

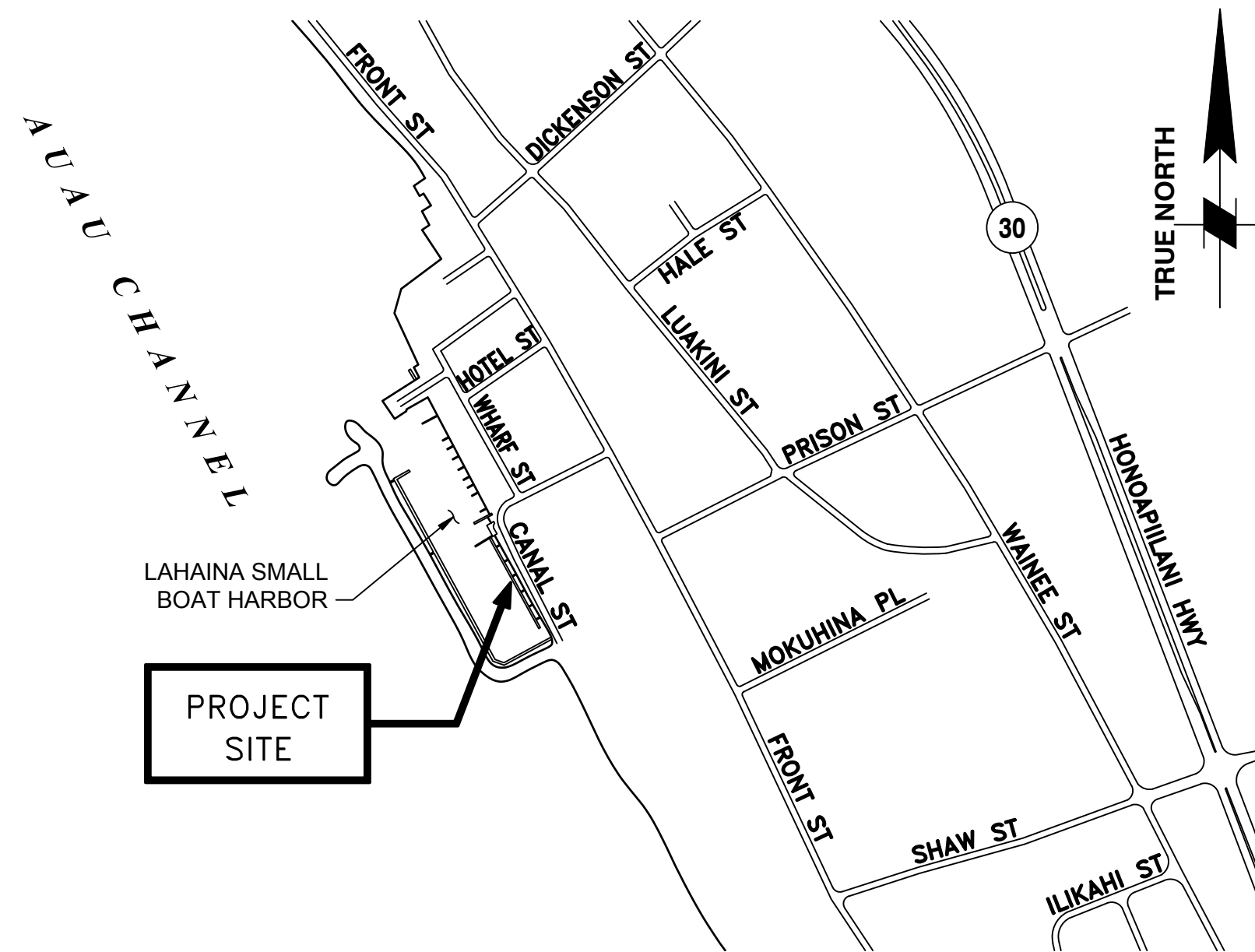
STATE OF HAWAII  
 DEPARTMENT OF LAND AND NATURAL RESOURCES  
 DIVISION OF BOATING AND OCEAN RECREATION

JOB NO. B46CM71B

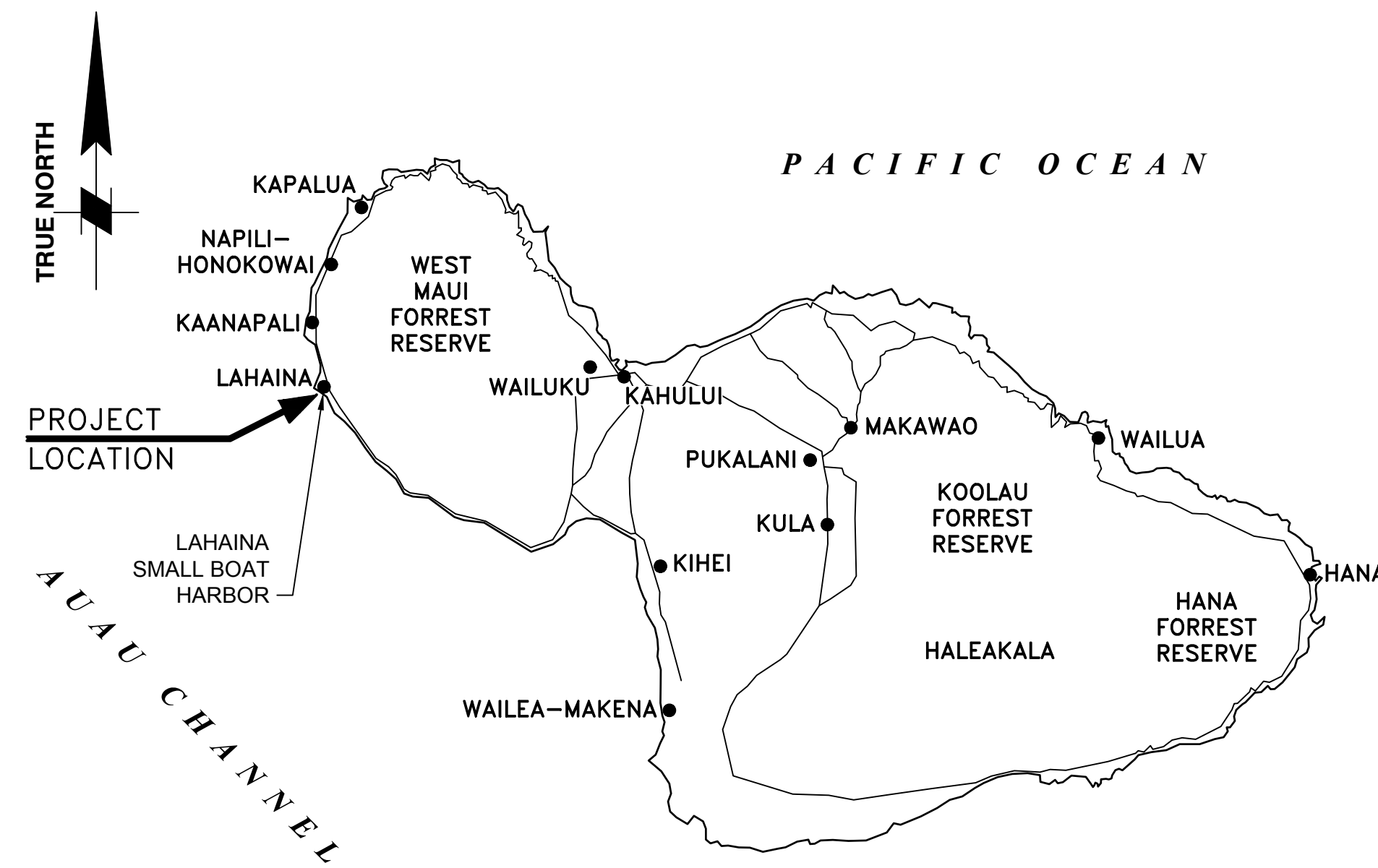
# LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR

LAHAINA, MAUI, HAWAII

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



LOCATION MAP  
 NOT TO SCALE



ISLAND OF MAUI  
 NOT TO SCALE

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ISSUED FOR BID  
 NOT FOR CONSTRUCTION

APPROVED:

DATE: May 7, 2020

EDWARD R. UNDERWOOD  
 ADMINISTRATOR  
 DIVISION OF BOATING AND OCEAN RECREATION  
 DEPARTMENT OF LAND AND NATURAL RESOURCES

DRAWING NO.  
 T-01

**GENERAL NOTES:**

**SCOPE OF WORK**

- GENERAL NOTES ARE NOT INTENDED TO REPLACE THE CONTRACT DOCUMENTS. SEE CONTRACT DOCUMENTS FOR REQUIREMENTS IN ADDITION TO THESE GENERAL NOTES. THE CONTRACT DOCUMENTS SHALL CONSIST OF THE COMPLETE PROJECT GENERAL SPECIFICATIONS AND WORKING DRAWINGS INCLUDING BUT NOT LIMITED TO GENERAL PROVISIONS, SPECIAL PROVISIONS, DIVISION 1 REQUIREMENTS, PROPOSAL, DLNR INTERIM GENERAL CONDITIONS, AND ANY RELEVANT ADDENDA ITEMS. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- THE WORKING DRAWINGS ARE NOT NECESSARILY COMPLETE IN EVERY DETAIL. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, MATERIAL, SERVICES, LABOR, ETC. FOR A COMPLETE INSTALLATION INCLUDING WORK REASONABLY INFERRED FROM THE CONTRACT DOCUMENTS AS BEING NECESSARY TO PRODUCE THE INTENDED RESULTS, WHETHER SHOWN OR NOT ON THE DRAWINGS.
- THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE STARTING WORK. DO NOT SCALE PROJECT DRAWINGS. REPORT ANY DISCREPANCIES IN THE DRAWINGS AND/OR SPECIFICATIONS TO THE ENGINEER FOR CLARIFICATIONS OR ADJUSTMENTS PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL NOT BEGIN DEMOLITION/CONSTRUCTION IN ANY AREA UNTIL THE DISCREPANCY HAS BEEN RESOLVED.
- SHOULD THERE BE A CONFLICT BETWEEN THESE GENERAL NOTES, WORKING DRAWINGS, AND/OR SPECIFICATIONS, THE MOST RESTRICTIVE INTERPRETATION SHALL PREVAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING FROM THE ENGINEER ANY CLARIFICATION OR INTERPRETATION OF THE GENERAL NOTES, WORKING DRAWINGS, AND/OR SPECIFICATIONS IN WRITING AND IN ADVANCE OF THE BEGINNING OF DEMOLITION/CONSTRUCTION. NUMERICAL DIMENSIONS AND ELEVATIONS SHOWN SHALL SUPERSEDE ANY DISCREPANCY IN THE SCALING ON THE DRAWINGS.
- CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS. THIS INCLUDES ALL ENVIRONMENTAL, SAFETY, OSHA AND PERMIT REQUIREMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL DEMOLITION, GRADING AND/OR BUILDING PERMITS.
- THE CONTRACTOR SHALL COORDINATE WITH ALL TRADES BEFORE STARTING WORK.
- THE CONTRACTOR SHALL KEEP ACCURATE RECORDS OF ANY CHANGES MADE TO THE DRAWINGS ON A SEPARATE SET OF PLANS PROVIDED BY THE ENGINEER. THESE ANNOTATED DRAWINGS SHALL BE RETURNED TO THE ENGINEER PRIOR TO APPROVAL OF THE FINAL PAYMENT APPLICATION.
- CONTRACTOR TO PROVIDE QUALITY CONTROL PROGRAM TO ENSURE PROPER CONSTRUCTION OF THE WORK. CONTRACTOR SHALL PROVIDE A COPY OF THE QUALITY CONTROL REPORTS, TEST AND OBSERVATIONS TO THE OWNER AS IDENTIFIED IN THE CONTRACT DOCUMENTS AND UPON REQUEST OF THE ENGINEER, THE CONTRACTOR WILL PROVIDE A COPY OF ALL REPORTS, TESTS AND OBSERVATIONS PERFORMED BY THE CONTRACTOR.
- CONTRACTOR SHALL PHOTOGRAPHICALLY DOCUMENT THE EXISTING SITE CONDITIONS AT THE WORK SITE, STORAGE AREAS, TRAVEL CORRIDORS AND ANY AREA IMMEDIATELY ADJACENT TO THESE AREAS PRIOR TO THE START OF CONSTRUCTION AND DURING THE COURSE OF THE CONSTRUCTION.

**CONSTRUCTION EXECUTION**

- UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL, ON A DAILY BASIS, REMOVE FROM THE SITE ANY DEBRIS RESULTING FROM DEMOLITION/CONSTRUCTION. DISPOSAL OF MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL MATERIALS TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE NOTED. ALL DEBRIS SHALL BE PROPERLY DISPOSED OF IN A PERMITTED LANDFILL. THE CONTRACTOR SHALL KEEP RECORDS OF ALL MATERIALS REMOVED FROM THE SITE, INCLUDING DESCRIPTION, QUANTITIES, AND DISPOSAL LOCATION.
- ANY DEBRIS THAT FALLS INTO THE HARBOR WATER SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE.
- EXISTING CONSTRUCTION, INCLUDING UTILITIES AND OTHER MISCELLANEOUS ITEMS WHICH ARE TO REMAIN, SHALL REMAIN UNDISTURBED AND BE PROTECTED.
- CONTRACTOR SHALL PROTECT THE PUBLIC, PUBLIC AND PRIVATE PROPERTY (INCLUDING UTILITIES), VEHICLES, MARINE TRAFFIC AND THE ENVIRONMENT DURING THE CONSTRUCTION OF THE WORK ON THE WORK SITES, STAGING AREAS, STORAGE AREAS, ADJACENT AREAS AND ALL TRAVEL CORRIDORS BETWEEN THESE LOCATIONS.
- THE CONTRACTOR SHALL REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE CAUSED BY THE CONTRACTOR, SUBCONTRACTOR, SUPPLIER OR OTHER ENTITY WORKING AT THE DIRECTION OF THE CONTRACTOR DURING THE COURSE OF THE WORK. THESE REPAIRS SHALL BE AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL PLACE CONSTRUCTION DEBRIS CONTROL DEVICES, TURBIDITY CURTAINS, BOOMS, TARPULINS, FLOATS, STAGING, AND OTHER DEVICES AS NECESSARY TO PREVENT CONSTRUCTION DEBRIS FROM ENTERING THE WATER AND AIRBORNE MATERIALS FROM LEAVING THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP OF ANY MATERIALS DEPOSITED OUTSIDE THE WORK AREA.
- BUILDINGS, SURFACE, AND SUBSURFACE IMPROVEMENTS ON AND ADJACENT TO THE PROJECT SITE ARE NOT NECESSARILY SHOWN HEREON.
- THE OWNER SHALL HAVE THE SOLE AUTHORITY TO DESIGNATE AND/OR LIMIT AREAS OF CONSTRUCTION, STAGING, ACCESS, AND STORAGE.

**CONSTRUCTION EXECUTION (CONTINUED)**

- THE LOCATIONS OF KNOWN EXISTING UNDERGROUND UTILITIES SHOWN IN THE DRAWINGS ARE APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF ALL EXISTING UNDERGROUND UTILITIES BEFORE COMMENCING ANY WORK. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF DAMAGES THAT OCCUR AS A RESULT OF A FAILURE TO EXACTLY LOCATE AND PROTECT ALL UTILITIES INTENDED TO REMAIN.
  - THE CONTRACTOR SHALL STAKEOUT ALL BASELINES OF CONSTRUCTION, THE LOCATION OF ALL NEW CONSTRUCTION, AND VERIFY ALL SETBACKS, OFFSETS, AND CLEARANCES PRIOR TO THE START OF WORK.
  - PRIOR TO BEGINNING UTILITY CONSTRUCTION, THE CONTRACTOR SHALL CONFIRM LOCATIONS.
  - UTILITY LINES ARE NOT INDICATED ON STRUCTURAL DRAWINGS. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR THE LOCATION, PROFILE AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY LINES WITH FOUNDATIONS AND STRUCTURAL ELEMENTS AS SHOWN ON STRUCTURAL DRAWINGS. ANY INTERFERENCE BETWEEN STRUCTURAL ELEMENTS AND UTILITY LINES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING FURTHER WITH THE CONSTRUCTION.
  - ALL ELEVATIONS ARE REFERENCED TO MEAN LOWER LOW WATER (MLLW) AS ELEVATION +0.00.
  - TOPOGRAPHIC SURVEY - SEE EXISTING SITE PLAN ON SHEET C-01.
  - THE CONTRACTOR SHALL NOT OVERLOAD EXISTING STRUCTURES DURING DEMOLITION/ CONSTRUCTION. OPERATION OF ANY EQUIPMENT OR STORAGE OF MATERIALS WHICH WOULD RESULT IN OVERLOAD WILL NOT BE PERMITTED. SAFETY OF PERSONNEL, REQUIRED EQUIPMENT, CONDITION, AND SUITABILITY OF THE EXISTING STRUCTURE TO SUPPORT MATERIAL AND EQUIPMENT LOADS IS THE CONTRACTOR'S RESPONSIBILITY.
  - THE FOLLOWING DATA IS PROVIDED REGARDING TIDAL INFORMATION. TIDAL INFORMATION WAS OBTAINED FROM THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA), NATIONAL OCEAN SERVICE
- | WATER LEVELS AT LAHAINA SMALL BOAT HARBOR<br>BASED ON NOAA STATION No. 1615680 (1983-2001 EPOCH) |                     |
|--|---------------------|
| WATER LEVELS   | ELEVATION (FT-MLLW) |
| MAXIMUM (DESIGN HIGH WATER)  | +3.59               |
| HIGHEST ASTRONOMICAL TIDE (HAT)  | +3.10               |
| MEAN HIGHER HIGH WATER (MHHW)  | +2.25               |
| MEAN HIGH WATER (MHW)  | +1.90               |
| MEAN SEA LEVEL (MSL)   | +1.12               |
| MEAN LOW WATER (MLW)   | +0.33               |
| MEAN LOWER LOW WATER (MLLW)  | 0.00                |
| LOWEST ASTRONOMICAL TIDE (LAT)   | -0.79               |
| MINIMUM (DESIGN LOW WATER)   | -1.61               |
- TIDAL DATA IS NOT GUARANTEED TO REPRESENT CONDITIONS WHICH MAY OCCUR DURING CONSTRUCTION. ACTUAL WATER LEVELS WILL VARY FROM LEVELS INDICATED. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN ESTIMATES OF WATER LEVELS WHICH MAY OCCUR DURING CONSTRUCTION. VARIATION OF TIDAL LEVELS FROM THOSE INDICATED OR CONTRACTOR'S ESTIMATION OF TIDAL LEVELS SHALL NOT BE CONSIDERED AS A CLAIM FOR ADDITIONAL COMPENSATION OR DELAY OF WORK.
  - THE CONTRACTOR SHALL PROVIDE REASONABLE ACCESS IN THE IMMEDIATE VICINITY OF THE PROJECT SITE AT ALL TIMES TO PEDESTRIAN TRAFFIC.
  - THE OVERALL BOATING FACILITY SHALL REMAIN OPEN DURING THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL INSTALL ADEQUATE TEMPORARY BARRICADES AND WARNING SIGNS TO PROTECT THE PUBLIC DURING THE CONSTRUCTION PERIOD. PROVIDE AND MAINTAIN A SAFE PEDESTRIAN ACCESS FROM THE PARKING AREA AND TO THE BOATING FACILITY THROUGHOUT THE CONSTRUCTION PERIOD.
  - THE CONTRACTOR SHALL NOT BLOCK THE HARBOR ENTRANCE.
  - THE CONTRACTOR SHALL DETAIL, FURNISH, AND INSTALL ALL MEMBERS, CONNECTIONS, AND ACCESSORIES NOT SHOWN BUT WHICH ARE REQUIRED TO COMPLETE THE WORK AND SHALL SUBMIT THEM TO THE ENGINEER FOR APPROVAL. COST OF THESE MEMBERS, CONNECTIONS, AND ACCESSORIES SHALL BE INCLUDED IN THE CONTRACTOR'S BID PRICE. THE CONTRACTOR SHALL PERFORM THIS WORK IN ACCORDANCE WITH THE APPLICABLE SECTIONS IN THE INTERNATIONAL BUILDING CODE, IBC 2012.
  - ITEMS IDENTIFIED AS "EXIST" OR "NIC" ARE BY OTHERS AND ARE SHOWN FOR REFERENCE ONLY.
  - THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES (HAR), TITLE 11, CHAPTER 60:1, "AIR POLLUTION CONTROL".
  - DEBRIS GENERATED SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR AT HIS EXPENSE.
  - THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH AND SAFETY AND ENVIRONMENT QUALITY.
  - THE CONTRACTOR SHALL NOTIFY ALL AGENCIES TO VERIFY THE ACTUAL LOCATION OF ALL UTILITIES IN THE PROJECT AREA PRIOR TO CONSTRUCTION.

**CONSTRUCTION EXECUTION (CONTINUED)**

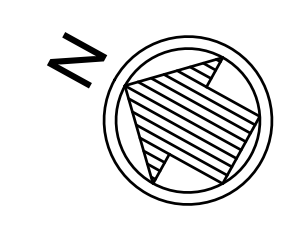
- ALL CONNECTIONS AND CONSTRUCTION CONDITIONS NOT SPECIFICALLY SHOWN SHALL BE DETAILED BY THE CONTRACTOR AND SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. DETAILS SHALL COMPLY WITH THE DRAWINGS AND SPECIFICATIONS, CONFORM TO THE CURRENT CONSTRUCTION PRACTICES, AND MEET ALL REQUIREMENTS OF THE LATEST APPLICABLE BUILDING CODES.
- SHOP DRAWINGS REQUIRED BY THE SPECIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMITTING TO THE OWNER AND ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS", AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL". BEST MANAGEMENT PRACTICES (BMP) SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION. REFER TO CONTRACT DOCUMENT FOR BMP REQUIREMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY SUPPORTS NECESSARY FOR THE SAFE DEMOLITION, SHORING OF EXISTING STRUCTURES AND SHORING OF PARTIALLY COMPLETED WORK. TEMPORARY STRUCTURES BY THE CONTRACTOR SHALL BE APPROVED BY A PROFESSIONAL ENGINEER.
- ALL ELEMENTS REQUIRED TO BE REMOVED TO ALLOW FOR INSTALLATION OF THE WORK SHALL BE REINSTALLED AS ORIGINAL, UNLESS NOTED OTHERWISE OR AS APPROVED BY THE ENGINEER.
- UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY STRUCTURES ERECTED TO ASSIST WITH THE WORK.

**MATERIALS**

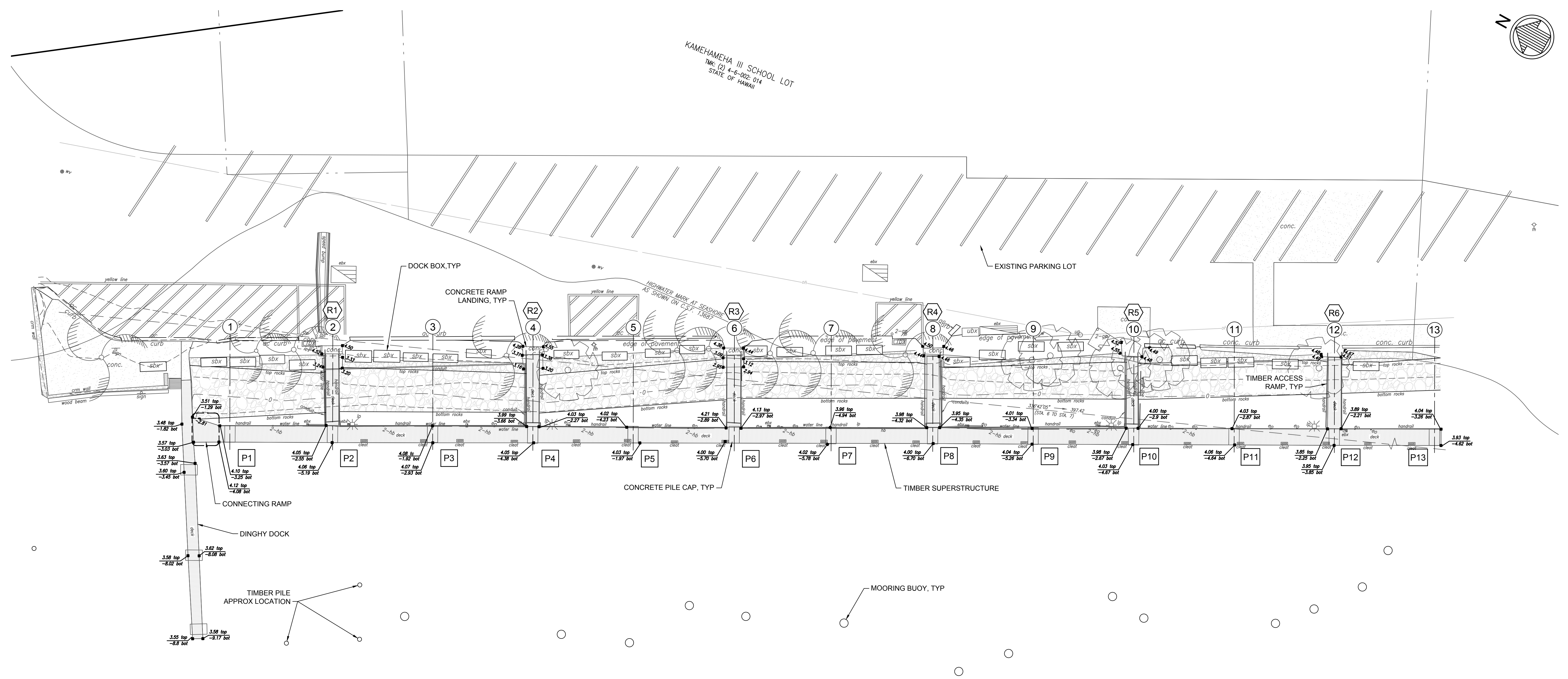
- ALL MATERIALS SHALL CONFORM TO THE CONTRACT DOCUMENTS. EQUAL MATERIALS CANNOT BE USED UNLESS ACCEPTED IN WRITING BY THE ENGINEER AS AN EQUAL MATERIAL. ALL MATERIALS AND MATERIAL TESTING SHALL CONFORM TO THE RELEVANT STANDARDS IN THE LATEST EDITION OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM).
- ALL MATERIALS SHALL BE NEW, HIGH QUALITY, CLEAN, FREE OF DIRT AND IN GOOD CONDITION. HANDLE AND STORE ALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH GOOD WORKMANSHIP AND INDUSTRY STANDARDS.
- ALL MATERIALS SHALL BE HANDLED, STORED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS AND IN ACCORDANCE WITH GOOD INDUSTRY PRACTICES.

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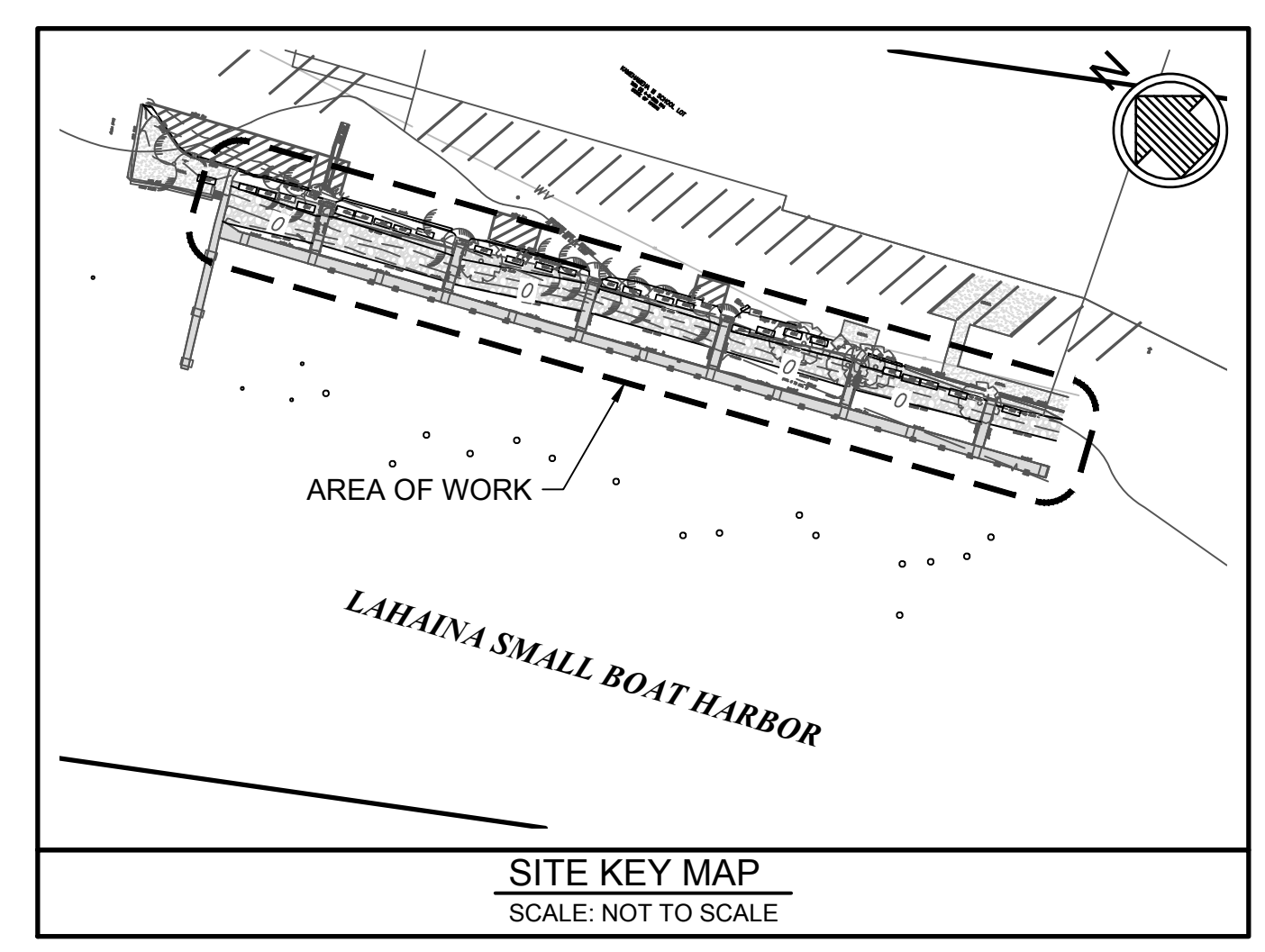
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STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
<b>GENERAL NOTES</b>					
DESIGNED: A. ITANI		SUBMITTED: APR 10, 2020			
DRAWN: T. NUMKE'NA		DATE: APR 08, 2020			
CHECKED: B. DULLANTY		SCALE: AS NOTED			
APPROVED: _____		DRAWING NO.		G-01	
CHIEF ENGINEER		DATE			



KAMEHAMEHA III SCHOOL LOT  
 1Mk (2) 4-6-002, 014  
 STATE OF HAWAII



EXISTING SITE PLAN  
 SCALE: 1" = 12'

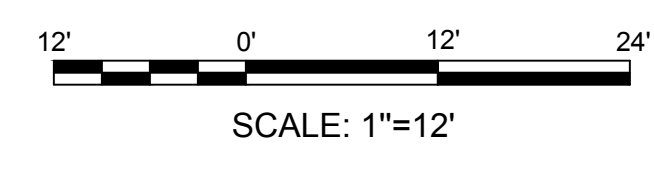


NOTES:

- EXISTING SITE PLAN BASED UPON TOPOGRAPHIC SURVEY BY AUSTIN, TSUTSUMI & ASSOCIATES, INC AND IS BASED UPON THEIR FIELD SURVEY COMPLETED ON 2020 JANUARY 10.
- QUANTITY AND LOCATION OF EXISTING MOORING BUOYS ARE APPROXIMATE. CONTRACTOR TO VERIFY IN THE FIELD.
- FOR EXISTING UTILITY CALLOUTS AND DETAILS, SEE ELECTRICAL AND MECHANICAL UTILITY SHEETS.
- CONTRACTOR TO VERIFY ALL EXISTING FIELD CONDITIONS AND DIMENSIONS PRIOR TO START OF WORK. NOT ALL EXISTING SITE INFORMATION IS SHOWN OR LABELED.
- REFERENCE ELEVATIONS ARE BASED UPON MLLW = 0.0 FT.
- FOR EXISTING INNER MARGINAL WHARF SECTIONS, SEE "STRUCTURAL DEMOLITION PLAN" SHEET.

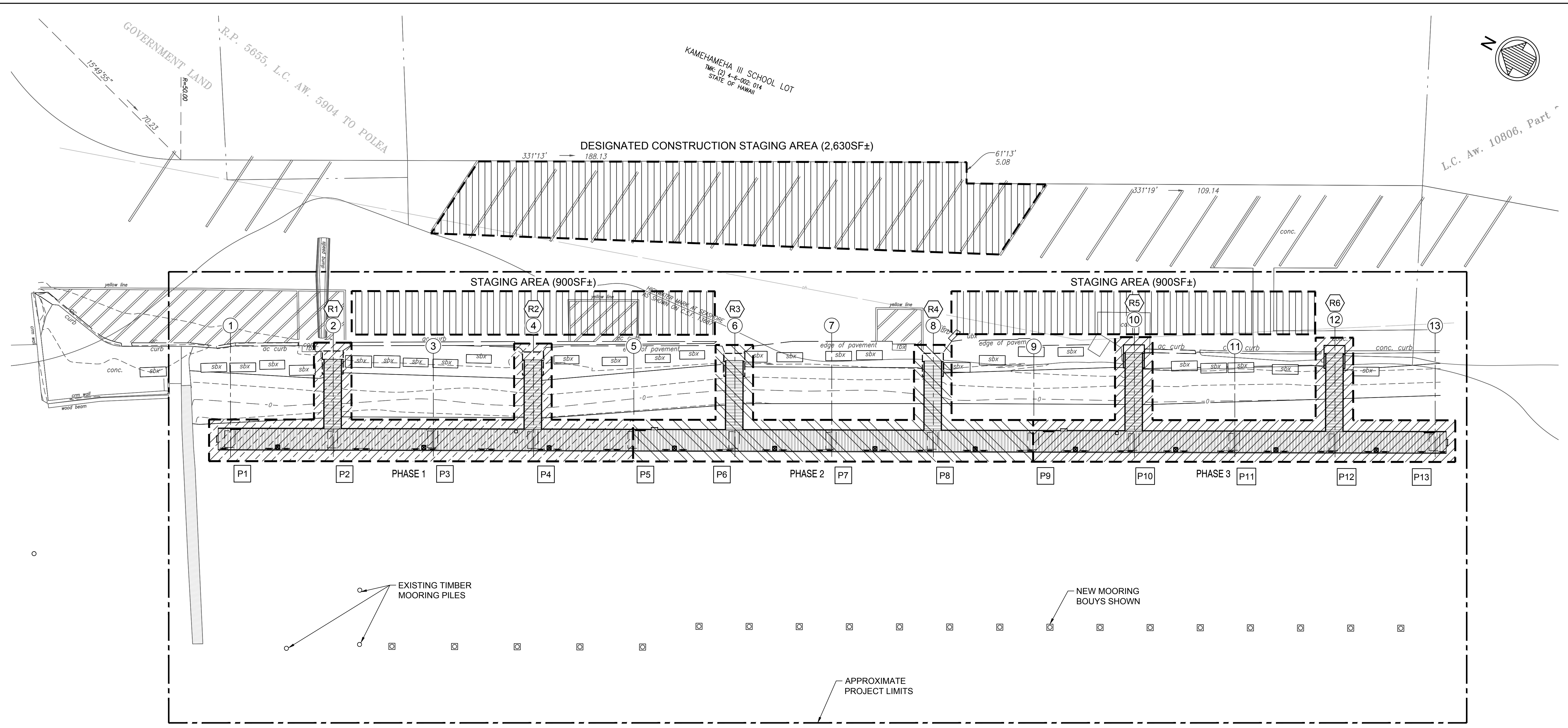
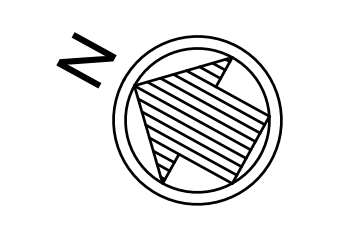
LEGEND:

- PX PILE AND PILE CAP NUMBER "X"
- RX RAMP LANDING NUMBER "X"



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LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
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DESIGNED: A. ITANI		SUBMITTED: APR 10, 2020			
DRAWN: T. NUMKE'NA		DATE: APR 08, 2020			
CHECKED: B. DULLANTY		SCALE: AS NOTED			
APPROVED:		DRAWING NO.		C-01	
CHIEF ENGINEER		DATE			



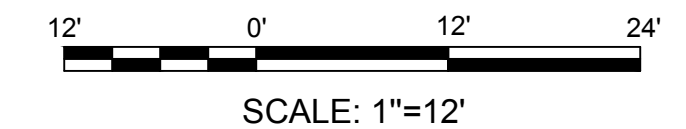
PHASING PLAN  
SCALE: 1" = 12'

LEGEND:

- PX PILE AND PILE CAP NUMBER "X"
- RX RAMP LANDING AND NUMBER "X"
- PHASE 1
- PHASE 2
- PHASE 3
- DESIGNATED CONSTRUCTION STAGING AREA

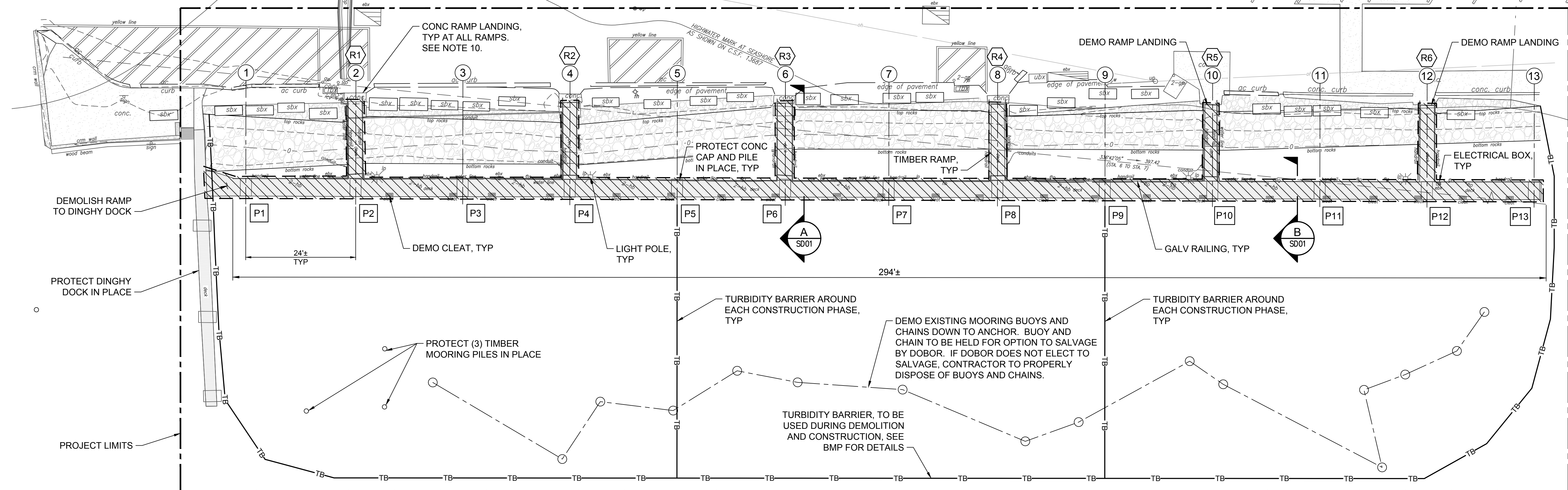
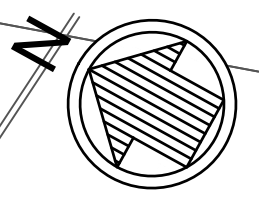
NOTES:

1. 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,
  - C. THE WORK IS REVIEWED AND ACCEPTED BY DOBOR FOR VESSEL MOORING.
  - D. UTILITY SERVICES ARE NOT REQUIRED TO BE FUNCTIONAL FOR EACH PHASE TO BE COMPLETED PRIOR TO MOVING TO NEXT PHASE.
4. CONTRACTOR SHALL PROVIDE NOTICE TO SLIP PERMITEES AT LEAST TWO WEEKS PRIOR TO START OF EACH CONSTRUCTION PHASE. CONTRACTOR SHALL ALLOW FOR 1 WEEK TO TRANSFER BOATS FROM BETWEEN PHASES.
5. 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.
6. CONSTRUCTION EQUIPMENT, MATERIALS, OR ACTIVITIES SHALL NOT BE PLACED WITHIN ANY WATER AREA OTHER THAN AS SPECIFICALLY ALLOWED BY ENVIRONMENTAL PERMITS.
7. PHASING OF WORK SHOWN ON THE DRAWINGS IS APPROXIMATE. CONTRACTOR SHALL SUBMIT A WORK SEQUENCE AND PHASING PLAN TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO SITE MOBILIZATION.
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.

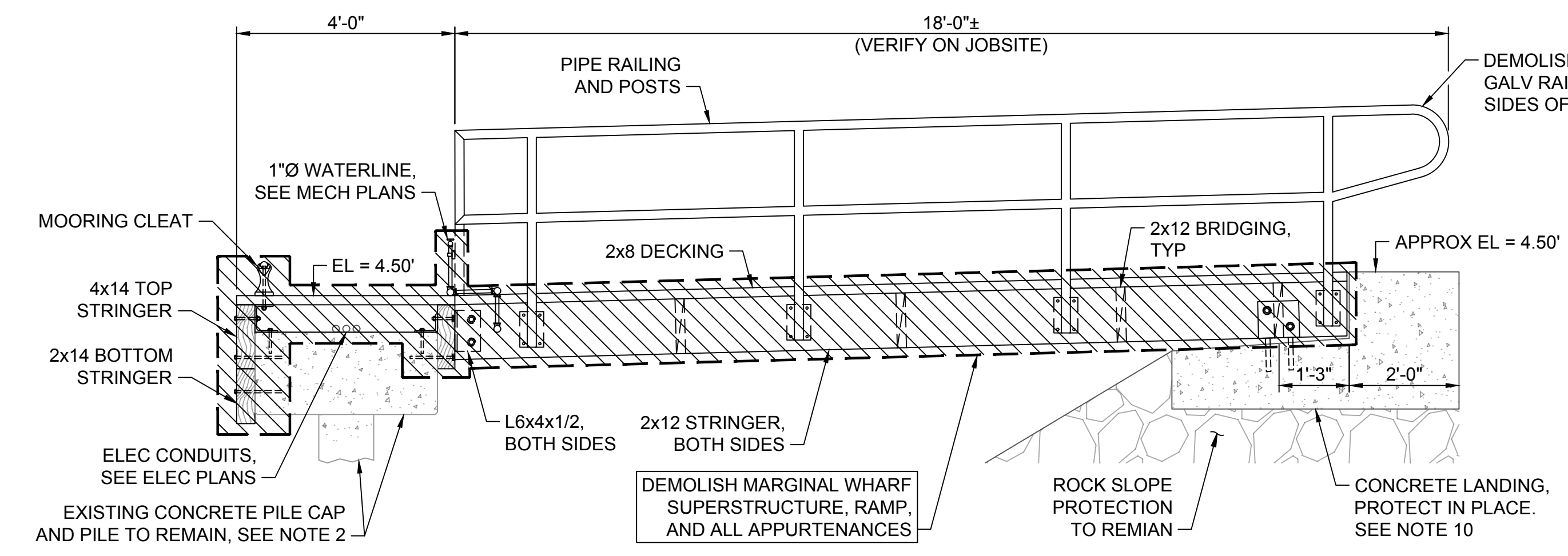


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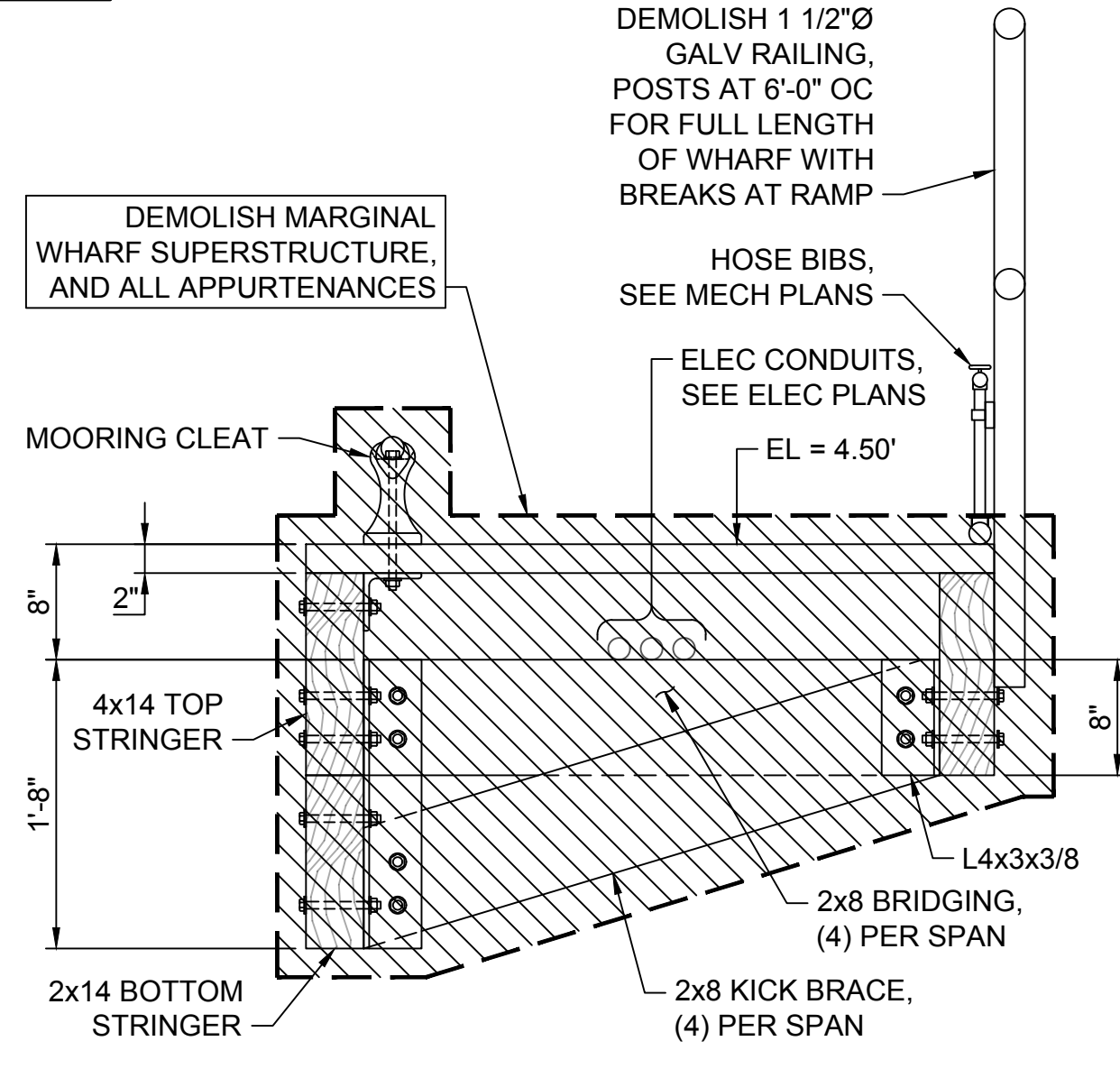
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PHASING PLAN					
DESIGNED: A. ITANI		SUBMITTED: APR 10, 2020			
DRAWN: T. NUMKE'NA		DATE: APR 08, 2020			
CHECKED: B. DULLANTY		SCALE: AS NOTED			
APPROVED:		DRAWING NO.		C-02	
CHIEF ENGINEER		DATE			



**STRUCTURAL DEMOLITION PLAN**  
SCALE: 1" = 12'

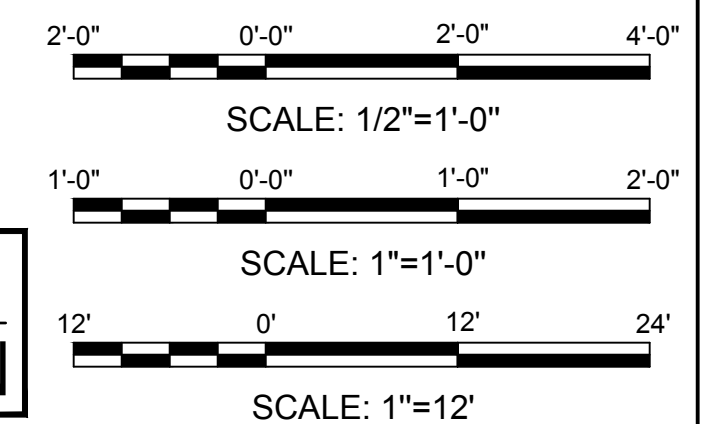


**A SECTION - DOCK AT PILE CAP AND RAMP**  
SCALE: 1/2" = 1'-0"



**B SECTION - DOCK AT BRIDGING AND KICK BRACE**  
SCALE: 1" = 1'-0"

- LEGEND:**
- PX PILE AND PILE CAP NUMBER "X"
  - RX RAMP LANDING AND NUMBER "X"
  - LIMITS OF DEMOLITION

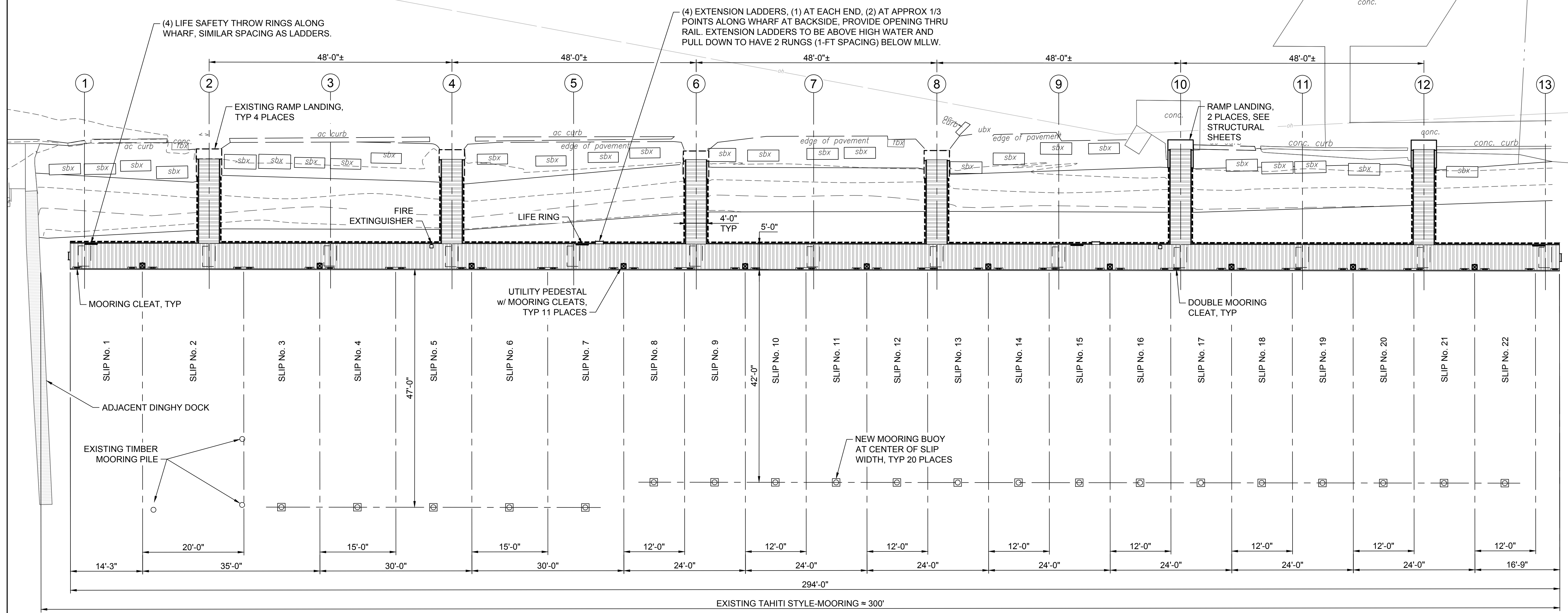
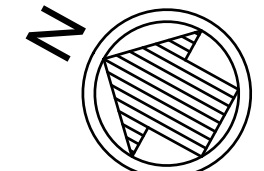


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**NOTES:**

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 GIVEN FOR ESTIMATING PURPOSES ONLY, DETAIL WORK SHALL BE BASED ON THE CONTRACTOR'S FIELD MEASUREMENTS.
4. THE CONTRACTOR WILL TAKE CARE TO PROTECT EXISTING LANDSIDE FEATURES IN PLACE UNO IN DRAWINGS OR BY WRITTEN APPROVAL OF THE DOBOR. TO INCLUDE BUT NOT LIMITED TO THE TREES; ROCK WALL; STORAGE 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 WHARF SUPERSTRUCTURE AND ASSOCIATED COMPONENTS IN THEIR ENTIRETY TO THE LIMITS INDICATED. DEMOLITION INCLUDES BUT IS NOT LIMITED TO STRUCTURAL TIMBER/STEEL FRAMING AND CONNECTIONS; CLEATS; TIMBER DECKING; RAILINGS AND POSTS; TIMBER RAMPS; AND WHARF 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 COMPONENTS, 1" BELOW FACE OF CONCRETE AND PATCH WITH EPOXY GROUT, UNO.
10. AFTER DEMOLITION OF THE TIMBER RAMP (R1-R4), THE CONTRACTOR WITH THE OWNERS REPRESENTATIVE WILL INSPECT THE EXISTING CONCRETE CONDITION OF RAMP LANDING TO DETERMINE WHAT CONCRETE REPAIRS ARE NEEDED. COMPLETE DEMOLITION AND REPLACEMENT OF THE LANDING IS PERMITTED WITH DOBOR'S APPROVAL. SEE STRUCTURAL REPAIR PLANS.
11. QUANTITY AND LOCATION OF EXISTING MOORING BUOYS TO BE DEMOLISHED ARE APPROXIMATE. CONTRACTOR TO VERIFY IN THE FIELD.

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
<b>LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR</b>					
<b>STRUCTURAL DEMOLITION PLAN</b>					
DESIGNED: A. ITANI	SUBMITTED: APR 10, 2020				
DRAWN: T. NUMKE'NA	DATE: APR 08, 2020				
CHECKED: B. DULLANTY	SCALE: AS NOTED				
APPROVED:	DRAWING NO.				
CHIEF ENGINEER	DATE		<b>SD01</b>		



**MARGINAL WHARF LAYOUT**  
SCALE: 1" = 10'

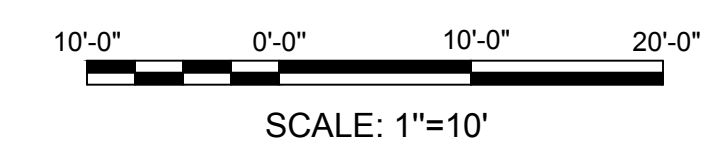
**ISSUED FOR BID**  
**NOT FOR CONSTRUCTION**

**LEGEND:**

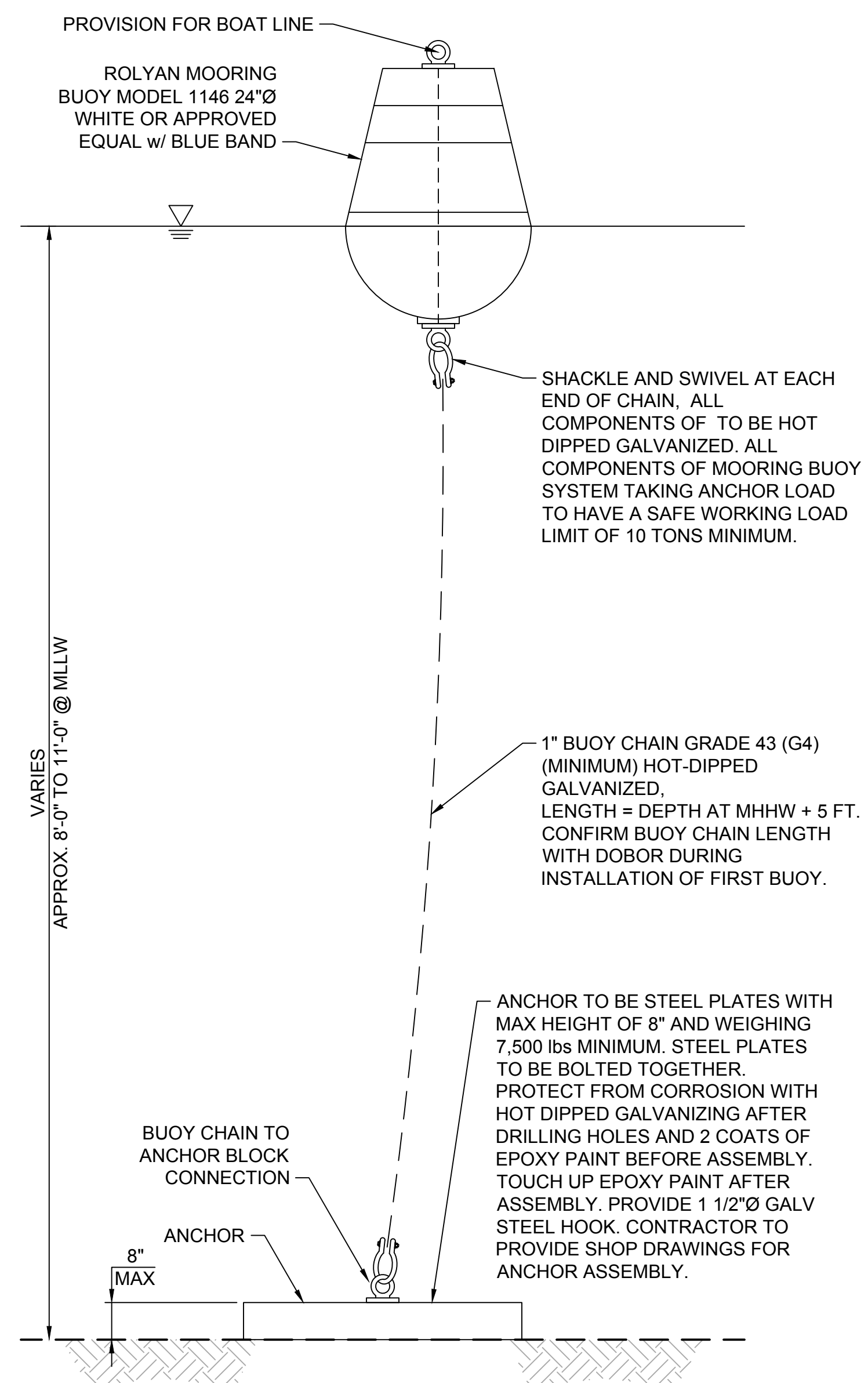
- FIRE EXTINGUISHER, SEE MECHANICAL FOR SPECIFICATIONS AND MOUNTING REQUIREMENTS
- LIFE RING
- ┌ LADDER
- BUOY
- UTILITY PEDESTAL
- ▬ MOORING CLEAT
- GUARDRAIL

**NOTES:**

1. SUBMIT ALL WHARF APPURTENANCES INCLUDING LIFE RING, CLEATS, LADDERS THROUGH SUBMITTAL PROCESS FOR OWNERS APPROVAL PRIOR TO PURCHASE, FABRICATION AND INSTALLATION.
2. SEE MECHANICAL SHEETS FOR FIRE EXTINGUISHER LOCATIONS.



REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
MARGINAL WHARF LAYOUT					
DESIGNED: A. ITANI		SUBMITTED: APR 10, 2020			
DRAWN: T. NUMKE'NA		DATE: APR 08, 2020			
CHECKED: B. DULLANTY		SCALE: AS NOTED			
APPROVED:		DRAWING NO.		DATE	
CHIEF ENGINEER		DK01			



VARIES  
APPROX. 8'-0" TO 11'-0" @ MLLW

1 DETAIL - MOORING ASSEMBLY  
SCALE: NTS

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REVISION NO.	SYM.	DESCRIPTION	SHT. OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
MOORING DETAILS					
DESIGNED: A. ITANI		SUBMITTED: APR 10, 2020			
DRAWN: T. NUMKE'NA		DATE: APR 08, 2020			
CHECKED: B. DULLANTY		SCALE: AS NOTED			
APPROVED:		DRAWING NO.		DATE	
CHIEF ENGINEER		DK02			

**STRUCTURAL DESIGN CRITERIA:**

**SCOPE OF WORK**

- THE DESIGN OF THE ALUMINUM SUPERSTRUCTURE INCLUDING THE MAIN WALKWAY AND THE ACCESS RAMPS SHALL BE IN ACCORDANCE WITH SPECIFICATION 10110 FIXED PIERS, ALL OTHER SPECIFICATIONS, THE PROJECT DRAWINGS AND ALL OTHER CONTRACT DOCUMENTS.
- DESIGN OF THE ALUMINUM SUPERSTRUCTURE WILL INCLUDE THE MAIN WALKWAY, ACCESS RAMPS, DECKING, RAILINGS, FENDER SYSTEM, ALL APPURTENANCES INCLUDING BUT NOT LIMITED TO PEDESTALS, CLEATS, LIFE RINGS, LADDERS, FIRE EXTINGUISHER SUPPORTS AND ALL CONNECTIONS WITHIN THE ALUMINUM FRAMING, TO ALL RAILINGS, TO ALL APPURTENANCES, TO THE FENDER SYSTEM, TO THE RAMP LANDINGS AND TO THE PILE CAPS AND TO THE PILES. ALL LOAD SUPPORTING PATHS SHALL BE INCLUDED.
- ALL WORK SHALL BE IN GENERAL ACCORDANCE WITH THE IBC 2012 AND APPROPRIATELY SELECTED PORTIONS OF THE OTHER RELEVANT INDUSTRY STANDARDS. THIS WORK IS ANTICIPATED TO BE A LESS THAN SUBSTANTIAL REPAIR IN ACCORDANCE WITH THE IBC 2012. ALL REQUIREMENTS FOR A LESS THAN SUBSTANTIAL REPAIR SHALL BE MET IN ORDER FOR THE DESIGN TO PROCEED UNDER THIS ASSUMPTION. IF ALL REQUIREMENTS CANNOT BE MET, THEN A DESIGN IN GENERAL ACCORDANCE WITH IBC 2012 IS REQUIRED.

**OVERVIEW DESIGN REQUIREMENTS**

- DESIGN SHALL BE SHOP WELDED AND FIELD BOLTED. ALL ALUMINUM STRUCTURES TO BE WELDED BY AWS-CERTIFIED
- BOLTS SHALL BE ASTM A316 STAINLESS STEEL
- ALL CONNECTIONS TO DISSIMILAR MATERIALS INCLUDING CONCRETE WILL BE ELECTRICALLY ISOLATED USING UHMW OR HDPE SPACERS, BUSHINGS, WASHERS AND OTHER SHAPES.
- SEE SPECIFICATION 10110 FIXED PIER FOR ADDITIONAL INFORMATION.

**DESIGN CODES AND REFERENCES**

ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND REFERENCES.

- IBC-2012 (INTERNATIONAL BUILDING CODE).
- BRITISH STANDARD (BS 6349) SHALL BE USED AS THE MARINE CODE, AS APPLICABLE TO THE FACILITY USE, WHEN THE IBC DOES NOT PROVIDE MARINE GUIDANCE. WHENEVER BS 6349 DOES NOT PROVIDE SUFFICIENT INFORMATION OR IS NOT APPLICABLE, REFERENCE CAN BE MADE TO OTHER INTERNATIONAL CODES/STANDARDS OR GUIDELINES.
- ASCE-50,2012 PLANNING AND DESIGN GUIDELINES FOR SMALL CRAFT HARBORS (AMERICAN SOCIETY OF CIVIL ENGINEERS).
- MARINAS AND SMALL CRAFT HARBORS, 2ND EDITION, 2000, TOBIASSON.
- UFC-4-152-07 DESIGN: SMALL CRAFT BERTHING FACILITIES (UNIFIED FACILITIES CRITERIA).
- ASCE 07-10 AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE), "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES," (2010).
- ADA DEPARTMENT OF JUSTICE (DOJ), 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN, (2010).
- AWS-D1.2 2014 (AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE - ALUMINUM).
- ADM-1 2010 (ALUMINUM DESIGN MANUAL, SPECIFICATIONS FOR ALUMINUM STRUCTURES).
- AISC 360-10 (AMERICAN INSTITUTE OF STEEL CONSTRUCTION, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS).
- AISC 303-10 (AMERICAN INSTITUTE OF STEEL CONSTRUCTION, CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES).
- AWS-D1.1 2010 (AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE - STEEL).
- RCSC SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A 325 OR ASTM A 490 - 2009 (RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS).
- ACI 318-11 (AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY).
- PCI PRECAST PRESTRESSED CONCRETE INSTITUTE (PCI), "PCI DESIGN HANDBOOK - PRECAST AND PRESTRESSED CONCRETE, 7TH EDITION", (2010).
- NDS NATIONAL DESIGN SPECIFICATIONS (NDS) FOR WOOD CONSTRUCTION, (2012).

**DESIGN LOADS**

- LIVE LOAD: A UNIFORM LIVE LOAD OF 50 PSF APPLIED OVER THE DECK PER ASCE 50-12.
- DEAD LOAD: WEIGHT OF THE PIER SUPERSTRUCTURE 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 CLEATS ON THE PIER AS RECOMMENDED BY ASCE 50-12.
- WAVE LOADING WITHIN THE HARBOR SHALL NOT BE LESS THAN A 2-FT BOAT WAKE.
- VESSEL IMPACT LOADS WILL BE INCLUDED IN THE FENDER AND SUPERSTRUCTURE 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. THESE VESSELS HAVE THE ADDITIONAL MOORING SUPPORT OF THE DINGY DOCK AND THE TIMBER MOORING PILES.
- MED-MOORING VESSEL SIZES WHERE MED-MORING IS STERN TO THE MAIN WALKWAY AND A SINGLE BUOY AT THE BOW. MAXIMUM IS A 40-FT VESSEL. MINIMUM IS A 30-FT VESSEL.
- TIDAL DATA IS PROVIDED IN THE GENERAL NOTES ON SHEET G-01.

**STRUCTURAL NOTES:**

**GENERAL REQUIREMENTS**

1. THESE DRAWINGS ARE PART OF AN OVERALL SCOPE OF WORK THAT DEFINES THE WORK ASSOCIATED WITH CONSTRUCTION OF LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF.
2. THESE GENERAL NOTES COMPLIMENT THE OTHER CONTRACT DOCUMENTS. IN THE EVENT OF A CONFLICT BETWEEN DOCUMENTS, THE CONTRACT SHALL INCLUDE THE MOST STRINGENT REQUIREMENTS IN THEIR BID AND IMMEDIATELY NOTIFY THE ENGINEER.
3. SEE GENERAL NOTES ON SHEET G-01 FOR ADDITIONAL INFORMATION.

**SUBMITTALS**

1. STRUCTURAL SUBMITTAL SHALL COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATIONS AND NOTES ON THE DRAWINGS.
2. SHOP DRAWINGS WILL IDENTIFY ALL MATERIALS, FINISHES AND GEOMETRY OF THE ASSEMBLY AND INDIVIDUAL COMPONENTS. 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.
  - A. SUBMIT MATERIAL CERTIFICATIONS FOR ALL PERMANENT CONSTRUCTION MATERIALS.
  - B. SUBMIT TECHNICAL DATA SHEETS FOR ALL PERMANENT EQUIPMENT TO BE INSTALLED.

**MATERIALS**

**MATERIALS GENERAL**

1. SEE SPECIFICATIONS FOR DETAILED INFORMATION.
2. ALL MATERIALS SHALL BE NEW, HIGH QUALITY, CLEAN, FREE OF DIRT AND IN GOOD CONDITION. HANDLE AND STORE ALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH GOOD WORKMANSHIP AND INDUSTRY STANDARDS.
3. ALL MATERIALS SHALL BE HANDLED, STORED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS AND IN ACCORDANCE WITH GOOD INDUSTRY PRACTICES.

**MATERIALS SUPPLIED BY DOBOR**

1. CONTRACTOR IS RESPONSIBLE FOR TRANSPORTATION OF OWNER SUPPLIED COMPONENTS FROM THE OWNER'S STORAGE YARD TO THE WORK SITE. CONTRACTOR IS RESPONSIBLE FOR THE COMPONENTS BEING CLEAN AT THE TIME OF INSTALLATION. THESE OWNER SUPPLIED COMPONENTS INCLUDE THE FOLLOWING:
  - A. NO OWNER SUPPLIED MATERIALS OR COMPONENTS FOR THIS PROJECT.

**MATERIALS SUPPLIED BY CONTRACTOR**

1. GENERAL
  - A. SEE SPECIFICATIONS FOR DETAILED INFORMATION
  - B. USE DOUBLE NUT, JAM NUT OR NY LOCK NUT ON ALL BOLTED CONNECTIONS.
2. COMPOSITE TIMBER FENDER
  - A. COMPOSITE TIMBER FENDER MUST BE STRUCTURAL PLASTIC LUMBER BY TRIMAX, FIBERFORCE, APPROVED EQUAL.
  - B. STRUCTURAL PLASTIC MUST BE HIGH DENSITY POLYETHYLENE (HDPE) WITH FIBERGLASS ELEMENTS AS REINFORCEMENT, SEE TECHNICAL SPECIFICATIONS.
  - C. STRUCTURAL PLASTIC MUST INCLUDE UV INHIBITOR ADDITIVES.
  - D. ALL PLATES, WASHERS, NUTS, BOLTS, INSERTS, AND OTHER CONNECTING HARDWARE, MUST BE STAINLESS STEEL TYPE 316L.
  - E. PLASTIC LUMBER DIMENSIONS INDICATED ON DRAWINGS ARE NOMINAL LUMBER DIMENSIONS.
3. ALUMINUM FABRICATION
  - A. SEE SPECIFICATION FOR DETAILED INFORMATION
  - B. ALUMINUM SHALL BE ALLOY 6061-T6 CONFORMING TO ASTM B 308, OR 6063-T6 CONFORMING TO THE PROVISIONS IN ASTM B 221.
  - C. WELDING OF ALUMINUM SHALL COMPLY WITH AWS D1.2.
4. CONCRETE CAST-IN-PLACE
  - A. SEE SPECIFICATION FOR DETAILED INFORMATION
  - B. CONCRETE..... F<sub>c</sub>' = 4000PSI
  - C. REINFORCING STEEL (#4 OR LARGER) ..... ASTM A615, GRADE 60 KSI
  - D. CHAMFER ALL EXPOSED EDGE OF PILES CAPS OR LANDINGS ½" x ½" UON.
  - E. MINIMUM CLEAR CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE PROVIDED AS FOLLOWS:
    - A. CAST IN PLACE CONCRETE..... 3"
5. DECKING
  - A. SEE SPECIFICATION FOR DETAILED INFORMATION
  - B. DECKING SHALL BE NEW PULTRUDED FRP GRATING.

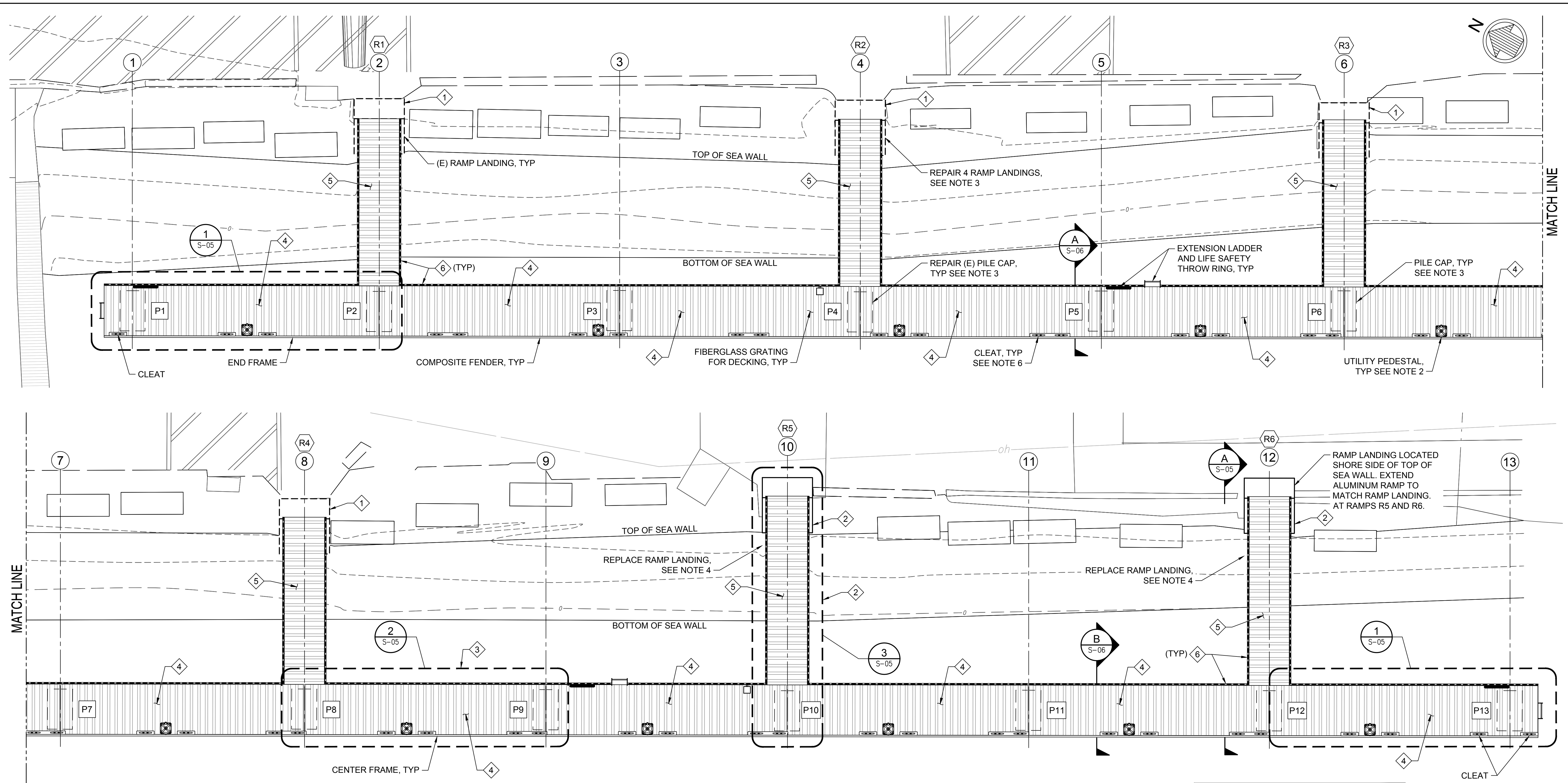
**CONSTRUCTION**

1. CONTRACTOR SHALL PERFORM THE WORK IN A SAFE MANNER, SHALL BE RESPONSIBLE FOR SAFETY ON THE WORK 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.
4. CONTRACTOR SHALL FULLY COOPERATE WITH THE OWNER'S QUALITY ASSURANCE PROGRAM INCLUDING ALL 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 IS INCLUDED IN FULL CO-OPERATION.
5. TOUCH UP ALL FINISHES DURING CONSTRUCTION AND AT THE END OF CONSTRUCTION.

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STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
<b>STRUCTURAL GENERAL NOTES</b>					
DESIGNED: A. ITANI			SUBMITTED: APR 10, 2020		
DRAWN: T. NUMKE'NA			DATE: APR 08, 2020		
CHECKED: B. DULLANTY			SCALE: AS NOTED		
APPROVED:			DRAWING NO.		
CHIEF ENGINEER			<b>S-01</b>		
			DATE		





**ENLARGED DOCK PLAN**  
SCALE: 1" = 5'

**ISSUED FOR BID**  
**NOT FOR CONSTRUCTION**

**CONSTRUCTION NOTES:**

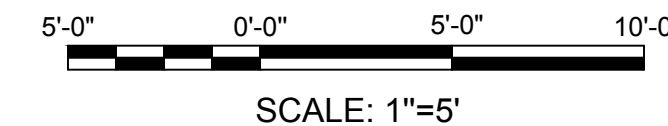
- ① REPAIR EXISTING CONCRETE RAMP LANDINGS IN PLACE AT R1-R4, SEE SHEET S-03.
- ② CONSTRUCT NEW CONCRETE RAMP LANDINGS AT R5 & R6, SEE SHEET S-04.
- ③ REPAIR EXISTING PILE CAPS, SEE SHEET S-03.
- ④ CONSTRUCT FIXED PIER ALUMINUM FRAME, COMPOSITE FENDER SYSTEM, AND APPURTENANCES, SEE S-05.
- ⑤ CONSTRUCT NEW ACCESS RAMP FRAME.
- ⑥ CONSTRUCT NEW RAILING.

**LEGEND:**

- PX PILE AND PILE CAP NUMBER "X"
- RX RAMP LANDING AND NUMBER "X"
- ☐ FIRE EXTINGUISHER, SEE MECHANICAL FOR SPECIFICATIONS AND MOUNTING REQUIREMENTS
- LIFE RING
- LADDER
- ☒ UTILITY PEDESTAL
- MOORING CLEAT
- ALUMINUM RAILING

**NOTES:**

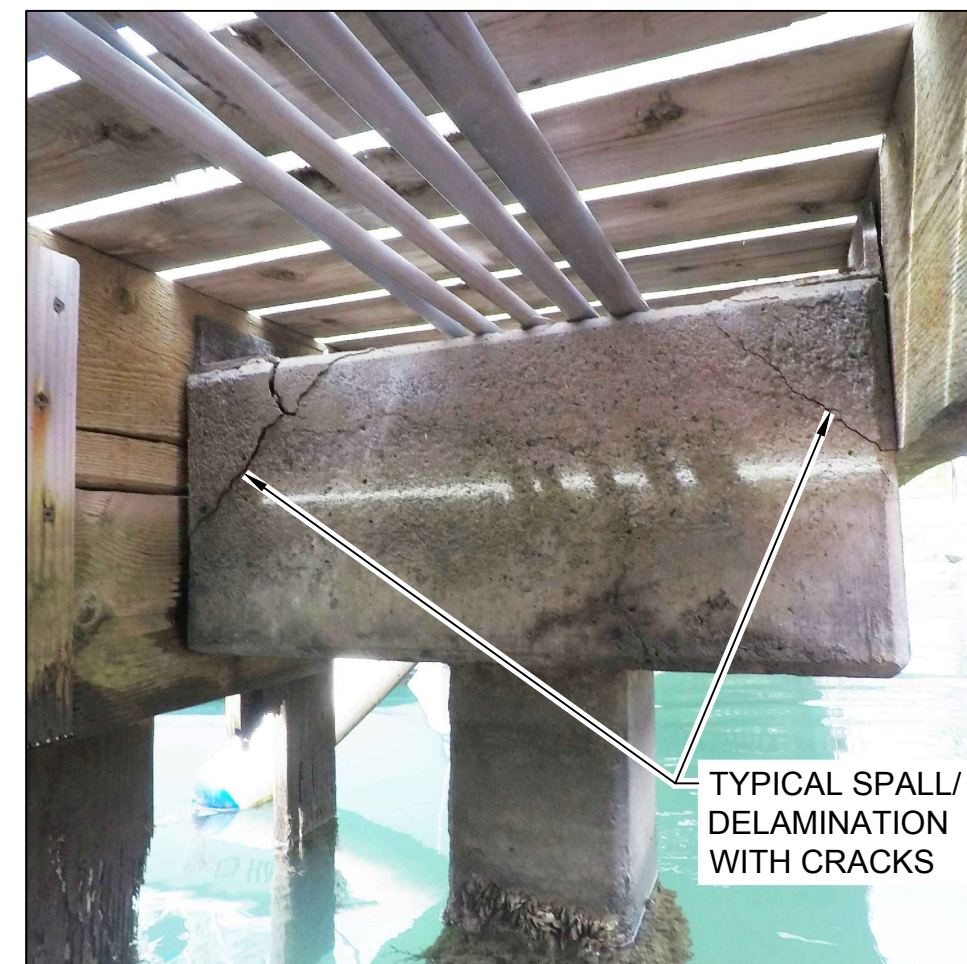
- 1. CONTRACTOR SHALL VERIFY FIELD DIMENSIONS PRIOR TO ORDERING OR FABRICATION.
- 2. DIMENSIONS SHOWN ARE APPROXIMATE.



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STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
STRUCTURAL SITE PLAN					
DESIGNED:	A. ITANI	SUBMITTED:	APR 10, 2020		
DRAWN:	T. NUMKE'NA	DATE:	APR 08, 2020		
CHECKED:	B. DULLANTY	SCALE:	AS NOTED		
APPROVED:		DRAWING NO.	<b>S-02</b>		
CHIEF ENGINEER		DATE			

**CONCRETE REPAIR NOTES:**

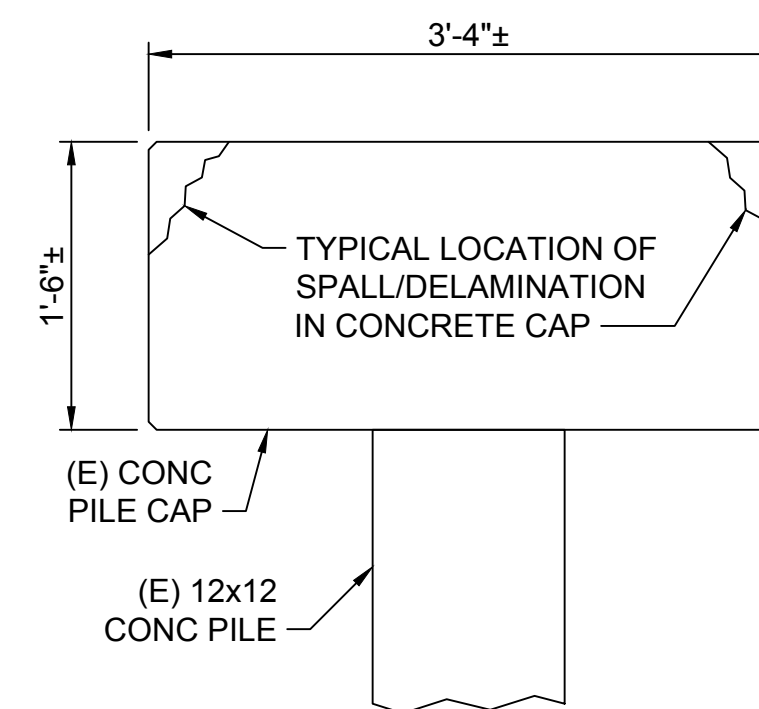
1. CONCRETE SPALL/DELAMINATION REPAIR PROCEDURE
  - a. SAWCUT THE SPALLED/DELAMINATED AREAS 1 1/2" DEEP AROUND THE PERIPHERY OF THE DAMAGED AREA.
  - b. REMOVE TO CLEAN AND SOUND CONCRETE USING A SMALL PNEUMATIC CHIPPING HAMMER A MINIMUM OF 1" BEYOND THE REINFORCING STEEL.
  - c. PREPARE SURFACE OF CAVITY BY HIGH PRESSURE WATER BLASTING, SCABBLING, OR OTHER APPROPRIATE MECHANICAL MEANS TO REMOVE DUST, DIRT, OIL, CONTAMINANTS, OTHER BOND-INHIBITING MATERIALS AND LOOSELY BONDED MATERIAL RESULTING FROM CHIPPING. ROUGHEN SURFACE 1/4" AMPLITUDE MINIMUM.
  - d. EXPOSED REINFORCING STEEL SHALL BE SAND BLASTED UNTIL ALL CORROSION IS REMOVED. MEASURE THE BAR DIAMETER 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 NEW REINFORCING OF ORIGINAL BAR SIZE SHALL BE ADDED. SPLICE NEW BAR TO EXISTING, WITH SPLICE STARTING AT NEAREST UNCORRODED SECTION. SEE LAP SPLICE TABLE. EXISTING REBAR TO REMAIN SHALL BE EPOXY COATED.
  - e. PREPARE CAVITY SURFACE FOR BONDING AGENT AS RECOMMENDED BY MANUFACTURER. PRIME CAVITY SURFACES WITH BONDING AGENT. ENSURE COMPLETE COVERAGE OF ALL SURFACE IRREGULARITIES.
  - f. APPLY CONCRETE REPAIR WITH EITHER A TROWELED OR FORMED FINISH.
2. CONCRETE REPAIR PRODUCT INFORMATION
  - a. NEW BONDING AGENT SHALL BE SIKA ARMATEC 110 BY SIKA CORPORATION, OR APPROVED EQUAL.
  - b. NEW REPAIR MORTAR SHALL BE SIKATOP 111 PLUS BY SIKA CORPORATION, OR APPROVED EQUAL.
  - c. EPOXY FOR CRACK REPAIR SHALL BE HIGH STRENGTH EPOXY GROUTING ADHESIVE (SIKADUR 35, HI-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 UNTIL 21 DAYS AFTER PLACEMENT.
5. CONCRETE CAP REPAIRS:
  - a. PER 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/DELAMINATION AND EPOXY CRACK REPAIR.
  - b. SPALLING/DELAMINATION IS TYPICAL AT ANCHOR BOLTS ON TOP OF CAP. SPALLS/DELAMINATION NOTED UP TO 12" WIDE BY 12" HIGH UP TO FULL LENGTH OF CONCRETE CAP. HAIRLINE CRACKS WERE INDICATED AT ISOLATED LOCATIONS.
6. CONCRETE RAMP LANDING (R1 - R4) REPAIR:
  - a. AFTER RAMP HAS BEEN DEMOLISHED, THE CONTRACTOR AND DOBOR REPRESENTATIVE SHALL INSPECT THE EXISTING CONCRETE CONDITION OF THE CONCRETE RAMP LANDING. CONTRACTOR AND DOBOR SHALL DETERMINE AND AGREE UPON LOCATION, TYPE, AND QUANTITY OF SPALL/DELAMINATION 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.



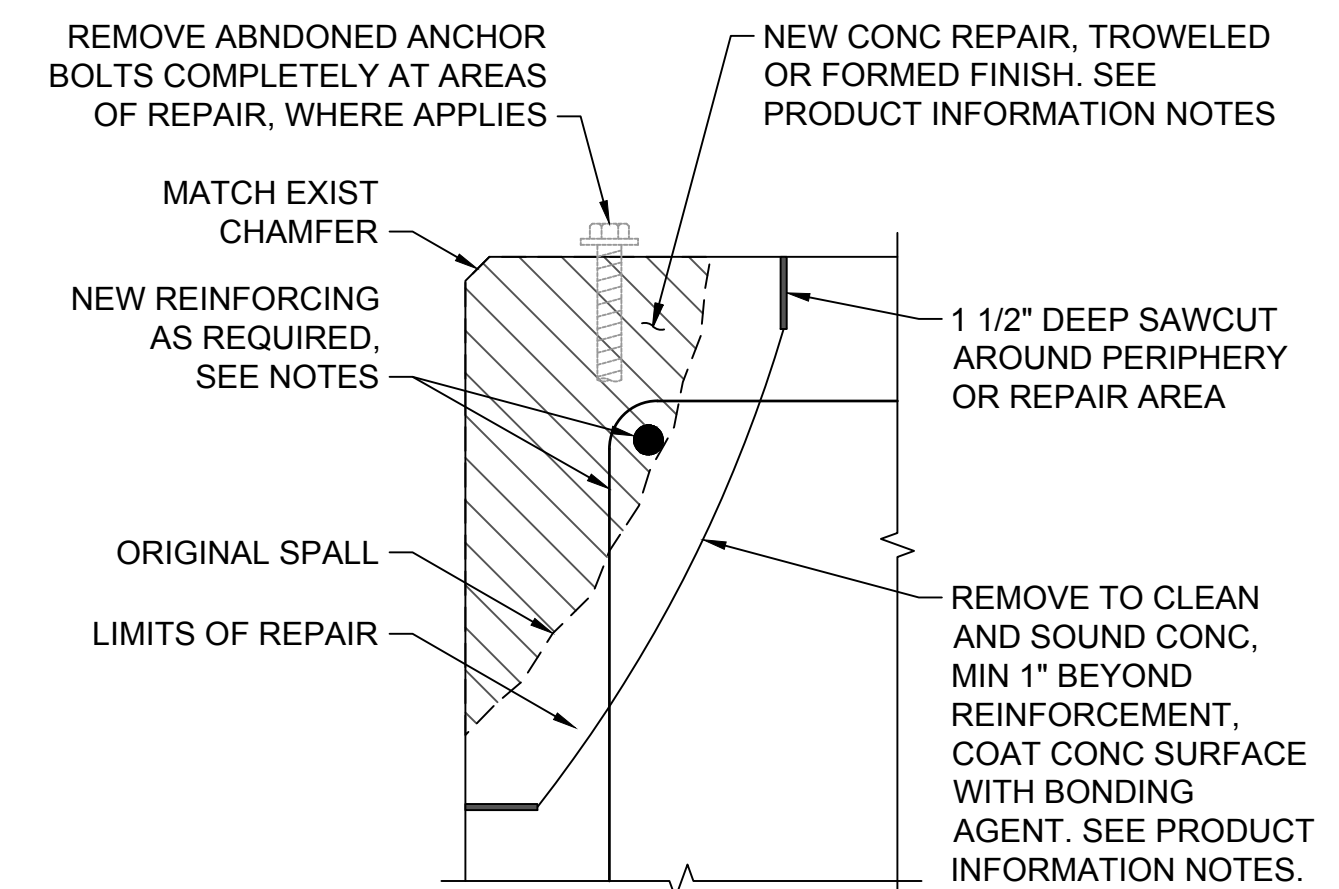
**PHOTO - TYPICAL PILE CAP CONCRETE DEFECTS**  
SCALE: NTS



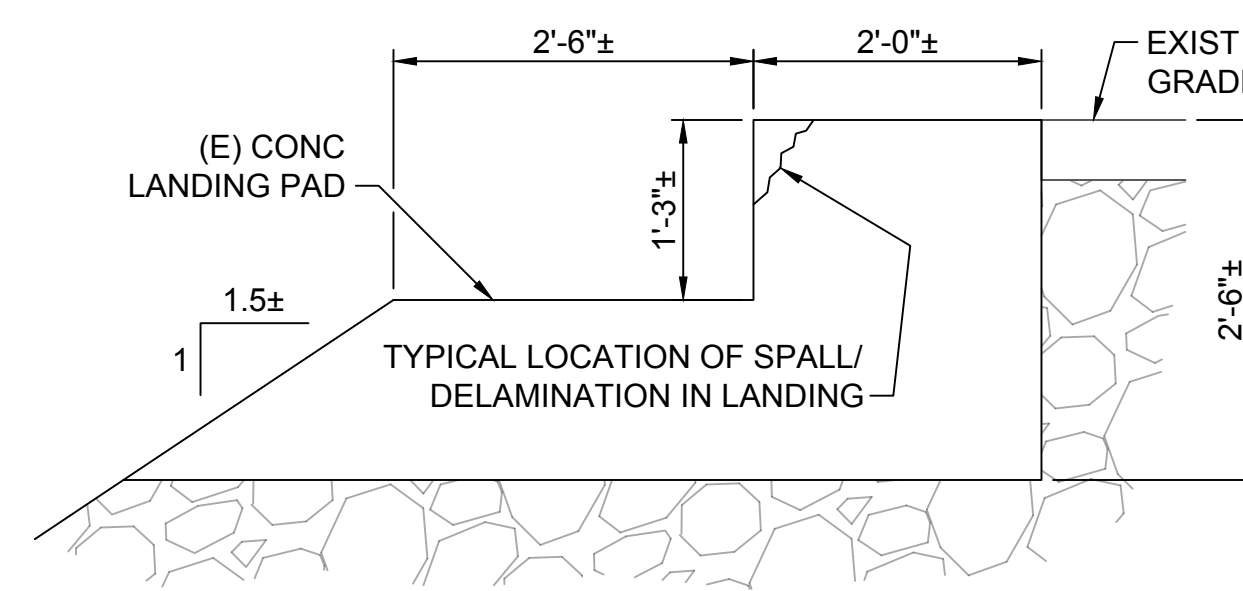
**PHOTO - TYPICAL LANDING CONCRETE DEFECTS**  
SCALE: NTS



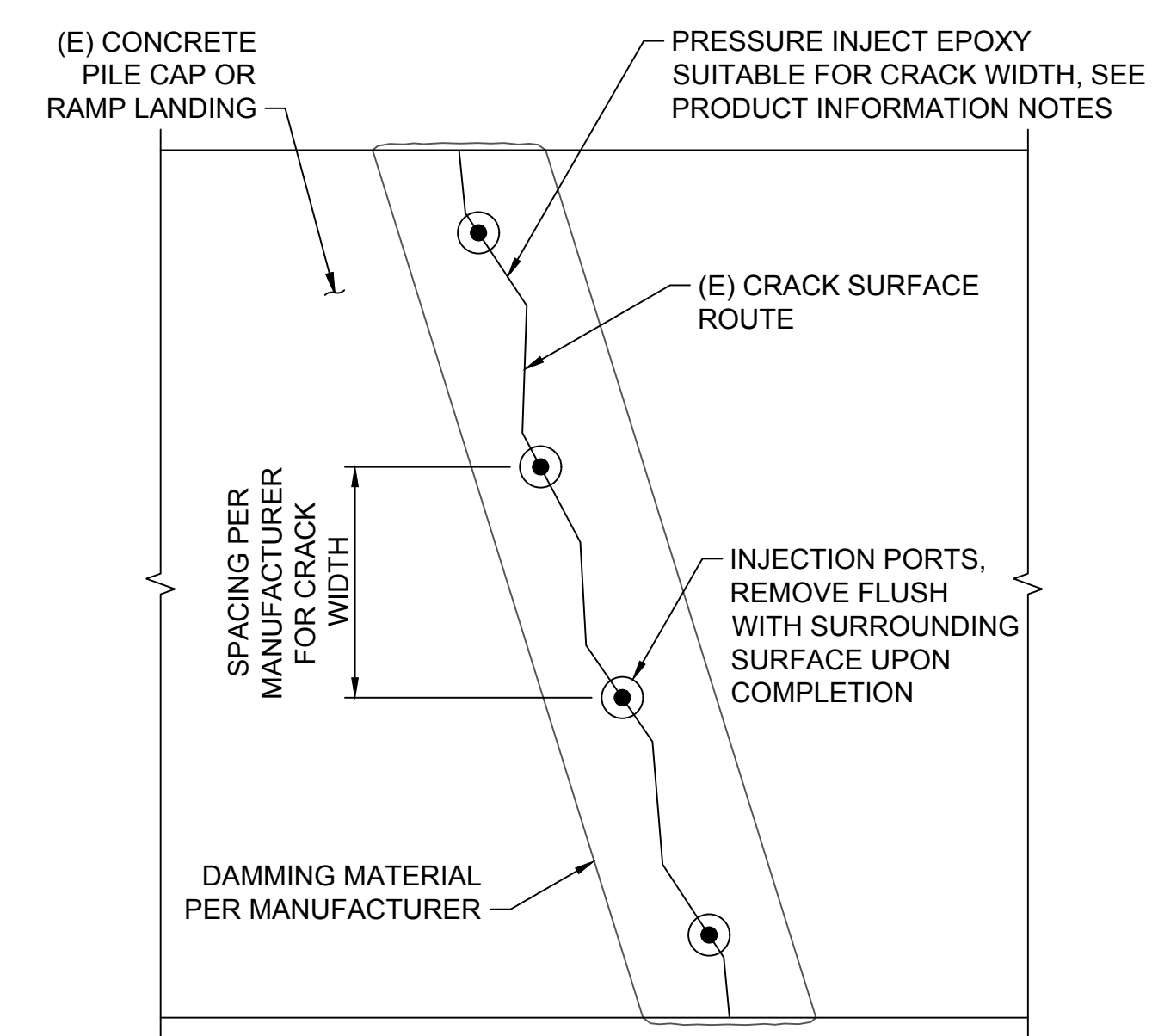
**1 EXISTING CONCRETE PILE CAP DEFECTS**  
S-03 SCALE: NTS



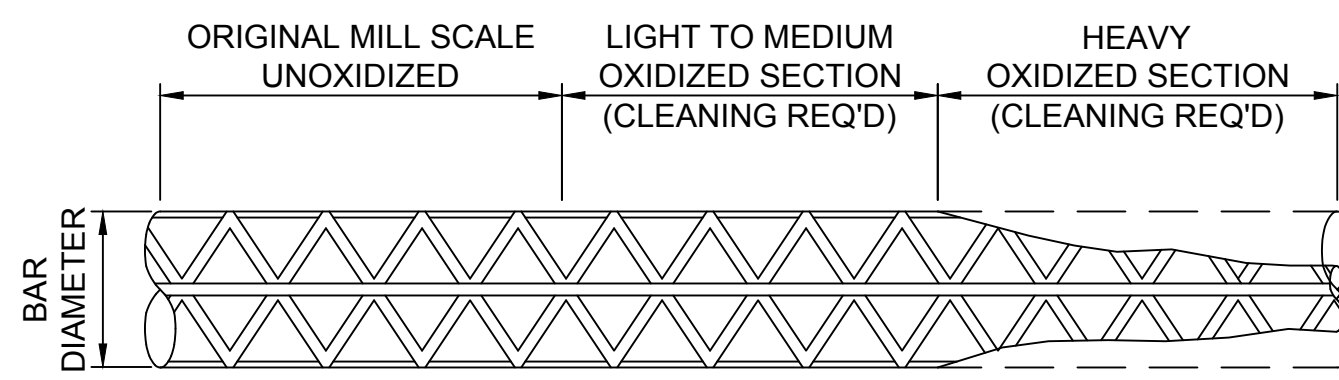
**2 DETAIL - SPALL / DELAMINATION REPAIR**  
S-03 SCALE: NTS



**3 EXISTING CONCRETE LANDING DEFECTS**  
S-03 SCALE: NTS



**4 DETAIL - EPOXY CRACK REPAIR**  
S-03 SCALE: NTS



ALLOWABLE BAR DIAMETER CHART	
BAR SIZE	DIAMETER
#3	5/16"
#4	3/8"
#5	1/2"
#6	5/8"
#7	11/16"
#8	13/16"
#9	7/8"

**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.

**6 TYPICAL ALLOWABLE BAR DIAMETER CHART**  
S-03 SCALE: NTS

MINIMUM REINFORCEMENT LAP SPLICE LENGTH TABLE		
BAR SIZE	TOP BAR LAP SPLICE LENGTH (IN.)	BOTTOM BAR LAP SPLICE LENGTH (IN.)
#4	33	25
#5	41	31
#6	49	37
#7	71	54
#8	81	62
#9	91	70
#10	102	79

**5 MINIMUM REINFORCEMENT LAP SPLICE LENGTH TABLE**  
S-03 SCALE: NONE

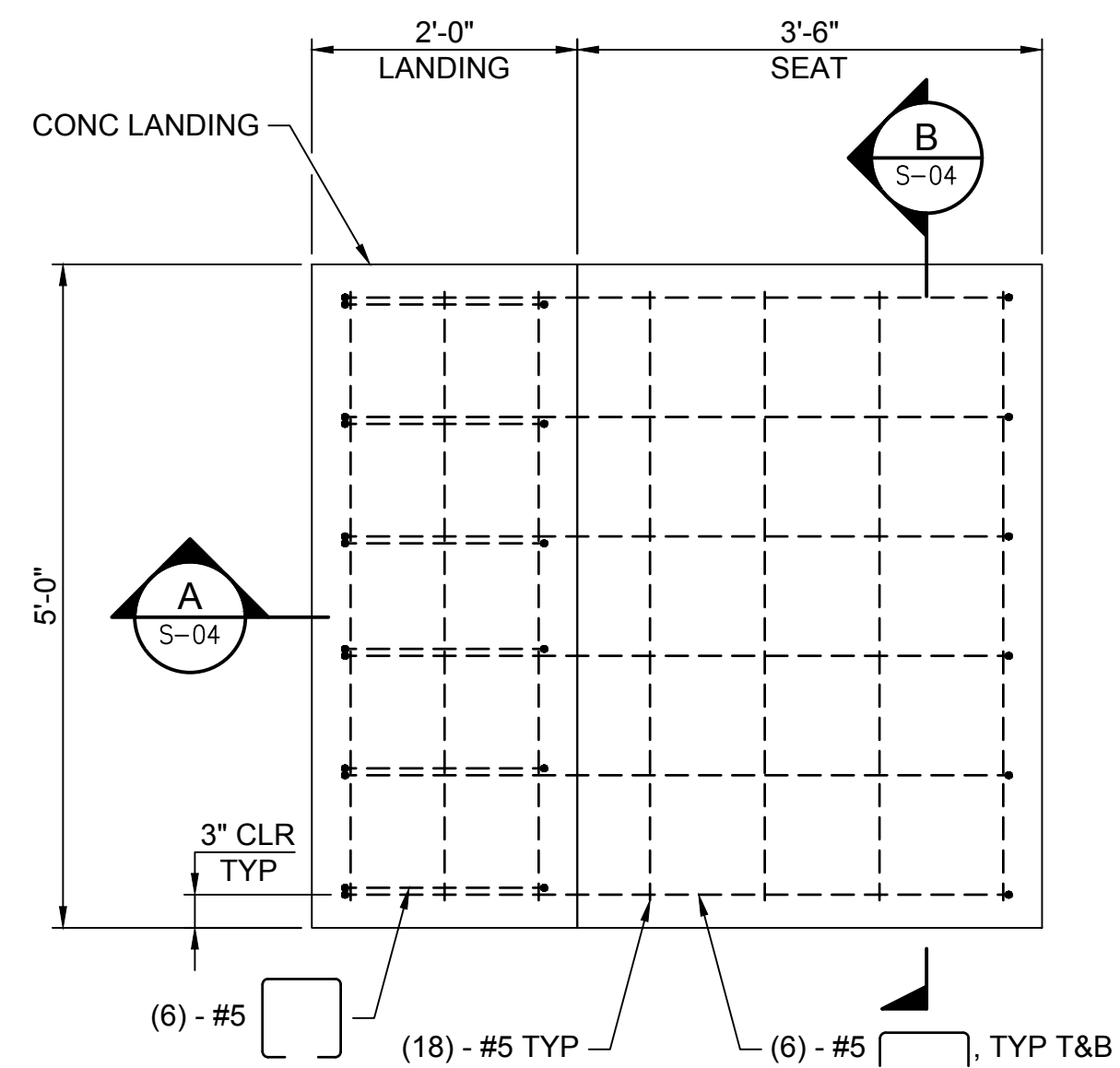
**CONCRETE REPAIR QUANTITIES:**

**PILE CAPS**  
REPAIR PER DETAIL 2 ON THIS SHEET. DAMAGE ESTIMATED TO BE 8-INCH WIDE BY 12-INCH HIGH BY 4-FT LONG ON 13 PILE CAPS.

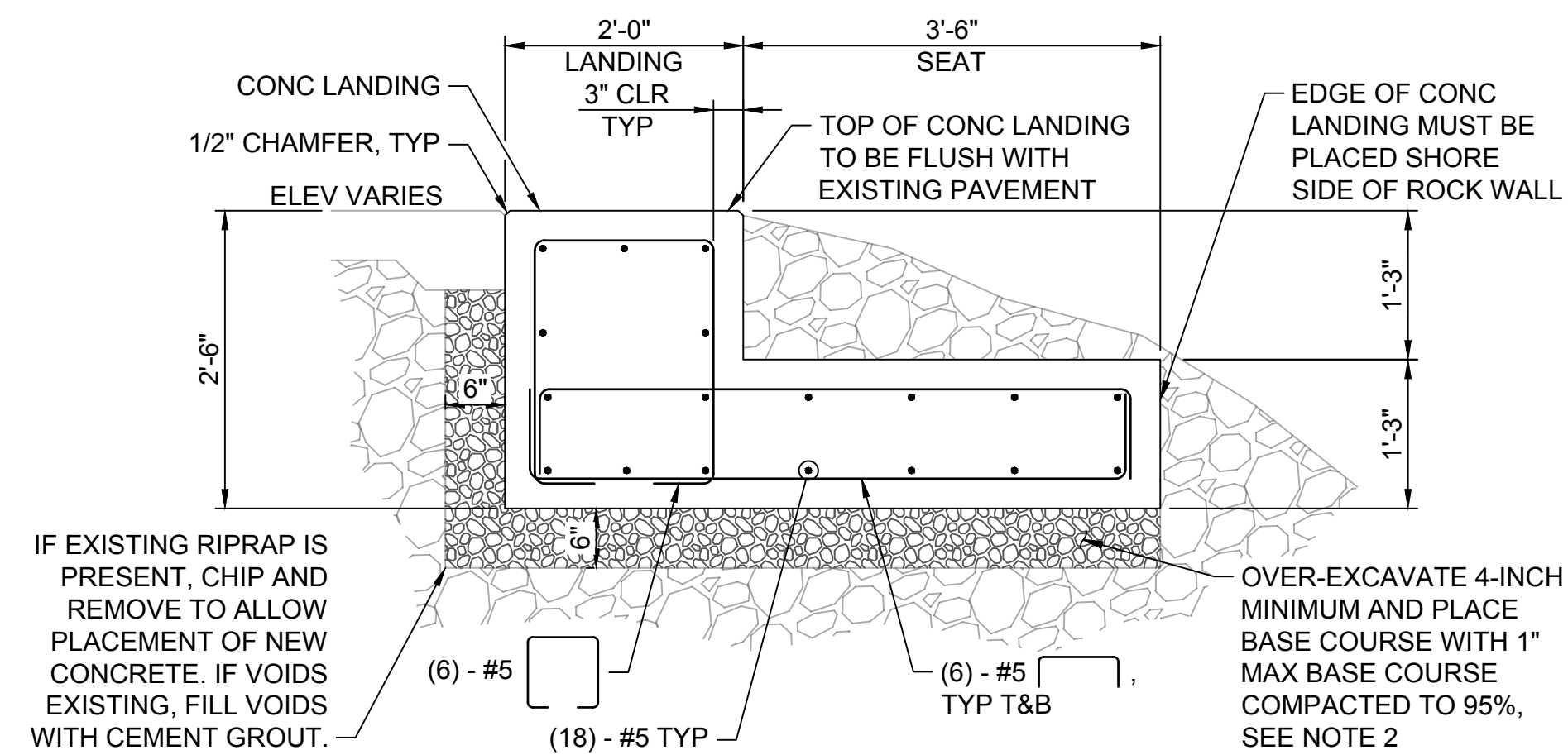
**RAMP LANDINGS**  
REPAIR PER DETAIL 2 ON THIS SHEET. PROVIDE FOR REPAIR TO INCLUDE 8-INCH WIDE BY 12-INCH HIGH BY 5-FT LONG ON 4 RAMP LANDINGS.  
PROVIDE (4) 20-FT #5 REBAR FOR SPLICE MATERIALS.

**ISSUED FOR BID**  
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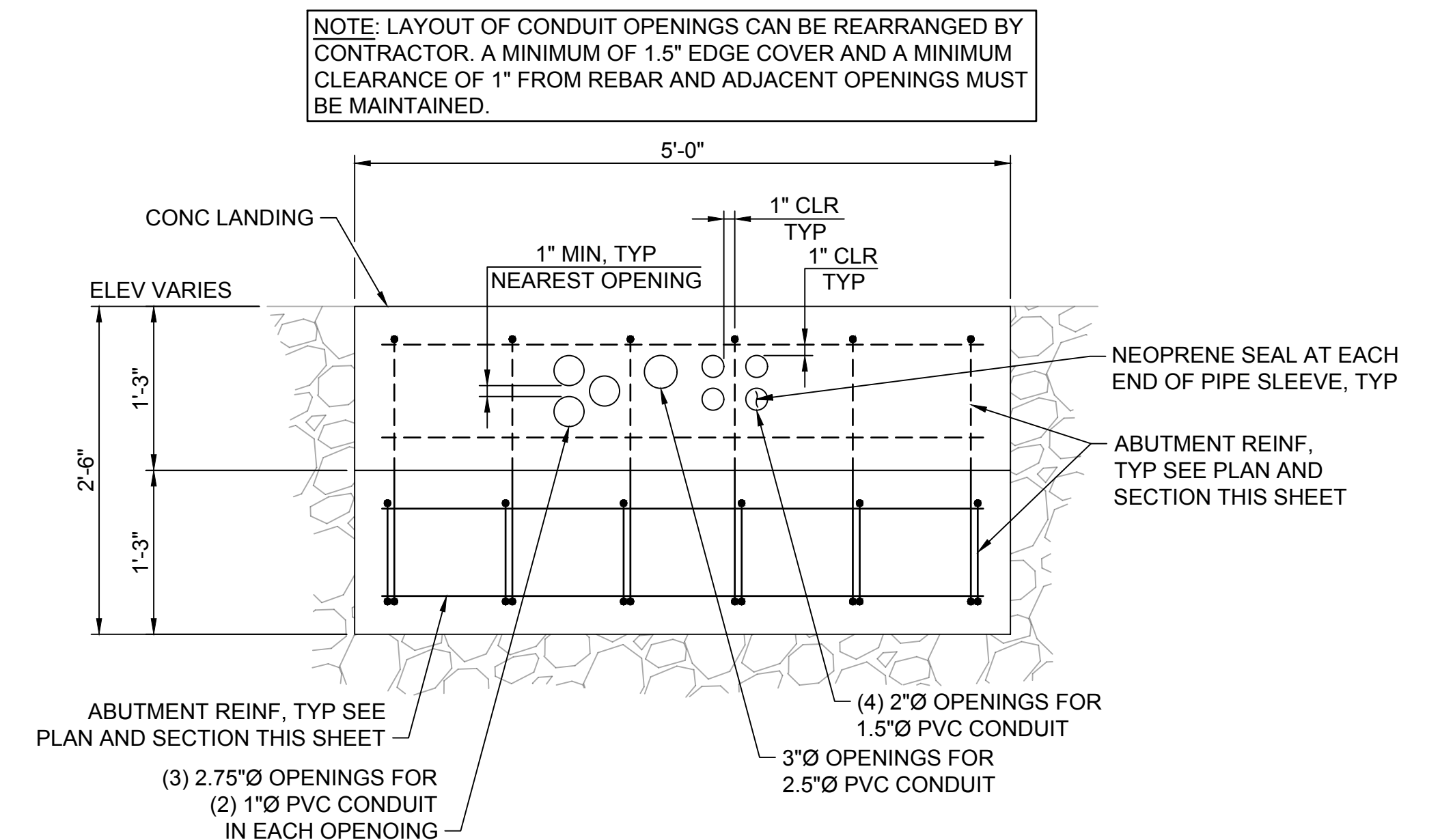
REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
<b>CONCRETE REPAIRS PLAN AND DETAILS</b>					
DESIGNED:	A. ITANI	SUBMITTED:	APR 10, 2020		
DRAWN:	T. NUMKE'NA	DATE:	APR 08, 2020		
CHECKED:	B. DULLANTY	SCALE:	AS NOTED		
APPROVED:			DRAWING NO.		<b>S-03</b>
CHIEF ENGINEER	DATE				



**1**  
S-04  
**PLAN - CONCRETE LANDING**  
SCALE: 3/4" = 1'-0"



**A**  
S-04  
**SECTION - CONCRETE LANDING**  
SCALE: 3/4" = 1'-0"

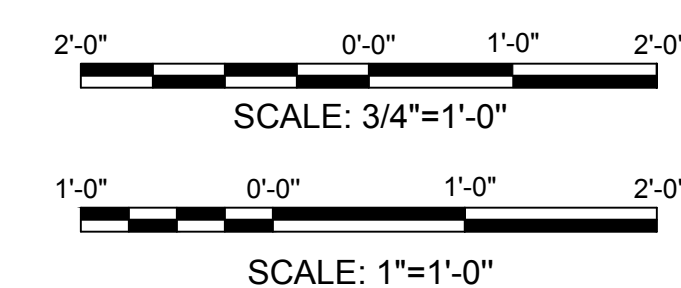


**B**  
S-04  
**SECTION - RAMP No. 6 CONDUIT PENETRATION LAYOUT**  
SCALE: 1" = 1'-0"

NOTE: LAYOUT OF CONDUIT OPENINGS CAN BE REARRANGED BY CONTRACTOR. A MINIMUM OF 1.5" EDGE COVER AND A MINIMUM CLEARANCE OF 1" FROM REBAR AND ADJACENT OPENINGS MUST BE MAINTAINED.

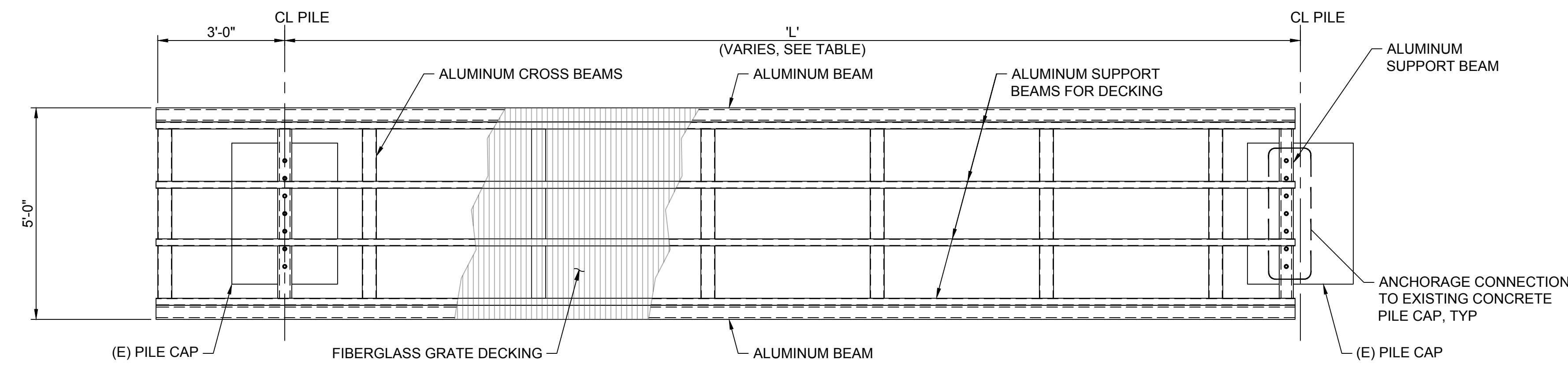
**NOTES**

- CAP ALL UTILITY STUBS TO PROTECT IN PLACE UNTIL FINAL CONNECTION IS MADE.
- EXCAVATE AND PLACE COMPACTED BASE COURSE WHERE EXISTING RIPRAP DOES NOT OCCUR.
- ALL REINFORCING STEEL SHALL COMPLY WITH ASTM 1035, CHROMX 4100 OR APPROVED EQUAL.

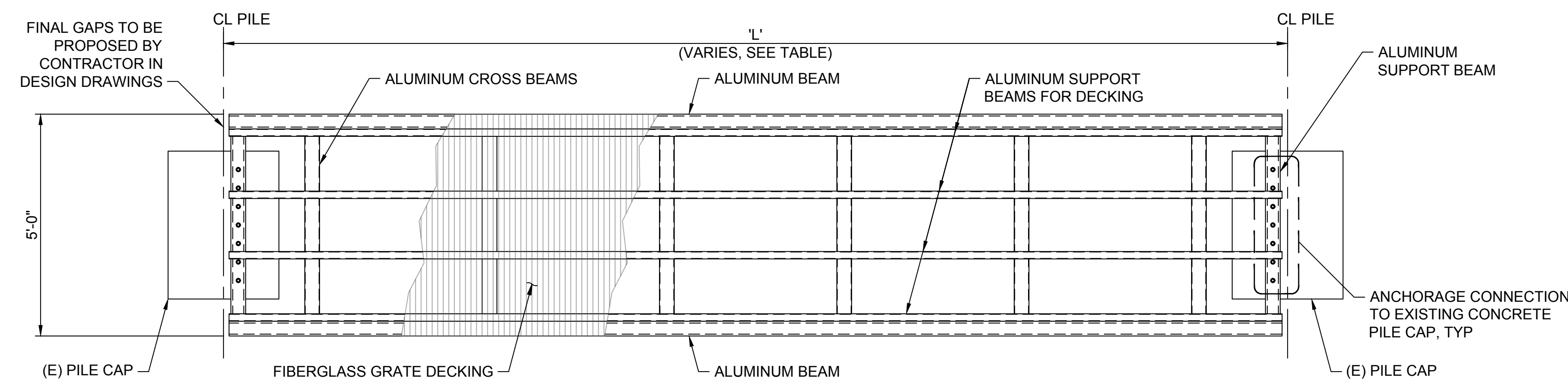


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**NOT FOR CONSTRUCTION**

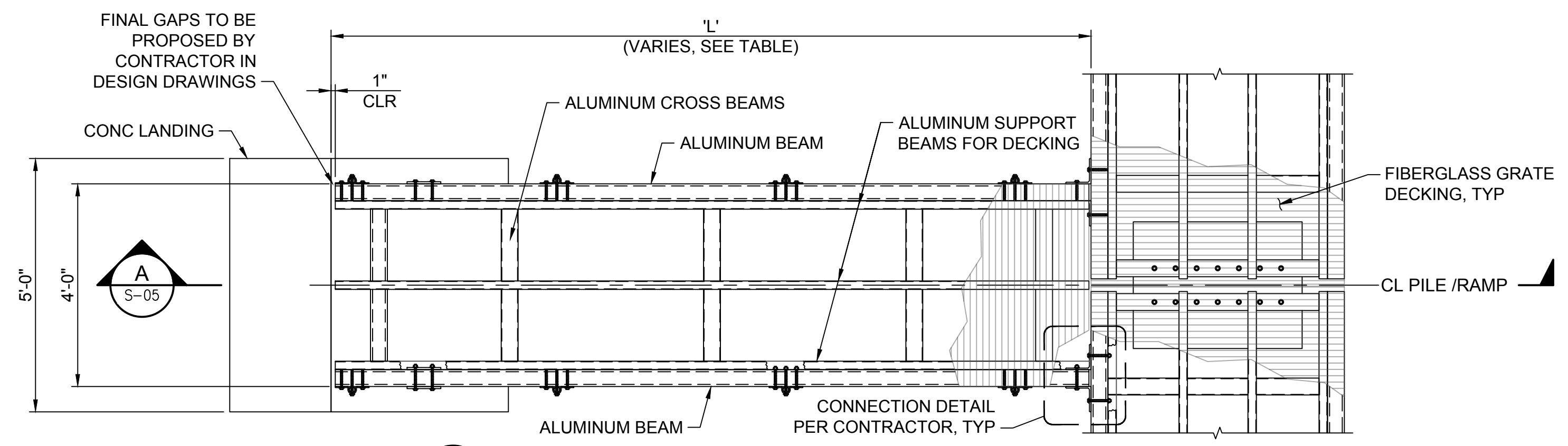
REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
RAMP LANDING SECTIONS AND DETAILS					
DESIGNED:	A. ITANI	SUBMITTED:	APR 10, 2020		
DRAWN:	T. NUMKE'NA	DATE:	APR 08, 2020		
CHECKED:	B. DULLANTY	SCALE:	AS NOTED		
APPROVED:			DRAWING NO.		<b>S-04</b>
CHIEF ENGINEER	DATE				



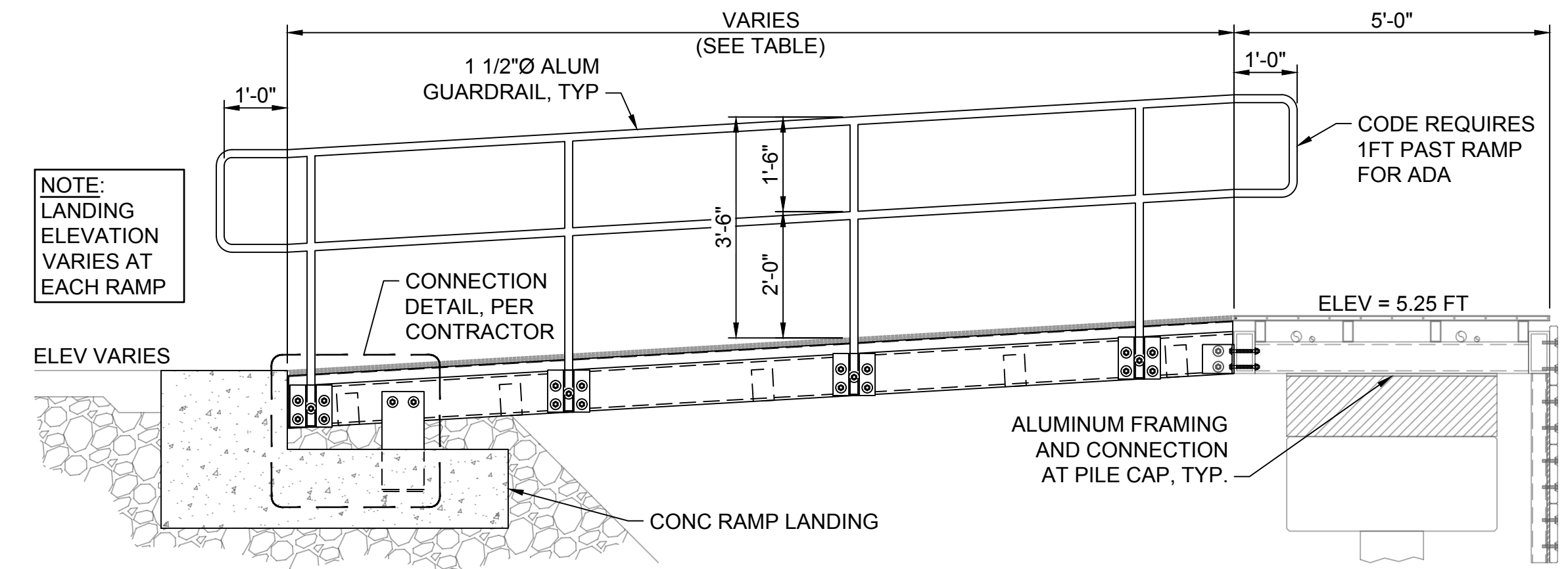
1 FRAMING PLAN - DOCK END FRAME  
SCALE: 1/2" = 1'



2 FRAMING PLAN - DOCK CENTER FRAME  
SCALE: 1/2" = 1'



3 FRAMING PLAN - RAMP  
SCALE: 1/2" = 1'



A ELEVATION - ALUMINUM RAMP AND CONCRETE RAMP LANDING  
SCALE: 1/2" = 1'

RAMP AND DOCK FRAME LENGTH TABLE			
RAMPS		DOCK FRAMES	
RAMP No.	'L' (FT) *	FRAME BY PILE CAP No.	'L' (FT) *
R1	16.6	P1-P2	24.9
R2	16.6	P2-P3	24.3
R3	16.4	P3-P4	24.0
R4	16.5	P4-P5	24.0
R5	18.8	P5-P6	24.5
R6	19.2	P6-P7	24.5
REFER TO SHEET S-01 FOR RAMP AND PILE CAP LOCATIONS		P7-P8	24.7
		P8-P9	24.1
		P9-P10	24.1
		P10-P11	24.0
		P11-P12	24.0
		P12-P13	24.0

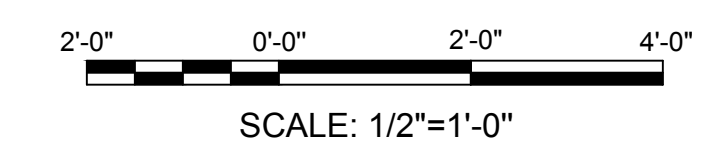
\* LENGTHS ARE APPROXIMATE BASED ON PRE-DEMOLITION FIELD MEASUREMENTS. VERIFY DIMENSIONS PRIOR TO FABRICATION

NOTES

- CONTRACTOR TO VERIFY ALL EXISTING DIMENSIONS PRIOR TO FABRICATION.
- CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY SHORING. SEE GENERAL NOTES SHEET G-01.
- 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.
- ALL STRUCTURES SHALL BE FUNCTIONAL OVER ENTIRE TIDAL RANGE AND NO PORTION OF STRUCTURE SHALL BE SUBJECT TO SUBMERSION.
- PILE LOCATIONS MAY MOVE AFTER DEMOLITION OF TIMBER SUPERSTRUCTURE. CONTRACTOR TO VERIFY DIMENSIONS AFTER DEMO OR ACCOMMODATE POST DEMO MOVEMENT IN DESIGN.
- ALUMINUM DESIGN BY CONTRACTOR.
- PROVIDE 4-INCH CLEAR SPACE MINIMUM ABOVE CROSS BEAMS AND BELOW GRATING FOR UTILITIES.
- DESIGN TO COMPLY WITH OVERALL DIMENSIONS INCLUDING UTILITY SPACE BELOW DECK.
- EXAMPLE FRAMING AND CONNECTION SHOWN, FINAL DESIGN TO BE APPROVED PRIOR TO FABRICATION. SEE SPECIFICATIONS.
- DECKING AND GUARDRAIL SHALL BE REMOVABLE FOR FUTURE REPAIR OR REPLACEMENT.

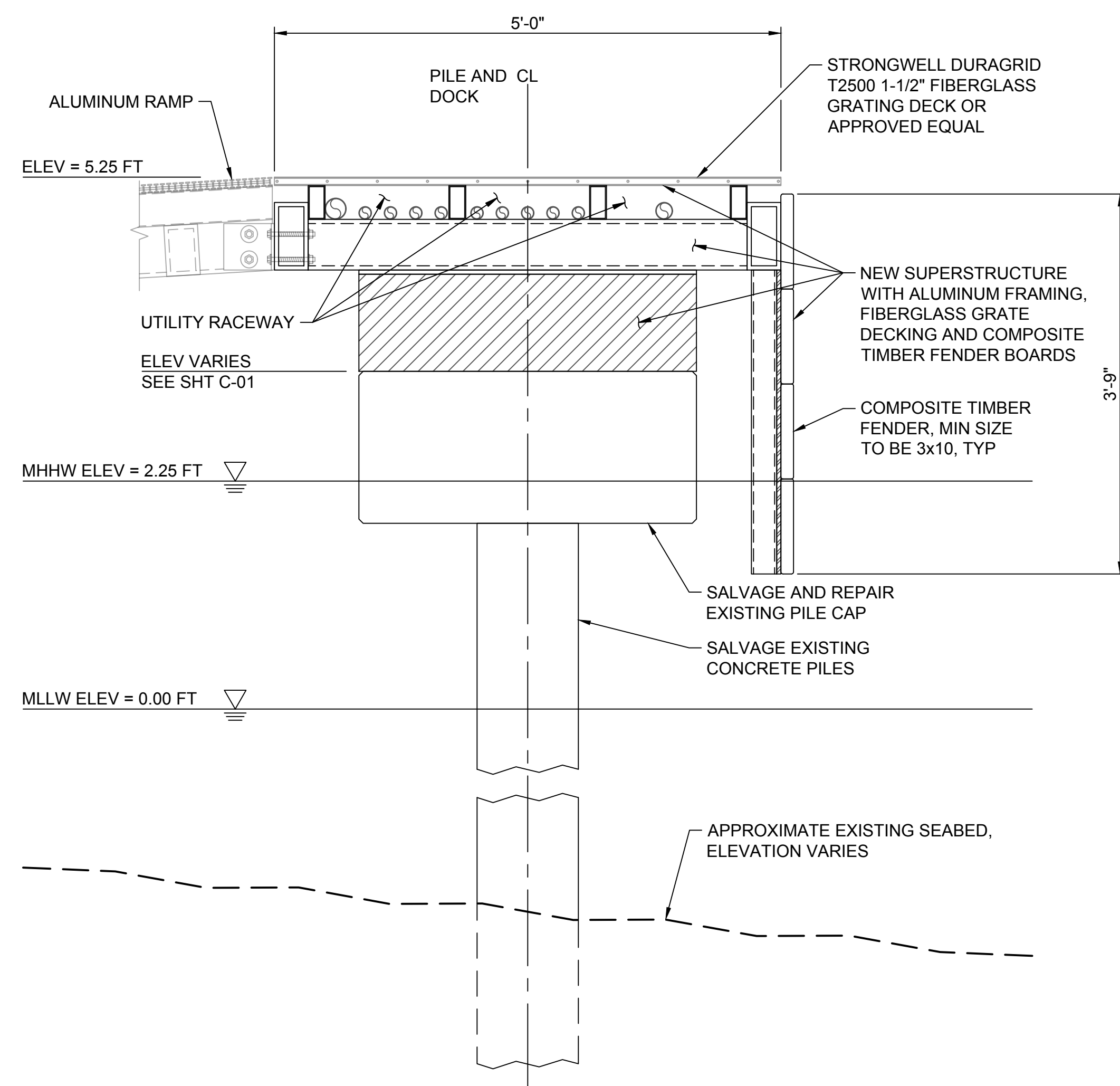
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REVISION NO.	SYM.	DESCRIPTION	SHT. OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
STRUCTURAL FRAMING PLANS					
DESIGNED:	A. ITANI	SUBMITTED:	APR 10, 2020		
DRAWN:	T. NUMKE'NA	DATE:	APR 08, 2020		
CHECKED:	B. DULLANTY	SCALE:	AS NOTED		
APPROVED:		DRAWING NO.	S-05		
CHIEF ENGINEER		DATE			

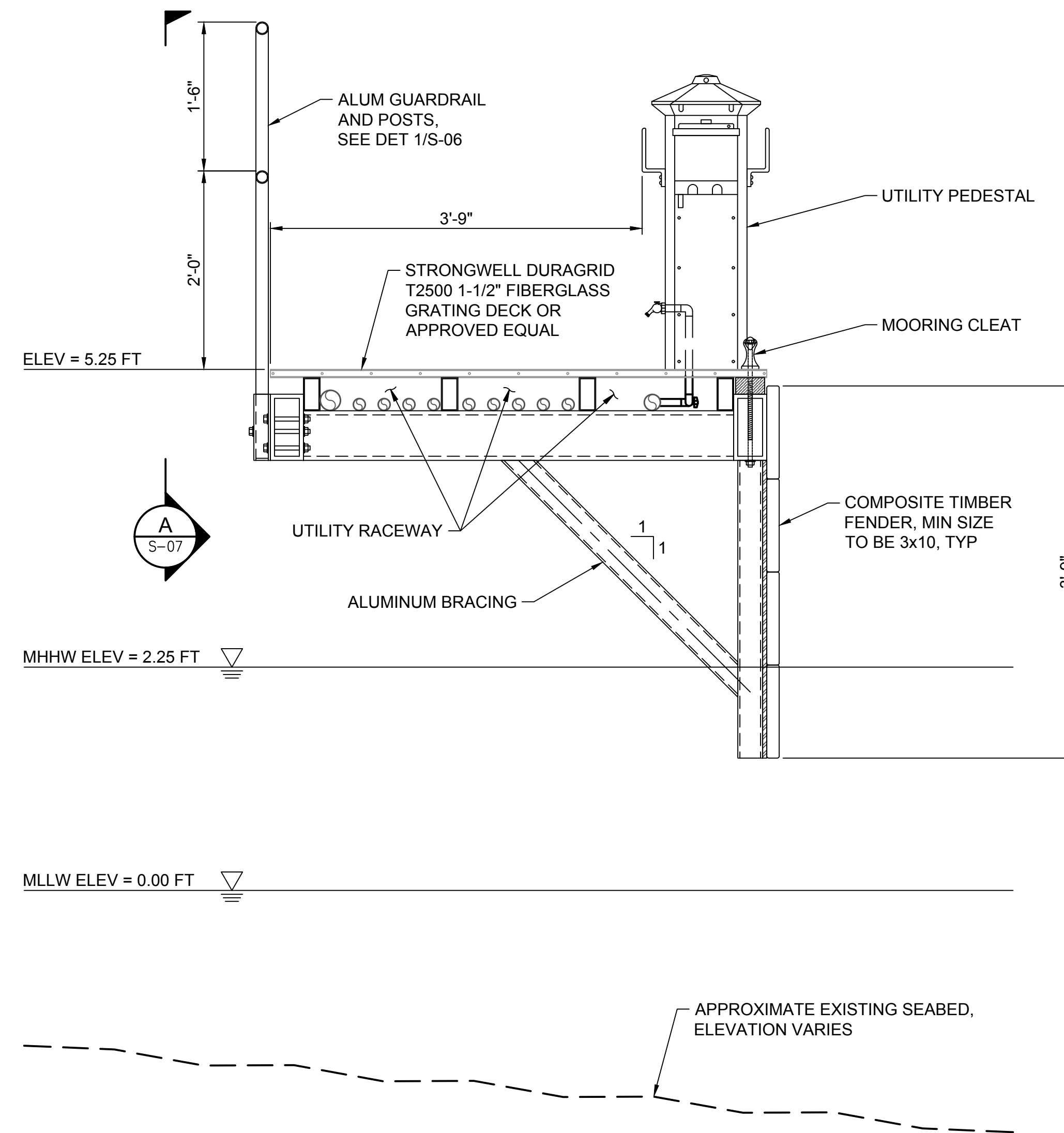


**NOTES**

1. DECKING AND GUARDRAIL SHALL BE REMOVABLE FOR FUTURE REPAIR OR REPLACEMENT.



**A**  
SECTION - DOCK AT PILE  
SCALE: 1" = 1'-0"

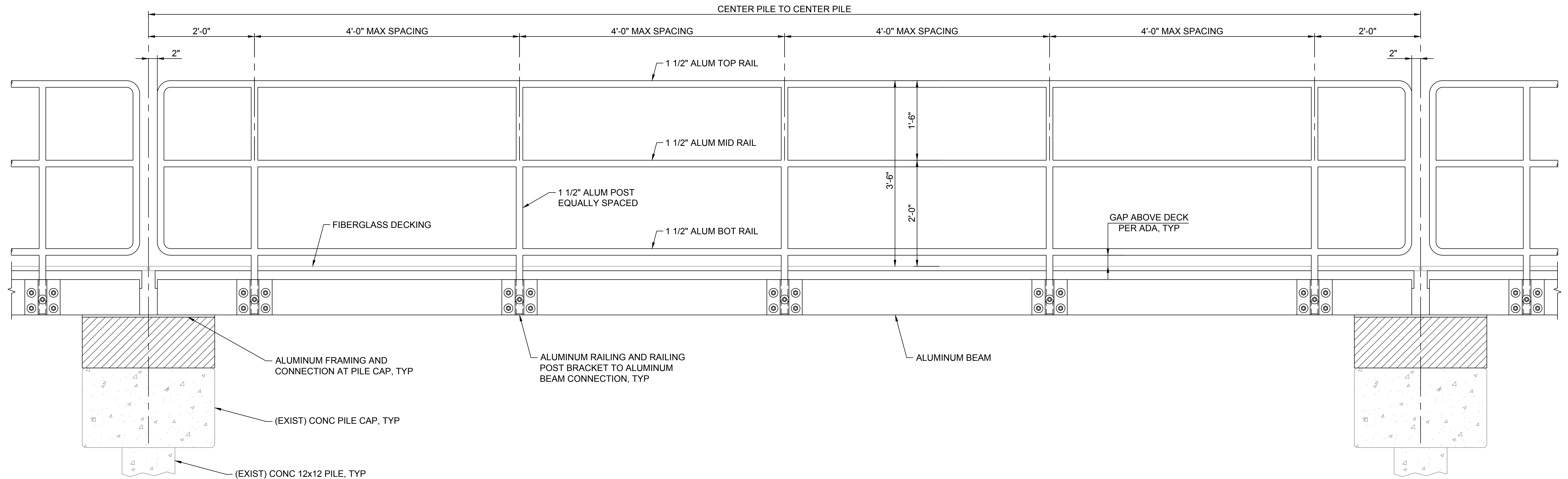


**B**  
SECTION - DOCK AT PEDESTAL  
SCALE: 1" = 1'-0"



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NOT FOR CONSTRUCTION**

REVISION NO.	SYM.	DESCRIPTION	SHT. OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
<b>STRUCTURAL SECTION AND DETAILS</b>					
DESIGNED: A. ITANI		SUBMITTED: APR 10, 2020			
DRAWN: T. NUMKE'NA		DATE: APR 08, 2020			
CHECKED: B. DULLANTY		SCALE: AS NOTED			
APPROVED:		DRAWING NO.		DATE	
CHIEF ENGINEER		<b>S-06</b>			



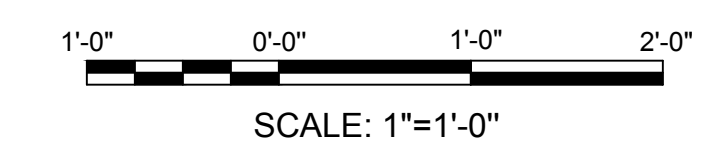
**A** ELEVATION - TYPICAL RAILING  
 S-06 SCALE: 1" = 1'-0"

**NOTES**

1. RAILING SHALL BE REMOVABLE FOR FUTURE REPAIR OR REPLACEMENT.

**ISSUED FOR BID**  
**NOT FOR CONSTRUCTION**

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
RAIL ELEVATION AND DETAILS					
DESIGNED: A. ITANI		SUBMITTED: APR 10, 2020			
DRAWN: T. NUMKE'NA		DATE: APR 08, 2020			
CHECKED: B. DULLANTY		SCALE: AS NOTED			
APPROVED:		DRAWING NO.		DATE	
CHIEF ENGINEER		S-07			



**GENERAL MECHANICAL NOTES:**

- INSTALLATION OF MECHANICAL SYSTEMS, INCLUDING COORDINATION WITH OTHER TRADES, SHALL COMPLY WITH THE LOCAL WATER DEPARTMENT AND OTHER AHJ STANDARDS AND REGULATIONS, AND SHALL BE COORDINATED WITH THE WATER AND OTHER AHJ DEPARTMENTS. PRIOR APPROVAL OF AND NOTICE TO PROCEED WITH THE TIE-INS TO EXISTING UTILITIES ARE REQUIRED BY THE LOCAL AHJ FOR THE WATER SYSTEMS. AUTHORIZED REPRESENTATIVE SHALL WITNESS TIE-IN, AS REQUIRED.
- 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 CONDUITS SPECIFIED. BEFORE JOINTING AND ERECTION OF PIPING, THOROUGHLY CLEAN INTERIORS OF PIPE AND COMPONENTS. MAINTAIN CLEANLINESS BY CLOSURE OF PIPE OPENINGS WITH CAPS OR PLUGS.
- THE CONTRACTOR SHALL OBTAIN ALL REQUIRED BUILDING/TRADE PERMITS AND PROVIDE ALL REQUIRED TESTING.
- 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 DOCK STRUCTURE AND COMPONENTS SHALL ACCOMMODATE THE PIPING LAYOUT REQUIREMENTS SUCH THAT THE PIPE SHALL NOT BECOME OVERSTRESSED. THE PIPING SHALL BE PROPERLY SUPPORTED AND ANCHORED.
- CONTRACTOR SHALL INSPECT MATERIALS DELIVERED TO SITE FOR DAMAGE. UNLOAD AND STORE WITH MINIMUM HANDLING. KEEP INSIDE OF PIPES, FITTINGS AND EQUIPMENT FREE OF DIRT AND DEBRIS. HANDLE PIPE, FITTINGS, VALVES, AND OTHER ACCESSORIES IN SUCH MANNER AS TO ENSURE DELIVERY TO THE DOCKS AND INSTALLATION LOCATION IN A SOUND UNDAMAGED CONDITION.
- ALL POTABLE WATER MATERIALS (PIPE, VALVES, ETC.) SHALL BE FURNISHED BY THE CONTRACTOR. ALL SUCH MATERIALS SHALL BE NEW, MEET DISTRICT, COUNTY, WATER UTILITY COMPANY AND OTHER AHJ SPECIFICATION REQUIREMENTS FOR EACH ITEM. PRIOR TO INSTALLATION, MATERIALS MUST BE APPROVED IN WRITING BY THE ENGINEER AND AHJ.
- SHOULD THERE BE A CONFLICT BETWEEN THESE GENERAL NOTES, CONTRACT DRAWINGS, AND/OR CONTRACT DOCUMENTS, THE MOST RESTRICTIVE INTERPRETATION SHALL PREVAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING FROM THE ENGINEER ANY CLARIFICATION OR INTERPRETATION OF GENERAL NOTES, CONTRACT DRAWINGS, AND/OR SPECIFICATIONS IN WRITING AND IN ADVANCE OF THE BEGINNING OF CONSTRUCTION.
- LOCATIONS OF UTILITIES, PUBLIC AND/OR PRIVATE, ARE APPROXIMATE ONLY, AND THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD. IT IS POSSIBLE THAT SOME EXISTING FACILITIES ARE NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING ALL EXISTING UTILITIES RELEVANT TO PROJECT CONSTRUCTION LOCATED AND MARKED PRIOR TO THE BEGINNING OF CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO PROTECT EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. SHOULD SPECIAL EQUIPMENT BE REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR SHALL BE REQUIRED TO FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING UTILITIES FROM DAMAGE AND FOR FURNISHING SPECIAL EQUIPMENT SHALL BE INCLUDED IN THE BID FOR CONSTRUCTION.
- SUPPORTS AND HARDWARE SHALL BE TYPE 316 OR 304 STAINLESS STEEL OR GALVANIZED STEEL AS INDICATED ON DRAWINGS. UNO. FIELD BENDING IS NOT PERMITTED. VALVE SUPPORTS SHALL BE INSTALLED ON ADJACENT PIPING ON BOTH SIDES OF THE VALVE. SUBMIT SHOP DRAWINGS OR CATALOG DATA FOR REVIEW AND APPROVAL. A DIELECTRIC ISOLATION SHEET SHALL BE PLACED WHERE DISSIMILAR METALS CONTACT ON THE SUPPORT.
- ALL UNSUITABLE MATERIAL, AS DETERMINED BY THE ENGINEER, OR THROUGH TESTING, SHALL BE REMOVED, LEGALLY DISPOSED, AND REPLACED WITH SUITABLE MATERIAL, WITH CORRESPONDING CLOSURE REPORT(S), AND ACCEPTABLE TO THE ENGINEER AND REGULATORY AUTHORITIES AT THE COST TO THE CONTRACTOR.
- DIELECTRIC COUPLINGS SHALL BE USED AT DISSIMILAR METAL PIPING CONNECTIONS.
- ANY DAMAGE TO PIPING AND APPURTENANCES SHALL BE REPLACED AT THE CONTRACT'S SOLE COST.

**POTABLE WATER SYSTEM NOTES**





- 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 B88 AND AT DOCKS SHALL BE HDPE ASTM D 3035, SDR 11, ASTM F714 BUTT FUSED JOINTS. PIPING SHALL CONFORM TO UNIFORM PLUMBING CODE. PIPING AND INSTALLATION SHALL CONFORM TO UNIFORM PLUMBING CODE.
- THE POTABLE WATER SYSTEM SHALL BE PRESSURE TESTED DOWNSTREAM OF THE POC. FLUSH PIPING WITH CLEAN WATER TO REMOVE DEBRIS. APPLY AND MAINTAIN 75 PSI WORKING TEST PRESSURE FOR 15 MINUTES, DURING WHICH TIME THERE WILL 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. 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 SOLUTION IS DISPOSED OF IN ACCORDANCE WITH LOCAL REQUIREMENTS.
- HOSE BIBB SHALL CONTAIN INTEGRAL ANTI-SIPHON VACUUM BREAKERS BE AND LEAD FREE.
- MAXIMUM DISTANCE OF PIPE BETWEEN PIPE SUPPORTS PER UNIFORM PLUMBING CODE SHALL NOT EXCEED THE FOLLOWING, UNO:

NOMINAL PIPE SIZE	HDPE PIPE SPAN, FT	COPPER PIPE SPAN, FT
2"	4	10
1 1/2"	2	6
1"	2	6
3/4"	2	6
- HDPE PIPE SHALL BE MARKED AT MANUFACTURER FOR POTABLE WATER AND BE NSF 14 LISTED.
- FLEXIBLE HOSE AND FITTINGS SHALL BE COMPATIBLE WITH POTABLE WATER AND SUITABLE FOR 24 HOUR CONTACT WITH CHLORINE STERILIZATION SOLUTION. FACTORY ASSEMBLED LENGTH OF GOODYEAR PLICORD FLEXWING OR APPROVED EQUAL.

**FIRE PROTECTION NOTES:**

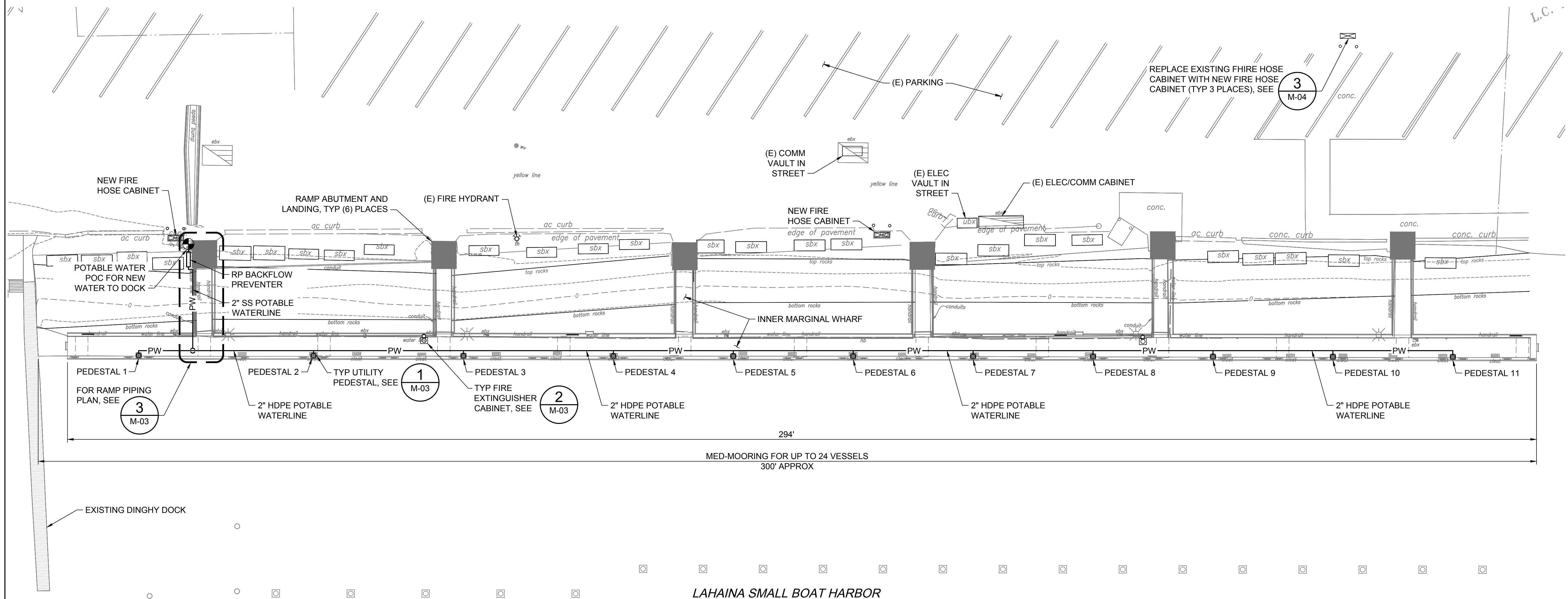
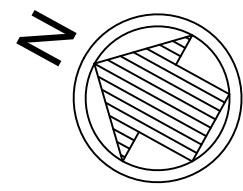
- THREE ONSHORE FIRE HOSE CABINETS SHALL BE REPLACED AS INDICATED ON PROJECT DRAWINGS. 10 POUND FIRE EXTINGUISHERS, WITH A MINIMUM RATING OF 4A-80B:C, AND CABINETS SHALL BE PROVIDED ALONG THE DOCK AS INDICATED ON PROJECT DRAWINGS. ALL WORK SHALL BE COORDINATED WITH THE CITY OF LAHAINA FIRE DEPARTMENT.
- SHOP DRAWINGS OR CATALOG DATA FOR ABOVE FIRE HOSE CABINETS AND MOUNTINGS SHALL BE SUBMITTED FOR APPROVAL.

**LEGEND AND ABBREVIATIONS**

SYMBOLS	ABBREV	DESCRIPTION
	AHJ	AUTHORITY HAVING JURISDICTION
	ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
	ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
	BFP	BACKFLOW PREVENTION DEVICE
	CONN	CONNECTION
	CONT	CONTINUATION
	CS	CARBON STEEL
	DIA	DIAMETER
	DWG	DRAWING
	ELL	ELBOW
	FEC	FIRE EXTINGUISHER CABINET
	GPM	GALLONS PER MINUTE
	GALV	GALVANIZED
	GV	GATE VALVE
	HDPE	HIGH DENSITY POLYETHYLENE
	HB	HOSE BIBB
	HDG	HOT-DIP GALVANIZED
	LDPE	LOW DENSITY POLYETHYLENE
	LR	LONG RADIUS
	M	METER
	MFR	MANUFACTURER
	MLLW	MEAN LOW LOW WATER
	MSS	MANUFACTURER'S STANDARDIZATION SOCIETY
	NPT	NATIONAL PIPE THREAD
	NSF	NATIONAL SANITATION FOUNDATION INTERNATIONAL
	POC	POINT OF CONNECTION
	PP	POWER (UTILITY) PEDESTAL
	PPM	PARTS PER MILLION
	PW	POTABLE WATER
	PSI	POUNDS PER SQUARE INCH
	RED	REDUCER
	SR	SHORT RADIUS
	SS	STAINLESS STEEL
	STD	STANDARD
	TYP	TYPICAL
	UL	UNDERWRITERS LABORATORIES, INC.
	UNO	UNLESS NOTED OTHERWISE
	UV	ULTRAVIOLET
	UVR	ULTRAVIOLET RESISTANT
	W/	WITH

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NOT FOR CONSTRUCTION**

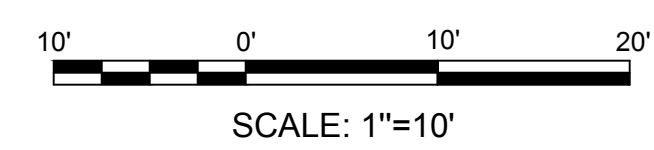
REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
<b>MECHANICAL GENERAL NOTES</b>					
DESIGNED: -			SUBMITTED: APR 10, 2020		
DRAWN: -			DATE: APR 08, 2020		
CHECKED: -			SCALE: AS NOTED		
APPROVED: _____			DRAWING NO.		
CHIEF ENGINEER			<b>M-01</b>		
			DATE		



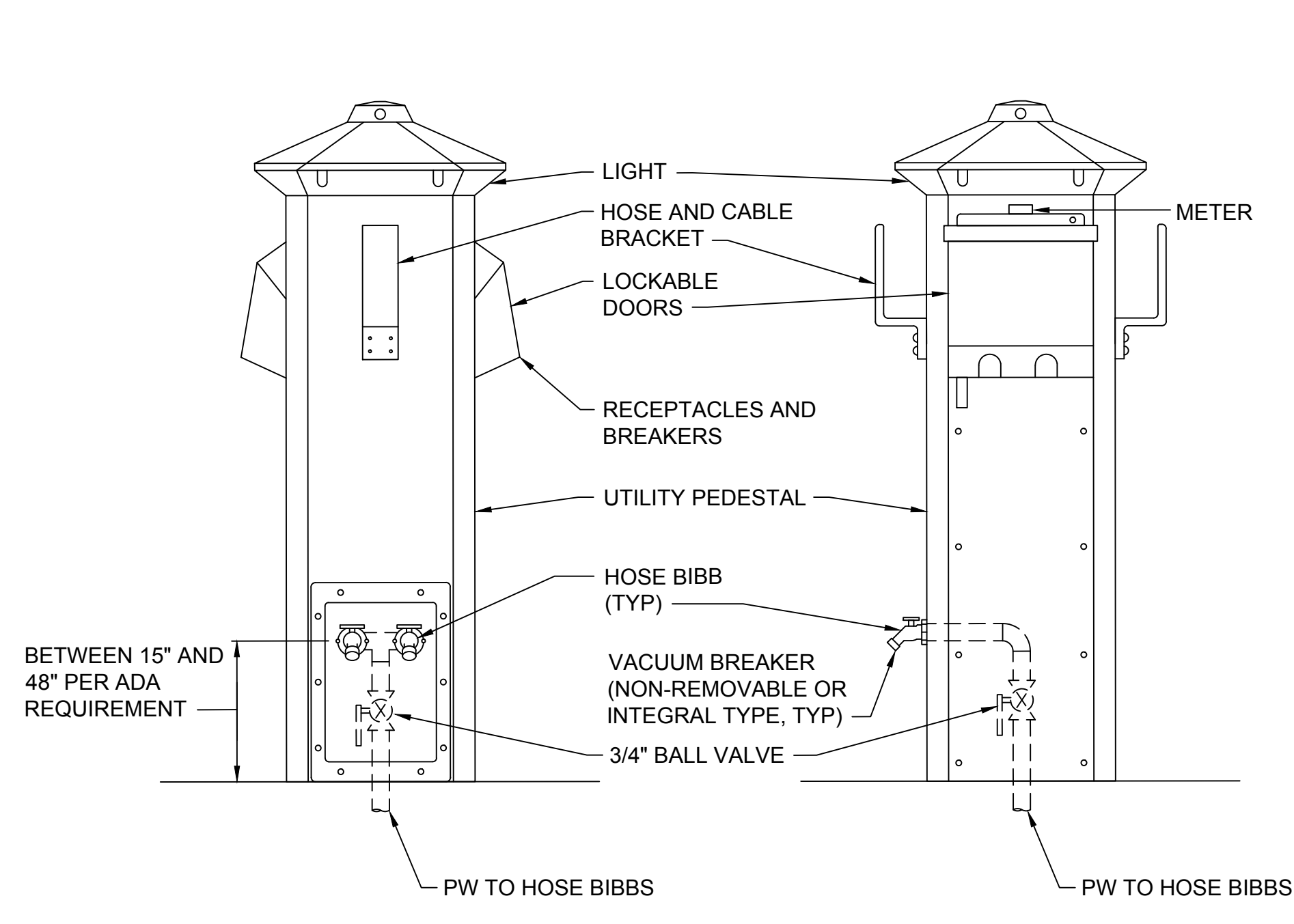
**DOCK PIPING PLAN**  
SCALE: 1"=10'

**ISSUED FOR BID**  
**NOT FOR CONSTRUCTION**

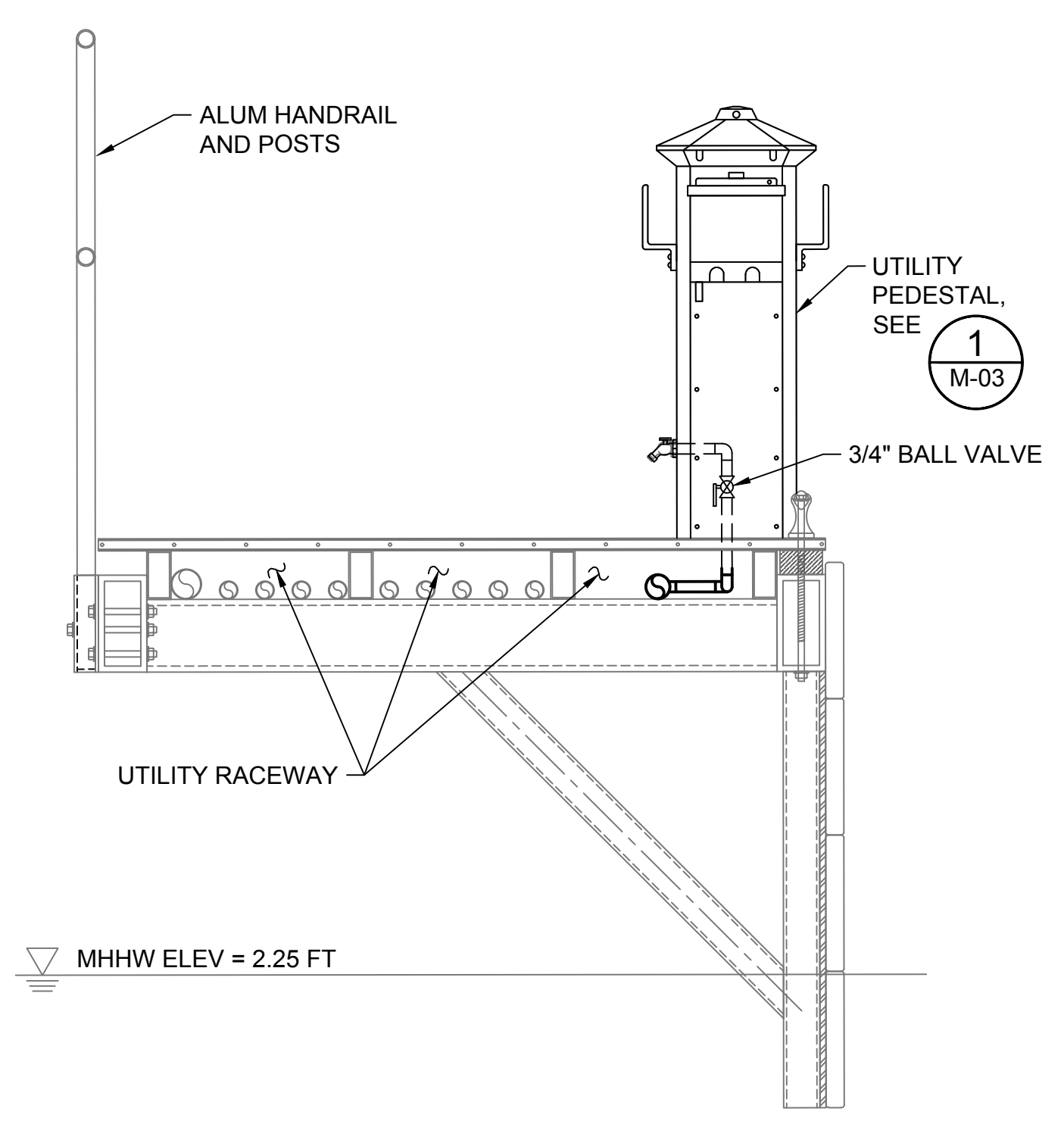
REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
MECHANICAL PLAN					
DESIGNED: -			SUBMITTED: APR 10, 2020		
DRAWN: -			DATE: APR 08, 2020		
CHECKED: -			SCALE: AS NOTED		
APPROVED:			DRAWING NO.		
CHIEF ENGINEER			DATE	<b>M-02</b>	



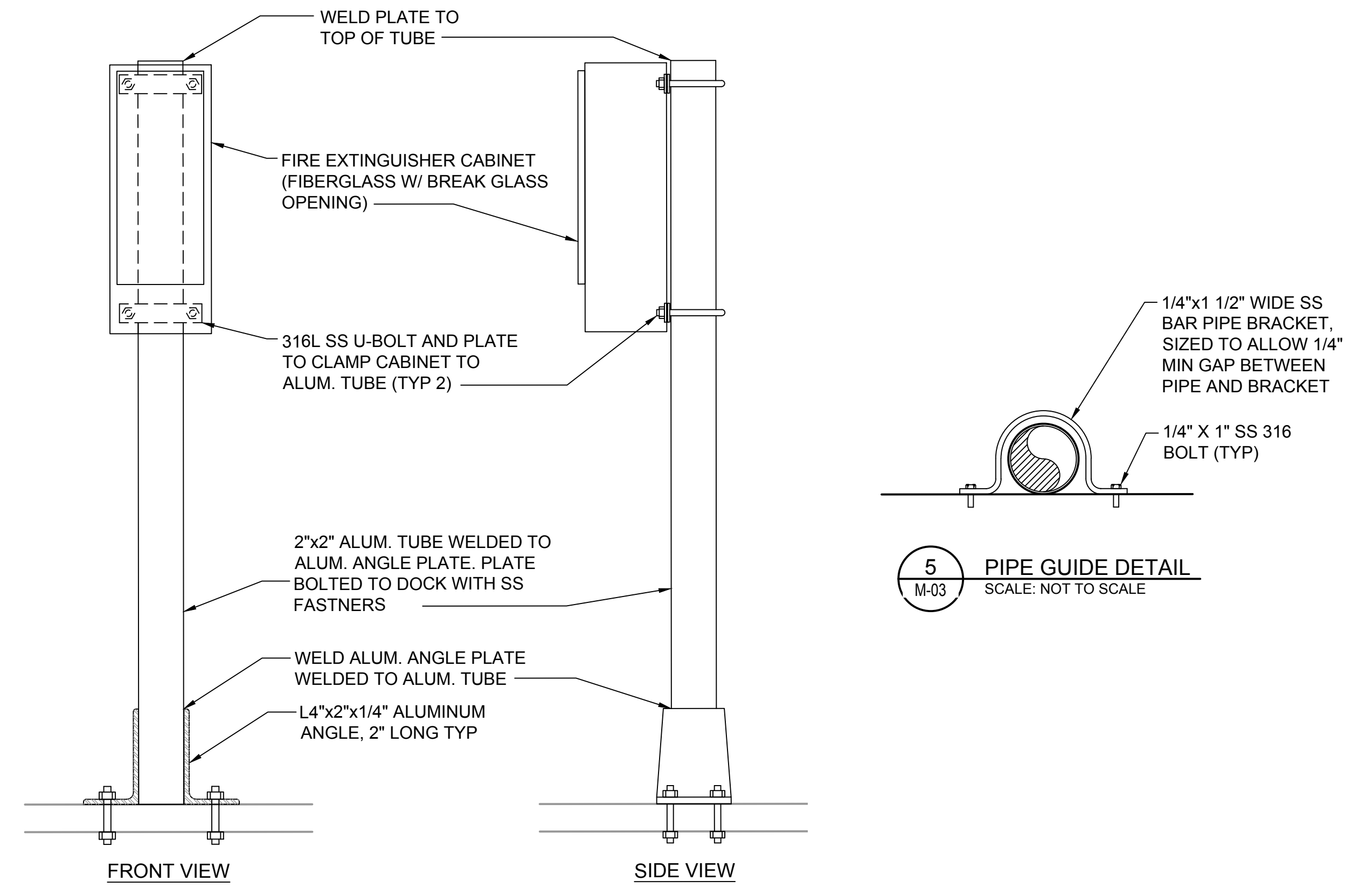




**1** UTILITY PEDESTAL DETAIL  
M-03 SCALE: NOT TO SCALE

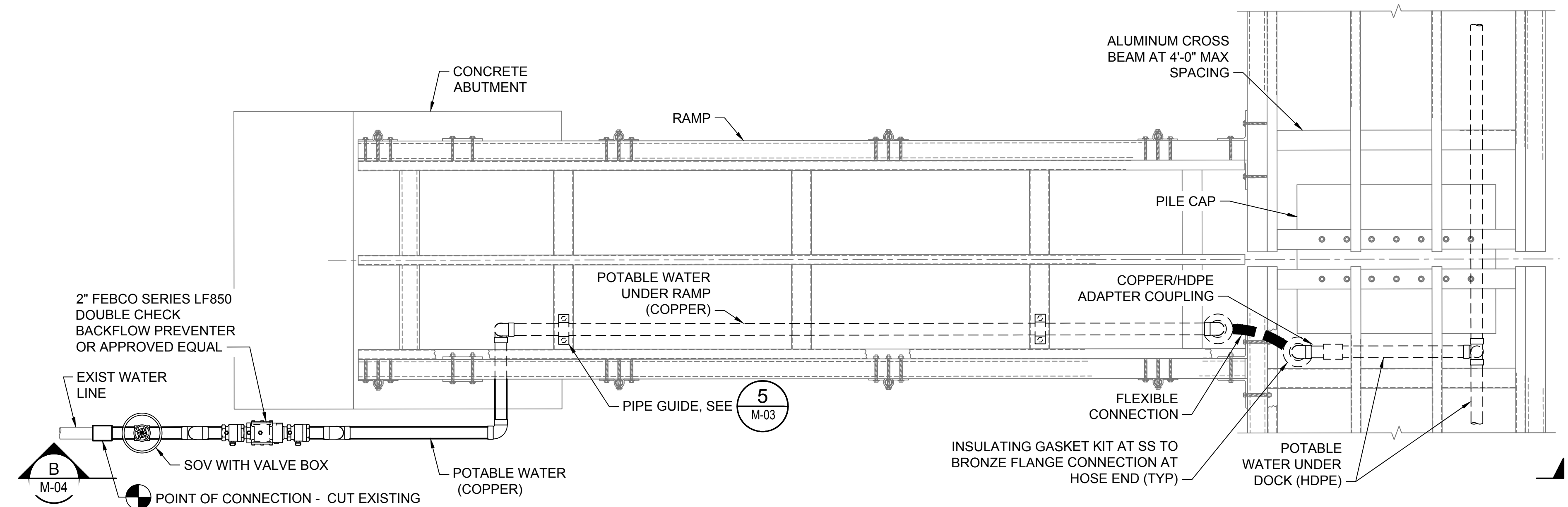


**A** DOCK SECTION  
M-02 SCALE: 1" = 1'-0"

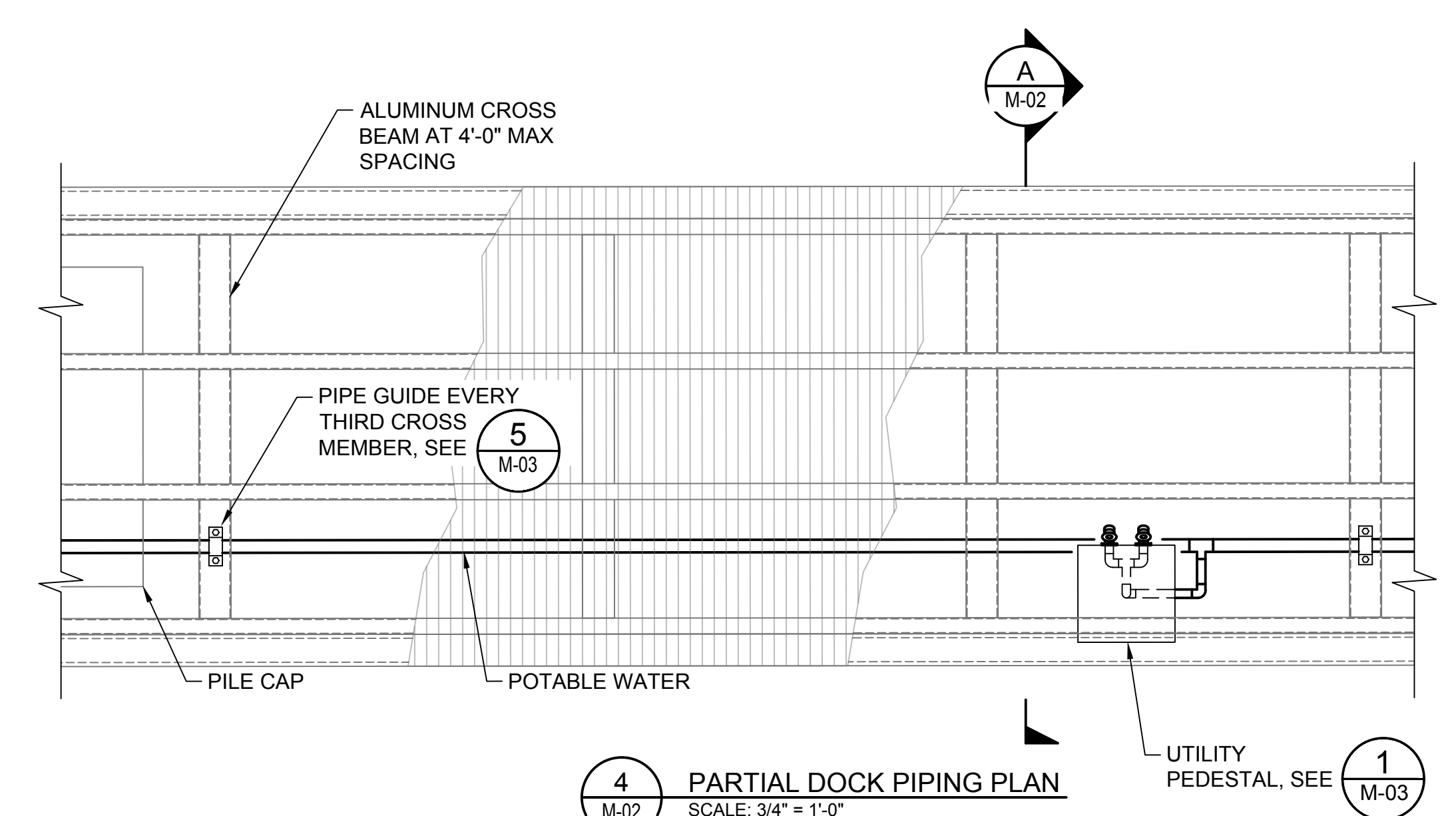


**2** FIRE EXTINGUISHER CABINET DETAIL  
M-02 SCALE: NOT TO SCALE

**5** PIPE GUIDE DETAIL  
M-03 SCALE: NOT TO SCALE



**3** RAMP PIPING PLAN  
M-02 SCALE: 3/4" = 1'-0"

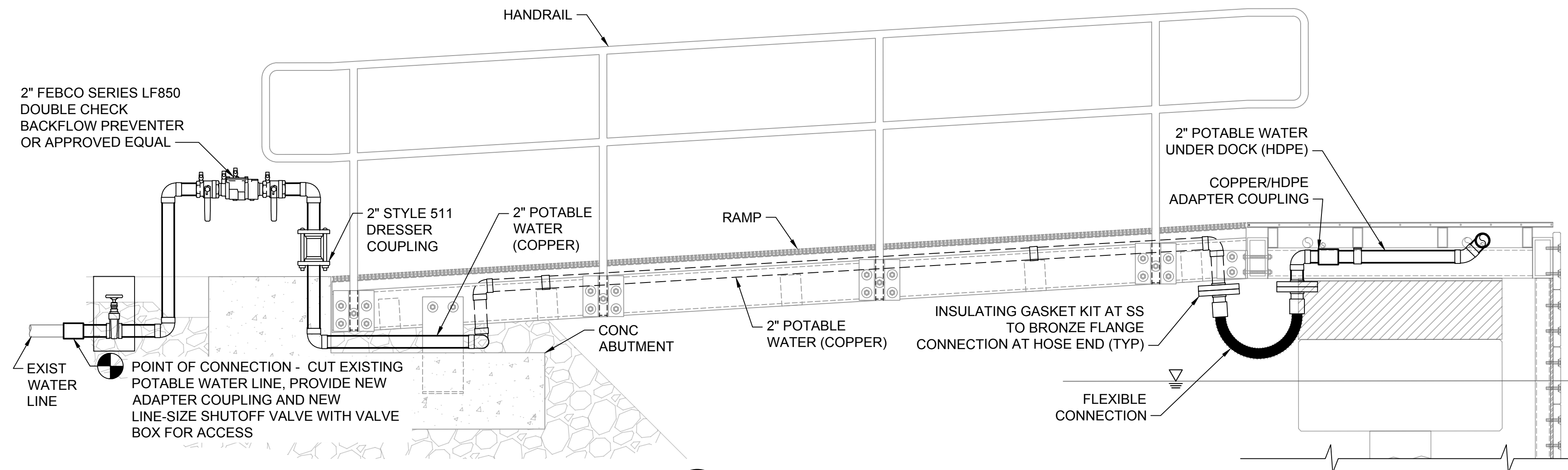


**4** PARTIAL DOCK PIPING PLAN  
M-02 SCALE: 3/4" = 1'-0"

**B** M-04  
POINT OF CONNECTION - CUT EXISTING POTABLE WATER LINE, PROVIDE NEW ADAPTER COUPLING AND NEW LINE-SIZE SHUTOFF VALVE WITH VALVE BOX FOR ACCESS. CONTRACTOR SHALL VERIFY EXISTING SERVICE LINE MATERIAL TO DETERMINE ADAPTOR REQUIREMENTS.

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NOT FOR CONSTRUCTION**

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
POTABLE WATER DETAILS 1					
DESIGNED: -		SUBMITTED: APR 10, 2020			
DRAWN: -		DATE: APR 08, 2020			
CHECKED: -		SCALE: AS NOTED			
APPROVED:		DRAWING NO. M-03			
CHIEF ENGINEER		DATE			



2" FEBCO SERIES LF850  
DOUBLE CHECK  
BACKFLOW PREVENTER  
OR APPROVED EQUAL

2" STYLE 511  
DRESSER  
COUPLING

2" POTABLE  
WATER  
(COPPER)

RAMP

CONC  
ABUTMENT

2" POTABLE  
WATER (COPPER)

INSULATING GASKET KIT AT SS  
TO BRONZE FLANGE  
CONNECTION AT HOSE END (TYP)

COPPER/HDPE  
ADAPTER COUPLING

2" POTABLE WATER  
UNDER DOCK (HDPE)

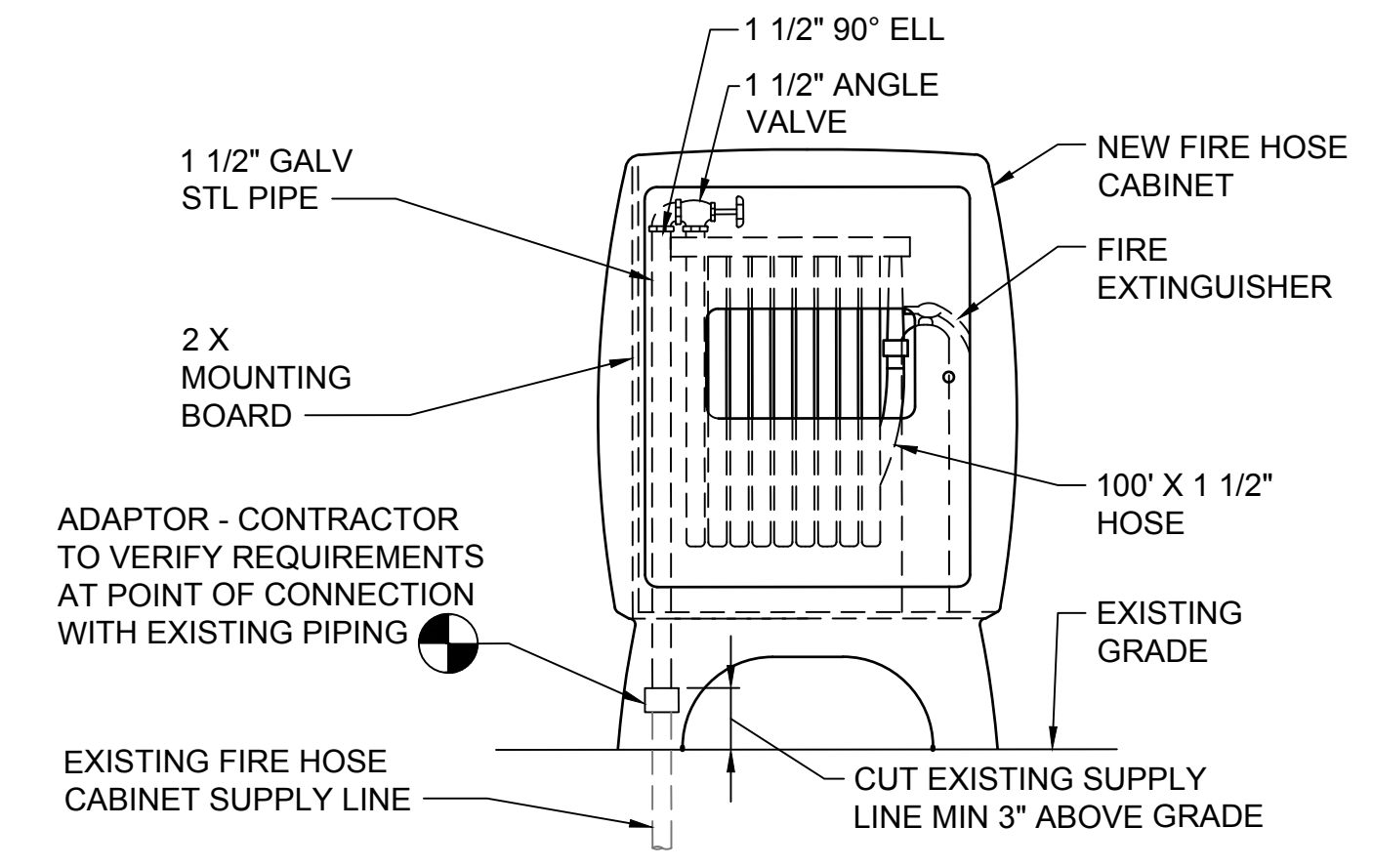
FLEXIBLE  
CONNECTION

EXIST  
WATER  
LINE

POINT OF CONNECTION - CUT EXISTING  
POTABLE WATER LINE, PROVIDE NEW  
ADAPTER COUPLING AND NEW  
LINE-SIZE SHUTOFF VALVE WITH VALVE  
BOX FOR ACCESS

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

**B** DOCK RAMP ELEVATION  
M-02 SCALE: 3/4" = 1'-0"



1 1/2" GALV  
STL PIPE

2 X  
MOUNTING  
BOARD

ADAPTOR - CONTRACTOR  
TO VERIFY REQUIREMENTS  
AT POINT OF CONNECTION  
WITH EXISTING PIPING

EXISTING FIRE HOSE  
CABINET SUPPLY LINE

1 1/2" 90° ELL  
1 1/2" ANGLE  
VALVE

NEW FIRE HOSE  
CABINET

FIRE  
EXTINGUISHER

100' X 1 1/2"  
HOSE

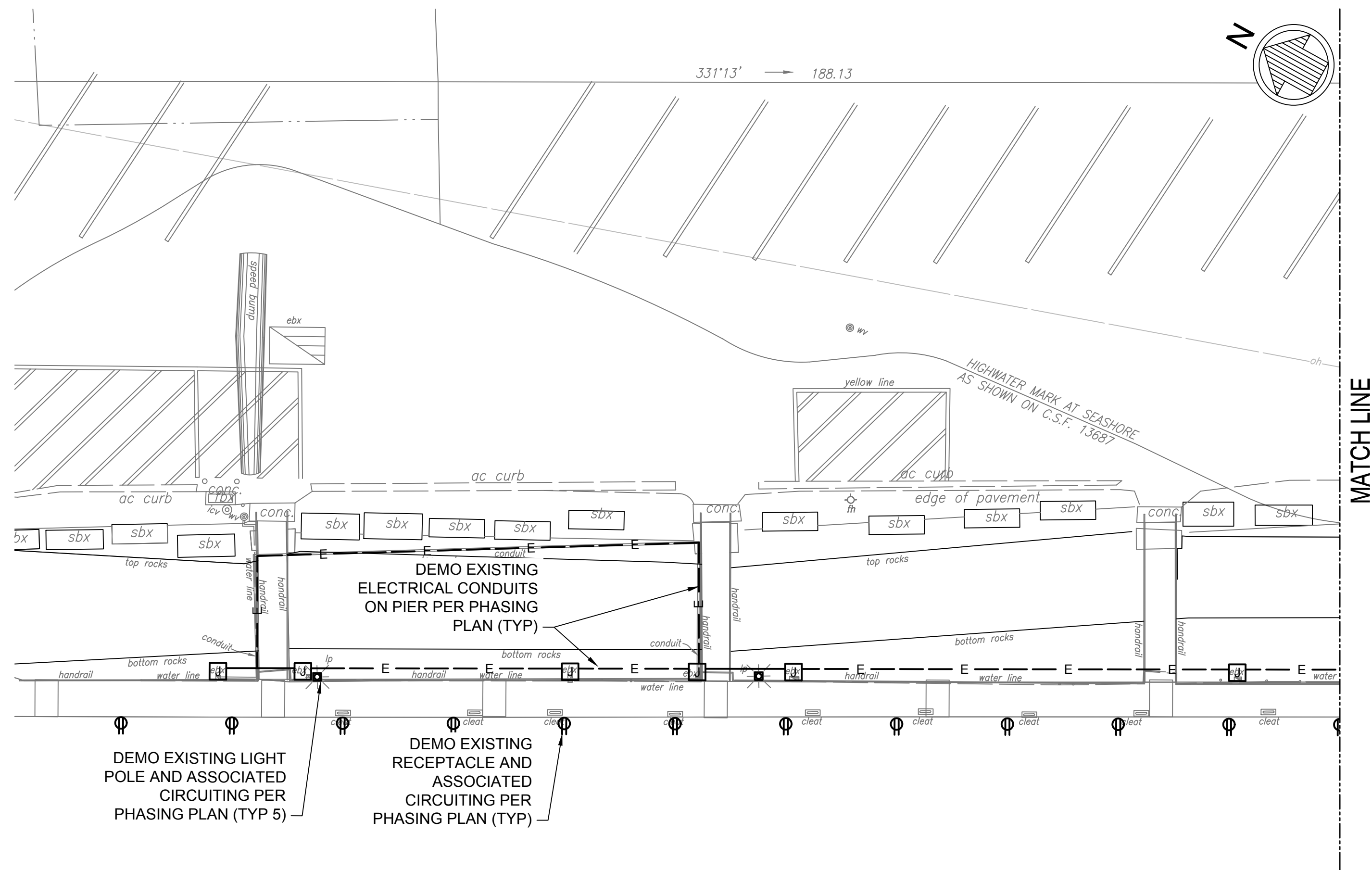
EXISTING  
GRADE

CUT EXISTING SUPPLY  
LINE MIN 3" ABOVE GRADE

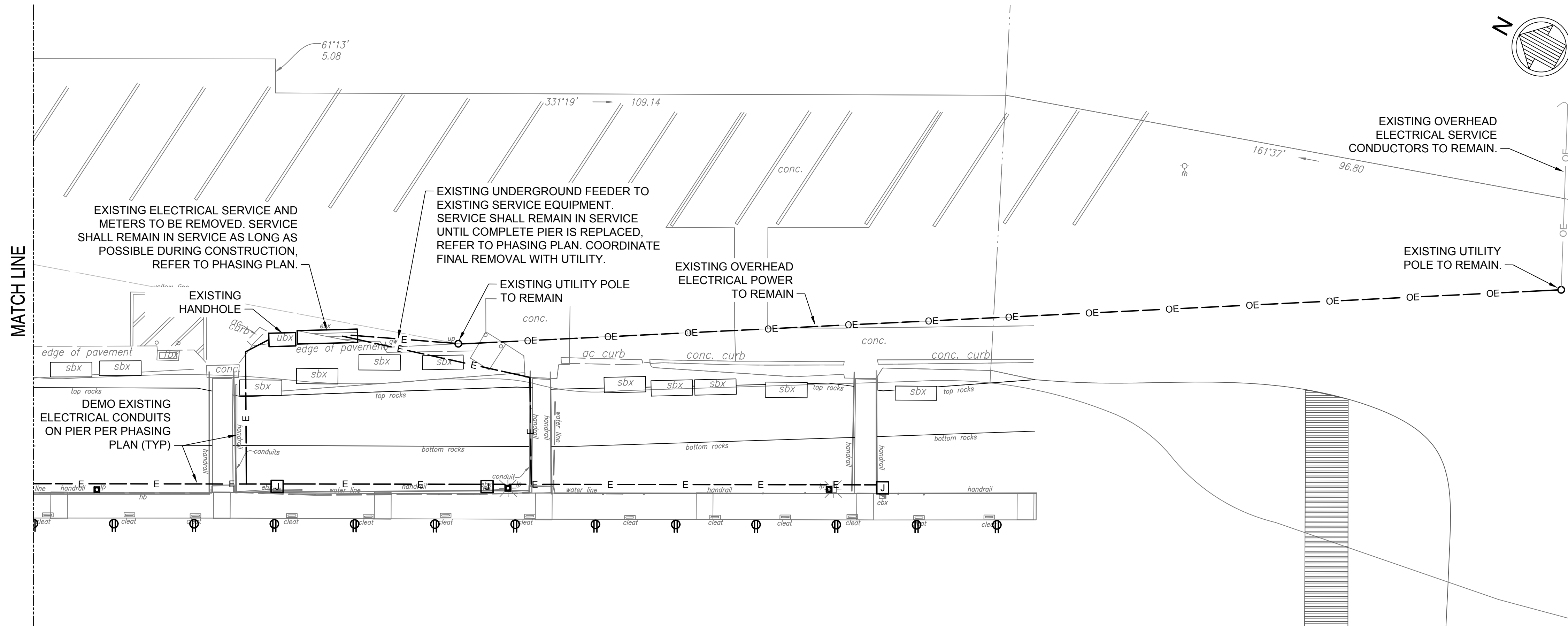
**6** NEW FIRE HOSE CABINET DETAIL  
M-02 SCALE: NOT TO SCALE

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NOT FOR CONSTRUCTION**

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
POTABLE WATER DETAILS 2					
DESIGNED: -			SUBMITTED: APR 10, 2020		
DRAWN: -			DATE: APR 08, 2020		
CHECKED: -			SCALE: AS NOTED		
APPROVED:			DRAWING NO.		
CHIEF ENGINEER			DATE		
			<b>M-04</b>		

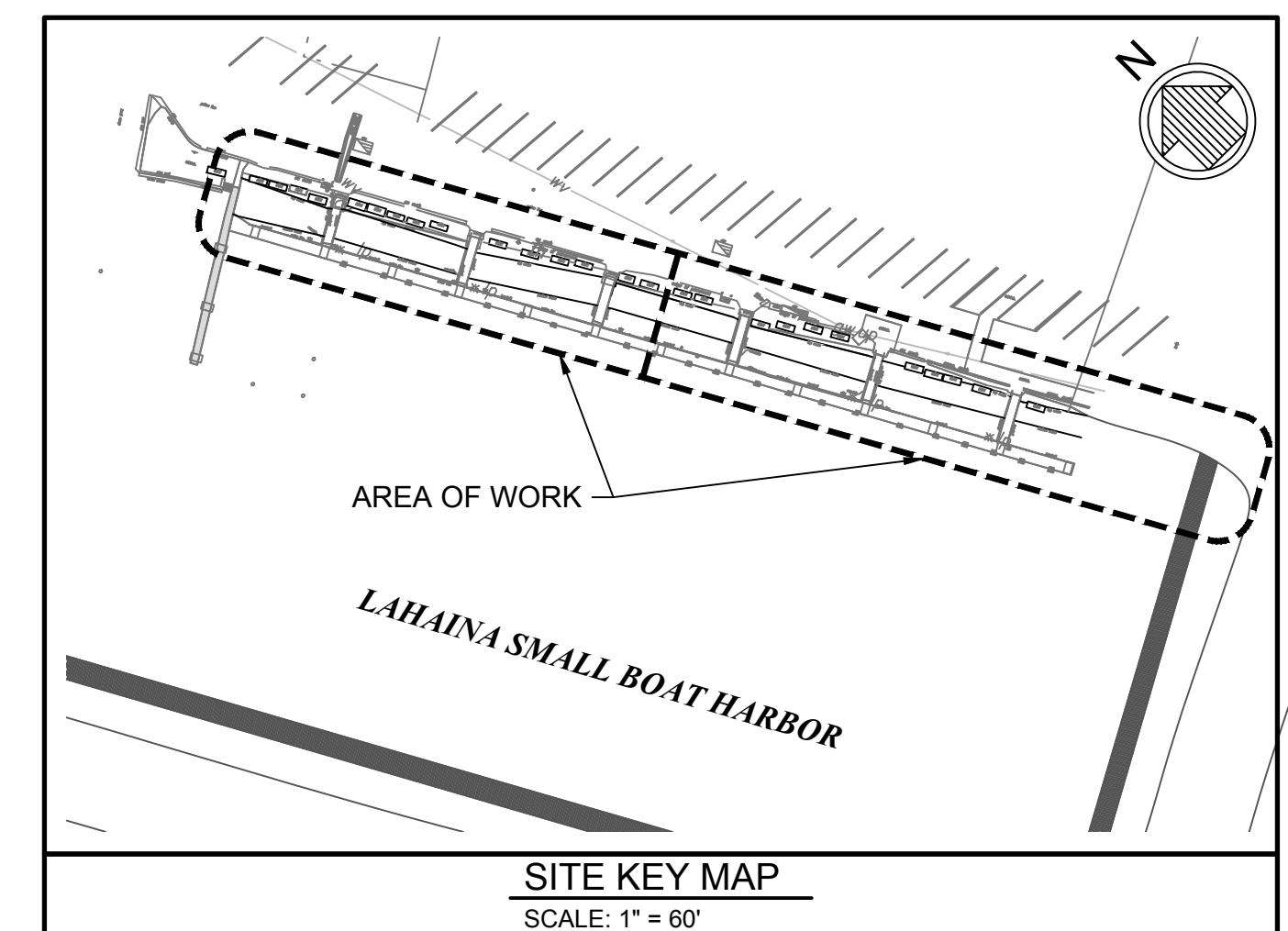


MATCH LINE



MATCH LINE

ELECTRICAL DEMOLITION PLAN  
SCALE: 1" = 10'



**ISSUED FOR BID**  
**NOT FOR CONSTRUCTION**

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
ELECTRICAL DEMOLITION PLAN					
DESIGNED: KAH			SUBMITTED: APR 10, 2020		
DRAWN: KAH			DATE: APR 08, 2020		
CHECKED: DJS			SCALE: AS NOTED		
APPROVED:			DRAWING NO.		
CHIEF ENGINEER			DATE		
			<b>ED01</b>		

**ELECTRICAL GENERAL NOTES**

1. GENERAL CONDITIONS:

- A. UNDER THIS SECTION THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL, EQUIPMENT, APPURTENANCES, SERVICES AND SUPERVISION FOR A COMPLETE ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS. ALL MATERIAL AND EQUIPMENT SHALL BE WORKED INTO A COMPLETE, CONVENIENT, AND ECONOMICAL SYSTEM OR SYSTEMS. ALL APPARATUS, PARTS, MATERIAL, AND ACCESSORIES WHICH ARE NECESSARY TO ACCOMPLISH THIS RESULT SHALL BE PROVIDED. MANUFACTURER'S INSTRUCTIONS, WRITTEN OR OTHERWISE, SHALL BE FOLLOWED, UNLESS SUPERSEDED HERE IN. ALL ITEMS SHOWN ARE NEW AND SHALL BE PROVIDED FOR THE CONTRACTOR UNLESS SPECIFICALLY INDICATED OTHERWISE.
- B. 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 WIRING, AND MISCELLANEOUS ITEMS AS NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM.
- C. CONTRACTOR SHALL GIVE REQUIRED NOTICES, OBTAIN NECESSARY PERMITS, AND PAY PERMIT FEES.
- D. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE EXTENT OF THE WORK. MINOR VARIATIONS IN LOCATION OF EQUIPMENT SHALL BE MADE UPON WRITTEN APPROVAL OF THE ENGINEER AT NO ADDITIONAL CHARGE.
- E. ALL DIMENSIONS AND ELEVATIONS NOTED ARE ENGLISH UNITS UNLESS OTHERWISE NOTED.
- F. COOPERATE AND COORDINATE THE WORK OF THIS DIVISION WITH OTHER TRADES.
- G. THE LATEST EFFECTIVE PUBLICATIONS OF THE FOLLOWING STANDARDS, CODES, ETC. FORM A PART OF THESE SPECIFICATIONS:

ALL STATE AND LOCAL BUILDING CODES.  
 SERVICE RULES AND REGULATIONS OF THE LOCAL ELECTRIC UTILITY COMPANY.  
 AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).  
 ASTM INTERNATIONAL (ASTM).  
 BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL (BICSI).  
 INTERNATIONAL BUILDING CODE (IBC).  
 INTERNATIONAL FIRE CODES (IFC).  
 INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE).  
 NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA).  
 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).  
 NATIONAL ELECTRICAL CODE (NEC).  
 TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA).  
 UNDERWRITERS LABORATORIES (UL).  
 ILLUMINATING ENGINEERING SOCIETIES (IES).

- H. SUBSTANTIAL COMPLETION: UPON COMPLETION OF THE ENTIRE WORK, THE CONTRACTOR SHALL PERFORM SUCH TESTS AS REQUIRED BY THE ENGINEER. THE ENGINEER SHALL BE GIVEN 48 HOURS NOTICE BEFORE TESTS ARE MADE. THE CONTRACTOR SHALL FURNISH THE ENGINEER A CERTIFICATE OF APPROVAL FROM THE LOCAL INSPECTION AUTHORITY HAVING JURISDICTION.
- I. WARRANTY: CONTRACTOR SHALL FURNISH WRITTEN WARRANTY, COUNTERSIGNED, AND GUARANTEED BY THE GENERAL CONTRACTOR, STATING THAT THE WORK EXECUTED UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL BE FREE FROM DEFECTS OF MATERIALS AND WORKMANSHIP FOR A PERIOD OF 12 MONTHS FROM DATE OF FINAL ACCEPTANCE. DEFECTS DEVELOPING DURING THAT PERIOD SHALL BE CORRECTED WITHOUT COST TO THE OWNER.
- J. IT IS THE RESPONSIBILITY OF THE OWNER TO MAINTAIN THE INTEGRITY OF THE SYSTEMS. CONTRACTOR SHALL PROVIDE OWNER WITH COMPLETE OPERATION AND MAINTENANCE INFORMATION FROM EQUIPMENT MANUFACTURERS.
- K. SCHEDULES OF MATERIALS AND EQUIPMENT PROPOSED FOR INSTALLATION SHALL BE SUBMITTED TO THE ENGINEER WITHIN 30 DAYS AFTER AWARD OF THE CONTRACT. THE SCHEDULES SHALL INCLUDE CATALOG CUTS, DIAGRAMS AND SUCH OTHER DESCRIPTIVE DATA AND/OR SAMPLES AS MAY BE REQUIRED BY THE ENGINEER. LIGHTING FIXTURE SUBMITTALS SHALL INCLUDE PHOTOMETRIC REPORTS BY INDEPENDENT TESTING LABORATORIES FOR EACH FIXTURE INDICATED BASED ON IES PUBLISHED PROCEDURES.
- L. SUBMITTALS THAT DO NOT BEAR THE GENERAL CONTRACTOR'S STAMP OF APPROVAL THEREON WILL BE REJECTED WITHOUT REVIEW.

2. GENERAL MATERIAL REQUIREMENTS:

- A. EQUIPMENT AND PRODUCTS TO BE USED SHALL BE REVIEWED AND APPROVED BY OWNER PRIOR TO PLACING ORDER OR PURCHASE.
- B. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR THE LABEL OF A NATIONALLY RECOGNIZED TESTING AGENCY AND SHALL BE INSTALLED IN THE MANNER FOR WHICH IT IS DESIGNED AND APPROVED.
- C. ALL MATERIAL, INCLUDING PULL BOXES, CONDUIT BODIES, FITTINGS AND MOUNTING HARDWARE INSTALLED OUTSIDE SHALL BE APPROVED WEATHERTIGHT CORROSION RESISTANT (316 STAINLESS STEEL), UNLESS NOTED OTHERWISE.
- D. CONTRACTOR SHALL INSPECT MATERIALS DELIVERED TO SITE FOR DAMAGE, UNLOAD AND STORE WITH MINIMUM HANDLING. STORE MATERIALS ON SITE IN ENCLOSURES OR UNDER PROTECTIVE COVERING. STORE PLASTIC PIPING UNDER COVER OUT OF DIRECT SUNLIGHT. DO NOT STORE MATERIALS DIRECTLY ON THE GROUND. KEEP INSIDE OF CONDUITS, FITTINGS AND EQUIPMENT FREE OF DIRT AND DEBRIS. HANDLE CONDUIT, FITTINGS, AND OTHER ACCESSORIES IN SUCH MANNER AS TO ENSURE DELIVERY TO THE INSTALLATION LOCATION IN A SOUND UNDAMAGED CONDITION.
- E. STARTERS, CONTROLLERS, THERMOSTATS, FAN SWITCHES, INDICATING LIGHTS, ETC.; AND CONTROL WIRING AND WIRING FOR REMOTE STATIONS REGARDLESS OF VOLTAGE SHALL BE PROVIDED UNDER THE DIVISION PROVIDING THE RESPECTIVE MOTOR AND/OR EQUIPMENT UNLESS OTHERWISE INDICATED.
- F. SUPPORTS AND HARDWARE SHALL BE TYPE 316 STAINLESS STEEL. SUBMIT SHOP DRAWINGS OR CATALOG DATA FOR REVIEW AND APPROVAL. A DIELECTRIC ISOLATION SHEET SHALL BE PLACED WHERE DISSIMILAR METALS CONTACT ON THE SUPPORT.
- G. PANELBOARDS, ENCLOSED CIRCUIT BREAKERS AND SAFETY SWITCHES, WHEN APPLICABLE, SHALL BE MANUFACTURED BY THE SAME MANUFACTURER. WIRING DEVICES SHALL BE MANUFACTURED BY ONE MANUFACTURER.
- H. SUBSTITUTION OF MATERIAL AND EQUIPMENT: THE NAME OF A CERTAIN BRAND, MAKE, MANUFACTURER OR DEFINITE SPECIFICATION IS TO DENOTE THE QUALITY STANDARD OF ARTICLE DESIRED. SUBSTITUTION OF ANY OTHER BRAND, MAKE, OR MANUFACTURER, WHICH IN THE OPINION OF THE ENGINEER IS RECOGNIZED THE EQUAL OF THAT SPECIFIED MAY BE ACCEPTED.
- I. PROVIDE ENGRAVED PLASTIC NAMEPLATES ON ALL DISTRIBUTION EQUIPMENT AND PANELS, SECURED BY MEANS OF STAINLESS STEEL RIVETS. TAPES AND ADHESIVES ARE NOT ACCEPTABLE.
- J. UNLESS NOTED OTHERWISE, ALL PANEL BUSES, FEEDER CONDUCTORS AND BRANCH CIRCUIT

WIRING SHALL BE COPPER. ALL WIRE SHALL BE UL LISTED, RATED FOR 600 VOLTS, NO. 12 MINIMUM SIZE, UNLESS NOTED OTHERWISE.

- K. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED.

3. GENERAL INSTALLATION REQUIREMENTS:

- A. INSTALL MATERIALS AND EQUIPMENT IN FIRST CLASS AND WORKMANLIKE MANNER AND RUN CONCEALED, EXCEPT AS INDICATED.
- B. POWER WIRING AND POWER CONNECTIONS TO EQUIPMENT SHALL BE PROVIDED UNDER "ELECTRICAL" UNLESS OTHERWISE INDICATED ON THE ELECTRICAL DRAWINGS. WHEN SUBSTITUTED MOTORS AND/OR EQUIPMENT REQUIRES ELECTRICAL MODIFICATIONS, THE COST OF THE ELECTRICAL MODIFICATIONS AND COORDINATION SHALL BE INCLUDED UNDER THE DIVISION PROVIDING THE MOTOR AND/OR EQUIPMENT.
- C. THE ELECTRICAL CONTRACTOR SHALL NOT BORE, NOTCH OR IN ANY WAY CUT INTO ANY STRUCTURAL MEMBER, WITHOUT APPROVAL FROM THE ENGINEER. THE ELECTRICAL CONTRACTOR SHALL PROVIDE SUPPORT FOR ALL ELECTRICAL EQUIPMENT TO COMPLY WITH THE REQUIREMENTS OF THE LATEST ADOPTED BUILDING CODE AND ALL LOCAL ORDINANCES.
- D. SCHEDULING, TRENCHING, LINE SHUTDOWN, DRAINAGE, TIE-IN, CONDUIT BEDDING, SUPPORTS, INSTALLATION OF NEW LINE, WALL PENETRATIONS, AND EQUIPMENT PLACEMENTS, TESTING, WARNING TAPE, BACKFILL, SURFACING, LANDSCAPING, ACTIVATION OF SERVICE, ETC., SHALL COMPLY WITH THE LOCAL BUILDING CODE STANDARDS AND REGULATIONS AND SHALL BE COORDINATED WITH THE LOCAL CODE OFFICIAL AND THE FIRE DEPARTMENTS. PRIOR APPROVAL OF AND NOTICE TO PROCEED WITH CONCEALING ELECTRICAL WIRING AND FINAL CONNECTIONS ARE REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- E. THE OWNER'S AUTHORIZED REPRESENTATIVE SHALL WITNESS TESTING.
- F. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS IN THE FIELD BEFORE STARTING WORK. THE REGIONAL NOTIFICATION CENTER (AND/OR PROPERTY OWNERS) SHALL BE NOTIFIED 48 HOURS PRIOR TO THE START OF SHUTDOWN, DIGGING OR EXCAVATION WORK. THE CONTRACTOR SHALL FIELD VERIFY THE POINTS OF CONNECTIONS AND PHASED CONSTRUCTION TIE-INS. LOCATIONS OF PIPING AND APPURTENANT FITTINGS SHOWN ON THE DRAWINGS ARE APPROXIMATE. IT IS INTENDED THAT SUCH ITEMS BE LOCATED BASED ON EXACT LOCATIONS DETERMINED IN THE FIELD AND THE SUPPLIED MATERIALS.
- G. CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD EXISTING UTILITIES TO REMAIN FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. SHOULD SPECIAL EQUIPMENT BE REQUIRED TO WORK OVER AND AROUND THE UTILITIES, CONTRACTOR SHALL BE REQUIRED TO FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING UTILITIES FROM DAMAGE AND FOR FURNISHING SPECIAL EQUIPMENT SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF CONSTRUCTION.
- H. AN ABRASION PROTECTION PAD SHALL BE USED WHERE ELECTRICAL CONDUITS CROSS POTABLE WATER, SEWER, OR FIRE WATER LINES CROSS WITH LESS THAN 1" CLEARANCE. THE PAD SHALL BE 1/16" MAX THICKNESS OF LDPE SHEET. THE LDPE PAD SHALL BE 12" LONG AND WRAP COMPLETELY AROUND ONE LINE AT THE CROSSING. SS WORM DRIVE HOSE CLAMPS SHALL BE USED TO ATTACH THE LDPE PAD TO THE PIPE. THE CLAMP SHALL BE AT LEAST 2" FROM EACH SIDE OF THE LINE BEING CROSSED.
- I. DIELECTRIC COUPLINGS/FLANGES SHALL BE USED AT DISSIMILAR METAL PIPING CONNECTIONS.
- J. THE ELECTRICAL CONTRACTOR SHALL INSTALL ALL CONDUITS AND WIRES WITH A MINIMUM NUMBER OF BENDS AND IN SUCH A MANNER AS TO CONFORM TO THE STRUCTURE. AVOID OBSTRUCTIONS, AND MEET ALL STRUCTURAL CODE REQUIREMENTS. THESE DRAWINGS ARE PRIMARILY DIAGRAMMATIC, AND DO NOT SHOW ALL SUCH REQUIRED BENDS, OFFSETS, FITTING, BOXES, ETC.
- K. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY NATIONAL ELECTRICAL CODE. POWER CONDUITS SHALL HAVE A INSULATED COPPER, CODE SIZED GROUND WIRE INSTALLED.
- L. VEHICULAR ACCESS MUST BE PROVIDED AND MAINTAINED SERVICEABLE THROUGHOUT CONSTRUCTION.
- M. INSTALL PERMANENT SAFETY SIGNS PER NEC ART 555.24 STATING "WARNING-POTENTIAL SHOCK HAZARD - ELECTRICAL CURRENTS MAY BE PRESENT IN THE WATER." THE SIGNS SHALL BE CLEARLY VISIBLE FROM ALL APPROACHES TO THE MARINA. COORDINATE WITH SHEET S-06 FOR SIGN MOUNTING LOCATION AND DETAILS.

4. CONDUIT REQUIREMENTS:

- A. BURIED CONDUIT LINES SHALL HAVE PLASTIC WARNING TAPE WITH METALLIC CORE OR METAL FACED PLACED IN TRENCH ABOVE PIPING. THE TAPE SHALL BE PLACED 9 INCHES TO 12 INCHES BELOW FINISHED GRADE.
- B. ALL CONDUIT SHALL FOLLOW THE GENERAL ARRANGEMENT SHOWN. CONDUIT SHALL BE RUN ESSENTIALLY AS INDICATED, CARE BEING TAKEN TO AVOID INTERFERENCE WITH OTHER PIPING, CONDUIT OR EQUIPMENT. BEFORE JOINTING AND INSTALLATION OF CONDUIT, THOROUGHLY CLEAN INTERIORS OF CONDUIT, AND COMPONENTS. MAINTAIN CLEANLINESS BY CLOSURE OF CONDUIT OPENINGS WITH CAPS OR PLUGS.
- C. THE CONTRACTOR SHALL ENSURE SUFFICIENT CONDUIT FLEXIBILITY AND ANCHORAGE IS PROVIDED FOR ALL LINES FOR THERMAL EXPANSION AND CONTRACTION, PRESSURE AND FLEXING. THE STRUCTURE AND COMPONENTS SHALL ACCOMMODATE THE CONDUIT LAYOUT REQUIREMENTS SUCH THAT THE CONDUIT SHALL NOT BECOME OVERSTRESSED. THE CONDUIT SHALL BE PROPERLY SUPPORTED AND ANCHORED.
- D. CONDUIT AND FITTINGS SHALL CONFORM TO THE FOLLOWING:
  - (1) RIGID STEEL - ANSI C80 (HOT DIPPED GALVANIZED).
  - (2) PLASTIC CONDUIT (PVC) - NEMA TC-2 AND TC-3.
  - (3) FLEXIBLE METAL CONDUIT - UL-1.
  - (4) LIQUID-TIGHT FLEXIBLE METAL CONDUIT - UL-360.

- E. CONDUIT SHALL BE RUN CONCEALED, EXCEPT CONDUIT MAY BE EXPOSED AS APPROVED BY THE ENGINEER. WHERE FLEXIBILITY IS REQUIRED, PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT EXCEPT AS INDICATED OTHERWISE. CONDUITS RUN EXPOSED SHALL BE GALVANIZED RIGID STEEL.
- F. CONDUIT RUN ON LAND SHALL BE BURIED A MINIMUM OF 24 INCHES BELOW FINISHED GRADE. CONDUITS RUN BELOW SLAB ON GRADE SHALL BE BURIED A MINIMUM OF 12 INCHES BELOW SLAB, AND SHALL BE RIGID HOT DIPPED GALVANIZED STEEL CONDUIT PAINTED WITH TWO COATS OF BITUMASTIC PAINT, OR RIGID NON-METALLIC POLYVINYLCHLORIDE CONDUIT, MINIMUM SCHEDULE 40, AT THE OPTION OF THE CONTRACTOR, UNLESS A SPECIFIC TYPE OF CONDUIT IS SPECIFIED OR INDICATED ON THE DRAWINGS.
- G. MINIMUM SIZE CONDUIT SHALL BE THREE-QUARTER INCH WITH LARGER SIZES AS REQUIRED BY THE NATIONAL ELECTRICAL CODE FOR NUMBER OF WIRES CONTAINED THEREIN. RIGID CONDUIT FITTINGS SHALL BE THREADED.
- H. FLEXIBLE CONDUIT SHALL BE GALVANIZED, SINGLE STRIP TYPE. IN AREAS SUBJECT TO MOISTURE, OR WHERE CALLED FOR ON THE DRAWINGS, FLEXIBLE CONDUIT SHALL HAVE A PLASTIC

COVERING IN ACCORDANCE WITH NEC. FITTINGS SHALL BE STANDARD UL APPROVED WITH GROUND CONNECTOR. WATERTIGHT CONNECTORS SHALL BE USED WITH PLASTIC COVERED CONDUIT. FLEXIBLE CONDUIT, MINIMUM 18 INCHES IN LENGTH, SHALL BE USED FOR CONNECTIONS TO MOTORS, DRY TYPE TRANSFORMERS AND OTHER EQUIPMENT SUBJECT TO VIBRATION.

- I. EXPOSED CONDUITS SHALL BE RUN PARALLEL AND PERPENDICULAR TO STRUCTURES AND SHALL BE SUPPORTED AS SPECIFIED AND IN ACCORDANCE WITH NEC.
- J. CONDUIT SUPPORTS SHALL BE APPROVED WALL BRACKETS, TRAPEZE, STRAP HANGER OR PIPE STRAPS SECURED TO HOLLOW MASONRY WITH TOGGLE BOLTS; TO BRICK AND CONCRETE WITH EXPANSION BOLTS; TO METAL SURFACES WITH MACHINE SCREWS; AND TO WOOD WITH WOOD SCREWS. ANY FORM OF TIE WIRE IS UNACCEPTABLE.
- K. PROVIDE EXPANSION FITTINGS WHERE CONDUITS CROSS EXPANSION JOINTS. PROVIDE SLIP JOINTS AS NECESSARY FOR THERMAL EXPANSION AND CONTRACTION.
- L. CONDUIT TERMINATIONS AND CONDUIT STUBS SHALL HAVE INSULATING BUSHINGS.
- M. CONDUITS PASSING THROUGH BULKHEADS, CONCRETE WALLS, FLOORS OR FOOTINGS AND SLAB ON GRADE SHALL BE MADE WATERTIGHT. PROVIDE PIPE SLEEVES WITH ONE-HALF INCH MINIMUM CLEARANCE AROUND THE CONDUIT AND CAULK WITH ASKUM AND SEALANT.
- N. PROVIDE 12" MINIMUM SEPARATION BETWEEN ELECTRICAL DUCT AND OTHER UTILITIES.
- O. UNDERGROUND CONDUITS SHALL HAVE RIGID GALVANIZED STEEL ELBOWS.

5. WIRING REQUIREMENTS:

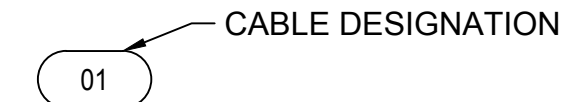
- P. THE ENTIRE WIRING SYSTEM SHALL BE TESTED FOR SHORT CIRCUITS, GROUNDS AND INSULATION RESISTANCE BETWEEN CONDUCTORS AND TO GROUND PRIOR TO COMPLETION OF PROJECT.
- Q. WIRE AND CABLE SHALL BE INSTALLED IN CONDUIT EXCEPT AS SPECIFICALLY INDICATED OTHERWISE
- R. WIRE AND CABLE SHALL BE COPPER, 600 VOLT INSULATION, MINIMUM SIZE NO. 12, TYPE "THWN" OR "XHHW" AS APPLICABLE, UNLESS OTHERWISE INDICATED ON DRAWINGS.
- S. WIRES NO. 10 AND 12 AWG SHALL BE CONNECTED WITH COIL SPRING INSERT "WIRE-NUT" OR "WING-NUT" CONNECTORS MANUFACTURED BY IDEAL INDUSTRIES OR APPROVED EQUAL. CONNECTORS SHALL BE RATED 600 VOLTS.
- T. WIRE SHALL BE COLOR CODED AS FOLLOWS:

120/240V 1 PH SYSTEM  
 PH A - BLK  
 PH B - RED  
 NEUT - WHT W/GRY STRIPE  
 GND - GRN W/WHT STRIPE

6. PULL BOX REQUIREMENTS

- A. LANDSIDE PULL BOXES SHALL BE FIBER REINFORCED CONCRETE, TIER 22, UON. MARK COVERS PERMANENTLY WITH "ELECTRICAL" OR "COMMUNICATIONS", AS REQUIRED.
- B. WHERE SEVERAL FEEDERS PASS THROUGH A COMMON PULL BOX OR JUNCTION BOX, THE FEEDERS SHALL BE TAGGED TO INDICATE CLEARLY THEIR ELECTRICAL CHARACTERISTICS, CIRCUIT NUMBER, AND PANEL DESIGNATION. PAINT SAME INFORMATION ON COVER OF THE BOX.

**CABLE NUMBER CALLOUT**



NOTE:

- 1. DESIGNATION FOR CABLE NUMBERS ARE TO DEFINE CABLE AND CONDUIT SIZE OF CIRCUIT.
- 2. REFER TO CABLE SCHEDULES (E-06) TO DEFINE TERMINATION POINTS, CONDUIT, AND WIRE SIZE OF ALL CABLE NUMBERS.
- 3. REFER TO PANEL SCHEDULES FOR ADDITIONAL CLARIFICATION OF CABLE SCHEDULE TERMINATION POINTS.

(CONTINUES ON NEXT SHEET)

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LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
<b>ELECTRICAL NOTES</b>					
DESIGNED:	KAH	SUBMITTED:	APR 10, 2020		
DRAWN:	KAH	DATE:	APR 08, 2020		
CHECKED:	DJS	SCALE:	AS NOTED		
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CHIEF ENGINEER			DATE		

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 KEYED ALIKE AND SHALL HAVE A MINIMUM 20 INCH WIDE ENCLOSURE. A DIRECTORY, COMPLETELY TYPED TO IDENTIFY CIRCUITS, WITH TRANSPARENT PROTECTOR SHALL BE PROVIDED IN EACH PANEL.
  - B. PANELBOARDS SHALL BE PROVIDED WITH COPPER PHASE, NEUTRAL AND GROUND BUSES.
  - C. SUB-FEED BREAKER SHALL NOT BE ACCEPTABLE UNLESS INDICATED.
  - D. BREAKER ARRANGEMENT SHALL BE AS INDICATED.
  - E. PANELBOARDS SHALL BE SQUARE D OR APPROVED EQUAL.
  - F. PANELBOARDS IN EXTERIOR LOCATIONS SHALL BE ENCLOSED IN A NEMA 6P, 316 ALUMINUM ENCLOSURE.
  - G. CIRCUIT BREAKERS 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. BOD: LIGHTHOUSE SS POWER PEDESTAL BY EATON.

LEGEND

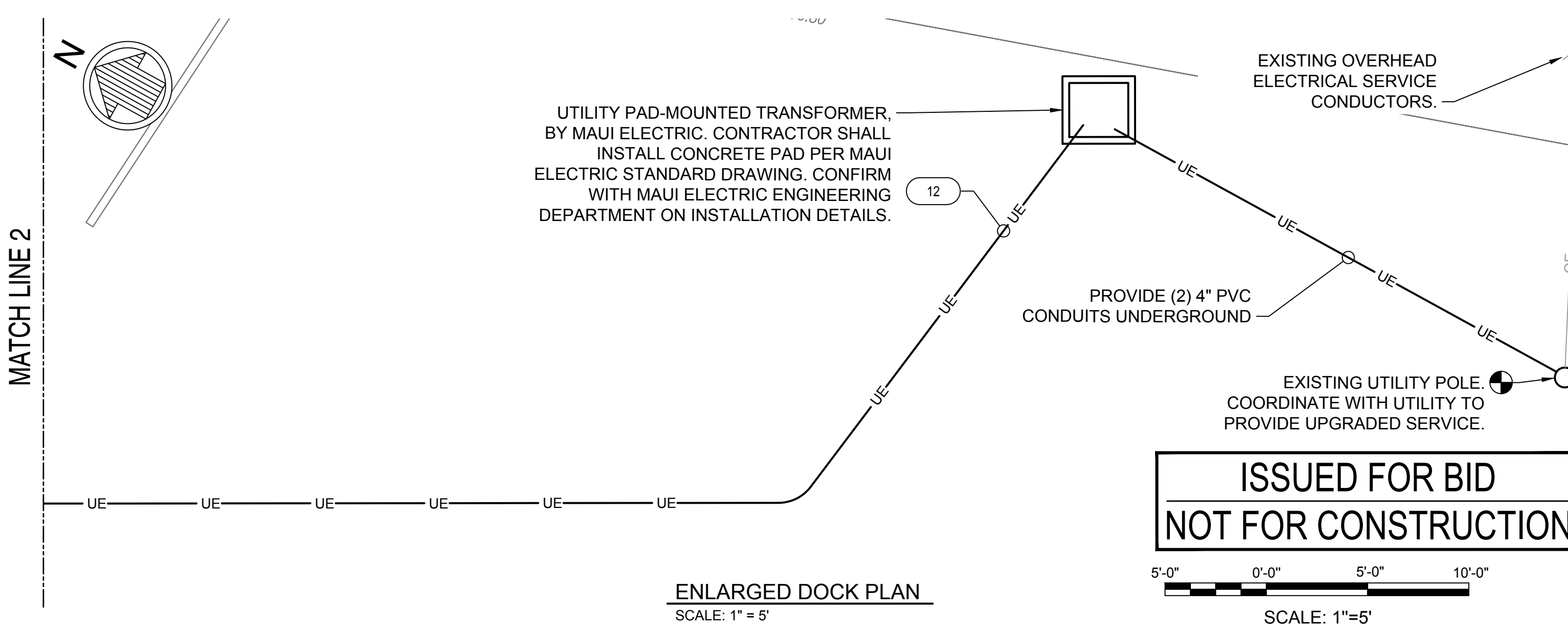
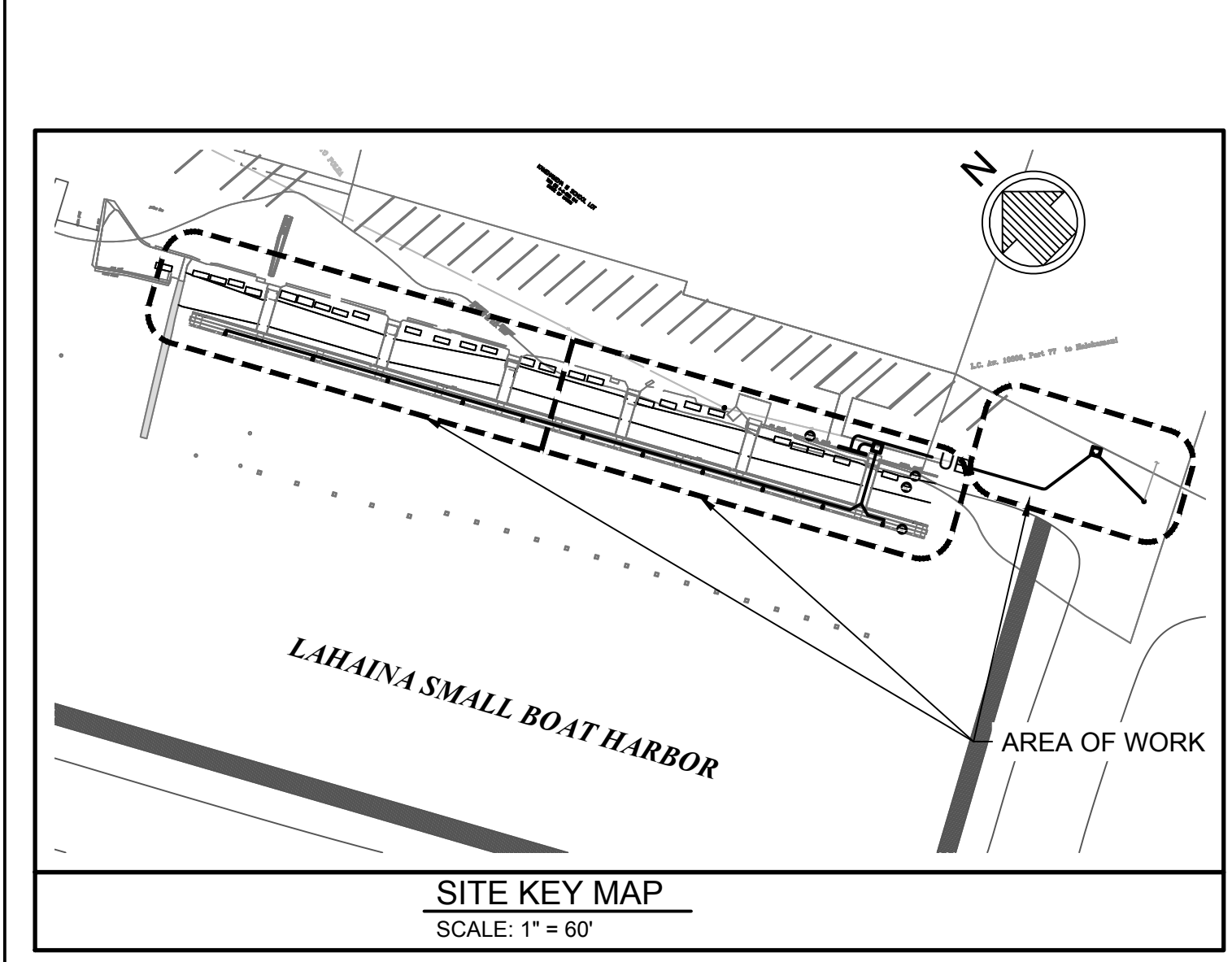
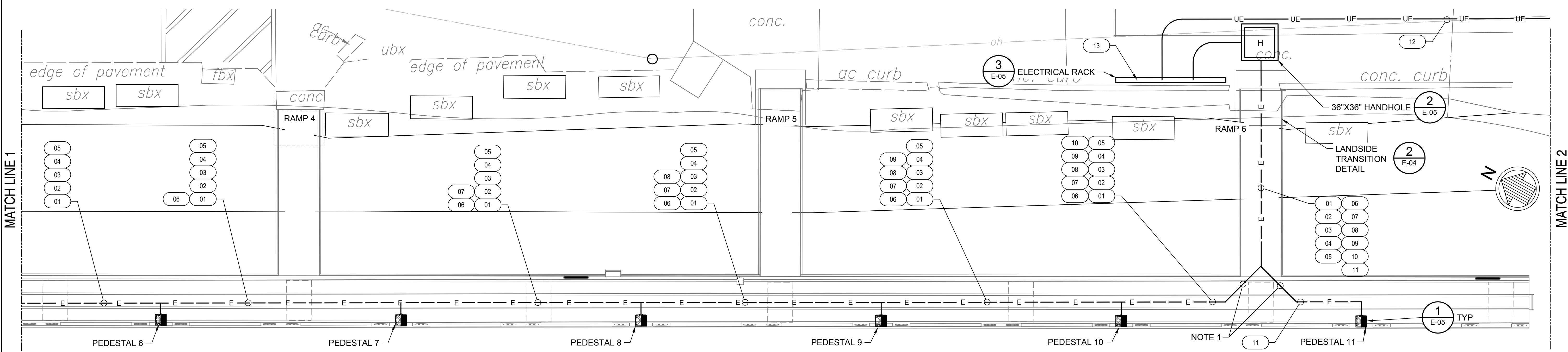
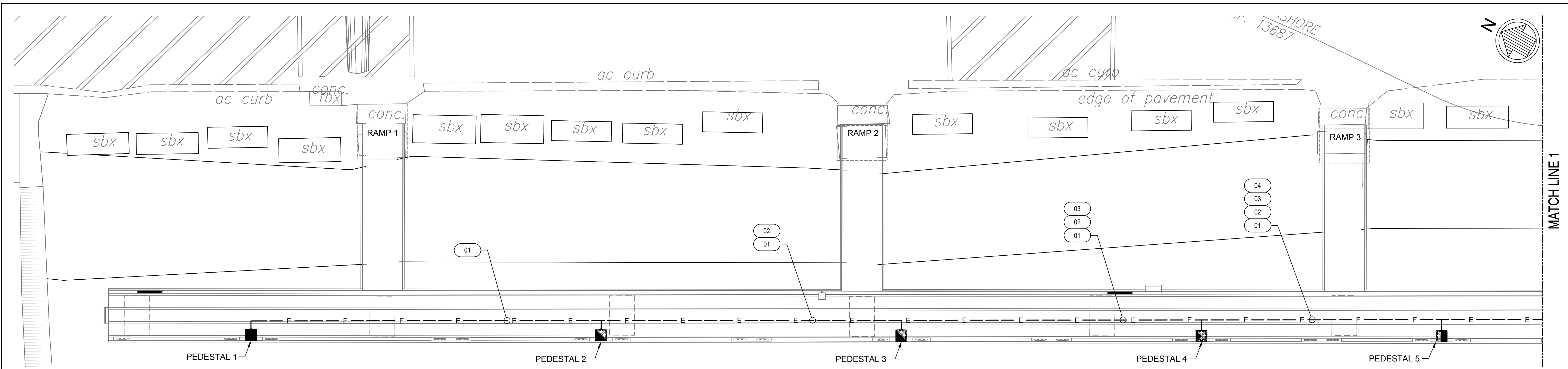
- EXISTING LIGHT POLE/ LUMINAIRE.
- JUNCTION BOX
- LANDSIDE HANDHOLE
- UE— UNDERGROUND CONDUIT
- UE-- EXISTING UNDERGROUND CONDUIT
- OE-- EXISTING OVERHEAD ELECTRIC
- E — DOCK/PIER SUPPORTED CONDUIT
- ### CABLE DESIGNATION
- DUAL SLIP POWER PEDESTAL WITH :  
(4) 50A, 125/250V RECEPTACLES WITH 50A, 2 POLE GFEP (30mA) CIRCUIT BREAKERS  
(2) 20A, 120V GFI RECEPTACLES WITH 20A, 1 POLE CIRCUIT BREAKERS
- DUAL SLIP POWER PEDESTAL WITH :  
(2) 50A, 125/250V RECEPTACLES WITH 50A, 2 POLE GFEP (30mA) CIRCUIT BREAKERS  
(2) 30A, 125V RECEPTACLES WITH 30A, 1 POLE GFEP (30mA) CIRCUIT BREAKERS  
(2) 20A, 120V GFI RECEPTACLES WITH 20A, 1 POLE CIRCUIT BREAKERS
- ☒ DUAL SLIP POWER PEDESTAL WITH :  
(1) 50A, 125/250V RECEPTACLE WITH 50A, 2 POLE GFEP (30mA) CIRCUIT BREAKER  
(2) 30A, 125V RECEPTACLES WITH 30A, 1 POLE GFEP (30mA) CIRCUIT BREAKERS  
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- DUAL SLIP POWER PEDESTAL WITH :  
(2) 30A, 125V RECEPTACLES WITH 30A, 1 POLE GFEP (30mA) CIRCUIT BREAKERS  
(2) 20A, 120V GFI RECEPTACLES WITH 20A, 1 POLE CIRCUIT BREAKERS
- ⊕ POINT OF CONNECTION

ABBREVIATIONS

2P	TWO POLE, OR AS INDICATED	LDPE	LOW-DENSITY POLYETHYLENE
A	AMPERES	LED	LIGHT-EMITTING DIODE
AIC	AMPERES INTERRUPTING CAPACITY	LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
AWG	AMERICAN WIRE GAGE	Ma	MILLIAMPERES
CKT	CIRCUIT	MCB	MAIN CIRCUIT BREAKER
C	CONDUIT	NEC	NATIONAL ELECTRICAL CODE
CB	CIRCUIT BREAKER	NTS	NOT TO SCALE
CT	CURRENT TRANSFORMER	OCF	OVER-CURRENT PROTECTION
DIA	DIAMETER	P	POLE
DWG	DRAWING	PB	PULL BOX
EX,	EXISTING	PH,Ø	PHASE
GND	GROUND	PVC	POLYVINYL CHLORIDE
GFI	GROUND FAULT INTERRUPTER	SC	SHORT CIRCUIT
GFP	GROUND FAULT PROTECTION	SCH	SCHEDULE
GRC	GALVANIZED RIGID STEEL CONDUIT	SS	STAINLESS STEEL
Hz	CYCLES PER SECOND	TYP	TYPICAL
IMC	INTERMEDIATE METAL CONDUIT	UL	UNDERWRITERS LABORATORIES
KCMIL	THOUSAND CIRCULAR MILS	UON	UNLESS OTHERWISE NOTED
KWH	KILOWATT HOUR	V	VOLT
KVA	KILOVOLT AMPERE	W	WATT
		XFMR	TRANSFORMER

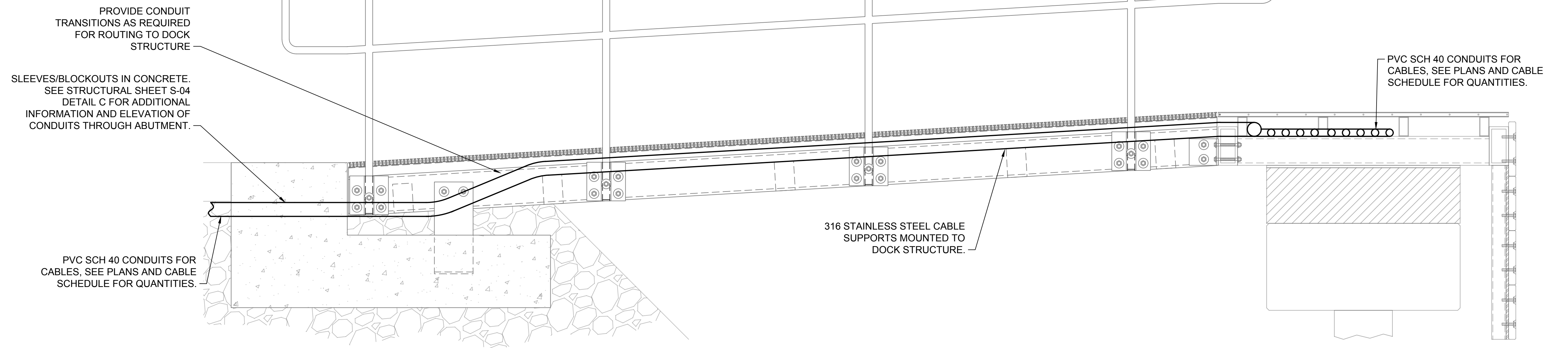
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CHIEF ENGINEER				<b>E-02</b>	
				DATE	

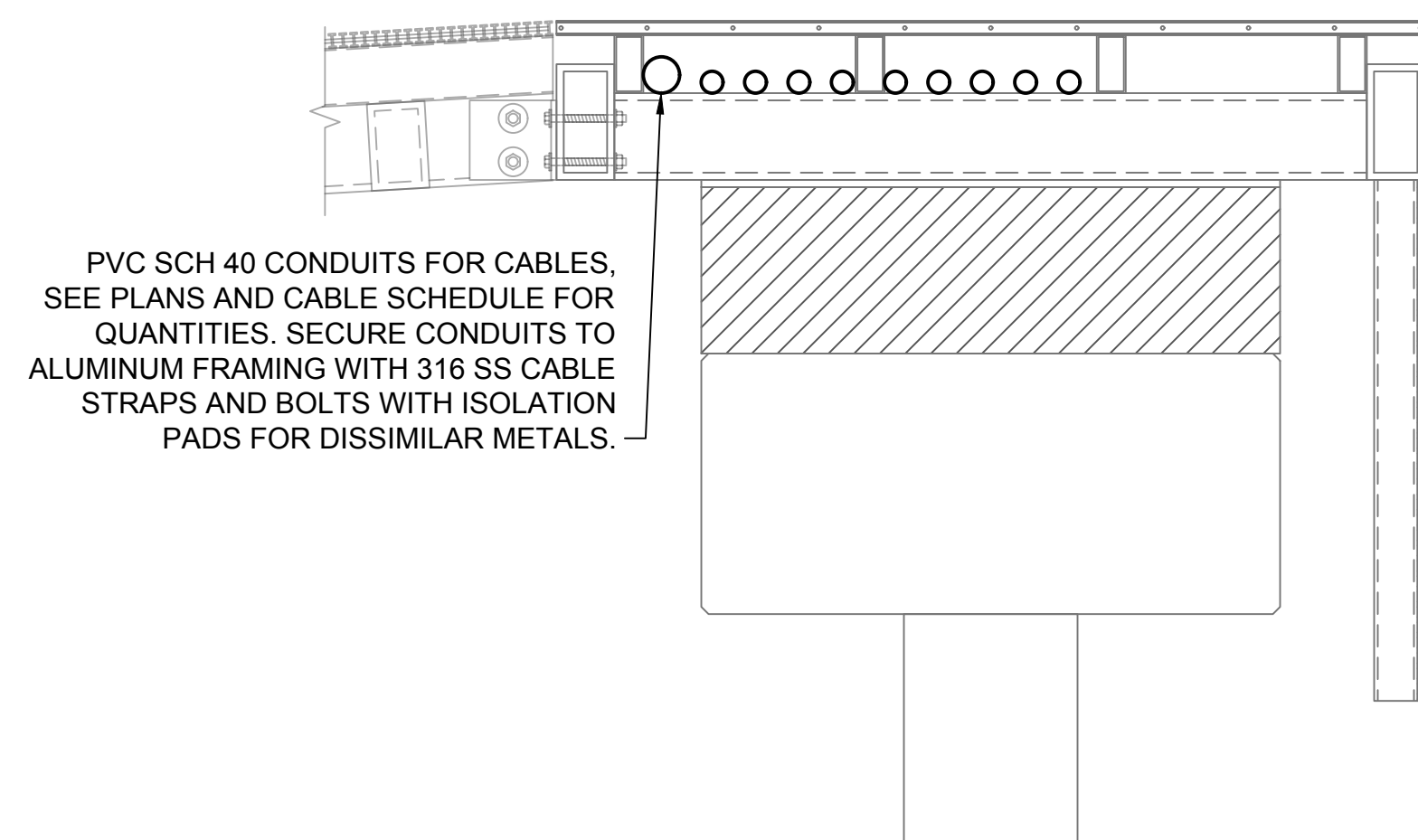


- NOTES:**
- ROUTE CONDUITS AROUND PILE CAP AND UNDER DOCK LONGITUDINAL BEAM. TRANSITION TO LFMC AS REQUIRED FOR TRANSITION.
  - SEE SHEET E-06 FOR CABLE AND PANEL SCHEDULES.

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
<b>LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR</b>					
<b>ELECTRICAL PLAN</b>					
DESIGNED: KAH	SUBMITTED: APR 10, 2020				
DRAWN: KAH	DATE: APR 08, 2020				
CHECKED: DJS	SCALE: AS NOTED				
APPROVED:	DRAWING NO.				
CHIEF ENGINEER	DATE		<b>E-03</b>		



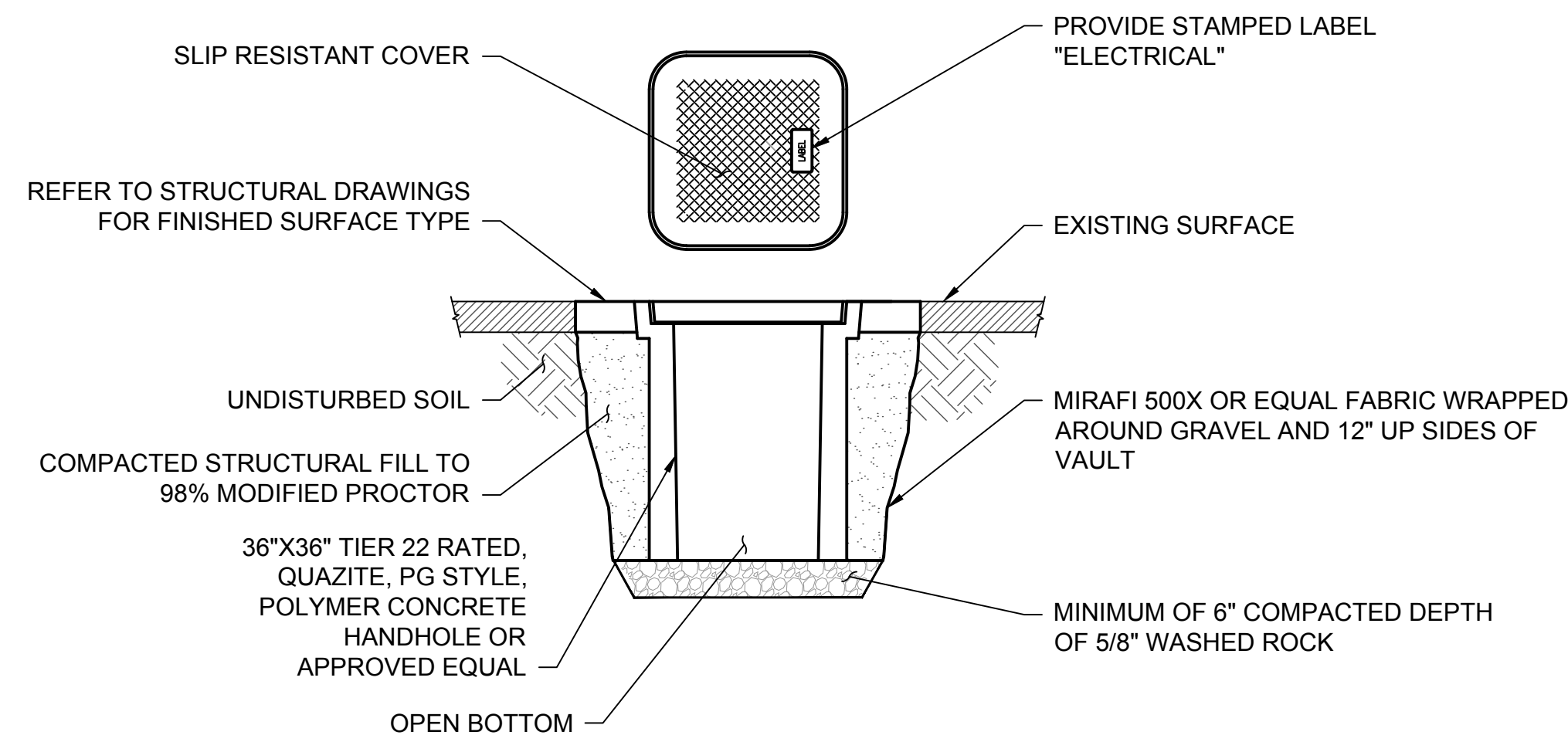
**2** LANDSIDE CONDUIT TRANSITION  
E-03 SCALE: 1"=1'



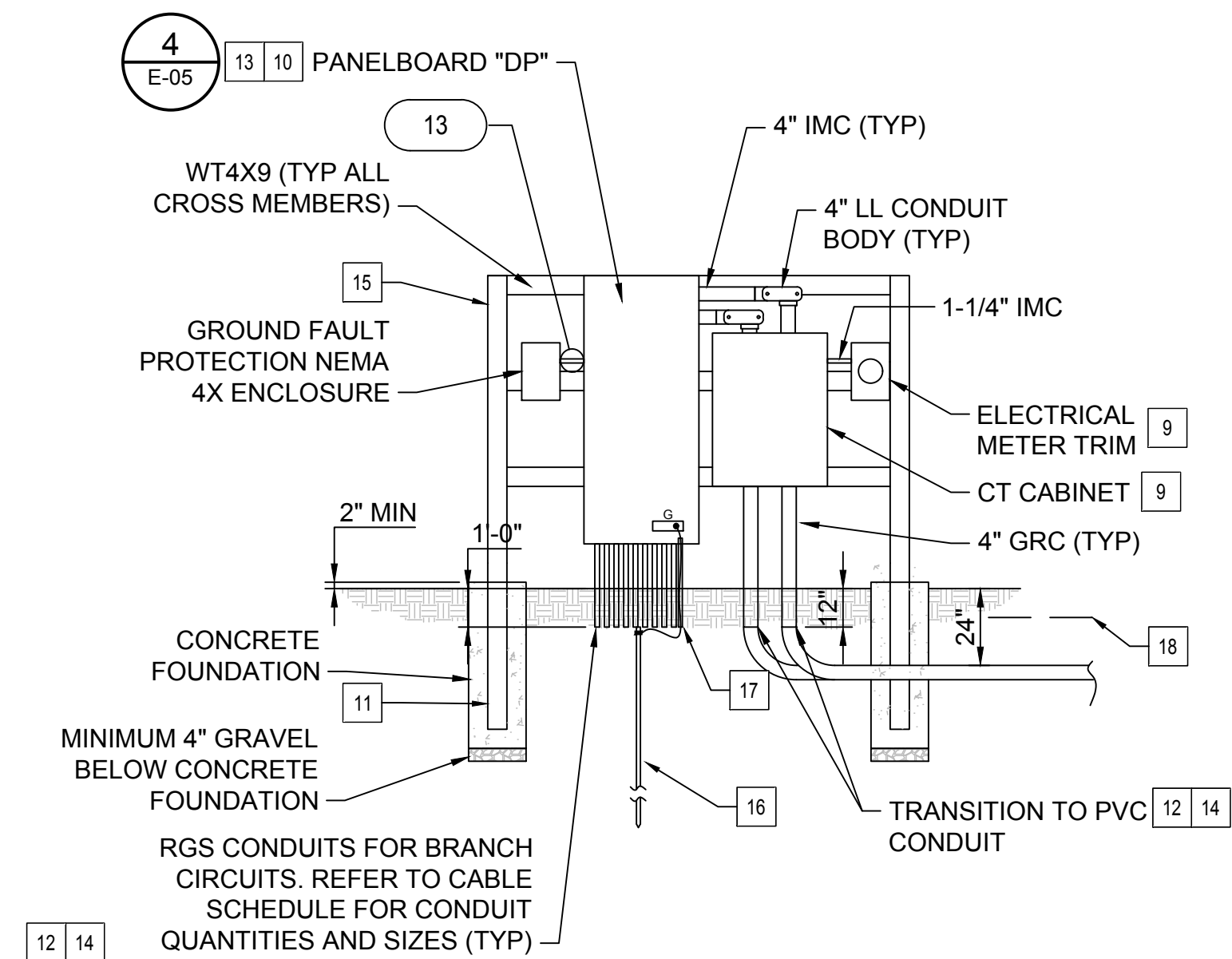
**1** TYPICAL DOCK SECTION AND CONDUIT DETAIL  
E-03 SCALE: 1"=1'

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NOT FOR CONSTRUCTION**

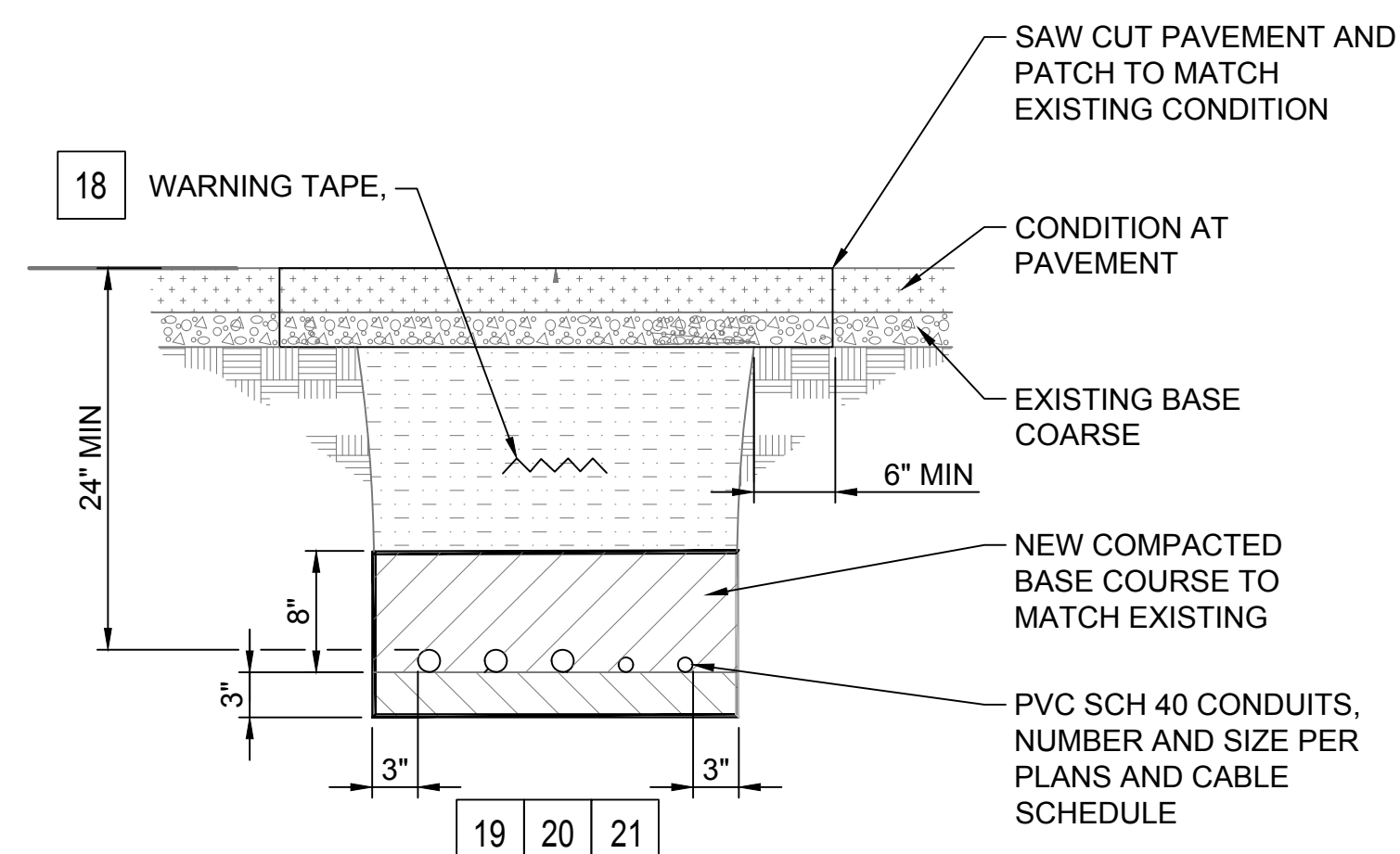
REVISION NO.	SYM.	DESCRIPTION	SHT. OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
ELECTRICAL SECTIONS AND ENLARGED PLAN					
DESIGNED:	KAH	SUBMITTED:	APR 10, 2020		
DRAWN:	KAH	DATE:	APR 08, 2020		
CHECKED:	DJS	SCALE:	AS NOTED		
APPROVED:			DRAWING NO.		<b>E-04</b>
CHIEF ENGINEER	DATE				



**2 TYPICAL HANDHOLE DETAIL**  
E-03 SCALE: NTS



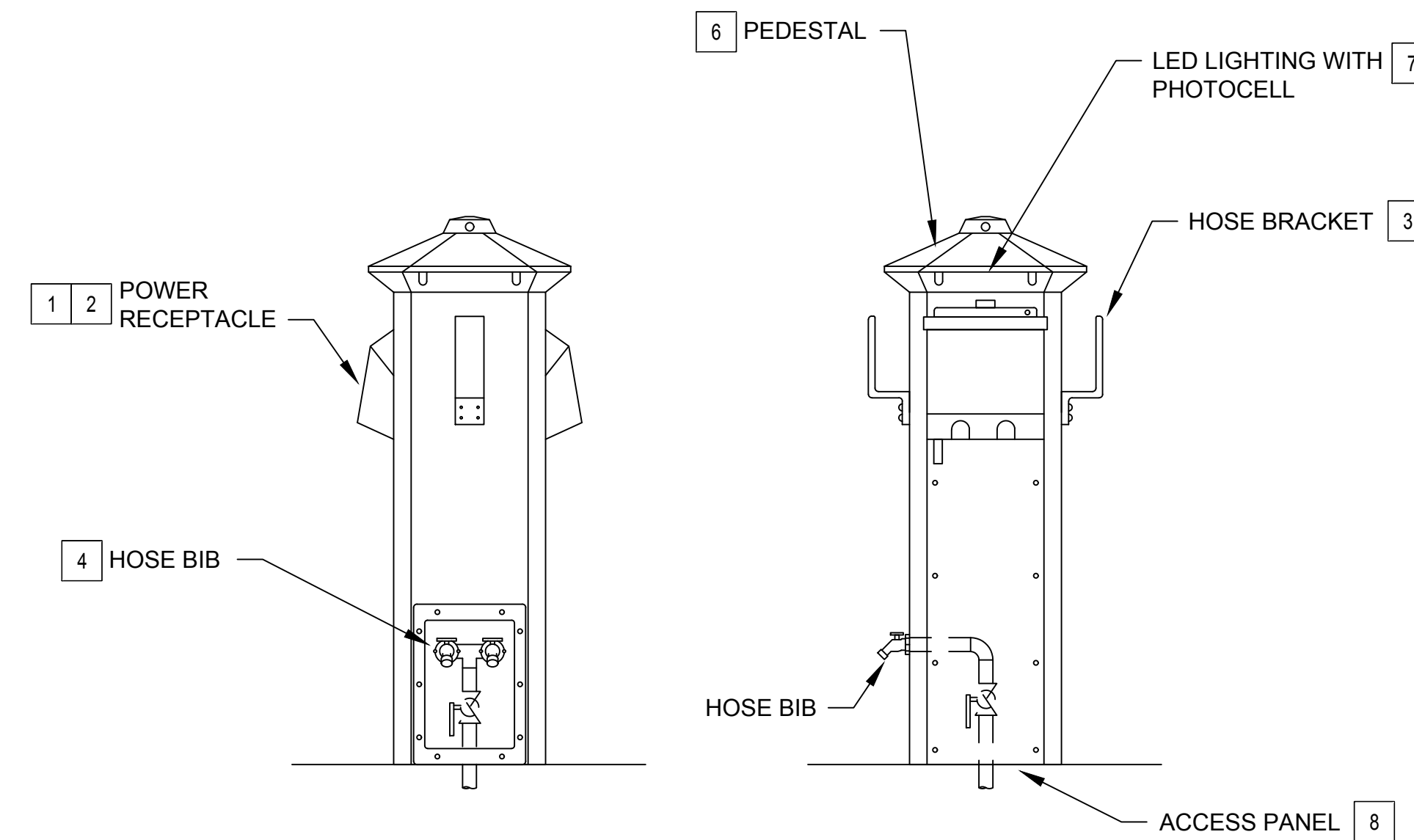
**3 ELECTRICAL RACK DETAIL**  
E-03 SCALE: NTS



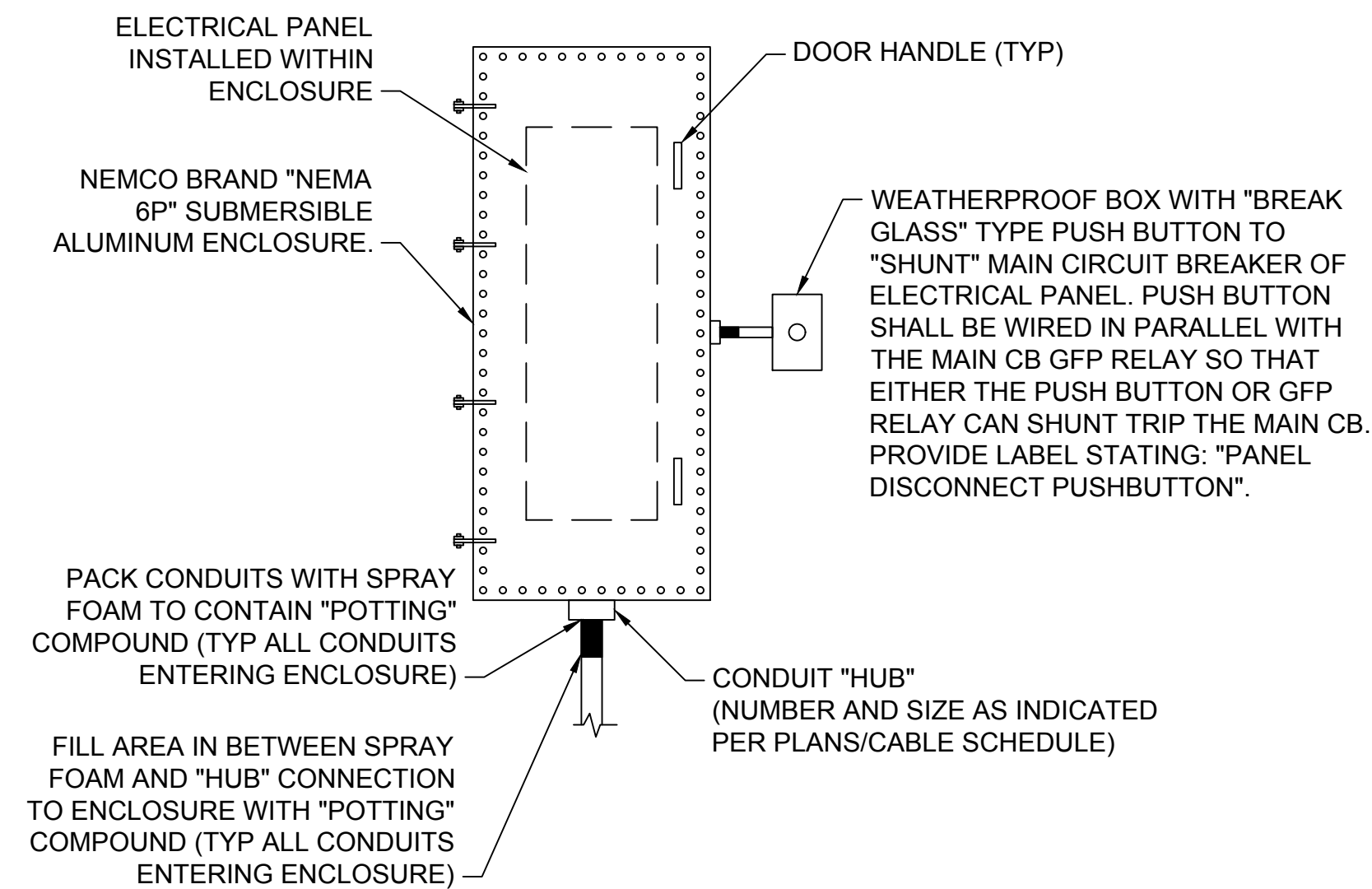
**5 DUCT SECTION DETAIL**  
E-05 SCALE: NTS

**BACKFILL LEGEND**

- TYPE "A" BACKFILL - 0 EARTH AND GRAVEL, ROCK SIZE TO BE 1" MAX & THE MIXTURE TO CONTAIN NOT MORE THAN 50% BY VOLUME OF ROCK PARTICLES, 95% COMPACTION
- TYPE "B" BACKFILL - EARTH & GRAVEL, MIXTURE MUST PASS A 1/2" MESH SCREEN & CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES, 95% COMPACTION.
- NOTE - IF NORMAL MATERIAL AT BOTTOM OF TRENCH IS NOT TYPE "B", AN ADDITIONAL 3" SHALL BE EXCAVATED & TYPE "B" BACKFILL PROVIDED.



**1 POWER PEDESTAL DETAIL**  
E-03 SCALE: 3/4"=1'-0"



**4 NEMA 6P ENCLOSURE DETAIL**  
E-05 SCALE: NTS

**X SHEET NOTES**

1. SEE E-02 FOR ALL POWER RECEPTACLE/BREAKER CONFIGURATIONS. PROVIDE A SEPARATE CIRCUIT BREAKER FOR EACH RECEPTACLE.
2. CIRCUIT BREAKERS LOCATED UNDER LOCKABLE WEATHERPROOF DOOR.
3. ALUMINUM HOSE BRACKET.
4. WATER HOSE BIB WITH SS 316L HANDLE.
5. NOT USED.
6. POWER PEDESTALS: 316 STAINLESS STEEL, WHITE POWDER COAT.
7. LIGHTING ASSEMBLY. LED LIGHTS WITH PHOTO CELL AND AMBER LENS.
8. ELECTRICAL ACCESS PANELS. REFER TO MANUFACTURERS SPECIFICATIONS.
9. INSTALL MAUI ELECTRIC PROVIDED EQUIPMENT.
10. MOUNT PANEL 6'-7" TO MCB FROM FINISHED GRADE.
11. EXTEND 5'-0" INTO GROUND. PROVIDE 6" MIN CONCRETE ENCASEMENT OF STEEL SUPPORT UNDERGROUND. PAINT SUPPORT ASSEMBLY WITH (2) COATS OF ZINC RICH PRIMER AND FINISH WITH (2) COATS OF PAINT.
12. PROVIDE GROUND BUSHINGS ON ALL CONDUITS.
13. REFER TO SINGLE LINE AND PANEL SCHEDULE FOR ADDITIONAL INFORMATION.
14. TRANSITION FROM PVC TO RGS CONDUIT UNDERGROUND MIN 12" BELOW GRADE PRIOR TO CONDUIT ELBOW.
15. HSS 4"x4"x1/2" WITH (2) COATS OF PRIMER AND (2) COATS OF FINISH PAINT.
16. PROVIDE #3/0 BARE COPPER GROUND CONDUCTOR FROM PANEL TO MINIMUM OF (2) 3/4"x10' COPPERCLAD GROUND RODS SPACED 10' APART
17. PROVIDE 1" GRC CONDUIT FOR GROUND CONDUCTOR TO 12" MINIMUM BELOW GRADE.
18. 5 MIL THICK RED (ELEC) COLORED PLASTIC WARNING TAPE, 3" WIDE, LOCATED 9" BELOW GRADE FOR THE ENTIRE LENGTH OF DUCT. TAPE TO HAVE CONTINUOUS METALLIC BACKING AND CORROSION RESISTANT FOIL CORE, WARNING AND IDENTIFICATION TO BE IMPRINTED ON TAPE AND SHALL READ "CAUTION BURIED ELECTRICAL CABLE BELOW". MESSAGE SHALL BE REPEATED APPROXIMATELY EVERY 10'-0".
19. MAINTAIN 2" MIN SPACING BETWEEN UNDERGROUND ELECTRICAL CONDUITS.
20. ALL UNDERGROUND ELECTRICAL DUCTS SHALL CONTAIN A 200LB TENSILE STRENGTH NYLON CORD.
21. WHERE CONDUITS CROSS OTHER UTILITIES MAINTAIN MINIMUM 12" VERTICAL SEPARATION BETWEEN THE CONDUITS AND OTHER UTILITIES (GAS, WATER, SEWER, ETC)

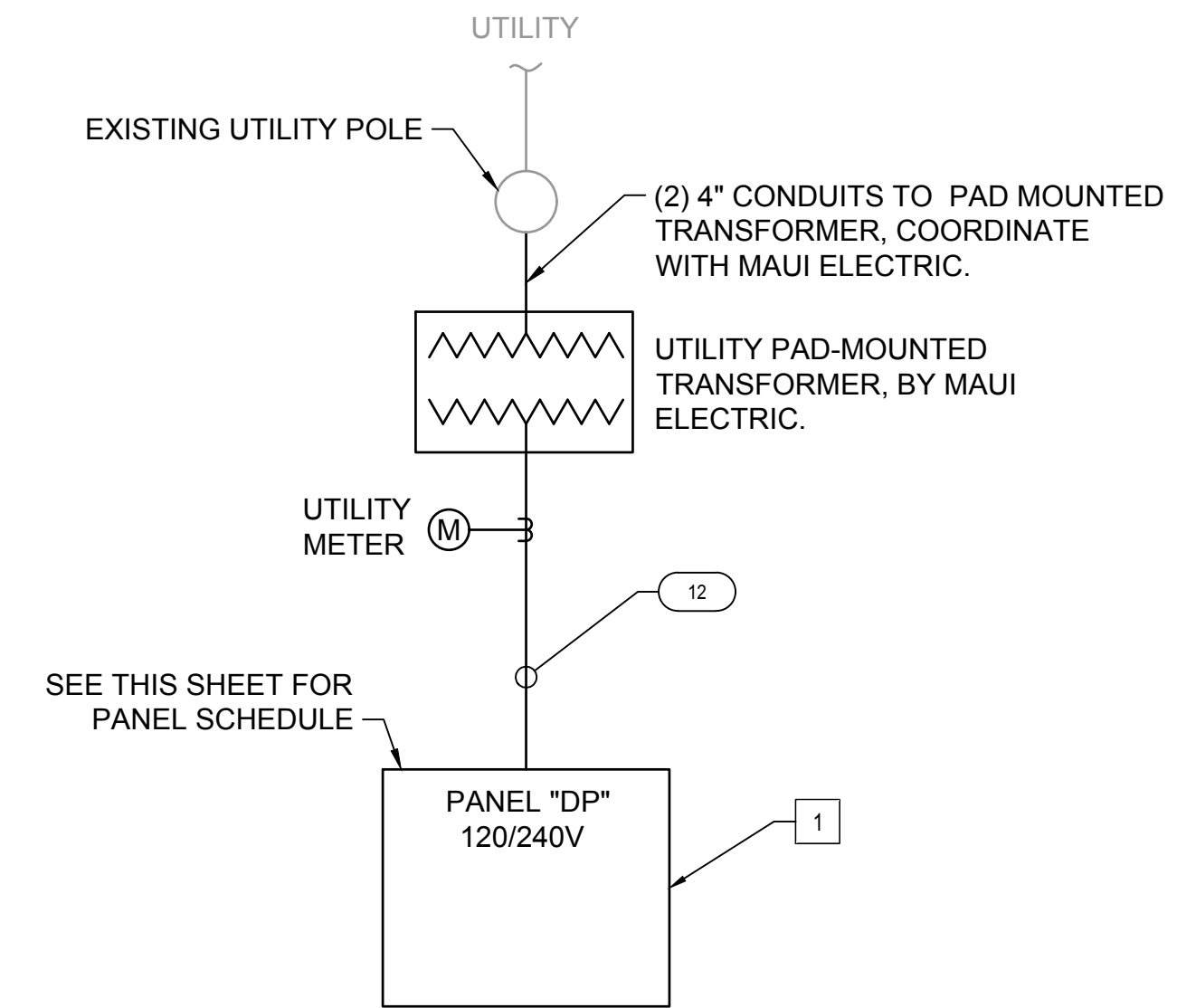
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DRAWN:	KAH	DATE:	APR 08, 2020		
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APPROVED:			DRAWING NO.		<b>E-05</b>
CHIEF ENGINEER	DATE				



**SHEET NOTES**

- 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/GUTTER 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.



**1 SINGLE LINE DIAGRAM**  
SCALE: NTS

<b>PANEL:</b> DP		<b>VOLTAGE:</b> 120/240		<b>PHASE:</b> 1		<b>WIRE:</b> 3+GND		<b>NEUTRAL:</b> YES		<b>BUS RATING (A):</b> 600		<b>MAIN OC DEVICE:</b> 600MCB*		<b>INTERRUPTING RATING (KA):</b> 22		<b>SERVICE ENTRANCE LABEL:</b> SE RATED		<b>ENCLOSURE:</b> ALUMINUM NEMA 6P		<b>MOUNTING:</b> SURFACE		<b>LOCATION:</b> SEE PLANS	
CKT NO.	DESCRIPTION	CONNECTED LOAD (VA)				OCP		CONNECTED LOAD (VA)				DESCRIPTION	CKT NO.										
		LTS	MISC	MECH	PED	AMPS	P	LTS	MISC	MECH	PED												
1	DOCK PEDESTAL 1*				24000	200	2	A	30	2				3600	DOCK PEDESTAL 7*	2							
3	"				24000			B						3600	"	4							
5	DOCK PEDESTAL 2*				12000	100	2	A	30	2				3600	DOCK PEDESTAL 8*	6							
7	"				12000			B						3600	"	8							
9	DOCK PEDESTAL 3*				12000	100	2	A	30	2				3600	DOCK PEDESTAL 9*	10							
11	"				12000			B						3600	"	12							
13	DOCK PEDESTAL 4*				9600	80	2	A	30	2				3600	DOCK PEDESTAL 10*	14							
15	"				6000			B						3600	"	16							
17	DOCK PEDESTAL 5*				3600	30	2	A	30	2				3600	DOCK PEDESTAL 11*	18							
19	"				3600			B						3600	"	20							
21	DOCK PEDESTAL 6*				3600	30	2	A	20	1		100			GFP RELAY	22							
23	"				3600			B	20	1					SPARE	24							
25	SPARE							A	20	1					SPARE	26							
27	"							B							SPACE	28							
29	SPACE							A							SPACE	30							
31	SPACE							B							SPACE	32							
33	SPACE							A							SPACE	34							
35	SPACE							B							SPACE	36							
37	SPACE							A							SPACE	38							
39	SPACE							B							SPACE	40							
41	SPACE							A							SPACE	42							
LOAD SUMMARY													NOTES:										
CONNECTED LOAD (KVA)	0.0	0.1	0.0	162.0	---	162.1	240		LINE-TO-LINE VOLTS		*SHUNT TRIP CIRCUIT BREAKER												
DEMAND FACTOR	1.25	1.00	1.00	0.70	10%	---	675		CONNECTED AMPS														
DESIGN LOAD (KVA)	0.0	0.1	0.0	113.4	16.2	129.7	540		DESIGN AMPS														

**3 PANEL "DP" SCHEDULE**

CABLE SCHEDULE						
CABLE #	FROM	TO	CONDUCTORS	CONDUIT	VOLTAGE	SEE NOTE
01	PANEL DP	DOCK PEDESTAL 1	3-#250, #4 GND	2-1/2" PVC	120/240	1
02	PANEL DP	DOCK PEDESTAL 2	3-#1, #8 GND	1" PVC	120/240	1
03	PANEL DP	DOCK PEDESTAL 3	3-#1, #8 GND	1" PVC	120/240	1
04	PANEL DP	DOCK PEDESTAL 4	3-#2, #8 GND	1" PVC	120/240	1
05	PANEL DP	DOCK PEDESTAL 5	3-#4, #4 GND	1-1/2" PVC	120/240	1
06	PANEL DP	DOCK PEDESTAL 6	3-#6, #6 GND	1-1/2" PVC	120/240	1
07	PANEL DP	DOCK PEDESTAL 7	3-#6, #6 GND	1-1/2" PVC	120/240	1
08	PANEL DP	DOCK PEDESTAL 8	3-#6, #6 GND	1-1/2" PVC	120/240	1
09	PANEL DP	DOCK PEDESTAL 9	3-#8, #8 GND	1" PVC	120/240	1
10	PANEL DP	DOCK PEDESTAL 10	3-#8, #8 GND	1" PVC	120/240	1
11	PANEL DP	DOCK PEDESTAL 11	3-#8, #8 GND	1" PVC	120/240	1
12	UTILITY TRANSFORMER	PANEL DP	2 SETS 3-#350	(2) 4" PVC	120/240	1
13	PANEL DP	GFP RELAY	2-#12, #12G	3/4" RGS	120	

**2 CABLE SCHEDULE**

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LAHAINA SMALL BOAT HARBOR INNER MARGINAL WHARF REPAIR					
SINGLE LINE DIAGRAM AND SCHEDULES					
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DRAWN:	KAH	DATE:	APR 08, 2020		
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APPROVED:	DATE		DRAWING NO.		
CHIEF ENGINEER	DATE		<b>E-06</b>		