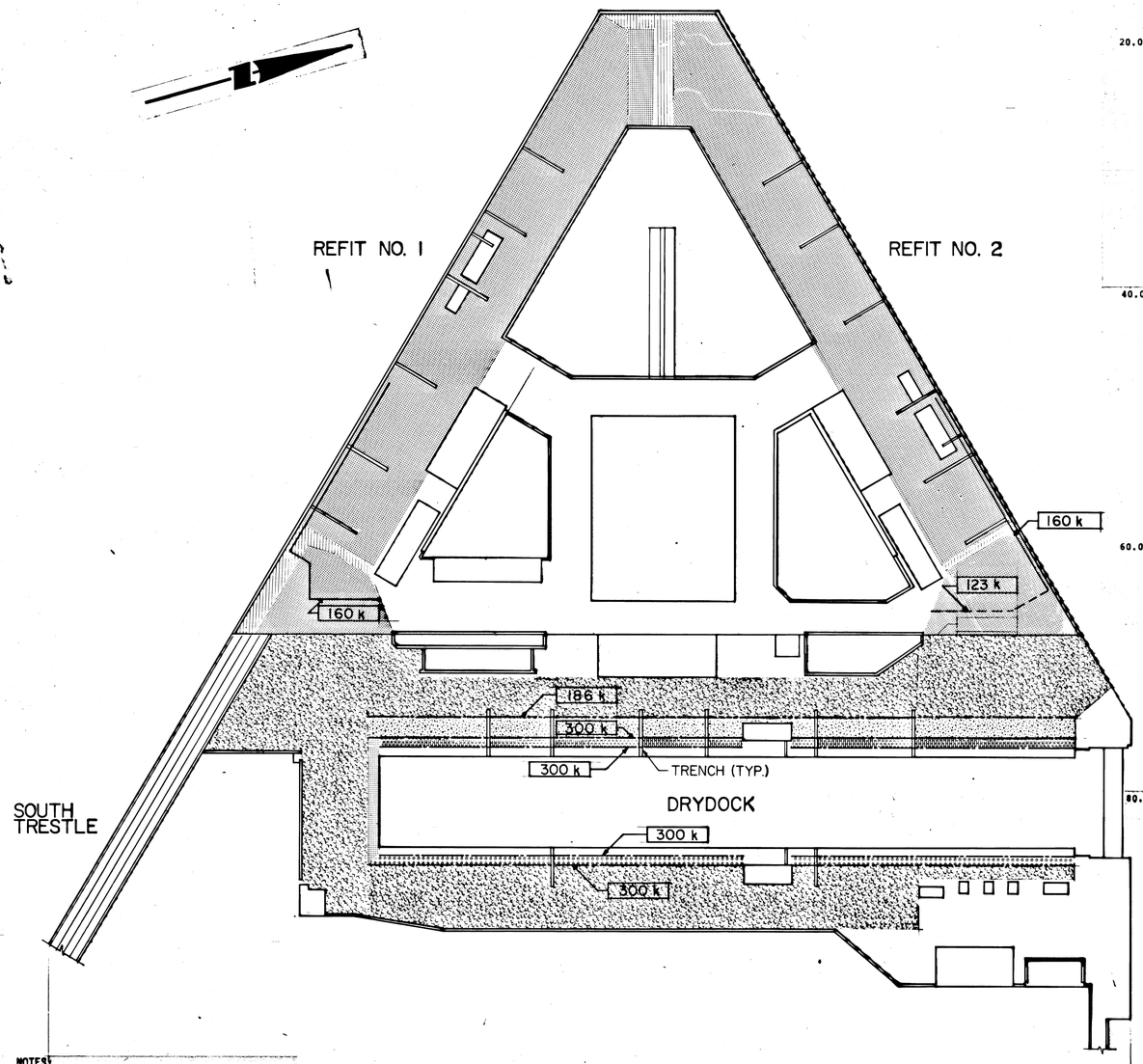


DELTA REFIT PIER
LOAD CAPACITY CHART

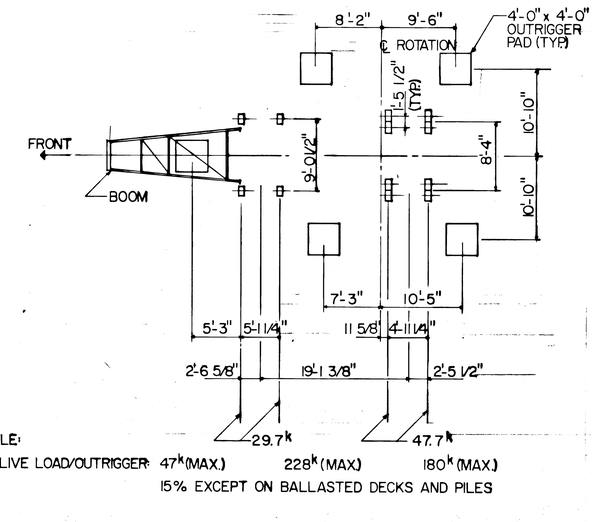
1"=60' (1 / SI|SI)

150 TON MOBILE TRUCK CRANE
OUTRIGGER REACTIONS WITH ONE PIECE UPPER COUNTERWEIGHT

NOTE: ZERO DEGREES SWING ANGLE IS WHEN THE BOOM IS OVER THE REAR OF THE CARRIER AND THE SWING ANGLES ARE MEASURED COUNTER-CLOCKWISE FROM THAT POSITION.

BOOM LENGTH 100.00 FT // WITH MAST // BOOM INTER. SUSP. NONE

HOOK LOAD KIPS	SWING ANGLE DEG	OUTRIGGER REACTIONS FRONT LEFT LBS	REAR LEFT LBS	REAR RIGHT LBS	FRONT RIGHT LBS	FRONT BUMPER LBS
20.0 FT LOAD RADIUS						
152.20	0.0	16361.	136423.	136423.	16361.	0.
	22.50	15179.	89671.	171662.	29057.	0.
	48.31	16166.	43079.	179110.	67214.	0.
	67.50	15293.	21767.	157706.	110803.	0.
	90.00	16572.	10952.	110637.	167407.	0.
	112.50	29333.	7726.	55980.	212530.	0.
	127.44	48155.	5173.	24466.	227775.	0.
	157.50	94965.	0.	0.	190834.	19770.
	180.00	134066.	0.	0.	134065.	37438.
	202.50	187696.	0.	0.	91826.	26047.
	235.80	225703.	30677.	5886.	43303.	0.
	247.50	212529.	55980.	7726.	29333.	0.
	270.00	167407.	110637.	10952.	16572.	0.
	292.50	110803.	157706.	21767.	15293.	0.
	314.32	62114.	180286.	46982.	16187.	0.
	337.50	29057.	171662.	89671.	15179.	0.
40.0 FT LOAD RADIUS						
52.80	0.0	10648.	92060.	92060.	10648.	0.
	22.50	9876.	59167.	116866.	19507.	0.
	48.31	10248.	26766.	121776.	46625.	0.
	67.50	9064.	12369.	106174.	77809.	0.
	90.00	9149.	5588.	72303.	118376.	0.
	112.50	17548.	3886.	33353.	150630.	0.
	127.44	30729.	2130.	11183.	161374.	0.
	157.50	57367.	0.	0.	124697.	23352.
	180.00	84828.	0.	0.	84828.	35761.
	202.50	122493.	0.	0.	55162.	27761.
	235.80	159939.	15525.	2650.	27302.	0.
	247.50	150630.	33353.	3886.	17548.	0.
	270.00	118376.	72303.	5588.	9149.	0.
	292.50	77809.	106174.	12369.	9064.	0.
	314.32	42985.	122661.	29450.	10328.	0.
	337.50	19507.	116866.	59167.	9876.	0.
60.0 FT LOAD RADIUS						
29.00	0.0	10215.	80603.	80603.	10215.	0.
	22.50	9276.	51851.	102223.	18287.	0.
	48.31	9378.	23500.	106327.	42431.	0.
	67.50	8246.	10891.	92478.	70021.	0.
	90.00	8313.	4918.	62597.	105808.	0.
	112.50	15801.	3336.	28326.	134174.	0.
	127.44	27515.	1698.	8861.	143562.	0.
	157.50	50083.	0.	0.	109466.	22087.
	180.00	74303.	0.	0.	74303.	33031.
	202.50	107522.	0.	0.	48139.	25975.
	235.80	142317.	12670.	2179.	24471.	0.
	247.50	134174.	28326.	3336.	15801.	0.
	270.00	105808.	62597.	4918.	8313.	0.
	292.50	70021.	92478.	10891.	8246.	0.
	314.32	39202.	107125.	25849.	9460.	0.
	337.50	18287.	102223.	51851.	9276.	0.
80.0 FT LOAD RADIUS						
19.00	0.0	9941.	75811.	75811.	9941.	0.
	22.50	8956.	48741.	96142.	17665.	0.
	48.31	8954.	22051.	99922.	40577.	0.
	67.50	7831.	10189.	86783.	66700.	0.
	90.00	7863.	4577.	58518.	100546.	0.
	112.50	14951.	3070.	26146.	127337.	0.
	127.44	26052.	1490.	7787.	136174.	0.
	157.50	46820.	0.	0.	102930.	21754.
	180.00	69705.	0.	0.	69704.	32095.
	202.50	101093.	0.	0.	44983.	25428.
	235.80	135007.	11377.	1952.	23167.	0.
	247.50	127337.	26146.	3070.	14951.	0.
	270.00	100546.	58518.	4577.	7863.	0.
	292.50	66700.	86783.	10189.	7831.	0.
	314.32	37517.	100685.	24261.	9040.	0.
	337.50	17665.	96142.	48741.	8956.	0.



DEAD LOAD/AXLE:
DEAD LOAD & LIVE LOAD/OUTRIGGER: 47k (MAX.) 228k (MAX.) 180k (MAX.)
IMPACT: 15% EXCEPT ON BALLASTED DECKS AND PILES

150 TON MOBILE TRUCK CRANE LOADING

1/8"=1'-0" (1 / SI|SI)

GENERAL NOTES

1. CAPACITIES AS SHOWN ON THE PLANS ARE ON THE BASIS OF A 4'-0" x 4'-0" OUTRIGGER PAD UNLESS NOTED OTHERWISE. OUTRIGGER CAPACITIES WHERE SHOWN ALWAYS GOVERN OVER WHEEL LOADS IMPOSED ON STRUCTURE.
2. AREAS ON PLAN WITHOUT SHADING WERE NOT STUDIED.
3. IMPACT WAS TAKEN AS 15% OF THE TOTAL OUTRIGGER LOAD OR WHEEL LOAD. IMPACT WAS NOT USED AT BALLASTED DECKS OR ON PILES. CRITERIA TAKEN FROM NAVFAC DM-25.1 SECTION 3 PART 1.4.d.
4. CRANE IS NOT CARRYING ANY PICK-UP LOAD WHEN TRAVELING.
5. NO LIVE LOADS, OTHER THAN PICK UP LOADS ARE TO BE IMPOSED ON THE STRUCTURE ON ADJACENT SPANS, COLUMNS, OR PILES NEXT TO OUTRIGGER PADS WHEN CRANE IS BEING USED.
6. STEEL OR CAST IRON COVERS CAN SUSTAIN THE WHEEL LOADS FROM THE CRANE TRAVELING OVER THEM BUT CANNOT SUSTAIN OUTRIGGER PAD LOADS.
7. PIPING WAS ASSUMED TO BE PROPERLY PLACED IN ACCORDANCE WITH SPEC. SECTION 2E.3.1.2. SIX INCH MINIMUM COVER OF BALLAST OVER TOP OF PIPING PROVIDES ADEQUATE PROTECTION FOR LOADS IMPOSED AS INDICATED BY SHADED AREAS EXCEPT AS NOTED ON DRAWING FOR COPPER TUBING.
8. SEE "150 TON MOBILE TRUCK CRANE STUDY REPORT" FOR SUMMARY OF LOAD CAPACITY CHARTS, MOVING CRANE ON DELTA REFIT PIER AND MARGINAL WHARF, AND EFFECT OF CRANE LOADING ON UTILITIES.

NOTES:

CODES:
ACI 318-83 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE
NAVFAC DM-25.1 PIERS AND WHARVES

MATERIAL STRENGTHS
DRYDOCK
$f_c' = 3{,}500$
$f_y = 60{,}000$
PILE CAPACITY
14" DIA. x 1/2" PIPE 150 TON
24" DIA. x 1/2" PIPE 150 TON
REFIT 1, REFIT 2, & TRESSLE
CAST-IN-PLACE CONC.
$f_c' = 4{,}000$ psi
$f_y = 60{,}000$ psi
PRESTRESSED PANELS
$f_c' = 6{,}000$ psi
$f_y = 60{,}000$ psi UNLESS WELDED
$f_y = 40{,}000$ psi WHERE FIELD WELDED SEE REFIT 1 SHEET S1, NAVFAC DRAWING NUMBER 6040490 AND REFIT 2 SHEET S1, NAVFAC DRAWING NUMBER 6043630
$F_{pu} = 270$ ksi
PILE CAPACITIES

16 1/2"	OCTAGONAL	220K COMP	68K TENSION
24"	HOLLOW OCTAGONAL	280K COMP	80K TENSION
30"	DIA. x 3/8" PIPE	380K COMP	80K TENSION
30"	DIA. x 1/2" PIPE	380K COMP	80K TENSION

LEGEND
28k DUAL WHEEL LOAD
90k OUTRIGGER REACTION
135k OUTRIGGER REACTION
150k OUTRIGGER REACTION
173k OUTRIGGER REACTION
181k OUTRIGGER REACTION
190k OUTRIGGER REACTION
123k OUTRIGGER REACTION OVER COPPER TUBING
160k OUTRIGGER REACTION OVER COPPER TUBING
186k OUTRIGGER REACTION OVER BEAM
300k OUTRIGGER REACTION OVER BEAM

1/8"=1'-0" 0 1 2 3 4 5 10 15 20 25 30

1"=60' 0 60 120 210 330

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED

Building Number 1900
Supervisor's Drawing 6246963
Grid 1005 V.S
Property of the NAVY Technical Reference Center
FORM 880
DWG26958
OCT 29 1986
SI

Whitacre Engineers, Inc.
Consulting Engineering & Land Planning
2124 SO. "K" STREET P.O. BOX 5677
TACOMA, WASHINGTON 98405 (206) 272-3944

DESIGN	RFA, GA, JTS
DRAWN	PJR
CHECKED	RFA, JTS
APPROVED	
DATE	10-15-86
P. W. DRAWING NO.	
REQUEST NO.	R6 2801
SPEC. PROJ. NO.	
ENGR. IN CHG.	
BRANCH MGR.	
DIR. ENGR.	
SATISFACTORY TO	
TITLE / DATE	
APPROVED FOR CONSTRUCTION / DATE	

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
U. S. NAVAL SUBMARINE BASE BANGOR
BREMERTON, WASHINGTON

TRF — SUBASE
150 TON MOBILE CRANE STUDY
DELTA REFIT PIER

CODE IDENT. NO.	SIZE	NAVFAC DRAWING NO.
80091	F	6246963
		CONTR. NO. N62474-85-C-9816
SCALE NOTED	SPEC. NONE	SHEET 2 OF 3

PVF 106-2