ANTONIO MACEO PARK
STRUCTURAL CALCULATIONS

APPROVED FOR PERMIT
City of Miami
BUILDING DEPARTMENT
Approval of this plan is for permitting purposes only, and does not imply authority to violate, cancel, alter or set aside any of the provisions of the currently adopted technical codes, ordinances, laws or regulations, nor does issuance of a permit prevent the Building Official from requiring correction of errors in either the plans or construction, or any deficiencies which may have been omitted or overlooked in the plan review or permitting process.
BD18015988001
04/02/21
REVIEWED FOR CODE COMPLIANCE

Prepared for:

City of Miami
Office of Capital Improvements and Transportation
444 SW 2nd Avenue
Miami, FL 33130

By:

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State of Florida EB # 7087

OCT 01 2018

Andres Perez, P.E.
FL No. 66507

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PILES DESIGN CAPACITY

COASTAL SYSTEMS INTERNATIONAL, INC.
464 South Dixie Highway
Coral Gables, Florida 33146
Tel: 305/661-3655 Fax: 305/661-1914

JOB Maceo Park
SUBJECT Piles Design
SHEET NO. 1
CALCULATED BY MK
CHECKED BY

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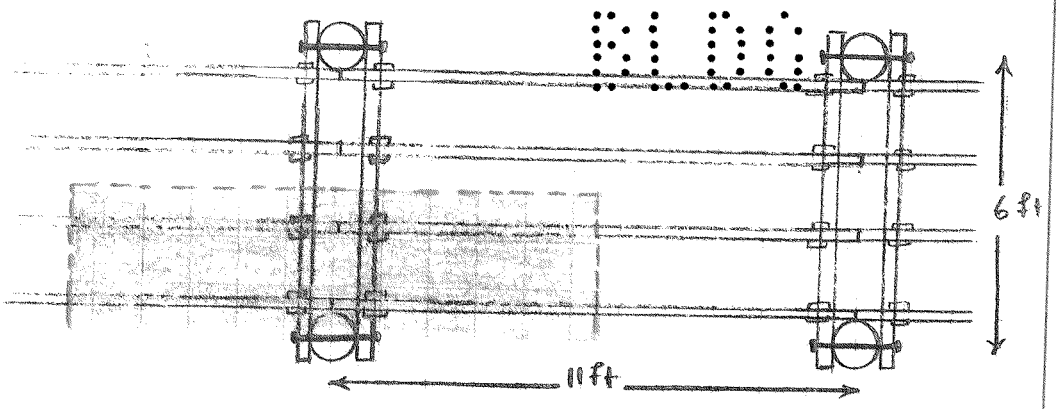
Dead load = 20 psf
Live load = 100 psf
Load area = 11 ft x $\frac{6 ft}{2}$

pile design capacity:
= (100 + 20) x 11 x 3 =
= 3960 lb
= 3.96 Kip
~ 2 Tons Compression



12" Ø Southern pine is O.K.

Mooring load:
Design vessel → 30 ft LOA
5 ft height
moored on 3 piles spaced at 11 ft

V = 74 mph = 108.53 ft/sec

$q = 0.00256\, C_d V^2 = 0.00256 \times 0.8 \times 108.53^2 = 24.123$ psf

$F = qA = 24.123 \times 5 \times 30 = 3618.45$ lb / N = 3 = 1206.15 lb per pile = 1.2 Kips lateral load

SCALE

MIA
10 12
BLDG

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BOLTS DESIGN

COASTAL SYSTEMS INTERNATIONAL
COASTAL SYSTEMS INTERNATIONAL, INC.
464 South Dixie Highway
Coral Gables, Florida 33146
Tel: 305/661-3655 Fax: 305/661-1914

JOB Macco Park
SUBJECT Bolts Design
SHEET NO.
CALCULATED BY MK
CHECKED BY

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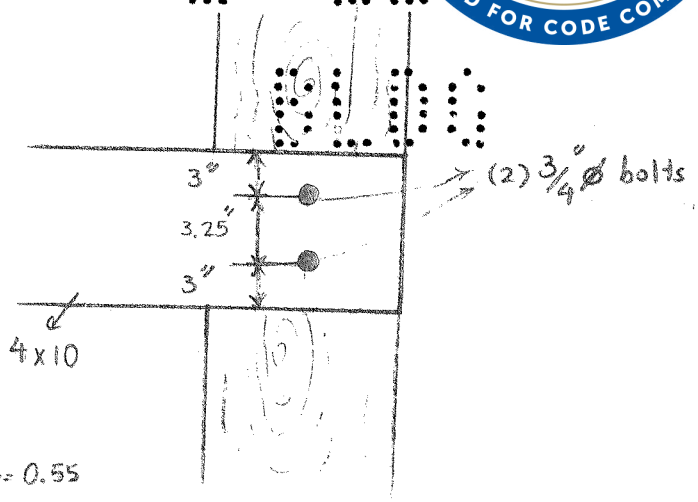
Prependicular to grain loading

End distance $\geq 4D = 4 \times 0.75 = 3''$ O.K
$= 6''$

Edge distance $\geq 4D = 3''$ O.K.



Dowel Bearing Strength for Southern pine G = 0.55

$D = 1'' \rightarrow \begin{cases} F_{e\parallel} = 6150 \text{ lb} \\ F_{e\perp} = 2550 \text{ lb} \end{cases}$

Failure mode is $Z = \frac{D l_s F_{es}}{K_\theta} = \frac{3/4 \times 3.5 \times 2550}{4 K_\theta = 4 \times (1 + 0.25(90/90))} = \frac{0.75 \times 3.5 \times 2550}{4 \times 1.25} = 1338.75$ lb

load to be taken by the bolts $= (100 + 20) \times 5.5 \times 3 = 1980$ lb $/ 2 = N = 990$ lb < 1338.75 lb
O.K

SCALE

MIA
10 1
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STAGING DOCKS-STRINGER

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Title: Maceo Park
Job Number 220260.10

Job number	220260.10	
Location	Staging Dock	
Member:	Stringer	
Input		
Span:	11.00	ft.
Tributary width:	1.58	ft.
Width of member:	2.50	inches
Height of member	9.25	inches
Dead load	20.00	psf
Additional Dead Load		psf
Live Load	100.00	psf
Output		
Total uniform load	0.19	kips/ft.
Moment:	2.87	ft. kips
End reaction:	1.05	kips
Shear Design Value (d from face of the support)	0.90	kips
Moment of Inertia of section	164.89	in^4
Section modulus	35.65	in^3
Bending stress	967	psi
Midspan deflection	0.23	inches
L/360 criteria	0.37	inches
L/240 criteria	0.55	inches

Assumptions: Rectangular member, uniformly loaded, simple beam condition, elastic range

Refrence Design Values			CM	CD	Cfu		
Fb	1200	psi	0.85	1.00	1.00	1020	psi
Fv	0.175	ksi	0.97	1.00	1.00	0.16975	ksi
E	1800	ksi	0.90	1.00	1.00	1620	ksi

Checking Shear
V' 2.62 kips

Provide: OK
No.1 Dense Southern Pine 3 x10 S4S

Job number	220260.10	
Location	Staging Dock	
Member:	Joist	
Input		
Span:	6.00	ft.
Tributary width:	5.50	ft.
Width of member:	3.50	inches
Height of member	9.25	inches
Dead load	20.00	psf
Additional Dead Load		psf
Live Load	100.00	psf
Output		
Total uniform load	0.66	kips/ft.
Moment:	2.97	ft. kips
End reaction:	1.98	kips
Shear Design Value (d from face of the support)	1.47	kips
Moment of Inertia of section	230.84	in^4
Section modulus	49.91	in^3
Bending stress	714	psi
Midspan deflection	0.05	inches
L/360 criteria	0.20	inches
L/240 criteria	0.30	inches

Assumptions: Rectangular member, uniformly loaded, simple beam condition, elastic

Refrence Design Values			CM	CD	Cfu		
Fb	1200	psi	0.85	1.00	1.00	1020	psi
Fv	0.175	ksi	0.97	1.00	1.00	0.16975	ksi
E	1800	ksi	0.90	1.00	1.00	1620	ksi

Checking Shear
V' 3.66 kips

Provide: OK
No.1 Dense Southern Pine 4 x10 S4S