(A0007031)

27 FEB. 84

LAKE PONTCHARTRAIN & VICINITY
LAKE FRONT LEVEE - IHNC TO WEST END - HIGH LEVEL PLAN

BASE LINE STATIONS	ELEVATIONS IN FEET NGVD	
	I-WALL IN LEVEE	I-WALL WITH BARGE BERM
26+21 (LIMIT OF FLOOD WALL)	15.0 (SEABROOK FLD. WALL)	15.0 (SEABROOK FLD. WALL)
26+21 - 28+00 (TRANSITION)	15.0 TO 18.0	15.0
28+00 - 79+18	18.0	15.0
79+18 - 83+28 (TRANSITION)	18.0 TO 20.0	15.0 TO 20.0
83+28 - 91+45 (AMERICAN STANDARD)	20.0	20.0
91+45 TO 94+60 (TRANSITION)	20.0 TO 17.0	20.0 TO 14.5
94+60 TO 112+20	17.0	14.5
112+20 TO 106+20 (TRANSITION)	17.0 TO 14.5	14.5
106+20 TO 133+50 (PONTCHARTRAIN BEACH)	14.5	14.5
133+50 TO 135+20 (TRANSITION)	14.5 TO 17.5	14.5
135+20 TO 161+00	17.5	14.5
183+23 TO 194+41	15.0	15.0
139+41 TO 246+37	17.5	14.5
250+72 TO 289+49	18.0	15.0
289+49 TO 306+00	18.5	15.5
306+00 TO 316+50 (TRANSITION)	18.5 TO 13.5	15.5 TO 13.5
316+50 TO 336+50 (ORLEANS MARINA)	13.5	13.5

DISPOSITION FORM

For use of this form, see AR 340-15, the proponent agency is TAGCEN.

REFERENCE OR OFFICE SYMBOL	SUBJECT
LMNED - HC	LAKE PONTCHARTRAIN, LA & VICINITY HURRICANE PROTECTION PROJECT - HIGH LEVEL PLAN DM NO 13 - ORLEANS PARISH LAKEFRONT LEVEES - WEST OF IHNC

TO	FROM	DATE	CMT 1
C/DES SVCS BR.	C/H & H BR.	21 FEB 84 EUGENE 2486	

Reference is made to our DF dated 6 Feb. 84 subject as above. Inclosed are revised wave force diagrams for the I-wall on levee with barge berm, and I-wall on levee which show the correct bottom elevations for the various wall heights.

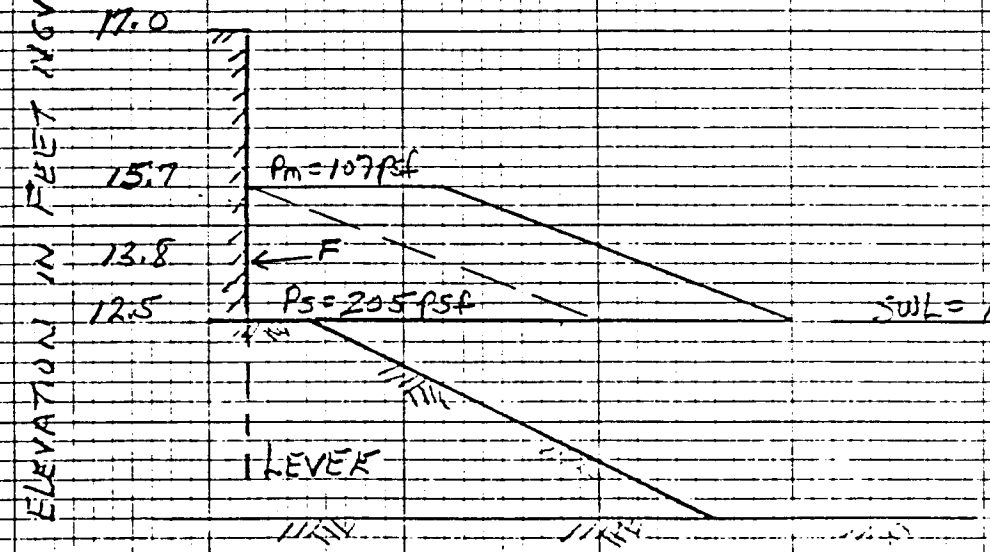
JMH

7 Incls.
as

CECIL W. SOILEAU
CHIEF/H&H BR.

DA FORM 1 FEB 61 2496 REPLACES DD FORM 36, WHICH IS OBSOLETE.

U.S. GPO 1979-0-310-981/8120



NOT TO SCALE

STA 94+60 TO 102+20

LAKE PONTCHARTRAIN & VICINITY
WAVE FORCES FOR I-WALL IN LEVEE
EL. OF WALL = 17.0 NGVD

2/17/54

I-WALL OF LEVEE 1 FEB. 84

LAKE PONTCHARTRAIN & VIC. HURRICANE PROT. - HIGH LEVEL

STA. 242+00 TO 246+37

$T = 7.3$ $H_{o_{MAX}} = 2.94$ $d_B = 3.34$ $d_s = 12.5 - 12.5 = 0$ ~~$12.5 - 5.0 = 7.5$~~

SWL = 12.5 Computer wall HT. = 17.0 Top of Levee = 12.5 Gr. El = 5.0

$\frac{H_{o_{MAX}}}{gT^2} = .0017$ $m = 0.02$ $\frac{H_b}{H_{o_{MAX}}} = 1.40$ $H_b = 2.94(1.40) = 4.1$

$h_c = .78(H_b) = .78(4.1) = 3.2$

$P_s = w(d_s + h_c) = 64\,(\cancel{7.5} + 3.2) = \cancel{655}\ 205$ lbs. per sq ft.

$P_m = \frac{w d_B}{2} = \frac{64(3.34)}{2} = 107$ lbs. per sq. ft

$R'_s = P_s \frac{(d_s + h_c)}{2} = \cancel{655}\ 205\ (\cancel{7.5} + 3.2) \frac{0}{2} = \cancel{3465}\ 328$ lbs.

$R_m = P_m h_c = 107(3.2) = 342$ lbs.

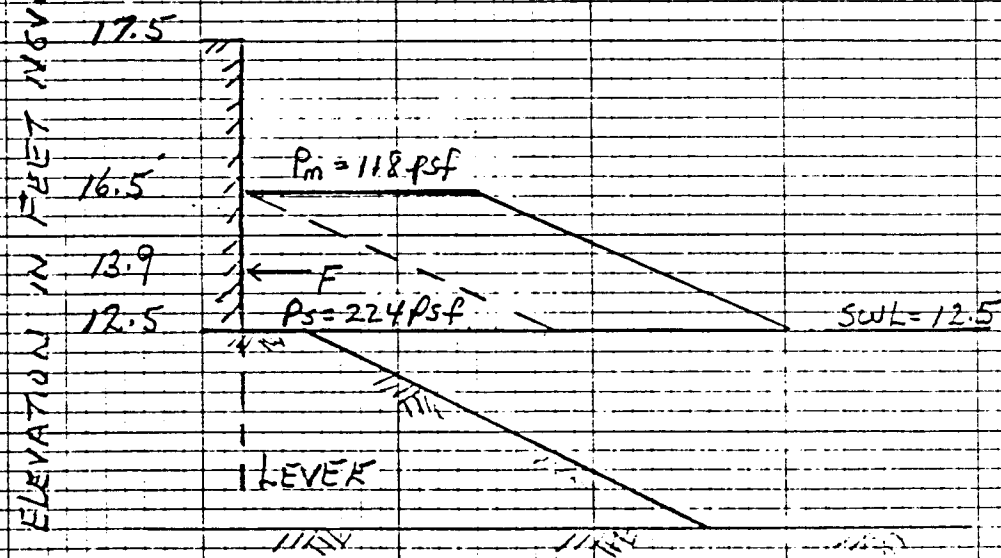
$R_T = R_s + R_m = \cancel{3465}\ 328 + 342 = \cancel{4007}\ 670$ lbs per linear ft.

$M_s = R_s \frac{(d_s + h_c)}{3} = \cancel{3465}\ 328\ (\cancel{7.5} + 3.2) \frac{0}{3} = \cancel{13072}\ 350$ ft lbs. per ft

$M_m = R_m \left(d_s + \frac{h_c}{2}\right) = 342\left(\cancel{7.5} + \frac{3.2}{2}\right) = \cancel{3442}\ 547$ ft. lbs. per ft.

$M_T = M_s + M_m = \cancel{13072}\ 350 + \cancel{3442}\ 547 = \cancel{16484}\ 897$ ft lbs. per ft.

$d_E = \frac{M_T}{R_T} = \frac{\cancel{16484}\ 897}{\cancel{4007}\ 670} = \cancel{4.0}\ 1.3$ ft + $\cancel{5.0}\ 12.5 = \cancel{9.0}\ 13.8$ ft. NGVD.



NOT TO SCALE

STA 135+20 TO 161+00
199+41 TO 246+37

LAKE PONTCHARTRAIN & VICINITY
WAVE FORCES FOR I-WALL IN LEVEE
EL. OF WALL = 17.5 NGVD

2/17/54

I-WALL ON LEVEE

1 FEB. 84

LAKE PONTCHARTRAIN & VIC. HURRICANE PROT. – HIGH LEVEL

STA. 451+15 to 774+11

$T = 7.3$ $H_{o_{MAX}} = 3.36$ $d_B = 3.70$ $d_s = 12.5 - 5.1 = 7.4$

SWL = 12.5 Comparing wall ht. = 17.5 TOP OF LEVEE = 12.5 NGVD

Gr. El. = 5.1 NGVD

$\frac{H_{o_{MAX}}}{gT^2} = 0.033$, $m = 0.02$ $\frac{H_b}{H_{o_{MAX}}} = 1.34$ $H_b = 1.5(1.34) = 4.5$

$h_c = .78(H_b) = .78(4.5) = 3.5$

$P_s = w(d_s + h_c) = 64(~~24~~ + 3.5) = ~~498~~\ 224$ lbs. per sq. ft

$P_m = \frac{wd_B}{2} = \frac{64(3.7)}{2} = 118$ lbs per sq ft.

$R'_s = P_s \frac{(d_s + h_c)}{2} = ~~494~~\ 224 \frac{(~~24~~\ 0 + 3.5)}{2} = ~~3504~~\ 392$ lbs.

$R_m = P_m h_c = 118(3.5) = 413$ lbs.

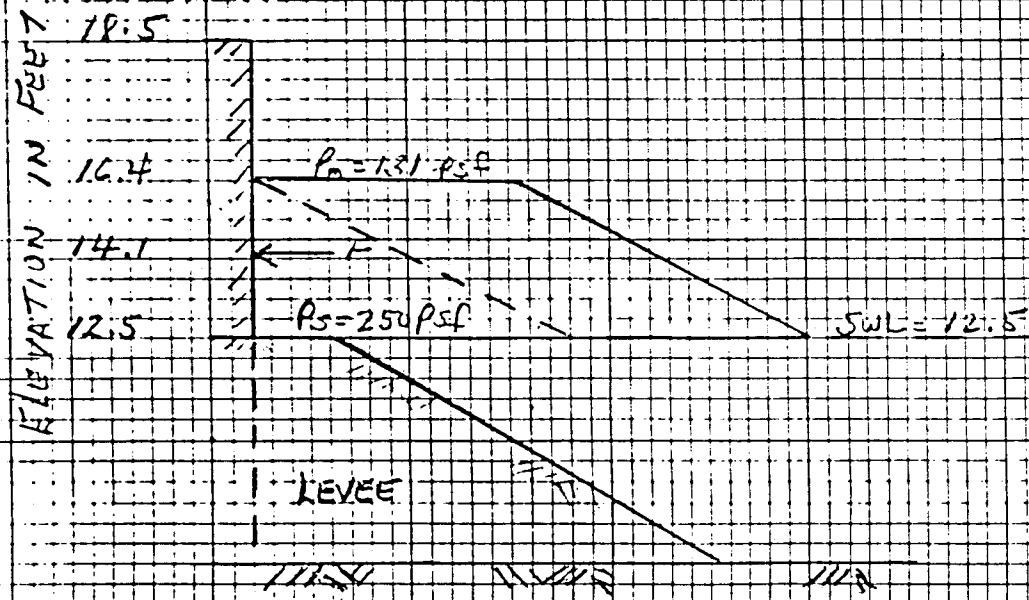
$R_T = R_s + R_m = ~~3504~~\ 392 + 413 = ~~4217~~\ 805$ lbs per lin. ft.

$M_s = R_s \frac{(d_s + h_c)}{3} = ~~3504~~\ 392 \frac{(~~24~~\ 0 + 3.5)}{3} = ~~12821~~\ 457$ ft. lbs. per ft.

$M_m = R_m \left(d_s + \frac{h_c}{2}\right) = ~~4184~~\ 413 \left(~~24~~\ 0 + \frac{3.5}{2}\right) = ~~3779~~\ 723$ ft. lbs. per ft.

$M_T = M_s + M_m = ~~16600~~\ 392 + ~~3779~~\ 723 = ~~20,500~~\ 1150$ ft. lbs. per ft.

$d_E = \frac{M_T}{R_T} = \frac{~~1150~~\ 1150}{~~1217~~\ .805} = ~~4.72~~\ 1.4$ ft. + ~~5.11~~\ 12.5 = ~~9.83~~\ 13.9 ft. NGVD.



NOT TO SCALE

STA 28+00 TO 79+18
163+23 TO 194+41
230+72 TO 289+49

LAKE PONTCHARTRAIN & VIC.
WAVE FORCES FOR T-WALL IN LEVEE
EL. OF WALL = 18.0 NGVD

2/15/57

I-WALL ON LEVEE 1 FEB 84

LAKE PONTCHARTRAIN : VIC. HURRICANE PROT. - HIGH LEVEL

STA. 298+00 TO 303+51

$T = 7.3$ $H_{o_{MAX}} = 3.86$ $d_B = 4.1$ $d_s = 12.5 - 4.0 = 8.5$ ~~12.5-12.5=0~~

SWL = 12.5 COMPUTED WALL HT. = 18.0 TOP OF LEVEE = 12.5 - GR. EL. = 4.0

$\frac{H_{o_{MAX}}}{gT^2} = .0022$ $M = 0.02$ $\frac{H_b}{H_{o_{MAX}}} = 1.3$ $H_b = 1.3(3.86) = 5.0$

$h_c = .78(H_b) = .78(5.0) = 3.90$

$P_s = w(d_s + h_c) = 64(\text{~~8.5~~ } 0 + 3.9) = \text{~~294~~ } 250$ lbs. per sq. ft.

$P_m = \frac{w d_B}{2} = \frac{64(4.1)}{2} = 131$ lbs. per sq. ft.

$R'_s = P_s \frac{(d_s + h_c)}{2} = \text{~~294~~ } 250 \left(\frac{\text{~~8.5~~ } 0 + 3.9}{2}\right) = \text{~~498~~ } 488$ lbs.

$R_m = P_m h_c = 131(3.9) = 511$ lbs.

$R_T = R_s + R_m = \text{~~498~~ } 488 + 511 = \text{~~549~~ } 999$ lbs per linear ft.

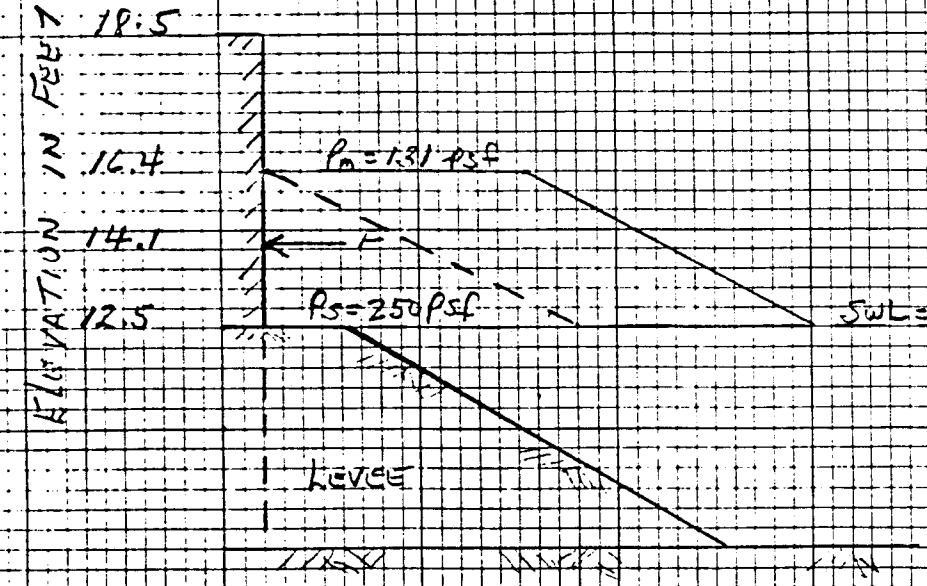
$M_s = R_s \frac{(d_s + h_c)}{3} = \text{~~498~~ } 488 \left(\frac{\text{~~8.5~~ } 0 + 3.9}{3}\right) = \text{~~2345~~ } 634$ ft lbs. per ft.

$M_m = R_m \left(d_s + \frac{h_c}{2}\right) = 511 \left(\text{~~8.5~~ } 0 + \frac{3.9}{2}\right) = \text{~~5340~~ } 996$ ft lbs. per ft.

$M_T = M_s + M_m = \text{~~2345~~ } 634 + \text{~~5340~~ } 996 = \text{~~7685~~ } 1630$ ft lbs. per ft.

$d_F = \frac{M_T}{R_T} = \frac{\text{~~7685~~ } 1630}{\text{~~5490~~ } 999} = \text{~~4.7~~ } 1.6$ ft. + $\text{~~4.0~~ } 12.5 = \text{~~8.7~~ } 14.1$ ft. NGVD.

.917



NOT TO SCALE

STA. 289+49 TO 306+00

LAKE PONTCHARTRAIN & VIC.
WAVE FORCES FOR I-WALL ON LEVEE
EL. OF WALL = 18.5 NGVD

2/15/84

I-WALL ON LEVEE 1 FEB 84

LAKE PONTCHARTRAIN : VIC. HURRICANE PROT. - HIGH LEVEL

STA. 298+10 TO 303+51

$T = 7.3$ $H_{o_{MAX}} = 3.86$ $d_B = 4.1$ $d_s = 12.5 - 4.0 = 8.5$ ~~12.5-12.5=0~~

SWL = 12.5 COMPUTED WALL HT. = 18.5 TOP OF LEVEE = 12.5 GR. EL. = 4.0

$\frac{H_{o_{MAX}}}{gT^2} = .0022$ $M = 0.02$ $\frac{H_b}{H_{o_{MAX}}} = 1.3$ $H_b = 1.3(3.86) = 5.0$

$h_c = .78(H_b) = .78(5.0) = 3.90$

$P_s = w(d_s + h_c) = 64(~~8.5~~ 0 + 3.9) = ~~799~~ 250$ lbs. per sq. ft.

$P_m = \frac{w d_B}{2} = \frac{64(4.1)}{2} = 131$ lbs. per sq. ft.

$R'_s = P_s \frac{(d_s + h_c)}{2} = ~~799~~ 250 \frac{(~~8.5~~ 0 + 3.9)}{2} = ~~4923~~ 488$ lbs.

$R_m = P_m h_c = 131(3.9) = 511$ lbs.

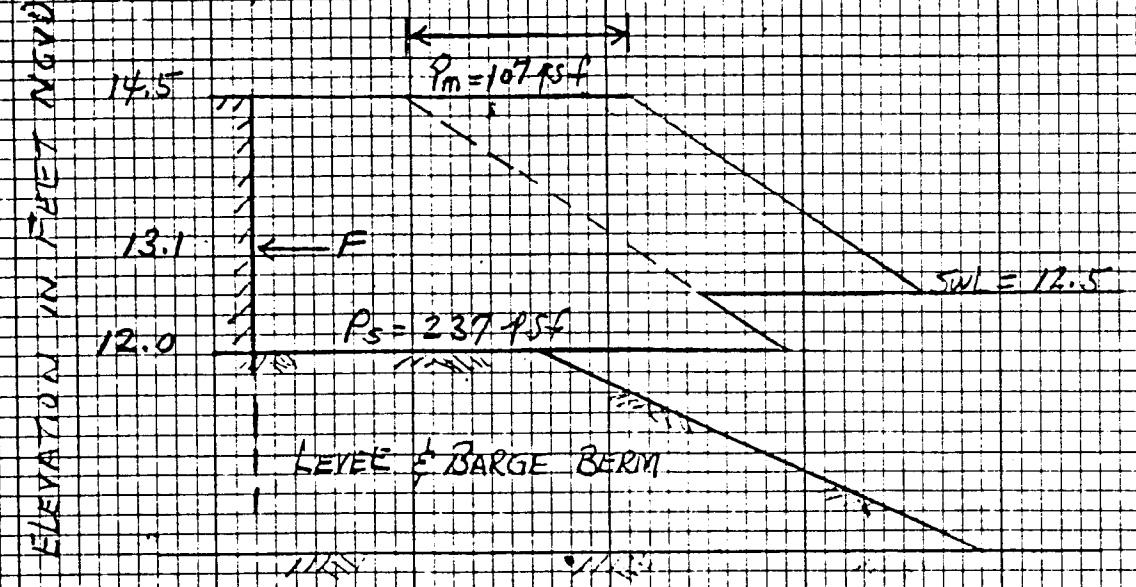
$R_T = R_s + R_m = ~~4923~~ 488 + 511 = ~~5434~~ 999$ lbs per linear ft.

$M_s = R_s \frac{(d_s + h_c)}{3} = ~~4923~~ 488 \frac{(~~8.5~~ 0 + 3.9)}{3} = ~~20,345~~ 634$ ft lbs. per foot

$M_m = R_m (d_s + \frac{h_c}{2}) = 511 (~~8.5~~ 0 + \frac{3.9}{2}) = ~~5340~~ 996$ ft lbs. per ft.

$M_T = M_s + M_m = ~~20,345~~ 634 + ~~5340~~ 996 = ~~25,685~~ 1630$ ft lbs. per ft.

$d_E = \frac{M_T}{R_T} = \frac{~~25,685~~ 1630}{~~5434~~ 999} = ~~4.7~~ 1.6$ ft. + ~~8.5~~ 12.5 = ~~13.2~~ 14.1 ft. NGVD.



NOT TO SCALE

STA 94+60 TO 161+00
199+41 TO 246+37

LAKE PONTCHARTRAIN & VICINITY
WAVE FORCES ON I-WALL WITH BARGE BERM
EL. OF WALL = 14.5 NGVD
2/12/74

I-WALL ON LEVEE WITH BARGE BERM 1 FEB 84

LAKE PONTCHARTRAIN & VIC. HURRICANE PROT. – HIGH LEVEL

STA. 242+00 TO 246+37

$T = 7.3$ $H_{o\,MAX} = 2.94$ $d_B = 3.34$ $d_S = 12.5 - 5.0 = 7.5$ ~~12.5 − 12.0 = 0.5~~

SWL = 12.5 COMPUTED WALL HT. = 14.5 TOP OF LEVEE = 12.0 TOP OF BR. = 5.0

$\frac{H_o}{gT^2} = .0017$ $M = 0.0$ $\frac{H_b}{H_o} = 1.40$ $H_b = 2.94(1.40) = 4.1$

$h_c = .78(H_b) = .78(4.1) = 3.2$ $h' = 14.5 - 12.5 = 2.0$

$P_s = w(d_s + h_c) = 64\left(\frac{0.5}{7.5} + 3.2\right) = \frac{237}{685}$ lbs. per sq. ft.

$P_m = \frac{wd_B}{2} = \frac{64(3.34)}{2} = 107$ lbs. per sq. ft.

$R_s = P_s \frac{(d_s + h')}{2} = \frac{237}{685}\left(\frac{0.5}{7.5} + 2.0\right) = 3254$ lbs.

$R_m = P_m h' = 107(2.0) = 214$ lbs.

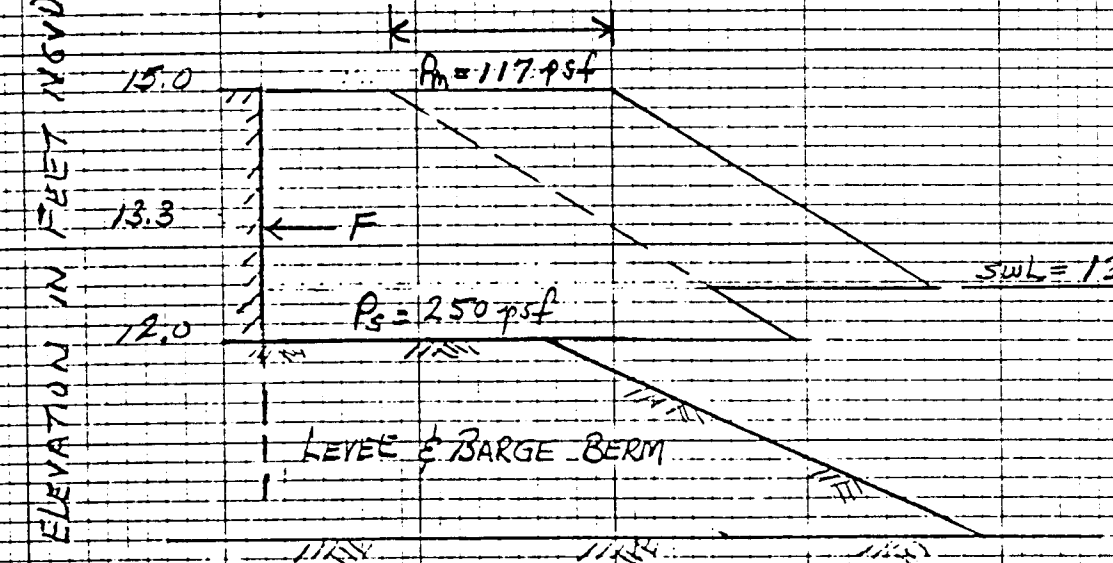
$R_T = R_s + R_m = \frac{296}{3254} + 214 = \frac{510}{3468}$ lbs. per linear ft.

$M_s = R_s \frac{(d_s + h')}{3} = \frac{296}{3254}\left(\frac{0.5}{7.5} + 2.0\right) = \frac{247}{10304}$ ft. lbs. per ft.

$M_m = R_m\left(d_s + \frac{h'}{2}\right) = 214\left(\frac{0.5}{7.5} + \frac{2.0}{2}\right) = \frac{321}{1819}$ ft. lbs. per ft.

$M_T = M_s + M_m = \frac{247}{10304} + \frac{321}{1819} = \frac{568}{12123}$ ft. lbs. per ft.

$d_E = \frac{M_T}{R_T} = \frac{\frac{568}{12123}}{\frac{510}{3468}} = 1.1 + 12.0 = \frac{13.1}{4.4}$ ft. N.G.V.D.



NOT TO SCALE

STA 26+21 TO 79+18
163+23 TO 194+41
250+72 TO 289+49

LAKE PONTCHARTRAIN & VICINITY
WAVE FORCES ON I-WALL WITH BARGE BERM
EL. OF WALL = 15.0 NGVD
2/17/84

I-WALL ON LEVEE WITH BARGE BERM — 1 FEB. 84

LAKE PONTCHARTRAIN & VIC. HURRICANE PROT. – HIGH LEVEL

STA. 250+72 TO 256+00

$T = 7.3$ $H_{o_{MAX}} = 3.25$ $d_B = 3.65$ $d_S = 12.5 - 12.0 = 0.5$, $12.5 - 5.4 = 7.1$

SOIL = 12.5 COMPUTED WALL HT. = 15.0 TOP OF GR. EL. = 12.9 − 5.4

$\frac{H_{o_{MAX}}}{gT^2} = .0019$ $m = 0.02$ $\frac{H_b}{H_{o_{MAX}}} = 1.35$ $H_b = 1.35(3.25) = 4.4$

$h_c = .75(H_b) = .75(4.4) = 3.4$ $h' = 15.0 - 12.5 = 2.5'$

$P_s = w(d_s + h_c) = 64(\frac{0.5}{7.1} + 3.4) = 250$ lbs. per sq. ft.

$P_m = \frac{w d_B}{2} = \frac{64(3.65)}{2} = 117$ lbs. per sq. ft.

$R'_S = P_s \frac{(d_s + h')}{2} = 250 \frac{(0.5 + 2.5)}{2} = 375$ lbs.

$R_m = P_m h' = 117(2.5) = 292$ lbs.

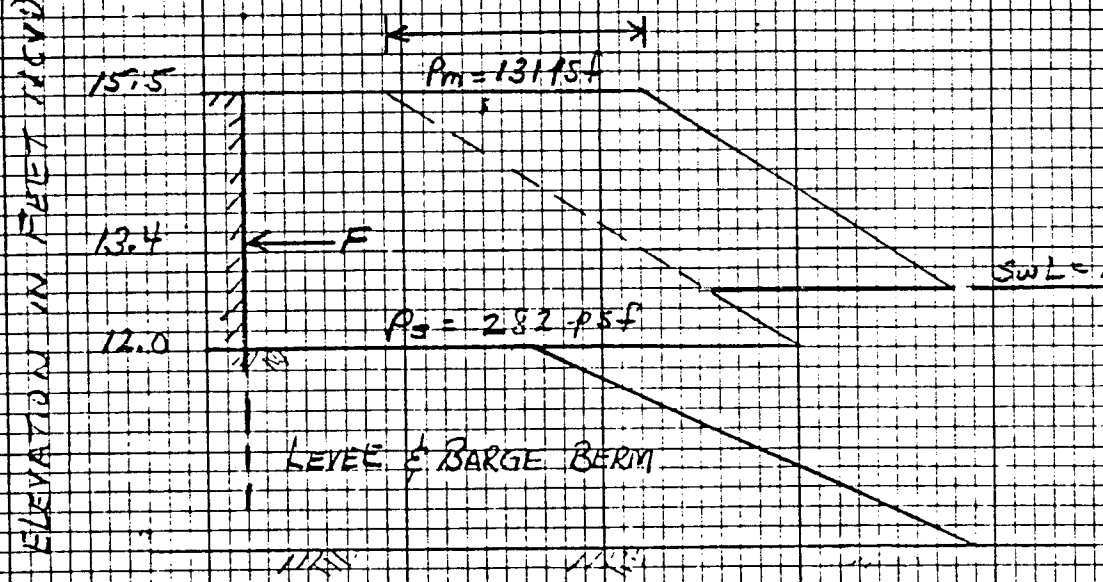
$R_T = R_s + R_m = 375 + 292 = 667$ lbs. per linear ft.

$M_S = R_S \frac{(d_s + h')}{3} = 375 \frac{(0.5 + 2.5)}{3} = 375$ ft. lbs. per ft.

$M_m = R_m (d_s + \frac{h'}{2}) = 292 (\frac{0.5}{7.1} + \frac{2.5}{2}) = 511$ ft lbs. per ft.

$M_T = M_S + M_m = 375 + 511 = 886$ ft lbs. per ft.

$d_F = \frac{M_T}{R_T} = \frac{886}{667} = 1.3$ ft. $+ 12.0 = 13.3$ ft. NGVD.



NOT TO SCALE

STA 289+49 to 306+00

LAKE PONTCHARTRAIN & VICINITY.
WAVE FORCES ON I-WALL WITH BARGE BERM.
EL. OF WALL = 15.5 NGVD
2/17/84

I-WALL ON LEV[illegible] WITH BARGE ISEFM 1F80.84

LAKE PONTCHARTRAIN [illegible]C. HURRICANE PROT. – HIGH LEVEL

STA. 298+10 TO 303+51

$T = 7.3$ $H_{o\,MAX} = 3.86$ $d_B = 4.08$ $d_S = 12.5 - 4 = 8.5$ (~~12.5 − 12.0 = 0.5~~)

SWL = 12.5 COMPUTED WALL HT. = 15.5 TYP LEVEE = 12.0 GR. EL = 4.0

$\frac{H_{o\,max}}{gT^2} = .0022$ $m = 0.02$ $\frac{H_b}{H'_{o\,max}} = 1.3$ $H_b = 1.3(3.86) = 5.0$

$h_c = .78(H_b) = .78(5.0) = 3.9$ $h' = 15.5 - 12.5 = 3.0$

$P_s = w(d_s + h_c) = 64(\text{~~8.5~~ } 0.5 + 3.9) = \text{~~794~~ } 282$ lbs per sq ft.

$P_m = \frac{w d_B}{2} = \frac{64 (4.1)}{2} = 131$ lbs per sq. ft.

$R'_s = P_s \frac{(d_s + h')}{2} = \text{~~794~~ } 282 \frac{(8.5 + 3.0)}{2}$ [0.5 written above 8.5] $= \text{~~4566~~ } 494$ lbs.

$R_m = P_m h' = 131(3.0) = 393$ lbs.

$R_T = R_s + R_m = \text{~~4566~~ } 494 + 393 = \text{~~4959~~ } 887$ lbs per linear ft.

$M_s = R_s \frac{(d_s + h')}{3} = \text{~~4566~~ } 494 \frac{(\text{~~4.5~~ } 0.5 + 3.0)}{3} = \text{~~17503~~ } 576$ ft lbs per ft.

$M_m = R_m (d_s + \frac{h'}{2}) = 393 (\text{~~8.5~~ } 0.5 + \frac{3.0}{2}) = \text{~~3930~~ } 688$ ft lbs per ft.

$M_T = M_s + M_m = \text{~~17503~~ } 576 + \text{~~3930~~ } 688 = \text{~~21433~~ } 1264$ ft lbs per ft.

$d_F = \frac{M_T}{R_T} = \frac{\text{~~21433~~ } 1264}{\text{~~4959~~ } 887} = \text{~~4.3~~ } 1.4$ ft. $+ \text{~~4.0~~ } 12.0 = \text{~~8.3~~ } 13.4$ ft. NGVD.