Florida
Floats, Inc.
dba Bellingham Marine

1813 Dennis St.
Jacksonville, FL 32204

(904) 358-3362
FAX (904) 354-4814
www.bellingham-marine.com

Bellingham MARINE
The World's Most Comprehensive Marina Builder

January 13, 2014

Edward M. Seissiger
Engineering Project Coordinator
City of Fort Pierce
PO Box 1480
Fort Pierce, FL 34954-1480
ESeissiger@City-FtPierce.Com

Re: Ft. Pierce City Marina- RFP No. 2013-021

Dear Mr. Seissiger:

Per our meeting on Monday December 30, 2013, I have reviewed and made the corrections listed below in items 1-7.

1. Additional Handrail at the southernmost jetty of approximately 180 linear feet of rail per (Attachment A.1 & A.2). The cost for the 36" tall line rail with no LED lighting and 304 SS wall mounting brackets is $195.00 per linear foot. The approximate total for this scope is……$35,100.00

2. Removal and reinstallation of marina sidewalk from A Dock to C Dock (Attachment B). The side walk will be removed and the reinstallation of 4" 2500psi ……$91,070.05

3. ~~Cross Over Trench per highlighted 25 ea. (Attachment C)…… $6,583.00~~ Delete Item

4. The schedule has been revised to reflect the execution of the contract on January 22, 2014. I have broken out the docks to sequence L Dock start then moving to A Dock. (Attachment D)

5. Electrical Metering Monitoring…… $62,000.00
The above amount is for additional metering of the marina equipment. The current design incorporates fault monitoring of the primary feeds. The International Intelligent Metering kWH sub meters quoted for Ft. Pierce City

Marina has been priced to include the KHZ series and KHG series technology which incorporate a revolutionary new design in metering capability. The KHG option includes the patent-pending Ground Fault Monitor which detects dangerous ground current leakage events at the individual boat slip. The KHG option is also equipped with DIP switches which allow the user to select between four levels of sensitivity: 25mA, 50mA, 75mA, or 100mA. The KHZ option includes the patent-pending on-board remote- reading wireless NuCore system which wirelessly communicates kWH readings and Ground Fault Events to the central base station and office PC with NuCore software for data interpretation and billing. These options require no extra hardware or third party and will be commissioned on-site by our own technical staff.

6. Attenuation-Per the RFP and subsequent bid documentation the bidder was to establish the wave climate and criteria for the design of the floating dock system in the basin and to attenuate to within the tolerances of good in the" Table 2-5 Generalized Harbor Tranquility Goals". A review of our submitted calculations and the design of the floating dock system has confirmed our design meets the criteria as identified in "Table 2-5 Generalized Harbor Tranquility Goals" (Attachment E). To maximize the attenuation characteristics of the floating docks at the width limits set on the bid documents we could exceed our proposed bid goal by increasing the draft of the floats to 48" for the amount of $194,914.00

7. Walkway pile- During our review of the drawings for the marina on December 30, 2013, we were reviewing the original bid drawing for the 20" steel pile. Attachment C reflects the revised bid drawing for the project containing 105 total Steel piles. The revised drawing shows pile along the main walkways and is per the below reference base bid Alternate #2.

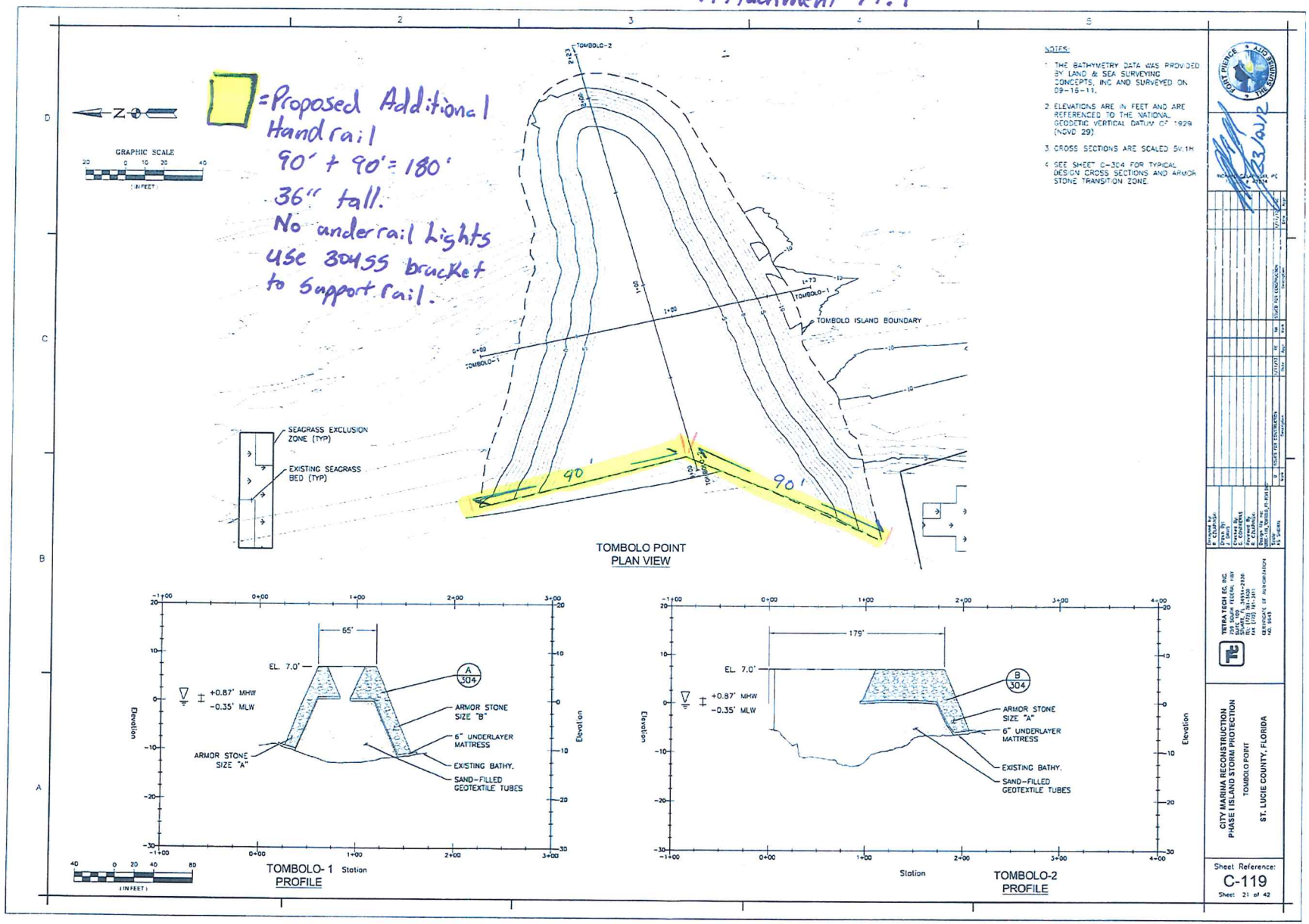
Base Bid.....$10,989,991.70
Above Items 1-7.....$ 389,667.05
Base Bid Alternate no. 2 Steel Pile deducts..... $ -(379,658.75)

Revised Project total.....$~~11,000,000.00~~
$10,993,417.00

Respectfully,

Kevin Thompson
General Manager

Attachment A.1



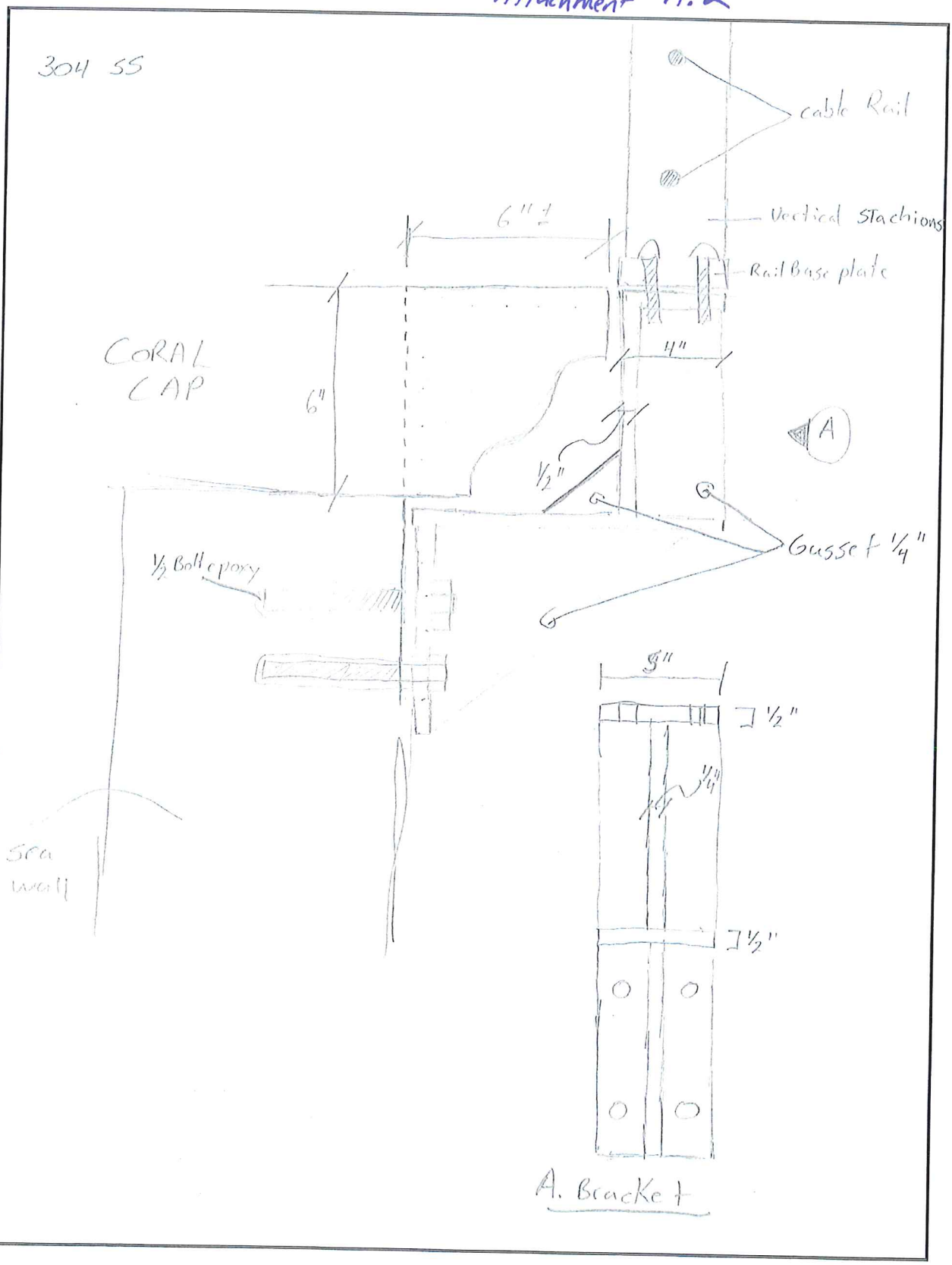
Bellingham MARINE
The world's most comprehensive marina builder

Southeast Division

1813 Dennis Street
Jacksonville, FL 32204

904 358-3362
FAX 904 354-4818
www.bellingham-marine.com

Attachment A.2



Attachment B.

NOTES:

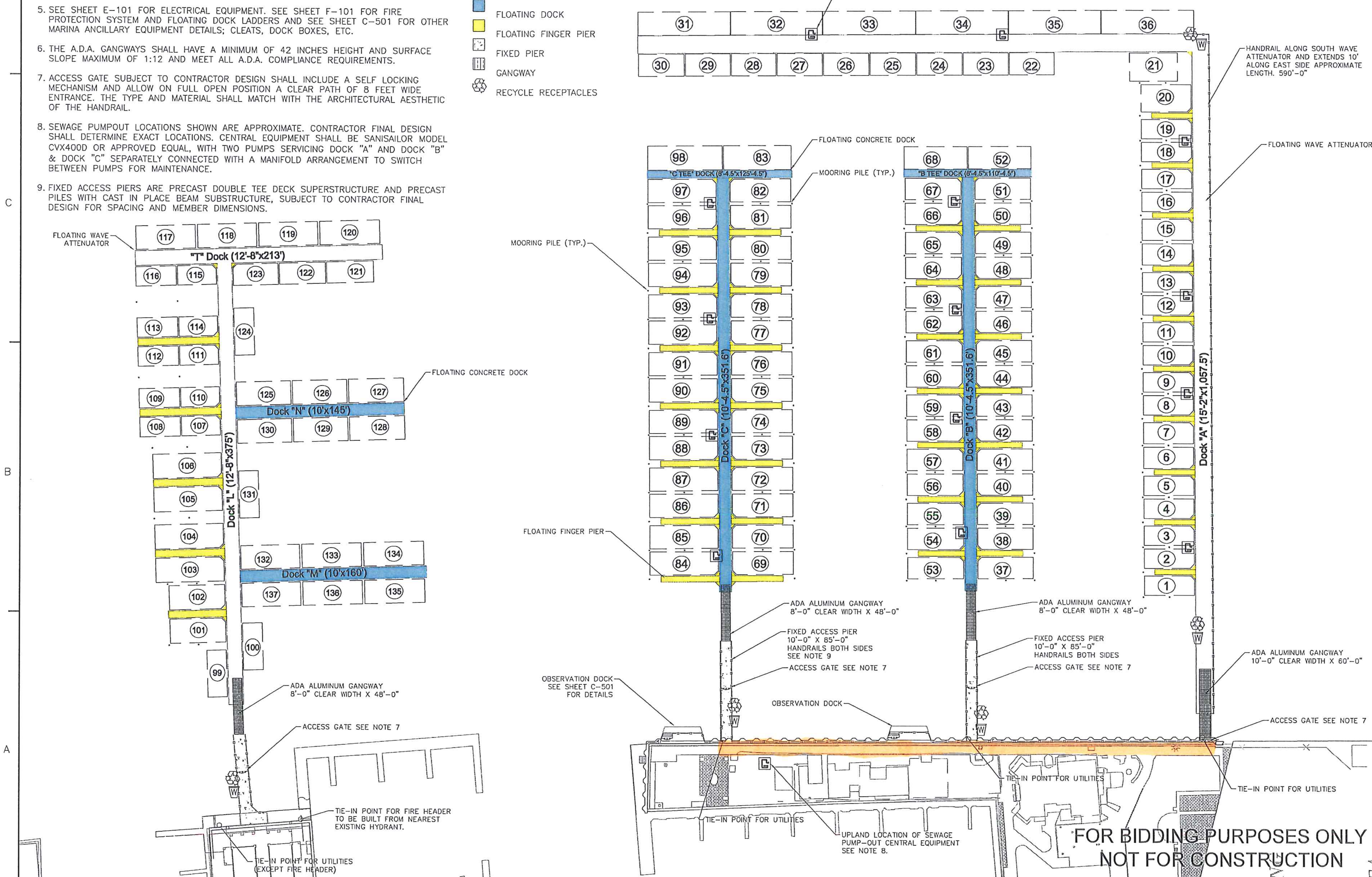
1. SEE SHEET G-002 FOR GENERAL NOTES, ABBREVIATIONS AND DESIGN WIND SPEED INFORMATION.
2. THE OUTER MARINA HAS A TOTAL OF 137 SLIPS CONSISTING OF 98 SLIPS AT THE SOUTHERN DOCKS AND 39 SLIPS AT THE NORTHERN DOCKS.
3. STRUCTURAL PILES ARE NOT SHOWN. FINAL PLACEMENT, DIMENSIONS AND DETAILS SHALL BE DETERMINED BY CONTRACTOR DESIGN AND INCLUDED IN THE ISSUED FOR CONSTRUCTION SET, FOR THE SPECIFIC DOCK FLOATING SYSTEM AND PROJECT LOADS REQUIREMENTS.
4. GARBAGE AND RECYCLING RECEPTACLES SHALL BE PLACED ALONG THE SIDES AT THE LOCATIONS SHOWN, SECURED WITH CAGE TYPE FRAMED STRUCTURE, SIMILAR TO HANDRAIL AESTHETIC APPEARANCE AND WITH MINIMUM INTERFERENCE TO THE PIERS AND DOCKS PATHWAY.
5. SEE SHEET E-101 FOR ELECTRICAL EQUIPMENT. SEE SHEET F-101 FOR FIRE PROTECTION SYSTEM AND FLOATING DOCK LADDERS AND SEE SHEET C-501 FOR OTHER MARINA ANCILLARY EQUIPMENT DETAILS; CLEATS, DOCK BOXES, ETC.
6. THE A.D.A. GANGWAYS SHALL HAVE A MINIMUM OF 42 INCHES HEIGHT AND SURFACE SLOPE MAXIMUM OF 1:12 AND MEET ALL A.D.A. COMPLIANCE REQUIREMENTS.
7. ACCESS GATE SUBJECT TO CONTRACTOR DESIGN SHALL INCLUDE A SELF LOCKING MECHANISM AND ALLOW ON FULL OPEN POSITION A CLEAR PATH OF 8 FEET WIDE ENTRANCE. THE TYPE AND MATERIAL SHALL MATCH WITH THE ARCHITECTURAL AESTHETIC OF THE HANDRAIL.
8. SEWAGE PUMPOUT LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR FINAL DESIGN SHALL DETERMINE EXACT LOCATIONS. CENTRAL EQUIPMENT SHALL BE SANISAILOR MODEL CVX400D OR APPROVED EQUAL, WITH TWO PUMPS SERVICING DOCK "A" AND DOCK "B" & DOCK "C" SEPARATELY CONNECTED WITH A MANIFOLD ARRANGEMENT TO SWITCH BETWEEN PUMPS FOR MAINTENANCE.
9. FIXED ACCESS PIERS ARE PRECAST DOUBLE TEE DECK SUPERSTRUCTURE AND PRECAST PILES WITH CAST IN PLACE BEAM SUBSTRUCTURE, SUBJECT TO CONTRACTOR FINAL DESIGN FOR SPACING AND MEMBER DIMENSIONS.

LEGEND:

- MOORING PILE
- SEWAGE PUMP-OUT EQUIPMENT OR SERVICE POINT.
- WASTE RECEPTACLES
- SLIP NUMBER
- FLOATING WAVE ATTENUATOR
- FLOATING DOCK
- FLOATING FINGER PIER
- FIXED PIER
- GANGWAY
- RECYCLE RECEPTACLES

= Limits of Sidewalk removal & Replacement
Face of Sea wall cap to Face of Buildings
Approx. 9' wide

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)



FOR BIDDING PURPOSES ONLY
NOT FOR CONSTRUCTION

Mark	Description	Date	Appr.
0	ISSUED FOR BIDDING	3/15/13	RC
A	ISSUED FOR CLIENT REVIEW	8/21/12	RC

Designed by: R. CZLAPINSKI
Drawn By: J. DAVIS
Checked By: G. CONTRERAS
Reviewed By: R. CZLAPINSKI
Design file no: 3088C-103.dwg
Scale: AS SHOWN

TETRA TECH, INC.
759 SOUTH FEDERAL HWY
SUITE 100
STUART, FL 34994-2936
TEL: (772) 781-3400
FAX: (772) 781-3411
CERTIFICATE OF AUTHORIZATION NO. 2429

CITY MARINA RECONSTRUCTION
PHASE II-CITY MARINA REBUILD DOCKS
SITE CONCEPT PLAN
ST. LUCIE COUNTY, FLORIDA

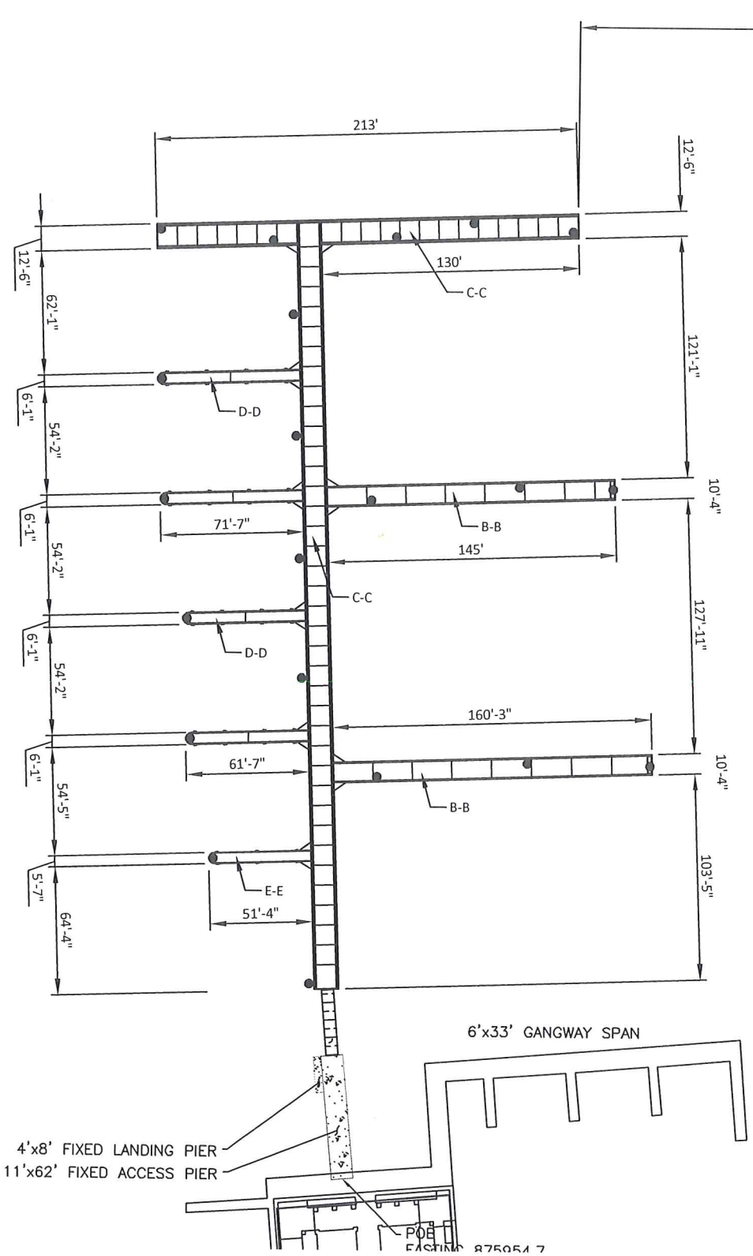
Sheet Reference: C-103
Sheet 6 of 12

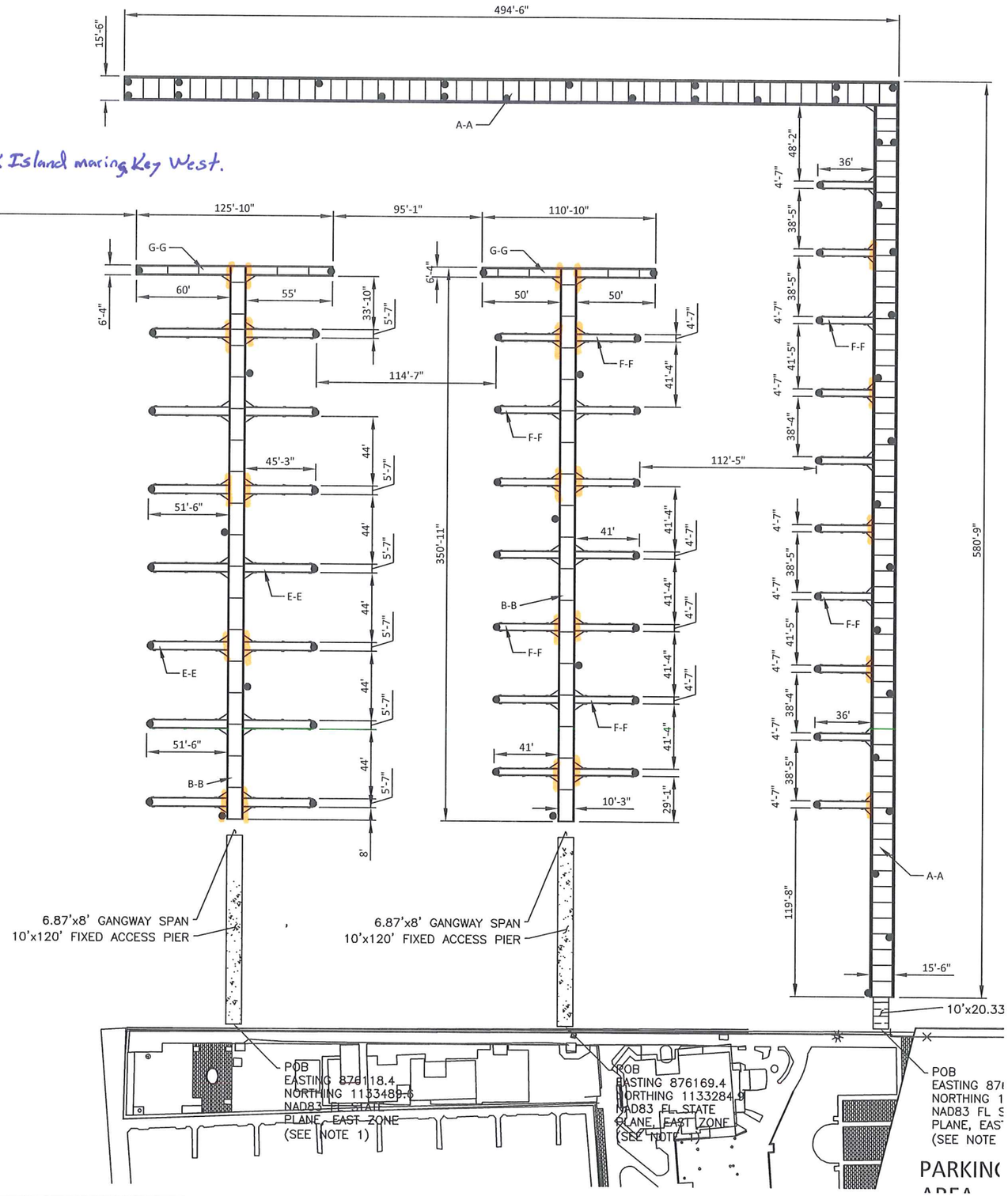
Attachment C

Item Deleted From Bid

20"Ø STEEL PIPE PILE w/
22" HDPE SLEEVE 105
TOTAL

=Cross over trench
As used on Stock Island marina, Key West.





Bellingham MARINE®
The World's Most Comprehensive Marina Builder
1813 Dennis Street
Jacksonville, FL 32204
TEL: (904) 358-3362
FAX: (904) 354-4818

UNIFLOAT®
Precision engineered flotation systems

FT. PIERCE MARINA
ST. LUCIE COUNTY, FL.
LAYOUT

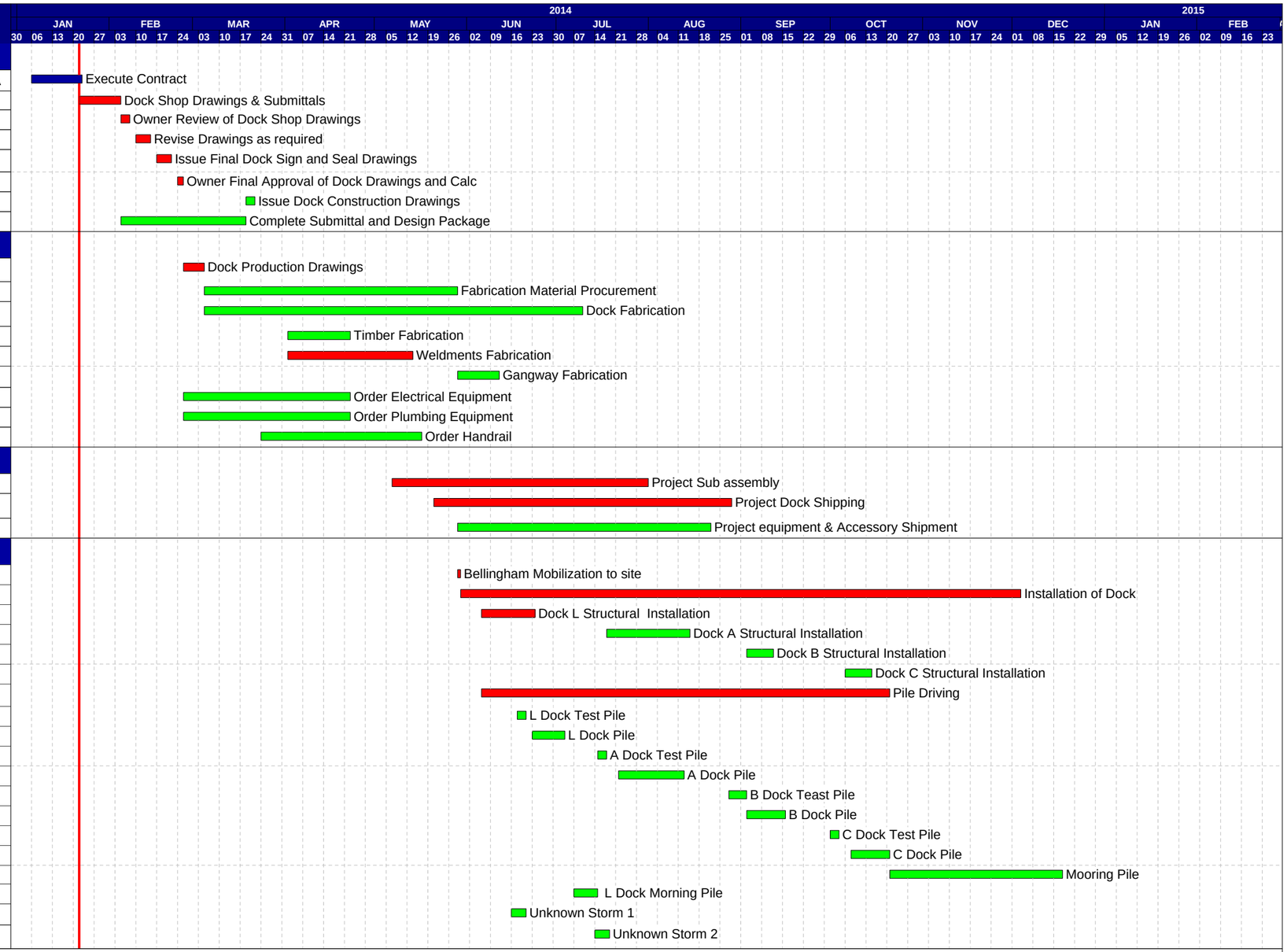
Revisions:
1 REVISIONS 6-6-13 JWC
2 DESIGN REVISIONS 10-8-13

Drawn by: JWC
Reviewed by:
Date: 3-7-13
Scale: NS
Project No.
NJ

Sheet: 2 of 4

Attachment D, January 13, 2014

Act ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish
Contract & Permitting					
0003	Execute Contract	13	0	06JAN14 A	22JAN14 A
0010	Dock Shop Drawings & Submittals	10	10	22JAN14 A	04FEB14
0020	Owner Review of Dock Shop Drawings	3	3	05FEB14	07FEB14
0030	Revise Drawings as required	5	5	10FEB14	14FEB14
0040	Issue Final Dock Sign and Seal Drawings	5	5	17FEB14	21FEB14
0050	Owner Final Approval of Dock Drawings and Calc	2	2	24FEB14	25FEB14
0060	Issue Dock Construction Drawings	3	3	19MAR14	21MAR14
0070	Complete Submittal and Design Package	30	30	05FEB14	18MAR14
Project Manufacturing					
1000	Dock Production Drawings	5	5	26FEB14	04MAR14
1010	Fabrication Material Procurement	60	60	05MAR14	28MAY14
1020	Dock Fabrication	89	89	05MAR14	09JUL14
1030	Timber Fabrication	15	15	02APR14	22APR14
1040	Weldments Fabrication	30	30	02APR14	13MAY14
1050	Gangway Fabrication	10	10	29MAY14	11JUN14
1060	Order Electrical Equipment	40	40	26FEB14	22APR14
1070	Order Plumbing Equipment	40	40	26FEB14	22APR14
1080	Order Handrail	40	40	24MAR14	16MAY14
Project Shipping and Subassembly					
2000	Project Sub assembly	60	60	07MAY14	31JUL14
2010	Project Dock Shipping	70	70	21MAY14	28AUG14
2020	Project equipment & Accessory Shipment	60	60	29MAY14	21AUG14
Project Mobilization & Installation					
3000	Bellingham Mobilization to site	1	1	29MAY14	29MAY14
3010	Installation of Dock	130	130	30MAY14	03DEC14
3011	Dock L Structural Installation	12	12	06JUN14	23JUN14
3013	Dock A Structural Installation	20	20	18JUL14	14AUG14
3015	Dock B Structural Installation	7	7	03SEP14	11SEP14
3017	Dock C Structural Installation	7	7	06OCT14	14OCT14
3020	Pile Driving	95	95	06JUN14	20OCT14
3021	L Dock Test Pile	3	3	18JUN14	20JUN14
3022	L Dock Pile	9	9	23JUN14	03JUL14
3023	A Dock Test Pile	3	3	15JUL14	17JUL14
3024	A Dock Pile	16	16	22JUL14	12AUG14
3025	B Dock Teast Pile	3	3	28AUG14	02SEP14
3026	B Dock Pile	9	9	03SEP14	15SEP14
3027	C Dock Test Pile	3	3	01OCT14	03OCT14
3028	C Dock Pile	9	9	08OCT14	20OCT14
3030	Mooring Pile	40	40	21OCT14	17DEC14
3031	L Dock Morning Pile	6	6	07JUL14	14JUL14
3040	Unknown Storm 1	5	5	16JUN14 *	20JUN14
3050	Unknown Storm 2	5	5	14JUL14 *	18JUL14



Start date	09JAN14
Finish date	18FEB15
Data date	22JAN14
Run date	13JAN14
Page number	1A

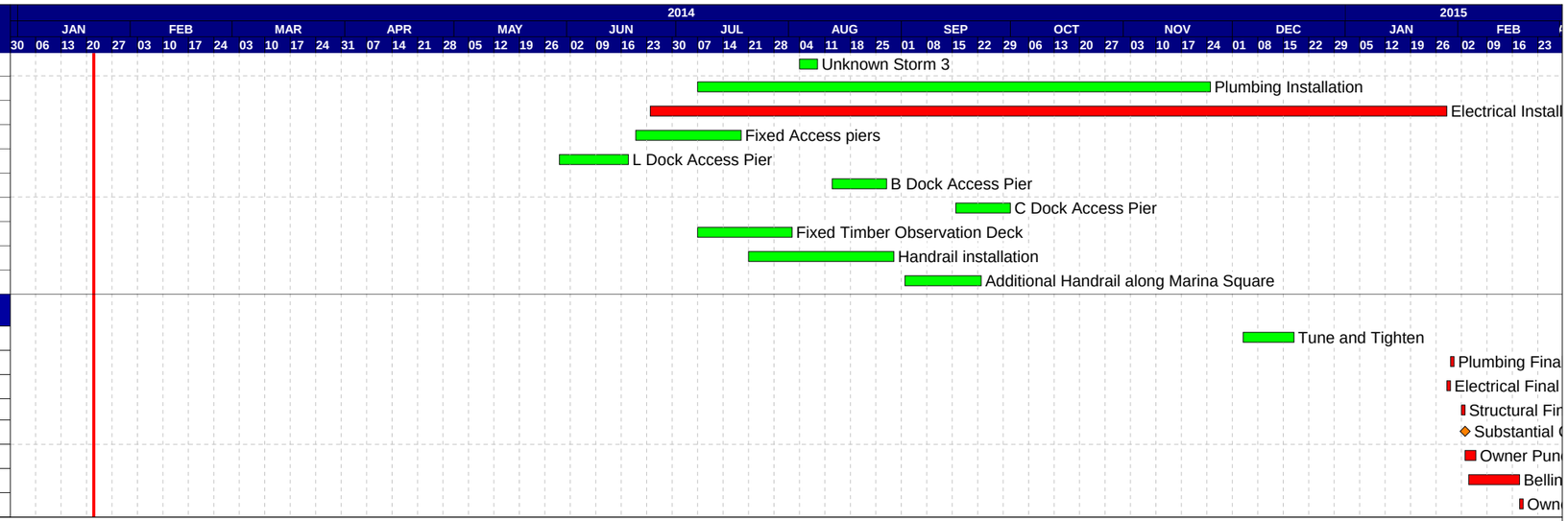
Bellingham MARINE ®
The World's Most Comprehensive Marina Builder

City of Ft. Pierce Marina
1/10/14
V2.0

Ft. Pierce City Marina
The Sunrise City

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point

Act ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish
3060	Unknown Storm 3	5	5	04AUG14 *	08AUG14
3070	Plumbing Installation	100	100	07JUL14	24NOV14
3080	Electrical Installation	150	150	24JUN14	28JAN15
3090	Fixed Access piers	20	20	20JUN14	18JUL14
3092	L Dock Access Pier	13	13	30MAY14	17JUN14
3095	B Dock Access Pier	11	11	13AUG14	27AUG14
3097	C Dock Access Pier	11	11	16SEP14	30SEP14
3100	Fixed Timber Observation Deck	20	20	07JUL14	01AUG14
3110	Handrail installation	30	30	21JUL14	29AUG14
3115	Additional Handrail along Marina Square	15	15	02SEP14	22SEP14
Project Close-Out					
4000	Tune and Tighten	10	10	04DEC14	17DEC14
4010	Plumbing Final	1	1	30JAN15	30JAN15
4020	Electrical Final	1	1	29JAN15	29JAN15
4030	Structural Final	1	1	02FEB15	02FEB15
4040	Substantial Completion	0	0		02FEB15
4050	Owner Punch List Walk	3	3	03FEB15	05FEB15
4060	Bellingham Punch List Completion	10	10	04FEB15	17FEB15
4070	Owner Final Approval of Installation	1	1	18FEB15	18FEB15



Start date	09JAN14
Finish date	18FEB15
Data date	22JAN14
Run date	13JAN14
Page number	2A

Bellingham MARINE
The World's Most Comprehensive Marina Builder

City of Ft. Pierce Marina
1/10/14
V2.0

Ft. Pierce City Marina
The Sunrise City

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point

ENGINEERING GROUP

306 Commercial Drive, Suite B
Savannah, Georgia 31406
(912) 201-1807
www.hk-engr.com

January 13, 2014

Mr. Kevin Thompson
Bellingham Marine
1813 Dennis Street
Jacksonville, FL 32204

RE: WAVE ATTENUATION PERFORMANCE DETERMINATION
Ft. Pierce City Marina Expansion
Fort Pierce, Florida
RFP No. 2013-021
H+K Proj. No. B1000.065

Dear Mr. Thompson,

Per your request, H+K Engineering Group (H+K) has evaluated the wave attenuation performance of the proposed floating dock system for the Ft. Pierce City Marina Expansion located in Fort Pierce, Florida. According to H+K's analysis, the proposed dock system as designed shall meet the "good" wave climate as specified by the user in *Addendum 2* dated June 13, 2013 The following letter report summarizes our calculations and provides our recommendations.

Floating wave attenuators generally function based on the power transmission theory modified to account for wave reflectivity and breadth of structure (ASCE, 2012). These systems attenuate or "dampen" waves as opposed to absorbing or blocking waves. The amount of normal wave energy reflected or transmitted at the breakwater is a function of the structure below the surface and the width of the structure. Additionally the mass of the structure also dissipates the wave energy as the wave attempts to the lift the structure. The following parameters were used to determine the floating wave attenuation performance:

TABLE 1: Floating Wave Attenuator Performance Parameters

PARAMETER	VALUE
Breadth of Float, B	As shown in Table 2
Draft of Float, D	As shown in Table 2
Water Depth, d	10 ft average
Local Wavelength, L	$5.12\ T^2$; *T = wave period*

Analyzing the proposed system for a significant wave defined by H_S = 3.2 ft and T = 2.8 seconds, the resultant wave attenuation performance is presented in the table below. According to the predicted attenuation performance, the proposed floating dock system design shall attenuate waves within the criteria for a "good" wave climate (ASCE, 2012). The predicted wave attenuation is approximately 50% on average, which forecasts a wave condition at the berths of 1.6 ft for the specified significant wave height and period.

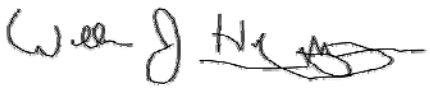
TABLE 2: Floating Wave Attenuator Performance Results

DOCK	OVERALL FLOAT DIMENSION	CONCRETE FLOAT BREADTH	FLOAT DEPTH / DRAFT	WAVE ATTENUATION PERFORMANCE
A-Dock	15'-6"	13'-0"	54" / 34"	52%
T-Dock	12'-6"	10'-0"	54" / 34"	46%

If increased wave attenuation performance is desired, the user is limited by float breadth due to permit conditions and can only increase float draft to increase performance. The proposed floating dock system float can be increased to a maximum depth of 60" with a draft of 48" for both the A-Dock and T-dock. Using the same analysis as identified above, the maximum float attenuation performance that can be achieved with a 48" freeboard is approximately 62 % and 57% for A-Dock and T-dock, respectively. Although greater attenuation performance is achieved, the cost to increase the float size to 60 inches is a dimensioning return with increased performance; and the proposed system as designed already meets the user's specified criteria. However if the user desires the additional wave attenuation performance, please notify us and we will provide you with a revised calculation report with new float depths.

Thank you for your time and commitment to making this project successful. We are very confident that the proposed design meets the "good" wave climate as specified by the user. Please feel free to contact me by phone or email at (912) 201-1807 or whuffman@hk-engr.com..

Sincerely,



William J. Huffman, PE
Principal

Table 2-5. Generalized Harbor Tranquility Goals

Provisionally Recommended Criteria for a "Good" Wave Climate in Small Craft Harbors[a]			
Direction and Peak Period of Design Harbor Wave	Wave Event Exceeded Once in 50 Years	Wave Event Exceeded Once a Year	Wave Event Exceeded Once Each Week
Head seas <2 sec	These conditions not likely to occur during this event	Less than 1-ft wave height	Less than 1-ft wave height
Head seas between 2 and 6 sec	Less than 2-ft wave height	Less than 1-ft wave height	Less than 0.5-ft wave height
Head seas >6 sec	Less than 2-ft wave height or 4-ft horizontal wave motion	Less than 1-ft wave height or 2-ft horizontal wave motion	Less than 0.5-ft wave height or 1.5-ft horizontal motion
Oblique seas	Less than $(2 - 1.25 \sin\theta)$ ft where θ is the wave angle from head sea	Less than $(1 - 0.5 \sin\theta)$ ft where θ is the wave angle from head sea	Less than $(0.5 - 0.25 \sin\theta)$ ft where θ is the wave angle from head sea
Beam seas <2 sec	The conditions not likely to occur during this event	Less than 1-ft wave height	Less than 1.0-ft wave height
Beam seas between 2 and 6 sec	Less than 0.75-ft wave height	Less than 0.5-ft wave height	Less than 0.25-ft wave height
Beam seas >6 sec	Less than 0.75-ft wave height or 2-ft horizontal motion	Less than 0.5-ft wave height or 1-ft horizontal motion	Less than 0.25-ft wave height or 0.75-ft horizontal motion

[a]For criteria for an "excellent" wave climate, multiply by 0.75; for a "moderate" wave climate, multiply by 1.25.
Source: Cox (2003)