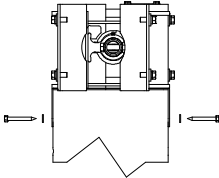


# HURRICANE BOAT LIFTS

## CATEGORY-5 VERTICAL LIFTS ENGINEERING SPECIFICATIONS

STAINLESS STEEL PILING  
MOUNT BRACKET WITH  
2-3/8" BOLTS CONNECTING  
THE BRACKET TO THE  
ASSEMBLY. 1-3/8" x 3"  
STAINLESS STEEL LAG BOLTS  
INTO EACH SIDE OF THE  
PILINGS



DETAIL  
PILING PENETRATION  
TO BE 10' INTO THE  
SAND BOTTOM OR 5'  
INTO THE ROCK STRATA  
MINIMUM

REVIEWED FOR  
CODE COMPLIANCE

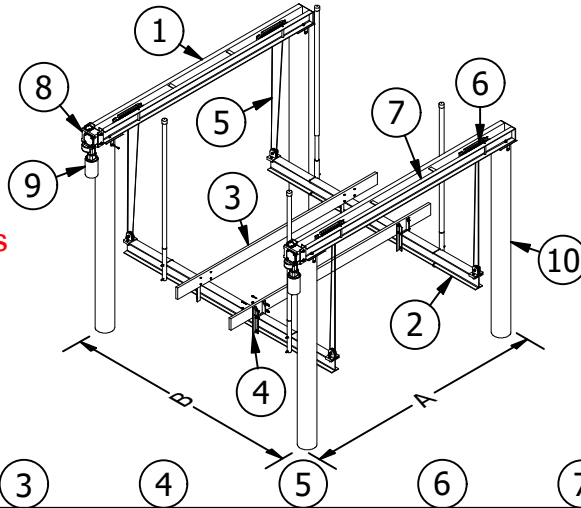


APPROVED

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PB24-0663

Jonathan Pettus



	A	B
RECOMMENDED PILING SPACING	OUT TO OUT	CENTER TO CENTER
4,500	150"	132"
7,000	150"	144"
10,000	150"	150"
13,000	150"	150"
16,000	150"	168"
20,000	168"	168"
24,000	192"	192"

	1	2	3	4	5	6	7	8	9	10
LIFT CAPACITY	TOP BEAM	LIFTER I-BEAM	BUNKS (STD)	BUNK BRACKET	CABLES	WINDERS	DRIVE SHAFT	GEAR DRIVE UNIT	MOTOR H.P. V/A	REC. PILING SIZE
4,500	4" x 2" x .15/.23 x 150" 6061-T6 ALUM.	6" x 4" x .19/.29 x 132" 6061-T6 ALUM.	2" x 8" x 12' PT CARPETED	2" x 2" x .25" ADJUSTABLE 6061-T6 ALUM.	5/16" x 20' 304 SS 1 PART	2.375" x 15.75" ALUMINUM	1 1/2" 8 GA GALVANIZED	DIRECT DRIVE HIGH SPEED	3/4 HP 1 HP	8" - 10" DIAMETER
7,000	5" x 2.25" x .15/.26 x 150" 6061-T6 ALUM.	6" x 4" x .21/.35 x 144" 6061-T6 ALUM.	2" x 8" x 12' PT CARPETED	2" x 2" x .25" ADJUSTABLE 6061-T6 ALUM.	5/16" x 20' 304 SS 1 PART	2.375" x 15.75" ALUMINUM	1 1/2" 8 GA GALVANIZED	DIRECT DRIVE HIGH SPEED	1 HP 1 1/2 HP	8" - 10" DIAMETER
10,000	6" x 2.5" x .17/.29 x 150" 6061-T6 ALUM.	8" x 5" x .23/.35 x 150" 6061-T6 ALUM.	2" x 8" x 12' PT CARPETED	2" x 2" x .25" ADJUSTABLE 6061-T6 ALUM.	5/16" x 35' 304 SS 2 PART	2.375" x 15.75" ALUMINUM	1 1/2" 8 GA GALVANIZED	DIRECT DRIVE HIGH SPEED	3/4 HP 1 HP	9" - 10" DIAMETER
13,000	7" x 2.75" x .17/.29 x 150" 6061-T6 ALUM.	8" x 5" x .25/.41 x 150" 6061-T6 ALUM.	2" x 8" x 12' PT CARPETED	2" x 2" x .25" ADJUSTABLE 6061-T6 ALUM.	5/16" x 35' 304 SS 2 PART	2.375" x 15.75" ALUMINUM	1 1/2" 8 GA GALVANIZED	DIRECT DRIVE HIGH SPEED	1 HP 1 1/2 HP	9" - 10" DIAMETER
16,000	7" x 3.5" x .21/.38 x 150" 6061-T6 ALUM.	10" x 6" x .25/.41 x 168" 6061-T6 ALUM.	3" x 10" x 12' PT CARPETED	2" x 3" x .25" ADJUSTABLE 6061-T6 ALUM.	5/16" x 35' 304 SS 2 PART	2.375" x 15.75" ALUMINUM	1 1/2" 8 GA GALVANIZED	DIRECT DRIVE HIGH SPEED	1 HP 1 1/2 HP	9" - 10" DIAMETER
20,000	8" x 3.75" x .25/.41 x 168" 6061-T6 ALUM.	10" x 6" x .25/.41 x 168" 6061-T6 ALUM.	3" x 10" x 14' PT CARPETED	2" x 3" x .25" ADJUSTABLE 6061-T6 ALUM.	5/16" x 50' 304 SS 3 PART	3.5" x 20" ALUMINUM	1 1/2" 8 GA GALVANIZED	HIGH SPEED	1 1/2 HP	10" - 12" DIAMETER
24,000	8" x 3.75" x .25/.41 x 192" 6061-T6 ALUM.	10" x 6" x .29/.50 x 192" 6061-T6 ALUM.	3" x 10" x 16' PT CARPETED	2" x 3" x .25" ADJUSTABLE 6061-T6 ALUM.	5/16" x 50' 304 SS 3 PART	3.5" x 20" ALUMINUM	1 1/2" 8 GA GALVANIZED	HIGH SPEED	1 1/2 HP	10" - 12" DIAMETER

### STRUCTURAL NOTES:

THE WORK SPECIFIED HERIN HAS BEEN DESIGNED & ALL WORK SHALL BE IN ACCORDANCE WITH STRUCTURAL PROVISIONS OF THE 8TH EDITION 2023 FLORIDA BUILDING CODE. THIS LIFTING STRUCTURE HAS BEEN DESIGNED TO WITHSTAND WIND LOADS ASSOCIATED WITH WIND SPEEDS OF VULT=180 MPH, VASD= 139 MPH (3 SEC. GUST) EXPOSURE 'D' WITHOUT A BOAT ON THE LIFT PER ASCE 7-22 USING ABOVE GROUND SIGN/WALL METHOD, THE LIFTING STRUCTURE INCLUDING BOAT HAS BEEN DESIGNED TO WITHSTAND WIND SPEEDS OF VULT= 90 MPH IN EXPOSURE 'C' OR 80 MPH IN EXPOSURE 'D'.

OWNER RESPONSIBLE TO REMOVE BOAT FROM LIFT DURING WINDSTORM EVENT IN EXCESS Vasd AS CALCULATED BELOW, PER FBC 3105.5.3 STRUCTURES DESIGNED TO BE READILY REMOVED OR REPOSITIONED DURING PERIODS OF HIGH WIND VELOCITY SHALL BE POSTED WITH A LEGIBLE AND READILY VISIBLE DECAL OR PAINTED INSTRUCTIONS TO BE THE OWNER OR TENANT TO REMOVE OR REPOSITION THE STRUCTURE OR PART THEREOF DURING SUCH PERIODS OF TIME AS ARE DESIGNATED BY THE U.S. WEATHER BUREAU AS BEING A HURRICANE WARNING OR ALERT. THE LIFT OWNER SHALL BE NOTIFIED OF THESE CONDITIONS BY THE PERMIT HOLDER. NO WARRANTY, EXPRESSED OR IMPLIED, IS CONTAINED HEREIN. Vasd MAY BE CALCULATED BY THE FOLLOWING FORMULA:  $V_{asd} = v \cdot 0.6 \cdot V_{ult}$ . DESIGN OF BOAT WIND LOADING HAS BEEN PERFORMED WITH THE FOLLOWING RATIOS AS CONFIRMED BY OTHERS:  $B/s=3$ ,  $s/h = 0.75$ , FOR A Cf OF 1.6 MAXIMUM WHERE H IS THE HEIGHT TO TOP OF BOAT, B IS HORIZONTAL DIMENSION, AND S IS VERTICAL DIMENSION.

NAME: Storm Marine  
ADDRESS: 5734 Swift Rd.  
CITY: Sarasota STATE: FL ZIP: 34231

OSCAR M. BERMUDEZ, PE. DATE: \_\_\_\_\_  
REG. FLORIDA NO. 55141

Digitally  
signed by  
Oscar M  
Bermudez  
Date:  
2024.04.18  
11:49:56  
-04'00'

HURRICANE BOAT LIFTS  
3301 SE SLATER STREET  
STUART, FLORIDA 34997  
(772)-781-2556  
FAX (772)-781-4854

B&B ENGINEERS,  
2237 WOODS EDGE CIRCLE  
ORLANDO, FL 32817

REVISION HISTORY				
REV	DESCRIPTION	DATE	DESIGNER	APPROVED
A	INITIAL RELEASE	9/27/2023	J.N.	
B	BUILDING CODE WAS 7TH EDITION 2020	1/9/2024	T.U.	
C	ASCE CODE WAS 7-16	2/13/2024	T.U.	

# HURRICANE BOAT LIFTS

## CATEGORY-5 VERTICAL LIFTS ENGINEERING SPECIFICATIONS

CERTIFICATION OF BOAT LIFT TO EXISTING STRUCTURE AND ALL ELECTRICAL OR MECHANICAL CERTIFICATIONS ARE BY OTHERS; ENGINEER SEAL CERTIFIES ASSEMBLY OF LIFT ONLY. THIS DETAIL IS PREPARED AS A GENERAL NON-SITE SPECIFIC MASTER PLAN SHEET DETAIL. TYPICAL FIELD CONDITIONS ARE ASSUMED IN THE DESIGN. WOOD PILES SHALL BE SEASONED WOOD WITH  $G=0.55$  OR BETTER. SHOULD ANY SPECIFIC LOCATION DIFFER FROM THAT SPECIFIED HEREIN, OR STANDARD FIELD CONDITIONS, ADDITIONAL SPECIFIC ENGINEERING MAY BE REQUIRED AS DETERMINED BY THE BUILDING INSPECTOR AND PERMITTING CONTRACTOR. CARE SHALL BE TAKEN BY CONTRACTOR IN ALL APPLICATIONS OF THIS DETAIL. AS THIS IS NOT A SITE SPECIFIC DRAWING, IT IS THE RESPONSIBILITY OF OTHERS TO ENSURE THE INTEGRITY OF INSTALLATION TO THE HOST STRUCTURE.

### ALUMINUM

MATERIAL: 6061 T6 ALUMINUM

ALL WELDS ARE MIN. 1/4" FULL FILLET WELD USING 5556 FILLER ALLOY. ALL WELDING MUST CONFORM TO AISC STEEL CONSTRUCTION MANUAL 13TH ED AS INSPECTED AND VERIFIED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALUMINUM MEMBERS FROM DISSIMILAR METALS TO PREVENT ELECTROLYSIS.

### FASTENERS

ALL ANCHORS TO BE HILTI BRAND OR MFR EQUIVALENT. ALL BOLTS SHALL BE HOT DIPPED GALVANIZED, OR STAINLESS STEEL & MEET THE REQUIREMENTS OF ASTM A304 WITH HARDENED WASHERS AND HEX NUTS. WASHERS SHALL BE USED BETWEEN WOOD & BOLT HEAD & BETWEEN WOOD & NUT. WHERE GENERIC FASTENERS ARE LABELED IN DETAILS, CAPACITIES SHALL BE EQUAL TO OR GREATER THAN HILTI KWIK BOLT II OR RED HEAD THRU BOLTS. EMBEDMENT DEPTHS SPECIFIED HEREIN ARE DEPTHS INTO SOLID SUBSTRATE AND DO NOT INCLUDE THICKNESS OF STUCCO OR OTHER FINISHES.

ALUMINUM MEMBERS IN CONTACT WITH CONCRETE AND WOOD SHALL BE PROTECTED BY HDPE (HIGH DENSITY POLYETHYLENE) BARRIER WRAP OR POLYETHYLENE TAPE UHMW (ULTRA HIGH MOLECULAR WEIGHT) 11.7 mils (0.30 mm) MIN. TOTAL THICKNESS IN ACCORDANCE WITH CURRENT FLORIDA BUILDING CODE. ALL WELDS PER FLORIDA BUILDING CODE.

B&B ENGINEERS HAS NOT VISITED THIS JOBSITE. INFORMATION CONTAINED HEREIN IS BASED ON CONTRACTOR SUPPLIED DATA AND MEASUREMENTS. B&B ENGINEERS SHALL NOT BE HELD RESPONSIBLE OR LIABLE IN ANY WAY FOR ERRONEOUS OR INACCURATE DATA OR MEASUREMENTS. WORK SHALL BE VERIFIED PRIOR TO CONSTRUCTION. B&B ENGINEERS SHALL BE NOTIFIED AND GIVEN AN OPPORTUNITY TO REEVALUATE OUR WORK UPON DISCOVERY OF ANY INACCURATE INFORMATION PRIOR TO MODIFICATION OF EXISTING FIELD CONDITIONS AND FABRICATION AND INSTALLATION OF MATERIALS.

ENGINEERING SEAL AFFIXED HERETO VALIDATES STRUCTURAL DESIGN AS SHOWN ONLY. USE OF THIS SPECIFICATION BY CONTRACTOR, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COSTS & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION & CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE, & FEDERAL CODES & FORM DEVIATIONS OF THIS PLAN, EXCEPT AS EXPRESSLY PROVIDED IN HEREIN, NO CERTIFICATION OR AFFIRMATIONS ARE INTENDED.

MOTOR SPECIFICATIONS		
H/P	VOLTS	AMPS
3/4	115/230	9.8/4.9
1	115/230	13.6/6.8
1/2	115/230	19.2/9.8
2	115/230	24.8/12.4



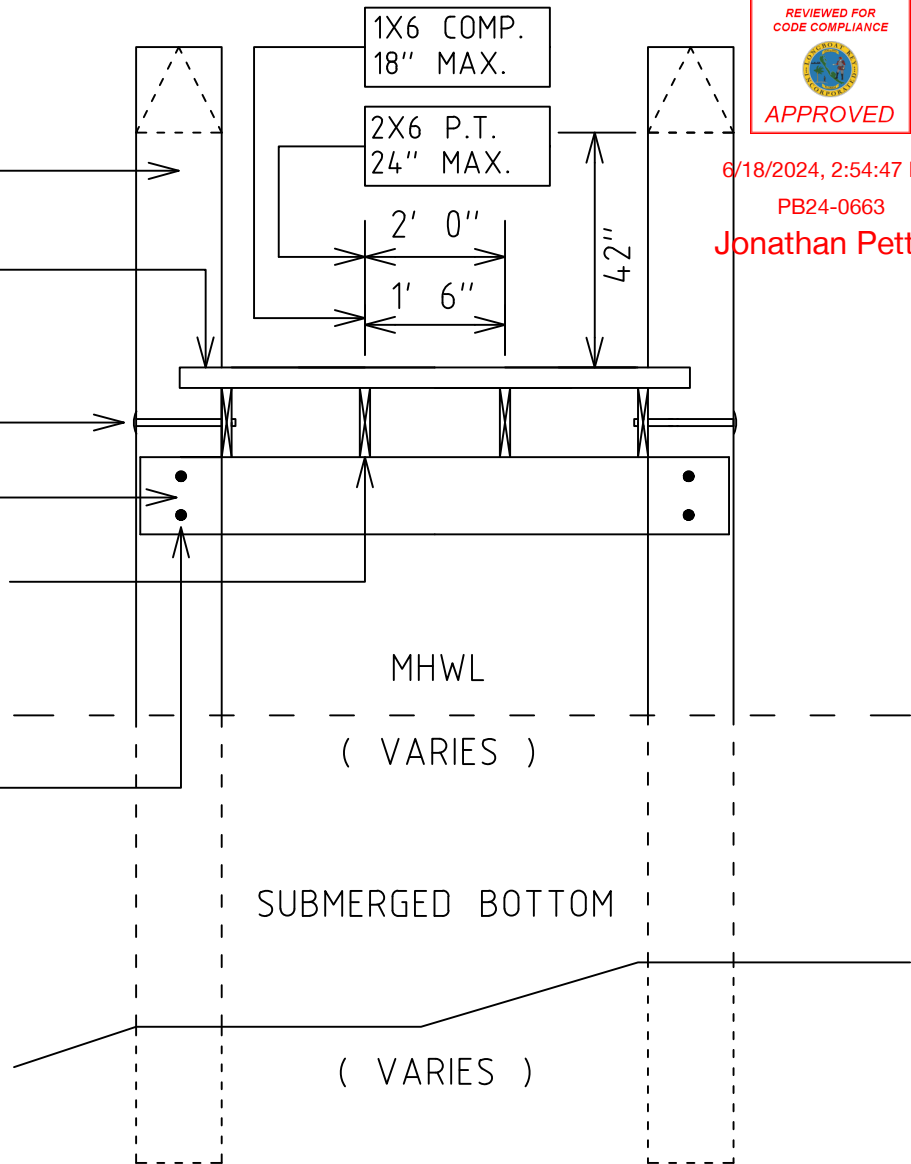
8" DIA. .25 CCA PILING JETTED 6' INTO BAY  
BOTTOM MECHANICALLY DRIVEN TO SETTLE.  
CUT END (CAPS OPTIONAL)

5/4"x6" COMPOSITE DECKING - GREY  
EDGES ROUTERD SMOOTH CUT AT  
CENTER LINE OF PILE.

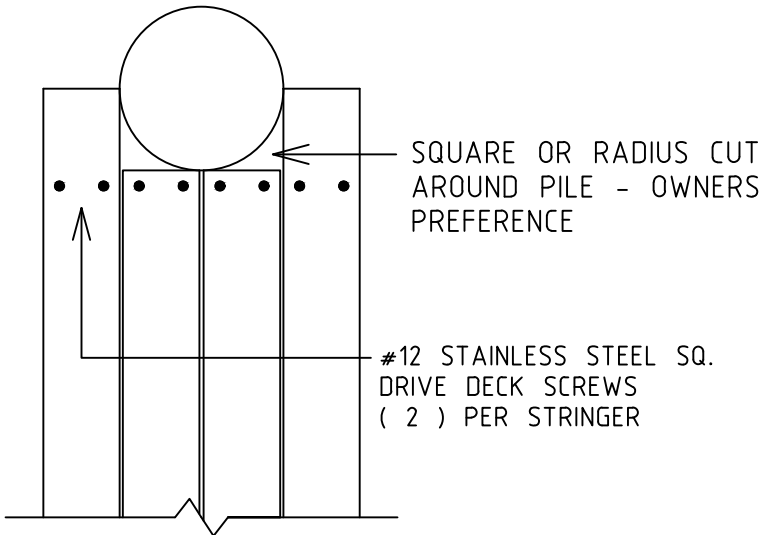
(1) 5/8" DIA. HDG CARRIAGE BOLT  
2/ HDG NUT & WASHER DRILLED  
THRU PILING.

2X8 PINE HEADER  
0.60 CCA TREATED  
FOR SPANS < 8'0"

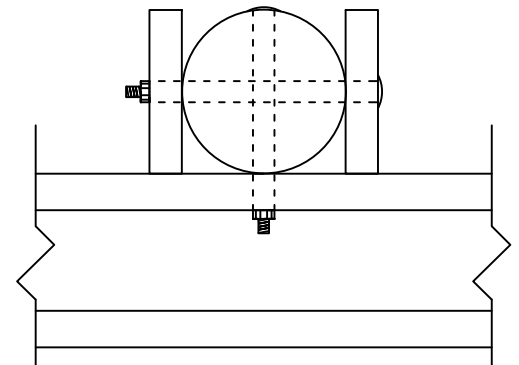
(1) 5/8" DIA. HDG CARRIAGE BOLT  
SINGLE FOR SPAN ( > 4' )  
DOUBLE FOR SPAN ( < 4' )



## TYPICAL DOCK SECTION



## TOP/PLAN VIEW



## TOP FRAMING VIEW





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Jonathan Pettus

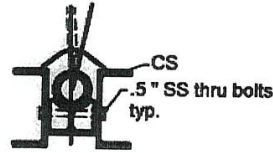
# Specifications : 6,000 lbs. through 40,000 lbs.

Note: Cable strength based on 20% of the rated breaking strength of a new cable.

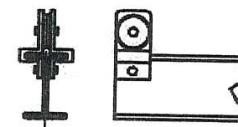
Capacity	6000 #	8000 #	10000 #	13000 #	16000 #	16000 #	20000 #	24000 #	27000 #	35000 #	40000 #
"A" Beam Length	12' - 6"	12' - 6"	12' - 6"	12' - 6"	12' - 6"	15'	15'	15'	15'	72"	72"
Galv. Steel Driveshaft	Schedule 40	Schedule 40	Schedule 40	Schedule 40	Schedule 40	Schedule 80	Schedule 80	Schedule 80	Schedule 80	Schedule 80	Schedule 80
Driveshaft I.D.	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Cable dia. Work Load	.313"	.313"	.313"	.313"	.313"	.313"	.375"	.375"	.375"	.375"	.375"
Cable Length	17'	31'	31'	31'	31'	31'	34'	34'	34'	34'	34'
Cable Configuration	1 Part	2 Part	2 Part	2 Part	2 Part	2 Part	2 Part	2 Part	2 Part	2 Part	2 Part
"CS" Channel Section	5" @ 2.212 lb/ft	5" @ 2.212 lb/ft	6" @ 2.834 lb/ft	7" @ 3.205 lb/ft	7" @ 4.715 lb/ft	7" @ 3.205 lb/ft	7" @ 4.715 lb/ft	8" @ 5.787 lb/ft	8" @ 5.787 lb/ft	7" @ 4.715 lb/ft	7" @ 4.715 lb/ft
I Beam Section	6 by 4 @ 4.03 lb	6 by 4 @ 4.7 lb	8 by 5 @ 6.181 lb/ft	8 by 5 @ 7.023 lb/ft	10 by 6 @ 8.846 lb/ft	10 by 6 @ 10.286 lb/ft	10 by 6 @ 10.286 lb/ft	10 by 6 @ 10.286 lb/ft	12 by 7 @ 14.29 lbs/ft	10 by 6 @ 10.286 lb/ft	12 by 7 @ 14.29 lbs/ft
I Beam Length	11'	11'	12' - 6"	12' - 6"	14'	16'	16'	16'	16'	18'	18'
Gearbox	2 @ 3500#	2 @ 3500#	2 @ 3500#	2 @ 4500#	2 @ 4500#	2 @ 4500#	2 @ 7000#	2 @ 7000#	2 @ 7000#	4 @ 7000#	4 @ 7000#
Drive HP	2 @ .75 HP.	2 @ .75 HP.	2 @ .75 HP.	2 @ 1 HP.	2 @ 1 HP. (with brake)	2 @ 1 HP. (with brake)	2 @ 1.5 HP. (with brake)	2 @ 1.5 HP. (with brake)	2 @ 1.5 HP. (with brake)	4 @ 1 HP. (with brake)	4 @ 1.5 HP. (with brake)
Min. Piling Size	8 in. dia	8 in. dia	10 in. dia	10 in. dia	10 in. dia	10 in. dia	10 in. dia	10 in. dia	10 in. dia	10 in. dia	10 in. dia

Driveshaft bearings: Aluminum with Grease Zerk  
 All Fasteners: .5" stainless steel unless otherwise specified.  
 All Structure: 6061-T6 aluminum unless otherwise specified.  
 All Cables: Stainless steel @ 5/16" or 3/8" dia.  
 All Sheaves: Machined 6061-T6 round bar 1" by .75" bronze bushing.

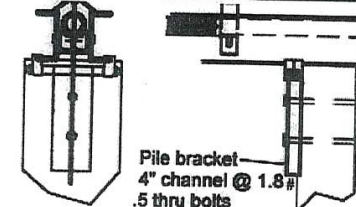
THIS STRUCTURE CAN WITHSTAND WIND  
 SPEEDS OF 180 MPH EXPOSURE "D" PER 2023  
 FLORIDA BUILDING CODE- 8TH EDITION



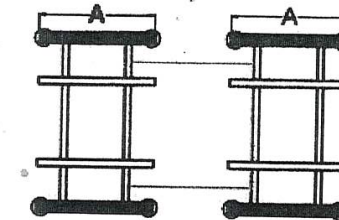
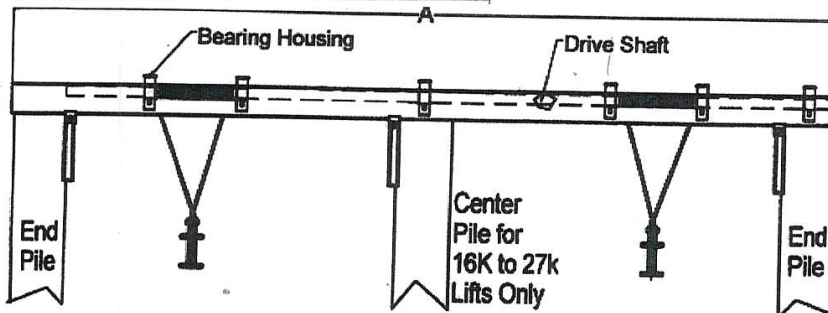
Typ. Bearing Housing  
and Drive Shaft Section



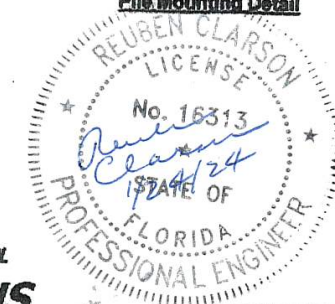
Typical Cradle End Detail



Pile Mounting Detail



Plan View 35,000 & 40,000# Boat Lift Only



**BOAT LIFT US**  
 866 Cape Coral Parkway E. Cape Coral, FL 33904

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CODE COMPLIANCE



APPROVED

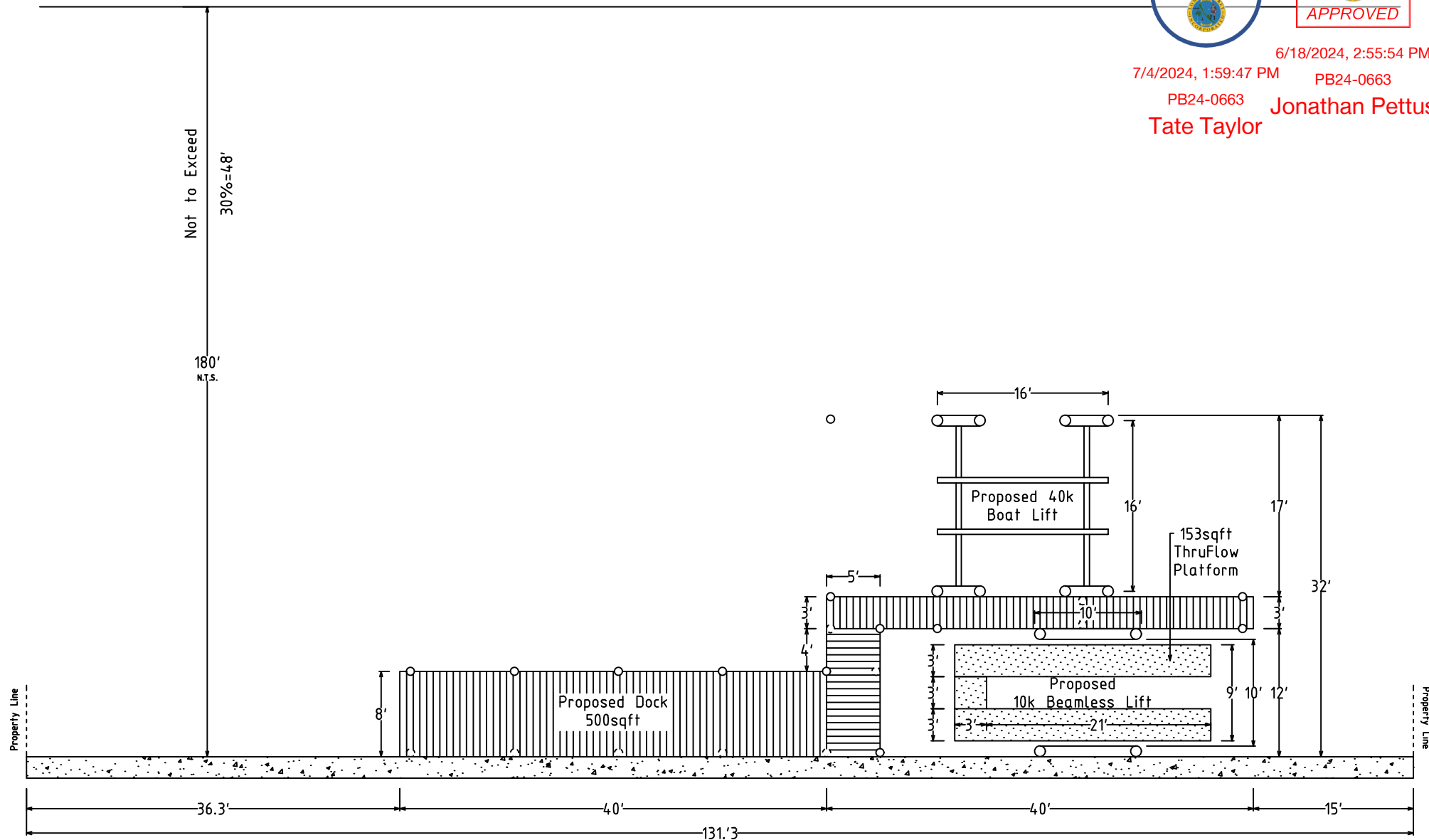
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PB24-0663

Jonathan Pettus

Tate Taylor



Maximum elevation of the walking surface of the dock not to exceed the height of sea wall
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730 Old Compass Rd  
Longboat Key, FL 34228

Pilings attached to the dock are subject to a maximum height limit of 8½ feet above the highest walking surface of the dock

No part of the boat lift structure, except boat guides, shall exceed a height of five feet, measured from the highest walking surface of the dock
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License No. SCC131150786  
5734 Swift Rd.  
Sarasota, FL 34231  
(941) 875-8610