

CITY OF KEY WEST

SAILFISH PIER DOCK REPLACEMENT

MONROE COUNTY, FLORIDA
STANTEC PROJECT NO. 215612745

SECTION : 32
TOWNSHIP: 67S
RANGE: 25E
LATITUDE: 24°33'83"
LONGITUDE: 81°47'04"

INDEX OF SHEETS

SHEET NO.	SHEET DESCRIPTION
C01	COVER
C02	OVERALL AERIAL PLAN
C03	EXISTING CONDITIONS PLAN
C04	DEMOLITION / RELOCATION PLAN
C05	GEOMETRY PLAN
C06	DOCK DETAIL
C07	DOCK / RAMP CROSS SECTIONS
C08	UTILITY PLANS
C09	RELOCATION PLANS
E01-E08	ELECTRICAL PLANS
FP01-FP05	FIRE PROTECTION SPECIFICATIONS
P01-P04	PLUMBING PLANS
S01	STRUCTURAL PLANS



LOCATION MAP
Scale: N.T.S.



MAYOR & COUNCIL:

Craig Cates, Mayor
Jimmy Weekley, Commissioner
Samuel Kaufman, Commissioner
Billy Wardlow, Commissioner
Richard Payne, Commissioner
Margaret Romero, Commissioner
Clayton Lopez, Commissioner
City Manager: James Scholl

100% SET
JANUARY , 2016

.....APPROVALS.....			
AGENCY	SUBMITTAL DATE	APPROVAL DATE	PERMIT NUMBER

 **Stantec**

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Coral Gables, Florida, 33134
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Fax. 305-445-3344
www.stantec.com

APPROVED BY

CARLOS M. HERDOCIA
REGISTERED ENGINEER NO. 47660
STATE OF FLORIDA

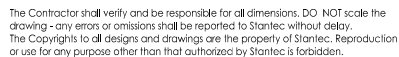


SITE SURVEY INFORMATION FROM:
FLORIDA KEYS LAND SURVEYORS
19960 OVERSEAS HIGHWAY
SUGARLOAF KEY, FL 33042
FIELD WORK DATE: JULY 16, 2015
SIGNED AND SEALED BY:
ERIC ISAACS LS 7847
JULY 24, 2015

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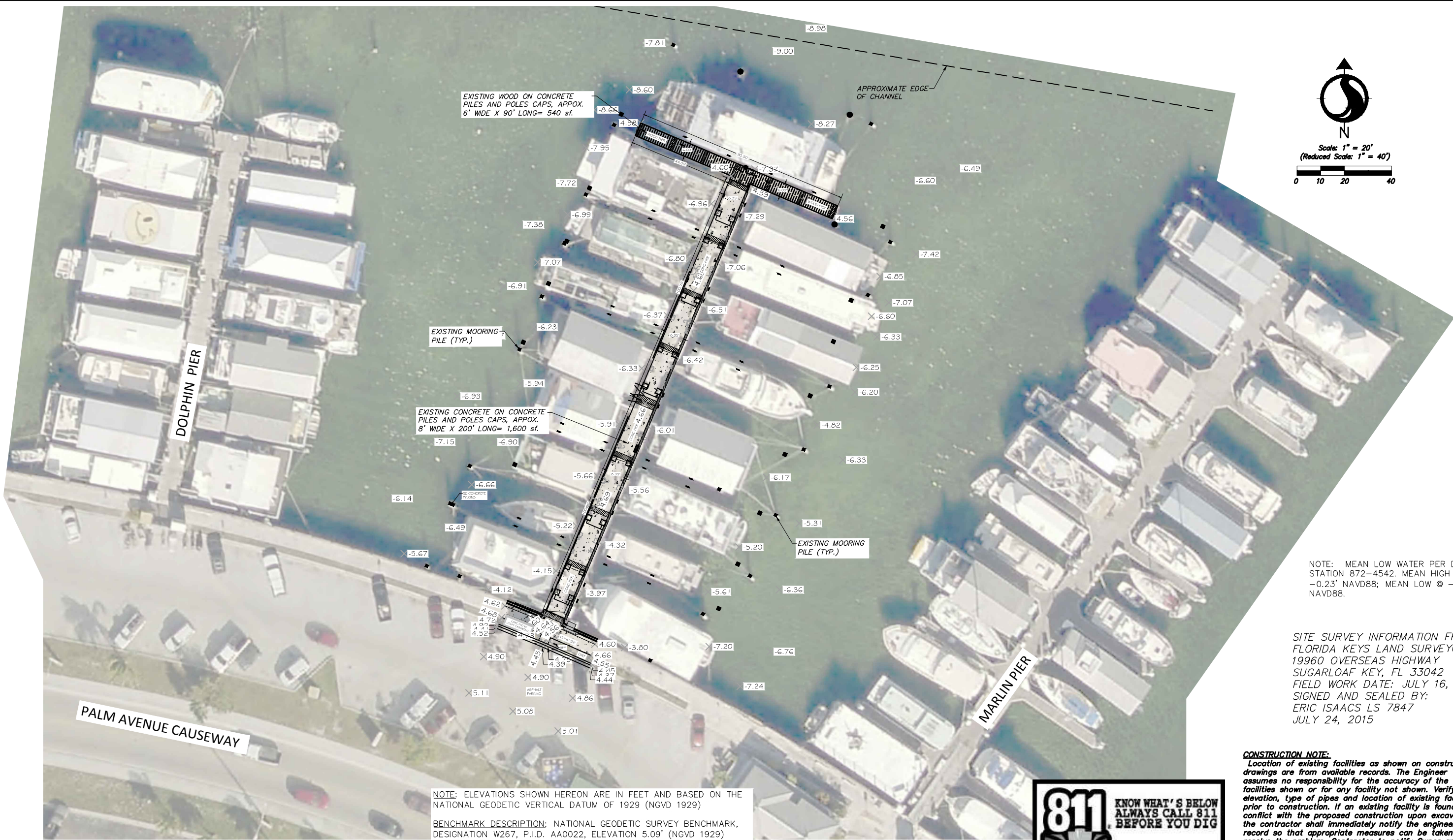
Consultants

CARLOS M. HERDOCIA, P.E.
REGISTERED ENGINEER NO. 47660
STATE OF FLORIDA



File Name:	DS	SC	DS	14.01.31
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Project No. 215612745	Scale	
Drawing No. C02	Sheet of 27	Revision



NOTE: ELEVATIONS SHOWN HEREON ARE IN FEET AND BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 1929)

BENCHMARK DESCRIPTION: NATIONAL GEODETIC SURVEY BENCHMARK, DESIGNATION W267, P.I.D. AA0022, ELEVATION 5.09' (NGVD 1929)

MEAN LOW WATER ELEVATION AT TIME OF SURVEY= -0.09 NGVD 1929

MEAN HIGH WATER ELEVATION AT TIME OF SURVEY= 0.94 NGVD 1929

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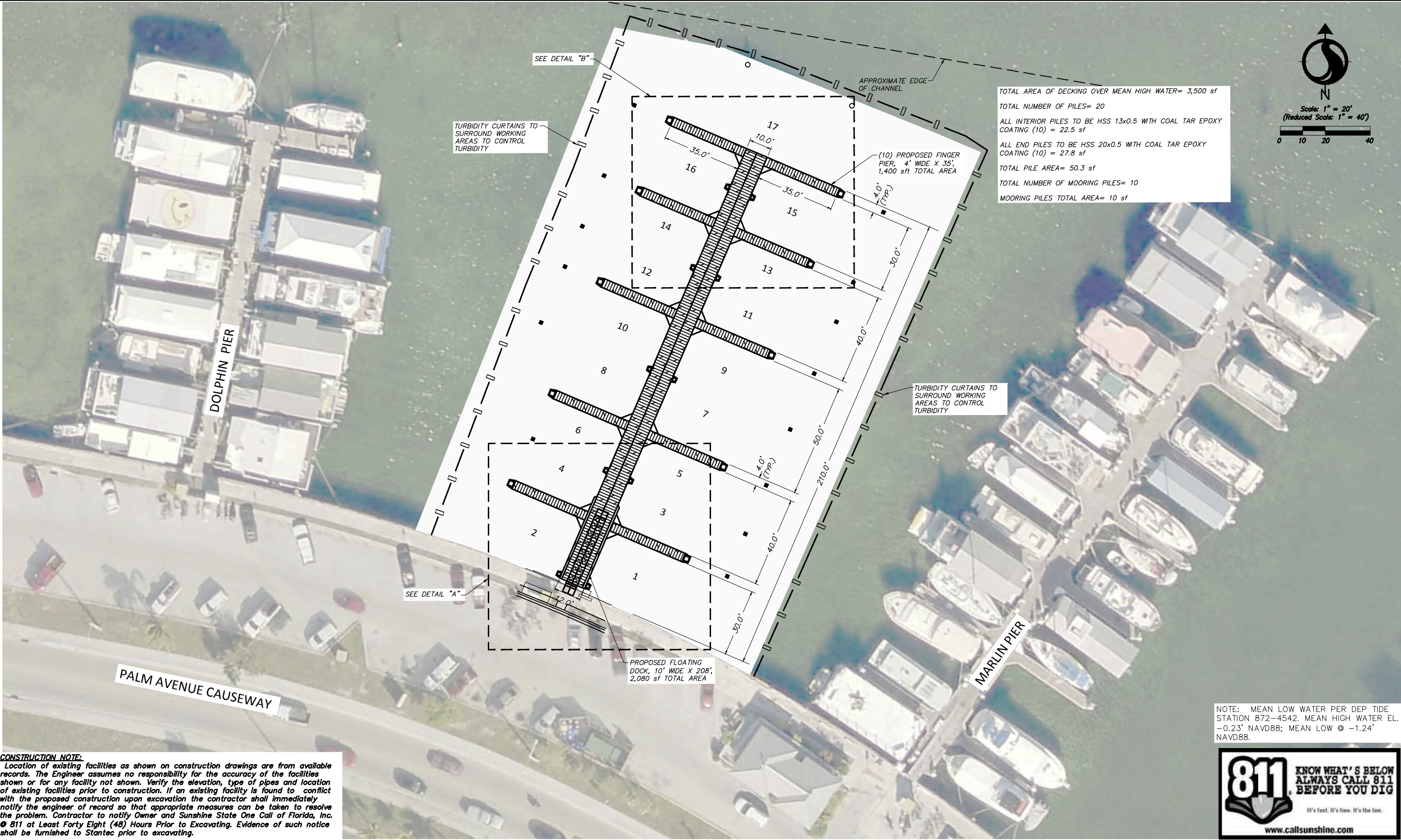
CITY OF KEY WEST
SAILFISH PIER DOCK REPLACEMENT
Key West, Florida

EXISTING CONDITIONS & DEPTH SURVEY

Project No. 215612745 Scale

Drawing No. C03 Sheet of 27 Revision

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2016/07/19 9:34 AM By: Morales, Rod



CONSTRUCTION NOTE:
Location of existing facilities as shown on construction drawings are from available records. The Engineer assumes no responsibility for the accuracy of the facilities shown or for any facility not shown. Verify the elevation, type of pipes and location of existing facilities prior to construction. If an existing facility is found to conflict with the proposed construction upon excavation the contractor shall immediately notify the engineer of record so that appropriate measures can be taken to resolve the problem. Contractor to notify Owner and Sunshine State One Call of Florida, Inc. ☎ 811 at Least Forty Eight (48) Hours Prior to Excavating. Evidence of such notice shall be furnished to Stantec prior to excavating.

Revision	By	Appd.	YY.MM.DD

Issued	By	Appd.	YY.MM.DD

Seal

CARLOS M. HERDOCIA, P.E.
REGISTERED ENGINEER NO. 47660
STATE OF FLORIDA

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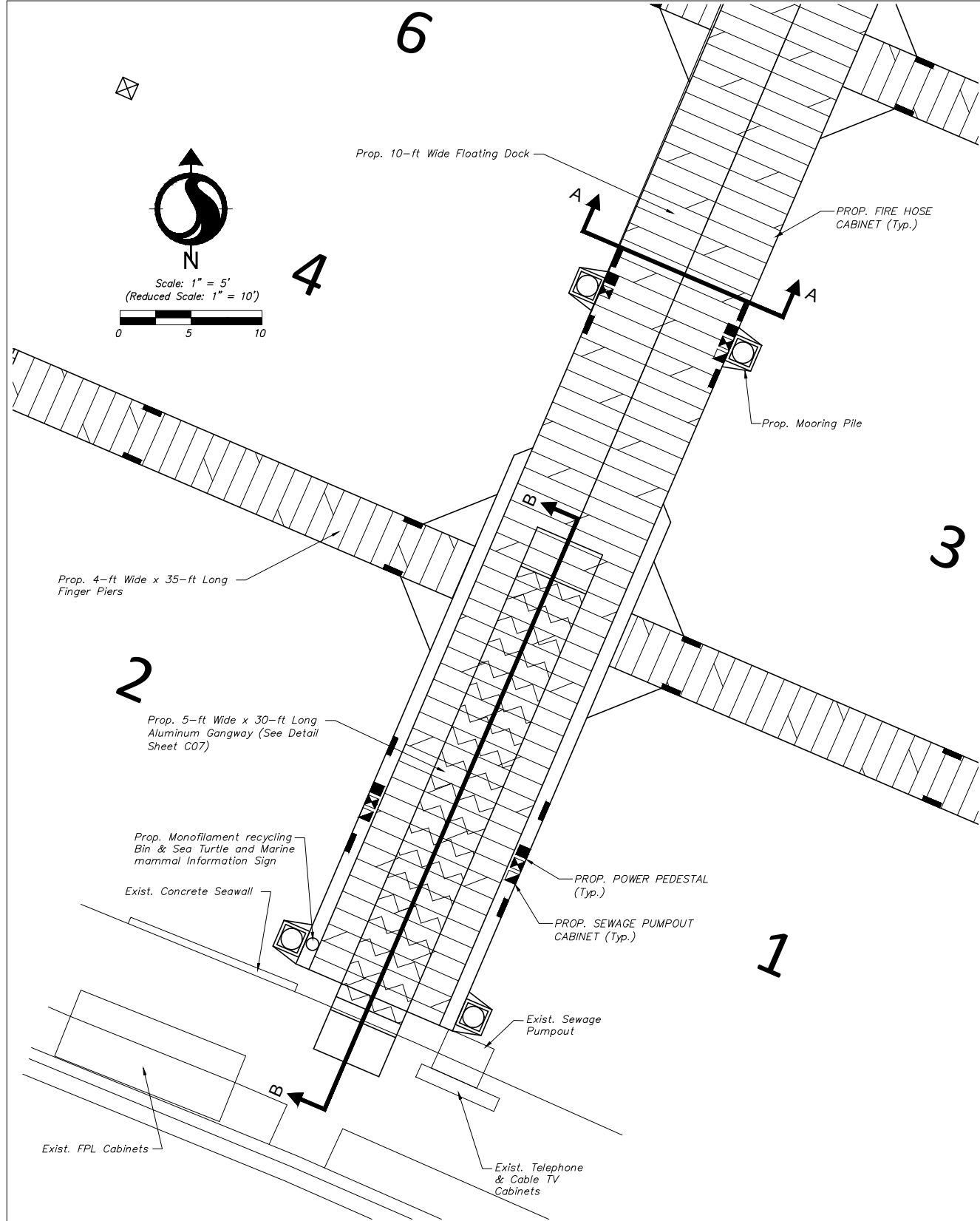
CITY OF KEY WEST
SAIFISH PIER DOCK REPLACEMENT
Key West, Florida

File Name:	DS	SC	DS	14.01.31
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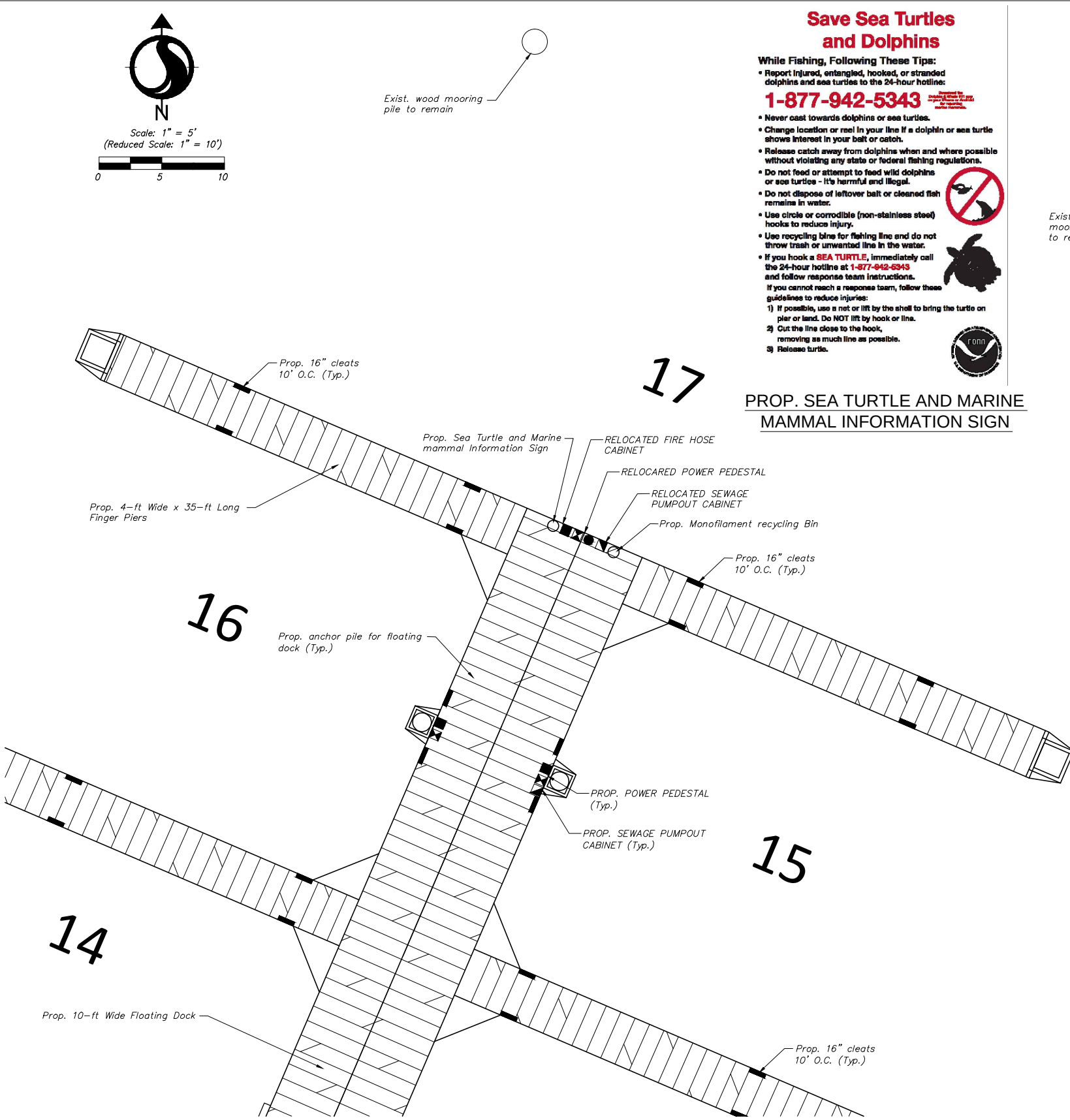
GEOMETRY PLAN

Project No. 215612745	Scale
Drawing No. C05	Sheet of 27
Revision	

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2016/02/16 10:07 AM By: Ruiz, Moysa



DETAIL A - PROPOSED DOCK



DETAIL B - PROPOSED DOCK

Save Sea Turtles and Dolphins

While Fishing, Following These Tips:

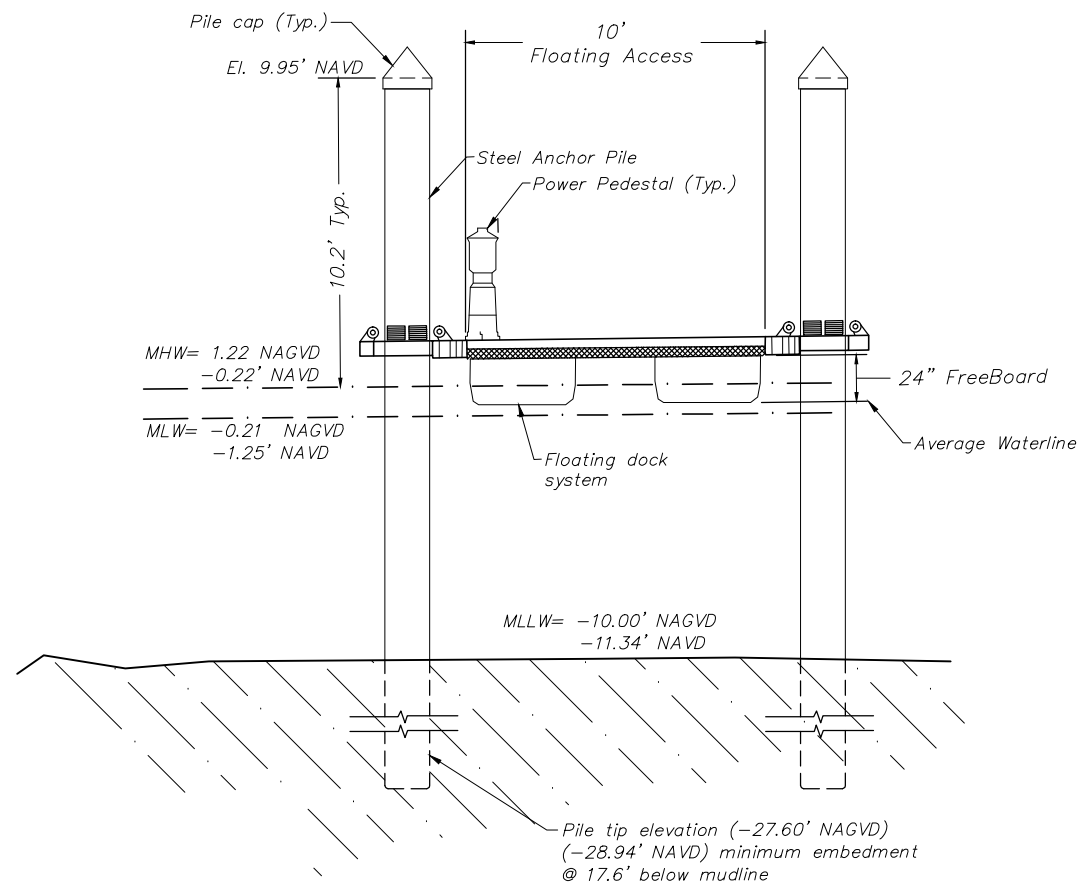
- Report injured, entangled, hooked, or stranded dolphins and sea turtles to the 24-hour hotline: **1-877-942-5343**
- Never cast towards dolphins or sea turtles.
- Change location or reel in your line if a dolphin or sea turtle shows interest in your bait or catch.
- Release catch away from dolphins when and where possible without violating any state or federal fishing regulations.
- Do not feed or attempt to feed wild dolphins or sea turtles - It's harmful and illegal.
- Do not dispose of leftover bait or cleaned fish remains in water.
- Use circle or corrodible (non-stainless steel) hooks to reduce injury.
- Use recycling bins for fishing line and do not throw trash or unwanted line in the water.
- If you hook a **SEA TURTLE**, immediately call the 24-hour hotline at **1-877-942-5343** and follow response team instructions. If you cannot reach a response team, follow these guidelines to reduce injuries:
 - If possible, use a net or lift by the shell to bring the turtle on pier or land. Do NOT lift by hook or line.
 - Cut the line close to the hook, removing as much line as possible.
 - Release turtle.



Exist. wood mooring pile to remain

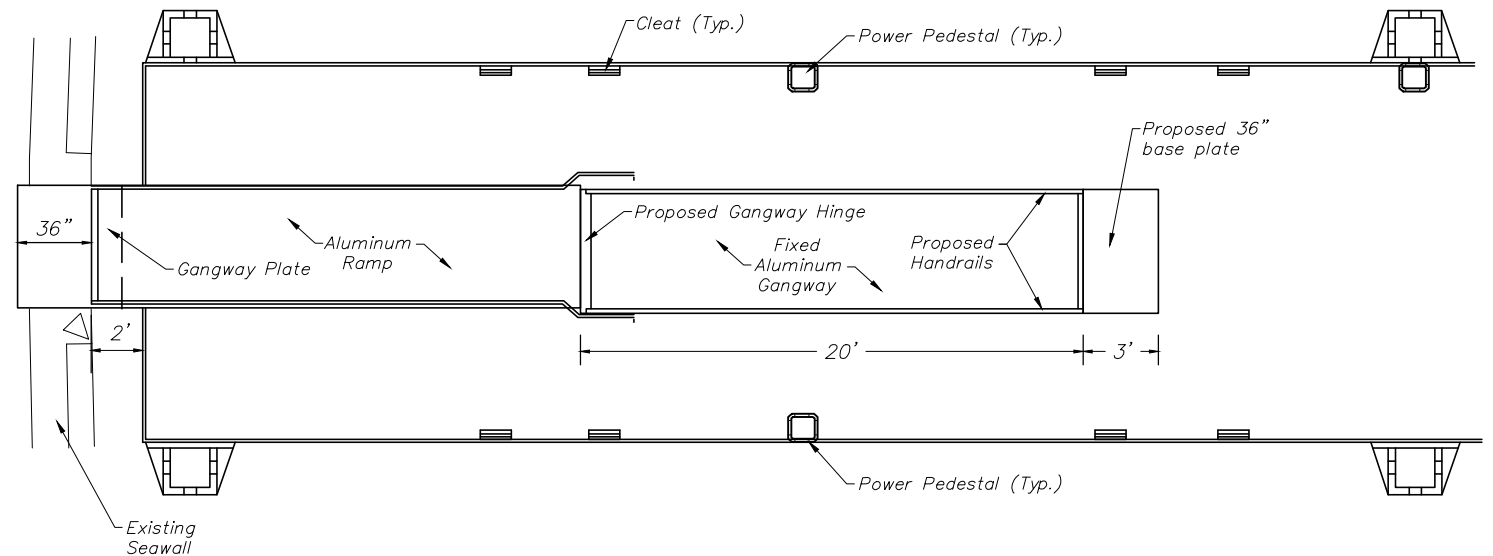
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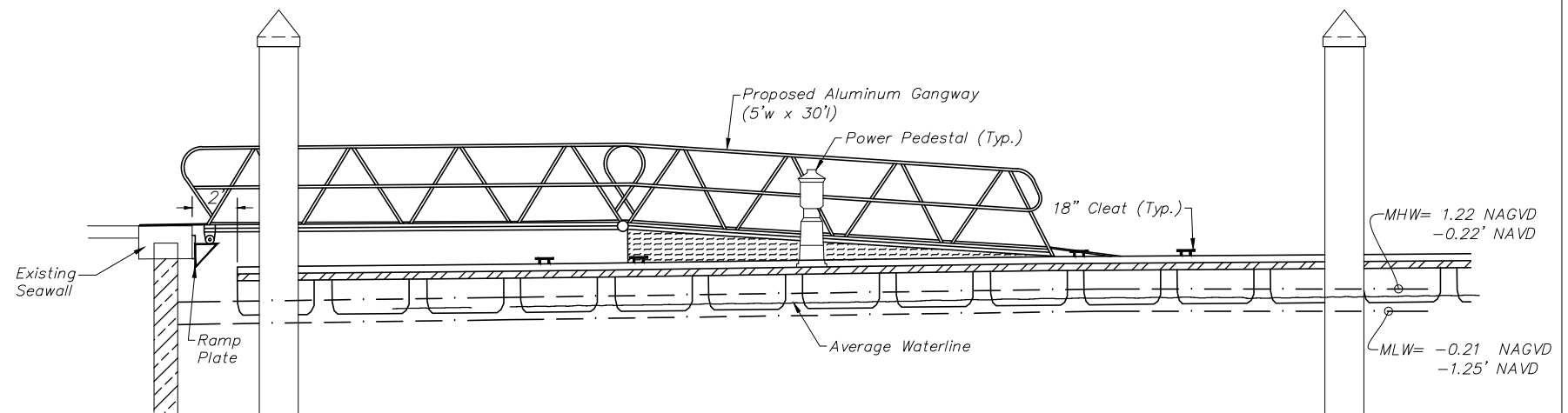


NOTE: ALL DEPTHS REFERENCE MEAN LOW WATER PER DEP TIDE STATION 872-4542.
MEAN HIGH WATER EL. -0.23' NAVD88;
MEAN LOW @ -1.24' NAVD88.

CROSS SECTION A-A
N.T.S.



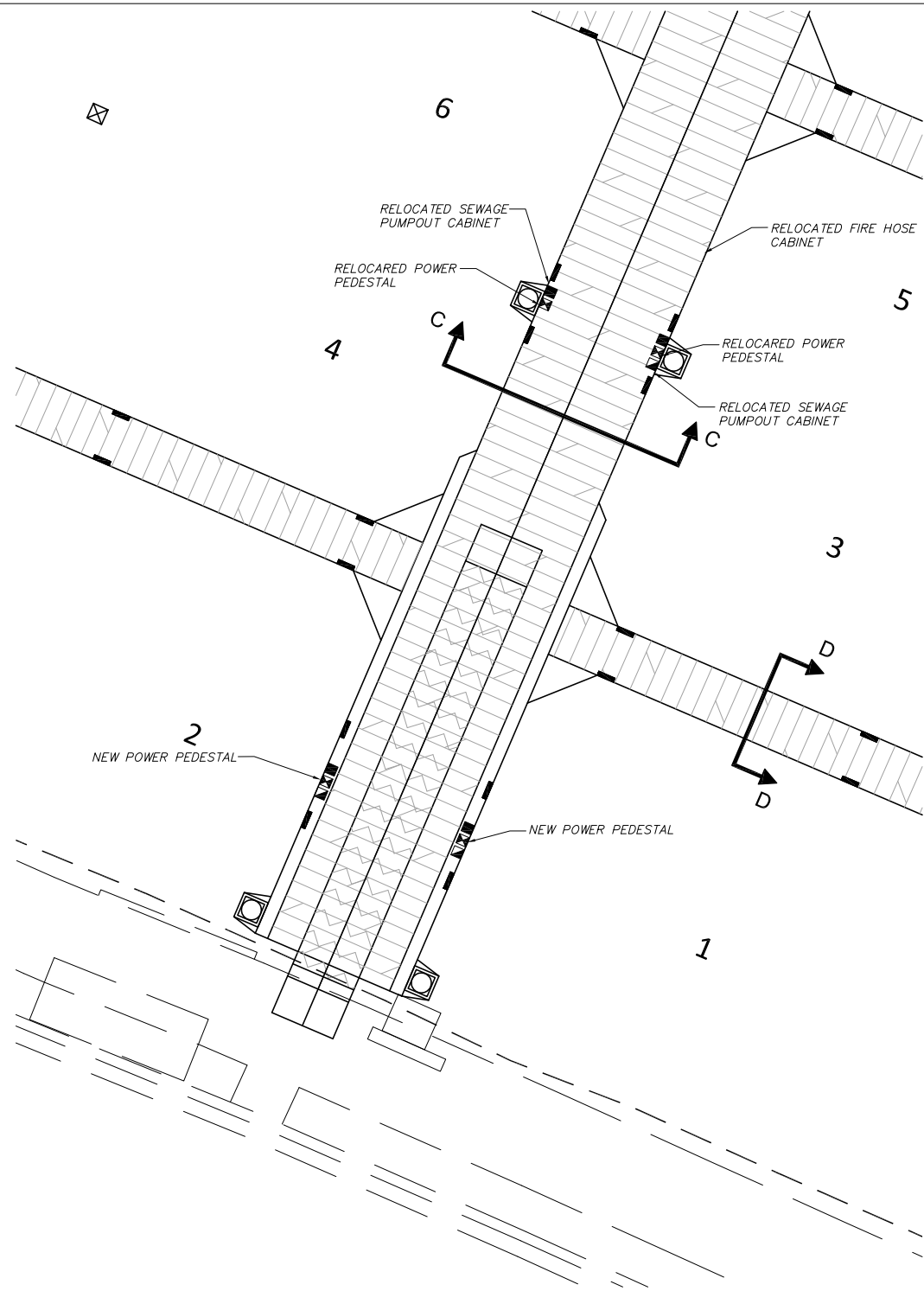
PLAN VIEW
N.T.S.



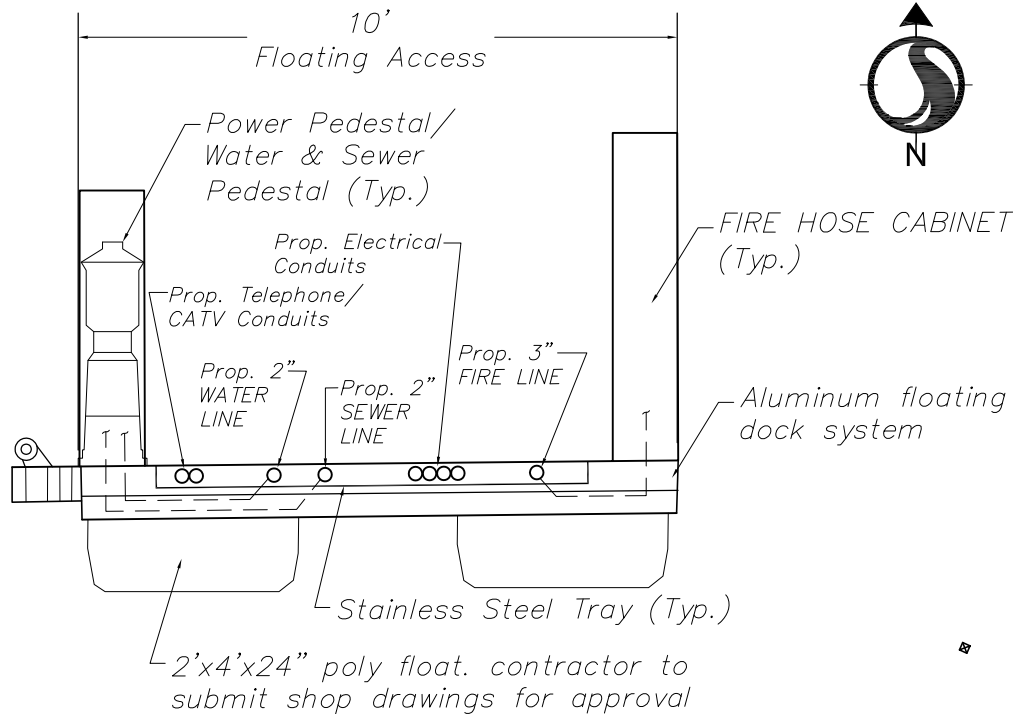
CROSS SECTION B-B
N.T.S.

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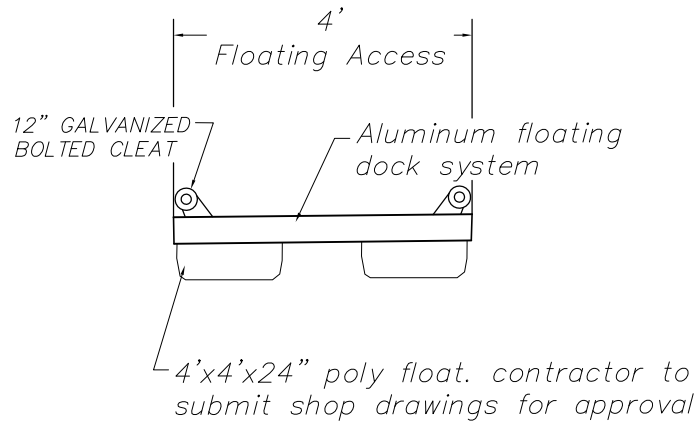
Revision By Appd. YY.MM.DD				Issued By Appd. YY.MM.DD				Seal CARLOS M. HERDOCIA, P.E. REGISTERED ENGINEER NO. 47660 STATE OF FLORIDA	Consultants	Stantec 901 Ponce de Leon Blvd, Suite 900 Coral Gables, Florida 33134 www.stantec.com The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay. The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden. <td> CITY OF KEY WEST SAILFISH PIER DOCK REPLACEMENT Key West, Florida File Name: DS Dwn. SC Chkd. DS Dsgn. 14.01.31 YY.MM.DD </td> <td> CROSS SECTIONS Project No. 215612745 Drawing No. C07 Scale SEE PLANS Sheet of 27 Revision </td>	CITY OF KEY WEST SAILFISH PIER DOCK REPLACEMENT Key West, Florida File Name: DS Dwn. SC Chkd. DS Dsgn. 14.01.31 YY.MM.DD	CROSS SECTIONS Project No. 215612745 Drawing No. C07 Scale SEE PLANS Sheet of 27 Revision
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TYPICAL PEDESTAL /CABINET LOCATION

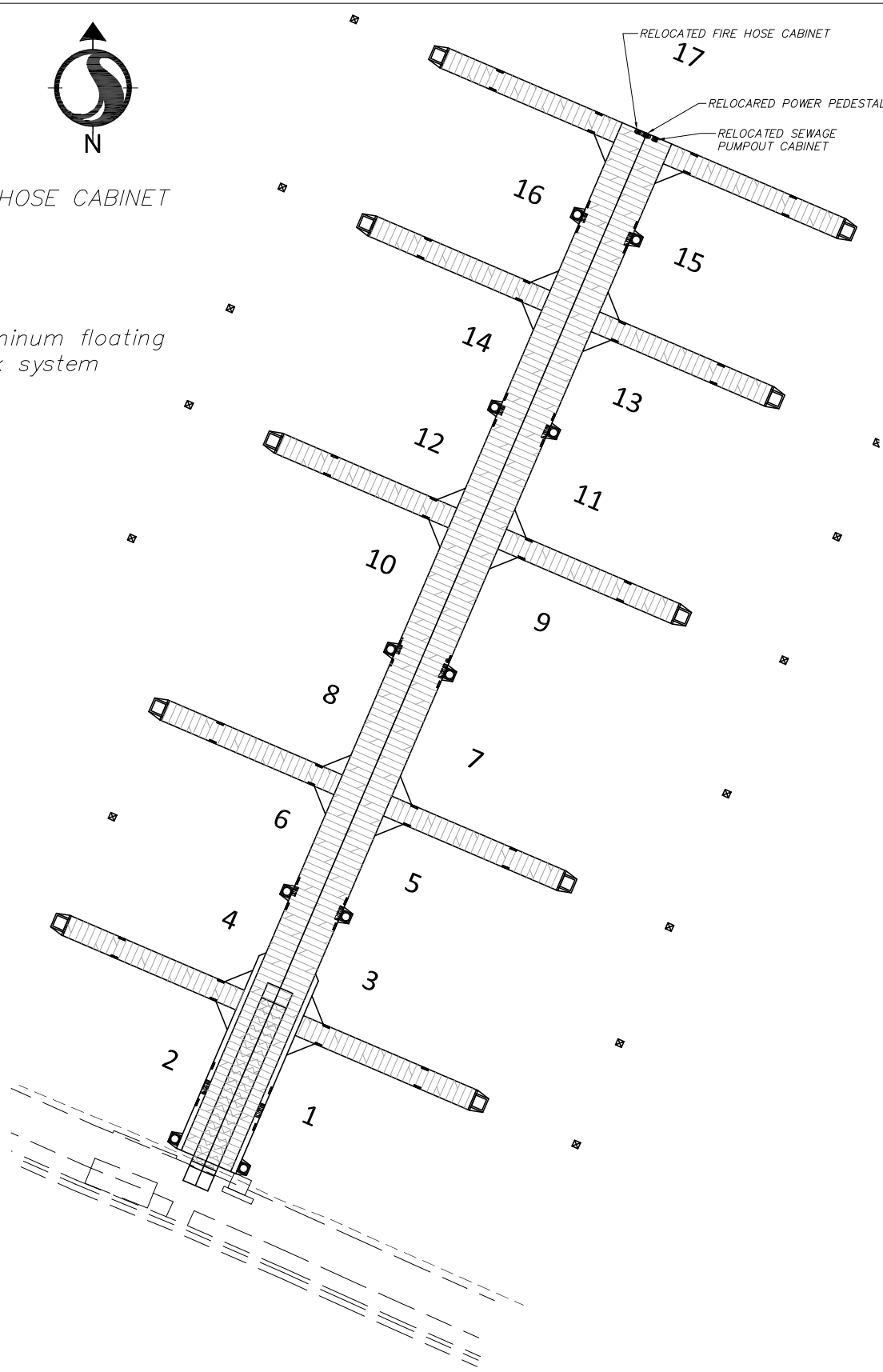


SECTION C-C



SECTION D-D

- NOTES:
- 1) POSITION UTILITY PEDESTAL AND CABINETS AS CLOSE TO SIDE OF MAIN PIER AS POSSIBLE TO MAXIMIZE CLEAR SPACE FROM EQUIPMENT UP TO FINGER PIER.
 - 2) ALL UTILITIES SHALL BE RUN IN STAINLESS STEEL TRAYS.
 - 3) SEWER LINE, WATER LINE, FIRE LINE, POWER LINE SHOWN FOR COORDINATION ONLY. SEE CONSTRUCTION PLANS OF OTHER TRADES FOR ADDITIONAL INFORMATION.



OVERALL PEDESTAL CABINET LOCATION



CONSTRUCTION NOTE:
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CITY OF KEY WEST
SAILFISH PIER DOCK REPLACEMENT
Key West, Florida

UTILITY DOCKS
Project No. 215612745
Scale SEE PLANS

Drawing No. C08
Sheet of 27
Revision

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2016/07/19 3:52 PM by: Monica.Rod

SECTION 16410 SPECIAL REQUIREMENTS			SECTION 16020 WORK INCLUDED			SECTION 16120 WIRES AND CABLES		
PART 1 - GENERAL			PART 1 - GENERAL			PART 1 - GENERAL		
1.01 AUXILIARIES AND ACCESSORIES			1.01 DESCRIPTION OF SYSTEM			1.01 GENERAL PROVISIONS		
A. Include all auxiliaries and accessories for complete and properly operating systems.			A. The work required under this Division shall include all materials, labor and auxiliaries required to install a complete and properly operating electrical system. The electrical system required under this Division consists basically of, but is not limited to the following:			A. Conductors		
B. Provide and install all electrical systems and any necessary accessories as per the National Electrical Code (NEC) Edition as adopted by the Local Authority Having Jurisdiction and local codes whether or not specified herein or shown on drawings. The content of these specifications (Division 16) and contract documents in general only refers to work required above and beyond the requirements of the NEC and applicable local codes.			1. Complete distribution system for marine shore power including feeders from utility company transformer to main switchgear and connections to power pedestals.			1. All conductors shall be copper type THHN/THWN, type "G", type "W" or type "DLO" as indicated on drawings. No aluminum wiring shall be permitted. All wire shall be sized as shown on the drawings.		
1.02 LAYOUT OF WORK			2. A secondary grounding system as indicated and specified.			2. Wiring at the transition to the floating dock(s) and within floating dock(s) shall be type "DLO" or "W" cable single conductor or "O" cable multi-conductor cable.		
A. Drawings are diagrammatic, correlate final equipment locations with governing architectural and structural drawings. Lay out before installation so that all trades may install equipment in spaces available. Provide coordination as required for installation in a neat and workmanlike manner.			3. Power distribution panelboards.			3. Wiring from the distribution panel to the power pedestal shall be type "G" cable multi-conductor cable.		
1.03 INVESTIGATION OF SITE			4. Main power/surge protection systems.			B. Taps and Splices		
A. Check site and existing conditions thoroughly before bidding. Advice Engineer of discrepancies or questions noted.			END OF SECTION			1. All taps and splices in manholes or in ground pull boxes shall be submersible type connectors. Basis of design: CMC type SSBC-S rubber insulated secondary connections. Install sleeve kits as per manufacturer's installation instructions.		
1.04 SUPERVISION OF THE WORK			SECTION 16025 CODES, FEES, AND STANDARDS			C. Color Coding		
A. Provide field Superintendent who has had a minimum of four (4) years previous successful experience on projects of comparable size and complexity. Superintendent shall be present at all times that work under this division is being installed or affected. Superintendent shall have passed a proctored H.H. Block Journeyman exam and shall be a licensed journeyman. At least one member of the electrical contracting firm shall hold a State Master Certificate of Competency.			PART 1 - GENERAL			1. All power feeders shall be wired with industry standard color-coded wire or shall have black insulation and be similarly color-coded with tape or paint in all junction boxes and panels. Tape or paint shall completely cover the full length of conductor insulation within the box or panel.		
1.05 COORDINATION			1.01 CODES AND FEES			1.02 SUBMITTALS		
A. Provide all required coordination and supervision where work connects to or is affected by work of others, and comply with all requirements affecting this Division. Work required under other Divisions, specifications or drawings is to be performed by this Division shall be coordinated with the Contractor and such work performed at no additional cost to Owner.			A. Install in accordance with latest edition of the National Electric Code and the regulations of governing local, and other applicable codes, including the utility company, pay for all required licenses, fees and inspections.			A. Submit manufacturer's data sheets on all major types of wires and cables including splicing tape, and terminating/splicing lugs or connectors and cable sleeves.		
1.06 BASIS FOR WIRING DESIGN			B. All work and equipment under this Division shall be in strict compliance with the applicable provisions of the latest editions of the following codes and standards in force at the time of construction.			END OF SECTION		
A. The drawings and specifications describe specific sizes of switches, breakers, conduits, conductors, and other items of wiring equipment. These sizes are based on specific items of power consuming equipment. Whenever the contractor provides power consuming equipment which differs from drawings and specifications, the wiring and associated circuit components for such equipment shall be changed to match at no additional expense to the Owner.			1. Florida Building Code			SECTION 16410 ELECTRIC SERVICE		
1.07 PROTECTION AND CLEAN UP			2. National Electrical Code (NEC)			PART 1 - GENERAL		
A. Suitably protect all equipment furnished under this Division during construction. Restore all damaged surfaces and items to "like new" condition before a request for substantial completion inspection.			3. Requirements of local power company			1.01 DESCRIPTION		
1.08 MATERIALS			1.02 STANDARDS			A. Description of System		
A. Reference: "General Conditions of the Contract".			A. All materials shall be new and free of defects, and shall be UL listed, gear the UL label or be labeled or listed with an approved, nationally recognized electrical testing agency. Where no labeling or listing service is available for certain types of equipment, test data shall be submitted to prove to the Engineer that equipment meets or exceeds available standards.			1. The electrical utility company will provide the electrical service of the characteristics as shown on the drawings. The Contractor's work will begin where the utility company's work ends.		
B. Where a Manufacturer's model number is listed, this model shall set the standard of quality and performance required. Where no brand name is specified, the source and quality shall be subject to Engineer's review and acceptance.			1.03 UTILITY COMPANY FEES, CHARGES, COSTS			2. The Contractor shall furnish all labor, materials, etc., necessary for a complete approved electrical service as required for this project, including inspection and approval by the utility and local inspection departments.		
1.09 SUBSTITUTIONS			END OF SECTION			3. The Contractor shall notify the utility company in writing, with two copies to the Engineer, no later than ten (10) days after signing contracts as to when this Contractor anticipates the building power service will be required.		
A. Each Bidder represents that his bid is based upon the equipment and materials described in Division 16 of the specifications.			SECTION 16110 RACEWAYS AND CONDUITS			B. Construction Facilities		
B. Substitution submittals shall include the name of the material or equipment for which it is to be substituted, drawings, cuts, performance and test data and any other information necessary for the Engineer to determine that the equipment meets all specifications and requirements. Pre-approval of proposed substitution is required for equipment supplied under this Division and must be submitted 10 days prior to bid opening.			PART 1 - GENERAL			1. The facilities and equipment required to provide all electrical power consumed for construction, lighting and balancing and testing prior to final acceptance of the project shall be provided under this section of the specifications. All wiring, outlets and other work required to provide this power at the site and within the building for all trades shall be arranged for, furnished and installed under this section of the specifications including any fee, charge or cost due the utility company for temporary power installation or hook-ups.		
C. Substituted equipment or optional equipment where permitted and approved, must conform to space requirements. Any substituted equipment that cannot meet space requirements, whether approved or not, shall be replaced at the Contractor's expense. Any modifications of related systems as a result of substitutions shall be made at the Contractor's expense.			1.01 DESCRIPTION			2. Facilities shall be furnished in a neat and safe manner in compliance with governing codes, good working practices and OSHA regulations.		
1.10 TECHNICAL INFORMATION BROCHURES AND SUBMITTALS			A. Description of System			C. Electrical Service		
A. Submit technical information brochures at start of construction or within 30 days after award of the contract. Each brochure shall consist of an adequately sized, hard-cover, 3-ring binder for 8-1/2" x 11" sheets. Provide correct designation on outside cover and on end of brochure. When, in the judgment of the Engineer, one binder is not enough to adequately catalog all data, an additional binder will be required and data split as directed by the Engineer.			1. The entire installation shall be in PVC plastic conduit, unless specifically noted otherwise. Only schedule 40 PVC shall be used for all raceways trapped underground or under dock structure. Minimum conduit size shall be 1/2" unless noted otherwise on drawings. All conduits shall be UL listed and labeled. Conduit sizes shown on the drawings are to aid the Contractor in bidding only. The Contractor is responsible for conduit sizes as required by NEC fill tables.			1. Furnish and install secondary 120/240V, 1PH,3W service from utility XFMR as indicated. Termination at the utility transformer will be by utility company.		
B. The first sheet in the brochure shall be an index page listing all equipment contained in the brochure which pertains to the project. The second sheet shall be prepared by the Contractor, and shall list manufacturer's authorized representative for this project. The third sheet shall list manufacturer's authorized maintenance company addresses for equipment on this project.			1.02 SUBMITTALS			2. Furnish and install all miscellaneous electrical connections, devices, supporting devices, conduit, etc., as required by utility company for a complete electrical service.		
C. Provide reinforced separation sheets tabbed with the appropriate specification reference number and typed index for each section.			A. Product Data			D. Surge Protection		
D. Technical information consisting of marked catalog sheets or shop drawings shall be inserted in the brochure in proper order on all items herein specified or shown on drawings.			1. Product data shall be submitted on conduit and conduit fittings. Product data shall show compliance with this section of the specifications, including UL label, manufacturer, and manufacturer's written installation instructions.			1. Provide and install surge suppressors as specified in Section 16610.		
E. The General Contractor shall review the brochures before submitting to the Engineer. No request for payment will be considered until the brochure has been reviewed and submitted for checking.			PART 2 - PRODUCTS			END OF SECTION		
F. Shop Drawings			2.01 PVC CONDUIT					
			A. PVC conduit shall be composed of high impact PVC (Polyvinyl Chloride C-200 Compound) and shall conform to industry standards, and be UL listed in accordance with Article 352 of National Electrical Code for underground and exposed use. Materials must have tensile strength of 55 PSI, at 70°F, flexural strength of 11,000 PSI, compression strength of 8600 PSI. Manufacturer shall have five years' extruding PVC experience.					
			2.02 EXPANSION FITTINGS					
			A. Conduit expansion fittings shall be schedule 40 PVC shall have an expansion chamber to allow approximately two-inch movement parallel to conduit run in either direction from normal. They shall have factory-installed packing. Expansion fittings shall be spaced as recommended by the manufacturer.					
			PART 3 - EXECUTION					
			3.01 INSTALLATION					
			A. All raceways shall be run in neat and workman like manner and shall be properly supported in accordance with latest edition of NEC with approved stainless steel conduit clamps, hanger rods and structural fasteners.					
			END OF SECTION					

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2016/07/19 3:52 PM by: Moniesh, Rod

SECTION 16450
SECONDARY GROUNDING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Power System Grounding.

B. Communication System Grounding

C. Electrical Equipment and Raceway Grounding and Bonding.

1.02 SYSTEM DESCRIPTION

A. Ground the electrical service system neutral at service entrance equipment to metallic water service, building steel, concrete reinforcing steel, and to supplementary grounding electrodes.

B. Provide communications system grounding conductor at point of service entrance and connect to nearest effectively grounded metallic water pipe and nearest effectively grounded building structural steel member.

C. Bond together system neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and plumbing systems.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Ground rods: copper-encased steel, ½ inch diameter, minimum length 10 feet.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Provide a separate, insulated equipment grounding conductor with each feeder and branch circuit. Terminate each end on a grounding lug, bus, or bushing.

B. Connect grounding electrode conductors to metal water pipe using an approved ground clamp. Make connections to flanged piping at street side of flange. Provide bonding jumper around water meter.

C. Use minimum 6 AWG copper conductors for communications service grounding conductor, leave 10 feet slack conductor terminal board.

D. All ground connections at ground rods, building steel, and concrete reinforcing steel shall be thermofusion type.

3.02 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for rightness and proper installation.

END OF SECTION

SECTION 16470
PANELBOARD

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Main service, lighting, and appliance branch circuit panelboard with ratings as indicated.

1.02 SUBMITTALS

A. Submit shop drawings for equipment and component devices.

B. Include outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, circuit breaker and fusible switch arrangement and sizes.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - PANELBOARDS

A. Eaton

B. Square D

C. G.E.

D. Siemens

E. or equal

2.02 PANELBOARDS

A. Panelboards shall be circuit breaker type.

B. Enclosure shall be NEMA 3R stainless steel w/white powder coated paint finish, rainproof.

C. Provide panelboards with bus ratings as scheduled.

D. All panelboards shall be fully rated with minimum integrated short circuit rating as indicated on drawings.

E. Molded case circuit breakers: bolt-on type thermal/magnetic trip circuit breakers, with common trip handle for all poles. Provide circuit breakers UL listed as type SWD for lighting circuits.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install panelboards plumb and flush with supporting structure.

B. Height: 6 Ft. to top.

C. Provide filler plates for unused spaces in panelboards.

D. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes required to balance phase loads.

3.02 FIELD QUALITY CONTROL

A. Visual and mechanical inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers, fusible switches, and fuses.

END OF SECTION

SECTION 16610
SURGE PROTECTIVE DEVICE (SPD)

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section describes the materials and installation requirements for surge protective devices (SPD) for the protection of all AC electrical circuits from the effects of lightning induced currents, substation switching transients and internally generated transients resulting from inductive and/or capacitive load switching.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. General electrical requirements.

B. Raceways, boxes, and fittings.

C. Wire and cable.

D. Grounding.

1.03 SUBMITTALS

A. Submit shop drawings, product data and manufacturer's installation instructions.

B. The surge suppression submittals shall also include:

1. Dimensional drawing of each suppressor type indicating the following:

a. Service entrance suppressors

- Cooper bus bars for internal connections.

- Replaceable modules on each phase

- Replaceable 200,000 AIC fuses on each module.

b. Downstream suppressors

- Line to neutral, line to ground, and neutral to ground suppression paths

2. IEEE C62.41-1991 category C3 (20 KV, 10 KA, 8/20 µS waveform) clamp voltage test results from an independent test lab

1.04 MANUFACTURERS

A. All suppressors for AC distribution and branch circuit protection within a single facility shall be provided by a single manufacturer. The same manufacturer who provides main panel suppressors shall provide suppressors for distribution and branch panels.

PART 2 - PRODUCTS

2.01 MAIN SERVICE SUPPRESSORS AT DISTRIBUTIONO PANEL

A. Suppressors shall be listed in accordance with UL 1449, standard for safety, transient voltage surge suppressors, and UL 1283 electromagnetic interference filters.

B. The unit shall provide the following suppression paths: line to ground, line to neutral, and neutral to ground.

C. Suppressors shall meet or exceed the following criteria set forth in C.U.L.

D. Suppressors shall be made of solid-state components and operate bidirectionally.

E. The suppressor shall have a response time no greater than five nanoseconds for any of the individual protection modes.

F. Suppressors shall be designed to withstand a maximum continuous operating voltage (MCOV) of not less than 115% of nominal RMS voltage.

G. Visible indication of proper suppressor connection and operation shall be provided.

H. The suppressor manufacturer shall provide certified test data confirming a "fail-short" failure mode.

I. Suppressors shall be manufactured in the United States. All major components shall also be of American manufacture.

J. Suppressor shall have a five-year warranty, incorporating unlimited replacements of suppressors if they are destroyed by transients within the warranty period.

K. Suppressor shall be an integral part of the main power distribution panel and shall be as manufactured by Advanced Protection Technologies, Inc. XTE/XHP series, or approved equal by Square D, Siemens, or G.E.

PART 3 - EXECUTION

3.01 MAIN DISTRIBUTION PANEL

A. Conductors between suppressor and point of attachment shall be kept short and straight.

B. Neutral and ground shall not be bonded together at secondary panelboard location.

END OF SECTION

SECTION 16620
GROUND MONITORING SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section describes the materials and installation requirements for ground monitoring equipment to measure "leakage" current to ground.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. General electrical requirements

B. Raceways, boxes, and fittings.

C. Wire and cable

D. Motor controls

E. Grounding

1.03 SUBMITTALS

A. Submit shop drawings, product data and manufacturer's installation instructions.

B. The ground monitor submittals shall also include:

1. Dimensional drawings of each monitor type.

2. Panelboard mounting detail.

1.04 MANUFACTURERS

A. All monitors for AC distribution and branch circuit protection within a single facility shall be provided by a single manufacturer.

PART 2 - PRODUCTS

2.01 MAIN SERVICE MONITORS AT DISTRIBUTION PANELS

A. Monitors shall be listed in accordance with U.L. file #E173157.

B. The ground fault monitors shall be Bender Model RCM47OLY-13-MA/RCMS460-D or approved equal. These devices shall monitor the insulation level of grounded single phase marina power system by measuring the ground fault leakage current.

C. The monitors shall provide advanced warning of developing faults without the problems associated with high sensitivity nuisance tripping. The monitors shall be an IEC755 type a ground fault monitor that can detect sinusoidal AC ground fault currents and pulsating DC ground fault currents.

D. The response value current shall be steplessly adjustable between 10MA and 10 A and the delay time shall be adjustable between 0 and 10 S. The relay shall be equipped with an LED bar graph indicator. An external analog meter shall be capable of being connected and by using optional external transducer, a 4 to 20MA signal shall be available. Meter indication shall be from 10 to 100% where 100% is equal to the alarm set-point value.

E. The RCM47OLY-13-MA shall be designed for use with external special U.L. listed current transformers designed to prevent nuisance tripping.

F. Monitors shall be suitable for installation into standard distribution panels.

G. Ground fault current shall be evaluated by special current transformers and converted into measuring signal.

H. When a ground fault current exceeds the alarm setup point value, the alarm LED illuminates and the alarm relay switches after the adjusted time delay. The alarm relay shall be selectable to be in the normally energized or normally de-energized mode and with or without latching.

I. The fault memory shall be reset by pushing a test/reset button located at the front plate, provided that the ground leakage current is 25% below the alarm set-point value.

J. Ground leakage current shall be indicated on the LED bar graph indicator and the external meter in percent related to the alarm set-point value.

K. Connection to the external current transformer shall be continuously monitored. An open circuit within the current transformer shall be indicated by flashing alarm LED and alarm relay. The function of the current transformer and measuring circuit as well as the alarm LED and the alarm relay shall be checked by pushing the test button.

L. Monitor shall individually monitor each feeder circuit leaving the panel in lieu of the incoming main. Alarm relay shall be connected to shunt trip of associated circuit breaker.

PART 3 - EXECUTION

3.01 MAIN DISTRIBUTION PANEL

A. Conductors between the monitor and point of attachment shall be kept short and straight.

END OF SECTION

SECTION 16750
ENCLOSED CIRCUIT BREAKERS

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes the following individually mounted circuit breakers:

- Molded-case circuit breakers.
- Enclosures

1.02 SUBMITTALS

A. Product Data: For each type of enclosed circuit breaker, accessory, and component indicated.

B. Shop drawings: Diagram power, signal, and control wiring.

C. Field quality-control test reports

D. Operation and maintenance data.

1.03 QUALITY ASSURANCE

A. Electrical components, devices, and accessories listed and labeled as defined by a testing agency acceptable to Authorities Having Jurisdiction, and marked for intended use

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

- Available manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but are not limited to, manufacturers specified.
- Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.02 MOLDED-CASE CIRCUIT BREAKERS AND SWITCHES

A. Manufacturers

- Eaton Corporation; Cutler-Hammer Products.
- General Electric Co.; Electrical Distribution & Control Division
- Moeller Electric Corporation
- Siemens Energy & Automation, Inc.
- Square D/Group Schneider

B. Molded-Case circuit breaker: 65 KAIC Interrupting Capacity.

- Thermal-magnetic circuit breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

- Adjustable instantaneous-trip circuit breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.

- Current-limiting circuit breakers: Frame sizes 400 A and smaller and let-through ratings less than NEMA FU 1, RK-5.

C. Molded-case circuit-breakers features and accessories:

- Standard frame sizes, trip ratings, and number of poles.

- Lugs: Mechanical style with compression lug kits suitable for number, size, trip ratings, and conductor material.

2.03 ENCLOSURES

- Enclosure shall be weather resistant, NEMA 3R.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Mount individual circuit breakers with tops at uniform height, unless otherwise indicated.

B. Comply with mounting and anchoring requirements specified by manufacturer.

C. Temporary lifting provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.

D. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as required.

3.02 FIELD QUALITY CONTROL

A. Inspect mechanical and electrical connections.

END OF SECTION

8	_____	_____	_____	_____
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MARTIN S. ARMENTA, P.E.
REGISTERED ENGINEER NO. 75333
STATE OF FLORIDA



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Key West, Florida

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ELECTRICAL SPECIFICATIONS

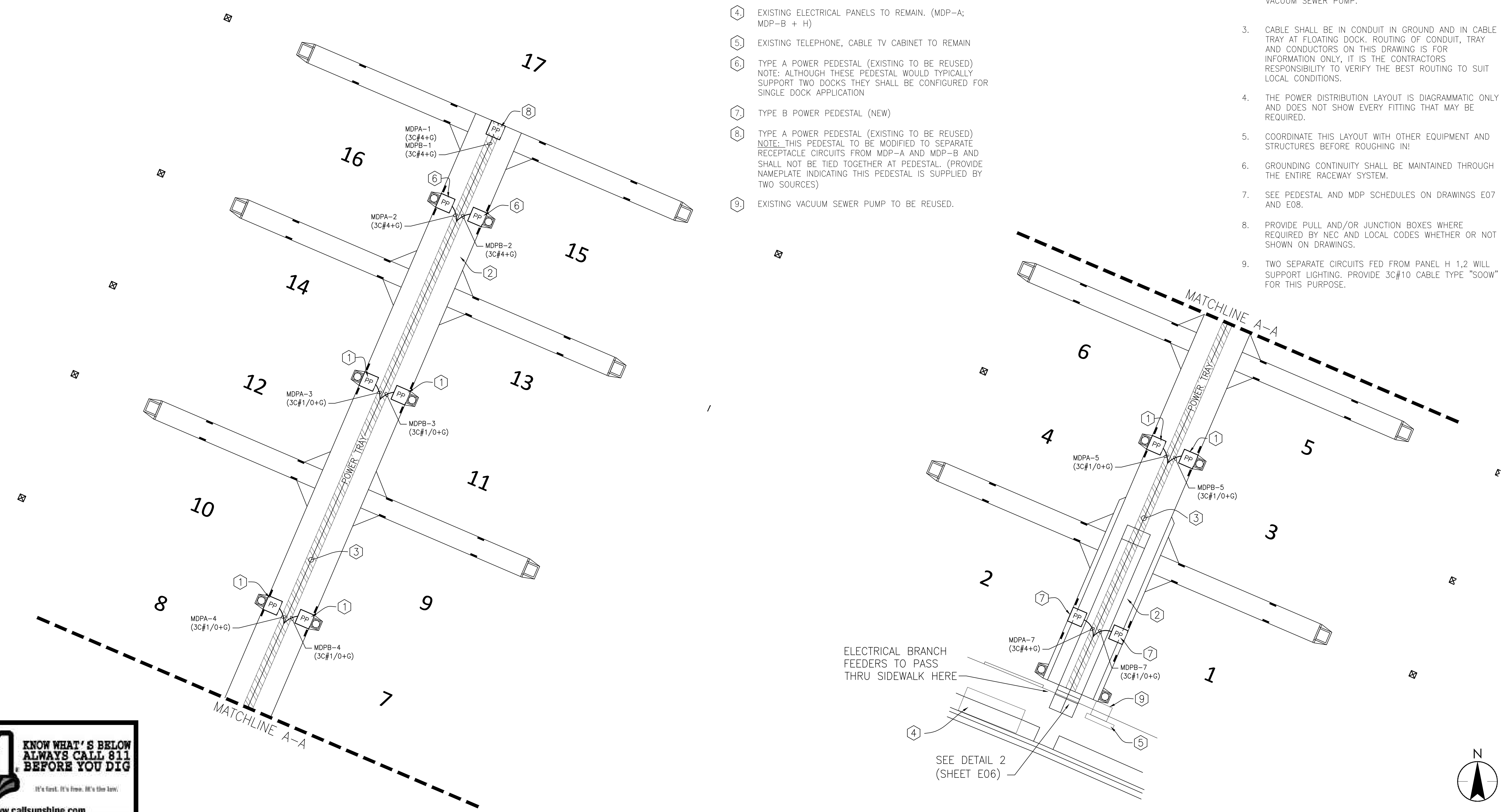
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KEY NOTES

- 1. TYPE A POWER PEDESTAL (EXISTING TO BE REUSED)
- 2. PROVIDE POWER CABLE TRAY UNDERSIDE OF DECK.
- 3. PROVIDE TYPE G-GC CABLE (3 CONDUCTOR PLUS GROUND) IN CABLE TRAY.
- 4. EXISTING ELECTRICAL PANELS TO REMAIN. (MDP-A; MDP-B + H)
- 5. EXISTING TELEPHONE, CABLE TV CABINET TO REMAIN
- 6. TYPE A POWER PEDESTAL (EXISTING TO BE REUSED)
NOTE: ALTHOUGH THESE PEDESTAL WOULD TYPICALLY SUPPORT TWO DOCKS THEY SHALL BE CONFIGURED FOR SINGLE DOCK APPLICATION
- 7. TYPE B POWER PEDESTAL (NEW)
- 8. TYPE A POWER PEDESTAL (EXISTING TO BE REUSED)
NOTE: THIS PEDESTAL TO BE MODIFIED TO SEPARATE RECEPTACLE CIRCUITS FROM MDP-A AND MDP-B AND SHALL NOT BE TIED TOGETHER AT PEDESTAL. (PROVIDE NAMEPLATE INDICATING THIS PEDESTAL IS SUPPLIED BY TWO SOURCES)
- 9. EXISTING VACUUM SEWER PUMP TO BE REUSED.

GENERAL NOTES

- 1. CONTRACTOR SHALL REUSE EXISTING CONDUCTORS WHERE POSSIBLE - NO SPLICING SHALL BE PERMITTED. CONTRACTOR SHALL VERIFY THE CONDITION AND SUITABILITY OF CABLES INTENDED FOR RE-USE.
- 2. REUSE EXISTING 120/240V HOUSE PANEL (LOAD CENTER) TO SUPPORT PEDESTAL LIGHTING, TEL/CATV CABINET AND VACUUM SEWER PUMP.
- 3. CABLE SHALL BE IN CONDUIT IN GROUND AND IN CABLE TRAY AT FLOATING DOCK. ROUTING OF CONDUIT, TRAY AND CONDUCTORS ON THIS DRAWING IS FOR INFORMATION ONLY, IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY THE BEST ROUTING TO SUIT LOCAL CONDITIONS.
- 4. THE POWER DISTRIBUTION LAYOUT IS DIAGRAMMATIC ONLY AND DOES NOT SHOW EVERY FITTING THAT MAY BE REQUIRED.
- 5. COORDINATE THIS LAYOUT WITH OTHER EQUIPMENT AND STRUCTURES BEFORE ROUGHING IN!
- 6. GROUNDING CONTINUITY SHALL BE MAINTAINED THROUGH THE ENTIRE RACEWAY SYSTEM.
- 7. SEE PEDESTAL AND MDP SCHEDULES ON DRAWINGS E07 AND E08.
- 8. PROVIDE PULL AND/OR JUNCTION BOXES WHERE REQUIRED BY NEC AND LOCAL CODES WHETHER OR NOT SHOWN ON DRAWINGS.
- 9. TWO SEPARATE CIRCUITS FED FROM PANEL H 1,2 WILL SUPPORT LIGHTING. PROVIDE 3C#10 CABLE TYPE "SOOW" FOR THIS PURPOSE.



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ELECTRICAL SITE PLAN - POWER

Project No. 215612745
Drawing No. E04

Scale 1"=10'
0' 5' 10' 15' 20'

Sheet 27
Issue /Revision C/0

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KEY NOTES

1. TEL/CATV IS INTEGRAL TO POWER PEDESTAL (EXISTING AND NEW).
2. (2) 2" CONDUITS FOR CATV AND TELEPHONE WIRING. SEE DETAIL 1 ON SHEET E06 FOR DETAILS.
3. EXISTING COMBINATION TEL/CATV CABINET TO BE REUSED. RECONNECT EXISTING AND ESTABLISH NEW CONNECTIONS AS NEEDED REFER TO PANEL H SCHEDULE ON SHEET E08 FOR ADDITIONAL INFORMATION.
4. 4-PAIRS 20 GAUGE JEL FILLED CABLES RUNNING IN SCH 40 CONDUIT. THIS CABLE SHALL BE APPROVED FOR WET LOCATION AND MARINE AMBIENT.
5. VIDEO RG-II JEL FILLED CABLE RUNNING IN SCH 40 CONDUIT APPROVED FOR WET LOCATION AND SUITABLE FOR MARINE AMBIENT SHALL BE USED AS BACKBONE CABLE. VIDEO RG-6U OF SIMILAR SPEC SHALL BE USED FOR EACH T-OFF.

GENERAL NOTES

1. CONTRACTOR SHALL REUSE EXISTING CABLES WHERE POSSIBLE- NO SPLICING SHALL BE PERMITTED. CONTRACTOR SHALL VERIFY THE CONDITION AND SUITABILITY OF CABLES INTENDED FOR REUSE.
2. THIS TEL/CATV DISTRIBUTION LAYOUT IS DIAGRAMMATIC ONLY. DOES NOT SHOW EVERY FITTING THAT MAY BE REQUIRED.
3. COORDINATE THIS LAYOUT WITH OTHER EQUIPMENT AND STRUCTURES PRIOR TO CONSTRUCTION.
4. GROUNDING CONTINUITY SHALL BE MAINTAINED THROUGH THE ENTIRE RACEWAY SYSTEM.
5. ALL PVC JOINTS SHALL BE STAGGERED AT LEAST 6 INCHES PROVIDE EXPANSION FITTINGS AS NEEDED.



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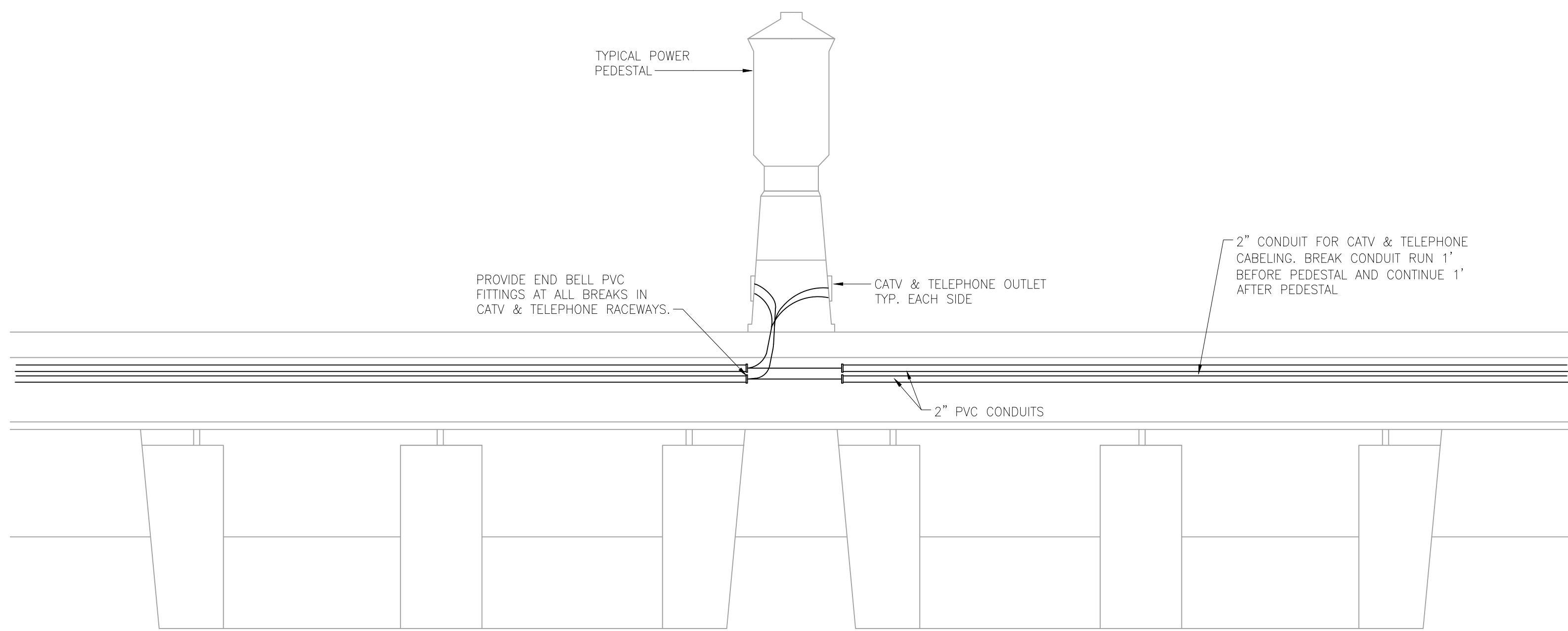
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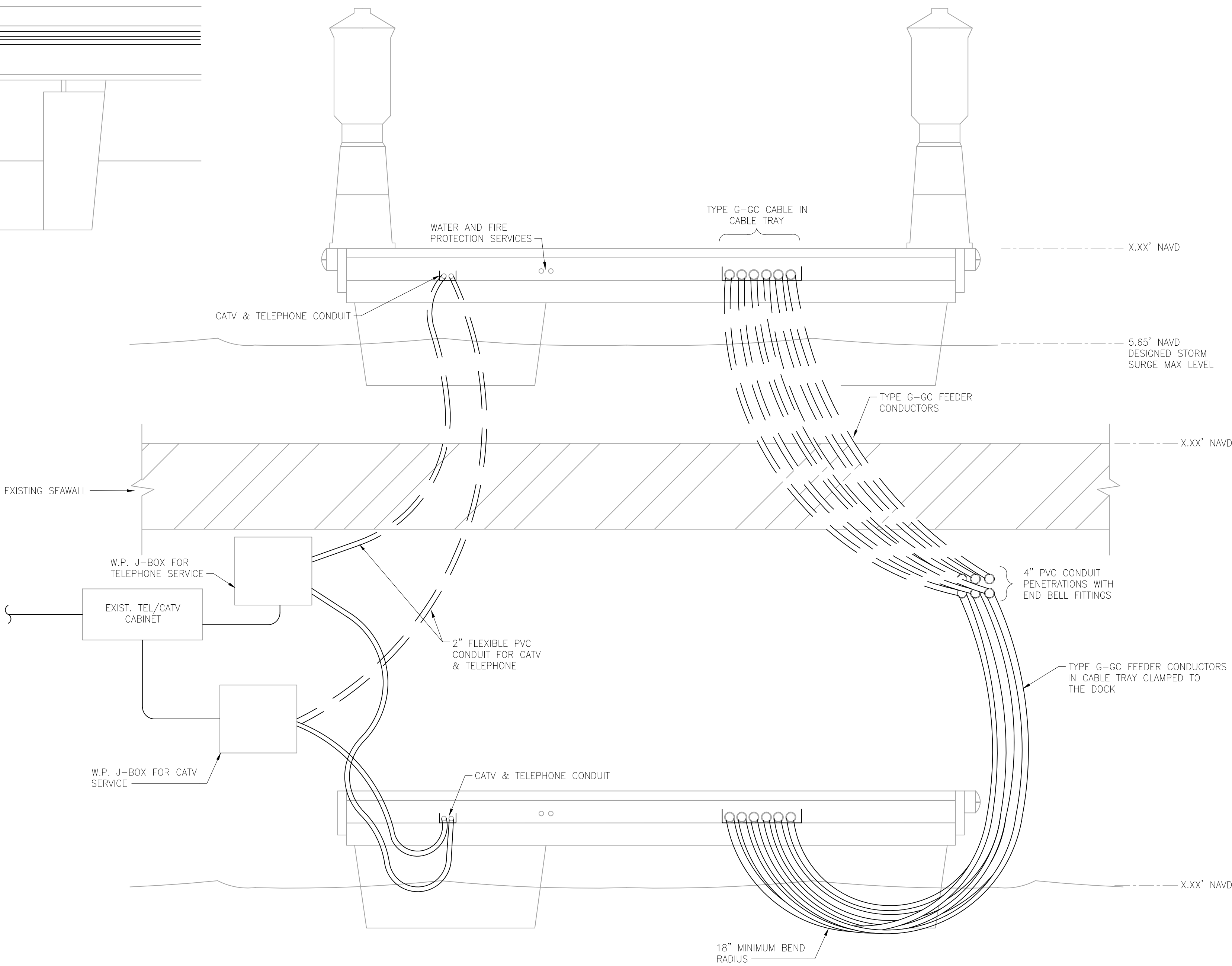
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CATV & TELEPHONE- SITE PLAN

Project No. 215612745	Scale 1"=10'	Sheet E05	Issue /Revision C/0
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DETAIL 1
CATV & TELEPHONE SERVICE DETAIL
N.T.S.



DETAIL 2
FLEXIBLE ELECTRICAL SERVICE CONNECTION DETAIL
N.T.S.

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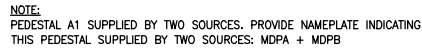
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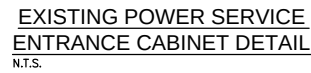
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Drawing No. E06	Sheet of 27	Issue /Revision C/0



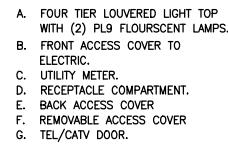
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PEDESTAL DETAIL
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N.T.S.



N.T.S.

KEY NOTES

- 1 EXISTING TYPE "A" PEDESTAL TO BE MODIFIED TO TYPE "B"
- 2 EXISTING TYPE "A1" PEDESTAL TO BE SUPPLIED BY TWO SOURCES MDP A & MDP B.

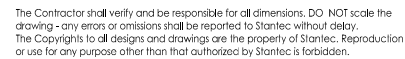
GENERAL NOTES:

ALL UTILITY METERING WILL NEED TO BE RELOCATED SUCH THAT IN THE NEW ARRANGEMENT THE SAME METER WILL STILL BE ASSIGNED TO THE CORRECT SLIP AS IN THE EXISTING SETUP.

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CITY OF KEY WEST
SAILFISH PIER DOCK REPLACEMENT
Key West, Florida

RM	NJ	MA	15.08.11
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ELECTRICAL DETAILS

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E07 of 27 C/O

LOAD CALCULATION FOR MDP-A OR MDP-B

SERVICE VOLTAGE 120/240V-1PH-3W+G
QUANTITY OF RECEPTACLES 18
DEMAND FACTOR PER NEC TABLE 555.12 70% AND 90%

CONNECTED LOAD
PEDESTAL TYPE A (3) X 48,000 VA= 144,000 VA
PEDESTAL TYPE A1 (1) X 24,000 VA= 24,000 VA
PEDESTAL TYPE B (2) X 24,000 VA= 48,000 VA

SUBTOTAL CONNECTED LOAD 216,000

DEMAND LOAD
(18) RECEPTACLES @ 63% = 216,000 VA X 63%= 136,080 VA

TOTAL LOAD
136,080 : 240V = 567 A

TOTAL SERVICE ENTRANCE LOAD
TOTAL LOAD 567A 136 KVA

	PEDESTAL WIRING SCHEDULE							
PEDESTAL TYPE	WIRING SIZE FROM RESPECTIVE POWER SCHEDULE	CABLE NUMBER	SERVICE VOLTAGE	CONNECTED LOAD IN KVA	PEDESTAL OUTLET QTY.	POWER OUTLET SIZE	MARINA POWER CATALOG No.	QUANTITY
A	3C#1/0 CABLE TYPE "G"	6	120/240V-1PH-3W+G	48	4	50/50/50/50	PCMFS-12-DD-DD-L-2TTV-2W-DD-DD-2M2(UTILITY)-RLF-TPL	6
A1	3C#4 CABLE TYPE "G" 3C#4 CABLE TYPE "G"	8	120/240V-1PH-3W+G	24	2	50/50	PCMFS-12-DD-DD-L-2TTV-DD-DD-2M2(UTILITY)-RLF-TPL	1
		8	120/240V-1PH-3W+G	24	2	50/50	PCMFS-12-DD-DD-L-2TTV-DD-DD-2M2(UTILITY)-RLF-TPL	1
B	3C#4 CABLE TYPE "G"	8	120/240V-1PH-3W+G	24	2	50/50	PCMFS-12-DD-DD-L-2TTV-DD-DD-2M2(UTILITY)-RLF-TPL	4
NOTE: ALL PEDESTALS SHALL BE RATED AT 10KA,(A.S.C.).EXCEPT AS SHOWN ON FLOOR PLAN								
NOTE: ALL INDIVIDUAL BRANCH CIRCUIT CONDUCTORS (ALL PHASE, NEUTRAL AND GROUNDING EQUIPMENT CABLES) SERVING PEDESTAL FROM PANEL "MDP" SHALL BE GROUPED TOGETHER (STRAPPED), TO REDUCE INDUCTIVE HEATING OF FERROUS METALLIC ENCLOSURE, TO AVOID INCREASES IN OVERALL CIRCUIT IMPEDANCE AND TO MAINTAIN AN EFFECTIVE GROUND-FAULT CURRENT PATH.								

	POWER DISTRIBUTION VOLT DROP SCHEDULE											
CIRC. No. OR PANEL	SERVICING	VOLTAGE	PH	POWER FACTOR	LOAD IN AMPS.	AMBIENT TEMP(°C)	WIRE OP TEMP(°C)	FEEDER				VOLT DROP IN %
								*LENGTH IN FT.	SIZE	NUMBER	QTY. PER PH.	
"MDP-A" OR "MDP-B"	1/2 MARINA EACH	120/240	1	0.85	567	30	75	10	6#350 MCM-THHN/THWN	7	2	0.13
MDPA-1	1-PEDESTAL A1	120/240	1	0.85	90	30	75	250	3C#4 CABLE TYPE "G-GC"	8	1	5.18
MDPA-2	1-PEDESTAL B	120/240	1	0.85	90	30	75	210	3C#1/0 TYPE G	8	1	3.44
MDPA-3	1-PEDESTAL A	120/240	1	0.85	180	30	75	170	3C#1/0 TYPE G	6	1	2.78
MDPA-4	1-PEDESTAL A	120/240	1	0.85	180	30	75	115	3C#1/0 TYPE G	6	1	1.88
MDPA-5	1-PEDESTAL A	120/240	1	0.85	180	30	75	72	3C#1/0 TYPE G	6	1	1.17
MDPB-1	1-PEDESTAL A1	120/240	1	0.85	90	30	75	250	3C#4 CABLE TYPE "G-GC"	8	1	5.18
MDPB-2	1-PEDESTAL B	120/240	1	0.85	90	30	75	215	3C#1/0 TYPE G	8	1	3.52
MDPB-3	1-PEDESTAL A	120/240	1	0.85	180	30	75	175	3C#1/0 TYPE G	6	1	2.87
MDPB-4	1-PEDESTAL A	120/240	1	0.85	180	30	75	121	3C#1/0 TYPE G	6	1	1.98
MDPB-5	1-PEDESTAL A	120/240	1	0.85	180	30	75	80	3C#1/0 TYPE G	6	1	1.31
PANEL "H"	LTG/REC/PUMP	120/240	1	0.85	31.7	30	75	10	3#2-1 1/4" PVC-THHN/THWN	9	1	0.08
MDPA-7	1-PEDESTAL B	120/240	1	0.85	90	30	75	40	3C#4 CABLE TYPE "G-GC"	8	1	0.83
MDPB-7	1-PEDESTAL B	120/240	1	0.85	90	30	75	45	3C#4 CABLE TYPE "G-GC"	8	1	0.93
NOTES: ALL WIRING BASED ON COPPER CONDUCTORS WITH THHN/THWN INSULATION AT 90°C, WITH 75°C TERMINATION RATING ON SINGLE OR THREE PHASE CIRCUIT. (*)FEEDER LENGTH HERE IN ARE FOR VOLTAGE DROP CALCULATION ONLY. THE REAL LENGTH SHALL BE MEASURED ON FIELD.												

TYPE: SIEMENS TYPE "P2"		EXISTING PANEL "MDP-A"					MODIFICATION: GROUND BUS		
VOLTAGE: 120/240V-1PH-3W							ENCLOSURE: SURFACE-NEMA 1		
MAINS: 600A. M.B. TYPE "LD6-A" W/IP:W/HGH							LOCATION: MARINA POWER Co. CABINET		
A.I.C.S.: 55K							FED FROM: PAD XFMR		
CIRC. No.	SERVICING	CIRCUIT BREAKER			LOAD IN VA		FEEDER SIZE	SLIP NUMBER	
		POLE	TRP	TYPE	Ø A	Ø B			
1	PEDESTAL A1 SERV. 1	2	100	BLH	*	*	3C#4 CABLE TYPE "G"	17	
2	PEDESTAL B	2	100	BLH	*	*	3C#4 CABLE TYPE "G"	16	
3	PEDESTAL A	2	200	QJ2H	*	*	3C#1/0 CABLE TYPE "G"	12, 14	
4	PEDESTAL A	2	200	QJ2H	*	*	3C#1/0 CABLE TYPE "G"	8, 10	
5	PEDESTAL A	2	200	QJ2H	*	*	3C#1/0 CABLE TYPE "G"	4, 6	
6	TVSS	2	20	BLH	*	*			
# 7	PEDESTAL B	2	100	BLH	*	*	3C#4 CABLE TYPE "G-GC"	2	
8	SPACE ONLY	2	-	-	-	-	-		
		TOTAL VA :			*	*	THIS PANEL IS SUITABLE FOR SERVICE ENTRANCE AND EQUIPPED WITH INTEGRAL MAIN CIRCUIT BREAKER. THIS MAIN C/B AND BRANCH C/B ARE IN SERIES SHORT CIRCUIT CURRENT RATING.		
		TOTAL AMPS:			*	*			
SERVICE ENTRANCE FEEDER 6#350 MCM-2-3" PVC SCH 40					BRANCH: NORMAL				

NEW CIRCUIT

TYPE: SIEMENS TYPE "P2"		EXISTING PANEL "MDP-B"			MODIFICATION: GROUND BUS			
VOLTAGE: 120/240V-1PH-3W					ENCLOSURE: SURFACE-NEMA 1			
MAINS: 600A. M.B. TYPE "LD6-A" W/IP:W/HGH					LOCATION: MARINA POWER Co. CABINET			
A.I.C.S.: 55K					FED FROM: PAD XFMR			
CIRC. No.	SERVICING	CIRCUIT BREAKER			LOAD IN VA		FEEDER SIZE	SLIP NUMBER
		POLE	TRP	TYPE	Ø A	Ø B		
1	PEDESTAL A1 SERV. 2	2	100	BLH	*	*	3C#4 CABLE TYPE "G"	17
2	PEDESTAL B	2	100	BLH	*	*	3C#4 CABLE TYPE "G"	15
3	PEDESTAL A	2	200	QJ2H	*	*	3C#1/0 CABLE TYPE "G"	11, 13
4	PEDESTAL A	2	200	QJ2H	*	*	3C#1/0 CABLE TYPE "G"	7, 9
5	PEDESTAL A	2	200	QJ2H	*	*	3C#1/0 CABLE TYPE "G"	3, 5
6	TVSS	2	20	BLH	*	*		
# 7	PEDESTAL B	2	100	BLH	*	*	3C#4 CABLE TYPE "G-GC"	1
8	SPACE ONLY	2	-	-	-	-	-	
		TOTAL VA :					THIS PANEL IS SUITABLE FOR SERVICE ENTRANCE AND EQUIPPED WITH INTEGRAL MAIN CIRCUIT BREAKER. THIS MAIN C/B AND BRANCH C/B ARE IN SERIES SHORT CIRCUIT CURRENT RATING.	
		TOTAL AMPS:						
SERVICE ENTRANCE FEEDER 6#350 MCM THHN/THWN IN 2-3" PVC SCH. 40					BRANCH: NORMAL			

NEW CIRCUIT

TYPE: SIEMENS TYPE LOAD CENTER		EXISTING PANEL "H"				MODIFICATION: GROUND BUS	
VOLTAGE: 120/240V-1PH-3W						ENCLOSURE: SURFACE-NEMA 1	
MAINS: 100A. M.B. TYPE "QJ2H"						LOCATION: MARINA POWER Co. CABINET	
A.I.C.S.: 25K						FED FROM: PAD TRANSFORMER	
CIRC. No.	SERVICING	CIRCUIT BREAKER			LOAD IN VA		FEEDER SIZE
		POLE	TRP	TYPE	Ø A	Ø B	
1	PEDESTAL LTG.	1	20	QP	1100	-	3C#10 CABLE TYPE "SOOW"
2	PEDESTAL LTG.	1	20	QP	-	1166	3C#10 CABLE TYPE "SOOW"
3	TEL/CATV SYSTEM	1	20	QP	1500	-	3C#10 CABLE TYPE "SOOW"
4	VACUUM SEWER PUMP	2	20	QP	1920	1920	3C#10 CABLE TYPE "SOOW"
5	SPACE	1	20	QP	-	1500	-
6	SPACE ONLY	1	-	-	-	-	-
7	SPACE ONLY	1	-	-	-	-	-
8	SPACE ONLY	1	-	-	-	-	-
		TOTAL VA :			4520	3086	THIS PANEL IS SUITABLE FOR SERVICE ENTRANCE AND EQUIPPED WITH INTEGRAL MAIN CIRCUIT BREAKER. THIS MAIN C/B AND BRANCH C/B ARE IN SERIES SHORT CIRCUIT CURRENT RATING.
		AMPS:			18.8	12.9	
		TOTAL AMPS:			31.7		
SERVICE ENTRANCE FEEDER: 3#2 THHN/THWN IN 1 1/4" PVC SCH. 40					BRANCH: NORMAL		

KEY NOTE:



SEE LOAD CALCULATION FOR MDP-A OR MDP-B ON THIS SHEET (E08)

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2016/01/19 9:57 AM By: Morales, Rod

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Seal	
MARTIN S. ARMENTA, P.E. REGISTERED ENGINEER NO. 75333 STATE OF FLORIDA	

Consultants	
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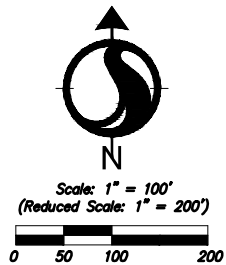
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CITY OF KEY WEST SAILFISH PIER DOCK REPLACEMENT Key West, Florida				
File Name:	RM	NJ	MA	15.08.11
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

ELECTRICAL LEGENDS		
Project No.	Scale	
215612745	NO SCALE	
Drawing No.	Sheet	
E08	of 27	C/0



NOTE:

EXISTING FIRE PUMP HOUSE INCLUDES ONE PATTERSON PUMP CO. VERTICAL IN-LINE PUMP MODEL 5x3 500 gpm @ 162 Ft.TH (70 psi) WITH 30 hp MOTOR rpm.

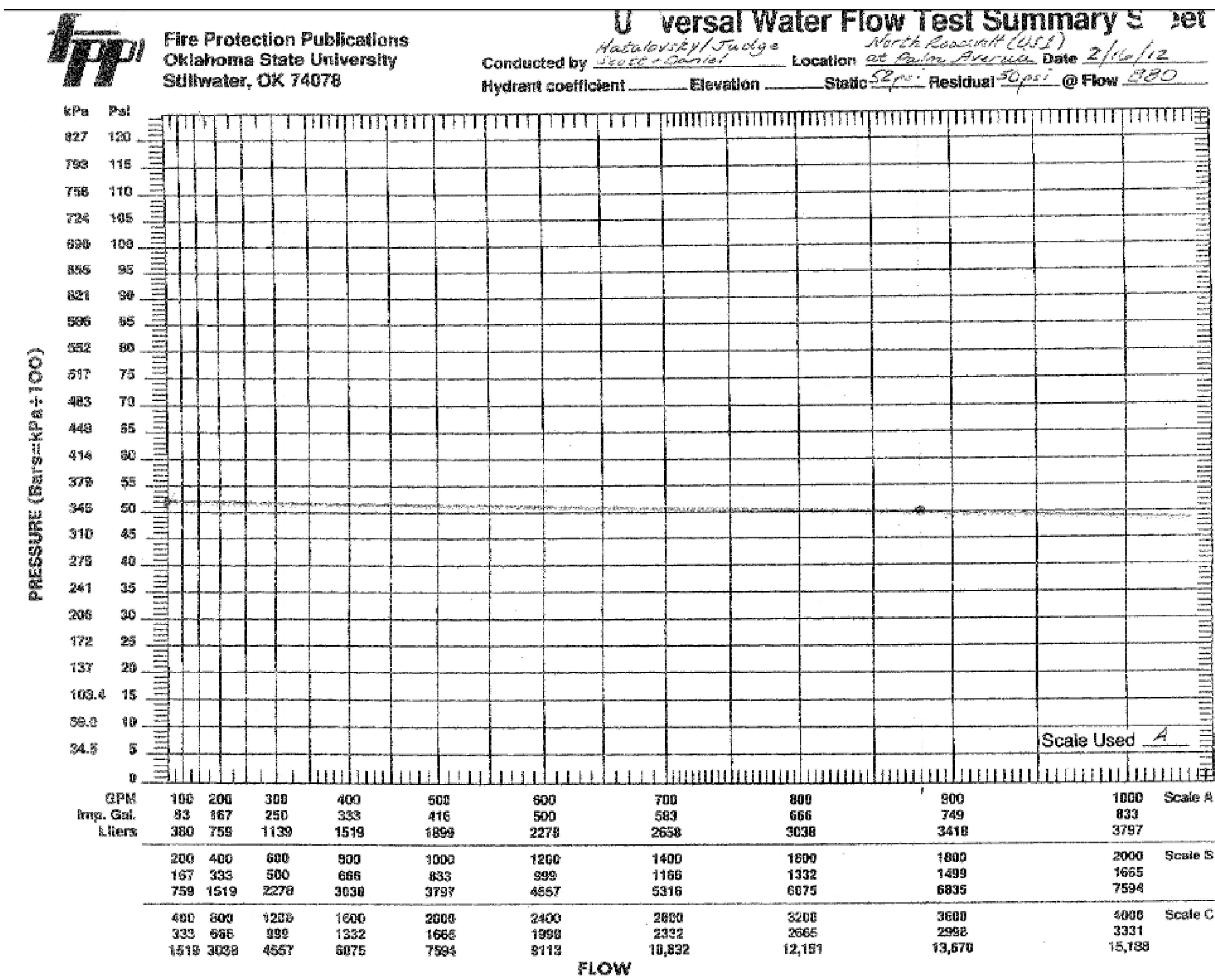
NOTE: ALL DEPTHS REFERENCE MEAN LOW WATER PER DEP TIDE STATION 872-4542. MEAN HIGH WATER EL. -0.23' NAVD88; MEAN LOW @ -1.24' NAVD88.



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2016/07/19 9:37 AM By: Morales, Rod

Revision By Appd. YY.MM.DD				C B A Issued By Appd. YY.MM.DD				Seal ED DVORAK, P.E. REGISTERED ENGINEER NO. 40961 STATE OF FLORIDA		Consultants		Stantec 901 Ponce de Leon Blvd, Suite 900 Coral Gables, Florida 33134 www.stantec.com The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay. The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden.		CITY OF KEY WEST SALEFISH PIER DOCK REPLACEMENT Key West, Florida File Name: PKM JFT PKM 15.08.12 Dwn. Chkd. Dsgn. YY.MM.DD		FIRE PROTECTION SITE PLAN Project No. 215612745 Scale Drawing No. FP-01 Sheet of 27 Issue /Revision	
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FIRE HYDRANT FLOW TEST SUMMARY



DRAWING SYMBOLS

1-
FP03

PLAN OR DIAGRAM DESIGNATION
DRAWING NUMBER WHERE DRAWN

A-
FP04

SECTION DESIGNATION
DRAWING NUMBER WHERE DRAWN

FW

FIRE WATER PIPE

PW

POTABLE WATER PIPE

POTABLE WATER PIPE

SW

SANITARY VACUUM PIPE

○

PIPE TURN UP

⤵

PIPE TURN DOWN

⊖

RISE OR DROP IN PIPE

|

SIDE CONNECTION

⊕

BOTTOM CONNECTION

⊔

TOP CONNECTION

⊗

CROSS BOTTOM CONNECTION

⌵

CHECK VALVE

⊘

BALL VALVE

||CO

SEWER CLEANOUT

N

PLAN NORTH

1"=10'

0' 5' 10' 15' 20'

GRAPHIC SCALE

⊗

KEYED NOTE

△

REVISION NUMBER

⊕

CONNECT TO EXISTING

W

POTABLE WATER AND
SANITARY SEWER DOCK BOX

FEC

FIRE EXTINGUISHER CABINET

FHC

FIRE HOSE CABINET

P

ELECTRICAL POWER PEDESTAL

EDP

ELECTRICAL DISTRIBUTION PANEL

EX

EXISTING

HB

HOSE BIBB

FIRE PROTECTION DESIGN

SAILFISH PIER, GARRISON BIGHT MARINA KEY WEST, FL

- A. GIVEN: CITY WATER PRESSURE IS 53 psi
- B. FIRE PUMP DELIVERS ≈ 100 gpm @ 81 psi TH [booster PS]
ADD PRESSURES 53+81= 134 psi AVAILABLE
- C. SYSTEM HEAD LOSSES:
- | | |
|----------------------------------|------------|
| 1. 500 FT 4" PIPE | = 1.05 psi |
| [$h_f = 0.21 \text{ psi}/100$] | |
| 2. 210 FT (PIER) 3" PIPE | = 1.58 psi |
| [$h_f = 0.73 \text{ psi}/100$] | |
| 3. 100 FT 1.5" HOSE | = 25 psi |
| 4. BRASS NOZZLE | = 2 psi |
| 5. ACCESSORIES | = 2 psi |
| TOTAL HEADLOSS | = 31.6 psi |
- D. SUMMATION
134psi - 32 psi = 102psi > 100psi

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2016/07/19 9:57 AM By: Morales, Rod

Revision	By	Appd.	YY.MM.DD	Issued	By	Appd.	YY.MM.DD	Seal	ED DVORAK, P.E. REGISTERED ENGINEER NO. 40961 STATE OF FLORIDA	Consultants	Stantec 901 Ponce de Leon Blvd, Suite 900 Coral Gables, Florida 33134 www.stantec.com The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay. The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden.	CITY OF KEY WEST SAILFISH PIER DOCK REPLACEMENT Key West, Florida	File Name: PKM Dwn. JFT Chkd. PKM Dsgn. 15.08.12 YY.MM.DD	FIRE PROTECTION LEGEND Project No. 215612745 Drawing No. FP-02 Scale NTS Sheet of 27 Issue /Revision
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2016/07/19 9:38 AM By: Morales, Rod

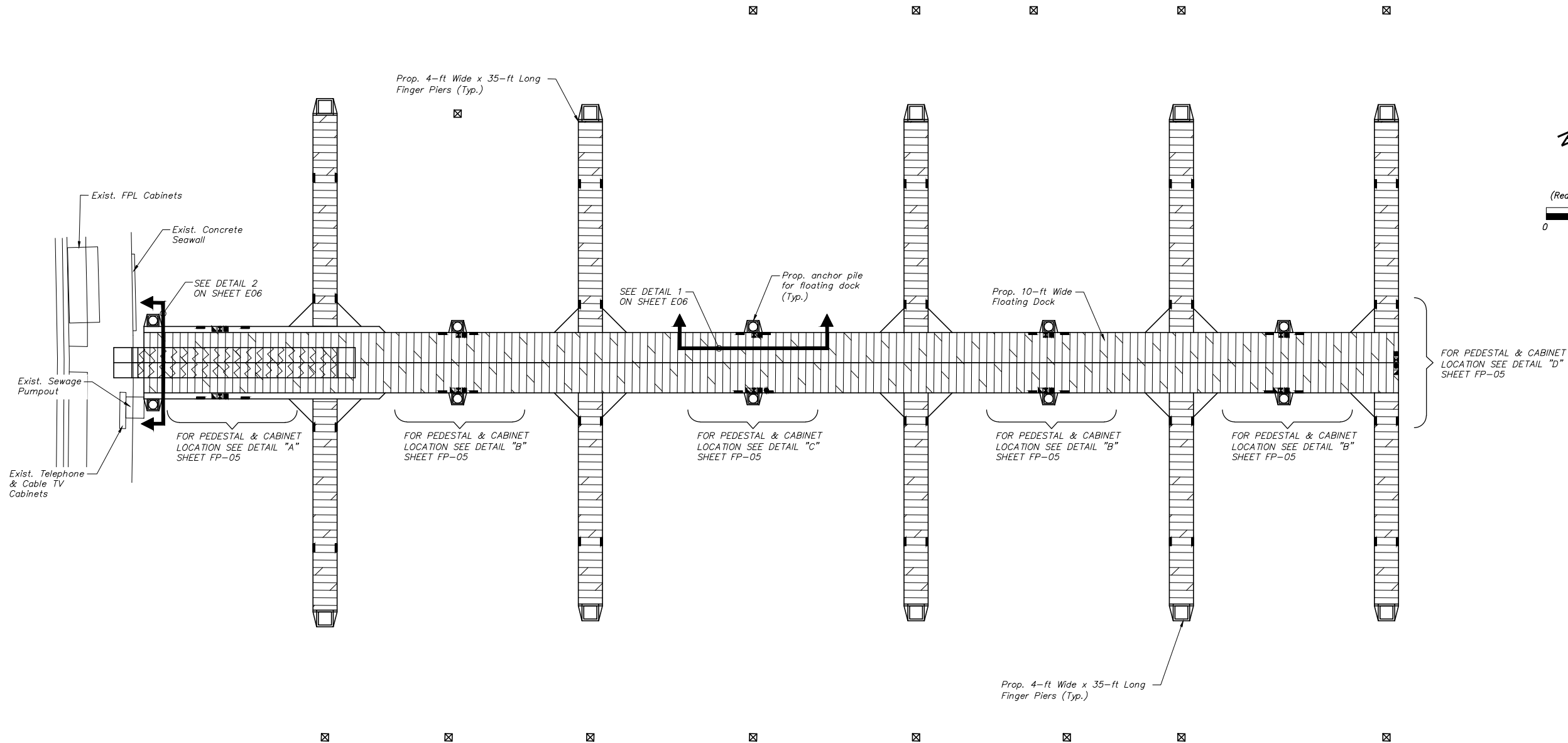
FIRE EXTINGUISHMENT SYSTEMS SPECIFICATIONS											
PART 1 - GENERAL REQUIREMENTS											
1.1 SYSTEM DESCRIPTION											
A. Sailfish Pier fire extinguishment systems shall consist of a fixed-in-place, automatic, Class I wet standpipe relying upon an existing fire pump to supply the water demand and shall include Class II hose stations and portable type ABC fire extinguishers.											
B. System design shall be based upon a flow rate for the hydraulically most remote hose nozzle of 100 GPM and a minimum design pressure of 65 PSI. Fire water source is from a public waterworks system. Flow and pressure test data are as follows: Date of test: 16 Feb. 2012 Performed by: Fire Dept											
Static Pressure: 52 psi Residual Pressure: 50 psi Flow: 880 gpm											
1.2 SUMMARY OF WORK											
A. New construction work shall include but is not limited to providing complete new fire extinguishment piping systems and portable fire extinguishers with cabinets as described in these specifications and drawings for the proposed pier. Work shall include preparing minor modifications to the existing fire water supply main at the proposed pier and seawall interface.											
B. Bids shall include as a minimum all labor, tools, materials, plant, transportation, taxes, related items, etc., essential for demolishing existing work and furnishing, installing, operating, and testing of the proposed new work.											
1.3 EXAMINATION OF DOCUMENTS											
A. The intent of the drawings and specifications is to establish type and quality of materials and a general layout and location of the major components that comprise the fire extinguishment systems. They are not intended to show in minute detail every or all accessories intended for the purposes of executing the work, but it is understood that such details are part of the project scope.											
B. Where conflicts exist between drawings and specifications the most stringent requirements shall apply.											
1.4 CODES AND STANDARDS											
A. Furnish and install fire extinguishment systems to meet all current requirements of national, state and municipal codes, rules, regulations, laws, and standards as they are adopted by the governing agency and as they may apply.											
NFPA 10 Standard for Portable Fire Extinguishers 2007 Edition											
NFPA 14 Standards for the Installation of Standpipe and Hose Systems 2007 Edition											
NFPA 303 Fire Protection Standards for Marinas and Boatyards 2006 Edition											
Florida Fire Prevention Code 2010 Edition											
Florida Building Code 2010 Edition											
Factory Mutual											
Underwriters Laboratories											
1.5 PERMITS AND INSPECTIONS											
A. Secure and pay for all permits and licenses before actual work is started and observe all requirements stipulated thereon.											
B. Coordinate with and give all necessary notices to the Authority Having Jurisdiction for inspection and testing of the fire extinguishment systems required to be witnessed by their agent.											
1.6 SHOP DRAWING SUBMITTALS AND PRE-INSTALLATION COORDINATION											
A. Prior to ordering materials submit shop drawings including manufacturer's catalog cuts, brochures and performance data of pipe and fitting materials, hoses, valves, supports, pipe markers, fire extinguishers, cabinets, and other appurtenances as may be required. Unless specified elsewhere, provide a minimum of six copies for Engineer and Owner review.											
B. After owner acceptance of shop drawings, submit the approved documents to the Authority Having Jurisdiction for their approval. Submit in quantities as directed by the Authority Having Jurisdiction.											
C. Coordinate with all trades in submittal of shop drawings and for space requirements. If work is installed prior to coordination with other trades which interferes with related work, make all necessary changes to correct the condition at no additional cost to the Owner.											
D. Coordinate with floating dock supplier for pipe support spacing requirements integral with structural framing.											
1.7 PRODUCTS AND WORKMANSHIP											
A. All equipment and materials shall be new and unused as manufactured by companies regularly engaged in the fabrication of the type specified except as otherwise noted herein. Use products of a single manufacturer for similar type equipment. Modified or re-built equipment or materials are not acceptable.											

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NOTE: ALL DEPTHS REFERENCE MEAN LOW WATER PER DEP. TIDE STATION 872-4542.
MEAN HIGH WATER EL. -0.23' NAVD88;
MEAN LOW @ -1.24' NAVD88.



Scale: 1" = 10'
(Reduced Scale: 1" = 20')



DETAIL A - PROPOSED DOCK

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2016/07/19 9:38 AM By: Morales, Rod

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1. POSITION UTILITY PEDESTAL AND CABINETS AS CLOSE TO END OF MAIN PIER AS POSSIBLE TO MAXIMIZE CLEAR SPACE FROM EQUIPMENT UP TO FINGER PIER.
2. CENTER THE UTILITY PEDESTAL AND CABINETS BETWEEN FINGER PIERS AND POSITION EQUIPMENT SO AS TO MAXIMIZE CLEAR SPACE FROM EQUIPMENT TO FINGER PIER.
3. ROUTE FIRE LINE BELOW DECK IN TRAY BETWEEN LONGITUDINAL FRAMING.
4. EXISTING FIRE LINE IS ROUTED EXPOSED ALONG SEAWALL PROVIDE NEW PIPING AS REQUIRED TO OFFSET BELOW PROPOSED SEAWALL PENETRATIONS FOR POTABLE WATER, ELECTRICAL POWER CONDUCTORS AND COMMUNICATIONS CABLING, COORDINATE WITH OTHER TRADES FOR REQUIREMENTS. PROVIDE TRANSITION COUPLINGS TO CONNECT EXISTING CPVC PIPING TO SPECIFIC PIPE.
5. PROVIDE FIRE LINE HOSE TO CONNECT PIPING TO PIER. HOSE TERMINATIONS SHALL BE ASTM 316 STAINLESS STEEL ELBOWS. SELECT LENGTH OF HOSE AS REQUIRED TO ACCOMMODATE TIDE DIFFERENTIAL.

A. SS, PW AND ELECTRICAL SYSTEMS SHOWN FOR COORDINATION PURPOSE. SEE CONSTRUCTION PLANS OF OTHER TRADES FOR ADDITIONAL INFORMATION.

B. COORDINATE FRAMING REQUIREMENTS FOR PIPING SYSTEM WITH FLOATING DOCK SYSTEM SUPPLIER.

[illegible]

PLUMBING DESIGN

SAILFISH PIER, GARRISON BIGHT MARINA KEY WEST, FL

A. GIVEN: 18 SLIPS, ASSUME 9@ 2-2 AND 9@ 2-1

B. USE HUNTER'S METHOD = CURVE [PLUMBING DESIGN]

HOUSE BOAT 2 BED 2 BATH	FU	HOUSE BOAT 2 BED 1 BATH	FU
K. SINK 1	2	K. SINK 1	2
LAV. 2	2	LAV. 1	1
WATER CLOSET (TANK) 2	6	WATER CLOSET (TANK) 1	3
SHOWER 2	4	SHOWER 1	2
	14		8

C. TOTAL FU: 9 SLIPS X 14= 126 FU
9 SLIPS X 8= 72 FU
198 FU

PER HUNTER CURVE= 64 gpm TOTAL

D. PER HYDRAULIC TABLES

FOR 64 gpm USE 2" PE PIPE VELOCITY= 6.2< 8fps

E. SERVICE SIZING=
DUAL= 28 FU 20 gpm
PROVIDE 1" DIA. SERVICE PIPE

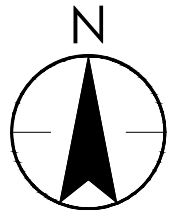
SINGLE= 14 FU= 11 gpm
PROVIDE 3/4" DIA. SERVICE PIPE

DRAWING SYMBOLS

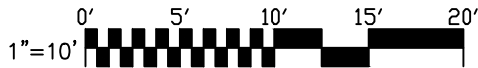
1 PLAN OR DIAGRAM DESIGNATION
P03 DRAWING NUMBER WHERE DRAWN

A SECTION DESIGNATION
P04 DRAWING NUMBER WHERE DRAWN

FW FIRE WATER PIPE
PW POTABLE WATER PIPE
POTABLE WATER PIPE
SW SANITARY VACUUM PIPE
PIPE TURN UP
PIPE TURN DOWN
RISE OR DROP IN PIPE
SIDE CONNECTION
BOTTOM CONNECTION
TOP CONNECTION
CROSS BOTTOM CONNECTION
CHECK VALVE
BALL VALVE
SEWER CLEANOUT



PLAN NORTH



GRAPHIC SCALE



KEYED NOTE



REVISION NUMBER



CONNECT TO EXISTING



POTABLE WATER AND
SANITARY SEWER DOCK BOX



FIRE EXTINGUISHER CABINET



FIRE HOSE CABINET



ELECTRICAL POWER PEDESTAL



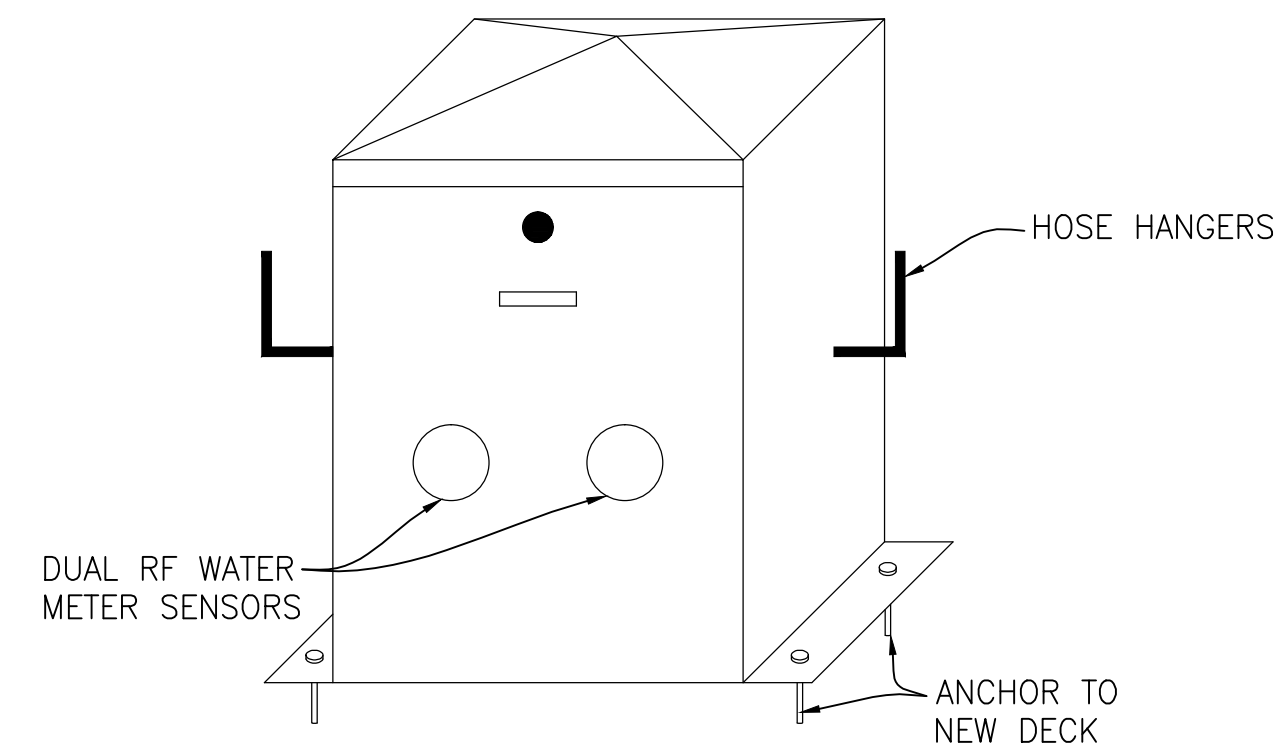
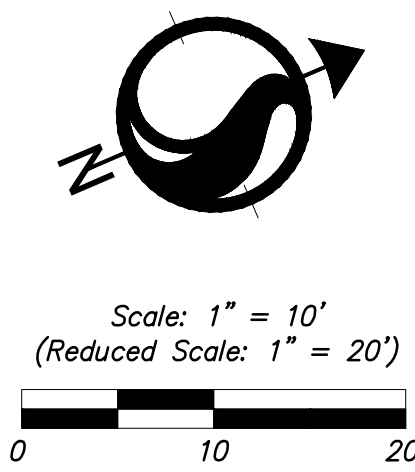
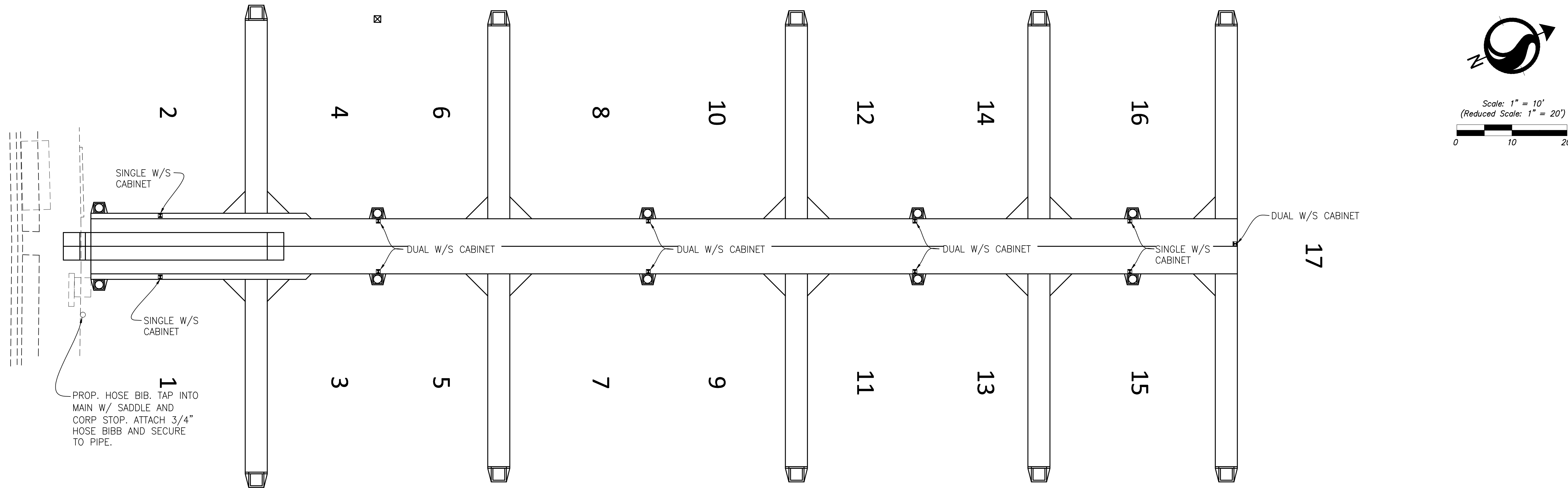
ELECTRICAL DISTRIBUTION PANEL



EXISTING



HOSE BIBB



NOTES:
1. PROVIDE 1" SERVICE TO EACH CABINET.

DUAL WATER + SEWER MARINE CABINET DETAIL
SCALE: NTS

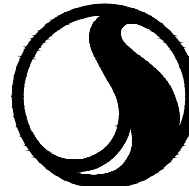


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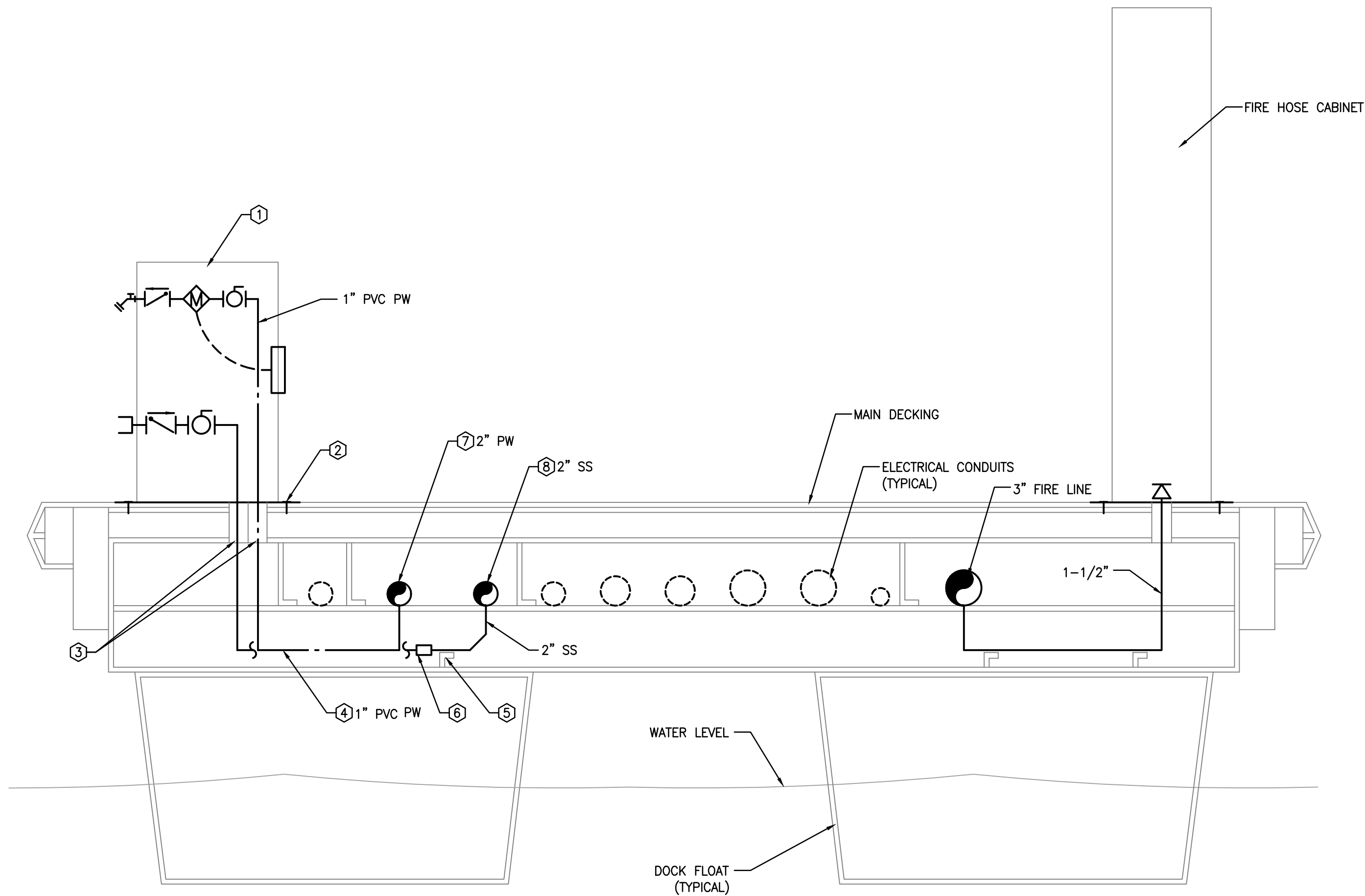
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File Name:				

PLUMING SITE PLAN		
Project No. 215612745	Scale 0' 5' 10' 15' 20' 1"=10'	
Drawing No.	Sheet	Issue /Revision
P03	of 27	C/0

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2016/07/19 2:57 PM By: Mander, RCD



KEY NOTES



1. SINGLE SLIP POTABLE WATER & SANITARY SEWER CABINET. INSTALL DOCK BOX NEAR OUTBOARD EDGE OF PIER SO AS TO OPTIMIZE AVAILABLE SPACE FOR PEDESTRIAN TRAFFIC IN THE CENTER OF THE PIER. ORIENT CABINET WITH HOSE BIBBS TO THE OUTBOARD SIDE AND RF METER READER DEVICES TO THE INBOARD SIDE. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION AND WORK ITEMS.
2. SECURE CABINET TO DECK WITH MINIMUM OF FOUR STAINLESS STEEL FASTENERS OR AS RECOMMENDED BY CABINET MANUFACTURER.
3. CORE DRILL DECK FOR POTABLE WATER AND SANITARY SEWER PIPE INSTALLATION. MAKE THE OPENING A MINIMUM OF 1 INCH LARGER THAN OUTSIDE DIAMETER OF PIPE. PROVIDE SHRINK WRAP ON THE PIPE AT THE DECK PENETRATION TO PROTECT AGAINST ABRASION.
4. EXTEND PVC PRESSURE PIPE FOR POTABLE WATER SUPPLY TO DOCK CABINET AND TIE INTO SINGLE POINT CONNECTION FOR PW SUPPLY.
5. TYPICAL PIPE SUPPORT STRUT BETWEEN CROSS MEMBERS AT 3-FOOT O.C. SECURE PIPE TO STRUCTURE WITH CLAMP OR EQUIVALENT STRAPPING METHOD.
6. PROVIDE FERNCO OR EQUIVALENT RUBBER BOOT CONNECTOR WITH 316 STAINLESS STEEL HARDWARE TO CONNECT HDPE BRANCH TEE TO PVC-DWV SANITARY CABINET BRANCH PIPE.
7. ROUTE HDPE POTABLE WATER SUPPLY MAIN IN TRAY BETWEEN PIER FRAMING MEMBERS. PROVIDE HDPE TEE FITTING AT EACH PAIR OF PROPOSED POTABLE WATER CABINETS. TRANSITION TO PVC PRESSURE PIPE AFTER BRANCH TEE.
8. ROUTE HDPE SANITARY VACUUM PIPE MAIN IN TRAY BETWEEN PIER FRAMING MEMBERS. PROVIDE HDPE TEE FITTING AT EACH PIER OF PROPOSED CABINETS. USE LONG SWEEP FITTINGS.

PLUMBING - SECTION THRU MAIN PIER

SCALE: NTS

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2016/07/19 9:39 AM By: Morales, Rod

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1. CONTRACTOR IS REQUIRED TO SUBMIT ALL DELEGATED DESIGNS TO ENGINEER OF RECORD FOR REVIEW AND APPROVAL. THE SIGNED AND SEALED DRAWINGS AND CALCULATIONS BY A LICENSED FLORIDA PROFESSIONAL ENGINEER.
2. ITEMS TO BE DELEGATED
 - A. FLOATING DOCKS AND CONNECTIONS.
 - B. ALL ITEMS NOT SHOWN ON PLANS.
 - C. ANY ITEM MODIFIED FROM EOR PLANS.

[illegible]