

SPECIFICATIONS AND PROPOSAL

FOR

REPAIR LIGHT POLES AT PIERS 1 AND 2

KAHULUI HARBOR, MAUI, HAWAII

JOB S30217

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HARBORS**

NOTICE TO BIDDERS

Hawaii Revised Statutes (HRS),
Chapter 103D

The receiving of bids for **REPAIR LIGHT POLES AT PIERS 1 AND 2, KAHULUI HARBOR, MAUI, HAWAII, JOB S30217**, will begin as of the HiePRO Release Date.

Bidders shall register and submit complete bids through HiePRO only. Refer to the following HiePRO link for important information on Vendor Registration:

<https://hiepro.ehawaii.gov/welcome.html>.

The solicitation plans, specifications, proposal, and additional documents designated or incorporated by reference shall be available in HiePRO.

HiePRO OFFER DUE DATE & TIME is December 19, 2024, at 2:00 p.m., Hawaii Standard Time (HST). **Bidders shall submit and upload the complete proposal to HiePRO prior to the offer due date and time. Proposals received after said due date and time shall not be considered. Any additional support documents explicitly designated as confidential and/or proprietary shall be uploaded as a separate file to HiePRO. Bidders shall not include confidential and/or proprietary documents as part of their proposal. The record of each bidder and their respective proposal shall be open to public inspection. FAILURE TO UPLOAD THE PROPOSAL TO HiePRO SHALL BE GROUNDS FOR REJECTION.**

The scope of work consists of repairing light poles at Piers 1 and 2 at Kahului Harbor, Maui, Hawaii. The estimated cost of construction is between \$2,000,000 and \$3,000,000.

To be eligible for award, bidders shall possess a valid State of Hawaii General Engineering Contractor's "A" license **at the time of bidding.**

The Hawaii Department of Transportation, Air and Water Transportation Facilities Division, 2016 GENERAL PROVISIONS FOR CONSTRUCTION PROJECTS, applicable to

this project is available on the internet at: <http://hidot.hawaii.gov/administration/con/>.

A virtual pre-bid conference is scheduled for November 22, 2024, at 9:00 a.m., HST. Interested bidders shall contact Mr. Branden Sumida, Project Manager, directly at branden.sumida@hawaii.gov, no later than five working days prior to the scheduled pre-bid conference to receive the meeting invitation. All prospective bidders and/or their respective representatives are encouraged to attend, however, attendance is not mandatory. All information presented at the pre-bid conference shall be provided for clarification and information only. Any amendments to the solicitation shall be made by formal addendum and posted in HiePRO.

All Request for Information (RFI) questions and Substitution Requests shall be submitted in HiePRO **no later than December 2, 2024, at 2:00 p.m., HST**. RFI questions received after the stated deadline shall not be addressed. Substitution Requests received after the stated deadline shall not be considered. Verbal RFI(s) shall not receive a response. All responses to RFI questions shall be provided for clarification and information only and issued by formal addendum. Any amendments to the solicitation shall be made by formal addendum and posted in HiePRO.

If there is a conflict between the solicitation and information stated in the pre-bid conference, the meeting minutes, and/or the responses to RFI questions, the solicitation shall govern and control, unless as amended by formal addendum.

Apprenticeship Preference. A five percent bid adjustment for bidders that are party to apprenticeship agreements pursuant to HRS, § 103-55.6, is applicable to this project.

Employment of State Residents on Construction Procurement Contracts. Compliance with HRS, § 103B-3, is a requirement for this project whereby a minimum of 80 percent of the bidder's work force on this project shall consist of Hawaii residents.

Campaign Contributions by State and County Contractors. Contractors are hereby notified of the applicability of HRS, § 11-355, which states that campaign contributions are prohibited from specified State or County government contractors during the term of the contract if the contractors are paid with funds appropriated by a legislative body. For more information, contact the Campaign Spending Commission at (808) 586-0285.

Protests. Any protest of this solicitation shall be submitted in writing to the Director of Transportation, in accordance with HRS, § 103D-701, and Hawaii Administrative Rules, § 3-126.

The Equal Employment Opportunity Regulations of the Secretary of Labor implementing Executive Order 11246, as amended, shall be complied with on this project.

The U.S. Department of Transportation Regulation entitled “Nondiscrimination in Federally Assisted Programs of the U.S. Department of Transportation”, Title 49, Code of Federal Regulations (CFR), Part 21, is applicable to this project. Bidders are hereby notified that the Department of Transportation shall affirmatively ensure that the contract entered into pursuant to this advertisement shall be awarded to the lowest responsible bidder without discrimination on the grounds of race, color, national origin, or sex (as directed by 23 CFR, Part 200).

For additional information, contact Branden Sumida, Project Manager, by phone at (808) 587-1873, or by email at branden.sumida@hawaii.gov.

The State reserves the right to reject any or all proposals and to waive any defects in said proposals in the best interest of the public.



DREANALEE K. KALILI
Deputy Director of Transportation for Harbors

HIePRO RELEASE DATE: November 15, 2024

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INSTRUCTIONS FOR CONTRACTOR'S LICENSING

"A" general engineering contractors and "B" general building contractors are reminded that due to the Hawaii Supreme Court's January 28, 2002 decision in Okada Trucking Co., Ltd. v. Board of Water Supply, et al., 97 Haw. 450 (2002), they are prohibited from undertaking any work, solely or as part of a larger project, which would require the general contractor to act as a specialty contractor in any area where the general contractor has no license. Although the "A" and "B" contractor may still bid on and act as the "prime" contractor on an "A" or "B" project (*See, HRS § 444-7 for the definitions of an "A" and "B" project.*), respectively, the "A" and "B" contractor may only perform work in the areas in which they have the appropriate contractor's license (*An "A" or "B" contractor obtains "C" specialty contractor's licenses either on its own, or automatically under HAR § 16-77-32.*). The remaining work must be performed by appropriately licensed entities. It is the sole responsibility of the contractor to review the requirements of this project and determine the appropriate licenses that are required to complete the project.

SPECIAL PROVISIONS

The General Provision is amended as follows:

A. ARTICLE I - TERMS, ABBREVIATIONS, AND DEFINITIONS

1. Section 1.3 Definitions: The definition for “Subcontractor” is amended by deleting it and replacing it with the following:

“Subcontractor – An individual, partnership, firm, corporation, or joint venture, or other legal entity, as licensed or required to be licensed under Chapter 444, Hawaii Revised Statutes, as amended, which enters into an agreement with the Contractor to perform a portion of the work.”

2. Section 1.3 Definitions: The definition for “Proposal (or Bid)” is amended by deleting it and replacing with the following:

“PROPOSAL (OR BID) - The offer of a Bidder, on the prescribed HDOT form, submitted by the Bidder in response to a solicitation request, to perform the work required by the proposed contract documents, for the price quoted and within the time allotted.”

3. Add the following to Section 1.3 Definitions.

“HAWAII ePROCUREMENT SYSTEM (HIePRO) - The State of Hawaii eProcurement System for issuing solicitations, receiving proposals and responses, and issuing notices of award.”

B. ARTICLE II – STANDARD PROVISIONS FOR COMPETITIVE SEALED BIDS AND AWARDS

1. 2.7 Request for Substitution of Specified Materials and Equipment Before Bid Opening is amended as follows:

- a. The last sentence in the first paragraph (line 147 to 152) be replaced with the following:

“Where a bidder intends to use a material or equipment of an unspecified brand, make, or model, the bidder must submit a request to the Department for review and approval at the earliest date possible. Requests shall be submitted via email to the Contact person listed in HIePRO for the solicitation and also posted as a question in HIePRO under the question/answer tab referencing the email with the request. The request must be posted in HIePRO no later than seventeen (17) calendar days before the bid opening date.”

- b. The first sentence in the second paragraph (line 154 to 156) shall be replaced with the following:

“It shall be the responsibility of the bidder to submit sufficient evidence based upon which a determination can be made by the Department that the alternate brand is a qualified equivalent.”

2. 2.8 Preparation and Delivery of Bid is amended as follows: Last paragraph (line 189 to 192) shall be replaced with the following:

“Bidders shall submit and upload the complete proposal to HIePRO prior to the bid opening date and time. Proposals received after said due date and time shall not be considered. Any additional support documents explicitly designated as confidential and/or proprietary shall be uploaded as a separate file to HIePRO. Do not include confidential and/or proprietary documents with the proposal. The record of each bidder and respective bid shall be open to public inspection. Original (wet ink, hard copy) proposal documents are not required to be submitted. **Contract award shall be based on evaluation of proposals submitted and uploaded to HIePRO.**

FAILURE TO UPLOAD THE COMPLETE PROPOSAL TO HIePRO SHALL BE GROUNDS FOR REJECTION OF THE BID.

If there is a conflict between the specification document and the HIePRO solicitation, the specifications shall govern and control, unless otherwise specified.”

3. 2.11 Bid Security is amended by deleting (a) and replacing it with:

“(a) Unless directed otherwise in the invitation for bids, each bid shall be accompanied by bid security which is intended to protect the Department against the failure or refusal of a bidder to execute the contract for the work bid or to supply the required performance and payment bonds. Bid security shall be in an amount equal to at least five percent of the base bid and additive alternates. Bid security shall be in one of the following forms:

- (1) A deposit of legal tender;
- (2) A valid surety bid bond, underwritten by a company licensed to issue bonds in the State of Hawaii; or
- (3) A certificate of deposit; credit union share certificate; or cashier’s, treasurer’s, teller’s, or official check drawn by or a certified check accepted by a bank, savings institution, or credit union insured by the Federal Deposit Insurance Corporation (FDIC) or the National Credit Union Administration (NCUA) and payable at sight or unconditionally assigned to the Department. These instruments may be utilized only to a

maximum of one hundred thousand dollars (\$100,000.00). If the required amount totals over one hundred thousand dollars (\$100,000.00), more than one instrument not exceeding one hundred thousand dollars (\$100,000.00) each and issued by different financial institutions shall be accepted.

If bidder elects options (1) or (3) above for its bid security, said bid security shall be in its original form and shall be submitted before the bid deadline to the Contract Office, Department of Transportation, Aliiaimoku Hale, 869 Punchbowl Street, Room 105, Honolulu, Hawaii 96813. Original surety bid bonds do not need to be submitted to the Contracts Office. Bidders are reminded that a copy of its surety bid bond shall be included with its bid submitted and uploaded to HiePRO.”

4. 2.12 Pre-Opening Modification or Withdrawal of Bids is amended by deleting 2.12 Pre-Opening Modification or Withdrawal of Bids in its entirety and replacing it with the following:

“2.12 PRE-OPENING MODIFICATION OF WITHDRAWAL OF BIDS. Bids may be modified or withdrawn prior to the bid opening date and time. Withdrawal or revision of proposal shall be completed and submitted and uploaded to HiePRO prior to the bid opening date and time.”

5. 2.14 Public Opening of Bids is amended by deleting 2.14 Public Opening of Bids in its entirety.
6. 2.20 Bid Evaluation and Award is amended by replacing 2.20(a) and 2.20(b) with the following:

“(a) The award shall be made to the lowest, responsive, responsible bidder within 120 days after bid opening and shall be based on the criteria set forth in the invitation for bids. The Department may request the bidders to allow the Department to consider the bids for the issuance of an award beyond the 120 day period. Agreement to such an extension must be made by a bidder in writing. Only bidders who have agreed to such an extension will be eligible for the award.

(b) No bid shall be withdrawn or corrected for a period of 120 days after bid opening except for a mistake as described in this article; however, a bidder may withdraw a bid without penalty anytime prior to award of the contract if it finds it is unable to comply with the provisions regarding the employment of State of Hawaii residents as described in Section 7.2 and 103B-3, H.R.S.”

C. ARTICLE VII – LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

1. 7.1 Insurance Requirements is amended by deleting paragraph “(b)(4) Builder’s Risk for All Work” in its entirety.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HONOLULU, HAWAII

SPECIFICATIONS

PART I

GENERAL PROVISIONS

The Hawaii Department of Transportation AIR and WATER Transportation Facilities Division General Provisions for Construction Projects dated 2016 is not physically included in these specifications. The General Provisions are available at

<http://hidot.hawaii.gov/administration/con/>

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HONOLULU, HAWAII

SPECIFICATIONS

PART II

TECHNICAL PROVISIONS

ARTICLE X - PROJECT DESCRIPTION

10.1 GENERAL - The work to be done under this project includes furnishing of all labor, materials and equipment necessary to repair and replace light poles at Piers 1 and 2 at Kahului Harbor, Maui, Hawaii.

Bidders are advised to examine the existing conditions at the project site to familiarize themselves with the nature and extent of work involved. Appointments may be made with the State Harbors Maintenance Engineer for clarification of the work involved and the character and quality of materials specified.

10.2 SCOPE OF WORK - The work to be done includes, but is not necessarily limited to, the following major items of work:

- A. Mobilization and demobilization.
- B. Providing a detailed site specific Best Management Practices (BMP) Plan.
- C. Replacing two light poles and concrete pedestals and associated electrical work at Pier 1.
- D. Demolishing three light poles and furnishing and installing four new light poles and associated electrical work at Pier 2.

The facility lighting plan shall be maintained to fulfill the energy-saving program and in compliance with night sky protection strategy under HRS Section 201-8.5. Lights shall be able to be dimmed when no pier operations are in progress.

10.3 CONTRACT DRAWINGS – The location and size of the repair areas shown on the plan are approximate and are included for bidding purposes only. All structures and portions of structures shown on the plan are existing unless specifically noted. Existing conditions shown are based on the best available information. No guarantee is given that they are more than approximately correct.

10.4 WORK SCHEDULE - The work schedule and assignment of storage area(s) shall be discussed and coordinated with the Harbors Maui District Manager and the Construction Engineer and shall be subject to their written approval. The Contractor shall turn in a work schedule two (2) weeks prior to actual construction for approval by the Harbors Maui District Manager and the Construction Engineer. The Contractor shall be responsible for maintaining the work and storage areas in neat and orderly condition.

Shipping and dock activities by tenants/users will take precedence over the Contractor's activities. Vessels call at various days of the week. An approximate vessel schedule for the project area can be found at hawaii.portcall.com. The exact scheduling of the work and

restrictions on the Contractor's activities will be established at the pre-construction meeting.

Phasing and careful coordination of the work will be required to allow continuous use of the project location and adjacent areas. The Contractor shall be responsible for coordination with all tenants/users of the area and the Harbors District Operations Staff on a daily basis regarding scheduling of all work at no additional cost to the State.

Tenant operations will be ongoing in areas adjacent to the project area for the duration of the project. Phasing and careful coordination of the work will be required to allow continuous use of the project location and adjacent areas.

The Contractor shall coordinate its work so as to minimize interference with the pier operations. All work shall be scheduled to minimize interference with any operations in the project area. Weekend and night work may be required.

The exact scheduling and sequencing of the work and restrictions on the Contractor's operation while working at the project site will be established at the pre-construction meeting. The Contractor shall attend the pre-construction meeting to coordinate its work with others and shall complete all work within the work schedule.

10.5 LIABILITY AND RESPONSIBILITY - The Contractor shall provide, erect and maintain warning signs, lights, barricades, fences, watchmen and/or other means as necessary to prevent unauthorized persons from wandering onto the job site where they may suffer injury or create a hazard to the construction operations or the work in progress. The Contractor shall also take all reasonable precautions for safety in its operations and to prevent injury to its employees and to others at the job site.

The Contractor shall be responsible for any and all damages to harbor and adjacent facilities caused by its operations and negligence. The Contractor shall, at its own expense, make prompt restitution for damages to the facilities caused by its operations or negligence. The Contractor shall hold the State harmless from all claims for loss or injury.

The Contractor shall remove defective work and replace the required work at no cost to the State.

The Contractor SHALL verify existing conditions in the field prior to ordering any materials. The existing conditions are based on the best available information. The Contractor shall make no claim for extra compensation should actual existing conditions differ from those shown on the plans.

Hawaii One Call. The Contractor shall comply with the Hawaii One Call law, HRS Section 269E-4. This includes, but is not limited to, coordination with the Hawaii One Call Center (HOCC) for any work involving excavation at least five (5) working days but not more than twenty-eight (28) calendar days prior to commencing excavation. The Contractor shall provide to HOCC a description of the excavation site that may include the county, place, address and

measurements as needed. HOCC contact information: telephone 811; website <http://www.digsafelyhawaii.com>.

10.6 BEST MANAGEMENT PRACTICES (BMPs) - The Contractor must follow standard best management practices for air pollution, water pollution, noise and solid waste control, as required by Federal, State and County regulations, to protect the environment from the effects of construction activity, including prohibiting any construction debris or other deleterious materials to fall, flow or otherwise enter harbor waters.

The Contractor shall submit a site specific BMP plan to the Harbors Construction Engineer for review and comment before work begins. The plan shall satisfy the requirements of ARTICLE XII – TEMPORARY WATER POLLUTION, DUST, AND EROSION CONTROL. This plan shall describe and detail the methods and procedures to be used to prevent air and water pollution, including preventing any materials, wastes, and debris from entering any adjacent storm drain system and the harbor to the satisfaction of the Harbors Construction Engineer. The Contractor shall revise the BMP plan – at no additional cost to the State - should it be determined by the Harbors Construction Engineer that the plan is insufficient to prevent pollution.

10.7 PERMITS - The Contractor will require permits for all welding and burning operations. The Contractor shall obtain the required work permit from the Harbors Maui District Manager.

A Building Permit from County of Maui will not be required for this project.

10.8 SUBMITTALS - The Contractor shall submit for review one (1) copy of the following items in PDF format.

- A. Best Management Practices (BMP) Plan including removal of hazardous material in accordance with Article XII of these Technical Specifications.
- B. Health and Safety Plan
- C. Proof of valid TWIC and MARSEC credential card for all Contractor and Sub-contractor workers.
- D. Concrete Work as required by Article XIII of these specifications.
 - 1. Concrete Mix Design for Spall Repairs
 - 2. Patching Compound for Form and Pour Repairs
 - 3. Patching Compound for Vertical Surface and Underside Repairs
 - 4. Reinforcing Steel
 - 5. Reinforcing Steel Coating

6. Epoxy for Grouting of Dowels
 7. Curing Compound
- E. Electrical Work as required by Article XIV of these specifications.

10.9 STANDARD SPECIFICATIONS - The term "Standard Specifications" as used in these Technical Specifications, shall mean the Hawaii Standard Specifications for Road and Bridge Construction, State of Hawaii, Department of Transportation, Highways Division, 2005.

10.10 AS BUILT DRAWINGS - The Contractor shall keep one (1) set of drawings at the job site and make all field changes thereon. After completion of the project, a PDF/A format digital file marked up with all the field changes shall be submitted to the Construction Engineer.

10.11 HARBOR SECURITY - The Contractor shall submit required documentation of all Contractor and subcontractor's employees, their representatives, suppliers, manufacturers, and alike, and of all necessary vehicles needing access to the project site to the Harbors Construction Engineer and Maui District Manager before starting work on the project. The documentation will include the following:

- A. Authorized personnel's first name, middle initial(s), and last name by company name.
- B. Vehicle(s) license plate number(s) by company name.
- C. The Contractor may be directed to use a specified entrance to enter and exit the harbor. Upon every entry, each employee must present and possess a photo identification (ID) card and a Transportation Worker Identification Credential (TWIC).
- D. All Contractor's and sub-contractor's employees, their representatives, suppliers, manufacturers, and authorized personnel needing access to the project site shall wear their photo ID card at all times.
- E. Contractor's vehicles must be identified with a company logo and will be subject to search. Any employee's personal belongings will also be subject to search.
- F. If the Contractor wishes to remove any fencing or open any locked gates, they shall coordinate with and request approval from the Harbors Construction Engineer and Maui District Manager. If approval is granted, the Contractor shall then be responsible for securing open fencing or gate(s) immediately after entering, or posting security personnel to monitor ingress and egress. Inspections of vehicles and equipment moving through the access points will be done in accordance with current MARSEC level and directives.

- G. If security personnel are required, the Contractor shall hire the same contract security that provides service to the State of Hawaii, Department of Transportation, Harbors. In the event that the security contract for Harbors changes, Contractor must hire the new security contractor.
- H. By the end of each day, the Contractor shall re-erect and restore all fencing/barrier/perimeter security measures to the satisfaction of the Harbors Construction Engineer and the Maui District Manager. Electricity and lighting shall also be restored and in satisfactory working order, to no less than pre-construction conditions, by the end of each day, to the satisfaction of the Harbors Construction Engineer and Maui District Manager.
- I. Under no circumstances shall perimeter security be compromised. If determined by the State, and solely by the State, that the contractor has left the project site in a condition that compromises security of the harbor, the State reserves the right to make the necessary arrangements to provide and enhance perimeter security, including restoration of electrical power and lighting, at the sole expense of the Contractor.
- J. At times, the maritime security level for the State of Hawaii and/or the security level for State of Hawaii may be temporarily elevated. In these events, the contractor may be prohibited to access the project site and may be required to stop work as directed by either the Harbors Construction Engineer or Maui District Manager. The Department of Transportation, Harbors will consider impacts to the work and schedule as a result of prolonged work stoppages.
- K. Prior to starting work on this project, the Contractor shall provide a list of names (full legal name) of all employees, representatives, subcontractors, vendors, and all alike, as well as their vehicles license number, that will be entering the project site. All employees, representatives, subcontractors, vendors, and all alike, shall wear their respective company's identification card bearing the company's name, the individual's first and last name, and middle initial(s), and a recent photograph of the individual on the front of the identification card at all times while on Harbor's property.

With the possible exception of Item J above, all other requirements indicated shall be considered incidental to the project and shall be provided by the contractor at no cost to the State.

The Contractor's personnel requiring unescorted access to secure areas of maritime facilities will be required to obtain a TWIC. No escorting of personnel is allowed. The project area has been deemed to be within a secured area. TWIC was established by Congress through the Maritime Transportation Security Act and is administered by the Transportation Security Administration (TSA) and U.S. Coast Guard. To obtain a TWIC, the applicant must provide biographic and biometric information such as fingerprints, sit for a digital photograph and successfully pass a security threat assessment conducted by TSA. The Contractor will be responsible to obtain and pay for all costs associated in providing their appropriate employees with TWIC. Information regarding TWIC is available on the TSA website at: <https://www.tsa.gov/for-industry/twic>.

10.12 COMPLETION TIME - All work for this project shall be completed within the specified time period as listed on page P-1 of the Proposal. The number of days shall commence on the issuance of the notice to proceed. The intent of the contract is to provide for the construction final acceptance of the work described by the contract documents at the accepted bid price and within the time established by the contract. The Contractor has the duty to furnish all labor, materials, equipment, tools, transportation, incidentals, and supplies and to determine the means, methods and schedules required to complete the work in accordance with the contract documents.

Unless otherwise directed by the Engineer in writing, the Contractor shall not commence with physical construction without sufficient materials and equipment available at the project site for either continuous construction until completion, or completion of a specified portion of the work.

10.13 PAYMENT - Payment shall be made as specified below. Such payment shall include furnishing all labor, material, equipment and other expenses required to complete each item in accordance with the plans and specifications.

Item 1 – Mobilization (Not to exceed 6% sum of all Items, excluding this Item). Payment shall be made at the lump sum price bid in the Proposal Schedule. Such payment described in Article XI of these Specifications shall include setting up all plant equipment and materials at the job site, providing temporary barricades as required for Harbor operations during construction, and all other incidental work required to complete this item.

Item 2 – Light Pole Repairs at Pier 1. Payment shall be made at the lump sum price bid in the Proposal Schedule. Such payment shall include repairing two light poles and pedestals, trenching for electrical lines, and all other incidental work required to complete this item.

Item 3 – Light Pole Repairs at Pier 2. Payment shall be made at the lump sum price bid in the Proposal Schedule. Such payment shall include demolition of three light poles and pedestals, furnishing and installing four new light poles and pedestals with drilled shaft foundations trenching for electrical lines, and all other incidental work required to complete this item.

ARTICLE XI - MOBILIZATION AND DEMOBILIZATION

11.1 GENERAL

- A. Related Documents - The General Provision of the contract, including the General Provisions for Construction Projects (2016) and General Requirements of the Specifications, apply to the work specified in this Section.
- B. General Requirements - Section 699 of “*Hawaii Standard Specifications for Road and Bridge Construction, 2005*,” are hereby incorporated into and made a part of these specifications by reference unless otherwise modified hereinafter.
- C. Mobilization - The Contractor shall mobilize and transport his construction plant and equipment including materials and supplies for operation to the site of work, construct temporary buildings and facilities as necessary, and assemble the equipment at the site as soon as possible after receipt of Notice to Proceed, subject to the provisions of the General Provisions.
- D. Demobilization - The Contractor shall demobilize and transport his construction plant and equipment including materials, supplies and temporary buildings off the site as soon as possible after construction is completed. Demobilization shall include all cleanup required under this contract and as directed by the Engineer. Demobilization and final cleanup shall be completed prior to final acceptance.
- E. Performance Bond
 - 1. The Contractor shall file and pay for the performance and payment bonds according to Section 2.24 of the General Provisions, except that the value of the bonds shall equal one hundred percent (100%) of the amount of the contract basic bid amount plus one hundred percent (100%) of the amount of the extra work.
 - 2. Payment for the Contractor’s bond premium will be made as part of mobilization in accordance to the terms stated in Section 11.4 below.

11.2 MATERIALS (Not Applicable)

11.3 EXECUTION (Not Applicable)

11.4 MEASUREMENT AND PAYMENT

- A. Method of Measurement
 - 1. Mobilization shall not be measured for payment. The maximum bid allowed for “Mobilization” is an amount not to exceed six (6) percent of the sum of all items (excluding this item). If the proposal submitted by the

bidder indicates an amount in excess of the allowable maximum, the indicated amount or amounts shall be reduced to the allowable maximum; the “Total Amount for Comparison of Bids,” in the proposal schedule shall be adjusted to reflect any such reduction. For the purposes of comparing bids and determining the contract price to be inserted in the contract awarded to the bidder, if any is so awarded, the “Total Amount for Comparison of Bids” adjusted in accordance with the foregoing shall be used and the bidder’s proposal shall be deemed to have been submitted for the amounts as reduced and adjusted in accordance herewith.”

2. Demobilization will not be measured for payment.

B. Basis of Payment

1. Mobilization will be paid for at the contract lump sum price under Mobilization. Partial payment will be made as follows:

- i. When 2 1/2 percent of the original contract amount is earned, 50 percent of the bid amount will be paid.
- ii. When 5 percent of the original contract amount is earned, 75 percent of the bid amount will be paid.
- iii. When 10 percent of the original contract amount is earned, 100 percent of the bid amount will be paid.
- iv. Nothing herein shall be construed to limit or preclude partial payments otherwise provided by the contract.

C. Payment for Mobilization shall be made as described in Article X of these Specifications.

ARTICLE XII – TEMPORARY WATER POLLUTION, DUST, AND EROSION CONTROL
For Project NOT Subject to NPDES NOI-C Permit

12.1 DESCRIPTION - This section is required for all work, including the Contractor's storage sites. It describes the following:

- A. A detailed site-specific Best Management Practice (BMP) Plan including diagrams and narratives; constructing, maintaining, and repairing temporary water pollution, dust, and erosion control measures at the project site including local material sources, work areas and access roads; removing and disposing of wastes and hazardous wastes; and control of fugitive dust (defined as uncontrolled emission of solid airborne particulate matter from any source other than combustion). Additionally, all projects at Honolulu, Kalaehoa Barbers Point, and Kahului Harbors are subject to State of Hawaii, Department of Transportation (HDOT) Harbors, Stormwater Management Plan (SWMP) requirements, unless exempted, and are subject to Harbors Stormwater BMP inspections. If any requirement conflicts with those administered by State of Hawaii, Department of Health (HDOH), the Contractor shall follow the more stringent requirement.
- B. Compliance with applicable federal and other state permit conditions.
- C. Work associated with dewatering and hydrotesting activities and compliance with conditions of the NPDES general permit coverage authorizing discharges associated with construction activity dewatering and hydrotesting.

12.2 GENERAL REQUIREMENTS - In order to provide for the control of water pollution, dust, and erosion arising from the construction activities of the Contractor and his subcontractors in the performance of this contract, the work performed shall comply with all applicable federal, state, and local laws and regulations concerning water pollution control including, but not limited to, the following regulations:

- A. State of Hawaii, HDOH, Hawaii Administrative Rules (HAR) Chapter 11-54 – Water Quality Standards and Chapter 11-55 – Water Pollution Control.
- B. For projects at Honolulu, Kalaehoa Barbers Point, and Kahului Harbors ONLY, HDOT Harbors, Stormwater Management Plan.
- C. For projects at Honolulu, Kalaehoa Barbers Point, and Kahului Harbors ONLY, City and County of Honolulu (CCH), Rules Relating to Water Quality.
- D. For projects at Honolulu, Kalaehoa Barbers Point, and Kahului Harbors ONLY, CCH, Storm Water BMP Manual for Construction.
- E. 40 CFR Part 110, Environmental Protection Agency (EPA), Discharge of Oil.

- F. 40 CFR Part 117, EPA, Determination of Reportable Quantities for Hazardous Substances.
- G. 40 CFR Part 261, EPA, Identification and Listing of Hazardous Waste.
- H. 40 CFR Part 302, EPA, Designation, Reportable Quantities, and Notification.
- I. 49 CFR Part 171, U.S. Department of Transportation, Hazardous Materials Regulations.

12.3 MATERIALS - Materials shall conform to the following when applicable:

- A. Slope Drains. Slope drains may be constructed of pipe, fiber, mats, erosion control fabric, geotextiles, rubble, Portland cement concrete, bituminous concrete, plastic sheets, or other materials acceptable to the Construction Engineer.
- B. Grass. Grass shall be quick growing species such as rye grass, Italian grass, or cereal grasses. Grass shall be suitable to the area and provide a temporary cover that will not compete later with permanent cover. Alternative grasses are allowable if acceptable to the Construction Engineer.
- C. Fertilizer and Soil Conditions. Fertilizer and soil conditioners shall be a standard commercial grade acceptable to the Construction Engineer.
- D. Silt Fences. Silt fences shall be synthetic filter fabric mounted on posts and embedded in compacted ground in compliance with American Society for Testing and Materials (ASTM) D6462-03, Standard Practice for Silt Fence Installation.
- E. Berms. Berms shall be gravel or sand wrapped with geotextile material. Alternate materials are allowable if acceptable to the Construction Engineer.
- F. Alternate materials or methods to control, prevent, remove, and dispose of pollution are allowable if acceptable to the Construction Engineer.

12.4 CONSTRUCTION

- A. Preconstruction Requirements.
 - 1. Temporary Stormwater Pollution, Dust, and Erosion Control Meeting. The contractor shall be required to submit a site-specific BMP Plan to the Construction Engineer and address all comments by the Construction Engineer. After the Plan is accepted in writing by the Construction Engineer, the Contractor shall schedule a meeting with the Construction Engineer before the start of construction work to discuss the sequence of work, and plans and proposals for stormwater pollution, dust, and erosion control.

2. Temporary Water Pollution, Dust, and Erosion Control Submittals.
The Contractor shall submit the site-specific BMP Plan to the Construction Engineer prior to the start of work for review of compliance with this Article. A site-specific BMP Plan template is available online at <https://hidot.hawaii.gov/harbors/malamaikeawakai/>, under **HDOT Harbors Construction and Post-Construction Programs – Documents and Forms.**
- a. Written site-specific BMP Plan shall include the following as applicable:
- 1) Identification of potential pollutants and their sources and other factors that may cause water pollution, dust, and erosion.
 - 2) A list of all material and heavy equipment to be used during construction. Vehicles and equipment shall be well maintained and free from any type of fluid leaks.
 - 3) Construction schedule.
 - 4) Name(s) of specific individual(s) designated responsible for water pollution, dust and erosion controls on the project site. Include home, business, and cellular telephone numbers, fax numbers, and e-mail addresses.
 - 5) Descriptions of the methods and devices used to eliminate certain pollutants (e.g., wastewater, fuels, solvents, detergents, toxic or hazardous substances) from discharging into state waters and drainage systems, and provide details of BMP(s) to be installed or utilized. Indicate approximate dates when BMP(s) will be installed and removed.
 - 6) Description of maintenance and subsequent removal of BMP(s).
 - 7) Method(s) of removal and disposal of solid and regulated hazardous wastes encountered or generated during construction. The Contractor is advised to procure regulated hazardous materials on an as-needed basis, as feasible. All excess regulated hazardous materials at the conclusion of this project shall remain the property of the Contractor and shall be removed from HDOT Harbors property upon the completion of the project.
 - 8) Method(s) of removing and disposing concrete and asphalt pavement cutting slurry, concrete curing water, and hydrodemolition water.

- 9) Method(s) of containing, removing and disposing of demolition dust and debris to minimize the discharge of these pollutants into state waters and drainage systems.
- 10) Spill kit contents and location.
- 11) Fugitive dust control, including dust from grinding, sweeping, or brooming off operations or combination thereof.
- 12) Method(s) of storing and handling of regulated hazardous materials (e.g. oils, paints) and other products used for the project. Safety Data Sheets (SDS) for all regulated hazardous materials used during construction activities shall be kept on-site throughout the duration of the project and readily available upon inspection. All containers of regulated hazardous materials should be provided with secondary containment during storage. Regulated hazardous materials not specifically needed in the execution of this project shall not be brought or stored on site. As feasible, the Contractor is encouraged to use products that do not contain any regulated constituents. The use of green products is encouraged.
- 13) Method(s) of concrete washout/waste control.
- 14) Method(s) of managing material stockpiles to minimize erosion and dust.
- 15) Good housekeeping practices.
 - a) Minimize tracking of sediment offsite from project entrances and exits.
 - b) Litter management. The Contractor shall have a comprehensive housekeeping policy and shall actively enforce housekeeping requirements. Housekeeping items include, but are not limited to, cups, cans, bottles and other forms of lightweight litter, unattended containers of hazardous materials, concrete debris (e.g. dust, chips, and other sweepings), and discarded articles of disposable Personal Protective Equipment (e.g., earplugs, dust masks, and gloves). Employees who are specifically tasked with housekeeping duties shall be identified by name.

- c) The Contractor should provide and maintain covered waste receptacles. No construction debris or other refuse that is generated as a result of project activities is to be disposed in HDOT Harbors-owned waste receptacles.
- 16) Provide plan(s)/drawing(s) showing location of followings when applicable:
- a) Boundaries of the property and the locations where construction activities will occur, including:
 - i. Locations where earth-disturbing activities will occur (noting any sequencing of construction activities);
 - ii. Approximate slopes and drainage patterns with flow arrows before and after the construction;
 - iii. Locations where sediment, soil, or other construction materials will be stockpiled;
 - iv. Locations of any contaminated soil or contaminated soil stockpiles;
 - v. Locations of any crossings of state waters;
 - vi. Designated points on the site where vehicle will exit onto paved roads;
 - vii. Locations of structures and other impervious surfaces upon completion of construction; and
 - viii. Locations of construction support activity areas.
 - b) Locations of all state waters, including wetlands and indicate which water bodies are listed as impaired.
 - c) The boundary lines of any natural buffers.
 - d) Topography of the site, existing vegetative cover, and features (e.g., forest, pasture, pavement, structures), and drainage pattern(s) of stormwater

onto, over, and from the site property before and after major grading activities.

- e) Stormwater discharge locations, including locations of any storm drain inlets on-site and in the immediate vicinity of the site to receive stormwater runoff from the project; and locations where stormwater will be discharging to state waters (including wetlands).
 - f) Locations of all potential pollutant-generating activities.
 - g) Locations of stormwater control measures; and
 - h) Locations where chemicals will be used and stored.
- 17) Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Parts 110, 117, or 302, occurs during a 24-hour period. Contact information must be in locations that are readily accessible and available.
- 18) The Contractor shall date and sign the site-specific BMP Plan.
- b. The Contractor shall keep the accepted Plan on-site or at an easily accessible location throughout the duration of the project. Revisions to the Plan shall be included with the original plan. The Contractor shall obtain written acceptance from the Construction Engineer before revising BMP. An updated Plan shall be kept on-site throughout the remainder duration of the project.

The Contractor shall follow guidelines in the “*The City and County of Honolulu Storm Water Best Management Practice Manual – Construction*,” (dated November 2011) in developing, installing, and maintaining BMP for the project. Additionally, the Contractor shall follow City and County of Honolulu “*Rules Relating to Soil Erosion Standards and Guidelines*” (dated April 1999) for all projects at Honolulu, Kalaehoa Barbers Point, and Kahului Harbors, and use respective Soil Erosion Guidelines for other Maui, Kauai and Hawaii County projects. Information can be found at the respective County websites.

2. Construction Requirements are as follows.
 1. No work shall be allowed to begin until submittals detailed in Subsection 12.4.A.2 – Temporary Water Pollution, Dust, and Erosion Control Submittals are completed and accepted in writing by the Construction Engineer. The Contractor shall prevent pollutants from entering state waters. These efforts shall address areas such as those that drain to water, are over water, or drain to storm drains in the area of the project site. The Contractor shall design, operate, implement, and maintain the Plan to ensure that storm water discharges associated with construction activities will not cause or contribute to a violation of applicable state water quality standards.
 2. All projects at Honolulu, Kalaehoa Barbers Point, and Kahului Harbors are subject to HDOT Harbors SWMP requirements for construction at those harbors unless the project meets a specified exemption class. The requirements include, but are not limited to, construction site BMP initial, recurring (i.e. every two weeks from October through March and every two months otherwise), and final inspections at the frequencies outlined in the SWMP. No grading or land disturbance activities are allowed until the initial BMP inspection is completed and required BMPs are found to be properly installed.
 3. Address all comments received from the Construction Engineer.
 4. Modify and resubmit plans and construction schedules to correct conditions that develop during construction which were unforeseen during the design and pre-construction stages.
 5. Coordinate temporary control provisions with permanent control features throughout the construction and post-construction period.
 6. BMP shall be in place and operational until the construction is completed and accepted by Harbors.
 7. Install and maintain either or both stabilized construction entrances and wheel washes to minimize tracking of dirt and mud onto roadways. Restrict traffic to stabilized construction areas only. Clean dirt, mud, or other material tracked onto the road immediately. Modify stabilized construction entrances to prevent mud from being tracked onto roadways.
 8. Chemicals may be used as soil stabilizers for either or both erosion and dust control if acceptable to the Construction Engineer.

9. Cover exposed surface of materials completely with tarpaulin or similar device when transporting aggregate, soil, excavated material or material that may be a source of fugitive dust.
 10. Clean up and remove any pollutant that can be attributed to the Contractor.
 11. Install or modify BMP due to change in the Contractor's means and methods, or for omitted condition that should have been allowed for in the accepted site-specific BMP Plan or a BMP that replaces an accepted site-specific BMP that is not satisfactorily performing.
 12. Properly maintain BMP.
 13. Remove, replace or relocate any BMP that must be removed, replaced or relocated due to potential or actual flooding, or potential danger or damage to the project or public.
 14. The Contractor's designated representative specified in Subsection 12.4.A.2.a.4 shall address any BMP concerns brought up by the Construction Engineer within 24 hours of notification, including weekends and holidays. Should the Contractor fail to satisfactorily address these concerns, the Construction Engineer reserves the right to employ outside assistance or use the Construction Engineer's own labor forces to provide necessary corrective measures. The Construction Engineer will charge the Contractor such incurred costs plus any associated project engineering costs. The Construction Engineer will make appropriate deductions from the Contractor's monthly progress estimate. Failure to apply BMP shall result in either or both the establishment and increase in the amount of retainage due to unsatisfactory progress or withholding of monthly progress payment. Continued failure to apply BMP may result in one or more of the following: The Contractor being fully responsible for all additional costs incurred by HDOT Harbors including any fines levied by HDOH, suspension of the Contract, or cancellation of the Contract.
3. Hydrotesting Activities. If work includes removing, relocation or installing waterlines, and the Contractor elects to flush waterline or discharge hydrotesting effluent into state waters or drainage systems, obtain a Notice of General Permit Coverage (NGPC) authorizing discharges associated with hydrotesting waters from the HDOH Clean Water Branch (CWB). If a permit is required, prepare and submit permit application (CWB-Notice of Intent (NOI) Form F) to the HDOH CWB.

Do not begin hydrotesting activities until the HDOH CWB has issued a NGPC. Hydrotesting operations shall be in accordance with conditions in the NGPC. Submit a copy of the NPDES Hydrotesting Waters Application and Permit to the Construction Engineer.

4. Dewatering Activities. If excavation of backfilling operations requires dewatering, and the Contractor elects to discharge dewatering effluent into state waters or existing drainage systems, obtain an NGPC authorizing discharges associated with construction activity dewatering from the HDOH CWB. If a permit is required, prepare and submit permit application (CWB-NOI Form G) to the HDOH CWB.

Do not begin dewatering activities until the HDOH-CWB has issued an NGPC. Conduct dewatering operations in accordance with the conditions in the NGPC. Submit a copy of the NPDES Dewatering Application and Permit to the Construction Engineer.

12.5 MEASUREMENT

- A. Installation, maintenance, monitoring, and removal of the BMP will be paid on a lump sum basis. Measurement for payment will not apply.
- B. The Construction Engineer will only measure additional water pollution, dust and erosion control required and requested by the Construction Engineer on a force account basis in accordance with Subsection 109.06 - Force Account Provisions and Compensation of the "*Hawaii Standard Specification for Road and Bridge Construction, 2005.*"

12.6 PAYMENT – Payment for Temporary Water Pollution, Dust, and Erosion Control shall not be measured and paid for separately but shall be considered incidental to the applicable items described in Article X of these Specifications.

No progress payment will be authorized until the Construction Engineer accepts in writing the site-specific BMP Plan or when the Contractor fails to maintain the project site in accordance with the accepted BMP Plan.

The Contractor shall reimburse the State of Hawaii within 30-day for the full amount of all outstanding costs incurred by the State of Hawaii for all citations or fines received as a result of the Contractor's non-compliance with regulations.

ARTICLE XIII – CONCRETE WORK

13.1 GENERAL

- A. Work under this Article includes furnishing all labor, materials and equipment necessary to perform concrete work related to light pole foundations and pedestals.
- B. In general, the work includes, but is not necessarily limited to the following:
 - 1. At Pier 1
 - a. Demolition and removal of two light poles and concrete pedestals.
 - b. Repairing two concrete pedestals.
 - 2. At Pier 2
 - a. Demolition and removal of three light poles.
 - b. Furnishing and installing four light poles and concrete pedestals with drilled shaft foundations.
- C. All work shall be in accordance with the following sections of the Standard Specifications except as modified or supplemented herein:

Section 503 Concrete Structures
Section 511 Drilled Shafts
Section 601 Structural Concrete
Section 602 Reinforcing Steel
Section 711 Concrete Curing Materials and Admixtures

Sections on Materials referenced in the above sections are hereby incorporated.

13.2 MATERIALS

- A. Concrete - Concrete shall be regular weight hard rock concrete and shall have a minimum 28-day compressive strength of $f'c = 5,000$ psi. Concrete shall conform to Section 601 “Structural Concrete” of the Standard Specifications.
- B. Concrete Admixtures - Admixture to be used in the concrete shall be approved by the Construction Engineer and shall conform to Section 711 of the Standard Specifications. Contractor shall strictly adhere to the manufacturer’s recommendations regarding the use of admixtures including storage, transportation and method of mixing.

CORTEC MCI 2005NS migrating corrosion inhibiting admixture manufactured by Cortec Corporation, or approved equal, shall be added at the following rate and as recommended by the manufacturer.

CORTEC MCI 2005NS: 1.5 pints per cubic yard of concrete

To combat climate change and reduce the concrete carbon footprint, supplementary cementitious material(s) shall be used to reduce the cement content in the concrete for this project. The following supplementary cementitious material shall be substituted for cement by weight at the following rate and as recommended by the concrete supplier.

Silica Fume: 10% of cement by weight

The maximum water to cementitious materials ratio shall be 0.40 and the mix water shall be reduced as necessary to account for the admixture.

- C. Reinforcing Steel - Reinforcing shall be ASTM A615 Grade 60.
- D. Reinforcing Steel Anti-Corrosion Coating - Anti-corrosion coating with a minimum 7 day open time for reinforcing steel shall be Sika Armatec 110 Epocem by Sika, or approved equal.
- E. Epoxy Grout - Epoxy for grouting of dowels shall be SET 3G by Simpson Strong-Tie, or approved equal.
- F. Patching Compound for form and pour applications shall be Sikacrete 211 SCC Plus by Sika, or approved equal.
- G. Curing Compound for concrete repairs shall be acceptable to the Harbors Construction Engineer.
- H. Forms shall conform to Section 503.03.C “Forms” of the Standard Specifications.
- I. Snap ties and inserts shall be plastic or stainless steel. All reinforcing steel shall be secured with ties at all intersections with adjacent reinforcing steel.

13.3 CONSTRUCTION METHODS

- A. Concrete Demolition and Removal - Concrete shall be removed as shown on the drawings. Cut existing reinforcing steel, anchor bolts and conduits a minimum of 3 inches below concrete and coated with anti-corrosion coating. Removed material shall be disposed of away from the project site in a lawful manner at no cost to the State.
- B. Surface preparation for repairs to portions of existing light pole bases to remain at Pier 2 shall follow the International Concrete Repair Institute (ICRI) Guideline

No. 310.R-2008. The sizes, locations and types of repair work specified on the drawings are intended to be approximate only. The actual amount and type of repair work to be done shall be determined after completion of the removal work. Removal and surface preparation shall be performed in the order listed below.

1. All visible loose and deteriorated concrete shall be removed with suitable pneumatic or hand tools until only sound concrete remains.
2. Such chipped areas and adjoining areas shall be further sounded by tapping with a light hammer. Areas emitting a hollow sound indicating unsound and delaminated concrete with voids shall be further chipped to sound concrete and beyond the extent of the corroded reinforcing.
3. Partially exposed reinforcing steel or steel exposed during the concrete chipping process shall be fully exposed throughout their length within the repair area. There shall be a minimum of 3/4 inch of clear distance between the reinforcing steel and the chipped surface of the existing concrete for placing patching compound or concrete.
4. The edges of the repair shall be saw-cut and chipped as necessary to attain a minimum repair material depth of 3/4 inch and to prevent featheredge conditions.
5. The existing concrete in the repair areas shall be chipped to approximate rectangular dimensions to facilitate the repair work.
6. The patch area shall be cleaned of all dust and debris just prior to patching with high pressure, oil-free compressed air with appropriate PPE's and containment.

C. Drilled Shaft Foundations

1. Foundation design is based on the Geotechnical Exploration for S30217 Repair Light Poles At Piers 1-2, Kahului Harbor, Maui, Hawaii, W.O. 8619-00 prepared by Geolabs, Inc. and dated August 26, 2024.
2. Installation of drilled shaft foundations shall be performed by an experienced drilled shaft contractor or subcontractor with a minimum of five (5) years of experience of projects of similar scope. The Contractor shall submit a list of 2 similar projects performed within the last 5 years. In addition, the Contractor shall provide an installation plan in accordance with Specification 511 - Drill Shafts, Section 511.03(B)
3. A representative of the geotechnical engineer shall be present at the project site to observe excavation and concrete placement for drilled shaft foundations. The Contractor shall give timely notice of the project schedule and provide access at the project site. The State will be responsible for payment of the representative of the geotechnical engineer.

4. Temporary casing shall be used to reduce the potential for caving-in of the drilled hole during drilled shaft installation. Before withdrawing casing, ensure level of fresh concrete in casing is 5 feet minimum above hydrostatic water level. While withdrawing casing, maintain adequate level of concrete within casing so that fluid trapped behind casing is displaced upward and discharged at ground surface without contaminating or displacing shaft concrete.
5. Drilling by methods utilizing drilling fluids may have a significant effect on the supporting capacity of the drilled shaft. Use of drilling fluids for drilling operations for drilled shaft foundations shall be submitted to the geotechnical engineer for evaluation and acceptance.
6. The bottom of the drilled hole should be relatively free of loose materials prior to the placement of concrete.
7. Concrete for drilled shafts shall be placed promptly after substantial completion of drilling (within 24 hours after drilling of the holes) to reduce the potential for softening of the sides of the drilled hole.
8. Groundwater conditions are anticipated within the depths of the drilled shaft excavations and, therefore, concrete placement shall be performed by tremie methods. The concrete shall be placed in a suitable manner by displacing the water in an upward fashion from the bottom of the drilled hole. A low-shrink concrete mix with a high slump (7 to 9 inch slump range) shall be used. Contractor shall provide for design and installation of all underpinning, cribbing, sheeting, and shoring necessary to preserve excavations and earth banks.

D. Stanchions

1. Pipe stanchion footings shall bear on undisturbed in-situ firm soils. Bottom of footings shall be compacted to provide a relatively firm and smooth bearing surface prior to placement of reinforcing steel and concrete. If soft and/or loose materials are encountered at the bottom of footing excavations, they shall be over-excavated to expose the underlying firm materials. The over-excavation shall be backfilled with select granular material compacted to a minimum of 95% relative compaction or the footing bottom may be extended down to the underlying competent material.
2. During construction, drainage shall be provided to minimize ponding of water adjacent to or on foundation and pavement areas. ponded areas shall be drained immediately. Any subgrade soil that has become soft due to ponding shall be removed to firm material and replaced with compacted structural fill.

- E. Live Load Limitation
1. Any element being repaired shall not be subjected to live loads during the period starting from the removal of existing concrete until the repair concrete has been allowed to cure for 7 days or obtained a minimum compressive strength of $f'c=4,000$ psi.
 2. The repair area shall remain barricaded with barriers visible at night from traffic during this period.
- F. Cleaning Reinforcing Steel - All exposed concrete and existing reinforcing steel at demolished areas to be repaired shall be needle gunned to remove all scale, loose rust, debris and other bond-inhibiting materials. Existing reinforcing bars with less than 80% of their cross-section remaining after cleaning shall be brought to the attention of the Harbors Construction Engineer Any areas not patched more than 48 hours after cleaning shall be recleaned.
- G. Reinforcing Steel Coating - All exposed existing reinforcing steel at Pier 1 pedestals and demolished poles shall be liberally coated with anti-corrosion coating per manufacturer's recommendations.
- H. Epoxy Grouting - Blow holes completely clean of all concrete debris to allow for adequate bonding of the epoxy. The holes shall be filled with epoxy gel before inserting and turning the supplemental reinforcement to displace the grout.
- I. Formwork - Formwork shall be installed in accordance with Section 503.03.C - "Forms" of the Standard Specifications. The exact method of formwork requires the Construction Engineer's approval. Forms shall be designed to provide a minimum of three (3) inches of concrete cover over all reinforcing steel, unless noted otherwise. All edges of concrete repairs shall be chamfered and existing joints shall be maintained.
- J. Placing Concrete - Concrete shall be placed in accordance with Section 503.03 - "Construction" of the Standard Specifications. All surfaces including forms shall be thoroughly washed with clean water and remain in a saturated surface dry condition prior to placing concrete. Surfaces shall be clean and free of loose and other bond-inhibiting materials. Concrete shall be vibrated, rodded or tamped during placement to consolidate the pour and fill all corners of the patch or form and beneath the reinforcing. As an alternate self-consolidating concrete maybe used. There shall be no cold joints in the field of the repair.
- K. Patching Compound - Patching compound shall be used to repair demolished portions of the light pole bases and to fill minor depressions such as those caused by the installation of expansion anchors used for formwork support. The Contractor shall follow the manufacturer's recommendations for mixing and placing patching compound, including application of a slurry coat to prime the substrate and application of the repair material in lifts.

- L. Finish - Concrete finish shall be Class I - Ordinary Surface Finish as specified in Section 503.03.M.1 of the Standard Specifications. Provide smooth finish on pier decks for all holes patched. Cementitious compound used to patch holes shall be finished to the level of the concrete surface to match existing elevation and composition.
- M. Formwork Removal - Formwork for all repairs shall not be removed for a minimum of 24 hours and until concrete has obtained a minimum compressive strength of $f'c = 4,000$ psi.
- N. Concrete Curing - Concrete repairs shall be cured a minimum 7 days by leaving the forms in place or covering the surface with a curing compound approved by and acceptable to the Harbors Construction Engineer.
- O. Defective Work - After forms have been removed, the repaired area shall be tested by tapping with a hammer. Any “hollow” sound emitted shall indicate the presence of voids and shall be sufficient cause for removal of repair work and reconstruction. The method of repairing defects shall be subject to the approval of the Harbors Construction Engineer. All defects shall be corrected by the Contractor at no additional cost to the State.

13.4 PAYMENT - Payment for concrete work shall be made as described in Article X of these Specifications.

ARTICLE XIV – ELECTRICAL WORK

14.1 GENERAL

- A. Description - The work under this article of the specifications consists of the furnishing and installation of all labor and materials required to complete all electrical work as indicated on the drawings and/or specified herein. The work includes but is not limited to the following:
1. Removal of existing light pole assemblies and luminaires.
 2. Provision of new light pole assemblies including luminaires.
 3. Provision of new underground electrical distribution system, including ductlines, handholes, and conductors.
 4. As-built drawings.
 5. Electrical apparatus including circuit breakers and junction boxes.
 6. Testing.
- B. **Work included in this Article must be completed by a valid State of Hawaii Specialty Contractor licensed “C-13” Electrical Contractor.**
- C. Coordination with Other Trades - During pricing and construction, Contractor shall coordinate his work with other trades to avoid omissions and overlapping of responsibilities.
- D. Special Conditions
1. Contractor shall arrange for Harbors Division inspection and acceptance of new work.
 2. The Harbors Division Construction Engineer shall witness all tests. The Contractor shall schedule all testing, in writing, with the Harbors Division Construction Engineer, a minimum of two (2) weeks prior to testing.
- E. Rules and Permits - The entire installation shall be done in strict accordance with the latest rules and regulations of the National Electrical Code (NEC), National Electrical Safety Code (NESC) and any applicable local electrical ordinances.
- F. Symbols - The standard electrical symbols, together with the special symbols, notes and instructions indicated on the drawings, describe the work required and are to be included as a part of these specifications.

- G. Drawings and Coordination of Work - These specifications are accompanied by drawings indicating the location of work to be performed.
1. The drawings and these specifications are complementary, each to the other, and what is called for by one shall be as binding as if called for by both.
 2. Every effort has been made to indicate clearly and specifically all work required to be performed by the Contractor; however, any item of material, equipment or work not specifically called for herein or on the drawings but which is required to complete the installation so that it will conform to the NEC, NESC, local laws, and the intent and meaning of the plans and specifications, shall be furnished and installed by the Contractor at no additional cost to the State.
 3. Before installing, verify all dimensions and sizes of equipment at job site. Conduit routing is typical and may be altered in any logical manner. However, all changes shall be approved by the Harbors Division Construction Engineer and shown on “as-built” drawings.

14.2 SUBMITTALS

- A. The Contractor shall submit shop drawings for approval in accordance with Article VII - Material Submittals and Shop Drawings.
1. Light pole assemblies, including luminaire mounting brackets, accessories, installation, and construction details. Submit dimensions, wind load determined in accordance with AASHTO LTS2, pole deflection, pole class and other application information.
 2. Luminaires, including drivers and luminaire photometric data.
 3. Network lighting control equipment.
 4. Junction boxes.
 5. Handholes including frame and cover.
 6. Warning tape.
- B. Operation and Maintenance Manuals - LED luminaires.
- C. LED Luminaire Warranty.

- D. Shop drawings and catalog cuts for substitute materials shall clearly specify compliance with and/or deviation from specified material. Approval of shop drawings and catalog cuts shall not release Contractor from complying with intent of specifications and drawings. Any deviations from approved shop drawings shall have prior approval by the Harbors Division Construction Engineer.
- E. Photometric Data and Illumination Calculations
1. Photometric data certified by an independent testing laboratory. Testing shall be in accordance with IESNA LM-79-2008 test methods. Test report shall include laboratory name, report number, data, luminaire catalog number, and luminaire/light source specifications. Excerpts of test data on manufacturer's letterhead are not acceptable. Relative or scaled photometric data is not acceptable.
 2. Test data for lumen maintenance on LED light sources. Testing shall be in accordance with IESNA LM-80-2008 test methods.
 3. Photometric Data in IES Format: Provide photometric data for the specific luminaire provided in ANSI/IESNA LM-63-02 format. Multiple files or a library of photometric data is unacceptable.
 4. Illumination Calculations: Provide illumination calculations for the areas indicated on the drawings. The calculations shall be plotted on 11 inches x 17 inches or 24 inches x 36 inches paper and shall include summary tables. The summary tables shall include the luminaire description and calculation results. Calculations shall include maintained minimum, average, and maximum footcandle levels. Calculations shall also include maximum/minimum and average/minimum footcandle levels. Calculations shall also include average/minimum uniformity ratios. Point-to-point footcandle values shall be provided at 10 feet on center horizontally within the indicated calculation area. Calculations shall utilize a 0.8 light loss factor.

14.3 MATERIALS AND EQUIPMENT

A. General

1. Materials and equipment shall be new (unless otherwise specified herein) and shall bear the inspection label of the Underwriter's Laboratories, Inc. where such inspection and labeling service is rendered for the materials and equipment in question.
2. Brand names and catalog numbers used herein to specify materials and equipment (unless otherwise noted) are to indicate the standards of design and quality required. Materials and equipment of equal quality of other

manufacturers will be accepted subject to the approval of the Harbors Division Construction Engineer.

3. Electrical distribution equipment, light poles and luminaires shall be supplied through a locally-based manufacturer's designated representative by a local distributor.
4. Where two or more similar type items are furnished, all shall be of the same manufacture, e.g. safety switches shall be of the same manufacturer unless otherwise noted.

B. Luminaires

1. UL 1598, NEMA C82.77 and UL 8750. Provide luminaires as indicated in luminaire schedule or details on project plans. Provide luminaires complete with light sources of quantity, type, and wattage indicated. All luminaires of the same type shall be provided by the same manufacturer.
2. LED luminaires shall be rated for operation within an ambient temperature range of minus 22 degrees F to 104 degrees F.
3. Luminaires shall be UL listed for wet locations per UL 1598. Optical compartment for LED luminaires shall be sealed and rated a minimum of IP65 per NEMA IEC 60529.
4. Luminaires shall have IES distribution and NEMA field angle classifications as indicated in luminaire schedule on project plans per IES HB-10.
5. Luminaires shall be fully assembled and electrically tested prior to shipment from factory.
6. The finish color shall be as indicated in the luminaire schedule or detail on the project plans.
7. Incorporate modular electrical connections, and construct luminaires to allow replacement of all or any part of the optics, heat sinks, power supply units, surge suppressors and other electrical components using only a simple tool, such as a manual or cordless electric screwdriver.

8. Luminaires shall have a nameplate bearing the manufacturer's name, address, model number, date of manufacture, and serial number securely affixed in a conspicuous place. The nameplate of the distributing agent will not be acceptable.
9. Luminaires shall have an integral tilt adjustment of plus or minus 5 degrees to allow the unit to be leveled in accordance with ANSI C136.3.
10. Luminaire must pass 4G vibration testing in accordance with NEMA C136.31.
11. All factory electrical connections shall be made using crimp, locking, or latching style connectors. Twist-style wire nuts are not acceptable.
12. Provide high temperature fuse holders with fuse, factory installed inside the luminaire housing.
13. LED Light Sources
 - i. Correlated Color Temperature (CCT) shall be in accordance with NEMA ANSLG C78.377. Nominal CCT: 4000 degrees K unless otherwise indicated.
 - ii. Color Rendering Index (CRI) shall be greater than or equal to 70 for 4000 degrees K light sources.
14. LED Power Supply Units (Drivers) - UL 1310. LED Power Supply Units (Drivers) shall meet the following requirements.
 - i. Minimum efficiency shall be 80 percent.
 - ii. Shall be designed to operate on the voltage system to which they are connected, typically ranging from 120 V to 480 V nominal.
 - iii. Operating frequency shall be 60 Hz.
 - iv. Power Factor (PF) shall be greater than or equal to 0.90.
 - v. Total Harmonic Distortion (THD) current shall be less than or equal to 20 percent.
 - vi. Shall be mounted integral to luminaire. Remote mounting of power supply is not allowed.

- vii. Shall be equipped with over-temperature protection circuit that turns light source off until normal operating temperature is achieved.
 - viii. Shall be dimmable, and compatible with a standard dimming control circuit of 0 - 10V or other approved dimming system as indicated.
15. LED Luminaire Surge Protection - Provide surge protection integral to luminaire to meet C Low waveforms as defined by IEEE C62.41.2, Scenario 1, Location Category C.
 16. A warranty must be provided for full replacement of LED luminaires, due to any failure for a period of 5 years. The warranty shall provide for the repair or replacement of the luminaire and LED power components (LED driver, light source thermal control device and surge protector).

C. Networked Lighting Control System

1. New luminaires shall be integrated into the existing Harbors Division GE Light Grid, networked wireless lighting control system.
2. Compatible and interoperable mechanically and electrically (directly attached without external wiring or cables) with the luminaire specified.
3. Capable of transmitting data wirelessly between nodes via 4G LTE Cat-M1 cellular network to central management lighting control system.
4. Capable of actuating the ON state and OFF state of the luminaires where the OFF state results in zero power to the luminaire. Capable of actuating a luminaire in the DIMMED state by creating a control signal that complies with the specified 0-10V standard and at a rate of one percent per second.
5. Capable of responding to any command received by the Harbors Division backhaul network in in less than 3 seconds for a single command to a single node.
6. Full autonomous photocell where dependency on the wireless network is not necessary to turn ON or OFF the luminaire.
7. Internal lights visible through photocell window to indicate operational state of control node.
8. Field Device (Control Node)
 - i. Hi-impact resistant, UV stabilized polycarbonate terephthalate and polycarbonate, color coded per ANSI C136.10 housing and base.

- ii. Solid brass, three prong locking type per ANSI C136.10 and two additional contacts and provisions for future contacts per ANSI C136.31 (ANSI Dimming).
 - iii. Medium cellular silicone gasket for outdoor use.
 - iv. Wet rated, Type 2 outdoor use per UL 773.
 - v. Voltage to match the operating voltage of the luminaire, 50/60 Hz, less than 2W power consumption at 120-277V, 0-10V dimming per IEC 60929, 450W minimum rated load, silicon phototransistor with IR filter, 0.5% energy measurement accuracy per ANSI C12.20.
9. Coordinate with the lighting control system manufacturer and Harbors Division to integrate, program and test the network control system for completeness and functional operation.
- D. Light Poles - Provide as indicated on the contract drawings. Painting of poles shall be performed either in the field or at the factory. Refer to Article IV - Concrete Work for requirements.
- E. Junction Boxes
1. Junction Box Within Pedestal: Cast iron, drilled and tapped conduit entry, NEMA 4, neoprene gasket, stainless steel Type 316 screws, size as indicated.
 2. Surface-Mounted Junction Boxes - Stainless steel Type 316 NEMA 4X, neoprene gasket, stainless steel Type 316 screws, size as indicated.
- F. Circuit Breakers
1. Circuit breakers, unless otherwise shown, shall be molded case, toggle mechanism operated, with no-fuse ambient-compensated thermal-magnetic overload automatic trip units for overcurrent and short-circuit protection, contacts rated to interrupt short-circuit currents as specified on Drawings. Multi-pole breakers shall have single, common operating handle for all poles. Toggle positions "ON", "OFF" and "TRIPPED" and breaker rating engraved or embossed on body and visible without removing enclosure cover.
 2. Enclosures for breakers to be NEMA 4X stainless steel, Type 316.
- G. Precast Handholes - Handholes, including metal frames and covers, shall be the type noted on the drawings and shall be constructed in accordance with applicable details as indicated and required by reference utility company standard drawings. Top, walls, and bottom shall consist of reinforced concrete. Walls and bottom

shall be monolithic construction. Covers shall fit the frames without undue play. Steel and iron shall be formed to shape and size with sharp lines and angles. Castings shall be free from warp and blow holes that may impair their strength or appearance. Exposed metal shall have a smooth finish and sharp lines and arises. Provide all necessary lugs, rabbets, and brackets. Set pulling-in irons and other built-in items in place before depositing concrete. A pulling-in iron shall be installed in the wall opposite each ductline entrance.

H. Raceways

1. Rigid Steel Conduit - Rigid steel, zinc-coated inside and outside, for use with threaded fittings. Minimum 3/4-inch diameter. All exposed rigid steel conduits shall be painted similar to floodlight poles. Refer to Article XV – Epoxy Coating for requirements.
2. Plastic Conduit - Polyvinyl chloride (PVC) Schedule 40. All underground ductlines shall be concrete encased.

I. Wire and Cable

1. Conductors - All conductors shall be copper, No. 12 AWG minimum. No. 8 AWG and larger diameter shall be stranded; No. 10 AWG and smaller shall be solid. Do not provide wires and cables manufactured more than 12 months prior to the date of delivery to the site. Aluminum conductors shall not be provided.
2. Color Coding - Provide for feeder and branch circuit conductors. Color shall be green for grounding conductors and white for neutral conductor. Color of ungrounded conductors shall be as follows:

208/120 volt, three phase:

- a) Phase A - black
- b) Phase B - red
- c) Phase C - blue

480/277 volt, three phase:

- d) Phase A - brown
- e) Phase B - orange
- f) Phase C - yellow

3. Insulation - Type XHHW or RHW-2 unless otherwise specified.

4. Bonding Conductors - Solid bare copper wire for sizes No. 8 AWG and smaller diameter; Class B, stranded bare copper wire for sizes No. 6 AWG and larger diameter.
 5. Lighting Branch Circuit Wiring - Conductors shall be of No. 10 American Wire Gauge (AWG) minimum size, except where otherwise indicated. Conductor installation shall be Type RHW-2 or VW-1; 90 degrees C rated. Minimum insulation thickness shall be 45 mils. All conductors shall be 7-strand copper, 600 volts.
- J. Splices - Any splices necessary shall be compression type, mechanically firm and made only in wireway, pull boxes or handholes. Splices shall be sufficiently taped and coated to provide a completely waterproof permanent joint. An approved plastic electrical tape and waterproof coating shall be used. A minimum of two layers of tape shall be applied.
- K. Electrical Tapes
1. Insulating Tape - UL 510, plastic insulating tape, capable of performing in a continuous temperature environment of 80 degrees C.
 2. Other Tapes - Tapes shall be UL listed for electrical insulation and other purposes in wire and cable splices. Terminations, repairs and miscellaneous purposes, electrical tapes shall comply with UL 510.
- L. Cable Wrap - Nylon, conforms to the following M.I. Specs: I 631D, T 21922A, M 20693A Type II, M 20693B Type I, M 22096, M 22096A, M 19098 and T 47287A Type II. Manufactured by Heyco Products, Inc. or approved equal.
- M. Cable Support Grip - Wire mesh grip, tin-coated bronze wire or stainless-steel wire (302 - 304). Manufactured by Hubbell or approved equivalent.
- N. Warning Tape - Pre-printed polyethylene tape marked with "CAUTION BURIED ELECTRICAL LINE BELOW," 4 mil thick, detectable foil backed, 3" minimum width.
- O. Duct Seal - Pliable, non-toxic material used for application around and in conduits and to minimize moisture and rodent/insect infiltration. Must be re-enterable material allowing for removal/reapplication after initial installation. Non-drying, non-cracking, non-corrosive material that will not adversely affect raceways and conductors. Provide duct seal at all duct entries in handholes, apparatus, and conduit risers at light poles to prevent water infiltration via duct system.
- P. Hardware, Supports, Backing, Etc. - All hardware, supports, backing and other accessories necessary to install electrical equipment shall be provided. Steel

materials shall be stainless steel Type 316. Channel irons and conduit supports shall be stainless steel Type 316, unless otherwise indicated.

14.4 CONSTRUCTION METHODS

A. General

1. Workmanship subject to approval of Harbors Construction Engineer and inspectors of the utilities who shall be afforded every opportunity to determine skill and competency.
2. Construction shall conform to construction practices as recommended by American Electricians practices as recommended by American Electricians Handbook by Croft (latest edition), National Electrical Code, National Electrical Safety Code, and applicable instructions of manufacturers of equipment and materials supplied for project.
3. Electrical outages shall be granted at the convenience of the Harbors. Requests for electrical outages shall be submitted, in writing, a minimum of two (2) weeks prior to the requested outage date and shall be approved by the Harbors Construction Engineer. The request shall indicate the date and time of the requested outage, and the proposed outage duration. Contractor shall advise and/or coordinate work with the Harbors Construction Engineer, Harbors Maui District, and all users and tenants a minimum of two (2) weeks in advance.

B. Wiring System - Unless otherwise indicated or specified herein, wiring shall consist of single conductor cables installed in conduit in areas where permitted by the National Electrical Code.

C. Installation of Conduit

1. Conduits with respect to size shall be installed exactly as shown on the drawings. No deviation from the plan shall be permitted except to increase the size of conduits, if necessary, to accommodate the required size and number of conductors to be installed therein.
2. Conduits shall be installed approximately where shown. The exact location of conduits and conduit supports shall be determined after careful consideration has been given to the location of other existing electrical and civil work.
3. Conduit system shall be continuous from fitting to fitting so that electrical continuity is obtained between all conduits of the system.

4. Cap conduits during construction with plastic bushings to prevent entrance of dirt or moisture. Swab all conduits and dry before installing wires.
5. Run exposed raceway parallel with, or at right angles to structural elements.

D. Aboveground Conductors

1. Mechanical means for pulling shall be torque-limiting type and not used for #2 AWG and smaller wires.
2. Pulling tension shall not exceed wire manufacturer's recommendations.
3. Where necessary, powdered soapstone or water-based wire pulling lubricant may be used as a lubricant for drawing wires through conduit. No other means of lubricating will be allowed.
4. Form neatly in enclosures for minimum of crossovers.

5. Splicing of Wire and Cable

- i. Wires shall be formed neatly in enclosures and boxes.
- ii. Splice in accordance with the National Electrical Code (NEC). Make splices in conductors #10 AWG and smaller with insulated, pressure type connector. Splice conductors #8 through #4/0 with high pressure compression (indent) copper sleeve connectors. Do not use bolt-on connectors. Reinsulate splices and waterproof splices. Reinsulate splices according to wire manufacturer's instructions. Splice insulation shall be 200% in thickness of original wire insulation and of same electrical and mechanical characteristics. Tape shall be 7 mil minimum thickness vinyl plastic.

E. Underground Ductlines

1. PVC ductlines shall be jacketed and shall be installed by qualified electricians. Coat tapered ends of ducts or conduits with sealing compound before coupling is applied to insure watertight joint. Concrete shall be poured without the use of mechanical vibrators. Tamp concrete manually with wooden rods. Thickness of concrete encasement shown is minimum and may be increased to fit actual shape of trench.
2. The top of the ductline shall be at a minimum depth as indicated on drawings.

3. Duct lines shall have a continuous slope downward toward handholes and away from buildings with a pitch of not less than 3 inches in 100 feet. Except at conduit risers, accomplish changes in direction of runs exceeding a total of 10 degrees, either vertical or horizontal, by long sweep bends having a minimum radius of curvature of 25 feet. Sweep bends may be made up of one or more curved or straight sections or combinations thereof. Manufactured bends shall have a minimum radius of 18 inches for use with conduits of less than 3 inches in diameter and a minimum radius of 36 inches for ducts of 3 inches in diameter and larger.
4. Terminate conduits in end-bells where duct lines enter handholes. Separators shall be of precast concrete, high impact polystyrene, steel, or any combination of these. Stagger the joints of the conduits by rows and layers so as to provide a duct line having the maximum strength. After laying, bind ducts with #12 wire and anchor to prevent movement during concrete pouring. During construction, protect partially completed duct lines from the entrance of debris such as mud, sand and dirt by means of suitable conduit plugs.
5. The concrete encasement surrounding the ductbank shall be rectangular in cross-section and shall provide at least 3 inches of concrete cover for ducts. Separate conduits by a minimum concrete thickness of 2 inches.
6. Mandrel Test - After new ductline is complete, draw bristle brush through ductline and perform mandrel test. Mandrel shall be a wooden plug, 8-inch minimum length, with a diameter 1/2 inch less than duct inside diameter. Perform test on all new ducts 2 inch and larger. After this, pull brush with stiff bristles through to make certain that no particles of earth, sand, or gravel have been left in line.

F. Underground Conductors

1. Cable Pulling - Pull cables down grade with the feed-in point at the handhole/manhole or building of the highest elevation. Use flexible cable feeds to convey cables through the handhole opening and into the duct runs. Cable slack shall be accumulated at each handhole or junction box where space permits by training the cable around the interior to form one complete loop. Minimum allowable bending radii shall be maintained in forming such loops.
2. Lubricants for assisting in the pulling of jacketed cables shall be those specifically recommended by the cable manufacturer. The lubricant shall not be deleterious to the cable sheath, jacket, or outer coverings.
3. Cable pulling tensions shall not exceed the maximum pulling tension recommended by the cable manufacturer.

4. Pullstring - Provide all empty conduits with a plastic pullstring. Provide 48 inches of coiled spare at each end of the pull.
 5. Cable Terminating - Protect terminations of insulated power cables from accidental contact, deterioration of coverings and moisture by the use of terminating devices and materials. Install all terminations of insulated power cables and cable splices in accordance with the manufacturer's requirements. Make terminations using materials and methods as indicated or specified herein or as designated by the written instructions of the cable manufacturer and termination kit manufacturer.
 6. Splices for 600 Volt Class Cables - Make splices in underground systems only in accessible locations such as handholes, using a compression connector on the conductor and by insulating and waterproofing by one of the following methods suitable for continuous submersion in water.
 - i. Provide cast-type splice insulation by means of molded casting process employing a thermosetting epoxy resin insulating material and apply by a gravity poured method or by a pressure injected method. The component materials of the resin insulation shall be in a packaged form ready for convenient mixing without removing from the package. Do not allow the cables to be removed until after the splicing material has completely set.
 - ii. Gravity poured method shall employ materials and equipment contained in an approved commercial splicing kit which includes a mold suitable for cables to be spliced. When the mold is in place around the joined conductors, prepare the resin mix and pour into the mold. Do not allow cables to be moved until after the splicing materials have completely set.
 - iii. Heat shrinkable method shall employ materials and equipment contained in an approved commercial splicing kit.
- G. Boxes and Enclosures - Boxes to be plumb. Close all unused knockout holes.
- H. Grounding
1. Provide grounding for entire electrical installation as required by Article 250 of the National Electrical Code.
 2. Final connection to equipment, raceways, and other metallic parts directly exposed to ungrounded electric conductors shall be No. 12 AWG minimum, copper, NEC type TW, green insulation. Use approved bonding terminal at panels.

3. All grounding wire runs shall be routed together with circuit conductors.
4. Install green-insulated equipment grounding conductor in all conduits. Conductor sizes per Article 250 of the National Electrical Code.

I. Finishing

1. All cutting that may be required for the complete installation of the electrical work shall be carefully performed and all patching shall be finished to match existing conditions.
2. Close unused knockouts in boxes or enclosures with metal cap.
3. Wipe clean all new exposed raceways and enclosures with rag and solvent.

J. Miscellaneous Details - Cut, drill and patch as required to install electrical system. Repair any surface damaged or marred by notching, drilling or any other process necessary for installation of electrical work. Cutting, repairs and refinishing subject to the approval of the Harbors Construction Engineer. Need for remedial work determined by Harbors Construction Engineer as attributable to poor coordination and workmanship shall be cause for reconstruction to the satisfaction of the Engineer.

1. Touch-up all surfaces damaged by shipping, installation, etc., with paint matching original and as recommended by the paint manufacturer. Painting shall be in accordance with Article XV – Epoxy Coating.
2. Repair holes left by removal of electrical equipment to match existing.
3. Furnish necessary test equipment and make all tests necessary to check for unspecified grounding, shorts and wrong connections. Correct faulty conditions, if any.

K. Cleaning and Repairing - During the progress of work, all rubbish, waste lumber, displaced materials, etc. shall be removed as soon as possible and upon completion of the work, Contractor shall remove from the State's property and from all public and private property, at his own expense, all temporary structures, rubbish and waste material resulting from his operations.

14.5 TESTING AND INSPECTION - All testing shall be witnessed by the Harbors Construction Engineer. The Contractor shall schedule all testing with the Harbors Construction Engineer, in writing, a minimum of two (2) weeks prior to testing.

- A. If the Harbors Construction Engineer (or his representative) shall discover any of the following errors, the Contractor, at his own expense, shall go over all similar portions of the entire job, taking the necessary or directed remedial action.
1. Impaired clearances.
 2. Improper finish.
 3. Improper adjustment.
- B. Furnish necessary test equipment and make all tests necessary to check for unspecified grounding, shorts and wrong connections. Correct faulty conditions, if any.
- C. The Contractor shall show by demonstration in service that all circuits and devices are in operating condition. Tests shall be such that each item of control equipment will function not less than five times.
- D. Wherever test or inspection reveals faulty materials or installation, the Contractor shall take corrective action, at his own expense, repairing or replacing materials or installation as directed. The materials or installation shall then be retested.
- E. Lighting System
1. Perform a functional test in which it is demonstrated that each and every part of the system functions as specified or as intended herein.
 2. Measure at night the actual horizontal illumination on the pavement. Measurements shall be taken utilizing a photometric instrument, factory calibrated within six months of the test. Verify measured values satisfy the lighting level requirements as described in the contract documents. If the measured values do not meet the specified requirements, make the necessary adjustments to meet the lighting level requirements. Measure horizontal illumination in footcandles at all grid points, 50 feet on center, left to right and top to bottom within the target area identified in Contractor's shop drawings. Up to 30 additional points will be selected prior to execution of tests, by the Harbors Division Construction Engineer, or a representative contracted to aid the Harbors Division Construction Engineer. After meeting the lighting level requirements, prepare scale plans indicating the location of the measured points and the horizontal illumination values, in footcandles, associated with each point. Provide plans which include locations of each luminaire and locations of aiming points for each luminaire. Submit for approval the plans within 10 working days from the day the test was performed. Repeat the testing procedures as described above until the plans and results provided are approved.

14.6 COMPLETION AND GUARANTEE

- A. Completion - The entire electrical installation shall be complete in every detail as specified, ready for use and tested, free of all accidental grounds and short circuits. The installation shall not be considered complete until “As-Built” drawings have been submitted and approved.

- B. Guarantee - The Contractor shall submit a written warranty stating that all parts of the electrical system be free from defects of material and workmanship. Any defects occurring within one year after final acceptance shall be corrected by the Contractor at no cost to the State.

14.7 MEASUREMENT AND PAYMENT - Payment for Electrical Work shall be made as described in Article X of these Specifications.

ARTICLE XV – EPOXY COATING

15.1 GENERAL

- A. Description. The work under this article of the specifications consists of the furnishing and installation of all labor and materials required to complete all epoxy coating work as indicated on the drawings and/or specified herein. The work includes but is not limited to coating of new light poles, pedestals, stanchions and miscellaneous pole mounted items.

15.2 MATERIALS

- A. Coating - All coatings shall be delivered to the site in the manufacturer's sealed containers. Each container shall be labeled by the manufacturer with the label showing the name, brand, type of coating, color of coating, and the manufacturer's instructions for reducing consistency. The coating materials shall be the following or approved equal. Coating color shall be coated OSHA yellow.
1. Water Based Cleaner – Water based cleaner shall be Prep 88 manufactured by PPG Protective and Marine Coatings or approved equal.
 2. High Solids Epoxy Coating – High Solids Epoxy Coating shall be Amerlock 400 manufactured by PPG Protective and Marine Coatings or approved equal.
 3. Engineered Siloxane Coating – Engineered Siloxane Coating shall be PSX 700 manufactured by PPG Protective and Marine Coatings or approved equal.

15.3 CONSTRUCTION

- A. All surfaces to be coated shall be as follows.
1. Coating manufacturer's recommendations shall be followed for cleaning, surface preparation, and coating of all light poles, concrete pedestals and miscellaneous surfaces. Light poles shall be shop coated.
 2. All surfaces to be coated shall be properly prepared prior to coating and shall be inspected for approval by the Harbors Division Construction Engineer before coating will be allowed. In addition, the first light pole to be coated shall be inspected by a technical representative of the coating manufacturer. The technical representative shall test for acceptable chloride levels on the surfaces to be coated, and verification of the surface preparation and dry film thickness of the coatings.

3. Surfaces to be coated must be dry, clean, free of oil, grease, dust, wax, soaps, powdery residue, form release agents, curing compounds, laitance, and other foreign matter and be structurally sound. Remove mill scale and rust.
 4. Surfaces to be coated are shown on the drawings and include the new light poles, concrete pedestals, stanchions and miscellaneous pole mounted items.
 5. All coatings applied in the field shall be applied by roller and/or brush applications. No spraying for field will be allowed.
 6. The prime coat shall be applied on the same day that the surface is prepared. It may take more than a single application to obtain the required thickness. If a coat requires more than a single application, it shall be done no later than the following day.
 7. The time interval between each coat shall be no more than 24 hours or as recommended by the manufacturer. For intervals exceeding 24 hours, all surfaces shall be rinsed with fresh water or tested for acceptable chloride levels by the technical representative of the product manufacturer. Each coat shall be of a lighter color than the later coat to be coated upon it.
 8. Finish work shall be uniform and of approved color. The finish shall completely cover, be smooth and be free from runs, sags, drips, waves, laps or brush marks. Edges of coating adjoining other surfaces of materials shall be sharp and clean without overlapping.
 9. Coating shall be allowed to cure completely. Any marred surfaces or damages to the coating finish shall be corrected by proper preparation and recoating.
 10. All methods and procedures shall comply with OSHA and HIOSH requirements and be approved by the Harbors Division Construction Engineer.
- B. New hot-dipped galvanized surfaces including light poles and stanchions shall be cleaned, prepared and coated as follows.
1. Surfaces to be coated shall be cleaned with Prep 88 water based cleaner.
 2. Apply two (2) coats of Amerlock 400 at a dry film thickness of 4-6 mils per coat.
 3. Apply one (1) coat of PSX 700 at a dry film thickness of 5-7 mils.
- C. Non-shrink grout and concrete pedestal surfaces shall be cleaned, prepared and coated as follows.

1. Allow new concrete to cure a minimum of 14 days or per manufacturer's recommendation.
 2. Clean concrete surfaces similar to SSPC-SP-2 or SSPC-SP-3.
 3. Apply one (1) coat of Amerlock 400 at a dry film thickness of 4-6 mils per coat.
 4. One (2) coats of PSX 700 at a dry film thickness of 5-7 mils.
- D. Clean-up of coatings shall be as follows.
1. All coating, oil, etc. shall be cleaned off the pavement, concrete, vehicle bollards, electrical panels or any portion of the light pole and surrounding items where coating has splashed or been spilled. The Contractor shall take precautions to prevent coating from being splashed on equipment, vehicles, or cargo in the project area.
 2. All unused rags, waste and empty containers shall be removed from the work area at the end of each work day and precautions shall be taken to avoid the danger of fire.
 3. The Contractor shall maintain the job site in a neat and orderly condition during the progress of the work. Upon completion, the Contractor shall remove all surplus material, debris, equipment, tools, etc. belonging to it and leave the premises in a neat and orderly condition.

15.4 PAYMENT - Payment for epoxy coating work shall be made as described in Article X of these Specifications.

ARTICLE XVI – TRENCHING WORK

16.1 GENERAL

- A. Work under this Article includes furnishing all labor, materials and equipment necessary to perform trenching work related to electrical ducts.
- B. All work shall be in accordance with the following sections of the Standard Specifications except as modified or supplemented herein:
 - Section 314 Controlled Low-Strength Material (CLSM) for Utilities and Structures
 - Section 401 Asphalt Concrete Pavement
 - Section 407 Bituminous Tack Coat
 - Section 503 Concrete Structures
 - Section 601 Structural Concrete
 - Section 602 Reinforcing Steel
 - Section 711 Concrete Curing Materials and Admixtures
- C. Sections on Materials referenced in the above sections are hereby incorporated.

16.2 MATERIALS

- A. Concrete - Concrete shall be regular weight hard rock concrete and shall have a minimum 28-day compressive strength of $f'c = 3,000$ psi. Concrete materials shall be per Article XIII Concrete Work, unless specified otherwise.

The water to cementitious ratio shall be a maximum of 0.45 and the mix water shall be reduced as necessary to account for the admixtures.

Reinforcing Steel - Reinforcing shall be per Article XIII Concrete Work.
- B. Controlled Low Strength Material (CLSM) – CLSM shall conform to Section 314 of the Standard Specifications and shall have a 28-day compressive strength between 50 psi to 150 psi and a maximum long term unconfined compressive strength of 300 psi to allow for future excavation.
- C. Bituminous Tack Coat – Tack coat shall be slow-setting emulsified asphalt, Type SS-1, conforming to Section 407 of the Standard Specifications.
- D. Asphalt Pavement – Asphalt pavement shall be Mix III conforming to Section 401 of the Standard Specifications. Cold Patch-Instant Road Repair may be used for smaller areas.

16.3 CONSTRUCTION

A. Foundation Excavation

1. Contractor shall provide for de-watering of excavation from surface water, ground water or seepage.
2. Contractor shall provide for design and installation of all underpinning, cribbing, sheeting, and shoring necessary to preserve excavations and earth banks.
3. Concrete jackets shall bear on undisturbed in-situ firm soils. Bottom of foundation shall be compacted to provide a relatively firm and smooth bearing surface prior to placement of reinforcing steel and concrete. If soft and/or loose materials are encountered at the bottom of foundation excavations, they shall be over-excavated to expose the underlying firm materials. The over-excavation shall be backfilled with select granular material compacted to a minimum of 95% relative compaction or the foundation bottom may be extended down to the underlying competent material.
4. Backfill material for concrete jackets shall be CLSM.

B. Live Load Limitation - Forklift and heavy live loads shall remain a minimum of 20 feet away during concrete curing work in all directions starting from the time of concrete placement and allowed to cure a minimum of 48 hours. The repair area shall remain barricaded with barriers visible at night from traffic during this period.

C. Concrete Construction – Concrete construction shall be per Article XIII Concrete Work.

D. Asphalt Pavement

1. The existing pavement to be removed shall be sawcut to provide a square clean edge. The removed pavement shall be hauled away from the job site and legally disposed of by the Contractor at no cost to the State.
2. Contractor shall clean the repair area of all loose material, water, dirt, excess dust, and other objectionable matter.
3. A bituminous tack coat shall be applied on the prepared surface in accordance with Section 407.03 of the Standard Specifications. The material shall be applied at a rate of 0.15 gallons per square yard.
4. Pavement shall be placed in accordance with Section 401.03 of the Standard Specifications. The finished pavement shall be smooth, dense, uniformly graded and well drained.

5. Pavement shall be constructed to maintain the existing drainage patterns, uniform slopes, and minimize ponding. Pavement shall be placed to provide a smooth riding transition between new and existing pavement.

16.4 PAYMENT - Payment for trenching work shall be made as specified in Article X of these Specifications.

ARTICLE XVII – PROJECT PHOTOGRAPHS



Photo 1: Pole HM-1 at Pier 1.



Photo 2: Project Site at Pole HM-2 at Pier 1. Pole has since been removed.



Photo 3: Project Site at Pier 2



Photo 4: Pole SL-6 at Pier 2



Photo 5: Pole SL-18 at Pier 2



Photo 6: Pole SL-19 at Pier 2



Photo 7: Comfort Station at Pier 2

GEOTECHNICAL EXPLORATION
S30217 REPAIR LIGHT POLES AT PIERS 1-2
KAHULUI HARBOR, MAUI, HAWAII
W.O. 8619-00 AUGUST 26, 2024

Prepared for

MKE ASSOCIATES LLC

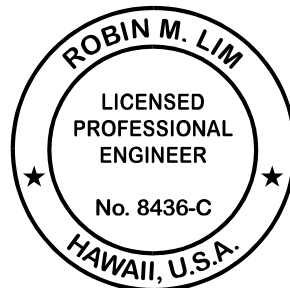


GEOLABS, INC.
Geotechnical Engineering and Drilling Services

GEOTECHNICAL EXPLORATION
S30217 REPAIR LIGHT POLES AT PIERS 1-2
KAHULUI HARBOR, MAUI, HAWAII
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Prepared for

MKE ASSOCIATES LLC



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

SIGNATURE

04-30-26
EXPIRATION DATE
OF THE LICENSE



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GEOLABS, INC.

Geotechnical Engineering and Drilling Services

August 26, 2024
W.O. 8619-00

Mr. Grant Okunaga
MKE Associates LLC
99-205 Moanalua Road, Suite 2
Aiea, HI 96701

Dear **Mr. Okunaga**:

Geolabs, Inc. is pleased to submit our report entitled "Geotechnical Exploration, S30217 Repair Light Poles at Piers 1-2, Kahului Harbor, Maui, Hawaii," prepared in support of the design of the proposed project at Kahului Harbor.

Our work was performed in general accordance with the scope of services outlined in our fee proposal dated December 15, 2022.

Please note that the soil and rock core samples recovered during our field exploration (remaining after testing) will be stored for a period of two months from the date of this report. The samples will be discarded after that date unless special arrangements are made for a longer sample storage period. Please contact our office for alternative sample storage requirements, if appropriate.

Detailed discussion and specific design recommendations are contained in the body of this report. If there are questions regarding the contents of this report, please contact our office.

Very truly yours,

GEOLABS, INC.

A handwritten signature in blue ink, which appears to read "Robin M. Lim". The signature is fluid and cursive, written over a horizontal line.

Robin M. Lim, P.E.
President

RML:JS:rl

GEOTECHNICAL EXPLORATION
S30217 REPAIR LIGHT POLES AT PIERS 1-2
KAHULUI HARBOR, MAUI, HAWAII
W.O. 8619-00 AUGUST 26, 2024

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GEOTECHNICAL EXPLORATION
S30217 REPAIR LIGHT POLES AT PIERS 1-2
KAHULUI HARBOR, MAUI, HAWAII
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SUMMARY OF FINDINGS AND RECOMMENDATIONS

Our field exploration at the project site generally encountered 2.5 to 3.5 inches of asphaltic concrete pavement overlying a fill layer extending to about 9 to 13 feet below the existing ground surface. The fill layer generally consisted of medium dense to very dense gravelly sands. The fill layer generally was underlain by nearshore deposits consisting of medium dense silty sands and gravelly sands extending to depths of about 16 to 17 feet below the existing ground surface. The nearshore deposits were underlain by coralline detritus consisting of medium dense sands and silty sands extending to the maximum depth explored of up to about 27 feet below the existing ground surface. It appears that our borings encountered zones of loose sands and silty sands in the generally medium dense coralline detritus.

Groundwater was encountered in the borings at depths of about 6 to 11 feet below the ground surface at the time of the field exploration. The groundwater levels encountered corresponded to about Elevation +3.0 to -2.0 feet MSL. However, groundwater levels likely will change due to tidal fluctuations, seasonal precipitation, surface water runoff, and other factors considering that the project site is adjacent to Kahului Harbor and the Pacific Ocean.

Based on the subsurface conditions encountered and our analyses, the foundation for the new light poles at Kahului Harbor generally should consist of a single concentric 42-inch diameter drilled shaft extending down to a depth of about 15 feet below the ground surface. The drilled shaft foundation would derive vertical support primarily from skin friction between the drilled shaft and the surrounding geo-materials.

It should be noted that the zones of loose coralline detritus encountered in the borings at the project site are susceptible to soil liquefaction when subjected to the ground motions associated with the maximum considered earthquake. Seismically induced ground settlements due to soil liquefaction range from about 2 to 3 inches. Therefore, the drilled shaft foundations may experience seismically induced ground settlements on the order of about 2 to 3 inches. If these settlements are not tolerable, the drilled shafts will need to be extended down to a depth below the liquefiable soil zone.

The text of this report should be referred to for detailed discussions and specific geotechnical recommendations for design.

END OF SUMMARY OF FINDINGS AND RECOMMENDATIONS

SECTION 1. GENERAL

This report presents the results of our geotechnical exploration performed for the proposed S30217 Repair Light Poles at Piers 1-2 project at Kahului Harbor on the Island of Maui, Hawaii. The project location and general vicinity are shown on the Project Location Map, Plate 1.

This report summarizes the findings from our field exploration and laboratory testing and presents our geotechnical recommendations derived from our analyses for the design of the proposed project. These recommendations are intended for the design of light pole foundations, earthwork, and underground utilities only. The findings and recommendations presented herein are subject to the limitations noted at the end of this report.

1.1 Project Considerations

The proposed project site is located at Piers 1 and 2 at Kahului Harbor on the Island of Maui, Hawaii. Based on the information provided, we understand two light poles at Pier 1 will be replaced with light poles of a comparable size with the new light poles using the existing light pole foundations.

In addition, three to four new light poles with a height of about 55 feet will be constructed at Pier 2. The new light poles will be mounted to a base plate with anchor bolts extending approximately 5 feet into the light pole foundation. We understand the light pole base plate will be mounted on a pedestal that extends approximately 5 feet above the existing grade. Underground utilities including electrical and communication lines may be required to serve the new light poles.

The following structural loads (base reactions at the base plate elevation) were provided for the new light poles at Kahului Harbor.

SECTION 1. GENERAL

SUMMARY OF STRUCTURAL LOADS			
<u>Axial Load</u> (pounds)	<u>Shear</u> (pounds)	<u>Moment Demand</u> (foot-pounds)	<u>Torque</u> (foot-pounds)
3,210	2,982	111,870	1,251
NOTE: Structural loads provided above are the base reactions, occurring at the base plate elevation, which is located approximately 5 feet above the existing ground surface.			

1.2 Purpose and Scope

The purpose of our field exploration was to obtain an overview of the surface and subsurface conditions at the project site to develop a soil and/or rock data set to formulate geotechnical recommendations for design of the light pole foundations, earthwork, and underground utilities. In order to accomplish this scope, we conducted an exploration program consisting of the following tasks and efforts:

1. Research and review of available in-house soils and geologic information pertaining to the project site and its vicinity.
2. Staking out of the proposed boring locations and coordination of underground utility clearance.
3. Mobilization and demobilization of a truck-mounted drill rig, work support truck, water truck, and operators to the project site and back.
4. Drilling and sampling of two exploratory borings at the project site extending to a depth of up to about 27 feet below the existing ground surface for a total of about 52 linear feet of exploration.
5. Coordination of the field exploration and logging of the borings by our geologist.
6. Laboratory testing of selected soil samples obtained during the field exploration as an aid in classifying the materials and evaluating their engineering properties.
7. Analyses of the field and laboratory data to formulate geotechnical recommendations for the design of the new light pole foundations.
8. Preparation of this geotechnical engineering report summarizing our work on the project and presenting our findings and geotechnical recommendations for the design of the project.
9. Miscellaneous work efforts, such as drafting, word processing, and clerical support.

SECTION 1. GENERAL

10. Coordination of our overall work on the project by our engineers.
11. Quality assurance of our work and client/design team consultation by our principal engineer.

Detailed descriptions of our field exploration methodology and the Logs of Borings are presented in Appendix A. Results of the laboratory tests performed on selected soil and rock core samples obtained from our field exploration are presented in Appendix B. Photographs of the core samples retrieved from our field exploration are presented in Appendix C.

END OF GENERAL

SECTION 2. SITE CHARACTERIZATION

Of interest to our geotechnical analysis are the subsurface materials encountered at the project site, the engineering properties of the materials encountered, and the variability of the subsurface conditions across the project site. Therefore, the following subsections provide a description of the geologic setting of the project site, the surface and subsurface conditions encountered at the site, and a discussion on the items needed for seismic design, such as the seismicity, soil liquefaction, and soil profile characteristics for seismic analysis.

2.1 Regional Geology

The Island of Maui was built by two major volcanoes, the older West Maui (Tertiary Epoch) and the more recent East Maui, also known as Haleakala (Pleistocene Epoch). The Isthmus of Maui is a narrow, gently sloping plain located between these two volcanoes. The project site is located on the northern portion of this gently sloping plain.

The Isthmus of Maui was created by lava flows from Haleakala ponding on West Maui. It is comprised of alluvium washed from the slopes of West Maui and East Maui (Haleakala). The erosional processes were dominated by the detachment of soil and rock masses from the mountain walls, and the soil materials were transported downslope toward the Isthmus primarily by gravity as colluvium. Once these materials reached the stream in the central portion of a valley, alluvial processes became dominant, and the sediments were transported and deposited as alluvium.

In general, stream flows in Hawaii are intermittent and flashy, such that the stream flows transmit large volumes of water for a very short duration. Because of this situation, the transport of sediments is intermittent, and the bulk of the stream's hydraulic load consists of a poorly-sorted mixture of boulders, cobbles, gravel, sands, and fines. When the erosional base levels change, these sediment loads are left as deposits.

When deposits are left in-place for long periods of time, chemical processes begin to alter the materials simultaneously causing a breakdown or weathering of the materials. Chemical processes also cause induration, or cementation, of the coarse-grained portion

SECTION 2. SITE CHARACTERIZATION

of the sediment into a poorly-consolidated sedimentary rock or conglomerate. Simultaneously, erosion continues in the areas above the valley floors and upstream in headwaters. This continued erosion generates materials, which are transported downslope covering the older alluvial soil deposits. Depending on the local base level and rate of transport, these newer sediments are generally transient in terms of geologic time. In addition, their consistency and density are generally less than those of the older, partially consolidated deposits.

Underlying the alluvial soil deposits are overlapping lava flows from the West Maui and East Maui Volcanoes. The bulk of the Haleakala shield was built during the late Pliocene and early Pleistocene Epoch by thinly bedded basaltic lava flows of the Honomanu Volcanic Series. During the Pleistocene Epoch, the characteristics of the lava changed to very hard, thickly bedded flows of andesitic composition. These lava flows have been grouped as the Kula Volcanic Series. Typically, the basalt formation consists of thinly to thickly bedded a'a and pahoehoe type lava flows. Development of areas surrounding Kahului in the past several decades has brought the project site to its present condition.

2.2 Existing Site Conditions

The project site is located at Pier 2 on the east side of Kahului Harbor on the Island of Maui, Hawaii. At the time of our field exploration, loaded and empty container chassis were parked along the center and southern perimeter of the pier. Based on our field observations, the proposed project site generally is covered by asphaltic concrete pavement. Based on available topographic data, the project site is generally level with existing ground surface elevations between about +9 and +9.5 feet MSL.

2.3 Subsurface Conditions

Our field exploration consisted of drilling and sampling two borings, designated as Boring Nos. 1 and 2, each extending to a depth of about 27 feet below the existing ground surface. The approximate boring locations are shown on the Site Plan, Plate 2.

Our borings generally encountered 2.5 to 3.5 inches of asphaltic concrete pavement overlying a fill layer extending to about 9 to 13 feet below the existing ground

SECTION 2. SITE CHARACTERIZATION

surface. The fill layer generally consisted of medium dense to very dense gravelly sands. The fill layer generally was underlain by nearshore deposits consisting of medium dense silty sands and gravelly sands extending to depths of about 16 to 17 feet below the existing ground surface. The nearshore deposits were underlain by coralline detritus generally consisting of medium dense sands and silty sands extending to the maximum depth explored of up to about 27 feet below the existing ground surface. Zones of loose sands also were encountered in the borings within the coralline detritus stratum.

Coral formation was encountered in Boring No. 2 at depths between about 17 and 21 feet below the existing ground surface. The coral formation was soft to medium hard and highly weathered. It should be noted that the strength characteristics of the coralline deposits are highly variable. In addition, the depositional nature of the coralline deposits may create localized zones of hard, crystalline coral, limestone, and/or sandstone formations intermixed with soft, severely fractured detritus. Furthermore, cavities or voids are encountered commonly in the coralline deposits.

Groundwater was encountered in the two borings at depths of about 6 to 11 feet below the ground surface at the time of the field exploration. The groundwater levels encountered corresponded to about Elevation +3.0 to -2.0 feet MSL. However, groundwater levels likely will change due to tidal fluctuations, seasonal precipitation, surface water runoff, and other factors considering the project site is adjacent to Kahului Harbor and the Pacific Ocean.

Detailed descriptions of the field exploration methodology and graphic representations of the materials encountered in the borings are presented on the Logs of Borings in Appendix A. We performed laboratory tests on selected samples obtained during our field exploration, and the test results are presented in Appendix B. Photographs of the core samples retrieved during our field exploration are presented in Appendix C.

2.4 Seismic Design Considerations

Based on the International Building Code, 2018 Edition (IBC 2018), the project site may be subject to seismic activity, and seismic design considerations will need to be

SECTION 2. SITE CHARACTERIZATION

addressed. The following sections provide discussions on the seismicity, the potential for soil liquefaction at the project site, and the soil profile type for seismic design.

2.4.1 Earthquakes and Seismicity

In general, earthquakes that occur throughout the world are caused by shifts in the tectonic plates. In contrast, earthquake activity in Hawaii is linked primarily to volcanic activity. Therefore, earthquake activity in Hawaii generally occurs before or during volcanic eruptions. In addition, earthquakes may result from the underground movement of magma that comes close to the surface but does not erupt. The Island of Hawaii experiences thousands of earthquakes each year, but most of the earthquakes are so small that they can be detected only by sensitive instruments. However, some of the earthquakes are strong enough to be felt, and a few cause minor to moderate damage.

In general, earthquakes associated with volcanic activity are most common on the Island of Hawaii. Earthquakes directly associated with the movement of magma are concentrated beneath the active Kilauea and Mauna Loa Volcanoes on the Island of Hawaii. Because the majority of the earthquakes in Hawaii (over 90 percent) are related to volcanic activity, the risk of seismic activity and degree of ground shaking diminishes with increased distance from the Island of Hawaii.

The Island of Hawaii has experienced numerous earthquakes greater than Magnitude 5 (M5+); however, earthquakes are not confined only to the Island of Hawaii. To a lesser degree, the Island of Maui also has experienced earthquakes greater than M5+. Therefore, moderate to strong earthquakes have occurred in the County of Maui.

2.4.2 Liquefaction Potential

Based on the International Building Code (2018 Edition), the project site may be subjected to seismic activity and should be evaluated for the potential for soil liquefaction. Soil liquefaction is a condition where saturated cohesionless soils near the ground surface undergo a substantial loss of strength due to the build-up

SECTION 2. SITE CHARACTERIZATION

of excess pore water pressures resulting from cyclic stress applications induced by earthquakes. In this process, when the loose saturated sand deposit is subjected to vibration (such as during an earthquake), the soil tends to densify and decrease in volume causing an increase in pore water pressure. If drainage is unable to occur rapidly enough to dissipate the build-up of pore water pressure, the effective stress (internal strength) of the soil is reduced. Under sustained vibrations, the pore water pressure build-up could equal the overburden pressure, essentially reducing the soil shear strength to zero and causing it to behave as a viscous fluid. During liquefaction, the soil acquires sufficient mobility to permit both horizontal and vertical movements, and if not confined, will result in significant deformations.

Soils most susceptible to liquefaction are loose, uniformly graded, fine-grained sands and loose silts with little cohesion. The major factors affecting the liquefaction characteristics of a soil deposit are as follows:

FACTORS	LIQUEFACTION SUSCEPTIBILITY
Grain Size Distribution	Fine and uniform sands and silts are more susceptible to liquefaction than coarse or well-graded sands.
Initial Relative Density	Loose sands and silts are most susceptible to liquefaction. Liquefaction potential is inversely proportional to relative density.
Magnitude and Duration of Vibration	Liquefaction potential is directly proportional to the magnitude and duration of the earthquake.

We evaluated the liquefaction potential of the saturated granular soils at the project site using the computer software program LiquefyPro (Version 5.8n) by CivilTech Software. Our analysis was performed on the drilled borings based on a seismic event of Magnitude 6 with an associated peak ground acceleration of 0.449g. Based on our analysis, the very loose to loose coralline detritus encountered at the project site (between depths of about 16 feet and 27 feet) generally are susceptible to liquefaction when subjected to a peak ground acceleration of 0.449g associated with a Magnitude 6 earthquake. In the event of soil liquefaction caused by a peak ground acceleration associated with the Maximum Considered Earthquake (MCE)

SECTION 2. SITE CHARACTERIZATION

of 0.449g, the estimated seismically induced ground settlement due to soil liquefaction may be about 2 to 3 inches with an average of about 2.5 inches. The seismically induced settlement estimates are based on the simplified procedures outlined by Tokimatsu and Seed (1987).

2.4.3 Site Classification

Because the project site is underlain by liquefiable soils, the project site should be classified from a seismic analysis standpoint as being Site Class “F” in accordance with Chapter 20, Site Classification Procedure for Seismic Design contained in ASCE 7-16 (Minimum Design Loads for Buildings and Other Structures). However, considering that the project consists of the installation of new light poles only and does not include construction of new building structures, we believe the project can be designed based on the subsurface materials encountered as opposed to designing using site-specific ground motions generated based on a site response analysis for the following reasons.

1. The potentially liquefiable soil zone is up to approximately 11 feet thick without any other soft soil deposits within the soil profile based on the borings drilled. Therefore, we believe the project site would not behave like a typical soft soil site considering that the only soft soil zone is the thin zone of potentially liquefiable soils. As a result, we believe this site should not be considered a soft soil site that would amplify ground motions during a seismic event.
2. Liquefaction is caused by the seismic waves traveling through the soil deposit that exceed the cyclic resistance of the soil. Before liquefaction is triggered, the coralline detritus material is not soft; therefore, we believe the seismic response of the soil deposit at the site would be appropriately represented by a Site Class D soil profile in terms of soil stiffness.

Based on the subsurface materials encountered, the project site may be classified from a seismic analysis standpoint as being a “Stiff Soil” site corresponding to a Site Class “D” soil profile type based on Table No. 20.3-1 of the ASCE Standard ASCE/SEI 7-16, referenced by the International Building Code, 2018 Edition. Based on Site Class D, the following seismic design parameters were estimated and may be used for seismic analysis of the project.

SECTION 2. SITE CHARACTERIZATION

SEISMIC DESIGN PARAMETERS (IBC 2018 and ASCE 7-16)	
Parameter	Value
MCE Peak Bedrock Acceleration, PBA (Site Class B)	0.363g
Mapped MCE Spectral Response Acceleration, S_s	0.989g
Mapped MCE Spectral Response Acceleration, S_1	0.252g
Site Class	"D"
Site Coefficient, F_{PGA}	1.237
Site Coefficient, F_a	1.104
Site Coefficient, F_v	2.009
MCE Modified Peak Ground Acceleration, PGA_M (Site Class D)	0.449g
Adjusted MCE EQ Spectral Response Acceleration, S_{MS}	1.092g
Adjusted MCE EQ Spectral Response Acceleration, S_{M1}	0.506g
Design Earthquake (DE) Peak Ground Acceleration, PGA_M	0.299g
Design Spectral Response Acceleration, S_{DS}	0.728g
Design Spectral Response Acceleration, S_{D1}	0.338g
Risk Category, RC	II
Seismic Design Category, SDC	"D"

END OF SITE CHARACTERIZATION

SECTION 3. DISCUSSION AND RECOMMENDATIONS

Our field exploration generally encountered 2.5 to 3.5 inches of asphaltic concrete pavement overlying a fill layer consisting of medium dense to very dense gravelly sands extending to about 9 to 13 feet below the existing ground surface. The fill layer generally was underlain by nearshore deposits consisting of medium dense silty sands and gravelly sands extending to depths of about 16 to 17 feet below the existing ground surface. The nearshore deposits were underlain by coralline detritus generally consisting of medium dense sands and silty sands extending to maximum depth explored of up to about 27 feet below the existing ground surface. It should be noted that zones of very loose to loose sands were encountered within the coralline detritus. Groundwater was encountered in the borings at depths of about 6 to 11 feet below the ground surface at the time of the field exploration. These measured groundwater levels corresponded to approximately Elevation +3 to -2 feet MSL. However, groundwater levels likely will change due to tidal fluctuations, seasonal precipitation, surface water runoff, and other factors.

Soft to medium hard coral formation was encountered in Boring No. 2 at depths between about 17 and 21 feet below the existing ground surface. The coral formation was soft to medium hard and highly weathered. It should be noted that the strength characteristics of the coralline deposits are highly variable. In addition, the depositional nature of the coralline deposits may create localized areas of hard, crystalline coral, limestone and/or sandstone formations intermixed with soft, severely fractured detritus. Additionally, cavities or voids are commonly encountered in coralline deposits.

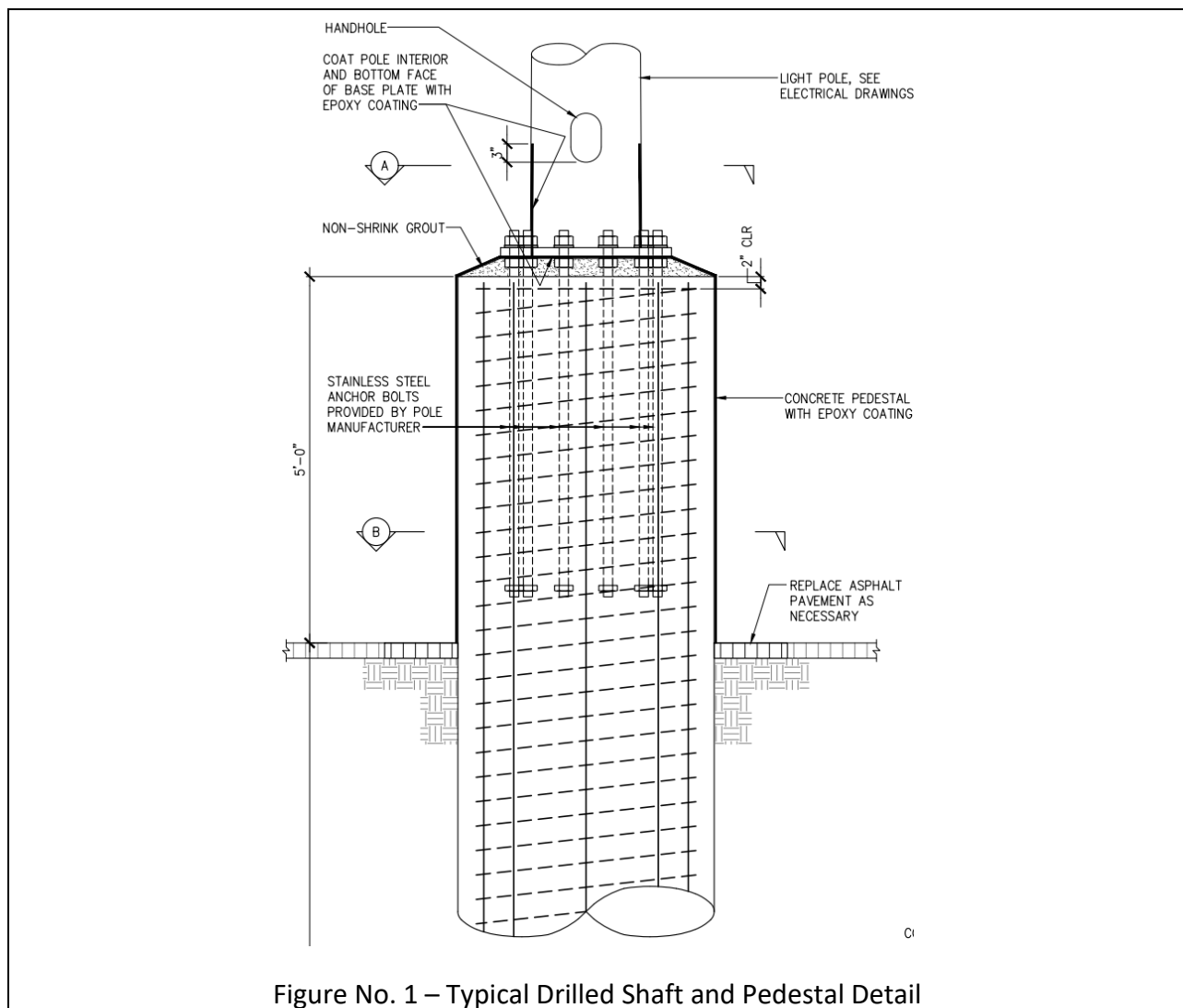
Based on the structural loads provided and the dimensions of the light pole base plate and anchor bolts, we recommend supporting each new light pole on a single concentric 42-inch diameter drilled shaft extending down to a depth of about 15 feet below the ground surface. The drilled shaft foundation would derive axial load support primarily from skin friction between the drilled shaft and the surrounding geo-materials.

Detailed discussions of our geotechnical recommendations for the design of the project are presented in the following sections of this report.

SECTION 3. DISCUSSION AND RECOMMENDATIONS

3.1 Light Pole Foundations

Based on the subsurface conditions encountered and our analyses, the foundation for the new light poles at the project site generally should consist of a single concentric drilled shaft extending down to a depth of about 15 feet below the ground surface. The light poles will be mounted to a base plate with anchor bolts extending approximately 5 feet into the drilled shaft foundation. We understand the light pole base plate will be mounted on a pedestal that extends approximately 5 feet above the existing grade.



In general, drilled shaft foundations are constructed by drilling a hole down into the bearing strata, placing reinforcing steel, and then pumping high slump concrete to fill up the hole. The result is a cast-in-place concrete drilled shaft for foundation support. Based on the subsurface conditions encountered at the project site, we envision the drilled shaft

SECTION 3. DISCUSSION AND RECOMMENDATIONS

foundation would derive vertical support primarily from skin friction between the drilled shaft and the surrounding geo-materials. In general, the end-bearing component of the drilled shaft has been discounted in our analysis due to difficulties associated with obtaining a clean bottom during construction to engage the end bearing component in the drilled shaft. Based on the base plate, reinforcing cage dimensions, minimum concrete coverage, and construction tolerances, we recommend using a drilled shaft with a minimum of 42 inches in diameter for the proposed light pole foundations. The following table summarizes the recommended size and length of the drilled shaft foundation.

SUMMARY OF DRILLED SHAFT FOUNDATIONS		
<u>Location</u>	<u>Drilled Shaft Diameter</u> (inches)	<u>Drilled Shaft Length</u> (feet below ground level)
Kahului Harbor Pier 2	42	15

For the design of the drilled shaft foundations, we have assumed that a minimum concrete compressive strength of 5,000 psi with a maximum water/cement ratio of 0.40 or less will be specified, and a nominal longitudinal reinforcing steel of about 1 percent of the cross sectional area of the drilled shaft will be used.

The load bearing capacities of the drilled shaft will depend largely on the relative density of the soils within the bearing strata. Because local variations in the subsurface materials likely will occur, it is imperative that our representative be present during the shaft drilling operations to confirm the subsurface conditions encountered during the drilled shaft construction and to observe the installation of the drilled shaft. In addition, contract documents should include provisions (unit prices) for additional drilling and extension of the drilled shaft during construction to account for unforeseen subsurface conditions.

Based on our evaluation of the subsurface conditions and the foundation design parameters, we anticipate that the drilled shaft installation for the project will require an experienced drilled shaft subcontractor to install the drilled shaft foundations. Therefore, consideration should be given to requiring pre-qualification of the drilled shaft

SECTION 3. DISCUSSION AND RECOMMENDATIONS

subcontractor for this project. The subsequent subsections address the design and construction of the drilled shaft foundation, which include the following:

- Lateral Load Resistance
- Foundation Settlements
- Drilled Shaft Construction Considerations

Lateral Load Resistance

Lateral loads imposed on the light poles may be resisted by the lateral load capacity of the drilled shaft. In general, the lateral load resistance of the drilled shaft is a function of the stiffness of the surrounding soil, the stiffness of the drilled shaft, allowable deflection at the top of shaft, and induced moment in the shaft. The lateral load analyses were performed using the program LPILE-plus for Windows, which is a microcomputer adaptation of a finite difference, laterally loaded drilled shaft program originally developed at the University of Texas at Austin. The program solves for deflection and bending moment along a drilled shaft under lateral loads as a function of depth. The analysis was carried out with the use of non-linear “p-y” curves to represent soil moduli. The lateral deflection was then computed using the appropriate soil moduli at various depths.

Based on the structural loads provided, the following table summarizes the anticipated lateral deflection and induced moment for the new light pole drilled shaft foundation.

SUMMARY OF LATERAL LOAD ANALYSES				
<u>Location</u>	<u>Lateral Deflection at Ground Line</u> (inches)	<u>Lateral Deflection at Top of Shaft</u> (inches)	<u>Max. Induced Moment</u> (kip-ft)	<u>Depth to Max. Moment below Top of Shaft</u> (feet)
Kahului Harbor Pier 2	0.13	0.21	118	8
NOTES: (1) Analyses based on concrete compressive strength of 5,000 psi and a minimum of 1% longitudinal steel reinforcement. (2) Analyses based on top of shaft extending approximately 5 feet above the existing ground surface.				

Foundation Settlements

Settlement of the drilled shaft foundation will result from elastic compression of the shaft and subgrade response of the foundation embedded in the subsurface soils. Total

SECTION 3. DISCUSSION AND RECOMMENDATIONS

settlement of the 15-foot deep drilled shaft subjected to the relatively light axial compression loads are estimated to be on the order of less than 0.5 inches. We believe that a significant portion of the settlement is elastic and should occur as the loads are applied.

As mentioned above, the very loose to loose coralline detritus encountered at the project site between depths of about 16 feet and 27 feet generally is susceptible to soil liquefaction when subjected to a peak ground acceleration of 0.449g associated with a Magnitude 6 earthquake. The estimated seismically induced ground settlement due to soil liquefaction is about 2 to 3 inches. Therefore, the drilled shaft foundations may experience seismically induced ground settlements on the order of about 2 to 3 inches. If these settlements are not tolerable, the drilled shafts will need to be extended to a greater depth below the liquefiable zone.

Drilled Shaft Construction Considerations

In general, the performance of drilled shafts depends significantly upon the contractor's method of installation and construction procedures. The following conditions would have a significant effect on the effectiveness and cost of the drilled shaft foundation.

The load bearing capacities of drilled shaft depend, to a significant extent, on the frictional resistance between the shaft and the surrounding soils. Therefore, proper construction techniques especially during the drilling operations are important. The contractor should exercise care in drilling the shaft hole and in placing concrete into the drilled hole.

The subsurface materials consist of fills, nearshore and coralline deposits. The fill materials may contain cobbles and boulders. In addition, nearshore and coralline deposits may contain localized hard zones. Therefore, some difficult drilling conditions may be encountered and should be expected.

Based on our field exploration, fills and nearshore deposits consisting of silty sands and gravelly sands are present at the site within the proposed drilled shaft excavation depth. Due to the presence of granular deposits below the groundwater level, caving-in and/or sloughing of these materials likely will occur during the drilling operations. To

SECTION 3. DISCUSSION AND RECOMMENDATIONS

reduce the potential for caving-in of the drilled hole, temporary casing of the drilled hole will be required during the drilled shaft installation to maintain the integrity of the drilled hole.

Drilling by methods utilizing drilling fluids may have a significant effect on the supporting capacity of the drilled shaft; therefore, use of drilling fluids for the drilling operations of the drilled shaft should be specifically accepted by Geolabs upon evaluation of the type of drilling fluids proposed.

Groundwater conditions are anticipated within the depths of the drilled shaft excavations and, therefore, concrete placement by tremie methods will be required during drilled shaft construction. The concrete should be placed in a suitable manner by displacing the water in an upward fashion from the bottom of the drilled hole. A low-shrink concrete mix with a high slump (7 to 9-inch slump range) should be used to provide close contact between the drilled shaft and the surrounding soils. The concrete should be placed in a suitable manner to reduce the potential for segregation of the aggregates from the concrete mix. In addition, the concrete should be placed promptly after substantial completion of drilling (within 24 hours after drilling of the holes) to reduce the potential for softening of the sides of the drilled hole.

Based on our experience with drilled shaft foundations, the actual volume of concrete required to fill the shaft may be appreciably more than the theoretical concrete volume. Based on our experience with drilled shafts in similar subsurface conditions (coralline deposits), we envision that an average grout factor on the order of about 40 to 60 percent over the theoretical concrete volume may need to be accounted for the drilled shaft.

It is imperative for a Geolabs representative to be present at the project site to observe the drilling and installation of the drilled shaft during construction. Although the drilled shaft is designed based primarily on skin friction, the bottom of the drilled hole should be relatively free of loose materials prior to the placement of concrete. Therefore, it is necessary for Geolabs to observe the drilled shaft installation operations to confirm

SECTION 3. DISCUSSION AND RECOMMENDATIONS

the assumed subsurface conditions and should be designated a “Special Inspection” item in accordance with Section 1705.8 of the International Building Code (2018 Edition).

3.2 Utility Trenches

We envision new underground utilities, such as electrical and communication lines, likely will be required for the project. In general, we recommend providing granular bedding consisting of 6 inches of free-draining materials, such as bedding sand or open-graded gravel (ASTM C33, No. 67 gradation), below the pipes for uniform support.

If loose and/or soft soils are encountered at the proposed inverts, an additional 12 to 18 inches of open-graded gravel (ASTM C33, No. 67 gradation) wrapped in a non-woven geotextile fabric (Mirafi 180N or equivalent) may be necessary below the bedding material to form a bridging layer. Free-draining granular materials, such as bedding sand or open-graded gravel (ASTM C33, No. 67 gradation), also should be used for the initial trench backfill (pipe cover) up to about 12 inches above the crown of the pipes or the top of the groundwater level to provide adequate support around the pipes and to reduce the need for substantial effort in compacting the backfill, thus reducing the potential for damage to the pipes. Where bedding sand is used for the initial trench backfill instead of open-graded gravel, the bedding sand material shall be densified using a vibratory plate tamper a minimum of four to six passes to achieve a dense condition.

The trench backfill above the pipe cover or groundwater to the finished subgrade or finished grade may consist of the excavated on-site granular soils with a maximum particle size of 3 inches. The backfill should be moisture-conditioned to above the optimum moisture content, placed in maximum 8-inch level loose lifts, and mechanically compacted to not less than 90 percent relative compaction to reduce the potential for appreciable future ground subsidence. Where trenches are located in the pavement areas, the upper 3 feet of the trench backfill below the pavement grade should be compacted to at least 95 percent relative compaction. Where electrical trenches are located in pavement areas, especially pavement areas subjected to heavy forklift traffic, the trench backfill above the electrical utility should consist of controlled low-strength material (CLSM).

SECTION 3. DISCUSSION AND RECOMMENDATIONS

3.3 Design Review

Preliminary and final drawings and specifications for the project should be forwarded to Geolabs for review and comment prior to solicitation for construction bids. This review is necessary to evaluate the conformance of the plans and specifications with the intent of the geotechnical recommendations provided herein. If this review is not made, Geolabs cannot be held responsible for misinterpretation of our recommendations.

3.4 Services During Construction

Geolabs should provide geotechnical services during construction due to the specialized nature of drilled shaft foundations for the project. The critical items of construction monitoring requiring "Special Inspection" in accordance with Section 1705.8 of the 2018 IBC include the following:

- Observation of drilled shaft excavation; and
- Observation of drilled shaft concrete placement.

In addition, a Geolabs representative should monitor the other aspects of earthwork construction to observe compliance with the intent of the design concepts, specifications, or recommendations and to expedite suggestions for design changes that may be required in the event that subsurface conditions differ from those anticipated at the time this report was prepared. The recommendations provided in this report are contingent upon such observations.

If the actual exposed subsurface conditions encountered during construction are different from those assumed or considered in this report, then appropriate modifications to the design should be made.

END OF DISCUSSION AND RECOMMENDATIONS

SECTION 4. LIMITATIONS

The analyses and recommendations presented in this report are based, in part, upon information obtained from the borings drilled as part of our geotechnical exploration efforts. Variations of the subsurface conditions between and beyond the borings drilled may occur, and the nature and extent of these variations may not become evident until construction is underway. If variations then appear evident, it will be necessary to re-evaluate the recommendations provided in this report.

The boring locations indicated in this report are approximate, having been obtained using a hand-held Global Positioning System (GPS) device. Elevations noted on the borings were estimated from the Barge Terminal Improvements Shed 2A Demolition and Pier 2 Strengthening, Typical Pier Section drawing dated April 24, 1988. The physical locations and elevations of the borings should be considered accurate only to the degree implied by the methods used.

The stratification lines shown on the graphic representations of the borings depict the approximate boundaries between the soil and/or rock types and, as such, may denote a gradual transition. Water level data from the borings were measured at the times shown on the graphic representations and/or presented in the text of this report. These data have been reviewed and interpretations made in the formulation of this report. It should be noted that groundwater fluctuations may occur due to variation in tides, rainfall, temperature, and other factors.

This report has been prepared for the exclusive use of MKE Associates LLC for specific application to the design of the proposed *S30217 Repair Light Poles at Piers 1-2* project located at Kahului Harbor on the Island of Maui, Hawaii, in accordance with generally accepted geotechnical engineering principles and practices. No warranty is expressed or implied.

The owner/client should be aware that unanticipated soil and/or rock conditions are encountered commonly during construction. Unforeseen subsurface conditions, such as soft deposits, hard layers, cavities, or perched groundwater, may occur in localized

SECTION 4. LIMITATIONS

areas and may require additional probing or corrections in the field (which may result in construction delays) to attain a properly constructed project. Therefore, a sufficient contingency fund is recommended to accommodate these possible extra costs.

This geotechnical exploration conducted at the project site was not intended to investigate the potential for the presence of hazardous materials existing at the site. It should be noted that the equipment, techniques, and personnel used to conduct a geo-environmental exploration differ substantially from those applied in geotechnical engineering.

END OF LIMITATIONS

CLOSURE

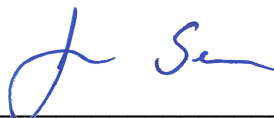
The following plates and appendices are attached and complete this report:

- Project Location Map..... Plate 1
- Site Plan..... Plate 2
- Field Exploration Appendix A
- Laboratory Tests Appendix B
- Photographs of Core Samples Appendix C

---ΩΩΩΩΩΩΩΩΩΩ---

Respectfully submitted,

GEOLABS, INC.

By 

Jason Seidman, P.E.
 Senior Project Engineer

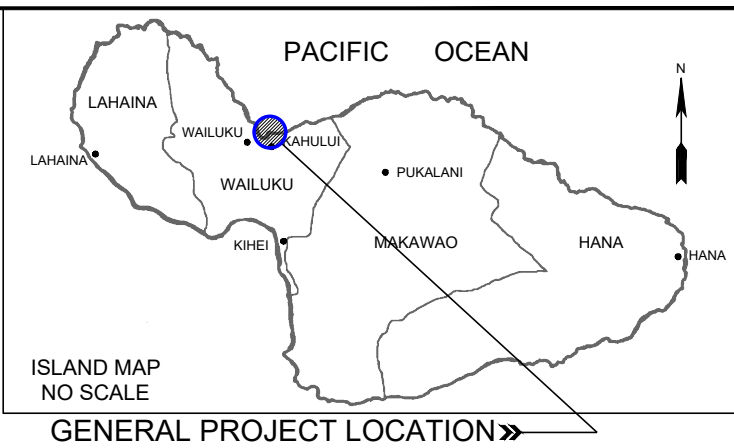
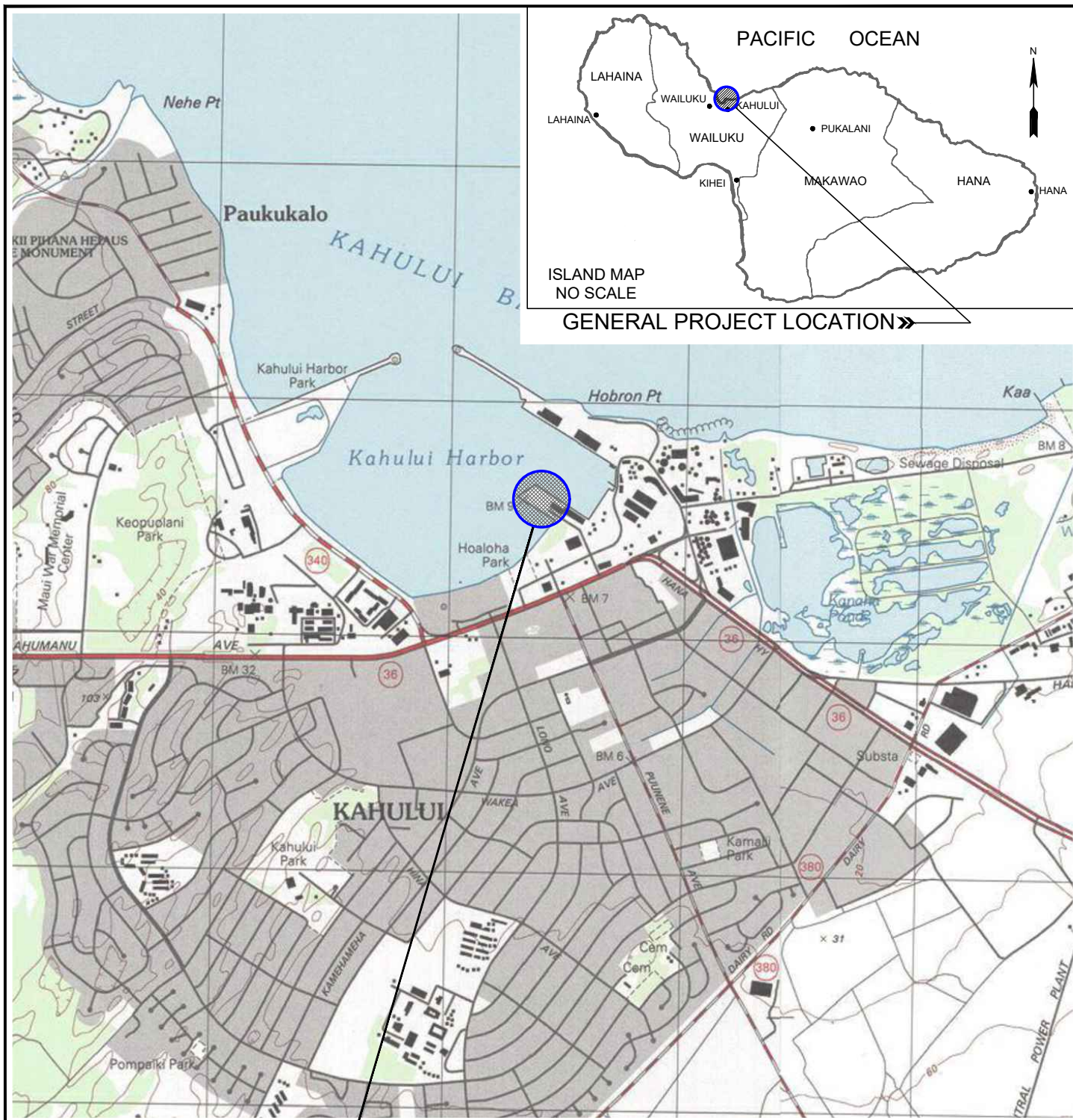
By 

Robin M. Lim, P.E.
 President

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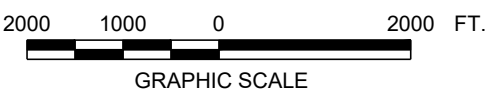
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PLATES



PROJECT LOCATION »

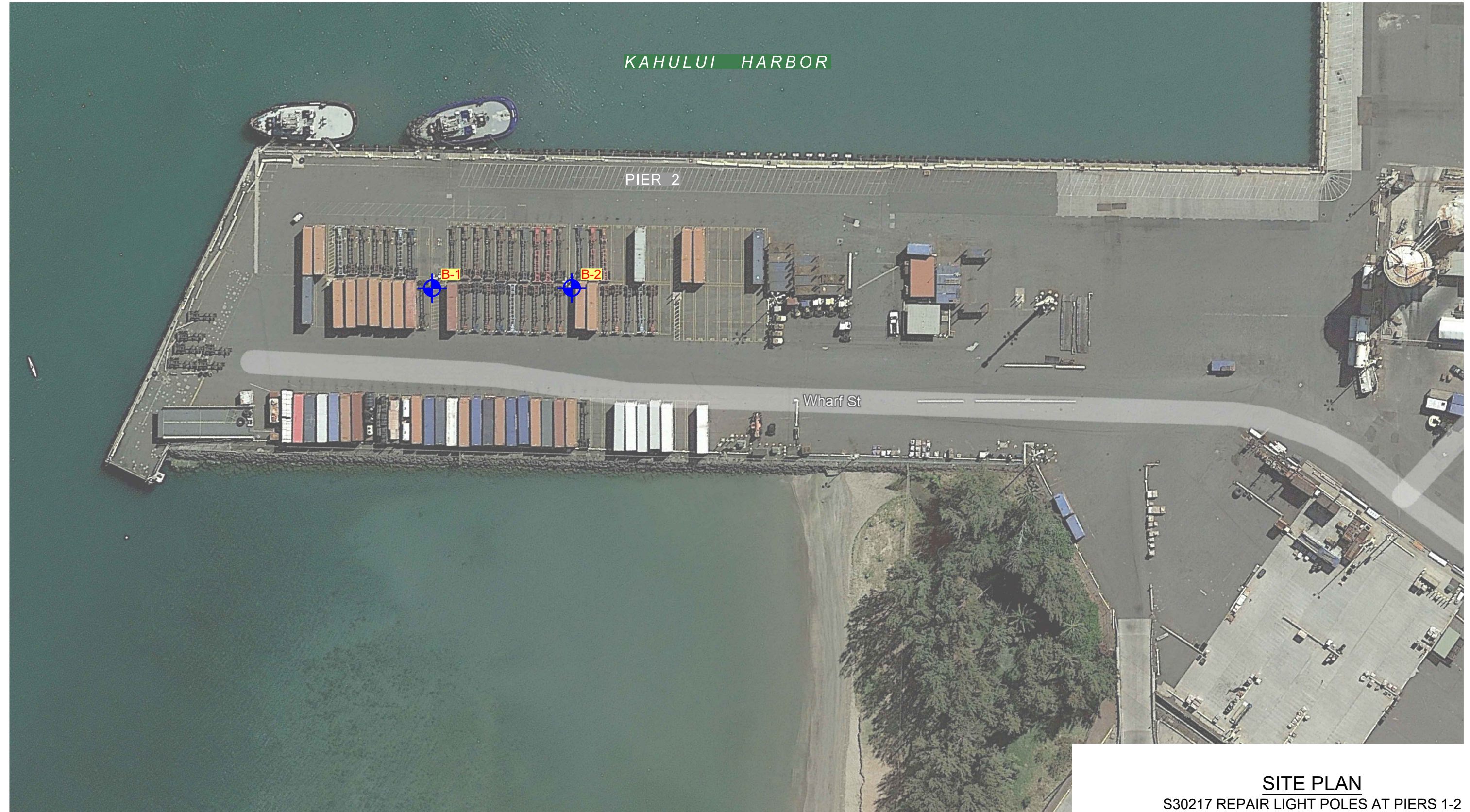
PROJECT LOCATION MAP
 S30217 REPAIR LIGHT POLES AT PIER 1-2
 KAHULUI HARBOR, MAUI, HAWAII




GEOLABS, INC. Geotechnical Engineering		
DATE	DRAWN BY	PLATE
SEPTEMBER 2023	KHN	
SCALE	W.O.	
1" = 2,000'	8619-00	1

REFERENCE: MAP CREATED WITH TOPO!® ©2010 NATIONAL GEOGRAPHIC; ©2007 TELE ATLAS, REL. 1/2007.

CAD User: KIM File Last Updated: September 05, 2023 5:01:39pm Plot Date: October 02, 2023 - 7:00:58pm
 File: T:\Drafting\Working\8619-00_S30217_Repair_Light_Poles_Piers-1to2\8619-00PLM.dwg
 Plotter: DWG To PDF-Geo.pc3 Plotstyle: GEO-No-Dither-RBGC-HEAVY.ctb




LEGEND:
 APPROXIMATE BORING LOCATION

REFERENCE: GOOGLE EARTH PRO 2023. IMAGE DATED JUNE 15, 2019.



SITE PLAN
 S30217 REPAIR LIGHT POLES AT PIERS 1-2
 KAHULUI HARBOR, MAUI, HAWAII

			GEOLABS, INC.	
			<i>Geotechnical Engineering</i>	
DATE	DRAWN BY	PLATE		
SEPTEMBER 2023	KHN			
SCALE	W.O.	2		
1" = 80'	8619-00			

CAD User: KIM File Last Updated: September 05, 2023 5:43:45pm Plot Date: October 02, 2023 - 7:27:52pm
 File: T:\Draughting\Working\8619-00_S30217_Repair_Light_Poles-1to2\8619-00SitePlan.dwg
 Plotter: DWG To PDF - GEO.pc3 PlotStyle: GEO-No-Dither-RBGC-HEAVY.ctb

APPENDIX A

APPENDIX A

Field Exploration

The subsurface conditions at the project site were explored by drilling and sampling two borings, designated as Boring Nos. 1 and 2, each extending to a depth of about 27 feet below the existing ground surface. The borings were drilled with a truck-mounted drill rig equipped with continuous flight augers and coring tools. The borings were drilled at the approximate locations shown on the Site Plan, Plate 2.

Our geologist classified the materials encountered in the borings by visual and textural examination in the field in general accordance with ASTM D2488, Standard Practice for Description and Identification of Soils, and monitored the drilling operations on a near-continuous basis. These classifications were further reviewed visually and by testing in the laboratory. Soils were classified in general accordance with ASTM D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System), as shown on the Soil Log Legend (Plate A-0.1). Deviations made to the soil classification in accordance with ASTM D2487 are described on the Soil Classification Log Key (Plate A-0.2). Graphic representations of the materials encountered are presented on the Logs of Borings, Plates A-1 and A-2.

Relatively “undisturbed” soil samples were obtained in general accordance with ASTM D3550, Ring-Lined Barrel Sampling of Soils, by driving a 3-inch OD Modified California sampler with a 140-pound hammer falling 30 inches. In addition, some samples were obtained from the borings in general accordance with ASTM D1586, Penetration Test and Split-Barrel Sampling of Soils, by driving a 2-inch OD standard penetration sampler using the same hammer and drop. The blow counts needed to drive the sampler the second and third 6 inches of an 18-inch drive are shown as the “Penetration Resistance” on the Logs of Borings at the appropriate sample depths.

Core samples of the rock materials encountered at the project site were obtained by using diamond core drilling techniques in general accordance with ASTM D2113, Diamond Core Drilling for Site Investigation. Core drilling is a rotary drilling method that uses a hollow bit to cut into the rock formation. The rock material left in the hollow core of the bit is mechanically recovered for examination and description. Rock cores were described in general accordance with the Rock Description System, as shown on the Rock Log Legend (Plate A-0.3). The Rock Description System is based on the publication “Suggested Methods for the Quantitative Description of Discontinuities in Rock Masses” by the International Society for Rock Mechanics (March 1977).

Recovery (REC) may be used as a subjective guide to the interpretation of the relative quality of rock masses, where appropriate. Recovery is defined as the actual length of material recovered from a coring attempt versus the length of the core attempt. For example, if 3.7 feet of material is recovered from a 5.0-foot core run, the recovery would be 74 percent and would be shown on the Logs of Borings as $REC = 74\%$.

Appendix A

Field Exploration

The Rock Quality Designation (RQD) is also a subjective guide to the relative quality of rock masses. RQD is defined as the percentage of the total core run in rock that is sound material in excess of 4 inches in length without any discontinuities, discounting any drilling, mechanical, and handling induced fractures or breaks. If 2.5 feet of sound material is recovered from a 5.0-foot core run in rock, the RQD would be 50 percent and would be shown on the Logs of Borings as RQD = 50%. Generally, the following is used to describe the relative quality of the rock based on the "Practical Handbook of Physical Properties of Rocks and Minerals" by Robert S. Carmichael (1989).

<u>Rock Quality</u>	<u>RQD</u> (%)
Very Poor	0 – 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 – 100

The excavation characteristic of a rock mass is a function of the relative hardness of the rock, its relative quality, brittleness, and fissile characteristics. A dense rock formation with a high RQD value would be very difficult to excavate and probably would require more arduous methods of excavation.



GEOLABS, INC.

Geotechnical Engineering

Soil Log Legend

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISIONS			USCS	TYPICAL DESCRIPTIONS		
COARSE-GRAINED SOILS	GRAVELS	CLEAN GRAVELS LESS THAN 5% FINES		GW WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES		
		GRAVELS WITH FINES MORE THAN 12% FINES		GP POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES		
		SANDS	CLEAN SANDS LESS THAN 5% FINES		SW WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
			SANDS WITH FINES MORE THAN 12% FINES		SP POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
	SANDS	50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE	CLEAN SANDS LESS THAN 5% FINES		SM SILTY SANDS, SAND-SILT MIXTURES	
			SANDS WITH FINES MORE THAN 12% FINES		SC CLAYEY SANDS, SAND-CLAY MIXTURES	
		FINE-GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
						CL INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
	OL ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY					
SILTS AND CLAYS	LIQUID LIMIT 50 OR MORE			MH INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS		
				CH INORGANIC CLAYS OF HIGH PLASTICITY		
				OH ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS		
HIGHLY ORGANIC SOILS				PT PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS		

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

LEGEND

- | | | | |
|--|--|------|---|
| | (2-INCH) O.D. STANDARD PENETRATION TEST | LL | LIQUID LIMIT (NP=NON-PLASTIC) |
| | (3-INCH) O.D. MODIFIED CALIFORNIA SAMPLE | PI | PLASTICITY INDEX (NP=NON-PLASTIC) |
| | SHELBY TUBE SAMPLE | TV | TORVANE SHEAR (tsf) |
| | GRAB SAMPLE | UC | UNCONFINED COMPRESSION OR UNIAXIAL COMPRESSIVE STRENGTH |
| | CORE SAMPLE | TXUU | UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (ksf) |
| | WATER LEVEL OBSERVED IN BORING AT TIME OF DRILLING | | |
| | WATER LEVEL OBSERVED IN BORING AFTER DRILLING | | |
| | WATER LEVEL OBSERVED IN BORING OVERNIGHT | | |

Plate

A-0.1



GEOLABS, INC.

Geotechnical Engineering

Soil Classification Log Key

(with deviations from ASTM D2488)

GEOLABS, INC. CLASSIFICATION*

GRANULAR SOIL (- #200 <50%)

- **PRIMARY** constituents are composed of the largest percent of the soil mass. Primary constituents are capitalized and bold (i.e., **GRAVEL, SAND**)
- **SECONDARY** constituents are composed of a percentage less than the primary constituent. If the soil mass consists of 12 percent or more fines content, a cohesive constituent is used (**SILTY** or **CLAYEY**); otherwise, a granular constituent is used (**GRAVELLY** or **SANDY**) provided that the secondary constituent consists of 20 percent or more of the soil mass. Secondary constituents are capitalized and bold (i.e., **SANDY GRAVEL, CLAYEY SAND**) and precede the primary constituent.
- **accessory descriptions** compose of the following:
 with some: >12%
 with a little: 5 - 12%
 with traces of: <5%
 accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., **SILTY GRAVEL with a little sand**)

COHESIVE SOIL (- #200 ≥50%)

- **PRIMARY** constituents are based on plasticity. Primary constituents are capitalized and bold (i.e., **CLAY, SILT**)
- **SECONDARY** constituents are composed of a percentage less than the primary constituent, but more than 20 percent of the soil mass. Secondary constituents are capitalized and bold (i.e., **SANDY CLAY, SILTY CLAY, CLAYEY SILT**) and precede the primary constituent.
- **accessory descriptions** compose of the following:
 with some: >12%
 with a little: 5 - 12%
 with traces of: <5%
 accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., **SILTY CLAY with some sand**)

EXAMPLE: Soil Containing 60% Gravel, 25% Sand, 15% Fines. Described as: **SILTY GRAVEL** with some sand

RELATIVE DENSITY / CONSISTENCY

Granular Soils			Cohesive Soils			
N-Value (Blows/Foot)		Relative Density	N-Value (Blows/Foot)		PP Readings (tsf)	Consistency
SPT	MCS		SPT	MCS		
0 - 4	0 - 7	Very Loose	0 - 2	0 - 4		Very Soft
4 - 10	7 - 18	Loose	2 - 4	4 - 7	< 0.5	Soft
10 - 30	18 - 55	Medium Dense	4 - 8	7 - 15	0.5 - 1.0	Medium Stiff
30 - 50	55 - 91	Dense	8 - 15	15 - 27	1.0 - 2.0	Stiff
> 50	> 91	Very Dense	15 - 30	27 - 55	2.0 - 4.0	Very Stiff
			> 30	> 55	> 4.0	Hard

MOISTURE CONTENT DEFINITIONS

Dry:	Absence of moisture, dry to the touch
Moist:	Damp but no visible water
Wet:	Visible free water

GRAIN SIZE DEFINITION

Description	Sieve Number and / or Size
Boulders	> 12 inches (305-mm)
Cobbles	3 to 12 inches (75-mm to 305-mm)
Gravel	3-inch to #4 (75-mm to 4.75-mm)
Coarse Gravel	3-inch to 3/4-inch (75-mm to 19-mm)
Fine Gravel	3/4-inch to #4 (19-mm to 4.75-mm)
Sand	#4 to #200 (4.75-mm to 0.075-mm)
Coarse Sand	#4 to #10 (4.75-mm to 2-mm)
Medium Sand	#10 to #40 (2-mm to 0.425-mm)
Fine Sand	#40 to #200 (0.425-mm to 0.075-mm)

ABBREVIATIONS

WOH:	Weight of Hammer
WOR:	Weight of Drill Rods
SPT:	Standard Penetration Test Split-Spoon Sampler
MCS:	Modified California Sampler
PP:	Pocket Penetrometer

Plate

A-0.2

*Soil descriptions are based on ASTM D2488-09a, Visual-Manual Procedure, with the above modifications by Geolabs, Inc. to the Unified Soil Classification System (USCS).

SOIL_CLASS_LOG_KEY_8462-00&10.GPJ GEOLABS.GDT 7/22/23



GEOLABS, INC.

Geotechnical Engineering

Rock Log Legend

ROCK DESCRIPTIONS

	BASALT		CONGLOMERATE
	BOULDERS		LIMESTONE
	BRECCIA		SANDSTONE
	CLINKER		SILTSTONE
	COBBLES		TUFF
	CORAL		VOID/CAVITY

ROCK DESCRIPTION SYSTEM

ROCK FRACTURE CHARACTERISTICS

The following terms describe general fracture spacing of a rock:

- Massive:** Greater than 24 inches apart
- Slightly Fractured:** 12 to 24 inches apart
- Moderately Fractured:** 6 to 12 inches apart
- Closely Fractured:** 3 to 6 inches apart
- Severely Fractured:** Less than 3 inches apart

DEGREE OF WEATHERING


The following terms describe the chemical weathering of a rock:

- Unweathered:** Rock shows no sign of discoloration or loss of strength.
- Slightly Weathered:** Slight discoloration inwards from open fractures.
- Moderately Weathered:** Discoloration throughout and noticeably weakened though not able to break by hand.
- Highly Weathered:** Most minerals decomposed with some corestones present in residual soil mass. Can be broken by hand.
- Extremely Weathered:** Saprolite. Mineral residue completely decomposed to soil but fabric and structure preserved.

HARDNESS

The following terms describe the resistance of a rock to indentation or scratching:


- Very Hard:** Specimen breaks with difficulty after several "pinging" hammer blows.
Example: Dense, fine grain volcanic rock
- Hard:** Specimen breaks with some difficulty after several hammer blows.
Example: Vesicular, vugular, coarse-grained rock
- Medium Hard:** Specimen can be broked by one hammer blow. Cannot be scraped by knife. SPT may penetrate by ~25 blows per inch with bounce.
Example: Porous rock such as clinker, cinder, and coral reef
- Soft:** Can be indented by one hammer blow. Can be scraped or peeled by knife. SPT can penetrate by ~100 blows per foot.
Example: Weathered rock, chalk-like coral reef
- Very Soft:** Crumbles under hammer blow. Can be peeled and carved by knife. Can be indented by finger pressure.
Example: Saprolite

	<p>GEOLABS, INC. Geotechnical Engineering</p>	<p>S30217 REPAIR LIGHT POLES AT PIERS 1-2 KAHULUI HARBOR, MAUI, HAWAII</p>	<p>Log of Boring 1</p>
--	--	--	-----------------------------------

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Approximate Ground Surface Elevation (feet MSL): 9 *
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					Description
Sieve - #200 = 9.0%	9	111			112				SP-SM	2.5-inch ASPHALTIC CONCRETE Brown with white mottling GRAVELLY SAND with a little silt, very dense, moist (fill)	
TXUU S _u =0.4 ksf	8				79		5			grades to dense	
Sieve - #200 = 7.5%	20		0		18		10		SP-SM	Brownish gray GRAVELLY SAND (CORALLINE) with a little silt, medium dense (nearshore deposit)	
Direct Shear	12	110	0		16		15		SP	Dark gray SAND with a little gravel and traces of silt, medium dense (coralline detritus)	
Sieve - #200 = 4.0%	29		0		10		20				
TXUU S _u =0.4 ksf	29	133			25		25				
Boring terminated at 27 feet											
* Elevations obtained from Barge Terminal Improvements Shed 2A Demolition and Pier 2 Strengthening, Typical Pier Section Drawing dated April 24, 1988.											

Date Started: July 31, 2023	Water Level: ∇ 6.0 ft. 07/31/2023 1411 HRS	Plate A - 1
Date Completed: July 31, 2023		
Logged By: K. Yoo	Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 86.4%)	
Total Depth: 27 feet	Drilling Method: 4" Solid-Stem Auger & PQ Coring	
Work Order: 8619-00	Driving Energy: 140 lb. wt., 30 in. drop	

BORING LOG 8619-00.GPJ GEOLABS.GDT 10/6/23

	<p>GEOLABS, INC. Geotechnical Engineering</p>	<p>S30217 REPAIR LIGHT POLES AT PIERS 1-2 KAHULUI HARBOR, MAUI, HAWAII</p>	<p>Log of Boring 2</p>
--	--	--	-----------------------------------

Laboratory			Field				Depth (feet)	Sample	Graphic	USCS	Description
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)					
											Approximate Ground Surface Elevation (feet MSL): 9 *
Direct Shear	8	103			110						3.5-inch ASPHALTIC CONCRETE
	9				59						Brown with white mottling GRAVELLY SAND (CORALLINE) with a little silt, very dense, moist (fill)
	12	82			55		5				
	18				15		10				grades to medium dense
			46								
Sieve - #200 = 14.2%	24	99			15		15			SM	Brownish gray SILTY SAND with some gravel (coralline) and traces of cobbles boulders, medium dense (nearshore deposit)
			98	0							Grayish white CORAL , closely to severely fractured, highly weathered, soft to medium hard (coral formation)
Sieve - #200 = 20.6%	51				2		20				
			0							SM	Gray SILTY SAND with some gravel, very loose to loose (coralline detritus)
					9		25				
											Boring terminated at 27 feet
							30				
							35				

Date Started: July 31, 2023	Water Level: ∇ 11.0 ft. 07/31/2023 1033 HRS	Plate A - 2
Date Completed: July 31, 2023		
Logged By: K. Yoo	Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 86.4%)	
Total Depth: 27 feet	Drilling Method: 4" Solid-Stem Auger & PQ Coring	
Work Order: 8619-00	Driving Energy: 140 lb. wt., 30 in. drop	

BORING LOG 8619-00.GPJ GEOLABS.GDT 10/6/23

APPENDIX B

APPENDIX B

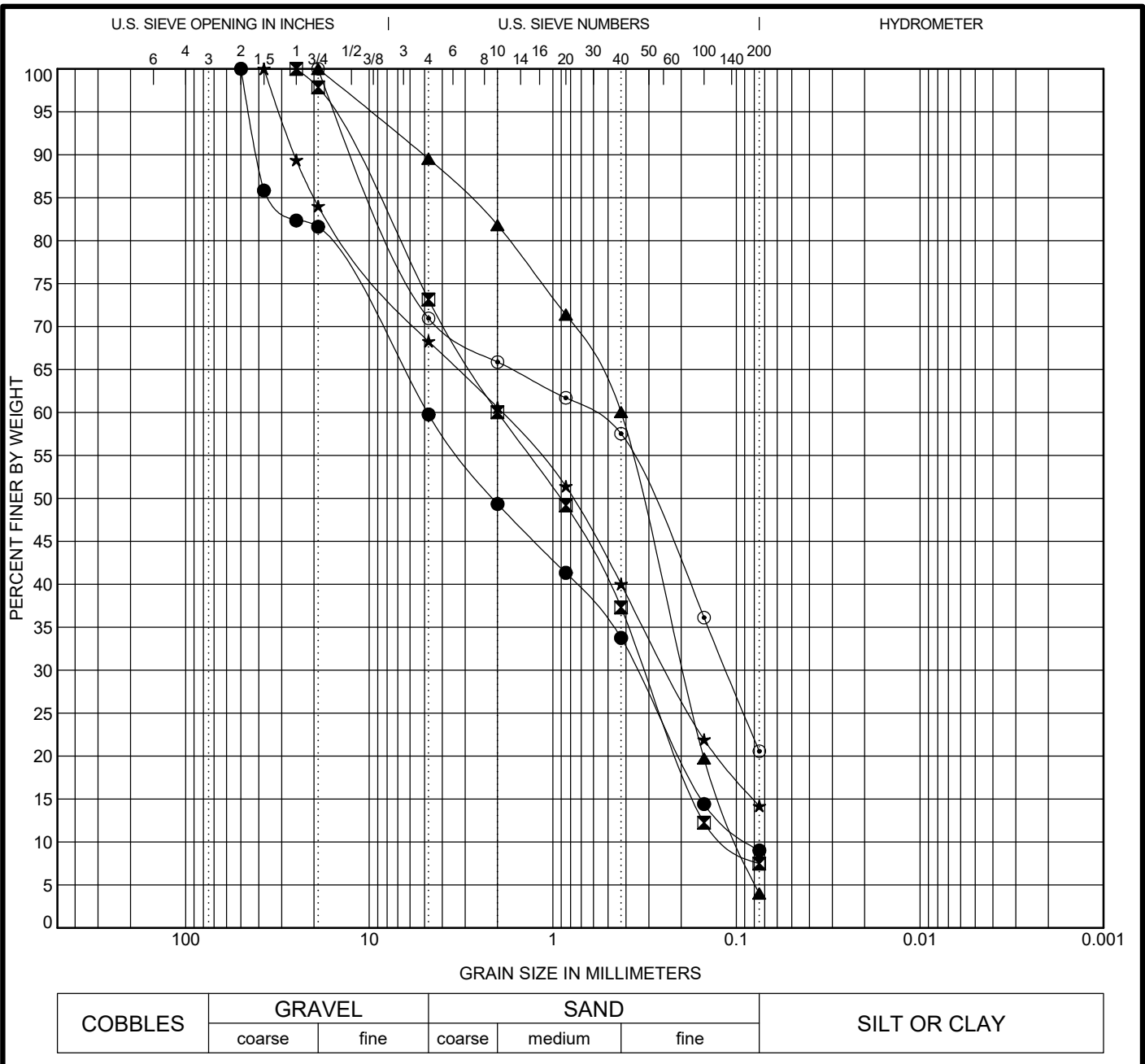
Laboratory Tests

Moisture Content (ASTM D2216) and Unit Weight (ASTM D7263) determinations were performed on selected soil samples as an aid in the classification and evaluation of soil properties. The test results are presented on the Logs of Borings at the appropriate sample depths.

Five Sieve Analysis tests (ASTM D6913) were performed on selected soil samples to evaluate the gradation characteristics of the soils and to aid in soil classification. Graphic presentations of the grain size distributions are provided on Plate B-1.

Two strain-controlled, consolidated-drained Direct Shear tests were performed to evaluate the shear strength characteristics of the in-situ soils. Direct Shear tests were performed on the in-situ soil samples in accordance with ASTM D3080. The test results are presented on Plates B-2 and B-3.

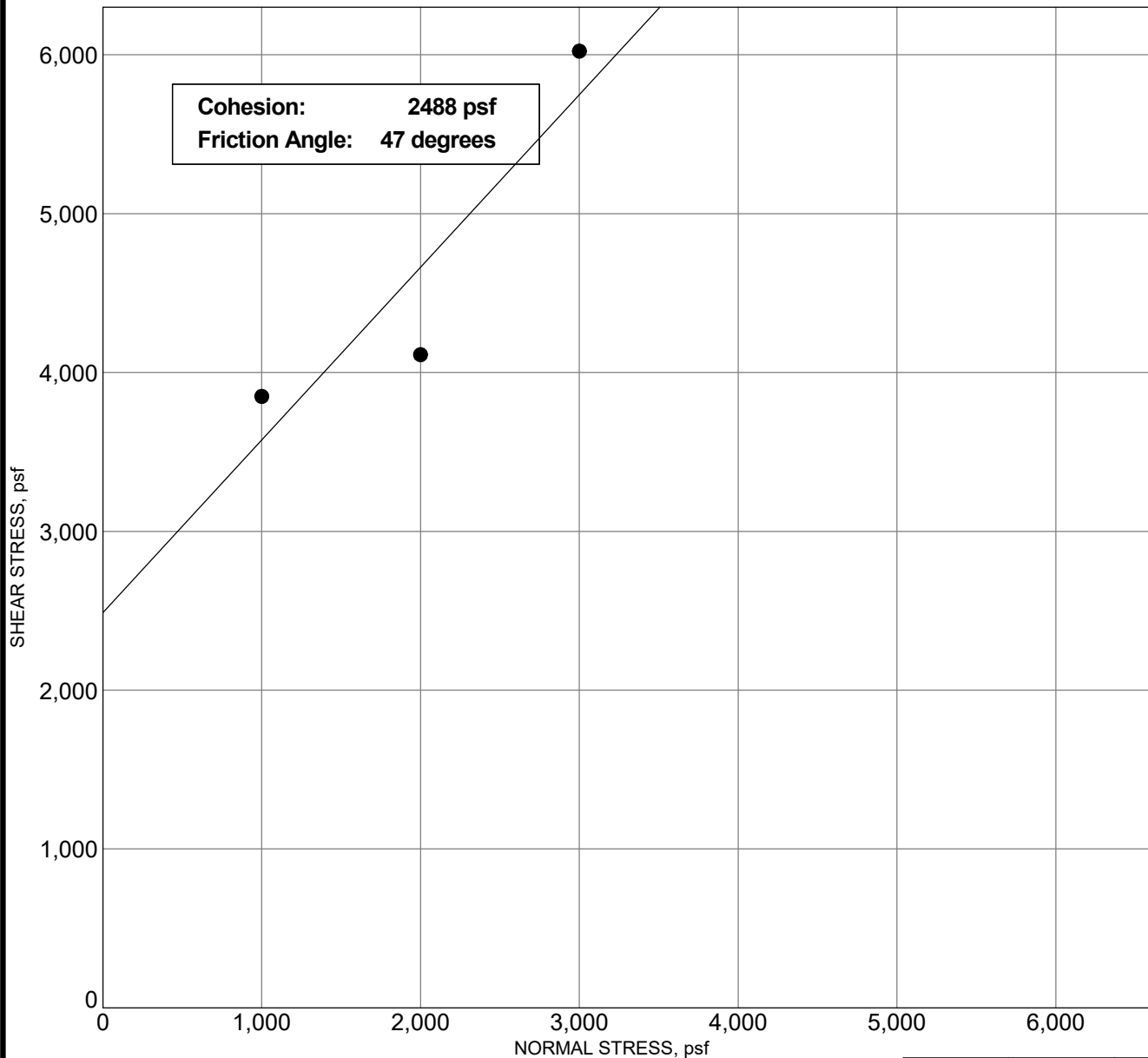
One Unconsolidated Undrained Triaxial Compression test was performed on a selected in-situ soil sample in accordance with ASTM D2850. The approximate in-situ effective overburden pressure was used as the applied confining pressure for the relatively “undisturbed” soil sample. The test results and the stress-strain curves are presented on Plates B-4 and B-5.



Sample	Depth (ft)	D100 (mm)	D60 (mm)	D30 (mm)	D10 (mm)	%Gravel	%Sand	%Fine
●	1.0-2.5	50	4.823	0.347	0.085	40.2	50.7	9.0
☒	10.5-12.0	25	1.998	0.314	0.108	26.9	65.7	7.5
▲	20.5-22.0	19	0.425	0.196	0.098	10.5	85.5	4.0
★	15.5-17.0	37.5	1.897	0.239		31.7	54.1	14.2
◎	20.5-22.0	19	0.641	0.114		29.0	50.4	20.6

G GRAIN SIZE MOD 8619-00.GPJ GEOLABS.GDT 10/2/23

	GEOLABS, INC. GEOTECHNICAL ENGINEERING	GRAIN SIZE DISTRIBUTION - ASTM D6913	
	W.O. 8619-00	S30217 REPAIR LIGHT POLES AT PIERS 1-2 KAHULUI HARBOR, MAUI, HAWAII	
			Plate B - 1



		Sample #1	Sample #2	Sample #3
INITIAL	Moisture Content, %	19.4	14.7	16.8
	Dry Density, pcf	100.0	106.5	106.3
	Height, inches	1.00	1.00	1.00
FINAL	Moisture Content, %	24.2	18.5	18.3
	Dry Density, pcf	102.8	106.9	99.3
	Height, inches	0.972	0.996	1.070
Diameter, inches		2.42	2.42	2.42
Deformation Rate, inch/minute		0.0025	0.0022	0.0022
Normal Stress, psf		1000	2000	3000
Peak Shear Stress, psf		3849	4112	6023
Shear Displacement, inches		0.43	0.37	0.38

Sample: B-1
 Depth: 15.5 - 17.0 feet
 Description: Brownish gray gravelly sand (SP-SM) with a little silt

G DIRECT SHEAR 8619-00.GPJ GEOLABS.GDT 10/2/23

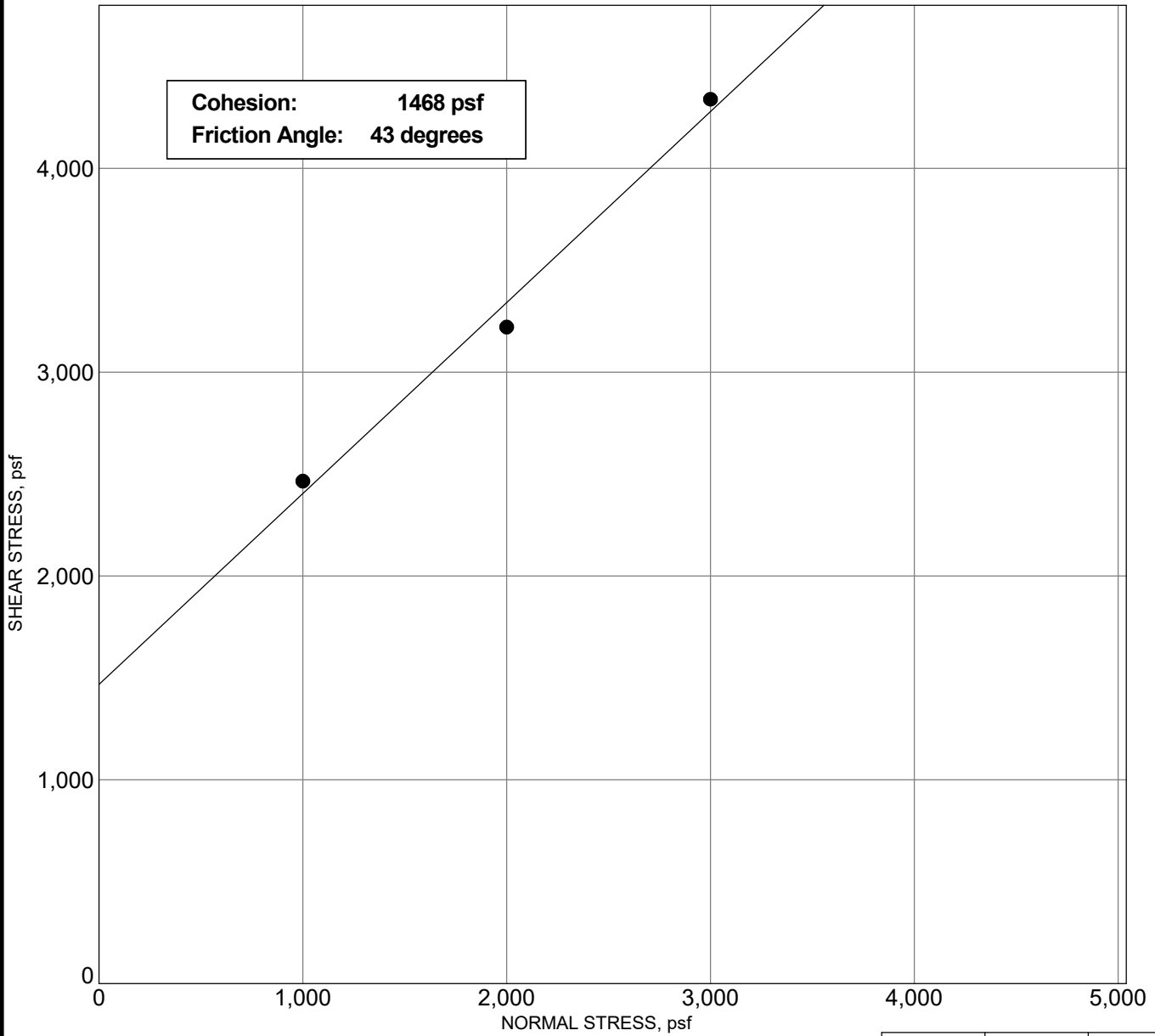


GEOLABS, INC.
 GEOTECHNICAL ENGINEERING
 W.O. 8619-00

DIRECT SHEAR TEST - ASTM D3080

S30217 REPAIR LIGHT POLES AT PIERS 1-2
 KAHULUI HARBOR, MAUI, HAWAII

Plate
B - 2



	Sample #1	Sample #2	Sample #3	
INITIAL	Moisture Content, %	11.5	10.4	13.2
	Dry Density, pcf	82.0	85.7	87.4
	Height, inches	1.00	1.00	1.00
FINAL	Moisture Content, %	20.4	19.1	19.0
	Dry Density, pcf	83.9	83.1	87.0
	Height, inches	0.977	1.031	1.004
Diameter, inches		2.42	2.42	2.42
Deformation Rate, inch/minute		0.0024	0.0022	0.0025
Normal Stress, psf		1000	2000	3000
Peak Shear Stress, psf		2465	3221	4339
Shear Displacement, inches		0.43	0.38	0.41

Sample: B-2
 Depth: 5.0 - 6.5 feet
 Description: Brown w/ white mottling gravelly sand (SP-SM) w/ a little silt

G DIRECT SHEAR 8619-00.GPJ GEOLABS.GDT 10/2/23

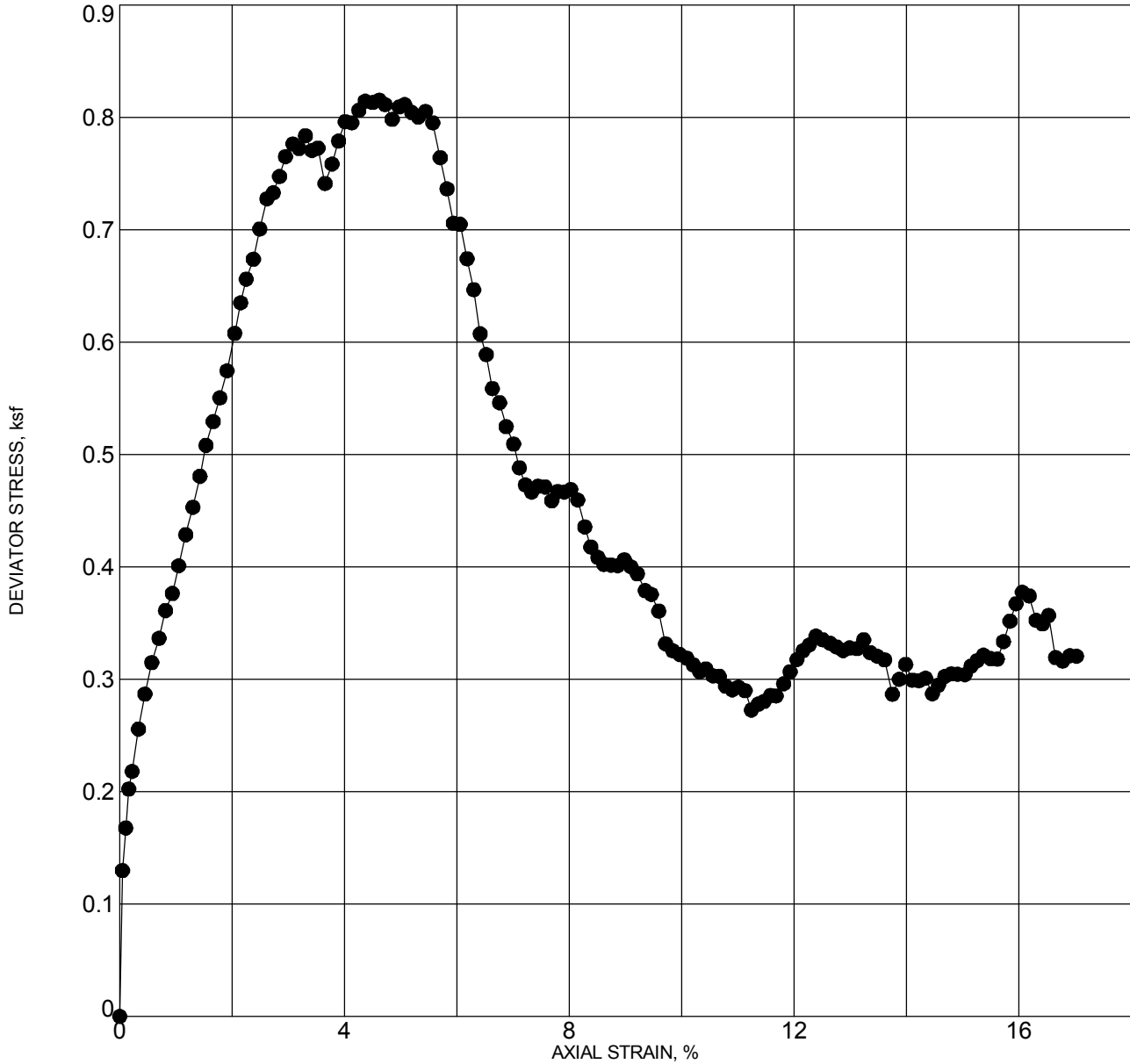


GEOLABS, INC.
 GEOTECHNICAL ENGINEERING
 W.O. 8619-00

DIRECT SHEAR TEST - ASTM D3080

S30217 REPAIR LIGHT POLES AT PIERS 1-2
 KAHULUI HARBOR, MAUI, HAWAII

Plate
B - 3



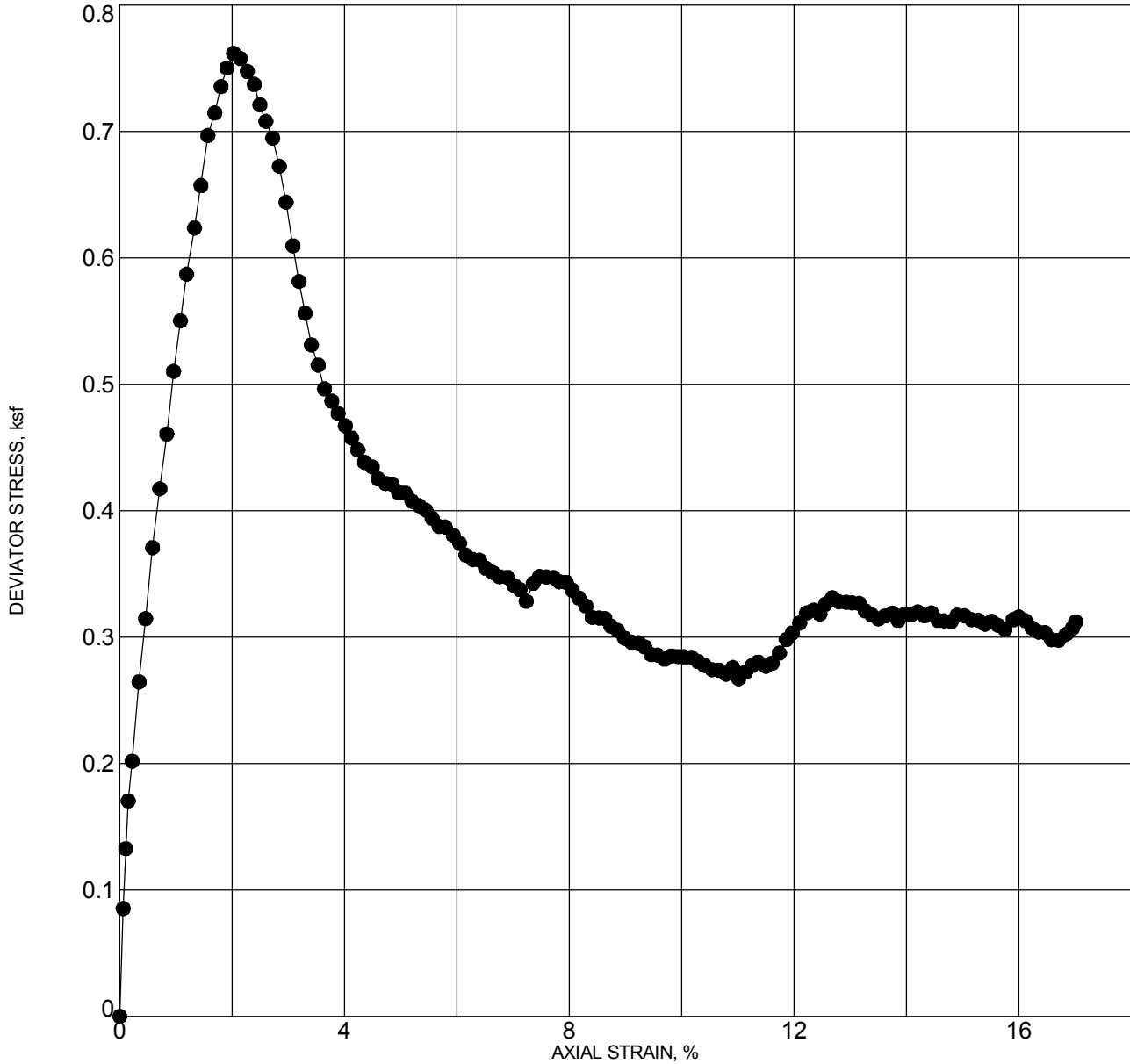
Max. Deviator Stress (ksf):	0.8
Confining Stress (ksf):	0.6

Location: B-1
 Depth: 5.0 - 6.5 feet
 Description: Brown w/ white mottling gravelly sand (SP-SM) w/ a little silt
 Test Date: 9/26/2023

Dry Density (pcf)	112.1	Sample Diameter (inches)	2.413
Moisture (%)	8.8	Sample Height (inches)	5.000
Axial Strain at Failure (%)	4.6	Strain Rate (% / minute)	0.71

G TXUU 8619-00.GPJ GEOLABS.GDT 10/6/23

 <p>GEOLABS, INC. GEOTECHNICAL ENGINEERING W.O. 8619-00</p>	TRIAXIAL UU COMPRESSION TEST - ASTM D2850		Plate B - 4
	S30217 REPAIR LIGHT POLES AT PIERS 1-2 KAHULUI HARBOR, MAUI, HAWAII		



Max. Deviator Stress (ksf):	0.8
Confining Stress (ksf):	1.6

Location: B-1
 Depth: 25.5 - 27.0 feet
 Description: Gray sand (SP) w/ a little gravel and traces of silt
 Test Date: 9/26/2023

Dry Density (pcf)	133.1	Sample Diameter (inches)	2.413
Moisture (%)	29.1	Sample Height (inches)	4.067
Axial Strain at Failure (%)	2.1	Strain Rate (% / minute)	0.70

G TXUU 8619-00.GPJ GEOLABS.GDT 10/6/23

	GEOLABS, INC. GEOTECHNICAL ENGINEERING	TRIAxIAL UU COMPRESSION TEST - ASTM D2850	
	W.O. 8619-00	S30217 REPAIR LIGHT POLES AT PIERS 1-2 KAHULUI HARBOR, MAUI, HAWAII	Plate B - 5

APPENDIX C

**S30217 REPAIR LIGHT POLES AT PIERS 1-2
KAHULUI HARBOR, MAUI, HAWAII**

B-2 11.5' TO 20.5'



Requirements of Chapter 104, HRS Wages and Hours of Employees on Public Works Law

Chapter 104, HRS, applies to every public works construction project over \$2,000, regardless of the method of procurement or financing (purchase order, voucher, bid, contract, lease arrangement, warranty, SPRB).

Rate of Wages for Laborers and Mechanics

- Minimum prevailing wages (basic hourly rate plus fringe benefits), as determined by the Director of Labor and Industrial Relations and published in wage rate schedules, shall be paid to the various classes of laborers and mechanics working on the job site. [§104-2(a), (b), Hawaii Revised Statutes (HRS)]
- If the Director of Labor determines that prevailing wages have increased during the performance of a public works contract, the rate of pay of laborers and mechanics shall be raised accordingly. [§104-2(a) and (b), HRS; §12-22-3(d) Hawaii Administrative Rules (HAR)]

Overtime

- Laborers and mechanics working on a Saturday, Sunday, or a legal holiday of the State or more than eight hours a day on any other day shall be paid overtime compensation at not less than one and one-half times the basic hourly rate plus the cost of fringe benefits for all hours worked. If the Director of Labor determines that a prevailing wage is defined by a collective bargaining agreement, the overtime compensation shall be at the rates set by the applicable collective bargaining agreement [§§104-1, 104-2(c), HRS; §12-22-4.1, HAR]

Weekly Pay

- Laborers and mechanics employed on the job site shall be paid their full wages at least once a week, without deduction or rebate, except for legal deductions, within five working days after the cutoff date. [§104-2(d), HRS]

Posting of Wage Rate Schedules

- Wage rate schedules with the notes for prevailing wages and special overtime rates, shall be posted by the contractor in a prominent and easily accessible place at the job site. A copy of the entire wage rate schedule shall be given to each laborer and mechanic employed under the contract, except when the employee is covered by a collective bargaining agreement. [§104-2(d), HRS]

Withholding of Accrued Payments

- If necessary, the contracting agency may withhold accrued payments to the contractor to pay to laborers and mechanics employed by the contractor or subcontractor on the job site any difference between the wages required by the public works contract or specifications and the wages received. [§104-2(e), HRS]

Certified Weekly Payrolls and Payroll Records

- A certified copy of all payrolls shall be submitted weekly to the contracting agency. [§104-3(a), HRS; §12-22-10, HAR]
- The contractor is responsible for the submission of certified copies of the payrolls of all subcontractors. The certification shall affirm that the payrolls are correct and complete, that the wage rates listed are not less than the applicable rates contained in the applicable wage rate schedule, and that the classifications for each laborer or mechanic conform with the work the laborer or mechanic performed. [§104-3(a), HRS; §12-22-10, HAR]
- Payroll records shall be maintained by the contractor and subcontractors for three years after completion of construction. The records shall contain: [§104-3(b), HRS; §12-22-10, HAR]
 - the name and home address of each employee
 - the last four digits of social security number
 - a copy of the apprentice's registration with DLIR
 - the employee's correct classification
 - rate of pay (basic hourly rate + fringe benefits)
 - itemized list of fringe benefits paid
 - daily and weekly hours worked
 - weekly straight time and overtime earnings
 - amount and type of deductions
 - total net wages paid
 - date of payment
- Records shall be made available for examination by the contracting agency, the Department of Labor and Industrial Relations (DLIR), or any of its authorized representatives, who may also interview employees during working hours on the job. [§§104-3(c), 104-22(a), HRS; §12-22-10, HAR]

Termination of Work on Failure to Pay Wages

- If the contracting agency finds that any laborer or mechanic employed on the job site by the contractor or any subcontractor has not been paid prevailing wages or overtime, the contracting agency may, by written notice to the contractor, terminate the contractor's or subcontractor's right to proceed with the work or with the part of the work in which the required wages or overtime compensation have not been paid. The contracting agency may complete this work by contract or otherwise, and the contractor or contractor's sureties shall be liable to the contracting agency for any excess costs incurred. [§104-4, HRS]

Apprentices

- Apprentice wage rates apply to contractors who are a party to a bona fide apprenticeship program which has been registered with the DLIR. In order to be paid apprentice rates, apprentices must be parties to an agreement either registered with or recognized as a USDOL nationally approved apprenticeship program by the DLIR, Workforce Development Division, (808) 586-8877, and the apprentice must be individually registered by name with the DLIR. [§12-22-6(1) and (2), HAR]
- The number of apprentices on any public work in relation to the number of journeyworkers in the same craft classification as the apprentices employed by the same employer on the same public work may not exceed the ratio allowed under the apprenticeship standards registered with or recognized by the DLIR. A registered or recognized apprentice receiving the journeyworker rate will not be considered a journeyworker for the purpose of meeting the ratio requirement. [§12-22-6(3), HAR]

Enforcement

- To ensure compliance with the law, DLIR and the contracting agency will conduct investigations of contractors and subcontractors. If a contractor or subcontractor violates the law, the penalties are: [§104-24, HRS]
 - First Violation Equal to 25% of back wages found due or \$250 per offense up to \$2,500, whichever is greater.
 - Second Violation Equal to amount of back wages found due or \$500 for each offense up to \$5,000, whichever is greater.
 - Third Violation Equal to two times the amount of back wages found due or \$1,000 for each offense up to \$10,000, whichever is greater; and
Suspension from doing any new work on any public work of a governmental contracting agency for three years.
- A violation would be deemed a second violation if it occurs within two years of the **first notification of violation**, and a third violation if it occurs within three years of **the second notification of violation**. [§104-24, HRS; §12-22-25(b), HAR]
- **Suspension:** For a first or second violation, the department shall immediately suspend a contractor who fails to pay wages or penalties until all wages and penalties are paid in full. For a third violation, the department shall penalize and suspend the contractor as described above, **except that if the contractor continues to violate the law, then the department shall immediately suspend the contractor for a mandatory three years. The contractor shall remain suspended until all wages and penalties are paid in full.** [§§104-24, 104-25, HRS]
- **Suspension:** Any contractor who fails to make payroll records accessible or provide requested information within 10 days, or fails to keep or falsifies any required record, shall be assessed a penalty including suspension as provided in Section 104-22(b) and 104-25(a)(3), HRS. [§104-3(c), HRS; §12-22-26, HAR]
- If any contractor interferes with or delays any investigation, the contracting agency shall withhold further payments until the delay has ceased. Interference or delay includes failure to provide requested records or information within ten days, failure to allow employees to be interviewed during working hours on the job, and falsification of payroll records. The department shall assess a penalty of \$10,000 per project, and \$1,000 per day thereafter, for interference or delay. [§104-22(b), HRS; §12-22-26, HAR]
- Failure by the contracting agency to include in the provisions of the contract or specifications the requirements of Chapter 104, HRS, relating to coverage and the payment of prevailing wages and overtime, is not a defense of the contractor or subcontractor for noncompliance with the requirements of this chapter. [§104-2(f), HRS]



For additional information, visit the department's website at <http://labor.hawaii.gov/wsd> or contact any of the following DLIR offices:

Oahu (Wage Standards Division).....(808) 586-8777
Hawaii Island.....(808) 974-6464
Maui and Kauai(808) 243-5322

PROPOSAL TO THE STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HARBORS

PROJECT: REPAIR LIGHT POLES AT PIERS 1 AND 2,
KAHULUI HARBOR, MAUI, HAWAII

PROJECT NO.: S30217

COMPLETION TIME: All work shall be completed within TWO HUNDRED SEVENTY (270) CALENDAR DAYS from the date indicated in the Notice to Proceed from the Department.

LIQUIDATED DAMAGES: THREE HUNDRED DOLLARS (\$300.00) for each and every calendar day which the Contractor has delayed the completion of this project.

DESIGN PROJECT MANAGER: MR. BRANDEN SUMIDA
DEPARTMENT OF TRANSPORTATION
HARBORS
HALE AWA MOKU
79 S. NIMITZ HIGHWAY
HONOLULU, HAWAII 96813
PHONE: (808) 587-1873
EMAIL: branden.sumida@hawaii.gov

ELECTRONIC SUBMITTAL: **Bidders shall submit and upload the complete proposal to HiePRO prior to the bid opening date and time. Any additional support documents explicitly designated as confidential and/or proprietary shall be uploaded as a separate file to HiePRO. Bidders shall refer to SPECIAL PROVISIONS 2.8 PREPARATION AND DELIVERY OF BID for complete details. FAILURE TO UPLOAD THE COMPLETE PROPOSAL TO HiePRO SHALL BE GROUNDS FOR REJECTION OF THE BID.**

Director of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Sir:

The undersigned Bidder declares the following:

1. It has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this proposal.
2. It has not been assisted or represented on this matter by any individual who has, in a State capacity, been involved in the subject matter of this contract within the past two years.
3. It has not and will not, either directly or indirectly offered or given a gratuity (i.e. an entertainment or gift) to any State or County employee to obtain a contract or favorable treatment under a contract.

The undersigned Bidder further agrees to the following:

1. If this proposal is accepted, it shall execute a contract with the Department to provide all necessary labor, machinery, tools, equipment, apparatus and any other means of construction, to do all the work and to furnish all the materials specified in the contract in the manner and within the time therein prescribed in the contract, and that it shall accept in full payment therefore the sum of the unit and/or lump sum prices as set forth in the attached proposal schedule for the actual quantities of work performed and materials furnished and furnish satisfactory security in accordance with Section 103D-324, Hawaii Revised Statutes, within 10 days after the award of the contract or within such time as the Director of Transportation may allow after the undersigned has received the contract documents for execution, and is fully aware that non-compliance with the aforementioned terms will result in the forfeiture of the full amount of the bid guarantee required under Section 103D-323, Hawaii Revised Statutes.
2. That the quantities given in the attached proposal schedule are approximate only and are intended principally to serve as a guide in determining and comparing the bids.
3. That the Department does not either expressly or by implication, agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work, or to omit portions of the work, as may be deemed necessary or advisable by the Director of Transportation, and that all increased or decreased quantities of work shall be performed at the unit prices set forth in the attached proposal schedule except as provided for in the specifications.

4. In case of a discrepancy between unit prices and the totals in said Proposal Schedule, the unit prices shall prevail.
5. Agrees to begin work within 10 working days after the date of notification to commence with the work, which date is in the notice to proceed, and shall finish the entire project within the time prescribed.
6. The Director of Transportation reserves the right to reject any or all bids and to waive any defects when in the Director's opinion such rejections or waiver will be for the best interest of the public.

The Bidder acknowledges receipt of and certifies that it has completely examined the following listed items: the Hawaii Department of Transportation, Air and Water Transportation Facilities Division General Provisions for Construction Projects dated 2016, the Notice to Bidders, the Special Provisions, if any, the Technical Provisions, the Proposal, the Contract and Bond Forms, and the Project Plans.

In accordance with Section 103D-323, Hawaii Revised Statutes, this proposal is accompanied with a bid security in the amount of 5% of the total amount bid, in the form checked below. (Check applicable bid security submitted with bid.)

Surety Bid Bond (Use standard form),

Cash,

Cashier's Check,

Certified Check, or

(Fill in other acceptable security.)

The undersigned Bidder acknowledges receipt of any addendum issued by the Department by recording in the space below the date of receipt.

Addendum No. 1 _____

Addendum No. 3 _____

Addendum No. 2 _____

Addendum No. 4 _____

In accordance with Section 103D-302, Hawaii Revised Statutes, the undersigned as Bidder, has listed the name of each person or firm, who will be engaged by the Bidder on the project as a Subcontractor or Joint Contractor and the nature of work to be done by each. The Bidder must adequately and unambiguously disclose the unique nature and scope of the work to be performed by each Subcontractor or Joint Contractor. For each listed firm, the Bidder declares the respective firm is a Subcontractor or Joint Contractor and is subject to evaluation as a Subcontractor or Joint Contractor. It is understood that failure to comply with the aforementioned requirements may be cause for rejection of the bid submitted.

<u>Name of Subcontractor</u>	<u>Nature and Scope of Work</u>
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____

<u>Name of Joint Contractor</u>	<u>Nature and Scope of Work</u>
1. _____	_____
2. _____	_____
3. _____	_____

("None" or if left blank indicates no Subcontractor or Joint Contractor; if more space is needed, attach additional sheets.)

The undersigned hereby certifies that the bid prices contained in the attached proposal schedule have been carefully checked and are submitted as correct and final.

This declaration is made with the understanding that the undersigned is subject to the penalty of perjury under the laws of the United States and is in violation of the Hawaii Penal Code, Section 710-1063, unsworn falsification to authorities, of the Hawaii Revised Statutes, for knowingly rendering a false declaration.

Bidder (Company Name)

By _____
Authorized Signature

Print Name and Title

Business Address

Business Telephone

Date

Contact Person (If different from above)

Phone: _____ Email: _____

NOTE:

If Bidder is a CORPORATION, the legal name of the corporation shall be set forth above, the corporate seal affixed, together with the signature(s) of the officer(s) authorized to sign contracts for the corporation. Please attach to this page current (not more than six months old) evidence of the authority of the officer(s) to sign for the corporation.

If Bidder is a PARTNERSHIP, the true name of the partnership shall be set forth above, with the signature(s) of the general partner(s). Please attach to this page current (not more than six months old) evidence of the authority of the partner authorized to sign for the partnership.

If Bidder is an INDIVIDUAL, the bidder's signature shall be placed above.

If signature is by an agent, other than an officer of a corporation or a partner of a partnership, a POWER OF ATTORNEY must be on file with the Department before opening bids or submitted with the bid. Otherwise, the Department may reject the bid as irregular and unauthorized.

PREFERENCES

Bidders agree that preferences shall be taken into consideration to determine the low bidder in accordance with said Sections and the rules promulgated, however, the award of contract will be in the amount of the bid offered exclusive of any preferences.

A. HAWAII PRODUCTS PREFERENCE

In accordance with ACT 174, SLH 2022, effective June 27, 2022, Hawaii Products Preference shall not apply to solicitations for public works construction. Therefore, the Hawaii Products Preference shall not apply to this project.

B. APPRENTICESHIP PROGRAMS PREFERENCE

In accordance with ACT 17, SLH 2009 – Apprenticeship Program, a 5% bid adjustment for bidders that are parties to apprenticeship agreements pursuant to Hawaii Revised Statutes (HRS) Section 103-55.6 may be applied to the bidder's price for evaluation purposes.

Any bidder seeking this preference must be a party to an apprenticeship agreement registered with the Department of Labor and Industrial Relations at the time the offer is made for each apprenticeable trade the bidder will employ to construct the public works projects for which the offer is being made.

The bidder is responsible for complying with all submission requirements for registration of its apprenticeship program before requesting the preference.

() Yes, I wish to be considered for the Apprenticeship Programs Preference. I have included Certification Form(s) 1 with my bid.

C. RECYCLED PRODUCT PREFERENCE

Recycled product preference shall not apply to this proposal.

REPAIR LIGHT POLES AT PIERS 1 AND 2,
KAHULUI HARBOR, MAUI, HAWAII

JOB S30217

PROPOSAL SCHEDULE

Item No.	Item Description	Approximate Quantity (a)	Unit	Unit Price (b)	Amount Bid (a x b)
1	Mobilization (Not to exceed 6% sum of all Items, excluding this Item)	L.S.	L.S.	L.S.	\$ _____
2	Light Pole Repairs at Pier 1	L.S.	L.S.	L.S.	\$ _____
3	Light Pole Repairs at Pier 2	L.S.	L.S.	L.S.	\$ _____
		TOTAL AMOUNT FOR COMPARISON OF BIDS \$ _____			

NOTES:

1. Bidders shall submit and upload the complete proposal to HiePRO prior to the bid opening date and time. Proposals received after said due date and time shall not be considered. Any additional support documents explicitly designated as confidential and/or proprietary shall be uploaded as a separate file to HiePRO. Do not include confidential and/or proprietary documents with the proposal. The record of each bidder and respective bid shall be open to public inspection. Original (wet ink, hard copy) proposal documents are not required to be submitted. Contract award shall be based on evaluation of proposals submitted and uploaded to HiePRO.

FAILURE TO UPLOAD THE COMPLETE PROPOSAL TO HiePRO SHALL BE GROUNDS FOR REJECTION OF THE BID.

If there is a conflict between the specification document and the HiePRO solicitation, the specifications shall govern and control, unless otherwise specified.

2. Bid shall include all Federal, State, County and other applicable taxes and fees.
3. The TOTAL AMOUNT FOR COMPARISON OF BIDS shall be used to determine the lowest responsible bidder.
4. Bidders shall complete all unit prices and amounts. Failure to do so shall be grounds for rejection of bid.

5. If a discrepancy occurs between unit bid price and the bid price, the unit bid price shall govern.
6. If the lowest TOTAL AMOUNT FOR COMPARISON OF BIDS exceeds the funds available for this project, the State reserves the right to negotiate with the lowest responsible bidder as permitted under Section 103D-302, Hawaii Revised Statutes, as amended, to reduce the scope of work and award a contract.
7. Submission of Proposal is a warranty that the bidder has made an examination of the project site and is fully aware of all conditions to be encountered in performing the work and the requirements of the plans and specifications.
8. No additional compensation will be paid by the State for losses, including overhead and profit, resulting from reduced scope of work.
9. Contract time shall remain the same whether or not the overall scope of work is decreased.

SURETY BID BOND

Bond No. _____

KNOW TO ALL BY THESE PRESENTS:

That we, _____
(full name or legal title of offerer)

as Offeror, hereinafter called the Principal, and

(name of bonding company)

as Surety, hereinafter called Surety, a corporation authorized to transact business as a Surety in the State of Hawaii, are held and firmly bound unto

(State/county entity)

as Owner, hereinafter called Owner, in the penal sum of

(required amount of bid security)

Dollars(\$ _____), lawful money of the United States of America, for the payment of which sum well and truly to be made, the said Principal and the said Surety bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS:

The Principal has submitted an offer for

(project by number and brief description)

NOW, THEREFORE:

The condition of this obligation is such that if the Owner shall reject said offer, or in the alternate, accept the offer of the Principal and the Principal shall enter into a contract with the Owner in accordance with the terms of such offer, and give such bond or bonds as may be specified in the solicitation or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof as specified in the solicitation then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed this _____ day of _____

Name of Principal (Offeror) (Seal)

Signature

Title

Name of Surety (Seal)

Signature

Title

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HONOLULU, HAWAII

SAMPLE FORMS

Contents:

Sample Contract
Performance Bond (Surety)
Performance Bond
Labor and Material Payment Bond (Surety)
Labor and Material Payment Bond
Chapter 104, HRS Compliance Certificate
Certification of Compliance for Employment of State Residents, Act 192, SLH 2011

CONTRACT

THIS AGREEMENT, made this day of _____, by and between the STATE OF HAWAII, by its Director of Transportation, hereinafter referred to as "STATE", and «CONTRACTOR», «STATE_OF_INCORPORATION», whose business/post office address is «ADDRESS», hereinafter referred to as CONTRACTOR";

WITNESSETH: That for and in consideration of the payments hereinafter mentioned, the CONTRACTOR hereby covenants and agrees with the STATE to complete in place, furnish and pay for all labor and materials necessary for "«PROJECT_NAME_AND_NO»", or such a part thereof as shall be required by the STATE, the total amount of which labor, material and construction shall be computed at the unit and/or lump sum prices set forth in the attached proposal schedule and shall be the sum of «BASIC»----DOLLARS (\$«BASIC_NUMERIC») as follows:

TOTAL AMOUNT FOR COMPARISON OF BIDS.....\$«BASIC_NUMERIC»

which sum shall be provided from State funds, all in accordance with the specifications, the special provisions, if any, the notice to bidders, the instructions to bidders, the proposal and plans for «PROJECT_NO_ONLY», and any supplements thereto, on file in the office of the Director of Transportation. These documents, together with all alterations, amendments, and additions thereto and deductions therefrom, are attached hereto or incorporated herein by reference and made a part of this contract.

The CONTRACTOR hereby covenants and agrees to complete such construction within «WORKING_DAYS» from the date indicated in the Notice to Proceed from the State subject, however, to such extensions as may be provided for in writing under the specifications.

For and in consideration of the covenants, undertakings and agreements of the CONTRACTOR herein set forth and upon the full and faithful performance thereof by the CONTRACTOR, the STATE hereby agrees to pay the CONTRACTOR the sum of «BASIC»---DOLLARS (\$«BASIC_NUMERIC») in lawful money, but not more than such part of the same as is actually earned according to the STATE's determination of the actual quantities of work performed and materials furnished by the CONTRACTOR at the unit or lump sum prices set forth in the attached proposal schedule. Such payment, including any extras, shall be made, subject to such additions or deductions hereto or hereafter made in the manner and at the time prescribed in the specifications and this contract.

An additional sum of «EXTRAS»-----DOLLARS (\$«EXTRA_NUMERIC») is hereby provided for extra work.

All words used herein in the singular shall extend to and include the plural. All words used in the plural shall extend to and include the singular. The use of any gender shall extend to and include all genders.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be duly executed the day and year first above written.

STATE OF HAWAII

Director of Transportation

«CONTRACTOR»

(Seal)

Signature

Print name

Print Title

Date

PERFORMANCE BOND (SURETY)
(6/21/07)

KNOW TO ALL BY THESE PRESENTS:

That _____,
(Full Legal Name and Street Address of Contractor)

as Contractor, hereinafter called Principal, and _____

(Name and Street Address of Bonding Company)

as Surety, hereinafter called Surety, a corporation(s) authorized to transact business as a
surety in the State of Hawaii, are held and firmly bound unto the _____,
(State/County Entity)

its successors and assigns, hereinafter called Obligee, in the amount of _____

_____ DOLLARS (\$ _____), to which payment Principal and Surety bind themselves,
their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by
these presents.

WHEREAS, the above-bound Principal has signed a Contract with Obligee on
_____, for the following project: _____

hereinafter called Contract, which Contract is incorporated herein by reference and made a part
hereof.

NOW THEREFORE, the condition of this obligation is such that:

If the Principal shall promptly and faithfully perform, and fully complete the Contract in
strict accordance with the terms of the Contract as said Contract may be modified or amended
from time to time; then this obligation shall be void; otherwise to remain in full force and effect.

Surety to this Bond hereby stipulates and agrees that no changes, extensions of time, alterations, or additions to the terms of the Contract, including the work to be performed thereunder, and the specifications or drawings accompanying same, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such changes, extensions of time, alterations, or additions, and agrees that they shall become part of the Contract.

In the event of Default by the Principal, of the obligations under the Contract, then after written Notice of Default from the Oblige to the Surety and the Principal and subject to the limitation of the penal sum of this bond, Surety shall remedy the Default, or take over the work to be performed under the Contract and complete such work, or pay moneys to the Oblige in satisfaction of the surety's performance obligation on this bond.

Signed this _____ day of _____, _____.

(Seal)

Name of Principal (Contractor)

*

Signature

Title

(Seal)

Name of Surety

*

Signature

Title

***ALL SIGNATURES MUST BE ACKNOWLEDGED
BY A NOTARY PUBLIC**

PERFORMANCE BOND

KNOW TO ALL BY THESE PRESENTS:

That we, _____
(full legal name and street address of Contractor)

as Contractor, hereinafter called Contractor, is held and firmly bound unto the

_____ (State/County entity)

its successors and assigns, as Obligee, hereinafter called Obligee, in the amount

_____ DOLLARS \$ _____),
(Dollar amount of Contract)

lawful money of the United States of America, for the payment of which to the said Obligee, well and truly to be made, Contractor binds itself, its heir, executors, administrators, successors and assigns, firmly by these presents. Said amount is evidenced by:

- Legal Tender;**
- Share Certificate** unconditionally assigned to or made payable at sight to
Description: _____;
- Certificate of Deposit**, No. _____, dated _____ issued
by _____ drawn on _____ a bank, savings
institution or credit union insured by the Federal Deposit Insurance Corporation or the
National Credit Union Administration, payable at sight or unconditionally assigned to
_____;
- Cashier's Check** No. _____, dated _____
drawn on _____ a
bank, savings institution or credit union insured by the Federal Deposit Insurance
Corporation or the National Credit Union Administration, payable at sight or
unconditionally assigned to _____;
- Teller's Check** No. _____, dated _____
drawn on _____ a
bank, savings institution or credit union insured by the Federal Deposit Insurance
Corporation or the National Credit Union Administration, payable at sight or
unconditionally assigned to _____;
- Treasurer's Check** No. _____, dated _____
drawn on _____ a
bank, savings institution or credit union insured by the Federal Deposit Insurance
Corporation or the National Credit Union Administration, payable at sight or
unconditionally assigned to _____;
- Official Check** No. _____, dated _____
drawn on _____ a
bank, savings institution or credit union insured by the Federal Deposit Insurance
Corporation or the National Credit Union Administration, payable at sight or
unconditionally assigned to _____;
- Certified Check** No. _____, dated _____
accepted by a bank, savings institution or credit union insured by the Federal Deposit
Insurance Corporation or the National Credit Union Administration, payable at sight or
unconditionally assigned to _____;

WHEREAS:

The Contractor has by written agreement dated _____ entered into a contract with Obligee for the following Project: _____

hereinafter called Contract, which Contract is incorporated herein by reference and made a part hereof.

NOW THEREFORE,

The Condition of this obligation is such that, if Contractor shall promptly and faithfully perform the Contract in accordance with, in all respects, the stipulations, agreements, covenants and conditions of the Contract as it now exists or may be modified according to its terms, and shall deliver the Project to the Obligee, or to its successors or assigns, fully completed as in the Contract specified and free from all liens and claims and without further cost, expense or charge to the Obligee, its officers, agents, successors or assigns, free and harmless from all suits or actions of every nature and kind which may be brought for or on account of any injury or damage, direct or indirect, arising or growing out of the doing of said work or the repair or maintenance thereof or the manner of doing the same or the neglect of the Contractor or its agents or servants or the improper performance of the Contract by the Contractor or its agents or servants or from any other cause, then this obligation shall be void; otherwise it shall be and remain in full force and effect.

AND IT IS HEREBY STIPULATED AND AGREED that suit on this bond may be brought before a court of competent jurisdiction without a jury, and that the sum or sums specified in the said Contract as liquidated damages, if any, shall be forfeited to the Obligee, its successors or assigns, in the event of a breach of any, or all, or any part of, covenants, agreements, conditions, or stipulations contained in the Contract or in this bond in accordance with the terms thereof.

The amount of this bond may be reduced by and to the extent of any payment or payments made in good faith hereunder.

Signed and sealed this _____ day of _____, _____.

(Seal) _____
Name of Contractor

Signature*

Title

*ALL SIGNATURES MUST BE ACKNOWLEDGED
BY A NOTARY PUBLIC

LABOR AND MATERIAL PAYMENT BOND (SURETY)
(6/21/07)

KNOW TO ALL BY THESE PRESENTS:

That _____,
(Full Legal Name and Street Address of Contractor)

as Contractor, hereinafter called Principal, and _____

(Name and Street Address of Bonding Company)

as Surety, hereinafter called Surety, a corporation(s) authorized to transact business as a surety in the State of Hawaii, are held and firmly bound unto the _____,
(State/County Entity)

its successors and assigns, hereinafter called Obligee, in the amount of _____

_____ Dollars (\$ _____), to which payment Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above-bound Principal has signed Contract with the Obligee on _____ for the following project: _____

hereinafter called Contract, which Contract is incorporated herein by reference and made a part hereof.

NOW THEREFORE, the condition of this obligation is such that if the Principal shall promptly make payment to any Claimant, as hereinafter defined, for all labor and materials supplied to the Principal for use in the performance of the Contract, then this obligation shall be void; otherwise to remain in full force and effect.

1. Surety to this Bond hereby stipulates and agrees that no changes, extensions of time, alterations, or additions to the terms of the Contract, including the work to be performed thereunder, and the specifications or drawings accompanying same, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such changes, extensions of time, alterations, or additions, and agrees that they shall become part of the Contract.

2. A "Claimant" shall be defined herein as any person who has furnished labor or materials to the Principal for the work provided in the Contract.

Every Claimant who has not been paid amounts due for labor and materials furnished for work provided in the Contract may institute an action against the Principal and its Surety on this bond at the time and in the manner prescribed in Section 103D-324, Hawaii Revised Statutes, and have the rights and claims adjudicated in the action, and judgment rendered thereon; subject to the Obligee's priority on this bond. If the full amount of the liability of the Surety on this bond is insufficient to pay the full amount of the claims, then after paying the full amount due the Obligee, the remainder shall be distributed pro rata among the claimants.

Signed this _____ day of _____, _____.

(Seal)

Name of Principal (Contractor)

*

Signature

Title

(Seal)

Name of Surety

*

Signature

Title

***ALL SIGNATURES MUST BE ACKNOWLEDGED
BY A NOTARY PUBLIC**

LABOR AND MATERIAL PAYMENT BOND

KNOW TO ALL BY THESE PRESENTS:

That we, _____
(full legal name and street address of Contractor)

as Contractor, hereinafter called Contractor, is held and firmly bound unto _____
(State/County entity)

its successors and assigns, as Obligee, hereinafter called Obligee, in the amount
_____ DOLLARS (\$ _____)
(Dollar amount of Contract)

lawful money of the United States of America, for the payment of which to the said Obligee, well and truly to be made, Contractor binds itself, its heir, executors, administrators, successors and assigns, firmly by these presents. Said amount is evidenced by:

- Legal Tender;
- Share Certificate unconditionally assigned to or made payable at sight to _____
Description: _____
- Certificate of Deposit, No. _____, dated _____ issued by _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;
- Cashier's Check No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;
- Teller's Check No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;
- Treasurer's Check No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;
- Official Check No. _____, dated _____ drawn on _____ a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;
- Certified Check No. _____, dated _____ accepted by a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

WHEREAS:

The Contractor has by written agreement dated _____ entered into a contract with Obligee for the following Project: _____

hereinafter called Contract, which Contract is incorporated herein by reference and made a part hereof.

NOW THEREFORE,

The condition of this obligation is such that, if Contractor shall promptly and faithfully perform the Contract in accordance with, in all respects, the stipulations, agreements, covenants and conditions of the Contract as it now exists or may be modified according to its terms, free from all liens and claims and without further cost, expense or charge to the Obligee, its officers, agents, successors or assigns, free and harmless from all suits or actions of every nature and kind which may be brought for or on account of any injury or damage, direct or indirect, arising or growing out of the doing of said work or the repair or maintenance thereof or the manner of doing the same or the neglect of the Contractor or its agents or servants or the improper performance of the Contract by the Contractor or its agents or servants or from any other cause, then this obligation shall be void; otherwise it shall be and remain in full force and effect.

AND IT IS HEREBY STIPULATED AND AGREED that suit on this bond may be brought before a court of competent jurisdiction without a jury, and that the sum or sums specified in the said Contract as liquidated damages, if any, shall be forfeited to the Obligee, its successors or assigns, in the event of a breach of any, or all, or any part of, covenants, agreements, conditions, or stipulations contained in the Contract or in this bond in accordance with the terms thereof.

AND IT IS HEREBY STIPULATED AND AGREED that this bond shall inure to the benefit of any and all persons entitled to file claims for labor performed or materials furnished in said work so as to give any and all such persons a right of action as contemplated by Sections 103D-324(d) and 103D-324(e), Hawaii Revised Statutes.

The amount of this bond may be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payments of mechanics' liens which may be filed of record against the Project, whether or not claim for the amount of such lien be presented under and against this bond..

Signed this _____ day of _____, _____.

(Seal) _____

Name of Contractor

Signature*

Title

ALL SIGNATURES MUST BE ACKNOWLEDGED BY A NOTARY PUBLIC

CHAPTER 104, HRS COMPLIANCE CERTIFICATE

The undersigned bidder does hereby certify to the following:

1. Individuals engaged in the performance of the contract on the job site shall be paid:
 - A. Not less than the wages that the director of labor and industrial relations shall have determined to be prevailing for corresponding classes of laborers and mechanics employed on public works projects; and
 - B. Overtime compensation at one and one-half times the basic hourly rate plus fringe benefits for hours worked on Saturday, Sunday, or a legal holiday of the State or in excess of eight hours on any other day.
2. All applicable laws of the federal and state governments relating to workers' compensation, unemployment compensation, payment of wages, and safety shall be fully complied with.

DATED at Honolulu, Hawaii, this _____ day of _____, 20__.

«CONTRACTOR»
Name of Corporation, Partnership, or Individual

Signature and Title of Signer

Notary Seal
NOTARY ACKNOWLEDGEMENT

Subscribed and sworn before me this _____ day of _____
Notary signature _____
Notary public, State of _____
My Commission Expires: _____

Notary Seal
NOTARY CERTIFICATION

Doc. Date: _____ #Pages: _____
Notary Name: _____ Circuit _____
Doc. Description: _____

Notary signature _____
Date _____

**PROVISIONS TO BE INCLUDED IN
CONSTRUCTION PROCUREMENT SOLICITATIONS**

1. Definitions for terms used in HRS Chapter 103B as amended by Act 192, SLH 2011:
 - a. "Contract" means contracts for construction under 103D, HRS.
 - b. "Contractor" has the same meaning as in Section 103D-104, HRS, provided that "contractor" includes a subcontractor where applicable.
 - c. "Construction" has the same meaning as in Section 103D-104, HRS.
 - d. "General Contractor" means any person having a construction contract with a governmental body.
 - e. "Procurement Officer" has the same meaning as in Section 103D-104, HRS.
 - f. "Resident" means a person who is physically present in the State of Hawai'i at the time the person claims to have established the person's domicile in the State of Hawai'i and shows the person's intent is to make Hawai'i the person's primary residence.
 - g. "Shortage trade" means a construction trade in which there is a shortage of Hawai'i residents qualified to work in the trade as determined by the Department of Labor and Industrial Relations.

2. HRS Chapter 103B as amended by Act 192, SLH 2011--Employment of State Residents Requirements:
 - a. A Contractor awarded a contract shall ensure that Hawai'i residents comprise not less than 80% of the workforce employed to perform the contract work on the project. The 80% requirement shall be determined by dividing the total number of hours worked on the contract by Hawai'i residents, by the total number of hours worked on the contract by all employees of the Contractor in the performance of the contract. The hours worked by any Subcontractor of the Contractor shall count towards the calculation for this section. The hours worked by employees within shortage trades, as determined by the Department of Labor and Industrial Relations (DLIR), shall not be included in the calculation for this section.

- b. Prior to award of a contract, an Offeror/Bidder may withdraw an offer/bid without penalty if the Offeror/Bidder finds that it is unable to comply with HRS Chapter 103B as amended by Act 192, SLH 2011.
- c. Prior to starting any construction work, the Contractor shall submit the subcontract dollar amount for each of its Subcontractors.
- d. The requirements of this section shall apply to any subcontract of \$50,000 or more in connection with the Contractor; that is, such Subcontractors must also ensure that Hawai'i residents comprise not less than 80% of the Subcontractor's workforce used to perform the subcontract.
- e. The Contractor and any Subcontractor whose subcontract is \$50,000 or more shall comply with the requirements of HRS Chapter 103B as amended by Act 192, SLH 2011.
 - 1) Certification of compliance shall be made in writing under oath by an officer of the General Contractor and applicable Subcontractors and submitted with the final payment request.
 - 2) The certification of compliance shall be made under oath by an officer of the company by completing a "Certification of Compliance for Employment of State Residents" form and executing the Certificate before a licensed notary public.
 - 3) In addition to the certification of compliance as indicated above, the Contractor and Subcontractors shall maintain records such as certified payrolls for laborers and mechanics who performed work at the site and time sheets for all other employees who performed work on the project. These records shall include the names, addresses and number of hours worked on the project by all employees of the Contractor and Subcontractor who performed work on the project to validate compliance with HRS Chapter 103B as amended by Act 192, SLH 2011. The Contractor and Subcontractors shall retain these records and provide access to the State for a minimum period of four (4) years after the final payment, except that if any litigation, claim, negotiation, investigation, audit or other action involving the records has been started before the expiration of the four-year period, the Contractor and Subcontractors shall retain the records until completion of the action and resolution of all issues that arise from it, or until the end of the four-year period, whichever occurs later. Furthermore, it shall be the Contractor's responsibility to enforce compliance with this provision by any Subcontractor.

- f. A General Contractor or applicable Subcontractor who fails to comply with this section shall be subject to any of the following sanctions:
- 1) With respect to the General Contractor, withholding of payment on the contract until the Contractor or its Subcontractor complies with HRS Chapter 103B as amended by Act 192, SLH 2011.
 - 2) Proceedings for debarment or suspension of the Contractor or Subcontractor under Hawai'i Revised Statutes §103D-702.
3. Conflict with Federal Law: This section shall not apply if the application of this section is in conflict with any federal law, or if the application of this section will disqualify the State from receiving Federal funds or aid.

**CERTIFICATION OF COMPLIANCE
FOR
EMPLOYMENT OF STATE RESIDENTS
HRS CHAPTER 103B, AS AMENDED BY ACT 192, SLH 2011**

Project Title: _____

Agency Project No: _____

Contract No.: _____

As required by Hawai'i Revised Statutes Chapter 103B, as amended by Act 192, Session Laws of Hawaii 2011—Employment of State Residents on Construction Procurement Contracts, I hereby certify under oath, that I am an officer of _____ and

(Name of Contractor or Subcontractor Company)

for the Project Contract indicated above, _____ was in

(Name of Contractor or Subcontractor Company)

compliance with HRS Chapter 103B, as amended by Act 192, SLH 2011, by employing a workforce of which not less than eighty percent are Hawai'i residents, as calculated according to the formula in the solicitation, to perform this Contract.

I am an officer of the **Contractor** for this contract.

I am an officer of a **Subcontractor** for this contract.

CORPORATE SEAL

(Name of Company)

(Signature)

(Print Name)

(Print Title)

Subscribed and sworn to me before this
____ day of _____, 2011.

Doc. Date: _____ # of Pages _____ 1st Circuit

Notary Name: _____

Doc. Description: _____

Notary Public, 1st Circuit, State of Hawai'i

My commission expires: _____

Notary Signature

Date

NOTARY CERTIFICATION