

FACILITY NO. H- - WHARF BULKHEAD REPAIRS

JOINT BASE PEARL HARBOR HICKAM, HAWAII

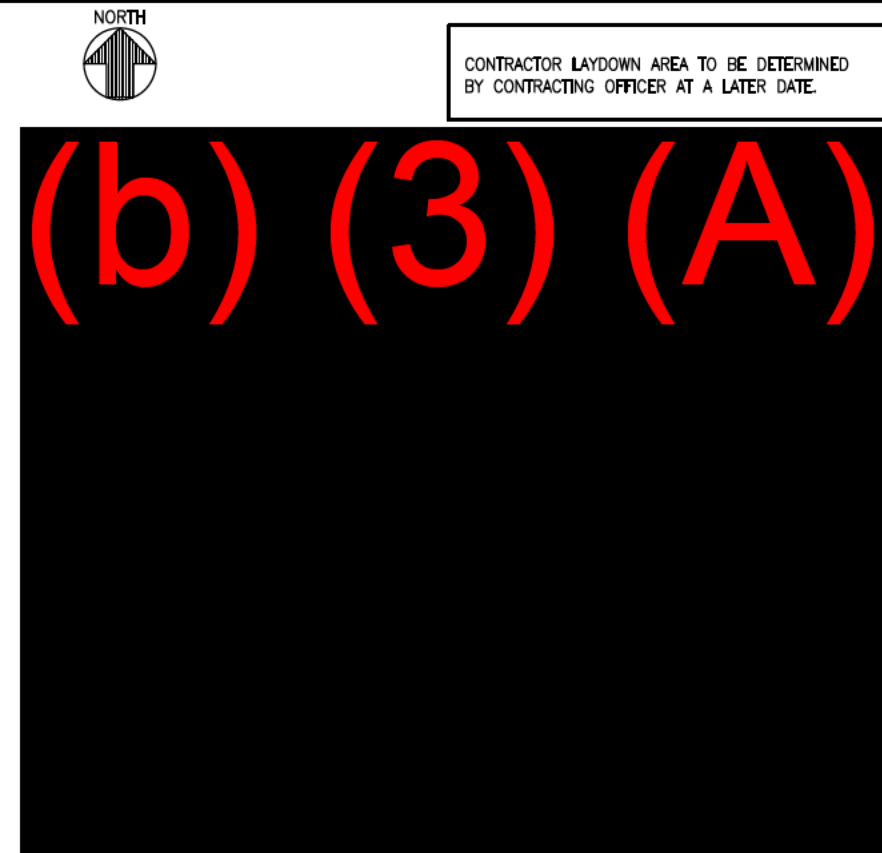
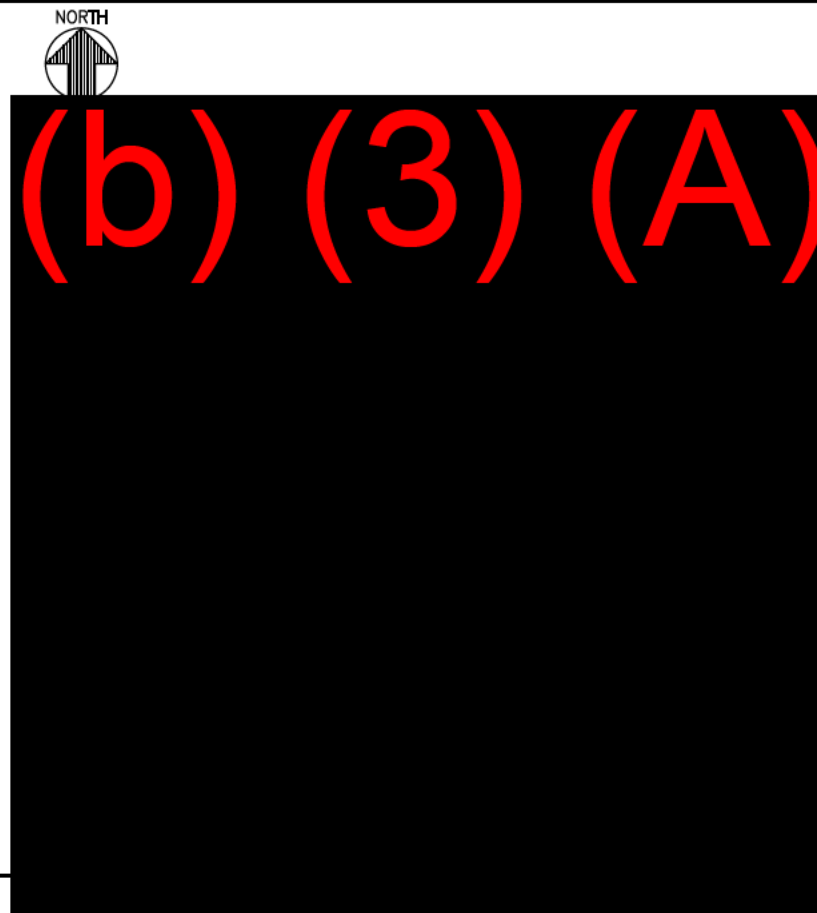
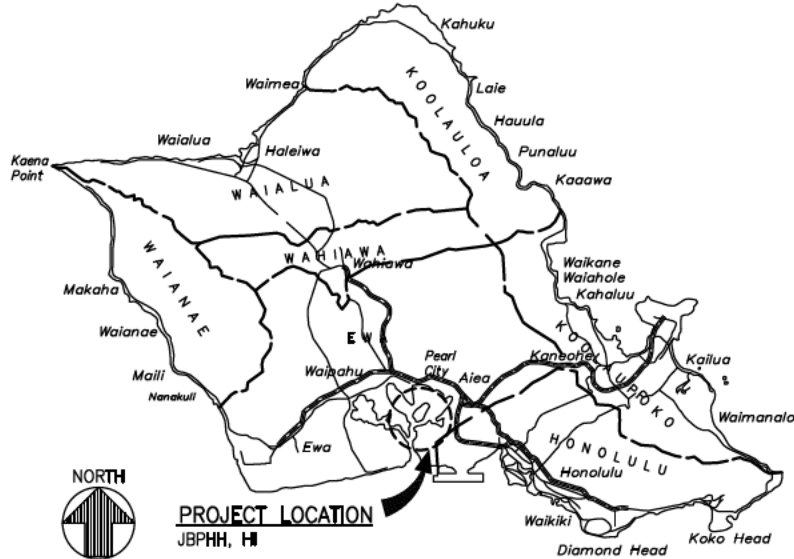
ePROJECTS WORK ORDER NO. 1554911
PREPARED BY: NAGAMINE OKAWA ENGINEERS INC.

90% SUBMITTAL FEBRUARY 4, 2020

OAHU MAP

PEARL HARBOR MAP

LOCATION MAP



STRUCTURAL

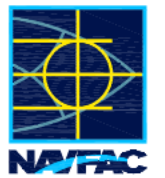
GEOTECHNICAL

CIVIL

ENVIRONMENTAL



NO.	DATE	DESCRIPTION



LIC. EXP 04/30/20



DES DF DRW LLSE CHK DF

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SUBMITTAL TO DATE

DES DATE REV

PM/DM

FIRE PROTECTION

BRANCH MANAGER

CHIEF ENG/ARCH

NAVAL FACILITIES ENGINEERING COMMAND

NAVFAC HAWAII

JOINT BASE PEARL HARBOR HICKAM, HAWAII

JOINT BASE PEARL HARBOR HICKAM, HAWAII

FACILITY NO. H- - WHARF BULKHEAD REPAIRS

TITLE SHEET, LOCATION AND VICINITY MAPS

DEPARTMENT OF THE NAVY

CAPITAL IMPROVEMENTS

CNHR

SCALE: NONE

PROJECT NO.: 1554911

CONSTR. CONTR. NO.

NAVFAC DRAWING NO.

SHEET 1 OF 16

G-001

WR NO. 902083

FILE NAME: F:\p\okawa\1602727\mofac\mofac.dwg 12\Drawings\mofac\1602727\G-001_116.dwg LAYOUT NAME: G-001 PLOTTED: Wednesday, February 05, 2020 - 8:18am USER: LUSER

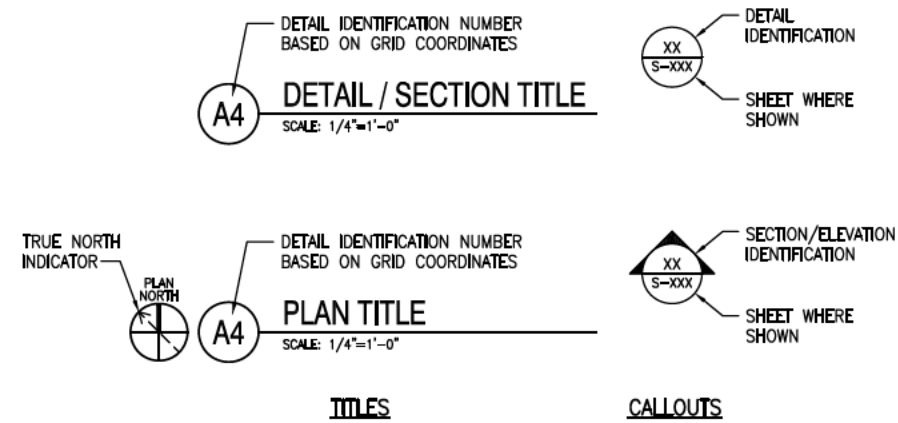
ABBREVIATIONS

AB	ANCHOR BOLT	MAX	MAXIMUM
ADDN	ADDITION	MFR	MANUFACTURER
ALT	ALTERNATE	MHHW	MEAN HIGH HIGH WATER
APPROX	APPROXIMATE	MHW	MEAN HIGH WATER
(B), BOT	BOTTOM	MIN	MINIMUM
BTWN	BETWEEN	MISC	MISCELLANEOUS
CIP	CAST-IN-PLACE	MLLW	MEAN LOW LOW WATER
CJP	COMPLETE JOINT PENETRATION	MLW	MEAN LOW WATER
CL	CENTERLINE	MSL	MEAN SEA LEVEL
CLR	CLEAR(ANCE)	NO.	NUMBER
COL	COLUMN	NS	NON-SHRINK
CONC	CONCRETE	NTS	NOT TO SCALE
CONN	CONNECTION	OC	ON CENTER
CONSTR	CONSTRUCTION	OPNG	OPENING
CONT	CONTINUOUS	OPP	OPPOSITE
D	DEPTH	PL	PLATE
DBL	DOUBLE	P/C	PRECAST
DET	DETAIL	P/S	PRESTRESSED
DIA	DIAMETER	PT	POINT
DIM	DIMENSION	RAD	RADIUS
DISCONT	DISCONTINUE	REINF	REINFORCED, REINFORCEMENT
DO	DTTO	REQD	REQUIRED
DWG	DRAWING	SCHED	SCHEDULE
EA	EACH	SECT	SECTION
EL, ELEV	ELEVATION	SHT	SHEET
EJ	EXPANSION JOINT	SIM	SIMILAR
EQ	EQUAL	SL	SLOPE
ES	EACH SIDE	SPECS	SPECIFICATIONS
EXT	EXTERIOR	SQ	SQUARE
EXST	EXISTING	SS, SST	STAINLESS STEEL
FDN	FOUNDATION	STD	STANDARD
FLR	FLOOR	STL	STEEL
FRP	FIBER REINFORCED POLYMER	STRUCT	STRUCTURAL
FTG	FOOTING	SYM	SYMMETRICAL
GALV	GALVANIZED	t, THK	THICK, THICKNESS
H	HEIGHT	THRU	THROUGH
(H), HORIZ	HORIZONTAL	TRANSV	TRANSVERSE
HDPE	HIGH DENSITY POLYETHYLENE	TYP	TYPICAL
HDG	HOT DIPPED GALVANIZED	UON	UNLESS OTHERWISE NOTED
INFO	INFORMATION	VAR	VARIES
INT	INTERIOR	(V), VERT	VERTICAL
INTERM	INTERMEDIATE	W	WIDTH
JT	JOINT	W/	WITH
L	LENGTH		
LONGIT	LONGITUDINAL		

INDEX OF DRAWINGS

SHT NO.	DWG NO.	DRAWING TITLE
GENERAL		
1	G-001	TITLE SHEET, LOCATION AND VICINITY MAPS
2	G-002	ABBREVIATIONS, REFERENCE DEFINITIONS, AND INDEX OF DRAWINGS
GEOTECHNICAL		
3	B-001	BORINGS LOCATION PLAN
4	BB-101	BORING LOG
5	BB-102	BORING LOG
6	BB-103	BORING LOGS
7	BB-104	BORING LOGS AND LEGEND
CML		
8	C-001	CONSTRUCTION NOTES
9	C-101	SITE & GRADING PLAN
STRUCTURAL		
10	S-001	STRUCTURAL GENERAL NOTES
11	SD-101	DEMOLITION PLAN
12	SD-501	DEMOLITION DETAILS
13	S-101	WHARF EXTENSION PLAN
14	S-301	WHARF SECTIONS
15	S-501	PILE DETAILS
16	S-502	CURB AND TYPICAL DETAILS

REFERENCE DEFINITIONS



DATE

DESCRIPTION

LIC. Exp 04/30/20

NOET
REGISTERED CIVIL ENGINEERS INC.
1003 Bishop Street
Pearl Harbor, Suite 2025
Honolulu, Hawaii 96813
PH: (808) 538-2828

DES: DF DRW: LL, SE CHK: DF

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SUBFACTORY TO: _____

DATE: _____

REV: _____

PM/DM: _____

FIRE PROTECTION: _____

BRANCH MANAGER: _____

CHIEF ENG/ARCH: _____

DEPARTMENT OF THE NAVY
NAVFAC HAWAII
CAPITAL IMPROVEMENTS
NAVY FACILITIES ENGINEERING COMMAND
JOINT BASE PEARL HARBOR HICKAM, HAWAII
FACILITY NO. H-101 WHARF BULKHEAD REPAIRS
ABBREVIATIONS, REFERENCE DEFINITIONS, AND INDEX OF DRAWINGS

SCALE: NONE

PROJECT NO.: 1554911

CONSTR. CONTR. NO.: -

NAVFAC DRAWING NO.: -

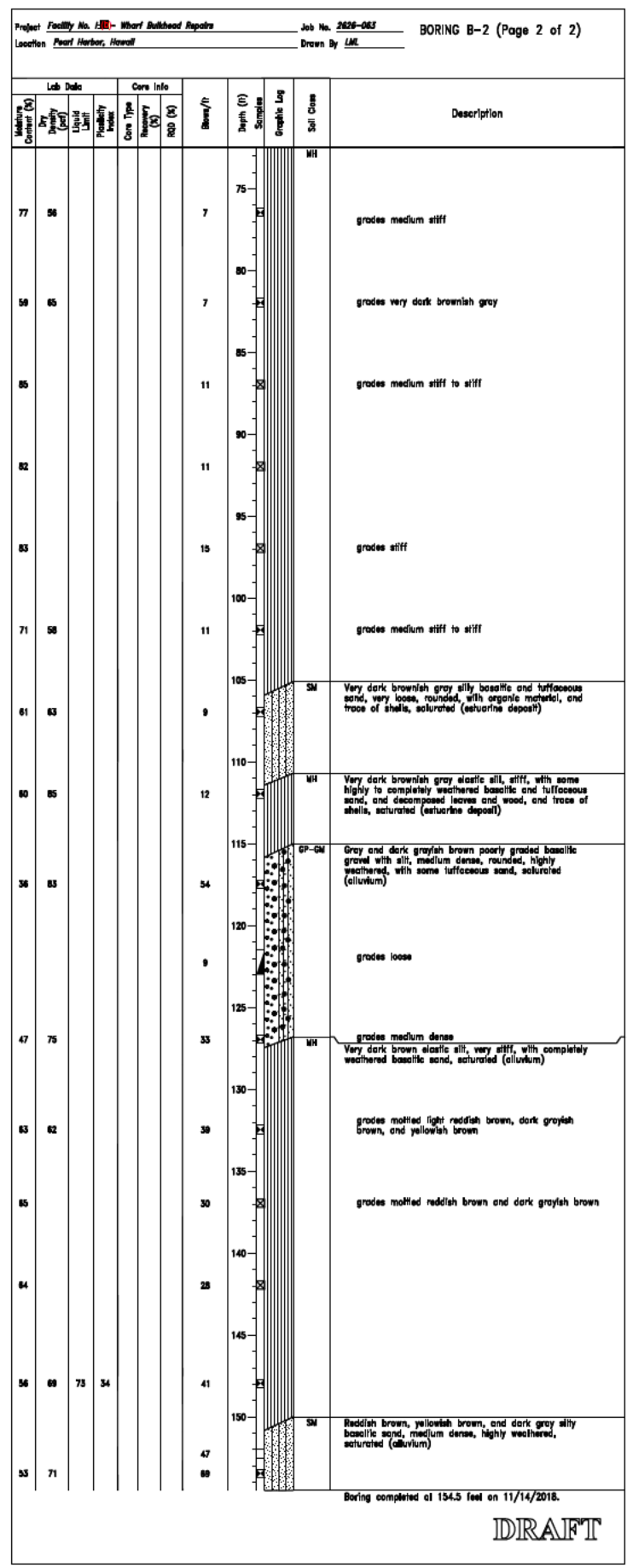
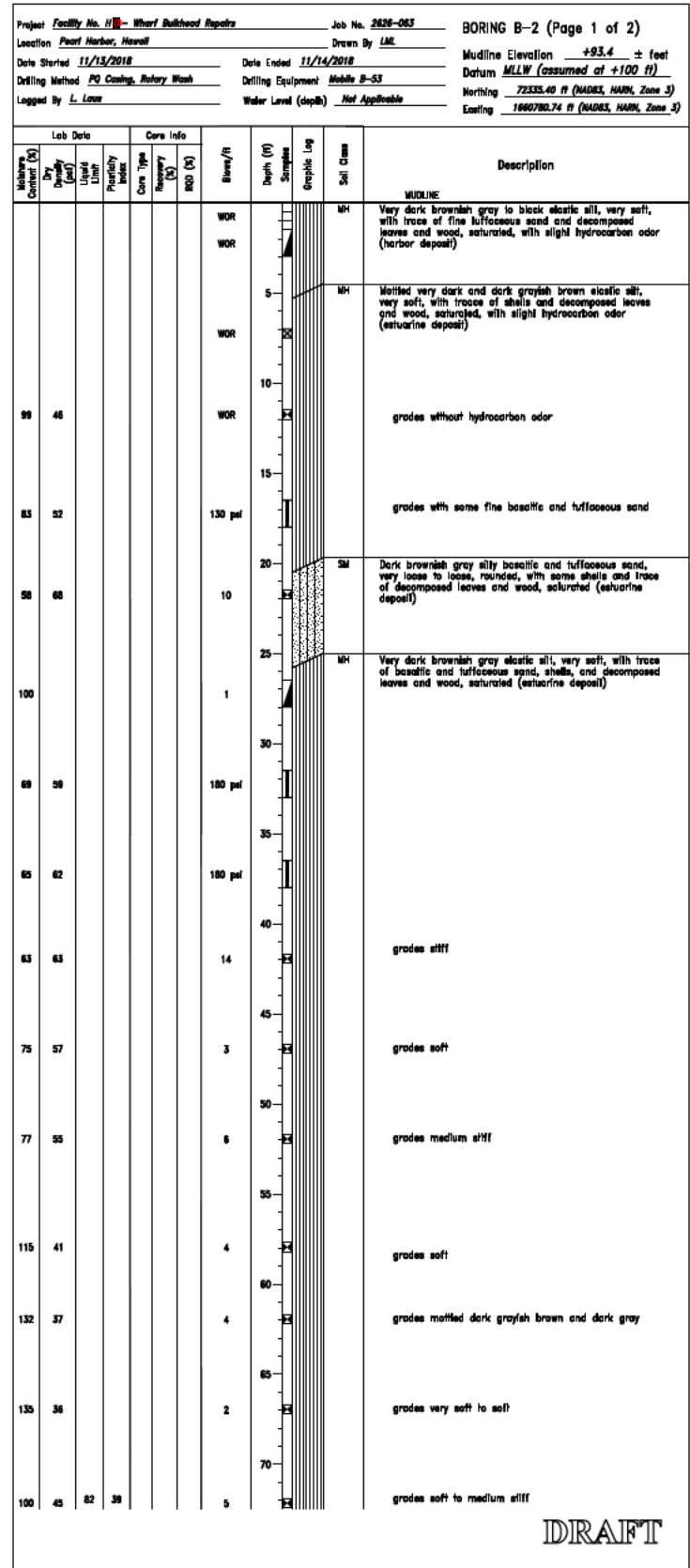
SHEET 2 OF 16



G-002

W/ NO. 902083

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FILE NAME: F:\Bids\160227\160227.mxd 12:00:00 PM 02/05/2020 - 8:18 AM USER: IJUSER



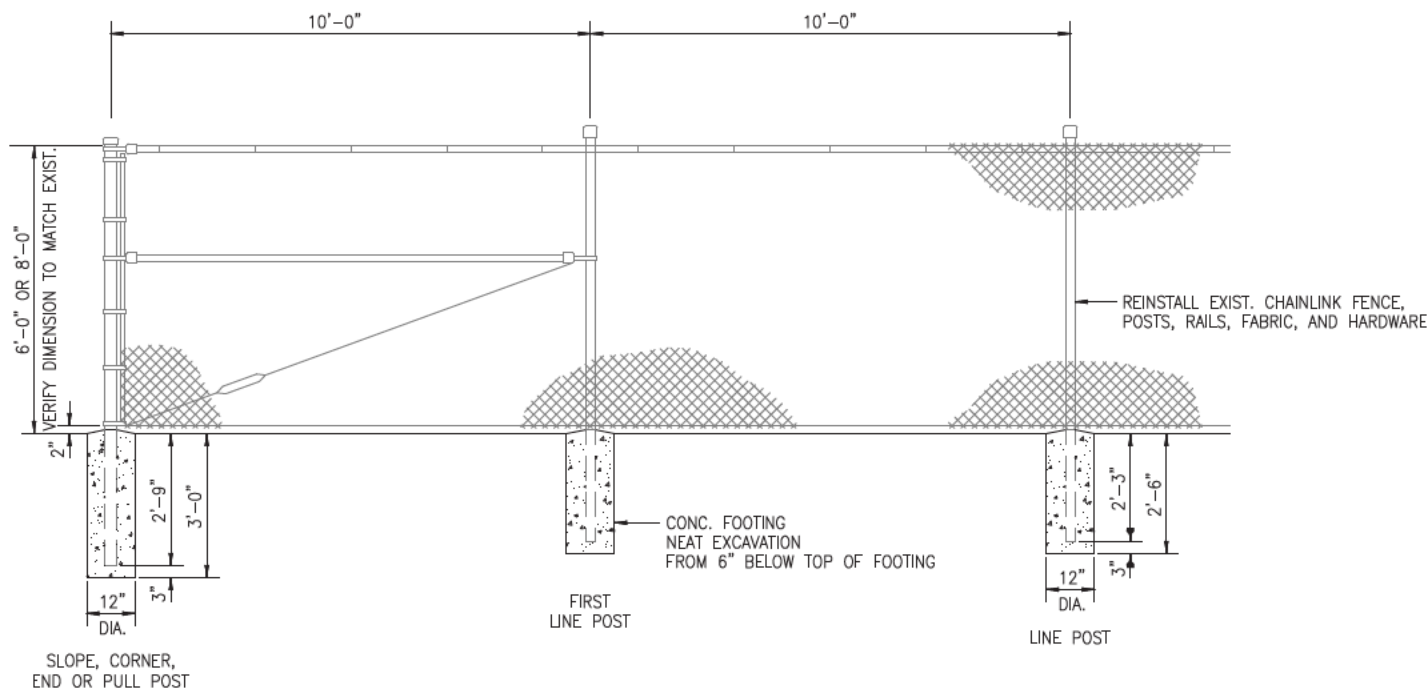
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LIC. EXP 04/30/20	
	
DES: DF CHK: DF APPROVED: _____ FOR COMMANDER NAVFAC: _____ ACTIVITY: _____ SATISFACTORY TO DATE: _____ DES: DRAW: REV: _____ PM/DM: _____ FIRE PROTECTION: _____ BRANCH MANAGER: _____ CHIEF ENG/ARCH: _____	
DEPARTMENT OF THE NAVY NAVFAC HAWAII JOINT BASE PEARL HARBOR HICKAM, HAWAII CAPITAL IMPROVEMENTS CNRH FACILITY NO. H-10 - WHARF BULKHEAD REPAIRS BORING LOG	
SCALE: NONE	
PROJECT NO.: 1554911	
CONSTR. CONTR. NO.:	
NAVFAC DRAWING NO.:	
SHEET 5 OF 16	
BB-102	
W.R. NO. 902083	

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK AMONG THE VARIOUS TRADES AS NECESSARY TO AVOID CONFLICTS AND TO INSURE THE INSTALLATION OF ALL WORK WITHIN THE AVAILABLE SPACE.

IF SHEET IS LESS THAN 22" X 34" REDUCED PRINT - USE GRAPHIC SCALES

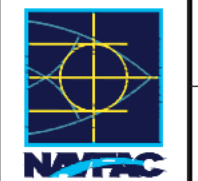
GENERAL CIVIL NOTES

1. THE CONTRACTOR SHALL RESTORE ALL IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION TO ITS ORIGINAL OR BETTER CONDITION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY GOVERNMENT UTILITY SYSTEM RESULTING FROM CONSTRUCTION OPERATIONS; ANY DAMAGE SHALL BE REPORTED IMMEDIATELY TO THE CONTRACTING OFFICER OR APPROPRIATE GOVERNMENT REPRESENTATIVE.
3. COORDINATE ALL WORK WITH OTHER TRADES TO AVOID INTERFERENCES AND DELAYS.
4. ALL DIMENSIONS AND DETAILS SHOWN ON THE DRAWINGS SHALL BE CHECKED AND VERIFIED PRIOR TO THE START OF CONSTRUCTION AND ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR CLARIFICATION.
3. CONSTRUCTION DEWATERING INTO NAVY'S SEWER COLLECTION SYSTEM IS PROHIBITED. ALSO, THE DISCHARGE OF HYDROTESTING WATER OR CONSTRUCTION RELATED DEWATERING INTO THE HARBOR EITHER DIRECTLY OR VIA THE NAVY'S STORM DRAINAGE SYSTEM IS NOT ALLOWED UNLESS A NPDES PERMIT COVERAGE IS OBTAINED.
4. SHOULD PROJECT CONDITIONS REQUIRE REARRANGEMENT OF WORK, MARK SUCH CHANGES ON THE AS-BUILT DRAWINGS. IF THESE CHANGES REQUIRE ALTERNATE METHODS TO THOSE APPROVED BY THE CONTRACT DOCUMENTS, SUBMIT SHOP DRAWINGS SHOWING THE PROPOSED ALTERNATE METHODS TO THE CONTRACTING OFFICER FOR REVIEW/APPROVAL PRIOR TO PROCEEDING WITH WORK. DO NOT PROCEED UNTIL APPROVED BY CONTRACTING OFFICER.
5. THE CONTRACTOR SHALL BE RESPONSIBLE TO PLAN AND CONSTRUCT BEST MANAGEMENT PRACTICES (BMP) AS REQUIRED BY HIS OPERATIONS TO COMPLY WITH ALL LAWS, STANDARD, RULES AND/OR POLICIES OF THE CITY, STATE OR FEDERAL REGULATORY AGENCIES. UPON ACCEPTANCE OF THE PROJECT BY THE CITY, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL BEST MANAGEMENT PRACTICES AND TO RESTORE THE PROJECT SITE TO ITS ORIGINAL CONDITIONS OR BETTER.



A1 FENCE INSTALLATION DETAILS
SCALE: N.T.S.

NO.	SYMBOL	DESCRIPTION	DATE



LIC. EXP 04/30/20

AustinTsumi
ASSOCIATES, INC.
Engineers & Surveyors
501 SUMNER STREET, SUITE 521
HONOLULU, HAWAII 96817
PHONE 808-533-3646
FAX 808-526-1267

DES	KS	DRW	DON	CHK	DH
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APPROVED

FOR COMMANDER NAVFAC
ACTIVITY

SATISFACTORY TO DATE	
DES	REV

PM/DM	-
FIRE PROTECTION	-
BRANCH MANAGER	-
CHIEF ENG/ARCH	-

REPARTMENT OF THE NAVY
NAVFAC HAWAII
NAVAL FACILITIES ENGINEERING COMMAND
CAPITAL IMPROVEMENTS
CNRH
JOINT BASE PEARL HARBOR HICKAM, HAWAII
FACILITY NO. H B WHARF BULKHEAD REPAIRS
CONSTRUCTION NOTES

SCALE	N.T.S.
PROJECT NO.	1554911
CONSTR. CONTR. NO.	-
NAVFAC DRAWING NO.	-
SHEET	8 of 16

C-001

FILE NAME: Y:\2017\17-050\ENGINEERING\06\01 CONSTRUCTION NOTES.dwg LAYOUT NAME: layout1 PLOTTED: Friday, January 24, 2020 - 11:14am USER: mshirayama

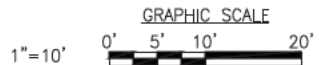
(b) (3) (A)

FILE NAME: Y:\2017\17-050\DRG\ENGRING\DWG\C-101 SITE & GRADING PLAN.dwg LAYOUT NAME: layout1 PLOTTED: Friday, January 24, 2020 - 11:17am USER: kshiyama

A1

SITE & GRADING PLAN

SCALE: 1"=10'



THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK AMONG THE VARIOUS TRADES AS NECESSARY TO AVOID CONFLICTS AND TO INSURE THE INSTALLATION OF ALL WORK WITHIN THE AVAILABLE SPACE.

IF SHEET IS LESS THAN 22" X 34" REDUCED PRINT - USE GRAPHIC SCALES

WR NO. 902083

DATE
DESCRIPTION
BY



LIC. EXP 04/30/20

Austin Tsutsumi
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PHONE 808-533-3646
FAX 808-526-1267

DES	KS	DRW	DN	CHK	DH
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APPROVED

FOR COMMANDER NAVFAC
ACTIVITY

SATISFACTORY TO DATE	
DES	DATE
PM/DM	-
FIRE PROTECTION	-
BRANCH MANAGER	-
CHIEF ENGR/ARCH	-

DEPARTMENT OF THE NAVY
NAVFAC HAWAII
NAVAL FACILITIES ENGINEERING COMMAND
CAPITAL IMPROVEMENTS
CNRH
JOINT BASE PEARL HARBOR HICKAM, HAWAII
FACILITY NO. H.E. WHARF BULKHEAD REPAIRS
SITE & GRADING PLAN

SCALE: 1"=10'

PROJECT NO.: 1554911

CONSTR. CONTR. NO. -

NAVFAC DRAWING NO. SHEET 9 of 16

C-101

GENERAL NOTES

- VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY CONTRACTING OFFICER OF DISCREPANCIES.
- THE CONTRACTOR SHALL ON A DAILY BASIS, REMOVE FROM THE SITE ANY EXCAVATED MATERIAL OR DEBRIS. DISPOSAL OF ALL MATERIALS IS THE CONTRACTORS RESPONSIBILITY, EXCEPT AS OTHERWISE NOTED.
- PLACE SEDIMENT CONTROL DEVICES, BOOMS, TARPULINS, FLOATS, STAGING, AND OTHER DEVICES AS NECESSARY TO PREVENT CONSTRUCTION MATERIALS FROM ENTERING THE WATER AND AIR BORNE MATERIALS FROM LEAVING THE IMMEDIATE VICINITY OF THE SITE. CLEAN UP ANY MATERIALS DEPOSITED OUTSIDE THE WORK AREA.
- ABIDE BY ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENT PROTECTION STANDARDS, LAWS, AND REGULATIONS, INCLUDING THE BEST MANAGEMENT PRACTICES PLAN FOR NAVY CONSTRUCTION PROJECTS UTILIZING ARMY CORPS OF ENGINEERS NATIONWIDE PERMITS, AND HAWAII ADMINISTRATIVE RULES, TITLE II, DEPARTMENT OF HEALTH, CHAPTER 55, WATER POLLUTION CONTROL.
- ARIZONA MEMORIAL TOUR BOATS OPERATE ADJACENT TO THE WHARF. EXPECT INTERRUPTIONS TO ACTIVITIES DUE TO THE WAVE ACTION CAUSED BY THE TOUR BOATS AND OTHER VESSELS. TAKE PRECAUTIONS TO PREVENT DAMAGE TO THE CONSTRUCTION AND MINIMIZE INTERRUPTIONS OF WORK.
- THE CONTRACTOR IS CAUTIONED THAT, DUE TO EXISTING STRUCTURE CONDITIONS AND SITE CONSTRAINTS, AVAILABILITY OF LOAD-OUT LOCATIONS AND MATERIAL STORAGE AREAS AT EXISTING WHARF H6 IS EXTREMELY LIMITED. PLAN ACTIVITIES ACCORDINGLY.
- SHOULD ANY WATER LINES BE ENCOUNTERED, CONTACT PWC PEARL, UTILITIES DEPARTMENT, CODE 652, MR. RON SOARES AT (808) 473-2557.
- CONDUCT SHEET PILE AND CONCRETE PILE DRIVING WORK FROM AN OFFSHORE BARGE. DRIVING PILES FROM THE LANDSIDE OF WHARF H6 IS PROHIBITED.
- THE EXISTING CONDITION OF THE WHARF H6 BULKHEAD IS VERY POOR. MEASURES MAY BE REQUIRED TO STABILIZE THE EXISTING BULKHEAD TO PREVENT FAILURE OF THE BULKHEAD DURING CONSTRUCTION.
- DESIGN CRITERIA:
 - GENERAL STRUCTURAL DESIGN (UFC 3-301-01/IBC 2015)
 - LIVE LOADS:

UNIFORM LOAD = 300 PSF
 - WIND (UFC 3-301-01/ASCE 7-10):

RISK CATEGORY = II
BASIC WIND SPEED, $V = 130$ MPH
IMPORTANCE FACTOR $I_w = 1.0$
WIND EXPOSURE = C
 - SEISMIC (UFC 4-152-07/ASCE7-10):

IMPORTANCE FACTOR $I_e = 1.0$
OCCUPANCY CATEGORY = II
SITE CLASS (GEOTECHNICAL REPORT) = E
SPECTRAL RESPONSE FACTORS $S_{D1} = 0.564g$
 $S_{D2} = 0.161g$
 $S_{D5} = 0.601g$
 $S_{D1} = 0.451g$

SEISMIC DESIGN CATEGORY = D

STRUCTURAL AND MISCELLANEOUS STEEL

- ALL STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE AISC SPECIFICATIONS FOR THE DESIGN. FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS. ALL WELDING SHALL CONFORM TO AWS.
- MATERIALS SHALL CONFORM TO THE FOLLOWING, UON:
 - SHAPES, BARS AND PLATES = ASTM A36 GALV
 - GUARD BOLLARDS AND GUARD STANCHIONS = ASTM A53, TYPE E OR S, GRADE B, GALV
 - ANCHOR BOLTS AND MACHINE BOLTS = ASTM A307 GALV, UON
- ALL STEEL SHAPES, PLATES, AND OTHER FABRICATIONS SHALL BE ZINC-COATED OR GALVANIZED BY THE HOT-DIP PROCESS IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A123 AND/OR A153, AS APPLICABLE, AFTER FABRICATION, UNLESS OTHERWISE INDICATED.

- FIELD-TREATED DAMAGED GALVANIZED FINISHES WITH TWO COATS OF HIGH ZINC DUST OXIDE PAINT, COLD GALVANIZED COMPOUNDS, OR APPROVED EQUAL CONFORMING TO THE REQUIREMENTS OF ASTM A780. IN ADDITION, EXPOSED THREADED SURFACES SHALL BE PAINTED WITH TWO COATS OF HIGH ZINC DUST OXIDE PAINT AFTER INSTALLATION OF THE NUT.

CONCRETE AND REINFORCING STEEL

- ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH ACI 301, UNLESS OTHERWISE NOTED.
- ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING STEEL SHALL CONFORM TO THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, ACI 315.
- MATERIALS SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE NOTED:
 - CONCRETE STRENGTH: 28 DAY RELEASE
 - PRESTRESSED CONCRETE PILES 6000 PSI 4500 PSI
 - CAST-IN-PLACE CONCRETE 5000 PSI ---
 - REINFORCING STEEL:
 - REINFORCING STEEL AND DOWELS = ASTM A934/A934M, GRADE 60, EPOXY COATED
 - PRESTRESSING STEEL = ASTM A416, GRADE 270 LR
 - SPIRALS = ASTM A1064, EPOXY COATED
- CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 45 DEGREE CHAMFERS UNLESS OTHERWISE NOTED:
 - PRESTRESSED CONCRETE PILES = AS SPECIFIED
 - ALL OTHER EXPOSED CONCRETE = 3/4"
- LIFTING INSERTS SHALL BE PROVIDED IN ALL PRECAST MEMBERS TO FACILITATE LIFTING AND SUPPORTING MEMBERS DURING ERECTION. PROVIDE ANY ADDITIONAL REINFORCING NECESSARY TO PREVENT DAMAGE DURING HANDLING AND ERECTION.
- MINIMUM CONCRETE PROTECTION FOR ALL REINFORCING SHALL BE 3" UNLESS OTHERWISE NOTED.
- LAP SPLICE REINFORCING BARS 48 BAR DIAMETERS.
- ALL CONSTRUCTION JOINTS BETWEEN CAST-IN-PLACE CONCRETE SHALL BE BONDED WITH APPROVED BONDING AGENT AND BE CLEAN WITH A ROUGHENED SURFACE OF 1/4" AMPLITUDE.
- PROVIDE CALCIUM NITRITE CORROSION INHIBITOR OF NOT LESS THAN 4.0 GALLONS PER CUBIC YARD AND AS RECOMMENDED BY THE MANUFACTURER.

PLASTIC LUMBER

- MANUFACTURE PLASTIC LUMBER WITH RECYCLED HDPE.
- SIZES SHOWN ON DRAWINGS ARE NOMINAL SIZES.

FASTENERS FOR TIMBER AND MISCELLANEOUS FABRICATIONS

- WHEN CONNECTING HARDWARE IS SHOWN ON STRUCTURAL DRAWINGS THE TYPE, SIZE, SPACING, AND ALIGNMENT ARE CRITICAL AND MUST BE MAINTAINED. DO NOT UNDERCUT LUMBER. CONNECTIONS SHALL PULL AND HOLD MEMBERS BEING JOINED INTO CLOSE CONTACT.
- BOLTS AND NUTS SHALL CONFORM TO ASTM A307 (GALV), UON.
- ALL WASHERS FOR CONNECTION OF TIMBERS SHALL BE OGEE WASHERS, UON.
- WASHERS SHALL BE USED UNDER ALL BOLT HEADS AND NUTS WHICH WOULD OTHERWISE COME IN CONTACT WITH LUMBER.
- BORING HOLES FOR THRU BOLTS WITH A BIT 1/16 INCH LARGER IN DIAMETER THAN THE SHANK OF THE BOLT.

PILE SITE PREPARATION

- THE EXISTING MUDLINE AT THE NEW PILE LOCATIONS SHALL BE CLEARED OF TIMBER, CONCRETE, AND OTHER PILES AND STUBS, COBBLES, BOULDERS, OBSTRUCTIONS, AND DEBRIS PRIOR TO PILE PROBING, PREDRILLING, AND PILE INSTALLATION. THE EXCAVATION SHALL BE LIMITED TO NOT MORE THAN 5 FEET BELOW THE MUDLINE. THE CLEARED MATERIALS SHALL BE REMOVED TO A SUITABLE DISPOSAL SITE OFF OF GOVERNMENT PROPERTY.
- AFTER REMOVAL OF DEBRIS AND OBSTRUCTIONS AND PRIOR TO PROBING, A QUALIFIED DIVER SHALL VISUALLY CHECK THE HARBOR BOTTOM AT THE PROPOSED PILE LOCATIONS TO CONFIRM THAT PROPER CLEANING HAS BEEN PERFORMED. A VIDEO AND PHOTOGRAPHIC SURVEY OF THE HARBOR BOTTOM SHALL BE PERFORMED DURING THE CHECKING. AN UNDERWATER VIDEO AND PHOTOGRAPHIC SURVEY SHALL ALSO BE PERFORMED AFTER THE PILES HAVE BEEN DRIVEN TO CHECK ON THE AFTER DRIVEN CONDITION OF THE PILES. THREE COPIES OF THE VIDEO AND PHOTOGRAPHIC SURVEYS SHALL BE SUBMITTED TO THE CONTRACTING OFFICER WITHIN 5 WORKING DAYS OF COMPLETION OF SURVEYS.

CONCRETE PILES

- CONCRETE:

$f'_c = 4500$ PSI AT TRANSFER
 $f'_c = 6000$ PSI AT 28 DAYS AND TIME OF DRIVING PILE
- REINFORCING:
 - PRESTRESSING STEEL SHALL CONFORM TO ASTM A416 GRADE 270
 - MILD STEEL DOWEL - ASTM A615, GRADE 60, EPOXY COATED
 - MILD STEEL SPIRALS - ASTM A1064 EPOXY COATED
- FINAL STRESS IN PRESTRESSING STEEL:

AFTER ALL LOSSES = 154 KSI
ESTIMATED LOSSES = 35 KSI
- A CORROSION INHIBITING ADMIXTURE SHALL BE ADDED TO THE CONCRETE.
- PRESTRESSING STRAND SHALL BE 1/2" DIAMETER, 270 KSI, (7) WIRE, LOW RELAXATION STRANDS CONFORMING TO ASTM A416.
- FOR BIDDING PURPOSES ASSUME THE FOLLOWING:

LOCATION	PREDRILL ELEVATION (FEET)	PILE TIP ELEVATION (FEET)
BENTS 1-11.3	+70	-45
BENTS 11.3-21	+70	-40

- ALL PILES SHALL BE PREDRILLED AND DRIVEN UNDER THE FULL TIME SUPERVISION OF THE CONTRACTOR'S QUALITY CONTROL U.S.A. LICENSED GEOTECHNICAL SPECIALIST.
- PILES SHALL NOT BE DRIVEN UNTIL CONCRETE HAS ATTAINED A COMPRESSIVE STRENGTH OF 6,000 PSI AND/OR UNTIL 14 DAYS AFTER CASTING, WHICHEVER IS LATER.
- DO NOT USE VIBRATORY HAMMER OR VIBRATORY EQUIPMENT.
- PILES WITH CRACKS OTHER THAN CRAZING, SURFACE DRYING, SHRINKAGE CRACKS AND END CRACKS SHALL BE CONSIDERED DEFICIENT AND REJECTED. CRACKS THAT DEVELOPED DUE TO HANDLING AND/OR PILE INSTALLATION SHALL BE REJECTED. CONTRACTOR MAY SUBMIT A PROPOSAL TO REPAIR DEFICIENT PILES, WHICH SHALL BE RESTORED PRIOR TO DRIVING TO PROVIDE ITS REQUIRED DESIGN CAPACITY, PERFORM ITS INTENDED FUNCTION IN THE STRUCTURE, AND TAKING INTO CONSIDERATION DURABILITY IN THE HIGHLY CORROSIVE MARINE ENVIRONMENT. REJECTED PILES SHALL BE REMOVED AND REPLACED WITH NEW PILES AT NO ADDITIONAL COST TO THE GOVERNMENT. REPAIR ALL END CRACKS BY GRAVITY-FED SUPER LOW VISCOSITY (SLV) EPOXY RESIN-PENETRATING SEALER. FOR INSPECTION AFTER DRIVING, A QC UNDERWATER ACCEPTANCE INSPECTION IS REQUIRED FOR INSTALLED PILES.
- THE QC GEOTECHNICAL SPECIALIST SHALL BE A CML OR GEOTECHNICAL ENGINEER LICENSED IN THE UNITED STATES OF AMERICA WITH AT LEAST 10 YEARS OF LICENSED EXPERIENCE OF WHICH AT LEAST 8 YEARS SHALL BE IN RESPONSIBLE CHARGE IN GEOTECHNICAL ENGINEERING IN ALLUVIAL AND ESTUARINE DEPOSITS, PROBING, PREDRILLING, AND PILE DRIVING. RESPONSIBLE CHARGE IS DEFINED AS BEING IN DIRECT CONTROL OR PERSONAL SUPERVISION OF GEOTECHNICAL ENGINEERING WORK.
- ALL EXCAVATED MATERIAL GENERATED SHALL BE PROPERLY DISPOSED.

STEEL SHEET PILE

- STEEL SHEET PILES SHALL BE DRIVEN TO THE MINIMUM TIP ELEVATIONS INDICATED ON THE PLANS, USING A HAMMER OF AN APPROVED TYPE, WITH A CAPACITY AT LEAST EQUAL TO THE HAMMER MANUFACTURER'S RECOMMENDATION FOR THE TOTAL WEIGHT OF PILE AND CHARACTER OF SUBSURFACE MATERIAL TO BE ENCOUNTERED.
- DO NOT USE VIBRATORY HAMMER OR VIBRATORY EQUIPMENT.
- ALL STEEL SHEET PILING SHALL BE HEAVY GAUGE HOT-ROLLED SECTIONS WITH CONTINUOUS INTERLOCKS.
- STEEL SHEET PILE MATERIALS SHALL CONFORM TO THE FOLLOWING (MINIMUM) PROPERTIES:
 - MATERIAL = ASTM A690
 - SECTION MODULUS = 67.0 CUBIC INCHES PER FOOT OF WALL
 - MINIMUM WEB AND FLANGE THICKNESS = 0.70 INCHES
- STEEL SHEET PILING SHALL BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
- ALL SELECT MATERIAL, FILL, AND BACKFILL PROVIDED ABOVE EL +100.0 MLLW SHALL BE PLACED AND COMPACTED TO THE MODIFIED PROCTOR MAXIMUM DRY DENSITY SPECIFIED.
- STEEL SHEET PILING SHALL BE FULLY AND CONTINUOUSLY SUPPORTED TO PREVENT LATERAL DISPLACEMENT PRIOR TO, DURING, AND AFTER PLACING SELECT FILL MATERIAL BETWEEN EXISTING AND NEW SHEET PILE WALL.

REFERENCES

- ELEVATION DATUM: MEAN LOW LOW WATER (MLLW) = 100.0 FT.
- REPORT OF FINDINGS, HAZARDOUS MATERIALS TESTING SERVICES, CONTRACT N62478-16-D-5024. AMENDMENT 12, FACILITY NO. H6-WHARF BULKHEAD REPAIRS, JOINT BASE PEARL HARBOR HICKAM, OAHU, HAWAII DATED JUNE 14, 2019, BY MASA FUJIOKA & ASSOCIATES.
- 90% REPORT, GEOTECHNICAL CONSULTATION "FACILITY NO. H6-WHARF BULKHEAD REPAIRS, JOINT BASE PEARL HARBOR-HICKAM, HAWAII" DATED JANUARY 28, 2020, PREPARED BY PACIFIC GEOTECHNICAL ENGINEERS, INC.

DATE: _____

DESCRIPTION: _____

NOI ENGINEERING CONSULTANTS, INC.
1003 Bishop Street
Pearl Harbor, Suite 2025
Honolulu, Hawaii 96813
PH: (808) 538-2828

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DES	DF	DRW	LLSE	CHK	DF
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FOR COMMANDER NAVFC

ACTIVITY: _____

SUBMITTED TO: _____ DATE: _____

DES	DRW	REV
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NAVFAC HAWAII
JOINT BASE PEARL HARBOR HICKAM, HAWAII

FACILITY NO. H6-WHARF BULKHEAD REPAIRS

STRUCTURAL GENERAL NOTES

SHEET	10	OF	16
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S-001

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PROJECT NO.: 1554911
CONSTR. CONTR. NO.: -
NAVFAC DRAWING NO.: -

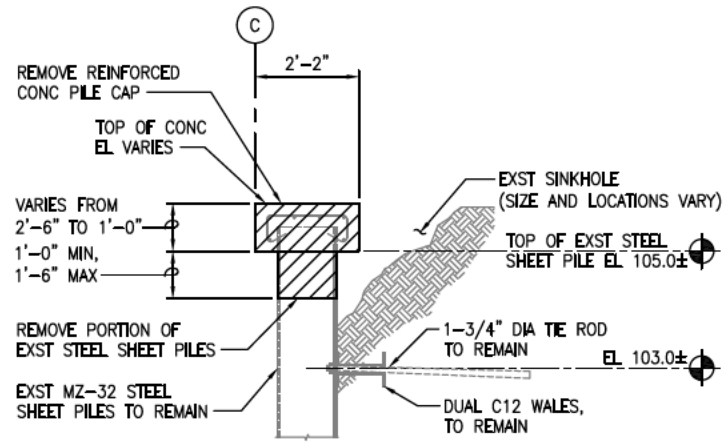
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CAPTAL INFRASTRUCTURE
CNRH

IF SHEET IS LESS THAN 22" X 34" REDUCED PRINT - USE GRAPHIC SCALES

IF THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK AMONG THE VARIOUS TRADES AS NECESSARY TO AVOID CONFLICTS AND TO INSURE THE INSTALLATION OF ALL WORK WITHIN THE AVAILABLE SPACE.

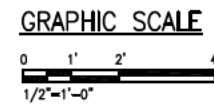
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NOTE:
AVOID DAMAGING TIE RODS DURING EXCAVATION.

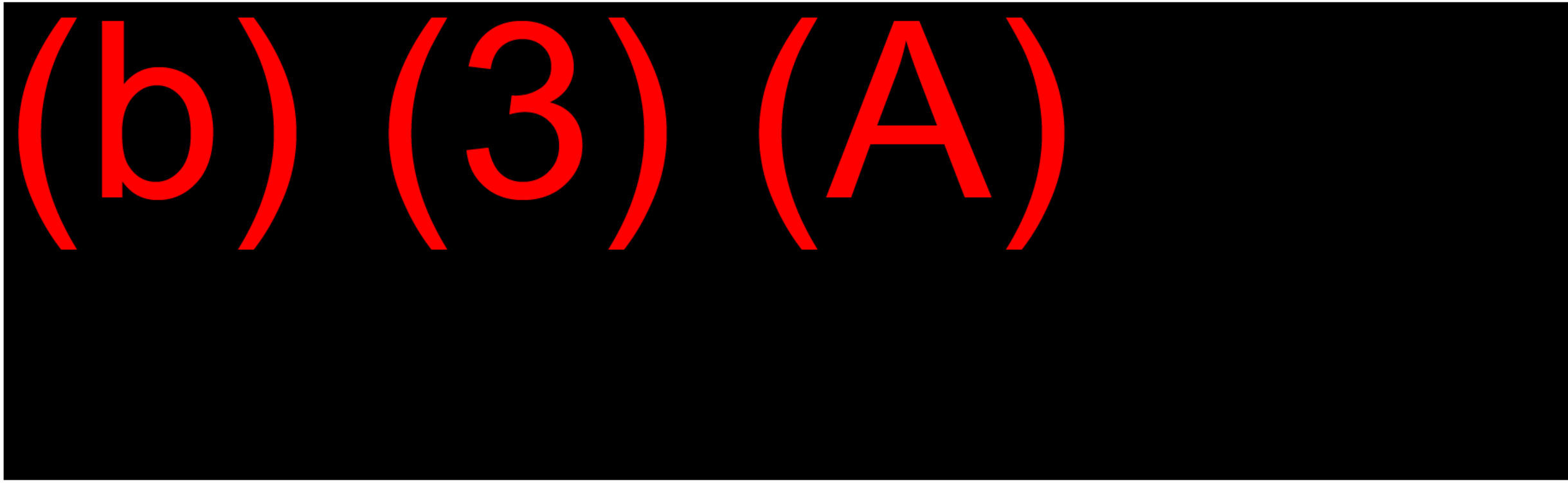
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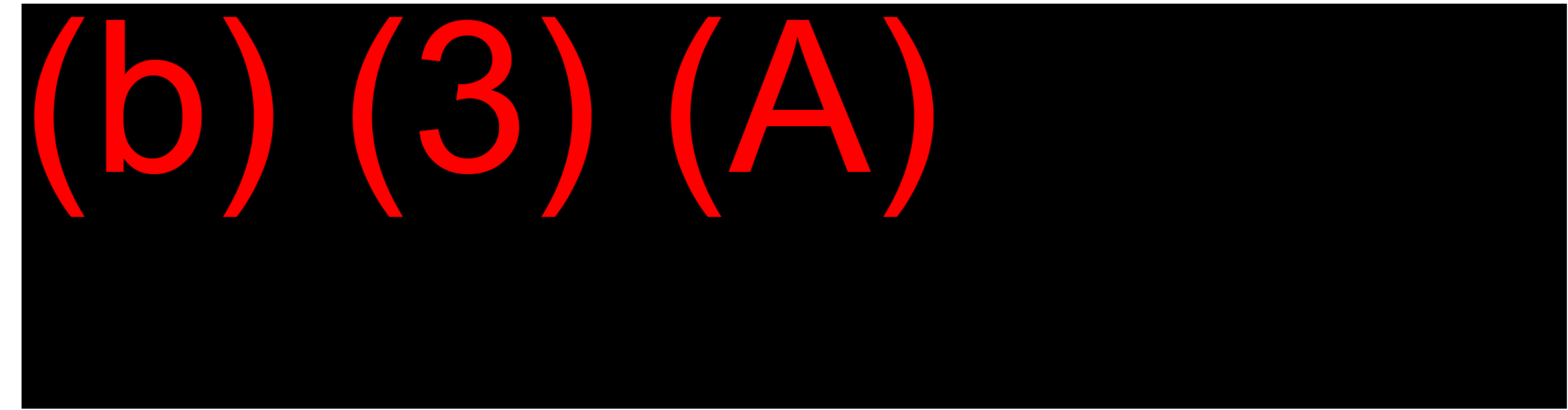
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BRANCH MANAGER	
CHIEF ENG/ARCH	
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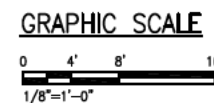
A B C D



(C1) PARTIAL WHARF EXTENSION PLAN
SCALE: 1/8" = 1'-0"



(A1) PARTIAL WHARF EXTENSION PLAN
SCALE: 1/8" = 1'-0"



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BRANCH MANAGER

CHIEF ENG/ARCH

NAVAL FACILITIES ENGINEERING COMMAND

NAVFAC HAWAII

JOINT BASE PEARL HARBOR BULKHEAD REPAIRS

JOINT BASE PEARL HARBOR HICKAM, HAWAII

DEPARTMENT OF THE NAVY

CENTRAL IMPROVEMENTS

CNHR

WHARF EXTENSION PLAN

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PROJECT NO.:	1554911
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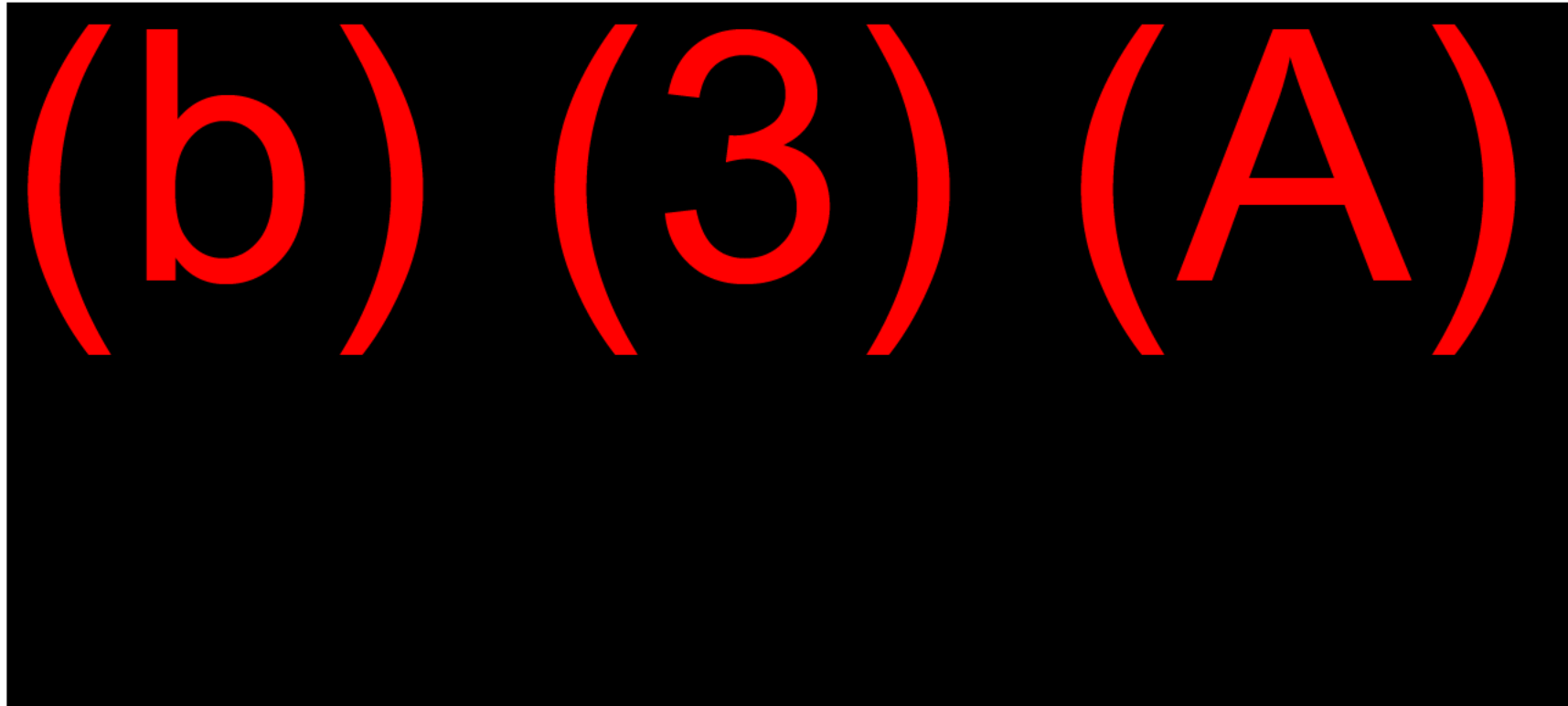
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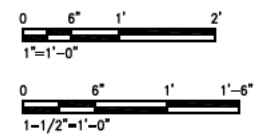
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THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK AMONG THE VARIOUS TRADES AS NECESSARY TO AVOID CONFLICTS AND TO INSURE THE INSTALLATION OF ALL WORK WITHIN THE AVAILABLE SPACE.
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GRAPHIC SCALE



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 NEGOTIATING ENGINEERS INC.
 1003 Bishop Street
 Pearl Harbor, Suite 2025
 Honolulu, Hawaii 96813
 PH: (808) 538-2828

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BRANCH MANAGER					
CHIEF ENG/ARCH					

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 NAVAL FACILITIES ENGINEERING COMMAND
 NAVFAC HAWAII
 CAPITAL IMPROVEMENTS
 CNRH
 JOINT BASE PEARL HARBOR HICKAM, HAWAII
 JOINT BASE PEARL HARBOR HICKAM, HAWAII
 FACILITY NO. H.H. - WHARF BULKHEAD REPAIRS
 PILE DETAILS

SCALE:	AS NOTED		
PROJECT NO.:	1554911		
CONSTR. CONTR. NO.:	-		
NAVFAC DRAWING NO.:			
SHEET	15	OF	16

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