	Demolition and removal of existing electrical and potable water systems	1	LS		
13	Fixed Access Pier Repairs	1	LS		
14	Floating Dock Repairs	1	LS		
15	Furnish and Install electrical system	1	LS		
16	Furnish and Install potable water system	1	LS		
16	Furnish and Install Fire Extinguisher Pedestals	1	LS		
Total Base Bid					

ALTERNATE BID ITEMS		INDICATE ADD or DEDUCT TO BASE BID PRICE			
Item	Description	Number	Unit	Unit Cost	Total Cost
ALT1	Design/Furnish/Install floating dock system and anchorage - Public Dock (Bellingham timber frame system) - Include all kayak launch infrastructure		SF		
ALT2	Design/Furnish/Install floating dock system and anchorage - Public Dock (Structurmarine aluminum frame system) - Include all kayak launch infrastructure		SF		
ALT3	Design/Furnish/Install floating dock system and anchorage - Public Dock (Meeco Sullivan aluminum frame) - Include all kayak launch infrastructure		SF		

Bid Form (continued)

Item	Description	Number	Unit	Unit Cost	Total Cost
ALT4	Design/Furnish/Install floating dock system and anchorage - Public Dock (Boardsafe Docks aluminum frame) -- Include all kayak launch infrastructure		SF		
Item	Description	Number	Unit	Unit Cost	Total Cost
ALT5	Utilize Tanzite brand decking in lieu of IPE on Public Dock	1	LS		
Item	Description	Number	Unit	Unit Cost	Total Cost
ALT6	Utilize HDG hardware in lieu of stainless steel on Public Dock				
Item	Description	Number	Unit	Unit Cost	Total Cost
ALT7	Provide pile wrapping on fixed pier pilings on Public Dock	1	LS		
Item	Description	Number	Unit	Unit Cost	Total Cost
ALT8	Sand and Re-paint handrail system on fixed pier on Intracoastal Dock	1	LS		
Item	Description	Number	Unit	Unit Cost	Total Cost
ALT9	Replace decking on fixed pier on Intracoastal Dock with new, treated SYP	1	LS		
Item	Description	Number	Unit	Unit Cost	Total Cost
ALT10	Replace decking on floating dock on Intracoastal Dock with new, treated, SYP				
	Side A	1	LS		
	Side B	1	LS		
Item	Description	Number	Unit	Unit Cost	Total Cost
ALT11	Replace Pile Guide Rollers and Scrape Concrete Pilings on Intracoastal Dock	1	LS		
Item	Description	Number	Unit	Unit Cost	Total Cost
ALT12	Furnish Builders Risk Policy for Base Bid Only	1	LS		

All Bidders should include prices for the Base Bid and Bid Alternates 1-12 in their Bids.

V. Submission Requirements

Each proposal shall include the following information as applicable to be considered complete:

1. Bidder's qualifications and any certifications.
2. Project experience and client reference contact information for similar completed projects.
3. Subcontractor information. (sub contractors for each major trade [electrical, plumbing, etc.], dock supplier, gangway supplier, supporting engineers)
4. Bidder's proposed work plan and schedule.
5. Bidder's cost proposal which will be in the form of the Tables in this RFB.
6. Other information indicated in the plans and specifications as required for bid submission.
7. Bid bond.

B – FORM OF CONSTRUCTION CONTRACT



AIA[®] Document A101[™] – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the _____ day of _____ in the year _____
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101[™]-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement.

AIA Document A201[™]-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

Sample

The Owner and Contractor agree as follows.

Init.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

- The date of this Agreement.
- A date set forth in a notice to proceed issued by the Owner.
- Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

- Not later than () calendar days from the date of commencement of the Work.

By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date
-----------------	-----------------------------

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be (\$), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price
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§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance
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§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price
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§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
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§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than () days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner’s prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor’s responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner’s final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect’s final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

_____ % _____

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:

(Check the appropriate box.)

- Arbitration pursuant to Section 15.4 of AIA Document A201–2017
- Litigation in a court of competent jurisdiction
- Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner’s convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:

(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner’s convenience.)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner’s representative:

(Name, address, email address, and other information)

§ 8.3 The Contractor’s representative:

(Name, address, email address, and other information)

§ 8.4 Neither the Owner’s nor the Contractor’s representative shall be changed without ten days’ prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

.5 Drawings

Number	Title	Date
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.6 Specifications

Section	Title	Date	Pages
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.7 Addenda, if any:

Number	Date	Pages
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Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

- AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

The Sustainability Plan:

Title	Date	Pages
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Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
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.9 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER (Signature)

CONTRACTOR (Signature)

(Printed name and title)

(Printed name and title)



AIA[®] Document A201[®] – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

THE OWNER:

(Name, legal status and address)

THE ARCHITECT:

(Name, legal status and address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503[™], Guide for Supplementary Conditions.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining

provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™-2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building

information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the

site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's

capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes

remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the

time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under

Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the

Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate

Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The

Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable

by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The

foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers

to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not

constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the

endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The

Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§ 11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the

Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section

15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly

consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

Sample

C – FORM OF BID BOND



AIA[®]

Document A310™ – 2010

Bid Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

BOND AMOUNT:

PROJECT:

(Name, location or address, and Project number, if any)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this _____ day of _____

_____	<i>(Contractor as Principal)</i>	<i>(Seal)</i>
<i>(Witness)</i>	_____	<i>(Title)</i>
_____	<i>(Surety)</i>	<i>(Seal)</i>
<i>(Witness)</i>	_____	<i>(Title)</i>

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

Init.

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**D – FORM OF PERFORMANCE AND PAYMENT
BONDS**



AIA® Document A312™ – 2010

Performance Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONSTRUCTION CONTRACT

Date:

Amount:

Description:

(Name and location)

BOND

Date:

(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: None See Section 16

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

SURETY

Company: *(Corporate Seal)*

Signature: _____

Name
and Title:

(Any additional signatures appear on the last page of this Performance Bond.)

Signature: _____

Name
and Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

E – FORM OF PAYMENT APPLICATION

Application and Certificate for Payment

TO OWNER: PROJECT: APPLICATION NO: PERIOD TO: DISTRIBUTION TO:
FROM CONTRACTOR: VIA ARCHITECT: CONTRACT FOR: ARCHITECT
CONTRACT DATE: CONTRACTOR
PROJECT NOS: FIELD
OTHER

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. AIA Document G703™, Continuation Sheet, is attached.

- 1. ORIGINAL CONTRACT SUM
2. NET CHANGE BY CHANGE ORDERS
3. CONTRACT SUM TO DATE (Line 1 ± 2)
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)
5. RETAINAGE: a. % of Completed Work (Columns D + E on G703) b. % of Stored Material (Column F on G703)

- 6. TOTAL EARNED LESS RETAINAGE (Line 4 minus Line 5 Total)
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6, from prior Certificate)
8. CURRENT PAYMENT DUE
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 minus Line 6)

Table with 3 columns: CHANGE ORDER SUMMARY, ADDITIONS, DEDUCTIONS. Rows include Total changes approved in previous months by Owner, Total approved this month, and NET CHANGES by Change Order.

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: By: Date:
State of: County of:
Subscribed and sworn to before me this day of
Notary Public: My commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$
(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)
ARCHITECT: By: Date:
This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

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AIA Document G703™ – 1992

Continuation Sheet

AIA Document G702™-1992, Application and Certificate for Payment, or G732™-2009, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
 In tabulations below, amounts are in US dollars.
 Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		E THIS PERIOD	F MATERIALS PRESENTLY STORED <i>(Not in D or E)</i>	G TOTAL COMPLETED AND STORED TO DATE <i>(D+E+F)</i>	H BALANCE TO FINISH <i>(C - G)</i>	I RETAINAGE <i>(If variable rate)</i>
			FROM PREVIOUS APPLICATION <i>(D + E)</i>						
GRAND TOTAL									

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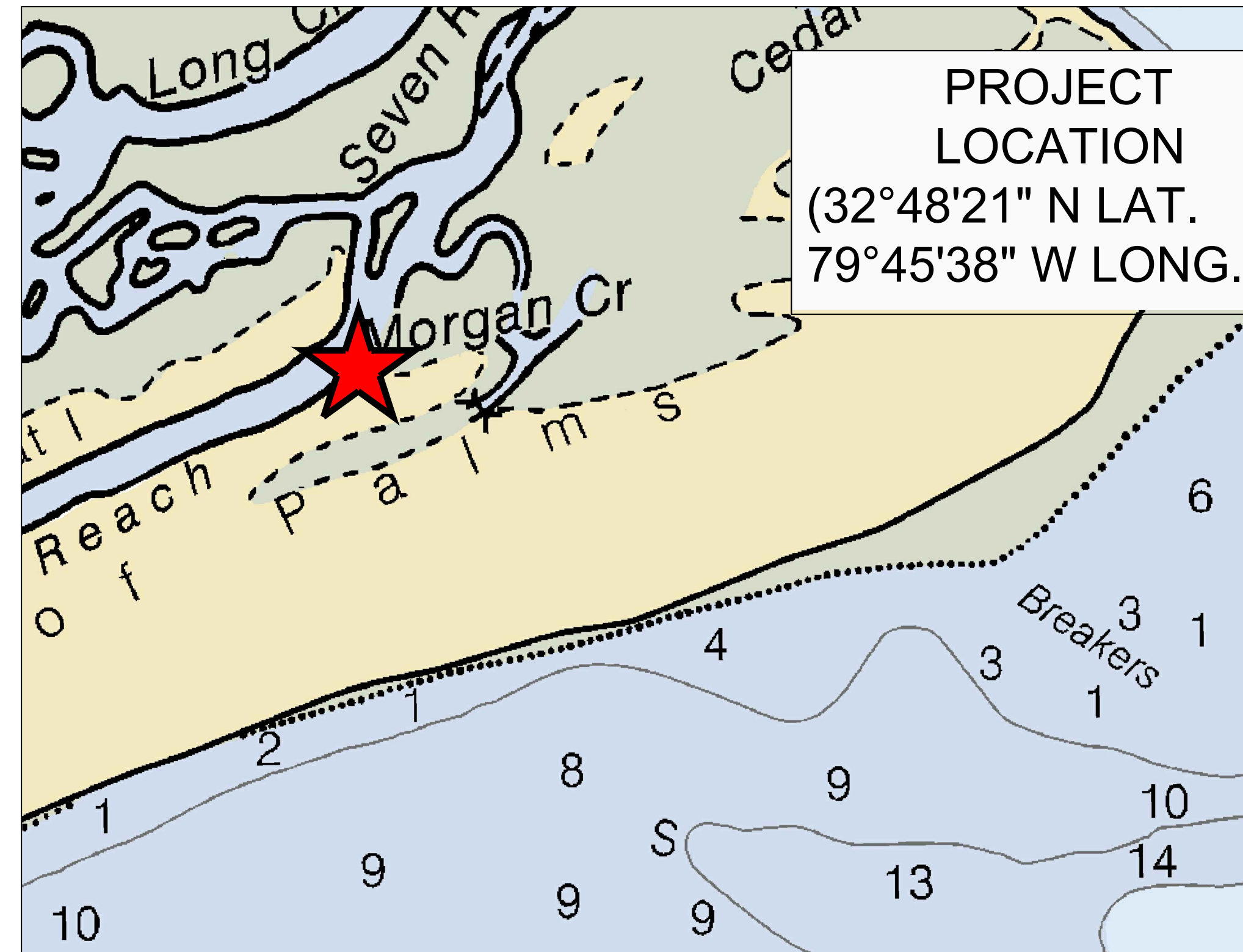
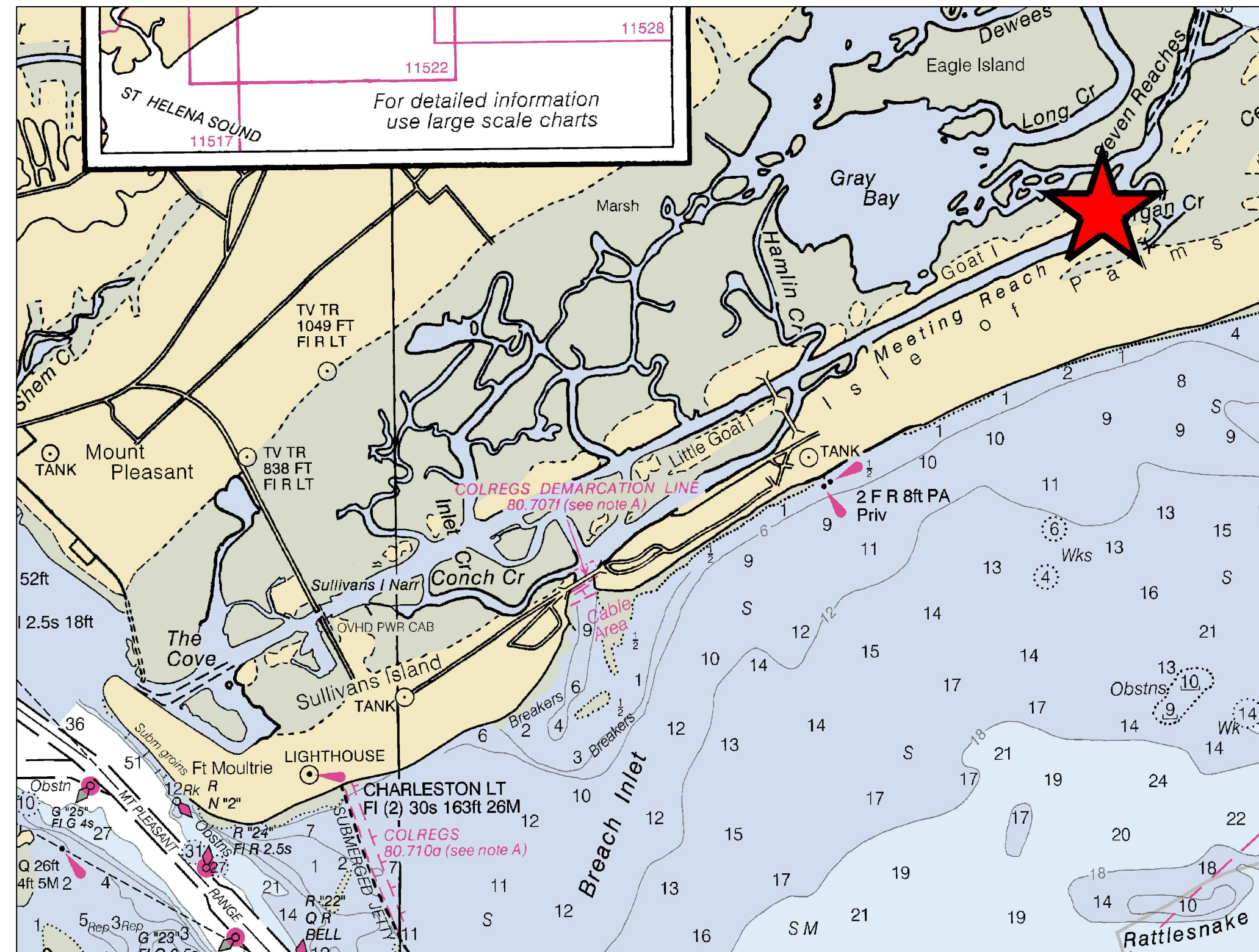
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F – DRAWINGS

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BID DRAWINGS FOR ISLE OF PALMS MARINA PUBLIC DOCK & INTRACOASTAL DOCK IMPROVEMENTS

OCTOBER 19, 2023



DRAWING INDEX	
G1	COVER SHEET
G2	EXISTING CONDITIONS
G3	DEMOLITION PLAN
M1	OVERALL PROPOSED SITE PLAN
M2	DIMENSIONAL LAYOUT
M3	FLOATING DOCK TYPICAL DETAILS
M4	KAYAK LAUNCH DETAILS
M5	SETTING OUT PLAN
S1	STRUCTURAL NOTES
S2	STRUCTURAL PLAN OVERVIEW
S3	TYPICAL FIXED PIER SECTIONS
S4	STRUCTURAL DETAILS
S5	STRUCTURAL DETAILS
S6	ROOFING DETAILS
S7	ROOFING DETAILS
S8	BENCH & SWING DETAILS
R1	INTRACOASTAL DOCK REPAIR - GENERAL NOTES
R2	INTRACOASTAL DOCK - PROPOSED REPAIRS
R3	REPAIR DETAIL & SITE PHOTOS
E1	NOTES, LEGENDS, SCHEDULES
E2	PUBLIC DOCK ELECTRICAL PLAN
E3	INTRACOASTAL DOCK ELECTRICAL PLAN
E4	ELECTRICAL DIAGRAMS
FP1	NOTES, LEGEND, DETAILS
FP2	FIRE PROTECTION PLAN
FP3	NOTES, LEGEND, DETAILS
P1	NOTES, LEGEND
P2	PLUMBING PLAN
P3	DETAILS



PREPARED FOR:

CITY OF ISLE OF PALMS
1207 PALM BOULEVARD
ISLE OF PALMS, SC 29451

PROJECT LOCATION:

50 41ST AVENUE
ISLE OF PALMS, SC 29451

PREPARED BY:



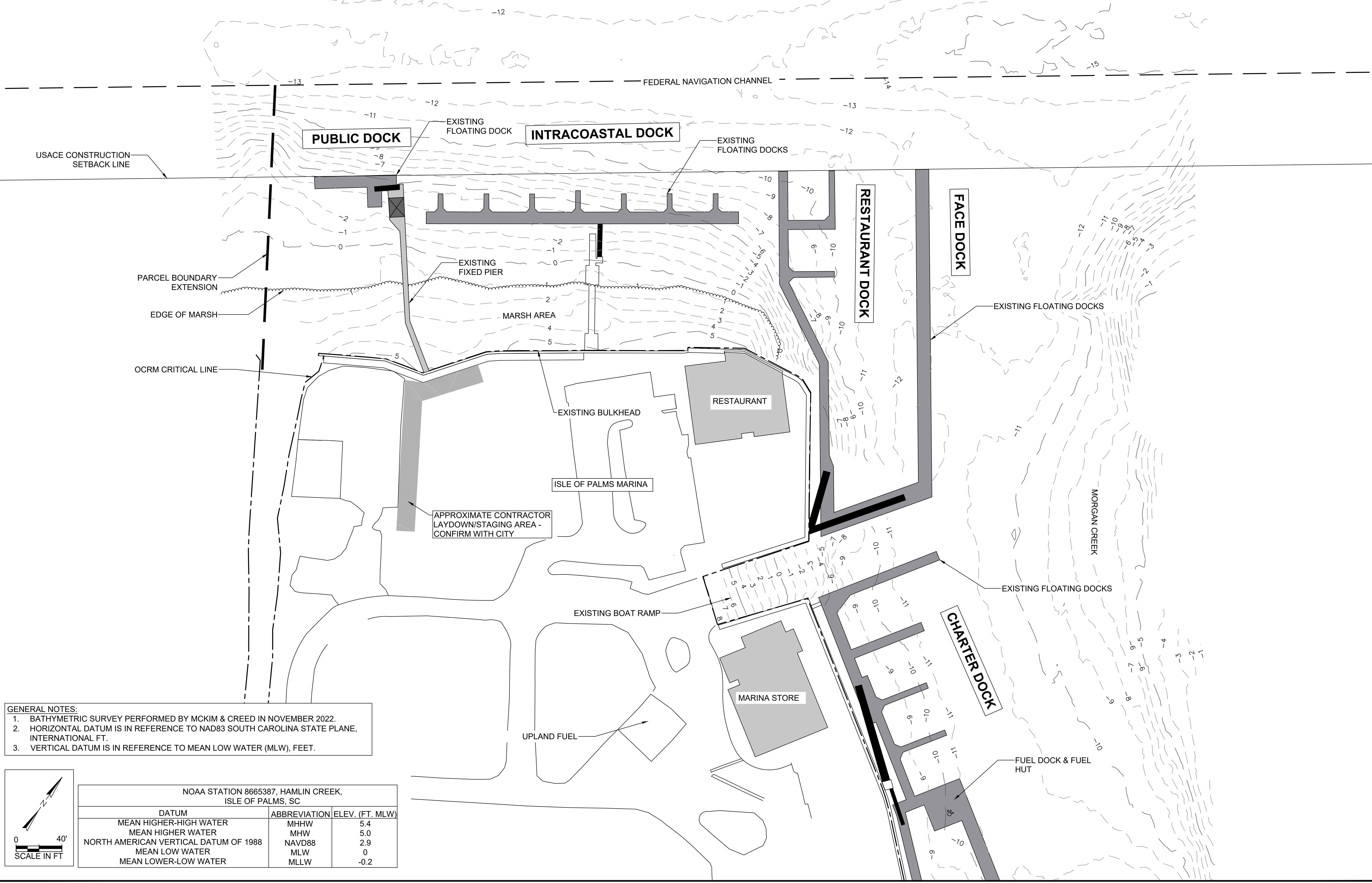
A Geosyntec Company

APPLIED TECHNOLOGY & MANAGEMENT
941 Houston Northcutt Blvd., SUITE 201
Mt. Pleasant, SC. 29464
(843) 414-1040

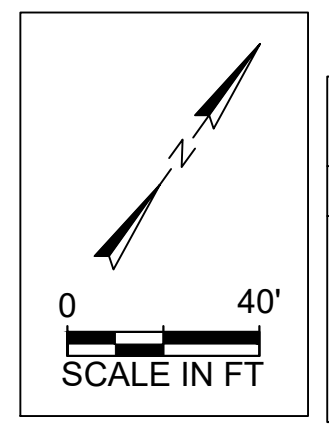
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ATLANTIC INTRACOASTAL WATERWAY

FEDERAL NAVIGATION CHANNEL



- GENERAL NOTES:**
- BATHYMETRIC SURVEY PERFORMED BY MCKIM & CREED IN NOVEMBER 2022.
 - HORIZONTAL DATUM IS IN REFERENCE TO NAD83 SOUTH CAROLINA STATE PLANE, INTERNATIONAL FT.
 - VERTICAL DATUM IS IN REFERENCE TO MEAN LOW WATER (MLW), FEET.



NOAA STATION 8665387, HAMLIN CREEK, ISLE OF PALMS, SC		
DATUM	ABBREVIATION	ELEV. (FT. MLW)
MEAN HIGHER-HIGH WATER	MHHW	5.4
MEAN HIGHER WATER	MHW	5.0
NORTH AMERICAN VERTICAL DATUM OF 1988	NAVD88	2.9
MEAN LOW WATER	MLW	0
MEAN LOWER-LOW WATER	MLLW	-0.2

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Signature _____
Date _____

REV. No.	DATE	DRAWN	CHECKED	BY	REMARKS
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3					
2					
1					

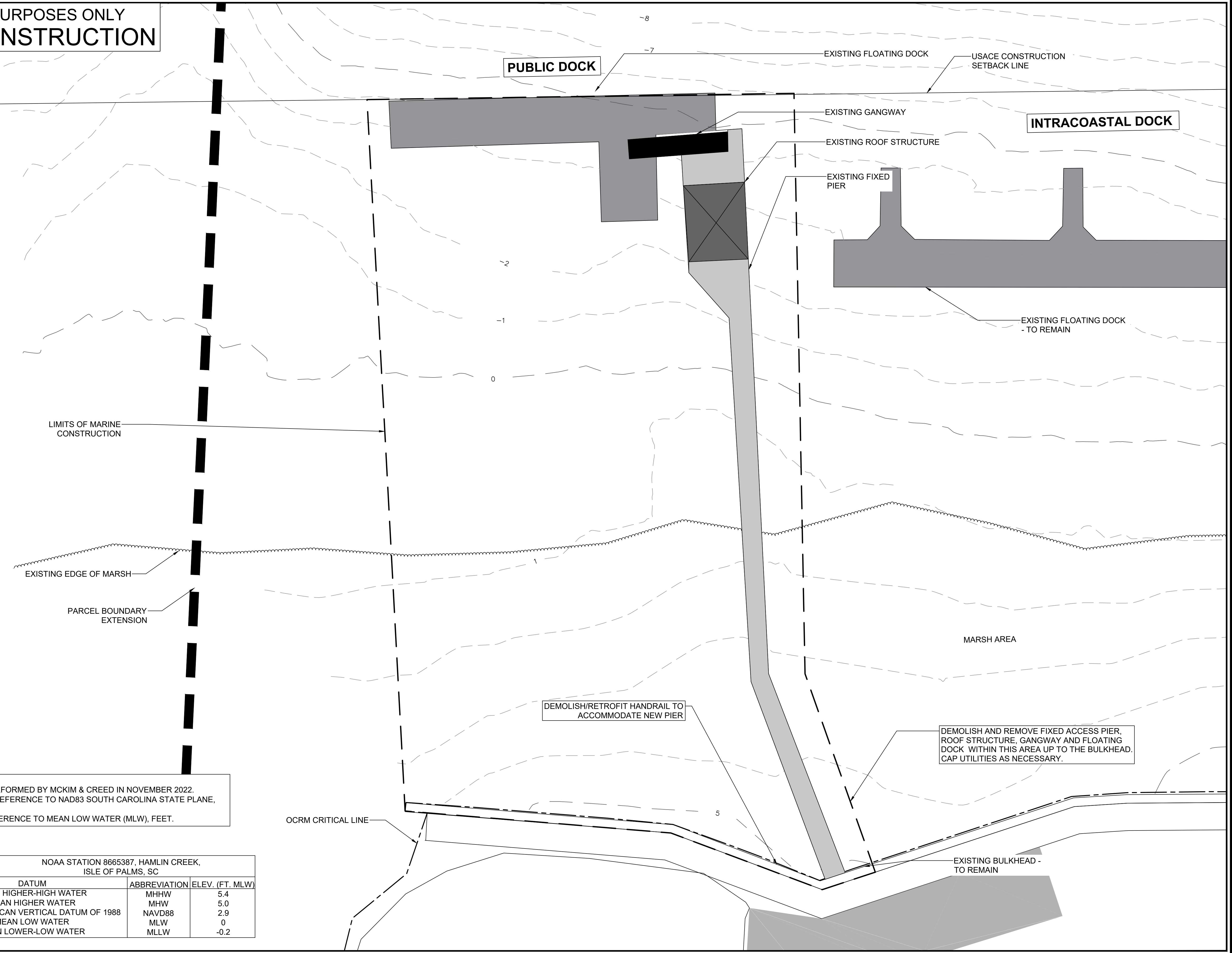
DESIGNED: _____
 DRAWN: _____
 CHECKED: _____
 KM: _____
 HA: _____
 DATE: 10/19/2023
 JOB NO. 18-3287
 SCALE: 1"=40'

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
 ISLE OF PALMS, SC
EXISTING CONDITIONS
 CITY OF ISLE OF PALMS

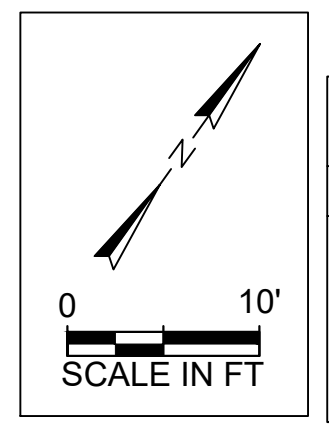
Applied Technology & Management
ATM
 A Geosynetic Company
 941 Houston Northwest Blvd.
 Suite 201
 Mt Pleasant SC, SC 29464
 (843) 414-1040

DRAWING NUMBER
G2

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NOAA STATION 8665387, HAMLIN CREEK, ISLE OF PALMS, SC			
DATUM	ABBREVIATION	ELEV. (FT. MLW)	
MEAN HIGHER-HIGH WATER	MHHW	5.4	
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NORTH AMERICAN VERTICAL DATUM OF 1988	NAVD88	2.9	
MEAN LOW WATER	MLW	0	
MEAN LOWER-LOW WATER	MLLW	-0.2	

Signature _____
Date _____

REV. No.	DATE	DRAWN	CHECKED	BY	REMARKS
4					
3					
2					
1					

DESIGNED: _____
DATE: 10/19/2023
JOB NO. 18-3287
SCALE: 1"=10'

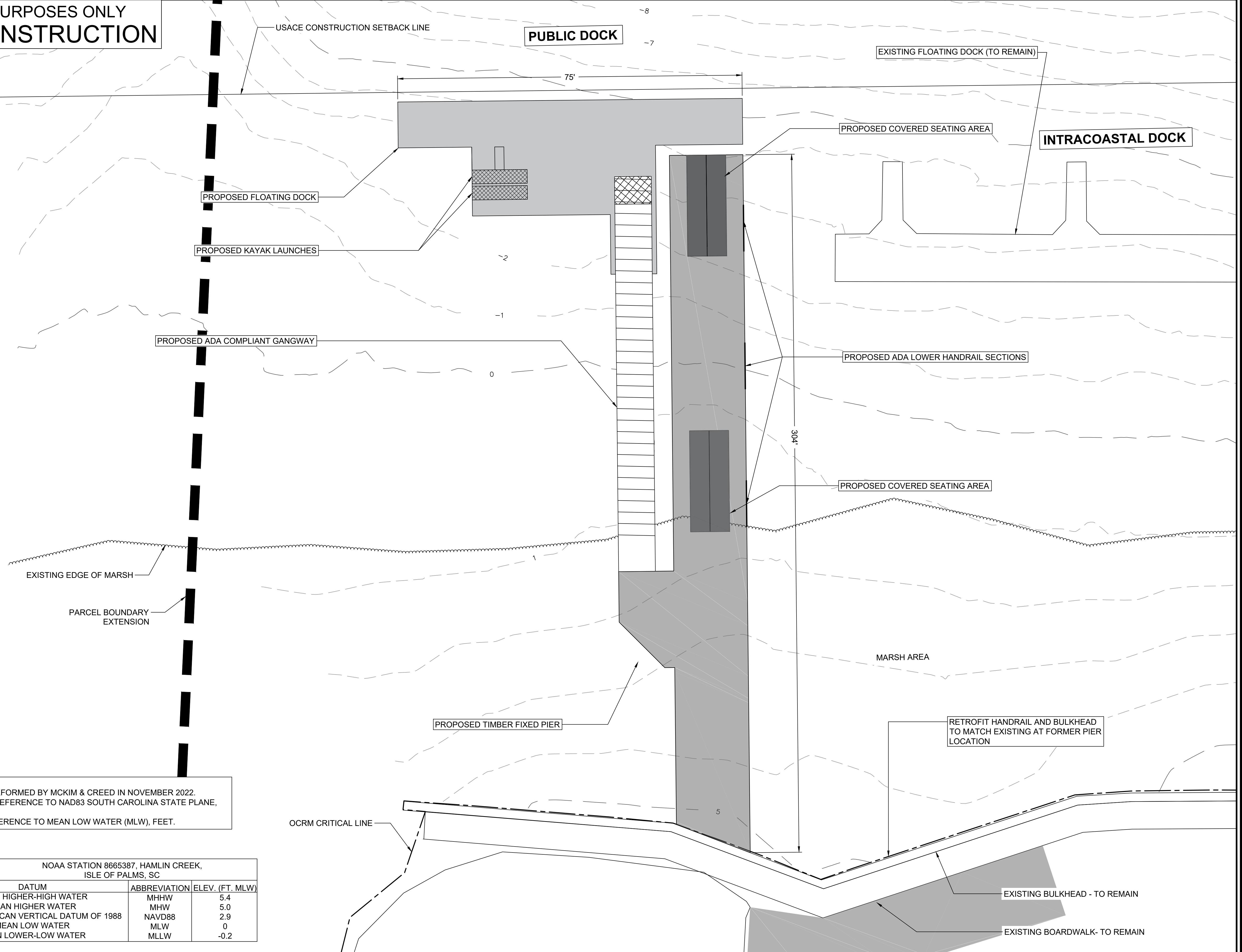
ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
DEMOLITION PLAN
CITY OF ISLE OF PALMS

Applied Technology & Management
ATM
A Geosyntec Company
941 Houston Northcut Blvd.
Suite 201
Mt Pleasant SC, SC 29464
(843) 414-1040

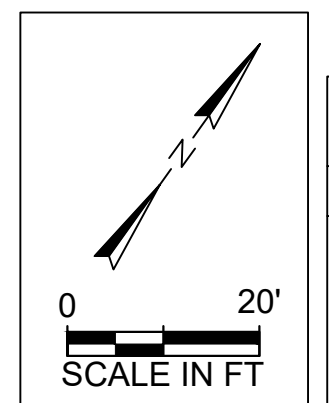
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G3

C:\projects\18-3287\1025 Marina Permittals & Design\DWG\PublicDockDesign\1025 ME_Base.dwg, 03/10/2023
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 1. BATHYMETRIC SURVEY PERFORMED BY MCKIM & CREED IN NOVEMBER 2022.
 2. HORIZONTAL DATUM IS IN REFERENCE TO NAD83 SOUTH CAROLINA STATE PLANE, INTERNATIONAL FT.
 3. VERTICAL DATUM IS IN REFERENCE TO MEAN LOW WATER (MLW), FEET.



NOAA STATION 8665387, HAMLIN CREEK, ISLE OF PALMS, SC		
DATUM	ABBREVIATION	ELEV. (FT. MLW)
MEAN HIGHER-HIGH WATER	MHHW	5.4
MEAN HIGHER WATER	MHW	5.0
NORTH AMERICAN VERTICAL DATUM OF 1988	NAVD88	2.9
MEAN LOW WATER	MLW	0
MEAN LOWER-LOW WATER	MLLW	-0.2

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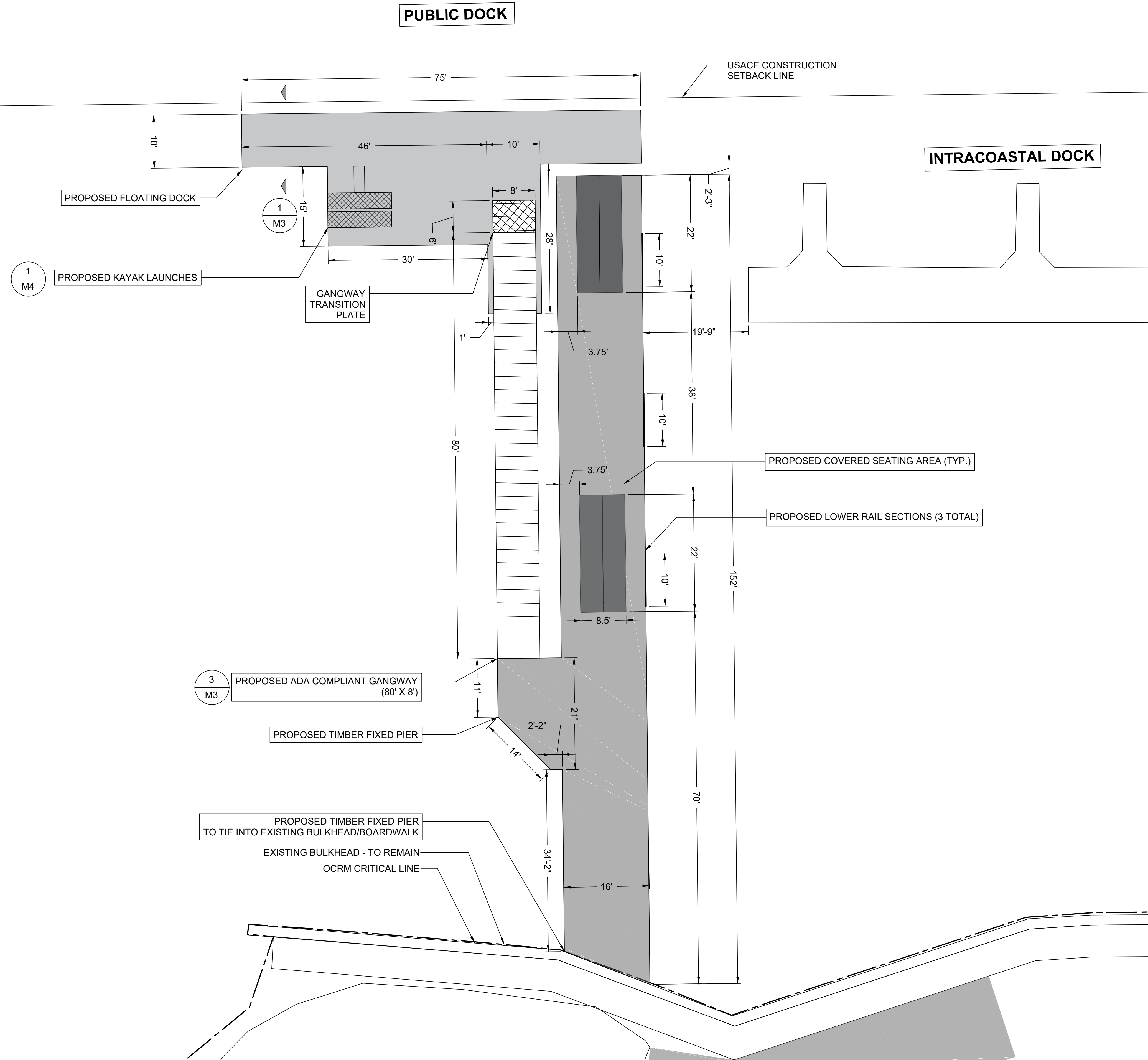
DESIGNED: JD
 DRAWN: HA
 CHECKED: KM
 DATE: 10/19/2023
 JOB NO.: 18-3287
 SCALE: 1"=40'

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
 ISLE OF PALMS, SC
OVERALL PROPOSED SITE PLAN
 CITY OF ISLE OF PALMS

Applied Technology & Management
ATM
 A Geosynetic Company
 941 Houston Northcut Blvd.
 Suite 201
 Myrtle Beach, SC 29577
 (843) 414-1040

DRAWING NUMBER
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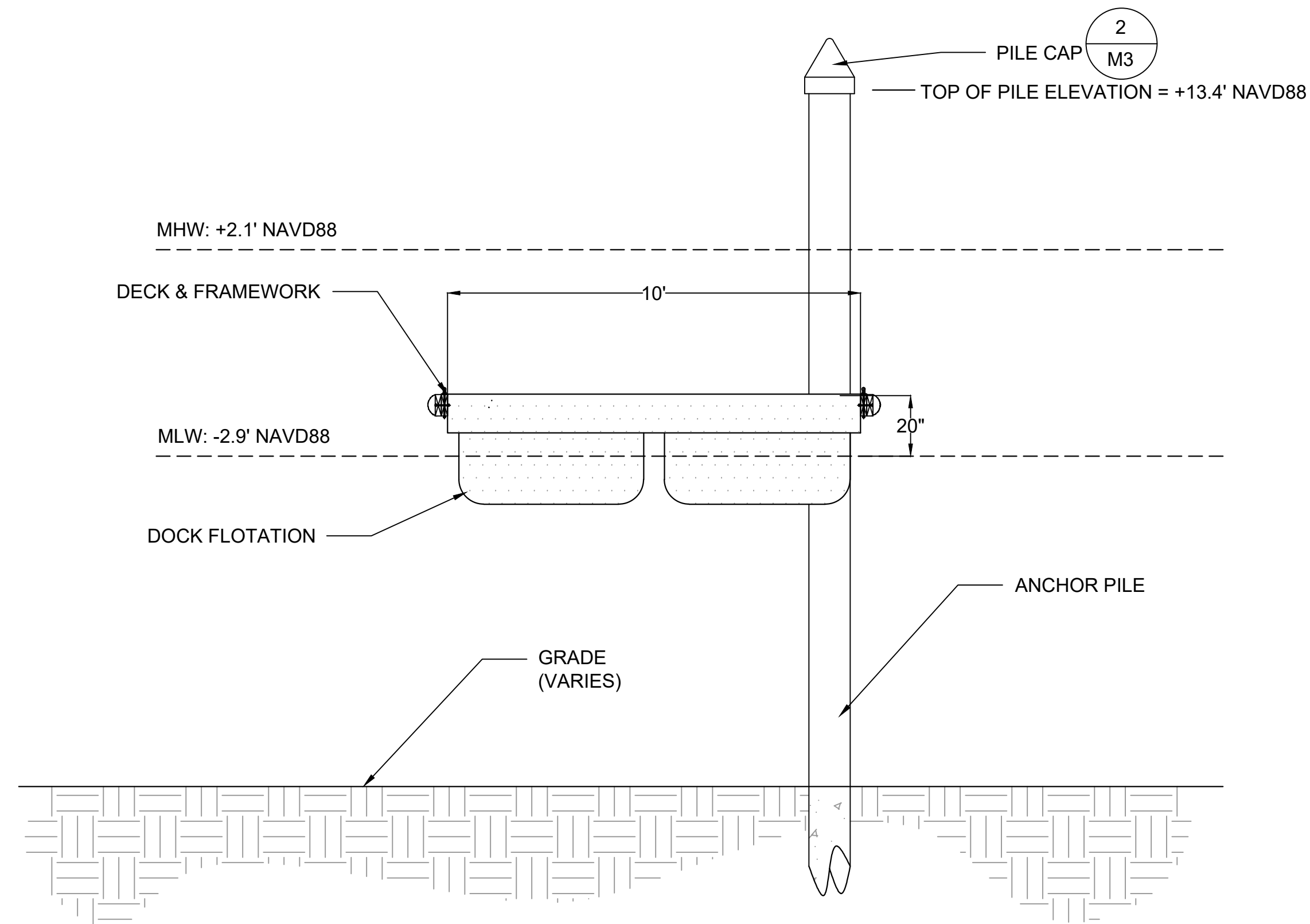
ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
DIMENSIONAL LAYOUT
CITY OF ISLE OF PALMS

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941 Houston Northcut Blvd.
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Mt Pleasant SC, SC 29464
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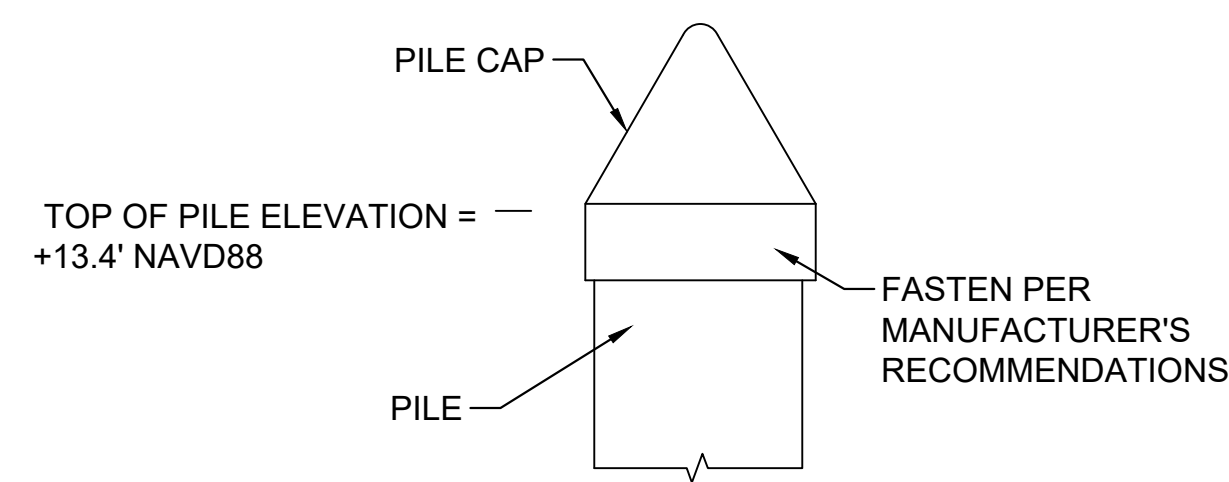
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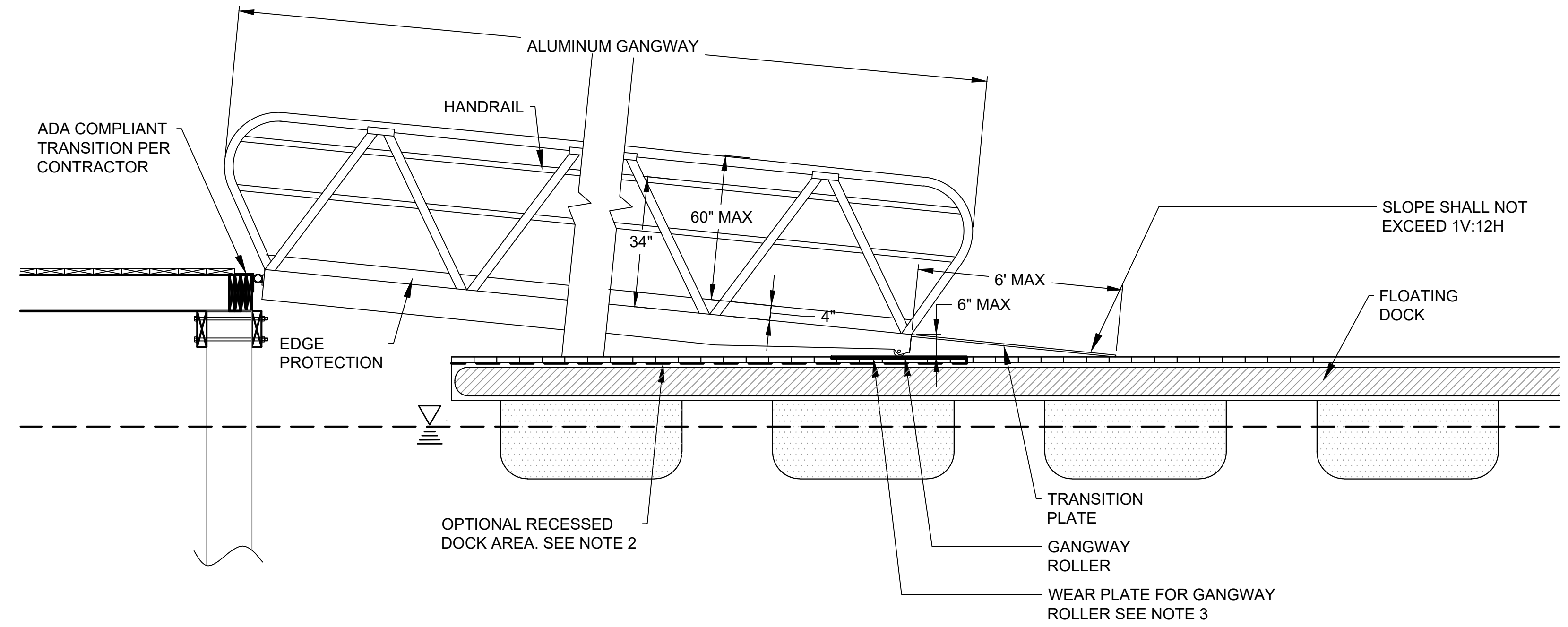
1 TYPICAL FLOATING DOCK SECTION
N.T.S.



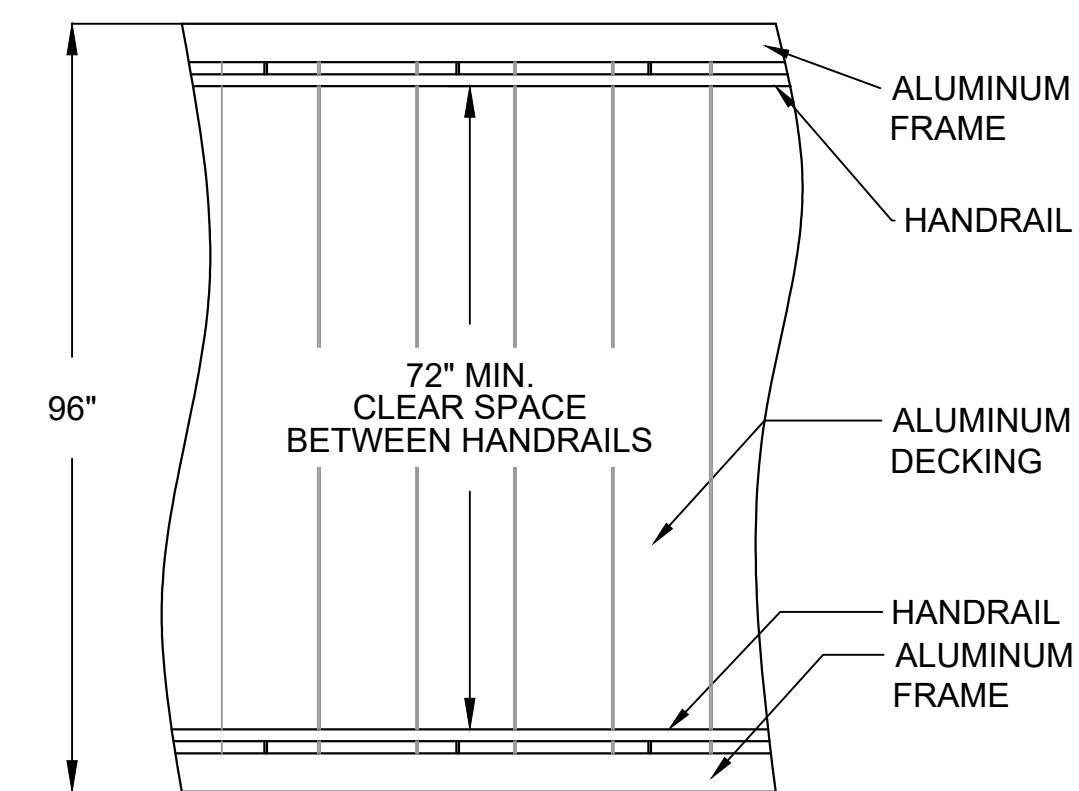
2 TYPICAL PILE CAP
N.T.S.

PILE CAP DETAIL NOTES

1. AFTER PILES HAVE BEEN DRIVEN TO THE PROPER ELEVATION, THEY SHALL BE CAPPED WITH BLACK POLYETHYLENE PILE CAPS WITH A WALL THICKNESS OF NO LESS THAN 1/8". CONTRACTOR TO SUBMIT MANUFACTURER'S CUT SHEET FOR APPROVAL.
2. PILE CAP SAMPLE SHALL BE SUBMITTED TO OWNER FOR APPROVAL PRIOR TO INSTALLATION.
3. PILE CAP SHALL BE FASTENED PER MANUFACTURER'S RECOMMENDATIONS.
4. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION
5. MATCH EXISTING AT MORGAN CREEK SIDE OF MARINA TO THE EXTENT POSSIBLE.



3 GANGWAY PROFILE DETAIL
N.T.S.



4 TYPICAL GANGWAY PLAN VIEW
N.T.S.

ADA GANGWAY DETAIL NOTES:

THE CONTRACTOR IS TO DEVELOP GANGWAY DESIGN TO MEET THE FOLLOWING CRITERIA:

1. MAX. LENGTH OF TRANSITION PLATE SHALL BE 6 FT.
2. TRANSITION PLATE/GANGWAY HINGE SHALL HAVE A MAX. HEIGHT ABOVE FLOATING DOCK DECK SURFACE OF 6 INCHES. FLOATING DOCK DECK SECTION MAY BE MODIFIED (RECESSED) IN THIS AREA TO ACCOMMODATE MAXIMUM TRANSITION PLATE HEIGHT.
3. WEAR PLATE ON DOCK TO EXTEND MIN 2'-0" EACH SIDE WHEN ROLLERS CONTACT AT MID TIDE.
4. ALUMINUM HANDRAIL TO COMPLY WITH ADAAG SPECIFICATIONS. TOP OF GRIPPING SURFACE HANDRAIL SHALL BE 34" ABOVE WALKING SURFACE AND SHALL BE NON-SKID. DIAMETER/WIDTH SHALL BE 1 1/4" - 1 1/2". HANDRAIL MUST WITHSTAND 250 POUND LOAD.
5. INCLUDE ALUMINUM EDGE PROTECTION, MIN. 4" HIGH AND SHALL BE WELDED TO GANGWAY.
6. GANGWAY SHALL BE FULLY ADA COMPLIANT, INCLUDING TRANSITIONS.
7. CONSIDER HORIZONTAL MOVEMENT OF DOCK SYSTEMS IN GANGWAY DESIGN AND GANGWAY ATTACHMENT DESIGN.
8. TOP CHORD/STRUCTURAL ELEMENT OF GANGWAY SHALL NOT EXCEED 60" FROM WALKING SURFACE.

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ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
FLOATING DOCK TYPICAL DETAILS
CITY OF ISLE OF PALMS

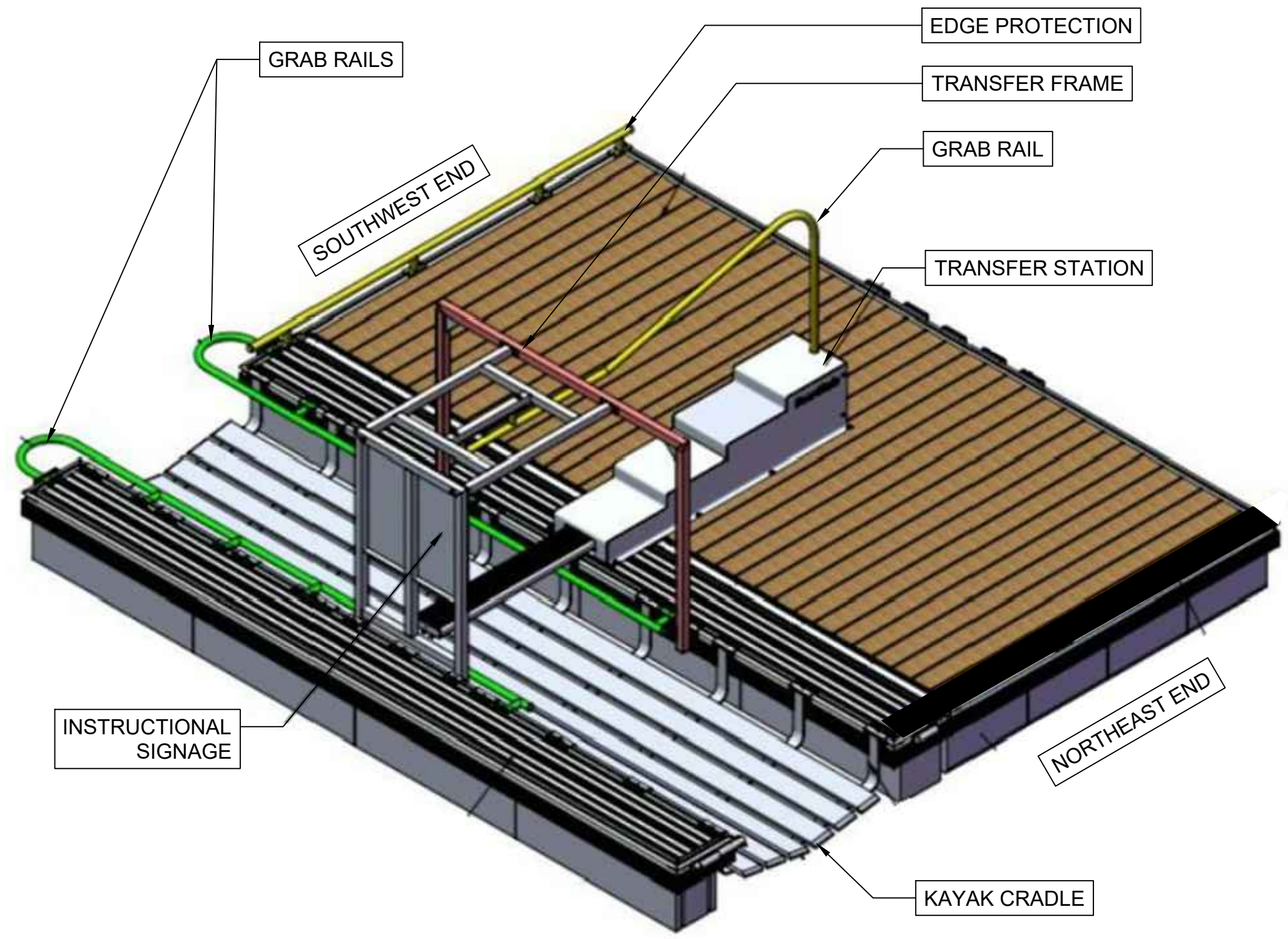
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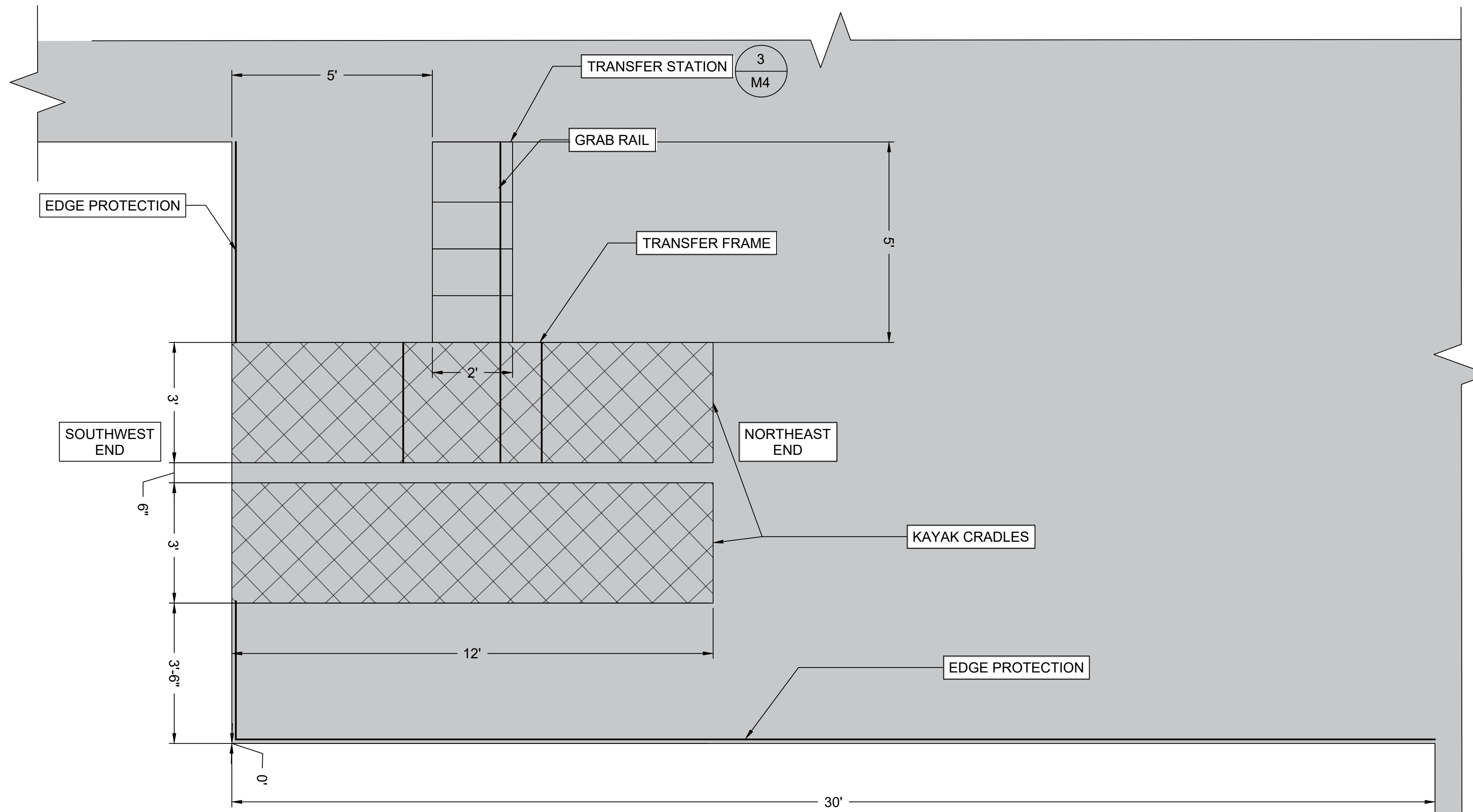
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KAYAK LAUNCH NOTES:
THE CONTRACTOR IS TO DEVELOP KAYAK LAUNCH DESIGN TO MEET THE FOLLOWING CRITERIA:

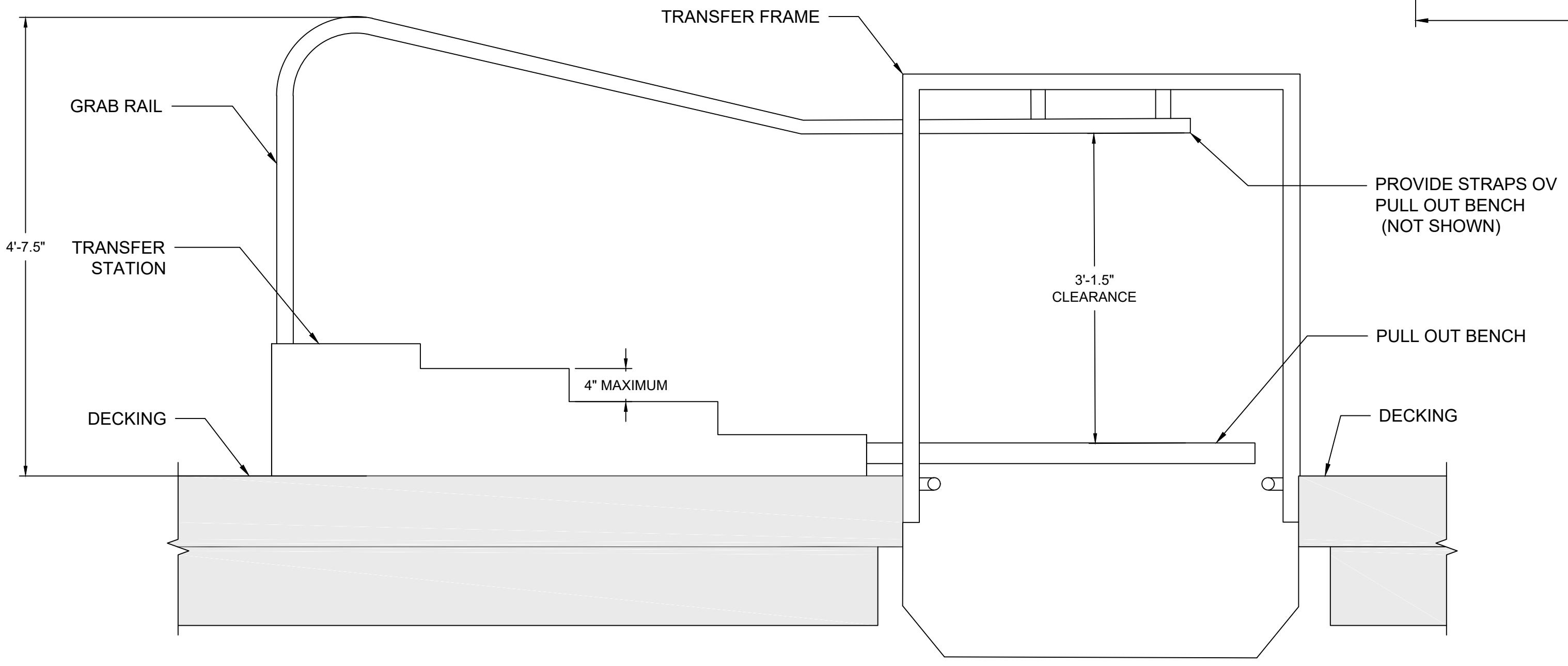
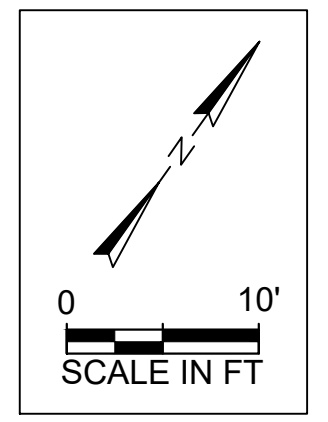
1. INCLUDE ALUMINUM GRABRAILS TO COMPLY WITH ADAAG SPECIFICATIONS. HANDRAIL MUST WITHSTAND 250 POUND LOAD.
2. INCLUDE TOE KICK EDGE PROTECTION, MIN. 5" HIGH AROUND KAYAK LAUNCH PLATFORM AS INDICATED BELOW.
3. CONTRACTOR TO PROVIDE SCHEMATIC DESIGN OF PROPOSED KAYAK LAUNCH SYSTEM WITH BID THAT MEETS OR EXCEEDS THE INDICATIVE DETAILS PROVIDED HEREIN.



1 ADA ACCESSIBLE KAYAK LAUNCH TRANSFER STATION AND FRAME INDICATIVE SCHEMATIC DRAWING
N.T.S.



2 KAYAK LAUNCH PLAN DETAIL
N.T.S.



3 INDICATIVE TRANSFER STATION SECTION
N.T.S.

Signature _____
Date _____

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JD	HA	KM	10/19/2023	18-3287	VARIABLE

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
KAYAK LAUNCH DETAILS
CITY OF ISLE OF PALMS

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PUBLIC DOCK

INTRACOASTAL DOCK

USACE CONSTRUCTION SETBACK LINE. NO DOCKS, PILES, OR OTHER STRUCTURES MAY EXTEND BEYOND THIS LINE.

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E: 2380535.52

N: 356186.27
E: 2380604.39

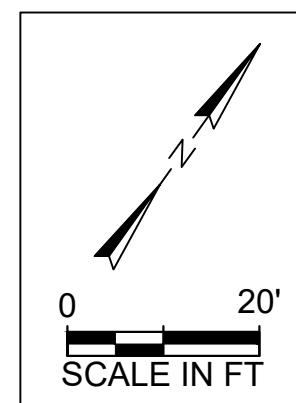
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E: 2380601.90

N: 356175.02
E: 2380609.24

N: 356080.83
E: 2380619.38

N: 356035.18
E: 2380660.85

- GENERAL NOTES:**
1. HORIZONTAL DATUM IS IN REFERENCE TO NAD83 SOUTH CAROLINA STATE PLANE, INTERNATIONAL FT.
 2. CONTRACTOR SHALL ENSURE THAT NO ENCROACHMENT INTO USACE CONSTRUCTION SETBACK OCCURS.
 3. CONTRACTOR SHALL CONFIRM LOCATION OF ALL ADJACENT UTILITIES AND ENSURE NO CONFLICTS EXISTING, INCLUDING UNDERGROUND AND UNDERWATER LINES.



Signature _____
Date _____

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JD	HA	KM	10/19/2023	1"=50'
JOB NO. 18-3287				

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
SETTING OUT PLAN
CITY OF ISLE OF PALMS

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APPLICABLE CODES

THE STRUCTURES INCLUDED HEREIN HAVE BEEN DESIGNED TO MEET THE GENERAL INTENT OF THE FOLLOWING DESIGN CODES AND GUIDELINES:

- INTERNATIONAL BUILDING CODE (IBC, 2018)
- PLANNING AND DESIGN GUIDELINES FOR SMALL CRAFT HARBORS (ASCE-50)
- MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE-7-16)
- UNITED FACILITIES CRITERIA (UFC) DESIGN: PIERS AND WHARVES (UFC 4-152-01)
- NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS-2018)

DESIGN CRITERIA AND ASSUMPTIONS

- DESIGN CRITERIA UTILIZED IN THE STRUCTURAL DESIGN ARE SUMMARIZED IN THE TABLE ON THIS SHEET.
- THE PIER STRUCTURE INCLUDED HEREIN HAS BEEN DESIGNED TO THE SPECIFIED CRITERIA AND WITH CONSIDERATION GIVEN TO PRACTICAL DESIGN LIMITS AND RISK MANAGEMENT FOR TIMBER STRUCTURES IN A DYNAMIC MARINE ENVIRONMENT. CERTAIN LOADS, INCLUDING WAVE SLAM AND UPLIFT FORCES, MAY EXCEED ANY PRACTICAL DESIGN LIMIT FOR A TIMBER STRUCTURE OF THIS TYPE AND SOME LEVEL OF DAMAGE MAY BE EXPECTED UNDER EXTREME CONDITIONS.
- THE PIER STRUCTURE INCLUDED HEREIN HAS BEEN DESIGNED TO MINIMIZE LOADS IMPOSED ON THE EXISTING BULKHEAD AND/OR BOARDWALK FOR LATERAL OR VERTICAL STABILITY. ATM HAS NOT EVALUATED THE EXISTING STRUCTURES REGARDING THEIR CONDITION, STRUCTURAL CAPACITY, OR LONGEVITY AND ACCEPTS NO LIABILITY RELATED TO THE SHORT OF LONG TERM PERFORMANCE OF THE EXISTING STRUCTURES.

GENERAL CONSTRUCTION AND BIDDING REQUIREMENTS

- CONTRACTOR'S WORK SHALL CONSIST OF PROVIDING ALL DEMOLITION, CONSTRUCTION, LABOR, SUPERVISION, TESTING, INSPECTIONS, LOCAL PERMIT(S), SURVEYING, EQUIPMENT, AND MATERIAL IN CONNECTION WITH THE WORK INDICATED HEREIN.
- THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING HIS WORK IN A SAFE AND SATISFACTORY MANNER.
- ALL DETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON THE PROJECT. UNLESS OTHERWISE INDICATED, PROVIDE EQUAL SPACING OF STRUCTURAL COMPONENTS BETWEEN OVERALL DIMENSIONS.
- PROPOSED SUBSTITUTIONS AND MODIFICATIONS TO IMPROVE THE CONSTRUCTABILITY, DURABILITY, PERFORMANCE, OR AESTHETICS OF THE PIER STRUCTURE ARE ENCOURAGED. HOWEVER, REVISIONS ARE NOT PERMISSIBLE WITHOUT PRIOR APPROVAL BY ATM. THE BIDDER/CONTRACTOR SHALL NOT ASSUME SUBSTITUTIONS OR MODIFICATIONS ARE ACCEPTABLE WITHOUT PRIOR WRITTEN APPROVAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL PROFESSIONAL DESIGN SERVICES AND PERMITS REQUIRED DUE TO SUBSTITUTIONS AND MODIFICATIONS TO THE REQUIREMENTS DESCRIBED HEREIN.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING, SHORING, GUYING OR OTHER MEANS TO SUPPORT THE STRUCTURAL ELEMENTS, INCLUDING THE EXISTING BULKHEAD ALONG THE SHORELINE, AS/IF REQUIRED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF ANY TEMPORARY SUPPORTS, WORK PLATFORMS, ETC. ASSOCIATED WITH THE CONSTRUCTION OF THE FIXED PIER.
- DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE FOR DESIGN REFERENCE ONLY. FIELD MEASUREMENTS AND SURVEY OF EXISTING CONDITIONS SHOULD BE USED TO DETERMINE THE EXACT DIMENSIONS FOR MATERIAL PURCHASE, FABRICATION, AND INSTALLATION.
- ALL PERMANENT CONSTRUCTION MATERIALS ASSOCIATED WITH THE FIXED PIER SHALL BE NEW. USED OR RECONDITIONED MATERIALS SHALL NOT BE PERMITTED WITHOUT PRIOR WRITTEN APPROVAL BY ATM.
- NO CUTS, HOLES, OR COPES REQUIRED FOR OTHER TRADES IN STRUCTURAL WOOD FRAMING SHALL BE PERMITTED WITHOUT PRIOR WRITTEN APPROVAL BY ATM.
- SWINGS AND BENCHES ARE SHOWN HEREIN AS GENERAL FORMS. CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINAL DESIGN OF THE PROPOSED BENCHES AND SWINGS AND ASSOCIATED CONNECTIONS TO THE ROOF STRUCTURE. SEE

NOTES UNDER "SWINGS AND BENCHES", SHEET S8.

- BIDDER IS REQUIRED TO PROVIDE PRICING FOR THE FOLLOWING BID ALTERNATES AND AS DELINEATED IN THE BID FORM.
 - UTILIZE TANZITE™ DECKING IN LIEU OF IPE HARDWOOD ON THE FIXED PIER
 - THIS BID ALTERNATE DOES NOT APPLY TO THE FLOATING DOCKS, KAYAK LAUNCHES, OR OTHER PROJECT COMPONENTS.
 - TANZITE™ DECKING SHALL BE "STONDECK - APPALACHIAN COLLECTION" IN THE COLOR "AGED TEAK".
 - TANZITE™ DECKING SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
 - UTILIZE HOT DIP GALVANIZED (HDG) HARDWARE IN LIEU OF GRADE 316 STAINLESS STEEL
 - THIS BID ALTERNATE DOES NOT APPLY TO SIMPSON™ BRACKETS/CONNECTORS AND ASSOCIATED NAILS/SCREWS, DECK SCREWS, OR OTHER SPECIALIZED PRODUCTS.
 - GALVANIZED HARDWARE SHALL MEET THE REQUIREMENTS OF ASTM A653, CLASS G185
- PROVIDE PILE WRAPPING ON ALL TIMBER PILES
 - PILE WRAP MATERIAL SHALL BLACK, UV RESISTANT HIGH DENSITY POLYETHYLENE WITH A MINIMUM THICKNESS OF 30 MILS.
 - WRAPPING SHALL BE INSTALLED FROM 1 FT. BELOW THE MUDLINE TO 1 FT. ABOVE THE MEAN HIGH WATER (MHW) LINE.
 - WRAPPING SHALL BE INSTALLED USING TYPE 316 STAINLESS STEEL FASTENERS WITH A 6 IN. MINIMUM CONTINUOUS OVERLAP AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SHOP DRAWINGS & SUBMITTALS

- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND OTHER SUBMITTALS FOR ALL STRUCTURAL COMPONENTS AND RELATED ACTIVITIES FOR REVIEW BY ATM. SUBMITTALS SHALL INCLUDE, BUT NOT NECESSARILY LIMITED TO:
 - CONSTRUCTION SCHEDULE WITH DEFINED SEQUENCES, TASKS, AND DURATION
 - CONSTRUCTION PLAN WITH PROPOSED DEMOLITION AND CONSTRUCTION METHODS, TECHNIQUES, AND EQUIPMENT
 - WOOD MATERIAL CERTIFICATIONS INCLUDING PRESERVATIVE TREATMENT
 - MATERIAL CERTIFICATIONS AND PRODUCT DATA FOR METAL FASTENERS, BOLTS, CONNECTORS, PLATES, AND OTHER RELATED HARDWARE COMPONENTS
 - QUALITY CONTROL PLAN FOR STRUCTURAL ELEMENTS INCLUDING MATERIAL TESTING, INSPECTIONS, MONITORING, ETC., AS APPLICABLE
 - PILE DRIVING LOGS (SEE "PIER FOUNDATION PILING" NOTES, THIS SHEET)
 - FINAL SWING AND BENCH DESIGN, CONNECTION DETAILS, AND SHOP DRAWINGS; DESIGN DOCUMENTS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER.
- CONTRACTOR'S SUBMITTALS SHALL PROVIDE COMPLETE INFORMATION FOR THE PRODUCTS OR COMPONENTS TO BE SUPPLIED. SUBMITTAL INFORMATION SHALL INCLUDE, BUT NOT BE LIMITED TO: MEMBER SIZES AND DIMENSIONS; GRADES OF MATERIAL FURNISHED; MATERIAL PREPARATION REQUIRED; MATERIAL FINISH AND MATERIAL COATINGS TO BE FURNISHED; INFORMATION REGARDING CUTS, COPES, AND HOLES REQUIRED FOR OTHER TRADES; END CONNECTIONS; CAMBER AND OTHER DEVIATION FROM LINE; SPECIAL ERECTION AND/OR INSTALLATION PROCEDURES, INCLUDING REQUIREMENTS FOR TEMPORARY STABILIZATION.
- ALL SHOP DRAWING RESUBMITTALS AND RECORD COPY SUBMITTALS SHALL HAVE ALL REVISIONS SUBSEQUENT TO THE PREVIOUS SUBMISSION CLOUDED OR OTHERWISE IDENTIFIED ON THE RESUBMITTED DOCUMENTS. RESUBMITTALS AND RECORD COPY SUBMITTALS WITHOUT IDENTIFICATION OF REVISIONS WILL BE REJECTED WITHOUT REVIEW.
- THE REVIEW OF SHOP DRAWINGS AND OTHER SUBMITTALS FOR THIS PROJECT IS TO ASSESS GENERAL CONFORMANCE WITH THE DESIGN AND INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS. COMMENTS REGARDING THESE SUBMITTALS DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DOCUMENTS.

PIER FOUNDATION PILING

- TIMBER PILES SHALL BE SOUTHERN YELLOW PINE IN ACCORDANCE WITH ASTM D25 AND 2.5 CCA PRESSURE PRESERVATIVE TREATED OR BETTER.
- TIMBER PILES SHALL BE VISUALLY STRAIGHT WITHOUT SPLITS OR VOIDS. PILES SHALL HAVE A CONSISTENT TAPER NOT EXCEEDING 0.1 INCH PER FOOT WITH MINIMUM BUTT AND TIP

CIRCUMFERENCES PER ASTM D25.

- IF IMPACT HAMMERS ARE TO BE USED DURING PILE INSTALLATION, CONTRACTOR SHALL CONDUCT A WAVE EQUATION ANALYSIS OF THE PILES (WEAP), COMPLETED BY A LICENSED GEOTECHNICAL ENGINEER, OF THE HAMMER-PILE-SOIL SYSTEM BASED ON THE PROVIDED GEOTECHNICAL REPORT TO DEFINE PILE DRIVING CRITERIA AND ENSURE THAT ALLOWABLE STRESSES IN PILES ARE NOT EXCEEDED DURING DRIVING ACTIVITIES. ANY PILE(S) DAMAGED DURING INSTALLATION, WHETHER VIA IMPACT HAMMER OR OTHER MEANS, SHALL BE REMOVED AND REPLACED NEW PILE(S) AT THE CONTRACTOR'S EXPENSE.
- PILE FOUNDATIONS SHALL BE HANDLED, INSTALLED, AND MONITORED IN ACCORDANCE WITH APPLICABLE SFPA GUIDELINES, REGULATORY PERMITS, AND GEOTECHNICAL REPORTS.
- EXTREME CARE IS REQUIRED TO ACCURATELY INSTALL ALL PILES AT THE REQUIRED SPACING, LOCATION, ORIENTATION, AND VERTICAL ALIGNMENT INDICATED HEREIN. CONTRACTOR IS RESPONSIBLE FOR UTILIZING PROPER METHODOLOGY AND EQUIPMENT TO ENSURE PILE INSTALLATION IN THE CORRECT POSITIONS AND SHALL IDENTIFY OPTIONS AND TECHNIQUES TO CORRECT ANY DEFICIENCIES WHICH MAY OCCUR.
- JETTING, INCLUDING PARTIAL OR LIMITED JETTING, IS PROHIBITED.
- PILES SHALL BE DRIVEN TO A MINIMUM ELEVATION OF -58" FT. NAV88. WOODEN PILE SPLICES SHALL NOT BE PERMITTED. IF PRACTICAL REFUSAL OR PILE DAMAGE IS ENCOUNTERED PRIOR TO REACHING MINIMUM PENETRATION, PILE DRIVING SHALL BE IMMEDIATELY STOPPED AND ATM SHALL BE NOTIFIED.
- CONTRACTOR SHALL RE-DRIVE ANY HEAVED PILES TO THE REQUIRED ELEVATION. PILES THAT ARE DAMAGED, LOCATED INCORRECTLY, OR OUT OF ALIGNMENT SHALL BE REPLACED OR ADDITIONAL PILES SHALL BE INSTALLED AS DIRECTED BY ATM AT THE CONTRACTOR'S EXPENSE.
- ALL PILES SHALL BE MARKED AT 1 FOOT INTERVALS WITH A NON-PERMANENT MARKING PRIOR TO DRIVING. MARKS SHALL CONSIST OF STRAIGHT LINES PERPENDICULAR TO THE LONGITUDINAL AXIS OF THE PILE WITH ARABIC NUMBERS ASCENDING FROM THE PILE TIP.
- CONTRACTOR SHALL MAINTAIN AN ACCURATE RECORD OF PILE CONSTRUCTION AND INSTALLATION PROCEDURES AND OBSERVATIONS INCLUDING, BUT NOT LIMITED TO: LOCATIONS, DEVIATIONS FROM DESIGN LOCATIONS, CROSS SECTION SHAPE, ORIGINAL LENGTHS, GROUND OR MUDLINE ELEVATION, TIP ELEVATION, CUTOFF ELEVATION, TIME OF DRIVING OPERATION, TYPE AND SIZE OF HAMMER, RATE OF OPERATION, TYPE OF DRIVING HELMET, AND TYPE OF HAMMER CUSHION.
- PILE INSTALLATION LOGS AND INSPECTION REPORTS SHALL BE KEPT ON SITE. ELECTRONIC COPIES OF THE PILE INSTALLATION LOGS AND INSPECTION REPORTS SHALL BE MAINTAINED DAILY, IMMEDIATELY AVAILABLE UPON REQUEST, AND OTHERWISE SUBMITTED WEEKLY TO ATM.
- CONTRACTOR SHALL APPLY CLEAR WATER-BASED WAX EMULSION END GRAIN SEALER TO TOP OF TIMBER PILES IMMEDIATELY AFTER TRIMMING AND CUTTING, WHERE APPLICABLE. CONTRACTOR TO SUBMIT PROPOSED SEALANT PRODUCT SPECIFICATIONS TO ATM FOR APPROVAL PRIOR TO INSTALLATION. SEALANT SHALL BE APPLIED PER THE MANUFACTURER'S RECOMMENDATIONS.

STRUCTURAL LUMBER

- ALL STRUCTURAL LUMBER SHALL BE IN ACCORDANCE WITH THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS - LATEST EDITION) PUBLISHED BY THE AMERICAN WOOD COUNCIL AND SHALL MEET GRADING AND TREATMENT REQUIREMENTS OF PS 20 AMERICAN SOFTWOOD LUMBER STANDARD WITH THE APPLICABLE RULE OF INSPECTION AGENCIES CERTIFIED BY THE AMERICAN LUMBER STANDARD COMMITTEE (ALSC). FACTORY MARK EACH PIECE OF LUMBER WITH GRADE STAMP OF INSPECTION AGENCY EVIDENCING COMPLIANCE WITH GRADING RULE REQUIREMENTS.
- ALL LUMBER SHALL BE PRESSURE PRESERVATIVE TREATED WITH 2.5 PCF CCA TO AWPA STANDARDS FOR USE CATEGORY UC5B, UNLESS OTHERWISE INDICATED.
- ALL STRUCTURAL LUMBER SHALL BE S4S - SURFACED FOUR SIDES.
- STRUCTURAL LUMBER GRADES:
 - PIER SUPERSTRUCTURE LUMBER SHALL BE "NO. 2" SOUTHERN YELLOW PINE (SYP) OR BETTER.
 - HANDRAILS, ROOF COLUMNS, AND ROOF FRAMING SHALL BE "NO. 1" SYP OR BETTER.
 - CROSS BRACING SHALL BE "MARINE GRADE" OR BETTER.
- PRESERVATIVE TREATED LUMBER SHALL NOT BE IN DIRECT CONTACT WITH ALUMINUM.

- LUMBER SHALL BE UNLOADED IN A DRY PLACE AND PLACED ON DUNNAGE OR OTHER MEANS TO PREVENT CONTACT WITH THE GROUND. LUMBER STORED IN OPEN AREA(S) SHALL BE COVERED WITH A MATERIAL THAT WILL GIVE PROTECTION FROM THE ELEMENTS WHILE ALLOWING MOISTURE TO ESCAPE.
- WHERE BEAMS OR OTHER STRUCTURAL COMPONENTS ARE TO BE ATTACHED TO NOTCHED PILES, THESE COMPONENTS SHALL BE INSTALLED SUCH THAT THEY ARE IN BEARING WITH THE NOTCHED SURFACE OF THE PILE. PILE NOTCHES SHALL MATCH THE NOMINAL DIMENSIONS OF THE STRUCTURAL COMPONENT AND SHALL NOT EXCEED 50% OF THE TOTAL CROSS-SECTIONAL DIAMETER OF THE PILE.
- TRIM, CHAMFER, COPE, OR PROVIDE WOOD SHIMS AND BLOCKING AS REQUIRED TO FACILITATE MEMBER CONNECTIONS AND TRANSITIONS. MAINTAIN ALIGNMENT AND AESTHETIC APPEARANCE OF FIXED PIER FRAMING AND DECKING AT CHANGES IN GEOMETRY, DIRECTION, AND ELEVATION.
- ALL TREATED WOOD PRODUCTS SHALL BE HANDLED AND FIELD FABRICATED IN ACCORDANCE WITH AWPA STANDARDS FOR THE CARE OF PRESERVATIVE TREATED WOOD PRODUCTS. SEAL OR FIELD TREAT ALL CUT ENDS, NOTCHES, AND BOLTS HOLES OF PRESERVATIVE TREATED LUMBER PER AWPA M4.

DECKING

- DECKING SHALL CONSIST OF 1X6 IPE HARDWOOD LUMBER (BASE BID). CONTRACTOR SHALL PROVIDE PRODUCT SPECIFICATIONS, HARVEST CERTIFICATION, AND MATERIAL PROPERTIES TO ATM FOR APPROVAL PRIOR TO PROCUREMENT.
 - CONTRACTOR SHALL PROVIDE PRICING FOR TANZITE STONDECK™ "APPALACHIAN COLLECTION" DECKING IN LIEU OF IPE AS A SOLICITED BID ALTERNATE FOR THE FIXED PIER, ONLY. SEE ALSO "GENERAL CONSTRUCTION AND BIDDING" NOTES, THIS SHEET.
- ALL DECKING SHALL BE INSTALLED IN ACCORDANCE WITH AMERICANS WITH DISABILITIES ACT DESIGN REQUIREMENTS. GAPS BETWEEN DECK BOARDS SHALL BE 1/4 INCH (TYP) AND NO LESS THAN 3/16" AT THE TIME OF INSTALLATION. IN NO INSTANCE SHALL THERE BE ANY GAP IN THE WALKING SURFACE THAT EXCEEDS 1/2 INCH.
- DECK BOARDS SHALL BE ATTACHED TO EACH STRINGER WITH (2) #10 X 3" COUNTERSUNK TYPE 316 STAINLESS STEEL DECK SCREWS. DECK SCREWS SHALL BE ALIGNED, UNIFORMLY SPACED, AND SET FLUSH TO ALLOW FOR A SMOOTH SURFACE.
- DECKING OVERHANG ON PIER EDGES SHALL BE UNIFORM AND NOT EXCEED 3 INCHES PAST THE OUTER STRINGER OR OTHER SUPPORTING MEMBER.
- NOTCH AND TRIM DECKING AS REQUIRED AT HANDRAIL POSTS, ROOF COLUMNS AND ANY OTHER CONFLICTS.
 - FIELD CUTS SHALL BE OFFSET 0.5" TYP (1" MAX) FROM THE CONFLICTING MEMBER AND SHALL BE MADE PERPENDICULAR TO THE GRAIN. ADJACENT CUTS SHALL BE AT 90 DEG. TO EACH OTHER WHERE APPLICABLE.
 - VISIBLE CUTS ON THE SURFACE DUE TO SAW OVERRUN OR OTHER MARRING OF DECK ARE SUBJECT TO REJECTION AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

HANDRAILS

- HANDRAIL DETAILS PROVIDED HEREIN ARE SCHEMATIC. HANDRAILS SHALL MATCH THE EXISTING HANDRAILS ALONG THE MORGAN CREEK PORTION OF THE COMMERCIAL MARINA. CONTRACTOR IS RESPONSIBLE FOR VERIFYING SIZES AND MATERIALS TO MATCH THE EXISTING RAILS PRIOR TO SUBMITTING THEIR BID.
- HANDRAIL TIMBER COMPONENTS SHALL BE PAINTED TO MATCH THE EXISTING HANDRAILS ALONG THE MORGAN CREEK PORTION OF THE COMMERCIAL MARINA.

Water Levels	Level (ft)	Reference Datum	Description	Source
Water Level	7.5'	NAVD 88	Deck Elevation	N/A
Winds	Speed (mph)	Type	Return Period	Source
Windspeed	135	3-sec gust	Risk Category I	ASCE 7-16
Wind-Waves	H _s (ft)	T _p (sec)	Return Period	Source
Wind-Waves	2.9	2.5	50-yr	Coastal Conditions Assessment (ATM)
Current	Speed (knots)	Speed (mph)	-	Source
Design Current Speed	1.7	1.96	-	Coastal Conditions Assessment (ATM)
Vertical Loads	Uniform (psf)	Point (lb)	Description	Source
Uniform Live Load	100	650	Unrestricted (golf carts)	ASCE-50; IBC 2021
Uniform Dead Load (pier superstructure)	25	-	-	Common practice for timber superstructure
Uniform Dead Load (roof)	35	-	-	Allows for metal roofing
Gangway	-	12,500	8' X 80" Aluminum	Assumed based on typical weights for this size gangway
Wave Uplift	-	-	-	Neglected - assumed decking to breakeaway
Wave Slam	-	-	-	Neglected - assumed decking to breakeaway
	Linear (plf)	-	Description	Source
Utilities	25	-	-	Per electrical designer

FASTENERS AND CONNECTORS

- ALL HURRICANE TIES AND OTHER SPECIALIZED BRACKETS SHALL BE MANUFACTURED BY THE SIMPSON STRONG-TIE COMPANY OR PRE-APPROVED EQUAL AND SHALL BE TYPE 316 STAINLESS STEEL. CONTRACTOR SHALL NOTIFY ATM IF ANY DESIGNATED BRACKET IS NOT AVAILABLE IN 316 STAINLESS STEEL PRIOR TO PROCUREMENT OR INSTALLATION.
- ALL BOLTS, SCREWS, THREADED RODS, NAILS, WASHERS, HEX NUTS, CONNECTORS, AND OTHER HARDWARE SHALL BE TYPE 316 STAINLESS STEEL (BASE BID).
 - BIDDERS SHALL PROVIDE A BID ALTERNATE FOR THE USE OF HOT DIP GALVANIZED (HDG) COMPONENTS MEETING THE REQUIREMENTS OF ASTM A653, CLASS G185. SEE ALSO NOTES UNDER "GENERAL CONSTRUCTION AND BIDDING REQUIREMENTS", THIS SHEET.
- BOLTED CONNECTIONS SHALL CONSIST OF A HEX NUT (OR BOLT HEAD) AND WASHERS AT EACH END AS INDICATED IN THE DRAWINGS. Ogee WASHERS SHALL BE USED ON ALL BOLTS LOCATED ON THE OUTBOARD SIDES OF THE HANDRAIL POST THRU-RODS.
- AFTER INSTALLATION, BOLTED CONNECTIONS SHALL BE CHECKED FOR TIGHTNESS AND PROTRUDING BOLT ENDS SHALL BE CUT OFF ONE (1) INCH BEYOND THE NUT.
- BLOCKING BOARDS BETWEEN STRUCTURAL MEMBERS MAY BE AFFIXED VIA NAILS AND DO NOT REQUIRE SIMPSON TIES.

Signature	Date
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REV	DATE	DRAWN	CHECKED	BY	REMARKS
4					
3					
2					
1					

DESIGNED	DRAWN	CHECKED	DATE	JOB NO.	SCALE
JD	HA	KM	10/19/2023	18-3287	N/A

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC

STRUCTURAL NOTES

CITY OF ISLE OF PALMS

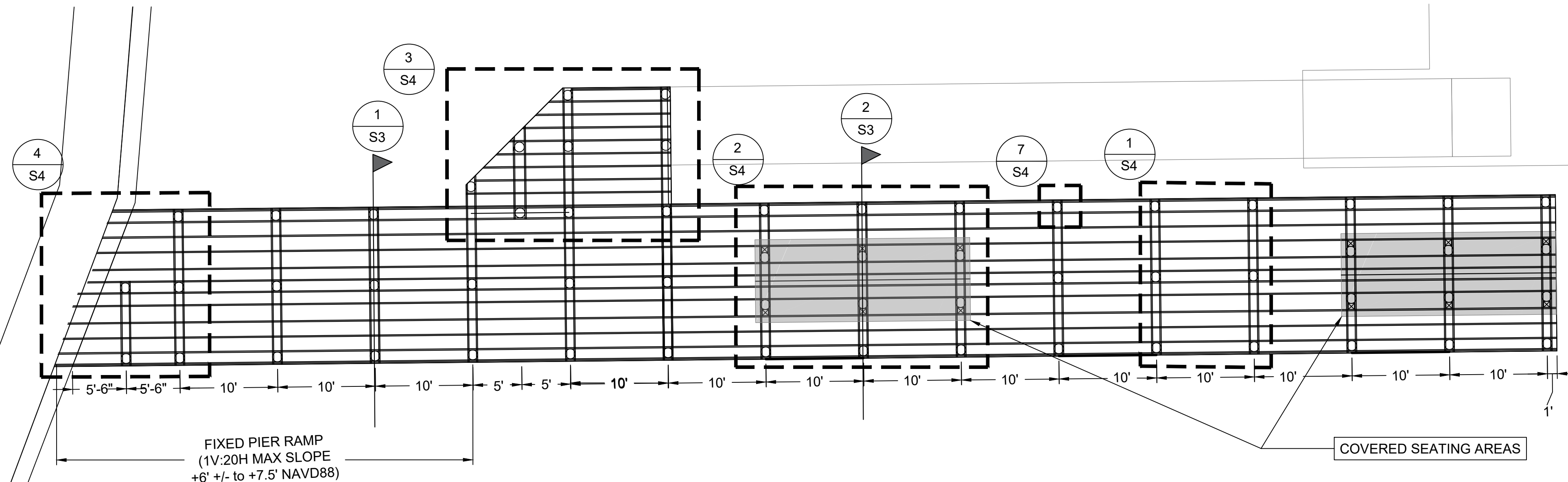
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ATM
A Geosynetic Company

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Mt Pleasant SC, SC 29464
(843) 414-1040

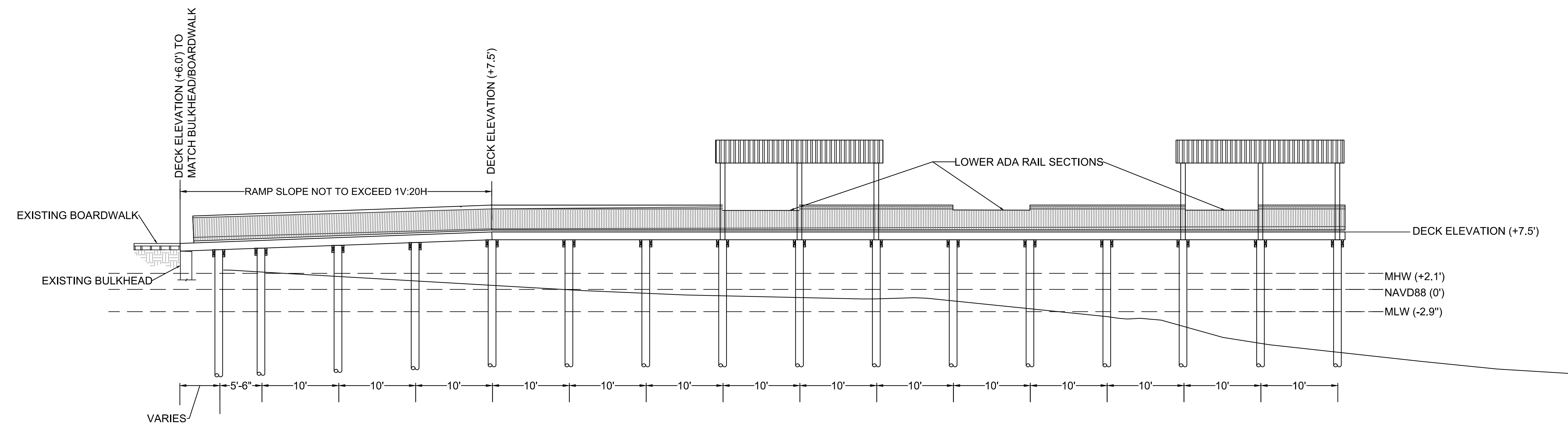
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S1

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1 FIXED PIER FRAMING PLAN OVERVIEW
1/8" = 1'-0"



2 FIXED PIER PROFILE
1/8" = 1'-0"

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Signature _____
Date _____

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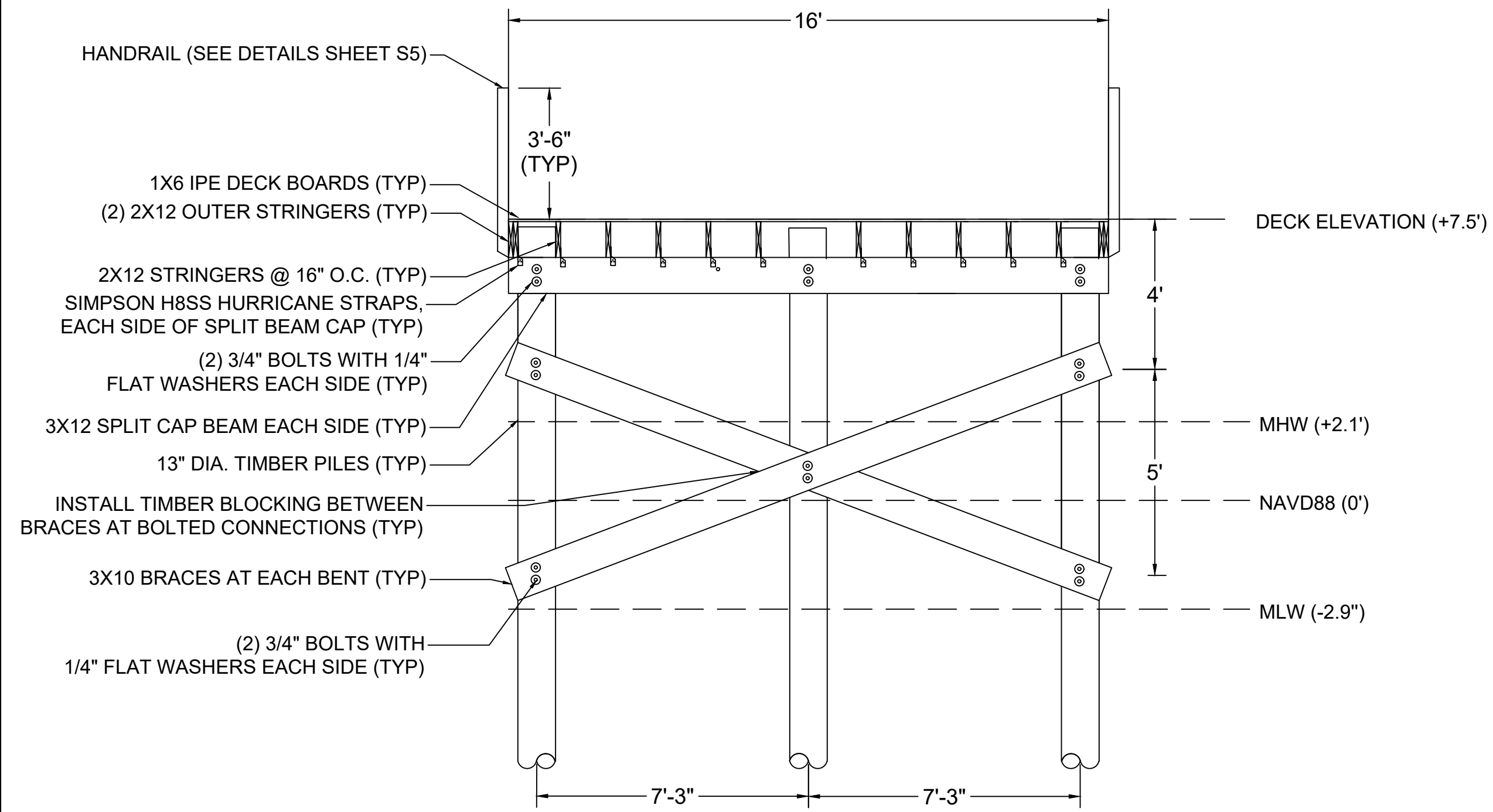
DESIGNED	DRAWN	CHECKED	DATE	SCALE
JD	HA	KM	10/19/2023	1/8"=1'
JOB NO. 18-3287				

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
STRUCTURAL PLAN OVERVIEW
CITY OF ISLE OF PALMS

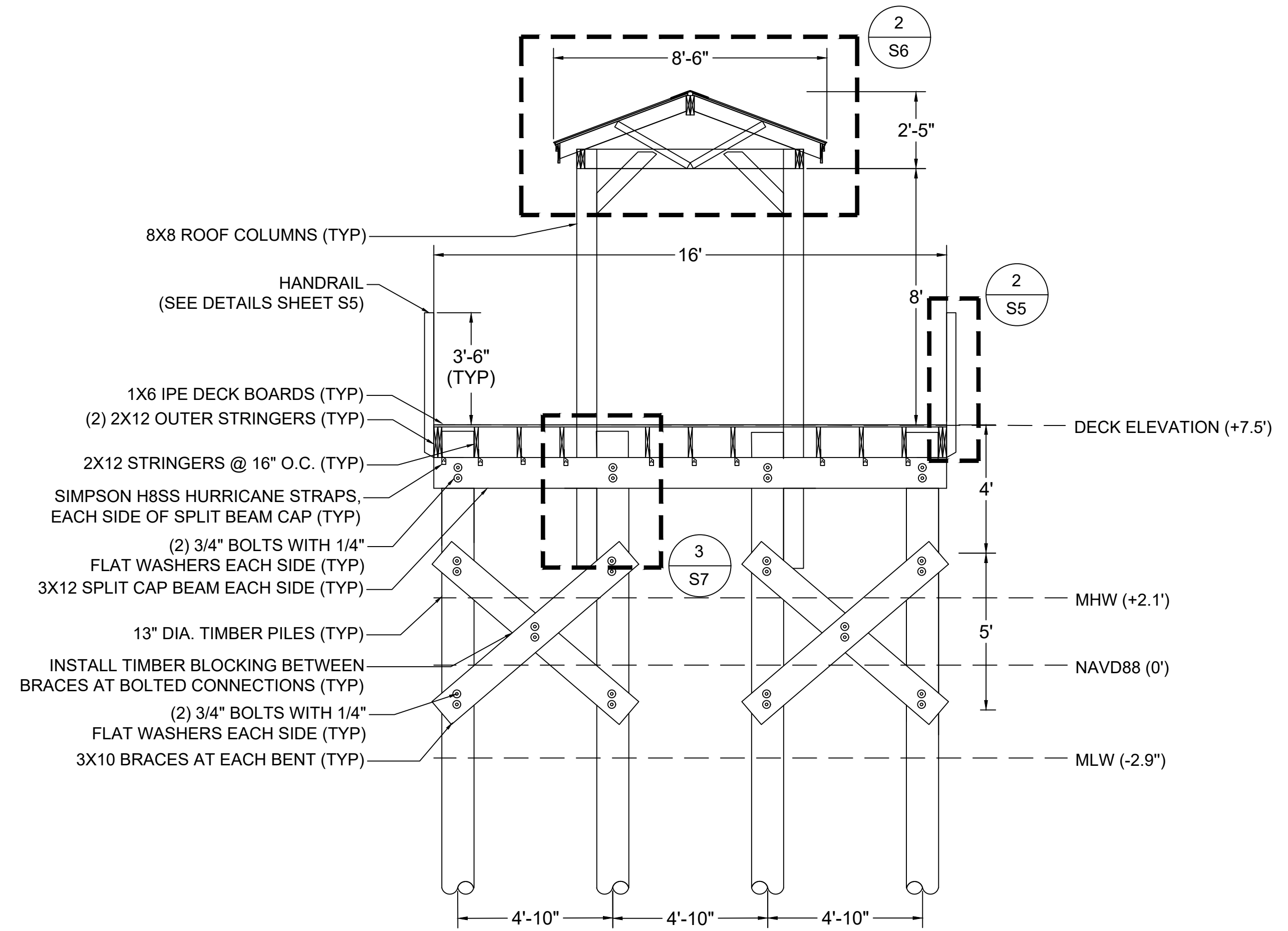
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1 TYPICAL FIXED PIER SECTION
1" = 3'-0"



2 TYPICAL FIXED PIER SECTION AT ROOF STRUCTURE
1" = 3'-0"

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Date _____

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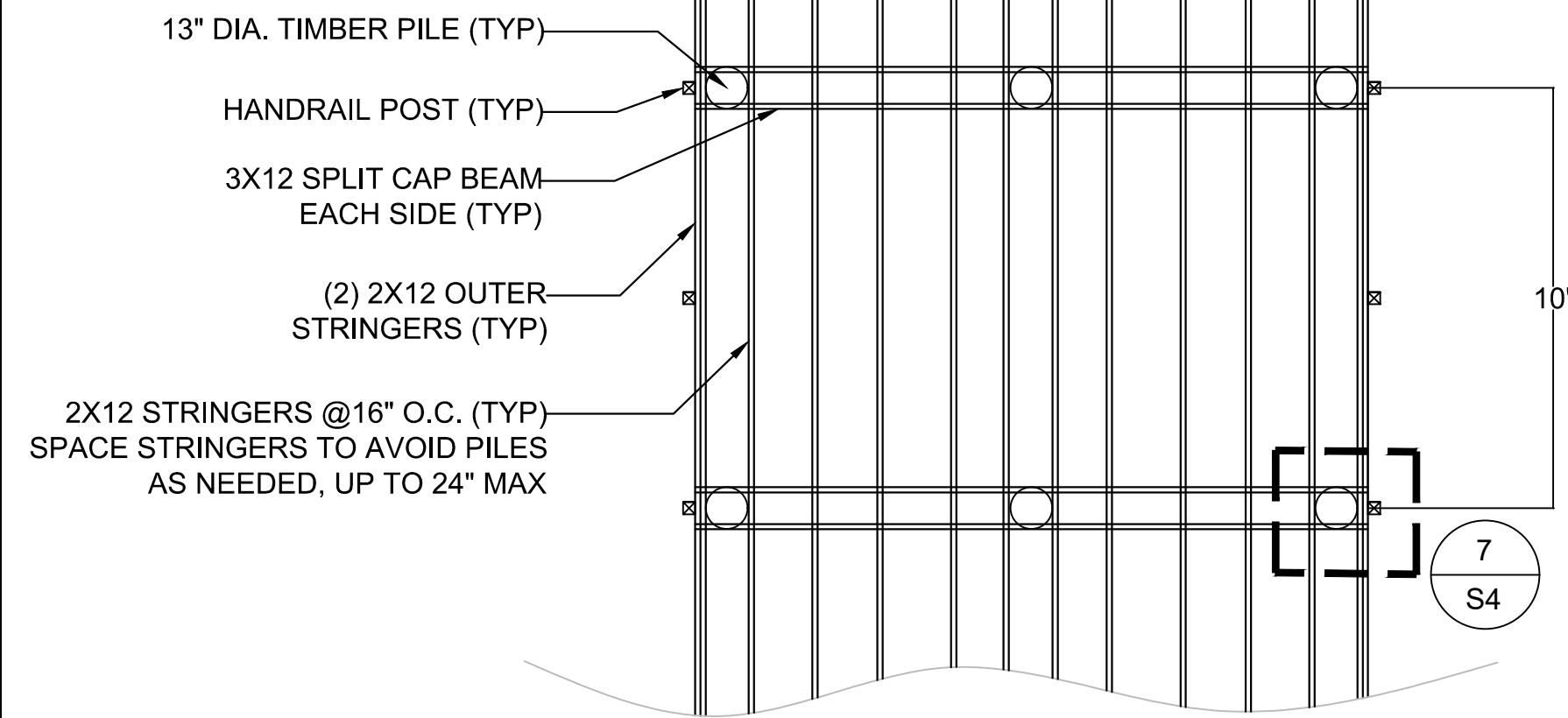
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JD	HA	KM	10/19/2023	18-3287	1"=3'

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
TYPICAL FIXED PIER SECTIONS
CITY OF ISLE OF PALMS

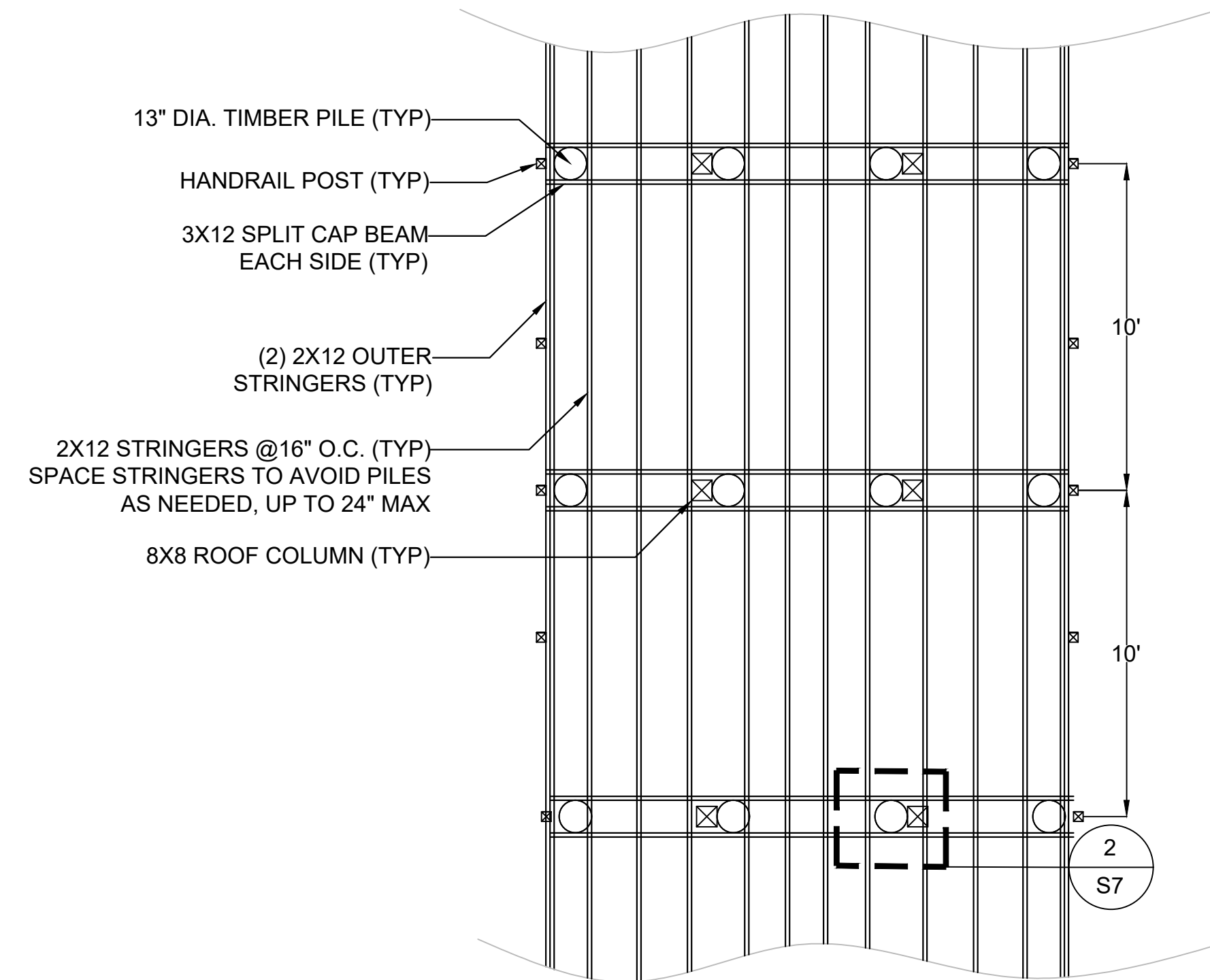
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S3

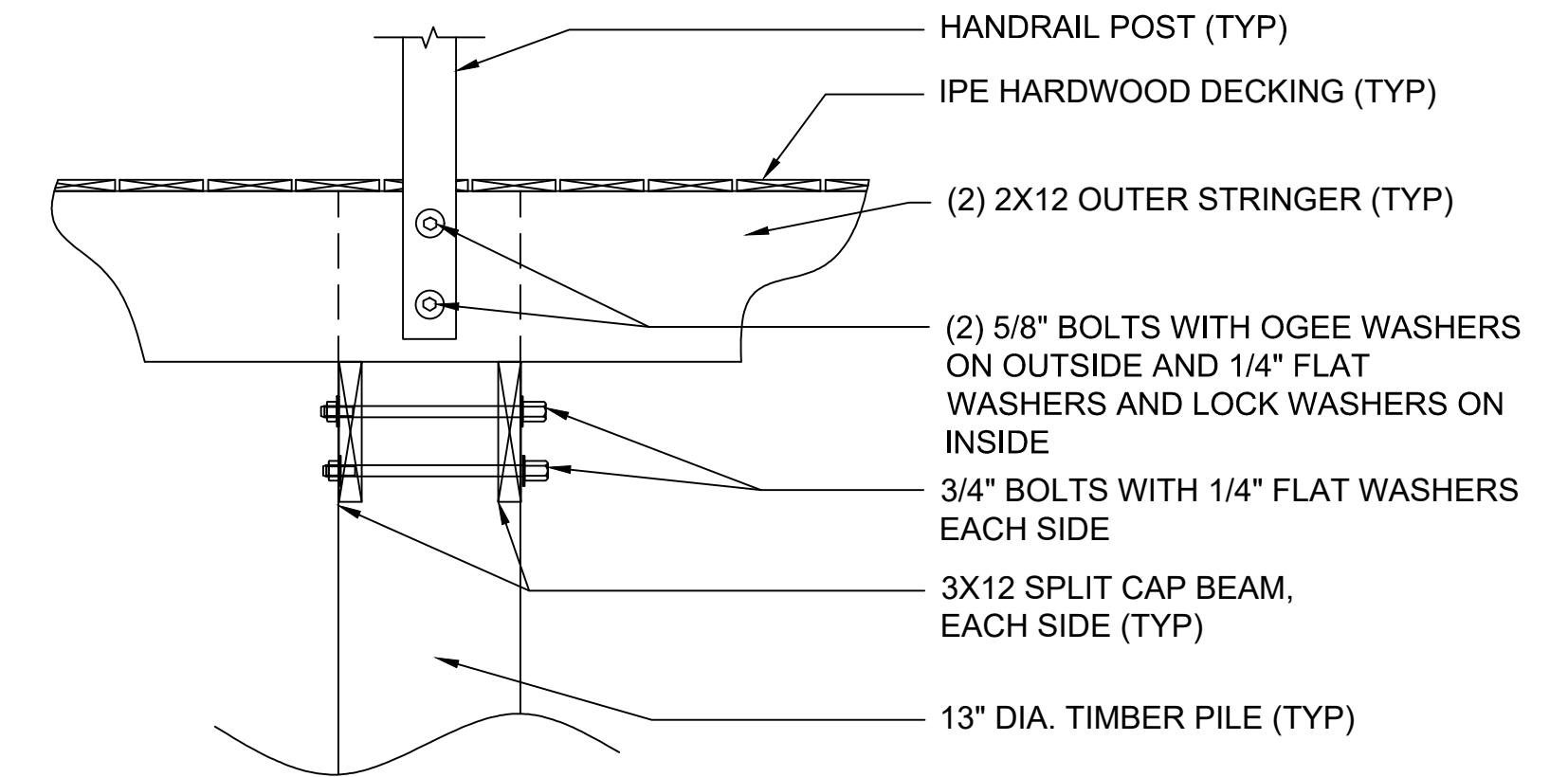
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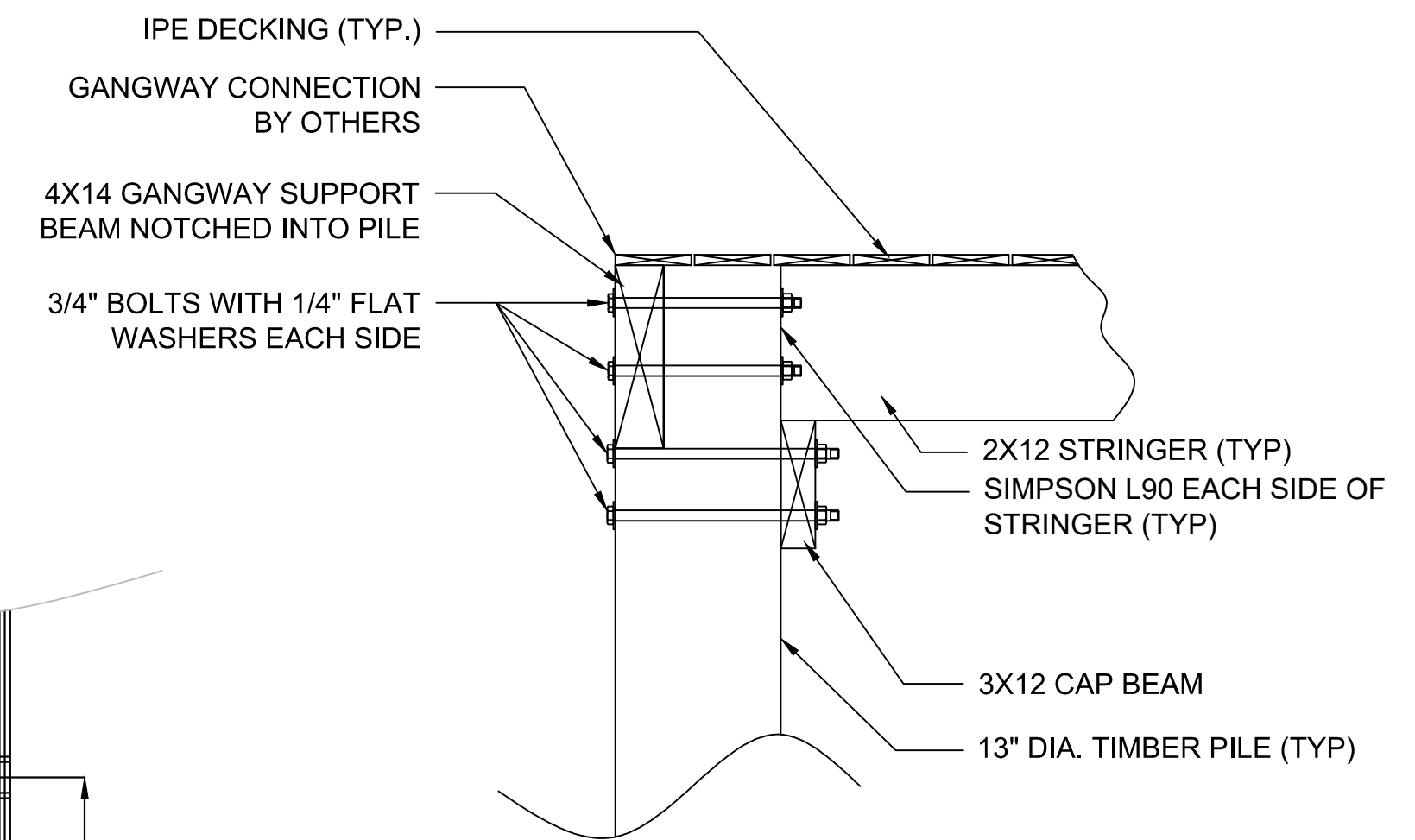
1 TYPICAL FIXED PIER FRAMING DETAIL
1" = 4'-0"



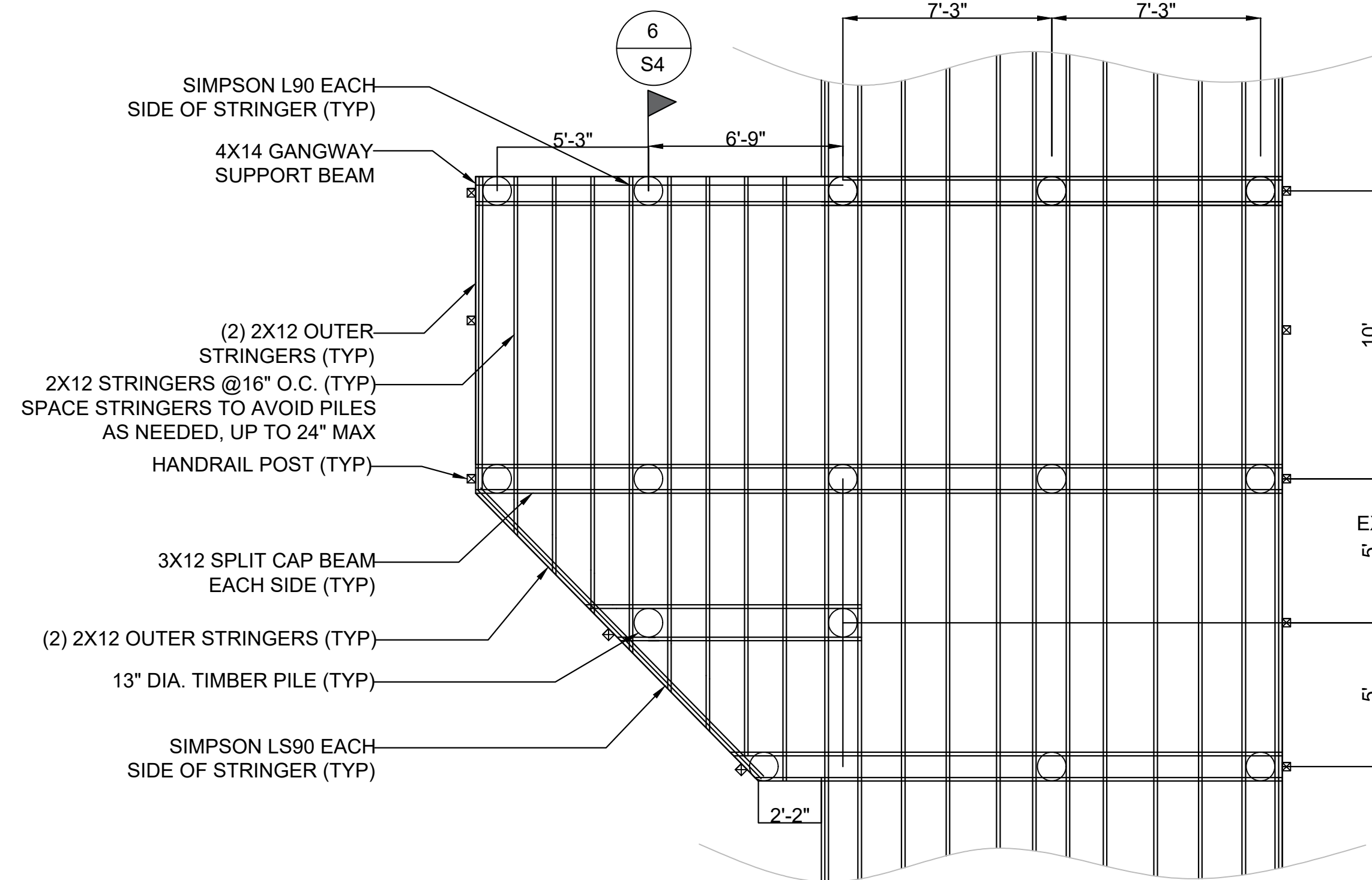
2 TYPICAL FIXED PIER FRAMING DETAIL AT ROOF STRUCTURE
1" = 4'-0"



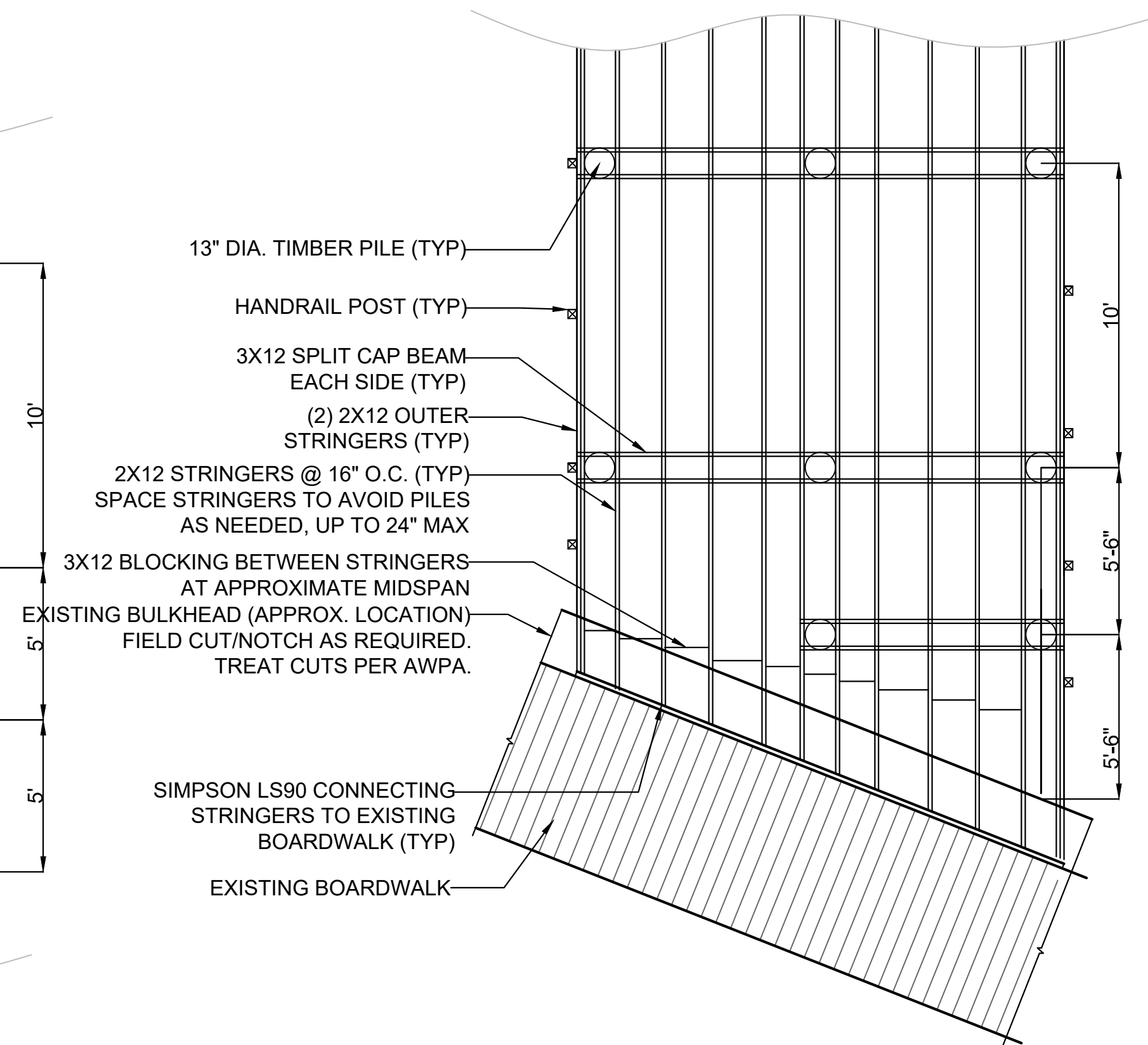
5 TYPICAL PILE BENT PROFILE
1" = 1'-0"



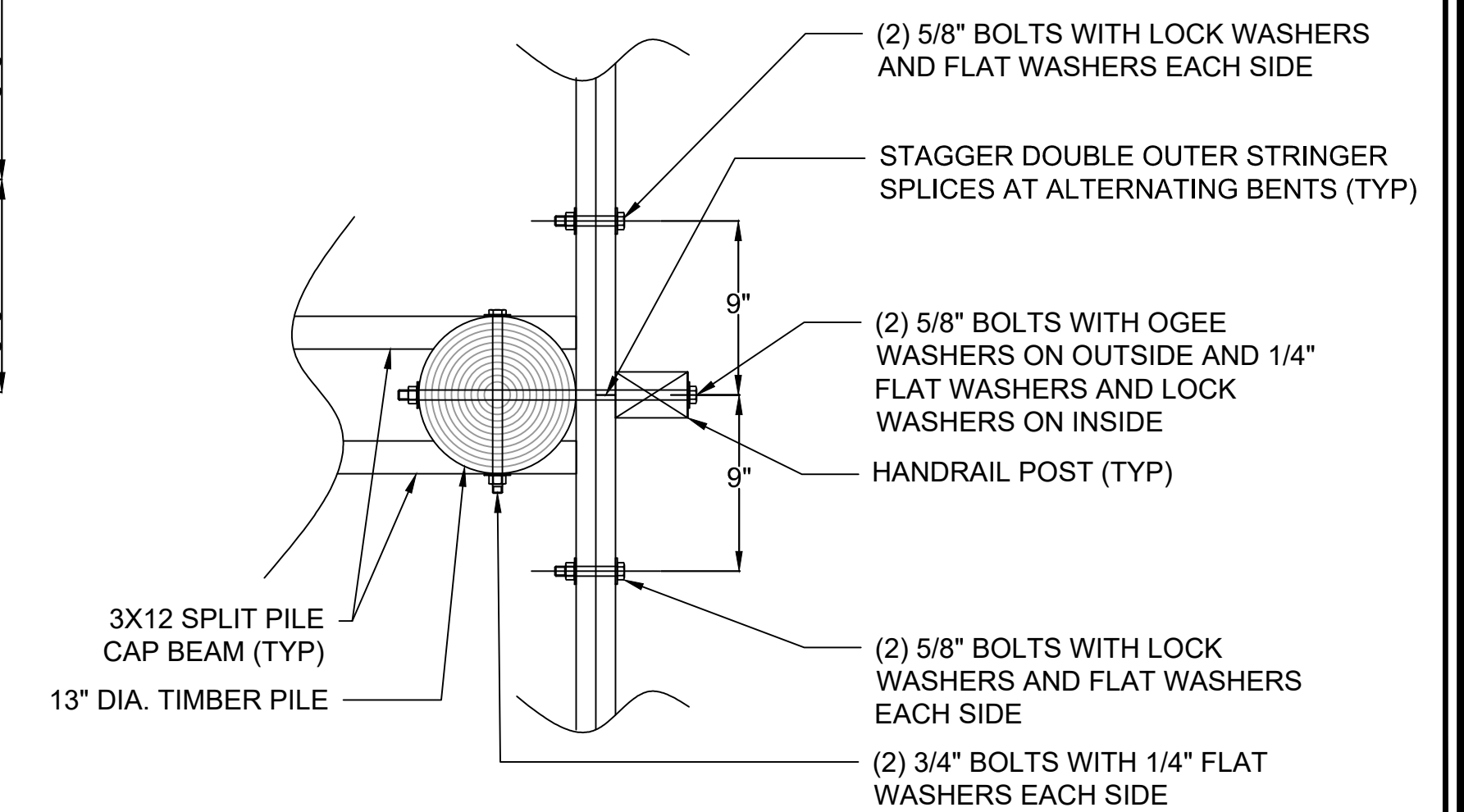
6 GANGWAY SUPPORT BEAM SECTION
1" = 1'-0"



3 FRAMING AT GANGWAY PLATFORM
1" = 4'-0"



4 FRAMING DETAIL AT BULKHEAD
1" = 4'-0"



7 TYPICAL OUTER STRINGER DETAIL
1" = 1'-0"

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Date _____

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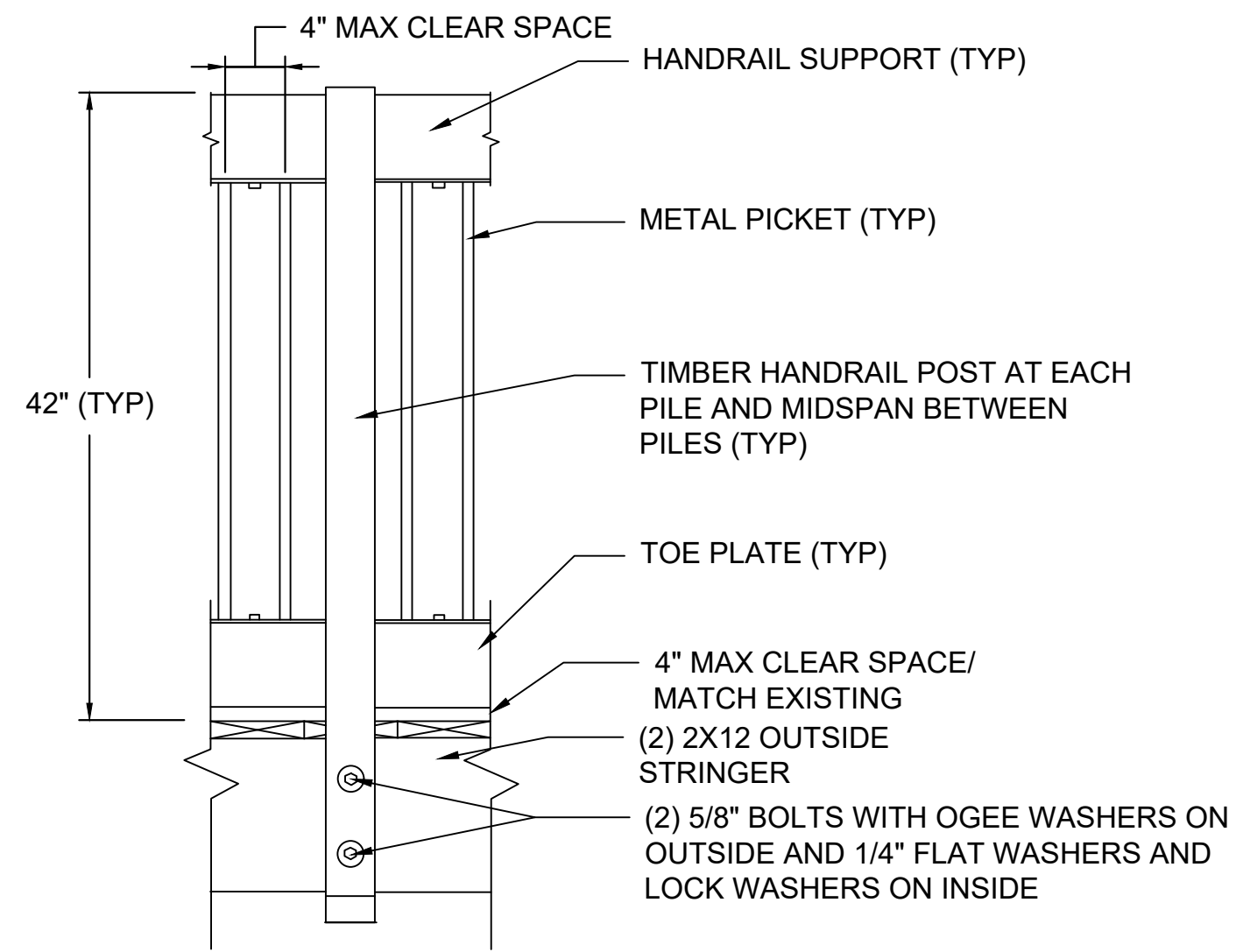
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JD	HA	KM	10/19/2023	18-3287	VARIABLE

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
STRUCTURAL DETAILS
CITY OF ISLE OF PALMS

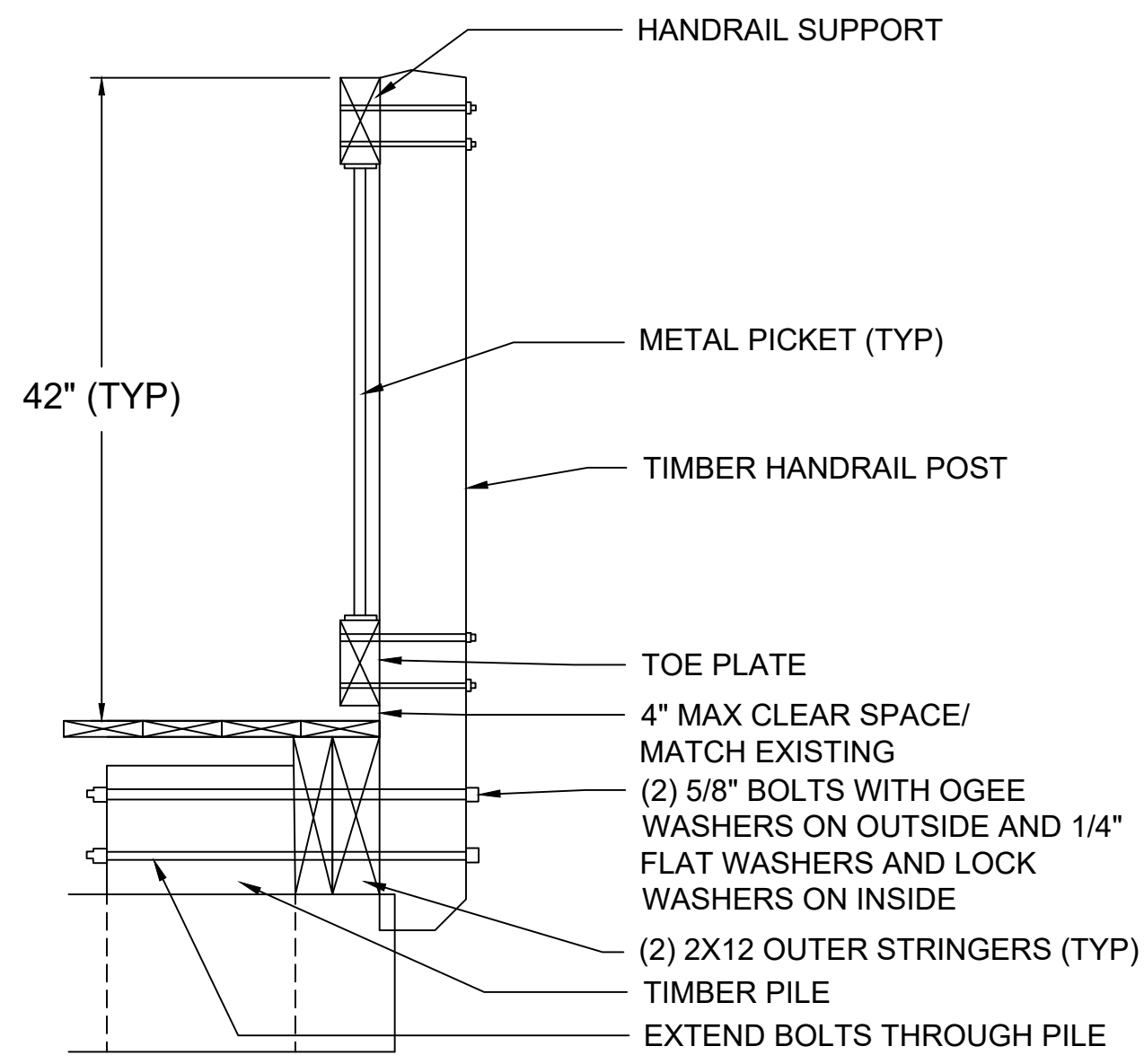
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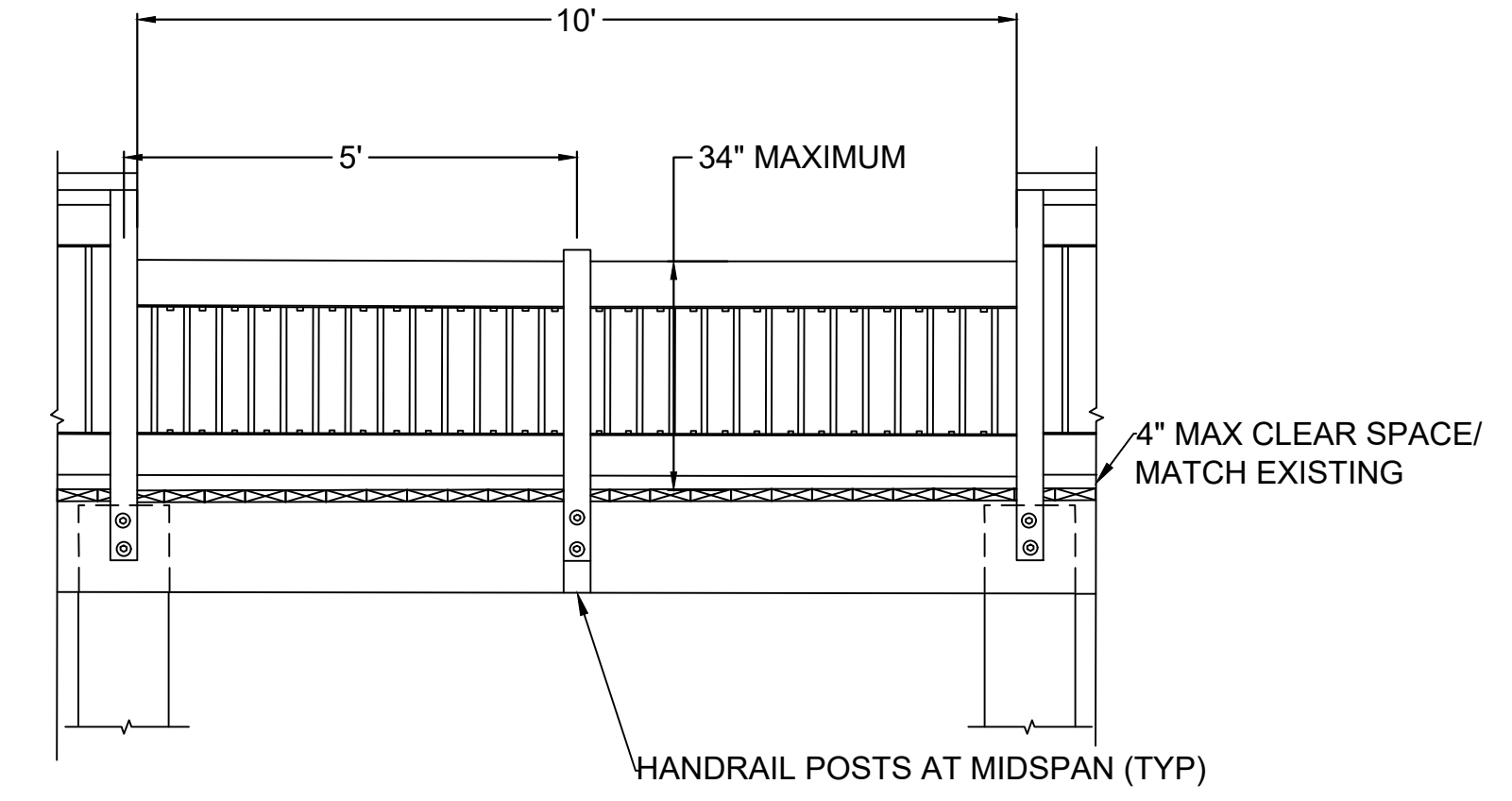
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1 FIXED PIER TYPICAL HANDRAIL PROFILE
1" = 1'-0"

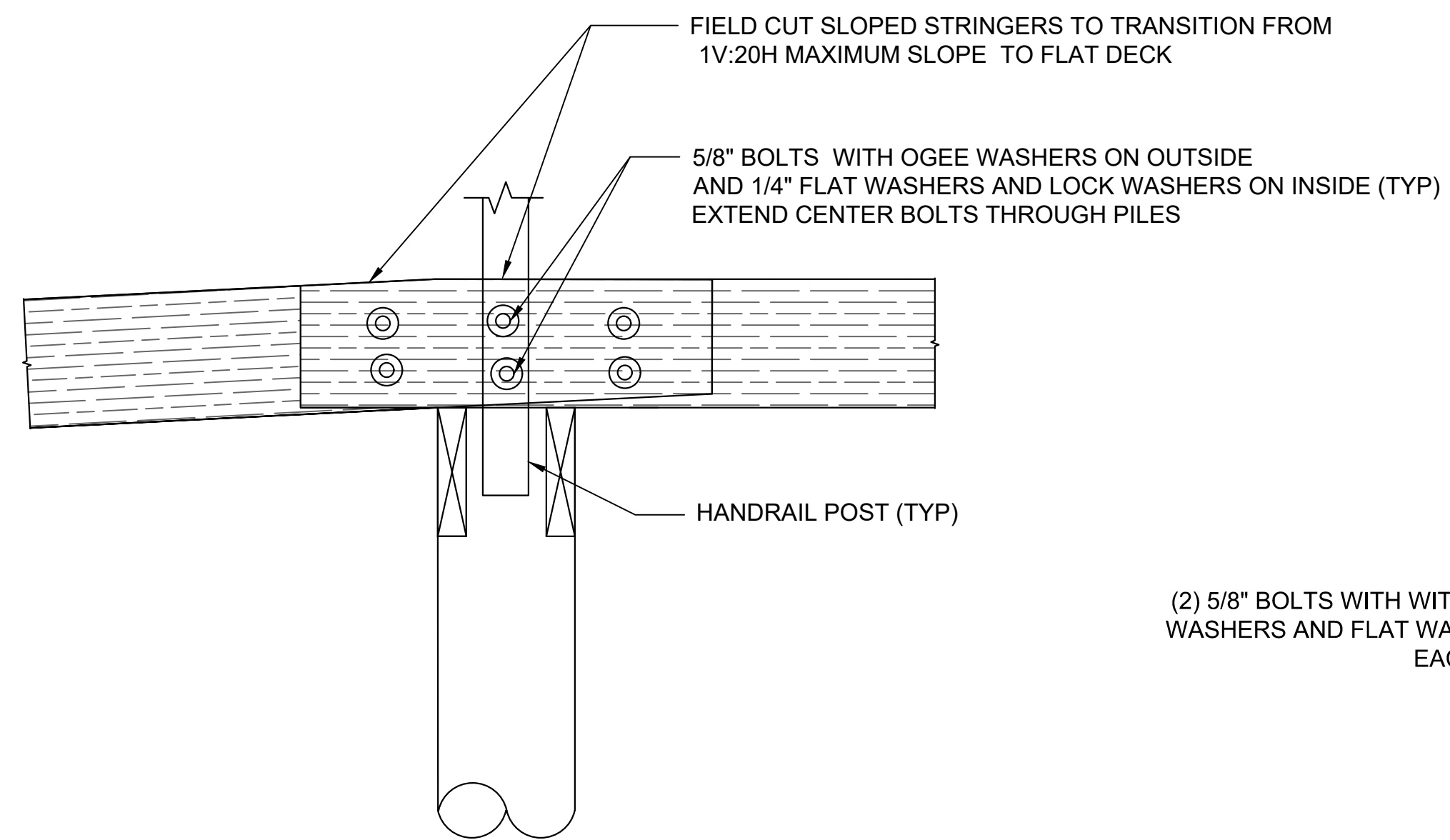


2 FIXED PIER TYPICAL HANDRAIL SECTION
1" = 1'-0"

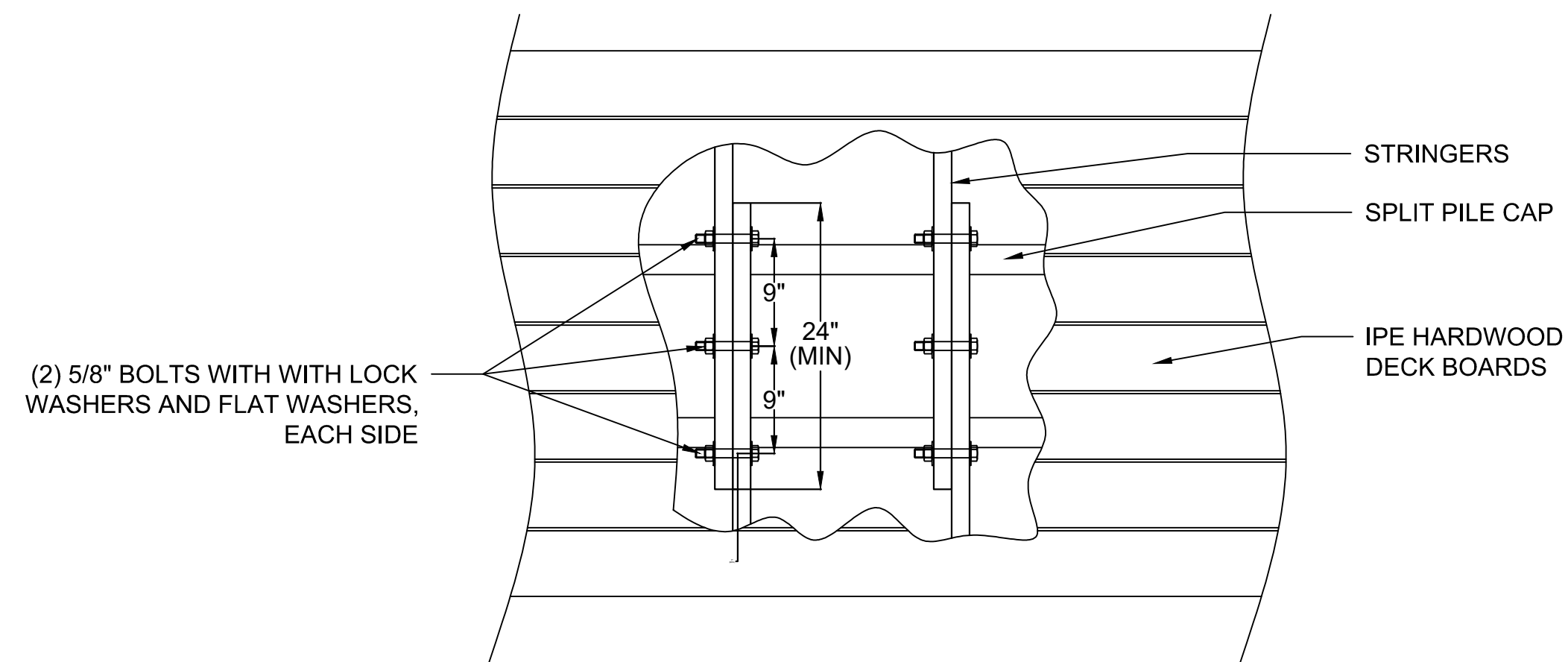


3 FIXED PIER LOWER RAILING PROFILE (ADA)
1" = 2'-0"

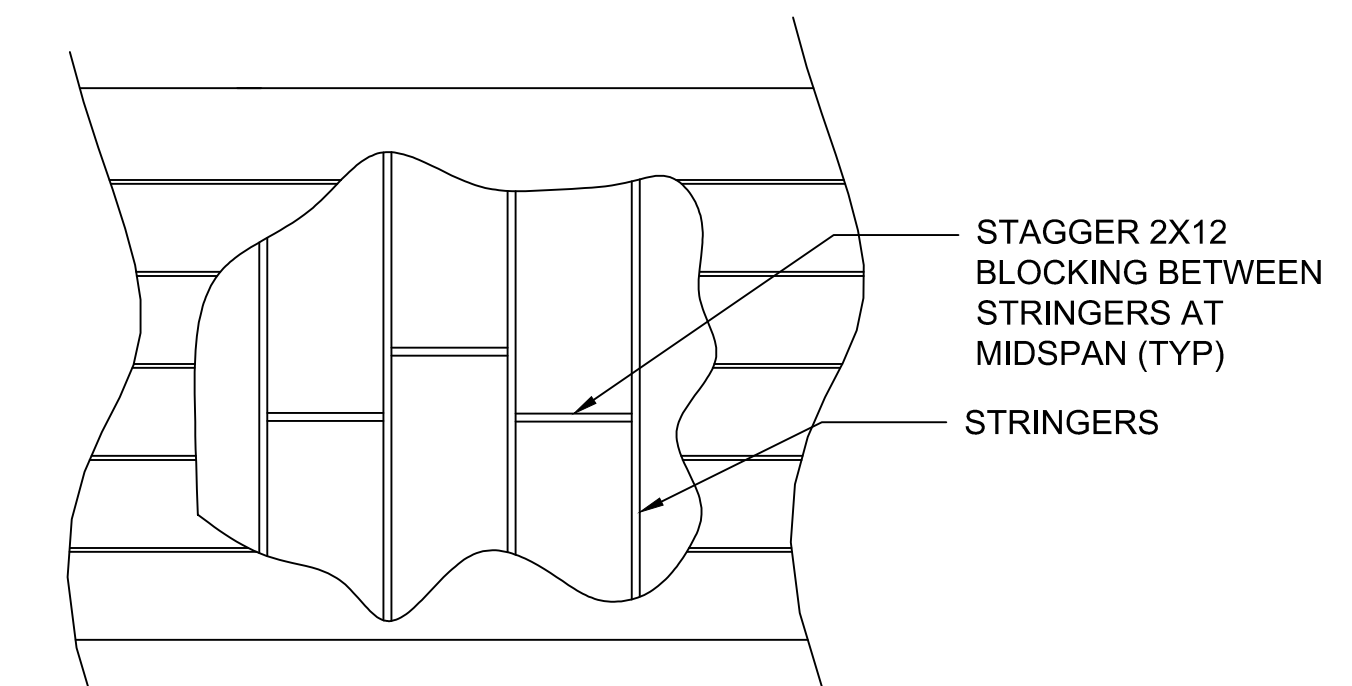
HANDRAIL NOTES:
1. CONTRACTOR SHALL DESIGN HANDRAILS TO MATCH THE EXISTING HANDRAILS IN THE MORGAN CREEK PORTION OF THE MARINA.
2. HANDRAIL TIMBER TO BE NO. 1 TREATED SYP OR BETTER. SEE NOTES SHEET S1.



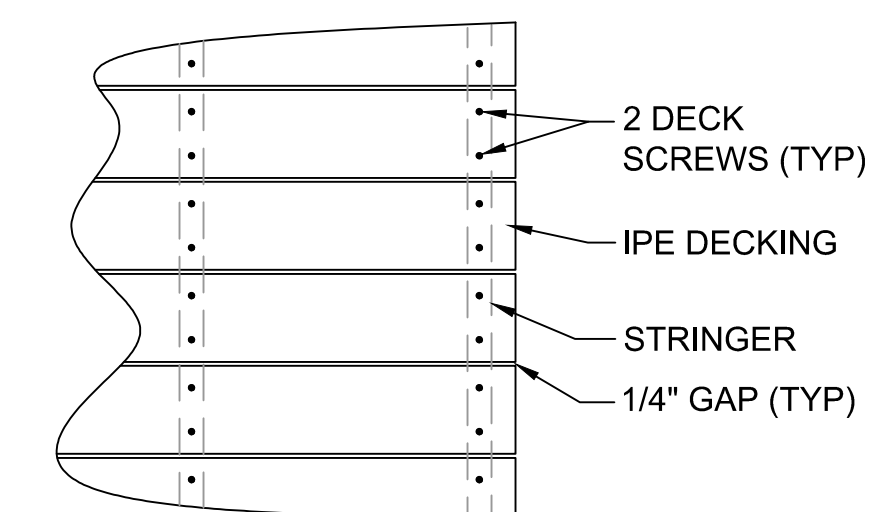
4 STRINGER SPLICE AT RAMP TRANSITION
1" = 1'-0"



5 TYPICAL LAP SPLICE DETAIL
NOT TO SCALE



6 TYPICAL BLOCKING DETAIL
NOT TO SCALE



7 TYPICAL DECK BOARD ATTACHMENT SCHEDULE
NOT TO SCALE

Signature _____
Date _____

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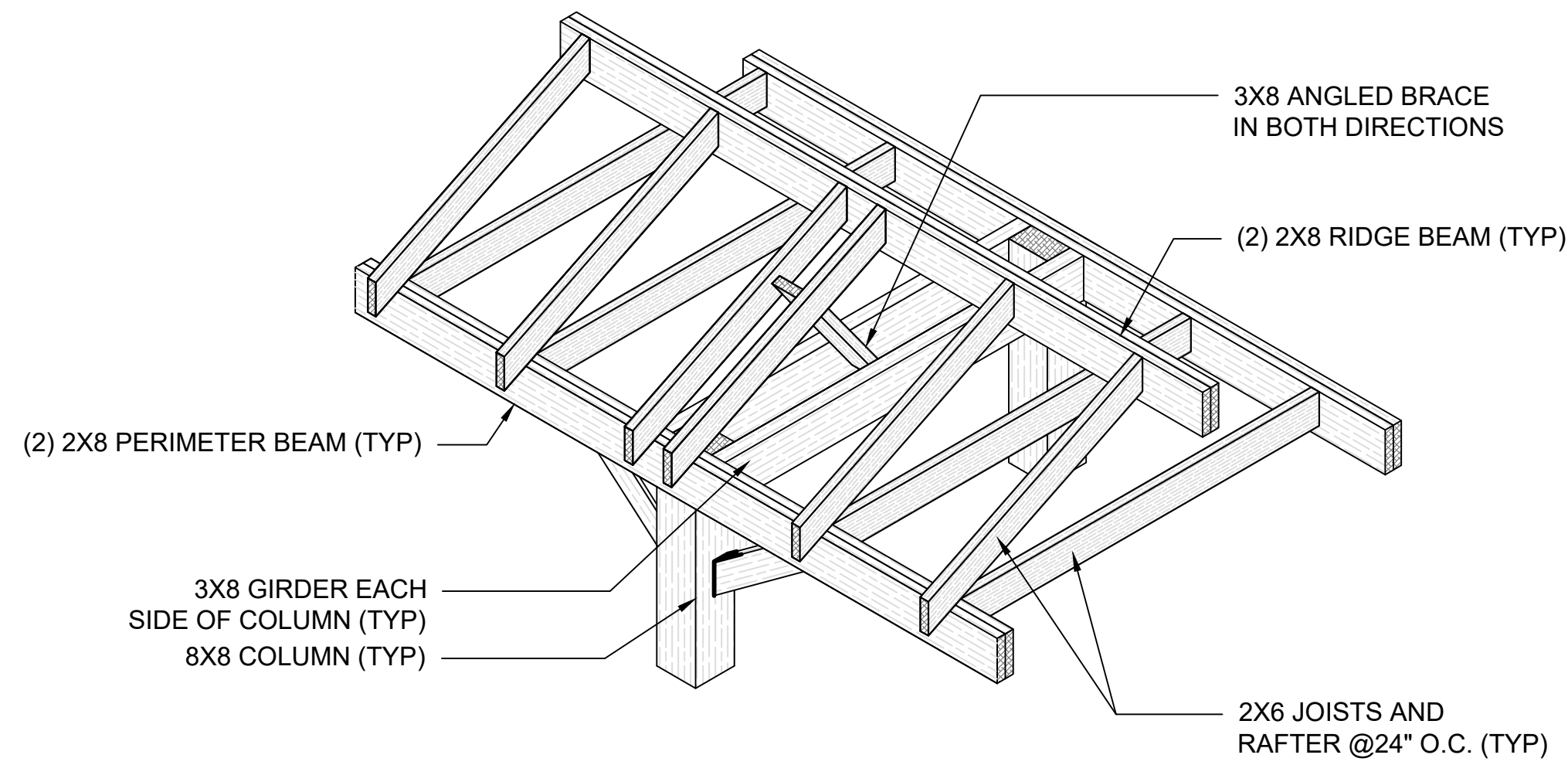
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JD	HA	KM	10/19/2023	18-3287	VARIES

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ISLE OF PALMS, SC
STRUCTURAL DETAILS
CITY OF ISLE OF PALMS

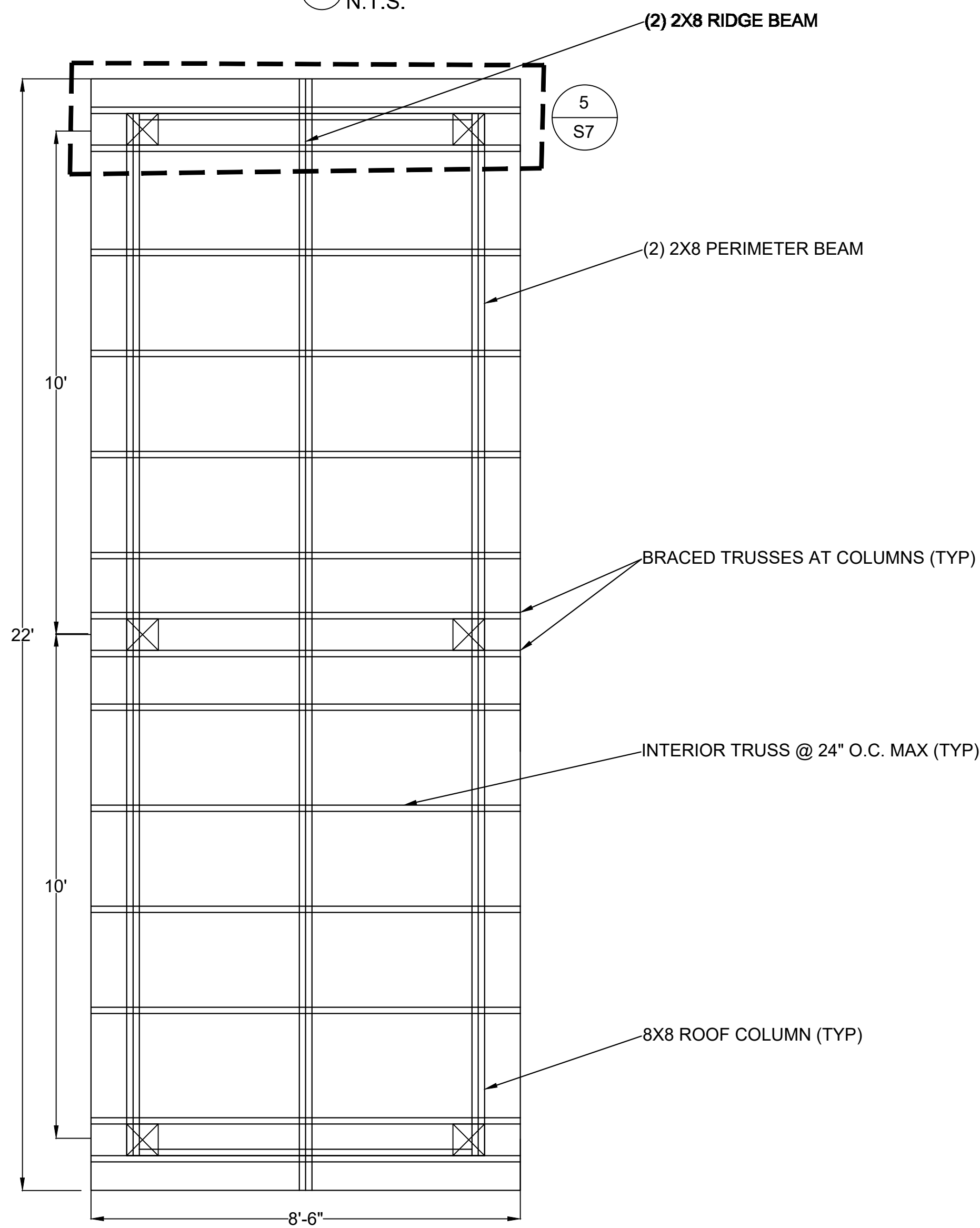
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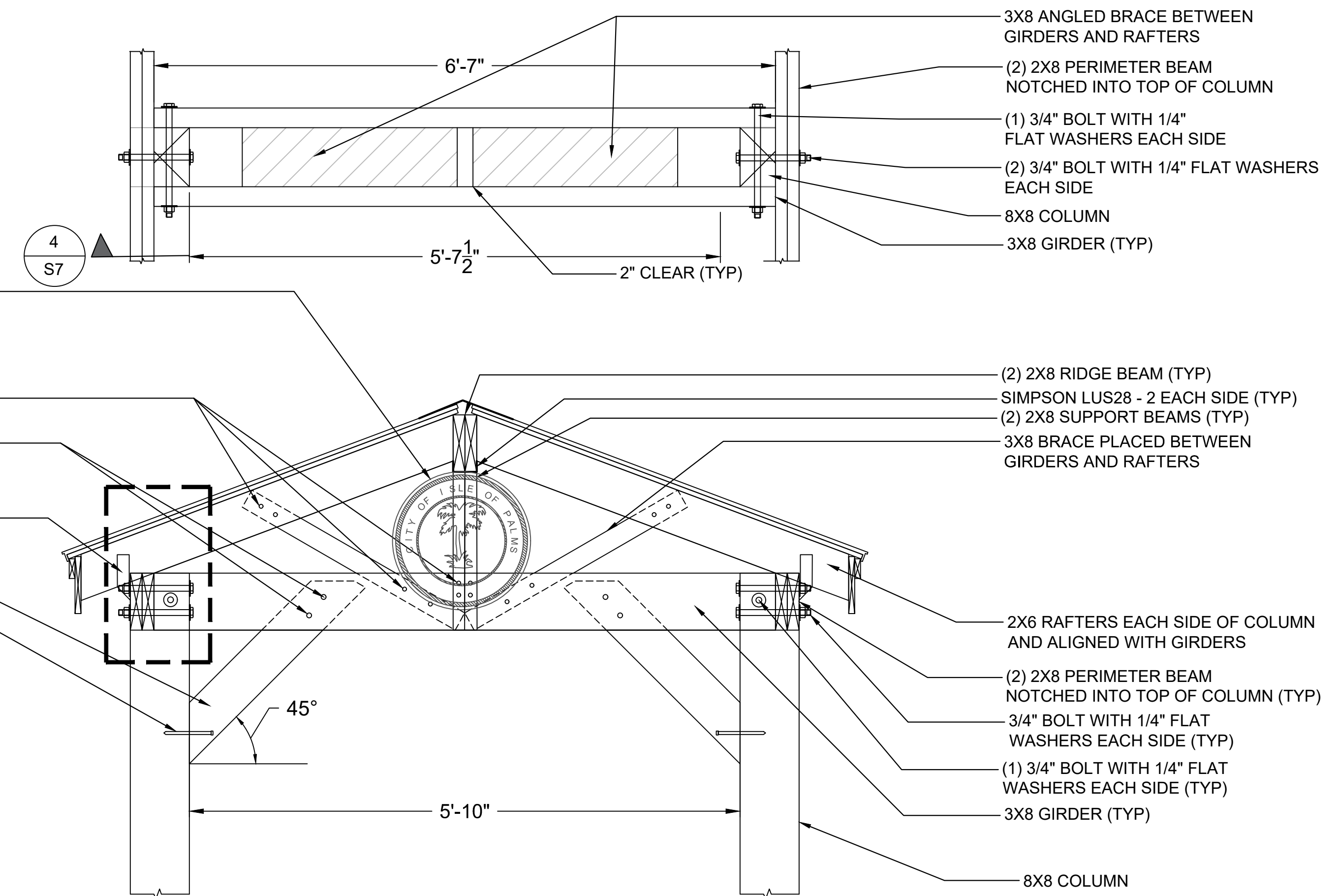
1 ISOMETRIC ROOFING DETAIL
N.T.S.



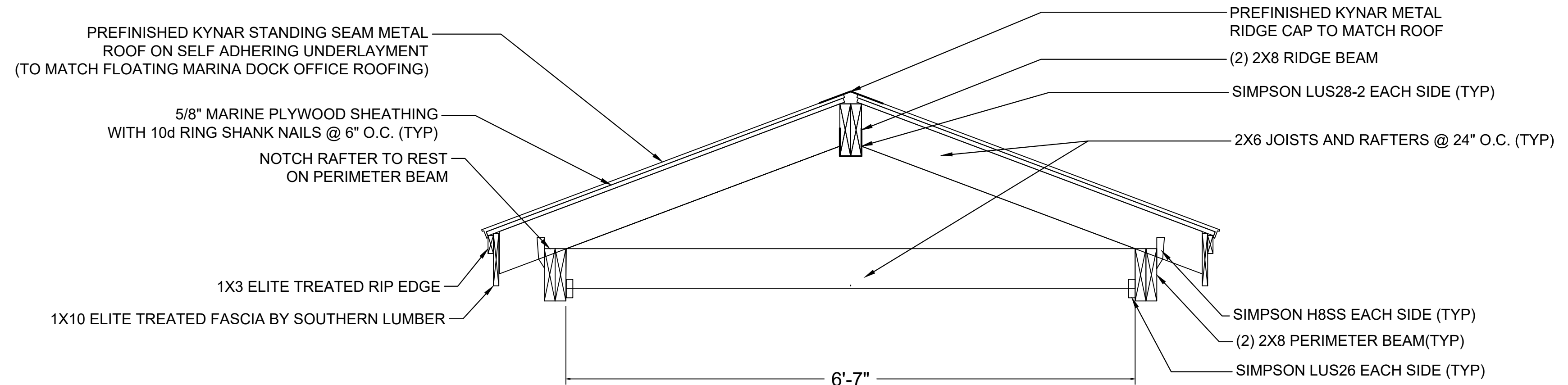
NOTE:
STAGGER 2X4 BLOCKING BETWEEN RAFTERS AT MID-PITCH

3 ROOF FRAMING PLAN
1" = 2'-0"

LASER CUT METAL POWDER COATED CITY SEAL (APPROX 18" DIA.) CONTRACTOR TO PROVIDE SHOP DRAWINGS AND VANDAL RESISTANT CONNECTION DETAILS
(2) 1/2" DIA. 6" SS LAG BOLTS (TYP)
5/8" BOLTS WITH 1/4" FLAT WASHERS EACH SIDE (TYP)
SIMPSON H8SS EACH SIDE (TYP)
2X6 BRACE (TYP)
1/2" DIA. 6" SS LAG BOLT RECESSED INTO BRACE (TYP)



2 TYPICAL BRACED TRUSS SECTION AT COLUMNS
1" = 1'-0"



4 TYPICAL INTERIOR TRUSS SECTION
1" = 1'-0"

Signature _____
Date _____

REV	DATE	DRAWN	CHECKED	BY	REMARKS
4					
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1					

DESIGNED: JD
DATE: 10/19/2023
JOB NO: 18-3287
SCALE: VARIES

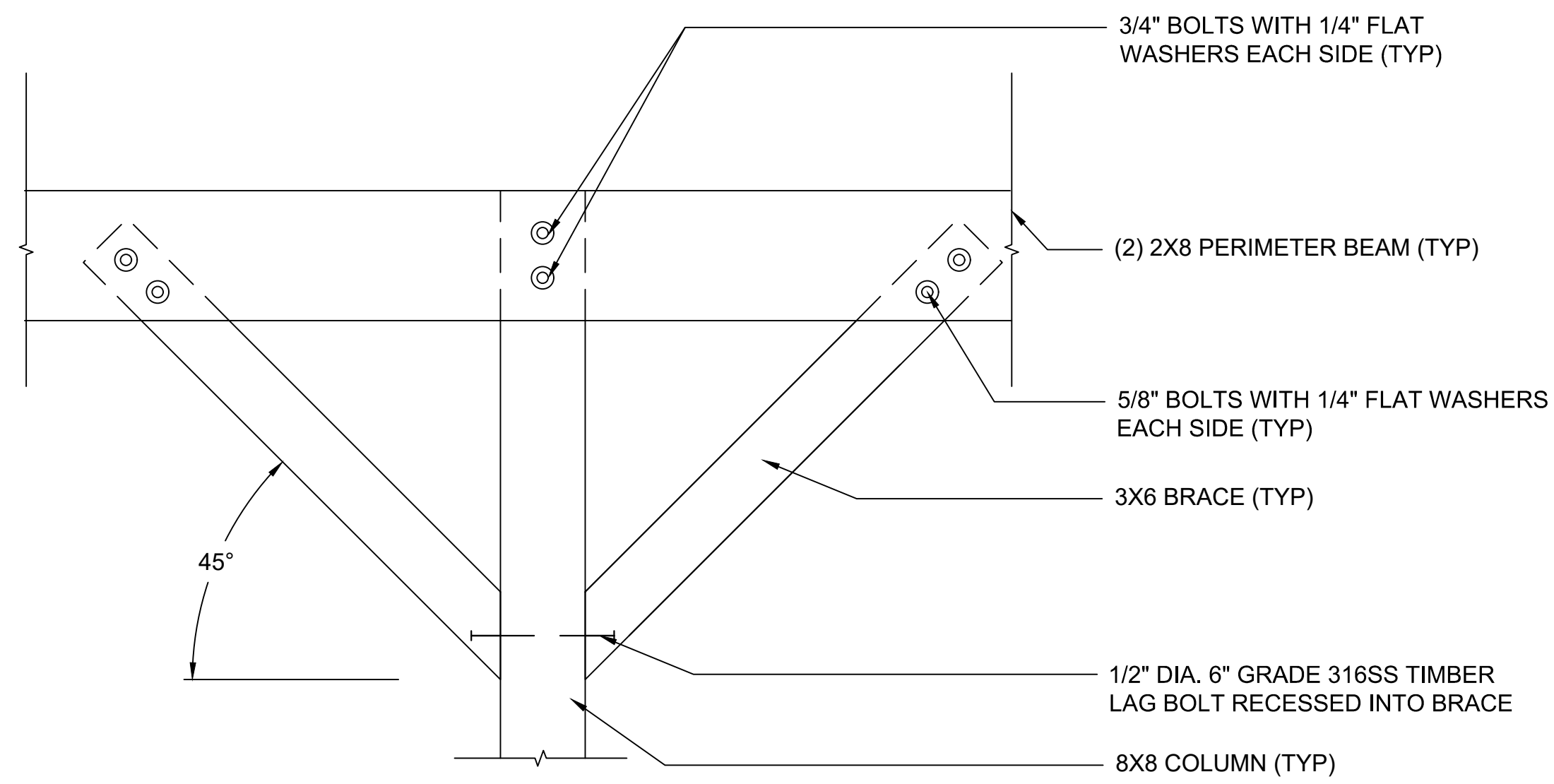
ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
ROOFING DETAILS
CITY OF ISLE OF PALMS

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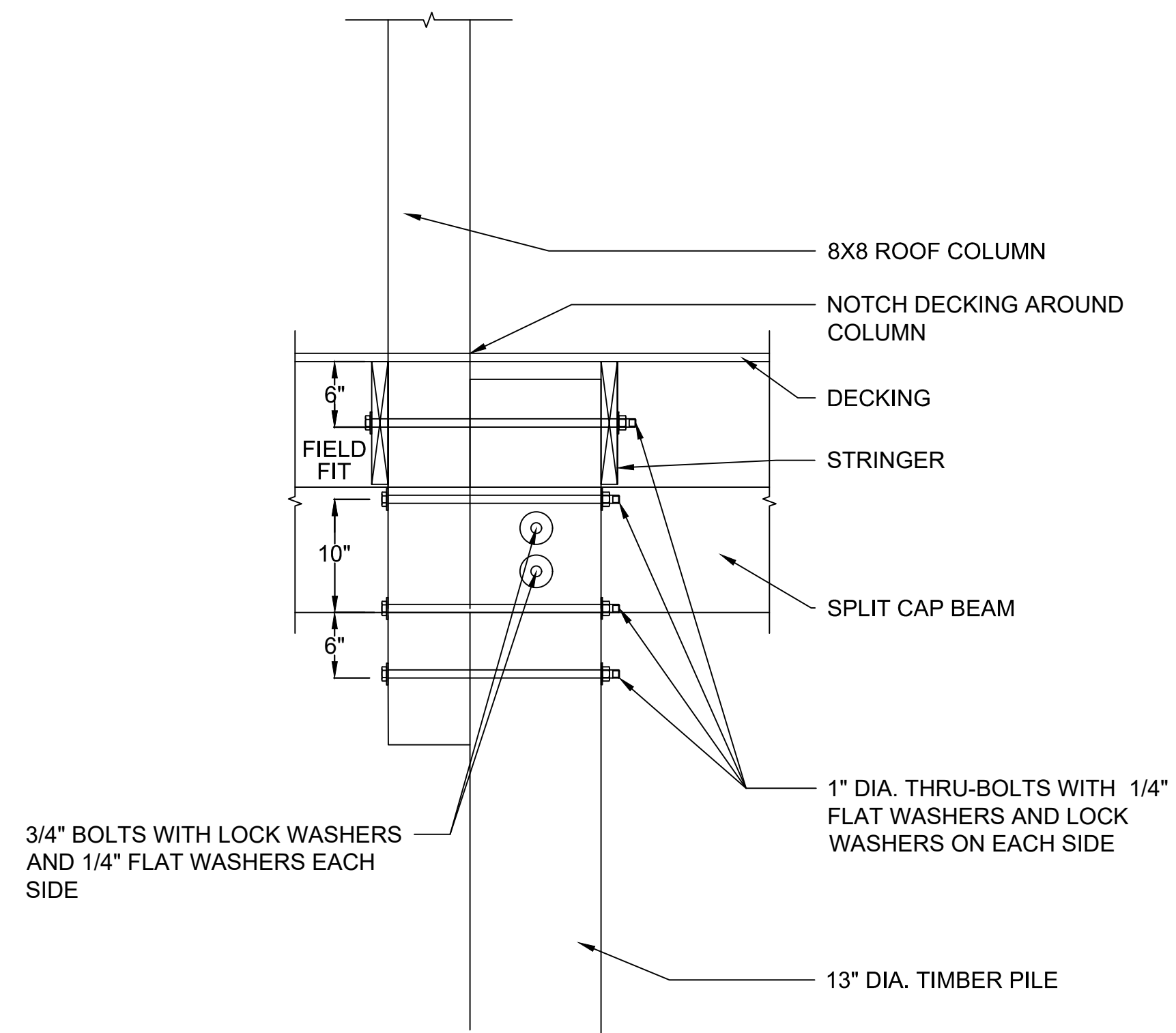
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S6

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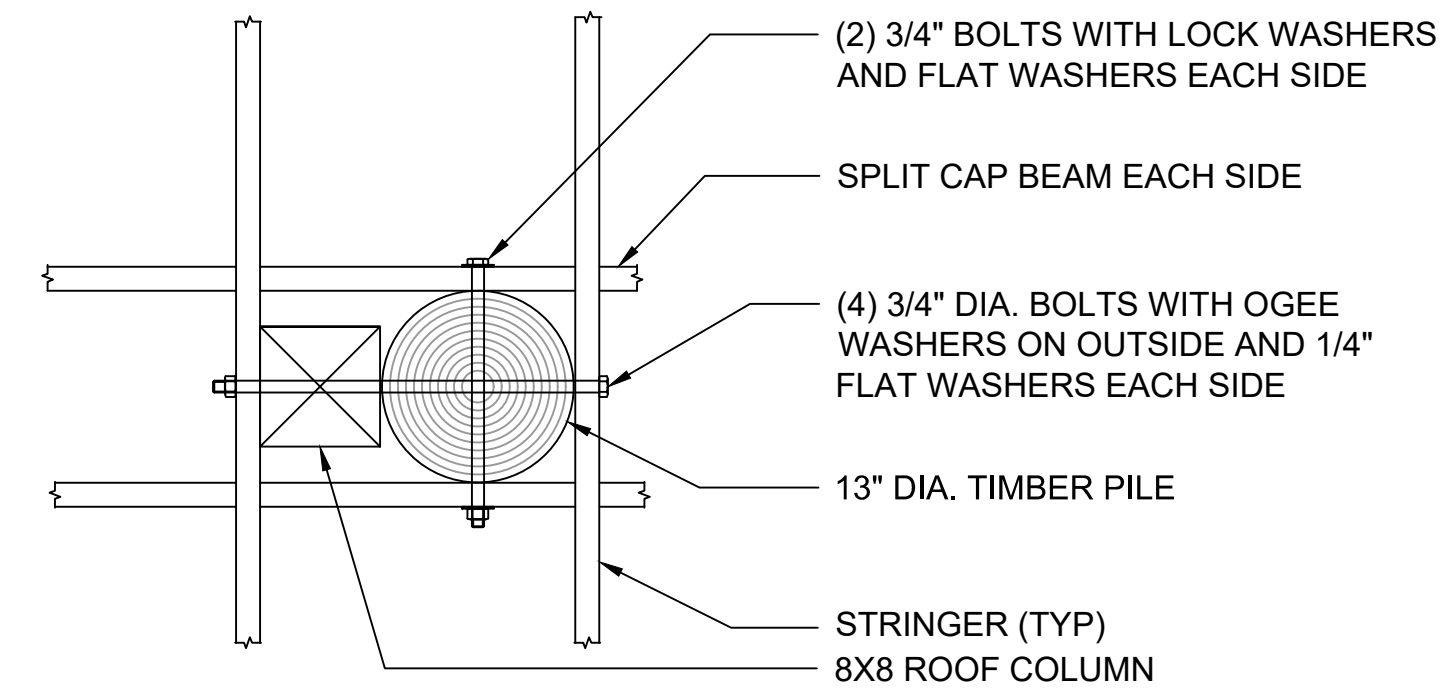
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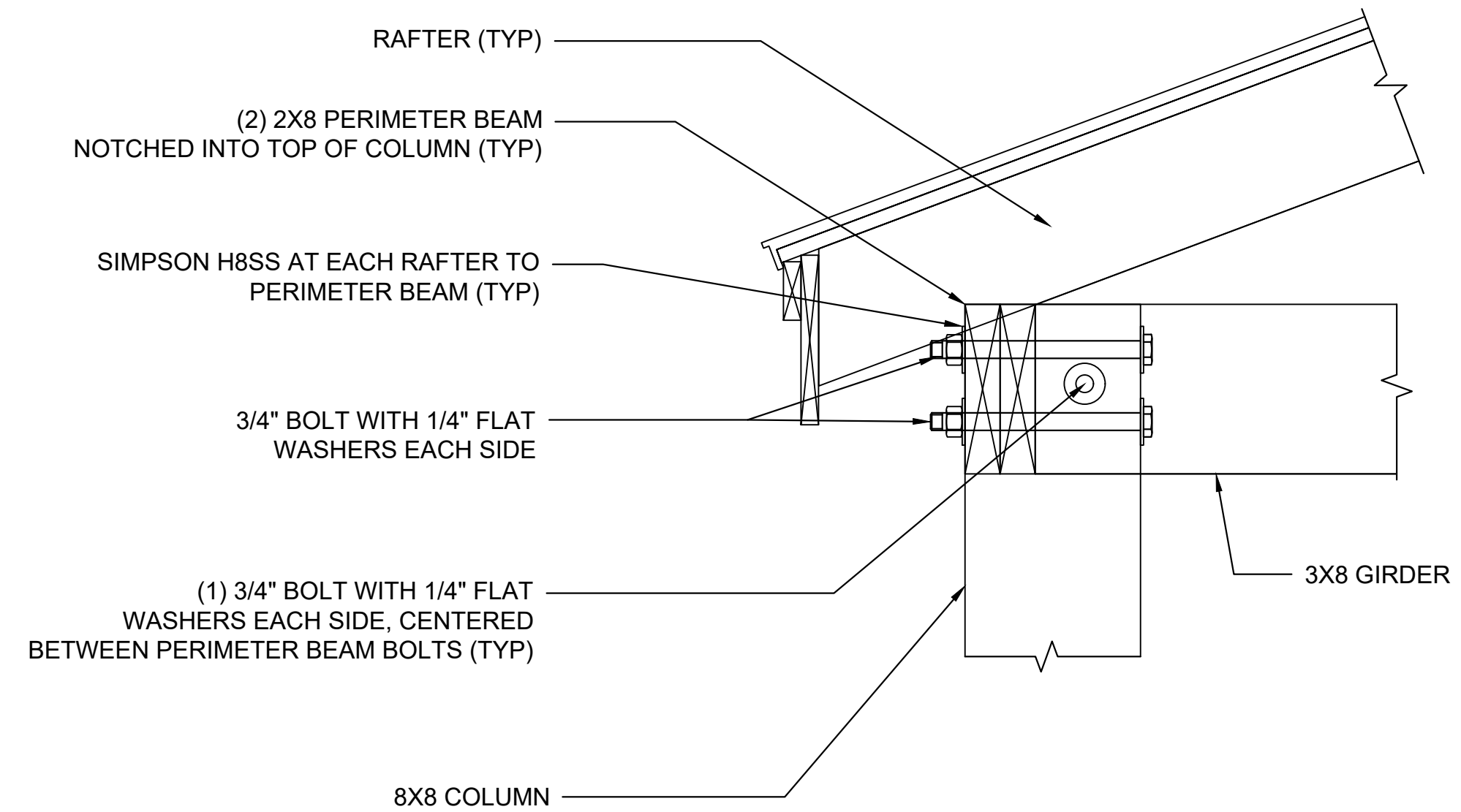
1 TYPICAL COLUMN PERIMETER SIDE BEAM BRACING PROFILE DETAIL
1" = 1'-0"



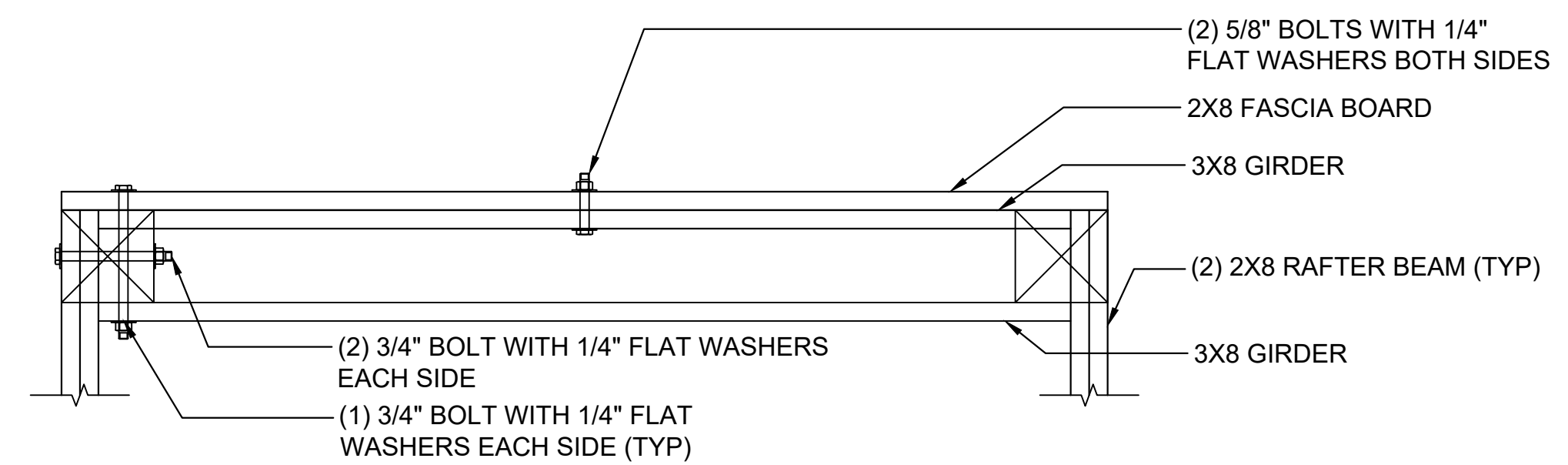
3 TYPICAL COLUMN TO PILE CONNECTION DETAIL - PROFILE
1" = 1'-0"



2 TYPICAL COLUMN TO PILE CONNECTION - PLAN
1" = 1'-0"



4 TYPICAL BRACED ROOF SECTION AT COLUMNS
1" = 6"



5 END FASCIA BOARD DETAIL
1" = 1'-0"

Signature _____
Date _____

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2				
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JD	HA	KM	10/19/2023	18-3287	VARIABLES

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
ROOFING DETAILS
CITY OF ISLE OF PALMS

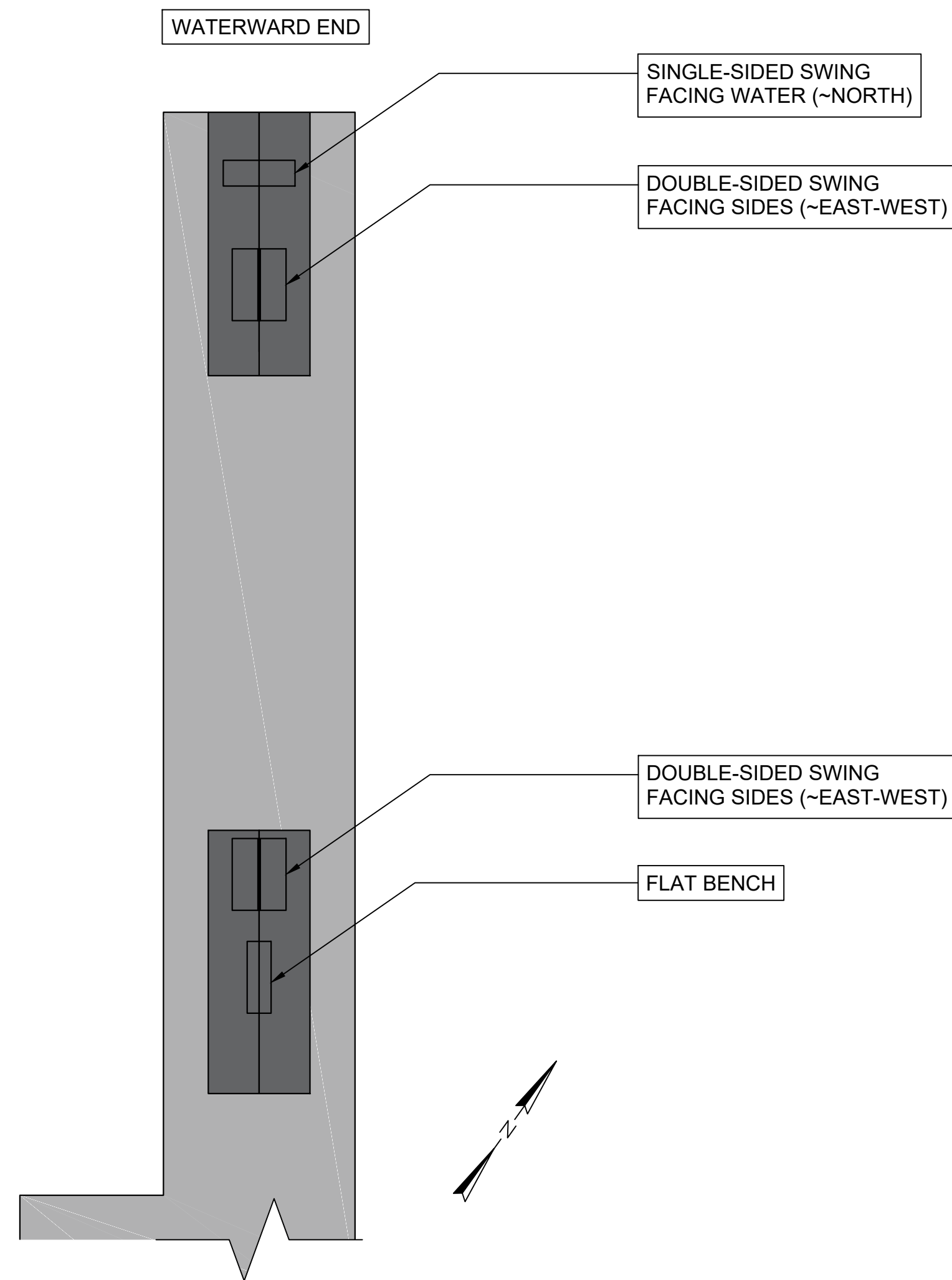
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SWINGS AND BENCHES NOTES:

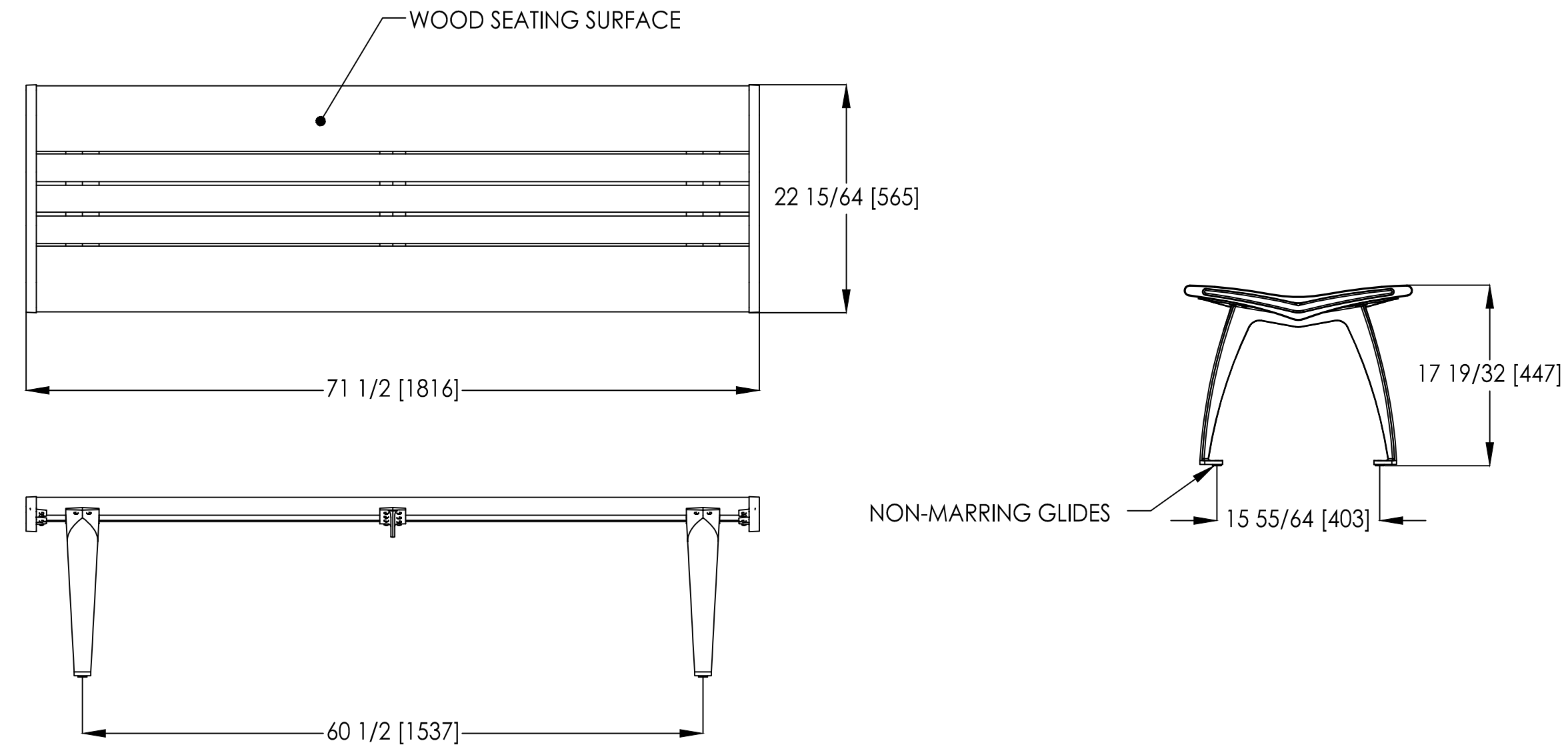
- SWINGS AND BENCHES SHALL BE MANUFACTURED BY LANDSCAPE FORMS, INC. (CONTACT INFORMATION PROVIDED BELOW) OR AN ALTERNATE PRE-APPROVED MANUFACTURER. CONTACT INFORMATION FOR LANDSCAPE FORMS, INC. IS AS FOLLOWS:
LORI BROWN, SENIOR BUSINESS DEVELOPMENT LEAD - CAROLINAS
EMAIL: LORIB@LANDSCAPEFORMS.COM
PHONE: 704-560-0589
- SWINGS AND BENCHES DEPICTED HEREIN ARE GENERAL IN NATURE AND INTENDED TO DEMONSTRATE GENERAL LOCATION AND DIMENSIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINAL DESIGN OF THE SWINGS, BENCHES AND ASSOCIATED CONNECTIONS TO THE ROOF AND PIER STRUCTURES. CONTRACTOR SHALL PROVIDE SIGNED AND SEALED FINAL DESIGN PACKAGE AND SHOP DRAWINGS TO ATM FOR REVIEW PRIOR TO FABRICATION AND INSTALLATION.
- SWINGS AND BENCHES SHALL BE LANDSCAPE FORMS' AUSTIN™ STYLE WITH POWDER-COATED FINISH IN THE COLOR "MERCURY METALLIC" WITH IPE HARDWOOD SEATS AND BACKS.
- SWINGS SHALL BE CUSTOMIZED WITH THE CITY OF ISLE OF PALMS LOGO AS GENERALLY DEPICTED HEREIN.
- SWINGS SHALL INCLUDE A MEANS TO ANCHOR THEM TO THE DECK AND RESTRAIN MOVEMENT DURING STORM EVENTS. ANCHORS SHALL BE ABLE TO BE REMOVED OR UNLATCHED DURING NORMAL USE.
- CONTRACTOR SHALL PROVIDE A SPECIFIED TRAVEL DISTANCE FOR THE SWINGS.
- BENCHES SHALL BE A SURFACE MOUNT BACKLESS BENCH WITH NO ARMS AND ANCHORED TO THE DECK PER MANUFACTURER'S RECOMMENDATIONS.



1 BENCH & SWING PLAN VIEW
N.T.S

Austin™ Backless Bench, Freestanding / Surface Mount, Wood, No Arms
Product Drawing

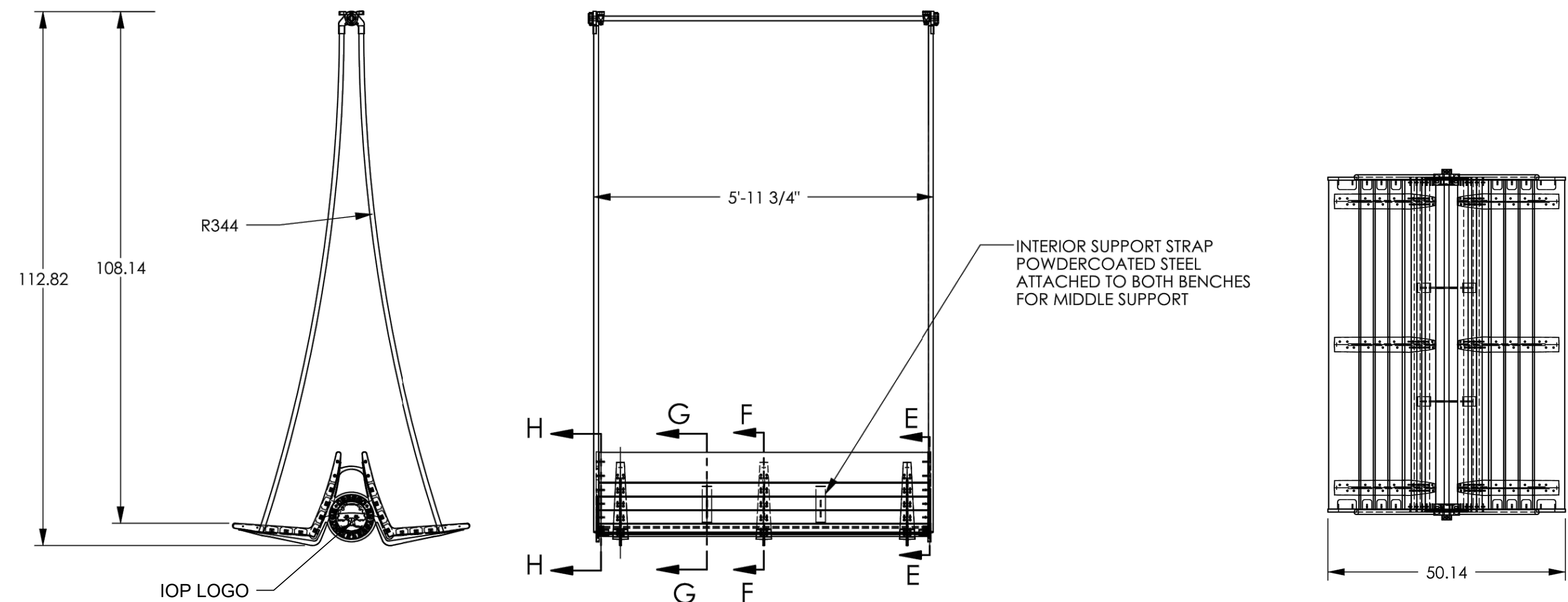
Date: 12/18/2019
www.landscapeforms.com Ph: 800.521.2546



landscapeforms Drawing: AU451-04
Dimensions are in inches [mm]

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2 SCHEMATIC BENCH DETAILS
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TITLE: AU BACK TO BACK SWING	SCALE: 1:28
FILE NAME: CUS_SF0240-001-A	AUTHOR: RGS
PROJECT: MOUNT PLEASANT WATERFRONT PARK	PROJECT#: SF0240
ALL DIMENSIONS IN INCHES[mm]	DATE: 7/16/2008
	B-SIZE SHEET REVISED:

3 SCHEMATIC SWING DETAILS
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Signature	Date
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JD	HA	KM	10/19/2023	18-3287	VARIES

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
BENCH & SWING DETAILS
CITY OF ISLE OF PALMS

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941 Houston Northwest Blvd.
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C:\proj\23\18-3287\1021 Marina Permittals & Design\DWG\Public\DockDesign\10P_ME_Base.dwg, SS, 10/19/23
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REPAIR WORK DESCRIPTION & INSTRUCTIONS TO BIDDERS

THE CITY OF ISLE OF PALMS (OWNER) IS SOLICITING BIDS FROM QUALIFIED CONTRACTORS TO CONDUCT REPAIRS TO THE FIXED ACCESS PIER & FLOATING DOCK SYSTEM FOR THE INTRACOASTAL DOCK AT THE ISLE OF PALMS MARINA LOCATED ON THE ATLANTIC INTRACOASTAL WATERWAY (AIWW) AT 50 41ST AVENUE, ISLE OF PALMS, SC 29451. THE REPAIRS ARE BEING UNDERTAKEN TO MAKE GENERAL MAINTENANCE TO THE FIXED ACCESS PIER AND FLOATING DOCK SYSTEM TO EXTEND THEIR USEFUL LIFE.

THE PROPOSED PROJECT INCLUDES GENERAL REPAIRS AS PART OF THE BASE BID, WITH ADDITIONAL REPAIRS THAT SHALL BE CONSIDERED TO BE ALTERNATE BID ITEMS.

THE BASE BID COMPONENTS OF THE REPAIR WORK INCLUDE:

- ACCESS PIER - REPLACE STRUCTURAL HARDWARE
- ACCESS PIER - REPLACE TIMBER HANDRAIL POSTS (SELECT LOCATIONS)
- ACCESS PIER - REPLACE TIMBER ANGLED CAP (SELECT LOCATIONS)
- ACCESS PIER - REPLACE SECURITY GATE
- ACCESS PIER - RE-ATTACH TIMBER BENCH
- FLOATING DOCK - REPLACE TIMBER FENDER BOARD (SELECT LOCATIONS)
- FLOATING DOCK - REPLACE VINYL BUMPER STRIP SIDE A ONLY
- FLOATING DOCK - REPLACE CORNER PLATE (SELECT LOCATIONS)
- FLOATING DOCK - NEW PILE GUIDE
- FLOATING DOCK - REPLACE ELECTRICAL & POTABLE WATER SYSTEMS
- FLOATING DOCK - REPLACE FIRE PEDESTALS

THE ALTERNATE REPAIR COMPONENTS INCLUDE:

- ACCESS PIER - SAND AND RE-PAINT HANDRAIL
- ACCESS PIER - REPLACE DECKING (SYP)
- FLOATING DOCK A - REPLACE DECKING (SYP)
- FLOATING DOCK B - REPLACE DECKING (SYP)
- FLOATING DOCK - REPLACE PILE GUIDE ROLLERS & SCRAPE PILES

CONTRACTOR SHALL CONSIDER THE FOLLOWING IN PREPARATION OF THEIR BID:

- CONTRACTOR IS RESPONSIBLE FOR REPLACING ALL STRUCTURAL HARDWARE ON THE FIXED ACCESS PIER. STRUCTURAL HARDWARE INCLUDES BOLTS CONNECTING TIMBER PILES TO TIMBER SPLIT CAP MEMBERS, BOLTS CONNECTING HAND RAIL POSTS TO EXTERIOR TIMBER STRINGERS, BOLTS ON OUT-TIMBER FASCIA BOARD AND SST H2.5 HURRICANE STRAPS ON EACH STRINGER. HARDWARE SHALL BE GALVANIZED STEEL, SEE DETAIL SHEET R-3 FOR FURTHER CLARIFICATION. REPLACEMENT BOLTS SHALL BE GALVENEZED THROUGH-BOLTS.
- REPLACEMENT OF TIMBER HANDRAIL POSTS SHALL BE DONE CAREFULLY TO AVOID DAMAGE TO OTHER COMPONENTS OF THE HAND RAILING. TOP END SHALL BE MITERED TO MATCH ANGLE OF EXISTING ANGLED CAP. BOTTOM SHALL BE MITERED TO MATCH EXISTING AND INSTALLED VIA GALVANIZED STEEL THROUGH BOLTS. MEMBER SCHEDULED FOR REPLACEMENT SHALL BE PAINTED TO MATCH EXISTING.
- REPLACEMENT OF TIMBER ANGLED CAP SHALL BE DONE CAREFULLY TO AVOID DAMAGE TO OTHER COMPONENTS OF THE HAND RAILING. BUTT JOINTS SHALL BE MITERED TO MATCH EXISTING. MEMBERS SCHEDULED FOR REPLACEMENT SHALL BE PAINTED TO MATCH EXISTING.
- CONTRACTOR SHALL FURNISH AND INSTALL A NEW SECURITY GATE TO MATCH EXISTING AS SHOWN IN SITE PHOTOS ON SHEET R3. THE NEW SECURITY GATE SHALL INCLUDE ALL HARDWARE AND SECURITY ACCESS LOCKING MECHANISMS. IF ADJACENT STRUCTURAL TIMBER IS COMPROMISED DURING REPLACEMENT, THE CONTRACTOR SHALL REPLACE WITH NEW PRESSURE TREATED TIMBER. SEE TIMBER AND HARDWARE NOTES FOR FURTHER SPECIFICATION.
- FOR RE-ATTACHING THE (2) TIMBER BENCHES ON THE ACCESS PIER, CONTRACTOR SHOULD USE 3" GALVANIZED STEEL CORNER BRACES FASTENED WITH STAINLESS STEEL SCREWS.
- MEASUREMENTS FOR FLOATING DOCK TIMBER FENDER BOARDS TO BE REPLACED ARE APPROXIMATE. DAMAGED TIMBERS SHALL BE REPLACED IN WHOLE PIECES TO GENERALLY MATCH THE DIMENSIONS OF EXISTING TIMBERS. CONTRACTOR TO VERIFY REQUIRED TIMBER QUANTITIES PRIOR TO SUBMITTING THEIR BID.
- VINYL BUMPER STRIPS ARE TO BE REPLACED ALONG THE "SIDE A" PERIMETER OF THE FLOATING DOCK INCLUDING "SIDE A" FINGER DOCKS, PILE GUIDES, AND MAIN PIER.
- WHERE STEEL CORNER PLATES ARE SCHEDULED FOR REPLACEMENT, THE CONTRACTOR SHALL MATCH THE EXISTING CORNER PLATES AND REPLACE ALL HARDWARE. NEW CORNER PLATES AND HARDWARE SHALL BE GALVANIZED STEEL. IF INTERNAL TIMBER MEMBERS ARE ROTTEN OR OTHERWISE COMPROMISED, THE CONTRACTOR SHALL REPLACE TIMBER MEMBERS TO ANCHOR NEW CORNER PLATES.
- THE NEW PILE GUIDE SHALL MATCH THE EXISTING PILE GUIDES IN MATERIAL TYPE AND DIMENSIONS. CONTRACTOR RESPONSIBLE FOR PROVIDING ADEQUATE TIMBER FRAMING AND GALVANIZED STEEL THROUGH BOLTS TO ANCHOR THE NEW PILE GUIDE TO THE EXISTING FLOATING DOCK. SHOP DRAWING SUBMITTAL AND DESIGN CRITERIA PROFESSIONAL APPROVAL IS REQUIRED PRIOR TO PURCHASING.
- FOR FLOATING DOCK ELECTRICAL, POTABLE WATER AND FIRE SYSTEMS REPLACEMENT, REFER TO "E-SERIES", "FP-SERIES" AND "P-SERIES" SHEETS IN THIS DRAWING SET.
- FOR ALTERNATE BID ITEM 1, CONTRACTOR RESPONSIBLE FOR ADEQUATELY SANDING THE EXISTING PAINT FINISH FROM ALL TIMBER ACCESS PIER HAND RAILING COMPONENTS INCLUDING THE GUARD RAIL, VERTICAL POSTS, SPINDLES, AND KICK BOARDS ON ALL SIDES. ALL PAINT CHIPS AND DUST AS A RESULT FROM SANDING SHALL BE CONTAINED FROM THE MARSH/WATERBODY AND APPROPRIATELY DISPOSED OF FROM THE PROJECT SITE. CONTRACTOR SHALL PRIME AND RE-PAINT ALL COMPONENTS WITH EXTERIOR WEATHER RESISTANT PAINT TO MATCH EXISTING COLOR. A MINIMUM OF 2 COATS SHALL BE APPLIED PER MANUFACTURER RECOMMENDATIONS.
- FOR ALTERNATE BID ITEM 2, 3 & 4, DECKING SHALL BE REPLACED IN-KIND WITH SOUTHERN YELLOW PINE DECKING (SYP) AND STAINLESS STEEL SCREWS. CONTRACTOR SHALL PROVIDE PRODUCT SPECIFICATIONS AND MATERIAL PROPERTIES TO DESIGN CRITERIA PROFESSIONAL FOR APPROVAL PRIOR TO PURCHASING. CONTRACTOR RESPONSIBLE FOR VERIFYING THAT EXISTING FRAMING MEMBERS ON THE FIXED ACCESS PIER AND THE FLOATING DOCK ARE NOT DAMAGED

AND CAN BE RE-USED TO ANCHOR NEW DECKING.

- FOR ALTERNATE BID ITEMS 2, 3 & 4, ALL DECKING SHALL BE INSTALLED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT DESIGN REQUIREMENTS.
- FOR ALTERNATE BID ITEM 5, CONTRACTOR SHALL REPLACE ROLLER GUIDES WITH ULTRA HIGH MOLECULAR WEIGHT PLASTIC. CONCRETE ANCHOR PILES SHOULD BE SCRAPED FREE OF BARNACLES ON AN ELEVATION SLIGHTLY BELOW THE NORMAL LOW TIDE LEVEL. CONTRACTOR IS RESPONSIBLE FOR REPLACING ALL HARDWARE THAT MAY BE NECESSARY FOR PLASTIC ROLLER REPLACEMENT.
- CONTRACTOR'S BID PRICING FOR REPLACEMENT OF ALL DOCK COMPONENTS SHALL BE UNDERSTOOD TO INCLUDE ALL NECESSARY TIMBER ELEMENTS AND FASTENING HARDWARE (BOLTS, WASHERS, NUTS, ETC.) AND ASSOCIATED LABOR & EQUIPMENT.
- PRIOR TO SUBMITTING A BID, THE CONTRACTOR SHALL COMPARE THE DRAWINGS AGAINST FIELD CONDITIONS AND NOTIFY THE OWNER AND DESIGN CRITERIA PROFESSIONAL IN WRITING OF ANY APPARENT DISCREPANCIES BETWEEN THE DRAWINGS AND SITE CONDITIONS.
- THE CONTRACTOR'S BID SHALL UTILIZE THE SCHEDULE OF VALUES PROVIDED IN THE REQUEST FOR BID (RFB) DOCUMENTS. COSTS SHALL CLEARLY DIFFERENTIATE BETWEEN "BASE BID" REPAIRS AND "ALTERNATE" REPAIRS AS INDICATED IN THE SCHEDULE OF VALUES.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE OWNER'S ON-SITE MARINA STAFF TO MINIMIZE IMPACTS TO EXISTING OPERATIONS TO THE EXTENT PRACTICABLE. IF VESSELS ARE REQUIRED TO BE RELOCATED TO FACILITATE THE CONTRACTOR'S WORK, CONTRACTOR SHALL NOTIFY MARINA STAFF A MINIMUM OF 48 HOURS IN ADVANCE.

GENERAL CONSTRUCTION NOTES

- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THESE DRAWINGS AND ASSOCIATED NOTES/SPECIFICATIONS.
- WORKING HOURS SHALL BE COORDINATED WITH THE OWNER PRIOR TO CONSTRUCTION.
- ALL APPROPRIATE SAFETY REGULATIONS ARE TO BE STRICTLY FOLLOWED.
- ANY DAMAGE TO STATE, COUNTY, OR LOCAL ROADS, OR OTHER ONSITE INFRASTRUCTURE CAUSED BY THE CONSTRUCTION ACTIVITIES RELATED TO THIS PART OF THE PROJECT SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF OWNER AT NO ADDITIONAL EXPENSE TO THE OWNER.
- THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING A BID AND FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS. IF CONTRACTOR DISCOVERS FIELD CONDITIONS DIFFERENT THAN SHOWN IN THE PLANS AND SPECIFICATIONS THEY SHALL IMMEDIATELY NOTIFY OWNER AND DESIGN CRITERIA PROFESSIONAL.
- CONTRACTOR SHALL STRICTLY COMPLY WITH ALL APPLICABLE SAFETY REGULATIONS.
- MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR SHALL ABIDE BY ALL APPLICABLE ENVIRONMENTAL PROTECTION LAWS, STANDARDS, AND REGULATIONS. THIS INCLUDES ADHERING TO ALL PERMIT CONDITIONS AND REPORTING REQUIREMENTS. THE OWNER IS PURSUING REGULATORY AUTHORIZATION FROM SC-DHEC OCRM FOR THE REPAIRS PORTION OF THIS PROJECT. CONTRACTOR SHALL ASSUME THAT THE OWNER WILL PROVIDE A COPY OF THE REGULATORY AUTHORIZATION PRIOR TO INITIATION OF THE WORK. NO SPECIAL CONDITIONS ARE EXPECTED. CONTRACTOR IS RESPONSIBLE FOR ANY LOCAL BUILDING PERMIT(S) OR OTHER AUTHORIZATIONS THAT MAY BE REQUIRED.
- ADDITIONAL WORK PERFORMED BY OTHER CONTRACTORS MAY BE OCCURRING AT THE PROJECT SITE AT THE SAME TIME AS THE WORK DEFINED IN THESE DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH THESE OTHER PROJECT CONTRACTORS AS IT RELATES TO THEIR WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING SITE LAY DOWN, PARKING, AND STORAGE AREAS WITH THE OWNER PRIOR TO CONSTRUCTION. NO STORAGE OF CONSTRUCTION EQUIPMENT OR DEBRIS SHALL OCCUR IN ANY LOCATION ON SITE OR ON THE DOCKS OTHER THAN IN AREA(S) APPROVED BY THE OWNER AND DESIGN CRITERIA PROFESSIONAL.
- THE CONTRACTOR SHALL INCORPORATE BEST MANAGEMENT PRACTICES TO PREVENT CONSTRUCTION DEBRIS, DUST, AND OTHER MATERIALS FROM LEAVING THE IMMEDIATE WORK AREA AND ENTERING LOCAL WATERS. THE CONTRACTOR SHALL REMOVE CONSTRUCTION DEBRIS FROM THE SITE ON A DAILY BASIS. DISPOSAL OF THE MATERIAL IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL REMOVE ALL SURPLUS MATERIAL, SUPPLIES, AND DEBRIS AT THE COMPLETION OF THE PROJECT AND PRIOR TO SUBMITTING THE FINAL APPLICATION FOR PAYMENT.
- SHOULD THE CONTRACTOR, DURING THE PROGRESS OF THE WORK, LOSE, DUMP, THROW OVERBOARD, SINK, OR MISPLACE ANY MATERIAL, PLANT MACHINERY, OR APPLIANCE WHICH IN THE OPINION OF THE OWNER MAY BE DANGEROUS TO OR OBSTRUCT NAVIGATION, THE CONTRACTOR SHALL RECOVER AND REMOVE THE SAME WITH THE UTMOST DISPATCH. THE CONTRACTOR SHALL GIVE IMMEDIATE NOTICE, WITH DESCRIPTION AND LOCATION OF SUCH OBSTRUCTIONS TO THE OWNER, AND WHEN REQUIRED SHALL MARK OR BUOY SUCH OBSTRUCTIONS UNTIL THEY ARE REMOVED. SHOULD THE CONTRACTOR REFUSE, NEGLECT, OR DELAY COMPLIANCE WITH THE ABOVE REQUIREMENTS, SUCH OBSTRUCTIONS MAY BE REMOVED BY THE OWNER, AND THE COST OF SUCH REMOVAL MAY BE DEDUCTED FROM ANY MONEY DUE OR TO BECOME DUE TO THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR BRINGING ALL ELEMENTS OF THE PROJECT IN GENERAL CONFORMANCE WITH THESE PLANS AND ASSOCIATED NOTES/SPECIFICATIONS. IF ANY MODIFICATIONS ARE REQUIRED IN ANY ELEMENT, THE CONTRACTOR SHALL SUBMIT PROPOSED CHANGES TO THE OWNER FOR APPROVAL PRIOR TO EXECUTING THAT PORTION OF THE WORK.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EXISTING UPLAND UTILITIES. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY UTILITY DAMAGES THAT OCCUR.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A GENERAL INVENTORY OF WORK COMPLETED WHICH IS TO BE SUBMITTED TO THE OWNER ON A WEEKLY BASIS. THIS INVENTORY SHALL CLEARLY DESCRIBE THE NUMBER OF EACH COMPONENT THAT HAS BEEN REPAIRED/REPLACED AT THE TIME OF THE WEEKLY REPORT.
- UPON PROJECT COMPLETION, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AS-BUILT DRAWINGS WHICH CLEARLY DELINEATE THE VARIOUS COMPONENTS THAT WERE REPLACED. THESE MAY INCLUDE RED-LINED BID PLANS.

PILES & PILE GUIDES

- NEW PILE GUIDE SHALL MATCH EXISTING EXTERNAL PILE GUIDES MADE OF GALVANIZED STEEL WITH PLASTIC ROLLER GUIDES. CONTRACTOR SHALL PROVIDE ADEQUATE TIMBER FRAMING AND GALVANIZED THROUGH BOLTS FOR ANCHORING THE NEW PILE GUIDE TO THE EXISTING FLOATING DOCK SYSTEM.
- FLOATING DOCK ANCHOR PILES ARE SQUARE CONCRETE PILES. FOR ALTERNATE BID ITEM, CONTRACTOR SHALL SCRAPE ALL PILES TO REMOVE BARNACLE GROWTH TO AN ELEVATION SLIGHTLY BELOW THE NORMAL LOW TIDE LEVEL.
- FOR ALTERNATE BID ITEM, ALL PILE GUIDES SHALL HAVE PLASTIC ROLLERS REPLACED. PLASTIC ROLLERS SHALL BE MADE OF ULTRA HIGH MOLECULAR WEIGHT PLASTIC MOUNTED TO A STAINLESS STEEL AXLE. CONTRACTOR TO SUBMIT PRODUCT DATA TO DESIGN CRITERIA PROFESSIONAL FOR REVIEW PRIOR TO PURCHASING.

CORNER PLATES

- CORNER PLATES SHALL BE MADE OF GALVANIZED STEEL MATERIAL OF EQUAL OR GREATER THICKNESS THAN EXISTING MEMBERS. WHERE CORNER PLATES ARE SCHEDULED FOR REPLACEMENT, CONTRACTOR SHALL PROVIDE NEW GALVANIZED STEEL THROUGH BOLTS FOR ANCHORING THE NEW PLATES.
- CONTRACTOR SHALL SUBMIT SPECIFICATIONS AND SHOP DRAWINGS OF THE CORNER PLATES TO THE OWNER AND DESIGN CRITERIA PROFESSIONAL FOR REVIEW/APPROVAL PRIOR TO PURCHASING.
- CONTRACTOR IS RESPONSIBLE FOR REPLACING MISSING OR ROTTEN TIMBER COMPONENTS WITHIN THE FLOATING SYSTEM THAT ARE USED TO ANCHOR GUSSET BRACKETS.

TIMBER MEMBERS & BUMPER STRIPS

- TIMBER MEMBERS (FENDER BOARDS, HAND RAIL POSTS, INCIDENTAL FRAMING) SHALL BE REPLACED IN KIND TO MATCH EXISTING TIMBER NOMINAL DIMENSIONS.
- ALL FENDER BOARDS SHALL BE FLUSH WITH THE WALKING SURFACE OF THE DECKING SO AS NOT TO CREATE A TRIPPING HAZARD.
- ALL TIMBER SHALL BE SOUTHERN YELLOW PINE "NO. 1" (OR APPROVED EQUAL) IN ACCORDANCE WITH EITHER THE SOUTHERN PINE INSPECTION BUREAU OR THE TIMBER PRODUCTS INSPECTION BUREAU GRADING RULES.
- ALL (NON-DECKING) TIMBER SHALL BE PRESSURE PRESERVATIVE TREATED WITH A MINIMUM CHROMATED COPPER ARSENATE (CCA) CONTENT EQUAL TO 0.6 POUNDS PER CUBIC FOOT (PCF). MOISTURE CONTENT NOT TO EXCEED 19% AFTER TREATMENT , KDAT OR S-DRY.
- ALL SOUTHERN YELLOW PINE DECKING SHALL BE PRESSURE PRESERVATIVE TREATED WITH COPPER QUAT (AQC) CONTENT EQUAL TO 0.6 POUNDS PER CUBIC FOOT (PCF). MOISTURE CONTENT NOT TO EXCEED 19% AFTER TREATMENT KDAT OR S-DRY.
- ALL TIMBER SHALL COMPLY WITH AMERICAN SOFTWOOD LUMBER STANDARDS COMMITTEE, PS-20 WASHINGTON, DC, TO GRADE THE SPECIES. ALL LUMBER SPECIFIED FOR TREATMENTS SHALL BE TREATED TO THE REQUIREMENTS OF THE AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) U1-15 AND T1-15. ALL FIELD CUTS AND HOLES SHALL BE TREATED IN ACCORDANCE WITH AWPA M4-15.
- CONTRACTOR SHALL PROVIDE TIMBER SPECIFICATIONS/TREATMENT CERTIFICATES TO THE DESIGN CRITERIA PROFESSIONAL FOR REVIEW/APPROVAL PRIOR TO PROCUREMENT.
- TIMBER SHOULD BE CUT TO LENGTH AND ALL HOLES DRILLED PRIOR TO PRESSURE TREATMENT TO THE EXTENT PRACTICABLE. ANY FIELD-CUTS OR HOLES DRILLED IN THE FIELD SHALL BE TREATED WITH COPPER-GREEN WOOD PRESERVATIVE TREATMENT OR APPROVED EQUAL.
- TIE BANDS USED TO SECURE TIMBER DURING DELIVERY SHALL HAVE NON-MARRING BETWEEN THE BANDS AND THE WOOD TO PREVENT CRUSHING. BUNDLE IDENTIFICATION NOT PERMANENTLY STAIN LUMBER SURFACE.
- BUMPER STRIPS SHALL BE EXTRUDED, NON-MARRING, MARINE GRADE VINYL, WHITE IN COLOR. EACH STRIP SHALL HAVE A MINIMUM HEIGHT OF FOUR INCHES, MINIMUM THICKNESS OF 1/8 INCH, AND A MINIMUM WEIGHT OF 1.6 POUNDS PER LINEAR FOOT. THE BUMPER STRIP SHALL BE INSTALLED WITH STAINLESS STEEL SCREWS OR ALUMINUM RING SHANK NAILS WITH WASHERS ON 4-INCH CENTERS ALONG BOTH FLANGES AND SHALL CLOSELY MATCH EXISTING TO THE EXTENT POSSIBLE. CONTRACTOR'S SELECTED BUMPER STRIP PRODUCT SPECIFICATIONS SHALL BE SUBMITTED TO THE OWNER AND DESIGN CRITERIA PROFESSIONAL FOR REVIEW/APPROVAL PRIOR TO PROCUREMENT.

HARDWARE

- ALL BOLTS, NUTS, & WASHERS (HARDWARE) SHALL BE STEEL, IN ACCORDANCE WITH ASTM A-307.
- ALL HARDWARE SHALL BE HOT DIPPED GALVANIZED (UNLESS NOTED OTHERWISE) IN ACCORDANCE WITH ASTM A-123.
- WASHERS SHALL BE USED WITH ALL NUTS AND BOLTS WHICH BEAR ON WOOD OR STEEL. CUT WASHERS SHALL BE USED ON ALL SURFACES BEARING ON STEEL SURFACES.
- WHERE STAINLESS STEEL COMPONENTS ARE SPECIFIED, MATERIAL SHALL BE TYPE 316 SS.
- ANY INSTALLATION OF DISSIMILAR METALS SHALL BE PROPERLY INSULATED TO MINIMIZE OR ELIMINATE POTENTIAL GALVANIZE CORROSION THE MARINE ENVIRONMENT. APPROPRIATE DIELECTRIC MATERIALS (NON-CONDUCTING INSULATORS, BUSHINGS, OR BITUMINOUS PAINT) SHALL BE USED TO SEPARATE DISSIMILAR METALS OR WHERE METAL COMES IN CONTACT WITH CONCRETE OR TREATED TIMBER.
- HARDWARE FOR REPLACEMENT OF THE SECURITY ACCESS GATE SHALL BE GALVANIZED STEEL. THE SECURE ACCESS KEYPAD SHALL MATCH EXISTING AS PICTURED ON SHEET R3, AND PROGRAMMED FOR A ENTRY CODE OF THE OWNER'S CHOICE. CONTRACTOR SHALL PROVIDE A PRODUCT SUBMITTAL FOR THE SECURE ACCESS KEYPAD FOR REVIEW AND APPROVAL BY THE DESIGN CRITERIA PROFESSIONAL PRIOR TO PURCHASING.

GALVANIZED COATING

- A HOT DIPPED GALVANIZED COATING SHALL BE REQUIRED ON ALL BOLTS, WASHERS, AND MISCELLANEOUS HARDWARE, IN ACCORDANCE WITH EITHER ASTM A-123 OR ASTM A-153 AS APPLICABLE TO THE SPECIFIC MATERIAL.

- ZINC COATING SHALL BE 3 MILS THICK, AT A MINIMUM.
- GALVANIZING SHALL BE APPLIED AFTER FABRICATION.

SUBMITTALS & SHOP DRAWINGS

- CONTRACTOR SHALL PROVIDE THE FOLLOWING AS PART OF BID SUBMITTAL:
 - A PRELIMINARY WORK PLAN TO INCLUDE GENERAL METHODOLOGIES PROPOSED TO ACHIEVE THE WORK DEPICTED IN THESE DRAWINGS AND IN CONFORMANCE WITH THE TECHNICAL SPECIFICATIONS AND ALL PERMIT REQUIREMENTS. THIS PRELIMINARY WORK PLAN SHALL INCLUDE:
 - A GENERAL CONSTRUCTION SCHEDULE
 - DISPOSITION OF MATERIAL
 - CLEAN UP PLAN
 - EQUIPMENT INVENTORY
 - MEANS AND METHODS OF SANDING AND PAINTING FIXED ACCESS PIER

- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE TECHNICAL INFORMATION ON ALL MATERIALS TO THE DESIGN CRITERIA PROFESSIONAL BEFORE PURCHASING.
- A DETAILED SCHEDULE OF CONSTRUCTION OPERATIONS SHALL BE SUBMITTED TO THE DESIGN CRITERIA PROFESSIONAL IMMEDIATELY UPON RECEIVING THE NOTICE TO PROCEED.

WARRANTY

- CONTRACTOR SHALL PROVIDE MEANINGFUL ONE YEAR WARRANTY ON ALL MATERIALS AND WORKMANSHIP.

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Signature _____
Date _____

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INTRACOASTAL DOCK REPAIR GENERAL NOTES
CITY OF ISLE OF PALMS

Applied Technology & Management

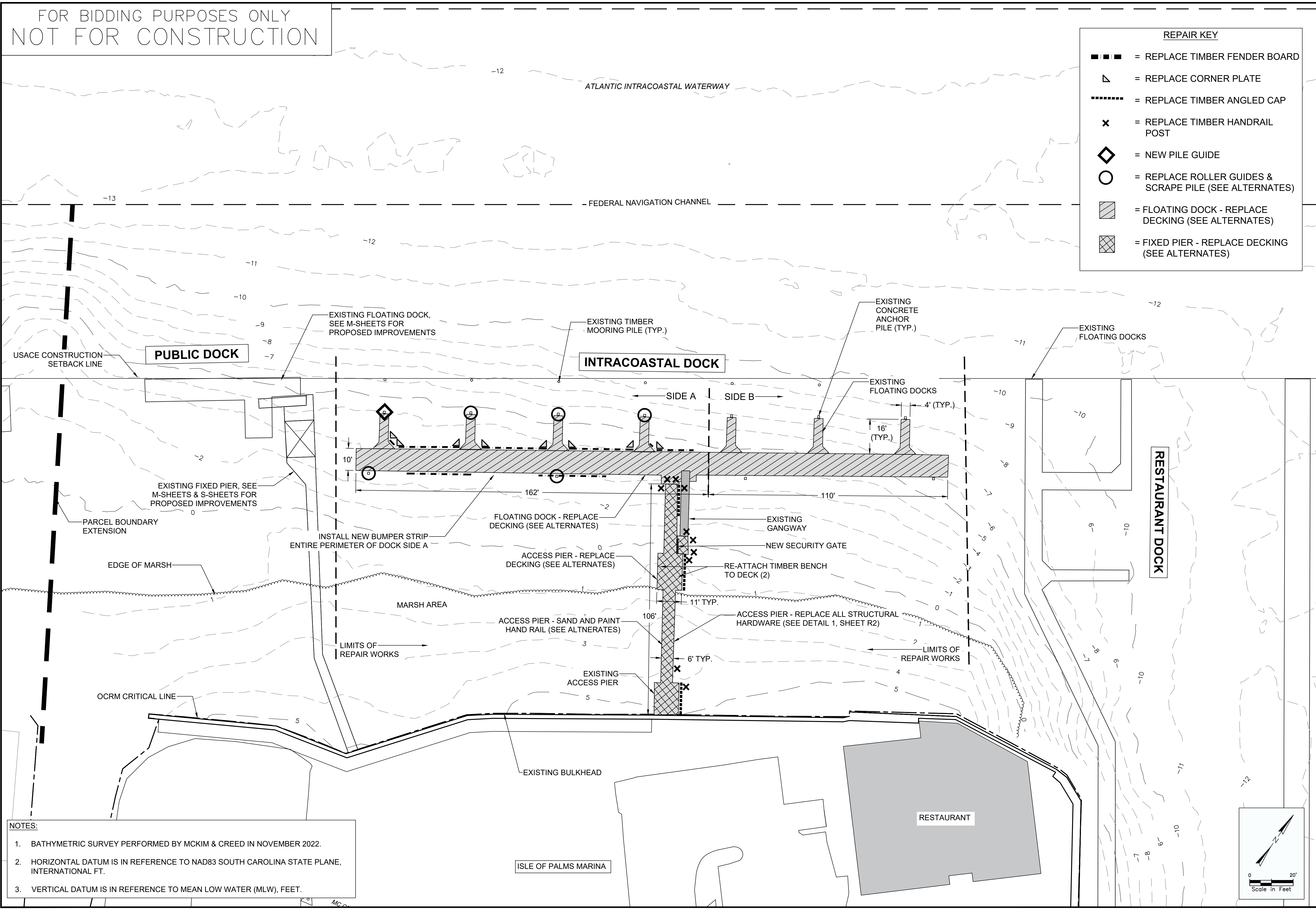
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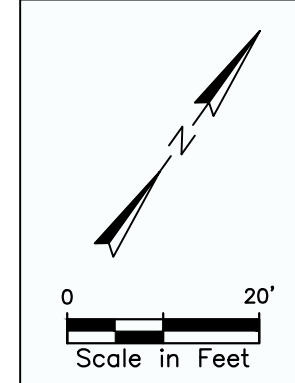
FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION

REPAIR KEY	
■ ■ ■ ■	= REPLACE TIMBER FENDER BOARD
▴	= REPLACE CORNER PLATE
-----	= REPLACE TIMBER ANGLED CAP
✕	= REPLACE TIMBER HANDRAIL POST
◇	= NEW PILE GUIDE
○	= REPLACE ROLLER GUIDES & SCRAPE PILE (SEE ALTERNATES)
▨	= FLOATING DOCK - REPLACE DECKING (SEE ALTERNATES)
▩	= FIXED PIER - REPLACE DECKING (SEE ALTERNATES)



NOTES:

- BATHYMETRIC SURVEY PERFORMED BY MCKIM & CREED IN NOVEMBER 2022.
- HORIZONTAL DATUM IS IN REFERENCE TO NAD83 SOUTH CAROLINA STATE PLANE, INTERNATIONAL FT.
- VERTICAL DATUM IS IN REFERENCE TO MEAN LOW WATER (MLW), FEET.



Signature _____
Date _____

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DESIGNED	DRAWN	CHECKED	DATE	SCALE
J.D.	J.D.	K.M.	10/19/2023	1"=40'
			JOB NO. 18-3287	

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC

INTRACOASTAL DOCK - PROPOSED REPAIRS

CITY OF ISLE OF PALMS

Applied Technology & Management
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R2

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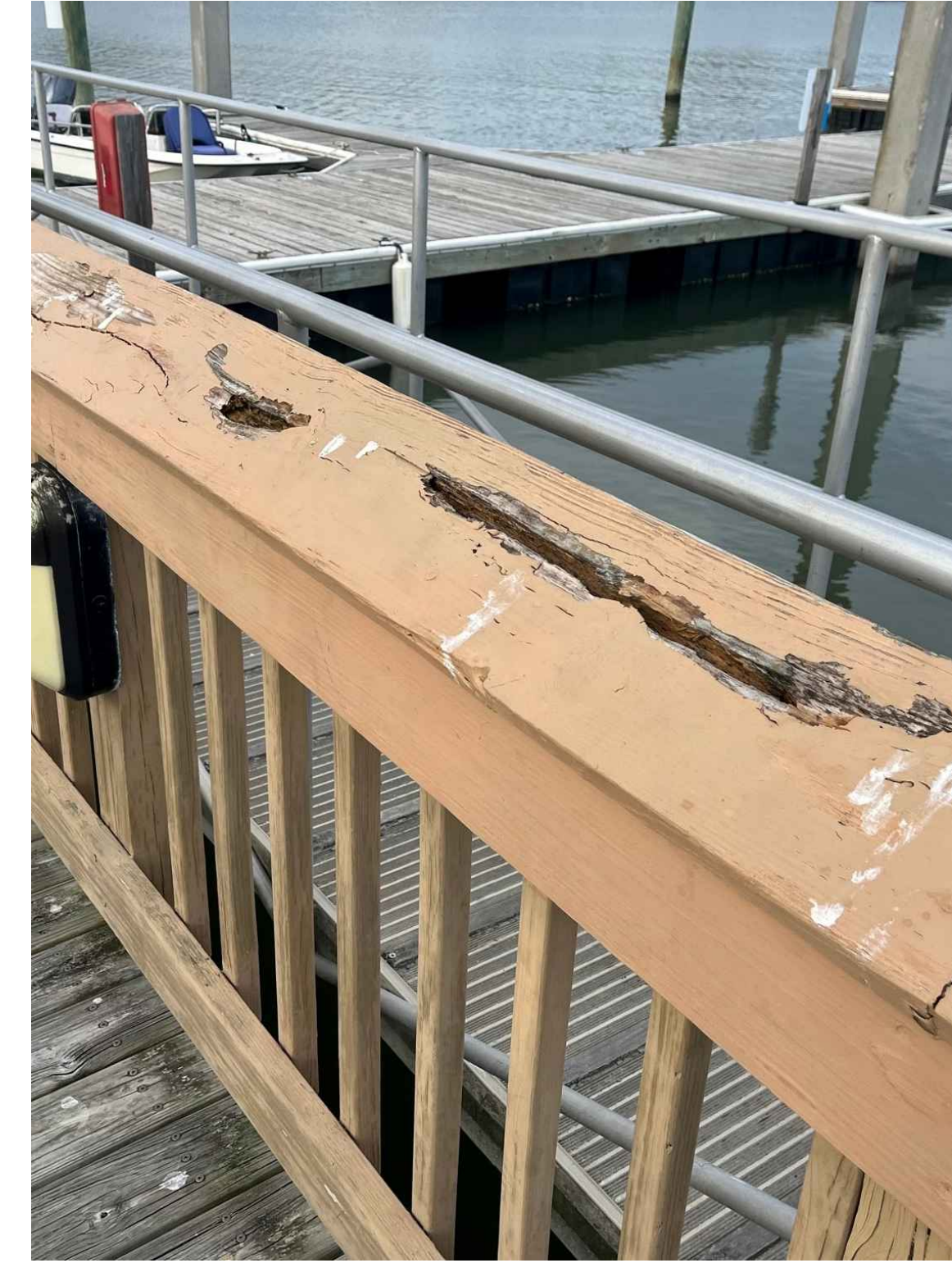
ACCESS PIER - HARD WARE AND HAND RAIL POST



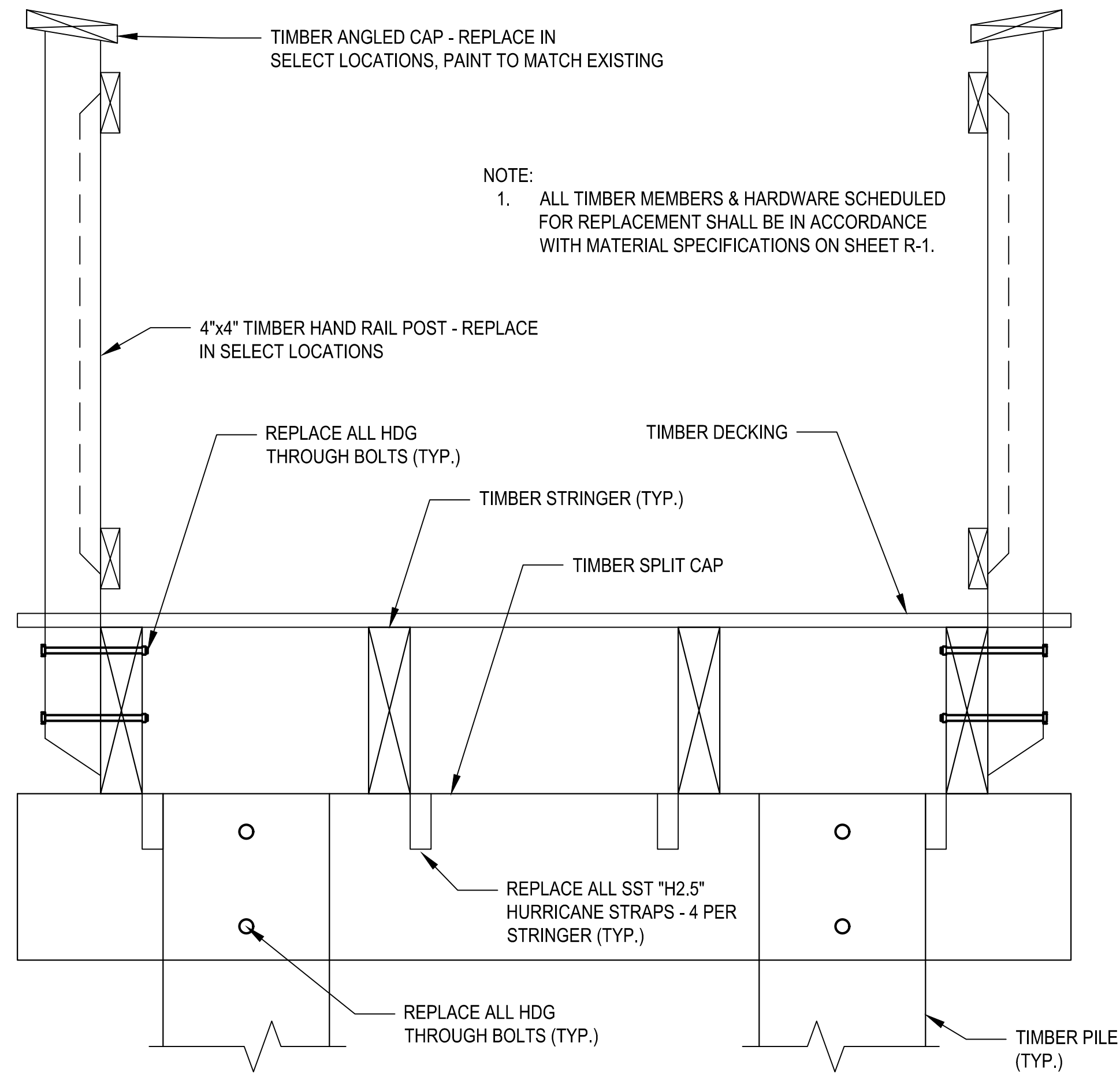
ACCESS PIER - HARD WARE AND HAND RAIL POST



ACCESS PIER - SECURITY GATE

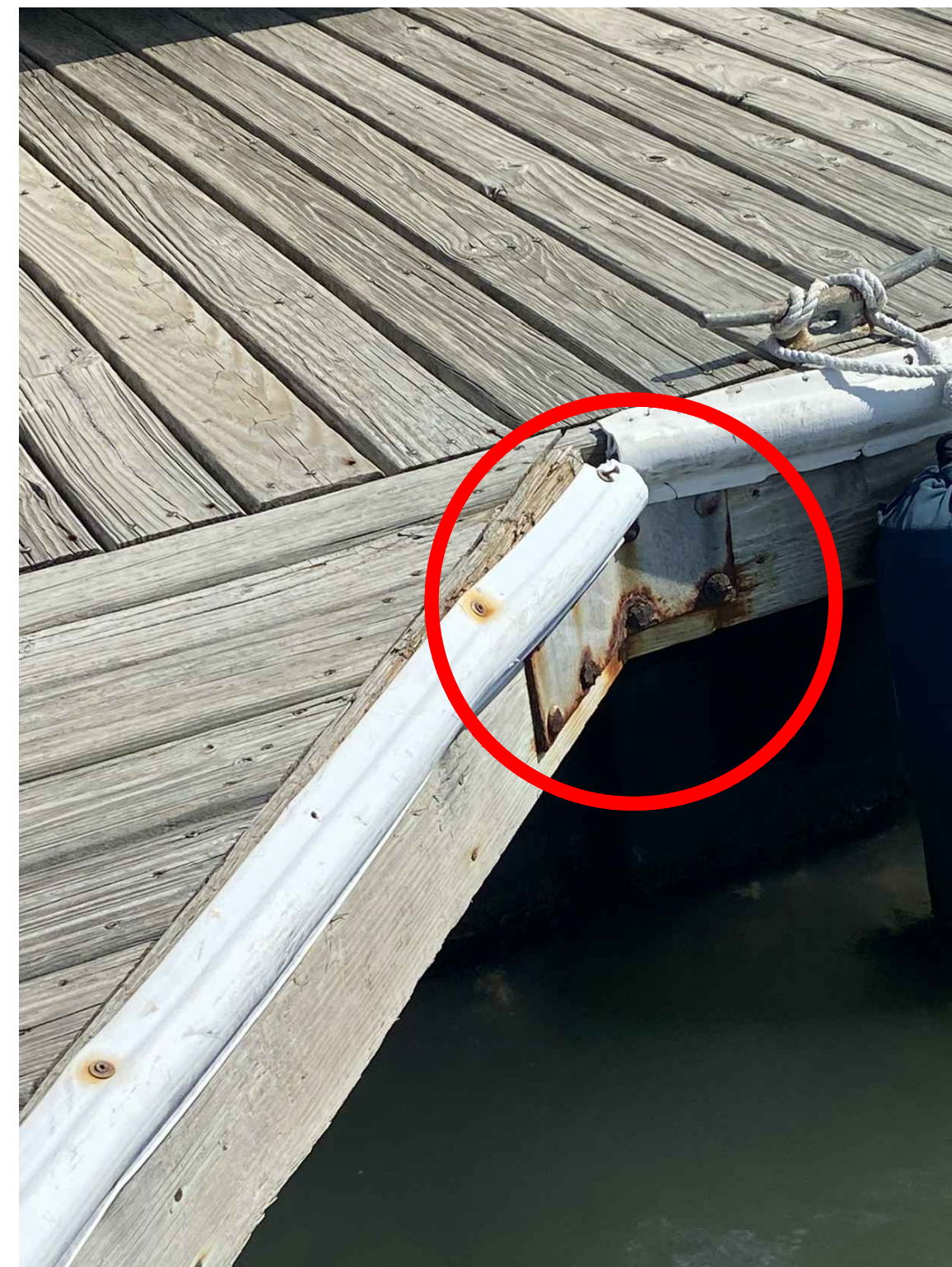


ACCESS PIER HAND RAIL - ANGLED CAP

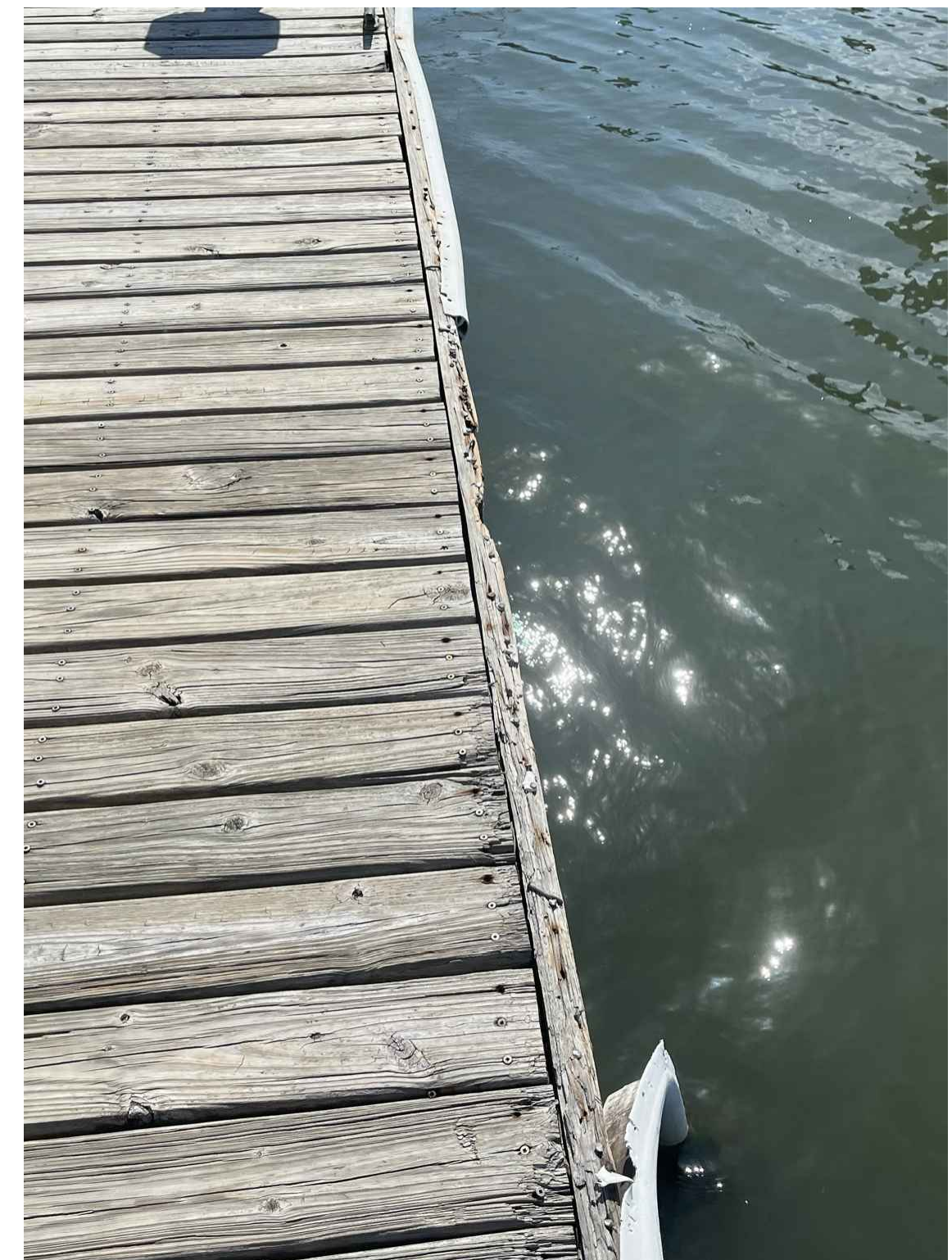


1 ACCESS PIER REPAIR DETAIL
SCALE: 1 1/2"=1'-0"

DT-ACCES PIER



FLOATING DOCK - CORNER PLATE



FLOATING DOCK - TIMBER FENDER BOARD & BUMPER STRIP

Signature _____
Date _____

REV	DATE	BY	CHKD	REMARKS
4				
3				
2				
1				

DESIGNED	DRAWN	CHECKED	KM
JD	HA		
DATE: 10/19/2023			
JOB NO: 18-3287			
SCALE: 1"=40'			

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC

REPAIR DETAIL & SITE PHOTOS

CITY OF ISLE OF PALMS

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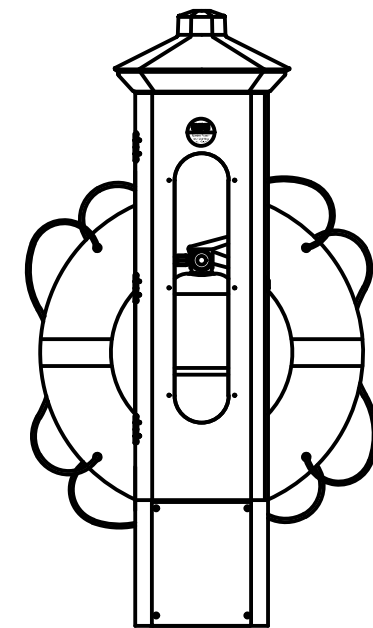
DRAWING NUMBER

R3

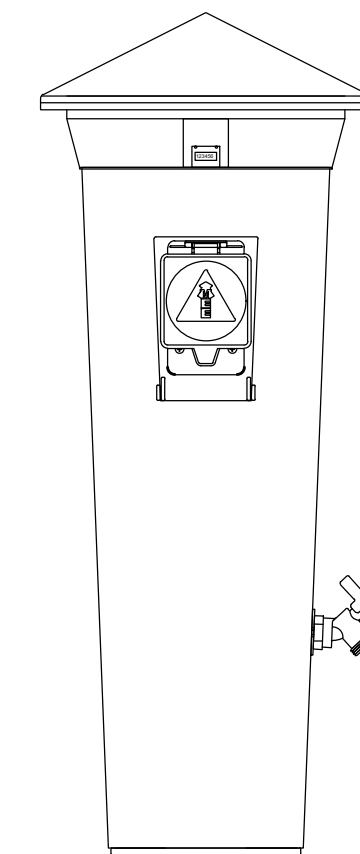
GENERAL ELECTRICAL NOTES

1. FURNISH ALL MATERIALS AND LABOR NECESSARY TO PROVIDE COMPLETE AND PROPERLY OPERATING ELECTRICAL SYSTEMS. FURNISH ALL MATERIALS AND LABOR NECESSARY TO DEMONSTRATE TO THE OWNER AND TO THE ENGINEER THAT ALL SYSTEMS ARE OPERATING PROPERLY AND AS SPECIFIED. WARRANTY ALL WORK AND ALL MATERIALS, EQUIPMENT AND DEVICES FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE.
2. WORK SHALL CONFORM TO THE LATEST EDITION OF:
 - A. ANSI/NFPA 70 (NATIONAL ELECTRICAL CODE)
 - B. NECA STANDARD OF INSTALLATION
 - C. INTERNATIONAL BUILDING CODE
 - D. NFPA 303 MARINAS AND BOATYARDS
 - E. NFPA 307 STANDARD FOR CONSTRUCTION AND FIRE PROTECTION OF MARINE TERMINALS, PIERS, AND WHARVES.
 - F. ALL FEDERAL, STATE AND LOCAL CODES AND ORDINANCES
 - G. LOCAL UTILITY COMPANY REGULATIONS
3. ALL MATERIALS, EQUIPMENT AND DEVICES SHALL, AS A MINIMUM, MEET THE REQUIREMENTS OF U.L. WHERE U.L. STANDARDS ARE ESTABLISHED FOR THOSE ITEMS, AND THE REQUIREMENTS OF NFPA 70. ALL ITEMS SHALL BE CLASSIFIED BY U.L. AS SUITABLE FOR THE PURPOSE USED. ALL ITEMS SHALL BE NEW AND ALL MATERIALS/EQUIPMENT/DEVICES SHALL BE CURRENT PRODUCTS BY MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SUCH PRODUCTS.
4. COORDINATE WITH AND OBTAIN PERMITS AND INSPECTIONS FROM THE AUTHORITY HAVING JURISDICTION, AND INCLUDE ALL FEES IN BID.
5. PROVIDE A LAMINATED PLASTIC NAMEPLATE FOR EACH MAJOR ITEM OF ELECTRICAL EQUIPMENT (E.G. PANELBOARDS, DISCONNECT SWITCHES, TRANSFORMERS, ETC.). ATTACH WITH SCREWS, BOLTS OR RIVETS. NAME PLATES FOR DISCONNECTS SHALL INDICATE LOADS SERVED.
6. PROVIDE ALL PANELS WITH TYPED DIRECTORIES SHOWING AS-BUILT CONDITIONS AND LABEL ALL CIRCUITS.
7. THE NEUTRAL AND GROUND BUS SHALL BE BONDED TOGETHER AT THE SERVICE EQUIPMENT ONLY. THE GROUNDING CONDUCTOR SHALL BE BONDED TO THE GROUNDING ELECTRODE SYSTEM, WHICH SHALL BE COMPRISED OF A 3/4" X 10' DRIVEN GROUND ROD, METALLIC PIPING, BUILDING STEEL, ETC. ALL SUBPANELS SHALL HAVE INSULATED ISOLATED NEUTRALS PER N.E.C. ARTICLE 250.
8. 240/120V POWER CIRCUITS TO PEDESTALS HAVE BEEN DESIGNED UTILIZING INDUSTRIAL GRADE G-GC OR 500W (75°C MINIMUM) AS MANUFACTURED BY AMERICAN INSULATED WIRE CORPORATION ROUTED IN UTILITY TRENCH WITHIN THE FLOATING DOCK SYSTEM. FIXED DOCKS SHALL BE PROVIDED POWER UTILIZING TYPE THWN CABLE ROUTED IN PVC SCHEDULE 40 TYPE CONDUIT. SIMILAR CABLES WITH EQUAL CHARACTERISTICS AND AMPACITIES MAY BE SUBMITTED FOR APPROVAL. PROVIDE PROPER COMPRESSION TYPE TERMINAL LUGS FOR THIS TYPE CABLE. INSULATION SHALL ALLOW FOR MOVEMENT IN JOINTS TO PREVENT CABLE FROM SHEAR AND STRETCHING.
9. CIRCUITS FROM TRANSFORMERS TO PANELS SHALL BE TYPE THHN/THWN TYPE WIRE ROUTED IN CONDUIT. SEE POWER RISER DIAGRAM.
10. SUBMIT SHOP DRAWINGS ON ALL MATERIALS FOR APPROVAL.
11. SUBMIT INSTALLATION DETAILS ON EXACT EQUIPMENT PROVIDED FOR APPROVAL.
12. FINAL LOCATIONS OF DOCK AND LANDSIDE EQUIPMENT SUBJECT TO OWNER APPROVAL. SUBMIT SHOP DRAWINGS OF ALL EQUIPMENT LOCATIONS PRIOR TO INSTALLATION. INCLUDE ALLOWANCE FOR MINOR LOCATION CHANGES IN BID.
13. CONTRACTOR SHALL COORDINATE UTILITIES WITH ENGINEER DRAWINGS AND OTHER TRADES FOR SPECIFIED UPLAND EQUIPMENT LOCATIONS AND SERVICE TO MARINA EQUIPMENT. CONTRACTOR SHALL ALSO COORDINATE FINAL LOCATION OF ALL EQUIPMENT WITH OWNER AND ENGINEER PRIOR TO INSTALLATION.
14. CONTRACTOR SHALL POST SIGNS AT FIXED PIER ABUTMENT IN ACCORDANCE WITH NEC ARTICLE 555.24 STATING "WARNING – POTENTIAL SHOCK HAZARD – ELECTRICAL CURRENTS MAY BE PRESENT IN WATER".

15. UTILIZE DIELECTRIC INSULATING MATERIALS TO SEPARATE ANY DISSIMILAR METALS. ALL FASTENERS SHALL BE STAINLESS STEEL ASTM A-316 (MINIMUM).
16. THIS DESIGN UTILIZED THE HARBOR LIGHT SERIES POWER PEDESTALS AS MANUFACTURED BY MARINA ELECTRICAL EQUIPMENT, WILLIAMSBURG, VIRGINIA, USA. TEL. 1-865-258-3939. POWER PEDESTALS TO BE PROVIDED WITH 1 EACH 19mm (3/4") HOSE BIBBS WITH LOOSE KEY OR LEVER HANDLE(AS NOTED) AND VACUUM BREAKERS (COORDINATE WITH PLUMBING DRAWINGS). PROVIDE PHOTO-CELL CONTROLLED LED LIGHTS WITH AMBER LENSES TO MATCH THE EXISTING. PROVIDE 30 mA GFCI MAINTENANCE RECEPTACLE ON A SEPARATE 120V, 1P, 20A CIRCUIT BREAKER WHERE INDICATED IN LEGEND. REVIEW DRAWINGS FOR CABLE SIZES. PROVIDE OVERSIZED LUGS ON PEDESTALS AS NECESSARY.
17. CONTRACTOR TO PROVIDE WIRING PULL PLAN SUBMITTAL. COORDINATE WITH ALL OTHER TRADES AND INCLUDE WATER, WASTE, FIRE STANDPIPE, ETC. IN PULL PLAN SUBMITTAL.
18. MAKE ARRANGEMENTS WITH THE POWER COMPANY TO OBTAIN PERMANENT ELECTRICAL SERVICE TO THE PROJECT. PROVIDE SERVICE ENTRANCE AND PROVISIONS FOR METERING IN ACCORDANCE WITH THE POWER COMPANY'S REQUIREMENTS. INCLUDE ALL FEES IN BID.
19. MAKE ARRANGEMENTS WITH THE POWER COMPANY AND PROVIDE TEMPORARY ELECTRICAL SERVICE TO THE PROJECT FOR CONSTRUCTION POWER. INCLUDE ALL FEES IN BID.
20. ALL FASTENERS, FITTINGS, CLAMPS, HANGERS, MISCELLANEOUS APPURTENANCES, AND MISCELLANEOUS MATERIALS SHALL BE STAINLESS STEEL ASTM A-316 OR BETTER.
21. PROVIDE PIPE SLEEVES AND BULKHEAD PENETRATIONS AS NECESSARY TO FACILITATE INSTALLATION. SUBMIT PENETRATION DETAIL FOR APPROVAL. UTILIZE EXISTING PENETRATIONS TO THE GREATEST EXTENT POSSIBLE.
22. THE CONTRACTOR MUST CONDUCT A SITE VISIT PRIOR TO BID TO OBSERVE AND ACCOUNT FOR EXISTING CONDITIONS. INCLUDE ALL FEES IN BID



MEE FIRE STATION SAFETY PEDESTAL



MARINA MATE SS PEDESTAL MMSS2050 (P1)

LEGEND

- P1** SIDE 1: ONE 20A, 1P CONVENIENCE RECEPTACLE (WITH LOOSE KEY HOSE BIBB)
SIDE 2: ONE 20A, 1P CONVENIENCE RECEPTACLE (WITH LOOSE KEY HOSE BIBB)
- P2** SIDE 1: ONE 20A, 1P CONVENIENCE RECEPTACLE (WITH 1/4 TURN HANDLE HOSE BIBB)
SIDE 2: ONE 20A, 1P CONVENIENCE RECEPTACLE (WITH 1/4 TURN HANDLE HOSE BIBB)
- P3** SIDE 1: BLANK (WITH 1/4 TURN HANDLE HOSE BIBB)
SIDE 2: BLANK (WITH 1/4 TURN HANDLE HOSE BIBB)
- F** FIRE EXTINGUISHER PEDESTAL – 120V POWER NEEDED FOR LIGHT OBTAIN POWER FROM NEAREST PEDESTAL.
- P.D. PUBLIC DOCK
- AIWW ATLANTIC INTRACOASTAL WATER WAY
- B.H. BULKHEAD
- S/S STAINLESS STEEL
- 2/C#12W/GND 2 CONDUCTOR #12 TYPE G-GC OR SOOW CABLE WITH INTEGRAL GROUND.
- LOW VOLTAGE LIGHT.
- JUNCTION BOX
- T** LOW VOLTAGE TRANSFORMER
- 2/0 TYPE THHW GREEN GROUND CABLE
- SECONDARY WIRING AND CONDUIT FROM TRANSFORMER TO PANEL.
- BRANCH CIRCUIT, ARROW INDICATES HOMERUN, CROSS LINES INDICATE NUMBER OF CONDUCTORS, GROUNDING CONDUCTOR IS NOT SHOWN BUT SHALL BE PROVIDED IN ALL CIRCUITS (2#12, 1#12G, 1/2"Ø UNLESS NOTED OTHERWISE).
- 240/120V, POWER PANEL

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DESIGNED	DRAWN	CHECKED	ACT

DATE: 10/18/2023
JOB NO. 18-287
SCALE: AS NOTED

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC

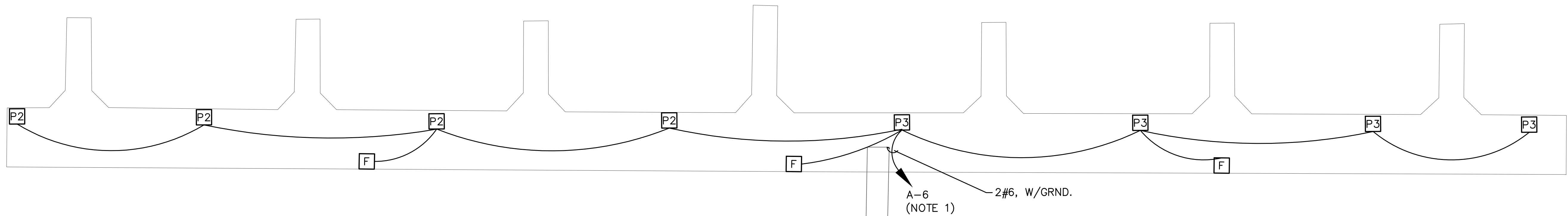
NOTES, LEGENDS, SCHEDULES

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GENERAL NOTES (THIS SHEET ONLY)

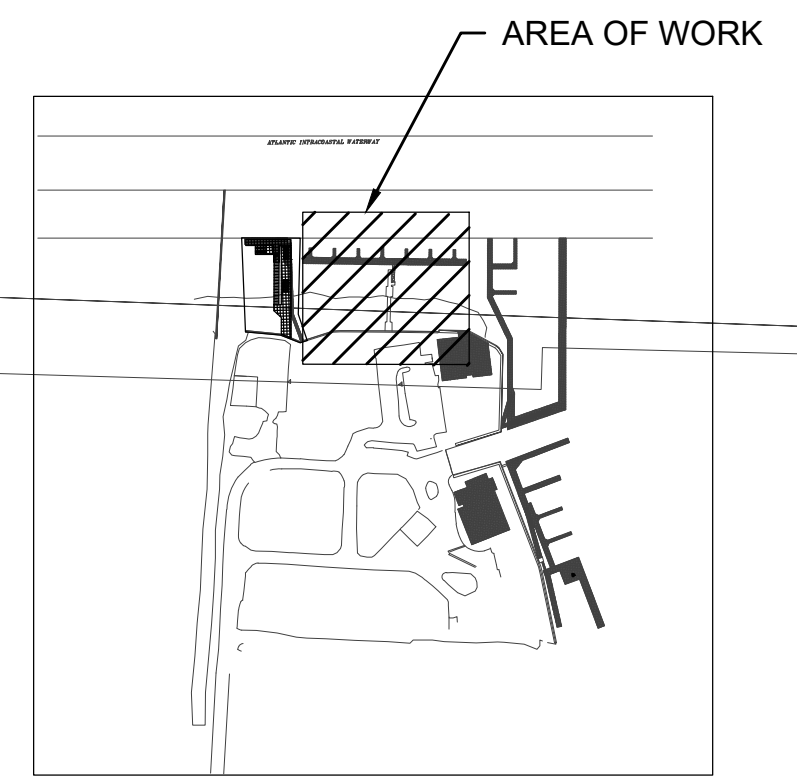
- ROUTE ELECTRICAL CIRCUIT ALONG THE OUTBOARD SIDE OF THE EXISTING BULKHEAD. CONCEAL FROM VIEW TO THE GREATEST EXTENT POSSIBLE. COORDINATE INSTALLATION WITH ENGINEER PRIOR TO CONSTRUCTION.
- PROVIDE POWER FOR FIREHOUSE PEDESTAL FROM 120V LIGHT CIRCUIT FROM NEAREST PEDESTAL.

MARSH AREA

NOTE 2 (TYP.)

NOTE 1

EXISTING BULKHEAD



KEY PLAN
SCALE: NONE

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RESTAURANT

ELECTRICAL PLAN
SCALE: 1:10

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Date _____

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DESIGNED ACT	DRAWN ACT	CHECKED ACT	DATE	JOB NO.	SCALE
			10/18/2023	18-2287	AS NOTED

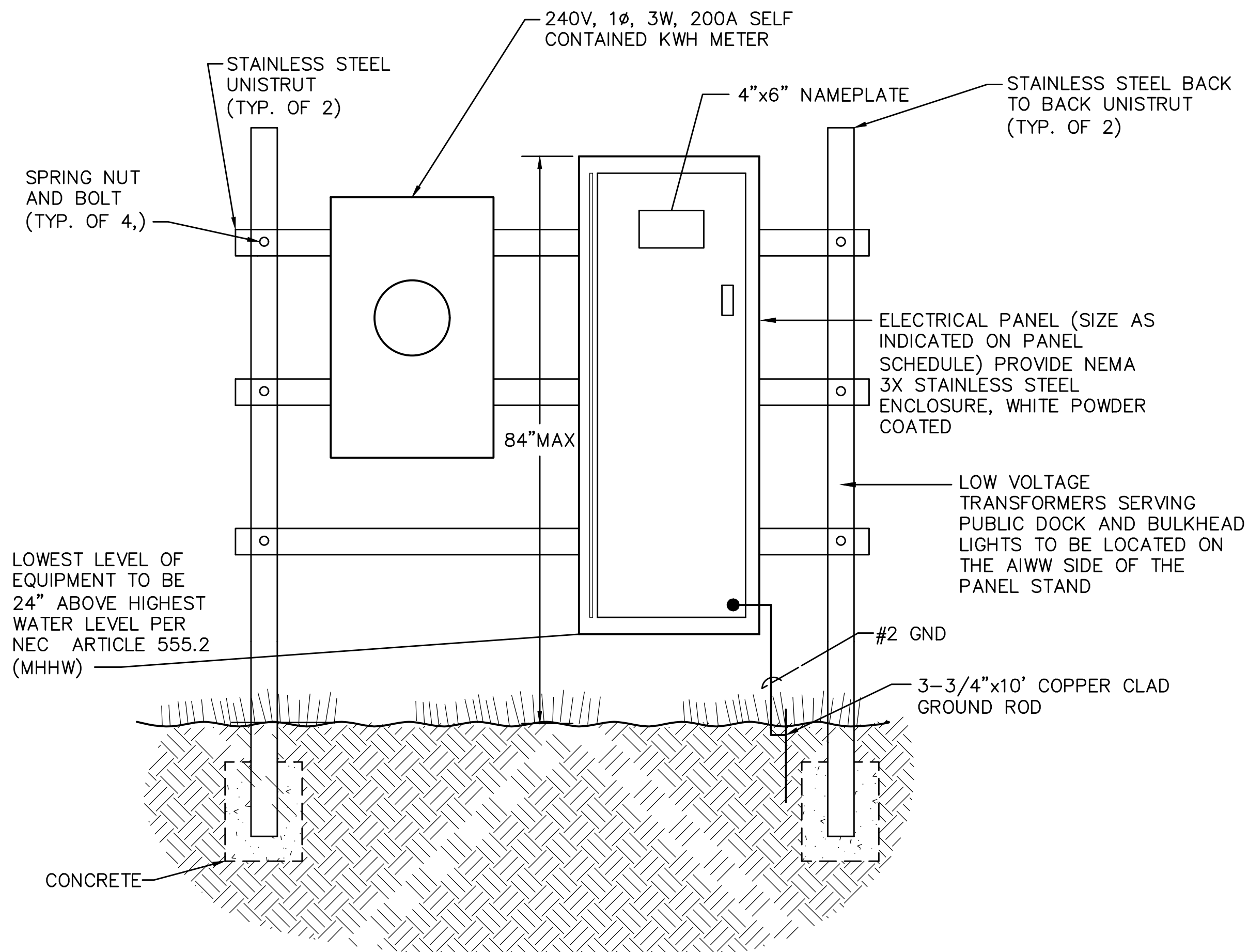
ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
INTRACOASTAL DOCK ELECTRICAL PLANS
CITY OF ISLE OF PALMS

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DRAWING NUMBER
E3

PANEL A		200 AMP MAINS				SURFACE <input checked="" type="checkbox"/>			
120/240 V, 1 PH, 3 W, 60 HZ		200 AMP MAIN BKR **				S/S NEMA 3X			
ALL BREAKERS SHALL HAVE A MINIMUM INTERRUPTING RATING OF 22,000* AMPS. PANEL SHALL BE PROVIDED WITH SEPARATE GROUND BUS.									
CKT No.	LOAD DESCRIPTION	BREAKERS		KVA		LOAD DESCRIPTION		CKT No.	
		POLE	AMP	AMP	POLE	AMP	POLE		
1	LIGHTING—P.D.	1	20	1.0	0.8	20	1	PEDESTALS(P.D.)	2
3	LIGHTING—B.H.	1	20	1.0	.1	20	1	FIRE PEDESTALS(P.D.)	4
5	LIGHT POLE	1	20	.4	1.2	20	1	PEDESTALS(AIWW)	6
7									8
9									10
11									12
13									14
15									16
17									18
19									20
21									22
23									24
25									26
27									28
29									30
31									32
33									34
35									36
37									38
39									40
41									42
TOTAL CONNECTED LOAD				4.5		KVA			

* VERIFY AIC RATING WITH ACTUAL AVAILABLE FAULT CURRENT FROM POWER COMPANY.
 ** PROVIDE 100mA CIRCUIT BREAKER (ADJUSTABLE)

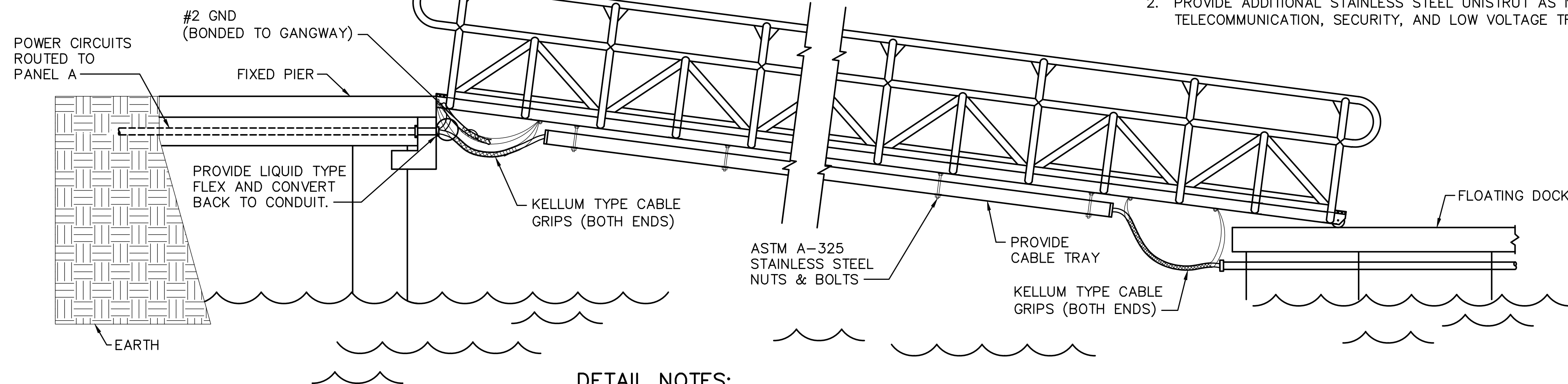


PANEL MOUNTING DETAIL (KWH METER, PANEL A)
 SCALE: NONE

DETAIL NOTES:

- COORDINATE EXACT WIDTH OF STAND WITH TELECOMMUNICATION AND SECURITY.
- PROVIDE ADDITIONAL STAINLESS STEEL UNISTRUT AS NECESSARY TO INSTALL TELECOMMUNICATION, SECURITY, AND LOW VOLTAGE TRANSFORMERS.

NOTE:
 DETAIL IS GENERIC IN NATURE AND NOT INTENDED TO SHOW ACTUAL DOCK CONSTRUCTION.



DETAIL NOTES:

- PROVIDE CABLE WITH REMOVABLE SACRIFICIAL CORRUGATED PLASTIC PIPING JACKET. COORDINATE EXACT SIZE WITH CABLE PROVIDED.
- COORDINATE INSTALLATION BENEATH GANGWAY WITH OTHER TRADES.
- PROVIDE CABLE TRAY WIDTH TO ACCOMMODATE ALL TRADES.

FIXED PIER TO FLOATING DOCK - ELECTRICAL GANGWAY CONNECTION DETAIL

SCALE: NONE

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DATE: 10/19/2023			
JOB NO. 18-287			
SCALE: AS NOTED			

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
 ISLE OF PALMS, SC
ELECTRICAL DIAGRAMS
 CITY OF ISLE OF PALMS

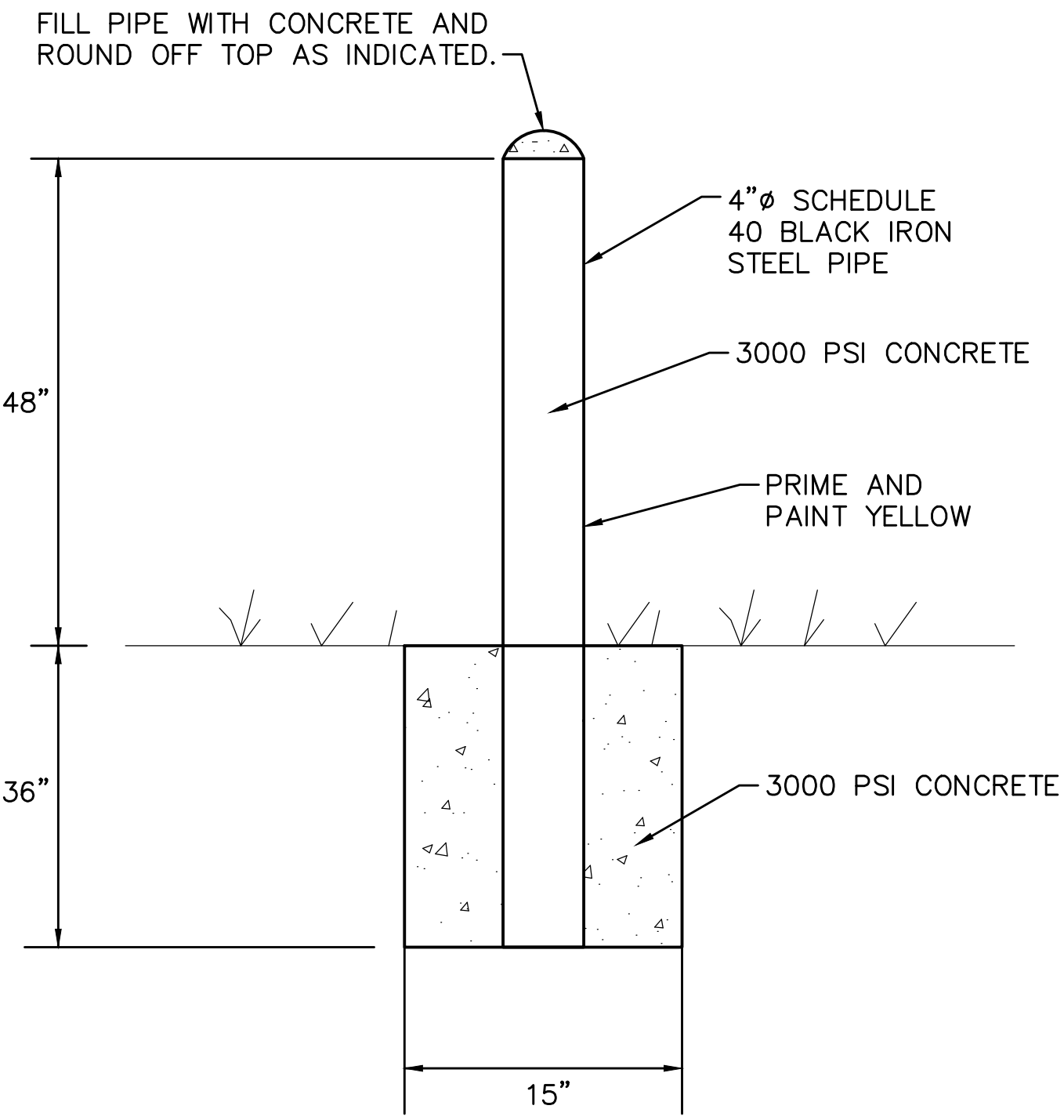
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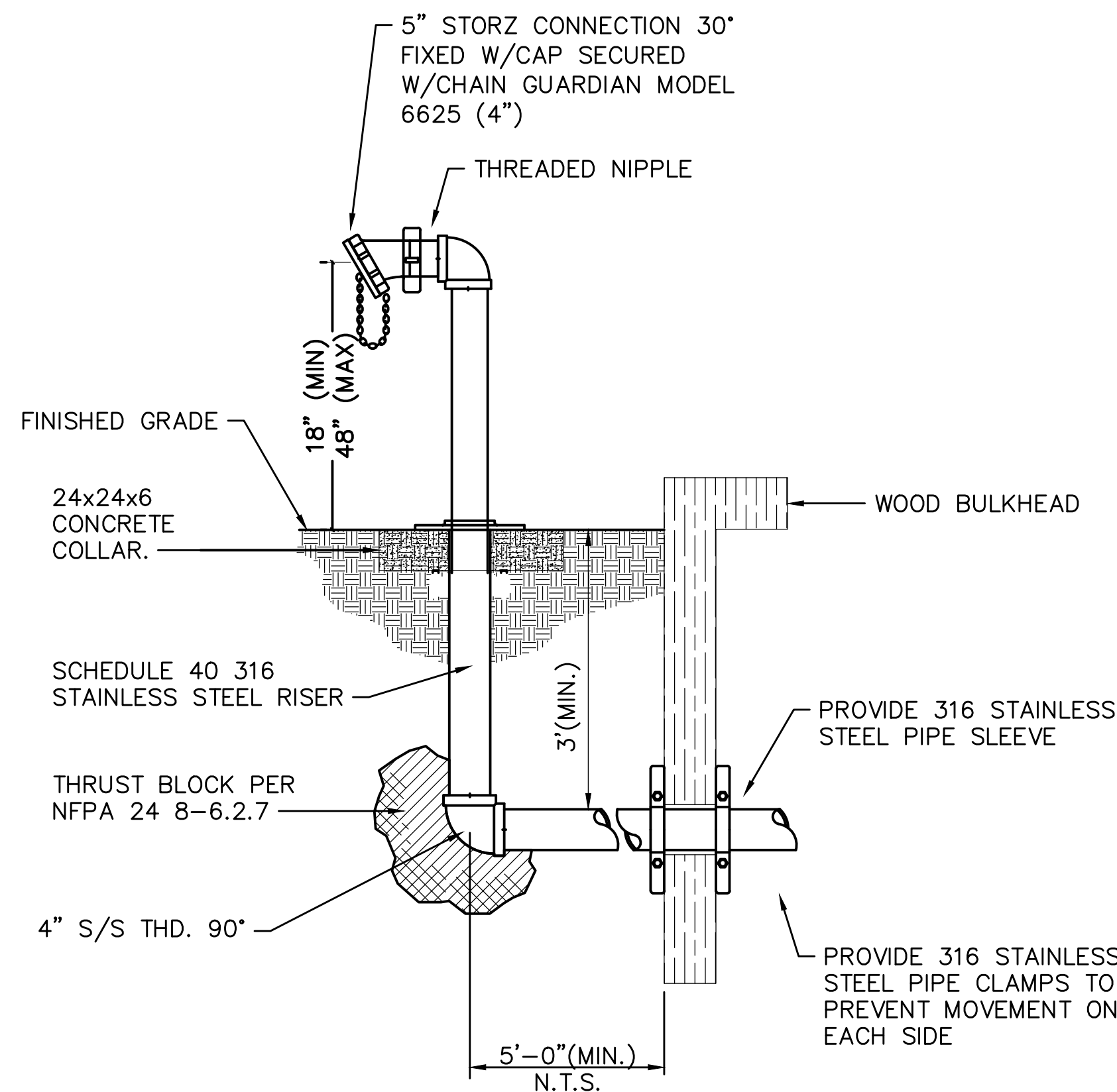
GENERAL FIRE PROTECTION NOTES:

1. PROVIDE ALL MATERIALS AND LABOR NECESSARY FOR COMPLETE AND PROPERLY FUNCTIONING FIRE PROTECTION SYSTEMS.
2. WORK SHALL CONFORM TO OR MEET THE REQUIREMENTS OF THE MOST CURRENT EDITION OF:
 - A. INTERNATIONAL FIRE CODE – 2021
 - B. NFPA 303 – 2019
 - C. NFPA 14 – 2019
 - D. ALL FEDERAL, STATE AND LOCAL CODES AND ORDINANCES WHICH APPLY TO THIS WORK.
3. DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO BE SCALED FOR DIMENSIONS.
4. ALL MATERIALS SHALL MEET THE REQUIREMENTS OF UL WHERE UL STANDARDS ARE ESTABLISHED FOR THOSE ITEMS. ALL ITEMS SHALL BE CLASSIFIED BY UL AS SUITABLE FOR THE PURPOSE USED.
5. ALL ITEMS SHALL BE NEW AND ALL MATERIALS/EQUIPMENT/DEVICES SHALL BE CURRENT PRODUCTS BY MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SUCH PRODUCTS.
6. COORDINATE LOCATION AND INSTALLATION OF FIRE PROTECTION WORK WITH DOCK SYSTEM AND OTHER TRADES TO AVOID CONFLICTS, INTERFERENCES, MODIFICATIONS AND ADJUSTMENTS MAY BE REQUIRED. PROVIDE WITH PIPING CHAFE PROTECTION AS REQUIRED. SUBMIT SHOP DRAWINGS DEPICTING LOCATIONS OF CHAFE PROTECTION, HANGERS AND RESTRAINTS.
7. IT IS NOT THE INTENT TO DEPICT EVERY DETAIL OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY ITEMS FOR A COMPLETE AND FUNCTIONING SYSTEM.
8. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.
9. COORDINATE AND OBTAIN PERMITS AND INSPECTIONS FROM AUTHORITY HAVING JURISDICTION.
10. PROVIDE OWNER WITH CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE FROM AUTHORITY HAVING JURISDICTION.
11. VALVES SHALL BE LINE SIZE UNLESS NOTED OTHERWISE
12. FIRE PROTECTION PIPING LOCATED WITHIN THE FLOATING DOCK SHALL BE FIRE RETARDANT SDR 11 HIGH DENSITY POLYETHYLENE PIPING (HDPE) WITH UV PROTECTION, AS MANUFACTURED BY PES.TEC. ALL JOINTS SHALL BE SOCKET OR BUTT FUSION FITTINGS. COORDINATE INSTALLATION WITH MANUFACTURER'S RECOMMENDATIONS TO ALLOW FOR THERMAL EXPANSION AND CONTRACTION.
13. THIS DESIGN UTILIZES MEE FIRE STATION SAFETY PEDESTALS MODEL FS1020 WITH 20A:20BC FIRE EXTINGUISHERS (SEE LEGEND FOR TYPE AND CAPACITY), AS MANUFACTURED BY MARINA ELECTRICAL EQUIPMENT (WILLIAMSBURG, VIRGINIA, USA. TEL. 1-865-258-3939). PROVIDE PHOTO-CELL CONTROLLED LED LIGHTS WITH AMBER LENSES.
14. PROVIDE STAINLESS STEEL PIPE SUPPORTS AND SEISMIC RESTRAINTS IN ACCORDANCE WITH NFPA 13 AND 14. ALLOW FOR THERMAL EXPANSION, CONTRACTION AND TIDAL MOVEMENT. SUBMIT PROPOSED HANGING METHODS WITH BID TO ENGINEER FOR APPROVAL.
15. ALL FASTENERS, FITTINGS, CLAMPS, HANGERS, MISCELLANEOUS APPURTENANCES, AND MISCELLANEOUS MATERIALS SHALL BE STAINLESS STEEL ASTM A-316 OR BETTER.
16. EACH JOINT SHALL BE LEFT EXPOSED FOR INSPECTION DURING HYDROSTATIC TESTING. THE PRESSURE SHALL BE AT LEAST 1.5 TIMES THE MAXIMUM WORKING PRESSURE AND THE TIME DURATION MUST BE AT LEAST 2 HOURS.
17. THE STANDPIPE SYSTEM WAS DESIGNED TO MATCH THE EXISTING MARINA AS APPROVED BY THE FIRE MARSHAL.



BOLLARD DETAIL
SCALE: NONE

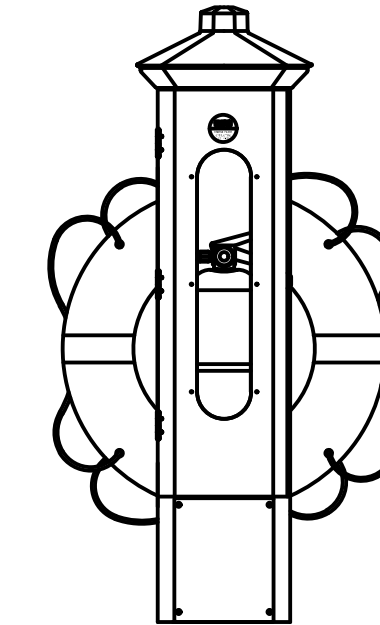
NOTE:
PROVIDE BOLLARDS ON EACH CORNER AND SPACE EVENLY. DISTANCE BETWEEN BOLLARDS SHALL NOT EXCEED 4'.



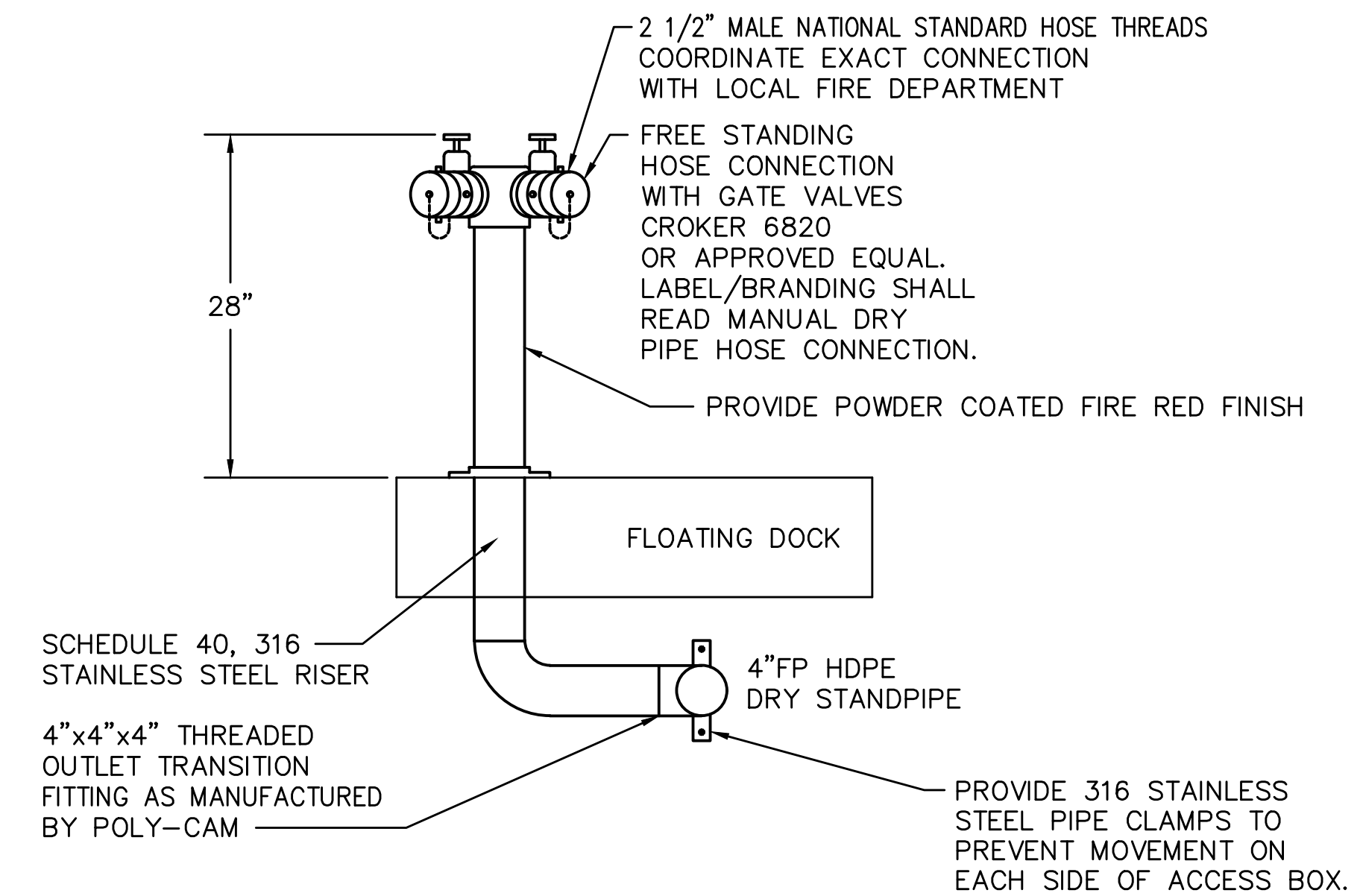
UPLAND FIRE DEPARTMENT CONNECTION DETAIL
SCALE: NONE

LEGEND

- FIRE PROTECTION (FP)
- ⊗ GATE VALVE
- ⊙ FIRE DEPARTMENT CONNECTION
- ⊕ FIRE PROTECTION HOSE CONNECTION
- ⊠ FIRE EXTINGUISHER PEDESTAL (20A:20BC)
- ⊙ POINT OF CONNECTION TO EXISTING
- HDPE HIGH DENSITY POLYETHYLENE PIPING
- TYP. TYPICAL



MEE FIRE STATION SAFETY PEDESTAL (F)
SCALE: NONE



NOTE:
1. COORDINATE EXACT LOCATION WITH ACTUAL DOCK SYSTEM PROVIDED.

MANUAL DRY STANDPIPE SYSTEM HOSE CONNECTION DETAIL
SCALE: NONE

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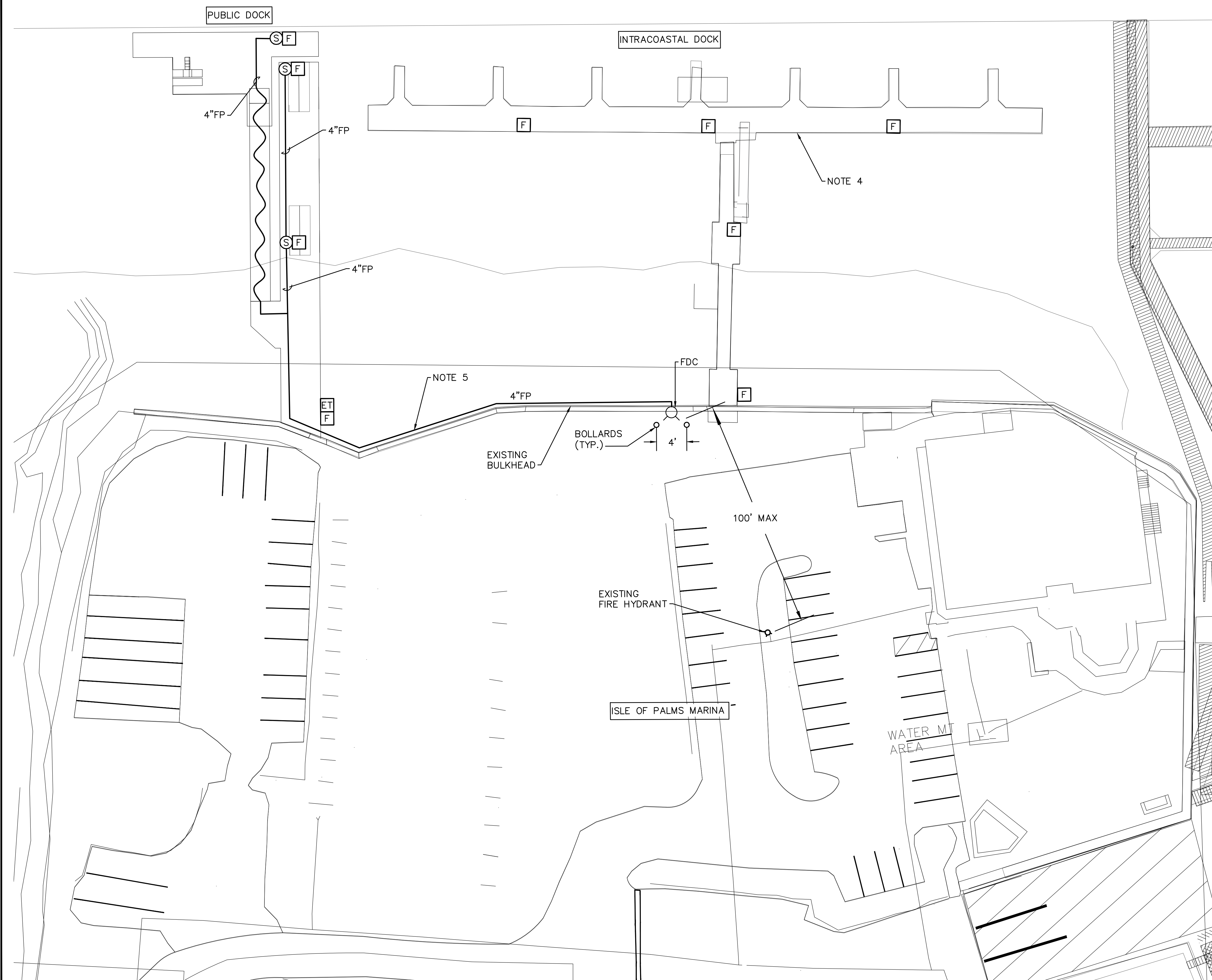
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DATE: 10/19/2023			
JOB NO. 18-2287			
SCALE: AS NOTED			

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
NOTES, LEGEND, DETAILS
CITY OF ISLE OF PALMS

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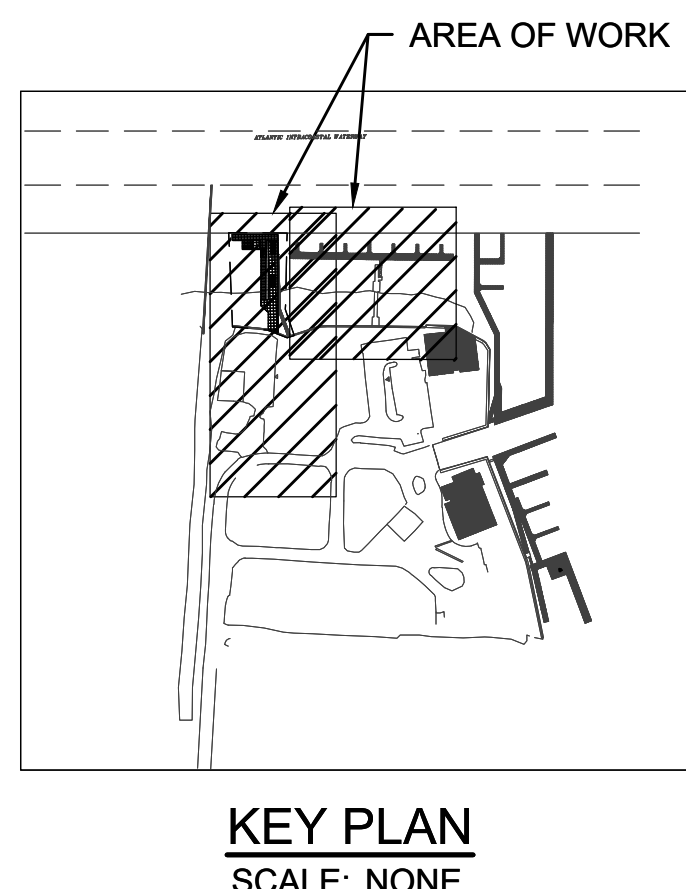
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- GENERAL NOTES (THIS SHEET ONLY)**
- HOSE CONNECTIONS SHALL BE PROVIDED EVERY 150 FT
 - HOSE CONNECTIONS SHALL BE PROVIDED SO THAT ALL PORTIONS OF THE WALKING SURFACE OF THE DOCK ARE WITHIN 130 FT OF A HOSE CONNECTION.
 - COORDINATE EXACT LOCATION OF FDC WITH FIELD CONDITIONS AND ENGINEER.
 - THE EXISTING INTRACOASTAL DOCK IS AN EXISTING NON-CODE COMPLIANT DOCK.
 - ROUTE PIPING ALONG THE OUTBOARD SIDE OF THE EXISTING BULKHEAD. CONCEAL FROM VIEW TO THE GREATEST EXTENT POSSIBLE. COORDINATE INSTALLATION WITH ENGINEER PRIOR TO CONSTRUCTION.

- LEGEND**
- FIRE PROTECTION (FP)
 - ⊗ GATE VALVE
 - FIRE DEPARTMENT CONNECTION
 - ⊙ SF FIRE PROTECTION HOSE CONNECTION
 - F FIRE EXTINGUISHER PEDESTAL (20A:20BC)
 - ⊕ POINT OF CONNECTION TO EXISTING HDPE HIGH DENSITY POLYETHYLENE PIPING
 - TYP. TYPICAL



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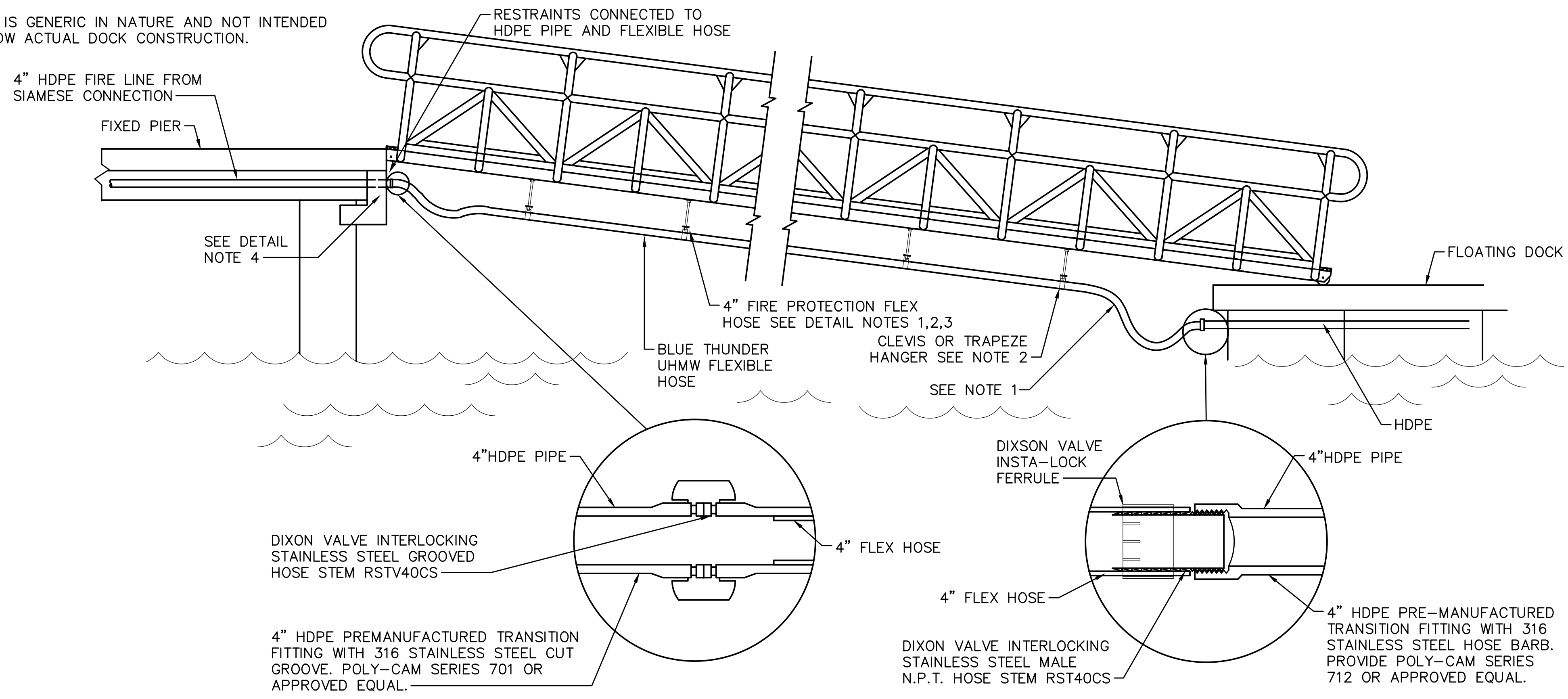
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FIRE PROTECTION PLAN
SCALE: 1:20

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK ISLE OF PALMS, SC FIRE PROTECTION PLAN CITY OF ISLE OF PALMS	Signature _____ Date _____
DESIGNED: _____ DRAWN: _____ RAD: _____ ACT: _____ DATE: 10/18/2023 JOB NO. 18-3287 SCALE: AS NOTED	REMARKS REV. No. DATE DRAWN CHD BY 4 3 2 1
Applied Technology & Management 941 Houston Northcut Blvd. Suite 201 Mt. Pleasant SC, SC 29464 (843) 414-1040 ATM A Geosyntec Company	DRAWING NUMBER FP2

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NOTE:
DETAIL IS GENERIC IN NATURE AND NOT INTENDED TO SHOW ACTUAL DOCK CONSTRUCTION.



FIRE PROTECTION PIPING GANGWAY CONNECTION DETAIL
SCALE: NONE

DETAIL NOTES:

1. PROVIDE FLEXIBLE HOSE WITH REMOVABLE SACRIFICIAL CORRUGATED PLASTIC PIPING JACKET. COORDINATE EXACT SIZE WITH FLEXIBLE HOSE PROVIDED.
2. COORDINATE MOUNTING AND INSTALLATION OF THE FIRE PROTECTION PIPING WITH DOCK SYSTEM PROVIDED AND LOCAL TIDAL RISE & FALL. PROVIDE STAINLESS STEEL HANGERS AS REQUIRED. SUBMIT SHOP DRAWINGS FOR APPROVAL.
3. PROVIDE 4" FLEXIBLE HOSE WITH INTEGRAL STAINLESS STEEL TRANSITION FITTINGS AS SHOWN. PROVIDE TEXCEL GAMMA-FLEX UHMW FLEXIBLE HOSE RATED FOR 200 PSI, OR APPROVED EQUAL. COORDINATE EXACT LENGTH WITH FIELD CONDITIONS AND ALLOW FOR RISE AND FALL OF TIDES.
4. COORDINATE INSTALLATION BENEATH GANGWAY WITH OTHER TRADES.

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JOB NO. 18-2877
SCALE: AS NOTED

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
NOTES, LEGEND, DETAILS
CITY OF ISLE OF PALMS

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GENERAL PLUMBING NOTES:

1. PROVIDE ALL MATERIALS AND LABOR NECESSARY FOR COMPLETE AND PROPERLY FUNCTIONING PLUMBING SYSTEMS.
2. WORK SHALL CONFORM TO OR MEET THE REQUIREMENTS OF THE MOST CURRENT EDITION OF:
 - A. INTERNATIONAL PLUMBING CODE – 2021
 - B. ALL FEDERAL, STATE AND LOCAL CODES AND ORDINANCES WHICH APPLY TO THIS WORK.
3. DRAWINGS ARE DIAGRAMMATIC IN NATURE AND IS NOT INTENDED TO BE SCALED FOR DIMENSIONS.
4. ALL MATERIALS SHALL MEET THE REQUIREMENTS OF UL WHERE UL STANDARDS ARE ESTABLISHED FOR THOSE ITEMS. ALL ITEMS SHALL BE CLASSIFIED BY UL AS SUITABLE FOR THE PURPOSE USED.
5. ALL ITEMS SHALL BE NEW AND ALL MATERIALS/EQUIPMENT/DEVICES SHALL BE CURRENT PRODUCTS BY MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SUCH PRODUCTS.
6. COORDINATE LOCATION AND INSTALLATION OF PLUMBING WORK WITH DOCK SYSTEM AND POWER PEDESTALS PROVIDED, AND OTHER TRADES TO AVOID CONFLICTS, INTERFERENCES. MODIFICATIONS AND ADJUSTMENTS MAY BE REQUIRED. PROVIDE WITH CHAFE PROTECTION AS REQUIRED. SUBMIT SHOP DRAWINGS FOR APPROVAL.
7. IT IS NOT THE INTENT TO DEPICT EVERY DETAIL OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY ITEMS FOR A COMPLETE AND FUNCTIONING SYSTEM.
8. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.
9. COORDINATE AND OBTAIN PERMITS AND INSPECTIONS FROM AUTHORITY HAVING JURISDICTION. INCLUDE ALL FEES IN BID.
10. PROVIDE OWNER WITH CERTIFICATE OF FINAL INSPECTION AND ACCEPTANCE FROM AUTHORITY HAVING JURISDICTION. INCLUDE ALL FEES IN BID.
11. VALVES SHALL BE LINE SIZE UNLESS NOTED OTHERWISE.
12. WATER PIPING LOCATED WITHIN THE DOCK SHALL BE SDR 11 HIGH DENSITY POLYETHYLENE PIPING (HDPE) WITH UV PROTECTION. ALL JOINTS SHALL BE SOCKET FUSION FITTINGS. COORDINATE INSTALLATION WITH MANUFACTURER'S RECOMMENDATIONS TO ALLOW FOR THERMAL EXPANSION AND CONTRACTION.
13. 19mm (3/4") FLEXIBLE WATER HOSE TO PEDESTALS SHALL BE GOODYEAR MODEL PLICORD. WINELINE WITH INTEGRAL UV INHIBITORS FOR USE WITH POTABLE WATER. PEX PIPING WITHIN THE PEDESTALS SHALL BE AS MANUFACTURED BY DURA-PEX WITH UV INHIBITOR OR APPROVED EQUAL.

14. POTABLE WATER PIPING SHALL BE DISINFECTED IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE 2021.
15. SUBMIT SHOP DRAWINGS ON ALL MATERIALS FOR APPROVAL.
16. EACH JOINT SHALL BE LEFT EXPOSED FOR INSPECTION DURING HYDROSTATIC TESTING. THE PRESSURE SHALL BE AT LEAST 1.5 TIMES THE MAXIMUM WORKING PRESSURE AND THE TIME DURATION MUST BE AT LEAST 2 HOURS.
17. ALL MATERIAL OR PRODUCTS, WHICH COME INTO CONTACT WITH DRINKING WATER, SHALL BE THIRD PARTY CERTIFIED AS MEETING THE SPECIFICATIONS OF THE AMERICAN NATIONAL INSTITUTE/NATIONAL SANITATION FOUNDATION STANDARD 61, DRINKING WATER SYSTEM COMPONENTS – HEALTH EFFECTS. THE CERTIFYING PARTY SHALL BE ACCREDITED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE.
18. NATURAL RUBBER OR OTHER MATERIAL WHICH WILL SUPPORT MICROBIAL GROWTH MAY NOT BE USED FOR ANY GASKET, O-RING, AND OTHER PRODUCTS USED FOR JOINTING PIPING, SETTING METERS OR VALVES, OF OTHER APPURTENANCES WHICH WILL EXPOSE THE MATERIAL TO THE WATER.
19. INSTALLATION OF WATER MAINS AND APPURTENANCES SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION C OF THE AWWA STANDARD'S AND/OR MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
20. SEPARATION OF UNDERGROUND WATER MAINS AND SEWERS:
 - * PARALLEL INSTALLATION: WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED SEWER. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE.
 - * CROSSINGS: WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION OF 18 INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER.
 - * PROVIDE PIPE SLEEVES AS NECESSARY TO ALLOW CLEARANCE REDUCTION.
21. ALL FASTENERS, FITTINGS, CLAMPS, HANGERS, MISCELLANEOUS APPURTENANCES, AND MISCELLANEOUS MATERIALS SHALL BE STAINLESS STEEL ASTM A-316 OR BETTER.
22. PROVIDE PIPE SLEEVES AND BULKHEAD PENETRATIONS AS NECESSARY TO FACILITATE INSTALLATION. SUBMIT PENETRATION DETAIL FOR APPROVAL. UTILIZE EXISTING PENETRATIONS TO THE GREATEST EXTENT POSSIBLE.
23. PROVIDE PIPE SUPPORTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND ALLOW FOR THERMAL EXPANSION, CONTRACTION AND TIDAL MOVEMENT. SUBMIT PROPOSED HANGING METHODS WITH BID TO ENGINEER FOR APPROVAL.
24. THE CONTRACTOR MUST CONDUCT A SITE VISIT PRIOR TO BID TO OBSERVE AND ACCOUNT FOR EXISTING CONDITIONS. INCLUDE ALL FEES IN BID.

LEGEND

- COLD WATER (CW)
- ⊗ 316 STAINLESS STEEL BALL VALVE
- ⊗ 1" CW VALVE AND CAP
- DN. DOWN
- TYP. TYPICAL
- HDPE HIGH DENSITY POLYETHYLENE PIPING
- POINT OF CONNECTION TO EXISTING
- Ⓜ WATER METER
- Ⓧ PEDESTAL
- HB HOSE BIBB (PROVIDE WITH LOOSE KEY)

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JOB NO. 18-3287
SCALE: AS NOTED

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC

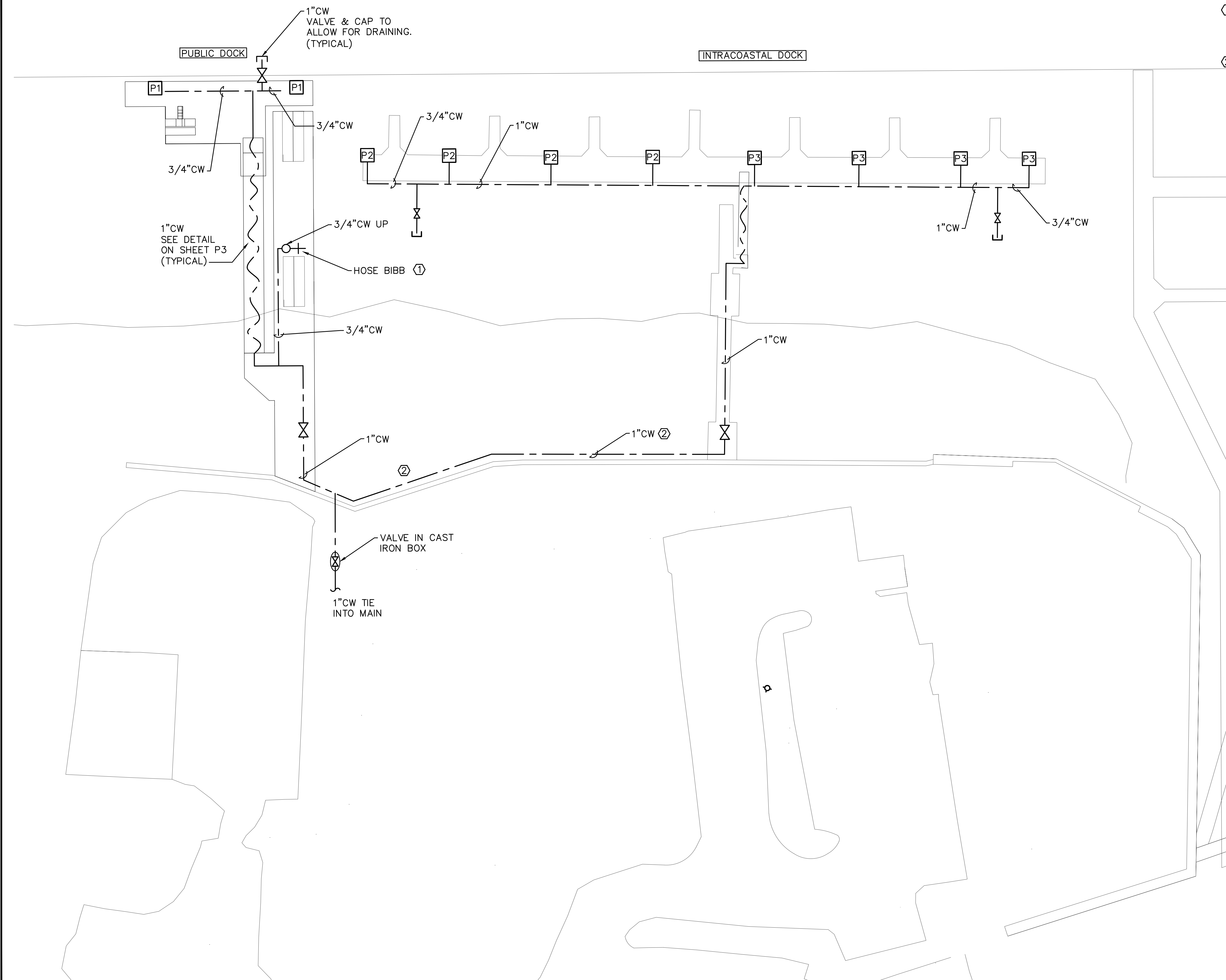
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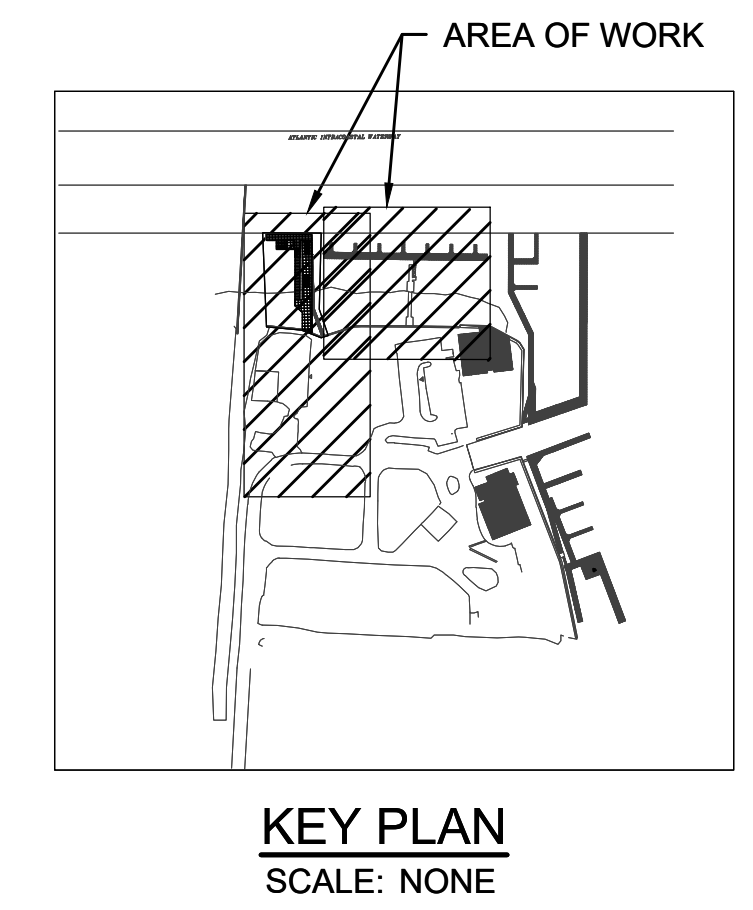
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- KEYED NOTES (THIS SHEET ONLY)**
- COORDINATE EXACT HOSE BIBB TYPE AND LOCATION WITH FIXED PIER CONSTRUCTION. CONCEAL TO THE GREATEST EXTENT POSSIBLE. SUBMIT DETAIL FOR APPROVAL.
 - ROUTE PIPING ALONG THE OUTBOARD SIDE OF THE EXISTING BULKHEAD. CONCEAL FROM VIEW TO THE GREATEST EXTENT POSSIBLE. COORDINATE INSTALLATION WITH ENGINEER PRIOR TO CONSTRUCTION.

LEGEND

—	COLD WATER (CW)
⊗	316 STAINLESS STEEL BALL VALVE
⊕	1" CW VALVE AND CAP
DN.	DOWN
TYP.	TYPICAL
HDPE	HIGH DENSITY POLYETHYLENE PIPING
●	POINT OF CONNECTION TO EXISTING
⊗	WATER METER
⊗	PEDESTAL
HB	HOSE BIBB (PROVIDE WITH LOOSE KEY)



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PLUMBING PLAN
SCALE: 1" = 20'

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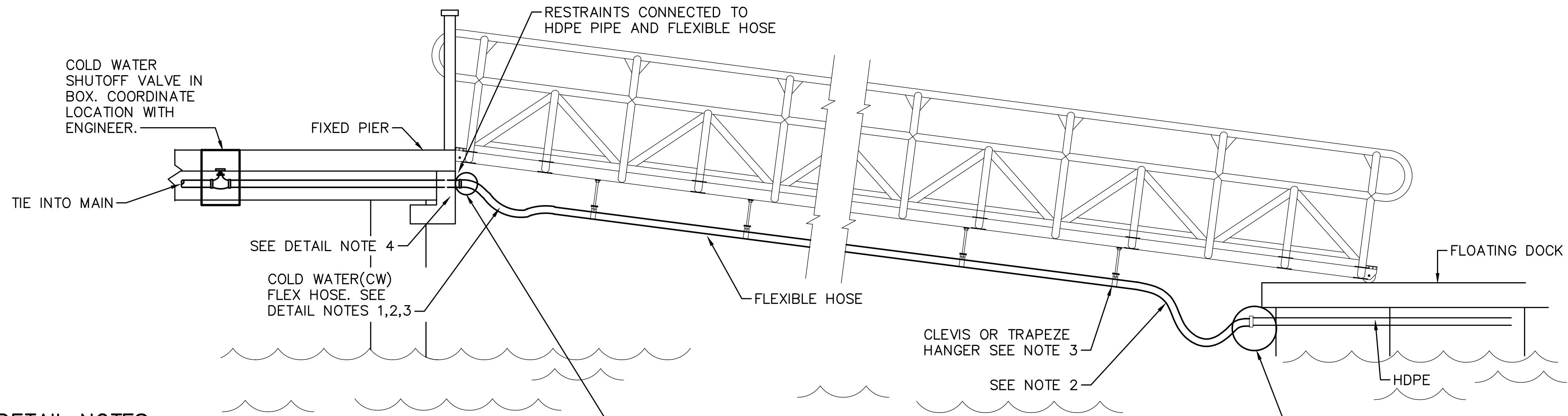
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ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
PLUMBING PLAN
CITY OF ISLE OF PALMS

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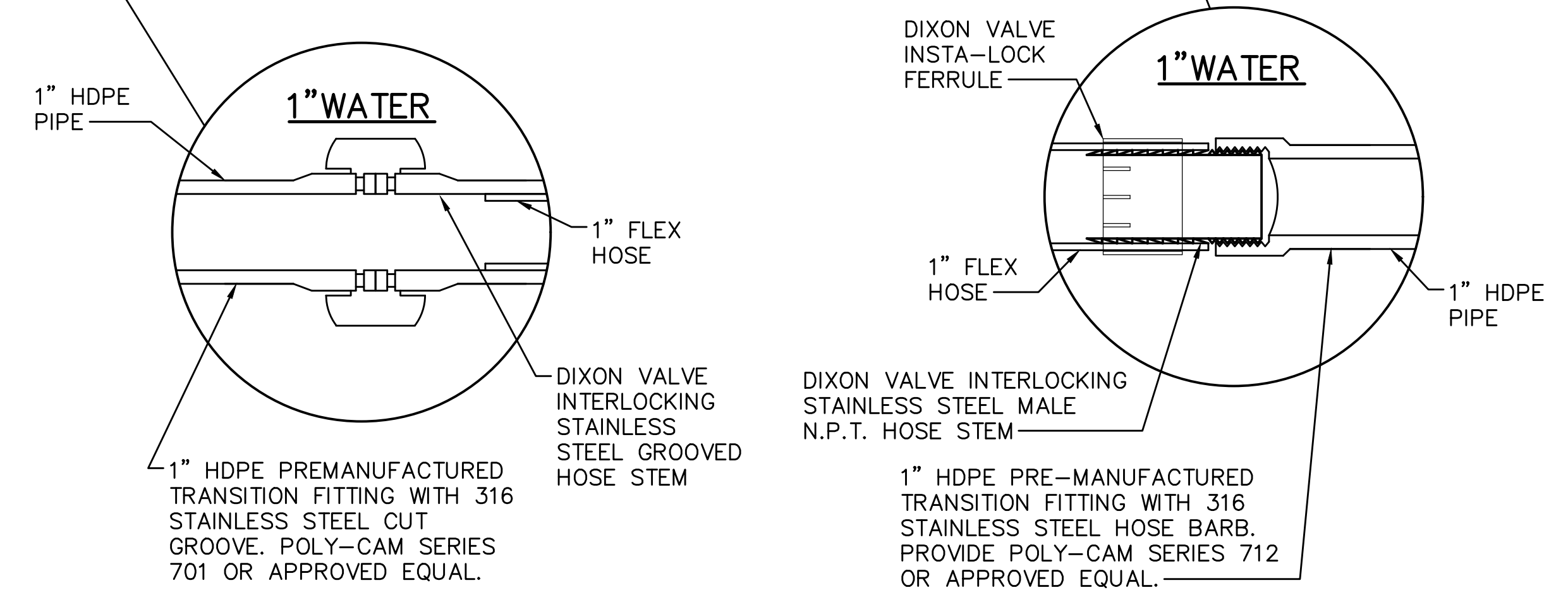
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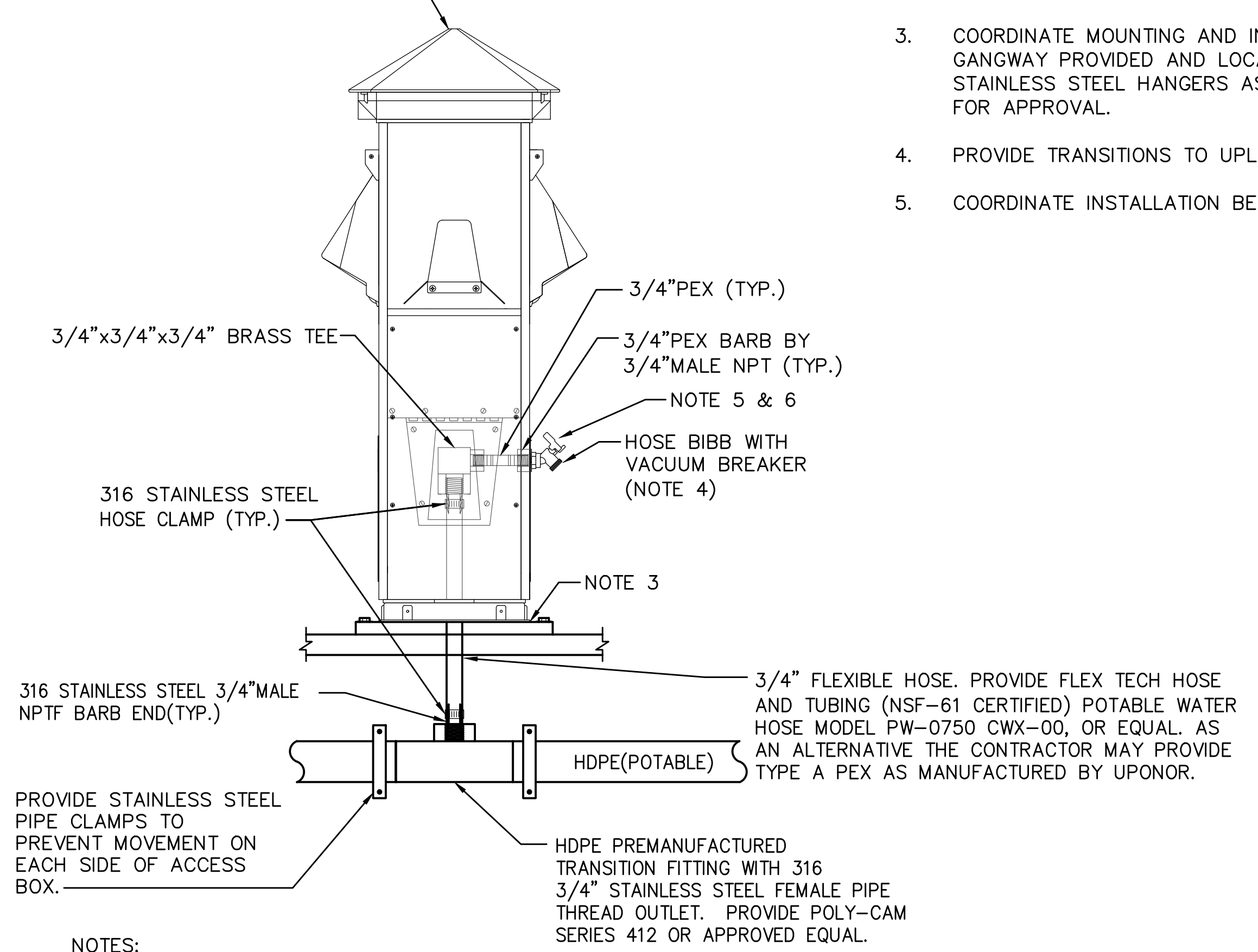
DETAIL NOTES:

1. PROVIDE FLEXIBLE HOSE WITH INTEGRAL STAINLESS STEEL TRANSITION FITTINGS. PROVIDE CONTINENTAL CLEAR WATER FLEXTRA (NSF-61 CERTIFIED) WITH SYNTHETIC SPIRAL-PLIED FABRIC WITH DOUBLE HELIX WIRE AND SMOOTH BLUE EPDM WITH WRAPPED IMPRESSION COVER RESISTANT TO OZONE, WEATHER, AND ULTRA-VIOLET. COORDINATE EXACT LENGTH WITH FIELD CONDITIONS AND ALLOW FOR RISE AND FALL OF TIDES.
2. PROVIDE FLEXIBLE HOSE WITH REMOVABLE SACRIFICIAL CORRUGATED PLASTIC PIPING JACKET. COORDINATE EXACT SIZE WITH FLEXIBLE HOSE PROVIDED.
3. COORDINATE MOUNTING AND INSTALLATION OF THE WATER PIPING WITH GANGWAY PROVIDED AND LOCAL TIDAL RISE & FALL. PROVIDE STAINLESS STEEL HANGERS AS REQUIRED. SUBMIT SHOP DRAWINGS FOR APPROVAL.
4. PROVIDE TRANSITIONS TO UPLAND PIPE MATERIAL AS REQUIRED.
5. COORDINATE INSTALLATION BENEATH GANGWAY WITH OTHER TRADES.



FIXED PIER TO FLOATING DOCK – WATER LINE GANGWAY CONNECTION DETAIL
SCALE: NONE

POWER PEDESTAL PROVIDED BY OTHERS. COORDINATE PLUMBING CONNECTIONS WITH ACTUAL PEDESTAL PROVIDED. SUBMIT SHOP DRAWINGS FOR REVIEW.



NOTES:

1. VERIFY THREADS WITH ACTUAL PEDESTAL PROVIDED.
2. PROVIDE ALL NECESSARY FITTINGS REQUIRED TO CONNECT PEDESTAL, SEE NOTE 7 ON SHEET P1.
3. ALL GLAND PLATES SHALL REMAIN.
4. PROVIDE HOSE BIBB VACUUM BREAKER.
5. PUBLIC DOCK HOSE BIBB TO BE CONTROLLED WITH LOOSE KEY AND THE ATLANTIC INTRACOASTAL WATERWAY DOCK HOSE BIBBS TO BE CONTROLLED WITH LEVER HANDLE.
6. P1 PEDESTALS TO BE PROVIDED WITH A SINGLE HOSE BIBB AND P2 & P3 PEDESTALS TO BE PROVIDED WITH TWO HOSE BIBBS.

PEDESTAL POTABLE WATER PIPING –GENERIC DETAIL
SCALE: NONE

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DATE: 10/19/2023		DATE: 10/19/2023	
JOB NO. 18-3287		JOB NO. 18-3287	
SCALE: AS NOTED		SCALE: AS NOTED	

ISLE OF PALMS MARINA PUBLIC & INTRACOASTAL DOCK
ISLE OF PALMS, SC
DETAILS
CITY OF ISLE OF PALMS

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G – TECHNICAL SPECIFICATIONS

SECTION 02410
DEMOLITION

PART 1 – GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. Unless otherwise indicated, the most recent edition of the publication, including any revisions, shall be used.

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)

ASSE/SAFE A10.6 (2006) Safety Requirements for Demolition Operations

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2008; Change 1-2010; Change 3-2010; Errata 1-2010) Safety and Health Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 61 National Emission Standards for Hazardous Air Pollutants

1.2 SUBMITTALS

The Contractor shall submit the following. Note that approval of the submittals by the Design Criteria Professional shall not be construed as relieving the Contractor from responsibility for compliance with the specifications nor from responsibility of errors of any sort in the submittals.

A. Preconstruction Submittals

1. Demolition Plan

B. Certificates

1. Disposal Certificates or Statements (as applicable)

1.3 PROJECT DESCRIPTION

A. Demolition Plan

Prepare a Demolition Plan and submit proposed salvage, demolition, and removal procedures for approval before work is started. Include in the plan procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services, and a detailed description of methods and equipment to be used for each operation and of the sequence of operations. Identify components and materials to be salvaged for

ISLE OF PALMS MARINA – PUBLIC DOCK

reuse with reference to Paragraph “EXISTING FACILITIES TO BE REMOVED”. Provide procedures for safe conduct of the work in accordance with EM 385-1-1. Plan shall be approved by Design Criteria Professional prior to work beginning.

B. General Requirements

Do not begin demolition until authorization is received from the Design Criteria Professional. The work of this Section is to be performed in a manner that maximizes salvage of materials, where directed by the Design Criteria Professional. The work includes demolition, salvage of identified items and materials, and removal of resulting rubbish and debris. Remove rubbish and debris from the marina property daily, unless otherwise directed. Store materials that cannot be removed daily in areas specified by the Design Criteria Professional. In the interest of occupational safety and health, perform the work in accordance with EM 385-1-1, Section 23, Demolition, and other applicable Sections.

1.4 ITEMS TO REMAIN IN PLACE

- A. Take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Owner. Repair or replace damaged items as approved by the Design Criteria Professional. Coordinate the work of this Section with all other work indicated. Construct and maintain shoring, bracing, and supports as required. Ensure that structural elements are not overloaded. Increase structural supports or add new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract. Do not overload structural elements or pavements to remain. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement require approval by the Design Criteria Professional prior to performing such work.
- B. Existing Construction Limits and Protection: Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction. Provide protective measures to control accumulation and migration of dust and dirt in all work areas. Remove snow, dust, dirt, and debris from work areas daily.
- C. Utility Service: Maintain existing utilities indicated to stay in service and protect against damage during demolition operations.
- D. Facilities: Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. Ensure that no elements determined to be unstable are left unsupported and place and secure bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.5 BURNING

- A. The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.6 QUALITY ASSURANCE

- A. Submit timely notification of demolition projects to Federal, State, regional, and local authorities in accordance with 40 CFR 61, Subpart M. Notify the Design Criteria Professional in writing 10 working days prior to the commencement of work in accordance with 40 CFR 61, Subpart M. Comply with Government (federal, state, and local) hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," conform to the safety requirements contained in ASSE/SAFE A10.6. Comply with requirements of the Government approvals. Use of explosives will not be permitted.
- B. Dust and Debris Control: Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution.

1.7 PROTECTION

- A. Traffic Control Signs: Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Anchor barricades in a manner to prevent displacement by wind. Notify the Design Criteria Professional and Marina Management prior to beginning such work.
- B. Protection of Personnel: Before, during and after the demolition work take immediate action to protect all personnel working in and around the project site. No area, section, or component of any structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

1.8 RELOCATIONS

- A. Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair or replace items to be relocated which are damaged by the Contractor with new undamaged items as approved by the Design Criteria Professional. Provide temporary staging and securing of any items indicated for reuse or reinstallation in areas approved by the Design Criteria Professional.

1.9 EXISTING CONDITIONS

- A. Before beginning any demolition work, survey the site and examine the drawings and specifications to determine the extent of the work. Record existing conditions in the presence of the Design Criteria Professional showing the condition of structures and other facilities adjacent to areas of alteration or removal. Photographs sized 4 inch will be acceptable as a record of existing conditions. Include in the record the elevation of the top of foundation walls, finish floor elevations, possible conflicting electrical conduits, plumbing lines, the location and extent of existing cracks and other damage and description of surface conditions that exist prior to before starting work. It is the Contractor's responsibility to verify and document all required outages

ISLE OF PALMS MARINA – PUBLIC DOCK

which will be required during the course of work, and to note these outages on the record document. Submit survey results.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

Inspect and evaluate existing structures onsite for reuse. Existing construction scheduled to be removed for reuse shall be disassembled. Dismantled and removed materials are to be separated, set aside, and prepared as specified, and stored or delivered to a collection point for reuse as specified.

A. Structures

Remove existing structures as indicated on the Drawings. This shall include, in general: existing floating docks, fixed pier, piles, aluminum gangway, and dock utilities extending landward to their connection on shore. Piles shall be removed in their entirety, inclusive of the portion below the mudline. Items to remain in current position and not to be removed are indicated on the Drawings. Limits of all items to remain in current locations, items to be salvaged for Owner's use, and items to be removed and reused in the new work shall be coordinated with the Design Criteria Professional prior to demolition of any portion of the work.

B. Utilities and Related Equipment

1. General Requirements: Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by the Design Criteria Professional. Do not interrupt existing utilities serving facilities occupied and used by the Owner except when approved in writing and then only after temporary utility services have been approved and provided. Do not begin demolition work until all utility disconnections have been made. Shut off and cap utilities for future use, as indicated.

2. Disconnecting Existing Utilities: Remove existing utilities as indicated, or uncovered by work, and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Design Criteria Professional. When utility lines are encountered but are not indicated on the Drawings, notify the Design Criteria Professional prior to further work in that area.

C. Paving and Slabs

Sawcut and remove concrete and asphaltic concrete paving and slabs, including aggregate base, where indicated to a depth of 3 inches below existing adjacent grade. Provide neat sawcuts at limits of pavement removal as indicated.

D. Concrete

Saw concrete along straight lines to a minimum depth of 2 inches. Make each cut in walls perpendicular to the face and in alignment with the cut in the opposite face. Break out the remainder of the concrete provided that the broken area is concealed in the finished work, and the remaining concrete is sound. At locations where the broken face cannot be concealed, grind smooth or saw cut entirely through the concrete.

E. Patching

Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new work. Finished surfaces of patched area shall be flush with the adjacent existing surface and shall match the existing adjacent surface as closely as possible as to texture and finish.

3.2 DISPOSITION OF MATERIAL

A. Title to Materials

Except for salvaged items specified by the Design Criteria Professional, all materials and equipment removed and not reused, shall become the property of the Contractor and shall be removed from the Marina property. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the Design Criteria Professional of the Contractor's demolition and removal procedures, and authorization by the Design Criteria Professional to begin demolition. The Owner will not be responsible for the condition or loss of, or damage to, such property after contract award. Showing for sale or selling materials and equipment on site is prohibited.

B. Reuse of Materials and Equipment

Remove and store materials and equipment indicated to be reused or relocated to prevent damage, and reinstall as the work progresses. Recondition materials and equipment designated for reuse before reinstallation. Replace items damaged during removal and salvage operations, or restore them as necessary to usable condition.

3.3 CLEANUP

Remove debris and rubbish from excavations. Remove and transport the debris in a manner that prevents spillage on streets or adjacent areas. Apply local regulations regarding hauling and disposal.

3.4 DISPOSAL OF REMOVED MATERIALS

A. Regulation of Removed Materials

Dispose of debris, rubbish, scrap, and other non-salvageable materials resulting from removal operations with all applicable federal, state and local regulations.

B. Removal from the Site

Transport waste materials from the project work site for legal disposal.

END OF SECTION

SECTION 02454
MARINE PILING

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. The Contractor shall provide all equipment, materials, appurtenances, tools, labor and supervision necessary to design, fabricate, furnish, and install new anchor piles for the floating dock system. All anchor pile systems shall consider the effects of a seawater environment on design life and be designed according to the most recent standards for materials fabrication and protective treatments. Design of fixed pier piles is not included in this work.
1. Requirements: The Contractor is responsible to design, fabricate, furnish, and install all anchor piles for the floating dock system. Pile design for the floating dock system submitted for approval to the Design Criteria Professional shall be of sufficient size, quantity, and length to safely support the proposed floating dock systems under the extreme loading described in Section 02853 - FLOATING DOCKS. Pile size, type, number, locations, tip elevations, etc., shall be determined by a qualified professional engineer, as further described in Section 02853 – FLOATING DOCKS.
 2. Design Calculations: The Contractor must complete design calculations that address the requirements of this specification and Section 02853 - FLOATING DOCKS. The lateral capacity of the piles shall be determined using a commercially available analysis program (“LPILE by Lyman Reese et. al.; “ALLPILE” by Civiltech Software or alternative method subject to approval of the Design Criteria Professional). Input parameters for the soil types shall be derived based on the Owner-provided geotechnical data and any other supplemental information collected by or otherwise available to the Contractor.

1.2 RELATED WORK

- A. Section 02465 – STEEL PIPE PILES
- B. Section 02853 – FLOATING DOCKS
- C. Drawings and general provisions of Contract.

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1.3 REFERENCES

See Related Work references.

1.4 SUBMITTALS

- A. Bid Submittal – Contractor shall submit the proposed pile type, treatment, and general arrangement of anchorage piles for the floating dock system.
- B. Shop Drawings and Design Submittal – Following the award of the contract and prior to fabrication, the Dock Manufacturer shall submit a thorough complete submittal package legible in English (see 02853 – FLOATING DOCKS paragraph 1.4.C), including drawings, calculations, and product data. No work shall commence until the Shop Drawings have been reviewed and acknowledged to be in general conformance with the design intent of the project.
- C. Pile Driving Equipment and Method: Submit to the Design Criteria Professional, for approval prior to driving piles:
 - 1. Type of pile driving equipment to be used and pile driving plan
 - 2. Driving helmets, cap blocks, templates, and pile cushions to be used.
 - 3. Details of the lifting and support points to be used.
 - 4. Pre-drilling means and methods, where pre-drilling is required.
 - 5. WEAP analysis prepared for the Contractor by a professional engineer to demonstrate sufficiency of Contractor's proposed pile driving hammer for the project.
- D. Pile caps: submit manufacturer's materials specifications, anticipated life expectancy, and colors to Design Criteria Professional for approval.
- E. Test Piles: Where load tests or piles are required as noted in Section 02853 - FLOATING DOCKS, (paragraph 1.4.F), submit:
 - 1. Method statement and schedule prior to execution
 - 2. Results/report of tests.
- F. Pile Driving Records: Submit copies of complete pile driving record in accordance with paragraph 3.9, this Section.

1.5 PLANT INSPECTION

The Design Criteria Professional reserves the right to perform plant inspections of pile fabrication and treating process at his discretion. Notify the Design Criteria Professional at least two weeks prior to beginning the fabrication and treatment, stating where fabrication and preservative treatment will be done. The Design Criteria Professional shall have access to all parts of the plant and shall be allowed to inspect all facets of the treating process.

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PART 2 - PRODUCTS

2.1 MATERIALS AND REQUIREMENTS

- A. Steel Piles: Provide round steel pipe piles conforming to Section 02465 – STEEL PIPE PILES. Piles shall be black cold tar epoxy coated for corrosion protection in the marine environment to a minimum depth of 5-ft. below the mudline. Alternate steel pipe corrosion treatment, including HDPE sleeving, shall be subject to Design Criteria Professional's approval.
- B. Preservative/Protective Treatment: Provide as per related specifications.
- C. Pile caps: Shall be manufactured from injection molded low density polyethylene or molded fiberglass reinforced plastic material. Material shall be UV stabilized and a minimum of 1/8 inch thickness. Pile caps shall be peaked to deter seabird roosting. Pile caps shall be fabricated to the size, shape of piles used with a color as approved by the Design Criteria Professional. Pile caps shall be attached to each pile according to manufacturer's recommendations for each pile type and extend beyond any pile type irregularities (e.g. cuts, grooves, bumps, etc.).

PART 3 - EXECUTION

3.1 DELIVERY AND STORAGE

Store and handle piles according to the applicable requirements of Related Work specifications sections and the following. Keep ground underneath and within five (5) feet of all stored piles free of weeds, rubbish and combustible material. Protect all materials from weather using suitable coverings. Protect hardware from corrosion. Piles shall be unloaded with slings or other equipment. Piles shall not be dumped or dropped. Acceptance of materials for delivery does not validate acceptance of material for use. All damaged items determined by the Design Criteria Professional as being unsuitable shall be replaced by the Contractor at his expense.

3.2 INSTALLATION

- A. Markings: Mark the piles with lines of high visibility paint or ink at one-foot intervals from bottom to top. Number every five (5) feet. Markings shall be clearly visible and legible to the naked eye.
- B. Handling: Inspect piles in the leads, and where the protective shell or treated wood is impaired, between cutoff and point not less than 10 feet below the ground. Repair the piles according to applicable ASTM codes for steel, unless the pile is damaged to such extent that it is rejected. Laterally support pile during driving, but do not unduly restrain from rotation in the leads. Where pile orientation is essential, take special care to maintain the orientation during driving. Take special care in supporting battered piles to prevent excess bending stresses in the pile. When necessary, place collars around timber pile heads to prevent brooming. Do not use cant hooks.

C. Driving Piles: Drive without interruption to the calculated tip elevation to reach a driving resistance in accordance with the schedule that the Contractor will prepare and is approved by the Design Criteria Professional.

D. Driving Equipment

1. Pile Hammers: air-, steam-, or diesel-powered of a type approved by the Design Criteria Professional. The hammer furnished shall have a capacity at least equal to the hammer manufacturer's recommendation for the total weight of pile and character of subsurface material to be encountered. The minimum hammer energy for driving piles shall be by manufacturer's recommendations and accepted industry practice. Operate diesel-powered hammers throughout the entire driving period at the rate recommended by the manufacturers. Maintain sufficient pressure at the hammers so that;
 - (a) For double-acting hammer, the number of blows per minute during and at the completion of the driving of a pile is equal approximately to that at which the hammer is rated.
 - (b) For single-acting hammer, there is a full upward stroke of the ram.
 - (c) For differential-type hammer, there is a slight rise of the hammer base during each upward stroke.
2. Driving Helmets and Cushion Blocks: Use a driving helmet or cap and a cushion block or cap block approved by the Design Criteria Professional to prevent impact damage to the pile. The helmet or cap and cushion-block combination shall protect the head of the pile, minimize energy absorption, and transmit hammer energy uniformly and consistently during the entire driving period. The driving helmet or cap shall fit snugly on top of the pile so that energy transmitted to the pile is uniformly distributed over the entire surface of the pile head. The cushion block may be solid or laminated softwood block, with grain parallel to the pile axis, and enclosed in a close-fitting steel housing. Use blocks of suitable thickness for the length of pile to be driven and the character of subsurface material. Replace cushion block if it has been damaged, split, highly compressed, charred or burned, or has become spongy or deteriorated. Do not use small wood blocks, wood chips, rope, or other material as substitutes.
2. Protection of Piles: Square the heads and points of piles to the driving axis. Use driving caps or rings and followers to protect the heads of the piles, to provide uniform distribution of hammer energy, and to reduce absorption of the energy of the blow to a minimum. Pile shall be laterally supported during driving, but shall not be unduly restrained from rotation in the leads. Where pile orientation is essential, special care shall be taken to maintain orientation during driving.

3.3 TOLERANCES IN DRIVING

Unless otherwise indicated, drive piles with a variation of not more than 1/4 inch per foot of pile length from the vertical for plumb piles or more than four percent from the required angle for batter piles. Butts shall be within four (4) inches of the location indicated. Piles shall not be forced into position. Re-drive piles that have heaved to the required tip

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elevations. Piles shall be checked for heaving by use of a level line stretched between piles. Piles shall be marked at the end of the workday with a painted mark along the level line, and checked subsequently for heaving.

3.4 JETTING OF PILES

Jetting of piles shall not be permitted.

3.5 PRE-DRILLING OF PILES

Contractor shall make every effort to drive piles to the penetrations indicated by the design. Review per geotechnical report for reference to subsurface conditions.

3.6 LONG PILES

Handle and drive piles of a high slenderness ratio carefully to prevent overstress. Provide pile driving rig with rigid supports so that leads remain accurately aligned. Where a high degree of accuracy is required, erect templates or guide frames at or close to the ground or water surface.

3.7 SURFACE TREATMENT REPAIR

After piles have been driven and cut off, all cut, bored and dapped surfaces shall be treated in accordance with AWWA M4 for timber and cold galvanized or otherwise coated according to applicable ASTM standards for steel pile and any exposed reinforcing steel (for concrete piles).

3.8 FIELD INSPECTION

Perform continuous inspection during pile driving. Inspect piles for compliance with tolerance requirements. Bring all unusual behavior that may occur to the attention of the Design Criteria Professional.

3.9 RECORDS

A. Keep a complete and accurate record of each pile driven. The record shall include the following data:

- pile location
- diameter
- original length
- ground elevation
- final tip elevation
- final butt (cutoff) elevation
- number of blows per foot for each foot of penetration for the entire pile length
- hammer data including make, type, and size
- any unusual pile behavior or circumstances experienced during driving such as re-driving, heaving, weaving, obstructions, spudding, stops and others which may occur.

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- B. Forms for recording pile driving data shall be submitted by the Contractor to the Design Criteria Professional for approval of form outline prior to pile installation. Within 15 days of completion, records on approved forms shall be turned over to the Design Criteria Professional.

3.10 PILE CUT OFF, BUILDUP, AND SPLICES

- A. Cut off piles with a smooth level cut using pneumatic tools, sawing, or other suitable methods approved by the Design Criteria Professional. The use of explosives for cutting is not permitted. Piles cut offs shall be disposed of legally off-site, at no additional cost to Owner.
- B. Pile buildups or splices shall only be made with approval of the Design Criteria Professional.

3.11 PILES DRIVEN TO REFUSAL

Do not cut off tops of driven piles without authorization of the Design Criteria Professional. Notify Design Criteria Professional of any pile that does not reach required penetration.

3.12 DEFECTIVE PILES

Any pile which is cracked or broken because of internal defects or by improper handling or driving, or which is otherwise injured such that their structural capacity to withstand or transfer the design load to the foundation is impaired, or any pile driven out of proper location or driven below the design cutoff shall be removed and replaced. All work of removal and cost of replacement shall be borne by the Contractor at no additional expense to the Owner.

3.13 PILE LOCATION

Layout of piles, to include location and cutoff elevations, shall be performed by a Licensed Land Surveyor. Survey information shall be incorporated into as-built survey for new marina docks and submitted to the Design Criteria Professional prior to final acceptance.

END OF SECTION

SECTION 02465
STEEL PIPE PILING

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. This specification provides the minimum technical requirements for the design, procurement, fabrication, installation, and incidental construction of new steel pipe piles for floating dock anchorage.
- B. This specification is in addition to the general piling requirements specified in Section 02454-MARINE PILING.

1.2 RELATED WORK

- A. Section 02454 – MARINE PILING
- B. Section 02853 – FLOATING DOCKS
- C. Drawings and general provisions of the Contract

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only and refer to the latest editions of each.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM A 36 Standard Specification for Carbon Structural Steel
- ASTM A 139 Standard Specification for Electric-Fusion(ARC)-Welded Steel Pipe (NPS4 and over)
- ASTM A 252 Standard Specifications for Welded and Seamless Steel Pipe Piles
- ASTM A 381 Metal-Arc-Welded Steel Pipe for Use With High-Pressure Transmission Systems

AMERICAN WELDING SOCIETY (AWS)

- AWS D1.1 Structural Welding Code
- AWS QC1 AWS Certification of Welding Inspectors

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1.4 SUBMITTALS

- A. Plant Qualifications: Qualifications of the manufacturer and evidence of successful completion of similar and comparable work.
- B. Shop Drawings: Contractor shall submit drawings of the piles required.
 - 1. Steel Pipe: Show all locations, markings, materials, sizes and shapes and indicate all methods of connection including shop-welding procedures.
 - 2. Field Splices: Show rollers, blocks, shims, etc. required to align pile sections when working flat. Show field weld preparation and alignment.
- C. Welder Qualifications: Submit copy of welder qualification certificates to the Design Criteria Professional for any welders performing welds in the shop or field.

1.5 DELIVERY, STORAGE AND HANDLING

Deliver, handle, and store items so as to protect them from deformation, cracks, slips, nicks, gouges, and other types of damage. All damaged items determined by the Design Criteria Professional as being unsuitable shall be replaced by the Contractor at his expense.

1.6 MEASUREMENT AND PAYMENT

- A. Payment for all piles shall constitute full compensation for all costs of furnishing materials (including caps and chocks where indicated), driving, pre-drilling, spudding, and cutting off of piles, disposing of cut-offs, furnishing, placing, and removing all temporary bracing required to hold the piles in alignment, and all other work necessary to complete the work as specified herein.
- B. Bids shall be based on the number, size, and spacing of piles required to anchor the floating dock system as determined by the Contractor's design and proposed anchorage plan. Allowance for potential revision of pile requirements, including number, size, and spacing, during shop drawing review by Design Criteria Professional shall be included.

PART 2 - PRODUCTS

2.1 STEEL PIPE PILES

- A. Provide steel pipe piles conforming to ASTM A 252, Grade 2 at a minimum. Roll and weld the pipe under the ASTM A 252 Grade 2 specification allowing, seamless, straight seams, or spiral seams. Contractor shall specify intended type of pile and grade/yield strength in the Bid.
- B. Piles shall be coated with black coal tar epoxy, resulting in treatment on the exterior of the pile from cutoff to minimum five (5) feet below the mudline.

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- C. For marina anchor piles designed by the Contractor, steel pipe pile wall thickness shall include loss to marine corrosion over the design life of the pipe pile.
- D. Alternated pile corrosion schemes may be considered by the Design Criteria Professional, including HDPE sleeving. Contractor shall provide details of any proposed alternate pile protection details (materials, installation methods, prices) with the Bid for consideration.

PART 3 - EXECUTION

3.1 INSTALLATION OF PIPE PILES

Inspect piles when delivered and when in the leads immediately before driving. Pipe piles shall be installed to reach the required embedment. Pile driving and drilling shall be as indicated. Equipment shall be of a size and function to suit pipe pile sizes and geotechnical condition expected.

3.3 CUTTING AND SPLICING

- A. Piles driven to the required tip elevation and extending above the required top elevation in excess of the specified tolerance shall be cutoff to the required elevation.
- B. Piles driven below the required top elevation and piles damaged by driving and cutoff to permit further driving shall be extended as required to reach the top elevation by splicing when approved by the Design Criteria Professional. Piles adjoining spliced piles shall be full length unless otherwise approved.
- C. Welding of splices, when required, shall conform to the following minimum specifications. Ends of piles to be spliced shall be squared before splicing to eliminate dips or camber. No more than one splice per pile will be permitted. Steel pipe pile sections shall be spliced using a continuous butt-joint with a 45 degree bevel or vee. The weld must provide a complete penetration arc weld around the entire circumference and should produce a ductile, water-tight joint providing 100 percent of the pile strength. Welds shall be ground down to be smooth and flush with the pile exterior surface. If splices are necessary, Contractor shall submit splice plans and calculations to Design Criteria Professional for approval prior to commencing work.
- D. Trim the tops of piles excessively battered during driving, when directed, at no additional cost to the Design Criteria Representative. Use a straight edge in cutting by burning to avoid abrupt nicks.
- E. Bolt holes, where required, shall be drilled or may be burned and reamed by approved methods which will not damage the surrounding metal. Holes other than bolt holes shall be reasonably smooth and the proper size for rods or other items to be inserted.
- F. Do not use explosives for cutting.

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3.4 WELDING

All welding shall be in accordance with AWS D1.1 and all welding shall be by operators qualified in accordance with AWS D1.1. All welding inspections shall be in accordance with AWS QC1.

END OF SECTION

SECTION 02853
FLOATING DOCKS

PART 1 – GENERAL

1.1 WORK INCLUDED

A. Work covered under this Section

1. Designing, manufacturing, furnishing, and installing the floating dock, anchor pile system for the floating dock, pile guides, cleats, fenders, and other marine hardware and accessories as may be shown or enumerated on the Drawings.
2. All materials shall be reviewed by the DESIGN CRITERIA PROFESSIONAL who has prepared these performance specifications to which all floating dock and anchor pile systems must comply.

B. The floating dock system is schematically represented on the Drawings as typical forms. The CONTRACTOR shall design, manufacture, furnish and install a complete system that meets or exceeds the performance criteria of these Specifications and is fully compliant with the 2010 ADA standards for Accessible Design.

C. The CONTRACTOR is solely responsible for his own interpretation of the site conditions, including the gathering of additional data as CONTRACTOR deems necessary to fully identify and evaluate the site conditions. The CONTRACTOR is solely responsible for the design, quality, and performance of the floating dock product and anchoring system.

D. The information provided herein represents minimum requirements which all proposed systems must meet.

E. The CONTRACTOR shall submit with his Bid the proposed anchor system layout plan and description, the proposed dock system description and specifications, catalog cut sheets for any commercially available components included, and any proposed exceptions or changes from the Drawings and these Specifications.

1.2 RELATED WORK

- A. Section 02454 – MARINE PILING
- B. Section 02465 – STEEL PIPE PILES
- C. Section 02885 – ALUMINUM GANGWAYS
- D. Drawings and general provisions of the Contract

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only and refer to the latest editions of each.

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THE ALUMINUM ASSOCIATION, INC. (AA)

AA Specification for Aluminum Structures

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI B 27.2 Plain Washers

AMERICAN SOFTWOOD LUMBER STANDARD (ASLS)

ASLS P 20 Voluntary Product Standard, American Softwood Lumber Standard

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM A 36 Carbon Structural Steel
- ASTM A 123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- ASTM A 153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- ASTM A 307 Standard Specification for Carbon Steel Bolts and Studs, 60000 PSI Tensile Strength
- ASTM A325 Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
- ASTM B 209 Aluminum and Aluminum-Alloy Sheet and Plate
- ASTM B 211 Aluminum and Aluminum-Alloy Bar, Rod, and Wire
- ASTM B 221 Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
- ASTM B 308 Aluminum-Alloy 6061-T6 Standard Structural Profiles
- ASTM B 429 Aluminum-Alloy Extruded Structural Pipe and Tube
- ASTM B 547 Aluminum-Alloy Formed and Arc-Welded Round Tube
- ASTM C 272 Standard Test Method for Water Absorption of Core Materials for Sandwich constructions
- ASTM D 638 Standard Test Method for Tensile Properties of Plastics
- ASTM D 790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- ASTM D 1248 Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable
- ASTM D 1505 Standard Test Method for Density of Plastics by the Density-Gradient Technique
- ASTM F 593 Stainless Steel Bolts, Hex Cap Screws, and Studs
- ASTM F 594 Stainless Steel Nuts

AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)

- AWPA U1 User Specification for Treated Wood
- AWPA T1 Processing and Treatment Standard
- AWPA M4 Standard for the Care of Preservative-Treated Wood Products
- AWPA P5 Standards for Waterborne Preservatives

AMERICAN WELDING SOCIETY, INC. (AWS)

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AWS D1.1 Structural Welding Code-Structural Steel
AWS D1.2 Structural Welding Code- Aluminum

AMERICAN WOOD COUNCIL (AWC)

NDS National Design Specification for Wood Construction and Supplement
Design Values for Wood Construction

SOUTHERN PINE INSPECTION BUREAU (SPIB)

SPIB Grading Rules

UNITED STATES ACCESS BOARD, 2010 AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS

ADA Standards Chapter 10 Recreation Facilities, Section 1003, Recreational Boating Facilities

OTHER DESIGN GUIDANCE

NFPA National Fire Protection Agency (NFPA) Standards

ASCE Planning and Design Guidelines for Small Craft Harbors, ASCE Manuals and
Reports on Engineering Practice No. 50, 2012

Tobiasson & Kollymeyer Marinas and Small Craft Harbors, 2nd edition, Westviking
Press, 2000.

ATM Coastal Conditions Assessment, November 2019

S&ME Geotechnical Investigation Report, March 2020

ESP Geotechnical Investigation Report, 2023

PIANC “Review of Selected Standards for Floating Dock Designs.” Special Report
of the SPN Commission, Supplement to Bulletin No. 93 Brussels, January
1997.

1.4 SUBMITTALS

- A. Qualifications - The installing CONTRACTOR shall be a qualified Marine Contractor licensed to perform work in the project area. The DOCK MANUFACTURER shall be as noted herein. Any proposed alternates shall be approved by the DESIGN CRITERIA PROFESSIONAL and shall have a minimum of 10 years continuous experience in floating dock design and fabrication and shall be required to submit a list of previous experience to the DESIGN CRITERIA PROFESSIONAL prior to bid submittal. The DOCK MANUFACTURER shall have in place a Quality Control Program for the installation of the floating dock system.
- B. Bid Submittal - To ensure that the DOCK MANUFACTURER is capable of designing and manufacturing a dock system that will meet the intent of the Project, DOCK

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MANUFACTURER is required to submit, with the Bid, example floating dock and anchorage calculations from a previous project or combination of previous projects. Example calculations should include enough information to show that the system design accounts for wind, wave and current loadings as well as site specific geotechnical conditions.

The CONTRACTOR shall provide, with the bid, the names and South Carolina license information for each DESIGN ENGINEER (i.e. CONTRACTOR'S Engineer of Record) who will sign and seal any portion of the submittal package. The CONTRACTOR shall identify the industry accepted calculation method and/or commercial software proposed to be used for anchorage design. The DOCK MANUFACTURER's proposed DESIGN ENGINEER's qualifications and experience in floating dock design and proof of professional liability insurance, to OWNER's requirements, shall be submitted for DESIGN CRITERIA PROFESSIONAL approval.

Flotation specifications, proposed dock system data/cutsheets, and detailed warranty information on floating dock system shall be provided with bid submittal.

C. Floating Dock, and Anchor Pile Design Submittal -

1. Following the award of contract and prior to fabrication, the CONTRACTOR shall complete a thorough submittal package which includes all design calculations (including methods and references thereto, assumptions and safety factors), shop drawings and other details of the floating dock system and anchorage design. **The submittal shall be a single, comprehensive document, logically organized, legible in English, and provide clear calculation procedures used to arrive at stated values for each of the items listed in this Specification.** It will be the DESIGN CRITERIA PROFESSIONAL's role to, on behalf of the OWNER, review the methods and calculations used by the DESIGN ENGINEER to ensure general conformance of the design with the intent of the project. If the DESIGN CRITERIA PROFESSIONAL requires additional clarification of the methods or calculations, in order to satisfy himself of general conformance, the CONTRACTOR's DESIGN ENGINEER shall promptly provide the requested information. Delays in the project schedule due to inadequate or non-conforming floating dock and anchorage design submittal packages will not be grounds for project extension.
2. All design values must be supported by calculations which follow industry standard or industry accepted methods and all assumed values must be supported by reference. The floating dock and anchorage design submittal package must include the following items at a minimum:
 - a. Dimensional layout of floating dock system to be furnished under this Contract. Include distances from navigation channels and adjacent shorelines (mean high water line as indicated on Drawings). Include general layout/locations of all fixed appurtenances located on the docks (power pedestals, fire cabinets, standpipe stanchions, etc).
 - b. Engineering calculations showing compliance with the performance criteria specified herein. Allowable stresses for the materials used shall be defined by current, professionally recognized construction and design standards.

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(1) Compliance with dead, live, and combined load requirements considering both bending and deflection.

(2) Compliance with freeboard requirements under specified load conditions.

(3) Design for the anchor pile system, including anchor pile number, type/material, size, and lateral capacity analysis. Anchor pile design must account for a design worst case loading condition which includes wind, wave, and current loads applied at the appropriate elevation to account for extreme water levels (refer to paragraph 1.5 and DRAWINGS). Maximum shear and bending moment shall be checked against that allowable of the piling material properties as well as the lateral capacity of the soils. Deflection at the load application level shall be specified by the DESIGN ENGINEER. Adequate embedment must be identified by the DESIGN ENGINEER and supported with an acceptable design program or calculation method.

(4) Transfer of loads to pile guides. Includes pile guide design and transfer of loads to piles to ensure adequacy of bracing and attachment.

(5) Determination of extreme fiber stresses in major members when loading conditions are applied to the dock. Calculations must, at a minimum, account for shear, moment and torsion at floating dock section connections, junctions, splice locations and internally within the framing of the system at representative cross-sections. Provide details referenced to locations for each section checked.

(6) Effects of combined loading on members and connections due to vertical and lateral forces.

(7) Transfer of vessel loads to cleats and dock. Calculations must demonstrate that cleat attachments are sufficient for each dock section based on anticipated vessel under design wind condition.

(8) Detail design of knee braces to resist indicated loading conditions.

(9) Transfer of forces by use of adequate bracing, struts, bolting, etc.

(10) Flotation calculations for typical system components and adjacent to large concentrated loads, including all utilities, gangways, etc.

(11) Splice locations and detailing so as to transfer loads from member to member.

(12) Lateral and torsional stability of the dock.

(13) Fatigue of system and components based on the anticipated wind and wave climate.

c. Typical sections or details, and catalog cut sheets of the following-

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- (1) Floating dock including flotation, framing, decking, and connections
- (2) Anchorage system, including piles and pile guides
- (3) Cleats and bollards
- (4) Fendering/bumper strip
- (5) Pile caps
- (6) Gussets, where needed
- (7) Gangway articulation and related hardware
- (8) Utility raceways
- (9) Dock accessories (fire suppression, pedestals, etc.)
- (10) Individual details and cross sections shall be clearly referenced to applicable plan view/layout drawings.

d. All sections of the Floating Dock and Anchorage Design submittal package must be signed and sealed by a DESIGN ENGINEER licensed in South Carolina who will be considered the "ENGINEER OF RECORD" for the floating dock and anchorage system. It may be permissible to have more than one DESIGN ENGINEER for the system; however, it must be clear who the ENGINEER OF RECORD is for each portion of the floating dock and anchorage design submittal package. Once the final floating dock and anchorage system design submittal is reviewed for general conformance by the DESIGN CRITERIA PROFESSIONAL, it shall not be modified in any significant way without DESIGN CRITERIA PROFESSIONAL's written consent. Fabrication shall not commence prior to DESIGN CRITERIA PROFESSIONAL's review and acknowledgment of general conformance.

- D. Warranty – Provide a minimum 5-year written warranty for the installed floating dock product (10 years for flotation), including materials and workmanship for all structural components and accessories under the design conditions described herein. CONTRACTOR shall ensure that DOCK MANUFACTURER's representative provides annual inspections of the facility for the duration of the warranty period. Annual inspections shall include a summary report of recommendations to the OWNER. A detailed operations and maintenance manual shall be provided in digital and hard copy format to the OWNER at the time of acceptance. Warranties shall commence on the date of final project acceptance.
- E. Operations & Maintenance Manual - Submit two (2) copies of the DOCK MANUFACTURER's operations and maintenance manual for all floating dock system components. The manual shall include instructions, recommended frequency of maintenance procedures, and materials by brand name and specification. The manual shall be provided in a digital .PDF and in a bound document on 8.5" x 11" format. The cover shall be identified as "Floating Dock System O&M Manual".

- F. Anchor Pile Tests – Refer to Sections 02454 and 02465 for testing requirements.
- G. DOCK MANUFACTURER’s Final Certification
- H. CONTRACTOR’s dock measurements and load tests (if required)

1.5 FLOATING DOCK SYSTEM PERFORMANCE CRITERIA

- A. Information presented is based upon the DESIGN CRITERIA PROFESSIONAL’s best estimate of those environmental and physical factors that reasonably can be expected to affect the design, performance, and durability of the proposed floating dock system. All floating dock system designs shall be subject to thorough engineering analysis using all relevant criteria, whether stated herein or not, that could affect the structural integrity of the installed docking system. Final design calculations shall be prepared by the ENGINEER(S) OF RECORD and submitted by DOCK MANUFACTURER to the DESIGN CRITERIA PROFESSIONAL for review and acknowledgement of general conformance prior to starting fabrication.
- B. Final design calculations shall furnish proof that the floating dock system is designed to withstand the loading, singularly or in combinations given hereinafter, without damage throughout the design life of the system. The floating dock system shall be designed for a minimum 25-year life expectancy in the marine environment.
- C. Basic Design Conditions for Floating Docks:

Basin Design Depth:	-1.9 to -11.9 ft MLLW (refer to DRAWINGS)
Typical Tidal Range:	5.0 ft mean, 5.6 ft spring
Mean Low Water:	-2.9 ft NAVD 88
Mean High Water:	2.1 ft NAVD 88
Extreme Water Level:	11 ft NAVD 88 (<i>FEMA 100-yr SWEL</i>)
Tidal Datum relationship:	0.0 ft MLLW = -3.1 ft NAVD 88
Sea Level Rise:	Assume 1.5 ft. over the design life of the project
Minimum Pile Cutoff Elevation:	13.4 ft NAVD88 (16.5 ft MLLW)

Submittal shall include calculations for each of the following design scenarios:

Design Scenario 1

Water Level:	+3.4 ft NAVD88 (MHHW+1’)
Vessel Occupancy:	Full Occupancy
Wind Speed:	27 mph (3-sec gust, 0.5-yr windspeed)
Wave Condition:	None
Vessel Wake:	H=2.5 ft.; T=3.5 sec
Current Speed:	1.7 knots (2.87 fps)

Design Scenario 2

Water Level:	+8.1 ft NAVD88 (FEMA 10-yr SWEL)
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Vessel Occupancy:	Full Occupancy
Wind Speed:	78 mph (3-sec gust, 10-yr windspeed)
Wave Condition:	$H_s=2.0$ ft.; $T_p=2.2$ sec (10-yr waves)
Vessel Wake:	None
Current Speed:	1.7 knots (2.87 fps)

Design Scenario 3

Water Level:	+10.5 ft NAVD88 (FEMA 50-yr SWEL)
Vessel Occupancy:	Unoccupied
Wind Speed:	104 mph (3-sec gust, 50-yr windspeed)
Wave Condition:	$H_s=2.9$ ft.; $T_p=2.5$ sec (50-yr waves)
Vessel Wake:	None
Current Speed:	1.7 knots (2.87 fps)

**Wind speeds on berthed vessels and floating docks may be adjusted to 30-second duration for determination of wind pressure loads. Currents assumed to act in an along-channel direction.*

1. The scenarios listed above shall each be checked with loadings acting in combination to determine the worst case for floating dock and anchor pile design. Assume wind, current, and waves occur from rational directions acting on docks and vessels at the specified vessel occupancy level. Assume two 35-foot power boats moored on the outside of the dock for loading purposes.
2. Horizontal loadings for each occupancy case listed above shall be applied at the total water level plus prescribed freeboard, sea level rise allowance, and 50 percent of the wave height.
3. DOCK MANUFACTURER shall indicate assumptions and factors of safety used in design to allow for the possibility of site conditions that exceed the conditions indicated herein.

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PART 2 - PRODUCTS

2.1 GENERAL

The following requirements are a minimum and must be met by the CONTRACTOR in accordance with the requirements of Part 1 of this specification section. Approval for any alternates must be obtained in writing from the DESIGN CRITERIA PROFESSIONAL.

2.2 FLOATING DOCK SYSTEM MATERIALS

The following general material combinations for the floating dock system (except accessories) are acceptable:

- A. Timber frame structure with IPE deck and polystyrene foam filled polyethylene encased pontoons. Shall be Meeco Sullivan of Warwick, NY or Bellingham Marine of Wilmington, NC.
- B. Aluminum frame structure with IPE deck and polystyrene foam filled polyethylene encased pontoons. Shall be Structurmarine of Montreal, Canada, Meeco Sullivan of Warwick, NY, or Boardsafe Docks of Fleetwood, PA.

2.3 ALUMINUM

- A. All aluminum construction shall be in accordance to AA "Specification for Aluminum Structures." Extrusions shall be aluminum alloy 6061-T6. The material shall be temper suitable for saltwater service in accordance with applicable ASTM Standards B209, B 211, B221, B308, B429, and B547 for various materials used. All welds shall be in accordance with AA "Specifications for Aluminum Structures" and ASTM D1.2. All fasteners shall be Aluminum or 316 Series Stainless Steel in accordance with ASTM F593 and F594.

2.4 STEEL

- A. All fabrication and miscellaneous steel shall conform to ASTM A36 and shall be hot-dip galvanized after fabrication in accordance with ASTM A123. Bolts, nuts, and washers used with galvanized structural members shall be per ASTM A 325 or ASTM A 307 as applicable and hot-dip galvanized per ASTM A 123 or A 153 as applicable. All screws, bolts, nuts, and lock washers, except where used with other hot-dip galvanized steel components, shall be 316 Series Stainless Steel in accordance with ASTM F 593 and ASTM F 594. Flat washers shall be type ANSI B and be Type 316 stainless steel.

2.5 TIMBER

- A. All exterior (visible) structural wood and wood fendering in the splash zone shall be Pine No. 1 (or approved equivalent) hand selected - no downgrades allowed - with a minimum CCA (Chromated Copper Arsenate) content equal to 0.6 pounds per cubic foot (pcf) - moisture content not to exceed 19% after treatment, KDAT or S-Dry. All submerged wood members shall be treated to 2.5 pcf CCA. Interior (non-visible)

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structural wood shall be minimum Pine No. 2 (or approved equivalent) and shall comply with the treatment and moisture requirements mentioned herein.

- C. All wood shall comply with American Softwood Lumber Standards Committee, PS-20 Washington, DC, to grade the species. All lumber specified for treatment shall be treated to the requirements of American Wood Protection Association (AWPA) U1 and T1. All field cuts and holes shall be treated in accordance with AWPA M4.
- A. Timber for decking shall be IPE. Design submittal shall include product specifications, harvest certification, and is subject to OWNER and DESIGN CRITERIA PROFESSIONAL's approval.
- B. No. 1 Prime Pine (or approved equivalent) may be solicited as a Bid Alternate for floating dock decking. This material must be hand selected - no downgrades allowed - with a minimum CA (Copper Azole) content equal to 0.31 pounds per cubic foot (pcf), (or approved equivalent), - moisture content not to exceed 19% after treatment, KDAT or S-Dry.

2.6 PONTOONS

A. Pontoon shells shall be manufactured as described below:

1. Plastic Pontoons: Shells shall be manufactured from rotationally molded high-density polyethylene or cross-linked polyethylene material conforming to ASTM D1248. The polyethylene shall be black in color and have a **MINIMUM wall thickness of 0.15 inch (NO EXCEPTIONS)**. Suppliers of pontoons shall present evidence that the pontoon being supplied is free of cracks and thinning of material below 0.15 inch at the corners and upper flanges of the pontoon. Pontoons shall be attached to the dock system structure with mounting flanges so that all the edges of the flanges are bolted to structural members to minimize flexing and deformation of the pontoon. Each pontoon shall be completely filled with "foamed-in-place" closed cell, 1.0 pcf minimum density polystyrene foam. Shells must fully encase foam.

Pontoon shells may also be linear low-density (or DESIGN CRITERIA PROFESSIONAL approved equal) polyethylene and blow molded, so long as the resultant shell is seamless. The base material for all polyethylene shells shall conform to the following minimum requirements: minimum density 0.937 g/cc per ASTM D1505; minimum ultimate tensile strength of 2,560 psi per ASTM D638; and minimum flexural modulus of 96,000 psi per ASTM D790. All other thickness, color, and attachment requirements of the polyethylene shells remain unchanged.

2. Foam: The resultant expanded polystyrene foam block shall have a minimum density of 1.0 pcf. The block shall be solid with no loose beads or void areas and have a maximum water absorbency of 3 percent by volume per ASTM C-272.
3. All materials used in the fabrication of the pontoons shall be made from new material specially manufactured for the intended use. No regrind of foam materials shall be allowed and the supplier of the material shall certify that no regrind material is used in the foam for this project.

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4. A description of DOCK MANUFACTURER's warranty for flotation units shall be submitted to OWNER in accordance with these specifications.
5. Upon commencement of manufacturing the flotation units, one unit (of typical size) shall be sent to the DESIGN CRITERIA PROFESSIONAL for review and possible destructive testing to verify compliance with specifications upon request. Cost and shipping shall be paid by the CONTRACTOR.

2.7 FIRE SUPPRESSION AND SAFETY ITEMS

- A. CONTRACTOR shall furnish and install portable fire extinguishers (and mounting boxes) in accordance with NFPA 303, Fire Protection Standard for Marinas and Boatyards, latest Edition, in general locations shown on Drawings. CONTRACTOR shall provide USCG approved life rings and throw line at each fire extinguisher location. CONTRACTOR shall provide final locations of and mounting detail (including product information) for fire extinguisher and life ring stanchions with Shop Drawing submittal. Fire extinguisher cabinets shall be of the type shown or approved equal and installed where indicated on the Drawings.
- B. CONTRACTOR shall also furnish and install a fixed standpipe system and other utilities as indicated on the Drawings.

2.8 CLEATS AND BOLLARDS

- A. Cleats and bollards shall be made of galvanized steel or non-corroding alloys and appropriately sized for each berth. Almag "S" cleats are prohibited. Cleats shall be spaced at typically 10 feet on center on both sides of the floating dock. Cleats and bollards shall be securely bolted to the dock framework with through bolts rather than lag bolts. CONTRACTOR shall provide a cleat arrangement pattern, selected cleat specifications, and design calculations with design submittals.

2.9 BUMPER STRIP

- A. Bumper strip shall be extruded, non-marring, marine grade vinyl, gray in color. Each strip shall have a minimum height of four inches, minimum thickness of 1/8 inch, and a minimum weight of 1.6 pounds per linear foot. Outside corners shall be protected with corner bumpers molded of marine grade vinyl, of same color as the bumper strip, and have minimum weight of 1 3/4 pounds each. The bumper strip and corner bumper shall be installed with stainless steel screws or aluminum ring shank nails on 4-inch centers along both flanges. CONTRACTOR's selected bumper strip and corners shall be submitted for approval with Design Submittals.

PART 3 - EXECUTION

3.1 DESIGN REQUIREMENTS – FLOATING DOCK STRUCTURES

- A. Dead Load

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Shall consist of the entire weight of the floating structure including projected marine growth, utilities, and all other accessories and support appurtenances. Special floats must be designed to support the additional concentrated loads imposed by gangways, on-dock structures, and other equipment/utilities. Floats with special loading shall have the same freeboard as floats with no such loading, so that there will be no residual stresses to tilting when such floats are interconnected.

B. Vertical Live Loads

1. Minimum uniform vertical live load of 40 pounds per square foot, or 300 pounds concentrated load on any area 2 ft square, both for flotation and on dock frame and deck structures.
2. Vertical Wave Load: Vertical wave force based on design wave height (paragraph 1.5.C) applied to the main walks, assuming ends of the dock are fixed, and at finger-to-main connections.

C. Flotation

1. The flotation shall be sized and located to satisfy the following base conditions:
 - a. Freeboard under dead load only at acceptance:
 - i. 20 inches (+/- 1 inch) – all interior docks
 - b. Minimum freeboard under combined dead load and full live load:
 - i. 12 inches (+/- 1 inch) – all interior docks
2. Floating docks shall meet the following requirements:
 - a. Dead load plus a concentrated live load of 400 pounds applied vertically at any location on the main dock surface shall not tilt the dock more than six degrees from horizontal or overstress the framing members.
 - b. Dead load plus uniform live loading on one-half of the dock width or under dead load plus concentrated load of 400 pounds applied vertically within 12 inches of any side shall not have more than 5 degrees of tilt from the horizontal.
3. Maximum dead load deflection for main walk docks (applies to length and width): one inch in 10 feet at acceptance; 1.5 inches in 10 feet at the end of warranty period.
4. Dead load freeboard shall be maintained within two inches of that identified in these specifications for a period of five years following installation.

D. Horizontal loads

1. A uniform horizontal wind loading from any direction shall be calculated based on the design wind pressure on all surfaces, for each of the vessel occupancy

scenarios described above and illustrated in the bid plans. For wind pressure loading, average vessel profile heights shall be based on upper curves, Figure 3-15, p. 219, "Planning and Design Guidelines for Small Craft Harbors", ASCE Manuals and Reports on Engineering Practice No. 50 (2012) and the slip length indicated on the Drawings/in these Specifications. Each shielded vessel shall be assumed to receive 20% of the unshielded wind loading. Compute wind load from all directions including outer diagonal opposite corners of docks and fingers (as applicable). Do not deduct for walkways, fingers, or open areas between boats. CONTRACTOR shall also identify, determine, and state the maximum wind pressure load that the unoccupied docking system can withstand, based on the other design parameters provided within this specification. See Drawings for vessel sizes to be used in this calculation.

2. A horizontal load due to impact on a dock or finger pier shall be the result of the largest berthed craft normally using the adjacent slip striking the end of the dock 10 degrees off center line. Use 45 degrees for side-tie berths. The craft shall be considered moving at a speed of 2 fps. Vessel displacement in pounds shall be computed as $[18 * (\text{vessel length})^2]$, where vessel length is length overall in feet.
 3. Loading due to waves shall be calculated on the basis of waves as described in Paragraph 1.5.
 4. Floating debris load allowances shall be included in the design of the system.
 5. Anchorage layout and design shall be in accordance with the requirements of this Section and related marine piling Sections. Anchorage system shall restrain the floating docks under the extreme loading described herein.
- E. Additional Load Combinations
1. Dead Load + Vertical Wave Load: Loading to be applied to analyze and determine the adequacy of a large portion of the system to sustain the loading for fatigue, based on more than two (2) million cycles.
 2. Dead Load + Vertical Wave Load + Wind Load: Loading case to determine the stresses in the dock system structural elements.
 3. Dead Load + Horizontal Wind Load + Horizontal Wave Load: Loading case to determine anchor pile requirements.
 5. Overstress factors are allowed for above loading combinations when either wind, wave, or berthing forces are analyzed.
- F. Berthing layout shall be designed and installed as schematically shown on the Drawings. Any significant deviations required based on the DOCK MANUFACTURER's proprietary product(s) shall be submitted to DESIGN CRITERIA PROFESSIONAL for approval.
- G. Natural period of vertical motion of the floating dock system shall be documented by the DOCK MANUFACTURER.

3.2 FABRICATION REQUIREMENTS – FLOATING DOCK STRUCTURES

- A. Finished metal members shall be free from twists, bends, distortions, open joints, sharp edges, and burrs. Ends of exposed metal members shall be rounded or beveled. All coping and mitering shall be done with care.
- C. Adjacent floating dock modules shall be separated by neoprene pads (or alternate approved material) or otherwise connected so that maximum gap on the walking surface is 1/2 inch. CONTRACTOR may provide cover plate for gaps larger than 1/2 inch. Submit details with Design Submittal.
- C. Drilling and cutting of steel after galvanizing shall be minimized. Where necessary, such holes and edges shall be painted with two coats of high zinc dust content paint per MIL-P-21035B. All welds over galvanized material shall be thoroughly cleaned and coated with two coats of cold galvanizing compound.
- D. All welding shall conform to the requirements of the American Welding Society (AWS D1.1 for steel and AWS D1.2 for aluminum as applicable). Welds shall be a solid and homogenous part of the metals joined and shall be free from pits or scale, and shall be of full area and length required to develop the required strength for the intended use.
- E. All bolts, nuts, and washers shall be set square with connecting structural members and the nuts shall be drawn tight. Lock washers or other devices or techniques shall be used to prevent nuts from loosening after being properly tightened. High strength bolts shall be used where required in accordance with the American Institute of Steel Construction specifications “Structural Joints Using ASTM A325 or A490 Bolts.” Deck fasteners shall be corrosion resistant stainless steel screws.
- F. Lumber shall be counter-bored wherever projecting bolt heads or nuts may damage boats or provide a hazard to pier users. Counter-boring shall be sufficiently deep to permit installation of the bolts and nuts with washers well below the surface of the wood. The heads of dome head bolts may project above the surface.
- G. Connections between floating pier modules or other elements such as lifting rings shall not protrude above the level of the deck. Gaps between deck boards shall be no less than 1/16 inch and no more than 1/4 inch. There shall not be any gap in the walking surface of the floating piers that exceeds 1/2 inch.
- H. Connections shall be designed to permit removal and replacement of connectors without the necessity of removing other components for access. Connectors shall be of materials that are easily available and shall be positively contained so as to prevent their working free under normal conditions. All connections must be capable of transmitting all loads and forces imposed upon the structure.
- I. All deck surfaces shall be level and properly drained so that water will not puddle on the deck surface. Adjacent dock modules shall have less than 1/8-inch difference in elevation. No point on the walking surface shall have any abrupt vertical change exceeding 1/4”.

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- J. Any potential corrosive installation of dissimilar materials shall be properly insulated to minimize or eliminate corrosion in the marine environment.

3.3 DESIGN REQUIREMENTS – DOCK ACCESSORIES

- A. Pile guides for floating docks shall allow free vertical movement of the dock, while minimizing damage due to normal dock movement caused by water level fluctuations, boat wakes, and seasonal winds. Piles and pile guides shall be of sufficient strength and number to secure the dock system under the extreme loading conditions given herein, per the Contractor's design. Pile guides shall be internal in all areas where berthing may occur. Exposed pile guide shall be framed with bumper and rub rail to protect vessels from impact damage. Pile guides shall not restrict the clear width of the walking surface on the floating dock to less than 36 inches.
- B. Dock utilities shall be supplied and installed as described in the Drawings. Appropriate conduit and/or raceways, stub-up locations, access panels, and junction boxes shall be provided to accommodate all required utility services to and on the docks. CONTRACTOR shall coordinate requirements of dock utilities with DOCK MANUFACTURER during design and fabrication process, including access/routing and dead loads. Utility access panels shall allow for easy access at regular intervals along the deck surface and provide direct access at all indicated valves, expansion joints, flexible piping connections, etc. as indicated on the utilities plans.
- C. All work shall conform to reviewed and approved Shop Drawings. Construction details and colors of the completed dock system shall be consistent throughout.
- D. All floating dock design and construction, including appurtenances and accessories shall comply with the provisions of the 2010 ADA Standards for Accessible Design Section 1003.

3.4 FABRICATION REQUIREMENTS – DOCK ACCESSORIES

- A. Pile guides shall be of a multiple roller or rub block type and allow full vertical movement of the pier system without inducing binding or torsion into the system. Pile guides must be of sufficient strength to secure the system under the extreme loading conditions given in this specification. Guide pile rollers shall include a roller made of ultra high molecular weight (UHMW) plastic mounted on a stainless steel axle. The mounting bracket shall be galvanized after fabrication. Rollers shall be configured for simple replacement and be adjustable.
- D. Any potential corrosive installation of dissimilar materials shall be properly insulated to minimize or eliminate corrosion in the marine environment.
- E. The floating dock section at the gangway landing shall include appropriate contact surfaces for accepting the gangway landing wheels and transition plate, so that movement of the gangway and transition plate will not wear on the dock surface over time or create unnecessary noise.

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3.5 MATERIALS, TRANSPORT, HANDLING AND STORAGE

- A. The CONTRACTOR shall take care in establishing handling methods to avoid damage to floating docks and other materials during removal, storage, assembly, and installation.
- B. Do not stack items where damage may occur. Materials delivered and stored at either the manufacturing facility, staging area, or jobsite shall be properly stored on dunnage or by other appropriate means to prevent direct contact with the ground and unnecessary damage.
- C. The CONTRACTOR is responsible for coordination of the storage, handling, and transport requirements for all materials with DOCK MANUFACTURER and all SUB CONTRACTORS. The DESIGN CRITERIA PROFESSIONAL may reject floating docks or other materials damaged during execution of the Work and the CONTRACTOR shall replace such items at no additional cost to the OWNER.
- D. Excessive cracks, splits, stress marks, or other damage or manufacture defect in any flotation unit shall be cause for rejection of the unit. Any frequently recurring crack, split, stress mark, or other damage or manufacture defect pattern shall be considered indicative of inadequate design, fabrication or improper handling. CONTRACTOR shall correct such occurrences by replacement and appropriate changes in design, fabrication, handling or other procedures.

3.6 INSTALLATION, CERTIFICATION AND TESTING

- A. The CONTRACTOR shall secure supervision and/or inspection services from the Floating DOCK MANUFACTURER during the installation of their product.
- B. Anchorage installation shall be per requirements of Section 02454 Marine Piling and related Sections/information.
- C. After final installation of the floating docks, the Manufacturer shall furnish to the CONTRACTOR and OWNER written certification that the floating docks have been installed according to DOCK MANUFACTURER's recommendations and engineering submittals described in this Specification.
- D. Certification must be submitted before the final application for payment is processed.
- E. Prior to final acceptance, DESIGN CRITERIA PROFESSIONAL reserves the right to direct the CONTRACTOR to perform load tests and freeboard measurements to ensure that the floating dock system meets the requirements of the Specification. Test may include:
 - 1. Measurement of dead load and live load freeboards.
 - 2. Measurement of list of all floats.
- F. Contactor shall submit results of the above tests to DESIGN CRITERIA PROFESSIONAL with final "as built" drawings (including all floating docks, accessories, and utilities), detailed fabrication drawings for floating docks, warranty,

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operations and maintenance manual(s), and listing of typical replacement parts, part numbers, and manufacturer contact information where applicable.

END OF SECTION

SECTION 02885
ALUMINUM GANGWAY

PART 1 - GENERAL

1.1 WORK INCLUDED

The work covered under this section shall include design, manufacturing, furnishing, and installation of the prefabricated aluminum gangway as shown on the Drawings. All pre-fabricated gangway materials shall be approved by the Design Criteria Professional. The installing contractor shall be a qualified Marine Contractor.

1.2 RELATED WORK

A. Section 02853 – Floating Docks

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only and refer to the latest editions of each.

THE ALUMINUM ASSOCIATION, INC. (AA)

AA Aluminum Design Manual ADM-1
AA Specification for Aluminum Structures

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM B 209 Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B 211 Aluminum and Aluminum-Alloy Bar, Rod, and Wire
ASTM B 221 Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B 308 Aluminum-Alloy 6061-T6 Standard Structural Profiles
ASTM B 429 Aluminum-Alloy Extruded Structural Pipe and Tube
ASTM B 547 Aluminum-Alloy Formed and Arc-Welded Round Tube
ASTM F 593 Stainless Steel Bolts, Hex Cap Screws, and Studs
ASTM F 594 Stainless Steel Nuts

AMERICAN WELDING SOCIETY, INC. (AWS)

AWS D1.2 Structural Welding Code- Aluminum

UNITED STATES ACCESS BOARD, 2010 AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS

ADA Standards Chapter 10 Recreation Facilities, Section 1003, Recreational Boating Facilities

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1.4 SUBMITTALS

To insure that all specified criteria have been met, the Contractor shall be required to submit the following for acceptance prior to fabrication, during Shop Drawing Phase:

- A. Dimensional layout of gangway components to be furnished under this Contract.
- B. Engineering calculations showing compliance with the design criteria specified herein. All calculations shall be stamped with the seal of a qualified, licensed South Carolina Professional Engineer. Calculations shall include, at a minimum, compliance with combined live and dead load requirements considering bending and deflection, as well as the effects of gangway-induced loads on floating docks. Submit calculations of maximum loads and strength at connections (hinges, rollers, tread plates, etc.) and handrails. Minimum load requirements shall be in accordance with Technical Specifications Section 02853 - FLOATING DOCKS, and Part 3, Paragraph 3.1 of this Specification.
- C. Typical sections or details of the following:
 - 1. Hinge details
 - 2. Handrail and edge protection details
 - 3. Roller/dock interface detail, including transition plates
 - 4. Gangway structural details
 - 5. Utility support details
 - 6. Gangway and dock interface and conflicts at high water levels
- D. Materials data sheets for aluminum, fasteners, and UHMW items.

1.5 WARRANTY

The gangway system shall carry a warranty against defects in design, materials, and workmanship for a minimum of five (5) years from the date of project acceptance.

PART 2 - PRODUCTS

The following requirements are a minimum and must be met by Contractor in accordance with the requirements of Part 1 of this specification. Alternate approval must be in writing from the Design Criteria Professional. Approval of shop drawings will be required prior to fabrication.

2.1 MATERIALS

- A. Metal for gangway structures and rails shall be 6061-T6 or 6063-T5 or -T6 aluminum alloy, respectively, and extruded in accordance with the requirements of applicable sections of Federal Specification QQ-A-200. The material shall be temper suitable for saltwater service in accordance with applicable ASTM Standards B209, B211, B221, B308, B429, and B547 for various materials used.
- B. All welds shall be in accordance with AA "Specifications for Aluminum Structures" and ASTM D1.2.

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- C. All fasteners shall be Aluminum or 316 Series Stainless Steel in accordance with ASTM F593 and F594, and be compatible with aluminum in a marine environment.
- D. Rollers for gangways shall be UHMW polyethylene with ultra-violet light inhibitor added. Rollers shall have sealed bearings which do not require lubrication. Axles shall be Type 316 stainless steel.

PART 3 - EXECUTION

3.1 DESIGN REQUIREMENTS

- A. Framing and structural components of the gangway shall be designed with minimum safety factors on working stress which conform to those set forth in the latest issue of the Aluminum Association "SPECIFICATION FOR ALUMINUM STRUCTURES" using allowable stresses for bridges. For non-aluminum components, similar safety factors shall apply.
- B. The gangway structure, decking, and transition plates shall be designed to withstand a minimum uniform vertical live load of 50 pounds per square foot of deck surface area, in combination with the structure dead load. Allowable deflection shall be $L/240$ where "L" is the free span between contact points in inches.
- C. Design loads shall also consider stresses resulting from handling and installation, and provide notations on how to lift to unload and set in place.
- D. The horizontal design load shall be the wind load for the site location, as specified in Section 02852 – Floating Docks, using the wind speed specified for the unoccupied floating docks. The horizontal design load shall be in combination with the dead weight.
- E. Minimum loads for gangway guardrails, handrails, and toe rails shall include the following independent load cases: (1) 20 lb/ft continuous load applied to the entire length and at the centerline of the element in any direction, and (2) 250 lb point load at any location and direction.
- F. Gangway lengths and overall widths shall be as shown on the Drawings and shall comply with ADA requirements, where applicable. Gangway lengths shown on the Drawings do not include transition plates. In no case shall the clear walkway width of any gangway be less than 36 inches.
- G. Gangways shall be designed to incorporate the dead load weight and any determined utilities or lighting requirements that traverse the gangway. Additional dead load weight of gangway shall be coordinated with the dock manufacturer to ensure adequate flotation under the gangway landing so that landing area maintains the same freeboard as the rest of the floating docks.
- H. Contractor shall provide design, materials, and installation for securely fastening the gangway to the fixed shore structure (fixed pier). Shoreside connection shall

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be designed to withstand the design dead and live loads imparted on the gangway and hinged to allow free vertical movement of the gangway with the site's normal and extreme water levels.

- I. All connection and utility routes shall be incorporated into the gangway design. Cable, hose, and pipe hangars shall be of similar material to the gangway or stainless steel and designed to support the maximum loaded condition of the utilities to minimize chafing, etc.
- J. Decking shall be of aluminum plank flooring with integral non-skid surface and have no gaps exceeding $\frac{1}{2}$ inch in the walking surface. Cross-cleats or other mechanical devices shall not be used to achieve non-skid capacity.
- K. All gangways denoted as "ADA Compliant" on the Drawings shall be fully compliant with ADA Standards Section 1003.
- L. Transition plates at ADA Compliant gangways shall not exceed 1V:12H or length of 6 ft, which may require recessing of the waterward end of the gangway into the floating dock. In no case shall any transition plate exceed a slope of 1V:3H or include gaps larger than $\frac{1}{2}$ inch. Transition plates shall be the full width of the gangway and be attached to the gangway with a continuous pipe hinge. Transition plates shall include edge protection and handrails, where required by ADA Standards. Transition plates shall include a continuous UHMW polyethylene wear block, beveled as necessary to comply with accessibility requirements.
- M. The upper chord/member on gangways shall not extend more than 60 inches vertically above the gangway deck surface.

3.2 FABRICATION REQUIREMENTS

- A. Handrails shall be fabricated and installed to conform to ADA Standards. Handrails shall be aluminum alloy tube or pipe, with a 1.5 inch outer diameter and smooth gripping surface, with the top of the gripping surface located 36 inches above the deck surface.
- C. The dockside end of the gangway (rollers and transition plate) shall ride on aluminum, UHMW polyethylene, or alternate approved deck plates installed to provide protection to the dock surface and silent operation during normal and extreme water level movements. These deck plates shall also provide non-skid traction for foot/pedestrian traffic.
- D. Appropriate dielectric materials (non-conducting insulators, bushings, or bituminous paint) shall be used to separate dissimilar metals or where metal comes in contact with concrete or treated timber. Indicate materials and locations on Shop Drawings.
- E. All welding shall be performed in accordance with AWS D1.2.

END OF SECTION

APPENDIX A
FEDERAL (USACE) AND STATE (OCRM)
PERMITS



DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107

November 4, 2020

Regulatory Division

Desiree Fragoso
City of Isle of Palms
1207 Palm Boulevard
PO Box 508
Isle of Palms, SC 29451
DesireeF@iop.net

Dear Ms. Fragoso:

Enclosed is your Department of the Army Permit #SAC-1986-08495 for the project known as City of Isle of Palms Tidalwave Dock. It authorizes you to perform the work specified in the attached drawings. This permit is issued under provision of Federal laws for the protection and preservation of waters of the United States.

Please notify this office promptly, in writing or via email to Tracy.D.Sanders@usace.army.mil, when you start and complete work. Be aware a special condition is included in this permit requiring a copy of the permit and drawings be available at the work site during the entire time of construction.

Sincerely,

Travis G. Hughes
Chief, Regulatory Division

Attachments
DA Permit SAC-1986-08495
Notice of Commencement or Completion

DEPARTMENT OF THE ARMY PERMIT

Permittee: **MS. DESIREE FRAGOSO**

**CITY OF ISLE OF PALMS
1207 PALM BOULEVARD
PO BOX 508
ISLE OF PALMS, SC 29451
desireef@iop.net**

Permit No: **SAC-1986-08495**

Issuing Office: **CHARLESTON DISTRICT**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

The authorized work consists of the modification of the previously issued permit for the existing commercial dock. The modification involves reconfiguring the existing dock landward by approximately 1-3' to comply with and be located behind/landward of the Corps' setback line of the AIWW. Additionally, the modification includes the after-the-fact authorization of the following existing structures that will remain: The 5' fixed walkway that leads to the irregularly shaped 16' X 14' covered fixed pier and associated uncovered 8.7' x 14' section and 6' x 4' section, that leads to a 4' X 20' gangway that leads to the irregularly shaped floating T-head dock as depicted in the permit drawings. The covered portion of the existing fixed pier includes a metal roof, corrugated metal siding, windows, and a roll-up canvas cover used for shade that will remain. The work to reconfigure the dock includes leaving the existing pilings in place, reusing the pilings and modifying the dock framing. The proposed modification includes the construction of the following new structures: Nine (9) 13.5' X 5' jet docks and two (2) 12.5 X 5' jet docks that will be attached to the existing floating dock; and an 8' X 11' fixed timber pier that connects the existing fixed pier with a new 8' X 80' ADA compliant gangway that leads to a new 10' X 12' gangway pony float that will be attached to the existing floating dock. The proposed work also includes the addition of temporary/removable shade fabric on the floating dock. The permittee will complete the work in accordance with the attached drawings sheet 1-10 of 10 entitled: Isle of Palms Watersports Dock Permit Drawings, SAC-1986-08495, and dated September 15, 2020.

Project Location:

The project is located on the Atlantic Intracoastal Waterway (AIWW) near the end of 41st Street in the City of Isle of Palms, Charleston County, South Carolina (Latitude: 32.80578 °, Longitude: -79.76119 °).

General Permit Conditions:

1. The time limit for completing the work authorized ends on **September 30, 2025**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Permit Conditions:

See Appendix A, pages 6 through 9.

Further information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:
 - Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403)
 - Section 404 of the Clean Water Act (33 USC 1344)
 - Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 USC 1413)

2. Limits of this authorization.

- a. This permit does not obviate the need to obtain other Federal, State or local authorizations required by law.
- b. This permit does not grant any property rights or exclusive privileges.
- c. This permit does not authorize any injury to the property or rights of others.
- d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume liability for:

- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
- b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
- c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
- d. Design or construction deficiencies associated with the permitted work.
- e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. The Corps may reevaluate its decision on this permit any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to:

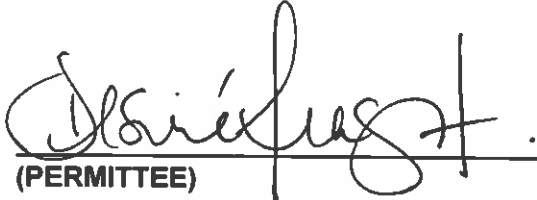
- a. Failure to comply with the terms and conditions of this permit.
- b. The information provided by you in support of your permit application proves false, incomplete, or inaccurate (See 4 above).
- c. Significant new information surfaces which the Corps did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by the Corps, and if you fail to comply with such directive, the Corps may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.


6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity

or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of Army permit #SAC-1986-08495.



(PERMITTEE)
MS. DESIREE FRAGOSO
CITY OF ISLE OF PALMS
desireef@iop.net



(DATE)



PRINT NAME

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

(DISTRICT ENGINEER)
Rachel A. Honderd, PMP
or their Designee
Travis G. Hughes
Chief, Regulatory Division

(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) (PRINT NAME)

(DATE)

APPENDIX A
SPECIAL CONDITIONS FOR PERMIT SAC-1986-08495

a. The permittee agrees to provide all contractors associated with construction of the authorized activity a copy of the permit and drawings. A copy of the permit must be available at the construction site at all times.

b. The permittee shall submit a signed compliance certification to the Corps within 60 days following completion of the authorized work and any required mitigation. The certification will include:

1. A copy of this permit.
2. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions.
3. The signature of the permittee certifying the completion of the work and mitigation.

c. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or their authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

d. Use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters of the U.S.

e. The permittee must install and maintain, at their expense, any safety lights and signals prescribed by the U.S. Coast Guard (USCG), through regulations or otherwise, on authorized facilities. The USCG may be reached at the following address and telephone number: (as of February 2013) U. S. Coast Guard District Seven, Waterways Management Branch, 909 SE 1st Ave, Suite 406, Miami, FL. 33131, and 305-415-6755 or 305-415-6750.

f. It is recognized that this structure is to be constructed on/or adjacent to an area subject to a prism and/or disposal easement held by the United States in perpetuity in conjunction with a Congressionally authorized project for the maintenance and improvement of the Atlantic Intracoastal Waterway (AIWW). This permit does not convey any property rights either in real estate or material or any exclusive use privileges; nor does it relinquish any right the United States has for the use of its easement or the maintenance and future widening or deepening of the AIWW pursuant to its easement rights.

g. It is understood and agreed that if the District Commander determines this structure shall in any way in the future conflict with the improvement, operation, maintenance and widening or deepening of the AIWW, the owners themselves, their heirs, successors and assigns will

remove said structure within 45 days from the date that written notice is given by the District Commander, and there shall be no entitlement to compensation from the United States for damage or injury.

h. Conveyance of this permit applies only to the structure authorized and does not authorize the construction of any permanent structure or any structure suitable for habitation or any utility leading either to permanent structures suitable for habitation or to permanent structures within the bounds of areas on which the Corps of Engineers enjoys easement rights.

i. The permittee agrees that no permanent structures, beyond those authorized by this document, will be placed on the prism easement or on any adjacent disposal easement without written approval of the District Commander.

j. That the Secretary of the Army, representing the United States of America, hereby consents to the herein authorized facilities or structures to be located on or across easement lands vested in the United States of America for the construction and operation of the AIWW. The permittee shall not engage in any act which may interfere with or abridge the easement interests of the United States, except those specifically authorized herein.

k. That the permittee agrees to provide, as a part of the completion notification, as-built drawings which indicate all dimensions of the structure as well as the distance between the edge of the federal channel, and the waterward edge of the authorized structure. The drawings should also include the State Plane Coordinates, NAD 1983, for a minimum of two corners on each structure where it is closest to the federal channel. These drawings must be prepared by a registered land surveyor and submitted within sixty (60) days of the completion of the structure. Failure to provide these drawings will result in non-compliance with the permit and further enforcement action will be taken.

l. Floating docks shall be located in areas of adequate depth to ensure that clearance between the float and the bottom is maintained at all times. In areas where the depth is not adequate to maintain clearance, floating docks shall be fitted with structures (i.e. float stops) that prevent the float from contacting the bottom.

m. Prior to beginning the authorized work, the permittee must coordinate with the local NFIP flood plain manager and comply with FEMA requirements. A list of NFIP floodplain managers may be found at: <http://www.dnr.sc.gov/water/flood/index.html>.

n. In order to ensure protection of any threatened or endangered species, and designated critical habitat that may be present in the vicinity of the project area during construction activities, the permittee will comply with the following:

1. The permittee shall instruct all personnel associated with the project of the potential presence of and the need to avoid collisions with protected species, which may include but is not limited to West Indian manatees, Atlantic sturgeon, shortnose sturgeon, sea turtles, wood stork, blue whale, fin whale, humpback whale, North Atlantic right whale, sei whale and sperm whale.

2. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing protected species, to include

manatee(s), which are protected under the Marine Mammal Protection Act of 1972 and/or the Endangered Species Act of 1973.

3. Any siltation barriers used during the project shall be made of material in which protected species, to include manatee(s), cannot become entangled and must be properly secured, and regularly monitored to avoid protected species entrapment.

4. All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

5. If protected species, to include manatee(s), are seen within 100 yards of the active construction area all appropriate precautions shall be implemented to ensure protection of the protected species, to include manatee(s). These precautions shall include the operation of all moving equipment no closer than 50 feet to a protected species, to include manatee(s). Operation of any equipment closer than 50 feet to a protected species, to include manatee(s), shall necessitate immediate shutdown of that equipment. Activities will not resume until the protected species, to include manatee(s), has departed the project area of its own volition.

6. Incidents where any individuals of sea turtles, Atlantic sturgeon, shortnose sturgeon, blue whale, fin whale, humpback whale, North Atlantic right whale, sei whale and sperm whale listed by NOAA Fisheries under the Endangered Species Act appear to be injured or killed as a result of discharges of dredged or fill material into waters of the United States or structures or work in navigable waters of the United States authorized by this DA permit shall be reported to NOAA Fisheries, Office of Protected Species at (727) 824-5312, the SCDNR Hotline at 1-800-922-5431, and the Regulatory Office of the Charleston District of the U.S. Army Corps of Engineers at (843) 329-8044. The finder should leave the animal alone, make note of any circumstances likely causing the death or injury, note the location and number of individuals involved and, if possible, take photographs. Adult animals should not be disturbed unless circumstances arise where they are obviously injured or killed by discharge exposure, or some unnatural cause. The finder may be asked to carry out instructions provided by NOAA Fisheries, Office of Protected Resources, to collect specimens or take other measures to ensure that evidence intrinsic to the specimen is preserved.

7. The permittee understands and agrees that all in-water lines (rope, chain, and cable, including the lines to secure turbidity curtains) must be stiff, taut, and non-looping. Examples of such lines are heavy metal chains or heavy cables that do not readily loop and tangle. Flexible in-water lines, such as nylon rope or any lines that could loop or tangle, must be enclosed in a plastic or rubber sleeve/tube to add rigidity and prevent the line from looping and tangling. In all instances, no excess line is allowed in the water. Where appropriate, in water wires should be fitted with PVC sleeve from the surface to the bottom to prevent any potential scraping of the passing manatees.

8. The permittee understands and agrees that pilings will be installed using a water jet or vibratory hammer, to the maximum extent practicable. In the event standard pile driving (impact hammer) is utilized, the permittee understands and agrees that a soft-strike procedure (three strikes at 40%-60% energy level once a minute for 3 minutes)

must be conducted prior to beginning pile driving activities and after any pile driving interruptions of more than 30 minutes.

9. That the permittee understands and agrees that pile driving activities must be limited to 12 hours per day with a 12-hour rest period between pile driving activities to avoid potential cumulative noise impacts to Federally-listed Threatened and Endangered (T&E) species.

o. In order to ensure protection and reduce potential construction-related impacts to West Indian manatees that may be in the vicinity of the project area during construction activities performed outside the winter months, to discountable and insignificant levels, the permittee will comply with the following for all projects affecting the coastal waters of South Carolina:

1. The permittee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel MUST monitor water-related activities for the presence of manatee(s) during May 1 - November 15. Construction personnel are requested to monitor outside of that timeframe as manatees may be in the area before or after the above dates.

2. Any collision with and/or injury to a manatee shall be reported immediately to the U.S. Fish and Wildlife Service contacts: Melanie Olds, South Carolina Manatee Lead, Charleston Field Office, at 843-727-4707 ext. 205; or Terri Calleson, Manatee Recovery Coordinator, North Florida Field Office, at 904-731-3286.

p. The permittee must make every reasonable effort to conduct the authorized work in a manner so as to minimize any adverse impact to fish, wildlife, and other environmental resources; and minimize any degradation of water quality to include the use of Best Management Practices (BMP's) as appropriate.

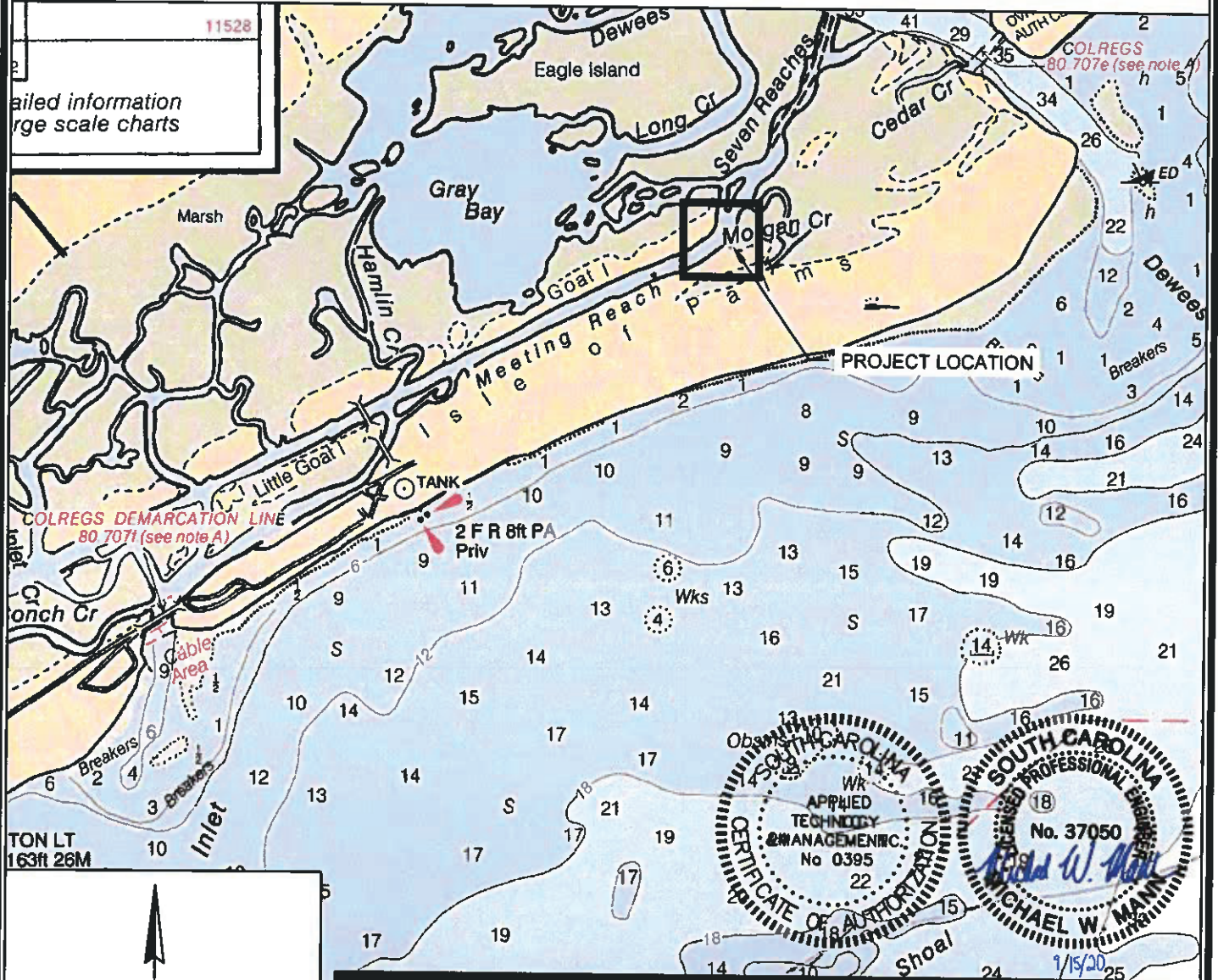
Permitted Plans

Isle of Palms Watersports Dock Permit Drawings, SAC-1986-08495

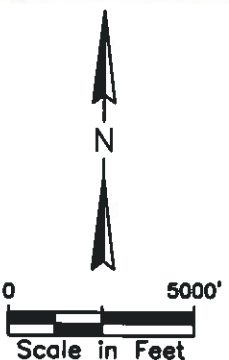
September 15, 2020 Sheet 1 of 10

FOR PERMITTING PURPOSES ONLY
"NOT FOR CONSTRUCTION"

ISLE OF PALMS MARINA WATERSPORTS DOCK IMPROVEMENTS



Datum	Abbreviation	8665387 MLW, FT	8665387 NAVD88, FT
Mean Higher High Water	MHHW	5.4	2.5
Mean High Water	MHW	5.0	2.1
North American Vertical Datum, 1988	NAVD88	2.9	0
Mean Low Water	MLW	0.0	-2.9
Mean Lower Low Water	MLLW	-0.2	-3.1



O:\Projects\18-227\IP Marina Permits & Design\DWG\watersports dock COLREGS Permit 18-16-19_v03.dwg 1-location 9/15/20
 NOTE: THESE DRAWINGS AND DESIGNS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF ATM DESIGN ENGINEERING CONSULTING.

PROJECT: Isle of Palms Marina
WATERBODY: Watersports Dock
COUNTY: Charleston
STATE: South Carolina
LATITUDE: 32°48'21.24"N
LONGITUDE: 79°45'40.68"W

**COVER PAGE &
 LOCATION MAP**
 Requested by: City of Isle of Palms
 Project Address: 69 41st Avenue, Isle of Palms
 Parcel ID: 571080007

ATM DESIGN ENGINEERING CONSULTING
 September 15, 2020
 SHEET 1

Permitted Plans

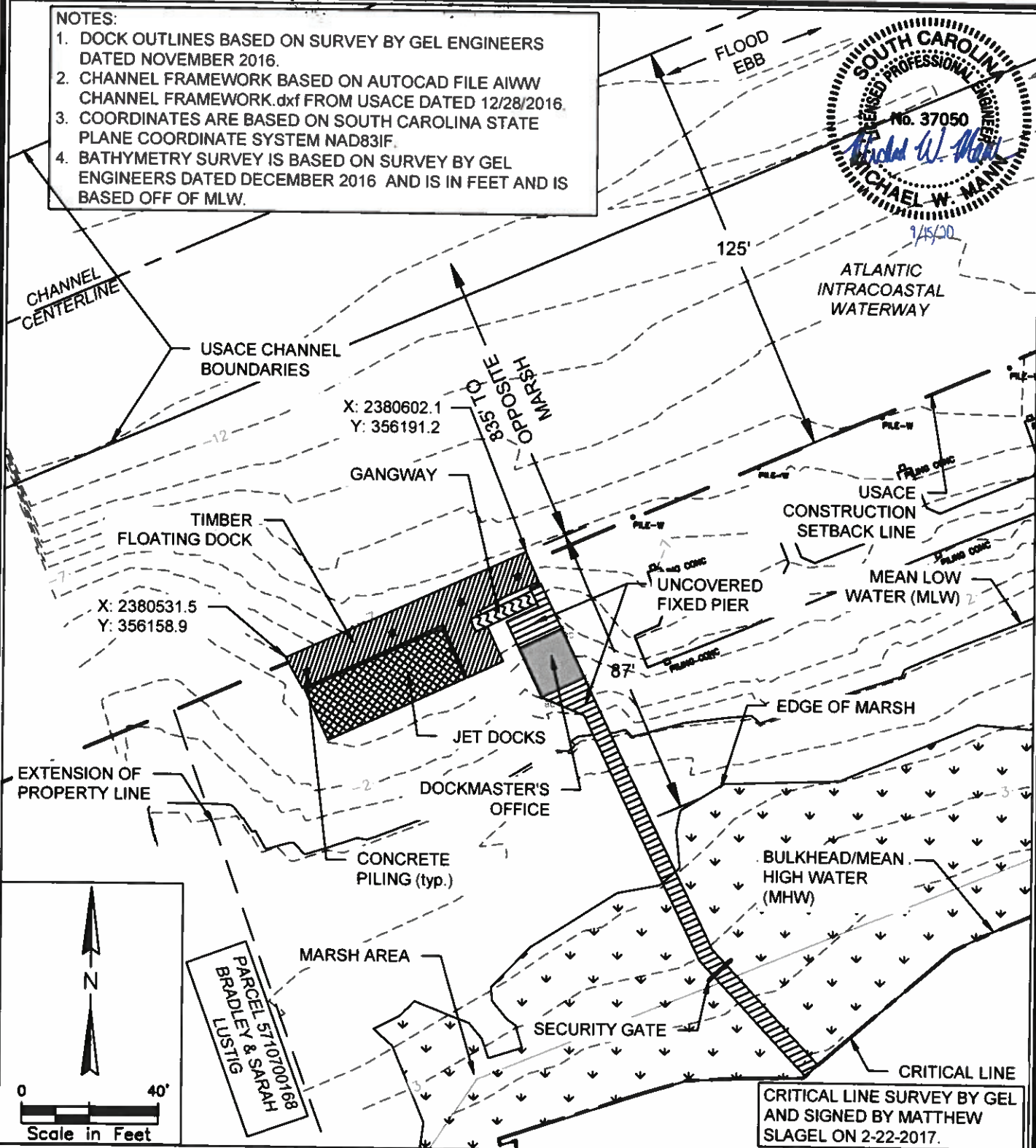
Isle of Palms Watersports Dock Permit
 Drawings, SAC-1986-08495

September 15, 2020 Sheet 2 of 10

FOR PERMITTING PURPOSES ONLY
 "NOT FOR CONSTRUCTION"

NOTES:

1. DOCK OUTLINES BASED ON SURVEY BY GEL ENGINEERS DATED NOVEMBER 2016.
2. CHANNEL FRAMEWORK BASED ON AUTOCAD FILE AIWW CHANNEL FRAMEWORK.dxf FROM USACE DATED 12/28/2016.
3. COORDINATES ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM NAD83IF.
4. BATHYMETRY SURVEY IS BASED ON SURVEY BY GEL ENGINEERS DATED DECEMBER 2016 AND IS IN FEET AND IS BASED OFF OF MLW.



CRITICAL LINE SURVEY BY GEL AND SIGNED BY MATTHEW SLAGEL ON 2-22-2017.

PARCELS 5710700168
 BRADLEY & SARAH
 LUSTIG

O:\Project\18-3237 IOP Marina Permits & Design\IOP\watersports dock CORPS Permit 10-16-19_v03.dwg 2-Existing 9/15/20
 NOTE: THESE DRAWINGS AND DESIGNS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF ATM DESIGN ENGINEERING CONSULTING.

PROJECT: Isle of Palms Marina
 Watersports Dock
 WATERBODY: AIWW
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'21.24"N
 LONGITUDE: 79°45'40.68"W

EXISTING CONDITIONS

Requested by: City of Isle of Palms

Project Address: 69 41st Avenue, Isle of Palms

Parcel ID: 5710800007

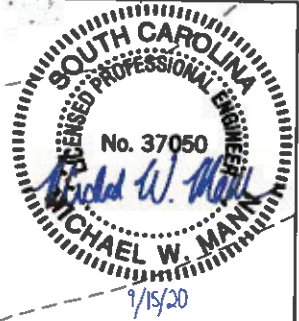


September 15, 2020
 SHEET 2

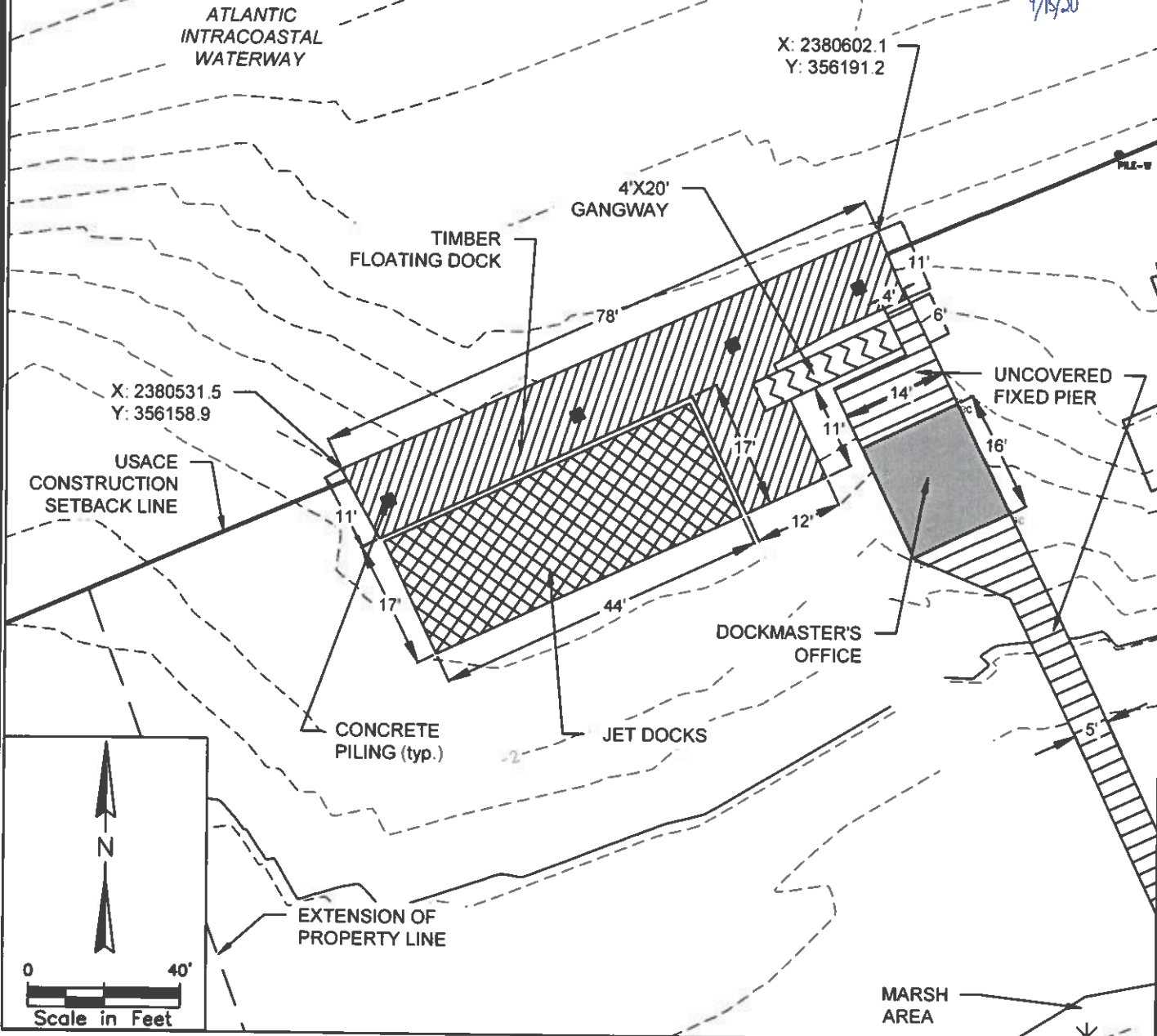
Permitted Plans

Isle of Palms Watersports Dock Permit
 Drawings, SAC-1986-08495
 September 15, 2020 Sheet 3 of 10

FOR PERMITTING PURPOSES ONLY
 "NOT FOR CONSTRUCTION"



- NOTES:**
1. DOCK OUTLINES BASED ON SURVEY BY GEL ENGINEERS DATED NOVEMBER 2016.
 2. CHANNEL FRAMEWORK BASED ON AUTOCAD FILE AIWW CHANNEL FRAMEWORK.dxf FROM USACE DATED 12/28/2016.
 3. COORDINATES ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM NAD83IF.
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O:\Projects\18-3287 IOP Marina Permitting & Design\DWG\watersports dock\CORPS Permit\18-16-19_403.dwg 3-Existing detail 9/15/20
 NOTE: THESE DRAWINGS AND DESIGNS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF ATM DESIGN ENGINEERING CONSULTING.

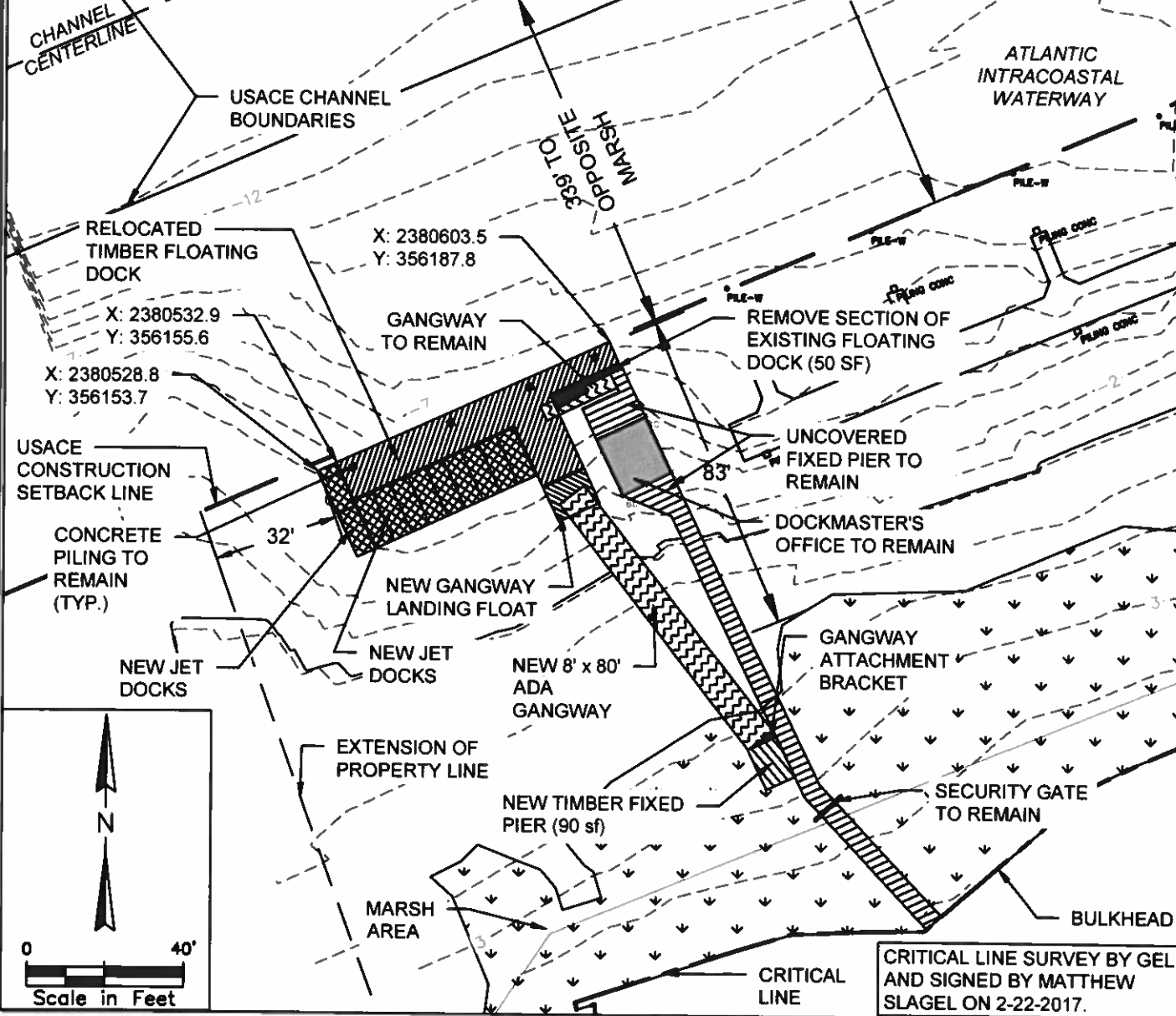
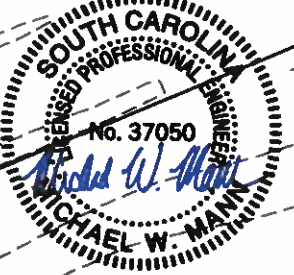
PROJECT:	Isle of Palms Marina Watersports Dock	EXISTING CONDITIONS	
WATERBODY:	AIWW	Requested by: City of Isle of Palms	
COUNTY:	Charleston	Project Address: 69 41st Avenue, Isle of Palms	
STATE:	South Carolina	Parcel ID: 571080007	
LATITUDE:	32°48'21.24"N		September 15, 2020
LONGITUDE:	79°45'40.68"W		SHEET 3

Permitted Plans

Isle of Palms Watersports Dock Permit
 Drawings, SAC-1986-08495
 September 15, 2020 Sheet 4 of 10

FOR PERMITTING PURPOSES ONLY
 "NOT FOR CONSTRUCTION"

- NOTES:**
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CRITICAL LINE SURVEY BY GEL AND SIGNED BY MATTHEW SLAGEL ON 2-22-2017.

G:\Projects\18-3287 (OP) Marina Permits & Design\DWG\watersports dock CORPS Permit 18-16-19_v03.dwg 4-proposed 9/15/20
 NOTE: THESE DRAWINGS AND DESIGNS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF ATM DESIGN ENGINEERING CONSULTING.

PROJECT: Isle of Palms Marina
WATERBODY: Watersports Dock
COUNTY: Charleston
STATE: South Carolina
LATITUDE: 32°48'21.24"N
LONGITUDE: 79°45'40.68"W

PROPOSED IMPROVEMENTS
 Requested by: City of Isle of Palms
 Project Address: 69 41st Avenue, Isle of Palms
 Parcel ID: 571080007



September 15, 2020
 SHEET 4

Permitted Plans

Isle of Palms Watersports Dock

Permit Drawings, SAC-1986-08495

September 15, 2020

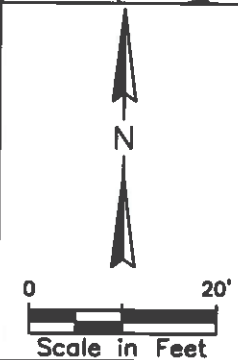
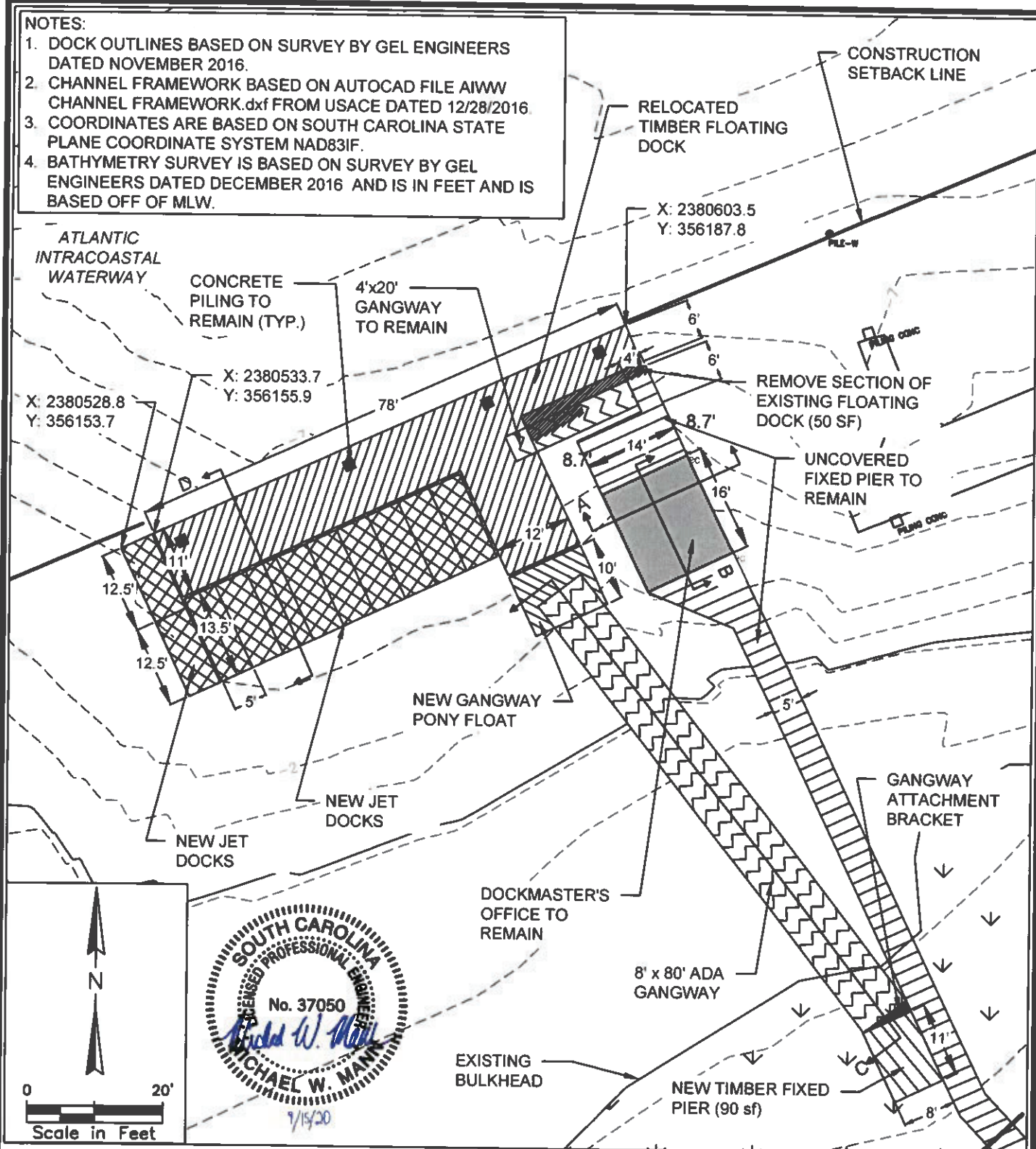
Sheet 5 of 10


FOR PERMITTING PURPOSES ONLY
"NOT FOR CONSTRUCTION"

NOTES:

1. DOCK OUTLINES BASED ON SURVEY BY GEL ENGINEERS DATED NOVEMBER 2016.
2. CHANNEL FRAMEWORK BASED ON AUTOCAD FILE AIIWW CHANNEL FRAMEWORK.dxf FROM USACE DATED 12/28/2016.
3. COORDINATES ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM NAD83IF.
4. BATHYMETRY SURVEY IS BASED ON SURVEY BY GEL ENGINEERS DATED DECEMBER 2016 AND IS IN FEET AND IS BASED OFF OF MLW.

O:\Projects\18-3287 IOP Marina Permitting & Design\DWG\watersports dock CORPS Permit 10-16-19-v03.dwg 5-proposed detail 9/15/20
 NOTE: THESE DRAWINGS AND DESIGNS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF ATM DESIGN ENGINEERING CONSULTING.
 APPLIED TECHNOLOGY & MANAGEMENT



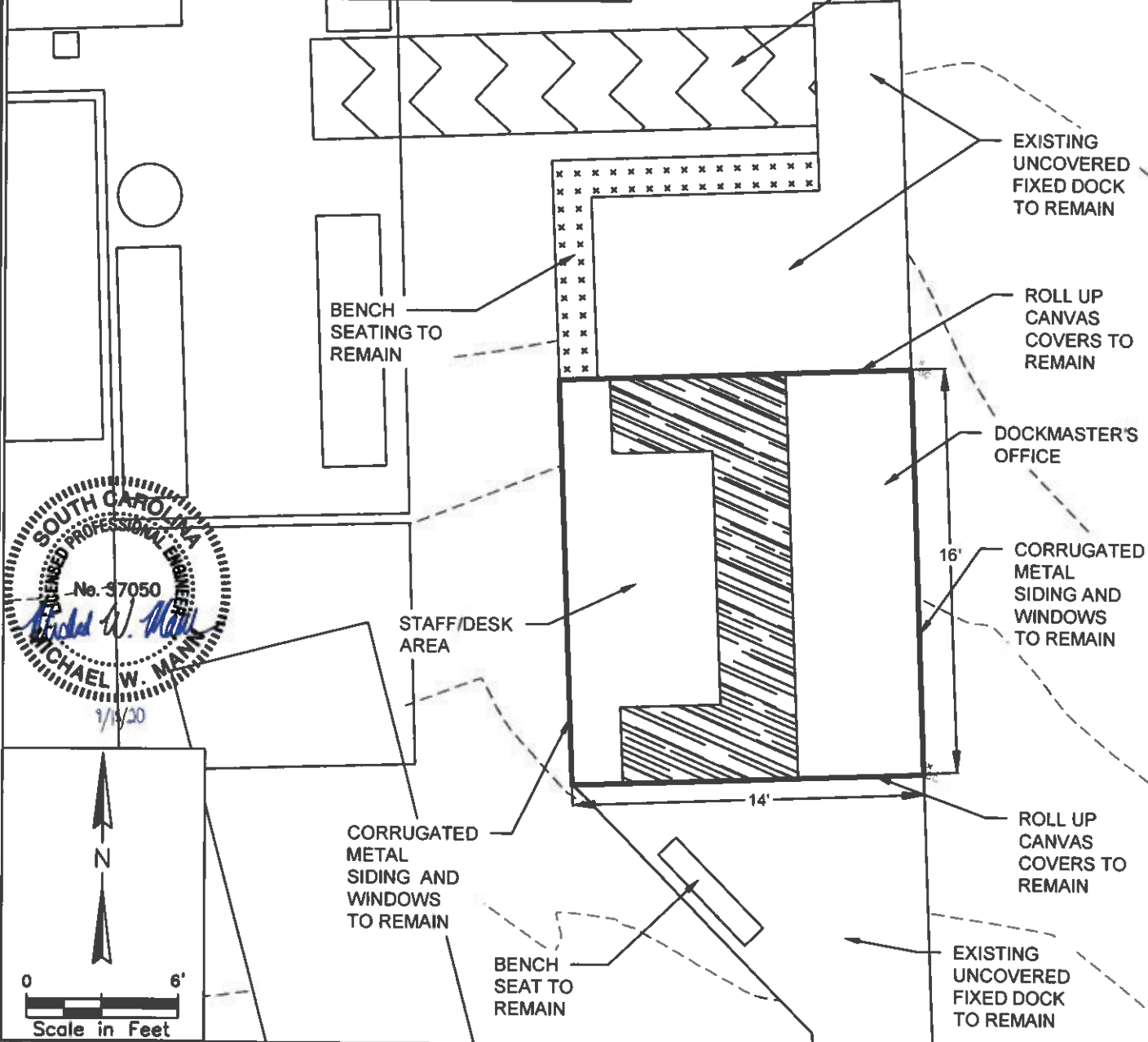
PROJECT:	Isle of Palms Marina	PROPOSED IMPROVEMENTS Requested by: City of Isle of Palms Project Address: 69 41st Avenue, Isle of Palms Parcel ID: 5710800007	 September 15, 2020 SHEET 5
WATERBODY:	Watersports Dock		
COUNTY:	Charleston		
STATE:	South Carolina		
LATITUDE:	32°48'21.24"N		
LONGITUDE:	79°45'40.68"W		

Permitted Plans

Isle of Palms Watersports Dock
Permit Drawings, SAC-1986-08495
September 15, 2020 **Sheet 6 of 10**

FOR PERMITTING PURPOSES ONLY
"NOT FOR CONSTRUCTION"

- NOTES:**
1. DOCK OUTLINES BASED ON SURVEY BY GEL ENGINEERS DATED NOVEMBER 2016.
 2. CHANNEL FRAMEWORK BASED ON AUTOCAD FILE AIWW CHANNEL FRAMEWORK.dxf FROM USACE DATED 12/28/2016.
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O:\Projects\18-3287 IOP Marina Permitting & Design\DWG\watersports dock\CORPSS Permit 10-16-19_003.dwg 6-Fixed Pier Detail 9/15/20
 NOTE: THESE DRAWINGS AND DESIGNS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF ATM DESIGN ENGINEERING CONSULTING.

PROJECT:	Isle of Palms Marina
	Watersports Dock
WATERBODY:	AIWW
COUNTY:	Charleston
STATE:	South Carolina
LATITUDE:	32°48'21.24"N
LONGITUDE:	79°45'40.68"W

PROPOSED IMPROVEMENTS
Requested by: City of Isle of Palms
Project Address: 69 41st Avenue, Isle of Palms
Parcel ID: 5710800007



September 15, 2020
SHEET 6

Permitted Plans

Isle of Palms Watersports Dock Permit

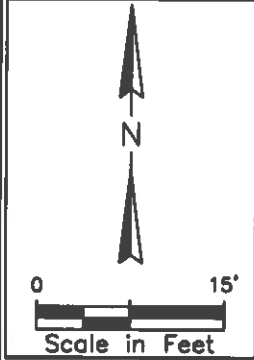
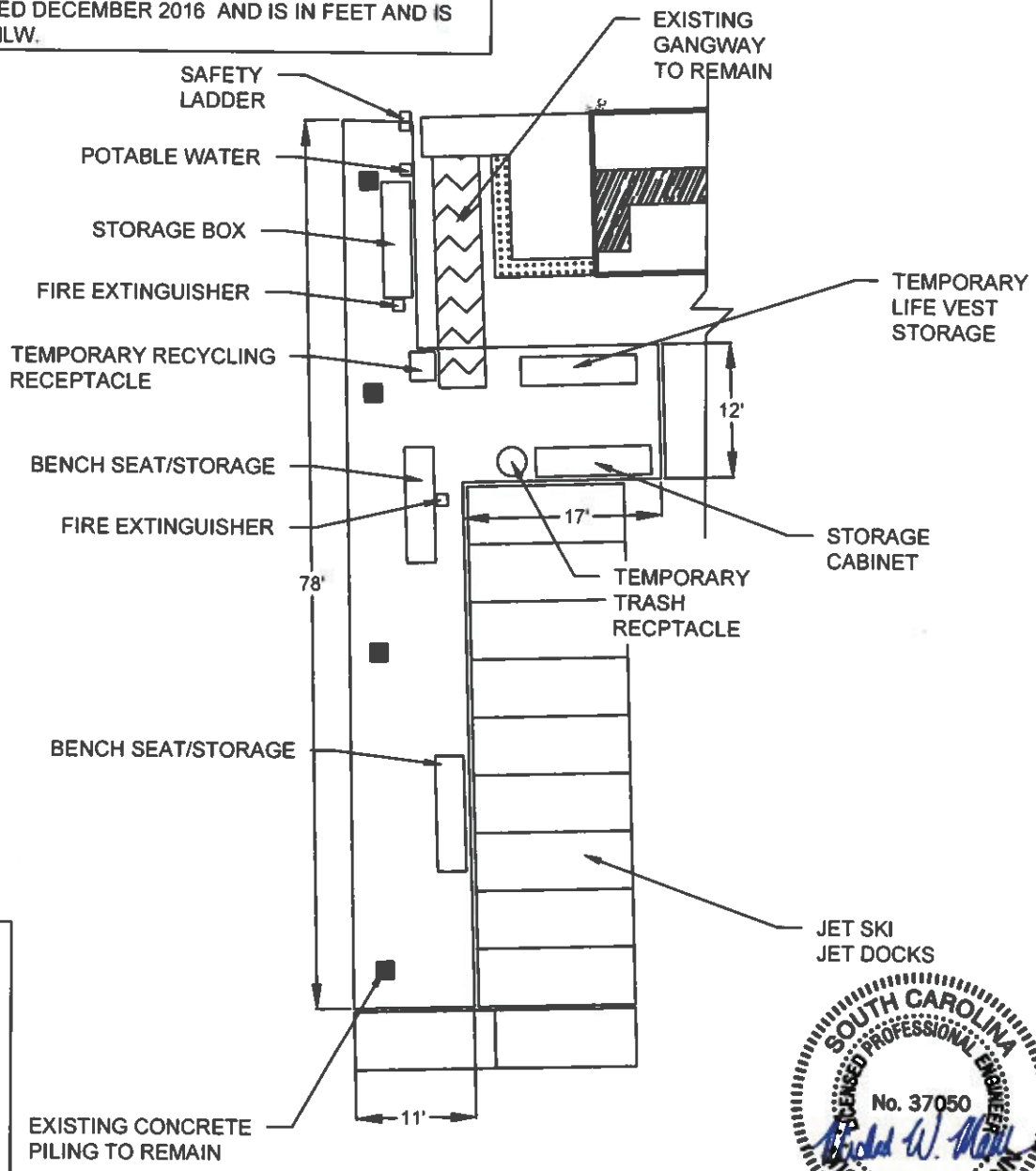
Drawings, SAC-1986-08495

September 15, 2020

Sheet 7 of 10

FOR PERMITTING PURPOSES ONLY
"NOT FOR CONSTRUCTION"

- NOTES:**
- DOCK OUTLINES BASED ON SURVEY BY GEL ENGINEERS DATED NOVEMBER 2016.
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O:\Projects\18-3287 IOP Marina Permitting & Design\DWG\watersports dock CORPS Permit 18-16-19_003.dwg 7-FLGATING DOCK DETAIL 091520
 NOTE: THESE DRAWINGS AND DESIGNS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF ATM ENGINEERING CONSULTING.

PROJECT:	Isle of Palms Marina Watersports Dock
WATERBODY:	AIWW
COUNTY:	Charleston
STATE:	South Carolina
LATITUDE:	32°48'21.24"N
LONGITUDE:	79°45'40.68"W

PROPOSED IMPROVEMENTS
Requested by: City of Isle of Palms
Project Address: 69 41st Avenue, Isle of Palms
Parcel ID: 5710800007

ATM DESIGN ENGINEERING CONSULTING

September 15, 2020
SHEET 7

Permitted Plans

Isle of Palms Watersports Dock Permit
 Drawings, SAC-1986-08495
 September 15, 2020 Sheet 8 of 10

FOR PERMITTING PURPOSES ONLY
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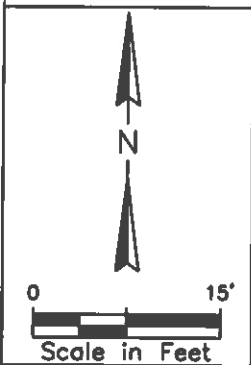
- NOTES:**
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TEMPORARY/REMOVABLE
SHADE FABRIC

DOCKMASTER'S OFFICE

TEMPORARY/REMOVABLE
SHADE FABRIC

17'



O:\Projects\18-327\IP Marina Permitting & Design\DWG\watersports dock CORPS Permit 10-16-19_v03.dwg 8 SHADE 9/15/20
 NOTE: THESE DRAWINGS AND DESIGNS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF ATM DESIGN ENGINEERING CONSULTING.

PROJECT: Isle of Palms Marina
 Watersports Dock
WATERBODY: AIWW
COUNTY: Charleston
STATE: South Carolina
LATITUDE: 32°48'21.24"N
LONGITUDE: 79°45'40.68"W

PROPOSED IMPROVEMENTS

Requested by: City of Isle of Palms

Project Address: 69 41st Avenue, Isle of Palms

Parcel ID: 5710800007



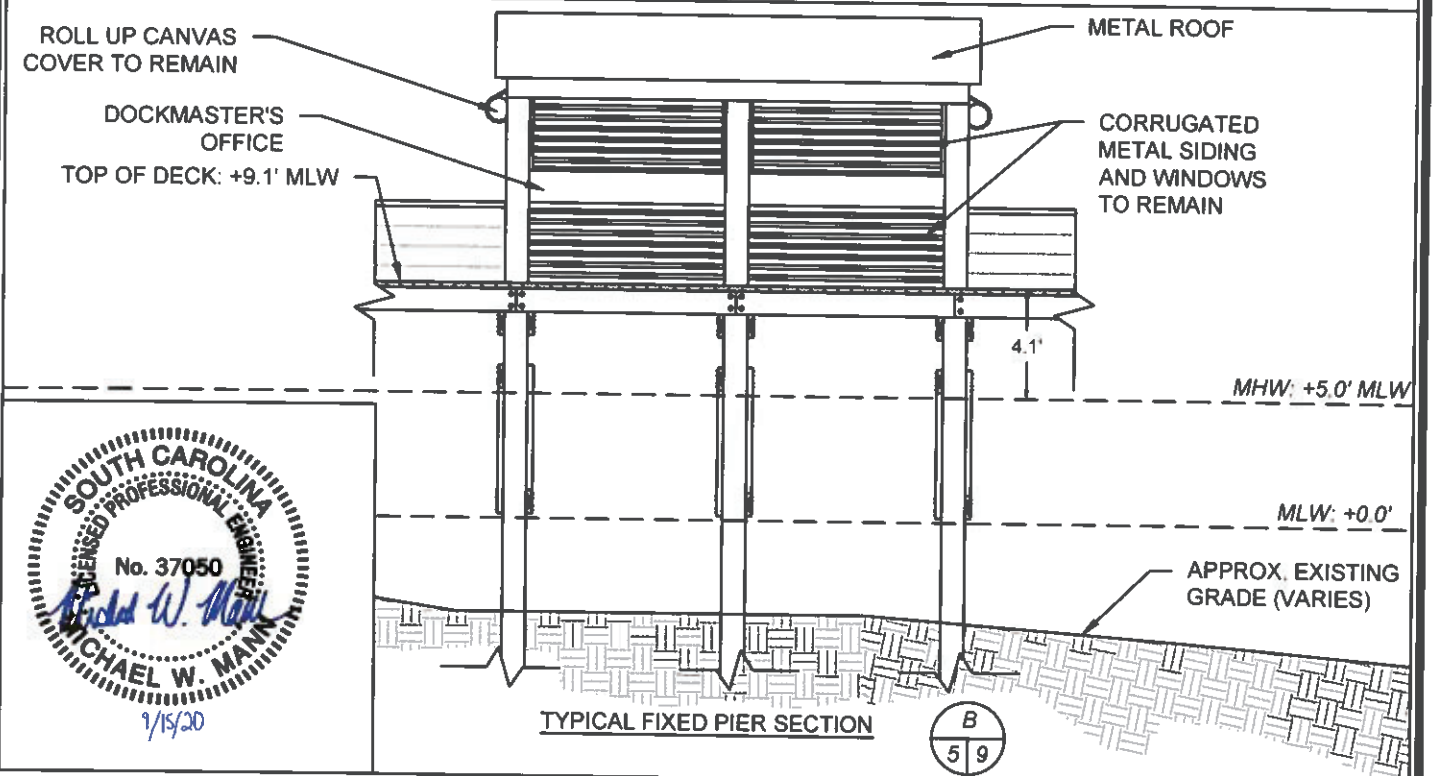
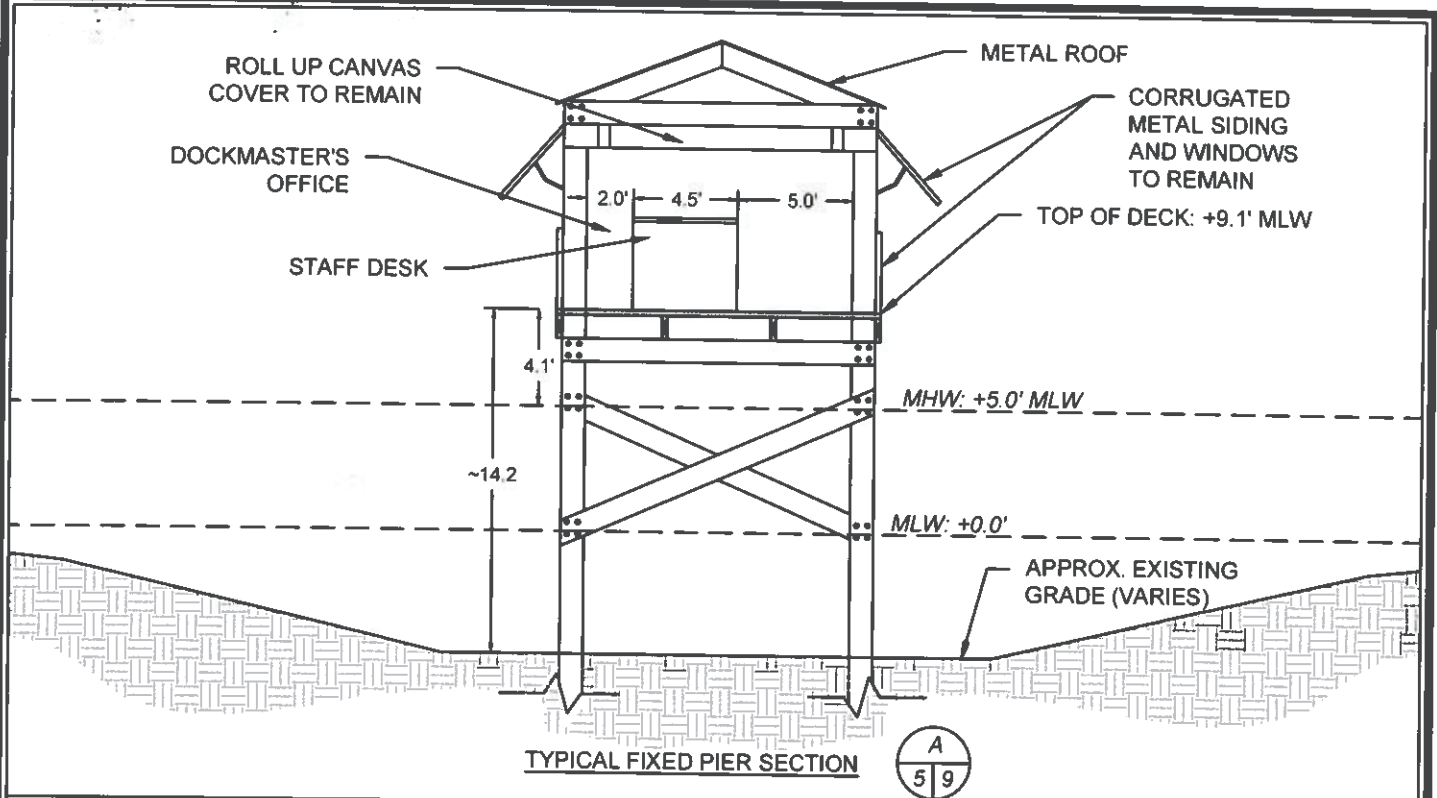
September 15, 2020
 SHEET 8

Permitted Plans

Isle of Palms Watersports Dock Permit
 Drawings, SAC-1986-08495
 September 15, 2020 Sheet 9 of 10

FOR PERMITTING PURPOSES ONLY
"NOT FOR CONSTRUCTION"

O:\Projects\18-3287\OP Marina Permitting & Design\DWG\watersports dock CORPS Permit_10-16-19_v03.dwg 9-Typical Sections 9/15/20
 NOTE: THESE DRAWINGS AND DESIGNS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF ATM DESIGN ENGINEERING CONSULTING.
 APPLIED TECHNOLOGY & MANAGEMENT



PROJECT:	Isle of Palms Marina
WATERBODY:	Watersports Dock
COUNTY:	Charleston
STATE:	South Carolina
LATITUDE:	32°48'21.24"N
LONGITUDE:	79°45'40.68"W

TYPICAL FIXED PIER SECTIONS	
Requested by: City of Isle of Palms	
Project Address: 69 41st Avenue, Isle of Palms	
Parcel ID: 5710800007	

ATM DESIGN ENGINEERING CONSULTING

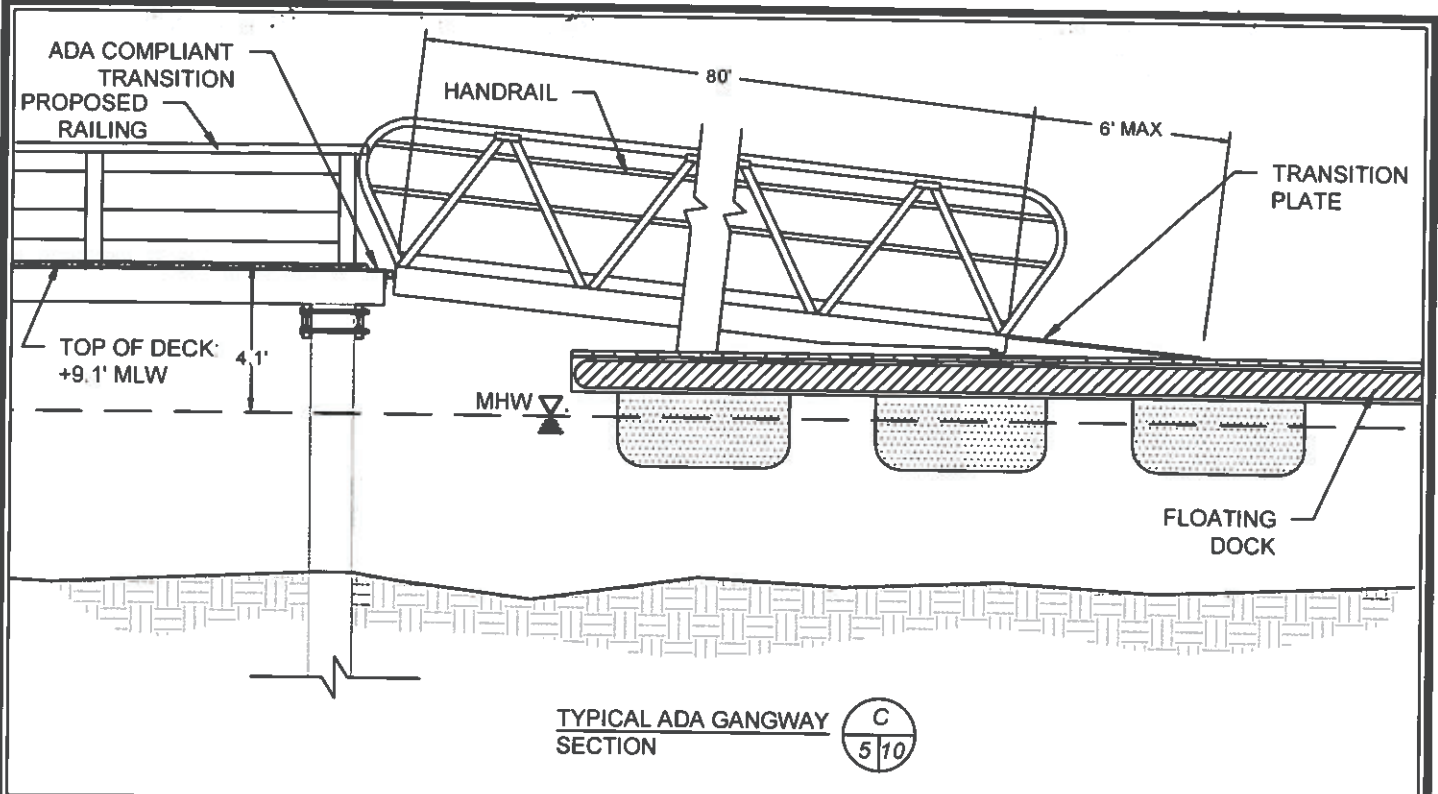
September 15, 2020
 SHEET 9

Permitted Plans

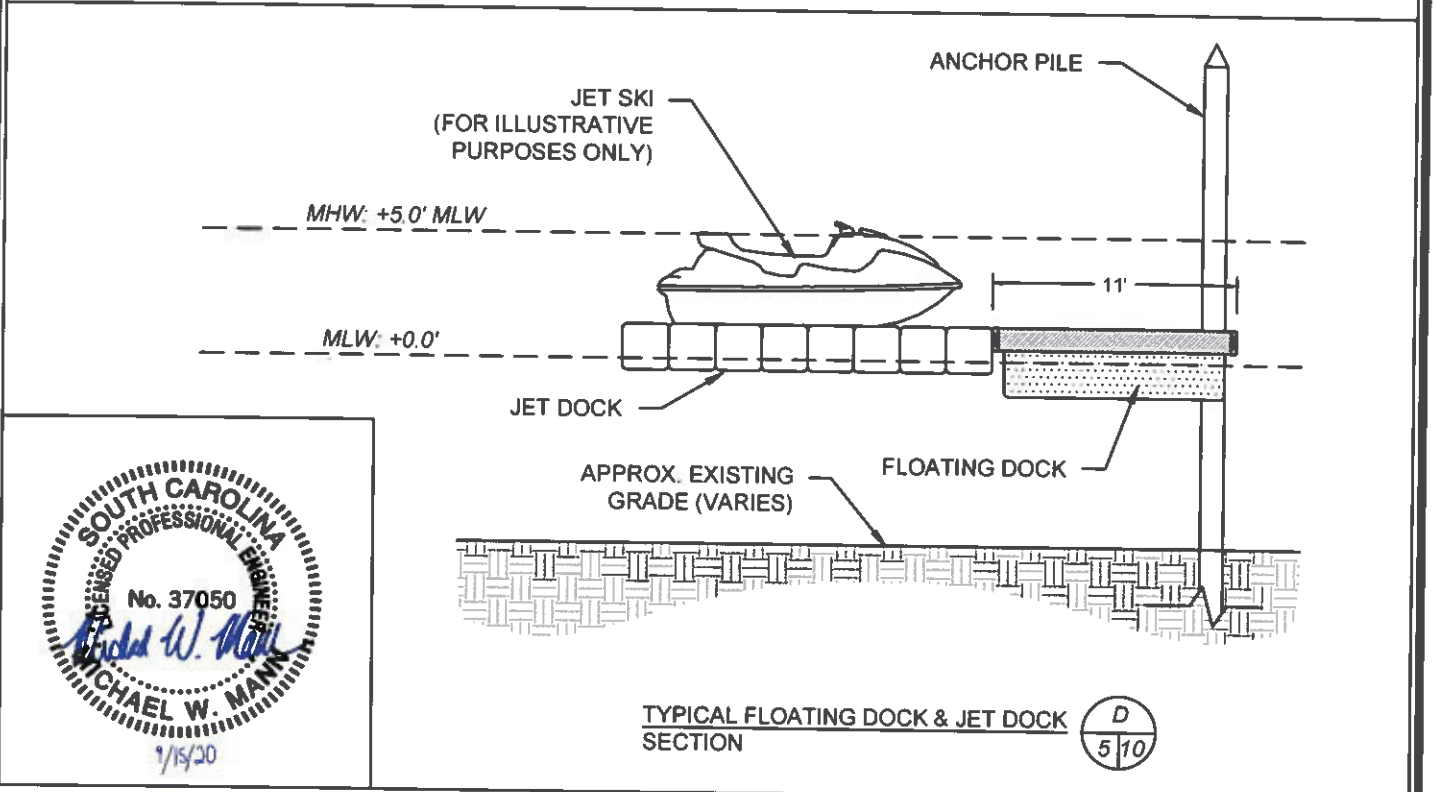
Isle of Palms Watersports Dock Permit
 Drawings, SAC-1986-08495
 September 15, 2020 Sheet 10 of 10

FOR PERMITTING PURPOSES ONLY
 "NOT FOR CONSTRUCTION"

O:\Projects\18-3287 Isle Palms Marina Permits & Design\DWG\watersports dock\CORPS Permit\18-16-19_u03.dwg 10-Typical Sections (2) 9/15/20
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TYPICAL ADA GANGWAY SECTION C
5/10



TYPICAL FLOATING DOCK & JET DOCK SECTION D
5/10



PROJECT:	Isle of Palms Marina Watersports Dock	TYPICAL DOCK SECTIONS Requested by: City of Isle of Palms Project Address: 69 41st Avenue, Isle of Palms Parcel ID: 5710800007	 September 15, 2020 SHEET 10
WATERBODY:	AIWW		
COUNTY:	Charleston		
STATE:	South Carolina		
LATITUDE:	32°48'21.24"N		
LONGITUDE:	79°45'40.68"W		



May 27, 2020

City of Isle of Palms
Attn: Desiree Fragoso
1207 Palm Boulevard
Isle of Palms, SC 29451

9489 0090 0027 6188 0208 43

Re: OCRM02165

Dear Desiree Fragoso, City of Isle of Palms:

The Office of Ocean and Coastal Resource Management (the Department) has reviewed your application modify an existing commercial dock at 50 4st Ave, Isle of Palms, Charleston County, South Carolina and has issued a permit for this work. You should carefully read the description of the authorized project and special conditions that have been placed on the permit, as these conditions may modify the permitted activity. In addition, there are a series of general conditions that should be reviewed. The original and one photocopy of the permit, as issued, are enclosed. After carefully reading the permit, if you wish to accept the permit as issued, sign and date in the signature block entitled "PERMITTEE" on the original version of the permit and return it to this Department. Keep the photocopy for your records.

PLEASE READ CAREFULLY: You are required to sign and return the original version of your permit to this Department. If this permit is not signed and returned within thirty (30) days of issuance, OR appealed within 15 days as described on the enclosed "Guide to Board Review", the Department reserves the right to cancel this permit. Please carefully review the enclosed "Guide to Board Review" for information and deadlines for appealing this permit.

We have also enclosed a "request for a construction placard" card. You must send in this card before the time you wish to start construction. At that time a construction placard will be sent to you to post at the construction site.

PLEASE NOTE: You are not authorized to commence work under the permit until we have received the original version of the entire permit signed and accepted by you, and a construction placard has been issued and posted at the construction site. The receipt of this permit does not relieve you of the responsibility of acquiring any other federal, state, or local permits that may be required. Please return the signed permit to the following address:

Office of Ocean and Coastal Resource Management
1362 McMillan Ave, Suite 400
Charleston, SC29405

Sincerely,

Joshua D Hoke
Project Manager
Critical Area Permitting Section

Enclosure

cc: Mr. Blair Williams, Critical Area Permitting Section Manager

**SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT**

CRITICAL AREA PERMIT & COASTAL ZONE CONSISTENCY CERTIFICATION

Permittee(s): Desiree Fragoso, City of Isle of Palms

Permit Number(s): OCRM02165

Date of Issuance: May 27, 2020

Expiration Date: May 27, 2025

Location: On and adjacent to Atlantic Intercoastal Waterway at 50 41ST AVE, ISLE OF PALMS
Charleston County, South Carolina (TMS#: 571-08-00-007)

SEE SPECIAL
CONDITION(S)

This permit is issued under the provisions of S. C. Code Ann. Section 48-39-10, et seq., and 23A S.C. Code Ann. Regs. 30-1 through 30-18, *as amended*. Please carefully read the project description and special conditions that appear on this permit/certification as they will affect the work that is allowed and may modify the work from that shown on the submitted plans. All special conditions attached to the permit will take precedent over submitted plans. The general conditions are also a part of this permit/certification and should be read in their entirety. The S. C. Contractor's Licensing Act of 1999, enacted as S.C. Code Ann. Section 40-11-5 through 430, requires that all construction with a total cost of \$5,000 or more be performed by a licensed contractor with a valid contractor's license for marine class construction, except for construction performed by a private landowner for strictly private purposes. Your signature on and acceptance of this permit denotes your understanding of the stated law regarding use of licensed contractors. All listed special and general conditions will remain in effect for the life of the permit. This applies to permittee, future property owners, or permit assignees.

DESCRIPTION OF THE PROJECT, AS AUTHORIZED

The plans submitted by you, attached hereto, show the work consists of the following: To modify the existing commercial dock. Specifically, the modification involves relocating the existing dock landward by approximately 1-3' to comply with and be located behind/landward of the United States Army Corps of Engineers' setback line of the Atlantic Intercoastal Waterway. The work to relocate the dock includes leaving the existing pilings in place, reusing the pilings and modifying the dock framing. The modification includes the construction of the following new structures: Nine (9) 13' X 5' floating boat storage structures and two (2) 12.5' X 5' floating boat storage structures that will be attached to the landward and floodside edge of the existing floating dock; and an 8' X 11' fixed timber pier with a new 8' X 80' ADA compliant gangway that leads to a new 10' X 13' pony float that will be attached to the existing floating dock. The proposed work also includes the addition of temporary/removable shade fabric on the floating dock. Additionally, the modification includes the after-the-fact authorization of the following structures that will remain: The 5' fixed walkway that leads to the 16' X 14' covered fixed pier which is utilized as the dock masters office, associated uncovered section and a 4' X 20' gangway that leads to the 11' X 78' floating dock. The dock masters office includes corrugated metal siding and windows that will remain and a roll-up canvas cover that will remain. The purpose of the proposed modification is to bring the existing dock structures into compliance with existing permits, provide ADA access to the floating dock system, and to improve the continued use of the dock for commercial operations.

SPECIAL CONDITIONS

1. The operations of the commercial marina shall be reviewed by the Department as deemed appropriate, but at least every five years. Based on this review, the Department may require, among other things, changes or

GENERAL CONDITIONS

- additions to the Operations and Maintenance Manual (manual) to address any water quality or other environmental problems, and a reduction in the size of, or a change in the configuration of, the marina. Such action may be taken at any time the Department determines that significant state water quality compliance or other problems exist, at the time the Department enlarges the closure area, or at the time of a review. The manual submitted for this facility is made a part of this permit and must be followed in the operation of this facility unless otherwise amended in writing by OCRM. The manual must be reviewed and revised to keep it up-to-date with existing facilities and operations. The manual must be in accordance with R. 30-12(E)(6) or the Rules and Regulations for Permitting in the Critical Areas of the Coastal Zone and with OCRM's Marina/Commercial Dock Operations And Maintenance Manual Requirements. An as-built survey of the structure(s) must be submitted to the Department within 90 days from completion of construction. The survey must be performed by a registered land surveyor, must show all components of the structure(s), and must list the starting and ending coordinates of the structure(s) in the SC State Plane Coordinate System, which can be obtained by survey-grade Global Positioning System equipment.
2. The permittee must implement best management practices during construction to minimize erosion and migration of sediments off site. These practices may include use of mulches, hay bales, silt fences, or other devices capable of preventing erosion and migration of sediments. All disturbed land surfaces must be stabilized upon project completion.
 3. The marina must have absorbent pads available for boat use and for removing incidental spills during fueling operations.
 4. The permittee must develop a spill prevention and clean up plan for this project. The plan should contain the names of appropriate officials to contact in case of a reportable spill and outline measures to be taken. Clean up materials, such as absorbent pads and booms, must be kept at the project site for small spills. This plan must be submitted to the Department for review and approval prior to initiation of the project. In most cases, this will be a part of the O & M Manual.
 5. An experienced operator shall be in charge of the marina and be responsible for compliance with the issued Operations and Maintenance Manual and with all conditions of the permit.
 6. Adequate litter receptacles must be located near all docks and walkways and around the marina facilities and should be maintained daily. Containers or other provisions for the disposal of oil, grease, old fuel, or other toxic or potentially hazardous substances should be found at the marina but shall not be placed over or near the water.
 7. The storage or disposal of new or used batteries, oil or lubrication containers, fuel containers, solvents, toxic cleaners, paint cans, etc., on the marina docks is prohibited.
 8. If power washing of boats is to be conducted at the marina then it must be conducted on a designated upland area and is not allowed over the water. Wastewater from this operation must be properly treated and can not be directly discharged into the adjacent waters. The discharge of any kind of waste into state waters, including, but not limited to, garbage, refuse, trash or debris, will be prohibited at the marina. Any lease agreement used to rent dock space shall include a statement prohibiting the discharge of these items or general garbage or other deleterious substances into the waters of the marina. It will also stress the need to maintain good water quality within the marina.
 9. No live-aboards are allowed at this facility. Live-aboards are defined and those persons staying overnight on boats in excess of three consecutive nights.
 10. Anti-fouling paints must not be used on any bulkheads, pilings, docks or dock supports within the confines of the facility.

11. Any painting, major engine repair, or other maintenance which may result in a discharge to the water must be performed in a designated upland site and not in or over the waters of the marina.
12. If dock boxes are allowed at the marina then they should be of a type that is leak-proof so that any material that spills or leaks inside the box will not leak out onto the marina docks and into the waters of the marina.
13. All parts of the docking structure are used for water dependent purposes only. No food or beverage service, vending machines, T-shirt sales, concessions, etc. are allowed on or across these dock facilities.
14. In the event that any historic or cultural resources and/or archaeological materials are found during the course of work, the applicant must notify the State Historic Preservation Office and the South Carolina Institute of Archaeology and Anthropology. Historic or cultural resources consist of those sites listed in the National Register of Historic Places and those sites that are eligible for the National Register. Archaeological materials consist of any items, fifty years old or older, which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal materials.

SEE SPECIAL
CONDITION(S)

PERMITTEE'S ATTENTION IS DIRECTED TO GENERAL CONDITIONS NUMBERS FOUR (4) AND FIVE (5). BY ACCEPTANCE OF THIS PERMIT, PERMITTEE IS PLACED ON NOTICE THAT THE STATE OF SOUTH CAROLINA, BY ISSUING THIS PERMIT, DOES NOT WAIVE ITS RIGHTS TO REQUIRE PAYMENT OF A REASONABLE FEE FOR USE OF STATE LANDS AT A FUTURE DATE IF SO DIRECTED BY STATUTE.

THE PERMITTEE, BY ACCEPTANCE OF THIS PERMIT AGREES TO ABIDE BY THE TERMS AND CONDITIONS CONTAINED HEREIN AND TO PERFORM THE WORK IN STRICT ACCORDANCE WITH THE PLANS AND SPECIFICATIONS ATTACHED HERETO AND MADE A PART HEREOF. ANY DEVIATION FROM THESE CONDITIONS, TERMS, PLANS AND SPECIFICATIONS SHALL BE GROUNDS FOR REVOCATION, SUSPENSION OR MODIFICATION OF THIS PERMIT AND THE INSTITUTION OF SUCH LEGAL PROCEEDINGS AS THE DEPARTMENT MAY CONSIDER APPROPRIATE.

Permit Number: **OCRM02165**

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

PERMITTEE(S) DATE
Desiree Fragoso, City of Isle of Palms

This permit becomes effective when the State official, designated to act for the Office of Ocean and Coastal Resource Management, has signed below.

Josh Hoke 5-27-2020
CRITICAL AREA PERMITTING PROJECT MANAGER DATE
Joshua D Hoke
Or Other Authorized State Official

SEE SPECIAL
CONDITION(S)

GENERAL CONDITIONS:

This construction and use permit is expressly contingent upon the following conditions which are binding on the permittee:

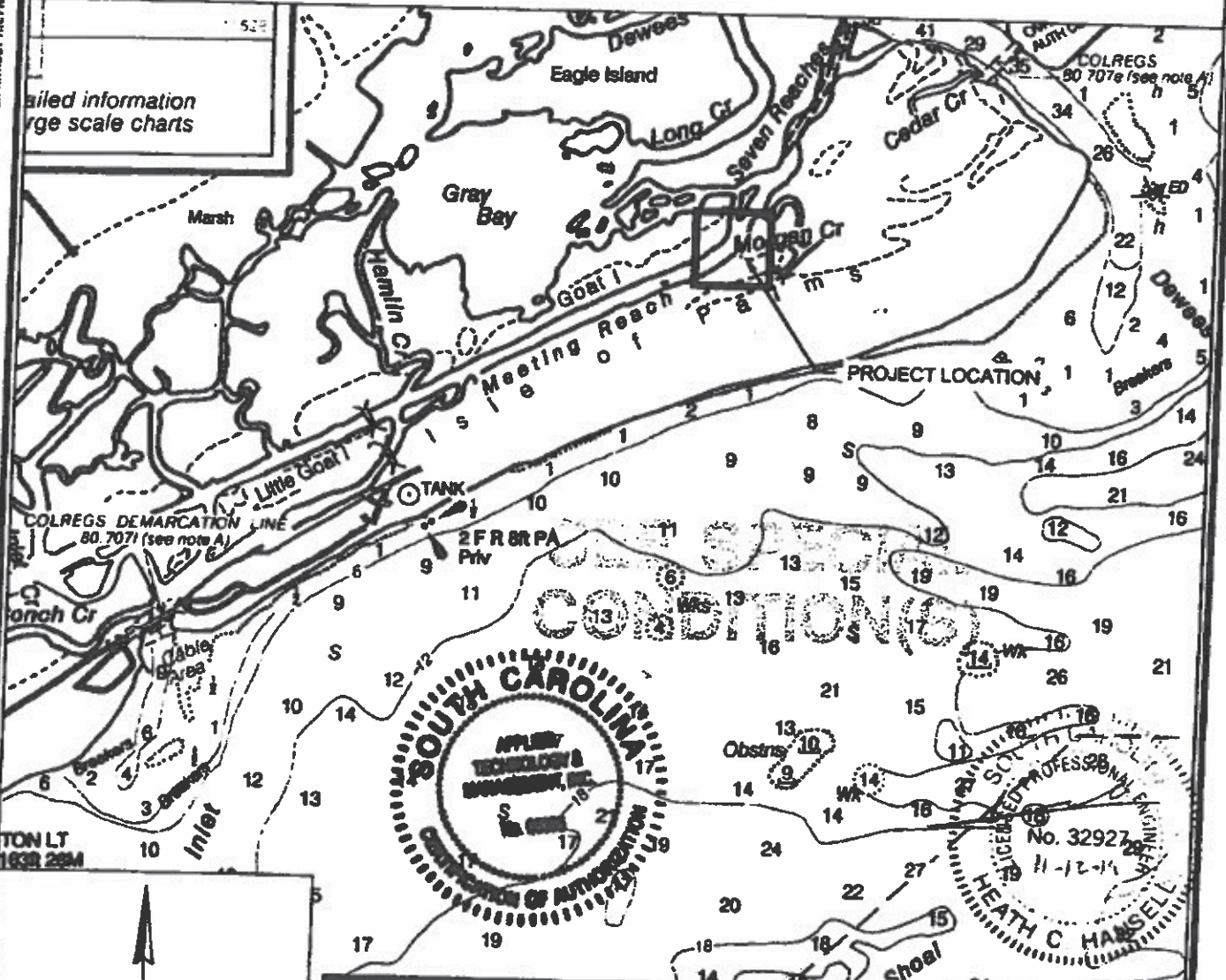
1. The permittee, in accepting this permit, covenants and agrees to comply with and abide by the provisions and conditions herein and assumes all responsibility and liability and agrees to save the Department and the State of South Carolina, its employees or representatives, harmless from all claims of damage arising out of operations conducted pursuant to this permit.
2. If the activity authorized herein is not constructed or completed within five years of the date of issuance, this permit shall automatically expire. A request, in writing, for an extension of time shall be made not less than thirty days prior to the expiration date.
3. All authorized work shall be conducted in a manner that minimizes any adverse impact on fish, wildlife and water quality.
4. This permit does not relieve the permittee from the requirements of obtaining a permit from the U. S. Army Corps of Engineers or any other applicable federal agency, nor from the necessity of complying with all applicable local laws, ordinances, and zoning regulations. This permit is granted subject to the rights of the State of South Carolina in the navigable waters and shall be subject, further, to all rights held by the State of South Carolina under the public trust doctrine as well as any other right the State may have in the waters and submerged lands of the coast.
5. This permit does not convey, expressly or impliedly, any property rights in real estate or material nor any exclusive privileges; nor does it authorize the permittee to alienate, diminish, infringe upon or otherwise restrict the property rights of any other person or the public; nor shall this permit be interpreted as appropriating public properties for private use.
6. The permittee shall permit the Department or its authorized agents or representatives to make periodic inspections at any time deemed necessary to ensure that the activity being performed is in accordance with the terms and conditions of this permit.
7. Any abandonment of the permitted activity will require restoration of the area to a satisfactory condition as determined by the Department
8. This permit may not be transferred to a third party without prior written notice to the Department, either by the transferee's written agreement to comply with all terms and conditions of this permit or by the transferee subscribing to this permit and thereby agreeing to comply.
9. If the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and special signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.
10. The permit construction placard or a copy of the placard shall be posted in a conspicuous place at the project site during the entire period of work.
11. The structure or work authorized herein shall be in accordance with the permit, as issued, and shall be maintained in good condition. Failure to build in accordance with the permit, as issued, or failure to maintain the structure in good condition, shall result in the revocation of this permit.

12. The authorization for activities or structures herein constitutes a revocable license. The Department may require the permittee to modify activities or remove structures authorized herein if it is determined by the Department that such activity or structures violates the public's health, safety, or welfare, or if any activity is inconsistent with the public trust doctrine. Modification or removal under this condition shall be ordered only after reasonable notice stating the reasons therefore and provision to the permittee of the opportunity to respond in writing. When the Permittee is notified that the Department intends to revoke the permit, Permittee agrees to immediately stop work pending resolution of the revocation.
13. The Department shall have the right to revoke, suspend, or modify this permit in the event it is determined the permitted structure (1) significantly impacts the public health, safety and welfare, and/or is violation of Section 48-39-150, (2) adversely impacts public rights, (3) that the information and data which the permittee or any other agencies have provided in connection with the permit application is either false, incomplete or inaccurate, or (4) that the activity is in violation of the terms and/or conditions, including any special conditions of the permit. That the permittee, upon receipt of the Department's written intent to revoke, suspend, or modify the permit has the right to a hearing. Prior to revocation, suspension, or modification of this permit, the Department shall provide written notification of intent to revoke to the permittee, and permittee can respond with a written explanation to the Department. (South Carolina Code Section 1-23-370 shall govern the procedure for revocation, suspension or modification herein described).
14. Any modification, suspension or revocation of this permit shall not be the basis of any claim for damages against the Department or the State of South Carolina or any employee, agent, or representative of the Department or the State of South Carolina.
15. All activities authorized herein shall be, if they involve a discharge or deposit into navigable waters or ocean waters, at all times consistent with all applicable water quality standards, effluent limitations, and standards of performance, prohibitions, and pretreatment standards established pursuant to applicable federal, state and local laws.
16. Extreme care shall be exercised to prevent any adverse or undesirable effects from this work on the property of others. This permit authorizes no invasion of adjacent private property, and the Department assumes no responsibility or liability from any claims of damage arising out of any operations conducted by the permittee pursuant to this permit.

PERMIT SPECIAL
CONDITION(S)

FOR PERMITTING PURPOSES ONLY
 "NOT FOR CONSTRUCTION"

ISLE OF PALMS MARINA WATERSPORTS DOCK IMPROVEMENTS



Datum	Abbreviation	8665387 MLW, FT	8665387 NAVD88, FT
Mean Higher High Water	MHHW	5.4	2.5
Mean High Water	MHW	5.0	2.1
North American Vertical Datum, 1988	NAVD88	2.9	0
Mean Low Water	MLW	0.0	-2.9
Mean Lower Low Water	MLLW	-0.2	-3.1

PROJECT: Isle of Palms Marina
 Watersports Dock
 WATERBODY: AWW
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'21.24"N
 LONGITUDE: 79°45'40.68"W

COVER PAGE &
 LOCATION MAP
 Requested by: City of Isle of Palms
 Project Address: 69 41st Avenue, Isle of Palms
 Parcel ID: 571080007

ATM DESIGN
 ENGINEERING
 CONSULTING
 November 12, 2019
 SHEET 1

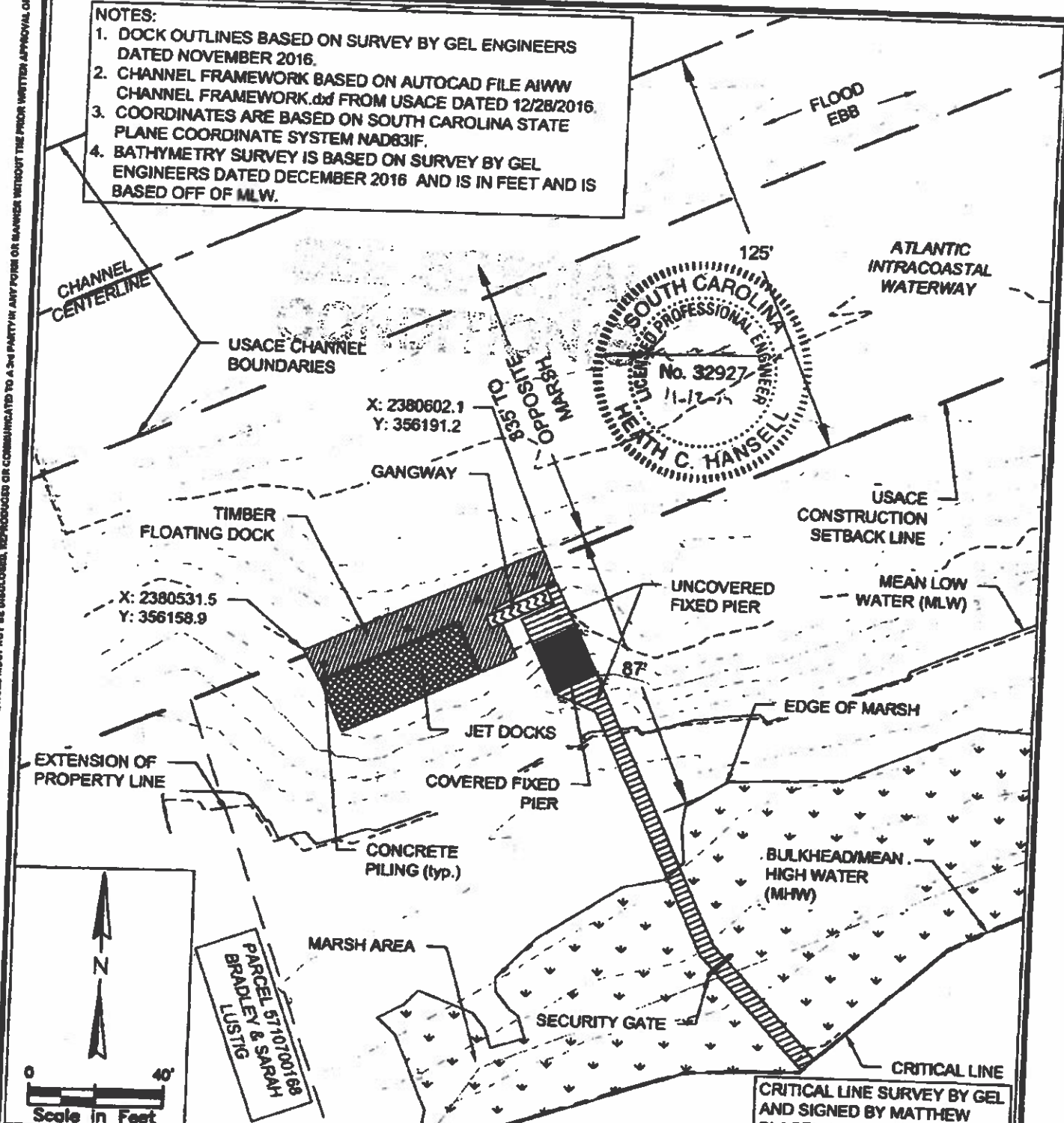
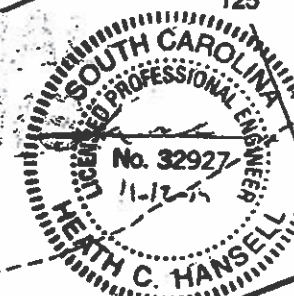
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7 of 16

**FOR PERMITTING PURPOSES ONLY
"NOT FOR CONSTRUCTION"**

NOTES:

1. DOCK OUTLINES BASED ON SURVEY BY GEL ENGINEERS DATED NOVEMBER 2016.
2. CHANNEL FRAMEWORK BASED ON AUTOCAD FILE AIWW CHANNEL FRAMEWORK.dwg FROM USACE DATED 12/28/2016.
3. COORDINATES ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM NAD83IF.
4. BATHYMETRY SURVEY IS BASED ON SURVEY BY GEL ENGINEERS DATED DECEMBER 2016 AND IS IN FEET AND IS BASED OFF OF MLW.



CRITICAL LINE SURVEY BY GEL AND SIGNED BY MATTHEW SLAGEL ON 2-22-2017.

PROJECT: Isle of Palms Marina
Watersports Dock

WATERBODY: AIWW

COUNTY: Charleston

STATE: South Carolina

LATITUDE: 32°48'21.24"N

LONGITUDE: 79°45'40.66"W

EXISTING CONDITIONS

Requested by: City of Isle of Palms

Project Address: 69 41st Avenue, Isle of Palms

Parcel ID: 571080007



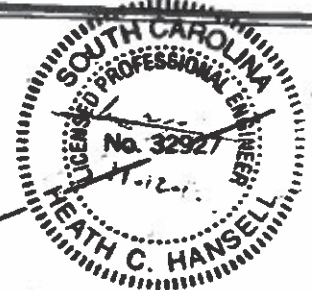
November 12, 2019
SHEET 2

C:\Users\jchris\OneDrive\Documents\Projects\19-3287 COP Marine Docking & Design\DWG\Marina Dock COP.dwg
 11/12/19
 NOTE: THESE DRAWINGS AND DESIGNS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTELLECTUAL PROPERTY LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF ATM DESIGN ENGINEERING CONSULTING.

**FOR PERMITTING PURPOSES ONLY
"NOT FOR CONSTRUCTION"**

NOTES:

1. DOCK OUTLINES BASED ON SURVEY BY GEL ENGINEERS DATED NOVEMBER 2016.
2. CHANNEL FRAMEWORK BASED ON AUTOCAD FILE A1WW CHANNEL FRAMEWORK.dwg FROM USACE DATED 12/28/2016.
3. COORDINATES ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM NAD83IF.
4. BATHYMETRY SURVEY IS BASED ON SURVEY BY GEL ENGINEERS DATED DECEMBER 2016 AND IS IN FEET AND IS BASED OFF OF MLW.



CHANNEL CENTERLINE

USACE CHANNEL BOUNDARIES

ATLANTIC INTRACOASTAL WATERWAY

SEE ATTACHED
COMMENTS

RELOCATED
TIMBER FLOATING
DOCK

X: 2380603.5
Y: 356187.8

X: 2380532.9
Y: 356155.6

X: 2380528.8
Y: 356153.7

GANGWAY
TO REMAIN

REMOVE SECTION OF
EXISTING FLOATING
DOCK (50 SF)

USACE
CONSTRUCTION
SETBACK LINE

CONCRETE
PILING TO
REMAIN
(TYP.)

UNCOVERED
FIXED PIER TO
REMAIN

COVERED FIXED
PIER TO REMAIN

NEW JET
DOCKS

NEW JET
DOCKS

NEW 8' x 80'
ADA
GANGWAY

GANGWAY
ATTACHMENT
BRACKET

EXTENSION OF
PROPERTY LINE

NEW TIMBER FIXED
PIER (90 sf)

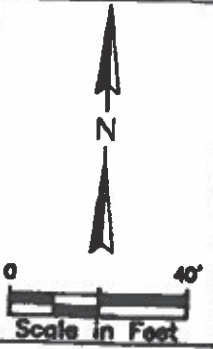
SECURITY GATE
TO REMAIN

MARSH
AREA

BULKHEAD

CRITICAL
LINE

CRITICAL LINE SURVEY BY GEL
AND SIGNED BY MATTHEW
SLAGEL ON 2-22-2017.



PROJECT: Isle of Palms Marina
Watersports Dock
WATERBODY: A1WW
COUNTY: Charleston
STATE: South Carolina
LATITUDE: 32°48'21.24"N
LONGITUDE: 79°45'40.68"W

PROPOSED IMPROVEMENTS

Requested by: City of Isle of Palms

Project Address: 69 41st Avenue, Isle of Palms

Parcel ID: 571080007

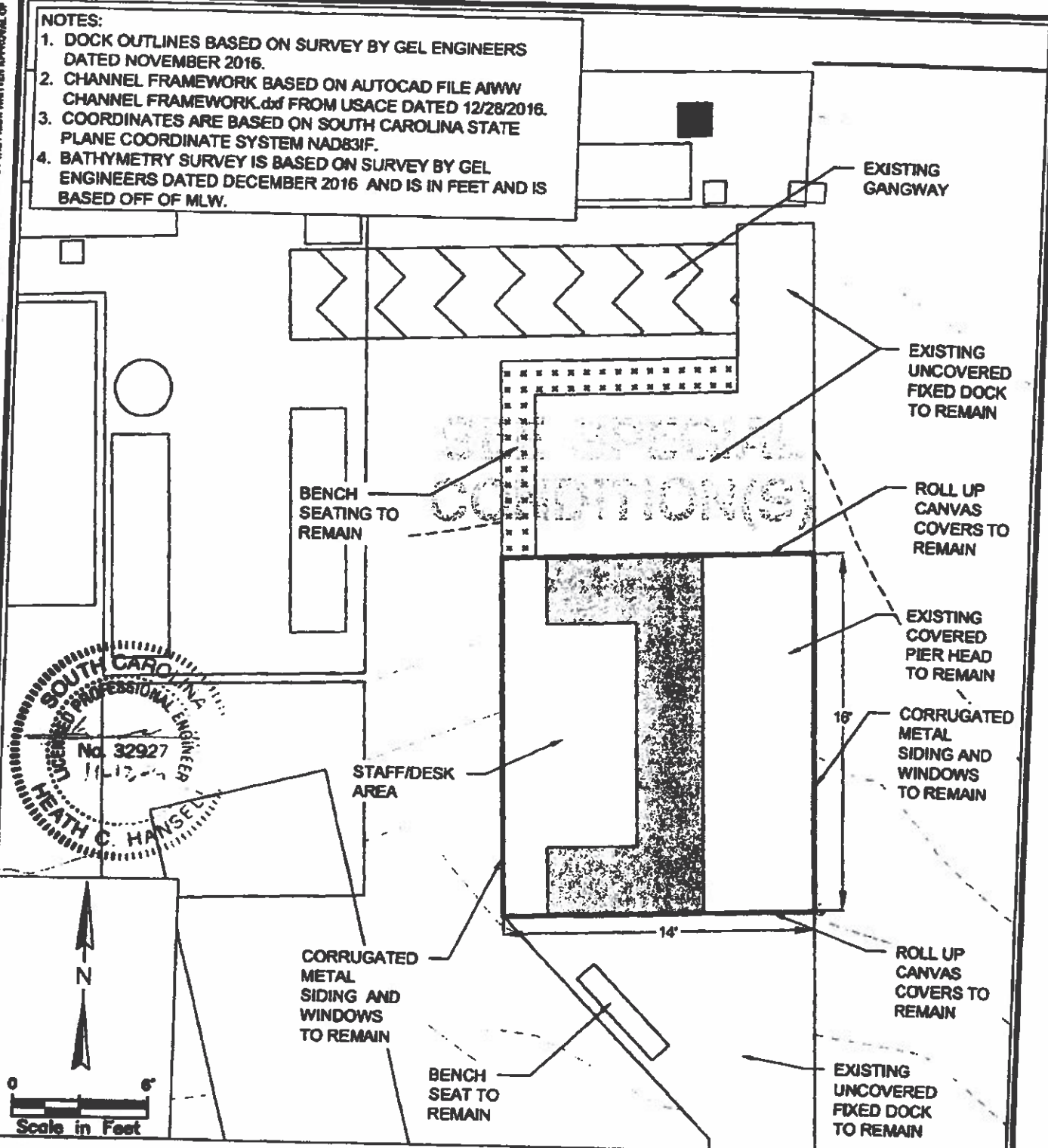


November 12, 2019
SHEET 4

Checked by: [Name] Date: [Date] Drawn by: [Name] Date: [Date] Project: [Project Name]
 NOTE: THESE DRAWINGS AND DESIGNS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY PATENT, TRADEMARK, AND COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3RD PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF [Company Name].
 Project: 11/12/19

**FOR PERMITTING PURPOSES ONLY
"NOT FOR CONSTRUCTION"**


- NOTES:**
1. DOCK OUTLINES BASED ON SURVEY BY GEL ENGINEERS DATED NOVEMBER 2016.
 2. CHANNEL FRAMEWORK BASED ON AUTOCAD FILE AIIWW CHANNEL FRAMEWORK.dxf FROM USACE DATED 12/28/2016.
 3. COORDINATES ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM NAD83IF.
 4. BATHYMETRY SURVEY IS BASED ON SURVEY BY GEL ENGINEERS DATED DECEMBER 2016 AND IS IN FEET AND IS BASED OFF OF MLW.



Checked: 01/12/2020
 Drawn: 01/12/2020
 Project: 118-3287 RFP Marina Permitting & Design
 Note: THESE DRAWINGS AND DESIGNATIONS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF ATM DESIGN ENGINEERING CONSULTING.

PROJECT:	Isle of Palms Marina Watersports Dock
WATERBODY:	AIIWW
COUNTY:	Charleston
STATE:	South Carolina
LATITUDE:	32°48'21.24"N
LONGITUDE:	79°45'40.68"W

PROPOSED IMPROVEMENTS	
Requested by: City of Isle of Palms	
Project Address: 69 41st Avenue, Isle of Palms	
Parcel ID: 571080007	

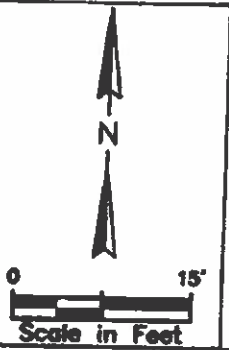
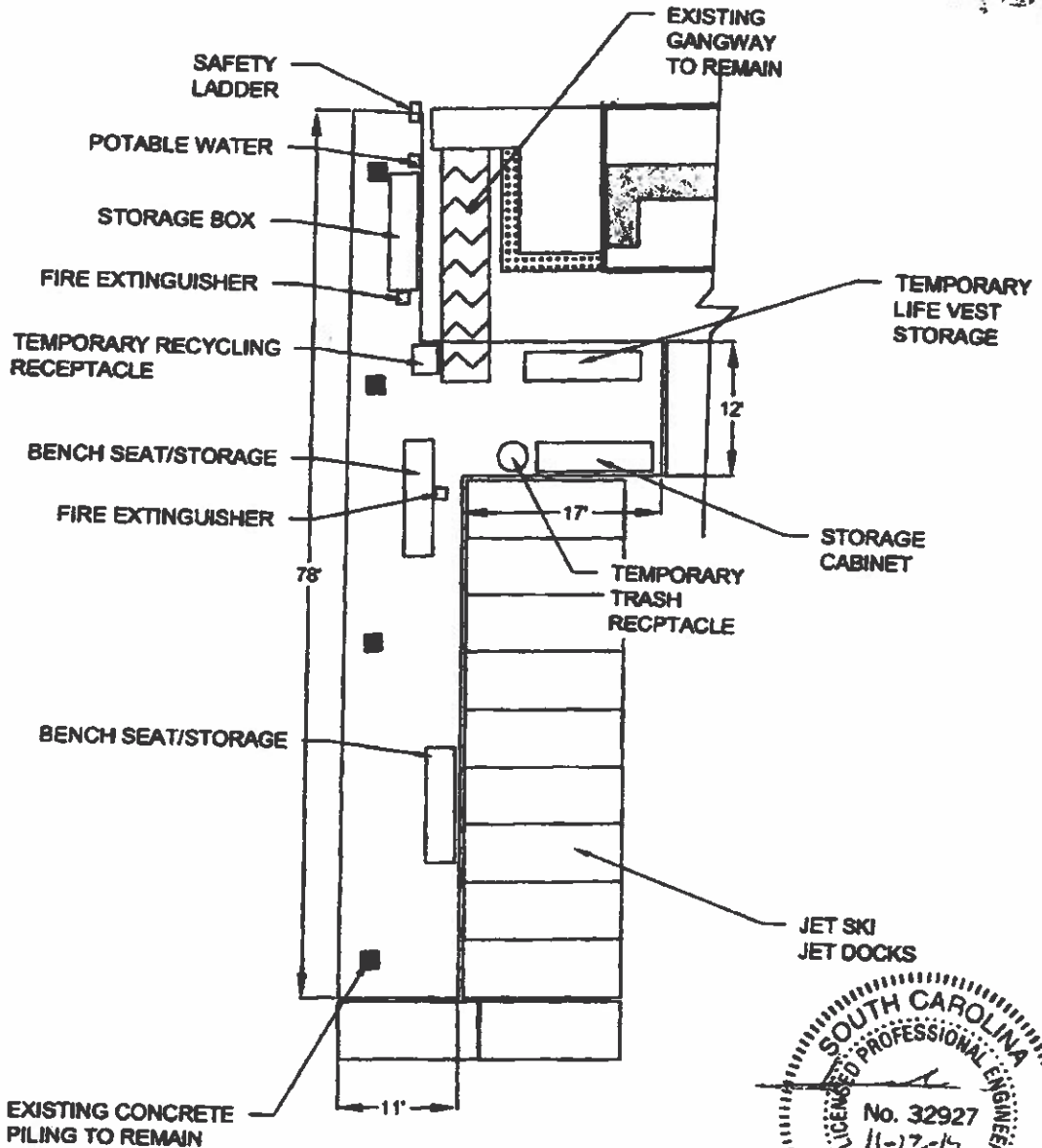

ATM DESIGN ENGINEERING CONSULTING
 November 12, 2019
 SHEET 6

FOR PERMITTING PURPOSES ONLY
 "NOT FOR CONSTRUCTION"

NOTES:

- DOCK OUTLINES BASED ON SURVEY BY GEL ENGINEERS DATED NOVEMBER 2016.
- CHANNEL FRAMEWORK BASED ON AUTOCAD FILE AIWW CHANNEL FRAMEWORK.dxf FROM USACE DATED 12/28/2016.
- COORDINATES ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM NAD83IF.

SEE SPECIAL CONDITIONS



PROJECT:	Isle of Palms Marina Watersports Dock
WATERBODY:	AIWW
COUNTY:	Charleston
STATE:	South Carolina
LATITUDE:	32°48'21.24"N
LONGITUDE:	79°45'40.68"W

PROPOSED IMPROVEMENTS
Requested by: City of Isle of Palms
Project Address: 69 41st Avenue, Isle of Palms
Parcel ID: 5710800007

ATM DESIGN ENGINEERING CONSULTING

November 12, 2019
SHEET 7

12/13/19
 PROJECT: 19-0327-10P Marina Permitting & Design/Construction dock CDDP Permit 10.15.19.dwg
 NOTE: THESE DRAWINGS AND GEOMETRIES ARE STRICTLY CONFIDENTIAL AND PROTECTED BY PATENT AND COPYRIGHT LAW. DETAILS MUST NOT BE ENCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF
 AT&M CONSULTING

FOR PERMITTING PURPOSES ONLY
 "NOT FOR CONSTRUCTION"

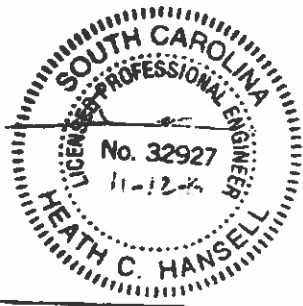
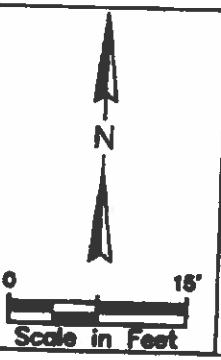
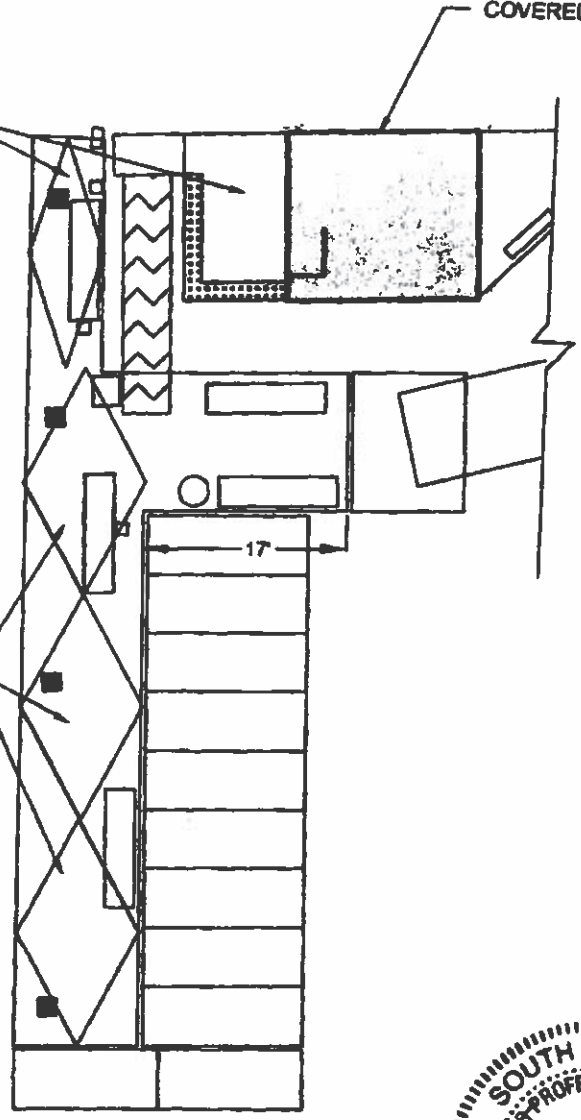
- NOTES:
1. DOCK OUTLINES BASED ON SURVEY BY GEL ENGINEERS DATED NOVEMBER 2016.
 2. CHANNEL FRAMEWORK BASED ON AUTOCAD FILE AWWW CHANNEL FRAMEWORK.dwg FROM USACE DATED 12/28/2016.
 3. COORDINATES ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM NAD83IF.

SEE SPECIAL
 CONDITION(S)

TEMPORARY/REMOVABLE
 SHADE FABRIC

COVERED PIER HEAD

TEMPORARY/REMOVABLE
 SHADE FABRIC



PROJECT: Isle of Palms Marina
 Watersports Dock
 WATERBODY: AWWW
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'21.24"N
 LONGITUDE: 79°45'40.68"W

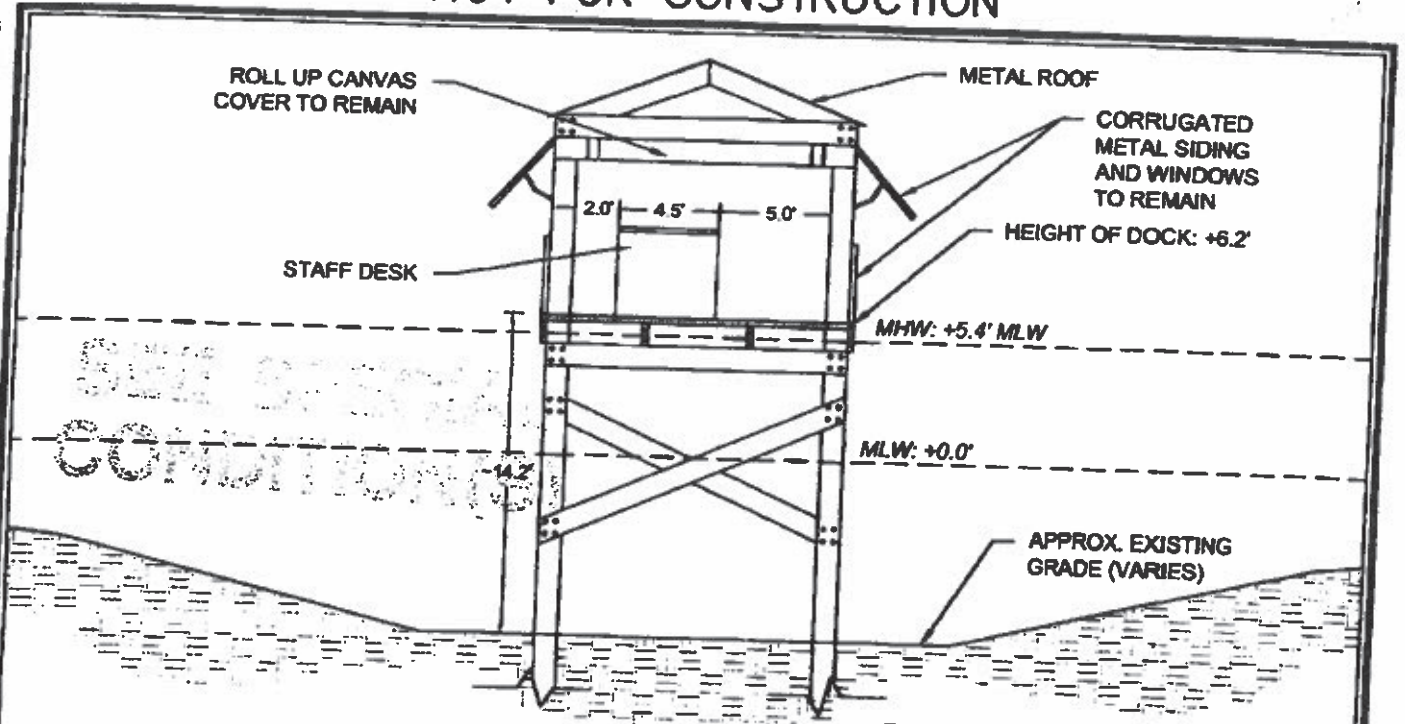
PROPOSED IMPROVEMENTS
 Requested by: City of Isle of Palms
 Project Address: 69 41st Avenue, Isle of Palms
 Parcel ID: 571080007



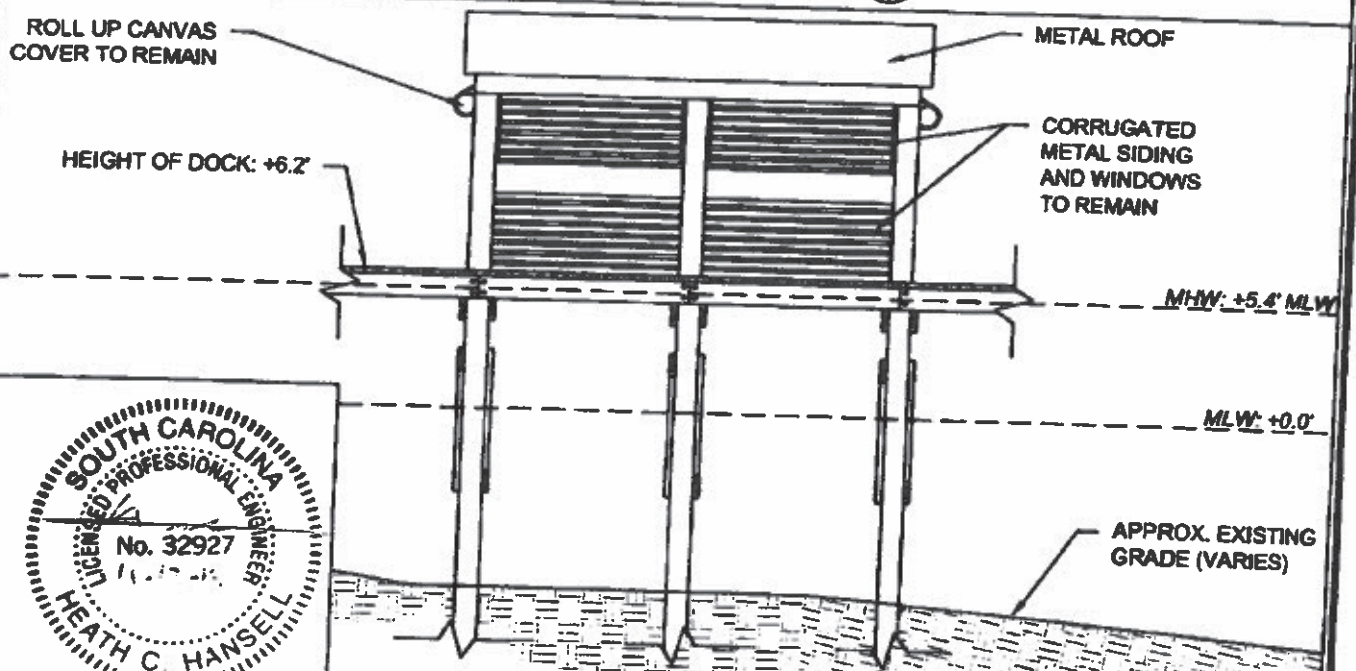
November 12, 2019
 SHEET 8

THESE DRAWINGS AND DESIGN ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE DISCLOSED, REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF APPLIED TECHNOLOGICAL MANAGEMENT.

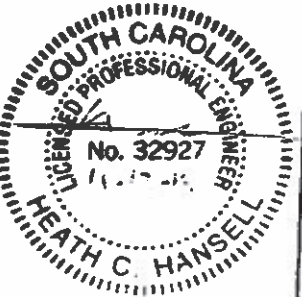
FOR PERMITTING PURPOSES ONLY
 "NOT FOR CONSTRUCTION"



TYPICAL FIXED PIER SECTION



TYPICAL FIXED PIER SECTION



PROJECT: Isle of Palms Marina
 Watersports Dock
 WATERBODY: AIWW
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'21.24"N
 LONGITUDE: 79°45'40.66"W

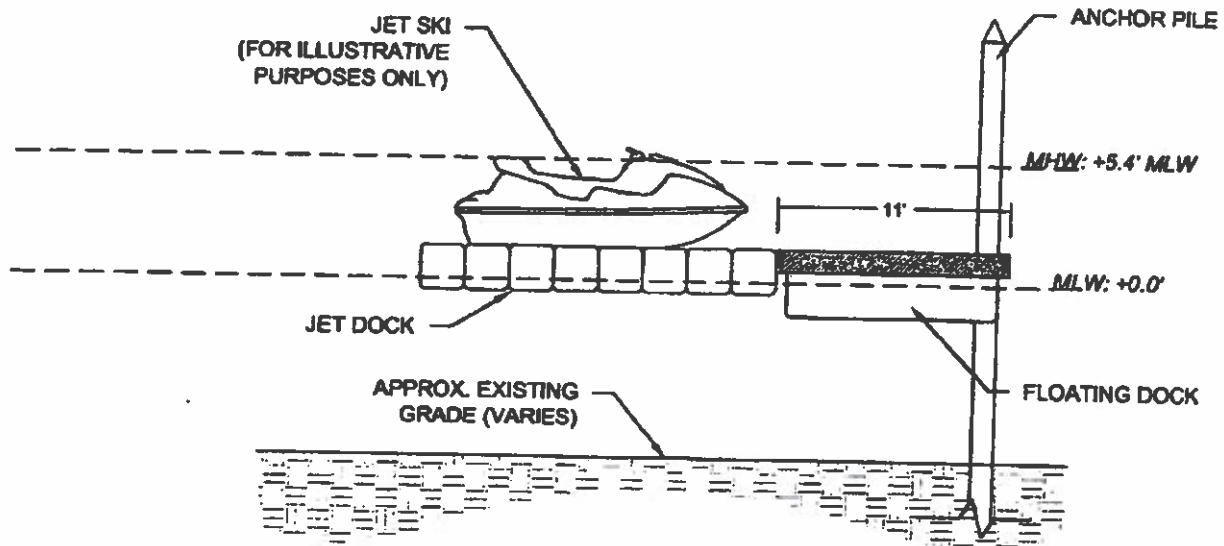
TYPICAL FIXED PIER SECTIONS
 Requested by: City of Isle of Palms
 Project Address: 69 41st Avenue, Isle of Palms
 Parcel ID: 571060007



November 12, 2019
 SHEET 9

Checked by: [Name] Date: [Date]
 Note: THESE DRAWINGS AND DETAILS ARE STRICTLY CONFIDENTIAL AND PROTECTED BY INTERNATIONAL COPYRIGHT LAW. DETAILS MUST NOT BE REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF [Company Name].
 Typical Section 11/12/19

FOR PERMITTING PURPOSES ONLY
 "NOT FOR CONSTRUCTION"



TYPICAL FLOATING DOCK & JET DOCK SECTION C
5/10

SEE SPECIAL
 CONDITIONS



PROJECT: Isle of Palms Marina
 Watersports Dock
 WATERBODY: AJWW
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'21.24"N
 LONGITUDE: 79°45'40.68"W

TYPICAL FLOATING DOCK SECTION

Requested by: City of Isle of Palms

Project Address: 69 41st Avenue, Isle of Palms

Parcel ID: 5710800007



November 12, 2019
 SHEET 10

Checked: 11/12/19
 Drawn: 11/12/19
 Project: 19-3287-10P
 Notes: THESE DRAWINGS AND DESIGN ARE STRICTLY CONFIDENTIAL AND PROTECTED BY PATENT AND COPYRIGHT LAW. DETAILS MUST NOT BE REPRODUCED OR COMMUNICATED TO A 3rd PARTY IN ANY FORM OR MANNER WITHOUT THE PRIOR WRITTEN APPROVAL OF APPLIED TECHNOLOGY MANAGEMENT.

South Carolina Board of Health and Environmental Control

Guide to Board Review

Pursuant to S.C. Code Ann. § 44-1-60

The decision of the South Carolina Department of Health and Environmental Control (Department) becomes the final agency decision fifteen (15) calendar days after notice of the decision has been mailed to the applicant, permittee, licensee and affected persons who have requested in writing to be notified, unless a written request for final review accompanied by a filing fee in the amount of \$100 is filed with Department by the applicant, permittee, licensee or affected person.

Applicants, permittees, licensees, and affected parties are encouraged to engage in mediation or settlement discussions during the final review process.

If the Board declines in writing to schedule a final review conference, the Department's decision becomes the final agency decision and an applicant, permittee, licensee, or affected person may request a contested case hearing before the Administrative Law Court within thirty (30) calendar days after notice is mailed that the Board declined to hold a final review conference. In matters pertaining to decisions under the South Carolina Mining Act, appeals should be made to the South Carolina Mining Council.

I. Filing of Request for Final Review

1. A written Request for Final Review (RFR) and the required filing fee of one hundred dollars (\$100) must be received by Clerk of the Board within fifteen (15) calendar days after notice of the staff decision has been mailed to the applicant, permittee, licensee, or affected persons. If the 15th day occurs on a weekend or State holiday, the RFR must be received by the Clerk on the next working day. RFRs will not be accepted after 5:00 p.m.
2. RFRs shall be in writing and should include, at a minimum, the following information:
 - The grounds for amending, modifying, or rescinding the staff decision;
 - a statement of any significant issues or factors the Board should consider in deciding how to handle the matter;
 - the relief requested;
 - a copy of the decision for which review is requested; and
 - mailing address, email address, if applicable, and phone number(s) at which the requestor can be contacted.
3. RFRs should be filed in person or by mail at the following address:
South Carolina Board of Health and Environmental Control
Attention: Clerk of the Board
2600 Bull Street
Columbia, South Carolina 29201
Alternatively, RFR's may be filed with the Clerk by facsimile (803-898-3393) or by electronic mail (boardclerk@dhec.sc.gov).
4. The filing fee may be paid by cash, check or credit card and must be received by the 15th day.
5. If there is any perceived discrepancy in compliance with this RFR filing procedure, the Clerk should consult with the Chairman or, if the Chairman is unavailable, the Vice-Chairman. The Chairman or the Vice-Chairman will determine whether the RFR is timely and properly filed and direct the Clerk to (1) process the RFR for consideration by the Board or (2) return the RFR and filing fee to the requestor with a cover letter explaining why the RFR was not timely or properly filed. Processing an RFR for consideration by the Board shall not be interpreted as a waiver of any claim or defense by the agency in subsequent proceedings concerning the RFR.
6. If the RFR will be processed for Board consideration, the Clerk will send an Acknowledgement of RFR to the Requestor and the applicant, permittee, or licensee, if other than the Requestor. All personal and financial identifying information will be redacted from the RFR and accompanying documentation before the RFR is released to the Board, Department staff or the public.
7. If an RFR pertains to an emergency order, the Clerk will, upon receipt, immediately provide a copy of the RFR to all Board members. The Chairman, or in his or her absence, the Vice-Chairman shall based on the circumstances, decide whether to refer the RFR to the RFR Committee for expedited review or to decline in writing to schedule a Final Review Conference. If the Chairman or Vice-Chairman determines review by the RFR Committee is appropriate, the Clerk will forward a copy of the RFR to Department staff and Office of General Counsel. A Department response and RFR Committee review will be provided on an expedited schedule defined by the Chairman or Vice-Chairman.
8. The Clerk will email the RFR to staff and Office of General Counsel and request a Department Response within eight (8) working days. Upon receipt of the Department Response, the Clerk will forward the RFR and Department Response to all Board members for review, and all Board members will confirm receipt of the RFR to the Clerk by email. If a Board member does not confirm receipt of the RFR within a twenty-four (24) hour period, the Clerk will contact the Board member and confirm receipt. If a Board member believes the RFR should be considered by the RFR Committee, he or she will

respond to the Clerk's email within forty-eight (48) hours and will request further review. If no Board member requests further review of the RFR within the forty-eight (48) hour period, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, stating the Board will not hold a Final Review Conference. Contested case guidance will be included within the letter.

NOTE: If the time periods described above end on a weekend or State holiday, the time is automatically extended to 5:00 p.m. on the next business day.

9. If the RFR is to be considered by the RFR Committee, the Clerk will notify the Presiding Member of the RFR Committee and the Chairman that further review is requested by the Board. RFR Committee meetings are open to the public and will be public noticed at least 24 hours in advance.
10. Following RFR Committee or Board consideration of the RFR, if it is determined no Conference will be held, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, stating the Board will not hold a Conference. Contested case guidance will be included within the letter.

II. Final Review Conference Scheduling

1. If a Conference will be held, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, informing the Requestor of the determination.
2. The Clerk will request Department staff provide the Administrative Record.
3. The Clerk will send Notice of Final Review Conference to the parties at least ten (10) days before the Conference. The Conference will be publically noticed and should:
 - include the place, date and time of the Conference;
 - state the presentation times allowed in the Conference;
 - state evidence may be presented at the Conference;
 - if the conference will be held by committee, include a copy of the Chairman's order appointing the committee; and
 - inform the Requestor of his or her right to request a transcript of the proceedings of the Conference prepared at Requestor's expense.
4. If a party requests a transcript of the proceedings of the Conference and agrees to pay all related costs in writing, including costs for the transcript, the Clerk will schedule a court reporter for the Conference.

III. Final Review Conference and Decision

1. The order of presentation in the Conference will, subject to the presiding officer's discretion, be as follows:
 - Department staff will provide an overview of the staff decision and the applicable law to include [10 minutes]:
 - Type of decision (permit, enforcement, etc.) and description of the program.
 - Parties
 - Description of facility/site
 - Applicable statutes and regulations
 - Decision and materials relied upon in the administrative record to support the staff decision.
 - Requestor(s) will state the reasons for protesting the staff decision and may provide evidence to support amending, modifying, or rescinding the staff decision. [15 minutes] *NOTE: The burden of proof is on the Requestor(s)*
 - Rebuttal by Department staff [15 minutes]
 - Rebuttal by Requestor(s) [10 minutes]

Note: Times noted in brackets are for information only and are superseded by times stated in the Notice of Final Review Conference or by the presiding officer.
2. Parties may present evidence during the conference; however, the rules of evidence do not apply.
3. At any time during the conference, the officers conducting the Conference may request additional information and may question the Requestor, the staff, and anyone else providing information at the Conference.
4. The presiding officer, in his or her sole discretion, may allow additional time for presentations and may impose time limits on the Conference.
5. All Conferences are open to the public.
6. The officers may deliberate in closed session.
7. The officers may announce the decision at the conclusion of the Conference or it may be reserved for consideration.
8. The Clerk will mail the written final agency decision (FAD) to parties within 30 days after the Conference. The written decision must explain the basis for the decision and inform the parties of their right to request a contested case hearing before the Administrative Law Court or in matters pertaining to decisions under the South Carolina Mining Act, to request a hearing before the South Carolina Mining Council. The FAD will be sent by certified mail, return receipt requested.
9. Communications may also be sent by electronic mail, in addition to the forms stated herein, when electronic mail addresses are provided to the Clerk.

The above information is provided as a courtesy; parties are responsible for complying with all applicable legal requirements.

NOTICE OF COMMENCEMENT OR COMPLETION
OF WORK AUTHORIZED BY PERMIT

DATE

WORK AUTHORIZED BY DEPARTMENT OF THE ARMY PERMIT _____

DATED _____

TO PERFORM WORK IN _____
(WATERBODY NAME)

WAS COMMENCED ON _____
WAS COMPLETED (DATE)
(circle appropriate response)

(SIGNATURE)

FL 130
5 MAR 79

NOTICE OF COMMENCEMENT OR COMPLETION
OF WORK AUTHORIZED BY PERMIT

DATE

WORK AUTHORIZED BY DEPARTMENT OF THE ARMY PERMIT _____

DATED _____

TO PERFORM WORK IN _____
(WATERBODY NAME)

WAS COMMENCED ON _____
WAS COMPLETED (DATE)
(circle appropriate response)

(SIGNATURE)

FL 130
5 MAR 79



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, CHARLESTON DISTRICT
69A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107

October 2, 2023

Regulatory Division

Ms. Desiree Fragoso
City of Isle of Palms
P.O. Box 508
Isle of Palms, South Carolina 29451
desireef@iop.net

Dear Ms. Fragoso:

**PLEASE READ THIS LETTER CAREFULLY AND
COMPLY WITH ITS PROVISIONS**

This is in response to your request received December 09, 2022, requesting a modification of the Isle of Palms Marina Public Dock authorized by Department of the Army (DA) permit SAC-1986-08495. The modifications are proposed to demolish the existing commercial dock and construct a new public dock in its place. The marina is located on the Atlantic Intracoastal Waterway (AIWW) at 50 41st street, on Isle of Palms, Charleston County, South Carolina (Latitude: 32.8055°, Longitude: -79.7608°).

Your request for a modification is granted, and the work must be completed by December 31, 2028. Modifications to the previously authorized permit includes demolishing the existing commercial "Watersports Dock" at the Isle of Palms Marina. In detail the existing fixed pier, gangway, floating dock, and pilings will be demolished. Then, install a new 16' x 152' fixed pier with a 10' x 16.3' x 21' fixed platform that leads to an 8' x 80' ADA compliant gangway. The gangway will connect to a 10' x 28' and a 75' x 10' floating T-head with a 30' x 15' floating kayak launch. The proposed fixed pier will include two 8' x 20' covered seating areas on the pier. The authorized modification is shown on the attached drawings, entitled "IOP Public Dock Modifications" Sheets 1-9 of 9 dated February 6, 2023. The modified Special Conditions are detailed below and supersede all previous Special Conditions:

- a. **That prior to beginning the authorized work the permittee must obtain and provide the Corps with a copy of all appropriate state certifications and/or authorizations (e.g., Coastal Zone Management Act concurrence, State Navigable Waters Permit, etc.). This PROVISIONAL Permit Modification is NOT VALID until the permittee obtains and provides the requisite state certification(s) and/or authorization(s) in accordance with this special condition.**

- b. The permittee agrees to provide all contractors associated with construction of the authorized activity a copy of the permit and drawings. A copy of the permit must be available at the construction site at all times.**
- c. The permittee shall submit a signed compliance certification to the Corps within 60 days following completion of the authorized work. The certification will include:
 - 1. A copy of this permit.**
 - 2. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions.**
 - 3. The signature of the permittee certifying the completion of the work.****
- d. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or their authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.**
- e. Use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters of the U.S.**
- f. The permittee must install and maintain, at their expense, any safety lights and signals prescribed by the U.S. Coast Guard (USCG), through regulations or otherwise, on authorized facilities. The USCG may be reached at the following address and telephone number: (as of February 2013) U. S. Coast Guard District Seven, Waterways Management Branch, 909 SE 1st Ave, Suite 406, Miami, FL. 33131, and 305-415-6755 or 305-415-6750.**
- g. It is recognized that this structure is to be constructed on/or adjacent to an area subject to a prism and/or disposal easement held by the United States in perpetuity in conjunction with a Congressionally authorized project for the maintenance and improvement of the Atlantic Intracoastal Waterway (AIWW). This permit does not convey any property rights either in real estate or material or any exclusive use privileges; nor does it relinquish any right the United States has for the use of its easement or the maintenance**

and future widening or deepening of the AIWW pursuant to its easement rights.

- h. It is understood and agreed that if the District Commander determines this structure shall in any way in the future conflict with the improvement, operation, maintenance and widening or deepening of the AIWW, the owners themselves, their heirs, successors and assigns will remove said structure within 45 days from the date that written notice is given by the District Commander, and there shall be no entitlement to compensation from the United States for damage or injury.**
- i. Conveyance of this permit applies only to the structure authorized and does not authorize the construction of any permanent structure or any structure suitable for habitation or any utility leading either to permanent structures suitable for habitation or to permanent structures within the bounds of areas on which the Corps of Engineers enjoys easement rights.**
- j. The permittee agrees that no permanent structures, beyond those authorized by this document, will be placed on the prism easement or on any adjacent disposal easement without written approval of the District Commander.**
- k. That the Secretary of the Army, representing the United States of America, hereby consents to the herein authorized facilities or structures to be located on or across easement lands vested in the United States of America for the construction and operation of the AIWW. The permittee shall not engage in any act which may interfere with or abridge the easement interests of the United States, except those specifically authorized herein.**
- l. That the permittee agrees to provide, as a part of the completion notification, as-built drawings which indicate all dimensions of the structure as well as the distance between the edge of the federal channel, and the waterward edge of the authorized structure. The drawings should also include the State Plane Coordinates, NAD 1983, for a minimum of two corners on each structure where it is closest to the federal channel. These drawings must be prepared by a registered land surveyor and submitted within sixty (60) days of the completion of the structure. Failure to provide these drawings will result in non-compliance with the permit and further enforcement action will be taken.**
- m. Floating docks shall be located in areas of adequate depth to ensure that clearance between the float and the bottom is maintained at all times. In areas where the depth is not adequate to maintain clearance, floating docks**

shall be fitted with structures (i.e. float stops) that prevent the float from contacting the bottom.

n. Prior to beginning the authorized work, the permittee must coordinate with the local NFIP flood plain manager and comply with FEMA requirements. A list of NFIP floodplain managers may be found at:
<http://www.dnr.sc.gov/water/flood/index.html>.

o. In order to ensure protection of any threatened or endangered species, and designated critical habitat that may be present in the vicinity of the project area during construction activities, the permittee will comply with the following:

1. The permittee shall instruct all personnel associated with the project of the potential presence of and the need to avoid collisions with protected species, which may include but is not limited to West Indian manatees, Atlantic sturgeon, shortnose sturgeon, sea turtles, wood stork, blue whale, fin whale, humpback whale, North Atlantic right whale, sei whale and sperm whale.

2. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing protected species, to include manatee(s), which are protected under the Marine Mammal Protection Act of 1972 and/or the Endangered Species Act of 1973.

3. Any siltation barriers used during the project shall be made of material in which protected species, to include manatee(s), cannot become entangled and must be properly secured, and regularly monitored to avoid protected species entrapment.

4. All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

5. If protected species, to include manatee(s), are seen within 100 yards of the active construction area all appropriate precautions shall be implemented to ensure protection of the protected species, to include manatee(s). These precautions shall include the operation of all moving equipment no closer than 50 feet to a protected species, to include manatee(s). Operation of any equipment closer than 50 feet to a protected species, to include manatee(s), shall necessitate immediate shutdown of

that equipment. Activities will not resume until the protected species, to include manatee(s), has departed the project area of its own volition.

6. Incidents where any individuals of sea turtles, Atlantic sturgeon, shortnose sturgeon, blue whale, fin whale, humpback whale, North Atlantic right whale, sei whale and sperm whale listed by NOAA Fisheries under the Endangered Species Act appear to be injured or killed as a result of discharges of dredged or fill material into waters of the United States or structures or work in navigable waters of the United States authorized by this DA permit shall be reported to NOAA Fisheries, Office of Protected Species at (727) 824-5312, the SCDNR Hotline at 1-800-922-5431, and the Regulatory Office of the Charleston District of the U.S. Army Corps of Engineers at (843) 329-8044. The finder should leave the animal alone, make note of any circumstances likely causing the death or injury, note the location and number of individuals involved and, if possible, take photographs. Adult animals should not be disturbed unless circumstances arise where they are obviously injured or killed by discharge exposure, or some unnatural cause. The finder may be asked to carry out instructions provided by NOAA Fisheries, Office of Protected Resources, to collect specimens or take other measures to ensure that evidence intrinsic to the specimen is preserved.

7. The permittee understands and agrees that all in-water lines (rope, chain, and cable, including the lines to secure turbidity curtains) must be stiff, taut, and non-looping. Examples of such lines are heavy metal chains or heavy cables that do not readily loop and tangle. Flexible in-water lines, such as nylon rope or any lines that could loop or tangle, must be enclosed in a plastic or rubber sleeve/tube to add rigidity and prevent the line from looping and tangling. In all instances, no excess line is allowed in the water. Where appropriate, in water wires should be fitted with PVC sleeve from the surface to the bottom to prevent any potential scraping of the passing manatees.

8. The permittee understands and agrees that pilings will be installed using a water jet or vibratory hammer, to the maximum extent practicable. In the event standard pile driving (impact hammer) is utilized, the permittee understands and agrees that a soft-strike procedure (three strikes at 40%-60% energy level once a minute for 3 minutes) must be conducted prior to beginning pile driving activities and after any pile driving interruptions of more than 30 minutes.

9. That the permittee understands and agrees that pile driving activities must be limited to 12 hours per day with a 12-hour rest period between pile

driving activities to avoid potential cumulative noise impacts to Federally-listed Threatened and Endangered (T&E) species.

p. In order to ensure protection and reduce potential construction-related impacts to West Indian manatees that may be in the vicinity of the project area during construction activities performed outside the winter months, to discountable and insignificant levels, the permittee will comply with the following for all projects affecting the coastal waters of South Carolina:

1. The permittee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel MUST monitor water-related activities for the presence of manatee(s) during May 1 - November 15. Construction personnel are requested to monitor outside of that timeframe as manatees may be in the area before or after the above dates.

2. Any collision with and/or injury to a manatee shall be reported immediately to the U.S. Fish and Wildlife Service contacts: Melanie Olds, South Carolina Manatee Lead, Charleston Field Office, at 843-727-4707 ext. 205; or Terri Calleson, Manatee Recovery Coordinator, North Florida Field Office, at 904-731-3286.

q. The permittee must make every reasonable effort to conduct the authorized work in a manner so as to minimize any adverse impact to fish, wildlife, and other environmental resources; and minimize any degradation of water quality to include the use of Best Management Practices (BMP's) as appropriate.

This letter and the referenced modified drawings must be attached to your copy of the signed permit. This permit was issued under provision of Federal laws for the protection and preservation of the navigable waters of the United States. In accordance with these laws, once a DA Permit authorizing the proposed work is issued,

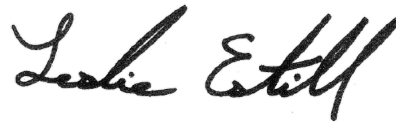
**IT SHALL NOT BE LAWFUL TO DEVIATE FROM SUCH PLANS EITHER
BEFORE OR AFTER COMPLETION OF THE WORK,**

unless modification of said plans has previously been submitted to and received the approval of the Department of the Army. All other conditions to which the work is made subject remain in full force and effect.

In all future correspondence, please refer to file number SAC-1986-08495-. If you have any questions, please contact the project manager, Eileen Foss at (843) 329-8037, or by email at Eileen.K.Foss@usace.army.mil.

FOR THE DISTRICT ENGINEER:

Sincerely,



Leslie Estill
Team Lead

Attachments

Modified Drawings
401 Water Quality Certification
Notification of Appeal Options
Compliance Certification

Copies Furnished:

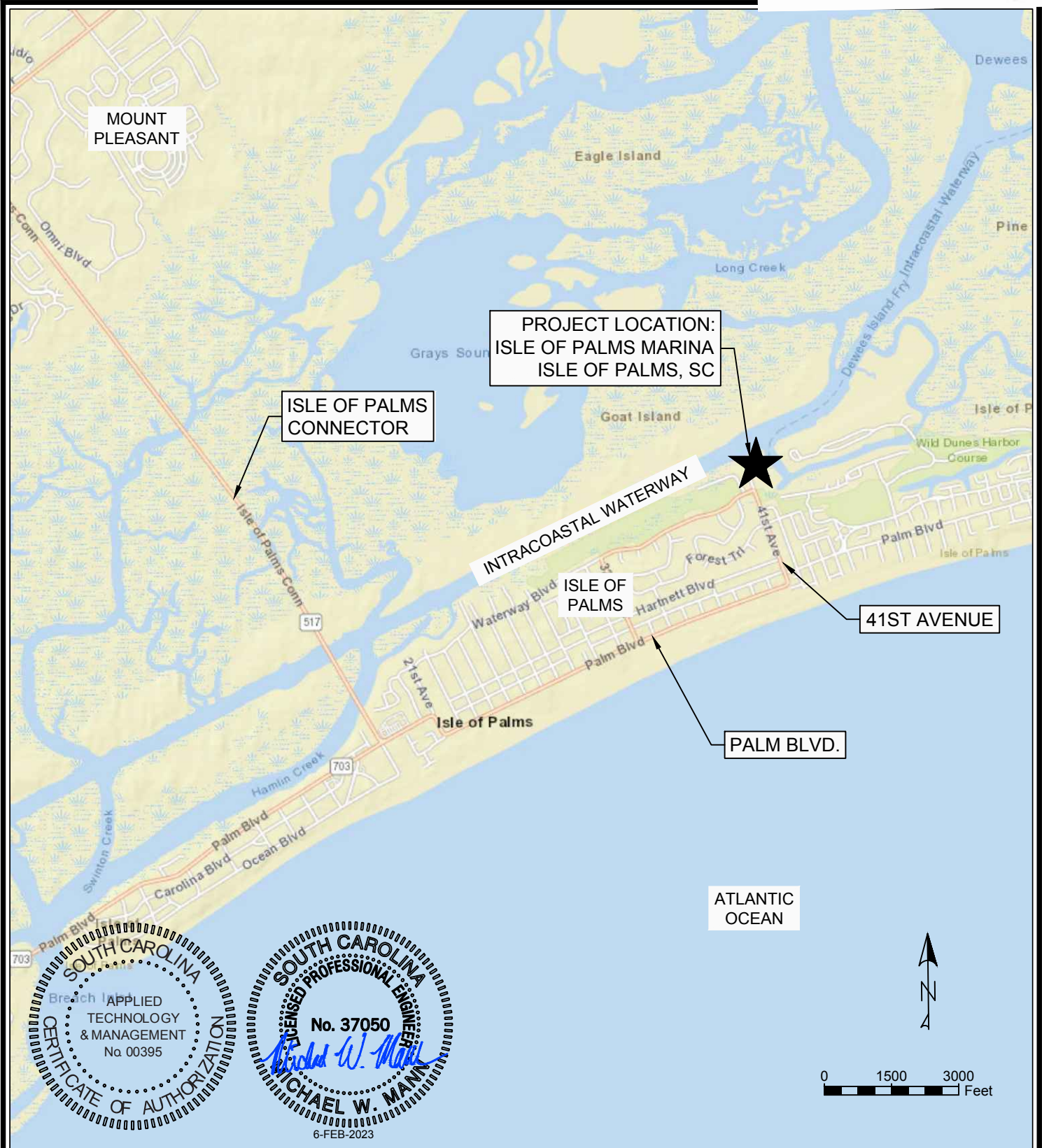
Mr. Michael Kenny
Applied Technology & Management
947 Houston Northcutt Blvd
Suite 201
Mount Pleasant, South Carolina 29464
michael.kenny@appliedtm.com


SCDHEC – Bureau of Water
2600 Bull Street
Columbia, South Carolina 29201
WQCWetlands@dhec.sc.gov

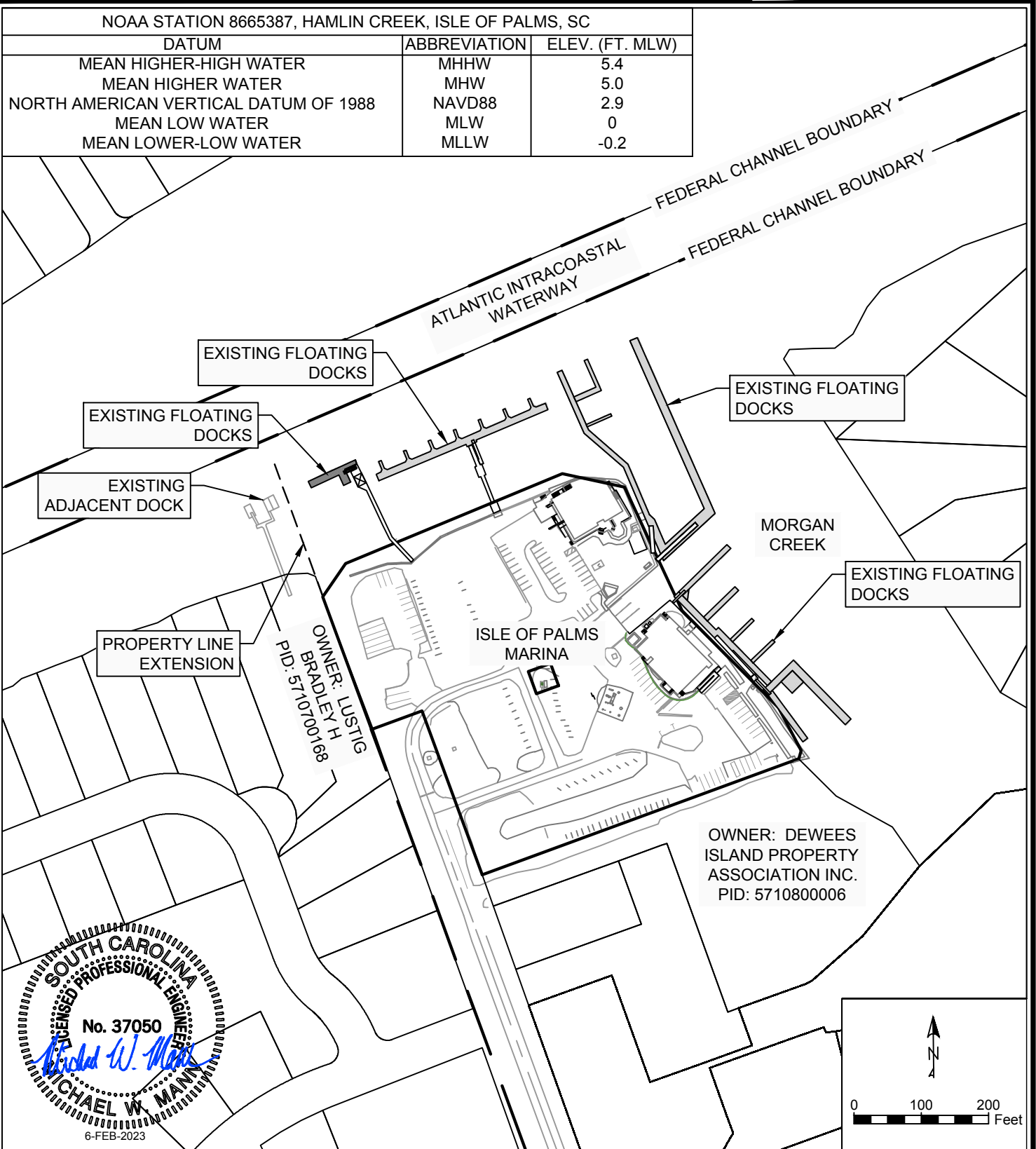
SCDHEC - OCRM
1362 McMillan Avenue, Suite 400
North Charleston, South Carolina 29405
OCRMPermitting@dhec.sc.gov

US Coast Guard
Sector Charleston
Attention: Waterways Management
1050 Register Street
North Charleston, SC 29405
D07-PF-SECTORCHASN-WWM@uscg.mil

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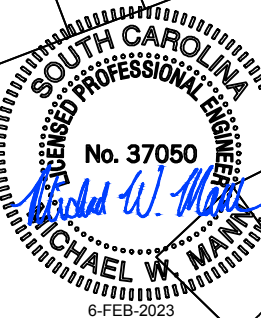


PROJECT:	IOP Public Dock Modifications	LOCATION MAP		 A Geosyntec Company
WATERBODY:	Atlantic Intracoastal Waterway			
COUNTY:	Charleston	Requested by: City of Isle of Palms		
STATE:	South Carolina	Project Address: 50 41st Avenue, Isle of Palms		
LATITUDE:	32°48'20.14"N	Parcel ID: 571080007	6-February-2023	SHEET 01
LONGITUDE:	79°45'39.45"W			



NOAA STATION 8665387, HAMLIN CREEK, ISLE OF PALMS, SC		
DATUM	ABBREVIATION	ELEV. (FT. MLW)
MEAN HIGHER-HIGH WATER	MHHW	5.4
MEAN HIGHER WATER	MHW	5.0
NORTH AMERICAN VERTICAL DATUM OF 1988	NAVD88	2.9
MEAN LOW WATER	MLW	0
MEAN LOWER-LOW WATER	MLLW	-0.2

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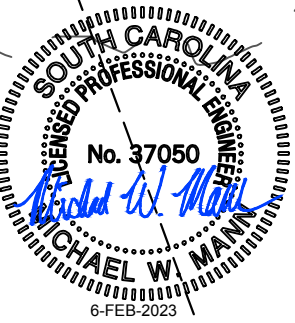
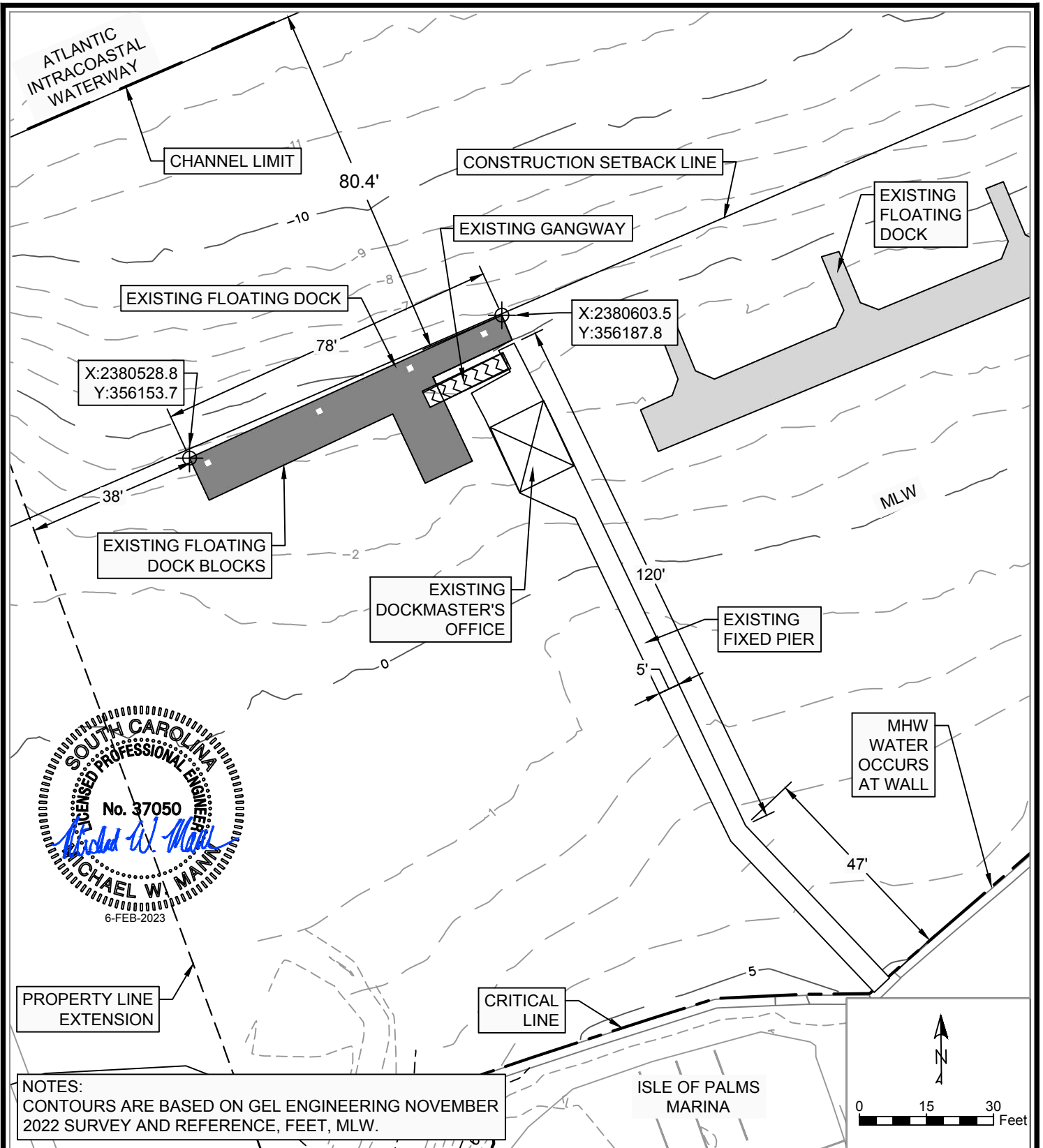
PROJECT:	IOP Public Dock Modifications
WATERBODY:	Atlantic Intracoastal Waterway
COUNTY:	Charleston
STATE:	South Carolina
LATITUDE:	32°48'20.14"N
LONGITUDE:	79°45'39.45"W

EXISTING CONDITIONS & ADJACENT PROPERTY OWNERS
Requested by: City of Isle of Palms
Project Address: 50 41st Avenue, Isle of Palms
Parcel ID: 5710800007

ATM
 A Geosyntec Company

6-February-2023
 SHEET 02

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NOTES:
 CONTOURS ARE BASED ON GEL ENGINEERING NOVEMBER 2022 SURVEY AND REFERENCE, FEET, MLW.

PROJECT: IOP Public Dock Modifications
 WATERBODY: Atlantic Intracoastal Waterway
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'20.14"N
 LONGITUDE: 79°45'39.45"W

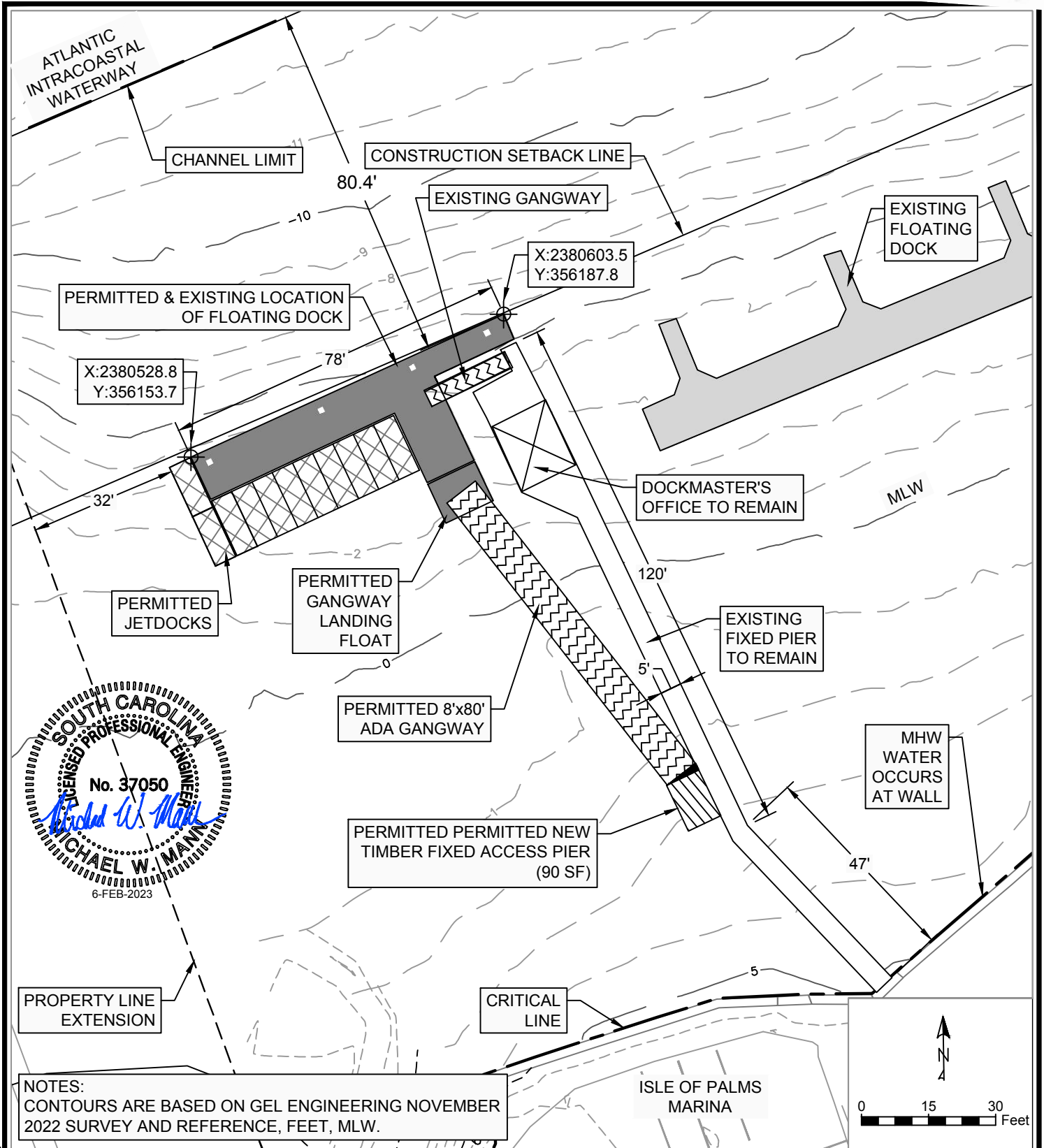
EXISTING CONDITIONS

Requested by: City of Isle of Palms

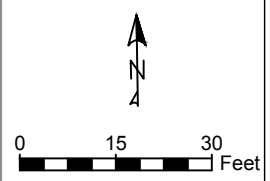
Project Address: 50 41st Avenue, Isle of Palms

Parcel ID: 571080007

6-February-2023
 SHEET 03



NOTES:
 CONTOURS ARE BASED ON GEL ENGINEERING NOVEMBER 2022 SURVEY AND REFERENCE, FEET, MLW.



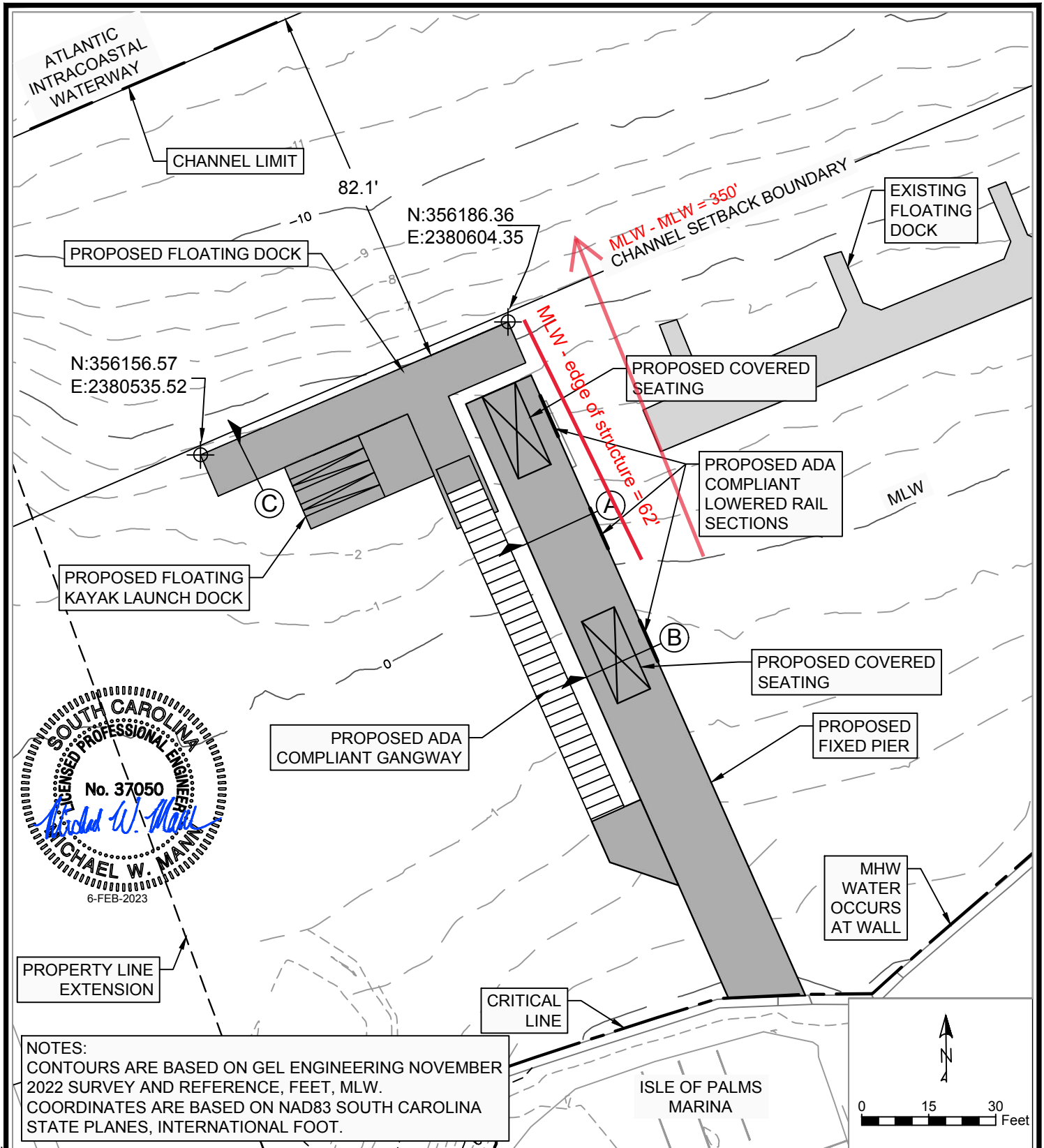
PROJECT:	IOP Public Dock Modifications
WATERBODY:	Atlantic Intracoastal Waterway
COUNTY:	Charleston
STATE:	South Carolina
LATITUDE:	32°48'20.14"N
LONGITUDE:	79°45'39.45"W

PERMITTED CONDITIONS	
Requested by: City of Isle of Palms	
Project Address: 50 41st Avenue, Isle of Palms	
Parcel ID: 571080007	

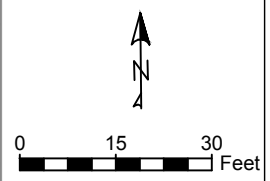


6-February-2023
 SHEET 04

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NOTES:
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 COORDINATES ARE BASED ON NAD83 SOUTH CAROLINA STATE PLANES, INTERNATIONAL FOOT.



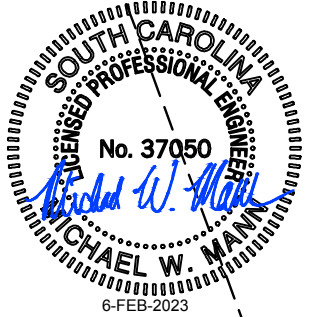
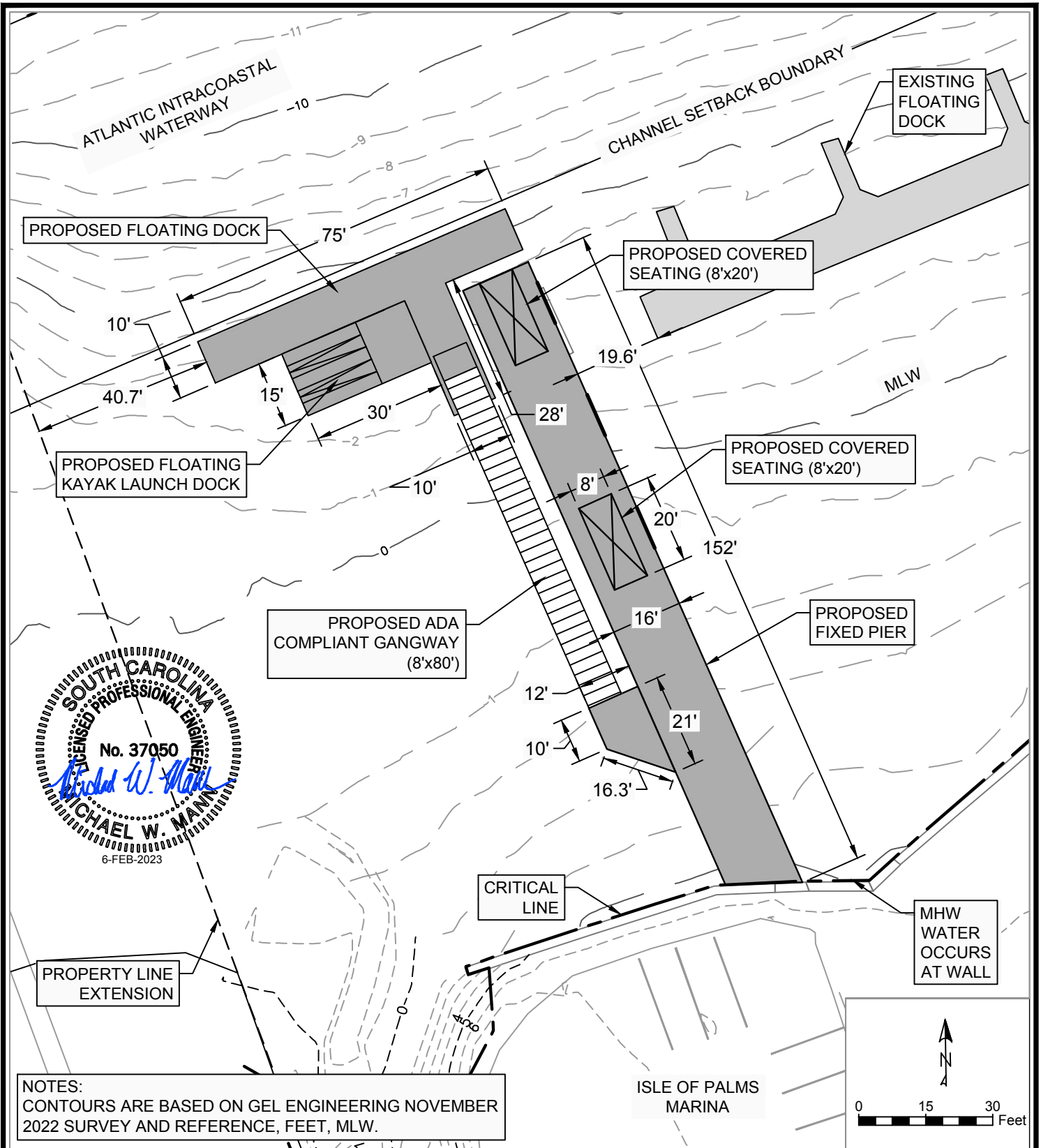
PROJECT:	IOP Public Dock Modifications
WATERBODY:	Atlantic Intracoastal Waterway
COUNTY:	Charleston
STATE:	South Carolina
LATITUDE:	32°48'20.14"N
LONGITUDE:	79°45'39.45"W

PROPOSED IMPROVEMENTS OVERVIEW	
Requested by: City of Isle of Palms	
Project Address: 50 41st Avenue, Isle of Palms	
Parcel ID: 5710800007	

6-February-2023
 SHEET 05

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Revisions made by the Corps on 9/13/23 with information provided by the agent.



NOTES:
CONTOURS ARE BASED ON GEL ENGINEERING NOVEMBER 2022 SURVEY AND REFERENCE, FEET, MLW.

PROJECT: IOP Public Dock Modifications
 WATERBODY: Atlantic Intracoastal Waterway
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'20.14"N
 LONGITUDE: 79°45'39.45"W

PROPOSED FIXED PIER & FLOATING DOCK DIMENSIONS

Requested by: City of Isle of Palms

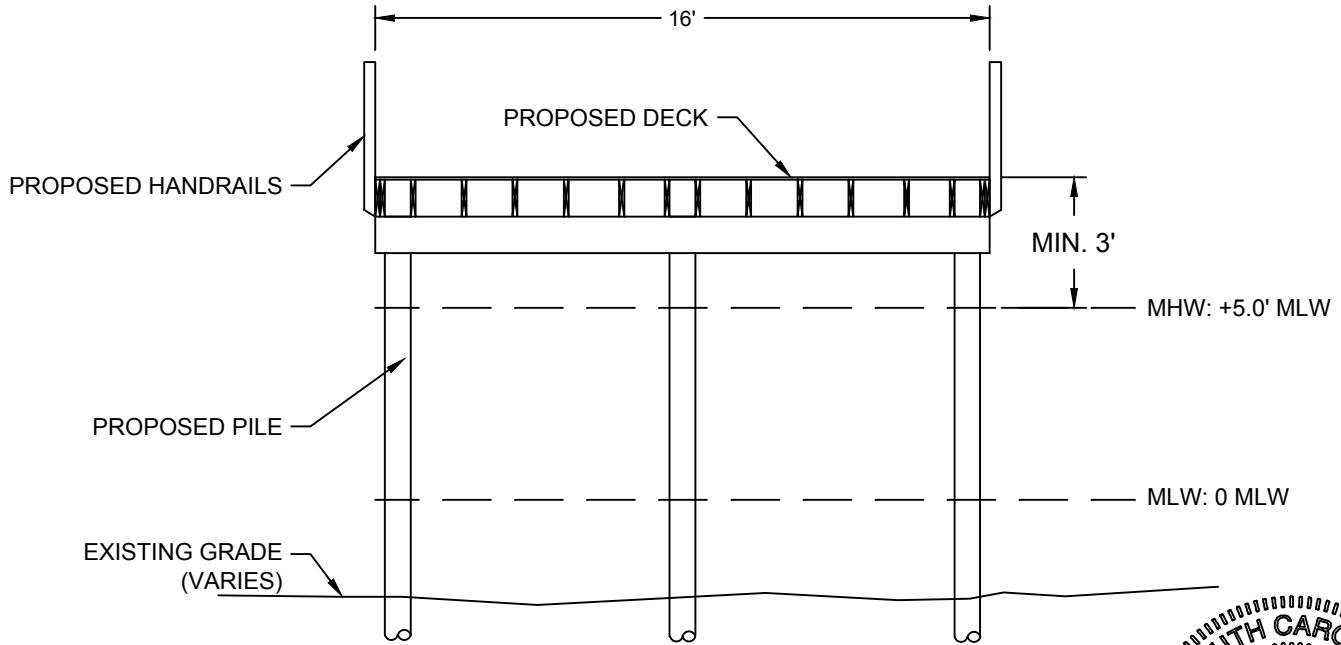
Project Address: 50 41st Avenue, Isle of Palms

Parcel ID: 5710800007

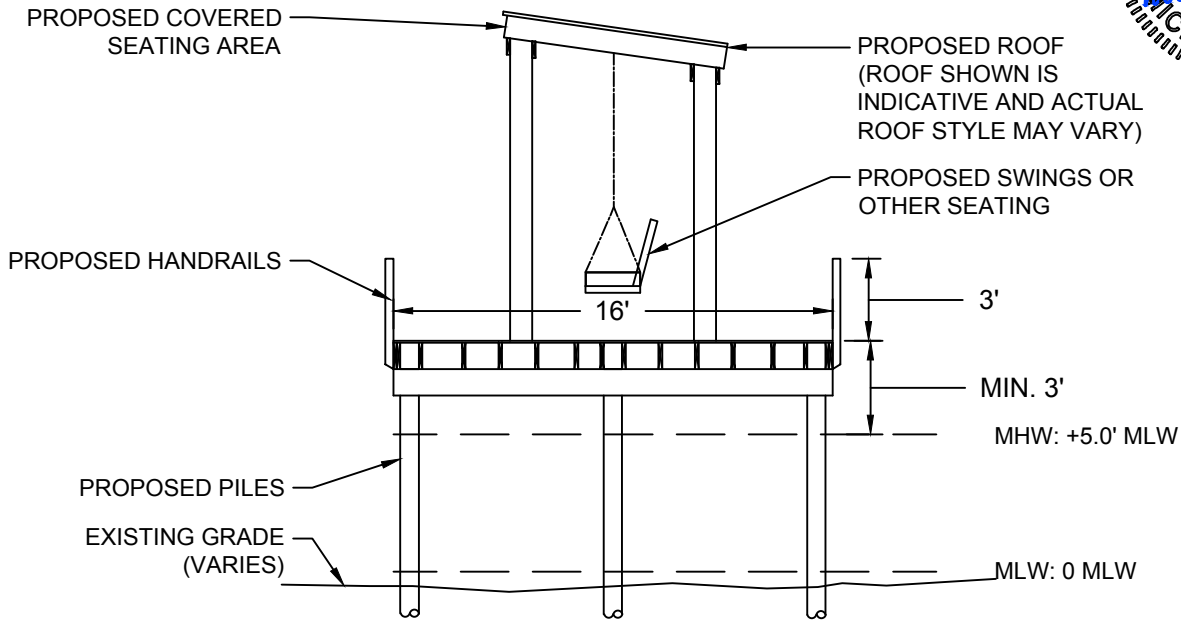
6-February-2023
SHEET 06

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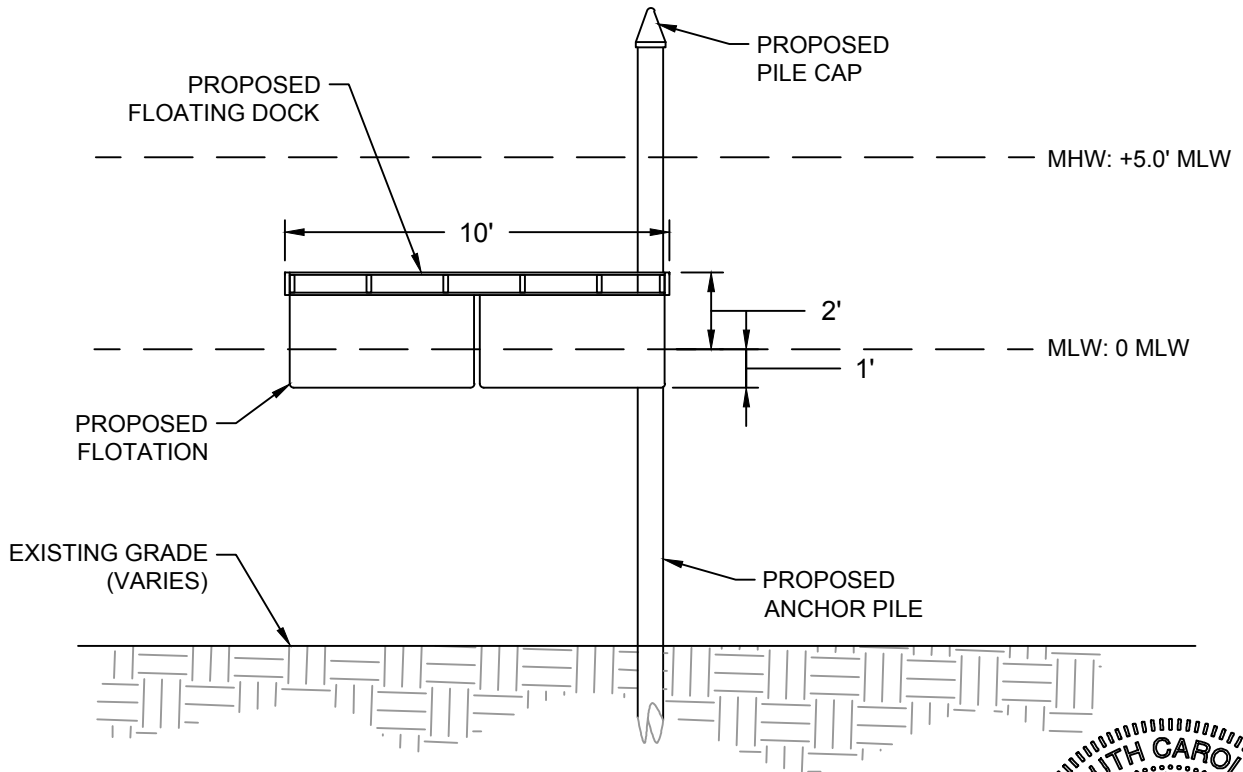


(A) TYPICAL FIXED PIER SECTION
 SCALE: 1" = 5'

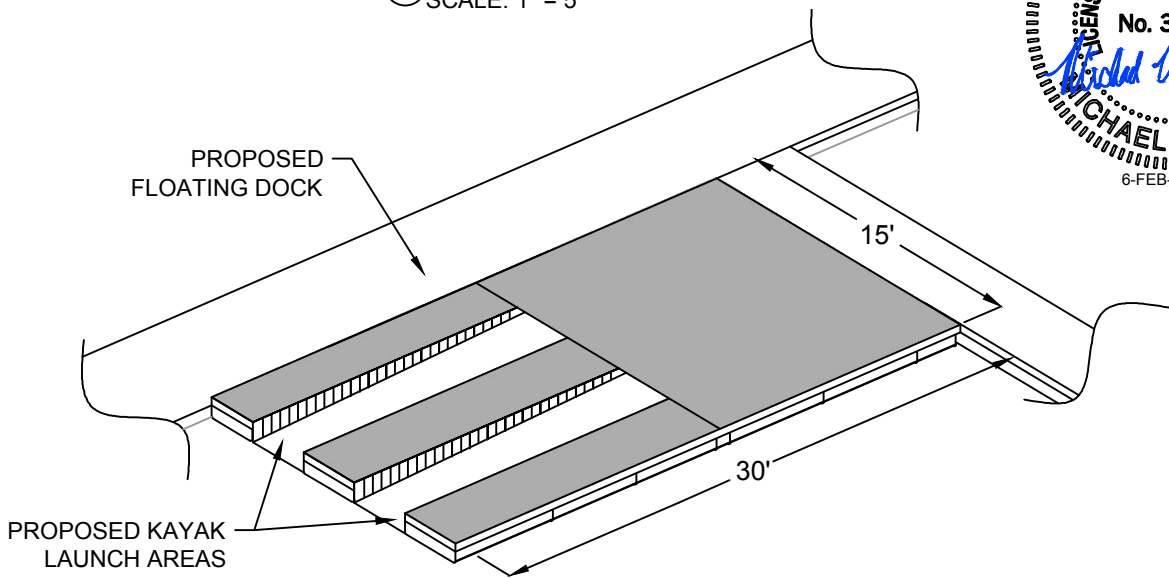
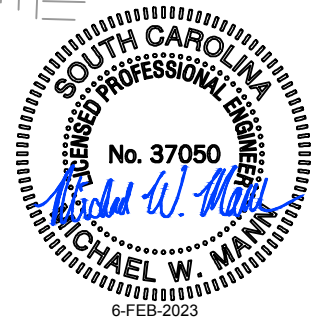


(B) TYPICAL COVERED SEATING ON FIXED PIER SECTION
 NTS

PROJECT: IOP Public Dock Modifications WATERBODY: Atlantic Intracoastal Waterway COUNTY: Charleston STATE: South Carolina LATITUDE: 32°48'20.14"N LONGITUDE: 79°45'39.45"W	FIXED PIER TYPICAL DETAILS		 6-February-2023 SHEET 07
	Requested by: City of Isle of Palms		
	Project Address: 50 41st Avenue, Isle of Palms		
	Parcel ID: 571080007		



© TYPICAL FLOATING DOCK SECTION
 SCALE: 1" = 5'



© FLOATING KAYAK DOCK ISOMETRIC VIEW
 NTS

PROJECT: IOP Public Dock Modifications
 WATERBODY: Atlantic Intracoastal Waterway
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'20.14"N
 LONGITUDE: 79°45'39.45"W

FLOATING DOCK & KAYAK DOCK
 TYPICAL DETAILS

Requested by: City of Isle of Palms

Project Address: 50 41st Avenue, Isle of Palms

Parcel ID: 5710800007



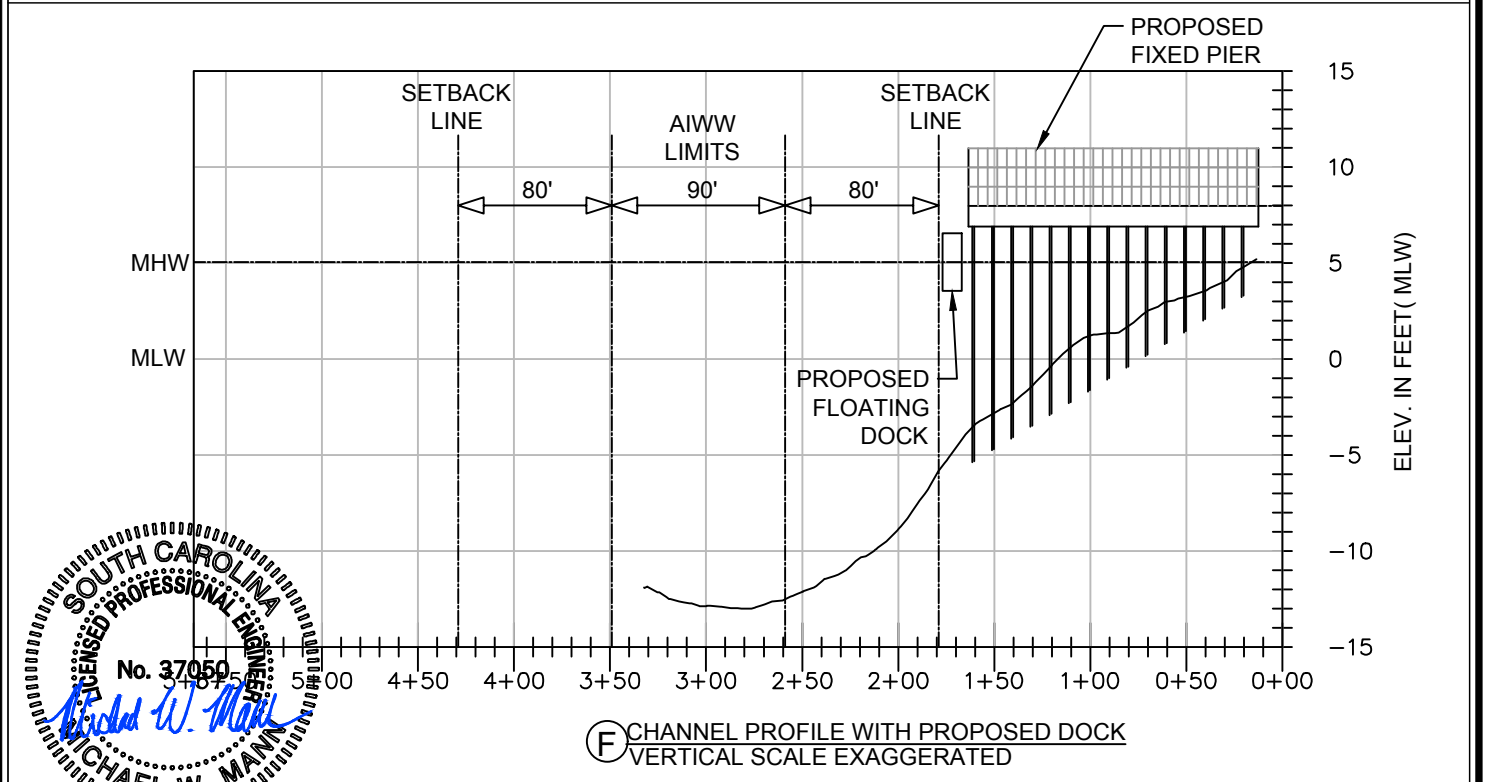
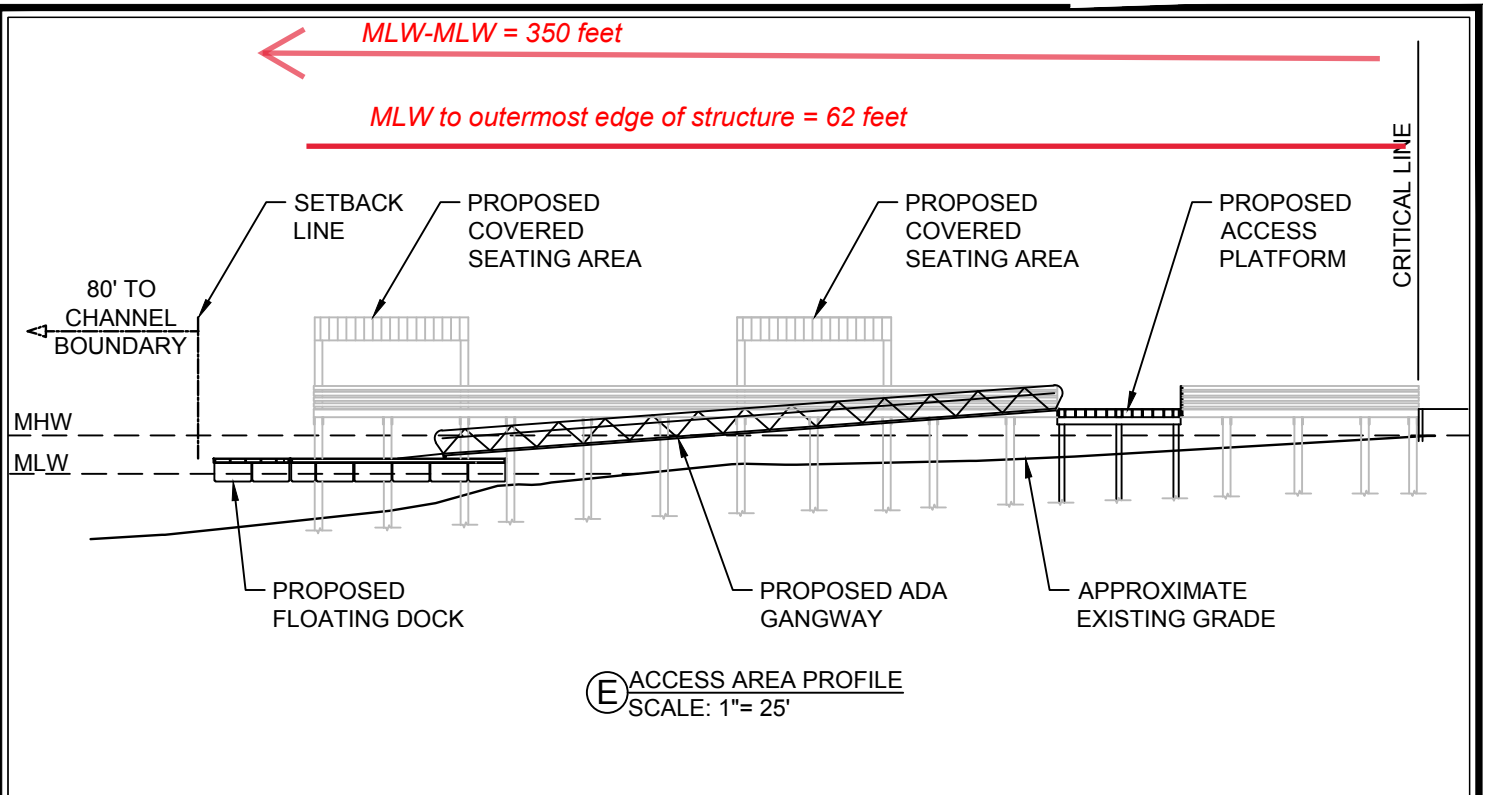
6-February-2023
 SHEET 08

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SAC-1986-08495

FOR PERMITTING PURPOSES ONLY
 "NOT FOR CONSTRUCTION" PERMITTED PLANS

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SOUTH CAROLINA
 LICENSED PROFESSIONAL ENGINEER
 No. 37050
Michael W. Mann
 MICHAEL W. MANN
 6-FEB-2023

Revisions made by the Corps on 9/13/2023 with information provided by the agent.

PROJECT: IOP Public Dock Modifications WATERBODY: Atlantic Intracoastal Waterway COUNTY: Charleston STATE: South Carolina LATITUDE: 32°48'20.14"N LONGITUDE: 79°45'39.45"W	ACCESS AREA PROFILE Requested by: City of Isle of Palms Project Address: 50 41st Avenue, Isle of Palms Parcel ID: 571080007	 A Geosyntec Company 6-February-2023 SHEET 09
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MEMORANDUM

TO: Sarah Reed, Project Manager
Critical Area Permitting Section
OCRM

THROUGH: Chuck Hightower, Manager *CH*
Water Quality Certification
And Wetland Section
Bureau of Water

FROM: Haley Smarr, Project Manager *HAS*
Water Quality Certification
And Wetland Section

DATE: August 7, 2023

RE: Isle of Palms Marina Public Dock Modifications, P/N SAC 1986-08495, construction and modification of a public dock/marina; Isle of Palms in Charleston County, South Carolina

The water quality impacts of the proposed project are reviewed pursuant to R. 61-101, *Water Quality Certification*. All conditions recommended as a result of this review will be incorporated into the Critical Area Permit.

The project consists of the demolition of the existing commercial "Watersports Dock" at the Isle of Palms Marina in order to construct a new "Public Dock". In detail, the applicant proposes to demolish the existing pier, gangway, floating dock, and all pilings and replace it with a wider, more accessible structure. Specifically, the applicant proposes to construct a 16' x 152' fixed pier with a 10' x 16.3' x 21' fixed platform to an 8' x 80' ADA compliant gangway connecting to a 10' x 28' and 75' x 10' floating T-head with a 30' x 15' floating kayak launch. The proposed fixed pier is stated to include two (2) 8' x 20' covered seating areas.

The applicant details several measures that were taken to avoid and minimize impacts to waters of the US. The fixed pier width is stated to have been kept to the minimum extent practical while also enabling safe patron access and clearances; this public pier width is noted to be approximately half as wide as some of the similar structures in the area (such as the Mount Pleasant Waterfront Park pier). Additionally, no pierhead is proposed.

The length of the fixed pier from the shore does not extend all the way to the Intracoastal Waterway Construction Setback limit and instead is stated to merely be long enough to achieve its intended purpose. The fixed pier is also noted to be oriented in a straight alignment as opposed to the existing pier which utilized an inflection point over the marsh; the applicant highlights that this straight alignment limits the length of the fixed pier and minimizes shading impacts to the marsh. The applicant proposed to construct the pier with timber pilings as opposed to concrete or steel pipe pilings in an effort to reduce the impact to marine mammals and fish during installation.

Similarly, the floating docks are proposed to be anchored with timber pilings or steel pilings which are less impactful to marine mammals and fish during installation. Additionally, the applicant highlights that the use of pilings to secure the floating dock as opposed to chain and anchor will also mitigate the possibility of marine mammal entanglement. The length of the dock has been limited to 75 feet, which is noted to be less than the existing structure and does not extend as close to the adjacent property line.

The use of the structure will also be shifted away from motorized vehicles such as jet skis and parasail tour boats to less impactful, non-motorized craft such as paddleboards and kayaks. The proposed kayak launch is stated to be positioned and oriented in such a manner that it will be fully accessible at all tide levels.

Lastly, the applicant comments that the shade structures have been limited to serve their intended purposes and do not span the width of the entire fixed pier, reducing the shading impacts to waters of the US.

The purpose of the proposed project is to provide recreational water access to the public for dock-based fishing, crabbing, or shrimping activities. According to the applicant, the commercial watersports rental and tour operation that was located at the "Watersports Dock" no longer operates at this location, and the City has designated this dock as an area for public access and use at the marina. The applicant indicates that new marina infrastructure is needed due to the limited size of the structure, poor condition of floating dock and gangway, and lack of ADA accessibility. In addition, the applicant highlights the desired and demonstrated need to provide a safe kayak launch and public access to the water at the site.

The applicant continues by noting that the existing dock is only 5 feet wide, which provides limited space for the public to safely and comfortably pass while walking on the dock. Further, the 5-foot width is also stated to be insufficient to allow the public to transport kayaks on the dock. Therefore, a wider, more purposefully designed dock is necessary to provide suitable access.

The 16-foot width of the proposed dock will be carried out to the end of the fixed pier structure to enable safe, clear access for the public. Two shade structures are included in the design in order to provide a respite from the heat during the summertime for the pier users. These structures are stated to have swings installed beneath them for the public to rest and observe the waterway.

The proposed ADA gangway is stated to provide a safe accessible route to a new engineered floating dock system, which will include an ADA accessible kayak launch for public use. According to the applicant, this kayak launch is strategically located within the marina to segregate non-motorized vessel launch/retrieval from motorized vessel launch/retrieval which occurs at the onsite boat ramp in an effort to avoid conflict between these two groups which has occurred in the past. The floating

dock will also allow non-motorized vessels to stage briefly in this area while preparing to leave for or returning from a paddle. Also, the floating dock will enable the public an opportunity to access the water for dock-based fishing, crabbing, or shrimping. It is stated that no swimming will be allowed.

No mitigation is being proposed by the applicant for impacts to wetlands and/or waters of the US, as the construction and installation of these structures will not result in the loss of wetlands.

During the public notice period, the Department received a comment letter from the South Carolina Department of Natural Resources (SCDNR) dated March 24, 2023. According to SCDNR data, there are records of federally threatened and state endangered West Indian Manatee (*Trichechus manatus*) near/within the proposed project area. In an effort to reduce potential construction related impacts to the manatee, SCDNR recommends that the US Fish and Wildlife Service's Standard Manatee Construction Conditions be implemented.

In an e-mail dated June 15, 2023, the applicant accepted the addition of the Standard Manatee Construction Conditions to the permit.

The project is located in the Atlantic Intracoastal Waterway, which is classified as Shellfish Harvesting (SFH) waters. SFH waters are tidal saltwaters protected for shellfish harvesting and uses listed in Class SA and Class SB. These waters are suitable for primary and secondary contact recreation, crabbing, and fishing and are also suitable for the survival and propagation of a balanced indigenous aquatic community of marine fauna and flora.

The proposed project is located within Shellfish Management Area 8. Station 09A-18, located within the vicinity of the project, is listed as impaired for shellfish harvesting due to fecal coliform. Additionally, the waters adjacent to the marina are prohibited for shellfish harvesting. The project as proposed will not affect the current size of the existing closure area.

The proposed project will cause a temporary increase in turbidity levels of the adjacent water column, but ambient conditions should resume once the work is completed. Adverse impacts should be minimal. Water quality standards will not be contravened, and the existing and classified uses of the river will not be impacted.

The water quality impacts of the proposed project will be temporary provided the applicant adheres to the following conditions. The SCDHEC has reasonable assurance that water quality standards will not be contravened as a result of the proposed work. The proposed activities will result in no significant degradation to the aquatic ecosystem or remove existing and classified uses of the Atlantic Intracoastal Waterway.

Conditions:

1. The applicant must implement best management practices that will minimize erosion and migration of sediments on and off the project site during and after construction. These practices should include the use of appropriate grading and sloping techniques, mulches, silt fences, or other devices capable of preventing erosion, migration of sediments and bank failure. All disturbed land surfaces and sloped areas must be stabilized and sloped.

2. All necessary measures must be taken to prevent oil, tar, trash, debris and other pollutants from entering the adjacent waters or wetlands during construction.
3. The applicant will implement the following Standard Manatee Construction Conditions:
 - a. The permittee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collision with manatees. All construction personnel must monitor water-related activities for the presence of manatee(s) during May 1- November 15. Construction personnel are requested to monitor outside of that timeframe as manatees may be in the area before or after the above dates.
 - b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973.
 - c. Any siltation barriers used during the project shall be made of material in which manatees cannot become entangled and must be properly secured, and regularly monitored to avoid manatee entrapment.
 - d. All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
 - e. If manatee(s) are seen within 100 yards of the active construction area all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operation of all moving equipment closer than 50 feet to a manatee shall necessitate immediate shutdowns of equipment. Activities will not resume until the manatee(s) has departed the project area of its own volition.
 - f. The permittee understands and agrees that all in-water lines (rope, chain, and cable, including the lines to secure turbidity curtains) must be stiff, taut, and non-looping. Examples of such lines are heavy metal chains or heavy cables that do not readily loop and tangle. Flexible in-water lines, such as nylon rope or any lines that could loop or tangle, must be enclosed in a plastic or rubber sleeve/tube to add rigidity and prevent the line from looping and tangling. In all instances, no excess line is allowed in the water. Where appropriate, in water wires, cables, should be fitted with PVC sleeve from the surface to the bottom to prevent any potential scraping of passing manatees.
 - g. Any collision with and/or injury to a manatee shall be reported immediately to the U.S. Fish and Wildlife Services contacts: Melanie Olds, South Carolina Manatee Lead, Charleston Field Office, at 843-727-4704 ext. 205; or Terri Calleson, Manatee Recovery Coordinator, North Florida Field Office, at 904-731-3286.

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant:	File Number: SAC-	Date:
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL WITHOUT PREJUDICE	C
	PERMIT DENIAL WITH PREJUDICE	D
	APPROVED JURISDICTIONAL DETERMINATION	E
	PRELIMINARY JURISDICTIONAL DETERMINATION	F

SECTION I

The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/appeals/> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C. PERMIT DENIAL WITHOUT PREJUDICE: Not appealable

You received a permit denial without prejudice because a required Federal, state, and/or local authorization and/or certification has been denied for activities which also require a Department of the Army permit before final action has been taken on the Army permit application. The permit denial without prejudice is not appealable. There is no prejudice to the right of the applicant to reinstate processing of the Army permit application if subsequent approval is received from the appropriate Federal, state, and/or local agency on a previously denied authorization and/or certification.

D: PERMIT DENIAL WITH PREJUDICE: You may appeal the permit denial

You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information for reconsideration

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.
- **RECONSIDERATION:** You may request that the district engineer reconsider the approved JD by submitting new information or data to the district engineer within 60 days of the date of this notice. The district will determine whether the information submitted qualifies as new information or data that justifies reconsideration of the approved JD. A reconsideration request does not initiate the appeal process. You may submit a request for appeal to the division engineer to preserve your appeal rights while the district is determining whether the submitted information qualifies for a reconsideration.

F: PRELIMINARY JURISDICTIONAL DETERMINATION: Not appealable

You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision, you may contact the Corps project manager who signed the letter to which this notification is attached. The name and telephone number of this person is given at the end of the letter.

If you have questions regarding the appeal process, or to submit your request for appeal, you may contact:

Mr. Philip Shannin, Administrative Appeal Review Officer
CESAD-PDO
U.S. Army Corps of Engineers, South Atlantic Division
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

SECTION II – REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. Use additional pages as necessary. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation and will have the opportunity to participate in all site investigations.

<hr/> <p>Signature of appellant or agent.</p>	Date:
Email address of appellant and/or agent:	Telephone number:

Permit Number: _____

Name of Permittee: _____

Date of Issuance: _____

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Regulatory Division
69A Hagood Avenue
Charleston, South Carolina 29403-5107

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

=====

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

Signature of Permittee



September 28, 2023

City of Isle of Palms
C/O Desiree Fragoso
1207 Palm Boulevard
Isle of Palms, SC 29451

Re: OCRM04528

**SEE SPECIAL
CONDITION(S)**

Dear Ms. Fragoso: 91 7199 9991 7030 0132 2750

The Office of Ocean and Coastal Resource Management (the Department) has reviewed your application to construct a public dock at 50 41st Avenue, Isle Of Palms, Charleston County, South Carolina and has issued a permit for this work. This Critical Area Permit contains the associated Coastal Zone Consistency Certification and the required 401 Water Quality Certification. You should carefully read the description of the authorized project and special conditions that have been placed on the permit, as these conditions may modify the permitted activity. In addition, there are a series of general conditions that should be reviewed. The original and one photocopy of the permit, as issued, are enclosed. After carefully reading the permit, if you wish to accept the permit as issued, sign and date in the signature block entitled "PERMITTEE" on the original version of the permit and return it to this Department. **Keep the photocopy for your records.**

PLEASE READ CAREFULLY: You are required to sign and return the original version of your permit to this Department. If this permit is not signed and returned within thirty (30) days of issuance, OR appealed within 15 days as described on the enclosed "Guide to Board Review", the Department reserves the right to cancel this permit. Please carefully review the enclosed "Guide to Board Review" for information and deadlines for appealing this permit.

We have also enclosed a "request for a construction placard" card. You must send in this card before the time you wish to start construction. At that time a construction placard will be sent to you to post at the construction site.

PLEASE NOTE: You are not authorized to commence work under the permit until we have received the original version of the entire permit signed and accepted by you, and a construction placard has been issued and posted at the construction site. The receipt of this permit does not relieve you of the responsibility of acquiring any other federal or local permits that may be required. Please return the signed permit to the following address:

Office of Ocean and Coastal Resource Management
1362 McMillan Ave, Suite 400
Charleston, SC 29405

Sincerely,

Sarah E. Reed
Project Manager
Critical Area Permitting Section

Enclosure

Ec Kirby Marshall, ATM

South Carolina Board of Health and Environmental Control

Guide to Board Review

Pursuant to S.C. Code Ann. § 44-1-60

The decision of the South Carolina Department of Health and Environmental Control (Department) becomes the final agency decision fifteen (15) calendar days after notice of the decision has been mailed to the applicant, permittee, licensee and affected persons who have requested in writing to be notified, unless a written request for final review accompanied by a filing fee in the amount of \$100 is filed with the Department by the applicant, permittee, licensee or affected person.

Applicants, permittees, licensees, and affected parties are encouraged to engage in mediation or settlement discussions during the final review process.

If the Board declines in writing to schedule a final review conference, the Department's decision becomes the final agency decision and an applicant, permittee, licensee, or affected person may request a contested case hearing before the Administrative Law Court within thirty (30) calendar days after notice is mailed that the Board declined to hold a final review conference. In matters pertaining to decisions under the South Carolina Mining Act, appeals should be made to the South Carolina Mining Council.

I. Filing of Request for Final Review

1. A written Request for Final Review (RFR) and the required filing fee of one hundred dollars (\$100) must be received by Clerk of the Board within fifteen (15) calendar days after notice of the staff decision has been mailed to the applicant, permittee, licensee, or affected persons. If the 15th day occurs on a weekend or State holiday, the RFR must be received by the Clerk on the next working day.
2. RFRs should be filed on-line (scdhec.gov/FileRFR) or in person or by mail at the following address:
South Carolina Board of Health and Environmental Control
Attention: Clerk of the Board
2600 Bull Street
Columbia, South Carolina 29201
Alternatively, RFRs may be filed with the Clerk by electronic mail (boardclerk@dhec.sc.gov).
3. RFRs shall be in writing and should include, at a minimum, the following information:
 - The grounds for amending, modifying, or rescinding the staff decision;
 - a statement of any significant issues or factors the Board should consider in deciding how to handle the matter;
 - the relief requested;
 - a copy of the decision for which review is requested; and
 - the name of the Requestor and the Requestor's mailing address, email address, if applicable, and phone number(s) at which the Requestor can be contacted. If the Requestor consists of a group of individuals, a representative of the group should be identified to receive all notices and communications related to the RFR for the group.

All information submitted is subject to release under the Freedom of Information Act. If the RFR and accompanying documentation contain information the Requestor believes should not be released, such information should be identified.

4. The filing fee may be paid by cash, check or credit card and must be received by the 15th day. Credit card payments may be made by phone (803-898-3460, option 2) or on-line at scdhec.gov/FileRFR.
5. If there is any perceived discrepancy in compliance with this RFR filing procedure or any other procedural question, the Clerk should consult with the Chairman or, if the Chairman is unavailable, the Vice-Chairman. The Chairman or the Vice-Chairman will determine whether the RFR is timely and properly filed and direct the Clerk to (1) process the RFR for consideration by the Board or (2) return the RFR and filing fee to the requestor with a cover letter explaining why the RFR was not timely or properly filed. Processing an RFR for consideration by the Board shall not be interpreted as a waiver of any claim or defense by the agency in subsequent proceedings concerning the RFR.
6. If the RFR will be processed for Board consideration, the Clerk will send an Acknowledgement of RFR to the Requestor and the applicant, permittee, or licensee, if other than the Requestor.
7. If an RFR pertains to an emergency order, the Clerk will, upon receipt, immediately provide a copy of the RFR to all Board members. The Chairman, or in his or her absence, the Vice-Chairman shall, based on the circumstances, decide whether to refer the RFR to the RFR Committee for expedited review or to decline in writing to schedule a Final Review Conference. If the Chairman or Vice-Chairman determines review by the RFR Committee is appropriate, the Clerk will forward a copy of

the RFR to Department staff and Office of General Counsel. A Department response and RFR Committee review will be provided on an expedited schedule defined by the Chairman or Vice-Chairman.

8. Following any necessary redaction, the Clerk will email the RFR to staff and Office of General Counsel and request a Department Response within ten (10) working days. If the Requestor is not the applicant, permittee, or licensee, the Clerk will email the RFR to the applicant, permittee, or licensee and give them the option of providing a response within ten (10) working days. Upon receipt of the Department Response and, if timely received, the applicant, permittee, or licensee response, the Clerk will forward the RFR and response(s) to all Board members for review, and all Board members will confirm receipt of the RFR package to the Clerk by email. The responses will also be provided by the Clerk to the Requestor and the applicant, permittee, or licensee if not the Requestor, when provided to the Board; however, questions by RFR Committee members notwithstanding, no subsequent submittals by the parties will be provided to the Board until and if a Conference is scheduled. If a Board member does not confirm receipt of the RFR within a twenty-four (24) hour period, the Clerk will attempt to contact the Board member and confirm receipt. If a Board member believes the RFR should be considered by the RFR Committee, he or she will respond to the Clerk's email within seventy-two (72) hours and will request further review. If no Board member requests further review of the RFR within the seventy-two (72) hour period, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, stating the Board will not hold a Final Review Conference. Contested case guidance will be included within the letter.

NOTE: If the time periods described in this provision end on a weekend or State holiday, the time is automatically extended to the next business day.

9. If the RFR is to be considered by the RFR Committee, the Clerk will notify the Board that further review is requested. The Board member(s) requesting further review will appear at the RFR Committee meeting to discuss the matter with the RFR Committee unless excused by the presiding member. If time allows, an RFR Committee member may submit questions to the parties via the Clerk to be answered in writing prior to the RFR Committee meeting. RFR Committee meetings are open to the public and will be public noticed at least twenty-four (24) hours in advance.
10. Following RFR Committee or Board consideration of the RFR, if it is determined no Conference will be held, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, stating the Board will not hold a Conference. Contested case guidance will be included within the letter.

II. Final Review Conference Scheduling

1. If a Conference will be held, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, informing the Requestor of the determination.
2. The Clerk will send Notice of Final Review Conference to the parties at least ten (10) days before the Conference. The Conference will be publicly noticed and the Notice should:
 - include the place, date and time of the Conference;
 - state the presentation times allowed in the Conference;
 - state evidence may be presented at the Conference;
 - if the conference will be held by a committee other than the RFR Committee or a designee, include a copy of the Chairman's order appointing the committee or the designee; and
 - inform the Requestor of his or her right to request a transcript of the proceedings of the Conference prepared at Requestor's expense.
3. Information submitted to the Clerk at least twenty-four (24) hours prior to the Conference will be provided to the Board for consideration prior to the Conference. Such information will also be provided to the parties. While parties may distribute handouts at the Conference, information received by the Clerk after this deadline will not be provided to the Board or the parties.
4. Slide presentations for the Conference must be provided to the Clerk at least twenty-four (24) hours prior to the Conference to allow time for uploading. Slide presentations will be provided to the Board and the parties prior to the Conference.
5. If a party requests a transcript of the proceedings of the Conference and agrees to pay all related costs in writing, including costs for the transcript, the Clerk will schedule a court reporter for the Conference.

III. Final Review Conference and Decision

1. The order of presentation in the Conference will, subject to the presiding officer's discretion, be as follows:
 - Department staff will provide an overview of the staff decision and the applicable law to include [15 minutes]:
 - Type of decision (permit, enforcement, etc.) and description of the program.
 - Parties
 - Description of facility/site

- Applicable statutes and regulations
 - Decision and materials relied upon in the administrative record to support the staff decision.
- Requestor(s) will state the reasons for protesting the staff decision and may provide evidence to support amending, modifying, or rescinding the staff decision. [20 minutes] *NOTE: The burden of proof is on the Requestor(s)*
 - Rebuttal by Department staff [20 minutes]
 - Rebuttal by applicant, permittee, or licensee, if not the Requestor [5 minutes]
 - Rebuttal by Requestor(s) [15 minutes]
- Note: Times noted in brackets are for information only and are superseded by times stated in the Notice of Final Review Conference or by the presiding officer.
2. Parties may present evidence during the conference; however, the rules of evidence do not apply.
 3. At any time during the conference, the officers conducting the Conference may request additional information and may question the Requestor, the staff, and anyone else providing information at the Conference.
 4. The presiding officer, in his or her sole discretion, may allow additional time for presentations and may impose time limits on the Conference.
 5. All Conferences are open to the public.
 6. The officers may deliberate in closed session.
 7. The officers may announce the decision at the conclusion of the Conference or it may be reserved for consideration.
 8. The Clerk will mail the written final agency decision (FAD) to parties within thirty (30) days after the Conference. The written decision must explain the basis for the decision and inform the parties of their right to request a contested case hearing before the Administrative Law Court or in matters pertaining to decisions under the South Carolina Mining Act, to request a hearing before the South Carolina Mining Council. The FAD will be sent to the parties by certified mail, return receipt requested.
 9. Communications may also be sent by electronic mail, in addition to the forms stated herein, when electronic mail addresses are provided to the Clerk.

The above information is provided as a courtesy; parties are responsible for complying with all applicable legal requirements.

**SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT**

CRITICAL AREA PERMIT/COASTAL ZONE CONSISTENCY CERTIFICATION & WATER QUALITY CERTIFICATION

Permittee(s): City of Isle of Palms

Permit Number(s): OCRM04528

Date of Issuance: September 28, 2023

Expiration Date: September 28, 2028

Location: On and adjacent to the Atlantic Intracoastal Water way at 50 41st Ave, Isle Of Palms
Charleston County, South Carolina (TMS#:5710800007)

SEE SPECIAL
CONDITION(S)

This permit is issued under the provisions of S. C. Code Ann. Section 48-39-10, et seq., and 23A S.C. Code Ann. Regs. 30-1 through 30-18 (Supp. 2005) and 25A S.C. Code Ann. Regs. 61-101 (Supp. 2005), et seq. Additionally, as required by R.61-101, Department staff have reviewed plans for this project and determined there is a reasonable assurance the project will be conducted in a manner consistent with Certification requirements of Section 401 of the Clean Water Act.

This permit contains required certification pursuant to Section 401 of the Clean Water Act. PLEASE CAREFULLY READ THE ENCLOSED "GUIDE TO BOARD REVIEW."

Please carefully read the project description and any special conditions that may appear on this permit/certification as they will affect the work that is allowed and may modify the work from that shown on the submitted plans. All special conditions attached to the permit will take precedent over submitted plans. If there are no special conditions, then the work is authorized as described in the project description and as modified by general conditions. The general conditions are also a part of this permit/certification and should be read in their entirety. The S. C. Contractor's Licensing Act of 1999, enacted as Section 40-11-5 through 430, requires that all construction with a total cost of \$5,000 or more be performed by a licensed contractor with a valid contractor's license for marine class construction, except for construction performed by a private landowner for strictly private purposes. Your signature on and acceptance of this permit denotes your understanding of the stated law regarding use of licensed contractors. **All listed special and general conditions will remain in effect for the life of the project if work commences during the life of the permit. This applies to permittee, future property owners, or permit assignees.**

DESCRIPTION OF THE PROJECT, AS AUTHORIZED

The plans submitted by you, attached hereto, show the work consists of removing the existing commercial watersports dock and constructing a new public dock in its place. The public dock will include a 16' x 152' fixed timber pier with handrails with two ADA-compliant lowered rail sections and two 8' x 20' covered seating areas. An 8' x 80' ADA-compliant aluminum gangway will extend channelward from a 186 sq. ft. platform off the west side of the pierhead to access a 10' x 28' landing and 10' x 75' floating dock system with new anchor pilings that includes a 15' x 30' ADA accessible kayak launch for public use. Limited utilities will also be provided including dock lighting, a limited number of electrical receptacles for City use and a limited number of water spigots for City use. A fixed fire suppression standpipe system will also be provided.

CRITICAL AREA PERMIT SPECIAL CONDITIONS

1. Upon completion of construction activities, all undeveloped disturbed areas, including those impacted for access, must be immediately restored to pre-project elevations and stabilized.
2. The discharge of any kind of waste into state waters, including, but not limited to, garbage, refuse, trash or debris, will be prohibited at the dock facility.
3. Adequate litter receptacles must be located near all docks and walkways.
4. Once the project is initiated, it must be carried to completion in an expeditious manner in order to minimize period of disturbance to the environment.
5. An as-built survey of the dock must be submitted to the Department within 90 days from completion of construction. The survey must be performed by a registered land surveyor, must show all components of the dock, and must list the starting and ending coordinates of the dock walkway in the SC State Plane Coordinate System, which can be obtained by survey-grade Global Positioning System equipment.
6. In the event that any historic or cultural resources and/or archaeological materials are found during the course of work, the applicant must notify the State Historic Preservation Office and the South Carolina Institute of Archaeology and Anthropology. Historic or cultural resources consist of those sites listed in the National Register of Historic Places and those sites that are eligible for the National Register. Archaeological materials consist of any items, fifty years old or older, which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal materials.

WATER QUALITY SPECIAL CONDITIONS

1. The applicant must implement best management practices that will minimize erosion and migration of sediments on and off the project site during and after construction. These practices may include use of appropriate grading and sloping techniques, mulches, silt fences, or other devices capable of preventing erosion, migration of sediments and bank failure. All disturbed land surfaces and sloped areas must be stabilized and sloped.
2. All necessary measures must be taken to prevent oil, tar, trash, debris, and other pollutants from entering the adjacent waters or wetlands during construction.
3. The applicant will implement the following Standard Manatee Construction Conditions:
 - a. The permittee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel must monitor water-related activities for the presence of manatee(s) during May 1 - November 15. Construction personnel are requested to monitor outside of that timeframe as manatees may be in the area before or after the above dates.
 - b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973.
 - c. Any siltation barriers used during the project shall be made of material in which manatees cannot become entangled and must be properly secured, and regularly monitored to avoid manatee entrapment.

**SEE SPECIAL
CONDITION(S)**

- d. All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- e. If manatee(s) are seen within 100 yards of the active construction area all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet to a manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment. Activities will not resume until the manatee(s) has departed the project area of its own volition.
- f. The permittee understands and agrees that all in-water lines (rope, chain, and cable, including the lines to secure turbidity curtains) must be stiff, taut, and non-looping. Examples of such lines are heavy metal chains or heavy cables that do not readily loop and tangle. Flexible inwater lines, such as nylon rope or any lines that could loop or tangle, must be enclosed in a plastic or rubber sleeve/tube to add rigidity and prevent the line from looping and tangling. In all instances, no excess line is allowed in the water. Where appropriate, in water wires, cables, should be fitted with PVC sleeve from the surface to the bottom to prevent any potential scraping of the passing manatees.
- g. Any collision with and/or injury to a manatee shall be reported immediately to the U.S. Fish and Wildlife Service contacts: Melanie Olds, South Carolina Manatee Lead, Charleston Field Office, at 843-727-4707 ext. 205; or Terri Calleson, Manatee Recovery Coordinator, North Florida Field Office, at 904-731-3286. Reports to injured manatees may also be reported to the SCDNR at (800) 922-5431.

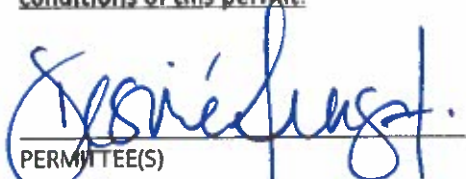
**SEE SPECIAL
CONDITION(S)**

PERMITTEE'S ATTENTION IS DIRECTED TO GENERAL CONDITIONS NUMBERS FOUR (4) AND (5), BY ACCEPTANCE OF THIS PERMIT, PERMITTEE IS PLACED ON NOTICE THAT THE STATE OF SOUTH CAROLINA, BY ISSUING THIS PERMIT, DOES NOT WAIVE ITS RIGHTS TO REQUIRE PAYMENT OF A REASONABLE FEE FOR USE OF STATE LANDS AT A FUTURE DATE IF SO DIRECTED BY STATUTE.

THE PERMITTEE, BY ACCEPTANCE OF THIS PERMIT, AGREES TO ABIDE BY THE TERMS AND CONDITIONS CONTAINED HEREIN AND TO PERFORM THE WORK IN STRICT ACCORDANCE WITH THE PLANS AND SPECIFICATIONS ATTACHED HERETO AND MADE A PART HEREOF. ANY DEVIATION FROM THESE CONDITIONS, TERMS, PLANS AND SPECIFICATIONS SHALL BE GROUNDS FOR REVOCATION, SUSPENSION OR MODIFICATION OF THIS PERMIT AND THE INSTITUTION OF SUCH LEGAL PROCEEDINGS AS THE DEPARTMENT MAY CONSIDER APPROPRIATE.

Permit Number: OCRM04528

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.


PERMITTEE(S)
City of Isle of Palms/Desiree Fragoso

Sept. 28. 2023
DATE

This permit becomes effective when the State official, designated to act for the Office of Ocean and Coastal Resource Management, has signed below.


CRITICAL AREA PERMITTING PROJECT MANAGER
Sarah E Reed
Or Other Authorized State Official

9/28/2023
DATE

**SEE SPECIAL
CONDITION(S)**

**SEE SPECIAL
CONDITION(S)**

GENERAL CONDITIONS:

This construction and use permit is expressly contingent upon the following conditions which are binding on the permittee:

1. The permittee, in accepting this permit, covenants and agrees to comply with and abide by the provisions and conditions herein and assumes all responsibility and liability and agrees to save OCRM and the State of South Carolina, its employees or representatives, harmless from all claims of damage arising out of operations conducted pursuant to this permit.
2. If the activity authorized herein is not constructed or completed within five years of the date of issuance, this permit shall automatically expire. A request, in writing, for an extension of time shall be made not less than thirty days prior to the expiration date.
3. All authorized work shall be conducted in a manner that minimizes any adverse impact on fish, wildlife and water quality.
4. This permit does not relieve the permittee from the requirements of obtaining a permit from the U. S. Army Corps of Engineers or any other applicable federal agency, nor from the necessity of complying with all applicable local laws, ordinances, and zoning regulations. This permit is granted subject to the rights of the State of South Carolina in the navigable waters and shall be subject, further, to all rights held by the State of South Carolina under the public trust doctrine as well as any other right the State may have in the waters and submerged lands of the coast.
5. This permit does not convey, expressly or impliedly, any property rights in real estate or material nor any exclusive privileges; nor does it authorize the permittee to alienate, diminish, infringe upon or otherwise restrict the property rights of any other person or the public; nor shall this permit be interpreted as appropriating public properties for private use.
6. The permittee shall permit OCRM or its authorized agents or representatives to make periodic inspections at any time deemed necessary in order to ensure that the activity being performed is in accordance with the terms and conditions of this permit.
7. Any abandonment of the permitted activity will require restoration of the area to a satisfactory condition as determined by OCRM.
8. This permit may not be transferred to a third party without prior written notice to OCRM, either by the transferee's written agreement to comply with all terms and conditions of this permit or by the transferee subscribing to this permit and thereby agreeing to comply.
9. If the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and special signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.
10. The permit construction placard or a copy of the placard shall be posted in a conspicuous place at the project site during the entire period of work.
11. The structure or work authorized herein shall be in accordance with the permit, as issued, and shall be maintained in good condition. Failure to build in accordance with the permit, as issued, or failure to maintain the structure in good condition, shall result in the revocation of this permit.
12. The authorization for activities or structures herein constitutes a revocable license. OCRM may require the permittee to modify activities or remove structures authorized herein if it is determined by OCRM that such activity or structures violates the public's health, safety, or welfare, or if any activity is inconsistent with the public trust doctrine. Modification or removal under this condition shall be ordered only after reasonable notice stating the reasons therefore and provision to the permittee of the opportunity to respond in writing. When the Permittee is notified that OCRM intends to revoke the permit, Permittee agrees to immediately stop work pending resolution of the revocation.
13. OCRM shall have the right to revoke, suspend, or modify this permit in the event it is determined the permitted structure (1) significantly impacts the public health, safety and welfare, and/or is violation of Section 48-39-150, (2)

adversely impacts public rights, (3) that the information and data which the permittee or any other agencies have provided in connection with the permit application is either false, incomplete or inaccurate, or (4) that the activity is in violation of the terms and/or conditions, including any special conditions of the permit. That the permittee, upon receipt of OCRM's written intent to revoke, suspend, or modify the permit has the right to a hearing. Prior to revocation, suspension, or modification of this permit, OCRM shall provide written notification of intent to revoke to the permittee, and permittee can respond with a written explanation to OCRM. (South Carolina Code Section 1-23-370 shall govern the procedure for revocation, suspension or modification herein described).

14. Any modification, suspension or revocation of this permit shall not be the basis of any claim for damages against OCRM or the State of South Carolina or any employee, agent, or representative of OCRM or the State of South Carolina.
15. All activities authorized herein shall, if they involve a discharge or deposit into navigable waters or ocean waters, be at all times consistent with all applicable water quality standards, effluent limitations and standards of performance, prohibitions, and pretreatment standards established pursuant to applicable federal, state and local laws.
16. Extreme care shall be exercised to prevent any adverse or undesirable effects from this work on the property of others. This permit authorizes no invasion of adjacent private property, and OCRM assumes no responsibility or liability from any claims of damage arising out of any operations conducted by the permittee pursuant to this permit.

**SEE SPECIAL
CONDITION(S)**

FOR PERMITTING PURPOSES ONLY
 "NOT FOR CONSTRUCTION"

**SEE SPECIAL
 CONDITION(S)**

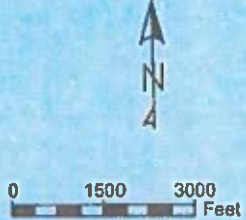
**PROJECT LOCATION:
 ISLE OF PALMS MARINA
 ISLE OF PALMS, SC**

**ISLE OF PALMS
 CONNECTOR**

41ST AVENUE

PALM BLVD.

**ATLANTIC
 OCEAN**



PROJECT: IOP Public Dock Modifications
 WATERBODY: Atlantic Intracoastal Waterway
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'20.14"N
 LONGITUDE: 79°45'39.45"W

LOCATION MAP

Requested by: City of Isle of Palms

Project Address: 50 41st Avenue, Isle of Palms

Parcel ID: 571080007



A Geosyntec Company

6-February-2023
 SHEET 01

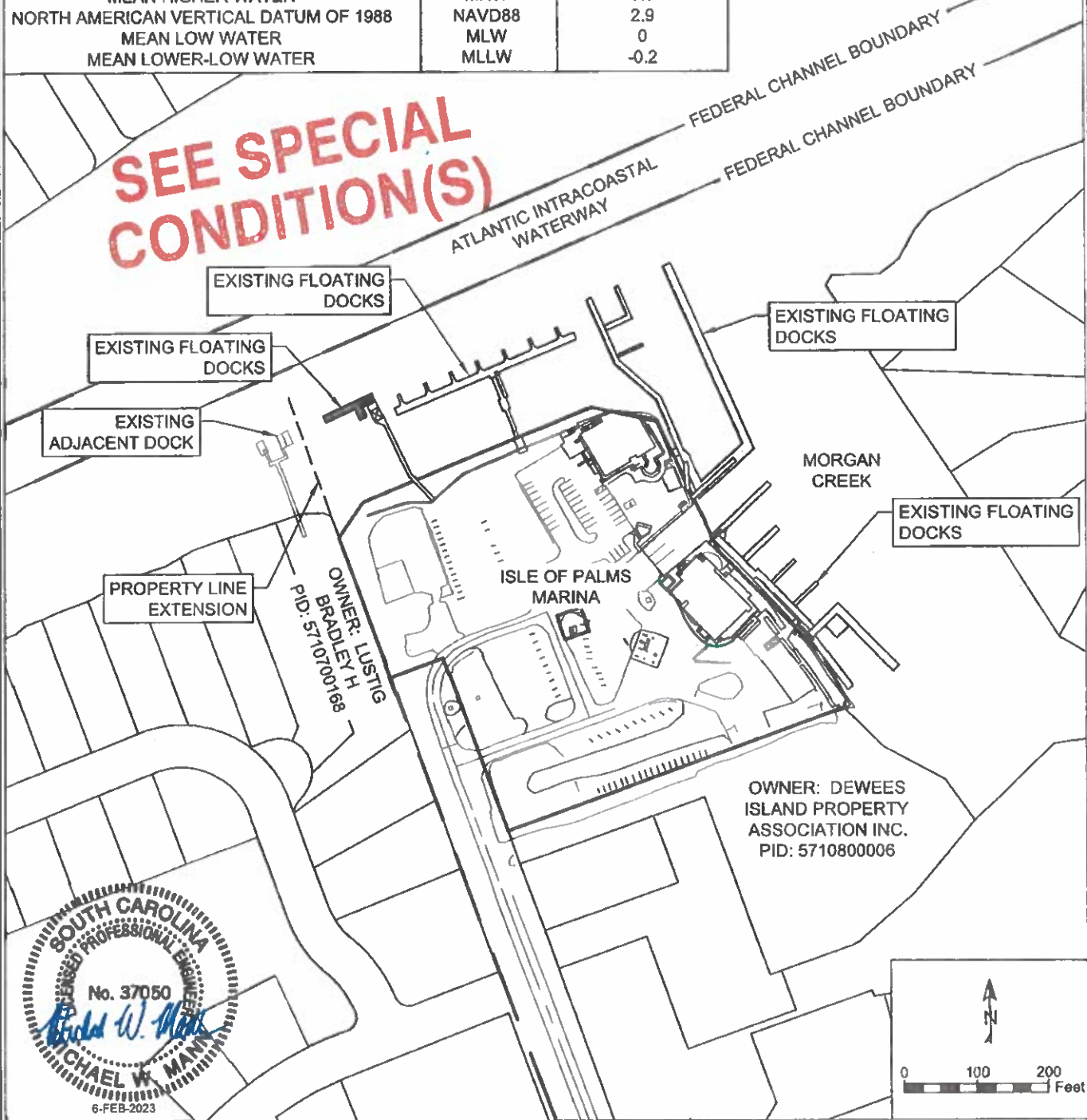
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 "NOT FOR CONSTRUCTION"

NOAA STATION 8665387, HAMLIN CREEK, ISLE OF PALMS, SC

DATUM	ABBREVIATION	ELEV. (FT. MLW)
MEAN HIGHER-HIGH WATER	MHHW	5.4
MEAN HIGHER WATER	MHW	5.0
NORTH AMERICAN VERTICAL DATUM OF 1988	NAVD88	2.9
MEAN LOW WATER	MLW	0
MEAN LOWER-LOW WATER	MLLW	-0.2

**SEE SPECIAL
 CONDITION(S)**



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PROJECT: IOP Public Dock Modifications
WATERBODY: Atlantic Intracoastal Waterway
COUNTY: Charleston
STATE: South Carolina
LATITUDE: 32°48'20.14"N
LONGITUDE: 79°45'39.45"W

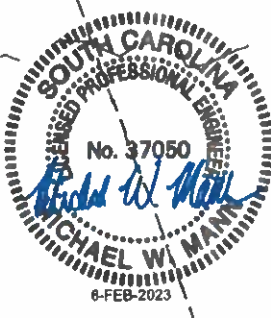
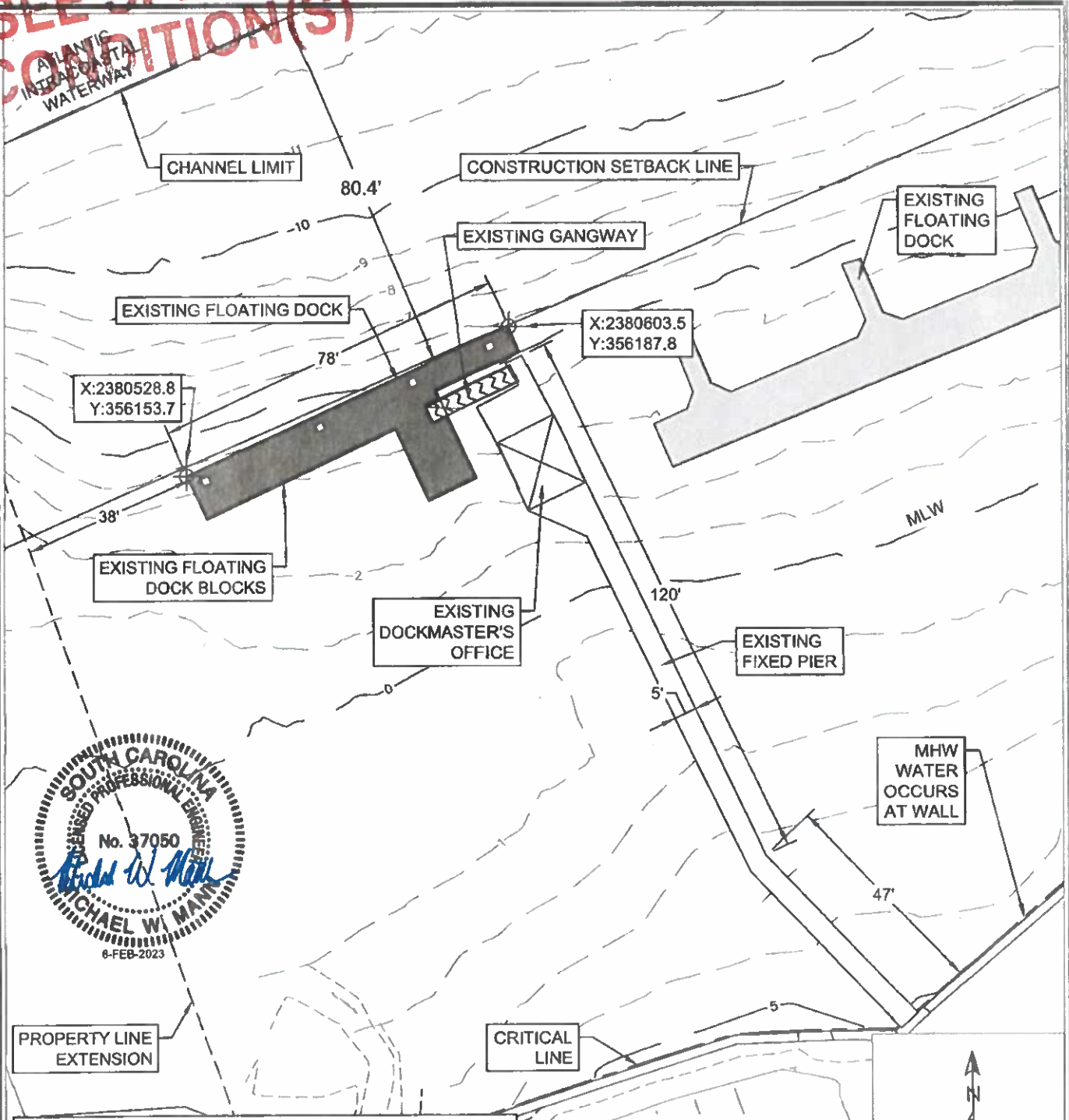
EXISTING CONDITIONS & ADJACENT PROPERTY OWNERS
 Requested by: City of Isle of Palms
 Project Address: 50 41st Avenue, Isle of Palms
 Parcel ID: 5710800007

ATM
 A Geosyntec Company
 6-February-2023
 SHEET 02

8 of 15

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CONDITION(S)**

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NOT FOR CONSTRUCTION



NOTES:
CONTOURS ARE BASED ON GEL ENGINEERING NOVEMBER
2022 SURVEY AND REFERENCE, FEET, MLW.

PROJECT: IOP Public Dock Modifications
 WATERBODY: Atlantic Intracoastal Waterway
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'20.14"N
 LONGITUDE: 79°45'39.45"W

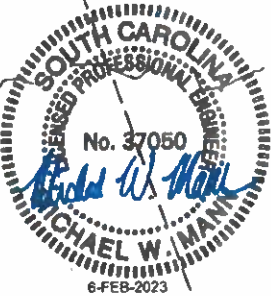
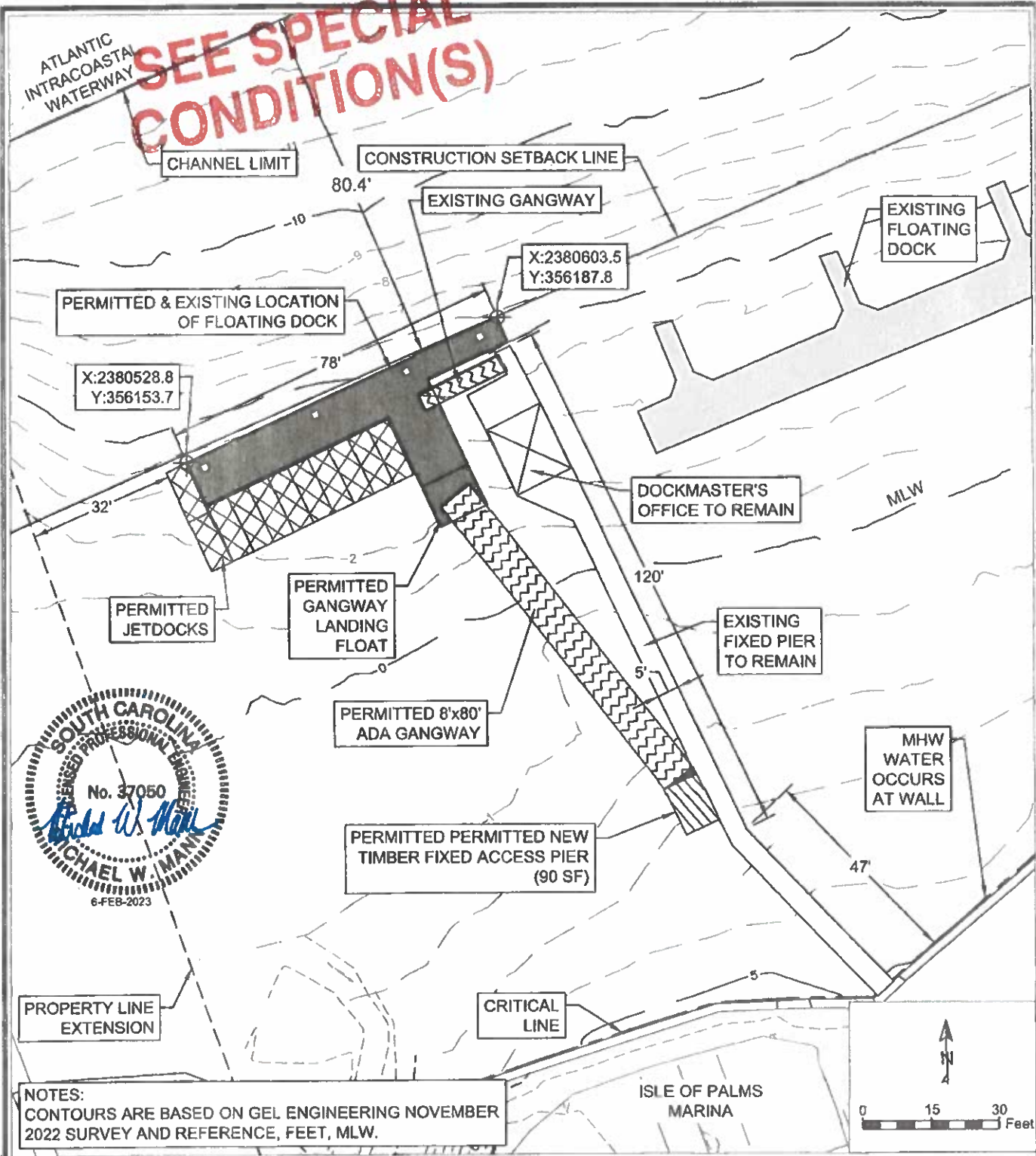
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 Requested by: City of Isle of Palms
 Project Address: 50 41st Avenue, Isle of Palms
 Parcel ID: 5710800007

6-February-2023
SHEET 03

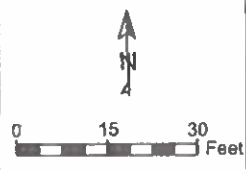
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 CONDITION(S)**



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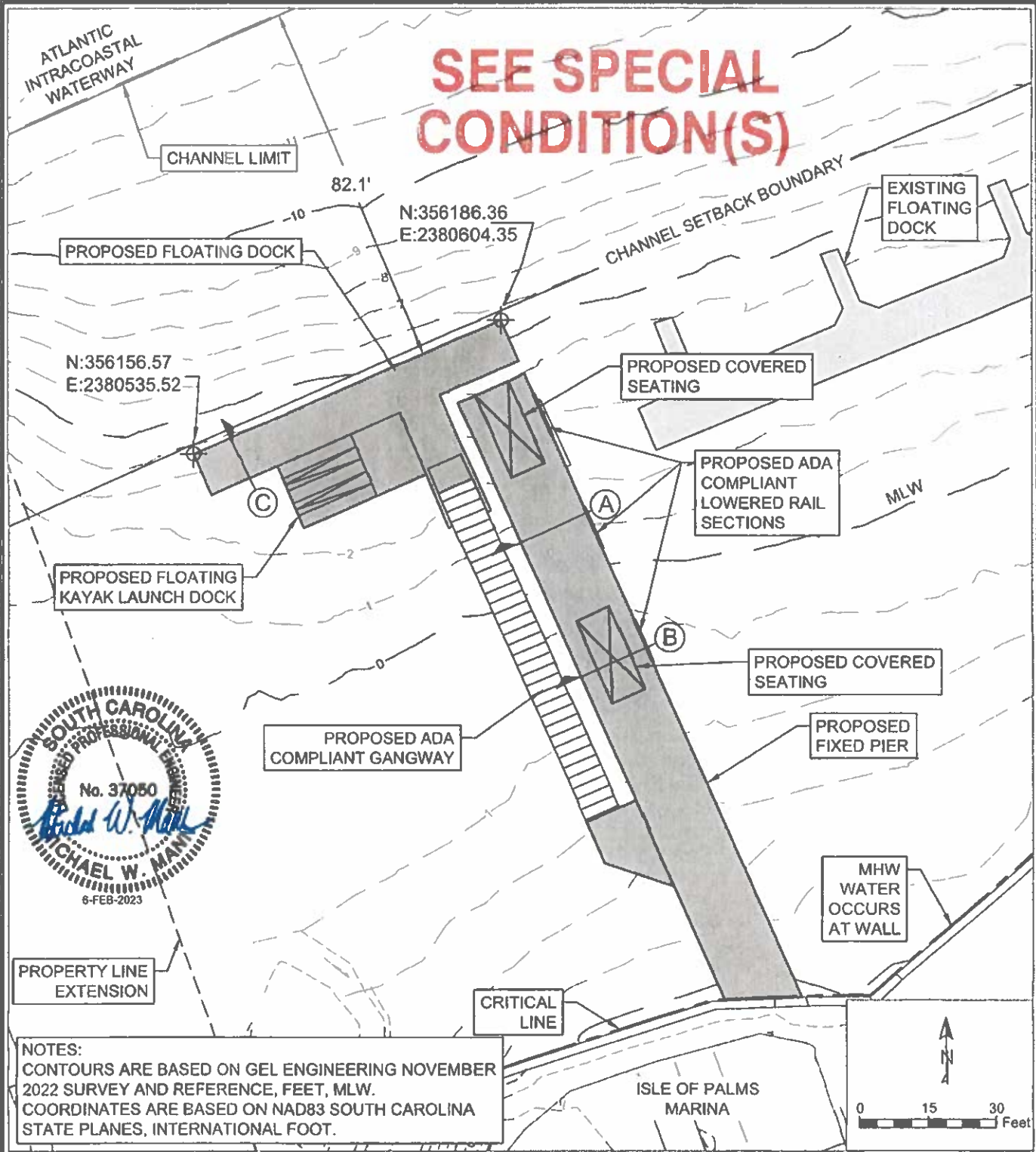


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PROJECT: IOP Public Dock Modifications WATERBODY: Atlantic Intracoastal Waterway COUNTY: Charleston STATE: South Carolina LATITUDE: 32°48'20.14"N LONGITUDE: 79°45'39.45"W	PERMITTED CONDITIONS		 A Geosyntec Company 6-February-2023 SHEET 04
	Requested by: City of Isle of Palms		
	Project Address: 50 41st Avenue, Isle of Palms		
	Parcel ID: 5710800007		

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 COORDINATES ARE BASED ON NAD83 SOUTH CAROLINA STATE PLANES, INTERNATIONAL FOOT.

PROJECT: IOP Public Dock Modifications
 WATERBODY: Atlantic Intracoastal Waterway
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'20.14"N
 LONGITUDE: 79°45'39.45"W

**PROPOSED IMPROVEMENTS
 OVERVIEW**

Requested by: City of Isle of Palms

Project Address: 50 41st Avenue, Isle of Palms

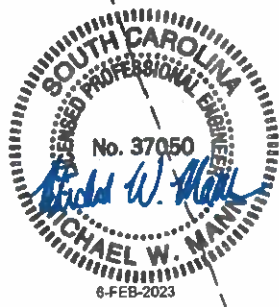
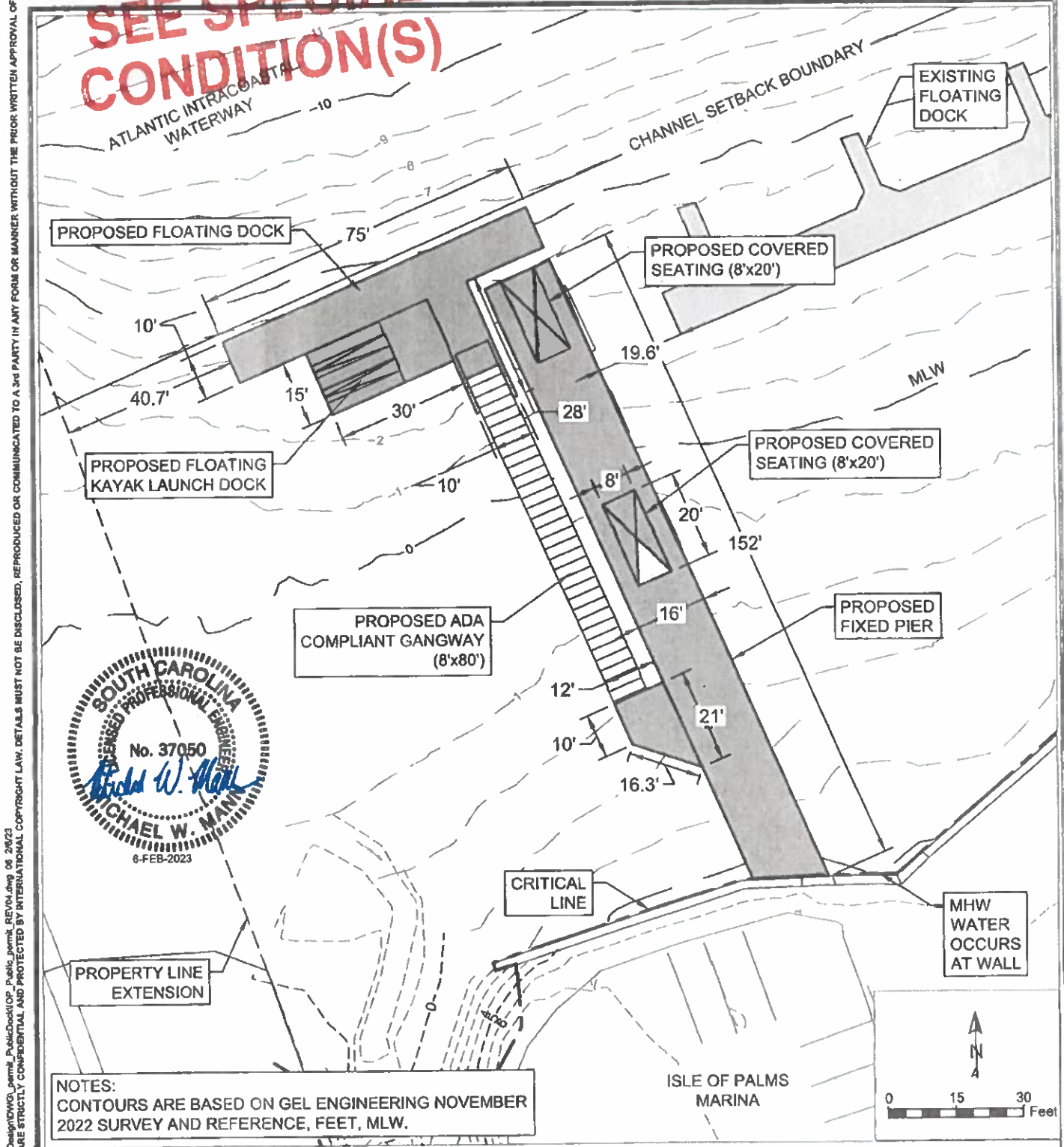
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6-February-2023
 SHEET 05

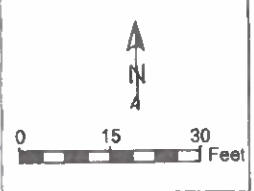
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**SEE SPECIAL
 CONDITION(S)**



NOTES:
 CONTOURS ARE BASED ON GEL ENGINEERING NOVEMBER 2022 SURVEY AND REFERENCE, FEET, MLW.



PROJECT: IOP Public Dock Modifications
 WATERBODY: Atlantic Intracoastal Waterway
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'20.14"N
 LONGITUDE: 79°45'39.45"W

PROPOSED FIXED PIER & FLOATING DOCK DIMENSIONS
 Requested by: City of Isle of Palms
 Project Address: 50 41st Avenue, Isle of Palms
 Parcel ID: 5710800007

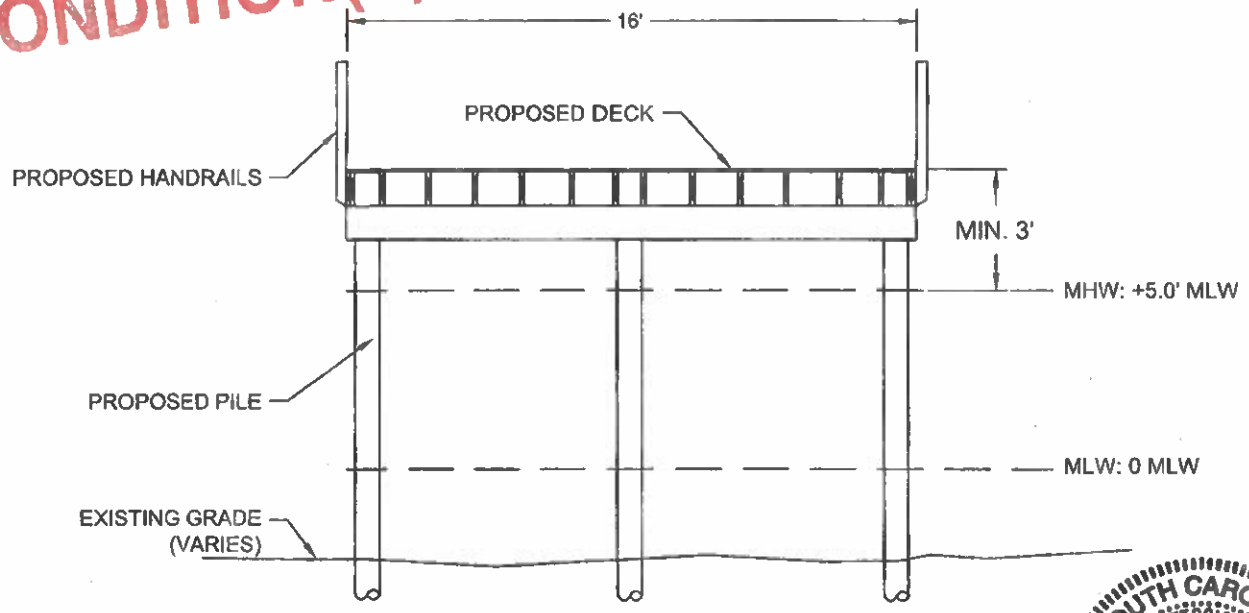
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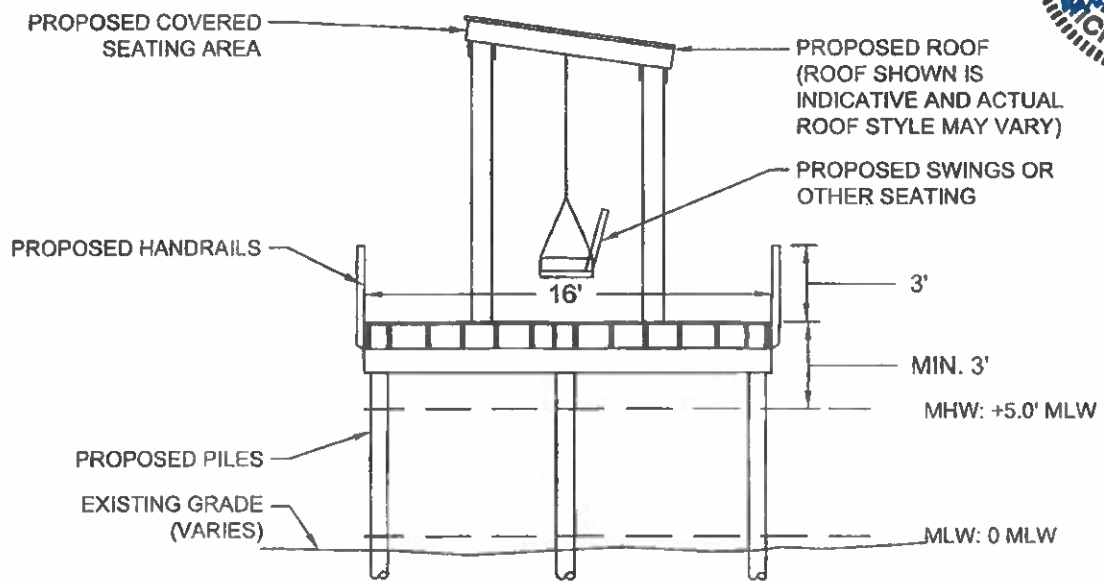
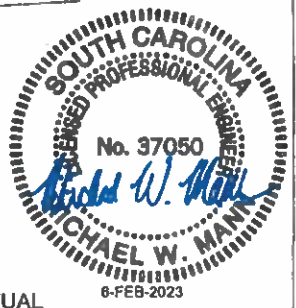
12 of 15

SEE SPECIAL CONDITION(S)

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(A) TYPICAL FIXED PIER SECTION
SCALE: 1" = 5'



(B) TYPICAL COVERED SEATING ON FIXED PIER SECTION
NTS

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PROJECT: IOP Public Dock Modifications
 WATERBODY: Atlantic Intracoastal Waterway
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'20.14"N
 LONGITUDE: 79°45'39.45"W

**FIXED PIER
TYPICAL DETAILS**

Requested by: City of Isle of Palms

Project Address: 50 41st Avenue, Isle of Palms

Parcel ID: 5710800007

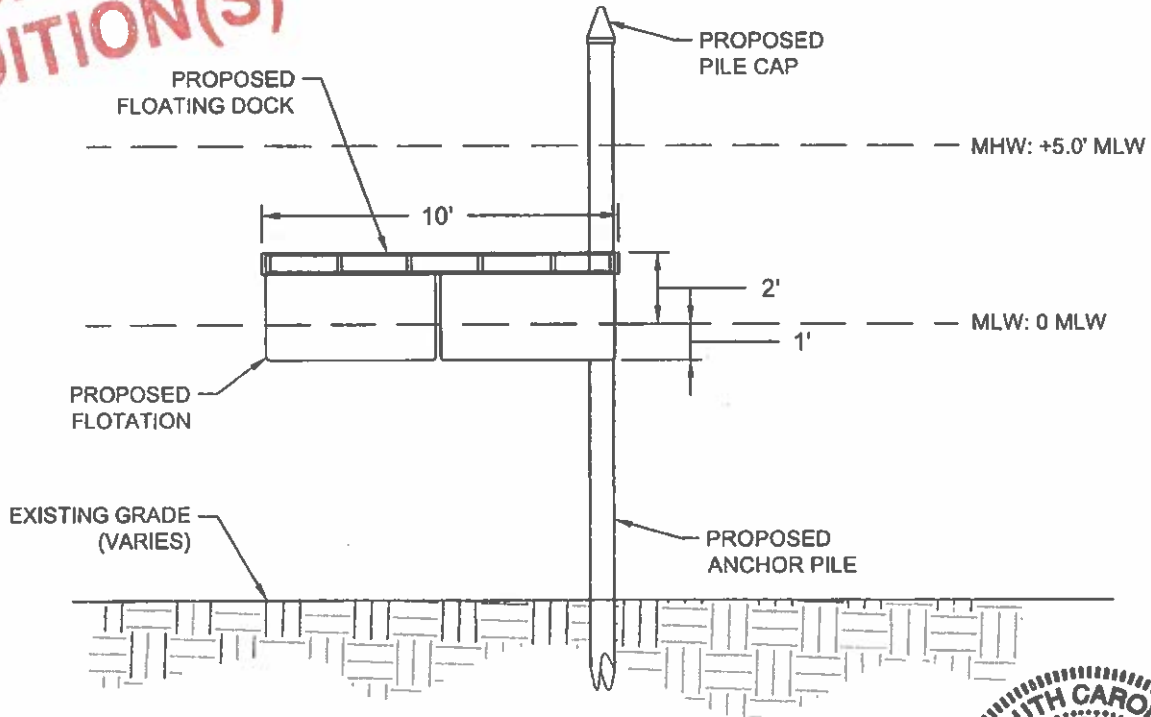


6-February-2023
SHEET 07

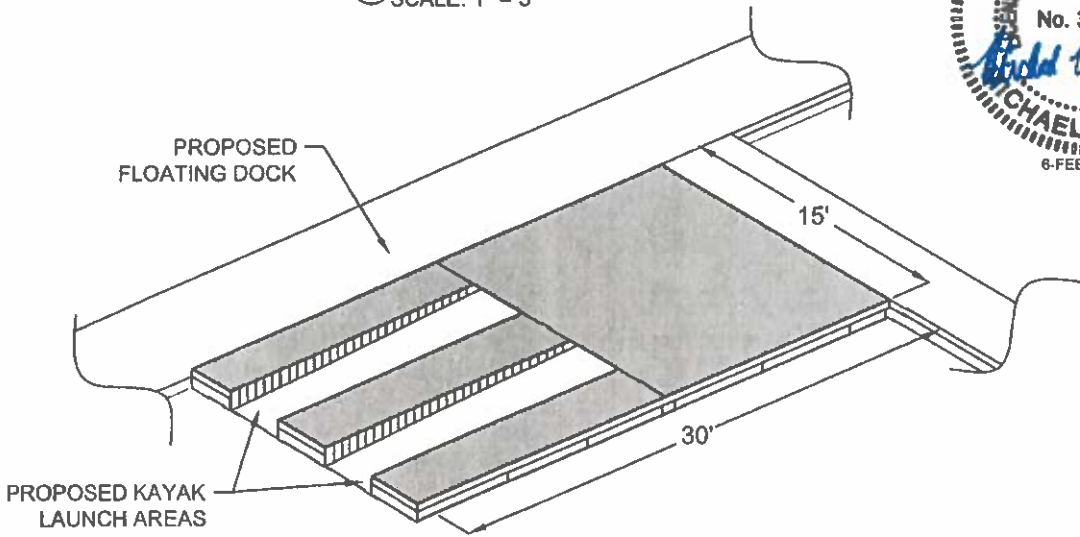
13 of 15

**SEE SPECIAL
CONDITION(S)**

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"NOT FOR CONSTRUCTION"



© TYPICAL FLOATING DOCK SECTION
SCALE: 1" = 5'



© FLOATING KAYAK DOCK ISOMETRIC VIEW
NTS

PROJECT: IOP Public Dock Modifications
 WATERBODY: Atlantic Intracoastal Waterway
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'20.14"N
 LONGITUDE: 79°45'39.45"W

FLOATING DOCK & KAYAK DOCK
TYPICAL DETAILS

Requested by: City of Isle of Palms

Project Address: 50 41st Avenue, Isle of Palms

Parcel ID: 5710800007

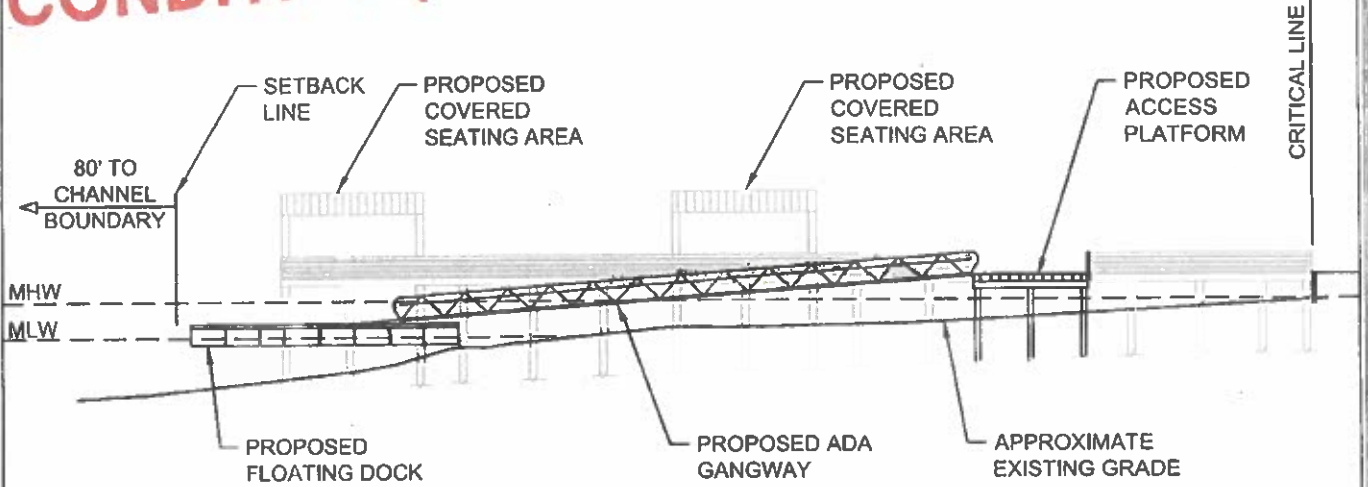


6-February-2023
SHEET 08

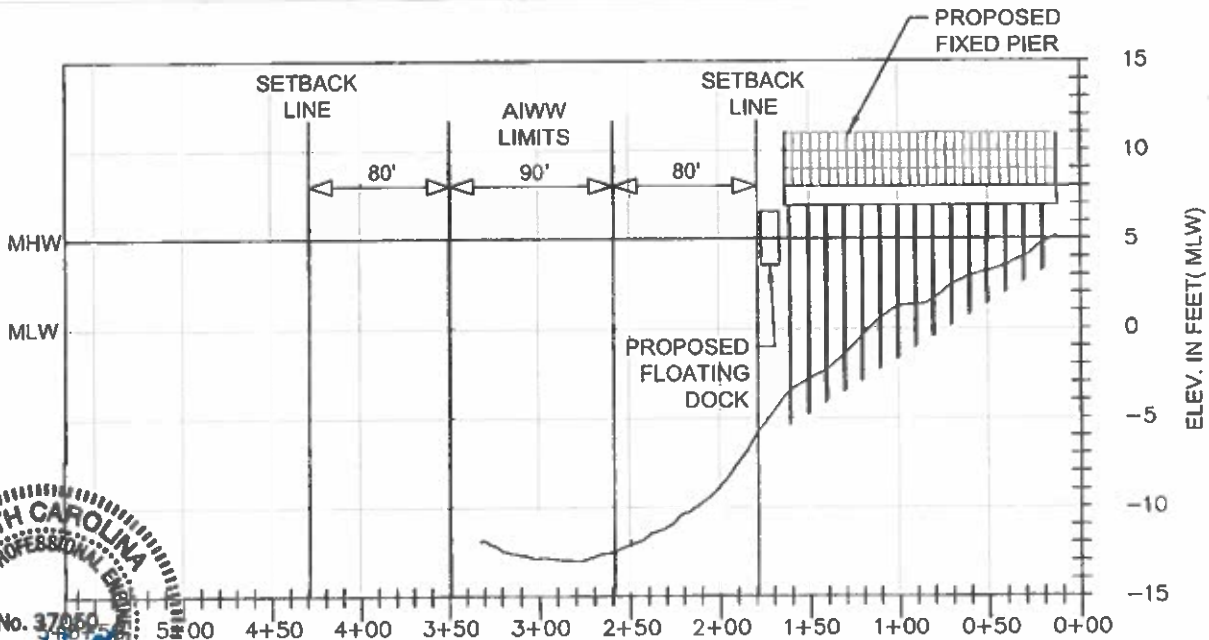
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 CONDITION(S)**



(E) ACCESS AREA PROFILE
 SCALE: 1" = 25'



(F) CHANNEL PROFILE WITH PROPOSED DOCK
 VERTICAL SCALE EXAGGERATED



6-FEB-2023

PROJECT: IOP Public Dock Modifications
 WATERBODY: Atlantic Intracoastal Waterway
 COUNTY: Charleston
 STATE: South Carolina
 LATITUDE: 32°48'20.14"N
 LONGITUDE: 79°45'39.45"W

ACCESS AREA PROFILE

Requested by: City of Isle of Palms

Project Address: 50 41st Avenue, Isle of Palms

Parcel ID: 5710800007



A Geosyntec Company

6-February-2023
 SHEET 09

16 of 15

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APPENDIX B
GEO TECHNICAL REPORTS



SUBSURFACE EXPLORATION

IOP Public Dock

Isle of Palms, South Carolina
ESP Project Number: LN05.300

Prepared For:

Applied Technology & Management
941 Houston Northcutt Blvd., Suite 201
Mt. Pleasant, South Carolina 29464

Prepared By:

ESP Associates, Inc
2154 North Center Street, Suite E-503
North Charleston, South Carolina 29406

October 9, 2023



October 9, 2023

Applied Technology & Management
941 Houston Northcutt Blvd., Suite 201
Mt. Pleasant, South Carolina 29464

Attention: Mr. Justin Davis, PE

Reference: **SUBSURFACE EXPLORATION**
IOP Public Dock
Kiawah Island, South Carolina
ESP Project No. LN05.300

Ladies and Gentlemen:

ESP Associates, Inc. (ESP) has completed a subsurface exploration for the proposed new public dock at the Isle of Palms, South Carolina. This exploration was performed in general accordance with our Proposal No. TG1-22558 R1 dated October 12, 2022, and Subcontract Work Order dated October 13, 2022.

ESP appreciates the opportunity to assist you during this phase of the project. If you should have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely,

ESP Associates, Inc.

A handwritten signature in blue ink that reads "Matthew M. Lattin".

Matthew M. Lattin, PE
Senior Engineer

Electronic submission (1)
cc:/ec:

A handwritten signature in blue ink that reads "Michael S. Ulmer".

2023.10.09 14:30:08-04'00'

Michael S. Ulmer, PE
Senior Engineer



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APPENDIX I – GEOTECHNICAL SUBSURFACE DATA

- Site Location Map, Figure 1
- Test Location Plan, Figure 2
- Subsurface Profile, Figure 3
- Field Exploration Procedures
- Legend To Soil Classification and Symbols
- Cone Penetration Test Record
- Hand Auger Boring Record
- Test Boring Record

APPENDIX II – DEEP FOUNDATION ANALYSES FIGURES AND RESULTS

- Lpile Graphs

1.0 INTRODUCTION

1.1 Purpose of Services

The purpose of the subsurface exploration was to characterize the subsurface conditions at the public dock and provide geotechnical recommendations for foundation design for the new dock and piers. This report contains a brief description of the field testing procedures performed for this study and a discussion of the subsurface conditions encountered at the site. Our findings, conclusions, and recommendations for foundation design, as well as construction considerations for the proposed foundations, are presented herein.

1.2 Project Description

We understand the City of Isle of Palms (IOP) plans to replace the public dock at the IOP Marina. The project will include the removal and replacement of the floating docks, dock piling, fixed pier, and related work. The project site is located at the end of 41st Avenue on the Atlantic Intercoastal Waterway (ICW) as shown in Figure 1 in Appendix I. According to published tidal datums (i.e., NOAA), the mean tide range in the area is on the order of 5.1 feet. We understand the water depth is approximately 10 feet at mean low water at the end of the dock.

The new docks and piers will be supported on driven timber piles, and the following pile loads were provided. The new dock and piers will not be design to resist seismic forces.

- Max Axial Capacity Check: 10 kip (under operational live load conditions; assume no lateral loads)
- Case 1A:
 - Horizontal Load: 1.2 kip at elevation +7.5 ft NAVD88
 - Axial Load: 2.3 kip (includes potential roof uplift)
- Case 1B:
 - Horizontal Load: 1.2 kip at elevation +7.5 ft NAVD88
 - Axial Load: 3.6 kip (assumes no roof uplift)
- Case 2A:
 - Horizontal Load: 0.8 kip at elevation +5.5 ft NAVD88
 - Axial Load: 2.8 kip (includes potential roof uplift)
- Case 2B:
 - Horizontal Load: 0.8 kip at elevation +5.5 ft. NAVD88
 - Axial Load: 4.4 kip (includes potential roof downforce)

Project information was initially received in an email from Mr. Kirby Marshall with Applied Technology & Management (ATM) to Mr. Michael Ulmer, PE with ESP on June 7, 2022. Updated project information was received in a telephone call from Mr. Marshall to Mr. Ulmer on October 6, 2022, and subsequent emails, and pile loads were provided by Mr. Justin Davis, PE with ATM in an email to Mr. Ulmer August 17, 2023.

The project information and assumptions presented herein should be reviewed and confirmed by the appropriate team members. Modifications to our conclusions and recommendations may be required if the actual conditions vary substantially from the project information and assumptions stated herein.

2.0 EXPLORATION PROCEDURES

2.1 Field

The following methods were used to evaluate the subsurface conditions of the site. Additional descriptions of the field exploration procedures are also presented in Appendix I. The test locations were located in the field by estimating distances from existing site features. Test locations are shown on the attached "Test Location Plan" (Figure 2). Elevation data shown on the logs was interpolated from provided topographic data and is approximate.

2.1.1 Cone Penetration Test Sounding

One cone penetration test (CPT) sounding (CPT-01) was pushed to a depth of approximately 81 feet below the existing ground surface in general accordance with ASTM D5778. As the cone penetrometer is advanced through the soil, nearly continuous readings of tip resistance (q_c), sleeve friction (f_s), and pore water pressure (u) are electronically recorded. Using theoretical and empirical relationships, CPT data can be used to determine soil stratigraphy and estimate soil properties such as effective stress, friction angle, Young's modulus, and undrained shear strength. The CPT log is included in Appendix I.

2.1.2 Hand-Auger Boring

One hand-auger boring was performed adjacent to CPT-01 to a depth of 4 feet below the existing ground surface. The boring was drilled by manually turning a steel auger to the ground, and the soils encountered were visually classified in the field in general accordance with ASTM D2488. The results are presented on the attached "Hand Auger Boring Record" in Appendix I. Similar soils were grouped into strata; however, the actual transition between soil types in the field may be gradual in both the horizontal and vertical directions.

2.1.3 Soil Test Boring

One soil test boring (STB-01) was performed from a barge platform to a depth of approximately 68 ft below the barge deck or 54 feet below the mud line. The boring was advanced using mud-rotary drilling techniques, and split-spoon and standard penetration testing (N values) were performed at 2½-foot intervals in the top 15 feet and 5-foot intervals thereafter in general accordance with ASTM D1586. The results are presented on the attached "Test Boring Record" in Appendix I. Similar soils were grouped into strata; however, the actual transition between soil types in the field may be gradual in both the horizontal and vertical directions.

2.2 Laboratory Testing

The split-spoons samples from boring STB-01 were visually evaluated in the laboratory to be silty sands (SM), clayey sands (SC), and the Cooper Marl formation (marl). Laboratory testing was not required to classify the soils, and no laboratory testing was performed.

3.0 SUBSURFACE CONDITION

3.1 Site Geology

The referenced property is located on the Isle of Palms, South Carolina, which is in the Lower Coastal Plain Unit of South Carolina. In general, this region contains near-surface Quaternary alluvial deposits underlain by Tertiary aged, well-consolidated layers of sands, silts, and clays that were deposited by marine or fluvial action during the periods of retreating ocean shoreline. The most notable of these Tertiary deposits is known locally as the Cooper Marl Formation, which was encountered at the site.

3.2 Subsurface Findings

Subsurface conditions generally consist of fill and natural Coastal Plain soils. The generalized subsurface conditions at the site are described below and are graphically depicted on the Subsurface Profile (Figure 3) in Appendix I. For more detailed soil descriptions and stratifications at a particular test location, the attached "Cone Penetration Test" records, "Hand Auger Boring Records", and "Test Boring Record" should be reviewed.

3.2.1 Existing Fill

The hand-auger boring encountered fill soils to a depth of approximately 2 feet below the existing ground surface. The fill consists of silty sand (SM) with traces of gravel. Natural Coastal Plain soils composed of silty sand (SM) with broken shells was encountered below the fill. The CPT data indicates the fill and natural soils vary from loose to dense consistency.

3.2.2 Coastal Plain Deposits

Natural Coastal Plain soils were encountered below the fill on land and the mud line. These soils consist of very loose to loose sand with varying fines (e.g., silt/clay) content to an elevation of approximately -53 feet (NAVD88). The marl was encountered at an elevation of approximately -53 feet, and the marl formation is typically over 200 feet thick in this area of Charleston County.

3.2.3 Subsurface Water

Subsurface water was encountered in the sounding at approximately 4.8 feet below the ground surface at the time of the field exploration. Subsurface water levels tend to fluctuate with tidal, seasonal, and climatic variations, as well as with some types of construction operations. Therefore, water may be encountered during construction at depths not indicated during this study.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Geotechnical Considerations

The exploration indicates the project site is adaptable to the proposed construction. The proposed new dock and piers can be supported on driven timber piles bearing in the marl. The primary geotechnical considerations are discussed in more detail below.

4.2 Site Development

4.2.1 Site Preparation

No significant work is proposed on the upland area of the site; therefore, site preparation will be limited to the construction and/or laydown area at the existing dock. Within this area, vegetation should be cleared and any unsuitable surface materials should be removed. The area should be proofrolled with a loaded dump truck or similar pneumatic tired vehicle (minimum loaded weight of 20 tons) under the observation of a representative of the Geotechnical Engineer, if site constraints allow. Unstable areas should be evaluated by the Contractor and Geotechnical Engineer to determine if stabilization measures are warranted. The soils are sands, and we do not anticipate significant stabilization measures will be required. As discussed in Section 4.2.3 below, proofrolling should be limited adjacent to the existing retaining wall.

4.2.2 Fill Material and Placement

All fill soils used for site grading operations should consist of a clean (free of organics and debris), low plasticity soil (Plasticity Index less than 30). The proposed fill should have a maximum dry density of at least 90 pounds per cubic foot as determined by a modified Proctor Moisture-Density Relationship test (ASTM D1557). All fill should be placed in loose lifts not exceeding 8 inches in thickness and compacted to a minimum of 95 percent of its modified Proctor maximum dry density. We recommend that field density tests, including one-point Proctor verification tests, be performed on the fill as it is being placed at a frequency determined by an experienced geotechnical engineer to verify the compaction criteria.

Based on the results of the hand auger boring and sounding and our past experience with similar type materials, the soils encountered appear suitable for re-use as structural fill with moisture adjustment.

4.2.3 Existing Retaining Wall

Evaluation of the existing timber retaining wall was not within our scope of services, and we understand no improvements to the existing wall are planned. Nonetheless, construction of the new dock and piers may require placement of equipment and/or materials within close proximity to the wall, and care should be taken to not produce surcharge loads on the wall that exceed those in the original wall design. This includes proofrolling near the wall or replacing and compacting soils behind the wall.

4.3 Foundation Support

We understand the new dock and piers will be supported on driven timber piles, and we understand that the structural design will not include seismic analyses. Our analyses indicates lateral pile response controls the pile design.



Axial Pile Analysis

We performed axial compressive pile capacity calculations for the following standard cross section timber piles:

- 12-inch butt, 8-inch tip
- 13-inch butt, 9-inch tip

Our analyses predicts an 8 or 9-inch-tip pile bearing at a tip elevation of -62 feet (NAVD88) will support a maximum axial load of 10 kips with an adequate factor of safety. The factor of safety is approximately three; therefore, load testing is not required. Driving criteria is to install the piles in one, continuous operation to the design tip elevation of -62 feet.

Prior to the start of pile driving, a wave equation analysis should be performed to document that the proposed pile driving hammer is capable of driving the piles without damage. ESP should observe pile driving to document that the piles are driven to the minimum design depth and to note damage or other concerns during installation.

Pre-augering may be required to aid in the installation of the piles. However, pre-augering should not extend deeper than 40 feet below the existing ground surface, and the diameter of the auger should be no larger than the least pile dimension. Jetting should be prohibited.

The structural capacity and design of the piles was not considered in our analyses and is the responsibility of the project Structural Engineer. Piles should be spaced at least three pile diameters center-to-center to prevent vertical capacity reductions due to pile interaction effects.

Lateral Pile Response

Lateral pile analyses was performed using the provided pile loads, subsurface data, and the software LPILE 2022. The piles were modeled with fixed and free top boundary condition, and loads were applied at an elevation of +7.25 feet for Load Case 1A and 1B and elevation of +5.5 feet for Load Case 2A and 2B. The piles were modeled with a nonlinear bending stiffness using a modulus of elasticity of 1,500,000 psi for each of the four load cases.

A summary of the lateral analyses is presented in following tables, and plots of the deflection, shear, and moment verses depth are included in Appendix II. The piles are widely spaced; therefore, no reduction factors are required for group effects.

Table 1 – 8-inch Tip, 12-inch Butt Timber Pile, Free-Head Condition

Load Case	Tip (in.)	Butt (in.)	Length (ft)	Applied Lateral Load (kips)	Applied Axial Load (kips)	Deflection (in.)	Shear (kips)	Moment (in-kips)
1A	8	12	70	1.2	2.3	16.6	3.13	319.31
1B	8	12	70	1.2	3.6	18.0	3.32	342.69
2A	8	12	70	0.8	2.8	6.8	1.99	180.54
2B	8	12	70	0.8	4.4	7.3	2.09	191.89

Table 2 – 8-inch Tip, 12-inch Butt Timber Pile, Fixed-Head Condition

Load Case	Tip (in.)	Butt (in.)	Length (ft)	Applied Lateral Load (kips)	Applied Axial Load (kips)	Deflection (in.)	Shear (kips)	Moment (in-kips)
1A	8	12	70	1.2	2.3	2.8	1.24	207.33
1B	8	12	70	1.2	3.6	2.8	1.26	209.39
2A	8	12	70	0.8	2.8	1.2	0.80	118.67
2B	8	12	70	0.8	4.4	1.2	0.81	119.73

Table 3 – 9-inch Tip, 13-inch Butt Timber Pile, Free-Head Condition

Load Case	Tip (in.)	Butt (in.)	Length (ft)	Applied Lateral Load (kips)	Applied Axial Load (kips)	Deflection (in.)	Shear (kips)	Moment (in-kips)
1A	9	13	70	1.2	2.3	11.5	2.99	310.19
1B	9	13	70	1.2	3.6	12.2	3.11	325.37
2A	9	13	70	0.8	2.8	4.7	1.91	176.4
2B	9	13	70	0.8	4.4	5.0	1.97	183.9

Table 4 – 9-inch Tip, 13-inch Butt Timber Pile, Fixed-Head Condition

Load Case	Tip (in.)	Butt (in.)	Length (ft)	Applied Lateral Load (kips)	Applied Axial Load (kips)	Deflection (in.)	Shear (kips)	Moment (in-kips)
1A	9	13	70	1.2	2.3	2.0	1.22	206.89
1B	9	13	70	1.2	3.6	2.0	1.23	208.36
2A	9	13	70	0.8	2.8	0.9	0.80	118.6
2B	9	13	70	0.8	4.4	0.9	0.80	119.4

5.0 LIMITATIONS of REPORT

This report has been prepared in accordance with generally accepted geotechnical engineering practice with regard to the specific conditions and requirements of this site. The conclusions and recommendations contained in this report were based on the applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, express or implied, is made.

The analysis and recommendations submitted herein are based, in part, upon the data obtained from the subsurface exploration. The nature and extent of variations between the boring and sounding will not be known until construction is underway. If variations appear evident, then we request the opportunity to re-evaluate the recommendations of this report. In the event that any changes in the nature, design, or location of the structures are planned, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and conclusions modified or verified in writing by ESP.

In order to verify that foundation recommendations are properly interpreted and implemented, we recommend that ESP be provided the opportunity to review the final plans and specifications. Any concerns observed will be brought to our client's attention in writing.



Appendix I

Site Location Map – Figure 1

Test Location Plan – Figure 2

Subsurface Profile – Figure 3

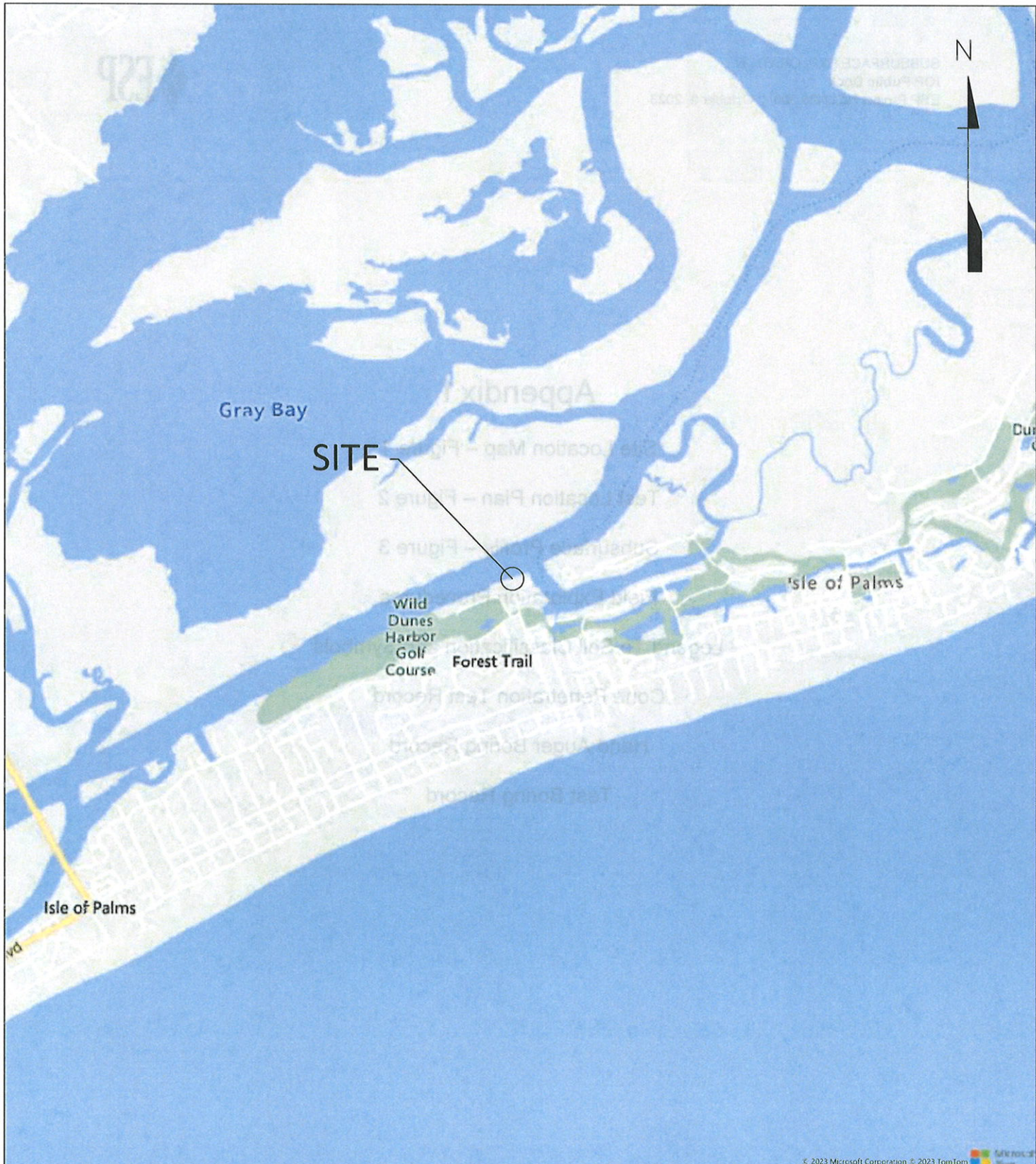
Field Exploration Procedures


Legend To Soil Classification and Symbols

Cone Penetration Test Record

Hand Auger Boring Record

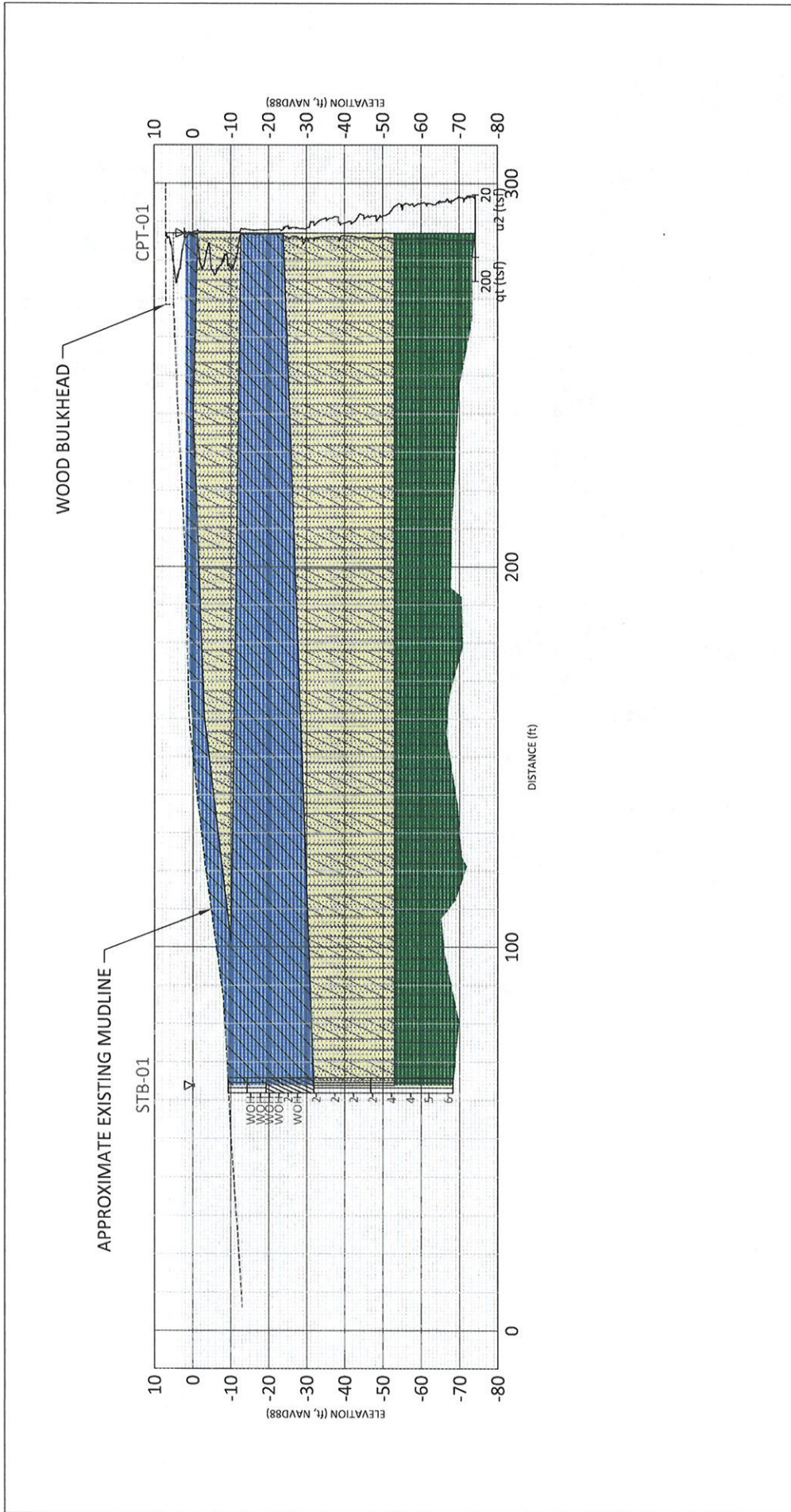
Test Boring Record



PROJECT NO.:	KV73.300	SHEET TITLE: FIGURE 1 SITE LOCATION MAP	 ESP Associates, Inc. 2145 N. Center Street Suite E-503 North Charleston, SC 29406 843-714-2040 www.espassociates.com
SCALE:	NTS		
DRAWN BY:	MML	PROJECT: IOP MARINA PUBLIC DOCK ISLE OF PALMS, SOUTH CAROLINA	
CHECKED BY:	MSU		
DATE:	OCTOBER 28, 2022		



LEGEND APPROXIMATE TEST LOCATION PROFILE	ESP HAS MODIFIED THE FIGURE TITLED, "GEO TECHNICAL BORING LOCATIONS," DATED JUNE 7, 2022, BY ATM TO SHOW THE APPROXIMATE TEST LOCATIONS ONLY. NO OTHER INFORMATION IS EXPRESSED OR IMPLIED. PRELIMINARY, NOT FOR CONSTRUCTION.		PROJECT NO.: KV73.300 SCALE: 1" = 50' DRAWN BY: MML CHECKED BY: MSU DATE: OCTOBER 28, 2022	SHEET TITLE: FIGURE 2 TEST LOCATION PLAN PROJECT: IOP MARINA PUBLIC DOCK ISLE OF PALMS, SOUTH CAROLINA	<p> ESP Associates, Inc. 2145 N. Center Street Suite E-503 North Charleston, SC 29406 843-714-2040 www.espassociates.com </p>
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LEGEND

- VERY SOFT CLAY/SILT
- VERY LOOSE TO MEDIUM DENSE SILTY/CLAYEY SAND
- COOPER MARL

ESP HAS MODIFIED THE FIGURE TITLED, "GEOTECHNICAL BORING LOCATIONS," DATED JUNE 7, 2022, BY ATM TO SHOW THE APPROXIMATE TEST LOCATIONS ONLY. NO OTHER INFORMATION IS EXPRESSED OR IMPLIED. PRELIMINARY, NOT FOR CONSTRUCTION.

PROJECT NO.: KV73.300
SCALE: AS SHOWN
DRAWN BY: MM/L
CHECKED BY: MSU
DATE: NOVEMBER 2, 2022

**SHEET TITLE: FIGURE 3
SUBSURFACE PROFILE**

**PROJECT:
IOP MARINA PUBLIC DOCK
ISLE OF PALMS, SOUTH CAROLINA**

ESP Associates, Inc.
2145 N. Center Street
Suite E-503
North Charleston, SC 29406
843-714-2040
www.espassociates.com

FIELD EXPLORATION

Cone Penetration Test: The CPT soundings were performed with a track-mounted CPT rig in general accordance with ASTM D5778 by hydraulically pushing an electronically instrumented cone penetrometer through the soil at a constant rate. As the cone penetrometer was advanced through the soil, nearly continuous readings of tip resistance (q_c), sleeve friction (f_s), and pore water pressure (u) were electronically recorded. Using theoretical and empirical relationships, CPT data can be used to determine soil stratigraphy and estimate soil properties and parameters such as effective stress, friction angle, young's Modulus, and undrained shear strength.

The table below presents the relative density of sands and consistency of silts and clays based on the corrected cone tip resistance (q_t).

SANDS		SILTS AND CLAYS	
Cone Tip Resistance q_t (tsf)	Relative Density	Cone Tip Resistance q_t (tsf)	Consistency
<20	Very Loose	<5	Very Soft
20 – 40	Loose	5 – 10	Soft
40 – 120	Medium Dense	10 – 15	Firm
		15 – 30	Stiff
120 – 200	Dense	30 - 60	Very Stiff
>200	Very Dense	>60	Hard

Symbols and Equations:

P_a = atmospheric pressure (for unit normalization)

q_t = corrected cone tip resistance (tsf)

$R_f = 100\% * (f_s/q_t)$

u_2 = pore pressure behind cone tip (tsf)

u_0 = hydrostatic pressure

$B_q = (u_2 - u_0)/(q_t - \sigma'_{v0})$

$Q_t = (q_t - \sigma'_{v0})/\sigma'_{v0}$

$F_r = 100\% * f_s/(q_t - \sigma'_{v0})$

$I_c = ((3.47 - \log Q_t)^2 + (\log F_r + 1.22)^2)^{0.5}$

$N_{60} = (q_t/p_a)/[8.5(1 - I_c/4.6)]$

I_c CPT Material Graphics

- 1  Sensitive, Fine Grained Soils
- 2  Organic Soils, Peats
- 3  Clays-Clay to Silty Clay
- 4  Silt Mixtures-Clay Silt to Silty Clay
- 5  Sand Mixtures-Silty Sand to Sandy Silt
- 6  Sands-Clean Sand to Silty Sand
- 7  Gravelly Sand to Sand
- 8  Very Stiff Clay to Clayey Sand
- 9  Very Stiff Fine Grained Soils

Hand Auger Boring: Hand auger borings were performed at the approximate locations shown on the attached Test Location Plan, Figure 2. The borings were advanced by manually twisting an auger into the ground. The soils encountered were identified, in the field, from cuttings brought to the surface by the hand auger process. The different soil strata was noted along with the depth. Auger boring records are attached showing the soil descriptions.



IOP Marina Public Dock
Isle of Palms, South Carolina
Project Number: KV73.300

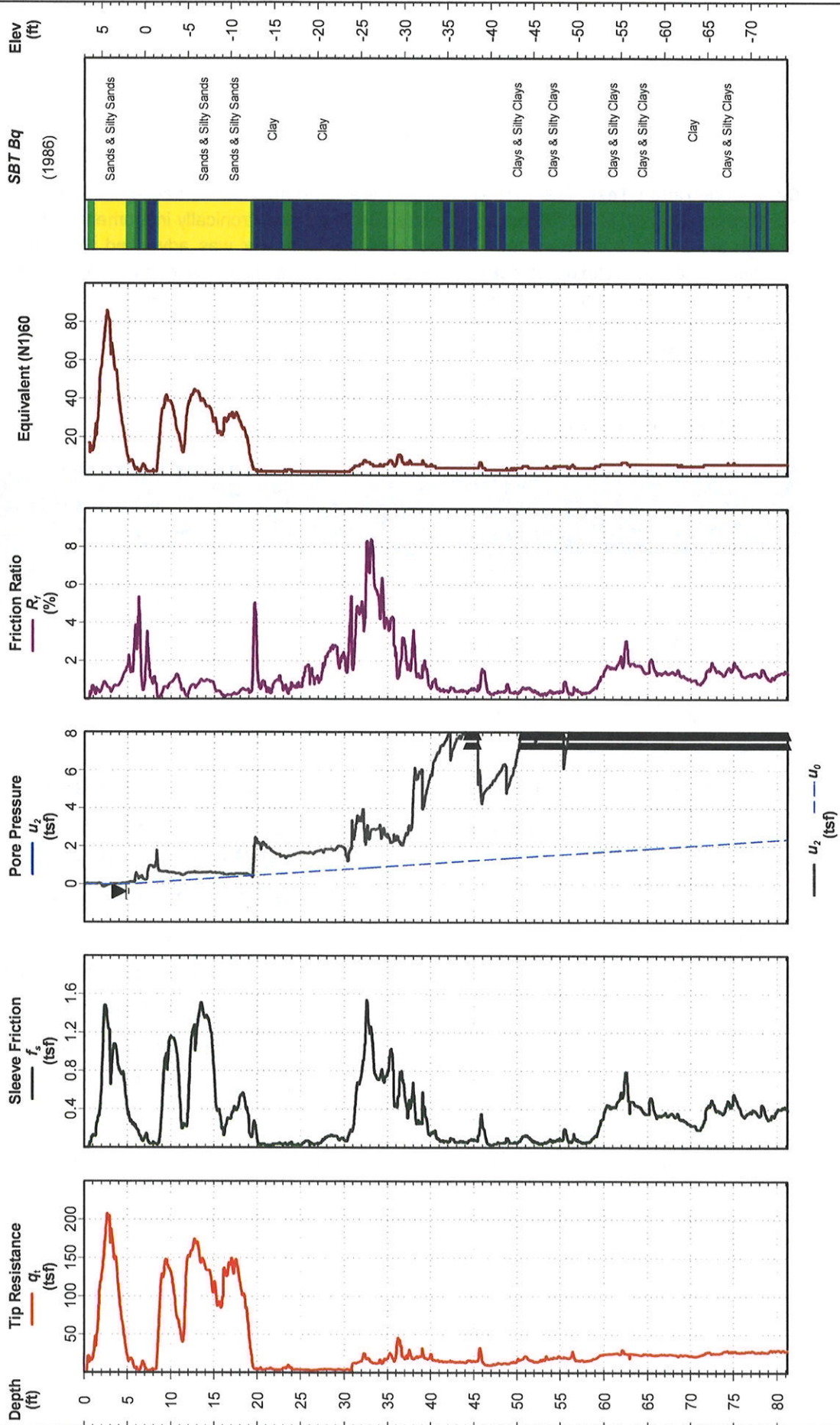
Date: Nov. 7, 2022
Estimated Water Depth: 4.8 ft
Rig/Operator: Pagani/MH

Northing:
Easting:
Elevation: 7.0

Total Depth: 81.2 ft
Termination Criteria: Target Depth
Cone Size: 1.75

Cone Penetration Test





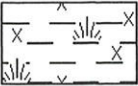

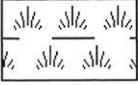
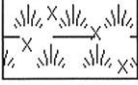
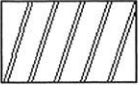





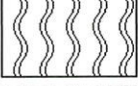
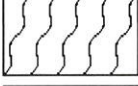
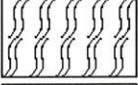




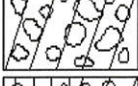





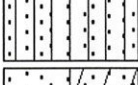
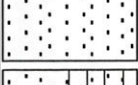

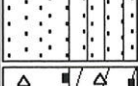
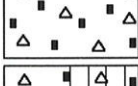




CPT-01



CPT-01

Electronic File Name: CPT-01.ecp

LEGEND TO SOIL CLASSIFICATION AND SYMBOLS

	ABC Stone		Asphalt/Concrete
	Concrete/Brick Debris		Coquina Shell Base Course
	Topsoil/Rootmat		Topsoil/Grassmat
	Topsoil		Wood and Roots
	High Plasticity Clay		Moderate Plasticity Clay
	Clay		Clayey Silt
	Elastic Silt		Silt
	Organic Clay		Organic Silt
	Organic Silt and Clay		Peat
	Poorly Graded Gravel		Poorly Graded Gravel with Silt
	Poorly Graded Gravel with Clay		Clayey Gravel
	Silty Gravel		Poorly Graded Gravel with Silt and Clay
	Well Graded Gravel		Well Graded Gravel with Silt
	Well Graded Gravel with Clay		Silty Sand
	Poorly Graded Sand		Poorly Graded Sand with Clay
	Poorly Graded Sand with Silt		Well Graded Sand
	Well Graded Sand with Clay		Well Graded Sand with Silt
	Partially Weathered Rock		Cored Rock



LEGEND TO SOIL CLASSIFICATION AND SYMBOLS




SAMPLER TYPES (Shown in Samples Column)

	Shelby Tube
	Split Spoon
	Rock Core
	No Recovery

CONSISTENCY OF COHESIVE SOILS

<u>CONSISTENCY</u>	<u>STANDARD PENETRATION RESISTANCE BLOWS/FOOT</u>
Very Soft	0 to 2
Soft	3 to 4
Firm	5 to 8
Stiff	9 to 15
Very Stiff	16 to 30
Hard	31 to 50
Very Hard	Over 50

WATER LEVELS

	= Water Level at Boring Termination
	= Water Level at 1 Day
	= Loss of Drilling Fluid
<u>HC</u>	= Hole Cave

CONSISTENCY OF COHESIONLESS SOILS

<u>CONSISTENCY</u>	<u>STANDARD PENETRATION RESISTANCE BLOWS/FOOT</u>
Very Loose	0 to 4
Loose	5 to 10
Medium Dense	11 to 30
Dense	31 to 50
Very Dense	Over 50

TERMS

Standard Penetration Resistance - The number of blows it takes a 140 lb. hammer falling 30 in. to drive a 1.4 in I.D. split spoon sampler 1 foot (N-Value) as specified in ASTM D-1586.

Dynamic Cone Penetrometer Test Data - The cone point is driven up to three 1 ¾ inch intervals using a 15-pound weight falling 20 inches. The penetrometer test result is the average number of blows per interval. The penetrometer test result is similar to the Standard Penetration Resistance (N-value), as defined by ASTM D 1586. When properly evaluated, the penetrometer test results provide an index for estimating soil strength and relative density.

Kessler Dynamic Cone Penetrometer Test Data – The cone point is driven using a 17.6-pound weight falling 22.6 inches. The total penetration for a given number of blows is measured and recorded in mm/blow as specified in ASTM D 6951. When properly evaluated, the penetrometer test result can be used to describe soil stiffness and estimate an in-situ CBR strength from an appropriate correlation chart.

REC - Total length of rock recovered in the core barrel divided by the total length of the core run times 100 (expressed as a percentage).

RQD - Total length of sound rock segments recovered that are longer than or equal to 4" (mechanical breaks included) divided by the total length of the core run times 100 (expressed as a percentage).



PROJECT: Isle of Palms Public Dock Isle of Palms, SC			HAND AUGER BORING RECORD CPT-01		
PROJECT No.: KV73.300.000	ELEVATION: 7.0 Feet	DRILLING METHOD:	DRILLING COMPANY:		
LOGGED BY: MML	BORING DEPTH: 4.0 Feet	AUGER O.D.: 3.25 in	NOTES:		
DATE DRILLED: 11/07/22	WATER LEVEL: <div style="display: flex; justify-content: space-around;"> ☒ N/A ☑ N/A </div>				

DEPTH (ft)	GRAPHIC LOG	SOIL DESCRIPTION	WATER LEVEL	ELEV. (ft)	DYNAMIC CONE PENETROMETER TEST DATA (Average Blows/Increment)					BPI
					5	10	15	20	25	
		Brown Silty SAND, fine to medium, (moist), trace fine to coarse gravel [FILL]								
		Dark Gray Silty SAND, fine to medium, (moist), trace shells, [COASTAL PLAIN DEPOSITS]								
		Light Gray Poorly Graded SAND, fine to medium, (moist), trace shells								
		Boring was terminated at 4.0 feet.								
5				2.0						
10				-3.0						

ELEVATIONS ARE DESIGNATED FOR COMPARISON PURPOSES ONLY. ELEVATIONS AT HAND AUGER LOCATIONS WERE INTERPOLATED FROM AVAILABLE SITE DATA. ELEVATIONS HAVE NOT BEEN SURVEYED AND ARE NOT ACCURATE. DEPTH MEASUREMENTS ARE SHOWN TO ILLUSTRATE THE GENERAL ARRANGEMENTS OF THE SOIL TYPES ENCOUNTERED AT THE HAND AUGER LOCATIONS.

DO NOT USE ELEVATIONS OR DEPTH MEASUREMENTS FOR DETERMINATION OF DISTANCES OR QUANTITIES.

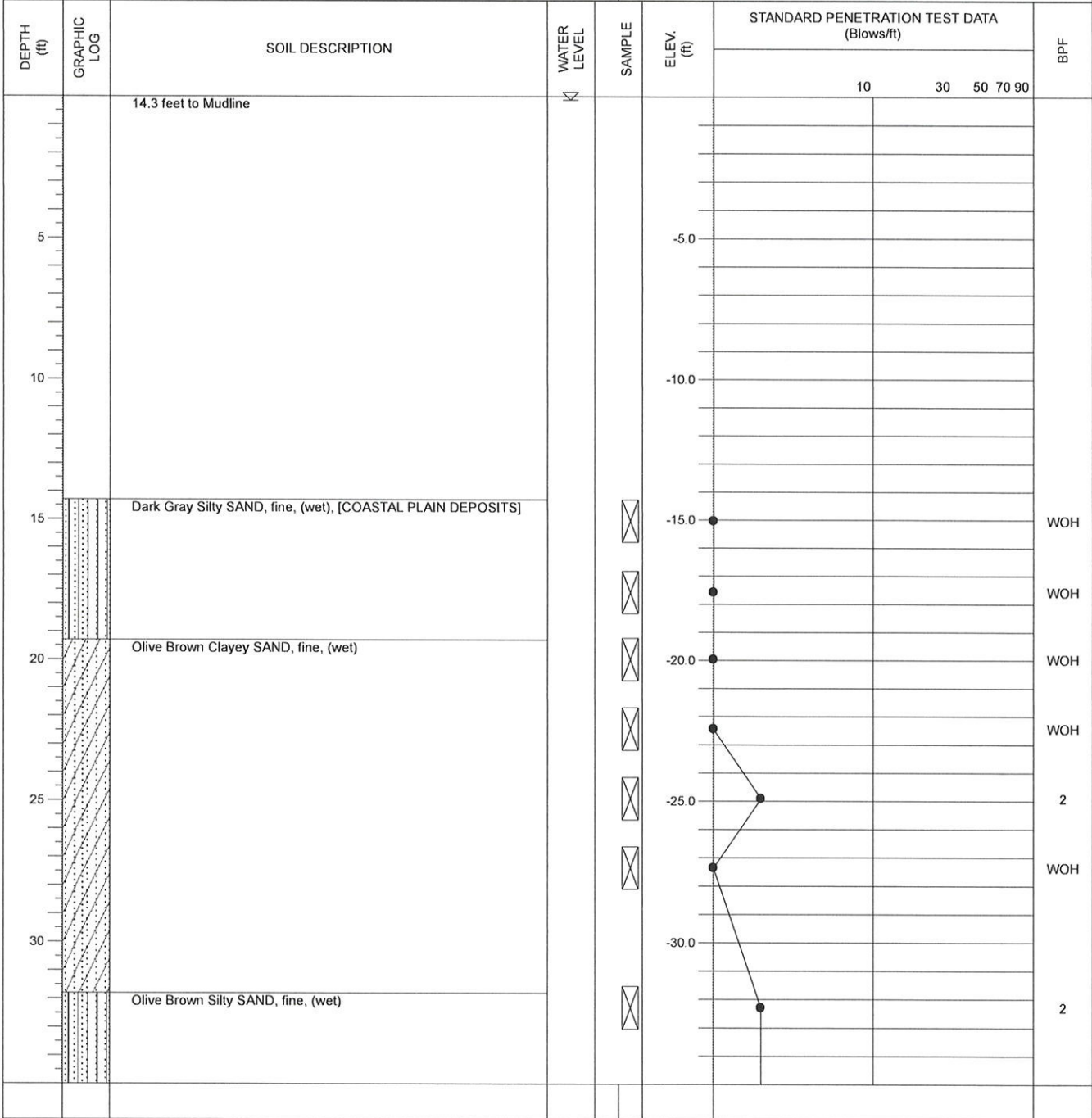


PROJECT:

Isle of Palms Public Dock
Isle of Palms, SC

**TEST BORING RECORD
STB-01**

PROJECT No.: KV73.300.000	ELEVATION: 0.0 Feet	DRILLING METHOD: Mud rotary	AUGER I.D.: 3.25 in	DRILLING COMPANY: Bridger Drilling
LOGGED BY: Conor O'Toole	BORING DEPTH: 68.3 Feet	DRILL RIG: CME 45	NOTES:	
DATE DRILLED: 08/17/22	WATER LEVEL: ∇ 0.0 feet @ TOB ∇ N/A			

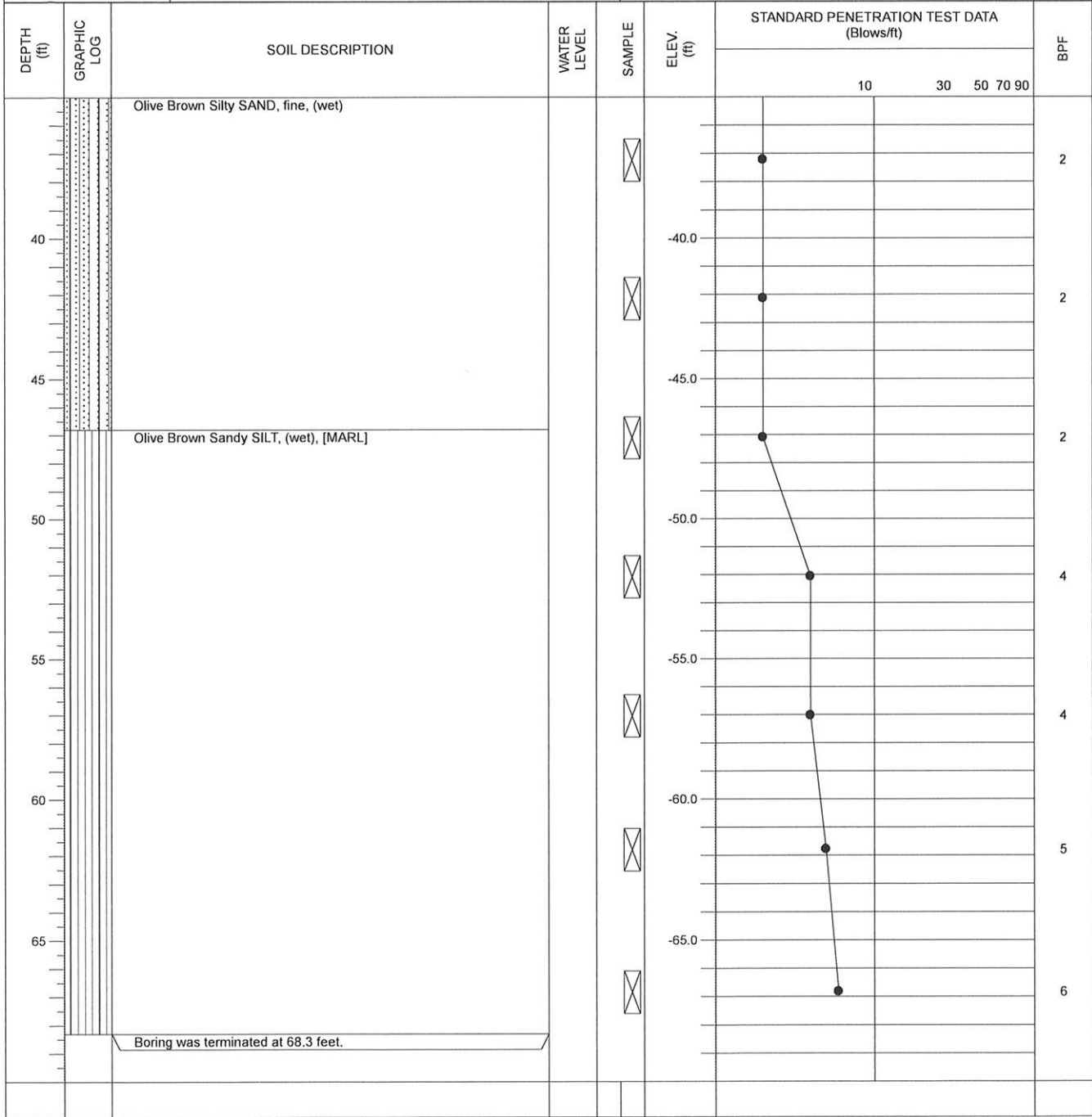


ELEVATIONS ARE DESIGNATED FOR COMPARISON PURPOSES ONLY. ELEVATIONS AT BOREHOLE LOCATIONS WERE INTERPOLATED FROM AVAILABLE SITE DATA. ELEVATIONS HAVE NOT BEEN SURVEYED AND ARE NOT ACCURATE. DEPTH MEASUREMENTS ARE SHOWN TO ILLUSTRATE THE GENERAL ARRANGEMENTS OF THE SOIL TYPES ENCOUNTERED AT THE BOREHOLE LOCATIONS.

DO NOT USE ELEVATIONS OR DEPTH MEASUREMENTS FOR DETERMINATION OF DISTANCES OR QUANTITIES.



PROJECT: Isle of Palms Public Dock Isle of Palms, SC			TEST BORING RECORD STB-01	
PROJECT No.: KV73.300.000	ELEVATION: 0.0 Feet	DRILLING METHOD: Mud rotary	AUGER I.D.: 3.25 in	DRILLING COMPANY: Bridger Drilling
LOGGED BY: Conor O'Toole	BORING DEPTH: 68.3 Feet	DRILL RIG: CME 45	NOTES:	
DATE DRILLED: 08/17/22	WATER LEVEL: 0.0 feet @ TOB N/A			



ELEVATIONS ARE DESIGNATED FOR COMPARISON PURPOSES ONLY. ELEVATIONS AT BOREHOLE LOCATIONS WERE INTERPOLATED FROM AVAILABLE SITE DATA. ELEVATIONS HAVE NOT BEEN SURVEYED AND ARE NOT ACCURATE. DEPTH MEASUREMENTS ARE SHOWN TO ILLUSTRATE THE GENERAL ARRANGEMENTS OF THE SOIL TYPES ENCOUNTERED AT THE BOREHOLE LOCATIONS.

DO NOT USE ELEVATIONS OR DEPTH MEASUREMENTS FOR DETERMINATION OF DISTANCES OR QUANTITIES.

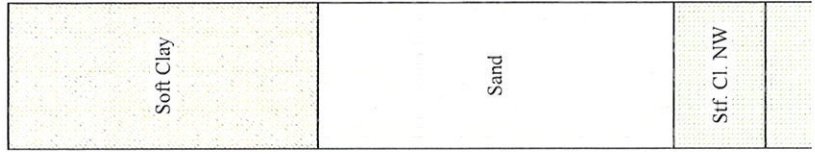
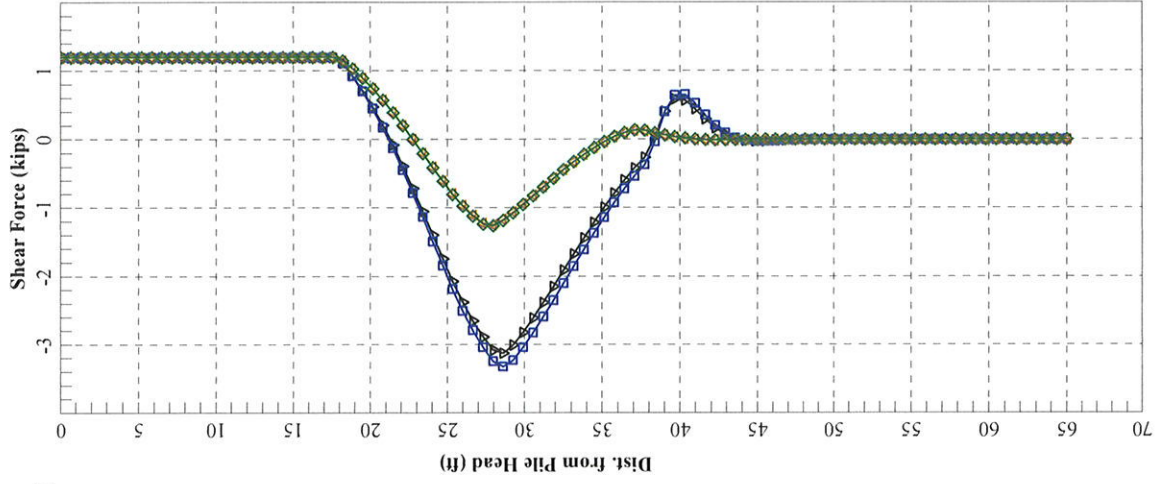
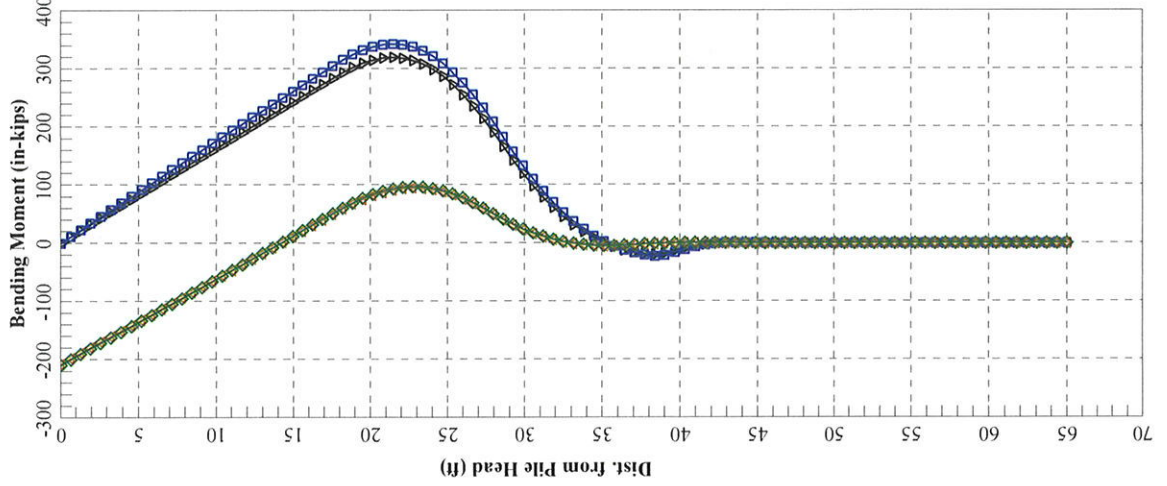
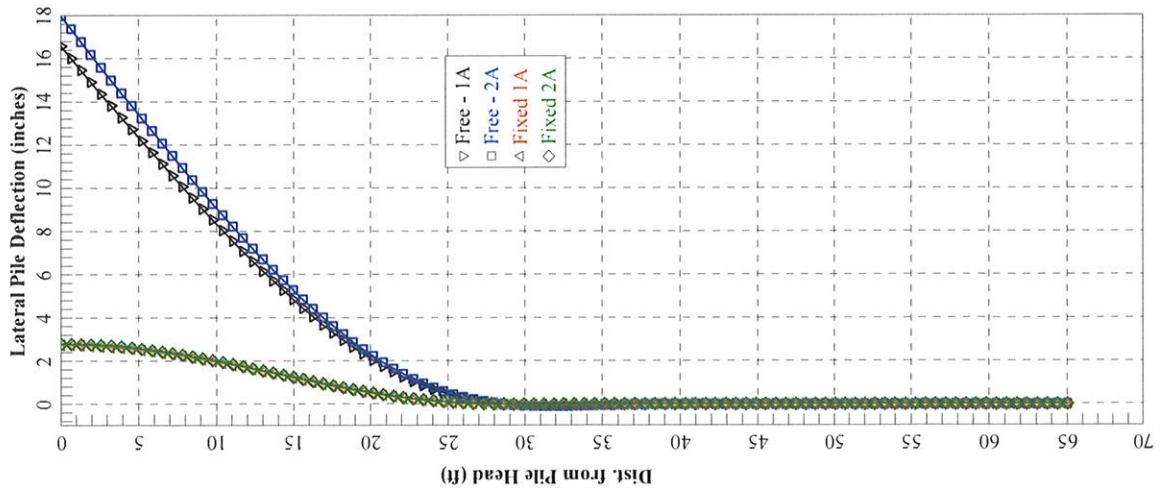




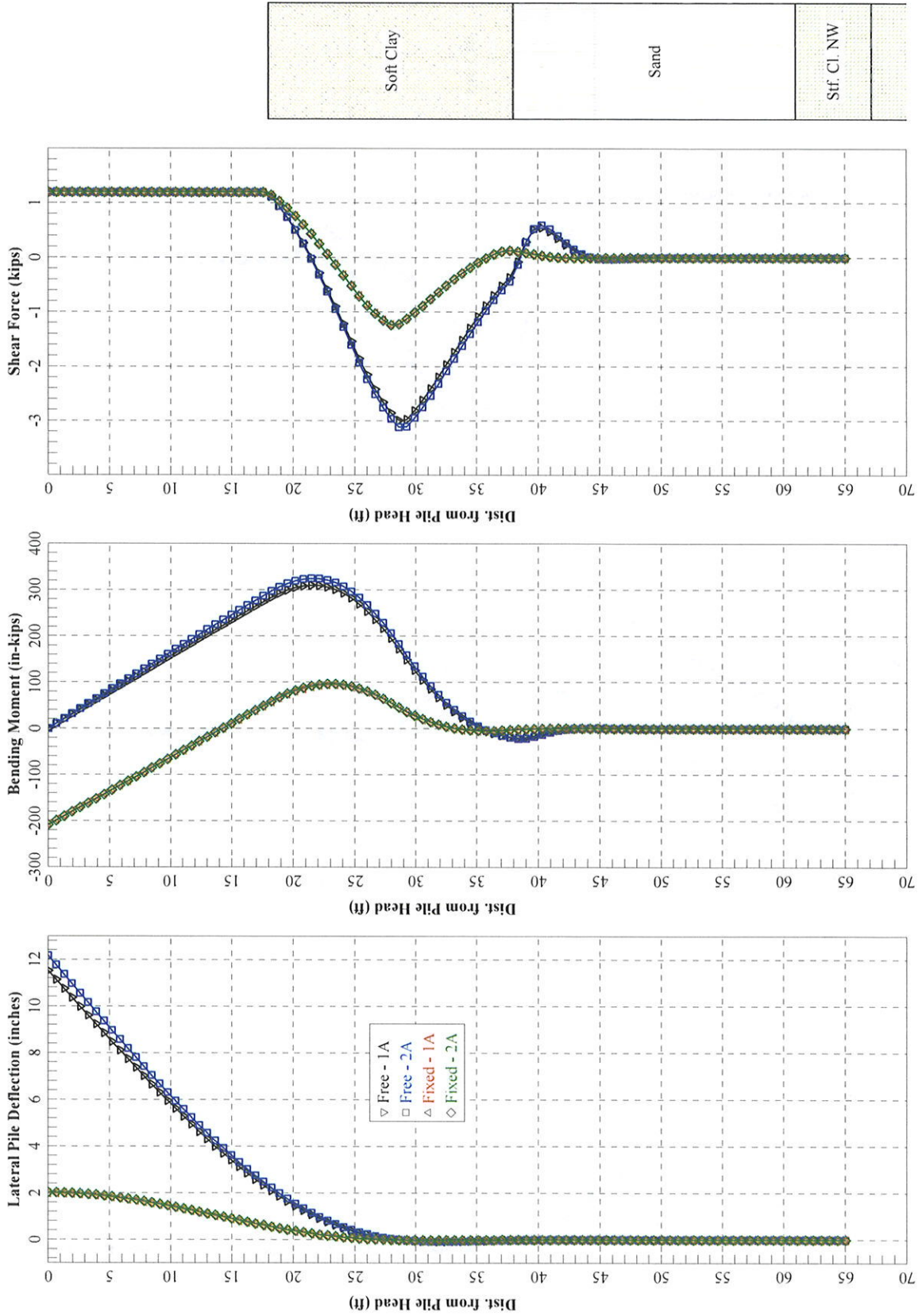
Appendix II

Lpile Curves

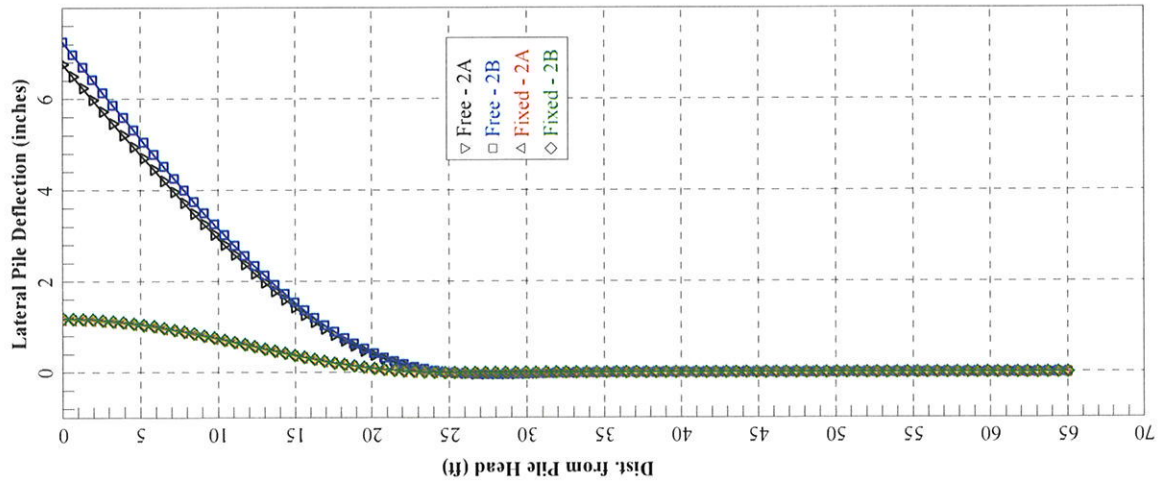
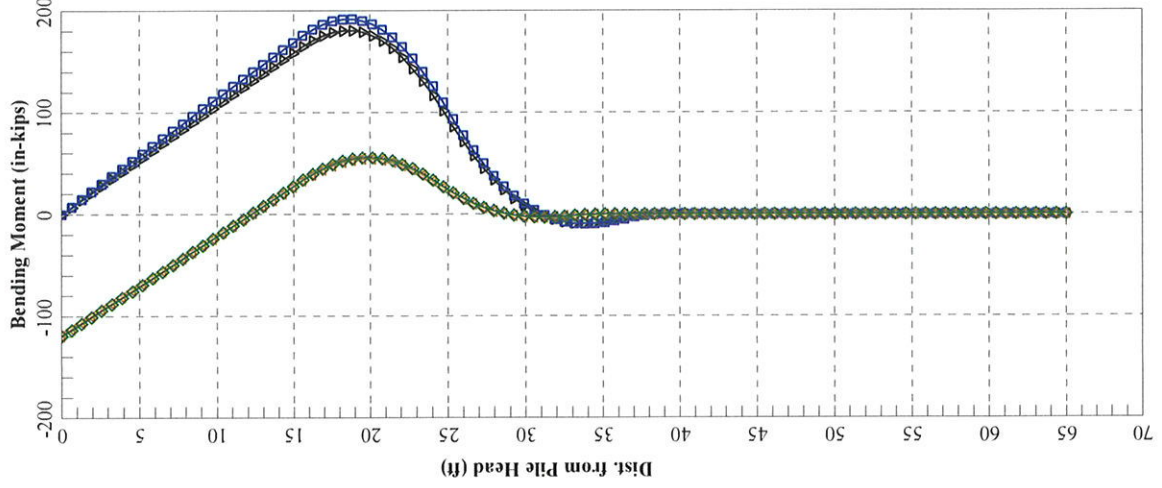
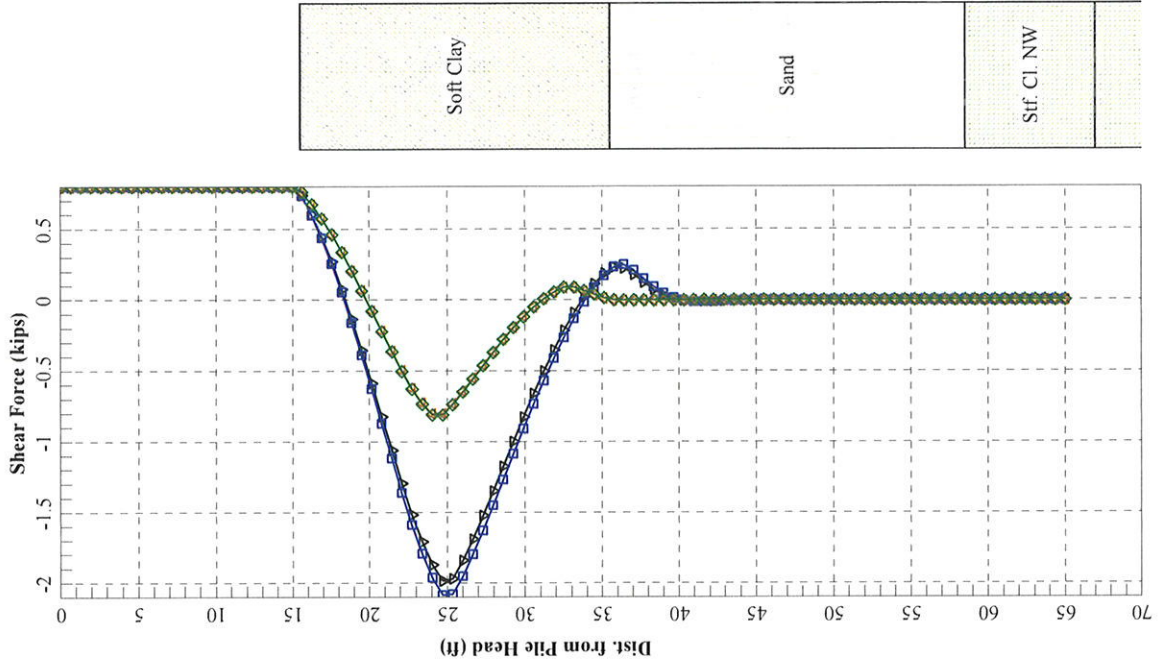
IOP Public Dock / ESP KV73.300 / 12" Butt



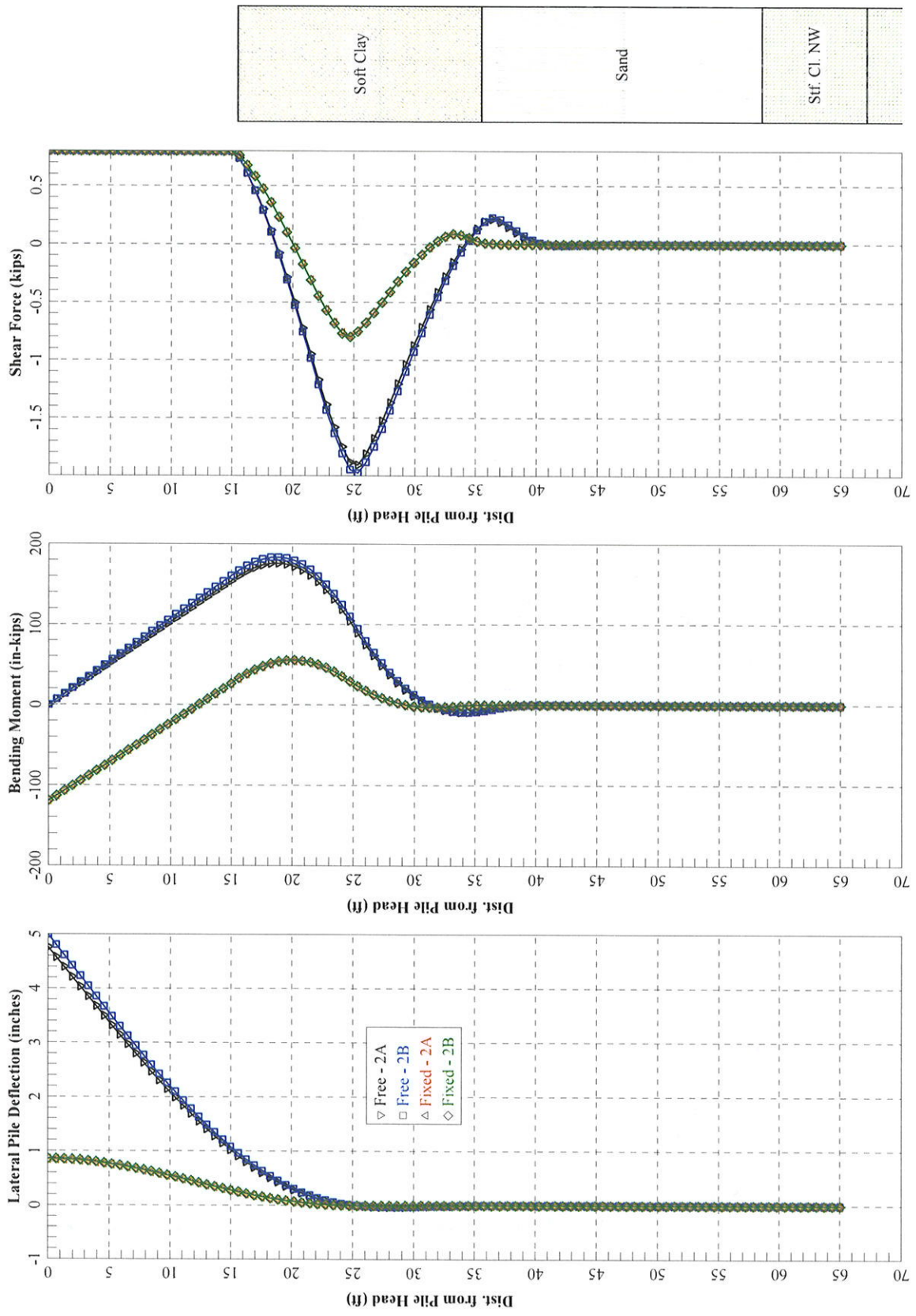
IOP Public Dock / KV73.300 / 13" Butt



IOP Public Dock / ESP KV73.300 / 12" Butt



IOP Public Dock / KV73.300 / 13" Butt





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Geotechnical Exploration
Isle of Palms Marina Replacement
Isle of Palms, South Carolina
S&ME Project No. 1413-19-101

PREPARED FOR:

**City of Isle of Palms
Post Office Box 508
Isle of Palms, South Carolina 29451**

PREPARED BY:

**S&ME, Inc.
620 Wando Park Boulevard
Mount Pleasant, South Carolina 29464**

March 3, 2020



March 3, 2020

City of Isle of Palms
Post Office Box 508
Isle of Palms, South Carolina 29451

Attention: Ms. Desiree Fragoso, City Administrator

Reference: **Geotechnical Exploration**
Isle of Palms Marina Replacement
Isle of Palms, South Carolina
S&ME Project No. 1413-19-101

Dear Ms. Fragoso:

We have completed our geotechnical exploration for the Isle of Palms Marina Replacement project in Isle of Palms, South Carolina. Our services were performed pursuant to S&ME Proposal No. 14-1900469R dated August 30, 2019. The purpose of our geotechnical services was to explore the subsurface conditions at the site, evaluate those conditions, and provide recommendations for pile foundation support for the new docks and platforms. This report presents our understanding of the project, the site and subsurface conditions encountered, and our conclusions and recommendations.

◆ Project Information

We understand the Isle of Palms Marina will be refurbished. The work will include removal and replacement of most of the floating docks, marina piling, and pile-supported access platforms within the main basin of the marina. The marina is located along the Atlantic Intercoastal Water and Morgan Creek, both waterways are active, and the marina is in operation. The mean tide range is approximately +5.1 ft, and mud line elevations vary from approximately 10 to 15 ft mean low water (MLW).

Applied Technology & Management (ATM) is designing the project and will submit plans with and specifications to prospective dock vendors who will submit design-build proposals for their respective systems. The dock vendors will perform the final dock design and determine pile loading, pile type, and pile design.

This project information was provided in RFP 2019-04. The project information and assumptions presented above should be reviewed and confirmed by the appropriate team members. Modifications to our conclusions and recommendations may be required if the actual conditions vary substantially from the project information and assumptions stated herein.



◆ **Methods of Exploration**

Field Testing

Our exploration included a reconnaissance by a geotechnical engineer and the performance of five soil test borings. The borings were drilled from a floating barge platform to a depth of approximately 50 ft below the mudline. The borings were advanced using mud-rotary drilling techniques, and split-spoon sampling and Standard Penetration Testing (N values) were performed at 5-ft intervals in general accordance with ASTM D1586. The recovered samples were visually logged in the field using the Unified Soil Classification System (ASTM D2487).

The test locations were established in the field by S&ME personnel using a hand-held GPS device. The elevations shown on the boring logs are tidally influenced, the water surface level referenced to mean low low water (MLLW) at the Charleston Harbor gauge (<http://tidesandcurrents.noaa.gov>), and adjusted to the Isle of Palms. Consequently, horizontal locations and vertical elevations are approximate. A Test Location Plan illustrating the boring locations and the boring logs are included in the Appendix.

Laboratory Testing

Select split-spoon samples were subjected to laboratory natural moisture content, grain size distribution, and Atterberg limits testing. Laboratory testing was performed using applicable ASTM standards, and the results are presented in the Appendix and shown on the Boring Logs.

◆ **Site and Subsurface Conditions**

Site Conditions

The Isle of Palms Marina is at 50 41st Avenue on the Isle of Palms, South Carolina. The marina is located along the Atlantic Intercoastal Water and Morgan Creek, both waterways are active, and the marina is in operation. The existing marina includes a boat ramp, ship's store, and fixed and floating docks. The docks are mostly of wood construction with timber and pre-stressed concrete piles. The mean tide range is approximately +5.1 ft, and mud line elevations vary from approximately 10 to 15 ft mean low water (MLW).

Subsurface Conditions

Details of the subsurface conditions encountered by the borings are shown on the logs in the Appendix. These logs represent our interpretation of the subsurface conditions based upon field data. Stratification lines on the boring logs represent approximate boundaries between soil types; however, the actual transition may be gradual. The general subsurface conditions and their pertinent characteristics are discussed in the following paragraphs.

All five borings encountered similar subsurface conditions. Generally, the borings penetrated a stratum of interbedded very soft sandy silts/clays and very loose silty/clayey sands from the mudline to approximately 15 ft below the mudline. The borings then penetrated a stratum of very loose to loose sands and silty sands to the top



of the Cooper Marl.¹ Marl was encountered at depths from approximately 34 to 40 ft below the mudline, which corresponds to a top of marl elevation from -38 ft to -49 ft MLLW.

◆ Conclusions and Recommendations

The exploration indicates the site is adaptable for the proposed marina construction. The new platforms and docks can be supported by piles driving into the Cooper marl. Common piles used in the local Charleston market include timber, 12 to 12-in. square pre-stressed concrete (PSC), composite 20 to 24-in. PSC piles with HP steel section stingers, and open-end steel pipe piles. Displacement piles larger than 14-in. may be difficult to drive deep into the marl and are not commonly used.

The following presents our geotechnical recommendations for axial and lateral pile design. During review of these recommendations, it should be kept in mind that with any previously developed site, unexpected subsurface conditions will be encountered. These conditions could include such things as buried debris and remnants of previous development. Such conditions can normally be handled during construction by field engineering evaluation.

Seismic Considerations

We performed a liquefaction analysis based on the design earthquake prescribed by the 2018 edition of the International Building Code (IBC 2018).² This analysis indicates the sands between depths of about 10 to 40 ft below the mudline have the potential to liquefy during the design seismic event. The analysis predicts the sands and silty sands at this site will liquefy during the IBC 2018 design earthquake.

Section 1613.2.2 of the IBC 2018 classifies sites with the potential for liquefaction as Seismic Site Class F. However, the IBC 2018 allows the design spectral response accelerations for a site to be determined without regard to liquefaction provided the structure has a fundamental period of less than or equal to 0.5 seconds and the risks of liquefaction are considered in design. We assume the proposed structures will meet these criteria; however, this must be confirmed by the Structural Engineer. Provided the above criteria are met, the design accelerations may be calculated using Site Class D site coefficients as shown in Table 1, but the Site Class is still F.

¹ The Cooper Marl, locally referred to as "marl", is a relatively incompressible, thick (≥ 200 ft) stratum which underlies the area and is typically the bearing stratum for deep foundations in the Charleston area.

² Liquefaction, the loss of a soil's shear strength due to the increase in porewater pressure resulting from seismic vibrations, is always a potential concern in coastal South Carolina. Analysis was performed using the "simplified procedure" presented by Youd et al. (2001).

The IBC design earthquake has a hazard equal to 2% probability of exceedance in 50 years. This is statistically equivalent to an event that occurs about once every 2,500 years. The design ground motions incorporate a target risk of structural collapse equal to 1% in 50 years. Our liquefaction analysis was based on an earthquake with a magnitude of 7.3 and ground surface acceleration of 0.36g.



Table 1 – Ground Motion Parameters

Site Class	S _s	S ₁	F _a	F _v	PGAM	S _{DS}	S _{D1}
F	0.992g	0.296g	1.103	2.00*	0.675g	0.729g	0.395g*

* The acceleration parameters should only be used when calculating the Seismic Response Coefficient (C_s) per the exception to the site-specific ground motion procedures requirement detailed in section 11.4.8 of ASCE 7-16.

The 1-second spectral acceleration (S₁) for this site is 0.296g. IBC 2018 requires site-specific ground motion procedures to be followed when S₁ is greater than or equal to 0.2g (see ASCE 7-16 section 11.4.8). However, the code provides an exception to this requirement in ASCE 7-16 section 11.4.8 if certain conditions are met when determining the Seismic Response Coefficient (C_s). As with the liquefaction-related exception, Site Class D site coefficients and corresponding spectral accelerations, as presented in Table 1, may be used for purposes of computing C_s in accordance with the S₁ exception.

Soil Parameters for Pile Design

We understand the pile type and pile design will be performed by the selected dock vendor. The following paragraphs provide soil parameters and general recommendations for geotechnical axial and lateral pile analyses. The actual geo-structural pile analyses and design will be the responsibility of the geotechnical and/or structural engineer of record for the marina structures. Table 2 presents general soil parameters gleaned from the boring data, correlated from the N values, and based on our experience.

Table 2 – Boring Data and Soil Parameters

Stratum	Depth Below Mudline	N value	USCS	Submerged Unit Weight	Friction Angle	Undrained Shear Strength
I	0 – 15 ft	0 to 7	ML/CH/SP/SM	32 pcf	28°	0.1 ksf*
II	15 – 40 ft	2 to 6	SP/SM	37 pcf	30°	-
III	≥ 40 ft	5 to 8	ML (marl)	57 pcf	-	4 ksf

* Use friction angle with sand or undrained shear strength with silt/clay.

Axial Pile Resistance

Table 3 presents ultimate (i.e., LRFD nominal) skin friction and end bearing values for the soil stratum encountered in the borings. These values are applicable to timber, PSC, and steel piles. Appropriate factors of safety (or LRFD resistance factors) must be applied to these ultimate values. Scour analyses is beyond the scope of services for this report; however, scour should be considered in the analyses. In the seismic case, stratum 1 and 2 in Table 3 will liquefy and lose strength, which should be considered in the analyses.



Table 3 – Ultimate Axial Resistance

Stratum	Depth Below Mudline	Skin Friction	End Bearing
I	0 – 15 ft	0.05 ksf	-
II	15 – 40 ft	0.25 ksf	-
III	≥ 40 ft	2.6 ksf	26 ksf

Lateral Pile Analysis Parameters

Table 4 presents soil parameters that can be used in lateral pile analyses programs such as Lpile or ALLPILE. In the seismic case, stratum 1 and 2 in Table 4 will liquefy and lose strength, which should be considered in the analyses.

Table 4 – Lateral Analyses Parameters

Stratum	Depth Below Mudline	k	e50	Relative Density
I	0 – 15 ft	0.70 pci	0.02	0.20
II	15 – 40 ft	20 pci	-	0.20
III	≥ 40 ft	28 pci	0.005	-

Construction Considerations

Based on our experience with similar projects, hydraulic, air, or diesel hammers having rated energies in the range of 20 to 40 ft-kips should be suitable for pile installation for non-displacement piles and displacement piles up to 14-in. square. Larger displacement piles may need a larger hammer. Prior to the start of construction, a wave equation analysis should be performed to verify that the proposed driving system (i.e. hammer type and size) is capable of effectively driving the piles to the desired depth without damage to the piles.

We anticipate the pile design will be controlled by lateral loading, and large axial loads are not anticipated. As such, a test pile program is not necessary. Safety factors and/or resistance factors should be selected accordingly.

We expect a two-stage template will be required to install piles in design locations and maintain pile alignment. Jetting should be prohibited. Vibratory hammers may be used, but it should be noted in the geotechnical design that installing piles into the Cooper Marl with vibratory equipment will significantly reduce the axial resistance of the marl.

All pile driving at the site should be observed by an Engineering Technician under the Geotechnical Engineer’s supervision. The purpose of these observations is to evaluate whether the piles are installed at the proper location and to the proper depth, whether they are encountering expected driving resistances, and to note any damage or other concerns during installation.



◆ Limitations of Report

This report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other representation or warranty either express or implied, is made.

We relied on project information given to us to develop our conclusions and recommendations. If project information described in this report is not accurate, or if it changes during project development, we should be notified of the changes so that we can modify our recommendations based on this additional information if necessary.

Our conclusions and recommendations are based on limited data from a field exploration program. Subsurface conditions can vary widely between explored areas. Some variations may not become evident until construction. If conditions are encountered which appear different than those described in our report, we should be notified. This report should not be construed to represent subsurface conditions for the entire site.

Unless specifically noted otherwise, our field exploration program did not include an assessment of regulatory compliance, environmental conditions or pollutants or presence of any biological materials (i.e., mold, fungi, bacteria). If there is a concern about these items, other studies should be performed. S&ME can provide a proposal and perform these services if requested.

S&ME should be retained to review the final plans and specifications to confirm that earthwork, foundation, and other recommendations are properly interpreted and implemented. The recommendations in this report are contingent on S&ME's review of final plans and specifications followed by our observation and monitoring of earthwork and foundation construction activities.

◆ Closure

S&ME appreciates the opportunity to be of service on this project. If you have any questions concerning this report, please call.

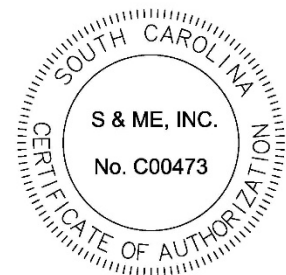
Sincerely,

S&ME, Inc.

Kyle L. Murrell, PE
Geotechnical Area Manager



Michael S. Ulmer, PE
Principal Engineer/VP



Appendix

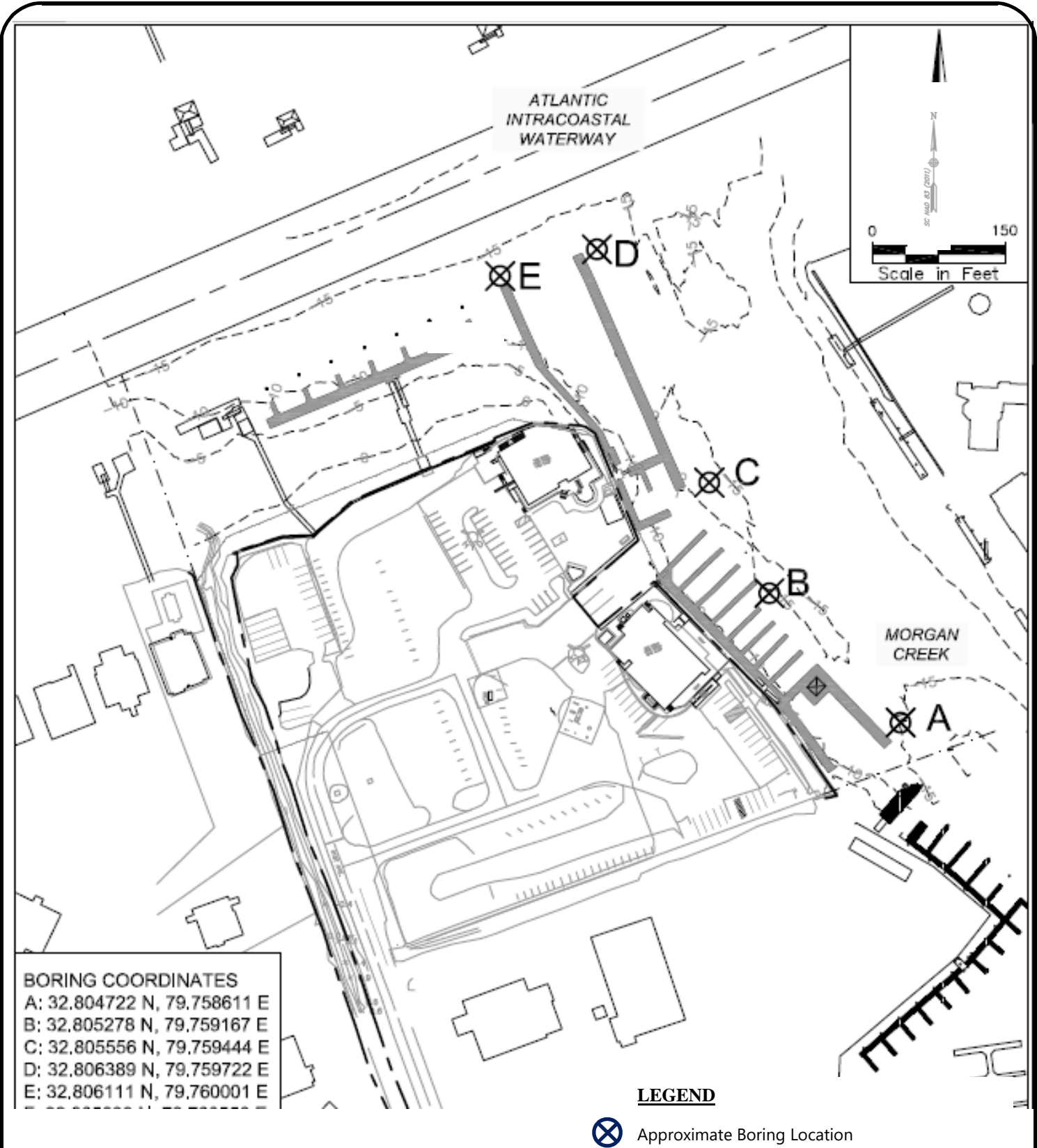
Test Location Plan – Figure 1

Legend to Soil Classification

Boring Logs


Summary of Laboratory Testing

Laboratory Testing




BORING COORDINATES
 A: 32.804722 N, 79.758611 E
 B: 32.805278 N, 79.759167 E
 C: 32.805556 N, 79.759444 E
 D: 32.806389 N, 79.759722 E
 E: 32.806111 N, 79.760001 E

LEGEND

 Approximate Boring Location

Test locations are approximate. This plan should not be used for design or construction.

	TEST LOCATION PLAN	SCALE: AS SHOWN	FIGURE NO. 1
	ISLE OF PALMS MARINA REPLACEMENT ISLE OF PALMS, SOUTH CAROLINA	DATE: 1/19/2020	
		PROJECT NUMBER 1413-19-101	

LEGEND TO SOIL CLASSIFICATION AND SYMBOLS




SOIL TYPES

(Shown in Graphic Log)

	Fill
	Asphalt
	Concrete
	Topsoil
	Gravel
	Sand
	Silt
	Clay
	Organic
	Silty Sand
	Clayey Sand
	Sandy Silt
	Clayey Silt
	Sandy Clay
	Silty Clay
	Partially Weathered Rock
	Cored Rock
	Marl

WATER LEVELS

(Shown in Water Level Column)

-  = Water Level At Termination of Boring
-  = Water Level Taken After 24 Hours
-  = Loss of Drilling Water
- HC = Hole Cave

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY

Very Soft
Soft
Firm
Stiff
Very Stiff
Hard
Very Hard

STD. PENETRATION RESISTANCE BLOWS/FOOT

0 to 2
3 to 4
5 to 8
9 to 15
16 to 30
31 to 50
Over 50

RELATIVE DENSITY OF COHESIONLESS SOILS

RELATIVE DENSITY

Very Loose
Loose
Medium Dense
Dense
Very Dense

STD. PENETRATION RESISTANCE BLOWS/FOOT

0 to 4
5 to 10
11 to 30
31 to 50
Over 50

SAMPLER TYPES

(Shown in Samples Column)

-  Shelby Tube
-  Split Spoon
-  Rock Core
-  No Recovery

TERMS

Standard Penetration Resistance - The Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in. I.D. Split Spoon Sampler 1 Foot. As Specified in ASTM D-1586.

REC - Total Length of Rock Recovered in the Core Barrel Divided by the Total Length of the Core Run Times 100%.

RQD - Total Length of Sound Rock Segments Recovered that are Longer Than or Equal to 4" (mechanical breaks excluded) Divided by the Total Length of the Core Run Times 100%.



PROJECT: Isle of Palms Marina Replacement Isle of Palms, South Carolina S&ME Project No. 1413-19-101				BORING LOG A											
DATE DRILLED: 2/12/20		ELEVATION: 3.3 ft		NOTES: Elevation is water surface level at TOB (MLLW)											
DRILL RIG: CME 45-B		BORING DEPTH: 65.0 ft													
DRILLER: T. White		WATER LEVEL: Tidal													
HAMMER TYPE: Automatic		LOGGED BY: V. Steck													
SAMPLING METHOD: Split spoon				NORTHING:		EASTING:									
DRILLING METHOD: Mud Rotary															
DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet-NAVD88)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA			STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS				N VALUE	
							1st 6in / RUN #	2nd 6in / REC	3rd 6in / RQD	10	20	30	6080		
5				-1.7											
10				-6.7											
15		SANDY SILT (ML) very soft, dark greenish gray		-11.7	SS-1	WOR	WOR	WOR							WOR
20		SAND (SP) loose, dark greenish gray, fine		-16.7	SS-2	4	4	3							7
25		SANDY CLAY (CH) very soft, dark greenish gray		-21.7	SS-3	WOH	WOH	WOH							WOH
30		SILTY SAND (SM) very soft, light olive brown, fine		-26.7	SS-4	1	WOH	2							2
35		--- Soft, dark olive brown		-31.7	SS-5	1	1	2							3
40		--- Olive brown		-36.7	SS-6	1	2	1							3
45				-41.7	SS-7	1	1	2							3
50				-46.7	SS-8	1	1	2							3
55		COOPER FORMATION: SILT WITH SAND (ML) firm, olive brown, calcareous		-51.7	SS-9	1	2	3							5
60		COOPER FORMATION: SILT (ML) firm, olive brown, calcareous		-56.7	SS-10	2	4	3							7
65		COOPER FORMATION: SILT WITH SAND (ML) firm, olive brown, calcareous		-61.7	SS-11	2	3	3							6
Boring terminated at 65 ft															

S&ME BORING LOG \ ISLE OF PALMS MARINA REPLACEMENT SPT LOGS.GPJ \ LIBRARY 2011_06_28.GDT 1/3/20

NOTES:

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2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.



PROJECT: Isle of Palms Marina Replacement Isle of Palms, South Carolina S&ME Project No. 1413-19-101		BORING LOG B													
DATE DRILLED: 2/12/20	ELEVATION: 6.1 ft	NOTES: Elevation is water surface level at TOB (MLLW)													
DRILL RIG: CME 45-B	BORING DEPTH: 62.5 ft														
DRILLER: T. White	WATER LEVEL: Tidal														
HAMMER TYPE: Automatic	LOGGED BY: V. Steck														
SAMPLING METHOD: Split spoon		NORTHING:	EASTING:												
DRILLING METHOD: Mud Rotary															
DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet-NAVD88)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA			STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS				N VALUE	
							1st 6in / RUN #	2nd 6in / REC	3rd 6in / RQD	10	20	30	6080		
5				1.1											
10				-3.9											
15		SANDY SILT (ML) firm, dark greenish gray		-8.9	SS-1	3	3	3							6
20		SAND (SP) loose, dark greenish gray, trace shell fragments, fine --- Very loose, few shell fragments		-13.9	SS-2	1	1	WOH							1
25		SANDY CLAY (CH) firm, very dark brown		-18.9	SS-3	1	2	2							4
30		SILTY SAND (SM) soft, dark gray, fine --- Dark olive gray		-23.9	SS-4	1	1	3							4
35		--- Very soft		-28.9	SS-5	1	2	2							4
40		--- Firm		-33.9	SS-6	1	1	1							2
45		--- Soft		-38.9	SS-7	2	3	3							6
50		COOPER FORMATION: SILT WITH SAND (ML) firm, olive brown, calcareous		-43.9	SS-8	1	2	2							4
55				-48.9	SS-9	3	3	4							7
60				-53.9	SS-10	3	4	4							8
62.5		Boring terminated at 62.5 ft			SS-11	2	2	3							5

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PROJECT: Isle of Palms Marina Replacement Isle of Palms, South Carolina S&ME Project No. 1413-19-101		BORING LOG C												
DATE DRILLED: 2/12/20	ELEVATION: 4.5 ft	NOTES: Elevation is water surface level at TOB (MLLW)												
DRILL RIG: CME 45-B	BORING DEPTH: 62.0 ft													
DRILLER: T. White	WATER LEVEL: Tidal													
HAMMER TYPE: Automatic	LOGGED BY: V. Steck													
SAMPLING METHOD: Split spoon		NORTHING:	EASTING:											
DRILLING METHOD: Mud Rotary														
DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet-NAVD88)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA			STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS				N VALUE
							1st 6in / RUN #	2nd 6in / REC	3rd 6in / RQD	10	20	30	6080	
5														
10														
15		SILTY SAND (SM) very loose, dark greenish gray, fine		-10.5	SS-1	WOH	WOH	WOH						WOH
20		SANDY CLAY (CH) very soft, dark greenish gray		-15.5	SS-2	WOR	WOR	WOR						WOR
25		CLAY (CH) firm, greenish gray		-20.5	SS-3	3	2	3						5
30		SILTY SAND (SM) very loose, olive brown, fine		-25.5	SS-4	3	2	2						4
35				-30.5	SS-5	1	1	1						2
40		--- Light olive brown		-35.5	SS-6	1	1	1						2
45		--- No recovery		-40.5	SS-7	2	1	2						3
50				-45.5	SS-8	2	2	2						4
55		COOPER FORMATION: SILT (ML) firm, olive brown, calcareous		-50.5	SS-9	3	3	5						8
60		COOPER FORMATION: SANDY SILT (ML) firm, olive brown, calcareous		-55.5	SS-10	3	4	3						7
62		Boring terminated at 62 ft			SS-11	3	3	3						6

S&ME BORING LOG \ ISLE OF PALMS MARINA REPLACEMENT SPT LOGS.GPJ \ LIBRARY 2011_06_28.GDT \ 3/3/20

NOTES:

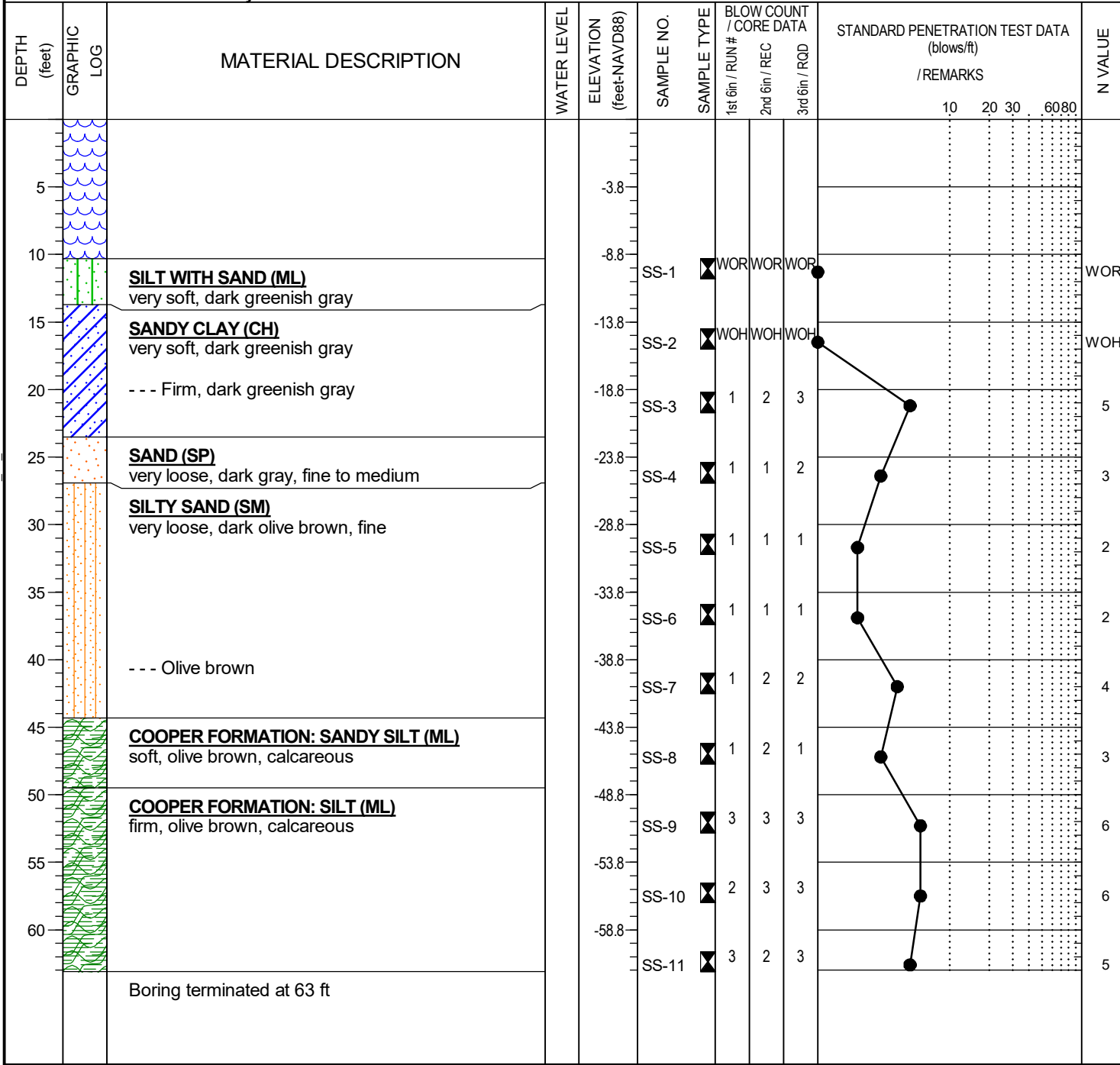
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
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3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.



DATE DRILLED: 2/11/20	ELEVATION: 1.2 ft	NOTES: Elevation is water surface level at TOB (MLLW)
DRILL RIG: CME 45-B	BORING DEPTH: 63.0 ft	
DRILLER: T. White	WATER LEVEL: Tidal	
HAMMER TYPE: Automatic	LOGGED BY: V. Steck	

SAMPLING METHOD: Split spoon	NORTHING:	EASTING:
-------------------------------------	-----------	----------

DRILLING METHOD: **Mud Rotary**



S&ME BORING LOG \ ISLE OF PALMS MARINA REPLACEMENT SPT LOGS.GPJ \ LIBRARY 2011_06_28.GDT 1/3/20

PROJECT: Isle of Palms Marina Replacement Isle of Palms, South Carolina S&ME Project No. 1413-19-101				BORING LOG E											
DATE DRILLED: 2/11/20		ELEVATION: 6.4 ft		NOTES: Elevation is water surface level at TOB (MLLW)											
DRILL RIG: CME 45-B		BORING DEPTH: 63.5 ft													
DRILLER: T. White		WATER LEVEL: Tidal													
HAMMER TYPE: Automatic		LOGGED BY: V. Steck													
SAMPLING METHOD: Split spoon				NORTHING:		EASTING:									
DRILLING METHOD: Mud Rotary															
DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet-NAVD88)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA			STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS				N VALUE	
							1st 6in / RUN #	2nd 6in / REC	3rd 6in / RQD	10	20	30	60		80
5				1.4											
10		SILT (ML) very soft, dark gray		-3.6	SS-1	WOR	WOR	WOR							WOR
15		SANDY CLAY (CH) very soft, dark gray		-8.6	SS-2	1	1	WOH							1
20		CLAY (CH) firm, greenish black		-13.6	SS-3	2	2	3							5
25		SAND (SP) loose, dark gray, fine to medium		-18.6	SS-4	10	4	3							7
30		SILTY SAND (SM) loose, dark brown, fine		-23.6	SS-5	3	4	4							8
35		--- Very loose		-28.6											
40				-33.6	SS-6	2	2	2							4
45		COOPER FORMATION: SANDILY SILT (ML) soft, dark olive brown, calcareous		-38.6	SS-7	1	2	2							4
50		COOPER FORMATION: SILT WITH SAND (ML) firm, olive brown, calcareous		-43.6	SS-8	1	2	2							4
55				-48.6	SS-9	3	2	3							5
60				-53.6	SS-10	2	3	3							6
63.5		Boring terminated at 63.5 ft		-58.6	SS-11	3	4	4							8

S&ME BORING LOG \ ISLE OF PALMS MARINA REPLACEMENT SPT LOGS.GPJ \ LIBRARY 2011_06_28.GDT \ 3/3/20

NOTES:

1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.



Summary of Laboratory Test Data

Isle of Palms Marina Replacement
Isle of Palms, South Carolina
S&ME Project No. 1413-19-101

Sample Location	Sample Depth (ft)	USCS Symbol	Natural Moisture (%)	% Finer #200	Atterberg Limits	
					LL	PI
A S-2	2.5 to 4.0	SP	32.0	5.2	np	
C S-4	15.5-17.0	SM	31.0	18.4	np	
D S-3	9.5 to 11.0	CH	31.9	58.6	57	34
E S-2	6 to 7.5	CH	59.5	79.5	50	25

np = non-plastic

LIQUID LIMIT, PLASTIC LIMIT, & PLASTIC INDEX



ASTM D 4318 AASHTO T 89 AASHTO T 90

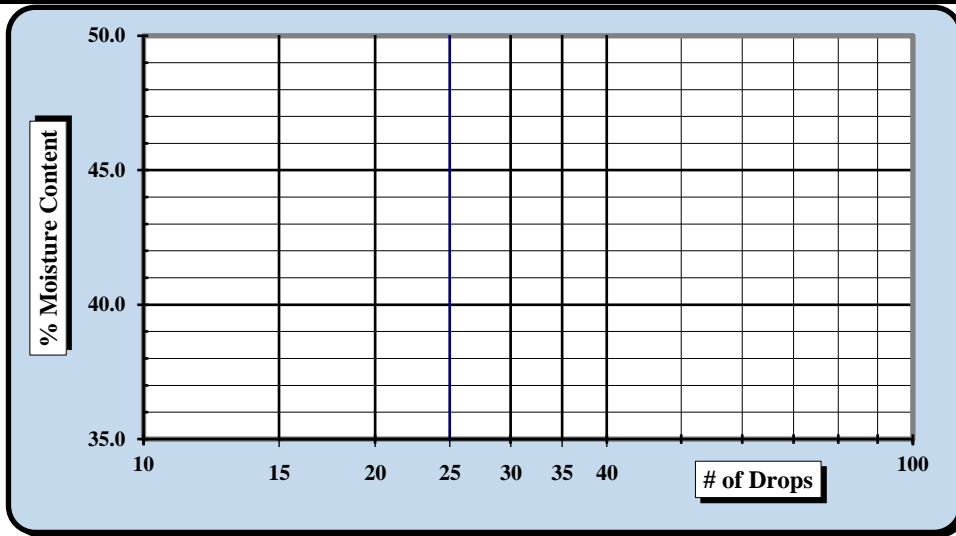
S&ME, Inc. - Charleston: 620 Wando Park Boulevard, Mt. Pleasant, SC 29464

Project #:	1413-19-101	Report Date:	2/19/2020
Project Name:	Isle of Palms Marina Replacement	Test Date(s)	2/16/2020
Client Name:	City of Isle Palms		
Client Address:	Post Office Box 508: Isle of Palms, SC 29451		

Boring #:	A	Sample #:	S-2
Location:		Sample Date:	2/11-2/12/2020
		Depth:	2.5 to 4.0 FT

Sample Description: Gray, fine, SAND (SP)					
Type and Specification	S&ME ID #	Cal Date:	Type and Specification	S&ME ID #	Cal Date:
Balance (0.01 g)	6976	1/7/2020	Grooving tool	10747	6/4/2019
LL Apparatus	6238	5/19/2019	Grooving tool		
Oven	13796	5/16/2019	Grooving tool		

Pan #	Tare #:	Liquid Limit						Plastic Limit		
		1	2	3	4	5	6	7	8	9
A	Tare Weight									
B	Wet Soil Weight + A									
C	Dry Soil Weight + A									
D	Water Weight (B-C)									
E	Dry Soil Weight (C-A)									
F	% Moisture (D/E)*100									
N	# OF DROPS									
LL	LL = F * FACTOR									
Ave.	Average									



One Point Liquid Limit			
N	Factor	N	Factor
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic

Liquid Limit

Plastic Limit

Plastic Index

Group Symbol

Multipoint Method

One-point Method

Wet Preparation Dry Preparation Air Dried Estimate the % Retained on the #40 Sieve: 10%

Notes / Deviations / References:

Kim Gonzalez
Technician Name

2/19/2020
Date

Talon Wagenknecht
Technical Responsibility

2/19/2020
Date

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LIQUID LIMIT, PLASTIC LIMIT, & PLASTIC INDEX



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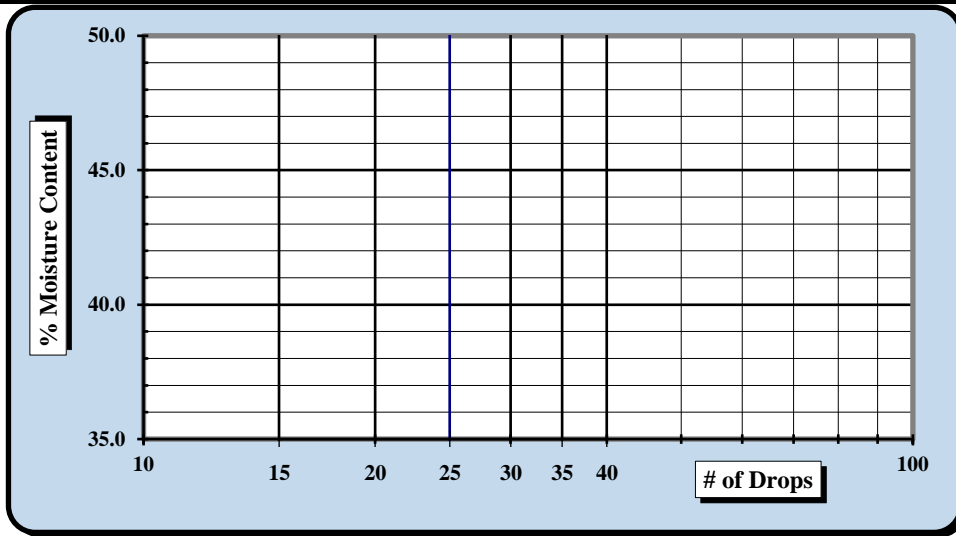
Project #:	1413-19-101	Report Date:	2/19/2020
Project Name:	Isle of Palms Marina Replacement	Test Date(s)	2/16/2020
Client Name:	City of Isle Palms		
Client Address:	Post Office Box 508: Isle of Palms, SC 29451		

Boring #:	C	Sample #:	S-4
Location:		Sample Date:	2/11-2/12/2020
		Depth:	15.5 to 17.0 FT

Sample Description: Olive brown, silty SAND (SM)

Type and Specification	S&ME ID #	Cal Date:	Type and Specification	S&ME ID #	Cal Date:
Balance (0.01 g)	6976	1/7/2020	Grooving tool	10747	6/4/2019
LL Apparatus	6238	5/19/2019	Grooving tool		
Oven	13796	5/16/2019	Grooving tool		

Pan #	Tare #:	Liquid Limit						Plastic Limit		
		1	2	3	4	5	6	7	8	9
A	Tare Weight									
B	Wet Soil Weight + A									
C	Dry Soil Weight + A									
D	Water Weight (B-C)									
E	Dry Soil Weight (C-A)									
F	% Moisture (D/E)*100									
N	# OF DROPS									
LL	LL = F * FACTOR									
Ave.	Average									



One Point Liquid Limit			
N	Factor	N	Factor
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic

Liquid Limit

Plastic Limit

Plastic Index

Group Symbol

Multipoint Method

One-point Method

Wet Preparation Dry Preparation Air Dried Estimate the % Retained on the #40 Sieve: 10%

Notes / Deviations / References:

Kim Gonzalez
Technician Name

2/19/2020
Date

Talon Wagenknecht
Technical Responsibility

2/19/2020
Date

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LIQUID LIMIT, PLASTIC LIMIT, & PLASTIC INDEX



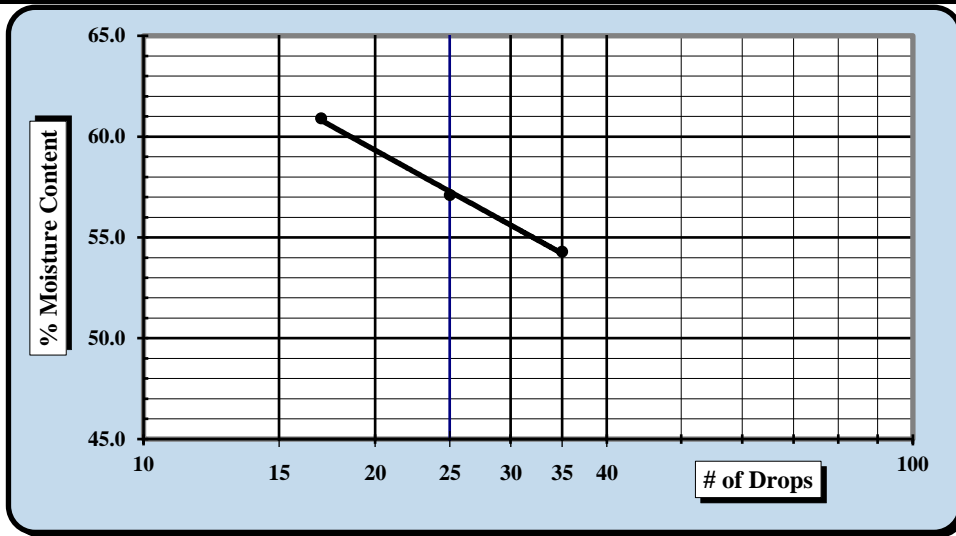
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S&ME, Inc. - Charleston: 620 Wando Park Boulevard, Mt. Pleasant, SC 29464

Project #:	1413-19-101	Report Date:	2/19/2020
Project Name:	Isle of Palms Marina Replacement	Test Date(s)	2/16/2020
Client Name:	City of Isle Palms		
Client Address:	Post Office Box 508: Isle of Palms, SC 29451		
Boring #:	D	Sample #:	S-3
		Sample Date:	2/11-2/12/2020
Location:		Depth	9.5 to 11.0 FT

Sample Description: Gray sandy fat CLAY (CH)					
Type and Specification	S&ME ID #	Cal Date:	Type and Specification	S&ME ID #	Cal Date:
Balance (0.01 g)	6976	1/7/2020	Grooving tool	10747	6/4/2019
LL Apparatus	6238	5/19/2019	Grooving tool		
Oven	13796	5/16/2019	Grooving tool		

Pan #	Tare #:	Liquid Limit					Plastic Limit			
		1	2	3	4	5	6	7	8	9
A	Tare Weight	22.80	21.30	21.10				21.10	20.60	
B	Wet Soil Weight + A	42.40	44.40	47.00				25.90	25.60	
C	Dry Soil Weight + A	35.50	36.00	37.20				25.00	24.70	
D	Water Weight (B-C)	6.90	8.40	9.80				0.90	0.90	
E	Dry Soil Weight (C-A)	12.70	14.70	16.10				3.90	4.10	
F	% Moisture (D/E)*100	54.3%	57.1%	60.9%				23.1%	22.0%	
N	# OF DROPS	35	25	17						
LL	LL = F * FACTOR									
Ave.	Average									22.6%



One Point Liquid Limit			
N	Factor	N	Factor
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic	<input type="checkbox"/>
Liquid Limit	57
Plastic Limit	23
Plastic Index	34
Group Symbol	CH

Multipoint Method
 One-point Method

Wet Preparation Dry Preparation Air Dried Estimate the % Retained on the #40 Sieve: 10%

Notes / Deviations / References:

Kim Gonzalez
 Technician Name

2/19/2020
 Date

Talon Wagenknecht
 Technical Responsibility

2/19/2020
 Date

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LIQUID LIMIT, PLASTIC LIMIT, & PLASTIC INDEX



ASTM D 4318 AASHTO T 89 AASHTO T 90

S&ME, Inc. - Charleston: 620 Wando Park Boulevard, Mt. Pleasant, SC 29464

Project #:	1413-19-101	Report Date:	2/19/2020
Project Name:	Isle of Palms Marina Replacement	Test Date(s)	2/16/2020
Client Name:	City of Isle Palms		
Client Address:	Post Office Box 508: Isle of Palms, SC 29451		

Boring #:	E	Sample #:	S-2	Sample Date:	2/11-2/12/2020
Location:		Depth 6.0 to 7.5 FT			

Sample Description: Gray Fat CLAY (CH), with sand

Type and Specification	S&ME ID #	Cal Date:	Type and Specification	S&ME ID #	Cal Date:
Balance (0.01 g)	6976	1/7/2020	Grooving tool	10747	6/4/2019
LL Apparatus	6238	5/19/2019	Grooving tool		
Oven	13796	5/16/2019	Grooving tool		

Pan #	Tare #:	Liquid Limit						Plastic Limit		
		1	2	3	4	5	6	7	8	9
A	Tare Weight	22.40						22.10	20.80	
B	Wet Soil Weight + A	52.50						25.50	25.60	
C	Dry Soil Weight + A	42.50						24.80	24.70	
D	Water Weight (B-C)	10.00						0.70	0.90	
E	Dry Soil Weight (C-A)	20.10						2.70	3.90	
F	% Moisture (D/E)*100	49.8%						25.9%	23.1%	
N	# OF DROPS	25								
LL	LL = F * FACTOR									
Ave.	Average							24.5%		



One Point Liquid Limit			
N	Factor	N	Factor
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic

Liquid Limit	50
Plastic Limit	25
Plastic Index	25
Group Symbol	CH

Multipoint Method
 One-point Method

Wet Preparation Dry Preparation Air Dried Estimate the % Retained on the #40 Sieve: 10%

Notes / Deviations / References:

Kim Gonzalez
Technician Name

2/19/2020
Date

Talon Wagenknecht
Technical Responsibility

2/19/2020
Date

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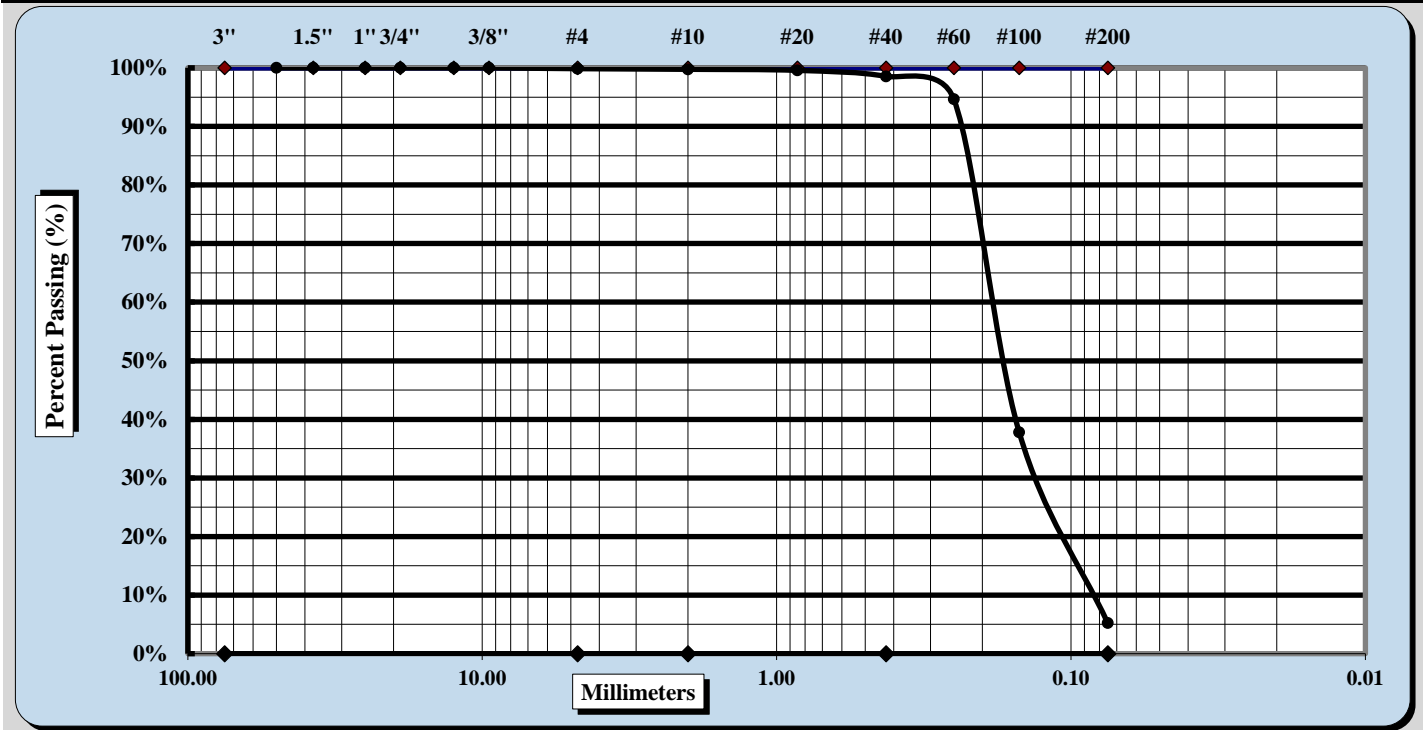


ASTM D 422

S&ME, Inc. - Charleston: 620 Wando Park Boulevard, Mt. Pleasant, SC 29464

Project #:	1413-19-101	Report Date:	2/19/2020
Project Name:	Isle of Palms Marina Replacement	Test Date(s):	2/14/2020
Client Name:	City of Isle Palms		
Client Address:	Post Office Box 508: Isle of Palms, SC 29451		
Sample Id. A	Type:	Sample Date:	2/11-2/12/2020
Location:	Sample: S-2	Depth	2.5 to 4.0 FT

Sample Description: Gray, fine, SAND (SP)



Cobbles	< 300 mm (12") and > 75 mm (3")	Fine Sand	< 0.425 mm and > 0.075 mm
Gravel	< 75 mm and > 4.75 mm (#4)	Silt	< 0.075 and > 0.005 mm
Coarse Sand	< 4.75 mm and > 2.00 mm (#10)	Clay	< 0.005 mm
Medium Sand	< 2.00 mm and > 0.425 mm (#40)	Colloids	< 0.001 mm

Maximum Particle Size	#4	Coarse Sand	0.1%	Fine Sand	93.3%
Gravel	0.1%	Medium Sand	1.2%	Silt & Clay	5.2%
Liquid Limit	NP	Plastic Limit	NP	Plastic Index	NP
Specific Gravity				Moisture Content	32.0%
Coarse Sand	0.1%	Medium Sand	1.2%	Fine Sand	93.3%
Description of Sand & Gravel Particles:		Rounded	<input type="checkbox"/>	Angular	<input type="checkbox"/>
Hard & Durable	<input type="checkbox"/>	Soft	<input type="checkbox"/>	Weathered & Friable	<input type="checkbox"/>

Notes / Deviations / References:

Talon Wagenknecht
Technical Responsibility

[Signature]
Signature

Group Leader
Position

2/19/2020
Date

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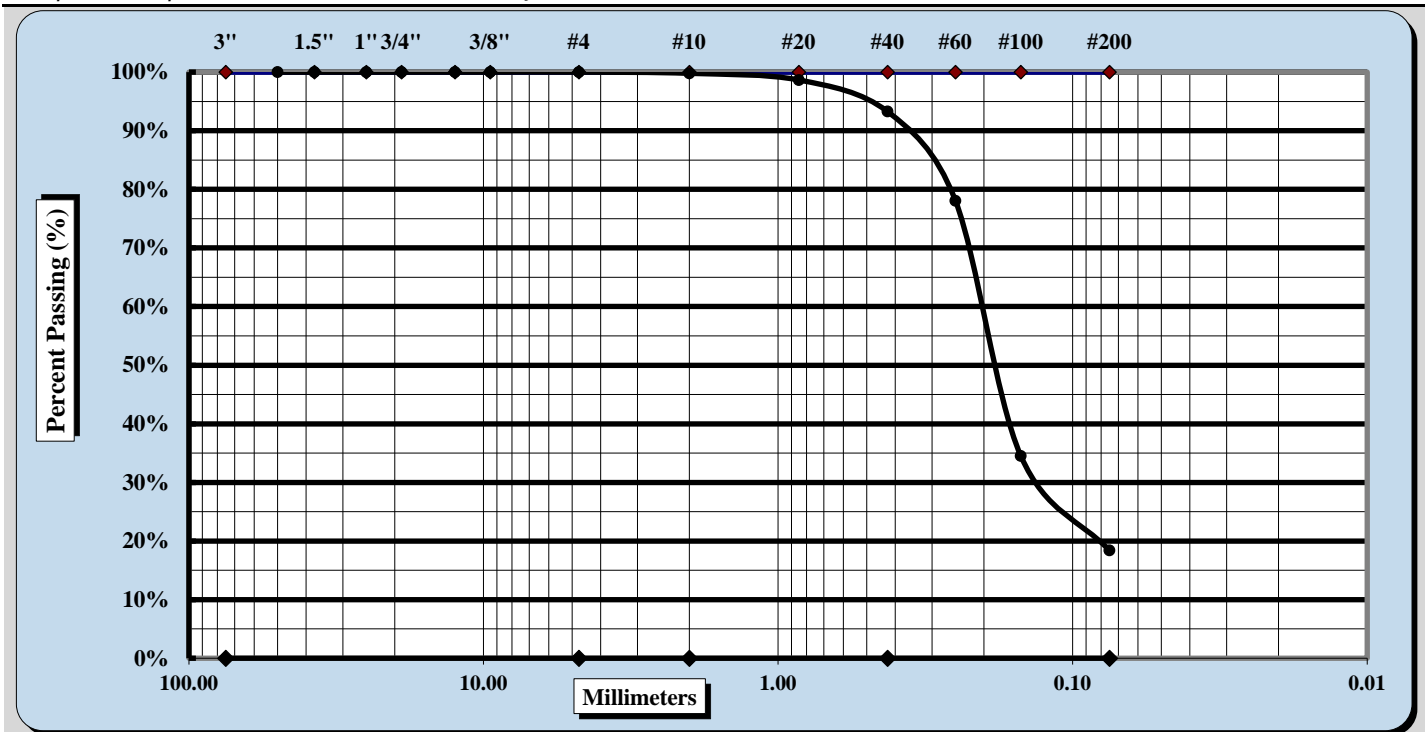


ASTM D 422

S&ME, Inc. - Charleston: 620 Wando Park Boulevard, Mt. Pleasant, SC 29464

Project #:	1413-19-101	Report Date:	2/19/2020
Project Name:	Isle of Palms Marina Replacement	Test Date(s):	2/14/2020
Client Name:	City of Isle Palms		
Client Address:	Post Office Box 508: Isle of Palms, SC 29451		
Sample Id. C	Type:	Sample Date:	2/11-2/12/2020
Location:	Sample: S-4	Depth	15.5 to 17.0 FT

Sample Description: Olive brown, silty SAND (SM)



Cobbles	< 300 mm (12") and > 75 mm (3")	Fine Sand	< 0.425 mm and > 0.075 mm
Gravel	< 75 mm and > 4.75 mm (#4)	Silt	< 0.075 and > 0.005 mm
Coarse Sand	< 4.75 mm and > 2.00 mm (#10)	Clay	< 0.005 mm
Medium Sand	< 2.00 mm and > 0.425 mm (#40)	Colloids	< 0.001 mm

Maximum Particle Size	#4	Coarse Sand	0.2%	Fine Sand	74.9%
Gravel	0.0%	Medium Sand	6.5%	Silt & Clay	18.4%
Liquid Limit	NP	Plastic Limit	NP	Plastic Index	NP
Specific Gravity				Moisture Content	31.0%
Coarse Sand	0.2%	Medium Sand	6.5%	Fine Sand	74.9%
Description of Sand & Gravel Particles:		Rounded	<input type="checkbox"/>	Angular	<input type="checkbox"/>
Hard & Durable	<input type="checkbox"/>	Soft	<input type="checkbox"/>	Weathered & Friable	<input type="checkbox"/>

Notes / Deviations / References:

Talon Wagenknecht
Technical Responsibility

[Signature]
Signature

Group Leader
Position

2/18/2020
Date

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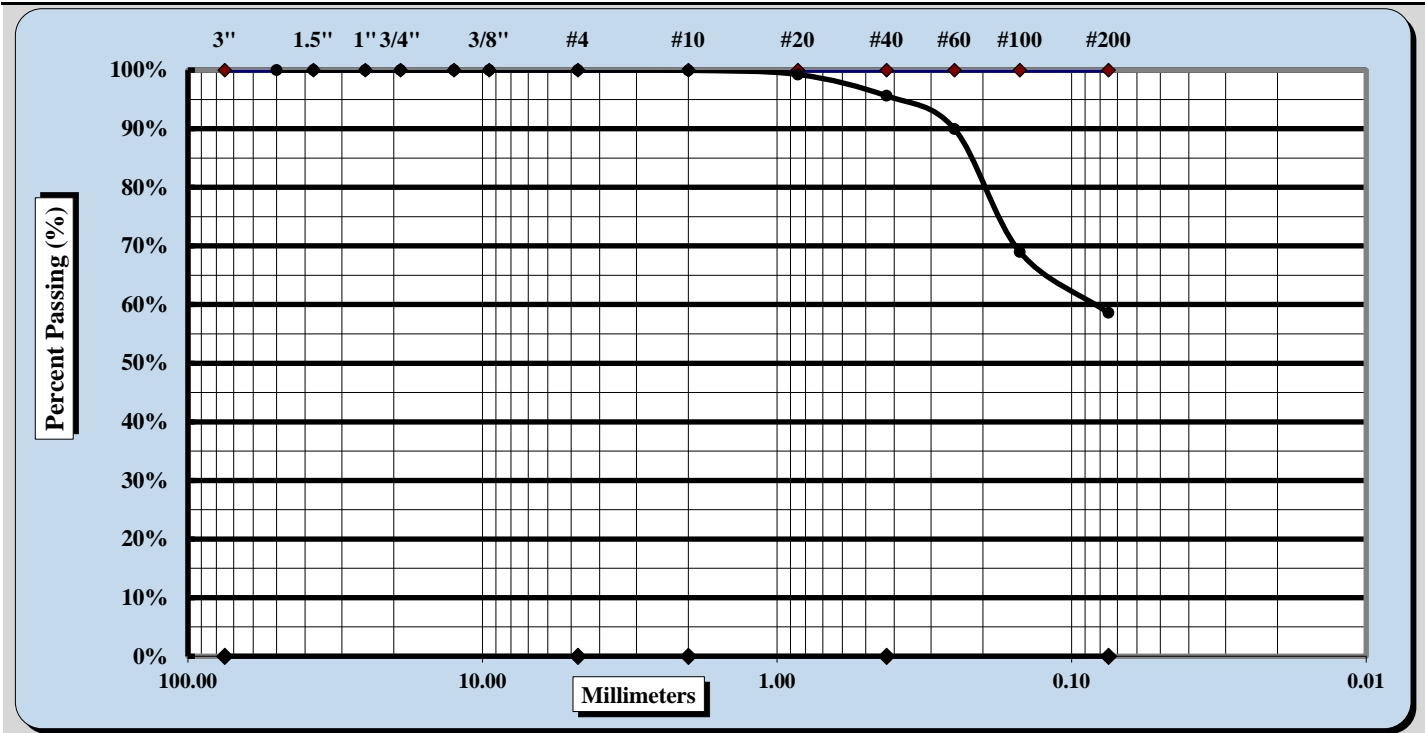


ASTM D 422

S&ME, Inc. - Charleston: 620 Wando Park Boulevard, Mt. Pleasant, SC 29464

Project #:	1413-19-101	Report Date:	2/19/2020
Project Name:	Isle of Palms Marina Replacement	Test Date(s):	2/14/2020
Client Name:	City of Isle Palms		
Client Address:	Post Office Box 508: Isle of Palms, SC 29451		
Sample Id. D	Type:	Sample Date:	2/11-2/12/2020
Location:	Sample: S-3	Depth	9.5 to 11.0 FT

Sample Description: Gray, sandy fat CLAY (CH)



Cobbles	< 300 mm (12") and > 75 mm (3")	Fine Sand	< 0.425 mm and > 0.075 mm
Gravel	< 75 mm and > 4.75 mm (#4)	Silt	< 0.075 and > 0.005 mm
Coarse Sand	< 4.75 mm and > 2.00 mm (#10)	Clay	< 0.005 mm
Medium Sand	< 2.00 mm and > 0.425 mm (#40)	Colloids	< 0.001 mm

Maximum Particle Size	#10	Coarse Sand	0.0%	Fine Sand	37.0%
Gravel	0.0%	Medium Sand	4.3%	Silt & Clay	58.6%
Liquid Limit	57	Plastic Limit	23	Plastic Index	34
Specific Gravity				Moisture Content	31.9%
Coarse Sand	0.0%	Medium Sand	4.3%	Fine Sand	37.0%
Description of Sand & Gravel Particles:		Rounded	<input type="checkbox"/>	Angular	<input type="checkbox"/>
Hard & Durable	<input type="checkbox"/>	Soft	<input type="checkbox"/>	Weathered & Friable	<input type="checkbox"/>

Notes / Deviations / References:

Talon Wagenknecht
Technical Responsibility

[Signature]
Signature

Group Leader
Position

2/18/2020
Date

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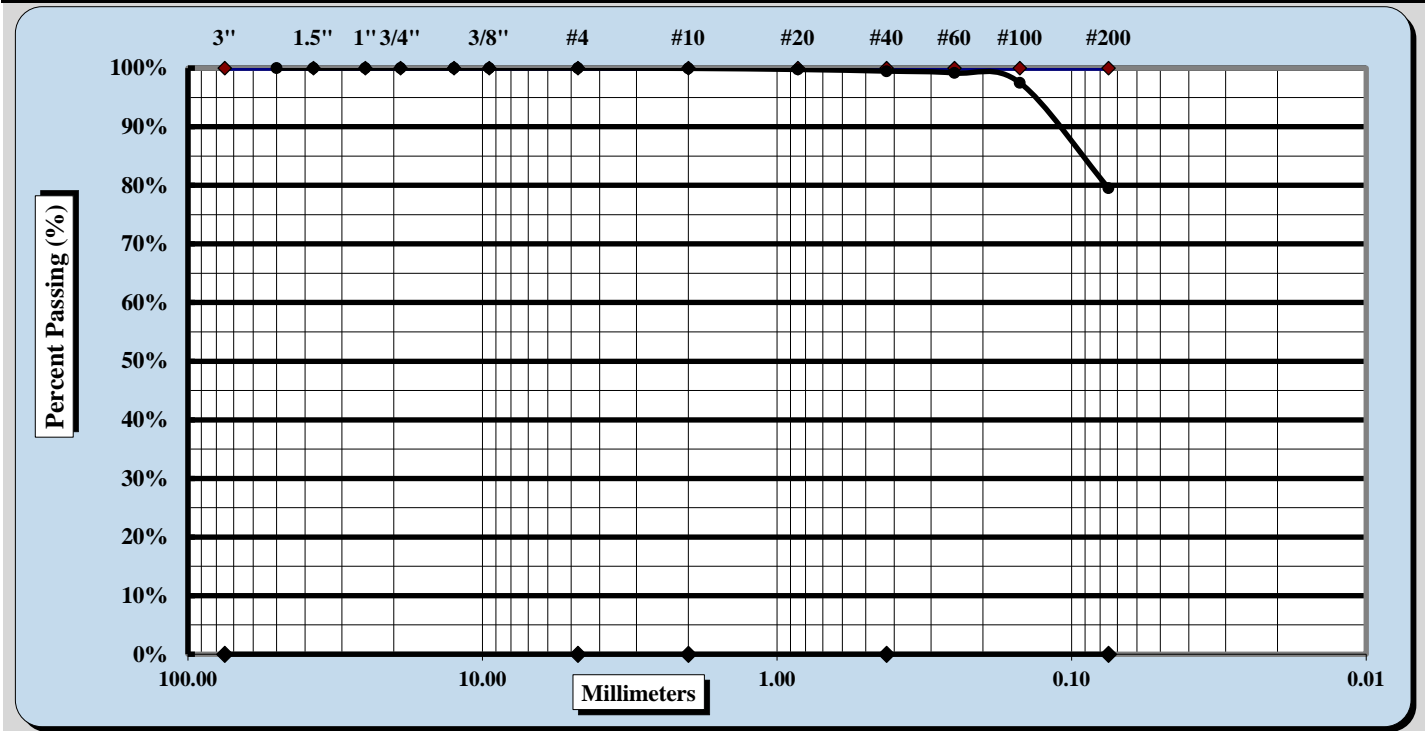


ASTM D 422

S&ME, Inc. - Charleston: 620 Wando Park Boulevard, Mt. Pleasant, SC 29464

Project #:	1413-19-101	Report Date:	2/19/2020
Project Name:	Isle of Palms Marina Replacement	Test Date(s):	2/14/2020
Client Name:	City of Isle Palms		
Client Address:	Post Office Box 508: Isle of Palms, SC 29451		
Sample Id. E	Type:	Sample Date:	2/11-2/12/2020
Location:	Sample: S-2	Depth	6.0 to 7.5 FT

Sample Description: Gray, Fat CLAY (CH), with sand



Cobbles	< 300 mm (12") and > 75 mm (3")	Fine Sand	< 0.425 mm and > 0.075 mm
Gravel	< 75 mm and > 4.75 mm (#4)	Silt	< 0.075 and > 0.005 mm
Coarse Sand	< 4.75 mm and > 2.00 mm (#10)	Clay	< 0.005 mm
Medium Sand	< 2.00 mm and > 0.425 mm (#40)	Colloids	< 0.001 mm

Maximum Particle Size	#10	Coarse Sand	0.0%	Fine Sand	19.9%
Gravel	0.0%	Medium Sand	0.5%	Silt & Clay	79.5%
Liquid Limit	50	Plastic Limit	25	Plastic Index	25
Specific Gravity		Cc = 0.003	Cu = 8.636	Moisture Content	59.5%
Coarse Sand	0.0%	Medium Sand	0.5%	Fine Sand	19.9%
Description of Sand & Gravel Particles:		Rounded	<input type="checkbox"/>	Angular	<input type="checkbox"/>
Hard & Durable	<input type="checkbox"/>	Soft	<input type="checkbox"/>	Weathered & Friable	<input type="checkbox"/>

Notes / Deviations / References:

Talon Wagenknecht
Technical Responsibility

[Signature]
Signature

Group Leader
Position

2/19/2020
Date

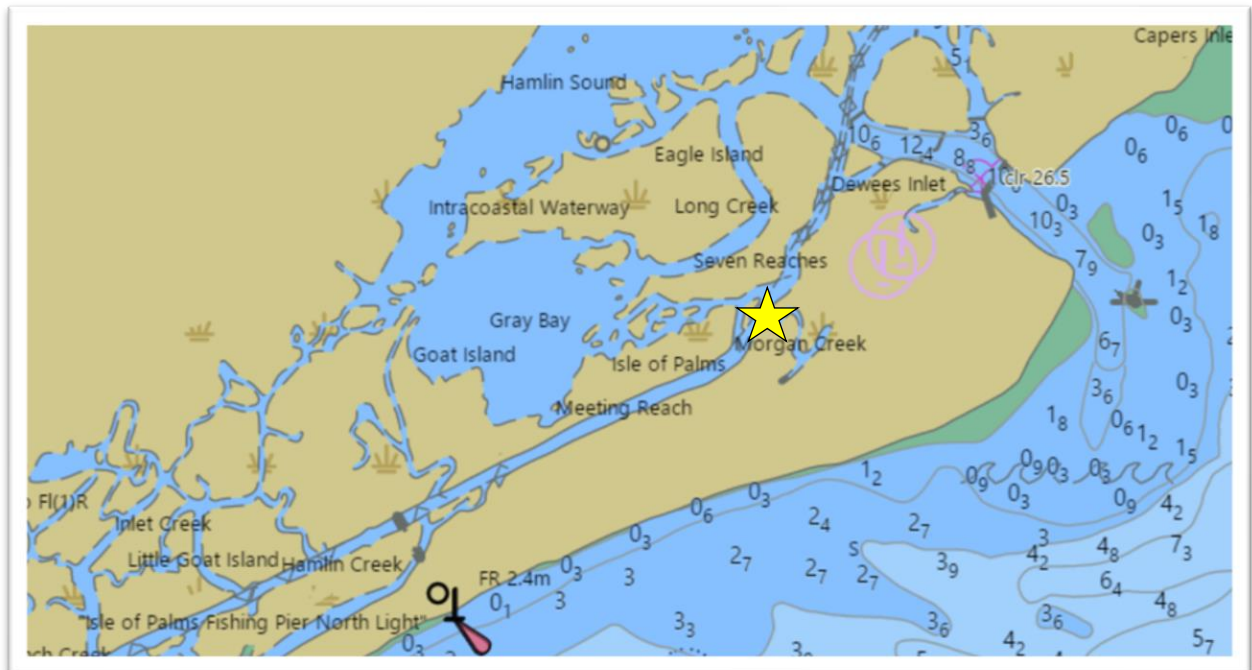
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APPENDIX C
COASTAL CONDITIONS ASSESSMENT



Coastal Conditions Assessment

Isle of Palms Marina Rehabilitation



November 2019



Applied Technology and Management, Inc.
941 Houston Northcutt Boulevard
Mount Pleasant, South Carolina
www.appliedtm.com

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1.0 Background

Applied Technology and Management, Inc. (ATM) was contracted to complete a coastal conditions assessment for a proposed marina rehabilitation at Isle of Palms Marina, Isle of Palms, South Carolina. The analysis included a desktop review of readily available information in the project area to determine operational and extreme event environmental conditions that may have a marked impact on the updated dock layout and its design and operation.

2.0 Project Site

The project site is an existing marina on the north side of Isle of Palms. The upland portion of the marina includes a restaurant, ships store, gas pump, car parking, and trailer parking. The shoreline is bordered on the north by the Atlantic Intracoastal Waterway (AIWW) and the east by Morgan Creek. The upland site is surrounded by a steel bulkhead adjacent to the waters of Morgan Creek and fronted by intertidal marsh along the AIWW section of the site. A three-lane concrete boat ramp is located on Morgan Creek. Morgan Creek is approximately 300 feet wide at the site and the AIWW channel centerline is approximately 280 feet from the marina shoreline. Figure 2 shows the proposed marina rehabilitation configuration with docks in Morgan Creek and the AIWW.

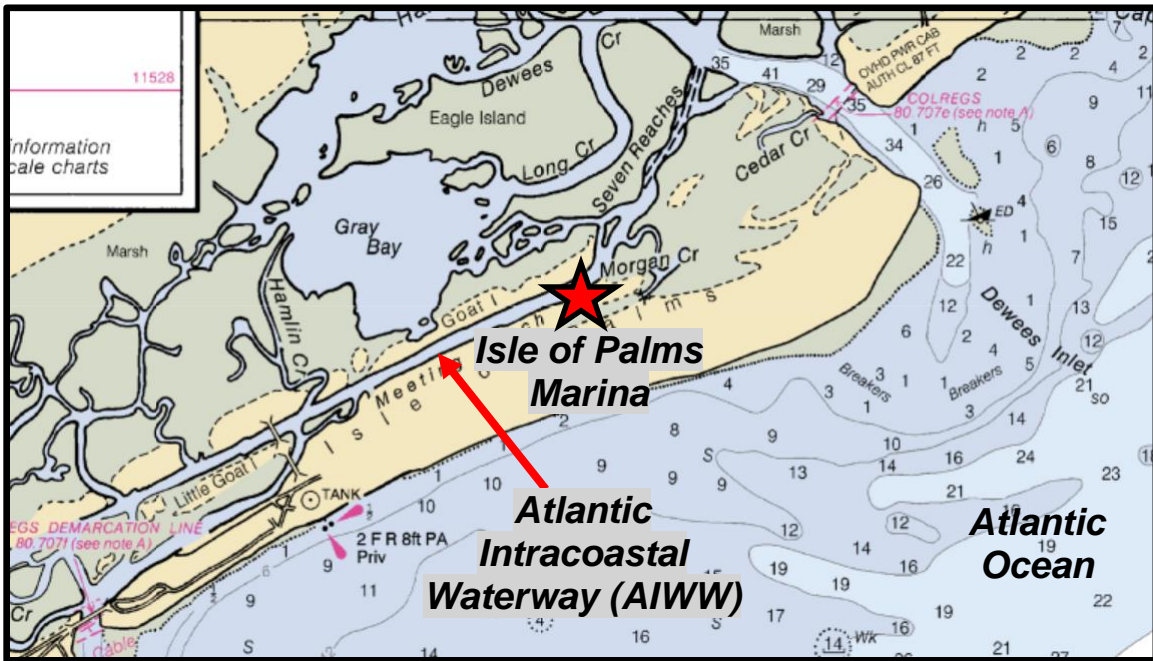


Figure 1: Project location on NOAA Nautical Chart.

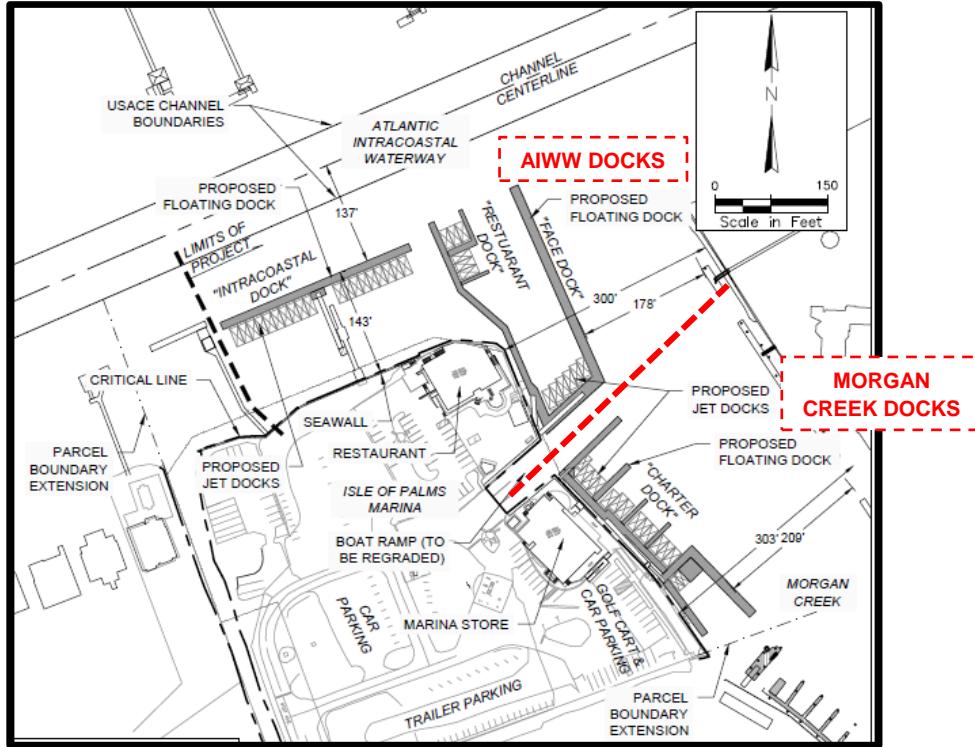


Figure 2: Proposed Dock Layout. (note delineation between AIWW and Morgan Creek Docks)

In Figure 2, note the delineation between AIWW Docks (Intracoastal, Restaurant, and Face Docks) versus Morgan Creek Docks (Charter and Fuel Docks). These docks will have different design wave conditions because of the protected nature of the docks within Morgan Creek versus the more exposed AIWW docks.

3.0 Water Levels

Water levels at the project site are influenced by ocean tides and storm surge. The nearest NOAA tidal prediction station is located in Hamlin Creek (Station 8665387, ~2.5 miles southwest of the marina). Tide levels at the site based on NOAA's prediction station are shown in Table 1. The average tide range at the site is 5 feet.

Table 1: NOAA Tide Prediction Stations.

<i>Datum</i>	<i>Abbreviation</i>	<i>Water Level ft (MLLW)</i>
Mean Higher High Water	MHHW	5.6
Mean High Water	MHW	5.2
North American Vertical Datum, 1988	NAVD88	3.1
Mean Sea Level	MSL	2.8
Mean Low Water	MLW	0.2
Mean Lower Low Water	MLLW	0.0

Extreme stillwater (i.e. storm surge) levels are predicted by FEMA for areas within Charleston County in the Flood Information Study (FIS) that took effect in 2004. FEMA is working to update their flood mapping and has provided a preliminary FIS report for the County. Table 2 provides extreme event water levels from both the effective and preliminary FIS reports. FEMA's preliminary FIS report predicts stillwater elevations to be lower for each return interval. For conservatism, it is recommended to utilize the effective FIS report extreme water levels for design.

Table 2: FEMA FIS Preliminary and Effective Stillwater Elevations.

<i>Datum</i>	<i>Abbreviation</i>	<i>Preliminary FIS ft (MLLW)</i>	<i>Effective FIS ft (MLLW)</i>
100-YR Stillwater Elevation	100-YR SWEL	12.6	14.1
50-YR Stillwater Elevation	50-YR SWEL	10.8	13.6
25-YR Stillwater Elevation	25-YR SWEL	10.0	12.5
10-YR Stillwater Elevation	10-YR SWEL	8.5	11.2

4.0 Bathymetry

A bathymetric survey of the marina area was completed in 2016 by GEL. The survey included capturing bathymetry near the marina bulkhead across the entire width of Morgan Creek and from the marsh out to the centerline of the AIWW and **Figure 3** shows those survey limits. Depths around the docks in Morgan Creek range from 6 to 11 feet below MLLW and depths along the dock in the AIWW range from 4.5 to 9 feet below MLLW. Bathymetry slopes gradually up moving toward the site shoreline. Along the AIWW, an intertidal marsh fronts the upland and along Morgan Creek, the steel bulkhead directly fronts the waters of the marina project.

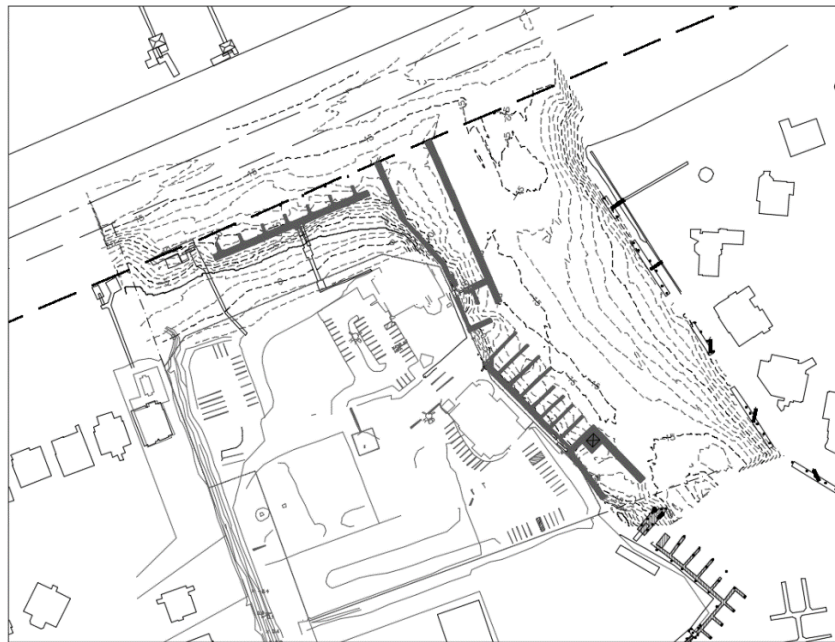


Figure 3: Bathymetry at Project Site (GEL Engineering, LLC 2016).

The USACE completed a hydrographic survey of the AIWW in November 2018. The USACE survey indicates depths in the channel ranged between 11 and 16 feet below MLLW.

5.0 Currents

Currents at the site are mainly associated with tidal fluctuations. No current measurements or NOAA tidal current prediction stations are located at or near the project site. Based on the nearest NOAA tidal current prediction station (mouth of the AIWW ~7 miles south of the project site, Station ACT6721), tidal surface currents up to approximately +1.7 knots can be expected near the AIWW in Charleston Harbor. Current speeds in the AIWW are conservatively expected to be similar to Charleston Harbor, based on available data. To confirm presence of design current speeds, ATM recommends that field measurements of in-situ currents at the proposed dock area be taken during a spring tidal cycle during the preliminary design phase. Currents within Morgan Creek are anticipated to be less than those in the AIWW.

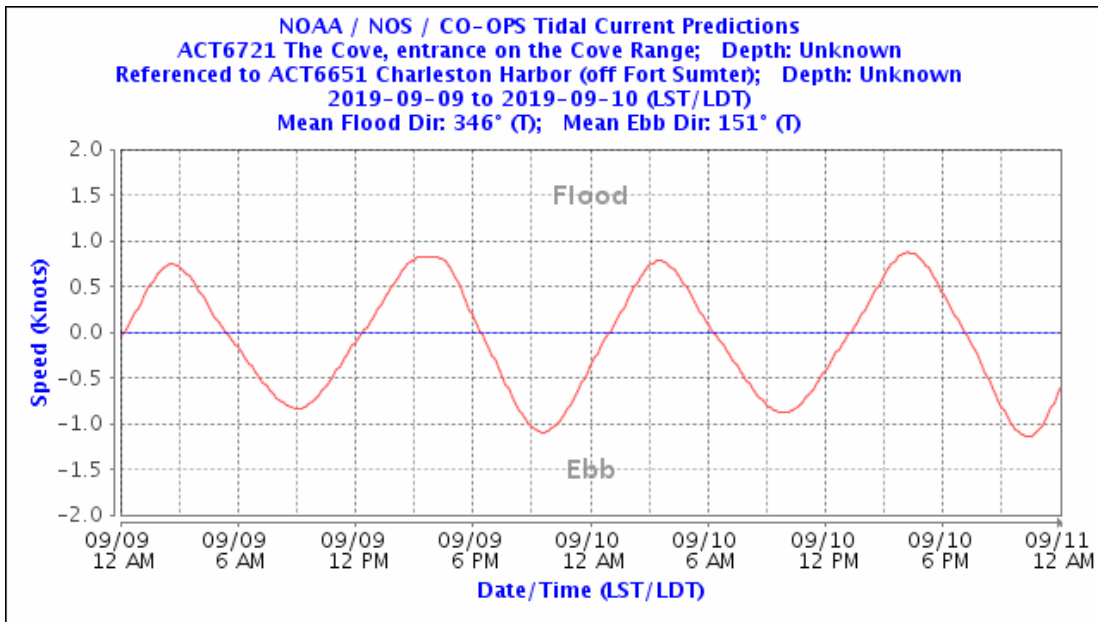


Figure 4: NOAA Tidal Prediction Station in Charleston Harbor.

6.0 Winds

6.1 Operational Wind Data

Typical wind conditions were evaluated using readily available wind data near the coast of Charleston County at sites listed below:

- Mount Pleasant [LRO] (Data recorded from 2008 to 2019)
- Charleston Executive Airport [IZI] (Data recorded from 2008 to 2019)

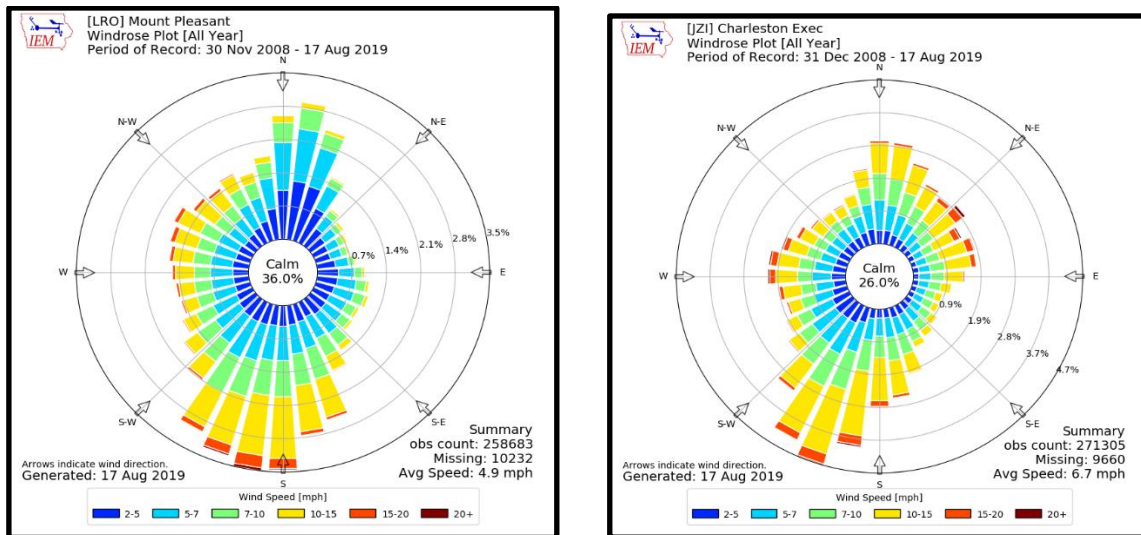


Figure 5: (Left) Mount Pleasant [LRO] windrose and (Right) Charleston Executive Airport [JZI] windrose.

The windroses for both stations (Figure 5) agree with the most common winds coming from the south/southwest and, to a lesser extent, the north/northeast. April through August winds come predominantly from the south/southwest and the rest of the year has a strong north/northeasterly wind component, with some westerly winds. The average wind speed at both stations is less than 10 miles per hour.

6.2 Extreme Event Wind Data

The design wind speeds for marine structures are typically based upon the anticipated extreme wind conditions associated with long return period storm events (i.e. hurricanes). The ASCE 7 design standards (2016 version) provide extreme event wind speeds for use in flood/hurricane analysis and structural design. These guidelines present extreme wind speeds that are omnidirectional. That is, they consider extreme winds that can come from any direction.

Table 3: ASCE Predicted Extreme Wind Speeds.

Mean Return Interval	ASCE 7-16 3-Sec Gust, MPH
100-YR	117
50-YR	104
25-YR	91
10-YR	78

Operational and extreme event windspeeds will be used as inputs to calculate wind-generated waves that may impact the project site. Extreme windspeeds will also be utilized for final design loading of the floating dock structure and anchorage.

7.0 Site Exposure and Wave Conditions

7.1 Site Exposure

Site exposure refers to the unprotected nature of a project area to coastal hazards. The exposure of a particular site will depend on regional and local bathymetry, coastal shoreline structures, and surrounding geography/topology. The existing marina is located on the south side of a narrow channel and is adjacent to a bend in the river. The bend protects the marina from direct effects along the river to the north. The AIWW is lined with fixed piers and floating docks southwest of the site narrowing the channel even further. These factors will influence the specific conditions that may realistically impact a marine structure at the subject site. Recall that the Morgan Creek docks are less exposed and will be less vulnerable to larger wind and vessel generated waves.

7.2 Waves

7.2.1 Wind-Generated Waves

Wind generated waves are mainly controlled by fetch, or the distance wind can blow across water unobstructed. Generally, a longer, deeper water fetch generates larger waves. The site has very restricted fetch from a direction sense. That is, the extreme event wind would have to blow from a very specific direction to generate design waves. Based on local geography, bathymetric conditions, restricted nature of the AIWW, and wind-wave generation characteristics, two critical design fetches were developed. The critical exposures and design fetches are:

- 0.65 miles to the NE along AIWW
- 0.9 miles to the SW along AIWW

The USACE wave forecasting model, ACES (USACE, 1992), was used to evaluate the potential locally generated extreme event wind-wave conditions at the site. The model utilizes various input parameters including, but not limited to: observed wind speed, fetch distance (i.e. - distance over which wind-generated waves may form), and average water depths over the fetch distance to estimate the peak wave heights and periods associated with different return period events. The critical fetches were entered in to calculate predicted wave characteristics for different storm return intervals. A summary table of outputs is given below.

Table 4: ACES summary table.

Direction From	Case	Design Water Level	ASCE 7-16 Wind Speed	Significant Wave Height, Hs	Peak Wave Period, Tp
		(feet, MLLW)	(mph, 3-sec gust)	(feet)	(seconds)
Southwest	10-YR	20.1	78	2.0	2.2
	25-YR	21.4	91	2.4	2.4
	50-YR	22.5	104	2.9	2.5
Northeast	10-YR	24.1	78	1.7	2.0
	25-YR	25.4	91	2.1	2.1
	50-YR	26.5	104	2.5	2.3

7.2.2 Vessel Generated Wakes

Boat wakes are anticipated to be the cause of larger operational and controlling design waves at the marina, on a daily basis. This is due to the narrow configuration of the AIWW, proximity of the project site to the AIWW navigation channel, and common occurrence of relatively larger vessels traveling at unrestricted speeds.

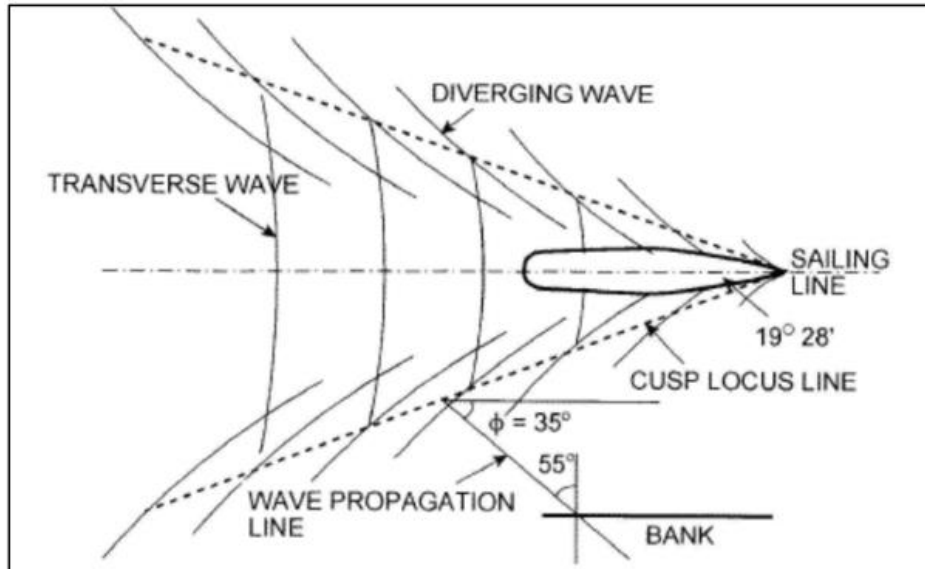


Figure 6: Illustration of Secondary Vessel Waves (Wakes) (Schiereck, 2001).

Boat wake heights and periods were estimated using several industry standard methods including: Kriebel, Seelig, & Judges (2005); Schiereck (2001); and Weggel and Sorensen (1986). These prediction methods use a variety of parameters such as a depth, ship displacement, speed, length, beam, draft, and entry length to determine the estimated wake conditions a certain distance away from the vessel. The existing AIWW channel boundary is approximately 91 ft away from the closest proposed docks and controlling channel depths of 18 feet during high tide conditions are present near the site. In addition to normal operating wakes, vessels can also produce increased wakes due to certain maneuvers such changes in speed and direction or if vessels travel at speed outside the channel limits, which is likely near the proposed marina facility. Based on the range of results from the wake prediction methods and ATM engineering judgement and experience with similar projects, controlling design wakes at the project site are estimated to have heights of **2.5 ft** and periods of **3.5 sec**.

8.0 Risk Potential

There is always some risk of damage and even total loss of waterfront structures, which can be estimated by the following equation:

$$R = 1 - (1 - 1/T_r)^n$$

where R is the probability or risk that an event with a return period of T_r years will occur at least once during a time period (project life) of n years.

Table 6 presents some theoretical examples of risk of occurrence for particular design levels and project design lives.

Table 5: Theoretical occurrence percentages for varying time spans.

<i>Return Period (Years)</i>	<i>Theoretical Occurrence over 1 Year</i>	<i>Theoretical Occurrence over 5 years</i>	<i>Theoretical Occurrence over 10 years</i>	<i>Theoretical Occurrence over 25 years</i>
10	10%	41%	64%	93%
25	4%	19%	34%	64%
50	2%	10%	18%	40%

This means that statistically, there is an 18 percent chance of a 50-year design condition occurring over a consecutive 10-year period and 40 percent chance over a consecutive 25-year period. For a 25-year design condition and a 25-year life expectancy, there is a 64 percent chance of that event occurring during the life of the project.

Typical marina facilities, neglecting economic analyses, are generally designed for 25- to 50-year recurrence interval event (annual chance of occurrence of 4% and 2%, respectively) as the “design or survival condition”. This implies survival with some damage expected during the design storm event unless economics or other considerations result in a reduction (or increase) in the design level. ASCE Manual 50 (2012) states that a 50-yr design storm coupled with a typical 25 to 30-year project lifespan for marine facilities is a typically accepted risk scenario. A reduction in design level will also mean an increase in accepted level of risk of possible structure damage or destruction. Reduced design levels may be justified for projects that are temporary or where structure damage/destruction will not involve loss of life or significant injury. The City must evaluate these risks versus insurance premiums, available coverage, design life, risk of life/safety, and capital costs so that an informed decision can be made regarding the required robustness of the final design.

Numerous commercial floating dock products and manufacturers exist that vary in construction material, robustness, connection/joint type, and other attributes that will ultimately impact the type of wave conditions they may endure/survive. Floating dock and anchorage product types, acceptable risk, and other considerations must be weighed moving forward through the planning and design process.

9.0 Summary of Potential Design Considerations

Based on the assessment described herein, below is a summary of potential design conditions that may occur at the proposed site:

Water Levels

Typical Tidal Range:	5.0 feet
Mean High Water:	+2.1' NAVD88
Mean Low Water:	-2.9' NAVD88
FEMA 50-yr MRI Water Level:	+10.5' NAVD88
FEMA 25-yr MRI Water Level:	+9.4' NAVD88

Wind Speeds

50-yr MRI Windspeed:	104 MPH (3-sec gust)
25-yr MRI Windspeed:	91 MPH (3-sec gust)
ASCE 7-10 Risk Cat I Windspeed:	135 MPH (3-sec gust)

*Wind speed on berthed vessels may be adjusted to a 30 second duration for determination of wind pressure loads.

Current Speeds	1.7 knots
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Wave Conditions

AIWW Docks (Figure 2 - Intracoastal, Restaurant, and Face Docks)

50-yr MRI Wave Conditions:	$H_s = 2.9$ ft, $T_p = 2.5$ sec
25-yr MRI Wave Conditions:	$H_s = 2.4$ ft, $T_p = 2.4$ sec

Morgan Creek Docks (Figure 2 – Charter and Fuel Docks)

50-yr MRI Wave Conditions:	$H_s = 1.5$ ft, $T_p = 2.5$ sec
25-yr MRI Wave Conditions:	$H_s = 1.1$ ft, $T_p = 2.4$ sec

Vessel Wakes

AIWW Docks

Operational Wake Conditions	$H = 2.5$ ft, $T = 3.5$ sec
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Morgan Creek Docks

Operational Wake Conditions	$H = 1.0$ ft, $T = 3.5$ sec
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Calculations for different project and structure types utilize different statistical wave heights as design inputs. The significant wave heights referenced in this report are the highest 1/3 of observed waves within any given wave spectrum. Wave heights referred to as H_{10} (highest 10% of waves = $H_s * 1.27$) and H_1 (highest 1% of waves = $H_s * 1.67$) may also be considered by the final designer. Vessel wake heights can be considered maximum wave heights.

10.0 References

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