STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF BOATING AND OCEAN RECREATION

JOB NO. B46CM71B

LAHAINA SMALL BOAT HARBOR
INNER MARGINAL WHARF REPAIR

LAHAINA, MAUI, HAWAII

TMK: (2) 4 - 6 - 001 : 002 (PARCEL 2)

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APPROVED: EDWARD R. UNDERWOOD
DATE: May 7, 2020

ISSUED FOR BID - 05 MAY 2020
JOB NO. B46CM71B SHEET NO. 1 OF 25 SHEETS
CONSTRUCTION EXECUTION (CONTINUED)

9. THE LOCATIONS OF KNOWING EXISTING UNDERGROUND UTILITIES SHOWN IN THE DRAWINGS ARE NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF DAMAGES THAT OCCUR AS A RESULT OF A FAULTY LOCATION OF THE EXISTING UNDERGROUND UTILITIES OR ANY NEW UTILITIES INSTALLED ACCORDING TO THE CONTRACT DOCUMENTS.

10. THE CONTRACTOR SHALL STAKEOUT ALL BASELINES OF CONSTRUCTION, THE LOCATION OF ALL NEW CONSTRUCTION, AND VERIFY ALL SETBACKS, OFFSETS, AND ELEVATIONS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER OF ANY DIFFERENCES BETWEEN THE EXISTING AND NEW CONSTRUCTION BASELINES INCLUDED IN THE DRAWINGS. THE CONTRACTOR SHALL PLACE CONSTRUCTION DEBRIS CONTROL DEVICES, TURBIDITY CURTAINS, BOOMS, TARPANALS, FLOATS, STAGING, AND OTHER MATERIALS NECESSARY FOR THE SAFE DEMOLITION, SHORING OF EXISTING STRUCTURES AND TEMPORARY SUPPORTS TO BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION. REFER TO CONTRACT GENERAL LOCKS, WHICH IS THE CONTRACTOR'S RESPONSIBILITY.

11. PRIOR TO BEGINNING UTILITY CONSTRUCTION, THE CONTRACTOR SHALL PHOTOGRAPHICALLY DOCUMENT THE EXISTING SITE CONDITIONS, STORAGE AREAS, SURROUNDING AREAS, ADJACENT AREAS AND ALL TRAVEL CORRIDORS NECESSARY TO PRODUCE THE INTENDED RESULTS, WHETHER SHOWN OR OR NOT ON THE DRAWINGS.

12. USEFUL MATERIALS OR ENGINEER, CONTRACTOR, SUBCONTRACTOR, OR SUPPLIER SHALL BE RESPONSIBLE FOR THE DAMAGE CAUSED BY THE CONTRACTOR, SUBCONTRACTOR, OR SUPPLIER PHILOPHOTICALLY DOCUMENT THE EXISTING SITE CONDITIONS PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL NOT BEGONE RESPONSIBLE FOR THE CLEANUP OF ANY MATERIALS OR DEVELOPMENT EVIDENCE DURING THE CONSTRUCTION PERIOD. PROVIDE AND MAINTAIN A SAFE WORK FACILITY THROUGHOUT THE CONSTRUCTION PERIOD.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY SUPPORTS SHOWN ON THE DRAWINGS OR IN THE BID DRAWINGS OR BID SET. ALL ELEVATIONS ARE REFERENCED TO NAVIGATION WATER LEVEL (NWL) AS ELEVATION +3.59.

14. TOPOLOGICAL SURVEY - SEE EXISTING SITE PLAN ON SHEET C-01.

15. THE CONTRACTOR SHALL NOTIFY ALL AGENCIES TO VERIFY THE ACTUAL LOCATION OF ALL NEW CONSTRUCTION, AND VERIFY ALL SETBACKS, OFFSETS, AND ELEVATIONS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL STAKEOUT ALL BASELINES OF CONSTRUCTION, THE LOCATION OF ALL NEW CONSTRUCTION, AND VERIFY ALL SETBACKS, OFFSETS, AND ELEVATIONS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL PLACE CONSTRUCTION DEBRIS CONTROL DEVICES, TURBIDITY CURTAINS, BOOMS, TARPANALS, FLOATS, STAGING, AND OTHER MATERIALS NECESSARY FOR THE SAFE DEMOLITION, SHORING OF EXISTING STRUCTURES AND TEMPORARY SUPPORTS TO BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION. REFER TO CONTRACT GENERAL LOCKS, WHICH IS THE CONTRACTOR'S RESPONSIBILITY.

16. THE CONTRACTOR SHALL PROVIDE REASONABLE ACCESS IN THE IMMEDIATE VICINITY OF THE PROJECT SITE AT ALL TIMES TO PEDESTRIAN TRAFFIC. THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER OF ANY DIFFERENCES BETWEEN THE EXISTING AND NEW CONSTRUCTION BASELINES INCLUDED IN THE DRAWINGS. THE CONTRACTOR SHALL PLACE CONSTRUCTION DEBRIS CONTROL DEVICES, TURBIDITY CURTAINS, BOOMS, TARPANALS, FLOATS, STAGING, AND OTHER MATERIALS NECESSARY FOR THE SAFE DEMOLITION, SHORING OF EXISTING STRUCTURES AND TEMPORARY SUPPORTS TO BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION. REFER TO CONTRACT GENERAL LOCKS, WHICH IS THE CONTRACTOR'S RESPONSIBILITY.

17. THE CONTRACTOR SHALL PROVIDE ACCESS TO REMAINING MATERIALS AND MATERIAL TESTING NOTED. ALL MATERIALS AND MATERIAL TESTING CONFORM TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
EXISTING SITE PLAN
SCALE: 1" = 12'

NOTES:
1. EXISTING SITE PLAN BASED UPON TOPOGRAPHIC SURVEY BY AUSTIN, TSUTSUMI & ASSOCIATES, INC. AND IS BASED UPON THEIR FIELD SURVEY COMPLETED ON 2020 JANUARY 10.
2. QUANTITY AND LOCATION OF EXISTING MOORING BUOYS ARE APPROXIMATE. CONTRACTOR TO VERIFY IN THE FIELD.
3. FOR EXISTING UTILITY CALLOUTS AND DETAILS, SEE ELECTRICAL AND MECHANICAL UTILITY SHEETS.
4. CONTRACTOR TO VERIFY ALL EXISTING FIELD CONDITIONS AND DIMENSIONS PRIOR TO START OF WORK. NOT ALL EXISTING SITE INFORMATION IS SHOWN OR LABELED.
5. REFERENCE ELEVATIONS ARE BASED UPON MLLW = 0.0 FT.
6. FOR EXISTING INNER MARGINAL WHARF SECTIONS, SEE "STRUCTURAL DEMOLITION PLAN" SHEET.
The Inner Marginal Wharf is approximately 300 ft long and moors approximately 23 vessels. The wharf is divided into 3 phases of approximately 100 ft in length.

2. Contractor shall perform the work in phases and shall contain and complete the work within a single phase before moving to another phase.

3. A phase will be considered complete when:
   A. Vessels can safely moor in the completed phase,
   B. All work that would damage the vessels in the phase is complete and vessels are moored,
   C. The work is reviewed and accepted by DOBOR for vessel mooring.

4. Utility services are not required to be functional for each phase to be completed prior to moving to next phase.

5. Contractor shall provide notice to slip permittees at least two weeks prior to start of each construction phase. Contractor shall allow for 1 week to transfer boats from between phases.

6. Construction equipment, materials, or activities shall not occur outside the staging area, construction corridor, or construction site as defined on the site plan unless approved by DOBOR.

7. Phasing of work shown on the drawings is approximate. Contractor shall submit a work sequence and phasing plan to engineer for review.

8. Construction staging area shall be gradually reduced as less materials and equipment are necessary. Contractor shall provide a description of the required staging area in the work sequence and phasing plan.
NOTES:

1. CONTRACTOR MUST COORDINATE DEMOLITION WITH PHASING PLAN. SEE C-02.
2. FOR CONCRETE REPAIRS TO RAMP LANDING AND PILE CAP, SEE S-03 AND S-04.
3. DIMENSIONS AND ELEVATION GIVEN FOR THE STRUCTURES AND FOR THE ASSOCIATED COMPONENTS ARE APPROXIMATE AND ARE PROVIDED FOR ESTIMATING PURPOSES ONLY. DETAIL WORK SHALL BE BASED ON THE CONTRACTOR’S FIELD MEASUREMENTS.
4. THE CONTRACTOR WILL TAKE CARE TO PROTECT EXISTING LANDSCAPE FEATURES IN PLACE AND IN DRAWINGS OR BY WRITTEN APPROVAL OF THE OWNERS REPRESENTATIVE. HMARS, S-S-01, S-S-04, CONCRETE LANDING, ELEC BOXES; CONCRETE CURBS AND ASPHALT. REPAIR DAMAGED ITEMS TO THEIR ORIGINAL CONDITION OR REPLACE WITH NEW.
5. WHERE TREES CONFLICT WITH CONSTRUCTION THE CONTRACTOR MUST IDENTIFY AND OBTAIN WRITTEN APPROVAL BY DOBOR TREES TO BE REMOVED.
6. DEMOLISH TIMBER/WOOD SUPERSTRUCTURE AND ASSOCIATED COMPONENTS IN THEIR ENTIRITY TO THE LIMITS INDICATED. DEMOLITION INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING: TIMBER FRAMING AND CONNECTIONS: CLEATS; TIMBER DECKING; RAILINGS AND POSTS; TIMBER RAMPS; AND ISLAND TO DINGHY DOCK RAMP.
7. FOR UTILITY DEMOLITION, SEE ELECTRICAL PLANS.
8. CONTRACTOR IS RESPONSIBLE FOR PROVIDING NEW AND/OR TEMPORARY SUPPORTS AND REINFORCING FOR EXISTING STRUCTURE WEAKENED BY DEMOLITION OR REMOVAL WORKS.
9. CUT EXPOSED ANCHOR BOLTS, ASSOCIATED WITH DEMOLISHED CONCRETE, 1" BELOW FACE OF CONCRETE AND PATCH WITH EPOXY GROUT, UON.
10. AFTER DEMOLITION OF THE TIMBER RAMPS (R1-R4), THE CONTRACTOR WILL TAKE CARE TO PROTECT EXISTING LANDSCAPE FEATURES IN PLACE AND IN DRAWINGS OR BY WRITTEN APPROVAL OF THE OWNERS REPRESENTATIVE. HMARS, S-S-01, S-S-04, CONCRETE LANDING, ELEC BOXES; CONCRETE CURBS AND ASPHALT. REPAIR DAMAGED ITEMS TO THEIR ORIGINAL CONDITION OR REPLACE WITH NEW.
11. Quantities and location of existing mooring buoys to be demolished are approximate. Contractor to verify in the field.
PROVISION FOR BOAT LINE

ROLYAN MOORING

BUOY MODEL 1146 24"Ø
WHITE OR APPROVED EQUAL w/ BLUE BAND

1" BUOY CHAIN GRADE 43 (G4)
MINIMUM HOT-DIPPED GALVANIZED,
LENGTH = DEPTH AT MHHW + 5 FT.
CONFIRM BUOY CHAIN LENGTH 
WITH DOBOR DURING INSTALLATION OF FIRST BUOY.

BUOY CHAIN TO ANCHOR BLOCK CONNECTION
ANCHOR TO BE STEEL PLATES WITH MAX HEIGHT OF 8" AND WEIGHING 7,500 lbs MINIMUM. STEEL PLATES TO BE BOLTED TOGETHER. PROTECT FROM CORROSION WITH HOT-DIPPED GALVANIZING AFTER DRILLING HOLES AND 2 COATS OF EPOXY PAINT BEFORE ASSEMBLY. TOUCH UP EPOXY PAINT AFTER ASSEMBLY. PROVIDE 1 1/2"Ø GALV STEEL HOOK. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ANCHOR ASSEMBLY.

SHACKLE AND SWIVEL AT EACH END OF CHAIN. ALL COMPONENTS OF TO BE HOT DIPPED GALVANIZED. ALL COMPONENTS OF MOORING BUOY SYSTEM TAKING ANCHOR LOAD TO HAVE A SAFE WORKING LOAD LIMIT OF 10 TONS MINIMUM.

BUOY CHAIN TO ANCHOR BLOCK CONNECTION

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF BOATING AND OCEAN RECREATION

ISSUED FOR BID - 05 MAY 2020

MOORING DETAILS

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DESIGN LOADS:
- LIVE LOAD: A UNIFORM LIVE LOAD OF 50 PSF APPLIED OVER THE DECK PER ASCE 50-12.
- DEAD LOAD: WEIGHT OF THE PER STRUCTURE PLUS ALL PERMANENTLY ATTACHED APPURTENANCES.
- WIND LOAD: WIND SPEED BASED ON RECOMMENDATIONS FROM ASCE 50-12.
- MOORING LOADS: MOORING LOADS BASED ON THE WIND LOAD AND DESIGN MOORING LOADS SHALL BE APPLIED TO DECKS ON THE Pier AS RECOMMENDED BY ASCE 50-12.
- WAVE LOADING WITHIN THE HARBOR SHALL NOT BE LESS THAN 2 FT BOAT WAKE.
- VESSEL IMPACT LOADS WILL BE INCLUDED IN THE PENDER AND STRUCTURE DESIGN.
- SEISMIC LOAD DEMAND CHECK MAY NOT BE REQUIRED PER IBC 2012 A LESS THAN SUBSTANTIAL DAMAGE REPAIR.
- VESSEL DESIGN SIZES:
  - TWO (2) EXISTING 50-FT VESSELS MOOR AT THE NORTH END OF THE PROJECT.
  - THE PROJECT DESIGN WILL HAVE ADDITIONAL MOORING SUPPORT OF THE DINGY DOCK AND THE TRIMBER MOORING PILES.
- MED-MOORING VESSEL SIZES WHERE MED-MoorING IS STERN TO THE MAIN BREAKWATER AND A SINGLE BUOY AT THE BOW. MAXIMUM IS A 40-FT VESSEL.

Tidal Data:
Tidal Data is provided in the General Notes on Sheet S-01.

OVERVIEW DESIGN REQUIREMENTS:
- Design shall be shop welded and field bolted. All aluminum structures shall be welded and field bolted.
- All connections to dissimilar materials including concrete will be electrically isolated using holly or holly spacers, bushings, washers and other spacers.
- See specification 1010 for field additional information.

DESIGN CODES AND REFERENCES:
- BRITISH STANDARDS (BS 6349) SHALL BE USED AS THE MARINE CODE, AS BOLTS SHALL BE ASTM A316 STAINLESS STEEL.
- BOLTS SHALL BE ASTM A449 STAINLESS STEEL.
- ALL WORK SHALL BE OF GOOD WORKMANSHIP QUALITY AND CONFORM IT ADJACENT TO THE WORK SITE.
- SEE GENERAL NOTES ON SHEET S-01 FOR ADDITIONAL INFORMATION.
- SUBMITTALS:
  - Structural Submittals shall comply with the requirements of the specifications and notes on the drawings.
  - Shop Drawings will identify all materials, finishes and geometry of the assemblies and shop drawings will be submitted and accepted for use by the Engineer prior to fabrication and installation of the shop drawing assembly or any components.

MATERIALS:
- MATERIALS GENERAL:
  - See specifications for detailed information.
  - All materials shall be new, high quality, clean, free of dirt and in good condition. Handle and store all materials in accordance with manufacturers recommendations and in accordance with good workmanship and industry standards.
  - All materials shall be handled, stored and installed in accordance with manufacturers recommendations and requirements and in accordance with good industry practices.

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S-01

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR

1. CONTRACTOR SHALL PERFORM THE WORK IN A SAFE MANNER, SHALL BE RESPONSIBLE FOR SAFETY ON SITE AND SHALL PROVIDE THE CONTROLS NECESSARY TO SAFEGUARD PEOPLE AND PROPERTY IN AREAS ADJACENT TO THE WORK SITE.
2. ALL WORK SHALL BE OF GOOD WORKMANSHIP QUALITY AND CONFORM IT INDUSTRY STANDARDS FOR SIMILAR TYPE WORK.
3. QUALITY CONTROL SHALL BE PERFORMED BY THE CONTRACTOR TO OBTAIN QUALITY WORK.

1. CONTRACTOR SHALL FULLY Cooperate with the owners quality assurance program.
2. CONTRACTOR WILL SUBMIT full set of submittals, certification certificates, technical data sheets, testing and inspection, timely submission of information and timely notification of construction activities to allow for inspection and testing and included in full co-operation.
3. Touch up all finishes during construction and at the end of construction.

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CONSTRUCTION NOTES:
1. Repair existing concrete ramp landings in place at R1-R4, see Sheet S-03.
2. Construct new concrete ramp landings at R5 & R6, see Sheet S-04.
3. Repair existing pile caps, see Sheet S-03.
4. Construct fixed pier aluminum frame, composite fender system, and appurtenances, see Sheets.
5. Construct new access ramp frame.
6. Construct new railing.

LEGEND:
Pile and pile cap number "X"
Ramp landing and number "X"
Fire extinguisher, see mechanical for specifications and mounting requirements
Life ring
Ladder
Utility pedestal
Mooring cleat
Aluminum railing

NOTES:
1. Contractor shall verify field dimensions prior to ordering for fabrication.
2. Dimensions shown are approximate.

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CONCRETE REPAIR NOTES:
1. CONCRETE SPALL/DELABORATION REPAIR PROCEDURE
   a. SAWCUT THE SPALL/DELABORATION AREAS 1 1/2" DEEP AROUND THE
      PERIMETER OF THE DAMAGED AREA.
   b. REMOVE TO CLEAN AND SOUND CONCRETE USING A SMALL PNEUMATIC
      HAMMER TO A MINIMUM OF 1/4" BEYOND THE REPAIRING STEEL.
   c. INSPECT SPALL/DELABORATION AREAS TO DETERMINE THE AMOUNT
      OF SECTION LOSS DUE TO CORROSION. IF THE SECTION LOSS RESULTS IN
      THE REMAINING BAR DIAMETER EQUAL TO OR MORE THAN THE NEXT
      SMALLER SIZE BAR, IF NEW REINFORCING OF ORIGINAL BAR SIZE
      SHALL BE ADDED. SAWCUT NEW BAR TO EXISTING WITH SAWCUT
      STARTING AT NEAREST UNCORRODED SECTION. UNIT SPACED.
      EXISTING REPAIR TO REMAIN SHALL BE EPOXY COATED.
   d. REMOVE ALL HEAVY CORROSION AND SCALE FROM REINFORCING BARS
      BY HAND TOOLS OR WIRE BRUSH.
   e. IF REINFORCING BAR DIAMETER, AFTER CLEANING, IS LESS THAN THAT
      SHOWN IN ALLOWABLE BAR DIAMETER CHART, REPAIR ACCORDING TO
      DETAILS ABOVE.

2. CONCRETE REPAIR PRODUCT INFORMATION
   a. NEW BONDING AGENT SHALL BE SIKA ARMATEC 140 BY SIKA CORP.
      OR APPROVED EQUAL.
   b. NEW REPAIR MORTAR SHALL BE SIKATOP 111 PLUS BY SIKA CORP.
      OR APPROVED EQUAL.
   c. EPOXY FOR CRACK REPAIR SHALL BE HIGH STRENGTH EPOXY GROUTING
      ADHESIVE BARROW 35-H MOD LV OR APPROVED EQUAL WITH LOW
      WATER ABSORPTION.

3. CONCRETE REPAIRS MUST FOLLOW ACI 546-14 CONCRETE REPAIR GUIDE.
4. ANCHORS SHALL NOT BE INSTALLED IN CONCRETE REPAIRED AREAS 21
   DAYS AFTER PLACEMENT.
5. CONCRETE CAPPING
   a. FOR A CONSTRUCTION PHASE, THE CONTRACTOR AND OWNERS
      REPRESENTATIVE SHALL INSPECT THE EXISTING CONCRETE CONDITION
      OF CONCRETE CAP AFTER SUPERSTRUCTURE HAS BEEN REMOVED.
      CONTRACTOR AND OWNER SHALL DETERMINE AND AGREE UPON
      LOCATION, TYPE, AND QUANTITY OF SPALL/DELABORATION AND EPOXY
      CRACK REPAIR.
   b. SPALL/DELABORATION IS TYPICAL AT ANCHOR BOLTS ON TOP OF CAP.
      SPALL/DELABORATION NOTED UP TO 12" WIDE BY 12" HIGH UP TO FULL
      LENGTH OF CONCRETE CAP. HAIRLINE CRACKS WERE INDICATED AT
      1'-6"± LIMITS OF REPAIR.
   c. REMOVE FLUSH DAMMING MATERIAL UPON COMPLETION.

6. CONCRETE RAMP LANDINGS (R1 - R4) REPAIR:
   a. AFTER RAMP HAS BEEN DEMOLISHED, THE CONTRACTOR AND DOOR OR
      REPRESENTATIVE SHALL INSPECT THE EXISTING CONCRETE CONDITION
      OF THE CONCRETE RAMP LANDING. CONTRACTOR AND DOOR SHALL
      DETERMINE AND AGREE UPON LOCATION, TYPE, AND QUANTITY OF
      SPALL/DELABORATION AND EPOXY CRACK REPAIR.
   b. CONTRACTOR MAY DEMOLISH AND RECONSTRUCT RAMP LANDINGS
      WITH WRITTEN APPROVAL OF OWNER.
7. REFERENCE AS- BUILT DRAWINGS IN CONTRACT DOCUMENTS FOR EXISTING
   CAP AND TAMP LANDING DETAILS.

MINIMUM REINFORCEMENT LAP SPICE LENGTH TABLE

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TYPICAL ALLOWABLE BAR DIAMETER CHART

<table>
<thead>
<tr>
<th>BAR DIAMETER</th>
<th>NOTE</th>
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NOTES:
1. REMOVE ALL HEAVY CORROSION AND SCALE FROM REINFORCING BARS BY
   HAND TOOLS OR WIRE BRUSH.
2. IF REINFORCING BAR DIAMETER, AFTER CLEANING, IS LESS THAN THAT SHOWN
   IN ALLOWABLE BAR DIAMETER CHART, REPAIR ACCORDING TO DETAILS ABOVE.
1. Cap all utility stubs to protect in place until final connection is made.
2. Excavate and place compacted base course where existing riprap does not occur.
3. All reinforcing steel shall comply with ASTM 1035, CHROMX 4100 or approved equal.
NOTES

1. CONTRACTOR TO VERIFY ALL EXISTING DIMENSIONS PRIOR TO FABRICATION.
2. CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY SHORING. SEE GENERAL NOTES SHEET G-01.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR STRUCTURAL DESIGN AND DETAILING OF THE FIXED DOCK, ACCESS RAMPS, CONNECTION DETAILS, AND MOUNTING HARDWARE SHOWN ON THIS SHEET. REFER TO SPECIFICATION.
4. ALL STRUCTURES SHALL BE FUNCTIONAL OVER ENTIRE TIDAL RANGE AND NO PORTION OF STRUCTURE SHALL BE SUBJECT TO SUBMERSION.
5. FILE LOCATIONS MAY MOVE AFTER DEMOLITION OF TIMBER SUPERSTRUCTURE. CONTRACTOR TO VERIFY DIMENSIONS AFTER DEMO OR ACCOMMODATE POST DEMO MOVEMENT IN DESIGN.
6. ALUMINUM DESIGN BY CONTRACTOR.
7. PROVIDE 4-INCH CLEAR SPACE MINIMUM ABOVE CROSS BEAMS AND BELOW GRATING FOR UTILITIES.
8. DESIGN TO COMPLY WITH OVERALL DIMENSIONS INCLUDING UTILITY SPACE BELOW DECK.
9. EXAMPLE FRAMING AND CONNECTION SHOWN, FINAL DESIGN TO BE APPROVED PRIOR TO FABRICATION. SEE SPECIFICATIONS.
10. DECKING AND GUARDRAIL SHALL BE REMOVABLE FOR FUTURE REPAIR OR REPLACEMENT.

RAMP AND DOCK FRAME LENGTH TABLE

<table>
<thead>
<tr>
<th>RAMPS</th>
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<td>R10</td>
<td>P10-P11</td>
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</table>

LENGTHS ARE APPROXIMATE BASED ON PRE-DEMOLITION FIELD MEASUREMENTS. VERIFY DIMENSIONS PRIOR TO FABRICATION.

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF BOATING AND OCEAN RECREATION

LAHAINA SMALL BOAT HARBOR
INNER MARGINAL WHARF REPAIR

STRUCTURAL FRAMING PLANS

ISSUED FOR BID
NOT FOR CONSTRUCTION

JOB NO. S060718
Sheet No. 17 of 25 Sheets

Scale: 1/2" = 1'-0"

ISSUED FOR BID - 05 MAY 2020
NOTES
1. DECKING AND GUARDRAILS SHALL BE REMOVABLE FOR FUTURE REPAIR OR REPLACEMENT.

ISSUED FOR BID
NOT FOR CONSTRUCTION
GENERAL MECHANICAL NOTES:

1. INSTALLATION OF MECHANICAL SYSTEMS, INCLUDING COORDINATION WITH OTHER TRADES, SHALL
   COINCIDE WITH THE LOCAL SEWER DEPARTMENT INSPECTIONS AND SUBMITTALS AND SHALL BE
   COORDINATED WITH THE WATER AND OTHER AHJ DEPARTMENTS. PRIOR APPROVAL OF AND
   NOTICE TO PROCEED WITH THE INSTALLATION IS REQUIRED BY THE LOCAL AHJ FOR THE
   WATER SYSTEMS. AUTHORIZED REPRESENTATIVE SHALL Witness Tie-In, AS REQUIRED.

2. ALL PIPING SHALL FOLLOW THE GENERAL ARRANGEMENT SHOWN. PIPING SHALL BE RUN AS
   INDICATED, CARE BEING TAKEN TO AVOID INTERFERENCE WITH OTHER PIPING, CONDUIT, OR
   EQUIPMENT. THE LOCATION OF PIPING TO BE RUN ON DOCKS SHALL BE COORDINATED WITH
   ELECTRICAL CONSULTANTS SPECIFIED. BEFORE JOINING AND EJECTION OF PIPING, THOROUGHLY CLEAN
   INTERIORS OF PIPE AND COMPONENTS. MAINTAIN CLEANLINESS BY CLOSING OF PIPE OPENINGS WITH
   INSTALLATION OF MECHANICAL SYSTEMS, INCLUDING COORDINATION WITH OTHER TRADES, SHALL
   FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING UTILITIES FROM DAMAGE AND FOR
   THE INTERNAL PIPE AND COMPONENTS. THE CONTRACTOR SHALL BE REQUIRED TO
   REMOVE, LEGALLY DISPOSED, AND REPLACED WITH SUITABLE MATERIAL, WITH CORRESPONDING
   REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR SHALL BE REQUIRED TO
   EXISTING UTILITIES RELEVANT TO PROJECT CONSTRUCTION LOCATED AND MARKED PRIOR TO THE
   CONTRACTOR SHALL OBTAIN ALL REQUIRED BUILDING/TRADE PERMITS AND PROVIDE ALL
   IS POSIBLE THAT SOME EXISTING FACILITIES ARE
   LOCATIONS SHALL BE DETERMINED IN THE FIELD. IT IS POSSIBLE THAT SOME EXISTING FACILITIES ARE
   LOCATIONS OF UTILITIES, PUBLIC AND/OR PRIVATE, ARE APPROXIMATE ONLY, AND THE EXACT
   REQUIRED TESTING.

3. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED BUILDING/TRADE PERMITS AND PROVIDE ALL
   REQUIRED TESTING.

4. THE CONTRACTOR SHALL ENSURE SUFFICIENT PIPE FLEXIBILITY AND THAT ANCHORAGE IS PROVIDED
   FOR ALL LINES FOR THERMAL EXPANSION AND CONTRACTION, PRESSURE AND DOCK FLEXING. THE
   CONTRACTOR SHALL CONTACT THE HEALTH DEPARTMENT TO ARRANGE FOR SAMPLING AND TESTING OF THE SYSTEM. THE CONTRACTOR SHALL INSURE THAT THE WATER IN THE SYSTEM
   BE ISOLATED AND THE SOLUTION HELD FOR A PERIOD OF 24 HOURS MINIMUM. THE SYSTEM SHALL THEN BE
  .Flushed with fresh water until the chlorine level in the system does not exceed the level of
   THE FLUSHING WATER. THE CONTRACTOR SHALL CONTACT THE HEALTH DEPARTMENT TO ARRANGE FOR
   SAMPLING AND TESTING OF THE SYSTEM. THE CONTRACTOR SHALL INSURE THAT THE WATER IN THE SYSTEM
   IS NOT USED FOR HUMAN CONSUMPTION DURING THE STERILIZATION PROCESS AND THAT STERILIZATION
   LEAKS SHALL BE LOCATED, REPAIRED AND THE TEST REPEATED. THE POTABLE WATER SYSTEM FROM THE
   SYSTEM SHALL THEN BE FLUSHED WITH FRESH WATER UNTIL THE CHLORINE LEVEL IN THE SYSTEM DOES NOT EXCEED THE LEVEL OF
   THE POTABLE WATER SYSTEM SHALL BE PRESSURE TESTED DOWNSTREAM OF THE POC. FLUSH PIPING WITH
   THE FOLLOWING, UNO:

   a. HOSE BIBB SHALL CONTAIN INTEGRAL ANTI-SIPHON VACUUM BREAKERS BE AND LEAD FREE.
   b. MAXIMUM DISTANCE OF PIPE BETWEEN PIPE SUPPORTS PER UNIFORM PLUMBING CODE SHALL NOT EXCEED
   c. HOSE PIPE SHALL BE MARKED AT MANUFACTURER FOR POTABLE WATER AND BE NSF 14 LISTED.
   d. FLEXIBLE HOSE AND FITTINGS SHALL BE COMPATIBLE WITH POTABLE WATER AND SUITABLE FOR 24 HOUR
   e. HDPE PIPE SHALL BE MARKED AT MANUFACTURER FOR POTABLE WATER AND BE NSF 14 LISTED.
   f. THE POTABLE WATER SYSTEM SHALL BE PRESSURE TESTED DOWNSTREAM OF THE POC. FLUSH PIPING WITH

POTABLE WATER SYSTEM NOTES

1. PIPING WILL BE SUSPENDED UNDER A FIXED DOCK SIMILAR TO A FIXED Pier OR GANGWAY. PIPING FOR
   POTABLE WATER ONSHORE LEADING TO THE DOCK SHALL BE TYPE K COPPER. ASTM B868 AND AT DOCKS
   SHALL BE HDPE ASTM D3077, SER 11, ASTM F17 BUTT FUSED, JOINTS. PIPING SHALL CONFORM TO UNIFORM
   PLUMBING CODE. PIPING AND INSTALLATION SHALL CONFORM TO UNIFORM PLUMBING CODE.

2. THE POTABLE WATER SYSTEM SHALL BE PRESSURE TESTED DOWNSWEEP OF THE POC, Flush PIPING WITH
   CLEAR WATER TO REMOVE DEBRIS, APPLY AND MAINTAIN 75 PSI WORKING TEST PRESSURE FOR 15 MINUTES.
   DURING WHICH TIME THERE SHALL BE NO REDUCTION IN TEST PRESSURE. SHOULD A REDUCTION OCCUR,
   LEAKS SHALL BE LOCATED, REPAIRED AND THE TEST REPEATED. THE POTABLE WATER SYSTEM FROM THE
   POC SHALL BE STERILIZED PRIOR TO USE. A SOLUTION OF CHLORINE AND WATER CONTAINING NOT LESS
   THAN 50 P.P.M. OF FREE CHLORINE SHALL BE INJECTED INTO THE SYSTEM IN SUCH A MANNER AS TO INSURE
   THAT THE ENTIRE SYSTEM IS COMPLETELY FILLED WITH THE SOLUTION. AFTER INJECTION, THE SYSTEM SHALL
   BE ISOLATED AND THE SOLUTION HELD FOR A PERIOD OF 24 HOURS MINIMUM. THE SYSTEM SHALL THEN BE
   FLUSHED WITH FRESH WATER UNTIL THE CHLORINE LEVEL IN THE SYSTEM DOES NOT EXCEED THE LEVEL OF
   THE FLUSHING WATER.

FIRE PROTECTION NOTES:

1. THREE ONSHORE FIRE HOSE CABINETS SHALL BE REPLACED AS INDICATED ON PROJECT DRAWINGS. 10
   FOUNTAIN EXTINGUISHERS, WITH A MINIMUM RATING OF 4A-80B:C, AND CABINETS SHALL BE PROVIDED
   ALONG THE DOCK AS INDICATED ON PROJECT DRAWINGS. ALL WORK SHALL BE COORDINATED WITH THE
   CITY OF LAKAHI FIRE DEPARTMENT.

2. SHOP DRAWINGS OR CATALOG DATA FOR ABOVE FIRE HOSE CABINETS AND MOUNTINGS SHALL BE
   SUBMITTED FOR APPROVAL.

3. ALL PIPE AND COMPONENTS USED FOR WATER SYSTEMS SHALL MEET THE CRITERIA OF THE AHJ.

4. ALL SUCH MATERIALS SHALL BE NEW, MEET DISTRICT, COUNTY, WATER UTILITY COMPANY AND OTHER
   AHJ REQUIREMENTS.

5. HOSE PIPE SHALL BE MARKED AT MANUFACTURER FOR POTABLE WATER AND BE NSF 14 LISTED.

6. FLEXIBLE HOSE AND FITTINGS SHALL BE COMPATIBLE WITH POTABLE WATER AND SUITABLE FOR 24 HOUR
   FLUSHING OR EQUALLY.

7. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, WORK, AND SERVICES TO CONFORM TO THE
   CONTRACT DRAWINGS, SPECIFICATIONS, CONTRACTORS, AND OTHER AHJ REQUIREMENTS.

8. LOCATION OF PIPING TO BE RUN ON DOCKS SHALL BE COORDINATED WITH THE WATER AND OTHER AHJ
   DEPARTMENTS. PRIOR APPROVAL OF AND
   INSTALLATION OF MECHANICAL SYSTEMS, INCLUDING COORDINATION WITH OTHER TRADES, SHALL
   FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING UTILITIES FROM DAMAGE AND FOR
   THE INTERNAL PIPE AND COMPONENTS. THE CONTRACTOR SHALL BE REQUIRED TO
   REMOVE, LEGALLY DISPOSED, AND REPLACED WITH SUITABLE MATERIAL, WITH CORRESPONDING
   REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR SHALL BE REQUIRED TO
   EXISTING UTILITIES RELEVANT TO PROJECT CONSTRUCTION LOCATED AND MARKED PRIOR TO THE
   CONTRACTOR SHALL OBTAIN ALL REQUIRED BUILDING/TRADE PERMITS AND PROVIDE ALL
   APPORTIONS SHALL BE REPLACED AT THE CONTRACTS SOLE COST.
LAHAINA SMALL BOAT HARBOR

DOCK PIPING PLAN

ISSUED FOR BID
NOT FOR CONSTRUCTION

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF BOATING AND OCEAN RECREATION

MECHANICAL PLAN

ISSUED FOR BID - 05 MAY 2020

Job No. 6464818
Sheet No. 15 of 25
2" FEBCO SERIES LF850 DOUBLE CHECK BACKFLOW PREVENTER OR APPROVED EQUAL

NOTE: CONTRACTOR SHALL VERIFY GRADE AT POINT OF CONNECTION TO DETERMINE DEPTH OF VALVE BOX. CONTRACTOR SHALL VERIFY EXISTING SERVICE LINE MATERIAL TO DETERMINE ADAPTER REQUIREMENTS.

ISSUED FOR BID - 05 MAY 2020

2" POTABLE WATER LINE, PROVIDE NEW ADAPTER COUPLING AND NEW LINE-SIZE SHUTOFF VALVE WITH VALVE BOX FOR ACCESS

2" POTABLE WATER UNDER DOCK (HDPE)

CONCRETE ABUTMENT

FLEXIBLE CONNECTION

NOTE: CONTRACTOR SHALL VERIFY GRADE AT POC TO DETERMINE DEPTH OF VALVE BOX. CONTRACTOR SHALL VERIFY EXISTING SERVICE LINE MATERIAL TO DETERMINE ADAPTER REQUIREMENTS.
EXISTING ELECTRICAL SERVICE AND METERS TO BE REMOVED. SERVICE SHALL REMAIN IN SERVICE AS LONG AS POSSIBLE DURING CONSTRUCTION, REFER TO PHASING PLAN.

EXISTING UNDERGROUND FEEDER TO EXISTING SERVICE EQUIPMENT. SERVICE SHALL REMAIN IN SERVICE DURING CONSTRUCTION, REFER TO PHASING PLAN. COORDINATE FINAL REMOVAL WITH UTILITY.

EXISTING OVERHEAD ELECTRICAL SERVICE CONDUCTORS TO REMAIN.

EXISTING UTILITY POLE TO REMAIN.

EXISTING OVERHEAD ELECTRICAL POWER TO REMAIN.
INFORMATION FROM EQUIPMENT MANUFACTURERS. IT IS THE RESPONSIBILITY OF THE OWNER TO MAINTAIN THE INTEGRITY OF THE SYSTEMS.

FREE OF DIRT AND DEBRIS. HANDLE CONDUIT, FITTINGS, AND OTHER ACCESSORIES IN SUCH A MANNER AS TO ENSURE DELIVERY TO THE INSTALLATION LOCATION IN A SOUND UNDAMAGED STATE.

PROVIDE IS DEFINED TO MEAN THAT THE CONTRACTOR SHALL FURNISH, INSTALL, ADJUST, TEST, AND INTEGRATE INTO A COMPLETE SYSTEM THE ITEM INDICATED, INCLUDING ALL HARDWARE, SUPPORTS AND HARDWARE. SUBMIT SHOP DRAWINGS OR SUPPORTS AND HARDWARE SHALL BE TYPE 316 STAINLESS STEEL. SUBMIT SHOP DRAWINGS OR SUBMISSIBLES THAT DO NOT BEAR THE GENERAL CONTRACTOR'S STAMP OF APPROVAL THEREON SHALL BE CONSIDERED NON-CONFORMING.

CONTROL WIRING AND WIRING FOR REMOTE STATIONS REGARDLESS OF VOLTAGE SHALL BE COPPER. ALL WIRE SHALL BE UL LISTED, RATED FOR 600 VOLTS, NO. 12 TENSILE WIRE INSTALLED.

WIRE INSTALLATION REQUIREMENTS:
A. ELECTRICAL CABLES AND WIRING SHALD BE OF THE TYPE SHOWN ON THE ELECTRICAL DRAWINGS. WHEN ADDITIONAL WIRING IS ADDED, IT-IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE 12" MINIMUM SEPARATION BETWEEN ELECTRICAL DUCT AND OTHER UTILITIES.

EXPANSION FITTINGS WHERE CONDUITS CROSS EXPANSION JOINTS. PROVIDE SLIP GROUND CONNECTOR. WATERTIGHT CONNECTORS SHALL BE USED WITH PLASTIC COVERED WIRES.

CONDUITS PASSING THROUGH BULKHEADS, CONCRETE WALLS, FLOORS OR FOOTINGS AND SLAB ON GRADE SHALL BE MADE WATERPROOF. PROVIDE PIPE SLEEVE WITH ONE-EIGHT-INCH MINIMUM CLEARANCE AROUND THE CONDUIT AND SLAB WITH A SLIP SEAL AND SEALANT.

WIRE NUMBERS:
A. WIRE NUMBERS ARE THE KEY TO IDENTIFY CONDUIT ENDINGS. USE WIRE NUMBERS TO DEFINE CABLE AND CONDUIT SIZE, LOCATION, AND PANEL DESIGNATION. PAINT SAME INFORMATION ON COVER OF THE BOX.

CIRCUIT NUMBER, AND PANEL DESIGNATION. PAINT SAME INFORMATION ON COVER OF THE BOX.

CIRCUIT NUMBER, AND PANEL DESIGNATION. PAINT SAME INFORMATION ON COVER OF THE BOX.

WIRING RECOMMENDATIONS:
A. CONDUIT BURIED IN GRADE SHALL BE INSULATED GALVANIZED STEEL UTS.

INSULATION (LJ)
UNDERWATER LABORATORIES (LJ)


I. WIRING STANDARD: INSTALLATION OF NEW LINE, WALL PENETRATIONS, AND EQUIPMENT PLACEMENT, TESTING, AND RECEPTION TESTING PERFORMED ON THE SYSTEM IN THE FIELD WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER SHALL PERFORM A FINAL ACCEPTANCE TEST ON THE SYSTEM AT NO ADDITIONAL COST TO THE OWNER.

J. INSTALLATION OF TIE-WIRE TO STRUCTURAL MEMBER, WITHOUT APPROVAL FROM THE ENGINEER. THE ELECTRICAL CONDUITS FOR VARIOUS ITEMS SHOWN ON THE DRAWINGS ARE TO BE MARKED WITH THE CLASSIFICATION INFORMATION.

K. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR THE LABEL OF A NATIONALLY ACCREDITED TESTING LABORATORY. ALL ITEMS SHOWN ARE NEW AND SHALL BE PROVIDED FOR THE CONTRACTOR'S USE UNLESS SUPERSEDED HEREIN. ALL ITEMS SHOWN ARE NEW AND SHALL BE PROVIDED FOR THE CONTRACTOR'S USE UNLESS SUPERSEDED HEREIN.

L. CONTRACTOR SHALL GIVE NOTICED PERIODS. OBSERVE NECESSARY BILLS AND PERMIT FEES.

M. THE CONTRACTOR SHALL GIVE NOTICED PERIODS. OBSERVE NECESSARY BILLS AND PERMIT FEES.

N. THE CONTRACTOR SHALL GIVE NOTICED PERIODS. OBSERVE NECESSARY BILLS AND PERMIT FEES.

O. THE CONTRACTOR SHALL GIVE NOTICED PERIODS. OBSERVE NECESSARY BILLS AND PERMIT FEES.
ELECTRICAL GENERAL NOTES (CONTINUED)

7. JUNCTION BOX REQUIREMENTS
   A. OUTLET BOXES SHALL BE STAINLESS STEEL WITH STANDARD KNOCKOUTS AS REQUIRED FOR CONDUIT TERMINATION. MINIMUM SIZE OF OUTLET BOX SHALL BE FOUR INCHES SQUARE, ONE AND ONE-QUARTER INCHES DEEP.
   B. OUTLET BOXES SHALL BE NEMA TYPE 4X.

10. PANELBOARDS
    A. PANELBOARDS SHALL BE CIRCUIT BREAKER TYPE AS INDICATED. PANELS SHALL BE RATED 1200VAC AND SHALL HAVE A MINIMUM 50AMP WIRE CAPABILITY. A DIRECTORY, COMMONLY KNOWN AS A DISTRIBUTION PANEL, IS REQUIRED FOR EACH PANEL.
    B. PANELBOARDS SHALL BE PROVIDED WITH TWO-PHASE, SINGLE-PHASE, AND THREE-PHASE CIRCUITS, WITH TRANSIENT PROTECTOR SHALL BE PROVIDED IN EACH PANEL.
    C. PANELBOARDS SHALL BE PROCUREMENT SOILED OR APPROVED.
    D. BREAKER ARRANGEMENT SHALL BE AS INDICATED.
    E. PANELBOARDS IN EXTERIOR LOCATIONS SHALL BE ENCLOSURE IN A NEMA 6P, 316 ALUMINUM ENCLOSURE.
    F. PANELBOARDS SHALL BE BOLT-ON TYPE. PLUG-IN BREAKERS SHALL NOT BE ACCEPTABLE UNLESS INDICATED.

12. LIGHTING FIXTURES
   A. LIGHTING FIXTURES SHALL BE INTEGRAL TO MARINE PEDESTALS.

13. MARINE POWER PEDESTAL
   A. BOB LIGHTHOUSE SS POWER PEDESTAL BY EATON.

ABBREVIATIONS

- 2P: TWO-PHASE, OR AS INDICATED
- A: AMPERES
- AC: AMPERES INTERCEPTING CAPACITY
- AWG: AMERICAN WIRE GAUGE
- CB: CIRCUIT BREAKER
- CD: CONDUIT
- CT: CURRENT TRANSFORMER
- DIA: DIAMETER
- DWG: DRAWING
- EX: EXISTING
- F: FLOOR
- GRP: GROUND FAULT PROTECTOR
- GRC: GALTANEED/RUSS STEEL CONDUIT
- HZ: CYCLES PER SECOND
- IEC: INTERMEDIATE ELECTRICAL CONDUIT
- KCMIL: THOUSAND CIRCULAR MILS
- KWH: KILOWATT HOUR
- KVA: KILOVOLT AMPERE
- LB: LOW-DENSITY POLYSTYRENE
- LED: LIGHT-EMITTING DIODE
- LFMC: LIGHT-FLEXIBLE METAL CONDUIT
- MA: MILLIAMPERS
- MCB: MAIN CIRCUIT BREAKER
- MCF: MICRONEC AND MCF/NEC
- NF: NATIONAL FUSIBLE FUSE
- NFIC: NATIONAL FUSIBLE FUSE
- PVC: POLYVINYL CHLORIDE
- R: RECEPTACLE
- SM: SHORT MAGNETIC
- SS: STAINLESS STEEL
- TYP: TYPICAL
- UL: UNDERWRIGHTS LABORATORIES
- V: VOLT
- W: WATT
- XFMR: TRANSFORMER
- X: POINT OF CONNECTION
- X: POINT OF CONNECTION
- Y: YIELD
- Z: ZONE
- 2P: TWO-PHASE, OR AS INDICATED
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- X: POINT OF CONNECTION
- X: POINT OF CONNECTION
- Y: YIELD
- Z: ZONE

ISSUED FOR BID - 05 MAY 2020
STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF BOATING AND OCEAN RECREATION
LAHAINA SMALL BOAT HARBOR
INNER MARGINAL WHARF REPAIR
ELECTRICAL NOTES AND LEGEND

ELECTRICAL GENERAL NOTES

JUNCTION BOX
OUTLET BOX
LANDSIDE HANDHALE
EXISTING UNDERGROUND CONDUIT
EXISTING UNDERGROUND CONDUIT
EXISTING UNDERGROUND ELECTRIC
DOCKSIDE SUPPORTED CONDUIT
CABLE DESIGNATION

DUAL SLIP POWER PEDESTAL WITH:
1. (3) 30A, 125/250V RECEPTACLES WITH 30A, 2 POLE GFCI (30mA) CIRCUIT BREAKERS
2. (1) 20A, 120V GFI RECEPTACLE WITH 20A, 1 POLE CIRCUIT BREAKER

DUAL SLIP POWER PEDESTAL WITH:
3. (4) 50A, 125/250V RECEPTACLES WITH 50A, 2 POLE GFCI (30mA) CIRCUIT BREAKERS
4. (2) 20A, 120V GFI RECEPTACLE WITH 20A, 1 POLE CIRCUIT BREAKER

DUAL SLIP POWER PEDESTAL WITH:
5. (2) 30A, 125V RECEPTACLES WITH 30A, 1 POLE GFEP (30mA) CIRCUIT BREAKER
6. (2) 20A, 120V GFI RECEPTACLE WITH 20A, 1 POLE CIRCUIT BREAKER

POINT OF CONNECTION

ISSUED FOR BID
NOT FOR CONSTRUCTION
1. ROUTE CONDUITS AROUND PILE CAP AND UNDER DOCK LONGITUDINAL BEAM. TRANSITION TO LFMC AS REQUIRED FOR TRANSITION.
2. SEE SHEET E-06 FOR CABLE AND PANEL SCHEDULES.
PVC SCH 40 conduits for cables. See plans and cable schedule for quantities. Provide conduit transitions as required for routing to dock structure. Secure conduits to aluminum framing with 316 SS cable straps and bolts with isolation pads for dissimilar metals.

Sleeves/blockouts in concrete. See structural sheet S-04 detail C for additional information and elevation of conduits through abutment.

S-04

PVC SCH 40 conduits for cables. See plans and cable schedule for quantities. Provide conduit transitions as required for routing to dock structure.

E-03

Typical dock section and conduit detail

E-04

Landside conduit transition

E-05

PVC SCH 40 conduits for cables. See plans and cable schedule for quantities. Provide conduit transitions as required for routing to dock structure.

PROVIDE CONDUIT TRANSITIONS AS REQUIRED FOR ROUTING TO DOCK STRUCTURE.

SLEEVE/BLOCKOUTS IN CONCRETE. SEE STRUCTURAL SHEET S-04 DETAIL C FOR ADDITIONAL INFORMATION AND ELEVATION OF CONDUITS THROUGH ABUTMENT.

PVC SCH 40 CONDUITS FOR CABLES. SEE PLANS AND CABLE SCHEDULE FOR QUANTITIES. SECURE CONDUITS TO ALUMINUM FRAMING WITH 316 SS CABLE STRAPS AND BOLTS WITH ISOLATION PADS FOR DISSIMILAR METALS.

316 STAINLESS STEEL CABLE SUPPORTS MOUNTED TO DOCK STRUCTURE.

PROVIDE CONDUIT TRANSITIONS AS REQUIRED FOR ROUTING TO DOCK STRUCTURE.

SLEEVE/BLOCKOUTS IN CONCRETE. SEE STRUCTURAL SHEET S-04 DETAIL C FOR ADDITIONAL INFORMATION AND ELEVATION OF CONDUITS THROUGH ABUTMENT.

PVC SCH 40 CONDUITS FOR CABLES. SEE PLANS AND CABLE SCHEDULE FOR QUANTITIES. SECURE CONDUITS TO ALUMINUM FRAMING WITH 316 SS CABLE STRAPS AND BOLTS WITH ISOLATION PADS FOR DISSIMILAR METALS.
TRANSITION TO PVC 6" MIN

WARNING TAPE, REFER TO STRUCTURAL DRAWINGS

COMPACTED STRUCTURAL FILL TO 3" FOR FINISHED SURFACE TYPE

SLIP RESISTANT COVER REFER TO STRUCTURAL DRAWINGS

EXISTING SURFACE

MINIMUM OF 6" COMPACTED DEPTH OF 56% WASHED ROK.

UCOHEX DRAINING GRAVEL AND 14" UP SIDES OF VAULT

MINIREMIX OR EQUAL FABRIC WRAPPED AROUND GRAVEL AND 14" UP SIDES OF VAULT

REVIEW DUCT SECTION DETAIL

PVC SCH 40 CONDUITS, NUMBER AND SIZE PER PLANS AND SCHEDULE

ELECTRICAL ACCESS PANELS, REFER TO MANUFACTURERS SPECIFICATIONS

INSTALL MALE ELECTRIC PRODUCED EQUIPMENT.

MOUNT PANEL 6" TO MOB FROM FINISHED GRADE.

EXTEND 5'-0" INTO GROUND. PROVIDE IF MIN-COMPACTED ENCLOSURE OF STEEL SUPPORT UNDERGROUND. PAINT SUPPORT ASSEMBLY WITH (2) COATS OF ZINC RICH PRIMER AND FINISH WITH (2) COATS OF PAINT.

PROVIDE GROUND BUSINGS ON ALL CONDUITS.

REFER TO SINGLE LINE AND PANEL SCHEDULE FOR ADDITIONAL INFORMATION.

TRANSITION FROM PVC TO RGS CONDUIT UNDERGROUND MIN 1/2" BELOW GRADE PRIOR TO CONDUCT ELECT.

HSS 4"X4"X1/2" WITH (2) COATS OF PRIMER AND (2) COATS OF FINISH PAINT.

PROVIDE #3/0 BARE COPPER GROUND CONDUCTOR TO PANEL MIN OF 24" TO CONDUCT AD.

PROVIDE "1" GRC CONDUCTOR FOR GROUND CONDUCTOR TO 12" BELOW MINIMUM BELOW GRADE.

5 MIL THICK RED ELECTRIC POWERED WARNING TAPE, 2" WIDE, LOCATED 8" BELOW GRADE FOR THE POWER PANEL. PROVIDE (2) COATS OF PAINT TO COVER METALLIC BACKING AND CORROSION RESISTANT COATED WIRE. A WARNING MESSAGE SHALL BE IMPRINTED "ELECTRICAL CABLE PROTECTIVE "WARNING" MESSAGE SHALL BE ADHERED ON ELECTRIC PANEL WITH "CAUTION" BURIED ELECTRICAL CABLE BURIED TO REMOVE FROM 5"-0" TO 12"-0".

PROVIDE "1" BRASS RELAY CAN SHUNT THE MAIN CB. EITHER THE PUSH BUTTON OR GFP RELAY SO THAT THE MAIN CB GFP RELAY CAN SHUNT THE MAIN CB. PROVIDE LABEL STATING "PANEL TO ENCLOSURE ENTERING ENCLOSURE ENTERING ENCLOSURE")

ACCESS PANEL

TYPICAL HANDHOLE DETAIL

POWER PEDESTAL DETAIL

ELECTRICAL RACK DETAIL

NEMA 6P ENCLOSURE DETAIL

ELECTRICAL DUCT DETAIL

GROUND RODS SPACED 10' APART

GROUND ELECTRICAL ACCESS PANELS. REFER TO DRAWN:

MINIMUM 12" VERTICAL SEPARATION BETWEEN THE ELECTRICAL CONDUITS AND OTHER UTILITIES (GAS, WATER, SEWER, ETC).

WHERE CONDUITS CROSS OTHER UTILITIES MAINTAIN MINIMUM 12" VERTICAL SEPARATION BETWEEN THE CONDUITS AND OTHER UTILITIES (GAS, WATER, SEWER, ETC).

NOT FOR CONSTRUCTION

LIHULA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR

STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION

JOB NO. SHEET NO. OF SHEETS:

6-05-20
1. Provide ground fault protection (GFP) of each feeder and branch circuit. Manufacturer shall be BENDER, model: RCMS490-D or engineer approved equal. Provide CT's, wiring, and mounting enclosure as required for GFP system. Provide 120V power to GFP. Panel "DP" service entrance feeder and pedestal circuits shall be wired to the GFP relay. In the event of a ground fault, the GFP relay will provide a trip signal to the respective shunt-trip breaker in Panel "DP", de-energizing the circuit containing the ground fault. Set pedestal branch circuit ground fault pickup to 40mA. Set Panel "DP" service entrance feeder ground fault pickup to 100mA.